

Introduction

The Proxy Router and DHCP Server is designed to manage installations where a large number of IP devices require connection to a Local Area Network (LAN) for access to the Internet or an intranet. Up to 252 devices can have full access to the Internet using just one IP address (or received DHCP address). The DHCP Server automatically assigns each device with its own internal IP Address, avoiding the need for the direct involvement of the network administrator/s.

Total Network Security

Suitable for large multi-room facilities such as colleges, hotels and hospitals, the Proxy Router and DHCP Server lets students, guests, patients and staff reach network services for access to e-mail/the World Wide Web or an intranet without actually gaining access to the LAN itself.

The Proxy Router automatically hides the internal IP, gateway and DNS addresses from the outside using a firewall, preventing intrusion from hackers and providing security for the internal network devices.

The *IP Pinhole* feature enables selected devices to be contacted through the security of the Proxy Router. For example, a web server running on the internal side may be accessed remotely, or a selected printer used from outside.

Network Integrity

As a stand-alone product the DHCP Server can easily support an operation when the servers are down, avoiding the need to rely on a DHCP server running on a fileserver. This makes the DHCP Server ideal for critical installations in pressured environments using the DHCP method of assigning IP addresses.

Easy Remote Management

The Proxy Router and DHCP Server is remotely managed using Ringdale's PeripheralVision® network management software which is provided with the product, allowing setup and monitoring of the router/server with the click of a mouse.

Once set up, the Proxy Router and DHCP Server is virtually maintenance free - requiring little attention from network administrators.

Internet Access

The Proxy Router **IS NOT** an ISDN router, but instead provides extended Ethernet connectivity, allowing the expansion of existing Internet access to additional devices on your LAN.

Used in conjunction with the Ringdale OverLAN ISDN Router and a Ringdale Ethernet/Fast Ethernet hub it can provide a reliable and effective solution to providing multi-room facilities with Internet access.

One Proxy Router and DHCP Server is required per sixty four rooms.

The Proxy Router and DHCP Server is simple to install and straightforward to set up. Follow the instructions in this guide for quick installation and operation.

Features

Proxy Router

DHCP Client/Server with up to 252 users

IP Pinhole allows selected access to certain devices

Supports HTTP, FTP and Proxy arp

Integral all voltage power supply

Extremely low power consumption (3 watts)

Remote management from your own PC

Uses the AB Semicon AB180-20 microprocessor - currently the fastest Z80 compatible 8-bit microprocessor on the market

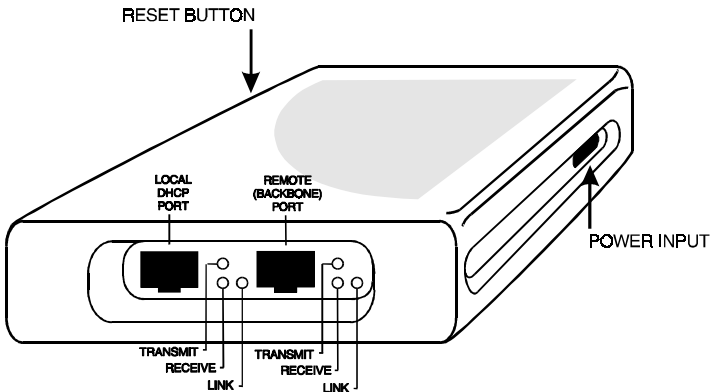
Virtual Private Network (VPN) ready

Installation

Connect the power cord to the **Power Input** socket as shown in the illustration below and plug into power supply.

The LEDs will flash to indicate that the device has powered up.

The illustration shows the setup of the ports and the diagnostic LEDs.



The ports and LEDs are itemized as follows:

Local DHCP Port

Connect to this port the RJ45 cable from the hub of the local devices requiring Internet access.

Remote Backbone

Connect to this port the RJ45 cable from the hub of the remote backbone LAN you wish to use.

Link (Yellow) LED

The Link LED indicates that the port is functionally connected to an external port. It lights up when the connected hub is turned on. If the LED does not light up, there may be a problem with the cabling or the hub.

Transmit (Red) LED

The write LED blinks when a data packet is being *sent* from that particular port.

Receive (Green) LED

The Read LED blinks when a data packet is received, regardless of the status of the port, even if the port is disabled.

These last two LEDs enable monitoring of the traffic passing through the device.

Reset Button

When this is pressed the Router/Server will clear any surplus information it is holding but will re-use the settings last entered into PeripheralVision®. *It is not necessary to reconfigure the addresses.*

Setup Procedure

Note: The term Local is used throughout this manual when referring to the network that is protected and served by the Proxy Router and DHCP Server, not the LAN itself.

Ensure that the devices requiring Internet/intranet access on the local network have DHCP enabled (for more information on this see section *Configuring Network Devices for DHCP*).

Note: the DHCP IP addresses are issued when the devices are booted up.

When powered up, the DHCP server automatically sets itself up on the local network (but not on the remote LAN), configuring the IP address, the Gateway IP address and DNS address for the devices on the local network.

If a device on the local network is switched off, the DHCP server will hold that device's current IP address for 30 minutes (the lease time), after which time a different IP address could be assigned to the device the next time it is switched on.

Now use the Ringdale PeripheralVision® software supplied with the device to configure the Proxy Router and DHCP Server to the remote LAN (this is not necessary if the router/server is to be used as a DHCP client on the remote LAN). Also use this software to set up the Port Mapping facility.

Configuration using PeripheralVision®

Full operational procedures for PeripheralVision® are dealt with in the Help file which can be accessed from the program, refer to this if any problems are encountered in the procedure detailed below.

Install PeripheralVision® on to a PC on the **Local** side of the router/server. After re-booting the PC, open PeripheralVision®.



Using the **Locate NPMP™** or **PING** discovery tools enter the **IP address 192.1.1.1** (this is the default IP address that the router/server will assign to itself at start-up). The router/server will appear on the PeripheralVision® network map, it will be an icon similar to the example on the left.

Click twice on the icon to open up the property pages of the device. Using the arrows in the top right corner, scroll the pages and click on the first **Proxy Router** page. This is shown below:



The following information will need to be entered onto this page to enable the router/server to function.

Note: the **Local IP Address** and **Local IP Subnet Mask** will be automatically assigned at start-up and will not normally need changing.

The first four addresses listed on the page relate to the **Remote (backbone) LAN** and the default settings will need to be changed to those of your network.

IP Address

This is the IP address that is used to identify the router/server across the backbone LAN. Enter here an IP address that will be consistent with other devices on the LAN (see the supplemental booklet *TCP/IP Configuration for your Proxy Router & DHCP Server* for more information on assigning IP addresses).

Using the Router/Server as a DHCP Client

The default set IP address is 0.0.0.0. If the LAN has its IP addresses assigned using the DHCP method the router/server will automatically log on to the network as a DHCP client at start-up and will have its IP Address, TCP/IP Subnet Mask/Default Gateway IP address and DNS Name Server IP Address automatically set for it. *No configuration of this page is required* (entering the IP address of 0.0.0.0 and clicking the **Apply** button will at any time manually set the router/server as a DHCP client).

TCP/IP Subnet Mask

Enter here the same subnet mask as is used for the other devices on the backbone LAN.

Default Gateway IP Address

Enter here the IP address of the device that provides the link to the Internet.

DNS Name Server IP Address

This IP address will most likely be supplied by the Internet Service provider (ISP).

When the correct information has been entered click on **Apply** and the router/server's configuration will be set.

If required, the Proxy Router and DHCP Server can be given a name to allow instant identification when viewing the device on the PeripheralVision® network map. Select the **Names** page and enter the name into the **Icon Title** box. Click on the **Apply** button to set the name.

Password Protection

If required, access to change the configuration details on the Proxy Router and DHCP Server property pages can be restricted by setting a password.

It is strongly recommended that Passwords are set because of the sensitive nature of the information that can be configured.

Note: The password protection will assert itself when an attempt is made to apply changes to the pages.

To set the password for the first time, or to change the password at a later date, click on the **Change Password** button on the first **Proxy Router** property page . The following window will be displayed:

A screenshot of a 'Change Password' dialog box. The dialog has a title bar with the text 'Change Password' and a close button. It contains three text input fields: 'Current Password', 'New Password', and 'Confirm Password'. At the bottom of the dialog are two buttons: 'OK' and 'Cancel'.

Enter the password into the **New Password** box.

Type in the confirmation of the chosen password in the **Confirm Password** box.

Click on the **OK** button.

Access to change the configuration settings of the Router/Server will now be restricted to those who have the password.

Port Mapping using PeripheralVision®

Once the Proxy Router and DHCP Server has been configured it will provide full Internet/intranet access to the devices on the local network without allowing access to the backbone LAN itself. At the same time, the firewall provided by the Proxy Router will prevent other devices from the LAN or the Internet etc. from accessing the local network.

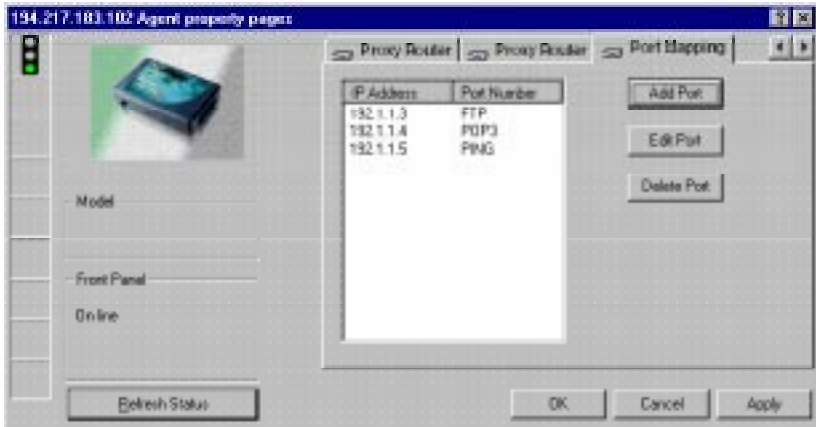
In certain circumstances it could be useful to be able to access specified devices on the local network, for example a web server that can be used remotely from the backbone LAN, or to print to a printer on the local side of the firewall. To enable this to take place the router/server has an *IP Pinhole* feature which allows a specified device's IP address to be mapped to a port which can pass through the firewall.

To set up a device for remote access, proceed as follows:

- 1 Go to the local device for which access is required and establish its DHCP assigned IP address.
- 2 Disable the DHCP facility on the device (for more information on this see section *Configuring Network Devices for DHCP*).
- 3 Configure the device with the static IP address that was assigned to it by the DHCP server.

If a device on the local network is switched off, the DHCP server will hold that device's current IP address for 30 minutes (the lease time), after which time a different IP address could be assigned to the device the next time it is switched on. Now that the device has had its IP address permanently fixed, this can no longer happen.

- 4 Open PeripheralVision® and locate the Proxy Router and DHCP Server on the network map. Click twice on the icon to open up the property pages. Scroll the pages and select the **Port Mapping** page. An example of the Port Mapping page is shown here.



Click on the **Add Port** button to open the following window:



In the **Port Mapped IP Address** box, enter the last bit of the IP address for the device that will be 'pinholed'. For example, with an IP address of 192.1.1.3 , the first three bits will match that of all the other assigned devices on the local network, using the DHCP Server assigned sequence of

192.1.1.

Enter the final bit of 3 (as shown in the picture above), giving an IP address of

192.1.1.3

This will be the same IP address that has just been configured on the device in step 3.

Next, select the port to be used from the **Fixed Port** list (only one address can be mapped to each port). The chosen port (in this case the FTP port) will appear in the box above the list.

Click on the **OK** button and the window will close.

On the **Port Mapping** page, the table will now display the IP address of the device, together with the port that it is mapped to.

Repeat the procedure until all the devices that require 'pinhole' access are mapped to ports and registered in the table.

Click on **Apply**. The mappings will now be applied to the router/server, allowing the selected devices to be accessed from remote networks beyond the firewall.

If at any time the port mappings need to be changed, select the port to be amended from the table and click on the **Edit Port** button. Change the port/IP address as required and click on the **OK** button, then click on the **Apply/OK** button to send the change to the router/server.

To delete a port mapping that is no longer required, select it from the table and click on the **Delete Port** button. PeripheralVision® will ask for confirmation that the port should be deleted, click **OK**. The port will not be deleted until the **Apply/OK** button on the main property pages is clicked.

Configuring Network Devices for DHCP

In order for the DHCP Server to be able to assign IP addresses to the devices on the local network, it is necessary for the devices to have DHCP enabled. DHCP can be enabled/disabled on a Windows PC using the following method:

Windows 95/98

From the **Start** menu select **Settings/Control Panel/Network**. From the **Network** window select the **Configuration** tab to bring up the following page:



Scroll down the list and highlight **TCP/IP**. Click on **Properties** and select the **IP Address** tab.

This page will present you with 2 options:

Selecting **Obtain an IP Address Automatically** will enable the PC to receive an IP address assigned by the DHCP Server.

Selecting **Specify an IP Address** allows the IP address to be specifically set to your requirements.

Once set as required, click on the **OK** button to apply the changes and exit.

Windows NT

From the **Start** menu select **Settings/Control Panel/Network**. From the **Network** window select the **Protocols** tab to bring up the following page:



Highlight **TCP/IP Protocol**, click on **Properties** and select the **IP Address** tab.

Selecting **Obtain an IP Address from a DHCP Server** will enable the PC to receive an IP address assigned by the DHCP Server.

Selecting **Specify an IP Address** allows the IP address to be specifically set to your requirements.

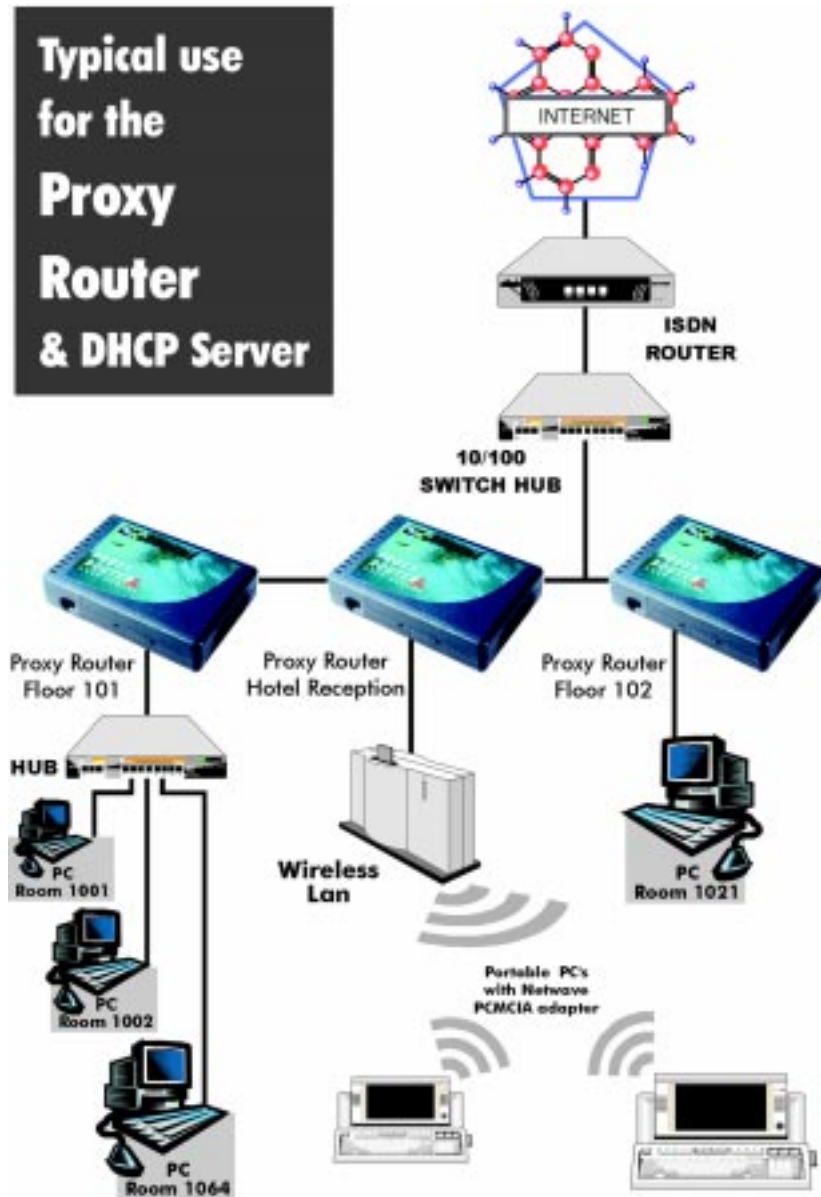
Once set as required, click on the **OK** button to apply the changes and exit.

Printers and Other Network Devices

To enable/disable DHCP on other network devices consult the user manual for the device required.

Note: many printers can have DHCP enabled/disabled remotely using PeripheralVision®. This facility will be found on the **NPMP™ TCP/IP** property page of the device.

Typical use for the Proxy Router & DHCP Server



Important Information

It is recommended that no more than 64 PCs be directly connected to the Internet through the Router/Server at any one time. This allows one Class C IP network to be used for more than 16,000 users, if required.

The setting of the local IP address has to have the least significant bit of the address left at 1:

192.1.1.1

Warning Note: *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.

Troubleshooting and Technical Reference

Symptom	Poss. Cause	Action
LEDs do not flash at power-up	Power switched off	Switch on
	Power cord not connected	Plug in Router/Server
	Fuse defect	Replace fuse
Link LED does not light up	No cable inserted	Connect to hub and Router/Server
	Router/Server not powered up	Check power supply for Router/Server
	Wrong cable type	Verify cable selection
	Bad cable	Replace cable

Technical Specification

Mains supply:	Input: 90..240 volts AC Frequency: 50..60Hz Power: 3 watts typical
Backbone Connection:	Ethernet RJ45 10baseT
Local Connection:	Ethernet RJ45 10baseT
DHCP:	Default lease for 30 mins IP set Gateway set
Protocols:	TCP/IP, FTP, UDP, HTTP, Proxy arp, SMTP
Ports:	TELNET, POP 3, PING
CPU:	AB Semicon AB180-20 Microprocessor
Part Number:	00-14-0363-2450

Technical Support

Ringdale UK Ltd. Ringdale Inc. and Ringdale GmbH all have Technical Support Departments. Their addresses and contact details are found on the back cover of this manual.

Before you call:

Please have the following information ready:

Type of adapters installed in the System.
The adapter settings and interrupt options.

Network Information:
Network operating system type and version, server configuration.

LAN topology:
Type of cable being used, size of network, number of PCs and other nodes in network.

Computer Information:
Manufacturer, model number, operating system used on the computer.

History of the Problem:
The symptoms of the problem. Did the device work for a period of time or fail immediately after installation?

Was any PC option changed (hardware or software) prior to the problem appearing?