
RIP Configuration Commands

Generic Commands

description

Syntax **description** *string*
no description

Context config>router>rip>group *group-name*
 config>router>rip>group *group-name*>neighbor *ip-int-name*
 config>router>ripng>group *group-name*
 config>router>ripng>group *group-name*>neighbor *ip-int-name*

Description This command creates a text description stored in the configuration file for a configuration context. The **description** command associates a text string with a configuration context to help identify the context in the configuration file.

The **no** form of the command removes any description string from the context.

Default **no description** — no description associated with the configuration context.

Parameters *string* — The description character string. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, \$, spaces, etc.), the entire string must be enclosed within double quotes.

shutdown

Syntax [**no**] **shutdown**

Context config>router>rip
 config>router>rip>group *group-name*
 config>router>rip>group *group-name*>neighbor *ip-int-name*
 config>router>ripng
 config>router>ripng>group *group-name*
 config>router>ripng>group *group-name*>neighbor *ip-int-name*

Description This command administratively disables an entity. Downing an entity does not change, reset or remove any configuration settings or statistics. Many objects must be shutdown before they may be deleted.

The **shutdown** command administratively downs an entity. Administratively downing an entity changes the operational state of the entity to down and the operational state of any entities contained within the administratively down entity.

Unlike other commands and parameters where the default state will not be indicated in the configuration file, **shutdown** and **no shutdown** are always indicated in system generated configuration files.

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The **no** form of the command puts an entity into the administratively enabled state.

Special Cases

RIP Global — In the `config>router>rip` context, the **shutdown** command administratively enables/disables the RIP protocol instance. If RIP is globally shutdown, then all RIP group and neighbor interfaces transition to the operationally down state. Routes learned from a neighbor that is shutdown are immediately removed from the RIP database and route table manager (RTM). A RIP protocol instance is administratively enabled by default.

RIP Group — In the `config>router>rip>group group-name` context, the **shutdown** command administratively enables/disables the RIP group. If a RIP group is shutdown, all member neighbor interfaces transition to the operationally down state. Routes learned from a neighbor that is shutdown are immediately removed from the RIP database and route table manager (RTM). A RIP group is administratively enabled by default.

RIP Neighbor — In the `config>router>rip>group group-name>neighbor ip-int-name` context, the **shutdown** command administratively enables/disables the RIP neighbor interface. If a RIP neighbor is shutdown, the neighbor interface transitions to the operationally down state. Routes learned from a neighbor that is shutdown are immediately removed from the RIP database and route table manager (RTM). A RIP neighbor interface is administratively enabled by default.

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rip

Syntax [no] rip

Context config>router

Description This command creates the context to configure the RIP protocol instance.

When a RIP instance is created, the protocol is enabled by default. To start or suspend execution of the RIP protocol without affecting the configuration, use the [no] **shutdown** command.

The **no** form of the command deletes the RIP protocol instance removing all associated configuration parameters.

Default **no rip** — No RIP protocol instance defined.

ripng

Syntax [no] ripng

Context config>router

Description This command creates the context to configure the RIPng protocol instance.

When a RIPng instance is created, the protocol is enabled by default. To start or suspend execution of the RIP protocol without affecting the configuration, use the [no] **shutdown** command.

The **no** form of the command deletes the RIP protocol instance removing all associated configuration parameters.

Default **no ripng** — No RIPng protocol instance defined.

authentication-key

Syntax **authentication-key** [*authentication-key* | *hash-key*] [**hash** | **hash2**]
no authentication-key

Context config>router>rip
config>router>rip>group *group-name*
config>router>rip>group *group-name*>neighbor *ip-int-name*

Description This command sets the authentication password to be passed between RIP neighbors.

The authentication type and authentication key must match exactly for the RIP message to be considered authentic and processed.

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The **no** form of the command removes the authentication password from the configuration and disables authentication.

Default **no authentication-key** — No authentication key configured.

Parameters *authentication-key* — The authentication key. Allowed values are any string up to 16 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, \$, spaces, etc.), the entire string must be enclosed within double quotes.

hash-key — The hash key. The key can be any combination of ASCII characters up to 33 characters in length (encrypted). If spaces are used in the string, enclose the entire string in quotation marks (“ ”).

This is useful when a user must configure the parameter, but, for security purposes, the actual unencrypted key value is not provided.

hash — Specifies the key is entered in an encrypted form. If the **hash** parameter is not used, the key is assumed to be in a non-encrypted, clear text form. For security, all keys are stored in encrypted form in the configuration file with the **hash** parameter specified.

hash2 — Specifies the key is entered in a more complex encrypted form. If the **hash2** parameter is not used, the less encrypted **hash** form is assumed.

authentication-type

Syntax **authentication-type {none|password|message-digest|message-digest-20}**
no authentication-type

Context config>router>rip
config>router>rip>group *group-name*
config>router>rip>group *group-name*>neighbor *ip-int-name*

Description This command sets the type of authentication to be used between RIP neighbors.

The type and password must match exactly for the RIP message to be considered authentic and processed.

The **no** form of the command removes the authentication type from the configuration and effectively disables authentication.

Default **no authentication-type** — No authentication enabled.

Parameters **none** — The **none** parameter explicitly disables authentication at a given level (global, group, neighbor). If the command does not exist in the configuration, the parameter is inherited.

password — Specify password to enable simple password (plain text) authentication. If authentication is enabled and no authentication type is specified in the command, simple **password** authentication is enabled.

message-digest — Configures 16 byte message digest for MD5 authentication. If this option is configured, then at least one **message-digest-key must** be configured.

message-digest-20 — Configures 20 byte message digest for MD5 authentication in accordance with RFC 2082, *RIP-2 MD5 Authentication*. If this option is configured, then at least one **message-digest-key** must be configured.

check-zero

Syntax	check-zero { enable disable } no check-zero
Context	config>router>rip config>router>rip>group <i>group-name</i> config>router>rip>group <i>group-name</i> >neighbor <i>ip-int-name</i> config>router>ripng config>router>ripng>group <i>group-name</i> config>router>ripng>group <i>group-name</i> >neighbor <i>ip-int-name</i>
Description	<p>This command enables checking for zero values in fields specified to be zero by the RIPv1 and RIPv2 specifications.</p> <p>The check-zero enable command enables checking of the mandatory zero fields in the RIPv1 and RIPv2 specifications and rejecting non-compliant RIP messages.</p> <p>The check-zero disable command disables this check and allows the receipt of RIP messages even if the mandatory zero fields are non-zero.</p> <p>This configuration parameter can be set at three levels: global level (applies to all groups and neighbor interfaces), group level (applies to all neighbor interfaces in the group) or neighbor level (only applies to the specified neighbor interface). The most specific value is used. In particular if no value is set (no check-zero), the setting from the less specific level is inherited by the lower level.</p> <p>The no form of the command removes the check-zero command from the configuration.</p>
Special Cases	RIP Global — By default, check-zero is disabled at the global RIP instance level.
Parameters	<p>enable — Specifies reject RIP messages which do not have zero in the RIPv1 and RIPv2 mandatory fields.</p> <p>disable — Specifies allows receipt of RIP messages which do not have the mandatory zero fields reset.</p>

export

Syntax	export <i>policy-name</i> [<i>policy-name</i> ...up to 5 max] no export
Context	config>router>rip config>router>rip>group <i>group-name</i> config>router>rip>group <i>group-name</i> >neighbor <i>ip-int-name</i> config>router>ripng config>router>ripng>group <i>group-name</i> config>router>ripng>group <i>group-name</i> >neighbor <i>ip-int-name</i>
Description	<p>This command specifies the export route policies used to determine which routes are exported to RIP.</p> <p>If no export policy is specified, non-RIP routes will not be exported from the routing table manager to RIP. RIP-learned routes will be exported to RIP neighbors.</p>

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If multiple policy names are specified, the policies are evaluated in the order they are specified. The first policy that matches is applied. If multiple export commands are issued, the last command entered will override the previous command. A maximum of five policy names can be specified.

The **no** form of the command removes all policies from the configuration.

Default **no export** — No export route policies specified.

Parameters *policy-name* — The export route policy name. Allowed values are any string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, \$, spaces, etc.), the entire string must be enclosed within double quotes.

The specified name(s) must already be defined.

export-limit

Syntax **export-limit** *number* [**log** *percentage*]
no export-limit

Context config>router>rip
config>router>ripng

Description This command configures the maximum number of routes (prefixes) that can be exported into RIP from the route table.

The **no** form of the command removes the parameters from the configuration.

Default no export-limit, the export limit for routes or prefixes is disabled..

Parameters *number* — Specifies the maximum number of routes (prefixes) that can be exported into RIP from the route table.

Values 1 — 4294967295

log percentage — Specifies the percentage of the export-limit, at which a warning log message and SNMP notification would be sent.

Values 1 — 100

group

Syntax [**no**] **group** *group-name*

Context config>router>rip
config>router>ripng

Description This command creates a context for configuring a RIP group of neighbor interfaces.

RIP groups are a way of logically associating RIP neighbor interfaces to facilitate a common configuration for RIP interfaces.

The **no** form of the command deletes the RIP neighbor interface group. Deleting the group will also remove the RIP configuration of all the neighbor interfaces currently assigned to this group.

Default **no group** — No group of RIP neighbor interfaces defined.

Parameters *group-name* — The RIP group name. Allowed values are any string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, \$, spaces, etc.), the entire string must be enclosed within double quotes.

import

Syntax **import** *policy-name* [*policy-name* ...up to 5 max]
no import

Context config>router>rip
config>router>rip>group *group-name*
config>router>rip>group *group-name*>neighbor *ip-int-name*
config>router>ripng
config>router>ripng>group *group-name*
config>router>ripng>group *group-name*>neighbor *ip-int-name*

Description This command configures import route policies to determine which routes are accepted from RIP neighbors. If no import policy is specified, RIP accepts all routes from configured RIP neighbors. Import policies can be used to limit or modify the routes accepted and their corresponding parameters and metrics.

If multiple policy names are specified, the policies are evaluated in the order they are specified. The first policy that matches is applied. If multiple import commands are issued, the last command entered will override the previous command. A maximum of five policy names can be specified.

The **no** form of the command removes all policies from the configuration.

Default **no import** — No import route policies specified.

Parameters *policy-name* — The import route policy name. Allowed values are any string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, \$, spaces, etc.), the entire string must be enclosed within double quotes.

The specified name(s) must already be defined.

message-size

Syntax **message-size** *max-num-of-routes*
no message-size

Context config>router>rip
config>router>rip>group *group-name*
config>router>rip>group *group-name*>neighbor *ip-int-name*
config>router>ripng
config>router>ripng>group *group-name*
config>router>ripng>group *group-name*>neighbor *ip-int-name*

Description This command configures the maximum number of routes per RIP update message.

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The **no** form of the command reverts to the default value.

Default **message-size 25** — A maximum of 25 routes per RIP update message.

Parameters *max-num-of-routes* — The maximum number of RIP routes per RIP update message expressed as a decimal integer.

Values 25 — 255

metric-in

Syntax **metric-in** *metric*
no metric-in

Context config>router>rip
config>router>rip>group *group-name*
config>router>rip>group *group-name*>neighbor *ip-int-name*
config>router>ripng
config>router>ripng>group *group-name*
config>router>ripng>group *group-name*>neighbor *ip-int-name*

Description This command configures the metric added to routes received from a RIP neighbor.

When applying an export policy to a RIP configuration, the policy overrides the metric values determined through calculations involving the **metric-in** and **metric-out** values.

The **no** form of the command reverts to the default value.

Default **metric-in 1** — Add 1 to the metric of routes received from a RIP neighbor.

Parameters *metric* — The value added to the metric of routes received from a RIP neighbor expressed as a decimal integer.

Values 1 — 16

metric-out

Syntax **metric-out** *metric*
no metric-out

Context config>router>rip
config>router>rip>group *group-name*
config>router>rip>group *group-name*>neighbor *ip-int-name*
config>router>ripng
config>router>ripng>group *group-name*
config>router>ripng>group *group-name*>neighbor *ip-int-name*

Description This command configures the metric assigned to routes exported into RIP and advertised to RIP neighbors.

When applying an export policy to a RIP configuration, the policy overrides the metric values determined through calculations involving the **metric-in** and **metric-out** values.

The **no** form of the command reverts to the default value.

Default metric-out 1 — Routes exported from non-RIP sources are given a metric of 1.

Parameters *metric* — The value added to the metric for routes exported into RIP and advertised to RIP neighbors expressed as a decimal integer.

Values 1 — 16

neighbor

Syntax [**no**] **neighbor** *ip-int-name*

Context config>router>rip>group *group-name*
config>router>ripng>group *group-name*

Description This command creates a context for configuring a RIP neighbor interface.

By default, interfaces are not activated in any interior gateway protocol, such as RIP, unless explicitly configured.

The **no** form of the command deletes the RIP interface configuration for this interface. The **shutdown** command in the config>router>rip>group *group-name*>neighbor *ip-int-name* context can be used to disable an interface without removing the configuration for the interface.

Default **no neighbor** — No RIP interfaces defined.

Parameters *ip-int-name* — The IP interface name. Interface names must be unique within the group of defined IP interfaces for **config router interface** and **config service ies interface** commands. An interface name cannot be in the form of an IP address. Interface names can be any string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, \$, spaces, etc.), the entire string must be enclosed within double quotes.

If the IP interface name does not exist or does not have an IP address configured, an error message will be returned.

preference

Syntax **preference** *preference*
no preference

Context config>router>rip
config>router>rip>group *group-name*
config>router>rip>group *group-name*>neighbor *ip-int-name*
config>router>ripng
config>router>ripng>group *group-name*
config>router>ripng>group *group-name*>neighbor *ip-int-name*

Description This command configures the preference for RIP routes.

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A route can be learned by the router from different protocols in which case the costs are not comparable. When this occurs the preference is used to decide which route will be used.

Different protocols should not be configured with the same preference, if this occurs the tiebreaker is per the default preference table as defined in [Table 5](#). If multiple routes are learned with an identical preference using the same protocol, the lowest cost route is used.

If multiple routes are learned with an identical preference using the same protocol and the costs (metrics) are equal, then the decision of what route to use is determined by the configuration of the **ecmp** in the `config>router` context.

The **no** form of the command reverts to the default value.

Default **preference 100** — Preference of 100 for RIP routes.

Parameters *preference* — The preference for RIP routes expressed as a decimal integer. Defaults for different route types are listed in [Table 5](#).

Table 5: Route Preference Defaults by Route Type

Route Type	Preference	Configurable
Direct attached	0	No
Static routes	5	Yes
OSPF internal	10	Yes
IS-IS level 1 internal	15	Yes
IS-IS level 2 internal	18	Yes
RIP	100	Yes
OSPF external	150	Yes
IS-IS level 1 external	160	Yes
IS-IS level 2 external	165	Yes
TMS	167	No
BGP	170	Yes

Values 0 — 255

receive

Syntax `receive {both | none | version-1 | version-2}`
`no receive`

Context `config>router>rip`
`config>router>rip>group group-name`
`config>router>rip>group group-name>neighbor ip-int-name`
`config>router>ripng`
`config>router>ripng>group group-name`
`config>router>ripng>group group-name>neighbor ip-int-name`

Description This command configures the type(s) of RIP updates that will be accepted and processed.

If **both** or **version-2** is specified, the RIP instance listens for and accepts packets sent to the broadcast and multicast (224.0.0.9) addresses.

If **version-1** is specified, the router only listens for and accept packets sent to the broadcast address.

This control can be issued at the global, group or interface level. The default behavior is to accept and process both RIPv1 and RIPv2 messages.

The **no** form of the command reverts to the default value.

Default `receive both`

Parameters **both** — Specifies that RIP updates in either version 1 or version 2 format will be accepted.

none — Specifies that RIP updates will not be accepted.

version-1 — Specifies that RIP updates in version 1 format only will be accepted.

version-2 — Specifies that RIP updates in version 2 format only will be accepted.

send

Syntax `send {broadcast | multicast | none | version-1}`
`no send`

Context `config>router>rip`
`config>router>rip>group group-name`
`config>router>rip>group group-name>neighbor ip-int-name`

Description This command specifies the type of RIP messages sent to RIP neighbors.

If **version-1** is specified, the router need only listen for and accept packets sent to the broadcast address.

This control can be issued at the global, group or interface level.

The **no** form of the command reverts to the default value.

Default `send broadcast` — RIPv2 formatted messages will be sent to the broadcast address.

Parameters **broadcast** — Specifies send RIPv2 formatted messages to the broadcast address.

multicast — Specifies send RIPv2 formatted messages to the multicast address.

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none — Specifies not to send any RIP messages (i.e. silent listener).

version-1 — Specifies send RIPv1 formatted messages to the broadcast address.

send

Syntax **send {none | ripng | unicast}**
no send

Context config>router>ripng
config>router>ripng>group *group-name*
config>router>ripng>group *group-name*>neighbor *ip-int-name*

Description This command specifies if RIPng are sent to RIP neighbors or not and what type of IPv6 address is to be used to deliver the messages.

This control can be issued at the global, group or interface level.

The **no** form of the command reverts to the default value.

Default **send ripng** — RIPng formatted messages will be sent to the RIPng IPv6 multicast address.

Parameters **ripng** — Specifies RIPng messages to be sent to the standard multicast address (FF02::9).

none — Specifies not to send any RIPng messages (i.e. silent listener).

unicast — Specifies to send RIPng updates as unicast messages to the defined unicast address configured through the **unicast-address** command. This option is only allowed within the neighbor context.

split-horizon

Syntax **split-horizon {enable | disable}**
no split-horizon

Context config>router>rip
config>router>rip>group *group-name*
config>router>rip>group *group-name*>neighbor *ip-int-name*
config>router>ripng
config>router>ripng>group *group-name*
config>router>ripng>group *group-name*>neighbor *ip-int-name*

Description This command enables the use of split-horizon.

RIP uses split-horizon with poison-reverse to protect from such problems as “counting to infinity”. Split-horizon with poison reverse means that routes learned from a neighbor through a given interface are advertised in updates out of the same interface but with a metric of 16 (infinity).

The **split-horizon disable** command enables split horizon without poison reverse. This allows the routes to be re-advertised on interfaces other than the interface that learned the route, with the advertised metric equaling an increment of the metric-in value.

This configuration parameter can be set at three levels: global level (applies to all groups and neighbor interfaces), group level (applies to all neighbor interfaces in the group) or neighbor level (only applies to the specified neighbor interface). The most specific value is used. In particular if no value is set (**no split-horizon**), the setting from the less specific level is inherited by the lower level.

The **no** form of the command disables split horizon command which allows the lower level to inherit the setting from an upper level.

Default **enabled**

Parameters **enable** — Specifies enable split horizon and poison reverse.

disable — Specifies disable split horizon allowing routes to be re-advertised on the same interface on which they were learned with the advertised metric incremented by the **metric-in** value.

timers

Syntax **timers** *update timeout flush*
no timers

Context config>router>rip
config>router>rip>group *group-name*
config>router>rip>group *group-name*>neighbor *ip-int-name*
config>router>ripng
config>router>ripng>group *group-name*
config>router>ripng>group *group-name*>neighbor *ip-int-name*

Description This command configures values for the update, timeout and flush RIP timers.

The RIP update timer determines how often RIP updates are sent.

If the route is not updated by the time the RIP timeout timer expires, the route is declared invalid but is maintained in the RIP database.

The RIP flush timer determines how long a route is maintained in the RIP database after it has been declared invalid. Once the flush timer expires, the route is removed from the RIP database.

The **no** form of the command reverts to the default values.

Default **timers 30 180 120** — RIP update timer set to 30 seconds, timeout timer to 180 seconds and flush timer to 120 seconds.

Parameters *update* — The RIP update timer value in seconds expressed as a decimal integer.

Values 1 — 600

timeout — The RIP timeout timer value in seconds expressed as a decimal integer.

Values 1 — 1200

flush — The RIP flush timer value in seconds expressed as a decimal integer.

Values 1 — 1200

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unicast-address

Syntax `[no] unicast-address ipv6-address`

Context `config>router>ripng>group group-name>neighbor ip-int-name`

Description This command configures the unicast IPv6 address, RIPng updates messages will be sent to if the RIPng **send** command is set to **send unicast**.

Multiple unicast-address entries can be configured, in which case unicast messages will be sent to each configured unicast IPv6 address.

The **no** form of the command deletes the specified IPv6 unicast address from the configuration.

Default *ipv6-address* — IPv6 unicast address to which unicast RIPng updates should be sent.