

Token Ring - Ethernet TCP/IP Router

***Connects a Single Token Ring Device
to an Ethernet Network***

User Manual



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Introduction

Ringdale's Token Ring - Ethernet TCP/IP Router provides a solution for connecting a single Token Ring device (through a Media Access Unit) to an Ethernet network. This allows a device with a Token Ring network connection (for example Printers, Laptops and network peripherals) to be attached to an Ethernet network.

Ethernet connection is made with an RJ-45 connector, configured to allow a crossover cable to run to the 10baseT Ethernet Network.

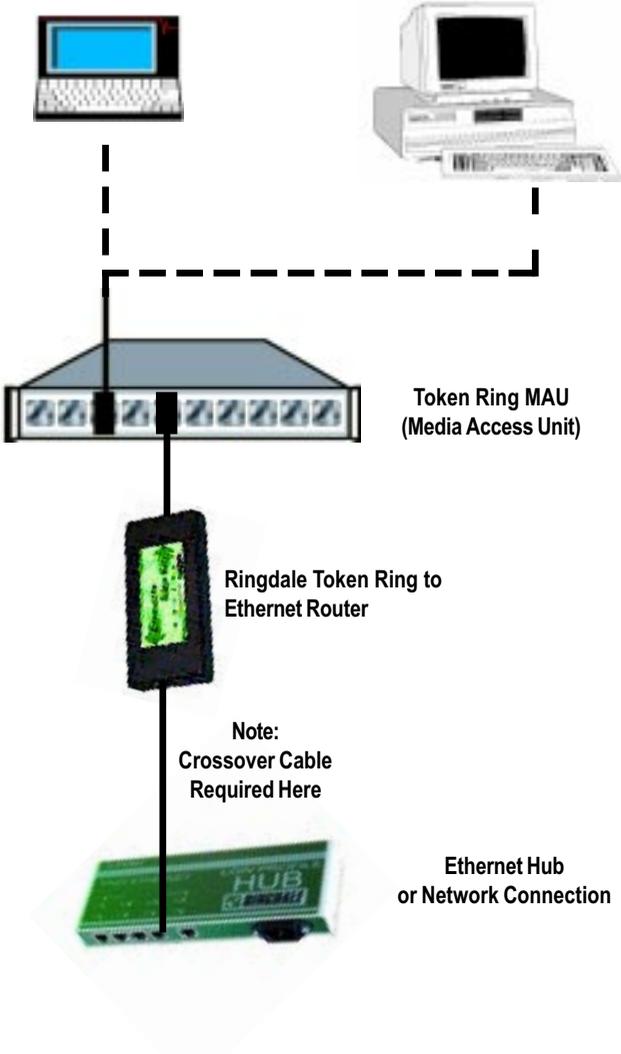
Token Ring connection is made using a type 1 cable on a 9-way DB connector or type 3 cable on an RJ-45 connector. The router has the ability to automatically sense which Token Ring connection is used and the Token Ring speed, at either 4MHz or 16MHz.

The router is configured and managed remotely using Ringdale's PeripheralVision® network management software that can be installed on any Windows 95/98/ME/NT4/2000 PC on the Token Ring network.

Follow the steps detailed in this manual for quick installation of the Token Ring - Ethernet TCP/IP Router.

Typical Set-Up for Token Ring - Ethernet Router

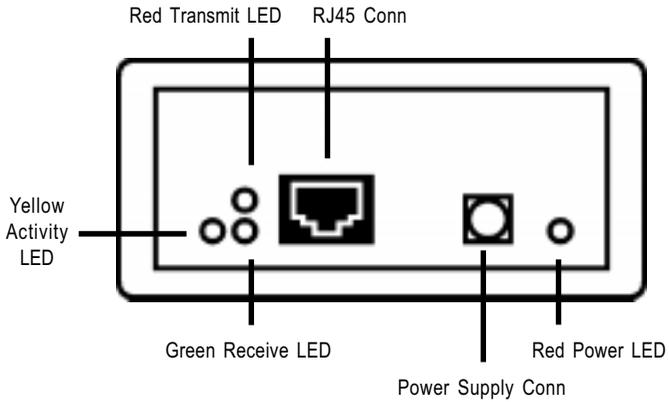
Laptop or PC with Token Ring Network Interface



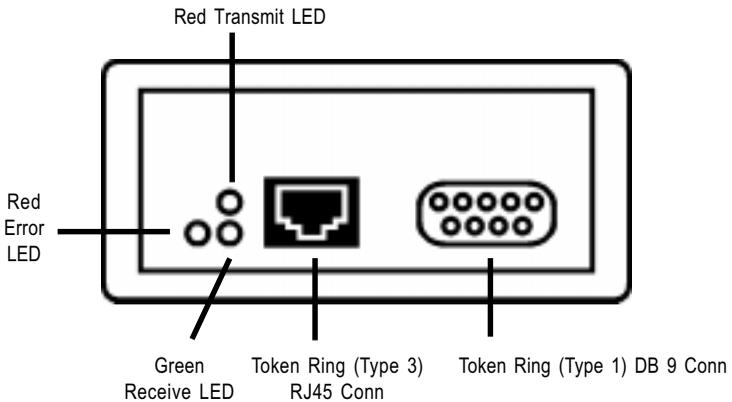
Installation

Connectors and LEDs

Ethernet Panel



Token Ring Panel



Connecting the Router to the Ethernet Network

Insert a **Crossover RJ-45 10baseT** cable from the Ethernet network into the **RJ-45** port on the **Ethernet** panel.

The **Green RX** LED will blink when the router receives data from the Ethernet network.

The **Red TX** LED will blink when the router transmits data to the Ethernet network.

The **Yellow Link** LED indicates that the Ethernet network connection is functioning.

Connecting the Router to the Token Ring Device

Connect the Token Ring device to the MAU (the type of cable required will depend on the type of connections being used).

Insert *either* a **Type 3** cable with a **RJ-45** connector *or* a **Type 1** cable with a **9 way DB** connector from the Token Ring MAU into the **RJ-45** *or* **DB 9** port on the **Token Ring** panel. The router will *autosense* which Token Ring connector is being used.

The **Red Error** LED will light when there is an error with the Token Ring devices.

The **Green RX** LED will blink when the router receives data from the Token Ring device.

The **Red TX** LED will blink when the router transmits data to the Token Ring device.

Powering the Router

Important Note

If there is a delay in connecting the router to the Token Ring MAU after power-up, it may be necessary to restart the router in order to make the Token Ring link good.

Connect the power cable to the **Power Supply** socket on the **Ethernet** panel of the router. Connect the other end of the power cable to the mains electricity supply.

Configuring the Router

Once the router is installed it is necessary to configure the device. Configuration is accomplished by using the **PeripheralVision®** software supplied with the router (see the following chapter for details on this).

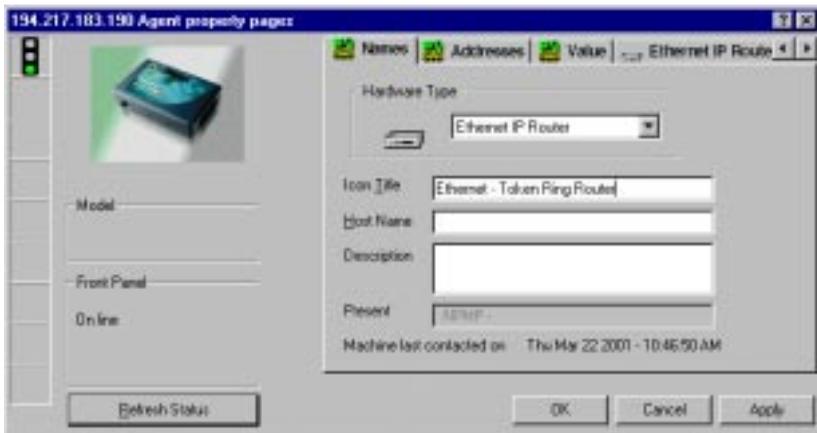
Using PeripheralVision® to Configure the Router

Full operational procedures for PeripheralVision® are detailed in the program helpfile, refer to this if any problems are encountered in the procedure detailed below.

- 1 Install PeripheralVision® onto a PC on the Ethernet network.
- 2 Ensure the router hardware installation is complete.
- 3 Using the **Locate NPMP™** discovery tool in PeripheralVision®, enter the default set **IP address (11.22.33.44)**. The router will appear on the network map, it will be an icon similar to the example on the left.



- 4 Left click twice on the icon to open up the property pages of the device. The default displayed page will be the **Name** page. This is shown below:



- 5 In the Icon Title field enter a name for the router that will allow it to be identified on the PeripheralVision® network map.
- 6 Using the arrows in the top right corner, scroll the pages and click on the first **IP Router** page. This is shown following:



The following information needs to be entered onto this page (this will be supplied by your network administrator).

- IP Address** Enter here the router's IP address for the **Ethernet** network (this will be the gateway for all Ethernet devices that need to communicate with the Token Ring device).
- TCP/IP Subnet Mask** Enter here the subnet mask for the **Ethernet** network.
- Default Gateway IP Address** Enter here the IP address of another router. This will allow packets for unrecognized IP addresses to be redirected to that router.
- DNS Name Server Address** Enter here the IP Address of the DNS server if required (optional).
- Local IP Address** Enter here the router's IP address for the **Token Ring** side (this will be the gateway for the Token Ring device).
- Local IP Subnet Mask** Enter here the subnet mask for the **Token Ring** side.
- Click on **Apply** to register the new information.

Passwords

It is strongly recommended that Passwords are set for access to all router property pages in PeripheralVision® because of the sensitive nature of the information that can be configured.

If required, access to set/change the information on the router property page can be restricted using the **Change Password** button. Click on it to bring up the following window:

A screenshot of a 'Change Password' dialog box. The dialog has a blue title bar with the text 'Change Password' and a close button (X) on the right. The main area is light gray and contains three text input fields stacked vertically. The first field is labeled 'Current Password', the second 'New Password', and the third 'Confirm Password'. At the bottom of the dialog, there are two buttons: 'OK' on the left and 'Cancel' on the right.

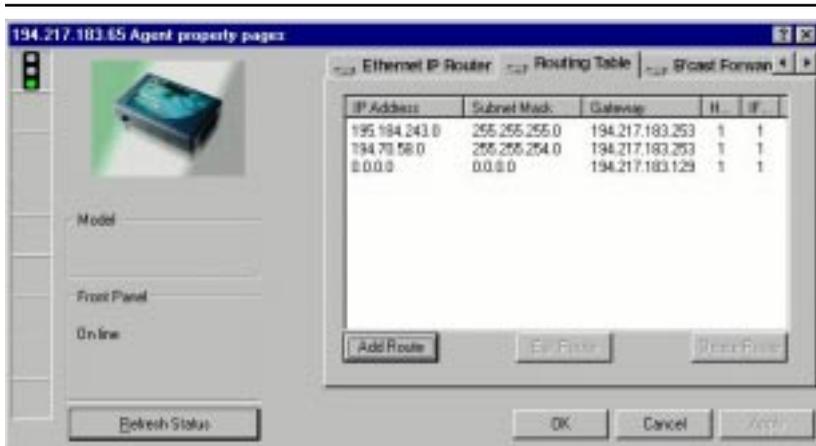
Enter the Password into the box, type in the confirmation and click on **OK**.

Access to change the configuration will now be restricted to those who have the Password.

Routing Table Page

- 7 It is now necessary to tell the router where to route the IP packets. This is done by creating a Routing Table. Use the arrows to scroll the pages and select the **Routing Table** page. Make sure that the whole IP range is passed over to the other network. Any packets that are not in this range will be passed onto the *Default Gateway Address*. An example of this setup is shown following.

To configure each route, click on the **Add Route** button and enter the information as described:



IP Address Enter here the IP address of the subnet/range you want to route to (enter a zero in the last segment of the IP address for each range).

Subnet Mask Enter here the Subnet Mask of the above IP Address, either for the Token Ring side or the Ethernet network.

Gateway Enter here the IP address of the router for the side of the network the above IP addresses are on (for example, if the IP addresses are on the Ethernet network, enter the address assigned to the first *IP Address* field previously - for the Token Ring side use the address assigned to the *Local IP Address* field).

H (Hops) Enter here the number of hops across networks or subnets that are necessary to route the packets to the required IP Address.

IF (Interface) This remains at the default setting of **1**.

Select a route from the list and click on the **Edit Route** button to change the configuration of an existing route.

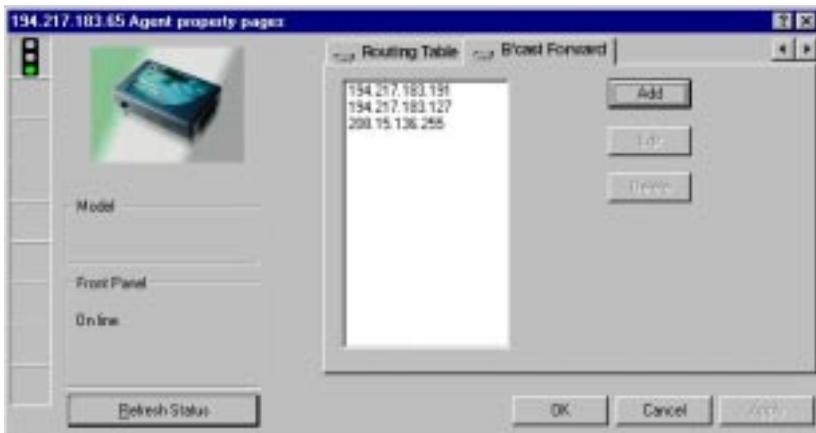
Select a route from the list and click on the **Delete Route** button to remove a route.

Once the routes have been set up as required, click on **Apply**.

-
- 8 Once the routing table is finished, ensure that each separate device that is using the router as a gateway has the correct IP address (the one set up for it in the routing table) entered as the gateway (for example, for a PC on the Token Ring side to be able to communicate with devices on the Ethernet network, the router's *Local IP Address* will need to be entered as that PC's gateway - for a device on the Ethernet network the router's first *IP Address* will need to be the gateway).
 - 9 To check that the router is set up correctly, ping the device on the Token Ring side from a device on the Ethernet network. Then, if possible, ping a device on the Ethernet Network from the Token Ring device.

Broadcast Forward Page

- 10 The router also has the facility to forward broadcasts. Select the **B'cast Forward** page, which is shown below:



To forward a broadcast through the router to the required IP address click on **Add**.

Enter the IP address and click on **OK**. The IP address will be entered into the list.

To make changes to an IP address already on the list, click on the required address to select it and then click on **Edit**. This

will open the above window with the IP address you wish to edit. Make the changes and click on **OK**.

To delete an IP address from the list, click on the required address to select it and then click on **Delete**. The IP address will be removed.

Click on **Apply** to save any changes you make.

PeripheralVision® Licensing

PeripheralVision® software comes licenced for 30 days, after which time a full licence can be purchased to continue access to all the facilities of the program.

This does not affect your ability to use PeripheralVision® to configure the router.

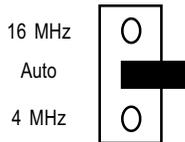
These features are operational whether the software is licenced or not.

Token Ring Speed Settings

The router will *autosense* the Token Ring speed of 4MHz or 16MHz. This is the default setting.

In exceptional circumstances it may be necessary to manually set the Token Ring speed.

To do this, un-clip the casing of the unit (ensuring that it is disconnected from the power supply). The Token Ring speed pins are located on the circuit board and are easily identified by a red jumper. The layout is shown in the diagram below.



The red jumper will be over the **Auto** pin only, enabling the router to select 16MHz or 4MHz as required. To set one speed only, remove the jumper and replace it over the **Auto** pin *and* the pin of the speed you wish to set, as shown in the diagrams below.



After the setting has been selected, replace the casing again and the router will operate only to the speed selected.

Upgrading Firmware

The firmware can be upgraded if this becomes necessary by using an application such as Squirt to send the firmware to the router's IP address.

A router **Download Utility** can be obtained from the following location:

<ftp://ftp.hbmuk.com/Ringdale/DownloadUtility/Download.exe>.

It can be downloaded in .exe or .zip formats.

The latest firmware version can be obtained by contacting Ringdale technical support (contact details can be found on the back cover of the manual).

Safety and Location Advice

The device is designed to operate in a typical office environment. Choose a site that is:

Well ventilated and away from sources of heat including direct sunlight.

Away from sources of vibration or physical shock.

Isolated from strong electromagnetic fields produced by electrical devices.

Provided with a properly grounded wall outlet.

Do not attempt to modify or use the supplied AC power cord if it is not the exact type required.

Ensure that the system is disconnected from its power source and from all telecommunications links, networks, or modem lines whenever the chassis cover is to be removed. Do not operate the system with the cover removed.

Do not use in a damp environment

Technical Specification

Operating Voltage:	5 volts DC -5/+10%
Power Consumption:	<300mA
Processor:	High Performance CPU - AB68033
ROM:	Flash EPROM: 256K X 8
RAM:	128K X 8 static RAM
Token Ring Connectors	Type 1 DB9, Type 3 RJ-45
Ethernet Connector	RJ-45 type
Communication Speed	4/16 Mbit/s (Token Ring) 10 Mbit's (Ethernet)
Operating Environment	Temperature: 10°C to 35°C Relative Humidity: 15% to 70%

Note: *specifications are subject to change without notice.*

Troubleshooting Guide

Symptom	Poss. Cause	Action
LEDs do not flash at power-up	Power switched off	Switch on
	Power cord not connected	Plug in Router
	Fuse defect	Replace fuse
LEDs do not light up/blink	No cable inserted	Connect to hubs and Router
	Router not powered up	Check power supply for Router
	Wrong cable type	Verify cable selection
	Bad cable	Replace cable
	Delay in connecting Router to Token Ring device	Power off and power on again

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