



Junos[®] OS

Routing Protocols and Policies Command Reference

Release
11.2



Published: 2011-05-17

Juniper Networks, Inc.
1194 North Mathilda Avenue
Sunnyvale, California 94089
USA
408-745-2000
www.juniper.net

This product includes the Envoy SNMP Engine, developed by Epilogue Technology, an Integrated Systems Company. Copyright © 1986-1997, Epilogue Technology Corporation. All rights reserved. This program and its documentation were developed at private expense, and no part of them is in the public domain.

This product includes memory allocation software developed by Mark Moraes, copyright © 1988, 1989, 1993, University of Toronto.

This product includes FreeBSD software developed by the University of California, Berkeley, and its contributors. All of the documentation and software included in the 4.4BSD and 4.4BSD-Lite Releases is copyrighted by the Regents of the University of California. Copyright © 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994. The Regents of the University of California. All rights reserved.

GateD software copyright © 1995, the Regents of the University. All rights reserved. Gate Daemon was originated and developed through release 3.0 by Cornell University and its collaborators. Gated is based on Kirton's EGP, UC Berkeley's routing daemon (routed), and DCN's HELLO routing protocol. Development of Gated has been supported in part by the National Science Foundation. Portions of the GateD software copyright © 1988, Regents of the University of California. All rights reserved. Portions of the GateD software copyright © 1991, D. L. S. Associates.

This product includes software developed by Maker Communications, Inc., copyright © 1996, 1997, Maker Communications, Inc.

Juniper Networks, Junos, Steel-Belted Radius, NetScreen, and ScreenOS are registered trademarks of Juniper Networks, Inc. in the United States and other countries. The Juniper Networks Logo, the Junos logo, and JunosE are trademarks of Juniper Networks, Inc. All other trademarks, service marks, registered trademarks, or registered service marks are the property of their respective owners.

Juniper Networks assumes no responsibility for any inaccuracies in this document. Juniper Networks reserves the right to change, modify, transfer, or otherwise revise this publication without notice.

Products made or sold by Juniper Networks or components thereof might be covered by one or more of the following patents that are owned by or licensed to Juniper Networks: U.S. Patent Nos. 5,473,599, 5,905,725, 5,909,440, 6,192,051, 6,333,650, 6,359,479, 6,406,312, 6,429,706, 6,459,579, 6,493,347, 6,538,518, 6,538,899, 6,552,918, 6,567,902, 6,578,186, and 6,590,785.

Junos® OS Routing Protocols and Policies Command Reference

Release 11.2

Copyright © 2011, Juniper Networks, Inc.

All rights reserved.

Revision History

April 2011—R1 Junos OS 11.2

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

YEAR 2000 NOTICE

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

END USER LICENSE AGREEMENT

READ THIS END USER LICENSE AGREEMENT ("AGREEMENT") BEFORE DOWNLOADING, INSTALLING, OR USING THE SOFTWARE. BY DOWNLOADING, INSTALLING, OR USING THE SOFTWARE OR OTHERWISE EXPRESSING YOUR AGREEMENT TO THE TERMS CONTAINED HEREIN, YOU (AS CUSTOMER OR IF YOU ARE NOT THE CUSTOMER, AS A REPRESENTATIVE/AGENT AUTHORIZED TO BIND THE CUSTOMER) CONSENT TO BE BOUND BY THIS AGREEMENT. IF YOU DO NOT OR CANNOT AGREE TO THE TERMS CONTAINED HEREIN, THEN (A) DO NOT DOWNLOAD, INSTALL, OR USE THE SOFTWARE, AND (B) YOU MAY CONTACT JUNIPER NETWORKS REGARDING LICENSE TERMS.

1. **The Parties.** The parties to this Agreement are (i) Juniper Networks, Inc. (if the Customer's principal office is located in the Americas) or Juniper Networks (Cayman) Limited (if the Customer's principal office is located outside the Americas) (such applicable entity being referred to herein as "Juniper"), and (ii) the person or organization that originally purchased from Juniper or an authorized Juniper reseller the applicable license(s) for use of the Software ("Customer") (collectively, the "Parties").

2. **The Software.** In this Agreement, "Software" means the program modules and features of the Juniper or Juniper-supplied software, for which Customer has paid the applicable license or support fees to Juniper or an authorized Juniper reseller, or which was embedded by Juniper in equipment which Customer purchased from Juniper or an authorized Juniper reseller. "Software" also includes updates, upgrades and new releases of such software. "Embedded Software" means Software which Juniper has embedded in or loaded onto the Juniper equipment and any updates, upgrades, additions or replacements which are subsequently embedded in or loaded onto the equipment.

3. **License Grant.** Subject to payment of the applicable fees and the limitations and restrictions set forth herein, Juniper grants to Customer a non-exclusive and non-transferable license, without right to sublicense, to use the Software, in executable form only, subject to the following use restrictions:

- a. Customer shall use Embedded Software solely as embedded in, and for execution on, Juniper equipment originally purchased by Customer from Juniper or an authorized Juniper reseller.
- b. Customer shall use the Software on a single hardware chassis having a single processing unit, or as many chassis or processing units for which Customer has paid the applicable license fees; provided, however, with respect to the Steel-Belted Radius or Odyssey Access Client software only, Customer shall use such Software on a single computer containing a single physical random access memory space and containing any number of processors. Use of the Steel-Belted Radius or IMS AAA software on multiple computers or virtual machines (e.g., Solaris zones) requires multiple licenses, regardless of whether such computers or virtualizations are physically contained on a single chassis.
- c. Product purchase documents, paper or electronic user documentation, and/or the particular licenses purchased by Customer may specify limits to Customer's use of the Software. Such limits may restrict use to a maximum number of seats, registered endpoints, concurrent users, sessions, calls, connections, subscribers, clusters, nodes, realms, devices, links, ports or transactions, or require the purchase of separate licenses to use particular features, functionalities, services, applications, operations, or capabilities, or provide throughput, performance, configuration, bandwidth, interface, processing, temporal, or geographical limits. In addition, such limits may restrict the use of the Software to managing certain kinds of networks or require the Software to be used only in conjunction with other specific Software. Customer's use of the Software shall be subject to all such limitations and purchase of all applicable licenses.
- d. For any trial copy of the Software, Customer's right to use the Software expires 30 days after download, installation or use of the Software. Customer may operate the Software after the 30-day trial period only if Customer pays for a license to do so. Customer may not extend or create an additional trial period by re-installing the Software after the 30-day trial period.
- e. The Global Enterprise Edition of the Steel-Belted Radius software may be used by Customer only to manage access to Customer's enterprise network. Specifically, service provider customers are expressly prohibited from using the Global Enterprise Edition of the Steel-Belted Radius software to support any commercial network access services.

The foregoing license is not transferable or assignable by Customer. No license is granted herein to any user who did not originally purchase the applicable license(s) for the Software from Juniper or an authorized Juniper reseller.

4. **Use Prohibitions.** Notwithstanding the foregoing, the license provided herein does not permit the Customer to, and Customer agrees not to and shall not: (a) modify, unbundle, reverse engineer, or create derivative works based on the Software; (b) make unauthorized copies of the Software (except as necessary for backup purposes); (c) rent, sell, transfer, or grant any rights in and to any copy of the Software, in any form, to any third party; (d) remove any proprietary notices, labels, or marks on or in any copy of the Software or any product in which the Software is embedded; (e) distribute any copy of the Software to any third party, including as may be embedded in Juniper equipment sold in the secondhand market; (f) use any 'locked' or key-restricted feature, function, service, application, operation, or capability without first purchasing the applicable license(s) and obtaining a valid key from Juniper, even if such feature, function, service, application, operation, or capability is enabled without a key; (g) distribute any key for the Software provided by Juniper to any third party; (h) use the

Software in any manner that extends or is broader than the uses purchased by Customer from Juniper or an authorized Juniper reseller; (i) use Embedded Software on non-Juniper equipment; (j) use Embedded Software (or make it available for use) on Juniper equipment that the Customer did not originally purchase from Juniper or an authorized Juniper reseller; (k) disclose the results of testing or benchmarking of the Software to any third party without the prior written consent of Juniper; or (l) use the Software in any manner other than as expressly provided herein.

5. **Audit.** Customer shall maintain accurate records as necessary to verify compliance with this Agreement. Upon request by Juniper, Customer shall furnish such records to Juniper and certify its compliance with this Agreement.

6. **Confidentiality.** The Parties agree that aspects of the Software and associated documentation are the confidential property of Juniper. As such, Customer shall exercise all reasonable commercial efforts to maintain the Software and associated documentation in confidence, which at a minimum includes restricting access to the Software to Customer employees and contractors having a need to use the Software for Customer's internal business purposes.

7. **Ownership.** Juniper and Juniper's licensors, respectively, retain ownership of all right, title, and interest (including copyright) in and to the Software, associated documentation, and all copies of the Software. Nothing in this Agreement constitutes a transfer or conveyance of any right, title, or interest in the Software or associated documentation, or a sale of the Software, associated documentation, or copies of the Software.

8. **Warranty, Limitation of Liability, Disclaimer of Warranty.** The warranty applicable to the Software shall be as set forth in the warranty statement that accompanies the Software (the "Warranty Statement"). Nothing in this Agreement shall give rise to any obligation to support the Software. Support services may be purchased separately. Any such support shall be governed by a separate, written support services agreement. TO THE MAXIMUM EXTENT PERMITTED BY LAW, JUNIPER SHALL NOT BE LIABLE FOR ANY LOST PROFITS, LOSS OF DATA, OR COSTS OR PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, OR FOR ANY SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THIS AGREEMENT, THE SOFTWARE, OR ANY JUNIPER OR JUNIPER-SUPPLIED SOFTWARE. IN NO EVENT SHALL JUNIPER BE LIABLE FOR DAMAGES ARISING FROM UNAUTHORIZED OR IMPROPER USE OF ANY JUNIPER OR JUNIPER-SUPPLIED SOFTWARE. EXCEPT AS EXPRESSLY PROVIDED IN THE WARRANTY STATEMENT TO THE EXTENT PERMITTED BY LAW, JUNIPER DISCLAIMS ANY AND ALL WARRANTIES IN AND TO THE SOFTWARE (WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE), INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. IN NO EVENT DOES JUNIPER WARRANT THAT THE SOFTWARE, OR ANY EQUIPMENT OR NETWORK RUNNING THE SOFTWARE, WILL OPERATE WITHOUT ERROR OR INTERRUPTION, OR WILL BE FREE OF VULNERABILITY TO INTRUSION OR ATTACK. In no event shall Juniper's or its suppliers' or licensors' liability to Customer, whether in contract, tort (including negligence), breach of warranty, or otherwise, exceed the price paid by Customer for the Software that gave rise to the claim, or if the Software is embedded in another Juniper product, the price paid by Customer for such other product. Customer acknowledges and agrees that Juniper has set its prices and entered into this Agreement in reliance upon the disclaimers of warranty and the limitations of liability set forth herein, that the same reflect an allocation of risk between the Parties (including the risk that a contract remedy may fail of its essential purpose and cause consequential loss), and that the same form an essential basis of the bargain between the Parties.

9. **Termination.** Any breach of this Agreement or failure by Customer to pay any applicable fees due shall result in automatic termination of the license granted herein. Upon such termination, Customer shall destroy or return to Juniper all copies of the Software and related documentation in Customer's possession or control.

10. **Taxes.** All license fees payable under this agreement are exclusive of tax. Customer shall be responsible for paying Taxes arising from the purchase of the license, or importation or use of the Software. If applicable, valid exemption documentation for each taxing jurisdiction shall be provided to Juniper prior to invoicing, and Customer shall promptly notify Juniper if their exemption is revoked or modified. All payments made by Customer shall be net of any applicable withholding tax. Customer will provide reasonable assistance to Juniper in connection with such withholding taxes by promptly: providing Juniper with valid tax receipts and other required documentation showing Customer's payment of any withholding taxes; completing appropriate applications that would reduce the amount of withholding tax to be paid; and notifying and assisting Juniper in any audit or tax proceeding related to transactions hereunder. Customer shall comply with all applicable tax laws and regulations, and Customer will promptly pay or reimburse Juniper for all costs and damages related to any liability incurred by Juniper as a result of Customer's non-compliance or delay with its responsibilities herein. Customer's obligations under this Section shall survive termination or expiration of this Agreement.

11. **Export.** Customer agrees to comply with all applicable export laws and restrictions and regulations of any United States and any applicable foreign agency or authority, and not to export or re-export the Software or any direct product thereof in violation of any such restrictions, laws or regulations, or without all necessary approvals. Customer shall be liable for any such violations. The version of the Software supplied to Customer may contain encryption or other capabilities restricting Customer's ability to export the Software without an export license.

12. **Commercial Computer Software.** The Software is "commercial computer software" and is provided with restricted rights. Use, duplication, or disclosure by the United States government is subject to restrictions set forth in this Agreement and as provided in DFARS 227.7201 through 227.7202-4, FAR 12.212, FAR 27.405(b)(2), FAR 52.227-19, or FAR 52.227-14 (ALT III) as applicable.

13. **Interface Information.** To the extent required by applicable law, and at Customer's written request, Juniper shall provide Customer with the interface information needed to achieve interoperability between the Software and another independently created program, on payment of applicable fee, if any. Customer shall observe strict obligations of confidentiality with respect to such information and shall use such information in compliance with any applicable terms and conditions upon which Juniper makes such information available.

14. **Third Party Software.** Any licensor of Juniper whose software is embedded in the Software and any supplier of Juniper whose products or technology are embedded in (or services are accessed by) the Software shall be a third party beneficiary with respect to this Agreement, and such licensor or vendor shall have the right to enforce this Agreement in its own name as if it were Juniper. In addition, certain third party software may be provided with the Software and is subject to the accompanying license(s), if any, of its respective owner(s). To the extent portions of the Software are distributed under and subject to open source licenses obligating Juniper to make the source code for such portions publicly available (such as the GNU General Public License ("GPL") or the GNU Library General Public License ("LGPL")), Juniper will make such source code portions (including Juniper modifications, as appropriate) available upon request for a period of up to three years from the date of distribution. Such request can be made in writing to Juniper Networks, Inc., 1194 N. Mathilda Ave., Sunnyvale, CA 94089, ATTN: General Counsel. You may obtain a copy of the GPL at <http://www.gnu.org/licenses/gpl.html>, and a copy of the LGPL at <http://www.gnu.org/licenses/lgpl.html>.

15. **Miscellaneous.** This Agreement shall be governed by the laws of the State of California without reference to its conflicts of laws principles. The provisions of the U.N. Convention for the International Sale of Goods shall not apply to this Agreement. For any disputes arising under this Agreement, the Parties hereby consent to the personal and exclusive jurisdiction of, and venue in, the state and federal courts within Santa Clara County, California. This Agreement constitutes the entire and sole agreement between Juniper and the Customer with respect to the Software, and supersedes all prior and contemporaneous agreements relating to the Software, whether oral or written (including any inconsistent terms contained in a purchase order), except that the terms of a separate written agreement executed by an authorized Juniper representative and Customer shall govern to the extent such terms are inconsistent or conflict with terms contained herein. No modification to this Agreement nor any waiver of any rights hereunder shall be effective unless expressly assented to in writing by the party to be charged. If any portion of this Agreement is held invalid, the Parties agree that such invalidity shall not affect the validity of the remainder of this Agreement. This Agreement and associated documentation has been written in the English language, and the Parties agree that the English version will govern. (For Canada: Les parties aux présentes confirment leur volonté que cette convention de même que tous les documents y compris tout avis qui s'y rattache, soient rédigés en langue anglaise. (Translation: The parties confirm that this Agreement and all related documentation is and will be in the English language)).

Abbreviated Table of Contents

	About This Guide	xvii
Part 1	Protocols	
Chapter 1	ANCP Operational Mode Commands	3
Chapter 2	BFD Operational Mode Commands	19
Chapter 3	BGP Operational Mode Commands	29
Chapter 4	ES-IS Operational Mode Commands	67
Chapter 5	IP Multicast Operational Mode Commands	77
Chapter 6	IPv6 Operational Mode Commands	241
Chapter 7	IS-IS Operational Mode Commands	249
Chapter 8	LLDP Operational Mode Commands	299
Chapter 9	MVRP Operational Mode Commands	315
Chapter 10	OSPF Operational Mode Commands	327
Chapter 11	Protocol-Independent Routing Operational Mode Commands	395
Chapter 12	RIP Operational Mode Commands	571
Chapter 13	RIPng Operational Mode Commands	581
Part 2	Policy Framework	
Chapter 14	Firewall Filter Operational Mode Commands	591
Chapter 15	Forwarding Operational Mode Commands	603
Chapter 16	Routing Policy Operational Mode Commands	621
Part 3	MPLS	
Chapter 17	LDP Operational Mode Commands	631
Chapter 18	MPLS Operational Mode Commands	659
Chapter 19	RSVP Operational Mode Commands	711
Part 4	Layer 2 Bridging and Switching Operational Mode Commands	
Chapter 20	Layer 2 Bridging and Switching Operational Mode Commands	741
Chapter 21	Spanning Tree Operational Mode Commands	767
Part 5	VPNs	
Chapter 22	VPN Operational Mode Commands	789

Part 6

Index

Index	839
Index of Statements and Commands	849

Table of Contents

	About This Guide	xvii
	Junos OS Documentation and Release Notes	xvii
	Objectives	xviii
	Audience	xviii
	Supported Platforms	xix
	Using the Indexes	xix
	Documentation Conventions	xix
	Documentation Feedback	xxi
	Requesting Technical Support	xxi
	Self-Help Online Tools and Resources	xxii
	Opening a Case with JTAC	xxii
Part 1	Protocols	
Chapter 1	ANCP Operational Mode Commands	3
	clear ancp neighbor	4
	show ancp cos	6
	show ancp neighbor	9
	show ancp subscriber	13
Chapter 2	BFD Operational Mode Commands	19
	clear bfd adaptation	20
	clear bfd session	21
	show bfd session	22
Chapter 3	BGP Operational Mode Commands	29
	clear bgp damping	30
	clear bgp neighbor	31
	clear bgp table	33
	show bgp bmp	35
	show bgp group	36
	show bgp group traffic-statistics	43
	show bgp neighbor	45
	show bgp replication	58
	show bgp summary	60
	show policy damping	64
Chapter 4	ES-IS Operational Mode Commands	67
	clear esis adjacency	68
	clear esis statistics	69
	show esis adjacency	70
	show esis interface	72

Chapter 5

show esis statistics	74
IP Multicast Operational Mode Commands	77
clear igmp membership	81
clear igmp snooping membership	85
clear igmp snooping statistics	86
clear igmp statistics	87
clear mld membership	89
clear mld statistics	90
clear msdp cache	91
clear msdp statistics	92
clear multicast bandwidth-admission	93
clear multicast scope	95
clear multicast sessions	96
clear multicast snooping statistics	97
clear multicast statistics	98
clear pgm negative-acknowledgments	99
clear pgm source-path-messages	100
clear pgm statistics	101
clear pim join	102
clear pim join-distribution	103
clear pim register	105
clear pim statistics	106
request pim multicast-tunnel rebalance	108
show dvmrp interfaces	109
show dvmrp neighbors	111
show dvmrp prefix	113
show dvmrp prunes	115
show igmp group	117
show igmp interface	121
show igmp snooping interface	124
show igmp snooping membership	127
show igmp snooping statistics	130
show igmp statistics	133
show mld group	136
show mld interface	140
show mld statistics	143
show msdp	146
show msdp source	148
show msdp source-active	150
show msdp statistics	152
show multicast backup-pe-groups	154
show multicast flow-map	156
show multicast interface	158
show multicast minfo	160
show multicast next-hops	162
show multicast pim-to-igmp-proxy	164
show multicast pim-to-mld-proxy	166
show multicast route	168

	show multicast rpf	173
	show multicast scope	177
	show multicast sessions	179
	show multicast snooping route	182
	show multicast snooping statistics	185
	show multicast statistics	188
	show multicast usage	191
	show pgm negative-acknowledgments	194
	show pgm source-path-messages	196
	show pgm statistics	197
	show pim bootstrap	200
	show pim interfaces	202
	show pim join	205
	show pim mdt	211
	show pim mdt data-mdt-joins	215
	show pim mvpn	217
	show pim neighbors	218
	show pim rps	222
	show pim source	227
	show pim statistics	229
	show sap listen	238
	test msdp	239
Chapter 6	IPv6 Operational Mode Commands	241
	clear ipv6 neighbors	242
	clear ipv6 router-advertisement	243
	show ipv6 neighbors	244
	show ipv6 router-advertisement	246
Chapter 7	IS-IS Operational Mode Commands	249
	clear isis adjacency	251
	clear isis database	253
	clear isis overload	255
	clear isis statistics	257
	show isis adjacency	259
	show isis authentication	263
	show isis backup coverage	265
	show isis backup label-switched-path	267
	show isis backup spf results	269
	show isis database	272
	show isis hostname	279
	show isis interface	280
	show isis overview	284
	show isis route	287
	show isis spf	290
	show isis statistics	295
Chapter 8	LLDP Operational Mode Commands	299
	clear lldp neighbor	300
	clear lldp statistics	301

	show lldp	302
	show lldp local-information	304
	show lldp neighbors	306
	show lldp remote-global-statistics	310
	show lldp statistics	312
Chapter 9	MVRP Operational Mode Commands	315
	show mvrp	316
	show mvrp applicant-state	318
	show mvrp dynamic-vlan-memberships	320
	show mvrp interface	321
	show mvrp registration-state	322
	show mvrp statistics	324
Chapter 10	OSPF Operational Mode Commands	327
	clear (ospf ospf3) database	329
	clear (ospf ospf3) database-protection	332
	clear (ospf ospf3) io-statistics	333
	clear (ospf ospf3) neighbor	334
	clear ospf overload	336
	clear (ospf ospf3) statistics	337
	show (ospf ospf3) backup coverage	339
	show (ospf ospf3) backup lsp	341
	show (ospf ospf3) backup spf	343
	show ospf database	350
	show ospf3 database	358
	show (ospf ospf3) interface	368
	show (ospf ospf3) io-statistics	373
	show (ospf ospf3) log	374
	show (ospf ospf3) neighbor	377
	show (ospf ospf3) overview	383
	show (ospf ospf3) route	387
	show (ospf ospf3) statistics	392
Chapter 11	Protocol-Independent Routing Operational Mode Commands	395
	show as-path	398
	show as-path domain	402
	show as-path summary	404
	show route	405
	show route active-path	410
	show route advertising-protocol	415
	show route all	419
	show route aspath-regex	421
	show route best	423
	show route brief	426
	show route ccc	428
	show route community	429
	show route community-name	431
	show route damping	433
	show route detail	438

	show route exact	453
	show route export	455
	show route export vrf-target	457
	show route extensive	459
	show route flow validation	472
	show route forwarding-table	474
	show route hidden	486
	show route inactive-path	489
	show route inactive-prefix	492
	show route instance	494
	show route label	501
	show route label-switched-path	503
	show route martians	505
	show route next-hop	507
	show route no-community	513
	show route output	516
	show route protocol	520
	show route range	529
	show route receive-protocol	533
	show route resolution	540
	show route snooping	543
	show route source-gateway	551
	show route summary	557
	show route table	559
	show route terse	567
Chapter 12	RIP Operational Mode Commands	571
	clear rip general-statistics	572
	clear rip statistics	573
	show rip general-statistics	574
	show rip neighbor	575
	show rip statistics	577
Chapter 13	RIPng Operational Mode Commands	581
	clear ripng general-statistics	582
	clear ripng statistics	583
	show ripng general-statistics	584
	show ripng neighbor	585
	show ripng statistics	587
Part 2	Policy Framework	
Chapter 14	Firewall Filter Operational Mode Commands	591
	clear firewall	592
	show firewall	593
	show firewall filter version	596
	show firewall log	597
	show firewall prefix-action-stats	600
	show policer	601

Chapter 15	Forwarding Operational Mode Commands	603
	clear dhcp relay binding	604
	clear dhcp relay statistics	607
	clear helper statistics	610
	show dhcp relay binding	612
	show dhcp relay statistics	616
	show helper statistics	619
Chapter 16	Routing Policy Operational Mode Commands	621
	show policy	622
	show policy conditions	624
	test policy	626
Part 3	MPLS	
Chapter 17	LDP Operational Mode Commands	631
	clear ldp neighbor	633
	clear ldp session	634
	clear ldp statistics	635
	show ldp database	636
	show ldp fec-filters	640
	show ldp interface	641
	show ldp neighbor	643
	show ldp path	645
	show ldp route	647
	show ldp session	649
	show ldp statistics	654
	show ldp traffic-statistics	657
Chapter 18	MPLS Operational Mode Commands	659
	clear mpls lsp	661
	request mpls lsp adjust-autobandwidth	663
	show connections	664
	show link-management	667
	show link-management peer	671
	show link-management routing	673
	show link-management statistics	676
	show link-management te-link	678
	show mpls admin-groups	680
	show mpls call-admission-control	681
	show mpls cspf	683
	show mpls diffserv-te	685
	show mpls interface	687
	show mpls lsp	688
	show mpls path	698
	show mpls static-lsp	699
	show ted database	702
	show ted link	706
	show ted protocol	708

Chapter 19	RSVP Operational Mode Commands	711
	clear rsvp session	712
	clear rsvp statistics	714
	show rsvp interface	715
	show rsvp neighbor	720
	show rsvp session	725
	show rsvp statistics	733
	show rsvp version	737
Part 4	Layer 2 Bridging and Switching Operational Mode Commands	
Chapter 20	Layer 2 Bridging and Switching Operational Mode Commands	741
	clear bridge mac-table	742
	clear error bpdu	743
	clear error mac-rewrite	744
	show bridge domain	745
	show bridge flood	747
	show bridge mac-table	754
	show bridge statistics	757
	show l2-learning global-information	760
	show l2-learning global-mac-count	761
	show l2-learning instance	762
	show l2-learning interface	764
	show mac-rewrite interface	766
Chapter 21	Spanning Tree Operational Mode Commands	767
	clear spanning-tree protocol-migration	768
	clear spanning-tree statistics	769
	show spanning-tree bridge	770
	show spanning-tree interface	776
	show spanning-tree mstp configuration	782
	show spanning-tree statistics	784
Part 5	VPNs	
Chapter 22	VPN Operational Mode Commands	789
	clear vpls mac-address	791
	clear vpls mac-table	792
	request l2circuit-switchover	793
	show dynamic-tunnels database	794
	show ingress-replication mvpn	796
	show l2circuit connections	797
	show l2vpn connections	802
	show mvpn c-multicast	806
	show mvpn instance	809
	show mvpn neighbor	812
	show vpls connections	816
	show vpls flood event-queue	824
	show vpls flood instance	826
	show vpls flood route	828

show vpls mac-table	830
show vpls statistics	834

Part 6

Index

Index	839
Index of Statements and Commands	849

About This Guide

This preface provides the following guidelines for using the *Junos[®] OS Routing Protocols and Policies Command Reference*:

- Junos OS Documentation and Release Notes on page xvii
- Objectives on page xviii
- Audience on page xviii
- Supported Platforms on page xix
- Using the Indexes on page xix
- Documentation Conventions on page xix
- Documentation Feedback on page xxi
- Requesting Technical Support on page xxi

Junos OS Documentation and Release Notes

For a list of related Junos OS documentation, see <http://www.juniper.net/techpubs/software/junos/>.

If the information in the latest release notes differs from the information in the documentation, follow the *Junos OS Release Notes*.

To obtain the most current version of all Juniper Networks[®] technical documentation, see the product documentation page on the Juniper Networks website at <http://www.juniper.net/techpubs/>.

Juniper Networks supports a technical book program to publish books by Juniper Networks engineers and subject matter experts with book publishers around the world. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration using the Junos operating system (Junos OS) and Juniper Networks devices. In addition, the Juniper Networks Technical Library, published in conjunction with O'Reilly Media, explores improving network security, reliability, and availability using Junos OS configuration techniques. All the books are for sale at technical bookstores and book outlets around the world. The current list can be viewed at <http://www.juniper.net/books>.

Objectives

This guide provides descriptions of the Juniper Networks Junos OS 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 OS System Basics and Services Command Reference*
- *Junos OS Interfaces Command Reference*



NOTE: For additional information about the Junos OS—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 OS Routing Protocols Configuration Guide*—Includes configuration statements and guidelines for routing protocols and protocol-independent features.
- *Junos OS Routing Policy Configuration Guide*—Includes configuration statements and guidelines for policies, including firewall filters, forwarding options, and routing policies.
- *Junos OS MPLS Applications Configuration Guide*—Includes configuration statements and guidelines for Multiprotocol Label Switching (MPLS) traffic engineering.
- *Junos OS 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 router or switch.

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 Platforms

For the features described in this manual, the Junos OS currently supports the following 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 xx 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 xx 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 configure 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 OS System Basics Configuration Guide</i> RFC 1997, <i>BGP Communities Attribute</i>
<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>
Text like this	Represents names of configuration statements, commands, files, and directories; interface names; 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> >;

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

Convention	Description	Examples
(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 [community-ids]
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 .

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 or topic name
- URL or page number
- Software release version (if applicable)

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/us/en/local/pdf/resource-guides/7100059-en.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/>
- 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: <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

- ANCP Operational Mode Commands on page 3
- BFD Operational Mode Commands on page 19
- BGP Operational Mode Commands on page 29
- ES-IS Operational Mode Commands on page 67
- IP Multicast Operational Mode Commands on page 77
- IPv6 Operational Mode Commands on page 241
- IS-IS Operational Mode Commands on page 249
- LLDP Operational Mode Commands on page 299
- MVRP Operational Mode Commands on page 315
- OSPF Operational Mode Commands on page 327
- Protocol-Independent Routing Operational Mode Commands on page 395
- RIP Operational Mode Commands on page 571
- RIPng Operational Mode Commands on page 581

CHAPTER 1

ANCP Operational Mode Commands

Table 3 on page 3 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Access Node Control Protocol (ANCP) operations. Commands are listed in alphabetical order.

Table 3: ANCP Operational Mode Commands

Task	Command
Clear ANCP neighbors.	<code>clear ancp neighbor</code>
Display ANCP class-of-service information.	<code>show ancp cos</code>
Display ANCP neighbor information.	<code>show ancp neighbor</code>
Display ANCP subscriber information.	<code>show ancp subscriber</code>



NOTE: For information about how to configure ANCP, see the *Junos Subscriber Access Configuration Guide*.

clear ancp neighbor

Syntax	clear ancp neighbor <ip-address <i>ip-address</i>> <system-name <i>mac-address</i>>
Release Information	Command introduced in Junos OS Release 9.4.
Description	Clear the connection with all ANCP neighbors or with the specified ANCP neighbor.
Options	<p>none—Clear all ANCP neighbors.</p> <p>ip-address <i>ip-address</i>—(Optional) Clear the ANCP neighbor specified by the IP address.</p> <p>system-name <i>mac-address</i>—(Optional) Clear the ANCP neighbor specified by the MAC address.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show ancp neighbor on page 9
List of Sample Output	clear ancp neighbor on page 4 show ancp neighbor on page 4
Output Fields	When you enter this command, you are provided no feedback on the status of your request. You can enter the show ancp neighbor command before and after clearing the ANCP neighbors to verify the clear operation.

Sample Output

clear ancp neighbor user@host> clear ancp neighbor

show ancp neighbor The following sample output displays the connections with ANCP neighbors before and after the **clear ancp neighbor** command was issued.

user@host> show ancp neighbor

IP Address	MAC Address	State	Subscriber Count	Capabilities
10.10.10.2	ba:ad:be:ef:10:10	Established	5	Topo
12.12.12.2	ba:ad:be:ef:10:12	Established	5	Topo
13.13.13.2	ba:ad:be:ef:10:13	Established	5	Topo
14.14.14.2	ba:ad:be:ef:10:14	Established	5	Topo

user@host> clear ancp neighbor ip-address 10.10.10.2

user@host> show ancp neighbor

IP Address	MAC Address	State	Subscriber Count	Capabilities
12.12.12.2	ba:ad:be:ef:10:12	Established	5	Topo

13.13.13.2	ba:ad:be:ef:10:13	Established	5	Topo
14.14.14.2	ba:ad:be:ef:10:14	Established	5	Topo

show ancp cos

Syntax	show ancp cos <identifier <i>identifier</i>> <last-update> <pending-update>
Release Information	Command introduced in Junos OS Release 9.4.
Description	Display information about the CoS state for subscriber traffic.
Options	<p>identifier <i>identifier</i>—(Optional) Display information about the local loops for the specified access identifier.</p> <p>last-update—(Optional) Display the most recently updated CoS information.</p> <p>pending-update—(Optional) Display the pending update of CoS information.</p>
Required Privilege Level	view
List of Sample Output	<p>show ancp cos on page 7</p> <p>show ancp cos last-update on page 7</p> <p>show ancp cos pending-update on page 8</p>
Output Fields	Table 4 on page 6 lists the output fields for the show ancp cos command. Output fields are listed in the approximate order in which they appear.

Table 4: show ancp cos Output Fields

Field Name	Field Description
QoS Adjust Flag	State of QoS adjust: TRUE (configured) or FALSE (not configured).
Keepalive Timer	Interval between the keepalive messages that ANCP sends to CoS.
Cos State	<p>State of the ANCP-CoS interaction:</p> <ul style="list-style-type: none"> • ANCPD_COS_CONNECT_NEEDED • ANCPD_COS_CONNECT_PENDING • ANCPD_COS_CONNECT_DONE • ANCPD_COS_SESSION_SENT • ANCPD_COS_WRITE_READY
Connect Time	Time at which ANCP connected to CoS; useful for debugging.
Session Time	Time at which ANCP sent a session connect message to CoS; useful for debugging.
Routing Instance Time	Time at which ANCP sent the routing instance to CoS; useful for debugging.

Table 4: show ancp cos Output Fields (*continued*)

Field Name	Field Description
Keepalive Time	Time at which the last keepalive message was sent.
Rate Update Time	Time at which the shaping rate was last updated.
Type	Subscriber access type: ifl indicates that a single VLAN carries subscriber traffic and iflset indicates that a set of VLANs carries subscriber traffic.
Name	System-wide name of the particular subscriber access.
Index	Access identifier.
Pending Update	Actual downstream data rate to be applied next to this local loop, in Kbps.
Last Update	Actual downstream data rate last applied to this local loop, in Kbps.

Sample Output

show ancp cos user@host> show ancp cos

```

Qos Adjust Flag:      TRUE
Keepalive Timer:      45 secs
Cos State:            WRITE_READY
Connect Time:         Mon Nov 17 15:03:01 2008
Session Time:         Mon Nov 17 15:03:13 2008
Routing Instance Time: Mon Nov 17 15:03:14 2008
Keepalive Time:       Not Set
Rate Update Time:     Mon Nov 17 15:03:15 2008

```

Type	Name	Index	Pending Update	Last Update
iflset	set-ge-10410	1	None	64 Kbps
iflset	set-ge-10411	2	None	64 Kbps
ifl	ge-1/0/4.2	71	None	64 Kbps
ifl	ge-1/0/4.3	72	None	64 Kbps

show ancp cos last-update user@host> show ancp cos last-update

```

Qos Adjust Flag:      TRUE
Keepalive Timer:      45 secs
Cos State:            WRITE_READY
Connect Time:         Mon Nov 17 15:03:01 2008
Session Time:         Mon Nov 17 15:03:13 2008
Routing Instance Time: Mon Nov 17 15:03:14 2008
Keepalive Time:       Wed Nov 19 15:32:14 2008
Rate Update Time:     Mon Nov 17 15:03:15 2008

```

Type	Name	Index	Pending Update	Last Update
iflset	iflset0	1	None	64 Kbps
iflset	iflset1	2	None	64 Kbps

```
show ancp cos      user@host> show ancp cos pending-update
pending-update
  Qos Adjust Flag:      TRUE
  Keepalive Timer:      45 secs
  Cos State:            WRITE_READY
  Connect Time:         Mon Nov 17 15:03:01 2008
  Session Time:         Mon Nov 17 15:03:13 2008
  Routing Instance Time: Mon Nov 17 15:03:14 2008
  Keepalive Time:       Wed Nov 19 15:32:29 2008
  Rate Update Time:     Mon Nov 17 15:03:15 2008
```

show ancp neighbor

Syntax	show ancp neighbor <brief detail extensive terse> <ip-address <i>ip-address</i> > <system-name <i>mac-address</i> >
Release Information	Command introduced in Junos OS Release 9.4.
Description	Display information about all ANCP neighbors or the specified ANCP neighbor.
Options	<p>brief detail extensive terse—(Optional) Display the specified level of detail.</p> <p>ip-address <i>ip-address</i>—(Optional) IP address of the ANCP neighbor (access node).</p> <p>system-name <i>mac-address</i>—(Optional) MAC address of the ANCP neighbor (access node).</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear ancp neighbor on page 4
List of Sample Output	<p>show ancp neighbor on page 11</p> <p>show ancp neighbor detail on page 11</p> <p>show ancp neighbor ip-address on page 12</p>
Output Fields	Table 5 on page 9 lists the output fields for the show ancp neighbor command. Output fields are listed in the approximate order in which they appear.

Table 5: show ancp neighbor Output Fields

Field Name	Field Description
IP Address	IP address of the ANCP neighbor.
System Name	MAC address of the ANCP neighbor.
State	<p>State of the ANCP adjacency:</p> <ul style="list-style-type: none"> Established—ANCP session has been established. Init—ANCP session has been initiated. SynSent—ANCP has sent a SYN message. SynReceived—ANCP has sent a SYNACK message.
Subscriber Count	Number of subscribers associated with the ANCP neighbor (access local loop).
Capabilities	Negotiated ANCP capability. Currently, only topology discovery is available.
TCP Port	TCP port on which ANCP messages are exchanged.

Table 5: show ancp neighbor Output Fields (*continued*)

Field Name	Field Description
System Instance	Number identifying the ANCP link instance from the edge device's perspective.
Peer Instance	Number identifying the ANCP instance from the access node's perspective. This number is unique and changes when the node or link comes back up after going down.
Timer	Adjacency timer value advertised by the ANCP peer in 100 ms increments; the interval between ANCP ACK messages. This value remains constant for the duration of an ANCP session.
Partition Type	Number that identifies whether partitions are used and how the ID is negotiated: <ul style="list-style-type: none"> • 0—No partition. • 1—Fixed partition requested. • 2—Fixed partition assigned.
Partition Flag	Number that specifies the type of partition requested: 1 (new adjacency) or 2 (recovered adjacency).
Partition Identifier	Number that associates the ANCP message with a specific partition.
Dead Timer	Remaining period that the edge device waits for adjacency packets from a neighbor before declaring the neighbor to be down. The maximum dead time value is three times the configured adjacency timer value. This field displays the current value based on the time that the last adjacency packet was received.
Received	Count of the following ANCP message packets received by the node from the neighbor: <ul style="list-style-type: none"> • Syn Count—Synchronization message used to maintain an adjacency. • Synack Count—Neighbor response to the node's synchronization messages. • Rstack Count—Message indicating that the link to the neighbor needs to be reset. • Ack Count—Acknowledgment message periodically received after an adjacency has been established. • Port Up Count—Status message indicating that a port has transitioned to the up state. • Port Down Count—Status message indicating that a port has transitioned to the down state. • Other Count—
Sent	Count of the following ANCP message packets sent by the node: <ul style="list-style-type: none"> • Syn Count—Synchronization message used to maintain an adjacency. • Synack Count—Node response to the neighbor's synchronization messages. • Rstack Count—Message indicating that the link to the node needs to be reset. • Ack Count—Acknowledgment message periodically sent after an adjacency has been established.

Table 5: show ancp neighbor Output Fields (*continued*)

Field Name	Field Description
Max Discovery Limit Exceed Count	Number of times that the maximum number of discovery table entries accepted from the neighbor has been exceeded.

Sample Output

show ancp neighbor user@host> show ancp neighbor

IP Address	State	Up Time	Subscriber Count	Capabilities
10.10.10.2	Established	3	2	Topo
11.11.11.2	Established	3	2	Topo

show ancp neighbor detail user@host> show ancp neighbor detail

```
Neighbor Information
  IP Address       : 192.168.10.1
  System Name      : 00:00:64:1b:01:02
  Up Time          : 38
  TCP Port         : 64959
  State            : Established
  Subscriber Count : 7
  Capabilities     : Topology Discovery
  System Instance  : 11
  Peer Instance    : 1
  Adjacency Timer (in 100ms) : 50
  Peer Adjacency Timer (in 100ms) : 100
  Partition Type   : 0
  Partition Flag   : 1
  Partition Identifier : 0
  Dead Timer       : 22
  Received Syn Count : 47
  Received Synack Count : 48
  Received Rstack Count : 2
  Received Ack Count : 12
  Received Port Up Count : 8
  Received Port Down Count : 2
  Received Other Count : 0
  Sent Syn Count    : 48
  Sent Synack Count : 47
  Sent Rstack Count : 1
  Sent Ack Count    : 12
  Max Discovery Limit Exceed Count : 0
IP Address       : 192.168.9.1
System Name      : 00:00:64:1c:01:02
Up Time          : 36
TCP Port         : 61408
State            : Established
Subscriber Count : 1
Capabilities     : Topology Discovery
System Instance  : 12
Peer Instance    : 1
Adjacency Timer (in 100ms) : 50
Peer Adjacency Timer (in 100ms) : 100
Partition Type   : 0
Partition Flag   : 1
```

Partition Identifier	: 0
Dead Timer	: 23
Received Syn Count	: 24
Received Synack Count	: 20
Received Rstack Count	: 2
Received Ack Count	: 9
Received Port Up Count	: 5
Received Port Down Count	: 0
Received Other Count	: 0
Sent Syn Count	: 20
Sent Synack Count	: 24
Sent Rstack Count	: 1
Sent Ack Count	: 9
Max Discovery Limit Exceed Count	: 0

show ancp neighbor user@host> **show ancp neighbor 10.10.10.2**
ip-address

Neighbor Information

IP Address	: 10.10.10.2
System Name	: ba:ad:be:ef:10:10
TCP Port	: 3332
State	: Established
Subscriber Count	: 5
Capabilities	: Topology Discovery
System Instance	: 6
Peer Instance	: 1695
Timer	: 250
Partition Type	: 0
Partition Flag	: 1
Partition Identifier	: 0
Dead Timer	: 63

show ancp subscriber

Syntax	show ancp subscriber <brief detail extensive terse> <identifier <i>identifier</i> > <neighbor <i>ip-address</i> >
Release Information	Command introduced in Junos OS Release 9.4.
Description	Display information about all subscribers (local access loops), the identified subscriber, or the subscriber associated with the specified ANCP neighbor (access node).
Options	<p>brief detail extensive terse—(Optional) Display the specified level of detail.</p> <p>identifier <i>identifier</i>—(Optional) Display information about the subscriber specified by the access identifier.</p> <p>neighbor <i>ip-address</i>—(Optional) Display information about the local loops connected to the specified access node.</p>
Required Privilege Level	view
List of Sample Output	<p>show ancp subscriber brief on page 15</p> <p>show ancp subscriber detail on page 15</p> <p>show ancp subscriber identifier <i>identifier</i>-string detail on page 16</p>
Output Fields	Table 6 on page 13 lists the output fields for the show ancp subscriber command. Output fields are listed in the approximate order in which they appear.

Table 6: show ancp subscriber Output Fields

Field Name	Field Description
Loop Identifier	Access loop identifier as sent by the access node and configured to map the subscriber to an interface.
Type	Type of digital subscriber line employed by the access node: ADSL1 , ADSL2 , ADSL2+ , VDSL1 , VDSL2 , SDSL , or UNKNOWN .
State	State of the DSL line: Idle , Show Time , or Silent .
Rate Kbps	Actual downstream data rate for this local loop.
Neighbor	IP address of ANCP neighbor (access node).
Access Node Identifier	Access node identifier as sent by the access node and configured to map the subscriber to an interface.
Neighbor IP Address	IP address of the ANCP neighbor (access node).

Table 6: show ancp subscriber Output Fields (*continued*)

Field Name	Field Description
Aggregate Circuit Identifier Binary	Binary identifier for the VLAN circuit ID.
DSL Type	Type of digital subscriber line employed by the access node: ADSL1 , ADSL2 , ADSL2+ , VDSL1 , VDSL2 , SDSL , or UNKNOWN .
Interface Type	Type of interface employed for subscriber traffic: ifl for a single VLAN or interface-set for a configured group of VLANs.
Interface	Name of the interface set or logical interface.
DSL Line State	State of the DSL line: Idle , Show Time , or Silent .
Actual Net Data Upstream	Actual upstream data rate for this local loop, in Kbps.
Actual Net Data Downstream	Actual downstream data rate for this local loop, in Kbps.
DSL Line Data Link	Data link protocol employed on the access loop: AAL5 or Ethernet .
DSL Line Encapsulation	Encapsulation type on the access loop, for Ethernet only: <ul style="list-style-type: none"> • 0—NA, type not conveyed • 1—Untagged Ethernet • 2—Single-tagged Ethernet
DSL Line Encapsulation Payload	Payload carried across the access loop: <ul style="list-style-type: none"> • 0—NA, type not conveyed • 1—PPPoA LLC • 2—PPPoA null • 3—IPoA LLC • 4—IPoA null • 5—Ethernet over AAL5 LLC with FCS • 6—Ethernet over AAL5 LLC without FCS • 7—Ethernet over AAL5 null with FCS • 8—Ethernet over AAL5 null without FCS
Minimum Net Data Upstream	Minimum upstream data rate desired by the operator for this local loop, in Kbps.
Minimum Net Data Downstream	Minimum downstream data rate desired by the operator for this local loop, in Kbps.
Maximum Net Data Upstream	Maximum upstream data rate desired by the operator for this local loop, in Kbps.

Table 6: show ancp subscriber Output Fields (*continued*)

Field Name	Field Description
Maximum Net Data Downstream	Maximum downstream data rate desired by the operator for this local loop, in Kbps.
Attainable Net Data Upstream	Maximum attainable upstream data rate for this local loop, in Kbps.
Attainable Net Data Downstream	Maximum attainable downstream data rate for this local loop, in Kbps.
Minimum Low Power Data Downstream	Minimum downstream data rate desired by the operator for this local loop in low power state, in Kbps.
Minimum Low Power Data Upstream	Minimum upstream data rate desired by the operator for this local loop in low power state, in Kbps.
Maximum Interleave Delay Downstream	Maximum interleaving delay for downstream data, in milliseconds.
Maximum Interleave Delay Upstream	Maximum interleaving delay for upstream data, in milliseconds.
Actual Interleave Delay Downstream	Actual interleaving delay for downstream data, in milliseconds.
Actual Interleave Delay Upstream	Actual interleaving delay for upstream data, in milliseconds.

Sample Output

**show ancp subscriber
brief**

user@host> show ancp subscriber brief

Loop Identifier	Type	Interface	Rate Kbps	Neighbor
port-1-10	VDSL2	set-ge-10410	64	10.10.10.2
port-1-11	VDSL2	set-ge-10411	64	11.11.11.2
port-2-10	VDSL2	ge-1/0/4.12	64	10.12.12.2
port-2-11	VDSL2	ge-1/0/4.13	64	10.13.13.2

**show ancp subscriber
detail**

user@host> show ancp subscriber detail

```
Subscriber Information
  Access Loop Identifier : port-2-11
    Neighbor IP Address   : 10.11.11.2
    Aggregate Circuit Identifier Binary : 0/0
    DSL Type              : VDSL2
```

```

Interface Type                : ifl
Interface                    : ge-1/0/4.10
DSL Line State                : Show Time
Actual Net Data Upstream      : 64
Actual Net Data Downstream    : 64
DSL Line Data Link            : AAL5
DSL Line Encapsulation        : N/A
DSL Line Encapsulation Payload : N/A
Minimum Net Data Upstream     : 64
Minimum Net Data Downstream   : 64
Maximum Net Data Upstream     : 64
Maximum Net Data Downstream   : 64
Attainable Net Data Upstream  : 64
Attainable Net Data Downstream : 64
Minimum Low Power Data Downstream : 64
Minimum Low Power Data Upstream : 64
Maximum Interleave Delay Downstream : 50
Maximum Interleave Delay Upstream : 50
Actual Interleave Delay Downstream : 50
Actual Interleave Delay Upstream : 50
Access Loop Identifier : port-1-11
Neighbor IP Address          : 10.11.11.2
Aggregate Circuit Identifier Binary : 0/0
DSL Type                     : DSL 0
Interface Type               : interface-set
Interface                    : set-ge-10411
DSL Line State               : Show Time
Actual Net Data Upstream     : 64
Actual Net Data Downstream   : 64
DSL Line Data Link           : AAL5
DSL Line Encapsulation       : N/A
DSL Line Encapsulation Payload : N/A
Minimum Net Data Upstream     : 64
Minimum Net Data Downstream   : 64
Maximum Net Data Upstream     : 64
Maximum Net Data Downstream   : 64
Attainable Net Data Upstream  : 64
Attainable Net Data Downstream : 64
Minimum Low Power Data Downstream : 64
Minimum Low Power Data Upstream : 64
Maximum Interleave Delay Downstream : 50
Maximum Interleave Delay Upstream : 50
Actual Interleave Delay Downstream : 50
Actual Interleave Delay Upstream : 50

```

```

show ancp subscriber identifier
identifier-string detail
user@host> show ancp subscriber identifier port-1-11 detail

```

```

Access Loop Identifier : port-1-11
Neighbor IP Address    : 10.11.11.2
Aggregate Circuit Identifier Binary : 0/0
DSL Type               : DSL 0
Interface Type         : interface-set
Interface              : set-ge-10411
DSL Line State         : Show Time
Actual Net Data Upstream : 64
Actual Net Data Downstream : 64
DSL Line Data Link      : AAL5
DSL Line Encapsulation  : N/A
DSL Line Encapsulation Payload : N/A
Minimum Net Data Upstream : 64

```

Minimum Net Data Downstream	: 64
Maximum Net Data Upstream	: 64
Maximum Net Data Downstream	: 64
Attainable Net Data Upstream	: 64
Attainable Net Data Downstream	: 64
Minimum Low Power Data Downstream	: 64
Minimum Low Power Data Upstream	: 64
Maximum Interleave Delay Downstream	: 50
Maximum Interleave Delay Upstream	: 50
Actual Interleave Delay Downstream	: 50
Actual Interleave Delay Upstream	: 50

CHAPTER 2

BFD Operational Mode Commands

Table 7 on page 19 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.	<code>clear bfd adaptation</code>
Clear BFD sessions.	<code>clear bfd session</code>
Display BFD session statistics.	<code>show bfd session</code>



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	<code>clear bfd adaptation</code> <code><address <i>session-address</i>></code> <code><discriminator <i>discr-number</i>></code>
Release Information	Command introduced before Junos OS 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><code>none</code>—Clear adaptation for all BFD sessions.</p> <p><code>address <i>session-address</i></code>—(Optional) Clear adaptation for all BFD sessions matching the specified address.</p> <p><code>discriminator <i>discr-number</i></code>—(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 20
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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 OS 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 Documentation	<ul style="list-style-type: none"> • show bfd session on page 22
List of Sample Output	clear bfd session on page 21
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
clear bfd session  user@host> clear bfd session
```

show bfd session

Syntax	<pre>show bfd session <brief detail extensive summary> <address address> <discriminator discriminator> <logical-system (all logical-system-name)> <prefix address></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>discriminator and address options introduced in Junos OS Release 8.2.</p> <p>prefix option introduced in Junos OS Release 9.0.</p>
Description	Display information about active Bidirectional Forwarding Detection (BFD) sessions.
Options	<p>none—(Same as brief) Display information about active BFD sessions.</p> <p>brief detail extensive summary—(Optional) Display the specified level of output.</p> <p>address address—(Optional) Display information about the BFD session for the specified neighbor address.</p> <p>discriminator discriminator—(Optional) Display information about the BFD session using the specified local discriminator.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>prefix address—(Optional) Display information about all of the BFD sessions for the specified LDP forwarding equivalence class (FEC).</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear bfd session on page 21
List of Sample Output	<p>show bfd session on page 26</p> <p>show bfd session brief on page 26</p> <p>show bfd session detail on page 26</p> <p>show bfd session detail (with Authentication) on page 26</p> <p>show bfd session address extensive on page 26</p> <p>show bfd session extensive on page 27</p> <p>show bfd session extensive (with Authentication) on page 27</p> <p>show bfd session summary on page 28</p>
Output Fields	Table 8 on page 23 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
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
Authenticate	Indicates that BFD authentication is configured.	detail extensive
keychain	Name of the security authentication keychain being used by a specific client. BFD authentication information for a client is provided in a single line and includes the keychain , algo , and mode parameters. Multiple clients may be configured on a BFD session.	extensive
algo	BFD authentication algorithm being used for a specific client: keyed-md5 , keyed-sha-1 , meticulous-keyed-md5 , meticulous-keyed-sha-1 , or simple-password . BFD authentication information for a client is provided in a single line and includes the keychain , algo , and mode parameters. Multiple clients may be configured on a BFD session.	extensive
mode	Level of BFD authentication enforcement being used by a specific client: strict or loose . Strict enforcement indicates authentication is configured at both ends of the session (the default). Loose enforcement indicates that one end of the session may not be authenticated. BFD authentication information for a client is provided in a single line and includes the keychain , algo , and mode parameters. Multiple clients may be configured on a BFD session.	extensive

Table 8: show bfd session Output Fields (*continued*)

Field Name	Field Description	Level of Output
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 have been 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
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

Table 8: show bfd session Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
Authentication	<p>Summary status of BFD authentication:</p> <ul style="list-style-type: none"> status—enabled/active indicates authentication is configured and active. enabled/inactive indicates authentication is configured but not active. This only occurs when the remote end of the session does not support authentication and loose checking is configured. keychain—Name of the security authentication keychain associated with the specified BFD session. algo—BFD authentication algorithm being used: keyed-md5, keyed-sha-1, meticulous-keyed-md5, meticulous-keyed-sha-1, or simple-password. mode—Level of BFD authentication enforcement: strict or loose. Strict enforcement indicates authentication is configured at both ends of the session (the default). Loose enforcement indicates that one end of the session may not be authenticated. <p>This information is only shown if BFD authentication is configured.</p>	extensive
sessions	Total number of active BFD sessions.	All levels
clients	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 time to live (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

Sample Output

```

show bfd session      user@host> show bfd session

Address          State    Interface    Detect Time    Transmit
10.9.1.33        Up       so-7/1/0.0    0.600         Interval 0.200 Multiplier 3
10.9.1.29        Up       ge-4/0/0.0    0.600         Interval 0.200 Multiplier 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 26.

```

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

Address          State    Interface    Detect Time    Transmit
10.9.1.33        Up       so-7/1/0.0    0.600         Interval 0.200 Multiplier 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         Interval 0.200 Multiplier 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      user@host> show bfd session detail
detail (with
Authentication)

Address          State    Interface    Detect Time    Transmit
10.9.1.33        Up       so-7/1/0.0    0.600         Interval 0.200 Multiplier 3
Client OSPF, TX interval 0.200, RX interval 0.200, multiplier 3, Authenticate
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         Interval 0.200 Multiplier 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      user@host> show bfd session 10.255.245.212 extensive
address extensive

Address          State    Interface    Detect Time    Transmit
10.255.245.212  Up       ge-4/0/0.0    1.200         Interval 0.400 Multiplier 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
extensive (with
Authentication)**

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

Address	State	Interface	Detect Time	Transmit Interval	Multiplier
192.168.208.26	Up	so-1/0/0.0	2.400	0.800	10
Client Static, TX interval 0.600, RX interval 0.600, Authenticate keychain bfd, algo keyed-md5, mode loose Session up time 00:18:07 Local diagnostic None, remote diagnostic NbrSignal Remote state Up, version 1 Replicated					

```

Min async interval 0.600, min slow interval 1.000
Adaptive async TX interval 0.600, RX interval 0.600
Local min TX interval 0.600, minimum RX interval 0.600, multiplier 10
Remote min TX interval 0.800, min RX interval 0.800, multiplier 3
Local discriminator 2, remote discriminator 3
Echo mode disabled/inactive
Authentication enabled/active, keychain bfd, algo keyed-md5, mode loose

```

```

1 sessions, 1 clients
Cumulative transmit rate 1.2 pps, cumulative receive rate 1.2 pps

```

```

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

```

CHAPTER 3

BGP Operational Mode Commands

Table 9 on page 29 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>
Remove entries from the neighbor database.	<code>clear bgp neighbor</code>
Request BGP to refresh routes.	<code>clear bgp table</code>
Display information about the BGP Monitoring Protocol.	<code>show bgp bmp</code>
Display entries in the BGP group database.	<code>show bgp group</code>
Display traffic statistics for BGP groups.	<code>show bgp group traffic-statistics</code>
Display entries in the BGP neighbor database.	<code>show bgp neighbor</code>
Display the BGP state replication status for nonstop active routing-enabled devices.	<code>show bgp replication</code>
Display BGP summary information.	<code>show bgp summary</code>
Display BGP damping parameters.	<code>show policy damping</code>



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.



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> >
Syntax (EX Series Switch)	clear bgp damping < <i>prefix</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Border Gateway Protocol (BGP) route flap damping information.
Options	none—Clear all BGP route flap damping information. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. <i>prefix</i> —(Optional) Clear route flap damping information for only the specified destination prefix.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show policy damping on page 64• show route damping on page 433
List of Sample Output	clear bgp damping on page 30
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear bgp damping user@host> clear bgp damping

clear bgp neighbor

Syntax	<pre>clear bgp neighbor <as as-number> <instance instance-name> <logical-system (all logical-system-name)> <neighbor> <soft soft-inbound> <soft-minimum-igp></pre>
Syntax (EX Series Switch)	<pre>clear bgp neighbor <as as-number> <instance instance-name> <neighbor> <soft soft-inbound> <soft-minimum-igp></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p>
Description	<p>Perform one of the following tasks:</p> <ul style="list-style-type: none"> • 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	<p>none—Change the state of all BGP neighbors to IDLE.</p> <p>as as-number—(Optional) Apply this command only to neighbors in the specified autonomous system (AS).</p> <p>instance instance-name—(Optional) Apply this command only to neighbors for the specified 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> <p>neighbor—(Optional) IP address of a BGP peer. Apply this command only to the specified neighbor.</p> <p>soft—(Optional) Reapply any export policies and send refresh updates to neighbors without clearing the state.</p> <p>soft-inbound—(Optional) Reapply any import policies and send refresh updates to neighbors without clearing the state.</p> <p>soft-minimum-igp—(Optional) Provides soft refresh of the outbound state when the interior gateway protocol (IGP) metric is reset.</p>

Required Privilege Level clear

Related Documentation • [show bgp neighbor on page 45](#)

List of Sample Output [clear bgp neighbor on page 32](#)

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

Sample Output

clear bgp neighbor user@host> clear bgp neighbor

clear bgp table

Syntax	<code>clear bgp table <i>table-name</i></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switch)	<code>clear bgp table <i>table-name</i></code>
Release Information	Command introduced in Junos OS Release 9.0. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Request BGP to refresh routes in a specified routing table.
Options	<code>logical-system (all <i>logical-system-name</i>)</code> —(Optional) Perform this operation on all logical systems or on a particular logical system. <code><i>table-name</i></code> —Request that BGP refresh routes in the specified table.
Additional Information	In some cases, a prefix limit is associated with a routing table for a VPN instance. When this limit is exceeded (for example, because of a network misconfiguration), some routes might not be 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 that BGP refresh routes in a VPN instance table.
Required Privilege Level	clear
List of Sample Output	<code>clear bgp table private.inet.0</code> on page 33 <code>clear bgp table inet.6 logical-system all</code> on page 33 <code>clear bgp table private.inet.6 logical-system ls1</code> on page 33 <code>clear bgp table logical-system all inet.0</code> on page 33 <code>clear bgp table logical-system ls2 private.inet.0</code> on page 34
Output Fields	This command produces no output.

Sample Output

```

clear bgp table private.inet.0      user@host> clear bgp table private.inet.0

clear bgp table inet.6 logical-system all  user@host> clear bgp table inet.6 logical-system all

clear bgp table private.inet.6 logical-system ls1  user@host> clear bgp table private.inet.6 logical-system ls1

clear bgp table logical-system all inet.0  user@host> clear bgp table logical-system all inet.0

```

```
clear bgp table    user@host> clear bgp table logical-system ls2 private.inet.0
logical-system ls2
private.inet.0
```


show bgp bmp

Syntax	show bgp bmp
Release Information	Command introduced in Junos OS Release 9.5. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about the BGP Monitoring Protocol (BMP).
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show bgp bmp on page 35
Output Fields	Table 10 on page 35 lists the output fields for the show bgp bmp command. Output fields are listed in the approximate order in which they appear.

Table 10: show bgp bmp Output Fields

Field Name	Field Description
BMP station address/port:	IP address and port number of monitoring station to which BGP Monitoring Protocol (BMP) statistics are sent.
BMP session state	Status of the BMP session: UP or DOWN .
Memory consumed by BMP	Memory used by the active BMP session.
Statistics timeout	Amount of time, in seconds, between transmissions of BMP data to the monitoring station.
Memory limit	Threshold, in bytes, at which the routing device stops collecting BMP data if it is exceeded.
Memory-connect retry timeout	Amount of time, in seconds, after which the routing device attempts to resume a BMP session that was ended after the configured memory threshold was exceeded.

Sample Output

```

show bgp bmp      user@host> show bgp bmp
                    BMP station address/port: 172.24.24.157+5454
                    BMP session state: DOWN
                    Memory consumed by BMP: 0
                    Statistics timeout: 15
                    Memory limit: 10485760
                    Memory connect retry timeout: 600

```

show bgp group

Syntax	<code>show bgp group</code> <code><brief detail summary></code> <code><group-name></code> <code><instance instance-name></code> <code><logical-system (all logical-system-name)></code> <code><rtf></code>
Syntax (EX Series Switch)	<code>show bgp group</code> <code><brief detail summary></code> <code><group-name></code> <code><instance instance-name></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about the configured Border Gateway Protocol (BGP) groups.
Options	<code>none</code> —Display group information about all BGP groups. <code>brief detail summary</code> —(Optional) Display the specified level of output. <code>group-name</code> —(Optional) Display group information for the specified group. <code>instance instance-name</code> —(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. <code>logical-system (all logical-system-name)</code> —(Optional) Perform this operation on all logical systems or on a particular logical system. <code>rtf</code> —(Optional) Display BGP group route targeting information.
Required Privilege Level	view
List of Sample Output	<code>show bgp group</code> on page 39 <code>show bgp group</code> on page 40 <code>show bgp group brief</code> on page 40 <code>show bgp group detail</code> on page 40 <code>show bgp group rtf detail</code> on page 41 <code>show bgp group summary</code> on page 41 <code>show bgp group summary</code> on page 41
Output Fields	Table 11 on page 37 describes the output fields for the show bgp group command. Output fields are listed in the approximate order in which they appear.

Table 11: 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
Local AS	AS number of the local routing device.	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 export 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 routing device 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 routing device, 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 and 2/4/4/0 indicate 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. 	summary
ip-addresses	List of peers who are members of the group. The address is followed by the peer's port number.	All levels

Table 11: 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
<i>inet.number</i>	Number of active, received, accepted, and damped routes in the routing table. For example, inet.0: 7/10/9/0 indicates the following: <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 <i>inet.number</i>	Information about the routing table. <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. Advertised prefixes—Number of prefixes advertised to a peer. 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.	All levels
Peers	Total number of peers.	All levels
External	Total number of external peers.	All levels
Internal	Total number of internal peers.	All levels
Down peers	Total number of unavailable peers.	All levels

Table 11: show bgp group Output Fields (*continued*)

Field Name	Field Description	Level of Output
Flaps	Total number of flaps that occurred.	All levels
Table	Name of a routing table.	brief, none
Tot Paths	Total number of paths.	brief, none
Act Paths	Number of active routes.	brief, none
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.	brief, none
History	Number of withdrawn routes stored locally to keep track of damping history.	brief, none
Damp State	Number of active routes with a figure of merit greater than zero, but lower than the threshold at which suppression occurs.	brief, none
Pending	Routes being processed by BGP import policy.	brief, none
Group	Group the peer belongs to in the BGP configuration.	detail
Receive mask	Mask of the received target included in the advertised route.	detail
Entries	Number of route entries received.	detail
Target	Route target that is to be passed by route-target filtering. If a route advertised from the provider edge (PE) routing device matches an entry in the route-target filter, the route is passed to the peer.	detail
Mask	Mask which specifies that the peer receive routes with the given route target.	detail

Sample Output

```

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 39.

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      Mask      Flags: Filter  Entries: 4
    109:1/64    00000001
    109:2/64    00000001
    701:1/64    00000001
    10458:2/64  00000001

```

```

Group: mesh_0
  Receive mask: 0000000e
  Table: bgp.rtarget.0
    Target      Mask      Flags: Filter  Entries: 12
    109:1/64    00000002
    701:1/64    00000002
    701:2/64    00000002
    10458:1/64  0000000e
    10458:2/64  00000006
    10458:3/64  00000006
    10458:5/64  00000006
    10458:6/64  00000004
    10458:7/64  00000008
    10458:8/64  00000008
    10458:10/64 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 OS Release 7.4.
Description	Display the traffic statistics for configured Border Gateway Protocol (BGP) groups.
Options	<p>none—Display traffic statistics for all BGP groups.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>group-name—(Optional) Display BGP traffic statistics for only 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
List of Sample Output	<p>show bgp group traffic-statistics (Per-Group-Label Not Configured) on page 44</p> <p>show bgp group traffic-statistics (Per-Group-Label Configured) on page 44</p>
Output Fields	Table 12 on page 43 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 12: 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.

Sample Output

```

show bgp group traffic-statistics
(Per-Group-Label Not Configured)
user@host> show bgp group traffic-statistics
Group Name: ext1      Group Index: 0
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
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
(Per-Group-Label Configured)
user@host> show bgp group traffic-statistics
Group Name: ext1      Group Index: 0
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
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	<pre>show bgp neighbor <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <<i>neighbor-address</i>> <orf (detail <i>neighbor-address</i>)</pre>
Syntax (EX Series Switch)	<pre>show bgp neighbor <instance <i>instance-name</i>> <<i>neighbor-address</i>> <orf (<i>neighbor-address</i> detail)</pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>orf option introduced in Junos OS Release 9.2.</p> <p>orf option introduced in Junos OS Release 9.2 for EX Series switches.</p>
Description	Display information about Border Gateway Protocol (BGP) peers.
Options	<p>none—Display information about all BGP peers.</p> <p>instance <i>instance-name</i>—(Optional) Display information about BGP peers 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>neighbor-address</i>—(Optional) Display information for only the BGP peer at the specified IP address.</p> <p>orf (detail <i>neighbor-address</i>)—(Optional) 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 option to display detailed output.</p>
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 Documentation	<ul style="list-style-type: none"> clear bgp neighbor on page 31
List of Sample Output	<p>show bgp neighbor (CLNS) on page 51</p> <p>show bgp neighbor (Layer 2 VPN) on page 52</p> <p>show bgp neighbor (Layer 3 VPN) on page 54</p> <p>show bgp neighbor (With Dropped Path Attributes and Ignored Path Attributes) on page 55</p> <p>show bgp neighbor neighbor-address on page 55</p> <p>show bgp neighbor neighbor-address on page 56</p>

show bgp neighbor orf neighbor-address detail on page 57

Output Fields Table 13 on page 46 describes the output fields for the **show bgp neighbor** command. Output fields are listed in the approximate order in which they appear.

Table 13: 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.
Local	Address of the local routing device. 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.

Table 13: show bgp neighbor Output Fields (*continued*)

Field Name	Field Description
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.
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 routing device sent a BGP keepalive message to the peer. • Open—The local routing device sent a BGP open message to the peer. • OpenFail—The local routing device did not receive an acknowledgment of a BGP open message from the peer. • RecvKeepAlive—The local routing device received a BGP keepalive message from the peer. • RecvNotify—The local routing device received a BGP notification message from the peer. • RecvOpen—The local routing device received a BGP open message from the peer. • RecvUpdate—The local routing device 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.

Table 13: show bgp neighbor Output Fields (*continued*)

Field Name	Field Description
Options	Configured BGP options: <ul style="list-style-type: none"> • AddressFamily—Configured address family: inet or inet-vpn. • AuthKeyChain—Authentication key change is enabled. • DropPathAttributes—Certain path attributes are configured to be dropped from neighbor updates during inbound processing. • GracefulRestart—Graceful restart is configured. • HoldTime—Hold time configured with the hold-time statement. The hold time is three times the interval at which keepalive messages are sent. • IgnorePathAttributes—Certain path attributes are configured to be ignored in neighbor updates during inbound processing. • Local Address—Address configured with the local-address statement. • Multihop—Allow BGP connections to external peers that are not on a directly connected network. • NLRI—Configured MBGP state for the BGP group: multicast, unicast, or both if you have configured nlri any. • Peer AS—Configured peer autonomous system (AS). • Preference—Preference value configured with the preference statement. • Refresh—Configured to refresh automatically when the policy changes. • Rib-group—Configured routing table group.
Path-attributes dropped	Path attribute codes that are dropped from neighbor updates.
Path-attributes ignored	Path attribute codes that are ignored during neighbor updates.
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 routing device.
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.

Table 13: show bgp neighbor Output Fields (*continued*)

Field Name	Field Description
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.
Peer Index	A unique index that is unique within the BGP group to which the peer belongs.
Local ID	Router identifier of the local routing device.
Local Interface	Name of the interface on the local routing device.
Active holdtime	Hold time the local routing device 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's ability to send and request full route table readvertisement (route refresh capability). For more information, see RFC 2918, <i>Route Refresh Capability for BGP-4</i> .
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.

Table 13: show bgp neighbor Output Fields (*continued*)

Field Name	Field Description
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 routing device 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.
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.

Table 13: show bgp neighbor Output Fields (*continued*)

Field Name	Field Description
Input dropped path attributes	Information about dropped path attributes: <ul style="list-style-type: none"> • Code—Path attribute code. • Count—Path attribute count.
Input ignored path attributes	Information about ignored path attributes: <ul style="list-style-type: none"> • Code—Path attribute code. • Count—Path attribute count.
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.
Filter Updates rcv	(orf option only) Number of outbound-route filters received for each configured address family. NOTE: The counter is cumulative. For example, the counter is increased after the remote peer either resends or clears the outbound route filtering prefix list.
Immediate	(orf option only) Number of route updates received with the immediate flag set. The immediate flag indicates that the BGP peer should readvertise the updated routes. NOTE: The counter is cumulative. For example, the counter is increased after the remote peer either resends or clears the outbound route filtering prefix list.
Filter	(orf option only) Type of prefix filter received: prefix-based or extended-community .
Received filter entries	(orf option only) List of received filters displayed.
seq	(orf option only) Numerical order assigned to this prefix entry among all the received outbound route filter prefix entries.
prefix	(orf option only) Address for the prefix entry that matches the filter.
minlength	(orf option only) Minimum prefix length, in bits, required to match this prefix.
maxlength	(orf option only) Maximum prefix length, in bits, required to match this prefix.
match	(orf option only) For this prefix match, whether to permit or deny route updates.

Sample Output

```

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 12vpn
NLRI advertised by peer: inet-vpn-unicast 12vpn
NLRI for this session: inet-vpn-unicast 12vpn
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 12vpn
NLRI peer can save forwarding state: inet-vpn-unicast 12vpn
NLRI that peer saved forwarding for: inet-vpn-unicast 12vpn
NLRI that restart is negotiated for: inet-vpn-unicast 12vpn
NLRI of received end-of-rib markers: inet-vpn-unicast 12vpn
Table bgp.13vpn.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.12vpn.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.l3vpn.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
(With Dropped Path
Attributes and Ignored
Path Attributes**

```

user@host> show bgp neighbor
regress@pro9-b1# run show bgp neighbor
Peer: 1.1.3.2+179 AS 2           Local: 1.1.3.1+62746 AS 1
Type: External   State: Established   Flags: <ImportEval Sync RSync>
Last State: OpenConfirm   Last Event: RecvKeepAlive
Last Error: None
Options: <Preference KeepAll PeerAS LocalAS Refresh>
Options: <ConnectRetryInterval DropPathAttributes IgnorePathAttributes>
Path-attributes dropped:    4   10 128
Path-attributes ignored:   8   50 113
Holdtime: 90 Preference: 170 Local AS: 1 Local System AS: 10
.
.
.
Input messages:  Total 525   Updates 2   Refreshes 0   Octets 10022
Output messages: Total 522   Updates 0   Refreshes 0   Octets 9981
Input dropped path attributes: Code:    4   Count:    1
Input ignored path attributes: Code:    8   Count:    1
Output Queue[0]: 0
Trace file: /var/log/bgp_nsr 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-based 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-based receive
  Received filter entries:
    *.*

```

show bgp replication

Syntax	show bgp replication
Release Information	Command introduced in JUNOS Release 8.5.
Description	Displays the status of BGP state replication between the master and backup Routing Engines on devices that have nonstop active routing configured on them. .
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show bgp replication (for Master) on page 59 show bgp replication (for Backup) on page 59
Output Fields	Table 14 on page 58 lists the output fields for the show bgp replication command. Output fields are listed in the approximate order in which they appear.

Table 14: show bgp replication Output Fields

Field Name	Field Description
session state	State of the current internal BGP state replication session, Up or Down, and the duration for which the session has been in the indicated state.
flaps	Total number of flaps that occurred.
protocol state	Current state of the protocol operation, Active, Connect, Idle, and the duration for which the protocol has been in the indicated state.
synchronization state	Synchronization state at the time of executing the command. The states can be: <ul style="list-style-type: none"> • Idle • Neighbor—Indicates that the neighbor state synchronization is in progress. • AckWait—Indicates that the request processing is over. • ORF—Indicates that the outbound routing filter synchronization is in progress. • RIB—Indicates that the routing table synchronization is in progress. • Complete
number of peers waiting	Total number of peers waiting for various messages: <ul style="list-style-type: none"> • AckWait—Number of peers waiting for a connection establishment or completed acknowledgment messages. • SoWait—Number of peers waiting for TCP socket-related operations. • Scheduled—Number of peers being synchronized.

Table 14: show bgp replication Output Fields (*continued*)

Field Name	Field Description
messages sent	<p>Number of various types of messages that have been sent since internal replication session became active:</p> <ul style="list-style-type: none"> • Open—Number of Open messages sent. • Establish—Number of connection establishment acknowledgment messages sent. • Update—Number of update messages sent. • Error—Number of error messages sent. • Complete—Number of connection complete acknowledgment messages sent.
messages received	<p>Total number of messages received:</p> <ul style="list-style-type: none"> • Open—Number of Open messages received. • Request—Number of request messages received: <ul style="list-style-type: none"> • Wildcard—Number of requests received that used wildcards in the target address. • Targeted—Number of requests received that used a specific address. • EstablishAck—Number of connection establishment acknowledgement messages received. • CompleteAck—Number of connection completed acknowledgement messages received.

Sample Output

```

show bgp replication (for Master) user@host> show bgp replication
Synchronization master:
  Session state: Up, Since: 44:07
  Flaps: 0
  Protocol state: Idle, Since: 14
  Synchronization state: Complete
  Number of peers waiting: AckWait: 0, SoWait: 0, Scheduled: 0
  Messages sent: Open 1, Establish 924, Update 381, Error 60, Complete 114
  Messages received: Open 1, Request 1 wildcard 113 targeted, EstablishAck 924,
  CompleteAck 114

show bgp replication (for Backup) user@host> show bgp replication
Synchronization backup:
  State: Established 13 ago
  , Unsync timer: 2

  Unsync entry queue:
    Instance: 0 Neighbor: 30.30.30.1 elapsed: 7
    Instance: 0 Neighbor: 40.40.40.3 elapsed: 7
    Instance: 0 Neighbor: 40.40.40.4 elapsed: 7
    Instance: 0 Neighbor: 40.40.40.5 elapsed: 7
    Instance: 0 Neighbor: 40.40.40.6 elapsed: 7
    Instance: 0 Neighbor: 40.40.40.1 elapsed: 7
    Instance: 0 Neighbor: 40.40.40.2 elapsed: 7

```

show bgp summary

Syntax	show bgp summary <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show bgp summary <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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 62</p> <p>show bgp summary (When a Peer Is Established) on page 62</p> <p>show bgp summary (CLNS) on page 62</p> <p>show bgp summary (Layer 2 VPN) on page 62</p> <p>show bgp summary (Layer 3 VPN) on page 63</p>
Output Fields	Table 15 on page 60 describes the output fields for the show bgp summary command. Output fields are listed in the approximate order in which they appear.

Table 15: 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.

Table 15: show bgp summary Output Fields (*continued*)

Field Name	Field Description
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.
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 routing device 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 routing device, 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 and 2/4/4/0 indicate 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 routing device 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>

Sample Output

```

show bgp summary      user@host> show bgp summary
(When a Peer Is Not   Groups: 2 Peers: 4 Down peers: 1
Established)         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      user@host> show bgp summary
(When a Peer Is   Groups: 1 Peers: 3 Down peers: 0
Established)         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      user@host> show bgp summary
(CLNS)              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      user@host> show bgp summary
(Layer 2 VPN)       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
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.12vpn.0: 0/0/0
    frame-vpn.12vpn.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.13vpn.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.13vpn.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>)>
Syntax (EX Series Switch)	show policy damping
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about Border Gateway Protocol (BGP) route flap damping parameters.
Options	none—Display information about BGP route flap damping parameters. 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 the output from this command, figure-of-merit values correlate to the probability of future instability of a routing device. 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 Documentation	<ul style="list-style-type: none"> • “Configuring BGP Flap Damping Parameters” in the Junos OS Routing Policy Configuration Guide • clear bgp damping on page 30 • show route damping on page 433
List of Sample Output	show policy damping on page 65
Output Fields	Table 16 on page 64 describes the output fields for the show policy damping command. Output fields are listed in the approximate order in which they appear.

Table 16: 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.

Table 16: show policy damping Output Fields (*continued*)

Field Name	Field Description
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 merit	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.
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.

Sample Output

```

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
Damping information for "standard-damping":
  Halflife: 10 minutes
  Reuse merit: 4000 Suppress/cutoff merit: 8000
  Maximum suppress time: 30 minutes
  Computed values:
    Merit ceiling: 32120
    Maximum decay: 12453

```


ES-IS Operational Mode Commands

Table 17 on page 67 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 17: ES-IS Operational Mode Commands

Task	Command
Clear ES-IS adjacencies.	clear esis adjacency
Clear ES-IS statistics for packets sent or received.	clear esis statistics
Display ES-IS adjacencies.	show esis adjacency
Display ES-IS interfaces.	show esis interface
Display ES-IS statistics for packets sent or received.	show esis statistics



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

clear esis adjacency

Syntax	<code>clear esis adjacency</code> <code><instance <i>instance-name</i>></code> <code><interface <i>interface-name</i>></code> <code><neighbor></code>
Release Information	Command introduced before Junos OS Release 7.4.
Description	(J Series routers only) Clear End System-to-Intermediate System (ES-IS) adjacencies.
Options	<p>none—Clear all ES-IS adjacencies.</p> <p><code>instance <i>instance-name</i></code>—(Optional) Clear adjacencies for the specified routing instance only.</p> <p><code>interface <i>interface-name</i></code>—(Optional) Clear adjacencies for the specified interface only.</p> <p><code>neighbor</code>—(Optional) Clear adjacencies for the specified neighbor only.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show esis adjacency on page 70
List of Sample Output	clear esis adjacency on page 68
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

`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 OS Release 7.4.
Description	(J Series routers 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 Documentation	<ul style="list-style-type: none">• show esis statistics on page 74
List of Sample Output	clear esis statistics on page 69
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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 OS Release 7.4.
Description	(J Series routers 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—(Optional) 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 Documentation	<ul style="list-style-type: none"> clear esis adjacency on page 68
List of Sample Output	<p>show esis adjacency on page 71</p> <p>show esis adjacency brief on page 71</p> <p>show esis adjacency detail on page 71</p> <p>show esis adjacency extensive on page 71</p>
Output Fields	Table 18 on page 70 describes the output fields for the show esis adjacency command. Output fields are listed in the approximate order in which they appear.

Table 18: 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

Table 18: show esis adjacency Output Fields (*continued*)

Field Name	Field Description	Level of Output
Advertised holdtime	Holdtime interval advertised by this neighbor.	detail extensive
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

Sample Output

```

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 71.

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 OS Release 7.4.
Description	(J Series routers 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 73</p> <p>show esis interface brief on page 73</p> <p>show esis interface detail on page 73</p> <p>show esis interface extensive on page 73</p>
Output Fields	Table 19 on page 72 describes the output fields for the show esis interface command. Output fields are listed in the approximate order in which they appear.

Table 19: 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

Table 19: show esis interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
End system configuration timer	Time, in seconds, for the end system to configure itself for ES-IS.	detail extensive
Interface index	Index value.	detail extensive
NET used in hello	Network entity title used in hello messages.	detail extensive

Sample Output

show esis interface 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

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 73**.

show esis interface detail 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
```

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 73**.

show esis statistics

Syntax	show esis statistics <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	(J Series routers 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 Documentation	<ul style="list-style-type: none"> clear esis statistics on page 69
List of Sample Output	show esis statistics on page 74
Output Fields	Table 20 on page 74 describes the output fields for the show esis statistics command. Output fields are listed in the approximate order in which they appear.

Table 20: 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.

Sample Output

```

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 5

IP Multicast Operational Mode Commands

Table 21 on page 77 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 21: IP Multicast Operational Mode Commands

Task	Command
Clear Automatic Multicast Tunneling (AMT) protocol statistics.	<code>clear amt statistics</code>
Clear Automatic Multicast Tunneling (AMT) protocol state.	<code>clear amt tunnel</code>
Clear Internet Group Management Protocol (IGMP) group members.	<code>clear igmp membership</code>
Clear IGMP snooping membership information.	<code>clear igmp snooping membership</code>
Clear IGMP snooping statistics.	<code>clear igmp snooping statistics</code>
Clear IGMP statistics.	<code>clear igmp statistics</code>
Clear Multicast Listener Discovery (MLD) group members.	<code>clear mld membership</code>
Clear MLD statistics.	<code>clear mld statistics</code>
Clear Multicast Source Discovery Protocol (MSDP) source active cache.	<code>clear msdp cache</code>
Clear MSDP statistics.	<code>clear msdp statistics</code>
Clear multicast bandwidth admissions.	<code>clear multicast bandwidth-admission</code>
Clear multicast scope.	<code>clear multicast scope</code>
Clear multicast sessions.	<code>clear multicast sessions</code>

Table 21: IP Multicast Operational Mode Commands (*continued*)

Task	Command
Clear multicast snooping statistics.	clear multicast snooping statistics
Clear multicast statistics.	clear multicast statistics
Clear Pragmatic General Multicast (PGM) negative acknowledgments (NAKs).	clear pgm negative-acknowledgments
Clear PGM source-path messages.	clear pgm source-path-messages
Clear PGM statistics.	clear pgm statistics
Clear the Protocol Independent Multicast (PIM) join and prune states.	clear pim join
Redistribute PIM joins among available links.	clear pim join-distribution
Clear PIM register message counters.	clear pim register
Clear PIM statistics.	clear pim statistics
Rebalance multicast tunnel (MT) interfaces.	request pim multicast-tunnel rebalance
Display Automatic Multicast Tunneling (AMT) protocol tunnel statistics.	show amt statistics
Display summary information about the Automatic Multicast Tunneling (AMT) protocol.	show amt summary
Display information about the Automatic Multicast Tunneling (AMT) dynamic tunnels.	show amt tunnel
Display the status of interfaces on which Distance Vector Multicast Routing Protocol (DVMRP) is configured.	show dvmrp interfaces
Display DVMRP neighbors.	show dvmrp neighbors
Display DVMRP prefixes.	show dvmrp prefix
Display DVMRP prunes.	show dvmrp prunes
Display members of IGMP groups.	show igmp group
Display members of IGMP groups by interface.	show igmp interface
Display IGMP snooping interface information.	show igmp snooping interface
Display IGMP snooping membership information.	show igmp snooping membership

Table 21: IP Multicast Operational Mode Commands (*continued*)

Task	Command
Display IGMP snooping statistics.	show igmp snooping statistics
Display IGMP statistics.	show igmp statistics
Display members of MLD groups.	show mld group
Display members of MLD groups by interface.	show mld interface
Display MLD statistics.	show mld statistics
Display MSDP peers.	show msdp
Display multicast sources learned from MSDP.	show msdp source
Display the MSDP source-active cache.	show msdp source-active
Display MSDP statistics.	show msdp statistics
Display backup PE router group information when ingress PE redundancy is configured.	show multicast backup-pe-groups
Display configuration information about IP multicast flow maps.	show multicast flow-map
Display multicast interface bandwidth information.	show multicast interface
Display multicast network configuration.	show multicast mrinfo
Display entries in the multicast next-hop table.	show multicast next-hops
Display configuration information about PIM-to-IGMP message translation, also known as PIM-to-IGMP proxy.	show multicast pim-to-igmp-proxy
Display configuration information about PIM-to-MLD message translation, also known as PIM-to-MLD proxy.	show multicast pim-to-mld-proxy
Display entries in the multicast forwarding cache.	show multicast route
Display multicast reverse-path-forwarding calculations.	show multicast rpf
Display administratively scoped addresses.	show multicast scope
Display announced multicast sessions.	show multicast sessions
Display multicast snooping route.	show multicast snooping route
Display multicast snooping statistics.	show multicast snooping statistics

Table 21: IP Multicast Operational Mode Commands (*continued*)

Task	Command
Display multicast statistics.	show multicast statistics
Display most active multicast groups.	show multicast usage
Display sent or received NAKs.	show pgm negative-acknowledgments
Display PGM source-path messages.	show pgm source-path-messages
Display PGM statistics.	show pgm statistics
Display bootstrap routers.	show pim bootstrap
Display the status of interfaces on which PIM is configured.	show pim interfaces
Display PIM (*,*)RP join and prune states.	show pim join
Display PIM data-driven multicast distribution trees (MDTs).	show pim mdt
Display the information cached from multicast distribution tree (MDT) join TLV packets received by all PE routers in a PIM-enabled VPN routing and forwarding (VRF)-instance.	show pim mdt data-mdt-joins
Display PIM neighbors.	show pim neighbors
Display rendezvous points.	show pim rps
Display PIM source RPF state.	show pim source
Display PIM statistics.	show pim statistics
Display Session Announcement Protocol (SAP) addresses.	show sap listen
Test MSDP peers.	test msdp



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>)>
Syntax (EX Series Switch)	clear igmp membership <group <i>address-range</i> > <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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 Documentation	<ul style="list-style-type: none"> • show igmp group on page 117 • show igmp interface on page 121
List of Sample Output	clear igmp membership on page 81 clear igmp membership interface on page 82 clear igmp membership group on page 82
Output Fields	See show igmp group for an explanation of output fields.

Sample Output

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
loca1          224.0.0.6       (null)          0
loca1          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 OS 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.</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 Documentation	<ul style="list-style-type: none"> • show igmp snooping membership on page 127
List of Sample Output	clear igmp snooping membership on page 85
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
clear igmp snooping  user@host> clear igmp snooping membership
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 OS Release 8.5.
Description	Clear IP IGMP snooping statistics.
Options	<p>none—Clear IGMP snooping statistics for all supported address families on all interfaces.</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 Documentation	<ul style="list-style-type: none">• show igmp snooping statistics on page 130
List of Sample Output	clear igmp snooping statistics on page 86
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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>)>
Syntax (EX Series Switch)	clear igmp statistics <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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 Documentation	<ul style="list-style-type: none"> • show igmp statistics on page 133
List of Sample Output	clear igmp statistics on page 87
Output Fields	See show igmp statistics for an explanation of output fields.

Sample Output

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
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
```

```
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 OS 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 Documentation	<ul style="list-style-type: none"> • show mld group on page 136
List of Sample Output	clear mld membership on page 89
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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 OS Release 7.4.
Description	Clear Multicast Listener Discovery (MLD) statistics.
Options	none—(Same as logical-system all) Clear MLD statistics for all interfaces. interface <i>interface-name</i> —(Optional) Clear MLD statistics for 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	clear
Related Documentation	<ul style="list-style-type: none">• show mld statistics on page 143
List of Sample Output	clear mld statistics on page 90
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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 OS 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 Documentation	<ul style="list-style-type: none"> • show msdp source-active on page 150
List of Sample Output	clear msdp cache on page 91
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear msdp cache user@host> clear msdp cache

clear msdp statistics

Syntax	<code>clear msdp statistics</code> <code><instance <i>instance-name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><peer <i>peer-address</i>></code>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Clear Multicast Source Discovery Protocol (MSDP) peer 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 Documentation	<ul style="list-style-type: none">• show msdp statistics on page 152
List of Sample Output	clear msdp statistics on page 92
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear msdp statistics `user@host> clear msdp statistics`

clear multicast bandwidth-admission

Syntax	<pre>clear multicast bandwidth-admission <group <i>group-address</i>> <inet inet6> <instance <i>instance-name</i>> <interface <i>interface-name</i>> <source <i>source-address</i>></pre>
Release Information	<p>Command introduced in Junos OS Release 8.3.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.</p>
Description	Reapply IP multicast bandwidth admissions.
Options	<p>none—Reapply multicast bandwidth admissions for all IPv4 forwarding entries in the master routing instance.</p> <p><i>group group-address</i>—(Optional) Reapply multicast bandwidth admissions for the specified group.</p> <p><i>inet</i>—(Optional) Reapply multicast bandwidth admission settings for IPv4 flows.</p> <p><i>inet6</i>—(Optional) Reapply multicast bandwidth admission settings for IPv6 flows.</p> <p><i>instance instance-name</i>—(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.</p> <p><i>interface interface-name</i>—(Optional) Examines the corresponding outbound interface in the relevant entries and acts as follows:</p> <ul style="list-style-type: none"> • 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. <p>To manually reject previously admitted outbound interfaces, you must specify the interface.</p> <p><i>source source-address</i>—(Optional) Use with the group option to reapply multicast bandwidth admission settings for the specified (source, group) entry.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show multicast interface on page 158

List of Sample Output **clear multicast bandwidth-admission on page 94**

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

Sample Output

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

clear multicast scope

Syntax	clear multicast scope <inet inet6> <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear multicast scope <inet inet6> <interface <i>interface-name</i> >
Release Information	Command introduced in Junos OS Release 7.6. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 option introduced in Junos OS Release 10.0 for EX Series switches.
Description	Clear IP multicast scope statistics.
Options	<p>none—(Same as logical-system all) Clear multicast scope statistics.</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 Documentation	<ul style="list-style-type: none"> • show multicast scope on page 177
List of Sample Output	clear multicast scope on page 95
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear multicast scope user@host> clear multicast scope

clear multicast sessions

Syntax	clear multicast sessions <logical-system (all <i>logical-system-name</i>)> < <i>regular-expression</i> >
Syntax (EX Series Switch)	clear multicast sessions < <i>regular-expression</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear IP multicast sessions.
Options	none—(Same as logical-system all) Clear multicast sessions. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. <i>regular-expression</i> —(Optional) Clear only multicast sessions that contain the specified regular expression.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show multicast sessions on page 179
List of Sample Output	clear multicast sessions on page 96
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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 OS Release 8.5.
Description	Clear IP multicast snooping statistics.
Options	<p>none—Clear multicast snooping statistics for all supported address families on all interfaces.</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 Documentation	<ul style="list-style-type: none"> • show multicast snooping statistics on page 185
List of Sample Output	clear multicast snooping statistics on page 97
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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>)>
Syntax (EX Series Switch)	clear multicast statistics <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Clear IP multicast statistics.
Options	none—Clear multicast statistics for all supported address families on all interfaces. inet—(Optional) Clear multicast statistics for IPv4 family addresses. inet6—(Optional) Clear multicast statistics for IPv6 family addresses. instance <i>instance-name</i> —(Optional) Clear multicast statistics for the specified instance. interface <i>interface-name</i> —(Optional) Clear multicast statistics on a specific 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	clear
Related Documentation	<ul style="list-style-type: none">• show multicast statistics on page 188
List of Sample Output	clear multicast statistics on page 98
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear multicast statistics	user@host> clear multicast statistics
----------------------------	---------------------------------------

clear pgm negative-acknowledgments

Syntax	clear pgm negative-acknowledgments
Release Information	Command introduced before Junos OS 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 Documentation	<ul style="list-style-type: none">• show pgm negative-acknowledgments on page 194
List of Sample Output	clear pgm negative-acknowledgments on page 99
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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 OS Release 7.4.
Description	Clear Pragmatic General Multicast (PGM) source-path messages.
Options	This command has no options.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show pgm source-path-messages on page 196
List of Sample Output	clear pgm source-path-messages on page 100
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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 OS Release 7.4.
Description	Clear Pragmatic General Multicast (PGM) statistics.
Options	This command has no options.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show pgm statistics on page 197
List of Sample Output	clear pgm statistics on page 101
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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>)>
Syntax (EX Series Switch)	clear pim join <group-address> <inet inet6> <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
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.</p> <p>group-address—(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 Documentation	<ul style="list-style-type: none">• show pim join on page 205
List of Sample Output	clear pim join on page 102
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
clear pim join    user@host> clear pim join
```

clear pim join-distribution

Syntax	clear pim join-distribution <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in Junos OS Release 10.0.
Description	<p>Redistribute the Protocol Independent Multicast (PIM) join states.</p> <p>You can find out if there are multiple paths available for a source (for example, an RP) with the output of the show pim source command.</p> <p>When you include the join-load-balance statement in the configuration, the PIM join states are distributed evenly on available equal-cost multipath links. When an upstream neighbor link fails, Junos OS redistributes the PIM join states to the remaining links. However, when new links are added or the failed link is restored, the existing PIM joins are not redistributed to the new link. New flows will be distributed to the new links. However, in a network without new joins and prunes, the new link is not used for multicast traffic. The clear pim join-distribution command redistributes the existing flows to the new upstream neighbors. Redistributing the existing flows causes traffic to be disrupted, so we recommend that you run the clear pim join-distribution command during a maintenance window.</p>
Options	<p>none—Redistribute the PIM join states for the default master instance.</p> <p>instance <i>instance-name</i>—(Optional) Redistribute the join 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-distribution command cannot be used to redistribute the PIM join states on a backup Routing Engine when nonstop active routing is enabled.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show pim neighbors on page 218 • show pim join on page 205 • join-load-balance in the <i>Multicast Protocols Configuration Guide</i>
List of Sample Output	clear pim join-distribution on page 104
Output Fields	When you enter this command, you are provided no feedback on the status of your request. You can enter the show pim join command before and after distributing the join state to verify the operation.

Sample Output

```
clear pim      user@host> clear pim join-distribution
join-distribution
```

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>)>
Syntax (EX Series Switch)	clear pim register <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> >
Release Information	Command introduced in Junos OS Release 7.6. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Clear Protocol Independent Multicast (PIM) register message counters.
Options	<p>none—Clear PIM register message counters for all family addresses, instances, and interfaces.</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 Documentation	<ul style="list-style-type: none"> • show pim statistics on page 229
List of Sample Output	clear pim register on page 105
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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>)>
Syntax (EX Series Switch)	clear pim statistics <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Clear Protocol Independent Multicast (PIM) statistics.
Options	none—Clear PIM statistics for all family addresses, instances, and interfaces. inet inet6—(Optional) Clear PIM statistics for IPv4 or IPv6 family addresses, respectively. instance <i>instance-name</i> —(Optional) Clear statistics for a specific PIM-enabled routing instance. interface <i>interface-name</i> —(Optional) Clear PIM statistics for a specific interface. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
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 Documentation	<ul style="list-style-type: none">• show pim statistics on page 229
List of Sample Output	clear pim statistics on page 106
Output Fields	See show pim statistics for an explanation of output fields.

Sample Output

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
...

```

request pim multicast-tunnel rebalance

Syntax	request pim multicast-tunnel rebalance <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	request pim multicast-tunnel rebalance <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 10.2. Command introduced in Junos OS Release 10.2 for EX Series switches.
Description	Rebalance the assignment of multicast tunnel encapsulation interfaces across available tunnel-capable PICs or across a configured list of tunnel-capable PICs. You can determine whether a rebalance is necessary by running the show pim interfaces instance <i>instance-name</i> command.
Options	none—Re-create and rebalance all tunnel interfaces for all routing instances. instance <i>instance-name</i> —Re-create and rebalance all tunnel interfaces for a specific 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	maintenance
Related Documentation	<ul style="list-style-type: none">• show pim interfaces on page 202• Load Balancing Multicast Tunnel Interfaces Among Available PICs in the <i>Junos Multicast Protocols Configuration Guide</i>
Output Fields	This command produces no output. To verify the operation of the command, run the show pim interface instance <i>instance-name</i> before and after running the request pim multicast-tunnel rebalance command.

show dvmrp interfaces

Syntax	show dvmrp interfaces <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about Distance Vector Multicast Routing Protocol (DVMRP)–enabled interfaces.
Options	none—(Same as logical-system all) Display information about DVMRP-enabled interfaces. 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 dvmrp interfaces on page 110
Output Fields	Table 22 on page 109 describes the output fields for the show dvmrp interfaces command. Output fields are listed in the approximate order in which they appear.

Table 22: 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.

Sample Output

```
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 OS Release 7.4.
Description	Display information about Distance Vector Multicast Routing Protocol (DVMRP) neighbors.
Options	none—(Same as logical-system all) Display information about DVMRP neighbors. 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 dvmrp neighbors on page 111
Output Fields	Table 23 on page 111 describes the output fields for the show dvmrp neighbors command. Output fields are listed in the approximate order in which they appear.

Table 23: 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>majorminor</i> .
Flags	Information about the neighbor: <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.

Sample Output

```
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 OS Release 7.4.
Description	Display information about Distance Vector Multicast Routing Protocol (DVMRP) prefixes.
Options	<p>none—Display standard information about all DVMRP prefixes.</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 114</p> <p>show dvmrp prefix brief on page 114</p> <p>show dvmrp prefix detail on page 114</p>
Output Fields	Table 24 on page 113 describes the output fields for the show dvmrp prefix command. Output fields are listed in the approximate order in which they appear.

Table 24: 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

Sample Output

```
show dvmprefix user@host> show dvmprefix
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 dvmprefix brief The output for the **show dvmprefix brief** command is identical to that for the **show dvmprefix** command.

```
show dvmprefix user@host> show dvmprefix detail
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 OS 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.</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 115
Output Fields	Table 25 on page 115 describes the output fields for the show dvmrp prunes command. Output fields are listed in the approximate order in which they appear.

Table 25: 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.

Sample Output

```

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>)>
Syntax (EX Series Switch)	show igmp group <brief detail> <group-name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Internet Group Management Protocol (IGMP) group membership information.
Options	none—Display standard information about membership for all IGMP groups. brief detail—(Optional) Display the specified level of output. group-name—(Optional) Display group membership for the specified IP address 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	view
Related Documentation	<ul style="list-style-type: none"> clear igmp membership on page 81
List of Sample Output	show igmp group (Include Mode) on page 118 show igmp group (Exclude Mode) on page 119 show igmp group brief on page 119 show igmp group detail on page 119
Output Fields	Table 26 on page 117 describes the output fields for the show igmp group command. Output fields are listed in the approximate order in which they appear.

Table 26: 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 routing device 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

Table 26: show igmp group Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
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

Sample Output

```

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>)>
Syntax (EX Series Switch)	show igmp interface <brief detail> <interface-name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about Internet Group Management Protocol (IGMP)-enabled interfaces.
Options	none—Display standard information about all IGMP-enabled interfaces. brief detail—(Optional) Display the specified level of output. <i>interface-name</i> —(Optional) Display information about the specified IGMP-enabled 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	view
Related Documentation	<ul style="list-style-type: none"> clear igmp membership on page 81
List of Sample Output	show igmp interface on page 123 show igmp interface brief on page 123 show igmp interface detail on page 123
Output Fields	Table 27 on page 121 describes the output fields for the show igmp interface command. Output fields are listed in the approximate order in which they appear.

Table 27: 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 routing device 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

Table 27: show igmp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Version	IGMP version being used on the interface: 1, 2, or 3.	All levels
Groups	Number of groups on the interface.	All levels
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
Passive	State of the passive mode option: <ul style="list-style-type: none"> • On—Indicates that the router can run IGMP on the interface but not send or receive control traffic such as IGMP reports, queries, and leaves. • Off—Indicates that the router can run IGMP on the interface and send or receive control traffic such as IGMP reports, queries, and leaves. <p>The passive statement enables you to selectively activate up to two out of a possible three available query or control traffic options. When enabled, the following options appear after the on state declaration:</p> <ul style="list-style-type: none"> • send-general-query—The interface sends general queries. • send-group-query—The interface sends group-specific and group-source-specific queries. • allow-receive—The interface receives control traffic 	All levels
OIF map	Name of the OIF map associated to the interface.	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

Table 27: show igmp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Derived Parameters	<p>Derived information:</p> <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

Sample Output

show igmp interface	<pre> 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 </pre>
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 123.
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 123.

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 OS 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 Documentation	<ul style="list-style-type: none"> • show igmp snooping membership on page 127 • show igmp snooping statistics on page 130
List of Sample Output	<p>show igmp snooping interface on page 125</p> <p>show igmp snooping interface (Group Limit Configured) on page 126</p>
Output Fields	Table 28 on page 124 lists the output fields for the show igmp snooping interface command. Output fields are listed in the approximate order in which they appear.

Table 28: 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
IGMP Query Interval	Frequency (in seconds) with which this router sends membership queries when it is the querier.	detail
IGMP Query Response Interval	Time (in seconds) that the router waits for a response to a general query.	detail

Table 28: show igmp snooping interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
IGMP Last Member Query Interval	Time (in seconds) that the router waits for a report in response to a group-specific query.	detail
IGMP Robustness Count	Number of times the router retries a query.	detail
immediate-leave	State of immediate leave: On or Off .	All levels
router-interface	Router interfaces that are part of this learning domain.	All levels
Group limit	Maximum number of (source,group) pairs allowed per interface. When a group limit is not configured, this field is not shown.	All levels
interface	Interfaces that are being snooped in this learning domain.	All levels
Groups	Number of groups on the interface.	none
State	State of the interface: Up or Down .	none
Up Groups	Number of active multicast groups attached to the logical interface.	All levels
IGMP Membeship Timeout	Timeout for group membership. If no report is received for these groups before the timeout expires, the group membership is removed.	none
IGMP Other Querier Present Timeout	Time that the router waits for the IGMP querier to send a query.	none

Sample Output

```

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

Sample Output

```
show igmp snooping interface (Group Limit Configured)
user@host> show igmp snooping interface instance vpls1
Instance: vpls1
Learning-Domain: default
Interface: ge-1/3/9.0
    State:          Up Groups:      0
    Immediate leave: Off
    Router interface: yes
Interface: ge-1/3/8.0
    State:          Up Groups:      0
    Immediate leave: Off
    Router interface: yes
    Group limit:    1000

Configured Parameters:
IGMP Query Interval: 125.0
IGMP Query Response Interval: 10.0
IGMP Last Member Query Interval: 1.0
IGMP Robustness Count: 2
```

show igmp snooping membership

Syntax	show igmp snooping membership <brief detail> <bridge-domain <i>bridge-domain-name</i> > <group <i>group-name</i> > <virtual-switch <i>virtual-switch-name</i> > <vlan-id <i>vlan-identifier</i> >
Release Information	Command introduced in Junos OS 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 <i>group-name</i> —(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 Documentation	<ul style="list-style-type: none"> • show igmp snooping interface on page 124 • show igmp snooping statistics on page 130 • clear igmp snooping membership on page 85
List of Sample Output	<p>show igmp snooping membership on page 128</p> <p>show igmp snooping membership (Exclude Mode) on page 129</p> <p>show igmp snooping membership interface ge-0/1/2.200 on page 129</p> <p>show igmp snooping membership vlan-id 1 on page 129</p>
Output Fields	Table 29 on page 127 lists the output fields for the show igmp snooping membership command. Output fields are listed in the approximate order in which they appear.

Table 29: show igmp snooping membership Output Fields

Field Name	Field Description	Level of Output
Instance	Routing instance for IGMP snooping.	All levels
Learning Domain	Learning domain for snooping.	All levels
Interface	Interface on which this router is a proxy.	detail

Table 29: show igmp snooping membership Output Fields (*continued*)

Field Name	Field Description	Level of Output
Up Groups	Number of active multicast groups attached to the logical interface.	All levels
Group	Multicast group address in the membership database.	All levels
Group Mode	Mode the SSM group is operating in: Include or Exclude .	All levels
Source	Source address used on queries.	detail
Last reported by	Address of source last replying to the query.	detail
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.	All levels
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

Sample Output

```

show igmp snooping membership  user@host> show igmp snooping membership
                                Instance: vpls2

                                Learning-Domain: vlan-id 2
                                Interface: ge-3/0/0.2
                                Up Groups:      0
                                Interface: ge-3/1/0.2
                                Up Groups:      0
                                Interface: ge-3/1/5.2
                                Up Groups:      0

                                Instance: vpls1

                                Learning-Domain: vlan-id 1
                                Interface: ge-3/0/0.1
                                Up Groups:      0
                                Interface: ge-3/1/0.1
                                Up Groups:      0
                                Interface: ge-3/1/5.1
                                Up Groups:      1
                                Group: 225.10.10.1
                                Group mode: Exclude
                                Source: 0.0.0.0
                                Last reported by: 100.6.85.2
                                Group timeout:    173 Type: Dynamic

```

```

show igmp snooping      user@host> show igmp snooping membership
membership (Exclude      Instance: vpls2
Mode)                   Learning-Domain: vlan-id 2
                           Interface: ge-3/0/0.2
                           Up Groups:      0
                           Interface: ge-3/1/0.2
                           Up Groups:      0
                           Interface: ge-3/1/5.2
                           Up Groups:      0

                           Instance: vpls1

                           Learning-Domain: vlan-id 1
                           Interface: ge-3/0/0.1
                           Up Groups:      0
                           Interface: ge-3/1/0.1
                           Up Groups:      0
                           Interface: ge-3/1/5.1
                           Up Groups:      1
                               Group: 225.10.10.1
                                   Group mode: Exclude
                                   Source: 0.0.0.0
                                   Last reported by: 100.6.85.2
                                   Group timeout:      173 Type: Dynamic

show igmp snooping      user@host> show igmp snooping membership interface
membership interface      Instance: bridge-domain bar
ge-0/1/2.200            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      user@host> show igmp snooping membership vlan-id 1
membership vlan-id 1      Instance: vpls2

                           Instance: vpls1

                           Learning-Domain: vlan-id 1
                           Interface: ge-3/0/0.1
                           Up Groups:      0
                           Interface: ge-3/1/0.1
                           Up Groups:      0
                           Interface: ge-3/1/5.1
                           Up Groups:      1
                               Group: 225.10.10.1
                                   Group mode: Exclude
                                   Source: 0.0.0.0
                                   Last reported by: 100.6.85.2
                                   Group timeout:      209 Type: Dynamic

```

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 OS 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 Documentation	<ul style="list-style-type: none"> • show igmp snooping interface on page 124 • show igmp snooping membership on page 127 • clear igmp snooping statistics on page 86
List of Sample Output	show igmp snooping statistics on page 131
Output Fields	Table 30 on page 130 lists the output fields for the show igmp snooping statistics command. Output fields are listed in the approximate order in which they appear.

Table 30: 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 30: 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

Sample Output

```

show igmp snooping statistics  user@host> show igmp snooping 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 <brief detail> <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show igmp statistics <brief detail> <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Internet Group Management Protocol (IGMP) statistics.
Options	none—Display IGMP statistics for all interfaces. brief detail—(Optional) Display the specified level of output. interface <i>interface-name</i> —(Optional) Display IGMP statistics about 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	view
Related Documentation	<ul style="list-style-type: none"> clear igmp statistics on page 87
List of Sample Output	show igmp statistics on page 134 show igmp statistics interface on page 135
Output Fields	Table 31 on page 133 describes the output fields for the show igmp statistics command. Output fields are listed in the approximate order in which they appear.

Table 31: 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 31: 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. • Timed out—Number of groups that timed out as a result of not receiving an explicit leave message. • Rejected Report—Number of reports dropped because of the IGMP group policy. • Total Interfaces—Number of interfaces configured to support IGMP.

Sample Output

```

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		
Timed out	0		
Rejected Report	0		
Total Interfaces	2		

```

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 OS Release 7.4.
Description	Display information about Multicast Listener Discovery (MLD) group membership.
Options	<p>none—Display standard information about all MLD groups.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>group-name—(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 Documentation	<ul style="list-style-type: none"> clear mld membership on page 89
List of Sample Output	<p>show mld group (Include Mode) on page 137</p> <p>show mld group (Exclude Mode) on page 137</p> <p>show mld group brief on page 138</p> <p>show mld group detail (Include Mode) on page 138</p> <p>show mld group detail (Exclude Mode) on page 139</p>
Output Fields	Table 32 on page 136 describes the output fields for the show mld group command. Output fields are listed in the approximate order in which they appear.

Table 32: show mld group Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface that received the MLD membership report; local 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: Include or Exclude .	All levels
Last reported by	Address of the host that last reported membership in this group.	All levels

Table 32: show mld group Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
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

Sample Output

```

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 137 **show mld group (Exclude Mode)** on page 137.

```

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 OS Release 7.4.
Description	Display information about Multicast Listener Discovery (MLD)-enabled interfaces.
Options	<p>none—Display standard information about all MLD-enabled interfaces.</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 Documentation	<ul style="list-style-type: none"> clear mld membership on page 89
List of Sample Output	<p>show mld interface on page 141</p> <p>show mld interface brief on page 142</p> <p>show mld interface detail on page 142</p>
Output Fields	Table 33 on page 140 describes the output fields for the show mld interface command. Output fields are listed in the approximate order in which they appear.

Table 33: 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 or 2.	All levels
Groups	Number of groups on the interface.	All levels

Table 33: show mld interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Passive	<p>State of the passive mode option:</p> <ul style="list-style-type: none"> • On—Indicates that the router can run IGMP or MLD on the interface but not send or receive control traffic such as IGMP or MLD reports, queries, and leaves. • Off—Indicates that the router can run IGMP or MLD on the interface and send or receive control traffic such as IGMP or MLD reports, queries, and leaves. <p>The passive statement enables you to selectively activate up to two out of a possible three available query or control traffic options. When enabled, the following options appear after the on state declaration:</p> <ul style="list-style-type: none"> • send-general-query—The interface sends general queries. • send-group-query—The interface sends group-specific and group-source-specific queries. • allow-receive—The interface receives control traffic 	All levels
OIF map	Name of the OIF map associated to the interface.	All levels
SSM map	Name of the source-specific multicast (SSM) map used on the interface, if configured.	All levels
Immediate Leave	<p>State of the immediate leave option:</p> <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	<p>Information configured by the user.</p> <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	<p>Derived information.</p> <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

Sample Output

```
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 141.

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 141.

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 OS Release 7.4.
Description	Display information about Multicast Listener Discovery (MLD) statistics.
Options	none—Display MLD statistics for all interfaces. 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 Documentation	<ul style="list-style-type: none"> clear mld statistics on page 90
List of Sample Output	show mld statistics on page 144 show mld statistics interface on page 145
Output Fields	Table 34 on page 143 describes the output fields for the show mld statistics command. Output fields are listed in the approximate order in which they appear.

Table 34: 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.

Table 34: show mld statistics Output Fields (*continued*)

Field Name	Field Description
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).
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. • Timed out—Number of groups that timed out as a result of not receiving an explicit leave message. • Rejected Report—Number of reports dropped because of the MLD group policy. • Total Interfaces—Number of interfaces configured to support IGMP.

Sample Output

```

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            0      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
Timed out                 0

```

```

Rejected Report          0
Total Interfaces         2

show mld statistics      user@host> show mld statistics interface fe-1/0/1.0
interface               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          0        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
Timed out                 0
Rejected Report           0
Total Interfaces          2

```

show msdp

Syntax	<pre>show msdp <brief detail> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <peer <i>peer-address</i>></pre>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display Multicast Source Discovery Protocol (MSDP) information.
Options	<p>none—Display standard MSDP information for all routing instances.</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 Documentation	<ul style="list-style-type: none"> • show msdp source on page 148 • show msdp source-active on page 150 • show msdp statistics on page 152
List of Sample Output	<p>show msdp on page 147</p> <p>show msdp brief on page 147</p> <p>show msdp detail on page 147</p>
Output Fields	Table 35 on page 146 describes the output fields for the show msdp command. Output fields are listed in the approximate order in which they appear.

Table 35: 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
Peer-Group	Peer group name.	All levels

Table 35: show msdp Output Fields (*continued*)

Field Name	Field Description	Level of Output
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

Sample Output

```

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 147.

```

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>)> < <i>source-address</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display multicast sources learned from Multicast Source Discovery Protocol (MSDP).
Options	none—Display standard MSDP source information for all routing instances. instance <i>instance-name</i> —(Optional) Display information for the specified instance only. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. <i>source-address</i> —(Optional) IP address and optional prefix length. Display information for the specified source address only.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• show msdp on page 146• show msdp source-active on page 150• show msdp statistics on page 152
List of Sample Output	show msdp source on page 149

Output Fields Table 36 on page 149 describes the output fields for the **show msdp source** command. Output fields are listed in the approximate order in which they appear.

Table 36: 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.

Sample Output

```

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	<code>show msdp source-active</code> <code><brief detail></code> <code><group <i>group</i>></code> <code><instance <i>instance-name</i>></code> <code><local></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><originator <i>originator</i>></code> <code><peer <i>peer-address</i>></code> <code><source <i>source-address</i>></code>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display the Multicast Source Discovery Protocol (MSDP) source-active cache.
Options	<p><code>none</code>—Display standard MSDP source-active cache information for all routing instances.</p> <p><code>brief detail</code>—(Optional) Display the specified level of output.</p> <p><code>group <i>group</i></code>—(Optional) Display source-active cache information for the specified group.</p> <p><code>instance <i>instance-name</i></code>—(Optional) Display information for the specified instance.</p> <p><code>local</code>—(Optional) Display all source-active caches originated by this router.</p> <p><code>logical-system (all <i>logical-system-name</i>)</code>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><code>originator <i>originator</i></code>—(Optional) Display information about the peer that originated the source-active cache entries.</p> <p><code>peer <i>peer-address</i></code>—(Optional) Display the source-active cache of the specified peer.</p> <p><code>source <i>source-address</i></code>—(Optional) Display the source-active cache of the specified source.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• show msdp on page 146• show msdp source on page 148• show msdp statistics on page 152
List of Sample Output	<ul style="list-style-type: none">• show msdp source-active on page 151• show msdp source-active brief on page 151• show msdp source-active detail on page 151
Output Fields	Table 37 on page 151 describes the output fields for the show msdp source-active command. Output fields are listed in the approximate order in which they appear.

Table 37: 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.

Sample Output

```

show msdp source-active user@host> show msdp 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 151.

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 151.

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 OS 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.</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 Documentation	<ul style="list-style-type: none"> clear msdp statistics on page 92
List of Sample Output	show msdp statistics on page 153
Output Fields	Table 38 on page 152 describes the output fields for the show msdp statistics command. Output fields are listed in the approximate order in which they appear.

Table 38: 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.

Table 38: show msdp statistics Output Fields (*continued*)

Field Name	Field Description
SA messages received	Number of source-active messages received.
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.

Sample Output

```

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 backup-pe-groups

Syntax	show multicast backup-pe-groups <address <i>pe-address</i> > <group <i>group-name</i> > <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in Junos OS Release 9.0.
Description	Display backup PE router group information when ingress PE redundancy is configured. Ingress PE redundancy provides a backup resource when point-to-multipoint LSPs are configured for multicast distribution.
Options	<p>none—Display standard information about all backup PE groups.</p> <p>address <i>pe-address</i>—(Optional) Display the groups that a PE address is associated with.</p> <p>group <i>group</i>—(Optional) Display the backup PE group information for a particular group.</p> <p>instance <i>instance-name</i>—(Optional) Display backup PE group 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	show multicast backup-pe-groups on page 155
Output Fields	Table 39 on page 154 describes the output fields for the show multicast backup-pe-groups command. Output fields are listed in the approximate order in which they appear.

Table 39: show multicast backup-pe-groups Output Fields

Field Name	Field Description
Backup PE Group	Group name.
Designated PE	Primary PE router. Address of the PE router that is currently forwarding traffic on the static route.
Transitions	Number of times that the designated PE router has transitioned from the most eligible PE router to a backup PE router and back again to the most eligible PE router.
Last Transition	Time of the most recent transition.
Local Address	Address of the local PE router.
Backup PE List	List of PE routers that are configured to be backups for the group.

Sample Output

```
show multicast backup-pe-groups user@host> show multicast backup-pe-groups
Instance: master

Backup PE group: b1
  Designated PE: 10.255.165.7
  Transitions: 1
  Last Transition: 03:15:01
  Local Address: 10.255.165.7
  Backup PE List:
    10.255.165.8

Backup PE group: b2
  Designated PE: 10.255.165.7
  Transitions: 2
  Last Transition: 02:58:20
  Local Address: 10.255.165.7
  Backup PE List:
    10.255.165.9
    10.255.165.8
```

show multicast flow-map

Syntax	show multicast flow-map <brief detail> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show multicast flow-map <brief detail>
Release Information	Command introduced in Junos OS Release 8.2. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display configuration information about IP multicast flow maps.
Options	none—Display configuration information about IP multicast flow maps on all systems. brief detail—(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
List of Sample Output	show multicast flow-map on page 157 show multicast flow-map detail on page 157
Output Fields	Table 40 on page 156 describes the output fields for the show multicast flow-map command. Output fields are listed in the approximate order in which they appear.

Table 40: 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

Sample Output

```
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
```

Sample Output

```
show multicast flow-map detail user@host> show multicast flow-map 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>)>
Syntax (EX Series Switch)	show multicast interface
Release Information	Command introduced in Junos OS Release 8.3. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display bandwidth information about IP multicast interfaces.
Options	none—Display all interfaces that have multicast configured. 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 159
Output Fields	Table 41 on page 158 describes the output fields for the show multicast interface command. Output fields are listed in the approximate order in which they appear.

Table 41: 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.
Mapped bandwidth deduction (bps)	<p>Amount of bandwidth, in bits per second, used by any flows that are mapped to the interface.</p> <p>NOTE: Adding the mapped bandwidth deduction value to the local bandwidth deduction value results in the total deduction value for the interface.</p> <p>This field does not appear in the output when the no QoS adjustment feature is disabled.</p>
Local bandwidth deduction (bps)	<p>Amount of bandwidth, in bits per second, used by any mapped flows that are traversing the interface.</p> <p>NOTE: Adding the mapped bandwidth deduction value to the local bandwidth deduction value results in the total deduction value for the interface.</p> <p>This field does not appear in the output when the no QoS adjustment feature is disabled.</p>

Table 41: show multicast interface Output Fields (*continued*)

Field Name	Field Description
Reverse OIF mapping	State of the reverse OIF mapping feature (on or off). NOTE: This field does not appear in the output when the no QoS adjustment feature is disabled.
Reverse OIF mapping no QoS adjustment	State of the no QoS adjustment feature (on or off) for interfaces that are using reverse OIF mapping. NOTE: This field does not appear in the output when the no QoS adjustment feature is disabled.
Leave timer	Amount of time a mapped interface remains active after the last mapping ends. NOTE: This field does not appear in the output when the no QoS adjustment feature is disabled.
No QoS adjustment	State (on) of the no QoS adjustment feature when this feature is enabled. NOTE: This field does not appear in the output when the no QoS adjustment feature is disabled.

Sample Output

```

show multicast user@host> show multicast interface
interface      Interface      Maximum bandwidth (bps) Remaining bandwidth (bps)
fe-0/0/3       fe-0/0/3      10000000          0
fe-0/0/3.210   fe-0/0/3.210  10000000          -2000000
fe-0/0/3.220   fe-0/0/3.220  1000000000        1000000000
fe-0/0/3.230   fe-0/0/3.230  20000000          18000000
fe-0/0/2.200   fe-0/0/2.200  1000000000        1000000000

```

show multicast mrinfo

Syntax	show multicast mrinfo <host>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display configuration information about IP multicast networks, including neighboring multicast router addresses.
Options	none—Display configuration information about all multicast networks. host—(Optional) Display configuration information about a particular host. Replace <i>host</i> with a hostname or IP address.
Required Privilege Level	view
List of Sample Output	show multicast mrinfo on page 161
Output Fields	Table 42 on page 160 describes the output fields for the show multicast mrinfo command. Output fields are listed in the approximate order in which they appear.

Table 42: 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>	Neighbor's multicast profile: <ul style="list-style-type: none"> metric—Always has a value of 1, because mrinfo queries the directly connected interfaces of a device. threshold—Multicast threshold time-to-live (TTL). The range of values is 0 through 255. type—Multicast connection type: pim or tunnel. flags—Flags for this route: <ul style="list-style-type: none"> querier—Queried router is the designated router for the neighboring session. leaf—Link is a leaf in the multicast network. down—Link status indicator.

Sample Output

```
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	<pre>show multicast next-hops <brief detail> <identifier-number> <inet inet6> <logical-system (all <i>logical-system-name</i>)></pre>
Syntax (EX Series Switch)	<pre>show multicast next-hops <brief detail> <identifier-number> <inet inet6></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>inet6 option introduced in Junos OS Release 10.0 for EX Series switches.</p> <p>detail option display of next-hop ID number introduced in Junos OS Release 11.1 for M series and T series routers and EX Series switches.</p>
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.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>When you include the detail option on M Series and T Series routers and EX Series switches, the downstream interface name includes the next-hop ID number in parentheses, in the form fe-0/1/2.0-(1048574) where 1048574 is the next-hop ID number.</p> <p>identifier-number—(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 163</p> <p>show multicast next-hops brief on page 163</p> <p>show multicast next-hops detail on page 163</p>
Output Fields	Table 43 on page 163 describes the output fields for the show multicast next-hops command. Output fields are listed in the approximate order in which they appear.

Table 43: show multicast next-hops Output Fields

Field Name	Field Description
ID	Next-hop identifier of the prefix. The identifier is returned by the routing device'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.

Sample Output

```

user@host> show multicast 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

```

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 163.

```

user@host> show multicast next-hops detail
Family: INET
ID      Refcount  KRefCount  Downstream interface
1048577      2          1  fe-0/1/2.0-(1048574)
          1  ge-0/2/3.0-(1048576)

```

show multicast pim-to-igmp-proxy

Syntax	show multicast pim-to-igmp-proxy <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show multicast pim-to-igmp-proxy <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 9.6. Command introduced in Junos OS Release 9.6 for EX Series switches. instance option introduced in Junos OS Release 10.0. instance option introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display configuration information about PIM-to-IGMP message translation, also known as PIM-to-IGMP proxy.
Options	none—Display configuration information about PIM-to-IGMP message translation for all routing instances. instance <i>instance-name</i> —(Optional) Display configuration information about PIM-to-IGMP message translation for a specific multicast 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
List of Sample Output	show multicast pim-to-igmp-proxy on page 164 show multicast pim-to-igmp-proxy instance on page 165
Output Fields	Table 44 on page 164 describes the output fields for the show multicast pim-to-igmp-proxy command. Output fields are listed in the order in which they appear.

Table 44: show multicast pim-to-igmp-proxy Output Fields

Field Name	Field Description
Proxy state	State of PIM-to-IGMP message translation, also known as PIM-to-IGMP proxy, on the configured upstream interfaces: enabled or disabled .
<i>interface-name</i>	Name of upstream interface (no more than two allowed) on which PIM-to-IGMP message translation is configured.

Sample Output

```

show multicast pim-to-igmp-proxy
user@host> show multicast pim-to-igmp-proxy
Instance: master Proxy state: enabled
ge-0/1/0.1
ge-0/1/0.2

```

```
show multicast      user@host> show multicast pim-to-igmp-proxy instance VPN-A
pim-to-igmp-proxy  Instance: VPN-A Proxy state: enabled
instance          ge-0/1/0.1
```

show multicast pim-to-mld-proxy

Syntax	show multicast pim-to-mld-proxy <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show multicast pim-to-mld-proxy <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 9.6. Command introduced in Junos OS Release 9.6 for EX Series switches. instance option introduced in Junos OS Release 10.0. instance option introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display configuration information about PIM-to-MLD message translation, also known as PIM-to-MLD proxy.
Options	none—Display configuration information about PIM-to-MLD message translation for all routing instances. instance <i>instance-name</i> —(Optional) Display configuration information about PIM-to-MLD message translation for a specific multicast 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
List of Sample Output	show multicast pim-to-mld-proxy on page 166 show multicast pim-to-mld-proxy instance on page 167
Output Fields	Table 45 on page 166 describes the output fields for the show multicast pim-to-mld-proxy command. Output fields are listed in the order in which they appear.

Table 45: show multicast pim-to-mld-proxy Output Fields

Field Name	Field Description
Proxy state	State of PIM-to-MLD message translation, also known as PIM-to-MLD proxy, on the configured upstream interfaces: enabled or disabled .
<i>interface-name</i>	Name of upstream interface (no more than two allowed) on which PIM-to-MLD message translation is configured.

Sample Output

```

show multicast pim-to-mld-proxy user@host> show multicast pim-to-mld-proxy
Instance: master Proxy state: enabled
ge-0/5/0.1
ge-0/5/0.2

```

```
show multicast      user@host> show multicast pim-to-mld-proxy instance VPN-A
pim-to-mld-proxy    Instance: VPN-A Proxy state: enabled
instance            ge-0/5/0.1
```

show multicast route

Syntax	<code>show multicast route</code> <code><brief detail extensive></code> <code><active all inactive></code> <code><group <i>group</i>></code> <code><inet inet6></code> <code><instance <i>instance name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><regular-expression></code> <code><source-prefix <i>source-prefix</i>></code>
Syntax (EX Series Switch)	<code>show multicast route</code> <code><brief detail extensive></code> <code><active all inactive></code> <code><group <i>group</i>></code> <code><inet inet6></code> <code><instance <i>instance name</i>></code> <code><regular-expression></code> <code><source-prefix <i>source-prefix</i>></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
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.</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 <i>group</i>—(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 <i>instance-name</i>—(Optional) Display entries in the multicast forwarding table 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> <p>regular-expression—(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 cache entries for a particular source prefix.</p>

Required Privilege Level view

List of Sample Output [show multicast route on page 170](#)
[show multicast route brief on page 170](#)
[show multicast route detail on page 170](#)
[show multicast route extensive on page 171](#)
[show multicast route instance <instance-name> extensive on page 172](#)

Output Fields Table 46 on page 169 describes the output fields for the **show multicast route** command. Output fields are listed in the approximate order in which they appear.

Table 46: 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
Downstream interface list	List of interface names to which the packet with this source prefix is forwarded.	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. If one or more of the kilobits per second packet forwarding statistic queries fails or times out, the statistics field displays Forwarding statistics are not available .	detail extensive
Next-hop ID	Next-hop identifier of the prefix. The identifier is returned by the routing device's Packet Forwarding Engine and is also displayed in the output of the show multicast nexthops 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 never indicates a permanent forwarding entry.	extensive
Wrong incoming interface notifications	Number of times that the upstream interface was not available.	extensive

Sample Output

```
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 170.

```
show multicast route user@host> show multicast route detail
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: 46 kbps, 1000 pps, 921077 packets
```


Next-hop ID: 262143
Upstream protocol: PIM

Family: INET6

**show multicast route
extensive**

```
user@host> show interfaces mt-2/1/10 extensive
Physical interface: mt-2/1/10, Enabled, Physical link is Up
Interface index: 262, SNMP ifIndex: 677, Generation: 265
Type: Multicast-GRE, Link-level type: GRE, MTU: Unlimited, Speed: 1000mbps
Hold-times      : Up 0 ms, Down 0 ms
Device flags    : Present Running
Interface flags: SNMP-Traps
Statistics last cleared: Never
Traffic statistics:
  Input bytes   :          5238          0 bps
  Output bytes  :       31117424      416120 bps
  Input packets :           97          0 pps
  Output packets:       598412      1000 pps
IPv6 transit statistics:
  Input bytes   :           0
  Output bytes  :           0
  Input packets :           0
  Output packets:           0

Logical interface mt-2/1/10.32768 (Index 88) (SNMP ifIndex 680) (Generation
165)
Flags: Point-To-Point SNMP-Traps 0x4000 IP-Header
232.1.1.1:10.0.0.17:47:df:64:0000000800000000 Encapsulation: GRE=NULL
Traffic statistics:
  Input bytes   :           0
  Output bytes  :       31119218
  Input packets :           0
  Output packets:       598435
IPv6 transit statistics:
  Input bytes   :           0
  Output bytes  :           0
  Input packets :           0
  Output packets:           0
Local statistics:
  Input bytes   :           0
  Output bytes  :        1794
  Input packets :           0
  Output packets:         23
Transit statistics:
  Input bytes   :           0          0 bps
  Output bytes  :       31117424      416120 bps
  Input packets :           0          0 pps
  Output packets:       598412      1000 pps
IPv6 transit statistics:
  Input bytes   :           0
  Output bytes  :           0
  Input packets :           0
  Output packets:           0
Protocol inet, MTU: 4446, Generation: 200, Route table: 4
Flags: None
Protocol inet6, MTU: 4446, Generation: 201, Route table: 4
Flags: None

Logical interface mt-2/1/10.1081344 (Index 89) (SNMP ifIndex 681) (Generation
166)
Flags: Point-To-Point SNMP-Traps 0x6000 Encapsulation: GRE=NULL
```

```

Traffic statistics:
Input bytes :          5238
Output bytes :          0
Input packets:         97
Output packets:         0
IPv6 transit statistics:
Input bytes :          0
Output bytes :          0
Input packets:         0
Output packets:         0
Local statistics:
Input bytes :          5238
Output bytes :          0
Input packets:         97
Output packets:         0
Transit statistics:
Input bytes :          0          0 bps
Output bytes :          0          0 bps
Input packets:         0          0 pps
Output packets:         0          0 pps
IPv6 transit statistics:
Input bytes :          0
Output bytes :          0
Input packets:         0
Output packets:         0
Protocol inet, MTU: Unlimited, Generation: 202, Route table: 4
Flags: None
Protocol inet6, MTU: Unlimited, Generation: 203, Route table: 4
Flags: None

```

```

show multicast route instance mvpn extensive
instance
<instance-name>
extensive

user@host>show multicast route instance mvpn extensive
Family: INET
Group: 239.10.10.10
Source: 2.0.0.2/32
Upstream interface: xe-0/0/0.102
Downstream interface list:
    xe-10/3/0.0 xe-0/3/0.0 xe-0/0/0.106 xe-0/0/0.105
    xe-0/0/0.103 xe-0/0/0.104 xe-0/0/0.107 xe-0/0/0.108
Session description: Administratively Scoped
Statistics: 256 kbps, 3998 pps, 670150 packets
Next-hop ID: 1048579
Upstream protocol: MVPN
Route state: Active
Forwarding state: Forwarding
Cache lifetime/timeout: forever
Wrong incoming interface notifications: 58

```

show multicast rpf

Syntax	<pre>show multicast rpf <inet inet6> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <prefix> <summary></pre>
Syntax (EX Series Switch)	<pre>show multicast rpf <inet inet6> <instance <i>instance-name</i>> <prefix> <summary></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.</p>
Description	Display information about multicast reverse-path-forwarding (RPF) calculations.
Options	<p>none—Display RPF calculation information for all supported address families.</p> <p>inet inet6—(Optional) Display the RPF calculation information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display information about multicast RPF calculations 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> <p>prefix—(Optional) Display the RPF calculation information for the specified prefix.</p> <p>summary—(Optional) Display summary of all multicast RPF information.</p>
Required Privilege Level	view
List of Sample Output	<pre>show multicast rpf on page 174 show multicast rpf inet6 on page 175 show multicast rpf prefix on page 176 show multicast rpf summary on page 176</pre>

Output Fields Table 47 on page 174 describes the output fields for the **show multicast rpf** command. Output fields are listed in the approximate order in which they appear.

Table 47: 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.

Sample Output

```

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
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  user@host> show multicast rpf ff02::/16
prefix              Multicast RPF table: inet6.0, 13 entries

ff02::2/128
    Protocol: PIM

ff02::d/128
    Protocol: PIM

...

```

```

show multicast rpf  user@host> show multicast rpf summary
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>)>
Syntax (EX Series Switch)	show multicast scope <inet inet6> <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
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.</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 178</p> <p>show multicast scope inet on page 178</p> <p>show multicast scope inet6 on page 178</p>
Output Fields	Table 48 on page 177 describes the output fields for the show multicast scope command. Output fields are listed in the approximate order in which they appear.

Table 48: 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.

Sample Output

```
show multicast scope user@host> show multicast scope
```

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

Scope name	Group Prefix	Interface	Resolve Rejects
232-net	232.232.0.0/16	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
```

Scope name	Group Prefix	Interface	Resolve Rejects
local	ff05::/16	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> >
Syntax (EX Series Switch)	show multicast sessions <brief detail extensive> < <i>regular-expression</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about announced IP multicast sessions.
Options	<p>none—Display standard information about all multicast sessions for all routing instances.</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 180</p> <p>show multicast sessions <i>regular-expression</i> detail on page 180</p>
Output Fields	Table 49 on page 179 describes the output fields for the show multicast sessions command. Output fields are listed in the approximate order in which they appear.

Table 49: show multicast sessions Output Fields

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

Sample Output

```

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 "NASA TV" detail 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: fntp: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	<pre>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>> <regular-expression> <source-prefix <i>source-prefix</i>></pre>
Release Information	Command introduced in Junos OS 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	<p>show multicast snooping route bridge-domain on page 183</p> <p>show multicast snooping route instance vs on page 183</p>
Output Fields	Table 50 on page 182 describes the output fields for the show multicast snooping route command. Output fields are listed in the approximate order in which they appear.

Table 50: show multicast snooping route Output Fields

Field Name	Field Description	Level of Output
Nexthop Bulking	Displays whether next-hop bulk updating is ON or OFF (only for routing-instance type of virtual switch or vpls).	All levels

Table 50: show multicast snooping route Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
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

Sample Output

```

show multicast snooping route bridge-domain
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 route instance vs
user@host> show multicast snooping route instance vs
Nexthop Bulking: ON
Family: INET
Group: 224.0.0.0
  Bridge-domain: vsid500
Group: 225.1.0.1
  Bridge-domain: vsid500

```

```
Downstream interface list: vsid500
  ge-0/3/8.500 ge-1/1/9.500 ge1/2/5.500
```

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 OS 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.</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 Documentation	<ul style="list-style-type: none"> clear multicast snooping statistics on page 97
List of Sample Output	show multicast snooping statistics on page 187
Output Fields	Table 51 on page 185 describes the output fields for the show multicast snooping statistics command. Output fields are listed in the approximate order in which they appear.

Table 51: 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.

Table 51: show multicast snooping statistics Output Fields (*continued*)

Field Name	Field Description
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.
In Kbytes	Total accumulated incoming packets (in KB) since the last time the clear multicast snooping statistics command was issued.
Out Kbytes	Total accumulated outgoing packets (in KB) since the last time the clear multicast snooping 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 snooping statistics command was issued.
Out packets	Total number of outgoing packets since the last time the clear multicast snooping statistics command was issued.

Sample Output

```

show multicast snooping statistics user@host> show multicast snooping 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 OS Release 7.4.
Description	Display IP multicast statistics.
Options	<p>none—Display multicast statistics for all supported address families for all routing instances.</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 Documentation	<ul style="list-style-type: none"> clear multicast statistics on page 98
List of Sample Output	show multicast statistics on page 190
Output Fields	Table 52 on page 188 describes the output fields for the show multicast statistics command. Output fields are listed in the approximate order in which they appear.

Table 52: 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.

Table 52: show multicast statistics Output Fields (*continued*)

Field Name	Field Description
Resolve No Route	Number of resolve requests that were ignored because there was no route to the source.
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.

Sample Output

```

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>)>
Syntax (EX Series Switch)	show multicast usage <brief detail> <inet inet6> <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
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.</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 192</p> <p>show multicast usage brief on page 192</p> <p>show multicast usage instance on page 192</p> <p>show multicast usage detail on page 192</p>
Output Fields	Table 53 on page 191 describes the output fields for the show multicast usage command. Output fields are listed in the approximate order in which they appear.

Table 53: show multicast usage Output Fields

Field Name	Field Description
Instance	Name of the routing instance. (Displayed when multicast is configured within a routing instance.)

Table 53: show multicast usage Output Fields (*continued*)

Field Name	Field Description
Group	Group address.
Sources	Number of sources.
Packets	Number of packets that have been forwarded to this prefix. If one or more of the packets forwarded statistic queries fails or times out, the packets field displays unavailable .
Bytes	Number of bytes that have been forwarded to this prefix. If one or more of the packets forwarded statistic queries fails or times out, the bytes field displays unavailable .
Prefix	IP address.
/len	Prefix length.
Groups	Number of multicast groups.

Sample Output

```

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 192.

```

show multicast usage user@host> show multicast usage instance VPN-A
instance
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 user@host> show multicast usage detail
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 OS 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 195
Output Fields	Table 54 on page 194 describes the output fields for the show pgm negative-acknowledgments command. Output fields are listed in the approximate order in which they appear.

Table 54: 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.

Sample Output

```
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 OS 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 196
Output Fields	Table 55 on page 196 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 55: 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.

Sample Output

```

user@host> show pgm 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 OS 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 199
Output Fields	Table 56 on page 197 describes the output fields for the show pgm statistics command. Output fields are listed in the approximate order in which they appear.

Table 56: 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 56: 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).

Sample Output

```

show pgm statistics user@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>)>
Syntax (EX Series Switch)	show pim bootstrap <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. instance option introduced in Junos OS Release 10.0 for EX Series switches.
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.</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 201</p> <p>show pim bootstrap instance on page 201</p>
Output Fields	Table 57 on page 200 describes the output fields for the show pim bootstrap command. Output fields are listed in the approximate order in which they appear.

Table 57: show pim bootstrap Output Fields

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

Sample Output

```
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 user@host> show pim bootstrap instance VPN-A
instance           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>)>
Syntax (EX Series Switch)	show pim interfaces <inet inet6> <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
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.</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 203</p> <p>show pim interfaces inet on page 204</p> <p>show pim interfaces inet6 on page 204</p>
Output Fields	Table 58 on page 202 describes the output fields for the show pim interfaces command. Output fields are listed in the approximate order in which they appear.

Table 58: 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 58: 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, routing devices must join and leave multicast groups explicitly. Upstream routing devices do not forward multicast traffic to this routing device unless this device has sent an explicit request (using a join message) to receive multicast traffic. • Dense—Unlike sparse mode, where data is forwarded only to routing devices 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.
NbrCnt	Number of neighbors that have been seen on the interface.
JoinCnt(sg)	Number of (s,g) join messages that have been seen on the interface.
JointCnt(*g)	Number of (*g) join messages that have been seen on the interface.
DR address	Address of the designated router.

Sample Output

```

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

Name          Stat Mode      IP V State NbrCnt JoinCnt(sg) JointCnt(*g) DR
address
fe-0/0/0.0    Up   Sparse    4 2 DR      1       1         3
10.10.10.2
fe-0/0/3.0    Up   Sparse    4 2 DR      1       1         3
20.20.20.2
1o0.0         Up   Sparse    4 2 DR      0       0         0
10.255.72.54
pe-1/2/0.32769 Up   Sparse    4 2 P2P     0       0         0
t1-0/1/0.0    Up   Sparse    4 2 P2P     1       0         0
1o0.0         Up   Sparse    6 2 DR      0       0         0
fe80::2a0:a5ff:fe5e:209

```

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

Name address	Stat	Mode	IP V State	NbrCnt	JoinCnt(sg)	JointCnt(*g)	DR
fe-0/0/0.0 10.10.10.2	Up	Sparse	4 2 DR	1	1	3	
fe-0/0/3.0 20.20.20.2	Up	Sparse	4 2 DR	1	1	3	
lo0.0 10.255.72.54	Up	Sparse	4 2 DR	0	0	0	
pe-1/2/0.32769	Up	Sparse	4 2 P2P	0	0	0	
tl-0/1/0.0	Up	Sparse	4 2 P2P	1	0	0	

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

Name address	Stat	Mode	IP V State	NbrCnt	JoinCnt(sg)	JointCnt(*g)	DR
lo0.0 fe80::2a0:a5ff:fe5e:209	Up	Sparse	6 2 DR	0	0	0	

show pim join

Syntax	<pre>show pim join <brief detail extensive summary> <inet inet6> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <range></pre>
Syntax (EX Series Switch)	<pre>show pim join <brief detail extensive summary> <inet inet6> <instance <i>instance-name</i>> <range></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>summary option introduced in Junos OS Release 9.6.</p> <p>inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.</p>
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.</p> <p>brief detail extensive summary—(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 Documentation	<ul style="list-style-type: none"> clear pim join on page 102
List of Sample Output	<p>show pim join summary on page 207</p> <p>show pim join on page 207</p> <p>show pim join instance on page 208</p> <p>show pim join detail on page 208</p> <p>show pim join extensive on page 209</p> <p>show pim join instance extensive on page 209</p>

Output Fields Table 59 on page 206 describes the output fields for the **show pim join** command. Output fields are listed in the approximate order in which they appear.

Table 59: show pim join Output Fields

Field Name	Field Description	Level of Output
Instance	Name of the routing instance.	brief detail extensive summary none
Family	Name of the address family: inet (IPv4) or inet6 (IPv6).	brief detail extensive summary none
Route type	Type of multicast route: (S,G) or (*,G).	summary
Route count	Number of (S,G) routes and number of (*,G) routes.	summary
R	Rendezvous Point Tree	brief detail extensive none
S	Sparse	brief detail extensive none
W	Wildcard	brief detail extensive none
Group	Group address.	brief detail extensive none
Source	Multicast source: <ul style="list-style-type: none"> • * (wildcard value) • <i>ipv4-address</i> • <i>ipv6-address</i> 	brief detail extensive none
RP	Rendezvous point for the PIM group.	brief detail extensive none
Flags	PIM flags: <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. 	brief detail extensive none
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).	brief detail extensive none
Upstream neighbor	Information about the upstream neighbor: Direct , Local , Unknown , or a specific IP address.	extensive

Table 59: show pim join Output Fields (*continued*)

Field Name	Field Description	Level of Output
Upstream state	Information about the upstream interface: <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 routing device. • Prune to RP—Sending a prune to the rendezvous point. • Prune to Source—Sending a prune to the source. 	extensive
Downstream neighbors	Information about downstream interfaces: <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. 	extensive
Assert Timeout	Length of time between assert cycles on downstream interface. Not displayed if assert timer is null.	extensive
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 .	extensive

Sample Output

```

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

Route type      Route count
(s,g)           2
(*,g)           1

Instance: PIM.master Family: INET6

show pim join user@host> show pim join

```

Instance: PIM.master Family: INET
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

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
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

show pim join instance user@host> show pim join instance VPN-A
Instance: PIM.VPN-A Family: INET
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

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
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

show pim join detail user@host> show pim join detail
Instance: PIM.master Family: INET
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

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
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

show pim join extensive user@host> show pim join extensive
Instance: PIM.master Family: INET
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

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
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

show pim join instance extensive user@host> show pim join instance VPN-A extensive
Instance: PIM.VPN-A Family: INET
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

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 logical-system-name)> <range>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about Protocol Independent Multicast (PIM) default multicast distribution tree (MDT) and the 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 212</p> <p>show pim mdt instance detail on page 213</p> <p>show pim mdt instance extensive on page 213</p> <p>show pim mdt instance incoming on page 213</p> <p>show pim mdt instance outgoing on page 213</p> <p>show pim mdt instance (SSM Mode) on page 213</p>
Output Fields	Table 60 on page 211 describes the output fields for the show pim mdt command. Output fields are listed in the approximate order in which they appear.

Table 60: 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
Tunnel mode	Mode the tunnel is operating in: PIM-SSM or PIM-ASM .	All levels

Table 60: show pim mdt Output Fields (*continued*)

Field Name	Field Description	Level of Output
Default group address	Default multicast group address using this tunnel.	All levels
Default source address	Default multicast source address using this tunnel.	All levels
Default tunnel interface	Default multicast tunnel interface.	All levels
Default tunnel source	Address used as the source address for outgoing PIM control messages.	All levels
C-Group	Customer-facing multicast group address using this tunnel. If you enable dynamic reuse of data MDT group addresses, more than one group address can use the same data MDT.	detail
C-Source	IP address of the multicast source in the customer's address space. If you enable dynamic reuse of data MDT group addresses, more than one source address can use the same data MDT.	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

Sample Output

```

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
Default tunnel source: 192.168.7.1

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
Default tunnel source: 192.168.7.1

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
Default tunnel source: 192.168.7.1

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
Default tunnel source: 192.168.7.1

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 mdt instance (SSM Mode) user@host> show pim mdt instance vpn-a
Instance: PIM.vpn-a
Tunnel direction: Outgoing
Tunnel mode: PIM-SSM

```

Default group address: 232.1.1.1
Default source address: 10.255.14.216
Default tunnel interface: mt-1/3/0.32769
Default tunnel source: 192.168.7.1

Instance: PIM.vpn-a
Tunnel direction: Incoming
Tunnel mode: PIM-SSM
Default group address: 232.1.1.1
Default source address: 10.255.14.217
Default tunnel interface: mt-1/3/0.49153

Instance: PIM.vpn-a
Tunnel direction: Incoming
Tunnel mode: PIM-SSM
Default group address: 232.1.1.1
Default source address: 10.255.14.218
Default tunnel interface: mt-1/3/0.49153

show pim mdt data-mdt-joins

Syntax `show pim mdt data-mdt-joins`
`<logical-system (all | logical-system-name)> instance instance-name`

Release Information Command introduced in Junos OS Release 11.2.

Description In a draft-rosen Layer 3 multicast virtual private network (MVPN) configured with service provider tunnels, display the advertisements of new multicast distribution tree (MDT) group addresses cached by the provider edge (PE) routers in the specified VPN routing and forwarding (VRF) instance that is configured to use the Protocol Independent Multicast (PIM) protocol.

Options `instance instance-name`—Display data MDT join packets cached by PE routers in a specific PIM instance.

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



NOTE: Draft-rosen multicast VPNs are not supported in a logical system environment even though the configuration statements can be configured under the logical-systems hierarchy.

Required Privilege Level view

Related Documentation

- Data MDTs Overview
- Example: Configuring Data MDTs and Provider Tunnels Operating in Source-Specific Multicast Mode
- Example: Configuring Data MDTs and Provider Tunnels Operating in Any-Source Multicast Mode

List of Sample Output `show pim mdt data-mdt-joins` on page 216

Output Fields Table 61 on page 215 describes the output fields for the `show pim mdt data-mdt-joins` command. Output fields are listed in the approximate order in which they appear.

Table 61: show pim mdt data-mdt-joins Output Fields

Field Name	Field Description
C-Group	IPv4 group address in the address space of the customer's VPN-specific PIM-enabled routing instance of the multicast traffic destination. This 32-bit value is carried in the C-group field of the MDT join TLV packet.
C-Source	IPv4 address in the address space of the customer's VPN-specific PIM-enabled routing instance of the multicast traffic source. This 32-bit value is carried in the C-source field of the MDT join TLV packet.

Table 61: show pim mdt data-mdt-joins Output Fields (*continued*)

Field Name	Field Description
P-Group	IPv4 group address in the service provider's address space of the new data MDT that the PE router will use to encapsulate the VPN multicast traffic flow (C-Source, C-Group). This 32-bit value is carried in the P-group field of the MDT join TLV packet.
P-Source	IPv4 address of the PE router.
Timeout	Timeout, in seconds, remaining for this cache entry. When the cache entry is created, this field is set to 180 seconds. After an entry times out, the PE router deletes the entry from its cache and prunes itself off the data MDT.

Sample Output

```

show pim mdt data-mdt-joins user@host show pim mdt data-mdt-joins instance VPN-A
C-Source      C-Group      P-Source      P-Group      Timeout
20.2.15.9     225.1.1.2    20.0.0.5      239.10.10.0   172
20.2.15.9     225.1.1.3    20.0.0.5      239.10.10.1   172

```

show pim mvpn

Syntax	show pim mvpn <logical-system (all logical-system-name) >
Release Information	Command introduced in Junos OS Release 9.4.
Description	Display information about multicast virtual private network (MVPN) instances.
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 pim mvpn on page 217
Output Fields	Table 62 on page 217 describes the output fields for the show pim mvpn command. Output fields are listed in the approximate order in which they appear.

Table 62: show pim mvpn Output Fields

Field Name	Field Description	Level of Output
Instance	Name of the routing instance.	All levels
VPN-Group	Multicast group address configured for the default multicast distribution tree.	All levels
Mode	Mode the tunnel is operating in: PIM-MVPN , NGEN-MVPN , NGEN-TRANSITION or None .	All levels
Tunnel	Type of tunnel: PIM-SSM , PIM-SM , NGEN PMSI , or None (VRF-only). If NGEN-PMSI is displayed, enter the show mvpn instance command for more information.	All levels

Sample Output

```

show pim mvpn  user@host> show pim mvpn
                Instance      VPN-Group      Mode      Tunnel
                PIM.ce1       232.1.1.1     PIM-MVPN   PIM-SSM

```

show pim neighbors

Syntax	show pim neighbors <brief detail> <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show pim neighbors <brief detail> <inet inet6> <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
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.</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	show pim neighbors on page 220 show pim neighbors brief on page 220 show pim neighbors instance on page 220 show pim neighbors detail on page 220 show pim neighbors detail (with BFD) on page 220
Output Fields	Table 63 on page 218 describes the output fields for the show pim neighbors command. Output fields are listed in the approximate order in which they appear.

Table 63: 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

Table 63: show pim neighbors Output Fields (*continued*)

Field Name	Field Description	Level of Output
Neighbor addr	Address of the neighboring PIM routing device.	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
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 dd:hh:mm:ss ago for less than a week and nwnd:hh:mm:ss ago 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 Default Holdtime	Default holdtime and the time remaining if the holdtime option is not in the received hello message.	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 delay nnn ms override nnnn ms .	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

Sample Output

show pim neighbors user@host> show pim neighbors
 Instance: PIM.master
 B = Bidirectional Capable, G = Generation Identifier,
 H = Hello Option Holdtime, L = Hello Option LAN Prune Delay,
 P = Hello Option DR Priority

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 220.

show pim neighbors instance user@host> show pim neighbors instance VPN-A
 Instance: PIM.VPN-A
 B = Bidirectional Capable, G = Generation Identifier,
 H = Hello Option Holdtime, L = Hello Option LAN Prune Delay,
 P = Hello Option DR Priority

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		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 Default 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 Default 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	<code>show pim rps</code> <code><brief detail extensive></code> <code><group-address></code> <code><inet inet6></code> <code><instance <i>instance-name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switch)	<code>show pim rps</code> <code><brief detail extensive></code> <code><group-address></code> <code><inet inet6></code> <code><instance <i>instance-name</i>></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
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.</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 routing device that is the RP for that group.</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 RPs 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	show pim rps on page 224 show pim rps brief on page 224 show pim rps instance on page 225 show pim rps extensive on page 225 show pim rps extensive (PIM Anycast RP in Use) on page 225
Output Fields	Table 64 on page 223 describes the output fields for the show pim rps command. Output fields are listed in the approximate order in which they appear.

Table 64: 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
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 routing device 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 OS 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 routing device 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 64: 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 routing device 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 routing device 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

Sample Output

```

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 224.

```

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	<pre>show pim source <brief detail> <inet inet6> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <source-prefix></pre>
Syntax (EX Series Switch)	<pre>show pim source <brief detail> <inet inet6> <instance <i>instance-name</i>> <source-prefix></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.</p>
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.</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 228</p> <p>show pim source brief on page 228</p> <p>show pim source detail on page 228</p>
Output Fields	<p>Table 65 on page 227 describes the output fields for the show pim source command. Output fields are listed in the approximate order in which they appear.</p>

Table 65: show pim source Output Fields

Field Name	Field Description
Instance	Name of the routing instance.

Table 65: show pim source Output Fields (*continued*)

Field Name	Field Description
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.

Sample Output

```

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 228.

```

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	<pre>show pim statistics <inet inet6> <instance <i>instance-name</i>> <interface <i>interface-name</i>> <logical-system (all <i>logical-system-name</i>)></pre>
Syntax (EX Series Switch)	<pre>show pim statistics <inet inet6> <instance <i>instance-name</i>> <interface <i>interface-name</i>></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.</p>
Description	Display Protocol Independent Multicast (PIM) statistics.
Options	<p>none—Display PIM statistics.</p> <p>inet inet6—(Optional) Display IPv4 or IPv6 PIM statistics.</p> <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 Documentation	<ul style="list-style-type: none"> • clear pim statistics on page 106
List of Sample Output	<p>show pim statistics on page 235</p> <p>show pim statistics inet interface interface-name on page 236</p> <p>show pim statistics inet6 interface interface-name on page 236</p> <p>show pim statistics interface interface-name on page 237</p>
Output Fields	<p>Table 66 on page 230 describes the output fields for the show pim statistics command. Output fields are listed in the approximate order in which they appear.</p>

Table 66: show pim statistics Output Fields

Field Name	Field Description
Instance	<p>Name of the routing instance.</p> <p>This field only appears if you specify an interface, for example:</p> <ul style="list-style-type: none"> • inet interface <i>interface-name</i> • inet6 interface <i>interface-name</i> • interface <i>interface-name</i>
Family	<p>Output is for IPv4 or IPv6 PIM statistics. INET indicates IPv4 statistics, and INET6 indicates IPv6 statistics.</p> <p>This field only appears if you specify an interface, for example:</p> <ul style="list-style-type: none"> • inet interface <i>interface-name</i> • inet6 interface <i>interface-name</i> • interface <i>interface-name</i>
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.
V2 Hello	PIM version 2 hello packets.
V2 Register	PIM version 2 register packets.
V2 Register Stop	PIM version 2 register stop packets.
V2 Join Prune	PIM version 2 join and prune packets.
V2 Bootstrap	PIM version 2 bootstrap packets.
V2 Assert	PIM version 2 assert packets.
V2 Graft	PIM version 2 graft packets.
V2 Graft Ack	PIM version 2 graft acknowledgement packets.
V2 Candidate RP	PIM version 2 candidate RP packets.
V1 Query	PIM version 1 query packets.
V1 Register	PIM version 1 register packets.

Table 66: show pim statistics Output Fields (*continued*)

Field Name	Field Description
V1 Register Stop	PIM version 1 register stop packets.
V1 Join Prune	PIM version 1 join and prune packets.
V1 RP Reachability	PIM version 1 RP reachability packets.
V1 Assert	PIM version 1 assert packets.
V1 Graft	PIM version 1 graft packets.
V1 Graft Ack	PIM version 1 graft acknowledgement packets.
AutoRP Announce	Auto-RP announce packets.
AutoRP Mapping	Auto-RP mapping packets.
AutoRP Unknown type	Auto-RP packets with an unknown type.
Anycast Register	Auto-RP announce packets.
Anycast Register Stop	Auto-RP announce packets.
Global Statistics	Summary of PIM statistics for all interfaces.
Hello dropped on neighbor policy	Number of hello packets dropped because of a configured neighbor policy.
Unknown type	Number of PIM control packets received with an unknown type.
V1 Unknown type	Number of PIM version 1 control packets received with an unknown type.
Unknown Version	Number of PIM control packets received with an unknown version. The version is not version 1 or version 2.
Neighbor unknown	Number of PIM control packets received (excluding PIM hello) without first receiving the hello packet.
Bad Length	Number of PIM control packets received for which the packet size does not match the PIM length field in the packet.
Bad Checksum	Number of PIM control packets received for which the calculated checksum does not match the checksum field in the packet.
Bad Receive If	Number of PIM control packets received on an interface that does not have PIM configured.

Table 66: show pim statistics Output Fields (*continued*)

Field Name	Field Description
Rx Bad Data	Number of PIM control packets received that contain data for TCP. Bad register packets.
Rx Intf disabled	Number of PIM control packets received on an interface that has PIM disabled.
Rx V1 Require V2	Number of PIM version 1 control packets received on an interface configured for PIM version 2.
Rx V2 Require V1	Number of PIM version 2 control packets received on an interface configured for PIM version 1.
Rx Register not RP	Number of PIM register packets received when the router is not the RP for the group.
Rx Register no route	Number of PIM register packets received when the RP does not have a unicast route back to source.
Rx Register no decap if	Number of PIM register packets received when the RP does not have a de-encapsulation interface.
Null Register Timeout	Number of NULL register timeout packets.
RP Filtered Source	Number of PIM packets received when the router has a source address filter configured for the RP.
Rx Unknown Reg Stop	Number of register stop messages with an unknown type.
Rx Join/Prune no state	Number of join and prune messages received for which the router has no state.
Rx Join/Prune on upstream if	Number of join and prune messages received on the interface used to reach the upstream router, toward the RP.
Rx Join/Prune messages dropped	Number of join and prune messages received and dropped.
Rx sparse join for dense group	Number of PIM sparse mode join messages received for a group that is configured for dense mode.
Rx Graft/Graft Ack no state	Number of graft and graft acknowledgement messages received for which the router has no state.
Rx Graft on upstream if	Number of graft messages received on the interface used to reach the upstream router, toward the RP.
Rx CRP not BSR	Number of BSR messages received in which the PIM message type is Candidate-RP-Advertisement, not Bootstrap.

Table 66: show pim statistics Output Fields (*continued*)

Field Name	Field Description
Rx BSR when BSR	Number of BSR messages received in which the PIM message type is Bootstrap.
Rx BSR not RPF if	Number of BSR messages received on an interface that is not the RPF interface.
Rx unknown hello opt	Number of PIM hello packets received with options that Junos does not support.
Rx data no state	Number of PIM control packets received for which the router has no state for the data type.
Rx RP no state	Number of PIM control packets received for which the router has no state for the RP.
Rx aggregate	Number of PIM aggregate MDT packets received.
Rx malformed packet	Number of PIM control packets received with a malformed IP unicast or multicast address family.
No RP	Number of PIM control packets received with no RP address.
No register encap if	Number of PIM register packets received when the first-hop router does not have an encapsulation interface.
No route upstream	Number of PIM control packets received when the router does not have a unicast route to the the interface used to reach the upstream router, toward the RP.
Nexthop Unusable	Number of PIM control packets with an unusable nexthop. A path can be unusable if the route is hidden or the link is down.
RP mismatch	Number of PIM control packets received for which the router has an RP mismatch.
RPF neighbor unknown	Number of PIM control packets received for which the router has an unknown RPF neighbor for the source.
Rx Joins/Prunes filtered	The number of join and prune messages filtered because of configured route filters and source address filters.
Tx Joins/Prunes filtered	The number of join and prune messages filtered because of configured route filters and source address filters.
Embedded-RP invalid addr	Number of packets received with an invalid embedded RP address in PIM join messages and other types of messages sent between routing domains.

Table 66: show pim statistics Output Fields (*continued*)

Field Name	Field Description
Embedded-RP limit exceed	Number of times the limit configured with the maximum-rps statement is exceeded. The maximum-rps statement limits the number of embedded RPs created in a specific routing instance. The range is from 1 through 500. The default is 100.
Embedded-RP added	<p>Number of packets in which the embedded RP for IPv6 is added.</p> <p>The following receive events trigger extraction of an IPv6 embedded RP address on the router:</p> <ul style="list-style-type: none"> • Multicast Listener Discovery (MLD) report for an embedded RP multicast group address • PIM join message with an embedded RP multicast group address • Static embedded RP multicast group address associated with an interface • Packets sent to an embedded RP multicast group address received on the DR <p>An embedded RP node discovered through these receive events is added if it does not already exist on the routing platform.</p>
Embedded-RP removed	Number of packets in which the embedded RP for IPv6 is removed. The embedded RP is removed whenever all PIM join states using this RP are removed or the configuration changes to remove the embedded RP feature.
Rx Register msgs filtering drop	Number of register messages dropped because of a filter configured for PIM register messages.
Tx Register msgs filtering drop	Number of register messages dropped because of a filter configured for PIM register messages.

Sample Output

```

user@host> show pim statistics
show pim statistics
PIM Message type      Received      Sent  Rx errors
V2 Hello               15           32      0
V2 Register            0           362      0
V2 Register Stop      483           0      0
V2 Join Prune         18          518      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               0            0      0
V1 Register            0            0      0
V1 Register Stop       0            0      0
V1 Join Prune          0            0      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

```

Global Statistics

```

Hello dropped on neighbor policy 0
Unknown type                     0
V1 Unknown type                  0
Unknown Version                  0
Neighbor unknown                 5
Bad Length                       0
Bad Checksum                     0
Bad Receive If                   0
Rx Bad Data                      0
Rx Intf disabled                 0
Rx V1 Require V2                 0
Rx V2 Require V1                 0
Rx Register not RP               0
Rx Register no route             0
Rx Register no decap if          0
Null Register Timeout            0
RP Filtered Source               0
Rx Unknown Reg Stop              0
Rx Join/Prune no state           0
Rx Join/Prune on upstream if     0
Rx Join/Prune messages dropped   0
Rx sparse join for dense group   0
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 RP no state                   0

```

Rx aggregate	0
Rx malformed packet	0
No RP	0
No register encap if	0
No route upstream	0
Nexthop Unusable	0
RP mismatch	0
RPF neighbor unknown	0
Rx Joins/Prunes filtered	0
Embedded-RP invalid addr	0
Embedded-RP limit exceed	0
Embedded-RP added	0
Embedded-RP removed	0
Rx Register msgs filtering drop	0
Tx Register msgs filtering drop	0

Sample Output

```
show pim statistics user@host> show pim statistics inet interface ge-0/3/0.0
inet interface      Instance: PIM.master Family: INET
interface-name      PIM Interface statistics for ge-0/3/0.0
```

PIM Message type	Received	Sent	Rx errors
V2 Hello	0	4	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	0	0	0
V1 Register	0	0	0
V1 Register Stop	0	0	0
V1 Join Prune	0	0	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		
Anycast Register	0	0	0
Anycast Register Stop	0	0	0

Sample Output

```
show pim statistics user@host> show pim statistics inet6 interface ge-0/3/0.0
inet6 interface     Instance: PIM.master Family: INET6
interface-name      PIM Interface statistics for ge-0/3/0.0
```

PIM Message type	Received	Sent	Rx errors
V2 Hello	0	4	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
Anycast Register	0	0	0
Anycast Register Stop	0	0	0

Sample Output

```
show pim statistics user@host> show pim statistics interface ge-0/3/0.0
interface          Instance: PIM.master Family: INET
interface-name      PIM Interface statistics for ge-0/3/0.0
```

PIM Message type	Received	Sent	Rx errors
V2 Hello	0	3	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	0	0	0
V1 Register	0	0	0
V1 Register Stop	0	0	0
V1 Join Prune	0	0	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		
Anycast Register	0	0	0
Anycast Register Stop	0	0	0

Instance: PIM.master Family: INET6

PIM Interface statistics for ge-0/3/0.0

PIM Message type	Received	Sent	Rx errors
V2 Hello	0	3	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
Anycast Register	0	0	0
Anycast Register Stop	0	0	0

show sap listen

Syntax	show sap listen <brief detail> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS 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.</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 238</p> <p>show sap listen brief on page 238</p> <p>show sap listen detail on page 238</p>
Output Fields	Table 67 on page 238 describes the output fields for the show sap listen command. Output fields are listed in the approximate order in which they appear.

Table 67: 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.

Sample Output

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 238 .
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 238 .

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 OS 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 239
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
test msdp      user@host> test msdp dependent-peers 10.0.0.1/24
dependent-peers
```


CHAPTER 6

IPv6 Operational Mode Commands

Table 68 on page 241 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 68: IPv6 Operational Mode Commands

Task	Command
Clear IPv6 neighbor cache information.	clear ipv6 neighbors
Clear IPv6 router advertisement counters.	clear ipv6 router-advertisement
Display neighbor discovery information.	show ipv6 neighbors
Display router advertisement information.	show ipv6 router-advertisement



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

clear ipv6 neighbors

Syntax	clear ipv6 neighbors <all host <i>hostname</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.3 for EX Series switches.
Description	Clear IPv6 neighbor cache information.
Options	none—Clear all IPv6 neighbor cache information. all—(Optional) Clear all IPv6 neighbor cache information. host <i>hostname</i> —(Optional) Clear the information for the specified IPv6 neighbors.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• show ipv6 neighbors on page 244
List of Sample Output	clear ipv6 neighbors on page 242
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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 OS Release 7.4.
Description	Clear IPv6 router advertisement counters.
Options	<p>none—Clear IPv6 router advertisement counters for all interfaces.</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 Documentation	<ul style="list-style-type: none"> • show ipv6 router-advertisement on page 246
List of Sample Output	clear ipv6 router-advertisement on page 243
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
clear ipv6 router-advertisement user@host> clear ipv6 router-advertisement
```

show ipv6 neighbors

Syntax	show ipv6 neighbors
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.3 for EX Series switches.
Description	Display information about the IPv6 neighbor cache.
Options	This command has no options.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear ipv6 neighbors on page 242
List of Sample Output	show ipv6 neighbors on page 244 show ipv6 neighbors on page 244
Output Fields	Table 69 on page 244 describes the output fields for the show ipv6 neighbors command. Output fields are listed in the approximate order in which they appear.

Table 69: show ipv6 neighbors Output Fields

Field Name	Field Description
IPv6 Address	Name of the 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 routing device: yes or no .
Secure	Whether this entry was created using the Secure Neighbor Discovery (SEND) protocol: yes or no .
Interface	Name of the interface.

Sample Output

```

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	<pre>show ipv6 router-advertisement <conflicts> <interface <i>interface</i>> <logical-system (all <i>logical-system-name</i>)> <prefix <i>prefix/prefix length</i>></pre>
Release Information	Command introduced before Junos OS 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.</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 Documentation	<ul style="list-style-type: none"> clear ipv6 router-advertisement on page 243
List of Sample Output	<p>show ipv6 router-advertisement on page 247</p> <p>show ipv6 router-advertisement conflicts on page 248</p> <p>show ipv6 router-advertisement prefix on page 248</p>
Output Fields	Table 70 on page 246 describes the output fields for the show ipv6 router-advertisement command. Output fields are listed in the approximate order in which they appear.

Table 70: 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.

Table 70: show ipv6 router-advertisement Output Fields (*continued*)

Field Name	Field Description
Solicits received	Number of solicitation messages received.
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).

Sample Output

```

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 7

IS-IS Operational Mode Commands

Table 71 on page 249 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 71: IS-IS Operational Mode Commands

Task	Command
Remove adjacencies.	clear isis adjacency
Remove database entries.	clear isis database
Reset IS-IS dynamic overload bit.	clear isis overload
Set IS-IS traffic statistics to zero.	clear isis statistics
Display adjacent routers.	show isis adjacency
Display authentication statistics.	show isis authentication
Display information about the level of backup coverage available for protected routes.	show isis backup coverage
Display information about MPLS LSPs designated as backup paths.	show isis backup label-switched-path
Display SPF calculations for backup paths.	show isis backup spf results
Display database entries.	show isis database
Display hostname mapping.	show isis hostname
Display the status of interfaces on which IS-IS is running.	show isis interface
Display IS-IS overview information.	show isis overview
Display IS-IS routing table entries.	show isis route
Display SPF calculations.	show isis spf

Table 71: IS-IS Operational Mode Commands (*continued*)

Task	Command
Display IS-IS traffic statistics.	show isis statistics



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. For information about monitoring Bidirectional Forwarding Detection (BFD) sessions for IS-IS clients, see BFD Operational Mode Commands. 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>
Syntax (EX Series Switch)	clear isis adjacency <instance <i>instance-name</i> > <interface <i>interface-name</i> > <neighbor>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Remove entries from the Intermediate System-to-Intermediate System (IS-IS) adjacency database.
Options	none—Remove all entries from the adjacency database. instance <i>instance-name</i> —(Optional) Clear all adjacencies for the specified routing instance only. interface <i>interface-name</i> —(Optional) Clear all adjacencies 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. neighbor—(Optional) Clear adjacencies for the specified neighbor only.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show isis adjacency on page 259
List of Sample Output	clear isis adjacency on page 251
Output Fields	See show isis adjacency for an explanation of output fields.

Sample Output

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      HoId (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 karakul
```

```
user@host> show isis adjacency
```

```
IS-IS adjacency database:
```

Interface	System	L State	Hold (secs)	SNPA
so-1/0/0.0	karakul	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 <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <purge>
Syntax (EX Series Switch)	clear isis database <entries> <instance <i>instance-name</i> > <purge>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. purge option introduced in Junos OS 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.
<div>  <p>CAUTION: In a production network, the purge command option may cause short-term network-wide traffic disruptions. Use with caution!</p> </div>	
Options	<p>none—Remove all entries from the IS-IS link-state database for all routing instances.</p> <p><i>entries</i>—(Optional) Name of the database entry.</p> <p>instance <i>instance-name</i>—(Optional) Clear all 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> <p>purge—(Optional) Discard all entries in the IS-IS link-state database.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show isis database on page 272
List of Sample Output	clear isis database on page 254
Output Fields	See show isis database for an explanation of output fields.

Sample Output

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 <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear isis overload <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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	<p>none—Reset the IS-IS dynamic overload bit.</p> <p>instance <i>instance-name</i>—(Optional) Reset the IS-IS dynamic overload bit 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	clear
Related Documentation	<ul style="list-style-type: none"> show isis database on page 272
List of Sample Output	clear isis overload on page 255
Output Fields	See show isis database for an explanation of output fields.

Sample Output

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>)>
Syntax (EX Series Switch)	clear isis statistics <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Set statistics about Intermediate System-to-Intermediate System (IS-IS) traffic to zero.
Options	none—Set IS-IS traffic statistics to zero for all routing instances. instance <i>instance-name</i> —(Optional) Set IS-IS traffic statistics to zero for the specified routing instance 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	view
Related Documentation	<ul style="list-style-type: none"> • show isis statistics on page 295
List of Sample Output	clear isis statistics on page 257
Output Fields	See show isis statistics for an explanation of output fields.

Sample Output

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>)>
Syntax (EX Series Switch)	show isis adjacency <brief detail extensive> <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about Intermediate System-to-Intermediate System (IS-IS) neighbors.
Options	none—Display standard information about IS-IS neighbors for all routing instances. brief detail extensive—(Optional) Display the specified level of output. instance <i>instance-name</i> —(Optional) Display adjacencies 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 Documentation	<ul style="list-style-type: none"> clear isis adjacency on page 251
List of Sample Output	show isis adjacency on page 261 show isis adjacency brief on page 261 show isis adjacency detail on page 261 show isis adjacency extensive on page 262
Output Fields	Table 72 on page 259 describes the output fields for the show isis adjacency command. Output fields are listed in the approximate order in which they appear.

Table 72: 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

Table 72: show isis adjacency Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
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 72: show isis adjacency Output Fields (*continued*)

Field Name	Field Description	Level of Output
Transition log	<p>List of recent transitions, including:</p> <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

Sample Output

```

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 The output for the show isis adjacency brief command is identical to that for the show
brief               isis adjacency command. For sample output, see show isis adjacency on page 261.

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

show isis authentication

Syntax	show isis authentication <brief detail extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show isis authentication <brief detail extensive> <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 7.5. Command introduced in Junos OS Release 9.0 for EX Series switches. Support for hitless authentication key rollover introduced in Junos OS Release 11.2.
Description	Display information about Intermediate System-to-Intermediate System (IS-IS) authentication.
Options	none—Display information about IS-IS authentication. brief detail extensive—(Optional) Display the specified level of output. instance <i>instance-name</i> —(Optional) Display IS-IS authentication 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
List of Sample Output	show isis authentication on page 264 show isis authentication (with hitless authentication key rollover configured) on page 264
Output Fields	Table 73 on page 263 describes the output fields for the show isis authentication command. Output fields are listed in the approximate order in which they appear.

Table 73: 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. Displays the name of the active keychain if hitless authentication key rollover is configured.
CSN Auth	Complete sequence number authentication type.

Table 73: show isis authentication Output Fields (*continued*)

Field Name	Field Description
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.

Sample Output

```

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 authentication user@host> show isis authentication
Interface               Level IIH Auth CSN Auth PSN Auth
so-0/1/3.0              2    hakrhello MD5      MD5

L2 LSP Authentication: MD5
authentication (with
hitless authentication
key rollover
configured)

```

show isis backup coverage

Syntax	<code>show isis backup coverage</code> <code><instance <i>instance-name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switch)	<code>show isis backup coverage</code> <code><instance <i>instance-name</i>></code>
Release Information	Command introduced in Junos OS Release 9.5. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about the level of backup coverage available.
Options	<p><code>none</code>—Display information about the level of backup coverage available for all the nodes and prefixes in the network.</p> <p><code>instance <i>instance-name</i></code>—(Optional) Display information about the level of backup coverage for a specific IS-IS routing instance.</p> <p><code>logical-system (all <i>logical-system-name</i>)</code>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> show isis backup label-switched-path on page 267
List of Sample Output	show isis backup coverage on page 266
Output Fields	Table 74 on page 265 lists the output fields for the show isis backup coverage command. Output fields are listed in the approximate order in which they appear.

Table 74: show isis backup coverage Output Fields

Field Name	Field Description
Topology	Type of topology or address family: IPv4 Unicast or IPv6 Unicast .
Level	IS-IS level: <ul style="list-style-type: none"> 1—Level 1 2—Level 2
Node	By topology, the percentage of all routes configured on the node that are protected through backup coverage.
IPv4 Unicast	Percentage of IPv4 unicast routes that are protected through backup coverage.
IPv6 Unicast	Percentage of IPv6 unicast routes that are protected through backup coverage.

Table 74: show isis backup coverage Output Fields (*continued*)

Field Name	Field Description
CLNS	Percentage of Connectionless Network Service (CLNS) routes that are protected through backup coverage.

Sample Output

```
show isis backup coverage user@host> show isis backup coverage
Backup Coverage:
Topology    Level  Node   IPv4   IPv6   CLNS
IPV4 Unicast 2  28.57% 22.22% 0.00% 0.00%
IPV6 Unicast 2   0.00% 0.00% 0.00% 0.00%
```


show isis backup label-switched-path

Syntax	show isis backup label-switched-path <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show isis backup label-switched-path
Release Information	Command introduced in Junos OS Release 9.5. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about MPLS label-switched-paths (LSPs) designated as backup routes for IS-IS routes.
Options	<p>none—Display information about MPLS LSPs designated as backup routes for IS-IS routes.</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 Documentation	<ul style="list-style-type: none"> • show isis backup coverage on page 265
List of Sample Output	show isis backup label-switched-path on page 268
Output Fields	Table 75 on page 267 lists the output fields for the show isis backup label-switched-path command. Output fields are listed in the approximate order in which they appear.

Table 75: show isis backup label-switched-path Output Fields

Field Name	Field Description
Backup MPLS LSPs	List of MPLS LSPs designated as backup paths for IS-IS routes.
Egress	IP address of the egress routing device for the LSP.
Status	<p>State of the LSP:</p> <ul style="list-style-type: none"> • Up—The router can detect RSVP hello messages from the neighbor. • Down—The 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. • Deleted—LSP is no longer available as a backup path.
Last change	Time elapsed since the neighbor state changed either from up or down or from down to up. The format is <i>hh:mm:ss</i> .
TE-metric	Configured traffic engineering metric.

Table 75: show isis backup label-switched-path Output Fields (*continued*)

Field Name	Field Description
Metric	Configured metric.

Sample Output

```
show isis backup      user@host> show isis backup label-switched-path
label-switched-path   Backup MPLS LSPs:
                      f-to-g, Egress: 192.168.1.4, Status: up, Last change: 06:12:03
                      TE-metric: 9, Metric: 0
```

show isis backup spf results

Syntax	<pre>show isis backup spf results <instance <i>instance-name</i>> <level (1 2)> <logical-system (all <i>logical-system-name</i>)> <no-coverage> <topology (ipv4-unicast ipv6-multicast ipv6-unicast unicast)></pre>
Syntax (EX Series Switch)	<pre>show isis backup spf results <instance <i>instance-name</i>> <level (1 2)> <no-coverage> <topology (ipv4-unicast unicast)></pre>
Release Information	<p>Command introduced in Junos OS Release 9.5.</p> <p>Command introduced in Junos OS Release 9.5 for EX Series switches.</p>
Description	Display information about IS-IS shortest-path-first (SPF) calculations for backup paths.
Options	<p>none—Display information about IS-IS shortest-path-first (SPF) calculations for all backup paths for all destination nodes.</p> <p>instance <i>instance-name</i>—(Optional) Display SPF calculations for backup paths for the specified routing instance.</p> <p>level (1 2)—(Optional) Display SPF calculations for the backup paths for the specified IS-IS level.</p> <p>logical-system <i>logical-system-name</i>—(Optional) Display SPF calculations for the backup paths for all logical systems or on a particular logical system.</p> <p>no-coverage—(Optional) Display SPF calculations only for destinations that do not have backup coverage.</p> <p>topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)—(Optional) Display SPF calculations for backup paths for the specified topology only.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show isis backup coverage on page 265
List of Sample Output	show isis backup spf results on page 270
Output Fields	<p>Table 76 on page 270 lists the output fields for the show isis backup spf results command. Output fields are listed in the approximate order in which they appear.</p>

Table 76: show isis backup spf results Output Fields

Field Name	Field Description
<i>node-name</i>	Name of the destination node.
Address	Address of the destination node.
Primary next-hop	Interface and name of the node of the primary next hop to reach the destination.
Root	Name of the next-hop neighbor.
Metric	Metric to the node.
Eligible	Indicates that the next-hop neighbor has been designated as a backup path to the destination node.
Backup next-hop	Name of the interface of the backup next hop.
SNPA	Subnetwork point of attachment (MAC address of the next hop).
LSP	Name of the MPLS LSP designated as a backup path.
Not eligible	Indicates that the next-hop neighbor cannot function as a backup path to the destination.
Reason	Describes why the next-hop neighbor is designated as Not eligible as a backup path.

Sample Output

show isis backup spf results

```

user@host> show isis backup spf results
IS-IS level 1 SPF results:
  0 nodes

IS-IS level 2 SPF results:
kobuk.00, Address 0x8d85600
  Primary next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
  Primary next-hop: so-0/1/2.0, crater
  Primary next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
  Primary next-hop: so-0/1/2.0, crater
  Root: crater, Metric: 10
    Not eligible, Reason: Primary next-hop multipath
  Root: camaro, Metric: 10
    Not eligible, Reason: Primary next-hop multipath
  Root: olympic, Metric: 25
    Not eligible, Reason: Primary next-hop multipath
glacier.00, Address 0x8d85200
  Primary next-hop: so-0/1/2.0, crater
  Primary next-hop: so-0/1/2.0, crater
  Root: crater, Metric: 10
    Not eligible, Reason: Primary next-hop link fate sharing
  Root: olympic, Metric: 15
    Eligible, Backup next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa

```

```

    Eligible, Backup next-hop: so-1/0/2.0, olympic
    Eligible, Backup next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
    Eligible, Backup next-hop: so-1/0/2.0, olympic
    Root: camaro, Metric: 20
    Eligible, Backup next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
    Eligible, Backup next-hop: so-1/0/2.0, olympic
    Eligible, Backup next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
    Eligible, Backup next-hop: so-1/0/2.0, olympic
olympic.00, Address 0x8d00c00
    Primary next-hop: so-1/0/2.0, olympic
    Primary next-hop: so-1/0/2.0, olympic
    Root: olympic, Metric: 0
    Not eligible, Reason: Primary next-hop link fate sharing
    Root: crater, Metric: 20
    track-item: olympic.00-00
    track-item: banff.00-00
    Not eligible, Reason: Path loops
    Root: camaro, Metric: 20
    track-item: olympic.00-00
    track-item: banff.00-00
    Not eligible, Reason: Path loops
camaro.00, Address 0x8d85a00
    Primary next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
    Primary next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
    Root: camaro, Metric: 0
    Not eligible, Reason: Primary next-hop link fate sharing
    Root: crater, Metric: 20
    track-item: camaro.00-00
    track-item: banff.00-00
    Not eligible, Reason: Path loops
    Root: olympic, Metric: 20
    track-item: camaro.00-00
    track-item: banff.00-00
    Not eligible, Reason: Path loops
crater.00, Address 0x8d85000
    Primary next-hop: so-0/1/2.0, crater
    Primary next-hop: so-0/1/2.0, crater
    Root: crater, Metric: 0
    Not eligible, Reason: Primary next-hop link fate sharing
    Root: camaro, Metric: 20
    track-item: crater.00-00
    track-item: banff.00-00
    Not eligible, Reason: Path loops
    Root: olympic, Metric: 20
    track-item: crater.00-00
    track-item: banff.00-00
    Not eligible, Reason: Path loops
5 nodes

```

show isis database

Syntax	show isis database <brief detail extensive> <instance <i>instance-name</i> > <level (1 2)> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show isis database <brief detail extensive> <level (1 2)> <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the entries in the Intermediate System-to-Intermediate System (IS-IS) link-state database, which contains data about PDU packets.
Options	none—Display standard information about IS-IS link-state database entries for all routing instances. brief detail extensive—(Optional) Display the specified level of output. instance <i>instance-name</i> —(Optional) Display entries for the specified routing instance. level (1 2)—(Optional) Display entries for the specified IS-IS level. 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 Documentation	<ul style="list-style-type: none">• clear isis database on page 253
List of Sample Output	show isis database on page 274 show isis database brief on page 274 show isis database detail on page 275 show isis database extensive on page 276 show isis database extensive (CLNS) on page 277
Output Fields	Table 77 on page 273 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 77: show isis database Output Fields

Field Name	Field Description	Level of Output
Interface name	Name of the interface on which the LSP has been received; always IS-IS for this command.	All levels
level	Level of intermediate system: <ul style="list-style-type: none"> • 1—Intermediate system routes within an area; when the destination is outside an area, it routes toward a Level 2 system. • 2—Intermediate system routes between areas and toward other ASs. 	All levels
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
Attributes	Attributes of the specified database: L1 , L2 , Overload , or Attached (L1 only).	none brief
# LSPs	Total number of LSPs in the specified link-state database.	none brief
IP prefix	Prefix advertised by this link-state PDU.	detail extensive
IS neighbor	IS-IS neighbor of the advertising system.	detail extensive
ES neighbor	(J Series routers only) An ES-IS neighbor of the advertising system.	detail extensive
IP prefix	IPv4 prefix advertised by this link-state PDU.	detail extensive
V6 prefix	IPv6 prefix advertised by this link-state PDU.	detail extensive
Metric	Metric of the prefix or neighbor.	detail extensive
Header	<ul style="list-style-type: none"> • LSP ID—Link state PDU identifier of the header. • Length—Header length. • Allocated Length—Amount of length available for the header. • Router ID—Address of the local routing device. • Remaining Lifetime—Remaining lifetime of the link-state PDU, in seconds. 	extensive

Table 77: show isis database Output Fields (*continued*)

Field Name	Field Description	Level of Output
Packet	<ul style="list-style-type: none"> • LSP ID—The identifier for the link-state packet. • Length—Packet length. • Lifetime—Remaining lifetime, in seconds. • Checksum—The checksum of the LSP. • Sequence—The sequence number of the LSP. Every time the LSP is updated, this number increments. • Attributes—Packet attributes. • NLPID—Network layer protocol identifier. • Fixed length—Specifies the set length for the packet. 	extensive
TLVs	<ul style="list-style-type: none"> • Area Address—Area addresses that the routing device can reach. • Speaks—Supported routing protocols. • IP router id—ID of the routing device (usually the IP address). • IP address—IPv4 address. • Hostname—Assigned name of the routing device. • IP prefix—IP prefix of the routing device. • Metric—IS-IS metric that measures the cost of the adjacency between the originating routing device and the advertised routing device. • IP extended prefix—Extended IP prefix of the routing device. • IS neighbor—Directly attached neighbor's name and metric. • IS extended neighbor—Directly attached neighbor's name, metric, and IP address. 	extensive

Sample Output

```

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
brief database command. For sample output, see show isis database on page 274.

```



```

show isis database user@host> show isis database detail
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 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>)>
Syntax (EX Series Switch)	show isis hostname
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Intermediate System-to-Intermediate System (IS-IS) hostname database information.
Options	none—Display IS-IS hostname database information. 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 279
Output Fields	Table 78 on page 279 describes the output fields for the show isis hostname command. Output fields are listed in the approximate order in which they appear.

Table 78: 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.

Sample Output

```

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>)>
Syntax (EX Series Switch)	show isis interface <brief detail extensive> <interface-name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display status information about Intermediate System-to-Intermediate System (IS-IS)-enabled interfaces.
<div>  <p>NOTE: If the configured metric for an IS-IS level is higher than 63, and <i>wide-metrics-only</i> is not configured, the <i>show isis interface detail</i> command and the <i>show isis interface extensive</i> command display 63 as the metric value for that level. Configure the <i>wide-metrics-only</i> to generate metric values greater than 63 on a per IS-IS level basis.</p> <p>The <i>show isis interface</i> command displays the configured metric value for an IS-IS level irrespective of whether is configured or not.</p> <p>For information about how to configure <i>wide-metrics-only</i>, see the <i>Junos Routing Protocols Configuration Guide</i>.</p> </div>	
Options	<p>none—Display standard information about all IS-IS-enabled interfaces.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p><i>interface-name</i>—(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><i>show isis interface</i> on page 282</p> <p><i>show isis interface brief</i> on page 282</p> <p><i>show isis interface detail</i> on page 282</p> <p><i>show isis interface extensive</i> on page 283</p> <p><i>show isis interface extensive (with LDP)</i> on page 283</p>
Output Fields	Table 79 on page 281 describes the output fields for the show isis interface command. Output fields are listed in the approximate order in which they appear.

Table 79: show isis interface Output Fields

Field Name	Field Description	Level of Output
<i>interface-name</i>	Name of the interface.	detail
Designated router	Routing device 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
LSP interval	Interval between link-state PDUs sent from the interface.	detail
CSNP interval	Interval between complete sequence number PDUs sent from the interface.	detail extensive
Sysid	System identifier.	detail
Interface	Interface through which the adjacency is made.	none 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.	none brief
Level 1 DR	Level 1 designated intermediate system.	none brief
Level 2 DR	Level 2 designated intermediate system.	none brief
L1/L2 Metric	Interface's metric for Level 1 and Level 2. If there is no information, the metric is 0.	none brief
Adjacency advertisement: Advertise	This routing device 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 routing device's outbound LSPs.	detail extensive
Adjacencies	Number of adjacencies established on this interface.	detail

Table 79: show isis interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Priority	Priority value for this interface.	detail
Metric	Metric value for this interface.	detail
Hello(s) / Hello Interval	Interface's hello interval.	detail extensive
Hold(s) / Hold Time	Interface's hold time.	detail extensive
Designated Router	Router responsible for sending network link-state advertisements, which describe all the routers attached to the network.	detail
Hello padding	Type of hello padding: <ul style="list-style-type: none"> Adaptive—On point-to-point connections, the hello packets are padded from the initial detection of a new neighbor until the neighbor verifies the adjacency as Up in the adjacency state TLV. If the neighbor does not support the adjacency state TLV, then padding continues. On LAN connections, padding starts from the initial detection of a new neighbor until there is at least one active adjacency on the interface. Loose—(Default) The hello packet is padded from the initial detection of a new neighbor until the adjacency transitions to the Up state. Strict—Padding is performed on all interface types and for all adjacency states, and is continuous. 	extensive
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

Sample Output

```

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
1o0.0          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 282.

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 Passive
  2           0         64      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 interface extensive (with LDP) user@host> show isis interface extensive
IS-IS interface database:

```

so-1/1/2.0
Index: 114, State: 0x6, Circuit id: 0x1, Circuit type: 2
LSP interval: 100 ms, CSNP interval: 20 s, Loose Hello padding
Adjacency advertisement: Advertise
LDP sync state: in sync, for: 00:01:28, reason: LDP up during config
config holdtime: 20 seconds
Level 2
  Adjacencies: 1, Priority: 64, Metric: 11
  Hello Interval: 9.000 s, Hold Time: 27 s
  IPV4 MulticastMetric: 10
  IPV6 UnicastMetric: 10

```

show isis overview

Syntax	show isis overview <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show isis overview <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 8.5. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Intermediate System-to-Intermediate System (IS-IS) overview information.
Options	none—Display standard overview information about IS-IS for all routing instances. instance <i>instance-name</i> —(Optional) Display overview information 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
List of Sample Output	show isis overview on page 285
Output Fields	Table 80 on page 284 lists the output fields for the show isis overview command. Output fields are listed in the approximate order in which they appear.

Table 80: show isis overview Output Fields

Field Name	Field Description
instance	The IS-IS routing instance.
Router ID	Router ID of the routing device.
Adjacency holddown	Adjacency holddown capability: enabled or disabled .
Maximum Areas	Maximum number of IS-IS areas advertised by the routing device.
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.

Table 80: show isis overview Output Fields (*continued*)

Field Name	Field Description
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 .
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	IS-IS 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 routers 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.

Sample Output

```
show isis overview user@host> show isis overview
```

Sample Output

```
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	<pre>show isis route <destination> <inet inet6> <instance instance-name> <logical-system (all logical-system-name)> <topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)></pre>
Syntax (EX Series Switch)	<pre>show isis route <destination> <inet inet6> <instance instance-name> <topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p>
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.</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, or use unicast to display information, if available, for both IPv4 and IPv6 unicast topologies.</p>
Required Privilege Level	view
List of Sample Output	<p>show isis route logical-system on page 288</p> <p>show isis route (CLNS) on page 288</p>
Output Fields	Table 81 on page 288 describes the output fields for the show isis route command. Output fields are listed in the approximate order in which they appear.

Table 81: 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	IS-IS 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.

Sample Output

```

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

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)>
Syntax (EX Series Switch)	show isis spf (brief log results) <instance <i>instance-name</i> > <level (1 2)> <topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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 291</p> <p>show isis spf log on page 292</p> <p>show isis spf results on page 293</p> <p>show isis spf results (CLNS) on page 294</p>
Output Fields	Table 82 on page 290 describes the output fields for the show isis spf command. Output fields are listed in the approximate order in which they appear.

Table 82: show isis spf Output Fields

Field Name	Field Description
Node	System ID of a node.

Table 82: show isis spf Output Fields (*continued*)

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

Sample Output

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
          10      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
          20      gr-0/2/0.0  h
skag.02   20      gr-0/2/0.0  h
          20      gr-0/2/0.0  h
h.00      10      gr-0/2/0.0  h
          10      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 lsl

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
                                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
                                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>)>
Syntax (EX Series Switch)	show isis statistics <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display statistics about Intermediate System-to-Intermediate System (IS-IS) traffic.
Options	none—Display IS-IS traffic statistics for all routing instances. 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 Documentation	<ul style="list-style-type: none"> clear isis statistics on page 257
List of Sample Output	show isis statistics on page 296
Output Fields	Table 83 on page 295 describes the output fields for the show isis statistics command. Output fields are listed in the approximate order in which they appear.

Table 83: 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 routing device, in turn, forwards the missing link-state PDU to the requesting routing device. Unknown—The PDU type is unknown.

Table 83: show isis statistics Output Fields (*continued*)

Field Name	Field Description
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.
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.

Sample Output

```

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 8

LLDP Operational Mode Commands

Table 84 on page 299 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Link Layer Discovery Protocol (LLDP) protocol. Commands are listed in alphabetical order.

Table 84: LLDP Operational Mode Commands

Task	Command
Clear LLDP neighbor information.	<code>clear lldp neighbor</code>
Clear LLDP statistics.	<code>clear lldp statistics</code>
Display basic LLDP information.	<code>show lldp</code>
Display LLDP local information.	<code>show lldp local-information</code>
Display LLDP neighbor information.	<code>show lldp neighbors</code>
Display LLDP remote global statistics.	<code>show lldp remote-global-statistics</code>
Display LLDP statistics.	<code>show lldp statistics</code>

clear lldp neighbor

Syntax	<code>clear lldp neighbor</code> <code><interface <i>interface-name</i>></code>
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, clear information regarding all Link Layer Discovery Protocol (LLDP) neighbors or LLDP neighbors of the specified interface.
Options	<code>interface <i>interface-name</i></code> —(Optional) Clear the LLDP neighbors on the specified interface.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• clear lldp statistics on page 301
List of Sample Output	clear lldp statistics on page 300
Output Fields	When you enter this command, you are provided no feedback on the status of your request. You can enter the show lldp neighbors command before and after clearing the LLDP neighbors to verify the clear operation.

Sample Output

```
clear lldp statistics  user@host> clear lldp statistics
                        user@host> clear lldp statistics interface ge-0/2/0
```

clear lldp statistics

Syntax	<code>clear lldpp neighbor</code> <code><interface <i>interface-name</i>></code>
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, clear all Link Layer Discovery Protocols (LLDP) statistics or LLDP statistics associated with the specified interface.
Options	<code>interface <i>interface-name</i></code> —(Optional) Clear LLDP statistics on the specified interface.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• clear lldp neighbor on page 300
List of Sample Output	clear lldp neighbor on page 301
Output Fields	When you enter this command, you are provided no feedback on the status of your request. You can enter the show lldp statistics command before and after clearing the LLDP statistics to verify the clear operation.

Sample Output

```
clear lldp neighbor  user@host> clear lldp neighbors
                     user@host> clear lldp neighbors interface ge-0/2/2
```

show lldp

Syntax	<code>show lldp</code> <code><detail></code>
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, display information about the Link Layer Discovery Protocol (LLDP).
Options	<code>detail</code> —(Optional) Display the detailed output level.
Required Privilege Level	view
List of Sample Output	show lldp on page 303 show lldp detail on page 303
Output Fields	Table 85 on page 302 describes the output fields for the show lldp command. Output fields are listed in the approximate order in which they appear.

Table 85: show lldp Output Fields

Field Name	Field Description
LLDP	Status of LLDP: Enabled or Disabled .
Advertisement interval	Value of the advertisement interval parameter.
Transmit delay	Value of the transmit delay parameter.
Hold timer	Value of the hold timer parameter.
Notification interval	Value of the notification interval parameter.
Config Trap Interval	Value of the configuration trap parameter.
Connection Hold timer	Value of the connection hold timer parameter.
Interface	List of LLDP interfaces, showing status (Enabled or Disabled) and Neighbor count (detail only).
LLDP basic TLVs supported	List of basic LLDP TLVs supported by this device (detail only).
LLDP 802 TLVs supported	List of IEEE 802.1 LLDP TLVs supported by this device (detail only).

Sample Output

```

user@host> show lldp
LLDP : Enabled
Advertisement interval : 30 Second(s)
Transmit delay : 2 Second(s)
Hold timer : 4 Second(s)
Notification interval : 30 Second(s)
Config Trap Interval : 300 Second(s)
Connection Hold timer : 60 Second(s)

Interface      LLDP
ge-0/0/0       Enabled
ge-0/0/1       Enabled
ge-0/0/4       Enabled

```

Sample Output

```

user@host> show lldp detail
LLDP : Enabled
Advertisement interval : 30 Second(s)
Transmit delay : 2 Second(s)
Hold timer : 4 Second(s)
Notification interval : 30 Second(s)
Config Trap Interval : 300 Second(s)
Connection Hold timer : 60 Second(s)

Interface      LLDP      Neighbor count
ge-0/0/0       Enabled   0
ge-0/0/1       Enabled   0
ge-0/0/4       Enabled   0

LLDP basic TLVs supported:
Chassis identifier, Port identifier, Port description, System name, System
description, System capabilities, Management address.

LLDP 802 TLVs supported:
Link aggregation, Maximum frame size, MAC/PHY Configuration/Status, Port VLAN ID,
Port VLAN name.

```

show lldp local-information

Syntax	show lldp local-information
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, display local Link Layer Discovery Protocol (LLDP) information.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show lldp local-information on page 305
Output Fields	Table 86 on page 304 describes the output fields for the show lldp local-information command. Output fields are listed in the approximate order in which they appear.

Table 86: show lldp local-information Output Fields

Field Name	Field Description
LLDP Local Information details	Information that follows pertains to the local system.
Chassis ID	List of chassis identifiers for local information.
System name	Local system name reported by LLDP.
System descr	Local system description reported by LLDP.
System Capabilities	Capabilities (such as Bridge or Router) that are Supported or Enabled by system on the interface.
Management Information	Listed by Interface Name , Address Subtype (such as ipv4), Address (such as 192.168.168.229), Interface Number , and Interface Numbering Subtype .
Interface Name	List of local interfaces.
Interface ID	List of local interface identifiers.
Interface Description	List of local interface descriptions.
Status	List of interface conditions: UP or DOWN .

Sample Output

```
show lldp local-information user@host> show lldp local-information
LLDP Local Information details

Chassis ID   : 00:90:69:0a:77:c0
System name  : sw-mx-u
System descr : Juniper Networks, Inc. MX 960, Version 9.4IO.1, Build date
                2008-09-04 14:51:50 UTC

System Capabilities
  Supported   : Bridge Router
  Enabled     : Bridge Router

Management Information
  Interface Name : fxp0
  Address Subtype : IPv4(1)
  Address        : 192.168.168.229
  Interface Number : 1
  Interface Numbering Subtype : ifIndex(2)

Interface Name      Interface ID      Interface Description      Status
ge-0/1/0            18              Avaya Port                UP
ge-0/1/1            27              -                          DOWN
ge-0/1/2            13              Port for Hub              UP
```

show lldp neighbors

Syntax	show lldp neighbors <interface <i>interface-name</i> >
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, display information about LLDP neighbors.
Options	interface <i>interface-name</i> —(Optional) Display the neighbor information about a particular physical interface.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear lldp neighbor on page 300
List of Sample Output	show lldp neighbors on page 308 show lldp neighbors interface ge-0/0/4 on page 308
Output Fields	Table 87 on page 306 describes the output fields for the show lldp neighbors command. Output fields are listed in the approximate order in which they appear.

Table 87: show lldp neighbors Output Fields

Field Name	Field Description
LLDP Remote Devices Information	Information about remote devices.
LocalInterface	List of local interfaces for which neighbor information is available.
ChassisId	List of chassis identifiers for neighbors.
PortInfo	List of port information gathered from neighbors. This could be the port identifier or port description.
SysName	List of system names gathered from neighbors.
LLDP Neighbor Information	Information about both local and neighbor systems on the interface (appears when the interface option is used).
Local Information	Information about local systems on the interface (appears when the interface option is used).
Neighbor Information	Information about both local and neighbor system on the interface (appears when the interface option is used).
Index	Local interface index (appears when the interface option is used).

Table 87: show lldp neighbors Output Fields (*continued*)

Field Name	Field Description
Time Mark	Date and timestamp of information (appears when the interface option is used).
Time To Live	Number of seconds for which this information is valid (appears when the interface option is used).
Local Interface	Name of the local physical interface (appears when the interface option is used).
Local Port ID	Local port identifier (appears when the interface option is used).
Neighbor Information	Information about neighbor systems on the interface (appears when the interface option is used).
Chassis type	Type of chassis identifier supplied, such as MAC address (appears when the interface option is used).
Chassis ID	Chassis identifier of type listed (appears when the interface option is used).
Port type	Type of port identifier supplied, such as local (appears when the interface option is used).
Port ID	Port identifier of type listed (appears when the interface option is used).
Port description	Port description (appears when the interface option is used).
System name	Name supplied by the system on the interface (appears when the interface option is used).
System Description	Description supplied by the system on the interface (appears when the interface option is used).
System Capabilities	Capabilities (such as bridge or router) that are Supported or Enabled by the system on the interface (appears when the interface option is used).
Management address	Details of the management address: Address Type (such as ipv4), Address (such as 10.204.34.35), Interface Number , Interface Subtype , and Organization Identifier (OID) (appears when the interface option is used).
Organization Info	One or more entries listing remote information by Organizationally Unique Identifier (OUI), Subtype , Index , and Info (appears when the interface option is used).

Sample Output

```

show lldp neighbors user@host> show lldp neighbors
LLDP Remote Devices Information

LocalInterface  ChassisId          PortInfo          SysName
ge-0/0/0        10.209.192.12      00 19 bb 20 de 80 AVA4C357D
ge-0/0/1        10.209.192.12      00 19 bb 20 de 80 AVA4C357D
ge-0/0/1        10.209.192.13      00 19 bb 20 de 81 AVA4C357E
ge-0/0/3        00 19 bb 20 de 79 5   apg-hp1
ge-0/0/3        00 19 bb 20 de 80 3   apg-hp1
ge-0/0/4        00 19 bb 20 de 79 5   apg-hp1
ge-0/0/4        00 19 bb 20 de 80 3   apg-hp1
ge-0/0/5        00 19 bb 20 de 81 ge-0/0/3          MX480-1
ge-0/0/6        00 19 bb 20 de 82 ge-0/0/4          MX960-2

```

Sample Output

```

show lldp neighbors user@host> show lldp neighbors interface ge-0/0/4
interface ge-0/0/4 LLDP Neighbor Information:
Local Information:
  Index 6 Time Mark Wed Jun 20 07:34:11 2007 Time To Live 120 seconds
  Local Interface : ge-0/0/4
  Local Port ID   : 4

Neighbor Information:
  Chassis type      : Mac address
  Chassis ID       : 00 19 bb 20 de 80
  Port type        : local
  Port ID          : 3
  Port description  : 3
  System name      : apg-hp1

System Description : ProCurve J9049A Switch 2900-24G, revision
                   T.11.X1, ROM K....

System Capabilities
  Supported : bridge, router
  Enabled   : bridge

Management address
  Address Type : ipv4
  Address      : 10.204.34.35
  Interface Number : 1
  Interface Subtype : ifIndex(2)
  OID          : 1.3.6.1.2.1.31.1.1.1.1.1

Organization Info
  OUI      : 0.18.15
  Subtype  : 1
  Index    : 1
  Info     : 00A0000000

Organization Info
  OUI      : 0.18.15
  Subtype  : 3
  Index    : 2
  Info     : 0100000000

```

```
Organization Info
  OUI      : 0.18.15
  Subtype  : 4
  Index    : 3
  Info     : 05EA
```

show lldp remote-global-statistics

Syntax	show lldp remote-global-statistics
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, display remote Link Layer Discovery Protocol (LLDP) global statistics.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show lldp remote-global-statistics on page 311
Output Fields	Table 88 on page 310 describes the output fields for the show lldp remote-global-statistics command. Output fields are listed in the approximate order in which they appear.

Table 88: show lldp remote-global-statistics Output Fields

Field Name	Field Description
LLDP Remote Database Table Counters	Information about remote database table counters.
LastchangeTime	Time elapsed between LLDP agent startup and the last change to the remote database table information.
Inserts	Number of insertions made in the remote database table.
Deletes	Number of deletions made in the remote database table.
Drops	Number of LLDP frames dropped from the remote database table because of errors.
Ageouts	Number of remote database table entries that have aged out of the table.

Sample Output

```
show lldp remote-global-statistics
user@host> show lldp remote-global-statistics
LLDP Remote Database Table Counters
LastchangeTime      Inserts    Deletes    Drops    Ageouts
00:00:76 (76 sec)   192        0           0         0
```

show lldp statistics

Syntax	show lldp statistics <interface <i>interface-name</i> >
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, display information about Link Layer Discovery Protocol (LLDP) statistics.
Options	interface <i>interface-name</i> —(Optional) Display the statistics about a particular physical interface.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear lldp statistics on page 301
List of Sample Output	show lldp statistics on page 313 show lldp statistics interface ge-0/1/1 on page 313
Output Fields	Table 89 on page 312 describes the output fields for the show lldp statistics command. Output fields are listed in the approximate order in which they appear.

Table 89: show lldp statistics Output Fields

Field Name	Field Description
Interface	Interface name.
Received	Number of LLDP frames received on this interface.
Transmitted	Number of LLDP frames sent on this interface.
Unknown-TLVs	Number of LLDP frames with unsupported content received on this interface.
With-Errors	Number of LLDP frames with errors received on this interface.
Discarded	Number of LLDP frames received on this interface that were discarded because of problems.

Sample Output

```
show lldp statistics user@host> show lldp statistics
Interface Received Transmitted Unknown-TLVs With-Errors Discarded
-----
ge-0/1/1 544 540 0 0 0
ge-0/1/2 540 500 0 0 0
ge-0/1/3 544 540 0 0 0
ge-0/1/4 544 540 0 0 0
ge-0/1/5 544 540 0 0 0
ge-0/1/6 544 540 0 0 0
ge-0/1/7 0 0 0 0 0
```

Sample Output

```
show lldp statistics user@host> show lldp statistics interface ge-0/1/1
interface ge-0/1/1 Interface Received Transmitted Unknown-TLVs With-Errors Discarded
-----
ge-0/1/1 544 540 0 0 0
```


CHAPTER 9

MVRP Operational Mode Commands

Table 90 on page 315 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Multiple VLAN Registration Protocol (MVRP). Commands are listed in alphabetical order.

Table 90: MVRP Operational Mode Commands

Task	Command
Display Multiple VLAN Registration Protocol (MVRP) configuration information.	show mvrp
Display Multiple VLAN Registration Protocol (MVRP) applicant state information.	show mvrp applicant-state
Display all Virtual LANs (VLANs) that have been created dynamically using Multiple VLAN Registration Protocol (MVRP) on the router.	show mvrp dynamic-vlan-memberships
Display Multiple VLAN Registration Protocol (MVRP) interface-specific information.	show mvrp interface
Display Multiple VLAN Registration Protocol (MVRP) registration state information.	show mvrp registration-state
Display Multiple VLAN Registration Protocol (MVRP) statistics in the form of Multiple Registration Protocol data unit (MRPDU) messages.	show mvrp statistics

show mvrp

Syntax	show mvrp
Release Information	Command introduced in Junos OS Release 10.1.
Description	For MX Series routers, display Multiple VLAN Registration Protocol (MVRP) configuration information.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show mvrp applicant-state on page 318 • show mvrp dynamic-vlan-memberships on page 320 • show mvrp interface on page 321 • show mvrp registration-state on page 322 • show mvrp statistics on page 324
List of Sample Output	show mvrp on page 316
Output Fields	Table 91 on page 316 lists the output fields for the show mvrp command. Output fields are listed in the approximate order in which they appear.

Table 91: show mvrp Output Fields

Field Name	Field Description
MVRP dynamic VLAN creation	Displays whether global MVRP dynamic Virtual LAN (VLAN) creation is Enabled or Disabled .
MVRP BPDU MAC address	Displays the multicast media access control (MAC) address for MVRP. If configured, the provider MVRP multicast MAC address is used; otherwise, the customer MVRP multicast MAC address is used.
MVRP timers (ms)	Displays MVRP timer information: <ul style="list-style-type: none"> • Interface—The interface on which MVRP is configured. • Join—The maximum number of milliseconds the interfaces must wait before sending VLAN advertisements. • Leave—The number of milliseconds an interface must wait after receiving a Leave message to remove the interface from the VLAN specified in the message. • LeaveAll—The interval at which LeaveAll messages are sent on interfaces. LeaveAll messages maintain current MVRP VLAN membership information in the network.

Sample Output

```

show mvrp  user@host> show mvrp
             MVRP configuration for routing instance 'default-switch'
             MVRP dynamic VLAN creation : Enabled
             MVRP BPDU MAC address      : Customer bridge group (01-80-C2-00-00-21)

```

```
MVRP timers (ms)
Interface      Join   Leave  LeaveAll
ge-11/2/8      200    800    10000
ge-11/0/9      200    800    10000
ge-11/3/0      200    800    10000
```

show mvrp applicant-state

Syntax	show mvrp applicant-state
Release Information	Command introduced in Junos OS Release 10.1.
Description	For MX Series routers, display Multiple VLAN Registration Protocol (MVRP) applicant state information.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show mvrp on page 316 • show mvrp interface on page 321 • show mvrp registration-state on page 322 • show mvrp statistics on page 324
List of Sample Output	show mvrp applicant-state on page 319
Output Fields	Table 92 on page 318 lists the output fields for the show mvrp applicant-state command. Output fields are listed in the approximate order in which they appear.

Table 92: show mvrp applicant-state Output Fields

Field Name	Field Description
VLAN Id	Displays the Virtual LAN (VLAN) ID number.
Interface	Displays the interface number associated with the VLAN ID.
State	Displays one of the following MVRP registrar states: <ul style="list-style-type: none"> • VO—Very anxious observer. • VP—Very anxious passive. • VA—Very anxious new. • AN—Anxious new. • AA—Anxious active. • QA—Quiet active. • LA—Leaving active. • AO—Anxious observer. • QO—Quiet observer. • LO—Leaving observer. • AP—Anxious passive. • QA—Quiet passive.

Sample Output

```
show mvrp      user@host> show mvrp applicant-state
applicant-state MVRP applicant state for routing instance 'default-switch'
                (V0) Very anxious observer, (VP) Very anxious passive, (VA) Very anxious new,
                (AN) Anxious new, (AA) Anxious active, (QA) Quiet active, (LA) Leaving active,
                (AO) Anxious observer, (QO) Quiet observer, (LO) Leaving observer,
                (AP) Anxious passive, (QP) Quiet passive

                VLAN Id      Interface      State
                100         ge-11/3/0     Declaring (QA)
                200         ge-11/3/0     Declaring (QA)
                300         ge-11/3/0     Declaring (QA)
```

show mvrp dynamic-vlan-memberships

Syntax	show mvrp dynamic-vlan-memberships
Release Information	Command introduced in Junos OS Release 10.1.
Description	For MX Series routers, display all Virtual LANs (VLANs) that have been created dynamically using Multiple VLAN Registration Protocol (MVRP) on the router.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show mvrp on page 316 • show mvrp applicant-state on page 318 • show mvrp interface on page 321 • show mvrp registration-state on page 322 • show mvrp statistics on page 324
List of Sample Output	show mvrp dynamic-vlan-memberships on page 320
Output Fields	Table 93 on page 320 lists the output fields for the show mvrp dynamic-vlan-memberships command. Output fields are listed in the approximate order in which they appear.

Table 93: show mvrp dynamic-vlan-memberships Output Fields

Field Name	Field Description
VLAN Id	The VLAN ID of the dynamically created VLAN.
Interfaces	The interface or interfaces that are bound to the dynamically created VLAN.

Sample Output

```

user@host> show mvrp dynamic-vlan-memberships
MVRP dynamic vlans for routing instance 'default-switch'
(s) static vlan, (f) fixed registration

VLAN Id      Interfaces
  100 (s)    ge-11/3/0
  200 (s)    ge-11/3/0
  300 (s)

```

show mvrp interface

Syntax	show mvrp interface
Release Information	Command introduced in Junos OS Release 10.1.
Description	For MX Series routers, display Multiple VLAN Registration Protocol (MVRP) interface-specific information.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show mvrp on page 316 • show mvrp applicant-state on page 318 • show mvrp dynamic-vlan-memberships on page 320 • show mvrp registration-state on page 322 • show mvrp statistics on page 324
List of Sample Output	show mvrp interface on page 321
Output Fields	Table 94 on page 321 lists the output fields for the show mvrp interface command. Output fields are listed in the approximate order in which they appear.

Table 94: show mvrp interface Output Fields

Field Name	Field Description
Interface	Interface on which MVRP is configured.
Status	Status of the MVRP: Enabled or Disabled .
Registration Mode	Registration for the interface: Fixed , Forbidden , or Normal .
Applicant Mode	Applicant mode.

Sample Output

```

user@host> show mvrp interface
MVRP interface information for routing instance 'default-switch'

Interface      Status      Registration Mode      Applicant
Mode
ge-11/2/8      Enabled     Normal              Normal
ge-11/0/9      Enabled     Normal              Normal
ge-11/3/0      Enabled     Normal              Normal

```

show mvrp registration-state

Syntax	show mvrp registration-state
Release Information	Command introduced in Junos OS Release 10.1.
Description	For MX Series routers, display Multiple VLAN Registration Protocol (MVRP) registration state information.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show mvrp on page 316 • show mvrp dynamic-vlan-memberships on page 320 • show mvrp interface on page 321 • show mvrp statistics on page 324
List of Sample Output	show mvrp registration-state on page 322
Output Fields	Table 95 on page 322 lists the output fields for the show mvrp registration-state command. Output fields are listed in the approximate order in which they appear.

Table 95: show mvrp registration-state Output Fields

Field Name	Field Description
VLAN Id	Displays the Virtual LAN (VLAN) ID number.
Interface	Displays the interface number associated with the VLAN ID.
Registrar State	Displays whether the registrar state is Registered or Empty .
Forced State	Displays whether the forced state is Registered or Empty .
Managed State	Displays one of the following states: <ul style="list-style-type: none"> • Fixed—VLANs always stay in a registered state and are declared as such on all other forwarding ports. • Normal—VLANs participate in the MVRP protocol and honor incoming join requests normally. • Forbidden—VLANs ignore the incoming join requests and always stay in an unregistered state.
STP State	Displays whether the Spanning Tree Protocol (STP) is Blocking or Forwarding .

Sample Output

```

show mvrp registration-state user@host> show mvrp registration-state
MVRP registration state for routing instance 'default-switch'

VLAN Id   Interface   Registrar   Forced   Managed   STP
State     State      State      State   State     State

```


100	ge-11/2/8	Empty	Registered	Fixed	Forwarding
	ge-11/0/9	Empty	Empty	Normal	Forwarding
	ge-11/3/0	Registered	Registered	Normal	Forwarding
101	ge-11/2/8	Empty	Registered	Fixed	Forwarding
	ge-11/0/9	Empty	Empty	Normal	Forwarding
	ge-11/3/0	Registered	Registered	Normal	Forwarding

show mvrp statistics

Syntax	show mvrp statistics
Release Information	Command introduced in Junos OS Release 10.1.
Description	For MX Series routers, display Multiple VLAN Registration Protocol (MVRP) statistics in the form of Multiple Registration Protocol data unit (MRPDU) messages.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show mvrp on page 316 • show mvrp applicant-state on page 318 • show mvrp dynamic-vlan-memberships on page 320 • show mvrp interface on page 321 • show mvrp registration-state on page 322
List of Sample Output	show mvrp statistics on page 324
Output Fields	Table 96 on page 324 lists the output fields for the show mvrp statistics command. Output fields are listed in the approximate order in which they appear.

Table 96: show mvrp statistics Output Fields

Field Name	Field Description
interface name	Interface for which MVRP statistics are displayed.
VLAN IDs registered	Number of Virtual LAN (VLAN) IDs registered.
Sent MVRP PDUs	Number of MRPDU messages transmitted from the router.
Received MVRP PDUs without error	Number of MRPDU messages received on the router.
Received MVRP PDUs with error	Number of invalid MRPDU messages received on the router.

Sample Output

```

show mvrp statistics  user@host> show mvrp statistics
                        MVRP statistics for routing instance 'default-switch'

                        Interface name           : ge-11/2/8
                        VLAN IDs registered      : 0
                        Sent MVRP PDUs           : 1467
                        Received MVRP PDUs without error: 0
                        Received MVRP PDUs with error  : 0

```

```
Interface name           : ge-11/0/9
VLAN IDs registered      : 0
Sent MVRP PDUs           : 1418
Received MVRP PDUs without error: 702
Received MVRP PDUs with error  : 0
```

```
Interface name           : ge-11/3/0
VLAN IDs registered      : 2
Sent MVRP PDUs           : 1524
Received MVRP PDUs without error: 1366
Received MVRP PDUs with error  : 0
```


CHAPTER 10

OSPF Operational Mode Commands

Table 97 on page 327 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 97: OSPF Operational Mode Commands

Task	Command
Clear link-state database entries.	<code>clear (ospf ospf3) database</code>
Clear OSPF input and output statistics.	<code>clear (ospf ospf3) io-statistics</code>
Tear down neighbor connections.	<code>clear (ospf ospf3) neighbor</code>
Clear the OSPF overload bit.	<code>clear ospf overload</code>
Clear OSPF statistics.	<code>clear (ospf ospf3) statistics</code>
Display information about the level of backup coverage available for OSPF nodes and prefixes.	<code>show (ospf ospf3) backup coverage</code>
Display information about MPLS label-switched-paths (LSPs) designated as backup routes for OSPF routes.	<code>show (ospf ospf3) backup lsp</code>
Display information about OSPF shortest-path-first calculations for backup paths.	<code>show (ospf ospf3) backup spf</code>
Display link-state database entries for OSPFv2.	<code>show ospf database</code>
Display link-state database entries for OSPFv3.	<code>show ospf3 database</code>
Display OSPF interface status.	<code>show (ospf ospf3) interface</code>
Display OSPF input and output statistics.	<code>show (ospf ospf3) io-statistics</code>
Display the SPF log.	<code>show (ospf ospf3) log</code>
Display adjacent routers.	<code>show (ospf ospf3) neighbor</code>

Table 97: OSPF Operational Mode Commands (*continued*)

Task	Command
Display overview statistics.	<code>show (ospf ospf3) overview</code>
Display OSPF routing table entries.	<code>show (ospf ospf3) route</code>
Display OSPF statistics.	<code>show (ospf ospf3) statistics</code>



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. For information about monitoring Bidirectional Forwarding Detection (BFD) sessions for OSPF clients, see BFD Operational Mode Commands. For information about how to configure OSPF, see the *Junos Routing Protocols Configuration Guide*.

clear (ospf | ospf3) database

Syntax	<pre>clear (ospf ospf3) database <advertising-router (<i>router-id</i> self)> <area <i>area-id</i>> <asbrsummary> <external> <instance <i>instance-name</i>> <inter-area-prefix> <inter-area-router> <intra-area-prefix> <link-local> <logical-system (all <i>logical-system-name</i>)> <lsa-id <i>lsa-id</i>> <netsummary> <network> <nssa> <opaque-area> <purge> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)> <router></pre>
Syntax (EX Series Switch)	<pre>clear (ospf ospf3) database <advertising-router (<i>router-id</i> self)> <area <i>area-id</i>> <asbrsummary> <external> <instance <i>instance-name</i>> <inter-area-prefix> <inter-area-router> <intra-area-prefix> <link-local> <lsa-id <i>lsa-id</i>> <netsummary> <network> <nssa> <opaque-area> <purge> <router></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>advertising-router <i>router-id</i>, area <i>area-id</i>, asbrsummary, external, inter-area-prefix, inter-area-router, intra-area-prefix, link-local, lsa-id <i>lsa-id</i>, netsummary, network, nssa, opaque-area, and router options added in Junos OS Release 8.3. You must use the purge command with these options.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>realm option added in Junos OS Release 9.2.</p> <p>advertising-router (<i>router-id</i> self) option added in Junos OS Release 9.5.</p> <p>advertising-router (<i>router-id</i> self) option introduced in Junos OS Release 9.5 for EX Series switches.</p>
Description	<p>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</p>

OSPF LSA database and sync the new database with the master Routing Engine. You can also use the **purge** command 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.

- 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* | **self**)—(Optional) Discard entries for the LSA entries advertised by the specified routing device or by this routing device.
 - 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**—(OSPFv3 only) (Optional) Discard interarea prefix LSAs.
 - inter-area-router**—(OSPFv3 only) (Optional) Discard interarea router LSAs.
 - intra-area-prefix**—(OSPFv3 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**)—(OSPFv3 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 Documentation

- [show ospf database on page 350](#)
- [show ospf3 database on page 358](#)

List of Sample Output clear ospf database on page 331

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

Sample Output

clear ospf database user@host> clear ospf database

clear (ospf | ospf3) database-protection

Syntax	clear (ospf ospf3) database-protection
Release Information	Command introduced in Junos OS Release 10.2.
Description	Clear the Open Shortest Path First (OSPF) link-state database from its isolated state. Reset the ignore count, ignore timer, and reset timer, and resume normal operations.
Options	This command has no options.
Required Privilege Level	clear
Output Fields	This command produces no output.

Sample Output

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

clear (ospf | ospf3) io-statistics

Syntax	clear (ospf ospf3) statistics <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear (ospf ospf3) statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Open Shortest Path First (OSPF) input and output statistics.
Options	none—Clear OSPF input and output statistics. 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 333
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear ospf io-statistics user@host> clear ospf io-statistics

clear (ospf | ospf3) neighbor

Syntax	clear (ospf ospf3) neighbor <area <i>area-id</i> > <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)> <neighbor> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)>
Syntax (EX Series Switch)	clear (ospf ospf3) neighbor <area <i>area-id</i> > <instance <i>instance-name</i> > <interface <i>interface-name</i> > <neighbor>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. realm option introduced in Junos OS 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.</p> <p>area <i>area-id</i>—(Optional) Tear down neighbor connections for the specified area only.</p> <p>instance <i>instance-name</i>—(Optional) Tear down neighbor connections for the specified routing instance only.</p> <p>interface <i>interface-name</i>—(Optional) Tear down neighbor connections 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 the state of the specified neighbor only.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(Optional) (OSPFv3 only) 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 Documentation	<ul style="list-style-type: none">• show (ospf ospf3) neighbor on page 377
List of Sample Output	clear ospf neighbor on page 335
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
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>)>
Syntax (EX Series Switch)	clear ospf overload <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear the Open Shortest Path First version 2 (OSPFv2) overload bit and rebuild link-state advertisements (LSAs).
Options	none—Clear the overload bit and rebuild LSAs for all routing instances. instance <i>instance-name</i> —(Optional) Clear the overload bit and rebuild LSAs for the specified routing instance 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
List of Sample Output	clear ospf overload on page 336
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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)>
Syntax (EX Series Switch)	clear (ospf ospf3) statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. realm option introduced in Junos OS Release 9.2.
Description	Clear Open Shortest Path First (OSPF) statistics.
Options	<p>none—Clear OSPF statistics.</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)—(Optional) (OSPFv3 only) 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 Documentation	<ul style="list-style-type: none"> • show (ospf ospf3) statistics on page 392
List of Sample Output	clear ospf statistics on page 337
Output Fields	See show (ospf ospf3) statistics for an explanation of output fields.

Sample Output

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 | ospf3) backup coverage

Syntax	show (ospf ospf3) backup coverage <instance <i>instance-name</i> > < logical-system (all <i>logical-system-name</i>)> <realm (ipv4-unicast ipv6-unicast)> <ttopology <i>topology-name</i> >
Release Information	Command introduced in Junos OS Release 10.0.
Description	Display information about the level of backup coverage available for all the nodes and prefixes in the network.
Options	<p>none—Display information about the level backup coverage for all OSPF routing instances in all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Display information about the level of backup coverage for all logical systems or for a specific logical system.</p> <p>instance <i>instance-name</i>—(Optional) Display information about the level of backup coverage for a specific OSPF routing instance.</p> <p>realm (ipv4-unicast ipv6-unicast)—(Optional) (OSPFv3 only) Display information about the level of backup coverage for the specific OSPFv3 realm, or address family.</p> <p>topology (default <i>topology-name</i>)—(Optional) (OSPFv2 only) Display information about the level of backup coverage for the specific OSPF topology.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show (ospf ospf3) backup lsp on page 341
List of Sample Output	show ospf backup coverage on page 340 show ospf3 backup coverage on page 340
Output Fields	Table 98 on page 339 lists the output fields for the show (ospf ospf3) backup coverage command. Output fields are listed in the approximate order in which they appear.

Table 98: show (ospf | ospf3) backup coverage Output Fields

Field Name	Field Description
Node Coverage	Information about backup coverage for each OSPF node.
Area	Area number. Area 0.0.0.0 is the backbone.
Covered Nodes	Number of nodes for which backup coverage is available.
Total Nodes	Total number of OSPF nodes.

Table 98: show (ospf | ospf3) backup coverage Output Fields (*continued*)

Field Name	Field Description
Route Coverage	Information about backup coverage for each type of OSPF route.
Path Type	Type of OSPF path: Intra, Inter, Ext1, Ext2, All .
Covered Routes	For each path type, the number of routes for which backup coverage is available.
Total Routes	For each path type, the total number of configured routes.
Percent Covered	For all nodes and for each path type, the percentage for which backup coverage is available.

Sample Output

```

show ospf backup coverage user@host> show ospf backup coverage
                           Topology default coverage:

Node Coverage:

Area              Covered  Total  Percent
                  Nodes   Nodes  Covered
0.0.0.0           4       5     80.00%

Route Coverage:

Path Type  Covered  Total  Percent
           Routes Routes  Covered
Intra      8       14     57.14%
Inter      0       0     100.00%
Ext1       0       0     100.00%
Ext2       1       1     100.00%
All        9       15     60.00%

```

```

show ospf3 backup coverage user @host > show ospf3 backup coverage
                           show ospf3 backup coverage
                           Node Coverage:

Area              Covered  Total  Percent
                  Nodes   Nodes  Covered
0.0.0.0           4       5     80.00%

Route Coverage:

Path Type  Covered  Total  Percent
           Routes Routes  Covered
Intra      4       6     66.67%
Inter      0       0     100.00%
Ext1       0       0     100.00%
Ext2       1       1     100.00%
All        5       7     71.43%

```

show (ospf | ospf3) backup lsp

Syntax `show (ospf | ospf3) backup lsp`
`<logical-system (all | logical-system-name)>`
`<realm (ipv4-unicast | ipv6-unicast)>`

Release Information Command introduced in Junos OS Release 10.0.

Description Display information about MPLS label-switched-paths (LSPs) designated as backup routes for OSPF routes.



NOTE: MPLS LSPs can be used as backup routes only for routes in the default OSPFv2 topology and not for any configured topology. Additionally, MPLS LSPs cannot be used as backup routes for nondefault instances either for OSPFv2 or OSPFv3.

Options none—Display information all MPLS LSPs designated as backup routes.

`logical-system (all | logical-system-name)`—(Optional) Display information about MPLS LSPs designated as backup routes for all logical systems or a specific logical system.

`realm (ipv4-unicast | ipv6-unicast)`—(Optional) (OSPFv3 only) Display information about MPLS LSPs designated as backup routes for a specific realm, or address family.

Required Privilege Level view

Related Documentation

- [show \(ospf | ospf3\) backup coverage on page 339](#)

List of Sample Output

[show ospf backup lsp on page 342](#)
[show ospf3 backup lsp on page 342](#)

Output Fields Table 99 on page 341 lists the output fields for the **show (ospf | ospf3) backup lsp** command. Output fields are listed in the approximate order in which they appear.

Table 99: show (ospf | ospf3) backup lsp Output Fields

Field Name	Field Description
<i>MPLS LSP name</i>	Name of each MPLS LSP designated as a backup path.
<i>Egress</i>	IP address of the egress router for the LSP.

Table 99: show (ospf | ospf3) backup lsp Output Fields (*continued*)

Field Name	Field Description
Status	<p>State of the LSP:</p> <ul style="list-style-type: none"> • Up—The router can detect RSVP hello messages from the neighbor. • Down—The 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. • Deleted—The LSP is no longer available as a backup path.
Last change	Time elapsed since the neighbor state changed either from up or down or from down to up . The format is <i>hh:mm:ss</i> .
TE-metric	Configured traffic engineering metric.
Metric	Configured metric.

Sample Output

```
show ospf backup lsp user@host> show ospf backup lsp
tobanff
Egress: 10.255.71.239, Status: up, Last change: 00:00:23
TE-metric: 0, Metric: 0
```

Sample Output

```
show ospf3 backup lsp user@host> show ospf3 backup lsp
tobanff
Egress: 10.255.71.239, Status: up, Last change: 00:00:45
TE-metric: 0, Metric: 0
```

show (ospf | ospf3) backup spf

Syntax	<pre>show (ospf ospf3) backup spf <brief detail> <area <i>area-id</i>> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <no-coverage> <node-id> <realm (ipv4-unicast ipv6-unicast)> <topology (default <i>topology-name</i>)></pre>
Release Information	Command introduced in JUNOS Release 10.0.
Description	Display information about OSPF shortest-path-first calculations for backup paths.
Options	<p>none—Display information about OSPF shortest-path-first (SPF) calculations for all backup paths for all destination nodes.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>area <i>area-id</i>—(Optional) Display the area information.</p> <p>instance <i>instance-name</i>—(Optional) Display information about the routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Display information about all logical systems or a specific logical system.</p> <p>no-coverage—(Optional) Display information if there is no backup coverage.</p> <p><i>node-id</i>—(Optional) Display information about the node specified.</p> <p>realm (ipv4-unicast ipv6-unicast)—(Optional) Display information about the ipv4 or ipv6 realm.</p> <p>topology (default <i>topology-name</i>)—(Optional) Display information about the default topology or a specific topology.</p>
Required Privilege Level	view
List of Sample Output	<pre>show ospf backup spf on page 344 show ospf backup spf detail on page 344 show ospf3 backup spf on page 347</pre>
Output Fields	Table 100 on page 344 lists the output fields for the show (ospf ospf3) backup spf command. Output fields are listed in the approximate order in which they appear.

Table 100: show (ospf |ospf3) backup spf Output Fields

Field Name	Field Description	Level of Output
Self to Destination Metric	Metric from the node to the destination.	All levels
Parent Node	Address of the parent node.	All levels
Primary next-hop	Address of the next hop.	All levels
Backup Neighbor	Address of the backup neighbor or LSP endpoint and the following information: <ul style="list-style-type: none"> Neighbor to Destination Metric Neighbor to Self Metric Self to Neighbor Metric Status (Eligible, Not Eligible, Not Evaluated) and the reason for the status. <p>NOTE: If the backup neighbor is an LSP endpoint, it is indicated as such after the neighbor address.</p>	All levels

Sample Output

```

show ospf backup spf  user@host> show ospf backup spf
Topology default results:

Area 0.0.0.0 results:

pro16-d-1o0.xxx.yyyy.net
Self to Destination Metric: 1
Parent Node: pro16-b-1o0.xxx.yyyy.net
Primary next-hop: at-1/0/1.0
Backup Neighbor: pro16-c-1o0.xxx.yyyy.net (LSP endpoint)
Neighbor to Destination Metric: 4, Neighbor to Self Metric: 3
Self to Neighbor Metric: 3
Not eligible, Reason: Path loops
Backup Neighbor: pro16-d-1o0.xxx.yyyy.net
Neighbor to Destination Metric: 0, Neighbor to Self Metric: 1
Self to Neighbor Metric: 1
Not eligible, Reason: Primary next-hop link fate sharing
...

```

```

show ospf backup spf  user@host> show ospf backup spf detail
detail               Topology default results:

Area 0.0.0.0 results:

11.14.10.2
Self to Destination Metric: 1
Parent Node: 10.255.70.103
Primary next-hop: ae0.0
Backup Neighbor: 10.255.71.243
Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
Self to Neighbor Metric: 1
Not eligible, Reason: Path loops
Backup Neighbor: 10.255.71.52

```

```

Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
Self to Neighbor Metric: 1
Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.242
Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
Self to Neighbor Metric: 1
Not eligible, Reason: Path loops

10.255.71.52
Self to Destination Metric: 1
Parent Node: 11.14.10.2
Primary next-hop: ae0.0 via 11.14.10.2
Backup Neighbor: 10.255.71.52
Neighbor to Destination Metric: 0, Neighbor to Self Metric: 15
Self to Neighbor Metric: 1
Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.243
Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
Self to Neighbor Metric: 1
Not eligible, Reason: Path loops
Backup Neighbor: 10.255.71.242
Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
Self to Neighbor Metric: 1
Not eligible, Reason: Path loops

10.255.71.242
Self to Destination Metric: 1
Parent Node: 10.255.70.103
Primary next-hop: as0.0
Backup Neighbor: 10.255.71.242
Neighbor to Destination Metric: 0, Neighbor to Self Metric: 15
Self to Neighbor Metric: 1
Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.243
Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
Self to Neighbor Metric: 1
Not eligible, Reason: Path loops
Backup Neighbor: 10.255.71.52
Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
Self to Neighbor Metric: 1
Not eligible, Reason: Path loops

10.255.71.243
Self to Destination Metric: 1
Parent Node: 10.255.70.103
Primary next-hop: so-6/0/0.0
Backup Neighbor: 10.255.71.243
Neighbor to Destination Metric: 0, Neighbor to Self Metric: 1
Self to Neighbor Metric: 1
Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.52
Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
Self to Neighbor Metric: 1
Not eligible, Reason: Path loops
Backup Neighbor: 10.255.71.242
Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
Self to Neighbor Metric: 1
Not eligible, Reason: Path loops

12.15.0.1
Self to Destination Metric: 2

```

```
Parent Node: 10.255.71.243
Primary next-hop: so-6/0/0.0
Backup next-hop: ae0.0 via 11.14.10.2
Backup Neighbor: 10.255.71.243
  Neighbor to Destination Metric: 1, Neighbor to Self Metric: 1
  Self to Neighbor Metric: 1
  Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Eligible, Reason: Contributes backup next-hop
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 17, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not evaluated, Reason: Interface is already covered

10.255.71.238
Self to Destination Metric: 2
Parent Node: 10.255.71.243
Primary next-hop: so-6/0/0.0
Backup next-hop: as0.0
Backup Neighbor: 10.255.71.243
  Neighbor to Destination Metric: 1, Neighbor to Self Metric: 1
  Self to Neighbor Metric: 1
  Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Eligible, Reason: Contributes backup next-hop
Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not evaluated, Reason: Interface is already covered

10.255.71.239
Self to Destination Metric: 2
Parent Node: 12.15.0.1
Primary next-hop: so-6/0/0.0
Backup next-hop: ae0.0 via 11.14.10.2
Backup Neighbor: 10.255.71.243
  Neighbor to Destination Metric: 1, Neighbor to Self Metric: 1
  Self to Neighbor Metric: 1
  Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Eligible, Reason: Contributes backup next-hop
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not evaluated, Reason: Interface is already covered

14.15.0.2
Self to Destination Metric: 3
Parent Node: 10.255.71.239
Primary next-hop: so-6/0/0.0
Backup next-hop: ae0.0 via 11.14.10.2
Backup Neighbor: 10.255.71.243
  Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
  Self to Neighbor Metric: 1
  Not eligible, Reason: Primary next-hop link fate sharing
```



```

Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Eligible, Reason: Contributes backup next-hop
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 17, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not evaluated, Reason: Interface is already covered

```

show ospf3 backup spf user@host> show ospf3 backup spf
Area 0.0.0.0 results:

```

10.255.71.52;0.0.0.5
  Self to Destination Metric: 1
  Parent Node: 10.255.70.103
  Primary next-hop: ae0.0
  Backup Neighbor: 10.255.71.243
    Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops
  Backup Neighbor: 10.255.71.52
    Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Primary next-hop link fate sharing
  Backup Neighbor: 10.255.71.242
    Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops

10.255.71.52
  Self to Destination Metric: 1
  Parent Node: 10.255.71.52;0.0.0.5
  Primary next-hop: ae0.0 via fe80::290:69ff:fe0f:67f0
  Backup Neighbor: 10.255.71.52
    Neighbor to Destination Metric: 0, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Primary next-hop link fate sharing
  Backup Neighbor: 10.255.71.243
    Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops
  Backup Neighbor: 10.255.71.242
    Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops

10.255.71.242
  Self to Destination Metric: 1
  Parent Node: 10.255.70.103
  Primary next-hop: as0.0
  Backup Neighbor: 10.255.71.242
    Neighbor to Destination Metric: 0, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Primary next-hop link fate sharing
  Backup Neighbor: 10.255.71.243
    Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops
  Backup Neighbor: 10.255.71.52
    Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1

```

Not eligible, Reason: Path loops

10.255.71.243

Self to Destination Metric: 1

Parent Node: 10.255.70.103

Primary next-hop: so-6/0/0.0

Backup Neighbor: 10.255.71.243

Neighbor to Destination Metric: 0, Neighbor to Self Metric: 1

Self to Neighbor Metric: 1

Not eligible, Reason: Primary next-hop link fate sharing

Backup Neighbor: 10.255.71.52

Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15

Self to Neighbor Metric: 1

Not eligible, Reason: Path loops

Backup Neighbor: 10.255.71.242

Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15

Self to Neighbor Metric: 1

Not eligible, Reason: Path loops

10.255.71.243;0.0.0.2

Self to Destination Metric: 2

Parent Node: 10.255.71.243

Primary next-hop: so-6/0/0.0

Backup next-hop: ae0.0 via fe80::290:69ff:fe0f:67f0

Backup Neighbor: 10.255.71.243

Neighbor to Destination Metric: 1, Neighbor to Self Metric: 1

Self to Neighbor Metric: 1

Not eligible, Reason: Primary next-hop link fate sharing

Backup Neighbor: 10.255.71.52

Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15

Self to Neighbor Metric: 1

Eligible, Reason: Contributes backup next-hop

Backup Neighbor: 10.255.71.242

Neighbor to Destination Metric: 17, Neighbor to Self Metric: 15

Self to Neighbor Metric: 1

Not evaluated, Reason: Interface is already covered

10.255.71.238

Self to Destination Metric: 2

Parent Node: 10.255.71.243

Primary next-hop: so-6/0/0.0

Backup next-hop: as0.0

Backup Neighbor: 10.255.71.243

Neighbor to Destination Metric: 1, Neighbor to Self Metric: 1

Self to Neighbor Metric: 1

Not eligible, Reason: Primary next-hop link fate sharing

Backup Neighbor: 10.255.71.242

Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15

Self to Neighbor Metric: 1

Eligible, Reason: Contributes backup next-hop

Backup Neighbor: 10.255.71.52

Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15

Self to Neighbor Metric: 1

Not evaluated, Reason: Interface is already covered

10.255.71.239

Self to Destination Metric: 2

Parent Node: 10.255.71.243;0.0.0.2

Primary next-hop: so-6/0/0.0

Backup next-hop: ae0.0 via fe80::290:69ff:fe0f:67f0

Backup Neighbor: 10.255.71.243

```
Neighbor to Destination Metric: 1, Neighbor to Self Metric: 1
Self to Neighbor Metric: 1
Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.52
Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
Self to Neighbor Metric: 1
Eligible, Reason: Contributes backup next-hop
Backup Neighbor: 10.255.71.242
Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
Self to Neighbor Metric: 1
Not evaluated, Reason: Interface is already covered

10.255.71.239;0.0.0.4
Self to Destination Metric: 3
Parent Node: 10.255.71.239
Primary next-hop: so-6/0/0.0
Backup next-hop: ae0.0 via fe80::290:69ff:fe0f:67f0
Backup Neighbor: 10.255.71.243
Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
Self to Neighbor Metric: 1
Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.52
Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
Self to Neighbor Metric: 1
Eligible, Reason: Contributes backup next-hop
Backup Neighbor: 10.255.71.242
Neighbor to Destination Metric: 17, Neighbor to Self Metric: 15
Self to Neighbor Metric: 1
Not evaluated, Reason: Interface is already covered
```

show ospf database

Syntax	<pre>show ospf database <brief detail extensive summary> <advertising-router (address self)> <area area-id> <asbrsummary> <external> <instance instance-name> <link-local> <logical-system (all logical-system-name)> <lsa-id lsa-id> <netsummary> <network> <nssa> <opaque-area> <router></pre>
Syntax (EX Series Switch)	<pre>show ospf database <brief detail extensive summary> <advertising-router (address self)> <area area-id> <asbrsummary> <external> <instance instance-name> <link-local> <lsa-id lsa-id> <netsummary> <network> <nssa> <opaque-area> <router></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>advertising-router self (address self) option introduced in Junos OS Release 9.5.</p> <p>advertising-router self (address self) option introduced in Junos OS Release 9.5 for EX Series switches.</p>
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.</p> <p>brief detail extensive summary—(Optional) Display the specified level of output.</p> <p>advertising-router (address self)—(Optional) Display the LSAs advertised either by a particular routing device or by this routing device.</p> <p>area area-id—(Optional) Display the LSAs in a particular area.</p> <p>asbrsummary—(Optional) Display summary AS boundary router LSA entries.</p>

external—(Optional) Display external LSAs.

instance *instance-name*—(Optional) Display all OSPF database information under the named routing instance.

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.

netsummary—(Optional) Display summary network LSAs.

network—(Optional) Display information about network LSAs.

nssa—(Optional) Display information about not-so-stubby area (NSSA) LSAs.

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

router—(Optional) Display information about router LSAs.

Required Privilege Level

view

Related Documentation

- [clear \(ospf | ospf3\) database on page 329](#)

List of Sample Output

[show ospf database on page 353](#)
[show ospf database brief on page 353](#)
[show ospf database detail on page 353](#)
[show ospf database extensive on page 354](#)
[show ospf database summary on page 357](#)

Output Fields

Table 101 on page 351 describes the output fields for the **show ospf database** command. Output fields are listed in the approximate order in which they appear.

Table 101: 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: ASBR Sum, 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 routing device.	All levels
Adv Rtr	Address of the routing device 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

Table 101: show ospf database Output Fields (*continued*)

Field Name	Field Description	Level of Output
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 routing device that generated the LSP. link count—Number of links in the advertisement. id—ID of a routing device or subnet on the link. data—For stub networks, the subnet mask; otherwise, the IP address of the routing device 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
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

Sample Output

```

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 353.

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 summary user@host> show ospf database 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	<pre>show ospf3 database <brief detail extensive summary> <advertising-router (address self)> <area area-id> <external> <instance instance-name> <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></pre>
Syntax (EX Series Switch)	<pre>show ospf3 database <brief detail extensive summary> <advertising-router (address self)> <area area-id> <external> <instance instance-name> <inter-area-prefix> <inter-area-router> <intra-area-prefix> <link> <link-local> <lsa-id lsa-id> <network> <nssa> <router></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>realm option introduced in Junos OS Release 9.2.</p> <p>advertising-router (address self) option introduced in Junos Release 9.5.</p> <p>advertising-router (address self) option introduced in Junos OS Release 9.5 for EX Series switches.</p>
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	<p>none—Display standard information about all entries in the OSPFv3 link-state database.</p> <p>brief detail extensive summary—(Optional) Display the specified level of output.</p> <p>advertising-router (address self)—(Optional) Display the LSAs advertised either by a particular routing device or by this routing device.</p>

`area area-id`—(Optional) Display the LSAs in a particular area.

`external`—(Optional) Display external LSAs.

`instance instance-name`—(Optional) Display all OSPF database information under the named routing instance.

`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 Documentation • [clear \(ospf | ospf3\) database on page 329](#)

List of Sample Output [show ospf3 database brief on page 364](#)
[show ospf3 database extensive on page 364](#)
[show ospf3 database summary on page 367](#)

Output Fields Table 102 on page 359 lists the output fields for the **show ospf3 database** command. Output fields are listed in the approximate order in which they appear.

Table 102: 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

Table 102: show ospf3 database Output Fields (*continued*)

Field Name	Field Description	Level of Output
OSPF Link-Local link state database, interface interface-name	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 routing device.	brief detail extensive
Adv Rtr	Address of the routing device 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)		
bits	Flags describing the routing device 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 routing device interface depends on the interface's type: <ul style="list-style-type: none"> • PointToPoint (1)—Point-to-point connection to another routing device. • 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 routing device.	detail extensive
Nbr-if-id	Interface ID of the neighbor's interface for this routing device link.	detail extensive
Nbr-rtr-id	Router ID of the neighbor routing device (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

Table 102: show ospf3 database Output Fields (*continued*)

Field Name	Field Description	Level of Output
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 routing devices attached to the link. Only routing devices 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
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 routing device described by the LSA.	detail extensive
options	Optional capabilities supported by the routing device.	detail extensive

Table 102: show ospf3 database Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
priority	Router priority of the interface attaching the originating routing device 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

Table 102: show ospf3 database Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
sent <i>hh:mm:ss</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
<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

Table 102: show ospf3 database Output Fields (*continued*)

Field Name	Field Description	Level of Output
<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

Sample Output

```

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	<code>show (ospf ospf3) interface</code> <code><brief detail extensive></code> <code><area <i>area-id</i>></code> <code><interface-name></code> <code><instance <i>instance-name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><realm (ipv4-multicast ipv4-unicast ipv6-multicast)></code>
Syntax (EX Series Switch)	<code>show (ospf ospf3) interface</code> <code><brief detail extensive></code> <code><area <i>area-id</i>></code> <code><interface-name></code> <code><instance <i>instance-name</i>></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. area option introduced in Junos OS Release 9.2. area option introduced in Junos OS Release 9.2 for EX Series switches. realm option introduced in Junos OS 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</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>area <i>area-id</i>—(Optional) Display information about the interfaces that belong to the specified area.</p> <p>interface-name—(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)—(Optional) (OSPFv3 only) 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	<code>show ospf interface brief</code> on page 370 <code>show ospf interface detail</code> on page 371 <code>show ospf3 interface detail</code> on page 371 <code>show ospf interface detail(When Multiarea Adjacency Is Configured)</code> on page 371

show ospf interface area area-id on page 372

show ospf interface extensive (When Flooding Reduction Is Enabled) on page 372

Output Fields Table 103 on page 369 lists the output fields for the **show (ospf | ospf3) interface** command. Output fields are listed in the approximate order in which they appear.

Table 103: 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
Flood Reduction	Indicates that this interface is configured with flooding reduction. All self-originated LSAs from this interface are initially sent with the DoNotAge bit set. As a result, LSAs are refreshed only when a change occurs.	extensive
Priority	Router priority used in designated router (DR) election on this interface.	detail extensive

Table 103: show (ospf | ospf3) interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
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
Topology	(Multiarea adjacency) Name of topology: default or <i>name</i>	
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 routing device 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

Sample Output

```

user@host> show ospf interface brief
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 regress@router> show ospf interface detail
(When Multiarea Adjacency Is Configured)
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 user@host> **show ospf interface area 1.1.1.1**

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 interface user@host> **show ospf interface extensive**

Interface	State	Area	DR ID	BDR ID	Nbrs
fe-0/0/0.0	PtToPt	0.0.0.0	0.0.0.0	0.0.0.0	0

(When Flooding Reduction Is Enabled)

```

Type: P2P, Address: 10.10.10.1, Mask: 255.255.255.0, MTU: 1500, Cost: 1
Adj count: 0
Secondary, Flood Reduction
Hello: 10, Dead: 40, ReXmit: 5, Not Stub
Auth type: None
Topology default (ID 0) -> Cost: 1

```

show (ospf | ospf3) io-statistics

Syntax	show (ospf ospf3) io-statistics <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show (ospf ospf3) io-statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Open Shortest Path First (OSPF) input and output statistics.
Options	none—Display OSPF input and output statistics. 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 Documentation	<ul style="list-style-type: none"> clear (ospf ospf3) statistics on page 337
List of Sample Output	show ospf io-statistics on page 373
Output Fields	Table 104 on page 373 lists the output fields for the show ospf io-statistics command. Output fields are listed in the approximate order in which they appear.

Table 104: 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.

Sample Output

```

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> >
Syntax (EX Series Switch)	show (ospf ospf3) log <instance <i>instance-name</i> > <topology <i>topology-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. topology option introduced in Junos OS Release 9.0. topology option introduced in Junos OS Release 9.0 for EX Series switches. realm option introduced in Junos OS 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. 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)—(OSPFv3 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 375 show ospf log topology voice on page 375
Output Fields	Table 105 on page 374 lists the output fields for the show (ospf ospf3) log command. Output fields are listed in the approximate order in which they appear.

Table 105: 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 .

Table 105: show (ospf | ospf3) log Output Fields (*continued*)

Field Name	Field Description
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.

Sample Output

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
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	<pre>show (ospf ospf3) neighbor <brief detail extensive> <area <i>area-id</i>> <instance (all <i>instance-name</i>)> <interface <i>interface-name</i>> <logical-system (all <i>logical-system-name</i>)> <neighbor> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)></pre>
Syntax (EX Series Switch)	<pre>show (ospf ospf3) neighbor <brief detail extensive> <area <i>area-id</i>> <instance (all <i>instance-name</i>)> <interface <i>interface-name</i>> <neighbor></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>instance all option introduced in Junos OS Release 9.1.</p> <p>instance all option introduced in Junos OS Release 9.1 for EX Series switches.</p> <p>area, interface, and realm options introduced in Junos OS Release 9.2.</p> <p>area and interface options introduced in Junos OS Release 9.2 for EX Series switches.</p>
Description	Display information about Open Shortest Path First (OSPF) neighbors.
Options	<p>none—Display standard information about all OSPF neighbors for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>area <i>area-id</i>—(Optional) Display information about the OSPF neighbors for the specified area.</p> <p>instance (all <i>instance-name</i>)—(Optional) Display all OSPF interfaces for all routing instances or under the named routing instance.</p> <p>interface <i>interface-name</i>—(Optional) Display information about OSPF neighbors for the specified logical 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—(Optional) Display information about the specified OSPF neighbor.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(Optional) (OSPFv3 only) 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.</p>
Required Privilege Level	view

Related Documentation • [clear \(ospf | ospf3\) neighbor on page 334](#)

List of Sample Output [show ospf neighbor brief on page 379](#)
[show ospf neighbor detail on page 380](#)
[show ospf neighbor extensive on page 380](#)
[show ospf3 neighbor detail on page 381](#)
[show ospf neighbor area area-id on page 381](#)
[show ospf neighbor interface interface-name on page 381](#)
[show ospf3 neighbor instance all \(OSPFv3 Multiple Family Address Support Enabled\) on page 381](#)

Output Fields Table 106 on page 378 lists the output fields for the **show (ospf | ospf3) neighbor** command. Output fields are listed in the approximate order in which they appear.

Table 106: 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—Routing device 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 routing devices. The goal of this step is to determine which routing device is the master, and to determine the initial sequence number. • Full—Neighboring routing devices 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 routing device 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 routing devices 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

Table 106: show (ospf | ospf3) neighbor Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
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 routing device. Adv rtr—Address of the routing device 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

Sample Output

```

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, rexmit DBD in 2 sec
  rexmit 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, rexmit DBD in 2 sec
  rexmit 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 <brief extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)>
Syntax (EX Series Switch)	show (ospf ospf3) overview <brief extensive> <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. realm option introduced in Junos OS Release 9.2. Database protection introduced in Junos 10.2.
Description	Display Open Shortest Path First (OSPF) overview information.
Options	<p>none—Display standard information about all OSPF neighbors for all routing instances.</p> <p>brief extensive—(Optional) Display the specified level of output.</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)—(Optional) (OSPFv3 only) Display information about 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 385</p> <p>show ospf overview (with Database Protection) on page 385</p> <p>show ospf3 overview (with database protection) on page 386</p> <p>show ospf overview extensive on page 386</p>
Output Fields	Table 107 on page 383 lists the output fields for the show ospf overview command. Output fields are listed in the approximate order in which they appear.

Table 107: show ospf overview Output Fields

Field name	Field Description	Level of Output
Instance	OSPF routing instance.	All levels
Router ID	Router ID of the routing device.	All levels

Table 107: show ospf overview Output Fields (*continued*)

Field name	Field Description	Level of Output
Route table index	Route table index.	All levels
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.	All levels
LSA refresh time	Refresh period for link-state advertisement (in minutes).	All levels
Database protection state	Current state of database protection.	All levels
Warning threshold	Threshold at which a warning message is logged (percentage of maximum LSA count).	All levels
Non self-generated LSAs	Number of LSAs whose router ID is not equal to the local router ID: Current , Warning (threshold), and Allowed .	All levels
Ignore time	How long the database has been in the ignore state.	All levels
Reset time	How long the database must stay out of the ignore or isolated state before it returns to normal operations.	All levels
Ignore count	Number of times the database has been in the ignore state: Current and Allowed .	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 routing device 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

Table 107: show ospf overview Output Fields (*continued*)

Field name	Field Description	Level of Output
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

Sample Output

```

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  user@host> show ospf overview
(with Database      Instance: master
Protection)         Router ID: 10.255.112.218
                    Route table index: 0
                    LSA refresh time: 50 minutes
                    Traffic engineering
                    Restart: Enabled
                      Restart duration: 180 sec
                      Restart grace period: 210 sec
                      Helper mode: Enabled
                    Database protection state: Normal
                      Warning threshold: 70 percent
                      Non self-generated LSAs: Current 582, Warning 700, Allowed 1000
                      Ignore time: 30, Reset time: 60
                      Ignore count: Current 0, Allowed 1
                    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): 160

```

```
Topology: default (ID 0)
Prefix export count: 0
Full SPF runs: 70
SPF delay: 0.200000 sec, SPF holddown: 5 sec, SPF rapid runs: 3
Backup SPF: Not Needed
```

show ospf3 overview
(with database
protection)

```
user@host> show ospf3 overview
Instance: master
Router ID: 10.255.112.128
Route table index: 0
LSA refresh time: 50 minutes
Database protection state: Normal
Warning threshold: 80 percent
Non self-generated LSAs: Current 3, Warning 8, Allowed 10
Ignore time: 30, Reset time: 60
Ignore count: Current 0, Allowed 2
Area: 0.0.0.0
Stub type: Not Stub
Area border routers: 0, AS boundary routers: 0
Neighbors
Up (in full state): 1
Topology: default (ID 0)
Prefix export count: 0
Full SPF runs: 7
SPF delay: 0.200000 sec, SPF holddown: 5 sec, SPF rapid runs: 3
Backup SPF: Not Needed
```

show ospf overview
extensive

```
user@host> show 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	<pre>show (ospf ospf3) route <brief detail extensive> <abr asbr extern inter intra> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <network> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)> <router> <topology <i>topology-name</i>> <transit></pre>
Syntax (EX Series Switch)	<pre>show (ospf ospf3) route <brief detail extensive> <abr asbr extern inter intra> <instance <i>instance-name</i>> <network> <router> <topology <i>topology-name</i>> <transit></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>topology option introduced in Junos OS Release 9.0.</p> <p>realm option introduced in Junos OS Release 9.2.</p>
Description	Display the entries in the Open Shortest Path First (OSPF) routing table.
Options	<p>none—Display standard information about all entries in the OSPF routing table for all routing instances and all topologies.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>abr—(Optional) Display routes to area border routers.</p> <p>asbr—(Optional) Display routes to autonomous system border routers.</p> <p>extern—(Optional) Display external routes.</p> <p>inter—(Optional) Display interarea routes.</p> <p>intra—(Optional) Display intra-area routes.</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> <p>network—(Optional) Display routes to networks.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(OSPFv3 only) (Optional) Display entries in the routing table for the specified OSPFv3 realm, or address family. Use</p>

the **realm** option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.

router—(Optional) Display routes to all routers.

topology *topology-name*—(OSPF only) (Optional) Display routes for a particular topology.

transit—(Optional) (OSPFv3 only) Display OSPFv3 routes to pseudonodes.

Required Privilege Level

view

List of Sample Output

show ospf route on page 389
show ospf route detail on page 389
show ospf3 route on page 390
show ospf3 route detail on page 390
show ospf route topology voice on page 391

Output Fields

Table 108 on page 388 list the output fields for the **show (ospf | ospf3) route** command. Output fields are listed in the approximate order in which they appear.

Table 108: 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 routing device 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

Table 108: show (ospf | ospf3) route Output Fields (*continued*)

Field Name	Field Description	Output Level
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
optional-capability	Optional capabilities propagated in the router LSA. This field is in the output for intraarea router routes only (when Route Type is Area BR , AS BR , Area/AS BR , or Router), not for interarea router routes or network routes. Three bits in this field are defined as follows: <ul style="list-style-type: none"> • 0x4 (V)—Routing device is at the end of a virtual active link. • 0x2 (E)—Routing device is an autonomous system boundary router. • 0x1 (B)—Routing device 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

Sample Output

```

show ospf route user@host> show ospf route
Prefix          Path    Route  NH    Metric  NextHop  Nexthop
addr/label                               Type  Type    Type    Interface
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       100.0
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 Type	Route Type	NH Type	Metric	NextHop Interface	Nexthop addr/
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 type	Route type	NH type	Metric
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	NextHop		
	Type	Type	Type	Interface
10.255.245.1	Intra	Router	IP	40 fxp1.1
area 0.0.0.0, origin 10.255.245.1 optional-capability 0x0,				
10.255.245.3	Intra	AS BR	IP	1 fxp2.3
area 0.0.0.0, origin 10.255.245.3 optional-capability 0x0,				
10.255.245.1/32	Intra	Network	IP	40 fxp1.1
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
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 type	Route type	NH type
Metric			
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 user@host **show ospf route topology voice**

topology voice

Topology voice Route Table:

Prefix	Path Type	Route Type	NH Type	Metric	NextHop Interface	Nexthop 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)>
Syntax (EX Series Switch)	show (ospf ospf3) statistics <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. realm option introduced in Junos OS Release 9.2.
Description	Display OSPF statistics.
Options	<p>none—Display OSPF statistics for all routing instances.</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)—(Optional) (OSPFv3 only) 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 Documentation	<ul style="list-style-type: none"> clear (ospf ospf3) statistics on page 337
List of Sample Output	show ospf statistics on page 393
Output Fields	Table 109 on page 392 lists the output fields for the show (ospf ospf3) statistics command. Output fields are listed in the approximate order in which they appear.

Table 109: 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.

Table 109: show (ospf | ospf3) statistics Output Fields (*continued*)

Field Name	Field Description
Receive errors	Number and type of receive errors.

Sample Output

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
                Sent   Received
Last 5 seconds
                Sent   Received
Hello            4       5
  DbD              0       0
  LSReq            0       0
LSUpdate         0       0
LSAck            0       0
```

LSAs retransmitted: 16, last 5 seconds: 0

Receive errors:
 862 no interface found
 115923 no virtual link found

Protocol-Independent Routing Operational Mode Commands

Table 110 on page 395 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 110: Protocol-Independent Routing Operational Mode Commands

Task	Command
Display known autonomous system (AS) paths.	<code>show as-path</code>
Display AS path domain information.	<code>show as-path domain</code>
Display AS path summary information.	<code>show as-path summary</code>
Display information about the entries in the routing tables.	<code>show route</code>
Display routes that are currently active.	<code>show route active-path</code>
Display routes transmitted by a particular routing protocol.	<code>show route advertising-protocol</code>
Display all information about all routes.	<code>show route all</code>

Table 110: Protocol-Independent Routing Operational Mode Commands (*continued*)

Task	Command
Display routes containing a specified AS path.	show route aspath-regex
Display the best route to the specified address or range of addresses.	show route best
Display brief information about the entries in the routing table.	show route brief
Display circuit cross-connect (CCC) entries in the Multiprotocol Link Switching (MPLS) routing table.	show route ccc
Display routes containing members of a specified BGP community.	show route community
Display routes containing members of a specified BGP community based on a particular community name.	show route community-name
Display routes that have been damped.	show route damping
Display detailed information about the entries in the routing table.	show route detail
Display routes that exactly match the specified address or range of addresses.	show route exact
Display list of instances or routing tables that are importers or exporters of routes.	show route export
Display target communities for which autoexport is currently distributing routes.	show route export vrf-target
Display extensive information about the entries in the routing table.	show route extensive
Display the best route to an address.	show route flow validation
Display the Junos forwarding table.	show route forwarding-table
Display hidden routes only.	show route hidden
Display routes that are not preferred.	show route inactive-path
Display routes that are currently inactive.	show route inactive-prefix
Display routing instance information.	show route instance
Display routes corresponding to a specified label value.	show route label

Table 110: Protocol-Independent Routing Operational Mode Commands (*continued*)

Task	Command
Display routes that form a label-switched path.	show route label-switched-path
Display information about martian addresses.	show route martians
Display routes that contain the specified next hop.	show route next-hop
Display routes not associated with any BGP community.	show route no-community
Display routes exiting the router through the specified interface.	show route output
Display routes learned by the specified protocol.	show route protocol
Display routes in a range of destination prefixes.	show route range
Display routes received by a particular routing protocol.	show route receive-protocol
Display entries in the next-hop resolution database.	show route resolution
Display routes learned from snooping.	show route snooping
Display routes learned from the specified source.	show route source-gateway
Display statistics about the routes in all routing tables.	show route summary
Display routes in a particular routing table.	show route table
Display high-level summary of routing table information.	show route terse



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>)>
Syntax (EX Series Switch)	show as-path <brief detail>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the distribution of autonomous system (AS) paths that the local routing device 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 routing device 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 399</p> <p>show as-path detail on page 400</p>
Output Fields	Table 111 on page 398 lists the output fields for the show as-path command. Output fields are listed in the approximate order in which they appear.

Table 111: 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

Table 111: show as-path 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 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—Routing device 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
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

Sample Output

```

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 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>)>
Syntax (EX Series Switch)	show as-path domain
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display autonomous system (AS) path domain information.
Options	none—(Optional) Display AS path domain information for all routing instances. 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 as-path domain on page 403
Output Fields	Table 112 on page 402 lists the output fields for the show as-path domain command. Output fields are listed in the approximate order in which they appear

Table 112: 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 routing device.
Loops	How many times this AS number can appear in an AS path.

Sample Output

```
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>)>
Syntax (EX Series Switch)	show as-path summary
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display autonomous system (AS) path summary information.
Options	none—(Optional) Display AS path summary information for all routing instances. 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 as-path summary on page 404
Output Fields	Table 113 on page 404 lists the output fields for the show as-path summary command. Output fields are listed in the approximate order in which they appear.

Table 113: 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 number of AS numbers.
Std deviation	Standard deviation for the number of AS numbers.

Sample Output

```

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 <all> <destination-prefix> <logical-system (all <i>logical-system-name</i>)> <private>
Syntax (EX Series Switch)	show route <all> <destination-prefix> <private>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. private option introduced in Junos OS Release 9.5. private option introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display the active entries in the routing tables.
Options	<p>none—Display brief information about all active entries in the routing tables.</p> <p>all—(Optional) Display information about all routing tables, including private, or internal, routing tables.</p> <p>destination-prefix—(Optional) Display active entries for the specified address or range of addresses.</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>private—(Optional) Display information only about all private, or internal, routing tables.</p>
Required Privilege Level	view
List of Sample Output	<p>show route on page 408</p> <p>show route destination-prefix on page 408</p> <p>show route extensive on page 408</p>
Output Fields	Table 114 on page 405 describes the output fields for the show route command. Output fields are listed in the approximate order in which they appear.

Table 114: 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.

Table 114: show route Output Fields (*continued*)

Field Name	Field Description
<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).
<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"> • MPLS-label (for example, 80001). • interface-name (for example, ge-1/0/2). • neighbor-address:control-word-status:encapsulation type:vc-id:source (Layer 2 circuit only; for example, 10.1.1.195:NoCtrlWord:1:1:Local/96): <ul style="list-style-type: none"> • neighbor-address—Address of the neighbor. • control-word-status—Whether the use of the control word has been negotiated for this virtual circuit: NoCtrlWord or CtrlWord. • encapsulation type—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. • vc-id—Virtual circuit identifier. • source—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 OS 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, 4 days, 13 hours, 11 minutes and 14 seconds).
<i>metric</i>	Cost value of the indicated route. For routes within an AS, the cost is determined by IGP and the individual protocol metrics. For external routes, destinations, or routing domains, the cost is determined by a preference value.
<i>localpref</i>	Local preference value included in the route.
<i>from</i>	Interface from which the route was received.

Table 114: 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 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 routing device, 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. <p>NOTE: In Junos OS Release 10.3 and later, the AS path field displays an unrecognized attribute and associated hexadecimal value if BGP receives attribute 128 (attribute set) and you have not configured an independent domain in any routing instance.</p>
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 routing device 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).

Sample Output

```

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      user@host> show route 172.16.0.0/12
destination-prefix
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 extensive user@host> show route extensive
inet.0: 335844 destinations, 335845 routes (335395 active, 0 holddown, 450 hidden)
1.9.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 1.9.0.0/16 -> {indirect(342)}
Page 0 idx 1 Type 1 val db31a80
Nexthop: Self
AS path: [69] 10458 14203 2914 4788 4788 I

```

```

Communities: 2914:410 2914:2403 2914:3400
Path 1.9.0.0 from 192.168.69.71 Vector len 4. Val: 1
  *BGP   Preference: 170/-101
        Next hop type: Indirect
        Next-hop reference count: 1006553
        Source: 192.168.69.71
        Next hop type: Router, Next hop index: 324
        Next hop: 192.168.167.254 via fxp0.0, selected
        Protocol next hop: 192.168.69.71
        Indirect next hop: 8e166c0 342
        State: <Active Ext>
        Local AS: 69 Peer AS: 10458
        Age: 6d 10:58:10 Metric2: 0
        Task: BGP_10458.192.168.69.71+179
        Announcement bits (3): 0-KRT 2-BGP RT Background 3-Resolve tree
1
  AS path: 10458 14203 2914 4788 4788 I
  Communities: 2914:410 2914:2403 2914:3400
  Accepted
  Localpref: 100
  Router ID: 207.17.136.192
  Indirect next hops: 1
    Protocol next hop: 192.168.69.71
    Indirect next hop: 8e166c0 342
    Indirect path forwarding next hops: 1
      Next hop type: Router
      Next hop: 192.168.167.254 via fxp0.0
    192.168.0.0/16 Originating RIB: inet.0
    Node path count: 1
    Forwarding nexthops: 1
      Nexthop: 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>)>
Syntax (EX Series Switch)	show route active-path <brief detail extensive terse>
Release Information	Command introduced in Junos OS Release 8.0. Command introduced in Junos OS Release 9.0 for EX Series switches.
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 410</p> <p>show route active-path brief on page 411</p> <p>show route active-path detail on page 411</p> <p>show route active-path extensive on page 412</p> <p>show route active-path terse on page 413</p>
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail , the show route extensive , or the show route terse .

Sample Output

```

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

```


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 410.

```

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 OS 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	<p>show route advertising-protocol bgp (Layer 3 VPN) on page 417</p> <p>show route advertising-protocol bgp detail on page 417</p> <p>show route advertising-protocol bgp detail (Layer 2 VPN) on page 418</p> <p>show route advertising-protocol bgp detail (Layer 3 VPN) on page 418</p>
Output Fields	Table 115 on page 415 lists the output fields for the show route advertising-protocol command. Output fields are listed in the approximate order in which they appear.

Table 115: 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 115: show route advertising-protocol Output Fields (*continued*)

Field Name	Field Description	Level of Output
number destinations	Number of destinations for which there are routes in the routing table.	All levels
number routes	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) • holdddown (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
destination-prefix (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 115: 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 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 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. <p>NOTE: In Junos OS Release 10.3 and later, the AS path field displays an unrecognized attribute and associated hexadecimal value if BGP receives attribute 128 (attribute set) and you have not configured an independent domain in any routing instance.</p>	All levels
Communities	Community path attribute for the route. see the output field table for the show route detail command 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 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

Sample Output

```

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 advertising-protocol bgp detail
user@host> show route advertising-protocol bgp 111.222.1.3 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 vpn-a.12vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
bgp detail (Layer 2 192.168.16.1:1:1:1/96 (1 entry, 1 announced)
VPN)      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 vpn.a.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
bgp detail (Layer 3 * 10.49.0.0/30 (1 entry, 1 announced)
VPN)      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>)>
Syntax (EX Series Switch)	show route all
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about all routes in all routing tables, including private, or internal, tables.
Options	none—Display information about all routes in all routing tables, including private, or internal, tables. 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 419
Output Fields	In Junos OS Release 9.5 and later, only the output fields for the show route all command display all routing tables, including private, or hidden, routing tables. The output field table of the show route command does not display entries for private, or hidden, routing tables in Junos OS Release 9.5 and later.

Sample Output

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

```

```

1          Receive
          *[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>)>
Syntax (EX Series Switch)	show route aspath-regex <i>regular-expression</i>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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. • aspath_term aspath_term—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	show route aspath-regex (Matching a Specific AS Number) on page 422 show route aspath-regex (Matching Any Path with Two AS Numbers) on page 422
Output Fields	For information about output fields, see the output field table for the show route command.

Sample Output

show route aspath-regex (Matching a Specific AS Number)	<pre> 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) ... </pre>
show route aspath-regex (Matching Any Path with Two AS Numbers)	<pre> 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) ... </pre>

show route best

Syntax	<code>show route best <i>destination-prefix</i></code> <code><brief detail extensive terse></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switch)	<code>show route best <i>destination-prefix</i></code> <code><brief detail extensive terse></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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	<i>destination-prefix</i> —Address or range of addresses. 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 <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	<code>show route best</code> on page 423 <code>show route best detail</code> on page 424 <code>show route best extensive</code> on page 424 <code>show route best terse</code> on page 425
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

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
```

```
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 the **show route best detail** on page 424.

```

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           0           >fxp2.0
                   D   0           0           >fxp1.0

```

show route brief

Syntax	show route brief <destination-prefix> <logical-system (all logical-system-name)>
Syntax (EX Series Switch)	show route brief <destination-prefix>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display brief information about the active entries in the routing tables.
Options	none—Display all active entries in the routing table. destination-prefix—(Optional) Display active entries for the specified address or range of addresses. 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 brief on page 426
Output Fields	For information about output fields, see the Output Field table of the show route command.

Sample Output

```

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 OS 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 Documentation	<ul style="list-style-type: none"> • show connections on page 664
List of Sample Output	show route ccc extensive on page 428
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

show route ccc extensive 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

```

show route community

Syntax	<code>show route community <i>as-number:community-value</i></code> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	<code>show route community <i>as-number:community-value</i></code> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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 Documentation	<ul style="list-style-type: none"> • show route detail on page 438
List of Sample Output	show route community on page 429
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

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

```

```
9.2.0.0/16          to 192.156.169.1 via 192.156.169.14(so-0/0/0)
                    *[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)
```

show route community-name

Syntax	<code>show route community-name <i>community-name</i></code> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	<code>show route community-name <i>community-name</i></code> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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	<i>community-name</i> —Name of the community. 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
List of Sample Output	show route community-name on page 431
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

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)

bgp.l3vpn.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>)>	
Syntax (EX Series Switch)	show route damping (decayed history suppressed) <brief detail extensive terse>	
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.	
Description	Display the Border Gateway Protocol (BGP) routes for which updates might have been reduced because of route flap damping.	
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>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>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</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>	
Required Privilege Level	view	
Related Documentation	<ul style="list-style-type: none"> • clear bgp damping on page 30 • show policy damping on page 64 	
List of Sample Output	show route damping decayed detail on page 436 show route damping history on page 436 show route damping history detail on page 437	
Output Fields	Table 116 on page 433 lists the output fields for the show route damping command. Output fields are listed in the approximate order in which they appear.	

Table 116: 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

Table 116: show route damping Output Fields (*continued*)

Field Name	Field Description	Level of Output
<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 • holdddown (routes that are in a pending state before being declared inactive) • hidden (the routes are not used because of a routing policy) 	All levels
<i>destination-prefix (entry, announced)</i>	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, preference]</i>	Protocol from which the route was learned and the preference value for 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. <p>In every routing metric except for the BGP LocalPref attribute, a lesser value is preferred. In order to use common comparison routines, Junos OS 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 routing device 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 the output field table for the show route detail command.	detail extensive
Local AS	AS number of the local routing device.	detail extensive
Peer AS	AS number of the peer routing device.	detail extensive

Table 116: show route damping Output Fields (*continued*)

Field Name	Field Description	Level of Output
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. n is an index used by Juniper Networks customer support only.	detail extensive
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 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 routing device 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. <p>NOTE: In Junos OS Release 10.3 and later, the AS path field displays an unrecognized attribute and associated hexadecimal value if BGP receives attribute 128 (attribute set) and you have not configured an independent domain in any routing instance.</p>	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 the output field table for the show route detail command.	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

Table 116: show route damping Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
Preference will be	(suppressed keyword only) Preference value that will be applied to the route when it is again active.	All levels

Sample Output

```

show route damping decayed detail  user@host> show route damping 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 history  user@host> show route damping 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 history detail

```
user@host> show route damping 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 logical-system-name)>
Syntax (EX Series Switch)	show route detail <destination-prefix>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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>destination-prefix—(Optional) Display active entries for the specified address or range of addresses.</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	show route detail on page 447
Output Fields	Table 117 on page 438 describes the output fields for the show route detail command. Output fields are listed in the approximate order in which they appear.

Table 117: 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>	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)

Table 117: 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"> • MPLS-label (for example, 80001). • interface-name (for example, ge-1/0/2). • neighbor-address:control-word-status:encapsulation type:vc-id:source (Layer 2 circuit only; for example, 10.1.1.195:NoCtrlWord:1:1:Local/96). • neighbor-address—Address of the neighbor. • control-word-status—Whether the use of the control word has been negotiated for this virtual circuit: NoCtrlWord or CtrlWord. • encapsulation type—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 • vc-id—Virtual circuit identifier. • source—Source of the advertisement: Local or Remote.
label stacking	<p>(Next-to-the-last-hop routing device 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 routing device 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 OS 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 118 on page 442.

Table 117: show route detail Output Fields (*continued*)

Field Name	Field Description
Next-hop reference count	Number of references made to the next hop.
Flood nexthop branches exceed maximum message	Indicates that the number of flood next-hop branches exceeded the system limit of 32 branches, and only a subset of the flood next-hop branches were installed in the kernel.
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 routing device is performing unequal-cost load balancing. This information is available when you enable Border Gateway Protocol (BGP) multipath load balancing.
Label-switched-path lsp-path-name	Name of the label-switched path (LSP) used to reach the next hop.
Label operation	MPLS label and operation occurring at this routing device. 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 routing device 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 119 on page 444.
Local AS	AS number of the local routing device.
Age	How long the route has been known.
Metricn	Cost value of the indicated route. For routes within an AS, the cost is determined by IGP and the individual protocol metrics. For external routes, destinations, or routing domains, the cost is determined by a preference value.
MED-plus-IGP	Metric value for BGP path selection to which the IGP cost to the next-hop destination has been added.

Table 117: show route detail Output Fields (*continued*)

Field Name	Field Description
TTL-Action	<p>For MPLS LSPs, state of the TTL propagation attribute. Can be enabled or disabled for all RSVP-signalled and LDP-signalled LSPs or for specific VRF routing instances.</p> <p>For sample output, see show route table.</p>
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.
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 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 in the AS-path merge process, as defined in RFC 4893. • []—If more than one AS number is configured on the routing device, 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. <p>NOTE: In Junos OS Release 10.3 and later, the AS path field displays an unrecognized attribute and associated hexadecimal value if BGP receives attribute 128 (attribute set) and you have not configured an independent domain in any routing instance.</p>
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 120 on page 446 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.

Table 117: show route detail Output Fields (*continued*)

Field Name	Field Description
Label-Base, range	First label in a block of labels and label block size. A remote PE routing device uses this first label when sending traffic toward the advertising PE routing device.
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 118 on page 442 describes all possible values for the **Next-hop Types** output field.

Table 118: Next-Hop Types Output Field Values

Next-Hop Type	Description
broadcast (bcast)	Broadcast next hop.
deny	Deny next hop.
flood	Flood next hop. Consists of components called branches, up to a maximum of 32 branches. Each flood next-hop branch sends a copy of the traffic to the forwarding interface. Used by P2MP RSVP, P2MP LDP, P2MP CCC, and multicast.
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 (mcrtr)	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.

Table 118: Next-Hop Types Output Field Values (*continued*)

Next-Hop Type	Description
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 119 on page 444 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 119: 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.

Table 119: State Output Field Values (*continued*)

Value	Description
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.
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 120 on page 446 describes the possible values for the **Communities** output field.

Table 120: 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.

Sample Output

```

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

...

mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
299776 (1 entry, 1 announced)
TSI:
KRT in-kernel 299776 /52 -> {Flood}
    *RSVP Preference: 7
        Next hop type: Flood
        Next-hop reference count: 130
        Flood nexthop branches exceed maximum
        Address: 0x8ea65d0

...

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+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: l2 circuit
        Announcement bits (1): 0-LDP
        AS path: I
        VC Label 100000, MTU 1500, VLAN ID 512
    
```

show route exact

Syntax	<code>show route exact <i>destination-prefix</i></code> <code><brief detail extensive terse></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switch)	<code>show route exact <i>destination-prefix</i></code> <code><brief detail extensive terse></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display only the routes that exactly match the specified address or range of addresses.
Options	<code>brief detail extensive terse</code> —(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief. <i>destination-prefix</i> —Address or range of addresses. <code>logical-system (all <i>logical-system-name</i>)</code> —(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	<code>show route exact</code> on page 453 <code>show route exact detail</code> on page 453 <code>show route exact extensive</code> on page 454 <code>show route exact terse</code> on page 454
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

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 </pre>

```
Age: 2d 3:30:26
Task: RT
Announcement bits (2): 0-KRT 3-Resolve tree 2
AS path: I
```

```
show route exact extensive 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)>
Syntax (EX Series Switch)	show route export <brief detail> <instance <instance-name> routing-table-name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>routing-table-name—(Optional) 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>
Required Privilege Level	view
List of Sample Output	<p>show route export on page 456</p> <p>show route export detail on page 456</p> <p>show route export instance detail on page 456</p>
Output Fields	Table 121 on page 455 lists the output fields for the show route export command. Output fields are listed in the approximate order in which they appear.

Table 121: show route export Output Fields

Field Name	Field Description	Level of Output
Table or table-name	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

Table 121: show route export Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
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 <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>. 	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

Sample Output

```

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 user@host> show route export detail
detail
inet.0                Routes:    0
black.inet.0          Routes:    3
  Import: [ inet.0 ]
red.inet.0            Routes:    4
  Import: [ inet.0 ]

show route export user@host> show route export instance detail
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 OS 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.</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 458</p> <p>show route export vrf-target community on page 458</p> <p>show route export vrf-target detail on page 458</p>
Output Fields	Table 122 on page 457 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 122: 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

Table 122: show route export vrf-target Output Fields (*continued*)

Field Name	Field Description	Level of Output
Export	Number of routing tables that are currently exporting routes with this target community. Omitted for tables that are not exporting routes.	brief none
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

Sample Output

```

show route export vrf-target user@host> show route export vrf-target
Route Target      Family      Import      Export
69:1              inet        unicast     2           2
69:2              inet        unicast     2           2

show route export vrf-target community user@host> show route export vrf-target community target:69:1
Route Target      Family      Import      Export
69:1              inet        unicast     2           2

show route export vrf-target detail user@host> show route export 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 logical-system-name)>
Syntax (EX Series Switch)	show route extensive <destination-prefix>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display extensive information about the active entries in the routing tables.
Options	none—Display all active entries in the routing table. destination-prefix—(Optional) Display active entries for the specified address or range of addresses. 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 extensive on page 464 show route extensive (Access Route) on page 470 show route extensive (Route Reflector) on page 470
Output Fields	Table 123 on page 459 describes the output fields for the show route extensive command. Output fields are listed in the approximate order in which they appear.

Table 123: 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>	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).

Table 123: 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"> • MPLS-label (for example, 80001). • interface-name (for example, ge-1/0/2). • neighbor-address:control-word-status:encapsulation type:vc-id:source (Layer 2 circuit only; for example, 10.1.1.195:NoCtrlWord:1:1:Local/96). • neighbor-address—Address of the neighbor. • control-word-status—Whether the use of the control word has been negotiated for this virtual circuit: NoCtrlWord or CtrlWord. • encapsulation type—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. • vc-id—Virtual circuit identifier. • source—Source of the advertisement: Local or Remote.
TSI	Protocol header information.
label stacking	<p>(Next-to-the-last-hop routing device 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 OS 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 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.</p>

Table 123: show route extensive Output Fields (*continued*)

Field Name	Field Description
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 the Output Field table in the show route detail command.
Next-hop reference count	Number of references made to the next hop.
Flood nexthop branches exceed maximum message	Indicates that the number of flood next-hop branches exceeded the system limit of 32 branches, and only a subset of the flood next-hop branches were installed in the kernel.
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 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 routing device 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 routing device. 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 routing device 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 routing device. 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 hops	When present, a list of nodes that are used to resolve the path to the next-hop destination, in the order that they are resolved.

Table 123: show route extensive Output Fields (*continued*)

Field Name	Field Description
State	State of the route (a route can be in more than one state). See the Output Field table in the show route detail command.
Inactive reason	<p>If the route is inactive, the reason for its current state is indicated. Typical reasons include:</p> <ul style="list-style-type: none"> • Active preferred—Currently active route was selected over this route. • Always compare MED—Path with a lower multiple exit discriminator (MED) is available. • AS path—Shorter AS path is available. • Cisco Non-deterministic MED selection—Cisco nondeterministic MED is enabled and a path with a lower MED is available. • Cluster list length—Path with a shorter cluster list length is available. • Forwarding use only—Path is only available for forwarding purposes. • IGP metric—Path through the next hop with a lower IGP metric is available. • IGP metric type—Path with a lower OSPF link-state advertisement type is available. • Interior > Exterior > Exterior via Interior—Direct, static, IGP, or EBGP path is available. • Local preference—Path with a higher local preference value is available. • Next hop address—Path with a lower metric next hop is available. • No difference—Path from a neighbor with a lower IP address is available. • Not Best in its group—Occurs when multiple peers of the same external AS advertise the same prefix and are grouped together in the selection process. When this reason is displayed, an additional reason is provided (typically one of the other reasons listed). • Number of gateways—Path with a higher number of next hops is available. • Origin—Path with a lower origin code is available. • OSPF version—Path does not support the indicated OSPF version. • 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 a lower preference value is available. • Router ID—Path through a neighbor with a lower ID is available. • Unusable path—Path is not usable because of one of the following conditions: the route is damped, the route is rejected by an import policy, or the route is unresolved. • Update source—Last tiebreaker is the lowest IP address value.
Local AS	Autonomous system (AS) number of the local routing device.
Age	How long the route has been known.
Metric	Cost value of the indicated route. For routes within an AS, the cost is determined by IGP and the individual protocol metrics. For external routes, destinations, or routing domains, the cost is determined by a preference value.
MED-plus-IGP	Metric value for BGP path selection to which the IGP cost to the next-hop destination has been added.
TTL-Action	<p>For MPLS LSPs, state of the TTL propagation attribute. Can be enabled or disabled for all RSVP-signalled and LDP-signalled LSPs or for specific VRF routing instances.</p> <p>For sample output, see show route table.</p>

Table 123: show route extensive Output Fields (*continued*)

Field Name	Field Description
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.
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 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 routing device, 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. <p>NOTE: In Junos OS Release 10.3 and later, the AS path field displays an unrecognized attribute and associated hexadecimal value if BGP receives attribute 128 (attribute set) and you have not configured an independent domain in any routing instance.</p>
AS path: I <Originator>	(For route 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 route reflected output only) Cluster ID sent by the route reflector.
Originator ID	(For route 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 the Output Field table in the show route detail command 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.

Table 123: show route extensive Output Fields (*continued*)

Field Name	Field Description
Label-Base, range	First label in a block of labels and label block size. A remote PE routing device uses this first label when sending traffic toward the advertising PE routing device.
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.
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 through 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.

Sample Output

```

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

...

mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
299776 (1 entry, 1 announced)
TSI:
KRT in-kernel 299776 /52 -> {Flood}
    *RSVP Preference: 7
        Next hop type: Flood
        Next-hop reference count: 130
        Flood nexthop branches exceed maximum
        Address: 0x8ea65d0

...

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+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+179
AS path: I
Communities: Layer2-info: encaps:VPLS, control flags:, mtu: 0
Label-base: 800008, range: 8, status-vector: 0x9F

...

12circuit.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> <ip-prefix> <table table-name> <logical-system (all logical-system-name)>
Syntax (EX Series Switch)	show route flow validation <brief detail> <ip-prefix> <table table-name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display flow route information.
Options	<p>none—Display flow route information.</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>ip-prefix—(Optional) IP address for the flow route.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>table table-name—(Optional) Name of the flow route table.</p>
Required Privilege Level	view
List of Sample Output	show route flow validation on page 473
Output Fields	Table 124 on page 472 lists the output fields for the show route flow validation command. Output fields are listed in the approximate order in which they appear.

Table 124: 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

Table 124: show route flow validation Output Fields (*continued*)

Field Name	Field Description	Level of Output
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


Sample Output

```

show route flow validation user@host> show route flow 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	<pre>show route forwarding-table <detail extensive summary> <all>; <ccc interface-name> <destination> <family family matching matching> <label name> <multicast> <table (default logical-system-name/routing-instance-name routing-instance-name)> <vpn vpn></pre>
Syntax (Routing Matrix)	<pre>show route forwarding-table <detail extensive summary> <all>; <ccc interface-name> <destination> <family family matching matching> <label name> <lcc number> <multicast> <table routing-instance-name> <vpn vpn></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>all option introduced in Junos OS Release 9.6.</p>
Description	<p>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.</p>
	<div style="display: flex; align-items: flex-start;"> <div style="margin-right: 10px;">  </div> <div> <p>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 <i>Junos System Basics and Services Command Reference</i>.</p> </div> </div>
Options	<p>none—Display the routes in the forwarding tables. By default, the show route forwarding-table command does not display information about private, or internal, forwarding tables.</p> <p>detail extensive summary—(Optional) Display the specified level of output.</p> <p>all—(Optional) Display routing table entries for all forwarding tables, including private, or internal, tables.</p>

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) On a routing matrix composed of a TX Matrix Plus router and T640 routers configured in the routing matrix, display information for the specified T640 router (or line-card chassis) connected to the TX Matrix router. On a routing matrix composed of the TX Matrix Plus router and T1600 routers configured in the routing matrix, display information for the specified T1600 router (or line-card chassis) connected to the TX Matrix Plus router. Replace **number** 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 | logical-system-name/routing-instance-name | routing-instance-name)—(Optional) Display route entries for all the routing tables in the main routing instance or for the specified routing instance. If your device supports logical systems, you can also display route entries for the specified logical system and routing instance. To view the routing instances on your device, use the **show route instance** command.

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 478
show route forwarding-table detail on page 479
show route forwarding-table destination extensive (Weights and Balances) on page 479
show route forwarding-table extensive on page 480
show route forwarding-table extensive (RPF) on page 481
show route forwarding-table family mpls on page 482
show route forwarding-table family vpls on page 482
show route forwarding-table family vpls extensive on page 482
show route forwarding-table table default on page 483
show route forwarding-table table
logical-system-name/routing-instance-name on page 484
show route forwarding-table vpn on page 485

Output Fields

Table 125 on page 476 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 125: show route forwarding-table Output Fields

Field Name	Field Description	Level of Output
Logical system	Name of the logical system. This field is displayed if you specify the table logical-system-name/routing-instance-name option on a device that is configured for and supports logical systems.	All levels
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
Route Type (Type)	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): <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	Route type flags: <ul style="list-style-type: none"> none—No flags are enabled. accounting—Route has accounting enabled. cached—Cache route. incoming-ifaceinterface-number—Check against incoming interface. prefix load balance—Load balancing is enabled for this prefix. rt nh decoupled—Route has been decoupled from the next hop to the destination. 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 125: 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 (rcv)—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

Sample Output

```

show route forwarding-table user@host> show route forwarding-table
Routing table: default.inet
Internet:
Destination      Type RtRef Next hop          Type Index NhRef Netif
default          perm  0                rjct   46    4
0.0.0.0/32       perm  0                dscd   44    1
1.1.1.0/24       ifdn  0                rslv   608   1 ge-2/0/1.0
1.1.1.0/32       iddn  0 1.1.1.0          recv   606   1 ge-2/0/1.0
1.1.1.1/32       user  0                rjct   46    4
1.1.1.1/32       intf  0 1.1.1.1          locl   607    2
1.1.1.1/32       iddn  0 1.1.1.1          locl   607    2
1.1.1.255/32     iddn  0 ff:ff:ff:ff:ff:ff bcst   605   1 ge-2/0/1.0
10.0.0.0/24      intf  0                rslv   616   1 ge-2/0/0.0
10.0.0.0/32      dest  0 10.0.0.0          recv   614   1 ge-2/0/0.0
10.0.0.1/32      intf  0 10.0.0.1          locl   615    2
10.0.0.1/32      dest  0 10.0.0.1          locl   615    2
10.0.0.255/32    dest  0 10.0.0.255        bcst   613   1 ge-2/0/0.0
10.1.1.0/24      ifdn  0                rslv   612   1 ge-2/0/1.0
10.1.1.0/32      iddn  0 10.1.1.0          recv   610   1 ge-2/0/1.0
10.1.1.1/32      user  0                rjct   46    4
10.1.1.1/32      intf  0 10.1.1.1          locl   611    2
10.1.1.1/32      iddn  0 10.1.1.1          locl   611    2
10.1.1.255/32    iddn  0 ff:ff:ff:ff:ff:ff bcst   609   1 ge-2/0/1.0
10.206.0.0/16    user  0 10.209.63.254     ucst   419   20 fxp0.0
10.209.0.0/16    user  1 0:12:1e:ca:98:0   ucst   419   20 fxp0.0
10.209.0.0/18    intf  0                rslv   418   1 fxp0.0
10.209.0.0/32    dest  0 10.209.0.0        recv   416   1 fxp0.0
10.209.2.131/32  intf  0 10.209.2.131      locl   417    2
10.209.2.131/32  dest  0 10.209.2.131      locl   417    2
10.209.17.55/32  dest  0 0:30:48:5b:78:d2  ucst   435   1 fxp0.0
10.209.63.42/32  dest  0 0:23:7d:58:92:ca  ucst   434   1 fxp0.0
10.209.63.254/32 dest  0 0:12:1e:ca:98:0   ucst   419   20 fxp0.0
10.209.63.255/32 dest  0 10.209.63.255     bcst   415   1 fxp0.0
10.227.0.0/16    user  0 10.209.63.254     ucst   419   20 fxp0.0

...

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
Route interface-index: 0
Index: 262143 Reference: 1
Index: 335 Reference: 2

```

```

Next-hop interface: so-1/1/0.0      Weight: 22      Balance: 3
Next-hop: 145.12.1.2
Next-hop type: unicast              Index: 337      Reference: 2
Next-hop interface: so-0/1/2.0      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                      Route interface-index: 0
Flags: sent to PFE
Next-hop: 0:90:69:8e:b1:1b
Next-hop type: unicast                  Index: 132      Reference: 4
Next-hop interface: fxp0.0

Destination: default
Route type: permanent
Route reference: 0                      Route interface-index: 0
Flags: none
Next-hop type: reject                  Index: 14       Reference: 1

Destination: 127.0.0.1/32
Route type: interface
Route reference: 0                      Route interface-index: 0
Flags: sent to PFE
Next-hop: 127.0.0.1
Next-hop type: local                   Index: 320      Reference: 1

...

Routing table: private1__inet [Index 1]
Internet:

Destination: default
Route type: permanent
Route reference: 0                      Route interface-index: 0
Flags: sent to PFE
Next-hop type: reject                  Index: 46       Reference: 1

Destination: 10.0.0.0/8
Route type: interface
Route reference: 0                      Route interface-index: 3
Flags: sent to PFE
Next-hop type: resolve                  Index: 136      Reference: 1
Next-hop interface: fxp1.0

...

Routing table: iso [Index 0]
ISO:

Destination: default
Route type: permanent
Route reference: 0                      Route interface-index: 0
Flags: sent to PFE
Next-hop type: reject                  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
  Flags: sent to PFE
  Nexthop: 15.95.1.3
  Next-hop type: broadcast
  Next-hop interface: so-1/1/0.0
  RPF interface: so-1/1/0.0
                                Route interface-index: 67
                                Index: 328      Reference: 1

```

```

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                rjct   19    1
0                user  0                recv   18    3
1                user  0                recv   18    3
2                user  0                recv   18    3
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          dnm  0                flood  353    1
default          perm  0                rjct   298    1
fe-0/1/0.0       dnm  0                flood  355    1
00:90:69:0c:20:1f/48
                    <<<<<Remote CE
                    dnm  0                indr   351    4
                    Push 800000, Push 100002(top)

so-0/0/0.0
00:90:69:85:b0:1f/48
                    <<<<<Local CE
                    dnm  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
Flags: sent to PFE
Next-hop type: flood
Next-hop type: unicast
Next-hop interface: fe-0/1/3.0
Next-hop type: unicast
Next-hop interface: fe-0/1/2.0
Route interface-index: 72
Index: 289 Reference: 1
Index: 291 Reference: 3
Index: 290 Reference: 3

Destination: default
Route type: permanent
Route reference: 0
Flags: none
Next-hop type: discard
Route interface-index: 0
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
Route interface-index: 69
Index: 293 Reference: 1
Index: 363 Reference: 4

```



```

Next-hop type: indirect          Index: 301      Reference: 5
Next hop: 10.31.3.2
Next-hop type: Push 800000
Next-hop interface: fe-0/1/1.0
Next-hop type: unicast          Index: 291      Reference: 3
Next-hop interface: fe-0/1/3.0

Destination: fe-0/1/3.0
Route type: dynamic
Route reference: 0              Route interface-index: 70
Flags: sent to PFE
Next-hop type: flood           Index: 292      Reference: 1
Next-hop type: indirect        Index: 363      Reference: 4
Next-hop type: Push 800016
Next-hop interface: at-1/0/1.0
Next-hop type: indirect        Index: 301      Reference: 5
Next hop: 10.31.3.2
Next-hop type: Push 800000
Next-hop interface: fe-0/1/1.0
Next-hop type: unicast          Index: 290      Reference: 3
Next-hop interface: fe-0/1/2.0

Destination: 10:00:00:01:01:01/48
Route type: dynamic
Route reference: 0              Route interface-index: 70
Flags: sent to PFE, prefix load balance
Next-hop type: unicast          Index: 291      Reference: 3
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

Destination: 10:00:00:01:01:04/48
Route type: dynamic
Route reference: 0              Route interface-index: 69
Flags: sent to PFE, prefix load balance
Next-hop type: unicast          Index: 290      Reference: 3
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

Destination: 10:00:00:01:03:05/48
Route type: dynamic
Route reference: 0              Route interface-index: 74
Flags: sent to PFE, prefix load balance
Next-hop type: indirect        Index: 301      Reference: 5
Next hop: 10.31.3.2
Next-hop type: Push 800000
Next-hop interface: fe-0/1/1.0

```

**show route
forwarding-table table
default**

user@host> **show route forwarding-table table default**

Routing table: default.inet

Internet:

Destination	Type	RtRef	Next hop	Type	Index	NhRef	Netif
default	perm	0		rjct	36	2	
0.0.0.0/32	perm	0		dscd	34	1	
10.0.60.0/30	user	0	10.0.60.13	ucst	713	5	fe-0/1/3.0
10.0.60.12/30	intf	0		rslv	688	1	fe-0/1/3.0

```

10.0.60.12/32      dest    0 10.0.60.12      recv  686    1 fe-0/1/3.0
10.0.60.13/32      dest    0 0:5:85:8b:bc:22  ucst  713    5 fe-0/1/3.0
10.0.60.14/32      intf    0 10.0.60.14      locl  687    2
10.0.60.14/32      dest    0 10.0.60.14      locl  687    2
10.0.60.15/32      dest    0 10.0.60.15      bcst  685    1 fe-0/1/3.0
10.0.67.12/30      user    0 10.0.60.13      ucst  713    5 fe-0/1/3.0
10.0.80.0/30       ifdn    0 ff.3.0.21       ucst  676    1 so-0/0/1.0
10.0.80.0/32       dest    0 10.0.80.0       recv  678    1 so-0/0/1.0
10.0.80.2/32       user    0                rjct   36    2
10.0.80.2/32       intf    0 10.0.80.2       locl  675    1
10.0.80.3/32       dest    0 10.0.80.3       bcst  677    1 so-0/0/1.0
10.0.90.12/30      intf    0                rslv  684    1 fe-0/1/0.0
10.0.90.12/32      dest    0 10.0.90.12      recv  682    1 fe-0/1/0.0
10.0.90.14/32      intf    0 10.0.90.14      locl  683    2
10.0.90.14/32      dest    0 10.0.90.14      locl  683    2
10.0.90.15/32      dest    0 10.0.90.15      bcst  681    1 fe-0/1/0.0
10.5.0.0/16        user    0 192.168.187.126 ucst  324   15 fxp0.0
10.10.0.0/16        user    0 192.168.187.126 ucst  324   15 fxp0.0
10.13.10.0/23       user    0 192.168.187.126 ucst  324   15 fxp0.0
10.84.0.0/16        user    0 192.168.187.126 ucst  324   15 fxp0.0
10.150.0.0/16       user    0 192.168.187.126 ucst  324   15 fxp0.0
10.157.64.0/19      user    0 192.168.187.126 ucst  324   15 fxp0.0
10.209.0.0/16       user    0 192.168.187.126 ucst  324   15 fxp0.0

```

...

Routing table: default.iso

ISO:

Destination	Type	RtRef	Next hop	Type	Index	NhRef	Netif
default	perm	0		rjct	60	1	

Routing table: default.inet6

Internet6:

Destination	Type	RtRef	Next hop	Type	Index	NhRef	Netif
default	perm	0		rjct	44	1	
::/128	perm	0		dscd	42	1	
ff00::/8	perm	0		mdsc	43	1	
ff02::1/128	perm	0	ff02::1	mcst	39	1	

Routing table: default.mpls

MPLS:

Destination	Type	RtRef	Next hop	Type	Index	NhRef	Netif
default	perm	0		dscd	50	1	

show route
forwarding-table table
logical-system-name/
routing-instance-name

user@host> run show route forwarding-table table R4/vpn-red

Logical system: R4

Routing table: vpn-red.inet

Internet:

Destination	Type	RtRef	Next hop	Type	Index	NhRef	Netif
default	perm	0		rjct	563	1	
0.0.0.0/32	perm	0		dscd	561	2	
1.0.0.1/32	user	0		dscd	561	2	
2.0.2.0/24	intf	0		rslv	771	1	lt-1/2/0.3
2.0.2.0/32	dest	0	2.0.2.0	recv	769	1	lt-1/2/0.3
2.0.2.1/32	intf	0	2.0.2.1	locl	770	2	
2.0.2.1/32	dest	0	2.0.2.1	locl	770	2	
2.0.2.2/32	dest	0	0.4.80.3.0.1b.c0.d5.e4.bd.0.1b.c0.d5.e4.bc.8.0	ucst	789	1	lt-1/2/0.3
2.0.2.255/32	dest	0	2.0.2.255	bcst	768	1	lt-1/2/0.3
224.0.0.0/4	perm	1		mdsc	562	1	
224.0.0.1/32	perm	0	224.0.0.1	mcst	558	1	

```
255.255.255.255/32 perm 0 bcst 559 1
```

Logical system: R4

Routing table: vpn-red.iso

ISO:

Destination	Type	RtRef	Next hop	Type	Index	NhRef	Netif
default	perm	0		rjct	608	1	

Logical system: R4

Routing table: vpn-red.inet6

Internet6:

Destination	Type	RtRef	Next hop	Type	Index	NhRef	Netif
default	perm	0		rjct	708	1	
::/128	perm	0		dscd	706	1	
ff00::/8	perm	0		mdsc	707	1	
ff02::1/128	perm	0	ff02::1	mcst	704	1	

Logical system: R4

Routing table: vpn-red.mpls

MPLS:

Destination	Type	RtRef	Next hop	Type	Index	NhRef	Netif
default	perm	0		dscd	638		

**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		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	loc1	36	1	
10.255.14.172/32	user	0		ucst	69	2	
so-0/0/0.0							
10.255.14.175/32	user	0		indr	81	3	
				Push	100004,	Push	
100004(top)	so-1/0/0.0						
224.0.0.0/4	perm	2		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		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 OS 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 486</p> <p>show route hidden detail on page 487</p> <p>show route hidden extensive on page 487</p> <p>show route hidden terse on page 487</p>
Output Fields	For information about output fields, see the output field table for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

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 487.

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
10.4.4.4:4:10.5.5.5/32
                    B 170      100      Unusable      100 I
10.4.4.4:4:10.12.1.0/24
                    B 170      100      Unusable      100 I
10.4.4.4:4:10.12.80.4/30
                    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>)>
Syntax (EX Series Switch)	show route inactive-path <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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	show route inactive-path on page 489 show route inactive-path detail on page 490 show route inactive-path extensive on page 491 show route inactive-path terse on page 491
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

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 490.

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.13vpn.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>)>
Syntax (EX Series Switch)	show route inactive-prefix <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display inactive route destinations in each routing table.
Options	none—Display all inactive route destination. 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 <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 inactive-prefix on page 492 show route inactive-prefix detail on page 492 show route inactive-prefix extensive on page 493 show route inactive-prefix terse on page 493
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```
show route inactive-prefix 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

show route inactive-prefix detail 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 1o0.0

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 492.

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>
Syntax (EX Series Switch)	show route instance <brief detail summary> <instance-name> <operational>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display routing instance information.
Options	<p>none—(Same as brief) Display standard information about all routing instances.</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 a 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 495</p> <p>show route instance detail (Graceful Restart Complete) on page 496</p> <p>show route instance detail (Graceful Restart Incomplete) on page 497</p> <p>show route instance detail (VPLS Routing Instance) on page 499</p> <p>show route instance operational on page 499</p> <p>show route instance summary on page 499</p>
Output Fields	Table 126 on page 494 lists the output fields for the show route instance command. Output fields are listed in the approximate order in which they appear.

Table 126: 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.	—

Table 126: show route instance Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
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
Fast-reroute-priority	Fast reroute priority setting for a VPLS routing instance: high , medium , or low . The default is low .	detail
Restart State	Restart state: <ul style="list-style-type: none"> • Pending:protocol-name—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

Sample Output

```

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
detail (VPLS Routing
Instance)**

```

user@host> show route instance detail test-vpls
test-vpls:
Router ID: 0.0.0.0
Type: vpls                      State: Active
Interfaces:
  lsi.1048833
  lsi.1048832
  fe-0/1/0.513
Route-distinguisher: 10.255.37.65:1
Vrf-import: [ __vrf-import-test-vpls-internal__ ]
Vrf-export: [ __vrf-export-test-vpls-internal__ ]
Vrf-import-target: [ target:300:1 ]
Vrf-export-target: [ target:300:1 ]
Fast-reroute-priority: high
Tables:
  test-vpls.l2vpn.0            : 3 routes (3 active, 0 holddown, 0 hidden)

```

**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 master	Type forwarding	Primary rib	Active/holdddown/hidden
		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-L	vrf	BGP-INET.iso.0	0/0/0
		BGP-INET.inet6.0	0/0/0
		BGP-L.inet.0	5/0/0
		BGP-L.iso.0	0/0/0
		BGP-L.mpls.0	4/0/0
L2VPN	l2vpn	BGP-L.inet6.0	0/0/0
		L2VPN.inet.0	0/0/0
		L2VPN.iso.0	0/0/0
		L2VPN.inet6.0	0/0/0
LDP	vrf	L2VPN.l2vpn.0	2/0/0
		LDP.inet.0	4/0/0
		LDP.iso.0	0/0/0
		LDP.mpls.0	0/0/0
		LDP.inet6.0	0/0/0
OSPF	vrf	LDP.l2circuit.0	0/0/0
		OSPF.inet.0	7/0/0
		OSPF.iso.0	0/0/0
RIP	vrf	OSPF.inet6.0	0/0/0
		RIP.inet.0	6/0/0
		RIP.iso.0	0/0/0
STATIC	vrf	RIP.inet6.0	0/0/0
		STATIC.inet.0	4/0/0
		STATIC.iso.0	0/0/0
		STATIC.inet6.0	0/0/0

show route label

Syntax	<code>show route label <i>label</i></code> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	<code>show route label <i>label</i></code> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display the routes based on a specified Multiprotocol Label Switching (MPLS) label value.
Options	<i>label</i> —Value of the MPLS label. 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 <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	<code>show route label</code> on page 501 <code>show route label detail</code> on page 501 <code>show route label extensive</code> on page 502 <code>show route label terse</code> on page 502
Output Fields	For information about output fields, see the output field table for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

show route label  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

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 501.

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	<code>show route label-switched-path <i>path-name</i></code> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	<code>show route label-switched-path <i>path-name</i></code> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display the routes used in a Multiprotocol Label Switching (MPLS) label-switched path (LSP).
Options	brief detail extensive terse—(Optional) Display the specified level of output. <i>path-name</i> —LSP tunnel name. 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 label-switched-path on page 503
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

show route label-switched-path 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

show route martians

Syntax	show route martians <logical-system (all <i>logical-system-name</i>)> <table <i>routing-table-name</i> >
Syntax (EX Series Switch)	show route martians <table <i>routing-table-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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.</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 505
Output Fields	Table 127 on page 505 lists the output fields for the show route martians command. Output fields are listed in the approximate order in which they appear

Table 127: 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 .

Sample Output

```

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	<code>show route next-hop <i>next-hop</i></code> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	<code>show route next-hop <i>next-hop</i></code> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the entries in the routing table that are being sent to the specified next-hop address.
Options	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. <i>next-hop</i> —Next-hop address.
Required Privilege Level	view
List of Sample Output	<code>show route next-hop</code> on page 507 <code>show route next-hop detail</code> on page 508 <code>show route next-hop extensive</code> on page 509 <code>show route next-hop terse</code> on page 511
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

show route next-hop  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)

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
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-kernel 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>)>
Syntax (EX Series Switch)	show route no-community <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the route entries in each routing table that are not associated with any community.
Options	none—(Same as brief) Display the route entries in each routing table that are not associated with any community. 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
List of Sample Output	show route no-community on page 513 show route no-community detail on page 514 show route no-community extensive on page 514 show route no-community terse on page 515
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

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
> 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
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
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
no-community terse**

user@host> show route 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>)>
Syntax (EX Series Switch)	show route output (address <i>ip-address</i> interface <i>interface-name</i>) <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	<p>Display the entries in the routing table learned through static routes and interior gateway protocols that are to be sent out the interface with either the specified IP address or specified name.</p> <p>To view routes advertised to a neighbor or received from a neighbor for the BGP protocol, use the show route advertising-protocol bgp and show route receive-protocol bgp commands instead.</p>
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>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>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>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 517</p> <p>show route output address detail on page 517</p> <p>show route output address extensive on page 517</p> <p>show route output address terse on page 518</p> <p>show route output interface on page 518</p> <p>show route output interface detail on page 518</p> <p>show route output interface extensive on page 519</p> <p>show route output interface terse on page 519</p>
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

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 517.

```

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           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 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 518.

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	<code>show route protocol <i>protocol</i></code> <code><brief detail extensive terse></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switch)	<code>show route protocol <i>protocol</i></code> <code><brief detail extensive terse></code>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>ospf2 and ospf3 options introduced in Junos OS Release 9.2.</p> <p>ospf2 and ospf3 options introduced in Junos OS Release 9.2 for EX Series switches.</p> <p>flow option introduced in Junos OS Release 10.0.</p> <p>flow option introduced in Junos OS Release 10.0 for EX Series switches.</p>
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• flow—Locally defined flow-specification route.• 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



NOTE: EX Series switches run a subset of these protocols. See the switch CLI for details.

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 522
- show route protocol access-internal extensive on page 522
- show route protocol bgp on page 522
- show route protocol bgp detail on page 522
- show route protocol bgp extensive on page 523
- show route protocol bgp terse on page 523
- show route protocol direct on page 523
- show route protocol l2circuit detail on page 524
- show route protocol l2vpn extensive on page 525
- show route protocol ldp on page 525
- show route protocol ldp extensive on page 526
- show route protocol ospf (Layer 3 VPN) on page 527
- show route protocol ospf detail on page 527
- show route protocol rip on page 527
- show route protocol rip detail on page 528
- show route protocol ripng table inet6 on page 528

Output Fields For information about output fields, see the output field tables for the **show route** command, the **show route detail** command, the **show route extensive** command, or the **show route terse** command.

Sample Output

```

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: 335832 destinations, 335833 routes (335383 active, 0 holddown, 450 hidden)
                                + = Active Route, - = Last Active, * = Both

                                192.168.64.0/21      *[BGP/170] 6d 10:41:16, localpref 100, from 192.168.69.71
                                                AS path: 10458 14203 2914 4788 4788 I
                                                > to 192.168.167.254 via fxp0.0

show route protocol bgp detail
                                user@host> show route protocol bgp 66.117.63.0/24 exact detail
                                inet.0: 335805 destinations, 335806 routes (335356 active, 0 holddown, 450 hidden)
                                66.117.63.0/24 (1 entry, 1 announced)
                                    *BGP      Preference: 170/-101
                                        Next hop type: Indirect
                                        Next-hop reference count: 1006436
                                        Source: 192.168.69.71
                                        Next hop type: Router, Next hop index: 324
                                        Next hop: 192.168.167.254 via fxp0.0, selected
                                        Protocol next hop: 192.168.69.71
                                        Indirect next hop: 8e166c0 342
                                        State: <Active Ext>
                                        Local AS: 69 Peer AS: 10458
                                        Age: 6d 10:42:42      Metric2: 0
                                        Task: BGP_10458.192.168.69.71+179
                                        Announcement bits (3): 0-KRT 2-BGP RT Background 3-Resolve tree
                                1
                                    AS path: 10458 14203 2914 4788 4788 I
                                    Communities: 2914:410 2914:2403 2914:3400
                                    Accepted
                                    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: 335827 destinations, 335828 routes (335378 active, 0 holddown, 450 hidden)
192.168.64.0/21 (1 entry, 1 announced)
TSI:
KRT in-kernel 1.9.0.0/16 -> {indirect(342)}
Page 0 idx 1 Type 1 val db31a80
  Nexthop: Self
  AS path: [69] 10458 14203 2914 4788 4788 I
  Communities: 2914:410 2914:2403 2914:3400
Path 1.9.0.0 from 192.168.69.71 Vector len 4. Val: 1
  *BGP Preference: 170/-101
    Next hop type: Indirect
    Next-hop reference count: 1006502
    Source: 192.168.69.71
    Next hop type: Router, Next hop index: 324
    Next hop: 192.168.167.254 via fxp0.0, selected
    Protocol next hop: 192.168.69.71
    Indirect next hop: 8e166c0 342
    State: <Active Ext>
    Local AS: 69 Peer AS: 10458
    Age: 6d 10:44:45 Metric2: 0
    Task: BGP_10458.192.168.69.71+179
    Announcement bits (3): 0-KRT 2-BGP RT Background 3-Resolve tree
1
  AS path: 10458 14203 2914 4788 4788 I
  Communities: 2914:410 2914:2403 2914:3400
  Accepted
  Localpref: 100
  Router ID: 207.17.136.192
  Indirect next hops: 1
    Protocol next hop: 192.168.69.71
    Indirect next hop: 8e166c0 342
    Indirect path forwarding next hops: 1
      Next hop type: Router
      Next hop: 192.168.167.254 via fxp0.0
    192.168.0.0/16 Originating RIB: inet.0
    Node path count: 1
    Forwarding nexthops: 1
      Nexthop: 192.168.167.254 via fxp0.0

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: 335843 destinations, 335844 routes (335394 active, 0 holddown, 450 hidden)
+ = Active Route, - = Last Active, * = Both

8.8.8.0/24          *[Direct/0] 17w0d 10:31:49
> via fe-1/3/1.0
10.255.165.1/32     *[Direct/0] 25w4d 04:13:18
> via lo0.0
30.30.30.0/24       *[Direct/0] 17w0d 23:06:26
> via fe-1/3/2.0

```

```

192.168.164.0/22    *[Direct/0] 25w4d 04:13:20
                  > via fxp0.0

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

47.0005.80ff.f800.0000.0108.0001.0102.5516.5001/152
                  *[Direct/0] 25w4d 04:13:21
                  > via lo0.0

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

abcd::10:255:165:1/128
                  *[Direct/0] 25w4d 04:13:21
                  > via lo0.0
fe80::2a0:a5ff:fe12:ad7/128
                  *[Direct/0] 25w4d 04:13:21
                  > via lo0.0

```

show route protocol l2circuit detail

```

user@host> 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 user@host> show route protocol ldp extensive
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-kernel 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-kernel 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>)>
Syntax (EX Series Switch)	show route range <brief detail extensive terse> <destination-prefix>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display routing table entries using a prefix range.
Options	<p>none—Display standard information about all routing table entries using a prefix range.</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><i>destination-prefix</i>—(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 529</p> <p>show route range destination-prefix on page 530</p> <p>show route range detail on page 530</p> <p>show route range extensive on page 531</p> <p>show route range terse on page 531</p>
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

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
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 extensive 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			>100.0	
*	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			>100.0	

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			>100.0	
	fe80::280:42ff:fe11:226f/128						
*		D	0			>100.0	

__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			>100.16385	

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>)>
Syntax (EX Series Switch)	show route receive-protocol <i>protocol neighbor-address</i> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the routing information as it was received through a particular neighbor using a particular dynamic routing protocol.
Options	<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> <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>
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 535</p> <p>show route receive-protocol bgp extensive on page 536</p> <p>show route receive-protocol bgp extensive on page 536</p> <p>show route receive-protocol bgp detail (Layer 2 VPN) on page 536</p> <p>show route receive-protocol bgp extensive (Layer 2 VPN) on page 537</p> <p>show route receive-protocol bgp (Layer 3 VPN) on page 537</p> <p>show route receive-protocol bgp detail (Layer 3 VPN) on page 538</p> <p>show route receive-protocol bgp extensive (Layer 3 VPN) on page 539</p>
Output Fields	Table 128 on page 533 describes the output fields for the show route receive-protocol command. Output fields are listed in the approximate order in which they appear.

Table 128: 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

Table 128: show route receive-protocol Output Fields (*continued*)

Field Name	Field Description	Level of Output
<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 • holddown (routes in that are pending state before being declared inactive) • hidden (the routes are not used because of a routing policy) 	All levels
Prefix	Destination prefix.	none brief
MED	Multiple exit discriminator value included in the route.	none brief
<i>destination-prefix (entry, announced)</i>	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 routing device uses this first label when sending traffic toward the advertising PE routing device.	detail extensive
VPN Label	Virtual private network (VPN) label. Packets are sent between CE and PE routing devices 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 Lclpref	Local preference value included in the route.	All levels

Table 128: show route receive-protocol Output Fields (*continued*)

Field Name	Field Description	Level of Output
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 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. <p>NOTE: In Junos OS Release 10.3 and later, the AS path field displays an unrecognized attribute and associated hexadecimal value if BGP receives attribute 128 (attribute set) and you have not configured an independent domain in any routing instance.</p>	All levels
Cluster list	(For route reflected output only) Cluster ID sent by the route reflector.	detail extensive
Originator ID	(For route reflected output only) Address of routing device that originally sent the route to the route reflector.	detail extensive
Communities	Community path attribute for the route. See the Output Field table in the show route detail command for all possible values for this field.	detail extensive
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 routing device.	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

Sample Output

```

show route receive-protocol bgp user@host> show route receive-protocol bgp 10.255.245.215
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 receive-protocol bgp 10.255.245.63 extensive
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                Next hop                MED      Lc1pref 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      Lc1pref AS path
inet.3: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
Prefix                Next hop                MED      Lc1pref AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix                Next hop                MED      Lc1pref AS path
mpls.0: 48 destinations, 48 routes (48 active, 0 holddown, 0 hidden)

show route receive-protocol bgp 207.17.136.192 table inet.0 66.117.68.0/24 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 10.255.14.171 detail
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      Lc1pref AS path
inet.3: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Prefix                Nexthop                MED      Lc1pref AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix                Nexthop                MED      Lc1pref AS path
mpls.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
Prefix                Nexthop                MED      Lc1pref AS path
frame-vpn.12vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0
hidden)
Prefix                Nexthop                MED      Lc1pref 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 10.255.14.171 extensive
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 receive-protocol bgp
(Layer 3 VPN)
user@host> show route receive-protocol bgp 10.255.14.171
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
receive-protocol bgp
detail (Layer 3 VPN)**

```

user@host> show route receive-protocol bgp 10.255.14.174 detail
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 10.255.245.63 extensive
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	<pre>show route resolution <brief detail extensive summary> <index <i>index</i>> <logical-system (all <i>logical-system-name</i>)> <prefix> <table <i>routing-table-name</i>> <unresolved></pre>
Syntax (EX Series Switch)	<pre>show route resolution <brief detail extensive summary> <index <i>index</i>> <prefix> <table <i>routing-table-name</i>> <unresolved></pre>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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	<p>none—Display standard information about all entries in the next-hop resolution database.</p> <p>brief detail extensive summary—(Optional) Display the specified level of output.</p> <p>index <i>index</i>—(Optional) Show the index of the resolution tree.</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>prefix network/destination-prefix</i>—(Optional) Display database entries for the specified address.</p> <p>table <i>routing-table-name</i>—(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 <i>Junos Routing Protocols Configuration Guide</i>.)</p> <p>unresolved—(Optional) Display routes that could not be resolved.</p>
Required Privilege Level	view
List of Sample Output	<pre>show route resolution detail on page 541 show route resolution summary on page 542 show route resolution unresolved on page 542</pre>

Output Fields Table 129 on page 541 describes the output fields for the **show route resolution** command. Output fields are listed in the approximate order in which they appear.

Table 129: 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 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.
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.

Sample Output

```

show route resolution detail
user@host> show route resolution 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 summary user@host> show route resolution 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 unresolved user@host> show route resolution 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	<p>Command introduced in Junos OS Release 8.5.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p>
Description	Display the entries in the routing table that were learned from snooping.
Options	<p>none—Display the entries in the routing table that were learned from snooping.</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>all—(Optional) Display all entries, including hidden entries.</p> <p>best address/prefix—(Optional) Display the longest match for the provided address and optional prefix.</p> <p>exact address/prefix—(Optional) Display exact matches for the provided address and optional prefix.</p> <p>range prefix-range—(Optional) Display information for the provided address range.</p> <p>summary—(Optional) Display route snooping summary statistics.</p> <p>table table-name—(Optional) Display information for the named table.</p>
Required Privilege Level	view
List of Sample Output	show route snooping detail on page 543
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

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)
  *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)

224.0.0.0.0.0.0/24 (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>)>
Syntax (EX Series Switch)	show route source-gateway <i>address</i> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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	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 . <i>address</i> —IP address of the system. 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 source-gateway on page 551 show route source-gateway detail on page 552 show route source-gateway extensive on page 554
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

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

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-12vpn
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.12vpn.0

red.12vpn.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-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: 12:14:00 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.12vpn.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 source-gateway extensive
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>)>
Syntax (EX Series Switch)	show route summary
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display summary statistics about the entries in the routing table.
Options	none—Display summary statistics about the entries in the routing table. 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 summary on page 558
Output Fields	Table 130 on page 557 lists the output fields for the show route summary command. Output fields are listed in the approximate order in which they appear.

Table 130: 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 .

Sample Output

```

show route summary user@host> show route summary
Autonomous system number: 69
Router ID: 10.255.71.52
Maximum-ECMP: 32
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>)>
Syntax (EX Series Switch)	show route table <i>routing-table-name</i> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the route entries in a particular routing table.
Options	<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> <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>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show route summary on page 557
List of Sample Output	<p>show route table bgp.l2.vpn on page 560</p> <p>show route table bgp.l3vpn.0 on page 560</p> <p>show route table bgp.l3vpn.0 detail on page 560</p> <p>show route table inet.0 on page 561</p> <p>show route table inet6.0 on page 562</p> <p>show route table inet6.3 on page 562</p> <p>show route table l2circuit.0 on page 562</p> <p>show route table mpls on page 563</p> <p>show route table mpls extensive on page 563</p> <p>show route table mpls.0 on page 563</p> <p>show route table vpls_1 detail on page 564</p> <p>show route table vpn-a on page 564</p> <p>show route table vpn-a.mdt.0 on page 564</p> <p>show route table VPN-AB.inet.0 on page 564</p> <p>show route table VPN_blue.mvpn-inet6.0 on page 565</p> <p>show route table VPN-A detail on page 565</p>
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

show route table      user@host> show route table bgp.l2vpn
bgp.l2vpn             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

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 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 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 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 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 user@host> show route table vpls_1 detail
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.l2vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

```

```

+ = Active Route, - = Last Active, * = Both
192.168.16.1:1:1/96
    *[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 user@host> show route table vpn-a.mdt.0
vpn-a.mdt.0 vpn-a.mdt.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

```

```

1:1:0:10.255.14.216:232.1.1.1/144
    *[MVPN/70] 01:23:05, metric2 1
        Indirect
1:1:1:10.255.14.218:232.1.1.1/144
    *[BGP/170] 00:57:49, localpref 100, from 10.255.14.218
        AS path: I
        > via so-0/0/0.0, label-switched-path r0e-to-r1
1:1:2:10.255.14.217:232.1.1.1/144
    *[BGP/170] 00:57:49, localpref 100, from 10.255.14.217
        AS path: I
> via so-0/0/1.0, label-switched-path r0-to-r2

```

```

show route table user@host> show route table VPN-AB.inet.0
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 table VPN_blue.mvpn-inet6.0
 user@host> show route table VPN_blue.mvpn-inet6.0
 vpn_blue.mvpn-inet6.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

```

1:10.255.2.202:65535:10.255.2.202/432
*[BGP/170] 00:02:37, localpref 100, from 10.255.2.202
AS path: I
> via so-0/1/3.0
1:10.255.2.203:65535:10.255.2.203/432
*[BGP/170] 00:02:37, localpref 100, from 10.255.2.203
AS path: I
> via so-0/1/0.0
1:10.255.2.204:65535:10.255.2.204/432
*[MVPN/70] 00:57:23, metric2 1
Indirect
5:10.255.2.202:65535:128::192.168.90.2:128:ffff::1/432
*[BGP/170] 00:02:37, localpref 100, from 10.255.2.202
AS path: I
> via so-0/1/3.0
6:10.255.2.203:65535:65000:128::10.12.53.12:128:ffff::1/432
*[PIM/105] 00:02:37
Multicast (IPv6)
7:10.255.2.202:65535:65000:128::192.168.90.2:128:ffff::1/432
*[MVPN/70] 00:02:37, metric2 1
Indirect

```

show route table VPN-A detail
 user@host> show route table VPN-A detail
 VPN-AB.inet.0: 8 destinations, 8 routes (8 active, 0 holddown, 0 hidden)
 10.255.179.9/32 (1 entry, 1 announced)
 *BGP Preference: 170/-101
 Route Distinguisher: 10.255.179.13:200
 Next hop type: Indirect
 Next-hop reference count: 5
 Source: 10.255.179.13
 Next hop type: Router, Next hop index: 732
 Next hop: 10.39.1.14 via fe-0/3/0.0, selected
 Label operation: Push 299824, Push 299824(top)
 Protocol next hop: 10.255.179.13
 Push 299824
 Indirect next hop: 8f275a0 1048574
 State: (Secondary Active Int Ext)
 Local AS: 1 Peer AS: 1
 Age: 3:41:06 Metric: 1 Metric2: 1
 Task: BGP_1.10.255.179.13+64309

```
Announcement bits (2): 0-KRT 1-BGP RT Background
AS path: I
Communities: target:1:200 rte-type:0.0.0.0:1:0
Import Accepted
VPN Label: 299824 TTL Action: vrf-ttl-propagate
Localpref: 100
Router ID: 10.255.179.13
Primary Routing Table bgp.13vpn.0
```

show route terse


Syntax	show route terse <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route terse
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display a high-level summary of the routes in the routing table.
<div>  <p>NOTE: For BGP routes, the show route terse command displays the local preference attribute and MED instead of metric1 and metric2 values. This is mostly due to historical reasons. To display the metric1 and metric2 value of a BGP route, use the show route extensive command.</p> </div>	
Options	<p>none—Display a high-level summary of the routes in the routing 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>
Required Privilege Level	view
List of Sample Output	show route terse on page 569
Output Fields	Table 131 on page 567 describes the output fields for the show route terse command. Output fields are listed in the approximate order in which they appear.

Table 131: show route terse Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, <i>inet.0</i>).
<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)

Table 131: show route terse Output Fields (*continued*)

Field Name	Field Description
route key	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.
P	Protocol through which the route was learned: <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	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 OS 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.
Metric 1	First metric value in the route. For routes learned from BGP, this is the MED metric.
Metric 2	Second metric value in the route. For routes learned from BGP, this is the IGP metric.
Next hop	Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.
AS path	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 originated: <ul style="list-style-type: none"> • I—IGP. • E—EGP. • ?—Incomplete; typically, the AS path was aggregated.

Sample Output

```

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

```


RIP Operational Mode Commands

Table 132 on page 571 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 132: RIP Operational Mode Commands

Task	Command
Clear RIP general statistics.	clear rip general-statistics
Clear RIP statistics.	clear rip statistics
Display brief RIP statistics.	show rip general-statistics
Display information about RIP neighbors.	show rip neighbor
Display RIP statistics about messages sent and received on an interface, as well as information received through advertisements from other routers.	show rip statistics



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.

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>)>
Syntax (EX Series Switch)	clear rip general-statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Routing Information Protocol (RIP) general statistics.
Options	none—Clear RIP general statistics. 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 Documentation	<ul style="list-style-type: none">• show rip general-statistics on page 574
List of Sample Output	clear rip general-statistics on page 572
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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>
Syntax (EX Series Switch)	clear rip statistics <instance (all <i>instance-name</i>)> <neighbor>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Routing Information Protocol (RIP) statistics.
Options	<p>none—Reset RIP counters for all neighbors for all routing instances.</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 Documentation	<ul style="list-style-type: none"> • show rip statistics on page 577
List of Sample Output	clear rip statistics on page 573
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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>)>
Syntax (EX Series Switch)	show rip general-statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display brief Routing Information Protocol (RIP) statistics.
Options	none—Display brief RIP statistics. 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 Documentation	<ul style="list-style-type: none"> clear rip general-statistics on page 572
List of Sample Output	show rip general-statistics on page 574
Output Fields	Table 133 on page 574 lists the output fields for the show rip general-statistics command. Output fields are listed in the approximate order in which they appear.

Table 133: 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.

Sample Output

```

show rip general-statistics user@host> show rip 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>
Syntax (EX Series Switch)	show rip neighbor <instance (all <i>instance-name</i>)> <name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about Routing Information Protocol (RIP) neighbors.
Options	<p>none—Display information about all RIP neighbors for all instances.</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	<p>show rip neighbor on page 576</p> <p>show rip neighbor (With Demand Circuits Configured) on page 576</p>
Output Fields	Table 134 on page 575 lists the output fields for the show rip neighbor command. Output fields are listed in the approximate order in which they appear.

Table 134: show rip neighbor Output Fields

Field Name	Field Description
Neighbor	<p>Name of RIP neighbor.</p> <p>NOTE: Beginning with Junos OS Release 11.1, when you configure demand circuits, the output displays a DC flag next to neighbor interfaces configured for demand circuits.</p> <p>If you configure demand circuits at the neighbor hierarchy level, the output shows only the neighbor interface that you specifically configured as a demand circuit. If you configure demand circuits at the group hierarchy level, all of the interfaces in the group are configured as demand circuits. Therefore, the output shows all of the interfaces in that group as demand circuits.</p>
State	State of the connection: Up or Dn (Down).

Table 134: show rip neighbor Output Fields (*continued*)

Field Name	Field Description
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.

Sample Output

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 neighbor user@host# show rip neighbor
(With Demand Circuits Configured)

Neighbor	State	Source Address	Destination Address	Send Mode	Receive Mode	In Met
so-0/1/0.0(DC)	Up	10.10.10.2	224.0.0.9	mcast	both	1
so-0/2/0.0(DC)	Up	13.13.13.2	224.0.0.9	mcast	both	1

show rip statistics

Syntax	show rip statistics <instance (all <i>instance-name</i>)> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show rip statistics <instance (all <i>instance-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Routing Information Protocol (RIP) statistics about messages sent and received on an interface, as well as information received from advertisements from other routing devices.
Options	<p>none—Display RIP statistics for all routing instances.</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 Documentation	<ul style="list-style-type: none"> clear rip statistics on page 573
List of Sample Output	show rip statistics on page 578
Output Fields	Table 135 on page 577 lists the output fields for the show rip statistics command. Output fields are listed in the approximate order in which they appear.

Table 135: 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.

Table 135: show rip statistics Output Fields (*continued*)

Field Name	Field Description
<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.
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.

Sample Output

```

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

RIPng Operational Mode Commands

Table 136 on page 581 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 136: RIPng Operational Mode Commands

Task	Command
Clear general statistics.	<code>clear ripng general-statistics</code>
Clear statistics.	<code>clear ripng statistics</code>
Display general statistics.	<code>show ripng general-statistics</code>
Display RIPng neighbors.	<code>show ripng neighbor</code>
Display statistics.	<code>show ripng statistics</code>



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.

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>)>
Syntax (EX Series Switch)	clear ripng general-statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Routing Information Protocol next generation (RIPng) general statistics.
Options	none—Clear RIPng general statistics. 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 Documentation	<ul style="list-style-type: none">• show ripng general-statistics on page 584
List of Sample Output	clear ripng general-statistics on page 582
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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)>
Syntax (EX Series Switch)	clear ripng statistics <instance name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Routing Information Protocol next-generation (RIPng) statistics.
Options	none—Reset RIPng counters for all neighbors for all routing instances. instance—(Optional) Reset RIPng counters for the specified instance. name—(Optional) Reset RIPng counters for the specified neighbor. logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show ripng statistics on page 587
List of Sample Output	clear ripng statistics on page 583
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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>)>
Syntax (EX Series Switch)	show ripng general-statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display general Routing Information Protocol next-generation (RIPng) statistics.
Options	none—Display general RIPng statistics. 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 Documentation	<ul style="list-style-type: none"> clear ripng general-statistics on page 582
List of Sample Output	show ripng general-statistics on page 584
Output Fields	Table 137 on page 584 lists the output fields for the show ripng general-statistics command. Output fields are listed in the approximate order in which they appear.

Table 137: 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.

Sample Output

```

show ripng general-statistics user@host> show ripng 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> >
Syntax (EX Series Switch)	show ripng neighbor < <i>name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about Routing Information Protocol next-generation (RIPng) neighbors.
Options	<p>none—Display information about all RIPng neighbors.</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
List of Sample Output	show ripng neighbor on page 586
Output Fields	Table 138 on page 585 lists the output fields for the show ripng neighbor command. Output fields are listed in the approximate order in which they appear.

Table 138: 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.

Sample Output

```
show ripng neighbor user@host> show ripng neighbor
```

Neighbor	State	Source Address	Dest Address	Send	Recv	In 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> >
Syntax (EX Series Switch)	show ripng statistics < <i>name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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 routing devices.
Options	<p>none—Display RIPng statistics for all neighbors.</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 Documentation	<ul style="list-style-type: none"> clear ripng statistics on page 583
List of Sample Output	show ripng statistics on page 588
Output Fields	Table 139 on page 587 lists the output fields for the show ripng statistics command. Output fields are listed in the approximate order in which they appear.

Table 139: 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.

Table 139: show ripng statistics Output Fields (*continued*)

Field Name	Field Description
<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.
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. 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.

Sample Output

```

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 591
- Forwarding Operational Mode Commands on page 603
- Routing Policy Operational Mode Commands on page 621

Firewall Filter Operational Mode Commands

Table 140 on page 591 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot firewall filters. Commands are listed in alphabetical order.

Table 140: Firewall Filter Operational Mode Commands


Task	Command
Clear firewall filter counters.	clear firewall
Operational statistics for firewall filters.	show firewall
Version number of installed firewall filters.	show firewall filter version
Firewall filter log information.	show firewall log
Prefix-action statistics for firewall filters.	show firewall prefix-action-stats
Counters for policers.	show policer



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 <i>counter-name</i> filter <i>filter-name</i> logical-system <i>logical-system-name</i>)
Syntax (EX Series Switch)	clear firewall (all counter <i>counter-name</i> filter <i>filter-name</i>)
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. logical-system option introduced in Junos OS Release 9.3.
Description	Clear statistics about configured firewall filters. <div> 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.</div>
Options	<p>all—Clear the packet and byte counts for all filters.</p> <p>counter <i>counter-name</i>—Clear the packet and byte counts for a filter counter that has been configured with the counter firewall filter action.</p> <p>filter <i>filter-name</i>—Clear the packet and byte counts for the specified firewall filter.</p> <p>logical-system <i>logical-system-name</i>—Clear the packet and byte counts for the specified logical system.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show firewall on page 593
List of Sample Output	clear firewall all on page 592
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
clear firewall all  user@host> clear firewall all
```

show firewall

Syntax	show firewall <filter <i>filter-name</i> > <counter <i>counter-name</i> > <log> <logical-system (all <i>logical-system-name</i>)> <terse>
Syntax (EX Series Switch)	show firewall <filter <i>filter-name</i> > <counter <i>counter-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. logical-system option introduced in Junos OS Release 9.3. terse option introduced in Junos OS Release 9.4.
Description	Display statistics about configured firewall filters.
Options	<p>none—(Optional) Display statistics about configured firewall filters.</p> <p>filter <i>filter-name</i>—(Optional) Name of a configured filter.</p> <p>counter <i>counter-name</i>—(Optional) Name of a filter counter.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular system.</p> <p>log—(Optional) Display log entries for firewall filters.</p> <p>terse—(Optional) Display firewall filter names only.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • clear firewall on page 592
List of Sample Output	<p>show firewall filter on page 595</p> <p>show firewall filter (Dynamic Input Filter) on page 595</p> <p>show firewall (Logical Systems) on page 595</p>
Output Fields	Table 141 on page 594 lists the output fields for the show firewall command. Output fields are listed in the approximate order in which they appear.

Table 141: 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.
Policers	<p>Display policer information:</p> <ul style="list-style-type: none"> • Name—Name of policer. • Bytes—(I-chip DPCs only) Number of bytes that match the filter term under which the policer action is specified. This is only the number out-of-specification (out-of-spec) byte counts, not all the bytes in all packets policed by the 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-specification (out-of-spec) packet counts, not all packets policed by the policer.

Sample Output

```

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          Bytes          Packets
Policer-1     2770           70

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
c1-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 filter version

Syntax	show firewall filter version <filter-name>
Release Information	Command introduced in Junos OS Release 10.2R2.
Description	Display the version number of the installed firewall filter in the Routing Engine.
Options	<p>none—(Optional) Display the version number of all installed firewall filters.</p> <p>filter-name—(Optional) Name of a configured filter. If you specify the name of a filter, only the version number of that filter is displayed.</p>
Additional Information	The initial version number is 1. This number increments by one when you modify the firewall filter settings or an associated prefix action. The maximum version number is 4,294,967,295. When the version number reaches 4,294,967,295, this number is reset to 1.
Required Privilege Level	view
List of Sample Output	show firewall filter version on page 596
Output Fields	Table 142 on page 596 lists the output fields for the show firewall filter version command. Output fields are listed in the approximate order in which they appear.

Table 142: show firewall filter version Output Fields

Field Name	Field Description
Filter	Name of a filter that has been configured with the filter statement at the [edit firewall] hierarchy level.
Version	Display the version number of the firewall filter.

Sample Output

```

show firewall filter version user@host> show firewall filter version
Filter version information :
Filter                                     Version
test                                     10

```

show firewall log

Syntax	show firewall log <detail> <interface <i>interface-name</i> > <logical-system (<i>logical-system-name</i> all)>
Syntax (EX Series Switch)	show firewall log <detail> <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. logical-system option introduced in Junos OS Release 9.3.
Description	Display log information about firewall filters.
Options	none—Display log information about firewall filters. 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 on page 598 show firewall log detail on page 598
Output Fields	Table 143 on page 597 lists the output fields for the show firewall log command. Output fields are listed in the approximate order in which they appear.

Table 143: show firewall log Output Fields

Field Name	Field Description
Time of Log	Time that the event occurred.
Filter	<p>Name of a filter that has been configured with the filter statement at the [edit firewall] hierarchy level.</p> <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.

Table 143: show firewall log Output Fields (*continued*)

Field Name	Field Description
Filter Action	Filter action: <ul style="list-style-type: none"> • A—Accept • D—Discard • R—Reject
Name of Interface	Ingress interface for the packet.
Name of protocol	Packet's protocol name: egp, gre, icmp, ipip, ospf, pim, rsvp, tcp, or udp .
Packet length	Length of the packet.
Source address	Packet's source address.
Destination address	Packet's destination address and port.

Sample Output

show firewall log

```

user@host>show firewall log
Time      Filter  Action Interface    Protocol  Src Addr    Dest Addr
13:10:12  pfe      D      rlsq0.902     ICMP     180.1.177.2 180.1.177.1
13:10:11  pfe      D      rlsq0.902     ICMP     180.1.177.2 180.1.177.1

```

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

```

```
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 OS Release 7.4. logical-system option introduced in Junos OS Release 9.3.
Description	Display prefix action statistics about configured firewall filters. If you clear statistics for firewall filters that are applied to Trio-based DPCs and that also use the prefix-action action on matched packets, wait at least 5 seconds before you enter the show firewall prefix-action-stats command. A 5-second pause between issuing the clear firewall and show firewall prefix-action-stats commands avoids a possible timeout of the show firewall prefix-action-stats command.
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 Documentation	<ul style="list-style-type: none"> clear firewall on page 592
List of Sample Output	show firewall prefix-action-stats on page 600
Output Fields	Table 144 on page 600 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 144: 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).

Sample Output

```

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 < <i>policer-name</i> >
Release Information	Command introduced before Junos OS 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. <i>policer-name</i> —(Optional) Display the number of policed packets for the specified policer.
Required Privilege Level	view
List of Sample Output	show policer on page 601 show policer (Aggregate Policar) on page 601
Output Fields	Table 145 on page 601 lists the output fields for the show policer command. Output fields are listed in the approximate order in which they appear.

Table 145: show policer Output Fields

Field Name	Field Description
Name	Name of the policer.
Bytes	(For policers applied to logical interfaces on I-chip DPCs only) Total number of bytes policed by the specified policer.
Packets	Total number of packets policed by the specified policer.

Sample Output

show policer	user@host> show policer		
	Policers:		
	Name	Bytes	Packets
	__default_arp_policer__	314520	5242
	pol-2M-ge-1/2/0.1-inet-i	10372300	103723
	pol-2M-ge-1/2/0.1-inet6-i	7727800	77278
	pol-2M-ge-1/2/0.1-mps-i	7070336	67984
	pol-2M-ge-1/2/0.1001-vpls-i	65153700	651537
	pol-2M-ge-1/2/0.2001-vpls-i	65180900	651809
	pol-2M-ge-1/2/0.3001-ccc-i	62202144	647939
show policer (Aggregate Policar)	user@host> show policer		
	Policers:		
	Name	Packets	
	__default_arp_policer__	0	
	P1-ae0.0-log_int-o	0	
	P2-ge-7/0/2.0-inet-o	0	
	P2-ge-7/0/2.0-inet6-o	0	

__policer_tmpl__-term	0
__policer_tmpl__-fc0	0
__policer_tmpl__-fc0	0
__policer_tmpl__-fc1	0
__policer_tmpl__-fc0	0
__policer_tmpl__-fc1	0
__policer_tmpl__-fc2	0
__policer_tmpl__-fc0	0
__policer_tmpl__-fc1	0
__policer_tmpl__-fc2	0
__policer_tmpl__-fc3	0

Forwarding Operational Mode Commands

Table 146 on page 603 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot forwarding options. Commands are listed in alphabetical order.

Table 146: 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
Clear all DHCP relay statistics.	clear dhcp relay statistics
Clear statistic counters in the User Datagram Protocol (UDP) forwarding process.	clear helper statistics
Display the address bindings in the DHCP client table.	show dhcp relay binding
Display DHCP relay statistics.	show dhcp relay statistics
Display statistics collected by the UDP forwarding process.	show helper statistics

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 OS Release 8.3. all and interface options added in Junos OS 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 605 clear dhcp relay binding all on page 606 clear dhcp relay binding interface on page 606
Output Fields	Table 147 on page 604 lists the output fields for the clear dhcp relay binding command.

Table 147: clear 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
IP address	IP address of the DHCP client.	All levels
Hardware address	Hardware address of the DHCP client.	All levels

Table 147: clear dhcp relay binding Output Fields (*continued*)

Field Name	Field Description	Level of Output
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 ip-address or mac-address 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 ip-address or mac-address value

Sample Output

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.

```

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

clear dhcp relay binding all
user@host> clear dhcp relay binding all

clear dhcp relay binding interface
user@host> clear dhcp relay binding interface fe-0/0/2

clear dhcp relay statistics

Syntax	clear dhcp relay statistics <code><logical-system <i>logical-system-name</i>></code> <code><routing-instance <i>routing-instance-name</i>></code>
Release Information	Command introduced in Junos OS Release 8.3.
Description	Clear all Dynamic Host Configuration Protocol (DHCP) relay statistics.
Options	<p><code>logical-system <i>logical-system-name</i></code>—(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><code>routing-instance <i>routing-instance-name</i></code>—(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 608
Output Fields	Table 148 on page 607 lists the output fields for the clear dhcp relay statistics command.

Table 148: clear 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.

Table 148: clear dhcp relay statistics Output Fields (*continued*)

Field Name	Field Description
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

Sample Output

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 OS 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 Documentation	<ul style="list-style-type: none">• show helper statistics on page 619
List of Sample Output	clear helper statistics on page 610
Output Fields	See show helper statistics for an explanation of output fields.

Sample Output

clear helper statistics The following sample output displays statistics counters before and after the **clear helper statistics** command is issued:

```
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	<code>show dhcp relay binding</code> <code><brief></code> <code><detail></code> <code><interface <i>interface-name</i>></code> <code><<i>ip-address</i> <i>mac-address</i>></code> <code><logical-system <i>logical-system-name</i>></code> <code><routing-instance <i>routing-instance-name</i>></code> <code><summary></code>
Release Information	Command introduced in Junos OS Release 8.3. <code>interface</code> and <code>mac-address</code> options added in Junos OS Release 8.4.
Description	Display the address bindings in the Dynamic Host Configuration Protocol (DHCP) client table.
Options	<code>brief</code> —(Optional) Display brief information about the active client bindings. This is the default, and produces the same output as <code>show dhcp relay binding</code> . <code>detail</code> —(Optional) Display detailed client binding information. <code>interface <i>interface-name</i></code> —(Optional) Perform this operation on the specified interface. You can optionally filter on VLAN ID and SVLAN ID. <code><i>ip-address</i></code> —(Optional) IP address of the DHCP client. <code><i>mac-address</i></code> —(Optional) MAC address of the DHCP client. <code>logical-system <i>logical-system-name</i></code> —(Optional) Perform this operation on the specified logical system. <code>routing-instance <i>routing-instance-name</i></code> —(Optional) Perform this operation on the specified routing instance. <code>summary</code> —(Optional) Display a summary of DHCP client information.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• clear dhcp relay binding on page 604
List of Sample Output	show dhcp relay binding on page 614 show dhcp relay binding detail on page 614 show dhcp relay binding interface on page 615 show dhcp relay binding interface vlan-id on page 615 show dhcp relay binding interface svlan-id on page 615 show dhcp relay binding ip-address on page 615 show dhcp relay binding mac-address on page 615 show dhcp relay binding session-id on page 615 show dhcp relay binding summary on page 615

Output Fields Table 149 on page 613 lists the output fields for the **show dhcp relay binding** command. Output fields are listed in the approximate order in which they appear.

Table 149: show dhcp relay binding Output Fields

Field Name	Field Description	Level of Output
<i>number clients,</i> (<i>number init,</i> <i>number bound,</i> <i>number selecting,</i> <i>number requesting,</i> <i>number renewing,</i> <i>number rebinding,</i> <i>number releasing</i>)	Summary counts of the total number of DHCP clients and the number of DHCP clients in each state.	summary
IP address	IP address of the DHCP client.	brief detail
Session Id	Session ID of the subscriber session.	brief detail
Hardware address	Hardware address of the DHCP client.	brief detail
Expires	Number of seconds in which the lease expires.	brief detail
State	State of the DHCP relay address binding table on the DHCP client: <ul style="list-style-type: none"> • BOUND—Client has an active IP address lease. • INIT—Initial state. • REBINDING—Client is broadcasting a request to renew the IP address lease. • RELEASE—Client is releasing the IP address lease. • RENEWING—Client is sending a request to renew the IP address lease. • REQUESTING—Client is requesting a DHCP server. • SELECTING—Client is receiving offers from DHCP servers. 	brief detail
Interface	Incoming client interface.	brief
Lease Expires	Date and time at which the client's IP address lease expires.	detail
Lease Expires in	Number of seconds in which the lease expires.	detail
Lease Start	Date and time at which the client's IP address lease started.	detail
Incoming Client Interface	Client's incoming interface.	detail
Server IP Address	IP address of the DHCP server.	detail

Table 149: show dhcp relay binding Output Fields (*continued*)

Field Name	Field Description	Level of Output
Server Interface	Interface of the DHCP server.	detail
Bootp Relay Address	IP address of BOOTP relay.	detail
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

Sample Output

```

show dhcp relay binding user@host> show dhcp relay binding
IP address      Session Id  Hardware address  Expires  State  Interface
100.20.32.11    41         00:10:94:00:00:01 86371    BOUND  ge-1/0/0.0
100.20.32.12    42         00:10:94:00:00:02 86371    BOUND  ge-1/0/0.0
100.20.32.13    43         00:10:94:00:00:03 86371    BOUND  ge-1/0/0.0
100.20.32.14    44         00:10:94:00:00:04 86371    BOUND  ge-1/0/0.0
100.20.32.15    45         00:10:94:00:00:05 86371    BOUND  ge-1/0/0.0

show dhcp relay binding detail user@host> show dhcp relay binding detail
Client IP Address: 100.20.32.11
  Hardware Address: 00:10:94:00:00:01
  State: BOUND(DHCP_RELAY_STATE_BOUND_ON_INTF_DELETE)
  Lease Expires: 2009-07-21 11:00:06 PDT
  Lease Expires in: 86361 seconds
  Lease Start: 2009-07-20 11:00:06 PDT
  Incoming Client Interface: ge-1/0/0.0
  Server Ip Address: 100.20.22.2
  Server Interface: none
  Bootp Relay Address: 100.20.32.2
  Session Id: 41
Client IP Address: 100.20.32.12
  Hardware Address: 00:10:94:00:00:02
  State: BOUND(DHCP_RELAY_STATE_BOUND_ON_INTF_DELETE)
  Lease Expires: 2009-07-21 11:00:06 PDT
  Lease Expires in: 86361 seconds
  Lease Start: 2009-07-20 11:00:06 PDT
  Incoming Client Interface: ge-1/0/0.0
  Server Ip Address: 100.20.22.2
  Server Interface: none
  Bootp Relay Address: 100.20.32.2
  Session Id: 42

```

```

show dhcp relay binding interface user@host> show dhcp relay binding interface fe-0/0/2
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 interface user@host> show dhcp relay binding interface ge-1/1/0:100
vlan-id         IP address      Session Id  Hardware address  Expires    State    Interface
ge-1/1/0:100    200.20.20.15    6           00:10:94:00:00:01 86124      BOUND
show dhcp relay binding interface user@host> show dhcp relay binding interface ge-1/1/0:10-100
svlan-id        IP address      Session Id  Hardware address  Expires    State    Interface
ge-1/1/0:10-100 200.20.20.16    7           00:10:94:00:00:02 86124      BOUND

show dhcp relay binding ip-address user@host> show dhcp relay binding 100.20.32.13
IP address      Session Id  Hardware address  Expires    State    Interface
100.20.32.13    43          00:10:94:00:00:03 86293      BOUND    ge-1/0/0.0

show dhcp relay binding mac-address user@host> show dhcp relay binding 00:10:94:00:00:05
IP address      Session Id  Hardware address  Expires    State    Interface
100.20.32.15    45          00:10:94:00:00:05 86279      BOUND    ge-1/0/0.0

show dhcp relay binding session-id user@host> show dhcp relay binding 41
IP address      Session Id  Hardware address  Expires    State    Interface
100.20.32.11    41          00:10:94:00:00:01 86305      BOUND    ge-1/0/0.0

show dhcp relay binding summary user@host> show dhcp relay binding summary
3 clients, (2 init, 1 bound, 0 selecting, 0 requesting, 0 renewing, 0 rebinding,
0 releasing)

```

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 OS 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 Documentation	<ul style="list-style-type: none">• clear dhcp relay statistics on page 607
List of Sample Output	show dhcp relay statistics on page 617
Output Fields	Table 150 on page 617 lists the output fields for the show dhcp relay statistics command. Output fields are listed in the approximate order in which they appear.

Table 150: 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

Sample Output

```

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 OS Release 7.4.
Description	Show statistics collected by the UDP forwarding process.
Options	This command has no options.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • clear helper statistics on page 610
List of Sample Output	show helper statistics on page 620
Output Fields	Table 151 on page 619 lists the output fields for the show helper statistics command. Output fields are listed in the approximate order in which they appear.

Table 151: 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 151: 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.

Sample Output

```

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

```

Routing Policy Operational Mode Commands

Table 152 on page 621 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot routing policy filters. Commands are listed in alphabetical order.

Table 152: Routing Policy Operational Mode Commands

Task	Command
Display configured routing policies.	show policy
Display configured policy conditions and associated routes.	show policy conditions
Test import and export policies.	test policy



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> >
Syntax (EX Series Switch)	show policy < <i>policy-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
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 Documentation	<ul style="list-style-type: none"> show policy damping on page 64
List of Sample Output	<p>show policy on page 622</p> <p>show policy <i>policy-name</i> on page 623</p> <p>show policy (Multicast Scoping) on page 623</p>
Output Fields	Table 153 on page 622 lists the output fields for the show policy command. Output fields are listed in the approximate order in which they appear.

Table 153: show policy Output Fields

Field Name	Field Description
<i>policy-name</i>	Name of the policy listed.
<i>term</i>	Policy term listed.
<i>from</i>	Match condition for the policy.
<i>then</i>	Action for the policy.

Sample Output

```

show policy user@host> show policy
Configured policies:
__vrf-export-red-internal__
__vrf-import-red-internal__

```

```
red-export
all_routes

show policy user@host> show policy test-statics
policy-name 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	<pre>show policy conditions <condition-name> <detail> <dynamic> <logical-system (all logical-system-name)></pre>
Syntax (EX Series Switch)	<pre>show policy conditions <condition-name> <detail> <dynamic></pre>
Release Information	<p>Command introduced in Junos OS Release 9.0.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p>
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><i>condition-name</i>—(Optional) Display information about the specified condition only.</p> <p>detail—(Optional) Display the specified level of output.</p> <p>dynamic—(Optional) Display information about the conditions in the dynamic database.</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 policy conditions detail on page 625
Output Fields	Table 154 on page 624 lists the output fields for the show policy conditions command. Output fields are listed in the approximate order in which they appear.

Table 154: 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

Table 154: show policy conditions Output Fields (*continued*)

Field Name	Field Description	Level of Output
If-route-exists conditions	List of conditions configured to look for a route in the specified table.	All levels

Sample Output

```
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 OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Test a policy configuration to determine which prefixes match routes in the routing table.
Options	<i>policy-name</i> —Name of a policy. <i>prefix</i> —Destination prefix to match.
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 (EBGP) multihop peers.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show policy damping on page 64
List of Sample Output	test policy on page 626
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

Sample Output

```

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 631
- MPLS Operational Mode Commands on page 659
- RSVP Operational Mode Commands on page 711

LDP Operational Mode Commands

Table 155 on page 631 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 155: LDP Operational Mode Commands

Task	Command
Clear LDP neighbors.	<code>clear ldp neighbor</code>
Clear LDP sessions.	<code>clear ldp session</code>
Clear LDP statistics.	<code>clear ldp statistics</code>
Display entries in the LDP database.	<code>show ldp database</code>
Display forwarding equivalence class filters.	<code>show ldp fec-filters</code>
Display the status of interfaces on which LDP is running.	<code>show ldp interface</code>
Display LDP neighbors.	<code>show ldp neighbor</code>
Display the configured named paths that are used by LDP.	<code>show ldp path</code>
Display LDP routing table entries.	<code>show ldp route</code>
Display currently active LDP sessions.	<code>show ldp session</code>
Display LDP statistics.	<code>show ldp statistics</code>
Display LDP traffic statistics.	<code>show ldp traffic-statistics</code>



.....

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.

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>)> < <i>neighbor</i> >
Description	Tear down Label Distribution Protocol (LDP) neighbor connections.
Options	<p>none—Tear down connections with all LDP neighbors for all routing instances.</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 Documentation	<ul style="list-style-type: none"> • show ldp neighbor on page 643
List of Sample Output	clear ldp neighbor on page 633
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
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 OS Release 7.4.
Description	Clear Label Distribution Protocol (LDP) sessions.
Options	none—Clear LDP sessions for all destinations for all routing instances. <i>destination</i> —(Optional) Clear an LDP session for the specified destination (IP address). instance <i>instance-name</i> —(Optional) Clear the LDP session for the specified routing instance 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 Documentation	<ul style="list-style-type: none">• show ldp session on page 649
List of Sample Output	clear ldp session on page 634
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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 OS 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.</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 Documentation	<ul style="list-style-type: none"> • show ldp statistics on page 654 • show ldp traffic-statistics on page 657
List of Sample Output	clear ldp statistics on page 635
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
clear ldp statistics  user@host> clear ldp statistics
```

show ldp database

Syntax	<pre>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>></pre>
Release Information	Command introduced before Junos OS 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.</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 638</p> <p>show ldp database l2circuit detail on page 638</p> <p>show ldp database session on page 638</p>
Output Fields	Table 156 on page 636 describes the output fields for the show ldp database command. Output fields are listed in the approximate order in which they appear.

Table 156: 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 156: 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 L2CKT control word status encapsulation-type vc-number, for example, L2CKT CtlfWord FRAME RELAY VC 2</p> <ul style="list-style-type: none"> • control-word-status—Displays whether the use of the control word has been negotiated for this virtual circuit: <ul style="list-style-type: none"> • NoCtrlWord • CtrlWord • encapsulation-type—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
TDM payload size	Size of the Time Division Multiplex (TDM) payload.	All levels
TDM bitrate	Bit rate for the TDM traffic.	All levels
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

Table 156: show ldp database Output Fields (*continued*)

Field Name	Field Description	Level of Output
Age	Time elapsed since the binding was created.	detail

Sample Output

```

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 OS Release 7.4.
Description	Display information about configured Label Distribution Protocol (LDP) forwarding equivalence class (FEC) filters.
Options	<p>fec—(Optional) Display FEC filter information for the specified FEC.</p> <p>instance <i>instance-name</i>—(Optional) Display FEC filter information 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>
Required Privilege Level	view
List of Sample Output	show ldp fec-filters on page 640
Output Fields	Table 157 on page 640 lists the output fields for the show ldp fec-filters command. Output fields are listed in the approximate order in which they appear.

Table 157: 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.

Sample Output

```

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 OS 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.</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 642
Output Fields	Table 158 on page 641 describes the output fields for the show ldp interface command. Output fields are listed in the approximate order in which they appear.

Table 158: 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

Table 158: show ldp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Local hello interval	Locally configured hello interval.	extensive

Sample Output

```
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 <brief detail extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <neighbor-address>
Release Information	Command introduced before Junos OS Release 7.4. neighbor-address option added in Junos OS Release 8.5.
Description	Display Label Distribution Protocol (LDP) neighbor information.
Options	<p>none—Display standard information about LDP neighbors for all routing instances.</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> <p><i>neighbor-address</i>—(Optional) Display information about the specified LDP neighbor.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear ldp neighbor on page 633
List of Sample Output	show ldp neighbor extensive on page 644
Output Fields	Table 159 on page 643 describes the output fields for the show ldp neighbor command. Output fields are listed in the approximate order in which they appear.

Table 159: 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 159: 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

Sample Output

```

show ldp neighbor extensive user@host> show ldp neighbor 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 <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display Label Distribution Protocol (LDP) label-switched paths (LSPs).
Options	<p>none—Display standard information about all LDP LSPs for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p><i>destination</i>—(Optional) Restrict the output to entries that match the specified destination prefix.</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
List of Sample Output	show ldp path extensive on page 646
Output Fields	Table 160 on page 645 describes the output fields for the show ldp path command. Output fields are listed in the approximate order in which they appear.

Table 160: 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.
route	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 160: show ldp path Output Fields (*continued*)

Field Name	Field Description
Global label	MPLS label that is used globally.

Sample Output

```
show ldp path extensive user@host> show ldp path extensive
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 OS 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.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p><i>destination</i>—(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 648
Output Fields	Table 161 on page 647 describes the output fields for the show ldp route command. Output fields are listed in the approximate order in which they appear.

Table 161: show ldp route Output Fields

Field Name	Field Description
Destination	Destination prefix.
Next-hop intf	Interface that is the next hop to the destination prefix.
Next-hop address	IP address of the next hop.
Bound to outgoing label	The route has been bound to LSPs with the label being distributed for that LSP.

Sample Output

```
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 OS 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.</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 Documentation	<ul style="list-style-type: none"> clear ldp session on page 634
List of Sample Output	<p>show ldp session brief on page 652</p> <p>show ldp session detail on page 652</p> <p>show ldp session extensive on page 652</p>
Output Fields	Table 162 on page 649 describes the output fields for the show ldp session command. Output fields are listed in the approximate order in which they appear.

Table 162: 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

Table 162: show ldp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
Next keepalive	Time until next keepalive is sent, in seconds.	detail extensive
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 keepalive-timeout statement configured at the [edit protocols ldp] 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

Table 162: show ldp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
Restarting	LDP is in the process of gracefully restarting.	detail extensive
Capabilities advertised	LDP capabilities advertised to a peer.	detail extensive
Capabilities received	LDP capabilities received from a peer.	detail extensive
Protection	Information about the status of MPLS LDP session protection.	detail extensive
restart complete in nnn msec	Amount of time (in milliseconds) remaining until graceful restart is declared complete.	detail extensive
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 draft-ietf-mpls-ldp-restart-06, <i>Internet Draft Graceful Restart Mechanism for LDP</i>.) 	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

Table 162: show ldp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
Message type	Type of message being sent.	extensive
	<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. 	

Sample Output

```

show ldp session brief user@host> show ldp session brief
                        Address      State      Connection  Hold time
10.255.72.160          Operational  Open       21
10.255.72.164          Operational  Open       20
10.255.72.172          Operational  Open       21

show ldp session detail user@host> show ldp session detail
Address: 10.255.72.160, State: Operational, Connection: Open, Hold time: 22
Session ID: 10.255.72.162:0--10.255.72.160:0
Next keepalive in 2 seconds
Active, Maximum PDU: 4096, Hold time: 30, Neighbor count: 1
Neighbor types: discovered
Keepalive interval: 10, Connect retry interval: 1
Local address: 10.255.72.162, Remote address: 10.255.72.160
Up for 21:35:59
Last down 21:36:01 ago; Reason: received notification from peer
Number of session flaps: 7
Capabilities advertised: p2mp
Capabilities received: p2mp
Protection: disabled
Local - Restart: disabled, Helper mode: enabled
Remote - Restart: disabled, Helper mode: enabled
Local maximum neighbor reconnect time: 120000 msec
Local maximum neighbor recovery time: 240000 msec
Nonstop routing state: Not in sync
Next-hop addresses received:
    192.168.8.51
    192.168.8.97

show ldp session extensive user@host> show ldp session extensive
extensive Address: 10.255.72.160, State: Operational, Connection: Open, Hold time: 20
Session ID: 10.255.72.162:0--10.255.72.160:0
Next keepalive in 0 seconds
Active, Maximum PDU: 4096, Hold time: 30, Neighbor count: 1
Neighbor types: discovered
Keepalive interval: 10, Connect retry interval: 1
Local address: 10.255.72.162, Remote address: 10.255.72.160
Up for 21:54:21
Last down 21:54:23 ago; Reason: received notification from peer
Number of session flaps: 7
Capabilities advertised: p2mp
Capabilities received: p2mp
Protection: disabled
Local - Restart: disabled, Helper mode: enabled
Remote - Restart: disabled, Helper mode: enabled
Local maximum neighbor reconnect time: 120000 msec
Local maximum neighbor recovery time: 240000 msec
Nonstop routing state: Not in sync

```

Next-hop addresses received:

192.168.8.51

192.168.8.97

Queue depth: 0

Message type	Total		Last 5 seconds	
	Sent	Received	Sent	Received
Initialization	18	8	0	0
Keepalive	7890	7893	0	0
Notification	0	10	0	0
Address	8	8	0	0
Address withdraw	0	0	0	0
Label mapping	68	57	0	0
Label request	0	0	0	0
Label withdraw	16	8	0	0
Label release	8	13	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 OS Release 7.4.
Description	Display Label Distribution Protocol (LDP) statistics.
Options	<p>none—Display LDP statistics for all routing instances.</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 Documentation	<ul style="list-style-type: none"> clear ldp statistics on page 635
List of Sample Output	show ldp statistics on page 655
Output Fields	Table 163 on page 654 lists the output fields for the show ldp statistics command. Output fields are listed in the approximate order in which they appear.

Table 163: 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 163: 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.

Sample Output

```

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>)> <p2mp>
Release Information	Command introduced before Junos OS Release 7.4. p2mp option added in Junos OS Release 11.2.
Description	Display Label Distribution Protocol (LDP) traffic statistics.
Options	<p>none—Display LDP traffic statistics for all routing instances.</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> <p>p2mp—(Optional) Display the data traffic statistics for a point-to-multipoint LSP.</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 Documentation	<ul style="list-style-type: none"> clear ldp statistics on page 635
List of Sample Output	<p>show ldp traffic-statistics on page 658</p> <p>show ldp traffic-statistics p2mp on page 658</p>
Output Fields	Table 164 on page 657 lists the output fields for the show ldp traffic-statistics command. Output fields are listed in the approximate order in which they appear.

Table 164: 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.

Table 164: show ldp traffic-statistics Output Fields (*continued*)

Field Name	Field Description
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.

Sample Output

```

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

show ldp traffic-statistics p2mp user@host> show ldp traffic-statistics p2mp
FEC(root_addr:lsp_id) Nexthop      Packets      Bytes      Shared
10.255.72.160:16777217 192.168.8.81  152056      14597376   No
                                   192.168.8.1  152056      14597376   No
                                   192.168.8.65 152056      14597376   No

```


MPLS Operational Mode Commands

Table 165 on page 659 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 165: MPLS Operational Mode Commands

Task	Command
Disconnect and restart dynamic LSPs that originate from this router.	clear mpls lsp
Manually trigger a bandwidth allocation adjustment for active LSP paths.	request mpls lsp adjust-autobandwidth
Display information about configured cross-connects.	show connections
Display peer and traffic engineering link information.	show link-management
Display peer link information.	show link-management peer
Display peer and traffic engineering link information (routing process).	show link-management routing
Display link management statistics.	show link-management statistics
Display traffic engineering link information.	show link-management te-link
Display MPLS administrative groups.	show mpls admin-groups
Display MPLS LSP call admission control (CAC) related information.	show mpls call-admission-control
Display CSPF statistics.	show mpls cspf
Display DiffServ traffic engineering classes.	show mpls diffserv-te
Display the status of interfaces on which MPLS is running.	show mpls interface

Table 165: MPLS Operational Mode Commands (*continued*)

Task	Command
Display configured LSPs on this router, as well as all ingress, transit, and egress LSPs.	show mpls lsp
Display configured named paths that are used in dynamic MPLS.	show mpls path
Display configured static LSPs on this router, as well as all ingress, transit, and egress static LSPs.	show mpls static-lsp
Display entries in the traffic engineering database.	show ted database
Display current traffic engineering database links.	show ted link
Display protocols contributing to the traffic engineering database.	show ted protocol



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.

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 <i>logical-system-name</i>)> <name <i>name</i> > <optimize optimize-aggressive> <path <i>regular-expression</i> > <statistics>
Syntax (EX Series Switch)	clear mpls lsp <autobandwidth> <name <i>name</i> > <optimize optimize-aggressive> <path <i>regular-expression</i> > <statistics>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Release the routes and states associated with MPLS label-switched paths (LSPs), and start new LSPs.



CAUTION: This command disconnects existing Resource Reservation Protocol (RSVP) sessions on the ingress routing device. 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	<p>none—Reset and restart all LSPs that originated from this routing device; that is, all LSPs for which this routing device is the ingress routing device. Depending on the number of LSPs involved, it might take a while to restart all the LSPs.</p> <p>autobandwidth—(Optional) Clear LSP autobandwidth counters.</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>name <i>name</i>—(Optional) Reset and restart the specified LSP or group of LSPs. You can include wildcard characters in the interface name, as described in the <i>Junos Network Interfaces Configuration Guide</i>.</p> <p>optimize optimize-aggressive—(Optional) Run nonpreemptive optimization or aggressive optimization computation now.</p> <p>path <i>regular-expression</i>—(Optional) Clear the specific LSP path matching the specified regular expression.</p> <p>statistics—(Optional) Clear LSP statistics.</p>
----------------	---

Required Privilege Level clear

Related Documentation

- [show mpls lsp on page 688](#)
- [show rsvp session on page 725](#)

List of Sample Output clear mpls lsp on page 662

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

Sample Output

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>)> <name <i>lsp-name</i> >
Syntax (EX Series Switch)	request mpls lsp adjust-autobandwidth <name <i>lsp-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
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.</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>name <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 663
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
request mpls lsp user@host> request mpls lsp adjust-auto-bandwidth
adjust-auto-bandwidth
```

show connections

Syntax	<pre>show connections <brief extensive> <all interface-switch lsp-switch p2mp-receive-switch p2mp-transmit-switch remote-interface-switch> <down up up-down> <history> <labels> <logical-system (all <i>logical-system-name</i>)> <name> <status></pre>
Syntax (EX Series Switch)	<pre>show connections <brief extensive> <all interface-switch lsp-switch p2mp-receive-switch p2mp-transmit-switch remote-interface-switch> <down up up-down> <history> <labels> <name> <status></pre>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about the configured circuit cross-connect (CCC) connections.
Options	<p>none—Display the standard level of output for all configured CCC connections.</p> <p>all—(Optional) Display all connections.</p> <p>brief extensive—(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.</p> <p>interface-switch—(Optional) Display interface switch connections only.</p> <p>lsp-switch—(Optional) Display LSP switch connections only.</p> <p>p2mp-receive-switch—(Optional) Display point-to-multipoint LSP to local interfaces switch connections only.</p> <p>p2mp-transmit-switch—(Optional) Display local interface to point-to-multipoint LSP switch connections only.</p> <p>remote-interface-switch—(Optional) Display remote interface switch connections only.</p> <p>down up up-down—(Optional) Display nonoperational, operational, or both kinds of connections.</p> <p>history—(Optional) Display information about connection history.</p>

labels—(Optional) Display labels used for transmit and receive.

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.

status—(Optional) Display information about the connection and interface status.

Required Privilege Level view

Output Fields Table 166 on page 665 describes the output fields for the **show connections** command. Output fields are listed in the approximate order in which they appear.

Table 166: 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.

Sample Output

```

show connections user@switch> show connections
CCC and TCC connections [Link Monitoring On]
  Legend for status (St)
  UN -- uninitialized
  NP -- not present
  WE -- wrong encapsulation
  DS -- disabled
  Dn -- down
  -> -- only outbound conn is up
  <- -- only inbound conn is up
  Up -- operational
  RmtDn -- remote CCC down
  Restart -- restarting

  Legend for connection types
  if-sw: interface switching
  rmt-if: remote interface switching
  lsp-sw: LSP switching

  Legend for circuit types
  intf -- interface
  tlsp -- transmit LSP
  rlsp -- receive LSP

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 OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Multiprotocol Label Switching (MPLS) peer and traffic engineering link information.
Options	This command has no options.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show link-management peer on page 671 • show link-management routing on page 673 • show link-management statistics on page 676 • show link-management te-link on page 678
List of Sample Output	show link-management on page 670
Output Fields	Table 167 on page 667 describes the output fields for the show link-management command. Output fields are listed in the approximate order in which they appear.

Table 167: 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.

Table 167: show link-management Output Fields (*continued*)

Field Name	Field Description
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.
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 .

Table 167: show link-management Output Fields (*continued*)

Field Name	Field Description
LSP-name	LSP name.

Sample Output

```
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 OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
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 Documentation	<ul style="list-style-type: none"> • show link-management on page 667 • show link-management routing on page 673 • show link-management statistics on page 676 • show link-management te-link on page 678
List of Sample Output	show link-management peer on page 672
Output Fields	Table 168 on page 671 describes the output fields for the show link-management peer command. Output fields are listed in the approximate order in which they appear.

Table 168: 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 routing device 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 routing device 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.

Table 168: show link-management peer Output Fields (*continued*)

Field Name	Field Description
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.

Sample Output

```

show user@host> show link-management peer
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> >> <resource <name <i>name</i> >>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Multiprotocol Label Switching (MPLS) peer or traffic engineering link information from the routing process.
Options	none—Display all peer and traffic-engineered link information. peer <name <i>name</i> >—(Optional) Display information for all peers or for the specified peer only. resource <name <i>name</i> >—(Optional) Display information for all resources or for the specified resource only. te-link <name <i>name</i> >—(Optional) Display information for all traffic-engineered forwarding paths or for the specified path only.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show link-management on page 667 • show link-management peer on page 671 • show link-management statistics on page 676 • show link-management te-link on page 678
List of Sample Output	show link-management routing on page 675
Output Fields	Table 169 on page 673 describes the output fields for the show link-management routing command. Output fields are listed in the approximate order in which they appear.

Table 169: 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.

Table 169: show link-management routing Output Fields (*continued*)

Field Name	Field Description
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.
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.

Sample Output

```

show link-management routing user@host> show link-management routing
link-management Peer name: __rpd:fe-0/1/0.0, System identifier: 2147483649
routing 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

Peer name: __rpd:so-0/2/1.0, System identifier: 2147483652
State: Down, Control address: (null)
Control-channel State
so-0/2/1.0

...

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 OS Release 8.0. Command introduced in Junos OS Release 9.5 for EX Series switches.
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 Documentation	<ul style="list-style-type: none"> • show link-management on page 667 • show link-management peer on page 671 • show link-management routing on page 673 • show link-management te-link on page 678
List of Sample Output	show link-management statistics on page 677
Output Fields	Table 170 on page 676 describes the output fields for the show link-management statistics command. Output fields are listed in the approximate order in which they appear.

Table 170: 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.

Table 170: show link-management statistics Output Fields (*continued*)

Field Name	Field Description
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.
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.

Sample Output

```

show link-management statistics user@host> show link-management statistics peer pro4-a
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 acknowledgments: 0
    Stale negative acknowledgments: 0
  Sent packets
    Config: 2
    ConfigAck: 1
    Hello: 2572
  Retransmitted packets
    Config: 1

```

show link-management te-link

Syntax	show link-management te-link <brief detail> <name <i>name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
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. brief detail—(Optional) Display the specified level of output. name <i>name</i> —(Optional) Display information for the specified traffic-engineered link only.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show link-management on page 667 • show link-management peer on page 671 • show link-management routing on page 673 • show link-management statistics on page 676
List of Sample Output	show link-management te-link on page 679
Output Fields	Table 171 on page 678 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 171: 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 .

Table 171: show link-management te-link Output Fields (*continued*)

Field Name	Field Description
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.
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.

Sample Output

```

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  e2elsp-bf

```

show mpls admin-groups

Syntax	show mpls admin-groups <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show mpls admin-groups
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about configured Multiprotocol Label Switching (MPLS) administrative groups.
Options	none—Display information about the configured MPLS administrative groups. 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 admin-groups on page 680
Output Fields	Table 172 on page 680 describes the output fields for the show mpls admin-groups command. Output fields are listed in the approximate order in which they appear.

Table 172: show mpls admin-groups Output Fields

Field Name	Field Description
Group	Name of the administrative group.
Bit index	Value assigned to the administrative group.

Sample Output

```

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>)> < <i>lsp-name</i> >
Syntax (EX Series Switch)	show mpls call-admission-control < <i>lsp-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Multiprotocol Label Switching (MPLS) label-switched path (LSP) call admission control (CAC) information.
Options	<p>none—Display CAC information for all LSPs.</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 682
Output Fields	Table 173 on page 681 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 173: 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 pathname.
Neighbor address	Neighbor address from which CAC and bandwidth booking are configured for Layer 2 circuits.
Circuit	Interface name and circuit information.

Table 173: show mpls call-admission-control Output Fields (*continued*)

Field Name	Field Description
Primary	LSP's primary standby path.
Standby	LSP's secondary standby path.
VC bandwidth	Bandwidth constraints associated with a Layer 2 circuit route.

Sample Output

```

user@host# show mpls call-admission-control
show mpls 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>)>
Syntax (EX Series Switch)	show mpls cspf
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Multiprotocol Label Switching (MPLS) Constrained Shortest Path First (CSPF) statistics.
Options	none—Display MPLS CSFP statistics. 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 684
Output Fields	Table 174 on page 683 describes the output fields for the show mpls cspf command. Output fields are listed in the approximate order in which they appear.

Table 174: 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.

Table 174: show mpls cspf Output Fields (*continued*)

Field Name	Field Description
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.
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.

Sample Output

```

show mpls cspf user@host> show mpls cspf
CSPF statistics
Queue length  current      maximum      dequeued
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>)>
Syntax (EX Series Switch)	show mpls diffserve-te
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
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. 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 685
Output Fields	Table 175 on page 685 describes the output fields for the show mpls diffserv-te command. Output fields are listed in the approximate order in which they appear.

Table 175: 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.

Sample Output

```

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>)>
Syntax (EX Series Switch)	show mpls interface
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about Multiprotocol Label Switching (MPLS)-enabled interfaces.
Options	none—Display information about MPLS-enabled interfaces. 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 687
Output Fields	Table 176 on page 687 describes the output fields for the show mpls interface command. Output fields are listed in the approximate order in which they appear.

Table 176: 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.

Sample Output

```

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	<pre>show mpls lsp <brief detail extensive terse> <bidirectional unidirectional> <bypass> <defaults> <descriptions> <down up> <logical-system (all <i>logical-system-name</i>)> <lsp-type> <name <i>name</i>> <p2mp> <statistics> <transit></pre>
Syntax (EX Series Switch)	<pre>show mpls lsp <brief detail extensive terse> <bidirectional unidirectional> <bypass> <descriptions> <down up> <lsp-type> <name <i>name</i>> <p2mp> <statistics> <transit></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>defaults option added in Junos OS Release 8.5.</p> <p>Command introduced in Junos OS Release 9.5 for EX Series switches.</p>
Description	Display information about configured and active dynamic Multiprotocol Label Switching (MPLS) label-switched paths (LSPs).
Options	<p>none—Display standard information about all configured and active dynamic MPLS LSPs.</p> <p>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.</p> <p>bidirectional unidirectional—(Optional) Display bidirectional or unidirectional LSP information, respectively.</p> <p>bypass—(Optional) Display LSPs used for protecting other LSPs.</p> <p>defaults—(Optional) Display the MPLS LSP default settings.</p> <p>descriptions—(Optional) 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</p>

command is only valid for the ingress routing device, 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 routing device.
- **ingress**—Sessions that originate from this routing device.
- **transit**—Sessions that pass through this routing device.

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 routing device, because the penultimate routing device in the LSP sets the label to 0. Also, as the packet arrives at the egress routing device, 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 routing device.

Required Privilege Level

view

Related Documentation

- [clear mpls lsp on page 661](#)

List of Sample Output

[show mpls lsp defaults on page 694](#)
[show mpls lsp descriptions on page 695](#)
[show mpls lsp detail on page 695](#)
[show mpls lsp extensive on page 695](#)
[show mpls lsp ingress extensive on page 696](#)
[show mpls lsp p2mp on page 696](#)
[show mpls lsp p2mp detail on page 697](#)

Output Fields

Table 177 on page 689 describes the output fields for the **show mpls lsp** command. Output fields are listed in the approximate order in which they appear.

Table 177: show mpls lsp Output Fields

Field Name	Field Description	Level of Output
Ingress LSP	Information about LSPs on the ingress routing device. Each session has one line of output.	All levels

Table 177: show mpls lsp Output Fields (*continued*)

Field Name	Field Description	Level of Output
Egress LSP	Information about the LSPs on the egress routing device. 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 routing devices 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> is automatically generated by Junos OS.	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 routing device) of the LSP.	detail extensive
To	Destination (egress routing device) of the session.	brief
From	Source (ingress routing device) of the session.	brief detail
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
DiffServeInfo	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 routing device) 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 routing devices.	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

Table 177: show mpls lsp Output Fields (*continued*)

Field Name	Field Description	Level of Output
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 routing device.	detail
Link protection desired	Link protection has been requested by the ingress routing device.	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 , Lambda , 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
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

Table 177: show mpls lsp Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
Priorities	(Ingress LSP) Configured value of the setup priority and the reservation priority, where 0 is the highest priority and 7 is the lowest priority.	extensive
OptimizeTimer	(Ingress LSP) Configured value of the optimize timer, indicating the total amount of time allowed before path reoptimization, in seconds.	detail extensive
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

Table 177: show mpls lsp Output Fields (*continued*)

Field Name	Field Description	Level of Output
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 routing device has a backup path providing the same bandwidth guarantee as the protected LSP for the protected section. • 0x08—Node protection. The downstream routing device has a backup path providing protection against link and node failure on the corresponding path section. If the downstream routing device 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
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

Table 177: show mpls lsp Output Fields (*continued*)

Field Name	Field Description	Level of Output
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) routing device 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) routing device or client, interface used to reach this neighbor, and number of packets sent to the downstream routing device.	detail
RESV rcvfrom	Address of the previous-hop (upstream) routing device or client, interface the neighbor used to reach this routing device, 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
MPLS-TE LSP Defaults	Default settings for MPLS traffic engineered LSPs: <ul style="list-style-type: none"> • LSP Holding Priority—Determines the degree to which an LSP holds on to its session reservation after the LSP has been set up successfully. • LSP Setup Priority—Determines whether a new LSP that preempts an existing LSP can be established. • Hop Limit—Specifies the maximum number of routers the LSP can traverse (including the ingress and egress). • Bandwidth—Specifies the bandwidth in bits per second for the LSP. • LSP Retry Timer—Length of time in seconds that the ingress router waits between attempts to establish the primary path. 	defaults

Sample Output

```

show mpls lsp defaults  user@host> show mpls lsp defaults
                        MPLS-TE LSP Defaults
                        LSP Holding Priority    0
                        LSP Setup Priority      7
                        Hop Limit              255

```

```

Bandwidth                                0
LSP Retry Timer                          30 seconds

show mpls lsp descriptions user@host> show mpls lsp descriptions
Ingress LSP: 3 sessions
To      LSP name      Description
10.0.0.195 to-sanjose    to-sanjose-desc
10.0.0.195 to-sanjose-other-desc other-desc
Total 2 displayed, Up 2, Down 0

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: 1 sessions

50.0.0.1
  From: 10.0.0.1, State: Up, ActiveRoute: 0, LSPname: test
  ActivePath: (primary)
  LSPtype: Static Configured
  LoadBalance: Random
  Encoding type: Packet, Switching type: Packet, GPID: IPv4
  *Primary State: Up
    Priorities: 7 0
    OptimizeTimer: 300
    SmartOptimizeTimer: 180
    Reoptimization in 255 second(s).
    Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 2)
    2.2.2.2 S 3.3.3.2 S
    Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt
    20=Node-ID):
      2.2.2.2 3.3.3.2
    7 Aug 3 12:39:52.834 CSPF: computation result ignored, new path no benefit

    6 Aug 3 12:35:03.830 Selected as active path
    5 Aug 3 12:35:03.828 Record Route: 2.2.2.2 3.3.3.2
    4 Aug 3 12:35:03.827 Up
    3 Aug 3 12:35:03.814 Originate Call

```

```

      2 Aug 3 12:35:03.814 CSPF: computation result accepted 2.2.2.2 3.3.3.2
      1 Aug 3 12:34:34.921 CSPF failed: no route toward 50.0.0.1
Created: Tue Aug 3 12:34:34 2010
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 ingress extensive

```

user@host> show mpls lsp ingress extensive
Ingress LSP: 1 sessions

50.0.0.1
  From: 10.0.0.1, State: Up, ActiveRoute: 0, LSPname: test
  ActivePath: (primary)
  LSPtype: Static Configured
  LoadBalance: Random
  Encoding type: Packet, Switching type: Packet, GPID: IPv4
  *Primary State: Up
    Priorities: 7 0
    OptimizeTimer: 300
    SmartOptimizeTimer: 180
    Reoptimization in 240 second(s).
    Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 3)
1.1.1.2 S 4.4.4.1 S 5.5.5.2 S
  Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt
20=Node-ID):
    1.1.1.2 4.4.4.1 5.5.5.2
    17 Aug 3 13:17:33.601 CSPF: computation result ignored, new path less avail
bw[3 times]
    16 Aug 3 13:02:51.283 CSPF: computation result ignored, new path no benefit[2
times]
    15 Aug 3 12:54:36.678 Selected as active path
    14 Aug 3 12:54:36.676 Record Route: 1.1.1.2 4.4.4.1 5.5.5.2
    13 Aug 3 12:54:36.676 Up
    12 Aug 3 12:54:33.924 Deselected as active
    11 Aug 3 12:54:33.924 Originate Call
    10 Aug 3 12:54:33.923 Clear Call
    9 Aug 3 12:54:33.923 CSPF: computation result accepted 1.1.1.2 4.4.4.1
5.5.5.2
    8 Aug 3 12:54:33.922 2.2.2.2: No Route toward dest
    7 Aug 3 12:54:28.177 CSPF: computation result ignored, new path no benefit[4
times]
    6 Aug 3 12:35:03.830 Selected as active path
    5 Aug 3 12:35:03.828 Record Route: 2.2.2.2 3.3.3.2
    4 Aug 3 12:35:03.827 Up
    3 Aug 3 12:35:03.814 Originate Call
    2 Aug 3 12:35:03.814 CSPF: computation result accepted 2.2.2.2 3.3.3.2
    1 Aug 3 12:34:34.921 CSPF failed: no route toward 50.0.0.1
Created: Tue Aug 3 12:34:35 2010
Total 1 displayed, Up 1, 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 <logical-system (all <i>logical-system-name</i>)> < <i>path-name</i> >
Syntax (EX Series Switch)	show mpls path < <i>path-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display dynamic Multiprotocol Label Switching (MPLS) label-switched paths (LSPs).
Options	<p>none—Display standard information about all MPLS LSPs.</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>path-name</i>—(Optional) Display information about the specified LSP only.</p>
Required Privilege Level	view
List of Sample Output	show mpls path on page 698
Output Fields	Table 178 on page 698 describes the output fields for the show mpls path command. Output fields are listed in the approximate order in which they appear.

Table 178: 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 routing devices that form the LSP.
Strict/loose address	Whether the address is configured as a strict or loose address.

Sample Output

```

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 mpls static-lsp

Syntax show mpls static-lsp
 <brief | detail | extensive | terse>
 <bypass>
 <descriptions>
 <down | up>
 <ingress>
 <logical-system (all | *logical-system-name*)>
 <lsp-type>
 <name *name*>
 <statistics>
 <transit>

Release Information Command introduced in Junos OS Release 10.1.

Description Display information about configured and active static Multiprotocol Label Switching (MPLS) label-switched paths (LSPs).

Options none—Display standard information about all configured and active static MPLS LSPs.

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.

bypass—(Optional) Display LSPs used for protecting other static LSPs.

descriptions—(Optional) Display the MPLS static LSP descriptions. To view this information, you must configure the description statement at the **[edit protocols mpls static-label-switched-path *path-name* bypass]**, **[edit protocols mpls static-label-switched-path *path-name* ingress]**, or **[edit protocols mpls static-label-switched-path *path-name* transit *incoming-label*]** hierarchy levels. Only static LSPs with a description are displayed.

down | up—(Optional) Display only static 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.
- **ingress**—Sessions that originate from this routing device.
- **transit**—Sessions that pass through this routing device.

name *name*—(Optional) Display information about the specified static LSP or group of LSPs.

statistics—(Optional) Display accounting information about static LSPs.

transit—(Optional) Display static LSPs transiting this routing device.

Required Privilege Level view

List of Sample Output `show mpls static-lsp` extensive on page 701
`show mpls static-lsp statistics ingress` on page 701

Output Fields Table 179 on page 700 describes the output fields for the `show mpls static-lsp` command. Output fields are listed in the approximate order in which they appear.

Table 179: show mpls static-lsp Output Fields

Field Name	Field Description	Level of Output
Ingress LSPs	Information about the static LSPs on the ingress routing device. Each session has one line of output.	All levels
Transit LSPs	Number of static LSPs on the transit routing devices and the state of these paths. MPLS learns this information by querying RSVP, which holds all the transit and egress session information.	All levels
Bypass LSPs	Information about the bypass LSPs configured on the routing device. Each session has one line of output.	All levels
LSPname	Name of the static LSP.	All levels
To	Destination (egress routing device) of the session.	All levels
State	State of the static LSP handled by this RSVP session: Up , Dn (down), or Restart .	All levels
Packets	Number of packet transiting the static LSP (statistics option only).	All levels
Bytes	Number of bytes transiting the static LSP (statistics option only).	All levels
Nexthop	IP address for the next-hop router for the static LSP.	detail, extensive
Bypass	(Bypass LSP) Destination address (egress routing device) for the bypass LSP.	All levels
Link protection desired	Link protection has been requested by the ingress routing device.	detail, extensive
LabelOperation	Label operation to perform: Push , Pop , Swap .	detail, extensive
Outgoing-label	Outgoing label to use for the MPLS packet in either push or swap label operations.	detail, extensive
Created	(Ingress LSP) Date and time the static LSP was created.	extensive
Bandwidth	Bandwidth configured for the static LSP.	detail, extensive
Resv style	(Bypass) RSVP reservation style. This field consists of two parts: the number of active reservations and the reservation style, which can be FF (fixed filter), SE (shared explicit), or WF (wildcard filter).	All levels

Sample Output

```
show mpls static-lsp extensive user@host> show mpls static-lsp extensive
                               Ingress LSPs:
                               LSPname: alpha-to-beta, To: 192.168.14.1
                               State: Dn
                               Nexthop: 192.168.10.1
                               LabelOperation: Push, Outgoing-label: 1000001
                               Created: Thu Jan 14 16:44:43 2010
                               Bandwidth: 0 bps
                               Total 1, displayed 1, Up 0, Down 1

                               Transit LSPs:
                               Total 0, displayed 0, Up 0, Down 0

                               Bypass LSPs:
                               Total 0, displayed 0, Up 0, Down 0

show mpls static-lsp statistics ingress user@host> show mpls static-lsp statistics ingress
statistics ingress Ingress LSPs:
                  LSPname                To                State      Packets      Bytes
                  alpha-to-beta          192.168.14.1      Dn           NA           NA
                  Total 1, displayed 1, Up 0, Down 1
```

show ted database

Syntax	show ted database <brief detail extensive> <logical-system (all <i>logical-system-name</i>)> < <i>system-name</i> >
Syntax (EX Series Switch)	show ted database <brief detail extensive> < <i>system-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
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.</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 704</p> <p>show ted database detail <i>system-name</i> on page 705</p> <p>show ted database extensive on page 705</p>
Output Fields	Table 180 on page 702 describes the output fields for the show ted database command. Output fields are listed in the approximate order in which they appear.

Table 180: 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 routing device 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 routing device itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	extensive

Table 180: show ted database Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
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 the 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 180: show ted database Output Fields (*continued*)

Field Name	Field Description	Level of Output
Interface Switching Capability Descriptor (n)	<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"> • [n]—Priority level. The range is from 0 (high) through 7 (low). • n 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

Sample Output

```

show ted database user@host> show ted database brief
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>)>
Syntax (EX Series Switch)	show ted link <brief detail>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Multiprotocol Label Switching (MPLS) traffic engineering database link information.
Options	none—Display standard information about traffic engineering database link information. brief detail—(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
List of Sample Output	show ted link brief on page 707 show ted link detail on page 707
Output Fields	Table 181 on page 706 describes the output fields for the show ted link command. Output fields are listed in the approximate order in which they appear.

Table 181: 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 routing device 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 routing device itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	brief
<i>hostname</i>	Hostname and address of the node that the link is coming from. An address of .00 indicates that the node is the routing device itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	detail
<i>hostname</i>	Hostname and address of the node that the link is going to. An address of .00 indicates that the node is the routing device 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 routing device has placed on the link.	All levels

Table 181: show ted link Output Fields (*continued*)

Field Name	Field Description	Level of Output
Local BW	Amount of bandwidth the local routing device has placed on the link.	All levels

Sample Output

```

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>)>
Syntax (EX Series Switch)	show ted protocol <brief detail>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about the protocols from which the Multiprotocol Label Switching (MPLS) traffic engineering database learned about its nodes.
Options	none—Display standard information about the protocols from which the traffic engineering database learned about its nodes. brief detail—(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
List of Sample Output	show ted protocol on page 708
Output Fields	Table 182 on page 708 describes the output fields for the show ted protocol command. Output fields are listed in the approximate order in which they appear.

Table 182: 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.

Sample Output

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)

RSVP Operational Mode Commands

Table 183 on page 711 summarizes the command-line interface (CLI) commands you can use to monitor Resource Reservation Protocol (RSVP) sessions. Commands are listed in alphabetical order.

Table 183: RSVP Operational Mode Commands

Task	Command
Clear RSVP sessions and trigger fast reroute optimization.	<code>clear rsvp session</code>
Clear RSVP packet and error counters.	<code>clear ripng statistics</code>
Display the status of interfaces on which RSVP is running.	<code>show rsvp interface</code>
Display RSVP neighbors.	<code>show rsvp neighbor</code>
Display currently active RSVP sessions.	<code>show rsvp session</code>
Display RSVP packet and error counters.	<code>show rsvp statistics</code>
Display RSVP version and configuration information.	<code>show rsvp version</code>



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.

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	<pre>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></pre>
Syntax (EX Series Switch)	<pre>clear rsvp session <connection-source address> <connection-destination address> <gracefully> <lsp-id identifier> <name name> <optimize-fast-reroute> <tunnel-id identifier></pre>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Reset and restart Resource Reservation Protocol (RSVP) sessions.
Options	<p>none—Reset and restart all RSVP sessions for which this routing device is the ingress, transit, or egress routing device.</p> <p>connection-source <i>address</i>—(Optional) Source address for GMPLS and MPLS LSPs from the RSVP sender template.</p> <p>connection-destination <i>address</i>—(Optional) Destination address for GMPLS and MPLS LSPs from the RSVP sender template.</p> <p>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 routing device of the RSVP session and is only valid for nonpacket LSPs.</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>lsp-id <i>identifier</i>—(Optional) LSP identifier (source port) for the RSVP sender template.</p> <p>name <i>name</i>—(Optional) Reset and restart the specified RSVP session.</p> <p>optimize-fast-reroute—(Optional) Begin fast reroute optimization.</p> <p>tunnel-id <i>identifier</i>—(Optional) Tunnel identifier (destination port) for the RSVP session.</p>

Required Privilege Level clear

Related Documentation

- [clear mpls lsp on page 661](#)
- [show rsvp session on page 725](#)

List of Sample Output clear rsvp session on page 713

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

Sample Output

clear rsvp session user@host> clear rsvp session

clear rsvp statistics

Syntax	clear rsvp statistics <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear rsvp statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Clear Resource Reservation Protocol (RSVP) packet and error statistics.
Options	none—Clear RSVP packet and error statistics. 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 Documentation	<ul style="list-style-type: none">• show rsvp statistics on page 733
List of Sample Output	clear rsvp statistics on page 714
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

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>)>
Syntax (EX Series Switch)	show rsvp interface <brief detail extensive> <link-management>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
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.</p> <p>brief detail extensive link-management—(Optional) Display the specified level of output.</p> <p>link-management—(Optional) 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 718</p> <p>show rsvp interface detail on page 718</p> <p>show rsvp interface extensive on page 718</p> <p>show rsvp interface link-management on page 719</p>
Output Fields	Table 184 on page 715 lists the output fields for the show rsvp interface command. Output fields are listed in the approximate order in which they appear.

Table 184: 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

Table 184: show rsvp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
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

Table 184: show rsvp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
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

Table 184: show rsvp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
<i>queue-priority-value</i>	Low, High, None, or Exact. None indicates no rate limiting. Exact indicates the queue transmits at the configured rate only.	extensive

Sample Output

```

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          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>)>
Syntax (EX Series Switch)	show rsvp neighbor <brief detail>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
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. brief detail—(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
List of Sample Output	show rsvp neighbor on page 724 show rsvp neighbor detail on page 724
Output Fields	Table 185 on page 720 lists the output fields for the show rsvp neighbor command. Output fields are listed in the approximate order in which they appear.

Table 185: show rsvp neighbor Output Fields

Field Name	Field Description	Level of Output
RSVP neighbor	Number of neighbors that the routing device has learned of. 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 OS Release 3.2 or earlier, are not reported as up or down.	All levels

Table 185: show rsvp neighbor Output Fields (*continued*)

Field Name	Field Description	Level of Output
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 OS Release 3.2 or earlier, are not reported as up or down.	detail
status	State of the RSVP neighbor: <ul style="list-style-type: none"> • Up—Routing device can detect RSVP Hello messages from the neighbor. • Down—Routing device 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—Routing device 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 routing device has received from the neighbor.	detail
Remote Instance	Identification provided by the remote routing device during Hello message exchange.	detail
Local Instance	Identification sent to the remote routing device during Hello message exchange.	detail

Table 185: show rsvp neighbor Output Fields (*continued*)

Field Name	Field Description	Level of Output
Refresh reduction	<p>Measure of processing overhead requests of refresh messages. Refresh reduction extensions improve routing device performance by reducing the process overhead, thus increasing the number of LSPs a routing device 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 routing devices. For a detailed explanation of these extensions, see RFC 2961. • incomplete—Some RSVP refresh reduction extensions are functional between the two neighboring routing devices. • no operational—Either the refresh reduction feature has been turned off, or the remote routing device cannot support the refresh reduction extensions. 	detail
Remote end	<p>Neighboring routing device's status with regard to refresh reduction:</p> <ul style="list-style-type: none"> • enabled—Remote routing device has requested refresh reduction during RSVP message exchanges. • disabled—Remote routing device does not require refresh reduction. 	detail
Ack-extension	<p>An RSVP refresh reduction extension:</p> <ul style="list-style-type: none"> • enabled—Both local and remote routing devices support the ack-extension (RFC 2961). • disabled—Remote routing device does not support the ack-extension. 	detail
Link protection	<p>Status of the MPLS fast reroute mechanism that protects traffic from link failure:</p> <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	<p>Status of the bypass LSP. It can have the following values:</p> <ul style="list-style-type: none"> • does not exist—Bypass LSP is not available. • connecting—Routing device 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

Table 185: show rsvp neighbor Output Fields (*continued*)

Field Name	Field Description	Level of Output
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

Sample Output

```
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	<pre>show rsvp session <brief detail extensive terse> <bidirectional unidirectional> <bypass> <down up> <interface <i>interface-name</i>> <logical-system (all <i>logical-system-name</i>)> <lsp-type> <name <i>session-name</i>> <p2mp> <session-type> <statistics> <te-link <i>te-link</i>></pre>
Syntax (EX Series Switch)	<pre>show rsvp session <brief detail extensive terse> <bidirectional unidirectional> <bypass> <down up> <interface <i>interface-name</i>> <lsp-type> <name <i>session-name</i>> <p2mp> <session-type> <statistics> <te-link <i>te-link</i>></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.5 for EX Series switches.</p>
Description	Display information about Resource Reservation Protocol (RSVP) sessions.
Options	<p>none—Display standard information about all RSVP sessions.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>bidirectional unidirectional—(Optional) Display information about bidirectional or unidirectional RSVP sessions only, respectively.</p> <p>bypass—(Optional) Display RSVP sessions for bypass LSPs.</p> <p>down up—(Optional) Display only LSPs that are inactive or active, respectively.</p> <p>interface <i>interface-name</i>—(Optional) Display RSVP sessions 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><i>lsp-type</i>—(Optional) Display information about RSVP sessions with regard to LSPs:</p> <ul style="list-style-type: none"> • 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—(Optional) Display point-to-multipoint information.

session-type—(Optional) Display information about a particular session type:

- **egress**—Sessions that terminate on this routing device.
- **ingress**—Sessions that originate from this routing device.
- **transit**—Sessions that transit through this routing device.

statistics—(Optional) Display packet statistics.

te-link *te-link*—(Optional) Display sessions with reservations on the specified TE link.

Required Privilege Level view

Related Documentation

- [clear rsvp session on page 712](#)

List of Sample Output

- [show rsvp session on page 730](#)
- [show rsvp session statistics on page 730](#)
- [show rsvp session detail on page 730](#)
- [show rsvp session detail \(Path MTU Output Field\) on page 731](#)
- [show rsvp session detail \(GMPLS\) on page 731](#)
- [show rsvp session extensive on page 731](#)
- [show rsvp session p2mp \(Ingress Router\) on page 732](#)
- [show rsvp session p2mp \(Transit Router\) on page 732](#)

Output Fields Table 186 on page 726 describes the output fields for the **show rsvp session** command. Output fields are listed in the approximate order in which they appear.

Table 186: 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 p2mp option is specified). Name of the point-to-multipoint LSP path.	All levels

Table 186: show rsvp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
P2MP branch count	(Appears only when the p2mp option is specified). Number of LSPs receiving packets from the point-to-multipoint LSP.	All levels
To	Destination (egress routing device) of the session.	All levels
From	Source (ingress routing device) 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 routing device) of the LSP.	detail
From	Source (ingress routing device) of the session.	detail
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 routing devices. LSPpath can also indicate when a graceful LSP deletion has been triggered.	detail
Bypass	(Egress routing device) 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

Table 186: show rsvp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
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
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 routing device.	detail
Soft preemption desired	Soft preemption has been requested by the ingress routing device.	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 routing device.	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 routing device.	detail extensive

Table 186: show rsvp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
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 routing device.	detail extensive
Type	<p>LSP type:</p> <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 protected 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 protected a user LSP at the ingress of a failed link. • Backup LSP at Merge Point (MP)—LSP that has been temporarily established to protected 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
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 routing devices with the allow-fragmentation statement configured at the [edit protocols mpls path-mtu] 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) routing device or client, interface the neighbor used to reach this routing device, and number of packets received from the upstream neighbor.	detail
Adspec	MTU signaled from the ingress routing device to the egress routing device by means of the adspec object.	detail
PATH sentto	Address of the next-hop (downstream) routing device or client, interface used to reach this neighbor (or peer-name in the GMPLS LSP case), and number of packets sent to the downstream routing device.	detail

Table 186: show rsvp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
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

Sample Output

```

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

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

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 (Ingress Router)**

```

user@host> show rsvp session p2mp
Ingress RSVP: 3 sessions
P2MP name: test, P2MP branch count: 1
To          From          State   Rt Style Labelin Labelout LSPname
10.255.10.95 10.255.10.2 Up      0  1 SE  -        3 to-pe1
P2MP name: test2, P2MP branch count: 2
To          From          State   Rt Style Labelin Labelout LSPname
10.255.10.23 10.255.10.2 Up      0  1 SE  -        299776 to-pe3
10.255.10.16 10.255.10.2 Up      0  1 SE  -        299776 to-pe4
Total 3 displayed, Up 3, 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 session
p2mp (Transit Router)**

```

user@host> show rsvp session p2mp
Ingress RSVP: 1 sessions
P2MP name: test, P2MP branch count: 1
To          From          State   Rt Style Labelin Labelout LSPname
10.255.10.23 10.255.10.95 Up      0  1 SE  -        299792 to-pe2
Total 1 displayed, Up 1, Down 0

Egress RSVP: 1 sessions
P2MP name: test, P2MP branch count: 1
To          From          State   Rt Style Labelin Labelout LSPname
10.255.10.95 10.255.10.2 Up      0  1 SE  3        -        to-pe1
Total 1 displayed, Up 1, Down 0

Transit RSVP: 2 sessions
P2MP name: test2, P2MP branch count: 2
To          From          State   Rt Style Labelin Labelout LSPname
10.255.10.23 10.255.10.2 Up      0  1 SE  299776  299808 to-pe3
10.255.10.16 10.255.10.2 Up      0  1 SE  299776  299856 to-pe4
Total 2 displayed, Up 2, Down 0

```

show rsvp statistics

Syntax	show rsvp statistics <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show rsvp statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Resource Reservation Protocol (RSVP) packet and error statistics.
Options	none—Display RSVP packet and error statistics. 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 Documentation	<ul style="list-style-type: none"> clear rsvp statistics on page 714
List of Sample Output	show rsvp statistics on page 735
Output Fields	Table 187 on page 733 describes the output fields for the show rsvp statistics command. Output fields are listed in the approximate order in which they appear.

Table 187: 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 routing devices along a path.

Table 187: show rsvp statistics Output Fields (*continued*)

Field Name	Field Description
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.
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 checksum	The RSVP checksum check failed.
Rcv pkt bad format	General packet processing failed because the packet was badly formed.
Memory allocation fail	An internal resource failure occurred.
No path information	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.

Table 187: show rsvp statistics Output Fields (*continued*)

Field Name	Field Description
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 routing device replies with an ACK object that contains an unknown message ID. This can indicate a message ID handshake problem. For example, a router receives an ACK for message IDs 1, 2, and 3. However, it only has state for message IDs 1 and 3. The router increments the unknown ack counter by 1.
Recv nack	If a neighboring router receives an unknown message ID in an RSVP refresh message, the router sends a Resv nack message back to the sender. This can happen if that neighbor has been rebooted. For this case, the router sends a regular RSVP refresh message to recover the state and start 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 routing device restarts.
No TE-link to recv Hop	Counter of packets discarded because a TE link was not found.
Rcv pkt disabled interface	Number of RSVP packets received on an interface that is not enabled for RSVP.
Transmit buffer full	Number of times the buffer for assembling an outgoing RSVP message was not large enough.
Transmit failure	Number of times the RSVP task failed to send out a packet.
Receive failure	Number of times the RSVP task failed to read an incoming packet.
P2MP RESV discarded by appl	Number of Resv messages discarded because the MPLS label is not valid for the P2MP LSP application.
Rate limit	Number of RSVP packets dropped due to rate limiting.
Err msg loop detected	Number of RSVP error messages that have looped back to their originator. This is detected by checking the error node address in the ERROR_SPEC object.

Sample Output

```

show rsvp statistics  user@host> show rsvp statistics
                        PacketType          Total
                        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	
Rcv pkt disabled interface	0		0	
Transmit buffer full	0		0	
Transmit failure	0		0	
Receive failure	0		0	
P2MP RESV discarded by appl	0		0	
Rate limit	306		0	
Err msg loop detected	0		0	

show rsvp version

Syntax	show rsvp version <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show rsvp version
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
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 routing device.
Options	none—Display RSVP protocol settings. 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 738 show rsvp version (Router Restarting) on page 738
Output Fields	Table 188 on page 737 describes the output fields for the show rsvp version command. Output fields are listed in the approximate order in which they appear.

Table 188: 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 deleting timeout	Currently configured value for the graceful-deletion-timeout statement. The router that initiates the graceful deletion procedure for an RSVP session waits for the graceful deletion timeout interval to ensure that all routers along the path (especially the ingress and egress routers) have prepared for the LSP to be taken down.
NSR Mode	Status of the nonstop active routing feature for RSVP on the restarting device: Enabled or Disabled .
NSR State	State of the nonstop active routing feature for RSVP on the restarting device: Active or Idle

Table 188: show rsvp version Output Fields (*continued*)

Field Name	Field Description
Graceful restart	Status of the graceful restart feature for RSVP on the restarting routing device: Enabled or Disabled .
Restart helper mode	Status of the helper mode feature: Enabled or Disabled . When this feature is enabled, the restarting routing device 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 routing device 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 routing device 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.
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.

Sample Output

```

show rsvp version (Router in Steady State) user@host> show rsvp version
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 (Router Restarting) user@host> show rsvp version
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 741
- Spanning Tree Operational Mode Commands on page 767

Layer 2 Bridging and Switching

Operational Mode Commands

Table 189 on page 741 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 189: 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
Clear bridge protocol data unit (BPDU) error on interface due to possible bridge spanning tree protocol (STP) loop.	clear error bpdu
Clear a MAC rewrite error condition for Layer 2 protocol tunneling.	clear error mac-rewrite
Display bridge domain information.	show bridge domain
Display bridging flooding information.	show bridge flood
Display learned Layer 2 MAC address information.	show bridge mac-table
Display bridge statistics.	show bridge statistics
Display Layer 2 learning process-related information.	show l2-learning global-information
(MX Series routers only) Display the total number of dynamic and static MAC addresses learned for the entire router.	show l2-learning global-mac-count
Display configured Layer 2 routing instances.	show l2-learning instance
Display configured Layer 2 interfaces.	show l2-learning interface
Display Layer 2 interfaces.	show mac-rewrite interface

clear bridge mac-table

Syntax	<code>clear bridge mac-table</code> <code><bridge-domain (all <i>bridge-domain-name</i>)></code> <code><instance <i>instance-name</i>></code> <code><interface <i>interface-name</i>></code> <code><learning-vlan id (all-vlan <i>learning-vlan-id</i>)></code> <code><mac-address></code>
Release Information	Command introduced in Junos OS Release 8.4.
Description	(MX Series routers only) Clear learned Layer 2 address information from the media access control (MAC) address table.
Options	<p><code>none</code>—Clear all learned Layer 2 address information from the MAC address table.</p> <p><code>bridge-domain (all <i>bridge-domain-name</i>)</code>—(Optional) Clear learned Layer 2 MAC addresses for all bridging domains or for the specified bridging domain.</p> <p><code>instance <i>instance-name</i></code>—(Optional) Clear learned Layer 2 MAC addresses for the specified routing instance.</p> <p><code>interface <i>interface-name</i></code>—(Optional) Clear learned Layer 2 MAC addresses for the specified interface.</p> <p><code>learning-vlan-id (all-vlan <i>learning-vlan-id</i>)</code>—(Optional) Clears learned Layer 2 MAC addresses for all VLANs or for the specified VLAN.</p> <p><code>mac-address</code>—(Optional) Clear the specified learned Layer 2 address from the MAC address table.</p>
Required Privilege Level	clear
List of Sample Output	clear bridge mac-table on page 742
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear bridge mac-table `user@host> clear bridge mac-table`

clear error bpdu

Syntax	clear error bpdu <interface <i>interface-name</i>>
Release Information	Command introduced in Junos OS Release 9.4.
Description	(MX Series routers only) Clear a bridge protocol data unit (BPDU) error condition caused by the detection of a possible bridging loop from Spanning Tree Protocol (STP) operation.
Options	interface <i>interface-name</i> —(Optional) Clear the BPDU error condition for the specified interface.
Required Privilege Level	clear
List of Sample Output	clear error bpdu interface on page 743
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear error bpdu interface	user@host> clear error bpdu interface ge-1/1/1
-----------------------------------	--

clear error mac-rewrite

Syntax	clear error mac-rewrite <interface <i>interface-name</i>>
Release Information	Command introduced in Junos OS 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	<i>interface 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 744
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear error mac-rewrite interface	<pre>user@host> clear error mac-rewrite interface ge-1/0/1</pre>
--	---

show bridge domain

Syntax	<pre>show bridge domain <brief detail extensive> <bridge-domain (all domain-name)> <instance instance-name> <operational></pre>
Release Information	Command introduced in Junos OS Release 8.4.
Description	(MX Series routers only) Display bridge domain information.
Options	<p>none—Display information for all bridge domains.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>bridge-domain (all domain-name)— (Optional) Display information about all bridge domains or the specified bridge domain.</p> <p>instance instance-name—(Optional) Display information for the specified routing instance.</p> <p>operational—(Optional) Display information for the operational routing instances.</p>
Required Privilege Level	view
List of Sample Output	<pre>show bridge domain on page 745 show bridge domain brief on page 745 show bridge domain detail on page 745</pre>

Sample Output

```
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 OS 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 748 show bridge flood brief on page 748 show bridge flood detail on page 748 show bridge flood extensive on page 749</pre>
Output Fields	to be provided

Sample Output

```

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

user@host> show bridge flood brief
Name                Active CEs    Active VEs
__juniper_private1__ 0              0
vs1::vlan100         6              0
vs1::vlan200         5              0

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 <i>bridge-domain-name</i>)> <global-count> <interface <i>interface-name</i>> <mac-address> <vlan-id (all-vlan <i>vlan-id</i>)>
Release Information	Command introduced in Junos OS Release 8.4.
Description	(MX Series routers only) Display Layer 2 MAC address information.
Options	<p>none—Display all learned Layer 2 MAC address information.</p> <p>brief count detail extensive—(Optional) Display the specified level of output.</p> <p>bridge-domain (all <i>bridge-domain-name</i>)—(Optional) Display learned Layer 2 MAC addresses for all bridging domains or for the specified bridging domain.</p> <p>global-count—(Optional) Display the total number of learned Layer 2 MAC addresses on the system.</p> <p>instance <i>instance-name</i>—(Optional) Display learned Layer 2 MAC addresses for the specified routing instance.</p> <p>interface <i>interface-name</i>—(Optional) Display learned Layer 2 MAC addresses for the specified interface.</p> <p>mac-address—(Optional) Display the specified learned Layer 2 MAC address information.</p> <p>vlan-id (all-vlan <i>vlan-id</i>)—(Optional) Display learned Layer 2 MAC addresses for all VLANs or for the specified VLAN.</p>
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 755 show bridge mac-table brief on page 755 show brief mac-table count on page 756 show bridge mac-table detail on page 756
Output Fields	Table 190 on page 755 describes the output fields for the show bridge mac-table command. Output fields are listed in the approximate order in which they appear.

Table 190: 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 the 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.

Sample Output

```

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 user@host> show bridge mac-table brief
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 count 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 detail 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	<code>show bridge statistics</code> <code><bridge-domain <i>domain-name</i>></code> <code><instance <i>instance-name</i>></code>
Release Information	Command introduced in Junos OS Release 8.4.
Description	(MX Series routers only) Display bridge statistics.
Options	<p><code>none</code>—Display bridge statistics for all bridge domains in all routing instances.</p> <p><code>bridge-domain <i>domain-name</i></code>—(Optional) Display statistics for the specified bridge domain.</p> <p><code>instance <i>instance-name</i></code>—(Optional) Display statistics for the specified routing instance.</p>
Required Privilege Level	view
List of Sample Output	show bridge statistics on page 757

Sample Output

```

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 OS 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 760
Output Fields	Table 191 on page 760 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 191: 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	Status of the learned MAC limit hit flag: Enabled (the learned MAC exceeds the global MAC limit) or Disabled (the learned MAC does not exceed the global MAC limit).
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).

Sample Output

```

show l2-learning global-information user@host> show l2-learning 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 global-mac-count

Syntax	show l2-learning global-mac-count
Release Information	Command introduced in Junos OS Release 9.3.
Description	(MX Series routers only) Display the total number of dynamic and static MAC addresses learned for the entire router.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show l2-learning global-mac-count on page 761
Output Fields	Displays the total number of dynamic and static MAC addresses learned for the entire router.

Sample Output

show l2-learning global-mac-count	user@host> show l2-learning global-mac-count 100 dynamic and static MAC addresses learned globally
--	---

show l2-learning instance

Syntax	show l2-learning instance
Release Information	(MX Series routers only) Command introduced in Junos OS 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 762
Output Fields	Table 192 on page 762 describes the output fields for the show l2-learning instance command. Output fields are listed in the approximate order in which they appear.

Table 192: show l2-learning instance Output Fields

Field Name	Field Description
Routing Instance	Name of routing instance.
bridging domain	Name of bridging domain. On MX Series routers you can use the show l2-learning instance <extensive> command option to display the Bridge Service-id information which includes the Config Service ID and the Active Service ID.
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.

Sample Output

```

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 Instance	Bridging Domain	Index	Logical System	Routing flags	MAC limit
__juniper_private1__		1	Default		5000
vs1	vlan100	3	Default		5120
vs1	vlan200	4	Default		5120

show l2-learning interface

Syntax	show l2-learning interface
Release Information	Command introduced in Junos OS 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 764
Output Fields	Table 193 on page 764 describes the output fields for the show l2-learning interface command. Output fields are listed in the approximate order in which they appear.

Table 193: 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 OS 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.

Sample Output

```

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   Index  Routing  Interface  Logical   MAC
interface      instance device      Interface flags   limit
ge-11/0/3.0    79      3        136
ge-11/1/4.100  84      3        150
ge-11/1/1.100  86      3        147
ge-11/1/0.100  87      3        146
xe-10/2/0.100  88      3        144

```

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 <brief detail> <interface-name>
Release Information	Command introduced in Junos OS Release 9.1.
Description	(MX Series routers only) Display Layer 2 protocol tunneling information.
Options	<p>brief detail—(Optional) Display the specified level of output.</p> <p>interface <i>interface-name</i>—(Optional) Display Layer 2 protocol tunneling information for the specified interface.</p>
Required Privilege Level	view
List of Sample Output	show mac-rewrite interface on page 766
Output Fields	Table 194 on page 766 lists the output fields for the show mac-rewrite interface command. Output fields are listed in the approximate order in which they appear.

Table 194: 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

Sample Output

```

show mac-rewrite interface user@host> show mac-rewrite interface
                             Interface      Protocols
                             ge-1/0/1      STP VTP CDP

```

Spanning Tree Operational Mode Commands

Table 195 on page 767 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 195: STP Operational Mode Commands

Task	Command
Clear STP protocol.	<code>clear spanning-tree protocol-migration</code>
Clear STP statistics.	<code>clear spanning-tree statistics</code>
Display STP bridge domain configuration and status.	<code>show spanning-tree bridge</code>
Display STP interface configuration and status.	<code>show spanning-tree interface</code>
Display MSTP configuration and status.	<code>show spanning-tree mstp configuration</code>
Display STP statistics.	<code>show spanning-tree statistics</code>



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.

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 OS 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	none—Reset the STP protocol for all interfaces and all routing instances. interface <i>interface-name</i> —(Optional) Reset the STP protocol for the specified interface only. routing-instance <i>routing-instance-name</i> —(Optional) Reset the STP protocol for a particular routing instance.
Additional Information	For information about the force-version statement, see the <i>Junos Routing Protocols Configuration Guide</i> .
Required Privilege Level	clear

Sample Output

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> >
Syntax (EX and QFX Series Switches)	clear spanning-tree statistics <interface <i>interface-name</i> >
Release Information	Command introduced in Junos OS Release 8.4. Command introduced in Junos OS Release 9.0 for EX Series switches. Command introduced in Junos OS Release 11.1 for QFX Series switches.
Description	Clear Spanning Tree Protocol statistics.
Options	none—Reset STP counters for all interfaces for all routing instances. interface <i>interface-name</i> —(Optional) Clear STP statistics for the specified interface only. logical-system <i>logical-system-name</i> —(Optional) Clear STP statistics on a particular logical system.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show spanning-tree statistics on page 784
List of Sample Output	clear stp statistics on page 769
Sample Output	
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> >
Syntax (QFX Series Switches)	show spanning-tree bridge <brief detail> <msti <i>msti-id</i> > <vlan-id <i>vlan-id</i> >
Release Information	Command introduced in Junos OS Release 8.4. Command introduced in Junos OS Release 11.1 for QFX Series switches.
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 771</p> <p>show spanning-tree bridge routing-instance (In a QFX Series Switch) on page 772</p> <p>show spanning-tree bridge msti on page 773</p> <p>show spanning-tree bridge vlan-id (MSTP) on page 773</p> <p>show spanning-tree bridge (RSTP) on page 774</p> <p>show spanning-tree bridge vlan-id (RSTP) on page 774</p>
Output Fields	Table 196 on page 770 lists the output fields for the show spanning-tree bridge command. Output fields are listed in the approximate order in which they appear.

Table 196: show spanning-tree bridge Output Fields

Field Name	Field Description
Routing instance name	Name of the routing instance under which the bridge is configured.
Enabled protocol	Spanning Tree Protocol type enabled.

Table 196: show spanning-tree bridge Output Fields (*continued*)

Field Name	Field Description
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.
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 routing device 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	System identifier.
MSTI regional root	Bridge ID of the elected MSTP regional root bridge.

Sample Output

```

show spanning-tree bridge routing-instance
user@host> show spanning-tree bridge routing-instance vs1 detail
STP bridge parameters
Routing instance name      : vs1
Enabled protocol          : MSTP

```

```

STP bridge parameters for CIST
  Root ID                : 32768.00:13:c3:9e:c8:80
  Root cost               : 0
  Root port              : ge-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              : ge-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              : ge-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
bridgerouting-instance
(In a QFX Series
Switch)**

```

user@1f0> show spanning-tree bridge routing-instance vs1 detail
STP bridge parameters
  Routing instance name   : vs1
  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 bridge msti user@host> **show spanning-tree bridge msti 1 routing-instance vs1 detail**

```

STP bridge parameters
Routing instance name           : vs1
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 bridge vlan-id (MSTP) user@host> **show spanning-tree bridge vlan-id 1101 routing-instance vs1 detail**

```

STP bridge parameters
Routing instance name           : vs1
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 (RSTP) user@host> show spanning-tree bridge

```

STP bridge parameters
Routing instance name                   : GLOBAL
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 (RSTP) 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 <brief detail> <msti <i>msti-id</i> > <routing-instance <i>routing-instance-name</i> > <vlan-id <i>vlan-id</i> >
Syntax (EX and QFX Series Switches)	show spanning-tree interface <brief detail> <msti <i>msti-id</i> > <vlan-id <i>vlan-id</i> >
Release Information	Command introduced in Junos OS Release 8.4. Command introduced in Junos OS Release 9.0 for EX Series switches. Command introduced in Junos OS Release 11.1 for QFX Series switches.
Description	Display the configured or calculated interface-level STP parameters.
Options	none—Display brief STP interface information. brief detail—(Optional) Display the specified level of output. 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.
Required Privilege Level	view
List of Sample Output	show spanning-tree interface on page 777 show spanning-tree interface (in a QFX Series switch) on page 778 show spanning-tree interface detail on page 778 show spanning-tree interface msti on page 780 show spanning-tree interface vlan-id 101 on page 780 show spanning-tree interface (VSTP) on page 780 show spanning-tree interface vlan-id (VSTP) on page 781
Output Fields	Table 197 on page 776 lists the output fields for the show spanning-tree interface command. Output fields are listed in the approximate order in which they appear.

Table 197: show spanning-tree Interface Output Fields

Field Name	Field Description
Interface name	Interface configured to participate in the STP, RSTP, VSTP, or MSTP instance.

Table 197: show spanning-tree Interface Output Fields (*continued*)

Field Name	Field Description
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.
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).

Sample Output

**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 (in a QFX Series switch) user@1f0> 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 vlan-id 101 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 <brief detail> <routing-instance <i>routing-instance-name</i> >
Syntax (EX and QFX Series)	show spanning-tree mstp configuration <brief detail>
Release Information	Command introduced in Junos OS Release 8.4. Command introduced in Junos OS Release 9.0 for EX Series switches. Command introduced in Junos OS Release 11.1 for the QFX Series.
Description	Display the MSTP configuration.
Options	none—Display MSTP configuration information. brief detail—(Optional) Display the specified level of output. routing-instance <i>routing-instance-name</i> —(Optional) Display MSTP configuration information for the specified routing instance.
Required Privilege Level	view
List of Sample Output	show spanning-tree mstp configuration on page 782 show spanning-tree mstp configuration (QFX Series) on page 783
Output Fields	Table 198 on page 782 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 198: 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	MST instance identifier.
Member VLANs	VLAN identifiers associated with the MSTI.

Sample Output

```
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 user@lf0> show spanning-tree mstp configuration routing-instance vs1 detail
mstp configuration MSTP configuration information
(QFX Series)      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 <brief detail > <interface <i>interface-name</i> > <routing-instance <i>routing-instance-name</i> >
Syntax (EX and QFX Series Switches)	show spanning-tree statistics <brief detail > <interface <i>interface-name</i> >
Release Information	Command introduced in Junos OS Release 8.4. Command introduced in Junos OS Release 9.0 for EX Series switches. Command introduced in Junos OS Release 11.1 for QFX Series switches.
Description	Display STP statistics.
Options	none—Display brief STP statistics. brief detail—(Optional) Display the specified level of output. interface <i>interface-name</i> —(Optional) Display STP statistics for the specified interface. routing-instance <i>routing-instance-name</i> —(Optional) Display STP statistics for the specified routing instance.
Required Privilege Level	view
List of Sample Output	show spanning-tree statistics routing-instance on page 785 show spanning-tree statistics interface on page 785 show spanning-tree statistics interface (in a QFX Series Switch) on page 785
Output Fields	Table 199 on page 784 lists the output fields for the show spanning-tree statistics command. Output fields are listed in the approximate order in which they appear.

Table 199: 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.

Table 199: show spanning-tree statistics Output Fields (*continued*)

Field Name	Field Description
Next BPDU transmission	Number of seconds until the next BPDU is scheduled to be sent.

Sample Output

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 user@host> show spanning-tree statistics interface ge-11/1/4 routing-instance vs1 detail

```

statistics interface Interface  BPDUs sent  BPDUs received  Next BPDU
                                transmission
ge-11/1/4                     7          190          0

```

Sample Output

show spanning-tree user@1f0> show spanning-tree statistics interface xe-1/1/1 routing-instance vs1 detail

```

statistics interface (in Interface  BPDUs sent  BPDUs received  Next BPDU
a QFX Series Switch) xe-1/1/1      7          190          0
                        transmission

```


PART 5

VPNs

- [VPN Operational Mode Commands on page 789](#)

VPN Operational Mode Commands

Table 200 on page 789 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 200: Layer 2 Circuit, Layer 2 VPN, and VPLS Operational Mode Commands

Task	Command
Clear MAC address entries from the VPLS table.	<code>clear vpls mac-address</code>
Clear MAC addresses from the VPLS table.	<code>clear vpls mac-table</code>
Manually trigger a switch from the active pseudowire to the redundant pseudowire.	<code>request l2circuit-switchover</code>
Display Layer 3 dynamic tunnel database information.	<code>show dynamic-tunnels database</code>
Display ingress replication provider tunnel information.	<code>show ingress-replication mvpn</code>
Display Layer 2 circuit information.	<code>show l2circuit connections</code>
Display Layer 2 VPN information.	<code>show l2vpn connections</code>
Display multicast VPN c-multicast route information.	<code>show mvpn c-multicast</code>
Display multicast VPN instance information.	<code>show mvpn instance</code>
Display multicast VPN neighbor information.	<code>show mvpn neighbor</code>
Display virtual private LAN service (VPLS) information.	<code>show vpls connections</code>
Display the pending events in the level 2 address learning process (l2ald) routing socket code (rtsock) update queue.	<code>show vpls flood event-queue</code>
Display VPLS information related to the level 2 address learning process for the specified routing instance.	<code>show vpls flood instance</code>

Table 200: Layer 2 Circuit, Layer 2 VPN, and VPLS Operational Mode Commands (*continued*)

Task	Command
Display VPLS route information related to the level 2 address learning process.	show vpls flood route
Display learned VPLS MAC address information.	show vpls mac-table
Display VPLS statistics.	show vpls statistics



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>)> < <i>mac-address</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	(T Series and M Series routers, 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.</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><i>mac-address</i>—(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 791
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear vpls mac-address user@host> clear vpls mac-address

clear vpls mac-table

Syntax	<code>clear vpls mac-table</code> <code><instance <i>instance-name</i>></code> <code><interface <i>interface-name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><mac-address></code> <code><vlan-id></code>
Release Information	Command introduced before Junos OS Release 9.5.
Description	(MX Series routers) Clear media access control (MAC) addresses from the virtual private LAN service (VPLS) MAC table.
Options	<p><code>none</code>—Clear all MAC addresses from the VPLS table for all routing instances.</p> <p><code>instance <i>instance-name</i></code>—(Optional) Clear all MAC addresses for a VPLS instance from the VPLS table.</p> <p><code>interface <i>interface-name</i></code>—(Optional) Clear all MAC addresses for a VPLS interface from the VPLS table.</p> <p><code>logical-system (all <i>logical-system-name</i>)</code>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><code>mac-address</code>—(Optional) Clear a specific MAC address in a VPLS instance from the VPLS table.</p> <p><code>vlan-id</code>—(Optional) Clear MAC addresses on a specified VLAN (0 through 4095).</p>
Required Privilege Level	maintenance
List of Sample Output	clear vpls mac-table on page 792
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

clear vpls mac-table `user@host> clear vpls mac-table`

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 OS Release 9.2.
Description	Manually trigger 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) Trigger 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) Trigger 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 793
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```

request user@host>request l2circuit-switchover virtual-circuit-id 12
l2circuit-switchover
virtual-circuit-id
```

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 OS Release 7.4.
Description	Display dynamic tunnel database information.
Options	<p>none—Display dynamic tunnel database information for all destinations and routing tables.</p> <p><i>destination</i>—(Optional) Display database entries for the specified IP address (with optional destination prefix length) only.</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>table routing-table-name</i>—(Optional) Display database entries for the specified table only.</p>
Required Privilege Level	view
List of Sample Output	<p>show dynamic-tunnels database (Tunnel Is Up) on page 795</p> <p>show dynamic-tunnels database (No Tunnel PIC) on page 795</p> <p>show dynamic-tunnels database (Tunnel Is Expiring) on page 795</p> <p>show dynamic-tunnels database (Destination Specified) on page 795</p>
Output Fields	Table 201 on page 794 lists the output fields for the show dynamic-tunnels database command. Output fields are listed in the approximate order in which they appear.

Table 201: 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.

Table 201: show dynamic-tunnels database Output Fields (*continued*)

Field Name	Field Description
Next-hop	IP address of the destination interface.
State	State of the destination interface: Up, Dn, or Dn (no tunnel pic).

Sample Output

```

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 ingress-replication mvpn

Syntax show ingress-replication mvpn

Release Information Command introduced in Junos OS Release 10.4.

Description Display the state and configuration of the ingress replication tunnels created for the MVPN application when using the **mpls-internet-multicast** routing instance type.

Required Privilege Level View

List of Sample Output show ingress-replication mvpn on page 796

Output Fields Table 202 on page 796 lists the output fields for the **show ingress-replication mvpn** command. Output fields are listed in the approximate order in which they appear.

Table 202: show ingress-replication mvpn

Field Name	Field Description
Ingress tunnel	Identifies the MVPN ingress replication tunnel.
Application	Identifies the application (MVPN).
Unicast tunnels	List of unicast tunnels in use.
Leaf address	Address of the tunnel.
Tunnel type	Identifies the unicast tunnel type.
Mode	Indicates whether the tunnel was created as a new tunnel for the ingress replication, or if an existing tunnel was used.
State	Indicates whether the tunnel is Up or Down.

Sample Output

```

user@host> show ingress-replication mvpn
Ingress Tunnel: mvpn:1
Application: MVPN
Unicast tunnels
  Leaf Address      Tunnel-type      Mode      State
  10.255.245.2      P2P LSP         New       Up
  10.255.245.4      P2P LSP         New       Up
Ingress Tunnel: mvpn:2
Application: MVPN
Unicast tunnels
  Leaf Address      Tunnel-type      Mode      State
  10.255.245.2      P2P LSP         Existing  Up

```

show l2circuit connections

Syntax	<pre>show l2circuit connections <brief extensive summary> <down up up-down> <history> <interface <i>interface-name</i>> <logical-system (all <i>logical-system-name</i>)> <neighbor <i>neighbor</i>> <status></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Display enhancements in Junos OS Release 9.6.</p> <p>Display enhancements in Junos OS Release 10.2.</p>
Description	Display status information about Layer 2 virtual circuits 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.</p> <p>brief extensive 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>history—(Optional) Display information about connection history.</p> <p>interface <i>interface-name</i>—(Optional) Show all Layer 2 virtual circuits 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> <p>status—(Optional) Display information about the connection and interface status.</p>
Required Privilege Level	view
List of Sample Output	<p>show l2circuit connections on page 800</p> <p>show l2circuit connections extensive on page 801</p>
Output Fields	Table 203 on page 798 lists the output fields for the show l2circuit connections command. Output fields are listed in the approximate order in which they appear.

Table 203: show l2circuit 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 virtual circuit is configured.
Type	VC type: rmt (remote) or loc (local).
Legend for connection status (St)	<p>Status of the virtual circuit connection:</p> <ul style="list-style-type: none"> • EI—The local virtual circuit 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 virtual circuit from the neighbor does not match the local virtual circuit 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 virtual circuit from the neighbor. There is no outgoing label available for use by this virtual circuit. • NC—The interface is not configured as a CCC or TCC interface. • BK—The virtual circuit has switched to a backup connection. • CB—The remote PE router is advertising a different cell bundle from that configured on the local PE router. • LD—The connection to the local site is signaled down, because the CE-facing interface to the local site is down. • RD—The remote neighbor is down. It has signaled a problem using the pseudowire status code. • 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 virtual circuit is down. • VC-Dn—The virtual circuit is down because there is no tunnel LSP from the local PE router to the neighbor. • UP—The virtual circuit is operational. • CF—The router cannot find enough bandwidth to the remote router to satisfy the Layer 2 circuit bandwidth requirement. • IB—The bit rate is incompatible for Time Division Multiplexing (TDM). • TDM—TDM is not configured correctly. • ST—The virtual circuit has been switched to a standby connection. • SP—The virtual circuit connection is using a static pseudowire. • RS—The remote site is in a standby state. • XX—The virtual circuit is down for an unknown reason. This is a programming error.
Time last up	Date and time the virtual circuit was last operational.

Table 203: show l2circuit connections Output Fields (*continued*)

Field Name	Field Description
# Up trans	Number of times the virtual circuit came up.
<i>local-interface-name</i>	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.
Encapsulation	Encapsulation of the local interface.
Remote PE	Prefix of the remote PE router.
Negotiated control-word	Whether the use of the control word has been negotiated for this virtual circuit: Yes (Null) or No .
Incoming label	Label used by the remote side of the virtual circuit to send packets destined to the local side. This label is routed to the local virtual circuit interface.
Outgoing label	Label used by the local side of the virtual circuit to send packets to the remote side of the virtual circuit. Packets originated on the local virtual circuit interface are encapsulated with this label before being placed on the tunnel LSP to the neighbor for this virtual circuit. This label is allocated by the neighbor and is used in demultiplexing incoming packets destined for this virtual circuit.
Negotiated PW status TLV	Displays the pseudowire status type, length, and value (TLV). TLVs are a method of encoding variable-length or optional information. If the pseudowire status TLV is used, the corresponding local or neighbor PE router status code is also displayed.
local PW status code	If the pseudowire status TLV is used, displays the local PE router status code.
Neighbor PW status code	If the pseudowire status TLV is used, displays the neighbor PE router status code.
Local interface	Name of the local interface used for the Layer 2 circuit connection.
Status	Status of the local interface (Up or Down).

Table 203: show l2circuit connections Output Fields (*continued*)

Field Name	Field Description
Encapsulation	Encapsulation configured for the local interface.
Connection protection	Whether or not connection protection is configured for the Layer 2 circuit to the neighbor: Yes or No .
VC bandwidth	Bandwidth requirement of the Layer 2 circuit.
Time	Time at which the event occurred.
Connection History	<p>Event types logged in history.</p> <ul style="list-style-type: none"> • loc intf up—Local virtual circuit interface went up. • loc intf down—Local virtual circuit 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 virtual circuit 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 virtual circuit, and determines whether it should be advertised to or withdrawn from the remote side.

Sample Output

```

user@host> show l2circuit connections
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         IB -- TDM incompatible bitrate
NC -- intf encaps not CCC/TCC   TM -- TDM misconfiguration
BK -- Backup Connection         ST -- Standby Connection
CB -- rcvd cell-bundle size bad SP -- Static Pseudowire
LD -- local site signaled down  RS -- remote site standby
RD -- remote site signaled down XX -- unknown

Legend for interface status
Up -- operational
Dn -- down
Neighbor: 10.255.245.51
  Interface      Type  St    Time last up      # Up trans
  ge-2/0/2.600(vc 5)  rmt  Up    Dec 7 18:11:18 2009      1
  Remote PE: 10.255.245.51, Negotiated control-word: No
  Incoming label: 299856, Outgoing label: 299808

```

Negotiated PW status TLV: No
 Local interface: ge-2/0/2.600, Status: Up, Encapsulation: VLAN

Sample Output

```

user@host>show l2circuit connections extensive
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         IB -- TDM incompatible bitrate
NC -- intf encaps not CCC/TCC   TM -- TDM misconfiguration
BK -- Backup Connection         ST -- Standby Connection
CB -- rcvd cell-bundle size bad SP -- Static Pseudowire
LD -- local site signaled down  RS -- remote site standby
RD -- remote site signaled down XX -- unknown

Legend for interface status
Up -- operational
Dn -- down
Neighbor: 10.255.49.149
Interface          Type St   Time last up      # Up trans
ae0.0(vc 100)      rmt  Up    Aug 31 09:36:12 2009      1
  Remote PE: 10.255.49.149, Negotiated control-word: Yes (Null)
  Incoming label: 299824, Outgoing label: 299776
  Negotiated PW status TLV: Yes
  Local PW status code: 0x00000000, Neighbor PW status code: 0x00000000
  Local interface: ae0.0, Status: Up, Encapsulation: ETHERNET
  Connection protection: Yes
Connection History:
  Aug 31 09:36:12 2009 status update timer
  Aug 31 09:36:12 2009 PE route changed
  Aug 31 09:36:12 2009 Out lbl Update                      299776
  Aug 31 09:36:12 2009 In lbl Update                        299824
  Aug 31 09:36:12 2009 loc intf up                          ae0.0

```

show l2vpn connections

Syntax	<code>show l2vpn connections</code> <code><brief extensive></code> <code><down up up-down></code> <code><history></code> <code><instance <i>instance</i>></code> <code><local-site <i>local-site</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><remote-site <i>remote-site</i>></code> <code><status></code> <code><summary></code>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display Layer 2 virtual private network (VPN) connections.
Options	<p><code>none</code>—Display all Layer 2 VPN connections for all routing instances.</p> <p><code>brief extensive</code>—(Optional) Display the specified level of output.</p> <p><code>down up up-down</code>—(Optional) Display nonoperational, operational, or both kinds of connections.</p> <p><code>history</code>—(Optional) Display information about connection history.</p> <p><code>instance <i>instance</i></code>—(Optional) Display connections for the specified routing instance only.</p> <p><code>local-site <i>local-site</i></code>—(Optional) Display connections for the specified Layer 2 VPN local site name or ID only.</p> <p><code>logical-system (all <i>logical-system-name</i>)</code>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><code>remote-site <i>remote-site</i></code>—(Optional) Display connection for the specified Layer 2 VPN remote site ID only.</p> <p><code>status</code>—(Optional) Display information about the connection and interface status.</p> <p><code>summary</code>—(Optional) Display summary of all Layer 2 VPN connections information.</p>
Required Privilege Level	view
List of Sample Output	show l2vpn connections on page 804 show l2vpn connections extensive on page 804
Output Fields	Table 204 on page 803 lists the output fields for the show l2vpn connections command. Output fields are listed in the approximate order in which they appear.

Table 204: show l2vpn connections Output Fields

Field Name	Field Description
Instance	Name of Layer 2 VPN instance.
Local site	Name of local site.
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.

Table 204: show l2vpn connections Output Fields (*continued*)

Field Name	Field Description
Time	Date and time of Layer 2 VPN connection event.
Event	Type of event.
Interface/Lbl/PE	Interface, label, or PE router.

Sample Output

```

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 summary> <instance-name <i>instance-name</i> >
Release Information	Command introduced in Junos OS 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 807 show mvpn c-multicast summary on page 807 show mvpn c-multicast extensive on page 807 show mvpn c-multicast extensive on page 807 show mvpn c-multicast summary (IPv6) on page 808
Output Fields	Table 205 on page 806 lists the output fields for the show mvpn c-multicast command. Output fields are listed in the approximate order in which they appear.

Table 205: 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 IPv4 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 customer multicast IPv4 routes associated with the multicast VPN routing instance.	summary
C-multicast IPv6 route count	Number of customer multicast IPv6 routes associated with the multicast VPN routing instance.	summary

Sample Output

```

show mvpn      user@host> show mvpn c-multicast
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

```

Sample Output

```

show mvpn      user@host> show mvpn c-multicast summary
c-multicast summary MVPN Summary:
Instance: VPN-A
  C-multicast IPv4 route count: 1
Instance: VPN-B
  C-multicast IPv4 route count: 2

```

Sample Output

```

show mvpn      user@host> show mvpn c-multicast extensive
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 mvpn      user@host> show mvpn c-multicast extensive
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: mvpn-a

C-mcast IPv4 (S:G)	Ptnl	St	
192.168.252.18/32:224.2.2.1/32	LDP	P2MP:10.255.72.50, lsp-id 1	RM
0.0.0.0/0:226.1.1.1/32			

```
show mvpn c-multicast summary (IPv6)
user@host> show mvpn c-multicast summary
MVPN Summary:
Instance: VPN-A
  C-multicast IPv6 route count: 3
Instance: VPN-B
  C-multicast IPv6 route count: 2
```

show mvpn instance

Syntax	show mvpn instance <extensive summary> <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 8.4.
Description	Display the multicast VPN routing instance information.
Options	extensive summary—(Optional) Display the specified level of output. instance <i>instance-name</i> —(Optional) Display statistics for the specified routing instance.
Required Privilege Level	view
List of Sample Output	show mvpn instance on page 810 show mvpn instance on page 810 show mvpn instance summary on page 811 show mvpn instance extensive on page 811 show mvpn instance summary (IPv6) on page 811
Output Fields	Table 206 on page 809 lists the output fields for the show mvpn instance command. Output fields are listed in the approximate order in which they appear.

Table 206: show mvpn 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 IPv4 router multicast address.	extensive none
C-mcast IPv6 (S:G)	Customer IPv6 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

Table 206: show mvpn instance Output Fields (*continued*)

Field Name	Field Description	Level of Output
Neighbor count	Number of neighbors associated with the multicast VPN routing instance.	summary
C-multicast IPv4 route count	Number of customer multicast IPv4 routes associated with the multicast VPN routing instance.	summary
C-multicast IPv6 route count	Number of customer multicast IPv6 routes associated with the multicast VPN routing instance.	summary

Sample Output

```

show mvpn instance user@host> show mvpn 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
    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
    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 user@host> show mvpn 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-1
MVPN Mode : SPT-ONLY
  Provider tunnel: I-P-tnl:LDP-P2MP:10.255.72.162, lsp-id 16777217
  Neighbor
    10.255.72.160          LDP-P2MP:10.255.72.160, lsp-id 16777217
    10.255.72.166          RSVP-TE P2MP:10.255.72.166,

```



```
13054,10.255.72.166
10.255.72.168
```

Sample Output

```
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
```

Sample Output

```
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 instance summary user@host> show mvpn instance summary
summary (IPv6)             MVPN Summary:
Instance: VPN-A
  C-multicast IPv6 route count: 2
Instance: VPN-B
  C-multicast IPv6 route count: 2
```

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 OS Release 8.4.
Description	Display 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 812 show mvpn neighbor extensive on page 813 show mvpn neighbor extensive on page 813 show mvpn neighbor instance-name on page 814 show mvpn neighbor neighbor-address on page 814 show mvpn neighbor neighbor-address summary on page 814 show mvpn neighbor neighbor-address extensive on page 814 show mvpn neighbor neighbor-address instance-name on page 815
Output Fields	Table 207 on page 812 lists the output fields for the show mvpn neighbor command. Output fields are listed in the approximate order in which they appear.

Table 207: 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

Sample Output

```

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

```

Sample Output

```

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 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: mvpn-a
                               Neighbor                        I-P-tnl
                               10.255.72.45                    LDP P2MP:10.255.72.50, lsp-id 1
                               10.255.72.50

```

Sample Output

```

show mvpn neighbor instance-name user@host> show mvpn neighbor instance-name VPN-A
instance-name 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

```

Sample Output

```

show mvpn neighbor neighbor-address user@host> show mvpn neighbor neighbor-address 10.255.14.160
neighbor-address 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

```

Sample Output

```

show mvpn neighbor neighbor-address summary user@host> show mvpn neighbor neighbor-address 10.255.70.17 summary
neighbor-address MVPN Summary:
summary Instance: VPN-A
Instance: VPN-B

```

Sample Output

```

show mvpn neighbor neighbor-address extensive 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

Sample Output

```

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	<code>show vpls connections</code> <code><brief extensive></code> <code><down up up-down></code> <code><history></code> <code><instance <i>instance-name</i> local-site <i>local-site-name</i> remote-site <i>remote-site-name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><status></code> <code><summary></code>
Release Information	Command introduced before Junos OS Release 7.4.
Description	(T Series and M Series routers, except for the M160 router) Display virtual private LAN service (VPLS) connection information.
Options	<p><code>none</code>—Display information about all VPLS connections for all routing instances.</p> <p><code>brief extensive</code>—(Optional) Display the specified level of output.</p> <p><code>down up up-down</code>—(Optional) Display nonoperational, operational, or both types of connections.</p> <p><code>history</code>—(Optional) Display information about connection history.</p> <p><code>instance <i>instance-name</i></code>—(Optional) Display the VPLS connections for the specified routing instance only.</p> <p><code>local-site <i>local-site-name</i></code>—(Optional) Display the VPLS connections for the specified local site name or ID only.</p> <p><code>remote-site <i>remote-site-name</i></code>—(Optional) Display the VPLS connections for the specified remote site name or ID only.</p> <p><code>logical-system (all <i>logical-system-name</i>)</code>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><code>status</code>—(Optional) Display information about the connection and interface status.</p> <p><code>summary</code>—(Optional) Display summary of all VPLS connections information.</p>
Required Privilege Level	view
List of Sample Output	<code>show vpls connections</code> on page 820 <code>show vpls connections extensive (Static VPLS Neighbors)</code> on page 822
Output Fields	Table 208 on page 817 lists the output fields for the show vpls connections command. Output fields are listed in the approximate order in which they appear.

Table 208: show vpls connections Output Fields

Field Name	Field Description
Instance	Name of the VPLS instance.
Local site	Name of the local site.
VPLS-id	Identifier for the VPLS site.
Number of local interfaces	Number of interfaces configured for the local site.
Number of local interfaces up	Number of interfaces configured for the local site that are currently up.
IRB interface present	Indicates whether or not an integrated routing and bridging (IRB) interface is present (yes or no).
Intf	<p>List of all of the interfaces configured for the local site. The types of interfaces can include VPLS virtual loopback tunnel interfaces and label-switched interfaces. Any interface that supports VPLS could be listed here.</p> <p>Virtual loopback tunnel interfaces are displayed using the vt-fpc/pic/port.nnnnn format. Label-switched interfaces are displayed using the lsi.nnnnn format. In both cases, nnnnn is a dynamically generated virtual port used to transport and receive packets from other provider edge (PE) routers in the VPLS domain.</p> <p>Each interface might include the following information:</p> <ul style="list-style-type: none"> • Identification as a VPLS interface • Name of the associated VPLS routing instance • Local site number • Remote site number • VPLS neighbor address • VPLS identifier
Interface flags	<p>Flag associated with the interface. Can include the following:</p> <ul style="list-style-type: none"> • VC-Down—The virtual circuit associated with this interface is down.
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.
Offset	Displays the VPLS Edge (VE) block offset in the Layer 2 VPN NLRI. The VE block offset is used to identify a label block from which a particular label value is selected to setup a pseduowire for a remote site. The block offset value itself indicates the starting VE ID that maps to the label base contained in the VPLS NLRI advertisement.
Size	Label block size.
Range	Label block range.

Table 208: show vpls connections Output Fields (*continued*)

Field Name	Field Description
Preference	Preference value advertised for a VPLS site. When multiple PE routers are assigned the same VE ID for multihoming, you might need to specify that a particular PE router acts as the designated forwarder by configuring the site preference value. The site preference indicates the degree of preference for a particular customer site. The site preference is one of the tie-breaking criteria used in a designated forwarder election.
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.
Neighbor	IP address and VPLS identifier for the VPLS neighbor.
Type	Type of connection: loc (local) or rmt (remote).
St	<p>Status of the VPLS connection:</p> <ul style="list-style-type: none"> • EI—The local VPLS interface is configured with an encapsulation that is not supported. • EM—The encapsulation type received on this VPLS connection from the neighbor does not match the local VPLS connection interface encapsulation type. • VC-Dn—The virtual circuit is currently down. • CM—The two routers do not agree on a control word, which causes a control word mismatch. • CN—The virtual circuit is not provisioned properly. • OR—The label associated with the virtual circuit is out of range. • OL—No advertisement has been received for this virtual circuit from the neighbor. There is no outgoing label available for use by this virtual circuit. • LD—All of the CE-facing interfaces to the local site are down. Therefore, the connection to the local site is signaled as down to the other PE routers. No pseudowires can be established. • RD—All the interfaces to the remote neighbor are down. Therefore, the remote site has been signaled as down to the other PE routers. No pseudowires can be established. • LN—The local site has lost path selection to the remote site and therefore no pseudowires can be established from this local site. • RN—The remote site has lost path selection to a local site or other remote site and therefore no pseudowires are established to this remote site. • XX—The VPLS connection is down for an unknown reason. This is a programming error. • MM—The MTU for the local site and the remote site do not match. • BK—The router is using a backup connection. • PF—Profile parse failure. • RS—The remote site is in a standby state. • NC—The interface encapsulation is not configured as an appropriate CCC, TCC, or VPLS encapsulation.

Table 208: show vpls connections Output Fields (*continued*)

Field Name	Field Description
	<ul style="list-style-type: none"> • WE—The encapsulation configured for the interface does not match the encapsulation configured for the associated connection within the VPLS routing instance. • NP—The router detects that interface hardware is not present. The hardware might be offline, a PIC might not be of the desired type, or the interface might be configured in a different routing instance. • ->—Only the outbound connection is up. • <-—Only the inbound connection is up. • Up—The VPLS connection is operational. • Dn—The VPLS connection is down. • CF—The router cannot find enough bandwidth to the remote router to satisfy the VPLS connection bandwidth requirement. • SC—The local site identifier matches the remote site identifier. No pseudowire can be established between these two sites. You should configure different values for the local and remote site identifiers. • LM—The local site identifier is not the minimum designated, meaning it is not the lowest. There is another local site with a lower site identifier. Pseudowires are not being established to this local site, and the associated local site identifier is not being used to distribute VPLS label blocks. However, this is not an error state. Traffic continues to be forwarded to the PE router interfaces connected to the local sites when the local sites are in this state. • RM—The remote site identifier is not the minimum designated, meaning it is not the lowest. There is another remote site connected to the same PE router which has lower site identifier. The PE router cannot establish a pseudowire to this remote site and the associated remote site identifier cannot be used to distribute VPLS label blocks. However, this is not an error state. Traffic can continue to be forwarded to the PE router interface connected to this remote site when the remote site is in this state. • IL—The incoming packets for the VPLS connection have no MPLS label. • MI—The configured mesh group identifier is in use by another system in the network. • ST—The router has switched to a standby connection. • PB—Profile busy. • SN—The VPLS neighbor is static.
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 .

Table 208: show vpls connections Output Fields (*continued*)

Field Name	Field Description
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.
Negotiated PW status TLV	Indicates whether or not the pseudowire status TLV has been negotiated for the VPLS connection.
Local interface	Provides the following information about the local interface configured for the VPLS neighbor: <ul style="list-style-type: none"> • Name of the local interface • Status—Interface status (Up or Down) • Encapsulation—Interface encapsulation (for example, ETHERNET) • Description—Includes the VPLS instance name, the VPLS neighbor address, and the VPLS identifier
Time	Date and time of VPLS connection event.
Event	Type of event.
Interface/Lbl/PE	Interface, label, or PE router.
Connection History	Each entry can include the date, time, year, and the connection event. Connection events include any of a variety of events related to VPLS connections, such as route changes, label updates, and interfaces going down or coming up.

Sample Output

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 IL -- no incoming label
MM -- MTU mismatch             MI -- Mesh-Group ID not available
BK -- Backup connection        ST -- Standby connection

```

```

PF -- Profile parse failure      PB -- Profile busy

Legend for interface status
Up -- operational
Dn -- down

Instance: vpls-1
  Local site: 1 (11)
    Number of local interfaces: 1
    Number of local interfaces up: 1
    IRB interface present: no
    lt-1/3/0.10496
    vt-1/3/0.1048588      1      Intf - vpls vpls-1 local site 11 remote site 1
    vt-1/2/0.1048591      2      Intf - vpls vpls-1 local site 11 remote site 2
    vt-1/2/0.1048585      3      Intf - vpls vpls-1 local site 11 remote site 3
    vt-1/2/0.1048587      4      Intf - vpls vpls-1 local site 11 remote site 4
    vt-1/2/0.1048589      5      Intf - vpls vpls-1 local site 11 remote site 5
    vt-1/3/0.1048586      6      Intf - vpls vpls-1 local site 11 remote site 6
    vt-1/3/0.1048590      7      Intf - vpls vpls-1 local site 11 remote site 7
    vt-1/3/0.1048584      8      Intf - vpls vpls-1 local site 11 remote site 8

+ Label-base      Offset      Size      Range      Preference
  800256           1          16        16          100

Timer Values:
  Startup wait time: 120 seconds
  New site wait-time: 20 seconds
  Collision detect time: 30 seconds
  Reclaim wait time: 748 milliseconds

connection-site      Type      St      Time last up      # Up trans
1                    rmt      Up      Apr 28 13:28:24 2009      2
  Remote PE: 124.1.2.1, Negotiated control-word: No
  Incoming label: 800256, Outgoing label: 800026
  Local interface: vt-1/3/0.1048588, Status: Up, Encapsulation: VPLS
  Description: Intf - vpls vpls-1 local site 11 remote site 1
Connection History:
  Apr 28 13:28:24 2009 status update timer
  Apr 28 13:28:24 2009 PE route down
  Apr 28 13:24:27 2009 status update timer
  Apr 28 13:24:27 2009 loc intf up      vt-1/3/0.1048588
  Apr 28 13:24:27 2009 PE route changed
  Apr 28 13:24:27 2009 Out lbl Update      800026
  Apr 28 13:24:27 2009 In lbl Update      800256
  Apr 28 13:24:27 2009 loc intf down
2                    rmt      Up      Apr 28 13:28:24 2009      2
  Remote PE: 124.1.7.1, Negotiated control-word: No
  Incoming label: 800257, Outgoing label: 800034
  Local interface: vt-1/2/0.1048591, Status: Up, Encapsulation: VPLS
  Description: Intf - vpls vpls-1 local site 11 remote site 2
Connection History:
  Apr 28 13:28:24 2009 status update timer
  Apr 28 13:28:24 2009 PE route down
  Apr 28 13:24:28 2009 status update timer
  Apr 28 13:24:28 2009 loc intf up      vt-1/2/0.1048591
  Apr 28 13:24:28 2009 PE route changed

```

```

Apr 28 13:24:28 2009 Out lbl Update 800034
Apr 28 13:24:28 2009 In lbl Update 800257
Apr 28 13:24:28 2009 loc intf down
3 rmt Up Apr 28 13:28:24 2009 2
Remote PE: 124.1.4.1, Negotiated control-word: No
Incoming label: 800258, Outgoing label: 800026
Local interface: vt-1/2/0.1048585, Status: Up, Encapsulation: VPLS
Description: Intf - vpls vpls-1 local site 11 remote site 3
Connection History:
Apr 28 13:28:24 2009 status update timer
Apr 28 13:28:24 2009 PE route down
Apr 28 13:24:26 2009 status update timer
Apr 28 13:24:26 2009 loc intf up vt-1/2/0.1048585
Apr 28 13:24:26 2009 PE route changed
Apr 28 13:24:26 2009 Out lbl Update 800026
Apr 28 13:24:26 2009 In lbl Update 800258
Apr 28 13:24:26 2009 loc intf down
4 rmt Up Apr 28 13:28:24 2009 2
Remote PE: 124.1.6.1, Negotiated control-word: No
Incoming label: 800259, Outgoing label: 800026
Local interface: vt-1/2/0.1048587, Status: Up, Encapsulation: VPLS
Description: Intf - vpls vpls-1 local site 11 remote site 4
Connection History:
Apr 28 13:28:24 2009 status update timer
Apr 28 13:28:24 2009 PE route down
Apr 28 13:24:27 2009 status update timer
Apr 28 13:24:27 2009 loc intf up vt-1/2/0.1048587
Apr 28 13:24:27 2009 PE route changed
Apr 28 13:24:27 2009 Out lbl Update 800026
Apr 28 13:24:27 2009 In lbl Update 800259
Apr 28 13:24:27 2009 loc intf down
5 rmt Up Apr 28 13:28:24 2009 2
Remote PE: 124.1.3.1, Negotiated control-word: No
Incoming label: 800260, Outgoing label: 800034
Local interface: vt-1/2/0.1048589, Status: Up, Encapsulation: VPLS
Description: Intf - vpls vpls-1 local site 11 remote site 5
Connection History:
Apr 28 13:28:24 2009 status update timer
Apr 28 13:28:24 2009 PE route down
Apr 28 13:24:28 2009 status update timer
Apr 28 13:24:28 2009 loc intf up vt-1/2/0.1048589
Apr 28 13:24:28 2009 PE route changed
Apr 28 13:24:28 2009 Out lbl Update 800034
Apr 28 13:24:27 2009 In lbl Update 800260
Apr 28 13:24:27 2009 loc intf down

```

**show vpls connections
extensive (Static VPLS
Neighbors)**

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 IL -- no incoming label
 MM -- MTU mismatch MI -- Mesh-Group ID not available
 BK -- Backup connection ST -- Standby connection
 PF -- Profile parse failure PB -- Profile busy
 RS -- remote site standby SN -- Static Neighbor

Legend for interface status

Up -- operational
 Dn -- down

Instance: static

VPLS-id: 1

Number of local interfaces: 1

Number of local interfaces up: 1

ge-0/0/5.0

lsi.1049344 Intf - vpls static neighbor 10.255.114.3 vpls-id

1

Neighbor	Type	St	Time last up	# Up trans
10.255.114.3(vpls-id 1)(SN)	rmt	Up	Mar 4 08:48:41 2010	1

Remote PE: 10.255.114.3, Negotiated control-word: No

Incoming label: 29696, Outgoing label: 29697

Negotiated PW status TLV: No

Local interface: lsi.1049344, Status: Up, Encapsulation: ETHERNET

Description: Intf - vpls static neighbor 10.255.114.3 vpls-id 1

Connection History:

Mar 4 08:48:41 2010 status update timer

Mar 4 08:48:41 2010 PE route changed

Mar 4 08:48:41 2010 Out lbl Update 29697

Mar 4 08:48:41 2010 In lbl Update 29696

Mar 4 08:48:41 2010 loc intf up lsi.1049344

show vpls flood event-queue

Syntax	show vpls flood event-queue
Release Information	Command introduced in Junos OS 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 824
Output Fields	Table 209 on page 824 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 209: 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	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.

Sample Output

```

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 OS 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.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</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 827</p> <p>show vpls flood instance logical-system-name on page 827</p> <p>show vpls flood instance detail on page 827</p>
Output Fields	Table 210 on page 826 lists the output fields for the show vpls flood instance command. Output fields are listed in the approximate order in which they appear.

Table 210: 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.

Table 210: show vpls flood instance Output Fields (*continued*)

Field Name	Field Description
Nhindex	Next-hop index number for the route.

Sample Output

```

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 detail user@host: __juniper_ls1__> show vpls flood instance 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 OS 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 __juniper_ls1__ (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 829</p> <p>show vpls flood route ce-flood on page 829</p>
Output Fields	Table 211 on page 828 lists the output for the show vpls flood route command. Output fields are listed in the approximate order in which they appear.

Table 211: 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 CE_FLOOD or ALL_CE_FLOOD).
Flood route owner	VPLS routing instance or interface associated with the flood route.
Nexthop type	Next-hop type. For example, flood 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.

Table 211: show vpls flood route Output Fields (*continued*)

Field Name	Field Description
Type	Type of VPLS router (CE or VE).
Nh type	Next-hop type.
Index	Index number for the flood route.

Sample Output

show vpls flood route all-ce-flood user@host: __juniper_ls1__> show vpls flood route all-ce-flood logical-system-name __juniper_ls1__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_ls1__> 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 OS 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 831 show vpls mac-table count on page 832 show vpls mac-table detail on page 832 show vpls mac-table extensive on page 833</pre>
Output Fields	Table 212 on page 830 describes the output fields for the show bridge mac-table command. Output fields are listed in the approximate order in which they appear.

Table 212: show vpls mac-table Output fields

Field Name	Field Description
Routing instance	Name of the routing instance.

Table 212: 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.

Sample Output

```

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 address      MAC flags  Logical
00:90:69:9c:1c:5d D        interface
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 address      MAC flags  Logical
                  flags    interface

```

```

00:00:aa:12:12:12  D      lsi.1051138
00:05:85:74:9f:f0  D      lsi.1051138

```

```

show vpls mac-table count  user@host> show vpls mac-table 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 detail user@host> show vpls mac-table 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
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 OS Release 7.4.
Description	(T Series and M Series routers, except for the M160 router) Display virtual private LAN service (VPLS) statistics.
Options	<p>none—Display VPLS statistics for all routing instances.</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 835</p> <p>show vpls statistics instance on page 835</p>
Output Fields	Table 213 on page 834 lists the output fields for the show vpls statistics command. Output fields are listed in the approximate order in which they appear.

Table 213: 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/plc/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.

Table 213: show vpls statistics Output Fields (*continued*)

Field Name	Field Description
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.

Sample Output

```

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

Index

- Index on page 839
- Index of Statements and Commands on page 849

Index

Symbols

#, comments in configuration statements.....	xxi
(), in syntax descriptions.....	xxi
< >, in syntax descriptions.....	xx
[], in configuration statements.....	xxi
{ }, in configuration statements.....	xxi
(pipe), in syntax descriptions.....	xxi

A

administrative groups <i>See</i> groups	
advertisements <i>See</i> router advertisements	
ANCP	
CoS state	
displaying ANCP.....	6
local access loop	
displaying.....	13
neighbor	
clearing.....	4
neighbors	
displaying.....	9
subscribers	
displaying.....	13
AS paths	
distribution of, displaying.....	398
domain information, displaying.....	402
matching regular expressions, displaying.....	421
summary of, displaying.....	404
ASN	
BGP community routes, displaying.....	429
automatic bandwidth allocation	
LSPs.....	663
Automatic Multicast Tunneling <i>See</i> AMT	
autonomous system number <i>See</i> ASN	
autonomous system paths <i>See</i> AS paths	

B

backup PE groups	
multicast, displaying.....	154
bandwidth, allocating for LSPs.....	663
best routes, displaying.....	423

BFD

sessions	
clearing.....	21
displaying.....	22

BGP

community ASN, displaying routes.....	429
community name, displaying routes.....	431
damping parameters	
clearing.....	30
displaying.....	64
damping routes, displaying.....	433
groups	
general information, displaying.....	36
traffic statistics, displaying.....	43
neighbors	
clearing connections.....	31
displaying.....	45
summary information, displaying.....	60
table	
clearing.....	33

BGP Monitoring Protocol

displaying	
statistics.....	35

Bidirectional Forwarding Detection *See* BFD

binding state of DHCP client	
clearing.....	604
displaying.....	612
bootstrap routers, displaying.....	200
Border Gateway Protocol <i>See</i> BGP	
braces, in configuration statements.....	xxi
brackets	
angle, in syntax descriptions.....	xx
square, in configuration statements.....	xxi
bridge domain	
Layer 2, displaying.....	745

C

CAC	
displaying for LSPs.....	681
call admission control <i>See</i> CAC	

CCC	
connections, displaying.....	664
circuit cross-connect See CCC	
clear (ospf ospf3) database command.....	329
clear (ospf ospf3) database-protection	
command.....	332
clear (ospf ospf3) io-statistics command.....	333
clear (ospf ospf3) neighbor command.....	334
clear (ospf ospf3) statistics command.....	337
clear ancp neighbor command.....	4
clear bfd adaptation command.....	20
clear bfd session command.....	21
clear bgp damping command.....	30
clear bgp neighbor command.....	31
clear bgp table command.....	33
clear bridge mac-table command.....	742
clear dhcp relay binding command.....	604
clear dhcp relay statistics command.....	607
clear error bpdu command.....	743
clear error mac-rewrite command.....	744
clear esis adjacency command.....	68
clear esis statistics command.....	69
clear firewall command.....	592
clear helper statistics command.....	610
clear igmp membership command.....	81
clear igmp snooping membership command.....	85
clear igmp snooping statistics command.....	86
clear igmp statistics command.....	87
clear ipv6 neighbors command.....	242
clear ipv6 router-advertisement command.....	243
clear isis adjacency command.....	251
clear isis database command.....	253
clear isis overload command.....	255
clear isis statistics command.....	257
clear ldp neighbor command.....	633
clear ldp session command.....	634
clear ldp statistics command.....	635
clear lldp neighbor command.....	300
clear lldp statistics command.....	301
clear mld membership command.....	89
clear mld statistics command.....	90
clear msdp cache command.....	91
clear msdp statistics command.....	92
clear multicast bandwidth-admission	
command.....	93
clear multicast scope command.....	95
clear multicast sessions command.....	96
clear multicast snooping statistics command.....	97
clear multicast statistics command.....	98
clear ospf overload command.....	336
clear pgm negative-acknowledgments	
command.....	99
clear pgm source-path-messages command.....	100
clear pgm statistics command.....	101
clear pim join command.....	102
clear pim join-distribution command.....	103
clear pim register command.....	105
clear pim statistics command.....	106
clear rip general-statistics command.....	572
clear rip statistics command.....	573
clear ripng general-statistics command.....	582
clear ripng statistics command.....	583
clear rsvp session command.....	712
clear rsvp statistics command.....	714
clear spanning-tree protocol-migration	
command.....	768
clear spanning-tree statistics command.....	769
clear vlpls mac-address command.....	791
clear vlpls mac-table command.....	792
comments, in configuration statements.....	xxi
community ASN, displaying routes.....	429
community name, displaying routes.....	431
conditions	
routing policy.....	624
Constrained Shortest Path First See CSPF	
conventions	
text and syntax.....	xx
CSPF	
statistics, displaying.....	683
curly braces, in configuration statements.....	xxi
customer support.....	xxi
contacting JTAC.....	xxi
D	
damping parameters, BGP	
clearing.....	30
displaying.....	64
damping routes, BGP	
displaying.....	433
DHCP	
relay binding	
clearing.....	604
relay binding state	
displaying.....	612
relay statistics	
clearing.....	607
displaying.....	616

-
- DHCP client
 - binding state
 - clearing.....604
 - displaying.....612
 - statistics
 - clearing.....607
 - DiffServ
 - classes, displaying for MPLS.....685
 - Distance Vector Multicast Routing Protocol *See* DVMRP
 - documentation
 - comments on.....xxi
 - Draft-rosen MVPNs
 - data MDT cache, displaying.....215
 - DVMRP
 - groups, displaying.....191
 - interfaces, displaying.....109
 - neighbors, displaying.....111
 - prefixes, displaying.....113
 - prunes, displaying active.....115
 - dynamic overload bit, resetting for IS-IS.....255
 - dynamic tunnel database, displaying.....794
- E**
- End System-to-Intermediate System *See* ES-IS
 - ES-IS
 - adjacencies
 - clearing.....68
 - displaying.....70
 - interfaces, displaying.....72
 - statistics
 - clearing.....69
 - displaying.....74
 - export route information, displaying.....455
- F**
- FEC filters
 - displaying for LDP.....640
 - firewall
 - filter version
 - displaying.....596
 - statistics
 - displaying.....593
 - firewall filters
 - log information, displaying.....597
 - policed packets, displaying.....601
 - statistics
 - clearing.....592
 - displaying.....600
 - flooding
 - Layer 2 bridging, displaying.....747
 - font conventions.....xx
 - forwarding equivalence class *See* FEC
 - forwarding options
 - DHCP relay agent.....604, 607, 612, 616
 - UDP statistics
 - clearing.....610
 - displaying.....619
 - forwarding table
 - multicast information, displaying.....168
 - multicast snooping information,
 - displaying.....182
 - route entries, displaying.....474
- G**
- generalized MPLS *See* GMPLS
 - GMPLS
 - link-management information, displaying
 - all.....667
 - peers.....671
 - routing process.....673
 - statistics.....676
 - traffic-engineered links.....678
 - groups
 - BGP
 - general information, displaying.....36
 - traffic statistics, displaying.....43
 - DVMRP, displaying.....191
 - IGMP membership, displaying.....117
 - MLD
 - clearing.....89
 - displaying.....136
 - MPLS, displaying administrative.....680
 - PIM
 - general information, displaying.....205
 - usage information, displaying.....191
- H**
- hidden routes, displaying.....486
 - hostnames
 - IS-IS, displaying.....279
- I**
- icons defined, notice.....xix
 - IGMP
 - group membership, displaying.....117
 - interfaces, displaying.....121

PIM-to-IGMP message translation information,	
displaying.....	164
snooping (interface).....	124
snooping (membership).....	127
snooping (statistics).....	130
statistics, displaying.....	133
interface learning information	
Layer 2, displaying.....	764
Intermediate System-to-Intermediate System <i>See</i>	
IS-IS	
Internet Group Management Protocol <i>See</i> IGMP	
invalid routes, displaying.....	505
IP IGMP snooping	
membership	
clearing.....	85
statistics	
clearing.....	86
IP multicast.....	77
announced sessions, displaying.....	179
backup PE groups, displaying.....	154
bandwidth admission	
clearing.....	93
flow map information, displaying.....	156
forwarding table, displaying.....	168
interface information, displaying.....	158
network information, displaying.....	160
next-hop table, displaying.....	162
PIM-to-IGMP message translation information,	
displaying.....	164
PIM-to-MLD message translation information,	
displaying.....	166
RPF calculations, displaying.....	173
SAP announcements, displaying.....	238
scope, clearing.....	95
scoped information, displaying.....	177
sessions, clearing.....	96
statistics	
clearing.....	98
displaying.....	188
<i>See also</i> DVMRP, MDT, MLD, MSDP, PGM, PIM,	
AMT	
IP multicast snooping	
forwarding table, displaying.....	182
statistics	
clearing.....	97
displaying.....	185
IPv6	
neighbor cache information	
clearing.....	242
displaying.....	244
router advertisements	
clearing.....	243
displaying.....	246
IS-IS	
adjacency database entries, clearing.....	251
authentication, displaying.....	263
backup coverage	
displaying.....	265
backup MPLS LSPs.....	267
backup paths	
SPF calculations.....	269
dynamic overload bit, resetting.....	255
hostname database, displaying.....	279
interfaces, displaying.....	280
link-state database entries	
clearing.....	253
displaying.....	272
neighbors, displaying.....	259
routes, displaying.....	287
SPF calculations, displaying.....	290
traffic statistics	
clearing.....	257
displaying.....	295
J	
join states, clearing PIM.....	102
join states, redistributing.....	103
L	
Label Distribution Protocol <i>See</i> LDP	
label switched path, LSP.....	659
Layer 2 BPDU loop prevention	
clearing errors.....	743
Layer 2 bridging.....	741
bridge domain, displaying.....	745
flooding, displaying.....	747
interface learning information, displaying.....	764
learning information, displaying.....	760, 761
learning properties, displaying.....	762
MAC address table, clearing.....	742
MAC address table, displaying.....	754
statistics, displaying.....	757
Layer 2 circuits	
connections, displaying.....	797
redundant pseudowires.....	793

Layer 2 protocol tunneling	
clearing errors.....	744
interface information, displaying.....	766
Layer 2 switching.....	741
Layer 2 VPNs	
connections, displaying.....	802
VPLS connections, displaying.....	816
VPLS statistics, displaying.....	834
Layer 3 VPNs	
dynamic tunnel database, displaying.....	794
PIM MDTs, displaying.....	211
PIM, displaying.....	217
LDP	
database entries, displaying.....	636
FEC filters, displaying.....	640
interfaces, displaying.....	641
LSPs, displaying.....	645
neighbors	
clearing connections.....	633
displaying.....	643
routes, displaying.....	647
sessions	
clearing.....	634
displaying.....	649
statistics	
clearing.....	635
displaying.....	654
traffic statistics, displaying.....	657
learning information	
Layer 2, displaying.....	760, 761
learning properties	
Layer 2, displaying.....	762
link-state paths <i>See</i> LSPs	
LLDP	
displaying.....	302
local information, displaying.....	304
neighbor	
clearing.....	300
neighbors, displaying.....	306
remote global statistics, displaying.....	310
statistics	
clearing.....	301
statistics, displaying.....	312
LSPs	
bandwidth allocation, adjusting.....	663
CAC information, displaying.....	681
clearing.....	661
LDP, displaying.....	645
MPLS, displaying.....	688

M

MAC address table	
Layer 2, clearing address information.....	742
Layer 2, displaying.....	754
manuals	
comments on.....	xxi
martians, displaying.....	505
MDT	
displaying information.....	211
MDT join TLV	
displaying advertisements received.....	215
MLD	
group membership	
clearing.....	89
displaying.....	136
interfaces, displaying.....	140
PIM-to-MLD message translation information,	
displaying.....	166
statistics	
clearing.....	90
displaying.....	143
MPLS.....	631
administrative groups, displaying.....	680
CCC connections, displaying.....	664
CSPF statistics, displaying.....	683
DiffServ classes, displaying.....	685
interfaces, displaying.....	687
labels, displaying routes.....	501
link-management information, displaying	
all.....	667
peers.....	671
routing process.....	673
statistics.....	676
traffic-engineered links.....	678
LSPs, displaying.....	698
static LSPs, displaying.....	699
<i>See also</i> LDP, LSPs, RSVP, traffic engineering	
database	
MSDP	
cache entries, clearing.....	91
general information, displaying.....	146
message source information, displaying.....	148
peer statistics	
clearing.....	92
displaying.....	152
source-active cache, displaying.....	150
MSTP	
configuration	
displaying.....	782

multicast	See IP multicast
multicast distribution trees	See MDT
Multicast Listener Discovery	See MLD
Multicast Source Discovery Protocol	See MSDP
multicast virtual private network	See MVPN
multicast VPNs	
customer multicast routes, displaying	806
neighbors, displaying	812
routing instances, displaying	809
Multiprotocol Label Switching	See MPLS
MVPN	215
displaying information	217
<i>See also</i> Draft-Rosen MVPNs	
MVRP	
configuration	
show	316, 318, 321, 322
dynamic-vlan-memberships	
show	320
statistics	
show	324
N	
neighbor	
ANCP	4
LLDP	300
next hops	
multicast entries, displaying	162
resolution database, displaying	540
routes sent to, displaying	507
notice icons defined	xix

O

Open Shortest Path First	See OSPF
OSPF	
backup coverage	
displaying	339
backup MPLS LSPs	
displaying	341
backup paths	
SPF calculations	343
interfaces, displaying	368
link-state database entries, displaying	
version 2	350
version 3	358
neighbors	
clearing connections	334
displaying	377
overview	
displaying	383

routing table entries, displaying	387
SPF calculations, displaying	374
statistics, general	
clearing	337
displaying	392
statistics, I/O	
clearing	333
displaying	373
overload bit, resetting for IS-IS	255

P

parentheses, in syntax descriptions	xxi
PGM	
negative acknowledgments	
clearing	99
displaying	194
source path messages	
clearing	100
displaying	196
statistics	
clearing	101
displaying	197
PIM	
bootstrap routers, displaying	200
groups	
general information, displaying	205
usage information, displaying	191
interfaces	
displaying	202
join states, clearing	102
MDTs, displaying	211
MVPN, displaying	217
neighbors, displaying	218
PIM-to-IGMP message translation information, displaying	164
PIM-to-MLD message translation information, displaying	166
prune states, clearing	102
redistributing join states	103
register	
clearing	105
RPF, displaying source state	227
RPs	
displaying	222
statistics	
clearing	106
displaying	229
policers, displaying	601
Pragmatic General Multicast	See PGM

-
- Protocol Independent Multicast *See* PIM
- prune states, clearing PIM.....102
- prunes, DVMRP, displaying.....115
- pseudowires
- redundant switchover.....793
- R**
- redundant pseudowires, switchover.....793
- regular expressions
- AS paths, displaying matching routes.....421
 - IP multicast scope
 - clearing.....95
 - IP multicast sessions
 - clearing.....96
 - displaying.....179
 - LSPs, clearing.....661
 - target communities, displaying.....457
- rendezvous points *See* RPs
- replication
- of BGP configuration.....58
- request l2circuit-switchover command.....793
- request mpls lsp adjust-autobandwidth
- command.....663
- request pim multicast-tunnel rebalance
- command.....108
- Resource Reservation Protocol *See* RSVP
- reverse path forwarding *See* RPF
- RIP
- general statistics
 - clearing.....572
 - displaying.....574
 - neighbors
 - displaying.....575
 - statistics
 - clearing.....573
 - displaying.....577
- RIPng
- general statistics
 - clearing.....582
 - displaying.....584
 - neighbors
 - displaying.....585
 - statistics
 - clearing.....583
 - displaying.....587
- route advertisements, displaying.....415
- route, displaying
- next-hop.....507
- router advertisements
- IPv6
 - clearing.....243
 - displaying.....246
- routes, displaying
- active.....405
 - active path.....410
 - advertising protocol.....415
 - all.....419
 - AS paths
 - distribution of.....398
 - domain information.....402
 - regular expressions, matching.....421
 - summary of.....404
 - best.....423
 - brief information.....426
 - CCC.....428
 - community ASN.....429
 - community name.....431
 - damping, BGP.....433
 - detailed information.....438
 - extensive information.....459
 - flow validation.....472
 - hidden.....486
 - in a prefix range.....529
 - in a specific routing table.....559
 - in the forwarding table.....474
 - in the LDP internal topology table.....647
 - inactive path.....489
 - inactive prefix.....492
 - instances.....494
 - learned from a specific address.....551
 - learned from a specific protocol.....520
 - learned from snooping.....543
 - LSP.....503
 - martian.....505
 - matching the specified address.....453
 - MPLS labels.....501
 - next-hop resolution.....540
 - not associated with a community.....513
 - policy-based route export.....455
 - received through a neighbor.....533
 - sent to a specific interface.....516
 - summary statistics.....557
 - terse.....567
- Routing Information Protocol *See* RIP
- Routing Information Protocol next generation *See* RIPng

routing policies	
displaying.....	622
testing the configuration for.....	626
RPF	
calculations, displaying.....	173
PIM source state, displaying.....	227
RPs	
displaying.....	222
RSVP	
interfaces, displaying.....	715
neighbors, displaying.....	720
sessions	
clearing.....	712
displaying.....	725
statistics	
clearing.....	714
displaying.....	733
version, displaying.....	737

S

SAP session announcements, displaying.....	238
Session Announcement Protocol	See SAP
shortest path first	See SPF
show (ospf ospf3) backup coverage	
command.....	339
show (ospf ospf3) backup lsp.....	341
show (ospf ospf3) backup spf.....	343
show (ospf ospf3) interface command.....	368
show (ospf ospf3) io-statistics command.....	373
show (ospf ospf3) log command.....	374
show (ospf ospf3) neighbor command.....	377
show (ospf ospf3) overview command.....	383
show (ospf ospf3) route command.....	387
show (ospf ospf3) statistics command.....	392
show ancp cos command.....	6
show ancp neighbor command.....	9
show ancp subscriber command.....	13
show as-path command.....	398
show as-path domain command.....	402
show as-path summary command.....	404
show bfd session command.....	22
show bgp bmp command.....	35
show bgp group command.....	36
show bgp group traffic-statistics command.....	43
show bgp neighbor command.....	45
show bgp replication command.....	58
show bgp summary command.....	60
show bridge domain command.....	745
show bridge flood command.....	747

show bridge mac-table command.....	754
show bridge statistics command.....	757
show command.....	316, 318, 321, 322
show connections command.....	664
show dhcp relay binding command.....	612
show dhcp relay statistics command.....	616
show dvmp interfaces command.....	109
show dvmp neighbors command.....	111
show dvmp prefix command.....	113
show dvmp prunes command.....	115
show dynamic-tunnels database command.....	794
show esis adjacency command.....	70
show esis interface command.....	72
show esis statistics command.....	74
show firewall command.....	593
show firewall filter version command.....	596
show firewall log command.....	597
show firewall prefix-action-stats command.....	600
show helper statistics command.....	619
show igmp group command.....	117
show igmp interface command.....	121
show igmp snooping interface command.....	124
show igmp snooping membership command.....	127
show igmp snooping statistics command.....	130
show igmp statistics command.....	133
show ipv6 neighbors command.....	244
show ipv6 router-advertisement command.....	246
show isis adjacency command.....	259
show isis authentication command.....	263
show isis backup coverage.....	265
show isis backup spf results.....	269
show isis database command.....	272
show isis hostname command.....	279
show isis interface command.....	280
show isis overview command.....	284
show isis route command.....	287
show isis spf command.....	290
show isis statistics command.....	295
show isis-backup label-switched-path	
command.....	267
show l2-learning global-information	
command.....	760
show l2-learning global-mac-count	
command.....	761
show l2-learning instance command.....	762
show l2-learning interface command.....	764
show l2circuit connections command.....	797
show l2vpn connections command.....	802
show ldp database command.....	636

show ldp fec-filters command.....	640
show ldp interface command.....	641
show ldp neighbor command.....	643
show ldp path command.....	645
show ldp route command.....	647
show ldp session command.....	649
show ldp statistics command.....	654
show ldp traffic-statistics command.....	657
show link-management command.....	667
show link-management peer command.....	671
show link-management routing command.....	673
show link-management statistics command.....	676
show link-management te-link command.....	678
show lldp command.....	302
show lldp local-information command.....	304
show lldp neighbors command.....	306
show lldp remote-global-statistics command.....	310
show lldp statistics command.....	312
show mac-rewrite interface command.....	766
show mld group command.....	136
show mld interface command.....	140
show mld statistics command.....	143
show mpls admin-groups command.....	680
show mpls call-admission-control command.....	681
show mpls cspf command.....	683
show mpls diffserv-te command.....	685
show mpls interface command.....	687
show mpls lsp command.....	688
show mpls path command.....	698
show mpls static-lsp command.....	699
show msdp command.....	146
show msdp source command.....	148
show msdp source-active command.....	150
show msdp statistics command.....	152
show multicast backup-pe-groups command.....	154
show multicast flow-map command.....	156
show multicast interface command.....	158
show multicast minfo command.....	160
show multicast next-hops command.....	162
show multicast pim-to-igmp-proxy command.....	164
show multicast pim-to-mld-proxy command.....	166
show multicast route command.....	168
show multicast rpf command.....	173
show multicast scope command.....	177
show multicast sessions command.....	179
show multicast snooping route command.....	182
show multicast snooping statistics command.....	185
show multicast statistics command.....	188
show multicast usage command.....	191
show mvpn c-multicast command.....	806
show mvpn instance command.....	809
show mvpn neighbor command.....	812
show mvrp statistics command.....	324
show ospf database command.....	350
show ospf3 database command.....	358
show pgm negative-acknowledgments command.....	194
show pgm source-path-messages command.....	196
show pgm statistics command.....	197
show pim bootstrap command.....	200
show pim interfaces command.....	202
show pim join command.....	205
show pim mdt command.....	211, 217
show pim mdt data-mdt-joins command.....	215
show pim neighbors command.....	218
show pim rps command.....	222
show pim source command.....	227
show pim statistics command.....	229
show policer command.....	601
show policy command.....	622
show policy conditions command.....	624
show policy damping command.....	64
show rip general-statistics command.....	574
show rip neighbor command.....	575
show rip statistics command.....	577
show ripng general-statistics command.....	584
show ripng neighbor command.....	585
show ripng statistics command.....	587
show route active-path command.....	410
show route advertising-protocol command.....	415
show route all command.....	419
show route aspath-regex command.....	421
show route best command.....	423
show route brief command.....	426
show route ccc command.....	428
show route command.....	405
show route community command.....	429
show route community-name command.....	431
show route damping command.....	433
show route detail command.....	438
show route exact command.....	453
show route export command.....	455
show route export vrf-target command.....	457
show route extensive command.....	459
show route flow validation command.....	472
show route forwarding-table command.....	474
show route hidden command.....	486

show route inactive-path command.....	489
show route inactive-prefix command.....	492
show route instance command.....	494
show route label command.....	501
show route label-switched-path command.....	503
show route martians command.....	505
show route next-hop command.....	507
show route no-community command.....	513
show route output command.....	516
show route protocol command.....	520
show route range command.....	529
show route receive-protocol command.....	533
show route resolution command.....	540
show route snooping command.....	543
show route source-gateway command.....	551
show route summary command.....	557
show route table command.....	559
show route terse command.....	567
show rsvp interface command.....	715
show rsvp neighbor command.....	720
show rsvp session command.....	725
show rsvp statistics command.....	733
show rsvp version command.....	737
show sap listen command.....	238
show spanning-tree bridge command.....	770
show spanning-tree interface command.....	776
show spanning-tree mstp configuration command.....	782
show spanning-tree statistics command.....	784
show ted database command.....	702
show ted link command.....	706
show ted protocol command.....	708
show vpls connections command.....	816
show vpls flood event-queue command.....	824
show vpls flood instance command.....	826
show vpls flood route command.....	828
show vpls mac-table command.....	830
show vpls statistics command.....	834
snooping (interface) IGMP.....	124
snooping (membership) IGMP.....	127
snooping (statistics) IGMP.....	130
snooping routes, displaying.....	543
source gateway addresses, displaying.....	551
Spanning Tree Protocol See STP	
SPF calculations, displaying.....	374

static LSPs MPLS, displaying.....	699
statistics Layer 2 bridging, displaying.....	757
LLDP.....	301
STP bridge displaying.....	770
interface displaying.....	776
protocol clearing.....	768
statistics clearing.....	769
displaying.....	784
support, technical See technical support	
syntax conventions.....	xx

T

technical support contacting JTAC.....	xxi
TED See traffic engineering database	
test msdp command.....	239
test policy command.....	626
traffic engineering database database entries, displaying.....	702
link information, displaying.....	706
protocols learned from, displaying.....	708

U

UDP, statistics clearing.....	610
displaying.....	619
User Datagram Protocol See UDP	

V

version RSVP, displaying.....	737
virtual private LAN service See VPLS	
VPLS connections, displaying.....	816
statistics, displaying.....	834
VPN routing and forwarding See VRF	
VPNs See Layer 2 VPNs, Layer 3 VPNs	
VRF route export, displaying.....	457

Index of Statements and Commands

C

clear (ospf ospf3) database command.....	329
clear (ospf ospf3) database-protection command.....	332
clear (ospf ospf3) io-statistics command.....	333
clear (ospf ospf3) neighbor command.....	334
clear (ospf ospf3) statistics command.....	337
clear ancp neighbor command.....	4
clear bfd adaptation command.....	20
clear bfd session command.....	21
clear bgp damping command.....	30
clear bgp neighbor command.....	31
clear bgp table command.....	33
clear bridge mac-table command.....	742
clear dhcp relay binding command.....	604
clear dhcp relay statistics command.....	607
clear error bpdu command.....	743
clear error mac-rewrite command.....	744
clear esis adjacency command.....	68
clear esis statistics command.....	69
clear firewall command.....	592
clear helper statistics command.....	610
clear igmp membership command.....	81
clear igmp snooping membership command.....	85
clear igmp snooping statistics command.....	86
clear igmp statistics command.....	87
clear ipv6 neighbors command.....	242
clear ipv6 router-advertisement command.....	243
clear isis adjacency command.....	251
clear isis database command.....	253
clear isis overload command.....	255
clear isis statistics command.....	257
clear ldp neighbor command.....	633
clear ldp session command.....	634
clear ldp statistics command.....	635
clear lldp neighbor command.....	300
clear lldp statistics command.....	301
clear mld membership command.....	89
clear mld statistics command.....	90
clear msdp cache command.....	91

clear msdp statistics command.....	92
clear multicast bandwidth-admission command.....	93
clear multicast scope command.....	95
clear multicast sessions command.....	96
clear multicast snooping statistics command.....	97
clear multicast statistics command.....	98
clear ospf overload command.....	336
clear pgm negative-acknowledgments command.....	99
clear pgm source-path-messages command.....	100
clear pgm statistics command.....	101
clear pim join command.....	102
clear pim join-distribution command.....	103
clear pim register command.....	105
clear pim statistics command.....	106
clear rip general-statistics command.....	572
clear rip statistics command.....	573
clear ripng general-statistics command.....	582
clear ripng statistics command.....	583
clear rsvp session command.....	712
clear rsvp statistics command.....	714
clear spanning-tree protocol-migration command.....	768
clear spanning-tree statistics command.....	769
clear vlpls mac-address command.....	791
clear vlpls mac-table command.....	792

R

request l2circuit-switchover command.....	793
request mpls lsp adjust-autobandwidth command.....	663
request pim multicast-tunnel rebalance command.....	108

S

show (ospf ospf3) backup coverage command.....	339
show (ospf ospf3) backup lsp.....	341
show (ospf ospf3) backup spf.....	343
show (ospf ospf3) interface command.....	368

show (ospf ospf3) io-statistics command.....	373	show isis authentication command.....	263
show (ospf ospf3) log command.....	374	show isis backup coverage.....	265
show (ospf ospf3) neighbor command.....	377	show isis backup spf results.....	269
show (ospf ospf3) overview command.....	383	show isis database command.....	272
show (ospf ospf3) route command.....	387	show isis hostname command.....	279
show (ospf ospf3) statistics command.....	392	show isis interface command.....	280
show ancp cos command.....	6	show isis overview command.....	284
show ancp neighbor command.....	9	show isis route command.....	287
show ancp subscriber command.....	13	show isis spf command.....	290
show as-path command.....	398	show isis statistics command.....	295
show as-path domain command.....	402	show isis-backup label-switched-path command.....	267
show as-path summary command.....	404	show l2-learning global-information command.....	760
show bfd session command.....	22	show l2-learning global-mac-count command.....	761
show bgp bmp command.....	35	show l2-learning instance command.....	762
show bgp group command.....	36	show l2-learning interface command.....	764
show bgp group traffic-statistics command.....	43	show l2circuit connections command.....	797
show bgp neighbor command.....	45	show l2vpn connections command.....	802
show bgp replication command.....	58	show ldp database command.....	636
show bgp summary command.....	60	show ldp fec-filters command.....	640
show bridge domain command.....	745	show ldp interface command.....	641
show bridge flood command.....	747	show ldp neighbor command.....	643
show bridge mac-table command.....	754	show ldp path command.....	645
show bridge statistics command.....	757	show ldp route command.....	647
show command.....	316, 318, 321, 322	show ldp session command.....	649
show connections command.....	664	show ldp statistics command.....	654
show dhcp relay binding command.....	612	show ldp traffic-statistics command.....	657
show dhcp relay statistics command.....	616	show link-management command.....	667
show dvmp interfaces command.....	109	show link-management peer command.....	671
show dvmp neighbors command.....	111	show link-management routing command.....	673
show dvmp prefix command.....	113	show link-management statistics command.....	676
show dvmp prunes command.....	115	show link-management te-link command.....	678
show dynamic-tunnels database command.....	794	show lldp command.....	302
show esis adjacency command.....	70	show lldp local-information command.....	304
show esis interface command.....	72	show lldp neighbors command.....	306
show esis statistics command.....	74	show lldp remote-global-statistics command.....	310
show firewall command.....	593	show lldp statistics command.....	312
show firewall filter version command.....	596	show mac-rewrite interface command.....	766
show firewall log command.....	597	show mld group command.....	136
show firewall prefix-action-stats command.....	600	show mld interface command.....	140
show helper statistics command.....	619	show mld statistics command.....	143
show igmp group command.....	117	show mpls admin-groups command.....	680
show igmp interface command.....	121	show mpls call-admission-control command.....	681
show igmp snooping interface command.....	124	show mpls cspf command.....	683
show igmp snooping membership command.....	127	show mpls diffserv-te command.....	685
show igmp snooping statistics command.....	130	show mpls interface command.....	687
show igmp statistics command.....	133	show mpls lsp command.....	688
show ipv6 neighbors command.....	244		
show ipv6 router-advertisement command.....	246		
show isis adjacency command.....	259		

show mpls path command.....	698	show ripng neighbor command.....	585
show mpls static-lsp command.....	699	show ripng statistics command.....	587
show msdp command.....	146	show route active-path command.....	410
show msdp source command.....	148	show route advertising-protocol command.....	415
show msdp source-active command.....	150	show route all command.....	419
show msdp statistics command.....	152	show route aspath-regex command.....	421
show multicast backup-pe-groups command.....	154	show route best command.....	423
show multicast flow-map command.....	156	show route brief command.....	426
show multicast interface command.....	158	show route ccc command.....	428
show multicast minfo command.....	160	show route command.....	405
show multicast next-hops command.....	162	show route community command.....	429
show multicast pim-to-igmp-proxy command.....	164	show route community-name command.....	431
show multicast pim-to-mld-proxy command.....	166	show route damping command.....	433
show multicast route command.....	168	show route detail command.....	438
show multicast rpf command.....	173	show route exact command.....	453
show multicast scope command.....	177	show route export command.....	455
show multicast sessions command.....	179	show route export vrf-target command.....	457
show multicast snooping route command.....	182	show route extensive command.....	459
show multicast snooping statistics command.....	185	show route flow validation command.....	472
show multicast statistics command.....	188	show route forwarding-table command.....	474
show multicast usage command.....	191	show route hidden command.....	486
show mvpn c-multicast command.....	806	show route inactive-path command.....	489
show mvpn instance command.....	809	show route inactive-prefix command.....	492
show mvpn neighbor command.....	812	show route instance command.....	494
show mvrp statistics command.....	324	show route label command.....	501
show ospf database command.....	350	show route label-switched-path command.....	503
show ospf3 database command.....	358	show route martians command.....	505
show pgm negative-acknowledgments command.....	194	show route next-hop command.....	507
show pgm source-path-messages command.....	196	show route no-community command.....	513
show pgm statistics command.....	197	show route output command.....	516
show pim bootstrap command.....	200	show route protocol command.....	520
show pim interfaces command.....	202	show route range command.....	529
show pim join command.....	205	show route receive-protocol command.....	533
show pim mdt command.....	211, 217	show route resolution command.....	540
show pim mdt data-mdt-joins command.....	215	show route snooping command.....	543
show pim neighbors command.....	218	show route source-gateway command.....	551
show pim rps command.....	222	show route summary command.....	557
show pim source command.....	227	show route table command.....	559
show pim statistics command.....	229	show route terse command.....	567
show policer command.....	601	show rsvp interface command.....	715
show policy command.....	622	show rsvp neighbor command.....	720
show policy conditions command.....	624	show rsvp session command.....	725
show policy damping command.....	64	show rsvp statistics command.....	733
show rip general-statistics command.....	574	show rsvp version command.....	737
show rip neighbor command.....	575	show sap listen command.....	238
show rip statistics command.....	577	show spanning-tree bridge command.....	770
show ripng general-statistics command.....	584	show spanning-tree interface command.....	776
		show spanning-tree mstp configuration command.....	782

show spanning-tree statistics command.....	784
show ted database command.....	702
show ted link command.....	706
show ted protocol command.....	708
show vpls connections command.....	816
show vpls flood event-queue command.....	824
show vpls flood instance command.....	826
show vpls flood route command.....	828
show vpls mac-table command.....	830
show vpls statistics command.....	834

T

test msdp command.....	239
test policy command.....	626