User’s Manual

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FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against radio interference in a commercial environment. This equipment can generate, use and radiate radio frequency energy and, if not installed and used in accordance with the instructions in this manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures are necessary to correct the interference.

CE Declaration of Conformity

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022/A1 Class B, and EN 50082-1. This meets the essential protection requirements of the European Council Directive 89/336/EEC on the approximation of the laws of the member states relation to electromagnetic compatibility.

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Chapter 1 Introduction

Congratulations on your purchase of this outstanding Broadband Router. This product is specifically designed for Small Office and Home Office needs. It provides a complete SOHO solution for Internet surfing and office resources sharing, and it is easy to configure and operate for even non-technical users. Instructions for installing and configuring this product can be found in this manual. Before you install and use this product, please read this manual carefully for fully exploiting the functions of this product.

1.1 Functions and Features

- **Broadband modem and IP sharing**

  Connects multiple computers to a broadband (cable or DSL) modem or an Ethernet router to surf the Internet.

- **Auto-sensing Ethernet Switch**

  Equipped with a 4-port auto-sensing Ethernet switch.

- **VPN supported**

  Supports multiple PPTP sessions and allows you to setup VPN server and VPN clients.

- **Printer sharing (Optional)**

  Embeds a print server to allow all of the networked computers to share one printer.

- **Firewall**

  All unwanted packets from outside intruders are blocked to protect your Intranet.

- **DHCP server supported**

  All of the networked computers can retrieve TCP/IP settings automatically from this product.

- **Web-based configuring**

  Configurable through any networked computer's web browser using Netscape or Internet Explorer.

- **Access Control supported**

  Allows you to assign different access right for different users.

- **Virtual Server supported**

  Enables you to expose WWW, FTP and other services on your LAN to be accessible to Internet users.

- **User-Definable Application Sensing Tunnel**

  User can define the attributes to support the special applications requiring multiple connections, like Internet gaming, video conferencing, Internet telephony and so on, then this product can sense the application type and open multi-port tunnel for it.

- **DMZ Host supported**

  Lets a networked computer to be fully exposed to the Internet; this function is used when special application sensing tunnel feature is insufficient to allow an application to function correctly.

1.2 Packing List

- Broadband router unit
- Installation CD-ROM
- Power cord and power adapter
- CAT-5 UTP Fast Ethernet cable

Chapter 2 Hardware Installation

2.1 Panel Layout

2.1.1. Front Panel

Figure 2-1 Front Panel

M1&M2	System status indicators, *Orange*. M1 is flashed once per second to indicate system is alive. When system is busy, M2 is lighted.
WAN & LAN	Ethernet port indicators, *Green*. The LED flickers when LAN or WAN port is sending or receiving data.
Link/Act.	Link status indicators, *Green*. The LED flickers when the corresponding port is sending or receiving data
10/100	10/100 status indicators, *Green*. The LED flickers when the corresponding port is transmitting or receiving data in 10 or 100Mbps.
Port 1 - 4	LAN port socket (RJ-45). These are where you will connect to device on your local area network, for example HUB and switch.
RESET	To reset system settings to factory defaults, please follow the steps: 1. Power off the device, 2. Press the reset button and hold, 3. Power on the device, 4. Keep the button pressed about 5 seconds, 5. Release the button, 6. Watch the M1 and M2 LEDs, they will flash 8 times and then M1 flash once per second.

2.1.2. Rear Panel

Figure 2-2 Rear Panel

PRINTER Parallel port connector (25-pins D-type female). This is where you will connect the shared printer. **(**Optional**)**

WAN WAN port socket (RJ-45). This is where you will connect to your cable (o DSL) modem or Ethernet router.

COM Serial port connector (9-pins D-type male). This is where you will connect your modem. This port is also a console port.

Power Power inlet. This is where you connect the included power adapter. *Note that, the included power adapter is DC 5V/1A. Using wrong type of power adapter may cause this product damage*.

2.2 Installation Requirements

This product can be positioned at any convenient place in your office or house. No special wiring or cooling requirements is needed. However, you should comply with the following guidelines to install:

- Place this product on a flat horizontal plane.
- Keep this product away from any heating devices.
- Do not place this product in dusty or wet environment.

The recommended operational specifications of this product are:

Temperature	0 °C ~ 55 °C
Humidity	5 % ~ 90 %

In addition, remember to turn off the power, remove the power cord from the outlet, and keep your hands dry when you try to install the hardware of this product.

2.3 Procedure for Hardware Installation

1. **Setup LAN connection:** connect an Ethernet cable from your computer's Ethernet port to one of the LAN ports of this product.

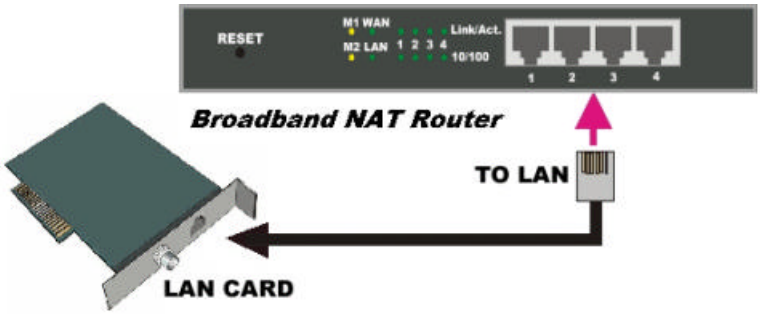


Figure 2-3 Setup of LAN connections for this product.

2. **Setup WAN connection:** prepare an Ethernet cable for connecting this product to your cable/xDSL modem or Ethernet backbone. Figure 2-4 illustrates the WAN connection.

3. **Connecting this product with your printer:** use the printer cable to connect your printer to the printer port of this product.(Optional)

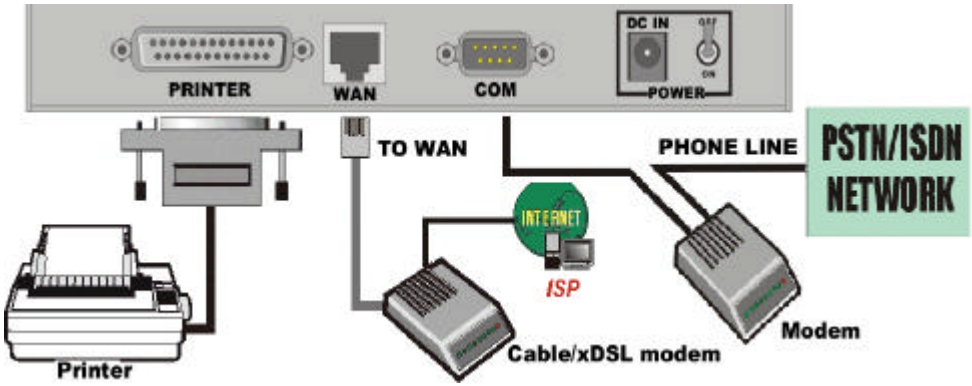


Figure 2-4 Setup of WAN and Printer connections for this product.

4. Power on:

Connecting the power cord to power inlet and turning the power switch on, this product will automatically enter the self-test phase. When it is in the self-test phase, the indicators M1 and M2 will be lighted ON for about 5 seconds, and then M1 and M2 will be flashed 3 times to indicate that the self-test operation has finished. Finally, the M1 will be continuously flashed once per second to indicate that this product is in normal operation.

Chapter 3 Network Settings and Software Installation

To use this product correctly, you have to properly configure the network settings of your computers and install the attached setup program into your MS Windows platform (Windows 95/98/NT/2000).

3.1 Make Correct Network Settings of Your Computer

The default *IP address* of this product is 192.168.123.254, and the default *subnet mask* is 255.255.255.0. These addresses can be changed on your need, but the default values are used in this manual. If the TCP/IP environment of your computer has not yet been configured, you can refer to ***Appendix B*** to configure it. For example,

1. configure *IP* as 192.168.123.1, *subnet mask* as 255.255.255.0 and *gateway* as 192.168.123.254, or more easier,
2. configure your computers to load TCP/IP setting automatically, that is, via DHCP server of this product.

After installing the TCP/IP communication protocol, you can use the ***ping*** command to check if your computer has successfully connected to this product. The following example shows the ping procedure for Windows 95 platforms. First, execute the ***ping*** command

```
ping 192.168.123.254
```

If the following messages appear:

```
Pinging 192.168.123.254 with 32 bytes of data:

Reply from 192.168.123.254: bytes=32 time=2ms TTL=64
```

a communication link between your computer and this product has been successfully established. Otherwise, if you get the following messages,

```
Pinging 192.168.123.254 with 32 bytes of data:

Request timed out.
```

there must be something wrong in your installation procedure. You have to check the following items in sequence:

1. *Is the Ethernet cable correctly connected between this product and your computer?*

   Tip: The LAN LED of this product and the link LED of network card on your computer must be lighted.

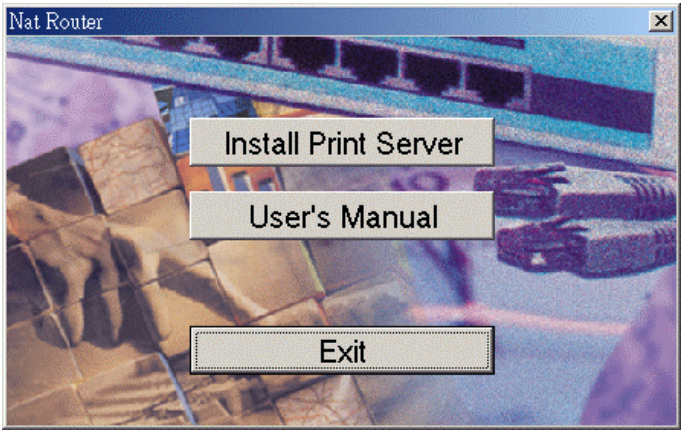
2. *Is the TCP/IP environment of your computers properly configured?*

   Tip: If the IP address of this product is 192.168.123.254, the IP address of your computer must be 192.168.123.X and default gateway must be 192.168.123.254.

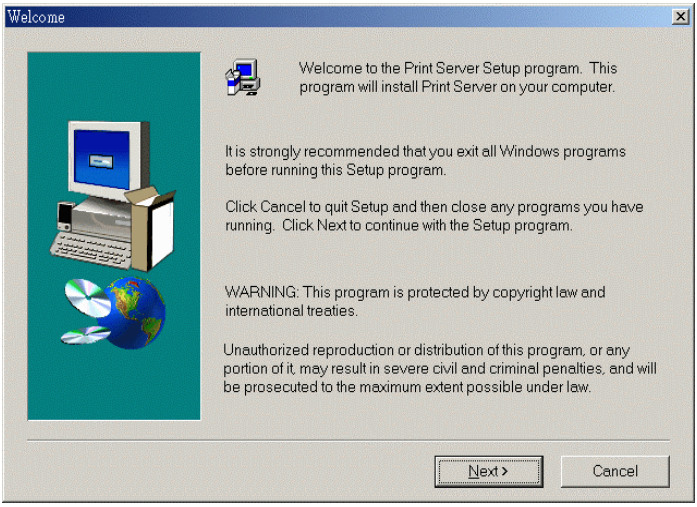
3.2 Install the Software into Your Computers

Skip this section if you do not want to use the print server function of this product.

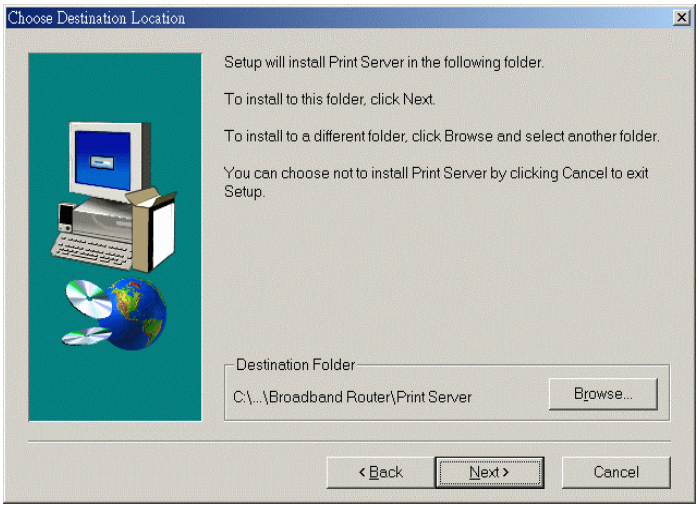
Step 1: Insert the installation CD-ROM into the CD-ROM drive. The following window will be shown automatically. If it isn't, please run "install.exe" on the CD-ROM.



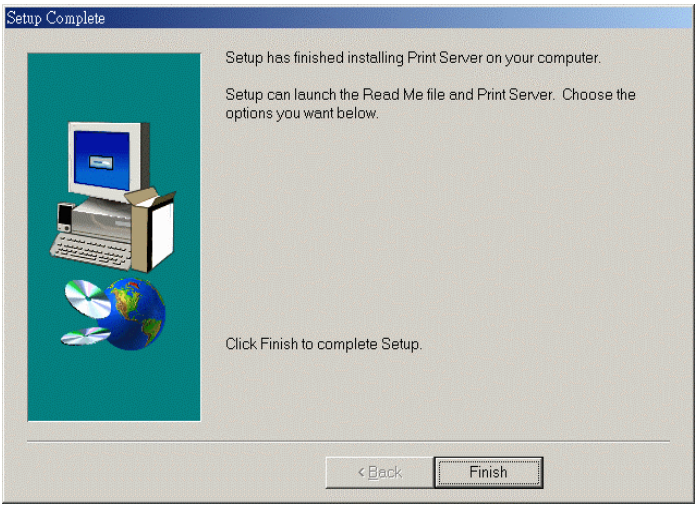
Step 2: Click on the ***INSTALL*** button. Wait until the following ***Welcome*** dialog to appear, and click on the ***Next*** button.



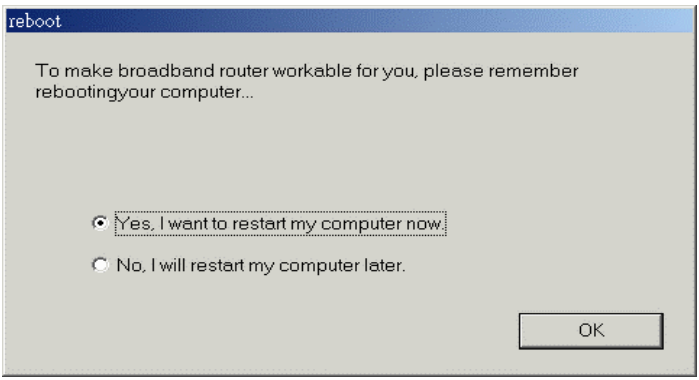
Step 3: Select the destination folder and click on the ***Next*** button. Then, the setup program will begin to install the programs into the destination folder.



Step 4: When the following window is displayed, click on the ***Finish*** button.



Step 5: Select the item to restart the computer and then click the ***OK*** button to reboot your computer.



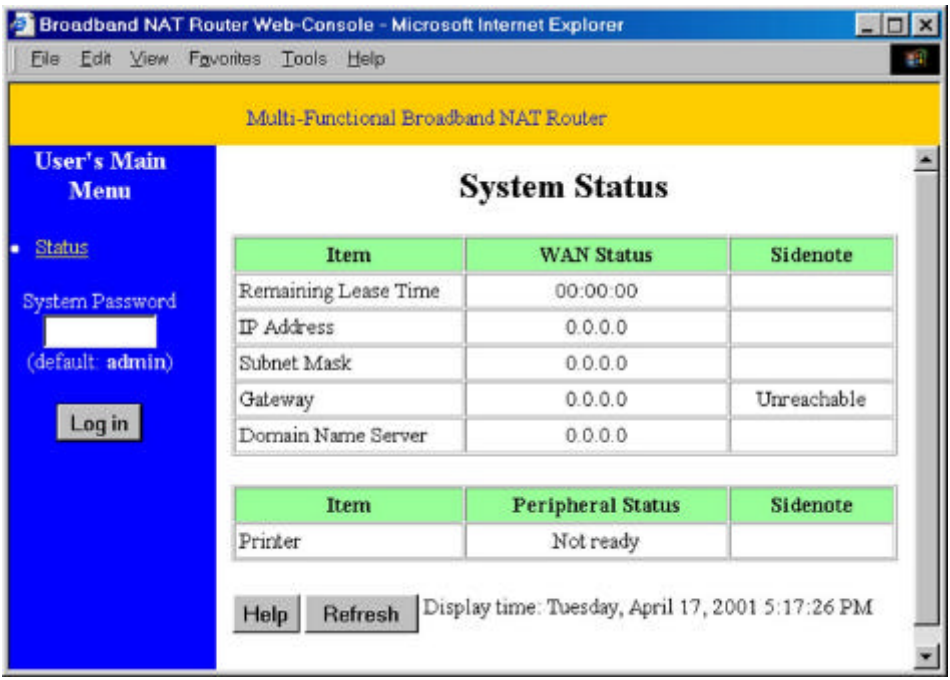
Step 6: After rebooting your computer, the software installation procedure is finished.

Now, you can configure the NAT Router (refer to Chapter 4) and setup the Print Server (refer to Chapter 5).

Chapter 4 Configuring NAT Router

This product provides Web based configuration scheme, that is, configuring by Netscape Communicator or Internet Explorer. This approach can be adopted in any MS Windows, Macintosh or UNIX based platforms.

4.1 Start-up and Log in

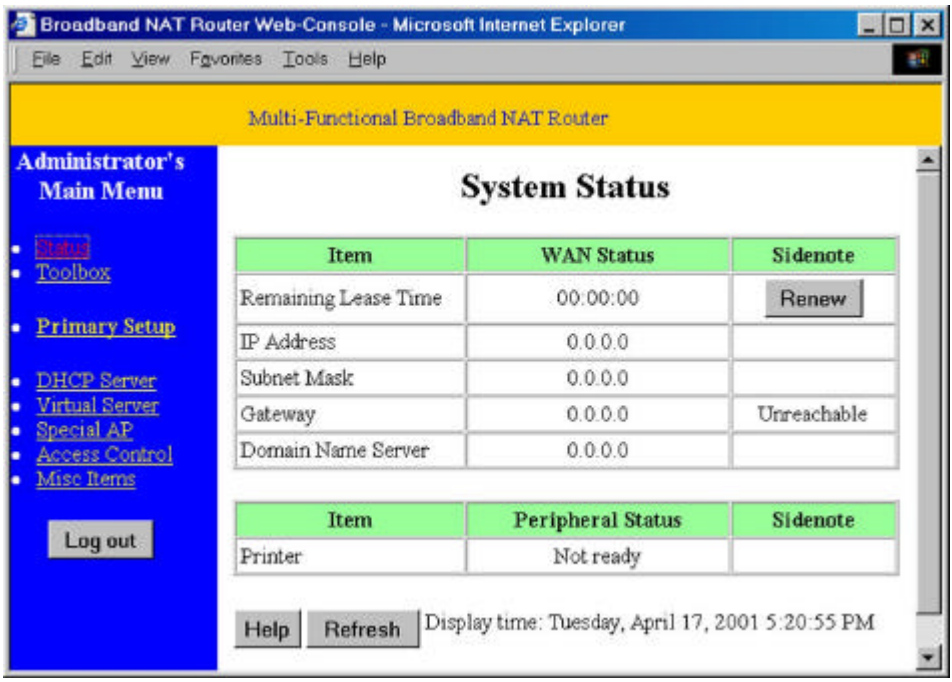


Activate your browser, and ***disable the proxy*** or ***add the IP address of this product into the exceptions***. Then, type this product's IP address in the *Location* (for Netscape) or *Address* (for IE) field and press ENTER. For example: ***http://192.168.123.254***.

After the connection is established, you will see the web user interface of this product. There are two appearances of web user interface: *for general users* and *for system administrator*.

To log in as an administrator, enter the system password (the factory setting is ”***admin***”) in the ***System Password*** field and click on the ***Log in*** button. If the password is correct, the web appearance will be changed into administrator configure mode. As listed in its main menu, there are several options for system administration.

4.2 Status



This option provides the function for observing this product's working status:

A. WAN Port Status.

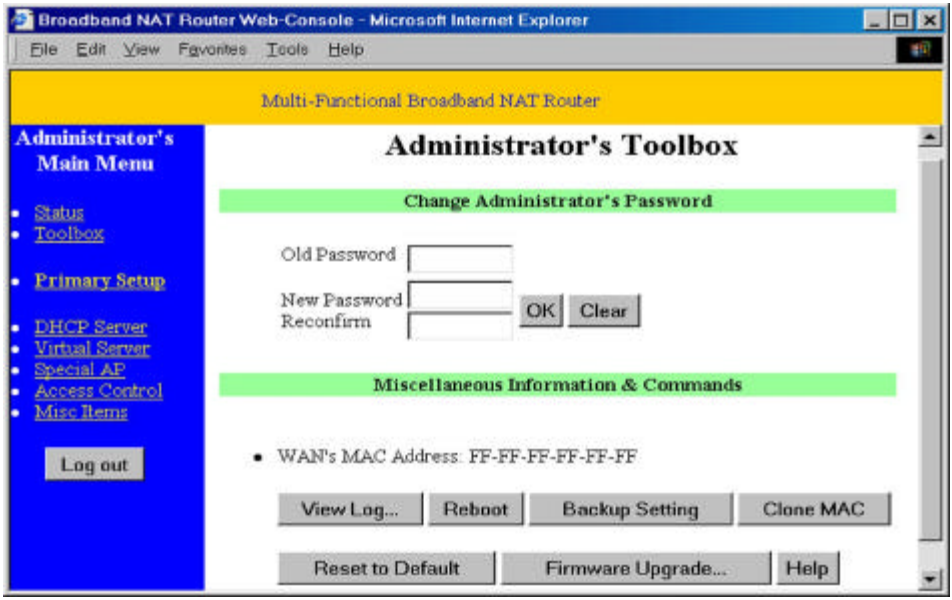
If the WAN port is assigned a dynamic IP, there may appear a '**Renew**" or "**Release**" button on the *Sidenote* column. You can click this button to renew or release IP manually.

B. Modem Status.

C. Printer Status. The possible kinds of printer status include "*Ready*," "*Not ready*," "*Printing…*", and "*Device error*."

When a job is printing, there may appear a "Kill Job" button on the Sidenote column. You can click this button to kill current printing job manually.

4.3 Toolbox



This option enables you change the administrator password. Besides, you can get the information about ***Firmware version*** and ***WAN's MAC Address***.

You can view the system logs by clicking the **View Log** button.

You can reboot this product by clicking the **Reboot** button.

You can backup your settings by clicking the **Backup Setting** button and save it as a bin file. Once you want to restore these settings, please click **Firmware Upgrade** button and use the bin file you saved.

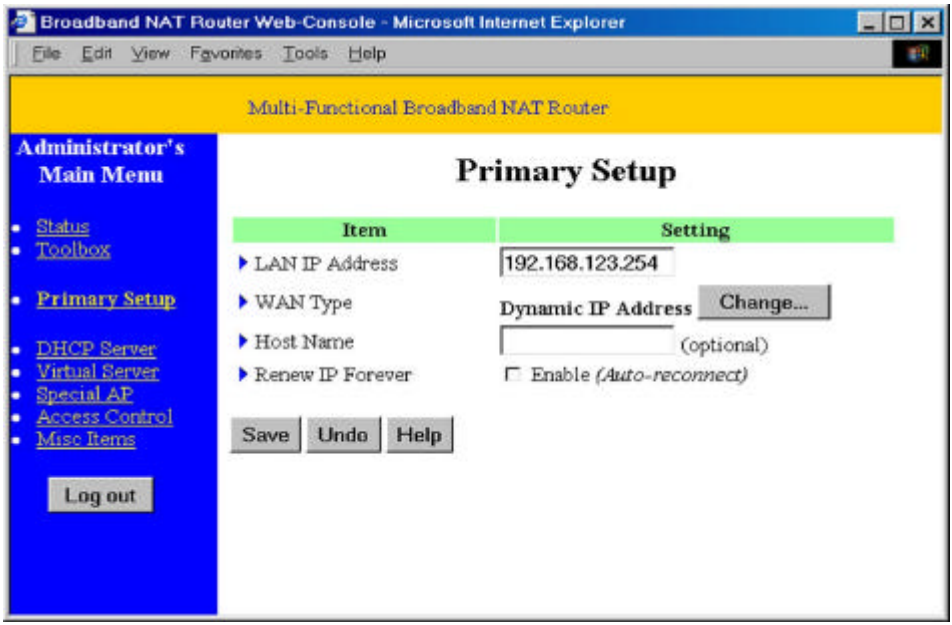
You can click the **Clone MAC** button to copy the MAC address of your PC to be the MAC address of this device.

You can click the **Reset to Default** button to reset the settings of this device to the default values.

You can upgrade firmware by clicking **Firmware Upgrade** button.

Note: we strongly recommend you to change the system password for security reason.

4.4 Primary Setup



This option is primary to enable this product to work properly. The setting items and the web appearance depend on the WAN type. Choose correct WAN type before you start.

1. ***LAN IP Address***: this product's IP address. The default address is 192.168.123.254. You can change it on your need.
2. ***WAN Type***: WAN connection type of your ISP. You can click **Change** button to choose a correct one from the following four options:
   A. *Static IP Address*: ISP assigns you a static IP address.
   B. *Dynamic IP Address*: Obtain an IP address from ISP automatically.
   C. *PPP over Ethernet*: Some ISPs require the use of PPPoE to connect to their services.
   D. *Dial-up Network*: To surf the Internet via PSTN/ISDN.

E. *PPTP*: Some ISPs require the use of PPTP to connect to their services. It is specifically for many European ISPs where Alcatel's ADSL Network Termination is deployed.

4.4.1 Static IP Address

WAN IP Address, Subnet Mask, Gateway, Primary and *Secondary DNS*: enter the proper setting value provided by your ISP.

4.4.2 Dynamic IP Address

1. *Host Name*: optional. Required by some ISPs, for example, @Home.
2. *Renew IP Forever*: this feature enable this product renew IP address automatically when the lease time is being expired even the system is in idle state.

4.4.3 PPP over Ethernet

1. *PPPoE Account* and *Password*: the account and password your ISP assigned to you. If you don't want to change the password, keep it empty.
2. *PPPoE Service Name*: optional. Input the service name if your ISP requires it.
3. *Maximum Idle Time*: the time of no activity to disconnect your PPPoE session. Set it to 0 will disable this feature.

4.4.4 Dial-up Network

1. *Dial-up Telephone*, *Account* and *Password*: assigned by your ISP. If you don't want to change the password, keep it empty.
2. *Primary* and *Secondary DNS*: automatically assigned if they are configured as "0.0.0.0."
3. *Maximum Idle Time*: the time of no activity to disconnect your dial-up session.
4. *Baud Rate*: the communication speed between this product and your MODEM or ISDN TA.
5. *Extra Setting*: needed to optimize the communication quality between the ISP and

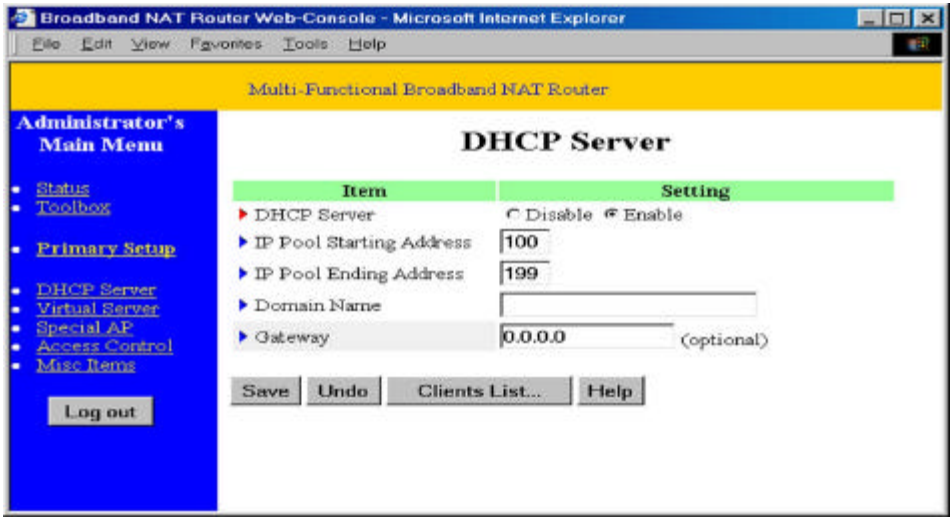
your MODEM or ISDN TA

4.4.5 PPTP

Just follow steps below to configure the PPTP WAN type:

1. Set *My IP Address* as the IP address that ISP assigned to your PC, e.g. 10.0.0.140.
2. Set *My Subnet Mask* as the mask that ISP assigned to your PC, e.g. 255.255.255.0.
3. Set *Server IP Address* as the IP address of the DSL modem, e.g. 10.0.0.138.
4. Input the *PPTP Account* and *Password*.
5. Input the ***Connection ID*** if your ISP requires it.
6. Save the setting and restart the router.
7. Try to ping 4.0.0.1. If the reply is positive, the router and your PC have been successfully configured for PPTP WAN type.

4.5 DHCP Server

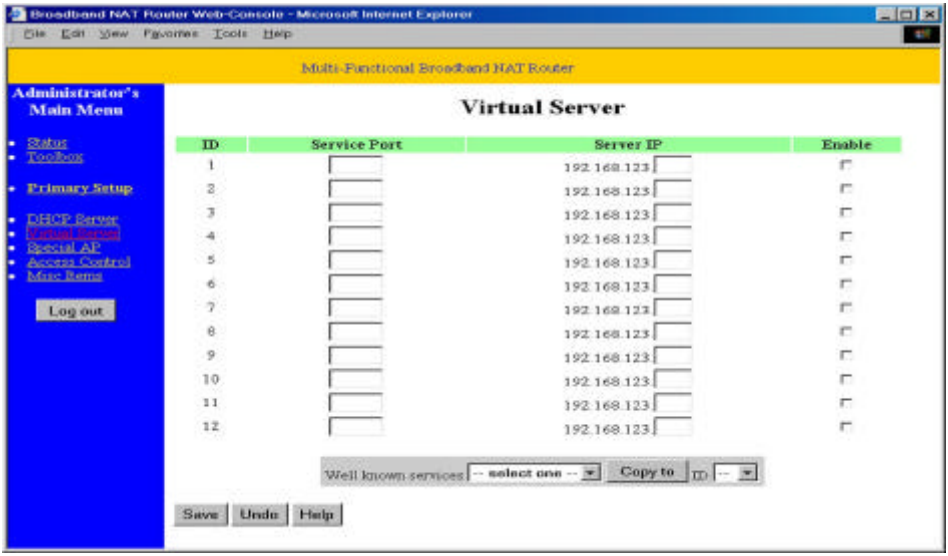


The settings of TCP/IP environment include Host IP, Subnet Mask, Gateway, and DNS configurations. It is not a simple task to correctly configure all the computers in your LAN environment. Fortunately, DHCP provides a rather simple approach to handle all these settings. This product supports the function of DHCP server. If you enable this product's DHCP server and configure your computers as "automatic IP allocation" mode, then when your computer is powered on, it will automatically load the proper TCP/IP settings from this product. The settings of DHCP server include the following items:

1. ***DHCP Server***: Choose "*Disable*" or "*Enable*."
2. ***Range of IP Address Pool***: Whenever there is a request, the DHCP server will automatically allocate an unused IP address from the *IP address pool* to the requesting computer. You must specify the starting and ending address of the IP address pool.
3. ***Domain Name***: Optional, this information will be passed to the client.

To View the DHCP clients, you can click the **Clients List** button.

4.6 Virtual Server



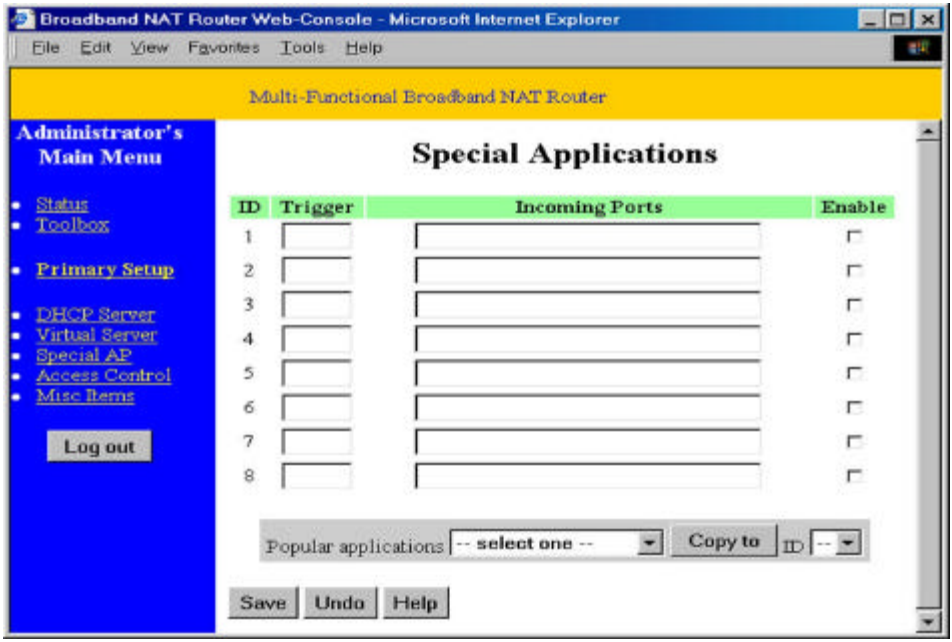
This product's NAT firewall filters out unrecognized packets to protect your Intranet, so all hosts behind this product are invisible to the outside world. If you wish, you can make some of them accessible by enabling the *Virtual Server Mapping*.

A virtual server is defined as a ***Service Port***, and all requests to this port will be redirected to the computer specified by the ***Server IP***.

For example, if you have an FTP server (port 21) at 192.168.123.1, a Web server (port 80) at 192.168.123.2, and a VPN server at 192.168.123.6, then you need to specify the following virtual server mapping table:

Service Port	Server IP	Enable
21	192.168.123.1	V
80	192.168.123.2	V
1723	192.168.123.6	V

4.7 Special AP



Some applications require multiple connections, like Internet games, Video conferencing, Internet telephony and so on. Due to the firewall function, these applications can not work with pure NAT router. Special Applications makes some of these applications to work with NAT router. If Special Applications is still insufficient to allow an application to function correctly, try DMZ host in the *Misc Items* options.

1. ***Trigger***: the outbound port number the application issued first.
2. ***Incoming Ports***: when the trigger packet is detected, the inbound packets to the specified port numbers are allowed to pass the firewall.

This product provides some predefined settings in the gray pad on the bottom of the web page. Choose the **Popular application** and click **Copy to** copy the predefined setting.

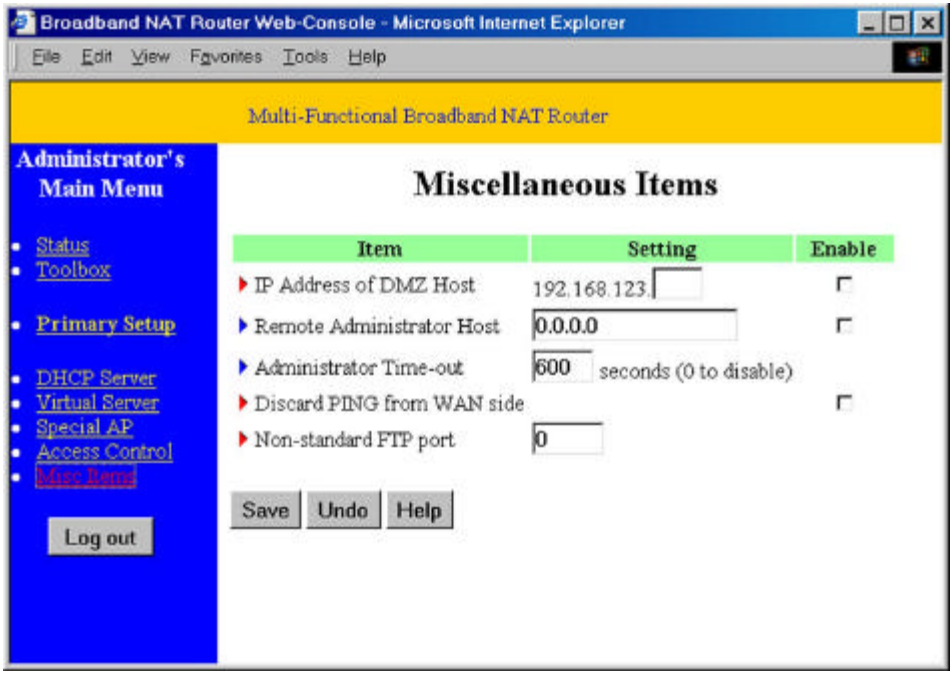
Note! At any time, only one PC can use each Special Application tunnel.

4.8 Access Control

Access Control allows you to assign different access right for different users. First, you have to divide users into different groups. Users are identified by their IP addresses. You can assign the members of Group 1, 2 and 3. The others are all members of Default Group. Second, you have to assign the access right of each group. Access right can allow or block users to access specified TCP and UDP ports. For example:

Group	Members	Access Right	Comments
Default	-	Allow ()	No access right (allow nothing)
Group 1	100-199	Allow (25,53,80,110)	Can browse(80), receive(110) and send(25) email only
Group 2	50-99	Block (21,119)	Cannot read net news(119) and FTP(21) only
Group 3	1-9,20	Block ()	Fully access (block nothing)

4.9 Misc Items



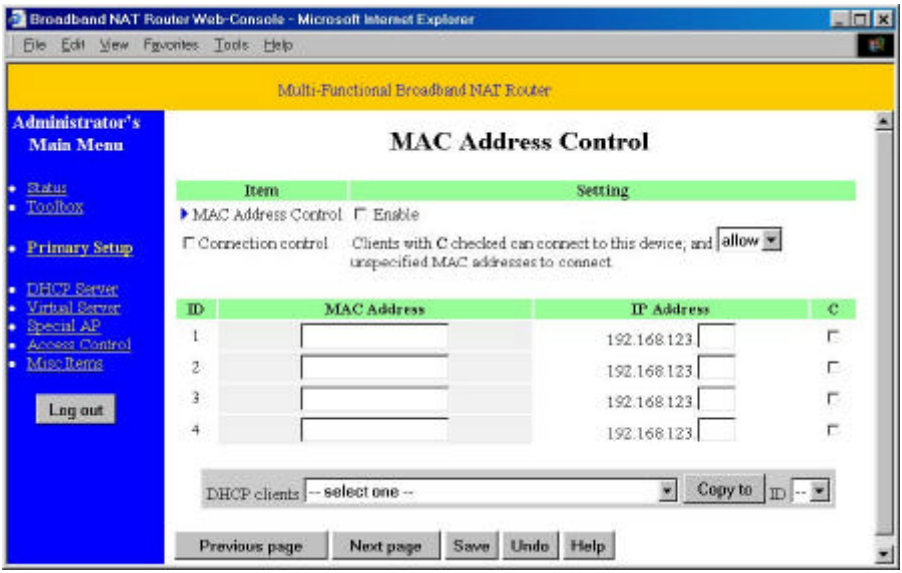
1. ***IP Address of DMZ Host***: DMZ (DeMilitarized Zone) Host is a host without the protection of firewall. It allows a computer to be exposed to unrestricted 2-way communication. Note that, this feature should be used only when needed.

2. ***Remote Administrator Host***: In general, only Intranet user can browse the built-in web pages to perform administration task. This feature enables you to perform administration task from remote host. If this feature is enabled, only the specified IP address can perform remote administration. If the specified IP address is 0.0.0.0, any host can connect to this product to perform administration task. When this feature is enabled, the web port will be shifted to 88. enabled, the web port will be shifted to 88.

3. ***Administrator Time-out***: The amount of time of inactivity before the Barricade will automatically close the Administrator session. Set this to zero to disable it.

4. ***Discard PING from WAN side***: When this feature is enabled, hosts on the WAN cannot ping the Barricade.
5. ***Non-standard FTP port***: You have to configure this item if you want to access an FTP server whose port number is not 21. *This setting will be lost after rebooting.*

4.10 MAC Address Control



MAC Address Control allows you to assign different access right for different users and to assign a specific IP address to a certain MAC address.

MAC Address Control Check "Enable" to enable the "MAC Address Control". All of the settings in this page will take effect only when "Enable" is checked.

Connection control Check "Connection control" to enable the controlling of which wired and wireless clients can connect to this device. If a client is denied to connect to this device, it means the client can't access to the Internet either. Choose "allow" or "deny" to allow or deny the clients, whose MAC addresses are not in the "Control table" (please see below), to connect to this device.

MAC Address	MAC address indicates a specific client.
IP Address	Expected IP address of the corresponding client. Keep it empty if you don't care its IP address.
C	When "**Connection control**" is checked, check "**C**" will allow the corresponding client to connect to this device.

In this page, we provides the following Combobox and button to help you to input the MAC address.

You can select a specific client in the "DHCP clients" Combobox, and then click on the "Copy to" button to copy the MAC address of the client you select to the ID selected in the "ID" Combobox.

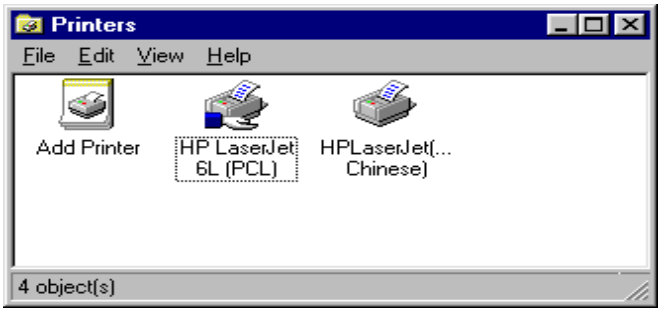
Previous page and Next Page To make this setup page simple and clear, we have divided the "Control table" into several pages. You can use these buttons to navigate to different pages.

Chapter 5 Print Server

This product provides the function of network print server for MS Windows 95/98/NT and Unix based platforms. (If the product you purchased doesn't have printer port, please skip this chapter.)

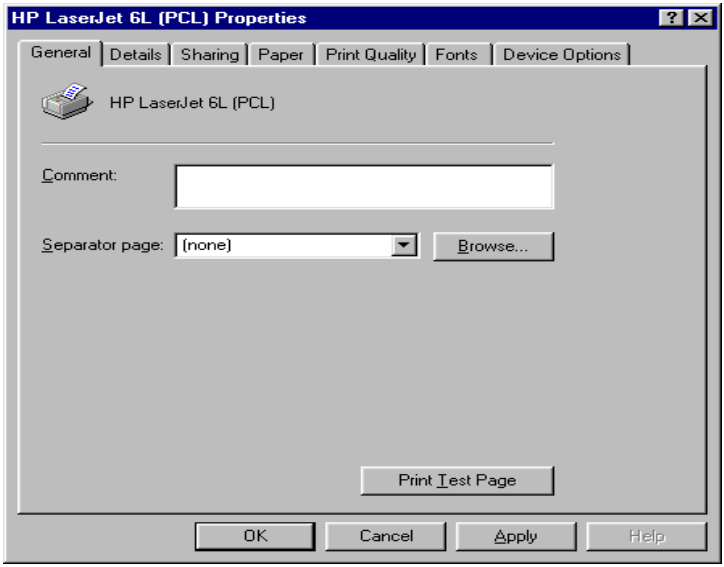
5.1 Configuring on Windows 95/98 Platforms

After you finished the software installation procedure described in Chapter 3, your computer has possessed the network printing facility provided by this product. For convenience, we call the printer connected to the printer port of this product as s*erver printer*. On a Windows 95/98 platform, open the ***Printers*** window in the ***My Computer*** menu:

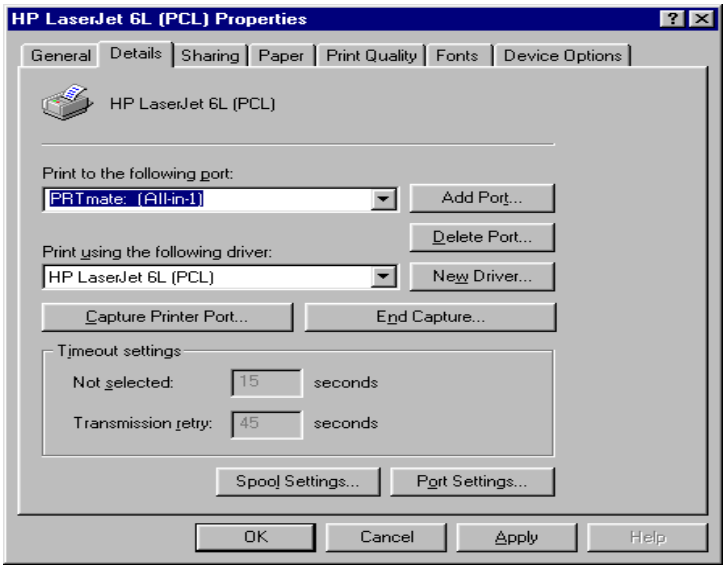


Now, yon can configure the print server of this product:

1. Find out the corresponding icon of your s*erver printer*, for example, the **HP LaserJet 6L**. Click the mouse's right button on that icon, and then select the ***Properties*** item:

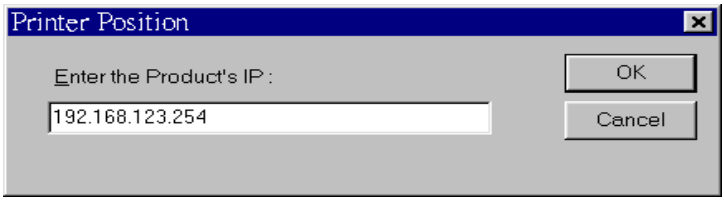


2. Click the ***Details*** item:



3. Choose the "PRTmate: (All-in-1)" from the list attached at the ***Print To*** item. Be sure that the ***Printer Driver*** item is configured to the correct driver of your *server printer*.

4. Click on the button of ***Port Settings***:

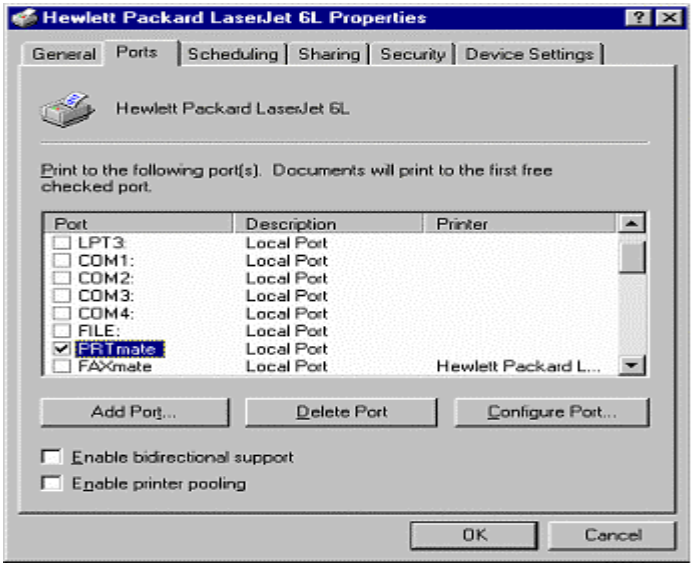


Type in the IP address of this product and then click the ***OK*** button.

5. Make sure that all settings mentioned above are correct, then click the ***OK*** button.

5.2 Configuring on Windows NT Platforms

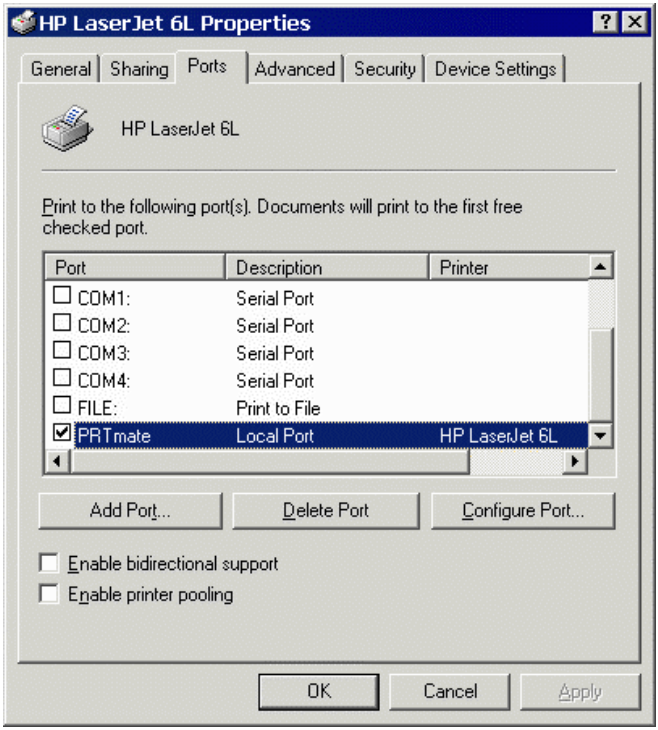
The configuration procedure for a Windows NT platform is similar to that of Windows 95/98 except the screen of printer ***Properties***:



Compared to the procedure in last section, the selection of ***Details*** is equivalent to the selection of **Ports**, and ***Port Settings*** is equivalent to ***Configure Port***.

5.3 Configuring on Windows 2000 Platforms

The configuration procedure for a Windows 2000 platform is similar to that of Windows 95/98 except the screen of printer ***Properties***:



Compared to the procedure in last section, the selection of ***Details*** is equivalent to the selection of **Ports**, and ***Port Settings*** is equivalent to ***Configure Port***.

5.4 Configuring on Unix based Platforms

Please follow the traditional configuration procedure on Unix platforms to setup the print server of this product. The printer name is “lp.”

Appendix A Console Mode

When you forget the system password or the IP address of this product, you need enter console mode to reset them.

Before invoking the console program, be sure to find a null modem cable and use it to connect from this product's COM port to your computer's COM port. Then, execute a terminal program, such as the ***Hyper Terminal*** of MS Windows 95. The connection parameters should be set to **19200 8-N-1**. And, reboot this product. When the M1 indicator starts flashing regularly, you can press the "***Enter***" key of the keyboard several times, there should be some messages and console prompt "**>**" appeared in the terminal.

In the console mode, you may reset the IP address and the system password of this product. Please remember to execute the **SR** command to save the changes you have made. For example,

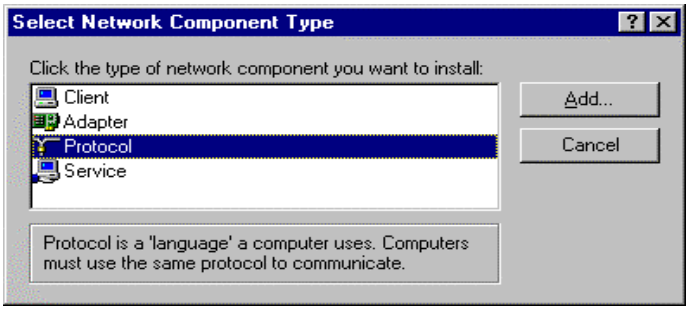
```
IP 192.168.123.254
PW admin
SR
```

Appendix B TCP/IP Configuration for Windows 95/98

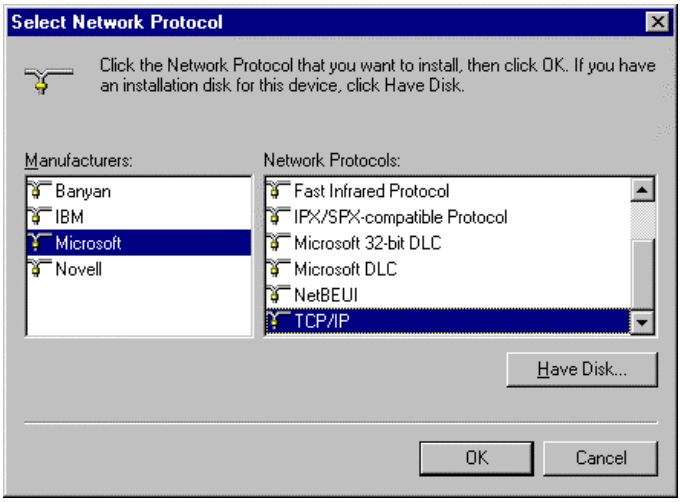
This section introduces you how to install TCP/IP protocol into your personal computer. And suppose you have been successfully installed one network card on your personal computer. If not, please refer to your network card manual. Moreover, the Section B.2 tells you how to set TCP/IP values for working with this NAT Router correctly.

B.1 Install TCP/IP Protocol into Your PC

1. Click ***Start*** button and choose ***Settings***, then click ***Control Panel***.
2. Double click ***Network*** icon and select ***Configuration*** tab in the Network window.
3. Click ***Add*** button to add network component into your PC.
4. Double click ***Protocol*** to add TCP/IP protocol.



5. Select ***Microsoft*** item in the *manufactures* list. And choose ***TCP/IP*** in the *Network Protocols*. Click ***OK*** button to return to Network window.

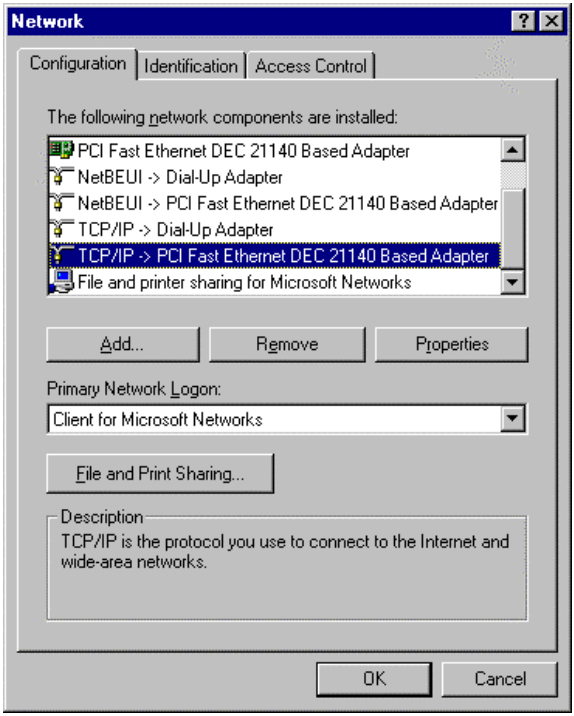


6. The TCP/IP protocol shall be listed in the Network window. Click ***OK*** to complete the install procedure and restart your PC to enable the TCP/IP protocol.

B.2 Set TCP/IP Protocol for Working with NAT Router

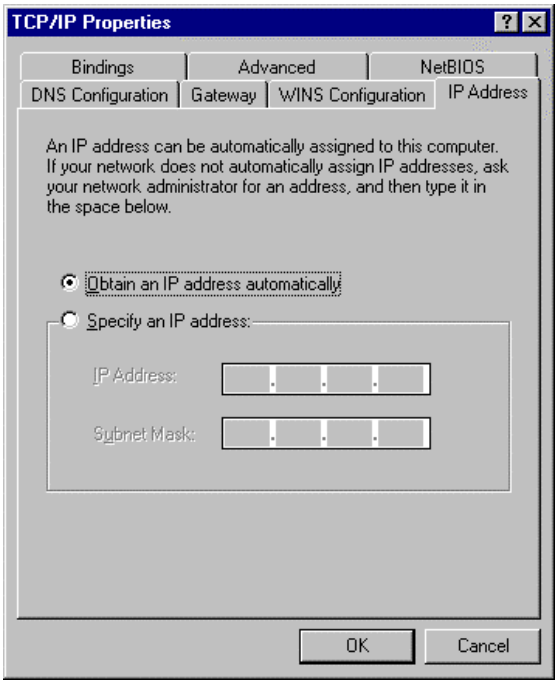
1. Click ***Start*** button and choose ***Settings***, then click ***Control Panel***.

2. Double click ***Network*** icon. Select the TCP/IP line that has been associated to your network card in the ***Configuration*** tab of the Network window.

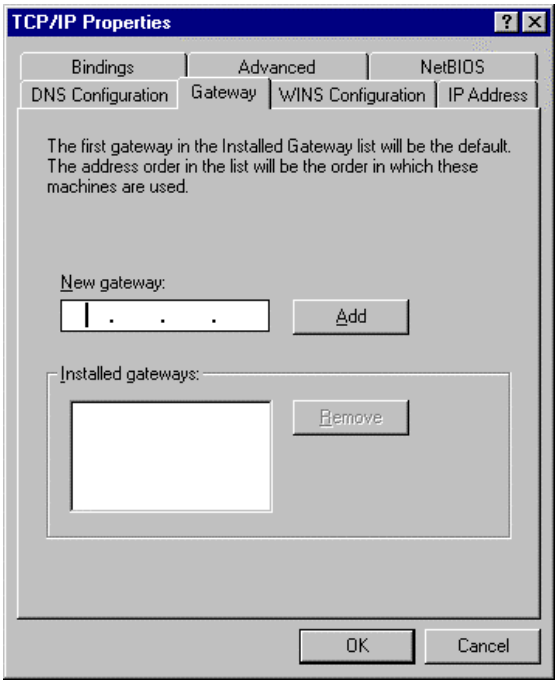


3. Click ***Properties*** button to set the TCP/IP protocol for this NAT Router.
4. Now, you have two setting methods:
   A. Get IP via DHCP server

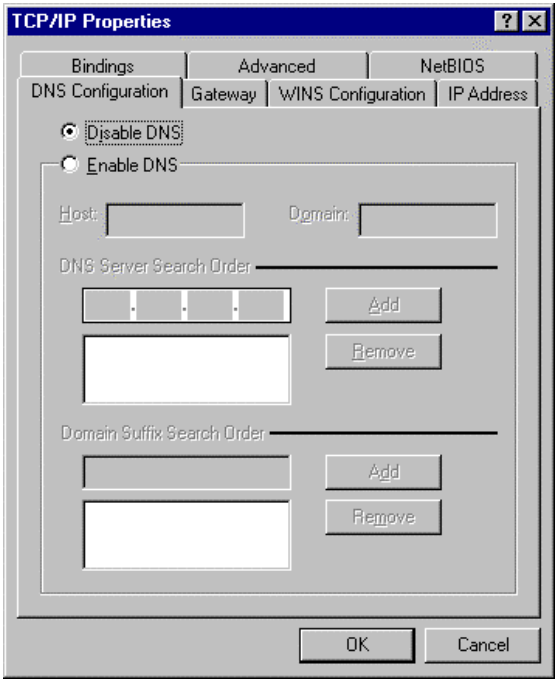
a. Select ***Obtain an IP address automatically*** in the *IP Address* tab.



b. Don’ t input any value in the *Gateway* tab.

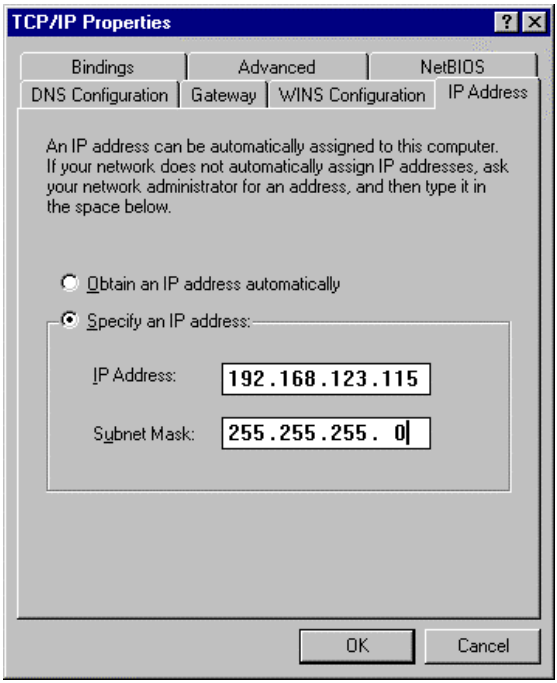


c. Choose ***Disable DNS*** in the *DNS Configuration* tab.

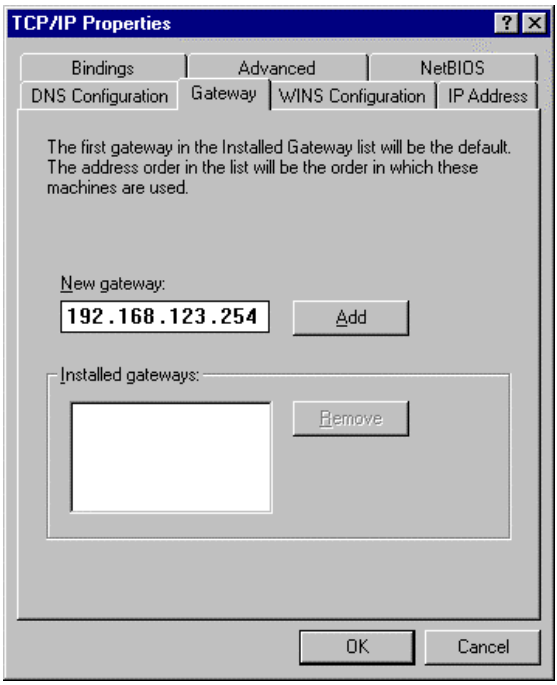
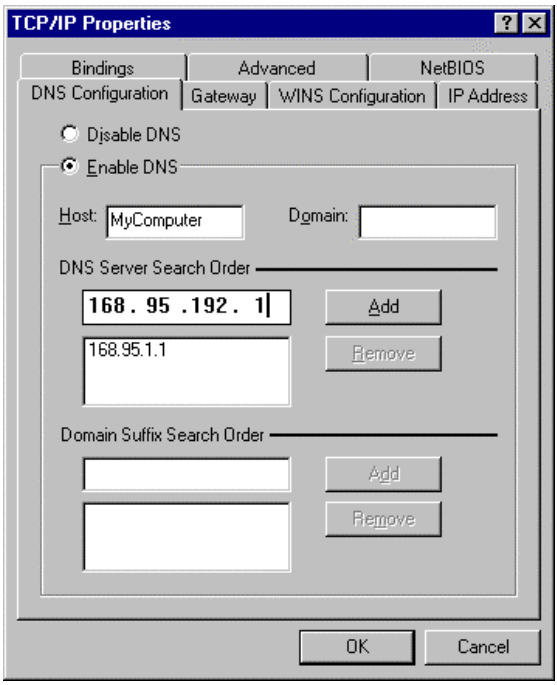


B. Configure IP manually

a. Select ***Specify an IP address*** in the *IP Address* tab. The default IP address of this product is 192.168.123.254. So please use 192.168.123.xxx (xxx is between 1 and 253) for *IP Address* field and 255.255.255.0 for *Subnet Mask* field.



b. In the *Gateway* tab, add the IP address of this product (default IP is 192.168.123.254) in the *New gateway* field and click ***Add*** button.



c. In the *DNS Configuration* tab, add the DNS values which are provided by the ISP into *DNS Server Search Order* field and click ***Add*** button.