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| **RIP** |

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| RIP is a widely deployed interior gateway protocol. RIP was developed in the 1970s at |

Xerox Labs as part of the XNS routing protocol. RIP is a distance-vector protocol and is based on the Bellman-Ford algorithms. As a distance-vector protocol, RIP router send updates to its neighbors periodically, thus allowing the convergence to a known topology. In each update, the distance to any given network will be broadcast to its

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| neighboring router. |

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| Supported versions of RIP are: | |
|  | RIPv1 as described in **RFC 1058** |
|  | RIPv2 as described in **RFC 2453** |
| **General Configuration** | |

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| **set protocols rip network <A.B.C.D/M>** |

This command enables RIP and sets the RIP enable interface by NETWORK. The interfaces which have addresses matching with NETWORK are enabled.

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| **set protocols rip interface <interface>** |

This command specifies a RIP enabled interface by interface name. Both the sending and receiving of RIP packets will be enabled on the port specified in this command.

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| **set protocols rip neighbor <A.B.C.D>** |

This command specifies a RIP neighbor. When a neighbor doesn’t understand multicast, this command is used to specify neighbors. In some cases, not all routers will be able to understand multicasting, where packets are sent to a network or a group of addresses. In a situation where a neighbor cannot process multicast packets, it is necessary to establish a direct link between routers.

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| **set protocols rip passive-interface interface <interface>** |

This command sets the specified interface to passive mode. On passive mode interface, all receiving packets are processed as normal and VyOS does not send either multicast or unicast RIP packets except to RIP neighbors specified with neighbor command.

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| **set protocols rip passive-interface interface default** |

This command specifies all interfaces to passive mode. **Optional Configuration**

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| **set protocols rip default-distance <distance>** |

This command change the distance value of RIP. The distance range is 1 to 255.

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| **Note** |

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| Routes with a distance of 255 are effectively disabled and not installed into the kernel. |
| **set protocols rip network-distance <A.B.C.D/M> distance <distance>** |

This command sets default RIP distance to a specified value when the routes source IP address matches the specified prefix.

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| **set protocols rip network-distance <A.B.C.D/M> access-list <name>** |

This command can be used with previous command to sets default RIP distance to specified value when the route source IP address matches the specified prefix and the specified access-list.

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| **set protocols rip default-information originate** |

This command generate a default route into the RIP.

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| **set protocols rip distribute-list access-list <in|out> <number>** |
| This command can be used to filter the RIP path using access lists. in and out this is the   |  | | --- | |  |  |  | | --- | |  | |

direction in which the access lists are applied.

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| **set protocols rip distribute-list interface <interface> access-list <in|out> <number>** |

This command allows you apply access lists to a chosen interface to filter the RIP path.

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| **set protocols rip distribute-list prefix-list <in|out> <name>** |
| This command can be used to filter the RIP path using prefix lists. in and out this is the   |  | | --- | |  |  |  | | --- | |  | |

direction in which the prefix lists are applied.

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| **set protocols rip distribute-list interface <interface> prefix-list <in|out> <name>** |

This command allows you apply prefix lists to a chosen interface to filter the RIP path.

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| **set protocols rip route <A.B.C.D/M>** |

This command is specific to FRR and VyOS. The route command makes a static route only inside RIP. This command should be used only by advanced users who are particularly knowledgeable about the RIP protocol. In most cases, we recommend creating a static route in

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| VyOS and redistributing it in RIP using redistribute static .   |  | | --- | |  | |

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| **set protocols rip timers update <seconds>** |

This command specifies the update timer. Every update timer seconds, the RIP process is awakened to send an unsolicited response message containing the complete routing table to all neighboring RIP routers. The time range is 5 to 2147483647. The default value is 30 seconds.

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| **set protocols rip timers timeout <seconds>** |

This command specifies the timeout timer. Upon expiration of the timeout, the route is no longer valid; however, it is retained in the routing table for a short time so that neighbors can be notified that the route has been dropped. The time range is 5 to 2147483647. The default value is 180 seconds.

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| **set protocols rip timers garbage-collection <seconds>** |

This command specifies the garbage-collection timer. Upon expiration of the garbage-collection timer, the route is finally removed from the routing table. The time range is 5 to 2147483647. The default value is 120 seconds.

**Redistribution Configuration**

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| **set protocols rip redistribute <route source>** |

This command redistributes routing information from the given route source into the RIP tables. There are five modes available for route source: bgp, connected, kernel, ospf, static.

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| **set protocols rip redistribute <route source> metric <metric>** |

This command specifies metric for redistributed routes from the given route source. There are five modes available for route source: bgp, connected, kernel, ospf, static. The metric range is 1 to 16.

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| **set protocols rip redistribute <route source> route-map <name>** |

This command allows to use route map to filter redistributed routes from the given route source. There are five modes available for route source: bgp, connected, kernel, ospf, static.

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| **set protocols rip default-metric <metric>** |

This command modifies the default metric (hop count) value for redistributed routes. The metric range is 1 to 16. The default value is 1. This command does not affect connected route even if it

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| is redistributed by redistribute connected . To modify connected routes metric value, please   |  | | --- | |  |   use redistribute connected metric .   |  | | --- | |  | |

**Interfaces Configuration**

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| **set interfaces <inttype> <intname> ip rip authentication plaintext-password <text>** |

This command sets the interface with RIP simple password authentication. This command also sets authentication string. The string must be shorter than 16 characters.

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| **set interfaces <inttype> <intname> ip rip authentication md5 <id> password <text>** |

This command sets the interface with RIP MD5 authentication. This command also sets MD5 Key. The key must be shorter than 16 characters.

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| **set interfaces <inttype> <intname> ip rip split-horizon disable** |

This command disables split-horizon on the interface. By default, VyOS does not advertise RIP routes out the interface over which they were learned (split horizon).3

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| **set interfaces <inttype> <intname> ip rip split-horizon poison-reverse** |

This command enables poison-reverse on the interface. If both poison reverse and split horizon are enabled, then VyOS advertises the learned routes as unreachable over the interface on which the route was learned.

**Operational Mode Commands**

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| **show ip rip** |

This command displays RIP routes.

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| Codes: R - RIP, C - connected, S - Static, O - OSPF, B - BGP Sub-codes:  (n) - normal, (s) - static, (d) - default, (r) - redistribute, (i) - interface |

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| Network Next Hop Metric From Tag Time C(i) 10.0.12.0/24 0.0.0.0 1 self 0  C(i) 10.0.13.0/24 0.0.0.0 1 self 0  R(n) 10.0.23.0/24 10.0.12.2 2 10.0.12.2 0 02:53 |
| **show ip rip status** |

The command displays current RIP status. It includes RIP timer, filtering, version, RIP enabled interface and RIP peer information.

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| Routing Protocol is "rip"  Sending updates every 30 seconds with +/-50%, next due in 11 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:  Default version control: send version 2, receive any version  Interface Send Recv Key-chain  eth0 2 1 2  eth2 2 1 2  Routing for Networks:  10.0.12.0/24  eth0  Routing Information Sources:  Gateway BadPackets BadRoutes Distance Last Update  10.0.12.2 0 0 120 00:00:11  Distance: (default is 120) |

**Configuration Example**

Simple RIP configuration using 2 nodes and redistributing connected interfaces.

**Node 1:**

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| set interfaces loopback address 10.1.1.1/32  set protocols rip network 192.168.0.0/24  set protocols rip redistribute connected |

**Node 2:**

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| set interfaces loopback address 10.2.2.2/32  set protocols rip network 192.168.0.0/24  set protocols rip redistribute connected |