Knowledge Base

How to Implement RIP Over RRAS in Windows 2000

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The information in this article applies to:

- Microsoft Windows 2000 Server

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SUMMARY

This article discusses how to implement NetWare Router Information Protocol (RIP) over Microsoft Routing and Remote Access Service (RRAS) Dial-on-Demand (DOD) connections in Windows 2000. The following topics are discussed:

- How to Install RIP
- How to Add Network Interfaces
- Description of Auto-static and Periodic Update Modes

MORE INFORMATION

For the purposes of this article, a DOD connection refers to either a direct-dial connection using a modem, or a Virtual Private Network (VPN) tunnel connection over the Internet. Since RIP does not distinguish between these two connectivity methods, both are used in the same manner.

How to Install RIP

1. Make sure that your DOD connections dial and connect successfully. This is necessary for both modem connections and VPN connections. You may implement temporary static routes on your RRAS servers to test their routing capabilities, but these routes must be removed later. RIP does not work if your DOD connections do not connect.

2. Start the RRAS Admin tool, click **IP Routing**, and then right-click **General**.

3. Click **Add Routing Protocol**, click **RIP version 2 for Internet Protocol**, and then click **OK**.

When RIP is installed, a branch for RIP is displayed under the **IP Routing** branch. At this time you must add the network interfaces that RIP will use. It is necessary to add the DOD interfaces and the local area network-side interfaces. For VPN connections, it is not necessary to add the interface that connects to the Internet.

How to Add Network Interfaces

1. Right-click **RIP** and then click **New Interface**.

2. Click the DOD interface to be used between your two RRAS servers, click **OK**, and then click **OK**.

NOTE: When you choose to add an interface, you are given the opportunity to change the RIP configuration for the new interface. Typically, RIP functions properly with the default settings. Any necessary changes can be made after the interfaces are initially configured.

The RRAS administrator guide contains more information about how to configure RIP. However, a discussion of Auto-static and Periodic Update Modes is necessary.

Description of Auto-static and Periodic Update Modes

The operation mode of an interface determines whether the interface is treated as a 24 hours a day, 7 days a week (24x7) connection, such as a network adapter, or if the interface is treated like a DOD connection, which is not normally a 24x7 connection. Periodic update mode means that RIP broadcasts or multicasts are sent over this interface based on the periodic rate, with a default value of once every 30 seconds. The Auto-static update mode indicates that periodic updates are not sent over the interface and that manual updates by the administrator are necessary. You may notice that by default, network adapters use periodic update mode, and DOD connections use Auto-static update mode. The administrator may change the update mode as necessary.

At this point, your DOD connections do not dial, and cannot be forced to dial.

For additional information about RIP and DOD connections, click the article number below to view the article in the Microsoft Knowledge Base:

235492 RIP and OSPF Do Not Start Dial On Demand Connections

If you have configured your DOD connections to use periodic mode, they will not dial each other. However, if you have configured your connections for periodic update mode, once connected, these connections will not disconnect.

In order to make RIP start a DOD connection, it is necessary to make sure that a route entry exists that can make the DOD connection dial. If you are using Auto-static mode, you must update the route tables on each of your RRAS servers:

1. Click **IP Routing**.

2. Right-click either the modem or VPN interface, and then click **Update Routes**.

Once connected, the DOD interface copies the routes normally learned by RIP. These routes are added to the route table as static routes. After this task is completed, even if the DOD drops due to inactivity, it is forced to re-dial based on the routing table entries. This must be done on each side, unless you only want one side to dial. The only caveat to these auto-static updates is that they are not dynamic. If any changes are made to your network, you must manually update the static routes in your route table. The RRAS server may also need to be stopped and restarted to complete the configuration changes. If you are using periodic update mode, you need to either add a default gateway static route pointing to the DOD, or add specific network routes pointing to the DOD. It is necessary to do this on each side for routing purposes. In this situation, the administrator has to add the static routes manually. RIP learned routes are placed in the routing table after the DOD is connected. If you add static routes in this configuration, you should also do the following:

1. When you add static routes, give them a higher metric than the routes learned by RIP. This may be a matter of trial and error, but essentially you want the RIP learned routes to have a better metric than the static routes.

2. Configure RIP preference level.

   NOTE: What you are configuring in this dialog box is the preference level given to routes based on how they are learned. The

preference level itself is not as important as the fact that RIP routes should have more preference than static routes.

a. Start the RRAS Administration tool.
b. Click **IP Routing**, right-click **General** and then click **Properties**.
c. Click **Preference Levels**, Click **RIP Version 2 for Internet Protocol**, and then raise the preference level from 120 to 1.

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