Wireless Broadband Router

User Guide

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This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference. (2) This device must accept any interference received including interference that may cause undesired operation. 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 such interference.

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Chapter 1 Introduction

Congratulations on your purchase of this outstanding SMC Wireless Broadband Router. This product is designed specifically for small office and home office needs. It provides a complete SOHO solution for Internet access and is easy to configure and operate even for non-technical users. Instructions for installing and configuring this product are included in this manual. Before you install and use this product, please read the manual carefully so you may take full advantage of its functions.

1.1 Functions and Features

- **High speed for wireless LAN connection**

  11Mbps data rate by incorporating Direct Sequence Spread Spectrum (DSSS).

- **Roaming**

  Provides seamless roaming within the IEEE 802.11b WLAN infrastructure.

- **IEEE 802.11b compatible**

  Allowing inter-operation among multiple vendors.

- **Auto fallback**

  11Mbps, 5Mbps, 2Mbps, 1Mbps data rate with auto-fallback.

- **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 3-port auto-sensing Ethernet switch.

- **VPN supported**

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

- **Firewall**

  All unwanted packets from outside sources and other 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 rights for different users.

- **Virtual Server supported**

  Enables you to expose WWW, FTP and other services on your LAN for access by Internet users.

- **User-Definable Application Sensing Tunnel**

  User can define the attributes to support the special applications requiring multiple connections, such as Internet gaming, videoconferencing, Internet telephony, etc.. This product can then sense the application type and open the correct multi-port tunnel for it.

- **DMZ Host supported**

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

1.2 Packing List

- One wireless broadband router unit
- One installation CD-ROM
- One power adapter
- One CAT-5 UTP Fast Ethernet cable

Chapter 2 Hardware Installation

2.1 Panel Layout

2.1.1. Front Panel

LEDs monitor the status of each port.

Figure 2-1 Front Panel

LED:

LED	Function	Color	Status	Description
POWER	Power indication	Green	On	Power is being applied to this product.
M1	System status 1	Orange	Blinking	This product is functioning properly.
M2	System status 2	Orange	On	This product is working for a specific service.
			Blinking	This product is being configured or upgraded. **Don' t turn it off !**
WAN	WAN port activity	Green	On	The WAN port is linked.
			Blinking	The WAN port is sending or receiving data.
W.LAN	Wireless activity	Green	Blinking	Sending or receiving data via wireless
Link/Act. 1~3	Link status	Green	On	An active station is connected to the corresponding LAN port.
			Blinking	The corresponding LAN port is sending or receiving data.
SPEED 1~3	Data Rate	Green	On	Data is transmitting in 100Mbps on the corresponding LAN port.

2.1.2. Rear Panel

The rear panel features three 10/100 Mbps Ethernet ports and one Wide Area network (WAN) port. The WAN port connects your DSL or cable modem to the router. The LAN ports are used to connect to your computers or other network devices.

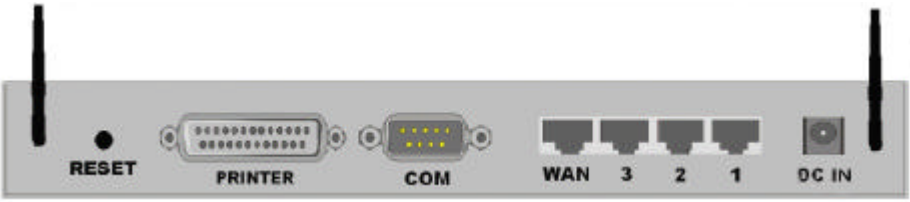


Figure 2-2 Rear Panel

Ports:

Port	Description
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 flashes once per second.
PRINTER	Printer Port (Optional)
COM	Serial port (connect dial-up modem or console cable)
WAN Port	The port where you will connect your cable (or DSL) modem or Ethernet router.
Port 1-3	The ports where you will connect networked computers and other devices.
DC IN	Power inlet (DC 12V)

2.2 Procedure for Hardware Installation

1. Decide Where to Place Your Wireless Broadband Router:

You can place your Wireless Broadband Router on a desk or other flat surface, or you can mount it on a wall. For optimal performance, place your Wireless Broadband Router in the center of your office (or your home) in a location that is away from any potential source of interference, such as a metal wall or microwave oven. This location must be close to power and network connections.

2. Set up LAN connection:

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

b. Wireless LAN connection: make sure the antennae are in a vertical position.

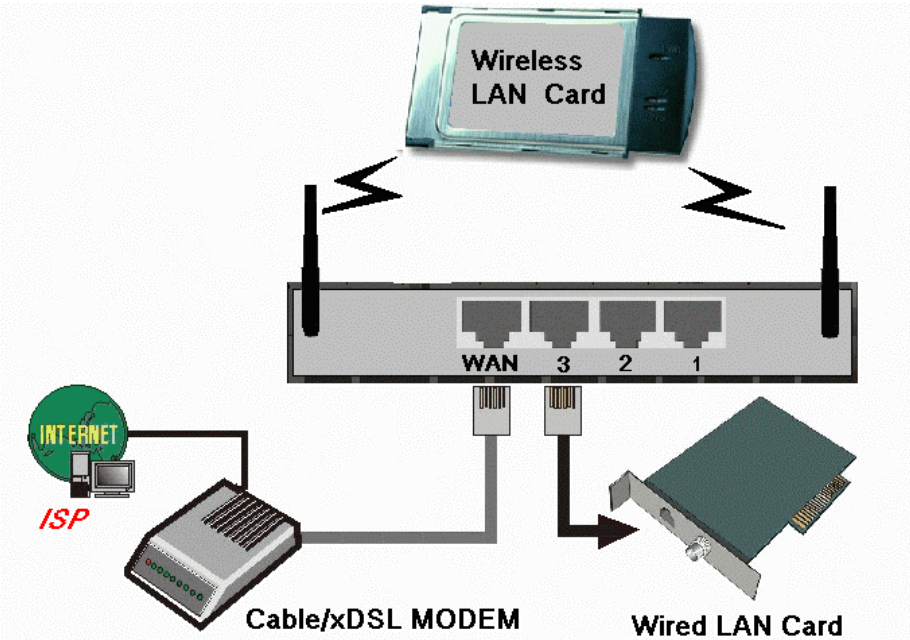


Figure 2-3 Setup of LAN and WAN connections for this product.

3. **Set up WAN connection:** Connect an Ethernet cable from the WAN port to your cable/xDSL modem or Ethernet backbone. Figure 2-3 illustrates the WAN connection.

4. **Power on:**

   By connecting the power cord to the 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 10 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 on your computer (Windows 95/98/ME/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 as needed, but the default values are used in this manual. If the TCP/IP environment of your computer has not yet been installed, you can refer to ***Appendix A*** to configure it. Once TCP/IP is installed, configure it as follows:

1. Configure *IP* as 192.168.123.1, *subnet mask* as 255.255.255.0 and *gateway* as 192.168.123.254, or, more easily,
2. Configure your computers to "Obtain an IP address automatically," that is, via DHCP server of this product.

After configuring 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 from a DOS window:

```
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 the network card on your computer must be lit.

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

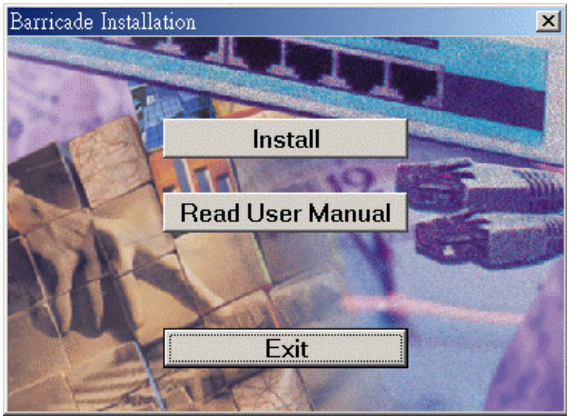
   Tip: If the IP address of this product is 192.168.123.254, the IP address of your computer must be 192.168.123.X and the default gateway must be 192.168.123.254.

Now you can configure the Internet Sharer (refer to Chapter 4).

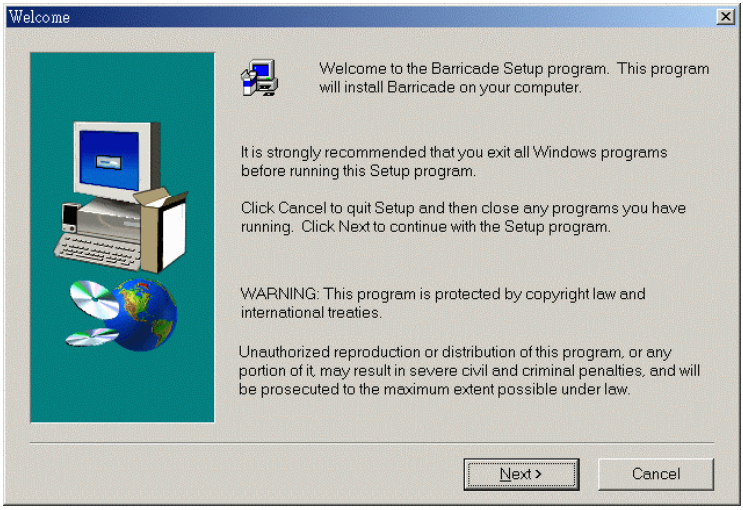
3.2 Install the Software Into Your Computers

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

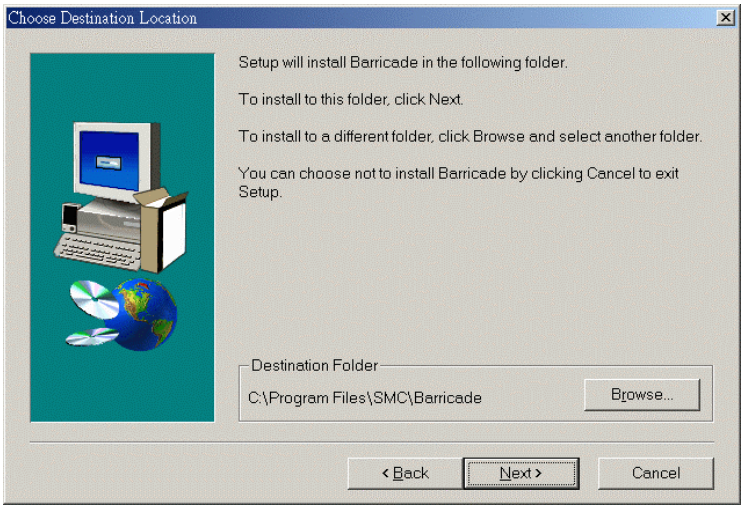
Step 1: Insert the installation CD-ROM into the CD-ROM drive. The following window will be shown automatically. If it isn' t, please run "install.exe" on the CD-ROM.



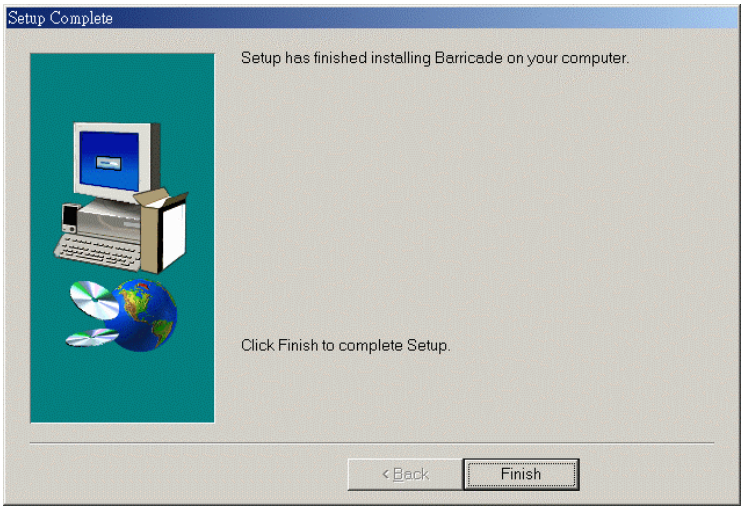
Step 2: Click on the ***INSTALL*** button. Wait until the following ***Welcome*** dialog appears, and click on the ***Next*** button.



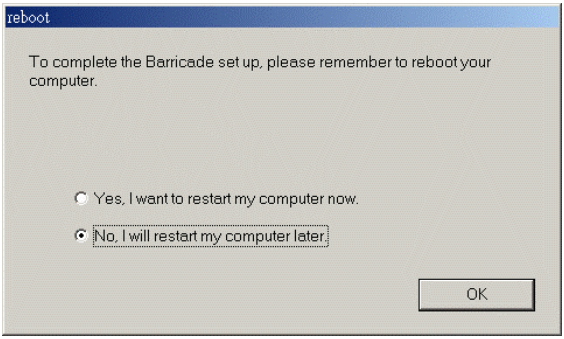
Step 3: Select the destination folder and click on the ***Next*** button. The setup program will then begin to install the programs into the destination folder.



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



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



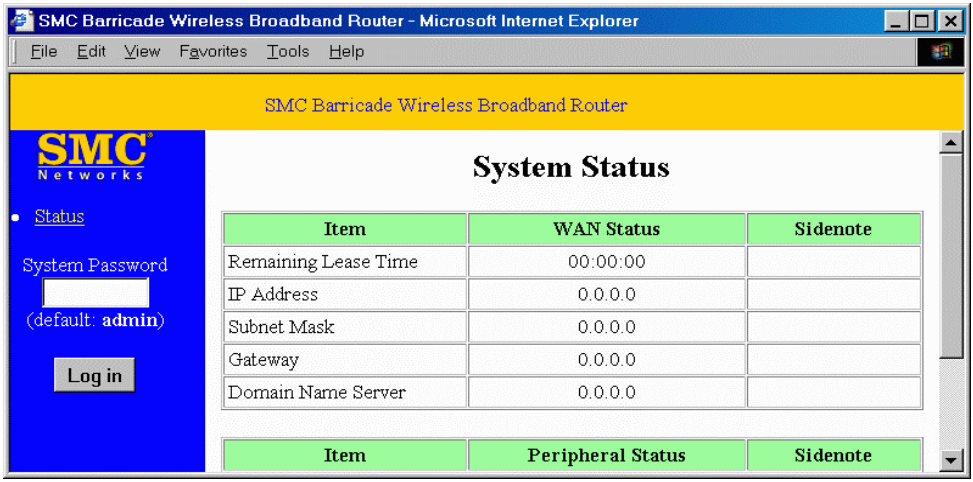
Step 6: After rebooting your computer, the software installation procedure is complete.

Now, you can configure the Internet Sharer (refer to Chapter 4) and set up the Print Server (refer to Chapter 5).

Chapter 4 Configuring Wireless Broadband Router

This product provides a Web-based configuration scheme, i.e., configuring by Netscape Communicator or Internet Explorer. This approach can be adopted in any MS Windows, Macintosh or UNIX based platform.

4.1 Startup and Login

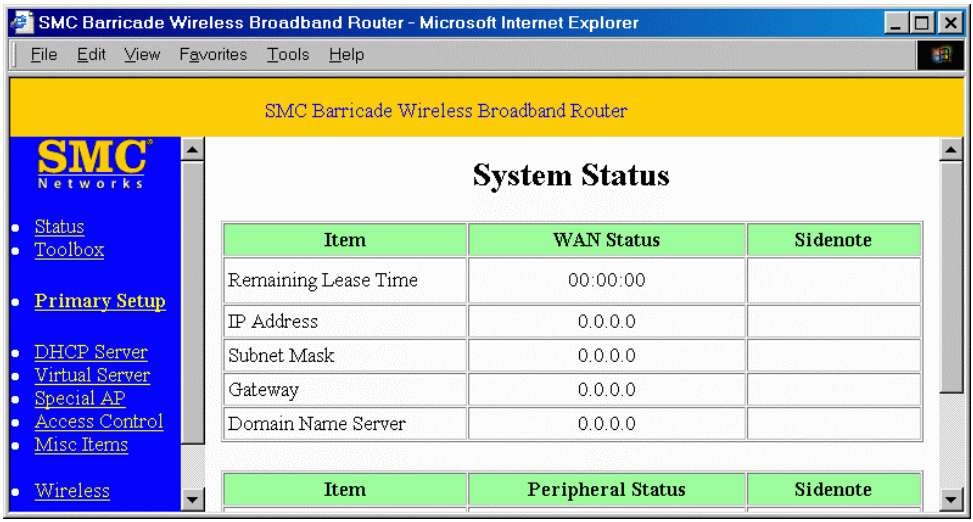


Activate your browser, and ***disable the proxy*** or ***add the IP address of this product into the exceptions***. Then, type this product's IP address in the *Location* (for Netscape) or *Address* (for IE) field and press ENTER. For example: ***http://192.168.123.254***.

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.

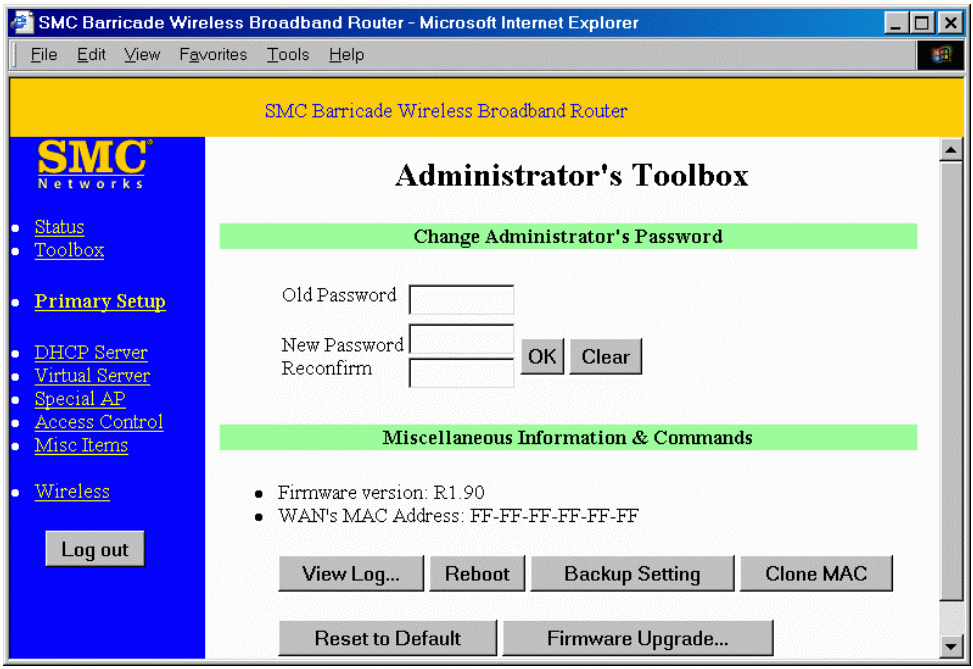
If the WAN port is assigned a dynamic IP, there may appear a "**Renew**" or "**Release**" button on the *Sidenote* column. You can click this button to renew or release IP manually.

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 a 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 also reboot this product by clicking the **Reboot** button.

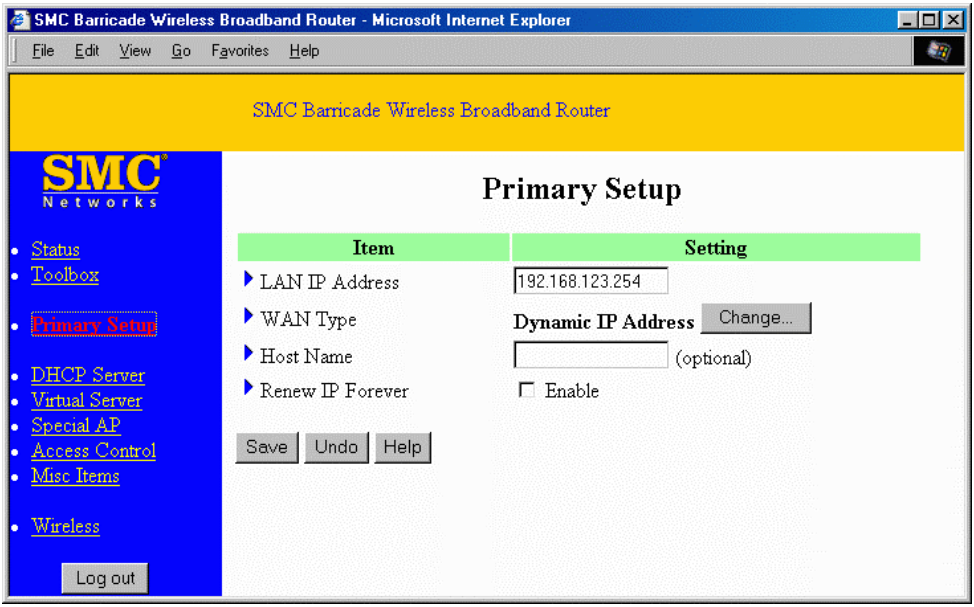
You can backup your settings by clicking the **Backup Setting** button and save it as a bin file. Once you want to restore these settings, please click **Firmware Upgrade** button and use the bin file you saved.

You can Clone MAC address by clicking **Clone MAC** button.

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 essential to enable this product to work properly. The setting items and the web appearance depend on the WAN type. Choose the 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 if necessary.
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.

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 enables this product to renew the IP address automatically when the lease time is expired even with the system in an idle state.

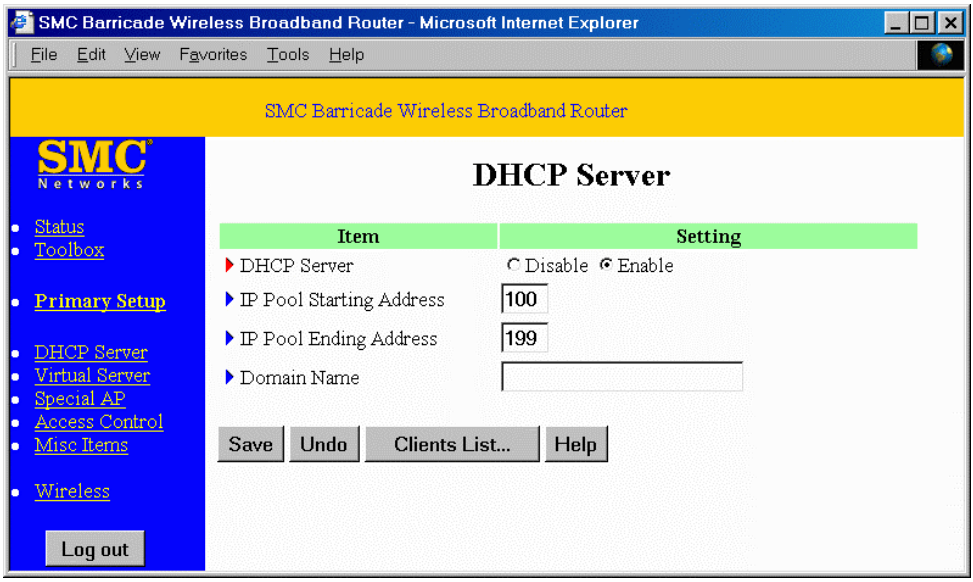
4.4.3 PPP over Ethernet

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 required to disconnect your PPPoE session. Setting 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 required 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

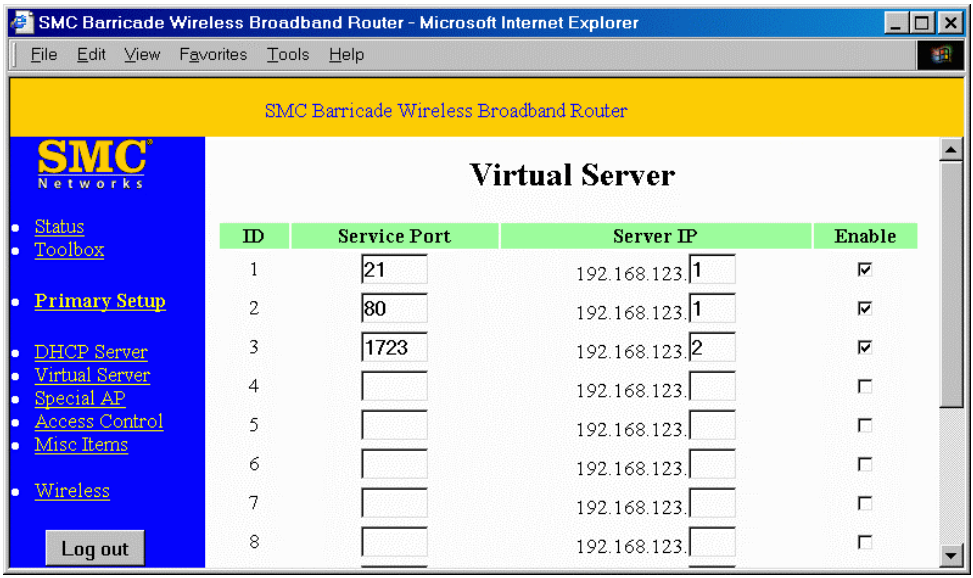
4.5 DHCP Server



The settings of the TCP/IP environment include Host IP, Subnet Mask, Gateway, and DNS configurations. It is not easy to correctly configure all the computers in your LAN environment. Fortunately, DHCP provides a simple approach to handle 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, 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.

4.6 Virtual Server



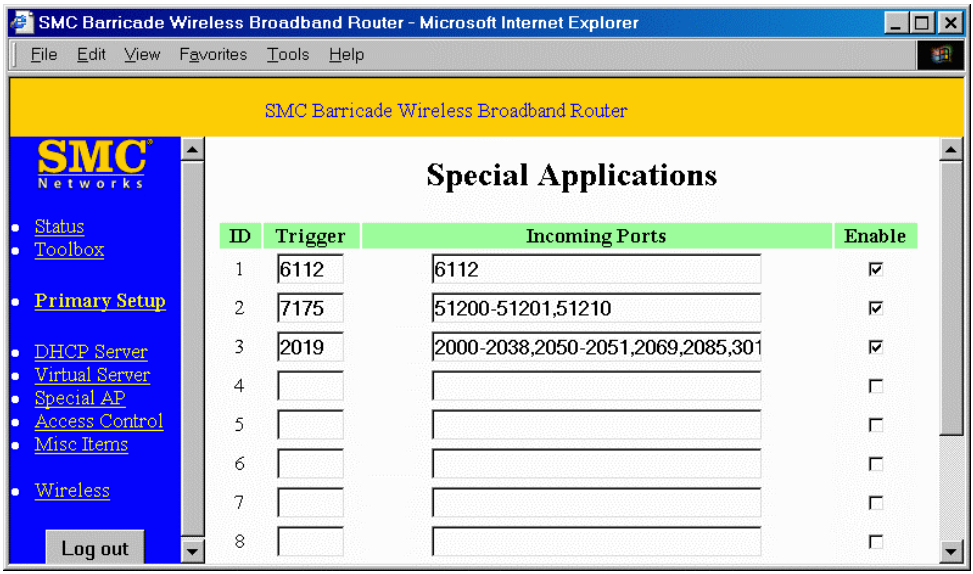
This product's NAT firewall filters out unrecognized packets to protect your Intranet, thus all hosts behind this product are externally invisible. If you wish, you can make some of them accessible by enabling the *Virtual Server Mapping*.

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



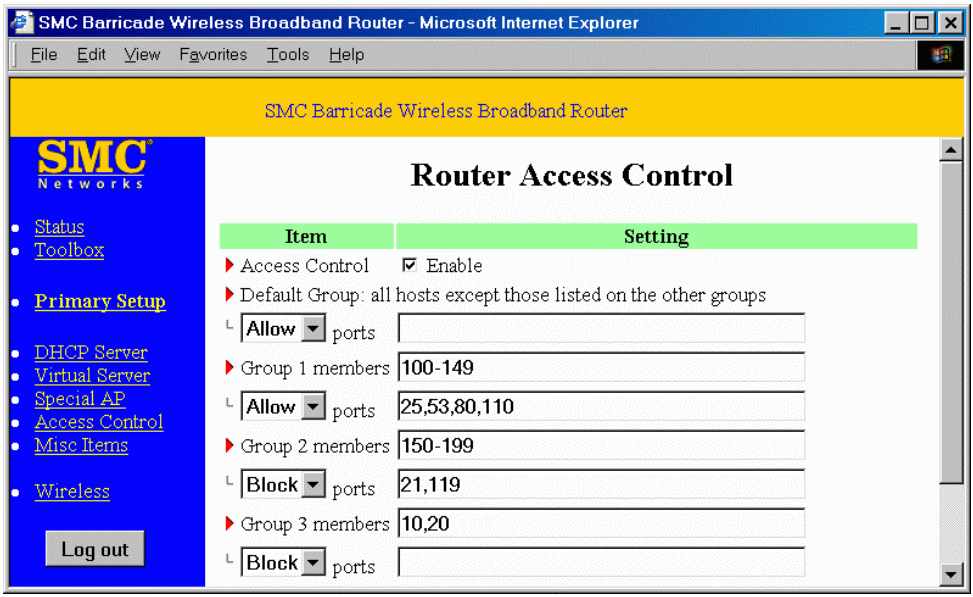
Some applications require multiple connections, such as Internet games, video conferencing, Internet telephony, etc.. Due to the firewall function, these applications cannot work with a pure NAT router. **Special Applications** enables some of these applications to work with an NAT router. If **Special Applications** is 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 directed 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: Only one PC can use each Special Application tunnel at any time.

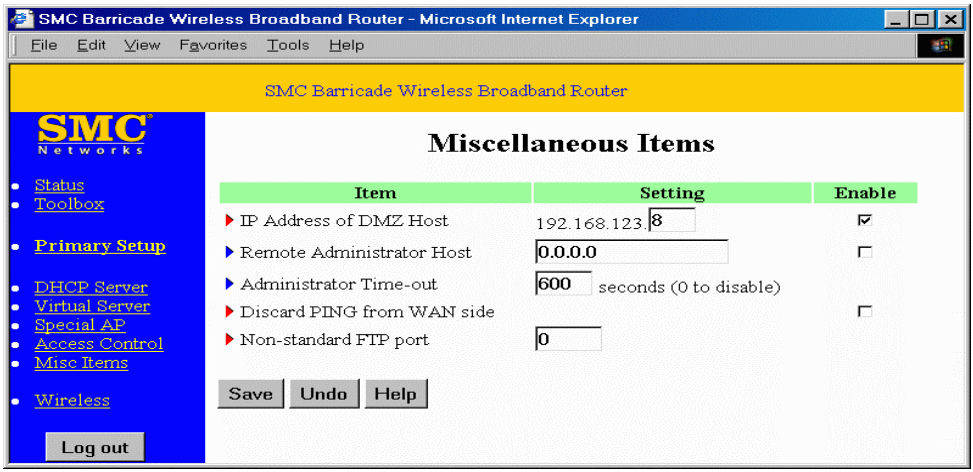
4.8 Access Control



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

Group	Members	Access Right	Comments
Default	-	Allow 0	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 0	Fully access (block nothing)

4.9 Misc. Items



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

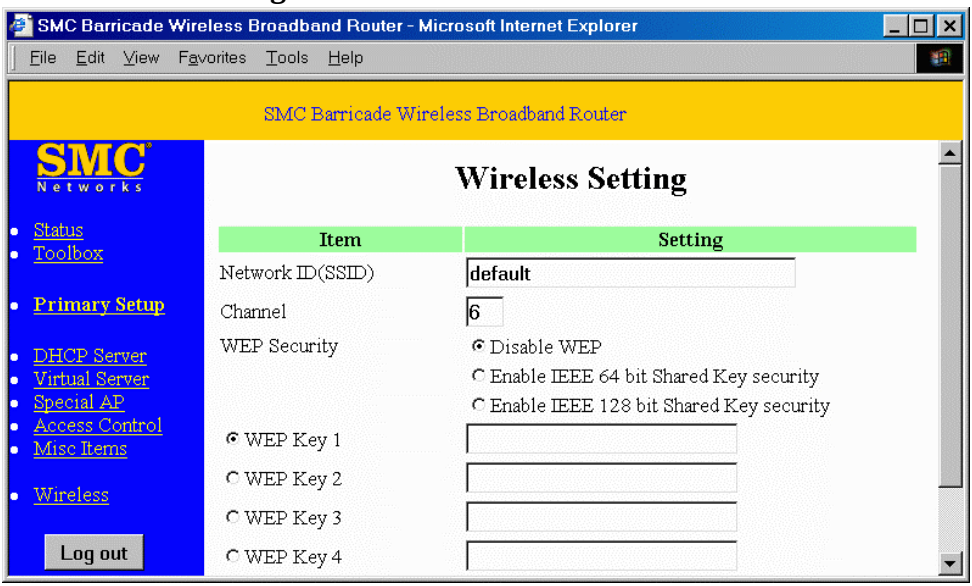
2. ***Remote Administrator Host***: In general, only Intranet users can browse the built-in web pages to perform administration tasks. This feature enables you to perform administration tasks from a remote host. When this feature is enabled, only the specified IP address can perform remote administration.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

3. ***Administrator Time-out***: The time of no activity to logout automatically. Set it to zero to disable this feature.

4. ***Discard PING from WAN side***: When this feature is enabled, any host 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 Wireless Setting



Wireless settings allow you to set the wireless configuration items.

1. ***Network ID (SSID)***: Network ID is used to identify the WLAN. Client stations can roam freely on this product and other Access Points that have the same Network ID. (The factory setting is "***default***")
2. ***Channel***: The radio channel number. The permissible number of channels depends on the Regulatory Domain.

   The factory setting is as follow: ***Channel 6*** for North America; ***Channel 7*** for European (ETSI); ***Channel 7*** for Japan.
3. ***WEP Security***: Select the data privacy algorithm you want. Enabling the security can protect your data while it is transferred from one station to another. The standardized IEEE 802.11 WEP (128 or 64-bit) is used here.
4. ***WEP Key 1, 2, 3 & 4***: When you enable the 128 or 64 bit WEP key security, please select one WEP key to be used and input 26 (for 128-bit) or 10 (for 64-bit) hexi-decimal digits.

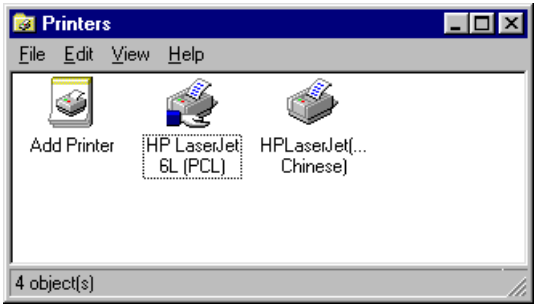
Chapter 5 Print Server

This product provides the function of the network print server for MS Windows 95/98/NT/2000 and Unix-based platforms.

You must configure each station individually to connect to your *server printer*.

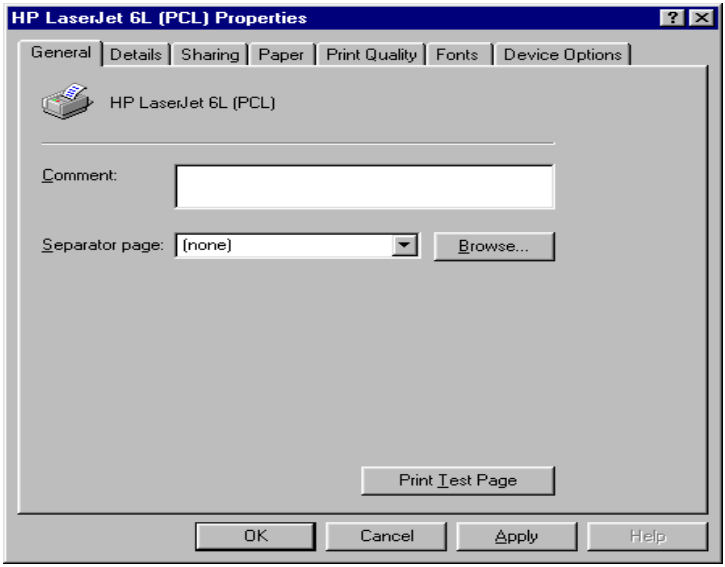
5.1 Configuring on Windows 95/98 Platforms

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

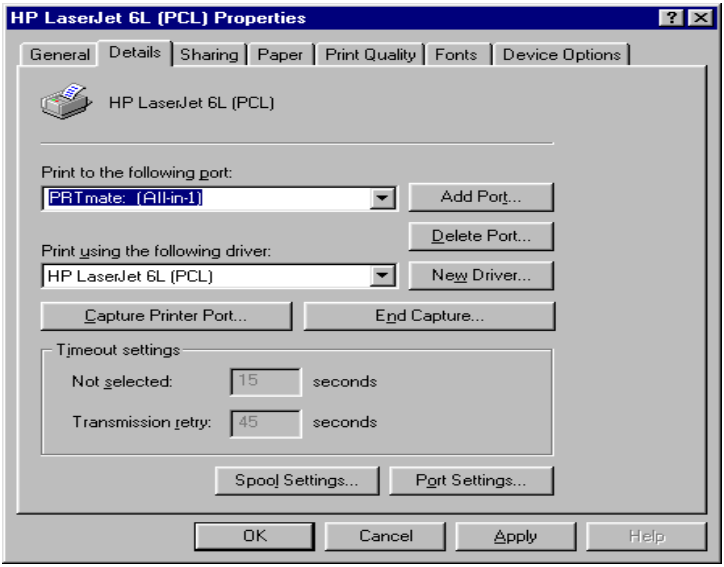


Yon can now configure the print server of this product:

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*.

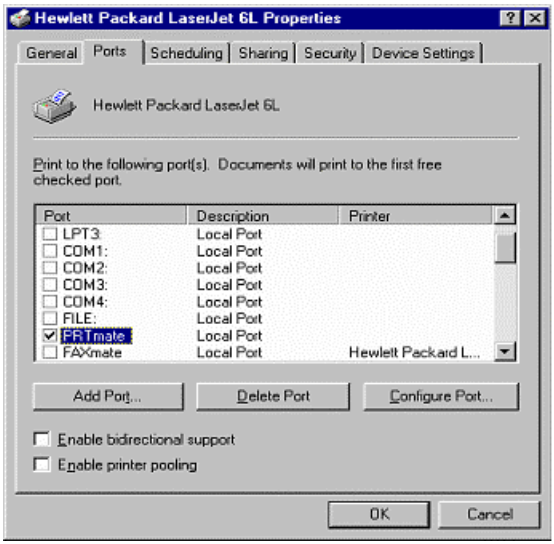
4. Click on the button of ***Port Settings***:

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

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

5.2 Configuring on Windows NT Platforms

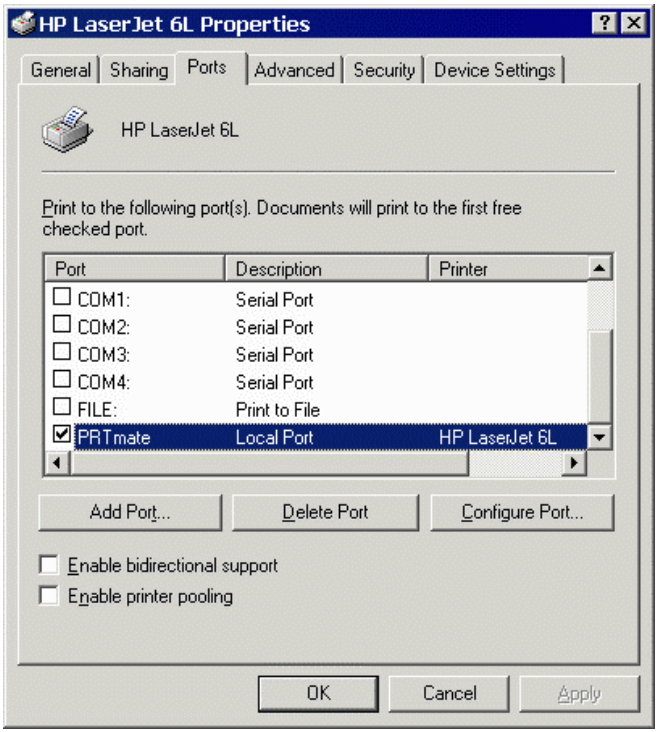
The configuration procedure for a Windows NT platform is similar to that of Windows 95/98 except the screen of printer ***Properties***:



Compared to the procedure in the previous 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 for the screen of printer ***Properties***:



Compared to the procedure in the previous 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

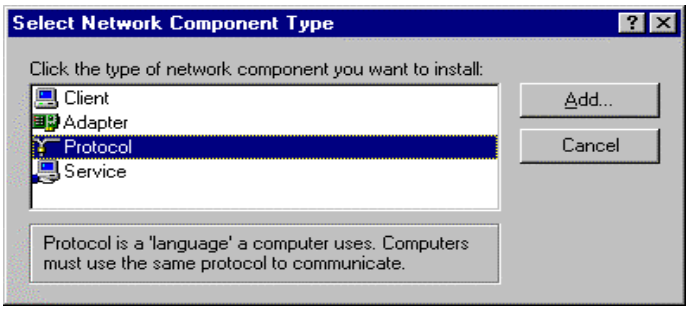
Please follow the traditional configuration procedure on Unix platforms to set up the print server of this product. The printer name is “lp.”

Appendix A: TCP/IP Configuration for Windows 95/98

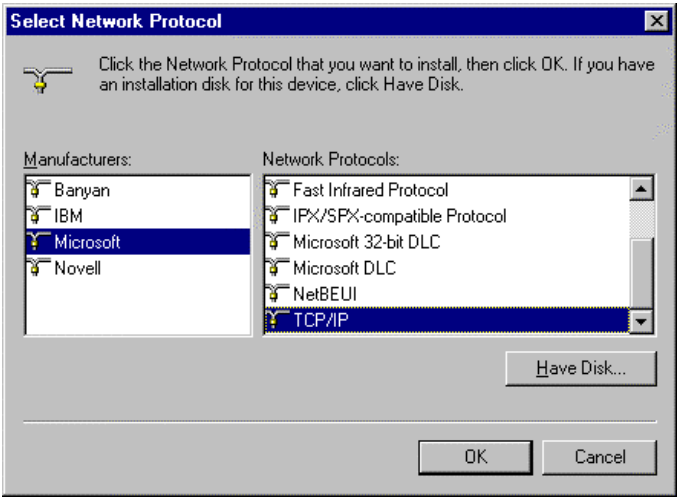
This section advises on how to install TCP/IP protocol into your personal computer. It assumes you have successfully installed one network card on your personal computer. If not, please refer to your network card manual. Also, Section A.2 tells you how to set TCP/IP values for working with this IP Sharer correctly.

A.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 the ***Microsoft*** item in the *manufacturers* list. Choose ***TCP/IP*** in the *Network Protocols*. Click ***OK*** button to return to Network window.

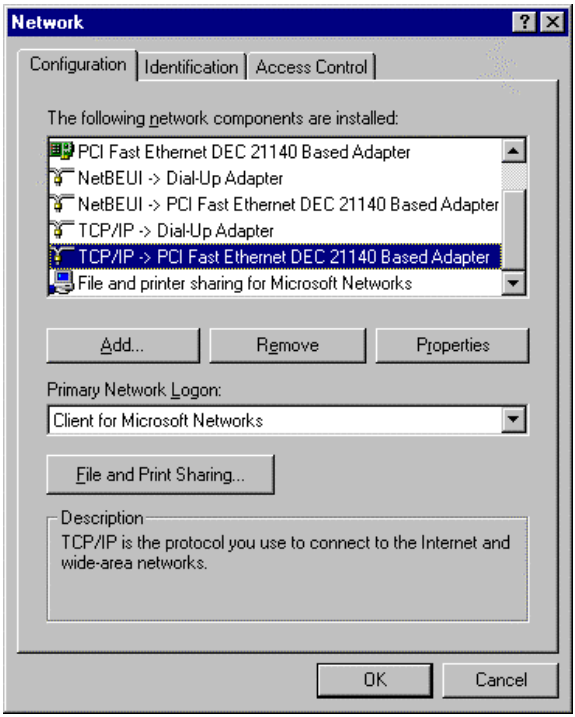


6. The TCP/IP protocol will be listed in the Network window. Click ***OK*** to complete the install procedure and restart your PC to enable the TCP/IP protocol.

A.2 Set TCP/IP Protocol for Working With IP Sharer

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.

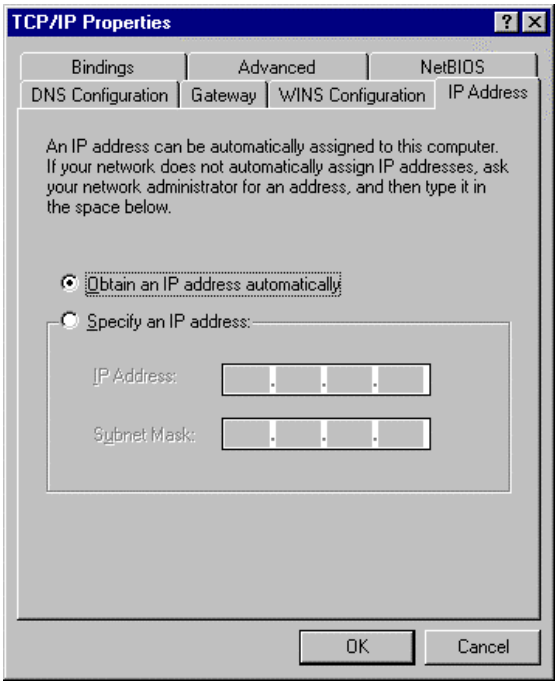


3. Click ***Properties*** button to set the TCP/IP protocol for this IP Sharer.

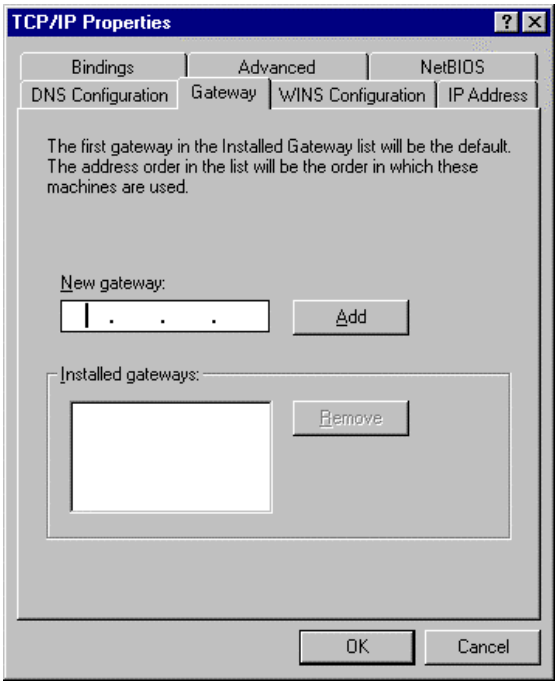
4. You now have two setting methods:

   A. Get IP via DHCP server

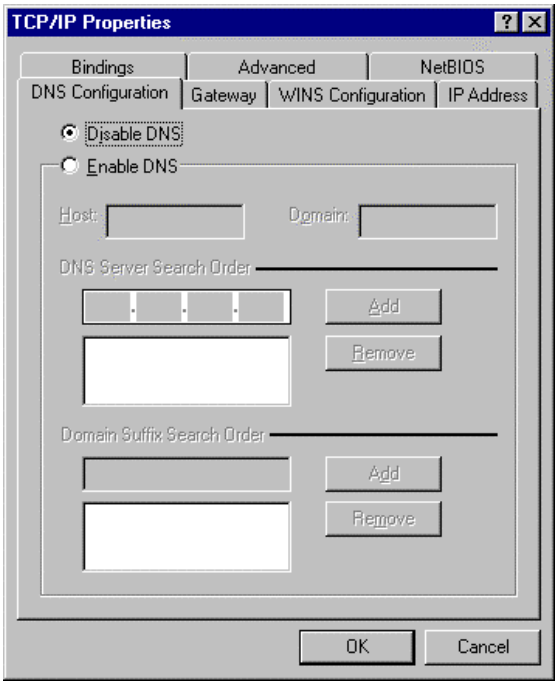
a. Select ***Obtain an IP address automatically*** in the *IP Address* tab.



b. Do not input any value in the *Gateway* tab.

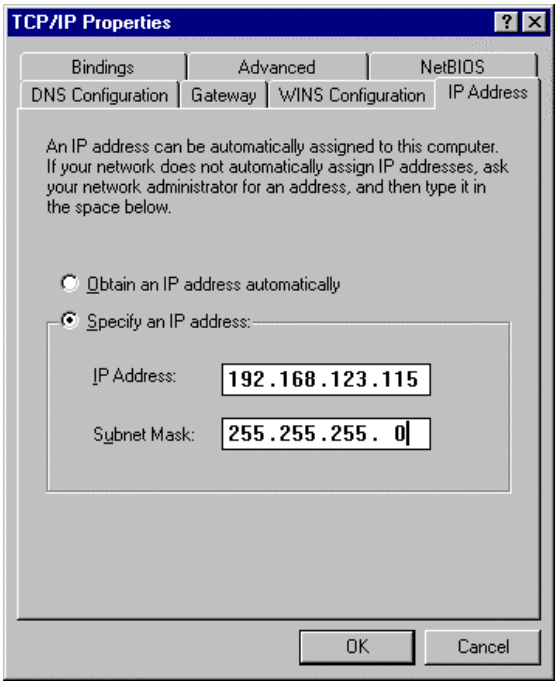


c. Choose ***Disable DNS*** in the *DNS Configuration* tab.

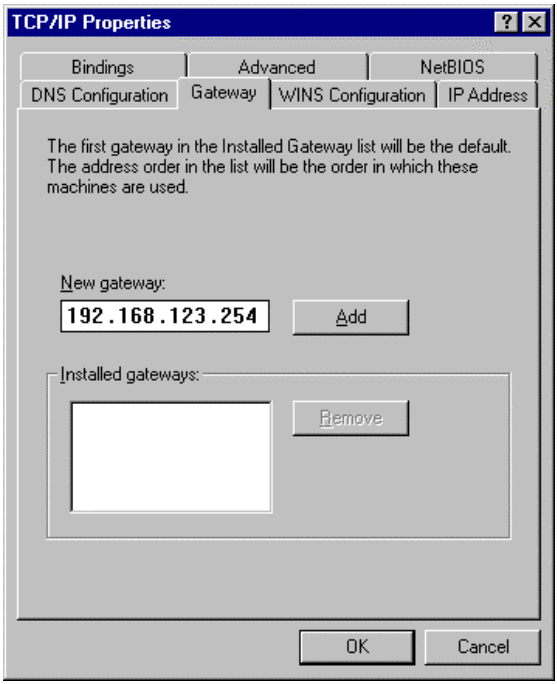
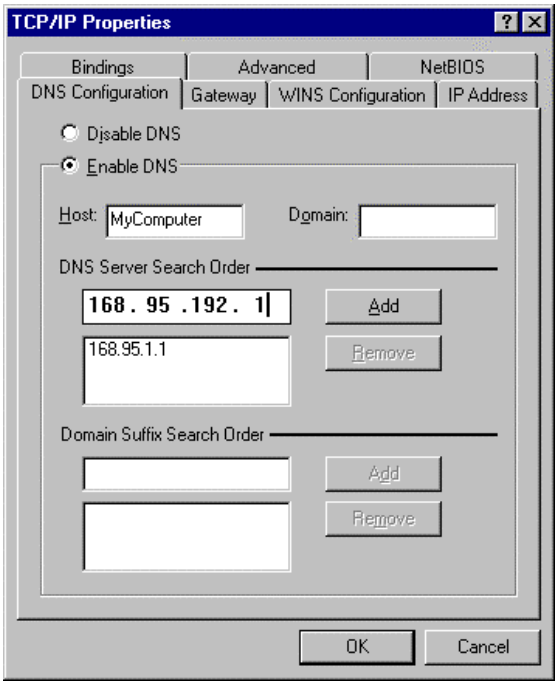


B. Configure IP manually

a. Select ***Specify an IP address*** in the *IP Address* tab. The default IP address of this product is 192.168.123.254. Therefore, 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.