



JUNOS® Software

Routing Protocols and Policies Command Reference

Release 9.3

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About This Guide

This preface provides the following guidelines for using the *JUNOS® Software Routing Protocols and Policies Command Reference*:

- Objectives on page xvii
- Audience on page xviii
- Supported Routing Platforms on page xviii
- Using the Indexes on page xix
- Documentation Conventions on page xix
- List of Technical Publications on page xx
- Documentation Feedback on page xxviii
- Requesting Technical Support on page xxviii

Objectives

This guide provides descriptions of the JUNOS software commands that you use to monitor and troubleshoot routing protocols, protocol-independent features, and policies, including firewall filters, forwarding options, and routing policies.

For additional commands, see these guides:

- *JUNOS System Basics and Services Command Reference*
- *JUNOS Interfaces Command Reference*



NOTE: This guide documents Release 9.3 of the JUNOS software. For additional information about the JUNOS software—either corrections to or information that might have been omitted from this guide—see the software release notes at <http://www.juniper.net/>.

For information about configuration statements and guidelines related to the commands described in this reference, see the following configuration guides:

- *JUNOS Routing Protocols Configuration Guide*—Includes configuration statements and guidelines for routing protocols and protocol-independent features.
- *JUNOS Policy Framework Configuration Guide*—Includes configuration statements and guidelines for policies, including firewall filters, forwarding options, and routing policies.

- *JUNOS MPLS Applications Configuration Guide*—Includes configuration statements and guidelines for Multiprotocol Label Switching (MPLS) traffic engineering.
- *JUNOS VPNs Configuration Guide*—Includes configuration statements and guidelines for Layer 2 and Layer 3 virtual private networks (VPNs), virtual private LAN service (VPLS), and Layer 2 circuits.

For information about MPLS-related tasks performed by network operations center (NOC) personnel, see the *JUNOS MPLS Network Operations Guide*.

Audience

This guide is designed for network administrators who are configuring and monitoring a Juniper Networks M-series, MX-series, T-series, EX-series, or J-series routing platform.

To use this guide, you need a broad understanding of networks in general, the Internet in particular, networking principles, and network configuration. You must also be familiar with one or more of the following Internet routing protocols:

- Border Gateway Protocol (BGP)
- Distance Vector Multicast Routing Protocol (DVMRP)
- Intermediate System-to-Intermediate System (IS-IS)
- Internet Control Message Protocol (ICMP) router discovery
- Internet Group Management Protocol (IGMP)
- Multiprotocol Label Switching (MPLS)
- Open Shortest Path First (OSPF)
- Protocol-Independent Multicast (PIM)
- Resource Reservation Protocol (RSVP)
- Routing Information Protocol (RIP)
- 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.

Supported Routing Platforms

For the features described in this manual, the JUNOS software currently supports the following routing platforms:

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

Using the Indexes

This reference contains two indexes: a standard index with topic entries, and an index of commands.

Documentation Conventions

Table 1 on page xix 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.
	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 2 on page xix defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
Bold text like this	Represents text that you type.	To enter configuration mode, type the <code>configure</code> command: user@host> configure
Fixed-width text like this	Represents output that appears on the terminal screen.	user@host> show chassis alarms No alarms currently active
<i>Italic text like this</i>	<ul style="list-style-type: none"> Introduces important new terms. Identifies book names. Identifies RFC and Internet draft titles. 	<ul style="list-style-type: none"> 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 Attribute</i>

Table 2: Text and Syntax Conventions (*continued*)

Convention	Description	Examples
<i>Italic text like this</i>	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 <i>domain-name</i>
Plain text like this	Represents names of configuration statements, commands, files, and directories; IP addresses; configuration hierarchy levels; or labels on routing platform components.	<ul style="list-style-type: none"> ■ 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 <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
[] (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 <i>address</i> ; retain; } } }
; (semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
J-Web GUI Conventions		
Bold text like this	Represents J-Web graphical user interface (GUI) items you click or select.	<ul style="list-style-type: none"> ■ 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 3 on page xxi 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 4 on page xxv lists the books included

in the *Network Operations Guide* series. Table 5 on page xxvi lists the manuals and release notes supporting JUNOS software with enhanced services. All documents are available at <http://www.juniper.net/techpubs/>.

Table 6 on page xxvii lists additional books on Juniper Networks solutions that you can order through your bookstore. A complete list of such books is available at <http://www.juniper.net/books>.

Table 3: Technical Documentation for Supported Routing Platforms

Book	Description
JUNOS Software for Supported Routing Platforms	
<i>Access Privilege</i>	Explains how to configure access privileges in user classes by using permission flags and regular expressions. Lists the permission flags along with their associated command-line interface (CLI) operational mode commands and configuration statements.
<i>Class of Service</i>	Provides an overview of the class-of-service (CoS) functions of the JUNOS software and describes how to configure CoS features, including configuring multiple forwarding classes for transmitting packets, defining which packets are placed into each output queue, scheduling the transmission service level for each queue, and managing congestion through the random early detection (RED) algorithm.
<i>CLI User Guide</i>	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 <i>JUNOS System Basics Configuration Guide</i> .
<i>Feature Guide</i>	Provides a detailed explanation and configuration examples for several of the most complex features in the JUNOS software.
<i>High Availability</i>	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 active routing (NSR) and graceful Routing Engine switchover (GRES).
<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>Multiplay Solutions</i>	Describes how you can deploy IPTV and voice over IP (VoIP) services in your network.
<i>MX-series Layer 2 Configuration Guide</i>	Provides an overview of the Layer 2 functions of the MX-series routers, including configuring bridging domains, MAC address and VLAN learning and forwarding, and spanning-tree protocols. It also details the routing instance types used by Layer 2 applications. All of this material was formerly covered in the <i>JUNOS Routing Protocols Configuration Guide</i> .

Table 3: Technical Documentation for Supported Routing Platforms (*continued*)

Book	Description
<i>MX-series Solutions Guide</i>	Describes common configuration scenarios for the features supported on the MX-series routers, including basic bridged VLANs with normalized VLAN tags, aggregated Ethernet links, bridge domains, Multiple Spanning Tree Protocol (MSTP), and integrated routing and bridging (IRB).
<i>Network Interfaces</i>	Provides an overview of the network interface 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, and forwarding options.
<i>Protected System Domain</i>	Provides an overview of the JCS 1200 platform and the concept of Protected System Domains (PSDs). The JCS 1200 platform, which contains up to 12 Routing Engines running JUNOS software, can be connected to up to three T-series routing platforms. To configure a PSD, you assign any number of Flexible PIC concentrators (FPCs) on a T-series routing platform to a pair of Routing Engines on the JCS 1200 platform. Each PSD has the same capabilities and functionality as a physical router, with its own control plane, forwarding plane, and administration.
<i>Routing Protocols</i>	Provides an overview of routing concepts and describes how to configure routing, routing instances, and unicast routing protocols.
<i>Secure Configuration Guide for Common Criteria and JUNOS-FIPS</i>	Provides an overview of secure Common Criteria and JUNOS-FIPS protocols for the JUNOS software and describes how to install and configure secure Common Criteria and JUNOS-FIPS on a routing platform.
<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>Software Installation and Upgrade Guide</i>	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 <i>JUNOS System Basics Configuration Guide</i> .
<i>Subscriber Access</i>	Provides an overview of the subscriber access features of the JUNOS software and describes how to configure subscriber access support on the router, including dynamic profiles, class of service, AAA, and access methods.
<i>System Basics</i>	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.

Table 3: Technical Documentation for Supported Routing Platforms *(continued)*

Book	Description
<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.
JUNOS References	
<i>Hierarchy and RFC Reference</i>	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 <i>JUNOS System Basics Configuration Guide</i> .
<i>Interfaces Command Reference</i>	Describes the JUNOS software operational mode commands you use to monitor and troubleshoot interfaces.
<i>Routing Protocols and Policies Command Reference</i>	Describes the JUNOS software operational mode commands you use to monitor and troubleshoot routing policies and protocols, including firewall filters.
<i>System Basics and Services Command Reference</i>	Describes the JUNOS software operational mode commands you use to monitor and troubleshoot system basics, including commands for real-time monitoring and route (or path) tracing, system software management, and chassis management. Also describes commands for monitoring and troubleshooting services such as class of service (CoS), IP Security (IPsec), stateful firewalls, flow collection, and flow monitoring.
<i>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.
J-Web User Guide	
<i>J-Web Interface User Guide</i>	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	
<i>JUNOScript API Guide</i>	Describes how to use the JUNOScript application programming interface (API) to monitor and configure Juniper Networks routing platforms.
<i>JUNOS XML API Configuration Reference</i>	Provides reference pages for the configuration tag elements in the JUNOS XML API.
<i>JUNOS XML API Operational Reference</i>	Provides reference pages for the operational tag elements in the JUNOS XML API.
<i>NETCONF API Guide</i>	Describes how to use the NETCONF API to monitor and configure Juniper Networks routing platforms.

Table 3: Technical Documentation for Supported Routing Platforms (*continued*)

Book	Description
<i>JUNOS Configuration and Diagnostic Automation Guide</i>	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	
<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's Physical Interface Cards (PICs). Each platform has its own PIC guide.
<i>DPC Guide</i>	Describes the Dense Port Concentrators (DPCs) for all MX-series routers.
JUNOScope Documentation	
<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.
Advanced Insight Solutions (AIS) Documentation	
<i>Advanced Insight Solutions Guide</i>	Describes the Advanced Insight Manager (AIM) application, which provides a gateway between JUNOS devices and Juniper Support Systems (JSS) for case management and intelligence updates. Explains how to run AI-Scripts on Juniper Networks devices.
J-series Routing Platform Documentation	
<i>Getting Started Guide</i>	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 <i>Getting Started Guide</i> for your router model.
<i>Basic LAN and WAN Access Configuration Guide</i>	Explains how to configure the interfaces on J-series Services Routers for basic IP routing with standard routing protocols, ISDN backup, and digital subscriber line (DSL) connections.
<i>Advanced WAN Access Configuration Guide</i>	Explains how to configure J-series Services Routers in virtual private networks (VPNs) and multicast networks, configure data link switching (DLSw) services, and apply routing techniques such as policies, stateless and stateful firewall filters, IP Security (IPsec) tunnels, and class-of-service (CoS) classification for safer, more efficient routing.
<i>Administration Guide</i>	Shows how to manage users and operations, monitor network performance, upgrade software, and diagnose common problems on J-series Services Routers.
Release Notes	

Table 3: Technical Documentation for Supported Routing Platforms (*continued*)

Book	Description
<i>JUNOS Release Notes</i>	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.
<i>Hardware Release Notes</i>	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.
<i>JUNOScope 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>AIS Release Notes</i>	Summarize AIS new features and guidelines, identify known and resolved problems, provide information that might have been omitted from the manuals, and provide initial setup, upgrade, and downgrade procedures.
<i>AIS AI-Scripts Release Notes</i>	Summarize AI-Scripts new features, identify known and resolved problems, provide information that might have been omitted from the manuals, and provide instructions for automatic and manual installation, including deleting and rolling back.
<i>J-series Services Router Release Notes</i>	Briefly describe Services Router features, identify known hardware problems, and provide upgrade and downgrade instructions.

Table 4: JUNOS Software Network Operations Guides

Book	Description
<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 routing platforms in the network, and using the layered MPLS troubleshooting model to investigate problems with an MPLS network.
<i>MPLS Log Reference</i>	Describes MPLS status and error messages that appear in the output of the <code>show mpls lsp extensive</code> 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.

Table 4: JUNOS Software Network Operations Guides (*continued*)

Book	Description
<i>MPLS Fast Reroute</i>	Describes operational information helpful in monitoring and troubleshooting an MPLS network configured with fast reroute (FRR) and load balancing.
<i>Hardware</i>	Describes tasks for monitoring M-series and T-series routing platforms.

To configure and operate a J-series Services Router running JUNOS software with enhanced services, you must also use the configuration statements and operational mode commands documented in JUNOS configuration guides and command references. To configure and operate a WX Integrated Services Module, you must also use WX documentation.

Table 5: JUNOS Software with Enhanced Services Documentation

Book	Description
All Platforms	
<i>JUNOS Software Interfaces and Routing Configuration Guide</i>	Explains how to configure J-series interfaces for basic IP routing with standard routing protocols, ISDN service, firewall filters (access control lists), and class-of-service (CoS) traffic classification.
<i>JUNOS Software Security Configuration Guide</i>	Explains how to configure and manage security services such as stateful firewall policies, IP Security (IPsec) virtual private networks (VPNs), firewall screens, Network Address Translation (NAT), Public Key Cryptography, and Application Layer Gateways (ALGs).
<i>JUNOS Software Administration Guide</i>	Shows how to monitor J-series devices and routing operations, firewall and security services, system alarms and events, and network performance. This guide also shows how to administer user authentication and access, upgrade software, and diagnose common problems.
<i>JUNOS Software CLI Reference</i>	Provides the complete JUNOS software with enhanced services configuration hierarchy and describes the configuration statements and operational mode commands not documented in the standard JUNOS manuals.
J-series Only	
<i>JUNOS Software with Enhanced Services Design and Implementation Guide</i>	Provides guidelines and examples for designing and implementing IPsec VPNs, firewalls, and routing on J-series Services Routers running JUNOS software with enhanced services.
<i>JUNOS Software with Enhanced Services Quick Start</i>	Explains how to quickly set up a J-series Services Router. This document contains router declarations of conformity.

Table 5: JUNOS Software with Enhanced Services Documentation (continued)

Book	Description
<i>JUNOS Software with Enhanced Services J-series Services Router Hardware Guide</i>	Provides an overview, basic instructions, and specifications for J-series Services Routers. This guide explains how to prepare a site, unpack and install the router, replace router hardware, and establish basic router connectivity. This guide contains hardware descriptions and specifications.
<i>JUNOS Software with Enhanced Services Migration Guide</i>	Provides instructions for migrating an SSG device running ScreenOS software or a J-series Services Router running the JUNOS software to JUNOS software with enhanced services.
<i>WXC Integrated Services Module Installation and Configuration Guide</i>	Explains how to install and initially configure a WXC Integrated Services Module in a J-series Services Router for application acceleration.
<i>JUNOS Software with Enhanced Services for J-series Services Router Release Notes</i>	Summarizes new features and known problems for a particular release of JUNOS software with enhanced services on J-series Services Routers, including J-Web interface features and problems. The release notes also contain corrections and updates to the manuals and software upgrade and downgrade instructions for JUNOS software with enhanced services.

Table 6: Additional Books Available Through <http://www.juniper.net/books>

Book	Description
<i>Interdomain Multicast Routing</i>	Provides background and in-depth analysis of multicast routing using Protocol Independent Multicast sparse mode (PIM SM) and Multicast Source Discovery Protocol (MSDP); details any-source and source-specific multicast delivery models; explores multiprotocol BGP (MBGP) and multicast IS-IS; explains Internet Gateway Management Protocol (IGMP) versions 1, 2, and 3; lists packet formats for IGMP, PIM, and MSDP; and provides a complete glossary of multicast terms.
<i>JUNOS Cookbook</i>	Provides detailed examples of common JUNOS software configuration tasks, such as basic router configuration and file management, security and access control, logging, routing policy, firewalls, routing protocols, MPLS, and VPNs.
<i>MPLS-Enabled Applications</i>	Provides an overview of Multiprotocol Label Switching (MPLS) applications (such as Layer 3 virtual private networks [VPNs], Layer 2 VPNs, virtual private LAN service [VPLS], and pseudowires), explains how to apply MPLS, examines the scaling requirements of equipment at different points in the network, and covers the following topics: point-to-multipoint label switched paths (LSPs), DiffServ-aware traffic engineering, class of service, interdomain traffic engineering, path computation, route target filtering, multicast support for Layer 3 VPNs, and management and troubleshooting of MPLS networks.
<i>OSPF and IS-IS: Choosing an IGP for Large-Scale Networks</i>	Explores the full range of characteristics and capabilities for the two major link-state routing protocols: Open Shortest Path First (OSPF) and IS-IS. Explains architecture, packet types, and addressing; demonstrates how to improve scalability; shows how to design large-scale networks for maximum security and reliability; details protocol extensions for MPLS-based traffic engineering, IPv6, and multitopology routing; and covers troubleshooting for OSPF and IS-IS networks.

Table 6: Additional Books Available Through <http://www.juniper.net/books> (continued)

Book	Description
<i>Routing Policy and Protocols for Multivendor IP Networks</i>	Provides a brief history of the Internet, explains IP addressing and routing (Routing Information Protocol [RIP], OSPF, IS-IS, and Border Gateway Protocol [BGP]), explores ISP peering and routing policies, and displays configurations for both Juniper Networks and other vendors' routers.
<i>The Complete IS-IS Protocol</i>	Provides the insight and practical solutions necessary to understand the IS-IS protocol and how it works by using a multivendor, real-world approach.

Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can send your comments to techpubs-comments@juniper.net, or fill out the documentation feedback form at <https://www.juniper.net/cgi-bin/docbugreport/>. 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 (not required for *Network Operations Guides [NOGs]*)

Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract, or are covered under warranty, and need postsales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the JTAC User Guide located at <http://www.juniper.net/customers/support/downloads/710059.pdf>.
- Product warranties—For product warranty information, visit <http://www.juniper.net/support/warranty/>.
- JTAC Hours of Operation —The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <http://www.juniper.net/customers/support/>
- Search for known bugs: <http://www2.juniper.net/kb/>

- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base:
<http://kb.juniper.net/>
- Download the latest versions of software and review release notes:
<http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications:
<https://www.juniper.net/alerts/>
- Join and participate in the Juniper Networks Community Forum:
<http://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <http://www.juniper.net/cm/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool located at <https://tools.juniper.net/SerialNumberEntitlementSearch/>.

Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at <http://www.juniper.net/cm/> .
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, visit us at <http://www.juniper.net/support/requesting-support.html>.

Part 1

Protocols

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- BGP Operational Mode Commands on page 11
- ES-IS Operational Mode Commands on page 43
- IP Multicast Operational Mode Commands on page 51
- IPv6 Operational Mode Commands on page 181
- IS-IS Operational Mode Commands on page 189
- OSPF Operational Mode Commands on page 225
- Protocol-Independent Routing Operational Mode Commands on page 277
- RIP Operational Mode Commands on page 441
- RIPng Operational Mode Commands on page 451

Chapter 1

BFD Operational Mode Commands

Table 7 on page 3 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Bidirectional Forwarding Detection (BFD) sessions. Commands are listed in alphabetical order.

Table 7: BFD Operational Mode Commands

Task	Command
Clear BFD parameters.	clear bfd adaptation on page 4
Clear BFD sessions.	clear bfd session on page 5
Display BFD session statistics.	show bfd session on page 6



NOTE: The protocol client for which the BFD session is active can be either IS-IS or OSPF.



NOTE: For information about how to configure BFD, see the *JUNOS Routing Protocols Configuration Guide*.

clear bfd adaptation

Syntax	clear bfd adaptation <address <i>session-address</i> > <discriminator <i>discr-number</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear adaptation for Bidirectional Forwarding Detection (BFD) sessions. BFD is a simple hello mechanism that detects failures in a network. Configured BFD interval timers can change, adapting to network situations. Use this command to return BFD interval timers to their configured values.
Options	<p>none—Clear adaptation for all BFD sessions.</p> <p>address <i>session-address</i>—(Optional) Clear adaptation for all BFD sessions matching the specified address.</p> <p>discriminator <i>discr-number</i>—(Optional) Clear adaptation for the local BFD session matching the specified discriminator.</p>
Additional Information	For more information, see the description of the bfd-liveness-detection configuration statement in the <i>JUNOS Routing Protocols Configuration Guide</i> .
Required Privilege Level	clear
List of Sample Output	clear bfd adaptation on page 4
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear bfd adaptation	user@host> clear bfd adaptation

clear bfd session

Syntax	clear bfd session <address <i>session-address</i> > <discriminator <i>discr-number</i> > <logical-system (all <i>logical-system-name</i>)
Release Information	Command introduced before JUNOS Release 7.4.
Description	Drop one or more Bidirectional Forwarding Detection (BFD) sessions.
Options	<p>none—Drop all BFD sessions.</p> <p>address <i>session-address</i>—(Optional) Drop all BFD sessions matching the specified address.</p> <p>discriminator <i>discr-number</i>—(Optional) Drop the local BFD session matching the specified discriminator.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Topics	show bfd session on page 6
List of Sample Output	clear bfd session on page 5
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear bfd session	user@host> clear bfd session

show bfd session

Syntax	show bfd session <brief detail extensive summary> <address <i>address</i> > <discriminator <i>discriminator</i> > <logical-system (all <i>logical-system-name</i>)> <prefix <i>address</i> >
Release Information	Command introduced before JUNOS Release 7.4. The discriminator and address options were introduced in JUNOS Release 8.2. The prefix option was introduced in JUNOS Release 9.0.
Description	Display information about active Bidirectional Forwarding Detection (BFD) sessions.
Options	<p>none—(Same as brief) Display information about active BFD sessions.</p> <p>address <i>address</i>—(Optional) Display information about the BFD session for the specified neighbor address.</p> <p>brief detail extensive summary—(Optional) Display the specified level of output.</p> <p>discriminator <i>discriminator</i>—(Optional) Display information about the BFD session using the specified local discriminator.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>prefix <i>address</i>—Display information about all of the BFD sessions for the specified Label Distribution Protocol (LDP) forwarding equivalence class (FEC).</p>
Required Privilege Level	view
Related Topics	clear bfd session on page 5
List of Sample Output	<p>show bfd session on page 9</p> <p>show bfd session brief on page 9</p> <p>show bfd session detail on page 9</p> <p>show bfd session address on page 9</p> <p>show bfd session extensive on page 9</p> <p>show bfd session summary on page 10</p>
Output Fields	Table 8 on page 6 describes the output fields for the show bfd session command. Output fields are listed in the approximate order in which they appear.

Table 8: show bfd session Output Fields

Field Name	Field Description	Level of Output
Address	Address on which the BFD session is active.	brief detail extensive none

Table 8: show bfd session Output Fields (continued)

Field Name	Field Description	Level of Output
State	State of the BFD session: Up , Down , Init (initializing), or Failing .	brief detail extensive none
Interface	Interface on which the BFD session is active.	brief detail extensive none
Detect Time	Negotiated time interval, in seconds, used to detect BFD control packets.	brief detail extensive none
Transmit Interval	Time interval, in seconds, used by the transmitting system to send BFD control packets.	brief detail extensive none
Multiplier	Negotiated multiplier by which the time interval is multiplied to determine the detection time for the transmitting system.	detail extensive
Session up time	How long a BFD session has been established.	detail extensive
Client	Protocol for which the BFD session is active: ISIS , OSPF , or Static .	detail extensive
TX Interval	Time interval, in seconds, used by the host system to transmit BFD control packets.	brief detail extensive none
RX Interval	Time interval, in seconds, used by the host system to receive BFD control packets.	brief detail extensive none
Local diagnostic	Local diagnostic information about failing BFD sessions.	detail extensive
Remote diagnostic	Remote diagnostic information about failing BFD sessions.	detail extensive
Remote state	Reports whether the remote system's BFD packets are received and whether the remote system is receiving transmitted control packets.	detail extensive
Version	BFD version: 0 or 1 .	extensive
Replicated	The replicated flag appears when nonstop routing is configured and the BFD session has been replicated to the backup Routing Engine.	detail extensive
Min async interval	Minimum amount of time, in seconds, between asynchronous control packet transmissions across the BFD session.	extensive
Min slow interval	Minimum amount of time, in seconds, between synchronous control packet transmissions across the BFD session.	extensive
Adaptive async tx interval	Transmission interval being used because of adaptation.	extensive
rx interval	Minimum required receive interval.	extensive
Local min tx interval	Minimum amount of time, in seconds, between control packet transmissions on the local system.	extensive
Local min rx interval	Minimum amount of time, in seconds, between control packet detections on the local system.	extensive

Table 8: show bfd session Output Fields (continued)

Field Name	Field Description	Level of Output
Remote min tx interval	Minimum amount of time, in seconds, between control packet transmissions on the remote system.	extensive
Remote min rx interval	Minimum amount of time, in seconds, between control packet detections on the remote system.	extensive
Threshold transmission interval	Threshold for notification if the transmission interval increases.	extensive
Threshold for detection time	Threshold for notification if the detection time increases.	extensive
Local discriminator	Authentication code used by the local system to identify that BFD session.	extensive
Remote discriminator	Authentication code used by the remote system to identify that BFD session.	extensive
Echo mode	Information about the state of echo transmissions on the BFD session.	extensive
Prefix	LDP FEC address associated with the BFD session.	All levels
Egress, Destination	Displays the LDP FEC destination address. This field is displayed only on a router at the egress of an LDP FEC, where the BFD session has an LDP Operation, Administration, and Maintenance (OAM) client.	All levels
Remote is control-plane independent	<p>The BFD session on the remote peer is running on its Packet Forwarding Engine. In this case, when the remote node undergoes a graceful restart, the local peer can help the remote peer with the graceful restart.</p> <p>The following BFD sessions are not distributed to the Packet Forwarding Engine: multihop sessions, tunnel-encapsulated sessions, and sessions over aggregated Ethernet and integrated routing and bridging (IRB) interfaces.</p>	extensive
Session count	Total number of active BFD sessions.	All levels
Client count	Total number of clients that are hosting active BFD sessions.	All levels
Cumulative transmit rate	Total number of BFD control packets transmitted per second on all active sessions.	All levels
Cumulative receive rate	Total number of BFD control packets received per second on all active sessions.	All levels
Multi-hop, min-recv-TTL	Minimum TTL accepted if the session is configured for multihop.	extensive
route table	Route table used if the session is configured for multihop.	extensive
local address	Local address of source used if the session is configured for multihop.	extensive

show bfd session user@host> **show bfd session**

Address	State	Interface	Detect Time	Transmit Interval	Multiplier
10.9.1.33	Up	so-7/1/0.0	0.600	0.200	3
10.9.1.29	Up	ge-4/0/0.0	0.600	0.200	3

2 sessions, 2 clients

Cumulative transmit rate 10.0 pps, cumulative receive rate 10.0 pps

show bfd session brief The output for the **show bfd session brief** command is identical to that for the **show bfd session** command. For sample output, see **show bfd session** on page 9.

show bfd session detail user@host> **show bfd session detail**

Address	State	Interface	Detect Time	Transmit Interval	Multiplier
10.9.1.33	Up	so-7/1/0.0	0.600	0.200	3
Client OSPF, TX interval 0.200, RX interval 0.200, multiplier 3					
Session up time 3d 00:34					
Local diagnostic None, remote diagnostic None					
Remote state Up, version 1					
Replicated					
10.9.1.29	Up	ge-4/0/0.0	0.600	0.200	3
Client ISIS L2, TX interval 0.200, RX interval 0.200, multiplier 3					
Session up time 3d 00:29, previous down time 00:00:01					
Local diagnostic NbrSignal, remote diagnostic AdminDown					
Remote state Up, version 1					

2 sessions, 2 clients

Cumulative transmit rate 10.0 pps, cumulative receive rate 10.0 pps

show bfd session address user@host> **show bfd session 10.255.245.212 extensive**

Address	State	Interface	Detect Time	Transmit Interval	Multiplier
10.255.245.212	Up		1.200	0.400	3
Client Static, TX interval 0.400, RX interval 0.400, multiplier 3					
Session up time 00:17:03, previous down time 00:00:14					
Local diagnostic CtlExpire, remote diagnostic NbrSignal					
Remote state Up, version 1					
Replicated					
Min async interval 0.400, min slow interval 1.000					
Adaptive async tx interval 0.400, rx interval 0.400					
Local min tx interval 0.400, min rx interval 0.400, multiplier 3					
Remote min tx interval 0.400, min rx interval 0.400, multiplier 3					
Threshold transmission interval 0.000, Threshold for detection time 0.000					
Local discriminator 6, remote discriminator 16					
Echo mode disabled/inactive					
Multi-hop, min-recv-TTL 255, route-table 0, local-address 10.255.245.205					

1 sessions, 1 clients

Cumulative transmit rate 2.5 pps, cumulative receive rate 2.5 pps

show bfd session extensive user@host> **show bfd session extensive**

Address	State	Interface	Detect Time	Transmit Interval	Multiplier
10.9.1.33	Up	so-7/1/0.0	0.600	0.200	3
Client OSPF, TX interval 0.200, RX interval 0.200, multiplier 3					
Session up time 3d 00:34					
Local diagnostic None, remote diagnostic None					
Remote state Up, version 1					

```

Replicated
Min async interval 0.200, min slow interval 1.000
Adaptive async tx interval 0.200, rx interval 0.200
Local min tx interval 0.200, min rx interval 0.200, multiplier 3
Remote min tx interval 0.100, min rx interval 0.100, multiplier 3
Threshold transmission interval 0.000, Threshold for detection time 0.000
Local discriminator 11, remote discriminator 80
Echo mode disabled/inactive

10.9.1.29          Up          ge-4/0/0.0          0.600    0.200    3
Client ISIS L2, TX interval 0.200, RX interval 0.200, multiplier 3
Session up time 3d 00:30, previous down time 00:00:01
Local diagnostic NbrSignal, remote diagnostic AdminDown
Remote state Up, version 1
Replicated
Min async interval 0.200, min slow interval 1.000
Adaptive async tx interval 0.200, rx interval 0.200
Local min tx interval 0.200, min rx interval 0.200, multiplier 3
Remote min tx interval 0.200, min rx interval 0.200, multiplier 3
Threshold transmission interval 0.000, Threshold for detection time 0.000
Local discriminator 12, remote discriminator 11
Echo mode disabled/inactive
Remote is control-plane independent

2 sessions, 2 clients

Cumulative transmit rate 10.0 pps, cumulative receive rate 10.0 pps

show bfd session user@host> show bfd session summary
summary          2 sessions, 2 clients
                  Cumulative transmit rate 10.0 pps, cumulative receive rate 10.0 pps

```


Chapter 2

BGP Operational Mode Commands

Table 9 on page 11 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Border Gateway Protocol (BGP). Commands are listed in alphabetical order.

Table 9: BGP Operational Mode Commands

Task	Command
Remove damping information.	<code>clear bgp damping</code> on page 12
Remove entries from the neighbor database.	<code>clear bgp neighbor</code> on page 13
Request BGP to refresh routes.	<code>clear bgp table</code> on page 15
Display entries in the BGP group database.	<code>show bgp group</code> on page 16
Display traffic statistics for BGP groups.	<code>show bgp group traffic-statistics</code> on page 24
Display entries in the BGP neighbor database.	<code>show bgp neighbor</code> on page 26
Display BGP summary information.	<code>show bgp summary</code> on page 37
Display BGP damping parameters.	<code>show policy damping</code> on page 41



NOTE: For more BGP-related commands, such as `show route protocol`, `show route instance`, and `show route table`, see “Protocol-Independent Routing Operational Mode Commands” on page 277.



NOTE: For information about how to configure BGP, see the *JUNOS Routing Protocols Configuration Guide*.

clear bgp damping

Syntax	clear bgp damping <logical-system (all <i>logical-system-name</i>)> < <i>prefix</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Border Gateway Protocol (BGP) route flap damping information.
Options	<p>none—Clear all BGP route flap damping information.</p> <p><i>logical-system</i> (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>prefix</i>—(Optional) Clear route flap damping information for only the specified destination prefix.</p>
Required Privilege Level	clear
Related Topics	<p>show policy damping on page 41</p> <p>show route damping on page 311</p>
List of Sample Output	clear bgp damping on page 12
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear bgp damping	user@host> clear bgp damping

clear bgp neighbor

Syntax clear bgp neighbor
 <as *as-number*>
 <instance *instance-name*>
 <logical-system (all | *logical-system-name*)>
 <neighbor>
 <soft | soft-inbound>
 <soft-minimum-igp>

Release Information Command introduced before JUNOS Release 7.4.

Description Perform one of the following tasks:

- Change the state of one or more Border Gateway Protocol (BGP) neighbors to IDLE. For neighbors in the **ESTABLISHED** state, this command drops the TCP connection to the neighbors and then reestablishes the connection.
- (soft or soft-inbound keyword only) Reapply export policies or import policies, respectively, and send refresh updates to one or more BGP neighbors without changing their state.

Options none—Change the state of all BGP neighbors to IDLE.

as *as-number*—(Optional) Apply this command only to neighbors in the specified autonomous system (AS).

instance *instance-name*—(Optional) Apply this command only to neighbors for the specified routing instance.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

neighbor—(Optional) IP address of a BGP peer. Apply this command only to the specified neighbor.

soft—(Optional) Reapply any export policies and send refresh updates to neighbors without clearing the state.

soft-inbound—(Optional) Reapply any import policies and send refresh updates to neighbors without clearing the state.

soft-minimum-igp—(Optional) Provides soft refresh of the outbound state when the interior gateway protocol (IGP) metric is reset.

Required Privilege Level clear

Related Topics show bgp neighbor on page 26

List of Sample Output clear bgp neighbor on page 14

Output Fields When you enter this command, you are provided feedback on the status of your request.

clear bgp neighbor user@host> **clear bgp neighbor**

clear bgp table

Syntax	clear bgp table <i>table-name</i> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in JUNOS Release 9.0.
Description	Request BGP to refresh routes in a specified routing table.
Options	<i>table-name</i> —Request BGP to refresh routes in the specified table. (logical-system (all <i>logical-system-name</i>))—(Optional) Perform this operation on all logical systems or on a particular logical system.
Additional Information	In some cases, a prefix limit is associated with a routing table for a VPN instance . When this limit is exceeded, as for example, because of a network misconfiguration, some routes might not get inserted in the table. Such routes need to be added to the table after the network issue is resolved. Use the clear bgp table command to request BGP to refresh routes in a VPN instance table.
Required Privilege Level	clear
List of Sample Output	clear bgp table private.inet.0 on page 15
Output Fields	This command produces no output.
clear bgp table private.inet.0	user@host> clear bgp table private.inet.0

show bgp group

Syntax	show bgp group <brief detail summary> <group-name> <instance instance-name> <logical-system (all logical-system-name)> <rtf>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about the configured Border Gateway Protocol (BGP) groups.
Options	<p>none—Display group information about all BGP groups.</p> <p>brief detail summary—(Optional) Display the specified level of output.</p> <p>group-name—(Optional) Display group information for the specified group.</p> <p>instance instance-name—(Optional) Display information about a particular BGP peer in the specified instance. The instance name can be master for the main instance, or any valid configured instance name or its prefix.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>rtf—(Optional) Display BGP group route targeting information.</p>
Required Privilege Level	view
List of Sample Output	<p>show bgp group on page 20</p> <p>show bgp group on page 21</p> <p>show bgp group brief on page 21</p> <p>show bgp group detail on page 21</p> <p>show bgp group rtf detail on page 22</p> <p>show bgp group summary on page 22</p> <p>show bgp group summary on page 22</p>
Output Fields	Table 10 on page 16 describes the output fields for the show bgp group command. Output fields are listed in the approximate order in which they appear.

Table 10: show bgp group Output Fields

Field Name	Field Description	Level of Output
Group type or Group	Type of BGP group: Internal or External.	All levels
AS	AS number of the peer. For internal BGP (IBGP), this number is the same as Local AS.	brief detail none

Table 10: show bgp group Output Fields (continued)

Field Name	Field Description	Level of Output
Local AS	AS number of the local router.	brief detail none
Name	Name of a specific BGP group.	brief detail none
Flags	Flags associated with the BGP group. This field is used by Juniper Networks Customer Support.	brief detail none
Export	Export policies configured for the BGP group with the <code>export</code> statement.	brief detail none
MED tracks IGP metric update delay	Time interval, in seconds, that updates to multiple exit discriminator (MED) are delayed. Also displays the time remaining before the interval is set to expire	All
Total peers	Total number of peers in the group.	brief detail none
Established	Number of peers in the group that are in the established state.	All levels
Active/Received /Accepted/Damped	<p>Multipurpose field that displays information about BGP peer sessions. The field's contents depend upon whether a session is established and whether an established session was established in the main router or in a routing instance.</p> <ul style="list-style-type: none"> ■ If a peer is not established, the field shows the state of the peer session: Active, Connect, or Idle. ■ If a BGP session is established in the main router, the field shows the number of active, received, accepted, and damped routes that are received from a neighbor and appear in the <code>inet.0</code> (main) and <code>inet.2</code> (multicast) routing tables. For example, <code>8/10/10/2 2/4/4/0</code> indicates the following: <ul style="list-style-type: none"> ■ 8 active routes, 10 received routes, 10 accepted routes, and 2 damped routes from a BGP peer appear in the <code>inet.0</code> routing table. ■ 2 active routes, 4 received routes, 4 accepted routes, and no damped routes from a BGP peer appear in the <code>inet.2</code> routing table. 	summary
<i>ip-addresses</i>	List of peers who are members of the group. The address is followed by the peer's port number.	All levels

Table 10: show bgp group Output Fields (continued)

Field Name	Field Description	Level of Output
Route Queue Timer	Number of seconds until queued routes are sent. If this time has already elapsed, this field displays the number of seconds by which the updates are delayed.	detail
Route Queue	Number of prefixes that are queued up for sending to the peers in the group.	detail
inet.number	<p>Number of active, received, accepted, and damped routes in the routing table. For example, inet.0: 7/10/9/0 indicates the following:</p> <ul style="list-style-type: none"> 7 active routes, 10 received routes, 9 accepted routes, and no damped routes from a BGP peer appear in the inet.0 routing table. 	none

Table 10: show bgp group Output Fields (continued)

Field Name	Field Description	Level of Output
Table inet.number	<p>Information about the routing table.</p> <ul style="list-style-type: none"> ■ Received prefixes—Total number of prefixes from the peer, both active and inactive, that are in the routing table. ■ Active prefixes—Number of prefixes received from the peer that are active in the routing table. ■ Suppressed due to damping—Number of routes currently inactive because of damping or other reasons. These routes do not appear in the forwarding table and are not exported by routing protocols. ■ Received external prefixes—Total number of prefixes from the external BGP (EBGP) peers, both active and inactive, that are in the routing table. ■ Active external prefixes—Number of prefixes received from the EBGP peers that are active in the routing table. ■ Externals suppressed—Number of routes received from EBGP peers currently inactive because of damping or other reasons. ■ Received internal prefixes—Total number of prefixes from the IBGP peers, both active and inactive, that are in the routing table. ■ Active internal prefixes—Number of prefixes received from the IBGP peers that are active in the routing table. ■ Internals suppressed—Number of routes received from IBGP peers currently inactive because of damping or other reasons. ■ RIB State—Status of the graceful restart process for this routing table: BGP restart is complete, BGP restart in progress, VPN restart in progress, or VPN restart is complete. 	detail
Groups	Total number of groups.	to be provided
Peers	Total number of peers.	to be provided
External	Total number of external peers.	to be provided
Internal	Total number of internal peers.	to be provided
Down peers	Total number of unavailable peers.	to be provided

Table 10: show bgp group Output Fields (continued)

Field Name	Field Description	Level of Output
Flaps	Total number of flaps that occurred.	to be provided
Table	Name of a routing table.	to be provided
Tot Paths	Total number of paths.	to be provided
Act Paths	Number of active routes.	to be provided
Suppressed	Number of routes currently inactive because of damping or other reasons. These routes do not appear in the forwarding table and are not exported by routing protocols.	to be provided
History	Number of withdrawn routes stored locally to keep track of damping history.	to be provided
Damp State	Number of active routes with a figure of merit greater than zero, but lower than the threshold at which suppression occurs.	to be provided
Pending	Routes being processed by BGP import policy.	to be provided
Group	Group the peer belongs to in the BGP configuration.	to be provided
Receive mask	Mask of the received target included in the advertised route.	to be provided
Entries	Number of route entries received.	to be provided
Target	Route target that is to be passed by route-target filtering. If a route advertised from the provider edge (PE) router matches an entry in the route-target filter, the route is passed to the peer.	to be provided
Mask	Mask that specifies the peer to receive routes with the given route target.	to be provided

```

show bgp group user@host> show bgp group
Group Type: Internal AS: 21 Local AS: 21
Name: from_vpn04_to_other Index: 0 Flags: <>
Holdtime: 0
Total peers: 3 Established: 3
10.255.14.178+179
10.255.71.24+179
10.255.14.182+179
inet.0: 2/7/0

Group Type: External Local AS: 21
Name: from_vpn04_to_vpn06 Index: 1 Flags: <Export Eval>

```

```

Export: [ internal-and-bgp ]
Holdtime: 0
Traffic Statistics Interval: 300
Total peers: 1      Established: 1
100.1.3.2+2910
inet.0: 5/10/0

Groups: 2 Peers: 4 External: 1 Internal: 3 Down peers: 0 Flaps: 2
Table Tot Paths Act Paths Suppressed History Damp State Pending
inet.0 17 7 0 0 0 0

```

show bgp group

```

user@host> show bgp group
Group Type: External Local AS: 65500
Name: as65501peers Index: 0 Flags: Export <Eval>
Export: [ export-policy ]
Holdtime: 0
Total peers: 1      Established: 1
192.168.4.222+179
Trace options: all
Trace file: /var/log/bgp size 10485760 files 10
inet.0: 7/10/9/0
inet.2: 0/0/0/0

Groups: 1 Peers: 1 External: 1 Internal: 0 Down peers: 0 Flaps: 0
Table Tot Paths Act Paths Suppressed History Damp State Pending
inet.0 10 7 0 0 0 0
inet.2 0 0 0 0 0 0

```

show bgp group brief

The output for the `show bgp group brief` command is identical to that for the `show bgp group` command. For sample output, see `show bgp group` on page 20.

show bgp group detail

```

user@host> show bgp group detail
Group Type: Internal AS: 21 Local AS: 21
Name: from_vpn04_to_other Index: 0 Flags: <>
Holdtime: 0
Total peers: 3      Established: 3
10.255.14.178+179
10.255.71.24+179
10.255.14.182+179
Route Queue Timer: unset Route Queue: empty
Table inet.0
  Active prefixes: 2
  Received prefixes: 7
  Suppressed due to damping: 0
  Advertised prefixes: 5

Group Type: External Local AS: 21
Name: from_vpn04_to_vpn06 Index: 1 Flags: <Export Eval>
Export: [ internal-and-bgp ]
Holdtime: 0
Traffic Statistics Interval: 300
Total peers: 1      Established: 1
100.1.3.2+2910
Route Queue Timer: unset Route Queue: empty
Table inet.0
  Active prefixes: 5
  Received prefixes: 10
  Suppressed due to damping: 0
  Advertised prefixes: 6

```

```

Groups: 2 Peers: 4 External: 1 Internal: 3 Down peers: 0 Flaps: 2
Table inet.0
  Received prefixes: 17
  Active prefixes: 7
  Suppressed due to damping: 0
  Received external prefixes: 10
  Active external prefixes: 5
  Externals suppressed: 0
  Received internal prefixes: 7
  Active internal prefixes: 2
  Internals suppressed: 0
  RIB State: BGP restart is complete

```

**show bgp group rtf
detail**

```

user@host> show bgp group rtf detail
Group: asbr
  Receive mask: 00000001
  Table: bgp.rtarget.0
    Target
    109:1/64
    109:2/64
    701:1/64
    10458:2/64
    Flags: Filter Entries: 4
    Mask
    00000001
    00000001
    00000001
    00000001

Group: mesh_0
  Receive mask: 0000000e
  Table: bgp.rtarget.0
    Target
    109:1/64
    701:1/64
    701:2/64
    10458:1/64
    10458:2/64
    10458:3/64
    10458:5/64
    10458:6/64
    10458:7/64
    10458:8/64
    10458:10/64
    Flags: Filter Entries: 12
    Mask
    00000002
    00000002
    00000002
    0000000e
    00000006
    00000006
    00000006
    00000004
    00000008
    00000008
    00000002

```

**show bgp group
summary**

```

user@host> show bgp group summary
Group      Type      Peers    Established    Active/Received/Damped
from_vpn04_to_other Internal 3      3
inet.0      : 2/7/0
from_vpn04_to_vpn06 External 1      1
inet.0      : 5/10/0

Groups: 2 Peers: 4 External: 1 Internal: 3 Down peers: 0 Flaps: 2
inet.0      : 7/17/0 External: 5/10/0 Internal: 2/7/0

```

**show bgp group
summary**

```

user@host> show bgp group summary
Group      Type      Peers    Established    Active/Received/Accepted/Damped
as65501peers External 1      1
Trace options: all
Trace file: /var/log/bgp size 10485760 files 10
inet.0      : 7/10/9/0
inet.2      : 0/0/0/0

Groups: 1 Peers: 1 External: 1 Internal: 0 Down peers: 0 Flaps: 0

```

```
inet.0      : 7/10/9/0 External: 7/10/9/0 Internal: 0/0/0/0
inet.2      : 0/0/0/0 External: 0/0/0/0 Internal: 0/0/0/0
```

show bgp group traffic-statistics

Syntax	show bgp group traffic-statistics <brief detail> <group-name> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the traffic statistics for configured Border Gateway Protocol (BGP) groups.
Options	none—Display traffic statistics for all BGP groups. brief detail—(Optional) Display the specified level of output. <i>group-name</i> —(Optional) Display BGP traffic statistics for only the specified group. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show bgp group traffic-statistics (Per-Group-Label Not Configured) on page 24 show bgp group traffic-statistics (Per-Group-Label Configured) on page 25
Output Fields	Table 11 on page 24 describes the output fields for the show bgp group traffic-statistics command. Output fields are listed in the approximate order in which they appear.

Table 11: show bgp group traffic-statistics Output Fields

Field Name	Field Description
Group name	Name of a specific BGP group.
Group Index	Index number for the BGP group.
NLRI	Network layer reachability information (NLRI) indicating the source of the traffic statistics for the BGP group.
FEC	Forwarding equivalence classes (FECs) associated with the BGP group.
Packets	Number of packets sent through each FEC.
Bytes	Number of bytes transmitted through each FEC.
EgressAS	Autonomous system (AS) number of the egress router.
AdvLabel	Label associated with each FEC.

show bgp group traffic-statistics user@host> show bgp group traffic-statistics

```

(Per-Group-Label Not Configured) Group Name: ext1      Group Index: 0      NLRI: inet-labeled-unicast
FEC                               Packets             Bytes             EgressAS          AdvLabel
10.255.245.55                     0                  0                  I                  100224
10.255.245.57                     0                  0                  I                  100240
100.101.0.0                       550                48400              25                 100256
100.102.0.0                       550                48400              25                 100256
100.103.0.0                       550                48400              25                 100272
100.104.0.0                       550                48400              25                 100272
192.168.25.0                      0                  0                  I                  100288

Group Name: ext2                  Group Index: 1      NLRI: inet-labeled-unicast
FEC                               Packets             Bytes             EgressAS          AdvLabel
10.255.245.55                     0                  0                  I                  100224
10.255.245.57                     0                  0                  I                  100240
100.101.0.0                       550                48400              25                 100256
100.102.0.0                       550                48400              25                 100256
100.103.0.0                       550                48400              25                 100272
100.104.0.0                       550                48400              25                 100272
192.168.25.0                      0                  0                  I                  100288

show bgp group traffic-statistics user@host> show bgp group traffic-statistics
(Per-Group-Label Configured) Group Name: ext1      Group Index: 0      NLRI: inet-labeled-unicast
FEC                               Packets             Bytes             EgressAS          AdvLabel
10.255.245.55                     0                  0                  I                  100384
10.255.245.57                     0                  0                  I                  100400
100.101.0.0                       101                8888              25                 100416
100.102.0.0                       101                8888              25                 100416
100.103.0.0                       0                  0                  25                 100432
100.104.0.0                       0                  0                  25                 100432
192.168.25.0                      0                  0                  I                  100448

Group Name: ext2                  Group Index: 1      NLRI: inet-labeled-unicast
FEC                               Packets             Bytes             EgressAS          AdvLabel
10.255.245.55                     0                  0                  I                  100304
10.255.245.57                     0                  0                  I                  100320
100.101.0.0                       0                  0                  25                 100336
100.102.0.0                       0                  0                  25                 100336
100.103.0.0                       101                8888              25                 100352
100.104.0.0                       101                8888              25                 100352
192.168.25.0                      0                  0                  I                  100368

```

show bgp neighbor

Syntax	show bgp neighbor <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <neighbor-address> <orf (<i>neighbor-address</i> detail)
Release Information	Command introduced before JUNOS Release 7.4. orf option introduced in JUNOS Release 9.2.
Description	Display information about Border Gateway Protocol (BGP) peers.
Options	none—Display information about all BGP peers. instance <i>instance-name</i> —(Optional) Display information about BGP peers for only the specified routing instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. neighbor-address—(Optional) Display information for only the BGP peer at the specified IP address. orf (<i>neighbor-address</i> detail)—Display outbound route filtering information for all BGP peers or only for the BGP peer at the specified IP address. The default is to display brief output. Use the detail output to display detailed output.
Additional Information	For information about the local-address, nlri, hold-time, and preference statements, see the <i>JUNOS Routing Protocols Configuration Guide</i> .
Required Privilege Level	view
Related Topics	clear bgp neighbor on page 13
List of Sample Output	show bgp neighbor (CLNS) on page 31 show bgp neighbor (Layer 2 VPN) on page 31 show bgp neighbor (Layer 3 VPN) on page 33 show bgp neighbor neighbor-address on page 34 show bgp neighbor neighbor-address on page 35 show bgp neighbor orf neighbor-address detail on page 36
Output Fields	Table 12 on page 26 describes the output fields for the show bgp neighbor command. Output fields are listed in the approximate order in which they appear.

Table 12: show bgp neighbor Output Fields

Field Name	Field Description
Peer	Address of the BGP neighbor. The address is followed by the neighbor's port number.
AS	AS number of the peer.

Table 12: show bgp neighbor Output Fields (continued)

Field Name	Field Description
Local	Address of the local router. The address is followed by the peer's port number.
Type	Type of peer: Internal or External.
State	<p>Current state of the BGP session:</p> <ul style="list-style-type: none"> ■ Active—BGP is initiating a transport protocol connection in an attempt to connect to a peer. If the connection is successful, BGP sends an Open message. ■ Connect—BGP is waiting for the transport protocol connection to be completed. ■ Established—The BGP session has been established, and the peers are exchanging update messages. ■ Idle—This is the first stage of a connection. BGP is waiting for a Start event. ■ OpenConfirm—BGP has acknowledged receipt of an open message from the peer and is waiting to receive a keepalive or notification message. ■ OpenSent—BGP has sent an open message and is waiting to receive an open message from the peer.
Flags	<p>Internal BGP flags:</p> <ul style="list-style-type: none"> ■ Aggregate Label—BGP has aggregated a set of incoming labels (labels received from the peer) into a single forwarding label. ■ CleanUp—The peer session is being shut down. ■ Delete—This peer has been deleted. ■ Idled—This peer has been permanently idled. ■ ImportEval—At the last commit, this peer was identified as needing to reevaluate all received routes. ■ Initializing—The peer session is initializing. ■ SendRtn—Messages are being sent to the peer. ■ Sync—This peer is synchronized with the rest of the peer group. ■ TryConnect—Another attempt is being made to connect to the peer. ■ Unconfigured—This peer is not configured. ■ WriteFailed—An attempt to write to this peer failed.
Last state	<p>Previous state of the BGP session:</p> <ul style="list-style-type: none"> ■ Active—BGP is initiating a transport protocol connection in an attempt to connect to a peer. If the connection is successful, BGP sends an Open message. ■ Connect—BGP is waiting for the transport protocol connection to be completed. ■ Established—The BGP session has been established, and the peers are exchanging update messages. ■ Idle—This is the first stage of a connection. BGP is waiting for a Start event. ■ OpenConfirm—BGP has acknowledged receipt of an open message from the peer and is waiting to receive a keepalive or notification message. ■ OpenSent—BGP has sent an open message and is waiting to receive an open message from the peer.

Table 12: show bgp neighbor Output Fields (continued)

Field Name	Field Description
Last event	<p>Last activity that occurred in the BGP session:</p> <ul style="list-style-type: none"> ■ Closed—The BGP session closed. ■ ConnectRetry—The transport protocol connection failed, and BGP is trying again to connect. ■ HoldTime—The session ended because the hold timer expired. ■ KeepAlive—The local router sent a BGP keepalive message to the peer. ■ Open—The local router sent a BGP open message to the peer. ■ OpenFail—The local router did not receive an acknowledgment of a BGP open message from the peer. ■ RecvKeepAlive—The local router received a BGP keepalive message from the peer. ■ RecvNotify—The local router received a BGP notification message from the peer. ■ RecvOpen—The local router received a BGP open message from the peer. ■ RecvUpdate—The local router received a BGP update message from the peer. ■ Start—The peering session started. ■ Stop—The peering session stopped. ■ TransportError—A TCP error occurred.
Last error	<p>Last error that occurred in the BGP session:</p> <ul style="list-style-type: none"> ■ Cease—An error occurred, such as a version mismatch, that caused the session to close. ■ Finite State Machine Error—In setting up the session, BGP received a message that it did not understand. ■ Hold Time Expired—The session's hold time expired. ■ Message Header Error—The header of a BGP message was malformed. ■ Open Message Error—A BGP open message contained an error. ■ None—No errors occurred in the BGP session. ■ Update Message Error—A BGP update message contained an error.
Export	Name of the export policy that is configured on the peer.
Import	Name of the import policy that is configured on the peer.
Options	<p>Configured BGP options:</p> <ul style="list-style-type: none"> ■ AddressFamily—Configured address family: <code>inet</code> or <code>inet-vpn</code>. ■ AuthKeyChain—Authentication key change is enabled. ■ GracefulRestart—Graceful restart is configured. ■ HoldTime—Hold time configured with the <code>hold-time</code> statement. The hold time is three times the interval at which keepalive messages are sent. ■ Local Address—Address configured with the <code>local-address</code> statement. ■ Multihop—Allow BGP connections to external peers that are not on a directly connected network. ■ NLRI—Configured MBGP state for the BGP group: <code>multicast</code>, <code>unicast</code>, or both if you have configured <code>nlri</code> any. ■ Peer AS—Configured peer autonomous system (AS). ■ Preference—Preference value configured with the <code>preference</code> statement. ■ Refresh—Configured to refresh automatically when the policy changes. ■ Rib-group—Configured routing table group.

Table 12: show bgp neighbor Output Fields (continued)

Field Name	Field Description
Authentication key change	Name of the authentication key chain enabled.
Authentication algorithm	Type of authentication algorithm enabled: hmac or md5
Address families configured	Names of configured address families for the VPN.
Local Address	Address of the local router.
Holdtime	Hold time configured with the hold-time statement. The hold time is three times the interval at which keepalive messages are sent.
Flags for NLRI inet-label-unicast	Flags related to labeled-unicast: <ul style="list-style-type: none"> ■ TrafficStatistics—Collection of statistics for labeled-unicast traffic is enabled.
Traffic statistics	Information about labeled-unicast traffic statistics: <ul style="list-style-type: none"> ■ Options—Options configured for collecting statistics about labeled-unicast traffic. ■ File—Name and location of statistics log files. ■ size—Size of all the log files, in bytes. ■ files—Number of log files.
Traffic Statistics Interval	Time between sample periods for labeled-unicast traffic statistics, in seconds.
Preference	Preference value configured with the preference statement.
Number of flaps	Number of times the BGP session has gone down and then come back up.
Peer ID	Router identifier of the peer.
Local ID	Router identifier of the local router.
Active holdtime	Hold time the local router negotiated with the peer.
Keepalive Interval	Keepalive interval, in seconds.
BFD	Status of BFD failure detection.
Local Address	Name of directly connected interface over which the direct EBGp peering is established.
NLRI for restart configured on peer	Names of address families configured for restart.
NLRI advertised by peer	Address families supported by the peer: unicast or multicast .
NLRI for this session	Address families being used for this session.
Peer supports Refresh capability	Remote peer supports Route Refresh Capability, and is able to send and request full route table readvertisement. For more information, see RFC 2918, <i>Route Refresh Capability for BGP-4</i> .

Table 12: show bgp neighbor Output Fields (*continued*)

Field Name	Field Description
Restart time configured on peer	Configured time allowed for restart on the neighbor.
Stale routes from peer are kept for	When graceful restart is negotiated, the maximum time allowed to hold routes from neighbors after the BGP session has gone down.
Restart time requested by this peer	Restart time requested by this neighbor during capability negotiation.
Restart flag received from the peer	When this field appears, the BGP speaker has restarted (Restarting) and this peer should not wait for the end-of-rib marker from the speaker before advertising routing information to the speaker.
NLRI that peer supports restart for	Neighbor supports graceful restart for this address family.
NLRI peer can save forwarding state	Neighbor supporting this address family saves all forwarding states.
NLRI that peer saved forwarding for	Neighbor saves all forwarding states for this address family.
NLRI that restart is negotiated for	Router supports graceful restart for this address family.
NLRI of received end-of-rib markers	Address families for which end-of-routing-table markers are received from the neighbor.
NLRI of all end-of-rib markers sent	Address families for which end-of-routing-table markers are sent to the neighbor.
Table inet.number	<p>Information about the routing table.</p> <ul style="list-style-type: none"> ■ RIB State—BGP is in the graceful restart process for this routing table: restart is complete or restart in progress. ■ Bit—Number that represents the entry in the routing table for this peer. ■ Send state—State of the BGP group: in sync, not in sync, or not advertising. ■ Active prefixes—Number of prefixes received from the peer that are active in the routing table. ■ Received prefixes—Total number of prefixes from the peer, both active and inactive, that are in the routing table. ■ Accepted prefixes—Total number of prefixes from the peer, that have been accepted by a routing policy. ■ Suppressed due to damping—Number of routes currently inactive because of damping or other reasons. These routes do not appear in the forwarding table and are not exported by routing protocols.
Last traffic (seconds)	Last time any traffic was received from the peer or sent to the peer, and the last time the local router checked.
Input messages	Messages that BGP has received from the receive socket buffer, showing the total number of messages, number of update messages, number of times a policy is changed and refreshed, and the buffer size in octets. The buffer size is 16 KB.

Table 12: show bgp neighbor Output Fields (continued)

Field Name	Field Description
Output messages	Messages that BGP has written to the transmit socket buffer, showing the total number of messages, number of update messages, number of times a policy is changed and refreshed, and the buffer size in octets. The buffer size is 16 KB.
Output queue	Number of BGP packets that are queued to be transmitted to a particular neighbor for a particular routing table. Output queue 0 is for unicast NLRIs, and queue 1 is for multicast NLRIs.
Trace options	Configured tracing of BGP protocol packets and operations.
Trace file	Name of the file to receive the output of the tracing operation.

```

show bgp neighbor (CLNS) user@host> show bgp neighbor
Peer: 10.245.245.1+179 AS 200 Local: 10.245.245.3+3770 AS 100
Type: External State: Established Flags: <ImportEval Sync>
Last State: OpenConfirm Last Event: RecvKeepAlive
Last Error: None
Options: <Multihop Preference LocalAddress HoldTime AddressFamily PeerAS
Rib-group Refresh>
Address families configured: iso-vpn-unicast
Local Address: 10.245.245.3 Holdtime: 90 Preference: 170
Number of flaps: 0
Peer ID: 10.245.245.1 Local ID: 10.245.245.3 Active Holdtime: 90
Keepalive Interval: 30 Peer index: 0
NLRI advertised by peer: iso-vpn-unicast
NLRI for this session: iso-vpn-unicast
Peer supports Refresh capability (2)
Table bgp.isovpn.0 Bit: 10000
RIB State: BGP restart is complete
RIB State: VPN restart is complete
Send state: in sync
Active prefixes: 3
Received prefixes: 3
Suppressed due to damping: 0
Advertised prefixes: 3
Table aaaa.iso.0
RIB State: BGP restart is complete
RIB State: VPN restart is complete
Send state: not advertising
Active prefixes: 3
Received prefixes: 3
Suppressed due to damping: 0
Last traffic (seconds): Received 6 Sent 5 Checked 5
Input messages: Total 1736 Updates 4 Refreshes 0 Octets 33385
Output messages: Total 1738 Updates 3 Refreshes 0 Octets 33305
Output Queue[0]: 0
Output Queue[1]: 0

show bgp neighbor (Layer 2 VPN) user@host> show bgp neighbor
Peer: 10.69.103.2 AS 65100 Local: 10.69.103.1 AS 65103
Type: External State: Active Flags: <ImportEval>
Last State: Idle Last Event: Start
Last Error: None
Export: [ BGP-INET-import ]

```

```

Options: <Preference LocalAddress HoldTime GracefulRestart AddressFamily PeerAS
Refresh>
Address families configured: inet-unicast
Local Address: 10.69.103.1 Holdtime: 90 Preference: 170
Number of flaps: 0
Peer: 10.69.104.2      AS 65100 Local: 10.69.104.1      AS 65104
Type: External      State: Active      Flags: <ImportEval>
Last State: Idle      Last Event: Start
Last Error: None
Export: [ BGP-L-import ]
Options: <Preference LocalAddress HoldTime GracefulRestart AddressFamily PeerAS
Refresh>
Address families configured: inet-labeled-unicast
Local Address: 10.69.104.1 Holdtime: 90 Preference: 170
Number of flaps: 0
Peer: 10.255.14.182+179 AS 69      Local: 10.255.14.176+2131 AS 69
Type: Internal      State: Established  Flags: <ImportEval>
Last State: OpenConfirm Last Event: RecvKeepAlive
Last Error: None
Options: <Preference LocalAddress HoldTime GracefulRestart AddressFamily
Rib-group Refresh>
Address families configured: inet-vpn-unicast l2vpn
Local Address: 10.255.14.176 Holdtime: 90 Preference: 170
Number of flaps: 0
Peer ID: 10.255.14.182      Local ID: 10.255.14.176      Active Holdtime: 90
Keepalive Interval: 30
NLRI for restart configured on peer: inet-vpn-unicast l2vpn
NLRI advertised by peer: inet-vpn-unicast l2vpn
NLRI for this session: inet-vpn-unicast l2vpn
Peer supports Refresh capability (2)
Restart time configured on the peer: 120
Stale routes from peer are kept for: 300
Restart time requested by this peer: 120
NLRI that peer supports restart for: inet-vpn-unicast l2vpn
NLRI peer can save forwarding state: inet-vpn-unicast l2vpn
NLRI that peer saved forwarding for: inet-vpn-unicast l2vpn
NLRI that restart is negotiated for: inet-vpn-unicast l2vpn
NLRI of received end-of-rib markers: inet-vpn-unicast l2vpn
Table bgp.l3vpn.0 Bit: 10000
  RIB State: BGP restart in progress
  RIB State: VPN restart in progress
  Send state: in sync
  Active prefixes:          10
  Received prefixes:        10
  Suppressed due to damping: 0
Table bgp.l2vpn.0 Bit: 20000
  RIB State: BGP restart in progress
  RIB State: VPN restart in progress
  Send state: in sync
  Active prefixes:          1
  Received prefixes:        1
  Suppressed due to damping: 0
Table BGP-INET.inet.0 Bit: 30000
  RIB State: BGP restart in progress
  RIB State: VPN restart in progress
  Send state: in sync
  Active prefixes:          2
  Received prefixes:        2
  Suppressed due to damping: 0
Table BGP-L.inet.0 Bit: 40000
  RIB State: BGP restart in progress

```

```

RIB State: VPN restart in progress
Send state: in sync
Active prefixes:          2
Received prefixes:        2
Suppressed due to damping: 0
Table LDP.inet.0 Bit: 50000
RIB State: BGP restart is complete
RIB State: VPN restart in progress
Send state: in sync
Active prefixes:          1
Received prefixes:        1
Suppressed due to damping: 0
Table OSPF.inet.0 Bit: 60000
RIB State: BGP restart is complete
RIB State: VPN restart in progress
Send state: in sync
Active prefixes:          2
Received prefixes:        2
Suppressed due to damping: 0
Table RIP.inet.0 Bit: 70000
RIB State: BGP restart is complete
RIB State: VPN restart in progress
Send state: in sync
Active prefixes:          2
Received prefixes:        2
Suppressed due to damping: 0
Table STATIC.inet.0 Bit: 80000
RIB State: BGP restart is complete
RIB State: VPN restart in progress
Send state: in sync
Active prefixes:          1
Received prefixes:        1
Suppressed due to damping: 0
Table L2VPN.l2vpn.0 Bit: 90000
RIB State: BGP restart is complete
RIB State: VPN restart in progress
Send state: in sync
Active prefixes:          1
Received prefixes:        1
Suppressed due to damping: 0
Last traffic (seconds): Received 0    Sent 0    Checked 0
Input messages: Total 14    Updates 13    Refreshes 0    Octets 1053
Output messages: Total 3    Updates 0    Refreshes 0    Octets 105
Output Queue[0]: 0
Output Queue[1]: 0
Output Queue[2]: 0
Output Queue[3]: 0
Output Queue[4]: 0
Output Queue[5]: 0
Output Queue[6]: 0
Output Queue[7]: 0
Output Queue[8]: 0

```

**show bgp neighbor
(Layer 3 VPN)**

```

user@host> show bgp neighbor
Peer: 4.4.4.4+179    AS 10045 Local: 5.5.5.5+1214    AS 10045
Type: Internal    State: Established    Flags: <ImportEval>
Last State: OpenConfirm    Last Event: RecvKeepAlive
Last Error: None
Export: [ match-all ] Import: [ match-all ]
Options: <Preference LocalAddress HoldTime GracefulRestart AddressFamily
Rib-group Refresh>

```

```

Address families configured: inet-vpn-unicast
Local Address: 5.5.5.5 Holdtime: 90 Preference: 170
Flags for NLRI inet-labeled-unicast: TrafficStatistics
Traffic Statistics: Options: all File: /var/log/bstat.log
                                size 131072 files 10

Traffic Statistics Interval: 60
Number of flaps: 0
Peer ID: 192.168.1.110    Local ID: 192.168.1.111    Active Holdtime: 90
Keepalive Interval: 30
NLRI for restart configured on peer: inet-vpn-unicast
NLRI advertised by peer: inet-vpn-unicast
NLRI for this session: inet-vpn-unicast
Peer supports Refresh capability (2)
Restart time configured on the peer: 120
Stale routes from peer are kept for: 300
Restart time requested by this peer: 120
NLRI that peer supports restart for: inet-vpn-unicast
NLRI peer can save forwarding state: inet-vpn-unicast
NLRI that peer saved forwarding for: inet-vpn-unicast
NLRI that restart is negotiated for: inet-vpn-unicast
NLRI of received end-of-rib markers: inet-vpn-unicast
NLRI of all end-of-rib markers sent: inet-vpn-unicast
Table bgp.13vpn.0 Bit: 10000
  RIB State: BGP restart is complete
  RIB State: VPN restart is complete
  Send state: in sync
  Active prefixes:          2
  Received prefixes:        2
  Suppressed due to damping: 0
Table vpn-green.inet.0 Bit: 20001
  RIB State: BGP restart is complete
  RIB State: VPN restart is complete
  Send state: in sync
  Active prefixes:          2
  Received prefixes:        2
  Suppressed due to damping: 0
Last traffic (seconds): Received 15    Sent 20    Checked 20
Input messages: Total 40    Updates 2    Refreshes 0    Octets 856
Output messages: Total 44    Updates 2    Refreshes 0    Octets 1066
Output Queue[0]: 0
Output Queue[1]: 0
Trace options: detail packets
Trace file: /var/log/bgpgr.log size 131072 files 10

```

**show bgp neighbor
neighbor-address**

```

user@host> show bgp neighbor 192.168.1.111
Peer: 10.255.245.12+179 AS 35 Local: 10.255.245.13+2884 AS 35
Type: Internal    State: Established (route reflector client)Flags: <Sync>
Last State: OpenConfirm    Last Event: RecvKeepAlive
Last Error: None
Options: <Preference LocalAddress HoldTime Cluster AddressFamily Rib-group
Refresh>
Address families configured: inet-vpn-unicast inet-labeled-unicast
Local Address: 10.255.245.13 Holdtime: 90 Preference: 170
Flags for NLRI inet-vpn-unicast: AggregateLabel
Flags for NLRI inet-labeled-unicast: AggregateLabel
Number of flaps: 0
Peer ID: 10.255.245.12    Local ID: 10.255.245.13    Active Holdtime: 90
Keepalive Interval: 30
BFD: disabled
NLRI advertised by peer: inet-vpn-unicast inet-labeled-unicast
NLRI for this session: inet-vpn-unicast inet-labeled-unicast

```



```

Peer supports Refresh capability (2)
Restart time configured on the peer: 300
Stale routes from peer are kept for: 60
Restart time requested by this peer: 300
NLRI that peer supports restart for: inet-unicast inet6-unicast
NLRI that restart is negotiated for: inet-unicast inet6-unicast
NLRI of received end-of-rib markers: inet-unicast inet6-unicast
NLRI of all end-of-rib markers sent: inet-unicast inet6-unicast
Table inet.0 Bit: 10000
  RIB State: restart is complete
  Send state: in sync
  Active prefixes: 4
  Received prefixes: 6
  Suppressed due to damping: 0
Table inet6.0 Bit: 20000
  RIB State: restart is complete
  Send state: in sync
  Active prefixes: 0
  Received prefixes: 2
  Suppressed due to damping: 0
Last traffic (seconds): Received 3    Sent 3    Checked 3
Input messages: Total 9    Updates 6    Refreshes 0    Octets 403
Output messages: Total 7    Updates 3    Refreshes 0    Octets 365
Output Queue[0]: 0
Output Queue[1]: 0
Trace options: detail packets
Trace file: /var/log/bgpr size 131072 files 10

```

**show bgp neighbor
neighbor-address**

```

user@host> show bgp neighbor 192.168.4.222
Peer: 192.168.4.222+4902 AS 65501 Local: 192.168.4.221+179 AS 65500
  Type: External    State: Established    Flags: <Sync>
  Last State: OpenConfirm    Last Event: RecvKeepAlive
  Last Error: Cease
  Export: [ export-policy ] Import: [ import-policy ]
  Options: <Preference HoldTime AddressFamily PeerAS PrefixLimit Refresh>
  Address families configured: inet-unicast inet-multicast
  Holdtime: 60000 Preference: 170
  Number of flaps: 4
  Last flap event: RecvUpdate
  Error: 'Cease' Sent: 5 Recv: 0
  Peer ID: 10.255.245.6    Local ID: 10.255.245.5    Active Holdtime: 60000
  Keepalive Interval: 20000    Peer index: 0
  BFD: disabled, down
  Local Interface: fxp0.0
  NLRI advertised by peer: inet-unicast inet-multicast
  NLRI for this session: inet-unicast inet-multicast
  Peer supports Refresh capability (2)
  Table inet.0 Bit: 10000
    RIB State: BGP restart is complete
    Send state: in sync
    Active prefixes:          8
    Received prefixes:        10
    Accepted prefixes:        10
    Suppressed due to damping: 0
    Advertised prefixes:      3
  Table inet.2 Bit: 20000
    RIB State: BGP restart is complete
    Send state: in sync
    Active prefixes:          0
    Received prefixes:        0
    Accepted prefixes:        0

```

```

    Suppressed due to damping:    0
    Advertised prefixes:          0
    Last traffic (seconds): Received 357 Sent 357 Checked 357
    Input messages: Total 4 Updates 2 Refreshes 0 Octets 211
    Output messages: Total 4 Updates 1 Refreshes 0 Octets 147
    Output Queue[0]: 0
    Output Queue[1]: 0
    Trace options: all
    Trace file: /var/log/bgp size 10485760 files 10

```

**show bgp neighbor orf
neighbor-address detail**

```

user@host > show bgp neighbor orf 192.168.165.56 detail
Peer: 192.168.165.56+179 Type: External
Group: ext1

inet-unicast
  Filter updates rcv:          1 Immediate:          1
  Filter: prefix-filter receive
  Received filter entries:
    seq 1: prefix 2.2.2.2/32: minlen 32: maxlen 32: match deny:

inet6-unicast
  Filter updates rcv:          0 Immediate:          1
  Filter: prefix-filter receive
  Received filter entries:
    *.*

```

show bgp summary

Syntax	show bgp summary <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Border Gateway Protocol (BGP) summary information.
Options	<p>none—Display BGP summary information for all routing instances.</p> <p>instance <i>instance-name</i>—(Optional) Display information for the specified instance only. The instance name can be master for the main instance, or any valid configured instance name or its prefix.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show bgp summary (When a Peer Is Not Established) on page 39</p> <p>show bgp summary (When a Peer Is Established) on page 39</p> <p>show bgp summary (CLNS) on page 39</p> <p>show bgp summary (Layer 2 VPN) on page 39</p> <p>show bgp summary (Layer 3 VPN) on page 40</p>
Output Fields	Table 13 on page 37 describes the output fields for the show bgp summary command. Output fields are listed in the approximate order in which they appear.

Table 13: show bgp summary Output Fields

Field Name	Field Description
Groups	Number of BGP groups.
Peers	Number of BGP peers.
Down peers	Number of down BGP peers.
Table	Name of routing table.
Tot Paths	Total number of paths.
Act Paths	Number of active routes.
Suppressed	Number of routes currently inactive because of damping or other reasons. These routes do not appear in the forwarding table and are not exported by routing protocols.
History	Number of withdrawn routes stored locally to keep track of damping history.
Damp State	Number of routes with a figure of merit greater than zero, but still active because the value has not reached the threshold at which suppression occurs.

Table 13: show bgp summary Output Fields (continued)

Field Name	Field Description
Pending	Routes in process by BGP import policy.
Peer	Address of each BGP peer. Each peer has one line of output.
AS	Peer's AS number.
InPkt	Number of packets received from the peer.
OutPkt	Number of packets sent to the peer.
OutQ	Count of the number of BGP packets that are queued to be transmitted to a particular neighbor. It normally is 0 because the queue usually is emptied quickly.
Flaps	Number of times the BGP session has gone down and then come back up.
Last Up/Down	Last time since the neighbor transitioned to or from the established state.
State #Active /Received/Accepted/Damped	<p>Multipurpose field that displays information about BGP peer sessions. The field's contents depend upon whether a session is established and whether an established session was established in the main router or in a routing instance.</p> <ul style="list-style-type: none"> ■ If a peer is not established, the field shows the state of the peer session: Active, Connect, or Idle. ■ If a BGP session is established in the main router, the field shows the number of active, received, accepted, and damped routes that are received from a neighbor and appear in the inet.0 (main) and inet.2 (multicast) routing tables. For example, 8/10/10/2 2/4/4/0 indicates the following: <ul style="list-style-type: none"> ■ 8 active routes, 10 received routes, 10 accepted routes, and 2 damped routes from a BGP peer appear in the inet.0 routing table. ■ 2 active routes, 4 received routes, 4 accepted routes, and no damped routes from a BGP peer appear in the inet.2 routing table. ■ If a BGP session is established in a routing instance, the field indicates the established (Establ) state, identifies the specific routing table that receives BGP updates, and shows the number of active, received, and damped routes that are received from a neighbor. For example, Establ VPN-AB.inet.0: 2/4/0 indicates the following: <ul style="list-style-type: none"> ■ The BGP session is established. ■ Routes are received in the VPN-AB.inet.0 routing table. ■ The local router has two active routes, four received routes, and no damped routes from a BGP peer. <p>When a BGP session is established, the peers are exchanging update messages.</p>

**show bgp summary
(When a Peer Is Not
Established)**

```

user@host> show bgp summary
Groups: 2 Peers: 4 Down peers: 1
Table      Tot Paths  Act Paths Suppressed  History  Damp State   Pending
inet.0          6          4          0          0          0          0
Peer        AS      InPkt    OutPkt    OutQ    Flaps Last Up/Dwn
State|#Active/Received/Damped...
10.0.0.3      65002        86        90        0        2      42:54 0/0/0

0/0/0
10.0.0.4      65002        90        91        0        1      42:54 0/2/0

0/0/0
10.0.0.6      65002        87        90        0        3          3 Active
10.1.12.1     65001        89        89        0        1      42:54 4/4/0

0/0/0

```

**show bgp summary
(When a Peer Is
Established)**

```

user@host> show bgp summary
Groups: 1 Peers: 3 Down peers: 0
Table      Tot Paths  Act Paths Suppressed  History  Damp State   Pending
inet.0          6          4          0          0          0          0
Peer        AS      InPkt    OutPkt    OutQ    Flaps Last Up/Dwn
State|#Active/Received/Damped...
10.0.0.2      65002     88675     88652        0        2      42:38 2/4/0

0/0/0
10.0.0.3      65002     54528     54532        0        1     2w4d22h 0/0/0

0/0/0
10.0.0.4      65002     51597     51584        0        0     2w3d22h 2/2/0

0/0/0

```

**show bgp summary
(CLNS)**

```

user@host> show bgp summary
Groups: 1 Peers: 1 Down peers: 0
Peer        AS      InPkt    OutPkt    OutQ    Flaps Last Up/Dwn
State|#Active/Received/Damped...
10.245.245.1 200      1735     1737        0        0     14:26:12 Establ
  bgp.isovpn.0: 3/3/0
  aaaa.iso.0: 3/3/0

```

**show bgp summary
(Layer 2 VPN)**

```

user@host> show bgp summary
Groups: 1 Peers: 5 Down peers: 0
Table      Tot Paths  Act Paths Suppressed  History  Damp State   Pending
bgp.l2vpn.0      1          1          0          0          0          0
inet.0           0          0          0          0          0          0
Peer        AS      InPkt    OutPkt    OutQ    Flaps Last Up/Dwn
Up/Dwn State|#Active/Received/Damped...
10.255.245.35  65299        72        74        0        1      19:00 Establ
  bgp.l2vpn.0: 1/1/0
  frame-vpn.l2vpn.0: 1/1/0
10.255.245.36  65299     2164     2423        0        4      19:50 Establ
  bgp.l2vpn.0: 0/0/0
  frame-vpn.l2vpn.0: 0/0/0
10.255.245.37  65299        36        37        0        4      17:07 Establ
  inet.0: 0/0/0
10.255.245.39  65299       138       168        0        6      53:48 Establ
  bgp.l2vpn.0: 0/0/0
  frame-vpn.l2vpn.0: 0/0/0
10.255.245.69  65299       134       140        0        6      53:42 Establ
  inet.0: 0/0/0

```

show bgp summary
(Layer 3 VPN)user@host> **show bgp summary**

Groups: 2 Peers: 2 Down peers: 0

Table	Tot Paths	Act Paths	Suppressed	History	Damp	State	Pending
bgp.l3vpn.0	2	2	0	0		0	0
Peer	AS	InPkt	OutPkt	OutQ	Flaps	Last Up/Dwn	
State #Active/Received/Damped...							
10.39.1.5	2	21	22	0	0	6:26	Establ
VPN-AB.inet.0: 1/1/0							
10.255.71.15	1	19	21	0	0	6:17	Establ
bgp.l3vpn.0: 2/2/0							
VPN-A.inet.0: 1/1/0							
VPN-AB.inet.0: 2/2/0							
VPN-B.inet.0: 1/1/0							

show policy damping

Syntax	show policy damping <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Border Gateway Protocol (BGP) route flap damping parameters.
Options	<p>none—(Same as logical-system all) Display information about BGP route flap damping parameters for all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	In the output from this command, figure-of-merit values correlate to the probability of future instability of a router. Routes with higher figure-of-merit values are suppressed for longer periods of time. The figure-of-merit value decays exponentially over time. A figure-of-merit value of zero is assigned to each new route. The value is increased each time the route is withdrawn or readvertised, or when one of its path attributes changes.
Required Privilege Level	view
Related Topics	<p>clear bgp damping on page 12</p> <p>show route damping on page 311</p>
List of Sample Output	show policy damping on page 42
Output Fields	Table 14 on page 41 describes the output fields for the show policy damping command. Output fields are listed in the approximate order in which they appear.

Table 14: show policy damping Output Fields

Field Name	Field Description
Halflife	Decay half-life, in minutes. The value represents the period during which the accumulated figure-of-merit value is reduced by half if the route remains stable. If a route has flapped, but then becomes stable, the figure-of-merit value for the route decays exponentially. For example, for a route with a figure-of-merit value of 1500, if no incidents occur, its figure-of-merit value is reduced to 750 after 15 minutes and to 375 after another 15 minutes.
Reuse merit	Figure-of-merit value below which a suppressed route can be used again. A suppressed route becomes reusable when its figure-of-merit value decays to a value below a reuse threshold, and the route once again is considered usable and can be installed in the forwarding table and exported from the routing table.
Suppress/cutoff metric	Figure-of-merit value above which a route is suppressed for use or inclusion in advertisements. When a route's figure-of-merit value reaches a particular level, called the cutoff or suppression threshold, the route is suppressed. When a route is suppressed, the routing table no longer installs the route into the forwarding table and no longer exports this route to any of the routing protocols.

Table 14: show policy damping Output Fields (*continued*)

Field Name	Field Description
Maximum suppress time	Maximum hold-down time, in minutes. The value represents the maximum time that a route can be suppressed no matter how unstable it has been before this period of stability.
Computed values	<ul style="list-style-type: none">■ Merit ceiling—Maximum merit that a flapping route can collect.■ Maximum decay—Maximum decay half-life, in minutes.

```
show policy damping user@host> show policy damping
Default damping information:
  Halflife: 15 minutes
  Reuse merit: 750 Suppress/cutoff merit: 3000
  Maximum suppress time: 60 minutes
Computed values:
  Merit ceiling: 12110
  Maximum decay: 6193
```


Chapter 3

ES-IS Operational Mode Commands

Table 15 on page 43 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the End System-to-Intermediate System (ES-IS) protocol. Commands are listed in alphabetical order.

Table 15: ES-IS Operational Mode Commands

Task	Command
Clear ES-IS adjacencies.	<code>clear esis adjacency</code> on page 44
Clear ES-IS statistics for packets sent or received.	<code>clear esis statistics</code> on page 45
Display ES-IS adjacencies.	<code>show esis adjacency</code> on page 46
Display ES-IS interfaces.	<code>show esis interface</code> on page 48
Display ES-IS statistics for packets sent or received.	<code>show esis statistics</code> on page 50



NOTE: ES-IS is supported only on the J-series routing platform. For information about how to configure ES-IS, see the *J-series Services Router Basic LAN and WAN Access Configuration Guide* or the *JUNOS Routing Protocols Configuration Guide*.

clear esis adjacency

Syntax	clear esis adjacency <instance <i>instance-name</i> > <interface <i>interface-name</i> > <neighbor>
Release Information	Command introduced before JUNOS Release 7.4.
Description	(J-series routing platform only) Clear End System-to-Intermediate System (ES-IS) adjacencies.
Options	<p>none—Clear all ES-IS adjacencies.</p> <p>instance <i>instance-name</i>—(Optional) Clear adjacencies for the specified routing instance only.</p> <p>interface <i>interface-name</i>—(Optional) Clear adjacencies for the specified interface only.</p> <p>neighbor—(Optional) Clear adjacencies for the specified neighbor only.</p>
Required Privilege Level	clear
Related Topics	show esis adjacency on page 46
List of Sample Output	clear esis adjacency on page 44
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear esis adjacency	user@host> clear esis adjacency

clear esis statistics

Syntax	clear esis statistics <instance <i>instance-name</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	(J-series routing platform only) Clear End System-to-Intermediate System (ES-IS) packet statistics.
Options	none—Clear ES-IS packet statistics for all routing instances. instance <i>instance-name</i> —(Optional) Clear ES-IS packet statistics for the specified routing instance only.
Required Privilege Level	clear
Related Topics	show esis statistics on page 50
List of Sample Output	clear esis statistics on page 45
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear esis statistics	user@host> clear esis statistics

show esis adjacency

Syntax	show esis adjacency <brief detail extensive> <esis-neighbor-id> <instance <i>instance-name</i> > <interface <i>interface-name</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	(J-series routing platform only) Display End System-to-Intermediate System (ES-IS) adjacencies.
Options	<p>none—(Same as brief) Display all ES-IS adjacencies.</p> <p>brief detail extensive—Display the specified level of output.</p> <p>esis-neighbor-id—(Optional) Display adjacencies for the specified neighbor's network service access point (NSAP) only.</p> <p>instance <i>instance-name</i>—(Optional) Display adjacencies for the specified routing instance only.</p> <p>interface <i>interface-name</i>—(Optional) Display adjacencies for the specified interface only.</p>
Required Privilege Level	view
Related Topics	clear esis adjacency on page 44
List of Sample Output	<p>show esis adjacency on page 47</p> <p>show esis adjacency brief on page 47</p> <p>show esis adjacency detail on page 47</p> <p>show esis adjacency extensive on page 47</p>
Output Fields	Table 16 on page 46 describes the output fields for the show esis adjacency command. Output fields are listed in the approximate order in which they appear.

Table 16: show esis adjacency Output Fields

Field Name	Field Description	Level of Output
Nbr Type	Type of network service access point (NSAP) of this neighbor.	brief none
NSAP/NET	NSAP of this neighbor.	All levels
Type	Type of NSAP of this neighbor.	detail extensive
Hold (secs)	Holdtime interval advertised by this neighbor.	brief none
Interface	Interface through which the neighbor is reachable.	All levels
Advertised holdtime	Holdtime interval advertised by this neighbor.	detail extensive

Table 16: show esis adjacency Output Fields (*continued*)

Field Name	Field Description	Level of Output
Expires in	How long until the adjacency expires, in seconds.	detail extensive
SNPA	Subnetwork point of attachment (MAC address of the neighbor).	detail extensive
Transition log	List of recent transitions. <ul style="list-style-type: none"> ■ When—Time of advertisement from this neighbor. ■ State—State of the adjacency: Up, Down, New, One-way, Initializing, or Rejected. ■ Event—Event causing the state. ■ Down reason—Reason the adjacency is down. 	extensive

```

show esis adjacency user@host> show esis adjacency
Nbr   NSAP/NET                               Hold Interface
Type                                     (secs)
IS    47.0005.80ff.f800.0000.0108.0001.0102.5501.6008    135 fe-0/0/0.0

```

show esis adjacency brief The output for the show esis adjacency brief command is identical to that for the show esis adjacency command. For sample output, see show esis adjacency on page 47.

```

show esis adjacency detail user@host> show esis adjacency detail
NSAP/NET: 47.0005.80ff.f800.0000.0108.0001.0102.5501.6008, Type: IS
Interface: fe-0/0/0.0, Advertised hold time: 180 secs, Expires in: 173 secs
SNPA: 0:5:85:c1:73:71

```

```

show esis adjacency extensive user@host> show esis adjacency extensive
NSAP/NET: 47.0005.80ff.f800.0000.0108.0001.0102.5501.6008, Type: IS
Interface: fe-0/0/0.0, Advertised hold time: 180 secs, Expires in: 167 secs
SNPA: 0:5:85:c1:73:71
Transition log:
When           State      Event           Down reason
Sun Nov 26 22:07:35  Up        Received ISH

```

show esis interface

Syntax	show esis interface <brief detail extensive> <instance <i>instance-name</i> > <interface <i>interface-name</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	(J-series routing platform only) Display End System-to-Intermediate System (ES-IS) interface information.
Options	<p>none—(Same as brief) Display information for all configured ES-IS interfaces.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>instance <i>instance-name</i>—(Optional) Display configured interfaces for the specified routing instance only.</p> <p>interface <i>interface-name</i>—(Optional) Display information about the specified interface only.</p>
Required Privilege Level	view
List of Sample Output	<p>show esis interface on page 49</p> <p>show esis interface brief on page 49</p> <p>show esis interface detail on page 49</p> <p>show esis interface extensive on page 49</p>
Output Fields	Table 17 on page 48 describes the output fields for the show esis interface command. Output fields are listed in the approximate order in which they appear.

Table 17: show esis interface Output Fields

Field Name	Field Description	Level of Output
Interface	Interface through which the adjacency is made.	All levels
Receives	Types of hello messages that are received.	All levels
Sends	Types of hello messages that are sent.	All levels
Hello interval	Interface's hello interval, in seconds.	All levels
Adjacencies or Num Adj	Number of adjacencies established on this interface.	All levels
Holdtime	Interface's hold time, in seconds.	detail extensive
State	Internal implementation information.	detail extensive
End system configuration timer	Time, in seconds, for the end system to configure itself for ES-IS.	detail extensive

Table 17: show esis interface Output Fields (continued)

Field Name	Field Description	Level of Output
Interface index	Index value.	detail extensive
NET used in hello	Network entity title used in hello messages.	detail extensive

show esis interface	<pre>user@host> show esis interface Interface Receives Sends Hello Interval Num Adj fe-0/0/0.0 ISH ISH 60.00 1 lo0.0 ISH - 60.00 0</pre>
show esis interface brief	The output for the show esis interface brief command is identical to that for the show esis interface command. For sample output, see show esis interface on page 49.
show esis interface detail	<pre>user@host> show esis interface detail Interface: fe-0/0/0.0 Receives: ISH, Sends: ISH, Hello interval: 60.00 Adjacencies: 1, Holdtime: 180, End system configuration timer: 180 Interface index: 68, State: 0x2 NET used in hello: 47.0005.80ff.f800.0000.0108.0001.0102.5501.6007 Interface: lo0.0 Receives: ISH, Sends: - , Hello interval: 60.00 Adjacencies: 0, Holdtime: 180, End system configuration timer: 180 Interface index: 64, State: 0x2 NET used in hello: 47.0005.80ff.f800.0000.0108.0001.0102.5501.6007</pre>
show esis interface extensive	The output for the show esis interface extensive command is identical to that for the show esis interface detail command. For sample output, see show esis interface detail on page 49.

show esis statistics

Syntax	show esis statistics <instance <i>instance-name</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	(J-series routing platform only) Display End System-to-Intermediate System (ES-IS) packet statistics.
Options	none—Display ES-IS packet statistics for all routing instances. instance <i>instance-name</i> —(Optional) Display ES-IS statistics for the specified routing instance only.
Required Privilege Level	view
Related Topics	clear esis statistics on page 45
List of Sample Output	show esis statistics on page 50
Output Fields	Table 18 on page 50 describes the output fields for the show esis statistics command. Output fields are listed in the approximate order in which they appear.

Table 18: show esis statistics Output Fields

Field Name	Field Description
PDU type	Protocol data unit type.
Received	Number of PDUs received since IS-IS started or since the statistics were set to zero.
Processed	Number of PDUs received less the number dropped.
Drops	Number of PDUs dropped.
Sent	Number of PDUs transmitted since IS-IS started or since the statistics were set to zero.
Total packets received/sent	Total number of PDUs received and transmitted since IS-IS started or since the statistics were set to zero.

```

show esis statistics  user@host> show esis statistics
PDU type  Received  Processed  Drops    Sent
ESH              3         3        0        8
ISH             11        10        1        4
RD              0         0        0        0
Unknown         0         0        0        0
Totals         14        13        1       12
Total packets received: 14 sent: 0

```


Chapter 4

IP Multicast Operational Mode Commands

Table 19 on page 51 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot IP multicast. In the table, the commands are listed in alphabetical order.

Table 19: IP Multicast Operational Mode Commands

Task	Command
Clear Internet Group Management Protocol (IGMP) group members.	clear igmp membership on page 55
Clear IGMP snooping membership information.	clear igmp snooping membership on page 58
Clear IGMP snooping statistics.	clear igmp snooping statistics on page 59
Clear IGMP statistics.	clear igmp statistics on page 60
Clear Multicast Listener Discovery (MLD) group members.	clear mld membership on page 62
Clear MLD statistics.	clear mld statistics on page 63
Clear Multicast Source Discovery Protocol (MSDP) source active cache.	clear msdp cache on page 64
Clear MSDP statistics.	clear msdp statistics on page 65
Clear multicast bandwidth admissions.	clear multicast bandwidth-admission on page 67
Clear multicast scope.	clear multicast scope on page 66
Clear multicast snooping statistics.	clear multicast snooping statistics on page 70
Clear multicast statistics.	clear multicast statistics on page 71
Clear multicast sessions.	clear multicast sessions on page 69
Clear Pragmatic General Multicast (PGM) negative acknowledgments (NAKs).	clear pgm negative-acknowledgments on page 72
Clear PGM source-path messages.	clear pgm source-path-messages on page 73

Table 19: IP Multicast Operational Mode Commands *(continued)*

Task	Command
Clear PGM statistics.	clear pgm statistics on page 74
Clear the Protocol Independent Multicast (PIM) join and prune states.	clear pim join on page 75
Clear PIM register message counters.	clear pim register on page 76
Clear PIM statistics.	clear pim statistics on page 77
Display the status of interfaces on which Distance Vector Multicast Routing Protocol (DVMRP) is configured.	show dvmrp interfaces on page 79
Display DVMRP neighbors.	show dvmrp neighbors on page 81
Display DVMRP prefixes.	show dvmrp prefix on page 83
Display DVMRP prunes.	show dvmrp prunes on page 85
Display members of IGMP groups.	show igmp group on page 87
Display members of IGMP groups by interface.	show igmp interface on page 90
Display IGMP snooping interface information.	show igmp snooping interface on page 93
Display IGMP snooping membership information.	show igmp snooping membership on page 95
Display IGMP snooping statistics.	show igmp snooping statistics on page 97
Display IGMP statistics.	show igmp statistics on page 100
Display members of MLD groups.	show mld group on page 103
Display members of MLD groups by interface.	show mld interface on page 107
Display MLD statistics.	show mld statistics on page 110
Display MSDP peers.	show msdp on page 112
Display multicast sources learned from MSDP.	show msdp source on page 114
Display the MSDP source-active cache.	show msdp source-active on page 116
Display MSDP statistics.	show msdp statistics on page 118
Display configuration information about IP multicast flow maps.	show multicast flow-map on page 120 show multicast flow-map on page 120
Display multicast interface bandwidth information.	show multicast interface on page 121
Display multicast network configuration.	show multicast minfo on page 122

Table 19: IP Multicast Operational Mode Commands *(continued)*

Task	Command
Display entries in the multicast next-hop table.	show multicast next-hops on page 124
Display entries in the multicast forwarding cache.	show multicast route on page 126
Display multicast reverse-path-forwarding calculations.	show multicast rpf on page 130
Display administratively scoped addresses.	show multicast scope on page 134
Display announced multicast sessions.	show multicast sessions on page 136
Display multicast snooping route.	show multicast snooping route on page 138
Display multicast snooping statistics.	show multicast snooping statistics on page 140
Display multicast statistics.	show multicast statistics on page 143
Display most active multicast groups.	show multicast usage on page 146
Display sent or received NAKs.	show pgm negative-acknowledgments on page 148
Display PGM source-path messages.	show pgm source-path-messages on page 150
Display PGM statistics.	show pgm statistics on page 151
Display bootstrap routers.	show pim bootstrap on page 154
Display the status of interfaces on which PIM is configured.	show pim interfaces on page 156
Display PIM (*,*,RP) join and prune states.	show pim join on page 159
Display PIM data-driven multicast distribution trees (MDTs).	show pim mdt on page 164
Display PIM neighbors.	show pim neighbors on page 167
Display rendezvous points.	show pim rps on page 170
Display PIM source RPF state.	show pim source on page 175
Display PIM statistics.	show pim statistics on page 177
Display Session Announcement Protocol (SAP) addresses.	show sap listen on page 179
Test MSDP peers.	test msdp on page 180



NOTE: For information about the **mtrace** commands used to monitor IP multicast traffic in real time, see the *JUNOS System Basics and Services Command Reference*. For information about how to configure IP multicast, see the *JUNOS Multicast Protocols Configuration Guide*.

clear igmp membership

Syntax	clear igmp membership <group <i>address-range</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Internet Group Management Protocol (IGMP) group members.
Options	<p>none—Clear all IGMP members on all interfaces and for all address ranges.</p> <p>group <i>address-range</i>—(Optional) Clear all IGMP members that are in a particular address range. An example of a range is 224.2/16. If you omit the destination prefix length, the default is /32.</p> <p>interface <i>interface-name</i>—(Optional) Clear all IGMP group members on an interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Topics	<p>show igmp group on page 87</p> <p>show igmp interface on page 90</p>
List of Sample Output	<p>clear igmp membership on page 55</p> <p>clear igmp membership interface on page 56</p> <p>clear igmp membership group on page 56</p>
Output Fields	See show igmp group on page 87 for an explanation of output fields.
clear igmp membership	The following sample output displays IGMP group information before and after the clear igmp membership command is entered:

```

user@host> show igmp group
Interface      Group           Last Reported   Timeout
so-0/0/0       224.2.127.253   10.1.128.1      186
so-0/0/0       224.2.127.254   10.1.128.1      186
so-0/0/0       239.255.255.255 10.1.128.1      187
so-0/0/0       224.1.127.255   10.1.128.1      188
local         224.0.0.6        (null)          0
local         224.0.0.5        (null)          0
local         224.2.127.254    (null)          0
local         239.255.255.255  (null)          0
local         224.0.0.2        (null)          0
local         224.0.0.13       (null)          0

user@host> clear igmp membership
Clearing Group Membership Info for so-0/0/0
Clearing Group Membership Info for so-1/0/0
Clearing Group Membership Info for so-2/0/0

```

```

user@host> show igmp group
Interface      Group          Last Reported  Timeout
local         224.0.0.6      (null)         0
local         224.0.0.5      (null)         0
local         224.2.127.254  (null)         0
local         239.255.255.255 (null)         0
local         224.0.0.2      (null)         0
local         224.0.0.13     (null)         0

```

clear igmp membership interface The following sample output displays IGMP group information before and after the clear igmp membership interface command is issued:

```

user@host> show igmp group
Interface      Group          Last Reported  Timeout
so-0/0/0       224.2.127.253  10.1.128.1     210
so-0/0/0       239.255.255.255 10.1.128.1     210
so-0/0/0       224.1.127.255   10.1.128.1     215
so-0/0/0       224.2.127.254   10.1.128.1     216
local          224.0.0.6       (null)         0
local          224.0.0.5       (null)         0
local          224.2.127.254   (null)         0
local          239.255.255.255 (null)         0
local          224.0.0.2       (null)         0
local          224.0.0.13      (null)         0

```

```

user@host> clear igmp membership interface so-0/0/0
Clearing Group Membership Info for so-0/0/0

```

```

user@host> show igmp group
Interface      Group          Last Reported  Timeout
local          224.0.0.6       (null)         0
local          224.0.0.5       (null)         0
local          224.2.127.254   (null)         0
local          239.255.255.255 (null)         0
local          224.0.0.2       (null)         0
local          224.0.0.13      (null)         0

```

clear igmp membership group The following sample output displays IGMP group information before and after the clear igmp membership group command is entered:

```

user@host> show igmp group
Interface      Group          Last Reported  Timeout
so-0/0/0       224.2.127.253   10.1.128.1     210
so-0/0/0       239.255.255.255 10.1.128.1     210
so-0/0/0       224.1.127.255   10.1.128.1     215
so-0/0/0       224.2.127.254   10.1.128.1     216
local          224.0.0.6       (null)         0
local          224.0.0.5       (null)         0
local          224.2.127.254   (null)         0
local          239.255.255.255 (null)         0
local          224.0.0.2       (null)         0
local          224.0.0.13      (null)         0

```

```

user@host> clear igmp membership group 239.225/16
Clearing Group Membership Range 239.225.0.0/16 on so-0/0/0
Clearing Group Membership Range 239.225.0.0/16 on so-1/0/0
Clearing Group Membership Range 239.225.0.0/16 on so-2/0/0

```

```
user@host> show igmp group
```

Interface	Group	Last Reported	Timeout
so-0/0/0	224.1.127.255	10.1.128.1	231
so-0/0/0	224.2.127.254	10.1.128.1	233
so-0/0/0	224.2.127.253	10.1.128.1	236
local	224.0.0.6	(null)	0
local	224.0.0.5	(null)	0
local	224.2.127.254	(null)	0
local	239.255.255.255	(null)	0
local	224.0.0.2	(null)	0
local	224.0.0.13	(null)	0

clear igmp snooping membership

Syntax	clear igmp snooping membership <group source <i>address</i> > <instance <i>instance-name</i> > <interface <i>interface-name</i> > <learning-domain <i>learning-domain-name</i> > <vlan-id <i>vlan-identifier</i> >
Release Information	Command introduced in JUNOS Release 8.5.
Description	Clear IP IGMP snooping membership information.
Options	<p>none—Clear IGMP snooping membership for all supported address families on all interfaces on all logical systems.</p> <p>group source <i>address</i>—(Optional) Clear IGMP snooping membership for the specified multicast group or source address.</p> <p>instance <i>instance-name</i>—(Optional) Clear IGMP snooping membership for the specified instance.</p> <p>interface <i>interface-name</i>—(Optional) Clear IGMP snooping membership on a specific interface.</p> <p>learning-domain <i>learning-domain-name</i>—(Optional) Perform this operation on all learning domains or on a particular learning domain.</p> <p>vlan-id <i>vlan-identifier</i>—(Optional) Perform this operation on a particular VLAN.</p>
Required Privilege Level	clear
Related Topics	show igmp snooping membership on page 95
List of Sample Output	clear igmp snooping membership on page 58
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear igmp snooping membership	user@host> clear igmp snooping membership

clear igmp snooping statistics

Syntax	clear igmp snooping statistics <instance <i>instance-name</i> > <interface <i>interface-name</i> > <learning-domain (all <i>learning-domain-name</i>)> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in JUNOS Release 8.5.
Description	Clear IP IGMP snooping statistics.
Options	<p>none—Clear IGMP snooping statistics for all supported address families on all interfaces on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Clear IGMP snooping statistics for the specified instance.</p> <p>interface <i>interface-name</i>—(Optional) Clear IGMP snooping statistics on a specific interface.</p> <p>learning-domain (all <i>learning-domain-name</i>)—(Optional) Perform this operation on all learning domains or on a particular learning domain.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Topics	show igmp snooping statistics on page 97
List of Sample Output	clear igmp snooping statistics on page 59
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear igmp snooping statistics	user@host> clear igmp snooping statistics

clear igmp statistics

Syntax	clear igmp statistics <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Internet Group Management Protocol (IGMP) statistics.
Options	none—Clear IGMP statistics on all interfaces. interface <i>interface-name</i> —(Optional) Clear IGMP statistics for the specified interface only. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Topics	show igmp statistics on page 100
List of Sample Output	clear igmp statistics on page 60
Output Fields	See show igmp statistics on page 100 for an explanation of output fields.

clear igmp statistics The following sample output displays IGMP statistics information before and after the clear igmp statistics command is entered:

```

user@host> show igmp statistics
IGMP packet statistics for all interfaces
IGMP Message type      Received      Sent  Rx errors
Membership Query       8883         459      0
V1 Membership Report   0            0        0
DVMRP                  19784       35476     0
PIM V1                 18310        0        0
Cisco Trace            0            0        0
V2 Membership Report   0            0        0
Group Leave            0            0        0
Mtrace Response        0            0        0
Mtrace Request         0            0        0
Domain Wide Report     0            0        0
V3 Membership Report   0            0        0
Other Unknown types    0            0        0
IGMP v3 unsupported type 0            0        0
IGMP v3 source required for SSM 0            0        0
IGMP v3 mode not applicable for SSM 0            0        0

IGMP Global Statistics
Bad Length              0
Bad Checksum            0
Bad Receive If          0
Rx non-local           1227

user@host> clear igmp statistics
user@host> show igmp statistics

```

```

IGMP packet statistics for all interfaces
IGMP Message type      Received      Sent  Rx errors
Membership Query        0            0      0
V1 Membership Report    0            0      0
DVMRP                   0            0      0
PIM V1                  0            0      0
Cisco Trace             0            0      0
V2 Membership Report    0            0      0
Group Leave             0            0      0
Mtrace Response         0            0      0
Mtrace Request          0            0      0
Domain Wide Report      0            0      0
V3 Membership Report    0            0      0
Other Unknown types     0            0      0
IGMP v3 unsupported type 0            0      0
IGMP v3 source required for SSM 0            0      0
IGMP v3 mode not applicable for SSM 0            0      0
IGMP Global Statistics
Bad Length              0
Bad Checksum            0
Bad Receive If          0
Rx non-local            0

```

clear mld membership

Syntax	clear mld membership <group <i>group-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Multicast Listener Discovery (MLD) group membership.
Options	<p>none—Clear all MLD memberships.</p> <p><i>group group-name</i>—(Optional) Clear MLD membership for the specified group.</p> <p><i>interface interface-name</i>—(Optional) Clear MLD group membership for the specified interface.</p> <p><i>logical-system (all logical-system-name)</i>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	show mld group on page 103
List of Sample Output	clear mld membership on page 62
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear mld membership	user@host> clear mld membership

clear mld statistics

Syntax	clear mld statistics <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Multicast Listener Discovery (MLD) statistics.
Options	<p>none—(Same as logical-system all) Clear MLD statistics for all interfaces on all logical systems.</p> <p>interface <i>interface-name</i>—(Optional) Clear MLD statistics for the specified interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Topics	show mld statistics on page 110
List of Sample Output	clear mld statistics on page 63
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear mld statistics	user@host> clear mld statistics

clear msdp cache

Syntax	clear msdp cache <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <peer <i>peer address</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear the entries in the Multicast Source Discovery Protocol (MSDP) source-active cache.
Options	<p>none—Clear entries in the MSDP source-active cache for all instances, logical systems, and peers.</p> <p>instance <i>instance-name</i>—(Optional) Clear entries for a specific MSDP instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>peer <i>peer-address</i>—(Optional) Clear the MSDP source-active cache entries learned from a specific peer.</p>
Required Privilege Level	clear
Related Topics	show msdp source-active on page 116
List of Sample Output	clear msdp cache on page 64
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear msdp cache	user@host> clear msdp cache

clear msdp statistics

Syntax	clear msdp statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <peer <i>peer-address</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Multicast Source Discovery Protocol (MSDP) peers statistics.
Options	<p>none—Clear MSDP statistics for all peers.</p> <p>instance <i>instance-name</i>—(Optional) Clear statistics for the specified instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>peer <i>peer-address</i>—(Optional) Clear the statistics for the specified peer.</p>
Required Privilege Level	clear
Related Topics	show msdp statistics on page 118
List of Sample Output	clear msdp statistics on page 65
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear msdp statistics	user@host> clear msdp statistics

clear multicast scope

Syntax	clear multicast scope <inet inet6> <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in JUNOS Release 7.6.
Description	Clear IP multicast scope statistics.
Options	<p>none—(Same as <i>logical-system all</i>) Clear multicast scope statistics on all logical systems.</p> <p>inet—(Optional) Clear multicast scope statistics for IPv4 family addresses.</p> <p>inet6—(Optional) Clear multicast scope statistics for IPv6 family addresses.</p> <p>interface <i>interface-name</i>—(Optional) Clear multicast scope statistics on a specific interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Topics	show multicast scope on page 134
List of Sample Output	clear multicast scope on page 66
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear multicast scope	user@host> clear multicast scope

clear multicast bandwidth-admission

Syntax clear multicast bandwidth-admission
 group *group-address*
 source *source-address*
 <inet | inet6>
 <instance *instance-name*>
 <interface *interface-name*>

Release Information Command introduced in JUNOS Release 8.3.

Description Reapply IP multicast bandwidth admissions.

Options none—Reapply multicast bandwidth admissions for all IPv4 forwarding entries in the master routing instance.

group group-address—(Optional) Reapply multicast bandwidth admissions for the specified group.

inet—(Optional) Reapply multicast bandwidth admission settings for IPv4 flows.

inet6—(Optional) Reapply multicast bandwidth admission settings for IPv6 flows.

instance instance-name—(Optional) Reapply multicast bandwidth admission settings for the specified instance. If you do not specify an instance, the command applies to the master routing instance.

interface interface-name—(Optional) Examines the corresponding outbound interface in the relevant entries and acts as follows:

- If the interface is congested, and it was admitted previously, it is removed.
- If the interface was rejected previously, the **clear multicast bandwidth-admission** command enables the interface to be admitted as long as enough bandwidth exists on the interface.
- If you do not specify an interface, issuing the **clear multicast bandwidth-admission** command readmits any previously rejected interface for the relevant entries as long as enough bandwidth exists on the interface.

To manually reject previously admitted outbound interfaces, you must specify the interface.

source source-address—(Optional) Use with *group* to reapply multicast bandwidth admission settings for the specified (source, group) entry.

Required Privilege Level clear

Related Topics show multicast interface on page 121

List of Sample Output clear multicast bandwidth-admission on page 68

Output Fields When you enter this command, you are provided feedback on the status of your request.

**clear multicast
bandwidth-admission** user@host> **clear multicast bandwidth-admission**

clear multicast sessions

Syntax	clear multicast sessions <logical-system (all <i>logical-system-name</i>)> < <i>regular-expression</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear IP multicast sessions.
Options	<p>none—(Same as logical-system all) Clear multicast sessions on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>regular-expression</i>—(Optional) Clear only multicast sessions that contain the specified regular expression.</p>
Required Privilege Level	clear
Related Topics	show multicast sessions on page 136
List of Sample Output	clear multicast sessions on page 69
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear multicast sessions	user@host> clear multicast sessions

clear multicast snooping statistics

Syntax	clear multicast snooping statistics <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in JUNOS Release 8.5.
Description	Clear IP multicast snooping statistics.
Options	<p>none—Clear multicast snooping statistics for all supported address families on all interfaces on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Clear multicast snooping statistics for the specified instance.</p> <p>interface <i>interface-name</i>—(Optional) Clear multicast snooping statistics on a specific interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Topics	show multicast snooping statistics on page 140
List of Sample Output	clear multicast snooping statistics on page 70
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear multicast snooping statistics	user@host> clear multicast snooping statistics

clear multicast statistics

Syntax	clear multicast statistics <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear IP multicast statistics.
Options	<p>none—Clear multicast statistics for all supported address families on all interfaces on all logical systems.</p> <p>inet—(Optional) Clear multicast statistics for IPv4 family addresses.</p> <p>inet6—(Optional) Clear multicast statistics for IPv6 family addresses.</p> <p>instance <i>instance-name</i>—(Optional) Clear multicast statistics for the specified instance.</p> <p>interface <i>interface-name</i>—(Optional) Clear multicast statistics on a specific interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Topics	show multicast statistics on page 143
List of Sample Output	clear multicast statistics on page 71
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear multicast statistics	user@host> clear multicast statistics

clear pgm negative-acknowledgments

Syntax	clear pgm negative-acknowledgments
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear the Pragmatic General Multicast (PGM) negative acknowledgment (NAK) state received.
Options	This command has no options.
Required Privilege Level	clear
Related Topics	show pgm negative-acknowledgments on page 148
List of Sample Output	clear pgm negative-acknowledgments on page 72
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear pgm negative-acknowledgments	user@host> clear pgm negative-acknowledgments

clear pgm source-path-messages

Syntax	clear pgm source-path-messages
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Pragmatic General Multicast (PGM) source-path messages.
Options	This command has no options.
Required Privilege Level	clear
Related Topics	show pgm source-path-messages on page 150
List of Sample Output	clear pgm source-path-messages on page 73
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear pgm source-path-messages	user@host> clear pgm source-path-messages

clear pgm statistics

Syntax	clear pgm statistics
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Pragmatic General Multicast (PGM) statistics.
Options	This command has no options.
Required Privilege Level	clear
Related Topics	show pgm statistics on page 151
List of Sample Output	clear pgm statistics on page 74
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear pgm statistics	user@host> clear pgm statistics

clear pim join

Syntax	clear pim join <group-address> <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear the Protocol Independent Multicast (PIM) join and prune states.
Options	<p>none—Clear the PIM join and prune states for all groups, family addresses, and instances on all logical systems.</p> <p><i>group-address</i>—(Optional) Clear the PIM join and prune states for a group address.</p> <p>inet inet6—(Optional) Clear the PIM join and prune states for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Clear the join and prune states for a specific PIM-enabled routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	The clear pim join command cannot be used to clear the PIM join and prune state on a backup Routing Engine when nonstop active routing is enabled.
Required Privilege Level	clear
Related Topics	show pim join on page 159
List of Sample Output	clear pim join on page 75
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear pim join	user@host> clear pim join

clear pim register

Syntax	clear pim register <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in JUNOS Release 7.6.
Description	Clear Protocol Independent Multicast (PIM) register message counters.
Options	<p>none—Clear PIM register message counters for all family addresses, instances, and interfaces on all logical systems.</p> <p>inet inet6—(Optional) Clear PIM register message counters for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Clear register message counters for a specific PIM-enabled routing instance.</p> <p>interface <i>interface-name</i>—(Optional) Clear PIM register message counters for a specific interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	The clear pim register command cannot be used to clear the PIM register state on a backup Routing Engine when nonstop active routing is enabled.
Required Privilege Level	clear
Related Topics	show pim statistics on page 177
List of Sample Output	clear pim register on page 76
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear pim register	user@host> clear pim register

clear pim statistics

Syntax	clear pim statistics <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Protocol Independent Multicast (PIM) statistics.
Options	<p>none—Clear PIM statistics for all family addresses, instances, and interfaces on all logical systems.</p> <p>inet inet6—(Optional) Clear PIM statistics for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Clear statistics for a specific PIM-enabled routing instance.</p> <p>interface <i>interface-name</i>—(Optional) Clear PIM statistics for a specific interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	The clear pim statistics command cannot be used to clear the PIM statistics on a backup Routing Engine when nonstop active routing is enabled.
Required Privilege Level	clear
Related Topics	show pim statistics on page 177
List of Sample Output	clear pim statistics on page 77
Output Fields	See show pim statistics on page 177 for an explanation of output fields.

clear pim statistics The following sample output displays PIM statistics before and after the clear pim statistics command is entered:

```

user@host> show pim statistics
PIM statistics on all interfaces:
PIM Message type      Received      Sent  Rx errors
Hello                  0             0        0
Register               0             0        0
Register Stop         0             0        0
Join Prune             0             0        0
Bootstrap              0             0        0
Assert                0             0        0
Graft                  0             0        0
Graft Ack              0             0        0
Candidate RP           0             0        0
V1 Query               2111          4222        0
V1 Register            0             0        0

```

V1 Register Stop	0	0	0
V1 Join Prune	14200	13115	0
V1 RP Reachability	0	0	0
V1 Assert	0	0	0
V1 Graft	0	0	0
V1 Graft Ack	0	0	0

PIM statistics summary for all interfaces:

Unknown type	0
V1 Unknown type	0
Unknown Version	0
Neighbor unknown	0
Bad Length	0
Bad Checksum	0
Bad Receive If	0
Rx Intf disabled	2007
Rx V1 Require V2	0
Rx Register not RP	0
RP Filtered Source	0
Unknown Reg Stop	0
Rx Join/Prune no state	1040
Rx Graft/Graft Ack no state	0

...

user@host> **clear pim statistics**

user@host> **show pim statistics**

PIM statistics on all interfaces:

PIM Message type	Received	Sent	Rx errors
Hello	0	0	0
Register	0	0	0
Register Stop	0	0	0
Join Prune	0	0	0
Bootstrap	0	0	0
Assert	0	0	0
Graft	0	0	0
Graft Ack	0	0	0
Candidate RP	0	0	0
V1 Query	1	0	0
V1 Register	0	0	0

...

show dvmrp interfaces

Syntax	show dvmrp interfaces <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Distance Vector Multicast Routing Protocol (DVMRP)-enabled interfaces.
Options	<p>none—(Same as logical-system all) Display information about DVMRP-enabled interfaces on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show dvmrp interfaces on page 80
Output Fields	Table 20 on page 79 describes the output fields for the show dvmrp interfaces command. Output fields are listed in the approximate order in which they appear.

Table 20: show dvmrp interfaces Output Fields

Field Name	Field Description
Interface	Name of the interface.
State	State of the interface: up or down.
Leaf	Whether the interface is a leaf (that is, whether it has no neighbors) or whether it has neighbors.
Metric	Interface metric: a value from 1 through 31.
Announce	Number of routes the interface is announcing.
Mode	DVMRP mode: <ul style="list-style-type: none"> ■ Forwarding—DVMRP does both the routing and the multicast data forwarding. ■ Unicast-routing—DVMRP does only the routing. Forwarding of the multicast data packets can be done by enabling PIM on the interface.

```
show dvmrp interfaces    user@host> show dvmrp interfaces
Interface State Leaf Metric Announce Mode
fxp0.0    Up   N   1   4 Forwarding
fxp1.0    Up   N   1   4 Forwarding
fxp2.0    Up   N   1   3 Forwarding
lo0.0     Up   Y   1   0 Unicast-routing
```

show dvmrp neighbors

Syntax	show dvmrp neighbors <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Distance Vector Multicast Routing Protocol (DVMRP) neighbors.
Options	<p>none—(Same as logical-system all) Display information about DVMRP neighbors on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show dvmrp neighbors on page 82
Output Fields	Table 21 on page 81 describes the output fields for the show dvmrp neighbors command. Output fields are listed in the approximate order in which they appear.

Table 21: show dvmrp neighbors Output Fields

Field Name	Field Description
Neighbor	Address of the neighboring DVMRP router.
Interface	Interface through which the neighbor is reachable.
Version	Version of DVMRP that the neighbor is running, in the format <i>major</i> <i>minor</i> .
Flags	<p>Information about the neighbor:</p> <ul style="list-style-type: none"> ■ 1—One way. The local router has seen the neighbor, but the neighbor has not seen the local router. ■ G—Neighbor supports generation ID. ■ L—Neighbor is a leaf router. ■ M—Neighbor supports mtrace. ■ N—Neighbor supports netmask in prunes and grafts. ■ P—Neighbor supports pruning. ■ S—Neighbor supports SNMP.
Routes	Number of routes learned from the neighbor.
Timeout	How long until the DVMRP neighbor information times out, in seconds.
Transitions	Number of generation ID changes that have occurred since the local router learned about the neighbor.

```
show dvmrp neighbors user@host> show dvmrp neighbors
```

Neighbor	Interface	Version	Flags	Routes	Timeout	Transitions
192.168.1.1	ipip.0	3.255	PGM	3	28	1

show dvmrp prefix

Syntax	show dvmrp prefix <brief detail> <logical-system (all <i>logical-system-name</i>)> <prefix>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Distance Vector Multicast Routing Protocol (DVMRP) prefixes.
Options	<p>none—Display standard information about all DVMRP prefixes on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>prefix—(Optional) Display information about specific prefixes.</p>
Required Privilege Level	view
List of Sample Output	<p>show dvmrp prefix on page 84</p> <p>show dvmrp prefix brief on page 84</p> <p>show dvmrp prefix detail on page 84</p>
Output Fields	Table 22 on page 83 describes the output fields for the show dvmrp prefix command. Output fields are listed in the approximate order in which they appear.

Table 22: show dvmrp prefix Output Fields

Field Name	Field Description	Level of Output
Prefix	DVMRP route.	All levels
Next hop	Next hop from which the route was learned.	All levels
Age	Last time that the route was refreshed.	All levels
<i>multicast-group</i>	Multicast group address.	detail
Prunes sent	Number of prunes sent to the multicast group.	detail
Grafts sent	Number of grafts sent to the multicast group.	detail
Cache lifetime	Lifetime of the group in the multicast cache, in seconds.	detail
Prune lifetime	Lifetime remaining and total lifetime of prunes, in seconds.	detail

```

show dvmrp prefix user@host> show dvmrp prefix
Prefix                Next hop                Age
10.38.0.0             /30 10.38.0.1           00:06:17
10.38.0.4             /30 10.38.0.5           00:06:13
10.38.0.8             /30 10.38.0.2           00:00:04
10.38.0.12            /30 10.38.0.6           00:00:04
10.255.14.114         /32 10.255.14.114       00:06:17
10.255.14.142         /32 10.38.0.2           00:00:04
10.255.14.144         /32 10.38.0.2           00:00:04
10.255.70.15          /32 10.38.0.6           00:00:04
192.168.14.0          /24 192.168.14.114      00:06:17
192.168.195.40        /30 192.168.195.41      00:06:17
192.168.195.92        /30 10.38.0.2           00:00:04

```

show dvmrp prefix brief The output for the show dvmrp prefix brief command is identical to that for the show dvmrp prefix command.

```

show dvmrp prefix detail user@host> show dvmrp prefix detail
Prefix                Next hop                Age
10.38.0.0             /30 10.38.0.1           00:06:28
10.38.0.4             /30 10.38.0.5           00:06:24
10.38.0.8             /30 10.38.0.2           00:00:15
10.38.0.12            /30 10.38.0.6           00:00:15
10.255.14.114         /32 10.255.14.114       00:06:28
10.255.14.142         /32 10.38.0.2           00:00:15
10.255.14.144         /32 10.38.0.2           00:00:15
10.255.70.15          /32 10.38.0.6           00:00:15
192.168.14.0          /24 192.168.14.114      00:06:28
192.168.195.40        /30 192.168.195.41      00:06:28
192.168.195.92        /30 10.38.0.2           00:00:15

```

show dvmrp prunes

Syntax	show dvmrp prunes <all rx tx> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about active Distance Vector Multicast Routing Protocol (DVMRP) prunes.
Options	<p>none—Display received and transmitted DVMRP prune information on all logical systems.</p> <p>all—(Optional) Display information about all received and transmitted prunes.</p> <p>rx—(Optional) Display information about received prunes.</p> <p>tx—(Optional) Display information about transmitted prunes.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show dvmrp prunes on page 85
Output Fields	Table 23 on page 85 describes the output fields for the <code>show dvmrp prunes</code> command. Output fields are listed in the approximate order in which they appear.

Table 23: show dvmrp prunes Output Fields

Field Name	Field Description
Group	Group address.
Source prefix	Prefix for the prune.
Timeout	How long until the prune message expires, in seconds.
Neighbor	Neighbor to which the prune was sent or from which the prune was received.

```

show dvmrp prunes user@host> show dvmrp prunes
Group           Source prefix      Timeout Neighbor
224.0.1.1       128.112.0.0       /12    7077 192.168.1.1
224.0.1.32      160.0.0.0         /3     7087 192.168.1.1
224.2.123.4     136.0.0.0         /5     6955 192.168.1.1
224.2.127.1     129.0.0.0         /8     7046 192.168.1.1
224.2.135.86    128.102.128.0     /17    7071 192.168.1.1
224.2.135.86    129.0.0.0         /8     7074 192.168.1.1

```

```
224.2.135.86 130.0.0.0 /7 7071 192.168.1.1
...
```

show igmp group

Syntax	show igmp group <brief detail> <group-name> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Internet Group Management Protocol (IGMP) group membership information.
Options	<p>none—Display standard information about membership for all IGMP groups on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>group-name—(Optional) Display group membership for the specified IP address only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	clear igmp membership on page 55
List of Sample Output	<p>show igmp group (Include Mode) on page 88</p> <p>show igmp group (Exclude Mode) on page 88</p> <p>show igmp group brief on page 89</p> <p>show igmp group detail on page 89</p>
Output Fields	Table 24 on page 87 describes the output fields for the show igmp group command. Output fields are listed in the approximate order in which they appear.

Table 24: show igmp group Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface that received the IGMP membership report. A name of local indicates that the local router joined the group itself.	All levels
Group	Group address.	All levels
Group Mode	Mode the SSM group is operating in: Include or Exclude.	All levels
Source	Source address.	All levels
Source timeout	Time remaining until the group traffic is no longer forwarded. The timer is refreshed when a listener in include mode sends a report. A group in exclude mode or configured as a static group displays a zero timer.	detail
Last reported by	Address of the host that last reported membership in this group.	All levels
Timeout	Time remaining until the group membership is removed.	brief none

Table 24: show igmp group Output Fields (continued)

Field Name	Field Description	Level of Output
Group timeout	Time remaining until a group in exclude mode moves to include mode. The timer is refreshed when a listener in exclude mode sends a report. A group in include mode or configured as a static group displays a zero timer.	detail
Type	Type of group membership: <ul style="list-style-type: none"> ■ Dynamic—Host reported the membership. ■ Static—Membership is configured. 	All levels

```

show igmp group (Include Mode) user@host> show igmp group
Interface: t1-0/1/0.0
  Group: 232.1.1.1
    Group mode: Include
    Source: 10.0.0.2
    Last reported by: 10.9.5.2
    Timeout: 24 Type: Dynamic
  Group: 232.1.1.1
    Group mode: Include
    Source: 10.0.0.3
    Last reported by: 10.9.5.2
    Timeout: 24 Type: Dynamic
  Group: 232.1.1.1
    Group mode: Include
    Source: 10.0.0.4
    Last reported by: 10.9.5.2
    Timeout: 24 Type: Dynamic
  Group: 232.1.1.2
    Group mode: Include
    Source: 10.0.0.4
    Last reported by: 10.9.5.2
    Timeout: 24 Type: Dynamic
Interface: t1-0/1/1.0
Interface: ge-0/2/2.0
Interface: ge-0/2/0.0
Interface: local
  Group: 224.0.0.2
    Source: 0.0.0.0
    Last reported by: Local
    Timeout: 0 Type: Dynamic
  Group: 224.0.0.22
    Source: 0.0.0.0
    Last reported by: Local
    Timeout: 0 Type: Dynamic

```

```

show igmp group (Exclude Mode) user@host> show igmp group
Interface: t1-0/1/0.0
Interface: t1-0/1/1.0
Interface: ge-0/2/2.0
Interface: ge-0/2/0.0
Interface: local
  Group: 224.0.0.2
    Source: 0.0.0.0
    Last reported by: Local
    Timeout: 0 Type: Dynamic

```

```

Group: 224.0.0.22
Source: 0.0.0.0
Last reported by: Local
Timeout: 0 Type: Dynamic

```

show igmp group brief The output for the show igmp group brief command is identical to that for the show igmp group command.

```

show igmp group detail user@host> show igmp group detail
Interface: t1-0/1/0.0
  Group: 232.1.1.1
    Group mode: Include
    Source: 10.0.0.2
    Source timeout: 12
    Last reported by: 10.9.5.2
    Group timeout: 0 Type: Dynamic
  Group: 232.1.1.1
    Group mode: Include
    Source: 10.0.0.3
    Source timeout: 12
    Last reported by: 10.9.5.2
    Group timeout: 0 Type: Dynamic
  Group: 232.1.1.1
    Group mode: Include
    Source: 10.0.0.4
    Source timeout: 12
    Last reported by: 10.9.5.2
    Group timeout: 0 Type: Dynamic
  Group: 232.1.1.2
    Group mode: Include
    Source: 10.0.0.4
    Source timeout: 12
    Last reported by: 10.9.5.2
    Group timeout: 0 Type: Dynamic
Interface: t1-0/1/1.0
Interface: ge-0/2/2.0
Interface: ge-0/2/0.0
Interface: local
  Group: 224.0.0.2
    Group mode: Exclude
    Source: 0.0.0.0
    Source timeout: 0
    Last reported by: Local
    Group timeout: 0 Type: Dynamic
  Group: 224.0.0.22
    Group mode: Exclude
    Source: 0.0.0.0
    Source timeout: 0
    Last reported by: Local
    Group timeout: 0 Type: Dynamic

```

show igmp interface

Syntax	show igmp interface <brief detail> <interface-name> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Internet Group Management Protocol (IGMP)-enabled interfaces.
Options	<p>none—Display standard information about all IGMP-enabled interfaces on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>interface-name—(Optional) Display information about the specified IGMP-enabled interface only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	clear igmp membership on page 55
List of Sample Output	<p>show igmp interface on page 91</p> <p>show igmp interface brief on page 92</p> <p>show igmp interface detail on page 92</p>
Output Fields	Table 25 on page 90 describes the output fields for the show igmp interface command. Output fields are listed in the approximate order in which they appear.

Table 25: show igmp interface Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface.	All levels
State	State of the interface: Up or Down.	All levels
Querier	Address of the router that has been elected to send membership queries.	All levels
Timeout	How long until the IGMP querier is declared to be unreachable, in seconds.	All levels
Version	IGMP version being used on the interface: 1 , 2 , or 3.	All levels
Groups	Number of groups on the interface.	All levels

Table 25: show igmp interface Output Fields (continued)

Field Name	Field Description	Level of Output
Immediate Leave	State of the immediate leave option: <ul style="list-style-type: none"> ■ On—Indicates that the router removes a host from the multicast group as soon as the router receives a leave group message from a host associated with the interface. ■ Off—Indicates that after receiving a leave group message, instead of removing a host from the multicast group immediately, the router sends a group query to determine if another receiver responds. 	All levels
Promiscuous Mode	State of the promiscuous mode option: <ul style="list-style-type: none"> ■ On—Indicates that the router can accept IGMP reports from subnetworks that are not associated with its interfaces. ■ Off—Indicates that the router can accept IGMP reports only from subnetworks that are associated with its interfaces. 	All levels
SSM map	Name of the source-specific multicast (SSM) map (if configured) used on the interface.	All levels
Configured Parameters	Information configured by the user: <ul style="list-style-type: none"> ■ IGMP Query Interval—Interval (in seconds) at which this router sends membership queries when it is the querier. ■ IGMP Query Response Interval—Time (in seconds) that the router waits for a report in response to a general query. ■ IGMP Last Member Query Interval—Time (in seconds) that the router waits for a report in response to a group-specific query. ■ IGMP Robustness Count—Number of times the router retries a query. 	All levels
Derived Parameters	Derived information: <ul style="list-style-type: none"> ■ IGMP Membership Timeout—Timeout period (in seconds) for group membership. If no report is received for these groups before the timeout expires, the group membership is removed. ■ IGMP Other Querier Present Timeout—Time (in seconds) that the router waits for the IGMP querier to send a query. 	All levels

```

show igmp interface  user@host> show igmp interface
                        Interface: at-0/3/1.0
                        Querier: 10.111.30.1
                        State:      Up Timeout:  None Version:  2 Groups:    4
                        Interface: so-1/0/0.0
                        Querier: 10.111.10.1
                        State:      Up Timeout:  None Version:  2 Groups:    2
                        Interface: so-1/0/1.0
                        Querier: 10.111.20.1
                        State:      Up Timeout:  None Version:  2 Groups:    4
                        Immediate Leave: On
                        Promiscuous Mode: Off

                        Configured Parameters:
                        IGMP Query Interval: 125.0

```

```
IGMP Query Response Interval: 10.0
IGMP Last Member Query Interval: 1.0
IGMP Robustness Count: 2
```

Derived Parameters:

```
IGMP Membership Timeout: 260.0
IGMP Other Querier Present Timeout: 255.0
```

show igmp interface brief The output for the `show igmp interface brief` command is identical to that for the `show igmp interface` command. For sample output, see `show igmp interface` on page 91.

show igmp interface detail The output for the `show igmp interface detail` command is identical to that for the `show igmp interface` command. For sample output, see `show igmp interface` on page 91.

show igmp snooping interface

Syntax	show igmp snooping interface <i>interface-name</i> <brief detail> <bridge-domain <i>bridge-domain-name</i> > <virtual-switch <i>virtual-switch-name</i> > <vlan-id <i>vlan-identifier</i> >
Release Information	Command introduced in JUNOS Release 8.5.
Description	Display IGMP snooping interface information.
Options	<p>none—Display detailed information.</p> <p>brief detail —(Optional) Display the specified level of output.</p> <p>bridge-domain <i>bridge-domain-name</i>—(Optional) Display information about a particular bridge domain.</p> <p>virtual-switch <i>virtual-switch-name</i>—(Optional) Display information about a particular virtual switch.</p> <p>vlan-id <i>vlan-identifier</i>—(Optional) Display information about a particular VLAN.</p>
Required Privilege Level	view
Related Topics	show igmp snooping membership on page 95, and show igmp snooping statistics on page 97.
List of Sample Output	show igmp snooping interface on page 94
Output Fields	Table 26 on page 93 lists the output fields for the show igmp snooping interface command. Output fields are listed in the approximate order in which they appear.

Table 26: show igmp snooping interface Output Fields

Field Name	Field Description	Level of Output
Routing-instance	Routing instance for IGMP snooping.	All levels
Learning Domain	Learning domain for snooping.	All levels
Query Interval	Frequency (in seconds) with which this router sends membership queries when it is the querier.	detail
Query Response Interval	Time (in seconds) that the router waits for a response to a general query.	detail
Last Member Query Interval	Time (in seconds) that the router waits for a report in response to a group-specific query.	detail
Robustness Count	Number of times the router retries a query.	detail

Table 26: show igmp snooping interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
immediate-leave	State of immediate leave: On or Off	All levels
version	Version of IGMP configured.	All levels
igmp-proxy	Appears if IGMP proxy mode is configured.	detail
source-address	Source address for IGMP proxy mode, if configured.	detail
router-interface	Router interfaces that are part of this learning domain.	All levels
interface	Interfaces that are being snooped in this learning domain.	All levels
number of membership entries	Number of membership entries on this interface.	detail

```

show igmp snooping interface  user@host> show igmp snooping interface
                                Instance: bridge-domain bar

                                Learning-Domain: default
                                Interface: ge-0/1/0.200
                                  State:          Up Groups:      0
                                  Immediate leave: Off
                                  Router interface: yes
                                Interface: ge-0/1/2.200
                                  State:          Up Groups:      2
                                  Immediate leave: On
                                  Router interface: no
                                Interface: ge-0/1/3.200
                                  State:          Up Groups:      1
                                  Immediate leave: Off
                                  Router interface: no

                                Configured Parameters:
                                IGMP Query Interval: 130.0
                                IGMP Query Response Interval: 15.0
                                IGMP Last Member Query Interval: 2.0
                                IGMP Robustness Count: 3

                                Derived Parameters:
                                IGMP Membership Timeout: 405.0
                                IGMP Other Querier Present Timeout: 397.500

```

show igmp snooping membership

Syntax	show igmp snooping membership <brief detail> <bridge-domain <i>bridge-domain-name</i> > <group> <virtual-switch <i>virtual-switch-name</i> > <vlan-id <i>vlan-identifier</i> >
Release Information	Command introduced in JUNOS Release 8.5.
Description	Display IGMP snooping membership information.
Options	<p>none—Display detailed information.</p> <p>brief detail —(Optional) Display the specified level of output.</p> <p>bridge-domain <i>bridge-domain-name</i>—(Optional) Display information about a particular bridge domain.</p> <p>group —(Optional) Display information about this group address.</p> <p>virtual-switch <i>virtual-switch-name</i>—(Optional) Display information about a particular virtual switch.</p> <p>vlan-id <i>vlan-identifier</i>—(Optional) Display information about a particular VLAN.</p>
Required Privilege Level	view
Related Topics	show igmp snooping interface on page 93, show igmp snooping statistics on page 97, and clear igmp snooping membership on page 58.
List of Sample Output	<p>show igmp snooping membership on page 96</p> <p>show igmp snooping membership interface ge-0/1/2.200 on page 96</p> <p>show igmp snooping membership vlan-id 100 on page 96</p>
Output Fields	Table 27 on page 95 lists the output fields for the show igmp snooping membership command. Output fields are listed in the approximate order in which they appear.

Table 27: show igmp snooping membership Output Fields

Field Name	Field Description	Level of Output
Routing-instance	Routing instance for IGMP snooping.	All levels
Learning Domain	Learning domain for snooping.	All levels
Group	Multicast group address in the membership database.	All levels
Source	Source address used on queries.	detail
host interface	Interface on which this router is a proxy.	detail

Table 27: show igmp snooping membership Output Fields *(continued)*

Field Name	Field Description	Level of Output
Last reported by	Address of source last replying to the query.	detail
Timeout	Length of time (in seconds) left until the entry is purged.	detail
Type	Way that the group membership information was learned: <ul style="list-style-type: none"> ■ Dynamic—Group membership was learned by the IGMP protocol. ■ Static—Group membership was learned by configuration. 	detail
Include receiver	Source address of receiver included in membership with timeout (in seconds).	detail

show igmp snooping membership user@host> **show igmp snooping membership**
Instance: bridge-domain bar

```

Learning-Domain: default
Interface: ge-0/1/2.200
  Group: 225.1.1.1
    Source: 0.0.0.0
    Timeout: 398 Type: Static
  Group: 232.1.1.1
    Source: 192.168.1.1
    Timeout: 0 Type: Static
Interface: ge-0/1/3.200
  Group: 225.1.1.2
    Source: 0.0.0.0
    Timeout: 393 Type: Dynamic

```

show igmp snooping membership interface ge-0/1/2.200 user@host> **show igmp snooping membership interface ge-0/1/2.200**
Instance: bridge-domain bar

```

Learning-Domain: default
Interface: ge-0/1/2.200
  Group: 225.1.1.1
    Source: 0.0.0.0
    Timeout: 391 Type: Static
  Group: 232.1.1.1
    Source: 192.168.1.1
    Timeout: 0 Type: Static

```

show igmp snooping membership vlan-id 100 user@host> **show igmp snooping membership vlan-id 100**
Instance: bridge-domain bar
IGMP-snooping not running in vlan 100

show igmp snooping statistics

Syntax	show igmp snooping statistics <brief detail> <bridge-domain <i>bridge-domain-name</i> > <virtual-switch <i>virtual-switch-name</i> > <vlan-id <i>vlan-identifier</i> >
Release Information	Command introduced in JUNOS Release 8.5.
Description	Display IGMP snooping statistics.
Options	<p>none—(Optional) Display detailed information.</p> <p>brief detail —(Optional) Display the specified level of output.</p> <p>bridge-domain <i>bridge-domain-name</i>—(Optional) Display information about a particular bridge domain.</p> <p>virtual-switch <i>virtual-switch-name</i>—(Optional) Display information about a particular virtual switch.</p> <p>vlan-id <i>vlan-identifier</i>—(Optional) Display information about a particular VLAN.</p>
Required Privilege Level	view
Related Topics	show igmp snooping interface on page 93, show igmp snooping membership on page 95, and clear igmp snooping statistics on page 59.
List of Sample Output	show igmp snooping statistics on page 98
Output Fields	Table 28 on page 97 lists the output fields for the show igmp snooping statistics command. Output fields are listed in the approximate order in which they appear.

Table 28: show igmp snooping statistics Output Fields

Field Name	Field Description	Level of Output
Routing-instance	Routing instance for IGMP snooping.	All levels
IGMP packet statistics	Heading for IGMP snooping statistics for all interfaces or for the specified interface.	All levels
learning-domain	Appears at end of “IGMP packets statistics” line.	All levels

Table 28: show igmp snooping statistics Output Fields (continued)

Field Name	Field Description	Level of Output
IGMP Message type	Summary of IGMP statistics: <ul style="list-style-type: none"> ■ Membership Query—Number of membership queries sent and received. ■ V1 Membership Report—Number of version 1 membership reports sent and received. ■ DVMRP—Number of DVMRP messages sent or received. ■ PIM V1—Number of PIM version 1 messages sent or received. ■ Cisco Trace—Number of Cisco trace messages sent or received. ■ V2 Membership Report—Number of version 2 membership reports sent or received. ■ Group Leave—Number of group leave messages sent or received. ■ Domain Wide Report—Number of domain-wide reports sent or received. ■ V3 Membership Report—Number of version 3 membership reports sent or received. ■ Other Unknown types—Number of unknown message types received. ■ IGMP v3 unsupported type—Number of messages received with unknown and unsupported IGMP version 3 message types. ■ IGMP v3 source required for SSM—Number of IGMP version 3 messages received that contained no source. ■ IGMP v3 mode not applicable for SSM—Number of IGMP version 3 messages received that did not contain a mode applicable for source-specific multicast (SSM). 	All levels
Received	Number of messages received.	All levels
Sent	Number of messages sent.	All levels
Rx errors	Number of received packets that contained errors.	All levels
IGMP Global Statistics	Summary of IGMP snooping statistics for all interfaces. <ul style="list-style-type: none"> ■ Bad Length—Number of messages received with length errors so severe that further classification could not occur. ■ Bad Checksum—Number of messages received with a bad IP checksum. No further classification was performed. ■ Rx non-local—Number of messages received from senders that are not local. 	All levels

```

show igmp snooping      user@host> show igmp snooping statistics
statistics             Routing-instance foo

                           IGMP packet statistics for all interfaces in learning-domain vlan-100

IGMP Message type    Received    Sent    Rx errors
Membership Query      89          51         0
V1 Membership Report   0           0         0
DVMRP                 0           0         0
PIM V1                0           0         0
Cisco Trace           0           0         0

```


V2 Membership Report	139	0	0
Group Leave	0	0	0
Domain Wide Report	0	0	0
V3 Membership Report	136	0	0
Other Unknown types			0
IGMP v3 unsupported type			0
IGMP v3 source required for SSM			23
IGMP v3 mode not applicable for SSM			0

IGMP Global Statistics			
Bad Length	0		
Bad Checksum	0		
Rx non-local	0		

Routing-instance bar

IGMP packet statistics for all interfaces in learning-domain vlan-100

IGMP Message type	Received	Sent	Rx errors
Membership Query	89	51	0
V1 Membership Report	0	0	0
DVMRP	0	0	0
PIM V1	0	0	0
Cisco Trace	0	0	0
V2 Membership Report	139	0	0
Group Leave	0	0	0
Domain Wide Report	0	0	0
V3 Membership Report	136	0	0
Other Unknown types			0
IGMP v3 unsupported type			0
IGMP v3 source required for SSM			23
IGMP v3 mode not applicable for SSM			0

IGMP Global Statistics	
Bad Length	0
Bad Checksum	0
Rx non-local	0

show igmp statistics

Syntax	show igmp statistics <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Internet Group Management Protocol (IGMP) statistics.
Options	<p>none—Display IGMP statistics for all interfaces on all logical systems.</p> <p>interface <i>interface-name</i>—(Optional) Display IGMP statistics about the specified interface only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	clear igmp statistics on page 60
List of Sample Output	<p>show igmp statistics on page 101</p> <p>show igmp statistics interface on page 102</p>
Output Fields	Table 29 on page 100 describes the output fields for the show igmp statistics command. Output fields are listed in the approximate order in which they appear.

Table 29: show igmp statistics Output Fields

Field Name	Field Description
IGMP packet statistics	Heading for IGMP packet statistics for all interfaces or for the specified interface name.

Table 29: show igmp statistics Output Fields (continued)

Field Name	Field Description
IGMP Message type	<p>Summary of IGMP statistics:</p> <ul style="list-style-type: none"> ■ Membership Query—Number of membership queries sent and received. ■ V1 Membership Report—Number of version 1 membership reports sent and received. ■ DVMRP—Number of DVMRP messages sent or received. ■ PIM V1—Number of PIM version 1 messages sent or received. ■ Cisco Trace—Number of Cisco trace messages sent or received. ■ V2 Membership Report—Number of version 2 membership reports sent or received. ■ Group Leave—Number of group leave messages sent or received. ■ Mtrace Response—Number of Mtrace response messages sent or received. ■ Mtrace Request—Number of Mtrace request messages sent or received. ■ Domain Wide Report—Number of domain-wide reports sent or received. ■ V3 Membership Report—Number of version 3 membership reports sent or received. ■ Other Unknown types—Number of unknown message types received. ■ IGMP v3 unsupported type—Number of messages received with unknown and unsupported IGMP version 3 message types. ■ IGMP v3 source required for SSM—Number of IGMP version 3 messages received that contained no source. ■ IGMP v3 mode not applicable for SSM—Number of IGMP version 3 messages received that did not contain a mode applicable for source-specific multicast (SSM).
Received	Number of messages received.
Sent	Number of messages sent.
Rx errors	Number of received packets that contained errors.
IGMP Global Statistics	<p>Summary of IGMP statistics for all interfaces.</p> <ul style="list-style-type: none"> ■ Bad Length—Number of messages received with length errors so severe that further classification could not occur. ■ Bad Checksum—Number of messages received with a bad IP checksum. No further classification was performed. ■ Bad Receive If—Number of messages received on an interface not enabled for IGMP. ■ Rx non-local—Number of messages received from senders that are not local.

```

show igmp statistics  user@host> show igmp statistics
IGMP packet statistics for all interfaces
IGMP Message type    Received      Sent  Rx errors
Membership Query      8883         459      0
V1 Membership Report    0            0      0
DVMRP                  0            0      0
PIM V1                 0            0      0
Cisco Trace            0            0      0
V2 Membership Report    0            0      0
Group Leave            0            0      0
Mtrace Response        0            0      0
Mtrace Request         0            0      0

```

Domain Wide Report	0	0	0
V3 Membership Report	0	0	0
Other Unknown types			0
IGMP v3 unsupported type			0
IGMP v3 source required for SSM			0
IGMP v3 mode not applicable for SSM			0
IGMP Global Statistics			
Bad Length	0		
Bad Checksum	0		
Bad Receive If	0		
Rx non-local	1227		

```

show igmp statistics user@host> show igmp statistics interface fe-1/0/1.0
interface IGMP interface packet statistics for fe-1/0/1.0
IGMP Message type      Received      Sent  Rx errors
Membership Query        0           230      0
V1 Membership Report    0           0        0

```

show mld group

Syntax	show mld group <brief detail> <group-name> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Multicast Listener Discovery (MLD) group membership.
Options	<p>none—Display standard information about all MLD groups on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p><i>group-name</i>—(Optional) Display MLD information about the specified group.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	clear mld membership on page 62
List of Sample Output	<p>show mld group (Include Mode) on page 104</p> <p>show mld group (Exclude Mode) on page 104</p> <p>show mld group brief on page 105</p> <p>show mld group detail (Include Mode) on page 105</p> <p>show mld group detail (Exclude Mode) on page 105</p>
Output Fields	Table 30 on page 103 describes the output fields for the show mld group command. Output fields are listed in the approximate order in which they appear.

Table 30: show mld group Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface that received the MLD membership report; <i>local</i> means that the local router joined the group itself.	All levels
Group	Group address.	All levels
Source	Source address.	All levels
Group Mode	Mode the SSM group is operating in: <i>Include</i> or <i>Exclude</i> .	All levels
Last reported by	Address of the host that last reported membership in this group.	All levels
Source timeout	Time remaining until the group traffic is no longer forwarded. The timer is refreshed when a listener in include mode sends a report. A group in exclude mode or configured as a static group displays a zero timer.	detail
Timeout	Time remaining until the group membership is removed.	brief none

Table 30: show mld group Output Fields (continued)

Field Name	Field Description	Level of Output
Group timeout	Time remaining until a group in exclude mode moves to include mode. The timer is refreshed when a listener in exclude mode sends a report. A group in include mode or configured as a static group displays a zero timer.	detail
Type	Type of group membership: <ul style="list-style-type: none"> ■ Dynamic—Host reported the membership. ■ Static—Membership is configured. 	All levels

```

show mld group (Include Mode) user@host> show mld group
Interface: fe-0/1/2.0
  Group: ff02::1:ff05:1a67
    Group mode: Include
    Source: ::
    Last reported by: fe80::2e0:81ff:fe05:1a67
    Timeout:      245 Type: Dynamic
  Group: ff02::1:ffa8:c35e
    Group mode: Include
    Source: ::
    Last reported by: fe80::2e0:81ff:fe05:1a67
    Timeout:      241 Type: Dynamic
  Group: ff02::2:43e:d7f6
    Group mode: Include
    Source: ::
    Last reported by: fe80::2e0:81ff:fe05:1a67
    Timeout:      244 Type: Dynamic
  Group: ff05::2
    Group mode: Include
    Source: ::
    Last reported by: fe80::2e0:81ff:fe05:1a67
    Timeout:      244 Type: Dynamic
Interface: local
  Group: ff02::2
    Source: ::
    Last reported by: Local
    Timeout:      0 Type: Dynamic
  Group: ff02::16
    Source: ::
    Last reported by: Local
    Timeout:      0 Type: Dynamic

show mld group (Exclude Mode) user@host> show mld group
Interface: ge-0/2/2.0
Interface: ge-0/2/0.0
  Group: ff02::6
    Source: ::
    Last reported by: fe80::21f:12ff:feb6:4b3a
    Timeout:      245 Type: Dynamic
  Group: ff02::16
    Source: ::
    Last reported by: fe80::21f:12ff:feb6:4b3a
    Timeout:      28 Type: Dynamic
Interface: local
  Group: ff02::2

```

```

Source: ::
Last reported by: Local
Timeout:      0 Type: Dynamic
Group: ff02::16
Source: ::
Last reported by: Local
Timeout:      0 Type: Dynamic

```

show mld group brief The output for the `show mld group brief` command is identical to that for the `show mld group` command. For sample output, see `show mld group (Include Mode)` on page 104.

**show mld group detail
(Include Mode)**

```

user@host> show mld group detail
Interface: fe-0/1/2.0
  Group: ff02::1:ff05:1a67
    Group mode: Include
    Source: ::
    Last reported by: fe80::2e0:81ff:fe05:1a67
    Timeout:      224 Type: Dynamic
  Group: ff02::1:ffa8:c35e
    Group mode: Include
    Source: ::
    Last reported by: fe80::2e0:81ff:fe05:1a67
    Timeout:      220 Type: Dynamic
  Group: ff02::2:43e:d7f6
    Group mode: Include
    Source: ::
    Last reported by: fe80::2e0:81ff:fe05:1a67
    Timeout:      223 Type: Dynamic
  Group: ff05::2
    Group mode: Include
    Source: ::
    Last reported by: fe80::2e0:81ff:fe05:1a67
    Timeout:      223 Type: Dynamic
Interface: so-1/0/1.0
  Group: ff02::2
    Group mode: Include
    Source: ::
    Last reported by: fe80::280:42ff:fe15:f445
    Timeout:      258 Type: Dynamic
Interface: local
  Group: ff02::2
    Group mode: Include
    Source: ::
    Last reported by: Local
    Timeout:      0 Type: Dynamic
  Group: ff02::16
    Source: ::
    Last reported by: Local
    Timeout:      0 Type: Dynamic

```

**show mld group detail
(Exclude Mode)**

```

user@host> show mld group detail
Interface: ge-0/2/2.0
Interface: ge-0/2/0.0
  Group: ff02::6
    Group mode: Exclude
    Source: ::
    Source timeout: 0
    Last reported by: fe80::21f:12ff:feb6:4b3a
    Group timeout:   226 Type: Dynamic

```

```
Group: ff02::16
  Group mode: Exclude
  Source: ::
  Source timeout: 0
  Last reported by: fe80::21f:12ff:feb6:4b3a
  Group timeout: 246 Type: Dynamic
Interface: local
  Group: ff02::2
    Group mode: Exclude
    Source: ::
    Source timeout: 0
    Last reported by: Local
    Group timeout: 0 Type: Dynamic
  Group: ff02::16
    Group mode: Exclude
    Source: ::
    Source timeout: 0
    Last reported by: Local
    Group timeout: 0 Type: Dynamic
```


show mld interface

Syntax	show mld interface <brief detail> <interface-name> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Multicast Listener Discovery (MLD)-enabled interfaces.
Options	<p>none—Display standard information about all MLD-enabled interfaces on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>interface-name—(Optional) Display information about the specified interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	clear mld membership on page 62
List of Sample Output	<p>show mld interface on page 108</p> <p>show mld interface brief on page 108</p> <p>show mld interface detail on page 109</p>
Output Fields	Table 31 on page 107 describes the output fields for the show mld interface command. Output fields are listed in the approximate order in which they appear.

Table 31: show mld interface Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface.	All levels
Querier	Address of the router that has been elected to send membership queries.	All levels
State	State of the interface: Up or Down.	All levels
Timeout	How long until the MLD querier is declared to be unreachable, in seconds.	All levels
Version	MLD version being used on the interface: 1 , 2 , or 3.	All levels
Groups	Number of groups on the interface.	All levels
SSM map	Name of the source-specific multicast (SSM) map used on the interface, if configured.	All levels

Table 31: show mld interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Immediate Leave	State of the immediate leave option: <ul style="list-style-type: none"> ■ On—Indicates that the router removes a host from the multicast group as soon as the router receives a multicast listener done message from a host associated with the interface. ■ Off—Indicates that after receiving a multicast listener done message, instead of removing a host from the multicast group immediately, the router sends a group query to determine if another receiver responds. 	All levels
Configured Parameters	Information configured by the user. <ul style="list-style-type: none"> ■ MLD Query Interval (.1 secs)—Interval at which this router sends membership queries when it is the querier. ■ MLD Query Response Interval (.1 secs)—Time that the router waits for a report in response to a general query. ■ MLD Last Member Query Interval (.1 secs)—Time that the router waits for a report in response to a group-specific query. ■ MLD Robustness Count—Number of times the router retries a query. 	All levels
Derived Parameters	Derived information. <ul style="list-style-type: none"> ■ MLD Membership Timeout (.1 secs)—Timeout period for group membership. If no report is received for these groups before the timeout expires, the group membership will be removed. ■ MLD Other Querier Present Timeout (.1 secs)—Time that the router waits for the IGMP querier to send a query. 	All levels

```

show mld interface user@host> show mld interface
Interface: fe-0/0/0
  Querier: None
  State: Up      Timeout:      0    Version: 1    Groups:      0
Interface: at-0/3/1.0
  Querier: 8038::c0a8:c345
  State: Up      Timeout:     None    Version: 1    Groups:      0
Interface: fe-1/0/1.0
  Querier: ::192.168.195.73
  State: Up      Timeout:     None    Version: 1    Groups:      3
  SSM map: ipv6map1
  Immediate Leave: On

Configured Parameters:
  MLD Query Interval (.1 secs): 1250
  MLD Query Response Interval (.1 secs): 100
  MLD Last Member Query Interval (.1 secs): 10
  MLD Robustness Count: 2

Derived Parameters:
  MLD Membership Timeout (.1secs): 2600
  MLD Other Querier Present Timeout (.1 secs): 2550

```

show mld interface brief The output for the `show mld interface brief` command is identical to that for the `show mld interface` command. For sample output, see `show mld interface` on page 108.

show mld interface detail The output for the **show mld interface detail** command is identical to that for the **show mld interface** command. For sample output, see **show mld interface** on page 108.

show mld statistics

Syntax	show mld statistics <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Multicast Listener Discovery (MLD) statistics.
Options	none—Display MLD statistics for all interfaces on all logical systems. interface <i>interface-name</i> —(Optional) Display statistics about the specified interface. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Topics	clear mld statistics on page 63
List of Sample Output	show mld statistics on page 111 show mld statistics interface on page 111
Output Fields	Table 32 on page 110 describes the output fields for the show mld statistics command. Output fields are listed in the approximate order in which they appear.

Table 32: show mld statistics Output Fields

Field Name	Field Description
Received	Number of received packets.
Sent	Number of transmitted packets.
Rx errors	Number of received packets that contained errors.
MLD Message type	Summary of MLD statistics. <ul style="list-style-type: none"> ■ Listener Query (v1/v2)—Number of membership queries sent and received. ■ Listener Report (v1)—Number of version 1 membership reports sent and received. ■ Listener Done (v1/v2)—Number of Listener Done messages sent and received. ■ Listener Report (v2)—Number of version 2 membership reports sent and received. ■ Other Unknown types—Number of unknown message types received. ■ MLD v2 source required for SSM—Number of MLD version 2 messages received that contained no source. ■ MLD v2 mode not applicable for SSM—Number of MLD version 2 messages received that did not contain a mode applicable for source-specific multicast (SSM).

Table 32: show mld statistics Output Fields (continued)

Field Name	Field Description
MLD Global Statistics	Summary of MLD statistics for all interfaces. <ul style="list-style-type: none"> ■ Bad Length—Number of messages received with length errors so severe that further classification could not occur. ■ Bad Checksum—Number of messages received with an invalid IP checksum. No further classification was performed. ■ Bad Receive If—Number of messages received on an interface not enabled for MLD. ■ Rx non-local—Number of messages received from nonlocal senders.

```

show mld statistics user@host> show mld statistics
MLD packet statistics for all interfaces
MLD Message type      Received      Sent  Rx errors
Listener Query (v1/v2)    0           2      0
Listener Report (v1)      0           0      0
Listener Done (v1/v2)    0           0      0
Listener Report (v2)      0           0      0
Other Unknown types              0
MLD v2 source required for SSM    2
MLD v2 mode not applicable for SSM 0

MLD Global Statistics
Bad Length                  0
Bad Checksum                0
Bad Receive If              0
Rx non-local                0

show mld statistics interface user@host> show mld statistics interface fe-1/0/1.0
MLD interface packet statistics for fe-1/0/1.0
MLD Message type      Received      Sent  Rx errors
Listener Query (v1/v2)    0           2      0
Listener Report (v1)      0           0      0
Listener Done (v1/v2)    0           0      0
Listener Report (v2)      0           0      0
Other Unknown types              0
MLD v2 source required for SSM    2
MLD v2 mode not applicable for SSM 0

MLD Global Statistics
Bad Length                  0
Bad Checksum                0
Bad Receive If              0
Rx non-local                0

```

show msdp

Syntax	show msdp <brief detail> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <peer <i>peer-address</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Multicast Source Discovery Protocol (MSDP) information.
Options	<p>none—Display standard MSDP information for all routing instances on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>instance <i>instance-name</i>—(Optional) Display information for the specified instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>peer <i>peer-address</i>—(Optional) Display information about the specified peer only,</p>
Required Privilege Level	view
Related Topics	<p>show msdp source on page 114</p> <p>show msdp source-active on page 116</p> <p>show msdp statistics on page 118</p>
List of Sample Output	<p>show msdp on page 113</p> <p>show msdp brief on page 113</p> <p>show msdp detail on page 113</p>
Output Fields	Table 33 on page 112 describes the output fields for the show msdp command. Output fields are listed in the approximate order in which they appear.

Table 33: show msdp Output Fields

Field Name	Field Description	Level of Output
Peer address	IP address of the peer.	All levels
Local address	Local address of the peer.	All levels
State	Status of the MSDP connection: Listen, Established, or Inactive.	All levels
Last up/down	Time at which the most recent peer-state change occurred.	All levels

Table 33: show msdp Output Fields (continued)

Field Name	Field Description	Level of Output
Peer-Group	Peer group name.	All levels
SA Count	Number of source-active cache entries advertised by each peer that were accepted, compared to the number that were received, in the format <i>number-accepted/number-received</i> .	All levels
Peer Connect Retries	Number of peer connection retries.	detail
State timer expires	Number of seconds before another message is sent to a peer.	detail
Peer Times out	Number of seconds to wait for a response from the peer before the peer is declared unavailable.	detail
SA accepted	Number of entries in the source-active cache accepted from the peer.	detail
SA received	Number of entries in the source-active cache received by the peer.	detail

```

show msdp user@host> show msdp
Peer address    Local address  State          Last up/down  Peer-Group  SA Count
198.32.8.193    198.32.8.195  Established    5d 19:25:44   North23     120/150
198.32.8.194    198.32.8.195  Established    3d 19:27:27   North23     300/345
198.32.8.196    198.32.8.195  Established    5d 19:39:36   North23     10/13
198.32.8.197    198.32.8.195  Established    5d 19:32:27   North23     5/6
198.32.8.198    198.32.8.195  Established    3d 19:33:04   North23     2305/3000

```

show msdp brief The output for the **show msdp brief** command is identical to that for the **show msdp** command. For sample output, see **show msdp** on page 113.

```

show msdp detail user@host> show msdp detail
Peer: 10.255.70.15
Local address: 10.255.70.19
State: Established
Peer Connect Retries: 0
State timer expires: 22
Peer Times out: 49
SA accepted: 0
SA received: 0

```

show msdp source

Syntax	show msdp source <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <source-address>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display multicast sources learned from Multicast Source Discovery Protocol (MSDP).
Options	<p>none—Display standard MSDP source information for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Display information for the specified instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>source-address—(Optional) IP address and optional prefix length. Display information for the specified source address only.</p>
Required Privilege Level	view
Related Topics	<p>show msdp on page 112</p> <p>show msdp source-active on page 116</p> <p>show msdp statistics on page 118</p>
List of Sample Output	show msdp source on page 115

Output Fields Table 34 on page 115 describes the output fields for the `show msdp source` command. Output fields are listed in the approximate order in which they appear.

Table 34: show msdp source Output Fields

Field Name	Field Description
Source address	IP address of the source.
/Len	Length of the prefix for this IP address.
Type	Discovery method for this multicast source: <ul style="list-style-type: none"> ■ Configured—Source-active limit explicitly configured for this source. ■ Dynamic—Source-active limit established when this source was discovered.
Maximum	Source-active limit applied to this source.
Threshold	Source-active threshold applied to this source.
Exceeded	Number of source-active messages received from this source exceeding the established maximum.

```

show msdp source user@host> show msdp source
Source address /Len Type Maximum Threshold Exceeded
0.0.0.0 /0 Configured 5 none 0
10.1.0.0 /16 Configured 500 none 0
10.1.1.1 /32 Configured 10000 none 0
10.1.1.2 /32 Dynamic 6936 none 0
10.1.5.5 /32 Dynamic 500 none 123
10.2.1.1 /32 Dynamic 2 none 0

```

show msdp source-active

Syntax	<pre>show msdp source-active <brief detail> <group <i>group</i>> <instance <i>instance-name</i>> <local> <logical-system (all <i>logical-system-name</i>)> <originator <i>originator</i>> <peer <i>peer-address</i>> <source <i>source-address</i>></pre>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the Multicast Source Discovery Protocol (MSDP) source-active cache.
Options	<p>none—Display standard MSDP source-active cache information for all routing instances on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>group <i>group</i>—(Optional) Display source-active cache information for the specified group.</p> <p>instance <i>instance-name</i>—(Optional) Display information for the specified instance.</p> <p>local—(Optional) Display all source-active caches originated by this router.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>originator <i>originator</i>—(Optional) Display information about the peer that originated the source-active cache entries.</p> <p>peer <i>peer-address</i>—(Optional) Display the source-active cache of the specified peer.</p> <p>source <i>source-address</i>—(Optional) Display the source-active cache of the specified source.</p>
Required Privilege Level	view
Related Topics	<p>show msdp on page 112</p> <p>show msdp source on page 114</p> <p>show msdp statistics on page 118</p>
List of Sample Output	<p>show msdp source-active on page 117</p> <p>show msdp source-active brief on page 117</p> <p>show msdp source-active detail on page 117</p>
Output Fields	Table 35 on page 117 describes the output fields for the show msdp source-active command. Output fields are listed in the approximate order in which they appear.

Table 35: show msdp source-active Output Fields

Field Name	Field Description
Group address	Multicast address of the group.
Source address	IP address of the source.
Peer address	IP address of the peer.
Originator	Address of the rendezvous point (RP) that originated the message.
Flags	Flags: Accept, Reject, or Filtered.

```

show msdp      user@host> show msdp source-active
source-active
Group address  Source address  Peer address  Originator  Flags
230.0.0.0     192.168.195.46 local        10.255.14.30 Accept
230.0.0.1     192.168.195.46 local        10.255.14.30 Accept
230.0.0.2     192.168.195.46 local        10.255.14.30 Accept
230.0.0.3     192.168.195.46 local        10.255.14.30 Accept
230.0.0.4     192.168.195.46 local        10.255.14.30 Accept

```

show msdp source-active brief The output for the `show msdp source-active brief` command is identical to that for the `show msdp source-active` command. For sample output, see `show msdp source-active` on page 117.

show msdp source-active detail The output for the `show msdp source-active detail` command is identical to that for the `show msdp source-active` command. For sample output, see `show msdp source-active` on page 117.

show msdp statistics

Syntax	show msdp statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <peer <i>peer-address</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display statistics about Multicast Source Discovery Protocol (MSDP) peers.
Options	<p>none—Display statistics about all MSDP peers for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Display statistics about a specific MSDP instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>peer <i>peer-address</i>—(Optional) Display statistics about a particular MSDP peer.</p>
Required Privilege Level	view
Related Topics	clear msdp statistics on page 65
List of Sample Output	show msdp statistics on page 119
Output Fields	Table 36 on page 118 describes the output fields for the show msdp statistics command. Output fields are listed in the approximate order in which they appear.

Table 36: show msdp statistics Output Fields

Field Name	Field Description
Global active source limit exceeded	Number of times all peers have exceeded configured active source limits.
Peer	Address of peer.
Last State Change	How long ago the peer state changed.
Last message received from the peer	How long ago the last message was received from the peer.
RPF Failures	Number of reverse path forwarding (RPF) failures.
Remote Closes	Number of times the remote peer closed.
Peer Timeouts	Number of peer timeouts.
SA messages sent	Number of source-active messages sent.
SA messages received	Number of source-active messages received.

Table 36: show msdp statistics Output Fields *(continued)*

Field Name	Field Description
SA request messages sent	Number of source-active request messages sent.
SA request messages received	Number of source-active request messages received.
SA response messages sent	Number of source-active response messages sent.
SA response messages received	Number of source-active response messages received.
Active source exceeded	Number of times this peer has exceeded configured source-active limits.
Keepalive messages sent	Number of keepalive messages sent.
Keepalive messages received	Number of keepalive messages received.
Unknown messages received	Number of unknown messages received.
Error messages received	Number of error messages received.

```

show msdp statistics  user@host> show msdp statistics
Global active source exceeded: 0

Peer: 10.255.245.39
Last State Change: 11:54:49 (00:24:59)
Last message received from peer: 11:53:32 (00:26:16)
RPF Failures: 0
Remote Closes: 0
Peer Timeouts: 0
SA messages sent: 376
SA messages received: 459
SA request messages sent: 0
SA request messages received: 0
SA response messages sent: 0
SA response messages received: 0
Active source exceeded: 0
Keepalive messages sent: 17
Keepalive messages received: 19
Unknown messages received: 0
Error messages received: 0

```

show multicast flow-map

Syntax	show multicast flow-map
Release Information	Command introduced in JUNOS Release 8.2.
Description	Display configuration information about IP multicast flow maps.
Required Privilege Level	view
List of Sample Output	show multicast flow-map on page 120 show multicast flow-map detail on page 120
Output Fields	Table 37 on page 120 describes the output fields for the show multicast flow-map command. Output fields are listed in the approximate order in which they appear.

Table 37: show multicast flow-map Output Fields

Field Name	Field Description	Levels of Output
Name	Name of the flow map.	All levels
Policy	Name of the policy associated with the flow map.	All levels
Cache-timeout	Cache timeout value assigned to the flow map.	All levels
Bandwidth	Bandwidth setting associated to the flow map.	All levels
Adaptive	Whether or not adaptive mode is enabled for the flow map.	none
Flow-map	Name of the flow map.	detail
Adaptive Bandwidth	Whether or not adaptive mode is enabled for the flow map.	detail
Redundant Sources	Redundant sources defined for the same destination group.	detail

```

show multicast flow-map  user@host> show multicast flow-map
                          Instance: master
                          Name          Policy          Cache timeout    Bandwidth Adaptive
                          map2         policy2         never            2000000 no
                          map1         policy1         60 seconds      2000000 no

```

```

show multicast flow-map  user@host> show multicast flow-map detail
detail                  Instance: master
                          Flow-map: map1
                          Policy:         policy1
                          Cache Timeout:  600 seconds
                          Bandwidth:       2000000
                          Adaptive Bandwidth: yes
                          Redundant Sources: 11.11.11.11
                          Redundant Sources: 11.11.11.12
                          Redundant Sources: 11.11.11.13

```

show multicast interface

Syntax	show multicast interface <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in JUNOS Release 8.3.
Description	Display bandwidth information about IP multicast interfaces.
Options	logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show multicast interface on page 121
Output Fields	Table 38 on page 121 describes the output fields for the show multicast interface command. Output fields are listed in the approximate order in which they appear.

Table 38: show multicast interface Output Fields

Field Name	Field Description
Interface	Name of the multicast interface.
Maximum bandwidth (bps)	Maximum bandwidth setting, in bits per second, for this interface.
Remaining bandwidth (bps)	Amount of bandwidth, in bits per second, remaining on the interface.

```

show multicast interface user@host> show multicast interface
Interface                Maximum bandwidth (bps) Remaining bandwidth (bps)
fe-0/0/3                  10000000                0
fe-0/0/3.210              10000000                -2000000
fe-0/0/3.220              100000000               100000000
fe-0/0/3.230              20000000                18000000
fe-0/0/2.200              100000000               100000000

```

show multicast mrinfo

Syntax	show multicast mrinfo <i><host></i>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display configuration information about IP multicast networks, including neighboring multicast router addresses.
Options	<p>none—Display configuration information about all multicast networks.</p> <p><i>host</i>—(Optional) Display configuration information about a particular host. Replace <i>host</i> with a hostname or IP address.</p>
Required Privilege Level	view
List of Sample Output	show multicast mrinfo on page 123
Output Fields	Table 39 on page 122 describes the output fields for the show multicast mrinfo command. Output fields are listed in the approximate order in which they appear.

Table 39: show multicast mrinfo Output Fields

Field Name	Field Description
<i>source-address</i>	Query address, hostname (DNS name or IP address of the source address), and multicast protocol version or the software version of another vendor.
<i>ip-address-1->ip-address-2</i>	Queried router interface address and directly attached neighbor interface address, respectively.
<i>(name or ip-address)</i>	Name or IP address of neighbor.
<i>[metric/threshold/type/flags]</i>	<p>Neighbor's multicast profile:</p> <ul style="list-style-type: none"> ■ <i>metric</i>—Always has a value of 1, because mrinfo queries the directly connected interfaces of a device. ■ <i>threshold</i>—Multicast threshold time-to-live (TTL). The range of values is 0 through 255. ■ <i>type</i>—Multicast connection type: pim or tunnel. ■ <i>flags</i>—Flags for this route: <ul style="list-style-type: none"> ■ <i>querier</i>—Queried router is the designated router for the neighboring session. ■ <i>leaf</i>—Link is a leaf in the multicast network. ■ <i>down</i>—Link status indicator


```
show multicast mrinfo  user@host> show multicast mrinfo 10.35.4.1
10.35.4.1 (10.35.4.1) [version 12.0]:
  192.168.195.166 -> 0.0.0.0 (local) [1/0/pim/querier/leaf]
  10.38.20.1 -> 0.0.0.0 (local) [1/0/pim/querier/leaf]
  10.47.1.1 -> 10.47.1.2 (10.47.1.2) [1/5/pim]
  0.0.0.0 -> 0.0.0.0 (local) [1/0/pim/down]
```

show multicast next-hops

Syntax	show multicast next-hops <brief detail> <identifier <i>identifier-number</i> > <inet inet6> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the entries in the IP multicast next-hop table.
Options	<p>none—Display standard information about all entries in the multicast next-hop table for all supported address families on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>identifier <i>identifier-number</i>—(Optional) Show a particular next hop by ID number. The range of values is 1 through 65,535.</p> <p>inet inet6—(Optional) Display entries for IPv4 or IPv6 family addresses, respectively.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show multicast next-hops on page 125</p> <p>show multicast next-hops brief on page 125</p> <p>show multicast next-hops detail on page 125</p>
Output Fields	Table 40 on page 124 describes the output fields for the show multicast next-hops command. Output fields are listed in the approximate order in which they appear.

Table 40: show multicast next-hops Output Fields

Field Name	Field Description
ID	Next-hop identifier of the prefix. The identifier is returned by the router's Packet Forwarding Engine.
Refcnt	Number of cache entries that are using this next hop.
KRefCount	Kernel reference count for the next hop.
Downstream interface	Interface names associated with each multicast next-hop ID.

```

show multicast      user@host> show multicast next-hops
next-hops          Family: INET
                     ID      Refcount  KRefcount Downstream interface
                     262142    4          2  so-1/0/0.0
                     262143    2          1  mt-1/1/0.49152
                     262148    2          1  mt-1/1/0.32769

                     Family: INET6

```

show multicast next-hops brief The output for the `show multicast next-hops brief` command is identical to that for the `show multicast next-hops` command. For sample output, see `show multicast next-hops` on page 125.

show multicast next-hops detail The output for the `show multicast next-hops detail` command is identical to that for the `show multicast next-hops` command. For sample output, see `show multicast next-hops` on page 125.

show multicast route

Syntax	<pre>show multicast route <brief detail extensive> <active all inactive> <group group> <inet inet6> <instance instance name> <logical-system (all logical-system-name)> <regular-expression> <source-prefix source-prefix></pre>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the entries in the IP multicast forwarding table. You can display similar information with the show route table inet.1 command.
Options	<p>none—Display standard information about all entries in the multicast forwarding table for all routing instances on all logical systems.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>active all inactive—(Optional) Display all active entries, all entries, or all inactive entries, respectively, in the multicast forwarding table.</p> <p>group group—(Optional) Display the cache entries for a particular group.</p> <p>inet inet6—(Optional) Display multicast forwarding table entries for IPv4 or IPv6 family addresses, respectively.</p> <p>instance instance-name—(Optional) Display entries in the multicast forwarding table for a specific multicast instance.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>regular-expression—(Optional) Display information about the multicast forwarding table entries that match a UNIX-style regular expression.</p> <p>source-prefix source-prefix—(Optional) Display the cache entries for a particular source prefix.</p>
Required Privilege Level	view
List of Sample Output	<p>show multicast route on page 127</p> <p>show multicast route brief on page 128</p> <p>show multicast route detail on page 128</p> <p>show multicast route extensive on page 128</p>
Output Fields	Table 41 on page 127 describes the output fields for the show multicast route command. Output fields are listed in the approximate order in which they appear.

Table 41: show multicast route Output Fields

Field Name	Field Description	Level of Output
Address family	IPv4 address family (INET) or IPv6 address family (INET6).	All levels
Group	Group address.	All levels
Source	Prefix and length of the source as it is in the multicast forwarding table.	All levels
Upstream interface	Name of the interface on which the packet with this source prefix is expected to arrive.	All levels
Session description	Name of the multicast session.	detail extensive
Statistics	Rate at which packets are being forwarded for this source and group entry (in Kbps and pps), and number of packets that have been forwarded to this prefix.	detail extensive
Next-hop ID	Next-hop identifier of the prefix. The identifier is returned by the router's Packet Forwarding Engine and is also displayed in the output of the <code>show multicast nexthops</code> command.	detail extensive
Upstream protocol	Protocol running on the interface on which the packet with this source prefix is expected to arrive.	detail extensive
Route state	Whether the group is Active or Inactive.	extensive
Forwarding state	Whether the prefix is pruned or forwarding.	extensive
Cache lifetime/timeout	Number of seconds until the prefix is removed from the multicast forwarding table. A value of <code>never</code> indicates a permanent forwarding entry.	extensive
Wrong incoming interface notifications	Number of times that the upstream interface was not available.	extensive

```

show multicast route  user@host> show multicast route
                        Family: INET

                        Group: 228.0.0.0
                          Source: 10.255.14.144/32
                          Upstream interface: local
                          Downstream interface list:
                            so-1/0/0.0

                        Group: 239.1.1.1
                          Source: 10.255.14.144/32
                          Upstream interface: local
                          Downstream interface list:
                            so-1/0/0.0

                        Group: 239.1.1.1
                          Source: 10.255.70.15/32
                          Upstream interface: so-1/0/0.0
                          Downstream interface list:
                            mt-1/1/0.49152

```

Family: INET6

show multicast route brief The output for the `show multicast route brief` command is identical to that for the `show multicast route` command. For sample output, see `show multicast route` on page 127.

show multicast route detail user@host> `show multicast route detail`
Family: INET

```
Group: 228.0.0.0
  Source: 10.255.14.144/32
  Upstream interface: local
  Downstream interface list:
    so-1/0/0.0
  Session description: Unknown
  Statistics: 8 kbps, 100 pps, 45272 packets
  Next-hop ID: 262142
  Upstream protocol: PIM

Group: 239.1.1.1
  Source: 10.255.14.144/32
  Upstream interface: local
  Downstream interface list:
    so-1/0/0.0
  Session description: Administratively Scoped
  Statistics: 0 kbps, 0 pps, 13404 packets
  Next-hop ID: 262142
  Upstream protocol: PIM

Group: 239.1.1.1
  Source: 10.255.70.15/32
  Upstream interface: so-1/0/0.0
  Downstream interface list:
    mt-1/1/0.49152
  Session description: Administratively Scoped
  Statistics: 0 kbps, 0 pps, 38 packets
  Next-hop ID: 262143
  Upstream protocol: PIM
```

Family: INET6

show multicast route extensive user@host> `show multicast route extensive`
Family: INET

```
Group: 228.0.0.0
  Source: 10.255.14.144/32
  Upstream interface: local
  Downstream interface list:
    so-1/0/0.0
  Session description: Unknown
  Statistics: 8 kbps, 100 pps, 46454 packets
  Next-hop ID: 262142
  Upstream protocol: PIM
  Route state: Active
  Forwarding state: Forwarding
  Cache lifetime/timeout: 360 seconds
  Wrong incoming interface notifications: 0

Group: 239.1.1.1
```

```
Source: 10.255.14.144/32
Upstream interface: local
Downstream interface list:
  so-1/0/0.0
Session description: Administratively Scoped
Statistics: 0 kbps, 0 pps, 13404 packets
Next-hop ID: 262142
Upstream protocol: PIM
Route state: Active
Forwarding state: Forwarding
Cache lifetime/timeout: 348 seconds
Wrong incoming interface notifications: 0

Group: 239.1.1.1
Source: 10.255.70.15/32
Upstream interface: so-1/0/0.0
Downstream interface list:
  mt-1/1/0.49152
Session description: Administratively Scoped
Statistics: 0 kbps, 0 pps, 40 packets
Next-hop ID: 262143
Upstream protocol: PIM
Route state: Active
Forwarding state: Forwarding
Cache lifetime/timeout: 360 seconds
Wrong incoming interface notifications: 1

Family: INET6
```

show multicast rpf

Syntax show multicast rpf
 <inet | inet6>
 <instance *instance-name*>
 <logical-system (all | *logical-system-name*)>
 <prefix>
 <summary>

Release Information Command introduced before JUNOS Release 7.4.

Description Display information about multicast reverse-path-forwarding (RPF) calculations.

Options none—Display RPF calculation information for all supported address families on all logical systems.

inet | inet6—(Optional) Display the RPF calculation information for IPv4 or IPv6 family addresses, respectively.

instance *instance-name*—(Optional) Display information about multicast RPF calculations for a specific multicast instance.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

prefix—(Optional) Display the RPF calculation information for the specified prefix.

summary—(Optional) Display summary of all multicast RPF information.

Required Privilege Level view

List of Sample Output show multicast rpf on page 131
 show multicast rpf inet6 on page 132
 show multicast rpf prefix on page 133
 show multicast rpf summary on page 133

Output Fields Table 42 on page 131 describes the output fields for the `show multicast rpf` command. Output fields are listed in the approximate order in which they appear.

Table 42: show multicast rpf Output Fields

Field Name	Field Description
Instance	Name of the routing instance. (Displayed when multicast is configured within a routing instance.)
Source prefix	Prefix and length of the source as it exists in the multicast forwarding table.
Protocol	How the route was learned.
Interface	Upstream RPF interface.
Neighbor	Upstream RPF neighbor.

```

show multicast rpf user@host> show multicast rpf

Multicast RPF table: inet.0, 12 entries

0.0.0.0/0
  Protocol: Static

10.255.14.132/32
  Protocol: Direct
  Interface: lo0.0

10.255.245.91/32
  Protocol: IS-IS
  Interface: so-1/1/1.0
  Neighbor: 192.168.195.21

127.0.0.1/32
Inactive172.16.0.0/12
Protocol: Static
Interface: fxp0.0
Neighbor: 192.168.14.254

192.168.0.0/16
Protocol: Static
Interface: fxp0.0
Neighbor: 192.168.14.254

192.168.14.0/24
Protocol: Direct
Interface: fxp0.0

192.168.14.132/32
Protocol: Local

192.168.195.20/30
Protocol: Direct
Interface: so-1/1/1.0

```

```

192.168.195.22/32
Protocol: Local

192.168.195.36/30
Protocol: IS-IS
Interface: so-1/1/1.0
Neighbor: 192.168.195.21

```

show multicast rpf inet6 user@host> **show multicast rpf inet6**

Multicast RPF table: inet6.0, 12 entries

```

::10.255.14.132/128
  Protocol: Direct
  Interface: lo0.0

::10.255.245.91/128
Protocol: IS-IS
Interface: so-1/1/1.0
Neighbor: fe80::2a0:a5ff:fe28:2e8c

::192.168.195.20/126
Protocol: Direct
Interface: so-1/1/1.0

::192.168.195.22/128
Protocol: Local

::192.168.195.36/126
Protocol: IS-IS
Interface: so-1/1/1.0
Neighbor: fe80::2a0:a5ff:fe28:2e8c

::192.168.195.76/126
Protocol: Direct
Interface: fe-2/2/0.0

::192.168.195.77/128
Protocol: Local

fe80::/64
Protocol: Direct
Interface: so-1/1/1.0

fe80::290:69ff:fe0c:993a/128
Protocol: Local

fe80::2a0:a5ff:fe12:84f/128
Protocol: Direct
Interface: lo0.0

ff02::2/128
Protocol: PIM

ff02::d/128
Protocol: PIM

```

```
show multicast rpf prefix user@host> show multicast rpf ff02::/16  
  
Multicast RPF table: inet6.0, 13 entries  
  
ff02::2/128  
    Protocol: PIM  
  
ff02::d/128  
    Protocol: PIM  
  
...
```

```
show multicast rpf summary user@host> show multicast rpf summary  
  
Multicast RPF table: inet.0, 16 entries  
Multicast RPF table: inet6.0, 12 entries
```

show multicast scope

Syntax	show multicast scope <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display administratively scoped IP multicast information.
Options	<p>none—Display standard information about administratively scoped multicast information for all supported address families in all routing instances on all logical systems.</p> <p>inet inet6—(Optional) Display scoped multicast information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display administratively scoped information for a specific multicast instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show multicast scope on page 135</p> <p>show multicast scope inet on page 135</p> <p>show multicast scope inet6 on page 135</p>
Output Fields	Table 43 on page 134 describes the output fields for the <code>show multicast scope</code> command. Output fields are listed in the approximate order in which they appear.

Table 43: show multicast scope Output Fields

Field Name	Field Description
Scope name	Name of the multicast scope.
Group Prefix	Range of multicast groups that are scoped.
Interface	Interface that is the boundary of the administrative scope.
Resolve Rejects	Number of kernel resolve rejects.

```

show multicast scope user@host> show multicast scope

Scope name      Group Prefix      Interface      Resolve
                232.232.0.0/16    fe-0/0/0.1     Rejects
232-net          239.255.0.0/16    fe-0/0/0.1     0
local           ff05::/16         fe-0/0/0.1     0
larry           ff05::1234/128    fe-0/0/0.1     0

```

```

show multicast scope user@host> show multicast scope inet
inet

Scope name      Group Prefix      Interface      Resolve
                232.232.0.0/16    fe-0/0/0.1     Rejects
232-net          239.255.0.0/16    fe-0/0/0.1     0
local           239.255.0.0/16    fe-0/0/0.1     0

```

```

show multicast scope user@host> show multicast scope inet6
inet6

Scope name      Group Prefix      Interface      Resolve
                ff05::/16         fe-0/0/0.1     Rejects
local           ff05::1234/128    fe-0/0/0.1     0
larry           ff05::1234/128    fe-0/0/0.1     0

```

show multicast sessions

Syntax	show multicast sessions <brief detail extensive> <logical-system (all <i>logical-system-name</i>)> < <i>regular-expression</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about announced IP multicast sessions.
Options	<p>none—Display standard information about all multicast sessions for all routing instances on all logical systems.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>regular-expression</i>—(Optional) Display information about announced sessions that match a UNIX-style regular expression.</p>
Required Privilege Level	view
List of Sample Output	<p>show multicast sessions on page 137</p> <p>show multicast sessions <i>regular-expression</i> detail on page 137</p>
Output Fields	Table 44 on page 136 describes the output fields for the show multicast sessions command. Output fields are listed in the approximate order in which they appear.

Table 44: show multicast sessions Output Fields

Field Name	Field Description
<i>session-name</i>	Name of the known announced multicast sessions.

```

show multicast sessions      user@host> show multicast sessions
                                1-Department of Biological Sciences, LSU
                                ...
                                Monterey Bay - DockCam
                                Monterey Bay - JettyCam
                                Monterey Bay - StandCam
                                Monterey DockCam
                                Monterey DockCam / ROV cam
                                ...
                                NASA TV (MPEG-1)
                                ...
                                UO Broadcast - NASA Videos - 25 Years of Progress
                                UO Broadcast - NASA Videos - Journey through the Solar System
                                UO Broadcast - NASA Videos - Life in the Universe
                                UO Broadcast - NASA Videos - Nasa and the Airplane
                                UO Broadcasts OPB's Oregon Story
                                UO DOD News Clips
                                UO Medical Management of Biological Casualties (1)
                                UO Medical Management of Biological Casualties (2)
                                UO Medical Management of Biological Casualties (3)
                                ...
                                376 active sessions.

show multicast sessions      user@host> show multicast sessions "NASA TV" detail
regular-expression detail    SDP Version: 0  Originated by: -@128.223.83.33
                                Session: NASA TV (MPEG-1)
                                Description: NASA television in MPEG-1 format, provided by Private University.
                                Please contact the UO if you have problems with this feed.
                                Email: Your Name Here <multicast@lists.private.edu>
                                Phone: Your Name Here <888/555-1212>
                                Bandwidth: AS:1000
                                Start time: permanent
                                Stop time: none
                                Attribute: type:broadcast
                                Attribute: tool:IP/TV Content Manager 3.4.14
                                Attribute: live:capture:1
                                Attribute: x-iptv-capture:mp1s
                                Media: video 54302 RTP/AVP 32 31 96 97
                                Connection Data: 224.2.231.45 ttl 127
                                Attribute: quality:8
                                Attribute: framerate:30
                                Attribute: rtpmap:96 WBIH/90000
                                Attribute: rtpmap:97 MP4V-ES/90000
                                Attribute: x-iptv-svr:video 128.223.91.191 live
                                Attribute: fmp:32 type=mpeg1
                                Media: audio 28848 RTP/AVP 14 0 96 3 5 97 98 99 100 101 102 10 11 103 104 105 106
                                Connection Data: 224.2.145.37 ttl 127
                                Attribute: rtpmap:96 X-WAVE/8000
                                Attribute: rtpmap:97 L8/8000/2
                                Attribute: rtpmap:98 L8/8000
                                Attribute: rtpmap:99 L8/22050/2
                                Attribute: rtpmap:100 L8/22050
                                Attribute: rtpmap:101 L8/11025/2
                                Attribute: rtpmap:102 L8/11025
                                Attribute: rtpmap:103 L16/22050/2
                                Attribute: rtpmap:104 L16/22050

                                1 matching sessions.

```

show multicast snooping route

Syntax	show multicast snooping route <brief detail extensive> <active all inactive> <bridge-domain <i>bridge-domain-name</i> > <group <i>group</i> > <instance <i>instance-name</i> > <mesh-group <i>mesh-group-name</i> > < <i>regular-expression</i> > <source-prefix <i>source-prefix</i> >
Release Information	Command introduced in JUNOS Release 8.5.
Description	Display the entries in the IP multicast snooping forwarding table. You can display some of this information with the show route table inet.1 command.
Options	<p>none—Display standard information about all entries in the multicast snooping table for all virtual switches and all bridge domains.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>active all inactive—(Optional) Display all active entries, all entries, or all inactive entries, respectively, in the multicast snooping table.</p> <p>bridge-domain <i>bridge-domain</i>—(Optional) Display the entries for a particular bridge domain.</p> <p>group <i>group</i>—(Optional) Display the entries for a particular group.</p> <p>instance <i>instance-name</i>—(Optional) Display the entries for a multicast instance.</p> <p>mesh-group <i>mesh-group-name</i>—(Optional) Display the entries for a particular mesh group.</p> <p><i>regular-expression</i>—(Optional) Display information about the multicast forwarding table entries that match a UNIX-style regular expression.</p> <p>source-prefix <i>source-prefix</i>—(Optional) Display the entries for a particular source prefix.</p>
Required Privilege Level	view
List of Sample Output	show multicast snooping route on page 139
Output Fields	Table 45 on page 138 describes the output fields for the show multicast snooping route command. Output fields are listed in the approximate order in which they appear.

Table 45: show multicast snooping route Output Fields

Field Name	Field Description	Level of Output
Address family	IPv4 address family (INET) or IPv6 address family (INET6).	All levels

Table 45: show multicast snooping route Output Fields (continued)

Field Name	Field Description	Level of Output
Group	Group address.	All levels
Source	Prefix and length of the source as it is in the multicast forwarding table.	All levels
Routing-instance	Name of the routing instance to which this routing information applies. (Displayed when multicast is configured within a routing instance.)	All levels
Learning Domain	Name of the learning domain to which this routing information applies.	detail extensive
Statistics	Rate at which packets are being forwarded for this source and group entry (in Kbps and pps), and number of packets that have been forwarded to this prefix.	detail extensive
Next-hop ID	Next-hop identifier of the prefix. The identifier is returned by the router's Packet Forwarding Engine and is also displayed in the output of the show multicast nexthops command.	detail extensive
Route state	Whether the group is Active or Inactive.	extensive
Forwarding state	Whether the prefix is Pruned or Forwarding.	extensive
Cache lifetime/timeout	Number of seconds until the prefix is removed from the multicast forwarding table. A value of never indicates a permanent forwarding entry.	extensive

```

show multicast snooping route user@host> show multicast snooping route bridge-domain br-dom-1 extensive
Family: INET

Group: 232.1.1.1
Source: 192.168.3.100/32
Downstream interface list:
  ge-0/1/0.200
Statistics: 0 kbps, 0 pps, 1 packets
Next-hop ID: 1048577
Route state: Active
Forwarding state: Forwarding
Cache lifetime/timeout: 240 seconds

```

show multicast snooping statistics

Syntax	show multicast snooping statistics <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in JUNOS Release 8.5.
Description	Display IP multicast snooping statistics.
Options	<p>none—Display multicast snooping statistics for all supported address families for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Display statistics for a specific routing instance.</p> <p>interface <i>interface-name</i>—(Optional) Display statistics for a specific interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	The input and output interface multicast snooping statistics are consistent, but not timely. They are constructed from the forwarding statistics, which are gathered at 30-second intervals. Therefore, the output from this command always lags the true count by up to 30 seconds.
Required Privilege Level	view
Related Topics	clear multicast snooping statistics on page 70
List of Sample Output	show multicast snooping statistics on page 142
Output Fields	Table 46 on page 140 describes the output fields for the show multicast snooping statistics command. Output fields are listed in the approximate order in which they appear.

Table 46: show multicast snooping statistics Output Fields

Field Name	Field Description
Routing-instance	Name of the routing instance. (Displayed when multicast is configured within a routing instance.)
Family	Protocol family for which multicast statistics are displayed: INET or INET6.
Interface	Name of the interface for which statistics are being reported.
Routing Protocol	Primary multicast protocol on the interface: PIM, DVMRP for INET, or PIM for INET6.
Mismatch	Number of multicast packets that did not arrive on the correct upstream interface.
Kernel Resolve	Number of resolve requests processed by the primary multicast protocol on the interface.
Resolve No Route	Number of resolve requests that were ignored because there was no route to the source.

Table 46: show multicast snooping statistics Output Fields *(continued)*

Field Name	Field Description
In Kbytes	Total accumulated incoming packets (in KB) since the last time the <code>clear multicast snooping statistics</code> command was issued.
Out Kbytes	Total accumulated outgoing packets (in KB) since the last time the <code>clear multicast snooping statistics</code> command was issued.
Mismatch error	Number of mismatches that were ignored because of internal errors.
Mismatch No Route	Number of mismatches that were ignored because there was no route to the source.
Routing Notify	Number of times that the multicast routing system has been notified of a new multicast source by a multicast routing protocol.
Resolve Error	Number of resolve requests that were ignored because of internal errors.
In packets	Total number of incoming packets since the last time the <code>clear multicast snooping statistics</code> command was issued.
Out packets	Total number of outgoing packets since the last time the <code>clear multicast snooping statistics</code> command was issued.

```

show multicast snooping  user@host> show multicast snooping statistics
statistics
Routing-instance: foo
Family: INET
Interface: fe-0/0/2.200
    Routing protocol:      PIM    Mismatch error:      0
    Mismatch:              0      Mismatch no route:   0
    Kernel resolve:        22      Routing notify:       0
    Resolve no route:      0      Resolve error:        0
    Resolve filtered:      0      Notify filtered:     0
    In kbytes:             0      In packets:           0
    Out kbytes:            0      Out packets:          0

Routing-instance: bar
Family: INET
Interface: fe-0/1/2.200
    Routing protocol:      PIM    Mismatch error:      0
    Mismatch:              0      Mismatch no route:   0
    Kernel resolve:        22      Routing notify:       0
    Resolve no route:      0      Resolve error:        0
    Resolve filtered:      0      Notify filtered:     0
    In kbytes:             0      In packets:           0
    Out kbytes:            0      Out packets:          0

```

show multicast statistics

Syntax	show multicast statistics <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display IP multicast statistics.
Options	<p>none—Display multicast statistics for all supported address families for all routing instances on all logical systems.</p> <p>inet inet6—(Optional) Display multicast statistics for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display statistics for a specific routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	The input and output interface multicast statistics are consistent, but not timely. They are constructed from the forwarding statistics, which are gathered at 30-second intervals. Therefore, the output from this command always lags the true count by up to 30 seconds.
Required Privilege Level	view
Related Topics	clear multicast statistics on page 71
List of Sample Output	show multicast statistics on page 145
Output Fields	Table 47 on page 143 describes the output fields for the show multicast statistics command. Output fields are listed in the approximate order in which they appear.

Table 47: show multicast statistics Output Fields

Field Name	Field Description
Family	Protocol family for which multicast statistics are displayed: INET or INET6.
Interface	Name of the interface for which statistics are being reported.
Routing Protocol	Primary multicast protocol on the interface: PIM, DVMRP for INET, or PIM for INET6.
Mismatch	Number of multicast packets that did not arrive on the correct upstream interface.
Kernel Resolve	Number of resolve requests processed by the primary multicast protocol on the interface.
Resolve No Route	Number of resolve requests that were ignored because there was no route to the source.

Table 47: show multicast statistics Output Fields (*continued*)

Field Name	Field Description
In Kbytes	Total accumulated incoming packets (in KB) since the last time the clear multicast statistics command was issued.
Out Kbytes	Total accumulated outgoing packets (in KB) since the last time the clear multicast statistics command was issued.
Mismatch error	Number of mismatches that were ignored because of internal errors.
Mismatch No Route	Number of mismatches that were ignored because there was no route to the source.
Routing Notify	Number of times that the multicast routing system has been notified of a new multicast source by a multicast routing protocol .
Resolve Error	Number of resolve requests that were ignored because of internal errors.
In Packets	Total number of incoming packets since the last time the clear multicast statistics command was issued.
Out Packets	Total number of outgoing packets since the last time the clear multicast statistics command was issued.
Resolve requests on interfaces not enabled for multicast <i>n</i>	Number of resolve requests on interfaces that are not enabled for multicast that have accumulated since the clear multicast statistics command was last issued.
Resolve requests with no route to source <i>n</i>	Number of resolve requests with no route to the source that have accumulated since the clear multicast statistics command was last issued.
Routing notifications on interfaces not enabled for multicast <i>n</i>	Number of routing notifications on interfaces not enabled for multicast that have accumulated since the clear multicast statistics command was last issued.
Routing notifications with no route to source <i>n</i>	Number of routing notifications with no route to the source that have accumulated since the clear multicast statistics command was last issued.
Interface Mismatches on interfaces not enabled for multicast <i>n</i>	Number of interface mismatches on interfaces not enabled for multicast that have accumulated since the clear multicast statistics command was last issued.
Group Membership on interfaces not enabled for multicast <i>n</i>	Number of group memberships on interfaces not enabled for multicast that have accumulated since the clear multicast statistics command was last issued.

```

show multicast statistics user@host> show multicast statistics
Address family: INET
Interface: fe-0/0/0
  Routing Protocol:      PIM  Mismatch error:      0
  Mismatch:              0   Mismatch No Route:    0
  Kernel Resolve:       10   Routing Notify:       0
  Resolve No Route:     0   Resolve Error:        0
  In Kbytes:            4641  In Packets:           50454
  Out Kbytes:           0    Out Packets:          0
Interface: so-0/1/1.0
  Routing Protocol:      PIM  Mismatch error:      0
  Mismatch:              0   Mismatch No Route:    0
  Kernel Resolve:       0   Routing Notify:       0
  Resolve No Route:     0   Resolve Error:        0
  In Kbytes:            0    In Packets:           0
  Out Kbytes:          4641  Out Packets:          50454

Resolve requests on interfaces not enabled for multicast 0
Resolve requests with no route to source 0
Routing notifications on interfaces not enabled for multicast 0
Routing notifications with no route to source 0
Interface Mismatches on interfaces not enabled for multicast 0
Group Membership on interfaces not enabled for multicast 25

Address family: INET6
Interface: fe-0/0/0.0
  Routing Protocol:      PIM  Mismatch error:      0
  Mismatch:              0   Mismatch No Route:    0
  Kernel Resolve:       0   Routing Notify:       0
  Resolve No Route:     0   Resolve Error:        0
  In Kbytes:            0    In Packets:           0
  Out Kbytes:           0    Out Packets:          0
Interface: so-0/1/1.0
  Routing Protocol:      PIM  Mismatch error:      0
  Mismatch:              0   Mismatch No Route:    0
  Kernel Resolve:       0   Routing Notify:       0
  Resolve No Route:     0   Resolve Error:        0
  In Kbytes:            0    In Packets:           0
  Out Kbytes:           0    Out Packets:          0

Resolve requests on interfaces not enabled for multicast 0
Resolve requests with no route to source 0
Routing notifications on interfaces not enabled for multicast 0
Routing notifications with no route to source 0
Interface Mismatches on interfaces not enabled for multicast 0
Group Membership on interfaces not enabled for multicast 0

```

show multicast usage

Syntax	show multicast usage <brief detail> <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display usage information about the 10 most active Distance Vector Multicast Routing Protocol (DVMRP) or Protocol Independent Multicast (PIM) groups.
Options	<p>none—Display multicast usage information for all supported address families for all routing instances on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>inet inet6—(Optional) Display usage information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display information about the most active DVMRP or PIM groups for a specific multicast instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show multicast usage on page 147</p> <p>show multicast usage brief on page 147</p> <p>show multicast usage instance on page 147</p> <p>show multicast usage detail on page 147</p>
Output Fields	Table 48 on page 146 describes the output fields for the show multicast usage command. Output fields are listed in the approximate order in which they appear.

Table 48: show multicast usage Output Fields

Field Name	Field Description
Instance	Name of the routing instance. (Displayed when multicast is configured within a routing instance.)
Group	Group address.
Sources	Number of sources.
Packets	Number of packets that have been forwarded to this prefix.
Bytes	Amount of memory used.
Prefix	IP address.

Table 48: show multicast usage Output Fields (continued)

Field Name	Field Description
/len	Prefix length.
Groups	Number of multicast groups.

```

show multicast usage user@host> show multicast usage
Group          Sources Packets          Bytes
228.0.0.0      1          52847          4439148
239.1.1.1      2          13450          1125530

Prefix         /len Groups Packets          Bytes
10.255.14.144  /32  2          66254          5561304
10.255.70.15   /32  1          43             3374...
```

show multicast usage brief The output for the show multicast usage brief command is identical to that for the show multicast usage command. For sample output, see show multicast usage on page 147.

```

show multicast usage instance user@host> show multicast usage instance VPN-A
Group          Sources Packets          Bytes
224.2.127.254  1          5538          509496
224.0.1.39     1          13            624
224.0.1.40     1          13            624

Prefix         /len Groups Packets          Bytes
192.168.195.34 /32  1          5538          509496
10.255.14.30    /32  1          13            624
10.255.245.91   /32  1          13            624
...
```

```

show multicast usage detail user@host> show multicast usage detail
Group          Sources Packets          Bytes
228.0.0.0      1          53159          4465356
  Source: 10.255.14.144 /32 Packets: 53159 Bytes: 4465356
239.1.1.1      2          13450          1125530
  Source: 10.255.14.144 /32 Packets: 13407 Bytes: 1122156
  Source: 10.255.70.15   /32 Packets: 43 Bytes: 3374

Prefix         /len Groups Packets          Bytes
10.255.14.144  /32  2          66566          5587512
  Group: 228.0.0.0      Packets: 53159 Bytes: 4465356
  Group: 239.1.1.1      Packets: 13407 Bytes: 1122156
10.255.70.15   /32  1          43             3374
  Group: 239.1.1.1      Packets: 43 Bytes: 3374
```

show pgm negative-acknowledgments

Syntax	show pgm negative-acknowledgments
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the sent or received Pragmatic General Multicast (PGM) negative acknowledgments (NAKs), the source-path message (SPM) sequence number being negatively acknowledged, and the current state of repair.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show pgm negative-acknowledgments on page 149
Output Fields	Table 49 on page 148 describes the output fields for the <code>show pgm negative-acknowledgments</code> command. Output fields are listed in the approximate order in which they appear.

Table 49: show pgm negative-acknowledgments Output Fields

Field Name	Field Description
Global source id	Global source identifier (GSI), which combines with the source port to determine the transport session identifier (TSI).
Network layer address	Network layer address of the local system.
Source port	Source port number, which is combined with the GSI to determine the TSI.
SPM sequence number	Numeric sequence identifier of the source-path message.
Window (trailing/leading sequence)	Range of sequence numbers used by the source for sequentially numbering and transmitting the most recent packets. The trailing (or left) edge of the transmit window is the sequence number of the oldest data packet available for repair from a source. The leading (or right) edge of the transmit window is defined as the sequence number of the most recent data packet a source has transmitted.
Outstanding NAKS	<p>Total number of outstanding negative acknowledgments sent or received by the local system. NAK packets indicate that a packet in the expected original data sequence has been detected as missing.</p> <ul style="list-style-type: none"> ■ Sequence number—Numeric sequence identifier of the source-path message. ■ Group—Group address. ■ Source—Multicast source. ■ Interface—Interface name. ■ Receiver—IP address receiving the multicast.

```
show pgm negative-acknowledgments user@host> show pgm negative-acknowledgments
Global source ID: 010203040506 Source port: 1111
Network layer address: 10.38.0.1
SPM sequence number: 1
Window (trailing/leading sequence): 0/1
Outstanding NAKs:
  Sequence number: 1
  Group: 225.1.1.1
  Source: 192.168.195.121
  Interface: t3-0/2/0:0 Receiver: 10.38.0.10
```

show pgm source-path-messages

Syntax	show pgm source-path-messages
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the Pragmatic General Multicast (PGM) source-path messages received.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show pgm source-path-messages on page 150
Output Fields	Table 50 on page 150 describes the output fields for the show pgm source-path-messages command. Output fields are listed in the approximate order in which they appear.

Table 50: show pgm source-path-messages Output Fields

Field Name	Field Description
Global source ID	Global source identifier (GSI), which combines with the source port to determine the transport session identifier (TSI).
Port	Source port number, which combines with the GSI to determine the TSI.
SPM number	Numeric sequence identifier of the source-path message.
Trail number	Sequence number of the oldest data packet available for repair from a source.
Lead number	Sequence number of the most recent data packet a source has transmitted.
Network layer address	Network layer address of the local system.

```

show pgm      user@host> show pgm source-path-messages
source-path-messages
Global source ID  Port SPM number Trail number Lead number Network layer address
010203040506    1111      1           0           1 10.38.0.1

```

show pgm statistics

Syntax	show pgm statistics
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Pragmatic General Multicast (PGM) packet statistics, including general loss and repair statistics.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show pgm statistics on page 153
Output Fields	Table 51 on page 151 describes the output fields for the show pgm statistics command. Output fields are listed in the approximate order in which they appear.

Table 51: show pgm statistics Output Fields

Field Name	Field Description
PGM type, # received, # sent	<p>Number of packets received and sent for the following PGM packet types:</p> <ul style="list-style-type: none"> ■ SPM—Number of total source path messages received and sent by the local system. Source path messages (SPMs) are sent by a source to establish the source path state in network elements and to provide the transmit-window state to receivers. ■ POLL—Total number of poll requests received and sent by the local system. ■ POLR—Total number of poll responses received and sent by the local system. ■ ODATA—Total number of original data packets received and sent by the local system. ■ RDATA—Total number of repair data packets received and sent by the local system. RDATA packets are generated in response to negative acknowledgments (NAKs), which indicate a missing packet from the original data sequence. ■ NAK—Total number of negative acknowledgments received and sent by the local system. NAK packets indicate that a packet in the expected original data sequence has been detected as missing. ■ NULLNAK—Total number of null negative acknowledgments received and sent by the local system. NULLNAKs are transmitted by a designated local repairer that receives NAKs redirected to it by either receivers or network elements to provide flow-control feedback to a source. ■ NCF—Total number of NAK confirmations received and sent by the local system. NAK confirmations are generated in response to NAK packets that are received. ■ SPMR—Total number of source path message requests (SPMRs) received and sent by the local system. SPMRs are used to solicit a source path message from a source in a nonimplosive way. The typical application is for late-joining receivers to solicit source path messages directly from a source in order to be able to send NAKs for missing packets, without having to wait for a regularly scheduled source path message from that source. ■ OTHER—Total number of other PGM packets received and sent by the local system.
packets shorter than minimum PGM header length	Total number of packets received with headers that are shorter than the minimum required PGM header length.

Table 51: show pgm statistics Output Fields (continued)

Field Name	Field Description
packets received with incorrect check sum	Total number of packets received with an incorrect checksum. The checksum field is the 1's complement of the 1's complement sum of the entire PGM packet, including the header.
packets received with zero check sum	Total number of packets received with a zero checksum. If the computed checksum is zero, it is transmitted as all ones. A value of zero in this field means that the transmitter generated no checksum.
packets received with TSDU length incorrect	Total number of packets received with an incorrect Transport Service Data Unit (TSDU) length (16 bits).
packets received with SPM length incorrect	Total number of packets received with an incorrect source path message length.
packets received with unknown SPM address family	Total number of packets received with an unknown source path message address family indicator (AFI).
packets received with NAK length incorrect	Total number of packets received with an incorrect NAK length.
packets received with unknown NAK address family	Total number of packets received with an unknown NAK address family indicator (AFI).
packets received with NAK for unknown TSI	Total number of NAK packets received with an unknown transport session identifier (TSI).
packets received when NAK throttled	Total number of packets received when NAK is throttled.
packets received with NCF length incorrect	Total number of packets received with an incorrect NAK confirmation length.
packets received with unknown NCF address family	Total number of packets received with an unknown NAK confirmation address family indicator (AFI).
packets received with NCF for unknown TSI	Total number of NAK confirmation packets received with an unknown transport session identifier (TSI).
packets received with RDATA length incorrect	Total number of packets received with an incorrect RDATA length.
packets received with RDATA for unknown TSI	Total number of RDATA packets received with an unknown transport session identifier (TSI).

show pgm statisticsuser@host> **show pgm statistics**

PGM type	# received	# sent
SPM	0	0
POLL	0	0
POLR	0	0
ODATA	0	0
RDATA	0	0
NAK	0	0
NULLNAK	0	0
NCF	0	0
SPMR	0	0
OTHER	0	0

packets shorter than minimum PGM header length	:	0
packets received with incorrect check sum	:	0
packets received with zero check sum	:	0
packets received with TSdu length incorrect	:	0
packets received with SPM length incorrect	:	0
packets received with unknown SPM address family:	:	0
packets received with NAK length incorrect	:	0
packets received with unknown NAK address family:	:	0
packets received with NAK for unknown TSI	:	0
packets received when NAK throttled	:	0
packets received with NCF length incorrect	:	0
packets received with unknown NCF address family:	:	0
packets received with NCF for unknown TSI	:	0
packets received with RDATA length incorrect	:	0
packets received with RDATA for unknown TSI	:	0

show pim bootstrap

Syntax	show pim bootstrap <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	For sparse mode only, display information about Protocol Independent Multicast (PIM) bootstrap routers.
Options	<p>none—Display PIM bootstrap router information for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Display information about bootstrap routers for a specific PIM-enabled routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show pim bootstrap on page 154</p> <p>show pim bootstrap instance on page 155</p>
Output Fields	Table 52 on page 154 describes the output fields for the show pim bootstrap command. Output fields are listed in the approximate order in which they appear.

Table 52: show pim bootstrap Output Fields

Field Name	Field Description
Instance	Name of the routing instance.
BSR	Bootstrap router.
Pri	Priority of the router to be elected to be the bootstrap router.
Local address	Local router's address.
Pri	Local router's address priority to be elected as the bootstrap router.
State	Local router's election state: Candidate , Elected , or Ineligible .
Timeout	How long until the local router declares the bootstrap router to be unreachable, in seconds.

```

show pim bootstrap  user@host> show pim bootstrap
                     Instance: PIM.master

                     BSR                Pri Local address                Pri State                Timeout

```


None	0	10.255.71.46	0	InEligible	0
feco:1:1:1:1:0:aff:785c	34	feco:1:1:1:1:0:aff:7c12	0	InEligible	0

show pim bootstrap instance user@host> **show pim bootstrap instance VPN-A**
 Instance: PIM.VPN-A

BSR	Pri	Local address	Pri	State	Timeout
None	0	192.168.196.105	0	InEligible	0

show pim interfaces

Syntax	show pim interfaces <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about the interfaces on which Protocol Independent Multicast (PIM) is configured.
Options	<p>none—Display interface information for all family addresses for all routing instances on all logical systems.</p> <p>inet inet6—(Optional) Display interface information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display information about interfaces for a specific PIM-enabled routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show pim interfaces on page 157</p> <p>show pim interfaces inet on page 158</p> <p>show pim interfaces inet6 on page 158</p>
Output Fields	Table 53 on page 156 describes the output fields for the show pim interfaces command. Output fields are listed in the approximate order in which they appear.

Table 53: show pim interfaces Output Fields

Field Name	Field Description
Instance	Name of the routing instance.
Name	Interface name.
State	State of the interface. The state also is displayed in the show interfaces command.

Table 53: show pim interfaces Output Fields (continued)

Field Name	Field Description
Mode	<p>PIM mode running on the interface:</p> <ul style="list-style-type: none"> ■ Sparse—In sparse mode, routers must join and leave multicast groups explicitly. Upstream routers do not forward multicast traffic to this router unless this router has sent an explicit request (using a join message) to receive multicast traffic. ■ Dense—Unlike sparse mode, where data is forwarded only to routers sending an explicit request, dense mode implements a flood-and-prune mechanism, similar to DVMRP (the first multicast protocol used to support the Multicast Backbone). ■ Sparse-Dense—Sparse-dense mode allows the interface to operate on a per-group basis in either sparse or dense mode. A group specified as dense is not mapped to a rendezvous point (RP). Instead, data packets destined for that group are forwarded using PIM-Dense Mode (PIM-DM) rules. A group specified as sparse is mapped to an RP, and data packets are forwarded using PIM-Sparse Mode (PIM-SM) rules.
IP	Version number of the address family on the interface: 4 (IPv4) or 6 (IPv6).
V	PIM version running on the interface: 1 or 2.
State	<p>State of PIM on the interface:</p> <ul style="list-style-type: none"> ■ DR—Designated router. ■ NotDR—Not the designated router. ■ P2P—Point to point.
Count	Number of neighbors that have been seen on the interface.
DR address	Address of the designated router.

show pim interfaces user@host> **show pim interfaces**
Instance: PIM.master

Name	Stat	Mode	IP	V	State	Count	DR address
fxp0.0	Up	Sparse	4	2	DR	1	192.68.12.51
fxp1.0	Up	Sparse	4	2	NotDR	1	192.68.12.98
fxp2.0	Up	Sparse	4	2	DR	0	10.1.1.1
gre.0	Up	Sparse	4	2	P2P	0	
lo0.0	Up	Sparse	4	2	DR	0	127.0.0.1
pimd.32768	Up	Sparse	4	2	P2P	0	
sr0.0	Down	Sparse	4	2	P2P	0	
fxp0.0	Up	Sparse	6	2	DR	0	fec0::192.68.12.51
fxp1.0	Up	Sparse	6	2	DR	0	fec0::192.68.12.97
fxp2.0	Up	Sparse	6	2	DR	0	fe80::2a0:c9ff:fe69:eb5f

show pim interfaces inet user@host> **show pim interfaces inet**
 Instance: PIM.master

Name	Stat	Mode	IP	V	State	Count	DR	address
fxp0.0	Up	Sparse	4	2	DR	1	192.68.12.51	
fxp1.0	Up	Sparse	4	2	NotDR	1	192.68.12.98	
fxp2.0	Up	Sparse	4	2	DR	0	10.1.1.1	
gre.0	Up	Sparse	4	2	P2P	0		
lo0.0	Up	Sparse	4	2	DR	0	127.0.0.1	
pimd.32768	Up	Sparse	4	2	P2P	0		
sr0.0	Down	Sparse	4	2	P2P	0		

show pim interfaces inet6 user@host> **show pim interfaces inet6**
 Instance: PIM.master

Name	Stat	Mode	IP	V	State	Count	DR	address
fxp0.0	Up	Sparse	6	2	DR	0	fec0::192.68.12.51	
fxp1.0	Up	Sparse	6	2	DR	0	fec0::192.68.12.97	
fxp2.0	Up	Sparse	6	2	DR	0	fe80::2a0:c9ff:fe69:eb5f	

show pim join

Syntax	show pim join <brief detail extensive> <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <range>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Protocol Independent Multicast (PIM) groups.
Options	<p>none—Display the standard information about PIM groups for all supported family addresses for all routing instances on all logical systems.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>inet inet6—(Optional) Display PIM group information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display information about groups for the specified PIM-enabled routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>range—(Optional) Address range of the group, specified as <i>prefix/prefix-length</i>.</p>
Required Privilege Level	view
Related Topics	clear pim join on page 75
List of Sample Output	<p>show pim join on page 161</p> <p>show pim join instance on page 161</p> <p>show pim join detail on page 161</p> <p>show pim join extensive on page 162</p> <p>show pim join instance extensive on page 162</p>
Output Fields	Table 54 on page 159 describes the output fields for the show pim join command. Output fields are listed in the approximate order in which they appear.

Table 54: show pim join Output Fields

Field Name	Field Description
Instance	Name of the routing instance.
<i>address-family</i>	Name of the address family: inet (IPv4) or inet6 (IPv6).
Group	Group address.

Table 54: show pim join Output Fields (continued)

Field Name	Field Description
Source	<p>Multicast source:</p> <ul style="list-style-type: none"> ■ * (wildcard value) ■ <i>ipv4-address</i> ■ <i>ipv6-address</i>
RP	Rendezvous point for the PIM group.
Flags	<p>PIM flags:</p> <ul style="list-style-type: none"> ■ dense—Dense mode entry. ■ rptree—Entry is on the rendezvous point tree. ■ sparse—Sparse mode entry. ■ spt—Entry is on the shortest-path tree for the source. ■ wildcard—Entry is on the shared tree.
Upstream interface	RPF interface toward the source address for the source-specific state (S, G) or toward the rendezvous point (RP) address for the non-source-specific state (*, G).
Upstream neighbor	Information about the upstream neighbor: Direct , Local , Unknown , or a specific IP address.
Upstream state	<p>Information about the upstream interface:</p> <ul style="list-style-type: none"> ■ Join to RP—Sending a join to the rendezvous point. ■ Join to Source—Sending a join to the source. ■ Local RP—Sending neither joins nor prunes toward the RP, because this router is the rendezvous point. ■ Local Source—Sending neither joins nor prunes toward the source, because the source is locally attached to this router. ■ Prune to RP—Sending a prune to the rendezvous point. ■ Prune to Source—Sending a prune to the source.
Downstream neighbors	<p>Information about downstream interfaces:</p> <ul style="list-style-type: none"> ■ Interface—Interface name for the downstream neighbor. <p>NOTE: A pseudo PIM-SM interface appears for all IGMP-only interfaces.</p> <ul style="list-style-type: none"> ■ Interface address—Address of the downstream neighbor. ■ State—Information about the downstream neighbor: join or prune. ■ Flags—PIM join flags: R (RPtree), S (Sparse), W (Wildcard), or zero.
Assert Timeout	Length of time between assert cycles on downstream interface. Not displayed if assert timer is null.
Timeout	Time remaining until the downstream join state is updated (in seconds). If the downstream join state is not updated before this keepalive timer reaches zero, the entry is deleted. If there is a directly connected host, Timeout is Infinity .

```

show pim join      user@host> show pim join
Instance: PIM.master Family: INET

Group: 239.1.1.1
  Source: *
  RP: 10.255.14.144
  Flags: sparse,rptree,wildcard
  Upstream interface: Local

Group: 239.1.1.1
  Source: 10.255.14.144
  Flags: sparse,spt
  Upstream interface: Local

Group: 239.1.1.1
  Source: 10.255.70.15
  Flags: sparse,spt
  Upstream interface: so-1/0/0.0

Instance: PIM.master Family: INET6

```

```

show pim join instance user@host> show pim join instance VPN-A
Instance: PIM.VPN-A Family: INET

Group: 235.1.1.2
  Source: *
  RP: 10.10.47.100
  Flags: sparse,rptree,wildcard
  Upstream interface: Local

Group: 235.1.1.2
  Source: 192.168.195.74
  Flags: sparse,spt
  Upstream interface: at-0/3/1.0

Group: 235.1.1.2
  Source: 192.168.195.169
  Flags: sparse
  Upstream interface: so-1/0/1.0

Instance: PIM.VPN-A Family: INET6

```

```

show pim join detail user@host> show pim join detail
Instance: PIM.master Family: INET

Group: 239.1.1.1
  Source: *
  RP: 10.255.14.144
  Flags: sparse,rptree,wildcard
  Upstream interface: Local

Group: 239.1.1.1
  Source: 10.255.14.144
  Flags: sparse,spt
  Upstream interface: Local

Group: 239.1.1.1
  Source: 10.255.70.15
  Flags: sparse,spt
  Upstream interface: so-1/0/0.0

```

Instance: PIM.master Family: INET6

show pim join extensive

user@host> **show pim join extensive**
Instance: PIM.master Family: INET

Group: 239.1.1.1
Source: *
RP: 10.255.14.144
Flags: sparse,rptree,wildcard
Upstream interface: Local
Upstream neighbor: Local
Upstream state: Local RP
Downstream neighbors:
Interface: so-1/0/0.0
10.111.10.2 State: Join Flags: SRW Timeout: 174
Interface: mt-1/1/0.32768
10.10.47.100 State: Join Flags: SRW Timeout: Infinity

Group: 239.1.1.1
Source: 10.255.14.144
Flags: sparse,spt
Upstream interface: Local
Upstream neighbor: Local
Upstream state: Local Source, Local RP
Keepalive timeout: 344
Downstream neighbors:
Interface: so-1/0/0.0
10.111.10.2 State: Join Flags: S Timeout: 174
Interface: mt-1/1/0.32768
10.10.47.100 State: Join Flags: S Timeout: Infinity

Group: 239.1.1.1
Source: 10.255.70.15
Flags: sparse,spt
Upstream interface: so-1/0/0.0
Upstream neighbor: 10.111.10.2
Upstream state: Local RP, Join to Source
Keepalive timeout: 344
Downstream neighbors:
Interface: Pseudo-GMP
fe-0/0/0.0 fe-0/0/1.0 fe-0/0/3.0
Interface: so-1/0/0.0 (pruned)
10.111.10.2 State: Prune Flags: SR Timeout: 174
Interface: mt-1/1/0.32768
10.10.47.100 State: Join Flags: S Timeout: Infinity

Instance: PIM.master Family: INET6

show pim join instance extensive

user@host> **show pim join instance VPN-A extensive**
Instance: PIM.VPN-A Family: INET

Group: 235.1.1.2
Source: *
RP: 10.10.47.100
Flags: sparse,rptree,wildcard
Upstream interface: Local
Upstream neighbor: Local
Upstream state: Local RP
Downstream neighbors:
Interface: mt-1/1/0.32768

10.10.47.101 State: Join Flags: SRW Timeout: 156

Group: 235.1.1.2
Source: 192.168.195.74
Flags: sparse,spt
Upstream interface: at-0/3/1.0
Upstream neighbor: 10.111.30.2
Upstream state: Local RP, Join to Source
Keepalive timeout: 156

Group: 235.1.1.2
Source: 192.168.195.169
Flags: sparse
Upstream interface: so-1/0/1.0
Upstream neighbor: 10.111.20.2
Upstream state: Local RP, Join to Source
Keepalive timeout: 156

show pim mdt

Syntax	show pim mdt instance <i>instance-name</i> <brief detail extensive> <incoming outgoing> <logical-system (all <i>logical-system-name</i>)> < <i>range</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Protocol Independent Multicast (PIM) data-driven multicast distribution trees (data-MDTs) in a Layer 3 VPN environment for a routing instance.
Options	<p>instance <i>instance-name</i>—Display information about data-MDTs for a specific PIM-enabled routing instance.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>incoming outgoing—(Optional) Display incoming or outgoing multicast data tunnels, respectively.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>range</i>—(Optional) Display information about an IP address with optional prefix length representing a particular multicast group.</p>
Required Privilege Level	view
List of Sample Output	<p>show pim mdt instance on page 165</p> <p>show pim mdt instance detail on page 165</p> <p>show pim mdt instance extensive on page 165</p> <p>show pim mdt instance incoming on page 166</p> <p>show pim mdt instance outgoing on page 166</p>
Output Fields	Table 55 on page 164 describes the output fields for the show pim mdt command. Output fields are listed in the approximate order in which they appear.

Table 55: show pim mdt Output Fields

Field Name	Field Description	Level of Output
Instance	Name of the routing instance.	All levels
Tunnel direction	Direction the tunnel faces, from the router's perspective: Outgoing or Incoming .	All levels
Default group address	Default multicast group address using this tunnel.	All levels
Default tunnel interface	Default multicast tunnel interface.	All levels
C-Group	Customer-facing multicast group address using this tunnel.	detail

Table 55: show pim mdt Output Fields (continued)

Field Name	Field Description	Level of Output
C-Source	IP address of the multicast source in the customer's address space.	detail
P-Group	Service provider-facing multicast group address using this tunnel.	detail
Data tunnel interface	Multicast data tunnel interface that set up the data-MDT tunnel.	detail
Last known forwarding rate	Last known rate, in kilobits per second, at which the tunnel was forwarding traffic.	detail
Configured threshold rate	Rate, in kilobits per second, above which a data-MDT tunnel is created and below which it is deleted.	detail
Tunnel uptime	Time that this data-MDT tunnel has existed. The format is <i>hours:minutes:seconds</i> .	detail

```

show pim mdt instance user@host> show pim mdt instance VPN-A
Instance: PIM.VPN-A
Tunnel direction: Outgoing
Default group address: 239.1.1.1
Default tunnel interface: mt-1/1/0.32768

C-group address    C-source address  P-group address    Data tunnel interface
235.1.1.2          192.168.195.74    228.0.0.0          mt-1/1/0.32769

Instance: PIM.VPN-A
Tunnel direction: Incoming
Default group address: 239.1.1.1
Default tunnel interface: mt-1/1/0.49152

```

```

show pim mdt instance detail user@host> show pim mdt instance VPN-A detail
Instance: PIM.VPN-A
Tunnel direction: Outgoing
Default group address: 239.1.1.1
Default tunnel interface: mt-1/1/0.32768

C-Group: 235.1.1.2
  C-Source: 192.168.195.74
  P-Group : 228.0.0.0
  Data tunnel interface      : mt-1/1/0.32769
  Last known forwarding rate : 48 kbps (6 kbps)
  Configured threshold rate  : 10 kbps
  Tunnel uptime              : 00:00:34

Instance: PIM.VPN-A
Tunnel direction: Incoming
Default group address: 239.1.1.1
Default tunnel interface: mt-1/1/0.49152

```

```

show pim mdt instance extensive user@host> show pim mdt instance VPN-A extensive
Instance: PIM.VPN-A
Tunnel direction: Outgoing
Default group address: 239.1.1.1
Default tunnel interface: mt-1/1/0.32768

```

```

C-Group: 235.1.1.2
  C-Source: 192.168.195.74
  P-Group : 228.0.0.0
  Data tunnel interface      : mt-1/1/0.32769
  Last known forwarding rate : 48 kbps (6 kbps)
  Configured threshold rate  : 10 kbps
  Tunnel uptime              : 00:00:41

```

```

Instance: PIM.VPN-A
Tunnel direction: Incoming
Default group address: 239.1.1.1
Default tunnel interface: mt-1/1/0.49152

```

```

show pim mdt instance incoming  user@host> show pim mdt instance VPN-A incoming
Instance: PIM.VPN-A
Tunnel direction: Incoming
Default group address: 239.1.1.1
Default tunnel interface: mt-1/1/0.49152

```

```

show pim mdt instance outgoing user@host> show pim mdt instance VPN-A outgoing
Instance: PIM.VPN-A
Tunnel direction: Outgoing
Default group address: 239.1.1.1
Default tunnel interface: mt-1/1/0.32768

```

C-group address	C-source address	P-group address	Data tunnel interface
235.1.1.2	192.168.195.74	228.0.0.0	mt-1/1/0.32769

show pim neighbors

Syntax	show pim neighbors <brief detail> <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Protocol Independent Multicast (PIM) neighbors.
Options	<p>none—(Same as brief) Display standard information about PIM neighbors for all supported family addresses for all routing instances on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>inet inet6—(Optional) Display information about PIM neighbors for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display information about neighbors for the specified PIM-enabled routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show pim neighbors on page 168</p> <p>show pim neighbors brief on page 168</p> <p>show pim neighbors instance on page 168</p> <p>show pim neighbors detail on page 169</p> <p>show pim neighbors detail (with BFD) on page 169</p>
Output Fields	Table 56 on page 167 describes the output fields for the show pim neighbors command. Output fields are listed in the approximate order in which they appear.

Table 56: show pim neighbors Output Fields

Field Name	Field Description	Level of Output
Instance	Name of the routing instance.	All levels
Interface	Interface through which the neighbor is reachable.	All levels
Neighbor addr	Address of the neighboring PIM router.	All levels
IP	IP version: 4 or 6.	All levels
V	PIM version running on the neighbor: 1 or 2.	All levels
Mode	PIM mode of the neighbor: Sparse , Dense , SparseDense , or Unknown . When the neighbor is running PIM version 2, this mode is always Unknown .	All levels

Table 56: show pim neighbors Output Fields (continued)

Field Name	Field Description	Level of Output
Option	Can be one or more of the following: <ul style="list-style-type: none"> ■ B—Bidirectional Capable. ■ H—Hello Option Holdtime. ■ G—Generation Identifier. ■ P—Hello Option DR Priority. ■ L—Hello Option LAN Prune Delay. 	brief none
Uptime	Time the neighbor has been operational since the PIM process was last initialized, in the format <i>dd:hh:mm:ss ago</i> for less than a week and <i>nwnd:hh:mm:ss ago</i> for more than a week.	All levels
Address	Address of the neighboring PIM router.	detail
BFD	Status and operational state of the Bidirectional Forwarding Detection (BFD) protocol on the interface: Enabled , Operational state is up , or Disabled .	detail
Hello Option Holdtime	Time for which the neighbor is available, in seconds. The range of values is 0 through 65,535.	detail
Hello Option DR Priority	Designated router election priority. The range of values is 0 through 255.	detail
Hello Option Generation ID	9- or 10-digit number used to tag hello messages.	detail
Hello Option LAN Prune Delay	Time to wait before the neighbor receives prune messages, in the format <i>delay nnn ms override nnnn ms</i> .	detail
Join Suppression supported	Neighbor is capable of join suppression.	detail
Rx Join	Information about joins received from the neighbor. <ul style="list-style-type: none"> ■ Group—Group addresses in the join message. ■ Source—Address of the source in the join message. ■ Timeout—Time for which the join is valid. 	detail

show pim neighbors user@host> **show pim neighbors**
 Instance: PIM.master

```

Interface      IP V Mode      Option      Uptime Neighbor addr
so-1/0/0.0     4 2           HPLG       00:07:10 10.111.10.2

```

show pim neighbors brief The output for the **show pim neighbors brief** command is identical to that for the **show pim neighbors** command. For sample output, see **show pim neighbors** on page 168.

show pim neighbors instance user@host> **show pim neighbors instance VPN-A**
 Instance: PIM.VPN-A

Interface	IP V Mode	Option	Uptime Neighbor addr
at-0/3/1.0	4 2	HPLG	00:07:54 10.111.30.2
mt-1/1/0.32768	4 2	HPLG	00:07:22 10.10.47.101
so-1/0/1.0	4 2	HPLG	00:07:50 10.111.20.2

**show pim neighbors
detail**

```

user@host> show pim neighbors detail
Instance: PIM.master
Interface: fe-3/0/2.0
    Address: 192.168.195.37, IPv4, PIM v2, Mode: Sparse
    Hello Option Holdtime: 65535 seconds
    Hello Option DR Priority: 1
    Hello Option LAN Prune Delay: delay 500 ms override 2000 ms
                                Join Suppression supported
Rx Join: Group          Source      Timeout
          225.1.1.1      192.168.195.78    0
          225.1.1.1      192.168.195.78    0
Interface: lo0.0
    Address: 10.255.245.91, IPv4, PIM v2, Mode: Sparse
    Hello Option Holdtime: 65535 seconds
    Hello Option DR Priority: 1
    Hello Option LAN Prune Delay: delay 500 ms override 2000 ms
                                Join Suppression supported
Interface: pd-6/0/0.32768
    Address: 0.0.0.0, IPv4, PIM v2, Mode: Sparse
    Hello Option Holdtime: 65535 seconds
    Hello Option DR Priority: 0
    Hello Option LAN Prune Delay: delay 500 ms override 2000 ms
                                Join Suppression supported

```

**show pim neighbors
detail (with BFD)**

```

user@host> show pim neighbors detail
Instance: PIM.master
Interface: fe-1/0/0.0
    Address: 192.168.11.1,      IPv4, PIM v2, Mode: Sparse
    Hello Option Holdtime: 65535 seconds
    Hello Option DR Priority: 1
    Hello Option Generation ID: 836607909
    Hello Option LAN Prune Delay: delay 500 ms override 2000 ms

    Address: 192.168.11.2,      IPv4, PIM v2
    BFD: Enabled, Operational state is up
    Hello Option Holdtime: 105 seconds 104 remaining
    Hello Option DR Priority: 1
    Hello Option Generation ID: 1907549685
    Hello Option LAN Prune Delay: delay 500 ms override 2000 ms

Interface: fe-1/0/1.0
    Address: 192.168.12.1,      IPv4, PIM v2
    BFD: Disabled
    Hello Option Holdtime: 105 seconds 80 remaining
    Hello Option DR Priority: 1
    Hello Option Generation ID: 1971554705
    Hello Option LAN Prune Delay: delay 500 ms override 2000 ms

```

show pim rps

Syntax	<pre>show pim rps <brief detail extensive> <group-address> <inet inet6> <instance instance-name> <logical-system (all logical-system-name)></pre>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Protocol Independent Multicast (PIM) rendezvous points (RPs).
Options	<p>none—Display standard information about PIM RPs for all groups and family addresses for all routing instances on all logical systems.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>group-address—(Optional) Display the RPs for a particular group. If you specify a group address, the output lists the router that is the RP for that group.</p> <p>inet inet6—(Optional) Display information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance instance-name—(Optional) Display information about RPs for a specific PIM-enabled routing instance.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<pre>show pim rps on page 172 show pim rps brief on page 172 show pim rps instance on page 173 show pim rps extensive on page 173 show pim rps extensive (PIM Anycast RP In Use) on page 173</pre>
Output Fields	Table 57 on page 170 describes the output fields for the show pim rps command. Output fields are listed in the approximate order in which they appear.

Table 57: show pim rps Output Fields

Field Name	Field Description	Level of Output
Instance	Name of the routing instance.	All levels
Family	Name of the address family: inet (IPv4) or inet6 (IPv6).	All levels
RP address	Address of the rendezvous point.	All levels

Table 57: show pim rps Output Fields (*continued*)

Field Name	Field Description	Level of Output
Type	Type of RP: <ul style="list-style-type: none"> ■ auto-rp—Address of the RP known through the Auto-RP protocol. ■ bootstrap—Address of the RP known through the bootstrap router protocol (BSR). ■ embedded—Address of the RP known through an embedded RP (IPv6). ■ static—Address of RP known through static configuration. 	brief none
Holdtime	How long to keep the RP active, with time remaining, in seconds.	All levels
Timeout	How long until the local router determines the RP to be unreachable, in seconds.	All levels
Groups	Number of groups currently using this RP.	All levels
Group prefixes	Addresses of groups that this RP can span.	brief none
Learned via	Address and method by which the RP was learned.	detail extensive
Time Active	How long the RP has been active, in the format <i>hh:mm:ss</i> .	detail extensive
Device Index	Index value of the order in which the JUNOS software finds and initializes the interface.	detail extensive
Subunit	Logical unit number of the interface.	detail extensive
Interface	Either the encapsulation or the de-encapsulation logical interface, depending on whether this router is a designated router (DR) facing an RP router, or is the local RP, respectively.	detail extensive
Group Ranges	Addresses of groups that this RP spans.	detail extensive
Active groups using RP	Number of groups currently using this RP.	detail extensive
total	Total number of active groups for this RP.	detail extensive

Table 57: show pim rps Output Fields (continued)

Field Name	Field Description	Level of Output
Register State for RP	<p>Current register state for each group:</p> <ul style="list-style-type: none"> ■ Group—Multicast group address. ■ Source—Multicast source address for which the PIM register is sent or received, depending on whether this router is a designated router facing an RP router, or is the local RP, respectively: ■ First Hop—PIM-designated router that sent the Register message (the source address in the IP header). ■ RP Address—RP to which the Register message was sent (the destination address in the IP header). ■ State: <ul style="list-style-type: none"> On the designated router: <ul style="list-style-type: none"> ■ Send—Sending Register messages. ■ Probe—Sent a null register. If a Register-Stop message does not arrive in 5 seconds, the designated router resumes sending Register messages. ■ Suppress—Received a Register-Stop message. The designated router is waiting for the timer to resume before changing to Probe state. On the RP: <ul style="list-style-type: none"> ■ Receive—Receiving Register messages. 	extensive
Anycast-PIM rpset	If anycast RP is configured, the addresses of the RPs in the set.	extensive
Anycast-PIM local address used	If anycast RP is configured, the local address used by the RP.	extensive
Anycast-PIM Register State	<p>If anycast RP is configured, the current register state for each group:</p> <ul style="list-style-type: none"> ■ Group—Multicast group address. ■ Source—Multicast source address for which the PIM register is sent or received, depending on whether this router is a designated router facing an RP router, or is the local RP, respectively: ■ Origin—How the information was obtained: <ul style="list-style-type: none"> ■ DIRECT—From a local attachment ■ MSDP—From the Multicast Source Discovery Protocol (MSDP) ■ DR—From the designated router 	extensive

```

show pim rps      user@host> show pim rps
                    Instance: PIM.master
                    Address family INET
                    RP address      Type      Holdtime Timeout Groups Group prefixes
                    10.255.14.144   static    0       None     1 224.0.0.0/4

                    Address family INET6

```

show pim rps brief The output for the **show pim rps brief** command is identical to that for the **show pim rps** command. For sample output, see **show pim rps** on page 172.

```

show pim rps instance user@host> show pim rps instance VPN-A
Instance: PIM.VPN-A
Address family INET
RP address          Type          Holdtime Timeout Groups Group prefixes
10.10.47.100        static          0      None      1 224.0.0.0/4

Address family INET6

show pim rps extensive user@host> show pim rps extensive
Instance: PIM.master

Family: INET
RP: 10.255.245.91
Learned via: static configuration
Time Active: 00:05:48
Holdtime: 45 with 36 remaining
Device Index: 122
Subunit: 32768
Interface: pd-6/0/0.32768
Group Ranges:
    224.0.0.0/4, 36s remaining
Active groups using RP:
    225.1.1.1

    total 1 groups active

Register State for RP:
Group          Source          FirstHop          RP Address          State          Timeout
225.1.1.1      192.168.195.78  10.255.14.132    10.255.245.91      Receive        0

show pim rps extensive user@host> show pim rps extensive
(PIM Anycast RP In Instance: PIM.master
Use)
Family: INET
RP: 10.10.10.2
Learned via: static configuration
Time Active: 00:54:52
Holdtime: 0
Device Index: 130
Subunit: 32769
Interface: pimd.32769
Group Ranges:
    224.0.0.0/4
Active groups using RP:
    224.10.10.10

    total 1 groups active

Anycast-PIM rpset:
    10.100.111.34
    10.100.111.17
    10.100.111.55

Anycast-PIM local address used: 10.100.111.1
Anycast-PIM Register State:
Group          Source          Origin
224.1.1.1      10.10.95.2      DIRECT
224.1.1.2      10.10.95.2      DIRECT
224.10.10.10   10.10.70.1      MSDP
224.10.10.11   10.10.70.1      MSDP
224.20.20.1    10.10.71.1      DR

```

Address family INET6

Anycast-PIM rpset:

ab::1

ab::2

Anycast-PIM local address used: cd::1

Anycast-PIM Register State:

Group	Source	Origin
::224.1.1.1	::10.10.95.2	DIRECT
::224.1.1.2	::10.10.95.2	DIRECT
::224.20.20.1	::10.10.71.1	DR

show pim source

Syntax	show pim source <brief detail> <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <source-prefix>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about the Protocol Independent Multicast (PIM) source reverse path forwarding (RPF) state.
Options	<p>none—Display standard information about the PIM RPF state for all supported family addresses for all routing instances on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>inet inet6—(Optional) Display information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display information about the RPF state for a specific PIM-enabled routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>source-prefix—(Optional) Display the state for source RPF states in the given range.</p>
Required Privilege Level	view
List of Sample Output	<p>show pim source on page 176</p> <p>show pim source brief on page 176</p> <p>show pim source detail on page 176</p>
Output Fields	Table 58 on page 175 describes the output fields for the show pim source command. Output fields are listed in the approximate order in which they appear.

Table 58: show pim source Output Fields

Field Name	Field Description
Instance	Name of the routing instance.
RPF Address	Address of the source or reverse path.
Prefix/length	Prefix and prefix length for the route used to reach the RPF address.
Upstream interface	RPF interface toward the source address.
Neighbor address	Address of the RPF neighbor used to reach the source address.

show pim source user@host> **show pim source**
 Instance: PIM.master Family: INET

Source 10.255.14.144
 Prefix 10.255.14.144/32
 Upstream interface Local
 Upstream neighbor Local

Source 10.255.70.15
 Prefix 10.255.70.15/32
 Upstream interface so-1/0/0.0
 Upstream neighbor 10.111.10.2

Instance: PIM.master Family: INET6

show pim source brief The output for the **show pim source brief** command is identical to that for the **show pim source** command. For sample output, see **show pim source** on page 176.

show pim source detail user@host> **show pim source detail**
 Instance: PIM.master Family: INET

Source 10.255.14.144
 Prefix 10.255.14.144/32
 Upstream interface Local
 Upstream neighbor Local
 Active groups:228.0.0.0
 239.1.1.1
 239.1.1.1

Source 10.255.70.15
 Prefix 10.255.70.15/32
 Upstream interface so-1/0/0.0
 Upstream neighbor 10.111.10.2
 Active groups:239.1.1.1

Instance: PIM.master Family: INET6

show pim statistics

Syntax	show pim statistics <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Protocol Independent Multicast (PIM) statistics.
Options	<p>instance <i>instance-name</i>—(Optional) Display statistics for a specific routing instance enabled by Protocol Independent Multicast (PIM).</p> <p>interface <i>interface-name</i>—(Optional) Display statistics about the specified interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	clear pim statistics on page 77
List of Sample Output	show pim statistics on page 178
Output Fields	Table 59 on page 177 describes the output fields for the show pim statistics command. Output fields are listed in the approximate order in which they appear.

Table 59: show pim statistics Output Fields

Field Name	Field Description
PIM statistics	PIM statistics for all interfaces or for the specified interface.
PIM message type	Message type for which statistics are displayed.
Received	Number of received statistics.
Sent	Number of messages sent of a certain type.
Rx errors	Number of received packets that contained errors.
PIM statistics summary for all interfaces	Summary for all interfaces.

show pim statisticsuser@host> **show pim statistics**

PIM statistics on all interfaces:

PIM message type	Received	Sent	Rx errors
V2 Hello	0	0	0
V2 Register	0	0	0
V2 Register Stop	0	0	0
V2 Join Prune	0	0	0
V2 Bootstrap	0	0	0
V2 Assert	0	0	0
V2 Graft	0	0	0
V2 Graft Ack	0	0	0
V2 Candidate RP	0	0	0
V1 Query	2102	4203	0
V1 Register	0	0	0
V1 Register Stop	0	0	0
V1 Join Prune	14153	13074	0
V1 RP Reachability	0	0	0
V1 Assert	0	0	0
V1 Graft	0	0	0
V1 Graft Ack	0	0	0
AutoRP Announce	0	0	0
AutoRP Mapping	0	0	0
AutoRP Unknown Type	0	0	0
Anycast Register	0	0	0
Anycast Register Stop	0	0	0

PIM statistics summary for all interfaces:

Hello dropped on neighbor policy	35
Unknown type	0
V1 Unknown type	0
Unknown Version	0
Neighbor unknown	0
Bad Length	0
Bad Checksum	0
Bad Receive If	0
Rx Intf disabled	1998
Rx V1 Require V2	0
Rx Register not RP	0
RP Filtered Source	0
Unknown Reg Stop	0
Rx Join/Prune no state	1034
Rx Graft/Graft Ack no state	0
Rx Graft on upstream if	0
Rx CRP not BSR	0
Rx BSR when BSR	0
Rx BSR not RPF if	0
Rx unknown hello opt	0
Rx data no state	0
Rx Register filtering drop	0
Tx Register filtering drop	0
Rx RP no state	0
Rx aggregate	0
Rx malformed packet	0
No RP	0
No route upstream	0
RP mismatch	0
RPF neighbor unknown	0

show sap listen

Syntax	show sap listen <brief detail> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the addresses that the router is listening to in order to receive multicast Session Announcement Protocol (SAP) session announcements.
Options	<p>none—Display standard information about the addresses that the router is listening to in order to receive multicast SAP session announcements for all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show sap listen on page 179</p> <p>show sap listen brief on page 179</p> <p>show sap listen detail on page 179</p>
Output Fields	Table 60 on page 179 describes the output fields for the show sap listen command. Output fields are listed in the approximate order in which they appear.

Table 60: show sap listen Output Fields

Field Name	Field Description
Group address	Address of the group that the local router is listening to for SAP messages.
Port	UDP port number used for SAP

show sap listen	<pre>user@host> show sap listen Group address Port 224.2.127.254 9875 239.255.255.255 9875</pre>
show sap listen brief	The output for the show sap listen brief command is identical to that for the show sap listen command. For sample output, see show sap listen on page 179.
show sap listen detail	The output for the show sap listen detail command is identical to that for the show sap listen command. For sample output, see show sap listen on page 179.

test msdp

Syntax	test msdp (dependent-peers <i>prefix</i> rpf-peer <i>originator</i>) <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Find Multicast Source Discovery Protocol (MSDP) peers.
Options	<p>dependent-peers <i>prefix</i>—Find downstream dependent MSDP peers.</p> <p>rpf-peer <i>originator</i>—Find the MSDP reverse-path-forwarding (RPF) peer for the originator.</p> <p>instance <i>instance-name</i>—(Optional) Find MDSP peers for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	test msdp dependent-peers on page 180
Output Fields	When you enter this command, you are provided feedback on the status of your request.
test msdp dependent-peers	user@host> test msdp dependent-peers 10.0.0.1/24

Chapter 5

IPv6 Operational Mode Commands

Table 61 on page 181 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Internet Protocol version 6 (IPv6). Commands are listed in alphabetical order.

Table 61: IPv6 Operational Mode Commands

Task	Command
Clear IPv6 neighbor cache information.	clear ipv6 neighbors on page 182
Clear IPv6 router advertisement counters.	clear ipv6 router-advertisement on page 183
Display neighbor discovery information.	show ipv6 neighbors on page 184
Display router advertisement information.	show ipv6 router-advertisement on page 185



NOTE: For information about how to configure IPv6 parameters, see the *JUNOS Routing Protocols Configuration Guide*.

clear ipv6 neighbors

Syntax	clear ipv6 neighbors <all host <i>hostname</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear IPv6 neighbor cache information.
Options	<p>none—Clear all IPv6 neighbor cache information.</p> <p>all—Clear all IPv6 neighbor cache information.</p> <p>host <i>hostname</i>—Clear the information for the specified IPv6 neighbors.</p>
Required Privilege Level	view
Related Topics	show ipv6 neighbors on page 184
List of Sample Output	clear ipv6 neighbors on page 182
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ipv6 neighbors	user@host> clear ipv6 neighbors

clear ipv6 router-advertisement

Syntax	clear ipv6 router-advertisement <interface <i>interface</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear IPv6 router advertisement counters.
Options	<p>none—Clear IPv6 router advertisement counters for all interfaces on all logical systems.</p> <p>interface <i>interface</i>—(Optional) Clear IPv6 router advertisement counters for the specified interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	show ipv6 router-advertisement on page 185
List of Sample Output	clear ipv6 router-advertisement on page 183
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ipv6 router-advertisement	user@host> clear ipv6 router-advertisement

show ipv6 neighbors

Syntax	show ipv6 neighbors
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about the IPv6 neighbor cache.
Options	This command has no options.
Required Privilege Level	view
Related Topics	clear ipv6 neighbors on page 182
List of Sample Output	show ipv6 neighbors on page 184 show ipv6 neighbors on page 184
Output Fields	Table 62 on page 184 describes the output fields for the show ipv6 neighbors command. Output fields are listed in the approximate order in which they appear.

Table 62: show ipv6 neighbors Output Fields

Field Name	Field Description
IPv6 Address	Name of IPv6 interface.
Linklayer Address	Link-layer address.
State	State of the link: up, down, incomplete, reachable, stale, or unreachable.
Exp	Number of seconds until the entry expires.
Rtr	Whether the neighbor is a router: yes or no.
Secure	Whether this entry was created using the Secure Neighbor Discovery (SEND) protocol: yes or no.
Interface	Name of the interface.

show ipv6 neighbors	user@host> show ipv6 neighbors					
	IPv6 Address	Linklayer Address	State	Exp	Rtr	Interface
	fe80::2a0:c9ff:fe5b:4c1e	00:a0:c9:5b:4c:1e	reachable	15	yes	fxp0.0
show ipv6 neighbors	user@host > show ipv6 neighbors					
	IPv6 Address	Linklayer Address	State	Exp	Rtr	Secure
	Interface					
	fe80::14fb:5dcf:54bd:ff76	00:90:69:a0:a8:bc	stale	1113	yes	yes
	ge-3/2/0.0					

show ipv6 router-advertisement

Syntax	show ipv6 router-advertisement <conflicts> <interface <i>interface</i> > <logical-system (all <i>logical-system-name</i>)> <prefix <i>prefix/prefix length</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about IPv6 router advertisements, including statistics about messages sent and received on interfaces, and information received from advertisements from other routers.
Options	<p>none—Display all IPv6 router advertisement information for all interfaces on all logical systems.</p> <p>conflicts—(Optional) Display only the IPv6 router advertisement information that is conflicting.</p> <p>interface <i>interface</i>—(Optional) Display IPv6 router advertisement information for the specified interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>prefix <i>prefix/prefix length</i>—(Optional) Display IPv6 router advertisement information for the specified prefix.</p>
Additional Information	The display identifies conflicting information by enclosing the value the router is advertising in brackets.
Required Privilege Level	view
Related Topics	clear ipv6 router-advertisement on page 183
List of Sample Output	<p>show ipv6 router-advertisement on page 186</p> <p>show ipv6 router-advertisement conflicts on page 186</p> <p>show ipv6 router-advertisement prefix on page 187</p>
Output Fields	Table 63 on page 185 describes the output fields for the show ipv6 router-advertisement command. Output fields are listed in the approximate order in which they appear.

Table 63: show ipv6 router-advertisement Output Fields

Field Name	Field Description
Interface	Name of the interface.
Advertisements sent	Number of router advertisements sent and elapsed time since they were sent.
Solicits received	Number of solicitation messages received.

Table 63: show ipv6 router-advertisement Output Fields (continued)

Field Name	Field Description
Advertisements received	Number of router advertisements received.
Advertisements from	Names of interfaces from which router advertisements have been received and elapsed time since the last one was received.
Managed	Managed address configuration flag: 0 (stateless) or 1 (stateful).
Other configuration	Other stateful configuration flag: 0 (stateless) or 1 (stateful).
Reachable time	Time that a node identifies a neighbor as reachable after receiving a reachability confirmation, in milliseconds.
Default lifetime	Default lifetime, in seconds: from 0 seconds to 18.2 hours. A setting of 0 indicates that the router is not a default router.
Retransmit timer	Time between retransmitted Neighbor Solicitation messages, in milliseconds.
Current hop limit	Configured current hop limit.
Prefix	Name and length of the prefix.
Valid lifetime	How long the prefix remains valid for onlink determination.
Preferred lifetime	How long the prefix generated by stateless autoconfiguration remains preferred.
On link	Onlink flag: 0 (not onlink) or 1 (onlink).
Autonomous	Autonomous address configuration flag: 0 (not autonomous) or 1 (autonomous).

```

show ipv6 router-advertisement user@host> show ipv6 router-advertisement
Interface: fe-0/1/1.0
  Advertisements sent: 0
  Solicits received: 0
  Advertisements received: 0
Interface: fxp0.0
  Advertisements sent: 0
  Solicits received: 0
  Advertisements received: 1
  Advertisement from fe80::2d0:b7ff:fe1e:7b0e, heard 00:00:13 ago
  Managed: 0
  Other configuration: 0 [1]
    Reachable time: 0 ms
    Default lifetime: 1800 sec
    Retransmit timer: 0 ms
    Current hop limit: 64

show ipv6 router-advertisement conflicts user@host> show ipv6 router-advertisement conflicts
Interface: fxp0.0
  Advertisement from fe80::2d0:b7ff:fe1e:7b0e, heard 00:01:08 ago
  Other configuration: 0 [1]

```



```
show ipv6 router-advertisement prefix
user@host> show ipv6 router-advertisement prefix 8040::/16
Interface: fe-0/1/3.0
  Advertisements sent: 3, last sent 00:04:11 ago
  Solicits received: 0
  Advertisements received: 3
  Advertisement from fe80::290:69ff:fe9a:5403, heard 00:00:05 ago
    Managed: 0
    Other configuration: 0
    Reachable time: 0 ms
    Default lifetime: 180 sec [1800 sec]
    Retransmit timer: 0 ms
    Current hop limit: 64
    Prefix: 8040:1::/64
      Valid lifetime: 2592000 sec
      Preferred lifetime: 604800 sec
      On link: 1
      Autonomous: 1
```


Chapter 6

IS-IS Operational Mode Commands

Table 64 on page 189 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Intermediate System-to-Intermediate System (IS-IS) protocol. Commands are listed in alphabetical order.

Table 64: IS-IS Operational Mode Commands

Task	Command
Remove adjacencies.	clear isis adjacency on page 191
Remove database entries.	clear isis database on page 192
Reset IS-IS dynamic overload bit.	clear isis overload on page 194
Set IS-IS traffic statistics to zero.	clear isis statistics on page 195
Display adjacent routers.	show isis adjacency on page 197
Display authentication statistics.	show isis authentication on page 201
Display database entries.	show isis database on page 203
Display hostname mapping.	show isis hostname on page 208 show isis hostname on page 208
Display the status of interfaces on which IS-IS is running.	show isis interface on page 209
Display IS-IS overview information.	show isis overview on page 212
Display IS-IS routing table entries.	show isis route on page 215
Display SPF calculations.	show isis spf on page 218
Display IS-IS traffic statistics.	show isis statistics on page 223



NOTE: For more IS-IS-related commands, such as `show route protocol`, `show route instance`, and `show route table`, see “Protocol-Independent Routing Operational Mode Commands” on page 277. For information about monitoring Bidirectional Forwarding Detection (BFD) sessions for IS-IS clients, see “BFD Operational Mode Commands” on page 3. For information about how to configure IS-IS, see the *JUNOS Routing Protocols Configuration Guide*.



NOTE: In IS-IS command output, the CLI displays the system ID numerically by default. To display the hostname instead, include the `static-host-mapping` statement at the `[edit system]` hierarchy level of the configuration.

clear isis adjacency

Syntax	clear isis adjacency <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)> <neighbor>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Remove entries from the Intermediate System-to-Intermediate System (IS-IS) adjacency database.
Options	<p>none—Remove all entries from the adjacency database.</p> <p>instance <i>instance-name</i>—(Optional) Clear all adjacencies for the specified routing instance only.</p> <p>interface <i>interface-name</i>—(Optional) Clear all adjacencies for the specified interface only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>neighbor—(Optional) Clear adjacencies for the specified neighbor only.</p>
Required Privilege Level	clear
Related Topics	show isis adjacency on page 197
List of Sample Output	clear isis adjacency on page 191
Output Fields	See show isis adjacency on page 197 for an explanation of output fields.

clear isis adjacency The following sample output displays IS-IS adjacency database information before and after the clear isis adjacency command is entered:

```

user@host> show isis adjacency
IS-IS adjacency database:
Interface      System          L State          Hold (secs) SNPA
so-1/0/0.0     karaku1         3 Up             26
so-1/1/3.0     1921.6800.5080 3 Up             23
so-5/0/0.0     1921.6800.5080 3 Up             19

user@host> clear isis adjacency karaku1

user@host> show isis adjacency
IS-IS adjacency database:
Interface      System          L State          Hold (secs) SNPA
so-1/0/0.0     karaku1         3 Initializing   26
so-1/1/3.0     1921.6800.5080 3 Up             24
so-5/0/0.0     1921.6800.5080 3 Up             21

```

clear isis database

Syntax clear isis database
 <entries>
 <instance *instance-name*>
 <logical-system (all | *logical-system-name*)>
 <purge>

Release Information Command introduced before JUNOS Release 7.4.
 purge option introduced in JUNOS Release 9.0.

Description Remove the entries from the Intermediate System-to-Intermediate System (IS-IS) link-state database, which contains prefixes and topology information. You can also use **purge** with any of the options to initiate a network-wide purge of link-state PDUs (LSPs) rather than the local deletion of entries from the IS-IS link-state database.



CAUTION: In a production network, the **purge** command option may cause short-term network-wide traffic disruptions. Use with caution!

Options none—Remove all entries from the IS-IS link-state database for all routing instances on all logical systems.

entries—(Optional) Name of the database entry.

instance *instance-name*—(Optional) Clear all entries for the specified routing instance.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

purge—(Optional) Discard all entries in the IS-IS link-state database.

Required Privilege Level clear

Related Topics show isis database on page 203

List of Sample Output clear isis database on page 192

Output Fields See show isis database on page 203 for an explanation of output fields.

clear isis database The following sample output displays IS-IS link-state database information before and after the clear isis database command is entered:

```
user@host> show isis database
IS-IS level 1 link-state database:
LSP ID                Sequence Checksum Lifetime (secs)
crater.00-00          0x12    0x84dd             1139
  1 LSPs
IS-IS level 2 link-state database:
LSP ID                Sequence Checksum Lifetime (secs)
crater.00-00          0x19    0xe92c             1134
badlands.00-00        0x16    0x1454             985
```

```

carlsbad.00-00          0x33  0x220b      1015
ranier.00-00            0x2e  0xfc31      1007
1921.6800.5066.00-00    0x11  0x7313       566
1921.6800.5067.00-00    0x14  0xd9d4       939
  6 LSPs

```

```
user@host> clear isis database
```

```
user@host> show isis database
```

```
IS-IS level 1 link-state database:
```

```
LSP ID                      Sequence Checksum Lifetime (secs)
```

```
IS-IS level 2 link-state database:
```

```
LSP ID                      Sequence Checksum Lifetime (secs)
```

clear isis overload

Syntax	clear isis overload <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Reset the Intermediate System-to-Intermediate System (IS-IS) dynamic overload bit. This command can appear to not work, continuing to display overload after execution. The bit is reset only if the root cause is corrected by configuration remotely or locally.
Options	none—Reset the IS-IS dynamic overload bit on all logical systems. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Topics	show isis database on page 203
List of Sample Output	clear isis overload on page 194
Output Fields	See show isis database on page 203 for an explanation of output fields.

clear isis overload The following sample output displays IS-IS database information before and after the clear isis overload command is entered:

```

user@host> show isis database
IS-IS level 1 link-state database:
LSP ID                Sequence Checksum Lifetime Attributes
pro3-c.00-00          0x4    0x10db    1185 L1 L2 Overload

  1 LSPs
IS-IS level 2 link-state database:
LSP ID                Sequence Checksum Lifetime Attributes
pro3-c.00-00          0x5    0x429f    1185 L1 L2 Overload

pro2-a.00-00          0x91e   0x2589     874 L1 L2
pro2-a.02-00          0x1     0xcbc     874 L1 L2
  3 LSPs

user@host> clear isis overload

user@host> show isis database
IS-IS level 1 link-state database:
LSP ID                Sequence Checksum Lifetime Attributes
pro3-c.00-00          0xa    0x429e    1183 L1 L2
  1 LSPs

IS-IS level 2 link-state database:
LSP ID                Sequence Checksum Lifetime Attributes
pro3-c.00-00          0xc    0x9c39    1183 L1 L2
pro2-a.00-00          0x91e   0x2589     783 L1 L2
pro2-a.02-00          0x1     0xcbc     783 L1 L2
  3 LSPs

```


clear isis statistics

Syntax	clear isis statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Set statistics about Intermediate System-to-Intermediate System (IS-IS) traffic to zero.
Options	<p>none—Set IS-IS traffic statistics to zero for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Set IS-IS traffic statistics to zero for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	show isis statistics on page 223
List of Sample Output	clear isis statistics on page 195
Output Fields	See show isis statistics on page 223 for an explanation of output fields.

clear isis statistics The following sample output displays IS-IS statistics before and after the clear isis statistics command is entered:

```
user@host> show isis statistics
IS-IS statistics for merino:
```

PDU type	Received	Processed	Drops	Sent	Rexmit
LSP	12793	12793	0	8666	719
IIH	116751	116751	0	118834	0
CSNP	203956	203956	0	204080	0
PSNP	7356	7350	6	8635	0
Unknown	0	0	0	0	0
Totals	340856	340850	6	340215	719

```
Total packets received: 340856 Sent: 340934
```

```
SNP queue length:      0 Drops:      0
LSP queue length:      0 Drops:      0
```

```
SPF runs:              1064
Fragments rebuilt:     1087
LSP regenerations:     436
Purges initiated:      0
```

```
user@host> clear isis statistics
```

```
user@host> show isis statistics
IS-IS statistics for merino:
```

PDU type	Received	Processed	Drops	Sent	Rexmit
----------	----------	-----------	-------	------	--------

LSP	0	0	0	0	0
IIH	3	3	0	3	0
CSNP	2	2	0	4	0
PSNP	0	0	0	0	0
Unknown	0	0	0	0	0
Totals	5	5	0	7	0

Total packets received: 5 Sent: 7

SNP queue length:	0	Drops:	0
LSP queue length:	0	Drops:	0

SPF runs:	0
Fragments rebuilt:	0
LSP regenerations:	0
Purges initiated:	0

show isis adjacency

Syntax	show isis adjacency <brief detail extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Intermediate System-to-Intermediate System (IS-IS) neighbors.
Options	<p>none—Display standard information about IS-IS neighbors for all routing instances on all logical systems.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>instance <i>instance-name</i>—(Optional) Display adjacencies for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	clear isis adjacency on page 191
List of Sample Output	<p>show isis adjacency on page 199</p> <p>show isis adjacency brief on page 199</p> <p>show isis adjacency detail on page 199</p> <p>show isis adjacency extensive on page 200</p>
Output Fields	Table 65 on page 197 describes the output fields for the show isis adjacency command. Output fields are listed in the approximate order in which they appear.

Table 65: show isis adjacency Output Fields

Field Name	Field Description	Level of Output
Interface	Interface through which the neighbor is reachable.	All levels
System	System identifier (sysid), displayed as a name, if possible.	brief
L or Level	Level: <ul style="list-style-type: none"> ■ 1—Level 1 only ■ 2—Level 2 only ■ 3—Level 1 and Level 2 An exclamation point (!) preceding the level number indicates that the adjacency is missing an IP address.	All levels
State	State of the adjacency: Up, Down, New, One-way, Initializing, or Rejected.	All levels

Table 65: show isis adjacency Output Fields (continued)

Field Name	Field Description	Level of Output
Hold (secs)	Remaining hold time of the adjacency.	brief
SNPA	Subnetwork point of attachment (MAC address of the next hop).	brief
Expires in	How long until the adjacency expires, in seconds.	detail
Priority	Priority to become the designated intermediate system.	detail extensive
Up/Down transitions	Count of adjacency status changes from Up to Down or from Down to Up.	detail
Last transition	Time of the last Up/Down transition.	detail
Circuit type	Bit mask of levels on this interface: L1 = Level 1 router; L2 = Level 2 router; L1/L2 = both Level 1 and Level 2 router.	detail
Speaks	Protocols supported by this neighbor.	detail extensive
MAC address	MAC address of the interface.	detail extensive
Topologies	Supported topologies.	detail extensive
Restart capable	Whether a neighbor is capable of graceful restart: Yes or No.	detail extensive
Adjacency advertisement: Advertise	This router has signaled not to advertise this interface to its neighbors in their label-switched paths (LSPs).	detail extensive
Adjacency advertisement: Suppress	This neighbor has signaled not to advertise the interface in the router's outbound LSPs.	detail extensive
IP addresses	IP address of this neighbor.	detail extensive

Table 65: show isis adjacency Output Fields (continued)

Field Name	Field Description	Level of Output
Transition log	List of recent transitions, including: <ul style="list-style-type: none"> ■ When—Time at which an IS-IS adjacency transition occurred. ■ State—Current state of the IS-IS adjacency (up, down, or rejected). <ul style="list-style-type: none"> ■ Up—Adjacency is up and operational. ■ Down—Adjacency is down and not available. ■ Rejected—Adjacency has been rejected. ■ Event—Type of transition that occurred. <ul style="list-style-type: none"> ■ Seenself—Possible routing loop has been detected. ■ Interface down—IS-IS interface has gone down and is no longer available. ■ Error—Adjacency error. ■ Down reason—Reason that an IS-IS adjacency is down: <ul style="list-style-type: none"> ■ 3-Way Handshake Failed—Connection establishment failed. ■ Address Mismatch—Address mismatch caused link failure. ■ Aged Out—Link expired. ■ ISO Area Mismatch—IS-IS area mismatch caused link failure. ■ Bad Hello—Unacceptable hello message caused link failure. ■ BFD Session Down—Bidirectional failure detection caused link failure. ■ Interface Disabled—IS-IS interface is disabled. ■ Interface Down—IS-IS interface is unavailable. ■ Interface Level Disabled—IS-IS level is disabled. ■ Level Changed—IS-IS level has changed on the adjacency. ■ Level Mismatch—Levels on adjacency are not compatible. ■ MPLS LSP Down—Label-switched path (LSP) is unavailable. ■ MT Topology Changed—IS-IS topology has changed. ■ MT Topology Mismatch—IS-IS topology is mismatched. ■ Remote System ID Changed—Adjacency peer system ID changed. ■ Protocol Shutdown—IS-IS protocol is disabled. ■ CLI Command—Adjacency brought down by user. ■ Unknown—Unknown. 	extensive

show isis adjacency user@host> **show isis adjacency**

```
Interface          System      L State      HoId (secs) SNPA
at-2/3/0.0         ranier      3  Up          23
```

show isis adjacency brief The output for the show isis adjacency brief command is identical to that for the show isis adjacency command. For sample output, see show isis adjacency on page 199.

show isis adjacency detail user@host> **show isis adjacency detail**
ranier

```
Interface: at-2/3/0.0, Level: 3, State: Up, Expires in 21 secs
Priority: 0, Up/Down transitions: 1, Last transition: 00:01:09 ago
Circuit type: 3, Speaks: IP, IPv6
```

Topologies: Unicast
 Restart capable: Yes
 IP addresses: 11.1.1.2

show isis adjacency
extensive

user@host> **show isis adjacency extensive**

ranier

Interface: at-2/3/0.0, Level: 3, State: Up, Expires in 22 secs
 Priority: 0, Up/Down transitions: 1, Last transition: 00:01:16 ago
 Circuit type: 3, Speaks: IP, IPv6

Topologies: Unicast
 Restart capable: Yes
 IP addresses: 11.1.1.2

Transition log:

When	State	Event	Down reason
Wed Nov 8 21:24:25	Up	Seenself	

show isis authentication

Syntax	show isis authentication <brief detail extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in JUNOS Release 7.5.
Description	Display information about Intermediate System-to-Intermediate System (IS-IS) authentication.
Options	<p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>instance <i>instance-name</i>—(Optional) Display SPF calculations for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show isis authentication on page 202
Output Fields	Table 66 on page 201 describes the output fields for the show isis authentication command. Output fields are listed in the approximate order in which they appear.

Table 66: show isis authentication Output Fields

Field Name	Field Description
Interface	Interface name.
Level	IS-IS level.
IIH Auth	IS-IS Hello (IIH) packet authentication type.
CSN Auth	Complete sequence number authentication type.
PSN Auth	Partial sequence number authentication type.
L1 LSP Authentication	Layer 1 link-state PDU authentication type.
L2 LSP Authentication	Layer 2 link-state PDU authentication type.

```
show isis authentication  user@host> show isis authentication
Interface                Level IIH Auth  CSN Auth  PSN Auth
at-2/3/0.0                1      Simple   Simple    Simple
                           2      MD5      MD5       MD5

L1 LSP Authentication: Simple
L2 LSP Authentication: MD5
```


show isis database

Syntax	show isis database <brief detail extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the entries in the Intermediate System-to-Intermediate System (IS-IS) link-state database, which contains data about PDU packets.
Options	<p>none—Display standard information about IS-IS link-state database entries for all routing instances on all logical systems.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>instance <i>instance-name</i>—(Optional) Display entries for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	clear isis database on page 192
List of Sample Output	<p>show isis database on page 204</p> <p>show isis database brief on page 204</p> <p>show isis database detail on page 204</p> <p>show isis database extensive on page 206</p> <p>show isis database extensive (CLNS) on page 207</p>
Output Fields	Table 67 on page 203 describes the output fields for the show isis database command. Output fields are listed in the approximate order in which they appear. Fields that contain internal IS-IS information useful only in troubleshooting obscure problems are not described in the table. For more details about these fields, contact your customer support representative.

Table 67: show isis database Output Fields

Field Name	Field Description	Level of Output
LSP ID	Link-state PDU identifier.	All levels
Sequence	Sequence number of the link-state PDU.	All levels
Checksum	Checksum value of the link-state PDU.	All levels
Lifetime (secs)	Remaining lifetime of the link-state PDU, in seconds.	All levels
IP prefix	Prefix advertised by this link-state PDU.	detail extensive

Table 67: show isis database Output Fields (continued)

Field Name	Field Description	Level of Output
IS neighbor	IS-IS neighbor of the advertising system.	detail extensive
ES neighbor	(J-series routing platform only) An ES-IS neighbor of the advertising system.	detail extensive
Metric	Metric of the prefix or neighbor.	detail extensive

```

show isis database   user@host> show isis database
IS-IS level 1 link-state database:
LSP ID                Sequence Checksum Lifetime Attributes
kobuk.00-00           0x3   0x3167   1057 L1 L2
camaro.00-00          0x5   0x770e   1091 L1 L2
ranier.00-00          0x4   0xaa95   1091 L1 L2
glacier.00-00         0x4   0x206f   1089 L1 L2
glacier.02-00         0x1   0xd141   1089 L1 L2
badlands.00-00        0x3   0x87a2   1093 L1 L2
    6 LSPs

IS-IS level 2 link-state database:
LSP ID                Sequence Checksum Lifetime Attributes
kobuk.00-00           0x6   0x8d6b   1096 L1 L2
camaro.00-00          0x9   0x877b   1101 L1 L2
ranier.00-00          0x8   0x855d   1103 L1 L2
glacier.00-00         0x7   0xf892   1098 L1 L2
glacier.02-00         0x1   0xd141   1089 L1 L2
badlands.00-00        0x6   0x562    1105 L1 L2
    6 LSPs

```

show isis database brief The output for the show isis database brief command is identical to that for the show isis database command. For sample output, see [show isis database](#) on page 204.

```

show isis database detail user@host> show isis database detail
IS-IS level 1 link-state database:

kobuk.00-00 Sequence: 0x3, Checksum: 0x3167, Lifetime: 1048 secs
  IS neighbor: glacier.00           Metric: 10
  IP prefix: 10.255.70.103/32       Metric: 0 Internal Up
  IP prefix: 43.1.1.0/24            Metric: 10 Internal Up
  V6 prefix: abcd::10:255:70:103/128 Metric: 0 Internal Up

camaro.00-00 Sequence: 0x5, Checksum: 0x770e, Lifetime: 1082 secs
  IS neighbor: ranier.00            Metric: 10
  IS neighbor: glacier.02           Metric: 10
  IP prefix: 10.255.71.52/32        Metric: 0 Internal Up
  IP prefix: 23.1.1.0/24            Metric: 10 Internal Up
  IP prefix: 34.1.1.0/24            Metric: 10 Internal Up
  V6 prefix: abcd::10:255:71:52/128 Metric: 0 Internal Up

ranier.00-00 Sequence: 0x4, Checksum: 0xaa95, Lifetime: 1082 secs
  IS neighbor: camaro.00            Metric: 10
  IS neighbor: badlands.00          Metric: 10
  IP prefix: 10.255.71.241/32        Metric: 0 Internal Up
  IP prefix: 11.1.1.0/24            Metric: 10 Internal Up

```

```

IP prefix: 23.1.1.0/24          Metric:      10 Internal Up
V6 prefix: abcd::10:255:71:241/128 Metric:      0 Internal Up

glacier.00-00 Sequence: 0x4, Checksum: 0x206f, Lifetime: 1080 secs
IS neighbor: kobuk.00          Metric:      10
IS neighbor: glacier.02        Metric:      10
IP prefix: 10.255.71.242/32     Metric:      0 Internal Up
IP prefix: 34.1.1.0/24          Metric:      10 Internal Up
IP prefix: 43.1.1.0/24          Metric:      10 Internal Up
V6 prefix: abcd::10:255:71:242/128 Metric:      0 Internal Up

glacier.02-00 Sequence: 0x1, Checksum: 0xd141, Lifetime: 1080 secs
IS neighbor: camaro.00         Metric:      0
IS neighbor: glacier.00        Metric:      0

badlands.00-00 Sequence: 0x3, Checksum: 0x87a2, Lifetime: 1084 secs
IS neighbor: ranier.00         Metric:      10
IP prefix: 10.255.71.244/32     Metric:      0 Internal Up
IP prefix: 11.1.1.0/24          Metric:      10 Internal Up
V6 prefix: abcd::10:255:71:244/128 Metric:      0 Internal Up

IS-IS level 2 link-state database:

kobuk.00-00 Sequence: 0x6, Checksum: 0x8d6b, Lifetime: 1088 secs
IS neighbor: glacier.00        Metric:      10
IP prefix: 10.255.70.103/32     Metric:      0 Internal Up
IP prefix: 10.255.71.52/32      Metric:      20 Internal Up
IP prefix: 10.255.71.241/32     Metric:      30 Internal Up
IP prefix: 10.255.71.242/32     Metric:      10 Internal Up
IP prefix: 10.255.71.244/32     Metric:      40 Internal Up
IP prefix: 11.1.1.0/24          Metric:      40 Internal Up
IP prefix: 23.1.1.0/24          Metric:      30 Internal Up
IP prefix: 34.1.1.0/24          Metric:      20 Internal Up
IP prefix: 43.1.1.0/24          Metric:      10 Internal Up
V6 prefix: abcd::10:255:70:103/128 Metric:      0 Internal Up

camaro.00-00 Sequence: 0x9, Checksum: 0x877b, Lifetime: 1092 secs
IS neighbor: ranier.00         Metric:      10
IS neighbor: glacier.02        Metric:      10
IP prefix: 10.255.70.103/32     Metric:      20 Internal Up
IP prefix: 10.255.71.52/32      Metric:      0 Internal Up
IP prefix: 10.255.71.241/32     Metric:      10 Internal Up
IP prefix: 10.255.71.242/32     Metric:      10 Internal Up
IP prefix: 10.255.71.244/32     Metric:      20 Internal Up
IP prefix: 11.1.1.0/24          Metric:      20 Internal Up
IP prefix: 23.1.1.0/24          Metric:      10 Internal Up
IP prefix: 34.1.1.0/24          Metric:      10 Internal Up
IP prefix: 43.1.1.0/24          Metric:      20 Internal Up
V6 prefix: abcd::10:255:71:52/128 Metric:      0 Internal Up

ranier.00-00 Sequence: 0x8, Checksum: 0x855d, Lifetime: 1094 secs
IS neighbor: camaro.00         Metric:      10
IS neighbor: badlands.00       Metric:      10
IP prefix: 10.255.70.103/32     Metric:      30 Internal Up
IP prefix: 10.255.71.52/32      Metric:      10 Internal Up
IP prefix: 10.255.71.241/32     Metric:      0 Internal Up
IP prefix: 10.255.71.242/32     Metric:      20 Internal Up
IP prefix: 10.255.71.244/32     Metric:      10 Internal Up
IP prefix: 11.1.1.0/24          Metric:      10 Internal Up
IP prefix: 23.1.1.0/24          Metric:      10 Internal Up
IP prefix: 34.1.1.0/24          Metric:      20 Internal Up

```

```

IP prefix: 43.1.1.0/24                      Metric:      30 Internal Up
V6 prefix: abcd::10:255:71:241/128          Metric:      0 Internal Up

glacier.00-00 Sequence: 0x7, Checksum: 0xf892, Lifetime: 1089 secs
IS neighbor: kobuk.00                      Metric:      10
IS neighbor: glacier.02                    Metric:      10
IP prefix: 10.255.70.103/32                 Metric:      10 Internal Up
IP prefix: 10.255.71.52/32                  Metric:      10 Internal Up
IP prefix: 10.255.71.241/32                 Metric:      20 Internal Up
IP prefix: 10.255.71.242/32                 Metric:      0 Internal Up
IP prefix: 10.255.71.244/32                 Metric:      30 Internal Up
IP prefix: 11.1.1.0/24                     Metric:      30 Internal Up
IP prefix: 23.1.1.0/24                     Metric:      20 Internal Up
IP prefix: 34.1.1.0/24                     Metric:      10 Internal Up
IP prefix: 43.1.1.0/24                     Metric:      10 Internal Up
V6 prefix: abcd::10:255:71:242/128          Metric:      0 Internal Up

glacier.02-00 Sequence: 0x1, Checksum: 0xd141, Lifetime: 1080 secs
IS neighbor: camaro.00                     Metric:      0
IS neighbor: glacier.00                    Metric:      0

badlands.00-00 Sequence: 0x6, Checksum: 0x562, Lifetime: 1096 secs
IS neighbor: ranier.00                     Metric:      10
IP prefix: 10.255.70.103/32                 Metric:      40 Internal Up
IP prefix: 10.255.71.52/32                  Metric:      20 Internal Up
IP prefix: 10.255.71.241/32                 Metric:      10 Internal Up
IP prefix: 10.255.71.242/32                 Metric:      30 Internal Up
IP prefix: 10.255.71.244/32                 Metric:      0 Internal Up
IP prefix: 11.1.1.0/24                     Metric:      10 Internal Up
IP prefix: 23.1.1.0/24                     Metric:      20 Internal Up
IP prefix: 34.1.1.0/24                     Metric:      30 Internal Up
IP prefix: 43.1.1.0/24                     Metric:      40 Internal Up
V6 prefix: abcd::10:255:71:244/128          Metric:      0 Internal Up

show isis database extensive user@host> show isis database extensive isis2
IS-IS level 1 link-state database:

IS-IS level 2 link-state database:

isis2.00-00 Sequence: 0x82, Checksum: 0x6cc3, Lifetime: 1126 secs
IS neighbor: isis1.00 Metric: 10
IS neighbor: isis3.00 Metric: 10
IP prefix: 10.255.245.202/32 Metric: 0 Internal
IP prefix: 192.168.36.0/29 Metric: 10 Internal
IP prefix: 192.168.36.16/30 Metric: 10 Internal
IP prefix: 192.168.36.24/30 Metric: 10 Internal

Header: LSP ID: isis2.00-00, Length: 234 bytes
Allocated length: 234 bytes, Router ID: 10.255.245.202
Remaining lifetime: 1126 secs, Level: 2, Interface: 4
Estimated free bytes: 0, Actual free bytes: 0
Aging timer expires in: 1126 secs
Protocols: IP, IPv6

Packet: LSP ID: isis2.00-00, Length: 234 bytes, Lifetime : 1198 secs
Checksum: 0x6cc3, Sequence: 0x82, Attributes: 0x3 <L1 L2>
NLPID: 0x83, Fixed length: 27 bytes, Version: 1, Sysid length: 0 bytes
Packet type: 20, Packet version: 1, Max area: 0

TLVs:
Area address: 47.0005.80ff.f800.0000.0108.0001 (13)

```

```

Speaks: IP
Speaks: IPv6
IP router id: 10.255.245.202
IP address: 10.255.245.202
Hostname: isis2
IS neighbor: isis3.00, Internal, Metric: default 10
IS neighbor: isis1.00, Internal, Metric: default 10
IS neighbor: isis3.00, Metric: default 10
  IP address: 192.168.36.25
  Neighbor's IP address: 192.168.36.26
IS neighbor: isis1.00, Metric: default 10
  IP address: 192.168.36.18
  Neighbor's IP address: 192.168.36.17
IP prefix: 10.255.245.202/32, Internal, Metric: default 0
IP prefix: 192.168.36.0/29, Internal, Metric: default 10
IP prefix: 192.168.36.24/30, Internal, Metric: default 10
IP prefix: 192.168.36.16/30, Internal, Metric: default 10
IP prefix: 10.255.245.202/32 metric 0 up
  6 bytes of subtlvs
  Administrative tag 1: 1000
IP prefix: 192.168.36.0/29 metric 10 up
IP prefix: 192.168.36.24/30 metric 10 up
IP prefix: 192.168.36.16/30 metric 10 up
No queued transmissions

```

**show isis database
extensive (CLNS)**

```

user@host> show isis database extensive
IS-IS level 1 link-state database:
isis2.00-00 Sequence: 0x1256, Checksum: 0x53da, Lifetime: 582 secs
  IS neighbor: pro1-a.02                      Metric:      10
  ES neighbor: toothache                      Metric:       0
  ES neighbor: 1921.6800.4002                  Metric:      10
  IP prefix: 192.168.37.64/29                  Metric:      10 Internal Up

Header: LSP ID: toothache.00-00, Length: 140 bytes
  Allocated length: 284 bytes, Router ID: 0.0.0.0
  Remaining lifetime: 582 secs, Level: 1, Interface: 66
  Estimated free bytes: 144, Actual free bytes: 144
  Aging timer expires in: 582 secs
  Protocols: IP, CLNS

Packet: LSP ID: toothache.00-00, Length: 140 bytes, Lifetime : 1199 secs
  Checksum: 0x53da, Sequence: 0x1256, Attributes: 0xb <L1 L2 Attached>
  NLPID: 0x83, Fixed length: 27 bytes, Version: 1, Sysid length: 0 bytes
  Packet type: 18, Packet version: 1, Max area: 0

TLVs:
  Area address: 47.0005.80ff.f800.0000.0108.0001 (13)
  Speaks: CLNP
  Speaks: IP
  Hostname: toothache
  IP address: 192.168.37.69
  IP extended prefix: 192.168.37.64/29 metric 10 up
  IP prefix: 192.168.37.64/29, Internal, Metric: default 10, Up
  IS neighbor: pro1-a.02, Internal, Metric: default 10
  IS extended neighbor: pro1-a.02, Metric: default 10
  ES neighbor TLV: Internal, Metric: default 0
    ES: toothache
  ES neighbor TLV: Internal, Metric: default 10
    ES: 1921.6800.4002
No queued transmissions

```

show isis hostname

Syntax	show isis hostname <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Intermediate System-to-Intermediate System (IS-IS) hostname database information.
Options	none—Display IS-IS hostname database information on all logical systems. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show isis hostname on page 208
Output Fields	Table 68 on page 208 describes the output fields for the show isis hostname command. Output fields are listed in the approximate order in which they appear.

Table 68: show isis hostname Output Fields

Field Name	Field Description
System Id	System identifier mapped to the hostname.
Hostname	Hostname mapped to the system identifier.
Type	Type of mapping between system identifier and hostname. <ul style="list-style-type: none"> ■ Dynamic—Hostname mapping determined as described in RFC 2763, <i>Dynamic Hostname Exchange Mechanism for IS-IS</i>. ■ Static—Hostname mapping configured by user.

```

show isis hostname    user@host> show isis hostname
                        IS-IS hostname database:
                        System Id      Hostname
                        1921.6800.4201 isis1
                        1921.6800.4202 isis2
                        1921.6800.4203 isis3
                                Type
                                Dynamic
                                Static
                                Dynamic

```

show isis interface

Syntax	show isis interface <brief detail extensive> <interface-name> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display status information about Intermediate System-to-Intermediate System (IS-IS)-enabled interfaces.
Options	<p>none—Display standard information about all IS-IS-enabled interfaces on all logical systems.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>interface-name—(Optional) Display information about the specified interface only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show isis interface on page 210</p> <p>show isis interface brief on page 211</p> <p>show isis interface detail on page 211</p> <p>show isis interface extensive on page 211</p>
Output Fields	Table 69 on page 209 describes the output fields for the show isis interface command. Output fields are listed in the approximate order in which they appear.

Table 69: show isis interface Output Fields

Field Name	Field Description	Level of Output
<i>interface-name</i>	Name of the interface.	detail
Designated router	A router selected by other routers that is responsible for sending link-state advertisements that describe the network. Used only on broadcast networks.	detail
Index	Interface index assigned by the JUNOS kernel.	detail
State	Internal implementation information.	detail
Circuit id	Circuit identifier.	detail
Circuit type	Circuit type: <ul style="list-style-type: none"> ■ 1—Level 1 only ■ 2—Level 2 only ■ 3—Level 1 and Level 2 	detail

Table 69: show isis interface Output Fields (continued)

Field Name	Field Description	Level of Output
LSP interval	Interval between link-state PDUs sent from the interface.	detail
Sysid	System identifier.	detail
Interface	Interface through which the adjacency is made.	brief
L or Level	Level: <ul style="list-style-type: none"> ■ 1—Level 1 only ■ 2—Level 2 only ■ 3—Level 1 and Level 2 	All levels
CirID	Circuit identifier.	All levels
Level 1 DR	Level 1 designated intermediate system.	brief
Level 2 DR	Level 2 designated intermediate system.	brief
L1/L2 Metric	Interface's metric for Level 1 and Level 2. If there is no information, the metric is 0.	none specified
Adjacency advertisement: Advertise	This router has signaled not to advertise this interface to its neighbors in their label-switched paths (LSPs).	detail extensive
Adjacency advertisement: Suppress	This neighbor has signaled not to advertise this interface in the router's outbound LSPs.	detail extensive
Adjacencies	Number of adjacencies established on this interface.	detail
Priority	Priority value for this interface.	detail
Metric	Metric value for this interface.	detail
Hello(s)	Interface's hello interval.	detail
Hold(s)	Interface's hold time.	detail
LDP sync state	Current LDP synchronization state: in sync, in holddown, or not supported.	extensive
reason	Reason for being in the LDP sync state.	extensive
config holdtime	Configured value of the hold timer.	extensive
remaining	If the state is not in sync and the hold time is not infinity, then this field displays the number of seconds remaining.	extensive

```

show isis interface  user@host> show isis interface
                        IS-IS interface database:
                        Interface          L CirID Level 1 DR          Level 2 DR          L1/L2 Metric

```


at-2/3/0.0	3	0x1 Point to Point	Point to Point	10/10
lo0.0	0	0x1 Passive	Passive	0/0

show isis interface brief The output for the `show isis interface brief` command is identical to that for the `show isis interface` command. For sample output, see `show isis interface` on page 210.

show isis interface detail

```

user@host> show isis interface detail
IS-IS interface database:
at-2/3/0.0
  Index: 66, State: 0x6, Circuit id: 0x1, Circuit type: 3
  LSP interval: 100 ms, CSNP interval: 5 s
  Level Adjacencies Priority Metric Hello (s) Hold (s) Designated Router
    1           1           64    10    9.000      27
    2           1           64    10    9.000      27
lo0.0
  Index: 64, State: 0x6, Circuit id: 0x1, Circuit type: 0
  LSP interval: 100 ms, CSNP interval: disabled
  Level Adjacencies Priority Metric Hello (s) Hold (s) Designated Router
    1           0           64     0 0 Passive
    2           0           64     0 0 Passive

```

show isis interface extensive

```

user@host> show isis interface extensive
IS-IS interface database:
at-2/3/0.0
  Index: 66, State: 0x6, Circuit id: 0x1, Circuit type: 3
  LSP interval: 100 ms, CSNP interval: 5 s, Loose Hello padding
  Level 1
    Adjacencies: 1, Priority: 64, Metric: 10
    Hello Interval: 9.000 s, Hold Time: 27 s
  Level 2
    Adjacencies: 1, Priority: 64, Metric: 10
    Hello Interval: 9.000 s, Hold Time: 27 s
lo0.0
  Index: 64, State: 0x6, Circuit id: 0x1, Circuit type: 0
  LSP interval: 100 ms, CSNP interval: disabled, Loose Hello padding
  Level 1
    Adjacencies: 0, Priority: 64, Metric: 0
    Passive
  Level 2
    Adjacencies: 0, Priority: 64, Metric: 0
    Passive

```

show isis overview

Syntax	show isis overview <logical-system (all <i>logical-system-name</i>)> <instance <i>instance-name</i> >
Release Information	Command introduced in JUNOS Release 8.5.
Description	Display Intermediate System-to-Intermediate System (IS-IS) overview information.
Options	<p>none—Display standard overview information about IS-IS for all routing instances on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>instance <i>instance-name</i>—(Optional) Display overview information for the specified routing instance.</p>
Required Privilege Level	view
List of Sample Output	show isis overview on page 213
Output Fields	Table 70 on page 212 lists the output fields for the show isis overview command. Output fields are listed in the approximate order in which they appear.

Table 70: show isis overview Output Fields

Field Name	Field Description
instance	The IS-IS routing instance.
Router ID	Router ID of the router.
Adjacency holddown	Adjacency holddown capability: enabled or disabled .
Maximum Areas	Maximum number of IS-IS areas advertised by router.
LSP life time	Lifetime of the link-state PDU, in seconds.
Attached bit evaluation	Attached bit capability: enabled or disabled .
SPF delay	Delay before performing consecutive Shortest Path First calculations.
SPF holddown	Delay before performing additional Shortest Path First (SPF) calculations after the maximum number of consecutive SPF calculations is reached.
SPF rapid runs	Maximum number of Shortest Path First calculations that can be performed in succession before the holddown timer begins.
Overload bit at startup is set	Overload bit capability is enabled.
Overload high metrics	Overload high metrics capability: enabled or disabled .

Table 70: show isis overview Output Fields *(continued)*

Field Name	Field Description
Overload timeout	Time period after which overload is reset and the time that remains before the timer is set to expire.
Traffic engineering	Traffic engineering capability: enabled or disabled.
Restart	Graceful restart capability: enabled or disabled.
Restart duration	Time period for complete reacquisition of IS-IS neighbors.
Helper mode	Graceful restart helper capability: enabled or disabled.
Level	Level: <ul style="list-style-type: none"> ■ 1—Level 1 information ■ 2—Level 2 information
IPv4 is enabled	IP Protocol version 4 capability is enabled.
IPv6 is enabled	IP Protocol version 6 capability is enabled.
CLNS is enabled	OSI CLNP Protocol capability is enabled. (J-series only)
Internal route preference	Preference value of internal routes.
External route preference	Preference value of external routes.
Wide area metrics are enabled	Wide area metrics capability is enabled.
Narrow metrics is enabled	Narrow metrics capability is enabled.

show isis overview user@host> **show isis overview**

```

Instance: master
Router ID: 192.168.1.220
Adjacency holddown: enabled
Maximum Areas: 3
LSP life time: 65535
Attached bit evaluation: enabled
SPF delay: 200 msec, SPF holddown: 5000 msec, SPF rapid runs: 3
Overload bit at startup is set
  Overload high metrics: disabled
  Overload timeout: 300 sec, expires in 295 seconds
IPv4 is enabled, IPv6 is enabled
Traffic engineering: enabled
Restart: Enabled
  Restart duration: 210 sec
  Helper mode: Enabled
Level 1
  Internal route preference: 15
  External route preference: 160

```

```
Wide metrics are enabled, Narrow metrics are enabled
Level 2
Internal route preference: 18
External route preference: 165
Wide metrics are enabled
```

show isis route

Syntax	show isis route <destination> <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the routes in the Intermediate System-to-Intermediate System (IS-IS) routing table.
Options	<p>none—Display all routes in the IS-IS routing table for all supported address families for all routing instances on all logical systems.</p> <p><i>destination</i>—(Optional) Destination address for the route.</p> <p>inet inet6—(Optional) Display inet (IPv4) or inet6 (IPv6) routes, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display routes for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)—(Optional) Display routes for the specified topology only.</p>
Required Privilege Level	view
List of Sample Output	<p>show isis route logical-system on page 216</p> <p>show isis route (CLNS) on page 217</p>
Output Fields	Table 71 on page 216 describes the output fields for the <code>show isis route</code> command. Output fields are listed in the approximate order in which they appear.

Table 71: show isis route Output Fields

Field Name	Field Description
Current version	Number of the current version of the IS-IS routing table.
L1	Version of Level 1 SPF that was run.
L2	Version of Level 2 SPF that was run.
Prefix	Destination of the route.
L	Level: <ul style="list-style-type: none"> ■ 1—Level 1 only ■ 2—Level 2 only ■ 3—Level 1 and Level 2
Version	Version of SPF that generated the route.
Metric	Metric value associated with the route.
Type	Metric type: int (internal) or ext (external).
Interface	Interface to the next hop.
Via	System identifier of the next hop, displayed as a name if possible.
ISO Routes	ISO routing table entries.
snpa	MAC address.

```

show isis route logical-system
user@host> show isis route logical-system ls1
IS-IS routing table Current version: L1: 8 L2: 11
Prefix L Version Metric Type Interface Via
10.9.7.0/30 2 11 20 int gr-0/2/0.0 h
10.9.201.1/32 2 11 60 int gr-0/2/0.0 h
IPv6 Unicast IS-IS routing table Current version: L1: 9 L2: 11
Prefix L Version Metric Type Interface Via
8009:3::a09:3200/126 2 11 20 int gr-0/2/0.0 h

```

show isis route (CLNS)

```

user@host> show isis route
IS-IS routing table           Current version: L1: 10 L2: 8
IPv4/IPv6 Routes
Prefix          L Version  Metric Type Interface  Via
0.0.0.0/0       1      10      10 int  fe-0/0/1.0  ISIS.0

ISO Routes
Prefix L   Version  Metric Type Interface  Via  snpa
0/0
      1      10      10 int  fe-0/0/1.0  isis.0 0:12:0:34:0:56
47.0005.80ff.f800.0000.0108.0001/104
      1      10      0 int
47.0005.80ff.f800.0000.0108.0001.1921.6800.4001/152
      1      10      10 int  fe-0/0/1.0 isis.0 0:12:0:34:0:56
47.0005.80ff.f800.0000.0108.0001.1921.6800.4002/152
      1      10      20 int  fe-0/0/1.0 isis.0 0:12:0:34:0:56
47.0005.80ff.f800.0000.0108.0002/104
      1      10      0 int
47.0005.80ff.f800.0000.0108.0002.1921.6800.4001/152
      1      10      10 int  fe-0/0/1.0 isis.0 0:12:0:34:0:56

```

show isis spf

Syntax	show isis spf (brief log results) <instance <i>instance-name</i> > <level (1 2)> <logical-system (all <i>logical-system-name</i>)> <topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Intermediate System-to-Intermediate System (IS-IS) shortest-path-first (SPF) calculations.
Options	<p>brief—Display an overview of SPF calculations.</p> <p>log—Display the log of SPF calculations.</p> <p>results—Display the results of SPF calculations.</p> <p>instance <i>instance instance-name</i>—(Optional) Display SPF calculations for the specified routing instance.</p> <p>level (1 2)—(Optional) Display SPF calculations for the specified IS-IS level.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)—(Optional) Display SPF calculations for the specified topology only.</p>
Required Privilege Level	view
List of Sample Output	<p>show isis spf brief on page 219</p> <p>show isis spf log on page 220</p> <p>show isis spf results on page 221</p> <p>show isis spf results (CLNS) on page 222</p>
Output Fields	Table 72 on page 218 describes the output fields for the show isis spf command. Output fields are listed in the approximate order in which they appear.

Table 72: show isis spf Output Fields

Field Name	Field Description
Node	System ID of a node.
Metric	Metric to the node.
Interface	Interface of the next hop.
Via	System ID of the next hop.

Table 72: show isis spf Output Fields (continued)

Field Name	Field Description
SNPA	Subnetwork point of attachment (MAC address of the next hop).
Start time	(log option only) Time that the SPF computation started.
Elapsed (secs)	(log option only) Length of time, in seconds, required to complete the SPF computation.
Count	(log option only) Number of times the SPF was triggered.
Reason	(log option only) Reason that the SPF computation was completed.

show isis spf brief

```
user@host> show isis spf brief logical-system ls1
```

```
IS-IS level 1 SPF results:
```

Node	Metric	Interface	Via	SNPA
scat.00	10	ge-1/1/0.0	scat	0:90:69:a6:48:9d
fix.02	10			
fix.00	0			
3 nodes				

```
IS-IS level 2 SPF results:
```

Node	Metric	Interface	Via	SNPA
skag.00	20	gr-0/2/0.0	h	
skag.02	20	gr-0/2/0.0	h	
h.00	10	gr-0/2/0.0	h	
fix.00	0			
4 nodes				

```
IPv6 Unicast IS-IS level 1 SPF results:
```

Node	Metric	Interface	Via	SNPA
scat.00	10	ge-1/1/0.0	scat	0:90:69:a6:48:9d
		ge-1/1/0.0	scat	0:90:69:a6:48:9d
fix.02	10			
fix.00	0			
3 nodes				

```
IPv6 Unicast IS-IS level 2 SPF results:
```

Node	Metric	Interface	Via	SNPA
skag.00	20	gr-0/2/0.0	h	
		gr-0/2/0.0	h	
skag.02	20	gr-0/2/0.0	h	
		gr-0/2/0.0	h	
h.00	10	gr-0/2/0.0	h	
		gr-0/2/0.0	h	
fix.00	0			
4 nodes				

```
Multicast IS-IS level 1 SPF results:
```

Node	Metric	Interface	Via	SNPA
scat.00	10	ge-1/1/0.0	scat	0:90:69:a6:48:9d
fix.02	10			
fix.00	0			
3 nodes				

Multicast IS-IS level 2 SPF results:

Node	Metric	Interface	Via	SNPA
skag.00	20	gr-0/2/0.0	h	
skag.02	20	gr-0/2/0.0	h	
h.00	10	gr-0/2/0.0	h	
fix.00	0			
4 nodes				

show isis spf log user@host> **show isis spf log logical-system ls1**

IS-IS level 1 SPF log:

Start time	Elapsed (secs)	Count	Reason
Fri Oct 31 12:41:18	0.000069	1	Reconfig
Fri Oct 31 12:41:18	0.000107	3	Updated LSP fix.00-00
Fri Oct 31 12:41:18	0.000050	3	Address change on so-1/2/2.0
Fri Oct 31 12:41:23	0.000033	1	Updated LSP fix.00-00
Fri Oct 31 12:41:28	0.000178	5	New adjacency scat on ge-1/1/0.0
Fri Oct 31 12:41:59	0.000060	1	Updated LSP fix.00-00
Fri Oct 31 12:42:30	0.000161	2	Multi area attachment change
Fri Oct 31 12:56:58	0.000198	1	Periodic SPF
Fri Oct 31 13:10:29	0.000209	1	Periodic SPF

IS-IS level 2 SPF log:

Start time	Elapsed (secs)	Count	Reason
Fri Oct 31 12:41:18	0.000035	1	Reconfig
Fri Oct 31 12:41:18	0.000047	2	Updated LSP fix.00-00
Fri Oct 31 12:41:18	0.000043	5	Address change on gr-0/2/0.0
Fri Oct 31 12:41:23	0.000022	1	Updated LSP fix.00-00
Fri Oct 31 12:41:59	0.000144	3	New adjacency h on gr-0/2/0.0
Fri Oct 31 12:42:30	0.000257	3	New LSP skag.00-00
Fri Oct 31 12:54:37	0.000195	1	Periodic SPF
Fri Oct 31 12:55:50	0.000178	1	Updated LSP fix.00-00
Fri Oct 31 12:55:55	0.000174	1	Updated LSP h.00-00
Fri Oct 31 12:55:58	0.000176	1	Updated LSP skag.00-00
Fri Oct 31 13:08:14	0.000198	1	Periodic SPF

IPv6 Unicast IS-IS level 1 SPF log:

Start time	Elapsed (secs)	Count	Reason
Fri Oct 31 12:41:18	0.000028	1	Reconfig
Fri Oct 31 12:41:18	0.000043	3	Updated LSP fix.00-00
Fri Oct 31 12:41:18	0.000112	4	Updated LSP fix.00-00
Fri Oct 31 12:41:23	0.000059	1	Updated LSP fix.00-00
Fri Oct 31 12:41:25	0.000041	1	Updated LSP fix.00-00
Fri Oct 31 12:41:28	0.000103	5	New adjacency scat on ge-1/1/0.0
Fri Oct 31 12:41:59	0.000040	1	Updated LSP fix.00-00
Fri Oct 31 12:42:30	0.000118	2	Multi area attachment change
Fri Oct 31 12:56:08	0.000289	1	Periodic SPF
Fri Oct 31 13:11:07	0.000214	1	Periodic SPF

IPv6 Unicast IS-IS level 2 SPF log:

Start time	Elapsed (secs)	Count	Reason
Fri Oct 31 12:41:18	0.000027	1	Reconfig
Fri Oct 31 12:41:18	0.000039	2	Updated LSP fix.00-00
Fri Oct 31 12:41:18	0.000049	6	Updated LSP fix.00-00
Fri Oct 31 12:41:23	0.000025	1	Updated LSP fix.00-00
Fri Oct 31 12:41:25	0.000023	1	Updated LSP fix.00-00
Fri Oct 31 12:41:59	0.000087	3	New adjacency h on gr-0/2/0.0
Fri Oct 31 12:42:30	0.000123	3	New LSP skag.00-00
Fri Oct 31 12:55:50	0.000121	1	Updated LSP fix.00-00
Fri Oct 31 12:55:55	0.000121	1	Updated LSP h.00-00
Fri Oct 31 12:55:58	0.000121	1	Updated LSP skag.00-00

```
Fri Oct 31 13:09:46      0.000201      1 Periodic SPF
...
```

show isis spf results

```
user@host> show isis spf results logical-system ls1
```

```
IS-IS level 1 SPF results:
```

Node	Metric	Interface	Via	SNPA
scat.00	10	ge-1/1/0.0	scat	0:90:69:a6:48:9d
	20	10.9.1.0/30		
fix.02	10			
fix.00	0			
	10	10.9.1.0/30		
	10	10.9.5.0/30		
	10	10.9.6.0/30		
	20	10.9.7.0/30		
	60	10.9.201.1/32		
3 nodes				

```
IS-IS level 2 SPF results:
```

Node	Metric	Interface	Via	SNPA
skag.00	20	gr-0/2/0.0	h	
	30	10.9.7.0/30		
skag.02	20	gr-0/2/0.0	h	
h.00	10	gr-0/2/0.0	h	
	20	10.9.6.0/30		
	20	10.9.7.0/30		
	60	10.9.201.1/32		
fix.00	0			
	10	10.9.1.0/30		
	10	10.9.5.0/30		
	10	10.9.6.0/30		
4 nodes				

```
IPv6 Unicast IS-IS level 1 SPF results:
```

Node	Metric	Interface	Via	SNPA
scat.00	10	ge-1/1/0.0	scat	0:90:69:a6:48:9d
		ge-1/1/0.0	scat	0:90:69:a6:48:9d
	20	8009:1::a09:1400/126		
fix.02	10			
fix.00	0			
	10	8009:1::a09:1400/126		
	10	8009:2::a09:1e00/126		
	20	8009:3::a09:3200/126		
	10	8009:4::a09:2800/126		
3 nodes				

```
IPv6 Unicast IS-IS level 2 SPF results:
```

Node	Metric	Interface	Via	SNPA
skag.00	20	gr-0/2/0.0	h	
		gr-0/2/0.0	h	
	30	8009:3::a09:3200/126		
skag.02	20	gr-0/2/0.0	h	
		gr-0/2/0.0	h	
h.00	10	gr-0/2/0.0	h	
		gr-0/2/0.0	h	
	20	8009:3::a09:3200/126		
	20	8009:4::a09:2800/126		
fix.00	0			
	10	8009:1::a09:1400/126		
	10	8009:2::a09:1e00/126		
	10	8009:4::a09:2800/126		
4 nodes				

```

Multicast IS-IS level 1 SPF results:
Node      Metric  Interface  Via      SNPA
scat.00   10         ge-1/1/0.0  scat     0:90:69:a6:48:9d
fix.02    10
fix.00    0
3 nodes

Multicast IS-IS level 2 SPF results:
Node      Metric  Interface  Via      SNPA
skag.00   20         gr-0/2/0.0  h
skag.02   20         gr-0/2/0.0  h
h.00      10         gr-0/2/0.0  h
fix.00    0
4 nodes
...

```

**show isis spf results
(CLNS)**

```

user@host> show isis spf results
IS-IS level 1 SPF results:
Node      Metric  Interface  Via      SNPA
skag.00 10         fe-0/0/1.0  toothache 0:12:0:34:0:56
          20         fe-0/0/1.0  toothache 0:12:0:34:0:56
          20         192.168.37.64/29
          10         1921.6800.4001
          20         1921.6800.4002
pro1-a.02 10
pro1-a.00 0
          0         10.255.245.1/32
          10         192.168.37.64/29
          0         1921.6800.4211
3 nodes

IS-IS level 2 SPF results:
Node      Metric  Interface  Via      SNPA
skag.00 10         fe-0/0/1.0  toothache 0:12:0:34:0:56
          20         fe-0/0/1.0  toothache 0:12:0:34:0:56
          20         10.255.245.1/32
          20         192.168.37.64/29
          20         47.0005.80ff.f800.0000.0109.0010/104
pro1-a.02 10
pro1-a.00 0
          0         10.255.245.1/32
          10         192.168.37.64/29
3 nodes

```

show isis statistics

Syntax	show isis statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display statistics about Intermediate System-to-Intermediate System (IS-IS) traffic.
Options	none—Display IS-IS traffic statistics for all routing instances on all logical systems. instance <i>instance-name</i> —(Optional) Display statistics for the specified routing instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Topics	clear isis statistics on page 195
List of Sample Output	show isis statistics on page 224
Output Fields	Table 73 on page 223 describes the output fields for the show isis statistics command. Output fields are listed in the approximate order in which they appear.

Table 73: show isis statistics Output Fields

Field Name	Field Description
PDU type	<p>Protocol data unit type:</p> <ul style="list-style-type: none"> ■ CSNP—Complete sequence number PDUs contain a complete list of all link-state PDUs in the IS-IS database. CSNPs are sent periodically on all links, and the receiving systems use the information in the CSNP to update and synchronize their link-state PDU databases. The designated router multicasts CSNPs on broadcast links in place of sending explicit acknowledgments for each link-state PDU. ■ IIH—IS-IS hello packets are broadcast to discover the identity of neighboring IS-IS systems and to determine whether the neighbors are Level 1 or Level 2 intermediate systems. ■ LSP—Link-state PDUs contain information about the state of adjacencies to neighboring IS-IS systems. Link-state PDUs are flooded periodically throughout an area. ■ PSNP—Partial sequence number PDUs are sent multicast by a receiver when it detects that it is missing a link-state PDU; that is, when its link-state PDU database is out of date. The receiver sends a PSNP to the system that transmitted the CSNP, effectively requesting that the missing link-state PDU be transmitted. That router, in turn, forwards the missing link-state PDU to the requesting router. ■ Unknown—The PDU type is unknown.
Received	Number of PDUs received since IS-IS started or since the statistics were set to zero.
Processed	Number of PDUs received less the number dropped.
Drops	Number of PDUs dropped.

Table 73: show isis statistics Output Fields (continued)

Field Name	Field Description
Sent	Number of PDUs transmitted since IS-IS started or since the statistics were set to zero.
Rexmit	Number of PDUs retransmitted since IS-IS started or since the statistics were set to zero.
Total packets received/sent	Total number of PDUs received and transmitted since IS-IS started or since the statistics were set to zero.
SNP queue length	Number of CSPN and PSNP packets currently waiting in the queue for processing. This value is almost always 0.
LSP queue length	Number of link-state PDUs waiting in the queue for processing. This value is almost always 0.
SPF runs	Number of shortest-path-first (SPF) calculations that have been performed. If this number is incrementing rapidly, it indicates that the network is unstable.
Fragments rebuilt	Number of link-state link-state PDU fragments that the local system has computed.
LSP regenerations	Number of link-state PDUs that have been regenerated. A link state PDU is regenerated when it is nearing the end of its lifetime and it has not changed.
Purges initiated	Number of purges that the system initiated. A purge is initiated if the software decides that a link-state PDU must be removed from the network.

```

show isis statistics user@host> show isis statistics
IS-IS statistics for merino:

PDU type    Received    Processed    Drops      Sent      Rexmit
LSP          12227       12227        0          8184      683
IIH          113808      113808        0         115817     0
CSNP         198868      198868        0         198934     0
PSNP          6985        6979         6          8274     0
Unknown        0           0            0           0         0
Totals       331888      331882        6         331209    683

Total packets received: 331888 Sent: 331892

SNP queue length:          0 Drops:          0
LSP queue length:          0 Drops:          0

SPF runs:                  1014
Fragments rebuilt:         1038
LSP regenerations:         425
Purges initiated:          0

```

Chapter 7

OSPF Operational Mode Commands

Table 74 on page 225 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Open Shortest Path First (OSPF) protocol. Commands are listed in alphabetical order.

Table 74: OSPF Operational Mode Commands

Task	Command
Clear link-state database entries.	<code>clear (ospf ospf3) database</code> on page 227
Clear OSPF input and output statistics.	<code>clear (ospf ospf3) io-statistics</code> on page 230
Tear down neighbor connections.	<code>clear (ospf ospf3) neighbor</code> on page 231
Clear the OSPF overload bit.	<code>clear ospf overload</code> on page 232
Clear OSPF statistics.	<code>clear (ospf ospf3) statistics</code> on page 233
Display link-state database entries for OSPFv2.	<code>show ospf database</code> on page 235
Display link-state database entries for OSPFv3.	<code>show ospf3 database</code> on page 242
Display OSPF interface status.	<code>show (ospf ospf3) interface</code> on page 252
Display OSPF input and output statistics.	<code>show (ospf ospf3) io-statistics</code> on page 257
Display the SPF log.	<code>show (ospf ospf3) log</code> on page 258
Display adjacent routers.	<code>show (ospf ospf3) neighbor</code> on page 260
Display overview statistics.	<code>show (ospf ospf3) overview</code> on page 265
Display OSPF routing table entries.	<code>show (ospf ospf3) route</code> on page 269
Display OSPF statistics.	<code>show (ospf ospf3) statistics</code> on page 275



NOTE: For more OSPF-related commands, such as **show route protocol**, **show route instance**, and **show route table**, see “Protocol-Independent Routing Operational Mode Commands” on page 277. For information about monitoring Bidirectional Forwarding Detection (BFD) sessions for OSPF clients, see “BFD Operational Mode Commands” on page 3. For information about how to configure OSPF, see the *JUNOS Routing Protocols Configuration Guide*.

clear (ospf | ospf3) database

Syntax clear (ospf | ospf3) database
 <advertising-router *router-id*>
 <area *area-id*>
 <asbrsummary>
 <external>
 <instance *instance-name*>
 <inter-area-prefix>
 <inter-area-router>
 <intra-area-prefix>
 <link-local>
 <logical-system (all | *logical-system-name*)>
 <lsa-id *lsa-id*>
 <netsummary >
 <network>
 <nssa>
 <opaque-area>
 <purge>
 <realm (ipv4-multicast | ipv4-unicast | ipv6-multicast)>
 <router>

Release Information Command introduced before JUNOS Release 7.4.
 advertising-router *router-id*, area *area-id*, asbrsummary, external, inter-area-prefix, inter-area-router, intra-area-prefix, link-local, lsa-id *lsa-id*, netsummary, network, nssa, opaque-area, and router options added in JUNOS Release 8.3. You must use the **purge** command with these options.
 realm option added in JUNOS Release 9.2.

Description With the master Routing Engine, delete entries in the Open Shortest Path First (OSPF) link-state advertisement (LSA) database. With the backup Routing Engine, delete the OSPF LSA database and sync the new database with the master Routing Engine. You can also use **purge** with any of the options to discard rather than delete the specified LSA entries.



CAUTION: This command is useful only for testing. Use it with care because it causes significant network disruption.



NOTE: You must use the **purge** command with any of the options added in JUNOS Release 8.3. You can use advertising-router *router-id*, area *area-id*, instance *instance-name*, logical-system *logical-system-name*, and lsa-id *lsa-id* with the options to further define the LSAs you want to discard.

Options none—Delete all LSAs other than the system's own LSAs, which are regenerated. To resynchronize the database, the system destroys all adjacent neighbors that are in the state EXSTART or higher. The neighbors are then reacquired and the databases are synchronized.

advertising-router *router-id*—(Optional) Discard entries for the LSA entries advertised by the specified router.

area *area-id*—(Optional) Discard entries for the LSAs in the specified area.

asbrsummary—(Optional) Discard summary AS boundary router LSA entries.

external—(Optional) Discard external LSAs.

instance *instance-name*—(Optional) Delete or discard entries for the specified routing instance only.

inter-area-prefix—(ospf3 only) (Optional) Discard interarea-prefix LSAs.

inter-area-router—(ospf3 only) (Optional) Discard interarea-router LSAs.

intra-area-prefix—(ospf3 only) (Optional) Discard intra-area-prefix LSAs.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

link-local—(Optional) Delete link-local LSAs.

lsa-id *lsa-id*—(Optional) Discard the LSA entries with the specified LSA identifier.

netsummary—(Optional) Discard summary network LSAs.

network—(Optional) Discard network LSAs.

nssa—(Optional) Discard not-so-stubby area (NSSA) LSAs.

opaque-area—(Optional) Discard opaque area-scope LSAs.

realm (ipv4-multicast | ipv4-unicast | ipv6-multicast)—(ospf3 only) (Optional) Delete the entries for the specified OSPFv3 realm, or address family. Use the **realm** option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.

router—(Optional) Discard router LSAs.

purge—(Optional) Discard all entries in the link-state advertisement database. All link-state advertisements are set to **MAXAGE** and are flooded. The database is repopulated when the originators of the link-state advertisements receive the **MAXAGE** link-state advertisements and reissue them.

Required Privilege Level clear

Related Topics show ospf database on page 235

show ospf3 database on page 242

List of Sample Output clear ospf database on page 229

Output Fields When you enter this command, you are provided feedback on the status of your request.

```
clear ospf database    user@host> clear ospf database
```

clear (ospf | ospf3) io-statistics

Syntax	clear (ospf ospf3) statistics <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Open Shortest Path First (OSPF) input and output statistics.
Options	none—Clear OSPF input and output statistics on all logical systems. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
List of Sample Output	clear ospf io-statistics on page 230
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ospf io-statistics	user@host> clear ospf io-statistics

clear (ospf | ospf3) neighbor

Syntax	clear (ospf ospf3) neighbor <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <neighbor> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)>
Release Information	Command introduced before JUNOS Release 7.4. realm option introduced in JUNOS Release 9.2.
Description	Tear down Open Shortest Path First (OSPF) neighbor connections.
Options	<p>none—Tear down OSPF connections with all neighbors for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Tear down neighbor connections for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>neighbor—(Optional) Clear the state of the specified neighbor only.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(ospf3 only) (Optional) Clear the state of the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.</p>
Required Privilege Level	clear
Related Topics	show (ospf ospf3) neighbor on page 260
List of Sample Output	clear ospf neighbor on page 231
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ospf neighbor	user@host> clear ospf neighbor

clear ospf overload

Syntax	clear ospf overload <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear the Open Shortest Path First version 2 (OSPFv2) overload bit and rebuild link-state advertisements (LSAs).
Options	<p>none—Clear the overload bit and rebuild LSAs for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Clear the overload bit and rebuild LSAs for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
List of Sample Output	clear ospf overload on page 232
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ospf overload	user@host> clear ospf overload

clear (ospf | ospf3) statistics

Syntax	clear (ospf ospf3) statistics <logical-system (all <i>logical-system-name</i>)> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)>
Release Information	Command introduced before JUNOS Release 7.4. realm option introduced in JUNOS Release 9.2.
Description	Clear Open Shortest Path First (OSPF) statistics.
Options	<p>none—Clear OSPF statistics on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(ospf3 only) (Optional) Clear statistics for the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.</p>
Required Privilege Level	clear
Related Topics	show (ospf ospf3) statistics on page 275
List of Sample Output	clear ospf statistics on page 233
Output Fields	See show (ospf ospf3) statistics on page 275 for an explanation of output fields.

clear ospf statistics The following sample output displays OSPF statistics before and after the clear ospf statistics command is entered:

```
user@host> show ospf statistics
```

Packet type	Total		Last 5 seconds	
	Sent	Received	Sent	Received
Hello	3254	2268	3	1
DbD	41	46	0	0
LSReq	8	7	0	0
LSUpdate	212	154	0	0
LSAck	65	98	0	0

```
LSAs retransmitted: 3, last 5 seconds: 0
```

```
Flood queue depth: 0
```

```
Total rexmit entries: 0, db summaries: 0, lsreq entries: 0
```

```
Receive errors:
```

```
  626 subnet mismatches
```

```
user@host> clear ospf statistics
```

```
user@host> show ospf statistics
```

Packet type	Total		Last 5 seconds	
	Sent	Received	Sent	Received

Hello	3	1	3	1
DbD	0	0	0	0
LSReq	0	0	0	0
LSUpdate	0	0	0	0
LSAck	0	0	0	0

LSAs retransmitted: 0, last 5 seconds: 0

Flood queue depth: 0

Total rexmit entries: 0, db summaries: 0, lsreq entries: 0

Receive errors:

None

show ospf database

Syntax	<pre>show ospf database <brief detail extensive summary> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <<i>lsa-filters</i>></pre>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the entries in the Open Shortest Path First version 2 (OSPFv2) link-state database, which contains data about link-state advertisement (LSA) packets.
Options	<p>none—Display standard information about entries in the OSPFv2 link-state database for all routing instances on all logical systems.</p> <p>brief detail extensive summary—(Optional) Display the specified level of output.</p> <p>instance <i>instance-name</i>—(Optional) Display all OSPF database information under the named routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>lsa-filters</i>—(Optional) One or more of the following LSA filters. If you specify more than one filter, only LSAs that match all the filters are displayed. For example, the command <code>show ospf database detail router lsa-id 10.0.0.1</code> displays all router LSAs in all areas that have an LSA identifier of 10.0.0.1.</p> <ul style="list-style-type: none"> ■ advertising-router <i>address</i>—(Optional) Display the LSAs advertised by a particular router. ■ area <i>area-id</i>—(Optional) Display the LSAs in a particular area. ■ lsa-id <i>lsa-id</i>—(Optional) Display the LSA with the specified LSA identifier. ■ <i>lsa-type</i>—(Optional) Display specific types of LSAs. You can specify asbrsummary, extern, netsummary, network, nssa, or router.
Required Privilege Level	view
Related Topics	clear esis adjacency on page 44
List of Sample Output	<p>show ospf database on page 237</p> <p>show ospf database brief on page 237</p> <p>show ospf database detail on page 237</p> <p>show ospf database extensive on page 238</p> <p>show ospf database summary on page 241</p>
Output Fields	Table 75 on page 236 describes the output fields for the <code>show ospf database</code> command. Output fields are listed in the approximate order in which they appear.

Table 75: show ospf database Output Fields

Field Name	Field Description	Level of Output
area	Area number. Area 0.0.0.0 is the backbone area.	All levels
Type	Type of link advertisement: ASBRSum, Extern, Network, NSSA, OpaqArea, Router, or Summary.	All levels
ID	LSA identifier included in the advertisement. An asterisk preceding the identifier marks database entries that originated from the local router.	All levels
Adv Rtr	Address of the router that sent the advertisement.	All levels
Seq	Link sequence number of the advertisement.	All levels
Age	Time elapsed since the LSA was originated, in seconds.	All levels
Cksum	Checksum value of the LSA.	All levels
Len	Length of the advertisement, in bytes.	All levels
Router	Router link-state advertisement information: <ul style="list-style-type: none"> ■ bits—Flags describing the router that generated the LSP. ■ link count—Number of links in the advertisement. ■ id—ID of a router or subnet on the link. ■ data—For stub networks, the subnet mask. Otherwise, the IP address of the router that generated the LSP. ■ type —Type of link. It can be PointToPoint, Transit, Stub, or Virtual. ■ TOS count—Number of type-of-service (ToS) entries in the advertisement. ■ TOS 0 metric—Metric for ToS 0. ■ TOS—Type-of-service (ToS) value. ■ metric—Metric for the ToS. 	detail extensive
Network	Network link-state advertisement information: <ul style="list-style-type: none"> ■ mask—Network mask. ■ attached router—ID of the attached neighbor. 	detail extensive
Summary	Summary link-state advertisement information: <ul style="list-style-type: none"> ■ mask—Network mask. ■ TOS—Type-of-service (ToS) value. ■ metric—Metric for the ToS. 	detail extensive
Gen timer	How long until the LSA is regenerated.	extensive
Aging time	How long until the LSA expires.	extensive
Installed <i>hh:mm:ss</i> ago	How long ago the route was installed.	extensive
expires in <i>hh:mm:ss</i>	How long until the route expires.	extensive
Ours	Indicates that this is a local advertisement.	extensive

Table 75: show ospf database Output Fields (continued)

Field Name	Field Description	Level of Output
Router LSAs	Number of router link-state advertisements in the link-state database.	summary
Network LSAs	Number of network link-state advertisements in the link-state database.	summary
Summary LSAs	Number of summary link-state advertisements in the link-state database.	summary

```

show ospf database user@host> show ospf database
OSPF link state database, Area 0.0.0.1
  Type      ID                Adv Rtr      Seq      Age  Opt  Cksum  Len
Router  10.255.70.103      10.255.70.103  0x80000002  215  0x20 0x4112  48
Router  *10.255.71.242      10.255.71.242  0x80000002  214  0x20 0x11b1  48
Summary *23.1.1.0          10.255.71.242  0x80000002  172  0x20 0x6d72  28
Summary *24.1.1.0          10.255.71.242  0x80000002  177  0x20 0x607e  28
NSSA    *33.1.1.1            10.255.71.242  0x80000002  217  0x28 0x73bd  36

      OSPF link state database, Area 0.0.0.2
  Type      ID                Adv Rtr      Seq      Age  Opt  Cksum  Len
Router  10.255.71.52       10.255.71.52   0x80000004  174  0x20 0xd021  36
Router  *10.255.71.242      10.255.71.242  0x80000003  173  0x20 0xe191  36
Network *23.1.1.1          10.255.71.242  0x80000002  173  0x20 0x9c76  32
Summary *12.1.1.0          10.255.71.242  0x80000001  217  0x20 0xfeec  28
Summary *24.1.1.0          10.255.71.242  0x80000002  177  0x20 0x607e  28
NSSA    *33.1.1.1            10.255.71.242  0x80000001  222  0x28 0xe047  36

      OSPF link state database, Area 0.0.0.3
  Type      ID                Adv Rtr      Seq      Age  Opt  Cksum  Len
Router  10.255.71.238       10.255.71.238   0x80000003  179  0x20 0x3942  36
Router  *10.255.71.242      10.255.71.242  0x80000003  177  0x20 0xf37d  36
Network *24.1.1.1          10.255.71.242  0x80000002  177  0x20 0xc591  32
Summary *12.1.1.0          10.255.71.242  0x80000001  217  0x20 0xfeec  28
Summary *23.1.1.0          10.255.71.242  0x80000002  172  0x20 0x6d72  28
NSSA    *33.1.1.1            10.255.71.242  0x80000001  222  0x28 0xeb3b  36

```

show ospf database brief The output for the show ospf database brief command is identical to that for the show ospf database command. For sample output, see show ospf database on page 237.

```

show ospf database detail user@host> show ospf database detail
OSPF link state database, Area 0.0.0.1
  Type      ID                Adv Rtr      Seq      Age  Opt  Cksum  Len
Router  10.255.70.103      10.255.70.103  0x80000002  261  0x20 0x4112  48
  bits 0x0, link count 2
  id 10.255.71.242, data 12.1.1.1, Type PointToPoint (1)
  TOS count 0, TOS 0 metric 1
  id 12.1.1.0, data 255.255.255.0, Type Stub (3)
  TOS count 0, TOS 0 metric 1
Router  *10.255.71.242      10.255.71.242  0x80000002  260  0x20 0x11b1  48
  bits 0x3, link count 2
  id 10.255.70.103, data 12.1.1.2, Type PointToPoint (1)
  TOS count 0, TOS 0 metric 1
  id 12.1.1.0, data 255.255.255.0, Type Stub (3)
  TOS count 0, TOS 0 metric 1
Summary *23.1.1.0          10.255.71.242  0x80000002  218  0x20 0x6d72  28

```

```

mask 255.255.255.0
TOS 0x0, metric 1
Summary *24.1.1.0          10.255.71.242    0x80000002    223    0x20 0x607e    28
mask 255.255.255.0
TOS 0x0, metric 1
NSSA *33.1.1.1            10.255.71.242    0x80000002    263    0x28 0x73bd    36
mask 255.255.255.255
Type 2, TOS 0x0, metric 0, fwd addr 12.1.1.2, tag 0.0.0.0

```

```

OSPF link state database, Area 0.0.0.2
Type      ID          Adv Rtr      Seq          Age    Opt  Cksum  Len
Router    10.255.71.52   10.255.71.52  0x80000004   220    0x20 0xd021  36
bits 0x0, link count 1
id 23.1.1.1, data 23.1.1.2, Type Transit (2)
TOS count 0, TOS 0 metric 1
Router *10.255.71.242   10.255.71.242  0x80000003   219    0x20 0xe191  36
bits 0x3, link count 1
id 23.1.1.1, data 23.1.1.1, Type Transit (2)
TOS count 0, TOS 0 metric 1
Network *23.1.1.1       10.255.71.242  0x80000002   219    0x20 0x9c76  32
mask 255.255.255.0
attached router 10.255.71.242
attached router 10.255.71.52
Summary *12.1.1.0       10.255.71.242  0x80000001   263    0x20 0xfeec  28
mask 255.255.255.0
TOS 0x0, metric 1
Summary *24.1.1.0       10.255.71.242  0x80000002   223    0x20 0x607e  28
mask 255.255.255.0
TOS 0x0, metric 1
NSSA *33.1.1.1          10.255.71.242  0x80000001   268    0x28 0xe047  36
mask 255.255.255.255
Type 2, TOS 0x0, metric 0, fwd addr 23.1.1.1, tag 0.0.0.0

```

```

OSPF link state database, Area 0.0.0.3
Type      ID          Adv Rtr      Seq          Age    Opt  Cksum  Len
Router    10.255.71.238   10.255.71.238  0x80000003   225    0x20 0x3942  36
bits 0x0, link count 1
id 24.1.1.1, data 24.1.1.2, Type Transit (2)
TOS count 0, TOS 0 metric 1
Router *10.255.71.242   10.255.71.242  0x80000003   223    0x20 0xf37d  36
bits 0x3, link count 1
id 24.1.1.1, data 24.1.1.1, Type Transit (2)
TOS count 0, TOS 0 metric 1
Network *24.1.1.1       10.255.71.242  0x80000002   223    0x20 0xc591  32
mask 255.255.255.0
attached router 10.255.71.242
attached router 10.255.71.238
Summary *12.1.1.0       10.255.71.242  0x80000001   263    0x20 0xfeec  28
mask 255.255.255.0
TOS 0x0, metric 1
Summary *23.1.1.0       10.255.71.242  0x80000002   218    0x20 0x6d72  28
mask 255.255.255.0
TOS 0x0, metric 1
NSSA *33.1.1.1          10.255.71.242  0x80000001   268    0x28 0xeb3b  36
mask 255.255.255.255
Type 2, TOS 0x0, metric 0, fwd addr 24.1.1.1, tag 0.0.0.0

```

**show ospf database
extensive**

```

user@host> show ospf database extensive
OSPF link state database, Area 0.0.0.1
Type      ID          Adv Rtr      Seq          Age    Opt  Cksum  Len
Router    10.255.70.103   10.255.70.103  0x80000002   286    0x20 0x4112  48

```

```

bits 0x0, link count 2
id 10.255.71.242, data 12.1.1.1, Type PointToPoint (1)
TOS count 0, TOS 0 metric 1
id 12.1.1.0, data 255.255.255.0, Type Stub (3)
TOS count 0, TOS 0 metric 1
Aging timer 00:55:14
Installed 00:04:43 ago, expires in 00:55:14
Last changed 00:04:43 ago, Change count: 2
Router *10.255.71.242    10.255.71.242    0x80000002    285    0x20 0x11b1    48
bits 0x3, link count 2
id 10.255.70.103, data 12.1.1.2, Type PointToPoint (1)
TOS count 0, TOS 0 metric 1
id 12.1.1.0, data 255.255.255.0, Type Stub (3)
TOS count 0, TOS 0 metric 1
Gen timer 00:45:15
Aging timer 00:55:15
Installed 00:04:45 ago, expires in 00:55:15, sent 00:04:43 ago
Last changed 00:04:45 ago, Change count: 2, Ours
Summary *23.1.1.0      10.255.71.242    0x80000002    243    0x20 0x6d72    28
mask 255.255.255.0
TOS 0x0, metric 1
Gen timer 00:45:57
Aging timer 00:55:57
Installed 00:04:03 ago, expires in 00:55:57, sent 00:04:01 ago
Last changed 00:04:48 ago, Change count: 1, Ours
Summary *24.1.1.0      10.255.71.242    0x80000002    248    0x20 0x607e    28
mask 255.255.255.0
TOS 0x0, metric 1
Gen timer 00:45:52
Aging timer 00:55:52
Installed 00:04:08 ago, expires in 00:55:52, sent 00:04:06 ago
Last changed 00:04:48 ago, Change count: 1, Ours
NSSA *33.1.1.1        10.255.71.242    0x80000002    288    0x28 0x73bd    36
mask 255.255.255.255
Type 2, TOS 0x0, metric 0, fwd addr 12.1.1.2, tag 0.0.0.0
Gen timer 00:45:12
Aging timer 00:55:12
Installed 00:04:48 ago, expires in 00:55:12, sent 00:04:48 ago
Last changed 00:04:48 ago, Change count: 2, Ours

    OSPF link state database, Area 0.0.0.2
Type      ID          Adv Rtr      Seq      Age  Opt  Cksum  Len
Router  10.255.71.52    10.255.71.52    0x80000004    245  0x20 0xd021    36
bits 0x0, link count 1
id 23.1.1.1, data 23.1.1.2, Type Transit (2)
TOS count 0, TOS 0 metric 1
Aging timer 00:55:55
Installed 00:04:02 ago, expires in 00:55:55
Last changed 00:04:02 ago, Change count: 2
Router *10.255.71.242    10.255.71.242    0x80000003    244  0x20 0xe191    36
bits 0x3, link count 1
id 23.1.1.1, data 23.1.1.1, Type Transit (2)
TOS count 0, TOS 0 metric 1
Gen timer 00:45:56
Aging timer 00:55:56
Installed 00:04:04 ago, expires in 00:55:56, sent 00:04:02 ago
Last changed 00:04:04 ago, Change count: 2, Ours
Network *23.1.1.1      10.255.71.242    0x80000002    244  0x20 0x9c76    32
mask 255.255.255.0
attached router 10.255.71.242
attached router 10.255.71.52

```

```

Gen timer 00:45:56
Aging timer 00:55:56
Installed 00:04:04 ago, expires in 00:55:56, sent 00:04:02 ago
Last changed 00:04:04 ago, Change count: 1, Ours
Summary *12.1.1.0      10.255.71.242    0x80000001    288    0x20 0xfeec    28
mask 255.255.255.0
TOS 0x0, metric 1
Gen timer 00:45:12
Aging timer 00:55:12
Installed 00:04:48 ago, expires in 00:55:12, sent 00:04:04 ago
Last changed 00:04:48 ago, Change count: 1, Ours
Summary *24.1.1.0      10.255.71.242    0x80000002    248    0x20 0x607e    28
mask 255.255.255.0
TOS 0x0, metric 1
Gen timer 00:45:52
Aging timer 00:55:52
Installed 00:04:08 ago, expires in 00:55:52, sent 00:04:04 ago
Last changed 00:04:48 ago, Change count: 1, Ours
NSSA *33.1.1.1        10.255.71.242    0x80000001    293    0x28 0xe047    36
mask 255.255.255.255
Type 2, TOS 0x0, metric 0, fwd addr 23.1.1.1, tag 0.0.0.0
Gen timer 00:45:07
Aging timer 00:55:07
Installed 00:04:53 ago, expires in 00:55:07, sent 00:04:04 ago
Last changed 00:04:53 ago, Change count: 1, Ours

    OSPF link state database, Area 0.0.0.3
Type      ID          Adv Rtr      Seq      Age  Opt  Cksum  Len
Router    10.255.71.238  10.255.71.238  0x80000003  250  0x20 0x3942  36
bits 0x0, link count 1
id 24.1.1.1, data 24.1.1.2, Type Transit (2)
TOS count 0, TOS 0 metric 1
Aging timer 00:55:50
Installed 00:04:07 ago, expires in 00:55:50
Last changed 00:04:07 ago, Change count: 2
Router *10.255.71.242  10.255.71.242  0x80000003  248  0x20 0xf37d  36
bits 0x3, link count 1
id 24.1.1.1, data 24.1.1.1, Type Transit (2)
TOS count 0, TOS 0 metric 1
Gen timer 00:45:52
Aging timer 00:55:52
Installed 00:04:08 ago, expires in 00:55:52, sent 00:04:06 ago
Last changed 00:04:08 ago, Change count: 2, Ours
Network *24.1.1.1      10.255.71.242  0x80000002  248  0x20 0xc591  32
mask 255.255.255.0
attached router 10.255.71.242
attached router 10.255.71.238
Gen timer 00:45:52
Aging timer 00:55:52
Installed 00:04:08 ago, expires in 00:55:52, sent 00:04:06 ago
Last changed 00:04:08 ago, Change count: 1, Ours
Summary *12.1.1.0      10.255.71.242  0x80000001  288  0x20 0xfeec  28
mask 255.255.255.0
TOS 0x0, metric 1
Gen timer 00:45:12
Aging timer 00:55:12
Installed 00:04:48 ago, expires in 00:55:12, sent 00:04:13 ago
Last changed 00:04:48 ago, Change count: 1, Ours
Summary *23.1.1.0      10.255.71.242  0x80000002  243  0x20 0x6d72  28
mask 255.255.255.0
TOS 0x0, metric 1

```

```

Gen timer 00:45:57
Aging timer 00:55:57
Installed 00:04:03 ago, expires in 00:55:57, sent 00:04:01 ago
Last changed 00:04:48 ago, Change count: 1, Ours
NSSA   *33.1.1.1      10.255.71.242    0x80000001    293   0x28 0xeb3b   36
mask 255.255.255.255
Type 2, TOS 0x0, metric 0, fwd addr 24.1.1.1, tag 0.0.0.0
Gen timer 00:45:07
Aging timer 00:55:07
Installed 00:04:53 ago, expires in 00:55:07, sent 00:04:13 ago
Last changed 00:04:53 ago, Change count: 1, Ours

```

```

show ospf database user@host> show ospf database summary
summary
Area 0.0.0.1:
  2 Router LSAs
  2 Summary LSAs
  1 NSSA LSAs
Area 0.0.0.2:
  2 Router LSAs
  1 Network LSAs
  2 Summary LSAs
  1 NSSA LSAs
Area 0.0.0.3:
  2 Router LSAs
  1 Network LSAs
  2 Summary LSAs
  1 NSSA LSAs
Externals:
Interface fe-2/2/1.0:
Interface ge-0/3/2.0:
Interface so-0/1/2.0:
Interface so-0/1/2.0:

```

show ospf3 database

Syntax show ospf3 database
 <brief | detail | extensive | summary>
 <advertising-router *address*>
 <area *area-id*>
 <extern>
 <inter-area-prefix>
 <inter-area-router>
 <intra-area-prefix>
 <link>
 <link-local>
 <logical-system (all | *logical-system-name*)>
 <lsa-id *lsa-id*>
 <network>
 <nssa>
 <realm (ipv4-multicast | ipv4-unicast | ipv6-multicast)>
 <router>

Release Information Command introduced before JUNOS Release 7.4.
 realm option introduced in JUNOS Release 9.2.

Description Display the entries in the Open Shortest Path First version 3 (OSPFv3) link-state database, which contains data about link-state advertisement (LSA) packets.

Options none—Display standard information about all entries in the OSPFv3 link-state database on all logical systems.

brief | detail | extensive | summary—(Optional) Display the specified level of output.

advertising-router *address*—(Optional) Display the LSAs advertised by a particular router.

area *area-id*—(Optional) Display the LSAs in a particular area.

extern—(Optional) Display External LSAs.

inter-area-prefix—(Optional) Display information about interarea-prefix LSAs.

inter-area-router—(Optional) Display information about interarea-router LSAs.

intra-area-prefix—(Optional) Display information about intra-area-prefix LSAs.

link—(Optional) Display information about link LSAs.

link-local—(Optional) Display information about link-local LSAs.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

lsa-id *lsa-id*—(Optional) Display the LSA with the specified LSA identifier.

network—(Optional) Display information about network LSAs.

nssa—(Optional) Display information about not-so-stubby area (NSSA) LSAs.

realm (ipv4-multicast | ipv4-unicast | ipv6-multicast)—(Optional) Display information about the specified OSPFv3 realm, or address family. Use the **realm** option to specify an address family other than IPv6 unicast, which is the default.

router—(Optional) Display information about router LSAs.

Required Privilege Level view

Related Topics clear (ospf | ospf3) database on page 227

List of Sample Output show ospf3 database brief on page 247
show ospf3 database extensive on page 247
show ospf3 database summary on page 250

Output Fields Table 76 on page 243 lists the output fields for the show ospf3 database command. Output fields are listed in the approximate order in which they appear.

Table 76: show ospf3 database Output Fields

Field Name	Field Description	Level of Output
OSPF link state database, area <i>area-number</i>	Entries in the link-state database for this area.	brief detail extensive
OSPF AS SCOPE link state database	Entries in the AS scope link-state database.	brief detail extensive
OSPF Link-Local link state database, interface <i>interface-name</i>	Entries in the link-local link-state database for this interface.	brief detail extensive
area	Area number. Area 0.0.0.0 is the backbone area.	All levels
Type	Type of link advertisement: Extern, InterArPfx, InterArRtr, IntraArPrx, Link, Network, NSSA, or Router.	brief detail extensive
ID	Link identifier included in the advertisement. An asterisk (*) preceding the identifier marks database entries that originated from the local router.	brief detail extensive
Adv Rtr	Address of the router that sent the advertisement.	brief detail extensive
Seq	Link sequence number of the advertisement.	brief detail extensive
Age	Time elapsed since the LSA was originated, in seconds.	brief detail extensive
Cksum	Checksum value of the LSA.	brief detail extensive
Len	Length of the advertisement, in bytes.	brief detail extensive
Router (Router Link-State Advertisements)		

Table 76: show ospf3 database Output Fields (continued)

Field Name	Field Description	Level of Output
bits	Flags describing the router that generated the LSP.	detail extensive
Options	Option bits carried in the router LSA.	detail extensive
For Each Router Link		
Type	Type of interface. The value of all other output fields describing a router interface depends on the interface's type: <ul style="list-style-type: none"> ■ PointToPoint (1)—Point-to-point connection to another router. ■ Transit (2)—Connection to a transit network. ■ Virtual (4)—Virtual link. 	detail extensive
Loc-if-id	Local interface ID assigned to the interface that uniquely identifies the interface with the router.	detail extensive
Nbr-if-id	Interface ID of the neighbor's interface for this router link.	detail extensive
Nbr-rtr-id	Router ID of the neighbor router (for type 2 interfaces, the attached link's designated router).	detail extensive
Metric	Cost of the router link.	detail extensive
Gen timer	How long until the LSA is regenerated, in the format <i>hours:minutes:seconds</i> .	extensive
Aging timer	How long until the LSA expires, in the format <i>hours:minutes:seconds</i> .	extensive
Installed <i>nn:nn:nn</i> ago	How long ago the route was installed, in the format <i>hours:minutes:seconds</i> .	extensive
expires in <i>nn:nn:nn</i>	How long until the route expires, in the format <i>hours:minutes:seconds</i> .	extensive
sent <i>nn:nn:nn</i> ago	Time elapsed since the LSA was last transmitted or flooded to an adjacency or an interface, respectively, in the format <i>hours:minutes:seconds</i> .	extensive
Ours	Indicates that this is a local advertisement.	extensive
Network (Network Link-State Advertisements)		
Options	Option bits carried in the network LSA.	detail extensive
Attached Router	Router IDs of each of the routers attached to the link. Only routers that are fully adjacent to the designated router are listed. The designated router includes itself in this list.	detail extensive
InterArPfx (Interarea-Prefix Link-State Advertisements)		
Prefix	IPv6 address prefix.	detail extensive
Prefix-options	Option bit associated with the prefix.	detail extensive
Metric	Cost of this route. Expressed in the same units as the interface costs in the router LSAs. When the interarea-prefix LSA is describing a route to a range of addresses, the cost is set to the maximum cost to any reachable component of the address range.	detail extensive

Table 76: show ospf3 database Output Fields (continued)

Field Name	Field Description	Level of Output
Gen timer	How long until the LSA is regenerated, in the format <i>hours:minutes:seconds</i> .	extensive
Aging timer	How long until the LSA expires, in the format <i>hours:minutes:seconds</i> .	extensive
Installed <i>nn:nn:nn</i> ago	How long ago the route was installed, in the format <i>hours:minutes:seconds</i> .	extensive
expires in <i>nn:nn:nn</i>	How long until the route expires, in the format <i>hours:minutes:seconds</i> .	extensive
sent <i>nn:nn:nn</i> ago	Time elapsed since the LSA was last transmitted or flooded to an adjacency or an interface, respectively, in the format <i>hours:minutes:seconds</i> .	extensive
Ours	Indicates that this is a local advertisement.	extensive
InterArRtr (Interarea-Router Link-State Advertisements)		
Dest-router-id	Router ID of the router described by the LSA.	detail extensive
options	Optional capabilities supported by the router.	detail extensive
Metric	Cost of this route. Expressed in the same units as the interface costs in the router LSAs. When the interarea-prefix LSA is describing a route to a range of addresses, the cost is set to the maximum cost to any reachable component of the address range.	detail extensive
Prefix	IPv6 address prefix.	extensive
Prefix-options	Option bit associated with the prefix.	extensive
Extern (External Link-State Advertisements)		
Prefix	IPv6 address prefix.	detail extensive
Prefix-options	Option bit associated with the prefix.	detail extensive
Metric	Cost of the route, which depends on the value of Type .	detail extensive
Type <i>n</i>	Type of external metric: Type 1 or Type 2 .	detail extensive
Aging timer	How long until the LSA expires, in the format <i>hours:minutes:seconds</i> .	extensive
Installed <i>nn:nn:nn</i> ago	How long ago the route was installed, in the format <i>hours:minutes:seconds</i> .	extensive
expires in <i>nn:nn:nn</i>	How long until the route expires, in the format <i>hours:minutes:seconds</i> .	extensive
sent <i>nn:nn:nn</i> ago	Time elapsed since the LSA was last transmitted or flooded to an adjacency or an interface, respectively, in the format <i>hours:minutes:seconds</i> .	extensive
Link (Link-State Advertisements)		
IPv6-Address	IPv6 link-local address on the link for which this link LSA originated.	detail extensive
Options	Option bits carried in the link LSA.	detail extensive

Table 76: show ospf3 database Output Fields (continued)

Field Name	Field Description	Level of Output
priority	Router priority of the interface attaching the originating router to the link.	detail extensive
Prefix-count	Number of IPv6 address prefixes contained in the LSA. The rest of the link LSA contains a list of IPv6 prefixes to be associated with the link.	detail extensive
Prefix	IPv6 address prefix.	detail extensive
Prefix-options	Option bit associated with the prefix.	detail extensive
Gen timer	How long until the LSA is regenerated, in the format <i>hours:minutes:seconds</i> .	extensive
Aging timer	How long until the LSA expires, in the format <i>hours:minutes:seconds</i> .	extensive
Installed <i>nn:nn:nn</i> ago	How long ago the route was installed, in the format <i>hours:minutes:seconds</i> .	extensive
expires in <i>nn:nn:nn</i>	How long until the route expires, in the format <i>hours:minutes:seconds</i> .	extensive
sent <i>nn:nn:nn</i> ago	Time elapsed since the LSA was last transmitted or flooded to an adjacency or an interface, respectively, in the format <i>hours:minutes:seconds</i> .	extensive
Ours	Indicates that this is a local advertisement.	extensive
IntraArPfx (Intra-Area-Prefix Link-State Advertisements)		
Ref-lsa-type	LSA type of the referenced LSA. <ul style="list-style-type: none"> ■ Router—Address prefixes are associated with a router LSA. ■ Network—Address prefixes are associated with a network LSA. 	detail extensive
Ref-lsa-id	Link-state ID of the referenced LSA.	detail extensive
Ref-router-id	Advertising router ID of the referenced LSA.	detail extensive
Prefix-count	Number of IPv6 address prefixes contained in the LSA. The rest of the link LSA contains a list of IPv6 prefixes to be associated with the link.	detail extensive
Prefix	IPv6 address prefix.	detail extensive
Prefix-options	Option bit associated with the prefix.	detail extensive
Metric	Cost of this prefix. Expressed in the same units as the interface costs in the router LSAs.	detail extensive
Gen timer	How long until the LSA is regenerated, in the format <i>hours:minutes:seconds</i> .	extensive
Aging timer	How long until the LSA expires, in the format <i>hours:minutes:seconds</i> .	extensive
Installed <i>hh:mm:ss</i> ago	How long ago the route was installed, in the format <i>hours:minutes:seconds</i> .	extensive
expires in <i>hh:mm:ss</i>	How long until the route expires, in the format <i>hours:minutes:seconds</i> .	extensive

Table 76: show ospf3 database Output Fields (continued)

Field Name	Field Description	Level of Output
sent <i>hh:mm:ss ago</i>	Time elapsed since the LSA was last transmitted or flooded to an adjacency or an interface, respectively, in the format <i>hours:minutes:seconds</i> .	extensive
<i>n</i> Router LSAs	Number of router LSAs in the link-state database.	summary
<i>n</i> Network LSAs	Number of network LSAs in the link-state database.	summary
<i>n</i> InterArPfx LSAs	Number of interarea-prefix LSAs in the link-state database.	summary
<i>n</i> InterArRtr LSAs	Number of interarea-router LSAs in the link-state database.	summary
<i>n</i> IntraArPfx LSAs	Number of intra-area-prefix LSAs in the link-state database.	summary
Externals	Display of the external LSA database.	summary
<i>n</i> Extern LSAs	Number of external LSAs in the link-state database.	summary
Interface <i>interface-name</i>	Name of the interface for which link-local LSA information is displayed.	summary
<i>n</i> Link LSAs	Number of link LSAs in the link-state database.	summary

```

show ospf3 database user@host> show ospf3 database brief
brief OSPF3 link state database, area 0.0.0.0
      Type      ID          Adv Rtr      Seq      Age    Cksum  Len
      Router    0.0.0.1      10.255.4.85 0x80000003 885    0xa697 40
      Router    *0.0.0.1     10.255.4.93 0x80000002 953    0xc677 40
      InterArPfx *0.0.0.2     10.255.4.93 0x80000001 910    0xb96f 44
      InterArRtr *0.0.0.1     10.255.4.93 0x80000001 910    0xe159 32
      IntraArPfx *0.0.0.1     10.255.4.93 0x80000002 432    0x788f 72

      OSPF3 link state database, area 0.0.0.1
      Type      ID          Adv Rtr      Seq      Age    Cksum  Len
      Router    *0.0.0.1     10.255.4.93 0x80000003 916    0xea40 40
      Router    0.0.0.1     10.255.4.97 0x80000006 851    0xc95b 40
      Network    0.0.0.2     10.255.4.97 0x80000002 916    0x4598 32
      InterArPfx *0.0.0.1     10.255.4.93 0x80000002 117    0xa980 44
      InterArPfx *0.0.0.2     10.255.4.93 0x80000002 62     0xd47e 44
      NSSA      0.0.0.1     10.255.4.97 0x80000002 362    0x45ee 44
      IntraArPfx 0.0.0.1     10.255.4.97 0x80000006 851    0x2f77 52

      OSPF3 AS SCOPE link state database
      Type      ID          Adv Rtr      Seq      Age    Cksum  Len
      Extern    0.0.0.1     10.255.4.85 0x80000002 63     0x9b86 44
      Extern    *0.0.0.1     10.255.4.93 0x80000001 910    0x59c9 44

      OSPF3 Link-Local link state database, interface ge-1/3/0.0
      Type      ID          Adv Rtr      Seq      Age    Cksum  Len
      Link      *0.0.0.2     10.255.4.93 0x80000003 916    0x4dab 64

show ospf3 database user@host> show ospf3 database extensive
extensive OSPF3 link state database, area 0.0.0.0
      Type      ID          Adv Rtr      Seq      Age    Cksum  Len

```

```

Router      0.0.0.1          10.255.4.85      0x80000003  1028  0xa697  40
  bits 0x2, Options 0x13
  Type PointToPoint (1), Metric 10
    Loc-If-Id 2, Nbr-If-Id 3, Nbr-Rtr-Id 10.255.4.93
  Aging timer 00:42:51
  Installed 00:17:05 ago, expires in 00:42:52, sent 02:37:54 ago
Router      *0.0.0.1         10.255.4.93      0x80000002  1096  0xc677  40
  bits 0x3, Options 0x13
  Type PointToPoint (1), Metric 10
    Loc-If-Id 3, Nbr-If-Id 2, Nbr-Rtr-Id 10.255.4.85
  Gen timer 00:00:40
  Aging timer 00:41:44
  Installed 00:18:16 ago, expires in 00:41:44, sent 00:18:14 ago
  Ours
InterArPfx *0.0.0.2         10.255.4.93      0x80000001  1053  0xb96f  44
  Prefix feee::10:10:2:0/126
  Prefix-options 0x0, Metric 10
  Gen timer 00:17:02
  Aging timer 00:42:26
  Installed 00:17:33 ago, expires in 00:42:27, sent 00:17:31 ago
  Ours
InterArPfx *0.0.0.3         10.255.4.93      0x80000001  1053  0x71d3  44
  Prefix feee::10:255:4:97/128
  Prefix-options 0x0, Metric 10
  Gen timer 00:21:07
  Aging timer 00:42:26
  Installed 00:17:33 ago, expires in 00:42:27, sent 00:17:31 ago
  Ours
InterArRtr *0.0.0.1         10.255.4.93      0x80000001  1053  0xe159  32
  Dest-router-id 10.255.4.97, Options 0x19, Metric 10
  Gen timer 00:29:18
  Aging timer 00:42:26
  Installed 00:17:33 ago, expires in 00:42:27, sent 00:17:31 ago
  Ours
IntraArPfx 0.0.0.1          10.255.4.85      0x80000002  1028  0x2403  72
  Ref-lsa-type Router, Ref-lsa-id 0.0.0.0, Ref-router-id 10.255.4.85
  Prefix-count 2
  Prefix feee::10:255:4:85/128
    Prefix-options 0x2, Metric 0
  Prefix feee::10:10:1:0/126
    Prefix-options 0x0, Metric 10
  Aging timer 00:42:51
  Installed 00:17:05 ago, expires in 00:42:52, sent 02:37:54 ago
IntraArPfx *0.0.0.1         10.255.4.93      0x80000002   575  0x788f  72
  Ref-lsa-type Router, Ref-lsa-id 0.0.0.0, Ref-router-id 10.255.4.93
  Prefix-count 2
  Prefix feee::10:255:4:93/128
    Prefix-options 0x2, Metric 0
  Prefix feee::10:10:1:0/126
    Prefix-options 0x0, Metric 10
  Gen timer 00:33:23
  Aging timer 00:50:24
  Installed 00:09:35 ago, expires in 00:50:25, sent 00:09:33 ago
  OSPF3 link state database, area 0.0.0.1
Type      ID      Adv Rtr      Seq      Age  Cksum  Len
Router    *0.0.0.1  10.255.4.93  0x80000003  1059  0xea40  40
  bits 0x3, Options 0x19
  Type Transit (2), Metric 10
    Loc-If-Id 2, Nbr-If-Id 2, Nbr-Rtr-Id 10.255.4.97
  Gen timer 00:08:51
  Aging timer 00:42:20

```

```

    Installed 00:17:39 ago, expires in 00:42:21, sent 00:17:37 ago
Router    0.0.0.1          10.255.4.97      0x80000006   994  0xc95b  40
  bits 0x2, Options 0x19
  Type Transit (2), Metric 10
    Loc-If-Id 2, Nbr-If-Id 2, Nbr-Rtr-Id 10.255.4.97
  Aging timer 00:43:25
    Installed 00:16:31 ago, expires in 00:43:26, sent 02:37:54 ago
Network   0.0.0.2          10.255.4.97      0x80000002  1059  0x4598  32
  Options 0x11
  Attached router 10.255.4.97
  Attached router 10.255.4.93
  Aging timer 00:42:20
    Installed 00:17:36 ago, expires in 00:42:21, sent 02:37:54 ago
InterArPfx *0.0.0.1      10.255.4.93      0x80000002   260  0xa980  44
  Prefix feee::10:10:1:0/126
  Prefix-options 0x0, Metric 10
  Gen timer 00:45:39
  Aging timer 00:55:39
    Installed 00:04:20 ago, expires in 00:55:40, sent 00:04:18 ago
  Ours
InterArPfx *0.0.0.2      10.255.4.93      0x80000002   205  0xd47e  44
  Prefix feee::10:255:4:93/128
  Prefix-options 0x0, Metric 0
  Gen timer 00:46:35
  Aging timer 00:56:35
    Installed 00:03:25 ago, expires in 00:56:35, sent 00:03:23 ago
  Ours
InterArPfx *0.0.0.3      10.255.4.93      0x80000001  1089  0x9bbb  44
  Prefix feee::10:255:4:85/128
  Prefix-options 0x0, Metric 10
  Gen timer 00:04:46
  Aging timer 00:41:51
    Installed 00:18:09 ago, expires in 00:41:51, sent 00:17:43 ago
  Ours
NSSA      0.0.0.1          10.255.4.97      0x80000002   505  0x45ee  44
  Prefix feee::200:200:1:0/124
  Prefix-options 0x8, Metric 10, Type 2,
  Aging timer 00:51:35
    Installed 00:08:22 ago, expires in 00:51:35, sent 02:37:54 ago
IntraArPfx 0.0.0.1        10.255.4.97      0x80000006   994  0x2f77  52
  Ref-lsa-type Router, Ref-lsa-id 0.0.0.0, Ref-router-id 10.255.4.97
  Prefix-count 1
  Prefix feee::10:255:4:97/128
    Prefix-options 0x2, Metric 0
  Aging timer 00:43:25
    Installed 00:16:31 ago, expires in 00:43:26, sent 02:37:54 ago
IntraArPfx 0.0.0.3        10.255.4.97      0x80000002  1059  0x4446  52
  Ref-lsa-type Network, Ref-lsa-id 0.0.0.2, Ref-router-id 10.255.4.97
  Prefix-count 1
  Prefix feee::10:10:2:0/126
    Prefix-options 0x0, Metric 0
  Aging timer 00:42:20
    Installed 00:17:36 ago, expires in 00:42:21, sent 02:37:54 ago
  OSPF3 AS SCOPE link state database
Type      ID              Adv Rtr          Seq            Age  Cksum  Len
Extern    0.0.0.1              10.255.4.85     0x80000002     206  0x9b86  44
  Prefix feee::100:100:1:0/124
  Prefix-options 0x0, Metric 20, Type 2,
  Aging timer 00:56:34
    Installed 00:03:23 ago, expires in 00:56:34, sent 02:37:54 ago
Extern    *0.0.0.1              10.255.4.93     0x80000001     1053  0x59c9  44

```

```

Prefix feee::200:200:1:0/124
Prefix-options 0x0, Metric 10, Type 2,
Gen timer 00:25:12
Aging timer 00:42:26
Installed 00:17:33 ago, expires in 00:42:27, sent 00:17:31 ago

```

```

    OSPF3 Link-Local link state database, interface ge-1/3/0.0
Type      ID          Adv Rtr      Seq          Age  Cksum  Len
Link      *0.0.0.2      10.255.4.93  0x80000003   1059 0x4dab  64
fe80::290:69ff:fe39:1cdb
Options 0x11, priority 128
Prefix-count 1
Prefix feee::10:10:2:0/126 Prefix-options 0x0
Gen timer 00:12:56
Aging timer 00:42:20
Installed 00:17:39 ago, expires in 00:42:21, sent 00:17:37 ago
Link      0.0.0.2      10.255.4.97  0x80000003   205  0xa87d  64
fe80::290:69ff:fe38:883e
Options 0x11, priority 128
Prefix-count 1
Prefix feee::10:10:2:0/126 Prefix-options 0x0
Aging timer 00:56:35
Installed 00:03:22 ago, expires in 00:56:35, sent 02:37:54 ago

```

```

    OSPF3 Link-Local link state database, interface so-2/2/0.0
Type      ID          Adv Rtr      Seq          Age  Cksum  Len
Link      0.0.0.2      10.255.4.85  0x80000002   506  0x42bb  64
fe80::280:42ff:fe10:f169
Options 0x13, priority 128
Prefix-count 1
Prefix feee::10:10:1:0/126 Prefix-options 0x0
Aging timer 00:51:34
Installed 00:08:23 ago, expires in 00:51:34, sent 02:37:54 ago
Link      *0.0.0.3      10.255.4.93  0x80000002   505  0x6b7a  64
fe80::280:42ff:fe10:f177
Options 0x13, priority 128
Prefix-count 1
Prefix feee::10:10:1:0/126 Prefix-options 0x0
Gen timer 00:37:28
Aging timer 00:51:35
Installed 00:08:25 ago, expires in 00:51:35, sent 00:08:23 ago
Ours

```

```

show ospf3 database summary user@host> show ospf3 database summary
summary

```

```

Area 0.0.0.0:
  2 Router LSAs
  1 InterArPfx LSAs
  1 InterArRtr LSAs
  1 IntraArPfx LSAs
Area 0.0.0.1:
  2 Router LSAs
  1 Network LSAs
  2 InterArPfx LSAs
  1 NSSA LSAs
  1 IntraArPfx LSAs
Externals:
  2 Extern LSAs
Interface ge-1/3/0.0:
  1 Link LSAs
Interface lo0.0:

```



```
Interface so-2/2/0.0:  
  1 Link LSAs
```

show (ospf | ospf3) interface

Syntax	show (ospf ospf3) interface <brief detail extensive> <area <i>area-id</i> > <interface-name> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)>
Release Information	Command introduced before JUNOS Release 7.4. area option introduced in JUNOS Release 9.2. realm option introduced in JUNOS Release 9.2.
Description	Display the status of Open Shortest Path First (OSPF) interfaces.
Options	<p>none—Display standard information about the status of all OSPF interfaces for all routing instances on all logical systems</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>area <i>area-id</i>—Display information about the interfaces that belong to the specified area.</p> <p><i>interface-name</i>—(Optional) Display information for the specified interface.</p> <p>instance <i>instance-name</i>—(Optional) Display all OSPF interfaces under the named routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(OSPF3 only) (Optional) Display information about the interfaces for the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.</p>
Required Privilege Level	view
List of Sample Output	<p>show ospf interface brief on page 254</p> <p>show ospf interface detail on page 254</p> <p>show ospf3 interface detail on page 254</p> <p>show ospf interface detail(When Multiarea Adjacency Is Configured) on page 255</p> <p>show ospf interface area <i>area-id</i> on page 256</p>
Output Fields	Table 77 on page 253 lists the output fields for the show (ospf ospf3) interface command. Output fields are listed in the approximate order in which they appear.

Table 77: show (ospf | ospf3) interface Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface running OSPF version 2 or OSPF version 3.	All levels
State	State of the interface: BDR, Down, DR, DROther, Loop, PtToPt, or Waiting.	All levels
Area	Number of the area that the interface is in.	All levels
DR ID	Address of the area's designated router.	All levels
BDR ID	Backup designated router for a particular subnet.	All levels
Nbrs	Number of neighbors on this interface.	All levels
Type	Type of interface: LAN, NBMA, P2MP, P2P, or Virtual.	detail extensive
Address	IP address of the neighbor.	detail extensive
Mask	Netmask of the neighbor.	detail extensive
Prefix-length	(OSPFv3) IPv6 prefix length, in bits.	detail extensive
OSPF3-Intf-Index	(OSPFv3) OSPF version 3 interface index.	detail extensive
MTU	Interface's maximum transmission unit (MTU).	detail extensive
Cost	Interface's cost (metric).	detail extensive
DR addr	Address of the designated router.	detail extensive
BDR addr	Address of the backup designated router.	detail extensive
Adj count	Number of adjacent neighbors.	detail extensive
Secondary	Indicates that this interface is configured as a secondary interface for this area. This interface can belong to more than one area, but can be designated as a primary interface only for one area.	detail extensive
Priority	Router priority used in designated router (DR) election on this interface.	detail extensive
Flood list	List of link-state advertisements (LSAs) that might be about to flood this interface.	extensive
Ack list	Acknowledgment list. List of pending acknowledgments on this interface.	extensive
Descriptor list	List of packet descriptors.	extensive
Hello	Configured value for the Hello timer.	detail extensive
Dead	Configured value for the Dead timer.	detail extensive

Table 77: show (ospf | ospf3) interface Output Fields (continued)

Field Name	Field Description	Level of Output
Auth type	(OSPFv2) Authentication mechanism for sending and receiving OSPF protocol packets: <ul style="list-style-type: none"> ■ MD5—MD5 mechanism is configured in accordance with RFC 2328. ■ None—No authentication method is configured. ■ Password—Simple password (RFC 2328) is configured. 	detail extensive
IPSec SA name	(OSPFv2) Name of the IPSec security association name	detail extensive
Active key ID	(OSPFv2 and MD5) Number from 0 to 255 that uniquely identifies an MD5 key.	detail extensive
Start time	(OSPFv2 and MD5) Time at which the router starts using an MD5 key to authenticate OSPF packets transmitted on the interface on which this key is configured. To authenticate received OSPF protocol packets, the key becomes effective immediately after the configuration is committed. If the start time option is not configured, the key is effective immediately for send and receive and is displayed as Start time 1970 Jan 01 00:00:00 PST .	detail extensive
ReXmit	Configured value for the Retransmit timer.	detail extensive
Stub, Not Stub, or Stub NSSA	Type of area.	detail extensive

```

show ospf interface brief  user@host> show ospf interface brief
Intf          State   Area      DR ID      BDR ID      Nbrs
at-5/1/0.0    PtToPt  0.0.0.0   0.0.0.0    0.0.0.0     1
ge-2/3/0.0    DR      0.0.0.0   192.168.4.16 192.168.4.15 1
lo0.0         DR      0.0.0.0   192.168.4.16 0.0.0.0     0
so-0/0/0.0    Down    0.0.0.0   0.0.0.0    0.0.0.0     0
so-6/0/1.0    PtToPt  0.0.0.0   0.0.0.0    0.0.0.0     1
so-6/0/2.0    Down    0.0.0.0   0.0.0.0    0.0.0.0     0
so-6/0/3.0    PtToPt  0.0.0.0   0.0.0.0    0.0.0.0     1

show ospf interface detail user@host> show ospf interface detail
Interface      State   Area      DR ID      BDR ID      Nbrs
fe-0/0/1.0     BDR    0.0.0.0   192.168.37.12 10.255.245.215 1
Type LAN, address 192.168.37.11, Mask 255.255.255.248, MTU 4460, Cost 40
DR addr 192.168.37.12, BDR addr 192.168.37.11, Adj count 1, Priority 128
Hello 10, Dead 40, ReXmit 5, Not Stub
t1-0/2/1.0     PtToPt  0.0.0.0   0.0.0.0    0.0.0.0     0
Type P2P, Address 0.0.0.0, Mask 0.0.0.0, MTU 1500, Cost 2604
Adj count 0
Hello 10, Dead 40, ReXmit 5, Not Stub
Auth type: MD5, Active key ID 3, Start time 2002 Nov 19 10:00:00 PST
IPsec SA Name: sa

show ospf3 interface detail user@host> show ospf3 interface so-0/0/3.0 detail
Interface      State   Area      DR-ID      BDR-ID      Nbrs
so-0/0/3.0     PtToPt  0.0.0.0   0.0.0.0    0.0.0.0     1
Address fe80::2a0:a5ff:fe28:1dfc, Prefix-length 64

```

OSPF3-Intf-index 1, Type P2P, MTU 4470, Cost 12, Adj-count 1
Hello 10, Dead 40, ReXmit 5, Not Stub

**show ospf interface
detail
(When Multiarea
Adjacency Is
Configured)**

user@host> **show ospf interface detail**

regress@router> show ospf interface detail

Interface	State	Area	DR ID	BDR ID	Nbrs
lo0.0	DR	0.0.0.0	10.255.245.2	0.0.0.0	0
Type: LAN, Address: 127.0.0.1, Mask: 255.255.255.255, MTU: 65535, Cost: 0 DR addr: 127.0.0.1, Adj count: 0, Priority: 128 Hello: 10, Dead: 40, ReXmit: 5, Not Stub Auth type: None Topology default (ID 0) -> Cost: 0					
lo0.0	DR	0.0.0.0	10.255.245.2	0.0.0.0	0
Type: LAN, Address: 10.255.245.2, Mask: 255.255.255.255, MTU: 65535, Cost: 0 DR addr: 10.255.245.2, Adj count: 0, Priority: 128 Hello: 10, Dead: 40, ReXmit: 5, Not Stub Auth type: None Topology default (ID 0) -> Cost: 0					
so-0/0/0.0	PtToPt	0.0.0.0	0.0.0.0	0.0.0.0	1
Type: P2P, Address: 0.0.0.0, Mask: 0.0.0.0, MTU: 4470, Cost: 1 Adj count: 1 Hello: 10, Dead: 40, ReXmit: 5, Not Stub Auth type: None Topology default (ID 0) -> Cost: 1					
so-0/0/0.0	PtToPt	0.0.0.0	0.0.0.0	0.0.0.0	0
Type: P2P, Address: 192.168.37.46, Mask: 255.255.255.254, MTU: 4470, Cost: 1 Adj count: 0, , Passive Hello: 10, Dead: 40, ReXmit: 5, Not Stub Auth type: None Topology default (ID 0) -> Passive, Cost: 1					
so-1/0/0.0	PtToPt	0.0.0.0	0.0.0.0	0.0.0.0	1
Type: P2P, Address: 0.0.0.0, Mask: 0.0.0.0, MTU: 4470, Cost: 1 Adj count: 1 Hello: 10, Dead: 40, ReXmit: 5, Not Stub Auth type: None Topology default (ID 0) -> Cost: 1					
so-1/0/0.0	PtToPt	0.0.0.0	0.0.0.0	0.0.0.0	0
Type: P2P, Address: 192.168.37.54, Mask: 255.255.255.254, MTU: 4470, Cost: 1 Adj count: 0, , Passive Hello: 10, Dead: 40, ReXmit: 5, Not Stub Auth type: None Topology default (ID 0) -> Passive, Cost: 1					
so-0/0/0.0	PtToPt	1.1.1.1	0.0.0.0	0.0.0.0	1
Type: P2P, Address: 0.0.0.0, Mask: 0.0.0.0, MTU: 4470, Cost: 1 Adj count: 1, Secondary Hello: 10, Dead: 40, ReXmit: 5, Not Stub Auth type: None Topology default (ID 0) -> Cost: 1					
so-1/0/0.0	PtToPt	1.1.1.1	0.0.0.0	0.0.0.0	1
Type: P2P, Address: 0.0.0.0, Mask: 0.0.0.0, MTU: 4470, Cost: 1 Adj count: 1, Secondary Hello: 10, Dead: 40, ReXmit: 5, Not Stub Auth type: None					

```

Topology default (ID 0) -> Cost: 1
so-0/0/0.0      PtToPt  2.2.2.2      0.0.0.0      0.0.0.0      1

Type: P2P, Address: 0.0.0.0, Mask: 0.0.0.0, MTU: 4470, Cost: 1
Adj count: 1, Secondary
Hello: 10, Dead: 40, ReXmit: 5, Not Stub
Auth type: None
Topology default (ID 0) -> Cost: 1
so-1/0/0.0      PtToPt  2.2.2.2      0.0.0.0      0.0.0.0      1

Type: P2P, Address: 0.0.0.0, Mask: 0.0.0.0, MTU: 4470, Cost: 1
Adj count: 1, Secondary
Hello: 10, Dead: 40, ReXmit: 5, Not Stub
Auth type: None
Topology default (ID 0) -> Cost: 1

```

```

show ospf interface area user@host> show ospf interface area 1.1.1.1
area-id
Interface      State  Area      DR ID      BDR ID      Nbrs
so-0/0/0.0     PtToPt 1.1.1.1    0.0.0.0    0.0.0.0     1
so-1/0/0.0     PtToPt 1.1.1.1    0.0.0.0    0.0.0.0     1

```

show (ospf | ospf3) io-statistics

- Syntax

show (ospf | ospf3) io-statistics
<logical-system (all | *logical-system-name*)>
- Release Information

Command introduced before JUNOS Release 7.4.
- Description

Display Open Shortest Path First (OSPF) input and output statistics.
- Options

none—Display OSPF input and output statistics on all logical systems.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.
- Required Privilege Level

view
- Related Topics

clear (ospf | ospf3) statistics on page 233
- List of Sample Output

show ospf io-statistics on page 257
- Output Fields

Table 78 on page 257 lists the output fields for the show ospf io-statistics command. Output fields are listed in the approximate order in which they appear.

Table 78: show (ospf | ospf3) io-statistics Output Fields

Field Name	Field Description
Packets read	Number of OSPF packets read since the last time the routing protocol was started.
average per run	Total number of packets divided by the total number of times the OSPF read operation is scheduled to run.
max run	Maximum number of packets for a given run among all scheduled runs.
Receive errors	Number of faulty packets received with errors.

show ospf io-statistics

user@host> show ospf io-statistics

Packets read: 7361, average per run: 1.00, max run: 1

Receive errors:

None

show (ospf | ospf3) log

Syntax	show (ospf ospf3) log <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)> <topology <i>topology-name</i> >
Release Information	Command introduced before JUNOS Release 7.4. topology option introduced in JUNOS Release 9.0. realm option introduced in JUNOS Release 9.2.
Description	Display the entries in the Open Shortest Path First (OSPF) log of SPF calculations.
Options	none—Display entries in the OSPF log of SPF calculations for all routing instances on all logical systems. instance <i>instance-name</i> —(Optional) Display entries for the specified routing instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. topology <i>topology-name</i> —(Optional) Display entries for the specified topology. realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(ospf3 only) (Optional) Display entries for the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.
Required Privilege Level	view
List of Sample Output	show ospf log on page 259 show ospf log topology voice on page 259
Output Fields	Table 79 on page 258 lists the output fields for the show (ospf ospf3) log command. Output fields are listed in the approximate order in which they appear.

Table 79: show (ospf | ospf3) log Output Fields

Field Name	Field Description
When	Time, in weeks (w) and days (d), since the SPF calculation was made.
Type	Type of calculation: Cleanup, External, Interarea, NSSA, Redist, SPF, Stub, Total, or Virtuallink.
Elapsed	Amount of time, in seconds, that elapsed during the operation, or the time required to complete the SPF calculation. The start time is the time displayed in the When field.


```

show ospf log user@host> show ospf log
When          Type          Elapsed
1w4d 17:25:58 Stub          0.000017
1w4d 17:25:58 SPF            0.000070
1w4d 17:25:58 Stub          0.000019
1w4d 17:25:58 Interarea     0.000054
1w4d 17:25:58 External     0.000005
1w4d 17:25:58 Cleanup       0.000203
1w4d 17:25:58 Total        0.000537
1w4d 17:24:48 SPF            0.000125
1w4d 17:24:48 Stub          0.000017
1w4d 17:24:48 SPF            0.000100
1w4d 17:24:48 Stub          0.000016
1w4d 17:24:48 Interarea     0.000056
1w4d 17:24:48 External     0.000005
1w4d 17:24:48 Cleanup       0.000238
1w4d 17:24:48 Total        0.000600
...

```

```

show ospf log topology voice user@host> show ospf log topology voice
voice Topology voice SPF log:

```

```

Last instance of each event type
When          Type          Elapsed
00:06:11      SPF            0.000116
00:06:11      Stub          0.000114
00:06:11      Interarea     0.000126
00:06:11      External     0.000067
00:06:11      NSSA         0.000037
00:06:11      Cleanup       0.000186

```

```

Maximum length of each event type
When          Type          Elapsed
00:13:43      SPF            0.000140
00:13:33      Stub          0.000116
00:13:43      Interarea     0.000128
00:13:33      External     0.000075
00:13:38      NSSA         0.000039
00:13:53      Cleanup       0.000657

```

```

Last 100 events
When          Type          Elapsed
00:13:53      SPF            0.000090
00:13:53      Stub          0.000041
00:13:53      Interarea     0.000123
00:13:53      External     0.000040
00:13:53      NSSA         0.000038
00:13:53      Cleanup       0.000657
00:13:53      Total        0.001252
.
.
00:06:11      SPF            0.000116
00:06:11      Stub          0.000114
00:06:11      Interarea     0.000126
00:06:11      External     0.000067
00:06:11      NSSA         0.000037
00:06:11      Cleanup       0.000186
00:06:11      Total        0.000818

```

show (ospf | ospf3) neighbor

Syntax show (ospf | ospf3) neighbor
 <brief | detail | extensive>
 <area *area-id*>
 <instance (all | *instance-name*)>
 <interface *interface-name*>
 <logical-system (all | *logical-system-name*)>
 <neighbor>
 <realm (ipv4-multicast | ipv4-unicast | ipv6-multicast)>

Release Information Command introduced before JUNOS Release 7.4.
 instance all option introduced in JUNOS Release 9.1.
 area option introduced in JUNOS Release 9.2.
 interface option introduced in JUNOS Release 9.2.
 realm option introduced in JUNOS Release 9.2.

Description Display information about Open Shortest Path First (OSPF) neighbors.

Options none—Display standard information about all OSPF neighbors for all routing instances on all logical systems.

brief | detail | extensive—(Optional) Display the specified level of output.

area *area-id*—(Optional) Display information about the OSPF neighbors for the specified area.

instance (all | *instance-name*)—(Optional) Display all OSPF interfaces for all routing instances or under the named routing instance.

interface *interface-name*—(Optional) Display information about OSPF neighbors for the specified logical interface.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

neighbor—(Optional) Display information about the specified OSPF neighbor.

realm (ipv4-multicast | ipv4-unicast | ipv6-multicast)—(ospf3 only) (Optional) Display information about the OSPF neighbors for the specified OSPFv3 realm, or address family. Use the **realm** option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.

Required Privilege Level view

Related Topics clear (ospf | ospf3) neighbor on page 231

List of Sample Output show ospf neighbor brief on page 262
 show ospf neighbor detail on page 262
 show ospf neighbor extensive on page 263
 show ospf3 neighbor detail on page 264
 show ospf neighbor area *area-id* on page 264

show ospf neighbor interface interface-name on page 264
 show ospf3 neighbor instance all (OSPFv3 multiple family address support enabled) on page 264

Output Fields Table 80 on page 261 lists the output fields for the show (ospf | ospf3) neighbor command. Output fields are listed in the approximate order in which they appear.

Table 80: show (ospf | ospf3) neighbor Output Fields

Field Name	Field Description	Level of Output
Address	Address of the neighbor.	All levels
Interface	Interface through which the neighbor is reachable.	All levels
State	State of the neighbor: <ul style="list-style-type: none"> ■ Attempt—Valid only for neighbors attached to nonbroadcast networks. It indicates that no recent information has been received from the neighbor, but that a more concerted effort must be made to contact the neighbor. ■ Down—Initial state of a neighbor conversation. It indicates that no recent information has been received from the neighbor. Hello packets might continue to be sent to neighbors in the Down state, although at a reduced frequency. ■ Exchange—Router is describing its entire link-state database by sending database description packets to the neighbor. Each packet has a sequence number and is explicitly acknowledged. ■ ExStart—First step in creating an adjacency between the two neighboring routers. The goal of this step is to determine which router is the master, and to determine the initial sequence number. ■ Full—Neighboring routers are fully adjacent. These adjacencies appear in router link and network link advertisements. ■ Init—A Hello packet has recently been sent by the neighbor. However, bidirectional communication has not yet been established with the neighbor. This state may occur, for example, because the router itself did not appear in the neighbor's hello packet. ■ Loading—Link-state request packets are sent to the neighbor to acquire more recent advertisements that have been discovered (but not yet received) in the Exchange state. ■ 2Way—Communication between the two routers is bidirectional. This state has been ensured by the operation of the Hello Protocol. This is the most advanced state short of beginning adjacency establishment. The (backup) designated router is selected from the set of neighbors in state 2Way or greater. 	All levels
ID	Router ID of the neighbor.	All levels
Pri	Priority of the neighbor to become the designated router.	All levels
Dead	Number of seconds until the neighbor becomes unreachable.	All levels
Link state acknowledgment list	Number of link-state acknowledgments received.	extensive

Table 80: show (ospf | ospf3) neighbor Output Fields (continued)

Field Name	Field Description	Level of Output
Link state retransmission list	Total number of link-state advertisements retransmitted. For extensive output only, the following information is also displayed: <ul style="list-style-type: none"> ■ Type—Type of link advertisement: ASBR, Sum, Extern, Network, NSSA, OpaqArea, Router, or Summary. ■ LSA ID—LSA identifier included in the advertisement. An asterisk preceding the identifier marks database entries that originated from the local router. ■ Adv rtr—Address of the router that sent the advertisement. ■ Seq—Link sequence number of the advertisement. 	detail extensive
Neighbor-address	(OSPFv3 only) If the neighbor uses virtual links, the Neighbor-address is the site-local, local, or global address. If the neighbor uses a physical interface, the Neighbor-address is an IPv6 link-local address.	detail extensive
area	Area that the neighbor is in.	detail extensive
OSPF3-Intf-Index	(OSPFv3 only) Displays the OSPFv3 interface index.	detail extensive
opt	Option bits received in the hello packets from the neighbor.	detail extensive
DR or DR-ID	Address of the designated router.	detail extensive
BDR or BDR-ID	Address of the backup designated router.	detail extensive
Up	Length of time since the neighbor came up.	detail extensive
adjacent	Length of time since the adjacency with the neighbor was established.	detail extensive

```

show ospf neighbor brief  user@host> show ospf neighbor brief
      Address      Intf      State      ID      Pri  Dead
192.168.254.225  fxp3.0      2Way      10.250.240.32  128  36
192.168.254.230  fxp3.0      Full      10.250.240.8   128  38
192.168.254.229  fxp3.0      Full      10.250.240.35  128  33
10.1.1.129       fxp2.0      Full      10.250.240.12  128  37
10.1.1.131       fxp2.0      Full      10.250.240.11  128  38
10.1.2.1         fxp1.0      Full      10.250.240.9   128  32
10.1.2.81        fxp0.0      Full      10.250.240.10  128  33

show ospf neighbor detail user@host> show ospf neighbor detail
      Address      Interface      State      ID      Pri  Dead
10.5.1.2          ge-1/2/0.1    Full      10.5.1.2   128  37
  area 0.0.0.1, opt 0x42, DR 10.5.1.2, BDR 10.5.1.1
  Up 06:09:28, adjacent 05:17:36
  Link state acknowledgment list: 3 entries

  Link state retransmission list: 9 entries

10.5.10.2         ge-1/2/0.10    ExStart   10.5.1.38  128  34
  area 0.0.0.1, opt 0x42, DR 10.5.10.2, BDR 10.5.10.1
  Up 06:09:28
  master, seq 0xac1530f8, rexmit DBD in 3 sec
  rexmit LSREQ in 0 sec

```

```

10.5.11.2      ge-1/2/0.11      Full      10.5.1.42      128    38
  area 0.0.0.1, opt 0x42, DR 10.5.11.2, BDR 10.5.11.1
  Up 06:09:28, adjacent 05:26:46
  Link state retransmission list:  1 entries

10.5.12.2      ge-1/2/0.12      ExStart    10.5.1.46      128    33
  area 0.0.0.1, opt 0x42, DR 10.5.12.2, BDR 10.5.12.1
  Up 06:09:28
  master, seq 0xac188a68, retransmit DBD in 2 sec
  retransmit LSREQ in 0 sec

```

**show ospf neighbor
extensive**

```

user@host> show ospf neighbor extensive
Address      Interface      State      ID      Pri  Dead
10.5.1.2      ge-1/2/0.1     Full      10.5.1.2  128   33
  area 0.0.0.1, opt 0x42, DR 10.5.1.2, BDR 10.5.1.1
  Up 06:09:42, adjacent 05:17:50
  Link state retransmission list:

```

Type	LSA ID	Adv rtr	Seq
Summary	10.8.56.0	172.25.27.82	0x8000004d
Router	10.5.1.94	10.5.1.94	0x8000005c
Network	10.5.24.2	10.5.1.94	0x80000036
Summary	10.8.57.0	172.25.27.82	0x80000024
Extern	1.10.90.0	10.8.1.2	0x80000041
Extern	1.4.109.0	10.6.1.2	0x80000041
Router	10.5.1.190	10.5.1.190	0x8000005f
Network	10.5.48.2	10.5.1.190	0x8000003d
Summary	10.8.58.0	172.25.27.82	0x8000004d
Extern	1.10.91.0	10.8.1.2	0x80000041
Extern	1.4.110.0	10.6.1.2	0x80000041
Router	10.5.1.18	10.5.1.18	0x8000005f
Network	10.5.5.2	10.5.1.18	0x80000033
Summary	10.8.59.0	172.25.27.82	0x8000003a
Summary	10.8.62.0	172.25.27.82	0x80000025

```

10.5.10.2      ge-1/2/0.10      ExStart    10.5.1.38      128    38
  area 0.0.0.1, opt 0x42, DR 10.5.10.2, BDR 10.5.10.1
  Up 06:09:42
  master, seq 0xac1530f8, retransmit DBD in 2 sec
  retransmit LSREQ in 0 sec

10.5.11.2      ge-1/2/0.11      Full      10.5.1.42      128    33
  area 0.0.0.1, opt 0x42, DR 10.5.11.2, BDR 10.5.11.1
  Up 06:09:42, adjacent 05:27:00
  Link state retransmission list:

```

Type	LSA ID	Adv rtr	Seq
------	--------	---------	-----

```

Summary 10.8.58.0      172.25.27.82      0x8000004d
Extern  1.10.91.0      10.8.1.2          0x80000041
Extern  1.1.247.0      10.5.1.2          0x8000003f
Extern  1.4.110.0      10.6.1.2          0x80000041
Router  10.5.1.18      10.5.1.18         0x8000005f
Network 10.5.5.2         10.5.1.18         0x80000033
Summary 10.8.59.0      172.25.27.82      0x8000003a

```

show ospf3 neighbor detail user@host> **show ospf3 neighbor detail**

```

ID          Interface          State    Pri    Dead
10.255.71.13 fe-0/0/2.0      Full    128    30
Neighbor-address fe80::290:69ff:fe9b:e002
area 0.0.0.0, opt 0x13, OSPF3-Intf-Index 2
DR-ID 10.255.71.13, BDR-ID 10.255.71.12
Up 02:51:43, adjacent 02:51:43

```

show ospf neighbor area area-id user@host >**show ospf neighbor area 1.1.1.1**

```

Address      Interface          State    ID          Pri    Dead
192.168.37.47 so-0/0/0.0        Full    10.255.245.4 128    33
Area 1.1.1.1
192.168.37.55 so-1/0/0.0        Full    10.255.245.5 128    37
Area 1.1.1.1

```

show ospf neighbor interface interface-name user@host >**show ospf neighbor interface so-0/0/0.0**

```

Address      Interface          State    ID          Pri    Dead
192.168.37.47 so-0/0/0.0        Full    10.255.245.4 128    37
Area 0.0.0.0
192.168.37.47 so-0/0/0.0        Full    10.255.245.4 128    33
Area 1.1.1.1
192.168.37.47 so-0/0/0.0        Full    10.255.245.4 128    32
Area 2.2.2.2

```

show ospf3 neighbor instance all (OSPFv3 multiple family address support enabled) user @host > **show ospf3 neighbor instance all**

```

Instance: ina
Realm: ipv6-unicast
ID          Interface          State    Pri    Dead
100.1.1.1   fe-0/0/2.0          Full    128    37
Neighbor-address fe80::217:cb00:c87c:8c03
Instance: inb
Realm: ipv4-unicast
ID          Interface          State    Pri    Dead
100.1.2.1   fe-0/0/2.1          Full    128    33
Neighbor-address fe80::217:cb00:c97c:8c03

```

show (ospf | ospf3) overview

Syntax	show (ospf ospf3) overview <extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <neighbor> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)>
Release Information	Command introduced in JUNOS Release 7.4. realm statement introduced in JUNOS Release 9.2.
Description	Display Open Shortest Path First (OSPF) overview information.
Options	<p>none—Display standard information about all OSPF neighbors for all routing instances on all logical systems.</p> <p>extensive—(Optional) Display trace information in addition to standard information.</p> <p>instance <i>instance-name</i>—(Optional) Display all OSPF interfaces under the named routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>neighbor—(Optional) Display information about the specified OSPF neighbor.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(ospf3 only) (Optional) Display information about for the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.</p>
Required Privilege Level	view
List of Sample Output	<p>show ospf overview on page 266</p> <p>show ospf overview extensive on page 268</p>
Output Fields	Table 81 on page 265 lists the output fields for the show ospf overview command. Output fields are listed in the approximate order in which they appear.

Table 81: show ospf overview Output Fields

Field name	Field Description	Level of Output
Instance	The OSPF routing instance.	All levels
Router ID	Router ID of the router.	All levels
Route table index	Route table index.	All levels

Table 81: show ospf overview Output Fields (continued)

Field name	Field Description	Level of Output
Configured overload	Overload capability is enabled. If the overload timer is also configured, display the time that remains before it is set to expire. This field is not displayed after the timer expires.	All levels
Full SPF runs	Number of complete Shortest Path First calculations.	All levels
SPF delay	Delay before performing consecutive Shortest Path First calculations.	All levels
SPF holddown	Delay before performing additional Shortest Path First (SPF) calculations after the maximum number of consecutive SPF calculations is reached.	All levels
SPF rapid runs	Maximum number of Shortest Path First calculations that can be performed in succession before the holddown timer begins.	
LSA refresh time	Refresh period for link-state advertisement. (in minutes)	All levels
Restart	Graceful restart capability: enabled or disabled .	All levels
Restart duration	Time period for complete reacquisition of OSPF neighbors.	All levels
Restart grace period	Time period for which the neighbors should consider the restarting router as part of the topology.	All levels
Helper mode	Graceful restart helper capability: enabled or disabled .	All levels
Trace options	OSPF-specific trace options.	extensive
Trace file	Name of the file to receive the output of the tracing operation.	extensive
Area	Area number. Area 0.0.0.0 is the backbone area.	All levels
Stub type	Stub type of area: Normal Stub, Not Stub, or Not so Stubby Stub.	All levels
Authentication Type	Type of authentication: None , Password , or MD5 .	All levels
Area border routers	Number of area border routers.	All levels
Neighbors	Number of autonomous system boundary routers.	All levels

```

show ospf overview  user@host> show ospf overview
Instance: master
  Router ID: 10.255.245.6
  Route table index: 0
  Configured overload, expires in 118 seconds
  LSA refresh time: 50 minutes
  Restart: Enabled
    Restart duration: 20 sec
    Restart grace period: 40 sec
    Helper mode: enabled
  Area: 0.0.0.0
    Stub type: Not Stub
    Authentication Type: None

```



```
Area border routers: 0, AS boundary routers: 0
Neighbors
  Up (in full state): 0
Topology: default (ID 0)
Prefix export count: 0
Full SPF runs: 1
SPF delay: 0.200000 sec, SPF holddown: 5 sec, SPF rapid runs: 3
```

```
show ospf overview extensive user@hostshow ospf overview extensive
Instance: master
Router ID: 1.1.1.103
Route table index: 0
Full SPF runs: 13, SPF delay: 0.200000 sec
LSA refresh time: 50 minutes
Restart: Disabled
Trace options: lsa
Trace file: /var/log/ospf size 131072 files 10
Area: 0.0.0.0
Stub type: Not Stub
Authentication Type: None
Area border routers: 0, AS boundary routers: 0
Neighbors
Up (in full state): 1
```

show (ospf | ospf3) route

Syntax show (ospf | ospf3) route
 <detail>
 <abr | asbr | extern | inter | intra>
 <instance *instance-name*>
 <logical-system (all | *logical-system-name*)>
 <realm (ipv4-multicast | ipv4-unicast | ipv6-multicast)>
 <topology *topology-name*>
 <transit>

Release Information Command introduced before JUNOS Release 7.4.
 topology option introduced in JUNOS Release 9.0.
 realm option introduced in JUNOS Release 9.2.

Description Display the entries in the Open Shortest Path First (OSPF) routing table.

Options none—Display standard information about all entries in the OSPF routing table for all routing instances on all logical systems and all topologies.

detail—(Optional) Display detailed information.

abr—(Optional) Display routes to area border routers.

asbr—(Optional) Display routes to autonomous system border routers.

extern—(Optional) Display external routes.

inter—(Optional) Display interarea routes.

intra—(Optional) Display intra-area routes.

instance *instance-name*—(Optional) Display entries for the specified routing instance.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

realm (ipv4-multicast | ipv4-unicast | ipv6-multicast)—(ospf3 only) (Optional) Display entries in the routing table for the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.

topology *topology-name*—(ospf only) (Optional) Display routes for a particular topology.

transit—(ospf3 only) (Optional) Display OSPFv3 routes to pseudonodes.

Required Privilege Level view

List of Sample Output show ospf route on page 272
 show ospf route detail on page 272
 show ospf3 route on page 272
 show ospf3 route detail on page 274

`show ospf route topology voice` on page 274

Output Fields Table 82 on page 271 list the output fields for the `show (ospf | ospf3) route` command. Output fields are listed in the approximate order in which they appear.

Table 82: show (ospf | ospf3) route Output Fields

Field Name	Field Description	Output Level
Topology	Name of the topology.	All levels
Prefix	Destination of the route.	All levels
Path type	How the route was learned: <ul style="list-style-type: none"> ■ Inter—Interarea route ■ Ext1—External type 1 route ■ Ext2—External type 2 route ■ Intra—Intra-area route 	All levels
Route type	The type of router from which the route was learned: <ul style="list-style-type: none"> ■ AS BR—Route to AS border router ■ Area BR—Route to area border router ■ Area/AS BR—Route to router that is both an Area BR and AS BR. ■ Network—Network router. ■ Router—Route to a router that is neither an Area BR nor an AS BR. ■ Transit—(OSPFv3 only) Route to a pseudonode representing a transit network, LAN, or nonbroadcast multiaccess (NBMA) link. ■ Discard—Route to a summary discard. 	All levels
NH Type	Next-hop type: LSP or IP.	All levels
Metric	Route's metric value.	All levels
NH-interface	(OSPFv3 only) Interface through which the route's next hop is reachable.	All levels
NH-addr	(OSPFv3 only) IPv6 address of the next hop.	All levels
NextHop Interface	(OSPFv2 only) Interface through which the route's next hop is reachable.	All levels
Nexthop addr/label	(OSPFv2 only) If the NH Type is IP, then it is the address of the next hop. If the NH Type is LSP, then it is the name of the label-switched path.	All levels
Area	Area ID of the route.	detail
Origin	Router from which the route was learned.	detail
Type 7	Route was learned through a not-so-stubby area (NSSA) link-state advertisement (LSA).	detail
P-bit	Route was learned through NSSA LSA and the propagate bit was set.	detail
Fwd NZ	Forwarding Address is nonzero. Fwd NZ is only displayed if the route is learned through an NSSA LSA.	detail

Table 82: show (ospf | ospf3) route Output Fields (continued)

Field Name	Field Description	Output Level
optional-capability	Optional capabilities propagated in the router LSA. This field is in the output for router routes only (when Route Type is Area BR, AS BR, Area/AS BR, or Router), not for network routes. Three bits in this field are defined as follows: <ul style="list-style-type: none"> ■ 0x4 (V)—Router is at the end of a virtual active link. ■ 0x2 (E)—Router is an autonomous system boundary router. ■ 0x1 (B)—Router is an area border router. 	detail
priority	The priority assigned to the prefix: <ul style="list-style-type: none"> ■ high ■ medium ■ low <p>NOTE: The priority field applies only to routes of type Network.</p>	detail

```

show ospf route      user@host> show ospf route
Prefix                Path  Route  NH  Metric  NextHop  Nexthop
                    Type  Type  Type  Type      Interface
addr/label
10.255.71.12          Intra Router  IP   1       fe-0/0/2.0  192.16.22.86
10.255.71.13/32       Intra Network IP   0       lo0.0
192.168.222.84/30     Intra Network LSP  1       fe-0/0/2.0  lsp-ab

```

```

show ospf route detail user@host> show ospf route detail
Topology default Route Table:

Prefix                Path  Route  NH  Metric  NextHop  Nexthop
                    Type  Type  Type  Interface
label
10.255.14.174          Inter AS BR  IP   210  t1-3/0/1.0
area 0.0.0.2, origin 10.255.14.185
10.255.14.178          Intra Router  IP   200  t3-3/1/3.0
area 0.0.0.2, origin 10.255.14.178, optional-capability 0x0
10.210.1.0/30          Intra Network IP   10   t3-3/1/2.0
area 0.0.0.2, origin 10.255.14.172, priority medium
100.1.1.1/32           Inter Network IP   210  t1-3/0/1.0
area 0.0.0.2, origin 10.255.14.185, priority low
112.3.1.0/24           Ext2 Network IP   0    t1-3/0/1.0
area 0.0.0.0, origin 10.255.14.174, priority high
200.3.3.0/30           Inter Network IP   220  t1-3/0/1.0
area 0.0.0.2, origin 10.255.14.185, priority high

```

```

show ospf3 route      user@host> show ospf3 route
Prefix                Path  Route  NH  Metric
                    type  type  type  type
10.255.71.13          Intra Router  IP   1
NH-interface fe-0/0/2.0, NH-addr fe80::290:69ff:fe9b:e002
10.255.71.13;0.0.0.2  Prefix                Path  Route  NH
Metric NextHop        Type  Type  Type  Interface  addr/label

```

```

10.255.245.1      Intra Router      IP      40 fxp1.1      192.168.36.17
  area 0.0.0.0, origin 10.255.245.1 optional-capability 0x0,
10.255.245.3      Intra AS BR      IP      1 fxp2.3      192.168.36.34
  area 0.0.0.0, origin 10.255.245.3 optional-capability 0x0,
10.255.245.1/32   Intra Network    IP      40 fxp1.1      192.168.36.17
  area 0.0.0.0, origin 10.255.245.1, priority high
10.255.245.2/32   Intra Network    IP      0 lo0.0
  area 0.0.0.0, origin 10.255.245.2, priority medium
10.255.245.3/32   Intra Network    IP      1 fxp2.3      192.168.36.34
  area 0.0.0.0, origin 10.255.245.3, priority low

      Intra Transit      IP      1
NH-interface fe-0/0/2.0
192::168:222:84/126      Intra Network    IP      1
  NH-interface fe-0/0/2.0
abcd::71:12/128      Intra Network    IP      0
  NH-interface lo0.0
abcd::71:13/128      Intra Network    LSP      1
  NH-interface fe-0/0/2.0, NH-addr lsp-cd

```

```

show ospf3 route detail  user@host> show ospf3 route detail

```

Prefix	Path	Route	NH
Metric	type	type	type
10.255.14.174	Intra	Area/AS BR	IP 110
NH-interface so-1/2/2.0			
Area 0.0.0.0, Origin 10.255.14.174, Optional-capability 0x3			
10.255.14.178	Intra	Router	IP 200
NH-interface t3-3/1/3.0			
Area 0.0.0.0, Origin 10.255.14.178, Optional-capability 0x0			
10.255.14.185;0.0.0.2	Intra	Transit	IP 200
NH-interface t1-3/0/1.0			
NH-interface so-1/2/2.0			
Area 0.0.0.0, Origin 10.255.14.185			
1000:1:1::1/128	Inter	Network	IP 110
NH-interface so-1/2/2.0			
Area 0.0.0.0, Origin 10.255.14.174, Priority low			
1001:2:1::/48	Ext1	Network	IP 110
NH-interface so-1/2/2.0			
Area 0.0.0.0, Origin 10.255.14.174, Fwd NZ, Priority medium			
1002:1:7::/48	Ext2	Network	IP 0
NH-interface so-1/2/2.0			
Area 0.0.0.0, Origin 10.255.14.174, Fwd NZ, Priority low			
1002:3:4::/48	Ext2	Network	IP 0
NH-interface so-1/2/2.0			
Area 0.0.0.0, Origin 10.255.14.174, Fwd NZ, Priority high			
abcd::10:255:14:172/128	Intra	Network	IP 0
NH-interface lo0.0			
Area 0.0.0.0, Origin 10.255.14.172, Priority low			


```

show ospf route topology voice  user@host show ospf route topology voice

```

Topology voice Route Table:						
Prefix	Path	Route	NH	Metric	NextHop	Nexthop
	Type	Type	Type		Interface	addr/label
10.255.8.2	Intra	Router	IP	1	so-0/2/0.0	
10.255.8.3	Intra	Router	IP	2	so-0/2/0.0	
10.255.8.1/32	Intra	Network	IP	0	lo0.0	
10.255.8.2/32	Intra	Network	IP	1	so-0/2/0.0	
10.255.8.3/32	Intra	Network	IP	2	so-0/2/0.0	
192.168.8.0/29	Intra	Network	IP	2	so-0/2/0.0	
192.168.8.44/30	Intra	Network	IP	2	so-0/2/0.0	
192.168.8.46/32	Intra	Network	IP	1	so-0/2/0.0	
192.168.8.48/30	Intra	Network	IP	1	so-0/2/1.0	
192.168.8.52/30	Intra	Network	IP	2	so-0/2/0.0	
192.168.9.44/30	Intra	Network	IP	1	so-0/2/0.0	
192.168.9.45/32	Intra	Network	IP	2	so-0/2/0.0	

show (ospf | ospf3) statistics

Syntax	show (ospf ospf3) statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> realm (ipv4-multicast ipv4-unicast ipv6-multicast)>
Release Information	Command introduced before JUNOS Release 7.4. realm statement introduced in JUNOS Release 9.2.
Description	Display OSPF statistics.
Options	<p>none—Display OSPF statistics for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Display all statistics for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(ospf3 only) (Optional) Display all statistics for the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.</p>
Required Privilege Level	view
Related Topics	clear (ospf ospf3) statistics on page 233
List of Sample Output	show ospf statistics on page 276
Output Fields	Table 83 on page 275 lists the output fields for the show (ospf ospf3) statistics command. Output fields are listed in the approximate order in which they appear.

Table 83: show (ospf | ospf3) statistics Output Fields

Field Name	Field Description
Packet type	Type of OSPF packet.
Total Sent/Total Received	Total number of packets sent and received.
Last 5 seconds Sent/Last 5 seconds Received	Total number of packets sent and received in the last 5 seconds.
LSAs retransmitted	Total number of link-state advertisements transmitted, and number retransmitted in the last 5 seconds.
Receive errors	Number and type of receive errors.

```
show ospf statistics user@host> show ospf statistics
Packet type          Total
                        Sent      Received
Hello                505739      990495
  DbD                  20         26
  LSReq                 6          5
LSUpdate             27060      15319
LSAck                10923      52470

Last 5 seconds
Sent      Received
4          5
0          0
0          0
0          0
0          0

LSAs retransmitted: 16, last 5 seconds: 0

Receive errors:
  862 no interface found
 115923 no virtual link found
```

Chapter 8

Protocol-Independent Routing Operational Mode Commands

Table 84 on page 277 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot protocol-independent routing properties. Commands are listed in alphabetical order.



NOTE: The `show route` command has a lengthy set of options. Therefore, this chapter describes each option as a separate command. You can, however, combine several options and issue them as single `show route` command. For example, `show route ccc exact`.

The exceptions to this convention are the `show as-path`, `show route damping`, `show route export`, `show route export-vrf-target`, `show route forwarding-table`, `show route instance`, and `show route martians` commands, which cannot be used with any other options (other than level of output options, such as `detail` and `extensive`).

The `show route flow validation` command can only be used with the `table` option.

Table 84: Protocol-Independent Routing Operational Mode Commands

Task	Command
Display known autonomous system (AS) paths.	<code>show as-path</code> on page 280
Display AS path domain information.	<code>show as-path domain</code> on page 284
Display AS path summary information.	<code>show as-path summary</code> on page 286
Display information about the entries in the routing tables.	<code>show route</code> on page 287
Display routes that are currently active.	<code>show route active-path</code> on page 291
Display routes transmitted by a particular routing protocol.	<code>show route advertising-protocol</code> on page 295
Display all information about all routes.	<code>show route all</code> on page 299
Display routes containing a specified AS path.	<code>show route aspath-regex</code> on page 300

Table 84: Protocol-Independent Routing Operational Mode Commands *(continued)*

Task	Command
Display the best route to the specified address or range of addresses.	<code>show route best</code> on page 302
Display brief information about the entries in the routing table.	<code>show route brief</code> on page 305
Display circuit cross-connect (CCC) entries in the Multiprotocol Link Switching (MPLS) routing table.	<code>show route ccc</code> on page 307
Display routes containing members of a specified BGP community.	<code>show route community</code> on page 308
Display routes containing members of a specified BGP community based on a particular community name.	<code>show route community-name</code> on page 309
Display routes that have been damped.	<code>show route damping</code> on page 311
Display detailed information about the entries in the routing table.	<code>show route detail</code> on page 316
Display routes that exactly match the specified address or range of addresses.	<code>show route exact</code> on page 330
Display list of instances or routing tables that are importers or exporters of routes.	<code>show route export</code> on page 332
Display target communities for which autoexport is currently distributing routes.	<code>show route export vrf-target</code> on page 334
Display extensive information about the entries in the routing table.	<code>show route extensive</code> on page 336
Display the best route to an address.	<code>show route flow validation</code> on page 347
Display the JUNOS forwarding table.	<code>show route forwarding-table</code> on page 349
Display hidden routes only.	<code>show route hidden</code> on page 360
Display routes that are not preferred.	<code>show route inactive-path</code> on page 363
Display routes that are currently inactive.	<code>show route inactive-prefix</code> on page 366
Display routing instance information.	<code>show route instance</code> on page 368
Display routes corresponding to a specified label value.	<code>show route label</code> on page 375
Display routes that form a label-switched path.	<code>show route label-switched-path</code> on page 377
Display information about martian addresses.	<code>show route martians</code> on page 378
Display routes that contain the specified next hop.	<code>show route next-hop</code> on page 380

Table 84: Protocol-Independent Routing Operational Mode Commands *(continued)*

Task	Command
Display routes not associated with any BGP community.	<code>show route no-community</code> on page 386
Display routes exiting the router through the specified interface.	<code>show route output</code> on page 389
Display routes learned by the specified protocol.	<code>show route protocol</code> on page 393
Display routes in a range of destination prefixes.	<code>show route range</code> on page 401
Display routes received by a particular routing protocol.	<code>show route receive-protocol</code> on page 405
Display entries in the next-hop resolution database.	<code>show route resolution</code> on page 412
Display routes learned from snooping.	<code>show route snooping</code> on page 415
Display routes learned from the specified source.	<code>show route source-gateway</code> on page 423
Display statistics about the routes in all routing tables.	<code>show route summary</code> on page 429
Display routes in a particular routing table.	<code>show route table</code> on page 431
Display high-level summary of routing table information.	<code>show route terse</code> on page 437



NOTE: For information about how to configure protocol-independent features, see the *JUNOS Routing Protocols Configuration Guide* and the *JUNOS Policy Framework Configuration Guide*.

show as-path

Syntax	show as-path <brief detail> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the distribution of autonomous system (AS) paths that the local router is using (usually through the routing table). Use this command to debug problems for AS paths and to understand how AS paths have been manipulated through a policy (through the as-path-prepend action) or through aggregation.
Options	<p>none—Display basic information about AS paths that the local router is using (same as brief).</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show as-path on page 281</p> <p>show as-path detail on page 282</p>
Output Fields	Table 85 on page 280 lists the output fields for the show as-path command. Output fields are listed in the approximate order in which they appear.

Table 85: show as-path Output Fields

Field Name	Field Description	Level of Output
Total AS paths	Total number of AS paths.	brief none
Bucket	Bucket value. This value represents a traffic classification on the interface.	All levels
Count	Path reference count.	All levels
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path was originated:</p> <ul style="list-style-type: none"> ■ I—IGP. ■ E—EGP. ■ ?—Incomplete; typically, the AS path was aggregated. ■ Atomic—Route is an aggregate of several route prefixes. ■ Aggregator—Router has summarized a range of prefixes. 	All levels
domain	Number of independent AS domains. The AS paths of an independent AS domain are not shared with the AS paths and AS path attributes of other domains, including the master routing instance domain.	detail

Table 85: show as-path Output Fields (continued)

Field Name	Field Description	Level of Output
neighbor as	AS peer address.	detail
length	Length of the AS path.	detail
segments	Length of the AS segment descriptor.	detail
references	Path reference count.	detail

```

show as-path user@host> show as-path
Total AS paths: 30382
Bucket 0      Count: 36
I
14203 2914 174 31752 I
14203 2914 701 21512 I
14203 2914 1239 26632 I
14203 2914 1239 29704 I
14203 2914 4323 10248 I
14203 2914 4766 23560 I
14203 2914 6395 32776 I
14203 2914 7911 11272 I
14203 2914 12180 18440 I
14203 2914 17408 17416 I
14203 2914 701 702 24586 I
14203 2914 1239 4657 9226 I
14203 2914 1239 7132 16394 I
14203 2914 1299 8308 34826 I
14203 2914 3320 5603 28682 I
14203 2914 3491 1680 33802 I
14203 2914 3549 7908 27658 I
14203 2914 3549 20804 30730 I
14203 2914 7018 2687 9226 I
14203 2914 174 9318 9318 23564 I
14203 2914 701 3786 3786 23564 I
14203 2914 701 4761 4795 9228 I
14203 2914 1239 7132 5673 18444 I
14203 2914 3491 20485 24588 24588 I
14203 2914 5511 2200 1945 2060 I
14203 2914 7911 14325 14325 14348 I
14203 2914 701 4637 9230 9230 9230 I
14203 2914 6395 14 14 14 14 I
14203 2914 9299 6163 6163 6163 9232 I
14203 2914 3356 3356 3356 3356 11955 21522 I
14203 2914 9837 9837 9219 I Aggregator: 9219 202.27.91.253
14203 2914 174 30209 30222 30222 30222 ?
14203 2914 1299 5377 I (Atomic) Aggregator: 5377 193.219.192.22
14203 2914 4323 36097 I (Atomic) Aggregator: 36097 216.69.252.254
14203 2914 209 2516 17676 23813 I (Atomic) Aggregator: 23813 219.127.233.66
Bucket 1      Count: 28
14203 2914 35847 I
14203 2914 174 19465 I
14203 2914 174 35849 I
14203 2914 2828 32777 I
14203 2914 4323 14345 I
14203 2914 4323 29705 I

```

```
14203 2914 6395 32777 I
```

```
...
```

show as-path detail

```
user@host> show as-path detail
```

```
Total AS paths: 30410
```

```
Bucket 0      Count: 36
```

```
AS path: I
  domain 0, length 0, segments 0, references 54
AS path: 14203 2914 174 31752 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 701 21512 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 1239 26632 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 1239 29704 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 4323 10248 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 4766 23560 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 6395 32776 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 3
AS path: 14203 2914 7911 11272 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 12180 18440 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 3
AS path: 14203 2914 17408 17416 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 3
AS path: 14203 2914 701 702 24586 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 3
AS path: 14203 2914 1239 4657 9226 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 7
AS path: 14203 2914 1239 7132 16394 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 2
AS path: 14203 2914 1299 8308 34826 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 2
AS path: 14203 2914 3320 5603 28682 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 2
AS path: 14203 2914 3491 1680 33802 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 2
AS path: 14203 2914 3549 7908 27658 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 2
AS path: 14203 2914 3549 20804 30730 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 2
AS path: 14203 2914 7018 2687 9226 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 3
AS path: 14203 2914 174 9318 9318 23564 I
  domain 1, neighbor as: 14203, length 6, segments 1, references 2
AS path: 14203 2914 701 3786 3786 23564 I
  domain 1, neighbor as: 14203, length 6, segments 1, references 2
AS path: 14203 2914 701 4761 4795 9228 I
  domain 1, neighbor as: 14203, length 6, segments 1, references 14
AS path: 14203 2914 1239 7132 5673 18444 I
  domain 1, neighbor as: 14203, length 6, segments 1, references 2
AS path: 14203 2914 3491 20485 24588 24588 I
  domain 1, neighbor as: 14203, length 6, segments 1, references 4
AS path: 14203 2914 5511 2200 1945 2060 I
  domain 1, neighbor as: 14203, length 6, segments 1, references 2
AS path: 14203 2914 7911 14325 14325 14348 I
  domain 1, neighbor as: 14203, length 6, segments 1, references 2
```



```
AS path: 14203 2914 701 4637 9230 9230 9230 I
    domain 1, neighbor as: 14203, length 7, segments 1, references 3
AS path: 14203 2914 6395 14 14 14 14 I
    domain 1, neighbor as: 14203, length 7, segments 1, references 10
...
```

show as-path domain

Syntax	show as-path domain <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display autonomous system (AS) path domain information.
Options	<p>none—(Optional) Display AS path domain information for all routing instances on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show as-path domain on page 285
Output Fields	Table 86 on page 284 lists the output fields for the show as-path domain command. Output fields are listed in the approximate order in which they appear

Table 86: show as-path domain Output Fields

Field Name	Field Description
Domain	Number of independent AS domains. The AS paths of an independent AS domain are not shared with the AS paths and AS path attributes of other domains, including the master routing instance domain.
Primary	Primary AS number.
References	Path reference count.
Number Paths	Number of known AS paths.
Flags	Information about the AS path: <ul style="list-style-type: none"> ■ ASLoop—Path contains an AS loop. ■ Atomic—Path includes the ATOMIC_AGGREGATE path attribute. ■ Local—Path was created by local aggregation. ■ Master—Path was created by the master routing instance.
Local AS	AS number of the local router.
Loops	How many times this AS number can appear in an AS path.

```
show as-path domain user@host> show as-path domain  
Domain: 1 Primary: 10458  
References: 3 Paths: 30383  
Flags: Master  
Local AS: 10458 Loops: 1
```

show as-path summary

Syntax	show as-path summary <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display autonomous system (AS) path summary information.
Options	<p>none—(Optional) Display AS path summary information for all routing instances on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show as-path summary on page 286
Output Fields	Table 87 on page 286 lists the output fields for the show as-path summary command. Output fields are listed in the approximate order in which they appear.

Table 87: show as-path summary Output Fields

Field Name	Field Description
AS Path	AS path number.
Buckets	Bucket value. This value represents a traffic classification on the interface.
Max	Maximum limit for the number of AS numbers.
Min	Minimum limit for the number of AS numbers.
Avg	Average amount of AS numbers.
Std deviation	Standard deviation for the number of AS numbers.

```

show as-path summary  user@host> show as-path summary
AS Paths  Buckets  Max  Min  Avg  Std deviation
30425     1024     95   12   29   6.481419

```

show route

Syntax	show route <destination-prefix> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the active entries in the routing tables.
Options	<p>none—Display brief information about all active entries in the routing table on all logical systems.</p> <p><i>destination-prefix</i>—(Optional) Display active entries for the specified address or range of addresses.</p> <p><i>logical-system (all logical-system-name)</i>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route on page 290</p> <p>show route <i>destination-prefix</i> on page 290</p>
Output Fields	Table 88 on page 287 describes the output fields for the show route command. Output fields are listed in the approximate order in which they appear.

Table 88: show route Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.
<i>number routes</i>	<p>Number of routes in the routing table and total number of routes in the following states:</p> <ul style="list-style-type: none"> ■ active (routes that are active). ■ holddown (routes that are in the pending state before being declared inactive). ■ hidden (routes that are not used because of a routing policy).

Table 88: show route Output Fields (continued)

Field Name	Field Description
<i>destination-prefix</i>	<p>Route destination (for example:10.0.0.1/24). Sometimes the route information is presented in another format, such as:</p> <ul style="list-style-type: none"> ■ <i>MPLS-label</i> (for example, 80001). ■ <i>interface-name</i> (for example, ge-1/0/2). ■ <i>neighbor-address:control-word-status:encapsulation type:vc-id :source</i> (Layer 2 circuit only; for example, 10.1.1.195:NoCtrlWord:1:1:Local/96): <ul style="list-style-type: none"> ■ <i>neighbor-address</i>—Address of the neighbor. ■ <i>control-word-status</i>—Whether the use of the control word has been negotiated for this virtual circuit: NoCtrlWord or CtrlWord. ■ <i>encapsulation type</i>— Type of encapsulation, represented by a number: (1) Frame Relay DLCI, (2) ATM AAL5 VCC transport, (3) ATM transparent cell transport, (4) Ethernet, (5) VLAN Ethernet, (6) HDLC, (7) PPP, (8) ATM VCC cell transport, (10) ATM VPC cell transport ■ <i>vc-id</i>—Virtual circuit identifier. ■ <i>source</i>—Source of the advertisement: Local or Remote.
<i>[protocol, preference]</i>	<p>Protocol from which the route was learned and the preference value for the route.</p> <ul style="list-style-type: none"> ■ +—A plus sign indicates the active route, which is the route installed from the routing table into the forwarding table. ■ - —A hyphen indicates the last active route. ■ *—An asterisk indicates that the route is both the active and the last active route. An asterisk before a to line indicates the best subpath to the route. <p>In every routing metric except for the BGP LocalPref attribute, a lesser value is preferred. In order to use common comparison routines, JUNOS software stores the 1's complement of the LocalPref value in the Preference2 field. For example, if the LocalPref value for Route 1 is 100, the Preference2 value is -101. If the LocalPref value for Route 2 is 155, the Preference2 value is -156. Route 2 is preferred because it has a higher LocalPref value and a lower Preference2 value.</p>
<i>weeks:days hours:minutes:seconds</i>	How long the route been known (for example, 2w4d 13:11:14, or 2 weeks, days, 13 hours, 11 minutes and 14 seconds).
<i>metric</i>	Metric associated with the route.
<i>localpref</i>	Local preference value included in the route.
<i>from</i>	Interface from which the route was received.

Table 88: show route Output Fields (continued)

Field Name	Field Description
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path was originated:</p> <ul style="list-style-type: none"> ■ I—IIGP. ■ E—EGP. ■ ?—Incomplete; typically, the AS path was aggregated. <p>When AS path numbers are included in the route, the format is as follows:</p> <ul style="list-style-type: none"> ■ []—Brackets enclose the local AS number associated with the AS path if more than one AS number is configured on the router, or if AS path prepending is configured. ■ { }—Braces enclose AS sets, which are groups of AS numbers in which the order does not matter. A set commonly results from route aggregation. The numbers in each AS set are displayed in ascending order. ■ ()—Parentheses enclose a confederation. ■ ([])—Parentheses and brackets enclose a confederation set.
to	Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.
via	<p>Interface used to reach the next hop. If there is more than one interface available to the next hop, the interface that is actually used is followed by the word Selected. This field can also contain the following information:</p> <ul style="list-style-type: none"> ■ Weight—Value used to distinguish primary, secondary, and fast reroute backup routes. Weight information is available when Multiprotocol Label Switching (MPLS) label-switched path (LSP) link protection, node-link protection, or fast reroute is enabled, or when the standby state is enabled for secondary paths. A lower weight value is preferred. Among routes with the same weight value, load balancing is possible. ■ Balance—Balance coefficient indicating how traffic of unequal cost is distributed among next hops when a router is performing unequal-cost load balancing. This information is available when you enable Border Gateway Protocol (BGP) multipath load balancing. ■ lsp-path-name—Name of the label-switched path (LSP) used to reach the next hop. ■ label-action—MPLS label and operation occurring at the next hop. The operation can be pop (where a label is removed from the top of the stack), push (where another label is added to the label stack), or swap (where a label is replaced by another label).

show route user@host> **show route**

```

inet.0: 10 destinations, 10 routes (9 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both
0.0.0.0/0      *[Static/5] 1w5d 20:30:29
                Discard
10.255.245.51/32 *[Direct/0] 2w4d 13:11:14
                > via lo0.0
172.16.0.0/12  *[Static/5] 2w4d 13:11:14
                > to 192.168.167.254 via fxp0.0
192.168.0.0/18 *[Static/5] 1w5d 20:30:29
                > to 192.168.167.254 via fxp0.0
192.168.40.0/22 *[Static/5] 2w4d 13:11:14
                > to 192.168.167.254 via fxp0.0
192.168.64.0/18 *[Static/5] 2w4d 13:11:14
                > to 192.168.167.254 via fxp0.0
192.168.164.0/22 *[Direct/0] 2w4d 13:11:14
                > via fxp0.0
192.168.164.51/32 *[Local/0] 2w4d 13:11:14
                Local via fxp0.0
207.17.136.192/32 *[Static/5] 2w4d 13:11:14
                > to 192.168.167.254 via fxp0.0

green.inet.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
100.101.0.0/16  *[Direct/0] 1w5d 20:30:28
                > via fe-0/0/3.0
100.101.2.3/32  *[Local/0] 1w5d 20:30:28
                Local via fe-0/0/3.0
224.0.0.5/32    *[OSPF/10] 1w5d 20:30:29, metric 1
                MultiRecv

red.inet.0: 11 destinations, 11 routes (11 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
10.10.10.10/32  *[Direct/0] 01:08:46
                > via lo0.1
10.255.245.212/32 *[BGP/170] 00:01:40, localpref 100, from 10.255.245.204
                AS path: 300 I
                > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix
10.255.245.213/32 *[BGP/170] 00:40:47, localpref 100
                AS path: 100 I
                > to 100.1.1.1 via so-0/0/1.0

```

show route destination-prefix user@host> **show route 172.16.0.0/12**

```

inet.0: 10 destinations, 10 routes (9 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

172.16.0.0/12  *[Static/5] 2w4d 12:54:27
                > to 192.168.167.254 via fxp0.0

```


show route active-path

Syntax	show route active-path <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in JUNOS Release 8.0.
Description	Display all active routes for destinations. An active route is a route that is selected as the best path. Inactive routes are not displayed.
Options	<p>none—Display all active routes.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route active-path on page 291</p> <p>show route active-path brief on page 291</p> <p>show route active-path detail on page 292</p> <p>show route active-path extensive on page 293</p> <p>show route active-path terse on page 294</p>
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).
show route active-path	<pre> user@host> show route active-path inet.0: 7 destinations, 7 routes (6 active, 0 holddown, 1 hidden) + = Active Route, - = Last Active, * = Both 10.255.70.19/32 *[Direct/0] 21:33:52 > via lo0.0 10.255.71.50/32 *[IS-IS/15] 00:18:13, metric 10 > to 100.1.2.1 via so-2/1/3.0 100.1.2.0/24 *[Direct/0] 00:18:36 > via so-2/1/3.0 100.1.2.2/32 *[Local/0] 00:18:41 Local via so-2/1/3.0 192.168.64.0/21 *[Direct/0] 21:33:52 > via fxp0.0 192.168.70.19/32 *[Local/0] 21:33:52 Local via fxp0.0 </pre>
show route active-path brief	The output for the show route active-path brief command is identical to that for the show route active-path command. For sample output, see show route active-path on page 291.

```

show route active-path detail      user@host> show route active-path detail

inet.0: 7 destinations, 7 routes (6 active, 0 holddown, 1 hidden)

10.255.70.19/32 (1 entry, 1 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 3
    Next hop: via lo0.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 21:37:10
    Task: IF
    Announcement bits (3): 2-IS-IS 5-Resolve tree 2 6-Resolve tree 3

    AS path: I

10.255.71.50/32 (1 entry, 1 announced)
  *IS-IS Preference: 15
    Level: 1
    Next hop type: Router, Next hop index: 397
    Next-hop reference count: 4
    Next hop: 100.1.2.1 via so-2/1/3.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 21:31      Metric: 10
    Task: IS-IS
    Announcement bits (4): 0-KRT 2-IS-IS 5-Resolve tree 2 6-Resolve
tree 3
    AS path: I

100.1.2.0/24 (1 entry, 1 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 3
    Next hop: via so-2/1/3.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 21:54
    Task: IF
    Announcement bits (3): 2-IS-IS 5-Resolve tree 2 6-Resolve tree 3

    AS path: I

100.1.2.2/32 (1 entry, 1 announced)
  *Local Preference: 0
    Next hop type: Local
    Next-hop reference count: 11
    Interface: so-2/1/3.0
    State: <Active NoReadvrt Int>
    Local AS: 200
    Age: 21:59
    Task: IF
    Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
    AS path: I

192.168.64.0/21 (1 entry, 1 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 3
    Next hop: via fxp0.0, selected

```

```

State: <Active Int>
Local AS: 200
Age: 21:37:10
Task: IF
Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
AS path: I

```

```

192.168.70.19/32 (1 entry, 1 announced)
  *Local Preference: 0
    Next hop type: Local
    Next-hop reference count: 11
    Interface: fxp0.0
    State: <Active NoReadvrt Int>
    Local AS: 200
    Age: 21:37:10
    Task: IF
    Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
    AS path: I

```

**show route active-path
extensive**

```

user@host> show route active-path extensive

inet.0: 7 destinations, 7 routes (6 active, 0 holddown, 1 hidden)
10.255.70.19/32 (1 entry, 1 announced)
TSI:
IS-IS level 1, LSP fragment 0
IS-IS level 2, LSP fragment 0
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 3
    Next hop: via lo0.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 21:39:47
    Task: IF
    Announcement bits (3): 2-IS-IS 5-Resolve tree 2 6-Resolve tree 3
    AS path: I

10.255.71.50/32 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.255.71.50/32 -> {100.1.2.1}
IS-IS level 2, LSP fragment 0
  *IS-IS Preference: 15
    Level: 1
    Next hop type: Router, Next hop index: 397
    Next-hop reference count: 4
    Next hop: 100.1.2.1 via so-2/1/3.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 24:08      Metric: 10
    Task: IS-IS
    Announcement bits (4): 0-KRT 2-IS-IS 5-Resolve tree 2 6-Resolve
tree 3
    AS path: I

100.1.2.0/24 (1 entry, 1 announced)
TSI:
IS-IS level 1, LSP fragment 0
IS-IS level 2, LSP fragment 0
  *Direct Preference: 0
    Next hop type: Interface

```

```

Next-hop reference count: 3
Next hop: via so-2/1/3.0, selected
State: <Active Int>
Local AS: 200
Age: 24:31
Task: IF
Announcement bits (3): 2-IS-IS 5-Resolve tree 2 6-Resolve tree 3

AS path: I

100.1.2.2/32 (1 entry, 1 announced)
*Local Preference: 0
Next hop type: Local
Next-hop reference count: 11
Interface: so-2/1/3.0
State: <Active NoReadvrt Int>
Local AS: 200
Age: 24:36
Task: IF
Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
AS path: I

192.168.64.0/21 (1 entry, 1 announced)
*Direct Preference: 0
Next hop type: Interface
Next-hop reference count: 3
Next hop: via fxp0.0, selected
State: <Active Int>
Local AS: 200
Age: 21:39:47
Task: IF
Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
AS path: I

192.168.70.19/32 (1 entry, 1 announced)
*Local Preference: 0
Next hop type: Local
Next-hop reference count: 11
Interface: fxp0.0
State: <Active NoReadvrt Int>
Local AS: 200
Age: 21:39:47
Task: IF
Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
AS path: I

```

show route active-path terse user@host> **show route active-path terse**

```
inet.0: 7 destinations, 7 routes (6 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both
```

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
*	10.255.70.19/32	D	0			>100.0	
*	10.255.71.50/32	I	15	10		>100.1.2.1	
*	100.1.2.0/24	D	0			>so-2/1/3.0	
*	100.1.2.2/32	L	0			Local	
*	192.168.64.0/21	D	0			>fxp0.0	
*	192.168.70.19/32	L	0			Local	

show route advertising-protocol

Syntax	show route advertising-protocol <i>protocol neighbor-address</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the routing information as it has been prepared for advertisement to a particular neighbor of a particular dynamic routing protocol.
Options	<p><i>protocol</i>—Protocol transmitting the route:</p> <ul style="list-style-type: none"> ■ bgp—Border Gateway Protocol ■ dvmrp—Distance Vector Multicast Routing Protocol ■ msdp—Multicast Source Discovery Protocol ■ pim—Protocol Independent Multicast ■ rip—Routing Information Protocol ■ ripng—Routing Information Protocol next generation <p><i>neighbor-address</i>—Address of the neighboring router to which the route entry is being transmitted.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	Routes displayed are routes that the routing table has exported into the routing protocol and that have been filtered by the associated protocol's export routing policy statements. For more information, see the <i>JUNOS Routing Protocols Configuration Guide</i> .
Required Privilege Level	view
List of Sample Output	show route advertising-protocol bgp (Layer 3 VPN) on page 297 show route advertising-protocol bgp detail on page 298 show route advertising-protocol bgp detail (Layer 2 VPN) on page 298 show route advertising-protocol bgp detail (Layer 3 VPN) on page 298
Output Fields	Table 89 on page 295 lists the output fields for the show route advertising-protocol command. Output fields are listed in the approximate order in which they appear.

Table 89: show route advertising-protocol Output Fields

Field Name	Field Description	Level of Output
<i>routing-table-name</i>	Name of the routing table—for example, inet.0.	All levels

Table 89: show route advertising-protocol Output Fields (*continued*)

Field Name	Field Description	Level of Output
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.	All levels
<i>number routes</i>	Number of routes in the routing table and total number of routes in the following states: <ul style="list-style-type: none"> ■ active (routes that are active) ■ holddown (routes that are in the pending state before being declared inactive) ■ hidden (the routes are not used because of a routing policy) 	All levels
Prefix	Destination prefix.	brief none
<i>destination-prefix</i> (entry , announced)	Destination prefix. The entry value is the number of routes for this destination, and the announced value is the number of routes being announced for this destination.	detail extensive
BGP group and type	BGP group name and type (Internal or External).	detail extensive
Route Distinguisher	Unique 64-bit prefix augmenting each IP subnet.	detail extensive
Advertised Label	Incoming label advertised by the Label Distribution Protocol (LDP). When an IP packet enters a label-switched path (LSP), the ingress router examines the packet and assigns it a label based on its destination, placing the label in the packet's header. The label transforms the packet from one that is forwarded based on its IP routing information to one that is forwarded based on information associated with the label.	detail extensive
Label-Base, range	First label in a block of labels and label block size. A remote PE router uses this first label when sending traffic toward the advertising PE router.	detail extensive
VPN Label	Virtual private network (VPN) label. Packets are sent between CE and PE routers by advertising VPN labels. VPN labels transit over either a Resource Reservation Protocol (RSVP) or a Label Distribution Protocol (LDP) label-switched path (LSP) tunnel.	detail extensive
Nexthop	Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.	All levels
MED	Multiple exit discriminator value included in the route.	brief
Lclpref or Localpref	Local preference value included in the route.	All levels

Table 89: show route advertising-protocol Output Fields (*continued*)

Field Name	Field Description	Level of Output
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path was originated:</p> <ul style="list-style-type: none"> ■ I—IIGP. ■ E—EGP. ■ ?—Incomplete; typically, the AS path was aggregated. <p>When AS path numbers are included in the route, the format is as follows:</p> <ul style="list-style-type: none"> ■ []—Brackets enclose the local AS number associated with the AS path if more than one AS number is configured on the router, or if AS path prepending is configured. ■ { }—Braces enclose AS sets, which are groups of AS numbers in which the order does not matter. A set commonly results from route aggregation. The numbers in each AS set are displayed in ascending order. ■ ()—Parentheses enclose a confederation. ■ ([])—Parentheses and brackets enclose a confederation set. 	All levels
Communities	Community path attribute for the route. See Table 94 on page 323 for all possible values for this field.	detail extensive
Attrset AS	Number, local preference, and path of the autonomous system (AS) that originated the route. These values are stored in the <i>Attrset</i> attribute at the originating router.	detail extensive
Layer2-info: encaps	Layer 2 encapsulation (for example, VPLS).	detail extensive
control flags	Control flags: none or Site Down.	detail extensive
mtu	Maximum transmission unit (MTU) of the Layer 2 circuit.	detail extensive

```

show route advertising-protocol bgp (Layer 3 VPN)
user@host> show route advertising-protocol bgp 10.255.14.171
VPN-A.inet.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
10.255.14.172/32 Self              1      100 I
VPN-B.inet.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
10.255.14.181/32 Self              2      100 I

```

```

show route      user@host> show route advertising-protocol bgp 111.222.1.3 detail
advertising-protocol bgp
detail          bgp20.inet.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
                  111.222.1.11/32 (1 entry, 1 announced)
                    BGP group pe-pe type Internal
                      Route Distinguisher: 111.255.14.11:69
                      Advertised Label: 100000
                      next hop: Self
                      Localpref: 100
                      AS path: 2 I
                      Communities: target:69:20
                  111.8.0.0/16 (1 entry, 1 announced)
                    BGP group pe-pe type Internal
                      Route Distinguisher: 111.255.14.11:69
                      Advertised Label: 100000
                      Next hop: Self
                      Localpref: 100
                      AS path: 2 I
                      Communities: target:69:20

show route      user@host> show route advertising-protocol bgp 192.168.24.1 detail
advertising-protocol bgp
detail (Layer 2 VPN)
                  vpn-a.l2vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
                  192.168.16.1:1:1/96 (1 entry, 1 announced)
                    BGP group int type Internal
                      Route Distinguisher: 192.168.16.1:1
                      Label-base : 32768, range : 3
                      Nexthop: Self
                      Localpref: 100
                      AS path: I
                      Communities: target:65412:100
                      Layer2-info: encaps:VLAN, control flags:, mtu:

show route      user@host> show route advertising-protocol bgp 10.255.14.176 detail
advertising-protocol bgp
detail (Layer 3 VPN)
                  vpna.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
                  * 10.49.0.0/30 (1 entry, 1 announced)
                    BGP group ibgp type Internal
                      Route Distinguisher: 10.255.14.174:2
                      VPN Label: 101264
                      Nexthop: Self
                      Localpref: 100
                      AS path: I
                      Communities: target:200:100
                      AttrSet AS: 100
                        Localpref: 100
                        AS path: I
                  ...

```


show route all

Syntax	show route all <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about all routes and identify hidden entries.
Options	logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show route all on page 299
Output Fields	The output fields for the show route all command are the same as the show route command output fields (see Table 88 on page 287). The only exception is that the hidden entries are identified as Unusable .

show route all The following example displays a snippet of output from the **show route** command and then displays the same snippet of output from the **show route all** command:

```

user@host> show route
mpls.0: 7 destinations, 7 routes (5 active, 0 holddown, 2 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both
0                *[MPLS/0] 2d 02:24:39, metric 1
                  Receive
1                *[MPLS/0] 2d 02:24:39, metric 1
                  Receive
2                *[MPLS/0] 2d 02:24:39, metric 1
                  Receive
800017           *[VPLS/7] 1d 14:00:16
                  > via vt-3/2/0.32769, Pop
800018           *[VPLS/7] 1d 14:00:26
                  > via vt-3/2/0.32772, Pop
user@host> show route all
mpls.0: 7 destinations, 7 routes (5 active, 0 holddown, 2 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both
0                *[MPLS/0] 2d 02:19:12, metric 1
                  Receive
1                *[MPLS/0] 2d 02:19:12, metric 1
                  Receive
2                *[MPLS/0] 2d 02:19:12, metric 1
                  Receive
800017           *[VPLS/7] 1d 13:54:49
                  > via vt-3/2/0.32769, Pop
800018           *[VPLS/7] 1d 13:54:59
                  > via vt-3/2/0.32772, Pop
vt-3/2/0.32769   [VPLS/7] 1d 13:54:49
                  Unusable
vt-3/2/0.32772   [VPLS/7] 1d 13:54:59
                  Unusable

```

show route aspath-regex

Syntax	show route aspath-regex " <i>regular-expression ...</i> " <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the entries in the routing table that match the specified autonomous system (AS) path regular expression.
Options	<p><i>regular-expression</i>—Regular expression that matches an entire AS path.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	<p>You can specify a regular expression as:</p> <ul style="list-style-type: none"> ■ An individual AS number ■ A period wildcard used in place of an AS number ■ An AS path regular expression that is enclosed in parentheses <p>You also can include the operators described in the table of AS path regular expression operators in the <i>JUNOS Policy Framework Configuration Guide</i>. The following list summarizes these operators:</p> <ul style="list-style-type: none"> ■ {<i>m,n</i>}—At least <i>m</i> and at most <i>n</i> repetitions of the AS path term. ■ {<i>m</i>}—Exactly <i>m</i> repetitions of the AS path term. ■ {<i>m</i>,}—<i>m</i> or more repetitions of the AS path term. ■ *—Zero or more repetitions of an AS path term. ■ +—One or more repetitions of an AS path term. ■ ?—Zero or one repetition of an AS path term. ■ <i>aspath_term</i> <i>aspath_term</i>—Match one of the two AS path terms. <p>When you specify more than one AS number or path term, or when you include an operator in the regular expression, enclose the entire regular expression in quotation marks. For example, to match any path that contains AS number 234, specify the following command:</p> <pre>show route aspath-regex ".* 234 ."</pre>
Required Privilege Level	view
List of Sample Output	<p>show route aspath-regex (Matching a Specific AS Number) on page 301</p> <p>show route aspath-regex (Matching Any Path with Two AS Numbers) on page 301</p>
Output Fields	For information about output fields, see the <code>show route</code> command (Table 88 on page 287).

**show route aspath-regex
(Matching a Specific AS
Number)**

```
user@host> show route aspath-regex 65477
inet.0: 46411 destinations, 46411 routes (46409 active, 0 holddown, 2 hidden)
+ = Active Route, - = Last Active, * = Both

111.222.1.0/25      *[BGP/170] 00:08:48, localpref 100, from 111.222.2.24
                   AS Path: [65477] ({65488 65535}) IGP
                   to 111.222.18.225 via fpa0.0(111.222.18.233)
111.222.1.128/25   *[IS-IS/15] 09:15:37, metric 37, tag 1
                   to 111.222.18.225 via fpa0.0(111.222.18.233)
                   [BGP/170] 00:08:48, localpref 100, from 111.222.2.24
                   AS Path: [65477] ({65488 65535}) IGP
                   to 111.222.18.225 via fpa0.0(111.222.18.233)
...
```

**show route aspath-regex
(Matching Any Path with
Two AS Numbers)**

```
user@host> show route aspath-regex ?.* 234 3561 .*?
inet.0: 46351 destinations, 46351 routes (46349 active, 0 holddown, 2 hidden)
+ = Active Route, - = Last Active, * = Both

9.20.0.0/17        *[BGP/170] 01:35:00, localpref 100, from 131.103.20.49
                   AS Path: [666] 234 3561 2685 2686 Incomplete
                   to 192.156.169.1 via 192.156.169.14(so-0/0/0)
12.10.231.0/24     *[BGP/170] 01:35:00, localpref 100, from 131.103.20.49
                   AS Path: [666] 234 3561 5696 7369 IGP
                   to 192.156.169.1 via 192.156.169.14(so-0/0/0)
24.64.32.0/19      *[BGP/170] 01:34:59, localpref 100, from 131.103.20.49
                   AS Path: [666] 234 3561 6327 IGP
                   to 192.156.169.1 via 192.156.169.14(so-0/0/0)
...
```

show route best

Syntax	show route best <i>destination-prefix</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the route in the routing table that is the best route to the specified address or range of addresses. The best route is the longest matching route.
Options	<p><i>destination-prefix</i>—Address or range of addresses.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route best on page 302</p> <p>show route best detail on page 303</p> <p>show route best extensive on page 303</p> <p>show route best terse on page 304</p>
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).
show route best	<pre> user@host> show route best 10.255.70.103 inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 10.255.70.103/32 *[OSPF/10] 1d 13:19:20, metric 2 > to 10.31.1.6 via ge-3/1/0.0 via so-0/3/0.0 inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 10.255.70.103/32 *[RSVP/7] 1d 13:20:13, metric 2 > via so-0/3/0.0, label-switched-path green-r1-r3 private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both 10.0.0.0/8 *[Direct/0] 2d 01:43:34 > via fxp2.0 [Direct/0] 2d 01:43:34 > via fxp1.0 </pre>

```

show route best detail user@host> show route best 10.255.70.103 detail
inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden)
Restart Complete
10.255.70.103/32 (1 entry, 1 announced)
  *OSPF   Preference: 10
          Next-hop reference count: 9
          Next hop: 10.31.1.6 via ge-3/1/0.0, selected
          Next hop: via so-0/3/0.0
          State: <Active Int>
          Local AS: 69
          Age: 1d 13:20:06      Metric: 2
          Area: 0.0.0.0
          Task: OSPF
          Announcement bits (2): 0-KRT 3-Resolve tree 2
          AS path: I

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete
10.255.70.103/32 (1 entry, 1 announced)
  State: <FlashAll>
  *RSVP   Preference: 7
          Next-hop reference count: 5
          Next hop: via so-0/3/0.0 weight 0x1, selected
          Label-switched-path green-r1-r3
          Label operation: Push 100016
          State: <Active Int>
          Local AS: 69
          Age: 1d 13:20:59      Metric: 2
          Task: RSVP
          Announcement bits (1): 1-Resolve tree 2
          AS path: I

private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
10.0.0.0/8 (2 entries, 0 announced)
  *Direct Preference: 0
          Next hop type: Interface
          Next-hop reference count: 1
          Next hop: via fxp2.0, selected
          State: <Active Int>
          Age: 2d 1:44:20
          Task: IF
          AS path: I
  Direct Preference: 0
          Next hop type: Interface
          Next-hop reference count: 1
          Next hop: via fxp1.0, selected
          State: <NotBest Int>
          Inactive reason: No difference
          Age: 2d 1:44:20
          Task: IF
          AS path: I

```

show route best extensive The output for the show route best extensive command is identical to that for the show route best detail command. For sample output, see **show route best detail** on page 303.

```

show route best terse  user@host> show route best 10.255.70.103 terse
inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
* 10.255.70.103/32  0 10      2          >10.31.1.6
                                     so-0/3/0.0

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
* 10.255.70.103/32  R  7      2          >so-0/3/0.0

private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
* 10.0.0.0/8        D  0          >fxp2.0
                    D  0          >fxp1.0

```

show route brief

Syntax	show route brief <destination-prefix> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display brief information about the active entries in the routing tables.
Options	<p>none—Display all active entries in the routing table on all logical systems.</p> <p><i>destination-prefix</i>—(Optional) Display active entries for the specified address or range of addresses.</p> <p><i>logical-system (all logical-system-name)</i>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show route brief on page 305
Output Fields	For information about output fields, see the <code>show route</code> command (Table 88 on page 287).

```

user@host> show route brief
inet.0: 10 destinations, 10 routes (9 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

0.0.0.0/0          *[Static/5] 1w5d 20:30:29
                   Discard
10.255.245.51/32   *[Direct/0] 2w4d 13:11:14
                   > via lo0.0
172.16.0.0/12      *[Static/5] 2w4d 13:11:14
                   > to 192.168.167.254 via fxp0.0
192.168.0.0/18     *[Static/5] 1w5d 20:30:29
                   > to 192.168.167.254 via fxp0.0
192.168.40.0/22    *[Static/5] 2w4d 13:11:14
                   > to 192.168.167.254 via fxp0.0
192.168.64.0/18    *[Static/5] 2w4d 13:11:14
                   > to 192.168.167.254 via fxp0.0
192.168.164.0/22   *[Direct/0] 2w4d 13:11:14
                   > via fxp0.0
192.168.164.51/32  *[Local/0] 2w4d 13:11:14
                   Local via fxp0.0
207.17.136.192/32 *[Static/5] 2w4d 13:11:14
                   > to 192.168.167.254 via fxp0.0

```

```
green.inet.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
100.101.0.0/16    *[Direct/0] 1w5d 20:30:28
                  > via fe-0/0/3.0
100.101.2.3/32   *[Local/0] 1w5d 20:30:28
                  Local via fe-0/0/3.0
224.0.0.5/32     *[OSPF/10] 1w5d 20:30:29, metric 1
                  MultiRecv
```


show route ccc

Syntax	show route ccc ccc <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display circuit cross-connect (CCC) entries in the Multiprotocol Link Switching (MPLS) routing table.
Options	ccc—Name of an entry with a circuit cross-connect interface. brief detail extensive terse—(Optional) Display the specified level of output. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Topics	show connections on page 526
List of Sample Output	show route ccc extensive on page 307
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).
show route ccc extensive	<pre> user@host> show route ccc fe-0/1/0.600 extensive mpls.0: 19 destinations, 19 routes (19 active, 0 holddown, 0 hidden) fe-0/1/2.600 (1 entry, 1 announced) TSI: KRT in-kernel fe-0/1/2.600.0 /16 -> {0.0.0.0} *CCC Preference: 7 Next-hop reference count: 2 Next hop: via so-0/0/3.0 weight 0x1, selected Label operation: Push 101424 State: <Active Int> Local AS: 100 Age: 28:13 Metric: 3 Task: MPLS Announcement bits (1): 0-KRT AS path: I </pre>

show route community

Syntax	show route community <i>as-number:community-value</i> <" <i>as-number:community-value</i> "...> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the route entries in each routing table that are members of a Border Gateway Protocol (BGP) community.
Options	<p><i>as-number:community-value</i>—One or more community identifiers. <i>as-number</i> is the AS number, and <i>community-value</i> is the community identifier. When you specify more than one community identifier, enclose the identifiers in double quotation marks. Community identifiers can include wildcards.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	Specifying the community option displays all routes matching the community found within the routing table. The community option does not limit the output to only the routes being advertised to the neighbor after any egress routing policy.
Required Privilege Level	view
Related Topics	show route detail on page 316
List of Sample Output	show route community on page 308
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).
show route community	<pre> user@host> show route community 234:80 inet.0: 46511 destinations, 46511 routes (46509 active, 0 holddown, 2 hidden) + = Active Route, - = Last Active, * = Both 4.0.0.0/8 *[BGP/170] 03:33:07, localpref 100, from 131.103.20.49 AS Path: {666} 234 2548 1 IGP to 192.156.169.1 via 192.156.169.14(so-0/0/0) 6.0.0.0/8 *[BGP/170] 03:33:07, localpref 100, from 131.103.20.49 AS Path: {666} 234 2548 568 721 Incomplete to 192.156.169.1 via 192.156.169.14(so-0/0/0) 9.2.0.0/16 *[BGP/170] 03:33:06, localpref 100, from 131.103.20.49 AS Path: {666} 234 2548 1673 1675 1747 IGP to 192.156.169.1 via 192.156.169.14(so-0/0/0) </pre>

show route community-name

Syntax	show route community-name <i>community-name</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the route entries in each routing table that are members of a Border Gateway Protocol (BGP) community, specified by a community name.
Options	<p><i>community-name</i>—Name of the community.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show route community-name on page 309
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).
show route community-name	<pre> user@host> show route community-name red-com inet.0: 17 destinations, 17 routes (16 active, 0 holddown, 1 hidden) inet.3: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden) instance1.inet.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden) red.inet.0: 11 destinations, 11 routes (11 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both 10.255.245.212/32 *[BGP/170] 00:04:40, localpref 100, from 10.255.245.204 AS path: 300 I > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix 20.20.20.20/32 *[BGP/170] 00:04:40, localpref 100, from 10.255.245.204 AS path: I > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix 100.1.4.0/24 *[BGP/170] 00:04:40, localpref 100, from 10.255.245.204 AS path: I > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden) mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden) </pre>

```

bgp.13vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

10.255.245.204:10:10.255.245.212/32
    *[BGP/170] 00:06:40, localpref 100, from 10.255.245.204
    AS path: 300 I
    > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix
10.255.245.204:10:20.20.20.20/32
    *[BGP/170] 00:36:02, localpref 100, from 10.255.245.204
    AS path: I
    > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix
10.255.245.204:10:100.1.4.0/24
    *[BGP/170] 00:36:02, localpref 100, from 10.255.245.204
    AS path: I
    > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

instance1.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

```

show route damping

Syntax	show route damping (decayed history suppressed) <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the Border Gateway Protocol (BGP) routes for which updates might have been reduced because of route flap damping.
Options	<p>decayed—Display route damping entries that might no longer be valid, but are not suppressed.</p> <p>history—Display entries that have already been withdrawn, but have been logged.</p> <p>suppressed—Display entries that have been suppressed and are no longer being installed into the forwarding table or exported by routing protocols.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	<p>clear bgp damping on page 12</p> <p>show policy damping on page 41</p>
List of Sample Output	<p>show route damping decayed detail on page 314</p> <p>show route damping history on page 314</p> <p>show route damping history detail on page 314</p>
Output Fields	Table 90 on page 311 lists the output fields for the show route damping command. Output fields are listed in the approximate order in which they appear.

Table 90: show route damping Output Fields

Field Name	Field Description	Level of Output
<i>routing-table-name</i>	Name of the routing table—for example, <i>inet.0</i> .	All levels
<i>destinations</i>	Number of destinations for which there are routes in the routing table.	All levels
<i>number routes</i>	<p>Number of routes in the routing table and total number of routes in the following states:</p> <ul style="list-style-type: none"> ■ active ■ holddown (routes that are in a pending state before being declared inactive) ■ hidden (the routes are not used because of a routing policy) 	All levels

Table 90: show route damping Output Fields (continued)

Field Name	Field Description	Level of Output
<i>destination-prefix</i> (entry, announced)	Destination prefix. The entry value is the number of routes for this destination, and the announced value is the number of routes being announced for this destination.	detail extensive
[<i>protocol,</i> <i>preference</i>]	<p>Protocol from which the route was learned and the preference value for the route.</p> <ul style="list-style-type: none"> ■ +—A plus sign indicates the active route, which is the route installed from the routing table into the forwarding table. ■ - —A hyphen indicates the last active route. ■ *—An asterisk indicates that the route is both the active and the last active route. An asterisk before a to line indicates the best subpath to the route. <p>In every routing metric except for the BGP LocalPref attribute, a lesser value is preferred. In order to use common comparison routines, JUNOS software stores the 1's complement of the LocalPref value in the Preference2 field. For example, if the LocalPref value for Route 1 is 100, the Preference2 value is -101. If the LocalPref value for Route 2 is 155, the Preference2 value is -156. Route 2 is preferred because it has a higher LocalPref value and a lower Preference2 value.</p>	All levels
Next-hop reference count	Number of references made to the next hop.	detail extensive
Source	IP address of the route source.	detail extensive
Next hop	Network layer address of the directly reachable neighboring system.	detail extensive
via	Interface used to reach the next hop. If there is more than one interface available to the next hop, the interface that is actually used is followed by the word Selected .	detail extensive
Protocol next hop	Network layer address of the remote router that advertised the prefix. This address is used to derive a forwarding next hop.	detail extensive
Indirect next hop	Index designation used to specify the mapping between protocol next hops, tags, kernel export policy, and the forwarding next hops.	detail extensive
State	Flags for this route. For a description of possible values for this field, see Table 93 on page 321.	detail extensive
Local AS	AS number of the local router.	detail extensive
Peer AS	AS number of the peer router.	detail extensive
Age	How long the route has been known.	detail extensive
Metric	Metric for the route.	detail extensive
Task	Name of the protocol that has added the route.	detail extensive
Announcement bits	List of protocols that announce this route. n-Resolve inet indicates that the route is used for route resolution for next hops found in the routing table <i>n</i> is an index used by Juniper Networks customer support only.	detail extensive

Table 90: show route damping Output Fields (continued)

Field Name	Field Description	Level of Output
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path was originated:</p> <ul style="list-style-type: none"> ■ I—IIGP. ■ E—EGP. ■ ?—Incomplete; typically, the AS path was aggregated. <p>When AS path numbers are included in the route, the format is as follows:</p> <ul style="list-style-type: none"> ■ []—Brackets enclose the local AS number associated with the AS path if more than one AS number is configured on the router, or if AS path prepending is configured. ■ { }—Braces enclose AS sets, which are groups of AS numbers in which the order does not matter. A set commonly results from route aggregation. The numbers in each AS set are displayed in ascending order. ■ ()—Parentheses enclose a confederation. ■ ([])—Parentheses and brackets enclose a confederation set. 	All levels
to	Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.	brief none
via	Interface used to reach the next hop. If there is more than one interface available to the next hop, the interface that is actually used is followed by the word Selected .	brief none
Communities	Community path attribute for the route. See Table 94 on page 323 for all possible values for this field.	detail extensive
Localpref	Local preference value included in the route.	All levels
Router ID	BGP router ID as advertised by the neighbor in the open message.	detail extensive
Merit (last update/now)	Last updated and current figure-of-merit value.	detail extensive
damping-parameters	Name that identifies the damping parameters used, which is defined in the damping statement at the [edit policy-options] hierarchy level.	detail extensive
Last update	Time of most recent change in path attributes.	detail extensive
First update	Time of first change in path attributes, which started the route damping process.	detail extensive
Flaps	Number of times the route has gone up or down or its path attributes have changed.	detail extensive
Suppressed	(suppressed keyword only) This route is currently suppressed. A suppressed route does not appear in the forwarding table and routing protocols do not export it.	All levels
Reusable in	(suppressed keyword only) Time when a suppressed route will again be available.	All levels

Table 90: show route damping Output Fields (continued)

Field Name	Field Description	Level of Output
Preference will be	(suppressed keyword only) Preference value that will be applied to the route when it is again active.	All levels

```

show route damping      user@host> show route damping decayed detail
decayed detail          inet.0: 173319 destinations, 1533668 routes (172625 active, 4 holddown, 108083
                           hidden)
                           10.0.111.0/24 (7 entries, 1 announced)
                             *BGP      Preference: 170/-101
                               Next-hop reference count: 151973
                               Source: 172.23.2.129
                               Next hop: via so-1/2/0.0
                               Next hop: via so-5/1/0.0, selected
                               Next hop: via so-6/0/0.0
                               Protocol next hop: 172.23.2.129
                               Indirect next hop: 89a1a00 264185
                               State: <Active Ext>
                               Local AS: 65000 Peer AS: 65490
                               Age: 3:28      Metric2: 0
                               Task: BGP_65490.172.23.2.129+179
                               Announcement bits (6): 0-KRT 1-RT 4-KRT 5-BGP.0.0.0.0+179

                               6-Resolve tree 2 7-Resolve tree 3
                               AS path: 65490 65520 65525 65525 65525 65525 I ()
                               Communities: 65501:390 65501:2000 65501:3000 65504:701
                               Localpref: 100
                               Router ID: 172.23.2.129
                               Merit (last update/now): 1934/1790
                               damping-parameters: damping-high
                               Last update:      00:03:28 First update:      00:06:40
                               Flaps: 2

show route damping      user@host> show route damping history
history                  inet.0: 173320 destinations, 1533529 routes (172624 active, 6 holddown, 108122
                           hidden)
                           + = Active Route, - = Last Active, * = Both

                           10.108.0.0/15      [BGP ] 2d 22:47:58, localpref 100
                               AS path: 65220 65501 65502 I
                               > to 192.168.60.85 via so-3/1/0.0

show route damping      user@host> show route damping history detail
history detail          inet.0: 173319 destinations, 1533435 routes (172627 active, 2 holddown, 108105
                           hidden)
                           10.108.0.0/15 (3 entries, 1 announced)
                             BGP      /-101
                               Next-hop reference count: 69058
                               Source: 192.168.60.85
                               Next hop: 192.168.60.85 via so-3/1/0.0, selected
                               State: <Hidden Ext>
                               Inactive reason: Unusable path
                               Local AS: 65000 Peer AS: 65220
                               Age: 2d 22:48:10
                               Task: BGP_65220.192.168.60.85+179
                               AS path: 65220 65501 65502 I ()

```



```
Communities: 65501:390 65501:2000 65501:3000 65504:3561
Localpref: 100
Router ID: 192.168.80.25
Merit (last update/now): 1000/932
damping-parameters: set-normal
Last update:          00:01:05 First update:          00:01:05
Flaps: 1
```

show route detail

Syntax	show route detail <destination-prefix> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display detailed information about the active entries in the routing tables.
Options	<p>none—Display all active entries in the routing table on all systems.</p> <p><i>destination-prefix</i>—(Optional) Display active entries for the specified address or range of addresses.</p> <p><i>logical-system (all logical-system-name)</i>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show route detail on page 324
Output Fields	Table 91 on page 316 describes the output fields for the show route detail command. Output fields are listed in the approximate order in which they appear.

Table 91: show route detail Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.
<i>number routes</i>	<p>Number of routes in the routing table and total number of routes in the following states:</p> <ul style="list-style-type: none"> ■ active (routes that are active) ■ holddown (routes that are in the pending state before being declared inactive) ■ hidden (routes that are not used because of a routing policy)

Table 91: show route detail Output Fields (continued)

Field Name	Field Description
<i>route-destination</i> (entry, announced)	<p>Route destination (for example:10.0.0.1/24). The entry value is the number of routes for this destination, and the announced value is the number of routes being announced for this destination. Sometimes the route destination is presented in another format, such as:</p> <ul style="list-style-type: none"> ■ <i>MPLS-label</i> (for example, 80001). ■ <i>interface-name</i> (for example, ge-1/0/2). ■ <i>neighbor-address:control-word-status:encapsulation type:vc-id:source</i> (Layer 2 circuit only; for example, 10.1.1.195:NoCtrlWord:1:1:Local/96). ■ <i>neighbor-address</i>—Address of the neighbor. ■ <i>control-word-status</i>—Whether the use of the control word has been negotiated for this virtual circuit: NoCtrlWord or CtrlWord. ■ <i>encapsulation type</i>—Type of encapsulation, represented by a number: (1) Frame Relay DLCI, (2) ATM AAL5 VCC transport, (3) ATM transparent cell transport, (4) Ethernet, (5) VLAN Ethernet, (6) HDLC, (7) PPP, (8) ATM VCC cell transport, (10) ATM VPC cell transport ■ <i>vc-id</i>—Virtual circuit identifier. ■ <i>source</i>—Source of the advertisement: Local or Remote.
label stacking	<p>(Next-to-the-last-hop router for MPLS only) Depth of the Multiprotocol Label Switching (MPLS) label stack, where the label-popping operation is needed to remove one or more labels from the top of the stack. A pair of routes is displayed, because the pop operation is performed only when the stack depth is two or more labels.</p> <ul style="list-style-type: none"> ■ S=0 route indicates that a packet with an incoming label stack depth of 2 or more exits this router with one fewer label (the label-popping operation is performed). ■ If there is no S= information, the route is a normal MPLS route, which has a stack depth of 1 (the label-popping operation is not performed).
[<i>protocol, preference</i>]	<p>Protocol from which the route was learned and the preference value for the route.</p> <ul style="list-style-type: none"> ■ +—A plus sign indicates the active route, which is the route installed from the routing table into the forwarding table. ■ - —A hyphen indicates the last active route. ■ *—An asterisk indicates that the route is both the active and the last active route. An asterisk before a to line indicates the best subpath to the route. <p>In every routing metric except for the BGP LocalPref attribute, a lesser value is preferred. In order to use common comparison routines, JUNOS software stores the 1's complement of the LocalPref value in the Preference2 field. For example, if the LocalPref value for Route 1 is 100, the Preference2 value is -101. If the LocalPref value for Route 2 is 155, the Preference2 value is -156. Route 2 is preferred because it has a higher LocalPref value and a lower Preference2 value.</p>
Level	<p>(IS-IS only). In IS-IS, a single AS can be divided into smaller groups called areas. Routing between areas is organized hierarchically, allowing a domain to be administratively divided into smaller areas. This organization is accomplished by configuring Level 1 and Level 2 intermediate systems. Level 1 systems route within an area; when the destination is outside an area, they route toward a Level 2 system. Level 2 intermediate systems route between areas and toward other ASs.</p>
Route Distinguisher	IP subnet augmented with a 64-bit prefix.
Next-hop type	Type of next hop. For a description of possible values for this field, see Table 92 on page 320.

Table 91: show route detail Output Fields (continued)

Field Name	Field Description
Next-hop reference count	Number of references made to the next hop.
Source	IP address of the route source.
Next hop	Network layer address of the directly reachable neighboring system.
via	<p>Interface used to reach the next hop. If there is more than one interface available to the next hop, the name of interface that is actually used is followed by the word Selected. This field can also contain the following information:</p> <ul style="list-style-type: none"> ■ Weight—Value used to distinguish primary, secondary, and fast reroute backup routes. Weight information is available when Multiprotocol Label Switching (MPLS) label-switched path (LSP) link protection, node-link protection, or fast reroute is enabled, or when the standby state is enabled for secondary paths. A lower weight value is preferred. Among routes with the same weight value, load balancing is possible. ■ Balance—Balance coefficient indicating how traffic of unequal cost is distributed among next hops when a router is performing unequal-cost load balancing. This information is available when you enable Border Gateway Protocol (BGP) multipath load balancing.
Label-switched-path <i>lsp-path-name</i>	Name of the label-switched path (LSP) used to reach the next hop.
Label operation	MPLS label and operation occurring at this router. The operation can be pop (where a label is removed from the top of the stack), push (where another label is added to the label stack), or swap (where a label is replaced by another label).
Interface	(Local only) Local interface name.
Protocol next hop	Network layer address of the remote router that advertised the prefix. This address is used to derive a forwarding next hop.
Indirect next hop	Index designation used to specify the mapping between protocol next hops, tags, kernel export policy, and the forwarding next hops.
State	State of the route (a route can be in more than one state). See Table 93 on page 321.
Local AS	AS number of the local router.
Age	How long the route has been known.
Metricn	Metric value for the route. There can be up to four metric values per route, starting with metric (for the first metric value) and continuing with metric2 , metric3 , and metric4 . For BGP routes, metric corresponds to the MED, and metric 2 corresponds to the IGP metric if the BGP next hop loops through another router.
MED-plus-IGP	Metric value for BGP path selection to which the IGP cost to the next-hop destination has been added.
Task	Name of the protocol that has added the route.
Announcement bits	List of protocols that announce this route. n-Resolve inet indicates that the route is used for route resolution for next hops found in the routing table. n is an index used by Juniper Networks Customer Support only.

Table 91: show route detail Output Fields (continued)

Field Name	Field Description
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path was originated:</p> <ul style="list-style-type: none"> ■ I—IGP. ■ E—EGP. ■ ?—Incomplete; typically, the AS path was aggregated. <p>When AS path numbers are included in the route, the format is as follows:</p> <ul style="list-style-type: none"> ■ []—Brackets enclose the number that precedes the AS path. This number represents the number of ASs present in the AS path, when calculated as defined in RFC 4271. This value is used the AS-path merge process, as defined in RFC 4893. ■ []—If more than one AS number is configured on the router, or if AS path prepending is configured, brackets enclose the local AS number associated with the AS path. ■ { }—Braces enclose AS sets, which are groups of AS numbers in which the order does not matter. A set commonly results from route aggregation. The numbers in each AS set are displayed in ascending order. ■ ()—Parentheses enclose a confederation. ■ ([])—Parentheses and brackets enclose a confederation set.
VC Label	MPLS label assigned to the Layer 2 circuit virtual connection.
MTU	Maximum transmission unit (MTU) of the Layer 2 circuit.
VLAN ID	VLAN identifier of the Layer 2 circuit.
Prefixes bound to route	Forwarding Equivalent Class (FEC) bound to this route. Applicable only to routes installed by LDP.
Communities	Community path attribute for the route. See Table 94 on page 323 for all possible values for this field.
Layer2-info: encaps	Layer 2 encapsulation (for example, VPLS).
control flags	Control flags: none or Site Down.
mtu	Maximum transmission unit (MTU) information.
Label-Base, range	First label in a block of labels and label block size. A remote PE router uses this first label when sending traffic toward the advertising PE router.
status vector	Layer 2 VPN and VPLS network layer reachability information (NLRI).
Localpref	Local preference value included in the route.
Router ID	BGP router ID as advertised by the neighbor in the open message.
Primary Routing Table	In a routing table group, the name of the primary routing table in which the route resides.
Secondary Tables	In a routing table group, the name of one or more secondary tables in which the route resides.

Table 92 on page 320 describes all possible values for the **Next-hop Types** output field.

Table 92: Next-Hop Types Output Field Values

Next-Hop Type	Description
broadcast (bcast)	Broadcast next hop.
deny	Deny next hop.
hold	Next hop is waiting to be resolved into a unicast or multicast type.
indexed (idxd)	Indexed next hop.
indirect (indr)	Indirect next hop.
local (locl)	Local address on an interface.
routed multicast (mcrt)	Regular multicast next hop.
multicast (mcst)	Wire multicast next hop (limited to the LAN).
multicast discard (mdsc)	Multicast discard.
multicast group (mgrp)	Multicast group member.
receive (recv)	Receive.
reject (rjct)	Discard. An ICMP unreachable message was sent.
resolve (rslv)	Resolving next hop.
unicast (ucst)	Unicast.
unilist (ulst)	List of unicast next hops. A packet sent to this next hop goes to any next hop in the list.

Table 93 on page 321 describes all possible values for the **State** output field. A route can be in more than one state (for example, <Active NoReadvrt Int Ext>).

Table 93: State Output Field Values

Value	Description
Accounting	Route needs accounting.
Active	Route is active.
Always Compare MED	Path with a lower multiple exit discriminator (MED) is available.
AS path	Shorter AS path is available.
Clone	Route is a clone.
Cisco Non-deterministic MED selection	Cisco nondeterministic MED is enabled and a path with a lower MED is available.
Cluster list length	Length of cluster list sent by the route reflector.
Delete	Route has been deleted.
Ex	Exterior route.
Ext	BGP route received from an external BGP neighbor.
FlashAll	Forces all protocols to be notified of a change to any route, active or inactive, for a prefix. When not set, protocols are informed of a prefix only when the active route changes.
Hidden	Route not used because of routing policy.
IfCheck	Route needs forwarding RPF check.
IGP metric	Path through next hop with lower IGP metric is available.
Local Preference	Path with a higher local preference value is available.
Inactive reason	Flags for this route, which was not selected as best for a particular destination.
Initial	Route being added.
Int	Interior route.
Int Ext	BGP route received from an internal BGP peer or a BGP confederation peer.
Interior > Exterior > Exterior via Interior	Direct, static, IGP, or EBGp path is available.
Martian	Route is a martian (ignored because it is obviously invalid).
MartianOK	Route exempt from martian filtering.
Next hop address	Path with lower metric next hop is available.
No difference	Path from neighbor with lower IP address is available.

Table 93: State Output Field Values *(continued)*

Value	Description
NoReadvrt	Route not to be advertised.
NotBest	Route not chosen because it does not have the lowest MED.
Not Best in its group	Incoming BGP AS is not the best of a group (only one AS can be the best).
NotInstall	Route not to be installed in the forwarding table.
Number of gateways	Path with greater number of next hops is available.
Origin	Path with lower origin code is available.
Pending	Route pending because of a hold-down configured on another route.
Release	Route scheduled for release.
RIB preference	Route from a higher-numbered routing table is available.
Route Distinguisher	64-bit prefix added to IP subnets to make them unique.
Route Metric or MED comparison	Route with a lower metric or MED is available.
Route Preference	Route with lower preference value is available
Router ID	Path through neighbor with lower ID is available.
Secondary	Route not a primary route.
Unusable path	Path is not usable because of one of the following conditions: <ul style="list-style-type: none"> ■ The route is damped. ■ The route is rejected by an import policy. ■ The route is unresolved.
Update source	Last tiebreaker is the lowest IP address value.

Table 94 on page 323 describes the possible values for the **Communities** output field.

Table 94: Communities Output Field Values

Value	Description
<i>area-number</i>	4 bytes, encoding a 32-bit area number. For AS-external routes, the value is 0. A nonzero value identifies the route as internal to the OSPF domain, and as within the identified area. Area numbers are relative to a particular OSPF domain.
<i>bandwidth: local AS number:link-bandwidth-number</i>	Link-bandwidth community value used for unequal-cost load balancing. When BGP has several candidate paths available for multipath purposes, it does not perform unequal-cost load balancing according to the link-bandwidth community unless all candidate paths have this attribute.
<i>domain-id</i>	Unique configurable number that identifies the OSPF domain.
<i>domain-id-vendor</i>	Unique configurable number that identifies the OSPF domain.
<i>link-bandwidth-number</i>	Link-bandwidth number: from 0 through 4,294,967,295 (bytes per second).
<i>local AS number</i>	Local AS number: from 1 through 65,535.
<i>options</i>	1 byte. Currently this is only used if the route type is 5 or 7. Setting the least significant bit in the field indicates that the route carries a type 2 metric.
<i>origin</i>	(Used with VPNs) Identifies where the route came from.
<i>ospf-route-type</i>	1 byte, encoded as 1 or 2 for intra-area routes (depending on whether the route came from a type 1 or a type 2 LSA); 3 for summary routes; 5 for external routes (area number must be 0); 7 for NSSA routes; or 129 for sham link endpoint addresses.
<i>rte-type</i>	Displays the area number, OSPF route type, and option of the route. This is configured using the BGP extended community attribute 0x0306. The format is <i>area-number:ospf-route-type:options</i> .
<i>route-type-vendor</i>	Displays the area number, OSPF route type, and option of the route. This is configured using the BGP extended community attribute 0x8000. The format is <i>area-number:ospf-route-type:options</i> .
<i>target</i>	Defines which VPN the route participates in; target has the format <i>32-bit IP address:16-bit number</i> . For example, 10.19.0.0:100.
<i>unknown IANA</i>	Incoming IANA codes with a value between 0x1 and 0x7fff. This code of the BGP extended community attribute is accepted, but it is not recognized.
<i>unknown OSPF vendor community</i>	Incoming IANA codes with a value above 0x8000. This code of the BGP extended community attribute is accepted, but it is not recognized.

show route detail user@host> **show route detail**

```

inet.0: 22 destinations, 23 routes (21 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
    *Static Preference: 5
        Next-hop reference count: 29
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Local AS: 69
        Age: 1:31:43
        Task: RT
        Announcement bits (2): 0-KRT 3-Resolve tree 2
        AS path: I

10.31.1.0/30 (2 entries, 1 announced)
    *Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 2
        Next hop: via so-0/3/0.0, selected
        State: <Active Int>
        Local AS: 69
        Age: 1:30:17
        Task: IF
        Announcement bits (1): 3-Resolve tree 2
        AS path: I
    OSPF Preference: 10
        Next-hop reference count: 1
        Next hop: via so-0/3/0.0, selected
        State: <Int>
        Inactive reason: Route Preference
        Local AS: 69
        Age: 1:30:17      Metric: 1
        Area: 0.0.0.0
        Task: OSPF
        AS path: I

10.31.1.1/32 (1 entry, 1 announced)
    *Local Preference: 0
        Next hop type: Local
        Next-hop reference count: 7
        Interface: so-0/3/0.0
        State: <Active NoReadvrt Int>
        Local AS: 69
        Age: 1:30:20
        Task: IF
        Announcement bits (1): 3-Resolve tree 2
        AS path: I

...

```

```

10.31.2.0/30 (1 entry, 1 announced)
  *OSPF   Preference: 10
          Next-hop reference count: 9
          Next hop: via so-0/3/0.0
          Next hop: 10.31.1.6 via ge-3/1/0.0, selected
          State: <Active Int>
          Local AS: 69
          Age: 1:29:56   Metric: 2
          Area: 0.0.0.0
          Task: OSPF
          Announcement bits (2): 0-KRT 3-Resolve tree 2
          AS path: I

...

224.0.0.2/32 (1 entry, 1 announced)
  *PIM    Preference: 0
          Next-hop reference count: 18
          State: <Active NoReadvrt Int>
          Local AS: 69
          Age: 1:31:45
          Task: PIM Recv
          Announcement bits (2): 0-KRT 3-Resolve tree 2
          AS path: I

...

224.0.0.22/32 (1 entry, 1 announced)
  *IGMP   Preference: 0
          Next-hop reference count: 18
          State: <Active NoReadvrt Int>
          Local AS: 69
          Age: 1:31:43
          Task: IGMP
          Announcement bits (2): 0-KRT 3-Resolve tree 2
          AS path: I

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

10.255.70.103/32 (1 entry, 1 announced)
  State: <FlashAll>
  *RSVP   Preference: 7
          Next-hop reference count: 6
          Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1, selected
          Label-switched-path green-r1-r3
          Label operation: Push 100096
          State: <Active Int>
          Local AS: 69
          Age: 1:25:49   Metric: 2
          Task: RSVP
          Announcement bits (2): 1-Resolve tree 1 2-Resolve tree 2
          AS path: I

10.255.71.238/32 (1 entry, 1 announced)
  State: <FlashAll>
  *RSVP   Preference: 7
          Next-hop reference count: 6
          Next hop: via so-0/3/0.0 weight 0x1, selected
          Label-switched-path green-r1-r2
          State: <Active Int>
          Local AS: 69

```

```

        Age: 1:25:49    Metric: 1
        Task: RSVP
        Announcement bits (2): 1-Resolve tree 1 2-Resolve tree 2
        AS path: I

private__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

47.0005.80ff.f800.0000.0108.0001.0102.5507.1052/152 (1 entry, 0 announced)
    *Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 1
        Next hop: via lo0.0, selected
        State: <Active Int>
        Local AS: 69
        Age: 1:31:44
        Task: IF
        AS path: I

mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
0 (1 entry, 1 announced)
    *MPLS Preference: 0
        Next hop type: Receive
        Next-hop reference count: 6
        State: <Active Int>
        Local AS: 69
        Age: 1:31:45    Metric: 1
        Task: MPLS
        Announcement bits (1): 0-KRT
        AS path: I

...

800010 (1 entry, 1 announced)
    *VPLS Preference: 7
        Next-hop reference count: 2
        Next hop: via vt-3/2/0.32769, selected
        Label operation: Pop
        State: <Active Int>
        Age: 1:29:30
        Task: Common L2 VC
        Announcement bits (1): 0-KRT
        AS path: I

vt-3/2/0.32769 (1 entry, 1 announced)
    *VPLS Preference: 7
        Next-hop reference count: 2
        Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1, selected
        Label-switched-path green-r1-r3
        Label operation: Push 800012, Push 100096(top)
        Protocol next hop: 10.255.70.103
        Push 800012
        Indirect next hop: 87272e4 1048574
        State: <Active Int>
        Age: 1:29:30    Metric2: 2
        Task: Common L2 VC
        Announcement bits (2): 0-KRT 1-Common L2 VC
        AS path: I
        Communities: target:11111:1 Layer2-info: encaps:VPLS,
        control flags:, mtu: 0

```

```

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)

abcd::10:255:71:52/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.0, selected
    State: <Active Int>
    Local AS: 69
    Age: 1:31:44
    Task: IF
    AS path: I

fe80::280:42ff:fe10:f179/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.0, selected
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:31:44
    Task: IF
    AS path: I

ff02::2/128 (1 entry, 1 announced)
  *PIM Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:31:45
    Task: PIM Recv6
    Announcement bits (1): 0-KRT
    AS path: I

ff02::d/128 (1 entry, 1 announced)
  *PIM Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:31:45
    Task: PIM Recv6
    Announcement bits (1): 0-KRT
    AS path: I

ff02::16/128 (1 entry, 1 announced)
  *MLD Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:31:43
    Task: MLD
    Announcement bits (1): 0-KRT
    AS path: I

private.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

fe80::280:42ff:fe10:f179/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1

```

```

Next hop: via lo0.16385, selected
State: <Active NoReadvrt Int>
Age: 1:31:44
Task: IF
AS path: I

green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)

10.255.70.103:1:3:1/96 (1 entry, 1 announced)
  *BGP Preference: 170/-101
    Route Distinguisher: 10.255.70.103:1
    Next-hop reference count: 7
    Source: 10.255.70.103
    Protocol next hop: 10.255.70.103
    Indirect next hop: 2 no-forward
    State: <Secondary Active Int Ext>
    Local AS: 69 Peer AS: 69
    Age: 1:25:49 Metric2: 1
    Task: BGP_69.10.255.70.103+179
    Announcement bits (1): 0-green-l2vpn
    AS path: I
    Communities: target:11111:1 Layer2-info: encaps:VPLS,
    control flags:, mtu: 0
    Label-base: 800008, range: 8
    Localpref: 100
    Router ID: 10.255.70.103
    Primary Routing Table bgp.l2vpn.0

10.255.71.52:1:1:1/96 (1 entry, 1 announced)
  *L2VPN Preference: 170/-1
    Next-hop reference count: 5
    Protocol next hop: 10.255.71.52
    Indirect next hop: 0 -
    State: <Active Int Ext>
    Age: 1:31:40 Metric2: 1
    Task: green-l2vpn
    Announcement bits (1): 1-BGP.0.0.0.0+179
    AS path: I
    Communities: Layer2-info: encaps:VPLS, control flags:Site-Down,
    mtu: 0
    Label-base: 800016, range: 8, status-vector: 0x9F

10.255.71.52:1:5:1/96 (1 entry, 1 announced)
  *L2VPN Preference: 170/-101
    Next-hop reference count: 5
    Protocol next hop: 10.255.71.52
    Indirect next hop: 0 -
    State: <Active Int Ext>
    Age: 1:31:40 Metric2: 1
    Task: green-l2vpn
    Announcement bits (1): 1-BGP.0.0.0.0+179
    AS path: I
    Communities: Layer2-info: encaps:VPLS, control flags:, mtu: 0
    Label-base: 800008, range: 8, status-vector: 0x9F

...

l2circuit.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
10.245.255.63:CtrlWord:4:3:Local/96 (1 entry, 1 announced)
  *L2CKT Preference: 7
    Next hop: via so-1/1/2.0 weight 1, selected

```

```
Label-switched-path my-lsp
Label operation: Push 100000[0]
Protocol next hop: 10.245.255.63 Indirect next hop: 86af000 296
State: <Active Int>
Local AS: 99
Age: 10:21
Task: 12 circuit
Announcement bits (1): 0-LDP
AS path: I
VC Label 100000, MTU 1500, VLAN ID 512
```

show route exact

Syntax	show route exact <i>destination-prefix</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display only the routes that exactly match the specified address or range of addresses.
Options	<p><i>destination-prefix</i>—Address or range of addresses.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route exact on page 330</p> <p>show route exact detail on page 330</p> <p>show route exact extensive on page 331</p> <p>show route exact terse on page 331</p>
Output Fields	For information about output fields, see the <code>show route</code> command (Table 88 on page 287), the <code>show route detail</code> command (Table 91 on page 316), the <code>show route extensive</code> command (Table 97 on page 336), or the <code>show route terse</code> command (Table 105 on page 437).
show route exact	<pre> user@host> show route exact 207.17.136.0/24 inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 207.17.136.0/24 *[Static/5] 2d 03:30:22 > to 192.168.71.254 via fxp0.0 </pre>
show route exact detail	<pre> user@host> show route exact 207.17.136.0/24 detail inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden) Restart Complete 207.17.136.0/24 (1 entry, 1 announced) *Static Preference: 5 Next-hop reference count: 29 Next hop: 192.168.71.254 via fxp0.0, selected State: <Active NoReadvrt Int Ext> Local AS: 69 Age: 2d 3:30:26 Task: RT Announcement bits (2): 0-KRT 3-Resolve tree 2 AS path: I </pre>


```

show route exact    user@host> show route exact 207.17.136.0/24 extensive
extensive          inet.0: 22 destinations, 23 routes (21 active, 0 holddown, 1 hidden)
                     207.17.136.0/24 (1 entry, 1 announced)
                     TSI:
                     KRT in-kernel 207.17.136.0/24 -> {192.168.71.254}
                       *Static Preference: 5
                         Next-hop reference count: 29
                         Next hop: 192.168.71.254 via fxp0.0, selected
                         State: <Active NoReadvrt Int Ext>
                         Local AS: 69
                         Age: 1:25:18
                         Task: RT
                         Announcement bits (2): 0-KRT 3-Resolve tree 2
                         AS path: I

```

```

show route exact terse user@host> show route exact 207.17.136.0/24 terse

inet.0: 22 destinations, 23 routes (21 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both
A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
* 207.17.136.0/24  S  5                >192.168.71.254

```

show route export

Syntax	show route export <brief detail> <instance <instance-name> routing-table-name> <logical-system (all logical-system-name)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display policy-based route export information. Policy-based export simplifies the process of exchanging route information between routing instances.
Options	<p>none—(Same as brief.) Display standard information about policy-based export for all instances and routing tables on all systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>instance <instance-name>—(Optional) Display a particular routing instance for which policy-based export is currently enabled.</p> <p>routing-table-name—Display information about a particular routing table (for example, inet.0) for which policy-based export is currently enabled. (For information about the different types of routing tables, see the <i>JUNOS Routing Protocols Configuration Guide</i>.)</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route export on page 333</p> <p>show route export detail on page 333</p> <p>show route export instance detail on page 333</p>
Output Fields	Table 95 on page 332 lists the output fields for the show route export command. Output fields are listed in the approximate order in which they appear.

Table 95: show route export Output Fields

Field Name	Field Description	Level of Output
Table or <i>table-name</i>	Name of the routing tables that either import or export routes.	All levels
Routes	Number of routes exported from this table into other tables. If a particular route is exported to different tables, the counter will only increment by one.	brief none
Export	Whether the table is currently exporting routes to other tables: Y or N (Yes or No).	brief none
Import	Tables currently importing routes from the originator table. (Not displayed for tables that are not exporting any routes.)	detail

Table 95: show route export Output Fields (continued)

Field Name	Field Description	Level of Output
Flags	(instance keyword only) Flags for this feature on this instance: <ul style="list-style-type: none"> ■ config auto-policy—The policy was deduced from the configured IGP export policies. ■ cleanup—Configuration information for this instance is no longer valid. ■ config—The instance was explicitly configured. 	detail
Options	(instance keyword only) Configured option displays the type of routing tables the feature handles: <ul style="list-style-type: none"> ■ unicast—Indicates instance.inet.0. ■ multicast—Indicates instance.inet.2. ■ unicast multicast—Indicates instance.inet.0 and instance.inet.2. 	detail
Import policy	(instance keyword only) Policy that route export uses to construct the import-export matrix. Not displayed if the instance type is vrf.	detail
Instance	(instance keyword only) Name of the routing instance.	detail
Type	(instance keyword only) Type of routing instance: forwarding, non-forwarding, or vrf.	detail

```

show route export user@host> show route export
Table                Export        Routes
inet.0                N                0
black.inet.0          Y                3
red.inet.0            Y                4

show route export detail user@host> show route export detail
inet.0                                Routes:    0
black.inet.0                          Routes:    3
  Import: [ inet.0 ]
red.inet.0                            Routes:    4
  Import: [ inet.0 ]

show route export instance detail user@host> show route export instance detail
Instance: master                      Type: forwarding
  Flags: <config auto-policy> Options: <unicast multicast>
  Import policy: [ (ospf-master-from-red || isis-master-from-black) ]
Instance: black                       Type: non-forwarding
Instance: red                         Type: non-forwarding

```

show route export vrf-target

Syntax	show route export vrf-target <brief detail> <community <i>community-regular-expression</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the VPN routing and forwarding (VRF) target communities for which policy-based route export is currently distributing routes. This command is relevant when there are overlapping virtual private networks (VPNs).
Options	<p>none—Display standard information about all target communities on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>community <i>community-regular-expression</i>—(Optional) Display information about the specified community.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route export vrf-target on page 335</p> <p>show route export vrf-target community on page 335</p> <p>show route export vrf-target detail on page 335</p>
Output Fields	Table 96 on page 334 lists the output fields for the show route export vrf-target command. Output fields are listed in the approximate order in which they appear.

Table 96: show route export vrf-target Output Fields

Field Name	Field Description	Level of Output
Route target	Target communities for which auto-export is currently distributing routes.	brief none
Family	Routing table entries for the specified family.	brief none
<i>type-of-routing-table(s)</i>	Type of routing tables the feature handles: <ul style="list-style-type: none"> ■ unicast—Indicates <i>instance.inet.0</i>. ■ multicast—Indicates <i>instance.inet.2</i>. ■ unicast multicast—Indicates <i>instance.inet.0</i> and <i>instance.inet.2</i>. 	brief none
Import	Number of routing tables that are currently importing routes with this target community. Omitted for tables that are not importing routes.	brief none
Export	Number of routing tables that are currently exporting routes with this target community. Omitted for tables that are not exporting routes.	brief none

Table 96: show route export vrf-target Output Fields (continued)

Field Name	Field Description	Level of Output
Target	Target communities, family, and options for which auto-export is currently distributing routes.	detail
Import table(s)	Name of the routing tables that are importing a particular route target.	detail
Export table(s)	Name of the routing tables that are exporting a particular route target.	detail

```

show route export      user@host> show route export vrf-target
vrf-target           Route Target      Family      Import      Export
69:1                   inet      unicast      2           2
69:2                   inet      unicast      2           2

show route export      user@host> show route export vrf-target community target:69:1
vrf-target community Route Target      Family      Import      Export
69:1                   inet      unicast      2           2

show route export      user@host> show route export vrf-target detail
vrf-target detail    Target: 1:12      inet      unicast
                        Import table(s): vrf-11.inet.0 vrf-12.inet.0
                        Export table(s): vrf-12.inet.0
                        Target: 1:13      inet      unicast
                        Import table(s): vrf-12.inet.0 vrf-13.inet.0
                        Export table(s): vrf-13.inet.0

```

show route extensive

Syntax	show route extensive <destination-prefix> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display extensive information about the active entries in the routing tables.
Options	<p>none—Display all active entries in the routing table on all logical systems.</p> <p><i>destination-prefix</i>—(Optional) Display active entries for the specified address or range of addresses.</p> <p><i>logical-system (all logical-system-name)</i>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route extensive on page 340</p> <p>show route extensive (Access Route) on page 346</p> <p>show route extensive (Route Reflector) on page 346</p>
Output Fields	Table 97 on page 336 describes the output fields for the show route extensive command. Output fields are listed in the approximate order in which they appear.

Table 97: show route extensive Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.
<i>number routes</i>	<p>Number of routes in the routing table and total number of routes in the following states:</p> <ul style="list-style-type: none"> ■ active (routes that are active). ■ holddown (routes that are in the pending state before being declared inactive). ■ hidden (routes that are not used because of a routing policy).

Table 97: show route extensive Output Fields (continued)

Field Name	Field Description
<i>route-destination</i> (entry, announced)	<p>Route destination (for example:10.0.0.1/24). The entry value is the number of route for this destination, and the announced value is the number of routes being announced for this destination. Sometimes the route destination is presented in another format, such as:</p> <ul style="list-style-type: none"> ■ <i>MPLS-label</i> (for example, 80001). ■ <i>interface-name</i> (for example, ge-1/0/2). ■ <i>neighbor-address:control-word-status:encapsulation type:vc-id:source</i> (Layer 2 circuit only; for example, 10.1.1.195:NoCtrlWord:1:1:Local/96). ■ <i>neighbor-address</i>—Address of the neighbor. ■ <i>control-word-status</i>—Whether the use of the control word has been negotiated for this virtual circuit: NoCtrlWord or CtrlWord. ■ <i>encapsulation type</i>—Type of encapsulation, represented by a number: (1) Frame Relay DLCI, (2) ATM AAL5 VCC transport, (3) ATM transparent cell transport, (4) Ethernet, (5) VLAN Ethernet, (6) HDLC, (7) PPP, (8) ATM VCC cell transport, (10) ATM VPC cell transport. ■ <i>vc-id</i>—Virtual circuit identifier. ■ <i>source</i>—Source of the advertisement: Local or Remote.
TSI	Protocol header information.
label stacking	<p>(Next-to-the-last-hop router for MPLS only) Depth of the Multiprotocol Label Switching (MPLS) label stack, where the label-popping operation is needed to remove one or more labels from the top of the stack. A pair of routes is displayed, because the pop operation is performed only when the stack depth is two or more labels.</p> <ul style="list-style-type: none"> ■ S=0 route indicates that a packet with an incoming label stack depth of two or more exits this router with one fewer label (the label-popping operation is performed). ■ If there is no S= information, the route is a normal MPLS route, which has a stack depth of 1 (the label-popping operation is not performed).
[<i>protocol, preference</i>]	<p>Protocol from which the route was learned and the preference value for the route.</p> <ul style="list-style-type: none"> ■ +—A plus sign indicates the active route, which is the route installed from the routing table into the forwarding table. ■ -—A hyphen indicates the last active route. ■ *—An asterisk indicates that the route is both the active and the last active route. An asterisk before a to line indicates the best subpath to the route. <p>In every routing metric except for the BGP LocalPref attribute, a lesser value is preferred. In order to use common comparison routines, JUNOS software stores the 1's complement of the LocalPref value in the Preference2 field. For example, if the LocalPref value for Route 1 is 100, the Preference2 value is -101. If the LocalPref value for Route 2 is 155, the Preference2 value is -156. Route 2 is preferred because it has a higher LocalPref value and a lower Preference2 value.</p>
Level	(IS-IS only). In IS-IS, a single autonomous system (AS) can be divided into smaller groups called areas. Routing between areas is organized hierarchically, allowing a domain to be administratively divided into smaller areas. This organization is accomplished by configuring Level 1 and Level 2 intermediate systems. Level 1 systems route within an area; when the destination is outside an area, they route toward a Level 2 system. Level 2 intermediate systems route between areas and toward other ASs.
Route Distinguisher	IP subnet augmented with a 64-bit prefix.

Table 97: show route extensive Output Fields (*continued*)

Field Name	Field Description
Next-hop type	Type of next hop. For a description of possible values for this field, see Table 92 on page 320.
Next-hop reference count	Number of references made to the next hop.
Source	IP address of the route source.
Next hop	Network layer address of the directly reachable neighboring system.
via	<p>Interface used to reach the next hop. If there is more than one interface available to the next hop, the name of interface that is actually used is followed by the word Selected. This field can also contain the following information:</p> <ul style="list-style-type: none"> ■ Weight—Value used to distinguish primary, secondary, and fast reroute backup routes. Weight information is available when Multiprotocol Label Switching (MPLS) label-switched path (LSP) link protection, node-link protection, or fast reroute is enabled, or when the standby state is enabled for secondary paths. A lower weight value is preferred. Among routes with the same weight value, load balancing is possible. ■ Balance—Balance coefficient indicating how traffic of unequal cost is distributed among next hops when a router is performing unequal-cost load balancing. This information is available when you enable Border Gateway Protocol (BGP) multipath load balancing.
Label-switched-path <i>lsp-path-name</i>	Name of the label-switched path (LSP) used to reach the next hop.
Label operation	MPLS label and operation occurring at this router. The operation can be pop (where a label is removed from the top of the stack), push (where another label is added to the label stack), or swap (where a label is replaced by another label).
Offset	Whether the metric has been increased or decreased by an offset value.
Interface	(Local only) Local interface name.
Protocol next hop	Network layer address of the remote router that advertised the prefix. This address is used to recursively derive a forwarding next hop.
<i>label-operation</i>	MPLS label and operation occurring at this router. The operation can be pop (where a label is removed from the top of the stack), push (where another label is added to the label stack), or swap (where a label is replaced by another label).
Indirect next hop	Index designation used to specify the mapping between protocol next hops, tags, kernel export policy, and the forwarding next hops.
State	State of the route (a route can be in more than one state). See Table 93 on page 321.
Inactive reason	If the route is inactive, the reason for its current state is indicated.
Local AS	Autonomous system (AS) number of the local router.
Age	How long the route has been known.
Metric	Metric value for an aggregate, generated, or static route. There can be up to four metric values, starting with metric (for the first metric value) and continuing with metric2 , metric3 , and metric4 . The range of values is 1 to 65,535.

Table 97: show route extensive Output Fields (continued)

Field Name	Field Description
MED-plus-IGP	Metric value for BGP path selection to which the IGP cost to the next-hop destination has been added.
Task	Name of the protocol that has added the route.
Announcement bits	List of protocols that announce this route. <i>n-Resolve inet</i> indicates that the route is used for route resolution for next hops found in the routing table <i>n</i> is an index used by Juniper Networks Customer Support only.
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path was originated:</p> <ul style="list-style-type: none"> ■ I—IGP. ■ E—EGP. ■ ?—Incomplete; typically, the AS path was aggregated. <p>When AS path numbers are included in the route, the format is as follows:</p> <ul style="list-style-type: none"> ■ []—Brackets enclose the local AS number associated with the AS path if more than one AS number is configured on the router, or if AS path prepending is configured. ■ { }—Braces enclose AS sets, which are groups of AS numbers in which the order does not matter. A set commonly results from route aggregation. The numbers in each AS set are displayed in ascending order. ■ ()—Parentheses enclose a confederation. ■ ([])—Parentheses and brackets enclose a confederation set.
AS path: I <Originator>	(For router reflected output only) Originator ID attribute set by the route reflector.
VC Label	MPLS label assigned to the Layer 2 circuit virtual connection.
MTU	Maximum transmission unit (MTU) of the Layer 2 circuit.
VLAN ID	VLAN identifier of the Layer 2 circuit.
Cluster list	(For router reflected output only) Cluster ID sent by the route reflector.
Originator ID	(For router reflected output only) Address of router that originally sent the route to the route reflector.
Prefixes bound to route	Forwarding Equivalent Class (FEC) bound to this route. Applicable only to routes installed by LDP.
Communities	Community path attribute for the route. See Table 94 on page 323 for all possible values for this field.
Layer2-info: encaps	Layer 2 encapsulation (for example, VPLS).
control flags	Control flags: none or Site Down.
mtu	Maximum transmission unit (MTU) information.
Label-Base, range	First label in a block of labels and label block size. A remote PE router uses this first label when sending traffic toward the advertising PE router.
status vector	Layer 2 VPN and VPLS network layer reachability information (NLRI).

Table 97: show route extensive Output Fields (continued)

Field Name	Field Description
Localpref	Local preference value included in the route.
Router ID	BGP router ID as advertised by the neighbor in the open message.
Primary Routing Table	In a routing table group, the name of the primary routing table in which the route resides.
Secondary Tables	In a routing table group, the name of one or more secondary tables in which the route resides.
Originating RIB	Name of the routing table whose active route was used to determine the forwarding next-hop entry in the resolution database. For example, in the case of inet.0 resolving via inet.0 and inet.3, this field indicates which routing table, inet.0 or inet.3, provided the best path for a particular prefix.
Node path count	Number of nodes in the path.
Forwarding nexthops	Number of forwarding next hops. The forwarding next hop is the network layer address of the directly reachable neighboring system (if applicable) and the interface used to reach it.

```

show route extensive  user@host> show route extensive
inet.0: 22 destinations, 23 routes (21 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.10.0.0/16 -> {192.168.71.254}
    *Static Preference: 5
        Next-hop reference count: 29
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Local AS: 69
        Age: 1:34:06
        Task: RT
        Announcement bits (2): 0-KRT 3-Resolve tree 2
        AS path: I

10.31.1.0/30 (2 entries, 1 announced)
    *Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 2
        Next hop: via so-0/3/0.0, selected
        State: <Active Int>
        Local AS: 69
        Age: 1:32:40
        Task: IF
        Announcement bits (1): 3-Resolve tree 2
        AS path: I

```

```

OSPF Preference: 10
Next-hop reference count: 1
Next hop: via so-0/3/0.0, selected
State: <Int>
Inactive reason: Route Preference
Local AS: 69
Age: 1:32:40 Metric: 1
Area: 0.0.0.0
Task: OSPF
AS path: I

10.31.1.1/32 (1 entry, 1 announced)
*Local Preference: 0
Next hop type: Local
Next-hop reference count: 7
Interface: so-0/3/0.0
State: <Active NoReadvrt Int>
Local AS: 69
Age: 1:32:43
Task: IF
Announcement bits (1): 3-Resolve tree 2
AS path: I

...

10.31.2.0/30 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.31.2.0/30 -> {10.31.1.6}
*OSPF Preference: 10
Next-hop reference count: 9
Next hop: via so-0/3/0.0
Next hop: 10.31.1.6 via ge-3/1/0.0, selected
State: <Active Int>
Local AS: 69
Age: 1:32:19 Metric: 2
Area: 0.0.0.0
Task: OSPF
Announcement bits (2): 0-KRT 3-Resolve tree 2
AS path: I

...

224.0.0.2/32 (1 entry, 1 announced)
TSI:
KRT in-kernel 224.0.0.2/32 -> {}
*PIM Preference: 0
Next-hop reference count: 18
State: <Active NoReadvrt Int>
Local AS: 69
Age: 1:34:08
Task: PIM Recv
Announcement bits (2): 0-KRT 3-Resolve tree 2
AS path: I

...

224.0.0.22/32 (1 entry, 1 announced)
TSI:
KRT in-kernel 224.0.0.22/32 -> {}
*IGMP Preference: 0
Next-hop reference count: 18

```

```

        State: <Active NoReadvrt Int>
        Local AS: 69
        Age: 1:34:06
        Task: IGMP
        Announcement bits (2): 0-KRT 3-Resolve tree 2
        AS path: I

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

10.255.70.103/32 (1 entry, 1 announced)
    State: <FlashAll>
    *RSVP Preference: 7
        Next-hop reference count: 6
        Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1, selected
        Label-switched-path green-r1-r3
        Label operation: Push 100096
        State: <Active Int>
        Local AS: 69
        Age: 1:28:12 Metric: 2
        Task: RSVP
        Announcement bits (2): 1-Resolve tree 1 2-Resolve tree 2
        AS path: I

10.255.71.238/32 (1 entry, 1 announced)
    State: <FlashAll>
    *RSVP Preference: 7
        Next-hop reference count: 6
        Next hop: via so-0/3/0.0 weight 0x1, selected
        Label-switched-path green-r1-r2
        State: <Active Int>
        Local AS: 69
        Age: 1:28:12 Metric: 1
        Task: RSVP
        Announcement bits (2): 1-Resolve tree 1 2-Resolve tree 2
        AS path: I

private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

...

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

47.0005.80ff.f800.0000.0108.0001.0102.5507.1052/152 (1 entry, 0 announced)
    *Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 1
        Next hop: via lo0.0, selected
        State: <Active Int>
        Local AS: 69
        Age: 1:34:07
        Task: IF
        AS path: I

mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)

0 (1 entry, 1 announced)
TSI:
KRT in-kernel 0 /36 -> {}
    *MPLS Preference: 0
        Next hop type: Receive
        Next-hop reference count: 6

```

```

State: <Active Int>
Local AS: 69
Age: 1:34:08 Metric: 1
Task: MPLS
Announcement bits (1): 0-KRT
AS path: I

...

800010 (1 entry, 1 announced)

TSI:
KRT in-kernel 800010 /36 -> {vt-3/2/0.32769}
    *VPLS Preference: 7
        Next-hop reference count: 2
        Next hop: via vt-3/2/0.32769, selected
        Label operation: Pop
        State: <Active Int>
        Age: 1:31:53
        Task: Common L2 VC
        Announcement bits (1): 0-KRT
        AS path: I

vt-3/2/0.32769 (1 entry, 1 announced)
TSI:
KRT in-kernel vt-3/2/0.32769.0 /16 -> {indirect(1048574)}
    *VPLS Preference: 7
        Next-hop reference count: 2
        Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1, selected
        Label-switched-path green-r1-r3
        Label operation: Push 800012, Push 100096(top)
        Protocol next hop: 10.255.70.103
        Push 800012
        Indirect next hop: 87272e4 1048574
        State: <Active Int>
        Age: 1:31:53 Metric2: 2
        Task: Common L2 VC
        Announcement bits (2): 0-KRT 1-Common L2 VC
        AS path: I
        Communities: target:11111:1 Layer2-info: encaps:VPLS,
        control flags:, mtu: 0
        Indirect next hops: 1
            Protocol next hop: 10.255.70.103 Metric: 2
            Push 800012
            Indirect next hop: 87272e4 1048574
            Indirect path forwarding next hops: 1
                Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1
                10.255.70.103/32 Originating RIB: inet.3
                Metric: 2 Node path count: 1
                Forwarding nexthops: 1
                Nexthop: 10.31.1.6 via ge-3/1/0.0

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)

abcd::10:255:71:52/128 (1 entry, 0 announced)
    *Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 1
        Next hop: via lo0.0, selected
        State: <Active Int>
        Local AS: 69

```

```

Age: 1:34:07
Task: IF
AS path: I

fe80::280:42ff:fe10:f179/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.0, selected
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:34:07
    Task: IF
    AS path: I

ff02::2/128 (1 entry, 1 announced)
TSI:
KRT in-kernel ff02::2/128 -> {}
  *PIM Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:34:08
    Task: PIM Recv6
    Announcement bits (1): 0-KRT
    AS path: I

ff02::d/128 (1 entry, 1 announced)
TSI:
KRT in-kernel ff02::d/128 -> {}
  *PIM Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:34:08
    Task: PIM Recv6
    Announcement bits (1): 0-KRT
    AS path: I

ff02::16/128 (1 entry, 1 announced)
TSI:
KRT in-kernel ff02::16/128 -> {}
  *MLD Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:34:06
    Task: MLD
    Announcement bits (1): 0-KRT
    AS path: I

private.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

fe80::280:42ff:fe10:f179/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.16385, selected
    State: <Active NoReadvrt Int>
    Age: 1:34:07
    Task: IF

```

```

AS path: I

green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)

10.255.70.103:1:3:1/96 (1 entry, 1 announced)
  *BGP Preference: 170/-101
    Route Distinguisher: 10.255.70.103:1
    Next-hop reference count: 7
    Source: 10.255.70.103
    Protocol next hop: 10.255.70.103
    Indirect next hop: 2 no-forward
    State: <Secondary Active Int Ext>
    Local AS: 69 Peer AS: 69
    Age: 1:28:12 Metric2: 1
    Task: BGP_69.10.255.70.103+179
    Announcement bits (1): 0-green-l2vpn
    AS path: I
    Communities: target:11111:1 Layer2-info: encaps:VPLS,
    control flags:, mtu: 0
    Label-base: 800008, range: 8
    Localpref: 100
    Router ID: 10.255.70.103
    Primary Routing Table bgp.l2vpn.0

10.255.71.52:1:1:1/96 (1 entry, 1 announced)
TSI:
Page 0 idx 0 Type 1 val 8699540
  *L2VPN Preference: 170/-1
    Next-hop reference count: 5
    Protocol next hop: 10.255.71.52
    Indirect next hop: 0 -
    State: <Active Int Ext>
    Age: 1:34:03 Metric2: 1
    Task: green-l2vpn
    Announcement bits (1): 1-BGP.0.0.0.0+179
    AS path: I
    Communities: Layer2-info: encaps:VPLS, control flags:Site-Down,
    mtu: 0
    Label-base: 800016, range: 8, status-vector: 0x9F

10.255.71.52:1:5:1/96 (1 entry, 1 announced)
TSI:
Page 0 idx 0 Type 1 val 8699528
  *L2VPN Preference: 170/-101
    Next-hop reference count: 5
    Protocol next hop: 10.255.71.52
    Indirect next hop: 0 -
    State: <Active Int Ext>
    Age: 1:34:03 Metric2: 1
    Task: green-l2vpn
    Announcement bits (1): 1-BGP.0.0.0.0+179
    AS path: I
    Communities: Layer2-info: encaps:VPLS, control flags:, mtu: 0
    Label-base: 800008, range: 8, status-vector: 0x9F

...

l2circuit.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

TSI:

```

```

10.245.255.63:CtrlWord:4:3:Local/96 (1 entry, 1 announced)
  *L2CKT Preference: 7
    Next hop: via so-1/1/2.0 weight 1, selected
    Label-switched-path my-lsp
    Label operation: Push 100000[0]
    Protocol next hop: 10.245.255.63 Indirect next hop: 86af000 296
    State: <Active Int>
    Local AS: 99
    Age: 10:21
    Task: 12 circuit
    Announcement bits (1): 0-LDP
    AS path: I
    VC Label 100000, MTU 1500, VLAN ID 512

show route extensive      user@host> show route 13.160.0.102 extensive
(Access Route)          inet.0: 39256 destinations, 39258 routes (39255 active, 0 holddown, 1 hidden)
                          13.160.0.102/32 (1 entry, 1 announced)
                          TSI:
                          KRT in-kernel 13.160.0.102/32 -> {13.160.0.2}
                          OSPF area : 0.0.0.0, LSA ID : 13.160.0.102, LSA type : Extern
                          *Access Preference: 13
                            Next-hop reference count: 78472
                            Next hop: 13.160.0.2 via fe-0/0/0.0, selected
                            State: <Active Int>
                          Age: 12
                            Task: RPD Unix Domain Server./var/run/rpd_serv.local
                            Announcement bits (2): 0-KRT 1-OSPFv2
                            AS path: I

show route extensive      user@host> show route extensive
(Route Reflector)       1.0.0.0/8 (1 entry, 1 announced)
                          TSI:
                          KRT in-kernel 1.0.0.0/8 -> {indirect(40)}
                          *BGP Preference: 170/-101
                            Source: 192.168.4.214
                            Protocol next hop: 207.17.136.192 Indirect next hop: 84ac908 40
                            State: <Active Int Ext>
                            Local AS: 10458 Peer AS: 10458
                            Age: 3:09 Metric: 0 Metric2: 0
                            Task: BGP_10458.192.168.4.214+1033
                            Announcement bits (2): 0-KRT 4-Resolve inet.0
                            AS path: 3944 7777 I <Originator>
                            Cluster list: 1.1.1.1
                            Originator ID: 10.255.245.88
                            Communities: 7777:7777
                            Localpref: 100
                            Router ID: 4.4.4.4
                            Indirect next hops: 1
                              Protocol next hop: 207.17.136.192 Metric: 0
                              Indirect next hop: 84ac908 40
                              Indirect path forwarding next hops: 0
                              Next hop type: Discard

```


show route flow validation

Syntax	show route flow validation <brief detail> <table <i>table-name</i> > < <i>ip-prefix</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display flow route information.
Options	<p>brief detail—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>table <i>table-name</i>—(Optional) Name of the flow route table.</p> <p><i>ip-prefix</i>—(Optional) IP address for the flow route.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show route flow validation on page 348
Output Fields	Table 98 on page 347 lists the output fields for the show route flow validation command. Output fields are listed in the approximate order in which they appear.

Table 98: show route flow validation Output Fields

Field Name	Field Description	Level of Output
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).	All levels
<i>prefix</i>	Route address.	All levels
Active unicast route	Active route in the routing table.	All levels
Dependent flow destinations	Number of flows for which there are routes in the routing table.	All levels
Origin	Source of the route flow.	All levels
Neighbor AS	Autonomous system identifier of the neighbor.	All levels
Flow destination	Number of entries and number of destinations that match the route flow.	All levels
Unicast best match	Destination that is the best match for the route flow.	All levels
Flags	Information about the route flow.	All levels

```
show route flow validation user@host> show route flow validation
validation inet.0:
10.0.5.0/24Active unicast route
Dependent flow destinations: 1
Origin: 192.168.224.218, Neighbor AS: 65001
Flow destination (3 entries, 1 match origin)
Unicast best match: 10.0.5.0/24
Flags: SubtreeApex Consistent
```

show route forwarding-table

Syntax show route forwarding-table
 <detail | extensive | summary>
 <ccc interface-name>
 <destination>
 <family family | matching matching>
 <label name>
 <multicast>
 <table (default | routing-table-name)>
 <vpn vpn>

Syntax (Routing Matrix) show route forwarding-table
 <detail | extensive | summary>
 <ccc interface-name>
 <destination>
 <family family | matching matching>
 <label name>
 <lcc number>
 <multicast>
 <table routing-table-name>
 <vpn vpn>

Release Information Command introduced before JUNOS Release 7.4.

Description Display the Routing Engine's forwarding table, including the network-layer prefixes and their next hops. This command is used to help verify that the routing protocol process has relayed the correction information to the forwarding table. The Routing Engine constructs and maintains one or more routing tables. From the routing tables, the Routing Engine derives a table of active routes, called the forwarding table.



NOTE: The Routing Engine copies the forwarding table to the Packet Forwarding Engine, the part of the router that is responsible for forwarding packets. To display the entries in the Packet Forwarding Engine's forwarding table, use the **show pfe route** command. For more information, see the *JUNOS System Basics and Services Command Reference*.

Options none—Display the routes in the forwarding table.

detail | extensive | summary—(Optional) Display the specified level of output.

ccc interface-name—(Optional) Display route entries for the specified circuit cross-connect interface.

destination—(Optional) Destination prefix.

family family—(Optional) Display routing table entries for the specified family: inet, inet6, iso, mpls, tnp, unix, or vpls.

label *name*—(Optional) Display route entries for the specified label.

lcc *number*—(Routing matrix only) (Optional) Display information for the specified T640 routing node (or line-card chassis) connected to a TX Matrix platform. Replace with a value from 0 through 3.

matching *matching*—(Optional) Display routing table entries matching the specified prefix or prefix length.

multicast—(Optional) Display routing table entries for multicast routes.

table (default | *routing-table-name*)—(Optional) Display route entries for all the routing tables in the main routing instance or for the specified routing table.

vpn *vpn*—(Optional) Display routing table entries for a specified VPN.

Required Privilege Level view

List of Sample Output

- show route forwarding-table on page 353
- show route forwarding-table detail on page 354
- show route forwarding-table destination extensive (Weights and Balances) on page 355
- show route forwarding-table extensive on page 355
- show route forwarding-table extensive (RPF) on page 356
- show route forwarding-table family mpls on page 357
- show route forwarding-table family vpls on page 357
- show route forwarding-table family vpls extensive on page 357
- show route forwarding-table vpn on page 359

Output Fields Table 99 on page 350 lists the output fields for the **show route forwarding-table** command. Output fields are listed in the approximate order in which they appear. Field names may be abbreviated (as shown in parentheses) when no level of output is specified, or when the **detail** keyword is used instead of the **extensive** keyword.

Table 99: show route forwarding-table Output Fields

Field Name	Field Description	Level of Output
Routing table	Name of the routing table (for example, inet, inet6, mpls).	All levels
Address family	Address family (for example, IP, IPv6, ISO, MPLS, and VPLS).	All levels
Destination	Destination of the route.	detail extensive

Table 99: show route forwarding-table Output Fields (*continued*)

Field Name	Field Description	Level of Output
Route Type (Type)	<p>How the route was placed into the forwarding table. When the detail keyword is used, the route type might be abbreviated (as shown in parentheses):</p> <ul style="list-style-type: none"> ■ cloned (clon)—(TCP or multicast only) Cloned route. ■ destination (dest)—Remote addresses directly reachable through an interface. ■ destination down (iddn)—Destination route for which the interface is unreachable. ■ interface cloned (ifcl)—Cloned route for which the interface is unreachable. ■ route down (ifdn)—Interface route for which the interface is unreachable. ■ ignore (ignr)—Ignore this route. ■ interface (intf)—Installed as a result of configuring an interface. ■ permanent (perm)—Routes installed by the kernel when the routing table is initialized. ■ user—Routes installed by the routing protocol process or as a result of the configuration. 	All levels
Route Reference (RtRef)	Number of routes to reference.	detail extensive
Flags	<p>Route type flags:</p> <ul style="list-style-type: none"> ■ none—No flags are enabled. ■ accounting—Route has accounting enabled. ■ cached—Cache route. ■ incoming-iface<i>interface-number</i>—Check against incoming interface. ■ prefix load balance—Load balancing is enabled for this prefix. ■ sent to PFE—Route has been sent to the Packet Forwarding Engine. ■ static—Static route. 	extensive
Next hop	IP address of the next hop to the destination.	detail extensive

Table 99: show route forwarding-table Output Fields (continued)

Field Name	Field Description	Level of Output
Next hop Type (Type)	<p>Next-hop type. When the detail keyword is used, the next-hop type might be abbreviated (as indicated in parentheses):</p> <ul style="list-style-type: none"> ■ broadcast (bcst) —Broadcast. ■ deny—Deny. ■ hold—Next hop is waiting to be resolved into a unicast or multicast type. ■ indexed (idxd)—Indexed next hop. ■ indirect (indr)—Indirect next hop. ■ local (locl)—Local address on an interface. ■ routed multicast (mcr)—Regular multicast next hop ■ multicast (mcst)—Wire multicast next hop (limited to the LAN). ■ multicast discard (mdsc)—Multicast discard. ■ multicast group (mgrp) —Multicast group member. ■ receive (recv)—Receive. ■ reject (rjct) Discard. An ICMP unreachable message was sent. ■ resolve (rslv)—Resolving the next hop. ■ unicast (ucst)—Unicast. ■ unilist (ulst)—List of unicast next hops. A packet sent to this next hop goes to any next hop in the list. 	detail extensive
Index	Software index of the next hop that is used to route the traffic for a given prefix.	detail extensive none
Route interface-index	Logical interface index from which the route is learned. For example, for interface routes, this is the logical interface index of the route itself. For static routes, this field is zero. For routes learned through routing protocols, this is the logical interface index from which the route is learned.	extensive
Reference (NhRef)	Number of routes that refer to this next hop.	none detail extensive
Next-hop interface (Netif)	Interface used to reach the next hop.	none detail extensive
Weight	Value used to distinguish primary, secondary, and fast reroute backup routes. Weight information is available when Multiprotocol Label Switching (MPLS) label-switched path (LSP) link protection, node-link protection, or fast reroute is enabled, or when the standby state is enabled for secondary paths. A lower weight value is preferred. Among routes with the same weight value, load balancing is possible (see the Balance field description).	extensive
Balance	Balance coefficient indicating how traffic of unequal cost is distributed among next hops when a router is performing unequal-cost load balancing. This information is available when you enable Border Gateway Protocol (BGP) multipath load balancing.	extensive
RPF interface	List of interfaces from which the prefix can be accepted. Reverse path forwarding (RPF) information is displayed only when rpf-check is configured on the interface.	extensive

```

show route forwarding-table user@host> show route forwarding-table
Routing table: inet
Internet:
Destination      Type RtRef Next hop      Type Index NhRef Netif
default          user  0                rjct  10    1
default          perm  0                rjct  12    2
2.2.2.0/24       ifdn  0 f.0.8.0        ucst  39    1
so-1/1/0.0
2.2.2.1/32       user  0                rjct  12    2
2.2.2.1/32       intf  0 2.2.2.1        locl  38    1
4.1.1.0/24       intf  0 f.0.8.0        ucst  43    1
so-1/0/0.0
4.1.1.2/32       intf  0 4.1.1.2        locl  42    1
5.1.1.0/24       user  0                ucst  44    4
so-1/0/0.0
10.255.245.220/32 intf  0 10.255.245.220 locl  25    1
10.255.245.245/32 user  0                ucst  44    4
so-1/0/0.0
10.255.245.246/32 user  0                ucst  44    4
so-1/0/0.0
192.16.0.0/12     user  1 192.168.5.254   ucst  29    11 fxp0.0
192.168.0.0/18    user  0 192.168.5.254   ucst  29    11 fxp0.0
192.168.0.0/20    user  0 192.168.5.254   ucst  29    11 fxp0.0
192.168.1.0/24    user  0 192.168.5.254   ucst  29    11 fxp0.0
192.168.5.0/24    intf  0                rslv  22    1 fxp0.0
192.168.5.0/32    dest  0 192.168.5.0     recv  20    1 fxp0.0
192.168.5.49/32   dest  0 0:0:c0:e8:69:db ucst  31    1 fxp0.0
192.168.5.73/32   dest  0 0:a0:c9:85:c:44 ucst  32    1 fxp0.0
192.168.5.80/32   dest  0 0:d0:b7:1e:92:f2 ucst  30    1 fxp0.0
192.168.5.220/32  intf  0 192.168.5.220   locl  21    2

...

Routing table: iso
ISO:
Destination      Type RtRef Next hop      Type Index NhRef Netif
default          perm  0                rjct  27    1
47.0005.80ff.f800.0000.0108.0003.0102.5524.5220.00
intf  0                locl  28    1

Routing table: inet6
Internet6:
Destination      Type RtRef Next hop      Type Index NhRef Netif
default          perm  0                rjct  6     1
ff00::/8         perm  0                mdsc  4     1
ff02::1/128      perm  0 ff02::1        mcst  3     1

```

```

Routing table: ccc
MPLS:
Interface.Label    Type RtRef Next hop                Type Index NhRef Netif
default            perm  0                               rjct 16      1
100004(top)fe-0/0/1.0

show route forwarding-table detail
user@host> show route forwarding-table detail
Routing table: inet
Internet:
Destination        Type RtRef Next hop                Type Index NhRef Netif
default            user  2 0:90:69:8e:b1:1b      ucst 132      4 fxp0.0
default            perm  0                               rjct 14      1
10.1.1.0/24        intf  0 ff.3.0.21             ucst 322      1 so-5/3/0.0
10.1.1.0/32        dest  0 10.1.1.0             recv 324      1 so-5/3/0.0
10.1.1.1/32        intf  0 10.1.1.1             locl 321      1
10.1.1.255/32      dest  0 10.1.1.255          bcst 323      1 so-5/3/0.0
10.21.21.0/24      intf  0 ff.3.0.21             ucst 326      1 so-5/3/0.0
10.21.21.0/32      dest  0 10.21.21.0          recv 328      1 so-5/3/0.0
10.21.21.1/32      intf  0 10.21.21.1          locl 325      1
10.21.21.255/32    dest  0 10.21.21.255        bcst 327      1 so-5/3/0.0
127.0.0.1/32       intf  0 127.0.0.1            locl 320      1
172.17.28.19/32    clon  1 192.168.4.254        ucst 132      4 fxp0.0
172.17.28.44/32    clon  1 192.168.4.254        ucst 132      4 fxp0.0

...

Routing table: private1__inet
Internet:
Destination        Type RtRef Next hop                Type Index NhRef Netif
default            perm  0                               rjct 46      1
10.0.0.0/8         intf  0                               rslv 136      1 fxp1.0
10.0.0.0/32        dest  0 10.0.0.0             recv 134      1 fxp1.0
10.0.0.4/32        intf  0 10.0.0.4             locl 135      2
10.0.0.4/32        dest  0 10.0.0.4             locl 135      2

...

Routing table: iso
ISO:
Destination        Type RtRef Next hop                Type Index NhRef Netif
default            perm  0                               rjct 38      1

Routing table: inet6
Internet6:
Destination        Type RtRef Next hop                Type Index NhRef Netif
default            perm  0                               rjct 22      1
ff00::/8          perm  0                               mdsc 21      1
ff02::1/128       perm  0 ff02::1                mcst 17      1

...

Routing table: mpls
MPLS:
Destination        Type RtRef Next hop                Type Index NhRef Netif
default            perm  0                               rjct 28      1

```


**show route
forwarding-table
destination extensive
(Weights and Balances)**

```
user@host> show route forwarding-table destination 3.4.2.1 extensive
Routing table: inet [Index 0]
Internet:

Destination: 3.4.2.1/32
Route type: user
Route reference: 0
Flags: sent to PFE
Next-hop type: unicast
Next-hop: 4.4.4.4
Next-hop type: unicast
Next-hop interface: so-1/1/0.0
Next-hop: 145.12.1.2
Next-hop type: unicast
Next-hop interface: so-0/1/2.0
Route interface-index: 0
Index: 262143 Reference: 1
Index: 335 Reference: 2
Weight: 22 Balance: 3
Index: 337 Reference: 2
Weight: 33 Balance: 33
```

**show route
forwarding-table
extensive**

```
user@host> show route forwarding-table extensive
Routing table: inet [Index 0]
Internet:

Destination: default
Route type: user
Route reference: 2
Flags: sent to PFE
Next-hop: 0:90:69:8e:b1:1b
Next-hop type: unicast
Next-hop interface: fxp0.0
Route interface-index: 0
Index: 132 Reference: 4

Destination: default
Route type: permanent
Route reference: 0
Flags: none
Next-hop type: reject
Route interface-index: 0
Index: 14 Reference: 1

Destination: 127.0.0.1/32
Route type: interface
Route reference: 0
Flags: sent to PFE
Next-hop: 127.0.0.1
Next-hop type: local
Route interface-index: 0
Index: 320 Reference: 1

...

Routing table: private1__inet [Index 1]
Internet:

Destination: default
Route type: permanent
Route reference: 0
Flags: sent to PFE
Next-hop type: reject
Route interface-index: 0
Index: 46 Reference: 1

Destination: 10.0.0.0/8
Route type: interface
Route reference: 0
Flags: sent to PFE
Next-hop type: resolve
Next-hop interface: fxp1.0
Route interface-index: 3
Index: 136 Reference: 1

...
```

```

Routing table: iso [Index 0]
ISO:

Destination: default
Route type: permanent
Route reference: 0
Flags: sent to PFE
Next-hop type: reject
Route interface-index: 0
Index: 38      Reference: 1

Routing table: inet6 [Index 0]
Internet6:

Destination: default
Route type: permanent
Route reference: 0
Flags: sent to PFE
Next-hop type: reject
Route interface-index: 0
Index: 22      Reference: 1

Destination: ff00::/8
Route type: permanent
Route reference: 0
Flags: sent to PFE
Next-hop type: multicast discard
Route interface-index: 0
Index: 21      Reference: 1

...

Routing table: private1__inet6 [Index 1]
Internet6:

Destination: default
Route type: permanent
Route reference: 0
Flags: sent to PFE
Next-hop type: reject
Route interface-index: 0
Index: 54      Reference: 1

Destination: fe80::2a0:a5ff:fe3d:375/128
Route type: interface
Route reference: 0
Flags: sent to PFE
Nexthop: fe80::2a0:a5ff:fe3d:375
Next-hop type: local
Route interface-index: 0
Index: 75      Reference: 1

...

```

**show route
forwarding-table
extensive (RPF)**

The next example is based on the following configuration, which enables an RPF check on all routes that are learned from this interface, including the interface route:

```

so-1/1/0 {
  unit 0 {
    family inet {
      rpf-check;
      address 15.95.1.2/30;
    }
  }
}

```

```

user@host> show route forwarding-table extensive
Routing table: inet [Index 0]
Internet:
...
...

```

```

Destination: 15.95.1.3/32
Route type: destination
Route reference: 0                      Route interface-index: 67
Flags: sent to PFE
Next-hop: 15.95.1.3
Next-hop type: broadcast                Index: 328      Reference: 1
Next-hop interface: so-1/1/0.0
RPF interface: so-1/1/0.0

```

```

show route forwarding-table family mpls
user@host> show route forwarding-table family mpls
Routing table: mpls
MPLS:
Destination      Type RtRef Next hop                Type Index NhRef Netif
default          perm  0
0                user  0
1                user  0
2                user  0
100000           user  0 10.31.1.6                swap 100001      fe-1/1/0.0
800002           user  0                        Pop                                vt-0/3/0.32770

vt-0/3/0.32770 (VPLS)
                        user  0                        indr  351      4
                        Push 800000, Push 100002(top)

so-0/0/0.0

```

```

show route forwarding-table family vpls
user@host> show route forwarding-table family vpls
Routing table: green.vpls
VPLS:
Destination      Type RtRef Next hop                Type Index NhRef Netif
default          dym  0
default          perm  0
fe-0/1/0.0       dym  0
00:90:69:0c:20:1f/48      <<<<<Remote CE

                        dym  0                        indr  351      4
                        Push 800000, Push 100002(top)

so-0/0/0.0
00:90:69:85:b0:1f/48      <<<<<Local CE

                        dym  0                        ucst  354      2 fe-0/1/0.0

```

```

show route forwarding-table family vpls extensive
user@host> show route forwarding-table family vpls extensive
Routing table: green.vpls [Index 2]
VPLS:

Destination: default
Route type: dynamic
Route reference: 0                      Route interface-index: 72
Flags: sent to PFE
Next-hop type: flood                    Index: 289      Reference: 1
Next-hop type: unicast                  Index: 291      Reference: 3
Next-hop interface: fe-0/1/3.0
Next-hop type: unicast                  Index: 290      Reference: 3
Next-hop interface: fe-0/1/2.0

Destination: default
Route type: permanent
Route reference: 0                      Route interface-index: 0
Flags: none
Next-hop type: discard                  Index: 341      Reference: 1

```

```

Destination: fe-0/1/2.0
Route type: dynamic
Route reference: 0
Flags: sent to PFE
Next-hop type: flood
Next-hop type: indirect
Next-hop type: Push 800016
Next-hop interface: at-1/0/1.0
Next-hop type: indirect
Next hop: 10.31.3.2
Next-hop type: Push 800000
Next-hop interface: fe-0/1/1.0
Next-hop type: unicast
Next-hop interface: fe-0/1/3.0
Route interface-index: 69
Index: 293 Reference: 1
Index: 363 Reference: 4
Index: 301 Reference: 5
Index: 291 Reference: 3

Destination: fe-0/1/3.0
Route type: dynamic
Route reference: 0
Flags: sent to PFE
Next-hop type: flood
Next-hop type: indirect
Next-hop type: Push 800016
Next-hop interface: at-1/0/1.0
Next-hop type: indirect
Next hop: 10.31.3.2
Next-hop type: Push 800000
Next-hop interface: fe-0/1/1.0
Next-hop type: unicast
Next-hop interface: fe-0/1/2.0
Route interface-index: 70
Index: 292 Reference: 1
Index: 363 Reference: 4
Index: 301 Reference: 5
Index: 290 Reference: 3

Destination: 10:00:00:01:01:01/48
Route type: dynamic
Route reference: 0
Flags: sent to PFE, prefix load balance
Next-hop type: unicast
Next-hop interface: fe-0/1/3.0
Route used as destination:
  Packet count: 6640 Byte count: 675786
Route used as source:
  Packet count: 6894 Byte count: 696424
Route interface-index: 70
Index: 291 Reference: 3

Destination: 10:00:00:01:01:04/48
Route type: dynamic
Route reference: 0
Flags: sent to PFE, prefix load balance
Next-hop type: unicast
Next-hop interface: fe-0/1/2.0
Route used as destination:
  Packet count: 96 Byte count: 8079
Route used as source:
  Packet count: 296 Byte count: 24955
Route interface-index: 69
Index: 290 Reference: 3

Destination: 10:00:00:01:03:05/48
Route type: dynamic
Route reference: 0
Flags: sent to PFE, prefix load balance
Next-hop type: indirect
Next hop: 10.31.3.2
Next-hop type: Push 800000
Next-hop interface: fe-0/1/1.0
Route interface-index: 74
Index: 301 Reference: 5

```

```

show route forwarding-table vpn user@host> show route forwarding-table vpn VPN-A
Routing table:: VPN-A.inet
Internet:
  Destination      Type RtRef Nexthop      Type Index NhRef Netif
  default          perm  0      0      rjct  4    4
  10.39.10.20/30   intf  0      ff.3.0.21 ucst  40   1
  so-0/0/0.0
  10.39.10.21/32   intf  0      10.39.10.21 locl  36   1
  10.255.14.172/32 user  0      0      ucst  69   2
  so-0/0/0.0
  10.255.14.175/32 user  0      0      indr  81   3
                                Push 100004, Push
  100004(top) so-1/0/0.0
  224.0.0.0/4      perm  2      0      mdsc  5    3
  224.0.0.1/32     perm  0      224.0.0.1 mcst  1    8
  224.0.0.5/32     user  1      224.0.0.5 mcst  1    8
  255.255.255.255/32 perm  0      0      bcst  2    3

```

show route hidden

Syntax	show route hidden <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display only hidden route information. A hidden route is unusable, even if it is the best path.
Options	<p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route hidden on page 360</p> <p>show route hidden detail on page 361</p> <p>show route hidden extensive on page 361</p> <p>show route hidden terse on page 361</p>
Output Fields	For information about output fields, see the <code>show route</code> command (Table 88 on page 287), the <code>show route detail</code> command (Table 91 on page 316), the <code>show route extensive</code> command (Table 97 on page 336), or the <code>show route terse</code> command (Table 105 on page 437).

```

user@host> show route hidden
inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both
127.0.0.1/32      [Direct/0] 04:26:38
                  > via lo0.0

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both
10.5.5.5/32      [BGP/170] 03:44:10, localpref 100, from 10.4.4.4
                  AS path: 100 I
                  Unusable
10.12.1.0/24     [BGP/170] 03:44:10, localpref 100, from 10.4.4.4
                  AS path: 100 I
                  Unusable
10.12.80.4/30    [BGP/170] 03:44:10, localpref 100, from 10.4.4.4
                  AS path: I
                  Unusable
...

```

show route hidden detail user@host> **show route hidden detail**

```
inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
Restart Complete
127.0.0.1/32 (1 entry, 0 announced)
    Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 1
        Next hop: via lo0.0, selected
        State: <Hidden Martian Int>
        Local AS: 1
        Age: 4:27:37
        Task: IF
        AS path: I

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden)
Restart Complete

10.5.5.5/32 (1 entry, 0 announced)
    BGP Preference: 170/-101
        Route Distinguisher: 10.4.4.4:4
        Next hop type: Unusable
        Next-hop reference count: 6
        State: <Secondary Hidden Int Ext>
        Local AS: 1 Peer AS: 1
        Age: 3:45:09
        Task: BGP_1.10.4.4.4+2493
        AS path: 100 I
        Communities: target:1:999
        VPN Label: 100064
        Localpref: 100
        Router ID: 10.4.4.4
        Primary Routing Table bgp.13vpn.0

...
```

show route hidden extensive The output for the **show route hidden extensive** command is identical to that of the **show route hidden detail** command. For sample output, see **show route hidden detail** on page 361.

show route hidden terse user@host> **show route hidden terse**

```
inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
127.0.0.1/32      D  0                >100.0

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
10.5.5.5/32        B 170      100        Unusable     100 I
10.12.1.0/24       B 170      100        Unusable     100 I
```

```

10.12.80.4/30      B 170      100      Unusable      I

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

bgp.l3vpn.0: 3 destinations, 3 routes (0 active, 0 holddown, 3 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf    Metric 1    Metric 2    Next hop      AS path
10.4.4.4:10.5.5.5/32
                    B 170      100          Unusable      100 I
10.4.4.4:10.12.1.0/24
                    B 170      100          Unusable      100 I
10.4.4.4:10.12.80.4/30
                    B 170      100          Unusable      I

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

```


show route inactive-path

Syntax	show route inactive-path <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display routes for destinations that have no active route. An inactive route is a route that was not selected as the best path.
Options	<p>none—Display all inactive routes.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route inactive-path on page 363</p> <p>show route inactive-path detail on page 364</p> <p>show route inactive-path extensive on page 365</p> <p>show route inactive-path terse on page 365</p>
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).

```

user@host> show route inactive-path

inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

10.12.100.12/30      [OSPF/10] 03:57:28, metric 1
> via so-0/3/0.0

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

10.0.0.0/8          [Direct/0] 04:39:56
> via fxp1.0

red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

10.12.80.0/30       [BGP/170] 04:38:17, localpref 100
                    AS path: 100 I
> to 10.12.80.1 via ge-6/3/2.0

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

```

Restart Complete

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

bgp.l3vpn.0: 3 destinations, 3 routes (0 active, 0 holddown, 3 hidden)
Restart Complete

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1__inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

show route inactive-path detail

user@host> show route inactive-path detail

inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
Restart Complete

10.12.100.12/30 (2 entries, 1 announced)
 OSPF Preference: 10
 Next-hop reference count: 1
 Next hop: via so-0/3/0.0, selected
 State: <Int>
 Inactive reason: Route Preference
 Local AS: 1
 Age: 3:58:24 Metric: 1
 Area: 0.0.0.0
 Task: OSPF
 AS path: I

private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

10.0.0.0/8 (2 entries, 0 announced)
 Direct Preference: 0
 Next hop type: Interface
 Next-hop reference count: 1
 Next hop: via fxp1.0, selected
 State: <NotBest Int>
 Inactive reason: No difference
 Age: 4:40:52
 Task: IF
 AS path: I

red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden)
Restart Complete

10.12.80.0/30 (2 entries, 1 announced)
 BGP Preference: 170/-101
 Next-hop reference count: 6
 Source: 10.12.80.1
 Next hop: 10.12.80.1 via ge-6/3/2.0, selected
 State: <Ext>
 Inactive reason: Route Preference
 Peer AS: 100
 Age: 4:39:13
 Task: BGP_100.10.12.80.1+179
 AS path: 100 I
 Localpref: 100
 Router ID: 10.0.0.0

show route inactive-path extensive The output for the show route inactive-path extensive command is identical to that of the show route inactive-path detail command. For sample output, see **show route inactive-path detail** on page 364.

show route inactive-path terse

```
user@host> show route inactive-path terse

inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
  10.12.100.12/30   0  10           1           >so-0/3/0.0

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
  10.0.0.0/8        D   0           0           >fxp1.0

red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
  10.12.80.0/30     B 170          100          >10.12.80.1    100 I

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

bgp.l3vpn.0: 3 destinations, 3 routes (0 active, 0 holddown, 3 hidden)
Restart Complete

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```

show route inactive-prefix

Syntax	show route inactive-prefix <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display inactive route destinations in each routing table.
Options	<p>none—Display all inactive route destination.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route inactive-prefix on page 366</p> <p>show route inactive-prefix detail on page 366</p> <p>show route inactive-prefix extensive on page 367</p> <p>show route inactive-prefix terse on page 367</p>
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).
show route inactive-prefix	<pre> user@host> show route inactive-prefix inet.0: 14 destinations, 14 routes (13 active, 0 holddown, 1 hidden) + = Active Route, - = Last Active, * = Both 127.0.0.1/32 [Direct/0] 00:04:54 > via lo0.0 </pre>
show route inactive-prefix detail	<pre> user@host> show route inactive-prefix detail inet.0: 14 destinations, 14 routes (13 active, 0 holddown, 1 hidden) 127.0.0.1/32 (1 entry, 0 announced) Direct Preference: 0 Next hop type: Interface Next-hop reference count: 1 Next hop: via lo0.0, selected State: <Hidden Martian Int> Age: 4:51 Task: IF AS path: I00:04:54 > via lo0.0 </pre>

show route inactive-prefix extensive The output for the `show route inactive-prefix extensive` command is identical to that of the `show route inactive-path detail` command. For sample output, see `show route inactive-prefix detail` on page 366.

show route inactive-prefix terse

```
user@host> show route inactive-prefix terse
inet.0: 18 destinations, 18 routes (17 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
127.0.0.1/32      D    0                      >1o0.0
```

show route instance

Syntax	show route instance <brief detail summary> <instance-name> <logical-system (all <i>logical-system-name</i>)> <operational>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display routing instance information.
Options	<p>none—(Same as brief) Display standard information about all routing instances on all logical systems.</p> <p>brief detail summary—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief. (These options are not available with the operational keyword.)</p> <p><i>instance-name</i>—(Optional) Display information for specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>operational—(Optional) Display operational routing instances.</p>
Required Privilege Level	view
List of Sample Output	<p>show route instance on page 369</p> <p>show route instance detail (Graceful Restart Complete) on page 369</p> <p>show route instance detail (Graceful Restart Incomplete) on page 371</p> <p>show route instance operational on page 373</p> <p>show route instance summary on page 373</p>
Output Fields	Table 100 on page 368 lists the output fields for the show route instance command. Output fields are listed in the approximate order in which they appear.

Table 100: show route instance Output Fields

Field Name	Field Description	Level of Output
Instance or <i>instance-name</i>	Name of the routing instance.	All levels
Operational Routing Instances	(operational keyword only) Names of all operational routing instances.	—
Type	Type of routing instance: forwarding , l2vpn , no-forwarding , vpls , or vrf .	All levels
State	State of the routing instance: active or inactive .	brief detail none
Interfaces	Name of interfaces belonging to this routing instance.	brief detail none
Restart State	Status of graceful restart for this instance: Pending or Complete .	detail

Table 100: show route instance Output Fields (*continued*)

Field Name	Field Description	Level of Output
Path selection timeout	Maximum amount of time, in seconds, remaining until graceful restart is declared complete. The default is 300.	detail
Tables	Tables (and number of routes) associated with this routing instance.	none brief detail
Route-distinguisher	Unique route distinguisher associated with this routing instance.	detail
Vrf-import	VPN routing and forwarding instance import policy name.	detail
Vrf-export	VPN routing and forwarding instance export policy name.	detail
Vrf-import-target	VPN routing and forwarding instance import target community name.	detail
Vrf-export-target	VPN routing and forwarding instance export target community name.	detail
Restart State	Restart state: <ul style="list-style-type: none"> ■ Pending;<i>protocol-name</i>—List of protocols that have not yet completed graceful restart for this routing table. ■ Complete—All protocols have restarted for this routing table. 	detail
Primary rib	Primary table for this routing instance.	brief none summary
Active/holddown/hidden	Number of active, hold-down, and hidden routes.	All levels

```

show route instance user@host> show route instance
Instance              Type
Primary RIB
master                forwarding
inet.0                16/0/1
iso.0                 1/0/0
mpls.0                0/0/0
inet6.0               2/0/0
l2circuit.0           0/0/0
__juniper_private1__ forwarding
__juniper_private1__.inet.0 12/0/0
__juniper_private1__.inet6.0 1/0/0

show route instance detail (Graceful Restart Complete) user@host> show route instance detail
master:
Router ID: 10.255.14.176
Type: forwarding      State: Active
Restart State: Complete Path selection timeout: 300
Tables:
inet.0                : 17 routes (15 active, 0 holddown, 1 hidden)
Restart Complete
inet.3                 : 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete
iso.0                  : 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete
mpls.0                 : 19 routes (19 active, 0 holddown, 0 hidden)
Restart Complete

```

```

    bgp.l3vpn.0          : 10 routes (10 active, 0 holddown, 0 hidden)
    Restart Complete
    inet6.0              : 2 routes (2 active, 0 holddown, 0 hidden)
    Restart Complete
    bgp.l2vpn.0          : 1 routes (1 active, 0 holddown, 0 hidden)
    Restart Complete
BGP-INET:
  Router ID: 10.69.103.1
  Type: vrf              State: Active
  Restart State: Complete Path selection timeout: 300
  Interfaces:
    t3-0/0/0.103
  Route-distinguisher: 10.255.14.176:103
  Vrf-import: [ BGP-INET-import ]
  Vrf-export: [ BGP-INET-export ]
  Tables:
    BGP-INET.inet.0      : 4 routes (4 active, 0 holddown, 0 hidden)
    Restart Complete
BGP-L:
  Router ID: 10.69.104.1
  Type: vrf              State: Active
  Restart State: Complete Path selection timeout: 300
  Interfaces:
    t3-0/0/0.104
  Route-distinguisher: 10.255.14.176:104
  Vrf-import: [ BGP-L-import ]
  Vrf-export: [ BGP-L-export ]
  Tables:
    BGP-L.inet.0         : 4 routes (4 active, 0 holddown, 0 hidden)
    Restart Complete
    BGP-L.mpls.0         : 3 routes (3 active, 0 holddown, 0 hidden)
    Restart Complete
L2VPN:
  Router ID: 0.0.0.0
  Type: l2vpn            State: Active
  Restart State: Complete Path selection timeout: 300
  Interfaces:
    t3-0/0/0.512
  Route-distinguisher: 10.255.14.176:512
  Vrf-import: [ L2VPN-import ]
  Vrf-export: [ L2VPN-export ]
  Tables:
    L2VPN.l2vpn.0        : 2 routes (2 active, 0 holddown, 0 hidden)
    Restart Complete
LDP:
  Router ID: 10.69.105.1
  Type: vrf              State: Active
  Restart State: Complete Path selection timeout: 300
  Interfaces:
    t3-0/0/0.105
  Route-distinguisher: 10.255.14.176:105
  Vrf-import: [ LDP-import ]
  Vrf-export: [ LDP-export ]
  Tables:
    LDP.inet.0           : 5 routes (4 active, 0 holddown, 0 hidden)
    Restart Complete
OSPF:
  Router ID: 10.69.101.1
  Type: vrf              State: Active
  Restart State: Complete Path selection timeout: 300
  Interfaces:

```



```

t3-0/0/0.101
Route-distinguisher: 10.255.14.176:101
Vrf-import: [ OSPF-import ]
Vrf-export: [ OSPF-export ]
Vrf-import-target: [ target:11111
Tables:
  OSPF.inet.0          : 8 routes (7 active, 0 holddown, 0 hidden)
Restart Complete
RIP:
Router ID: 10.69.102.1
Type: vrf              State: Active
Restart State: Complete Path selection timeout: 300
Interfaces:
t3-0/0/0.102
Route-distinguisher: 10.255.14.176:102
Vrf-import: [ RIP-import ]
Vrf-export: [ RIP-export ]
Tables:
  RIP.inet.0           : 6 routes (6 active, 0 holddown, 0 hidden)
Restart Complete
STATIC:
Router ID: 10.69.100.1
Type: vrf              State: Active
Restart State: Complete Path selection timeout: 300
Interfaces:
t3-0/0/0.100
Route-distinguisher: 10.255.14.176:100
Vrf-import: [ STATIC-import ]
Vrf-export: [ STATIC-export ]
Tables:
  STATIC.inet.0        : 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

```

**show route instance
detail (Graceful Restart
Incomplete)**

```

user@host> show route instance detail
master:
Router ID: 10.255.14.176
Type: forwarding      State: Active
Restart State: Pending Path selection timeout: 300
Tables:
inet.0                : 17 routes (15 active, 1 holddown, 1 hidden)
Restart Pending: OSPF LDP
inet.3                : 2 routes (2 active, 0 holddown, 0 hidden)
Restart Pending: OSPF LDP
iso.0                 : 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete
mpls.0                : 23 routes (23 active, 0 holddown, 0 hidden)
Restart Pending: LDP VPN
bgp.l3vpn.0           : 10 routes (10 active, 0 holddown, 0 hidden)
Restart Pending: BGP VPN
inet6.0               : 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete
bgp.l2vpn.0           : 1 routes (1 active, 0 holddown, 0 hidden)
Restart Pending: BGP VPN
BGP-INET:
Router ID: 10.69.103.1
Type: vrf              State: Active
Restart State: Pending Path selection timeout: 300
Interfaces:
t3-0/0/0.103
Route-distinguisher: 10.255.14.176:103
Vrf-import: [ BGP-INET-import ]

```

```

Vrf-export: [ BGP-INET-export ]
Tables:
  BGP-INET.inet.0      : 6 routes (5 active, 0 holddown, 0 hidden)
  Restart Pending: VPN
BGP-L:
  Router ID: 10.69.104.1
  Type: vrf              State: Active
  Restart State: Pending Path selection timeout: 300
  Interfaces:
    t3-0/0/0.104
  Route-distinguisher: 10.255.14.176:104
  Vrf-import: [ BGP-L-import ]
  Vrf-export: [ BGP-L-export ]
  Tables:
    BGP-L.inet.0      : 6 routes (5 active, 0 holddown, 0 hidden)
    Restart Pending: VPN
    BGP-L.mpls.0      : 2 routes (2 active, 0 holddown, 0 hidden)
    Restart Pending: VPN
L2VPN:
  Router ID: 0.0.0.0
  Type: l2vpn            State: Active
  Restart State: Pending Path selection timeout: 300
  Interfaces:
    t3-0/0/0.512
  Route-distinguisher: 10.255.14.176:512
  Vrf-import: [ L2VPN-import ]
  Vrf-export: [ L2VPN-export ]
  Tables:
    L2VPN.l2vpn.0     : 2 routes (2 active, 0 holddown, 0 hidden)
    Restart Pending: VPN L2VPN
LDP:
  Router ID: 10.69.105.1
  Type: vrf              State: Active
  Restart State: Pending Path selection timeout: 300
  Interfaces:
    t3-0/0/0.105
  Route-distinguisher: 10.255.14.176:105
  Vrf-import: [ LDP-import ]
  Vrf-export: [ LDP-export ]
  Tables:
    LDP.inet.0        : 5 routes (4 active, 1 holddown, 0 hidden)
    Restart Pending: OSPF LDP VPN
OSPF:
  Router ID: 10.69.101.1
  Type: vrf              State: Active
  Restart State: Pending Path selection timeout: 300
  Interfaces:
    t3-0/0/0.101
  Route-distinguisher: 10.255.14.176:101
  Vrf-import: [ OSPF-import ]
  Vrf-export: [ OSPF-export ]
  Tables:
    OSPF.inet.0       : 8 routes (7 active, 1 holddown, 0 hidden)
    Restart Pending: OSPF VPN
RIP:
  Router ID: 10.69.102.1
  Type: vrf              State: Active
  Restart State: Pending Path selection timeout: 300
  Interfaces:
    t3-0/0/0.102
  Route-distinguisher: 10.255.14.176:102

```

```

Vrf-import: [ RIP-import ]
Vrf-export: [ RIP-export ]
Tables:
  RIP.inet.0          : 8 routes (6 active, 2 holddown, 0 hidden)
  Restart Pending: RIP VPN
STATIC:
  Router ID: 10.69.100.1
  Type: vrf           State: Active
  Restart State: Pending Path selection timeout: 300
  Interfaces:
    t3-0/0/0.100
  Route-distinguisher: 10.255.14.176:100
  Vrf-import: [ STATIC-import ]
  Vrf-export: [ STATIC-export ]
  Tables:
    STATIC.inet.0      : 4 routes (4 active, 0 holddown, 0 hidden)
    Restart Pending: VPN

```

show route instance operational user@host> **show route instance operational**
Operational Routing Instances:

```

master
default

```

show route instance summary user@host> **show route instance summary**

Instance	Type	Primary rib	Active/holddown/hidden
master	forwarding		
		inet.0	15/0/1
		iso.0	1/0/0
		mpls.0	35/0/0
		l3vpn.0	0/0/0
		inet6.0	2/0/0
		l2vpn.0	0/0/0
		l2circuit.0	0/0/0
BGP-INET	vrf		
		BGP-INET.inet.0	5/0/0
		BGP-INET.iso.0	0/0/0
		BGP-INET.inet6.0	0/0/0
BGP-L	vrf		
		BGP-L.inet.0	5/0/0
		BGP-L.iso.0	0/0/0
		BGP-L.mpls.0	4/0/0
		BGP-L.inet6.0	0/0/0
L2VPN	l2vpn		
		L2VPN.inet.0	0/0/0
		L2VPN.iso.0	0/0/0
		L2VPN.inet6.0	0/0/0
		L2VPN.l2vpn.0	2/0/0
LDP	vrf		
		LDP.inet.0	4/0/0
		LDP.iso.0	0/0/0
		LDP.mpls.0	0/0/0
		LDP.inet6.0	0/0/0
		LDP.l2circuit.0	0/0/0
OSPF	vrf		
		OSPF.inet.0	7/0/0
		OSPF.iso.0	0/0/0
		OSPF.inet6.0	0/0/0

RIP	vrf	RIP.inet.0	6/0/0
		RIP.iso.0	0/0/0
		RIP.inet6.0	0/0/0
STATIC	vrf	STATIC.inet.0	4/0/0
		STATIC.iso.0	0/0/0
		STATIC.inet6.0	0/0/0

show route label

Syntax	show route label <i>label</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the routes based on a specified Multiprotocol Label Switching (MPLS) label value.
Options	<p><i>label</i>—Value of the MPLS label.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route label on page 375</p> <p>show route label detail on page 376</p> <p>show route label extensive on page 376</p> <p>show route label terse on page 376</p>
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437). The Ref Cnt field name in the show route label command is equivalent to the Reference Count field displayed in the show route command.
show route label	<pre> user@host> show route label 100016 mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 100016 *[VPN/170] 03:25:41 > to 10.12.80.1 via ge-6/3/2.0, Pop </pre>

show route label detail user@host> **show route label 100016 detail**

```

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
100016 (1 entry, 1 announced)
    *VPN      Preference: 170
              Next-hop reference count: 2
              Source: 10.12.80.1
              Next hop: 10.12.80.1 via ge-6/3/2.0, selected
              Label operation: Pop
              State: <Active Int Ext>
              Local AS:      1
              Age: 3:23:31
              Task: BGP.0.0.0.0+179
              Announcement bits (1): 0-KRT
              AS path: 100 I
              Ref Cnt: 2

```

show route label extensive The output for the show route label extensive command is identical to that of the show route label detail command. For sample output, see **show route label detail** on page 376.

show route label terse user@host> **show route label 100016 terse**

```

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
* 100016           V 170                >10.12.80.1

```

show route label-switched-path

Syntax	show route label-switched-path <i>path-name</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the routes used in a Multiprotocol Label Switching (MPLS) label-switched path (LSP).
Options	<p><i>path-name</i>—LSP tunnel name.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show route label-switched-path on page 377
Output Fields	For information about output fields, see the <code>show route</code> command (Table 88 on page 287), the <code>show route detail</code> command (Table 91 on page 316), the <code>show route extensive</code> command (Table 97 on page 336), or the <code>show route terse</code> command (Table 105 on page 437).
show route label-switched-path	<pre> user@host> show route label-switched-path sf-to-ny inet.0: 29 destinations, 29 routes (29 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both 1.1.1.1/32 [MPLS/7] 00:00:06, metric 0 > to 111.222.1.9 via s0-0/0/0, label-switched-path sf-to-ny 3.3.3.3/32 *[MPLS/7] 00:00:06, metric 0 > to 111.222.1.9 via s0-0/0/0, label-switched-path sf-to-ny inet.3: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both 2.2.2.2/32 *[MPLS/7] 00:00:06, metric 0 > to 111.222.1.9 via s0-0/0/0, label-switched-path sf-to-ny 4.4.4.4/32 *[MPLS/7] 00:00:06, metric 0 to 111.222.1.9 via s0-0/0/0, label-switched-path abc > to 111.222.1.9 via s0-0/0/0, label-switched-path xyz to 111.222.1.9 via s0-0/0/0, label-switched-path sf-to-ny 111.222.1.9/32 [MPLS/7] 00:00:06, metric 0 > to 111.222.1.9 via s0-0/0/0, label-switched-path sf-to-ny iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both mpls.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both </pre>

show route martians

Syntax	show route martians <logical-system (all <i>logical-system-name</i>)> <table <i>routing-table-name</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the martian (invalid and ignored) entries associated with each routing table.
Options	<p>none—Display standard information about route martians for all routing tables on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>table <i>routing-table-name</i>—(Optional) Display only the martian entries associated with a particular routing table.</p>
Required Privilege Level	view
List of Sample Output	show route martians on page 378
Output Fields	Table 101 on page 378 lists the output fields for the show route martians command. Output fields are listed in the approximate order in which they appear

Table 101: show route martians Output Fields

Field Name	Field Description
<i>table-name</i>	Name of the route table in which the route martians reside.
<i>destination-prefix</i>	Route destination.
<i>match value</i>	Route match parameter.
<i>status</i>	Status of the route: allowed or disallowed.

```

show route martians    user@host> show route martians

inet.0:
    0.0.0.0/0 exact -- allowed
    0.0.0.0/8 orlonger -- disallowed
    127.0.0.0/8 orlonger -- disallowed
    128.0.0.0/16 orlonger -- disallowed
    191.255.0.0/16 orlonger -- disallowed
    192.0.0.0/24 orlonger -- disallowed
    223.255.255.0/24 orlonger -- disallowed
    240.0.0.0/4 orlonger -- disallowed

```



```
inet.1:
0.0.0.0/0 exact -- allowed
0.0.0.0/8 orlonger -- disallowed
127.0.0.0/8 orlonger -- disallowed
128.0.0.0/16 orlonger -- disallowed
191.255.0.0/16 orlonger -- disallowed
192.0.0.0/24 orlonger -- disallowed
223.255.255.0/24 orlonger -- disallowed
240.0.0.0/4 orlonger -- disallowed

....
```

show route next-hop

Syntax	show route next-hop <i>next-hop</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the entries in the routing table that are being sent to the specified next-hop address.
Options	<p>none—Display information about all entries in the routing table that are being sent to the specified next-hop address for routes on all logical systems.</p> <p><i>next-hop</i>—Next hop address.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route next-hop on page 380</p> <p>show route next-hop detail on page 381</p> <p>show route next-hop extensive on page 382</p> <p>show route next-hop terse on page 384</p>
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).
show route next-hop	<pre> user@host> show route next-hop 192.168.71.254 inet.0: 18 destinations, 18 routes (17 active, 0 holddown, 1 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 10.10.0.0/16 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 10.209.0.0/16 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 172.16.0.0/12 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 192.168.0.0/16 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 192.168.102.0/23 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 207.17.136.0/24 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 207.17.136.192/32 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden) </pre>

```

red.inet.0: 4 destinations, 5 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

```

**show route next-hop
detail**

```

user@host> show route next-hop 192.168.71.254 detail

inet.0: 18 destinations, 18 routes (17 active, 0 holddown, 1 hidden)
Restart Complete
10.10.0.0/16 (1 entry, 1 announced)
    *Static Preference: 5
        Next-hop reference count: 36
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Local AS:      1
        Age: 6:27:41
        Task: RT
        Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
        AS path: I

10.209.0.0/16 (1 entry, 1 announced)
    *Static Preference: 5
        Next-hop reference count: 36
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Local AS:      1
        Age: 6:27:41
        Task: RT
        Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
        AS path: I

172.16.0.0/12 (1 entry, 1 announced)
    *Static Preference: 5
        Next-hop reference count: 36
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Local AS:      1
        Age: 6:27:41
        Task: RT
        Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
        AS path: I

192.168.0.0/16 (1 entry, 1 announced)
    *Static Preference: 5
        Next-hop reference count: 36
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Local AS:      1
        Age: 6:27:41
        Task: RT
        Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2

```

```

AS path: I

192.168.102.0/23 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 36
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 1
    Age: 6:27:41
    Task: RT
    Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
    AS path: I

207.17.136.0/24 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 36
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 1
    Age: 6:27:41
    Task: RT
    Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
    AS path: I

207.17.136.192/32 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 36
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 1
    Age: 6:27:41
    Task: RT
    Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
    AS path: I

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

red.inet.0: 4 destinations, 5 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

```

```

show route next-hop extensive user@host> show route next-hop 192.168.71.254 extensive

```

```

inet.0: 18 destinations, 18 routes (17 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.10.0.0/16 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>

```

```

Local AS: 69
Age: 2:02:28
Task: RT
Announcement bits (1): 0-KRT
AS path: I

10.209.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.209.0.0/16 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:02:28
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

172.16.0.0/12 (1 entry, 1 announced)
TSI:
KRT in-kernel 172.16.0.0/12 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:02:28
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

192.168.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 192.168.0.0/16 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:02:28
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

192.168.102.0/23 (1 entry, 1 announced)
TSI:
KRT in-kernel 192.168.102.0/23 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:02:28
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

207.17.136.0/24 (1 entry, 1 announced)
TSI:
KRT in-kernel 207.17.136.0/24 -> {192.168.71.254}

```

```

*Static Preference: 5
  Next-hop reference count: 22
  Next hop: 192.168.71.254 via fxp0.0, selected
  State: <Active NoReadvrt Int Ext>
  Local AS: 69
  Age: 2:02:28
  Task: RT
  Announcement bits (1): 0-KRT
  AS path: I

```

```
207.17.136.192/32 (1 entry, 1 announced)
```

```
TSI:
```

```
KRT in-kerne1 207.17.136.192/32 -> {192.168.71.254}
```

```

*Static Preference: 5
  Next-hop reference count: 22
  Next hop: 192.168.71.254 via fxp0.0, selected
  State: <Active NoReadvrt Int Ext>
  Local AS: 69
  Age: 2:02:28
  Task: RT
  Announcement bits (1): 0-KRT
  AS path: I

```

```
private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
```

```
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```

```
mpls.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
```

```
inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
```

```
private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```

```
green.l2vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
```

```
red.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```

show route next-hop terse user@host> **show route next-hop 192.168.71.254 terse**

```
inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
```

```
Restart Complete
```

```
+ = Active Route, - = Last Active, * = Both
```

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
*	10.10.0.0/16	S	5			>192.168.71.254	
*	10.209.0.0/16	S	5			>192.168.71.254	
*	172.16.0.0/12	S	5			>192.168.71.254	
*	192.168.0.0/16	S	5			>192.168.71.254	
*	192.168.102.0/23	S	5			>192.168.71.254	
*	207.17.136.0/24	S	5			>192.168.71.254	
*	207.17.136.192/32	S	5			>192.168.71.254	

```
private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
```

```
red.inet.0: 4 destinations, 5 routes (4 active, 0 holddown, 0 hidden)
```

```
Restart Complete
```

```
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```

```
Restart Complete
```

```
mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
```

Restart Complete

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

Restart Complete

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

show route no-community

Syntax	show route no-community <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the route entries in each routing table that are not associated with any community.
Options	<p>none—(Same as brief) Display the route entries in each routing table that are not associated with any community.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route no-community on page 386</p> <p>show route no-community detail on page 387</p> <p>show route no-community extensive on page 387</p> <p>show route no-community terse on page 388</p>
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).
show route no-community	<pre> user@host> show route no-community inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden) + = Active Route, - = Last Active, * = Both 10.10.0.0/16 *[Static/5] 00:36:27 > to 192.168.71.254 via fxp0.0 10.209.0.0/16 *[Static/5] 00:36:27 > to 192.168.71.254 via fxp0.0 10.255.71.52/32 *[Direct/0] 00:36:27 > via lo0.0 10.255.71.63/32 *[OSPF/10] 00:04:39, metric 1 > to 35.1.1.2 via ge-3/1/0.0 10.255.71.64/32 *[OSPF/10] 00:00:08, metric 2 > to 35.1.1.2 via ge-3/1/0.0 10.255.71.240/32 *[OSPF/10] 00:05:04, metric 2 via so-0/1/2.0 > via so-0/3/2.0 10.255.71.241/32 *[OSPF/10] 00:05:14, metric 1 > via so-0/1/2.0 10.255.71.242/32 *[OSPF/10] 00:05:19, metric 1 > via so-0/3/2.0 12.1.1.0/24 *[OSPF/10] 00:05:14, metric 2 > via so-0/3/2.0 14.1.1.0/24 *[OSPF/10] 00:00:08, metric 3 </pre>


```

> to 35.1.1.2 via ge-3/1/0.0
  via so-0/1/2.0
  via so-0/3/2.0
16.1.1.0/24    *[OSPF/10] 00:05:14, metric 2
> via so-0/1/2.0
.....

```

**show route
no-community detail**

```

user@host> show route no-community detail

inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 38:08
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

10.209.0.0/16 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 38:08
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

....

```

**show route
no-community extensive**

```

user@host> show route no-community extensive

inet.0: 18 destinations, 18 routes (17 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.10.0.0/16 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:03:33
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

10.209.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.209.0.0/16 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:03:33
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

```

```

show route      user@host> show route no-community terse
no-community terse

inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
* 10.10.0.0/16      S   5                >192.168.71.254
* 10.209.0.0/16     S   5                >192.168.71.254
* 10.255.71.52/32   D   0                >100.0
* 10.255.71.63/32   O  10             1      >35.1.1.2
* 10.255.71.64/32   O  10             2      >35.1.1.2
* 10.255.71.240/32  O  10             2      so-0/1/2.0
                        >so-0/3/2.0
* 10.255.71.241/32  O  10             1      >so-0/1/2.0
* 10.255.71.242/32  O  10             1      >so-0/3/2.0
* 12.1.1.0/24       O  10             2      >so-0/3/2.0
* 14.1.1.0/24       O  10             3      >35.1.1.2
                        so-0/1/2.0
                        so-0/3/2.0
* 16.1.1.0/24       O  10             2      >so-0/1/2.0
...

```

show route output

Syntax	show route output (address <i>ip-address</i> interface <i>interface-name</i>) <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the entries in the routing table that are to be sent out the interface with either the specified IP address or name.
Options	<p>address <i>ip-address</i>—Display entries in the routing table that are to be sent out the interface with the specified IP address.</p> <p>interface <i>interface-name</i>—Display entries in the routing table that are to be sent out the interface with the specified name.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route output address on page 390</p> <p>show route output address detail on page 390</p> <p>show route output address extensive on page 390</p> <p>show route output address terse on page 391</p> <p>show route output interface on page 391</p> <p>show route output interface detail on page 391</p> <p>show route output interface extensive on page 392</p> <p>show route output interface terse on page 392</p>
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).

**show route output
address**

```

user@host> show route output address 36.1.1.1/24

inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

36.1.1.0/24          *[Direct/0] 00:19:56
                    > via so-0/1/2.0
                    [OSPF/10] 00:19:55, metric 1
                    > via so-0/1/2.0

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

mpls.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

```

**show route output
address detail**

```

user@host> show route output address 36.1.1.1 detail

inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
36.1.1.0/24 (2 entries, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via so-0/1/2.0, selected
    State: <Active Int>
    Age: 23:00
    Task: IF
    AS path: I
  OSPF Preference: 10
    Next-hop reference count: 1
    Next hop: via so-0/1/2.0, selected
    State: <Int>
    Inactive reason: Route Preference
    Age: 22:59      Metric: 1
    Area: 0.0.0.0
    Task: OSPF
    AS path: I

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

mpls.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

```

**show route output
address extensive**

The output for the `show route output address extensive` command is identical to that of the `show route output address detail` command. For sample output, see `show route output address detail` on page 390.

**show route output
address terse**

```
user@host> show route output address 36.1.1.1 terse
```

```
inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both
```

A Destination	P Prf	Metric 1	Metric 2	Next hop	AS path
* 36.1.1.0/24	D 0			>so-0/1/2.0	
	0 10	1		>so-0/1/2.0	

```
private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
```

```
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```

```
mpls.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
```

```
inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
```

```
private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```

**show route output
interface**

```
user@host> show route output interface so-0/1/2.0
```

```
inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both
```

10.255.71.240/32	*[OSPF/10] 00:13:00, metric 2
	via so-0/1/2.0
	> via so-0/3/2.0
10.255.71.241/32	*[OSPF/10] 00:13:10, metric 1
	> via so-0/1/2.0
14.1.1.0/24	*[OSPF/10] 00:05:11, metric 3
	to 35.1.1.2 via ge-3/1/0.0
	> via so-0/1/2.0
	via so-0/3/2.0
16.1.1.0/24	*[OSPF/10] 00:13:10, metric 2
	> via so-0/1/2.0
36.1.1.0/24	*[Direct/0] 00:13:21
	> via so-0/1/2.0
	[OSPF/10] 00:13:20, metric 1
	> via so-0/1/2.0

```
private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
```

```
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```

```
mpls.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
```

```
inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
```

```
private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```

**show route output
interface detail**

```
user@host> show route output interface so-0/1/2.0 detail
```

```
inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
```

```
10.255.71.240/32 (1 entry, 1 announced)
```

```
*OSPF Preference: 10
Next-hop reference count: 2
Next hop: via so-0/1/2.0
Next hop: via so-0/3/2.0, selected
State: <Active Int>
Age: 14:52 Metric: 2
Area: 0.0.0.0
```

```

Task: OSPF
Announcement bits (1): 0-KRT
AS path: I

10.255.71.241/32 (1 entry, 1 announced)
  *OSPF Preference: 10
    Next-hop reference count: 4
    Next hop: via so-0/1/2.0, selected
    State: <Active Int>
    Age: 15:02 Metric: 1
    Area: 0.0.0.0
    Task: OSPF
    Announcement bits (1): 0-KRT
    AS path: I
...

```

show route output interface extensive The output for the `show route output interface extensive` command is identical to that of the `show route output interface detail` command. For sample output, see `show route output interface detail` on page 391.

show route output interface terse `user@host> show route output interface so-0/1/2.0 terse`

```

inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
* 10.255.71.240/32  0 10      2          so-0/1/2.0
                        >so-0/3/2.0
* 10.255.71.241/32  0 10      1          >so-0/1/2.0
* 14.1.1.0/24       0 10      3          35.1.1.2
                        >so-0/1/2.0
                        so-0/3/2.0
* 16.1.1.0/24       0 10      2          >so-0/1/2.0
* 36.1.1.0/24       D 0       1          >so-0/1/2.0
                        0 10      1          >so-0/1/2.0

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

mpls.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

```

show route protocol

Syntax	show route protocol <i>protocol</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4. ospf2 and ospf3 options introduced in JUNOS Release 9.2.
Description	Display the route entries in the routing table that were learned from a particular protocol.
Options	<p><i>protocol</i>—Protocol from which the route was learned:</p> <ul style="list-style-type: none"> ■ access—Access route for use by DHCP application ■ access-internal—Access-internal route for use by DHCP application ■ aggregate—Locally generated aggregate route ■ atmvpn—Asynchronous Transfer Mode virtual private network ■ bgp—Border Gateway Protocol ■ ccc—Circuit cross-connect ■ direct—Directly connected route ■ dvmrp—Distance Vector Multicast Routing Protocol ■ esis—End System-to-Intermediate System ■ isis—Intermediate System-to-Intermediate System ■ ldp—Label Distribution Protocol ■ l2circuit—Layer 2 circuit ■ l2vpn—Layer 2 virtual private network ■ local—Local address ■ mpls—Multiprotocol Label Switching ■ msdp—Multicast Source Discovery Protocol ■ ospf—Open Shortest Path First versions 2 and 3 ■ ospf2—Open Shortest Path First versions 2 only ■ ospf3—Open Shortest Path First version 3 only ■ pim—Protocol Independent Multicast ■ rip—Routing Information Protocol ■ ripng—Routing Information Protocol next generation ■ rsvp—Resource Reservation Protocol ■ rtarget—Local route target virtual private network ■ static—Statically defined route

- tunnel—Dynamic tunnel
- vpn—Virtual private network

brief | detail | extensive | terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

Required Privilege Level view

List of Sample Output

show route protocol access on page 394
 show route protocol access-internal extensive on page 394
 show route protocol bgp on page 395
 show route protocol bgp detail on page 395
 show route protocol bgp extensive on page 395
 show route protocol bgp terse on page 396
 show route protocol direct on page 396
 show route protocol l2circuit detail on page 396
 show route protocol l2vpn extensive on page 397
 show route protocol ldp on page 397
 show route protocol ldp extensive on page 398
 show route protocol ospf (Layer 3 VPN) on page 399
 show route protocol ospf detail on page 399
 show route protocol rip on page 400
 show route protocol rip detail on page 400
 show route protocol ripng table inet6 on page 400

Output Fields For information about output fields, see the `show route` command (Table 88 on page 287), the `show route detail` command (Table 91 on page 316), the `show route extensive` command (Table 97 on page 336), or the `show route terse` command (Table 105 on page 437).

show route protocol access

```
user@host> show route protocol access

inet.0: 30380 destinations, 30382 routes (30379 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

13.160.0.3/32      *[Access/13] 00:00:09
                  > to 13.160.0.2 via fe-0/0/0.0
13.160.0.4/32      *[Access/13] 00:00:09
                  > to 13.160.0.2 via fe-0/0/0.0
13.160.0.5/32      *[Access/13] 00:00:09
                  > to 13.160.0.2 via fe-0/0/0.0
```

show route protocol access-internal extensive

```
user@host> show route protocol access-internal 13.160.0.19 extensive

inet.0: 100020 destinations, 100022 routes (100019 active, 0 holddown, 1 hidden)
13.160.0.19/32 (1 entry, 1 announced)
TSI:
KRT in-kernel 13.160.0.19/32 -> {13.160.0.2}
  *Access-internal Preference: 12
    Next-hop reference count: 200000
    Next hop: 13.160.0.2 via fe-0/0/0.0, selected
    State: <Active Int>
```



```

Age: 36
Task: RPD Unix Domain Server./var/run/rpd_serv.local
Announcement bits (1): 0-KRT
AS path: I

```

show route protocol bgp user@host> **show route protocol bgp 192.168.64.0/21**

```

inet.0: 24 destinations, 32 routes (23 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

```

```

192.168.64.0/21      [BGP/170] 00:04:33, localpref 100
                    AS path: 10023 21 I
                    > to 100.1.3.2 via ge-5/0/3.0, Push 100080

```

show route protocol bgp detail **show route protocol bgp 66.117.63.0/24 exact detail**

```

inet.0: 227318 destinations, 227319 routes (227305 active, 0 holddown, 13 hidden)
66.117.63.0/24 (1 entry, 1 announced)

```

```

*BGP      Preference: 170/-101
          Next hop type: Indirect
          Next-hop reference count: 681816
          Source: 207.17.136.192
          Next hop type: Router, Next hop index: 324
          Next hop: 192.168.167.254 via fxp0.0, selected
          Protocol next hop: 207.17.136.29
          Indirect next hop: 8c7b09c 342
          State: <Active Int Ext
          Local AS: 200 Peer AS: 10458
          Age: 20:31:24 Metric2: 0
          Task: BGP_10458_10458.207.17.136.192+179
          Announcement bits (2): 0-KRT 3-Resolve tree 2
          AS path: AS2 PA[6]: 14203 2914 3356 29748 33437 AS_TRANS
          AS path: AS4 PA[2]: 33437 393219
          AS path: Merged[6]: 14203 2914 3356 29748 33437 393219 I
          Communities: 2914:420
          Localpref: 100
          Router ID: 207.17.136.192

```

show route protocol bgp extensive user@host> **show route protocol bgp 192.168.64.0/21 extensive**

```

inet.0: 24 destinations, 32 routes (23 active, 0 holddown, 1 hidden)
192.168.64.0/21 (2 entries, 1 announced)

```

TSI:

Page 0 idx 0 Type 1 val 86f50a8

```

BGP      Preference: 170/-101
          Next-hop reference count: 3
          Source: 100.1.3.2
          Next hop: 100.1.3.2 via ge-5/0/3.0, selected
          Label operation: Push 100080
          State: <Ext>
          Inactive reason: Route Preference
          Local AS: 21 Peer AS: 10023
          Age: 4:43
          Task: BGP_10023.100.1.3.2+4282
          AS path: 10023 21 I
          Route Label: 100080
          Localpref: 100
          Router ID: 100.1.3.2

```

```

show route protocol bgp terse
user@host> show route protocol bgp 192.168.64.0/21 terse

inet.0: 24 destinations, 32 routes (23 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
192.168.64.0/21    B 170      100      >100.1.3.2    10023 21 I

```

```

show route protocol direct
user@host> show route protocol direct

inet.0: 35 destinations, 35 routes (34 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

127.0.0.1/32      [Direct/0] 14:36:24
> via lo0.0
111.222.5.0/24    *[Direct/0] 14:36:24
> via fxp0.0
111.222.8.16/28   *[Direct/0] 14:36:24
> via at-5/3/0.0
111.222.8.100/30  *[Direct/0] 14:36:24
> via at-5/3/0.129
111.222.8.104/30  *[Direct/0] 14:36:24
> via at-5/3/0.128
111.222.8.161/32  *[Direct/0] 14:36:24
> via t3-5/2/0.0
111.222.8.163/32  *[Direct/0] 14:36:24
> via t3-5/2/1.0
...

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

47.0005.80ff.f800.0000.0108.0001.1921.6800.5081.00/160
*[Direct/0] 14:36:24
> via lo0.0

```

```

show route protocol l2circuit detail
user@router> show route protocol l2circuit detail

mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
100000 (1 entry, 1 announced)
  *L2CKT Preference: 7
    Next hop: via ge-2/0/0.0, selected
    Label operation: Pop      Offset: 4
    State: <Active Int>
    Local AS: 99
    Age: 9:52
    Task: Common L2 VC
    Announcement bits (1): 0-KRT
    AS path: I

ge-2/0/0.0 (1 entry, 1 announced)
  *L2CKT Preference: 7
    Next hop: via so-1/1/2.0 weight 1, selected
    Label-switched-path my-lsp
    Label operation: Push 100000, Push 100000(top)[0] Offset: -4
    Protocol next hop: 10.245.255.63
    Push 100000 Offset: -4
    Indirect next hop: 86af0c0 298
    State: <Active Int>
    Local AS: 99
    Age: 9:52

```

```

Task: Common L2 VC
Announcement bits (2): 0-KRT 1-Common L2 VC
AS path: I

```

```

l2circuit.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

```

```

10.245.255.63:CtrlWord:4:3:Local/96 (1 entry, 1 announced)
  *L2CKT Preference: 7
    Next hop: via so-1/1/2.0 weight 1, selected
    Label-switched-path my-lsp
    Label operation: Push 100000[0]
    Protocol next hop: 10.245.255.63 Indirect next hop: 86af000 296
    State: <Active Int>
    Local AS: 99
    Age: 10:21
    Task: l2 circuit
    Announcement bits (1): 0-LDP
    AS path: I
    VC Label 100000, MTU 1500, VLAN ID 512

```

show route protocol l2vpn extensive

```

user@host> show route protocol l2vpn extensive

```

```

inet.0: 14 destinations, 15 routes (13 active, 0 holddown, 1 hidden)

inet.3: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

mpls.0: 7 destinations, 7 routes (7 active, 0 holddown, 0 hidden)
800001 (1 entry, 1 announced)
TSI:
KRT in-kernel 800001 /36 -> {so-0/0/0.0}
  *L2VPN Preference: 7
    Next hop: via so-0/0/0.0 weight 49087 balance 97%, selected
    Label operation: Pop Offset: 4
    State: <Active Int>
    Local AS: 69
    Age: 7:48
    Task: Common L2 VC
    Announcement bits (1): 0-KRT
    AS path: I

so-0/0/0.0 (1 entry, 1 announced)
TSI:
KRT in-kernel so-0/0/0.0 /16 -> {indirect(288)}
  *L2VPN Preference: 7
    Next hop: via so-0/0/1.0, selected
    Label operation: Push 800000 Offset: -4
    Protocol next hop: 10.255.14.220
    Push 800000 Offset: -4
    Indirect next hop: 85142a0 288
    State: <Active Int>
    Local AS: 69
    Age: 7:48
    Task: Common L2 VC
    Announcement bits (2): 0-KRT 1-Common L2 VC
    AS path: I
    Communities: target:69:1 Layer2-info: encaps:PPP,
    control flags:2, mtu: 0

```

```

show route protocol ldp user@host> show route protocol ldp

```

```

inet.0: 12 destinations, 13 routes (12 active, 0 holddown, 0 hidden)

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

192.168.16.1/32    *[LDP/9] 1d 23:03:35, metric 1
                  > via t1-4/0/0.0, Push 100000
192.168.17.1/32    *[LDP/9] 1d 23:03:35, metric 1
                  > via t1-4/0/0.0

private1___.inet.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

mpls.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

100064            *[LDP/9] 1d 23:03:35, metric 1
                  > via t1-4/0/0.0, Pop
100064(S=0)        *[LDP/9] 1d 23:03:35, metric 1
                  > via t1-4/0/0.0, Pop
100080            *[LDP/9] 1d 23:03:35, metric 1
                  > via t1-4/0/0.0, Swap 100000

```

**show route protocol ldp
extensive**

```

user@host> show route protocol ldp extensive
192.168.16.1/32 (1 entry, 1 announced)
  State: <FlashAll>
    *LDP   Preference: 9
           Next-hop reference count: 3
           Next hop: via t1-4/0/0.0, selected
           Label operation: Push 100000
           State: <Active Int>
           Local AS: 65500
           Age: 1d 23:03:58           Metric: 1
           Task: LDP
           Announcement bits (2): 0-Resolve tree 1 2-Resolve tree 2
           AS path: I

192.168.17.1/32 (1 entry, 1 announced)
  State: <FlashAll>
    *LDP   Preference: 9
           Next-hop reference count: 3
           Next hop: via t1-4/0/0.0, selected
           State: <Active Int>
           Local AS: 65500
           Age: 1d 23:03:58           Metric: 1
           Task: LDP
           Announcement bits (2): 0-Resolve tree 1 2-Resolve tree 2
           AS path: I

private1___.inet.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

mpls.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)

100064 (1 entry, 1 announced)
TSI:
KRT in-kernel 100064 /36 -> {t1-4/0/0.0}
    *LDP   Preference: 9
           Next-hop reference count: 2
           Next hop: via t1-4/0/0.0, selected
           State: <Active Int>
           Local AS: 65500
           Age: 1d 23:03:58           Metric: 1

```

```

Task: LDP
Announcement bits (1): 0-KRT
AS path: I
Prefixes bound to route: 192.168.17.1/32

```

100064(S=0) (1 entry, 1 announced)

TSI:

```

KRT in-kerne1 100064 /40 -> {t1-4/0/0.0}
    *LDP      Preference: 9
              Next-hop reference count: 2
              Next hop: via t1-4/0/0.0, selected
              Label operation: Pop
              State: <Active Int>
              Local AS: 65500
              Age: 1d 23:03:58      Metric: 1
              Task: LDP
              Announcement bits (1): 0-KRT
              AS path: I

```

100080 (1 entry, 1 announced)

TSI:

```

KRT in-kerne1 100080 /36 -> {t1-4/0/0.0}
    *LDP      Preference: 9
              Next-hop reference count: 2
              Next hop: via t1-4/0/0.0, selected
              Label operation: Swap 100000
              State: <Active Int>
              Local AS: 65500
              Age: 1d 23:03:58      Metric: 1
              Task: LDP
              Announcement bits (1): 0-KRT
              AS path: I
              Prefixes bound to route: 192.168.16.1/32

```

show route protocol ospf (Layer 3 VPN)

```

user@host> show route protocol ospf
inet.0: 40 destinations, 40 routes (39 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

10.39.1.4/30      *[OSPF/10] 00:05:18, metric 4
                  > via t3-3/2/0.0
10.39.1.8/30      [OSPF/10] 00:05:18, metric 2
                  > via t3-3/2/0.0
10.255.14.171/32  *[OSPF/10] 00:05:18, metric 4
                  > via t3-3/2/0.0
10.255.14.179/32  *[OSPF/10] 00:05:18, metric 2
                  > via t3-3/2/0.0
224.0.0.5/32     *[OSPF/10] 20:25:55, metric 1

VPN-AB.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

10.39.1.16/30     [OSPF/10] 00:05:43, metric 1
                  > via so-0/2/2.0
10.255.14.173/32  *[OSPF/10] 00:05:43, metric 1
                  > via so-0/2/2.0
224.0.0.5/32     *[OSPF/10] 20:26:20, metric 1

```

show route protocol ospf detail

```

user@host> show route protocol ospf detail
VPN-AB.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

```

```

10.39.1.16/30 (2 entries, 0 announced)
  OSPF   Preference: 10
         Nexthop: via so-0/2/2.0, selected
         State: <Int>
         Inactive reason: Route Preference
         Age: 6:25      Metric: 1
         Area: 0.0.0.0
         Task: VPN-AB-OSPF
         AS path: I
         Communities: Route-Type:0.0.0.0:1:0

```

...

```

show route protocol rip user@host> show route protocol rip
inet.0: 26 destinations, 27 routes (25 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

VPN-AB.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
10.255.14.177/32  * [RIP/100] 20:24:34, metric 2
                  > to 10.39.1.22 via t3-0/2/2.0
224.0.0.9/32     * [RIP/100] 00:03:59, metric 1

```

```

show route protocol rip detail user@host> show route protocol rip detail
inet.0: 26 destinations, 27 routes (25 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

VPN-AB.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
10.255.14.177/32 (1 entry, 1 announced)
  *RIP   Preference: 100
         Nexthop: 10.39.1.22 via t3-0/2/2.0, selected
         State: <Active Int>
         Age: 20:25:02  Metric: 2
         Task: VPN-AB-RIPv2
         Announcement bits (2): 0-KRT 2-BGP.0.0.0.0+179
         AS path: I
         Route learned from 10.39.1.22 expires in 96 seconds

```

```

show route protocol ripng table inet6 user@host> show route protocol ripng table inet6
inet6.0: 4215 destinations, 4215 routes (4214 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

1111::1/128      * [RIPng/100] 02:13:33, metric 2
                  > to fe80::2a0:a5ff:fe3d:56 via t3-0/2/0.0
1111::2/128      * [RIPng/100] 02:13:33, metric 2
                  > to fe80::2a0:a5ff:fe3d:56 via t3-0/2/0.0
1111::3/128      * [RIPng/100] 02:13:33, metric 2
                  > to fe80::2a0:a5ff:fe3d:56 via t3-0/2/0.0
1111::4/128      * [RIPng/100] 02:13:33, metric 2
                  > to fe80::2a0:a5ff:fe3d:56 via t3-0/2/0.0
1111::5/128      * [RIPng/100] 02:13:33, metric 2
                  > to fe80::2a0:a5ff:fe3d:56 via t3-0/2/0.0
1111::6/128      * [RIPng/100] 02:13:33, metric 2
                  > to fe80::2a0:a5ff:fe3d:56 via t3-0/2/0.0

```

show route range

Syntax	show route range <brief detail extensive terse> <destination-prefix> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display routing table entries using a prefix range.
Options	<p>none—Display standard information about all routing table entries using a prefix range on all logical systems.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>destination-prefix—(Optional) Destination and prefix mask for the range.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route range on page 401</p> <p>show route range destination-prefix on page 402</p> <p>show route range detail on page 402</p> <p>show route range extensive on page 403</p> <p>show route range terse on page 404</p>
Output Fields	For information about output fields, see the <code>show route</code> command (Table 88 on page 287), the <code>show route detail</code> command (Table 91 on page 316), the <code>show route extensive</code> command (Table 97 on page 336), or the <code>show route terse</code> command (Table 105 on page 437).
show route range	<pre>user@host> show route range inet.0: 11 destinations, 11 routes (10 active, 0 holddown, 1 hidden) + = Active Route, - = Last Active, * = Both 10.10.0.0/16 *[Static/5] 00:30:01 > to 192.168.71.254 via fxp0.0 10.209.0.0/16 *[Static/5] 00:30:01 > to 192.168.71.254 via fxp0.0 10.255.71.14/32 *[Direct/0] 00:30:01 > via lo0.0 172.16.0.0/12 *[Static/5] 00:30:01 > to 192.168.71.254 via fxp0.0 192.168.0.0/16 *[Static/5] 00:30:01 > to 192.168.71.254 via fxp0.0 192.168.64.0/21 *[Direct/0] 00:30:01 > via fxp0.0 192.168.71.14/32 *[Local/0] 00:30:01 Local via fxp0.0</pre>

```

192.168.102.0/23    *[Static/5] 00:30:01
                  > to 192.168.71.254 via fxp0.0
...

```

**show route range
destination-prefix**

```

user@host> show route range 192.168.0.0

inet.0: 11 destinations, 11 routes (10 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

192.168.0.0/16      *[Static/5] 00:31:14
                  > to 192.168.71.254 via fxp0.0
192.168.64.0/21     *[Direct/0] 00:31:14
                  > via fxp0.0
192.168.71.14/32    *[Local/0] 00:31:14
                  Local via fxp0.0
192.168.102.0/23    *[Static/5] 00:31:14
                  > to 192.168.71.254 via fxp0.0

```

show route range detail

```

user@host> show route range detail

inet.0: 11 destinations, 11 routes (10 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 30:05
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

10.209.0.0/16 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 30:05
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

10.255.71.14/32 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.0, selected
    State: <Active Int>
    Age: 30:05
    Task: IF
    AS path: I

172.16.0.0/12 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 30:05
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

```



```

...

show route range      user@host> show route range extensive
extensive
inet.0: 11 destinations, 11 routes (10 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.10.0.0/16 -> {192.168.71.254}
    *Static Preference: 5
        Next-hop reference count: 22
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Age: 30:17
        Task: RT
        Announcement bits (1): 0-KRT
        AS path: I

10.209.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.209.0.0/16 -> {192.168.71.254}
    *Static Preference: 5
        Next-hop reference count: 22
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Age: 30:17
        Task: RT
        Announcement bits (1): 0-KRT
        AS path: I

10.255.71.14/32 (1 entry, 0 announced)
    *Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 1
        Next hop: via lo0.0, selected
        State: <Active Int>
        Age: 30:17
        Task: IF
        AS path: I

172.16.0.0/12 (1 entry, 1 announced)
TSI:
KRT in-kernel 172.16.0.0/12 -> {192.168.71.254}
    *Static Preference: 5
        Next-hop reference count: 22
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Age: 30:17
        Task: RT
        Announcement bits (1): 0-KRT
        AS path: I

...

```

show route range terse user@host> **show route range terse**

inet.0: 11 destinations, 11 routes (10 active, 0 holddown, 1 hidden)
 + = Active Route, - = Last Active, * = Both

A Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
* 10.10.0.0/16	S	5			>192.168.71.254	
* 10.209.0.0/16	S	5			>192.168.71.254	
* 10.255.71.14/32	D	0			>lo0.0	
* 172.16.0.0/12	S	5			>192.168.71.254	
* 192.168.0.0/16	S	5			>192.168.71.254	
* 192.168.64.0/21	D	0			>fxp0.0	
* 192.168.71.14/32	L	0			Local	
* 192.168.102.0/23	S	5			>192.168.71.254	
* 207.17.136.0/24	S	5			>192.168.71.254	
* 207.17.136.192/32	S	5			>192.168.71.254	

__juniper_private1__.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

A Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
* 10.0.0.0/8	D	0			>fxp2.0	
	D	0			>fxp1.0	
* 10.0.0.4/32	L	0			Local	

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

A Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
47.0005.80ff.f800.0000.0108.0001.0102.5507.1014/152						
*	D	0			>lo0.0	

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

A Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
abcd::10:255:71:14/128						
*	D	0			>lo0.0	
fe80::280:42ff:fe11:226f/128						
*	D	0			>lo0.0	

__juniper_private1__.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

A Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
fe80::280:42ff:fe11:226f/128						
*	D	0			>lo0.16385	

show route receive-protocol

Syntax	show route receive-protocol <i>protocol neighbor-address</i> < brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the routing information as it was received through a particular neighbor using a particular dynamic routing protocol.
Options	<p><i>protocol neighbor-address</i>—Protocol transmitting the route (bgp, dvmrp, msdp, pim, rip, or ripng) and address of the neighboring router from which the route entry was received.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	The output displays the selected routes and the attributes with which they were received, but does not show the effects of import policy on the routing attributes.
Required Privilege Level	view
List of Sample Output	<p>show route receive-protocol bgp on page 407</p> <p>show route receive-protocol bgp extensive on page 407</p> <p>show route receive-protocol bgp extensive on page 408</p> <p>show route receive-protocol bgp detail (Layer 2 VPN) on page 409</p> <p>show route receive-protocol bgp extensive (Layer 2 VPN) on page 409</p> <p>show route receive-protocol bgp (Layer 3 VPN) on page 410</p> <p>show route receive-protocol bgp detail (Layer 3 VPN) on page 410</p> <p>show route receive-protocol bgp extensive (Layer 3 VPN) on page 411</p>
Output Fields	Table 102 on page 405 describes the output fields for the show route receive-protocol command. Output fields are listed in the approximate order in which they appear.

Table 102: show route receive-protocol Output Fields

Field Name	Field Description	Level of Output
<i>routing-table-name</i>	Name of the routing table—for example, inet.0.	All levels
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.	All levels
<i>number routes</i>	<p>Number of routes in the routing table and total number of routes in the following states:</p> <ul style="list-style-type: none"> ■ active ■ holddown (routes in that are pending state before being declared inactive) ■ hidden (the routes are not used because of a routing policy) 	All levels

Table 102: show route receive-protocol Output Fields (continued)

Field Name	Field Description	Level of Output
Prefix	Destination prefix.	none brief
MED	Multiple exit discriminator value included in the route.	none brief
<i>destination-prefix</i> (entry, announced)	Destination prefix. The entry value is the number of routes for this destination, and the announced value is the number of routes being announced for this destination.	detail extensive
Route Distinguisher	64-bit prefix added to IP subnets to make them unique.	detail extensive
Label-Base, range	First label in a block of labels and label block size. A remote PE router uses this first label when sending traffic toward the advertising PE router.	detail extensive
VPN Label	Virtual private network (VPN) label. Packets are sent between CE and PE routers by advertising VPN labels. VPN labels transit over either a Resource Reservation Protocol (RSVP) or a Label Distribution Protocol (LDP) label-switched path (LSP) tunnel.	detail extensive
Next hop	Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.	All levels
Localpref or Lc1pref	Local preference value included in the route.	All levels
AS path	<p>Autonomous system (AS) path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path was originated:</p> <ul style="list-style-type: none"> ■ I—IIGP. ■ E—EGP. ■ ?—Incomplete; typically, the AS path was aggregated. <p>When AS path numbers are included in the route, the format is as follows:</p> <ul style="list-style-type: none"> ■ []—Brackets enclose the number that precedes the AS path. This number represents the number of ASs present in the AS path, when calculated as defined in RFC 4271. This value is used the AS-path merge process, as defined in RFC 4893. ■ []—If more than one AS number is configured on the router, or if AS path prepending is configured, brackets enclose the local AS number associated with the AS path. ■ { }—Braces enclose AS sets, which are groups of AS numbers in which the order does not matter. A set commonly results from route aggregation. The numbers in each AS set are displayed in ascending order. ■ ()—Parentheses enclose a confederation. ■ ([])—Parentheses and brackets enclose a confederation set. 	All levels
Cluster list	(For router reflected output only) Cluster ID sent by the route reflector.	detail extensive
Originator ID	(For router reflected output only) Address of router that originally sent the route to the route reflector.	detail extensive
Communities	Community path attribute for the route. See Table 94 on page 323 for all possible values for this field.	detail extensive

Table 102: show route receive-protocol Output Fields (continued)

Field Name	Field Description	Level of Output
Attrset AS	Number, local preference, and path of the AS that originated the route. These values are stored in the Attrset attribute at the originating router.	detail extensive
Layer2-info: encaps	Layer 2 encapsulation (for example, VPLS).	detail extensive
control flags	Control flags: none or Site Down.	detail extensive
mtu	Maximum transmission unit (MTU) of the Layer 2 circuit.	detail extensive

```

show route      user@host> show route receive-protocol bgp 10.255.245.215
receive-protocol bgp
inet.0: 28 destinations, 33 routes (27 active, 0 holddown, 1 hidden)
Prefix          Next hop          MED      Lclpref  AS path
10.22.1.0/24     10.255.245.215    0        100      I
10.22.2.0/24     10.255.245.215    0        100      I

show route      user@host> show route receive-protocol bgp 10.255.245.63 extensive
receive-protocol bgp
extensive
inet.0: 244 destinations, 244 routes (243 active, 0 holddown, 1 hidden)
Prefix          Next hop          MED      Lclpref  AS path
1.1.1.0/24 (1 entry, 1 announced)
  Next hop: 10.0.50.3
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.45
165.3.0.0/16 (1 entry, 1 announced)
  Next hop: 111.222.5.254
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.68
165.4.0.0/16 (1 entry, 1 announced)
  Next hop: 111.222.5.254
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.45
195.1.2.0/24 (1 entry, 1 announced)
  Next hop: 111.222.5.254
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.68
inet.2: 63 destinations, 63 routes (63 active, 0 holddown, 0 hidden)
Prefix          Next hop          MED      Lclpref  AS path
inet.3: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
Prefix          Next hop          MED      Lclpref  AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Next hop          MED      Lclpref  AS path
mpls.0: 48 destinations, 48 routes (48 active, 0 holddown, 0 hidden)

```

```
show route receive-protocol bgp extensive
user@host> show route receive-protocol bgp 207.17.136.192 table inet.0
66.117.68.0/24 extensive
inet.0: 227315 destinations, 227316 routes (227302 active, 0 holddown, 13 hidden)
* 66.117.63.0/24 (1 entry, 1 announced)
  Nexthop: 207.17.136.29
  Localpref: 100
  AS path: AS2 PA[6]: 14203 2914 3356 29748 33437 AS_TRANS
  AS path: AS4 PA[2]: 33437 393219
  AS path: Merged[6]: 14203 2914 3356 29748 33437 393219 I
  Communities: 2914:420
```

**show route
receive-protocol bgp
detail (Layer 2 VPN)**

```
user@host> show route receive-protocol bgp 10.255.14.171 detail
inet.0: 68 destinations, 68 routes (67 active, 0 holddown, 1 hidden)
Prefix          Nexthop          MED      Lclpref AS path
inet.3: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
mpls.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
frame-vpn.l2vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0
hidden)
Prefix          Nexthop          MED      Lclpref AS path
10.255.245.35:1:5:1/96 (1 entry, 1 announced)
  Route Distinguisher: 10.255.245.35:1
  Label-base : 800000, range : 4, status-vector : 0x0
  Nexthop: 10.255.245.35
  Localpref: 100
  AS path: I
  Communities: target:65299:100 Layer2-info: encaps:FRAME RELAY,
control flags: 0, mtu: 0
bgp.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
10.255.245.35:1:5:1/96 (1 entry, 0 announced)
  Route Distinguisher: 10.255.245.35:1
  Label-base : 800000, range : 4, status-vector : 0x0
  Nexthop: 10.255.245.35
  Localpref: 100
  AS path: I
  Communities: target:65299:100 Layer2-info: encaps:FRAME RELAY,
control flags:0, mtu: 0
```

**show route
receive-protocol bgp
extensive (Layer 2 VPN)**

```
user@host> show route receive-protocol bgp 10.255.14.171 extensive
inet.0: 68 destinations, 68 routes (67 active, 0 holddown, 1 hidden)
Prefix          Nexthop          MED      Lclpref AS path
inet.3: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
mpls.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
frame-vpn.l2vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
10.255.245.35:1:5:1/96 (1 entry, 1 announced)
  Route Distinguisher: 10.255.245.35:1
  Label-base : 800000, range : 4, status-vector : 0x0
  Nexthop: 10.255.245.35
  Localpref: 100
  AS path: I
  Communities: target:65299:100 Layer2-info: encaps:FRAME RELAY,
control flags:0, mtu: 0
bgp.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
10.255.245.35:1:5:1/96 (1 entry, 0 announced)
  Route Distinguisher: 10.255.245.35:1
  Label-base : 800000, range : 4, status-vector : 0x0
  Nexthop: 10.255.245.35
  Localpref: 100
  AS path: I
  Communities: target:65299:100 Layer2-info: encaps:FRAME RELAY,
control flags:0, mtu: 0
```

```

show route      user@host> show route receive-protocol bgp 10.255.14.171
receive-protocol bgp
(Layer 3 VPN)
inet.0: 33 destinations, 33 routes (32 active, 0 holddown, 1 hidden)
Prefix          Nexthop          MED      Lclpref AS path
inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
VPN-A.inet.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
10.255.14.175/32 10.255.14.171          100 2 I
10.255.14.179/32 10.255.14.171          2    100 I
VPN-B.inet.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
10.255.14.175/32 10.255.14.171          100 2 I
10.255.14.177/32 10.255.14.171          100 I
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
mpls.0: 9 destinations, 9 routes (9 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
bgp.l3vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
10.255.14.171:300:10.255.14.177/32
                  10.255.14.171          100 I
10.255.14.171:100:10.255.14.179/32
                  10.255.14.171          2    100 I
10.255.14.171:200:10.255.14.175/32
                  10.255.14.171          100 2 I

```

```

show route      user@host> show route receive-protocol bgp 10.255.14.174 detail
receive-protocol bgp
detail (Layer 3 VPN)
inet.0: 16 destinations, 17 routes (15 active, 0 holddown, 1 hidden)
inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
vpna.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
* 10.49.0.0/30 (1 entry, 1 announced)
  Route Distinguisher: 10.255.14.176:2
  VPN Label: 101264
  Nexthop: 10.255.14.174
  Localpref: 100
  AS path: I
  Communities: target:200:100
  AttrSet AS: 100
    Localpref: 100
    AS path: I
* 10.255.14.172/32 (1 entry, 1 announced)
  Route Distinguisher: 10.255.14.176:2
  VPN Label: 101280
  Nexthop: 10.255.14.174
  Localpref: 100
  AS path: I
  Communities: target:200:100
  AttrSet AS: 100
    Localpref: 100
    AS path: I
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
bgp.l3vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
* 10.255.14.174:2:10.49.0.0/30 (1 entry, 0 announced)
  Route Distinguisher: 10.255.14.174:2
  VPN Label: 101264
  Nexthop: 10.255.14.174
  Localpref: 100
  AS path: I
  Communities: target:200:100
  AttrSet AS: 100

```



```

        Localpref: 100
        AS path: I
* 10.255.14.174:2:10.255.14.172/32 (1 entry, 0 announced)
    Route Distinguisher: 10.255.14.174:2
    VPN Label: 101280
    Nexthop: 10.255.14.174
    Localpref: 100
    AS path: I
    Communities: target:200:100
    AttrSet AS: 100
        Localpref: 100
        AS path: I
inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

```

**show route
receive-protocol bgp
extensive (Layer 3 VPN)**

```

user@host> show route receive-protocol bgp 10.255.245.63 extensive
inet.0: 244 destinations, 244 routes (243 active, 0 holddown, 1 hidden)
  Prefix          Nexthop          MED      Lclpref AS path
  1.1.1.0/24 (1 entry, 1 announced)
    Nexthop: 10.0.50.3
    Localpref: 100
    AS path: I <Originator>
    Cluster list: 10.2.3.1
    Originator ID: 10.255.245.45
  165.3.0.0/16 (1 entry, 1 announced)
    Nexthop: 111.222.5.254
    Localpref: 100
    AS path: I <Originator>
    Cluster list: 10.2.3.1
    Originator ID: 10.255.245.68
  165.4.0.0/16 (1 entry, 1 announced)
    Nexthop: 111.222.5.254
    Localpref: 100
    AS path: I <Originator>
    Cluster list: 10.2.3.1
    Originator ID: 10.255.245.45
  195.1.2.0/24 (1 entry, 1 announced)
    Nexthop: 111.222.5.254
    Localpref: 100
    AS path: I <Originator>
    Cluster list: 10.2.3.1
    Originator ID: 10.255.245.68
inet.2: 63 destinations, 63 routes (63 active, 0 holddown, 0 hidden)
  Prefix          Nexthop          MED      Lclpref AS path
inet.3: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
  Prefix          Nexthop          MED      Lclpref AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
  Prefix          Nexthop          MED      Lclpref AS path
mpls.0: 48 destinations, 48 routes (48 active, 0 holddown, 0 hidden)

```

show route resolution

Syntax show route resolution
 <brief | detail | extensive | summary>
 <index *index*>
 <logical-system (all | *logical-system-name*)>
 <*prefix*>
 <table *routing-table-name*>
 <unresolved>

Release Information Command introduced before JUNOS Release 7.4.

Description Display the entries in the next-hop resolution database. This database provides for recursive resolution of next hops through other prefixes in the routing table.

Options none—Display standard information about all entries in the next-hop resolution database on all logical systems.

brief | detail | extensive | summary—(Optional) Display the specified level of output.

index *index*—(Optional) Show index of resolution tree.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

prefix network/destination-prefix—(Optional) Display database entries for the specified address. Specify the address as

table *routing-table-name*—(Optional) Display information about a particular routing table (for example, inet.0) where policy-based export is currently enabled. (For information about the different types of routing tables, see the *JUNOS Routing Protocols Configuration Guide*.)

unresolved—(Optional) Display routes that could not be resolved.

Required Privilege Level view

List of Sample Output show route resolution detail on page 413
 show route resolution summary on page 414
 show route resolution unresolved on page 414

Output Fields Table 103 on page 413 describes the output fields for the **show route resolution** command. Output fields are listed in the approximate order in which they appear.

Table 103: show route resolution Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table whose prefixes are resolved using the entries in the route resolution database. For routing table groups, this is the name of the primary routing table whose prefixes are resolved using the entries in the route resolution database.
Tree index	Tree index identifier.
Nodes	Number of nodes in the tree.
Reference count	Number of references made to the next hop.
Contributing routing tables	Routing tables used for next-hop resolution.
Originating RIB	Name of the routing table whose active route was used to determine the forwarding next-hop entry in the resolution database. For example, in the case of <code>inet.0</code> resolving via <code>inet.0</code> and <code>inet.3</code> , this field indicates which routing table, <code>inet.0</code> or <code>inet.3</code> , provided the best path for a particular prefix.
Metric	Metric associated with the forwarding next hop.
Node path count	Number of nodes in the path.
Forwarding next hops	Number of forwarding next hops. The forwarding next hop is the network layer address of the directly reachable neighboring system (if applicable) and the interface used to reach it.

```

show route resolution user@host> show route resolution detail
detail Tree Index: 1, Nodes 0, Reference Count 1
Contributing routing tables: inet.3
Tree Index: 2, Nodes 23, Reference Count 1
Contributing routing tables: inet.0 inet.3
10.10.0.0/16 Originating RIB: inet.0
Node path count: 1
Forwarding nexthops: 1
10.31.1.0/30 Originating RIB: inet.0
Node path count: 1
Forwarding nexthops: 1
10.31.1.1/32 Originating RIB: inet.0
Node path count: 1
Forwarding nexthops: 0
10.31.1.4/30 Originating RIB: inet.0
Node path count: 1
Forwarding nexthops: 1
10.31.1.5/32 Originating RIB: inet.0
Node path count: 1
Forwarding nexthops: 0
10.31.2.0/30 Originating RIB: inet.0
Metric: 2 Node path count: 1

```

```

Forwarding nexthops: 2
10.31.11.0/24 Originating RIB: inet.0
Node path count: 1
Forwarding nexthops: 1

```

```

show route resolution user@host> show route resolution summary
summary
Tree Index: 1, Nodes 24, Reference Count 1
Contributing routing tables: :voice.inet.0 :voice.inet.3
Tree Index: 2, Nodes 2, Reference Count 1
Contributing routing tables: inet.3
Tree Index: 3, Nodes 43, Reference Count 1
Contributing routing tables: inet.0 inet.3

```

```

show route resolution user@host> show route resolution unresolved
unresolved
Tree Index 1
vt-3/2/0.32769.0      /16
    Protocol Nexthop: 10.255.71.238 Push 800000
    Indirect nexthop: 0 -
vt-3/2/0.32772.0      /16
    Protocol Nexthop: 10.255.70.103 Push 800008
    Indirect nexthop: 0 -
Tree Index 2

```

show route snooping

Syntax	<pre>show route snooping <brief detail extensive terse> <all> <best address/prefix> <exact address> <range prefix-range> <summary> <table table-name></pre>
Release Information	Command introduced in JUNOS Release 8.5.
Description	Display the entries in the routing table that were learned from snooping.
Options	<p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>all—(Optional) Display all entries, including hidden entries.</p> <p>best address/prefix—(Optional) Display longest match for provided address and optional prefix.</p> <p>exact address/prefix—(Optional) Display exact matches for provided address and optional prefix.</p> <p>range prefix-range—(Optional) Display information for provided address range.</p> <p>summary—(Optional) Display route snooping summary statistics.</p> <p>table table-name—(Optional) Display information for named table.</p>
Required Privilege Level	view
List of Sample Output	show route snooping detail on page 415
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).
show route snooping detail	<pre>user@host> show route snooping detail __+domainAll__.inet.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden) 224.0.0.2/32 (1 entry, 1 announced) *IGMP Preference: 0 Next hop type: MultiRecv Next-hop reference count: 4 State: <Active NoReadvrt Int> Age: 2:24 Task: IGMP Announcement bits (1): 0-KRT AS path: I 224.0.0.22/32 (1 entry, 1 announced)</pre>

```

*IGMP    Preference: 0
         Next hop type: MultiRecv
         Next-hop reference count: 4
         State: <Active NoReadvrt Int>
         Age: 2:24
         Task: IGMP
         Announcement bits (1): 0-KRT
         AS path: I

__+domainAll__.inet.1: 36 destinations, 36 routes (36 active, 0 holddown, 0 hidden)

224.0.0.0.0.0.0.0.0/24 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4), Next hop index: 1048584
    Next-hop reference count: 4
    State: <Active Int>
    Age: 2:24
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.2.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:13
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.3.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:15
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.4.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:17
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.5.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 1:58
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

```

```

225.0.0.6.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:14
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.7.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:12
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.9.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:13
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.10.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:15
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

226.0.0.1.11.11.11.100.3.10.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:09
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

226.0.0.2.11.11.11.100.3.10.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 8
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

226.0.0.4.11.11.11.100.3.10.0.0/80 (1 entry, 1 announced)

```

```

    *Multicast Preference: 180
      Next hop type: Multicast (IPv4)
      Next-hop reference count: 113
      State: <Active Int>
      Age: 2:10
      Task: MC
      Announcement bits (1): 0-KRT
      AS path: I

226.0.0.8.11.11.11.100.3.10.0.0/80 (1 entry, 1 announced)
    *Multicast Preference: 180
      Next hop type: Multicast (IPv4)
      Next-hop reference count: 113
      State: <Active Int>
      Age: 2:12
      Task: MC
      Announcement bits (1): 0-KRT
      AS path: I

226.0.0.10.11.11.11.100.3.10.0.0/80 (1 entry, 1 announced)
    *Multicast Preference: 180
      Next hop type: Multicast (IPv4)
      Next-hop reference count: 113
      State: <Active Int>
      Age: 1:56
      Task: MC
      Announcement bits (1): 0-KRT
      AS path: I

227.0.0.1.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)
    *Multicast Preference: 180
      Next hop type: Multicast (IPv4)
      Next-hop reference count: 113
      State: <Active Int>
      Age: 2:10
      Task: MC
      Announcement bits (1): 0-KRT
      AS path: I

227.0.0.2.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)
    *Multicast Preference: 180
      Next hop type: Multicast (IPv4)
      Next-hop reference count: 113
      State: <Active Int>
      Age: 2:13
      Task: MC
      Announcement bits (1): 0-KRT
      AS path: I

227.0.0.3.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)
    *Multicast Preference: 180
      Next hop type: Multicast (IPv4)
      Next-hop reference count: 113
      State: <Active Int>
      Age: 2:16
      Task: MC
      Announcement bits (1): 0-KRT
      AS path: I

227.0.0.4.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)
    *Multicast Preference: 180

```



```

Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 2:15
Task: MC
Announcement bits (1): 0-KRT
AS path: I

227.0.0.5.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 1:57
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

227.0.0.7.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 1:57
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

227.0.0.8.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:10
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

227.0.0.10.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:15
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

228.0.0.1.11.11.11.100.3.12.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:09
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

228.0.0.2.11.11.11.100.3.12.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)

```

```

Next-hop reference count: 113
State: <Active Int>
Age: 2:18
Task: MC
Announcement bits (1): 0-KRT
AS path: I

228.0.0.7.11.11.11.100.3.12.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:11
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

228.0.0.8.11.11.11.100.3.12.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:17
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

228.0.0.9.11.11.11.100.3.12.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 8
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

228.0.0.10.11.11.11.100.3.12.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:12
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

229.0.0.3.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:09
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

229.0.0.4.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113

```

```

State: <Active Int>
Age: 2:12
Task: MC
Announcement bits (1): 0-KRT
AS path: I

229.0.0.5.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 9
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

229.0.0.6.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:15
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

229.0.0.7.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:15
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

229.0.0.8.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:15
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

229.0.0.9.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:14
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

229.0.0.10.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>

```

```
Age: 2:13  
Task: MC  
Announcement bits (1): 0-KRT  
AS path: I
```

show route source-gateway

Syntax	show route source-gateway <i>address</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the entries in the routing table that were learned from a particular address. The Source field in the show route detail command output lists the source for each route, if known.
Options	<p><i>address</i>—IP address of the system.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route source-gateway on page 423</p> <p>show route source-gateway detail on page 424</p> <p>show route source-gateway extensive on page 426</p>
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).
show route source-gateway	<pre> user@host> show route source-gateway 10.255.70.103 inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden) Restart Complete inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden) Restart Complete private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden) iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden) Restart Complete mpls.0: 7 destinations, 7 routes (5 active, 0 holddown, 2 hidden) Restart Complete inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden) Restart Complete private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden) green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden) Restart Complete + = Active Route, - = Last Active, * = Both </pre>

```

10.255.70.103:1:3:1/96
    *[BGP/170] 12:12:24, localpref 100, from 10.255.70.103
    AS path: I
    > via so-0/3/0.0, label-switched-path green-r1-r3

red.l2vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

10.255.70.103:2:3:1/96
    *[BGP/170] 12:12:24, localpref 0, from 10.255.70.103
    AS path: I
    > via so-0/3/0.0, label-switched-path green-r1-r3

bgp.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

10.255.70.103:1:3:1/96
    *[BGP/170] 12:12:24, localpref 100, from 10.255.70.103
    AS path: I
    > via so-0/3/0.0, label-switched-path green-r1-r3

10.255.70.103:2:3:1/96
    *[BGP/170] 12:12:24, localpref 0, from 10.255.70.103
    AS path: I
    > via so-0/3/0.0, label-switched-path green-r1-r3

show route source-gateway detail
user@host> show route source-gateway 10.255.70.103 detail
inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden)
Restart Complete

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 7 destinations, 7 routes (5 active, 0 holddown, 2 hidden)
Restart Complete

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
Restart Complete
green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)

Restart Complete
10.255.70.103:1:3:1/96 (1 entry, 1 announced)
    *BGP      Preference: 170/-101
              Route Distinguisher: 10.255.70.103:1
              Next-hop reference count: 7
              Source: 10.255.70.103
              Protocol next hop: 10.255.70.103
              Indirect next hop: 2 no-forward
              State: <Secondary Active Int Ext>
              Local AS: 69 Peer AS: 69
              Age: 12:14:00 Metric2: 1
              Task: BGP_69.10.255.70.103+179
              Announcement bits (1): 0-green-l2vpn
              AS path: I

```

```

Communities: target:11111:1 Layer2-info: encaps:VPLS,
control flags:, mtu: 0
Label-base: 800008, range: 8
Localpref: 100
Router ID: 10.255.70.103
Primary Routing Table bgp.l2vpn.0

red.l2vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
Restart Complete

10.255.70.103:2:3:1/96 (1 entry, 1 announced)
  *BGP Preference: 170/-1
    Route Distinguisher: 10.255.70.103:2
    Next-hop reference count: 7
    Source: 10.255.70.103
    Protocol next hop: 10.255.70.103
    Indirect next hop: 2 no-forward
    State: <Secondary Active Int Ext>
    Local AS: 69 Peer AS: 69
    Age: 12:14:00 Metric2: 1
    Task: BGP_69.10.255.70.103+179
    Announcement bits (1): 0-red-l2vpn
    AS path: I
    Communities: target:11111:2 Layer2-info: encaps:VPLS,
control flags:Site-Down, mtu: 0
    Label-base: 800016, range: 8
    Localpref: 0
    Router ID: 10.255.70.103
    Primary Routing Table bgp.l2vpn.0

bgp.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

10.255.70.103:1:3:1/96 (1 entry, 0 announced)
  *BGP Preference: 170/-101
    Route Distinguisher: 10.255.70.103:1
    Next-hop reference count: 7
    Source: 10.255.70.103
    Protocol next hop: 10.255.70.103
    Indirect next hop: 2 no-forward
    State: <Active Int Ext>
    Local AS: 69 Peer AS: 69
    Age: 12:14:00 Metric2: 1
    Task: BGP_69.10.255.70.103+179
    AS path: I
    Communities: target:11111:1 Layer2-info: encaps:VPLS, control
flags:, mtu: 0
    Label-base: 800008, range: 8
    Localpref: 100
    Router ID: 10.255.70.103
    Secondary Tables: green.l2vpn.0

10.255.70.103:2:3:1/96 (1 entry, 0 announced)
  *BGP Preference: 170/-1
    Route Distinguisher: 10.255.70.103:2
    Next-hop reference count: 7
    Source: 10.255.70.103
    Protocol next hop: 10.255.70.103
    Indirect next hop: 2 no-forward
    State: <Active Int Ext>
    Local AS: 69 Peer AS: 69
    Age: 12:14:00 Metric2: 1

```

```

Task: BGP_69.10.255.70.103+179
AS path: I
Communities: target:11111:2 Layer2-info: encaps:VPLS,
control flags:Site-Down,
mtu: 0
Label-base: 800016, range: 8
Localpref: 0
Router ID: 10.255.70.103
Secondary Tables: red.l2vpn.0

show route      user@host> show route source-gateway 10.255.70.103 extensive
source-gateway  inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden)
extensive       Restart Complete

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 7 destinations, 7 routes (5 active, 0 holddown, 2 hidden)
Restart Complete

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
Restart Complete

green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
10.255.70.103:1:3:1/96 (1 entry, 1 announced)
  *BGP      Preference: 170/-101
            Route Distinguisher: 10.255.70.103:1
            Next-hop reference count: 7
            Source: 10.255.70.103
            Protocol next hop: 10.255.70.103
            Indirect next hop: 2 no-forward
            State: <Secondary Active Int Ext>
            Local AS: 69 Peer AS: 69
            Age: 12:15:24 Metric2: 1
            Task: BGP_69.10.255.70.103+179
            Announcement bits (1): 0-green-l2vpn
            AS path: I
            Communities: target:11111:1 Layer2-info: encaps:VPLS,
            control flags:, mtu: 0
            Label-base: 800008, range: 8
            Localpref: 100
            Router ID: 10.255.70.103
            Primary Routing Table bgp.l2vpn.0

red.l2vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
Restart Complete

10.255.70.103:2:3:1/96 (1 entry, 1 announced)
  *BGP      Preference: 170/-1
            Route Distinguisher: 10.255.70.103:2
            Next-hop reference count: 7
            Source: 10.255.70.103
            Protocol next hop: 10.255.70.103
            Indirect next hop: 2 no-forward
            State: <Secondary Active Int Ext>

```



```

Local AS: 69 Peer AS: 69
Age: 12:15:24 Metric2: 1
Task: BGP_69.10.255.70.103+179
Announcement bits (1): 0-red-12vpn
AS path: I
Communities: target:11111:2 Layer2-info: encaps:VPLS,
control flags:Site-Down, mtu: 0
Label-base: 800016, range: 8
Localpref: 0
Router ID: 10.255.70.103
Primary Routing Table bgp.12vpn.0

bgp.12vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

10.255.70.103:1:3:1/96 (1 entry, 0 announced)
*BGP Preference: 170/-101
Route Distinguisher: 10.255.70.103:1
Next-hop reference count: 7
Source: 10.255.70.103
Protocol next hop: 10.255.70.103
Indirect next hop: 2 no-forward
State: <Active Int Ext>
Local AS: 69 Peer AS: 69
Age: 12:15:24 Metric2: 1
Task: BGP_69.10.255.70.103+179
AS path: I
Communities: target:11111:1 Layer2-info: encaps:VPLS,
control flags:, mtu: 0
Label-base: 800008, range: 8
Localpref: 100
Router ID: 10.255.70.103
Secondary Tables: green.12vpn.0
Indirect next hops: 1
    Protocol next hop: 10.255.70.103 Metric: 2
    Indirect next hop: 2 no-forward
    Indirect path forwarding next hops: 1
Next hop: via so-0/3/0.0 weight 0x1
    10.255.70.103/32 Originating RIB: inet.3
    Metric: 2 Node path count: 1
    Forwarding nexthops: 1
    Nexthop: via so-0/3/0.0

10.255.70.103:2:3:1/96 (1 entry, 0 announced)
*BGP Preference: 170/-1
Route Distinguisher: 10.255.70.103:2
Next-hop reference count: 7
Source: 10.255.70.103
Protocol next hop: 10.255.70.103
Indirect next hop: 2 no-forward
State: <Active Int Ext>
Local AS: 69 Peer AS: 69
Age: 12:15:24 Metric2: 1
Task: BGP_69.10.255.70.103+179
AS path: I
Communities: target:11111:2 Layer2-info: encaps:VPLS,
control flags:Site-Down,
mtu: 0
Label-base: 800016, range: 8
Localpref: 0
Router ID: 10.255.70.103

```

```
Secondary Tables: red.12vpn.0
Indirect next hops: 1
  Protocol next hop: 10.255.70.103 Metric: 2
  Indirect next hop: 2 no-forward
  Indirect path forwarding next hops: 1
Next hop:          via so-0/3/0.0 weight 0x1
  10.255.70.103/32 Originating RIB: inet.3
  Metric: 2                               Node path count: 1
  Forwarding nexthops: 1
  Nexthop: via so-0/3/0.0
```

show route summary

Syntax	show route summary <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display summary statistics about the entries in the routing table.
Options	<p>none—Display summary statistics about the entries in the routing table on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show route summary on page 430
Output Fields	Table 104 on page 429 lists the output fields for the show route summary command. Output fields are listed in the approximate order in which they appear.

Table 104: show route summary Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).
destinations	Number of destinations for which there are routes in the routing table.
routes	Number of routes in the routing table: <ul style="list-style-type: none"> ■ active—Number of routes that are active. ■ holddown—Number of routes that are in the hold-down state before being declared inactive. ■ hidden—Number of routes not used because of routing policy.
Direct	Routes on the directly connected network.
Local	Local routes.
<i>protocol-name</i>	Name of the protocol from which the route was learned. For example, OSPF, RSVP, and Static.

```

show route summary  user@host> show route summary
Autonomous system number: 69
Router ID: 10.255.71.52

inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden)
Restart Complete
    Direct:    6 routes,      5 active
    Local:    4 routes,      4 active
    OSPF:     5 routes,      4 active
    Static:   7 routes,      7 active
    IGMP:     1 routes,      1 active
    PIM:      2 routes,      2 active

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete
    RSVP:      2 routes,      2 active

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete
    Direct:      1 routes,      1 active

mpls.0: 7 destinations, 7 routes (5 active, 0 holddown, 2 hidden)
Restart Complete
    MPLS:       3 routes,      3 active
    VPLS:       4 routes,      2 active

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
Restart Complete
    Direct:      2 routes,      2 active
    PIM:         2 routes,      2 active
    MLD:         1 routes,      1 active

green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
    BGP:         2 routes,      2 active
    L2VPN:       2 routes,      2 active

red.l2vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
Restart Complete
    BGP:         2 routes,      2 active
    L2VPN:       1 routes,      1 active

bgp.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
    BGP:         4 routes,      4 active

```

show route table

Syntax	show route table <i>routing-table-name</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the route entries in a particular routing table.
Options	<p><i>routing-table-name</i>—Display information about a particular routing table (for example, inet.0) where policy-based export is currently enabled. (For information about the different types of routing tables, see the <i>JUNOS Routing Protocols Configuration Guide</i>.)</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	show route summary on page 429
List of Sample Output	<p>show route table bgp.l2.vpn on page 431</p> <p>show route table bgp.l3vpn.0 on page 432</p> <p>show route table bgp.l3vpn.0 detail on page 432</p> <p>show route table inet.0 on page 433</p> <p>show route table inet6.0 on page 434</p> <p>show route table inet6.3 on page 434</p> <p>show route table l2circuit.0 on page 434</p> <p>show route table mpls on page 434</p> <p>show route table mpls extensive on page 435</p> <p>show route table mpls.0 on page 435</p> <p>show route table vpls_1 detail on page 435</p> <p>show route table vpn-a on page 436</p> <p>show route table VPN-AB.inet.0 on page 436</p>
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437).
show route table bgp.l2.vpn	<pre> user@host> show route table bgp.l2.vpn bgp.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both 192.168.24.1:1:4:1/96 *[BGP/170] 01:08:58, localpref 100, from 192.168.24.1 AS path: I > to 10.0.16.2 via fe-0/0/1.0, label-switched-path am </pre>

```

show route table      user@host> show route table bgp.l3vpn.0
bgp.l3vpn.0           bgp.l3vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
                        + = Active Route, - = Last Active, * = Both

10.255.71.15:100:10.255.71.17/32
                        *[BGP/170] 00:03:59, MED 1, localpref 100, from
10.255.71.15
                        AS path: I
                        > via so-2/1/0.0, Push 100020, Push 100011(top)
10.255.71.15:200:10.255.71.18/32
                        *[BGP/170] 00:03:59, MED 1, localpref 100, from
10.255.71.15
                        AS path: I
                        > via so-2/1/0.0, Push 100021, Push 100011(top)

```

```

show route table      user@host> show route table bgp.l3vpn.0 detail
bgp.l3vpn.0 detail    bgp.l3vpn.0: 8 destinations, 8 routes (8 active, 0 holddown, 0 hidden)

10.255.245.12:1:4.0.0.0/8 (1 entry, 1 announced)
  *BGP   Preference: 170/-101
        Route Distinguisher: 10.255.245.12:1
        Source: 10.255.245.12
        Next hop: 192.168.208.66 via fe-0/0/0.0, selected
        Label operation: Push 182449
        Protocol next hop: 10.255.245.12
        Push 182449
        Indirect next hop: 863a630 297
        State: <Active Int Ext>
        Local AS: 35 Peer AS: 35
        Age: 12:19 Metric2: 1
        Task: BGP_35.10.255.245.12+179
        Announcement bits (1): 0-BGP.0.0.0.0+179
        AS path: 30 10458 14203 2914 3356 I (Atomic) Aggregator: 3356 4.68.0.11

        Communities: 2914:420 target:11111:1 origin:56:78
        VPN Label: 182449
        Localpref: 100
        Router ID: 10.255.245.12

10.255.245.12:1:4.17.225.0/24 (1 entry, 1 announced)
  *BGP   Preference: 170/-101
        Route Distinguisher: 10.255.245.12:1
        Source: 10.255.245.12
        Next hop: 192.168.208.66 via fe-0/0/0.0, selected
        Label operation: Push 182465
        Protocol next hop: 10.255.245.12
        Push 182465
        Indirect next hop: 863a8f0 305
        State: <Active Int Ext>
        Local AS: 35 Peer AS: 35
        Age: 12:19 Metric2: 1
        Task: BGP_35.10.255.245.12+179
        Announcement bits (1): 0-BGP.0.0.0.0+179
  AS path: 30 10458 14203 2914 11853 11853 11853 6496 6496 6496 6496 6496 6496 I
        Communities: 2914:410 target:12:34 target:11111:1 origin:12:34
        VPN Label: 182465
        Localpref: 100
        Router ID: 10.255.245.12

10.255.245.12:1:4.17.226.0/23 (1 entry, 1 announced)
  *BGP   Preference: 170/-101

```

```

Route Distinguisher: 10.255.245.12:1
Source: 10.255.245.12
Next hop: 192.168.208.66 via fe-0/0/0.0, selected
Label operation: Push 182465
Protocol next hop: 10.255.245.12
Push 182465
Indirect next hop: 86bd210 330
State: <Active Int Ext>
Local AS: 35 Peer AS: 35
Age: 12:19 Metric2: 1
Task: BGP_35.10.255.245.12+179
Announcement bits (1): 0-BGP.0.0.0.0+179
AS path: 30 10458 14203 2914 11853 11853 11853 6496 6496 6496 6496 6496

6496 I
Communities: 2914:410 target:12:34 target:11111:1 origin:12:34
VPN Label: 182465
Localpref: 100
Router ID: 10.255.245.12

```

```

10.255.245.12:1:4.17.251.0/24 (1 entry, 1 announced)
*BGP Preference: 170/-101
Route Distinguisher: 10.255.245.12:1
Source: 10.255.245.12
Next hop: 192.168.208.66 via fe-0/0/0.0, selected
Label operation: Push 182465
Protocol next hop: 10.255.245.12
Push 182465
Indirect next hop: 86bd210 330
State: <Active Int Ext>
Local AS: 35 Peer AS: 35
Age: 12:19 Metric2: 1
Task: BGP_35.10.255.245.12+179
Announcement bits (1): 0-BGP.0.0.0.0+179
AS path: 30 10458 14203 2914 11853 11853 11853 6496 6496 6496 6496 6496

6496 I
Communities: 2914:410 target:12:34 target:11111:1 origin:12:34
VPN Label: 182465
Localpref: 100

```

show route table inet.0

```

user@host> show route table inet.0
inet.0: 12 destinations, 12 routes (11 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

0.0.0.0/0          *[Static/5] 00:51:57
                   > to 111.222.5.254 via fxp0.0
1.0.0.1/32        *[Direct/0] 00:51:58
                   > via at-5/3/0.0
1.0.0.2/32        *[Local/0] 00:51:58
                   Local
12.12.12.21/32    *[Local/0] 00:51:57
                   Reject
13.13.13.13/32    *[Direct/0] 00:51:58
                   > via t3-5/2/1.0
13.13.13.14/32    *[Local/0] 00:51:58
                   Local
13.13.13.21/32    *[Local/0] 00:51:58
                   Local
13.13.13.22/32    *[Direct/0] 00:33:59
                   > via t3-5/2/0.0

```

```

127.0.0.1/32      [Direct/0] 00:51:58
                  > via lo0.0
111.222.5.0/24   *[Direct/0] 00:51:58
                  > via fxp0.0
111.222.5.81/32  *[Local/0] 00:51:58
                  Local

```

show route table inet6.0 user@host> **show route table inet6.0**
 inet6.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Route, * = Both

```

fec0:0:0:3::/64 *[Direct/0] 00:01:34
>via fe-0/1/0.0

```

```

fec0:0:0:3::/128 *[Local/0] 00:01:34
>Local

```

```

fec0:0:0:4::/64 *[Static/5] 00:01:34
>to fec0:0:0:3::ffff via fe-0/1/0.0

```

show route table inet6.3 user@router> **show route table inet6.3**
 inet6.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

```

::10.255.245.195/128
                  *[LDP/9] 00:00:22, metric 1
                  > via so-1/0/0.0
::10.255.245.196/128
                  *[LDP/9] 00:00:08, metric 1
                  > via so-1/0/0.0, Push 100008

```

show route table l2circuit.0 user@host> **show route table l2circuit.0**
 l2circuit.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

```

10.1.1.195:NoCtrlWord:1:1:Local/96
                  *[L2CKT/7] 00:50:47
                  > via so-0/1/2.0, Push 100049
                  via so-0/1/3.0, Push 100049
10.1.1.195:NoCtrlWord:1:1:Remote/96
                  *[LDP/9] 00:50:14
                  Discard
10.1.1.195:CtrlWord:1:2:Local/96
                  *[L2CKT/7] 00:50:47
                  > via so-0/1/2.0, Push 100049
                  via so-0/1/3.0, Push 100049
10.1.1.195:CtrlWord:1:2:Remote/96
                  *[LDP/9] 00:50:14
                  Discard

```

show route table mpls user@host> **show route table mpls**
 mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

```

0                  *[MPLS/0] 00:13:55, metric 1
                  Receive
1                  *[MPLS/0] 00:13:55, metric 1
                  Receive
2                  *[MPLS/0] 00:13:55, metric 1
                  Receive

```



```

1024                *[VPN/0] 00:04:18
                   to table red.inet.0, Pop

show route table mpls extensive
user@host> show route table mpls extensive
100000 (1 entry, 1 announced)
TSI:
KRT in-kernel 100000 /36 -> {so-1/0/0.0}
      *LDP      Preference: 9
                Next hop: via so-1/0/0.0, selected
                Pop
                State: <Active Int>
                Age: 29:50      Metric: 1
                Task: LDP
                Announcement bits (1): 0-KRT
                AS path: I
                Prefixes bound to route: 10.0.0.194/32

show route table mpls.0
user@host> show route table mpls.0
mpls.0: 11 destinations, 11 routes (11 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

0                *[MPLS/0] 00:45:09, metric 1
                  Receive
1                *[MPLS/0] 00:45:09, metric 1
                  Receive
2                *[MPLS/0] 00:45:09, metric 1
                  Receive
100000           *[L2VPN/7] 00:43:04
                  > via so-0/1/0.1, Pop
100001           *[L2VPN/7] 00:43:03
                  > via so-0/1/0.2, Pop      Offset: 4
100002           *[LDP/9] 00:43:22, metric 1
                  via so-0/1/2.0, Pop
                  > via so-0/1/3.0, Pop
100002(S=0)      *[LDP/9] 00:43:22, metric 1
                  via so-0/1/2.0, Pop
                  > via so-0/1/3.0, Pop
100003           *[LDP/9] 00:43:22, metric 1
                  > via so-0/1/2.0, Swap 100002
                  via so-0/1/3.0, Swap 100002
100004           *[LDP/9] 00:43:16, metric 1
                  via so-0/1/2.0, Swap 100049
                  > via so-0/1/3.0, Swap 100049
so-0/1/0.1       *[L2VPN/7] 00:43:04
                  > via so-0/1/2.0, Push 100001, Push 100049(top)
                  via so-0/1/3.0, Push 100001, Push 100049(top)
so-0/1/0.2       *[L2VPN/7] 00:43:03
                  via so-0/1/2.0, Push 100000, Push 100049(top) Offset: -4
                  > via so-0/1/3.0, Push 100000, Push 100049(top) Offset: -4

show route table vpls_1 detail
user@host> show route table vpls_1 detail
vpls_1.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

1.1.1.11:1000:1:1/96 (1 entry, 1 announced)
*L2VPN Preference: 170/-1
Receive table: vpls_1.l2vpn.0
Next-hop reference count: 2
State: <Active Int Ext>
Age: 4:29:47 Metric2: 1
Task: vpls_1-l2vpn

```

```

Announcement bits (1): 1-BGP.0.0.0+179
AS path: I
Communities: Layer2-info: encaps:VPLS, control flags:Site-Down
Label-base: 800000, range: 8, status-vector: 0xFF

```

show route table vpn-a

```

user@host> show route table vpn-a
vpn-a.12vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

+ = Active Route, - = Last Active, * = Both
192.168.16.1:1:1:1/96
    *[VPN/7] 05:48:27
    Discard
192.168.24.1:1:2:1/96
    *[BGP/170] 00:02:53, localpref 100, from 192.168.24.1
    AS path: I
    > to 10.0.16.2 via fe-0/0/1.0, label-switched-path am
192.168.24.1:1:3:1/96
    *[BGP/170] 00:02:53, localpref 100, from 192.168.24.1
    AS path: I
    > to 10.0.16.2 via fe-0/0/1.0, label-switched-path am

```

**show route table
VPN-AB.inet.0**

```

user@host> show route table VPN-AB.inet.0
VPN-AB.inet.0: 8 destinations, 8 routes (8 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

10.39.1.0/30      *[OSPF/10] 00:07:24, metric 1
                  > via so-7/3/1.0
10.39.1.4/30      *[Direct/0] 00:08:42
                  > via so-5/1/0.0
10.39.1.6/32      *[Local/0] 00:08:46
                  Local
10.255.71.16/32   *[Static/5] 00:07:24
                  > via so-2/0/0.0
10.255.71.17/32   *[BGP/170] 00:07:24, MED 1, localpref 100, from
10.255.71.15
                  AS path: I
                  > via so-2/1/0.0, Push 100020, Push 100011(top)
10.255.71.18/32   *[BGP/170] 00:07:24, MED 1, localpref 100, from
10.255.71.15
                  AS path: I
                  > via so-2/1/0.0, Push 100021, Push 100011(top)
10.255.245.245/32 *[BGP/170] 00:08:35, localpref 100
                  AS path: 2 I
                  > to 10.39.1.5 via so-5/1/0.0
10.255.245.246/32 *[OSPF/10] 00:07:24, metric 1
                  > via so-7/3/1.0

```

show route terse

Syntax	show route terse <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display a high-level summary of the routes in the routing table.
Options	<p>none—Display a high-level summary of the routes in the routing table on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show route terse on page 439
Output Fields	Table 105 on page 437 describes the output fields for the show route terse command. Output fields are listed in the approximate order in which they appear.

Table 105: show route terse Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.
<i>number routes</i>	Number of routes in the routing table and total number of routes in the following states: <ul style="list-style-type: none"> ■ active (routes that are active) ■ holddown (routes that are in the pending state before being declared inactive) ■ hidden (routes that are not used because of a routing policy)
<i>route key</i>	Key for the state of the route: <ul style="list-style-type: none"> ■ +—A plus sign indicates the active route, which is the route installed from the routing table into the forwarding table. ■ - —A hyphen indicates the last active route. ■ *—An asterisk indicates that the route is both the active and the last active route. An asterisk before a to line indicates the best subpath to the route.
A	Active route. An asterisk (*) indicates this is the active route.
Destination	Destination of the route.

Table 105: show route terse Output Fields (*continued*)

Field Name	Field Description
P	<p>Protocol through which the route was learned:</p> <ul style="list-style-type: none"> ■ A—Aggregate ■ B—BGP ■ C—CCC ■ D—Direct ■ G—GMPLS ■ I—IS-IS ■ L—L2CKT, L2VPN, LDP, Local ■ K—Kernel ■ M—MPLS, MSDP ■ O—OSPF ■ P—PIM ■ R—RIP, RIPng ■ S—Static ■ T—Tunnel
Prf	<p>Preference value of the route. In every routing metric except for the BGP LocalPref attribute, a lesser value is preferred. In order to use common comparison routines, JUNOS software stores the 1's complement of the LocalPref value in the Preference2 field. For example, if the LocalPref value for Route 1 is 100, the Preference2 value is -101. If the LocalPref value for Route 2 is 155, the Preference2 value is -156. Route 2 is preferred because it has a higher LocalPref value and a lower Preference2 value.</p>
Metric 1	<p>First metric value in the route. For routes learned from BGP, this is the MED metric.</p>
Metric 2	<p>Second metric value in the route. For routes learned from BGP, this is the IGP metric.</p>
Next hop	<p>Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.</p>
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path was originated:</p> <ul style="list-style-type: none"> ■ I—IGP. ■ E—EGP. ■ ?—Incomplete; typically, the AS path was aggregated.

```

show route terse user@host> show route terse
inet.0: 12 destinations, 12 routes (11 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf Metric 1    Metric 2    Next hop      AS path
* 0.0.0.0/0        S   5                >111.222.5.254
* 1.0.0.1/32       D   0                >at-5/3/0.0
* 1.0.0.2/32       L   0                Local
* 12.12.12.21/32   L   0                Reject
* 13.13.13.13/32   D   0                >t3-5/2/1.0
* 13.13.13.14/32   L   0                Local
* 13.13.13.21/32   L   0                Local
* 13.13.13.22/32   D   0                >t3-5/2/0.0
  127.0.0.1/32     D   0                >lo0.0
* 111.222.5.0/24   D   0                >fxp0.0
* 111.222.5.81/32  L   0                Local
* 224.0.0.5/32     O  10                1          MultiRecv

```


Chapter 9

RIP Operational Mode Commands

Table 106 on page 441 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Routing Information Protocol (RIP). Commands are listed in alphabetical order.

Table 106: RIP Operational Mode Commands

Task	Command
Clear RIP general statistics.	<code>clear rip general-statistics</code> on page 442
Clear RIP statistics.	<code>clear rip statistics</code> on page 443
Display brief RIP statistics.	<code>show rip general-statistics</code> on page 444
Display information about RIP neighbors.	<code>show rip neighbor</code> on page 445
Display RIP statistics about messages sent and received on an interface, as well as information received through advertisements from other routers.	<code>show rip statistics</code> on page 447



NOTE: For more RIP-related commands, such as `show route protocol`, `show route instance`, and `show route table`, see “Protocol-Independent Routing Operational Mode Commands” on page 277.

For information about how to configure RIP, see the *JUNOS Routing Protocols Configuration Guide*.

clear rip general-statistics

Syntax	clear rip general-statistics <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Routing Information Protocol (RIP) general statistics.
Options	logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Topics	show rip general-statistics on page 444
List of Sample Output	clear rip general-statistics on page 442
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear rip general-statistics	user@host> clear rip general-statistics

clear rip statistics

Syntax	clear rip statistics <instance (all <i>instance-name</i>)> <logical-system (all <i>logical-system-name</i>)> <neighbor>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Routing Information Protocol (RIP) statistics.
Options	<p>none—Reset RIP counters for all neighbors for all routing instances on all logical systems.</p> <p>instance (all <i>instance-name</i>)—(Optional) Clear RIP statistics for all instances or for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>neighbor—(Optional) Clear RIP statistics for the specified neighbor only.</p>
Required Privilege Level	clear
Related Topics	show rip statistics on page 447
List of Sample Output	clear rip statistics on page 443
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear rip statistics	user@host> clear rip statistics

show rip general-statistics

Syntax	show rip general-statistics <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display brief Routing Information Protocol (RIP) statistics.
Options	none—Display brief RIP statistics on all logical systems. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Topics	clear rip general-statistics on page 442
List of Sample Output	show rip general-statistics on page 444
Output Fields	Table 107 on page 444 lists the output fields for the show rip general-statistics command. Output fields are listed in the approximate order in which they appear.

Table 107: show rip general-statistics Output Fields

Field Name	Field Description
bad msgs	Number of invalid messages received.
no rcv intf	Number of packets received with no matching interface.
curr memory	Amount of memory currently used by RIP.
max memory	Most memory used by RIP.

```

show rip      user@host> show rip general-statistics
general-statistics  RIPv2 I/O info:
                        bad msgs      :      0
                        no rcv intf   :      0
                        curr memory   :      0
                        max memory    :      0

```

show rip neighbor

Syntax	show rip neighbor <instance (all <i>instance-name</i>)> <logical-system (all <i>logical-system-name</i>)> <name>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Routing Information Protocol (RIP) neighbors.
Options	<p>none—Display information about all RIP neighbors for all instances on all logical systems.</p> <p>instance (all <i>instance-name</i>)—(Optional) Display RIP neighbor information for all instances or for only the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>name</i>—(Optional) Display detailed information about only the specified RIP neighbor.</p>
Required Privilege Level	view
List of Sample Output	show rip neighbor on page 446
Output Fields	Table 108 on page 445 lists the output fields for the show rip neighbor command. Output fields are listed in the approximate order in which they appear.

Table 108: show rip neighbor Output Fields

Field Name	Field Description
Neighbor	Name of RIP neighbor.
State	State of the connection: Up or Dn (Down).
Source Address	Source address.
Destination Address	Destination address.
Send Mode	Send options: broadcast, multicast, none, or version 1.
Receive Mode	Type of packets to accept: both, none, version 1, or version 2.
In Met	Metric added to incoming routes when advertising into RIP routes that were learned from other protocols.

show rip neighbor user@host> **show rip neighbor**

Neighbor	State	Source Address	Destination Address	Send Mode	Receive Mode	In Met
-----	----	-----	-----	----	-----	---
ge-2/3/0.0	Up	192.168.9.105	192.168.9.107	bcast	both	1
at-5/1/1.42	Dn	(null)	(null)	mcast	v2 only	3
at-5/1/0.42	Dn	(null)	(null)	mcast	both	3
at-5/1/0.0	Up	20.0.0.1	224.0.0.9	mcast	both	3
so-0/0/0.0	Up	192.168.9.97	224.0.0.9	mcast	both	3

show rip statistics

Syntax	show rip statistics <instance (all <i>instance-name</i>)> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Routing Information Protocol (RIP) statistics about messages sent and received on an interface, as well as information received from advertisements from other routers.
Options	<p>none—Display RIP statistics for all routing instances on all logical systems.</p> <p>instance (all <i>instance-name</i>)—(Optional) Display RIP statistics for all instances or for only the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	clear rip statistics on page 443
List of Sample Output	show rip statistics on page 449
Output Fields	Table 109 on page 447 lists the output fields for the show rip statistics command. Output fields are listed in the approximate order in which they appear.

Table 109: show rip statistics Output Fields

Field Name	Field Description
RIP info	<p>Information about RIP on the specified interface:</p> <ul style="list-style-type: none"> ■ port—UDP port number used for RIP. ■ holddown—Hold-down interval, in seconds. ■ rts learned—Number of routes learned through RIP. ■ rts held down—Number of routes held down by RIP. ■ rqsts dropped—Number of received request packets that were dropped. ■ resps dropped—Number of received response packets that were dropped. ■ restart—Graceful restart status. Displayed when RIP is or has been in the process of graceful restart.
<i>logical-interface</i>	<p>Name of the logical interface and its statistics:</p> <ul style="list-style-type: none"> ■ routes learned—Number of routes learned on the logical interface. ■ routes advertised—Number of routes advertised by the logical interface. ■ timeout—Timeout interval, in seconds. ■ update interval—Number of seconds since last update.

Table 109: show rip statistics Output Fields *(continued)*

Field Name	Field Description
Counter	<p>List of counter types:</p> <ul style="list-style-type: none"> ■ Updates Sent—Number of update messages sent. ■ Triggered Updates Sent—Number of triggered update messages sent. ■ Responses Sent—Number of response messages sent. ■ Bad Messages—Number of invalid messages received. ■ RIPv1 Updates Received—Number of RIPv1 update messages received. ■ RIPv1 Bad Route Entries—Number of RIPv1 invalid route entry messages received. ■ RIPv1 Updates Ignored—Number of RIPv1 update messages ignored. ■ RIPv2 Updates Received—Number of RIPv2 update messages received. ■ RIPv2 Bad Route Entries—Number of RIPv2 invalid route entry messages received. ■ RIPv2 Updates Ignored—Number of RIPv2 update messages that were ignored. ■ Authentication Failures—Number of received update messages that failed authentication. ■ RIP Requests Received—Number of RIP request messages received. ■ RIP Requests Ignored—Number of RIP request messages ignored.
Total	Total number of packets for the selected counter.
Last 5 min	Number of packets for the selected counter in the most recent 5-minute period.
Last minute	Number of packets for the selected counter in the most recent 1-minute period.

```
show rip statistics user@host> show rip statistics so-0/0/0.0
RIP info: port 520; update interval: 30s; holddown 180s; timeout 120s
restart in progress: restart time 60s; restart will complete in 55s
    rts learned  rts held down  rqsts dropped  resps dropped
              0              0              0              0
so-0/0/0.0: 0 routes learned; 501 routes advertised
Counter      Total    Last 5 min  Last minute
-----
Updates Sent          0          0          0
Triggered Updates Sent 0          0          0
Responses Sent        0          0          0
Bad Messages          0          0          0
RIPv1 Updates Received 0          0          0
RIPv1 Bad Route Entries 0          0          0
RIPv1 Updates Ignored  0          0          0
RIPv2 Updates Received 0          0          0
RIPv2 Bad Route Entries 0          0          0
RIPv2 Updates Ignored  0          0          0
Authentication Failures 0          0          0
RIP Requests Received  0          0          0
RIP Requests Ignored   0          0          0
```


Chapter 10

RIPng Operational Mode Commands

Table 110 on page 451 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Routing Information Protocol next generation (RIPng). Commands are listed in alphabetical order.

Table 110: RIPng Operational Mode Commands

Task	Command
Clear general statistics.	clear ripng general-statistics on page 452
Clear statistics.	clear ripng statistics on page 453
Display general statistics.	show ripng general-statistics on page 454
Display RIPng neighbors.	show ripng neighbor on page 455
Display statistics.	show ripng statistics on page 456



NOTE: For more RIPng-related commands, such as `show route protocol`, `show route instance`, and `show route table`, see “Protocol-Independent Routing Operational Mode Commands” on page 277.

For information about how to configure RIPng, see the *JUNOS Routing Protocols Configuration Guide*.

clear ripng general-statistics

Syntax	clear ripng general-statistics <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Routing Information Protocol next generation (RIPng) general statistics.
Options	logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Topics	show ripng general-statistics on page 454
List of Sample Output	clear ripng general-statistics on page 452
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ripng general-statistics	user@host> clear ripng general-statistics

clear ripng statistics

Syntax	clear ripng statistics <instance name> <logical-system (all logical-system-name)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Routing Information Protocol next-generation (RIPng) statistics.
Options	<p>none—Reset RIPng counters for all neighbors for all routing instances on all logical systems.</p> <p>instance—(Optional) Reset RIPng counters for the specified instance.</p> <p>name—(Optional) Reset RIPng counters for the specified neighbor.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Topics	show ripng statistics on page 456
List of Sample Output	clear ripng statistics on page 453
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ripng statistics	user@host> clear ripng statistics

show ripng general-statistics

Syntax	show ripng general-statistics <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display general Routing Information Protocol next-generation (RIPng) statistics.
Options	none—Display general RIPng statistics on all logical systems. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Topics	clear ripng general-statistics on page 452
List of Sample Output	show ripng general-statistics on page 454
Output Fields	Table 111 on page 454 lists the output fields for the show ripng general-statistics command. Output fields are listed in the approximate order in which they appear.

Table 111: show ripng general-statistics Output Fields

Field Name	Field Description
bad msgs	Number of invalid messages received.
no rcv intf	Number of packets received with no matching interface.
curr memory	Amount of memory currently used by RIPng.
max memory	Most memory used by RIPng.

```

show ripng      user@host> show ripng general-statistics
general-statistics RIPng I/O info:
                    bad msgs      :      0
                    no rcv intf   :      0
                    curr memory   :      0
                    max memory    :      0

```

show ripng neighbor

Syntax	show ripng neighbor <logical-system (all <i>logical-system-name</i>)> < <i>name</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Routing Information Protocol next-generation (RIPng) neighbors.
Options	none—Display information about all RIPng neighbors on all logical systems. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. <i>name</i> —(Optional) Display detailed information about a specific RIPng neighbor.
Required Privilege Level	view
List of Sample Output	show ripng neighbor on page 455
Output Fields	Table 112 on page 455 lists the output fields for the show ripng neighbor command. Output fields are listed in the approximate order in which they appear.

Table 112: show ripng neighbor Output Fields

Field Name	Field Description
Neighbor	Name of RIPng neighbor.
State	State of the connection: Up or Dn (Down).
Source Address	Source address.
Destination Address	Destination address.
Send Mode	Send options: broadcast, multicast, none, version 1, or yes.
Receive Mode	Type of packets to accept: both, none, version 1, or yes.
In Met	Metric added to incoming routes when advertising into RIPng routes that were learned from other protocols.

show ripng neighbor		user@host> show ripng neighbor			
			Source	Dest	In
Neighbor	State	Address	Address	Send	Recv Met
-----	----	-----	-----	----	----
fe-0/0/2.0	Up	fe80::290:69ff:fe68:b002	ff02::9	yes	yes 1

show ripng statistics

Syntax	show ripng statistics <logical-system (all <i>logical-system-name</i>)> < <i>name</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Routing Information Protocol next generation (RIPng) statistics about messages sent and received on an interface, as well as information received from advertisements from other routers.
Options	<p>none—Display RIPng statistics for all neighbors on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>name</i>—(Optional) Display detailed information about a specific RIPng neighbor.</p>
Required Privilege Level	view
Related Topics	clear ripng statistics on page 453
List of Sample Output	show ripng statistics on page 457
Output Fields	Table 113 on page 456 lists the output fields for the show ripng statistics command. Output fields are listed in the approximate order in which they appear.

Table 113: show ripng statistics Output Fields

Field Name	Field Description
RIPng info	<p>Information about RIPng on the specified interface:</p> <ul style="list-style-type: none"> ■ port—UDP port number used for RIP. ■ holddown—Hold-down interval, in seconds. ■ rts learned—Number of routes learned through RIP. ■ rts held down—Number of routes held down by RIP. ■ rqsts dropped—Number of received request packets that were dropped. ■ resps dropped—Number of received response packets that were dropped. ■ restart—Graceful restart status. Displayed when RIPng is or has been in the process of graceful restart.
<i>logical-interface</i>	<p>Name of the logical interface and its statistics:</p> <ul style="list-style-type: none"> ■ routes learned—Number of routes learned on the logical interface. ■ routes advertised—Number of routes advertised by the logical interface. ■ timeout—Timeout interval, in seconds. ■ update interval—Number of seconds since last update.

Table 113: show ripng statistics Output Fields *(continued)*

Field Name	Field Description
Counter	List of counter types: <ul style="list-style-type: none"> ■ Updates Sent—Number of update messages sent. ■ Triggered Updates Sent—Number of triggered update messages sent. ■ Responses Sent—Number of response messages sent. ■ Bad Messages—Number of invalid messages received. ■ Updates Received—Number of RIPng update messages received. ■ Bad Route Entries—Number of RIPng invalid route entry messages received. ■ Updates Ignored—Number of RIPng update messages ignored. ■ RIPng Requests Received—Number of RIPng request messages received. ■ RIPng Requests Ignored—Number of RIPng request messages ignored.
Total	Total number of packets for the selected counter.
Last 5 min	Number of packets for the selected counter in the most recent 5-minute period.
Last minute	Number of packets for the selected counter in the most recent 1-minute period.

```

show ripng statistics  user@host> show ripng statistics
RIPng info: port 521; holddown 120s;
      rts learned  rts held down  rqsts dropped  resps dropped
                0              0              0              0

so-0/1/3.0: 0 routes learned; 1 routes advertised; timeout 180s; update interval
20s
Counter              Total    Last 5 min  Last minute
-----
Updates Sent          934         16         4
Triggered Updates Sent    1          0          0
Responses Sent         0          0          0
Bad Messages          0          0          0
Updates Received        0          0          0
Bad Route Entries       0          0          0
Updates Ignored         0          0          0
RIPng Requests Received  0          0          0
RIPng Requests Ignored   0          0          0

```


Part 2

Policy Framework

- Firewall Filter Operational Mode Commands on page 461
- Forwarding Operational Mode Commands on page 471
- Routing Policy Operational Mode Commands on page 487

Chapter 11

Firewall Filter Operational Mode Commands

Table 114 on page 461 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot firewall filters. Commands are listed in alphabetical order.

Table 114: Firewall Filter Operational Mode Commands

Task	Command
Clear firewall filter counters.	clear firewall on page 462
Operational statistics for firewall filters.	show firewall on page 463
Firewall filter log information.	show firewall log on page 466
Prefix-action statistics for firewall filters.	show firewall prefix-action-stats on page 468
Counters for policers.	show policer on page 469



NOTE: For information about how to configure firewall filters, see the *JUNOS Policy Framework Configuration Guide*.

For information about the related operational mode commands, **show interfaces filters** and **show interfaces policers**, see the *JUNOS Interfaces Command Reference*

clear firewall

Syntax clear firewall (all | counter *counter-name* | filter *filter-name* | logical-system *logical-system-name*)

Release Information Command introduced before JUNOS Release 7.4.
The logical-system option introduced in JUNOS Release 9.3.

Description Clear statistics about configured firewall filters.



NOTE: The clear firewall command cannot be used to clear the Routing Engine filter counters on a backup Routing Engine that is enabled for GRES.

Options all—Clear the packet and byte counts for all filters.

counter *counter-name*—Clear the packet and byte counts for a filter counter that has been configured with the counter firewall filter action.

filter *filter-name*—Clear the packet and byte counts for the specified firewall filter.

logical-system *logical-system-name*—Clear the packet and byte counts for the specified logical system.

Required Privilege Level clear

Related Topics show firewall on page 463

List of Sample Output clear firewall all on page 462

Output Fields When you enter this command, you are provided feedback on the status of your request.

clear firewall all user@host> clear firewall all

show firewall

Syntax	show firewall <filter <i>filter-name</i> > <counter <i>counter-name</i> > <logical-system (<i>logical-system-name</i> all)>
Release Information	Command introduced before JUNOS Release 7.4. The logical-system option introduced in JUNOS Release 9.3.
Description	Display statistics about configured firewall filters.
Options	<i>filter-name</i> —(Optional) Name of a configured filter. counter <i>counter-name</i> —(Optional) Name of a filter counter. logical-system (<i>logical-system-name</i> all)—(Optional) Perform this operation on all logical systems or on a particular system.
Required Privilege Level	view
Related Topics	clear firewall on page 462
List of Sample Output	show firewall filter on page 465 show firewall filter (Dynamic Input Filter) on page 465 show firewall (Logical Systems) on page 465
Output Fields	Table 115 on page 463 lists the output fields for the show firewall command. Output fields are listed in the approximate order in which they appear.

Table 115: show firewall Output Fields

Field Name	Field Description
Filter	<p>Name of a filter that has been configured with the filter statement at the [edit firewall] hierarchy level.</p> <p>When an interface-specific filter is displayed, the name of the filter is followed by the full interface name and by either -i for an input filter, or -o for an output filter.</p> <p>When dynamic filters are displayed, the name of the filter is followed by the full interface name and by either -in for an input filter, or -out for an output filter. When a logical system-specific filter is displayed, the name of the filter is prefixed with two underscore (__) characters and the name of the logical system (for example, __ls1/filter1).</p>
Counters	<p>Display filter counter information:</p> <ul style="list-style-type: none"> ■ Name—Name of a filter counter that has been configured with the counter firewall filter action. ■ Bytes—Number of bytes that match the filter term under which the counter action is specified. ■ Packets—Number of packets that matched the filter term under which the counter action is specified.

Table 115: show firewall Output Fields (*continued*)

Field Name	Field Description
Policers	Display policer information: <ul style="list-style-type: none">■ Name—Name of policer.■ Packets—Number of packets that matched the filter term under which the policer action is specified. This is only the number of out-of-spec packet counts, not all packets policed by the policer.

```

show firewall filter user@host> show firewall filter test
Filter: test
Counters:
Name                               Bytes          Packets
Counter-1                          0              0
Counter-2                          0              0
Policers:
Name                               Packets
Policer-1                          0

show firewall filter user@host> show firewall filter dfwd-ge-5/0/0.1-in
(Dynamic Input Filter) Filter: dfwd-ge-5/0/0.1-in
Counters:
Name                               Bytes          Packets
cl-ge-5/0/0.1-in                   0              0

show firewall (Logical user@host>show firewall
Systems)
Filter: __lr1/test
Counters:
Name                               Bytes          Packets
icmp                               420            5
Filter: __default_bpdu_filter__
Filter: __lr1/inet_filter1
Counters:
Name                               Bytes          Packets
inet_tcp_count                     0              0
inet_udp_count                     0              0
Filter: __lr1/inet_filter2
Counters:
Name                               Bytes          Packets
inet_icmp_count                    0              0
inet_pim_count                     0              0
Filter: __lr2/inet_filter1
Counters:
Name                               Bytes          Packets
inet_tcp_count                     0              0
inet_udp_count                     0              0

```

show firewall log

Syntax	show firewall log <detail> <interface <i>interface-name</i> > <logical-system (<i>logical-system-name</i> all)>
Release Information	Command introduced before JUNOS Release 7.4. logical-system option introduced in JUNOS Release 9.3.
Description	Display log information about firewall filters.
Options	detail—(Optional) Display detailed information. interface <i>interface-name</i> —(Optional) Display log information about a specific interface. logical-system (<i>logical-system-name</i> all)—(Optional) Perform this operation on all logical systems or on a particular system.
Required Privilege Level	view
List of Sample Output	show firewall log detail on page 467
Output Fields	Table 116 on page 466 lists the output fields for the show firewall log command. Output fields are listed in the approximate order in which they appear.

Table 116: show firewall log Output Fields

Field Name	Field Description	Level of Output
Time of Log	Time that the event occurred.	to be provided
Filter	Name of a filter that has been configured with the filter statement at the [edit firewall] hierarchy level. <ul style="list-style-type: none"> ■ A hyphen (-) indicates that the packet was handled by the Packet Forwarding Engine. ■ A space (no hyphen) indicates the packet was handled by the Routing Engine. ■ The notation pfe indicates packets logged by the Packet Forwarding Engine hardware filters. 	to be provided
Filter Action	Filter action: <ul style="list-style-type: none"> ■ A—Accept ■ D—Discard ■ R—Reject 	to be provided
Name of Interface	Ingress interface for the packet.	to be provided
Name of protocol	Packet's protocol name: egp , gre , ipip , ospf , pim , rsvp , tcp , or udp .	to be provided
Packet length	Length of the packet.	to be provided

Table 116: show firewall log Output Fields (continued)

Field Name	Field Description	Level of Output
Source address	Packet's source address.	to be provided
Destination address	Packet's destination address and port.	to be provided

```

show firewall log detail  user@host> show firewall log detail
Time of Log: 2004-10-13 10:37:17 PDT, Filter: f, Filter action: accept, Name of
interface: fxp0.0Name of protocol: TCP, Packet Length: 50824, Source address:
172.17.22.108:829,
Destination address: 192.168.70.66:513
Time of Log: 2004-10-13 10:37:17 PDT, Filter: f, Filter action: accept, Name of
interface: fxp0.0
Name of protocol: TCP, Packet Length: 1020, Source address: 172.17.22.108:829,
Destination address: 192.168.70.66:513
Time of Log: 2004-10-13 10:37:17 PDT, Filter: f, Filter action: accept, Name of
interface: fxp0.0
Name of protocol: TCP, Packet Length: 49245, Source address: 172.17.22.108:829,
Destination address: 192.168.70.66:513
Time of Log: 2004-10-13 10:37:17 PDT, Filter: f, Filter action: accept, Name of
interface: fxp0.0
Name of protocol: TCP, Packet Length: 49245, Source address: 172.17.22.108:829,
Destination address: 192.168.70.66:513
Time of Log: 2004-10-13 10:37:17 PDT, Filter: f, Filter action: accept, Name of
interface: fxp0.0
Name of protocol: TCP, Packet Length: 49245, Source address: 172.17.22.108:829,
Destination address: 192.168.70.66:513
Time of Log: 2004-10-13 10:37:17 PDT, Filter: f, Filter action: accept, Name of
interface: fxp0.0
Name of protocol: TCP, Packet Length: 49245, Source address: 172.17.22.108:829,
Destination address: 192.168.70.66:513
....

```

show firewall prefix-action-stats

Syntax	show firewall prefix-action-stats filter <i>filter-name</i> prefix-action <i>prefix-action-name</i> <from <i>number</i> to <i>number</i> > <logical-system (<i>logical-system-name</i> all)>
Release Information	Command introduced before JUNOS Release 7.4. logical-system option introduced in JUNOS Release 9.3.
Description	Display prefix action statistics about configured firewall filters.
Options	filter <i>filter-name</i> —Name of a filter. prefix-action <i>prefix-action-name</i> —Name of a prefix action. from <i>number</i> to <i>number</i> —(Optional) Starting and ending counter or policer. logical-system (<i>logical-system-name</i> all)—(Optional) Perform this operation on all logical systems or on a particular system.
Required Privilege Level	view
Related Topics	clear firewall on page 462
List of Sample Output	show firewall prefix-action-stats on page 468
Output Fields	Table 117 on page 468 lists the output fields for the show firewall prefix-action-stats command. Output fields are listed in the approximate order in which they appear.

Table 117: show firewall prefix-action-stats Output Fields

Field Name	Field Description
Filter	Filter name. Filters configured for logical systems include the name of the filter prefixed with the two underscore characters (__) and the name of the logical system (for example, __ls1/filter1).

show firewall prefix-action-stats	user@host> show firewall prefix-action-stats filter test prefix-action act1 Filter: __ls2/test
--	---

show policer

Syntax	show policer <policer-name>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the number of policed packets for a given policer or an aggregate policer. An aggregate policer is an aggregate of different policers on the same logical interface.
Options	none—Display the number of policed packets for all configured policers. policer-name—(Optional) Display the number of policed packets for the specified policer.
Required Privilege Level	view
List of Sample Output	show policer on page 469 show policer (Aggregate Policar) on page 469
Output Fields	Table 118 on page 469 lists the output fields for the show policer command. Output fields are listed in the approximate order in which they appear.

Table 118: show policer Output Fields

Field Name	Field Description
Name	Name of the policer.
Packets	Total number of packets policed by the specified policer.

show policer	user@host> show policer Policers: NamePackets __default_arp_policer__0 fe-1/2/0.0-out-policer3496661237 fe-1/2/1.0-out-policer3432710964
show policer (Aggregate Policar)	user@host> show policer Policers: NamePackets __default_arp_policer__0 P1-ae0.0-log_int-o0 P2-ge-7/0/2.0-inet-o0 P2-ge-7/0/2.0-inet6-o0 __policer_tmpl__-term0 __policer_tmpl__-fc00 __policer_tmpl__-fc00 __policer_tmpl__-fc10 __policer_tmpl__-fc00 __policer_tmpl__-fc10 __policer_tmpl__-fc20

__policer_tmpl__-fc0	0
__policer_tmpl__-fc1	0
__policer_tmpl__-fc2	0
__policer_tmpl__-fc3	0

Chapter 12

Forwarding Operational Mode Commands

Table 119 on page 471 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot forwarding options. Commands are listed in alphabetical order.

Table 119: Forwarding Operational Mode Commands

Task	Command
Clear the binding state of a Dynamic Host Configuration Protocol (DHCP) client from the client table.	clear dhcp relay binding on page 472
Clear all DHCP relay statistics.	clear dhcp relay statistics on page 474
Clear statistic counters in the User Datagram Protocol (UDP) forwarding process.	clear helper statistics on page 476
Display the address bindings in the DHCP client table.	show dhcp relay binding on page 477
Display DHCP relay statistics.	show dhcp relay statistics on page 481
Display statistics collected by the UDP forwarding process.	show helper statistics on page 484

clear dhcp relay binding

Syntax	clear dhcp relay binding < (all <i>ip-address</i> <i>mac-address</i>) > <interface <i>interface-name</i> > <logical-system <i>logical-system-name</i> > <routing-instance <i>routing-instance-name</i> >
Release Information	Command introduced in JUNOS Release 8.3. all and interface options added in JUNOS Release 8.4.
Description	Clear the binding state of a Dynamic Host Configuration Protocol (DHCP) client from the client table.
Options	all—(Optional) Clear the binding state for all DHCP clients. interface <i>interface-name</i> —(Optional) Clear the binding state for DHCP clients on the specified interface. <i>ip-address</i> —(Optional) IP address of the DHCP client. <i>mac-address</i> —(Optional) MAC address of the DHCP client. logical-system <i>logical-system-name</i> —(Optional) Clear the binding state for DHCP clients on the specified logical system. routing-instance <i>routing-instance-name</i> —(Optional) Clear the binding state for DHCP clients on the specified routing instance.
Required Privilege Level	view
List of Sample Output	clear dhcp relay binding on page 472 clear dhcp relay binding all on page 472 clear dhcp relay binding interface on page 473
Output Fields	See show dhcp relay binding on page 477 for an explanation of output fields.
clear dhcp relay binding	The following sample output displays the address bindings in the DHCP client table before and after the clear dhcp relay binding command is issued. <pre> user@host> show dhcp relay binding IP address Hardware address Type Lease expires at 100.20.32.1 90:00:00:01:00:01 active 2007-02-08 16:41:17 EST user@host> clear dhcp relay binding 100.20.32.1 user@host> show dhcp relay binding </pre>
clear dhcp relay binding all	<pre> user@host> clear dhcp relay binding all </pre>

```
clear dhcp relay binding user@host> clear dhcp relay binding interface fe-0/0/2  
interface
```

clear dhcp relay statistics

Syntax	clear dhcp relay statistics <logical-system <i>logical-system-name</i> > <routing-instance <i>routing-instance-name</i> >
Release Information	Command introduced in JUNOS Release 8.3.
Description	Clear all Dynamic Host Configuration Protocol (DHCP) relay statistics.
Options	<p>logical-system <i>logical-system-name</i>—(Optional) Perform this operation on the specified logical system. If you do not specify a logical system name, statistics are cleared for the default logical system.</p> <p>routing-instance <i>routing-instance-name</i>—(Optional) Perform this operation on the specified routing instance. If you do not specify a routing instance name, statistics are cleared for the default routing instance.</p>
Required Privilege Level	view
List of Sample Output	clear dhcp relay statistics on page 474
Output Fields	See show dhcp relay statistics on page 481 for an explanation of output fields.

clear dhcp relay statistics The following sample output displays the DHCP relay statistics before and after the clear dhcp relay statistics command is issued.

```

user@host> show dhcp relay statistics
Packets dropped:
  Total                               0

Messages received:
  BOOTREQUEST                        116
  DHCPDECLINE                        0
  DHCPDISCOVER                       11
  DHCPINFORM                         0
  DHCPRELEASE                        0
  DHCPREQUEST                       105

Messages sent:
  BOOTREPLY                          44
  DHCPOFFER                          11
  DHCPACK                           11
  DHCPNAK                           11

user@host> clear dhcp relay statistics

user@host> show dhcp relay statistics
Packets dropped:
  Total                               0

Messages received:
  BOOTREQUEST                        0
  DHCPDECLINE                        0
  DHCPDISCOVER                       0
  DHCPINFORM                         0

```


DHCPRELEASE	0
DHCPREQUEST	0
Messages sent:	
BOOTREPLY	0
DHCPOFFER	0
DHCPACK	0
DHCPNAK	0

clear helper statistics

Syntax	clear helper statistics
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear statistic counters in the User Datagram Protocol (UDP) forwarding process.
Options	This command has no options.
Required Privilege Level	view
Related Topics	show helper statistics on page 484
List of Sample Output	clear helper statistics on page 476
Output Fields	See show helper statistics on page 484 for an explanation of output fields.

clear helper statistics The following sample output displays statistics counters before and after the clear helper statistics command is entered:

```

user@host> show helper statistics
domain:
  Received packets: 63
  Forwarded packets: 61
  Dropped packets: 2
    Due to no interface in fud database: 0
    Due to an error during packet read: 1
    Due to an error during packet send: 1
tftp:
  Received packets: 5
  Forwarded packets: 5
  Dropped packets: 0
    Due to no interface in fud database: 0
    Due to an error during packet read: 0
    Due to an error during packet send: 0

user@host> clear helper statistics

user@host> show helper statistics
domain:
  Received packets: 0
  Forwarded packets: 0
  Dropped packets: 0
    Due to no interface in fud database: 0
    Due to an error during packet read: 0
    Due to an error during packet send: 0
tftp:
  Received packets: 0
  Forwarded packets: 0
  Dropped packets: 0
    Due to no interface in fud database: 0
    Due to an error during packet read: 0
    Due to an error during packet send: 0

```

show dhcp relay binding

Syntax	show dhcp relay binding <detail> <interface <i>interface-name</i> > < <i>ip-address</i> <i>mac-address</i> > <logical-system <i>logical-system-name</i> > <routing-instance <i>routing-instance-name</i> >
Release Information	Command introduced in JUNOS Release 8.3. interface and <i>mac-address</i> options added in JUNOS Release 8.4.
Description	Display the address bindings in the Dynamic Host Configuration Protocol (DHCP) client table.
Options	detail—(Optional) Display detailed client binding information. interface <i>interface-name</i> —(Optional) Perform this operation on the specified interface. <i>ip-address</i> —(Optional) IP address of the DHCP client. <i>mac-address</i> —(Optional) MAC address of the DHCP client. logical-system <i>logical-system-name</i> —(Optional) Perform this operation on the specified logical system. routing-instance <i>routing-instance-name</i> —(Optional) Perform this operation on the specified routing instance.
Required Privilege Level	view
Related Topics	clear dhcp relay binding on page 472
List of Sample Output	show dhcp relay binding on page 478 show dhcp relay binding detail on page 479 show dhcp relay binding interface on page 479 show dhcp relay binding <i>ip-address</i> on page 479 show dhcp relay binding <i>ip-address</i> detail on page 479 show dhcp relay binding <i>mac-address</i> on page 479
Output Fields	Table 120 on page 477 lists the output fields for the show dhcp relay binding command. Output fields are listed in the approximate order in which they appear.

Table 120: show dhcp relay binding Output Fields

Field Name	Field Description	Level of Output
<i>number</i> clients, (<i>number</i> bound, <i>number</i> selecting, <i>number</i> renewing, <i>number</i> rebinding)	Summary counts of the total number of DHCP clients and the number of DHCP clients in each state	detail none

Table 120: show dhcp relay binding Output Fields (continued)

Field Name	Field Description	Level of Output
IP address	IP address of the DHCP client.	All levels
Hardware address	Hardware address of the DHCP client.	All levels
Type	Type of DHCP packet processing performed on the router: <ul style="list-style-type: none"> ■ active—Router actively processes and relays DHCP packets. ■ passive—Router passively snoops DHCP packets passing through the router. 	All levels
Lease expires at	Date and time at which the client's IP address lease expires.	All levels
State	State of the DHCP relay address binding table on the DHCP client: <ul style="list-style-type: none"> ■ init—Initial state. ■ reboot—Client sends DHCP DISCOVER request. ■ select—Client receives offers from DHCP servers. ■ request—Client requests a DHCP server. ■ add—Client is in process of being added. ■ delete—Client is in process of being deleted. ■ bound—Client has active IP address lease. ■ renew—Client sends request to renew IP address lease. ■ rebind—Client broadcasts request to renew IP address lease. 	detail
Active binding information	Information about active IP address binding: <ul style="list-style-type: none"> ■ IP address—IP address of the DHCP client. ■ Hardware address—Hardware address of the DHCP client. ■ Request received on—(detail level only) Interface on which the client request was received. ■ relayed by—(detail level only) IP address on which the client request was relayed. 	All levels (unless specified otherwise) when command includes <i>ip-address</i> or <i>mac-address</i> value
Lease information	Information about the client's IP address lease: <ul style="list-style-type: none"> ■ Type—Type of IP address lease; always DHCP. ■ Obtained at—Date and time at which the client's IP address lease was obtained. ■ Expires at—Date and time at which the client's IP address lease expires. ■ State—(detail level only) State of the DHCP relay address binding table on the DHCP client. 	All levels (unless specified otherwise) when command includes <i>ip-address</i> or <i>mac-address</i> value

show dhcp relay binding user@host> **show dhcp relay binding**

10 clients, (10 bound, 0 selecting, 0 renewing, 0 rebinding)

IP address	Hardware address	Type	Lease expires at
100.20.0.152	00:10:95:01:00:01	active	2007-02-15 05:25:47 PST
100.20.0.153	00:10:95:01:00:02	active	2007-02-15 05:25:48 PST

100.20.0.154	00:10:95:01:00:03	active	2007-02-15 05:25:49	PST
100.20.0.155	00:10:95:01:00:04	active	2007-02-15 05:25:50	PST
100.20.0.156	00:10:95:01:00:05	active	2007-02-15 05:25:51	PST
100.20.0.157	00:10:95:01:00:06	active	2007-02-15 05:25:52	PST
100.20.0.158	00:10:95:01:00:07	active	2007-02-15 05:25:53	PST
100.20.0.159	00:10:95:01:00:08	active	2007-02-15 05:25:54	PST
100.20.0.160	00:10:95:01:00:09	active	2007-02-15 05:25:55	PST
100.20.0.161	00:10:95:01:00:0a	active	2007-02-15 05:25:56	PST

show dhcp relay binding detail user@host> **show dhcp relay binding detail**

10 clients, (10 bound, 0 selecting, 0 renewing, 0 rebinding)

IP address	Hardware address	Type	Lease expires	State
100.20.0.152	00:10:95:01:00:01	active	2007-02-15 05:25:47 PST	bound
100.20.0.153	00:10:95:01:00:02	active	2007-02-15 05:25:48 PST	bound
100.20.0.154	00:10:95:01:00:03	active	2007-02-15 05:25:49 PST	bound
100.20.0.155	00:10:95:01:00:04	active	2007-02-15 05:25:50 PST	bound
100.20.0.156	00:10:95:01:00:05	active	2007-02-15 05:25:51 PST	bound
100.20.0.157	00:10:95:01:00:06	active	2007-02-15 05:25:52 PST	bound
100.20.0.158	00:10:95:01:00:07	active	2007-02-15 05:25:53 PST	bound
100.20.0.159	00:10:95:01:00:08	active	2007-02-15 05:25:54 PST	bound
100.20.0.160	00:10:95:01:00:09	active	2007-02-15 05:25:55 PST	bound
100.20.0.161	00:10:95:01:00:0a	active	2007-02-15 05:25:56 PST	bound

show dhcp relay binding interface user@host> **show dhcp relay binding interface fe-0/0/2**

1 clients, (1 bound, 0 selecting, 0 renewing, 0 rebinding)

IP address	Hardware address	Type	Lease expires at
100.20.32.1	90:00:00:01:00:01	active	2007-03-27 15:06:20 EDT

show dhcp relay binding ip-address user@host> **show dhcp relay binding 100.20.4.138**

Active binding information:

IP address	100.20.4.138
Hardware address	00:10:95:01:00:01

Lease information:

Type	DHCP
Obtained at	2007-02-14 06:37:33 PST
Expires at	2007-02-15 06:37:33 PST

show dhcp relay binding ip-address detail user@host> **show dhcp relay binding 100.20.32.1 detail**

Active binding information:

IP address	100.20.32.1
Hardware address	90:00:00:01:00:01
Request received on	fe-0/0/2.0, relayed by 100.20.32.2

Lease information:

Type	DHCP
Obtained at	2007-01-29 15:43:27 EST
Expires at	2007-01-29 15:53:27 EST
State	rebind

show dhcp relay binding mac-address user@host> **show dhcp relay binding 90:00:00:01:00:01**

Active binding information:

IP address	100.20.32.1
Hardware address	90:00:00:01:00:01

Lease information:

Type	DHCP
------	------

Obtained at	2007-01-17 11:28:47 PST
Expires at	2007-01-17 11:38:47 PST

show dhcp relay statistics

Syntax	show dhcp relay statistics <logical-system <i>logical-system-name</i> > <routing-instance <i>routing-instance-name</i> >
Release Information	Command introduced in JUNOS Release 8.3.
Description	Display Dynamic Host Configuration Protocol (DHCP) relay statistics.
Options	<p>logical-system <i>logical-system-name</i>—(Optional) Perform this operation on the specified logical system. If you do not specify a logical system name, statistics are displayed for the default logical system.</p> <p>routing-instance <i>routing-instance-name</i>—(Optional) Perform this operation on the specified routing instance. If you do not specify a routing instance name, statistics are displayed for the default routing instance.</p>
Required Privilege Level	view
Related Topics	clear dhcp relay statistics on page 474
List of Sample Output	show dhcp relay statistics on page 482
Output Fields	Table 121 on page 482 lists the output fields for the show dhcp relay statistics command. Output fields are listed in the approximate order in which they appear.

Table 121: show dhcp relay statistics Output Fields

Field Name	Field Description
Packets dropped	<p>Number of packets discarded by the extended DHCP relay agent application due to errors. Only nonzero statistics appear in the Packets dropped output. When all of the Packets dropped statistics are 0 (zero), only the Total field appears.</p> <ul style="list-style-type: none"> ■ Total—Total number of packets discarded by the extended DHCP relay agent application. ■ Bad hardware address—Number of packets discarded because an invalid hardware address was specified. ■ Bad opcode—Number of packets discarded because an invalid operation code was specified. ■ Bad options—Number of packets discarded because invalid options were specified. ■ Invalid server address—Number of packets discarded because an invalid server address was specified. ■ No available addresses—Number of packets discarded because there were no addresses available for assignment. ■ No interface match—Number of packets discarded because they did not belong to a configured interface. ■ No routing instance match—Number of packets discarded because they did not belong to a configured routing instance. ■ No valid local address—Number of packets discarded because there was no valid local address. ■ Packet too short—Number of packets discarded because they were too short. ■ Read error—Number of packets discarded because of a system read error. ■ Send error—Number of packets that the extended DHCP relay application could not send. ■ Option 60—Number of packets discarded containing DHCP option 60 vendor-specific information. ■ Option 82—Number of packets discarded because DHCP option 82 information could not be added.
Messages received	<p>Number of DHCP messages received.</p> <ul style="list-style-type: none"> ■ BOOTREQUEST—Number of BOOTP protocol data units (PDUs) received ■ DHCPDECLINE—Number of DHCP PDUs of type DECLINE received ■ DHCPDISCOVER—Number of DHCP PDUs of type DISCOVER received ■ DHCPINFORM—Number of DHCP PDUs of type INFORM received ■ DHCPRELEASE—Number of DHCP PDUs of type RELEASE received ■ DHCPREQUEST—Number of DHCP PDUs of type REQUEST received
Messages sent	<p>Number of DHCP messages sent.</p> <ul style="list-style-type: none"> ■ BOOTREPLY—Number of BOOTP PDUs transmitted ■ DHCPOFFER—Number of DHCP OFFER PDUs transmitted ■ DHCPACK—Number of DHCP ACK PDUs transmitted ■ DHCPNACK—Number of DHCP NACK PDUs transmitted

```

show dhcp relay statistics user@host> show dhcp relay statistics
Packets dropped:
  Total                  30
  Bad hardware address   1
  Bad opcode             1
  Bad options            3

```


Invalid server address	5
No available addresses	1
No interface match	2
No routing instance match	9
No valid local address	4
Packet too short	2
Read error	1
Send error	1
Option 60	1
Option 82	2

Messages received:

BOOTREQUEST	116
DHCPDECLINE	0
DHCPDISCOVER	11
DHCPINFORM	0
DHCPRELEASE	0
DHCPREQUEST	105

Messages sent:

BOOTREPLY	44
DHCPOFFER	11
DHCPACK	11
DHCPNAK	11

show helper statistics

Syntax	show helper statistics
Release Information	Command introduced before JUNOS Release 7.4.
Description	Show statistics collected by the UDP forwarding process.
Options	This command has no options.
Required Privilege Level	view
Related Topics	clear helper statistics on page 476
List of Sample Output	show helper statistics on page 485
Output Fields	Table 122 on page 484 lists the output fields for the <code>show helper statistics</code> command. Output fields are listed in the approximate order in which they appear.

Table 122: show helper statistics Output Fields

Field Name	Field Description
domain	<p>Statistics for Domain Name System (DNS) forwarding:</p> <ul style="list-style-type: none"> ■ Received packets—Packets received for this service. ■ Forwarded packets—Packets forwarded for this service. ■ Dropped packets—Total number of packets dropped for this service. ■ Due to no interface in fud database—Number of packets dropped because the packet came in on an interface that the UDP forwarding process did not identify as active. ■ Due to an error during packet read—Number of packets dropped because an error occurred when the packet was read from the wire. ■ Due to an error during packet send—Number of packets dropped because an error occurred when the packet was sent to the wire.

Table 122: show helper statistics Output Fields (*continued*)

Field Name	Field Description
tftp	<p>Statistics for Trivial File Transfer Protocol (TFTP) forwarding:</p> <ul style="list-style-type: none"> ■ Received packets—Packets received for this service. ■ Forwarded packets—Packets forwarded for this service. ■ Dropped packets—Total number of packets dropped for this service. <p>Reasons for dropped packets include:</p> <ul style="list-style-type: none"> ■ Due to no interface in fud database—Number of packets dropped because the packet came in on an interface that the UDP forwarding process did not identify as active. ■ Due to no matching routing instance—Number of packets dropped because the packet had no matching routing instance. ■ Due to an error during packet read—Number of packets dropped because an error occurred when the packet was read from the wire. ■ Due to an error during packet send—Number of packets dropped because an error occurred when the packet was sent to the wire. ■ Due to invalid server address—Number of packets dropped because the packet contained an invalid server address. ■ Due to no valid local address—Number of packets dropped because the packet contained no local address. ■ Due to no route to server/client—Number of packets dropped because the packet contained no route to the server or the client.

```

show helper statistics  user@host> show helper statistics
                        domain: Received packets: 0
                        Forwarded packets: 0
                        Dropped packets: 0
                        Due to no interface in fud database: 0
                        Due to an error during packet read: 0
                        Due to an error during packet send: 0
tftp: Received packets: 0
tftp: Forwarded packets: 0
tftp: Dropped packets: 0
tftp: Due to no interface in fud database: 0
tftp: Due to no matching routing instance: 0
tftp: Due to an error during packet read: 0
tftp: Due to an error during packet send: 0
tftp: Due to invalid server address: 0
tftp: Due to no valid local address: 0
tftp: Due to no route to server/client: 0

```


Chapter 13

Routing Policy Operational Mode Commands

Table 123 on page 487 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot routing policy filters. Commands are listed in alphabetical order.

Table 123: Routing Policy Operational Mode Commands

Task	Command
Display configured routing policies.	show policy on page 488
Display configured policy conditions and associated routes.	show policy conditions on page 490
Test import and export policies.	test policy on page 492



NOTE: For information about how to configure routing policy filters, see the *JUNOS Policy Framework Configuration Guide*.

show policy

Syntax	show policy <logical-system (all <i>logical-system-name</i>)> < <i>policy-name</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about configured routing policies.
Options	<p>none—List the names of all configured routing policies.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>policy-name</i>—(Optional) Show the contents of the specified policy.</p>
Required Privilege Level	view
Related Topics	show policy damping on page 41
List of Sample Output	<p>show policy on page 488</p> <p>show policy <i>policy-name</i> on page 489</p> <p>show policy (Multicast Scoping) on page 489</p>
Output Fields	Table 124 on page 488 lists the output fields for the show policy command. Output fields are listed in the approximate order in which they appear.

Table 124: show policy Output Fields

Field Name	Field Description
<i>policy-name</i>	Name of the policy listed.
<i>term</i>	Policy term listed.
from	Match condition for the policy.
then	Action for the policy.

```

show policy      user@host> show policy
                   Configured policies:
                   __vrf-export-red-internal__
                   __vrf-import-red-internal__
                   red-export
                   all_routes

```

```
show policy policy-name  user@host> show policy test-statics  
Policy test-statics:  
    from  
        3.0.0.0/8  accept  
        3.1.0.0/16  accept  
    then reject
```

```
show policy (Multicast  user@host> show policy test-statics  
Scoping)              Policy test-statics:  
    from  
        multicast-scoping == 8
```

show policy conditions

Syntax	show policy conditions <condition-name> <detail>
Release Information	Command introduced in JUNOS Release 9.0.
Description	Display all the configured conditions as well as the routing tables with which the configuration manager is interacting. If the detail keyword is included, the output also displays dependent routes for each condition.
Options	<p>none—Display all configured conditions and associated routing tables.</p> <p>condition-name—(Optional) Display information about the specified condition only.</p> <p>detail—(Optional) Display the specified level of output.</p>
Required Privilege Level	view
List of Sample Output	show policy conditions detail on page 490
Output Fields	Table 125 on page 490 lists the output fields for the show policy conditions command. Output fields are listed in the approximate order in which they appear.

Table 125: show policy conditions Output Fields

Field Name	Field Description	Level of Output
Condition	Name of configured condition.	All levels
event	Condition type. If the if-route-exists option is configured, the event type is: Existence of a route in a specific routing table.	All levels
Dependent routes	List of routes dependent on the condition, along with the latest generation number.	detail
Condition tables	List of routing tables associated with the condition, along with the latest generation number and number of dependencies.	All levels
If-route-exists conditions	List of conditions configured to look for a route in the specified table.	All levels

```

show policy conditions    user@host> show policy conditions detail
detail                  Configured conditions:
                          Condition cond1, event: Existence of a route in a specific routing table
                          Dependent routes:
                          4.4.4.4/32, generation 3
                          6.6.6.6/32, generation 3
                          10.10.10.10/32, generation 3

                          Condition cond2, event: Existence of a route in a specific routing table

```


Dependent routes:

None

Condition tables:

Table inet.0, generation 4, dependencies 3, If-route-exists conditions: cond1
cond2

test policy

Syntax	<code>test policy <i>policy-name</i> <i>prefix</i></code>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Test a policy configuration to determine which prefixes match routes in the routing table.
Options	<p><i>policy-name</i>—Name of a policy.</p> <p><i>prefix</i>—Destination prefix to match.</p>
Additional Information	All prefixes in the default unicast routing table (inet.0) that match prefixes that are the same as or longer than the specific prefix are processed by the from clause in the specified policy. All prefixes accepted by the policy are displayed. The test policy command evaluates a policy differently from the Border Gateway Protocol (BGP) import process. When testing a policy that contains an interface match condition in the from clause, the test policy command uses the match condition. In contrast, BGP does not use the interface match condition when evaluating the policy against routes learned from internal BGP (IBGP) or external BGP (EGBP) multihop peers.
Required Privilege Level	view
Related Topics	show policy damping on page 41
List of Sample Output	test policy on page 492
Output Fields	For information about output fields, see the show route command (Table 88 on page 287), the show route detail command (Table 91 on page 316), the show route extensive command (Table 97 on page 336), or the show route terse command (Table 105 on page 437). The last line of output is unique to the test policy command. It provides the policy name and number of prefixes accepted and rejected.

```

test policy user@host> test policy test-statics 3.0.0.1/8
inet.0: 44 destinations, 44 routes (44 active, 0 holddown, 0 hidden)
Prefixes passing policy:

3.0.0.0/8          *[BGP/170] 16:22:46, localpref 100, from 10.255.255.41
                   AS Path: 50888 I
                   > to 10.11.4.32 via en0.2, label-switched-path 12
3.3.3.1/32        *[IS-IS/18] 2d 00:21:46, metric 0, tag 2
                   > to 10.0.4.7 via fxp0.0
3.3.3.2/32        *[IS-IS/18] 2d 00:21:46, metric 0, tag 2
                   > to 10.0.4.7 via fxp0.0
3.3.3.3/32        *[IS-IS/18] 2d 00:21:46, metric 0, tag 2
                   > to 10.0.4.7 via fxp0.0
3.3.3.4/32        *[IS-IS/18] 2d 00:21:46, metric 0, tag 2
                   > to 10.0.4.7 via fxp0.0
Policy test-statics: 5 prefixes accepted, 0 prefixes rejected

```

Part 3

MPLS

- LDP Operational Mode Commands on page 495
- MPLS Operational Mode Commands on page 521
- RSVP Operational Mode Commands on page 565

Chapter 14

LDP Operational Mode Commands

Table 126 on page 495 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Label Distribution Protocol (LDP). Commands are listed in alphabetical order.

Table 126: LDP Operational Mode Commands

Task	Command
Clear LDP neighbors.	clear ldp neighbor on page 497
Clear LDP sessions.	clear ldp session on page 498
Clear LDP statistics.	clear ldp statistics on page 499
Display entries in the LDP database.	show ldp database on page 500
Display forwarding equivalence class filters.	show ldp fec-filters on page 503
Display the status of interfaces on which LDP is running.	show ldp interface on page 504
Display LDP neighbors.	show ldp neighbor on page 506
Display the configured named paths that are used by LDP.	show ldp path on page 508
Display LDP routing table entries.	show ldp route on page 510
Display currently active LDP sessions.	show ldp session on page 512
Display LDP statistics.	show ldp statistics on page 516
Display LDP traffic statistics.	show ldp traffic-statistics on page 519



NOTE: For more LDP-related commands, such as `show route protocol`, `show route instance`, and `show route table`, see “Protocol-Independent Routing Operational Mode Commands” on page 277.

For information about how to configure LDP, see the *JUNOS MPLS Applications Configuration Guide*.

clear ldp neighbor

Syntax	clear ldp neighbor <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <neighbor>
Description	Tear down Label Distribution Protocol (LDP) neighbor connections.
Options	<p>none—Tear down connections with all LDP neighbors for all routing instances on all logical systems.</p> <p>instance <i>instance name</i>—(Optional) Clear the LDP session for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>neighbor</i>—(Optional) Clear an LDP session for the specified neighbor (IP address) only.</p>
Required Privilege Level	clear
Related Topics	show ldp neighbor on page 506
List of Sample Output	clear ldp neighbor on page 497
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ldp neighbor	user@host> clear ldp neighbor

clear ldp session

Syntax	clear ldp session <destination> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Label Distribution Protocol (LDP) sessions.
Options	<p>none—Clear LDP sessions for all destinations for all routing instances on all logical systems.</p> <p><i>destination</i>—(Optional) Clear an LDP session for the specified destination (IP address).</p> <p><i>instance instance-name</i>—(Optional) Clear the LDP session for the specified routing instance only.</p> <p><i>logical-system (all logical-system-name)</i>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Topics	show ldp session on page 512
List of Sample Output	clear ldp session on page 498
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ldp session	user@host> clear ldp session

clear ldp statistics

Syntax	clear ldp statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Set all Label Distribution Protocol (LDP) statistics to zero.
Options	<p>none—Set all LDP statistics to zero for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Clear the LDP session for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Topics	<p>show ldp statistics on page 516</p> <p>show ldp traffic-statistics on page 519</p>
List of Sample Output	clear ldp statistics on page 499
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ldp statistics	user@host> clear ldp statistics

show ldp database

Syntax	show ldp database <brief detail extensive> <inet l2circuit> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <session <i>session</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display entries in the Label Distribution Protocol (LDP) database.
Options	<p>none—Display standard information about all entries in the LDP database for all routing instances on all logical systems.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>inet l2circuit—(Optional) Display only IPv4 or Layer 2 circuit bindings.</p> <p>instance <i>instance-name</i>—(Optional) Display routing instance information for the specified instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>session <i>session</i>—(Optional) Display database for the specified session only. <i>session</i> is the destination address of the LDP session.</p>
Required Privilege Level	view
List of Sample Output	<p>show ldp database on page 502</p> <p>show ldp database l2circuit detail on page 502</p> <p>show ldp database session on page 502</p>
Output Fields	Table 127 on page 500 describes the output fields for the show ldp database command. Output fields are listed in the approximate order in which they appear.

Table 127: show ldp database Output Fields

Field Name	Field Description	Level of Output
Input label database	Label received from the other router.	All levels
Output label database	Label advertised to the other router.	All levels
<i>session-identifier</i>	Session identifier, which includes the local and remote label space identifiers.	All levels
Label	Label binding to a route prefix.	All levels

Table 127: show ldp database Output Fields (continued)

Field Name	Field Description	Level of Output
Prefix	<p>Route prefix. It can be either the IP prefix or the Layer 2 encapsulation type in the format <i>L2CKT control word status encapsulation-type vc-number</i>, for example, <i>L2CKT CtlfWord FRAME RELAY VC 2</i></p> <ul style="list-style-type: none"> ■ <i>control-word-status</i>—Displays whether the use of the control word has been negotiated for this virtual circuit: <ul style="list-style-type: none"> ■ NoCtrlWord ■ CtrlWord ■ <i>encapsulation-type</i>—Encapsulation type: <ul style="list-style-type: none"> ■ FRAME RELAY ■ ATM AAL5 ■ ATM CELL ■ VLAN ■ ETHERNET ■ CISCO_HDLC ■ PPP ■ VC number—Virtual circuit number. It can have any numeric value. ■ (Stale)—When you display the LDP database for the neighbor of a restarting router, the bindings learned from the restarting neighbor are displayed as (Stale). Stale bindings are deleted if they are not refreshed within the recovery time. 	All levels
MTU	MTU of the Layer 2 circuit. MTU is displayed for all encapsulation types except ATM cell encapsulations.	detail
Requested VLAN ID	(VLANs) VLAN identifier of the Layer 2 circuit.	detail
Cell bundle size	(ATM cell encapsulations) Maximum number of cells that the Layer 2 circuit can receive in a packet.	detail
State	<p>State of the label binding:</p> <ul style="list-style-type: none"> ■ Active—Label binding has been installed and distributed appropriately. A label binding is almost always in this state. ■ New—New label that has not yet been distributed. <ul style="list-style-type: none"> ■ MapRcv—Waiting to receive a label mapping message. ■ MapSend—Waiting to send a label mapping message. ■ RelRcv—Waiting to receive a label release message. ■ RelRsnd—Waiting to receive a label release message before resending label mapping message. ■ RelSend—Waiting to send a label release message. ■ ReqSend—Waiting to send a label request message. ■ W/dSend—Waiting to send a label withdrawal message. 	detail
Age	Time elapsed since the binding was created.	detail

```

show ldp database      user@host> show ldp database
Input label database, 10.255.245.222:0--10.255.245.221:0
  Label      Prefix
  3          10.255.245.221/32 (Stale)
100018      10.255.245.222/32
100011      L2CKT FRAME RELAY VC 11
Output label database, 10.255.245.222:0--10.255.245.221:0
  Label      Prefix
  3          10.255.245.221/32
100018      10.255.245.222/32
100011      L2CKT FRAME RELAY VC 1

```

```

show ldp database      user@host> show ldp database l2circuit detail
l2circuit detail      Input label database, 10.255.245.44:0--10.255.245.45:0
                        Label      Prefix
                        100176     L2CKT CtrlWord ATM CELL (VC Mode) VC 100
                                Cell bundle size: 80
                                State: Active
                                Age: 9:48
                        100256     L2CKT CtrlWord FRAME RELAY VC 101
                                MTU: 4470
                                State: Active
                                Age: 9:48

Output label database, 10.255.245.44:0--10.255.245.45:0
  Label      Prefix
  100048     L2CKT CtrlWord ATM CELL (VC Mode) VC 100
                                Cell bundle size: 80
                                State: Active
                                Age: 9:48
  100112     L2CKT CtrlWord FRAME RELAY VC 101
                                MTU: 4470
                                State: Active
                                Age: 9:48

```

```

show ldp database      user@host> show ldp database session 10.1.1.195
session              Input label database, 10.0.0.194:0--10.1.1.195:0
                        Label      Prefix
                        100002     10.255.245.197/32
                        100003     10.255.245.196/32
                        100004     10.0.0.194/32
                        3          10.1.1.195/32
                        100000     L2CKT NoCtrlWord FRAME RELAY VC 1
                        100001     L2CKT CtrlWord FRAME RELAY VC 2
Output label database, 10.0.0.194:0--10.1.1.195:0
  Label      Prefix
  100003     10.255.245.197/32
  100004     10.1.1.195/32
  100002     10.255.245.196/32
  3          10.0.0.194/32
  100000     L2CKT CtrlWord FRAME RELAY VC 2
  100001     L2CKT NoCtrlWord FRAME RELAY VC 1

```

show ldp fec-filters

Syntax	show ldp fec-filters <fec> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about configured Label Distribution Protocol (LDP) forwarding equivalence class (FEC) filters.
Options	<i>fec</i> —(Optional) Display FEC filter information for the specified FEC. <i>instance instance-name</i> —(Optional) Display FEC filter information for the specified instance. <i>logical-system (all logical-system-name)</i> —(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show ldp fec-filters on page 503
Output Fields	Table 128 on page 503 lists the output fields for the show ldp fec-filters command. Output fields are listed in the approximate order in which they appear.

Table 128: show ldp fec-filters Output Fields

Field Name	Field Description
Ingress	Names of the FEC filters on the ingress routers.
Transit	Names of the FEC filters on the transit routers.

show ldp fec-filters user@host> show ldp fec-filters 10/8
10.22.1.2/32
Ingress: f1-10.22.1.2/32 (index: 3)
Transit: (null) (index: 0)

show ldp interface

Syntax	show ldp interface <brief detail extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the status of Label Distribution Protocol (LDP)-enabled interfaces.
Options	<p>none—Display standard status information about all LDP-enabled interface for all routing instances on all logical systems.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>instance <i>instance-name</i>—(Optional) Display information for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show ldp interface extensive on page 505
Output Fields	Table 129 on page 504 describes the output fields for the show ldp interface command. Output fields are listed in the approximate order in which they appear.

Table 129: show ldp interface Output Fields

Field Name	Field Description	Level of Output
Interface	Interface name.	All levels
Label space ID	Label space identifier that the router is advertising on the interface.	All levels
Nbr count	Number of neighbors on the interface.	All levels
Next hello	How long until the next hello packet is sent on this interface, in seconds.	All levels
Hello interval	One-third of the negotiated hold time (in seconds). If the user-configured value for the hello interval is smaller than the computed value, the user-configured value is used.	detail extensive
Hold time	Configured hold time, in seconds.	detail extensive
Transport address	Address to which the neighbor wants the local route to establish the LDP session.	extensive
Local hello interval	Locally configured hello interval.	extensive

```
show ldp interface extensive user@host> show ldp interface extensive
Interface          Label space ID      Nbr count  Next hello
fe-0/0/3.0         10.255.245.6:0      2          0
Hello interval: 1, Hold time: 15, Transport address: 10.255.245.6
Local hello interval: 2, Index: 69
```

show ldp neighbor

Syntax	show ldp neighbor <neighbor-address> <brief detail extensive> <instance instance-name> <logical-system (all logical-system-name)>
Release Information	Command introduced before JUNOS Release 7.4. The <i>neighbor-address</i> option was introduced in JUNOS 8.5.
Description	Display Label Distribution Protocol (LDP) neighbor information.
Options	<i>neighbor-address</i> —Displays information about the specified LDP neighbor. <i>none</i> —Display standard information about LDP neighbors for all routing instances on all logical systems. <i>brief detail extensive</i> —(Optional) Display the specified level of output. <i>instance instance-name</i> —(Optional) Display information for the specified routing instance. <i>logical-system (all logical-system-name)</i> —(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Topics	clear ldp neighbor on page 497
List of Sample Output	show ldp neighbor extensive on page 507
Output Fields	Table 130 on page 506 describes the output fields for the show ldp neighbor command. Output fields are listed in the approximate order in which they appear.

Table 130: show ldp neighbor Output Fields

Field Name	Field Description	Level of Output
Address	IP address of the neighbor.	All levels
Interface	Interface over which the neighbor was discovered.	All levels
Label space ID	Label space identifier advertised by the neighbor.	All levels
Hold time	Remaining hold time before the neighbor expires, in seconds.	All levels
Transport address	Address to which the neighbor wants the local route to establish the LDP session.	detail
Configuration sequence	Counter that increments whenever the neighbor changes its configuration.	detail

Table 130: show ldp neighbor Output Fields *(continued)*

Field Name	Field Description	Level of Output
Up for	Length of time the LDP neighbor has been in operation.	detail extensive
Reference count	Reference count for the LDP neighbor.	extensive
Hold time	Displays the neighbor's hold time. The hold time is the proposed hold times for the local and peer routers.	extensive
Proposed local/peer	Hold time value proposed by the local router and the peer router.	extensive

```

show ldp neighbor      user@host> show ldp neighbor extensive
extensive             Address      Interface      Label space ID      Hold Time
                        192.168.37.23   so-1/0/0.0      10.255.245.5:0      44
                        Transport address: 10.255.245.5, Configuration sequence: 6
                        Up for 00:03:37
                        Reference count: 1
                        Hold time: 45, Proposed local/peer: 15/45

```

show ldp path

Syntax show ldp path
 <brief | detail | extensive>
 <destination>
 <instance *instance-name*>
 <logical-system (all | *logical-system-name*)>

Release Information Command introduced before JUNOS Release 7.4.

Description Display Label Distribution Protocol (LDP) label-switched paths (LSPs).

Options none—Display standard information about all LDP LSPs for all routing instances on all logical systems.

brief | detail | extensive—(Optional) Display the specified level of output.

destination—(Optional) Restrict the output to entries that match the specified destination prefix.

instance *instance-name*—(Optional) Display information for the specified routing instance only.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

Required Privilege Level view

List of Sample Output show ldp path extensive on page 509

Output Fields Table 131 on page 508 describes the output fields for the **show ldp path** command. Output fields are listed in the approximate order in which they appear.

Table 131: show ldp path Output Fields

Field Name	Field Description
Output Session (label)	Session ID and labels that this system has sent using LDP. These correspond to MPLS packets received.
Input Session (label)	Session ID and labels that this system has received using LDP. These correspond to MPLS packets transmitted.
<i>route</i>	MPLS route.
Attached route	Route corresponding to the LSP.
Ingress route	The router acts as the ingress for the LSP.
Reference count	Reference count for the LDP neighbor.
Transit route	Names of the forwarding equivalence class (FEC) filters on the transit routers.

Table 131: show ldp path Output Fields *(continued)*

Field Name	Field Description
Global label	MPLS label that is used globally.

show ldp path extensive

```

user@host> show ldp path extensive
Output Session (label)      Input Session (label)
10.255.14.220:0(3)         ( )
    Attached route: 10.255.14.221/32
    Reference count: 3, Global label: 3
10.255.14.220:0(100000)     10.255.14.220:0(3)
    Attached route: 10.255.14.220/32, Ingress route
    Reference count: 2, Transit route, Global label: 100000
10.255.14.220:0(100001)     10.255.14.220:0(100001)
    Attached route: 10.255.14.214/32, Ingress route
    Reference count: 2, Transit route, Global label: 100001

```

show ldp route

Syntax	show ldp route <brief detail extensive> <destination> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the entries in the Label Distribution Protocol (LDP) internal topology table. The internal topology table contains routes from inet.0 and inet.3 and is used when binding a label to a forwarding equivalence class (FEC).
Options	<p>none—Display standard information about all entries in the LDP internal topology table for all routing instances on all logical systems.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>destination—(Optional) Restrict the output to entries that are longer than the specified destination prefix and prefix length.</p> <p>instance <i>instance-name</i>—(Optional) Display entries for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show ldp route detail on page 511
Output Fields	Table 132 on page 510 describes the output fields for the show ldp route command. Output fields are listed in the approximate order in which they appear.

Table 132: show ldp route Output Fields

Field Name	Field Description	Level of Output
Destination	Destination prefix.	to be provided
Next-hop intf	Interface that is the next hop to the destination prefix.	to be provided
Next-hop address	IP address of the next hop.	to be provided
Bound to outgoing label	The route has been bound to LSPs with the label being distributed for that LSP.	to be provided

```

show ldp route detail  user@host> show ldp route detail
Destination                Next-hop intf  Next-hop address
10.10.255.1/32             so-2/3/0
*10.10.255.3/32           so-1/0/0      10.10.1.3
    Bound to outgoing label 100001
*10.10.255.1/32           so-2/3/0
10.10.255.4/32            so-0/0/0      192.168.1.213
*10.10.255.4/32           so-0/0/0      192.168.1.213
    Bound to outgoing label 100002
10.10.255.6/32            so-0/0/0      192.168.1.215
*10.10.255.6/32           so-0/0/0      192.168.1.215
    Bound to outgoing label 100000
*10.10.255.2/32
    Bound to outgoing label 3
0.0.0.0/0                 so-0/0/0      192.168.1.254
10.10.255.3/32           so-1/0/0      10.10.1.3

```

show ldp session

Syntax	show ldp session <brief detail extensive> <destination> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Label Distribution Protocol (LDP) sessions.
Options	<p>none—Display standard information about all LDP sessions for all routing instances on all logical systems.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>destination—(Optional) Restrict LDP session display to the specified address.</p> <p>instance <i>instance-name</i>—(Optional) Display routing instance information for the specified instance. If <i>instance-name</i> is omitted, information is displayed for the master instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	clear ldp session on page 498
List of Sample Output	show ldp session extensive on page 514
Output Fields	Table 133 on page 512 describes the output fields for the show ldp session command. Output fields are listed in the approximate order in which they appear.

Table 133: show ldp session Output Fields

Field Name	Field Description	Level of Output
Address	Transport address of the session.	to be provided
State	State of the session: Nonexistent , Connecting , Initialized , OpenRec , OpenSent , Operational , or Closing . The states correspond to the state diagram specified in Internet Draft LDP Specification draft-ietf-mpls-rfc3036bis-01.txt.	to be provided
Connection	TCP connection state: Closed , Opening , or Open .	to be provided
Hold time	Time remaining until the session will be closed, in seconds.	to be provided
Session ID	LDP identifiers of the peers of this session.	to be provided
Next keepalive	Time until next keepalive is sent, in seconds.	detail extensive

Table 133: show ldp session Output Fields (continued)

Field Name	Field Description	Level of Output
Active	Whether the local router is playing the active role in the session and during session establishment.	detail extensive
Maximum PDU	Maximum PDU size for the session.	detail extensive
Hold time	Time remaining until the session will be closed, in seconds. This value corresponds to the one configured using the <code>keepalive-timeout</code> statement configured at the <code>[edit protocols ldp]</code> hierarchy level.	detail extensive
Neighbor count	Number of neighbors that are contributing to the session.	detail extensive
Keepalive interval	Keepalive interval, in seconds.	detail extensive
Connect retry interval	TCP connection retry interval, in seconds.	detail extensive
Local address	Local transport address.	detail extensive
Remote address	Remote transport address.	detail extensive
Up for	Time that this session has been up.	detail extensive
Last down	Time since the session last went down.	detail extensive
Reason	Reason the session went down: <ul style="list-style-type: none"> ■ Aborted graceful restart ■ Authentication key was changed ■ Bad type length value (TLV) ■ Bad protocol data unit (PDU) packets ■ Command-line interface (CLI) command ■ Connect time expired ■ Connection error ■ Connection reset ■ Error during initialization ■ Hold time expired ■ No adjacency or all adjacencies down ■ Notification received ■ Received notification from peer ■ Unexpected End of File (EOF) ■ Unknown reason 	detail extensive
Number of session flaps	Number of times the session changes from up to down.	detail extensive
Restarting	LDP is in the process of gracefully restarting.	detail extensive
restart complete in <i>nnn</i> msec	Amount of time (in milliseconds) remaining until graceful restart is declared complete.	detail extensive

Table 133: show ldp session Output Fields (continued)

Field Name	Field Description	Level of Output
Local	<p>Information about graceful restart for the local end of an LDP session. Graceful restart and helper mode are independent.</p> <ul style="list-style-type: none"> ■ Restart—Status of the graceful restart feature at the local end of the LDP session: enabled or disabled. ■ Helper mode—Status of the helper mode feature at the local end of the LDP session: enabled or disabled. When this feature is enabled, the local end of the LDP session can help the restarting router with its LDP restart procedures. ■ Reconnect time—Amount of time to wait from when a restart is initiated until the router can exchange LDP messages with its neighbors. The default is 60000 msec and is not configurable. (Reconnect timeout refers to "FT Reconnect timeout" in Internet Draft Graceful Restart Mechanism for LDP draft-ietf-mpls-ldp-restart-06.) 	detail extensive
Remote	<p>Information about graceful restart at the remote end of an LDP session. Graceful restart and helper mode are independent.</p> <ul style="list-style-type: none"> ■ Restart—Status of the graceful restart feature at the remote end of the LDP session: enabled or disabled. ■ Helper mode—Status of the helper mode feature at the remote end of the LDP session: enabled or disabled. When this feature is enabled, the remote end of the LDP session can help the restarting router with its LDP restart procedures. ■ Reconnect time—Amount of time in milliseconds from when a restart is initiated until the remote router can exchange LDP messages with its neighbors. 	detail extensive
Local maximum recovery time	Amount of time during which the restarting node attempts to recover its lost states with help from its neighbors (in milliseconds).	detail extensive
Next-hop addresses received	Next-hop addresses received on the session.	detail extensive
Queue depth	Number of messages that are queued for sending to the peers in the group.	extensive
Message type	<p>Type of message being sent.</p> <ul style="list-style-type: none"> ■ Total—Messages sent and received during the lifetime of the session. ■ Last 5 seconds—Messages sent and received during the current session. 	extensive

```

show ldp session extensive    user@host> show ldp session extensive
                                Address: 10.255.70.103, State: Operational, Connection: Open, Hold time: 20
                                Session ID: 10.255.71.52:0--10.255.70.103:0
                                Next keepalive in 0 seconds
                                Active, Maximum PDU: 4096, Hold time: 30, Neighbor count: 1
                                Keepalive interval: 10, Connect retry interval: 1
                                Local address: 10.255.71.52, Remote address: 10.255.70.103
                                Up for 00:01:40
                                Last down 00:01:41 ago; Reason: received notification from peer
                                Number of session flaps: 3
                                Local - Restart: disabled, Helper mode: enabled

```


Remote - Restart: disabled, Helper mode: enabled

Local maximum recovery time: 240000 msec

Next-hop addresses received:

so-2/0/0.0

11.2.3.1

11.2.4.1

11.2.5.1

11.1.2.2

192.168.70.103

10.255.70.103

Queue depth: 0

Message type	Total		Last 5 seconds	
	Sent	Received	Sent	Received
Initialization	4	4	0	0
Keepalive	114	114	0	0
Notification	0	3	0	0
Address	4	4	0	0
Address withdraw	0	0	0	0
Label mapping	8	8	0	0
Label request	0	0	0	0
Label withdraw	0	0	0	0
Label release	0	0	0	0
Label abort	0	0	0	0

show ldp statistics

Syntax	show ldp statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Label Distribution Protocol (LDP) statistics.
Options	<p>none—Display LDP statistics for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Display information for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Topics	clear ldp statistics on page 499
List of Sample Output	show ldp statistics on page 517
Output Fields	Table 134 on page 516 lists the output fields for the show ldp statistics command. Output fields are listed in the approximate order in which they appear.

Table 134: show ldp statistics Output Fields

Field Name	Field Description
Total Sent, Received	Total number of each message type sent and received.
Last 5 seconds Sent, Received	Number of each message type sent and received in the last 5 seconds.

Table 134: show ldp statistics Output Fields (continued)

Field Name	Field Description
Message type	<p>LDP message types:</p> <ul style="list-style-type: none"> ■ Hello—Messages that enable LDP nodes to discover one another and to detect the failure of a neighbor or of the link to the neighbor. ■ Initialization—Messages that indicate an LDP session has started. ■ Keepalive—Messages that ensure that the keepalive timeout is not exceeded. ■ Notification—Advisory information and signal error information. ■ Address—Messages with address information. ■ Address withdrawal—Messages regarding address withdrawal. ■ Label mapping—Messages with label mapping information. ■ Label request—Request for a label mapping from a neighboring router. ■ Label withdrawal—Withdrawal message sent by the downstream LSR to recall a label that it previously mapped. If an LSR that has received a label mapping subsequently determines that it no longer needs that label, it can send a label release message that frees the label for use. ■ Label release—Message sent by the downstream LSR to recall a label that it previously mapped. If an LSR that has received a label mapping subsequently determines that it no longer needs that label, it can send a label release message that frees the label for use. ■ Label abort—Messages about label interruptions. ■ All UDP—All hello messages sent by LSRs to the well-known UDP port, 646. ■ All TCP—All LDP session messages.
Event type	LDP events and errors.
Total	Total number of each event or error.
Last 5 seconds	Number of each event or error in the last 5 seconds.

```

show ldp statistics user@host> show ldp statistics
Message type      Total          Last 5 seconds
                  Sent    Received    Sent    Received
Hello             265      263         2         2
Initialization     2         2         0         0
Keepalive         112      111         1         0
Notification        0         0         0         0
Address            2         2         0         0
Address withdraw   0         0         0         0
Label mapping       7         6         0         0
Label request       0         0         0         0
Label withdraw      2         0         0         0
Label release       0         2         0         0
Label abort         0         0         0         0
All UDP            265      263         2         2
All TCP            123      121         1         0

Event type          Total          Last 5 seconds
Sessions opened           2              0
Sessions closed           0              0
Topology changes         11              0

```

No interface	0	0
No session	0	0
No adjacency	0	0
Unknown version	0	0
Malformed PDU	0	0
Malformed message	0	0
Unknown message type	0	0
Inappropriate message	0	0
Malformed TLV	0	0
Bad TLV value	0	0
Missing TLV	0	0
PDU too large	0	0

show ldp traffic-statistics

Syntax	show ldp traffic-statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Label Distribution Protocol (LDP) traffic statistics.
Options	<p>none—Display LDP traffic statistics for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Display LDP traffic statistics for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	To obtain output from this command, you must configure the traffic-statistics statement for the LDP protocol. For more information, see the <i>JUNOS MPLS Applications Configuration Guide</i> .
Required Privilege Level	view
Related Topics	clear ldp statistics on page 499
List of Sample Output	show ldp traffic-statistics on page 520
Output Fields	Table 135 on page 519 lists the output fields for the show ldp traffic-statistics command. Output fields are listed in the approximate order in which they appear.

Table 135: show ldp traffic-statistics Output Fields

Field Name	Field Description
Message type	LDP message types.
FEC	Forwarding equivalence class (FEC) for which LDP traffic statistics are collected.
Type	Type of traffic originating from a router, either Ingress (originating from this router) or Transit (forwarded through this router).
Packets	Number of packets passed by the FEC since its LSP came up.
Bytes	Number of bytes of data passed by the FEC since its LSP came up.
Shared	Whether a label is shared by prefixes: Yes or No . A Yes value indicates that several prefixes are bound to the same label (for example, when several prefixes are advertised with an egress policy). The LDP traffic statistics for this case apply to all the prefixes and should be treated as such.

```
show ldp traffic-statistics user@host> show ldp traffic-statistics
```

FEC	Type	Packets	Bytes	Shared
10.35.3.0/30	Transit	0	0	Yes
	Ingress	0	0	No
10.35.10.1/32	Transit	0	0	Yes
	Ingress	0	0	No
10.255.245.214/32	Transit	0	0	No
	Ingress	11	752	No
192.168.37.36/30	Transit	0	0	Yes
	Ingress	0	0	No

Chapter 15

MPLS Operational Mode Commands

Table 136 on page 521 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Multiprotocol Label Switching (MPLS). Commands are listed in alphabetical order.

Table 136: MPLS Operational Mode Commands

Task	Command
Disconnect and restart dynamic LSPs that originate from this router.	<code>clear mpls lsp</code> on page 523
Manually trigger a bandwidth allocation adjustment for active LSP paths.	<code>request mpls lsp adjust-autobandwidth</code> on page 525
Display information about configured cross-connects.	<code>show connections</code> on page 526
Display peer and traffic engineering link information.	<code>show link-management</code> on page 529
Display peer link information.	<code>show link-management peer</code> on page 532
Display peer and traffic engineering link information (routing process).	<code>show link-management routing</code> on page 534
Display link management statistics.	<code>show link-management statistics</code> on page 537
Display traffic engineering link information.	<code>show link-management te-link</code> on page 539
Display MPLS administrative groups.	<code>show mpls admin-groups</code> on page 541
Display MPLS LSP call admission control (CAC) related information.	<code>show mpls call-admission-control</code> on page 542
Display CSPF statistics.	<code>show mpls cspf</code> on page 544
Display DiffServ traffic engineering classes.	<code>show mpls diffserv-te</code> on page 546
Display the status of interfaces on which MPLS is running.	<code>show mpls interface</code> on page 547
Display configured LSPs on this router, as well as all ingress, transit, and egress LSPs.	<code>show mpls lsp</code> on page 548
Display configured named paths that are used in dynamic MPLS.	<code>show mpls path</code> on page 556
Display entries in the traffic engineering database.	<code>show ted database</code> on page 557
Display current traffic engineering database links.	<code>show ted link</code> on page 561

Table 136: MPLS Operational Mode Commands (*continued*)

Task	Command
Display protocols contributing to the traffic engineering database.	<code>show ted protocol</code> on page 563



NOTE: For more MPLS-related commands, such as `show route ccc`, `show route protocol`, `show route instance`, and `show route table`, see “Protocol-Independent Routing Operational Mode Commands” on page 277.

For information about how to configure MPLS, see the *JUNOS MPLS Applications Configuration Guide*.

clear mpls lsp

Syntax clear mpls lsp
 <autobandwidth>
 <logical-system (all | *logical-system-name*)>
 <name *name*>
 <optimize | optimize-aggressive>
 <path *regular-expression*>
 <statistics>

Release Information Command introduced before JUNOS Release 7.4.

Description Release the routes and states associated with Multiprotocol Label Switching (MPLS) label-switched paths (LSPs), and start new LSPs.



CAUTION: This command disconnects existing Resource Reservation Protocol (RSVP) sessions on the ingress router. If there is a time lag between the old path being torn down and the new path being set up, this command might impact traffic traveling along the LSPs.

Options none—Reset and restart all LSPs that originated from this router; that is, all LSPs for which this router is the ingress router. Depending on the number of LSPs involved, it might take a while to restart all the LSPs.

autobandwidth—(Optional) Clear LSP autobandwidth counters.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

name *name*—(Optional) Reset and restart the specified LSP or group of LSPs. You can include wildcard characters in the interface name, as described in the *JUNOS Network Interfaces Configuration Guide*.

optimize | optimize-aggressive—(Optional) Run nonpreemptive optimization or aggressive optimization computation now.

path *regular-expression*—(Optional) Clear specific LSP path matching the specified regular expression.

statistics—(Optional) Clear LSP statistics.

Required Privilege Level clear

Related Topics show mpls lsp on page 548

show rsvp session on page 578

List of Sample Output clear mpls lsp on page 524

Output Fields When you enter this command, you are provided feedback on the status of your request.

clear mpls lsp user@host> **clear mpls lsp**

request mpls lsp adjust-autobandwidth

Syntax	request mpls lsp adjust-autobandwidth <logical-system (all <i>logical-system-name</i>)> <lsp-name>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Manually trigger a bandwidth allocation adjustment for active label-switched paths (LSPs).
Options	<p>none—Manually trigger a bandwidth allocation adjustment for all active LSP paths on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>lsp-name</i>—(Optional) Manually trigger a bandwidth allocation adjustment on the specified LSP only.</p>
Additional Information	<p>For this command to work properly, the following conditions must exist:</p> <ul style="list-style-type: none"> ■ Automatic bandwidth allocation must be enabled on the LSP. The parameters for adjustment interval and maximum average bandwidth are not reset after you issue the request mpls lsp adjust-autobandwidth command. ■ The difference between the adjusted bandwidth and the current LSP path bandwidth must be greater than the threshold limit.
Required Privilege Level	maintenance
List of Sample Output	request mpls lsp adjust-auto-bandwidth on page 525
Output Fields	When you enter this command, you are provided feedback on the status of your request.
request mpls lsp adjust-auto-bandwidth	user@host> request mpls lsp adjust-auto-bandwidth

show connections

Syntax show connections
 <brief | extensive | history | labels | status>
 <all | interface-switch | lsp-switch | p2mp-receive-switch | p2mp-transmit-switch |
 remote-interface-switch>
 <down | up | up-down>
 <logical-system (all | *logical-system-name*)>
 <*name*>

Release Information Command introduced before JUNOS Release 7.4.

Description Display information about the configured circuit cross-connect (CCC) connections.

Options none—Display the standard level of output for all configured CCC connections on all logical systems.

brief | extensive | history | labels | status—(Optional) Display the specified level of output. Use history to display information about connection history. Use labels to display labels used for transmit and receive LSPs. Use status to display information about the connection and interface status.

all—(Optional) Display all connections.

interface-switch—(Optional) Display interface switch connections only.

lsp-switch—(Optional) Display LSP switch connections only.

p2mp-receive-switch—(Optional) Display point-to-multipoint LSP to local interfaces switch connections only.

p2mp-transmit-switch—(Optional) Display local interface to point-to-multipoint LSP switch connections only.

remote-interface-switch—(Optional) Display remote interface switch connections only.

down | up | up-down—(Optional) Display nonoperational, operational, or both kinds of connections.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

name—(Optional) Display information about the specified connection only.

Required Privilege Level view

Output Fields Table 137 on page 527 describes the output fields for the **show connections** command. Output fields are listed in the approximate order in which they appear.

Table 137: show connections Output Fields

Field Name	Field Description
CCC and TCC connections [Link Monitoring On Off]	Whether link monitoring is enabled: On or Off.
Legend for Status (St)	Connection or circuit status. See the output's legend for an explanation of the status field values.
Legend for connection types	Type of connection: <ul style="list-style-type: none"> ■ if-sw—Layer 2 switching cross-connect. ■ rmt-if—Remote interface switch. While graceful restart is in progress, rmt-if will display a state (St) of Restart. ■ lsp-sw—LSP stitching cross-connect. While graceful restart is in progress, lsp-sw will display a state (St) of Restart.
Legend for circuit types	Type of circuits: <ul style="list-style-type: none"> ■ intf—Interface circuit. ■ tlsp—Transmit LSP circuit. ■ rlsp—Receive LSP circuit.
Connection/Circuit	Name of the configured CCC connection.
Type	Type of connection.
St	State of the connection.
Time last up	Time that the connection or circuit last transitioned to the Up (operational) state.
# Up trans	Number of times that the connection or circuit has transitioned to the Up (operational) state.

show connections

```

user@host> show connections
CCC and TCC connections [Link Monitoring On]
Legend for status (St)          Legend for connection types
UN -- uninitialized             if-sw: interface switching
NP -- not present               rmt-if: remote interface switching
WE -- wrong encapsulation       lsp-sw: LSP switching
DS -- disabled
Dn -- down                     Legend for circuit types
-> -- only outbound conn is up  intf -- interface
<- -- only inbound conn is up  tlsp -- transmit LSP
Up -- operational              rlsp -- receive LSP
RmtDn -- remote CCC down
Restart -- restarting

CCC Graceful restart : Restarting

Connection/Circuit      Type  St    Time last up    # Up trans
IFSW-ed                 if-sw Up    Aug  5 15:39:15      1
so-1/0/2.0              intf  Up

```

t1-0/1/2.0	intf	Up	
SW-db	rmt-if	Restart	0
so-1/0/3.0	intf	Up	
pro4-ca	tlsp	Dn	
pro4-ac	rlsp	NP	

show link-management

Syntax	show link-management
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Multiprotocol Label Switching (MPLS) peer and traffic engineering link information.
Options	This command has no options.
Required Privilege Level	view
Related Topics	show link-management peer on page 532 show link-management routing on page 534 show link-management statistics on page 537 show link-management te-link on page 539
List of Sample Output	show link-management on page 531
Output Fields	Table 138 on page 529 describes the output fields for the show link-management command. Output fields are listed in the approximate order in which they appear.

Table 138: show link-management Output Fields

Field Name	Field Description
Peer Name	Name of the peer.
System identifier	Internal identifier for the peer. The range of values is 0 through 64,000.
State	State of the peer: Up or Down .
Control address	Address to which a control channel is established.
CC local ID	Identifier assigned to the control channel by the local peer. The range of values is 1 through 4,294,967,296.
CC remote ID	Identifier assigned to the control channel by the remote peer. The range of values is 1 through 4,294,967,296.
State	State of the control channel: Up or Down .
TxSeqNum	Sequence number of the hello message being sent to the peer. The range of values is 1 through 4,294,967,295.
RcvSeqNum	Sequence number of the last hello message received from the peer. The range of values is 0 through 4,294,967,295.
Flags	Code that provides information about the control channel. Currently supports only code value R , which indicates that the control channel is restarting after a failure in the control plane, as when the Link Management Protocol (LMP) process starts or restarts.
TE links	Traffic-engineered links that are managed by their peer.

Table 138: show link-management Output Fields (continued)

Field Name	Field Description
TE link name	Name of the traffic-engineered link.
State	State of the traffic-engineered link: Up , Down , or Init .
Local identifier	Identifier of the local side of the link.
Remote identifier	Identifier of the remote side of the link.
Local address	Address of the local side of the link.
Remote address	Address of the remote side of the link.
Encoding	Physical layer media type determined by the interfaces contained in the traffic-engineered link. Typical values include SDH/SONET , Ethernet , Packet , and PDH .
Switching	Type of switching that can be performed on the traffic-engineered link. Supported values are PSC-1 and Packet .
Minimum bandwidth	Smallest single allocation of bandwidth possible on the traffic-engineered link. This number is equal to the smallest bandwidth interface that is a member of the traffic-engineered link (in bps).
Maximum bandwidth	Largest single allocation of bandwidth possible on the traffic-engineered link. This number is equal to the largest bandwidth interface that is a member of the link (in bps).
Total bandwidth	Sum of the bandwidth, in bits per second (bps) and megabits per second (Mbps), of all interfaces that are members of the link.
Available bandwidth	Sum of the bandwidths of all interfaces that are members of the link and that are not yet allocated (in bps).
Name	Name of the interface.
State	State of the interface: Up or Down .
Local ID	Identifier of the local side of the interface.
Remote ID	Identifier of the remote side of the interface.
Bandwidth	Bandwidth, in bps or Mbps, of the member interface.
Used	Whether the resource is allocated to an LSP: Yes or No .
LSP-name	LSP name.


```

show link-management user@host> show link-management
Peer name: PEER-A, System identifier: 11973
State: Up, Control address: 10.255.245.4
  CC local ID CC remote ID State      TxSeqNum  RcvSeqNum  Flags
    24547      24547 Up          1027      1026
TE links:
  pro4-ba

TE link name: pro4-ba, State: Init
Local identifier: 2662, Remote identifier: 0, Encoding: SDH/SONET, Switching:
PSC-1,
Minimum bandwidth: 155.52Mbps, Maximum bandwidth: 155.52Mbps, Total bandwidth:
155.52Mbps,
Available bandwidth: 155.52Mbps
  Name          State Local ID  Remote ID    Bandwidth Used  LSP-name
  so-1/0/2      Up        21271      0            155.52Mbps     No

```

show link-management peer

Syntax	show link-management peer <name <i>peer-name</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Multiprotocol Label Switching (MPLS) peer link information.
Options	none—Display all peer link information. name <i>peer-name</i> —(Optional) Display information for the specified peer only.
Required Privilege Level	view
Related Topics	show link-management on page 529 show link-management routing on page 534 show link-management statistics on page 537 show link-management te-link on page 539
List of Sample Output	show link-management peer on page 533
Output Fields	Table 139 on page 532 describes the output fields for the show link-management peer command. Output fields are listed in the approximate order in which they appear.

Table 139: show link-management peer Output Fields

Field Name	Field Description
Peer Name	Name of the peer.
System identifier	Internal identifier for the peer. The range of values is 0 through 64,000.
State	State of the peer: Up or Down.
Control address	Address to which a control channel is established.
Hello interval	How often the router sends Link Management Protocol (LMP) hello packets.
Hello dead interval	How long LMP waits before declaring the control channel to be dead. This is an interval during which the router receives no LMP hello packets from the neighbor on a control that is active or up.
CC local ID	Identifier assigned to the control channel by the local peer. The range of values is 1 through 4,294,967,296.
CC remote ID	Identifier assigned to the control channel by the remote peer. The range of values is 1 through 4,294,967,296.
State	State of the control channel: Up or Down.
TxSeqNum	Sequence number of the hello message being sent to the peer. The range of values is 1 through 4,294,967,295.

Table 139: show link-management peer Output Fields (*continued*)

Field Name	Field Description
RcvSeqNum	Sequence number of the last hello message received from the peer. The range of values is 0 through 4,294,967,295.
Flags	Code that provides information about the control channel. Currently supports only code value R, which indicates that the control channel is restarting after a failure in the control plane, as when the Link Management Protocol (LMP) process starts or restarts.
TE links	Traffic-engineered links that are managed by their peer.

```

show link-management peer user@host> show link-management peer
Peer name: sonet, System identifier: 41448
State: Up, Control address: 70.70.70.70
Hello interval: 10000, Hello dead interval: 30000
  CC local ID CC remote ID State      TxSeqNum  RcvSeqNum  Flags
    3265              0 ConfSnd         1         0 R
TE links:
to-sonet

```

show link-management routing

Syntax	show link-management routing <peer <name <i>name</i> > te-link <name <i>name</i> >>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Multiprotocol Label Switching (MPLS) peer or traffic engineering link information from the routing process.
Options	<p>none—Display all peer and traffic-engineered link information.</p> <p>peer <name <i>name</i>>—(Optional) Display information for all peers or for the specified peer only.</p> <p>te-link <name <i>name</i>>—(Optional) Display information for all traffic-engineered forwarding paths or for the specified path only.</p>
Required Privilege Level	view
Related Topics	<p>show link-management on page 529</p> <p>show link-management peer on page 532</p> <p>show link-management statistics on page 537</p> <p>show link-management te-link on page 539</p>
List of Sample Output	show link-management routing on page 536
Output Fields	Table 140 on page 534 describes the output fields for the show link-management routing command. Output fields are listed in the approximate order in which they appear.

Table 140: show link-management routing Output Fields

Field Name	Field Description
Peer Name	Name of the peer.
System identifier	Internal identifier for the peer. The range of values is 0 through 64,000.
State	State of the peer: Up or Down.
Control address	Address to which a control channel is established.
Control channel	Interface over which control packets are sent.
State	State of the control channel.
TE link name	Traffic-engineered link name.
State	State of the traffic-engineered link: Up or Down.
Local identifier	Identifier of the local side of the link.
Remote identifier	Identifier of the remote side of the link.

Table 140: show link-management routing Output Fields (continued)

Field Name	Field Description
Local address	Address of the local side of the link.
Remote address	Address of the remote side of the link.
Encoding	Physical layer media type determined by the interfaces contained in the traffic-engineered link. Typical values include SDH/SONET , Ethernet , and Packet .
Minimum bandwidth	Smallest single allocation of bandwidth, in bits per second (bps) or megabits per second (Mbps), possible on the traffic-engineered link. This number is equal to the smallest bandwidth interface that is a member of the traffic-engineered link.
Maximum bandwidth	Largest single allocation of bandwidth, in bps or Mbps, possible on the traffic-engineered link. This number is equal to the largest bandwidth interface that is a member of the link (in bps).
Total bandwidth	Sum of the bandwidth, in bps or Mbps, of all interfaces that are members of the link.
Available bandwidth	Sum of the bandwidth, in bps or Mbps, of all interfaces that are members of the link and that are not yet allocated.
Resource	Forwarding adjacency LSP information.
Type	Type of resource. The type is always a forwarding adjacency LSP.
State	State of the LSP: Up or Down .
System Identifier	Internal identifier for the peer. The range of values is 0 through 64,000.
Total bandwidth	Bandwidth resource, in bps or Mbps, on the TE-link learned from the routing process.
Traffic parameters	<ul style="list-style-type: none"> ■ Encoding—Physical layer media type determined by the interfaces contained in the traffic-engineered link. Typical values include SDH/SONET, Ethernet, and Packet. ■ Switching—Type of switching that can be performed on the traffic-engineered link: PSC-1 and Packet. ■ Granularity—Layer 2 data for switching Layer 2 LSPs for this resource. Not supported. This value is always unknown.

```

show link-management routing
user@host> show link-management routing
Peer name: __rpd:fe-0/1/0.0, System identifier: 2147483649
  State: Up, Control address: (null)
    Control-channel          State
    fe-0/1/0.0              Active

Peer name: __rpd:fe-0/1/2.0, System identifier: 2147483650
  State: Up, Control address: (null)
    Control-channel          State
    fe-0/1/2.0              Active

Peer name: __rpd:so-0/2/0.0, System identifier: 2147483651
  State: Down, Control address: (null)
    Control-channel          State
    so-0/2/0.0              Active

Peer name: __rpd:so-0/2/1.0, System identifier: 2147483652
  State: Down, Control address: (null)
    Control-channel          State
    so-0/2/1.0              Active

...

TE link name: __rpd:fe-0/1/0.0, State: Up
  Local identifier: 2147483649, Remote identifier: 0,
  Local address: 192.168.37.66, Remote address: 192.168.37.66,
  Encoding: Ethernet, Minimum bandwidth: 0bps, Maximum bandwidth: 100Mbps,
  Total bandwidth: 100Mbps, Available bandwidth: 100Mbps

TE link name: __rpd:fe-0/1/2.0, State: Up
  Local identifier: 2147483650, Remote identifier: 0,
  Local address: 192.168.37.73, Remote address: 192.168.37.73,
  Encoding: Ethernet, Minimum bandwidth: 0bps, Maximum bandwidth: 100Mbps,
  Total bandwidth: 100Mbps, Available bandwidth: 100Mbps

TE link name: __rpd:so-0/2/0.0, State: Down
  Local identifier: 2147483651, Remote identifier: 0,
  Local address: 192.168.37.82, Remote address: 192.168.37.95,
  Encoding: Ethernet, Minimum bandwidth: 0bps, Maximum bandwidth: 155.52Mbps,
  Total bandwidth: 155.52Mbps, Available bandwidth: 155.52Mbps

...

Resource: falsp-bd, Type: LSP, State: Dn System identifier: 2147483652,
Total bandwidth: 0bps, Traffic parameters: Encoding: Packet, Switching: Packet,
Granularity: Unknown

Resource: falsp-be, Type: LSP, State: Up System identifier: 2147483654,
Total bandwidth: bw[1]=10Mbps, Traffic parameters: Encoding: Packet,
Switching: Packet, Granularity: Unknown

```

show link-management statistics

Syntax	show link-management statistics [peer <name <i>name</i> >]
Release Information	Command introduced in JUNOS Release 8.0.
Description	Display statistical information for Link Management Protocol (LMP) packets.
Options	none—Display information for all peers. peer <name <i>name</i> >—(Optional) Display information for all peers or for the specified peer only.
Required Privilege Level	view
Related Topics	show link-management on page 529 show link-management peer on page 532 show link-management routing on page 534 show link-management te-link on page 539
List of Sample Output	show link-management statistics on page 538
Output Fields	Table 141 on page 537 describes the output fields for the show link-management statistics command. Output fields are listed in the approximate order in which they appear.

Table 141: show link-management statistics Output Fields

Field Name	Field Description
Received packets	Number of received packets by message type. If the count for a message type is zero, that message type is not displayed. If the count for all message types is zero, this field is not displayed.
Received bad packets	Number of received bad packets by message type. If the count for a message type is zero, that message type is not displayed. If the count for all message types is zero, this field is not displayed.
Small packets	Number of packets that are too small.
Wrong protocol version	Number of packets specifying the wrong LMP version.
Messages for unknown peer	Number of packets destined for an unknown peer.
Messages for bad state	Number of packets indicating a state that does not match the recipient.
Stale acknowledgments	Number of configAck and LinkSummaryAck packets received that have a stale message ID.
Stale negative acknowledgments	Number of configNack and LinkSummaryNack packets received that have a stale message ID.
Sent packets	Number of sent packets by message type. If the count for a message type is zero, that message type is not displayed. If the count for all message types is zero, this field is not displayed.

Table 141: show link-management statistics Output Fields (*continued*)

Field Name	Field Description
Retransmitted packets	Number of retransmitted packets by message type. If the count for a message type is zero, that message type is not displayed. If the count for all message types is zero, this field is not displayed.
Dropped packets	Number of packets sent, by message type, that have been dropped by the receiver after the LMP retransmission interval has been exceeded. If the count for a message type is zero, that message type is not displayed. If the count for all message types is zero, this field is not displayed.

```

show link-management  user@host> show link-management statistics peer pro4-a
statistics             Statistics for peer pro4-a
                          Received packets
                            Config: 1
                            Hello: 2572
                          Small packets: 0
                          Wrong protocol version: 0
                          Messages for unknown peer: 0
                          Messages for bad state: 0
                          Stale acknowledgements: 0
                          Stale negative acknowledgements: 0
                          Sent packets
                            Config: 2
                            ConfigAck: 1
                            Hello: 2572
                          Retransmitted packets
                            Config: 1

```


show link-management te-link

Syntax	show link-management te-link <name <i>name</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the resources used to set up Multiprotocol Label Switching (MPLS) traffic-engineered forwarding paths.
Options	none—Display information for all traffic-engineered links. name <i>name</i> —(Optional) Display information for the specified traffic-engineered link only.
Required Privilege Level	view
Related Topics	show link-management on page 529 show link-management peer on page 532 show link-management routing on page 534 show link-management statistics on page 537
List of Sample Output	show link-management te-link on page 540
Output Fields	Table 142 on page 539 describes the output fields for the show link-management te-link command. Output fields are listed in the approximate order in which they appear.

Table 142: show link-management te-link Output Fields

Field Name	Field Description
TE link name	Traffic-engineered link name.
State	State of the traffic-engineered link: Up or Down.
Local identifier	Identifier of the local side of the link.
Remote identifier	Identifier of the remote side of the link.
Local address	Address of the local side of the link.
Remote address	Address of the remote side of the link.
Encoding	Physical layer media type determined by the interfaces contained in the traffic-engineered link. Typical values include SDH/SONET, Ethernet, Packet, and PDH.
Switching	Type of switching that can be performed on the traffic-engineered link. Supported values are PSC-1 and Packet.
Minimum bandwidth	Smallest single allocation of bandwidth, in bits per second (bps) or megabits per second (Mbps), possible on the traffic-engineered link. This number is equal to the smallest bandwidth interface that is a member of the traffic-engineered link.

Table 142: show link-management te-link Output Fields (continued)

Field Name	Field Description
Maximum bandwidth	Largest single allocation of bandwidth, in bps or Mbps, possible on the traffic-engineered link. This number is equal to the largest bandwidth interface that is a member of the link.
Total bandwidth	Sum of the bandwidth, in bps or Mbps, of all interfaces that are members of the link (in bps).
Available Bandwidth	Sum of the bandwidth, in bps or Mbps, of all interfaces that are members of the link and that are not yet allocated.
Name	Name of the interface.
State	State of the interface: Up or Down.
Local ID	Identifier of the local side of the interface.
Remote ID	Identifier of the remote side of the interface.
Bandwidth	Bandwidth, in bps or Mbps, of the member interface.
Used	Whether the resource is allocated to an LSP: Yes or No.
LSP-name	LSP name.

```

show link-management te-link user@host> show link-management te-link
TE link name: FA-bd, State: Up
  Local identifier: 4144, Remote identifier: 0, Local address: 2.2.2.1,
  Remote address: 2.2.2.2, Encoding: Ethernet, Switching: Packet,
  Minimum bandwidth: 0bps, Maximum bandwidth: 0bps, Total bandwidth: 0bps,
  Available bandwidth: 0bps
    Name      State Local ID Remote ID      Bandwidth Used  LSP-name
    falsp-bd  Dn      43077      0           0bps No
TE link name: FA-be, State: Up
  Local identifier: 4145, Remote identifier: 0, Local address: 1.1.1.1,
  Remote address: 1.1.1.2, Encoding: Ethernet, Switching: Packet,
  Minimum bandwidth: 0bps, Maximum bandwidth: 10Mbps, Total bandwidth: 10Mbps,
  Available bandwidth: 8Mbps
    Name      State Local ID Remote ID      Bandwidth Used  LSP-name
    falsp-be  Up      43076      0          10Mbps Yes  e2e1sp-bf

```

show mpls admin-groups

Syntax	show mpls admin-groups <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about configured Multiprotocol Label Switching (MPLS) administrative groups.
Options	<p>none—Display information about the configured MPLS administrative groups on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show mpls admin-groups on page 541
Output Fields	Table 143 on page 541 describes the output fields for the show mpls admin-groups command. Output fields are listed in the approximate order in which they appear.

Table 143: show mpls admin-groups Output Fields

Field Name	Field Description
Group	Name of the administrative group.
Bit index	Value assigned to the administrative group.

```

show mpls admin-groups user@host> show mpls admin-groups
Group      Bit index
black      3
blue       2
gold       1
green      0

```

show mpls call-admission-control

Syntax	show mpls call-admission-control <logical-system (all <i>logical-system-name</i>)> <lsp-name>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Multiprotocol Label Switching (MPLS) label-switched path (LSP) call admission control (CAC) information.
Options	<p>none—Display CAC information for all LSPs on all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>lsp-name</i>—(Optional) Display CAC information for the specified LSP only.</p>
Additional Information	The available bandwidth on an LSP path at a particular class type is the total path bandwidth at that class type minus the total bandwidth reserved by any Layer 2 connection at that class type.
Required Privilege Level	view
List of Sample Output	show mpls call-admission-control on page 543
Output Fields	Table 144 on page 542 describes the output fields for the show mpls call-admission-control command. Output fields are listed in the approximate order in which they appear.

Table 144: show mpls call-admission-control Output Fields

Field Name	Field Description
Available bandwidth	Current available bandwidth on each LSP path. Depending on whether the LSP is an E-LSP or a regular LSP, either per-class bandwidth or a single bandwidth value (corresponding to best-effort bandwidth at ct0) is displayed. The available bandwidth on an LSP path at a particular class type is the total path bandwidth at that class type minus the total bandwidth reserved by some Layer 2 connections at that class type.
Layer2 connections	Different Layer 2 connections that had some bandwidth requirement and were admitted into an LSP path.
LSP name	LSP path name.
Neighbor address	Neighbor address from which CAC and bandwidth booking are configured for Layer 2 circuits.
Circuit	Interface name and circuit information.
Primary	LSP's primary standby path.
Standby	LSP's secondary standby path.
VC bandwidth	Bandwidth constraints associated with a Layer 2 circuit route.

```

show mpls      user@host# show mpls call-admission-control
call-admission-control

LSP name: pro1-be
*Primary
  Available bandwidth: 0bps

LSP name: pro1-be-1
*Primary
  Available bandwidth: 60kbps

LSP name: pro1-be-gold
*Primary
  Available bandwidth: <ct0 50kbps> <ct1 20kbps> <ct2 30kbps> <ct3 0bps>
  Layer2 connections:
    Neighbor address: 10.255.245.215, Circuit: so-0/3/0.0(vc 5)
    VC bandwidth: <ct0 50kbps> <ct1 40kbps> <ct2 40kbps>

LSP name: pro1-be-gold-2
*Primary
  Available bandwidth: <ct0 0bps> <ct1 40kbps> <ct2 40kbps> <ct3 0bps>

LSP name: pro1-be-silver
*Primary  prim1
  Available bandwidth: <ct0 10kbps> <ct1 20kbps> <ct2 0bps> <ct3 40kbps>
  Layer2 connections:
    Neighbor address: 10.255.245.215, Circuit: so-0/3/0.1(vc 3)
    VC bandwidth: <ct0 20kbps> <ct1 20kbps>
  Standby  sec1
  Available bandwidth: <ct0 10kbps> <ct1 10kbps> <ct2 20kbps> <ct3 0bps>
  Layer2 connections:
    Neighbor address: 10.255.245.215, Circuit: so-0/3/0.1(vc 3)
    VC bandwidth: <ct0 20kbps> <ct1 20kbps>

```

show mpls cspf

Syntax	show mpls cspf <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Multiprotocol Label Switching (MPLS) Constrained Shortest Path First (CSPF) statistics.
Options	none—Display MPLS CSFP statistics on all logical systems. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show mpls cspf on page 545
Output Fields	Table 145 on page 544 describes the output fields for the show mpls cspf command. Output fields are listed in the approximate order in which they appear.

Table 145: show mpls cspf Output Fields

Field Name	Field Description
Queue length	Number of LSPs queued for automatic path computation.
current	Current queue length.
maximum	Maximum queue length (high-water mark).
dequeued	Number of aborted computation attempts.
Paths	Counters for label-switched path computations.
total	Sum of the next four fields.
successful	Number of path computations that were successfully completed.
no route	Number of path computations that failed because the destination is unreachable.
Sys Error	Number of path computations that failed because of lack of memory.
CSPFs	Total number of CSPF computations. A single path might require multiple CSPF computations.
Time	Time, in seconds, required to perform the label-switched path computation.
Total	Total amount of time consumed by the CSPF path computation algorithm.

Table 145: show mpls cspf Output Fields *(continued)*

Field Name	Field Description
CSPFs	Total number of CSPF computations.
Avg per CSPF	Average amount of time required for each CSPF computation.
% of rpd	Percentage of routing process CPU used in the CSPF computation.

```

show mpls cspf user@host> show mpls cspf
CSPF statistics
Queue length  current      maximum      dequeued
               0           0             0
Paths          total    successful    no route    sys error    CSPFs
               0           0             0           0           0
Time (secs)    total      CSPFs    avg per CSPF    % of rpd
               0.000000    0.000000    0.000000      0.0000

```

show mpls diffserv-te

Syntax	show mpls diffserve-te <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Multiprotocol Label Switching (MPLS) label-switched path (LSP) Differentiated Services (DiffServ) class and preemption priority information.
Options	none—Display DiffServ classes and priorities used by MPLS LSPs on all logical systems. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show mpls diffserv-te on page 546
Output Fields	Table 146 on page 546 describes the output fields for the show mpls diffserv-te command. Output fields are listed in the approximate order in which they appear.

Table 146: show mpls diffserv-te Output Fields

Field Name	Field Description
Bandwidth model	Bandwidth constraint model supported. The maximum allocation model (MAM) for EXP-inferred LSPs (E-LSPs) is currently supported.
TE class	DiffServ traffic engineering class.
Traffic class	MPLS class type that corresponds to the DiffServ traffic engineering class: <ul style="list-style-type: none"> ■ ct0—Best effort ■ ct1—Assured forwarding ■ ct2—Expedited forwarding ■ ct3—Network control
Priority	MPLS preemption priority for this class type, a value from 0 through 7. Interior gateway protocols (IGPs) distribute information about the available bandwidth for each traffic engineering class.

```

user@host> show mpls diffserv-te
Bandwidth model: Maximum Allocation Model with support for E-LSPs.
TE class      Traffic class      Priority
te0           ct0                  3
te1           ct1                  2

```


show mpls interface

Syntax	show mpls interface <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about Multiprotocol Label Switching (MPLS)-enabled interfaces.
Options	none—Display information about MPLS-enabled interfaces on all logical systems. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Additional Information	MPLS is enabled on an interface when the interface is configured with both the set protocol mpls interface <i>interface-name</i> and set interface <i>interface-name</i> unit 0 family mpls statements.
Required Privilege Level	view
List of Sample Output	show mpls interface on page 547
Output Fields	Table 147 on page 547 describes the output fields for the show mpls interface command. Output fields are listed in the approximate order in which they appear.

Table 147: show mpls interface Output Fields

Field Name	Field Description
Interface	Name of the interface.
State	State of the interface: Up or Dn (down).
Administrative groups	Administratively assigned colors of the link.

```
show mpls interface user@host> show mpls interface
Interface  State      Administrative groups
so-1/0/0.0 Up         Blue Yellow Red
```

show mpls lsp

Syntax show mpls lsp
 <brief | detail | extensive | terse>
 <bidirectional | unidirectional>
 <bypass>
 <descriptions>
 <down | up>
 <logical-system (all | *logical-system-name*)>
 <lsp-type>
 <name *name*>
 <p2mp>
 <statistics>
 <transit>

Release Information Command introduced before JUNOS Release 7.4.

Description Display information about configured and active dynamic Multiprotocol Label Switching (MPLS) label-switched paths (LSPs).

Options none—Display standard information about all configured and active dynamic MPLS LSPs on all logical systems.

brief | detail | extensive | terse—(Optional) Display the specified level of output. The extensive option displays the same information as the detail option, but covers the most recent 50 events.

bidirectional | unidirectional—(Optional) Display bidirectional or unidirectional LSP information, respectively.

bypass—(Optional) Display LSPs used for protecting other LSPs.

descriptions—Display the MPLS label-switched path (LSP) descriptions. To view this information, you must configure the description statement at the [edit protocol mpls lsp] hierarchy level. Only LSPs with a description are displayed. This command is only valid for the ingress router because the description is not propagated in RSVP messages.

down | up—(Optional) Display only LSPs that are inactive or active, respectively.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

lsp-type—(Optional) Display information about a particular LSP type:

- **bypass**—Sessions for bypass LSPs.
- **egress**—Sessions that terminate on this router.
- **ingress**—Sessions that originate from this router.
- **transit**—Sessions that pass through this router.

name *name*—(Optional) Display information about the specified LSP or group of LSPs.

p2mp—(Optional) Display information about point-to-multipoint LSPs.

statistics—(Optional) (Egress and transit routers only.) Display accounting information about LSPs. Statistics are not available for LSPs on the egress router, because the penultimate router in the LSP sets the label to 0. Also, as the packet arrives at the egress router, the hardware removes its MPLS header and the packet reverts to being an IPv4 packet. Therefore, it is counted as an IPv4 packet, not an MPLS packet.

transit—(Optional) Display LSPs transiting this router.

Required Privilege Level view

Related Topics clear mpls lsp on page 523

List of Sample Output show mpls lsp descriptions on page 553
 show mpls lsp detail on page 553
 show mpls lsp extensive on page 554
 show mpls lsp p2mp on page 554
 show mpls lsp p2mp detail on page 555

Output Fields Table 148 on page 549 describes the output fields for the **show mpls lsp** command. Output fields are listed in the approximate order in which they appear.

Table 148: show mpls lsp Output Fields

Field Name	Field Description	Level of Output
Ingress LSP	Information about LSPs on the ingress router. Each session has one line of output.	All levels
Egress LSP	Information about the LSPs on the egress router. MPLS learns this information by querying RSVP, which holds all the transit and egress session information. Each session has one line of output.	All levels
Transit LSP	Number of LSPs on the transit routers and the state of these paths. MPLS learns this information by querying RSVP, which holds all the transit and egress session information.	All levels
P2MP name	Name of the point-to-multipoint LSP. Dynamically generated P2MP LSPs used for VPLS flooding use dynamically generated P2MP LSP names. The name uses the format <i>identifier:vpls:router-id:routing-instance-name</i> . The <i>identifier</i> automatically generated by JUNOS.	All levels
P2MP branch count	Number of destination LSPs the point-to-multipoint LSP is transmitting to.	All levels
P	An asterisk (*) under this heading indicates that the LSP is a primary path.	All levels
address	(Detail and Extensive) Destination (egress router) of the LSP.	detail extensive
To	Destination (egress router) of the session.	brief
From	Source (ingress router) of the session.	brief detail

Table 148: show mpls lsp Output Fields (continued)

Field Name	Field Description	Level of Output
State	State of the LSP handled by this RSVP session: Up , Dn (down), or Restart .	brief detail
Active Route	Number of active routes (prefixes) installed in the forwarding table. For ingress LSPs, the forwarding table is the primary IPv4 table (inet.0). For transit and egress RSVP sessions, the forwarding table is the primary MPLS table (mpls.0).	detail extensive
P	Path. An asterisk (*) underneath this column indicates that the LSP is a primary path.	brief
LSPname	Name of the LSP.	brief detail
DiffServInfo	Type of LSP: multiclass LSP (multiclass diffServ-TE LSP) or Differentiated-Services-aware traffic engineering LSP (diffServ-TE LSP).	detail
Bypass	(Bypass LSP) Destination address (egress router) for the bypass LSP.	All levels
LSPpath	Indicates whether the RSVP session is for the primary or secondary LSP path. LSPpath can be either primary or secondary and can be displayed on the ingress, egress, and transit routers.	detail
Bidir	(GMPLS) The LSP allows data to travel in both directions between GMPLS devices.	All levels
Bidirectional	(GMPLS) The LSP allows data to travel both ways between GMPLS devices.	All levels
Rt	Number of active routes (prefixes) installed in the routing table. For ingress RSVP sessions, the routing table is the primary IPv4 table (inet.0). For transit and egress RSVP sessions, the routing table is the primary MPLS table (mpls.0).	brief
ActivePath	(Ingress LSP) Name of the active path: Primary or Secondary .	detail extensive
FastReroute desired	Fast reroute has been requested by the ingress router.	detail
Link protection desired	Link protection has been requested by the ingress router.	detail
LoadBalance	(Ingress LSP) CSPF load-balancing rule that was configured to select the LSP's path among equal-cost paths: Most-fill , Least-fill , or Random .	detail extensive
Signal type	Signal type for GMPLS LSPs. The signal type determines the peak data rate for the LSP: DS0 , DS3 , STS-1 , STM-1 , or STM-4 .	All levels
Encoding type	LSP encoding type: Packet , Ethernet , PDH , SDH/SONET , Lambda , or Fiber .	All levels
Switching type	Type of switching on the links needed for the LSP: Fiber , Lamda , Packet , TDM , or PSC-1 .	All levels
GPID	Generalized Payload Identifier (identifier of the payload carried by an LSP): HDLC , Ethernet , IPv4 , PPP , or Unknown .	All levels
Protection	Configured protection capability desired for the LSP: Extra , Enhanced , none , One plus one , One to one , or Shared .	All levels
Upstream label in	(Bidirectional LSPs) Incoming label for reverse direction traffic for this LSP.	All levels

Table 148: show mpls lsp Output Fields (continued)

Field Name	Field Description	Level of Output
Upstream label out	(Bidirectional LSPs) Outgoing label for reverse direction traffic for this LSP.	All levels
Suggested label received	(Bidirectional LSPs) Label the upstream node suggests to use in the Resv message that is sent.	All levels
Suggested label sent	(Bidirectional LSPs) Label the downstream node suggests to use in the Resv message that is returned.	All levels
Autobandwidth	(Ingress LSP) The LSP is performing autobandwidth allocation.	detail extensive
MinBW	(Ingress LSP) Configured minimum value of the LSP, in bps.	detail extensive
MaxBW	(Ingress LSP) Configured maximum value of the LSP, in bps.	detail extensive
AdjustTimer	(Ingress LSP) Configured value of the bandwidth adjustment timer, indicating the total amount of time allowed before bandwidth adjustment will take place, in seconds.	detail extensive
MaxAvgBW util	(Ingress LSP) Current value of the actual maximum average bandwidth utilization, in bps.	detail extensive
Overflow limit	(Ingress LSP) Configured value of the threshold overflow limit.	detail extensive
Overflow sample count	(Ingress LSP) Current value for the overflow sample count.	detail extensive
Bandwidth Adjustment in <i>nnn</i> second(s)	(Ingress LSP) Current value of the bandwidth adjustment timer, indicating the amount of time remaining until the bandwidth adjustment will take place, in seconds.	detail extensive
Active path indicator	(Ingress LSP) A value of * indicates that the path is active. The absence of * indicates that the path is not active. In the following example, "long" is the active path. *Primary long Standby short	detail extensive
Primary	(Ingress LSP) Name of the primary path.	detail extensive
Secondary	(Ingress LSP) Name of the secondary path.	detail extensive
Standby	(Ingress LSP) Name of the path in standby mode.	detail extensive
State	(Ingress LSP) State of the path: Up or Dn (down).	detail extensive
COS	(Ingress LSP) Class-of-service value.	detail extensive
Bandwidth per class	(Ingress LSP) Active bandwidth for the LSP path for each MPLS class type, in bps.	detail extensive
OptimizeTimer	(Ingress LSP) Configured value of the optimize timer, indicating the total amount of time allowed before path reoptimization, in seconds.	detail extensive

Table 148: show mpls lsp Output Fields (continued)

Field Name	Field Description	Level of Output
SmartOptimizeTimer	(Ingress LSP) Configured value of the smart optimize timer, indicating the total amount of time allowed before path reoptimization, in seconds.	detail extensive
Reoptimization in xxx seconds	(Ingress LSP) Current value of the optimize timer, indicating the amount of time remaining until the path will be reoptimized, in seconds.	detail extensive
Computed ERO (S [L] denotes strict [loose] hops)	(Ingress LSP) Computed Explicit Route. A series of hops, each with an address followed by a hop indicator. The value of the hop indicator can be strict (S) or loose (L).	detail extensive
CSPF metric	(Ingress LSP) Constrained Shortest Path First metric for this path.	detail extensive
Received RRO	<p>(Ingress LSP) Received Record Route. A series of hops, each with an address followed by a flag. (In most cases, the Received Record Route is the same as the Computed Explicit Route. If Received RRO is different from Computed ERO, there is a topology change in the network, and the route is taking a detour.) The following flags identify the protection capability and status of the downstream node:</p> <ul style="list-style-type: none"> ■ 0x01—Local protection available. The link downstream from this node is protected by a local repair mechanism. This flag can be set only if the Local protection flag was set in the SESSION_ATTRIBUTE object of the corresponding Path message. ■ 0x02—Local protection in use. A local repair mechanism is in use to maintain this tunnel (usually because of an outage of the link it was routed over previously). ■ 0x03—Combination of 0x01 and 0x02. ■ 0x04—Bandwidth protection. The downstream router has a backup path providing the same bandwidth guarantee as the protected LSP for the protected section. ■ 0x08—Node protection. The downstream router has a backup path providing protection against link and node failure on the corresponding path section. If the downstream router can set up only a link-protection backup path, the Local protection available bit is set but the Node protection bit is cleared. ■ 0x09—Detour is established. Combination of 0x01 and 0x08. ■ 0x10—Preemption pending. The preempting node sets this flag if a pending preemption is in progress for the traffic engine LSP. This flag indicates to the ingress legacy edge router (LER) of this LSP that it should be rerouted. ■ 0xb—Detour is in use. Combination of 0x01, 0x02, and 0x08. 	detail extensive
Index number	(Ingress LSP) Log entry number of each LSP path event. The numbers are in chronological descending order, with a maximum of 50 index numbers displayed.	extensive
Date	(Ingress LSP) Date of the LSP event.	extensive
Time	(Ingress LSP) Time of the LSP event.	extensive
Event	(Ingress LSP) Description of the LSP event.	extensive
Created	(Ingress LSP) Date and time the LSP was created.	extensive

Table 148: show mpls lsp Output Fields (continued)

Field Name	Field Description	Level of Output
Resv style	(Bypass) RSVP reservation style. This field consists of two parts. The first is the number of active reservations. The second is the reservation style, which can be FF (fixed filter), SE (shared explicit), or WF (wildcard filter).	brief detail extensive
Labelin	Incoming label for this LSP.	brief detail
Labelout	Outgoing label for this LSP.	brief detail
LSPname	Name of the LSP.	brief detail
Time left	Number of seconds remaining in the lifetime of the reservation.	detail
Since	Date and time when the RSVP session was initiated.	detail
Tspec	Sender's traffic specification, which describes the sender's traffic parameters.	detail
Port number	Protocol ID and sender or receiver port used in this RSVP session.	detail
PATH rcvfrom	Address of the previous-hop (upstream) router or client, interface the neighbor used to reach this router, and number of packets received from the upstream neighbor.	detail
PATH sentto	Address of the next-hop (downstream) router or client, interface used to reach this neighbor, and number of packets sent to the downstream router.	detail
RESV rcvfrom	Address of the previous-hop (upstream) router or client, interface the neighbor used to reach this router, and number of packets received from the upstream neighbor. The output in this field, which is consistent with that in the PATH rcvfrom field, indicates that the RSVP negotiation is complete.	detail
Record route	Recorded route for the session, taken from the Record Route Object.	detail
Soft preempt	Number of soft preemptions that occurred on a path and when the last soft preemption occurred. Only successful soft preemptions are counted (those that actually resulted in a new path being used).	detail
Soft preemption pending	Path is in the process of being soft preempted. This display is removed once the ingress router has calculated a new path.	detail

**show mpls lsp
descriptions**

```
user@host> show mpls lsp descriptions
Ingress LSP: 3 sessions
To          LSP name
10.0.0.195   to-sanjose
10.0.0.195   to-sanjose-other-desc
Total 2 displayed, Up 2, Down 0
```

```
Description
to-sanjose-desc
other-desc
```

show mpls lsp detail

```
user@host> show mpls lsp detail
Ingress LSP: 1 sessions

10.255.245.3
  From: 10.255.245.5, State: Up, ActiveRoute: 1, LSPname: lsp-ec
  ActivePath: long-path (primary)
```

```

LoadBalance: Random
Autobandwidth
MaxBW: 5Mbps
AdjustTimer: 4800 secs AdjustThreshold: 1%
Max AvgBW util: 0bps, Bandwidth Adjustment in 3383 second(s).
Overflow limit: 5, Overflow sample count: 0
Encoding type: Packet, Switching type: Packet, GPID: IPv4
*Primary long-path State: Up
SmartOptimizeTimer: 180
Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 5)
192.168.37.89 S 192.168.37.87 S
Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt):

192.168.37.89 192.168.37.87
Total 1 displayed, Up 1, Down 0

Egress LSP: 0 sessions
Total 0 displayed, Up 0, Down 0

```

show mpls lsp extensive

```

user@host> show mpls lsp extensive
Ingress LSP: 5 sessions

10.255.71.242
From: 10.255.71.238, State: Up, ActiveRoute: 1009, LSPname: sample-ccc
ActivePath: path3 (primary)
Link protection desired
LoadBalance: Random
Encoding type: Packet, Switching type: Packet, GPID: IPv4
*Primary path3 State: Up
OptimizeTimer: 30
SmartOptimizeTimer: 180
Reoptimization in 26 second(s).
Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 1)
10.35.1.41 S
Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt):

10.35.1.41(Label=3)
10 Dec 8 13:51:58.986 CSPF: computation result ignored
9 Dec 8 13:51:30.547 Record Route: 10.35.1.41(Label=3)
8 Dec 8 13:51:30.547 Up
7 Dec 8 13:51:30.397 Originate make-before-break call
6 Dec 8 13:51:30.397 CSPF: computation result accepted 10.35.1.41
5 Dec 8 13:50:41.467 Selected as active path
4 Dec 8 13:50:41.467 Record Route: 10.35.1.41(Label=3)
3 Dec 8 13:50:41.466 Up
2 Dec 8 13:50:41.371 Originate Call
1 Dec 8 13:50:41.371 CSPF: computation result accepted 10.35.1.41
Created: Fri Dec 8 13:50:40 2006
Total 1 displayed, Up 1, Down 0

Egress LSP: 0 sessions
Total 0 displayed, Up 0, Down 0

Transit LSP: 0 sessions
Total 0 displayed, Up 0, Down 0

```

show mpls lsp p2mp

```

user@host> show mpls lsp p2mp
Ingress LSP: 2 sessions
P2MP name: p2mp-lsp1, P2MP branch count: 1
To From State Rt ActivePath P LSPname
10.255.245.51 10.255.245.50 Up 0 path1 * p2mp-branch-1

```



```

P2MP name: p2mp-lsp2, P2MP branch count: 1
To          From          State Rt ActivePath      P      LSPname
10.255.245.51 10.255.245.50 Up    0 path1          *      p2mp-st-br1
Total 2 displayed, Up 2, Down 0

```

```

Egress LSP: 0 sessions
Total 0 displayed, Up 0, Down 0

```

```

Transit LSP: 0 sessions
Total 0 displayed, Up 0, Down 0

```

**show mpls lsp p2mp
detail**

```

user@host> show mpls lsp p2mp detail
Ingress LSP: 2 sessions
P2MP name: p2mp-lsp1, P2MP branch count: 1

10.255.245.51
  From: 10.255.245.50, State: Up, ActiveRoute: 0, LSPname: p2mp-branch-1
  ActivePath: path1 (primary)
  P2MP name: p2mp-lsp1
  LoadBalance: Random
  Encoding type: Packet, Switching type: Packet, GPID: IPv4
  *Primary path1 State: Up
    Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 25)
    192.168.208.17 S
      Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt):

        192.168.208.17
P2MP name: p2mp-lsp2, P2MP branch count: 1

10.255.245.51
  From: 10.255.245.50, State: Up, ActiveRoute: 0, LSPname: p2mp-st-br1
  ActivePath: path1 (primary)
  P2MP name: p2mp-lsp2
  LoadBalance: Random
  Encoding type: Packet, Switching type: Packet, GPID: IPv4
  *Primary path1 State: Up
    Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 25)
    192.168.208.17 S
      Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt):

        192.168.208.17
Total 2 displayed, Up 2, Down 0

```

show mpls path

Syntax	show mpls path <path-name> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display dynamic Multiprotocol Label Switching (MPLS) label-switched paths (LSPs).
Options	<p>none—Display standard information about all MPLS LSPs on all logical systems.</p> <p><i>path-name</i>—(Optional) Display information about the specified LSP only.</p> <p><i>logical-system (all logical-system-name)</i>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show mpls path on page 556
Output Fields	Table 149 on page 556 describes the output fields for the show mpls path command. Output fields are listed in the approximate order in which they appear.

Table 149: show mpls path Output Fields

Field Name	Field Description
Path name	Information about ingress LSPs. Each path has one line of output.
Address	Addresses of the routers that form the LSP.
Strict/loose address	Whether the address is configured as a strict or loose address.

```

show mpls path  user@host> show mpls path
Path name      Address      Strict/loose address
p1             123.456.55.6 Strict
               123.456.1.6 Loose
p2             191.456.1.4  Strict

```

show ted database

Syntax	show ted database <brief detail extensive> <logical-system (all <i>logical-system-name</i>)> < <i>system-name</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the entries in the Multiprotocol Label Switching (MPLS) traffic engineering database.
Options	<p>none—Display standard information about all entries in the traffic engineering database on all logical systems.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>system-name</i>—(Optional) Display traffic engineering database information for a particular system.</p>
Required Privilege Level	view
List of Sample Output	<p>show ted database brief on page 559</p> <p>show ted database detail <i>system-name</i> on page 560</p> <p>show ted database extensive on page 560</p>
Output Fields	Table 150 on page 557 describes the output fields for the show ted database command. Output fields are listed in the approximate order in which they appear.

Table 150: show ted database Output Fields

Field Name	Field Description	Level of Output
TED database	Number of nodes and pseudonodes participating in IS-IS and OSPF domain routing.	All levels
ID	Hostname and address of the node that the link is coming from. An address of .00 indicates that the node is the router itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode. If the node contains a router ID, it is displayed in parentheses.	brief
NodeID	Hostname and address of the node that the link is coming from. An address of .00 indicates that the node is the router itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	extensive
Type	Type of node. It can be either Rtr (router) or Net (pseudonode).	All levels
Age(s)	How long since the node was last refreshed, in seconds.	All levels
LnkIn	Number of nodes pointing toward this node.	All levels

Table 150: show ted database Output Fields (continued)

Field Name	Field Description	Level of Output
LnkOut	Number of nodes to which this node points.	All levels
Protocol	Protocol that reported the node information: <ul style="list-style-type: none"> ■ IS-IS(1)—IS-IS Level 1. ■ IS-IS(2)—IS-IS Level 2. ■ OSPF (area-number)—OSPF from the specified area. 	All levels
To	Address on the far end of a link.	detail extensive
Local	Address of the local interface being used to reach remote node.	detail extensive
Remote	Address of the interface on the remote node.	detail extensive
Metric	Configured traffic engineering metric.	extensive
Static BW	Total interface bandwidth in bps.	extensive
Reservable bandwidth	Subscription factor for the interface, which is the percentage of the link bandwidth that can be used for the RSVP reservation process. You configure this by including the subscription statement when configuring RSVP.	extensive
Available BW [priority]	(Must include diffserv-te statement when configuring LSPs) Amount of bandwidth actually reserved by RSVP for each priority level. The bandwidth shown is for the entire interface, not for each individual LSP.	extensive
Diffserv-TE BW Model	Bandwidth constraint model used by the LSPs.	extensive
Available BW [TE-class]	(Must include the diffserv-te statement when configuring LSPs) Amount of bandwidth actually reserved by RSVP for each traffic engineering class.	extensive
Static BW [CT-class]	Total interface bandwidth used by an MPLS traffic class, in bps.	extensive

Table 150: show ted database Output Fields (continued)

Field Name	Field Description	Level of Output
Interface Switching Capability Descriptor (<i>n</i>)	<p>Information about the interface switching capability descriptor, which is a subtype length value (TLV) of the link TLV. <i>n</i> is the index number.</p> <ul style="list-style-type: none"> ■ Switching type—Type of switching to be performed on a particular link: <ul style="list-style-type: none"> ■ PSC-1—Packet switch-capable 1 ■ PSC-2—Packet switch-capable 2 ■ PSC-3—Packet switch-capable 3 ■ PSC-4—Packet switch-capable 4 ■ L2SC—Layer-2-switch-capable ■ TDM—Time-division-multiplexing-capable ■ LSC—Lambda switch-capable ■ FSC—Fiber switch-capable ■ Encoding type—Encoding of the LSP being requested: <ul style="list-style-type: none"> ■ Packet ■ Ethernet ■ ANSI/ETSI PDH ■ Reserved ■ SDH /SONET ■ Digital Wrapper ■ Lambda (photonic) ■ Fiber ■ FiberSDH/SONET ■ Maximum LSP BW [priority] bps—Maximum LSP bandwidth information. Amount of bandwidth actually reserved for each priority level. The bandwidth shown is for the entire interface. <ul style="list-style-type: none"> ■ [<i>n</i>]<i>n</i>—Priority level. The range is from 0 (high) through 7 (low). ■ <i>n</i> Mbps—Amount of the maximum bandwidth. ■ Minimum LSP BW—Minimum LSP bandwidth in Mbps. Amount of bandwidth actually reserved for each priority level. The bandwidth shown is for the entire interface. Minimum LSP BW is displayed only when switching type is PSC-1 or TDM. ■ Interface MTU—Displayed only when switching type is TDM. ■ Interface supports standard SONET/SDH—Displayed only when switching type is TDM. 	extensive

```

show ted database brief user@host> show ted database brief
TED database: 6 ISIS nodes 6 INET nodes
ID                               Type Age(s) LnkIn LnkOut Protocol
cheviot.00(123.456.1.10)         Rtr   383     1     1 IS-IS(2) IS-IS(1)
corriedale.00(123.456.1.11)      Rtr   36     2     0 IS-IS(2) IS-IS(1)
wolff.00(123.456.1.12)          Rtr  399     0     0 IS-IS(2) IS-IS(1)
perendale.00(123.456.1.13)       Rtr  385     2     0 IS-IS(2) IS-IS(1)
merino.00(123.456.1.14)         Rtr  379     1     3 IS-IS(2) IS-IS(1)
romney.00(123.456.1.15)         Rtr  427     0     2 IS-IS(2) IS-IS(1)

```

```

show ted database detail system-name user@host> show ted database detail merino
TED database: 6 ISIS nodes 6 INET nodes
NodeID: merino.00(123.456.1.14)
Type: Rtr, Age: 507 secs, LinkIn: 1, LinkOut: 3
Protocol: IS-IS(2)
  To: corriedale.00(123.456.1.11), Local: 123.456.8.206, Remote: 123.456.8.207

  To: perendale.00(123.456.1.13), Local: 123.456.8.204, Remote: 123.456.8.205
  To: cheviot.00(123.456.1.10), Local: 123.456.10.65, Remote: 123.456.10.66
Protocol: IS-IS(1)
  To: corriedale.00(123.456.1.11), Local: 123.456.8.206, Remote: 123.456.8.207

  To: perendale.00(123.456.1.13), Local: 123.456.8.204, Remote: 123.456.8.205
  To: cheviot.00(123.456.1.10), Local: 123.456.10.65, Remote: 123.456.10.66

show ted database extensive user@host> show ted database extensive
TED database: 0 ISIS nodes 2 INET nodes
NodeID: 10.255.245.196
Type: Rtr, Age: 46 secs, LinkIn: 1, LinkOut: 1
Protocol: OSPF(0.0.0.0)
  To: 10.255.245.24, Local: 4.4.4.4, Remote: 5.5.5.5
  Metric: 1
  Static BW: 155.52Mbps
  Reservable BW: 155.52Mbps
  Available BW [TE-class] bps:
    [te0] 155.52Mbps    [te1] 155.52Mbps    [te2] 155.52Mbps    [te3] 155.52Mbps
    [te4] 155.52Mbps    [te5] 155.52Mbps    [te6] 155.52Mbps    [te7] 155.52Mbps

  Diffserv-TE BW model: Maximum allocation model
  Static BW [CT-class] bps:
    [ct0] 155.52Mbps    [ct1] 155.52Mbps    [ct2] 155.52Mbps    [ct3] 155.52Mbps

  Interface Switching Capability Descriptor(1):
    Switching type: PSC-1
    Encoding type: SDH/SONET
    Maximum LSP BW [priority] bps:
      [0] 155.52Mbps    [1] 155.52Mbps    [2] 155.52Mbps    [3] 155.52Mbps
      [4] 155.52Mbps    [5] 155.52Mbps    [6] 155.52Mbps    [7] 155.52Mbps
    Minimum LSP BW: 155.52Mbps
    Interface MTU: 1285
  Interface Switching Capability Descriptor(2):
    Switching type: TDM
    Encoding type: SDH/SONET
    Maximum LSP BW [priority] bps:
      [0] 155.52Mbps    [1] 155.52Mbps    [2] 155.52Mbps    [3] 155.52Mbps
      [4] 155.52Mbps    [5] 155.52Mbps    [6] 155.52Mbps    [7] 155.52Mbps
    Minimum LSP BW: 155.52Mbps
    Interface supports standard SONET/SDH

```

show ted link

Syntax	show ted link <brief detail> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Multiprotocol Label Switching (MPLS) traffic engineering database link information.
Options	<p>none—Display standard information about traffic engineering database link information on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show ted link brief on page 562</p> <p>show ted link detail on page 562</p>
Output Fields	Table 151 on page 561 describes the output fields for the show ted link command. Output fields are listed in the approximate order in which they appear.

Table 151: show ted link Output Fields

Field Name	Field Description	Level of Output
ID	Hostname and address of the node that the link is coming from. An address of .00 indicates that the node is the router itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	brief
→ID	Hostname and address of the node that the link is going to. An address of .00 indicates that the node is the router itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	brief
hostname	Hostname and address of the node that the link is coming from. An address of .00 indicates that the node is the router itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	detail
hostname	Hostname and address of the node that the link is going to. An address of .00 indicates that the node is the router itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	detail
Local Path	Number of paths CSPF on the local router has placed on the link.	All levels
Local BW	Amount of bandwidth the local router has placed on the link.	All levels

show ted link brief

```

user@host> show ted link brief
TED link:
ID                                     ->ID                                LocalPath LocalBW
cheviot.00(123.456.1.10)             merino.00(123.456.1.14)             0 0bps
merino.00(123.456.1.14)              corriedale.00(123.456.1.11)         0 0bps
merino.00(123.456.1.14)              perendale.00(123.456.1.13)         0 0bps
merino.00(123.456.1.14)              cheviot.00(123.456.1.10)           0 0bps
romney.00(123.456.1.15)              corriedale.00(123.456.1.11)         0 0bps
romney.00(123.456.1.15)              perendale.00(123.456.1.13)         0 0bps

```

show ted link detail

```

user@host> show ted link detail
TED link:
cheviot.00(123.456.1.10)->merino.00(123.456.1.14), LocalPath 0
  localBW [0] 0bps      [1] 0bps      [2] 0bps      [3] 0bps
  localBW [4] 0bps      [5] 0bps      [6] 0bps      [7] 0bps
merino.00(123.456.1.14)->corriedale.00(123.456.1.11), LocalPath 0
  localBW [0] 0bps      [1] 0bps      [2] 0bps      [3] 0bps
  localBW [4] 0bps      [5] 0bps      [6] 0bps      [7] 0bps
merino.00(123.456.1.14)->perendale.00(123.456.1.13), LocalPath 0
  localBW [0] 0bps      [1] 0bps      [2] 0bps      [3] 0bps
  localBW [4] 0bps      [5] 0bps      [6] 0bps      [7] 0bps
merino.00(123.456.1.14)->cheviot.00(123.456.1.10), LocalPath 0
  localBW [0] 0bps      [1] 0bps      [2] 0bps      [3] 0bps
  localBW [4] 0bps      [5] 0bps      [6] 0bps      [7] 0bps
romney.00(123.456.1.15)->corriedale.00(123.456.1.11), LocalPath 0
  localBW [0] 0bps      [1] 0bps      [2] 0bps      [3] 0bps
  localBW [4] 0bps      [5] 0bps      [6] 0bps      [7] 0bps
romney.00(123.456.1.15)->perendale.00(123.456.1.13), LocalPath 0
  localBW [0] 0bps      [1] 0bps      [2] 0bps      [3] 0bps
  localBW [4] 0bps      [5] 0bps      [6] 0bps      [7] 0bps

```


show ted protocol

Syntax	show ted protocol <brief detail> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about the protocols from which the Multiprotocol Label Switching (MPLS) traffic engineering database learned about its nodes.
Options	<p>none—Display standard information about the protocols from which the traffic engineering database learned about its nodes on all logical systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show ted protocol on page 563
Output Fields	Table 152 on page 563 describes the output fields for the show ted protocol command. Output fields are listed in the approximate order in which they appear.

Table 152: show ted protocol Output Fields

Field Name	Field Description
Protocol name	Protocol that reported the node information: <ul style="list-style-type: none"> ■ IS-IS(1)—IS-IS Level 1. ■ IS-IS(2)—IS-IS Level 2. ■ OSPF (<i>area-number</i>)—OSPF from the specified area.
Credibility	If the protocols provide conflicting information about a node, the protocol with the highest credibility value is the one that the traffic engineering database uses.
Self node	Address the protocol uses as the local address.

```

show ted protocol  user@host> show ted protocol
Protocol name      Credibility Self node
IS-IS(2)           2 (highest) corriedale.00(123.456.1.11)
IS-IS(1)           1          corriedale.00(123.456.1.11)

```


Chapter 16

RSVP Operational Mode Commands

Table 153 on page 565 summarizes the command-line interface (CLI) commands you can use to monitor Resource Reservation Protocol (RSVP) sessions. Commands are listed in alphabetical order.

Table 153: RSVP Operational Mode Commands

Task	Command
Clear RSVP sessions and trigger fast reroute optimization.	clear rsvp session on page 566
Clear RSVP packet and error counters.	clear ripng statistics on page 453
Display the status of interfaces on which RSVP is running.	show rsvp interface on page 569
Display RSVP neighbors.	show rsvp neighbor on page 574
Display currently active RSVP sessions.	show rsvp session on page 578
Display RSVP packet and error counters.	show rsvp statistics on page 585
Display RSVP version and configuration information.	show rsvp version on page 588



NOTE: For more RSVP-related commands, such as `show route protocol`, `show route instance`, and `show route table`, see “Protocol-Independent Routing Operational Mode Commands” on page 277.

For information about the `monitor label-switched path` command, used to monitor an RSVP LSP in real time, see the *JUNOS System Basics and Services Command Reference*.

For information about how to configure RSVP, see the *JUNOS MPLS Applications Configuration Guide*.

clear rsvp session

Syntax clear rsvp session
 <connection-source *address*>
 <connection-destination *address*>
 <gracefully>
 <logical-system (all | *logical-system-name*)>
 <lsp-id *identifier*>
 <name *name*>
 <optimize-fast-reroute>
 <tunnel-id *identifier*>

Release Information Command introduced before JUNOS Release 7.4.

Description Reset and restart Resource Reservation Protocol (RSVP) sessions.

Options none—Reset and restart all RSVP sessions for which this router is the ingress, transit, or egress router.

connection-source *address*—(Optional) Source address for GMPLS and MPLS LSPs from the RSVP sender template.

connection-destination *address*—(Optional) Destination address for GMPLS and MPLS LSPs from the RSVP sender template.

gracefully—(Optional) Gracefully reset an RSVP session for a nonpacket LSP in two passes. In the first pass, the Admin-Status object is signaled along the path to the other endpoint of the RSVP session. In the second pass, the path used by the RSVP session is torn down. This option can only be used on the ingress or egress router of the RSVP session and is only valid for nonpacket LSPs.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

lsp-id *identifier*—(Optional) LSP identifier (source port) for the RSVP sender template.

name *name*—(Optional) Reset and restart the specified RSVP session.

optimize-fast-reroute—(Optional) Begin fast reroute optimization.

tunnel-id *identifier*—(Optional) Tunnel identifier (destination port) for the RSVP session.

Required Privilege Level clear

Related Topics clear mpls lsp on page 523

show rsvp session on page 578

List of Sample Output clear rsvp session on page 567

Output Fields When you enter this command, you are provided feedback on the status of your request.

clear rsvp session user@host> **clear rsvp session**

clear rsvp statistics

Syntax	clear rsvp statistics <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Clear Resource Reservation Protocol (RSVP) packet and error statistics.
Options	none—Clear RSVP packet and error statistics on all logical systems. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Topics	show rsvp statistics on page 585
List of Sample Output	clear rsvp statistics on page 568
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear rsvp statistics	user@host> clear rsvp statistics

show rsvp interface

Syntax	show rsvp interface <brief detail extensive link-management> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the status of Resource Reservation Protocol (RSVP)-enabled interfaces and packet statistics.
Options	<p>none—Display standard information about the status of RSVP-enabled interfaces and packet statistics on all logical systems.</p> <p>brief detail extensive link-management—(Optional) Display the specified level of output. Use the link-management option to display the control peers and corresponding TE-link information created by the Link Management Protocol (LMP).</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show rsvp interface brief on page 571</p> <p>show rsvp interface detail on page 571</p> <p>show rsvp interface extensive on page 572</p> <p>show rsvp interface link-management on page 572</p>
Output Fields	Table 154 on page 569 lists the output fields for the show rsvp interface command. Output fields are listed in the approximate order in which they appear.

Table 154: show rsvp interface Output Fields

Field Name	Field Description	Level of Output
RSVP interface	Number of interfaces on which RSVP is active. Each interface has one line of output.	All levels
Interface	Name of the interface.	All levels
Index	Index of the interface.	detail
State	State of the interface. <ul style="list-style-type: none"> ■ Disabled—No traffic engineering information is displayed. ■ Down—Interface is not operational. ■ Enabled—Displays traffic engineering information. ■ Up—Interface is operational. 	All levels
NoAuthentication	Interface does not support RSVP authentication.	detail
NoAggregate	Interface does not support refresh reduction.	detail

Table 154: show rsvp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
NoReliable	Interface does not support refresh reduction message ID extension.	detail
NoLinkProtection	Interface does not support link protection.	detail
HelloInterval	Frequency at which RSVP hellos are sent on this interface (in seconds).	detail
Address	IP address of the local interface.	detail
Active control channel	Next-hop link address to transmit messages.	None specified
TELink	Traffic-engineered links that are managed by the peer they are associated with.	None specified
Active resv	Number of reservations that are actively reserving bandwidth on the interface.	All levels
PreemptionCnt	Number of times an RSVP session was preempted on this interface.	detail
Update threshold	Percentage change in reserved bandwidth to trigger an IGP update.	detail
Subscription	User-configured subscription factor.	All levels
bc number	Bandwidth allocated for the specified bandwidth constraint.	extensive
ct number	Bandwidth allocated for the specified class type.	extensive
Static BW	Total interface bandwidth, in bps.	All levels
Available BW	Amount of bandwidth that RSVP is allowed to reserve, in bps. It is equal to (static bandwidth * subscription factor).	all levels
Reserved BW	Currently reserved bandwidth, in bps.	All levels
SoftPreemptionCnt	Number of times a soft preemption occurred on this interface. This number is not included in the PreemptionCnt value.	detail
Overbooked BW	Currently overbooked bandwidth, in bps, by class type (ct0 through ct3).	detail
Highwater mark	Highest bandwidth that has ever been reserved on this interface, in bps.	brief
PacketType	Type of RSVP packet.	detail
Total Sent	Total number of packets sent.	detail
Total Received	Total number of packets received since RSVP was enabled.	detail
Last 5 seconds Sent	Number of packets sent in the last 5 seconds.	detail
Last 5 seconds Received	Number of packets received in the last 5 seconds.	detail
Path	Statistics about Path messages, which are sent from the RSVP sender along the data paths and store path state information in each node along the path.	detail

Table 154: show rsvp interface Output Fields (continued)

Field Name	Field Description	Level of Output
PathErr	Statistics about PathErr messages, which are advisory messages that are sent upstream to the sender.	detail
PathTear	Statistics about PathTear messages, which remove path states and dependent reservation states in any routers along a path.	detail
Resv	Statistics about Resv messages, which are sent from the RSVP receiver along the data paths and store reservation state information in each node along the path.	detail
ResvErr	Statistics about ResvErr messages, which are advisory messages that are sent when an attempt to establish a reservation fails.	detail
ResvTear	Statistics about ResvTear messages, which remove reservation states along a path.	detail
Hello	Number of RSVP hello packets that have been sent to and received from the neighbor.	detail
Ack	Acknowledge message for refresh reductions.	detail
Srefresh	Summary refresh messages.	detail
EndtoEnd RSVP	Statistics for the number of end-to-end RSVP messages sent.	detail
Queue	CoS transmit queue number and its associated forwarding class designation.	extensive
TxRate	Configured bandwidth in Mbps and configured bandwidth as a percentage of the specified queue.	extensive
Priority	Weight of the queue relative to other configured queues, in percentage.	extensive
queue-priority-value	Low, High, None, or Exact. None indicates no rate limiting. Exact indicates the queue transmits at the configured rate only.	extensive

```

show rsvp interface brief user@host> show rsvp interface brief
RSVP interface: 1 active
                        Active Subscr- Static   Available   Reserved   Highwater
Interface  State resv  iption  BW         BW         mark
de0.0      Up      1      23%      10Mbps     989.992kbps 1.31Mbps   1.31Mbps

show rsvp interface detail user@host> show rsvp interface detail
so-0/1/1.0 Index 6, State: Ena/Up
NoAuthentication, NoAggregate, NoReliable, NoLinkProtection
HelloInterval 3(second)
Address 192.168.207.29, 10.255.245.194
ActiveResv 0, PreemptionCnt 0, Update threshold 10%
Subscription 100%, StaticBW 155.52Mbps, AvailableBW 155.52Mbps
ReservedBW [0] 155Mbps[1] 0bps[2] 0bps[3] 0bps[4] 0bps[5] 0bps[6] 0bps[7] 0bps
SoftPreemptionCnt1
OverbookedBW [0] 0bps[1] 0bps[2] 0bps[3] 0bps[4] 155Mbps[5] 0bps[6] 0bps[7] 0bps
PacketType          Total          Last 5 seconds

```

	Sent	Received	Sent	Received
Path	16	0	1	0
PathErr	0	0	0	0
PathTear	1	0	0	0
Resv	0	11	0	1
ResvErr	0	0	0	0
ResvTear	0	0	0	0
Hello	66	67	1	1
Ack	0	0	0	0
Srefresh	0	0	0	0
EndtoEnd RSVP	0	0	0	0

...

show rsvp interface extensive user@host> **show rsvp interface extensive**
so-1/0/0.0 Index 72, State Ena/Up
NoAuthentication, NoAggregate, NoReliable, NoLinkProtection
HelloInterval 9(second)
Address 192.168.213.22, 10.255.240.175
ActiveResv 1, PreemptionCnt 0, Update threshold 10%
Subscription 100%,
bc0 = (ct0+ct1+ct2+ct3), StaticBW 622.08Mbps
bc1 = (ct1+ct2+ct3), StaticBW 466.56Mbps
bc2 = (ct2+ct3), StaticBW 311.04Mbps
bc3 = ct3, StaticBW 155.52Mbps
ct0: StaticBW 155.52Mbps, AvailableBW 522.08Mbps
ReservedBW [0] 0bps[1] 0bps[2] 0bps[3] 0bps[4] 0bps[5] 0bps[6] 0bps[7] 0bps
ct1: StaticBW 155.52Mbps, AvailableBW 366.56Mbps
ReservedBW [0] 100Mbps[1] 0bps[2] 0bps[3] 0bps[4] 0bps[5] 0bps[6] 0bps[7] 0bps

ct2: StaticBW 155.52Mbps, AvailableBW 311.04Mbps
ReservedBW [0] 0bps[1] 0bps[2] 0bps[3] 0bps[4] 0bps[5] 0bps[6] 0bps[7] 0bps
ct3: StaticBW 155.52Mbps, AvailableBW 155.52Mbps
ReservedBW [0] 0bps[1] 0bps[2] 0bps[3] 0bps[4] 0bps[5] 0bps[6] 0bps[7] 0bps
Queue TxRate Priority Exact
0 155.52Mbps 25% Low
1 155.52Mbps 25% Low
2 155.52Mbps 25% Low
3 155.52Mbps 25% Low

show rsvp interface link-management user@host> **show rsvp interface link-management**
RSVP interface: 2 active
PEER-C State: Up
Active Control Channel: so-0/1/0.0

TElink: TElnk1, Link ID: 37811
ActiveResv 0, PreemptionCnt 0
StaticBW 155.52Mbps, ReservedBW: 0bps, AvailableBW: 155.52Mbps

TElink: TElnk2, Link ID: 37808
ActiveResv 1, PreemptionCnt 0
StaticBW 155.52Mbps, ReservedBW: 0bps, AvailableBW: 155.52Mbps

PEER-B State: Up
Active Control Channel: so-1/0/0.0

TElink: TElnkAB1, Link ID: 1598
ActiveResv 0, PreemptionCnt 0
StaticBW 622.08Mbps, ReservedBW: 0bps, AvailableBW: 622.08Mbps

TElink: TElnkAB2, Link ID: 1597

```
ActiveResv 0, PreemptionCnt 0  
StaticBW 622.08Mbps, ReservedBW: 0bps, AvailableBW: 622.08Mbps
```

show rsvp neighbor

Syntax	show rsvp neighbor <brief detail> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Resource Reservation Protocol (RSVP) neighbors that were discovered dynamically during the exchange of RSVP packets.
Options	none—Display standard information about RSVP neighbors on all logical systems. brief detail—Display the specified level of output. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show rsvp neighbor on page 577 show rsvp neighbor detail on page 577
Output Fields	Table 155 on page 574 lists the output fields for the show rsvp neighbor command. Output fields are listed in the approximate order in which they appear.

Table 155: show rsvp neighbor Output Fields

Field Name	Field Description	Level of Output
RSVP neighbor	Number of neighbors about which the router has learned. Each neighbor has one line of output.	All levels
via	Name of the interface where the neighbor has been detected. In the case of generalized MPLS (GMPLS) LSPs, the name of the peer where the neighbor has been detected.	detail
Address	Address of a learned neighbor.	All levels
Idle	Length of time the neighbor has been idle, in seconds.	All levels
Up/Dn	Number of neighbor up or down transitions detected by RSVP hello packets. If the up count is 1 greater than the down count, the neighbor is currently up. Otherwise, the neighbor is down. Neighbors that do not support RSVP hello packets, such as routers running JUNOS software Release 3.2 or earlier, are not reported as up or down.	All levels
Up cnt and Down cnt	Number of neighbor up or down transitions detected by RSVP hello packets. If the up count is 1 greater than the down count, the neighbor is currently up. Otherwise, the neighbor is down. Neighbors that do not support RSVP hello packets, such as routers running JUNOS software Release 3.2 or earlier, are not reported as up or down.	detail

Table 155: show rsvp neighbor Output Fields (continued)

Field Name	Field Description	Level of Output
status	<p>State of the RSVP neighbor:</p> <ul style="list-style-type: none"> ■ Up—Router can detect RSVP Hello messages from the neighbor. ■ Down—Router has received one of the following indications: <ul style="list-style-type: none"> ■ Communication failure from the neighbor. ■ Communication from IGP that the neighbor is unavailable. ■ Change in the sequence numbers in the RSVP Hello messages sent by the neighbor. ■ Restarting—RSVP neighbor is unavailable and might be restarting. The neighbor remains in this state until it has restarted or is declared dead. This state is possible only when graceful restart is enabled. ■ Restarted—RSVP neighbor has restarted and is undergoing state recovery (graceful restart) procedures. ■ Dead—Router has lost all communication with the RSVP neighbor. Any RSVP sessions with that neighbor are torn down. 	detail
LastChange	Time elapsed since the neighbor state changed either from up to down or from down to up. The format is <i>hh:mm:ss</i> .	All levels
Last changed time	Time elapsed since the neighbor state changed either from up to down or from down to up.	detail
HelloInt	Frequency at which RSVP hellos are sent on this interface (in seconds).	All levels
HelloTx/Rx	Number of hello packets sent to and received from the neighbor.	All levels
Hello	Number of RSVP hello packets that have been sent to and received from the neighbor.	detail
Message received	Number of Path and Resv messages that this router has received from the neighbor.	detail
Remote Instance	Identification provided by the remote router during Hello message exchange.	detail
Local Instance	Identification sent to the remote router during Hello message exchange.	detail
Refresh reduction	<p>Measure of processing overhead requests of refresh messages. Refresh reduction extensions improve router performance by reducing the process overhead, thus increasing the number of LSPs a router can support. Refresh reduction can have the following values:</p> <ul style="list-style-type: none"> ■ operational—All four RSVP refresh reduction extensions—message ack, bundling, summary refresh, and staged refresh timer—are functional between the two neighboring routers. For a detailed explanation of these extensions, see RFC 2961. ■ incomplete—Some RSVP refresh reduction extensions are functional between the two neighboring routers. ■ no operational—Either the refresh reduction feature has been turned off, or the remote router cannot support the refresh reduction extensions. 	detail

Table 155: show rsvp neighbor Output Fields (continued)

Field Name	Field Description	Level of Output
Remote end	Neighboring router's status in regard to refresh reduction: <ul style="list-style-type: none"> ■ enabled—Remote router has requested refresh reduction during RSVP message exchanges. ■ disabled—Remote router does not require refresh reduction. 	detail
Ack-extension	An RSVP refresh reduction extension: <ul style="list-style-type: none"> ■ enabled—Both local and remote routers support the ack-extension (RFC 2961). ■ disabled—Remote router does not support the ack-extension. 	detail
Link protection	Status of the MPLS fast reroute mechanism that protects traffic from link failure: <ul style="list-style-type: none"> ■ enabled—Link protection feature has been turned on, protecting the neighbor with a bypass LSP. ■ disabled—No link protection feature has been enabled for this neighbor. 	detail
LSP name	Name of the bypass LSP.	detail
Bypass LSP	Status of the bypass LSP. It can have the following values: <ul style="list-style-type: none"> ■ does not exist—Bypass LSP is not available. ■ connecting—Router is in the process of establishing a bypass LSP, and the LSP is not available for link protection at the moment. ■ operational—Bypass LSP is up and running. ■ down—Bypass LSP has gone down, with the most probable cause a node or a link failure on the bypass path. 	detail
Backup routes	Number of user LSPs (or routes) that are being protected by a bypass LSP (before link failure).	detail
Backup LSPs	Number of LSPs that have been temporarily established to maintain traffic by refreshing the downstream LSPs during link failure (not a one-to-one correspondence).	detail
Bypass explicit route	Explicit Route Object's (ERO) path that is taken by the bypass LSP.	detail
Restart time	Length of time a neighbor waits to receive a Hello from the restarting node before declaring the node dead and deleting the states (in milliseconds).	detail
Recovery time	Length of time during which the restarting node attempts to recover its lost states with help from its neighbors (in milliseconds). Recovery time is advertised by the restarting node to its neighbors, and applies to nodal faults. The restarting node considers its graceful restart complete after this time has elapsed.	detail

```

show rsvp neighbor user@host> show rsvp neighbor
RSVP neighbor: 2 learned
Address          Idle Up/Dn LastChange HelloInt HelloTx/Rx
192.168.207.203   0  3/2    13:01        3   366/349
192.168.207.207   0  1/0    22:49        3   448/448

show rsvp neighbor user@host> show rsvp neighbor detail
detail
RSVP neighbor: 2 learned
Address: 192.168.207.203 via: ecstasy1 status: Up
  Last changed time: 28:47, Idle: 0 sec, Up cnt: 3, Down cnt: 2
  Message received: 632
  Hello: sent 673, received 656, interval 3 sec
  Remote instance: 0x6432838a, Local instance: 0x74b72e36
  Refresh reduction: operational
    Remote end: enabled, Ack-extension: enabled
  Link protection: enabled
    LSP name: Bypass_to_192.168.207.203
    Bypass LSP: operational, Backup routes: 1, Backup LSPs: 0
    Bypass explicit route: 192.168.207.207 192.168.207.224
  Restart time: 60000 msec, Recovery time: 0 msec

```

show rsvp session

Syntax show rsvp session
 <brief | detail | extensive | terse>
 <bidirectional | unidirectional>
 <bypass>
 <down | up>
 <interface *interface-name*>
 <logical-system (all | *logical-system-name*)>
 <lsp-type>
 <name *session-name*>
 <p2mp>
 <session-type>
 <statistics>
 <te-link *te-link*>

Release Information Command introduced before JUNOS Release 7.4.

Description Display information about Resource Reservation Protocol (RSVP) sessions.

Options none—Display standard information about all RSVP sessions on all logical systems.

brief | detail | extensive | terse—(Optional) Display the specified level of output.

bidirectional | unidirectional—(Optional) Display information about bidirectional or unidirectional RSVP sessions only, respectively.

bypass—(Optional) Display RSVP sessions for bypass LSPs.

down | up—(Optional) Display only LSPs that are inactive or active, respectively.

interface *interface-name*—(Optional) Display RSVP sessions for the specified interface only.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

lsp-type—(Optional) Display information about RSVP sessions with regard to LSPs:

- bypass—Sessions used for bypass LSPs.
- lsp—Sessions used to set up LSPs.
- nolsp—Sessions not used to set up LSPs.

name *session-name*—(Optional) Display information about the named session.

p2mp—Display point-to-multipoint information.

session-type—(Optional) Display information about a particular session type:

- *egress*—Sessions that terminate on this router.
- *ingress*—Sessions that originate from this router.
- *transit*—Sessions that transit through this router.

statistics—(Optional) Display packet statistics.

te-link te-link—(Optional) Display sessions with reservations on the specified TE link.

Required Privilege Level view

Related Topics clear rsvp session on page 566

List of Sample Output show rsvp session on page 582
 show rsvp session statistics on page 582
 show rsvp session detail on page 583
 show rsvp session detail (Path mtu output field) on page 583
 show rsvp session detail (GMPLS) on page 583
 show rsvp session extensive on page 584
 show rsvp session p2mp on page 584

Output Fields Table 156 on page 579 describes the output fields for the `show rsvp session` command. Output fields are listed in the approximate order in which they appear.

Table 156: show rsvp session Output Fields

Field Name	Field Description	Level of Output
Ingress RSVP	Information about ingress RSVP sessions.	detail
Ingress RSVP	Information about ingress RSVP sessions. Each session has one line of output.	All levels
Egress RSVP	Information about egress RSVP sessions.	All levels
Transit RSVP	Information about the transit RSVP sessions.	All levels
P2MP name	(Appears only when the <code>p2mp</code> option is specified). Name of the point-to-multipoint LSP path.	All levels
P2MP branch count	(Appears only when the <code>p2mp</code> option is specified). Number of LSPs receiving packets from the point-to-multipoint LSP.	All levels
To	Destination (egress router) of the session.	All levels
From	Source (ingress router) of the session.	All levels
State	State of the path: Up, Down, or AdminDn. AdminDn indicates that the LSP is being taken down gracefully.	All levels
Address	Destination (egress router) of the LSP.	detail
From	Source (ingress router) of the session.	detail

Table 156: show rsvp session Output Fields (continued)

Field Name	Field Description	Level of Output
LSPstate	State of the LSP that is being handled by this RSVP session. It can be either Up, Dn (down), or AdminDn. AdminDn indicates that the LSP is being taken down gracefully.	brief detail
Rt	Number of active routes (prefixes) that have been installed in the routing table. For ingress RSVP sessions, the routing table is the primary IPv4 table (inet.0). For transit and egress RSVP sessions, the routing table is the primary MPLS table mpls.0).	brief
Active Route	Number of active routes (prefixes) that have been installed in the forwarding table. For ingress RSVP sessions, the forwarding table is the primary IPv4 table (inet.0). For transit and egress RSVP sessions, the forwarding table is the primary MPLS table (mpls.0).	detail
LSPname	Name of the LSP.	brief detail
LSPpath	Indicates whether the RSVP session is for the primary or secondary LSP path. LSPpath can be either primary or secondary and can be displayed on the ingress, egress, and transit routers. LSPpath can also indicate when a graceful LSP deletion has been triggered.	detail
Bypass	(Egress router) Destination address for the bypass LSP.	detail
Bidir	(When LSP is bidirectional) LSP will allow data to travel in both directions between GMPLS devices.	detail
Bidirectional	(When LSP is bidirectional) LSP will allow data to travel both ways between GMPLS devices.	detail
Upstream label in	(When LSP is bidirectional) Incoming label for reverse direction traffic for this LSP.	detail
Upstream label out	(When LSP is bidirectional) Outgoing label for reverse direction traffic for this LSP.	detail
Recovery label received	(When LSP is bidirectional) Label the upstream node suggests for use in the Resv message that is sent.	detail
Recovery label sent	(When LSP is bidirectional) Label the downstream node suggests for use in its Resv messages that is returned.	detail
Suggested label received	(When LSP is bidirectional) Label the upstream node suggests for use in the Resv message that is sent.	detail
Suggested label sent	(When LSP is bidirectional) Label the downstream node suggests for use in its Resv message that is returned.	detail
Resv style or Style	RSVP reservation style. This field consists of two parts. The first is the number of active reservations. The second is the reservation style, which can be FF (fixed filter), SE (shared explicit), or WF (wildcard filter).	brief detail
Label in	Incoming label for this LSP.	brief detail
Label out	Outgoing label for this LSP.	brief detail

Table 156: show rsvp session Output Fields (continued)

Field Name	Field Description	Level of Output
Time left	Number of seconds remaining in the lifetime of the reservation.	brief detail
Since	Date and time when the RSVP session was initiated.	detail
Tspec	Sender's traffic specification, which describes the sender's traffic parameters.	detail
DiffServ info	Indicates whether the LSP is a multiclass LSP (multiclass diffServ-TE LSP) or a Differentiated-Services-aware traffic engineering LSP (diffServ-TE LSP).	detail
bandwidth	Bandwidth for each class type (ct0, ct1, ct2, or ct3).	detail
Port number	Protocol ID and sender/receiver port used in this RSVP session.	detail
FastReroute desired	Fast reroute has been requested by the ingress router.	detail
Soft preemption desired	Soft preemption has been requested by the ingress router.	detail
FastReroute desired	(Data [not a bypass or backup] LSP when the protection scheme has been requested) Fast reroute (one-to-one backup) has been requested by the ingress router.	detail extensive
Link protection desired	(Data [not a bypass or backup] LSP when the protection scheme has been requested) Link protection (many-to-one backup) has been requested by the ingress router.	detail extensive
Node/Link protection desired	(Data [not a bypass or backup] LSP when the protection scheme has been requested) Node and link protection (many-to-one backup) has been requested by the ingress router.	detail extensive
Type	LSP type: <ul style="list-style-type: none"> ■ Link protected LSP—LSP has been protected by link protection at the outgoing interface. The name of the bypass used is also listed here (extensive). ■ Node/Link protected LSP—LSP has been protected by node and link protection at the outgoing interface. The name of the bypass used is also listed here (extensive). ■ Protection down—LSP is not currently protected. ■ Bypass LSP—LSP that is used to protect one or more user LSPs in case of link failure. ■ Backup LSP at Point-of-Local-Repair (PLR)—LSP that has been temporarily established to protect a user LSP at the ingress of a failed link. ■ Backup LSP at Merge Point (MP)—LSP that has been temporarily established to protect a user LSP at the egress of a failed link. 	detail extensive
New bypass	New bypass (the bypass name is also displayed) has been activated to protect the LSP.	extensive
Link protection up, using <i>bypass-name</i>	Link protection (the bypass name is also displayed) has been activated for the LSP.	extensive

Table 156: show rsvp session Output Fields (continued)

Field Name	Field Description	Level of Output
Creating backup LSP, link down	A link down event occurred, and traffic is being switched over to the bypass LSP.	extensive
Deleting backup LSP, protected LSP restored	Link has come back up and the LSP has been restored. Because the backup LSP is no longer needed, it is deleted.	extensive
Path mtu	Displays the value of the path MTU received from the network (through signaling) and the value used for forwarding. This value is only displayed on ingress routers with the <code>allow-fragmentation</code> statement configured at the <code>[edit protocols mpls path-mtu]</code> hierarchy level. If there is a detour LSP, the path MTU for the detour is also displayed.	detail
PATH rcvfrom	Address of the previous-hop (upstream) router or client, interface the neighbor used to reach this router, and number of packets received from the upstream neighbor.	detail
Adspec	MTU signaled from the ingress router to the egress router by means of the adspec object.	detail
PATH sentto	Address of the next-hop (downstream) router or client, interface used to reach this neighbor (or peer-name in the GMPLS LSP case), and number of packets sent to the downstream router.	detail
Explot route	Explicit route for the session. Normally this value will be the same as that of record route. Differences indicate that path rerouting has occurred, typically during fast-reroute.	detail
Record route	Recorded route for the session, taken from the Record Route Object. Normally this value will be the same as that of explot route. Differences indicate that path rerouting has occurred, typically during fast-reroute.	detail

```

show rsvp session  user@host> show rsvp session
Ingress RSVP: 1 sessions
To          From          State  Rt  Style  Labelin  Labelout  LSPName
10.255.245.214 10.255.245.212 AdminDn 0  1  FF      -      22293 LSP Bidir
Total 1 displayed, Up 1, Down 0

Egress RSVP: 2 sessions
To          From          State  Rt  Style  Labelin  Labelout  LSPName
10.255.245.194 10.255.245.195 Up      0  1  FF      39811    -  Gpro3-ba Bidir
10.255.245.194 10.255.245.195 Up      0  1  FF      3        -  pro3-ba
Total 2 displayed, Up 2, Down 0

Transit RSVP: 1 sessions
To          From          State  Rt  Style  Labelin  Labelout  LSPName
10.255.245.198 10.255.245.197 Up      0  1  SE      100000    3  pro3-de
Total 1 displayed, Up 1, Down 0

show rsvp session statistics user@host> show rsvp session statistics
Ingress RSVP: 2 sessions
To          From          State  Packets  Bytes  LSPName
10.255.245.24 10.255.245.22 Up      0        0      pro3-bd

```

```

10.255.245.24 10.255.245.22 Up 44868 2333136 pro3-bd-2
Total 2 displayed, Up 2, Down 0
Egress RSVP: 2 sessions
To From State Packets Bytes LSPname
10.255.245.22 10.255.245.24 Up 0 0 pro3-db
10.255.245.22 10.255.245.24 Up 0 0 pro3-db-2
Total 2 displayed, Up 2, Down 0
Transit RSVP: 0 sessions
Total 0 displayed, Up 0, Down 0

```

show rsvp session detail

```

user@host> show rsvp session detail
Ingress RSVP: 1 sessions
1.1.1.1
  From: 2.2.2.2, LSPstate: Up, ActiveRoute: 0
  LSPname: to-a, LSPpath: Primary
  Suggested label received: -, Suggested label sent: -
  Recovery label received: -, Recovery label sent: 3
  Resv style: 1 FF, Label in: -, Label out: 3
  Time left: -, Since: Fri Mar 26 18:42:42 2004
  Tspec: rate 300kbps size 300kbps peak Infbps m 20 M 1500
  DiffServ info: diffServ-TE LSP, bandwidth: <ct1 300kbps>
  Port number: sender 1 receiver 15876 protocol 0
  PATH rcvfrom: localclient
  Adspec: sent MTU 1500
  PATH sentto: 192.168.37.16 (t1-0/2/1.0) 1 pkt

```

**show rsvp session detail
(Path mtu output field)**

```

user@host> show rsvp session detail
Ingress RSVP: 1 sessions
10.255.245.3
  From: 10.255.245.5, LSPstate: Up, ActiveRoute: 3
  LSPname: to-c, LSPpath: Primary
  Suggested label received: -, Suggested label sent: -
  Recovery label received: -, Recovery label sent: 100432
  Resv style: 1 FF, Label in: -, Label out: 100432
  Time left: -, Since: Mon Aug 16 17:54:40 2006
  Tspec: rate 0bps size 0bps peak Infbps m 20 M 9192
  Port number: sender 1 receiver 57843 protocol 0
  FastReroute desired
  PATH rcvfrom: localclient
  Adspec: sent MTU 4470
  Path mtu: received 4470, using 4458 for forwarding
  PATH sentto: 192.168.37.89 (so-0/2/3.0) 11 pkts
  RESV rcvfrom: 192.168.37.89 (so-0/2/3.0) 10 pkts
  Explct route: 192.168.37.89
  Record route: <self> 192.168.37.89 192.168.37.87
    Detour is Up
    Detour Tspec: rate 0bps size 0bps peak Infbps m 20 M 9192
    Detour adspec: sent MTU 1512
    Path mtu: received 1512, using 1500 for forwarding

```

**show rsvp session detail
(GMPLS)**

```

user@host> show rsvp session detail
Ingress RSVP: 1 sessions
192.168.4.1
  From: 192.168.1.1, LSPstate: Dn, ActiveRoute: 0
  LSPname: gmpls-r1-to-r3, LSPpath: Primary
  Bidirectional, Upstream label in: 21253, Upstream label out: -
  Suggested label received: -, Suggested label sent: 21253
  Recovery label received: -, Recovery label sent: -
  Resv style: 0 -, Label in: -, Label out: -
  Time left: -, Since: Mon Aug 16 17:54:40 2006
  Tspec: rate 0bps size 0bps peak 155.52Mbps m 20 M 1500

```

```

Port number: sender 2 receiver 46115 protocol 0
PATH rcvfrom: localclient
Adspec: sent MTU 1500
PATH MTU: received 0
PATH sentto: 10.35.1.5 (so-0/2/3.0) 11 pkts
Explct route: 100.100.100.100 93.93.93.93
Record route: <self> 100.100.100.100 93.93.93.93
Total 1 displayed, Up 0, Down 1
Egress RSVP: 0 sessions
Total 0 displayed, Up 0, Down 0
Transit RSVP: 0 sessions
Total 0 displayed, Up 0, Down 0

```

show rsvp session extensive user@host> **show rsvp session extensive**
10.255.245.13

```

From: 10.255.245.48, LSPstate: Up, ActiveRoute: 0
....
Link protection desired
Type: Link protected LSP, using p2
11 Feb 6 15:24:16 Backup LSP: Call was cleared by RSVP
10 Feb 6 15:24:16 Backup LSP: Session preempted
9 Feb 6 15:24:16 Deleting backup LSP, protected LSP restored
8 Feb 6 15:23:22 Backup LSP: Up 192.168.208.117(Label=3)
7 Feb 6 15:23:22 Backup LSP: Record Route: 192.168.208.117(Label=3)
6 Feb 6 15:23:19 Backup LSP: Explicit Route: wrong delivery
5 Feb 6 15:23:19 Creating backup LSP, link down
4 Feb 6 12:36:03 Link protection up, using p2
3 Feb 6 12:35:56 New bypass p2
2 Feb 6 12:35:47 Bypass state down, p1[2 times]
1 Feb 6 12:35:39 New bypass p1

```

show rsvp session p2mp user@host> **show rsvp session p2mp**

```

Ingress RSVP: 3 sessions
P2MP name: p2mp-lsp1, P2MP branch count: 1
To          From          State Rt Style Labelin Labelout LSPname
10.255.245.34 10.255.245.25 Up      0 1 FF      -      100128 p2mp-branch-1
P2MP name: p2mp-lsp2, P2MP branch count: 1
To          From          State Rt Style Labelin Labelout LSPname
10.255.245.34 10.255.245.25 Up      0 1 FF      -      3 p2mp-st-br1
P2MP name: lsp-a_b, P2MP branch count: 1
Total 2 displayed, Up 2, Down 0

Egress RSVP: 0 sessions
Total 0 displayed, Up 0, Down 0

Transit RSVP: 0 sessions
Total 0 displayed, Up 0, Down 0

```

show rsvp statistics

Syntax	show rsvp statistics <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Resource Reservation Protocol (RSVP) packet and error statistics.
Options	none—Display RSVP packet and error statistics on all logical systems. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Topics	clear rsvp statistics on page 568
List of Sample Output	show rsvp statistics on page 587
Output Fields	Table 157 on page 585 describes the output fields for the show rsvp statistics command. Output fields are listed in the approximate order in which they appear.

Table 157: show rsvp statistics Output Fields

Field Name	Field Description
Packet Type	Statistics about different RSVP messages.
Total Sent	Total number of packets sent since RSVP was enabled.
Total Received	Total number of packets received since RSVP was enabled.
Last 5 seconds Sent	Total number of packets sent in the last 5 seconds.
Last 5 seconds Received	Number of packets received in the last 5 seconds.
Path	Statistics about Path messages, which are sent from the RSVP sender along the data paths and which store path state information in each node along the path.
PathErr	Statistics about PathErr messages, which are advisory messages that are sent upstream to the sender.
PathTear	Statistics about PathTear messages, which remove path states and dependent reservation states in any routers along a path.
Resv FF	Statistics about fixed-filter reservation style messages, which consist of distinct reservations among explicit senders.
Resv WF	Statistics about wildcard-filter reservation style messages, which consist of shared reservations among wildcard senders.
Res SE	Statistics about shared-explicit reservation style messages, which consist of shared reservations among explicit senders.

Table 157: show rsvp statistics Output Fields (continued)

Field Name	Field Description
ResvErr	Statistics about ResvErr messages, which are advisory messages that are sent when an attempt to establish a reservation fails.
ResvTear	Statistics about ResvTear messages, which remove reservation states along a path.
ResvConf	Statistics about ResvConfirm messages, which are responses to confirm a reservation request.
Ack	Acknowledge message for refresh reductions.
SRefresh	Summary refresh messages.
Hello	Number of RSVP hello packets that have been sent to and received from the neighbor.
EndtoEnd RSVP	Statistics for the number of End-to-end RSVP messages.
Errors	Statistics about errored RSVP packets.
Rcv pkt bad length	The packet was not processed because its length is inappropriate.
Rcv pkt unknown type	The packet is not one of the well-known RSVP types, as defined in RFC 2205, <i>Resource ReSerVation Protocol (RSVP)</i> .
Rcv pkt bad version	The packet is not an RSVP version 1 packet.
Rcv pkt auth fail	The packet failed authentication checks.
Rcv pkt bad cksum	The RSVP checksum check failed.
Rcv pkt bad format	General packet processing failed because the packet was badly formed.
Memory alloc fail	An internal resource failure occurred.
No path info	A reservation was received, but no sender is active.
Resv style conflict	The same session contains inconsistent reservation styles.
Port conflict	There were inconsistent port numbers for the same session.
Resv no interface	An interface for the receive reservation packets cannot be located.
PathErr to client	Number of PathErr packets delivered to the local client.
ResvErr to client	Number of ResvErr packets delivered to the local client.
Path timeout	Number of times the sender timed out because the path was removed.
Resv timeout	Number of times the receiver timed out because the reservation was removed.
Message out-of-order	Records the number of RSVP incoming messages that are considered out of order. This is detected from the message ID object's sequence number.
Unknown ack msg	A neighboring router replies with an ACK object that contains an unknown message ID. This can indicate a message ID handshake problem.

Table 157: show rsvp statistics Output Fields (continued)

Field Name	Field Description
Recv nack	A neighboring router explicitly rejects a message ID in a summary refresh message. This can happen if that neighbor has been rebooted. In this case, the router sends a regular RSVP refresh message to recover the state, and starts the message-ID handshake process again
Recv duplicated msg-id	Number of times the same message ID is used by two different RSVP messages. This duplication is usually caused when a neighboring router restarts.
No TE-link to recv Hop	Counter of packets discarded because a TE link was not found.

```

show rsvp statistics user@host> show rsvp statistics
PacketType          Total          Last 5 seconds
                   Sent      Received      Sent      Received
Path                355        408          0          0
PathErr              2          13          0          0
PathTear            101        139          0          0
Resv FF              0          0          0          0
Resv WF              0          0          0          0
Resv SE             419        225          0          0
ResvErr              0          0          0          0
ResvTear             0          13          0          0
ResvConf             0          0          0          0
Ack                  682       1414          0          0
SRefresh            395198    236030         5          2
Hello               578809    578221         4          4
EndtoEnd RSVP       0          0          0          0

Errors              Total          Last 5 seconds
Rcv pkt bad length      0          0
Rcv pkt unknown type    0          0
Rcv pkt bad version     0          0
Rcv pkt auth fail       0          0
Rcv pkt bad checksum    0          0
Rcv pkt bad format      0          0
Memory allocation fail  0          0
No path information     10         0
Resv style conflict     0          0
Port conflict           0          0
Resv no interface       0          0
PathErr to client       38         0
ResvErr to client       0          0
Path timeout            8          0
Resv timeout            57         0
Message out-of-order    0          0
Unknown ack msg         2978        0
Recv nack               86          0
Recv duplicated msg-id   5          0
No TE-link to recv Hop   0          0

```

show rsvp version

Syntax	show rsvp version <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display information about the Resource Reservation Protocol (RSVP) protocol settings, such as the version of the RSVP software, the refresh timer and keep multiplier, and local RSVP graceful restart capabilities on a router.
Options	none—Display RSVP protocol settings on all logical systems. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show rsvp version (Router in Steady State) on page 589 show rsvp version (Router Restarting) on page 589
Output Fields	Table 158 on page 588 describes the output fields for the show rsvp version command. Output fields are listed in the approximate order in which they appear.

Table 158: show rsvp version Output Fields

Field Name	Field Description
Resource ReSerVation Protocol, version	RSVP software version.
RSVP protocol	Status of RSVP: Enabled or Disabled.
R(refresh timer)	Configured time interval used to generate periodic RSVP messages.
K(keep multiplier)	Number of RSVP messages that can be lost before an RSVP state is declared stale.
Preemption	Currently configured preemption capability: Aggressive , Disabled , or Normal . The default is Normal .
Graceful restart	Status of the graceful restart feature for RSVP on the restarting router: Enabled or Disabled .
Restart helper mode	Status of the helper mode feature: Enabled or Disabled . When this feature is enabled, the restarting router can help the neighbor with its RSVP restart procedures.
Maximum helper restart time	Number of milliseconds (ms) configured for the maximum helper restart time. The maximum helper restart time is the length of time the router waits before declaring that an RSVP neighbor attempting to restart gracefully is down.
Maximum helper recovery time	Number of milliseconds configured for the maximum helper recovery time. The maximum helper recovery time is the amount of time the router maintains the state of an RSVP neighbor attempting to restart gracefully.
Restart time	Number of milliseconds that a neighbor waits to receive a Hello message from the restarting node before declaring the node dead and deleting the states.

Table 158: show rsvp version Output Fields *(continued)*

Field Name	Field Description
Recovery time	Number of milliseconds during which the restarting node attempts to recover its lost states with help from its neighbors. Recovery time is advertised by the restarting node to its neighbors, and applies to nodal faults. The restarting node considers its graceful restart complete after this time has elapsed.
Soft-preemption cleanup	Time, in seconds, that an LSP is kept after it has been soft preempted. This is a global property of the RSVP protocol.

```

show rsvp version      user@host> show rsvp version
(Router in Steady State) Resource ReSerVation Protocol, version 1. rfc2205
                        RSVP protocol                Enabled
                        R(refresh timer)              30 seconds
                        K(keep multiplier)             3
                        Preemption                    Normal
                        Soft-preemption cleanup         60 seconds
                        Graceful restart               Enabled
                        Restart helper mode            Enabled
                        Restart time                   60000 msec

```

```

show rsvp version      user@host> show rsvp version
(Router Restarting)   Resource ReSerVation Protocol, version 1. rfc2205
                        RSVP protocol:                Enabled
                        R(refresh timer):              30 seconds
                        K(keep multiplier):             3
                        Preemption:                    Normal
                        Soft-preemption cleanup:        30 seconds
                        Graceful deletion timeout:     30 seconds
                        Graceful restart:               Disabled
                        Restart helper mode:            Enabled
                        Maximum helper restart time:    20000 msec
                        Maximum helper recovery time:   180000 msec
                        Restart time:                  0 msec

```


Part 4

Layer 2 Bridging and Switching Operational Mode Commands

- Layer 2 Bridging and Switching Operational Mode Commands on page 593
- Spanning Tree Operational Mode Commands on page 617

Chapter 17

Layer 2 Bridging and Switching Operational Mode Commands

Table 159 on page 593 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Layer 2 bridging and switching. Commands are listed in alphabetical order.

Table 159: Layer 2 Bridging and Switching Operational Mode Commands

Task	Command
Clear learned Layer 2 address information from the media access control (MAC) address table.	clear bridge mac-table on page 594
Clear a MAC rewrite error condition for Layer 2 protocol tunneling.	clear error mac-rewrite on page 595
Display bridge domain information.	show bridge domain on page 596
Display bridging flooding information.	show bridge flood on page 598
Display learned Layer 2 MAC address information.	show bridge mac-table on page 605
Display bridge statistics.	show bridge statistics on page 608
Display Layer 2 learning process-related information.	show l2-learning global-information on page 611
Display configured Layer 2 routing instances.	show l2-learning instance on page 612
Display configured Layer 2 interfaces.	show l2-learning interface on page 613
Display Layer 2 interfaces.	show mac-rewrite interface on page 615

clear bridge mac-table

Syntax	clear bridge mac-table <mac-address> <bridge-domain (all <i>bridge-domain-name</i>)> <instance <i>instance-name</i> > <interface <i>interface-name</i> > <learning-vlan id (all-vlan <i>learning-vlan-id</i>)>
Release Information	Command introduced in JUNOS Release 8.4.
Description	(MX-series routers only) Clear learned Layer 2 address information from the media access control (MAC) address table.
Options	<p>none—Clear all learned Layer 2 address information from the MAC address table.</p> <p><i>mac-address</i>—(Optional) Clear the specified learned Layer 2 address from the MAC address table.</p> <p><i>bridge-domain (all bridge-domain-name)</i>—(Optional) Clear learned Layer 2 MAC addresses for all bridging domains or for the specified bridging domain.</p> <p><i>instance instance-name</i>—(Optional) Clear learned Layer 2 MAC addresses for the specified routing instance.</p> <p><i>interface interface-name</i>—(Optional) Clear learned Layer 2 MAC addresses for the specified interface.</p> <p><i>learning-vlan-id (all-vlan learning-vlan-id)</i>—(Optional) Clears learned Layer 2 MAC addresses for all VLANs or for the specified VLAN.</p>
Required Privilege Level	clear
List of Sample Output	clear bridge mac-table on page 594
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear bridge mac-table	user@host> clear bridge mac-table

clear error mac-rewrite

Syntax	clear error mac-rewrite <interface <i>interface-name</i> >
Release Information	Command introduced in JUNOS Release 9.1.
Description	(MX-series routers only) Clear a MAC rewrite error condition caused by the reception of tunneled Cisco Discovery Protocol (CDP), Spanning Tree Protocol (STP), or VLAN Trunk Protocol (VTP) packets on an interface with Layer 2 protocol tunneling enabled.
Options	interface <i>interface-name</i> —(Optional) Clear the MAC rewrite error condition for the specified interface.
Required Privilege Level	clear
List of Sample Output	clear error mac-rewrite interface on page 595
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear error mac-rewrite interface	user@host> clear error mac-rewrite interface ge-1/0/1

show bridge domain

Syntax show bridge domain
 <brief | detail | extensive>
 <bridge-domain (all | *domain-name*)>
 <instance *instance-name*>
 <operational>

Release Information Command introduced in JUNOS Release 8.4.

Description (MX-series routers only) Display bridge domain information.

Options none—Display information for all bridge domains.

brief | detail | extensive—(Optional) Display the specified level of output.

bridge-domain (all | *domain-name*)— (Optional) Display information about the specified bridge domain.

instance *instance-name*—(Optional) Display information for the specified routing instance.

operational—(Optional) Display information for the operational routing instances.

Required Privilege Level view

List of Sample Output show bridge domain on page 596
 show bridge domain brief on page 596
 show bridge domain detail on page 596

```

show bridge domain user@host> show bridge domain
Instance           Bridging Domain      Type      Active
Primary Table
vs1                 vlan100              bridge     2
                    bridge.0
vs1                 vlan200              bridge     0
                    bridge.0

```

```

show bridge domain user@host> show bridge domain brief
brief Instance           Bridging Domain      Type      Active
Primary Table
vs1                 vlan100              bridge     2
                    bridge.0
vs1                 vlan200              bridge     0
                    bridge.0

```

```

show bridge domain user@host> show bridge domain detail
detail Routing Instance:vs1
          Bridging Domain:vlan100
          Router ID: 0.0.0.0
          Type: bridge           State: Active
          Interfaces:
            ge-11/0/3.0
            ge-11/1/4.100
            ge-11/1/1.100

```

```
ge-11/1/0.100
xe-10/2/0.100
xe-10/0/0.100
Tables:
  bridge.0                : 2 macs (2 active)
Routing Instance:vs1
  Bridging Domain:vlan200
  Router ID: 0.0.0.0
  Type: bridge             State: Active
  Interfaces:
    ge-11/1/0.200
    ge-11/1/1.200
    ge-11/1/4.200
    xe-10/0/0.200
    xe-10/2/0.200
  Tables:
    bridge.0              : 0 macs (0 active)
```

show bridge flood

Syntax	<pre>show bridge flood <brief detail extensive> <bridge-domain <i>domain-name</i>> <event-queue> <instance <i>instance-name</i>> <route (all-ce-flood all ve-flood alt-root-flood bd-flood mlp-flood re-flood)></pre>
Release Information	Command introduced in JUNOS Release 8.4.
Description	(MX-series routers only) Display bridging flooding information.
Options	<p>none—Display all bridging flooding information for all bridging domains.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>bridge-domain <i>domain-name</i>—(Optional) Display bridging flooding information for the specified bridge domain.</p> <p>event-queue—(Optional) Display the queue of pending bridge flood events.</p> <p>instance <i>instance-name</i>—(Optional) Display bridging flooding information for the specified routing instance.</p> <p>route (all-ce-flood all ve-flood alt-root-flood bd-flood mlp-flood re-flood)—(Optional) Display the following:</p> <ul style="list-style-type: none"> ■ all-ce-flood—Display the route for flooding traffic to all customer edge routers if no-local-switching is enabled. ■ all-ve-flood—Display the route for flooding traffic to all VPLS edge routers if no-local-switching is enabled. ■ alt-root-flood—Display the Spanning Tree Protocol (STP) alt-root flooding route used for the interface. ■ bd-flood—Display the route for flooding traffic of a bridge domain if no-local-switching is not enabled. ■ mlp-flood—Display the route for flooding traffic to MAC learning chips. ■ re-flood—Display the route for Routing Engine flooding to all interfaces.
Required Privilege Level	view
List of Sample Output	<pre>show bridge flood on page 598 show bridge flood brief on page 599 show bridge flood detail on page 599 show bridge flood extensive on page 600</pre>
Output Fields	to be provided
show bridge flood	user@host> show bridge flood

```

Name: __juniper_private1__
CEs: 0
VEs: 0
Flood Routes:
  Prefix  Type      Owner                NhType  NhIndex
  0x36/16  MLP_FLOOD  __vs1+vlan100__     flood   426
  0x3a/16  MLP_FLOOD  __vs1+vlan200__     flood   428
Name: vs1::vlan100
CEs: 6
VEs: 0
Flood Routes:
  Prefix  Type      Owner                NhType  NhIndex
  0x35/16  ALL_FLOOD  __vs1+vlan100__     flood   425
  0x35/16  RE_FLOOD   __vs1+vlan100__     flood   425
  0x3780/17 ALT_ROOT_RT ge-11/0/3.0         flood   425
  0x3b80/17 ALT_ROOT_RT ge-11/1/4.100       flood   425
  0x3c80/17 ALT_ROOT_RT ge-11/1/1.100       flood   425
  0x3d80/17 ALT_ROOT_RT ge-11/1/0.100       flood   425
  0x3e80/17 ALT_ROOT_RT xe-10/2/0.100       flood   425
  0x3f80/17 ALT_ROOT_RT xe-10/0/0.100       flood   425
Name: vs1::vlan200
CEs: 5
VEs: 0
Flood Routes:
  Prefix  Type      Owner                NhType  NhIndex
  0x39/16  ALL_FLOOD  __vs1+vlan200__     flood   427
  0x39/16  RE_FLOOD   __vs1+vlan200__     flood   427
  0x4180/17 ALT_ROOT_RT ge-11/1/0.200       flood   427
  0x4080/17 ALT_ROOT_RT ge-11/1/1.200       flood   427
  0x4280/17 ALT_ROOT_RT ge-11/1/4.200       flood   427
  0x4480/17 ALT_ROOT_RT xe-10/0/0.200       flood   427
  0x4380/17 ALT_ROOT_RT xe-10/2/0.200       flood   427

```

show bridge flood brief

```

user@host> show bridge flood brief
Name                Active CEs    Active VEs
__juniper_private1__ 0              0
vs1::vlan100         6              0
vs1::vlan200         5              0

```

show bridge flood detail

```

user@host> show bridge flood detail
Name: __juniper_private1__
CEs: 0
VEs: 0
Flood Routes:
  Prefix  Type      Owner                NhType  NhIndex
  0x36/16  MLP_FLOOD  __vs1+vlan100__     flood   426
  0x3a/16  MLP_FLOOD  __vs1+vlan200__     flood   428
Name: vs1::vlan100
CEs: 6
VEs: 0
Flood Routes:
  Prefix  Type      Owner                NhType  NhIndex
  0x35/16  ALL_FLOOD  __vs1+vlan100__     flood   425
  0x35/16  RE_FLOOD   __vs1+vlan100__     flood   425
  0x3780/17 ALT_ROOT_RT ge-11/0/3.0         flood   425
  0x3b80/17 ALT_ROOT_RT ge-11/1/4.100       flood   425
  0x3c80/17 ALT_ROOT_RT ge-11/1/1.100       flood   425
  0x3d80/17 ALT_ROOT_RT ge-11/1/0.100       flood   425
  0x3e80/17 ALT_ROOT_RT xe-10/2/0.100       flood   425
  0x3f80/17 ALT_ROOT_RT xe-10/0/0.100       flood   425
Name: vs1::vlan200

```

```

CEs: 5
VEs: 0
Flood Routes:
  Prefix    Type      Owner                NhType    NhIndex
  0x39/16   ALL_FLOOD  __vs1+vlan200__    flood     427
  0x39/16   RE_FLOOD   __vs1+vlan200__    flood     427
  0x4180/17 ALT_ROOT_RT ge-11/1/0.200      flood     427
  0x4080/17 ALT_ROOT_RT ge-11/1/1.200      flood     427
  0x4280/17 ALT_ROOT_RT ge-11/1/4.200      flood     427
  0x4480/17 ALT_ROOT_RT xe-10/0/0.200      flood     427
  0x4380/17 ALT_ROOT_RT xe-10/2/0.200      flood     427

```

show bridge flood extensive user@host> **show bridge flood extensive**

```

Name: __juniper_private1__
CEs: 0
VEs: 0
  Flood route prefix: 0x36/16
  Flood route type: MLP_FLOOD
  Flood route owner: __vs1+vlan100__
  Nexthop type: flood
  Nexthop index: 426
    Interfaces Flooding to:
      Name                Type      NhType    Index
      1c-11/0/0.32769     LC
      1c-10/2/0.32769     LC
      1c-10/0/0.32769     LC
      1c-11/1/0.32769     LC

  Flood route prefix: 0x3a/16
  Flood route type: MLP_FLOOD
  Flood route owner: __vs1+vlan200__
  Nexthop type: flood
  Nexthop index: 428
    Interfaces Flooding to:
      Name                Type      NhType    Index
      1c-10/0/0.32769     LC
      1c-10/2/0.32769     LC
      1c-11/1/0.32769     LC
Name: vs1::vlan100
CEs: 6
VEs: 0

  Flood route prefix: 0x35/16
  Flood route type: ALL_FLOOD
  Flood route owner: __vs1+vlan100__
  Nexthop type: flood
  Nexthop index: 425
    Interfaces Flooding to:
      Name                Type      NhType    Index
      ge-11/0/3.0         CE
      ge-11/1/4.100       CE
      ge-11/1/1.100       CE
      ge-11/1/0.100       CE
      xe-10/2/0.100       CE
      xe-10/0/0.100       CE

  Flood route prefix: 0x35/16
  Flood route type: RE_FLOOD
  Flood route owner: __vs1+vlan100__
  Nexthop type: flood
  Nexthop index: 425

```

```

Interfaces Flooding to:
Name          Type          NhType          Index
ge-11/0/3.0   CE
ge-11/1/4.100 CE
ge-11/1/1.100 CE
ge-11/1/0.100 CE
xe-10/2/0.100 CE
xe-10/0/0.100 CE

```

```

Flood route prefix: 0x3780/17
Flood route type: ALT_ROOT_RT
Flood route owner: ge-11/0/3.0
Nexthop type: flood
Nexthop index: 425

```

```

Interfaces Flooding to:
Name          Type          NhType          Index
ge-11/0/3.0   CE
ge-11/1/4.100 CE
ge-11/1/1.100 CE
ge-11/1/0.100 CE
xe-10/2/0.100 CE
xe-10/0/0.100 CE

```

```

Flood route prefix: 0x3b80/17
Flood route type: ALT_ROOT_RT
Flood route owner: ge-11/1/4.100
Nexthop type: flood
Nexthop index: 425

```

```

Interfaces Flooding to:
Name          Type          NhType          Index
ge-11/0/3.0   CE
ge-11/1/4.100 CE
ge-11/1/1.100 CE
ge-11/1/0.100 CE
xe-10/2/0.100 CE
xe-10/0/0.100 CE

```

```

Flood route prefix: 0x3c80/17
Flood route type: ALT_ROOT_RT
Flood route owner: ge-11/1/1.100
Nexthop type: flood
Nexthop index: 425

```

```

Interfaces Flooding to:
Name          Type          NhType          Index
ge-11/0/3.0   CE
ge-11/1/4.100 CE
ge-11/1/1.100 CE
ge-11/1/0.100 CE
xe-10/2/0.100 CE
xe-10/0/0.100 CE

```

```

Flood route prefix: 0x3d80/17
Flood route type: ALT_ROOT_RT
Flood route owner: ge-11/1/0.100
Nexthop type: flood
Nexthop index: 425

```

```

Interfaces Flooding to:
Name          Type          NhType          Index
ge-11/0/3.0   CE
ge-11/1/4.100 CE
ge-11/1/1.100 CE

```

```

ge-11/1/0.100    CE
xe-10/2/0.100    CE
xe-10/0/0.100    CE

```

```

Flood route prefix: 0x3e80/17
Flood route type: ALT_ROOT_RT
Flood route owner: xe-10/2/0.100
Nexthop type: flood
Nexthop index: 425

```

```

  Interfaces Flooding to:
  Name      Type      NhType      Index
  ge-11/0/3.0    CE
  ge-11/1/4.100  CE
  ge-11/1/1.100  CE
  ge-11/1/0.100  CE
  xe-10/2/0.100  CE
  xe-10/0/0.100  CE

```

```

Flood route prefix: 0x3f80/17
Flood route type: ALT_ROOT_RT
Flood route owner: xe-10/0/0.100
Nexthop type: flood
Nexthop index: 425

```

```

  Interfaces Flooding to:
  Name      Type      NhType      Index
  ge-11/0/3.0    CE
  ge-11/1/4.100  CE
  ge-11/1/1.100  CE
  ge-11/1/0.100  CE
  xe-10/2/0.100  CE
  xe-10/0/0.100  CE

```

```

Name: vs1::vlan200
CEs: 5
VEs: 0

```

```

Flood route prefix: 0x39/16
Flood route type: ALL_FLOOD
Flood route owner: __vs1+vlan200__
Nexthop type: flood
Nexthop index: 427

```

```

  Interfaces Flooding to:
  Name      Type      NhType      Index
  ge-11/1/0.200  CE
  ge-11/1/1.200  CE
  ge-11/1/4.200  CE
  xe-10/0/0.200  CE
  xe-10/2/0.200  CE

```

```

Flood route prefix: 0x39/16
Flood route type: RE_FLOOD
Flood route owner: __vs1+vlan200__
Nexthop type: flood
Nexthop index: 427

```

```

  Interfaces Flooding to:
  Name      Type      NhType      Index
  ge-11/1/0.200  CE
  ge-11/1/1.200  CE
  ge-11/1/4.200  CE
  xe-10/0/0.200  CE
  xe-10/2/0.200  CE

```


Flood route prefix: 0x4180/17
 Flood route type: ALT_ROOT_RT
 Flood route owner: ge-11/1/0.200
 Nexthop type: flood
 Nexthop index: 427

Interfaces Flooding to:

Name	Type	NhType	Index
ge-11/1/0.200	CE		
ge-11/1/1.200	CE		
ge-11/1/4.200	CE		
xe-10/0/0.200	CE		
xe-10/2/0.200	CE		

Flood route prefix: 0x4080/17
 Flood route type: ALT_ROOT_RT
 Flood route owner: ge-11/1/1.200
 Nexthop type: flood
 Nexthop index: 427

Interfaces Flooding to:

Name	Type	NhType	Index
ge-11/1/0.200	CE		
ge-11/1/1.200	CE		
ge-11/1/4.200	CE		
xe-10/0/0.200	CE		
xe-10/2/0.200	CE		

Flood route prefix: 0x4280/17
 Flood route type: ALT_ROOT_RT
 Flood route owner: ge-11/1/4.200
 Nexthop type: flood
 Nexthop index: 427

Interfaces Flooding to:

Name	Type	NhType	Index
ge-11/1/0.200	CE		
ge-11/1/1.200	CE		
ge-11/1/4.200	CE		
xe-10/0/0.200	CE		
xe-10/2/0.200	CE		

Flood route prefix: 0x4480/17
 Flood route type: ALT_ROOT_RT
 Flood route owner: xe-10/0/0.200
 Nexthop type: flood
 Nexthop index: 427

Interfaces Flooding to:

Name	Type	NhType	Index
ge-11/1/0.200	CE		
ge-11/1/1.200	CE		
ge-11/1/4.200	CE		
xe-10/0/0.200	CE		
xe-10/2/0.200	CE		

Flood route prefix: 0x4380/17
 Flood route type: ALT_ROOT_RT
 Flood route owner: xe-10/2/0.200
 Nexthop type: flood
 Nexthop index: 427

Interfaces Flooding to:

Name	Type	NhType	Index
ge-11/1/0.200	CE		
ge-11/1/1.200	CE		

```
ge-11/1/4.200    CE
xe-10/0/0.200    CE
xe-10/2/0.200    CE
```

show bridge mac-table

Syntax show bridge mac-table
 <brief | count | detail | extensive>
 <bridge-domain (all | *bridge-domain-name*)>
 <global-count>
 <interface *interface-name*>
 <mac-address>
 <vlan-id (all-vlan | *vlan-id*)>

Release Information Command introduced in JUNOS Release 8.4.

Description (MX-series routers only) Display Layer 2 MAC address information.

Options none—Display all learned Layer 2 MAC address information.

brief | count | detail | extensive—(Optional) Display the specified level of output.

bridge-domain (all | *bridge-domain-name*)—(Optional) Display learned Layer 2 MAC addresses for all bridging domains or for the specified bridging domain.

global-count—(Optional) Display the total number of learned Layer 2 MAC addresses on the system.

instance *instance-name*—(Optional) Display learned Layer 2 MAC addresses for the specified routing instance.

interface *interface-name*—(Optional) Display learned Layer 2 MAC addresses for the specified interface.

mac-address—(Optional) Display the specified learned Layer 2 MAC address information.

vlan-id (all-vlan | *vlan-id*)—(Optional) Display learned Layer 2 MAC addresses for all VLANs or for the specified VLAN.

Additional Information When Layer 2 protocol tunneling is enabled, the tunneling MAC address 01:00:0c:cd:cd:d0 is installed in the MAC table. When the Cisco Discovery Protocol (CDP), Spanning Tree Protocol (STP), or VLAN Trunk Protocol (VTP) is configured for Layer 2 protocol tunneling on an interface, the corresponding protocol MAC address is installed in the MAC table.

Required Privilege Level view

List of Sample Output show bridge mac-table on page 606
 show bridge mac-table brief on page 606
 show brief mac-table count on page 607
 show bridge mac-table detail on page 607

Output Fields Table 160 on page 606 describes the output fields for the show bridge mac-table command. Output fields are listed in the approximate order in which they appear.

Table 160: show bridge mac-table Output fields

Field Name	Field Description
Routing instance	Name of the routing instance.
Bridging domain	Name of the bridging domain.
MAC address	MAC address or addresses learned on a logical interface.
MAC flags	Status of MAC address learning properties for each interface: <ul style="list-style-type: none"> ■ S—Static MAC address is configured. ■ D—Dynamic MAC address is configured. ■ SE—MAC accounting is enabled. ■ NM—Non configured MAC.
Logical interface	Name of the logical interface.
MAC count	Number of MAC addresses learned on the specific routing instance or interface.
Learning interface	Name of logical interface on which the MAC address was learned.
Learning VLAN	VLAN ID of the routing instance or bridge domain in which the MAC address was learned.
Layer 2 flags	Debugging flags signifying that the MAC address is present in various lists.
Epoch	Spanning Tree Protocol epoch number identifying when the MAC address was learned. Used for debugging.
Sequence number	Sequence number assigned to this MAC address. Used for debugging.
Learning mask	Mask of the Packet Forwarding Engines where this MAC address was learned. Used for debugging.
IPC generation	Creation time of the logical interface when this MAC address was learned. Used for debugging.

```

show bridge mac-table user@host> show bridge mac-table
MAC flags (S -static MAC, D -dynamic MAC,
          SE -Statistics enabled, NM -Non configured MAC)

```

```

Routing instance : vs1
Bridging domain : vlan100, VLAN : 100
  Learning MAC          MAC          Logical
  VLAN    address      flags    interface
          00:00:00:19:1c:db D      ge-11/0/3.0
          00:00:00:59:3a:2f D      xe-10/2/0.100

```

```

show bridge mac-table brief user@host> show bridge mac-table brief
MAC flags (S -static MAC, D -dynamic MAC,
          SE -Statistics enabled, NM -Non configured MAC)

```

```

Routing instance : vs1
Bridging domain : vlan100, VLAN : 100
  Learning MAC          MAC          Logical
  VLAN    address      flags    interface

```

```

00:00:00:19:1c:db  D      ge-11/0/3.0
00:00:00:59:3a:2f  D      xe-10/2/0.100

```

```

show brief mac-table user@host> show bridge mac-table count
count 2 MAC address learned in routing instance vs1 bridge domain vlan100

```

MAC address count per interface within routing instance:

Logical interface	MAC count
ge-11/0/3.0	1
ge-11/1/4.100	0
ge-11/1/1.100	0
ge-11/1/0.100	0
xe-10/2/0.100	1
xe-10/0/0.100	0

MAC address count per learn VLAN within routing instance:

Learn VLAN ID	MAC count
0	2

0 MAC address learned in routing instance vs1 bridge domain vlan200

MAC address count per interface within routing instance:

Logical interface	MAC count
ge-11/1/0.200	0
ge-11/1/1.200	0
ge-11/1/4.200	0
xe-10/0/0.200	0
xe-10/2/0.200	0

MAC address count per learn VLAN within routing instance:

Learn VLAN ID	MAC count
0	0

```

show bridge mac-table user@host> show bridge mac-table detail
detail MAC address: 00:00:00:19:1c:db
Routing instance: vs1
Bridging domain: vlan100
Learning interface: ge-11/0/3.0      Learning VLAN: 0
Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
Epoch: 4                          Sequence number: 0
Learning mask: 0x800                IPC generation: 0

MAC address: 00:00:00:59:3a:2f
Routing instance: vs1
Bridging domain: vlan100
Learning interface: xe-10/2/0.100    Learning VLAN: 0
Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
Epoch: 7                          Sequence number: 0
Learning mask: 0x400                IPC generation: 0

```

show bridge statistics

Syntax	show bridge statistics <bridge-domain <i>domain-name</i> > <instance <i>instance-name</i> >
Release Information	Command introduced in JUNOS Release 8.4.
Description	(MX-series routers only) Display bridge statistics.
Options	<p>none—Display bridge statistics for all bridge domains in all routing instances.</p> <p>bridge-domain <i>domain-name</i>—(Optional) Display statistics for the specified bridge domain.</p> <p>instance <i>instance-name</i>—(Optional) Display statistics for the specified routing instance.</p>
Required Privilege Level	view
List of Sample Output	show bridge statistics on page 608
Output Fields	to be provided

```

user@host> show bridge statistics
Information for routing instance:

Routing instance : __juniper_private1__
  Index: 1                      Sequence number: 0
  MAC limit: 5000                MACs learned: 0
  Static MACs learned: 0         Non config Static MACs learned: 0
  Handle: 0x829e800

Information for routing instance:

Routing instance : vs1
  Bridging domain : vlan100
  Index: 3                      Sequence number: 0
  MAC limit: 5120                MACs learned: 2
  Static MACs learned: 0         Non config Static MACs learned: 0
  Handle: 0x829e400
  Flags: Bridge instance, Config defined, VLAN : 100
  Local interface: ge-11/0/3.0, Index: 79
    Broadcast packets:          1
    Broadcast bytes :           65
    Multicast packets:          0
    Multicast bytes :           0
    Flooded packets :           0
    Flooded bytes :             0
    Unicast packets :           358624489
    Unicast bytes :             23310592305
    Current MAC count:          1 (Limit 1024)
  Local interface: ge-11/1/4.100, Index: 84
    Broadcast packets:          0
    Broadcast bytes :           0
    Multicast packets:          0
    Multicast bytes :           0

```

```

Flooded packets : 0
Flooded bytes : 0
Unicast packets : 0
Unicast bytes : 0
Current MAC count: 0 (Limit 1024)
Local interface: ge-11/1/1.100, Index: 86
Broadcast packets: 0
Broadcast bytes : 0
Multicast packets: 0
Multicast bytes : 0
Flooded packets : 0
Flooded bytes : 0
Unicast packets : 0
Unicast bytes : 0
Current MAC count: 0 (Limit 1024)
Local interface: ge-11/1/0.100, Index: 87
Broadcast packets: 0
Broadcast bytes : 0
Multicast packets: 0
Multicast bytes : 0
Flooded packets : 0
Flooded bytes : 0
Unicast packets : 0
Unicast bytes : 0
Current MAC count: 0 (Limit 1024)
Local interface: xe-10/2/0.100, Index: 88
Broadcast packets: 0
Broadcast bytes : 0
Multicast packets: 0
Multicast bytes : 0
Flooded packets : 0
Flooded bytes : 0
Unicast packets : 358627393
Unicast bytes : 23310781065
Current MAC count: 1 (Limit 1024)
Local interface: xe-10/0/0.100, Index: 89
Broadcast packets: 0
Broadcast bytes : 0
Multicast packets: 0
Multicast bytes : 0
Flooded packets : 0
Flooded bytes : 0
Unicast packets : 0
Unicast bytes : 0
Current MAC count: 0 (Limit 1024)

```

Information for routing instance:

```

Routing instance : vs1
Bridging domain : vlan200
Index: 4                      Sequence number: 0
MAC limit: 5120               MACs learned: 0
Static MACs learned: 0       Non config Static MACs learned: 0
Handle: 0x829e600
Flags: Bridge instance, Config defined, VLAN : 200
Local interface: ge-11/1/0.200, Index: 90
Broadcast packets: 0
Broadcast bytes : 0
Multicast packets: 0
Multicast bytes : 0
Flooded packets : 0

```

```

    Flooded bytes      : 0
    Unicast packets    : 0
    Unicast bytes      : 0
    Current MAC count: 0 (Limit 1024)
Local interface: ge-11/1/1.200, Index: 91
    Broadcast packets: 0
    Broadcast bytes   : 0
    Multicast packets: 0
    Multicast bytes   : 0
    Flooded packets   : 0
    Flooded bytes     : 0
    Unicast packets   : 0
    Unicast bytes     : 0
    Current MAC count: 0 (Limit 1024)
Local interface: ge-11/1/4.200, Index: 92
    Broadcast packets: 0
    Broadcast bytes   : 0
    Multicast packets: 0
    Multicast bytes   : 0
    Flooded packets   : 0
    Flooded bytes     : 0
    Unicast packets   : 0
    Unicast bytes     : 0
    Current MAC count: 0 (Limit 1024)
Local interface: xe-10/0/0.200, Index: 93
    Broadcast packets: 0
    Broadcast bytes   : 0
    Multicast packets: 0
    Multicast bytes   : 0
    Flooded packets   : 0
    Flooded bytes     : 0
    Unicast packets   : 0
    Unicast bytes     : 0
    Current MAC count: 0 (Limit 1024)
Local interface: xe-10/2/0.200, Index: 94
    Broadcast packets: 4
    Broadcast bytes   : 260
    Multicast packets: 0
    Multicast bytes   : 0
    Flooded packets   : 0
    Flooded bytes     : 0
    Unicast packets   : 0
    Unicast bytes     : 0
    Current MAC count: 0 (Limit 1024)

```


show l2-learning global-information

Syntax	show l2-learning global-information
Release Information	Command introduced in JUNOS Release 8.4.
Description	(MX-series routers only) Display Layer 2 learning process-related information for the entire router.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show l2-learning global-information on page 611
Output Fields	Table 161 on page 611 describes the output fields for the show l2-learning global-information command. Output fields are listed in the approximate order in which they appear.

Table 161: show l2-learning global-information Output Fields

Field Name	Field Description
MAC aging interval	Configured timeout interval, in seconds, for all MAC table entries.
MAC learning	Status of MAC learning: Enabled or Disabled.
MAC statistics	Status of MAC accounting: Enabled or Disabled.
MAC limit Count	Configured maximum limit on the number of MAC addresses that can be learned.
MAC limit hit flag	
MAC packet action drop	Status of action to drop packets after the configured MAC address limit is reached: Enabled (packets are dropped) or Disabled (packets are forwarded).

```

show l2-learning      user@host> show l2-learning global-information
global-information    Global Configuration:

                        MAC aging interval      : 300
                        MAC learning            : Enabled
                        MAC statistics           : Disabled
                        MAC limit Count          : 393215
                        MAC limit hit flag       : Disabled
                        MAC packet action drop   : Disabled

```

show l2-learning instance

Syntax	show l2-learning instance
Release Information	(MX-series routers only) Command introduced in JUNOS Release 8.4.
Description	Display Layer 2 learning properties for all the configured routing instances.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show l2-learning instance on page 612
Output Fields	Table 162 on page 612 describes the output fields for the show l2-learning instance command. Output fields are listed in the approximate order in which they appear.

Table 162: show l2-learning instance Output Fields

Field Name	Field Description
Routing Instance	Name of routing instance.
bridging domain	Name of bridging domain.
Index	Number associated with the routing instance or bridging domain.
Logical System	Name of logical system or Default if no logical system is configured.
Routing instance flags	Status of Layer 2 learning properties for each routing instance: <ul style="list-style-type: none"> ■ DL—MAC learning is disabled. ■ SE—MAC accounting is enabled. ■ AD—Packets are dropped after MAC address limit is reached. ■ LH—The maximum number of MAC addresses has been learned on the routing instance. The routing instance is not able to learn any additional MAC addresses.
MAC limit	Maximum number of MAC addresses that can be learned from each interface in the routing instance or bridging domain.

```

show l2-learning instance user@host> show l2-learning instance
Information for routing instance:

Routing Instance flags (DL -disable learning, SE -stats enabled,
                        AD -packet action drop, LH -mac limit hit)

Routing      Bridging      Index  Logical      Routing      MAC
Instance     Domain          Index  System       flags        limit
__juniper_private1__
vs1           vlan100         3      Default      5000
vs1           vlan200         4      Default      5120

```

show l2-learning interface

Syntax	show l2-learning interface
Release Information	Command introduced in JUNOS Release 8.4.
Description	(MX-series routers only) Display Layer 2 learning information for all the interfaces.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show l2-learning interface on page 613
Output Fields	Table 163 on page 613 describes the output fields for the show l2-learning interface command. Output fields are listed in the approximate order in which they appear.

Table 163: show l2-learning interface Output Fields

Field Name	Field Description
Logical interface	Name of the logical interface.
Index	Index of the interface.
Routing Instance	Number of the routing instance to which the interface belongs.
Interface device	Value of the order in which the JUNOS software finds and initializes the interface.
Logical interface flags	Status of Layer 2 learning properties for each interface: <ul style="list-style-type: none"> ■ DL—MAC learning is disabled. ■ SE—MAC accounting is enabled. ■ AD—Packets are dropped after the MAC interface limit is reached. ■ MAC limit—Maximum number of MAC addresses that can be learned from the interface.

show l2-learning interface user@host> **show l2-learning interface**
Information for interface family:

Logical Interface flags (DL -disable learning, SE -stats enabled,
AD -packet action drop, LH -mac limit hit)

Logical interface	Index	Routing instance	Interface device	Logical Interface flags	MAC limit
ge-11/0/3.0	79	3	136		1024
ge-11/1/4.100	84	3	150		1024
ge-11/1/1.100	86	3	147		1024
ge-11/1/0.100	87	3	146		1024
xe-10/2/0.100	88	3	144		1024
xe-10/0/0.100	89	3	129		1024
ge-11/1/0.200	90	4	146		1024
ge-11/1/1.200	91	4	147		1024

ge-11/1/4.200	92	4	150	1024
xe-10/0/0.200	93	4	129	1024
xe-10/2/0.200	94	4	144	1024

show mac-rewrite interface

Syntax	show mac-rewrite interface <interface-name> <brief detail>
Release Information	Command introduced in JUNOS Release 9.1.
Description	(MX-series routers only) Display Layer 2 protocol tunneling information.
Options	interface <i>interface-name</i> —(Optional) Display Layer 2 protocol tunneling information for the specified interface. brief detail—(Optional) Display the specified level of output.
Required Privilege Level	view
List of Sample Output	show mac-rewrite interface on page 615
Output Fields	Table 164 on page 615 lists the output fields for the show mac-rewrite interface command. Output fields are listed in the approximate order in which they appear.

Table 164: show mac-rewrite interface Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface that has Layer 2 protocol tunneling configured on it.	brief detail
Protocols	Layer 2 protocols being tunneled on this interface: Cisco Discovery Protocol (CDP), Spanning Tree Protocol (STP), or VLAN Trunk Protocol (VTP)	brief detail

```

show mac-rewrite interface user@host> show mac-rewrite interface
Interface Protocols
ge-1/0/1 STP VTP CDP

```


Chapter 18

Spanning Tree Operational Mode Commands

Table 165 on page 617 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol (MSTP). Commands are listed in alphabetical order.

Table 165: STP Operational Mode Commands

Task	Command
Clear STP protocol.	clear spanning-tree protocol-migration on page 618
Clear STP statistics.	clear spanning-tree statistics on page 619
Display STP bridge domain configuration and status.	show spanning-tree bridge on page 620
Display STP interface configuration and status.	show spanning-tree interface on page 625
Display MSTP configuration and status.	show spanning-tree mstp configuration on page 630
Display STP statistics.	show spanning-tree statistics on page 632



NOTE: For more STP-related interface commands, such as `show interface`, see the *JUNOS Interfaces Command Reference*.

For more STP-related bridging commands, such as `clear bridge`, `show bridge`, and `show l2-learning`, see “Layer 2 Bridging and Switching Operational Mode Commands” on page 593.

For information about how to configure STP, see the *JUNOS Routing Protocols Configuration Guide*.

clear spanning-tree protocol-migration

Syntax	clear spanning-tree protocol-migration <interface <i>interface-name</i> > <routing-instance <i>routing-instance-name</i> >
Release Information	Command introduced in JUNOS Release 9.0.
Description	Revert from the original IEEE 802.1D Spanning Tree Protocol (STP) back to the Rapid Spanning Tree Protocol after the force-version statement has been removed from the configuration.
Options	<p>none—Reset the STP protocol for all interfaces and all routing instances.</p> <p>interface <i>interface-name</i>—(Optional) Reset the STP protocol for the specified interface only.</p> <p>routing-instance <i>routing-instance-name</i>—(Optional) Reset the STP protocol for a particular routing instance.</p>
Additional Information	For information about the force-version statement, see the <i>JUNOS Routing Protocols Configuration Guide</i> .
Required Privilege Level	clear
clear spanning-tree protocol-migration	user@host> clear spanning-tree protocol-migration

clear spanning-tree statistics

Syntax	clear spanning-tree statistics <interface <i>interface-name</i> > <logical-system <i>logical-system-name</i> >
Release Information	Command introduced in JUNOS Release 8.4.
Description	Clear Spanning Tree Protocol statistics.
Options	<p>none—Reset STP counters for all interfaces for all routing instances on all logical systems.</p> <p>interface <i>interface-name</i>—(Optional) Clear STP statistics for the specified interface only.</p> <p>logical-system <i>logical-system-name</i>—(Optional) Clear STP statistics on a particular logical system.</p>
Required Privilege Level	clear
Related Topics	show spanning-tree statistics on page 632
List of Sample Output	clear stp statistics on page 619
clear stp statistics	user@host> clear stp statistics

show spanning-tree bridge

Syntax	show spanning-tree bridge <brief detail> <msti <i>msti-id</i> > <routing-instance <i>routing-instance-name</i> > <vlan-id <i>vlan-id</i> >
Release Information	Command introduced in JUNOS Release 8.4.
Description	Display the configured or calculated Spanning Tree Protocol (STP) parameters.
Options	<p>none—(Optional) Display brief STP bridge information for all Multiple Spanning Tree Instances (MSTIs).</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>msti <i>msti-id</i>—(Optional) Display STP bridge information for the specified MSTI.</p> <p>routing-instance <i>routing-instance-name</i>—(Optional) Display STP bridge information for the specified routing instance.</p> <p>vlan-id <i>vlan-id</i>—(Optional) Display STP bridge information for the specified VLAN.</p>
Required Privilege Level	view
List of Sample Output	<p>show spanning-tree bridge routing-instance on page 621</p> <p>show spanning-tree bridge msti on page 622</p> <p>show spanning-tree bridge vlan-id (MSTP) on page 622</p> <p>show spanning-tree bridge (VSTP) on page 623</p> <p>show spanning-tree bridge vlan-id (VSTP) on page 624</p>
Output Fields	Table 166 on page 620 lists the output fields for the show spanning-tree bridge command. Output fields are listed in the approximate order in which they appear.

Table 166: show spanning-tree bridge Output Fields

Field Name	Field Description
Routing instance name	Name of the routing instance under which the bridging domain is configured.
Context ID	An internally generated identifier.
Enabled protocol	Spanning Tree Protocol type enabled.
Root ID	Bridge ID of the elected spanning tree root bridge. The bridge ID consists of a configurable bridge priority and the MAC address of the bridge.
Root cost	Calculated cost to reach the root bridge from the bridge where the command is entered.

Table 166: show spanning-tree bridge Output Fields (continued)

Field Name	Field Description
Root port	Interface that is the current elected root port for this bridge.
CIST regional root	Bridge ID of the elected MSTP regional root bridge.
CIST internal root cost	Calculated cost to reach the regional root bridge from the bridge where the command is entered.
Hello time	Configured number of seconds between transmissions of configuration bridge protocol data units (BPDUs).
Maximum age	Configured maximum expected arrival time of hello bridge protocol data units (BPDUs).
Forward delay	Configured time an STP bridge port remains in the listening and learning states before transitioning to the forwarding state.
Hop count	Configured maximum number of hops a BPDU can be forwarded in the MSTP region.
Message age	Number of elapsed seconds since the most recent BPDU was received.
Number of topology changes	Total number of STP topology changes detected since the router last booted.
Time since last topology change	Number of elapsed seconds since the most recent topology change.
Bridge ID (Local)	Locally configured bridge ID. The bridge ID consists of a configurable bridge priority and the MAC address of the bridge.
Extended system ID	Internally generated system identifier.
MSTI regional root	Bridge ID of the elected MSTP regional root bridge.

**show spanning-tree
bridge routing-instance**

```
user@host> show spanning-tree bridge routing-instance vs1 detail
```

```
STP bridge parameters
```

```
Routing instance name      : vs1
Context ID                 : 1
Enabled protocol           : MSTP
```

```
STP bridge parameters for CIST
```

```
Root ID                   : 32768.00:13:c3:9e:c8:80
Root cost                  : 0
Root port                 : xe-10/2/0
CIST regional root        : 32768.00:13:c3:9e:c8:80
CIST internal root cost   : 22000
Hello time                 : 2 seconds
Maximum age                : 20 seconds
Forward delay              : 15 seconds
Hop count                  : 18
Message age                : 0
```

```

Number of topology changes      : 1
Time since last topology change : 1191 seconds
Local parameters
  Bridge ID                     : 32768.00:90:69:0b:7f:d1
  Extended system ID            : 1

STP bridge parameters for MSTI 1
MSTI regional root              : 32769.00:13:c3:9e:c8:80
Root cost                       : 22000
Root port                       : xe-10/2/0
Hello time                      : 2 seconds
Maximum age                     : 20 seconds
Forward delay                   : 15 seconds
Hop count                       : 18
Number of topology changes      : 1
Time since last topology change : 1191 seconds
Local parameters
  Bridge ID                     : 32769.00:90:69:0b:7f:d1
  Extended system ID            : 1

STP bridge parameters for MSTI 2
MSTI regional root              : 32770.00:13:c3:9e:c8:80
Root cost                       : 22000
Root port                       : xe-10/2/0
Hello time                      : 2 seconds
Maximum age                     : 20 seconds
Forward delay                   : 15 seconds
Hop count                       : 18
Number of topology changes      : 1
Time since last topology change : 1191 seconds
Local parameters
  Bridge ID                     : 32770.00:90:69:0b:7f:d1
  Extended system ID            : 1

```

```

show spanning-tree user@host> show spanning-tree bridge msti 1 routing-instance vs1 detail
bridge msti

```

```

STP bridge parameters
Routing instance name          : vs1
Context ID                    : 1
Enabled protocol               : MSTP

STP bridge parameters for MSTI 1
MSTI regional root            : 32769.00:13:c3:9e:c8:80
Root cost                     : 22000
Root port                     : xe-10/2/0
Hello time                    : 2 seconds
Maximum age                   : 20 seconds
Forward delay                  : 15 seconds
Hop count                     : 18
Number of topology changes    : 1
Time since last topology change : 1191 seconds
Local parameters
  Bridge ID                   : 32769.00:90:69:0b:7f:d1
  Extended system ID          : 1

```

```

show spanning-tree user@host> show spanning-tree bridge vlan-id 1 101 routing-instance vs1 detail
bridge vlan-id (MSTP)

```

```

STP bridge parameters
Routing instance name          : vs1
Context ID                    : 1
Enabled protocol               : MSTP

```

```

STP bridge parameters for CIST

```

```

Root ID                : 32768.00:13:c3:9e:c8:80
Root cost              : 0
Root port              : xe-10/2/0
CIST regional root     : 32768.00:13:c3:9e:c8:80
CIST internal root cost : 22000
Hello time             : 2 seconds
Maximum age            : 20 seconds
Forward delay          : 15 seconds
Hop count              : 18
Message age            : 0
Number of topology changes : 0
Local parameters
  Bridge ID            : 32768.00:90:69:0b:7f:d1
  Extended system ID    : 1
  Hello time           : 2 seconds
  Maximum age          : 20 seconds
  Forward delay        : 15 seconds
  Path cost method      : 32 bit
  Maximum hop count     : 20

```

show spanning-tree bridge (VSTP)

```

user@host> show spanning-tree bridge
STP bridge parameters
Routing instance name   : GLOBAL
Context ID              : 0
Enabled protocol        : RSTP
  Root ID               : 28672.00:90:69:0b:3f:d0
  Hello time            : 2 seconds
  Maximum age           : 20 seconds
  Forward delay         : 15 seconds
  Message age           : 0
  Number of topology changes : 58
  Time since last topology change : 14127 seconds
Local parameters
  Bridge ID             : 28672.00:90:69:0b:3f:d0
  Extended system ID    : 0

```

```

STP bridge parameters for bridge VLAN 10
  Root ID               : 28672.00:90:69:0b:3f:d0
  Hello time            : 2 seconds
  Maximum age           : 20 seconds
  Forward delay         : 15 seconds
  Message age           : 0
  Number of topology changes : 58
  Time since last topology change : 14127 seconds
Local parameters
  Bridge ID             : 28672.00:90:69:0b:3f:d0
  Extended system ID    : 0

```

```

STP bridge parameters for bridge VLAN 20
  Root ID               : 28672.00:90:69:0b:3f:d0
  Hello time            : 2 seconds
  Maximum age           : 20 seconds
  Forward delay         : 15 seconds
  Message age           : 0
  Number of topology changes : 58
  Time since last topology change : 14127 seconds
Local parameters
  Bridge ID             : 28672.00:90:69:0b:3f:d0
  Extended system ID    : 0

```

```
show spanning-tree bridge vlan-id (VSTP) user@host> show spanning-tree bridge vlan-id 10
STP bridge parameters
Routing instance name           : GLOBAL
Enabled protocol                 : RSTP

STP bridge parameters for VLAN 10
Root ID                         : 28672.00:90:69:0b:3f:d0
Hello time                      : 2 seconds
Maximum age                     : 20 seconds
Forward delay                   : 15 seconds
Message age                     : 0
Number of topology changes      : 58
Time since last topology change : 14127 seconds
Local parameters
  Bridge ID                     : 28672.00:90:69:0b:3f:d0
  Extended system ID            : 0
```

show spanning-tree interface

Syntax	show spanning-tree interface <msti <i>msti-id</i> > <routing-instance <i>routing-instance-name</i> > <vlan-id <i>vlan-id</i> > <brief detail>
Release Information	Command introduced in JUNOS Release 8.4.
Description	Display the configured or calculated interface-level STP parameters.
Options	none—Display brief STP interface information. msti <i>msti-id</i> —(Optional) Display STP interface information for the specified MST instance. routing-instance <i>routing-instance-name</i> —(Optional) Display STP interface information for the specified routing instance. vlan-id <i>vlan-id</i> —(Optional) Display STP interface information for the specified VLAN. brief detail—(Optional) Display the specified level of output.
Required Privilege Level	view
List of Sample Output	show spanning-tree interface on page 626 show spanning-tree interface detail on page 626 show spanning-tree interface msti on page 628 show spanning-tree interface msti on page 628 show spanning-tree interface (VSTP) on page 629 show spanning-tree interface vlan-id (VSTP) on page 629
Output Fields	Table 167 on page 625 lists the output fields for the show spanning-tree Interface command. Output fields are listed in the approximate order in which they appear.

Table 167: show spanning-tree Interface Output Fields

Field Name	Field Description
Interface name	Interface configured to participate in the STP, RSTP, VSTP, or MSTP instance.
Port ID	Logical interface identifier configured to participate in the MSTP or VSTP instance.
Designated port ID	Port ID of the designated port for the LAN segment to which this interface is attached.
Designated bridge ID	Bridge ID of the designated bridge for the LAN segment to which this interface is attached.
Port Cost	Configured cost for the interface.

Table 167: show spanning-tree interface Output Fields (continued)

Field Name	Field Description
Port State	STP port state. Forwarding (FWD), blocking (BLK), listening, learning, or disabled.
Port Role	MSTP, VSTP, or RSTP port role. Designated (DESG), backup (BKUP), alternate (ALT), root, or Root Prevented (Root-Prev).
Link type	MSTP, VSTP, or RSTP link type. Shared or point-to-point (pt-pt) and edge or nonedge.
Alternate	Identifies the interface as an MSTP, VSTP, or RSTP alternate root port (yes) or nonalternate root port (no).
Boundary Port	Identifies the interface as an MSTP regional boundary port (yes) or nonboundary port (no).

show spanning-tree interface

```
user@host> show spanning-tree interface routing-instance vs1 detail
Spanning tree interface parameters for instance 0
```

Interface	Port ID	Designated port ID	Designated bridge ID	Port Cost	State	Role
ae1	128:1	128:1	32768.0090690b47d1	1000	FWD	DESG
ge-2/1/2	128:2	128:2	32768.0090690b47d1	20000	FWD	DESG
ge-2/1/5	128:3	128:3	32768.0090690b47d1	29999	FWD	DESG
ge-2/2/1	128:4	128:26	32768.0013c39ec880	20000	FWD	ROOT
xe-9/2/0	128:5	128:5	32768.0090690b47d1	2000	FWD	DESG
xe-9/3/0	128:6	128:6	32768.0090690b47d1	2000	FWD	DESG

Spanning tree interface parameters for instance 1

Interface	Port ID	Designated port ID	Designated bridge ID	Port Cost	State	Role
ae1	128:1	128:1	32769.0090690b47d1	1000	FWD	DESG
ge-2/1/2	128:2	128:2	32769.0090690b47d1	20000	FWD	DESG
ge-2/1/5	128:3	128:3	32769.0090690b47d1	29999	FWD	DESG
ge-2/2/1	128:4	128:26	32769.0013c39ec880	20000	FWD	ROOT
xe-9/2/0	128:5	128:5	32769.0090690b47d1	2000	FWD	DESG
xe-9/3/0	128:6	128:6	32769.0090690b47d1	2000	FWD	DESG

Spanning tree interface parameters for instance 2

Interface	Port ID	Designated port ID	Designated bridge ID	Port Cost	State	Role
ae1	128:1	128:1	32770.0090690b47d1	1000	FWD	DESG
ge-2/1/2	128:2	128:2	32770.0090690b47d1	20000	FWD	DESG
ge-2/1/5	128:3	128:3	32770.0090690b47d1	29999	FWD	DESG
ge-2/2/1	128:4	128:26	32770.0013c39ec880	20000	FWD	ROOT
xe-9/2/0	128:5	128:5	32770.0090690b47d1	2000	FWD	DESG
xe-9/3/0	128:6	128:6	32770.0090690b47d1	2000	FWD	DESG

show spanning-tree interface detail

```
user@host> show spanning-tree interface routing-instance vs1 detail
Spanning tree interface parameters for instance 0
```

```
Interface name          : ae1
```



```

Port identifier           : 128.1
Designated port ID       : 128.1
Port cost                 : 1000
Port state                : Forwarding
Designated bridge ID     : 32768.00:90:69:0b:47:d1
Port role                 : Designated
Link type                 : Pt-Pt/NONEDGE
Boundary port             : No

```

```

Interface name           : ge-2/1/2
Port identifier           : 128.2
Designated port ID       : 128.2
Port cost                 : 20000
Port state                : Forwarding
Designated bridge ID     : 32768.00:90:69:0b:47:d1
Port role                 : Designated
Link type                 : Pt-Pt/NONEDGE
Boundary port             : No

```

```

Interface name           : ge-2/1/5
Port identifier           : 128.3
Designated port ID       : 128.3
Port cost                 : 29999
Port state                : Forwarding
Designated bridge ID     : 32768.00:90:69:0b:47:d1
Port role                 : Designated
Link type                 : Pt-Pt/NONEDGE
Boundary port             : No

```

```

Interface name           : ge-2/2/1
Port identifier           : 128.4
Designated port ID       : 128.26
Port cost                 : 20000
Port state                : Forwarding
Designated bridge ID     : 32768.00:13:c3:9e:c8:80
Port role                 : Root
Link type                 : Pt-Pt/NONEDGE
Boundary port             : No

```

```

Interface name           : xe-9/2/0
Port identifier           : 128.5
Designated port ID       : 128.5
Port cost                 : 2000
Port state                : Forwarding
Designated bridge ID     : 32768.00:90:69:0b:47:d1
Port role                 : Designated
Link type                 : Pt-Pt/NONEDGE
Boundary port             : No

```

```

Interface name           : xe-9/3/0
Port identifier           : 128.6
Designated port ID       : 128.6
Port cost                 : 2000
Port state                : Forwarding
Designated bridge ID     : 32768.00:90:69:0b:47:d1
Port role                 : Designated
Link type                 : Pt-Pt/NONEDGE
Boundary port             : No

```

Spanning tree interface parameters for instance 1

```

Interface name           : ae1
Port identifier          : 128.1
Designated port ID      : 128.1
Port cost                : 1000
Port state               : Forwarding
Designated bridge ID    : 32768.00:90:69:0b:47:d1
Port role                : Designated
Link type               : Pt-Pt/NONEDGE
Boundary port           : No

Interface name           : ge-2/1/2
Port identifier          : 128.2
Designated port ID      : 128.2
Port cost                : 20000
Port state               : Forwarding
Designated bridge ID    : 32768.00:90:69:0b:47:d1
Port role                : Designated
Link type               : Pt-Pt/NONEDGE
Boundary port           : No

Interface name           : ge-2/1/5
Port identifier          : 128.3
Designated port ID      : 128.3
Port cost                : 29999
Port state               : Forwarding
Designated bridge ID    : 32768.00:90:69:0b:47:d1
Port role                : Designated
Link type               : Pt-Pt/NONEDGE
Boundary port           : No

Interface name           : ge-2/2/1
Port identifier          : 128.4
Designated port ID      : 128.26
Port cost                : 20000
Port state               : Forwarding
Designated bridge ID    : 32768.00:13:c3:9e:c8:80
Port role                : Root
Link type               : Pt-Pt/NONEDGE
Boundary port           : No

...

```

```

show spanning-tree interface msti user@host> show spanning-tree interface msti 1 routing-instance vs1 detail
Spanning tree interface parameters for instance 1

```

Interface	Port ID	Designated port ID	Designated bridge ID	Port Cost	State	Role
xe-7/0/0	128:1	128:1	32769.0090690b4fd1	2000	FWD	DESG
ge-5/1/0	128:2	128:2	32769.0090690b4fd1	20000	FWD	DESG
ge-5/1/1	128:3	128:3	32769.0090690b4fd1	20000	FWD	DESG
ae1	128:4	128:1	32769.0090690b47d1	10000	BLK	ALT
ge-5/1/4	128:5	128:3	32769.0090690b47d1	20000	BLK	ALT
xe-7/2/0	128:6	128:6	32769.0090690b47d1	2000	FWD	ROOT

```

show spanning-tree interface msti user@host> show spanning-tree interface vlan-id 101 routing-instance vs1 detail
Spanning tree interface parameters for instance 0

```

Interface	Port ID	Designated port ID	Designated bridge ID	Port Cost	State	Role
ge-11/0/5	128:1	128:1	32768.0090690b7fd1	20000	FWD	DESG

ge-11/0/6	128:2	128:1	32768.0090690b7fd1	20000	BLK	BKUP
ge-11/1/0	128:3	128:2	32768.0090690b4fd1	20000	BLK	ALT
ge-11/1/1	128:4	128:3	32768.0090690b4fd1	20000	BLK	ALT
ge-11/1/4	128:5	128:1	32768.0090690b47d1	20000	BLK	ALT
xe-10/0/0	128:6	128:5	32768.0090690b4fd1	2000	BLK	ALT
xe-10/2/0	128:7	128:4	32768.0090690b47d1	2000	FWD	ROOT

show spanning-tree interface (VSTP) user@host> **show spanning-tree interface**
Spanning tree interface parameters for instance 0

Interface	Port ID	Designated port ID	Designated bridge ID	Cost	State	Role
ge-1/0/1	128:1	128:1	28672.0090690b3fe0	20000	FWD	DESG
ge-1/0/2	128:2	128:2	28672.0090690b3fe0	20000	FWD	DESG

Spanning tree interface parameters for VLAN 10

Interface	Port ID	Designated port ID	Designated bridge ID	Cost	State	Role
ge-1/0/1	128:1	128:1	28672.0090690b3fe0	20000	FWD	DESG
ge-1/0/2	128:2	128:2	28672.0090690b3fe0	20000	FWD	DESG

Spanning tree interface parameters for VLAN 20

Interface	Port ID	Designated port ID	Designated bridge ID	Cost	State	Role
ge-1/0/1	128:1	128:1	28672.0090690b3fe0	20000	FWD	DESG
ge-1/0/2	128:2	128:2	28672.0090690b3fe0	20000	FWD	DESG

show spanning-tree interface vlan-id (VSTP) user@host> **show spanning-tree interface vlan-id 10**
Spanning tree interface parameters for VLAN 10

Interface	Port ID	Designated port ID	Designated bridge ID	Cost	State	Role
ge-1/0/1	128:1	128:1	28672.0090690b3fe0	20000	FWD	DESG
ge-1/0/2	128:2	128:2	28672.0090690b3fe0	20000	FWD	DESG

show spanning-tree mstp configuration

Syntax	show spanning-tree mstp configuration <routing-instance <i>routing-instance-name</i> > <brief detail>
Release Information	Command introduced in JUNOS Release 8.4.
Description	Display the MSTP configuration.
Options	none—Display MSTP configuration information. routing-instance <i>routing-instance-name</i> —(Optional) Display MSTP configuration information for the specified routing instance. brief detail—(Optional) Display the specified level of output.
Required Privilege Level	view
List of Sample Output	show spanning-tree mstp configuration on page 630
Output Fields	Table 168 on page 630 lists the output fields for the show spanning-tree mstp configuration command. Output fields are listed in the approximate order in which they appear.

Table 168: show spanning-tree mstp configuration Output Fields

Field Name	Field Description
Context id	Internally generated identifier.
Region name	MSTP region name carried in the MSTP BPDUs.
Revision	Revision number of the MSTP configuration.
Configuration digest	Numerical value derived from the VLAN-to-instance mapping table.
MSTI ID	MSTI instance identifier.
Member VLANs	VLAN identifiers associated with the MSTI.

```

show spanning-tree mstp configuration  user@host> show spanning-tree mstp configuration routing-instance vs1 detail
MSTP configuration information
Context identifier      : 1
Region name            : henry
Revision               : 3
Configuration digest   : 0x6da4b5c4fd587757eef35675365e1

MSTI      Member VLANs
0 0-99,101-199,201-4094

```

```
1 100
2 200
```

show spanning-tree statistics

Syntax	show spanning-tree statistics <routing-instance <i>routing-instance-name</i> > <brief detail >
Release Information	Command introduced in JUNOS Release 8.4.
Description	Display STP statistics.
Options	<p>none—Display brief STP statistics.</p> <p>routing-instance <i>routing-instance-name</i>—(Optional) Display STP statistics for the specified routing instance.</p> <p>brief detail—(Optional) Display the specified level of output.</p>
Required Privilege Level	view
List of Sample Output	<p>show spanning-tree statistics routing-instance on page 632</p> <p>show spanning-tree statistics interface on page 633</p>
Output Fields	Table 169 on page 632 lists the output fields for the show spanning-tree statistics command. Output fields are listed in the approximate order in which they appear.

Table 169: show spanning-tree statistics Output Fields

Field Name	Field Description
Message type	Type of message being counted.
BPDUs sent	Total number of BPDUs sent.
BPDUs received	Total number of BPDUs received.
BPDUs sent in last 5 secs	Number of BPDUs sent in the most recent 5-second period.
BPDUs received in last 5 secs	Number of BPDUs received in the most recent 5-second period.
Interface	Interface for which the statistics are being displayed.
Next BPDU transmission	Number of seconds until the next BPDU is scheduled to be sent.

```

show spanning-tree      user@host> show spanning-tree statistics routing-instance vs1 detail
statistics             Routing instance level STP statistics
routing-instance      Message type                : bpdus
                        BPDUs sent                  : 121
                        BPDUs received                : 537
                        BPDUs sent in last 5 secs      : 5
                        BPDUs received in last 5 secs  : 27

```

show spanning-tree statistics interface

user@host> show spanning-tree statistics interface ge-11/1/4 routing-instance vs1 detail

Interface	BPDUs sent	BPDUs received	Next BPDU transmission
ge-11/1/4	7	190	0

Part 5

VPNs

- VPN Operational Mode Commands on page 637

Chapter 19

VPN Operational Mode Commands

Table 170 on page 637 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Layer 2 circuits, Layer 2 virtual private networks (VPNs), virtual private LAN service (VPLS), and Layer 3 VPNs. Commands are listed in alphabetical order.

Table 170: Layer 2 Circuit, Layer 2 VPN, and VPLS Operational Mode Commands

Task	Command
Clear MAC address entries from the VPLS table.	clear vpls mac-address on page 639
Display Layer 3 dynamic tunnel database information.	show dynamic-tunnels database on page 641
Display Layer 2 circuit information.	show l2circuit connections on page 643
Display Layer 2 VPN information.	show l2vpn connections on page 647
Display multicast VPN c-multicast route information.	show mvpn c-multicast on page 650
Display multicast VPN instance information.	show mvpn instance on page 652
Display multicast VPN neighbor information.	show mvpn neighbor on page 655
Display virtual private LAN service (VPLS) information.	show vpls connections on page 658
Display the pending events in the l2ald process rtsock update queue.	show vpls flood event-queue on page 663
Display VPLS information related to the l2ald process for the specified routing instance.	show vpls flood instance on page 665
Display VPLS route information related to the l2ald process.	show vpls flood route on page 667
Display learned VPLS MAC address information.	show vpls mac-table on page 669
Display VPLS statistics.	show vpls statistics on page 673



NOTE: For information about how to configure Layer 2 circuits, Layer 2 VPNs, VPLS, and Layer 3 VPNs, see the *JUNOS VPNs Configuration Guide*.

clear vpls mac-address

Syntax	clear vpls mac-address <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <mac-address>
Release Information	Command introduced before JUNOS Release 7.4.
Description	(T-series and M-series routing platforms, except for the M160 router.) Clear media access control (MAC) address entries from the virtual private LAN service (VPLS) table.
Options	<p>none—Clear all MAC address entries from the VPLS table for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Clear all MAC address entries for a VPLS instance from the VPLS table.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>mac-address—(Optional) Clear a specific MAC address in a VPLS instance from the VPLS table.</p>
Required Privilege Level	maintenance
List of Sample Output	clear vpls mac-address on page 639
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear vpls mac-address	user@host> clear vpls mac-address

request l2circuit-switchover

Syntax	request l2circuit-switchover <logical-system (all logical-system-name)> <neighbor <i>address</i> > <virtual-circuit-id <i>identifier</i> >
Release Information	Command introduced in JUNOS Release 9.2.
Description	Manually triggers a switch from the active pseudowire to the redundant pseudowire. This command can be useful when performing network maintenance.
Options	<p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>neighbor <i>address</i>—(Optional) Triggers a switch of all of the active pseudowire connections with the specified neighbor to their respective redundant pseudowires.</p> <p>virtual-circuit-id <i>identifier</i>—(Optional) Triggers a switch from the active pseudowire connection of the specified Layer 2 circuit to its redundant pseudowire.</p>
Required Privilege Level	maintenance
List of Sample Output	request l2circuit-switchover virtual-circuit-id on page 640
Output Fields	When you enter this command, you are provided feedback on the status of your request.
request l2circuit-switchover virtual-circuit-id	user@host>request l2circuit-switchover virtual-circuit-id 12

show dynamic-tunnels database

Syntax	show dynamic-tunnels database <destination> <logical-system (all <i>logical-system-name</i>) > <table <i>routing-table-name</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display dynamic tunnel database information.
Options	<p>none—Display dynamic tunnel database information for all destinations and routing tables on all logical systems.</p> <p><i>destination</i>—(Optional) Display database entries for the specified IP address (with optional destination prefix length) only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>table <i>routing-table-name</i>—(Optional) Display database entries for the specified table only.</p>
Required Privilege Level	view
List of Sample Output	show dynamic-tunnels database (Tunnel is Up) on page 642 show dynamic-tunnels database (No Tunnel PIC) on page 642 show dynamic-tunnels database (Tunnel Is Expiring) on page 642 show dynamic-tunnels database (Destination Specified) on page 642
Output Fields	Table 171 on page 641 lists the output fields for the <code>show dynamic-tunnels database</code> command. Output fields are listed in the approximate order in which they appear.

Table 171: show dynamic-tunnels database Output Fields

Field Name	Field Description
Table	Name of the routing table (for example, inet.0).
Destination-network	Destination IP address and subnet.
Tunnel to	Destination IP address and prefix of the tunnel.
State	State of the tunnel: Up, Up (expires in <i>nn:nn:nn</i> seconds), or Dn (down).
Reference count	Number of routes across the dynamic tunnel that are currently being resolved.
Next-hop type	Type of tunnel: GRE.
Source address	Source IP address of the tunnel.
Next-hop	IP address of the destination interface.

Table 171: show dynamic-tunnels database Output Fields *(continued)*

Field Name	Field Description
State	State of the destination interface: Up, Dn, or Dn (no tunnel pic).

show dynamic-tunnels database (Tunnel is Up) user@host> **show dynamic-tunnels database**
Table: inet.3

```
Destination-network: 10.255.120.94/32
Tunnel to: 10.255.120.94/32 State: Up
Reference count: 2
Next-hop type: gre
Source address: 10.255.120.92
Next hop: gr-4/3/0.32769
State: Up
```

show dynamic-tunnels database (No Tunnel PIC) user@host> **show dynamic-tunnels database**
Table: inet.3

```
Destination-network: 10.255.120.94/32
Tunnel to: 10.255.120.94/32 State: Dn
Reference count: 2
Next-hop type: gre
Source address: 10.255.120.92
State: Dn (no tunnel pic)
```

show dynamic-tunnels database (Tunnel Is Expiring) user@host> **show dynamic-tunnels database**
Table: inet.3

```
Destination-network: 10.255.120.94/32
Tunnel to: 10.255.120.94/32 State: Up (expires in 00:14:56 seconds)
Reference count: 0
Next-hop type: gre
Source address: 10.255.120.92
Next hop: gr-4/3/0.32769
State: Up
```

show dynamic-tunnels database (Destination Specified) user@host> **show dynamic-tunnels database 10.255.120.94**
Table: inet.3

```
Destination-network: 10.255.120.94/32
Tunnel to: 10.255.120.94/32 State: Up
Reference count: 2
Next-hop type: gre
Source address: 10.255.120.92
Next hop: gr-4/3/0.32769
State: Up
```


show l2circuit connections

Syntax	show l2circuit connections <brief extensive history status summary> <down up up-down> <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)> <neighbor <i>neighbor</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display status information about Layer 2 virtual circuits (VCs) from the local provider edge (PE) router to its neighbors.
Options	<p>none—Display standard information about Layer 2 virtual circuits on all interfaces for all neighbors on all logical systems.</p> <p>brief extensive history status summary—(Optional) Display the specified level of output. Use history to display information about connection history. Use status to display information about the connection and interface status.</p> <p>down up up-down—(Optional) Display nonoperational, operational, or both kinds of connections.</p> <p>interface <i>interface-name</i>—(Optional) Show all Layer 2 VCs on an interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>neighbor <i>neighbor</i>—(Optional) IP address of a specific neighbor.</p>
Required Privilege Level	view
List of Sample Output	show l2circuit connections extensive on page 645
Output Fields	Table 172 on page 643 lists the output fields for the <code>show l2circuits connections</code> command. Output fields are listed in the approximate order in which they appear.

Table 172: show l2circuits connections Output Fields

Field Name	Field Description
Layer-2 Circuit Connections	Displays the legends for connection and interface status.
Neighbor	Remote PE neighbor.
Interface	Logical PE-to-CE interface on which the VC is configured.
Type	VC type: rmt (remote) or loc (local).

Table 172: show l2circuits connections Output Fields (continued)

Field Name	Field Description
Legend for connection status (St)	<p>Status of the VC connection:</p> <ul style="list-style-type: none"> ■ EI—The local VC interface is configured with an encapsulation that is not supported. ■ MM—The two routers do not agree on an MTU value, which causes an MTU mismatch. ■ EM—The encapsulation type received on this VC from the neighbor does not match the local VC interface encapsulation type. ■ CM—The two routers do not agree on a control word, which causes a control word mismatch. ■ VM—The remote and local VLAN IDs do not match across the Layer 2 circuit. ■ OL—No advertisement has been received for this VC from the neighbor. There is no outgoing label available for use by this VC. ■ NC—The interface is not configured as a CCC or TCC interface. ■ CB—The remote PE router is advertising a different cell bundle from that configured on the local PE router. ■ NP—The router detects that interface hardware is not present. The hardware may be offline, a PIC may not be of the desired type, or the interface may be configured in a different routing instance. ■ Dn—The VC is down because the local VC interface is down. ■ VC-Dn—The VC is down because there is no tunnel LSP from the local PE router to the neighbor. ■ UP—The VC is operational. ■ CF—The router cannot find enough bandwidth to the remote router to satisfy the Layer 2 circuit bandwidth requirement. ■ XX—The VC is down for an unknown reason. This is a programming error.
Time last up	Date and time the VC was last operational.
# Up trans	Number of times the VC came up.
local-interface-name	Name of the local PE-to-CE interface.
Status	Status of the local interface.
Up	Interface is operational.
Dn	Interface is not operational.
NP	Not present. Interface does not exist.
DS	Disabled. Interface has been administratively disabled.
WE	Wrong encapsulation. The interface is not configured as CCC.
UN	Interface status is initialized.
Remote PE	Prefix of the remote PE router.

Table 172: show l2circuits connections Output Fields (continued)

Field Name	Field Description
Negotiated control-word	Whether the use of the control word has been negotiated for this VC: Yes (Null) or No.
Incoming label	Label used by the remote side of the VC to send packets destined to the local side. This label is routed to the local VC interface.
Outgoing label	Label used by the local side of the VC to send packets to the remote side of the VC. Packets originated on the local VC interface are encapsulated with this label before being placed on the tunnel LSP to the neighbor for this VC. This label is allocated by the neighbor and is used in demultiplexing incoming packets destined for this VC.
VC bandwidth	Bandwidth requirement of the Layer 2 circuit.
Time	Time at which the event occurred.
Event	Event types logged in history. <ul style="list-style-type: none"> ■ loc intf up—Local VC interface went up. ■ loc intf down—Local VC interface went down. ■ In lbl Update—Incoming label has been updated. ■ Out lbl Update—Outgoing label has been updated. ■ PE route changed—Route to PE router has been updated. ■ PE route down—Route to PE router is down. ■ rmt side marked—Remote side is marked. ■ VC Dn—Remote side indicated that its end of the VC is down (if the tunnel LSP from the remote side to the local side is down). ■ status update timer—Status update timer processing. It computes the state of the VC, and determines whether it should be advertised or withdrawn to or from the remote side.
Interface/Lbl/PE	Name associated with an event. It can be the name of the interface, the name of the new label, or if the route to a PE router changed, the name of the PE router that went down.
(vc-number)	Unique number (between 1 and $2^{32} - 1$) that identifies the VC configured between two PE routers, but not across the entire network. A VC identifier in conjunction with a neighbor address uniquely identifies the VC.

show l2circuit connections extensive

```
user@host>show l2circuit connections extensive
Layer-2 Circuit Connections:
```

Legend for connection status (St)

EI -- encapsulation invalid	NP -- interface h/w not present
MM -- mtu mismatch	Dn -- down
EM -- encapsulation mismatch	VC-Dn -- Virtual circuit Down
CM -- control-word mismatch	Up -- operational
VM -- vlan id mismatch	CF -- Call admission control failure
OL -- no outgoing label	XX -- unknown
NC -- intf encaps not CCC/TCC	
CB -- rcvd cell-bundle size bad	

Neighbor: 10.1.1.195

Interface	Type	St	Time	last up	# Up	trans
so-0/1/0.1 (vc 1 primary-W)	rmt	Up	Oct 8 15:44:19	2001	1	

Local interface: so-0/1/0.1, Status: Up

Remote PE: 10.1.1.195, , Negotiated control-word: Yes (Null)

Incoming label: 100002, Outgoing label: 138264604

Time	Event	Interface/Lbl/PE
Oct 8 15:44:19 2001	status update timer	
Oct 8 15:44:18 2001	PE route changed	
Oct 8 15:44:18 2001	Out lbl Update	138264604
Oct 8 15:44:18 2001	In lbl Update	100002
Oct 8 15:44:18 2001	loc intf up	so-0/1/0.1

Oct 8 15:44:19 2001 status update timer

Oct 8 15:44:18 2001 PE route changed

Oct 8 15:44:18 2001 Out lbl Update 138264604

Oct 8 15:44:18 2001 In lbl Update 100002

Oct 8 15:44:18 2001 loc intf up so-0/1/0.1

Interface	Type	St	Time	last up	# Up	trans
so-0/1/0.2 (vc 1 primary-W)	rmt	Up	Oct 8 15:44:19	2001	1	

Local interface: so-0/1/0.2, Status: Up

Remote PE: 10.1.1.195, , Negotiated control-word: Yes (Null)

Incoming label: 100003, Outgoing label: 138264604

Time	Event	Interface/Lbl/PE
Oct 8 15:44:19 2001	status update timer	
Oct 8 15:44:17 2001	PE route changed	
Oct 8 15:44:17 2001	Out lbl Update	138264604
Oct 8 15:44:17 2001	In lbl Update	100003
Oct 8 15:44:17 2001	loc intf up	so-0/1/0.2

Oct 8 15:44:19 2001 status update timer

Oct 8 15:44:17 2001 PE route changed

Oct 8 15:44:17 2001 Out lbl Update 138264604

Oct 8 15:44:17 2001 In lbl Update 100003

Oct 8 15:44:17 2001 loc intf up so-0/1/0.2

show l2vpn connections

Syntax	show l2vpn connections <brief extensive history status summary> <down up up-down> <instance <i>instance</i> > <local-site <i>local-site</i> > <logical-system (all <i>logical-system-name</i>)> <remote-site <i>remote-site</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display Layer 2 virtual private network (VPN) connections.
Options	<p>none—Display all Layer 2 VPN connections for all routing instances on all logical systems.</p> <p>brief extensive history status summary—(Optional) Display the specified level of output. Use history to display information about connection history. Use status to display information about the connection and interface status.</p> <p>down up up-down—(Optional) Display nonoperational, operational, or both kinds of connections.</p> <p>instance <i>instance</i>—(Optional) Display connections for the specified routing instance only.</p> <p>local-site <i>local-site</i>—(Optional) Display connections for the specified Layer 2 VPN local site name or ID only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>remote-site <i>remote-site</i>—(Optional) Display connection for the specified Layer 2 VPN remote site name or ID only.</p>
Required Privilege Level	view
List of Sample Output	<p>show l2vpn connections on page 649</p> <p>show l2vpn connections extensive on page 649</p>
Output Fields	Table 173 on page 647 lists the output fields for the show l2vpn connections command. Output fields are listed in the approximate order in which they appear.

Table 173: show l2vpn connections Output Fields

Field Name	Field Description
Instance	Name of Layer 2 VPN instance.
Local site	Name of local site.

Table 173: show l2vpn connections Output Fields *(continued)*

Field Name	Field Description
Interface name	Name of interface.
Remote Site ID	Remote site ID.
Label Offset	Numbers within the label block that are skipped to find the next label base.
Label-base	Advertises the first label in a block of labels. A remote PE router uses this first label when sending traffic toward the advertising PE router.
Range	Advertises the label block size.
status-vector	Bit vector advertising the state of local PE-CE circuits to remote PE routers. A bit value of 0 indicates that the local circuit and LSP tunnel to the remote PE router are up, whereas a value of 1 indicates either one or both are down.
connection-site	Name of the connection site.
Type	Type of connection: loc (local) or rmt (remote).
St	Status of the connection. (For a list of possible values, see the Legend for connection status (St) field.)
Time last up	Time that the connection was last in the Up condition.
# Up trans	Number of transitions from Down to Up condition.
Local circuit	Address and status of local circuit.
Remote circuit	Address and status of remote circuit.
Status	Status of local or remote circuit: <ul style="list-style-type: none"> ■ Up—Operational ■ Dn—Down ■ NP—Not present ■ DS—Disabled ■ WE—Wrong encapsulation ■ UN—Uninitialized
Remote PE	Address of the remote provider edge router.
Incoming label	Name of the incoming label.
Outgoing label	Name of the outgoing label.
Time	Date and time of Layer 2 VPN connection event.
Event	Type of event.
Interface/Lbl/PE	Interface, label, or PE router.

```

show l2vpn connections user@host> show l2vpn connections
L2VPN Connections :
Instance : vpn-a
Local site: 2 (ce-2)
offset: 1, range: 3, label-base: 32768
  connection-site      Type  St  Time last up      # Up trans
  3 (3)                loc   Up   Jul 18 20:45:46 2001      1
    Local circuit: fe-0/0/0.1, Status: Up
    Remote circuit: fe-0/0/3.0, Status: Up
  1                    rmt   Up   Jul 18 21:47:25 2001      1
    Local circuit: fe-0/0/0.0, Status: Up
    Remote PE: 192.168.16.1
    Incoming label: 32768, Outgoing label: 32769
Local site: 3 (ce-3)
offset: 1, range: 2, label-base: 33792
  connection-site      Type  St  Time last up      # Up trans
  2 (ce-b)             loc   Up   Jul 18 20:45:46 2001      1
    Local circuit: fe-0/0/0.1, Status: Up
    Remote circuit: fe-0/0/3.0, Status: Up
  1                    rmt   Up   Jul 18 21:47:25 2001      1
    Local circuit: fe-0/0/3.1, Status: Up
    Remote PE: 192.168.16.1
    Incoming label: 33792, Outgoing label: 32770

show l2vpn connections extensive user@host> show l2vpn connections extensive
L2VPN Connections:

Legend for connection status (St)
EI -- encapsulation invalid      NC -- interface encapsulation not CCC/TCC/VPLS
EM -- encapsulation mismatch     WE -- interface and instance encaps not same
VC-Dn -- Virtual circuit down   NP -- interface hardware not present
CM -- control-word mismatch     -> -- only outbound connection is up
CN -- circuit not provisioned    <- -- only inbound connection is up
OR -- out of range              Up -- operational
OL -- no outgoing label         Dn -- down
LD -- local site signaled down   CF -- call admission control failure
RD -- remote site signaled down  SC -- local and remote site ID collision
LN -- local site not designated  LM -- local site ID not minimum designated
RN -- remote site not designated RM -- remote site ID not minimum designated
XX -- unknown connection status  IL -- no incoming label

Instance: vpn-a
Local site: ce-a (1)
Interface name      Remote Site ID
fe-0/0/0.0          2
Label Offset      Offset      Range
32768             1          2
  connection-site      Type  St  Time last up      # Up trans
  2                    rmt   Up   Aug 3 00:08:14 2001      1
    Local circuit: fe-0/0/0.0, Status: Up
    Remote PE: 192.168.24.1
    Incoming label: 32769, Outgoing label: 32768
    Time              Event              Interface/Lbl/PE
    Aug 3 00:08:14 2001 PE route up
    Aug 3 00:08:14 2001 Out lbl Update              32768
    Aug 3 00:08:14 2001 In lbl Update              32769
    Aug 3 00:08:14 2001 ckt0 up                    fe-0/0/0.0

```

show mvpn c-multicast

Syntax	show mvpn c-multicast <extensive> <instance-name <i>instance-name</i> > <summary>
Release Information	Command introduced in JUNOS Release 8.4.
Description	Display the multicast VPN customer multicast route information.
Options	extensive summary—(Optional) Display the specified level of output. instance-name <i>instance-name</i> —(Optional) Display output for the specified routing instance.
Required Privilege Level	view
List of Sample Output	show mvpn c-multicast on page 650 show mvpn c-multicast summary on page 651 show mvpn c-multicast extensive on page 651
Output Fields	Table 174 on page 650 lists the output fields for the show mvpn c-multicast command. Output fields are listed in the approximate order in which they appear.

Table 174: show mvpn c-multicast Output Fields

Field Name	Field Description	Level of Output
Instance	Name of the VPN routing instance.	summary extensive none
C-mcast IPv4 (S:G)	Customer router multicast address.	extensive none
Ptnl	Provider tunnel attributes, <i>tunnel type:tunnel source, tunnel destination group</i> .	extensive none
St	State: <ul style="list-style-type: none"> ■ DS—Represents (S,G) and is created due to (*,G) ■ RM—Remote VPN route learned from the remote PE router ■ St display blank—SSM group join 	extensive none
MVPN instance	Name of the multicast VPN routing instance	extensive none
C-multicast IPv4 route count	Number of c-multicast IPv4 routes associated with the multicast VPN routing instance.	summary

show mvpn c-multicast user@host> **show mvpn c-multicast**
MVPN instance:

Legend for provider tunnel

I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)

DS -- derived from (*, c-g) RM -- remote VPN route

Instance: VPN-A

C-mcast IPv4 (S:G)	Ptnl	St	
192.168.195.78/32:225.5.5.5/32	PIM-SM:10.255.14.144,	239.1.1.1	RM

MVPN instance:

Legend for provider tunnel

I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)

DS -- derived from (*, c-g) RM -- remote VPN route

Instance: VPN-B

C-mcast IPv4 (S:G)	Ptnl	St	
192.168.195.94/32:226.6.6.6/32	PIM-SM:10.255.14.144,	239.2.0.0	RM

show mvpn c-multicast summary

user@host> **show mvpn c-multicast summary**

MVPN Summary:

Instance: VPN-A

C-multicast IPv4 route count: 1

Instance: VPN-B

C-multicast IPv4 route count: 2

show mvpn c-multicast extensive

user@host> **show mvpn c-multicast extensive**

MVPN instance:

Legend for provider tunnel

I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)

DS -- derived from (*, c-g) RM -- remote VPN route

Instance: VPN-A

C-mcast IPv4 (S:G)	Ptnl	St	
192.168.195.78/32:225.5.5.5/32	PIM-SM:10.255.14.144,	239.1.1.1	RM

MVPN instance:

Legend for provider tunnel

I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)

DS -- derived from (*, c-g) RM -- remote VPN route

Instance: VPN-B

C-mcast IPv4 (S:G)	Ptnl	St	
192.168.195.94/32:226.6.6.6/32	PIM-SM:10.255.14.144,	239.2.0.0	RM

show mpvn instance

Syntax	show mpvn instance <extensive summary> <instance <i>instance-name</i> >
Release Information	Command introduced in JUNOS Release 8.4.
Description	Display the multicast VPN routing instance information.
Required Privilege Level	view
List of Sample Output	show mpvn instance on page 652 show mpvn instance summary on page 653 show mpvn instance extensive on page 653
Output Fields	Table 175 on page 652 lists the output fields for the show mpvn instance command. Output fields are listed in the approximate order in which they appear.

Table 175: show mpvn instance Output Fields

Field Name	Field Description	Level of Output
MVPN instance	Name of the multicast VPN routing instance	extensive none
Instance	Name of the VPN routing instance.	summary extensive none
Provider tunnel	Provider tunnel attributes, <i>tunnel type:tunnel source, tunnel destination group</i> .	extensive none
Neighbor	Address, type of provider tunnel (I-P-tnl, inclusive provider tunnel and S-P-tnl, selective provider tunnel) and provider tunnel for each neighbor.	extensive none
C-mcast IPv4 (S:G)	Customer router multicast address.	extensive none
Ptnl	Provider tunnel attributes, <i>tunnel type:tunnel source, tunnel destination group</i> .	extensive none
St	State: <ul style="list-style-type: none"> ■ DS—Represents (S,G) and is created due to (*,G) ■ RM—Remote VPN route learned from the remote PE router ■ St display blank—SSM group join 	extensive none
Neighbor count	Number of neighbors associated with the multicast VPN routing instance.	summary
C-multicast IPv4 route count	Number of c-multicast IPv4 routes associated with the multicast VPN routing instance.	summary

```

show mpvn instance  user@host> show mpvn instance
                      MVPN instance:

                      Legend for provider tunnel

```

I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)

DS -- derived from (*, c-g) RM -- remote VPN route

Instance: VPN-A

```

Provider tunnel: I-P-tnl:PIM-SM:10.255.14.144, 239.1.1.1
Neighbor                    I-P-tnl
10.255.14.160                PIM-SM:10.255.14.160, 239.1.1.1
10.255.70.17                 PIM-SM:10.255.70.17, 239.1.1.1
C-mcast IPv4 (S:G)          Ptnl                      St
192.168.195.78/32:225.5.5.5/32 PIM-SM:10.255.14.144, 239.1.1.1 RM
MVPN instance:

```

Legend for provider tunnel

I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)

DS -- derived from (*, c-g) RM -- remote VPN route

Instance: VPN-B

```

Provider tunnel: I-P-tnl:PIM-SM:10.255.14.144, 239.2.0.0
Neighbor                    I-P-tnl
10.255.14.160                PIM-SM:10.255.14.160, 239.2.0.0
10.255.70.17                 PIM-SM:10.255.70.17, 239.2.0.0
C-mcast IPv4 (S:G)          Ptnl                      St
192.168.195.94/32:226.6.6.6/32 PIM-SM:10.255.14.144, 239.2.0.0 RM

```

show mvpn instance summary user@host> **show mvpn instance summary**

```

MVPN Summary:
Instance: VPN-A
  Neighbor count: 2
  C-multicast IPv4 route count: 1
Instance: VPN-B
  Neighbor count: 4
  C-multicast IPv4 route count: 2

```

show mvpn instance extensive user@host> **show mvpn instance extensive**

MVPN instance:

Legend for provider tunnel

I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)

DS -- derived from (*, c-g) RM -- remote VPN route

Instance: VPN-A

```

Provider tunnel: I-P-tnl:PIM-SM:10.255.14.144, 239.1.1.1
Neighbor                    I-P-tnl
10.255.14.160                PIM-SM:10.255.14.160, 239.1.1.1
10.255.70.17                 PIM-SM:10.255.70.17, 239.1.1.1
C-mcast IPv4 (S:G)          Ptnl                      St
192.168.195.78/32:225.5.5.5/32 PIM-SM:10.255.14.144, 239.1.1.1 RM
MVPN instance:

```

Legend for provider tunnel

I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)

DS -- derived from (*, c-g) RM -- remote VPN route

Instance: VPN-B

```

Provider tunnel: I-P-tnl:PIM-SM:10.255.14.144, 239.2.0.0
Neighbor                    I-P-tnl
10.255.14.160                PIM-SM:10.255.14.160, 239.2.0.0

```

```
10.255.70.17                                PIM-SM:10.255.70.17, 239.2.0.0
C-mcast IPv4 (S:G)                        Ptnl                      St
192.168.195.94/32:226.6.6.6/32 PIM-SM:10.255.14.144, 239.2.0.0      RM
```

show mvpn neighbor

Syntax	show mvpn neighbor <extensive summary> <instance <i>instance-name</i> neighbor-address <i>address</i> >
Release Information	Command introduced in JUNOS Release 8.4.
Description	Display the multicast VPN neighbor information.
Options	extensive summary—(Optional) Display the specified level of output. instance <i>instance-name</i> neighbor-address <i>address</i> —(Optional) Display multicast VPN neighbor information for the specified instance or the specified neighbor.
Required Privilege Level	view
List of Sample Output	show mvpn neighbor on page 655 show mvpn neighbor extensive on page 656 show mvpn neighbor instance-name on page 656 show mvpn neighbor neighbor-address on page 656 show mvpn neighbor neighbor-address summary on page 657 show mvpn neighbor neighbor-address extensive on page 657 show mvpn neighbor neighbor-address instance-name on page 657
Output Fields	Table 176 on page 655 lists the output fields for the show mvpn neighbor command. Output fields are listed in the approximate order in which they appear.

Table 176: show mvpn neighbor Output Fields

Field Name	Field Description	Level of Output
MVPN instance	Name of the multicast VPN routing instance	extensive none
Instance	Name of the VPN routing instance.	summary extensive none
Neighbor	Address, type of provider tunnel (I-P-tnl, inclusive provider tunnel and S-P-tnl, selective provider tunnel) and provider tunnel for each neighbor.	extensive none
Provider tunnel	Provider tunnel attributes, <i>tunnel type:tunnel source, tunnel destination group</i> .	extensive none

show mvpn neighbor user@host> **show mvpn neighbor**
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g) RM -- remote VPN route
Instance: VPN-A

```

Neighbor                                I-P-tnl
10.255.14.160                          PIM-SM:10.255.14.160, 239.1.1.1
10.255.70.17                           PIM-SM:10.255.70.17, 239.1.1.1
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)           RM -- remote VPN route
Instance: VPN-B
Neighbor                                I-P-tnl
10.255.14.160                          PIM-SM:10.255.14.160, 239.2.0.0
10.255.70.17                           PIM-SM:10.255.70.17, 239.2.0.0

```

show mvpn neighbor extensive user@host> **show mvpn neighbor extensive**
MVPN instance:

```

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)           RM -- remote VPN route
Instance: VPN-A
Neighbor                                I-P-tnl
10.255.14.160                          PIM-SM:10.255.14.160, 239.1.1.1
10.255.70.17                           PIM-SM:10.255.70.17, 239.1.1.1
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)           RM -- remote VPN route
Instance: VPN-B
Neighbor                                I-P-tnl
10.255.14.160                          PIM-SM:10.255.14.160, 239.2.0.0
10.255.70.17                           PIM-SM:10.255.70.17, 239.2.0.0

```

show mvpn neighbor instance-name user@host> **show mvpn neighbor instance-name VPN-A**
MVPN instance:

```

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)           RM -- remote VPN route
Instance: VPN-A
Neighbor                                I-P-tnl
10.255.14.160                          PIM-SM:10.255.14.160, 239.1.1.1
10.255.70.17                           PIM-SM:10.255.70.17, 239.1.1.1

```

show mvpn neighbor neighbor-address user@host> **show mvpn neighbor neighbor-address 10.255.14.160**
MVPN instance:

```

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)           RM -- remote VPN route

```

```

Instance: VPN-A
  Neighbor          I-P-tnl
  10.255.14.160     PIM-SM:10.255.14.160, 239.1.1.1
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)      RM -- remote VPN route
Instance: VPN-B
  Neighbor          I-P-tnl
  10.255.14.160     PIM-SM:10.255.14.160, 239.2.0.0

```

```

show mvpn neighbor user@host> show mvpn neighbor neighbor-address 10.255.70.17 summary
neighbor-address MVPN Summary:
summary           Instance: VPN-A
                   Instance: VPN-B

show mvpn neighbor user@host> show mvpn neighbor neighbor-address 10.255.70.17 extensive
neighbor-address MVPN instance:
extensive

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)      RM -- remote VPN route
Instance: VPN-A
  Neighbor          I-P-tnl
  10.255.70.17     PIM-SM:10.255.70.17, 239.1.1.1
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)      RM -- remote VPN route
Instance: VPN-B
  Neighbor          I-P-tnl
  10.255.70.17     PIM-SM:10.255.70.17, 239.2.0.0

show mvpn neighbor user@host> show mvpn neighbor neighbor-address 10.255.70.17 instance-name VPN-A
neighbor-address MVPN instance:
instance-name

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)      RM -- remote VPN route
Instance: VPN-A
  Neighbor          I-P-tnl
  10.255.70.17     PIM-SM:10.255.70.17, 239.1.1.1

```

show vpls connections

Syntax	<pre>show vpls connections <brief extensive history status summary> <down up up-down> <instance <i>instance-name</i> local-site <i>local-site-name</i> remote-site <i>remote-site-name</i>> <logical-system (all <i>logical-system-name</i>)></pre>
Release Information	Command introduced before JUNOS Release 7.4.
Description	(T-series and M-series routing platforms, except for the M160 router) Display virtual private LAN service (VPLS) connection information.
Options	<p>none—Display information about all VPLS connections for all routing instances on all logical systems.</p> <p>brief extensive history status summary—(Optional) Display the specified level of output. Or use history to display information about connection history. Use status to display information about the connection and interface status.</p> <p>down up up-down—(Optional) Display nonoperational, operational, or both types of connections.</p> <p>instance <i>instance-name</i>—(Optional) Display the VPLS connections for the specified routing instance only.</p> <p>local-site <i>local-site-name</i>—(Optional) Display the VPLS connections for the specified local site name or ID only.</p> <p>remote-site <i>remote-site-name</i>—(Optional) Display the VPLS connections for the specified remote site name or ID only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show vpls connections on page 660</p> <p>show vpls connections extensive on page 660</p>
Output Fields	Table 177 on page 658 lists the output fields for the show vpls connections command. Output fields are listed in the approximate order in which they appear.

Table 177: show vpls connections Output Fields

Field Name	Field Description
Instance	Name of the VPLS instance.
Local site	Name of the local site.

Table 177: show vpls connections Output Fields (continued)

Field Name	Field Description
Local interface	Name of the local VPLS virtual loopback tunnel interface or label switched interface. Virtual loopback tunnel interfaces are displayed using the <i>vt-fpc/pic/port.nnnnn</i> format. Label switched interfaces are displayed using the <i>lsi.nnnnn</i> format. In both cases, <i>nnnnn</i> is a dynamically generated virtual port used to transport and receive packets from other provider edge (PE) routers in the VPLS domain.
Label-base	First label in a block of labels. A remote PE router uses this first label when sending traffic toward the advertising PE router.
Range	Label block size.
status-vector	Bit vector advertising the state of local PE-CE circuits to remote PE routers. A bit value of 0 indicates that the local circuit and LSP tunnel to the remote PE router are up, whereas a value of 1 indicates either one or both are down.
connection-site	Name of the connection site.
Type	Type of connection: <i>loc</i> (local) or <i>rmt</i> (remote).
St	Status of the connection. (For a list of possible values, see the Legend for connection status (St) field.)
Time last up	Time connection was last in the Up condition.
# Up trans	Number of transitions from Down to Up condition.
Status	Status of the (local or remote circuit) local interface: <ul style="list-style-type: none"> ■ Up—Operational ■ Dn—Down ■ NP—Not present ■ DS—Disabled ■ WE—Wrong encapsulation ■ UN—Uninitialized
Encapsulation	Type of encapsulation: VPLS .
Remote PE	Address of the remote provider edge router.
Negotiated control-word	Whether a control word has been negotiated: Yes or No .
Incoming label	Name of the incoming label.
Outgoing label	Name of the outgoing label.
Time	Date and time of VPLS connection event.
Event	Type of event.
Interface/Lbl/PE	Interface, label, or PE router.

show vpls connections

```
user@host> show vpls connections
Layer-2 VPN connections:
```

Legend for connection status (St)

EI -- encapsulation invalid	NC -- interface encapsulation not CCC/TCC/VPLS
EM -- encapsulation mismatch	WE -- interface and instance encaps not same
VC-Dn -- Virtual circuit down	NP -- interface hardware not present
CM -- control-word mismatch	-> -- only outbound connection is up
CN -- circuit not provisioned	<- -- only inbound connection is up
OR -- out of range	Up -- operational
OL -- no outgoing label	Dn -- down
LD -- local site signaled down	CF -- call admission control failure
RD -- remote site signaled down	SC -- local and remote site ID collision
LN -- local site not designated	LM -- local site ID not minimum designated
RN -- remote site not designated	RM -- remote site ID not minimum designated
XX -- unknown connection status	

Legend for interface status

Up -- operational
Dn -- down

Instance: green

Local site: greenR1 (1)

connection-site	Type	St	Time last up	# Up trans
2	rmt	RD		
4	rmt	Up	Oct 31 12:46:23 2005	1
Local interface: vt-3/3/0.3, Status: Up, Encapsulation: VPLS				
Remote PE: 10.255.14.222, Negotiated control-word: No				
Incoming label: 800011, Outgoing label: 800000				
5	rmt	RN		

Local site: SW0 (4)

connection-site	Type	St	Time last up	# Up trans
2	rmt	LN		
4	rmt	SC		
5	rmt	LN		

Local site: SW1 (5)

connection-site	Type	St	Time last up	# Up trans
2	rmt	LM		
4	rmt	LM		
5	rmt	SC		

Instance: red

Local site: redR1 (1)

connection-site	Type	St	Time last up	# Up trans
2	rmt	LD		

show vpls connections extensive

```
user@host> show vpls connections extensive instance red
Layer-2 VPN connections:
```

Legend for connection status (St)

EI -- encapsulation invalid	NC -- interface encapsulation not CCC/TCC/VPLS
EM -- encapsulation mismatch	WE -- interface and instance encaps not same
VC-Dn -- Virtual circuit down	NP -- interface hardware not present
CM -- control-word mismatch	-> -- only outbound connection is up
CN -- circuit not provisioned	<- -- only inbound connection is up
OR -- out of range	Up -- operational
OL -- no outgoing label	Dn -- down
LD -- local site signaled down	CF -- call admission control failure
RD -- remote site signaled down	SC -- local and remote site ID collision
LN -- local site not designated	LM -- local site ID not minimum designated
RN -- remote site not designated	RM -- remote site ID not minimum designated

XX -- unknown connection status

Legend for interface status

Up -- operational

Dn -- down

Instance: red

Local site: redR1 (1)

Number of local interfaces: 1

Number of local interfaces up: 1

lt-2/1/0.4

vt-2/1/0.32780 2 Intf - vpls red local site 1 remote site 2

Interface flags: VC-Down

vt-2/1/0.32782 3 Intf - vpls red local site 1 remote site 3

vt-2/1/0.32773 4 Intf - vpls red local site 1 remote site 4

vt-2/1/0.32779 5 Intf - vpls red local site 1 remote site 5

Interface flags: VC-Down

800024 1 8 100

status-vector: 87

connection-site	Type	St	Time last up	# Up trans
2	rmt	RD		
3	rmt	Up	Oct 28 07:13:18 2005	1

Local interface: vt-2/1/0.32782, Status: Up, Encapsulation: VPLS
Remote PE: 10.255.14.218, Negotiated control-word: No

Incoming label: 800026, Outgoing label: 800024

Time	Event	Interface/Lbl/PE
Oct 28 07:13:18 2005	status update timer	
Oct 28 07:13:18 2005	PE route changed	
Oct 28 07:13:18 2005	Out lbl Update	800024
Oct 28 07:13:18 2005	In lbl Update	800026
Oct 28 07:13:18 2005	loc intf up	vt-2/1/0.32782

4	rmt	Up	Oct 28 07:13:12 2005	1
---	-----	----	----------------------	---

Local interface: vt-2/1/0.32773, Status: Up, Encapsulation: VPLS
Remote PE: 10.255.14.216, Negotiated control-word: No

Incoming label: 800027, Outgoing label: 800008

Time	Event	Interface/Lbl/PE
Oct 28 07:13:12 2005	status update timer	
Oct 28 07:13:12 2005	PE route changed	
Oct 28 07:13:12 2005	Out lbl Update	800008
Oct 28 07:13:12 2005	In lbl Update	800027
Oct 28 07:13:12 2005	loc intf up	vt-2/1/0.32773

5	rmt	RM		
---	-----	----	--	--

Local site: SW0 (4)

Number of local interfaces: 1

Number of local interfaces up: 1

fe-0/1/2.1

Interface flags: VC-Down

vt-2/1/0.32771 2 Intf - vpls red local site 4 remote site 2

Interface flags: VC-Down

vt-2/1/0.32783 3 Intf - vpls red local site 4 remote site 3

Interface flags: VC-Down

vt-2/1/0.32772 5 Intf - vpls red local site 4 remote site 5

Interface flags: VC-Down

800016 1 8 100

status-vector: 97

connection-site	Type	St	Time last up	# Up trans
2	rmt	LN		
3	rmt	LN		
4	rmt	SC		
5	rmt	LN		

Local site: SW1 (5)

```
Number of local interfaces: 1
Number of local interfaces up: 1
fe-0/1/3.1
  Interface flags: VC-Down
vt-2/1/0.32778 2      Intf - vpls red local site 5 remote site 2
  Interface flags: VC-Down
```

show vpls flood event-queue

Syntax	show vpls flood event-queue
Release Information	Command introduced in JUNOS Release 8.0.
Description	Display the pending events in the VPLS flood queue.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show vpls flood event-queue on page 663
Output Fields	Table 178 on page 663 lists the output fields for the show vpls flood event-queue command. Output fields are listed in the approximate order in which they appear.

Table 178: show vpls flood event-queue Output Fields

Field Name	Field Description
Current Pending Event	Provides information on the current event in the VPLS flood event queue.
Name	Name of the event.
Owner Name	Name of the interface associated with the flood event.
Pending Op	Pending operation for the event.
Last Error	Name of the last error encountered.
Number of Retries	Number of attempts made to update the event queue.
Pending Event List	A list of the events awaiting processing.
Event Name	Name of the event.
Pending Op	Pending operation for the event.
Event Identifier	Name of the interface associated with the flood event.

```

show vpls flood event-queue  user@host> show vpls flood event-queue
Current Pending Event
  Name:      Flood Nexthop
  Owner Name: ge-4/3/0.0
  Pending Op: ADD
  Last Error: ENOMEM
  Number of Retries: 3
  Pending Event List:
    Event Name      Pending Op      Event Identifier

```

Flood Nexthop	ADD	ge-4/3/0.0
Flood Route	ADD	ge-4/3/0.0

show vpls flood instance

Syntax	show vpls flood instance <brief detail extensive> <instance-name> <logical-system <i>logical-system-name</i> >
Release Information	Command introduced in JUNOS Release 8.0.
Description	Display VPLS information related to the flood process.
Options	<p>none—Display VPLS information related to the flood process for all routing instances on all logical systems.</p> <p><i>instance-name</i>—(Optional) Display VPLS information related to the flood process for the specified routing instance.</p> <p>logical-system <i>logical-system-name</i>—(Optional) Display VPLS information related to the flood process for the specified logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show vpls flood instance on page 666</p> <p>show vpls flood instance logical-system-name on page 666</p> <p>show vpls flood instance detail on page 666</p>
Output Fields	Table 179 on page 665 lists the output fields for the show vpls flood instance command. Output fields are listed in the approximate order in which they appear.

Table 179: show vpls flood instance Output Fields

Field Name	Field Description
Logical system	Name of the logical system.
Name	Name of the VPLS routing instance.
CEs	Number of CE routers connected to the VPLS instance.
VEs	Number of VE routers connected to the VPLS instance.
Flood routes	List of all flood routes associated with the VPLS instance.
Prefix	Prefix for the route.
Type	Type of route.
Owner	VPLS routing instance or interface associated with the route.
Nh type	Next-hop type. For example, flood for a flood route.
Nh index	Next-hop index number for the route.

show vpls flood instance user@host> **show vpls flood instance**

```

Logical system: __juniper_ls1__
Name: green
CEs: 1
VEs: 1
Flood Routes:
  Prefix   Type           Owner           NhType    NhIndex
  default  ALL_CE_FLOOD  green           flood      383
  0x47/16  CE_FLOOD      fe-1/2/1.0     flood      388

```

show vpls flood instance user@host:__juniper_ls1__> **show vpls flood instance juniper_ls1**
logical-system-name

```

Logical system: __juniper_ls1__
Name: green
CEs: 1
VEs: 1
Flood Routes:
  Prefix   Type           Owner           NhType    NhIndex
  default  ALL_CE_FLOOD  green           flood      383
  0x47/16  CE_FLOOD      fe-1/2/1.0     flood      388

```

show vpls flood instance user@host:__juniper_ls1__> **show vpls flood instance detail**
detail

```

Logical system: __juniper_ls1__
Name: green
CEs: 1
VEs: 1
Flood Routes:
  Prefix   Type           Owner           NhType    NhIndex
  default  ALL_CE_FLOOD  green           flood      383
  0x47/16  CE_FLOOD      fe-1/2/1.0     flood      388

```


show vpls flood route

Syntax	show vpls flood route (all-ce-flood instance-name <i>instance-name</i> < logical-system-name <i>logical-system-name</i> > ce-flood interface <i>interface-name</i>)
Release Information	Command introduced in JUNOS Release 8.0.
Description	Display VPLS route information related to the flood process for either the specified routing instance or the specified interface.
Options	<p>all-ce-flood—Display the flood next-hop route for all customer edge routers for traffic coming from the core of the network.</p> <p>ce-flood interface <i>interface-name</i>—Display the flood next-hop route for traffic coming from the specified customer edge interface.</p> <p>instance-name <i>instance-name</i>—Display the flood routes for the specified instance.</p> <p>logical-system-name <i>logical-system-name</i>—(Optional) Specify the logical system whose flood routes you want to display. You can only specify the default logical system name for VPLS. The default logical system name is <code>__juniper_ls1__</code> (the name must be entered in the command with the underscore characters).</p>
Required Privilege Level	view
List of Sample Output	<p>show vpls flood route all-ce-flood on page 668</p> <p>show vpls flood route ce-flood on page 668</p>
Output Fields	Table 180 on page 667 lists the output for the <code>show vpls flood route</code> command. Output fields are listed in the approximate order in which they appear.

Table 180: show vpls flood route Output Fields

Field Name	Field Description
Flood route prefix	Prefix for the flood route.
Flood route type	Type of flood route (either <code>CE_FLOOD</code> or <code>ALL_CE_FLOOD</code>).
Flood route owner	VPLS routing instance or interface associated with the flood route.
Nexthop type	Next-hop type. For example, <code>flood</code> for a flood route.
Nexthop index	Next-hop index number for the route.
Interfaces flooding to	Interfaces to which VPLS routes are being flooded.
Name	Name of the interface.
Type	Type of VPLS router (<code>CE</code> or <code>VE</code>).

Table 180: show vpls flood route Output Fields (continued)

Field Name	Field Description
Nh type	Next-hop type.
Index	Index number for the flood route.

show vpls flood route all-ce-flood user@host: __juniper_lsl__> **show vpls flood route all-ce-flood logical-system-name __juniper_lsl__instance-name green**

```

Flood route prefix: default
Flood route type: ALL_CE_FLOOD
Flood route owner: green
Nexthop type: flood
Nexthop index: 383
  Interfaces Flooding to:
    Name          Type          NhType          Index
    fe-1/2/1.0    CE

```

show vpls flood route ce-flood user@host: __juniper_lsl__> **show vpls flood route ce-flood interface fe-1/2/1.0**

```

Flood route prefix: 0x47/16
Flood route type: CE_FLOOD
Flood route owner: fe-1/2/1.0
Nexthop type: flood
Nexthop index: 388
  Interfaces Flooding to:
    Name          Type          NhType          Index
    lsi.49152      VE            indr            262142

```

show vpls mac-table

Syntax	<pre>show vpls mac-table <brief detail extensive summary> <bridge-domain <i>bridge-domain-name</i>> <instance <i>instance-name</i>> <interface <i>interface-name</i>> <logical-system (all <i>logical-system-name</i>)> <mac-address> <vlan-id <i>vlan-id-number</i>></pre>
Release Information	Command introduced in JUNOS Release 8.5.
Description	(MX960 routers only) Display learned VPLS MAC address information.
Options	<p>none—Display all learned VPLS MAC address information.</p> <p>brief detail extensive summary—(Optional) Display the specified level of output.</p> <p>bridge-domain <i>bridge-domain-name</i>—(Optional) Display learned VPLS MAC addresses for the specified bridge domain.</p> <p>instance <i>instance-name</i>—(Optional) Display learned VPLS MAC addresses for the specified instance.</p> <p>interface <i>interface-name</i>—(Optional) Display learned VPLS MAC addresses for the specified instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Display learned VPLS MAC addresses for all logical systems or for the specified logical system.</p> <p>mac-address—(Optional) Display the specified learned VPLS MAC address information..</p> <p>vlan-id <i>vlan-id-number</i>—(Optional) Display learned VPLS MAC addresses for the specified VLAN.</p>
Required Privilege Level	view
List of Sample Output	<pre>show vpls mac-table on page 670 show vpls mac-table count on page 671 show vpls mac-table detail on page 671 show vpls mac-table extensive on page 672</pre>
Output Fields	Table 181 on page 669 describes the output fields for the <code>show bridge mac-table</code> command. Output fields are listed in the approximate order in which they appear.

Table 181: show vpls mac-table Output fields

Field Name	Field Description
Routing instance	Name of the routing instance.

Table 181: show vpls mac-table Output fields (continued)

Field Name	Field Description
Bridging domain	Name of the bridging domain.
MAC address	MAC address or addresses learned on a logical interface.
MAC flags	Status of MAC address learning properties for each interface: <ul style="list-style-type: none"> ■ S—Static MAC address configured. ■ D—Dynamic MAC address learned. ■ SE—MAC accounting is enabled. ■ NM—Nonconfigured MAC.
Logical interface	Name of the logical interface.
MAC count	Number of MAC addresses learned on a specific routing instance or interface.
Learning interface	Logical interface or logical Label Switched Interface (LSI) the address is learned on.
Learn VLAN ID/VLAN	VLAN ID of the routing instance or bridge domain in which the MAC address was learned.
Layer 2 flags	Debugging flags signifying that the MAC address is present in various lists.
Epoch	Spanning Tree Protocol epoch number identifying when the MAC address was learned. Used for debugging.
Sequence number	Sequence number assigned to this MAC address. Used for debugging.
Learning mask	Mask of Packet Forwarding Engines where this MAC address was learned. Used for debugging.
IPC generation	Creation time of the logical interface when this MAC address was learned. Used for debugging.

```

show vpls mac-table  user@host> show vpls mac-table
MAC flags (S -static MAC, D -dynamic MAC,
              SE -Statistics enabled, NM -Non configured MAC)

Routing instance : vpls_ldp1
VLAN : 223
  MAC          MAC          Logical
address        flags       interface
00:90:69:9c:1c:5d  D         ge-0/2/5.400

MAC flags (S -static MAC, D -dynamic MAC,
              SE -Statistics enabled, NM -Non configured MAC)

Routing instance : vpls_red
VLAN : 401
  MAC          MAC          Logical
address        flags       interface
00:00:aa:12:12:12  D         lsi.1051138
00:05:85:74:9f:f0  D         lsi.1051138

```

```

show vpls mac-table user@host> show vpls mac-table count
count 0 MAC address learned in routing instance __juniper_private1__

```

MAC address count per interface within routing instance:

Logical interface	MAC count
lc-0/0/0.32769	0
lc-0/1/0.32769	0
lc-0/2/0.32769	0
lc-2/0/0.32769	0
lc-0/3/0.32769	0
lc-2/1/0.32769	0
lc-9/0/0.32769	0
lc-11/0/0.32769	0
lc-2/2/0.32769	0
lc-9/1/0.32769	0
lc-11/1/0.32769	0
lc-2/3/0.32769	0
lc-9/2/0.32769	0
lc-11/2/0.32769	0
lc-11/3/0.32769	0
lc-9/3/0.32769	0

MAC address count per learn VLAN within routing instance:

Learn VLAN ID	MAC count
0	0

1 MAC address learned in routing instance vpls_ldp1

MAC address count per interface within routing instance:

Logical interface	MAC count
lsi.1051137	0
ge-0/2/5.400	1

MAC address count per learn VLAN within routing instance:

Learn VLAN ID	MAC count
0	1

1 MAC address learned in routing instance vpls_red

MAC address count per interface within routing instance:

Logical interface	MAC count
ge-0/2/5.300	1

MAC address count per learn VLAN within routing instance:

Learn VLAN ID	MAC count
0	1

```

show vpls mac-table user@host> show vpls mac-table detail
detail MAC address: 00:90:69:9c:1c:5d
Routing instance: vpls_ldp1
Learning interface: ge-0/2/5.400
Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
Epoch: 0                               Sequence number: 1
Learning mask: 0x1                       IPC generation: 0

MAC address: 00:90:69:9c:1c:5d
Routing instance: vpls_red
Learning interface: ge-0/2/5.300
Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
Epoch: 0                               Sequence number: 1
Learning mask: 0x1                       IPC generation: 0

```

```

show vpls mac-table extensive   user@host> show vpls mac-table extensive
MAC address: 00:00:aa:12:12:12
  Routing instance: vpls_ldp1
  Learning interface: lsi.1051137
  Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
  Epoch: 0                               Sequence number: 1
  Learning mask: 0x1                     IPC generation: 0

MAC address: 00:05:85:74:9f:f0
  Routing instance: vpls_ldp1
  Learning interface: lsi.1051137
  Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
  Epoch: 0                               Sequence number: 1
  Learning mask: 0x1                     IPC generation: 0

MAC address: 00:90:69:9c:1c:5d
  Routing instance: vpls_ldp1
  Learning interface: ge-0/2/5.400
  Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
  Epoch: 0                               Sequence number: 1
  Learning mask: 0x1                     IPC generation: 0

MAC address: 00:00:aa:12:12:12
  Routing instance: vpls_red
  Learning interface: lsi.1051138
  Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
  Epoch: 0                               Sequence number: 0
  Learning mask: 0x1                     IPC generation: 0

MAC address: 00:05:85:74:9f:f0
  Routing instance: vpls_red
  Learning interface: lsi.1051138
  Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
  Epoch: 0                               Sequence number: 0
  Learning mask: 0x1                     IPC generation: 0

```

show vpls statistics

Syntax	show vpls statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before JUNOS Release 7.4.
Description	(T-series and M-series routing platforms, except for the M160 router) Display virtual private LAN service (VPLS) statistics.
Options	<p>none—Display VPLS statistics for all routing instances on all logical systems.</p> <p>instance <i>instance-name</i>—(Optional) Display VPLS statistics for a specific VPLS routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show vpls statistics on page 674</p> <p>show vpls statistics instance on page 674</p>
Output Fields	Table 182 on page 673 lists the output fields for the show vpls statistics command. Output fields are listed in the approximate order in which they appear.

Table 182: show vpls statistics Output Fields

Field Name	Field Description
Instance	Name of the VPLS instance.
Local interface	Name of the local VPLS virtual loopback tunnel interface, <i>vt-fpc/pic/port.nnnnn</i> , where <i>nnnnn</i> is a dynamically generated virtual port used to transport and receive packets from other provider edge (PE) routers in the VPLS domain.
Index	Number associated with the next hop.
Remote provider edge router	Address of the remote provider edge router.
Multicast packets	Number of multicast packets received.
Multicast bytes	Number of multicast bytes received.
Flood packets	Number of VPLS flood packets received.
Flood bytes	Number of VPLS flood bytes received.
Current MAC count	Number of MAC addresses learned by the interface and the configured maximum limit on the number of MAC addresses that can be learned.

show vpls statistics user@host> **show vpls statistics**

VPLS statistics:

Instance: green

Local interface: fe-2/2/1.0, Index: 69
 Multicast packets: 1
 Multicast bytes : 60
 Flooded packets : 18
 Flooded bytes : 2556
 Current MAC count: 1

Local interface: lt-0/3/0.2, Index: 72
 Multicast packets: 3
 Multicast bytes : 153
 Flooded packets : 1
 Flooded bytes : 51
 Current MAC count: 1

Local interface: lsi.32769, Index: 75
 Current MAC count: 0

Local interface: lsi.32771, Index: 77
 Remote PE: 10.255.14.222
 Current MAC count: 2

Instance: red

Local interface: vt-0/3/0.32768, Index: 74
 Multicast packets: 0
 Multicast bytes : 0
 Flooded packets : 0
 Flooded bytes : 0
 Current MAC count: 0

Local interface: vt-0/3/0.32770, Index: 76
 Multicast packets: 0
 Multicast bytes : 0
 Flooded packets : 0
 Flooded bytes : 0
 Current MAC count: 0

show vpls statistics user@host> **show vpls statistics instance red**
instance

Layer-2 VPN Statistics:

Instance: red

Local interface: vt-3/2/0.32768, Index: 73
 Remote provider edge router: 10.255.17.35
 Multicast packets: 0
 Multicast bytes : 0
 Flood packets : 0
 Flood bytes : 0
 Current MAC count: 1 (Limit 20)

Part 6

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