



Junos[®] OS for EX Series Ethernet Switches

Routing Options for EX Series Switches

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Junos[®] OS for EX Series Ethernet Switches Routing Options for EX Series Switches
Release 14.1X53
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About the Documentation

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- Documentation Feedback on page xiii
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Documentation and 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/>.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

Juniper Networks Books publishes books by Juniper Networks engineers and subject matter experts. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration. The current list can be viewed at <http://www.juniper.net/books>.

Supported Platforms

For the features described in this document, the following platforms are supported:

- EX Series

Using the Examples in This Manual

If you want to use the examples in this manual, you can use the **load merge** or the **load merge relative** command. These commands cause the software to merge the incoming configuration into the current candidate configuration. The example does not become active until you commit the candidate configuration.

If the example configuration contains the top level of the hierarchy (or multiple hierarchies), the example is a *full example*. In this case, use the **load merge** command.

If the example configuration does not start at the top level of the hierarchy, the example is a *snippet*. In this case, use the **load merge relative** command. These procedures are described in the following sections.

Merging a Full Example

To merge a full example, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration example into a text file, save the file with a name, and copy the file to a directory on your routing platform.

For example, copy the following configuration to a file and name the file **ex-script.conf**. Copy the **ex-script.conf** file to the **/var/tmp** directory on your routing platform.

```
system {
  scripts {
    commit {
      file ex-script.xml;
    }
  }
}
interfaces {
  fxp0 {
    disable;
    unit 0 {
      family inet {
        address 10.0.0.1/24;
      }
    }
  }
}
```

2. Merge the contents of the file into your routing platform configuration by issuing the **load merge** configuration mode command:

```
[edit]
user@host# load merge /var/tmp/ex-script.conf
load complete
```

Merging a Snippet

To merge a snippet, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration snippet into a text file, save the file with a name, and copy the file to a directory on your routing platform.

For example, copy the following snippet to a file and name the file **ex-script-snippet.conf**. Copy the **ex-script-snippet.conf** file to the **/var/tmp** directory on your routing platform.

```
commit {
  file ex-script-snippet.xml; }
```

2. Move to the hierarchy level that is relevant for this snippet by issuing the following configuration mode command:

```
[edit]
user@host# edit system scripts
[edit system scripts]
```

3. Merge the contents of the file into your routing platform configuration by issuing the **load merge relative** configuration mode command:

```
[edit system scripts]
user@host# load merge relative /var/tmp/ex-script-snippet.conf
load complete
```

For more information about the **load** command, see the *CLI User Guide*.

Documentation Conventions

Table 1 on page xi 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.
	Tip	Indicates helpful information.
	Best practice	Alerts you to a recommended use or implementation.

Table 2 on page xi 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

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

Convention	Description	Examples
Fixed-width text like this	Represents output that appears on the terminal screen.	<code>user@host> show chassis alarms</code> <code>No alarms currently active</code>
<i>Italic text like this</i>	<ul style="list-style-type: none">Introduces or emphasizes important new terms.Identifies guide 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 CLI User 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; 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)	Encloses optional keywords or variables.	stub <default-metric metric>;
(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 (string1 string2 string3)
# (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)	Encloses a variable for which you can substitute one or more values.	community name members [<i>community-ids</i>]
Indentation and braces ({ })	Identifies a level in the configuration hierarchy.	[edit] routing-options { static { route default { nexthop address; retain; } } }
;(semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
GUI Conventions		
Bold text like this	Represents 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.

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

Convention	Description	Examples
> (bold right angle bracket)	Separates levels in a hierarchy of menu 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 provide feedback by using either of the following methods:

- Online feedback rating system—On any page at the Juniper Networks Technical Documentation site at <http://www.juniper.net/techpubs/index.html>, simply click the stars to rate the content, and use the pop-up form to provide us with information about your experience. Alternately, you can use the online feedback form at <https://www.juniper.net/cgi-bin/docbugreport/>.
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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 post-sales 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:

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- Search for known bugs: <http://www2.juniper.net/kb/>
- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>

- Download the latest versions of software and review release notes:
<http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications:
<http://kb.juniper.net/InfoCenter/>
- 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, see <http://www.juniper.net/support/requesting-support.html>.

PART 1

Overview

- [Layer 3 Protocols on page 3](#)
- [Routing Options Overview on page 7](#)

CHAPTER 1

Layer 3 Protocols

- [Layer 3 Protocols Supported on EX Series Switches](#) on page 3
- [Layer 3 Protocols Not Supported on EX Series Switches](#) on page 4

Layer 3 Protocols Supported on EX Series Switches

EX Series switches support the Junos OS Layer 3 features and configuration statements listed in [Table 3](#) on page 3:

Table 3: Supported Junos OS Layer 3 Protocol Statements and Features

Protocol	Notes	For More Information
BGP	Fully supported.	Junos OS Routing Protocols Configuration Guide
BFD	Fully supported.	Junos OS Routing Protocols Configuration Guide
ICMP	Fully supported.	Junos OS Routing Protocols Configuration Guide
IGMPv1, v2, and v3	Fully supported.	Junos OS Multicast Protocols Configuration Guide
IS-IS	Supported, with the exceptions noted in “ Layer 3 Protocols Not Supported on EX Series Switches ” on page 4.	Junos OS Routing Protocols Configuration Guide
MLD	Fully supported (MLD versions 1 and 2).	Junos OS Multicast Protocols Configuration Guide
MPLS	Supported, with the exceptions noted in “ Layer 3 Protocols Not Supported on EX Series Switches ” on page 4.	Junos OS MPLS Applications Configuration Guide
OSPFv1, v2 and v3	Supported, with the exceptions noted in “ Layer 3 Protocols Not Supported on EX Series Switches ” on page 4.	Junos OS Routing Protocols Configuration Guide
PIM	Fully supported on EX2200, EX3200, EX3300, EX4200, EX6200, and EX8200 switches.	Junos OS Multicast Protocols Configuration Guide
PPM	Supported. See EX Series Switch Software Features Overview for specific platform information.	Junos OS Routing Protocols Configuration Guide

Table 3: Supported Junos OS Layer 3 Protocol Statements and Features (*continued*)

Protocol	Notes	For More Information
RIP	Fully supported.	Junos OS Routing Protocols Configuration Guide
RIPng	Fully supported.	Junos OS Routing Protocols Configuration Guide
SNMP	Fully supported.	Junos OS Network Management Configuration Guide
VRRP	Fully supported.	See Understanding VRRP on EX Series Switches . See also Junos OS High Availability Guide .

- Related Documentation**
- [Layer 3 Protocols Not Supported on EX Series Switches on page 4](#)
 - [EX Series Switch Software Features Overview](#)

Layer 3 Protocols Not Supported on EX Series Switches

EX Series switches do not support the Junos OS Layer 3 protocols and features listed in [Table 4 on page 4](#):

Table 4: Junos OS Layer 3 Protocol Statements and Features That Are Not Supported

Feature	Configuration Statements Not Supported on EX Series Switches
DVMRP	<ul style="list-style-type: none"> • dvmp and subordinate statements
Flow aggregation (cflowd)	<ul style="list-style-type: none"> • cflow and subordinate statements
IPsec	<ul style="list-style-type: none"> • [edit services] statements related to IPsec
IS-IS: <ul style="list-style-type: none"> • ES-IS • IPv6 in multicast routing protocols 	<ul style="list-style-type: none"> • clns-routing statement • ipv6-multicast statement • lsp-interval statement • label-switched-path statement • lsp-lifetime statement • te-metric statement
Logical routers	<ul style="list-style-type: none"> • logical-routers and subordinate statements

Table 4: Junos OS Layer 3 Protocol Statements and Features That Are Not Supported (*continued*)

Feature	Configuration Statements Not Supported on EX Series Switches
MPLS: <ul style="list-style-type: none"> Fast Reroute (FRR) Label Distribution Protocol (LDP) (except on EX8200 switches) Layer 3 VPNs (except on EX8200 switches) Multiprotocol BGP (MP-BGP) for VPN-IPv4 family Pseudowire emulation (PWE3) Routing policy statements related to Layer 3 VPNs and MPLS (except on EX8200 switches) Virtual Private LAN Service (VPLS) 	<ul style="list-style-type: none"> ldp and all subordinate statements (except on EX8200 switches)
Network Address Translation (NAT)	<ul style="list-style-type: none"> nat and subordinate statements Policy statements related to NAT
OSPF	<ul style="list-style-type: none"> demand-circuit statement label-switched-path and subordinate statements neighbor statement within an OSPF area peer-interface and subordinate statements within an OSPF area sham-link statement te-metric statement
PPM	<ul style="list-style-type: none"> Not supported on EX2200 and EX3300 switches
Routing instances: <ul style="list-style-type: none"> Routing instance forwarding 	<ul style="list-style-type: none"> l2vpn and subordinate statements (except on EX4500, EX4550, and EX8200 switches) ldp and subordinate statements (except on EX8200 switches) vpls and subordinate statements
Routed VLAN interfaces (RVIs)	<ul style="list-style-type: none"> family mpls statement
SAP and SDP	<ul style="list-style-type: none"> sap and all subordinate statements
General routing options in the routing-options hierarchy: <ul style="list-style-type: none"> MPLS and label-switched-paths 	<ul style="list-style-type: none"> auto-export and subordinate statements dynamic-tunnels and subordinate statements lsp-next-hop and subordinate statements multicast and subordinate statements p2mp-lsp-next-hop and subordinate statements route-distinguisher-id statement (except on EX8200 switches)

Table 4: Junos OS Layer 3 Protocol Statements and Features That Are Not Supported (*continued*)

Feature	Configuration Statements Not Supported on EX Series Switches
Traffic sampling and forwarding in the forwarding-options hierarchy	<ul style="list-style-type: none"> • accounting and subordinate statements • family mpls and family multiservice under hash-key hierarchy • Under monitoring group-name family inet output hierarchy: <ul style="list-style-type: none"> • cflowd statement • export-format-cflowd-version-5 statement • flow-active-timeout statement • flow-export-destination statement • flow-inactive-timeout statement • interface statement • port-mirroring statement (On EX Series switches, port mirroring is implemented using the analyzer statement.) • sampling and subordinate statements

- Related Documentation**
- [Layer 3 Protocols Supported on EX Series Switches on page 3](#)
 - [EX Series Switch Software Features Overview](#)

CHAPTER 2

Routing Options Overview

- [Understanding Distributed Periodic Packet Management on EX Series Switches](#) on page 7

Understanding Distributed Periodic Packet Management on EX Series Switches

Periodic packet management (PPM) is responsible for processing a variety of time-sensitive periodic tasks for particular processes so that other processes on the Juniper Networks EX Series Ethernet Switch can more optimally direct their resources. PPM is responsible for the periodic transmission of packets on behalf of its various client processes, which include the processes that control the Link Aggregation Control Protocol (LACP) and Bidirectional Forwarding Detection (BFD) protocols, and also for receiving packets on behalf of these client processes. PPM also gathers some statistics and sends process-specific packets. PPM cannot be disabled and is always running on any operational switch.

The responsibility for PPM processing on the switch is distributed between the Routing Engine and either the access interfaces (on EX3200, EX4200, and EX4500 switches) or the line cards (on EX6200 and EX8200 switches) for all protocols that use PPM by default. This distributed model provides a faster response time for protocols that use PPM than the response time provided by the nondistributed model.

If distributed PPM is disabled, the PPM process runs on the Routing Engine only.

You can disable distributed PPM for all protocols that use PPM. You can also disable distributed PPM for LACP packets only.



BEST PRACTICE: We recommend that, generally, you disable distributed PPM only if Juniper Networks Customer Service advises you to do so. You should disable distributed PPM only if you have a compelling reason to disable it.

Related Documentation

- [Configuring Distributed Periodic Packet Management on an EX Series Switch \(CLI Procedure\)](#) on page 14

PART 2

Configuration

- [Configuration Tasks on page 11](#)
- [Configuration Statements on page 17](#)

CHAPTER 3

Configuration Tasks

- [Configuring Static Routing \(CLI Procedure\) on page 12](#)
- [Configuring Static Routing \(J-Web Procedure\) on page 12](#)
- [Configuring Distributed Periodic Packet Management on an EX Series Switch \(CLI Procedure\) on page 14](#)

Configuring Static Routing (CLI Procedure)

Static routes are routes that are manually configured and entered into the routing table. Dynamic routes, in contrast, are learned by the EX Series switch and added to the routing table using a protocol such as OSPF or RIP.

The switch uses static routes:

- When the switch does not have a route to a destination that has a better (lower) *preference* value. The preference is an arbitrary value in the range from 0 through 255 that the software uses to rank routes received from different protocols, interfaces, or remote systems. The routing protocol process generally determines the active route by selecting the route with the lowest preference value. In the given range, **0** is the lowest and **255** is the highest.
- When the switch cannot determine the route to a destination.
- When the switch is forwarding unroutable packets.

To configure basic static route options using the CLI:

- To configure the switch's default gateway:

```
[edit]
user@switch# set routing-options static route 0.0.0.0/0 next-hop 10.0.1.1
```

- To configure a static route and specify the next address to be used when routing traffic to the static route:

```
[edit]
user@switch# set routing-options static route 20.0.0.0/24 next-hop 10.0.0.2.1
```

- To always keep the static route in the forwarding table:

```
[edit]
user@switch# set routing-options static route 20.0.0.0/24 retain
```

- To prevent the static route from being readvertised:

```
[edit]
user@switch# set routing-options static route 20.0.0.0/24 no-readvertise
```

- To remove inactive routes from the forwarding table:

```
[edit]
user@switch# set routing-options static route 20.0.0.0/24 active
```

Related Documentation

- [Configuring Static Routing \(J-Web Procedure\) on page 12](#)
- [Monitoring Routing Information on page 151](#)

Configuring Static Routing (J-Web Procedure)

You can use the J-Web interface to configure static routes for EX Series switches.

To configure static routes:

1. Select **Configure > Routing > Static Routing**. The Static Routing page displays details of the configured routes.



NOTE: After you make changes to the configuration on this page, you must commit the changes for them to take effect. To commit all changes to the active configuration, select **Commit Options > Commit**. See [Using the Commit Options to Commit Configuration Changes](#) for details about all commit options.

2. Click one of the following options:
 - **Add**—To configure a route. Enter information into the routing page as described in [Table 5 on page 13](#).
 - **Edit**—To modify an existing route. Enter information into the routing page as described in [Table 5 on page 13](#).
 - **Delete**—To delete an existing route.

Table 5: Static Routing Configuration Summary

Field	Function	Your Action
Default Route		
Default Route	Specifies the default gateway for the switch. NOTE: IPv6 is not supported on EX2200 and EX4500 switches.	To specify an IPv4 address: <ol style="list-style-type: none"> 1. Select IPv4. 2. Type an IP address—for example, 10.10.10.10. 3. Enter the subnet mask or address prefix. For example, 24 bits represents 255.255.255.0. To specify an IPv6 address: <ol style="list-style-type: none"> 1. Select IPv6. 2. Type an IP address—for example, 2001:ab8:85a3::8a2e:370:7334. 3. Enter the subnet mask or address prefix.
Static Routes		

Table 5: Static Routing Configuration Summary (*continued*)

Field	Function	Your Action
Nexthop	Specifies the next-hop address or addresses to be used when routing traffic to the static route.	<p>To add an address:</p> <ol style="list-style-type: none"> 1. Click Add. 2. In the IP address dialog, enter the IP address. <p>NOTE: If a route has multiple next-hop addresses, traffic is routed across each address in round-robin fashion.</p> <ol style="list-style-type: none"> 3. Click OK. <p>To delete a next-hop address, select it from the list and click Delete.</p>

**Related
Documentation**

- [Configuring Static Routing \(CLI Procedure\) on page 12](#)
- [Monitoring Routing Information on page 151](#)
- [Layer 3 Protocols Supported on EX Series Switches on page 3](#)

Configuring Distributed Periodic Packet Management on an EX Series Switch (CLI Procedure)

Periodic packet management (PPM) is responsible for processing a variety of time-sensitive periodic tasks so that other processes on the EX Series switch can more optimally direct their resources.

The responsibility for PPM processing on the switch is distributed between the Routing Engine and either the access interfaces (on EX3200, EX4200, and EX4500 switches) or the line cards (on EX6200 and EX8200 switches) for all protocols that use PPM by default. This distributed model provides a faster response time for protocols that use PPM than the response time provided by the nondistributed model.

If distributed PPM is disabled, the PPM process runs on the Routing Engine only.

You can disable distributed PPM for all protocols that use PPM. You can also disable distributed PPM for LACP packets only.



BEST PRACTICE: We recommend that, generally, you disable distributed PPM only if Juniper Networks Customer Service advises you to do so. You

should disable distributed PPM only if you have a compelling reason to disable it.

.....

This topic describes:

- [Disabling or Enabling Distributed Periodic Packet Management Globally on page 15](#)
- [Disabling or Enabling Distributed Periodic Packet Management for LACP Packets on page 15](#)

Disabling or Enabling Distributed Periodic Packet Management Globally

Distributed PPM is enabled by default. Disable distributed PPM if you need to move all PPM processing to the Routing Engine. Enable distributed PPM if it was previously disabled and you need to run distributed PPM.

To disable distributed PPM:

```
[edit routing-options]
user@switch# set ppm no-delegate-processing
```

To enable distributed PPM if it was previously disabled:

```
[edit routing-options]
user@switch# delete ppm no-delegate-processing
```

Disabling or Enabling Distributed Periodic Packet Management for LACP Packets

Distributed PPM is enabled by default. Disable distributed PPM for only LACP packets if you need to move all PPM processing for LACP packets to the Routing Engine.

To disable distributed PPM for LACP packets:

```
[edit protocols]
user@switch# set lacp ppm centralized
```

To enable distributed PPM for LACP packets if it was previously disabled:

```
[edit protocols]
user@switch# delete lacp ppm centralized
```

Related Documentation

- [Understanding Distributed Periodic Packet Management on EX Series Switches on page 7](#)
- [Understanding Aggregated Ethernet Interfaces and LACP](#)

CHAPTER 4

Configuration Statements

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[edit routing-options] Configuration Statement Hierarchy on EX Series Switches

This topic lists supported and unsupported configuration statements in the **[edit routing-options]** hierarchy level on EX Series switches.

- *Supported* statements are those that you can use to configure some aspect of a software feature on the switch.
- *Unsupported* statements are those that appear in the command-line interface (CLI) on the switch, but that have no effect on switch operation if you configure them.

- Not all features are supported on all switch platforms. For detailed information about feature support on specific EX Series switch platforms, see *EX Series Switch Software Features Overview*.

This topic lists:

- [Supported Statements in the \[edit routing-options\] Hierarchy Level on page 20](#)
- [Unsupported Statements in the \[edit routing-options\] Hierarchy Level on page 36](#)

Supported Statements in the [edit routing-options] Hierarchy Level

The following hierarchy shows the **[edit routing-options]** configuration statements supported on EX Series switches:

```
routing-options {
  access {
    route ip-prefix</prefix-length> {
      metric route-cost;
      next-hop next-hop;
      preference route-distance;
      qualified-next-hop address {
        bfd-liveness-detection {
          authentication {
            algorithm algorithm-name;
            key-chain key-chain-name;
            loose-check;
          }
          detection-time {
            threshold milliseconds;
          }
          holddown-interval milliseconds;
          local address address;
          minimum-interval milliseconds;
          minimum-receive-interval milliseconds;
          minimum-receive-ttl milliseconds;
          multiplier number;
          neighbor address;
          no-adaptation;
          transmit-interval {
            minimum-interval milliseconds;
            threshold milliseconds;
          }
          version (1 | automatic);
        }
        interface interface-name;
        mac-address mac-address;
        metric metric;
        preference preference-value;
      }
      tag route-tag;
    }
  }
} # end of [edit routing-options access]
access-internal {
  route ip-prefix</prefix-length> {
    next-hop [ addresses ];
```

```

qualified-next-hop address {
  bfd-liveness-detection {
    authentication {
      algorithm algorithm-name;
      key-chain key-chain-name;
      loose-check;
    }
    detection-time {
      threshold milliseconds;
    }
    holddown-interval milliseconds;
    local address address;
    minimum-interval milliseconds;
    minimum-receive-interval milliseconds;
    minimum-receive-ttl milliseconds;
    multiplier number;
    neighbor address;
    no-adaptation;
    transmit-interval {
      minimum-interval milliseconds;
      threshold milliseconds;
    }
    version (1 | automatic);
  }
  interface interface-name;
  mac-address mac-address;
  metric metric;
  preference preference-value;
}
}
} # end of [edit routing-options access-internal]
admin-groups-extended group-name {
  group-value group-identifier;
}
admin-groups-extended-range {
  maximum maximum-number;
  minimum minimum-number;
}
aggregate {
  defaults {
    (active | passive);
    as-path {
      aggregator as-number address;
      atomic-aggregate;
      origin (egp | igp | incomplete);
      path path-identifier;
    }
    brief;
    color metric <type metric-type>;
    color2 metric <type metric-type>;
    community [ community-id no-advertise no-export no-export-subconfed ];
    discard;
    full;
    metric metric <type metric-type>;
    metric2 metric <type metric-type>;
    metric3 metric <type metric-type>;
  }
}

```

```

metric4 metric <type metric-type>;
preference preference-value <type metric-type>;
preference2 preference-value <type metric-type>;
tag metric <type metric-type>;
tag2 metric <type metric-type>;
}
route {
  (active | passive);
  as-path {
    aggregator as-number address;
    atomic-aggregate;
    origin (egp | igp | incomplete);
    path path-identifier;
  }
  brief;
  color metric <type metric-type>;
  color2 metric <type metric-type>;
  community [ community-id no-advertise no-export no-export-subconfed ];
  discard;
  full;
  metric metric <type metric-type>;
  metric2 metric <type metric-type>;
  metric3 metric <type metric-type>;
  metric4 metric <type metric-type>;
  policy [policy-names];
  preference preference-value <type metric-type>;
  preference2 preference-value <type metric-type>;
  tag metric <type metric-type>;
  tag2 metric <type metric-type>;
} # end of [edit routing-options aggregate]
}
bgp-orf-cisco-mode;
bmp {
  memory-limit bytes;
  station-address (ip-address | name);
  station-port-number port-number;
  statistics-timeout seconds;
}
confederation as-number members [ as-numbers ];
dynamic-tunnels {
  traceoptions {
    file filename <files number> <size maximum-file-size> <world-readable |
      no-world-readable>;
    flag (all | kernel | task | tunnel);
  }
}
}
fate-sharing {
  group group-name {
    cost value;
    from {
      address <to address>;
    }
  }
}
}
flow {
  firewall-install-disable {

```

```

route;
term-order;
validation;
}
route name {
  match {
    destination address;
    destination-port [ afs bgp biff bootpc bootps cmd cvspserver dhcp domain eklogin
      ekshell exec finger ftp ftp-data http https ident imap kerberos-sec klogin kpasswd
      krb-prop krbupdate kshell ldap ldp login mobileip-agent mobilip-mn msdp
      netbios-dgm netbios-ns netbios-ssn nfsd nntp ntalk ntp pop3 pptp printer radacct
      radius rip rinit smtp snmp snmptrap snpp socks ssh sunrpc syslog tacacs
      tacacs-ds talk telnet tftp timed who xdmcp ];
    dscp [ code-points ];
    fragment [ don't-fragment first-fragment is-fragment last-fragment
      not-a-fragment ];
    icmp-code [ communication-prohibited-by-filtering destination-host-prohibited
      destination-host-unknown fragmentation-needed host-precedence-violation
      host-unreachable host-unreachable-for-tos ip-header-bad network-unreachable
      network-unreachable-for-tos port-unreachable precedence-cutoff-in-effect
      protocol-unreachable redirect-for-host redirect-for-network
      redirect-for-tos-and-host redirect-for-tos-and-net required-option-missing
      source-host-isolated source-route-failed ttl-eq-zero-during-reassembly
      ttl-eq-zero-during-transit ];
    icmp-type [ echo-reply echo-request info-reply info-request mask-reply
      mask-request parameter-problem redirect router-advertisement router-solicit
      source-quench time-exceeded timestamp timestamp-reply unreachable ];
    packet-length [ values ];
    port [ ... same values as for the preceding destination-port statement ... ];
    protocol [ ah esp gre icmp igmp ipip ospf pim rsvp sctp tcp udp ];
    source address;
    source-port [ ... same values as for the preceding destination-port statement ... ];
    tcp-flags [ ack fin push rst syn urgent ];
  }
  then {
    (accept | discard);
    community community-name;
    next-term;
    rate-limit value;
    routing-instance routing-instance-name;
    sample;
  }
}
term-order;
validation {
  traceoptions {
    file filename <files number> <size maximum-file-size> <world-readable |
      no-world-readable>;
    flag flag <flag-modifier> <disable>;
  }
}
} # end of [edit routing-options flow]
forwarding-table {
  export [ policy-names ];
  indexed-next-hop;
  (indirect-next-hop | no-indirect-next-hop);
}

```

```

(indirect-next-hop-change-acknowledgements |
 no-indirect-next-hop-change-acknowledgements);
krt-nexthop-ack-timeout;
unicast-reverse-path;
}
generate {
 defaults {
  (active | passive);
  as-path {
    aggregator as-number address;
    atomic-aggregate;
    origin (egp | igp | incomplete);
    path path-identifier;
  }
  brief;
  color metric <type metric-type>;
  color2 metric <type metric-type>;
  community [ community-id no-advertise no-export no-export-subconfed ];
  discard;
  full;
  metric metric <type metric-type>;
  metric2 metric <type metric-type>;
  metric3 metric <type metric-type>;
  metric4 metric <type metric-type>;
  preference preference-value <type metric-type>;
  preference2 preference-value <type metric-type>;
  tag metric <type metric-type>;
  tag2 metric <type metric-type>;
 }
 route {
  (active | passive);
  as-path {
    aggregator as-number address;
    atomic-aggregate;
    origin (egp | igp | incomplete);
    path path-identifier;
  }
  brief;
  color metric <type metric-type>;
  color2 metric <type metric-type>;
  community [ community-id no-advertise no-export no-export-subconfed ];
  discard;
  full;
  metric metric <type metric-type>;
  metric2 metric <type metric-type>;
  metric3 metric <type metric-type>;
  metric4 metric <type metric-type>;
  preference preference-value <type metric-type>;
  policy [policy-names];
  preference2 preference-value <type metric-type>;
  tag metric <type metric-type>;
  tag2 metric <type metric-type>;
 }
} # end of [edit routing-options generate]
graceful-restart {
 disable;

```

```

    restart-duration seconds;
}
host-fast-reroute {
    global-arp-prefix-limit;
    global-supplementary-blackout-timer;
}
instance-export [ policy-names ];
instance-import [ policy-names ];
interface-routes {
    family (inet | inet6) {
        export {
            lan;
            point-to-point;
        }
        import [ policy-names ];
    }
}
rib-group {
    inet group-name;
    inet6 group-name;
}
}
logical-system-mux {
    traceoptions {
        file {
            <file name>;
            files;
            no-world-readable;
            size;
            world-readable;
        }
        flag {
            all;
            debug;
            general;
            normal;
            parse;
            policy;
            route;
            state;
            task;
            timer;
        }
    }
}
martians {
    ip-prefix</prefix-length> (exact | longer | orlonger |
    prefix-length-range /minimum-prefix-length-/maximum-prefix-length |
    through ip-prefix</prefix-length> | upto /prefix-length) <allow>;
}
maximum-paths path-limit <log-only | threshold value> <log-interval seconds>;
maximum-prefixes prefix-limit <log-only | threshold value> <log-interval seconds>;
med-igp-update-interval minutes;
multicast {
    asm-override-ssm;
    backup-pe-group group-name {
        backups [ addresses ];
    }
}

```

```
    local-address address;
  }
  flow-map flow-map-name {
    bandwidth <bps> <adaptive>;
    forwarding-cache {
      timeout (never <non-discard-entry-only> | minutes);
    }
    policy [ policy-names ];
    redundant-sources [ addresses ];
  }
  forwarding-cache {
    family {
      inet {
        threshold {
          log-warning;
          reuse;
          suppress;
        }
      }
      inet6 {
        threshold {
          log-warning;
          reuse;
          suppress;
        }
      }
    }
    threshold {
      log-warning;
      reuse;
      suppress;
    }
    timeout;
  }
  interface interface-name {
    maximum-bandwidth bps;
  }
  pim-to-igmp-proxy {
    upstream-interface [ interface-names ];
  }
  pim-to-mld-proxy {
    upstream-interface [ interface-names ];
  }
  rpf-check-policy [ policy-names ];
  scope name {
    interface interface;
    prefix prefix;
  }
  scope-policy [ policy-names ];
  ssm-groups value;
  ssm-map ssm-map-name {
    policy [ policy-names ];
    source [ addresses ];
  }
  traceoptions {
```



```

        file filename <files number> <size maximum-file-size> <world-readable |
            no-world-readable>;
        flag flag <disable>;
    }
} # end of [edit routing-options multicast]
nonstop-routing;
no-bfd-triggered-local-repair;
options {
    mark seconds;
    syslog {
        level level;
        upto level;
    }
}
ppm {
    no-delegate-processing;
}
resolution {
    rib routing-table-name {
        import [ policy-names ];
        resolution-ribs [ routing-table-names ];
    }
    tracefilter [ filter-policy-names ];
    traceoptions {
        file filename <files number> <size maximum-file-size> <world-readable |
            no-world-readable>;
        flag flag <flag-modifier> <disable>;
    }
}
rib routing-table-name {
    access {
        route ip-prefix</prefix-length> {
            metric route-cost;
            next-hop next-hop;
            preference route-distance;
            qualified-next-hop address {
                bfd-liveness-detection {
                    authentication {
                        algorithm algorithm-name;
                        key-chain key-chain-name;
                        loose-check;
                    }
                    detection-time {
                        threshold milliseconds;
                    }
                    holddown-interval milliseconds;
                    local address address;
                    minimum-interval milliseconds;
                    minimum-receive-interval milliseconds;
                    minimum-receive-ttl milliseconds;
                    multiplier number;
                    neighbor address;
                    no-adaptation;
                    transmit-interval {
                        minimum-interval milliseconds;
                        threshold milliseconds;
                    }
                }
            }
        }
    }
}

```

```

    }
    version (1 | automatic);
  }
  interface interface-name;
  mac-address mac-address;
  metric metric;
  preference preference-value;
}
tag route-tag;
}
} # end of [edit routing-options rib access]
access-internal {
  route ip-prefix </prefix-length> {
    next-hop [ addresses ];
    qualified-next-hop address {
      bfd-liveness-detection {
        authentication {
          algorithm algorithm-name;
          key-chain key-chain-name;
          loose-check;
        }
        detection-time {
          threshold milliseconds;
        }
        holddown-interval milliseconds;
        local address address;
        minimum-interval milliseconds;
        minimum-receive-interval milliseconds;
        minimum-receive-ttl milliseconds;
        multiplier number;
        neighbor address;
        no-adaptation;
        transmit-interval {
          minimum-interval milliseconds;
          threshold milliseconds;
        }
        version (1 | automatic);
      }
    }
    interface interface-name;
    mac-address mac-address;
    metric metric;
    preference preference-value;
  }
  tag route-tag;
}
} # end of [edit routing-options rib access-internal]
aggregate {
  defaults {
    (active | passive);
    as-path {
      aggregator as-number address;
      atomic-aggregate;
      origin (egp | igp | incomplete);
      path path-identifier;
    }
  }
  brief;
}

```

```

color metric <type metric-type>;
color2 metric <type metric-type>;
community [ community-id no-advertise no-export no-export-subconfed ];
discard;
full;
metric metric <type metric-type>;
metric2 metric <type metric-type>;
metric3 metric <type metric-type>;
metric4 metric <type metric-type>;
preference preference-value <type metric-type>;
preference2 preference-value <type metric-type>;
tag metric <type metric-type>;
tag2 metric <type metric-type>;
}
route {
  (active | passive);
  as-path {
    aggregator as-number address;
    atomic-aggregate;
    origin (egp | igp | incomplete);
    path path-identifier;
  }
  brief;
  color metric <type metric-type>;
  color2 metric <type metric-type>;
  community [ community-id no-advertise no-export no-export-subconfed ];
  discard;
  full;
  metric metric <type metric-type>;
  metric2 metric <type metric-type>;
  metric3 metric <type metric-type>;
  metric4 metric <type metric-type>;
  policy [policy-names];
  preference preference-value <type metric-type>;
  preference2 preference-value <type metric-type>;
  tag metric <type metric-type>;
  tag2 metric <type metric-type>;
}
} # end of [edit routing-options rib aggregate]
generate {
  defaults {
    (active | passive);
    as-path {
      aggregator as-number address;
      atomic-aggregate;
      origin (egp | igp | incomplete);
      path path-identifier;
    }
    brief;
    color metric <type metric-type>;
    color2 metric <type metric-type>;
    community [ community-id no-advertise no-export no-export-subconfed ];
    discard;
    full;
    metric metric <type metric-type>;
    metric2 metric <type metric-type>;

```

```

metric3 metric <type metric-type>;
metric4 metric <type metric-type>;
policy value;
preference preference-value <type metric-type>;
preference2 preference-value <type metric-type>;
tag metric <type metric-type>;
tag2 metric <type metric-type>;
}
route {
  (active | passive);
  as-path {
    aggregator as-number address;
    atomic-aggregate;
    origin (egp | igp | incomplete);
    path path-identifier;
  }
  brief;
  color metric <type metric-type>;
  color2 metric <type metric-type>;
  community [ community-id no-advertise no-export no-export-subconfed ];
  discard;
  full;
  metric metric <type metric-type>;
  metric2 metric <type metric-type>;
  metric3 metric <type metric-type>;
  metric4 metric <type metric-type>;
  policy [policy-names];
  preference preference-value <type metric-type>;
  preference2 preference-value <type metric-type>;
  tag metric <type metric-type>;
  tag2 metric <type metric-type>;
}
} # end of [edit routing-options rib generate]
martians {
  ip-prefix</prefix-length> (exact | longer | orlonger |
    prefix-length-range /minimum-prefix-length–/maximum-prefix-length |
    through ip-prefix</prefix-length> | upto /prefix-length) <allow>;
}
maximum-paths path-limit <log-only | threshold value> <log-interval seconds>;
maximum-prefixes prefix-limit <log-only | threshold value> <log-interval seconds>;
static {
  defaults {
    (active | passive);
    as-path {
      aggregator as-number address;
      atomic-aggregate;
      origin (egp | igp | incomplete);
      path path-identifier;
    }
    color metric <type metric-type>;
    color2 metric <type metric-type>;
    community [ community-id no-advertise no-export no-export-subconfed ];
    (install | no-install);
    metric metric <type metric-type>;
    metric2 metric <type metric-type>;
    metric3 metric <type metric-type>;

```

```

metric4 metric <type metric-type>;
preference preference-value <type metric-type>;
preference2 preference-value <type metric-type>;
(readvertise | no-readvertise);
(resolve | no-resolve);
(retain | no-retain);
tag metric <type metric-type>;
tag2 metric <type metric-type>;
}
rib-group group-name;
route {
  (active | passive);
  as-path {
    aggregator as-number address;
    atomic-aggregate;
    origin (egp | igp | incomplete);
    path path-identifier;
  }
  backup-pe-group backup-pe-group;
  bfd-liveness-detection {
    authentication {
      algorithm algorithm-name;
      key-chain key-chain-name;
      loose-check;
    }
    detection-time {
      threshold milliseconds;
    }
    holddown-interval milliseconds;
    local address address;
    minimum-interval milliseconds;
    minimum-receive-interval milliseconds;
    minimum-receive-ttl milliseconds;
    multiplier number;
    neighbor address;
    no-adaptation;
    transmit-interval {
      minimum-interval milliseconds;
      threshold milliseconds;
    }
    version (1 | automatic);
  }
  color metric <type metric-type>;
  color2 metric <type metric-type>;
  community [ community-id no-advertise no-export no-export-subconfed ];
  discard;
  (install | no-install);
  lsp-next-hop next-hop-address {
    metric metric;
    preference preference-value;
  }
  metric metric <type metric-type>;
  metric2 metric <type metric-type>;
  metric3 metric <type metric-type>;
  metric4 metric <type metric-type>;
  next-hop next-hop-address;

```

```

p2mp-lsp-next-hop next-hop-address {
    metric metric;
    preference preference-value;
}
preference preference-value <type metric-type>;
preference2 preference-value <type metric-type>;
qualified-next-hop address {
    bfd-liveness-detection {
        authentication {
            algorithm algorithm-name;
            key-chain key-chain-name;
            loose-check;
        }
        detection-time {
            threshold milliseconds;
        }
        holddown-interval milliseconds;
        local address address;
        minimum-interval milliseconds;
        minimum-receive-interval milliseconds;
        minimum-receive-ttl milliseconds;
        multiplier number;
        neighbor address;
        no-adaptation;
        transmit-interval {
            minimum-interval milliseconds;
            threshold milliseconds;
        }
        version (1 | automatic);
    }
    interface interface-name;
    mac-address mac-address;
    metric metric;
    preference preference-value;
}
(readvertise | no-readvertise);
receive;
reject;
(resolve | no-resolve);
(retain | no-retain);
static-lsp-nexthop next-hop-address {
    metric metric;
    preference preference-value;
}
tag metric <type metric-type>;
tag2 metric <type metric-type>;
}
} # end of [edit routing-options rib static]
} # end of [edit routing-options rib]
rib-groups {
    group-name {
        export-rib table-name;
        import-policy [ policy-names ];
        import-rib [ table-names ];
    }
}

```

```

route-distinguisher-id address;
route-record;
router-id address;
source-routing {
    ip;
    ipv6;
}
srlg group-name {
    srlg-cost number;
    srlg-value number;
}
static {
    defaults {
        (active | passive);
        as-path {
            aggregator as-number address;
            atomic-aggregate;
            origin (egp | igp | incomplete);
            path path-identifier;
        }
        color metric <type metric-type>;
        color2 metric <type metric-type>;
        community [ community-id no-advertise no-export no-export-subconfed ];
        (install | no-install);
        metric metric <type metric-type>;
        metric2 metric <type metric-type>;
        metric3 metric <type metric-type>;
        metric4 metric <type metric-type>;
        preference preference-value <type metric-type>;
        preference2 preference-value <type metric-type>;
        (readvertise | no-readvertise);
        (resolve | no-resolve);
        (retain | no-retain);
        tag metric <type metric-type>;
        tag2 metric <type metric-type>;
    }
    rib-group group-name;
    route {
        (active | passive);
        as-path {
            aggregator as-number address;
            atomic-aggregate;
            origin (egp | igp | incomplete);
            path path-identifier;
        }
        backup-pe-group backup-pe-group;
        bfd-liveness-detection {
            authentication {
                algorithm algorithm-name;
                key-chain key-chain-name;
                loose-check;
            }
            detection-time {
                threshold milliseconds;
            }
            holddown-interval milliseconds;
        }
    }
}

```

```
local address address;  
minimum-interval milliseconds;  
minimum-receive-interval milliseconds;  
minimum-receive-ttl milliseconds;  
multiplier number;  
neighbor address;  
no-adaptation;  
transmit-interval {  
    minimum-interval milliseconds;  
    threshold milliseconds;  
}  
version (1 | automatic);  
}  
color metric <type metric-type>;  
color2 metric <type metric-type>;  
community [ community-id no-advertise no-export no-export-subconfed ];  
discard;  
(install | no-install);  
lsp-next-hop next-hop-address {  
    metric metric;  
    preference preference-value;  
}  
metric metric <type metric-type>;  
metric2 metric <type metric-type>;  
metric3 metric <type metric-type>;  
metric4 metric <type metric-type>;  
next-hop next-hop-address;  
p2mp-lsp-next-hop next-hop-address {  
    metric metric;  
    preference preference-value;  
}  
preference preference-value <type metric-type>;  
preference2 preference-value <type metric-type>;  
qualified-next-hop address {  
    bfd-liveness-detection {  
        authentication {  
            algorithm algorithm-name;  
            key-chain key-chain-name;  
            loose-check;  
        }  
        detection-time {  
            threshold milliseconds;  
        }  
        holddown-interval milliseconds;  
        local address address;  
        minimum-interval milliseconds;  
        minimum-receive-interval milliseconds;  
        minimum-receive-ttl milliseconds;  
        multiplier number;  
        neighbor address;  
        no-adaptation;  
        transmit-interval {  
            minimum-interval milliseconds;  
            threshold milliseconds;  
        }  
        version (1 | automatic);
```



```

    }
    interface interface-name;
    mac-address mac-address;
    metric metric;
    preference preference-value;
  }
  (readvertise | no-readvertise);
  receive;
  reject;
  (resolve | no-resolve);
  (retain | no-retain);
  static-lsp-next-hop next-hop-address {
    metric metric;
    preference preference-value;
  }
  tag metric <type metric-type>;
  tag2 metric <type metric-type>;
}
} # end of [edit routing-options static]
topologies {
  family {
    inet {
      topology name;
    }
    inet6 {
      topology name;
    }
  }
}
}
traceoptions {
  file filename <files number> <size maximum-file-size> <world-readable |
    no-world-readable>;
  flag (all | condition-manager | config-internal | general | graceful-restart | hfrf-fsm |
    hfrf-route | normal | nsr-synchronization | parse | policy | regex-parse | route | session
    | state | task | timer);
}
validation {
  group group-name {
    max-sessions;
    session address {
      hold-time;
      local-address;
      port;
      preference;
      record-lifetime;
      refresh-time;
      traceoptions;
    }
  }
}
notification-rib value;
static {
  record destination {
    maximum-length prefix-length;
  }
}
}
traceoptions {

```

```

        file filename <files number> <size maximum-file-size> <world-readable |
          no-world-readable>;
        flag (all | error | general | keepalive | nsr-synchronization | packets | policy | state |
          task | timer | update);
      }
    }
  }

```

Unsupported Statements in the [edit routing-options] Hierarchy Level

All statements in the [edit routing-options] hierarchy level that are displayed in the command-line interface (CLI) on the switch are supported on the switch and operate as documented with the following exceptions:

Table 6: Unsupported [edit routing-options] Configuration Statements on EX Series Switches

Statement	Hierarchy
NOTE: Variables, such as <i>interface-name</i> , are not shown in the statements or hierarchies.	
forwarding-cache	[edit routing-options multicast]
scope	[edit routing-options multicast]
ssm-groups	[edit routing-options multicast]
threshold	[edit routing-options multicast forwarding-cache]
timeout	[edit routing-options multicast forwarding-cache]

Related Documentation

- *Junos OS Configuration Statements and Commands*

active

Syntax	(active passive);
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit routing-options (aggregate generate static) (defaults route)],</p> <p>[edit routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>Determine whether static, aggregate, or generated routes are removed from the routing and forwarding tables when they become inactive. Static routes are only removed from the routing table if the next hop becomes unreachable. This can occur if the local or neighbor interface goes down. Routes that have been configured to remain continually installed in the routing and forwarding tables are marked with reject next hops when they are inactive.</p> <ul style="list-style-type: none"> • active—Remove a route from the routing and forwarding tables when it becomes inactive. • passive—Have a route remain continually installed in the routing and forwarding tables even when it becomes inactive. <p>Include the active statement when configuring an individual route in the route portion of the static statement to override a passive option specified in the defaults portion of the statement.</p>
Default	active
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Examples: Configuring Static Routes</i> • <i>Example: Summarizing Routes Through Route Aggregation</i> • <i>Example: Conditionally Generating Static Routes</i>

aggregate (Routing)

Syntax	<pre> aggregate { defaults { ... aggregate-options ... } route destination-prefix { policy policy-name; ... aggregate-options ... } } </pre>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i>],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i>],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i>],</p> <p>[edit routing-options],</p> <p>[edit routing-options rib <i>routing-table-name</i>]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	Configure aggregate routes.
Options	<p>aggregate-options—Additional information about aggregate routes that is included with the route when it is installed in the routing table. Specify zero or more of the following options in aggregate-options. Each option is explained separately.</p> <ul style="list-style-type: none"> • (active passive); • as-path <as-path> <origin (egp igp incomplete)> <atomic-aggregate> <aggregator as-number ip-address>; • (brief full); • community [<i>community-ids</i>]; • discard; • (metric metric2 metric3 metric4) <i>value</i> <type type>; • (preference preference2 color color2) <i>preference</i> <type type>; • tag <i>metric type number</i>; <p>defaults—Specify global aggregate route options. These options only set default attributes inherited by all newly created aggregate routes. These are treated as global defaults</p>

and apply to all the aggregate routes you configure in the **aggregate** statement. This part of the **aggregate** statement is optional.

route *destination-prefix*—Configure a nondefault aggregate route:

- **default**—For the default route to the destination. This is equivalent to specifying an IP address of **0.0.0.0/0**.
- ***destination-prefix/prefix-length***—***destination-prefix*** is the network portion of the IP address, and ***prefix-length*** is the destination prefix length.

The **policy** statement is explained separately.

Required Privilege Level	routing—To view this statement in the configuration.
	routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Summarizing Routes Through Route Aggregation</i>

as-path (Routing Options)

Syntax	<code>as-path <as-path> <aggregator as-number ip-address> <atomic-aggregate> <origin (egp igp incomplete)>;</code>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit routing-options (aggregate generate static) (defaults route)],</p> <p>[edit routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>Associate BGP autonomous system (AS) path information with a static, aggregate, or generated route.</p> <p>In Junos OS Release 9.1 and later, the numeric range for the AS number is extended to provide BGP support for 4-byte AS numbers as defined in RFC 4893, <i>BGP Support for Four-octet AS Number Space</i>. RFC 4893 introduces two new optional transitive BGP attributes, AS4_PATH and AS4_AGGREGATOR. These new attributes are used to propagate 4-byte AS path information across BGP speakers that do not support 4-byte AS numbers. RFC 4893 also introduces a reserved, well-known, 2-byte AS number, AS 23456. This reserved AS number is called AS_TRANS in RFC 4893. All releases of Junos OS support 2-byte AS numbers.</p> <p>In Junos OS Release 9.2 and later, you can also configure a 4-byte AS number using the AS-dot notation format of two integer values joined by a period: <i><16-bit high-order value in decimal>.<16-bit low-order value in decimal></i>. For example, the 4-byte AS number of 65,546 in plain-number format is represented as 1.10 in the AS-dot notation format. You can specify a value in the range from 0.0 through 65535.65535 in AS-dot notation format.</p>
Default	No AS path information is associated with static routes.
Options	<p>aggregator—(Optional) Attach the BGP aggregator path attribute to the aggregate route. You must specify the last AS number that formed the aggregate route (encoded as two octets) for as-number, followed by the IP address of the BGP system that formed the aggregate route for ip-address.</p>

as-path—(Optional) AS path to include with the route. It can include a combination of individual AS path numbers and AS sets. Enclose sets in brackets ([]). The first AS number in the path represents the AS immediately adjacent to the local AS. Each subsequent number represents an AS that is progressively farther from the local AS, heading toward the origin of the path. You cannot specify a regular expression for **as-path**. You must use a complete, valid AS path.

atomic-aggregate—(Optional) Attach the BGP **atomic-aggregate** path attribute to the aggregate route. This path attribute indicates that the local system selected a less specific route instead of a more specific route.

origin egp—(Optional) BGP origin attribute that indicates that the path information originated in another AS.

origin igp—(Optional) BGP origin attribute that indicates that the path information originated within the local AS.

origin incomplete—(Optional) BGP origin attribute that indicates that the path information was learned by some other means.

Required Privilege	routing—To view this statement in the configuration.
Level	routing-control—To add this statement to the configuration.

Related Documentation	<ul style="list-style-type: none">• <i>Examples: Configuring Static Routes</i>• <i>Example: Summarizing Routes Through Route Aggregation</i>• <i>Example: Conditionally Generating Static Routes</i>• <i>Using 4-Byte Autonomous System Numbers in BGP Networks Technology Overview</i>
------------------------------	--

asm-override-ssm

Syntax	asm-override-ssm;
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast], [edit logical-systems <i>logical-system-name</i> routing-options multicast], [edit routing-instances <i>routing-instance-name</i> routing-options multicast], [edit routing-options multicast]
Release Information	Statement introduced in Junos OS Release 9.4. Statement introduced in Junos OS Release 9.5 for EX Series switches. Statement introduced in Junos OS Release 12.1 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Enable the routing device to accept any-source multicast join messages (*G) for group addresses that are within the default or configured range of source-specific multicast groups.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring Source-Specific Multicast Groups with Any-Source Override</i>

authentication-key-chains

Syntax	<pre> authentication-key-chains { key-chain <i>key-chain-name</i> { description <i>text-string</i>; key <i>key</i> { algorithm (md5 hmac-sha-1); options (basic isis-enhanced); secret <i>secret-data</i>; start-time <i>yyyy-mm-dd.hh:mm:ss</i>; } tolerance <i>seconds</i>; } } </pre>
Hierarchy Level	[edit security]
Release Information	<p>Statement introduced in Junos OS Release 7.6.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Support for the BFD protocol introduced in Junos OS Release 9.6.</p> <p>Support for the BFD protocol introduced in Junos OS Release 9.6 for EX Series switches.</p> <p>Support for IS-IS introduced in JUNOS OS Release 11.2.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	<p>Configure authentication key updates for the Border Gateway Protocol (BGP), the Label Distribution Protocol (LDP) routing protocols, the Bidirectional Forwarding Detection (BFD) protocol, and the Intermediate System-to-Intermediate System (IS-IS) protocol. When the authentication-key-chains statement is configured at the [edit security] hierarchy level, and is associated with the BGP, LDP, or IS-IS protocols at the [edit protocols] hierarchy level or with the BFD protocol using the bfd-liveness-detection statement, authentication key updates can occur without interrupting routing and signaling protocols such as Open Shortest Path First (OSPF) and Resource Reservation Setup Protocol (RSVP).</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	<p>admin—To view this statement in the configuration.</p> <p>admin-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Configuring the Authentication Key Update Mechanism for BGP and LDP Routing Protocols</i> • <i>Example: Configuring BFD Authentication for Static Routes</i> • <i>Example: Configuring Hitless Authentication Key Rollover for IS-IS</i>

autonomous-system

Syntax	<pre>autonomous-system <i>autonomous-system</i> <asdot-notation> <loops <i>number</i>> { independent-domain <no-attrset>; }</pre>
Hierarchy Level	<pre>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options], [edit logical-systems <i>logical-system-name</i> routing-options], [edit routing-instances <i>routing-instance-name</i> routing-options], [edit routing-options]</pre>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>asdot-notation option introduced in Junos OS Release 9.3.</p> <p>asdot-notation option introduced in Junos OS Release 9.3 for EX Series switches.</p> <p>no-attrset option introduced in Junos OS Release 10.4.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>Specify the routing device's AS number.</p> <p>An autonomous system (AS) is a set of routing devices that are under a single technical administration and that generally use a single interior gateway protocol (IGP) and metrics to propagate routing information within the set of routing devices. An AS appears to other ASs to have a single, coherent interior routing plan and presents a consistent picture of what destinations are reachable through it. ASs are identified by a number that is assigned by the Network Information Center (NIC) in the United States (http://www.isi.edu).</p> <p>If you are using BGP on the routing device, you must configure an AS number.</p> <p>The AS path attribute is modified when a route is advertised to an EBGP peer. Each time a route is advertised to an EBGP peer, the local routing device prepends its AS number to the existing path attribute, and a value of 1 is added to the AS number.</p> <p>In Junos OS Release 9.1 and later, the numeric range is extended to provide BGP support for 4-byte AS numbers as defined in RFC 4893, <i>BGP Support for Four-octet AS Number Space</i>. RFC 4893 introduces two new optional transitive BGP attributes, AS4_PATH and AS4_AGGREGATOR. These new attributes are used to propagate 4-byte AS path information across BGP speakers that do not support 4-byte AS numbers. RFC 4893 also introduces a reserved, well-known, 2-byte AS number, AS 23456. This reserved AS number is called AS_TRANS in RFC 4893. All releases of Junos OS support 2-byte AS numbers.</p> <p>In Junos OS Release 9.3 and later, you can also configure a 4-byte AS number using the AS-dot notation format of two integer values joined by a period: <i><16-bit high-order value in decimal>.<16-bit low-order value in decimal></i>. For example, the 4-byte AS number of 65,546 in plain-number format is represented as 1.10 in the AS-dot notation format.</p>
Options	<p><i>autonomous-system</i>—AS number. Use a number assigned to you by the NIC.</p>

Range: 1 through 4,294,967,295 ($2^{32} - 1$) in plain-number format for 4-byte AS numbers

In this example, the 4-byte AS number 65,546 is represented in plain-number format:

```
[edit]
routing-options {
  autonomous-system 65546;
}
```

Range: 0.0 through 65535.65535 in AS-dot notation format for 4-byte numbers

In this example, 1.10 is the AS-dot notation format for 65,546:

```
[edit]
routing-options {
  autonomous-system 1.10;
}
```

Range: 1 through 65,535 in plain-number format for 2-byte AS numbers (this is a subset of the 4-byte range)

In this example, the 2-byte AS number 60,000 is represented in plain-number format:

```
[edit]
routing-options {
  autonomous-system 60000;
}
```

asdot-notation—(Optional) Display the configured 4-byte autonomous system number in the AS-dot notation format.

Default: Even if a 4-byte AS number is configured in the AS-dot notation format, the default is to display the AS number in the plain-number format.

loops number—(Optional) Specify the number of times detection of the AS number in the AS_PATH attribute causes the route to be discarded or hidden. For example, if you configure **loops 1**, the route is hidden if the AS number is detected in the path one or more times. This is the default behavior. If you configure **loops 2**, the route is hidden if the AS number is detected in the path two or more times.

Range: 1 through 10

Default: 1



NOTE: When you specify the same AS number in more than one routing instance on the local routing device, you must configure the same number of loops for the AS number in each instance. For example, if you configure a value of 3 for the loops statement in a VRF routing instance that uses the same AS number as that of the master instance, you must also configure a value of 3 loops for the AS number in the master instance.

Use the **independent-domain** option if the loops statement must be enabled only on a subset of routing instances.

The remaining statement is explained separately.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Examples: Configuring External BGP Peering*
- *Examples: Configuring Internal BGP Peering*

backup-pe-group

Syntax `backup-pe-group group-name {
 backups [addresses];
 local-address address;
}`

Hierarchy Level [edit logical-systems *logical-system-name* routing-instances *routing-instance-name* routing-options multicast],
[edit logical-systems *logical-system-name* routing-options multicast],
[edit routing-instances *routing-instance-name* routing-options multicast],
[edit routing-options multicast]

Release Information Statement introduced in Junos OS Release 9.0.
Statement introduced in Junos OS Release 9.5 for EX Series switches.
Statement introduced in Junos OS Release 11.3 for the QFX Series.
Statement introduced in Junos OS Release 12.3 for ACX Series routers.

Description Configure a backup provider edge (PE) group for ingress PE redundancy when point-to-multipoint label-switched paths (LSPs) are used for multicast distribution.

Options **backups *addresses***—Specify the address of backup PE routers for ingress PE redundancy when point-to-multipoint LSPs are used for multicast distribution.

local-address *address*—Specify the address of the local PE router for ingress PE redundancy when point-to-multipoint LSPs are used for multicast distribution.

pe-group-name—Specify the name for the group of PE routers that provide ingress PE router redundancy for point-to-multipoint LSPs.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Example: Configuring Ingress PE Redundancy*
- *Configuring Ingress PE Router Redundancy for Point-to-Multipoint LSPs*

backups

Syntax	<code>backups [<i>addresses</i>];</code>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast backup-pe-group <i>group-name</i>],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options multicast backup-pe-group <i>group-name</i>],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options multicast backup-pe-group <i>group-name</i>],</p> <p>[edit routing-options multicast backup-pe-group <i>group-name</i>]</p>
Release Information	<p>Statement introduced in Junos OS Release 9.0.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	Configure the address of backup PEs for ingress PE redundancy when point-to-multipoint label-switched paths (LSPs) are used for multicast distribution.
Options	<i>addresses</i> —Addresses of other PEs in the backup group.
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Configuring Ingress PE Redundancy</i>

bandwidth (Multicast Flow Map)

Syntax	<code>bandwidth (<i>bps</i> adaptive);</code>
Hierarchy Level	<code>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast flow-map],</code> <code>[edit logical-systems <i>logical-system-name</i> routing-options multicast flow-map],</code> <code>[edit routing-instances <i>routing-instance-name</i> routing-options multicast flow-map],</code> <code>[edit routing-options multicast flow-map]</code>
Release Information	Statement introduced in Junos OS Release 8.3. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Configure the bandwidth property for multicast flow maps.
Options	adaptive —Specify that the bandwidth is measured for the flows that are matched by the flow map. <i>bps</i> —Bandwidth, in bits per second, for the flow map. Range: 0 through any amount of bandwidth Default: 2 Mbps
Required Privilege Level	routing —To view this statement in the configuration. routing-control —To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring a Multicast Flow Map</i>

bfd-liveness-detection (Routing Options Static Route)

Syntax

```

bfd-liveness-detection {
    authentication {
        algorithm algorithm-name;
        key-chain key-chain-name;
        loose-check;
    }
    detection-time {
        threshold milliseconds;
    }
    holddown-interval milliseconds;
    local-address ip-address;
    minimum-interval milliseconds;
    minimum-receive-interval milliseconds;
    minimum-receive-ttl number;
    multiplier number;
    neighbor address;
    no-adaptation;
    transmit-interval {
        minimum-interval milliseconds;
        threshold milliseconds;
    }
    version (1 | automatic);
}

```

Hierarchy Level

```

[edit logical-systems logical-system-name routing-instances routing-instance-name
 routing-options rib routing-table-name static route destination-prefix],
[edit logical-systems logical-system-name routing-instances routing-instance-name
 routing-options rib routing-table-name static route destination-prefix qualified-next-hop
 (interface-name | address)],
[edit logical-systems logical-system-name routing-instances routing-instance-name
 routing-options static route destination-prefix],
[edit logical-systems logical-system-name routing-instances routing-instance-name
 routing-options static route destination-prefix qualified-next-hop (interface-name |
 address)],
[edit logical-systems logical-system-name routing-options rib routing-table-name static
 route destination-prefix],
[edit logical-systems logical-system-name routing-options rib routing-table-name static
 route destination-prefix qualified-next-hop (interface-name | address)],
[edit logical-systems logical-system-name routing-options static route destination-prefix],
[edit logical-systems logical-system-name routing-options static route destination-prefix
 qualified-next-hop (interface-name | address)],
[edit routing-instances routing-instance-name routing-options rib routing-table-name static
 route destination-prefix],
[edit routing-instances routing-instance-name routing-options rib routing-table-name static
 route destination-prefix qualified-next-hop (interface-name | address)],
[edit routing-instances routing-instance-name routing-options static route destination-prefix],
[edit routing-instances routing-instance-name routing-options static route destination-prefix
 qualified-next-hop (interface-name | address)],
[edit routing-options rib routing-table-name static route destination-prefix],
[edit routing-options rib routing-table-name static route destination-prefix qualified-next-hop
 (interface-name | address)],
[edit routing-options static route destination-prefix],

```

[edit routing-options static route *destination-prefix* qualified-next-hop (*interface-name* | *address*)]

Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>detection-time threshold and transmit-interval threshold options introduced in Junos OS Release 8.2.</p> <p>local-address statement introduced in Junos OS Release 8.2.</p> <p>minimum-receive-ttl statement introduced in Junos OS Release 8.2.</p> <p>Support for logical routers introduced in Junos OS Release 8.3.</p> <p>holddown-interval statement introduced in Junos OS Release 8.5.</p> <p>no-adaptation statement introduced in Junos OS Release 9.0.</p> <p>Support for IPv6 static routes introduced in Junos OS Release 9.1.</p> <p>authentication algorithm, authentication key-chain, and authentication loose-check statements introduced in Junos OS Release 9.6.</p> <p>Statement introduced in Junos OS Release 12.1 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>Configure bidirectional failure detection timers and authentication criteria for static routes.</p>

- Options** **authentication algorithm** *algorithm-name* —Configure the algorithm used to authenticate the specified BFD session: **simple-password**, **keyed-md5**, **keyed-sha-1**, **meticulous-keyed-md5**, or **meticulous-keyed-sha-1**.
- authentication key-chain** *key-chain-name* —Associate a security key with the specified BFD session using the name of the security keychain. The name you specify must match one of the keychains configured in the **authentication-key-chains key-chain** statement at the **[edit security]** hierarchy level.
- authentication loose-check**—(Optional) Configure loose authentication checking on the BFD session. Use only for transitional periods when authentication may not be configured at both ends of the BFD session.
- detection-time threshold** *milliseconds*—Configure a threshold for the adaptation of the BFD session detection time. When the detection time adapts to a value equal to or greater than the threshold, a single trap and a single system log message are sent.
- holddown-interval** *milliseconds*—Configure an interval specifying how long a BFD session must remain up before a state change notification is sent. If the BFD session goes down and then comes back up during the hold-down interval, the timer is restarted.
Range: 0 through 255,000
Default: 0
- local-address** *ip-address*—Enable a multihop BFD session and configure the source address for the BFD session.
- minimum-interval** *milliseconds*—Configure the minimum interval after which the local routing device transmits a hello packet and then expects to receive a reply from the neighbor with which it has established a BFD session. Optionally, instead of using this statement, you can configure the minimum transmit and receive intervals separately using the **transmit-interval**, **minimum-interval**, and **minimum-receive-interval** statements.
Range: 1 through 255,000
- minimum-receive-interval** *milliseconds*—Configure the minimum interval after which the routing device expects to receive a reply from a neighbor with which it has established a BFD session. Optionally, instead of using this statement, you can configure the minimum receive interval using the **minimum-interval** statement at the **[edit routing-options static route destination-prefix bfd-liveness-detection]** hierarchy level.
Range: 1 through 255,000
- minimum-receive-ttl** *number*—Configure the time to live (TTL) for the multihop BFD session.
Range: 1 through 255
Default: 255
- multiplier** *number*—Configure number of hello packets not received by the neighbor that causes the originating interface to be declared down.
Range: 1 through 255
Default: 3

neighbor *address*—Configure a next-hop address for the BFD session for a next hop specified as an interface name.

no-adaptation—Specify for BFD sessions not to adapt to changing network conditions. We recommend that you not disable BFD adaptation unless it is preferable not to have BFD adaptation enabled in your network.

transmit-interval threshold *milliseconds*—Configure the threshold for the adaptation of the BFD session transmit interval. When the transmit interval adapts to a value greater than the threshold, a single trap and a single system message are sent. The interval threshold must be greater than the minimum transmit interval.

Range: 0 through 4,294,967,295

transmit-interval minimum-interval *milliseconds*—Configure the minimum interval at which the routing device transmits hello packets to a neighbor with which it has established a BFD session. Optionally, instead of using this statement, you can configure the minimum transmit interval using the **minimum-interval** statement at the **[edit routing-options static route *destination-prefix* bfd-liveness-detection]** hierarchy level.


Range: 1 through 255,000

version—Configure the BFD version to detect: **1** (BFD version 1) or **automatic** (autodetect the BFD version).

Default: automatic

Required Privilege Level	routing—To view this statement in the configuration.
	routing-control—To add this statement to the configuration.
Related Documentation	• <i>Example: Configuring BFD for Static Routes</i>
	• <i>Example: Configuring BFD Authentication for Static Routes</i>

bgp-orf-cisco-mode

Syntax	<code>bgp-orf-cisco-mode;</code>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> protocols bgp outbound-route-filter],</p> <p>[edit logical-systems <i>logical-system-name</i> protocols bgp group <i>group-name</i> outbound-route-filter],</p> <p>[edit logical-systems <i>logical-system-name</i> protocols bgp group <i>group-name</i> neighbor <i>address</i> outbound-route-filter],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> protocols bgp outbound-route-filter],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> protocols bgp group <i>group-name</i> outbound-route-filter],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> protocols bgp group <i>group-name</i> neighbor <i>address</i> outbound-route-filter],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options outbound-route-filter],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options outbound-route-filter],</p> <p>[edit protocols bgp outbound-route-filter],</p> <p>[edit protocols bgp group <i>group-name</i> outbound-route-filter],</p> <p>[edit protocols bgp group <i>group-name</i> neighbor <i>address</i> outbound-route-filter],</p> <p>[edit routing-instances <i>routing-instance-name</i> protocols bgp outbound-route-filter],</p> <p>[edit routing-instances <i>routing-instance-name</i> protocols bgp group <i>group-name</i> outbound-route-filter],</p> <p>[edit routing-instances <i>routing-instance-name</i> protocols bgp group <i>group-name</i> neighbor <i>address</i> outbound-route-filter],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options outbound-route-filter],</p> <p>[edit routing-options outbound-route-filter]</p>
Release Information	<p>Statement introduced in Junos OS Release 9.2.</p> <p>Statement introduced in Junos OS Release 9.2 for EX Series switches.</p> <p>Support for the BGP group and neighbor hierarchy levels introduced in Junos OS Release 9.2.</p> <p>Support for the BGP group and neighbor hierarchy levels introduced in Junos OS Release 9.3 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	Enable interoperability with routing devices that use the vendor-specific outbound route filter compatibility code of 130 and code type of 128.
	<p> NOTE: To enable interoperability for all BGP peers configured on the routing device, include the statement at the [edit routing-options outbound-route-filter] hierarchy level.</p>
Default	Disabled
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

- Related Documentation**
- *Example: Configuring BGP Prefix-Based Outbound Route Filtering*

bmp

```

Syntax  bmp {
    authentication-algorithm (aes-128-cmac-96 | hmac-sha-1-96 | md5);
    authentication-key key;
    authentication-key-chain authentication-key-chain;
    connection-mode (active | passive);
    hold-down {
        seconds;
        flaps flaps;
        period seconds;
    }
    initiation-message text;
    local-address address;
    local-port port;
    monitor (disable | enable);
    priority (high | low | medium);
    route-monitoring {
        none;
        post-policy {
            exclude-non-eligible;
        }
        pre-policy {
            exclude-non-feasible;
        }
    }
}
station station-name {
    authentication-algorithm (aes-128-cmac-96 | hmac-sha-1-96 | md5);
    authentication-key key;
    authentication-key-chain authentication-key-chain;
    connection-mode (active | passive);
    hold-down {
        seconds;
        flaps flaps;
        period seconds;
    }
    initiation-message text;
    local-address address;
    local-port port;
    monitor (disable | enable);
    priority (high | low | medium);
    route-monitoring {
        none;
        post-policy {
            exclude-non-eligible;
        }
        pre-policy {
            exclude-non-feasible;
        }
    }
}
station-address (ip-address | name);
station-port port-number;
statistics-timeout seconds;
traceoptions {

```

```
        file filename <files number> <size size> <world-readable | no-world-readable>;
        flag flag <flag-modifier>;
    }
}
station-address (ip-address | name);
station-port port-number;
statistics-timeout seconds;
traceoptions {
    file filename <files number> <size size> <world-readable | no-world-readable>;
    flag flag <flag-modifier>;
}
}
```

Hierarchy Level [edit logical-systems *logical-system-name* protocols bgp],
[edit logical-systems *logical-system-name* protocols bgp group *group-name*],
[edit logical-systems *logical-system-name* protocols bgp group *group-name* neighbor *address*],
[edit logical-systems *logical-system-name* [routing-options](#)],
[edit protocols bgp],
[edit protocols bgp group *group-name*],
[edit protocols bgp group *group-name* neighbor *address*],
[edit [routing-options](#)]

Release Information Statement introduced in Junos OS Release 9.5.
Statement introduced in Junos OS Release 9.5 for EX Series switches.
Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Support for BMP version 3 introduced in Junos OS Release 13.3.

Description Configure the BGP Monitoring Protocol (BMP), which enables the routing device to collect data from the BGP Adjacency-RIB-In routing tables and periodically send that data to a monitoring station.

Options The remaining statements are explained separately.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.


Related Documentation

- *Example: Configuring the BGP Monitoring Protocol*

brief

Syntax	(brief full);
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options (aggregate generate) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options (aggregate generate) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options (aggregate generate) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate) (defaults route)],</p> <p>[edit routing-options (aggregate generate) (defaults route)],</p> <p>[edit routing-options rib <i>routing-table-name</i> (aggregate generate) (defaults route)]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>Configure all AS numbers from all contributing paths to be included in the aggregate or generated route's path.</p> <ul style="list-style-type: none"> • brief—Include only the longest common leading sequences from the contributing AS paths. If this results in AS numbers being omitted from the aggregate route, the BGP ATOMIC_ATTRIBUTE path attribute is included with the aggregate route. • full—Include all AS numbers from all contributing paths in the aggregate or generated route's path. Include this option when configuring an individual route in the route portion of the generate statement to override a retain option specified in the defaults portion of the statement.
Default	full
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Summarizing Routes Through Route Aggregation</i> • <i>Example: Conditionally Generating Static Routes</i> • aggregate on page 38 • generate on page 73

centralized

Syntax	centralized;
Hierarchy Level	[edit protocols lacp ppm]
Release Information	Statement introduced in Junos OS Release 10.2 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	<p>Disable distributed periodic packet management (PPM) processing for Link Aggregation Control Protocol (LACP) packets and run all PPM processing for LACP packets on the Routing Engine.</p> <p>This statement disables distributed PPM processing for only LACP packets. You can disable distributed PPM processing for all packets that use PPM and run all PPM processing on the Routing Engine by configuring the no-delegate-processing statement in the [edit routing-options ppm] hierarchy.</p>
	<div>BEST PRACTICE: We generally recommend that you disable distributed PPM only if Juniper Networks Customer Service advises you to do so. You should disable distributed PPM only if you have a compelling reason to disable it.</div>
Default	Distributed PPM processing is enabled for all packets that use PPM.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• Configuring Distributed Periodic Packet Management on an EX Series Switch (CLI Procedure) on page 14• <i>Configuring Aggregated Ethernet LACP (CLI Procedure)</i>• <i>Configuring Distributed Periodic Packet Management</i>• <i>Configuring Link Aggregation</i>

community (Routing Options)

Syntax	<code>community ([<i>community-ids</i>] no-advertise no-export no-export-subconfed none);</code>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit routing-options (aggregate generate static) (defaults route)],</p> <p>[edit routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	Associate BGP community information with a static, aggregate, or generated route.
Default	No BGP community information is associated with static routes.
Options	<p><i>community-ids</i>—One or more community identifiers. The <i>community-ids</i> format varies according to the type of attribute that you use.</p> <p>The BGP community attribute format is <i>as-number:community-value</i>:</p> <ul style="list-style-type: none"> • <i>as-number</i>—AS number of the community member. It can be a value from 1 through 65,535. The AS number can be a decimal or hexadecimal value. • <i>community-value</i>—Identifier of the community member. It can be a number from 0 through 65,535. <p>For more information about BGP community attributes, see the “Configuring the Extended Communities Attribute” section in the <i>Routing Policies, Firewall Filters, and Traffic Policers Feature Guide for Routing Devices</i>.</p> <p>For specifying the BGP community attribute only, you also can specify <i>community-ids</i> as one of the following well-known community names defined in RFC 1997:</p> <ul style="list-style-type: none"> • no-advertise—Routes containing this community name are not advertised to other BGP peers. • no-export—Routes containing this community name are not advertised outside a BGP confederation boundary.

- **no-export-subconfed**—Routes containing this community are advertised to IBGP peers with the same AS number, but not to members of other confederations.



NOTE: Extended community attributes are not supported at the [edit routing-options] hierarchy level. You must configure extended communities at the [edit policy-options] hierarchy level. For information about configuring extended communities, see the *Routing Policies, Firewall Filters, and Traffic Policers Feature Guide for Routing Devices*.

Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • <i>Examples: Configuring Static Routes</i> • <i>Example: Summarizing Routes Through Route Aggregation</i> • <i>Example: Conditionally Generating Static Routes</i> • aggregate on page 38 • generate on page 73 • static on page 134

confederation


Syntax	<code>confederation <i>confederation-autonomous-system</i> members [<i>autonomous-systems</i>];</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-options], [edit routing-options]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	<p>Specify the routing device's confederation AS number.</p> <p>If you administer multiple ASs that contain a very large number of BGP systems, you can group them into one or more <i>confederations</i>. Each confederation is identified by its own AS number, which is called a <i>confederation AS number</i>. To external ASs, a confederation appears to be a single AS. Thus, the internal topology of the ASs making up the confederation is hidden.</p> <p>The BGP path attributes NEXT_HOP, LOCAL_PREF, and MULTI_EXIT_DISC, which normally are restricted to a single AS, are allowed to be propagated throughout the ASs that are members of the same confederation.</p> <p>Because each confederation is treated as if it were a single AS, you can apply the same routing policy to all the ASs that make up the confederation.</p> <p>Grouping ASs into confederations reduces the number of BGP connections required to interconnect ASs.</p> <p>If you are using BGP, you can enable the local routing device to participate as a member of an AS confederation. To do this, include the confederation statement.</p> <p>Specify the AS confederation identifier, along with the peer AS numbers that are members of the confederation.</p> <p>Note that peer adjacencies do not form if two BGP neighbors disagree about whether an adjacency falls within a particular confederation.</p>
Options	<p><i>autonomous-systems</i>—AS numbers of the confederation members. Range: 1 through 65,535</p> <p><i>confederation-autonomous-system</i>—Confederation AS number. Use one of the numbers assigned to you by the NIC. Range: 1 through 65,535</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

Related Documentation • *Example: Configuring BGP Confederations*

disable (Routing Options)

Syntax	disable;
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options graceful-restart], [edit logical-systems <i>logical-system-name</i> routing-options graceful-restart], [edit routing-instances <i>routing-instance-name</i> routing-options graceful-restart], [edit routing-options graceful-restart]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Disable graceful restart.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	• <i>Junos OS High Availability Library for Routing Devices</i>

discard

Syntax	discard;
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options (aggregate generate) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options (aggregate generate) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options (aggregate generate) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate) (defaults route)],</p> <p>[edit routing-options (aggregate generate) (defaults route)],</p> <p>[edit routing-options rib <i>routing-table-name</i> (aggregate generate) (defaults route)]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>Do not forward packets addressed to this destination. Instead, drop the packets, do not send ICMP unreachable messages to the packets' originators, and install a reject route for this destination into the routing table.</p> <p>To propagate static routes into the routing protocols, include the discard statement when you define the route, along with a routing policy.</p>
	<p> NOTE: In other vendors' software, a common way to propagate static routes into routing protocols is to configure the routes so that the next-hop routing device is the loopback address (commonly, 127.0.0.1). However, configuring static routes in this way (by including a statement such as route <i>address/mask-length</i> next-hop 127.0.0.1) does not propagate the static routes, because the forwarding table ignores static routes whose next-hop routing device is the loopback address.</p>
Default	When an aggregate route becomes active, it is installed in the routing table with a reject next hop, which means that ICMP unreachable messages are sent.
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Summarizing Routes Through Route Aggregation</i> • <i>Example: Conditionally Generating Static Routes</i>

- [aggregate on page 38](#)
- [generate on page 73](#)

export (Routing Options)

Syntax	<code>export [<i>policy-name</i>];</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options forwarding-table], [edit logical-systems <i>logical-system-name</i> routing-options forwarding-table], [edit routing-instances <i>routing-instance-name</i> routing-options forwarding-table], [edit routing-options forwarding-table]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	<p>Apply one or more policies to routes being exported from the routing table into the forwarding table.</p> <p>In the export statement, list the name of the routing policy to be evaluated when routes are being exported from the routing table into the forwarding table. Only active routes are exported from the routing table.</p> <p>You can reference the same routing policy one or more times in the same or a different export statement.</p> <p>You can apply export policies to routes being exported from the routing table into the forwarding table for the following features:</p> <ul style="list-style-type: none">• Per-packet load balancing• Class of service (CoS)
Options	<i>policy-name</i> —Name of one or more policies.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Load Balancing BGP Traffic</i>• <i>Routing Policies, Firewall Filters, and Traffic Policers Feature Guide for Routing Devices</i>• <i>How a Routing Policy Is Evaluated</i>

export-rib

Syntax	<code>export-rib routing-table-name;</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib-groups <i>group-name</i>], [edit logical-systems <i>logical-system-name</i> routing-options rib-groups <i>group-name</i>], [edit routing-instances <i>routing-instance-name</i> routing-options rib-groups <i>group-name</i>], [edit routing-options rib-groups <i>group-name</i>]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Specify the name of the routing table from which Junos OS should export routing information. For any individual RIB group, only one table can be specified in the export-rib statement.

The **export-rib** statement specifies the source table from which routing information is advertised.

One common use of the **export-rib** statement is interdomain routing. The export RIB is the table used when BGP extracts routes to advertise to peers. In multicast interdomain routing, for example, the export RIB is likely to be inet.2.

Another use of **export-rib** is dynamic route leaking between the global routing table (inet.0) and a VRF routing table (*instance.inet.0*). For example, you can use a RIB group to copy routes learned in the VRF into the global routing table, inet.0, or copy routes learned in inet.0 into a VRF. You define the use of this RIB group in the VRF's BGP configuration. In a routing policy you can do dynamic filtering of routes. For instance, you can use an import policy to only copy routes with certain communities into the global routing table.

For example:

```
rib-groups {
  rib-interface-routes-v4 {
    import-rib [ inet.0 VRF.inet.0 ];
  }
  rib-import-VRF-routes-to-inet0-v4 {
    export-rib VRF.inet.0;
    import-rib [ VRF.inet.0 inet.0 ];
    import-policy rib-import-VRF-routes-to-inet0-v4;
  }
  rib-import-inet0-routes-to-VRF-v4 {
    export-rib inet.0;
    import-rib [ inet.0 VRF.inet.0 ];
    import-policy rib-import-inet0-routes-to-VRF-v4;
  }
}
routing-options {
  interface-routes {
    rib-group {
```

```

        inet rib-interface-routes-v4;
    }
}
protocols {
    bgp {
        group iBGP-peers {
            type internal;
            family inet {
                unicast {
                    rib-group rib-import-inet0-routes-to-VRF-v4;
                }
            }
        }
    }
}
routing-instances {
    VRF {
        routing-options {
            interface-routes {
                rib-group {
                    inet rib-interface-routes-v4;
                }
            }
        }
        protocols {
            bgp {
                group peersin-VRF {
                    family inet {
                        unicast {
                            rib-group rib-import-VRF-routes-to-inet0-v4;
                        }
                    }
                }
            }
        }
    }
}
}

```

Options *routing-table-name*—Routing table group name.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Example: Exporting Specific Routes from One Routing Table Into Another Routing Table*
- *Example: Configuring a PIM RPF Routing Table*
- *Example: Configuring DVMRP to Announce Unicast Routes*
- *Example: Configuring a Dedicated PIM RPF Routing Table*
- *Example: Configuring Any-Source Multicast for Draft-Rosen VPNs*
- [import-rib on page 78](#)
- *passive*

fate-sharing

Syntax	<pre>fate-sharing { group <i>group-name</i> { cost <i>value</i>; from <i>address</i> <to <i>address</i>>; } }</pre>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-options], [edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options], [edit routing-options], [edit routing-instances <i>routing-instance-name</i> routing-options]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	<p>Specify a backup path in case the primary path becomes unusable.</p> <p>You specify one or more objects with common characteristics within a group. All objects are treated as /32 host addresses. The objects can be a LAN interface, a router ID, or a point-to-point link. Sequence is insignificant.</p> <p>Changing the fate-sharing database does not affect existing established LSPs until the next CSPF reoptimization. The fate-sharing database does affect fast-reroute detour path computations.</p>
Options	<p>cost <i>value</i>—Cost assigned to the group.</p> <p>Range: 1 through 65,535</p> <p>Default: 1</p> <p>from <i>address</i>—Address of the router or address of the LAN/NBMA interface. For example, an Ethernet network with four hosts in the same fate-sharing group would require you to list all four of the separate from addresses in the group.</p> <p>group <i>group-name</i>—Each fate-sharing group must have a name, which can have a maximum of 32 characters, including letters, numbers, periods (.), and hyphens (-). You can define up to 512 groups.</p> <p>to <i>address</i>—(Optional) Address of egress router. For point-to-point link objects, you must specify both a from and a to address.</p>
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • <i>Configuring the Ingress Router for MPLS-Signaled LSPs</i> • <i>Junos OS MPLS Applications Library for Routing Devices</i>

flow

Syntax	<pre> flow { route <i>name</i> { match { <i>match-conditions</i>; } term-order (legacy standard); then { <i>actions</i>; } } firewall-install-disable; term-order (legacy standard); validation { traceoptions { file <i>filename</i> <files <i>number</i>> <size <i>size</i>> <world-readable no-world-readable>; flag <i>flag</i> <flag-modifier> <disable>; } } } </pre>
Hierarchy Level	<p>[edit routing-options], [edit logical-systems <i>logical-system-name</i> routing-options], [edit routing-instances <i>routing-instance-name</i> routing-options], [edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. term-order statement introduced in Junos OS Release 10.0 Statement introduced in Junos OS Release 11.3 for the QFX Series. firewall-install-disable statement introduced in Junos OS Releases 12.1X48 and 12.3 for PTX Series routers.</p>
Description	Configure a flow route.
Default	legacy
Options	<p>actions—An action to take if conditions match.</p> <p>firewall-install-disable—(PTX Series routers only) Disable installing flow-specification firewall filters in the firewall process (dfwd).</p> <p>Default: If you omit the firewall-install-disable statement, the default behavior is firewall-install-disable mode.</p> <p>match-conditions—Match packets to these conditions.</p> <p>route <i>name</i>—Name of the flow route.</p> <p>standard—Specify to use version 7 or later of the flow-specification algorithm.</p>

term-order (legacy | standard)—Specify the version of the flow-specification algorithm.

- **legacy**—Use version 6 of the flow-specification algorithm.
- **standard**—Use version 7 of the flow-specification algorithm.

then—Actions to take on matching packets.

The remaining statements are explained separately.

Required Privilege Level	routing—To view this statement in the configuration.
	routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Configuring Flow Routes</i>

flow-map

Syntax	<pre>flow-map flow-map-name { bandwidth (bps adaptive); forwarding-cache { timeout (never non-discard-entry-only minutes); } policy [policy-names]; redundant-sources [addresses]; }</pre>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options multicast],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options multicast],</p> <p>[edit routing-options multicast]</p>
Release Information	<p>Statement introduced in Junos OS Release 8.2.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	Configure multicast flow maps.
Options	<p>flow-map-name—Name of the flow-map.</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Configuring a Multicast Flow Map</i>

forwarding-cache (Flow Maps)

Syntax	forwarding-cache { timeout (minutes never non-discard-entry-only); }
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast flow-map <i>flow-map-name</i>], [edit logical-systems <i>logical-system-name</i> routing-options multicast flow-map <i>flow-map-name</i>], [edit routing-instances <i>routing-instance-name</i> routing-options multicast flow-map <i>flow-map-name</i>], [edit routing-options multicast flow-map <i>flow-map-name</i>]
Release Information	Statement introduced in Junos OS Release 8.2. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	Configure multicast forwarding cache properties for the flow map.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

forwarding-cache (Multicast)

Syntax	<pre> forwarding-cache { allow-maximum; family (inet inet6) { threshold { log-warning value; suppress value <reuse value>; } } threshold { log-warning value; suppress value <reuse value>; } timeout minutes; } </pre>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options multicast],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options multicast],</p> <p>[edit routing-options multicast]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	<p>Configure multicast forwarding cache properties. These properties include threshold suppression and reuse limits, the threshold at which a warning message is logged, and timeout values.</p> <p>Specify a value for the threshold at which to suppress new multicast forwarding cache entries and an optional reuse value for the threshold at which the router begins to create new multicast forwarding cache entries. The range for both is from 1 through 200,000. If configured, the reuse value should be less than the suppression threshold value. The suppression value is mandatory. If you do not specify the optional reuse value, then the number of multicast forwarding cache entries is limited to the suppression value. A new entry is created as soon as the number of multicast forwarding cache entries falls below the suppression value.</p> <p>You can configure the thresholds globally for the multicast forwarding cache or individually for the IPv4 and IPv6 multicast forwarding caches. Configuring the threshold statement globally for the multicast forwarding cache or including the family statement to configure the thresholds for the IPv4 and IPv6 multicast forwarding caches are mutually exclusive.</p>
Default	By default, there are no limits on the number of multicast forwarding cache entries.
Options	<p>family (inet inet6)—(Optional) Apply the configured thresholds to either IPv4 or IPv6 multicast forwarding cache entries.</p> <p>Default: By default, the configured thresholds are applied to both IPv4 and IPv6 multicast forwarding cache entries.</p>

The remaining statements are explained separately.

Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring the Multicast Forwarding Cache</i>

forwarding-table

Syntax	<pre>forwarding-table { chained-composite-next-hop; export [<i>policy-name</i>]; (indirect-next-hop no-indirect-next-hop); (indirect-next-hop-change-acknowledgements no-indirect-next-hop-change-acknowledgements); krt-nexthop-ack-timeout <i>interval</i>; unicast-reverse-path (active-paths feasible-paths); }</pre>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-options], [edit routing-options]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	Configure information about the routing device's forwarding table. The remaining statements are explained separately.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Load Balancing BGP Traffic</i>

generate

Syntax	<pre> generate { defaults { generate-options; } route destination-prefix { policy policy-name; generate-options; } } </pre>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i>],</p> <p>[edit routing-options],</p> <p>[edit routing-options rib <i>routing-table-name</i>]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	Configure generated routes, which are used as routes of last resort.
Options	<p>defaults—(Optional) Specify global generated route options. These options only set default attributes inherited by all newly created generated routes. These are treated as global defaults and apply to all the generated routes you configure in the generate statement.</p> <p>generate-options—Additional information about generated routes, which is included with the route when it is installed in the routing table. Specify zero or more of the following options in generate-options. Each option is explained separately.</p> <ul style="list-style-type: none"> • (active passive); • as-path <i><as-path></i> <i><origin (egp igp incomplete)></i> <i><atomic-aggregate></i> <i><aggregator as-number in-address></i>; • (brief full); • community [<i>community-ids</i>]; • discard; • (metric <i>metric2</i> <i>metric3</i> <i>metric4</i>) <i>value</i> <i><type type></i>; • (preference <i>preference2</i> color <i>color2</i>) <i>preference</i> <i><type type></i>; • tag <i>metric type number</i>; <p>route destination-prefix—Configure a non-default generated route:</p> <ul style="list-style-type: none"> • default—For the default route to the destination. This is equivalent to specifying an IP address of 0.0.0.0/0.

- ***destination-prefix/prefix-length—/destination-prefix*** is the network portion of the IP address, and ***prefix-length*** is the destination prefix length.

The **policy** statement is explained separately.

Required Privilege	routing—To view this statement in the configuration.
Level	routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Conditionally Generating Static Routes</i>

graceful-restart (Enabling Globally)

Syntax	<pre> graceful-restart { disable; helper-disable; maximum-helper-recovery-time <i>seconds</i>; maximum-helper-restart-time <i>seconds</i>; notify-duration <i>seconds</i>; recovery-time <i>seconds</i>; restart-duration <i>seconds</i>; stale-routes-time <i>seconds</i>; }</pre>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-options], [edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options], [edit routing-options], [edit routing-instances <i>routing-instance-name</i> routing-options]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 12.1 for the QFX Series.
Description	Configure graceful restart globally to enable the feature. You cannot enable graceful restart for specific protocols unless graceful restart is also enabled globally. You can, optionally, modify the global settings at the individual protocol level.



NOTE:

- For VPNs, the `graceful-restart` statement allows a router whose VPN control plane is undergoing a restart to continue to forward traffic while recovering its state from neighboring routers.
- For BGP, if you configure graceful restart after a BGP session has been established, the BGP session restarts and the peers negotiate graceful restart capabilities.
- LDP sessions flap when `graceful-restart` configurations change.


Default	Graceful restart is disabled by default.
Options	The remaining statements are explained separately.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • <i>Enabling Graceful Restart</i> • <i>Configuring Routing Protocols Graceful Restart</i>

- *Configuring Graceful Restart for MPLS-Related Protocols*
- *Configuring VPN Graceful Restart*
- *Configuring Logical System Graceful Restart*
- *Graceful Restart Configuration Statements*
- *Configuring Graceful Restart for QFabric Systems*


import (Routing Options)

Syntax	<code>import [<i>policy-names</i>];</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options resolution rib], [edit logical-systems <i>logical-system-name</i> routing-options resolution rib], [edit routing-instances <i>routing-instance-name</i> routing-options resolution rib], [edit routing-options resolution rib]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	Specify one or more import policies to use for route resolution.
Options	<i>policy-names</i> —Name of one or more import policies.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring Route Resolution on PE Routers</i>


import-policy

Syntax	<code>import-policy [<i>policy-names</i>];</code>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib-groups <i>group-name</i>],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib-groups <i>group-name</i>],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib-groups <i>group-name</i>],</p> <p>[edit routing-options rib-groups <i>group-name</i>]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	<p>Apply one or more policies to routes imported into the routing table group. The import-policy statement complements the import-rib statement and cannot be used unless you first specify the routing tables to which routes are being imported.</p>
<div>  <p>NOTE: On EX Series switches, only dynamically learned routes can be imported from one routing table group to another.</p> </div>	
Options	<i>policy-names</i> —Name of one or more policies.
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Exporting Specific Routes from One Routing Table Into Another Routing Table</i> • export-rib on page 65 • <i>passive</i>

import-rib

Syntax	<code>import-rib [<i>routing-table-names</i>];</code>
Hierarchy Level	<code>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib-groups <i>group-name</i>],</code> <code>[edit logical-systems <i>logical-system-name</i> routing-options rib-groups <i>group-name</i>],</code> <code>[edit routing-instances <i>routing-instance-name</i> routing-options rib-groups <i>group-name</i>],</code> <code>[edit routing-options rib-groups <i>group-name</i>]</code>
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	<p>Specify the name of the routing table into which Junos OS should import routing information. The first routing table name you enter is the primary routing table. Any additional names you enter identify secondary routing tables. When a protocol imports routes, it imports them into the primary and any secondary routing tables. If the primary route is deleted, the secondary route also is deleted. For IPv4 import routing tables, the primary routing table must be inet.0 or routing-instance-name.inet.0. For IPv6 import routing tables, the primary routing table must be inet6.0.</p> <p>In Junos OS Release 9.5 and later, you can configure an IPv4 import routing table that includes both IPv4 and IPv6 routing tables. Including both types of routing tables permits you, for example, to populate an IPv6 routing table with IPv6 addresses that are compatible with IPv4. In releases prior to Junos OS Release 9.5, you could configure an import routing table with only either IPv4 or IPv6 routing tables.</p>
<div> NOTE: On EX Series switches, only dynamically learned routes can be imported from one routing table group to another.</div>	
Options	<i>routing-table-names</i> —Name of one or more routing tables.
Required Privilege Level	routing —To view this statement in the configuration. routing-control —To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Exporting Specific Routes from One Routing Table Into Another Routing Table</i>• export-rib on page 65• <i>passive</i>

indirect-next-hop

Syntax	(indirect-next-hop no-indirect-next-hop);
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-options forwarding-table], [edit routing-options forwarding-table]
Release Information	Statement introduced in Junos OS Release 8.2. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	Enable indirectly connected next hops for route convergence. This statement is implemented on the Packet Forward Engine to speed up forwarding information base (FIB) updates. Configuring this statement significantly speeds convergence times. The only downside of configuring this statement is that some additional FIB memory overhead is required. Unless routes have an extremely high number of next hops, this increased memory usage should not be noticeable.
<div>  NOTE: <ul style="list-style-type: none"> When virtual private LAN service (VPLS) is configured on the routing device, the indirect-next-hop statement is configurable at the [edit routing-options forwarding-table] hierarchy level. However, this configuration is not applicable to indirect nexthops specific to VPLS routing instances. By default, the Junos Trio Modular Port Concentrator (MPC) chipset on MX Series routers is enabled with indirectly connected next hops, and this cannot be disabled using the no-indirect-next-hop statement. By default, indirectly connected next hops are enabled on PTX Series routers. </div>	
Default	Disabled.
Options	indirect-next-hop —Enable indirectly connected next hops. no-indirect-next-hop —Explicitly disable indirect next hops.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> <i>Example: Optimizing Route Reconvergence by Enabling Indirect Next Hops on the Packet Forwarding Engine</i>

install (Routing Options)

Syntax	(install no-install);
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options static (defaults route)], [edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> static (defaults route)], [edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> static (defaults route)], [edit logical-systems <i>logical-system-name</i> routing-options static (defaults route)], [edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> static (defaults route)], [edit routing-instances <i>routing-instance-name</i> routing-options static (defaults route)], [edit routing-options rib <i>routing-table-name</i> static (defaults route)] [edit routing-options static (defaults route)]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	Configure whether Junos OS installs all static routes into the forwarding table. Even if you configure a route so it is not installed in the forwarding table, the route is still eligible to be exported from the routing table to other protocols.
Options	install —Explicitly install all static routes into the forwarding table. Include this statement when configuring an individual route in the route portion of the static statement to override a no-install option specified in the defaults portion of the statement. no-install —Do not install the route into the forwarding table, even if it is the route with the lowest preference. Default: install
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Examples: Configuring Static Routes</i>• static on page 134

instance-export

Syntax	<code>instance-export [<i>policy-names</i>];</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options], [edit logical-systems <i>logical-system-name</i> routing-options], [edit routing-instances <i>routing-instance-name</i> routing-options], [edit routing-options]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches.
Description	Apply one or more policies to routes being exported from a routing instance.
Options	<i>policy-names</i> —Name of one or more export policies.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • <i>Routing Policies, Firewall Filters, and Traffic Policers Feature Guide for Routing Devices</i>

instance-import

Syntax	<code>instance-import [<i>policy-names</i>];</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options], [edit logical-systems <i>logical-system-name</i> routing-options], [edit routing-instances <i>routing-instance-name</i> routing-options], [edit routing-options]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches.
Description	Apply one or more policies to routes being imported into a routing instance.
Options	<i>policy-names</i> —Name of one or more import policies.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • <i>Routing Policies, Firewall Filters, and Traffic Policers Feature Guide for Routing Devices</i>

interface (Multicast Static Routes)

Syntax	<pre>interface <i>interface-names</i> { disable; maximum-bandwidth <i>bps</i>; no-qos-adjust; reverse-oif-mapping { no-qos-adjust; } subscriber-leave-timer <i>seconds</i>; }</pre>
Hierarchy Level	<pre>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast], [edit logical-systems <i>logical-system-name</i> routing-options multicast], [edit routing-instances <i>routing-instance-name</i> routing-options multicast], [edit routing-options multicast]</pre>
Release Information	<p>Statement introduced in Junos OS Release 8.1.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	<p>Enable multicast traffic on an interface.</p> <p>By default, multicast packets are forwarded by enabling Protocol Independent Multicast (PIM) on an interface. PIM adds multicast routes into the routing table.</p> <p>You can also configure multicast packets to be forwarded over a static route, such as a static route associated with an LSP next hop. Multicast packets are accepted on an interface and forwarded over a static route in the forwarding table. This is useful when you want to enable multicast traffic on a specific interface without configuring PIM on the interface.</p> <p>You cannot enable multicast traffic on an interface and configure PIM on the same interface simultaneously.</p> <p>Static routes must be configured before you can enable multicast on an interface. Configuring the interface statement alone does not install any routes into the routing table. This feature relies on the static route configuration.</p>
Options	<p><i>interface-names</i>—Name of one or more interfaces on which to enable multicast traffic.</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none">• <i>Example: Defining Interface Bandwidth Maximums</i>• <i>Example: Configuring Multicast with Subscriber VLANs</i>

interface (Routing Options)

Syntax	<pre>interface <i>interface-names</i> { <i>maximum-bandwidth</i> <i>bps</i>; no-qos-adjust; reverse-oif-mapping { no-qos-adjust; } <i>subscriber-leave-timer</i> <i>seconds</i>; }</pre>
Hierarchy Level	<pre>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast], [edit logical-systems <i>logical-system-name</i> routing-options multicast], [edit routing-instances <i>routing-instance-name</i> routing-options multicast], [edit routing-options multicast]</pre>
Release Information	<p>Statement introduced in Junos OS Release 8.3.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	Enable multicast traffic on an interface.



TIP: You cannot enable multicast traffic on an interface by using the `routing-options multicast interface` statement and configure PIM on the interface.

Options	<p><i>interface-name</i>—Names of the physical or logical interface.</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Defining Interface Bandwidth Maximums</i> • <i>Example: Configuring Multicast with Subscriber VLANs</i>

interface-routes

Syntax

```
interface-routes {  
    family (inet | inet6) {  
        export {  
            lan;  
            point-to-point;  
        }  
    }  
    rib-group group-name;  
}
```

Hierarchy Level [edit logical-systems *logical-system-name* routing-instances *routing-instance-name* routing-options],
[edit logical-systems *logical-system-name* routing-options],
[edit routing-instances *routing-instance-name* routing-options],
[edit routing-options]

Release Information Statement introduced before Junos OS Release 7.4.
Statement introduced in Junos OS Release 9.0 for EX Series switches.
Statement introduced in Junos OS Release 11.3 for the QFX Series.



NOTE: On EX Series switches, only dynamically learned routes can be imported from one routing table group to another.

Description Associate a routing table group with the routing device's interfaces, and specify routing table groups into which interface routes are imported.

By default, IPv4 interface routes (also called direct routes) are imported into routing table **inet.0**, and IPv6 interface routes are imported into routing table **inet6.0**. If you are configuring alternate routing tables for use by some routing protocols, it might be necessary to import the interface routes into the alternate routing tables. To define the routing tables into which interface routes are imported, you create a routing table group and associate it with the routing device's interfaces.

To create the routing table groups, include the **passive** statement at the **[edit routing-options]** hierarchy level.

If you have configured a routing table, configure the OSPF primary instance at the **[edit protocols ospf]** hierarchy level with the statements needed for your network so that routes are installed in **inet.0** and in the forwarding table. Make sure to include the routing table group.

To export local routes, include the **export** statement.

To export LAN routes, include the **lan** option. To export point-to-point routes, include the **point-to-point** option.

Only local routes on point-to-point interfaces configured with a destination address are exportable.

- Options**
- inet**—Specify the IPv4 address family.
 - inet6**—Specify the IPv6 address family.
 - lan**—Export LAN routes.
 - point-to-point**—Export point-to-point routes.

The remaining statements are explained separately.

- Required Privilege Level**
- routing—To view this statement in the configuration.
 - routing-control—To add this statement to the configuration.

- Related Documentation**
- *Example: Importing Direct and Static Routes Into a Routing Instance*
 - *Example: Configuring Multiple Routing Instances of OSPF*
 - *passive*

local-address (Routing Options)

- Syntax** `local-address address;`

- Hierarchy Level**
- [edit logical-systems *logical-system-name* routing-instances *routing-instance-name* routing-options multicast **backup-pe-group** *group-name*],
 - [edit logical-systems *logical-system-name* routing-options multicast **backup-pe-group** *group-name*],
 - [edit routing-instances *routing-instance-name* routing-options multicast **backup-pe-group** *group-name*],
 - [edit routing-options multicast **backup-pe-group** *group-name*]

- Release Information**
- Statement introduced in Junos OS Release 9.0.
 - Statement introduced in Junos OS Release 9.0 for EX Series switches.
 - Statement introduced in Junos OS Release 11.3 for the QFX Series.

- Description**
- Configure the address of the local PE for ingress PE redundancy when point-to-multipoint LSPs are used for multicast distribution.

- Options**
- address**—Address of local PEs in the backup group.

- Required Privilege Level**
- routing—To view this statement in the configuration.
 - routing-control—To add this statement to the configuration.

- Related Documentation**
- *Example: Configuring Ingress PE Redundancy*

martians

Syntax	<pre>martians { destination-prefix match-type <allow>; }</pre>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i>],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i>],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i>],</p> <p>[edit routing-options],</p> <p>[edit routing-options rib <i>routing-table-name</i>]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	Configure martian addresses.
Options	<p>allow—(Optional) Explicitly allow a subset of a range of addresses that has been disallowed. The allow option is the only supported action.</p> <p>destination-prefix—Destination route you are configuring:</p> <ul style="list-style-type: none"> destination-prefix/prefix-length—destination-prefix is the network portion of the IP address, and prefix-length is the destination prefix length. default—Default route to use when routing packets do not match a network or host in the routing table. This is equivalent to specifying the IP address 0.0.0.0/0. <p>match-type—Criteria that the destination must match:</p> <ul style="list-style-type: none"> exact—Exactly match the route's mask length. longer—The route's mask length is greater than the specified mask length. orlonger—The route's mask length is equal to or greater than the specified mask length. through destination-prefix—The route matches the first prefix, the route matches the second prefix for the number of bits in the route, and the number of bits in the route is less than or equal to the number of bits in the second prefix. upto prefix-length—The route's mask length falls between the two destination prefix lengths, inclusive.
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

Related Documentation • *Example: Configuring Martian Addresses*

maximum-bandwidth (Routing Options)

Syntax	<code>maximum-bandwidth <i>bps</i>;</code>
Hierarchy Level	<p>[edit dynamic-profiles <i>profile-name</i> routing-instances <i>instance-name</i> routing-options multicast interface <i>interface-name</i>],</p> <p>[edit dynamic-profiles <i>profile-name</i> routing-options multicast interface <i>interface-name</i>]</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast <i>interface interface-name</i>],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options multicast <i>interface interface-name</i>],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options multicast <i>interface interface-name</i>],</p> <p>[edit routing-options multicast <i>interface interface-name</i>]</p>
Release Information	<p>Statement introduced in Junos OS Release 8.3.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>dynamic-profiles hierarchy level added in Junos OS Release 11.2.</p>
Description	Configure the multicast bandwidth for the interface.
Options	<p><i>bps</i>—Bandwidth rate, in bits per second, for the multicast interface.</p> <p>Range: 0 through any amount of bandwidth</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	• <i>Example: Defining Interface Bandwidth Maximums</i>

maximum-paths

Syntax	<code>maximum-paths <i>path-limit</i> <log-interval <i>seconds</i>> <log-only threshold <i>value</i>>;</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options], [edit logical-systems <i>logical-system-name</i> routing-options], [edit routing-instances <i>routing-instance-name</i> routing-options], [edit routing-options]
Release Information	Statement introduced in Junos OS Release 8.0. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	Configure a limit for the number of routes installed in a routing table based upon the route path.



NOTE: The `maximum-paths` statement is similar to the `maximum-prefixes` statement. The `maximum-prefixes` statement limits the number of unique destinations in a routing instance. For example, suppose a routing instance has the following routes:

```
OSPF 10.10.10.0/24
ISIS 10.10.10.0/24
```

These are two routes, but only one destination (prefix). The `maximum-paths` limit applies the total number of routes (two). The `maximum-prefixes` limit applies to the total number of unique prefixes (one).

Options	<p><code>log-interval <i>seconds</i></code>—(Optional) Minimum time interval (in seconds) between log messages. Range: 5 through 86,400</p> <p><code>log-only</code>—(Optional) Sets the route limit as an advisory limit. An advisory limit triggers only a warning, and additional routes are not rejected.</p> <p><code><i>path-limit</i></code>—Maximum number of routes. If this limit is reached, a warning is triggered and additional routes are rejected. Range: 1 through 4,294,967,295 ($2^{32} - 1$) Default: No default</p> <p><code>threshold <i>value</i></code>—(Optional) Percentage of the maximum number of routes that starts triggering a warning. You can configure a percentage of the <code><i>path-limit</i></code> value that starts triggering the warnings. Range: 1 through 100</p>
----------------	---



NOTE: When the number of routes reaches the **threshold** value, routes are still installed into the routing table while warning messages are sent. When the number of routes reaches the *path-limit* value, then additional routes are rejected.

Required Privilege	routing—To view this statement in the configuration.
Level	routing-control—To add this statement to the configuration.

Related Documentation	<ul style="list-style-type: none">• <i>Limiting the Number of Paths and Prefixes Accepted from CE Routers in Layer 3 VPNs</i>
------------------------------	---

maximum-prefixes

Syntax	<code>maximum-prefixes <i>prefix-limit</i> <log-interval <i>seconds</i>> <log-only threshold <i>percentage</i>>;</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options], [edit logical-systems <i>logical-system-name</i> routing-options], [edit routing-instances <i>routing-instance-name</i> routing-options], [edit routing-options]
Release Information	Statement introduced in Junos OS Release 8.0. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	Configure a limit for the number of routes installed in a routing table based upon the route prefix. Using a prefix limit, you can curtail the number of prefixes received from a CE router in a VPN. Prefix limits apply only to dynamic routing protocols and are not applicable to static or interface routes.



NOTE: The `maximum-prefixes` statement is similar to the `maximum-paths` statement. The `maximum-prefixes` statement limits the number of unique destinations in a routing instance. For example, suppose a routing instance has the following routes:

```
OSPF 10.10.10.0/24
ISIS 10.10.10.0/24
```

These are two routes, but only one destination (prefix). The `maximum-paths` limit applies the total number of routes (two). The `maximum-prefixes` limit applies to the total number of unique prefixes (one).

Options	<p><code>log-interval <i>seconds</i></code>—(Optional) Minimum time interval (in seconds) between log messages.</p> <p>Range: 5 through 86,400</p> <p><code>log-only</code>—(Optional) Sets the prefix limit as an advisory limit. An advisory limit triggers only a warning, and additional routes are not rejected.</p> <p><code>prefix-limit</code>—Maximum number of route prefixes. If this limit is reached, a warning is triggered and any additional routes are rejected.</p> <p>Range: 1 through 4,294,967,295</p> <p>Default: No default</p> <p><code>threshold <i>value</i></code>—(Optional) Percentage of the maximum number of prefixes that starts triggering a warning. You can configure a percentage of the <code>prefix-limit</code> value that starts triggering the warnings.</p>
----------------	---

Range: 1 through 100



NOTE: When the number of routes reaches the threshold value, routes are still installed into the routing table while warning messages are sent. When the number of routes reaches the *prefix-limit* value, then additional routes are rejected.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Limiting the Number of Paths and Prefixes Accepted from CE Routers in Layer 3 VPNs*

med-igp-update-interval

Syntax med-igp-update-interval *minutes*;

Hierarchy Level [edit routing-options]

Release Information Statement introduced in Junos OS Release 9.0
Statement introduced in Junos OS Release 9.0 for EX Series switches.
Statement introduced in Junos OS Release 11.3 for the QFX Series.

Description Configure a timer for how long to delay updates for the multiple exit discriminator (MED) path attribute for BGP groups and peers configured with the **metric-out igp offset delay-med-update** statement. The timer delays MED updates for the interval configured unless the MED is lower than the previously advertised attribute or another attribute associated with the route has changed or if the BGP peer is responding to a refresh route request.

Options *minutes*—Interval to delay MED updates.
Range: 10 through 600
Default: 10 minutes

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Example: Associating the MED Path Attribute with the IGP Metric and Delaying MED Updates*
- *metric-out*

metric (Aggregate, Generated, or Static Route)

Syntax	(metric metric2 metric3 metric4) <i>metric</i> <type type>;
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-options (aggregate generate static) (defaults route)], [edit routing-options (aggregate generate static) (defaults route)]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Specify the metric value for an aggregate, generated, or static route. You can specify up to four metric values, starting with metric (for the first metric value) and continuing with metric2 , metric3 , and metric4 .
Options	metric —Metric value. Range: 0 through 4,294,967,295 ($2^{32} - 1$) type type —(Optional) Type of route. When routes are exported to OSPF, type 1 routes are advertised in type 1 externals, and routes of any other type are advertised in type 2 externals. Note that if a qualified-next-hop metric value is configured, this value overrides the route metric. Range: 1 through 16
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Summarizing Static Routes Through Route Aggregation</i>• <i>Example: Conditionally Generating Static Routes</i>• aggregate on page 38• generate on page 73• static on page 134

msdp

```

Syntax  msdp {
        disable;
        active-source-limit {
            log-interval seconds;
            log-warning value;
            maximum number;
            threshold number;
        }
        data-encapsulation (disable | enable);
        export [ policy-names ];
        group group-name {
            ...group-configuration ...
        }
        hold-time seconds;
        import [ policy-names ];
        local-address address;
        keep-alive seconds;
        peer address {
            ...peer-configuration ...
        }
        rib-group group-name;
        source ip-prefix/prefix-length {
            active-source-limit {
                maximum number;
                threshold number;
            }
        }
        sa-hold-time seconds;
        traceoptions {
            file filename <files number> <size size> <world-readable | no-world-readable>;
            flag flag <flag-modifier> <disable>;
        }
        group group-name {
            disable;
            export [ policy-names ];
            import [ policy-names ];
            local-address address;
            mode (mesh-group | standard);
            peer address {
                ... same statements as at the [edit protocols msdp peer address] hierarchy level shown
                just following ...
            }
            traceoptions {
                file filename <files number> <size size> <world-readable | no-world-readable>;
                flag flag <flag-modifier> <disable>;
            }
        }
        peer address {
            disable;
            active-source-limit {
                maximum number;
                threshold number;
            }
        }
    }

```

```
    }
    authentication-key peer-key;
    default-peer;
    export [ policy-names ];
    import [ policy-names ];
    local-address address;
    traceoptions {
        file filename <files number> <size size> <world-readable | no-world-readable>;
        flag flag <flag-modifier> <disable>;
    }
}
}
```

Hierarchy Level	[edit logical-systems <i>logical-system-name</i> protocols], [edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> protocols], [edit protocols], [edit routing-instances <i>routing-instance-name</i> protocols]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.4 for EX Series switches. Statement introduced in Junos OS Release 12.1 for the QFX Series.
Description	Enable MSDP on the router or switch. You must also configure at least one peer for MSDP to function.
Default	MSDP is disabled on the router or switch.
Options	The statements are explained separately.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring MSDP in a Routing Instance</i>

multicast (Routing Options)

Syntax

```
multicast {
  forwarding-cache {
    threshold suppress value <reuse value>;
  }
  interface interface-name {
    enable;
  }
  scope scope-name {
    interface [ interface-names ];
    prefix destination-prefix;
  }
  ssm-groups {
    address;
  }
}
```

Hierarchy Level [edit logical-systems *logical-system-name* routing-instances *routing-instance-name* routing-options],
[edit logical-systems *logical-system-name* routing-options],
[edit routing-instances *routing-instance-name* routing-options],
[edit routing-options]

Release Information Statement introduced before Junos OS Release 7.4.
Statement introduced in Junos OS Release 9.0 for EX Series switches.
Statement introduced in Junos OS Release 11.3 for the QFX Series.
Statement introduced in Junos OS Release 12.3 for ACX Series routers.

Description Configure generic multicast properties.



NOTE: You cannot apply a scoping policy to a specific routing instance. All scoping policies are applied to all routing instances. However, you can apply the `scope` statement to a specific routing instance.

The remaining statements are explained separately.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Examples: Configuring Administrative Scoping*
- *Example: Configuring Source-Specific Multicast Groups with Any-Source Override*
- *Examples: Configuring the Multicast Forwarding Cache*
- *Multicast Protocols Feature Guide for Routing Devices*
- ([indirect-next-hop on page 79](#) | no-indirect-next-hop)

no-qos-adjust

Syntax	no-qos-adjust;
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast interface <i>interface-name</i>],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast interface <i>interface-name</i> reverse-oif-mapping],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options multicast interface <i>interface-name</i>],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options multicast interface <i>interface-name</i> reverse-oif-mapping],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options multicast interface <i>interface-name</i>],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options multicast interface <i>interface-name</i> reverse-oif-mapping],</p> <p>[edit routing-options multicast interface <i>interface-name</i>],</p> <p>[edit routing-options multicast interface <i>interface-name</i> reverse-oif-mapping]</p>
Release Information	<p>Statement introduced in Junos OS Release 9.5.</p> <p>Statement introduced in Junos OS Release 9.5 for EX Series switches.</p> <p>Statement added to [edit routing-instances <i>routing-instance-name</i> routing-options multicast interface <i>interface-name</i>], [edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast interface <i>interface-name</i>], and [edit routing-options multicast interface <i>interface-name</i>] hierarchy levels in Junos OS Release 9.6.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	Disable hierarchical bandwidth adjustment for all subscriber interfaces that are identified by their MLD or IGMP request from a specific multicast interface.
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring Multicast with Subscriber VLANs</i>

options (Routing Options)

Syntax	<pre>options { syslog (level <i>level</i> upto level <i>level</i>); }</pre>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit routing-options]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>Configure the types of system logging messages sent about the routing protocols process to the system message logging file. These messages are also displayed on the system console. You can log messages at a particular level, or up to and including a particular level.</p>
Options	<p>level <i>level</i>—Severity of the message. It can be one or more of the following levels, in order of decreasing urgency:</p> <ul style="list-style-type: none"> • alert—Conditions that should be corrected immediately, such as a corrupted system database. • critical—Critical conditions, such as hard drive errors. • debug—Software debugging messages. • emergency—Panic or other conditions that cause the system to become unusable. • error—Standard error conditions. • info—Informational messages. • notice—Conditions that are not error conditions, but might warrant special handling. • warning—System warning messages. <p>upto level <i>level</i>—Log all messages up to a particular level.</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • syslog in the <i>Junos OS Administration Library for Routing Devices</i>

pim-to-igmp-proxy

Syntax	<pre>pim-to-igmp-proxy { upstream-interface [interface-names]; }</pre>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast], [edit logical-systems <i>logical-system-name</i> routing-options multicast], [edit routing-instances <i>routing-instance-name</i> routing-options multicast], [edit routing-options multicast]
Release Information	Statement introduced in Junos OS Release 9.6. Statement introduced in Junos OS Release 9.6 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	<p>Configure the rendezvous point (RP) routing device that resides between a customer edge-facing Protocol Independent Multicast (PIM) domain and a core-facing PIM domain to translate PIM join or prune messages into corresponding Internet Group Management Protocol (IGMP) report or leave messages. The routing device then transmits the report or leave messages by proxying them to one or two upstream interfaces that you configure on the RP routing device. Including the pim-to-igmp-proxy statement enables you to use IGMP to forward IPv4 multicast traffic across the PIM sparse mode domains.</p> <p>The remaining statement is explained separately.</p>
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Configuring PIM-to-IGMP Message Translation</i>

pim-to-mld-proxy

Syntax	<code>pim-to-mld-proxy { upstream-interface [interface-names]; }</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast], [edit logical-systems <i>logical-system-name</i> routing-options multicast], [edit routing-instances <i>routing-instance-name</i> routing-options multicast], [edit routing-options multicast]
Release Information	Statement introduced in Junos OS Release 9.6. Statement introduced in Junos OS Release 9.6 for EX Series switches. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	<p>Configure the rendezvous point (RP) routing device that resides between a customer edge-facing Protocol Independent Multicast (PIM) domain and a core-facing PIM domain to translate PIM join or prune messages into corresponding Multicast Listener Discovery (MLD) report or leave messages. The routing device then transmits the report or leave messages by proxying them to one or two upstream interfaces that you configure on the RP routing device. Including the pim-to-mld-proxy statement enables you to use MLD to forward IPv6 multicast traffic across the PIM sparse mode domains.</p> <p>The remaining statement is explained separately.</p>
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> Configuring PIM-to-MLD Message Translation

policy (Aggregate and Generated Routes)

Syntax	<code>policy <i>policy-name</i>;</code>
Hierarchy Level	<pre>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options (aggregate generate) (defaults route)], [edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate) (defaults route)], [edit logical-systems <i>logical-system-name</i> routing-options (aggregate generate) (defaults route)], [edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate) (defaults route)], [edit routing-instances <i>routing-instance-name</i> routing-options (aggregate generate) (defaults route)], [edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate) (defaults route)], [edit routing-options (aggregate generate) (defaults route)], [edit routing-options rib <i>routing-table-name</i> (aggregate generate) (defaults route)]</pre>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>Associate a routing policy when configuring an aggregate or generated route's destination prefix in the routes part of the aggregate or generate statement. This provides the equivalent of an import routing policy filter for the destination prefix. That is, each potential contributor to an aggregate route, along with any aggregate options, is passed through the policy filter. The policy then can accept or reject the route as a contributor to the aggregate route.</p> <p>If the contributor is accepted, the policy can modify the default preferences. The contributor with the numerically smallest prefix becomes the most preferred, or <i>primary</i>, contributor. A rejected contributor still can contribute to a less specific aggregate route. If you do not specify a policy filter, all candidate routes contribute to an aggregate route.</p> <p>The following algorithm is used to compare two generated contributing routes in order to determine which one is the primary or preferred contributor:</p> <ol style="list-style-type: none"> 1. Compare the protocol's preference of the contributing routes. The lower the preference, the better the route. This is similar to the comparison that is done while determining the best route for the routing table. 2. Compare the protocol's preference2 of the contributing routes. The lower preference2 value is better. If only one route has preference2, then this route is preferred. 3. The preference values are the same. Proceed with a numerical comparison of the prefixes' values. <ol style="list-style-type: none"> a. The primary contributor is the numerically smallest prefix value. b. If the two prefixes are numerically equal, the primary contributor is the route that has the smallest prefix length value.

At this point, the two routes are the same. The primary contributor does not change. An additional next hop is available for the existing primary contributor.

A rejected contributor still can contribute to less specific generated route. If you do not specify a policy filter, all candidate routes contribute to a generated route.

Options	<i>policy-name</i> —Name of a routing policy.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Summarizing Routes Through Route Aggregation</i> • <i>Example: Conditionally Generating Static Routes</i> • aggregate on page 38 • generate on page 73

policy (Flow Maps)

Syntax	<code>policy [<i>policy-names</i>];</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast flow-map <i>flow-map-name</i>], [edit logical-systems <i>logical-system-name</i> routing-options multicast flow-map <i>flow-map-name</i>], [edit routing-instances <i>routing-instance-name</i> routing-options multicast flow-map <i>flow-map-name</i>], [edit routing-options multicast flow-map <i>flow-map-name</i>]
Release Information	Statement introduced in Junos OS Release 8.2. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Configure a flow map policy.
Options	<i>policy-names</i> —Name of one or more policies for flow mapping.
Required Privilege Level	routing—To view this statement in the configuration.

policy (SSM Maps)

Syntax	<code>policy [<i>policy-names</i>];</code>
Hierarchy Level	<code>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast ssm-map <i>ssm-map-name</i>],</code> <code>[edit logical-systems <i>logical-system-name</i> routing-options multicast ssm-map <i>ssm-map-name</i>],</code> <code>[edit routing-instances <i>routing-instance-name</i> routing-options multicast ssm-map <i>ssm-map-name</i>],</code> <code>[edit routing-options multicast ssm-map <i>ssm-map-name</i>]</code>
Release Information	Statement introduced in Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 12.1 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Apply one or more policies to an SSM map.
Options	<i>policy-names</i> —Name of one or more policies for SSM mapping.
Required Privilege Level	<code>routing</code> —To view this statement in the configuration. <code>routing-control</code> —To view this statement in the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring SSM Mapping</i>

ppm

Syntax	<pre>ppm { no-delegate-processing; }</pre>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-options], [edit routing-options]
Release Information	<p>Statement introduced in Junos OS Release 9.4.</p> <p>Statement introduced in Junos OS Release 10.2 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>(M120, M320, MX Series, T Series, TX Matrix routers, M7i and M10i routers with Enhanced CFEB [CFEB-E], EX Series switches, and QFX Series only) Disable distributed periodic packet management (PPM) to the Packet Forwarding Engine (on routers), to access ports (on EX3200 and EX4200 switches, and QFX Series), or to line cards (on EX6200 and EX8200 switches).</p> <p>After you disable PPM, PPM processing continues to run on the Routing Engine.</p> <p>In Junos OS Release 8.2, PPM was moved from the Routing Engine to the Packet Forwarding Engine, access ports, or line cards. The no-delegate-processing statement disables the default behavior and restores the legacy behavior.</p>
Default	Distributed PPM processing is enabled for all protocols that use PPM.
Options	no-delegate-processing —Disable PPM to the Packet Forwarding Engine, access ports, or line cards. Distributed PPM is enabled by default.
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • Configuring Distributed Periodic Packet Management on an EX Series Switch (CLI Procedure) on page 14 • <i>Ensuring That Distributed ppm Is Not Disabled</i>

ppm (Ethernet Switching)

Syntax	<pre>ppm { centralized; }</pre>
Hierarchy Level	[edit protocols lacp]
Release Information	Statement introduced in Junos OS Release 10.2 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.1 for T Series devices.
Description	<p>Configure PPM processing options for Link Aggregation Control Protocol (LACP) packets.</p> <p>This command configures the PPM processing options for LACP packets only. You can disable distributed PPM processing for all packets that use PPM and run all PPM processing on the Routing Engine by configuring the no-delegate-processing configuration statement in the [edit routing-options ppm] statement hierarchy.</p>
Default	Distributed PPM processing is enabled for all packets that use PPM.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• Configuring Distributed Periodic Packet Management on an EX Series Switch (CLI Procedure) on page 14• <i>Configuring Distributed Periodic Packet Management</i>

preference (Routing Options)

Syntax	<code>(preference preference2 color color2) preference <type type>;</code>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit routing-options (aggregate generate static) (defaults route)],</p> <p>[edit routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>Preference value for a static, aggregate, or generated route. You also can specify a secondary preference value (preference2), as well as colors, which are even finer-grained preference values (color and color2).</p> <p>If the Junos OS routing table contains a dynamic route to a destination that has a better (lower) preference value than the static, aggregate, or generated route, the dynamic route is chosen as the active route and is installed in the forwarding table.</p>
Options	<p>preference—Preference value. A lower number indicates a more preferred route.</p> <p>Range: 0 through 4,294,967,295 ($2^{32} - 1$)</p> <p>Default: 5 (for static routes), 130 (for aggregate and generated routes)</p> <p>type type—(Optional) Type of route.</p> <p>Range: 1 through 16</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Examples: Configuring Static Routes</i> • <i>Example: Summarizing Routes Through Route Aggregation</i> • <i>Example: Conditionally Generating Static Routes</i> • aggregate on page 38 • generate on page 73 • static on page 134

prefix

Syntax	<code>prefix destination-prefix;</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast scope <i>scope-name</i>], [edit logical-systems <i>logical-system-name</i> routing-options multicast scope <i>scope-name</i>], [edit routing-instances <i>routing-instance-name</i> routing-options multicast scope <i>scope-name</i>], [edit routing-options multicast scope <i>scope-name</i>]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Configure the prefix for multicast scopes.
Options	destination-prefix —Address range for the multicast scope.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Examples: Configuring Administrative Scoping</i>• <i>Example: Creating a Named Scope for Multicast Scoping</i>• <i>multicast</i>

qualified-next-hop (Static Routes)

Syntax `qualified-next-hop (address | interface-name) {
 bfd-liveness-detection {
 authentication {
 algorithm (keyed-md5 | keyed-sha-1 | meticulous-keyed-md5 | meticulous-keyed-sha-1 |
 simple-password);
 key-chain key-chain-name;
 loose-check;
 }
 detection-time {
 threshold milliseconds;
 }
 holddown-interval milliseconds;
 minimum-interval milliseconds;
 minimum-receive-interval milliseconds;
 multiplier number;
 no-adaptation;
 transmit-interval {
 minimum-interval milliseconds;
 threshold milliseconds;
 }
 version (1 | automatic);
 }
 interface interface-name;
 metric metric;
 preference preference;
}`

Hierarchy Level [edit logical-systems *logical-system-name* routing-instances *routing-instance-name* routing-options static route *destination-prefix*],
 [edit logical-systems *logical-system-name* routing-options rib inet6.0 static route *destination-prefix*],
 [edit logical-systems *logical-system-name* routing-options static route *destination-prefix*],
 [edit routing-instances *routing-instance-name* routing-options static route *destination-prefix*],
 [edit routing-options rib inet6.0 static route *destination-prefix*],
 [edit routing-options static route *destination-prefix*]

Release Information Statement introduced before Junos OS Release 7.4.
 Statement introduced in Junos OS Release 9.0 for EX Series switches.
 Statement introduced in Junos OS Release 11.3 for the QFX Series.
 Statement introduced in Junos OS Release 12.3 for ACX Series routers.

Description Configure a static route with multiple possible next hops, each of which can have its own preference value, IGP metric that is used when the route is exported into an IGP, and Bidirectional Forwarding Detection (BFD) settings. If multiple links are operational, the one with the most preferred next hop is used. The most preferred next hop is the one with the lowest preference value.

Options *address*—IPv4, IPv6, or ISO network address of the next hop.
interface-name—Name of the interface on which to configure an independent metric or preference for a static route. To configure an unnumbered interface as the next-hop

interface for a static route, specify **qualified-next-hop *interface-name***, where *interface-name* is the name of the IPv4 or IPv6 unnumbered interface.



NOTE: For an Ethernet interface to be configured as the qualified next hop for a static route, it must be an unnumbered interface.

To configure an Ethernet interface as an unnumbered interface, configure the `unnumbered-address <interface-name>` statement at the [edit interfaces <interface-name> unit <logical-unit-number> family <family-name>] hierarchy level as described in *Configuring an Unnumbered Interface*.

The remaining statements are explained separately.

Required Privilege Level	routing—To view this statement in the configuration.
	routing-control—To add this statement to the configuration.
Related Documentation	• <i>Example: Configuring Static Route Preferences and Qualified Next Hops</i>
	• <i>Example: Enabling BFD on Qualified Next Hops in Static Routes</i>

readvertise

Syntax	(readvertise no-readvertise);
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> static (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options static (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> static (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options static (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> static (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options static (defaults route)],</p> <p>[edit routing-options rib <i>routing-table-name</i> static (defaults route)],</p> <p>[edit routing-options static (defaults route)]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	Configure whether static routes are eligible to be readvertised by routing protocols:
Default	Static routes are eligible to be readvertised (that is, exported from the routing table into dynamic routing protocols) if a policy to do so is configured. To mark an IPv4 static route as being ineligible for readvertisement, include the no-readvertise statement.
Options	<p>readvertise—Readvertise static routes. Include the readvertise statement when configuring an individual route in the route portion of the static statement to override a no-readvertise option specified in the defaults portion of the statement.</p> <p>no-readvertise—Mark a static route as being ineligible for readvertisement. Include the no-readvertise option when configuring the route.</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Controlling Static Routes in Routing and Forwarding Tables</i> • static on page 134


redundant-sources

Syntax	<code>redundant-sources [<i>addresses</i>];</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast flow-map <i>flow-map-name</i>], [edit logical-systems <i>logical-system-name</i> routing-options multicast flow-map <i>flow-map-name</i>], [edit routing-instances <i>routing-instance-name</i> routing-options multicast flow-map <i>flow-map-name</i>], [edit routing-options multicast flow-map <i>flow-map-name</i>]
Release Information	Statement introduced in Junos OS Release 8.3. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	Configure a list of redundant sources for multicast flows defined by a flow map.
Options	<i>addresses</i> —List of IPv4 or IPv6 addresses for use as redundant (backup) sources for multicast flows defined by a flow map.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring a Multicast Flow Map</i>

register-probe-time

Syntax	<code>register-probe-time <i>register-probe-time</i>;</code>
Hierarchy Level	[edit protocols pim rp]
Release Information	Statement introduced in Junos OS Release 12.2 for EX Series switches.
Description	Specify the amount of time before the register suppression time (RST) expires when a designated switch can send a NULL-Register to the rendezvous point (RP).
Options	<i>register-probe-time</i> —Amount of time before the RST expires. Default: 5 seconds Range: 5 to 60 seconds
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>PIM Overview</i>• <i>Understanding PIM Sparse Mode</i>

resolution

Syntax	<pre> resolution { rib <i>routing-table-name</i> { import [<i>policy-names</i>]; resolution-ribs [<i>routing-table-names</i>]; } } </pre>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit routing-options]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	<p>Configure the router to perform custom route resolution on protocol next hops of routes in a certain routing table. The protocol next hop is used to determine the forwarding next-hop.</p> <p>For example, you might want to direct inet.2 route resolution to use topology routing tables :red.inet.0 and :blue.inet.0 for protocol next-hop IP address lookups. Or you might want to direct bgp.l3vpn.0 to use the information in inet.0 to resolve routes, thus overriding the default behavior, which is to use inet.3.</p> <p>You can specify up to two routing tables in the resolution-ribs statement. The route resolution scheme first checks the first-listed routing table for the protocol next-hop address. If the address is found, it uses this entry. If it is not found, the resolution scheme checks second-listed routing table. Hence, only one routing table is used for each protocol nexthop address. For example, if you configure resolution rib bgp.l3vpn.0 resolution-ribs [inet.0 inet.3], inet.0 is checked first and then inet.3 is checked.</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 20px;"> <p> NOTE: Customizing route resolution might cause the routing protocol process (rpd) to consume more memory resources than it ordinarily would. When you customize route resolution, we recommend that you check the memory resources by running the show system processes and the show task memory commands. For more information, see <i>Routing Protocol Process Memory FAQs</i>.</p> </div> <p>The remaining statements are explained separately.</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

- Related Documentation**
- *Example: Configuring Route Resolution on PE Routers*
 - *Example: Configuring Route Resolution on Route Reflectors*
 - *Example: Configuring Multitopology Routing Based on a Multicast Source*

resolution-ribs

Syntax	<code>resolution-ribs [<i>routing-table-names</i>];</code>
Hierarchy Level	<code>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options resolution rib],</code> <code>[edit logical-systems <i>logical-system-name</i> routing-options resolution rib],</code> <code>[edit routing-instances <i>routing-instance-name</i> routing-options resolution rib],</code> <code>[edit routing-options resolution rib]</code>
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	<p>Specify one or more routing tables to use for route resolution.</p> <p>This statement enables you to override the default routing tables that Junos OS uses for route resolution. For example, suppose that the resolution routing table is inet.3, but you want to allow fallback resolution through inet.0. One example use case is overriding the bgp.rtarget.0 (family route-target) routing table resolution from using only inet.3 to using both inet.3 and inet.0.</p>
Options	<i>routing-table-names</i> —Name of one or more routing tables.
Required Privilege Level	routing —To view this statement in the configuration. routing-control —To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring Route Resolution on PE Routers</i>• <i>Example: Configuring Multitopology Routing Based on a Multicast Source</i>

resolve

Syntax	resolve;
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> static (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options static (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> static (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options static (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> static (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options static (defaults route)],</p> <p>[edit routing-options rib <i>routing-table-name</i> static (defaults route)],</p> <p>[edit routing-options static (defaults route)]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	<p>Statically configure routes to be resolved to a next hop that is not directly connected. The route is resolved through the inet.0 and inet.3 routing tables.</p>
Default	Static routes can point only to a directly connected next hop.
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • static on page 134

restart-duration (Routing Options)

Syntax	<code>restart-duration seconds;</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options graceful-restart], [edit logical-systems <i>logical-system-name</i> routing-options graceful-restart], [edit routing-instances <i>routing-instance-name</i> routing-options graceful-restart], [edit routing-options graceful-restart]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches.
Description	Configure the restart timer for graceful restart.
Options	seconds —Configure the time period for the restart to last. Range: 120 through 900 seconds Default: 300 seconds
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Junos OS High Availability Library for Routing Devices</i>

retain

Syntax	(no-retain retain);
Hierarchy Level	<pre>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> static (defaults route)], [edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options static (defaults route)], [edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> static (defaults route)], [edit logical-systems <i>logical-system-name</i> routing-options static (defaults route)], [edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> static (defaults route)], [edit routing-instances <i>routing-instance-name</i> routing-options static (defaults route)], [edit routing-options rib <i>routing-table-name</i> static (defaults route)], [edit routing-options static (defaults route)]</pre>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	Configure statically configured routes to be deleted from or retained in the forwarding table when the routing protocol process shuts down normally:
Default	Statically configured routes are deleted from the forwarding table when the routing protocol process shuts down normally. Doing this greatly reduces the time required to restart a system that has a large number of routes in its routing table.
Options	<p>no-retain—Delete statically configured routes from the forwarding table when the routing protocol process shuts down normally. To explicitly specify that routes be deleted from the forwarding table, include the no-retain statement. Include this statement when configuring an individual route in the route portion of the static statement to override a retain option specified in the defaults portion of the statement.</p> <p>retain—Have a static route remain in the forwarding table when the routing protocol process shuts down normally. Doing this greatly reduces the time required to restart a system that has a large number of routes in its routing table.</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Examples: Configuring Static Routes</i> • static on page 134

reverse-oif-mapping

Syntax	<code>reverse-oif-mapping { no-qos-adjust; }</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast interface <i>interface-name</i>], [edit logical-systems <i>logical-system-name</i> routing-options multicast interface <i>interface-name</i>], [edit routing-instances <i>routing-instance-name</i> routing-options multicast interface <i>interface-name</i>], [edit routing-options multicast interface <i>interface-name</i>]
Release Information	Statement introduced in Junos OS Release 9.2. Statement introduced in Junos OS Release 9.2 for EX Series switches. The no-qos-adjust statement added in Junos OS Release 9.5. The no-qos-adjust statement introduced in Junos OS Release 9.5 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	Enable the routing device to identify a subscriber VLAN or interface based on an IGMP or MLD request it receives over the multicast VLAN. The remaining statement is explained separately.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring Multicast with Subscriber VLANs</i>

rpf-check-policy (Routing Options RPF)

Syntax	<code>rpf-check-policy [<i>policy-names</i>];</code>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options multicast],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options multicast],</p> <p>[edit routing-options multicast]</p>
Release Information	<p>Statement introduced in Junos OS Release 8.1.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	Apply policies for disabling RPF checks on arriving multicast packets. The policies must be correctly configured.
Options	<i>policy-names</i> —Name of one or more multicast RPF check policies.
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Configuring RPF Policies</i>

rib (General)

```
Syntax  rib routing-table-name {
        aggregate {
            defaults {
                ... aggregate-options ...
            }
            route destination-prefix {
                policy policy-name;
                ... aggregate-options ...
            }
        }
        generate {
            defaults {
                generate-options;
            }
            route destination-prefix {
                policy policy-name;
                generate-options;
            }
        }
        martians {
            destination-prefix match-type <allow>;
        }
    }
    static {
        defaults {
            static-options;
        }
        rib-group group-name;
        route destination-prefix {
            next-hop;
            static-options;
        }
    }
}
```

Hierarchy Level [edit logical-systems *logical-system-name* routing-instances *routing-instance-name* routing-options],
 [edit logical-systems *logical-system-name* routing-options],
 [edit routing-instances *routing-instance-name* routing-options],
 [edit routing-options]

Release Information Statement introduced before Junos OS Release 7.4.
 Statement introduced in Junos OS Release 9.0 for EX Series switches.
 Statement introduced in Junos OS Release 11.3 for the QFX Series.

Description Create a routing table.

Explicitly creating a routing table with ***routing-table-name*** is optional if you are not adding any static, martian, aggregate, or generated routes to the routing table and if you also are creating a routing table group.



NOTE: The IPv4 multicast routing table (`inet.1`) and the IPv6 multicast routing table (`inet6.1`) are not supported for this statement.

Default If you do not specify a routing table name with the *routing-table-name* option, the software uses the default routing tables, which are `inet.0` for unicast routes and `inet.1` for the multicast cache.

Options *routing-table-name*—Name of the routing table, in the following format:
protocol [.identifier].

In a routing instance, the routing table name must include the routing instance name.

For example, if the routing instance name is `link0`, the routing table name might be `link0.inet6.0`.

- *protocol* is the protocol family. It can be `inet6` for the IPv6 family, `inet` for the IPv4 family, `iso` for the ISO protocol family, or *instance-name.iso.0* for an ISO routing instance.
- *identifier* is a positive integer that specifies the instance of the routing table.

Default: `inet.0`

The remaining statements are explained separately.

Required Privilege Level `routing`—To view this statement in the configuration.
`routing-control`—To add this statement to the configuration.

Related Documentation

- *Example: Creating Routing Tables*
- *passive*

rib (Route Resolution)

Syntax	<pre>rib <i>routing-table-name</i> { import [<i>policy-names</i>]; resolution-ribs [<i>routing-table-names</i>]; }</pre>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options resolution], [edit logical-systems <i>logical-system-name</i> routing-options resolution], [edit routing-instances <i>routing-instance-name</i> routing-options resolution], [edit routing-options resolution]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	Specify a routing table name for route resolution. The remaining statements are explained separately.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring Route Resolution on PE Routers</i>

rib-group (Routing Options)

Syntax	<code>rib-group group-name;</code>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options interface-routes],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options interface-routes],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> static],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options static],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options interface-routes],</p> <p>[edit routing-options interface-routes],</p> <p>[edit routing-options rib <i>routing-table-name</i> static],</p> <p>[edit routing-options static]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	Configure which routing table groups interface routes are imported into.
Options	<p><i>group-name</i>—Name of the routing table group. The name must start with a letter and can include letters, numbers, and hyphens. It generally does not make sense to specify more than a single routing table group.</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Importing Direct and Static Routes Into a Routing Instance</i> • <i>Example: Exporting Specific Routes from One Routing Table Into Another Routing Table</i> • interface-routes on page 84 • rib-groups on page 122

rib-groups

Syntax	<pre>rib-groups { group-name { export-rib group-name; import-policy [policy-names]; import-rib [group-names]; } }</pre>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-options], [edit routing-options]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	<p>Group one or more routing tables to form a routing table group. A routing protocol can import routes into all the routing tables in the group and can export routes from a single routing table.</p> <p>Each routing table group must contain one or more routing tables that Junos OS uses when importing routes (specified in the import-rib statement) and optionally can contain one routing table group that Junos OS uses when exporting routes to the routing protocols (specified in the export-rib statement).</p> <p>The first routing table you specify is the <i>primary routing table</i>, and any additional routing tables are the <i>secondary routing tables</i>.</p> <p>The primary routing table determines the address family of the routing table group. To configure an IP version 4 (IPv4) routing table group, specify inet.0 as the primary routing table. To configure an IP version 6 (IPv6) routing table group, specify inet6.0 as the primary routing table. If you configure an IPv6 routing table group, the primary and all secondary routing tables must be IPv6 routing tables (inet6.x).</p> <p>In Junos OS Release 9.5 and later, you can include both IPv4 and IPv6 routing tables in an IPv4 import routing table group using the import-rib statement. In releases prior to Junos OS Release 9.5, you can only include either IPv4 or IPv6 routing tables in the same import-rib statement. The ability to configure an import routing table group with both IPv4 and IPv6 routing tables enables you, for example, to populate the inet6.3 routing table with IPv6 addresses that are compatible with IPv4. Specify inet.0 as the primary routing table, and specify inet6.3 as a secondary routing table.</p>



NOTE: On EX Series switches, only dynamically learned routes can be imported from one routing table group to another.



NOTE: If you configure an import routing table group that includes both IPv4 and IPv6 routing tables, any corresponding export routing table group must include only IPv4 routing tables.

If you have configured a routing table, configure the OSPF primary instance at the **[edit protocols ospf]** hierarchy level with the statements needed for your network so that routes are installed in **inet.0** and in the forwarding table. Make sure to include the routing table group. For more information, see *Example: Configuring Multiple Routing Instances of OSPF*.

After specifying the routing table from which to import routes, you can apply one or more policies to control which routes are installed in the routing table group. To apply a policy to routes being imported into the routing table group, include the **import-policy** statement.

Options *group-name*—Name of the routing table group. The name must start with a letter and can include letters, numbers, and hyphens.


The remaining statements are explained separately.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Example: Exporting Specific Routes from One Routing Table Into Another Routing Table*
- [rib-group on page 121](#)

route-distinguisher-id

Syntax	<code>route-distinguisher-id <i>ip-address</i>;</code>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-options], [edit routing-options]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches.
Description	<p>Automatically assign a route distinguisher to the routing instance.</p> <p>If you configure the route-distinguisher statement in addition to the route-distinguisher-id statement, the value configured for route-distinguisher supersedes the value generated from route-distinguisher-id.</p> <div><p>NOTE: To avoid a conflict in the two route distinguisher values, it is recommended to ensure that the first half of the route distinguisher obtained by configuring the route-distinguisher statement is different from the first half of the route distinguisher obtained by configuring the route-distinguisher-id statement.</p></div>
Options	<i>ip-address</i> —Address for routing instance.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring BGP Route Target Filtering for VPNs</i>• <i>Configuring Routing Instances on PE Routers in VPNs</i>

route-record

Syntax	route-record;
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-options], [edit routing-options]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series.
Description	Export the AS path and routing information to the traffic sampling process. Before you can perform flow aggregation, the routing protocol process must export the AS path and routing information to the sampling process.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Enabling Flow Aggregation</i>• <i>Junos OS Services Interfaces Library for Routing Devices</i>

router-id

Syntax	<code>router-id address;</code>
Hierarchy Level	<code>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options],</code> <code>[edit logical-systems <i>logical-system-name</i> routing-options],</code> <code>[edit routing-instances <i>routing-instance-name</i> routing-options],</code> <code>[edit routing-options]</code>
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	<p>Specify the routing device's IP address.</p> <p>The router identifier is used by BGP and OSPF to identify the routing device from which a packet originated. The router identifier usually is the IP address of the local routing device. If you do not configure a router identifier, the IP address of the first interface to come online is used. This is usually the loopback interface. Otherwise, the first hardware interface with an IP address is used.</p>



NOTE: We strongly recommend that you configure the router identifier under the `[edit routing-options]` hierarchy level to avoid unpredictable behavior if the interface address on a loopback interface changes.

For more information about the router identifier in OSPF, see *Example: Configuring an OSPF Router Identifier*.

You must configure a router-id in order for BGP and OSPF to function in a routing instance. Use the **show route instance detail** command to display the router-id value for a routing instance. If the router-id is **0.0.0.0**, then the routing instance has no router-id.

For more information about the router identifier in OSPF, see *Example: Configuring an OSPF Router Identifier*.



NOTE: If you run OSPF for IPv6 or BGP for IPv6 in a routing instance, you must configure an IPv4 router identifier (**router-id**) in the routing instance itself. In other words, the IPv4 **router-id** in the main routing instance is not inherited by other routing instances. Even if you run *only* IPv6 OSPF or BGP in a routing instance, the IPv4 **router-id** must be configured because OSPF and BGP, even when used exclusively with IPv6, use the IPv4 **router-id** for handshaking. If you do not configure the IPv4 **router-id** in the IPv6 OSPF or BGP routing instance, then the IPv6 protocols will use invalid IPv4 address 0.0.0.0 and the adjacencies and connections will fail.

Options	address —IP address of the routing device. Default: Address of the first interface encountered by Junos OS
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Examples: Configuring External BGP Peering</i>• <i>Examples: Configuring Internal BGP Peering</i>

routing-options

Syntax	routing-options { ... }
Hierarchy Level	[edit], [edit logical-systems <i>logical-system-name</i>], [edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i>], [edit routing-instances <i>routing-instance-name</i>]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches.
Description	Configure protocol-independent routing properties.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Protocol-Independent Routing Properties Feature Guide for Routing Devices</i>

scope

Syntax	<pre>scope scope-name { interface [<i>interface-names</i>]; prefix <i>destination-prefix</i>; }</pre>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast], [edit logical-systems <i>logical-system-name</i> routing-options multicast], [edit routing-instances <i>routing-instance-name</i> routing-options multicast], [edit routing-options multicast]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Configure multicast scoping.
Options	<i>scope-name</i> —Name of the multicast scope. The remaining statements are explained separately.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Creating a Named Scope for Multicast Scoping</i>

scope-policy

Syntax `scope-policy [policy-names];`

Hierarchy Level [edit logical-systems *logical-system-name* routing-options multicast],
[edit routing-options multicast]



NOTE: You can configure a scope policy at these two hierarchy levels only. You cannot apply a scope policy to a specific routing instance, because all scoping policies are applied to all routing instances. However, you can apply the `scope` statement to a specific routing instance at the [edit routing-instances *routing-instance-name* routing-options multicast] or [edit logical-systems *logical-system-name* routing-instances *routing-instance-name* routing-options multicast] hierarchy level.

Release Information Statement introduced before Junos OS Release 7.4.
Statement introduced in Junos OS Release 9.0 for EX Series switches.
Statement introduced in Junos OS Release 11.3 for the QFX Series.
Statement introduced in Junos OS Release 12.3 for ACX Series routers.

Description Apply policies for scoping. The policy must be correctly configured at the **edit policy-options policy-statement** hierarchy level.

Options *policy-names*—Name of one or more multicast scope policies.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.


Related Documentation

- [scope on page 128](#)
- *Example: Using a Scope Policy for Multicast Scoping*

source (Source-Specific Multicast)

Syntax	<code>source [<i>addresses</i>];</code>
Hierarchy Level	<code>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast ssm-map <i>ssm-map-name</i>],</code> <code>[edit logical-systems <i>logical-system-name</i> routing-options multicast ssm-map <i>ssm-map-name</i>],</code> <code>[edit routing-instances <i>routing-instance-name</i> routing-options multicast ssm-map <i>ssm-map-name</i>],</code> <code>[edit routing-options multicast ssm-map <i>ssm-map-name</i>]</code>
Release Information	Statement introduced in Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Specify IPv4 or IPv6 source addresses for an SSM map.
Options	<i>addresses</i> —IPv4 or IPv6 source addresses.
Required Privilege Level	<code>routing</code> —To view this statement in the configuration. <code>routing-control</code> —To view this statement in the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring SSM Mapping</i>

source-routing

Syntax	source-routing { (ip ipv6) }
Hierarchy Level	[edit routing-options]
Release Information	Statement for IPv6 introduced in Junos OS Release 8.2. Statement for IPv4 introduced in Junos OS Release 8.5. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	<p>Enable source routing.</p> <p>Source routing allows a sender of a packet to partially or completely specify the route the packet takes through the network. In contrast, in non-source routing protocols, routers in the network determine the path based on the packet's destination.</p>
	<div>  <p>NOTE: We recommend that you not use source routing. Instead, we recommend that you use policy-based routing or filter-based forwarding to route packets based on source addresses.</p> </div>
Default	Disabled
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> <i>Example: Configuring Filter-Based Forwarding on the Source Address</i>

ssm-groups

Syntax	<code>ssm-groups [<i>ip-addresses</i>];</code>
Hierarchy Level	<code>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast],</code> <code>[edit logical-systems <i>logical-system-name</i> routing-options multicast],</code> <code>[edit routing-instances <i>routing-instance-name</i> routing-options multicast],</code> <code>[edit routing-options multicast]</code>
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 12.1 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	<p>Configure source-specific multicast (SSM) groups.</p> <p>By default, the SSM group multicast address is limited to the IP address range from 232.0.0.0 through 232.255.255.255. However, you can extend SSM operations into another Class D range by including the ssm-groups statement in the configuration. The default SSM address range from 232.0.0.0 through 232.255.255.255 cannot be used in the ssm-groups statement. This statement is for adding other multicast addresses to the default SSM group addresses. This statement does not override the default SSM group address range.</p> <p>IGMPv3 supports SSM groups. By utilizing inclusion lists, only sources that are specified send to the SSM group.</p>
Options	<i>ip-addresses</i> —List of one or more additional SSM group addresses separated by a space.
Required Privilege Level	<code>routing</code> —To view this statement in the configuration. <code>routing-control</code> —To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring Source-Specific Multicast Groups with Any-Source Override</i>

ssm-map (Routing Options Multicast)

Syntax	<pre>ssm-map <i>ssm-map-name</i> { policy [<i>policy-names</i>]; source [<i>addresses</i>]; }</pre>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options multicast],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options multicast],</p> <p>[edit routing-options multicast]</p>
Release Information	<p>Statement introduced in Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 12.1 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	Configure SSM mapping.
Options	<p><i>ssm-map-name</i>—Name of the SSM map.</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Configuring SSM Mapping</i>

static (Routing Options)

```
Syntax static {
    defaults {
        static-options;
    }
    rib-group group-name;
    route destination-prefix {
        bfd-liveness-detection {
            authentication {
                algorithm algorithm-name;
                key-chain key-chain-name;
                loose-check;
            }
            detection-time {
                threshold milliseconds;
            }
            local-address ip-address;
            minimum-interval milliseconds;
            minimum-receive-interval milliseconds;
            minimum-receive-ttl number;
            multiplier number;
            neighbor address;
            no-adaptation;
            transmit-interval {
                threshold milliseconds;
                minimum-interval milliseconds;
            }
            version (1 | automatic);
        }
        next-hop address;
        next-hop options;
        qualified-next-hop address {
            bfd-liveness-detection {
                authentication {
                    algorithm (keyed-md5 | keyed-sha-1 | meticulous-keyed-md5 |
                        meticulous-keyed-sha-1 | simple-password);
                    key-chain key-chain-name;
                    loose-check;
                }
                detection-time {
                    threshold milliseconds;
                }
                holddown-interval milliseconds;
                minimum-interval milliseconds;
                minimum-receive-interval milliseconds;
                multiplier number;
                no-adaptation;
                transmit-interval {
                    minimum-interval milliseconds;
                    threshold milliseconds;
                }
                version (1 | automatic);
            }
        }
    }
}
```

```

        metric metric;
        preference preference;
    }
    static-options;
}

```

Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i>],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit routing-options],</p> <p>[edit routing-options rib <i>routing-table-name</i>]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Support for BFD authentication introduced in Junos 9.6.</p> <p>Support for BFD authentication introduced in Junos 9.6 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>Configure static routes to be installed in the routing table. You can specify any number of routes within a single static statement, and you can specify any number of static options in the configuration.</p>

Options defaults—(Optional) Specify global static route options. These options only set default attributes inherited by all newly created static routes. These are treated as global defaults and apply to all the static routes you configure in the **static** statement.



NOTE: Specifying the global static route options does not create default routes. These options only set default attributes inherited by all newly created static routes.

route—Configure individual static routes. In this part of the **static** statement, you optionally can configure static route options. These options apply to the individual destination only and override any options you configured in the **defaults** part of the **static** statement.

- **destination-prefix/prefix-length—destination-prefix** is the network portion of the IP address, and **prefix-length** is the destination prefix length.

When you configure an individual static route in the **route** part of the **static** statement, specify the destination of the route (in **route destination-prefix**) in one of the following ways:

- **network/mask-length**, where **network** is the network portion of the IP address and **mask-length** is the destination prefix length.
- **default** if this is the default route to the destination. This is equivalent to specifying an IP address of **0.0.0.0/0**.



NOTE: IPv4 packets with a destination of 0.0.0.0 (the obsoleted limited broadcast address) and IPv6 packets with a destination of 0::0 are discarded by default. To forward traffic destined to these addresses, you can add a static route to 0.0.0.0/32 for IPv4 or 0::0/128 for IPv6.

- **nsap-prefix—nsap-prefix** is the network service access point (NSAP) address for ISO.
- **next-hop address**—Reach the next-hop routing device by specifying an IP address, an interface name, or an ISO network entity title (NET).

IPv4 or IPv6 address of the next hop to the destination, specified as:

- IPv4 or IPv6 address of the next hop
- Interface name (for point-to-point interfaces only)
- **address** or **interface-name** to specify an IP address of a multipoint interface or an interface name of a point-to-point interface.



NOTE: If an interface becomes unavailable, all configured static routes on that interface are withdrawn from the routing table.



NOTE: Load balancing is not supported on management and internal Ethernet (fxo) interfaces because this type of interface cannot handle the routing process. On fxp interfaces, you cannot configure multiple next hops and enable load balancing.

next-hop options—Additional information for how to manage forwarding of packets to the next hop.

- **discard**—Do not forward packets addressed to this destination. Instead, drop the packets, do not send ICMP (or ICMPv6) unreachable messages to the packets' originators, and install a reject route for this destination into the routing table.
- **iso-net**—Reach the next-hop routing device by specifying an ISO NSAP.

- **next-table *routing-table-name***—Name of the next routing table to the destination.

If you use the **next-table** action, the configuration must include a term qualifier that specifies a different table than the one specified in the **next-table** action. In other words, the term qualifier in the **from** statement must exclude the table in the **next-table** action. In the following example, the first term contains **rib vrf-customer2.inet.0** as a matching condition. The action specifies a next-hop in a different routing table, **vrf-customer1.inet.0**. The second term does the opposite by using **rib vrf-customer1.inet.0** in the match condition and **vrf-customer2.inet.0** in the **next-table** action.

```
term 1 {  
  from {  
    protocol bgp;  
    rib vrf-customer2.inet.0;  
    community customer;  
  }  
  then {  
    next-hop next-table vrf-customer1.inet.0;  
  }  
}  
term 2 {  
  from {  
    protocol bgp;  
    rib vrf-customer1.inet.0;  
    community customer;  
  }  
  then {  
    next-hop next-table vrf-customer2.inet.0;  
  }  
}
```



NOTE: Within a routing instance, you cannot configure a static route with the **next-table inet.0** statement if any static route in the main routing instance is already configured with the **next-table** statement to point to the **inet.0** routing table of the routing instance. For example, if you configure on the main routing instance a static route 192.168.88.88/32 with the **next-table test.inet.0** statement and the routing instance **test** is also configured with a static route 192.168.88.88/32 with the **next-table inet.0** statement, the commit operation fails. Instead, you must configure a routing table group both on the main instance and on the routing instance, which enables you to install the static route into both routing tables.

- **receive**—Install a route for this next-hop destination into the routing table.

The **receive** option forces the packet to be sent to the Routing Engine.

The **receive** option can be useful in the following cases:

- For receiving MPLS packets destined to a VRF instance's loopback address
- For receiving packets on a link's subnet address, with zeros in the host portion of the address
- **reject**—Do not forward packets addressed to this destination. Instead, drop the packets, send ICMP (or ICMPv6) unreachable messages to the packets' originators, and install a reject route for this destination into the routing table.

static-options—(Optional under **route**) Additional information about static routes, which is included with the route when it is installed in the routing table.

You can specify one or more of the following in **static-options**. Each of the options is explained separately.

- (**active** | **passive**);
- **as-path** <as-path> <origin (egp | igp | incomplete)> <atomic-aggregate> <aggregator as-number in-address>;
- **community** [*community-ids*];
- (**install** | **no-install**);
- (**metric** | **metric2** | **metric3** | **metric4**) *value* <type type>;
- (**preference** | **preference2** | **color** | **color2**) *preference* <type type>;
- (**readvertise** | **no-readvertise**);
- (**resolve** | **no-resolve**);
- (**retain** | **no-retain**);
- **tag** *metric type number*;

The remaining statements are explained separately.

Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	• <i>Examples: Configuring Static Routes</i>

subscriber-leave-timer

Syntax	<code>subscriber-leave-timer seconds;</code>
Hierarchy Level	<code>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast interface <i>interface-name</i>],</code> <code>[edit logical-systems <i>logical-system-name</i> routing-options multicast interface <i>interface-name</i>],</code> <code>[edit routing-instances <i>routing-instance-name</i> routing-options multicast interface <i>interface-name</i>],</code> <code>[edit routing-options multicast interface <i>interface-name</i>]</code>
Release Information	Statement introduced in Junos OS Release 9.2. Statement introduced in Junos OS Release 9.2 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Length of time before the multicast VLAN updates QoS data (for example, available bandwidth) for subscriber interfaces after it receives an IGMP leave message.
Options	seconds —Length of time before the multicast VLAN updates QoS data (for example, available bandwidth) for subscriber interfaces after it receives an IGMP leave message. Specifying a value of 0 results in an immediate update. This is the same as if the statement were not configured. Range: 0 through 30 Default: 0 seconds
Required Privilege Level	<code>routing</code> —To view this statement in the configuration. <code>routing-control</code> —To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring Multicast with Subscriber VLANs</i>

tag (Routing Options)

Syntax	<code>tag metric type number;</code>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options (aggregate generate static) (defaults route)],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options aggregate generate static) (defaults route)],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)],</p> <p>[edit routing-options (aggregate generate static) (defaults route)],</p> <p>[edit routing-options rib <i>routing-table-name</i> (aggregate generate static) (defaults route)]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	Associate a tag with a static, aggregate, or generated route.
Default	No tag strings are associated with routes.
Options	<p><i>metric</i>—Tag metric.</p> <p>Range: 0 through 4,294,967,295</p> <p><i>type number</i>—Tag type.</p> <p>Range: 1 through 16</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • <i>Examples: Configuring Static Routes</i> • <i>Example: Summarizing Routes Through Route Aggregation</i> • <i>Example: Conditionally Generating Static Routes</i> • aggregate on page 38 • generate on page 73 • static on page 134

threshold (Multicast Forwarding Cache)

Syntax	<pre>threshold { log-warning <i>value</i>; suppress <i>value</i> <reuse <i>value</i>>; }</pre>
Hierarchy Level	<pre>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast forwarding-cache], [edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast forwarding-cache family (inet inet6)], [edit logical-systems <i>logical-system-name</i> routing-options multicast forwarding-cache], [edit logical-systems <i>logical-system-name</i> routing-options multicast forwarding-cache family (inet inet6)], [edit routing-instances <i>routing-instance-name</i> routing-options multicast forwarding-cache], [edit routing-instances <i>routing-instance-name</i> routing-options multicast forwarding-cache (inet inet6)], [edit routing-options multicast forwarding-cache], [edit routing-options multicast forwarding-cache family (inet inet6)]</pre>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.2 for EX Series switches.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>Configure the global suppression, reuse, and warning log message thresholds for multicast forwarding cache limits. You can configure the thresholds globally for the multicast forwarding cache or individually for the IPv4 and IPv6 multicast forwarding caches. Configuring the threshold statement globally for the multicast forwarding cache or including the family statement to configure the thresholds for the IPv4 and IPv6 multicast forwarding caches are mutually exclusive.</p> <p>To confirm the configured threshold values, use the show multicast forwarding-cache statistics command.</p>
Options	<p>reuse <i>value</i>—(Optional) Value at which to begin creating new multicast forwarding cache entries. If configured, this number should be less than the suppress value.</p> <p>Range: 1 through 200,000</p> <p>suppress <i>value</i>—Value at which to begin suppressing new multicast forwarding cache entries. This value is mandatory. This number should be greater than the reuse value.</p> <p>Range: 1 through 200,000</p> <p>The remaining statement is explained separately.</p>
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none">• <i>Examples: Configuring the Multicast Forwarding Cache</i>

timeout (Flow Maps)

Syntax	timeout (never non-discard-entry-only <i>minutes</i>);
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast flow-map <i>flow-map-name</i>], [edit logical-systems <i>logical-system-name</i> routing-options multicast flow-map <i>flow-map-name</i>], [edit routing-instances <i>routing-instance-name</i> routing-options multicast flow-map <i>flow-map-name</i>], [edit routing-options multicast flow-map <i>flow-map-name</i>]
Release Information	Statement introduced in Junos OS Release 8.2. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Configure the timeout value for multicast forwarding cache entries associated with the flow map.
Options	minutes —Length of time that the forwarding cache entry remains active. Range: 1 through 720 never non-discard-entry-only —Specify that the forwarding cache entry always remain active. If you omit the non-discard-entry-only option, all multicast forwarding entries, including those in forwarding and pruned states, are kept forever. If you include the non-discard-entry-only option, entries with forwarding states are kept forever, and entries with pruned states time out.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

timeout (Multicast)

Syntax	timeout <i>minutes</i> <family (inet inet6)>;
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast forwarding-cache], [edit logical-systems <i>logical-system-name</i> routing-options multicast forwarding-cache], [edit routing-instances <i>routing-instance-name</i> routing-options multicast forwarding-cache], [edit routing-options multicast forwarding-cache]
Release Information	Statement introduced in Junos OS Release 8.2. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Configure the timeout value for multicast forwarding cache entries.
Options	minutes —Length of time that the forwarding cache limit remains active. Range: 1 through 720 family (inet inet6) —(Optional) Apply the configured timeout to either IPv4 or IPv6 multicast forwarding cache entries. Configuring the timeout statement globally for the multicast forwarding cache or including the family statement to configure the timeout value for the IPv4 and IPv6 multicast forwarding caches are mutually exclusive. Default: By default, the configured timeout applies to both IPv4 and IPv6 multicast forwarding cache entries.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Example: Configuring the Multicast Forwarding Cache</i>

traceoptions (Routing Options)

Syntax	<pre> traceoptions { file <i>filename</i> <files <i>number</i>> <size <i>size</i>> <world-readable no-world-readable>; flag <i>flag</i> <disable>; } </pre>
Hierarchy Level	<p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options],</p> <p>[edit logical-systems <i>logical-system-name</i> routing-options multicast],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options],</p> <p>[edit routing-instances <i>routing-instance-name</i> routing-options multicast],</p> <p>[edit routing-options],</p> <p>[edit routing-options flow],</p> <p>[edit routing-options multicast]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>nsr-synchronization flag for BGP, IS-IS, LDP, and OSPF added in Junos OS Release 8.4.</p> <p>nsr-synchronization and nsr-packet flags for BFD sessions added in Junos OS Release 8.5.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>nsr-synchronization flag for RIP and RIPng added in Junos OS Release 9.0.</p> <p>nsr-synchronization flag for Layer 2 VPNs and VPLS added in Junos OS Release 9.1.</p> <p>nsr-synchronization flag for PIM added in Junos OS Release 9.3.</p> <p>nsr-synchronization flag for MPLS added in Junos OS Release 10.1.</p> <p>Statement introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>nsr-synchronization flag for MSDP added in Junos OS Release 12.1.</p> <p>Statement introduced in Junos OS Release 12.3 for ACX Series routers.</p>
Description	<p>Define tracing operations that track all routing protocol functionality in the routing device.</p> <p>To specify more than one tracing operation, include multiple flag statements.</p>
Default	If you do not include this statement, no global tracing operations are performed.
Options	<p>Values:</p> <p>disable—(Optional) Disable the tracing operation. You can use this option to disable a single operation when you have defined a broad group of tracing operations, such as all.</p> <p>file <i>filename</i>—Name of the file to receive the output of the tracing operation. Enclose the name within quotation marks. All files are placed in the directory /var/log. We recommend that you place global routing protocol tracing output in the file routing-log.</p> <p>files <i>number</i>—(Optional) Maximum number of trace files. When a trace file named trace-file reaches its maximum size, it is renamed trace-file.0, then trace-file.1, and</p>

so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten. Note that if you specify a maximum number of files, you also must specify a maximum file size with the **size** option.

Range: 2 through 1000 files

Default: 10 files

flag flag—Tracing operation to perform. To specify more than one tracing operation, include multiple **flag** statements. These are the global routing protocol tracing options:

- **all**—All tracing operations
- **condition-manager**—Condition-manager events
- **config-internal**—Configuration internals
- **general**—All normal operations and routing table changes (a combination of the **normal** and **route** trace operations)
- **graceful-restart**—Graceful restart operations
- **normal**—All normal operations
- **nsr-packet**—Detailed trace information for BFD nonstop active routing only
- **nsr-synchronization**—Tracing operations for nonstop active routing
- **nsr-synchronization-detail**—(MPLS only) Tracing operations for nonstop active routing in detail
- **parse**—Configuration parsing
- **policy**—Routing policy operations and actions
- **regex-parse**—Regular-expression parsing
- **route**—Routing table changes
- **state**—State transitions
- **task**—Interface transactions and processing
- **timer**—Timer usage

no-world-readable—(Optional) Prevent any user from reading the log file.

size size—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). When a trace file named **trace-file** reaches this size, it is renamed **trace-file.0**. When the **trace-file** again reaches its maximum size, **trace-file.0** is renamed **trace-file.1** and **trace-file** is renamed **trace-file.0**. This renaming scheme continues until the maximum number of trace files is reached. Then, the oldest trace file is overwritten. Note that if you specify a maximum file size, you also must specify a maximum number of trace files with the **files** option.

Syntax: **xk** to specify KB, **xm** to specify MB, or **xg** to specify GB

Range: 10 KB through the maximum file size supported on your system

Default: 128 KB

world-readable—(Optional) Allow any user to read the log file.

Required Privilege Level routing and trace—To view this statement in the configuration.
routing-control and trace-control—To add this statement to the configuration.

Related Documentation

- *Example: Tracing Global Routing Protocol Operations*
- *Tracing Nonstop Active Routing Synchronization Events*

upstream-interface

Syntax	<code>upstream-interface [<i>interface-names</i>];</code>
Hierarchy Level	<code>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast pim-to-igmp-proxy],</code> <code>[edit logical-systems <i>logical-system-name</i> routing-instances <i>routing-instance-name</i> routing-options multicast pim-to-mld-proxy],</code> <code>[edit logical-systems <i>logical-system-name</i> routing-options multicast pim-to-igmp-proxy],</code> <code>[edit logical-systems <i>logical-system-name</i> routing-options multicast pim-to-mld-proxy],</code> <code>[edit routing-instances <i>routing-instance-name</i> routing-options multicast pim-to-igmp-proxy],</code> <code>[edit routing-instances <i>routing-instance-name</i> routing-options multicast pim-to-mld-proxy],</code> <code>[edit routing-options multicast pim-to-igmp-proxy],</code> <code>[edit routing-options multicast pim-to-mld-proxy]</code>
Release Information	Statement introduced in Junos OS Release 9.6. Statement introduced in Junos OS Release 9.6 for EX Series switches. Statement introduced in Junos OS Release 11.3 for the QFX Series. Statement introduced in Junos OS Release 12.3 for ACX Series routers.
Description	Configure at least one, but not more than two, upstream interfaces on the rendezvous point (RP) routing device that resides between a customer edge-facing Protocol Independent Multicast (PIM) domain and a core-facing PIM domain. The RP routing device translates PIM join or prune messages into corresponding IGMP report or leave messages (if you include the pim-to-igmp-proxy statement), or into corresponding MLD report or leave messages (if you include the pim-to-mld-proxy statement). The routing device then proxies the IGMP or MLD report or leave messages to one or both upstream interfaces to forward IPv4 multicast traffic (for IGMP) or IPv6 multicast traffic (for MLD) across the PIM domains.
Options	<i>interface-names</i> —Names of one or two upstream interfaces to which the RP routing device proxies IGMP or MLD report or leave messages for transmission of multicast traffic across PIM domains. You can specify a maximum of two upstream interfaces on the RP routing device. To configure a set of two upstream interfaces, specify the full interface names, including all physical and logical address components, within square brackets ([]).
Required Privilege Level	routing —To view this statement in the configuration. routing-control —To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• <i>Configuring PIM-to-IGMP Message Translation</i>• <i>Configuring PIM-to-MLD Message Translation</i>

PART 3

Administration

- [Routine Monitoring on page 151](#)
- [Operational Commands on page 155](#)

CHAPTER 5

Routine Monitoring

- [Monitoring Routing Information on page 151](#)

Monitoring Routing Information

Purpose



NOTE: This topic applies only to the J-Web Application package.

Use the monitoring functionality to view the **inet.0** routing table on the routing device.

Action

To view the routing tables in the J-Web interface, select **Monitor > Routing > Route Information**. Apply a filter or a combination of filters to view messages. You can use filters to display relevant events.

To view the routing table in the CLI, enter the following commands in the CLI interface:

- **show route terse**
- **show route detail**

Meaning

[Table 7 on page 151](#) describes the different filters, their functions, and the associated actions.

[Table 8 on page 152](#) summarizes key output fields in the routing information display.

Table 7: Filtering Route Messages

Field	Function	Your Action
Destination Address	Specifies the destination address of the route.	Enter the destination address.
Protocol	Specifies the protocol from which the route was learned.	Enter the protocol name.
Next hop address	Specifies the network layer address of the directly reachable neighboring system (if applicable) and the interface used to reach it.	Enter the next hop address.

Table 7: Filtering Route Messages (*continued*)

Field	Function	Your Action
Receive protocol	Specifies the dynamic routing protocol using which the routing information was received through a particular neighbor.	Enter the routing protocol.
Best route	Specifies only the best route available.	Select the view details of the best route.
Inactive routes	Specifies the inactive routes.	Select the view details of inactive routes.
Exact route	Specifies the exact route.	Select the view details of the exact route.
Hidden routes	Specifies the hidden routes.	Select the view details of hidden routes.
Search	Applies the specified filter and displays the matching messages.	To apply the filter and display messages, click Search .

Table 8: Summary of Key Routing Information Output Fields

Field	Values	Additional Information
Static Route Addresses	The list of static route addresses.	
Protocol	Protocol from which the route was learned: Static , Direct , Local , or the name of a particular protocol.	
Preference	The preference is the individual preference value for the route.	The route preference is used as one of the route selection criteria.
Next-Hop	Network layer address of the directly reachable neighboring system (if applicable) and the interface used to reach it.	<p>If a next hop is listed as Discard, all traffic with that destination address is discarded rather than routed. This value generally means that the route is a static route for which the discard attribute has been set.</p> <p>If a next hop is listed as Reject, all traffic with that destination address is rejected. This value generally means that the address is unreachable. For example, if the address is a configured interface address and the interface is unavailable, traffic bound for that address is rejected.</p> <p>If a next hop is listed as Local, the destination is an address on the host (either the loopback address or Ethernet management port 0 address, for example).</p>
Age	How long the route has been active.	
State	Flags for this route.	There are many possible flags.

Table 8: Summary of Key Routing Information Output Fields (*continued*)

Field	Values	Additional Information
AS Path	AS path through which the route was learned. The letters of the AS path indicate the path origin: <ul style="list-style-type: none">• I—IGP.• E—EGP.• ?—Incomplete. Typically, the AS path was aggregated.	

- Related Documentation
- [Configuring Static Routing \(J-Web Procedure\) on page 12](#)
 - [Configuring Static Routing \(CLI Procedure\) on page 12](#)
 - [Layer 3 Protocols Supported on EX Series Switches on page 3](#)

CHAPTER 6

Operational Commands

- `clear ipv6 neighbors`
- `show as-path`
- `show as-path domain`
- `show as-path summary`
- `show ipv6 neighbors`
- `show route`
- `show route active-path`
- `show route all`
- `show route aspath-regex`
- `show route best`
- `show route brief`
- `show route community`
- `show route community-name`
- `show route damping`
- `show route detail`
- `show route exact`
- `show route export`
- `show route extensive`
- `show route flow validation`
- `show route inactive-path`
- `show route inactive-prefix`
- `show route instance`
- `show route label`
- `show route label-switched-path`
- `show route martians`
- `show route next-hop`
- `show route no-community`
- `show route protocol`

- `show route range`
- `show route receive-protocol`
- `show route resolution`
- `show route snooping`
- `show route source-gateway`
- `show route summary`
- `show route table`
- `show route terse`

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. Command introduced in Junos OS Release 12.2 for the QFX Series.
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 167
List of Sample Output	clear ipv6 neighbors on page 157
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
```

show as-path

List of Syntax	Syntax on page 158 Syntax (EX Series Switches) on page 158
Syntax	<code>show as-path</code> <code><brief detail></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switches)	<code>show as-path</code> <code><brief detail></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. Command introduced in Junos OS Release 11.3 for the QFX Series.
Description	<p>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.</p> <p>AS paths are stored in a hash table. A hash table is one method for fast lookup. Each entry in the table is called a bucket. Junos OS computes a hash value that indicates in which bucket the AS path is stored. The AS paths are dispersed among the hash buckets so that a manageable number of AS paths is stored in each bucket. Only unique AS paths are stored. Duplicate AS paths increase a reference count, but do not increase the number of AS paths stored in the hash table.</p>
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
Related Documentation	<ul style="list-style-type: none">• show as-path summary on page 165
List of Sample Output	show as-path on page 159 show as-path detail on page 160
Output Fields	Table 9 on page 159 lists the output fields for the show as-path command. Output fields are listed in the approximate order in which they appear.

Table 9: show as-path Output Fields

Field Name	Field Description	Level of Output
Total AS paths	Total number of AS paths.	brief none
Bucket	Bucket number.	All levels
Count	Number of AS path entries in this bucket.	All levels
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path 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. • Aggregat—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 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

List of Syntax	Syntax on page 162 Syntax (EX Series Switches) on page 162
Syntax	show as-path domain <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	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 164
Output Fields	Table 10 on page 162 lists the output fields for the show as-path domain command. Output fields are listed in the approximate order in which they appear

Table 10: 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.

Table 10: show as-path domain Output Fields (*continued*)

Field Name	Field Description
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

List of Syntax	Syntax on page 165 Syntax (EX Series Switches) on page 165
Syntax	show as-path summary <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	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. AS paths are stored in a hash table. A hash table is one method for fast lookup. Each entry in the table is called a bucket. Junos OS computes a hash value that indicates in which bucket the AS path is stored. The AS paths are dispersed among the hash buckets so that a manageable number of AS paths is stored in each bucket. Only unique AS paths are stored. Duplicate AS paths increase a reference count, but do not increase the number of AS paths stored in the hash table.
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
Related Documentation	<ul style="list-style-type: none"> • show as-path on page 158
List of Sample Output	show as-path summary on page 166
Output Fields	Table 11 on page 165 lists the output fields for the show as-path summary command. Output fields are listed in the approximate order in which they appear.

Table 11: show as-path summary Output Fields

Field Name	Field Description
AS Paths	Number of AS paths.
Buckets	Number of hash buckets in use.
Max	Maximum number of AS path entries per bucket.
Min	Minimum number of AS path entries per bucket.
Avg	Average number of AS path entries per bucket.

Table 11: show as-path summary Output Fields (*continued*)

Field Name	Field Description
Std deviation	Standard deviation of AS path entries per bucket.

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 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. Command introduced in Junos OS Release 12.2 for the QFX Series.
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 157
List of Sample Output	show ipv6 neighbors on page 167
Output Fields	Table 12 on page 167 describes the output fields for the show ipv6 neighbors command. Output fields are listed in the approximate order in which they appear.

Table 12: 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 Secure
Interface
2001:db8:0:1:2a0:a514:0:24c  00:05:85:8f:c8:bd  stale      546 yes no
fe-1/2/0.1

```

fe80::2a0:a514:0:24c fe-1/2/0.1	00:05:85:8f:c8:bd	stale	258	yes	no
fe80::2a0:a514:0:64c fe-1/2/1.5	00:05:85:8f:c8:bd	stale	111	yes	no
fe80::2a0:a514:0:a4c fe-1/2/2.9	00:05:85:8f:c8:bd	stale	327	yes	no

show route

List of Syntax	Syntax on page 169 Syntax (EX Series Switches) on page 169
Syntax	<pre>show route <all> <destination-prefix> <logical-system (all logical-system-name)> <private></pre>
Syntax (EX Series Switches)	<pre>show route <all> <destination-prefix> <private></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>Option private introduced in Junos OS Release 9.5.</p> <p>Option private introduced in Junos OS Release 9.5 for EX Series switches.</p>
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 logical-system-name)—(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
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Configuring RIP</i> • <i>Example: Configuring RIPng</i> • <i>Example: Configuring IS-IS</i> • <i>Examples: Configuring Internal BGP Peering</i> • <i>Examples: Configuring External BGP Peering</i> • <i>Examples: Configuring OSPF Routing Policy</i>
List of Sample Output	show route on page 172 show route on page 173

[show route destination-prefix on page 173](#)

[show route extensive on page 173](#)

Output Fields Table 13 on page 170 describes the output fields for the **show route** command. Output fields are listed in the approximate order in which they appear.

Table 13: show route Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.
<i>number routes</i>	<p>Number of routes in the routing table and total number of routes in the following states:</p> <ul style="list-style-type: none"> • active (routes that are active). • holddown (routes that are in the pending state before being declared inactive). A holddown route was once the active route and is no longer the active route. The route is in the holddown state because a protocol still has interest in the route, meaning that the interest bit is set. A protocol might have its interest bit set on the previously active route because the protocol is still advertising the route. The route will be deleted after all protocols withdraw their advertisement of the route and remove their interest bit. A persistent holddown state often means that the interested protocol is not releasing its interest bit properly. <p>However, if you have configured advertisement of multiple routes (with the add-path or advertise-inactive statement), the holddown bit is most likely set because BGP is advertising the route as an active route. In this case, you can ignore the holddown state because nothing is wrong.</p> <ul style="list-style-type: none"> • 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.

Table 13: show route Output Fields (*continued*)

Field Name	Field Description
[<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</i> <i>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).
metric	Cost value of the indicated route. For routes within an AS, the cost is determined by the IGP and the individual protocol metrics. For external routes, destinations, or routing domains, the cost is determined by a preference value.
localpref	Local preference value included in the route.
from	Interface from which the route was received.
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>

Table 13: show route Output Fields (*continued*)

Field Name	Field Description
validation-state	<p>(BGP-learned routes) Validation status of the route:</p> <ul style="list-style-type: none"> • Invalid—Indicates that the prefix is found, but either the corresponding AS received from the EBGP peer is not the AS that appears in the database, or the prefix length in the BGP update message is longer than the maximum length permitted in the database. • Unknown—Indicates that the prefix is not among the prefixes or prefix ranges in the database. • Unverified—Indicates that the origin of the prefix is not verified against the database. This is because the database got populated and the validation is not called for in the BGP import policy, although origin validation is enabled, or the origin validation is not enabled for the BGP peers. • Valid—Indicates that the prefix and autonomous system pair are found in the database.
to	<p>Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.</p> <p>If the destination is Discard, traffic is dropped.</p>
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 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 BGP multipath load balancing. • lsp-path-name—Name of the 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). For VPNs, expect to see multiple push operations, corresponding to the inner and outer labels required for VPN routes (in the case of a direct PE-to-PE connection, the VPN route would have the inner label push only).

Sample Output

show route

```

user@host> show route
inet.0: 11 destinations, 12 routes (11 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

1:65500:1:10.0.0.20/240
    *[MVPN/70] 19:53:41, metric2 1
        Indirect
1:65500:1:10.0.0.40/240
    *[BGP/170] 19:53:29, localpref 100, from 10.0.0.30
        AS path: I
        > to 10.0.24.4 via lt-0/3/0.24, label-switched-path toD
        [BGP/170] 19:53:26, localpref 100, from 10.0.0.33
        AS path: I
        > to 10.0.24.4 via lt-0/3/0.24, label-switched-path toD
1:65500:1:10.0.0.60/240
    *[BGP/170] 19:53:29, localpref 100, from 10.0.0.30

```

```

AS path: I
> to 10.0.28.8 via 1t-0/3/0.28, label-switched-path toF
[BGP/170] 19:53:25, localpref 100, from 10.0.0.33
AS path: I
> to 10.0.28.8 via 1t-0/3/0.28, label-switched-path toF

```

show route

The following sample output shows a VPN route with composite next hops enabled. The first **Push** operation corresponds to the outer label. The second **Push** operation corresponds to the inner label.

```
user@host> show route 70.0.0.0
```

```

13979:665001.inet.0: 871 destinations, 3556 routes (871 active, 0 holddown, 0
hidden)
+ = Active Route, - = Last Active, * = Both

```

```

70.0.0.0/24      @[BGP/170] 00:28:32, localpref 100, from 10.9.9.160
                  AS path: 13980 ?, validation-state: unverified
                  > to 10.100.0.42 via ae2.0, Push 16, Push 300368(top)
                  [BGP/170] 00:28:28, localpref 100, from 10.9.9.169
                  AS path: 13980 ?, validation-state: unverified
                  > to 10.100.0.42 via ae2.0, Push 126016, Push 300368(top)
                  #[Multipath/255] 00:28:28, metric2 102
                  > to 10.100.0.42 via ae2.0, Push 16, Push 300368(top)
                  to 10.100.0.42 via ae2.0, Push 16, Push 300368(top)

```

show route destination-prefix

```
user@host> show route 172.16.0.0/12
```

```

inet.0: 10 destinations, 10 routes (9 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

```

```

172.16.0.0/12   *[Static/5] 2w4d 12:54:27
                  > to 192.168.167.254 via fxp0.0

```

show route extensive

```
user@host> show route extensive
```

```

v1.mvpn.0: 5 destinations, 8 routes (5 active, 1 holddown, 0 hidden)
1:65500:1:10.0.0.40/240 (1 entry, 1 announced)
  *BGP   Preference: 170/-101
    PMSI: Flags 0x0: Label[0:0:0]: PIM-SM: Sender 10.0.0.40 Group 225.1.1.1

    Next hop type: Indirect
    Address: 0x92455b8
    Next-hop reference count: 2
    Source: 10.0.0.30
    Protocol next hop: 10.0.0.40
    Indirect next hop: 2 no-forward
    State: <Active Int Ext>
      Local AS: 65500 Peer AS: 65500
    Age: 3 Metric2: 1
    Validation State: unverified
    Task: BGP_65500.10.0.0.30+179
    Announcement bits (2): 0-PIM.v1 1-mvpn global task
    AS path: I (Originator) Cluster list: 10.0.0.30
    AS path: Originator ID: 10.0.0.40
    Communities: target:65520:100

```

```

Import Accepted
Localpref: 100
Router ID: 10.0.0.30
Primary Routing Table bgp.mvpn.0
Indirect next hops: 1
  Protocol next hop: 10.0.0.40 Metric: 1
  Indirect next hop: 2 no-forward
  Indirect path forwarding next hops: 1
    Next hop type: Router
    Next hop: 10.0.24.4 via lt-0/3/0.24 weight 0x1
10.0.0.40/32 Originating RIB: inet.3
  Metric: 1                      Node path count: 1
  Forwarding nexthops: 1
    Nexthop: 10.0.24.4 via lt-0/3/0.24

```

show route active-path

List of Syntax	Syntax on page 175 Syntax (EX Series Switches) on page 175
Syntax	show route active-path <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	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	show route active-path on page 175 show route active-path brief on page 176 show route active-path detail on page 176 show route active-path extensive on page 177 show route active-path terse on page 179
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 active-path

```

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 175](#).

show route active-path detail

```
user@host> show route active-path detail

inet.0: 7 destinations, 7 routes (6 active, 0 holddown, 1 hidden)

10.255.70.19/32 (1 entry, 1 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 3
    Next hop: via lo0.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 21:37:10
    Task: IF
    Announcement bits (3): 2-IS-IS 5-Resolve tree 2 6-Resolve tree 3
    AS path: I

10.255.71.50/32 (1 entry, 1 announced)
  *IS-IS Preference: 15
    Level: 1
    Next hop type: Router, Next hop index: 397
    Next-hop reference count: 4
    Next hop: 100.1.2.1 via so-2/1/3.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 21:31 Metric: 10
    Task: IS-IS
    Announcement bits (4): 0-KRT 2-IS-IS 5-Resolve tree 2 6-Resolve
tree 3
    AS path: I

100.1.2.0/24 (1 entry, 1 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 3
    Next hop: via so-2/1/3.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 21:54
    Task: IF
    Announcement bits (3): 2-IS-IS 5-Resolve tree 2 6-Resolve tree 3
    AS path: I

100.1.2.2/32 (1 entry, 1 announced)
  *Local Preference: 0
    Next hop type: Local
```

```

Next-hop reference count: 11
Interface: so-2/1/3.0
State: <Active NoReadvrt Int>
Local AS: 200
Age: 21:59
Task: IF
Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
AS path: I

192.168.64.0/21 (1 entry, 1 announced)
*Direct Preference: 0
Next hop type: Interface
Next-hop reference count: 3
Next hop: via fxp0.0, selected
State: <Active Int>
Local AS: 200
Age: 21:37:10
Task: IF
Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
AS path: I

192.168.70.19/32 (1 entry, 1 announced)
*Local Preference: 0
Next hop type: Local
Next-hop reference count: 11
Interface: fxp0.0
State: <Active NoReadvrt Int>
Local AS: 200
Age: 21:37:10
Task: IF
Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
AS path: I

```

show route active-path extensive

```

user@host> show route active-path extensive

inet.0: 7 destinations, 7 routes (6 active, 0 holddown, 1 hidden)
10.255.70.19/32 (1 entry, 1 announced)
TSI:
IS-IS level 1, LSP fragment 0
IS-IS level 2, LSP fragment 0
*Direct Preference: 0
Next hop type: Interface
Next-hop reference count: 3
Next hop: via lo0.0, selected
State: <Active Int>
Local AS: 200
Age: 21:39:47
Task: IF
Announcement bits (3): 2-IS-IS 5-Resolve tree 2 6-Resolve tree 3

AS path: I

10.255.71.50/32 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.255.71.50/32 -> {100.1.2.1}
IS-IS level 2, LSP fragment 0
*IS-IS Preference: 15
Level: 1
Next hop type: Router, Next hop index: 397

```

```

    Next-hop reference count: 4
    Next hop: 100.1.2.1 via so-2/1/3.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 24:08      Metric: 10
    Task: IS-IS
    Announcement bits (4): 0-KRT 2-IS-IS 5-Resolve tree 2 6-Resolve
tree 3
    AS path: I

100.1.2.0/24 (1 entry, 1 announced)
TSI:
IS-IS level 1, LSP fragment 0
IS-IS level 2, LSP fragment 0
    *Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 3
        Next hop: via so-2/1/3.0, selected
        State: <Active Int>
        Local AS: 200
        Age: 24:31
        Task: IF
        Announcement bits (3): 2-IS-IS 5-Resolve tree 2 6-Resolve tree 3
    AS path: I

100.1.2.2/32 (1 entry, 1 announced)
    *Local Preference: 0
        Next hop type: Local
        Next-hop reference count: 11
        Interface: so-2/1/3.0
        State: <Active NoReadvrt Int>
        Local AS: 200
        Age: 24:36
        Task: IF
        Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
    AS path: I

192.168.64.0/21 (1 entry, 1 announced)
    *Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 3
        Next hop: via fxp0.0, selected
        State: <Active Int>
        Local AS: 200
        Age: 21:39:47
        Task: IF
        Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
    AS path: I

192.168.70.19/32 (1 entry, 1 announced)
    *Local Preference: 0
        Next hop type: Local
        Next-hop reference count: 11
        Interface: fxp0.0
        State: <Active NoReadvrt Int>
        Local AS: 200
        Age: 21:39:47
        Task: IF
        Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
```


AS path: I

show route active-path terse

```
user@host> show route active-path terse
```

```
inet.0: 7 destinations, 7 routes (6 active, 0 holddown, 1 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
*	10.255.70.19/32	D	0			>lo0.0	
*	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 all

List of Syntax	Syntax on page 180 Syntax (EX Series Switches) on page 180
Syntax	show route all <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	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 180
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
            Receive
1          *[MPLS/0] 2d 02:19:12, metric 1
            Receive
2          *[MPLS/0] 2d 02:19:12, metric 1
            Receive
800017     *[VPLS/7] 1d 13:54:49
            > via vt-3/2/0.32769, Pop
800018     *[VPLS/7] 1d 13:54:59
            > via vt-3/2/0.32772, Pop
vt-3/2/0.32769 [VPLS/7] 1d 13:54:49
              Unusable
vt-3/2/0.32772 [VPLS/7] 1d 13:54:59
              Unusable
```

show route aspath-regex

List of Syntax	Syntax on page 182 Syntax (EX Series Switches) on page 182
Syntax	<code>show route aspath-regex <i>regular-expression</i></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switches)	<code>show route aspath-regex <i>regular-expression</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	Display the entries in the routing table that match the specified autonomous system (AS) path regular expression.
Options	<i>regular-expression</i> —Regular expression that matches an entire AS path. <i>logical-system (all <i>logical-system-name</i>)</i> —(Optional) Perform this operation on all logical systems or on a particular logical system.
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.• <i>*</i>—Zero or more repetitions of an AS path term.• <i>+</i>—One or more repetitions of an AS path term.• <i>?</i>—Zero or one repetition of an AS path term.• <i>aspath_term aspath_term</i>—Match one of the two AS path terms. <p>When you specify more than one AS number or path term, or when you include an operator in the regular expression, enclose the entire regular expression in quotation marks. For example, to match any path that contains AS number 234, specify the following command:</p> <pre>show route aspath-regex ". * 234 ."</pre>

Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • <i>Example: Using AS Path Regular Expressions</i>
List of Sample Output	show route aspath-regex (Matching a Specific AS Number) on page 183 show route aspath-regex (Matching Any Path with Two AS Numbers) on page 183
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)

```

user@host> show route aspath-regex 65477
inet.0: 46411 destinations, 46411 routes (46409 active, 0 holddown, 2 hidden)
+ = Active Route, - = Last Active, * = Both

111.222.1.0/25      *[BGP/170] 00:08:48, localpref 100, from 111.222.2.24
                   AS Path: [65477] ({65488 65535}) IGP
                   to 111.222.18.225 via fpa0.0(111.222.18.233)
111.222.1.128/25   *[IS-IS/15] 09:15:37, metric 37, tag 1
                   to 111.222.18.225 via fpa0.0(111.222.18.233)
                   [BGP/170] 00:08:48, localpref 100, from 111.222.2.24
                   AS Path: [65477] ({65488 65535}) IGP
                   to 111.222.18.225 via fpa0.0(111.222.18.233)
...

```

show route aspath-regex (Matching Any Path with Two AS Numbers)

```

user@host> show route aspath-regex ?.* 234 3561.*?

inet.0: 46351 destinations, 46351 routes (46349 active, 0 holddown, 2 hidden)
+ = Active Route, - = Last Active, * = Both

9.20.0.0/17        *[BGP/170] 01:35:00, localpref 100, from 131.103.20.49
                   AS Path: [666] 234 3561 2685 2686 Incomplete
                   to 192.156.169.1 via 192.156.169.14(so-0/0/0)
12.10.231.0/24     *[BGP/170] 01:35:00, localpref 100, from 131.103.20.49
                   AS Path: [666] 234 3561 5696 7369 IGP
                   to 192.156.169.1 via 192.156.169.14(so-0/0/0)
24.64.32.0/19      *[BGP/170] 01:34:59, localpref 100, from 131.103.20.49
                   AS Path: [666] 234 3561 6327 IGP
                   to 192.156.169.1 via 192.156.169.14(so-0/0/0)
...

```

show route best

List of Syntax	Syntax on page 184 Syntax (EX Series Switches) on page 184
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 Switches)	<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	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>destination-prefix</i> —Address or range of addresses. 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 best on page 184 show route best detail on page 185 show route best extensive on page 186 show route best terse on page 186
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 best

```
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 [show route best detail on page 185](#).

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

List of Syntax	Syntax on page 187 Syntax (EX Series Switches) on page 187
Syntax	show route brief <destination-prefix> <logical-system (all logical-system-name)>
Syntax (EX Series Switches)	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 187
Output Fields	For information about output fields, see the Output Field table of the show route command.

Sample Output

show route brief

```

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 community

List of Syntax	Syntax on page 189 Syntax (EX Series Switches) on page 189
Syntax	show route community <i>as-number:community-value</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	show route community <i>as-number:community-value</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 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 198
List of Sample Output	show route community on page 189
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 community

```
user@host> show route community 234:80
inet.0: 46511 destinations, 46511 routes (46509 active, 0 holddown, 2 hidden)
+ = Active Route, - = Last Active, * = Both
```

```

4.0.0.0/8      *[BGP/170] 03:33:07, localpref 100, from 131.103.20.49
                AS Path: {666} 234 2548 1 IGP
                to 192.156.169.1 via 192.156.169.14(so-0/0/0)
6.0.0.0/8      *[BGP/170] 03:33:07, localpref 100, from 131.103.20.49
                AS Path: {666} 234 2548 568 721 Incomplete
                to 192.156.169.1 via 192.156.169.14(so-0/0/0)
9.2.0.0/16     *[BGP/170] 03:33:06, localpref 100, from 131.103.20.49
                AS Path: {666} 234 2548 1673 1675 1747 IGP
                to 192.156.169.1 via 192.156.169.14(so-0/0/0)

```

show route community-name

List of Syntax	Syntax on page 191 Syntax (EX Series Switches) on page 191
Syntax	show route community-name <i>community-name</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	show route community-name <i>community-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 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 191
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 community-name

```

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

List of Syntax	Syntax on page 193 Syntax (EX Series Switch and QFX Series) on page 193
Syntax	<pre>show route damping (decayed history suppressed) <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)></pre>
Syntax (EX Series Switch and QFX Series)	<pre>show route damping (decayed history suppressed) <brief detail extensive terse></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>Command introduced in Junos OS Release 11.3 for the QFX Series.</p>
Description	Display the 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"> • <i>clear bgp damping</i> • <i>show policy damping</i>
List of Sample Output	show route damping decayed detail on page 196 show route damping history on page 197 show route damping history detail on page 197
Output Fields	Table 14 on page 194 lists the output fields for the show route damping command. Output fields are listed in the approximate order in which they appear.

Table 14: show route damping 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
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 • 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
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
[protocol, preference]	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

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

Field Name	Field Description	Level of Output
Local AS	AS number of the local routing device.	detail extensive
Peer AS	AS number of the peer routing device.	detail extensive
Age	How long the route has been known.	detail extensive
Metric	Metric for the route.	detail extensive
Task	Name of the protocol that has added the route.	detail extensive
Announcement bits	List of protocols that announce this route. <i>n-Resolve inet</i> indicates that the route is used for route resolution for next hops found in the routing table. <i>n</i> is an index used by Juniper Networks customer support only.	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

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

Field Name	Field Description	Level of Output
Merit (last update/now)	Last updated and current figure-of-merit value.	detail extensive
damping-parameters	Name that identifies the damping parameters used, which is defined in the damping statement at the [edit policy-options] hierarchy level.	detail extensive
Last update	Time of most recent change in path attributes.	detail extensive
First update	Time of first change in path attributes, which started the route damping process.	detail extensive
Flaps	Number of times the route has gone up or down or its path attributes have changed.	detail extensive
Suppressed	(suppressed keyword only) This route is currently suppressed. A suppressed route does not appear in the forwarding table and routing protocols do not export it.	All levels
Reusable in	(suppressed keyword only) Time when a suppressed route will again be available.	All levels
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

List of Syntax	Syntax on page 198 Syntax (EX Series Switches) on page 198
Syntax	show route detail <destination-prefix> <logical-system (all logical-system-name)>
Syntax (EX Series Switches)	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. Command introduced in Junos OS Release 13.2X51-D15 for the QFX Series.
Description	Display detailed information about the active entries in the routing tables.
Options	none —Display all active entries in the routing table on all systems. 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 detail on page 207 show route detail (with BGP Multipath) on page 213 show route label detail (Multipoint LDP Inband Signaling for Point-to-Multipoint LSPs) on page 213 show route label detail (Multipoint LDP with Multicast-Only Fast Reroute) on page 214
Output Fields	Table 15 on page 198 describes the output fields for the show route detail command. Output fields are listed in the approximate order in which they appear.

Table 15: 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 15: 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). <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.
label stacking	<p>(Next-to-the-last-hop routing device for MPLS only) Depth of the 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.
PMSI	Provider multicast service interface (MVPN routing table).
Next-hop type	Type of next hop. For a description of possible values for this field, see Table 16 on page 203 .

Table 15: 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 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 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 BGP multipath load balancing.
Label-switched-path lsp-path-name	Name of the 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 17 on page 204 .
Local AS	AS number of the local routing device.
Age	How long the route has been known.
AIGP	Accumulated interior gateway protocol (AIGP) BGP attribute.
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.

Table 15: show route detail Output Fields (*continued*)

Field Name	Field Description
MED-plus-IGP	Metric value for BGP path selection to which the IGP cost to the next-hop destination has been added.
TTL-Action	<p>For MPLS LSPs, state of the TTL propagation attribute. Can be enabled or disabled for all RSVP-signaled and LDP-signaled 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. • Recorded—The AS path is recorded by the sample process (sampled). • ?—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>
validation-state	<p>(BGP-learned routes) Validation status of the route:</p> <ul style="list-style-type: none"> • Invalid—Indicates that the prefix is found, but either the corresponding AS received from the EBGP peer is not the AS that appears in the database, or the prefix length in the BGP update message is longer than the maximum length permitted in the database. • Unknown—Indicates that the prefix is not among the prefixes or prefix ranges in the database. • Unverified—Indicates that the origin of the prefix is not verified against the database. This is because the database got populated and the validation is not called for in the BGP import policy, although origin validation is enabled, or the origin validation is not enabled for the BGP peers. • Valid—Indicates that the prefix and autonomous system pair are found in the database.
FECs bound to route	Point-to-multipoint root address, multicast source address, and multicast group address when multipoint LDP (M-LDP) inband signaling is configured.

Table 15: show route detail Output Fields (*continued*)

Field Name	Field Description
Primary Upstream	When multipoint LDP with multicast-only fast reroute (MoFRR) is configured, the primary upstream path. MoFRR transmits a multicast join message from a receiver toward a source on a primary path, while also transmitting a secondary multicast join message from the receiver toward the source on a backup path.
RPF Nexthops	When multipoint LDP with MoFRR is configured, the reverse-path forwarding (RPF) next-hop information. Data packets are received from both the primary path and the secondary paths. The redundant packets are discarded at topology merge points due to the RPF checks.
Label	Multiple MPLS labels are used to control MoFRR stream selection. Each label represents a separate route, but each references the same interface list check. Only the primary label is forwarded while all others are dropped. Multiple interfaces can receive packets using the same label.
weight	Value used to distinguish MoFRR primary and backup routes. A lower weight value is preferred. Among routes with the same weight value, load balancing is possible.
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 18 on page 206 for all possible values for this field.
Layer2-info: encaps	Layer 2 encapsulation (for example, VPLS).
control flags	Control flags: none or Site Down .
mtu	Maximum transmission unit (MTU) information.
Label-Base, range	First label in a block of labels and label block size. A remote PE 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).
Accepted Multipath	Current active path when BGP multipath is configured.
Accepted MultipathContrib	Path currently contributing to BGP multipath.
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 16 on page 203 describes all possible values for the Next-hop Types output field.

Table 16: Next-hop Types Output Field Values

Next-Hop Type	Description
Broadcast (bcast)	Broadcast next hop.
Deny	Deny next hop.
Discard	Discard 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 point-to-multipoint RSVP, point-to-multipoint LDP, point-to-multipoint CCC, and multicast.
Hold	Next hop is waiting to be resolved into a unicast or multicast type.
Indexed (idxd)	Indexed next hop.
Indirect (indr)	Used with applications that have a protocol next hop address that is remote. You are likely to see this next-hop type for internal BGP (IBGP) routes when the BGP next hop is a BGP neighbor that is not directly connected.
Interface	Used for a network address assigned to an interface. Unlike the router next hop, the interface next hop does not reference any specific node on the network.
Local (locl)	Local address on an interface. This next-hop type causes packets with this destination address to be received locally.
Multicast (mcst)	Wire multicast next hop (limited to the LAN).
Multicast discard (mdsc)	Multicast discard.
Multicast group (mgrp)	Multicast group member.
Receive (recv)	Receive.
Reject (rjct)	Discard. An ICMP unreachable message was sent.
Resolve (rslv)	Resolving next hop.
Routed multicast (mcrt)	Regular multicast next hop.

Table 16: Next-hop Types Output Field Values (*continued*)

Next-Hop Type	Description
Router	<p>A specific node or set of nodes to which the routing device forwards packets that match the route prefix.</p> <p>To qualify as next-hop type router, the route must meet the following criteria:</p> <ul style="list-style-type: none"> • Must not be a direct or local subnet for the routing device. • Must have a next hop that is directly connected to the routing device.
Table	Routing table 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 17 on page 204 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 17: 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.
Cisco Non-deterministic MED selection	Cisco nondeterministic MED is enabled, and a path with a lower MED is available.
Clone	Route is a clone.
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.

Table 17: State Output Field Values (*continued*)

Value	Description
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.
Inactive reason	Flags for this route, which was not selected as best for a particular destination.
Initial	Route being added.
Int	Interior route.
Int Ext	BGP route received from an internal BGP peer or a BGP confederation peer.
Interior > Exterior > Exterior via Interior	Direct, static, IGP, or EBGP path is available.
Local Preference	Path with a higher local preference value 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 a greater number of next hops is available.
Origin	Path with a lower origin code is available.
Pending	Route pending because of a hold-down configured on another route.

Table 17: State Output Field Values (*continued*)

Value	Description
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 a 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 18 on page 206 describes the possible values for the Communities output field.

Table 18: 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.
bandwidth: local AS number:link-bandwidth-number	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.
domain-id	Unique configurable number that identifies the OSPF domain.
domain-id-vendor	Unique configurable number that further 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.

Table 18: Communities Output Field Values (*continued*)

Value	Description
origin	(Used with VPNs) Identifies where the route came from.
ospf-route-type	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.
route-type-vendor	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 area-number:ospf-route-type:options .
rte-type	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 area-number:ospf-route-type:options .
target	Defines which VPN the route participates in; target has the format 32-bit IP address:16-bit number . For example, 10.19.0.0:100.
unknown IANA	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.
unknown OSPF vendor community	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)

299840 (1 entry, 1 announced)

```

```

TSI:
KRT in-kerne 299840 /52 -> {indirect(1048575)}
    *RSVP Preference: 7/2
        Next hop type: Flood
        Address: 0x9174a30
        Next-hop reference count: 4
        Next hop type: Router, Next hop index: 798
        Address: 0x9174c28
        Next-hop reference count: 2
        Next hop: 8.0.0.2 via lt-1/2/0.9 weight 0x1
        Label-switched-path R2-to-R4-2p2mp
        Label operation: Pop
        Next hop type: Router, Next hop index: 1048574
        Address: 0x92544f0
        Next-hop reference count: 2
        Next hop: 7.0.0.2 via lt-1/2/0.7 weight 0x1
        Label-switched-path R2-to-R200-p2mp
        Label operation: Pop
        Next hop: 6.0.0.2 via lt-1/2/0.5 weight 0x8001
        Label operation: Pop
        State: <Active Int>
        Age: 1:29 Metric: 1
        Task: RSVP
        Announcement bits (1): 0-KRT
        AS path: I...

800010 (1 entry, 1 announced)
    *VPLS Preference: 7
        Next-hop reference count: 2
        Next hop: via vt-3/2/0.32769, selected
        Label operation: Pop
        State: <Active Int>
        Age: 1:29:30
        Task: Common L2 VC
        Announcement bits (1): 0-KRT
        AS path: I

vt-3/2/0.32769 (1 entry, 1 announced)
    *VPLS Preference: 7
        Next-hop reference count: 2
        Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1, selected
        Label-switched-path green-r1-r3
        Label operation: Push 800012, Push 100096(top)
        Protocol next hop: 10.255.70.103
        Push 800012
        Indirect next hop: 87272e4 1048574
        State: <Active Int>
        Age: 1:29:30 Metric2: 2
        Task: Common L2 VC
        Announcement bits (2): 0-KRT 1-Common L2 VC
        AS path: I
        Communities: target:11111:1 Layer2-info: encaps:VPLS,
        control flags:, mtu: 0

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)

abcd::10:255:71:52/128 (1 entry, 0 announced)
    *Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 1
        Next hop: via lo0.0, selected

```



```

        State: <Active Int>
        Local AS: 69
        Age: 1:31:44
        Task: IF
        AS path: I

fe80::280:42ff:fe10:f179/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.0, selected
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:31:44
    Task: IF
    AS path: I

ff02::2/128 (1 entry, 1 announced)
  *PIM Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:31:45
    Task: PIM Recv6
    Announcement bits (1): 0-KRT
    AS path: I

ff02::d/128 (1 entry, 1 announced)
  *PIM Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:31:45
    Task: PIM Recv6
    Announcement bits (1): 0-KRT
    AS path: I

ff02::16/128 (1 entry, 1 announced)
  *MLD Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:31:43
    Task: MLD
    Announcement bits (1): 0-KRT
    AS path: I

private.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

fe80::280:42ff:fe10:f179/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.16385, selected
    State: <Active NoReadvrt Int>
    Age: 1:31:44
    Task: IF
    AS path: I

green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)

```

```
10.255.70.103:1:3:1/96 (1 entry, 1 announced)
  *BGP   Preference: 170/-101
        Route Distinguisher: 10.255.70.103:1
        Next-hop reference count: 7
        Source: 10.255.70.103
        Protocol next hop: 10.255.70.103
        Indirect next hop: 2 no-forward
        State: <Secondary Active Int Ext>
        Local AS: 69 Peer AS: 69
        Age: 1:25:49 Metric2: 1
        AIGP 210
        Task: BGP_69.10.255.70.103+179
        Announcement bits (1): 0-green-l2vpn
        AS path: I
        Communities: target:11111:1 Layer2-info: encaps:VPLS,
        control flags:, mtu: 0
        Label-base: 800008, range: 8
        Localpref: 100
        Router ID: 10.255.70.103
        Primary Routing Table bgp.l2vpn.0

10.255.71.52:1:1:1/96 (1 entry, 1 announced)
  *L2VPN Preference: 170/-1
        Next-hop reference count: 5
        Protocol next hop: 10.255.71.52
        Indirect next hop: 0 -
        State: <Active Int Ext>
        Age: 1:31:40 Metric2: 1
        Task: green-l2vpn
        Announcement bits (1): 1-BGP.0.0.0.0+179
        AS path: I
        Communities: Layer2-info: encaps:VPLS, control flags:Site-Down,
        mtu: 0
        Label-base: 800016, range: 8, status-vector: 0x9F

10.255.71.52:1:5:1/96 (1 entry, 1 announced)
  *L2VPN Preference: 170/-101
        Next-hop reference count: 5
        Protocol next hop: 10.255.71.52
        Indirect next hop: 0 -
        State: <Active Int Ext>
        Age: 1:31:40 Metric2: 1
        Task: green-l2vpn
        Announcement bits (1): 1-BGP.0.0.0.0+179
        AS path: I
        Communities: Layer2-info: encaps:VPLS, control flags:, mtu: 0
        Label-base: 800008, range: 8, status-vector: 0x9F

...

l2circuit.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
10.245.255.63:CtrlWord:4:3:Local/96 (1 entry, 1 announced)
  *L2CKT Preference: 7
        Next hop: via so-1/1/2.0 weight 1, selected
        Label-switched-path my-lsp
        Label operation: Push 100000[0]
        Protocol next hop: 10.245.255.63 Indirect next hop: 86af000 296
        State: <Active Int>
        Local AS: 99
        Age: 10:21
        Task: l2 circuit
```

```

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

```

show route detail (with BGP Multipath)

```

user@host> show route detail

10.1.1.8/30 (2 entries, 1 announced)
  *BGP   Preference: 170/-101
        Next hop type: Router, Next hop index: 262142
        Address: 0x901a010
        Next-hop reference count: 2
        Source: 10.1.1.2
        Next hop: 10.1.1.2 via ge-0/3/0.1, selected
        Next hop: 10.1.1.6 via ge-0/3/0.5
        State: <Active Ext>
        Local AS:      1 Peer AS:      2
        Age: 5:04:43
        Validation State: unverified
        Task: BGP_2.10.1.1.2+59955
        Announcement bits (1): 0-KRT
        AS path: 2 I
        Accepted Multipath
        Localpref: 100
        Router ID: 1.1.1.2
  BGP   Preference: 170/-101
        Next hop type: Router, Next hop index: 678
        Address: 0x8f97520
        Next-hop reference count: 9
        Source: 10.1.1.6
        Next hop: 10.1.1.6 via ge-0/3/0.5, selected
        State: <NotBest Ext>
        Inactive reason: Not Best in its group - Active preferred
        Local AS:      1 Peer AS:      2
        Age: 5:04:43
        Validation State: unverified
        Task: BGP_2.10.1.1.6+58198
        AS path: 2 I
        Accepted MultipathContrib
        Localpref: 100
        Router ID: 1.1.1.3

```

show route label detail (Multipoint LDP Inband Signaling for Point-to-Multipoint LSPs)

```

user@host> show route label 299872 detail
mpls.0: 13 destinations, 13 routes (13 active, 0 holddown, 0 hidden)
299872 (1 entry, 1 announced)
  *LDP   Preference: 9
        Next hop type: Flood
        Next-hop reference count: 3
        Address: 0x9097d90
        Next hop: via vt-0/1/0.1
        Next-hop index: 661
        Label operation: Pop
        Address: 0x9172130
        Next hop: via so-0/0/3.0
        Next-hop index: 654
        Label operation: Swap 299872
        State: **Active Int>
        Local AS: 1001

```

```

Age: 8:20      Metric: 1
Task: LDP
Announcement bits (1): 0-KRT
AS path: I
FECs bound to route: P2MP root-addr 10.255.72.166, grp 232.1.1.1,
src 192.168.142.2

```

show route label detail (Multipoint LDP with Multicast-Only Fast Reroute)

```
user@host> show route label 301568 detail
```

```

mpls.0: 18 destinations, 18 routes (18 active, 0 holddown, 0 hidden)
301568 (1 entry, 1 announced)
  *LDP      Preference: 9
    Next hop type: Flood
    Address: 0x2735208
    Next-hop reference count: 3
    Next hop type: Router, Next hop index: 1397
    Address: 0x2735d2c
    Next-hop reference count: 3
    Next hop: 1.3.8.2 via ge-1/2/22.0
    Label operation: Pop
    Load balance label: None;
    Next hop type: Router, Next hop index: 1395
    Address: 0x2736290
    Next-hop reference count: 3
    Next hop: 1.3.4.2 via ge-1/2/18.0
    Label operation: Pop
    Load balance label: None;
    State: <Active Int AckRequest MulticastRPF>
    Local AS: 10
    Age: 54:05      Metric: 1
    Validation State: unverified
    Task: LDP
    Announcement bits (1): 0-KRT
    AS path: I
    FECs bound to route: P2MP root-addr 1.1.1.1, grp: 232.1.1.1, src:
192.168.219.11
    Primary Upstream : 1.1.1.3:0--1.1.1.2:0
      RPF Nexthops :
        ge-1/2/15.0, 1.2.94.1, Label: 301568, weight: 0x1
        ge-1/2/14.0, 1.2.3.1, Label: 301568, weight: 0x1
    Backup Upstream : 1.1.1.3:0--1.1.1.6:0
      RPF Nexthops :
        ge-1/2/20.0, 1.2.96.1, Label: 301584, weight: 0xffffe
        ge-1/2/19.0, 1.3.6.1, Label: 301584, weight: 0xffffe

```

show route exact

List of Syntax	Syntax on page 215 Syntax (EX Series Switches) on page 215
Syntax	show route exact <i>destination-prefix</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	show route exact <i>destination-prefix</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 only the routes that exactly match the specified address or range of addresses.
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 . destination-prefix —Address or range of addresses. 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 exact on page 215 show route exact detail on page 215 show route exact extensive on page 216 show route exact terse on page 216
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

```

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

```

show route exact detail

```

user@host> show route exact 207.17.136.0/24 detail

inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden)

```

```
Restart Complete
207.17.136.0/24 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 29
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2d 3:30:26
    Task: RT
    Announcement bits (2): 0-KRT 3-Resolve tree 2
    AS path: I
```

show route exact extensive

```
user@host> show route exact 207.17.136.0/24 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

List of Syntax	Syntax on page 217 Syntax (EX Series Switches) on page 217
Syntax	<pre>show route export <brief detail> <instance <instance-name> routing-table-name> <logical-system (all logical-system-name)></pre>
Syntax (EX Series Switches)	<pre>show route export <brief detail> <instance <instance-name> routing-table-name></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 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 policy-based export for all routing tables whose name begins with this string (for example, inet.0 and inet6.0 are both displayed when you run the show route export inet command).</p>
Required Privilege Level	view
List of Sample Output	show route export on page 218 show route export detail on page 218 show route export instance detail on page 218
Output Fields	Table 19 on page 217 lists the output fields for the show route export command. Output fields are listed in the approximate order in which they appear.

Table 19: show route export Output Fields

Field Name	Field Description	Level of Output
Table or <i>table-name</i>	Name of the routing tables that either import or export routes.	All levels
Routes	Number of routes exported from this table into other tables. If a particular route is exported to different tables, the counter will only increment by one.	brief none

Table 19: 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 detail

```

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

```

show route export instance detail

```

user@host> show route export instance detail
Instance: master                      Type: forwarding
Flags: <config auto-policy> Options: <unicast multicast>
Import policy: [ (ospf-master-from-red || isis-master-from-black) ]

```


Instance: black
Instance: red

Type: non-forwarding
Type: non-forwarding

show route extensive

List of Syntax	Syntax on page 220 Syntax (EX Series Switches) on page 220
Syntax	show route extensive <destination-prefix> <logical-system (all logical-system-name)>
Syntax (EX Series Switches)	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 227 show route extensive (Access Route) on page 233 show route extensive (BGP PIC Edge) on page 234 show route extensive (FRR and LFA) on page 234 show route extensive (Route Reflector) on page 235 show route label detail (Multipoint LDP Inband Signaling for Point-to-Multipoint LSPs) on page 235 show route label detail (Multipoint LDP with Multicast-Only Fast Reroute) on page 236
Output Fields	Table 20 on page 220 describes the output fields for the show route extensive command. Output fields are listed in the approximate order in which they appear.

Table 20: 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.

Table 20: show route extensive 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>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). <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.
TSI	Protocol header information.
label stacking	<p>(Next-to-the-last-hop routing device for MPLS only) Depth of the 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).
[protocol, preference]	<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>

Table 20: show route extensive Output Fields (*continued*)

Field Name	Field Description
Level	(IS-IS only). In IS-IS, a single autonomous system (AS) can be divided into smaller groups called areas. Routing between areas is organized hierarchically, allowing a domain to be administratively divided into smaller areas. This organization is accomplished by configuring Level 1 and Level 2 intermediate systems. Level 1 systems route within an area. When the destination is outside an area, they route toward a Level 2 system. Level 2 intermediate systems route between areas and toward other ASs.
Route Distinguisher	IP subnet augmented with a 64-bit prefix.
PMSI	Provider multicast service interface (MVPN routing table).
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 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 BGP multipath load balancing.
Label-switched-path lsp-path-name	Name of the 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.

Table 20: show route extensive Output Fields (*continued*)

Field Name	Field Description
<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	<p>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.</p> <p>When BGP PIC Edge is enabled, the output lines that contain Indirect next hop: weight follow next hops that the software can use to repair paths where a link failure occurs. The next-hop weight has one of the following values:</p> <ul style="list-style-type: none"> • 0x1 indicates active next hops. • 0x4000 indicates passive next hops.
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.
Session ID	The BFD session ID number that represents the protection using MPLS fast reroute (FRR) and loop-free alternate (LFA).
Weight	<p>Weight for the backup path. If the weight of an indirect next hop is larger than zero, the weight value is shown.</p> <p>For sample output, see show route table.</p>

Table 20: show route extensive Output Fields (*continued*)

Field Name	Field Description
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.
AIGP	Accumulated interior gateway protocol (AIGP) BGP attribute.
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-signaled and LDP-signaled LSPs or for specific VRF routing instances.</p> <p>For sample output, see show route table.</p>

Table 20: 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. • Recorded—The AS path is recorded by the sample process (sampled). • ?—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>
validation-state	<p>(BGP-learned routes) Validation status of the route:</p> <ul style="list-style-type: none"> • Invalid—Indicates that the prefix is found, but either the corresponding AS received from the EBGP peer is not the AS that appears in the database, or the prefix length in the BGP update message is longer than the maximum length permitted in the database. • Unknown—Indicates that the prefix is not among the prefixes or prefix ranges in the database. • Unverified—Indicates that origin validation is not enabled for the BGP peers. • Valid—Indicates that the prefix and autonomous system pair are found in the database.
FECs bound to route	Point-to-multipoint root address, multicast source address, and multicast group address when multipoint LDP (M-LDP) inband signaling is configured.
AS path: I <Originator>	(For route reflected output only) Originator ID attribute set by the route reflector.
Primary Upstream	When multipoint LDP with multicast-only fast reroute (MoFRR) is configured, the primary upstream path. MoFRR transmits a multicast join message from a receiver toward a source on a primary path, while also transmitting a secondary multicast join message from the receiver toward the source on a backup path.
RPF Nexthops	When multipoint LDP with MoFRR is configured, the reverse-path forwarding (RPF) next-hop information. Data packets are received from both the primary path and the secondary paths. The redundant packets are discarded at topology merge points due to the RPF checks.

Table 20: show route extensive Output Fields (*continued*)

Field Name	Field Description
Label	Multiple MPLS labels are used to control MoFRR stream selection. Each label represents a separate route, but each references the same interface list check. Only the primary label is forwarded while all others are dropped. Multiple interfaces can receive packets using the same label.
weight	Value used to distinguish MoFRR primary and backup routes. A lower weight value is preferred. Among routes with the same weight value, load balancing is possible.
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.
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.

Table 20: show route extensive Output Fields (*continued*)

Field Name	Field Description
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-kerne1 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-kerne1 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-kerne1 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)
299840 (1 entry, 1 announced)
TSI:
KRT in-kernel 299840 /52 -> {indirect(1048575)}
  *RSVP   Preference: 7/2
          Next hop type: Flood
          Address: 0x9174a30
          Next-hop reference count: 4
          Next hop type: Router, Next hop index: 798
          Address: 0x9174c28
          Next-hop reference count: 2
          Next hop: 8.0.0.2 via lt-1/2/0.9 weight 0x1
          Label-switched-path R2-to-R4-2p2mp

```

```

Label operation: Pop
Next hop type: Router, Next hop index: 1048574
Address: 0x92544f0
Next-hop reference count: 2
Next hop: 7.0.0.2 via lt-1/2/0.7 weight 0x1
Label-switched-path R2-to-R200-p2mp
Label operation: Pop
Next hop: 6.0.0.2 via lt-1/2/0.5 weight 0x8001
Label operation: Pop
State: <Active Int>
Age: 1:29      Metric: 1
Task: RSVP
Announcement bits (1): 0-KRT
AS path: I...

```

800010 (1 entry, 1 announced)

TSI:

```

KRT in-kernel 800010 /36 -> {vt-3/2/0.32769}
  *VPLS Preference: 7
    Next-hop reference count: 2
    Next hop: via vt-3/2/0.32769, selected
    Label operation: Pop
    State: <Active Int>
    Age: 1:31:53
    Task: Common L2 VC
    Announcement bits (1): 0-KRT
    AS path: I

```

vt-3/2/0.32769 (1 entry, 1 announced)

TSI:

```

KRT in-kernel vt-3/2/0.32769.0 /16 -> {indirect(1048574)}
  *VPLS Preference: 7
    Next-hop reference count: 2
    Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1, selected
    Label-switched-path green-r1-r3
    Label operation: Push 800012, Push 100096(top)
    Protocol next hop: 10.255.70.103
    Push 800012
    Indirect next hop: 87272e4 1048574
    State: <Active Int>
    Age: 1:31:53      Metric2: 2
    Task: Common L2 VC
    Announcement bits (2): 0-KRT 1-Common L2 VC
    AS path: I
    Communities: target:11111:1 Layer2-info: encaps:VPLS,
    control flags:, mtu: 0
    Indirect next hops: 1
      Protocol next hop: 10.255.70.103 Metric: 2
      Push 800012
      Indirect next hop: 87272e4 1048574
      Indirect path forwarding next hops: 1
        Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1
        10.255.70.103/32 Originating RIB: inet.3
        Metric: 2      Node path count: 1
        Forwarding nexthops: 1
        Nexthop: 10.31.1.6 via ge-3/1/0.0

```

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)

abcd::10:255:71:52/128 (1 entry, 0 announced)

```

*Direct Preference: 0
  Next hop type: Interface
  Next-hop reference count: 1
  Next hop: via lo0.0, selected
  State: <Active Int>
  Local AS: 69
  Age: 1:34:07
  Task: IF
  AS path: I

fe80::280:42ff:fe10:f179/128 (1 entry, 0 announced)
*Direct Preference: 0
  Next hop type: Interface
  Next-hop reference count: 1
  Next hop: via lo0.0, selected
  State: <Active NoReadvrt Int>
  Local AS: 69
  Age: 1:34:07
  Task: IF
  AS path: I

ff02::2/128 (1 entry, 1 announced)
TSI:
KRT in-kernel ff02::2/128 -> {}
  *PIM Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:34:08
    Task: PIM Recv6
    Announcement bits (1): 0-KRT
    AS path: I

ff02::d/128 (1 entry, 1 announced)
TSI:
KRT in-kernel ff02::d/128 -> {}
  *PIM Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:34:08
    Task: PIM Recv6
    Announcement bits (1): 0-KRT
    AS path: I

ff02::16/128 (1 entry, 1 announced)
TSI:
KRT in-kernel ff02::16/128 -> {}
  *MLD Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:34:06
    Task: MLD
    Announcement bits (1): 0-KRT
    AS path: I

private.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

fe80::280:42ff:fe10:f179/128 (1 entry, 0 announced)
*Direct Preference: 0

```

```

Next hop type: Interface
Next-hop reference count: 1
Next hop: via lo0.16385, selected
State: <Active NoReadvrt Int>
Age: 1:34:07
Task: IF
AS path: I

```

```
green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
```

```
10.255.70.103:1:3:1/96 (1 entry, 1 announced)
```

```

*BGP Preference: 170/-101
Route Distinguisher: 10.255.70.103:1
Next-hop reference count: 7
Source: 10.255.70.103
Protocol next hop: 10.255.70.103
Indirect next hop: 2 no-forward
State: <Secondary Active Int Ext>
Local AS: 69 Peer AS: 69
Age: 1:28:12 Metric2: 1
Task: BGP_69.10.255.70.103+179
Announcement bits (1): 0-green-l2vpn
AS path: I
Communities: target:11111:1 Layer2-info: encaps:VPLS,
control flags:, mtu: 0
Label-base: 800008, range: 8
Localpref: 100
Router ID: 10.255.70.103
Primary Routing Table bgp.l2vpn.0

```

```
10.255.71.52:1:1:1/96 (1 entry, 1 announced)
```

```
TSI:
```

```
Page 0 idx 0 Type 1 val 8699540
```

```

*L2VPN Preference: 170/-1
Next-hop reference count: 5
Protocol next hop: 10.255.71.52
Indirect next hop: 0 -
State: <Active Int Ext>
Age: 1:34:03 Metric2: 1
Task: green-l2vpn
Announcement bits (1): 1-BGP.0.0.0.0+179
AS path: I
Communities: Layer2-info: encaps:VPLS, control flags:Site-Down,
mtu: 0
Label-base: 800016, range: 8, status-vector: 0x9F

```

```
10.255.71.52:1:5:1/96 (1 entry, 1 announced)
```

```
TSI:
```

```
Page 0 idx 0 Type 1 val 8699528
```

```

*L2VPN Preference: 170/-101
Next-hop reference count: 5
Protocol next hop: 10.255.71.52
Indirect next hop: 0 -
State: <Active Int Ext>
Age: 1:34:03 Metric2: 1
Task: green-l2vpn
Announcement bits (1): 1-BGP.0.0.0.0+179
AS path: I
Communities: Layer2-info: encaps:VPLS, control flags:, mtu: 0
Label-base: 800008, range: 8, status-vector: 0x9F

```

```

...

l2circuit.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

TSI:

10.245.255.63:CtrlWord:4:3:Local/96 (1 entry, 1 announced)
  *L2CKT Preference: 7
    Next hop: via so-1/1/2.0 weight 1, selected
    Label-switched-path my-lsp
    Label operation: Push 100000[0]
    Protocol next hop: 10.245.255.63 Indirect next hop: 86af000 296
    State: <Active Int>
    Local AS: 99
    Age: 10:21
    Task: l2 circuit
    Announcement bits (1): 0-LDP
    AS path: I
    VC Label 100000, MTU 1500, VLAN ID 512

55.0.0.0/24 (1 entry, 1 announced)
TSI:
KRT queued (pending) add
  55.0.0.0/24 -> {Push 300112}
    *BGP Preference: 170/-101
      Next hop type: Router
      Address: 0x925c208
      Next-hop reference count: 2
      Source: 10.0.0.9
      Next hop: 10.0.0.9 via ge-1/2/0.15, selected
      Label operation: Push 300112
      Label TTL action: prop-ttl
      State: <Active Ext>
      Local AS: 7019 Peer AS: 13979
      Age: 1w0d 23:06:56
      AIGP: 25
      Task: BGP_13979.10.0.0.9+56732
      Announcement bits (1): 0-KRT
      AS path: 13979 7018 I
      Accepted
      Route Label: 300112
      Localpref: 100
      Router ID: 10.9.9.1

```

show route extensive (Access Route)

```

user@host> show route 13.160.0.102 extensive
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 (BGP PIC Edge)

```

user@host> show route 1.1.1.6 extensive
ed.inet.0: 6 destinations, 9 routes (6 active, 0 holddown, 0 hidden)
  1.1.1.6/32 (3 entries, 2 announced)
    State: <CalcForwarding>
    TSI:
    KRT in-kerne1 1.1.1.6/32 -> {indirect(1048574), indirect(1048577)}
    Page 0 idx 0 Type 1 val 9219e30
    Nexthop: Self
    AS path: [2] 3 I
    Communities: target:2:1
    Path 1.1.1.6 from 1.1.1.4 Vector len 4. Val: 0
  ..
    #Multipath Preference: 255
    Next hop type: Indirect
    Address: 0x93f4010
    Next-hop reference count: 2
  ..
    Protocol next hop: 1.1.1.4
    Push 299824
    Indirect next hop: 944c000 1048574 INH Session ID: 0x3
    Indirect next hop: weight 0x1
    Protocol next hop: 1.1.1.5
    Push 299824
    Indirect next hop: 944c1d8 1048577 INH Session ID: 0x4
    Indirect next hop: weight 0x4000
    State: <ForwardingOnly Int Ext>
    Inactive reason: Forwarding use only
    Age: 25 Metric2: 15
    Validation State: unverified
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: 3 I
    Communities: target:2:1

```

show route extensive (FRR and LFA)

```

user@host> show route 20.31.2.0 extensive
inet.0: 46 destinations, 49 routes (45 active, 0 holddown, 1 hidden)
  20.31.2.0/24 (2 entries, 1 announced)
    State: FlashAll
    TSI:
    KRT in-kerne1 20.31.2.0/24 -> {Push 299776, Push 299792}
    *RSVP Preference: 7/1
    Next hop type: Router, Next hop index: 1048574
    Address: 0xbbbc010
    Next-hop reference count: 5
    Next hop: 10.31.1.2 via ge-2/1/8.0 weight 0x1, selected
    Label-switched-path europa-d-to-europa-e
    Label operation: Push 299776
    Label TTL action: prop-ttl
    Session Id: 0x201
    Next hop: 10.31.2.2 via ge-2/1/4.0 weight 0x4001
    Label-switched-path europa-d-to-europa-e
    Label operation: Push 299792
    Label TTL action: prop-ttl
    Session Id: 0x202
    State: Active Int
    Local AS: 100
    Age: 5:31 Metric: 2

```



```

Task: RSVP
Announcement bits (1): 0-KRT
AS path: I
OSPF Preference: 10
Next hop type: Router, Next hop index: 615
Address: 0xb9d78c4
Next-hop reference count: 7
Next hop: 10.31.1.2 via ge-2/1/8.0, selected
Session Id: 0x201
State: Int
Inactive reason: Route Preference
Local AS: 100
Age: 5:35 Metric: 3
Area: 0.0.0.0
Task: OSPF
AS path: I

```

show route extensive (Route Reflector)

```

user@host> show route extensive
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 label detail (Multipoint LDP Inband Signaling for Point-to-Multipoint LSPs)

```

user@host> show route label 299872 detail
mpls.0: 13 destinations, 13 routes (13 active, 0 holddown, 0 hidden)
299872 (1 entry, 1 announced)
*LDP Preference: 9
Next hop type: Flood
Next-hop reference count: 3
Address: 0x9097d90
Next hop: via vt-0/1/0.1
Next-hop index: 661
Label operation: Pop
Address: 0x9172130
Next hop: via so-0/0/3.0
Next-hop index: 654
Label operation: Swap 299872
State: **Active Int>

```

```

Local AS: 1001
Age: 8:20      Metric: 1
Task: LDP
Announcement bits (1): 0-KRT
AS path: I
FECs bound to route: P2MP root-addr 10.255.72.166, grp 232.1.1.1,
src 192.168.142.2

```

show route label detail (Multipoint LDP with Multicast-Only Fast Reroute)

```
user@host> show route label 301568 detail
```

```

mpls.0: 18 destinations, 18 routes (18 active, 0 holddown, 0 hidden)
301568 (1 entry, 1 announced)
  *LDP    Preference: 9
          Next hop type: Flood
          Address: 0x2735208
          Next-hop reference count: 3
          Next hop type: Router, Next hop index: 1397
          Address: 0x2735d2c
          Next-hop reference count: 3
          Next hop: 1.3.8.2 via ge-1/2/22.0
          Label operation: Pop
          Load balance label: None;
          Next hop type: Router, Next hop index: 1395
          Address: 0x2736290
          Next-hop reference count: 3
          Next hop: 1.3.4.2 via ge-1/2/18.0
          Label operation: Pop
          Load balance label: None;
          State: <Active Int AckRequest MulticastRPF>
          Local AS: 10
          Age: 54:05      Metric: 1
          Validation State: unverified
          Task: LDP
          Announcement bits (1): 0-KRT
          AS path: I
          FECs bound to route: P2MP root-addr 1.1.1.1, grp: 232.1.1.1, src:
192.168.219.11
          Primary Upstream : 1.1.1.3:0--1.1.1.2:0
          RPF Nexthops :
            ge-1/2/15.0, 1.2.94.1, Label: 301568, weight: 0x1
            ge-1/2/14.0, 1.2.3.1, Label: 301568, weight: 0x1
          Backup Upstream : 1.1.1.3:0--1.1.1.6:0
          RPF Nexthops :
            ge-1/2/20.0, 1.2.96.1, Label: 301584, weight: 0xffffe
            ge-1/2/19.0, 1.3.6.1, Label: 301584, weight: 0xffffe

```

show route flow validation

List of Syntax	Syntax on page 237 Syntax (EX Series Switches) on page 237
Syntax	show route flow validation <brief detail> <ip-prefix> <table table-name> <logical-system (all logical-system-name)>
Syntax (EX Series Switches)	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) Display flow route information for all routing tables whose name begins with this string (for example, inet.0 and inet6.0 are both displayed when you run the show route flow validation inet command).</p>
Required Privilege Level	view
List of Sample Output	show route flow validation on page 238
Output Fields	Table 21 on page 237 lists the output fields for the show route flow validation command. Output fields are listed in the approximate order in which they appear.

Table 21: 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

Table 21: show route flow validation Output Fields (*continued*)

Field Name	Field Description	Level of Output
Dependent flow destinations	Number of flows for which there are routes in the routing table.	All levels
Origin	Source of the route flow.	All levels
Neighbor AS	Autonomous system identifier of the neighbor.	All levels
Flow destination	Number of entries and number of destinations that match the route flow.	All levels
Unicast best match	Destination that is the best match for the route flow.	All levels
Flags	Information about the route flow.	All levels

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 inactive-path

List of Syntax	Syntax on page 239 Syntax (EX Series Switches) on page 239
Syntax	show route inactive-path <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	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 239 show route inactive-path detail on page 240 show route inactive-path extensive on page 241 show route inactive-path terse on page 241
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-path

```

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 240](#).

show route inactive-path terse

```

user@host> show route inactive-path terse

inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
  10.12.100.12/30   0 10           1           >so-0/3/0.0

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
  10.0.0.0/8        D  0           0           >fxp1.0

red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
  10.12.80.0/30     B 170          100          >10.12.80.1    100 I

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

bgp.l3vpn.0: 3 destinations, 3 routes (0 active, 0 holddown, 3 hidden)
Restart Complete

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

```

show route inactive-prefix

List of Syntax	Syntax on page 242 Syntax (EX Series Switches) on page 242
Syntax	<code>show route inactive-prefix</code> <code><brief detail extensive terse></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switches)	<code>show route inactive-prefix</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 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 242 show route inactive-prefix detail on page 242 show route inactive-prefix extensive on page 243 show route inactive-prefix terse on page 243
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 lo0.0

```

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 242](#).

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			>lo0.0	

show route instance

List of Syntax	Syntax on page 244 Syntax (EX Series Switches and QFX Series) on page 244
Syntax	<pre>show route instance <brief detail summary> <instance-name> <logical-system (all logical-system-name)> <operational></pre>
Syntax (EX Series Switches and QFX Series)	<pre>show route instance <brief detail summary> <instance-name> <operational></pre>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. Command introduced in Junos OS Release 11.3 for the QFX Series.
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>instance-name—(Optional) Display information for all routing instances whose name begins with this string (for example, cust1, cust11, and cust111 are all displayed when you run the show route instance cust1 command).</p> <p>logical-system (all logical-system-name)—(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
Related Documentation	<ul style="list-style-type: none">• <i>Example: Transporting IPv6 Traffic Across IPv4 Using Filter-Based Tunneling</i>• <i>Example: Configuring the Helper Capability Mode for OSPFv3 Graceful Restart</i>
List of Sample Output	show route instance on page 246 show route instance detail (Graceful Restart Complete) on page 246 show route instance detail (Graceful Restart Incomplete) on page 248 show route instance detail (VPLS Routing Instance) on page 249 show route instance operational on page 250 show route instance summary on page 250

Output Fields Table 22 on page 245 lists the output fields for the **show route instance** command. Output fields are listed in the approximate order in which they appear.

Table 22: show route instance Output Fields

Field Name	Field Description	Level of Output
Instance or <i>instance-name</i>	Name of the routing instance.	All levels
Operational Routing Instances	(operational keyword only) Names of all operational routing instances.	—
Type	Type of routing instance: forwarding , l2vpn , no-forwarding , vpls , virtual-router , 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.	brief detail none
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	Type	Primary rib	Active/holddown/hidden
master	forwarding	inet.0	15/0/1
		iso.0	1/0/0
		mpls.0	35/0/0
		l2vpn.0	0/0/0
		inet6.0	2/0/0
		l2vpn.0	0/0/0
		l2circuit.0	0/0/0
BGP-INET	vrf	BGP-INET.inet.0	5/0/0
		BGP-INET.iso.0	0/0/0
		BGP-INET.inet6.0	0/0/0
BGP-L	vrf	BGP-L.inet.0	5/0/0
		BGP-L.iso.0	0/0/0
		BGP-L.mpls.0	4/0/0
		BGP-L.inet6.0	0/0/0
L2VPN	l2vpn	L2VPN.inet.0	0/0/0
		L2VPN.iso.0	0/0/0
		L2VPN.inet6.0	0/0/0
		L2VPN.l2vpn.0	2/0/0
LDP	vrf	LDP.inet.0	4/0/0
		LDP.iso.0	0/0/0
		LDP.mpls.0	0/0/0
		LDP.inet6.0	0/0/0
		LDP.l2circuit.0	0/0/0
OSPF	vrf	OSPF.inet.0	7/0/0
		OSPF.iso.0	0/0/0
		OSPF.inet6.0	0/0/0
RIP	vrf	RIP.inet.0	6/0/0
		RIP.iso.0	0/0/0
		RIP.inet6.0	0/0/0
STATIC	vrf	STATIC.inet.0	4/0/0

STATIC.iso.0	0/0/0
STATIC.inet6.0	0/0/0

show route label

List of Syntax	Syntax on page 252 Syntax (EX Series Switches) on page 252
Syntax	<code>show route label <i>label</i></code> <code><brief detail extensive terse></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switches)	<code>show route label <i>label</i></code> <code><brief detail extensive terse></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 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
Related Documentation	<ul style="list-style-type: none">• Example: Configuring Multipoint LDP In-Band Signaling for Point-to-Multipoint LSPs
List of Sample Output	show route label terse on page 252 show route label on page 253 show route label detail on page 253 show route label detail (Multipoint LDP Inband Signaling for Point-to-Multipoint LSPs) on page 253 show route label detail (Multipoint LDP with Multicast-Only Fast Reroute) on page 254 show route label extensive on page 254
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 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

```
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 detail (Multipoint LDP Inband Signaling for Point-to-Multipoint LSPs)

```
user@host> show route label 299872 detail
```

```
mpls.0: 13 destinations, 13 routes (13 active, 0 holddown, 0 hidden)
299872 (1 entry, 1 announced)
  *LDP      Preference: 9
            Next hop type: Flood
            Next-hop reference count: 3
            Address: 0x9097d90
            Next hop: via vt-0/1/0.1
            Next-hop index: 661
            Label operation: Pop
            Address: 0x9172130
            Next hop: via so-0/0/3.0
            Next-hop index: 654
            Label operation: Swap 299872
            State: **Active Int>
            Local AS: 1001
            Age: 8:20      Metric: 1
            Task: LDP
            Announcement bits (1): 0-KRT
            AS path: I
            FECs bound to route: P2MP root-addr 10.255.72.166, grp 232.1.1.1,
src 192.168.142.2
```

show route label detail (Multipoint LDP with Multicast-Only Fast Reroute)

```

user@host> show route label 301568 detail

mpls.0: 18 destinations, 18 routes (18 active, 0 holddown, 0 hidden)
301568 (1 entry, 1 announced)
  *LDP    Preference: 9
          Next hop type: Flood
          Address: 0x2735208
          Next-hop reference count: 3
          Next hop type: Router, Next hop index: 1397
          Address: 0x2735d2c
          Next-hop reference count: 3
          Next hop: 1.3.8.2 via ge-1/2/22.0
          Label operation: Pop
          Load balance label: None;
          Next hop type: Router, Next hop index: 1395
          Address: 0x2736290
          Next-hop reference count: 3
          Next hop: 1.3.4.2 via ge-1/2/18.0
          Label operation: Pop
          Load balance label: None;
          State: <Active Int AckRequest MulticastRPF>
          Local AS: 10
          Age: 54:05      Metric: 1
          Validation State: unverified
          Task: LDP
          Announcement bits (1): 0-KRT
          AS path: I
          FECs bound to route: P2MP root-addr 1.1.1.1, grp: 232.1.1.1, src:
192.168.219.11
          Primary Upstream : 1.1.1.3:0--1.1.1.2:0
          RPF Nexthops :
              ge-1/2/15.0, 1.2.94.1, Label: 301568, weight: 0x1
              ge-1/2/14.0, 1.2.3.1, Label: 301568, weight: 0x1
          Backup Upstream : 1.1.1.3:0--1.1.1.6:0
          RPF Nexthops :
              ge-1/2/20.0, 1.2.96.1, Label: 301584, weight: 0xffffe
              ge-1/2/19.0, 1.3.6.1, Label: 301584, weight: 0xffffe

```

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 253](#).

show route label-switched-path

List of Syntax	Syntax on page 255 Syntax (EX Series Switches) on page 255
Syntax	show route label-switched-path <i>path-name</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	show route label-switched-path <i>path-name</i> <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 an 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 255
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

List of Syntax	Syntax on page 257 Syntax (EX Series Switches) on page 257
Syntax	<pre>show route martians <logical-system (all <i>logical-system-name</i>)> <table <i>routing-table-name</i>></pre>
Syntax (EX Series Switches)	<pre>show route martians <table <i>routing-table-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>
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 information about route martians for all routing tables whose name begins with this string (for example, inet.0 and inet6.0 are both displayed when you run the show route martians table inet command).</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> Example: Configuring Martian Addresses
List of Sample Output	show route martians on page 258
Output Fields	<p>Table 23 on page 257 lists the output fields for the show route martians command. Output fields are listed in the approximate order in which they appear</p>

Table 23: 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

show route martians

```
user@host> show route martians

inet.0:
    0.0.0.0/0 exact -- allowed
    0.0.0.0/8 orlonger -- disallowed
    127.0.0.0/8 orlonger -- disallowed
    192.0.0.0/24 orlonger -- disallowed
    240.0.0.0/4 orlonger -- disallowed
    224.0.0.0/4 exact -- disallowed
    224.0.0.0/24 exact -- disallowed

inet.1:
    0.0.0.0/0 exact -- allowed
    0.0.0.0/8 orlonger -- disallowed
    127.0.0.0/8 orlonger -- disallowed
    192.0.0.0/24 orlonger -- disallowed
    240.0.0.0/4 orlonger -- disallowed

inet.2:
    0.0.0.0/0 exact -- allowed
    0.0.0.0/8 orlonger -- disallowed
    127.0.0.0/8 orlonger -- disallowed
    192.0.0.0/24 orlonger -- disallowed
    240.0.0.0/4 orlonger -- disallowed
    224.0.0.0/4 exact -- disallowed
    224.0.0.0/24 exact -- disallowed

inet.3:
    0.0.0.0/0 exact -- allowed
    0.0.0.0/8 orlonger -- disallowed
    127.0.0.0/8 orlonger -- disallowed
    192.0.0.0/24 orlonger -- disallowed
    240.0.0.0/4 orlonger -- disallowed
    224.0.0.0/4 exact -- disallowed
    224.0.0.0/24 exact -- disallowed

...

inet6.0:
    ::1/128 exact -- disallowed
    ff00::/8 exact -- disallowed
    ff02::/16 exact -- disallowed

inet6.1:
    ::1/128 exact -- disallowed

inet6.2:
    ::1/128 exact -- disallowed
    ff00::/8 exact -- disallowed
    ff02::/16 exact -- disallowed

inet6.3:
    ::1/128 exact -- disallowed
    ff00::/8 exact -- disallowed
    ff02::/16 exact -- disallowed

...
```


show route next-hop

List of Syntax	Syntax on page 259 Syntax (EX Series Switches) on page 259
Syntax	show route next-hop <i>next-hop</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	show route next-hop <i>next-hop</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 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	show route next-hop on page 259 show route next-hop detail on page 260 show route next-hop extensive on page 262 show route next-hop terse on page 263
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
```

```
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         0         0  >192.168.71.254
* 10.209.0.0/16    S  5         0         0  >192.168.71.254
* 172.16.0.0/12    S  5         0         0  >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

List of Syntax	Syntax on page 265 Syntax (EX Series Switches) on page 265
Syntax	show route no-community <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	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	<p>none—(Same as brief) Display the route entries in each routing table that are not associated with any community.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show route no-community on page 265 show route no-community detail on page 266 show route no-community extensive on page 266 show route no-community terse on page 267
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 no-community

```

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

```

user@host> show route no-community detail

inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 38:08
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

10.209.0.0/16 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 38:08
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

....

```

show route no-community extensive

```

user@host> show route no-community extensive

inet.0: 18 destinations, 18 routes (17 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.10.0.0/16 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:03:33
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

```



```

10.209.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.209.0.0/16 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:03:33
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

```

show route 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			>lo0.0	
*	10.255.71.63/32	0	10	1		>35.1.1.2	
*	10.255.71.64/32	0	10	2		>35.1.1.2	
*	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	
*	10.255.71.242/32	0	10	1		>so-0/3/2.0	
*	12.1.1.0/24	0	10	2		>so-0/3/2.0	
*	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	
...							

show route protocol

List of Syntax	Syntax on page 268 Syntax (EX Series Switches) on page 268
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 Switches)	<code>show route protocol <i>protocol</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. ospf2 and ospf3 options introduced in Junos OS Release 9.2. ospf2 and ospf3 options introduced in Junos OS Release 9.2 for EX Series switches. flow option introduced in Junos OS Release 10.0. flow option introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display the route entries in the routing table that were learned from a particular protocol.
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 . logical-system (all <i>logical-system-name</i>) —(Optional) Perform this operation on all logical systems or on a particular logical system. <i>protocol</i> —Protocol from which the route was learned: <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• arp—Route learned through the Address Resolution Protocol• 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• frr—Precomputed protection route or backup route used when a link goes down• 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.

Required Privilege Level view

Related Documentation • *MPLS Feature Support on the QFX Series and EX4600 Switch*

List of Sample Output

- [show route protocol access on page 270](#)
- [show route protocol access-internal extensive on page 270](#)
- [show route protocol arp on page 270](#)
- [show route protocol bgp on page 271](#)
- [show route protocol bgp detail on page 271](#)
- [show route protocol bgp extensive on page 271](#)
- [show route protocol bgp terse on page 272](#)
- [show route protocol direct on page 272](#)
- [show route protocol frr on page 273](#)
- [show route protocol l2circuit detail on page 273](#)
- [show route protocol l2vpn extensive on page 274](#)
- [show route protocol ldp on page 275](#)
- [show route protocol ldp extensive on page 275](#)
- [show route protocol ospf \(Layer 3 VPN\) on page 276](#)
- [show route protocol ospf detail on page 277](#)

[show route protocol rip on page 277](#)

[show route protocol rip detail on page 277](#)

[show route protocol ripng table inet6 on page 278](#)

[show route protocol static detail on page 278](#)

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 arp

```
user@host> show route protocol arp
inet.0: 43 destinations, 43 routes (42 active, 0 holddown, 1 hidden)

inet.3: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

cust1.inet.0: 1033 destinations, 2043 routes (1033 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

20.20.1.3/32      [ARP/4294967293] 00:04:35, from 20.20.1.1
                  Unusable
20.20.1.4/32      [ARP/4294967293] 00:04:35, from 20.20.1.1
                  Unusable
20.20.1.5/32      [ARP/4294967293] 00:04:32, from 20.20.1.1
                  Unusable
20.20.1.6/32      [ARP/4294967293] 00:04:34, from 20.20.1.1
                  Unusable
20.20.1.7/32      [ARP/4294967293] 00:04:35, from 20.20.1.1
                  Unusable
```

```

20.20.1.8/32      [ARP/4294967293] 00:04:35, from 20.20.1.1
                  Unusable
20.20.1.9/32      [ARP/4294967293] 00:04:35, from 20.20.1.1
                  Unusable
20.20.1.10/32     [ARP/4294967293] 00:04:35, from 20.20.1.1
                  Unusable
20.20.1.11/32     [ARP/4294967293] 00:04:33, from 20.20.1.1
                  Unusable
20.20.1.12/32     [ARP/4294967293] 00:04:33, from 20.20.1.1
                  Unusable
20.20.1.13/32     [ARP/4294967293] 00:04:33, from 20.20.1.1
                  Unusable
...

```

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 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 frr

```

user@host> show route protocol frr
inet.0: 43 destinations, 43 routes (42 active, 0 holddown, 1 hidden)

inet.3: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

cust1.inet.0: 1033 destinations, 2043 routes (1033 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

20.20.1.3/32      *[FRR/200] 00:05:38, from 20.20.1.1
                  > to 20.20.1.3 via ge-4/1/0.0
                  to 10.10.15.1 via ge-0/2/4.0, Push 16, Push 299792(top)
20.20.1.4/32      *[FRR/200] 00:05:38, from 20.20.1.1
                  > to 20.20.1.4 via ge-4/1/0.0
                  to 10.10.15.1 via ge-0/2/4.0, Push 16, Push 299792(top)
20.20.1.5/32      *[FRR/200] 00:05:35, from 20.20.1.1
                  > to 20.20.1.5 via ge-4/1/0.0
                  to 10.10.15.1 via ge-0/2/4.0, Push 16, Push 299792(top)
20.20.1.6/32      *[FRR/200] 00:05:37, from 20.20.1.1
                  > to 20.20.1.6 via ge-4/1/0.0
                  to 10.10.15.1 via ge-0/2/4.0, Push 16, Push 299792(top)
20.20.1.7/32      *[FRR/200] 00:05:38, from 20.20.1.1
                  > to 20.20.1.7 via ge-4/1/0.0
                  to 10.10.15.1 via ge-0/2/4.0, Push 16, Push 299792(top)
20.20.1.8/32      *[FRR/200] 00:05:38, from 20.20.1.1
                  > to 20.20.1.8 via ge-4/1/0.0
                  to 10.10.15.1 via ge-0/2/4.0, Push 16, Push 299792(top)
20.20.1.9/32      *[FRR/200] 00:05:38, from 20.20.1.1
                  > to 20.20.1.9 via ge-4/1/0.0
                  to 10.10.15.1 via ge-0/2/4.0, Push 16, Push 299792(top)
20.20.1.10/32     *[FRR/200] 00:05:38, from 20.20.1.1
...

```

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 ldp extensive

```

user@host> show route protocol ldp extensive
192.168.16.1/32 (1 entry, 1 announced)
  State: <FlashAll>
  *LDP    Preference: 9
          Next-hop reference count: 3
          Next hop: via t1-4/0/0.0, selected
          Label operation: Push 100000
          State: <Active Int>
          Local AS: 65500
          Age: 1d 23:03:58      Metric: 1
          Task: LDP
          Announcement bits (2): 0-Resolve tree 1 2-Resolve tree 2
          AS path: I

192.168.17.1/32 (1 entry, 1 announced)
  State: <FlashAll>
  *LDP    Preference: 9
          Next-hop reference count: 3
          Next hop: via t1-4/0/0.0, selected
          State: <Active Int>
          Local AS: 65500

```

```

Age: 1d 23:03:58      Metric: 1
Task: LDP
Announcement bits (2): 0-Resolve tree 1 2-Resolve tree 2
AS path: I

private1__inet.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

mpls.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)

100064 (1 entry, 1 announced)
TSI:
KRT in-kernel 100064 /36 -> {t1-4/0/0.0}
    *LDP      Preference: 9
              Next-hop reference count: 2
              Next hop: via t1-4/0/0.0, selected
              State: <Active Int>
              Local AS: 65500
              Age: 1d 23:03:58      Metric: 1
              Task: LDP
              Announcement bits (1): 0-KRT
              AS path: I
              Prefixes bound to route: 192.168.17.1/32

100064(S=0) (1 entry, 1 announced)
TSI:
KRT in-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 protocol static detail

```
user@host> show route protocol static detail
inet.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
10.5.0.0/16 (1 entry, 1 announced)
    *Static Preference: 5
        Next hop type: Router, Next hop index: 324
        Address: 0x9274010
        Next-hop reference count: 27
        Next hop: 192.168.187.126 via fxp0.0, selected
        Session Id: 0x0
        State: <Active NoReadvrt Int Ext>
        Age: 7w3d 21:24:25
        Validation State: unverified
        Task: RT
        Announcement bits (1): 0-KRT
        AS path: I

10.10.0.0/16 (1 entry, 1 announced)
    *Static Preference: 5
        Next hop type: Router, Next hop index: 324
        Address: 0x9274010
        Next-hop reference count: 27
        Next hop: 192.168.187.126 via fxp0.0, selected
        Session Id: 0x0
        State: <Active NoReadvrt Int Ext>
        Age: 7w3d 21:24:25
        Validation State: unverified
        Task: RT
        Announcement bits (1): 0-KRT
        AS path: I

10.13.10.0/23 (1 entry, 1 announced)
    *Static Preference: 5
        Next hop type: Router, Next hop index: 324
        Address: 0x9274010
        Next-hop reference count: 27
        Next hop: 192.168.187.126 via fxp0.0, selected
        Session Id: 0x0
```

State: <Active NoReadvrt Int Ext>
Age: 7w3d 21:24:25
Validation State: unverified
Task: RT
Announcement bits (1): 0-KRT
AS path: I

show route range

List of Syntax	Syntax on page 280 Syntax (EX Series Switches) on page 280
Syntax	<code>show route range</code> <code><brief detail extensive terse></code> <code><destination-prefix></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switches)	<code>show route range</code> <code><brief detail extensive terse></code> <code><destination-prefix></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 routing table entries using a prefix range.
Options	none —Display standard information about all routing table entries using a prefix range. 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 . destination-prefix —Destination and prefix mask for the range. 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 range on page 280 show route range destination-prefix on page 281 show route range detail on page 281 show route range extensive on page 282 show route range terse on page 283
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 range

```
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
```

```

10.255.71.14/32      > to 192.168.71.254 via fxp0.0
                    *[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 192.168.0.0/16

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

inet.0: 11 destinations, 11 routes (10 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.10.0.0/16 -> {192.168.71.254}
    *Static Preference: 5
        Next-hop reference count: 22
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Age: 30:17
        Task: RT
        Announcement bits (1): 0-KRT
        AS path: I

10.209.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.209.0.0/16 -> {192.168.71.254}
    *Static Preference: 5
        Next-hop reference count: 22
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Age: 30:17
        Task: RT
        Announcement bits (1): 0-KRT
        AS path: I

10.255.71.14/32 (1 entry, 0 announced)
    *Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 1
        Next hop: via lo0.0, selected
        State: <Active Int>
        Age: 30:17
        Task: IF
        AS path: I

172.16.0.0/12 (1 entry, 1 announced)
TSI:
KRT in-kernel 172.16.0.0/12 -> {192.168.71.254}
    *Static Preference: 5
        Next-hop reference count: 22

```



```

Next hop: 192.168.71.254 via fxp0.0, selected
State: <Active NoReadvrt Int Ext>
Age: 30:17
Task: RT
Announcement bits (1): 0-KRT
AS path: I

```

```
...
```

show route range terse

```
user@host> show route range terse
```

```
inet.0: 11 destinations, 11 routes (10 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both
```

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
*	10.10.0.0/16	S	5			>192.168.71.254	
*	10.209.0.0/16	S	5			>192.168.71.254	
*	10.255.71.14/32	D	0			>lo0.0	
*	172.16.0.0/12	S	5			>192.168.71.254	
*	192.168.0.0/16	S	5			>192.168.71.254	
*	192.168.64.0/21	D	0			>fxp0.0	
*	192.168.71.14/32	L	0			Local	
*	192.168.102.0/23	S	5			>192.168.71.254	
*	207.17.136.0/24	S	5			>192.168.71.254	
*	207.17.136.192/32	S	5			>192.168.71.254	

```
__juniper_private1__.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
*	10.0.0.0/8	D	0			>fxp2.0	
		D	0			>fxp1.0	
*	10.0.0.4/32	L	0			Local	

```
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
	47.0005.80ff.f800.0000.0108.0001.0102.5507.1014/152						
*		D	0			>lo0.0	

```
inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
	abcd::10:255:71:14/128						
*		D	0			>lo0.0	
	fe80::280:42ff:fe11:226f/128						
*		D	0			>lo0.0	

```
__juniper_private1__.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
	fe80::280:42ff:fe11:226f/128						
*		D	0			>lo0.16385	

show route receive-protocol

List of Syntax	Syntax on page 284 Syntax (EX Series Switches) on page 284
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 Switches)	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	show route receive-protocol bgp on page 287 show route receive-protocol bgp extensive on page 287 show route receive-protocol bgp table extensive on page 287 show route receive-protocol bgp logical-system extensive on page 288 show route receive-protocol bgp detail (Layer 2 VPN) on page 289 show route receive-protocol bgp extensive (Layer 2 VPN) on page 289 show route receive-protocol bgp (Layer 3 VPN) on page 290 show route receive-protocol bgp detail (Layer 3 VPN) on page 290 show route receive-protocol bgp extensive (Layer 3 VPN) on page 291
Output Fields	Table 24 on page 284 describes the output fields for the show route receive-protocol command. Output fields are listed in the approximate order in which they appear.

Table 24: 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

Table 24: show route receive-protocol Output Fields (*continued*)

Field Name	Field Description	Level of Output
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.	All levels
<i>number routes</i>	Number of routes in the routing table and total number of routes in the following states: <ul style="list-style-type: none"> • active • holddown (routes that are in pending state before being declared inactive) • hidden (routes that 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 an RSVP or an 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 24: 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
AIGP	Accumulated interior gateway protocol (AIGP) BGP attribute.	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 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      Lclpref  AS path
1.1.1.0/24 (1 entry, 1 announced)
  Next hop: 10.0.50.3
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.45
165.3.0.0/16 (1 entry, 1 announced)
  Next hop: 111.222.5.254
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.68
165.4.0.0/16 (1 entry, 1 announced)
  Next hop: 111.222.5.254
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.45
195.1.2.0/24 (1 entry, 1 announced)
  Next hop: 111.222.5.254
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.68
inet.2: 63 destinations, 63 routes (63 active, 0 holddown, 0 hidden)
Prefix          Next hop          MED      Lclpref  AS path
inet.3: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
Prefix          Next hop          MED      Lclpref  AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Next hop          MED      Lclpref  AS path
mpls.0: 48 destinations, 48 routes (48 active, 0 holddown, 0 hidden)
```

show route receive-protocol bgp table 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 logical-system extensive

```
user@host> show route receive-protocol bgp 10.0.0.9 logical-system PE4 extensive
inet.0: 12 destinations, 13 routes (12 active, 0 holddown, 0 hidden)
* 10.0.0.0/30 (1 entry, 1 announced)
  Accepted
  Route Label: 3
  Nexthop: 10.0.0.9
  AS path: 13979 I

* 10.0.0.4/30 (1 entry, 1 announced)
  Accepted
  Route Label: 3
  Nexthop: 10.0.0.9
  AS path: 13979 I

10.0.0.8/30 (2 entries, 1 announced)
  Accepted
  Route Label: 3
  Nexthop: 10.0.0.9
  AS path: 13979 I

* 10.9.9.1/32 (1 entry, 1 announced)
  Accepted
  Route Label: 3
  Nexthop: 10.0.0.9
  AS path: 13979 I

* 10.100.1.1/32 (1 entry, 1 announced)
  Accepted
  Route Label: 3
  Nexthop: 10.0.0.9
  AS path: 13979 I

* 44.0.0.0/24 (1 entry, 1 announced)
  Accepted
  Route Label: 300096
  Nexthop: 10.0.0.9
  AS path: 13979 I
  AIGP: 203

* 55.0.0.0/24 (1 entry, 1 announced)
  Accepted
  Route Label: 300112
  Nexthop: 10.0.0.9
  AS path: 13979 7018 I
  AIGP: 25

* 66.0.0.0/24 (1 entry, 1 announced)
  Accepted
  Route Label: 300144
  Nexthop: 10.0.0.9
  AS path: 13979 7018 I

* 99.0.0.0/24 (1 entry, 1 announced)
  Accepted
  Route Label: 300160
  Nexthop: 10.0.0.9
  AS path: 13979 7018 I
```

show route receive-protocol bgp detail (Layer 2 VPN)

```

user@host> show route receive-protocol bgp 10.255.14.171 detail
inet.0: 68 destinations, 68 routes (67 active, 0 holddown, 1 hidden)
Prefix          Nexthop          MED    Lclpref AS path
inet.3: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
mpls.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
frame-vpn.l2vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0
hidden)
Prefix          Nexthop          MED    Lclpref AS path
10.255.245.35:1:5:1/96 (1 entry, 1 announced)
  Route Distinguisher: 10.255.245.35:1
  Label-base : 800000, range : 4, status-vector : 0x0
  Nexthop: 10.255.245.35
  Localpref: 100
  AS path: I
  Communities: target:65299:100 Layer2-info: encaps:FRAME RELAY,
control flags: 0, mtu: 0
bgp.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
10.255.245.35:1:5:1/96 (1 entry, 0 announced)
  Route Distinguisher: 10.255.245.35:1
  Label-base : 800000, range : 4, status-vector : 0x0
  Nexthop: 10.255.245.35
  Localpref: 100
  AS path: I
  Communities: target:65299:100 Layer2-info: encaps:FRAME RELAY,
control flags:0, mtu: 0

```

show route receive-protocol bgp extensive (Layer 2 VPN)

```

user@host> show route receive-protocol bgp 10.255.14.171 extensive
inet.0: 68 destinations, 68 routes (67 active, 0 holddown, 1 hidden)
Prefix          Nexthop          MED    Lclpref AS path
inet.3: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
mpls.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
frame-vpn.l2vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
10.255.245.35:1:5:1/96 (1 entry, 1 announced)
  Route Distinguisher: 10.255.245.35:1
  Label-base : 800000, range : 4, status-vector : 0x0
  Nexthop: 10.255.245.35
  Localpref: 100
  AS path: I
  Communities: target:65299:100 Layer2-info: encaps:FRAME RELAY,
control flags:0, mtu: 0
bgp.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
10.255.245.35:1:5:1/96 (1 entry, 0 announced)
  Route Distinguisher: 10.255.245.35:1
  Label-base : 800000, range : 4, status-vector : 0x0
  Nexthop: 10.255.245.35
  Localpref: 100

```

```

AS path: I
Communities: target:65299:100 Layer2-info: encaps:FRAME RELAY,
control flags:0, mtu: 0

```

show route 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 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

List of Syntax	Syntax on page 292 Syntax (EX Series Switches) on page 292
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 Switches)	<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>prefix <i>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.</p> <p>unresolved—(Optional) Display routes that could not be resolved.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• Example: Configuring Route Resolution on PE Routers
List of Sample Output	show route resolution detail on page 293 show route resolution summary on page 294 show route resolution unresolved on page 294

Output Fields Table 25 on page 293 describes the output fields for the **show route resolution** command. Output fields are listed in the approximate order in which they appear.

Table 25: 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 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.
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 295
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 snooping detail

```
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)

224.0.0.0.0.0.0.0.0/24 (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

List of Syntax	Syntax on page 303 Syntax (EX Series Switches) on page 303
Syntax	show route source-gateway <i>address</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	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 . address —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 303 show route source-gateway detail on page 304 show route source-gateway extensive on page 306
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 source-gateway

```

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.l2vpn.0
10.255.70.103:2:3:1/96 (1 entry, 0 announced)
  *BGP Preference: 170/-1
    Route Distinguisher: 10.255.70.103:2
    Next-hop reference count: 7
    Source: 10.255.70.103
    Protocol next hop: 10.255.70.103
    Indirect next hop: 2 no-forward
    State: <Active Int Ext>
    Local AS: 69 Peer AS: 69
    Age: 12:14:00 Metric2: 1
    Task: BGP_69.10.255.70.103+179
    AS path: I
    Communities: target:11111:2 Layer2-info: encaps:VPLS,
    control flags:Site-Down,
    mtu: 0
    Label-base: 800016, range: 8
    Localpref: 0
    Router ID: 10.255.70.103
    Secondary Tables: red.l2vpn.0

```

show route source-gateway extensive

```

user@host> show route source-gateway 10.255.70.103 extensive
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: 12:15:24 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-l2vpn
AS path: I
Communities: target:11111:2 Layer2-info: encaps:VPLS,
control flags:Site-Down, mtu: 0
Label-base: 800016, range: 8
Localpref: 0
Router ID: 10.255.70.103
Primary Routing Table bgp.l2vpn.0

bgp.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

10.255.70.103:1:3:1/96 (1 entry, 0 announced)
*BGP Preference: 170/-101
Route Distinguisher: 10.255.70.103:1
Next-hop reference count: 7
Source: 10.255.70.103
Protocol next hop: 10.255.70.103
Indirect next hop: 2 no-forward
State: <Active Int Ext>
Local AS: 69 Peer AS: 69
Age: 12:15:24 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.l2vpn.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

List of Syntax	Syntax on page 309 Syntax (EX Series Switches) on page 309
Syntax	<pre>show route summary <logical-system (all <i>logical-system-name</i>)> <table <i>routing-table-name</i>></pre>
Syntax (EX Series Switches)	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	<p>Display summary statistics about the entries in the routing table.</p> <p>CPU utilization might increase while the device learns routes. We recommend that you use the show route summary command after the device learns and enters the routes into the routing table. Depending on the size of your network, this might take several minutes. If you receive a “timeout communicating with routing daemon” error when using the show route summary command, wait several minutes before attempting to use the command again. This is not a critical system error, but you might experience a delay in using the command-line interface (CLI).</p>
Options	<p>none—Display summary statistics about the entries 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> <p>table <i>routing-table-name</i>—(Optional) Display summary statistics for all routing tables whose name begins with this string (for example, inet.0 and inet6.0 are both displayed when you run the show route summary table inet command). If you only want to display statistics for a specific routing table, make sure to enter the exact name of that routing table.</p>
Required Privilege Level	view
List of Sample Output	show route summary on page 310 show route summary table on page 311 show route summary table (with Route Limits Configured for the Routing Table) on page 311
Output Fields	Table 26 on page 309 lists the output fields for the show route summary command. Output fields are listed in the approximate order in which they appear.

Table 26: show route summary Output Fields

Field Name	Field Description
Router ID	Address of the local routing device.

Table 26: show route summary Output Fields (*continued*)

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 that are not used because of routing policy.
Limit/Threshold	Displays the configured route limits for the routing table set with the maximum-prefixes and the maximum-paths statements. If you do not configure route limits for the routing table, the show output does not display this information. <ul style="list-style-type: none"> destinations—The first number represents the maximum number of route prefixes installed in the routing table. The second number represents the number of route prefixes that trigger a warning message. routes—The first number represents the maximum number of routes. The second number represents the number of routes that trigger a warning message.
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 summary table

```

user@host> show route summary table inet
Router ID: 192.168.0.1

inet.0: 32 destinations, 34 routes (31 active, 0 holddown, 1 hidden)
  Direct:     6 routes,      5 active
  Local:      9 routes,      9 active
  OSPF:       3 routes,      1 active
  Static:    13 routes,     13 active
  ICMP:       1 routes,      1 active
  PIM:        2 routes,      2 active

inet.1: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
  Multicast:   1 routes,      1 active

inet6.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
  Local:       1 routes,      1 active
  PIM:         2 routes,      2 active

inet6.1: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
  Multicast:   1 routes,      1 active

```

show route summary table (with Route Limits Configured for the Routing Table)

```

user@host> show route summary table VPN-A.inet.0
Autonomous system number: 100
Router ID: 10.255.182.142

VPN-A.inet.0: 13 destinations, 14 routes (13 active, 0 holddown, 0 hidden)
Limit/Threshold: 2000/200 destinations 20/12 routes
  Direct:     2 routes,      2 active
  Local:       1 routes,      1 active

```

OSPF:	4 routes,	3 active
BGP:	4 routes,	4 active
IGMP:	1 routes,	1 active
PIM:	2 routes,	2 active

show route table

List of Syntax	Syntax on page 313 Syntax (EX Series Switches) on page 313
Syntax	show route table <i>routing-table-name</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switches)	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 route entries for all routing tables whose name begins with this string (for example, inet.0 and inet6.0 are both displayed when you run the show route table inet command).</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show route summary on page 309
List of Sample Output	show route table bgp.l2.vpn on page 314 show route table bgp.l3vpn.0 on page 314 show route table bgp.l3vpn.0 detail on page 314 show route table bgp.rtarget.0 (When Proxy BGP Route Target Filtering Is Configured) on page 316 show route table bgp.evpn.0 on page 316 show route table inet.0 on page 316 show route table inet6.0 on page 317 show route table inet6.3 on page 317 show route table inetflow detail on page 317 show route table l2circuit.0 on page 318 show route table mpls on page 318 show route table mpls extensive on page 318 show route table mpls.0 on page 318 show route table mpls.0 detail (PTX Series) on page 319 show route table mpls.0 extensive (PTX Series) on page 319 show route table mpls.0 (RSVP Route—Transit LSP) on page 320 show route table vpls_1 detail on page 321

[show route table vpn-a on page 321](#)
[show route table vpn-a.mdt.0 on page 321](#)
[show route table VPN-A detail on page 321](#)
[show route table VPN-AB.inet.0 on page 322](#)
[show route table VPN_blue.mvpn-inet6.0 on page 322](#)
[show route table vrf1.mvpn.0 extensive on page 323](#)
[show route table inetflow detail on page 323](#)

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 bgp.l2.vpn

```

user@host> show route table bgp.l2.vpn
bgp.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

192.168.24.1:1:4:1/96
    *[BGP/170] 01:08:58, localpref 100, from 192.168.24.1
    AS path: I
    > to 10.0.16.2 via fe-0/0/1.0, label-switched-path am

```

show route table bgp.l3vpn.0

```

user@host> show route table 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 bgp.l3vpn.0 detail

```

user@host> show route table 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+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 bgp.rtarget.0 (When Proxy BGP Route Target Filtering Is Configured)

```

user@host> show route table bgp.rtarget.0
bgp.rtarget.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

100:100:100/96
                *[RTarget/5] 00:03:14
                Type Proxy
                for 10.255.165.103
                for 10.255.166.124
                Local

```

show route table bgp.evpn.0

```

user@host> show route table bgp.evpn.0
bgp.evpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

2:200:200::0::100::00:22:83:0d:d4:87/384
                *[BGP/170] 00:26:51, localpref 100, from 55.55.55.1
                AS path: I, validation-state: unverified
                > to 15.15.15.2 via ge-2/0/1.0
3:200:200::0::100::55.55.55.1/384
                *[BGP/170] 00:26:51, localpref 100, from 55.55.55.1
                AS path: I, validation-state: unverified
                > to 15.15.15.2 via ge-2/0/1.0

```

show route table inet.0

```

user@host> show route table inet.0
inet.0: 12 destinations, 12 routes (11 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

0.0.0.0/0        *[Static/5] 00:51:57
                  > to 111.222.5.254 via fxp0.0
1.0.0.1/32       *[Direct/0] 00:51:58
                  > via at-5/3/0.0
1.0.0.2/32       *[Local/0] 00:51:58
                  Local
12.12.12.21/32   *[Local/0] 00:51:57
                  Reject
13.13.13.13/32   *[Direct/0] 00:51:58
                  > via t3-5/2/1.0
13.13.13.14/32   *[Local/0] 00:51:58
                  Local
13.13.13.21/32   *[Local/0] 00:51:58
                  Local
13.13.13.22/32   *[Direct/0] 00:33:59
                  > via t3-5/2/0.0
127.0.0.1/32     [Direct/0] 00:51:58

```

```

> via lo0.0
111.222.5.0/24 * [Direct/0] 00:51:58
> via fxp0.0
111.222.5.81/32 * [Local/0] 00:51:58
Local

```

show route table inet6.0

```

user@host> show route table inet6.0
inet6.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Route, * = Both

fec0:0:0:3::/64 * [Direct/0] 00:01:34
> via fe-0/1/0.0

fec0:0:0:3::/128 * [Local/0] 00:01:34
> Local

fec0:0:0:4::/64 * [Static/5] 00:01:34
> to fec0:0:0:3::ffff via fe-0/1/0.0

```

show route table inet6.3

```

user@router> show route table inet6.3
inet6.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

::10.255.245.195/128
* [LDP/9] 00:00:22, metric 1
> via so-1/0/0.0
::10.255.245.196/128
* [LDP/9] 00:00:08, metric 1
> via so-1/0/0.0, Push 100008

```

show route table inetflow detail

```

user@host> show route table inetflow detail
inetflow.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
10.12.44.1,*/48 (1 entry, 1 announced)
  *BGP Preference: 170/-101
    Next-hop reference count: 2
    State: <Active Ext>
    Local AS: 65002 Peer AS: 65000
    Age: 4
    Task: BGP_65000.10.12.99.5+3792
    Announcement bits (1): 0-Flow
    AS path: 65000 I
    Communities: traffic-rate:0:0
    Validation state: Accept, Originator: 10.12.99.5
    Via: 10.12.44.0/24, Active
    Localpref: 100
    Router ID: 10.255.71.161

10.12.56.1,*/48 (1 entry, 1 announced)
  *Flow Preference: 5
    Next-hop reference count: 2
    State: <Active>
    Local AS: 65002
    Age: 6:30
    Task: RT Flow
    Announcement bits (2): 0-Flow 1-BGP.0.0.0.0+179

```

```
AS path: I
Communities: 1:1
```

show route table l2circuit.0

```
user@host> show route table l2circuit.0
l2circuit.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

10.1.1.195:NoCtrlWord:1:1:Local/96
    *[L2CKT/7] 00:50:47
    > via so-0/1/2.0, Push 100049
    via so-0/1/3.0, Push 100049
10.1.1.195:NoCtrlWord:1:1:Remote/96
    *[LDP/9] 00:50:14
    Discard
10.1.1.195:CtrlWord:1:2:Local/96
    *[L2CKT/7] 00:50:47
    > via so-0/1/2.0, Push 100049
    via so-0/1/3.0, Push 100049
10.1.1.195:CtrlWord:1:2:Remote/96
    *[LDP/9] 00:50:14
    Discard
```

show route table mpls

```
user@host> show route table mpls
mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

0          *[MPLS/0] 00:13:55, metric 1
            Receive
1          *[MPLS/0] 00:13:55, metric 1
            Receive
2          *[MPLS/0] 00:13:55, metric 1
            Receive
1024       *[VPN/0] 00:04:18
            to table red.inet.0, Pop
```

show route table mpls extensive

```
user@host> show route table mpls extensive
100000 (1 entry, 1 announced)
TSI:
KRT in-kernel 100000 /36 -> {so-1/0/0.0}
    *LDP Preference: 9
    Next hop: via so-1/0/0.0, selected
    Pop
    State: <Active Int>
    Age: 29:50 Metric: 1
    Task: LDP
    Announcement bits (1): 0-KRT
    AS path: I
    Prefixes bound to route: 10.0.0.194/32
```

show route table mpls.0

```
user@host> show route table mpls.0
mpls.0: 14 destinations, 14 routes (14 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

0          *[MPLS/0] 00:26:32, metric 1
```

```

1          Receive
          * [MPLS/0] 00:26:32, metric 1
          Receive
2          * [MPLS/0] 00:26:32, metric 1
          Receive
13         * [MPLS/0] 00:26:32, metric 1
          Receive
299776     * [EVPN/7] 00:26:30
          to table black.vpls.0
299792     * [EVPN/7] 00:26:31
          to table black.vpls.0
299840     * [LDP/9] 00:26:11, metric 1
          > to 14.14.14.1 via ge-1/1/0.0, Pop
299840(S=0) * [LDP/9] 00:26:11, metric 1
          > to 14.14.14.1 via ge-1/1/0.0, Pop
299856     * [LDP/9] 00:26:11, metric 1
          > to 14.14.14.1 via ge-1/1/0.0, Swap 299792
299872     * [LDP/9] 00:26:11, metric 1
          > to 14.14.14.1 via ge-1/1/0.0, Swap 299808
299888     * [LDP/9] 00:25:25, metric 1
          > to 15.15.15.2 via ge-2/0/1.0, Pop
299888(S=0) * [LDP/9] 00:25:25, metric 1
          > to 15.15.15.2 via ge-2/0/1.0, Pop
299904     * [EVPN/7] 00:25:23, metric2 1
          > to 15.15.15.2 via ge-2/0/1.0, Push 299776
299920     * [EVPN/7] 00:25:23, metric2 1
          > to 15.15.15.2 via ge-2/0/1.0, Push 299792

```

show route table mpls.0 detail (PTX Series)

```

user@host> show route table mpls.0 detail
ge-0/0/2.600 (1 entry, 1 announced)
  *L2VPN Preference: 7
    Next hop type: Indirect
    Address: 0x9438f34
    Next-hop reference count: 2
    Next hop type: Router, Next hop index: 567
    Next hop: 3.0.0.1 via ge-0/0/1.0, selected
    Label operation: Push 299808
    Label TTL action: prop-ttl
    Load balance label: Label 299808:None;
    Session Id: 0x1
    Protocol next hop: 10.255.255.1
    Label operation: Push 299872 Offset: 252
    Label TTL action: no-prop-ttl
    Load balance label: Label 299872:Flow label PUSH;
    Composite next hop: 0x9438ed8 570 INH Session ID: 0x2
    Indirect next hop: 0x9448208 262142 INH Session ID: 0x2
    State: <Active Int>
    Age: 21 Metric2: 1
    Validation State: unverified
    Task: Common L2 VC
    Announcement bits (2): 0-KRT 2-Common L2 VC
    AS path: I

```

show route table mpls.0 extensive (PTX Series)

```

user@host> show route table mpls.0 extensive
ge-0/0/2.600 (1 entry, 1 announced)
TSI:
KRT in-kernel ge-0/0/2.600.0 /32 -> {composite(570)}

```

```

*L2VPN Preference: 7
Next hop type: Indirect
Address: 0x9438f34
Next-hop reference count: 2
Next hop type: Router, Next hop index: 567
Next hop: 3.0.0.1 via ge-0/0/1.0, selected
Label operation: Push 299808
Label TTL action: prop-ttl
Load balance label: Label 299808:None;
Session Id: 0x1
Protocol next hop: 10.255.255.1
Label operation: Push 299872 Offset: 252
Label TTL action: no-prop-ttl
Load balance label: Label 299872:Flow label PUSH;
Composite next hop: 0x9438ed8 570 INH Session ID: 0x2
Indirect next hop: 0x9448208 262142 INH Session ID: 0x2
State: <Active Int>
Age: 47 Metric2: 1
Validation State: unverified
Task: Common L2 VC
Announcement bits (2): 0-KRT 2-Common L2 VC
AS path: I
Composite next hops: 1
  Protocol next hop: 10.255.255.1 Metric: 1
  Label operation: Push 299872 Offset: 252
  Label TTL action: no-prop-ttl
  Load balance label: Label 299872:Flow label PUSH;
  Composite next hop: 0x9438ed8 570 INH Session ID: 0x2
  Indirect next hop: 0x9448208 262142 INH Session ID: 0x2
  Indirect path forwarding next hops: 1
    Next hop type: Router
    Next hop: 3.0.0.1 via ge-0/0/1.0
    Session Id: 0x1
  10.255.255.1/32 Originating RIB: inet.3
  Metric: 1 Node path count: 1
  Forwarding nexthops: 1
    Nexthop: 3.0.0.1 via ge-0/0/1.0

```

show route table mpls.0 (RSVP Route—Transit LSP)

```
user@host> show route table mpls.0
```

```
mpls.0: 8 destinations, 8 routes (8 active, 0 holddown, 0 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

```

0          *[MPLS/0] 00:37:31, metric 1
            Receive
1          *[MPLS/0] 00:37:31, metric 1
            Receive
2          *[MPLS/0] 00:37:31, metric 1
            Receive
13         *[MPLS/0] 00:37:31, metric 1
            Receive
300352     *[RSVP/7/1] 00:08:00, metric 1
            > to 8.64.0.106 via ge-1/0/1.0, label-switched-path lsp1_p2p
300352(S=0) *[RSVP/7/1] 00:08:00, metric 1
            > to 8.64.0.106 via ge-1/0/1.0, label-switched-path lsp1_p2p
300384     *[RSVP/7/2] 00:05:20, metric 1
            > to 8.64.1.106 via ge-1/0/0.0, Pop
300384(S=0) *[RSVP/7/2] 00:05:20, metric 1
            > to 8.64.1.106 via ge-1/0/0.0, Pop

```

show route table vpls_1 detail

```

user@host> show route table vpls_1 detail
vpls_1.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

1.1.1.11:1000:1:1/96 (1 entry, 1 announced)
*L2VPN Preference: 170/-1
Receive table: vpls_1.l2vpn.0
Next-hop reference count: 2
State: <Active Int Ext>
Age: 4:29:47 Metric2: 1
Task: vpls_1-l2vpn
Announcement bits (1): 1-BGP.0.0.0+179
AS path: I
Communities: Layer2-info: encaps:VPLS, control flags:Site-Down
Label-base: 800000, range: 8, status-vector: 0xFF

```

show route table vpn-a

```

user@host> show route table vpn-a
vpn-a.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 vpn-a.mdt.0

```

user@host> show route table 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 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 table VPN-AB.inet.0

```

user@host> show route table VPN-AB.inet.0
VPN-AB.inet.0: 8 destinations, 8 routes (8 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

10.39.1.0/30      *[OSPF/10] 00:07:24, metric 1
                  > via so-7/3/1.0
10.39.1.4/30      *[Direct/0] 00:08:42
                  > via so-5/1/0.0
10.39.1.6/32      *[Local/0] 00:08:46
                  Local
10.255.71.16/32   *[Static/5] 00:07:24
                  > via so-2/0/0.0
10.255.71.17/32   *[BGP/170] 00:07:24, MED 1, localpref 100, from
10.255.71.15
                  AS path: I
                  > via so-2/1/0.0, Push 100020, Push 100011(top)
10.255.71.18/32   *[BGP/170] 00:07:24, MED 1, localpref 100, from
10.255.71.15
                  AS path: I
                  > via so-2/1/0.0, Push 100021, Push 100011(top)
10.255.245.245/32 *[BGP/170] 00:08:35, localpref 100
                  AS path: 2 I
                  > to 10.39.1.5 via so-5/1/0.0
10.255.245.246/32 *[OSPF/10] 00:07:24, metric 1
                  > via so-7/3/1.0

```

show route 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 vrf1.mvpn.0 extensive

```

user@host> show route table vrf1.mvpn.0 extensive
1:10.255.50.77:1:10.255.50.77/240 (1 entry, 1 announced)
  *MVPN   Preference: 70
          PMSI: Flags 0x0: Label 0: RSVP-TE:
Session_13[10.255.50.77:0:25624:10.255.50.77]
  Next hop type: Indirect
  Address: 0xbb2c944
  Next-hop reference count: 360
  Protocol next hop: 10.255.50.77
  Indirect next hop: 0x0 - INH Session ID: 0x0
  State: <Active Int Ext>
  Age: 53:03      Metric2: 1
  Validation State: unverified
  Task: mvpn global task
  Announcement bits (3): 0-PIM.vrf1 1-mvpn global task 2-rt-export

  AS path: I

```

show route table inetflow detail

```

user@host> show route table inetflow detail
inetflow.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
10.12.44.1,*/48 (1 entry, 1 announced)
  *BGP    Preference: 170/-101
          Next-hop reference count: 2
          State: <Active Ext>
          Local AS: 65002 Peer AS: 65000
          Age: 4
          Task: BGP_65000.10.12.99.5+3792
          Announcement bits (1): 0-Flow
          AS path: 65000 I
          Communities: traffic-rate:0:0
          Validation state: Accept, Originator: 10.12.99.5
          Via: 10.12.44.0/24, Active
          Localpref: 100
          Router ID: 10.255.71.161

10.12.56.1,*/48 (1 entry, 1 announced)
  *Flow   Preference: 5
          Next-hop reference count: 2
          State: <Active>
          Local AS: 65002

```

```

Age: 6:30
Task: RT Flow
Announcement bits (2): 0-Flow 1-BGP.0.0.0+179
AS path: I
Communities: 1:1

```

```

user@PE1> show route table green.l2vpn.0 (VPLS Multihoming with FEC 129)
green.l2vpn.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

```

```

1.1.1.2:100:1.1.1.2/96 AD
    *[VPLS/170] 1d 03:11:03, metric2 1
    Indirect
1.1.1.4:100:1.1.1.4/96 AD
    *[BGP/170] 1d 03:11:02, localpref 100, from 1.1.1.4
    AS path: I, validation-state: unverified
    > via ge-1/2/1.5
1.1.1.2:100:1:0/96 MH
    *[VPLS/170] 1d 03:11:03, metric2 1
    Indirect
1.1.1.4:100:1:0/96 MH
    *[BGP/170] 1d 03:11:02, localpref 100, from 1.1.1.4
    AS path: I, validation-state: unverified
    > via ge-1/2/1.5
1.1.1.4:NoCtrlWord:5:100:100:1.1.1.2:1.1.1.4/176
    *[VPLS/7] 1d 03:11:02, metric2 1
    > via ge-1/2/1.5
1.1.1.4:NoCtrlWord:5:100:100:1.1.1.4:1.1.1.2/176
    *[LDP/9] 1d 03:11:02
    Discard

```

```

user@host> show route table red extensive
red.inet.0: 364481 destinations, 714087 routes (364480 active, 48448 holddown, 1
hidden)
22.0.0.0/32 (3 entries, 1 announced)
    State: <OnList CalcForwarding>
TSI:
KRT in-kernel 22.0.0.0/32 -> {composite(1048575)} Page 0 idx 1 Type 1 val 0x934342c

```

```

    Nexthop: Self
    AS path: [2] I
    Communities: target:2:1
Path 22.0.0.0 from 2.3.0.0 Vector len 4. Val: 1
    @BGP Preference: 170/-1
        Route Distinguisher: 2:1
        Next hop type: Indirect
        Address: 0x258059e4
        Next-hop reference count: 2
        Source: 2.2.0.0
        Next hop type: Router
        Next hop: 10.1.1.1 via ge-1/1/9.0, selected
        Label operation: Push 707633
        Label TTL action: prop-ttl
        Session Id: 0x17d8
        Protocol next hop: 2.2.0.0
        Push 16
        Composite next hop: 0x25805988 - INH Session ID: 0x193c
        Indirect next hop: 0x23eea900 - INH Session ID: 0x193c
        State: <Secondary Active Int Ext ProtectionPath ProtectionCand>
        Local AS: 2 Peer AS: 2
        Age: 23 Metric2: 35

```

```

Validation State: unverified
Task: BGP_2.2.2.0.0+34549
AS path: I
Communities: target:2:1
Import Accepted
VPN Label: 16
Localpref: 0
Router ID: 2.2.0.0
Primary Routing Table bgp.l3vpn.0
Composite next hops: 1
    Protocol next hop: 2.2.0.0 Metric: 35
    Push 16
    Composite next hop: 0x25805988 - INH Session ID: 0x193c
    Indirect next hop: 0x23eea900 - INH Session ID: 0x193c
    Indirect path forwarding next hops: 1
        Next hop type: Router
        Next hop: 10.1.1.1 via ge-1/1/9.0
        Session Id: 0x17d8
    2.2.0.0/32 Originating RIB: inet.3
    Metric: 35                      Node path count: 1
    Forwarding nexthops: 1
        Nexthop: 10.1.1.1 via ge-1/1/9.0
BCP Preference: 170/-1
Route Distinguisher: 2:1
Next hop type: Indirect
Address: 0x9347028
Next-hop reference count: 3
Source: 2.3.0.0
Next hop type: Router, Next hop index: 702
Next hop: 10.1.4.2 via ge-1/0/0.0, selected
Label operation: Push 634278
Label TTL action: prop-ttl
Session Id: 0x17d9
Protocol next hop: 2.3.0.0
Push 16
Composite next hop: 0x93463a0 1048575 INH Session ID: 0x17da
Indirect next hop: 0x91e8800 1048574 INH Session ID: 0x17da
State: <Secondary NotBest Int Ext ProtectionPath ProtectionCand>

Inactive reason: Not Best in its group - IGP metric
Local AS:      2 Peer AS:      2
Age: 3:34      Metric2: 70
Validation State: unverified
Task: BGP_2.2.3.0.0+32805
Announcement bits (2): 0-KRT 1-BGP_RT_Background
AS path: I
Communities: target:2:1
Import Accepted
VPN Label: 16
Localpref: 0
Router ID: 2.3.0.0
Primary Routing Table bgp.l3vpn.0
Composite next hops: 1
    Protocol next hop: 2.3.0.0 Metric: 70
    Push 16
    Composite next hop: 0x93463a0 1048575 INH Session ID:
0x17da
    Indirect next hop: 0x91e8800 1048574 INH Session ID:
0x17da
    Indirect path forwarding next hops: 1
        Next hop type: Router

```

```

Next hop: 10.1.4.2 via ge-1/0/0.0
Session Id: 0x17d9
2.3.0.0/32 Originating RIB: inet.3
Metric: 70                               Node path count: 1
Forwarding nexthops: 1
Nexthop: 10.1.4.2 via ge-1/0/0.0
#Multipath Preference: 255
Next hop type: Indirect
Address: 0x24afca30
Next-hop reference count: 1
Next hop type: Router
Next hop: 10.1.1.1 via ge-1/1/9.0, selected
Label operation: Push 707633
Label TTL action: prop-ttl
Session Id: 0x17d8
Next hop type: Router, Next hop index: 702
Next hop: 10.1.4.2 via ge-1/0/0.0
Label operation: Push 634278
Label TTL action: prop-ttl
Session Id: 0x17d9
Protocol next hop: 2.2.0.0
Push 16
Composite next hop: 0x25805988 - INH Session ID: 0x193c
Indirect next hop: 0x23eea900 - INH Session ID: 0x193c Weight 0x1

Protocol next hop: 2.3.0.0
Push 16
Composite next hop: 0x93463a0 1048575 INH Session ID: 0x17da
Indirect next hop: 0x91e8800 1048574 INH Session ID: 0x17da Weight

0x4000
State: <ForwardingOnly Int Ext>
Inactive reason: Forwarding use only
Age: 23           Metric2: 35
Validation State: unverified
Task: RT
AS path: I
Communities: target:2:1

```

show route terse

List of Syntax [Syntax on page 327](#)
[Syntax \(EX Series Switches\) on page 327](#)

Syntax show route terse
 <logical-system (all | *logical-system-name*)>

Syntax (EX Series Switches) 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.



NOTE: For BGP routes, the **show route terse** command displays the local preference attribute and MED instead of the 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.

Options **none**—Display a high-level summary of the routes in the routing table.

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 terse on page 329](#)

Output Fields [Table 27 on page 327](#) describes the output fields for the **show route terse** command. Output fields are listed in the approximate order in which they appear.

Table 27: show route terse Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.
<i>number routes</i>	Number of routes in the routing table and total number of routes in the following states: <ul style="list-style-type: none"> active (routes that are active) holddown (routes that are in the pending state before being declared inactive) hidden (routes that are not used because of a routing policy)

Table 27: show route terse Output Fields (*continued*)

Field Name	Field Description
<i>route key</i>	<p>Key for the state of 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.
A	Active route. An asterisk (*) indicates this is the active route.
V	<p>Validation status of the route:</p> <ul style="list-style-type: none"> • ?—Not evaluated. Indicates that the route was not learned through BGP. • I—Invalid. Indicates that the prefix is found, but either the corresponding AS received from the EBGP peer is not the AS that appears in the database, or the prefix length in the BGP update message is longer than the maximum length permitted in the database. • N—Unknown. Indicates that the prefix is not among the prefixes or prefix ranges in the database. • V—Valid. Indicates that the prefix and autonomous system pair are found in the database.
Destination	Destination of the route.
P	<p>Protocol through which the route was learned:</p> <ul style="list-style-type: none"> • A—Aggregate • B—BGP • C—CCC • D—Direct • G—GMPLS • I—IS-IS • L—L2CKT, L2VPN, LDP, Local • K—Kernel • M—MPLS, MSDP • O—OSPF • P—PIM • R—RIP, RIPng • S—Static • T—Tunnel
Prf	<p>Preference value of the route. In every routing metric except for the BGP LocalPref attribute, a lesser value is preferred. In order to use common comparison routines, Junos 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>
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.

Table 27: show route terse Output Fields (*continued*)

Field Name	Field Description
Next hop	Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.
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.

Sample Output

show route terse

```

user@host> show route terse
inet.0: 10 destinations, 12 routes (10 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

A V Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
* ? 1.0.1.1/32        0 10      1           >10.0.0.2      I
?                               B 170      100           I
unverified                               >10.0.0.2
* ? 1.1.1.1/32        D 0           >10.0.0.2
* V 2.2.0.2/32        B 170      110          >10.0.0.2      200 I
valid                               >10.0.0.2
* ? 10.0.0.0/30       D 0           >1t-1/2/0.1    I
?                               B 170      100           I
unverified                               >10.0.0.2
* ? 10.0.0.1/32       L 0           Local          I
* ? 10.0.0.4/30       B 170      100           >10.0.0.2      I
unverified                               >10.0.0.2
* ? 10.0.0.8/30       B 170      100           >10.0.0.2      I
unverified                               >10.0.0.2
* I 172.16.1.1/32     B 170      90           >10.0.0.2      200 I
invalid                               >10.0.0.2
* N 192.168.2.3/32    B 170      100           >10.0.0.2      200 I
unknown                               >10.0.0.2
* ? 224.0.0.5/32      O 10      1           MultiRecv

```


PART 4

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