

Chapter 19

Summary of RIP Configuration Statements

The following sections explain each of the individual Routing Information Protocol (RIP) statements in the [edit protocols rip] hierarchy. The statements are organized alphabetically.

authentication-key

Syntax	authentication-key <i>password</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit protocols rip], [edit protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols rip], [edit routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>]
Description	Require authentication for RIP route queries received on an interface.
Options	<i>password</i> —Authentication password. If the password does not match, the packet is rejected. The password can be from 1 through 16 contiguous characters long and can include any ASCII strings.
Usage Guidelines	See “Configuring Authentication” on page 368.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

authentication-type

Syntax	authentication-type <i>type</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit protocols rip], [edit protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols rip], [edit routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>]
Description	Configure the type of authentication for RIP route queries received on an interface.
Default	If you do not include this statement and the authentication-key statement, RIP authentication is disabled.
Options	<p><i>type</i>—Authentication type:</p> <p>md5—Use the MD5 algorithm to create an encoded checksum of the packet. The encoded checksum is included in the transmitted packet. The receiving router uses the authentication key to verify the packet, discarding it if the digest does not match. This algorithm provides a more secure authentication scheme.</p> <p>none—Disable authentication. If none is configured, the configured authentication key is ignored.</p> <p>simple—Use a simple password. The password is included in the transmitted packet, which makes this method of authentication relatively insecure. The password can be from 1 through 16 contiguous letters or digits long.</p> <p>Default—none (No authentication is performed.)</p>
Usage Guidelines	See “Configuring Authentication” on page 368.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
See Also	authentication-key on page 377

check-zero

Syntax	(check-zero no-check-zero);
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit protocols rip], [edit protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols rip], [edit routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>]
Description	Check whether the reserved fields in a RIP packet are zero: <p>check-zero—Discard version 1 packets that have nonzero values in the reserved fields and version 2 packets that have nonzero values in the fields that must be zero. This default behavior implements the RIP version 1 and version 2 specifications.</p> <p>no-check-zero—Receive RIP version 1 packets with nonzero values in the reserved fields or RIP version 2 packets with nonzero values in the fields that must be zero. This is in spite of the fact that they are being sent in violation of the specifications in RFC 1058 and RFC 2453.</p> <p>Default: check-zero</p>
Usage Guidelines	See “Accepting Packets Whose Reserved Fields Are Nonzero” on page 370.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

export

Syntax	<code>export [<i>policy-names</i>];</code>
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip group <i>group-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i>], [edit protocols rip group <i>group-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i>]
Description	Apply a policy to routes being exported to the neighbors.
Options	<i>policy-names</i> —Name of one or more policies.
Usage Guidelines	See “Applying Export Policy” on page 371 and the <i>JUNOS Policy Framework Configuration Guide</i> .
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
See Also	import on page 382

graceful-restart

Syntax	<code>graceful-restart { disable; restart-time <i>seconds</i>; }</code>
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip], [edit protocols rip]
Description	Configure graceful restart for RIP.
Options	<i>disable</i> —Disables graceful restart for RIP. <i>seconds</i> —Estimated time for the restart to finish, in seconds. Range: 1 through 600 seconds Default: 60 seconds
Usage Guidelines	See “Configuring Graceful Restart” on page 96 and “Configuring Graceful Restart” on page 373.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

group

Syntax	<pre>group <i>group-name</i> { preference <i>number</i>; metric-out <i>metric</i>; export <i>policy</i>; neighbor <i>neighbor-name</i> { authentication-key <i>password</i>; type; (check-zero no-check-zero); import <i>policy-name</i>; message-size <i>number</i>; metric-in <i>metric</i>; metric-out <i>metric</i>; receive <i>receive-options</i>; send <i>send-options</i>; } }</pre>
Hierarchy Level	<pre>[edit logical-routers <i>logical-router-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip], [edit protocols rip], [edit routing-instances <i>routing-instance-name</i> protocols rip]</pre>
Description	Configure a set of RIP neighbors that share an export policy and metric. The export policy and metric govern what routes to advertise to neighbors in a given group.
Options	<p><i>group-name</i>—Name of a group, up to 16 characters long.</p> <p>The remaining statements are explained separately in this chapter.</p>
Usage Guidelines	See “Configuring Group-Specific Properties” on page 371.
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

holddown

Syntax	holddown <i>seconds</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip], [edit protocols rip], [edit routing-instances <i>routing-instance-name</i> protocols rip]
Description	Configure the hold-down timer for RIP.
Options	<i>seconds</i> —Estimated time to wait before making updates to the routing table, in seconds. Range: 10 through 180 seconds Default: 180 seconds
Usage Guidelines	See “Configuring the Hold-Down Timer” on page 369.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

import

Syntax	import [<i>policy-names</i>];
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit protocols rip], [edit protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols rip], [edit routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>]
Description	Apply one or more policies to routes being imported into the local router from the neighbors.
Options	<i>policy-names</i> —Name of one or more policies.
Usage Guidelines	See “Applying Import Policy” on page 371 and the <i>JUNOS Policy Framework Configuration Guide</i> .
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
See Also	export on page 380

message-size

Syntax	<code>message-size number;</code>
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit protocols rip], [edit protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols rip], [edit routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>]
Description	Number of route entries to be included in every RIP update message. To ensure interoperability with other vendors' equipment, use the standard of 25 route entries per message.
Options	<i>number</i> —Number of route entries per update message. Range: 25 through 255 entries Default: 25 entries
Usage Guidelines	See “Configuring the Number of Route Entries in an Update Message” on page 369.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

metric-in

Syntax	metric-in <i>metric</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit protocols rip], [edit protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols rip], [edit routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>]
Description	Metric to add to incoming routes when advertising into RIP routes that were learned from other protocols. Use this statement to configure the router to prefer RIP routes learned through a specific neighbor.
Options	<i>metric</i> —Metric value. Range: 1 through 16 Default: 1
Usage Guidelines	See “Modifying the Incoming Metric” on page 369.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

metric-out

Syntax	metric-out <i>metric</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>]
Description	Metric value to add to routes transmitted to the neighbor. Use this statement to control how other routers prefer RIP routes sent from this neighbor.
Options	<i>metric</i> —Metric value. Range: 1 through 16 Default: 1
Usage Guidelines	See “Modifying the Outgoing Metric” on page 372.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

neighbor

Syntax	<pre>neighbor <i>neighbor-name</i> { authentication-key <i>password</i>; type; (check-zero no-check-zero); import <i>policy-name</i>; message-size <i>number</i>; metric-in <i>metric</i>; metric-out <i>metric</i>; receive <i>receive-options</i>; send <i>send-options</i>; }</pre>
Hierarchy Level	<pre>[edit logical-routers <i>logical-router-name</i> protocols rip group <i>group-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i>] , [edit protocols rip group <i>group-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i>]</pre>
Description	Configure neighbor-specific RIP parameters, thereby overriding the defaults set for the router.
Options	<p><i>neighbor-name</i>—Name of an interface over which a router communicates to its neighbors.</p> <p>The remaining statements are explained separately.</p>
Usage Guidelines	See “Defining RIP Neighbor Properties” on page 368.
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

no-check-zero

See check-zero on page 379

preference

Syntax	<code>preference preference;</code>
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip group <i>group-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i>], [edit protocols rip group <i>group-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i>]
Description	Preference of external routes learned by RIP as compared to those learned from other routing protocols.
Options	<i>preference</i> —Preference value. A lower value indicates a more preferred route. Range: 0 through 4,294,967,295 ($2^{32} - 1$) Default: 100
Usage Guidelines	See “Controlling Route Preference” on page 372.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

receive

Syntax	<code>receive receive-options;</code>
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit protocols rip], [edit protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols rip], [edit routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>]
Description	Configure RIP receive options.
Options	<i>receive-options</i> —One of the following: <ul style="list-style-type: none"> both—Accept both RIP version 1 and version 2 packets. none—Do not receive RIP packets. version-1—Accept only RIP version 1 packets. version-2—Accept only RIP version 2 packets. Default: both
Usage Guidelines	See “Configuring Update Messages” on page 370.

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

See Also send on page 388

rib-group

Syntax rib-group *group-name*;

Hierarchy Level [edit logical-routers *logical-router-name* protocols rip],
[edit logical-routers *logical-router-name* routing-instances *routing-instance-name*
protocols rip],
[edit protocols rip],
[edit routing-instances *routing-instance-name* protocols rip]

Description Install RIP routes into multiple routing tables by configuring a routing table group.

Options *group-name*—Name of the routing table group.

Usage Guidelines See “Configuring Routing Table Groups” on page 370.

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

rip

Syntax rip {...}

Hierarchy Level [edit logical-routers *logical-router-name* protocols],
[edit logical-routers *logical-router-name* routing-instances *routing-instance-name*
protocols],
[edit protocols],
[edit routing-instances *routing-instance-name* protocols]

Description Enable RIP routing on the router.

Default RIP is disabled on the router.

Usage Guidelines See “Minimum RIP Configuration” on page 367.

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

send

Syntax	send <i>send-options</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit protocols rip], [edit protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols rip], [edit routing-instances <i>routing-instance-name</i> protocols rip group <i>group-name</i> neighbor <i>neighbor-name</i>]
Description	Configure RIP send options.
Options	<i>send-options</i> —One of the following: broadcast—Broadcast RIP version 2 packets (RIP version 1 compatible). multicast—Multicast RIP version 2 packets. This is the default. none—Do not send RIP updates. version-1—Broadcast RIP version 1 packets. Default: multicast
Usage Guidelines	See “Configuring Update Messages” on page 370.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
See Also	receive on page 386

traceoptions

Syntax	<pre> traceoptions { file <i>name</i> <replace> <size <i>size</i>> <files <i>number</i>> <no-stamp> <(world-readable no-world-readable)>; flag <i>flag</i> <<i>flag-modifier</i>> <disable>; } </pre>
Hierarchy Level	<pre> [edit logical-routers <i>logical-router-name</i> protocols rip], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols rip], [edit protocols rip], [edit routing-instances <i>routing-instance-name</i> protocols rip] </pre>
Description	Set RIP protocol-level tracing options.
Default	The default RIP protocol-level trace options are inherited from the global traceoptions statement.
Options	<p>disable—(Optional) Disable the tracing operation. One use of this option is to disable a single operation when you have defined a broad group of tracing operations, such as all.</p> <p>file <i>name</i>—Name of the file to receive the output of the tracing operation. Enclose the name in quotation marks. We recommend that you place RIP tracing output in the file <code>/var/log/rip-log</code>.</p> <p>files <i>number</i>—(Optional) Maximum number of trace files. When a trace file named <i>trace-file</i> reaches its maximum size, it is renamed <i>trace-file.0</i>, then <i>trace-file.1</i>, and so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.</p> <p>If you specify a maximum number of files, you must also specify a maximum file size with the size option.</p> <p>Range: 2 through 1000 files Default: 1 trace file only</p> <p>flag—Tracing operation to perform. To specify more than one tracing operation, include multiple flag statements. These are the RIP-specific tracing options:</p> <ul style="list-style-type: none"> auth—RIP authentication error—RIP errors expiration—RIP route expiration processing hold-down—RIP hold-down processing packets—All RIP packets request—RIP information packets such as request, poll, and poll entry packets

trigger—RIP triggered updates

update—RIP update packets

The following are the global tracing options:

all—All tracing operations

general—A combination of the normal and route trace operations

normal—All normal operations

Default: If you do not specify this option, only unusual or abnormal operations are traced.

policy—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—Provide detailed trace information

receive—Packets being received

receive-detail—Provide detailed trace information for packets being received

send—Packets being transmitted

send-detail—Provide detailed trace information for 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.

no-world-readable—(Optional) Disallow any user to read the log file.

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) or megabytes (MB). 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 must also 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

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

Usage Guidelines See “Tracing RIP Protocol Traffic” on page 373.

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

