

# Chapter 13

## Summary of Protocol-Independent Routing Property Configuration Statements

This chapter explains each of the protocol-independent routing configuration statements. The statements are organized alphabetically.

### active

<b>Syntax</b>	(active   passive);
<b>Hierarchy Level</b>	[edit routing-options (aggregate   generate   static) (defaults   route)] [edit routing-options rib <i>routing-table</i> (aggregate   generate   static) (defaults   route)]
<b>Description</b>	<p>Configure whether static, aggregate, or generated routes are removed from the routing and forwarding tables when they become inactive. 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> <p>active—Remove a route from the routing and forwarding tables when it becomes inactive.</p> <p>passive—Have a route remain continually installed in the routing and forwarding tables even when it becomes inactive.</p>
<b>Default</b>	active
<b>Usage Guidelines</b>	See “Configure Static Routes” on page 93, “Configure Aggregate Routes” on page 101, and “Configure Generated Routes” on page 108.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	aggregate on page 132, generate on page 139, static on page 153

## aggregate

**Syntax**

```

aggregate {
  defaults {
    aggregate-options;
  }
  route destination-prefix {
    policy policy-name;
    aggregate-options;
  }
}

```

**Hierarchy Level** [edit routing-options],  
[edit routing-options rib *routing-table*]

**Description** Configure aggregate routes.

**Options** *aggregate-options*—(Optional under *routed*). 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.

(active | passive);

as-path < *as-path*> < origin (egp | igp | incomplete)> < atomic-aggregate>  
< aggregator *as-number in-address*>;

community ([ *community-ids* ] | no-advertise | no-export | no-export-subconfed | none);

discard;

(full | brief);

(metric | metric2 | metric3 | metric4) *value* < type *type*> ;

(preference | preference2 | color | color2) *preference*  
< type *type*> ;

(tag | tag2) *string*;

*destination-prefix*—Destination of the aggregate route:

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

default—For the default route to the destination. This is equivalent to specifying an IP address of 0.0.0.0/0.

The policy statement is explained separately.

**Usage Guidelines** See “Configure Aggregate Routes” on page 101.

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

## as-path

<b>Syntax</b>	as-path <as-path> <origin (egp   igp   incomplete)> <atomic-aggregate> <aggregator as-number in-address>;
<b>Hierarchy Level</b>	[edit routing-options (aggregate   generate   static) (defaults   route)], [edit routing-options rib <i>routing-table</i> (aggregate   generate   static) (defaults   route)]
<b>Description</b>	Associate BGP AS path information with a static, aggregate, or generated route.
<b>Options</b>	<p><b>aggregator</b>—Attach the BGP AGGREGATOR path attribute to the aggregate route. When using this option, you must specify the last AS number that formed the aggregate route (encoded as two octets), followed by the IP address of the BGP system that formed the aggregate route.</p> <p><b>as-path</b>—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 <i>as-path</i>; you must use a full, valid AS path.</p> <p><b>atomic-aggregate</b>—Attach the BGP ATOMIC_AGGREGATE path attribute to the aggregate route. This path attribute indicates that the local system selected a less specific route rather than a more specific route.</p> <p><b>egp</b>—BGP origin attribute that indicates that the path information originated in another AS.</p> <p><b>igp</b>—BGP origin attribute that indicates that the path information originated within the local AS.</p> <p><b>incomplete</b>—BGP origin attribute that indicates that the path information was learned by some other means.</p>
<b>Usage Guidelines</b>	See “Configure Static Routes” on page 93, “Configure Aggregate Routes” on page 101, and “Configure Generated Routes” on page 108.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	aggregate on page 132, generate on page 139, static on page 153

## autonomous-system

<b>Statement</b>	<code>autonomous-system <i>autonomous-system</i> &lt;loops <i>number</i>&gt;;</code>
<b>Hierarchy Level</b>	[edit routing-options]
<b>Description</b>	Specify the router's AS number.
<b>Options</b>	<p><i>autonomous-system</i>—AS number. Use a number assigned to you by the NIC.  <b>Range:</b> 1 through 65,535</p> <p><i>loops <i>number</i></i>—(Optional) How many times this AS number can appear in an AS path.  <b>Range:</b> 1 through 65,535  <b>Default:</b> 1 (AS number can appear once)</p>
<b>Usage Guidelines</b>	See "Configure the AS Number" on page 121
<b>Required Privilege Level</b>	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

## brief

<b>Syntax</b>	<code>(brief   full);</code>
<b>Hierarchy Level</b>	[edit routing-options (aggregate   generate) (defaults   route)], [edit routing-options rib <i>routing-table</i> (aggregate   generate) (defaults   route)]
<b>Description</b>	<p>Configure all AS numbers from all contributing paths to be included in the aggregate or generated route's path.</p> <p><i>brief</i>—Include all AS numbers from all contributing paths in the aggregate or generated route's path.</p> <p><i>full</i>—Include only the longest common leading sequences from the contributing AS paths. If doing this results in AS numbers being omitted from the aggregate route, the BGP ATOMIC_ATTRIBUTE path attribute is included with the aggregate route.</p>
<b>Default</b>	full
<b>Usage Guidelines</b>	See "Configure Aggregate Routes" on page 101 and "Configure Generated Routes" on page 108.
<b>Required Privilege Level</b>	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>
<b>See Also</b>	aggregate on page 132, generate on page 139

## color

**See** preference on page 146

## community

<b>Syntax</b>	community ([ <i>community-ids</i> ]   no-advertise   no-export   no-export-subconfed   none);
<b>Hierarchy Level</b>	[edit routing-options (aggregate   generate   static) (defaults   route)], [edit routing-options rib <i>routing-table</i> (aggregate   generate   static) (defaults   route)]
<b>Description</b>	Associate BGP community information with a static, aggregate, or generated route.
<b>Options</b>	<p><i>community-ids</i>—One or more community identifiers in the format <i>as-number:community-value</i>. <i>as-number</i> is the AS number and can be a value in the range 1 through 65534. <i>community-value</i> is the community identifier and can be a number in the range 0 through 65535.</p> <p>no-advertise—Routes containing this community name are not advertised to other BGP peers.</p> <p>no-export—Routes containing this community name are not advertised outside a BGP confederation boundary.</p> <p>no-export-subconfed—Routes containing this community name are not advertised to external BGP peers, including peers in other members' ASs inside a BGP confederation.</p> <p>none—Explicitly exclude BGP community information with a static route. Include this option when configuring an individual route in the route portion to override a community option specified in the defaults portion.</p>
<b>Usage Guidelines</b>	See “Configure Static Routes” on page 93, “Configure Aggregate Routes” on page 101, and “Configure Generated Routes” on page 108.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	aggregate on page 132, generate on page 139, static on page 153

## confederation

<b>Statement</b>	confederation <i>confederation-autonomous-system</i> members [ <i>autonomous-system</i> ];
<b>Hierarchy Level</b>	[edit routing-options]
<b>Description</b>	Specify the router's confederation AS number.
<b>Options</b>	<p><i>autonomous-system</i>—AS numbers of the confederation members. <b>Range:</b> 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. <b>Range:</b> 1 through 65,535</p>
<b>Usage Guidelines</b>	See “Configure AS Confederation Members” on page 122.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## discard

**Syntax** discard;

**Hierarchy Level** [edit routing-options (aggregate | generate) (defaults | route)],  
[edit routing-options rib *routing-table* (aggregate | generate) (defaults | route)]

**Description** 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.

**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.

**Usage Guidelines** See "Configure Aggregate Routes" on page 101 and "Configure Generated Routes" on page 108.

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

**See Also** aggregate on page 132, generate on page 139

## export

**Statement** export [ *policy-names* ];

**Hierarchy Level** [edit protocols routing-options forwarding-table]

**Description** Apply one or more policies to routes being exported from the routing table into the forwarding table.

**Options** *policy-name*—Name of one or more policies.

**Usage Guidelines** See "Configure Per-Packet Load Balancing" on page 125 and the chapter "Configure Routing Policy" on page 35.

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

## export-rib

<b>Syntax</b>	export-rib <i>routing-table-name</i> ;
<b>Hierarchy Level</b>	[edit routing-options rib-group <i>group-name</i> ]
<b>Description</b>	Name of the routing table from which the JUNOS software should export routing information.
<b>Options</b>	<i>routing-table-name</i> —Routing table name.
<b>Usage Guidelines</b>	See “Create Routing Table Groups” on page 123.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	import-rib on page 140, rib-groups on page 151

## fate-sharing

<b>Syntax</b>	fate-sharing { group <i>group-name</i> ; cost <i>value</i> ; from <i>address</i> <to <i>address</i> >; }
<b>Hierarchy Level</b>	[edit routing-options]
<b>Description</b>	Specify a backup path in case the primary path becomes unusable.  You specify one or more objects within a group. The objects can be a LAN interface, a router ID, or a point-to-point link. Sequence is insignificant.
<b>Options</b>	group <i>group-name</i> — Each fate-sharing group must have a name, which can be up to 32 characters long and can contain letters, digits, periods (.) and hyphens (-). You can define up to 512 groups.  cost <i>value</i> —Cost assigned to the group. <b>Range:</b> 1 through 65,535 <b>Default:</b> 1  from <i>address</i> —Address of ingress router.  to <i>address</i> —Address of egress router. For point-to-point link objects, you must specify both a from and to address.
<b>Usage Guidelines</b>	See the <i>JUNOS Internet Software Configuration Guide: MPLS Applications</i> .
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

forwarding-table

**Statement** forwarding-table {  
    export [ *policy-names* ];  
}

**Hierarchy Level** [edit routing-options]

**Description** Configure information about the router's forwarding table.

**Option** The statement is explained separately.

**Usage Guidelines** See "Configure Per-Packet Load Balancing" on page 125.

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

full

**See** brief on page 134

## generate

<b>Syntax</b>	<pre> generate {   defaults {     generate-options;   }   route destination-prefix {     policy policy-name;     generate-options;   } } </pre>
<b>Hierarchy Level</b>	[edit routing-options], [edit routing-options rib <i>routing-table</i> ]
<b>Description</b>	Configure generated routes, which are used as routes of last resort.
<b>Options</b>	<p><i>generate-options</i>—(Optional under route) 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 <i>generate-options</i>. Each option is explained separately.</p> <p>(active   passive);</p> <p>as-path &lt; <i>as-path</i>&gt; &lt; origin (egp   igp   incomplete)&gt; &lt; atomic-aggregate&gt; &lt; aggregator <i>as-number in-address</i>&gt;;</p> <p>community ([ <i>community-ids</i> ]   no-advertise   no-export   no-export-subconfed   none);</p> <p>discard;</p> <p>(full   brief);</p> <p>(metric   metric2   metric3   metric4) <i>value</i> &lt; type <i>type</i>&gt; ;</p> <p>(preference   preference2   color   color2) <i>preference</i> &lt; type <i>type</i>&gt; ;</p> <p>(tag   tag2) <i>string</i>;</p> <p><i>destination-prefix</i>—Destination of the generated route:</p> <p><i>destination-prefix/prefix-length</i>—<i>destination-prefix</i> is the network portion of the IP address, and <i>prefix-length</i> is the destination prefix length.</p> <p>default—For the default route to the destination. This is equivalent to specifying an IP address of 0.0.0.0/0.</p> <p>The policy statement is explained separately.</p>
<b>Usage Guidelines</b>	See “Configure Generated Routes” on page 108.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## import-rib

**Syntax** import-rib [ *routing-table-name* ];

**Hierarchy Level** [edit routing-options rib-group *group-name*]

**Description** Name of the routing table into which the JUNOS software 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 import routing tables, the primary routing table must be inet.0.

**Options** *routing-table-name*—Name of one or more routing tables.

**Usage Guidelines** See “Create Routing Table Groups” on page 123.

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

**See Also** export-rib on page 137, rib-groups on page 151

## install

**Syntax** (install | no-install);

**Hierarchy Level** [edit routing-options static (defaults | route)],  
[edit routing-options rib *routing-table* static (defaults | route)]

**Description** Configure whether the JUNOS software installs all static routes into the forwarding table even if they do not have the lowest preference values. Even if you configure a route so it is not installed in the forwarding table, the route still is eligible to be exported from the routing table to other protocols.

install—Have the JUNOS software install all static routes into the forwarding table even if they do not have the lowest preference values. Doing this greatly reduces the time required to restart a system that has a large number of routes in its routing table.

no-install—Do not install the route into the forwarding table even if it is the route with the lowest preference.

**Default** install

**Usage Guidelines** See “Configure Static Routes” on page 93.

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

**See Also** static on page 153

## interface

<b>Syntax</b>	interface [ <i>interface-name</i> ];
<b>Hierarchy Level</b>	[edit routing-options multicast scope <i>scope-name</i> ]
<b>Description</b>	Configure the interfaces on which to enable multicast scoping.
<b>Options</b>	<i>interface-name</i> —Name of the interface. To configure all interfaces, you can specify all. For details about specifying interfaces, see the <i>JUNOS Internet Software Configuration Guide: Interfaces and Chassis</i> .
<b>Usage Guidelines</b>	See “Configure Multicast Scoping” on page 124.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	multicast on page 144

## interface-routes

<b>Syntax</b>	interface-routes { rib-group <i>routing-table-name</i> ; }
<b>Hierarchy Level</b>	[edit routing-options]
<b>Description</b>	Associate a routing table group with the router’s interfaces and specify which routing table groups interface routes are imported into.
<b>Options</b>	The statement is explained separately.
<b>Usage Guidelines</b>	See “Configure How Interface Routes Are Imported into Routing Tables” on page 124.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	rib-groups on page 151

## • martians

**Syntax** martians {  
     *destination-prefix match-type* <allow>;  
 }

**Hierarchy Level** [edit routing-options],  
 [edit routing-options rib *routing-table*]

**Description** Configure martian addresses.

**Options** allow—(Optional) Explicitly allow a subset of a range of addresses that has been disallowed.

*destination-prefix*—Destination route you are configuring:

*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 that do not match a network or host in the routing table. This is equivalent to specifying the IP address 0.0.0.0/0.

*match-type*—Criteria that the destination must match:

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.

**Default:** exact

**Usage Guidelines** See "Configure Martian Addresses" on page 114.

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

metric

**metric (in static routes)**

<b>Syntax</b>	metric <i>metric</i> <type <i>type</i> >;
<b>Hierarchy Level</b>	[edit routing-options static (defaults   route)], [edit routing-options rib <i>routing-table</i> static (defaults   route)]
<b>Description</b>	Metric value for a static route.
<b>Options</b>	<i>metric</i> —Metric value. <b>Range:</b> 1 through 65,535  <i>type</i> —(Optional) Type of route. <b>Range:</b> 1 through 16
<b>Usage Guidelines</b>	See “Configure Static Routes” on page 93.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	static on page 153

**metric (metric value)**

<b>Syntax</b>	(metric   metric2   metric3   metric4) <i>metric</i> ;
<b>Hierarchy Level</b>	[edit routing-options (aggregate   generate) (defaults   route)], [edit routing-options rib <i>routing-table</i> (aggregate   generate) (defaults   route)]
<b>Description</b>	Metric value for a static, aggregate, or generated route. You can specify up to four metric values, starting with <i>metric</i> (for the first metric value) and continuing with <i>metric2</i> , <i>metric3</i> , and <i>metric4</i> .
<b>Options</b>	<i>metric</i> —Metric value. <b>Range:</b> 1 through 65,535
<b>Usage Guidelines</b>	See “Configure Aggregate Routes” on page 101, and “Configure Generated Routes” on page 108.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	aggregate on page 132, generate on page 139



## options

<b>Syntax</b>	options { syslog (level <i>level</i>   upto level); }
<b>Hierarchy Level</b>	[edit routing-options]
<b>Description</b>	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.
<b>Options</b>	<p><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"> <li>emergency—Panic or other conditions that cause the system to become unusable.</li> <li>alert—Conditions that should be corrected immediately, such as a corrupted system database.</li> <li>critical—Critical conditions, such as hard drive errors.</li> <li>error—Standard error conditions.</li> <li>warning—System warning messages.</li> <li>notice—Conditions that are not error conditions, but that might warrant special handling.</li> <li>info—Informational messages.</li> <li>debug—Software debugging messages.</li> </ul> <p><b>Default:</b> info</p> <ul style="list-style-type: none"> <li><i>level</i>—Log messages at a particular level.</li> <li><i>upto</i>—Log all messages up to a particular level.</li> </ul>
<b>Usage Guidelines</b>	See “Configure Logging for the Routing Protocol Process” on page 127.
<b>Required Privilege Level</b>	<ul style="list-style-type: none"> <li>routing—To view this statement in the configuration.</li> <li>routing-control—To add this statement to the configuration.</li> </ul>
<b>See Also</b>	syslog in the <i>JUNOS Internet Software Configuration Guide: Interfaces and Chassis</i>

## passive

**See** active on page 131

## policy

<b>Syntax</b>	<code>policy <i>policy-name</i>;</code>
<b>Hierarchy Level</b>	[edit routing-options (aggregate   generate) (defaults   route)], [edit routing-options rib <i>routing-table</i> (aggregate   generate) (defaults   route)]
<b>Description</b>	Associate a routing policy when configuring an aggregate or generated route's destination prefix in the routes part of the aggregate or generate statement. Doing so 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 and, 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 less specific aggregate route. If you do not specify a policy filter, all candidate routes contribute to an aggregate route.
<b>Options</b>	<i>policy-name</i> —Name of a routing policy.
<b>Usage Guidelines</b>	See “Configure Aggregate Routes” on page 101 and “Configure Generated Routes” on page 108.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	aggregate on page 132, generate on page 139

## preference

<b>Syntax</b>	<code>(preference   preference2   color   color2) <i>preference</i> &lt;type <i>type</i>&gt;;</code>
<b>Hierarchy Level</b>	[edit routing-options (aggregate   generate   static) (defaults   route)], [edit routing-options rib <i>routing-table</i> (aggregate   generate   static) (defaults   route)]
<b>Description</b>	Preference value for a static, aggregated, or generated route. You also can specify a secondary preference value (preference2); and colors, which are even finer-grained preference values (color and color2).
<b>Options</b>	<i>preference</i> —Preference value. A lower number indicates a more preferred route. <b>Range:</b> 1 through 255 <b>Default:</b> 5 (for static routes), 130 (for aggregate and generated routes)  <i>type</i> —(Optional) Type of route. <b>Range:</b> 1 through 16
<b>Usage Guidelines</b>	See “Configure Static Routes” on page 93, “Configure Aggregate Routes” on page 101, and “Configure Generated Routes” on page 108.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	aggregate on page 132, generate on page 139, static on page 153

## prefix

<b>Syntax</b>	prefix <i>destination-prefix</i> ;
<b>Hierarchy Level</b>	[edit routing-options multicast <i>scope-name</i> ]
<b>Description</b>	Configure the prefix for multicast scopes.
<b>Options</b>	<i>destination-prefix</i> —Prefix that lies within the multicast scope.
<b>Usage Guidelines</b>	See “Configure Multicast Scoping” on page 124.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	multicast on page 144

## readvertise

<b>Syntax</b>	(readvertise   no-readvertise);
<b>Hierarchy Level</b>	[edit routing-options static (defaults   route)], [edit routing-options rib <i>routing-table</i> static (defaults   route)]
<b>Description</b>	Configure whether static routes are eligible to be readvertised by routing protocols.  readvertise—Readvertise static routes.  no-readvertise—Mark a static route as being ineligible for readvertisement, include the no-readvertise option when configuring the route.
<b>Default</b>	readvertise
<b>Usage Guidelines</b>	See “Configure Static Routes” on page 93.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	static on page 153

## • retain

•  
•  
• **Syntax** (retain | no-retain);

• **Hierarchy Level** [edit routing-options static (defaults | route)],  
• [edit routing-options rib *routing-table* static (defaults | route)]

• **Description** Configure statically configured routes to be deleted from or retained in the forwarding table  
• when the routing protocol process shuts down normally.

• 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.

• no-retain—Delete statically configured routes from the forwarding table when the  
• routing protocol process shuts down normally.

• **Default** no-retain

• **Usage Guidelines** See “Configure Static Routes” on page 93.

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

• **See Also** static on page 153

## rib

```

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

```

**Hierarchy Level** [edit routing-options]

**Description** Create a routing table.

Explicitly creating a routing table with the *routing-table-name* statement 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. Simply including the *rib-groups* statement to declare that a routing table is part of a routing table group is sufficient to create it.

**Default** If you do not specify a routing table name with the *routing-table-name* statement, 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*]

*protocol* is the protocol family. It can be inet for the IP family or iso for the ISO protocol family.

*identifier* is a positive integer that specifies the instance of the routing table.

**Default:** inet.0

The remaining statements are explained separately.

**Usage Guidelines** See “Create Routing Tables” on page 91.

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

## rib-group

**Syntax** rib-group *routing-table-name*;

**Hierarchy Level** [edit routing-options interface-routes]

**Description** Configure which routing table groups interface routes are imported into.

**Options** *routing-table-name*—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.

**Usage Guidelines** See “Configure How Interface Routes Are Imported into Routing Tables” on page 124, “Create Routing Table Groups” on page 123, and “Enable DVMRP” on page 393.

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

**See Also** interface-routes on page 141, rib-groups on page 151

## rib-groups

**Syntax** rib-groups {  
     *group-name* {  
         import-rib [ *routing-table-name* ];  
         export-rib *routing-table-name*;  
     }  
 }

**Hierarchy Level** [edit routing-options]

**Description** 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.

Each routing table group must contain one or more routing tables that the JUNOS software uses when importing routes (specified in the import-rib statement) and optionally can contain one routing table group that the JUNOS software uses when exporting routes to the routing protocols (specified in the export-rib 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.

**Usage Guidelines** See “Create Routing Table Groups” on page 123.

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

**See Also** rib-group on page 150

## route-record

**Statement** route-record;

**Hierarchy Level** [edit routing-options]

**Description** To perform flow aggregation during traffic sampling.

**Usage Guidelines** See “Configure Route Recording for Flow Aggregation” on page 123.

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

**See Also** *JUNOS Internet Software Configuration Guide: Interfaces and Chassis*

## router-id

**Statement** router-id *address*;

**Hierarchy Level** [edit routing-options]

**Description** Specify the router's IP address.

**Options** *address*—IP address of the router.  
**Default:** Address of the first interface encountered by the JUNOS software.

**Usage Guidelines** See "Configure the Router Identifier" on page 122.

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

## routing-options

**Statement** routing-options { ... }

**Description** Configure protocol-independent routing properties.

**Usage Guidelines** See "Protocol-Independent Routing Properties Configuration Statements" on page 118.

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

## scope

**Syntax** scope *scope-name* {  
     interface [*interface-name*];  
     prefix *destination-prefix*;  
 }

**Hierarchy Level** [edit routing-options multicast]

**Description** Configure multicast scoping.

**Options** *scope-name*—Name of the multicast scope.  
 The remaining statements are explained separately.

**Usage Guidelines** See "Configure Multicast Scoping" on page 124.

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

**See Also** multicast on page 144

## static

<b>Syntax</b>	<pre> static {   defaults {     static-options;   }   route destination-prefix {     next-hop;     static-options;   } } </pre>
<b>Hierarchy Level</b>	[edit routing-options]
<b>Description</b>	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 statements in the configuration.
<b>Options</b>	<p><i>destination-prefix</i>—Destination of the generated route, specified as:</p> <p><i>destination-prefix/prefix-length</i>—<i>destination-prefix</i> is the network portion of the IP address, and <i>prefix-length</i> is the destination prefix length.</p> <p><i>default</i>—For the default route to the destination. This is equivalent to specifying an IP address of 0.0.0.0/0.</p> <p><i>next-hop</i>—How to reach the destination, specified as:</p> <p><i>next-hop address</i>—Reach the next-hop router by specifying an IP address.</p> <p><i>reject</i>—Do not forward packets addressed to this destination. Instead, drop the packets, send ICMP unreachable messages to the packets' originators, and install a reject route for this destination into the routing table.</p> <p><i>discard</i>—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><i>receive</i>—Install a receive route for this destination into the routing table.</p> <p><i>static-options</i>—(Optional under route) Additional information about static routes, which is included with the route when it is installed in the routing table.</p>

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* ] | no-advertise | no-export | no-export-subconfed | none);

(install | no-install);

(metric | metric2 | metric3 | metric4) *value* < type *type*> ;

(preference | preference2 | color | color2) *preference*  
< type *type*> ;

(readvertise | no-readvertise);

(no-retain | retain);

(tag | tag2) *string*;

**Usage Guidelines** See “Configure Static Routes” on page 93.

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

## tag

**Syntax** (tag | tag2) *string*;

**Hierarchy Level** [edit routing-options (aggregate | generate | static) (defaults | route)],  
[edit routing-options rib *routing-table* (aggregate | generate | static) (defaults | route)]

**Description** Associate as OSPF tag with a static, aggregate, or generated route.

**Options** *string*—OSPF tag string.

**Usage Guidelines** See “Configure Static Routes” on page 93, “Configure Aggregate Routes” on page 101, and “Configure Generated Routes” on page 108.

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

**See Also** aggregate on page 132, generate on page 139, static on page 153

## traceoptions

```

Syntax traceoptions {
    file name <replace> <size size> <files number> <no-stamp>
        <(world-readable | no-world-readable)>;
    flag flag <flag-modifier> <disable>;
}

```

**Hierarchy Level** [edit routing-options]

**Description** Define tracing operations that track all routing protocol functionality in the router.

To specify more than one tracing operation, include multiple flag statements.

**Default** If you do not include this statement, no global tracing operations are performed.

**Options** *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.

*filename*—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`.

*files number*—(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 so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

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:** 2 files

*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

*general*—All normal operations and routing table changes (a combination of the normal and route trace operations)

*normal*—All normal operations

*policy*—Routing policy operations and actions

*route*—Routing table changes

*state*—State transitions

*task*—Interface transactions and processing

*timer*—Timer usage

*flag-modifier*—(Optional) Modifier for the tracing flag. You can specify one or more of these modifiers:

detail—Detailed trace information

receive—Packets being received

send—Packets being transmitted

no-stamp—(Optional) Do not place timestamp information at the beginning of each line in the trace file.

**Default:** If you omit this option, timestamp information is placed at the beginning of each line of the tracing output.

replace—(Optional) Replace an existing trace file if there is one.

**Default:** If you do not include this option, tracing output is appended to an existing trace 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.

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:** 1 MB

**Usage Guidelines** See “Trace Global Routing Protocol Operations” on page 128.

**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.