



# Implementing RIP for IPv6

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This module describes how to configure Routing Information Protocol for IPv6. RIP is a distance-vector routing protocol that uses hop count as a routing metric. RIP is an Interior Gateway Protocol (IGP) most commonly used in smaller networks.

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## Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the Feature Information Table at the end of this document.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to [www.cisco.com/go/cfn](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

## Information About Implementing RIP for IPv6

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## RIP for IPv6

IPv6 RIP functions the same and offers the same benefits as RIP in IPv4. RIP enhancements for IPv6, detailed in RFC 2080, include support for IPv6 addresses and prefixes, and the use of the all-RIP-routers multicast group address FF02::9 as the destination address for RIP update messages.



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In the Cisco IOS software implementation of IPv6 RIP each IPv6 RIP process maintains a local routing table, referred to as a Routing Information Database (RIB). The IPv6 RIP RIB contains a set of best-cost IPv6 RIP routes learned from all its neighboring networking devices. If IPv6 RIP learns the same route from two different neighbors, but with different costs, it will store only the lowest cost route in the local RIB. The RIB also stores any expired routes that the RIP process is advertising to its neighbors running RIP. IPv6 RIP will try to insert every non-expired route from its local RIB into the master IPv6 RIB. If the same route has been learned from a different routing protocol with a better administrative distance than IPv6 RIP, the RIP route will not be added to the IPv6 RIB but the RIP route will still exist in the IPv6 RIP RIB.

## Nonstop Forwarding for IPv6 RIP

Cisco nonstop forwarding (NSF) continues forwarding packets while routing protocols converge, therefore avoiding a route flap on switchover. When an RP failover occurs, the Forwarding Information Base (FIB) marks installed paths as stale by setting a new epoch. Subsequently, the routing protocols reconverge and populate the RIB and FIB. Once all NSF routing protocols converge, any stale routes held in the FIB are removed. A failsafe timer is required to delete stale routes, in case of routing protocol failure to repopulate the RIB and FIB.

RIP registers as an IPv6 NSF client. Doing so has the benefit of using RIP routes installed in the Cisco Express Forwarding table until RIP has converged on the standby.

## How to Implement RIP for IPv6

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## Enabling the IPv6 RIP Process

Before configuring the router to run IPv6 RIP, globally enable IPv6 using the **ipv6 unicast-routing** command in global configuration mode, and enable IPv6 on any interfaces on which IPv6 RIP is to be enabled. For details on basic IPv6 connectivity tasks, refer to the *Implementing Basic Connectivity for IPv6* module.

If you want to set or change a global value, follow steps 1 and 2, and then use the optional **ipv6 router rip** command in global configuration mode (see [Customizing IPv6 RIP, page 3](#) for an example).

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ipv6 unicast-routing**
4. **interface** *type number*
5. **ipv6 rip** *name* **enable**

**DETAILED STEPS**

Command or Action	Purpose
<p><b>Step 1</b> <code>enable</code></p> <p><b>Example:</b></p> <pre>Router&gt; enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<p><b>Step 2</b> <code>configure terminal</code></p> <p><b>Example:</b></p> <pre>Router# configure terminal</pre>	<p>Enters global configuration mode.</p>
<p><b>Step 3</b> <code>ipv6 unicast-routing</code></p> <p><b>Example:</b></p> <pre>Router(config)# ipv6 unicast-routing</pre>	<p>Enables the forwarding of IPv6 unicast datagrams.</p>
<p><b>Step 4</b> <code>interface type number</code></p> <p><b>Example:</b></p> <pre>Router(config)# interface Ethernet 0/0</pre>	<p>Specifies the interface type and number, and enters interface configuration mode.</p>
<p><b>Step 5</b> <code>ipv6 rip name enable</code></p> <p><b>Example:</b></p> <pre>Router(config-if)# ipv6 rip process1 enable</pre>	<p>Enables the specified IPv6 RIP routing process on an interface.</p>

**Customizing IPv6 RIP**

Perform this optional task to customize IPv6 RIP by configuring the maximum numbers of equal-cost paths that IPv6 RIP will support, adjusting the IPv6 RIP timers, and originating a default IPv6 route.

**SUMMARY STEPS**

1. **enable**
2. **configure terminal**
3. **ipv6 router rip** *word*
4. **maximum-paths** *number-paths*
5. **exit**
6. **interface** *type number*
7. **ipv6 rip** *name* **default-information** { **only** | **originate** } [**metric** *metric-value*]

**DETAILED STEPS**

Command or Action	Purpose
<p><b>Step 1</b> <b>enable</b></p> <p><b>Example:</b></p> <pre>Router&gt; enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<p><b>Step 2</b> <b>configure terminal</b></p> <p><b>Example:</b></p> <pre>Router# configure terminal</pre>	<p>Enters global configuration mode.</p>
<p><b>Step 3</b> <b>ipv6 router rip</b> <i>word</i></p> <p><b>Example:</b></p> <pre>Router(config)# ipv6 router rip process1</pre>	<p>Configures an IPv6 RIP routing process and enters router configuration mode for the IPv6 RIP routing process.</p> <ul style="list-style-type: none"> <li>• Use the <i>word</i> argument to identify a specific IPv6 RIP routing process.</li> </ul>
<p><b>Step 4</b> <b>maximum-paths</b> <i>number-paths</i></p> <p><b>Example:</b></p> <pre>Router(config-router)# maximum-paths 1</pre>	<p>(Optional) Defines the maximum number of equal-cost routes that IPv6 RIP can support.</p> <ul style="list-style-type: none"> <li>• The <i>number-paths</i> argument is an integer from 1 to 64. The default for RIP is four paths.</li> </ul>
<p><b>Step 5</b> <b>exit</b></p> <p><b>Example:</b></p> <pre>Router(config-if)# exit</pre>	<p>Exits interface configuration mode and enters global configuration mode.</p>

Command or Action	Purpose
<p><b>Step 6</b> <code>interface type number</code></p> <p><b>Example:</b></p> <pre>Router(config)# interface Ethernet 0/0</pre>	<p>Specifies the interface type and number, and enters interface configuration mode.</p>
<p><b>Step 7</b> <code>ipv6 rip name default-information {only   originate} [metric metric-value]</code></p> <p><b>Example:</b></p> <pre>Router(config-if)# ipv6 rip process1 default-information originate</pre>	<p>(Optional) Originates the IPv6 default route (::/0) into the specified RIP routing process updates sent out of the specified interface.</p> <p><b>Note</b> To avoid routing loops after the IPv6 default route (::/0) is originated out of any interface, the routing process ignores all default routes received on any interface.</p> <ul style="list-style-type: none"> <li>• Specifying the <b>only</b> keyword originates the default route (::/0) but suppresses all other routes in the updates sent on this interface.</li> <li>• Specifying the <b>originate</b> keyword originates the default route (::/0) in addition to all other routes in the updates sent on this interface.</li> </ul>

## Redistributing Routes into an IPv6 RIP Routing Process

RIP supports the use of a route map to select routes for redistribution. Routes may be specified by prefix, using a route-map prefix list, or by tag, using the route-map "match tag" function.

The maximum metric that RIP can advertise is 16, and a metric of 16 denotes a route that is unreachable. Therefore, if you are redistributing routes with metrics greater than or equal to 16, then by default RIP will advertise them as unreachable. These routes will not be used by neighboring routers. The user must configure a redistribution metric of less than 15 for these routes.



### Note

You must to advertise a route with metric of 15 or less. A RIP router always adds an interface cost--the default is 1--onto the metric of a received route. If you advertise a route with metric 15, your neighbor will add 1 to it, making a metric of 16. Because a metric of 16 is unreachable, your neighbor will not install the route in the routing table.

If no metric is specified, then the current metric of the route is used. To find the current metric of the route, enter the `show ipv6 route` command.

### SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `interface type number`
4. `ipv6 rip word enable`
5. `redistribute protocol [process-id] {level-1 | level-1-2| level-2} [metric metric-value] [metric-type {internal | external}] [route-map map-name]`

## DETAILED STEPS

Command or Action	Purpose
<p><b>Step 1</b> <code>enable</code></p> <p><b>Example:</b></p> <pre>Router&gt; enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>
<p><b>Step 2</b> <code>configure terminal</code></p> <p><b>Example:</b></p> <pre>Router# configure terminal</pre>	<p>Enters global configuration mode.</p>
<p><b>Step 3</b> <code>interface type number</code></p> <p><b>Example:</b></p> <pre>Router(config)# interface Ethernet 0/0</pre>	<p>Specifies the interface type and number, and enters interface configuration mode.</p>
<p><b>Step 4</b> <code>ipv6 rip word enable</code></p> <p><b>Example:</b></p> <pre>Router(config-if)# ipv6 router one enable</pre>	<p>Enables an IPv6 Routing Information Protocol (RIP) routing process on an interface.</p>
<p><b>Step 5</b> <code>redistribute protocol [process-id] {level-1   level-1-2   level-2} [metric metric-value] [metric-type{internal   external}] [route-map map-name]</code></p> <p><b>Example:</b></p> <pre>Router(config-router)# redistribute bgp 65001 route-map bgp-to-rip</pre>	<p>Redistributes the specified routes into the IPv6 RIP routing process.</p> <ul style="list-style-type: none"> <li>The <i>protocol</i> argument can be one of the following keywords: <b>bgp</b>, <b>connected</b>, <b>isis</b>, <b>rip</b>, or <b>static</b>.</li> <li>The <b>rip</b> keyword and <i>process-id</i> argument specify an IPv6 RIP routing process.</li> </ul> <p><b>Note</b> The <b>connected</b> keyword refers to routes that are established automatically by assigning IPv6 addresses to an interface.</p>

## Configuring Route Tags for IPv6 RIP Routes

When performing route redistribution, you can associate a numeric tag with a route. The tag is advertised with the route by RIP and will be installed along with the route in neighboring router's routing table.

If you redistribute a tagged route (for example, a route in the IPv6 routing table that already has a tag) into RIP, then RIP will automatically advertise the tag with the route. If you use a redistribution route map to specify a tag, then RIP will use the route map tag in preference to the routing table tag.

**SUMMARY STEPS**

1. **enable**
2. **configure terminal**
3. **route-map** *map-tag* [**permit** | **deny**] [*sequence-number*]
4. **match ipv6 address** {**prefix-list** *prefix-list-name* | *access-list-name*}
5. **set tag** *tag-value*

**DETAILED STEPS**

Command or Action	Purpose
<b>Step 1</b> <b>enable</b>  <b>Example:</b> <pre>Router&gt; enable</pre>	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b> <b>configure terminal</b>  <b>Example:</b> <pre>Router# configure terminal</pre>	Enters global configuration mode.
<b>Step 3</b> <b>route-map</b> <i>map-tag</i> [ <b>permit</b>   <b>deny</b> ] [ <i>sequence-number</i> ]  <b>Example:</b> <pre>Router(config)# route-map bgp-to-rip permit 10</pre>	Defines a route map, and enters route-map configuration mode. <ul style="list-style-type: none"> <li>• Follow this step with a <b>match</b> command.</li> </ul>
<b>Step 4</b> <b>match ipv6 address</b> { <b>prefix-list</b> <i>prefix-list-name</i>   <i>access-list-name</i> }  <b>Example:</b> <pre>Router(config-route-map)# match ipv6 address prefix-list bgp-to-rip-flt</pre>	Specifies a list of IPv6 prefixes to be matched.
<b>Step 5</b> <b>set tag</b> <i>tag-value</i>  <b>Example:</b> <pre>Router(config-route-map)# set tag 4</pre>	Sets the tag value to associate with the redistributed routes.

**Filtering IPv6 RIP Routing Updates**

Route filtering using distribute lists provides control over the routes RIP receives and advertises. This control may be exercised globally or per interface.

Filtering is controlled by IPv6 distribute lists. Input distribute lists control route reception, and input filtering is applied to advertisements received from neighbors. Only those routes that pass input filtering

will be inserted in the RIP local routing table and become candidates for insertion into the IPv6 routing table.

Output distribute lists control route advertisement; Output filtering is applied to route advertisements sent to neighbors. Only those routes passing output filtering will be advertised.

Global distribute lists (which are distribute lists that do not apply to a specified interface) apply to all interfaces. If a distribute list specifies an interface, then that distribute list applies only to that interface.

An interface distribute list always takes precedence. For example, for a route received at an interface, with the interface filter set to deny, and the global filter set to permit, the route is blocked, the interface filter is passed, the global filter is blocked, and the route is passed.

IPv6 prefix lists are used to specify certain prefixes or a range of prefixes that must be matched before a permit or deny statement can be applied. Two operand keywords can be used to designate a range of prefix lengths to be matched. A prefix length of less than, or equal to, a value is configured with the **le** keyword. A prefix length greater than, or equal to, a value is specified using the **ge** keyword. The **ge** and **le** keywords can be used to specify the range of the prefix length to be matched in more detail than the usual *ipv6-prefix / prefix-length* argument. For a candidate prefix to match against a prefix list entry three conditions can exist:

- The candidate prefix must match the specified prefix list and prefix length entry.
- The value of the optional **le** keyword specifies the range of allowed prefix lengths from the *prefix-length* argument up to, and including, the value of the **le** keyword.
- The value of the optional **ge** keyword specifies the range of allowed prefix lengths from the value of the **ge** keyword up to, and including, 128.



#### Note

The first condition must match before the other conditions take effect.

An exact match is assumed when the **ge** or **le** keywords are not specified. If only one keyword operand is specified then the condition for that keyword is applied, and the other condition is not applied. The *prefix-length* value must be less than the **ge** value. The **ge** value must be less than, or equal to, the **le** value. The **le** value must be less than or equal to 128.

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ipv6 prefix list** *prefix-list-name seq seq-number* [ **deny** *ipv6-prefix / prefix-length* | **description text** ] [ **ge** *ge-value* ] [ **le** *le-value* ]
4. **ipv6 prefix list** *prefix-list-name seq seq-number* [ **deny** *ipv6-prefix / prefix-length* | **description text** ] [ **ge** *ge-value* ] [ **le** *le-value* ]
5. Repeat Steps 3 and 4 as many times as necessary to build the prefix list.
6. **ipv6 router rip** *name*
7. **distribute-list prefix-list** *prefix-list-name in | out* [ *interface-type interface-number* ]



## DETAILED STEPS

Command or Action	Purpose
<p><b>Step 1</b> <code>enable</code></p> <p><b>Example:</b></p> <pre>Router&gt; enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<p><b>Step 2</b> <code>configure terminal</code></p> <p><b>Example:</b></p> <pre>Router# configure terminal</pre>	<p>Enters global configuration mode.</p>
<p><b>Step 3</b> <code>ipv6 prefix list <i>prefix-list-name</i> seq <i>seq-number</i> ] {deny <i>ipv6-prefix / prefix-length</i>   description <i>text</i>} [<i>ge ge-value</i>] [<i>le le-value</i>]</code></p> <p><b>Example:</b></p> <pre>Router(config)# ipv6 prefix-list abc permit 2001:DB8::/16</pre>	<p>Creates an entry in the IPv6 prefix list.</p>
<p><b>Step 4</b> <code>ipv6 prefix list <i>prefix-list-name</i> seq <i>seq-number</i> ] {deny <i>ipv6-prefix / prefix-length</i>   description <i>text</i>} [<i>ge ge-value</i>] [<i>le le-value</i>]</code></p> <p><b>Example:</b></p> <pre>Router(config)# ipv6 prefix-list abc deny ::/0</pre>	<p>Creates an entry in the IPv6 prefix list.</p>
<p><b>Step 5</b> Repeat Steps 3 and 4 as many times as necessary to build the prefix list.</p>	<p>--</p>
<p><b>Step 6</b> <code>ipv6 router rip <i>name</i></code></p> <p><b>Example:</b></p> <pre>Router(config)# ipv6 router rip process1</pre>	<p>Configures an IPv6 RIP routing process.</p>
<p><b>Step 7</b> <code>distribute-list prefix-list <i>prefix-list-name</i> in   out } [<i>interface-type interface-number</i>]</code></p> <p><b>Example:</b></p> <pre>Router(config-rtr-rip)# distribute-list prefix-list process1 in ethernet 0/0</pre>	<p>Applies a prefix list to IPv6 RIP routing updates that are received or sent on an interface.</p>

## Verifying IPv6 RIP Configuration and Operation

### SUMMARY STEPS

1. `show ipv6 rip [name][database] next-hops`
2. `show ipv6 route [ipv6-address] ipv6-prefix/prefix-length| protocol | interface-type interface-number`
3. `enable`
4. `debug ipv6 rip [interface-type interface-number]`

### DETAILED STEPS

Command or Action	Purpose
<b>Step 1</b> <code>show ipv6 rip [name][database] next-hops</code>  <b>Example:</b> <pre>Router&gt; show ipv6 rip process1 database</pre>	(Optional) Displays information about current IPv6 RIP processes. <ul style="list-style-type: none"> <li>• In this example, IPv6 RIP process database information is displayed for the specified IPv6 RIP process.</li> </ul>
<b>Step 2</b> <code>show ipv6 route [ipv6-address] ipv6-prefix/prefix-length  protocol   interface-type interface-number</code>  <b>Example:</b> <pre>Router&gt; show ipv6 route rip</pre>	(Optional) Displays the current contents of the IPv6 routing table. <ul style="list-style-type: none"> <li>• In this example, only IPv6 RIP routes are displayed.</li> </ul>
<b>Step 3</b> <code>enable</code>  <b>Example:</b> <pre>Router&gt; enable</pre>	Enables higher privilege levels, such as privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 4</b> <code>debug ipv6 rip [interface-type interface-number]</code>  <b>Example:</b> <pre>Router# debug ipv6 rip</pre>	(Optional) Displays debugging messages for IPv6 RIP routing transactions.

- [Examples, page 10](#)

## Examples

### Sample Output from the show ipv6 rip Command

In the following example, output information about all current IPv6 RIP processes is displayed using the `show ipv6 rip` command:

```
Router> show ipv6 rip
```

```
RIP process "process1", port 521, multicast-group FF02::9, pid 62
  Administrative distance is 120. Maximum paths is 1
  Updates every 5 seconds, expire after 15
  Holddown lasts 10 seconds, garbage collect after 30
  Split horizon is on; poison reverse is off
  Default routes are generated
  Periodic updates 223, trigger updates 1
Interfaces:
  Ethernet0/0
Redistribution:
  Redistributing protocol bgp 65001 route-map bgp-to-rip
```

In the following example, output information about a specified IPv6 RIP process database is displayed using the **show ipv6 rip** command with the *name* argument and the **database** keyword. In the following output for the IPv6 RIP process named `process1`, timer information is displayed, and route `2001:DB8::16/64` has a route tag set:

```
Router> show ipv6 rip process1 database
RIP process "process1", local RIB
 2001:DB8::/64, metric 2
   Ethernet0/0/FE80::A8BB:CCFF:FE00:B00, expires in 13 secs
 2001:DB8::/16, metric 2 tag 4, installed
   Ethernet0/0/FE80::A8BB:CCFF:FE00:B00, expires in 13 secs
 2001:DB8:1::/16, metric 2 tag 4, installed
   Ethernet0/0/FE80::A8BB:CCFF:FE00:B00, expires in 13 secs
 2001:DB8:2::/16, metric 2 tag 4, installed
   Ethernet0/0/FE80::A8BB:CCFF:FE00:B00, expires in 13 secs
 ::/0, metric 2, installed
   Ethernet0/0/FE80::A8BB:CCFF:FE00:B00, expires in 13 secs
```

In the following example, output information for a specified IPv6 RIP process is displayed using the **show ipv6 rip** EXEC command with the *name* argument and the **next-hops** keyword:

```
Router> show ipv6 rip process1 next-hops
RIP process "process1", Next Hops
  FE80::A8BB:CCFF:FE00:A00/Ethernet0/0 [4 paths]
```

### Sample Output from the show ipv6 route Command

The current metric of the route can be found by entering the **show ipv6 route** command. In the following example, output information for all IPv6 RIP routes is displayed using the **show ipv6 route** command with the **rip** protocol keyword:

```
Router> show ipv6 route rip
IPv6 Routing Table - 17 entries
Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP
       U - Per-user Static route
       I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea
       O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2
R   2001:DB8:1::/32 [120/2]
    via FE80::A8BB:CCFF:FE00:A00, Ethernet0/0
R   2001:DB8:2::/32 [120/2]
    via FE80::A8BB:CCFF:FE00:A00, Ethernet0/0
R   2001:DB8:3::/32 [120/2]
    via FE80::A8BB:CCFF:FE00:A00, Ethernet0/0
```

### Sample Output from the debug ipv6 rip Command

In the following example, debugging messages for IPv6 RIP routing transactions are displayed using the **debug ipv6 rip** command:

**Note**

By default, the system sends the output from **debug** commands and system error messages to the console. To redirect debugging output, use the **logging** command options within privileged EXEC mode. Possible destinations include the console, virtual terminals, internal buffer, and UNIX hosts running a syslog server.

```
Router# debug ipv6 rip
RIPng: Sending multicast update on Ethernet0/0 for process1
      src=FE80::A8BB:CCFF:FE00:B00
      dst=FF02::9 (Ethernet0/0)
      sport=521, dport=521, length=112
      command=2, version=1, mbz=0, #rte=5
      tag=0, metric=1, prefix=2001:DB8::/64
      tag=4, metric=1, prefix=2001:DB8:1::/16
      tag=4, metric=1, prefix=2001:DB8:2::/16
      tag=4, metric=1, prefix=2001:DB8:3::/16
      tag=0, metric=1, prefix=::/0
RIPng: Next RIB walk in 10032
RIPng: response received from FE80::A8BB:CCFF:FE00:A00 on Ethernet0/0 for process1
      src=FE80::A8BB:CCFF:FE00:A00 (Ethernet0/0)
      dst=FF02::9
      sport=521, dport=521, length=92
      command=2, version=1, mbz=0, #rte=4
      tag=0, metric=1, prefix=2001:DB8::/64
      tag=0, metric=1, prefix=2001:DB8:1::/32
      tag=0, metric=1, prefix=2001:DB8:2::/32
      tag=0, metric=1, prefix=2001:DB8:3::/32
```

## Configuration Examples for IPv6 RIP

- [Example IPv6 RIP Configuration, page 12](#)

### Example IPv6 RIP Configuration

In the following example, the IPv6 RIP process named `process1` is enabled on the router and on Ethernet interface `0/0`. The IPv6 default route (`::/0`) is advertised in addition to all other routes in router updates sent on Ethernet interface `0/0`. Additionally, BGP routes are redistributed into the RIP process named `process1` according to a route map where routes that match a prefix list are also tagged. The number of parallel paths is set to one to allow the route tagging, and the IPv6 RIP timers are adjusted. A prefix list named `eth0/0-in-flt` filters inbound routing updates on Ethernet interface `0/0`.

```
ipv6 router rip process1
  maximum-paths 1
  redistribute bgp 65001 route-map bgp-to-rip
  distribute-list prefix-list eth0/0-in-flt in Ethernet0/0
!
interface Ethernet0/0
  ipv6 address 2001:DB8::/64 eui-64
  ipv6 rip process1 enable
  ipv6 rip process1 default-information originate
!
ipv6 prefix-list bgp-to-rip-flt seq 10 deny 2001:DB8:3::/16 le 128
ipv6 prefix-list bgp-to-rip-flt seq 20 permit 2001:DB8:1::/8 le 128
!
ipv6 prefix-list eth0/0-in-flt seq 10 deny ::/0
ipv6 prefix-list eth0/0-in-flt seq 15 permit ::/0 le 128
!
route-map bgp-to-rip permit 10
  match ipv6 address prefix-list bgp-to-rip-flt
  set tag 4
```

# Additional References

## Related Documents

Related Topic	Document Title
IPv4 RIP configuration tasks	" Configuring Routing Information Protocol ," <i>Cisco IOS IP Routing Protocols Configuration Guide</i>
RIP commands: complete command syntax, command mode, defaults, usage guidelines, and examples	" RIP Commands ," <i>Cisco IOS IP Routing Protocols Command Reference</i>
IPv6 supported feature list	" Start Here: Cisco IOS Software Release Specifics for IPv6 Features ," <i>Cisco IOS IPv6 Configuration Guide</i>
IPv6 commands: complete command syntax, command mode, defaults, usage guidelines, and examples	<i>Cisco IOS IPv6 Command Reference</i>

## Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	--

## MIBs

MIBs	MIBs Link
None	To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a>

## RFCs

RFCs	Title
RFC 2080	<i>RIPng for IPv6</i>

**Technical Assistance**

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

## Feature Information for Implementing RIP for IPv6

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to [www.cisco.com/go/cfn](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

**Table 1** Feature Information for Implementing RIP for IPv6

Feature Name	Releases	Feature Information
IPv6--RIPng Nonstop Forwarding	12.2(33)SRE 15.0(1)SY	The IPv6 RIPng nonstop forwarding feature is supported.
IPv6 Routing--RIP for IPv6 (RIPng)	12.0(22)S 12.2(14)S 12.2(28)SB 12.2(25)SG 12.2(33)SRA12.2(2)T 12.3 12.3(2)T 12.4 12.4(2)T 15.0(1)S	RIP enhancements for IPv6 include support for IPv6 addresses and prefixes, and the use of the all-RIP-routers multicast group address FF02::9 as the destination address for RIP update messages.
IPv6 Routing--Route Redistribution	12.0(22)S 12.2(14)S 12.2(28)SB 12.2(25)SG 12.2(33)SRA12.2(2)T 12.3 12.3(2)T 12.4 12.4(2)T	Routes may be specified by prefix, using a route-map prefix list, or by tag, using the route-map "match tag" function.

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