
SRstackware[®] Intelligent Network Software

RIP Command Reference

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Embedded Computing

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About this Manual

Overview of Contents

This manual is intended for network administrators and application developers to install and configure SRstackware® IP routing software.

This manual contains the following information:

- An overview of the SRstackware Command Line Interface.
- The complete command reference for SRstackware Routing Information Protocol (RIP).

Users can use a telnet session to log onto the RIP daemon and use the CLI described in this manual to issue commands to configure and to get information about the RIP daemon.

This manual is divided into the following chapters and appendices.

Chapter 1, Command Line Interface Environment on page 23

Chapter 2, RIP Commands on page 41

Chapter 3, RIPng Commands on page 81

Appendix A, RIP Authentication on page 99

Appendix B, Related Documentation on page 103



Abbreviations






This document uses the following abbreviations:

Abbreviation	Definition
AMC	Alarm Management Controller
ARP	Address Resolution Protocol
BGP	Border Gateway Protocol
CLI	Command Line Interface
IMI	Integrated Management Interface
IS-IS	Intermediate System to Intermediate System
NSM	Network Services Module
OSPF	Open Shortest Path First
RIP	Routing Information Protocol
SRstackware	Switching and Routing stackware

Conventions

The following table describes the conventions used throughout this manual.

Notation	Description
0x00000000	Typical notation for hexadecimal numbers (digits are 0 through F), for example used for addresses and offsets
0b0000	Same for binary numbers (digits are 0 and 1)
bold	Used to emphasize a word
Screen	Used for on-screen output and code related elements or commands. Sample of Programming used in a table (9pt)
Courier + Bold	Used to characterize user input and to separate it from system output
<i>Reference</i>	Used for references and for table and figure descriptions
File > Exit	Notation for selecting a submenu
<text>	Notation for variables and keys
[text]	Notation for software buttons to click on the screen and parameter description
...	Repeated item for example node 1, node 2, ..., node 12
.	Omission of information from example/command that is not necessary at the time
..	Ranges, for example: 0..4 means one of the integers 0,1,2,3, and 4 (used in registers)
	Logical OR
	Indicates a hazardous situation which, if not avoided, could result in death or serious injury
	Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury

Notation	Description
	Indicates a property damage message
	Indicates a hot surface that could result in moderate or serious injury
	Indicates an electrical situation that could result in moderate injury or death
<p>Use ESD protection</p> 	Indicates that when working in an ESD environment care should be taken to use proper ESD practices
	No danger encountered, pay attention to important information

Summary of Changes

This manual has been revised and replaces all prior editions.

Part Number	Publication Date	Description
6806800N85E	March 2020	Rebrand to SMART Embedded Computing template.
6806800N85D	July 2017	Added registered trademark to SRstackware
6806800N85C	June 2014	Re-branded to Artesyn template.
6806800N85B	October 2012	Added a note that this document is relevant only if LAYER3SRS is licensed.
6806800N85A	February 2012	EA Release

Command Line Interface Environment

1.1 Command Line Interface Primer

The SRstackware® Command Line Interface (CLI) is a text based facility conforming to industry standards. Many of the commands may be used in scripts to automate configuration tasks. Each CLI is usually associated with a specific function or a common function performing a specific task. Multiple users can telnet and issue commands using the Exec mode and the Privileged Exec mode. Only one user is allowed to use the Configure mode at a time.

The Integrated Management Interface (IMI) Shell gives users and administrators the ability to issue commands to several daemons from a single telnet session.

1.1.1 Definitions

token	A non-character, non-numeric symbol: {}, {}, (), <>, , ?, >, ., =
parameter	An UPPERCASE term for which the user substitutes input.
keyword	A lowercase term that the user types exactly as shown.

1.1.2 Command Line Help

The SRstackware CLI contains a text-based help facility. Access this help by typing in the full or partial command string and then typing a question mark "?". The SRstackware CLI displays the command keywords or parameters along with a short description.

For example, at the CLI command prompt, type

```
> show ? (the CLI does not display the question mark).
```

The CLI displays this keyword list with short descriptions for each keyword:

```
# show
  debugging      Debugging functions (see also 'undebug')
  history        Display the session command history
  ip             IP information
  memory         Memory statistics
  route-map     route-map information
  running-config running configuration
  startup-config Contents of startup configuration
  version       Displays version
```

Command Line Interface Environment

If the ? is typed in the middle of a keyword, SRstackware displays help for that keyword only.

```
> show de? (the CLI does not display the question mark)
      debugging  Debugging functions (see also 'undebug')
```

If the ? is typed in the middle of a keyword but the incomplete keyword matches several other keywords, SRstackware displays help for all matching keywords.

```
> show i? (the CLI does not display the question mark)
      interface  Interface status and configuration
      ip         IP information
      isis       ISIS information
```

1.1.3 Syntax Help

1.1.3.1 Command Completion

The SRstackware CLI can complete the spelling of a command or a parameter. Begin typing the command or parameter and then press TAB. For example, at the CLI command prompt type `sh`:

```
> sh
Press TAB. The CLI shows:
> show
```

If the partial spelling of the command or parameter is ambiguous, then the SRstackware CLI displays the choices that match the abbreviation. Type `show i` and press TAB. The CLI shows:

```
> show i
      interface ip isis
> show i
```

The CLI displays the commands that start with letter `i`, such as `interface`, `ip`, and `isis`. Type `n` to select `interface` and press TAB. The CLI shows:

```
> show in
> show interface
```

Type `?` and the CLI displays the list of parameters for the `show interface` command.

```
> show interface
IFNAME Interface name
|      Output modifiers
>      Output redirection
<cr>
```


The CLI displays the only parameter associated with this command, the IFNAME parameter. For more information on the output modifiers and output redirection, see the Special Tokens for Show Commands section.

1.1.3.2 Command Abbreviations

The SRstackware CLI accepts abbreviations for commands. For example,

```
sh in eth0
```

is an abbreviation for the `show interface` command.

1.1.3.3 Command Line Errors

Any unknown spelling variation causes the command line parser to display in response to the `?`, the error `Unrecognized command`. The parser redisplay the command as last entered. When the user presses the enter key after typing an invalid command, the parser displays:

```
(config)#router ospf here
                        ^
```

```
% Invalid input detected at '^' marker.
```

where the `^` points to the first character in error in the command.

If a command is incomplete it displays this message:

```
> show
% Incomplete command
```

Some commands are too long for the display line and can wrap in mid-parameter or mid-keyword:

```
area 10.10.0.18 virtual-link 10.10.0.19 authentication-key
57393
```

1.2 Command Reference Primer

1.2.1 Typographic Conventions

The following table lists typographic conventions for command syntax descriptions.

Table 1-1 Typographic Conventions

Convention	Name	Description	Example
Monospaced font	Command	Represents command strings entered on a command line and sample source code	<code>show ip ospf</code>
Proportional font	Description	Gives specific details about a parameter.	<code>advertise</code> Advertises this range
UPPERCASE	Variable parameter	Indicates user input. Values to be entered according to the descriptions that follow. Each uppercased token expands into one or more other tokens.	<code>area AREAID range ADDRESS</code>
lowercase	Keyword parameter	Indicates keywords. Values to be entered exactly as shown in the command description.	<code>show ip ospf</code>
	Vertical bar	Delimits choices; One to be selected from the list. Not to be entered as part of the command.	<code>A.B.C.D <0-4294967295></code>
()	Parentheses	Encloses optional parameters. None or only one to be chosen. Not to be entered as part of the command.	<code>(A.B.C.D <0-4294967295>)</code>
{ }	Braces	Encloses optional parameters. None, one or more than one to be chosen. Not to be entered as part of the command.	<code>{priority <0-255> poll-interval <1-65535>}</code>
[]	Square brackets	Encloses optional parameters. Choose one. Not to be entered as part of the command.	<code>[parm2 parm2 parm3]</code>

Table 1-1 Typographic Conventions (continued)

Convention	Name	Description	Example
?	Question mark	Used with the square brackets to limit the immediately following token to one occurrence. Not to be entered as part of the command.	[parm1 parm2 ? parm3] expands to parm1 parm3 parm1 parm2 (with parm3 occurring once)
< >	Angle brackets	Enclose a numeric range, endpoints inclusive. Not to be entered as part of the command	<0-65535>
=	Equal sign	Separates the variable from explanatory text. Not to be entered as part of the command.	PROCESSID = <0-65535>
.	Dot (period)	Allows the repetition of the element that immediately follows it multiple times. Not to be entered as part of the command.	.AA:NN can be expanded to: 1:01 1:02 1:03.
A.B.C.D	IP address	An IPv4-style address.	10.0.11.123
X:X::X:X	IP address	An IPv6-style address.	3ffe:506::1, where the:: represents all 0s for those address components not explicitly given.
LINE	End-of-line input token	Indicates user input of any string, including spaces. No other parameters may be entered after input for this token.	string of words
WORD	Single token	Indicates user input of any contiguous string (excluding spaces).	singlewordnospaces
IFNAME	Single token	Indicates the name of an interface.	eth0

1.3 Format used for Command Description

1.3.1 Command Name

Description of the command. What the command does and when should it be used.

1.3.1.1 Command Syntax

`sample-command-name mandatory-parameters (OPTIONAL-PARAMETERS)`

1.3.1.2 Default

The status of the command before it is executed. Is it enabled or disabled by default.

1.3.1.3 Command Mode

Name of the command mode in which this command is to be used. Such as, Exec, Privilege Exec, Configure mode, and so on.

1.3.1.4 Usage

This section is optional. It describes the usage of a specific command and the interactions between parameters. It also includes appropriate sample outputs for `show` commands.

1.3.1.5 Example

Used if needed to show the complexities of the command syntax.

1.3.1.6 Related Commands

This section is optional and lists those commands that are of immediate importance.

1.3.1.7 Equivalent Commands

This section is optional and lists commands that accomplish the same function.

1.3.1.8 Validation Commands

This section is optional and lists commands that can be used to validate the effects of other commands.

1.3.2 Command Negation

Some commands can be negated by using a `no` keyword.

In the following area virtual-link command, the `no` keyword is optional. This means that the entire syntax can be negated. Depending on the command or the parameters, command negation can mean the disabling of one entire feature for the router or the disabling of that feature for a specific ID, interface, or address.

```
(no) area AREAADDRESSID virtual-link ROUTERID
(AUTHENTICATE | MSGD | INTERVAL)
```

In the following example, negation is for the base command only. The negated form does not take any parameter.

```
default-metric <1-16777214>
no default-metric
```

1.3.3 Variable Parameter Expansion

For the area virtual-link command,

```
(no) area AREAADDRESSID virtual-link ROUTERID
(AUTHENTICATE | MSGD | INTERVAL)
```

the `AREAADDRESSID` parameter is replaced by either an IP address or a number in the given range:

```
AREAADDRESSID=A.B.C.D | <0-4294967295>
```

and `ROUTERID` by an IP address. The minimum command then is:

```
area 10.10.0.11 virtual-link 10.10.0.12
```

The parameters in the string `(AUTHENTICATE | MSGD | INTERVAL)` are optional, and only one may be chosen. Each one can be replaced by more keywords and parameters. One of these parameters, `MD5`, is replaced by the following string:

```
MD5= [message-digest-key <1-255> md5 MD5_KEY]
```

with `MD5_KEY` replaced by a 1-16 character string.

1.4 Show Command Tokens

Two tokens modify the output of the show commands. Use the ? after typing the command to display:

```
# show users
| Output modifiers
> Output redirection
```



These tokens are available only through the IMI shell; they are unavailable to users who telnet to daemons.

1.4.1 Output Modifiers

Type the | (vertical bar) to use output modifiers.

```
begin      Begin with the line that matches
exclude    Exclude lines that match
include    Include lines that match
redirect   Redirect output
```

1.4.1.1 Begin

The begin parameter displays the output beginning with the first line containing a token matching the input string (everything typed after the begin token).

```
# show run | begin eth1
...skipping
interface eth1
  ipv6 address fe80::204:75ff:fee6:5393/64
!
interface eth2
  ipv6 address fe80::20d:56ff:fe96:725a/64
!
line con 0
  login
line vty 0 4
  login
!
end
```

1.4.1.2 Exclude

The exclude parameter excludes all lines of output that contain the input string. In the following output all lines containing the word “include” are excluded:

```
# show interface eth1 | exclude input
Interface eth1
  Scope: both
  Hardware is Ethernet, address is 0004.75e6.5393
  index 3 metric 1 mtu 1500 <UP,BROADCAST,RUNNING,MULTICAST>
  VRF Binding: Not bound
  Label switching is disabled
  No Virtual Circuit configured
  Administrative Group(s): None
  DSTE Bandwidth Constraint Mode is MAM
  inet6 fe80::204:75ff:fee6:5393/64
    output packets 4438, bytes 394940, dropped 0
    output errors 0, aborted 0, carrier 0, fifo 0, heartbeat 0,
window 0
  collisions 0
```

1.4.1.3 Include

The include parameter includes only those lines of output that contain the input string. In the output below, all lines containing the word “input” are included:

```
# show interface eth1 | include input
  input packets 80434552, bytes 2147483647, dropped 0,
multicast packets 0
  input errors 0, length 0, overrun 0, CRC 0, frame 0, fifo 1,
missed 0
```

1.4.1.4 Redirect

The redirect parameter puts the lines of output into the indicated file.

```
# show history | redirect /var/frame.txt
```

1.4.2 Output Redirection

The output redirection token > allows the user to specify a target file for the lines of output.

```
# show history > /var/frame.txt
```

1.5 Common Command Modes

The commands available for each protocol are separated into several modes (nodes) arranged in a hierarchy. The Exec mode is the lowest. Each mode has its own special commands; in some modes, commands from a lower level are available.



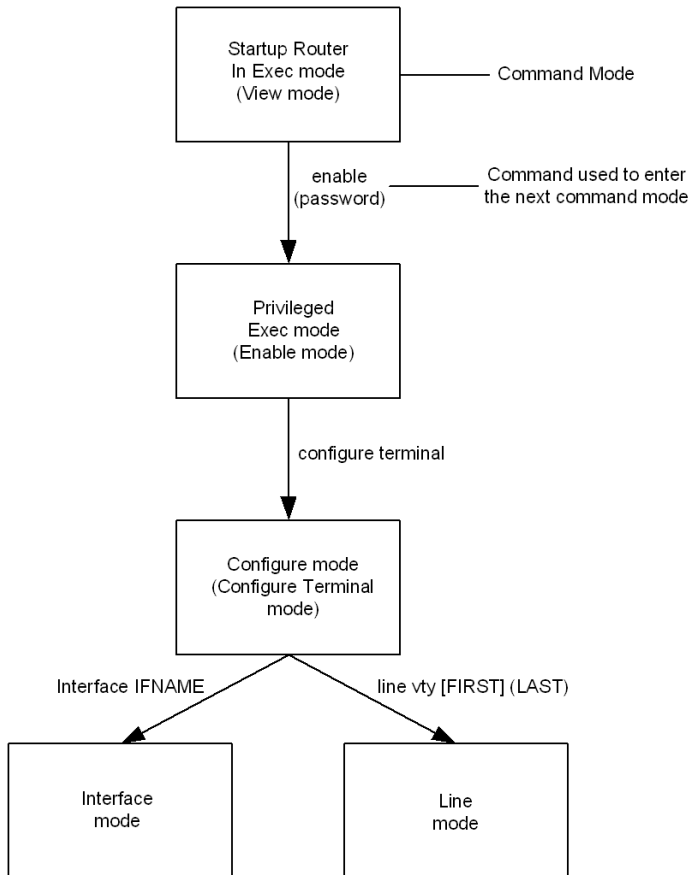
Multiple users can telnet and issue commands using the Exec mode and the Privileged Exec mode. Only one user is allowed to use the Configure mode at a time.

Table 1-2 Common Command Modes Descriptions

Mode	Description
Exec	Also called the View mode, is the base mode from where users can perform basic commands like <code>show</code> , <code>exit</code> , <code>quit</code> , <code>help</code> , <code>list</code> , and <code>enable</code> . All SRstackware daemons have this mode.
Privileged Exec	Also called the Enable mode, allows users to run <code>debug</code> , <code>write</code> (for saving and viewing the configuration) and <code>show</code> commands
Configure	Also called Configure Terminal mode, this mode serves as a gateway into the <code>Interface</code> , <code>Router</code> , <code>Line</code> , <code>Route Map</code> , <code>Key Chain</code> and <code>Address Family</code> modes.
Interface	Used to configure protocol-specific settings for a particular interface. Any attribute configured in this mode overrides an attribute configured in the <code>Router</code> mode
Line	Makes the <code>access-class</code> commands available

The diagram below displays the common command mode tree.

Figure 1-1 Common Command Mode Tree



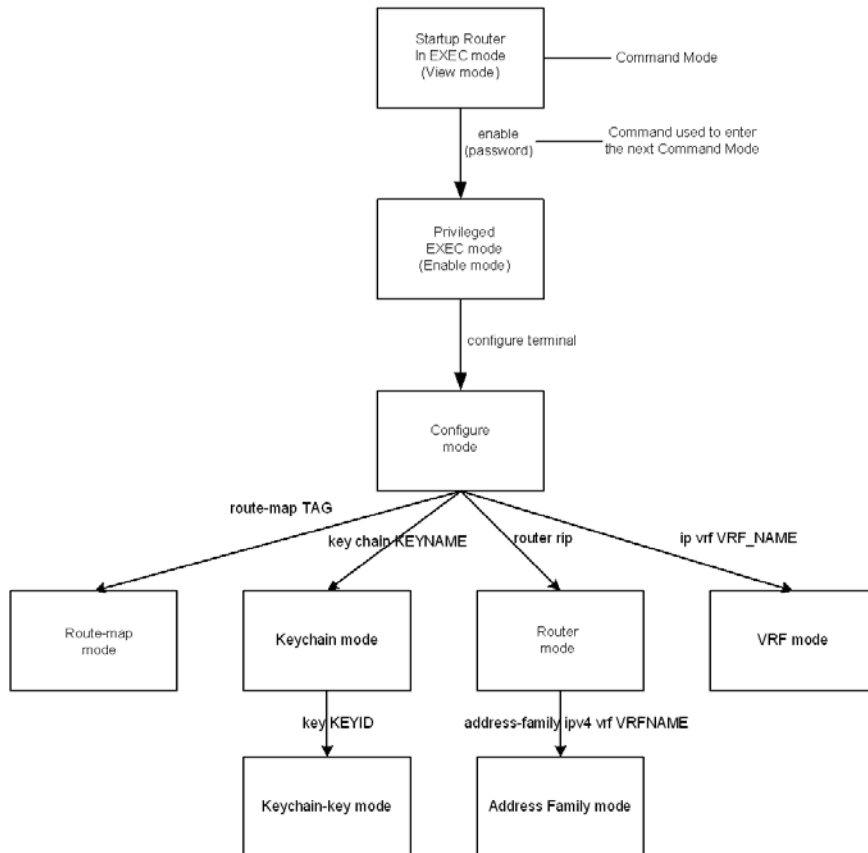
1.6 RIP Daemon Command Modes

Table 1-3 RIP Daemon Command Modes

Mode	Description
Router	Sometimes referred to as configure-router mode, this mode, available for the MPLS, BGP, OSPF, and RIP protocols only, makes available router and routing commands.
Route Map	This mode, available for the BGP, OSPF, and RIP protocols only, makes available commands that set route metric and other route-length and cost data.
Key Chain	This mode, available for the RIP protocol only, manages the key chain.
Address Family	This mode enables users to configure address-family specific parameters for routing protocols allowing use of Layer 3 address families.

The following diagram shows the complete RIP daemon command mode tree. For information about Exec, Privileged Exec, Configure and Interface modes please refer to [Common Command Modes on page 32](#).

Figure 1-2 RIP Command Mode Tree



Following is a description of the parameters used in the commands mentioned above.

TAG = WORD (deny|permit) <1-65535>

deny Route-map denies set operations.

permit Route-map permits set operations.

<1-65535> Sequence to insert to / delete from existing route-map entry.

KEYNAME Specify the name of the key chain to manage.

KEYID = <0-2147483647> Key identifier number.

VRF_NAME = A name used to identify a VRF (Virtual Routing and Forwarding Instance).

ipv4 Specifies the IPv4 Address Family.

1.7 Commands Common to Multiple Protocols

Refer to the SRstackware Layer 2 Command Reference, Layer 3 Command Reference, and the Switch Configuration Command Reference for information about using these commands in multiple protocol daemons.

Table 1-4 Commands Common to Multiple Protocols

Command Name	Use this command to
<code>access-class</code>	filter a connection based on an IP access list, for IPv4 networks
<code>access-list</code>	configure an access-list for filtering packets
<code>access-list extended</code>	configure an extended access-list for filtering packets
<code>access-list standard</code>	configure a standard access-list for filtering packets
<code>banner</code>	toggle the displaying of the banner text
<code>clear ip prefix-list</code>	clear the IP prefix-list
<code>configure terminal</code>	enter the Configure Terminal mode
<code>copy running-config startup-config</code>	copy the current running configuration to the startup configuration file
<code>description</code>	provide interface-specific information
<code>disable</code>	exit Privileged Exec mode
<code>enable</code>	enter the Privileged Exec mode
<code>enable password</code>	change the password for the enable command
<code>end</code>	leave the current mode
<code>exec-timeout</code>	set command interpreter wait interval
<code>exit</code>	leave the current mode, or logout of the session
<code>help</code>	display online text assistance
<code>hostname</code>	set or change network server name
<code>ip prefix-list</code>	create an entry for a prefix list
<code>ipv6 access-class</code>	filter connection based on an IP access list for IPv6 networks
<code>ipv6 access-list</code>	configure an access-list for filtering frames
<code>ipv6 prefix-list</code>	create an entry for an IPv6 prefix list
<code>line vty</code>	enter Line mode

Table 1-4 Commands Common to Multiple Protocols

Command Name	Use this command to
<code>list</code>	list all commands for a mode
<code>log file</code>	specify the file that collects logging information
<code>log record-priority</code>	specify the logging of the priority of a message
<code>log syslog</code>	begin logging information to the system log
<code>log trap</code>	limit logging to a specified level or type
<code>login</code>	set a password prompt and enable password checking
<code>match as-path</code>	match an autonomous system path access list
<code>match community</code>	specify the community to be matched
<code>match extcommunity</code>	specify the extended community to be matched
<code>match interface</code>	define the interface match criterion
<code>match ip address</code>	specify the match address of route
<code>match ip address prefix-list</code>	specify to match entries of prefix-lists
<code>match ip next-hop</code>	specify a next-hop address to be matched in a route-map
<code>match ip next-hop prefix-list</code>	specify the next-hop IP address match criterion, using the prefix-list
<code>match ipv6 address</code>	specify the match IPv6 address of route
<code>match ipv6 address prefix-list</code>	match entries of IPv6 prefix-lists
<code>match ipv6 next-hop</code>	specify a next-hop IPv6 address to be matched by the route-map
<code>match metric</code>	match a metric of a route
<code>match origin</code>	match origin code
<code>match route-type</code>	match specified external route type
<code>match tag</code>	match the specified tag value
<code>password</code>	specify a network password
<code>quit</code>	leave the current mode
<code>route-map</code>	enter the route-map mode and to permit or deny match/set operations

Command Line Interface Environment

Table 1-4 Commands Common to Multiple Protocols

Command Name	Use this command to
<code>service advanced-vty</code>	set the VTY session to Privileged Exec mode instead of the Exec mode (which is the default)
<code>service password-encryption</code>	specify encryption of passwords
<code>service terminal-length</code>	set the terminal length for VTY sessions
<code>set aggregator</code>	set the AS number for the route map and router ID
<code>set as-path</code>	modify an autonomous system path for a route
<code>set atomic-aggregate</code>	set an atomic aggregate attribute
<code>set comm-list delete</code>	delete matching communities from inbound or outbound updates.
<code>set community</code>	set the communities attribute
<code>set community-additive</code>	add a community to the already existing communities
<code>set dampening</code>	set route-flap dampening parameters
<code>set extcommunity</code>	set an extended community attribute
<code>set ip next-hop</code>	set the specified next-hop value
<code>set ipv6 next-hop</code>	set a next hop-address
<code>set metric</code>	set a metric value for a route
<code>set metric-type</code>	set the metric type for the destination routing protocol
<code>set next-hop</code>	specify the next-hop address
<code>set origin</code>	set the origin code
<code>set originator-id</code>	set the originator ID attribute
<code>set tag</code>	set specified tag value
<code>set vpnv4 next-hop</code>	set a VPNv4 next-hop address
<code>set weight</code>	set weights for the routing table
<code>show access-list</code>	display the list of IP access lists
<code>show cli</code>	display the CLI tree of the current mode
<code>show list</code>	display a list of all commands in the current mode

Table 1-4 Commands Common to Multiple Protocols

Command Name	Use this command to
<code>show history</code>	display all commands used in a session
<code>show ip prefix-list</code>	display the prefix list entries
<code>show memory all</code>	display the memory reports for all protocols
<code>show memory free</code>	display the statistics of free memory for all protocol
<code>show memory summary</code>	display the summary of memory subsystem statistics
<code>show route-map</code>	display user readable route-map information
<code>show running-config</code>	display the current configuration
<code>show startup-config</code>	display the startup configuration (from storage)
<code>show version</code>	display the current SRstackware version
<code>terminal length</code>	set the number of lines in a terminal display
<code>terminal monitor</code>	display debugging on a monitor
<code>who</code>	display other VTY connections
<code>write file</code> and <code>write memory</code>	write the current configuration file
<code>write terminal</code>	display current configurations to the VTY terminal

RIP Commands

2.1 Introduction

This chapter provides an alphabetized reference for each of the RIP Commands.

2.2 accept-lifetime

Use this command to specify the time period during which the authentication key on a key chain is received as valid.

2.2.1 Command Syntax

```
accept-lifetime START END
```

```
START HH:MM:SS DAY MONTH YEAR
```

HH:MM:SS Time of the day when accept-lifetime starts, in hours, minutes and seconds.

DAY <1-31> Specifies the day of the month to start.

MONTH Specifies the month of the year to start (the first three letters of the month, for example, Jan).

YEAR <1993-2035> Specifies the year to start.

```
END TIME|duration|infinite
```

```
TIME = HH:MM:SS DAY MONTH YEAR
```

HH:MM:SS Time of the day when lifetime expires, in hours, minutes and seconds.

DAY <1-31> Specifies the day of the month to expire.

MONTH Specifies the month of the year to expire (the first three letters of the month, for example, Feb).

YEAR <1993-2035> Specifies the year to expire.

duration <1-2147483646> Duration of the key in seconds.

infinite Never expires.

2.2.2 Command Mode

Keychain-key mode

2.2.3 Usage

Refer to [Appendix A, RIP Authentication on page 99](#) to see how this command is related to the other authentication commands.

2.2.4 Examples

The following example shows the setting of accept-lifetime for key1 on the key chain named mychain.

```
# configure terminal
```

```
(config)# key chain mychain
```

```
(config-keychain)# key 1
```

```
(config-keychain-key)# accept-lifetime 03:03:01 Dec 3 2004 04:04:02 Oct 6 2006
```

2.2.5 Related Commands

key, key-string, key chain, send-lifetime

2.3 cisco-metric-behavior

Use this command to enable or disable the metric update as Cisco.

Use the no parameter with this command to disable this feature.

2.3.1 Command Syntax

```
cisco-metric-behavior enable|disable
```

enable Enables updating the metric consistent with Cisco

disable Disables updating the metric consistent with Cisco

```
no cisco-metric-behavior
```

2.3.2 Default

By default, the Cisco metric-behavior is disabled.

2.3.3 Command Mode

Router mode

2.3.4 Usage

This command is used to set/unset metric-updation as Cisco.

2.3.5 Examples

This example enables the metric update behavior to be consistent with Cisco.

```
# configure terminal
(config)# router rip
(config-router)# cisco-metric-behavior enable
```

2.4 clear ip rip route

Use this command to clear specific data from the RIP routing table.

2.4.1 Command Syntax

```
clear ip rip route
A.B.C.D/M|kernel|static|connected|rip|ospf|isis|bgp|all
```

A.B.C.D/M removes entries which exactly match this destination address from RIP routing table.

kernel removes kernel entries from the RIP routing table.

static removes static entries from the RIP routing table.

connected removes entries for connected routes from the RIP routing table.

rip removes only RIP routes from the RIP routing table.

ospf removes only OSPF routes from the RIP routing table.

isis removes only IS-IS routes from the RIP routing table

bgp removes only BGP routes from the RIP routing table.

all clears the entire RIP routing table.

RIP Commands

2.4.2 Command Mode

Privileged Exec mode

2.4.3 Usage

Using this command with the `all` parameter, clears the RIP table of all the routes. If you do not want that your RIP network to be deleted, use the `redistribute connected` command and make the RIP network a connected route. Now, to delete the RIP routes learned from neighbor and also keep the RIP network intact, use the `rip (clear ip rip route rip)` parameter with this command.

2.4.4 Examples

```
# clear ip rip route 10.0.0.0/8
# clear ip rip route ospf
```

2.5 debug rip

Use this command to specify the options for the displayed debugging information for RIP events, RIP packets and RIP NSM.

Use the `no` parameter with this command to disable all debugging.

2.5.1 Command Syntax

```
debug rip events|nsm|PACKET
```

```
no debug rip events|nsm|PACKET
```

`events` = RIP events debug information is displayed.

`nsm` = RIP and NSM communication is displayed

`PACKET` = packet (recv|send) (detail) Specifies RIP packets only

`recv` Specifies that information for received packets be displayed.

`send` Specifies that information for sent packets be displayed.

`detail` Displays detailed information for the sent or received packet.

2.5.2 Default

Disabled

2.5.3 Command Mode

Privileged Exec mode and Configure mode

2.5.4 Examples

The following example displays information about the rip packets that are received and sent out from the connected router.

```
# debug rip packet
```

2.5.5 Related Commands

log file

2.6 default-information originate

Use this command to generate a default route into the Routing Information Protocol (RIP).

Use the `no` parameter with this command to disable this feature.

2.6.1 Command Syntax

```
(no) default-information originate
```

2.6.2 Default

Disabled

2.6.3 Command Mode

Router mode and Address Family mode

2.6.4 Examples

```
# configure terminal
```

```
(config)# router rip
```

```
(config-router)# default-information originate
```

2.7 default-metric

Use this command to specify the metrics to be assigned to redistributed routers.

Use the `no` parameter with this command to disable this feature.

2.7.1 Command Syntax

```
(no) default-metric METRIC
```

```
no default-metric
```

METRIC= <1-16> Specifies the default metric.

2.7.2 Default

By default, the metric value is set to 1.

2.7.3 Command Mode

Router mode and Address Family mode

2.7.4 Usage

This command is used with the `redistribute` command to make the routing protocol use the specified metric value for all redistributed routes. Default metric is useful in redistributing routes with incompatible metrics. Every protocol has different metrics and can not be compared directly. Default metric provides the standard to compare. All routes that are redistributed will use the default metric.

2.7.5 Examples

This example assigns the cost of 30 to the OSPF routes which are redistributed into RIP.

```
# configure terminal
```

```
(config)# router rip
```

```
(config-router)# redistribute ospf
```

```
(config-router)# default-metric 10
```

2.8 distance

Use this command to set the administrative distance.

Use the `no` parameter with this command to disable this function.

2.8.1 Command Syntax

```
(no) distance DISTANCE (A.B.C.D/M (ACCESSLIST))
```

`DISTANCE=<1-255>` Specifies the administrative distance value.

`A.B.C.D/M` Specifies the network prefix and length.

`ACCESSLIST` Specifies the access-list name.

2.8.2 Default

By default, the distance is 120

2.8.3 Command Mode

Router mode and Address Family mode

2.8.4 Usage

Administrative distance is a feature used by the routers to select the path when there are two or more different routes to the same destination from two different routing protocols. A smaller administrative distance indicating a more reliable protocol.

2.8.5 Examples

```
# configure terminal
(config)# router rip
(config-router)# distance 8 10.0.0.0/8 mylist
```

2.9 distribute-list

Use this command to filter incoming or outgoing route updates using the access-list or the prefix-list.

Use the `no` parameter with this command to disable this feature.

2.9.1 Command Syntax

```
(no) distribute-list LIST UPDATE (IFNAME)
```

```
LIST = ACCESSLIST|prefix PREFIXLIST
```

ACCESSLIST Specifies the IPv4 access-list number or name to use

prefix Filter prefixes in routing updates

PREFIXLIST Specifies the name of the IPv4 prefix-list to use

IFNAME Specifies the name of the interface on which distribute-list applies

```
UPDATE = in|out
```

in Filter incoming routing updates

out Filter outgoing routing updates

2.9.2 Default

Disabled

2.9.3 Command Mode

Router mode and Address Family mode

2.9.4 Usage

Filter out incoming or outgoing route updates using access-list or prefix-list. If you do not specify the name of the interface, the filter will be applied to all the interfaces.

2.9.5 Examples

```
# configure terminal
```

```
(config)# router rip
```

```
(config-router)# distribute-list prefix myfilter in eth0
```

2.9.6 Related Commands

ip access-list, ip prefix-list

2.10 ip rip authentication key-chain

Use this command to enable RIPv2 authentication on an interface and specify the name of the key chain to be used.

Use the `no` parameter with this command to disable this function.

2.10.1 Command Syntax

```
ip rip authentication key-chain .LINE
```

`LINE` Specify the name of the key chain.

```
no ip rip authentication key-chain
```

2.10.2 Command Mode

Interface mode

2.10.3 Usage

Use this command to perform authentication on the interface. Not configuring the key chain results in no authentication at all. Refer to [Appendix A, RIPv2 Authentication on page 99](#) to see how this command is related to the other authentication commands.

2.10.4 Examples

In the following example, interface `eth0` is configured key-chain authentication and the name is specified as `mykey`. This name is used to enter the key-chain mode to specify the password. See the `key` command.

```
# configure terminal
```

```
(config)# interface eth0
```

```
(config-if)# ip rip authentication key-chain mykey
```

2.10.5 Related Commands

`key`, `key chain`

2.11 ip rip authentication mode

Use this command to specify the type of authentication mode used for RIP v2 packets.

Use the `no` parameter with this command to restore clear text authentication.



Refer to the *Installation Guide* for information on prerequisites for MD5 authentication.

2.11.1 Command Syntax

```
ip rip authentication mode md5|text
```

`md5` Uses the keyed MD5 authentication algorithm.

`text` Specifies the clear text or simple password authentication.

```
no ip rip authentication mode
```

2.11.2 Default

Text authentication is enabled

2.11.3 Command Mode

Interface mode

2.11.4 Usage

Refer to [Appendix A, RIP Authentication on page 99](#) to see how this command is related to the other authentication commands.

2.11.5 Examples

The following example shows `md5` authentication configured on the `eth1` interface ensuring authentication of rip packets received on this interface.

```
# configure terminal
```

```
(config)# interface eth1
```

```
(config-if)# ip rip authentication mode md5
```

2.11.6 Related Commands

```
ip rip authentication key-chain
```

2.12 ip rip authentication string

Use this command to specify the authentication string or password used by a key.

Use the `no` parameter with this command to disable this feature.

2.12.1 Command Syntax

```
ip rip authentication string .LINE
```

`LINE` the authentication string or password used by a key.

```
no ip rip authentication string
```

2.12.2 Command Mode

Interface mode

2.12.3 Usage

The SRstackware implementation provides the choice of configuring authentication for single key or multiple keys at different times. Use this command to specify password for a single key on an interface. Refer to [Appendix A, RIP Authentication on page 99](#) to see how this command is related to the other authentication commands.

2.12.4 Examples

In the following example, the interface `eth1` is configured to have an authentication string as `guest`, any receiving RIP packet in that interface should have the same string as password.

```
# configure terminal
```

```
(config)# interface eth1
```

```
(config-if)# ip rip authentication string guest
```

2.12.5 Related Commands

`ip rip authentication mode`

2.13 ip rip receive-packet

Use this command to configure the interface to enable the reception of RIP packets.

Use the `no` parameter with this command to disable this feature.

2.13.1 Command Syntax

```
ip rip receive-packet
no ip rip receive-packet
```

2.13.2 Default

Receive-packet is enabled

2.13.3 Command Mode

Interface mode

2.13.4 Examples

This example shows packet receiving being turned on for interface `eth0`.

```
# configure terminal
(config)# interface eth0
(config-if)# ip rip receive-packet
```

2.13.5 Related Commands

`ip rip send-packet`

2.14 ip rip receive version

Use this command to receive specified version of RIP packets on an interface basis using version control, and override the setting of the `version` command.

Use the `no` form of this command to use the setting established by the `version` command.

2.14.1 Command Syntax

```
ip rip receive version [1|2]
```

- 1 Specifies acceptance of RIP version 1 packets on the interface.
- 2 Specifies acceptance of RIP version 2 packets on the interface.
- 1 2 Specifies acceptance of RIP version 1 and version 2 packets on the interface.

```
no ip rip receive version
```

2.14.2 Default

Version 2

2.14.3 Command Mode

Interface mode

2.14.4 Usage

This command applies to a specific interface and overrides any the version specified by the `version` command.

2.14.5 Examples

In the following example, interface eth1 is configured to receive both RIP version 1 and 2 packets.

```
# configure terminal
(config)# interface eth1
(config-if)# ip rip receive version 1 2
```

2.14.6 Related Commands

`version`

2.15 ip rip send-packet

Use this command to enable sending RIP packets through the current interface.

Use the `no` parameter with this command to disable this feature.

2.15.1 Command Syntax

```
(no) ip rip send-packet
```

2.15.2 Default

Send packet is enabled

2.15.3 Command Mode

Interface mode

2.15.4 Examples

This example shows packet sending being turned on for interface `eth0`.

```
# configure terminal
```

```
(config)# interface eth0
```

```
(config-if)# ip rip send-packet
```

2.15.5 Related Commands

```
ip rip receive-packet
```

2.16 ip rip send version

Use this command to send RIP packets on an interface using version control.

Use the `no` parameter with this command to use the global RIP version control rules.

2.16.1 Command Syntax

```
ip rip send version [1|2]
```

1 Specifies sending of RIP version 1 packets out of an interface.

- 2 Specifies sending of RIP version 2 packets out of an interface.
 - 1 2 Permits sending of both RIP version 1 and 2 packets out of an interface.
- ```
no ip rip send version
```

### 2.16.2 Default

Version 2

### 2.16.3 Command Mode

Interface mode

### 2.16.4 Usage

This command applies to a specific interface and overrides any the version specified by the `version` command.

### 2.16.5 Examples

In the following example, interface eth1 is configured to send both RIP version 1 and 2 packets.

```
configure terminal
(config)# interface eth1
(config-if)# ip rip send version 1 2
```

## 2.17 ip rip send version 1-compatible

Use this command to send RIP version 1 compatible packets from a version 2 RIP interface to other RIP interfaces. This mechanism causes version 2 RIP to broadcast the packets instead of multicasting them.

Use the `no` parameter with this command to use the global RIP version control rules.

### 2.17.1 Command Syntax

```
ip rip send version 1-compatible
```

## RIP Commands

---

### 2.17.2 Default

Disabled

### 2.17.3 Command Mode

Interface mode

### 2.17.4 Usage

For testing this case, the configuration must be:

```
!
interface XXXX
ip rip send version 1-compatible
!
router rip
version 2
```



**The default version for rpd is version 2. Use the `version` command to explicitly specify a different version.**

### 2.17.5 Examples

In the following example, interface `eth1` is configured to send RIP version 1-compatible packets; so it broadcasts both RIP version 1 and 2 packets.

```
configure terminal
(config)# interface eth1
(config-if)# ip rip send version 1-compatible
```

## 2.18 ip rip split-horizon

Use this command to perform the split-horizon action on the interface. The default is split-horizon poisoned.

Use the `no` parameter with this command to disable this function.



## 2.18.1 Command Syntax

```
ip rip split-horizon (poisoned)
poisoned Performs split-horizon with poisoned reverse.
no ip rip split-horizon
```

## 2.18.2 Default

Split horizon poisoned

## 2.18.3 Command Mode

Interface mode

## 2.18.4 Usage

Use this command to avoid including routes in updates sent to the same gateway from which they were learned. Using the `split horizon` command omits routes learned from one neighbor, in updates sent to that neighbor. Using the `poisoned` parameter with this command includes such routes in updates, but sets their metrics to infinity. Thus, advertising that these routes are not reachable.

## 2.18.5 Examples

```
configure terminal
(config)# interface eth0
(config-if)# ip rip split-horizon poisoned
```

## 2.19 key

Use this command to manage, add and delete authentication keys in a key-chain.

### 2.19.1 Command Syntax

```
key KEYID
KEYID = <0-2147483647> Key identifier number
```

## RIP Commands

---

### 2.19.2 Command Mode

Keychain mode

### 2.19.3 Usage

This command allows you to enter the keychain-key mode where a password can be set for the key. Refer to [Appendix A, RIP Authentication on page 99](#) to see how this command is related to the other authentication commands.

### 2.19.4 Examples

The following example configures a key number 1 and shows the change into a keychain-key command mode prompt.

```
configure terminal
(config)# key chain mychain
(config-keychain)# key 1
(config-keychain-key)#
```

### 2.19.5 Related Commands

key chain, key-string, accept-lifetime, send-lifetime

## 2.20 key chain

Use this command to enter the key chain management mode and to configure a key chain with a key chain name.

### 2.20.1 Command Syntax

```
key chain KEYNAME
```

KEYNAME Specify the name of the key chain to manage.

### 2.20.2 Command Mode

Configure mode

### 2.20.3 Usage

This command allows you to enter the keychain mode where you can specify keys on this key chain. Refer to [Appendix A, RIP Authentication on page 99](#) to see how this command is related to the other authentication commands.

### 2.20.4 Examples

The following example shows the creation of a key chain named `mychain` and the change into `keychain` mode prompt.

```
configure terminal
(config)# key chain mychain
(config-keychain)#
```

### 2.20.5 Related Commands

`key`, `key-string`, `accept-lifetime`, `send-lifetime`

## 2.21 key-string

Use this command to define the password to be used by a key.

Use the `no` parameter with this command to disable this feature.

### 2.21.1 Command Syntax

```
key-string LINE
```

LINE A string of characters to be used as a password by the key.

```
no key-string
```

### 2.21.2 Command Mode

Keychain-key mode

### 2.21.3 Usage

Use this command to specify passwords for different keys. Refer to [Appendix A, RIP Authentication on page 99](#) to see how this command is related to the other authentication commands.

### 2.21.4 Examples

In the following example, the password for `key1` in the key chain named `mychain` is set to password `prime`.

```
configure terminal
(config)# key chain mychain
(config-keychain)# key 1
(config-keychain-key)# key-string prime
```

### 2.21.5 Related Commands

`key`, `key chain`, `accept-lifetime`, `send-lifetime`

## 2.22 maximum-prefix

Use this command to configure the maximum prefix.

Use the `no` parameter with this command to disable the limiting of the number of RIP routes in the routing table.

### 2.22.1 Command Syntax

```
maximum-prefix MAXPREFIX (THRESHOLD)
```

`MAXPREFIX` = <1-65535> The maximum number of RIP routes allowed.

`THRESHOLD` = <1-100> Percentage of maximum routes to generate a warning. The default threshold is 75%.

```
no maximum-prefix
```

### 2.22.2 Command Mode

Router mode

## 2.22.3 Examples

```
configure terminal
(config)# router rip
(config-router)# maximum-prefix 150
```

## 2.23 neighbor

Use this command to specify a neighbor router. It is used for each connected point-to-point link.

Use the `no` parameter with this command to disable the specific router.

### 2.23.1 Command Syntax

```
(no) neighbor A.B.C.D
```

A.B.C.D is an IP address of a neighboring router with which the routing information will be exchanged.

### 2.23.2 Default

Disabled

### 2.23.3 Command Mode

Router mode

### 2.23.4 Usage

Use this command to exchange nonbroadcast routing information. It can be used multiple times for additional neighbors.

`passive-interface` command disables sending routing updates on an interface. Use the `neighbor` command in conjunction with the `passive-interface` command to send routing updates to specific neighbors.

### 2.23.5 Examples

```
configure terminal
(config)# router rip
(config-router)# neighbor 1.1.1.1
```

### 2.23.6 Related Commands

passive-interface

## 2.24 network

Use this command to specify a network as one that runs Routing Information Protocol (RIP).

Use the `no` parameter with this command to remove the specified network as one that runs RIP.

### 2.24.1 Command Syntax

```
(no) network A.B.C.D|IFNAME
```

A.B.C.D/M Specifies the IP address prefix and length of this IP network.

IFNAME Alphanumeric string specifies the interface name.

### 2.24.2 Default

Disabled

### 2.24.3 Command Mode

Router mode and Address Family mode

### 2.24.4 Usage

Use this command to specify networks to which routing updates will be sent and received. If a network is not specified, the interfaces in that network will not be advertised in any RIP update.

## 2.24.5 Examples

```
configure terminal
(config)# router rip
(config-router)# network 10.0.0.0/8
(config-router)# network eth0
```

## 2.24.6 Related Commands

show ip rip, clear ip rip

## 2.25 offset-list

Use this command to add an offset to in and out metrics to routes learned through RIP.

Use the `no` parameter with this command to remove the offset list.

### 2.25.1 Command Syntax

```
(no) offset-list ACCESSLIST in|out OFFSET (IFNAME)
```

**ACCESSLIST** Specifies the access-list number or names to apply.

**in** Indicates the access list will be used for metrics of incoming advertised routes.

**out** Indicates the access list will be used for metrics of outgoing advertised routes.

**OFFSET = <0-16>** Specifies that the offset is used for metrics of networks matching the access list.

**IFNAME** An alphanumeric string that specifies the interface to match.

### 2.25.2 Default

The default `offset` value is the interface metric value which is defined by the operating system.

### 2.25.3 Command Mode

Router mode and Address Family mode

### 2.25.4 Usage

Use this command to specify the offset value that is added to the routing metric. When the networks match the access list the offset is applied to the metrics. No change occurs if the offset value is zero.

### 2.25.5 Examples

In this example the router examines the RIP updates being sent out from interface `eth0` and adds 5 hops to the routes matching the ip addresses specified in the access list 1.

```
configure terminal
(config)# router rip
(config-router)# offset-list 1 in 5 eth0
```

### 2.25.6 Related Commands

`access-list`

## 2.26 passive-interface

Use this command to block RIP broadcast on the interface.

Use the `no` parameter with this command to disable this function.

### 2.26.1 Command Syntax

```
(no) passive-interface IFNAME
IFNAME Specifies the interface name.
```

### 2.26.2 Default

Disabled

### 2.26.3 Command Mode

Router mode



## 2.26.4 Examples

```
configure terminal
(config)# router rip
(config-router)# passive-interface eth0
```

## 2.26.5 Related Commands

```
show ip rip
```

## 2.27 recv-buffer-size

Use this command to run-time configure the RIP UDP receive-buffer size.

Use the `no` parameter with this command to unset the configured RIP UDP receive-buffer size and set it back to the system default value.

### 2.27.1 Command Syntax

```
recv-buffer-size <8192-2147483647>
no recv-buffer-size
```

### 2.27.2 Command Mode

Router mode

### 2.27.3 Examples

```
configure terminal
(config)# router rip
(config-router)# recv-buffer-size 23456789
```

## 2.28 redistribute

Use this command to redistribute information from other routing protocols.

Use the `no` parameter with this command to disable this function.

## RIP Commands

---

### 2.28.1 Command Syntax

(no) redistribute

(kernel|connected|static|ospf|isis|bgp) (METRIC) (ROUTEMAP)

METRIC metric <0-16> Specifies metric value to be used in redistributing information  
<0-16> Metric value

ROUTEMAP route-map WORD Specifies route-map to be used to redistributes information  
WORD A pointer to route-map entries

kernel redistribute from kernel routes

connected redistribute from connected routes

isis redistribute from IS-IS

static redistribute from static routes

ospf redistribute from Open Shortest Path First (OSPF)

bgp redistribute from Border Gateway Protocol (BGP)

### 2.28.2 Command Mode

Router mode and Address Family mode

### 2.28.3 Examples

```
configure terminal
```

```
(config)# router rip
```

```
(config-router)# redistribute kernel route-map ip1
```

## 2.29 restart rip graceful

Use this command to force the RIP process to restart.



This command is available only when configuration option `--enable-restart` is enabled when compiling SRstackware.

### 2.29.1 Command Syntax

```
restart rip graceful (grace-period <1-65535>)
```

### 2.29.2 Command Mode

Privileged Exec mode

### 2.29.3 Usage

After this command is executed, router immediately shuts down. It is notified to NSM that RIP has shutdown as Graceful and NSM preserves routes installed by RIP until grace-period expires.

### 2.29.4 Examples

```
restart rip graceful grace-period 100
```

## 2.30 rip restart grace-period

Use this command to change the grace period of RIP graceful restart.

Use the `no` parameter with this command to disable this function.



**This command is available only when configuration option `--enable-restart` is enabled when compiling SRstackware.**

### 2.30.1 Command Syntax

```
(no) rip restart grace-period <1-65535>
```

### 2.30.2 Command Mode

Configure mode

## RIP Commands

---

### 2.30.3 Usage

Use this command to enable the Graceful Restart feature on RIP daemon. If this command is configured, NSM is notified about the Grace Period. In case, RIP daemon unexpectedly shuts down, NSM sends this value to the RIP daemon when it comes up again. RIP daemon uses this value to end the Graceful state.

### 2.30.4 Examples

```
configure terminal
(config)# rip restart grace-period 200
```

## 2.31 route

Use this command to configure static RIP routes.

Use the `no` parameter with this command to disable this function.

### 2.31.1 Command Syntax

```
(no) route A.B.C.D/M
A.B.C.D(/M) Specifies the IP address prefix and length
```

### 2.31.2 Default

No route is added.

### 2.31.3 Command Mode

Router mode

### 2.31.4 Usage

Use this command to add a static rip route. This command is mostly used for debugging purposes and does not show up in the kernel routing table. After adding the rip route, the route can be checked in the rip routing table.

```
router rip
...
version 1
```

```
network 10.10.10.0/24
network 10.10.11.0/24
neighbor 10.10.10.10
...
(config-router)# route 10.10.10.0/24
router rip
...
version 1
network 10.10.10.0/24
network 10.10.11.0/24
route 10.10.10.0/24
```

### 2.31.5 Examples

```
configure terminal
(config)# router rip
(config-router)# route 1.2.3.4/8
```

### 2.31.6 Related Commands

show ip rip, clear ip rip

## 2.32 router rip

Use this global command to enable a RIP routing process.

Use the `no` parameter with this command to disable the RIP routing process.

### 2.32.1 Command Syntax

```
(no) router rip
```

### 2.32.2 Command Mode

Configure mode

## RIP Commands

---

### 2.32.3 Usage

This command is used to begin the rip routing process

```
router rip
 version 1
 network 10.10.10.0/24
 network 10.10.11.0/24
 neighbor 10.10.10.10
```

### 2.32.4 Examples

The following example shows the use of the `interface` command and the changing of the prompt as the mode changes

```
configure terminal
(config)# router rip
(config-router)#
```

### 2.32.5 Related Commands

network, version

## 2.33 send-lifetime

Use this command to specify the time period during which the authentication key on a key chain can be sent.

### 2.33.1 Command Syntax

```
send-lifetime START END
```

```
START HH:MM:SS DAY MONTH YEAR
```

HH:MM:SS Time of the day when lifetime starts, in hours, minutes and seconds.

DAY <1-31> Specifies the day of the month to start.

MONTH Specifies the month of the year to start (the first three letters of the month, for example, Feb).

YEAR <1993-2035> Specifies the year to start.

END TIME|duration|infinite

TIME = HH:MM:SS DAY MONTH YEAR

HH:MM:SS Time of the day when lifetime expires, in hours, minutes and seconds.

DAY <1-31> Specifies the day of the month to expire.

MONTH Specifies the month of the year to expire (the first three letters of the month, for example, Mar).

YEAR <1993-2035> Specifies the year to expire.

duration <1-2147483646> Duration of the key in seconds

infinite Never expires.

### 2.33.2 Command Mode

Keychain-key mode

### 2.33.3 Usage

Refer to [Appendix A, RIP Authentication on page 99](#) to see how this command is related to the other authentication commands.

### 2.33.4 Examples

The following example shows the setting of send-lifetime for `key1` on the key chain named `mychain`.

```
configure terminal
```

```
(config)# key chain mychain
```

```
(config-keychain)# key 1
```

```
(config-keychain-key)# send-lifetime 03:03:01 Jan 3 2004 04:04:02 Dec 6 2006
```

### 2.33.5 Related Commands

key, key-string, key chain, accept-lifetime

### 2.34 show debugging rip

Use this command to display the RIP debugging status for these debugging options: nsm debugging, RIP event debugging, RIP packet debugging and RIP nsm debugging.

To modify the lines displayed, use the `|` (output modifier token); to save the output to a file use the `>` output redirection token. For more information, see [Chapter 1, Command Line Interface Environment on page 23](#).

#### 2.34.1 Command Syntax

```
show debugging rip
```

#### 2.34.2 Command Mode

Exec mode and Privileged Exec mode

#### 2.34.3 Usage

Use this command to display the debug status of RIP.

#### 2.34.4 Examples

```
show debugging rip
```

### 2.35 show ip protocols rip

Use this command to display RIP process parameters and statistics.

To modify the lines displayed, use the `|` (output modifier token); to save the output to a file use the `>` output redirection token. For more information, see [Chapter 1, Command Line Interface Environment on page 23](#).

#### 2.35.1 Command Syntax

```
show ip protocols rip
```

#### 2.35.2 Command Mode

Privileged Exec mode and Exec mode



### 2.35.3 Usage

This is an example of the output from the `show ip protocols` command:

```
show ip protocols rip
Routing Protocol is "rip"
Sending updates every 30 seconds with +/-50%, next due in 12 seconds
Timeout after 180 seconds, garbage collect after 120 seconds
Outgoing update filter list for all interface is not set
Incoming update filter list for all interface is not set
Default redistribution metric is 1
Redistributing: connected static
Default version control: send version 2, receive version 2
Interface Send Recv Key-chain
 eth0 2 2
Routing for Networks:
 10.10.0.0/24
Routing Information Sources:
 Gateway BadPackets BadRoutes Distance Last Update
Distance: (default is 120)
```

### 2.35.4 Examples

```
show ip protocols rip
```

## 2.36 show ip rip

Use this command to show RIP routes.

To modify the lines displayed, use the `|` (output modifier token); to save the output to a file use the `>` output redirection token. For more information, see [Chapter 1, Command Line Interface Environment on page 23](#).

### 2.36.1 Command Syntax

```
show ip rip
```

## RIP Commands

---

### 2.36.2 Command Mode

Exec mode and Privileged Exec mode

### 2.36.3 Usage

The following output displays the RIP routing table with the destination network, nexthop and metric to reach it.

```
show ip rip
Codes: R - RIP, K - Kernel, C - Connected, S - Static, O - OSPF, I - IS-IS,
B - BGP
Network Next Hop Metric From If Time
K 0.0.0.0/0 10.0.1.1 16 eth1 01:58
C 10.0.1.0/24 1 eth1
S 10.10.10.0/24 1 eth0
C 10.10.11.0/24 1 eth0
S 192.168.101.0/24 1 eth0
R 192.192.192.0/24 1 --
```

### 2.36.4 Examples

```
show ip rip
```

### 2.36.5 Related Commands

route, network, clear ip rip

### 2.36.6 Equivalent Commands

show ip rip database

## 2.37 show ip rip database

Use this command to display information about the RIP database.

To modify the lines displayed, use the `|` (output modifier token); to save the output to a file use the `>` output redirection token. For more information, see [Chapter 1, Command Line Interface Environment on page 23](#).

## 2.37.1 Command Syntax

```
show ip rip database
```

## 2.37.2 Command Mode

Exec mode and Privileged Exec mode

## 2.37.3 Usage

The following output displays the RIP database information.

```
show ip rip database
```

```
Codes: R - RIP, K - Kernel, C - Connected, S - Static, O - OSPF, I - IS-IS,
B - BGP
```

```
Network Next Hop Metric From If Time
```

```
K 0.0.0.0/0 10.0.1.1 16 eth1 01:58
```

```
C 10.0.1.0/24 1 eth1
```

```
S 10.10.10.0/24 1 eth0
```

```
C 10.10.11.0/24 1 eth0
```

```
S 192.168.101.0/24 1 eth0
```

```
R 192.192.192.0/24 1 --
```

## 2.37.4 Examples

```
show ip rip database
```

## 2.37.5 Related Commands

```
show ip rip
```

## 2.38 show ip rip interface

Use this command to display information about the RIP interfaces. You can specify an interface name to display information about a specific interface.

To modify the lines displayed, use the `|` (output modifier token); to save the output to a file use the `>` output redirection token. For more information, see [Chapter 1, Command Line Interface Environment on page 23](#).

## RIP Commands

---

### 2.38.1 Command Syntax

```
show ip rip interface (IFNAME)
```

IFNAME = Name of the interface for which information is to be displayed.

### 2.38.2 Command Mode

Exec mode and Privileged Exec mode

### 2.38.3 Usage

The following output displays the RIP routing table with the destination network, nexthop and metric to reach it.

```
show ip rip interface
lo is up, line protocol is up
RIP is not enabled on this interface
eth0 is up, line protocol is up
RIP is not enabled on this interface
eth1 is down, line protocol is down
RIP is not enabled on this interface
eth2 is up, line protocol is up
Routing Protocol: RIP
Receive RIP packets
Send RIPv1 Compatible
Passive interface: Disabled
Split horizon: Enabled with Poisoned Reversed
IP interface address:
10.10.1.1/24
10.10.2.1/24
```

### 2.38.4 Examples

```
show ip rip interface eth0
```

## 2.39 timers

Use this command to adjust routing network timers.

Use the `no` parameter with this command to restore the defaults.

### 2.39.1 Command Syntax

```
timers basic UPDATE TIMEOUT GARBAGE
```

```
no timers basic
```

`UPDATE` = <5-2147483647> Specifies the routing table update timer in seconds. The default is 30 seconds.

`TIMEOUT` = <5-2147483647> Specifies the routing information timeout timer in seconds. The default is 180 seconds. After this interval has elapsed and no updates for a route are received, the route is declared invalid.

`GARBAGE` = <5-2147483647> Specifies the routing garbage collection timer in seconds. The default is 120 seconds.

### 2.39.2 Default

Enabled

### 2.39.3 Command Mode

Router mode

### 2.39.4 Usage

This command adjusts the RIP timing parameters. Every 30 seconds, an update is sent out containing the complete routing table to every neighboring router. When the time specified by the timeout parameter expires the route is no longer valid. However, it is retained in the routing table for a short time so that neighbors are notified that the route has been dropped. When the time specified by the garbage parameter expires the route is finally removed from the routing table. Until the garbage time expires, the route is included in all updates sent by the router.

All the routers in the network must have the same timers to allow RIP to execute a distributed and asynchronous routing algorithm. The timers should not be synchronized as it might lead to unnecessary collisions on the network.

### 2.39.5 Examples

```
configure terminal
(config)# router rip
(config-router)# timers basic 30 180 120
```

## 2.40 undebg rip

Use this command to disable the options set for debugging information of RIP events, packets and communication between RIP and NSM.

### 2.40.1 Command Syntax

```
undebg rip (all|events|nsm|PACKET)
```

`all` = Disables all RIP debugging.

`events` = Disables the logging of RIP events.

`nsm` = Disables the logging of RIP and NSM communication.

`PACKET` = packet (recv|send) (detail) Disables the debugging of RIP packets.

`recv` Disables the logging of received packet information.

`send` Disables the logging of sent packet information.

`detail` Disables the logging of sent or received RIP packets.

### 2.40.2 Command Mode

Privileged Exec mode

### 2.40.3 Examples

```
undebg rip packet
```

## 2.41 version

Use this command to specify a RIP version used globally by the router.

Use the `no` parameter with this command to restore the default version.

## 2.41.1 Command Syntax

```
version <1|2>
```

<1|2> Specifies the version of RIP processing. Default is RIP v2.

```
no version
```

## 2.41.2 Default

Version 2

## 2.41.3 Command Mode

Router mode and Address Family mode

## 2.41.4 Usage

RIP can be run in version 1 as well as version 2 mode. Version 2 has more features than version 1 especially authentication. Once the rip version is set, rip packets of that version will be received and sent on all the rip-enabled interfaces.

The `ip rip receive version` command and the `ip rip send version` command override the value set by this command.

```
show run
...
router rip
 network 10.10.10.0/24
 network 10.10.11.0/24
(config-router)# version 1
router rip
...
version 1
 network 10.10.10.0/24
 network 10.10.11.0/24
```

### 2.41.5 Examples

```
configure terminal
(config)# router rip
(config-router)# version 1
```

### 2.41.6 Related Commands

ip rip receive version, ip rip send version



# RIPng Commands

---

## 3.1 Introduction

This chapter provides an alphabetized reference for each of the RIPng Commands.

## 3.2 aggregate-address

Use this command to aggregate RIPng routes.

Use the `no` parameter with this command to disable this feature.

### 3.2.1 Command Syntax

```
(no) aggregate-address X:X::X:X/P
```

### 3.2.2 Command Mode

Router mode

### 3.2.3 Examples

```
configure terminal
(config)# router ipv6 rip
(config-router)#aggregate-address 3ffe:8088::/32
```

## 3.3 cisco-metric-behavior

Use this command to enable or disable the metric update as Cisco.

Use the `no` parameter with this command to disable this feature.

### 3.3.1 Command Syntax

```
cisco-metric-behavior enable|disable
enable Enables updating the metric consistent with Cisco
disable Disables updating the metric consistent with Cisco
no cisco-metric-behavior
```

## RIPng Commands

---

### 3.3.2 Default

By default, the Cisco metric-behavior is disabled.

### 3.3.3 Command Mode

Router mode

### 3.3.4 Usage

This command is used to set/unset metric-updation as Cisco.

### 3.3.5 Example

This example enables the metric update behavior to be consistent with Cisco.

```
configure terminal
(config)# router ipv6 rip
(config-router)# cisco-metric-behavior enable
```

## 3.4 clear ipv6 rip route

Use this command to clear specific data from the RIPng routing table.

### 3.4.1 Command Syntax

```
clear ipv6 rip route
X:X::X:X/M|kernel|static|connected|rip|ospf|isis|bgp|all
```

X:X::X:X/M Removes entries which exactly match this destination address from the RIPng routing table.

kernel Removes redistributed kernel entries from the RIPng routing table.

connected Removes redistributed connected entries from RIPng routing table.

static Removes redistributed static entries from the RIPng routing table.

rip Removes RIPng routes from the RIPng routing table.

ospf Removes redistributed OSPFv3 routes from the RIPng routing table

bgp Removes redistributed BGP4+ routes from the RIPng routing table

all Clears the entire RIPng routing table.

### 3.4.2 Command Mode

Privileged Exec mode

### 3.4.3 Example

```
clear ipv6 rip route isis
clear ipv6 rip route 3ffe:ffff::/16
```

## 3.5 debug ipv6 rip

Use this command to specify debugging options of RIPng events, RIPng packets and RIPng NSM communication.

### 3.5.1 Command Syntax

```
debug ipv6 rip (events|nsm|PACKET)
```

events = RIP events debug information is displayed.

nsm = RIP and NSM communication is displayed

PACKET = packet (recv|send (detail)) Specifies RIP packets only

recv Specifies that information for received packets be displayed.

send Specifies that information for sent packets be displayed.

detail Displays detailed information for the sent or received packet.

```
no debug rip
```

### 3.5.2 Default

Disabled

### 3.5.3 Command Mode

Privileged Exec mode and Configure mode

### 3.5.4 Examples

```
debug ipv6 rip events
debug ipv6 rip packet send detail
debug ipv6 rip nsm
```

### 3.5.5 Related Commands

```
log file
```

## 3.6 default-information originate

Use this command to add default routes to the RIPng updates.

Use the `no` parameter with this command to disable this feature.

### 3.6.1 Command Syntax

```
(no) default-information originate
```

### 3.6.2 Default

Disabled

### 3.6.3 Command Mode

Router mode

### 3.6.4 Examples

```
configure terminal
(config)# router ipv6 rip
(config-router)# default-information originate
```

## 3.7 default-metric

Use this command to specify the metrics to be assigned to redistributed routes.

Use the `no` parameter with this command to disable this feature.

### 3.7.1 Command Syntax

```
(no) default-metric <1-16>
```

<1-16> Metric value. The default metric value is 1.

```
no default-metric
```

### 3.7.2 Command Mode

Router mode

### 3.7.3 Examples

```
configure terminal
```

```
(config)# router ipv6 rip
```

```
(config-router)# default-metric 8
```

## 3.8 distribute-list

Use this command to filter incoming or outgoing route updates using the access-list or the prefix-list.

Use the `no` parameter with this command to disable this feature.

### 3.8.1 Command Syntax

```
(no) distribute-list [ACCESSLIST|prefix PREFIXLIST] [in|out] (IFNAME)
```

ACCESSLIST Specifies the IPv6 access-list number or name to use

PREFIXLIST Specifies the name of the IPv6 prefix-list to use

IFNAME Specifies the name of the interface for which distribute-list applies

in Filter incoming routing updates

out Filter outgoing routing updates

prefix Filter prefixes in routing updates

### 3.8.2 Default

Disabled

## RIPng Commands

---

### 3.8.3 Command Mode

Router mode

### 3.8.4 Usage

Filter out incoming or outgoing route updates using the access-list or the prefix-list. If you do not specify the name of the interface, the filter is applied to all the interfaces.

### 3.8.5 Example

```
configure terminal
(config)# router ipv6 rip
(config-router)# distribute-list prefix myfilter in eth0
```

### 3.8.6 Related Commands

ipv6 access-list, ipv6 prefix-list

## 3.9 ipv6 rip split-horizon

Use this command to perform the split-horizon action on the interface.

Use the `no` parameter with this command to disable this function.

### 3.9.1 Command Syntax

```
ipv6 rip split-horizon (poisoned)
poisoned Performs split-horizon with poisoned reversed
```

### 3.9.2 Default

Split-horizon poisoned is the default.

### 3.9.3 Command Mode

Interface mode

### 3.9.4 Examples

```
configure terminal
(config)# interface eth0
(config-if)# ipv6 rip split-horizon
```

## 3.10 ipv6 router rip

Use this command to enable RIPng routing on the interface.

Use the `no` parameter with this command to disable RIPng routing.

### 3.10.1 Command Syntax

```
ipv6 router rip
```

### 3.10.2 Default

Disabled

### 3.10.3 Command Mode

Interface mode

### 3.10.4 Example

```
configure terminal
(config)# interface eth0
(config-if)# ipv6 router rip
```

## 3.11 neighbor

Use this command to specify a neighbor router.

Use the `no` parameter with this command to disable the specific router.

### 3.11.1 Command Syntax

```
(no) neighbor X:X::X:X IFNAME
```

X:X::X:X is a link-local IP address of a neighboring router with which the routing information is exchanged.

IFNAME Name of the interface

### 3.11.2 Command Mode

Router mode

### 3.11.3 Examples

```
configure terminal
```

```
(config)# router ipv6 rip
```

```
(config-router)# neighbor fefe80::1 eth0
```

## 3.12 offset-list

Use this command to add an offset to in and out metrics to routes learned through RIPng.

Use the `no` parameter with this command to remove this function.

### 3.12.1 Command Syntax

```
(no) offset-list ACCESSLIST DIRECTION OFFSET (IFNAME)
```

ACCESSLIST Specifies the access-list number or name to apply

DIRECTION in|out

in Indicates the access-list will be used for metrics of incoming advertised routes

out Indicates the access-list will be used for metrics of outgoing advertised routes

OFFSET <0-16> Specifies that the offset is used for metrics of networks matching the access-list

IFNAME An alphanumeric string specifying the interface to match



### 3.12.2 Default

The default offset value is the metric value of the interface which is defined by the operating system.

### 3.12.3 Command Mode

Router mode

### 3.12.4 Examples

```
configure terminal
(config)# router ipv6 rip
(config-router)# offset-list mylist in 8 eth0
```

## 3.13 passive-interface

Use this command to enable suppression of routing updates on an interface.

Use the `no` parameter with this command to disable this function.

### 3.13.1 Command Syntax

```
(no) passive interface IFNAME
IFNAME Specifies the name of the interface
```

### 3.13.2 Default

Default

### 3.13.3 Command Mode

Router mode

### 3.13.4 Examples

```
configure terminal
(config)# router ipv6 rip
(config-router)# passive-interface eth0
```

### 3.14 recv-buffer-size

Use this command to run-time configure the RIPng UDP receive-buffer size.

Use the `no` parameter with this command to unset the configured RIPng UDP receive-buffer size and set it back to the system default value.

#### 3.14.1 Command Syntax

```
recv-buffer-size <8192-2147483647>
```

```
no recv-buffer-size
```

#### 3.14.2 Command Mode

Router mode

#### 3.14.3 Examples

```
configure terminal
```

```
(config)# router ipv6 rip
```

```
(config-router)# recv-buffer-size 23456789
```

### 3.15 redistribute

Use this command to redistribute information from other routing protocols.

Use the `no` parameter with this command to disable this function.

#### 3.15.1 Command Syntax

```
(no) redistribute
```

```
(kernel|connected|static|ospf|bgp|isis) (METRIC) (ROUITEMAP)
```

METRIC metric <0-16> Specifies metric value to be used in redistributing information

<0-16> Metric value

ROUITEMAP route-map WORD Specifies route-map to be used to redistributes information

WORD A pointer to route-map entries

kernel redistribute from kernel routes

`connected` redistribute from connected routes  
`static` redistribute from static routes  
`ospf` redistribute from Open Shortest Path First (OSPF)  
`bgp` redistribute from Border Gateway Protocol (BGP)  
`isis` redistribute from Intermediate System to Intermediate System (IS-IS)

### 3.15.2 Command Mode

Router mode

### 3.15.3 Examples

```
configure terminal
(config)# router ipv6 rip
(config-router)# redistribute kernel route-map mymap
(config-router)# redistribute kernel metric 8
```

## 3.16 route

Use this command to configure static RIPng routes.

Use the `no` parameter with this command to disable this function.

### 3.16.1 Command Syntax

```
(no) route X:X::X:X/M
X:X::X:X/M Specifies the IPv6 address prefix and length
```

### 3.16.2 Command Mode

Router mode

### 3.16.3 Examples

```
configure terminal
(config)# router ipv6 rip
(config-router)# route 3ffe:1234:5678::1/64
```

### 3.17 router ipv6 rip

Use this global command to enable a RIPng routing process.

Use the `no` parameter with this command to disable the RIPng routing process.

#### 3.17.1 Command Syntax

```
(no) router ipv6 rip
```

#### 3.17.2 Command Mode

Configure mode

#### 3.17.3 Examples

```
configure terminal
(configure)# router ipv6 rip
```

### 3.18 show debugging ipv6 rip

Use this command to display the RIPng debugging status for RIPng NSM, RIPng events and RIPng packets.

To modify the lines displayed, use the `|` (output modifier token); to save the output to a file use the `>` output redirection token. For more information, see [Chapter 1, Command Line Interface Environment on page 23](#).

#### 3.18.1 Command Syntax

```
show debugging ipv6 rip
```

#### 3.18.2 Command Mode

Privileged Exec mode

#### 3.18.3 Examples

```
show debugging ipv6 rip
```

## 3.19 show ipv6 protocols rip

Use this command to display RIPng process parameters and statistics.

To modify the lines displayed, use the `|` (output modifier token); to save the output to a file use the `>` output redirection token. For more information, see [Chapter 1, Command Line Interface Environment on page 23](#).

### 3.19.1 Command Syntax

```
show ipv6 protocols rip
```

### 3.19.2 Command Mode

Privileged Exec mode and Exec mode

### 3.19.3 Usage

The following is a sample output from the `show ipv6 protocols rip` command.

```
show ipv6 protocols rip
```

```
Routing Protocol is "ripng"
```

```
 Sending updates every 30 seconds with +/-50%, next due in 10 seconds
```

```
 Timeout after 180 seconds, garbage collect after 120 seconds
```

```
 Outgoing update filter list for all interface is not set
```

```
 Incoming update filter list for all interface is not set
```

```
 Default redistribute metric is 1
```

```
 Redistributing: connected
```

```
 Routing for Networks:
```

```
 3ffe:1::/64
```

### 3.19.4 Examples

```
show ipv6 protocols rip
```

### 3.20 show ipv6 rip

Use this command to show RIPng routes.

To modify the lines displayed, use the `|` (output modifier token); to save the output to a file use the `>` output redirection token. For more information, see [Chapter 1, Command Line Interface Environment on page 23](#).

#### 3.20.1 Command Syntax

```
show ipv6 rip
```

#### 3.20.2 Command Mode

Privileged Exec mode and Exec mode

#### 3.20.3 Usage

The following is a sample output from the `show ipv6 rip` command.

```
show ipv6 rip
Codes: R - RIP, K - Kernel, C - Connected, S - Static, O - OSPF, I - IS-IS,
B - BGP, a - aggregate, s - suppressed
Network Next Hop If Met Tag Time
R 3ffe:1234:5678::/64 fe80::3 eth1 3 0 02:28
C 3ffe:ffff:1::/64 :: eth0 1 0
Ra 3ffe:ffff:2::/48 -- 1 0
Rs 3ffe:ffff:2::/48 fe80::3 eth1 3 0 02:32
Cs 3ffe:ffff:2::/64 :: eth1 1 0
R 3ffe:ffff:ffff:ffff::/64 fe80::3 eth1 3 0 02:28
```

#### 3.20.4 Examples

```
show ipv6 rip
```

#### 3.20.5 Related Commands

```
show ipv6 rip database
```

## 3.21 show ipv6 rip database

Use this command to display information about the RIPng database.

To modify the lines displayed, use the `|` (output modifier token); to save the output to a file use the `>` output redirection token. For more information, see [Chapter 1, Command Line Interface Environment on page 23](#).

### 3.21.1 Command Syntax

```
show ipv6 rip database
```

### 3.21.2 Command Mode

Privileged Exec mode and Exec mode

### 3.21.3 Usage

The following is a sample output from the `show ipv6 rip database` command.

```
show ipv6 rip database
```

```
Codes: R - RIP, K - Kernel, C - Connected, S - Static, O - OSPF, I - IS-IS,
B - BGP, a - aggregate, s - suppressed
```

```
Network Next Hop If Met Tag Time
```

```
R 3ffe:1234:5678::/64 fe80::3 eth1 3 0 02:28
```

```
C 3ffe:ffff:1::/64 :: eth0 1 0
```

```
Ra 3ffe:ffff:2::/48 -- 1 0
```

```
Rs 3ffe:ffff:2::/48 fe80::3 eth1 3 0 02:32
```

```
Cs 3ffe:ffff:2::/64 :: eth1 1 0
```

```
R 3ffe:ffff:ffff:ffff::/64 fe80::3 eth1 3 0 02:28
```

### 3.21.4 Examples

```
show ipv6 rip database
```

### 3.21.5 Related Commands

```
show ipv6 rip
```

### 3.22 show ipv6 rip interface

Use this command to display information about the RIPng interfaces. You can specify an interface name to display information about a specific interface.

To modify the lines displayed, use the `|` (output modifier token); to save the output to a file use the `>` output redirection token. For more information, see [Chapter 1, Command Line Interface Environment on page 23](#).

#### 3.22.1 Command Syntax

```
show ipv6 rip interface (IFNAME)
```

IFNAME = Name of the interface for which information has to be displayed.

#### 3.22.2 Command Mode

Privileged Exec mode and Exec mode

#### 3.22.3 Usage

The following is a sample output from the `show ipv6 rip interface` command.

```
show ipv6 rip interface
lo is up, line protocol is up
RIPng is not enabled on this interface
eth0 is up, line protocol is up
RIPng is not enabled on this interface
eth1 is down, line protocol is down
RIPng is not enabled on this interface
eth2 is up, line protocol is up
Routing Protocol: RIPng
Passive interface: Disabled
Split horizon: Enabled with Poisoned Reversed
IP interface address:
3ffe:ffff::1/64
3ffe:fffe::1/64
```



### 3.22.4 Example

```
show ipv6 rip
```

## 3.23 timers

Use this command to adjust routing network timers.

Use the `no` parameter with this command to restore the defaults.

### 3.23.1 Command Syntax

```
timers basic UPDATE TIMEOUT GARBAGE
```

```
no timers basic
```

`UPDATE` = <5-2147483647> Specifies the routing table update timer in seconds. The default is 30 seconds.

`TIMEOUT` = <5-2147483647> Specifies the routing information timeout timer in seconds. The default is 180 seconds. After this interval has elapsed and no updates for a route are received, the route is declared invalid.

`GARBAGE` = <5-2147483647> Specifies the routing garbage collection timer in seconds. The default is 120 seconds.

### 3.23.2 Command Mode

Router mode

### 3.23.3 Examples

```
configure terminal
```

```
(config)# router ipv6 rip
```

```
(config-router)# timers basic 30 180 120
```

## 3.24 undebug ipv6 rip

Use this command to disable debugging options of RIPng events, RIPng packets and communication between RIPng and NSM.

### 3.24.1 Command Syntax

```
undebug ipv6 rip (all|events|nsm|PACKET)
```

`all` = Disables all RIP debugging.

`events` Disable the display of RIPng events information.

`nsm` Disable the display of RIPng and NSM communication.

`PACKET` = `packet (recv|send (detail))` Disable debugging of RIP packets only

`recv` Disable the display of information for received packets.

`send` Disable the display of information for sent packets-.

`detail` Disable the display of detailed information for sent or received packets.

### 3.24.2 Command Mode

Privileged Exec mode

### 3.24.3 Examples

```
undebug ipv6 rip events
```

# RIP Authentication

---

## A.1 Introduction

To support RIPv2 message authentication the SRstackware implementation provides the choice of `plain text` or `MD5` authentication, and the option for single key or multiple keys in different modes and stages.

## A.2 Single Key Authentication

Use the following steps to configure route to enable RIPv2 authentication using a single key or password:

1. Define the authentication string or password.  
In the Interface mode, specify the authentication string or password used by the key, using the following command:  

```
ip rip authentication string LINE
```

where `LINE` is the authentication string or password.
2. Specify mode of authentication for the interface.  
In the Interface mode, specify if the interface will use `text` or `MD5` authentication, using the following command:  

```
ip rip authentication mode md5|text
```

### A.2.1 Example

```
configure terminal
(config)# interface eth0
(config-if)# ip rip authentication string mykey
(config-if)# ip rip authentication mode md5
```

## A.3 Multiple Keys Authentication

Use the following steps to configure route to enable RIPv2 authentication using multiple keys at different times:

1. Define a key chain  
In the Configure mode, identify a key chain with a key chain name using the following command:  

```
key chain KEYNAME
```

where `KEYNAME` is the name of the chain to manage.

## RIP Authentication

---

2. Define the key(s)  
In the Keychain mode, specify a key on this key chain using the following command:  
`key KEYID`  
where `KEYID` = <1-2147483647> Key Identifier number
3. Define the authentication string or password  
In the Keychain-key mode, define the password used by a key, using the following command:  
`key-string LINE`  
where `LINE` is a string of characters to be used as a password by the key.
4. Set key management options  
This step can be performed at this stage or later when multiple keys are used. The options are configured in the `keychain-key` command mode.
  - Set the time period during which the authentication key on a key chain is received as valid, using the following command:  
`accept-lifetime START END`  
where `START` and `END` are the beginning and end of the time period.
  - Set the time period during which the authentication key on a key chain can be sent, using the following command:  
`send-lifetime START END`  
where `START` and `END` are the beginning and end of the time period.
5. Enable authentication on an interface  
In the Interface mode, enable authentication on an interface and specify the key chain to be used, using the following command:  
`ip rip authentication key-chain CHAINNAME`  
where `CHAINNAME` is a set of valid authentication keys
6. Specify mode of authentication for the interface  
In the Interface mode, specify if the interface will use text or MD5 authentication, using the following command:  
`ip rip authentication mode md5|text`

### A.3.1 Example

In the following example, a password `toyota` is set for a key 1 in a key chain `cars`. On Interface `eth0` authentication is enabled and the authentication mode is set as MD5.

**# configure terminal**

```
(config)# key chain cars
```

```
(config-keychain)# key 1
```

```
(config-keychain-key)# keystring toyota
```

```
(config-keychain-key)# accept-lifetime 10:00:00 Oct 08 2002 duration
43200
(config-keychain-key)# send-lifetime 10:00:00 Oct 8 2002 duration 43200
(config-keychain-key)# exit
(config-keychain)# exit
(config)# interface eth0
(config-if)# ip rip authentication key-chain cars
(config-if)# ip rip authentication mode md5
(config-if)# exit
```



# Related Documentation

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## B.1 SMART Embedded Computing Documentation

The documentation listed is referenced in this manual. Technical documentation can be found by using the Documentation Search at <https://www.smartembedded.com/ec/support/> or you can obtain electronic copies of SMART EC documentation by contacting your local sales representative.

*Table B-1 SMART EC Documentation*

| <b>Document Title</b>                                                           | <b>Document Number</b> |
|---------------------------------------------------------------------------------|------------------------|
| SRstackware Intelligent Network Software Troubleshooting Guide                  | 6806800N83             |
| SRstackware Intelligent Network Software VRRP Command Reference                 | 6806800N84             |
| SRstackware Intelligent Network Software Layer 2 Command Reference              | 6806800N88             |
| SRstackware Intelligent Network Software Layer 2 Configuration Guide            | 6806800N86             |
| SRstackware Intelligent Network Software OSPF Command Reference                 | 6806800N87             |
| SRstackware Application Programming Interface Developer Guide                   | 6806800N90             |
| SRstackware Intelligent Network Software Layer 3 Configuration Guide            | 6806800N89             |
| SRstackware Intelligent Network Software Switch Configuration Command Reference | 6806800N92             |
| SRstackware Intelligent Network Software Layer 3 Command Reference              | 6806800N93             |
| SRstackware Intelligent Network Software Protocol Demo Guide                    | 6806800N07             |
| SRstackware FAQ                                                                 | 6806800N91             |

## Related Documentation

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