

Triggered Extensions to RIP

Feature Summary

Triggered extensions to IP RIP increase efficiency of RIP on point-to-point, serial interfaces.

Routers are used on connection-oriented networks to allow potential connectivity to many remote destinations. Circuits on the WAN are established on demand and are relinquished when the traffic subsides. Depending on the application, the connection between any two sites for user data could be short and relatively infrequent.

There were two problems using RIP to connect to a WAN:

- Periodic broadcasting by RIP generally prevented WAN circuits from being closed.
- Even on fixed, point-to-point links, the overhead of periodic RIP transmissions could seriously interrupt normal data transfer because of the quantity of information that hits the line every 30 seconds.

To overcome these limitations, triggered extensions to RIP cause RIP to send information on the WAN only when there has been an update to the routing database. Periodic update packets are suppressed over the interface on which this feature is enabled.

Benefit

RIP routing traffic is reduced on point-to-point, serial interfaces. Therefore, you can save money on an on-demand circuit for which you are charged for usage.

Platforms

This feature is supported on all platforms running Cisco IOS Release 12.0(1)T that include RIP.

Prerequisites

RIP must be enabled for this feature to function. This feature runs on a point-to-point, serial interface only.

Supported RFCs

This feature partially supports RFC 2091, Triggered Extensions to RIP to Support Demand Circuits.

Configuration Tasks

To enable triggered extensions to RIP, use the following commands beginning in global configuration mode:

Command	Purpose
interface <i>serial number</i>	Configure a serial interface.
ip rip triggered	Enable triggered extensions to RIP.

To display the contents of the RIP private database, use the following command in EXEC mode:

Command	Purpose
show ip rip database [<i>prefix mask</i>]	Display the contents of the RIP private database.

Command Reference

This section documents the following new commands. All other commands used in this feature module can be found in the Cisco IOS 12.0 documentation set.

- **ip rip triggered**
- **show ip rip database**

ip rip triggered

To enable triggered extensions of RIP, use the **ip rip triggered** interface configuration command. To disable triggered extensions to RIP, use the **no** form of this command.

ip rip triggered

Syntax Description

This command has no arguments or keywords.

Default

Disabled

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 12.0(1)T.

When triggered extensions to RIP are enabled, routing updates are transmitted on the WAN only if one of the following occurs:

- The router receives a specific request for a routing update. (Full database is sent.)
- Information from another interface modifies the routing database. (Only latest changes are sent)

- The interface comes up or goes down. (Partial database is sent.)
- The router is first powered on, to ensure that at least one update is sent. (Full database is sent.)

You might want to enable this feature if you are using an on-demand circuit and you are charged for usage time. Fewer routing updates will incur lower usage costs.

Entries in the routing database can be either temporary or semi-permanent. Entries learned from broadcasts on LANs are temporary; they will expire if not periodically refreshed by more broadcasts.

Entries learned from a triggered response on the WAN are semi-permanent; they do not time out like other entries. Certain events can cause these routes to time out, such as the interface going down, or if the outgoing interface is the same as the incoming interface. Neighbor updates of the routes with a metric of 16 (infinity) mean the route is unreachable, and those routes are eventually removed from the routing table.

Example

The following example enables triggered extensions to RIP:

```
interface serial 0
 ip rip triggered
```

Related Commands

show ip rip database

show ip rip database

To display the contents of the RIP private database when triggered extensions to RIP are enabled, use the **show ip rip database EXEC** command.

```
show ip rip database [prefix mask]
```

Syntax Description

<i>prefix</i>	(Optional) Display only the route that matches the specified prefix and mask. Otherwise, the entire database is displayed.
<i>mask</i>	(Optional) Display only the route that matches the specified prefix and mask. Otherwise, the entire database is displayed.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 12.0(1)T.

The RIP private database is populated only if triggered extensions to RIP are enabled with the **ip rip triggered** command.

Sample Displays

The following is sample output of the **show ip rip database** command:

```
Router# show ip rip database

172.19.0.0/16      auto-summary
172.19.64.0/24    directly connected, Ethernet0
172.19.65.0/24
    [1] via 172.19.70.36, 00:00:17, Serial1
    [2] via 172.19.67.38, 00:00:25, Serial0
172.19.67.0/24    directly connected, Serial0
172.19.67.38/32   directly connected, Serial0
172.19.70.0/24    directly connected, Serial1
172.19.86.0/24
    [1] via 172.19.67.38, 00:00:25, Serial0
    [1] via 172.19.70.36, 00:00:17, Serial1
```

The following is sample output of the **show ip rip database** command with a prefix and mask:

```
Router# show ip rip database 172.19.86.0 255.255.255.0
172.19.86.0/24
    [1] via 172.19.67.38, 00:00:25, Serial0
    [1] via 172.19.70.36, 00:00:14, Serial1
```

Table 1 describes the fields in the first display.

Table 1 **Show IP RIP Database Field Descriptions**

Field	Description
172.19.0.0/16 auto-summary	Summary entry.
172.19.64.0/24 directly connected, Ethernet0	Directly connected entry for Ethernet 0.
172.19.65.0/24 [1] via 172.19.70.36, 00:00:17, Serial1 [2] via 172.19.67.38, 00:00:25, Serial0	The destination 172.19.65.0/24 is learned via RIP. There are two sources advertising it. One is 172.19.70.36 via Serial interface 1, and it was updated 17 seconds ago. The other source is 172.19.67.38 via Serial interface 0, and it was updated 25 seconds ago.

Related Commands

ip rip triggered

