

MSI RG54GS2
Wireless 11g Broadband Router Plus
USB Print Server

User Manual

FCC Caution

1. The device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:
 - (1) This device may not cause harmful interference, and
 - (2) This device must accept any interference received, including interference that may cause undesired operation.
2. FCC RF Radiation Exposure Statement: The equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.
3. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
4. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

Copyright Notice

The material in this document is the intellectual property of MICRO-STAR INTERNATIONAL. We take every care in the preparation of this document, but no guarantee is given as to the correctness of its contents. Our products are under continual improvement and we reserve the right to make changes without notice.

Trademarks

Microsoft Windows and Internet Explorer are registered trademarks or trademarks of Microsoft Corporation.

All brand names, icons, and trademarks used in this manual are the sole property of their respective owners.

Revision History

Revision	History	Date
V 1.0	First Release	May 2005

Important Safety Precautions

Always read and follow these basic safety precautions carefully when handling any piece of electronic component.

1. Keep this User Manual for future reference.
2. Keep this equipment away from humidity.
3. Lay this equipment on a reliable flat surface before setting it up.
4. The openings on the enclosure are for air convection hence protects the equipment from overheating.
5. All cautions and warnings on the equipment should be noted.
6. Never pour any liquid into the opening that could damage or cause electrical shock.
7. If any of the following situations arises, get the equipment checked by a service personnel:
 - Liquid has penetrated into the equipment
 - The equipment has been exposed to moisture
 - The equipment has not work well or you can not get it work according to User Manual
 - The equipment has dropped and damaged
 - If the equipment has obvious sign of breakage
8. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 60°C OR BELOW -20°C, IT MAY DAMAGE THE EQUIPMENT.

Contents

Chapter 1	Introduction	1
	Functions and Features.....	1
	Packing List	3
Chapter 2	Hardware Installation.....	4
	2.1 Panel Layout	4
	2.2 Procedure for Hardware Installation	6
Chapter 3	Network Settings and Software Installation.....	7
	3.1 Make Correct Network Settings of Your Computer.....	7
Chapter 4	Configuring Wireless Broadband Router.....	8
	4.1 Start-up and Log in.....	9
	4.2 Wizard.....	9
	4.3 Setup.....	10
	4.4 Advanced	21
	4.5 Administration.....	41
	4.6 Status	46
Chapter 5	Print Server.....	50
	5.1 Configuring on Windows 95/98 Platforms	50
	5.2 Configuring on Windows NT Platforms.....	52
	5.3 Configuring on Windows 2000 and XP Platforms.....	53
	5.4 Configuring on Unix-like based Platforms.....	57
	5.5 Configuring on Apple PC	62
Appendix A	TCP/IP Configuration for Windows 95/98	63
Appendix B	802.1x Setting	68
Appendix C	WPA-PSK and WPA.....	74
Appendix D	FAQ and Troubleshooting.....	87
	Reset to factory Default.....	87
Appendix E	Product Specification.....	88

Chapter 1 Introduction

Congratulations on your purchase of this outstanding Wireless Broadband Router. This product is specifically designed for Small Office and Home Office needs. It provides a complete SOHO solution for Internet surfing, and is easy to configure and operate even for 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.

Functions and Features

Router Basic functions

I Auto-sensing Ethernet Switch

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

I WAN type supported

The router supports some WAN types, Static, Dynamic, PPPoE , PPTP ,L2TP, Dynamic IP with Road Runner.

I Firewall

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

I DHCP server supported

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

I Web-based configuring

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

I Virtual Server supported

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

I 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.

I DMZ Host supported

Lets a networked computer 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.

I Statistics of WAN Supported

Enables you to monitor inbound and outbound packets

Wireless functions

I **High speed for wireless LAN connection**

Up to 54Mbps data rate by incorporating Orthogonal Frequency Division Multiplexing (OFDM).

I **Roaming**

Provides seamless roaming within the IEEE 802.11b (11M) and IEEE 802.11g (54M) WLAN infrastructure.

I **IEEE 802.11b compatible (11M)**

Allowing inter-operation among multiple vendors.

I **IEEE 802.11g compatible (54M)**

Allowing inter-operation among multiple vendors.

I **Auto fallback**

54M, 48M, 36M, 24M, 18M, 12M, 6M data rate with auto fallback in 802.11g mode.

11M, 5.5M, 2M, 1M data rate with auto fallback in 802.11b mode.

Security functions

I **Packet filter supported**

Packet Filter allows you to control access to a network by analyzing the incoming and outgoing packets and letting them pass or halting them based on the IP address of the source and destination.

I **Domain Filter Supported**

Let you prevent users under this device from accessing specific URLs.

I **URL Blocking Supported**

URL Blocking can block hundreds of websites connection by simply a **keyword**.

I **VPN Pass-through**

The router also supports VPN pass-through.

I **802.1X supported**

When the 802.1X function is enabled, the Wireless user must authenticate to this router first to use the Network service.

I **Support WPA-PSK and WPA**

When the WPA function is enabled, the Wireless user must authenticate to this router first to use the Network service

I **SPI Mode Supported**

When SPI Mode is enabled, the router will check every incoming packet to detect if this packet is valid.

I **DoS Attack Detection Supported**

When this feature is enabled, the router will detect and log the DoS attack comes from the Internet.

Advanced functions

I System time Supported

Allow you to synchronize system time with network time server.

I E-mail Alert Supported

The router can send its info by mail.

I Dynamic dns Supported

At present, the router has 3 ddns: dyndns, TZO.com and dhs.org.

I SNMP Supported

The router supports basic SNMP function.

I Routing Table Supported

Now, the router supports static routing.

I Schedule Rule supported

Customers can control some functions, like virtual server and packet filters when to access or when to block.

Other functions

I UPNP (Universal Plug and Play) Supported

The router also supports this function. The applications: X-box, Msn Messenger.

Packing List

- I** Wireless broadband router unit
- I** Installation CD-ROM
- I** Power adapter
- I** CAT-5 UTP Fast Ethernet cable

Chapter 2 Hardware Installation

2.1 Panel Layout

2.1.1. Front Panel



Figure 2-1 Front Panel

LED	Function	Color	Status	Description
POWER	Power indication	Green	On	Power is being applied to this product.
Status	System status	Green	Blinking	M1 is flashed once per second to indicate system is alive.
USB	USB port activity	Green	On	The USB port is linked.
WAN	WAN port activity	Green	On	The WAN port is linked.
			Blinking	The WAN port is sending or receiving data.
WLAN	Wireless activity	Green	Blinking	Sending or receiving data via wireless
Link/Act. 1~4	Link status	Green	On	An active station is connected to the corresponding LAN port.
			Blinking	The corresponding LAN port is sending or receiving data.
RESET	Reset Settings			To reset system settings to factory defaults

2.1.2. Rear Panel

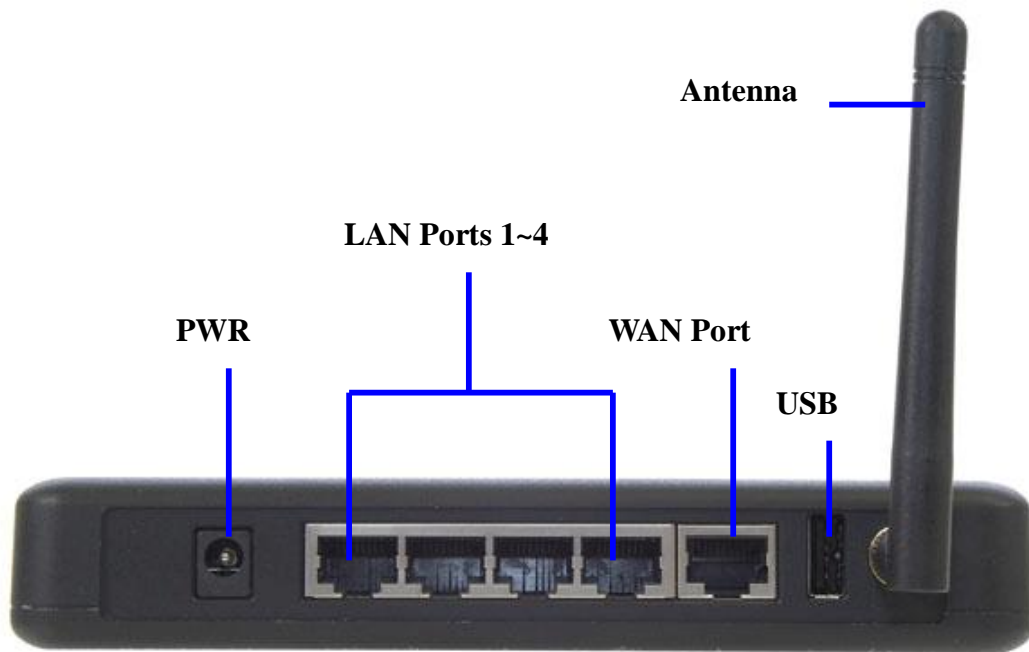


Figure 2-2 Rear Panel

Port	Description
PWR	Power inlet
WAN	the port where you will connect your cable (or DSL) modem or Ethernet router.
Port 1-4	the ports where you will connect networked computers and other devices.
USB	Connect the USB printer.

2.2 Procedure for Hardware Installation

2. 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 connection.

2. Setup LAN connection

- a. Wired LAN connection: connects an Ethernet cable from your computer's Ethernet port to one of the LAN ports of this product.
- b. Wireless LAN connection: locate this product at a proper position to gain the best transmit performance

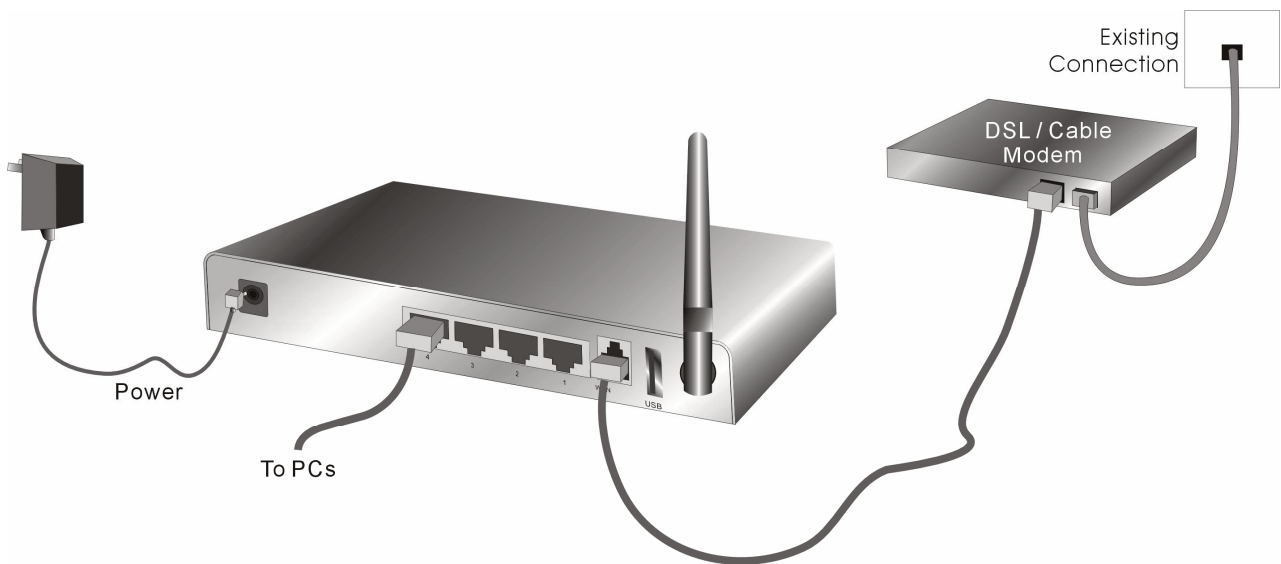


Figure 2-3 Setup of LAN and WAN connections for this product.

3. Setup WAN connection

Prepare an Ethernet cable for connecting this product to your cable/xDSL modem or Ethernet backbone. Figure 2-3 illustrates the WAN connection.

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 will be lighted ON for about 10 seconds, and then M1 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 192.168.1.254, 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 A** to configure it. For example,

1. configure IP as 192.168.1.1, subnet mask as 255.255.255.0 and gateway as 192.168.1.254, 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 192.168.1.254

If the following messages appear:

Pinging 192.168.1.254 with 32 bytes of data:

Reply from 192.168.1.254: 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 192.168.1.254 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?

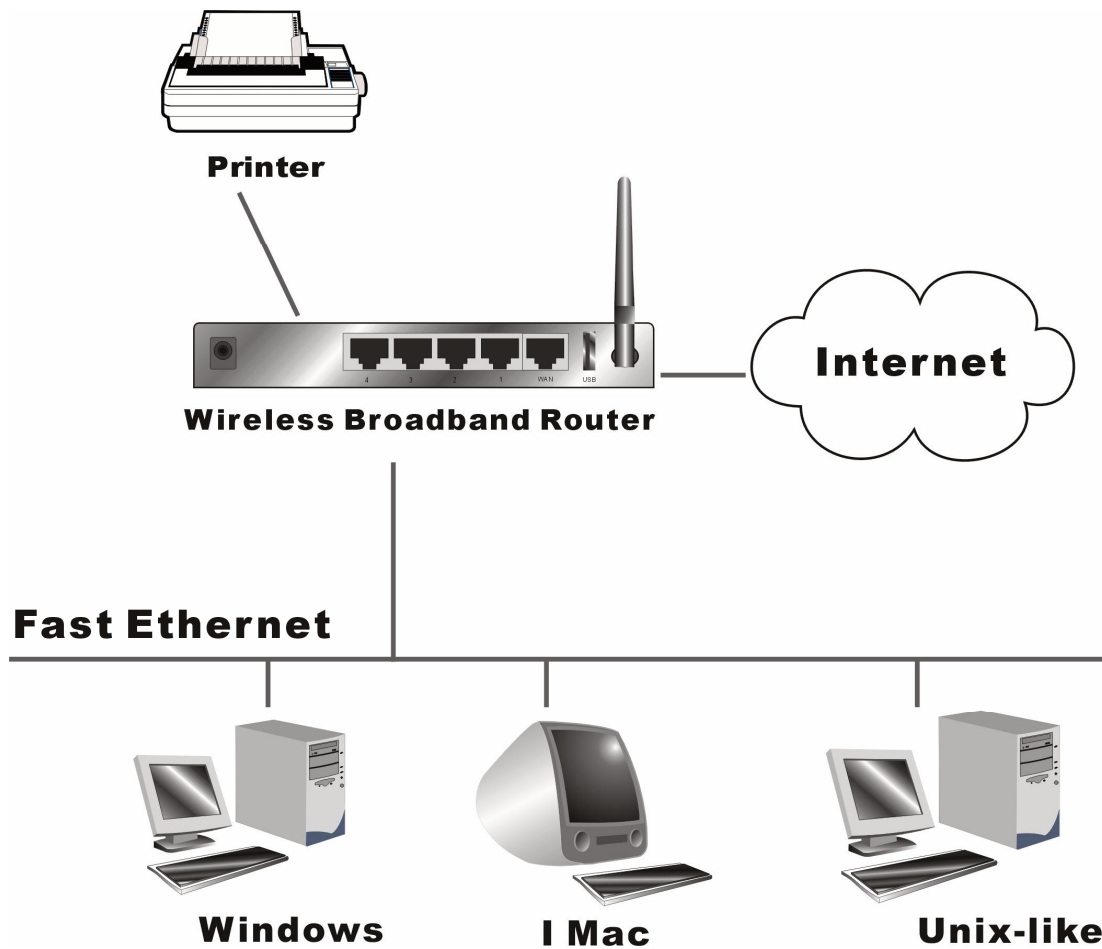
Tip: The LAN LED of this product and the link LED of network card on your computer must be lighted.

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

Tip: If the IP address of this product is 192.168.1.254, the IP address of your computer must be 192.168.1.X and default gateway must be 192.168.1.254.

Chapter 4 Configuring Wireless Broadband Router

This product provides Web based configuration scheme, that is, configuring by your Web browser, such as 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://192.168.1.254**.

After the connection is established, you will see the web user interface of this product. To log in as an administrator, enter the system password (the factory setting is **"admin"**) in the **Password** field and click on the **OK** 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 Wizard



Setup Wizard will guide you through a basic configuration procedure step by step. Press **"Next >"**



RG54GS2

Select Internet Connection Type:



- ☐ **Static IP**
ISP provides you a static IP address.
- ☐ **Dynamic IP**
Obtain an IP address from ISP automatically (For most Cable modem users)
- ☐ **Dynamic IP* (Bigpond Cable)**
Dynamic IP address with Road Runner Session Management. (For Australia Tesltra Bigpond)
- ☒ **PPPoE**
PPP over Ethernet for the Internet connection. (For most DSL users)
- ☐ **PPTP**
Some ISPs require the use of PPTP for the Internet connection. (Most used in Europe)
- ☐ **L2TP**
Some ISPs require the use of L2TP for the Internet connection. (For virtual private network -VPN)

If you are unsure of which setting to select, please contact your ISP (Internet Service Provider)

Back
Undo
Next

Setup Wizard - Select WAN Type: For detail settings, please refer to **4.3.1 IP Setting**.

4.3 Setup



RG54GS2

Setup

Advanced

Administration

Status

IP Setting

Wireless

WDS

Dynamic DNS

DHCP Server


Print Server

Logout

Setup

- **IP Setting**
 - Configure the way your wireless router uses to connect to the Internet, or connect to a private network such as your workplace network.
 - Configure Router's LAN IP Address.
- **Dynamic DNS**
 - Enables you to run your domain over a changing IP, you have to use dynamic domain name service (DDNS).
- **DHCP Server**
 - Your wireless gateway can act as a DHCP server, and assign IP addresses to your clients automatically.
- **Print Server**
 - RG54GS2 provides the function of network print server for MS Windows 98SE/ME/2000/XP and Unix based platforms. Please check User Manual/Quick Installation Guide in your CD for the detail software installation and setup.

4.3.1 IP Setting – WAN Type, IP Mode




IP Setting

Item	Setting
LAN IP Address	192.168.1.254
WAN Type	L2TP Change...
IP Mode	Static IP Address ▼
Internet IP Address	0.0.0.0
Subnet Mask	255.255.255.0
ISP Gateway Address	0.0.0.0
Server IP Address/Name	
User Name	
Password	
Maximum Idle Time	600 seconds
Connection Control	Auto reconnect(Always-on) ▼

[Save](#) [Undo](#) [Help](#)

Press “Change”



Choose WAN Type

Type	Usage
<input type="radio"/> Static IP Address	ISP assigns you a static IP address.
<input type="radio"/> Dynamic IP Address	Obtain an IP address from ISP automatically.
<input type="radio"/> Dynamic IP Address with Road Runner Session Management.(e.g. Telstra BigPond)	
<input checked="" type="radio"/> PPP over Ethernet	Some ISPs require the use of PPPoE to connect to their services.
<input type="radio"/> PPTP	Some ISPs require the use of PPTP to connect to their services.
<input type="radio"/> L2TP	Some ISPs require the use of L2TP to connect to their services.

[Save](#) [Cancel](#)

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:** the local IP address of this device. The computers on your network must use the LAN IP address of your product as their Default Gateway. 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. Dynamic IP Address with Road Runner Session Management.(e.g. Telstra BigPond)
 - D. PPP over Ethernet: Some ISPs require the use of PPPoE to connect to their services.
 - E. PPTP: Some ISPs require the use of PPTP to connect to their services.
 - F. L2TP: Some ISPs require the use of L2TP to connect to their services

4.3.1.1 Static IP Address

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

4.3.1.2 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 your IP address automatically when the lease time is expiring-- even when the system is idle.

4.3.1.3 Dynamic IP Address with Road Runner Session Management.(e.g. Telstra BigPond)

1. LAN IP Address is the IP address of this product. It must be the default gateway of your computers.
2. WAN Type is Dynamic IP Address. If the WAN type is not correct, change it!
3. Host Name: optional. Required by some ISPs, e.g. @Home.
4. 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.

4.3.1.4 PPP over Ethernet

1. PPPoE Account and Password: the account and password your ISP assigned to you. For security, this field appears blank. If you don't want to change the password, leave it empty.
2. PPPoE Service Name: optional. Input the service name if your ISP requires it. Otherwise, leave it blank.
3. Maximum Idle Time: the amount of time of inactivity before disconnecting your PPPoE session.

Set it to zero or enable Auto-reconnect to disable this feature.

4. **Maximum Transmission Unit (MTU):** Most ISP offers MTU value to users. The most common MTU value is 1492.
5. **Connection Control:** There are 3 modes to select:

Connect-on-demand: The device will link up with ISP when the clients send outgoing packets.

Auto-Reconnect(Always-on): The device will link upw with ISP until the connection is established.

Manually: The device will not make the link until someone clicks the connect-button in the Staus-page.

4.3.1.5 PPTP

1. **My IP Address and My Subnet Mask:** the private IP address and subnet mask your ISP assigned to you.
2. **Server IP Address:** the IP address of the PPTP server.
3. **PPTP Account and Password:** the account and password your ISP assigned to you. If you don't want to change the password, keep it empty.
3. **Connection ID:** optional. Input the connection ID if your ISP requires it.
4. **Maximum Idle Time:** the time of no activity to disconnect your PPTP session. Set it to zero or enable Auto-reconnect to disable this feature. If Auto-reconnect is enabled, this product will connect to ISP automatically, after system is restarted or connection is dropped.
5. **Connection Control:** There are 3 modes to select:

Connect-on-demand: The device will link up with ISP when the clients send outgoing packets.

Auto-Reconnect(Always-on): The device will link upw with ISP until the connection is established.

Manually: The device will not make the link until someone clicks the connect-button in the Staus-page.

Item	Setting
▶ LAN IP Address	192.168.1.254
▶ WAN Type	PPTP Change...
▶ IP Mode	Static IP Address
▶ My IP Address	0.0.0.0
▶ My Subnet Mask	255.255.255.0
▶ WAN Gateway IP	0.0.0.0
▶ Server IP Address	
▶ User Name	
▶ Password	
▶ Connection ID	(optional)
▶ Maximum Idle Time	600 seconds
▶ Connection Control	Auto reconnect(Always-on)

Save Undo Help

4.3.1.6 L2TP

First, Please check your ISP assigned and Select Static IP Address or Dynamic IP Address.

For example: Use Static

1. My IP Address and My Subnet Mask: the private IP address and subnet mask your ISP assigned to you.
2. Server IP Address: the IP address of the PPTP server.
3. PPTP Account and Password: the account and password your ISP assigned to you. If you don't want to change the password, keep it empty.
3. Connection ID: optional. Input the connection ID if your ISP requires it.
4. Maximum Idle Time: the time of no activity to disconnect your PPTP session. Set it to zero or enable Auto-reconnect to disable this feature. If Auto-reconnect is enabled, this product will connect to ISP automatically, after system is restarted or connection is dropped.

6. Connection Control: There are 3 modes to select:

Connect-on-demand: The device will link up with ISP when the clients send outgoing packets.

Auto-Reconnect(Always-on): The device will link up with ISP until the connection is established.

Manually: The device will not make the link until someone clicks the connect-button in the Status-page.

The screenshot shows the MSI RG54GS2 web interface. The top navigation bar includes 'Setup', 'Advanced', 'Administration', and 'Status'. The left sidebar contains links for 'IP Setting', 'Wireless', 'WDS', 'Dynamic DNS', 'DHCP Server', 'Print Server', and 'Logout'. The main content area is titled 'IP Setting' and contains a table with the following items and settings:

Item	Setting
LAN IP Address	192.168.1.254
WAN Type	L2TP Change...
IP Mode	Static IP Address
Internet IP Address	0.0.0.0
Subnet Mask	255.255.255.0
ISP Gateway Address	0.0.0.0
Server IP Address/Name	
User Name	
Password	
Maximum Idle Time	600 seconds
Connection Control	Auto reconnect(Always-on)

At the bottom of the table are buttons for 'Save', 'Undo', and 'Help'.

4.3.2 Wireless Setting, and 802.1X setting

The screenshot shows the MSI RG54GS2 web interface with the 'Wireless' tab selected in the sidebar. The main content area is titled 'Wireless Setting' and contains a table with the following items and settings:

Item	Setting
Network ID(SSID)	default
Channel	0
Security	<input type="radio"/> Disable <input checked="" type="radio"/> WEP <input type="radio"/> 802.1x and RADIUS <input type="radio"/> WPA-PSK <input type="radio"/> WPA
WEP	<input checked="" type="radio"/> Enable IEEE 64 bit Shared Key security <input type="radio"/> Enable IEEE 128 bit Shared Key security
WEP Key 1	
WEP Key 2	
WEP Key 3	
WEP Key 4	

At the bottom of the table are buttons for 'Save', 'Undo', 'Associated Clients List...', 'MAC Address Control...', and 'Help'.

Wireless settings allow you to set the wireless configuration items.

1. **Network ID (SSID):** Network ID is used for identifying the Wireless LAN (WLAN). Client stations can roam freely over 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 channels depend 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 or 10 hexadecimal (0, 1, 2...8, 9, A, B...F) digits.
5. **Pass-phrase Generator:** Since hexadecimal characters are not easily remembered, this device offers a conversion utility to convert a simple word or phrase into hex.
6. **802.1X Setting**

802.1X

Check Box was used to switch the function of the 802.1X. When the 802.1X function is enabled, the Wireless user must **authenticate** to this router first to use the Network service.

RADIUS Server

IP address or the 802.1X server’s domain-name.

RADIUS Shared Key

Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.

The screenshot displays the MSI RG54GS2 Wireless Setting interface. The top navigation bar includes Setup, Advanced, Administration, and Status. The left sidebar shows a tree view with IP Setting, Wireless (selected), WDS, Dynamic DNS, DHCP Server, Print Server, and Logout. The main content area is titled 'Wireless Setting' and contains a table with the following items and settings:

Item	Setting
Network ID(SSID)	default
Channel	0
Security	<input type="radio"/> Disable <input type="radio"/> WEP <input checked="" type="radio"/> 802.1x and RADIUS <input type="radio"/> WPA-PSK <input type="radio"/> WPA
Encryption Key Length	<input checked="" type="radio"/> 64 bits <input type="radio"/> 128 bits
RADIUS Server IP	0.0.0.0
RADIUS port	1812
RADIUS Shared Key	

At the bottom of the form, there are buttons for Save, Undo, Associated Clients List..., MAC Address Control..., and Help.

WPA-PSK

1. Select Preshare Key Mode

If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits

If ASCII, the length of preshare key is from 8 to 63.

2. Fill in the key, Ex 145678

The screenshot shows the MSI RG54GS2 Wireless Setting page. The left sidebar contains links for IP Setting, Wireless (selected), WDS, Dynamic DNS, DHCP Server, Print Server, and Logout. The main content area is titled 'Wireless Setting' and contains a table with the following items and settings:

Item	Setting
Network ID(SSID)	default
Channel	0
Security	<input type="radio"/> Disable <input type="radio"/> WEP <input type="radio"/> 802.1x and RADIUS <input checked="" type="radio"/> WPA-PSK <input type="radio"/> WPA
Encryption	<input checked="" type="radio"/> TKIP <input type="radio"/> AES
Preshare Key Mode	ASCII
Preshare Key	

At the bottom of the table, there are buttons for Save, Undo, Associated Clients List..., MAC Address Control..., and Help.

WPA

Check Box was used to switch the function of the WPA. When the WPA function is enabled, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server

IP address or the 802.1X server's domain-name.

RADIUS Shared Key

Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.

The screenshot shows the MSI RG54GS2 Wireless Setting page with WPA configuration. The left sidebar is the same as the previous screenshot. The main content area is titled 'Wireless Setting' and contains a table with the following items and settings:

Item	Setting
Network ID(SSID)	default
Channel	0
Security	<input type="radio"/> Disable <input type="radio"/> WEP <input type="radio"/> 802.1x and RADIUS <input checked="" type="radio"/> WPA-PSK <input checked="" type="radio"/> WPA
Encryption	<input checked="" type="radio"/> TKIP <input type="radio"/> AES
RADIUS Server IP	0.0.0.0
RADIUS port	1812
RADIUS Shared Key	

At the bottom of the table, there are buttons for Save, Undo, Associated Clients List..., MAC Address Control..., and Help.

4.3.3 WDS

The Wireless Distribution System (WDS) supports peer-to-peer AP communication. Select **Enable** to allow Bridge (WDS) mode between routers or **Disable** to block communication between routers.

To enable **WDS**, set the **Wireless Bridging (WDS)** function to **Enable**. Enter the Wireless MAC address of the router to communicate with in the form of two characters separated by a colon and click **Save**.

Item	Setting
Wireless Bridging	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Remote AP MAC	<input type="text"/>
	<input type="text"/>
	<input type="text"/>

4.3.4 Dynamic DNS

To host your server on a changing IP address, you have to use dynamic domain name service (DDNS).

So that anyone wishing to reach your host only needs to know the name of it. Dynamic DNS will map the name of your host to your current IP address, which changes each time you connect your Internet service provider.

Before you enable **Dynamic DNS**, you need to register an account on one of these Dynamic DNS servers that we list in **provider** field.

To enable **Dynamic DNS** click the check box next to **Enable** in the **DDNS** field.

Next you can enter the appropriate information about your Dynamic DNS Server.

You have to define:

Provider

Host Name

Username/E-mail

Password/Key

You will get this information when you register an account on a Dynamic DNS server.

The screenshot shows the web interface of the MSI RG54GS2 router. The top navigation bar includes the MSI logo, the model name 'RG54GS2', and tabs for 'Setup', 'Advanced', 'Administration', and 'Status'. The 'Dynamic DNS' tab is selected. On the left sidebar, there is a list of configuration options: IP Setting, Wireless, WDS, Dynamic DNS (highlighted), DHCP Server, Print Server, and Logout. The main content area is titled 'Dynamic DNS' and contains a table with two columns: 'Item' and 'Setting'. The table lists the following items and their settings:

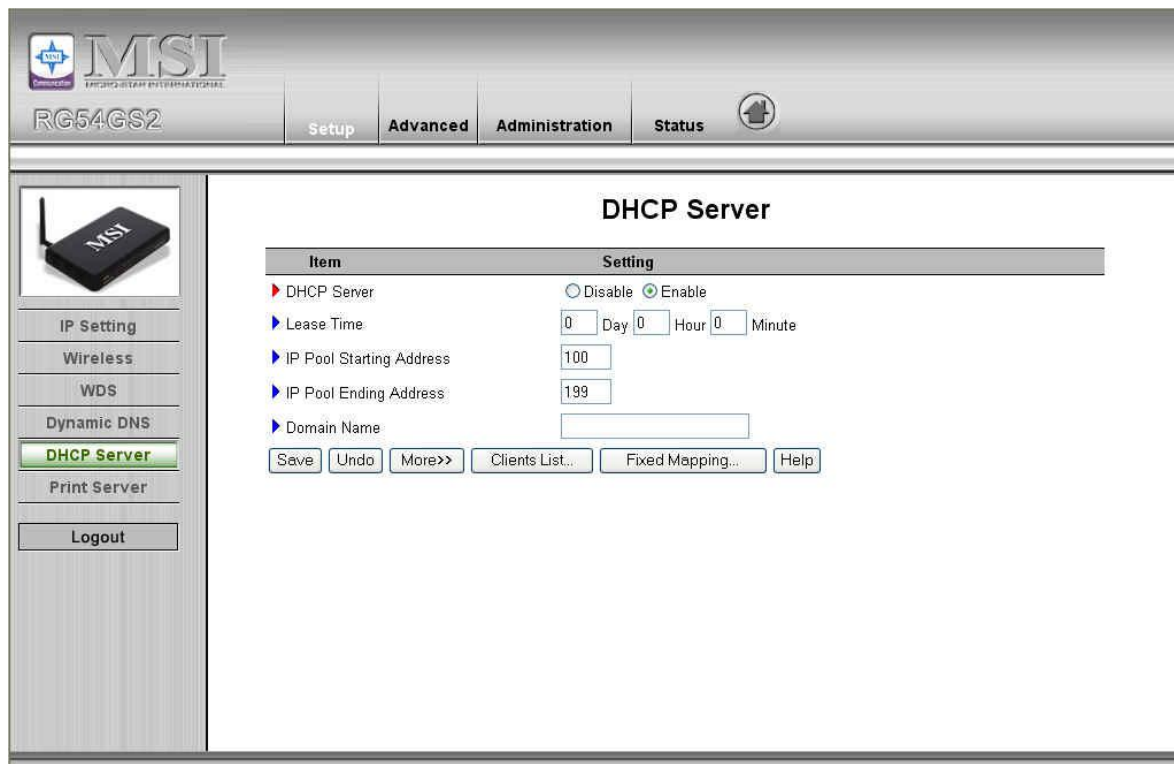
Item	Setting
▶ DDNS	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
▶ Provider	DynDNS.org(Dynamic) ▼
▶ Host Name	<input type="text"/>
▶ Username / E-mail	<input type="text"/>
▶ Password / Key	<input type="text"/>

Below the table are three buttons: 'Save', 'Undo', and 'Help'.

4.3.5 DHCP Server

Press “More>>”

The settings of a TCP/IP environment include host IP, Subnet Mask, Gateway, and DNS configurations. It is not easy to manually configure all the computers and devices in your network. Fortunately, DHCP Server 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. **Lease Time:** Define the period of time for the IP address leased.
3. **IP pool starting Address/ IP pool starting Address:** 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.
4. **Domain Name:** Optional, this information will be passed to the client.
5. **Primary DNS/Secondary DNS:** This feature allows you to assign DNS Servers
6. **Primary WINS/Secondary WINS:** This feature allows you to assign WINS Servers
7. **Gateway:** The Gateway Address would be the IP address of an alternate Gateway. This function enables you to assign another gateway to your PC, when DHCP server offers an IP to your PC.

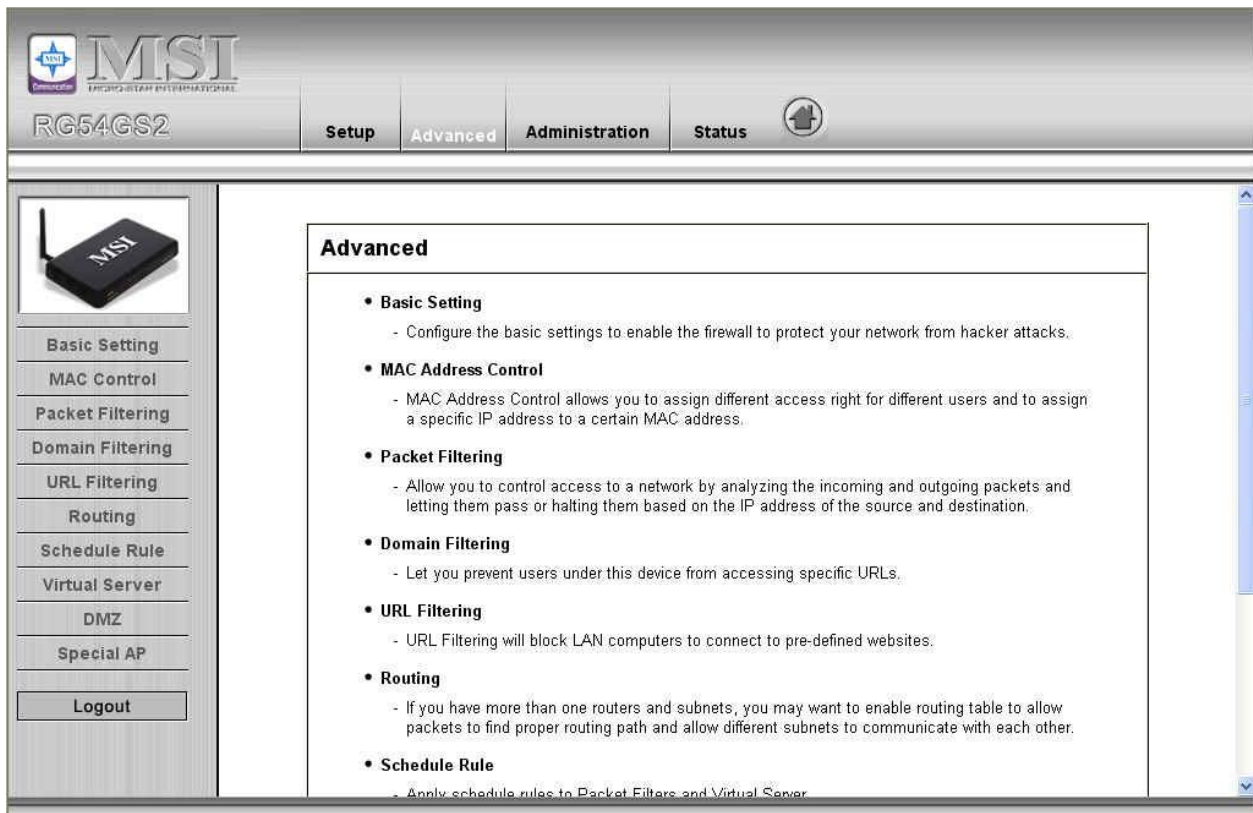
4.3.6 Print Server

This item shows the print is ready or not.

Print Server

Item	Peripheral Status	Sidenote
Printer(USB0)	Ready	
Refresh		

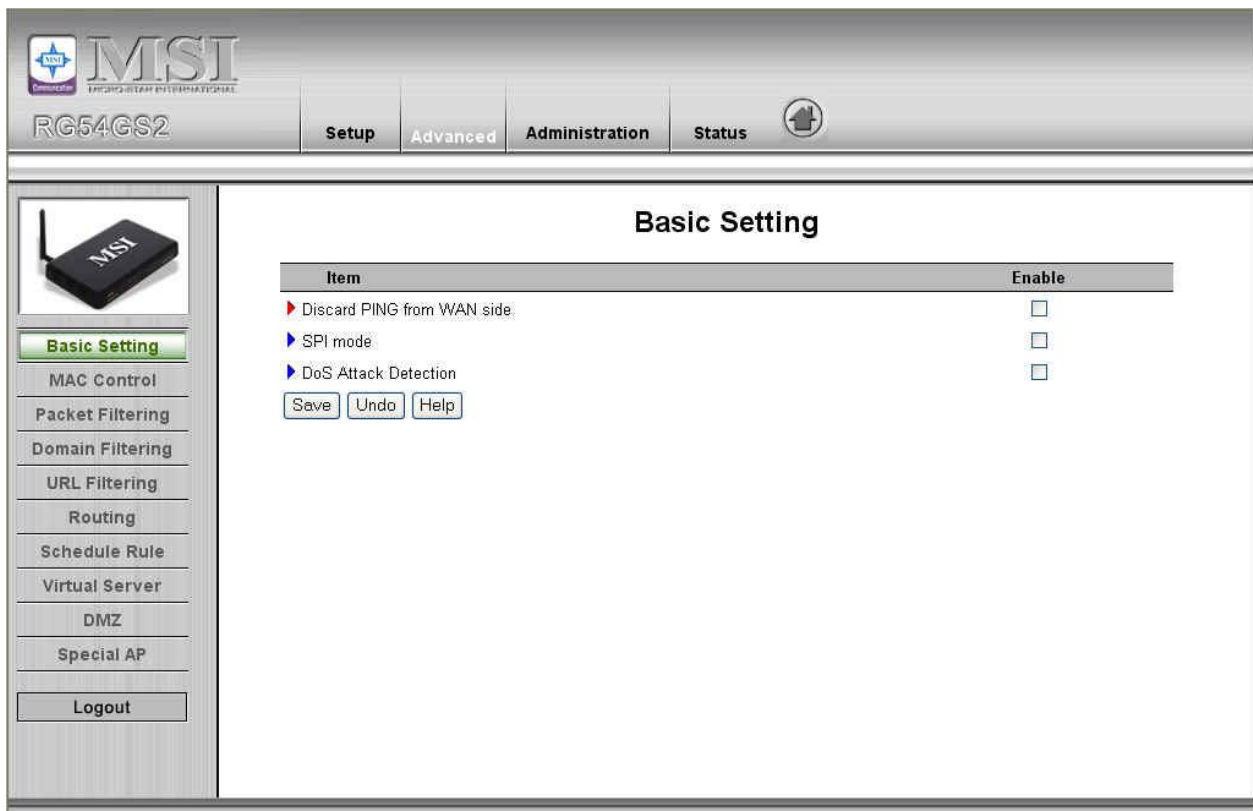
4.4 Advanced



The screenshot shows the MSI RG54GS2 web interface. The top navigation bar includes 'Setup', 'Advanced' (selected), 'Administration', and 'Status'. A left sidebar contains a list of settings: Basic Setting, MAC Control, Packet Filtering, Domain Filtering, URL Filtering, Routing, Schedule Rule, Virtual Server, DMZ, Special AP, and a Logout button. The main content area is titled 'Advanced' and lists several configuration categories with their descriptions:

- Basic Setting**
 - Configure the basic settings to enable the firewall to protect your network from hacker attacks.
- 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.
- Packet Filtering**
 - Allow you to control access to a network by analyzing the incoming and outgoing packets and letting them pass or halting them based on the IP address of the source and destination.
- Domain Filtering**
 - Let you prevent users under this device from accessing specific URLs.
- URL Filtering**
 - URL Filtering will block LAN computers to connect to pre-defined websites.
- Routing**
 - If you have more than one routers and subnets, you may want to enable routing table to allow packets to find proper routing path and allow different subnets to communicate with each other.
- Schedule Rule**
 - Apply schedule rules to Packet Filters and Virtual Server.

4.4.1 Basic Setting



The screenshot shows the MSI RG54GS2 web interface with the 'Basic Setting' tab selected. The left sidebar is identical to the previous page, but 'Basic Setting' is highlighted. The main content area is titled 'Basic Setting' and contains a table with two columns: 'Item' and 'Enable'.

Item	Enable
▶ Discard PING from WAN side	<input type="checkbox"/>
▶ SPI mode	<input type="checkbox"/>
▶ DoS Attack Detection	<input type="checkbox"/>

Below the table are three buttons: 'Save', 'Undo', and 'Help'.

Discard PING from WAN side

When this feature is enabled, any host on the WAN cannot ping this product.

SPI Mode

When this feature is enabled, the router will record the packet information pass through the router like IP address, port address, ACK, SEQ number and so on. And the router will check every incoming packet to detect if this packet is valid.

DoS Attack Detection

When this feature is enabled, the router will detect and log the DoS attack comes from the Internet. Currently, the router can detect the following DoS attack: SYN Attack, WinNuke, Port Scan, Ping of Death, Land Attack etc.

4.4.2 MAC Address Control

The screenshot shows the MSI RG54GS2 router's web interface. The top navigation bar includes 'Setup', 'Advanced', 'Administration', and 'Status'. The left sidebar lists various settings: Basic Setting, MAC Control (highlighted), Packet Filtering, Domain Filtering, URL Filtering, Routing, Schedule Rule, Virtual Server, DMZ, Special AP, and Logout. The main content area is titled 'MAC Address Control' and contains the following elements:

- Item Setting:** A section with 'MAC Address Control' and an 'Enable' checkbox.
- Connection control:** A checkbox with a description: 'Clients with C checked can connect to this device; and allow unspecified MAC addresses to connect.' The 'allow' option is selected from a dropdown.
- Control Table:** A table with columns 'ID', 'MAC Address', 'IP Address', and 'C'. It contains four rows for ID 1 through 4, each with input fields for MAC and IP addresses and a checkbox in the 'C' column.
- DHCP clients:** A dropdown menu labeled 'DHCP clients' with the option 'select one' and a 'Copy to' button.
- Navigation:** Buttons for '<< Previous', 'Next >>', 'Save', 'Undo', and 'Help'.

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.

Association control Check "Association control" to enable the

controlling of which wireless client can associate to the wireless LAN. If a client is denied to associate to the wireless LAN, it means the client can't send or receive any data via this device. Choose "allow" or "deny" to allow or deny the clients, whose MAC addresses are not in the "Control table", to associate to the wireless LAN.

Control table

ID	MAC Address	IP Address	C
1	<input type="text"/>	192.168.1. <input type="text"/>	<input type="checkbox"/>
2	<input type="text"/>	192.168.1. <input type="text"/>	<input type="checkbox"/>
3	<input type="text"/>	192.168.1. <input type="text"/>	<input type="checkbox"/>
4	<input type="text"/>	192.168.1. <input type="text"/>	<input type="checkbox"/>

DHCP clients: ID:

"Control table" is the table at the bottom of the "MAC Address Control" page. Each row of this table indicates the MAC address and the expected IP address mapping of a client. There are four columns in this table:

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.
A	When " Association control " is checked, check " A " will allow the corresponding client to associate to the wireless LAN.

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

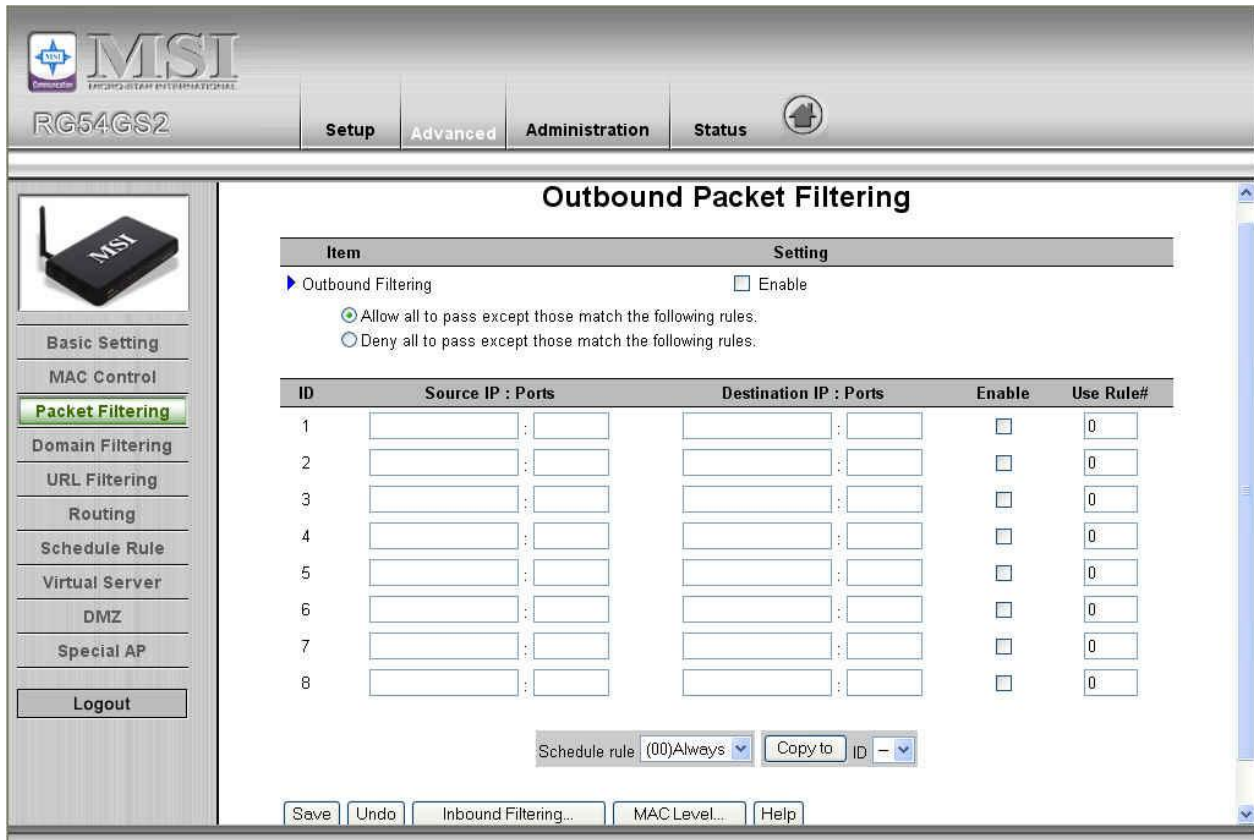
DHCP clients: ID:

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.

4.4.3 Packet Filtering



Outbound Packet Filtering

Item	Setting
Outbound Filtering	<input type="checkbox"/> Enable
<input checked="" type="radio"/> Allow all to pass except those match the following rules.	
<input type="radio"/> Deny all to pass except those match the following rules.	

ID	Source IP : Ports	Destination IP : Ports	Enable	Use Rule#
1	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/>	<input type="text"/> 0
2	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/>	<input type="text"/> 0
3	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/>	<input type="text"/> 0
4	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/>	<input type="text"/> 0
5	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/>	<input type="text"/> 0
6	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/>	<input type="text"/> 0
7	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/>	<input type="text"/> 0
8	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/>	<input type="text"/> 0

Schedule rule: (00)Always ID

Packet Filter enables you to control what packets are allowed to pass the router. Outbound filter applies on all outbound packets. However, Inbound filter applies on packets that destined to Virtual Servers or DMZ host only. You can select one of the two filtering policies:

1. Allow all to pass except those match the specified rules
2. Deny all to pass except those match the specified rules

You can specify 8 rules for each direction: inbound or outbound. For each rule, you can define the following:

- Source IP address
- Source port address
- Destination IP address
- Destination port address
- Protocol: TCP or UDP or both.
- Use Rule#

For source or destination IP address, you can define a single IP address (4.3.2.1) or a range of IP addresses (4.3.2.1-4.3.2.254). An empty implies all IP addresses.

For source or destination port, you can define a single port (80) or a range of ports (1000-1999). Add prefix "T" or "U" to specify TCP or UDP protocol. For example, T80, U53, U2000-2999. No prefix indicates both TCP and UDP are defined. An empty implies all port addresses. **Packet Filter** can work with **Scheduling Rules**, and give user more flexibility on Access control. For Detail, please refer to **Scheduling Rule**.

Each rule can be enabled or disabled individually.

Inbound Filter:

To enable **Inbound Packet Filter** click the check box next to **Enable** in the **Inbound Packet Filter** field.

Suppose you have SMTP Server (25), POP Server (110), Web Server (80), FTP Server (21), and News Server (119) defined in Virtual Server or DMZ Host.

Example 1:

MSI RG54GS2

Setup Advanced Administration Status

Outbound Packet Filtering

Item Setting

Outbound Filtering ☒ Enable

☐ Allow all to pass except those match the following rules.

☒ Deny all to pass except those match the following rules.

ID	Source IP : Ports	Destination IP : Ports	Enable	Use Rule#
1	1.2.3.100-1.2.3.149 :	: 25-100	<input checked="" type="checkbox"/>	0
2	1.2.3.10-1.2.3.20 :	:	<input checked="" type="checkbox"/>	0
3	:	:	<input type="checkbox"/>	0
4	:	:	<input type="checkbox"/>	0
5	:	:	<input type="checkbox"/>	0
6	:	:	<input type="checkbox"/>	0
7	:	:	<input type="checkbox"/>	0
8	:	:	<input type="checkbox"/>	0

Schedule rule (00)Always Copy to ID -

Save Undo Inbound Filtering... MAC Level... Help

(1.2.3.100-1.2.3.149) They are allow to send mail (port 25), receive mail (port 110), and browse the Internet (port 80)

(1.2.3.10-1.2.3.20) They can do everything (block nothing)

Others are all blocked.

Example 2:

The screenshot shows the MSI RG54GS2 web interface. The top navigation bar includes 'Setup', 'Advanced', 'Administration', and 'Status'. The left sidebar contains a menu with 'Basic Setting', 'MAC Control', 'Packet Filtering' (highlighted), 'Domain Filtering', 'URL Filtering', 'Routing', 'Schedule Rule', 'Virtual Server', 'DMZ', 'Special AP', and 'Logout'. The main content area is titled 'Outbound Packet Filtering'. It features a table with columns: 'Item', 'Setting', 'ID', 'Source IP : Ports', 'Destination IP : Ports', 'Enable', and 'Use Rule#'. The 'Outbound Filtering' setting is checked and 'Enable'. Below this, there are two radio buttons: 'Allow all to pass except those match the following rules.' and 'Deny all to pass except those match the following rules.' The table lists 8 rules. Rule 1 has source IP 1.2.3.100-1.2.3.119 and destination port 21, with 'Enable' checked. Rule 2 has the same source IP and destination port 119, with 'Enable' checked. Rules 3 through 8 have empty fields and 'Enable' unchecked. At the bottom, there is a 'Schedule rule' dropdown set to '(00)Always', a 'Copy to' button, and a 'Save' button.

Item	Setting
Outbound Filtering	<input checked="" type="checkbox"/> Enable
<input type="radio"/> Allow all to pass except those match the following rules.	
<input checked="" type="radio"/> Deny all to pass except those match the following rules.	

ID	Source IP : Ports	Destination IP : Ports	Enable	Use Rule#
1	1.2.3.100-1.2.3.119 :	: 21	<input checked="" type="checkbox"/>	0
2	1.2.3.100-1.2.3.119 :	: 119	<input checked="" type="checkbox"/>	0
3	:	:	<input type="checkbox"/>	0
4	:	:	<input type="checkbox"/>	0
5	:	:	<input type="checkbox"/>	0
6	:	:	<input type="checkbox"/>	0
7	:	:	<input type="checkbox"/>	0
8	:	:	<input type="checkbox"/>	0

Schedule rule: (00)Always Copy to ID -

Save Undo Inbound Filtering... MAC Level... Help

(1.2.3.100-1.2.3.119) They can do everything except read net news (port 119) and transfer files via FTP (port 21)

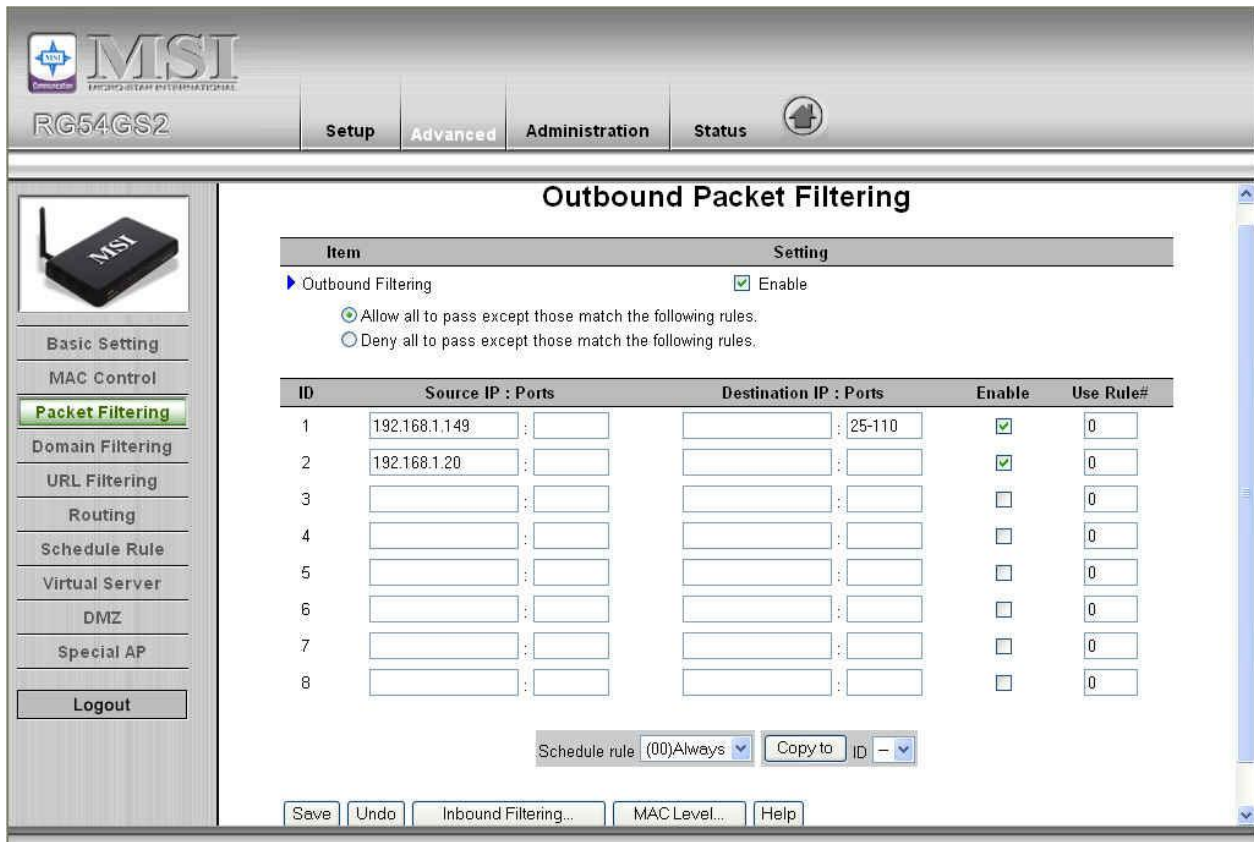
Others are all allowed.

After **Inbound Packet Filter** setting is configured, click the **save** button.

Outbound Filter:

To enable **Outbound Packet Filter** click the check box next to **Enable** in the **Outbound Packet Filter** field.

Example 1:



MSI
RG54GS2

Setup Advanced Administration Status

Outbound Packet Filtering

Item Setting

▶ Outbound Filtering ☒ Enable

☒ Allow all to pass except those match the following rules.
☐ Deny all to pass except those match the following rules.

ID	Source IP : Ports	Destination IP : Ports	Enable	Use Rule#
1	192.168.1.149 : []	[] : 25-110	<input checked="" type="checkbox"/>	0
2	192.168.1.20 : []	[] : []	<input checked="" type="checkbox"/>	0
3	[] : []	[] : []	<input type="checkbox"/>	0
4	[] : []	[] : []	<input type="checkbox"/>	0
5	[] : []	[] : []	<input type="checkbox"/>	0
6	[] : []	[] : []	<input type="checkbox"/>	0
7	[] : []	[] : []	<input type="checkbox"/>	0
8	[] : []	[] : []	<input type="checkbox"/>	0

Schedule rule (00)Always ID -

(192.168.1.100-192.168.1.149) They are allowed to send mail (port 25), receive mail (port 110), and browse Internet (port 80); port 53 (DNS) is necessary to resolve the domain name.

(192.168.1.10-192.168.1.20) They can do everything (block nothing)

Others are all blocked.

Example 2:

The screenshot shows the MSI RG54GS2 web interface. The top navigation bar includes 'Setup', 'Advanced', 'Administration', and 'Status'. The left sidebar contains a menu with 'Basic Setting', 'MAC Control', 'Packet Filtering' (highlighted), 'Domain Filtering', 'URL Filtering', 'Routing', 'Schedule Rule', 'Virtual Server', 'DMZ', 'Special AP', and 'Logout'. The main content area is titled 'Outbound Packet Filtering'. It features a 'Setting' section with 'Outbound Filtering' enabled and two radio buttons: 'Allow all to pass except those match the following rules.' (selected) and 'Deny all to pass except those match the following rules.'. Below this is a table with 8 rows for rule configuration. The table has columns for ID, Source IP : Ports, Destination IP : Ports, Enable, and Use Rule#. Rules 1 and 2 are configured with source IP ranges 192.168.1.100-192.168.1.119 and destination ports 25 and 119 respectively, both enabled. Rules 3 through 8 are empty and disabled. At the bottom, there is a 'Schedule rule' dropdown set to '(00)Always', a 'Copy to' button, and an 'ID' dropdown. A row of buttons at the very bottom includes 'Save', 'Undo', 'Inbound Filtering...', 'MAC Level...', and 'Help'.

ID	Source IP : Ports	Destination IP : Ports	Enable	Use Rule#
1	192.168.1.100 :	: 25	<input checked="" type="checkbox"/>	0
2	192.168.1.119 :	: 119	<input checked="" type="checkbox"/>	0
3	:	:	<input type="checkbox"/>	0
4	:	:	<input type="checkbox"/>	0
5	:	:	<input type="checkbox"/>	0
6	:	:	<input type="checkbox"/>	0
7	:	:	<input type="checkbox"/>	0
8	:	:	<input type="checkbox"/>	0

(192.168.1.100-192.168.1.119) They can do everything except read net news (port 119) and transfer files via FTP (port 21)

Others are allowed

After **Outbound Packet Filter** setting is configured, click the **save** button.

4.4.4 Domain Filtering

Domain Filtering

Item	Setting
Domain Filtering	<input type="checkbox"/> Enable
Log DNS Query	<input type="checkbox"/> Enable
Privilege IP Addresses Range	From <input type="text" value="0"/> To <input type="text" value="0"/>

ID	Domain Suffix	Action	Enable
1	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
2	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
3	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
4	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
5	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
6	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
7	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
8	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
9	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
10	* (all others)	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>

Domain Filter

Let you prevent users under this device from accessing specific URLs.

Domain Filter Enable

Check if you want to enable Domain Filter.

Log DNS Query

Check if you want to log the action when someone accesses the specific URLs.

Privilege IP Addresses Range

Setting a group of hosts and privilege these hosts to access network without restriction.

Domain Suffix

A suffix of URL to be restricted. For example, ".com", "xxx.com".

Action

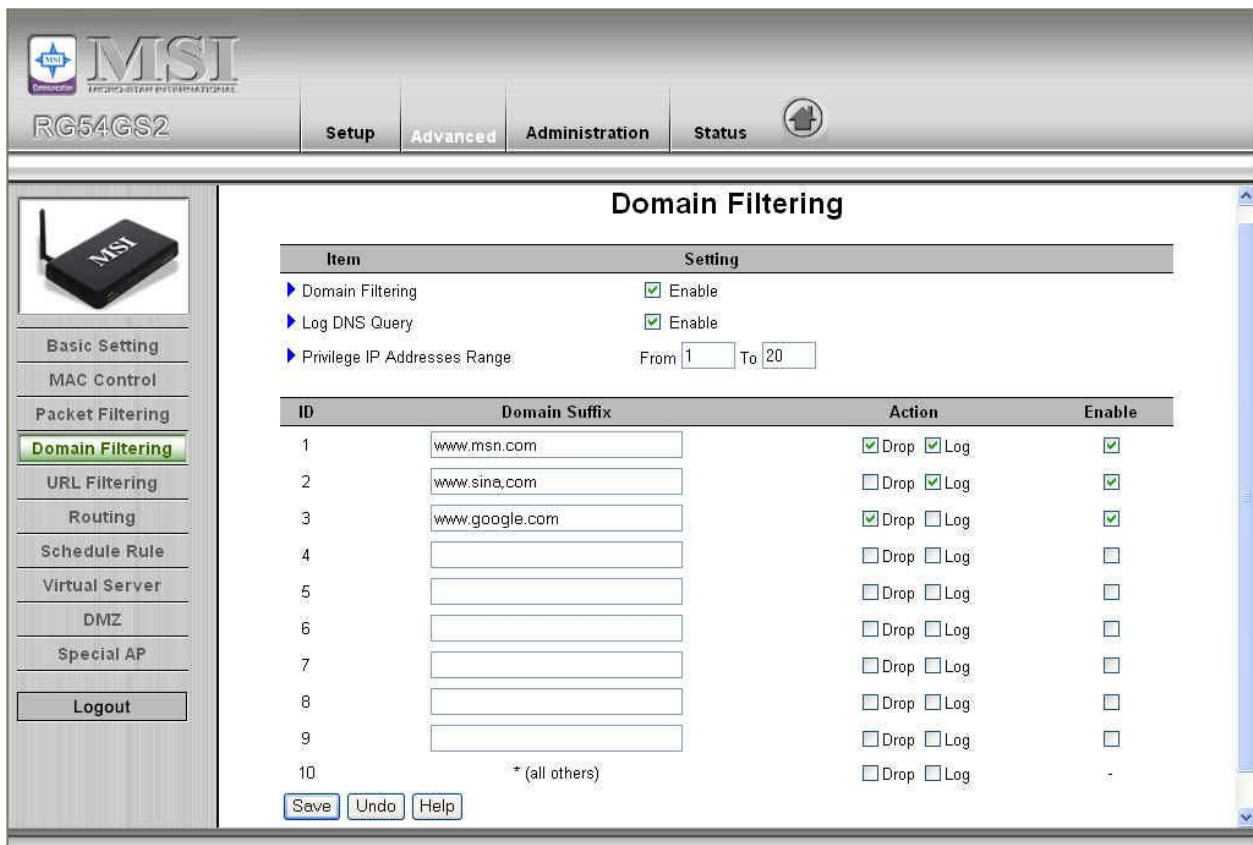
When someone is accessing the URL met the domain-suffix, what kind of action you want.

Check drop to block the access. Check log to log these access.

Enable

Check to enable each rule.

Example:



MSI
RG54GS2

Setup Advanced Administration Status

Domain Filtering

Item Setting

- Domain Filtering ☒ Enable
- Log DNS Query ☒ Enable
- Privilege IP Addresses Range From 1 To 20

ID	Domain Suffix	Action	Enable
1	www.msn.com	<input checked="" type="checkbox"/> Drop <input checked="" type="checkbox"/> Log	<input checked="" type="checkbox"/>
2	www.sina.com	<input type="checkbox"/> Drop <input checked="" type="checkbox"/> Log	<input checked="" type="checkbox"/>
3	www.google.com	<input checked="" type="checkbox"/> Drop <input type="checkbox"/> Log	<input checked="" type="checkbox"/>
4		<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
5		<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
6		<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
7		<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
8		<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
9		<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>
10	*(all others)	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>

Save Undo Help

In this example:

1. URL include "www.msn.com" will be blocked, and the action will be record in log-file.
2. URL include "www.sina.com" will not be blocked, but the action will be record in log-file.
3. URL include "www.google.com" will be blocked, but the action will not be record in log-file.
4. IP address X.X.X.1~ X.X.X.20 can access network without restriction.

4.4.5 URL Filtering

The screenshot shows the MSI RG54GS2 web interface. The top navigation bar includes the MSI logo, the model name 'RG54GS2', and tabs for 'Setup', 'Advanced', 'Administration', and 'Status'. The left sidebar contains a list of configuration options: Basic Setting, MAC Control, Packet Filtering, Domain Filtering, URL Filtering (highlighted), Routing, Schedule Rule, Virtual Server, DMZ, Special AP, and Logout. The main content area is titled 'URL Filtering' and contains a table with two columns: 'Item' and 'Setting'. The 'Item' column lists 'URL Filtering' and a table of 10 rules. The 'Setting' column shows an 'Enable' checkbox for the main feature and 'Enable' checkboxes for each rule. Below the table are 'Save', 'Undo', and 'Help' buttons.

Item	Setting
URL Filtering	<input type="checkbox"/> Enable

ID	URL	Enable
1	<input type="text"/>	<input type="checkbox"/>
2	<input type="text"/>	<input type="checkbox"/>
3	<input type="text"/>	<input type="checkbox"/>
4	<input type="text"/>	<input type="checkbox"/>
5	<input type="text"/>	<input type="checkbox"/>
6	<input type="text"/>	<input type="checkbox"/>
7	<input type="text"/>	<input type="checkbox"/>
8	<input type="text"/>	<input type="checkbox"/>
9	<input type="text"/>	<input type="checkbox"/>
10	<input type="text"/>	<input type="checkbox"/>

URL Blocking will block LAN computers to connect to pre-defined Websites.

The major difference between “Domain filter” and “URL Blocking” is Domain filter require user to input suffix (like .com or .org, etc), while URL Blocking require user to input a keyword only. In other words, Domain filter can block specific website, while URL Blocking can block hundreds of websites by simply a **keyword**.

URL Blocking Enable

Checked if you want to enable URL Blocking.


URL

If any part of the Website's URL matches the pre-defined word, the connection will be blocked.


For example, you can use pre-defined word "sex" to block all websites if their URLs contain pre-defined word "sex".


Enable

Checked to enable each rule.


MSI
MEMOEXCELLENT SYSTEM INTERNATIONAL

RG54GS2

Setup
Advanced
Administration
Status




Basic Setting
 MAC Control
 Packet Filtering
 Domain Filtering
URL Filtering
 Routing
 Schedule Rule
 Virtual Server
 DMZ
 Special AP
 Logout

URL Filtering

Item	Setting
▶ URL Filtering	<input checked="" type="checkbox"/> Enable

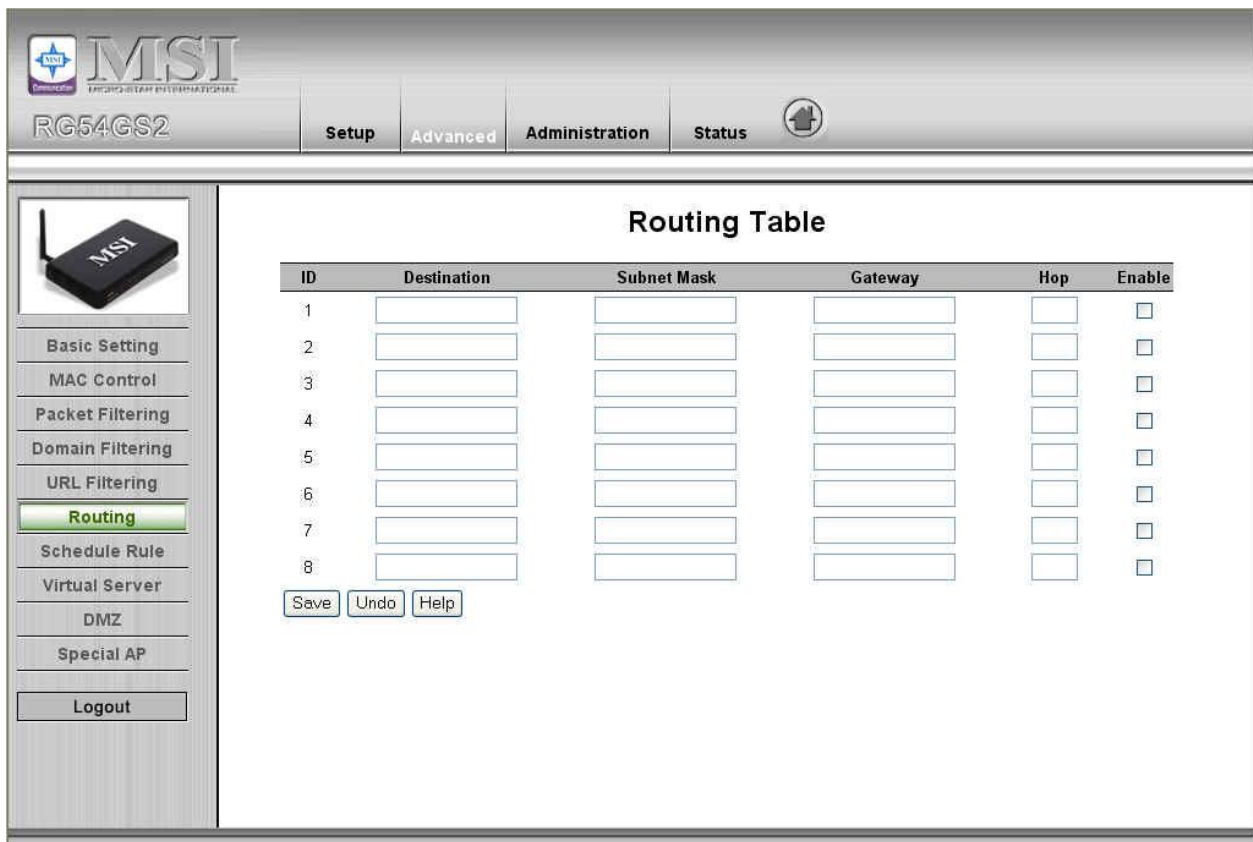
ID	URL	Enable
1	msn	<input checked="" type="checkbox"/>
2	sina	<input checked="" type="checkbox"/>
3	cnnsi	<input checked="" type="checkbox"/>
4	espn	<input checked="" type="checkbox"/>
5		<input type="checkbox"/>
6		<input type="checkbox"/>
7		<input type="checkbox"/>
8		<input type="checkbox"/>
9		<input type="checkbox"/>
10		<input type="checkbox"/>

Save
 Undo
 Help

In this example:

1. URL include “msn” will be blocked, and the action will be record in log-file.
2. URL include “sina” will be blocked, but the action will be record in log-file
3. URL include “cnnsi” will not be blocked, but the action will be record in log-file.
4. URL include “espn” will be blocked, but the action will be record in log-file

4.4.6 Routing Table



The screenshot shows the MSI RG54GS2 web interface. The top navigation bar includes the MSI logo, the model number 'RG54GS2', and tabs for 'Setup', 'Advanced', 'Administration', and 'Status'. A left sidebar contains a list of configuration options: Basic Setting, MAC Control, Packet Filtering, Domain Filtering, URL Filtering, Routing (highlighted), Schedule Rule, Virtual Server, DMZ, Special AP, and Logout. The main content area is titled 'Routing Table' and contains a table with 6 columns: ID, Destination, Subnet Mask, Gateway, Hop, and Enable. There are 8 rows for configuration. Below the table are 'Save', 'Undo', and 'Help' buttons.

ID	Destination	Subnet Mask	Gateway	Hop	Enable
1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
5	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
6	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
7	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
8	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

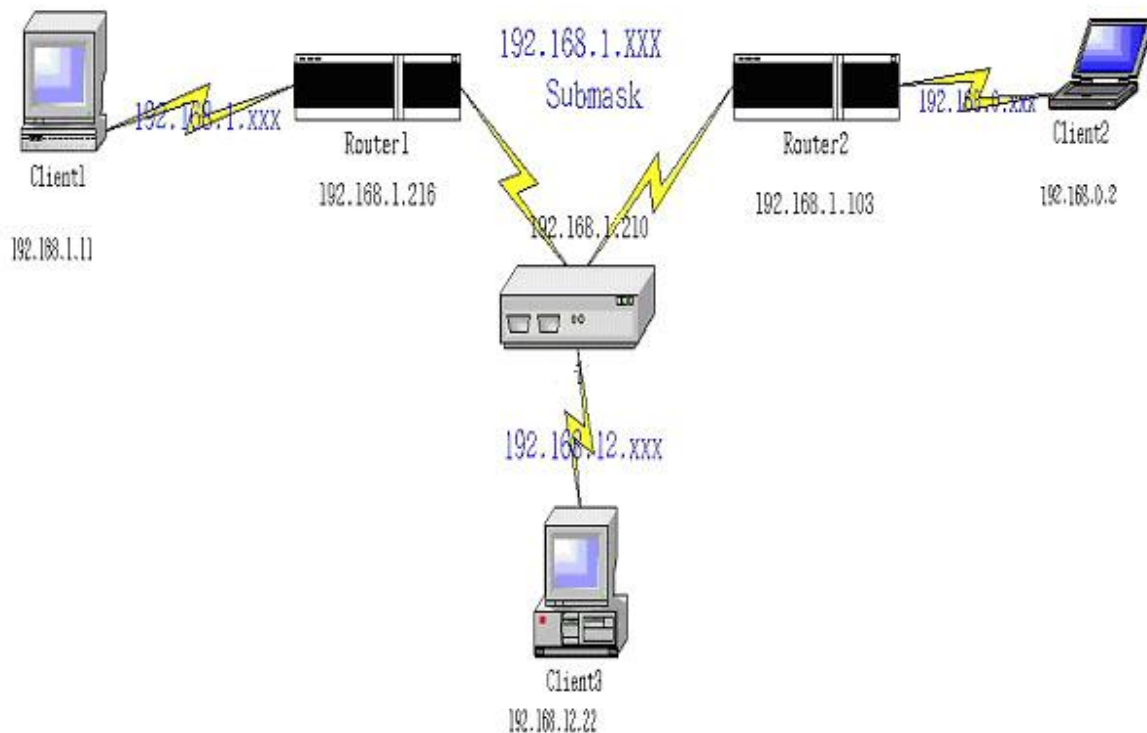
Save Undo Help

Routing Tables allow you to determine which physical interface address to use for outgoing IP data grams. If you have more than one routers and subnets, you will need to enable routing table to allow packets to find proper routing path and allow different subnets to communicate with each other.

Routing Table settings are settings used to setup the functions of static.

Static Routing: For static routing, you can specify up to 8 routing rules. You can enter the destination IP address, subnet mask, gateway, hop for each routing rule, and then enable or disable the rule by checking or unchecking the Enable checkbox.

Example:



Configuration on NAT Router

Destination	SubnetMask	Gateway	Hop	Enabled
192.168.1.0	255.255.255.0	192.168.1.216	1	✓
192.168.0.0	255.255.255.0	192.168.1.103	1	✓

So if, for example, the client3 wanted to send an IP data gram to 192.168.0.2, it would use the above table to determine that it had to go via 192.168.1.103 (a gateway),

And if it sends Packets to 192.168.1.11 will go via 192.168.1.216

Each rule can be enabled or disabled individually.

After **routing table** setting is configured, click the **save** button.

4.4.7 Schedule Rule

Item	Setting
Schedule	<input type="checkbox"/> Enable

You can set the schedule time to decide which service will be turned on or off. Select the “enable” item.

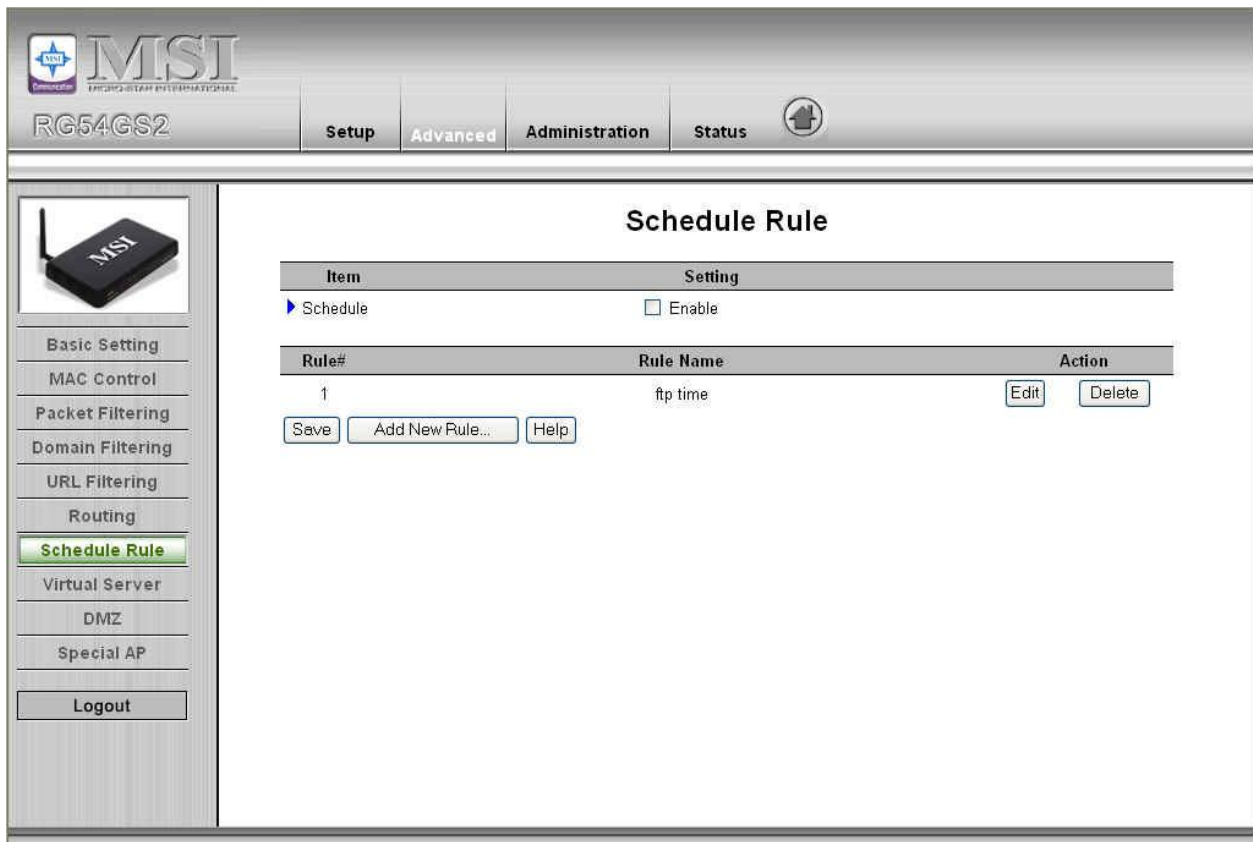
Press “Add New Rule”

You can write a rule name and set which day and what time to schedule from “Start Time” to “End Time”. The following example configure “ftp time” as everyday 14:10 to 16:20

Item	Setting
Name of Rule 1	<input type="text" value="ftp time"/>

Week Day	Start Time (hh:mm)	End Time (hh:mm)
Sunday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Monday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Tuesday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Wednesday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Thursday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Friday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Saturday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Every Day	14 : 10	16 : 20

After configure Rule 1à



Schedule Enable

Selected if you want to Enable the Scheduler.

Edit

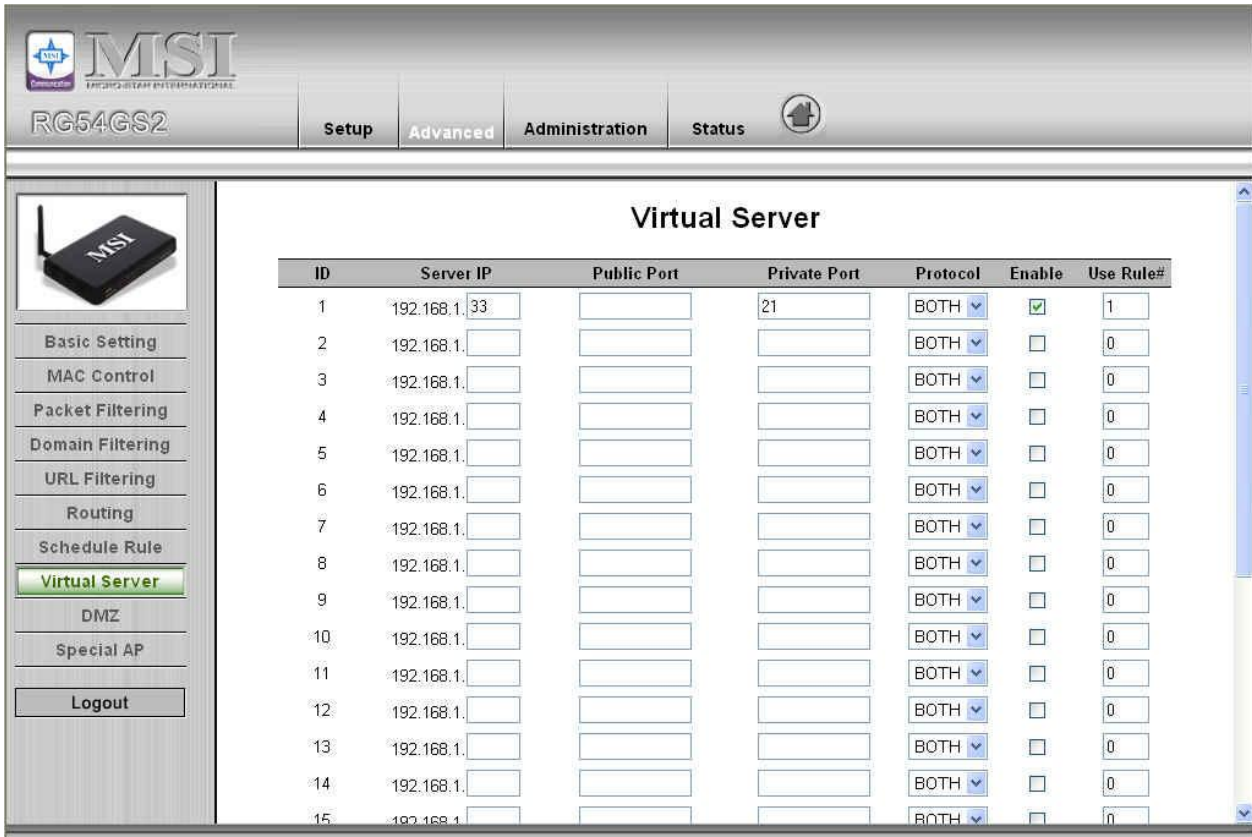
To edit the schedule rule.

Delete

To delete the schedule rule, and the rule# of the rules behind the deleted one will decrease one automatically.

Schedule Rule can be apply to Virtual server and Packet Filter, for example:

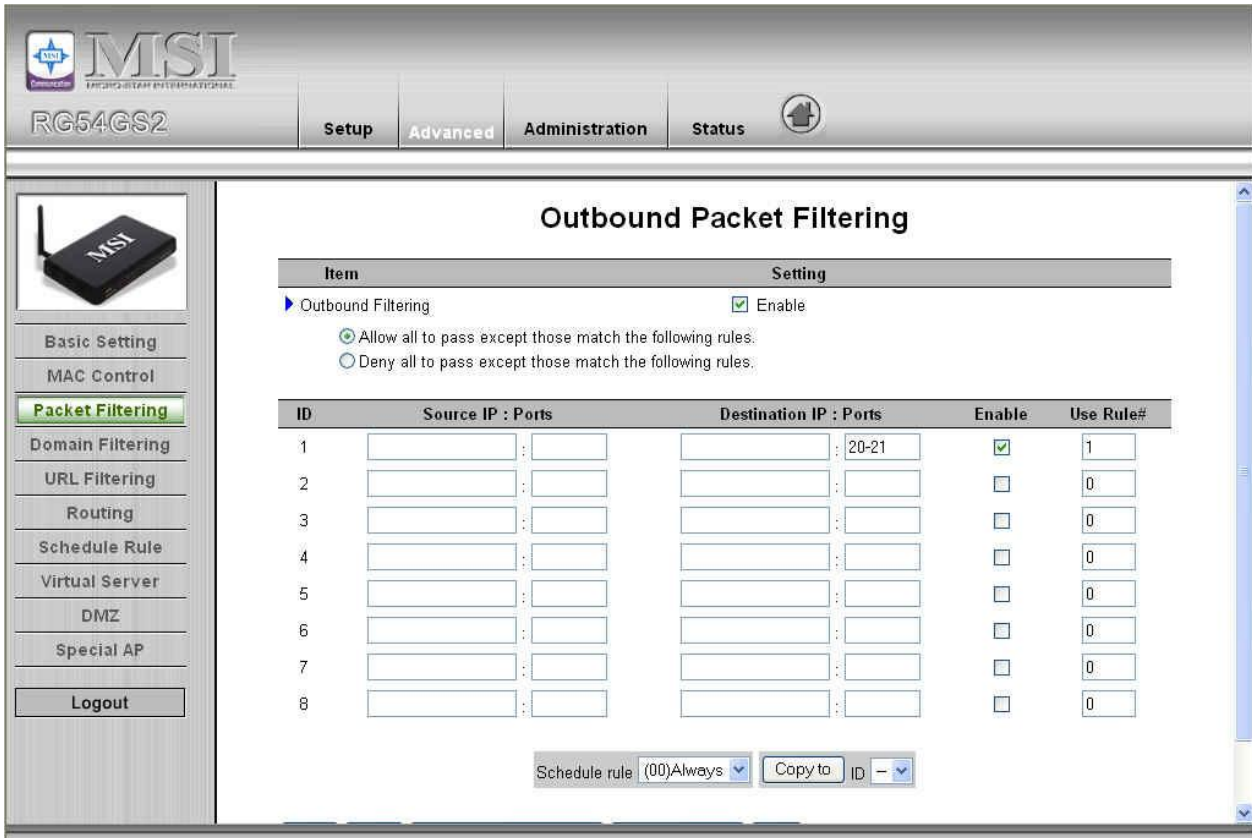
Example1: **Virtual Server** – Apply Rule#1 (ftp time: everyday 14:10 to 16:20)



The screenshot shows the MSI RG54GS2 router's web interface. The 'Advanced' tab is selected, and the 'Virtual Server' menu item is highlighted in the left sidebar. The main area displays a table for configuring virtual servers.

ID	Server IP	Public Port	Private Port	Protocol	Enable	Use Rule#
1	192.168.1.33		21	BOTH	<input checked="" type="checkbox"/>	1
2	192.168.1.			BOTH	<input type="checkbox"/>	0
3	192.168.1.			BOTH	<input type="checkbox"/>	0
4	192.168.1.			BOTH	<input type="checkbox"/>	0
5	192.168.1.			BOTH	<input type="checkbox"/>	0
6	192.168.1.			BOTH	<input type="checkbox"/>	0
7	192.168.1.			BOTH	<input type="checkbox"/>	0
8	192.168.1.			BOTH	<input type="checkbox"/>	0
9	192.168.1.			BOTH	<input type="checkbox"/>	0
10	192.168.1.			BOTH	<input type="checkbox"/>	0
11	192.168.1.			BOTH	<input type="checkbox"/>	0
12	192.168.1.			BOTH	<input type="checkbox"/>	0
13	192.168.1.			BOTH	<input type="checkbox"/>	0
14	192.168.1.			BOTH	<input type="checkbox"/>	0
15	192.168.1.			BOTH	<input type="checkbox"/>	0

Example2: **Packet Filter** – Apply Rule#1 (ftp time: everyday 14:10 to 16:20).



The screenshot shows the MSI RG54GS2 router's web interface. The 'Advanced' tab is selected, and the 'Packet Filtering' menu item is highlighted in the left sidebar. The main area displays the 'Outbound Packet Filtering' configuration page.

Outbound Packet Filtering

Item: Outbound Filtering Setting: ☒ Enable

☒ Allow all to pass except those match the following rules.
☐ Deny all to pass except those match the following rules.

ID	Source IP : Ports	Destination IP : Ports	Enable	Use Rule#
1			<input checked="" type="checkbox"/>	1
2			<input type="checkbox"/>	0
3			<input type="checkbox"/>	0
4			<input type="checkbox"/>	0
5			<input type="checkbox"/>	0
6			<input type="checkbox"/>	0
7			<input type="checkbox"/>	0
8			<input type="checkbox"/>	0

Schedule rule: (00)Always Copy to: ID -

4.4.8 Virtual Server

ID	Server IP	Public Port	Private Port	Protocol	Enable	Use Rule#
1	192.168.1.x			BOTH	<input type="checkbox"/>	0
2	192.168.1.x			BOTH	<input type="checkbox"/>	0
3	192.168.1.x			BOTH	<input type="checkbox"/>	0
4	192.168.1.x			BOTH	<input type="checkbox"/>	0
5	192.168.1.x			BOTH	<input type="checkbox"/>	0
6	192.168.1.x			BOTH	<input type="checkbox"/>	0
7	192.168.1.x			BOTH	<input type="checkbox"/>	0
8	192.168.1.x			BOTH	<input type="checkbox"/>	0
9	192.168.1.x			BOTH	<input type="checkbox"/>	0
10	192.168.1.x			BOTH	<input type="checkbox"/>	0
11	192.168.1.x			BOTH	<input type="checkbox"/>	0
12	192.168.1.x			BOTH	<input type="checkbox"/>	0
13	192.168.1.x			BOTH	<input type="checkbox"/>	0
14	192.168.1.x			BOTH	<input type="checkbox"/>	0
15	192.168.1.x			BOTH	<input type="checkbox"/>	0


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**. **Virtual Server** can work with **Scheduling Rules**, and give user more flexibility on Access control. For Detail, please refer to **Scheduling Rule**.

For example, if you have an FTP server (port 21) at 192.168.1.1, a Web server (port 80) at 192.168.1.2, and a VPN server at 192.168.1.6, then you need to specify the following virtual server mapping table:

Service Port	Server IP	Enable
21	192.168.1.1	V
80	192.168.1.2	V
1723	192.168.1.6	V

4.4.9 DMZ



MSI
RG54GS2

Setup Advanced Administration Status

DMZ

Item	Setting	Enable
<input checked="" type="radio"/> IP Address of DMZ Host	192.168.1.	<input type="checkbox"/>
<input type="radio"/> MAC Address of Super DMZ Host		
<input checked="" type="radio"/> Non-standard FTP port	0	
<input checked="" type="radio"/> UPnP Setting		<input type="checkbox"/>

Save Undo Help

Basic Setting
MAC Control
Packet Filtering
Domain Filtering
URL Filtering
Routing
Schedule Rule
Virtual Server
DMZ
Special AP
Logout

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 for Internet games, Video conferencing, Internet telephony and other special applications.

NOTE: This feature should be used only when needed.

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.

4.4.10 Special AP

ID	Trigger	Incoming Ports	Enable
1	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
2	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
3	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
4	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
5	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
6	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
7	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
8	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

Popular applications: ID:

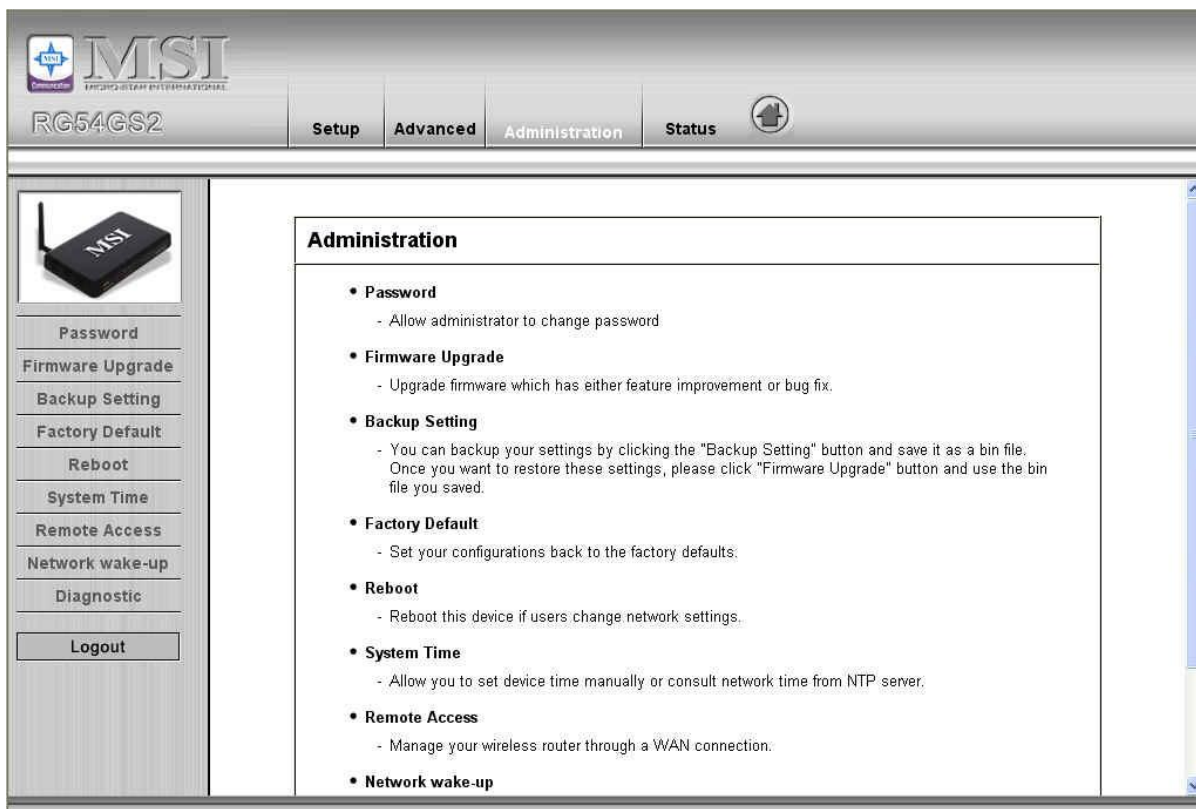
Some applications require multiple connections, like Internet games, Video conferencing, Internet telephony, etc. Because of the firewall function, these applications cannot work with a pure NAT router. The **Special Applications** feature allows some of these applications to work with this product. If the mechanism of Special Applications fails to make an application work, try setting your computer as the **DMZ** host instead.

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

This product provides some predefined settings. Select your application and click **Copy to** to add the predefined setting to your list.

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

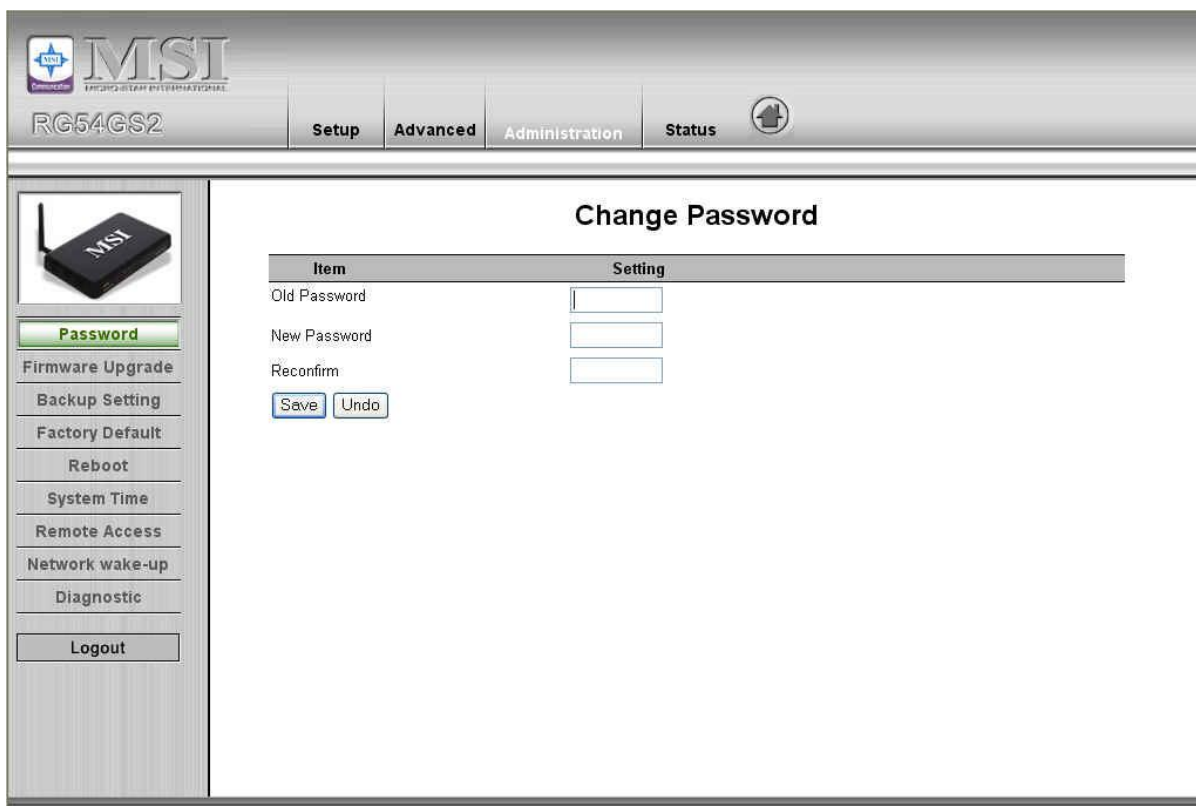
4.5 Administration



The screenshot shows the MSI RG54GS2 Administration web interface. The top navigation bar includes 'Setup', 'Advanced', 'Administration' (selected), and 'Status'. A left sidebar contains a list of settings: Password, Firmware Upgrade, Backup Setting, Factory Default, Reboot, System Time, Remote Access, Network wake-up, Diagnostic, and Logout. The main content area is titled 'Administration' and lists several configuration options with brief descriptions:

- Password**
 - Allow administrator to change password
- Firmware Upgrade**
 - Upgrade firmware which has either feature improvement or bug fix.
- Backup Setting**
 - 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.
- Factory Default**
 - Set your configurations back to the factory defaults.
- Reboot**
 - Reboot this device if users change network settings.
- System Time**
 - Allow you to set device time manually or consult network time from NTP server.
- Remote Access**
 - Manage your wireless router through a WAN connection.
- Network wake-up**

4.5.1 Change Password



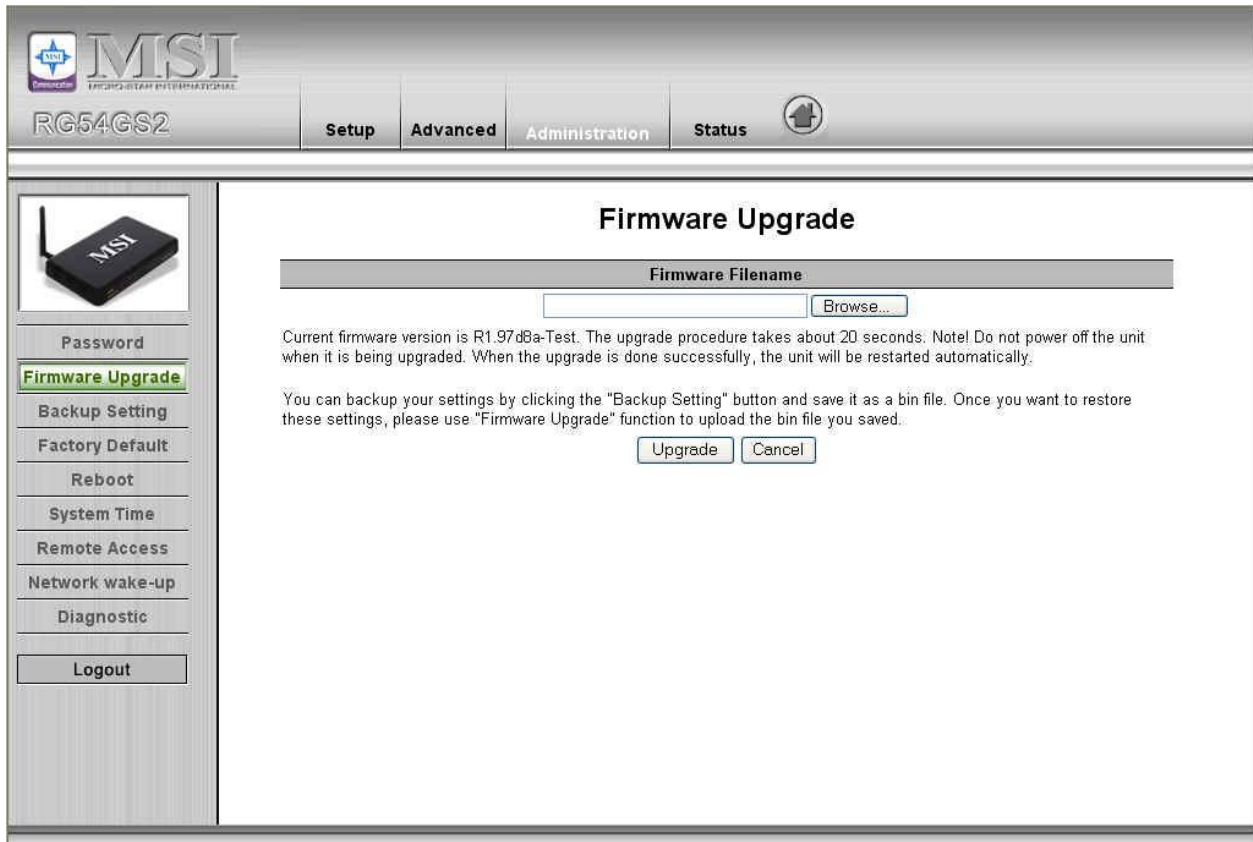
The screenshot shows the 'Change Password' page within the MSI RG54GS2 Administration interface. The top navigation bar and left sidebar are identical to the previous page. The main content area is titled 'Change Password' and contains a table with two columns: 'Item' and 'Setting'.

Item	Setting
Old Password	<input type="password"/>
New Password	<input type="password"/>
Reconfirm	<input type="password"/>

Below the table are two buttons: 'Save' and 'Undo'.

You can change Password here. We **strongly** recommend you to change the system password for security reason.

4.5.2 Firmware Upgrade



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

4.5.3 Backup Setting



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.

4.5.4 Reset to factory default



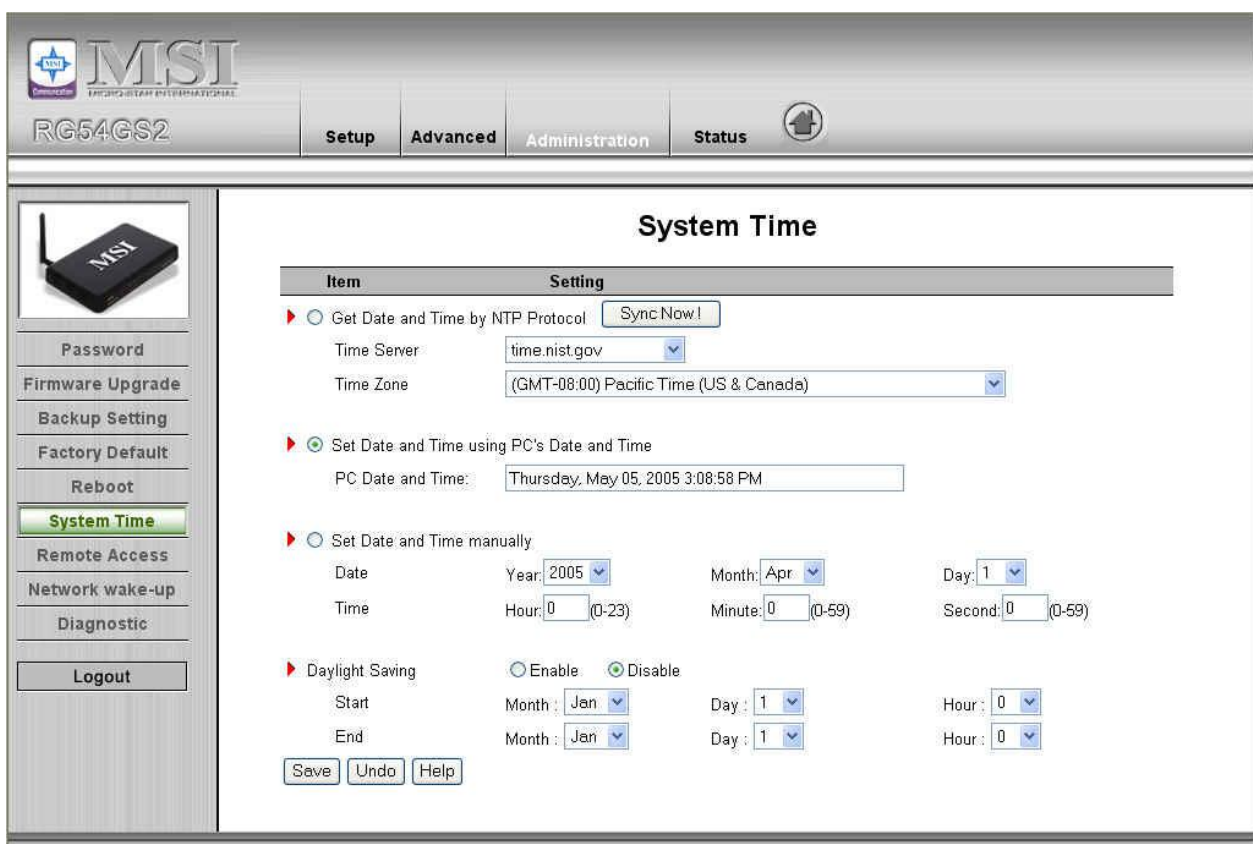
You can also reset this product to factory default by clicking the **Reset to default** button.

4.5.5 Reboot



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

4.5.6 System Time



Get Date and Time by NTP Protocol

Selected if you want to Get Date and Time by NTP Protocol.

Time Server

Select a NTP time server to consult UTC time

Time Zone

Select a time zone where this device locates.

Set Date and Time manually

Selected if you want to Set Date and Time manually.

Set Date and Time manually

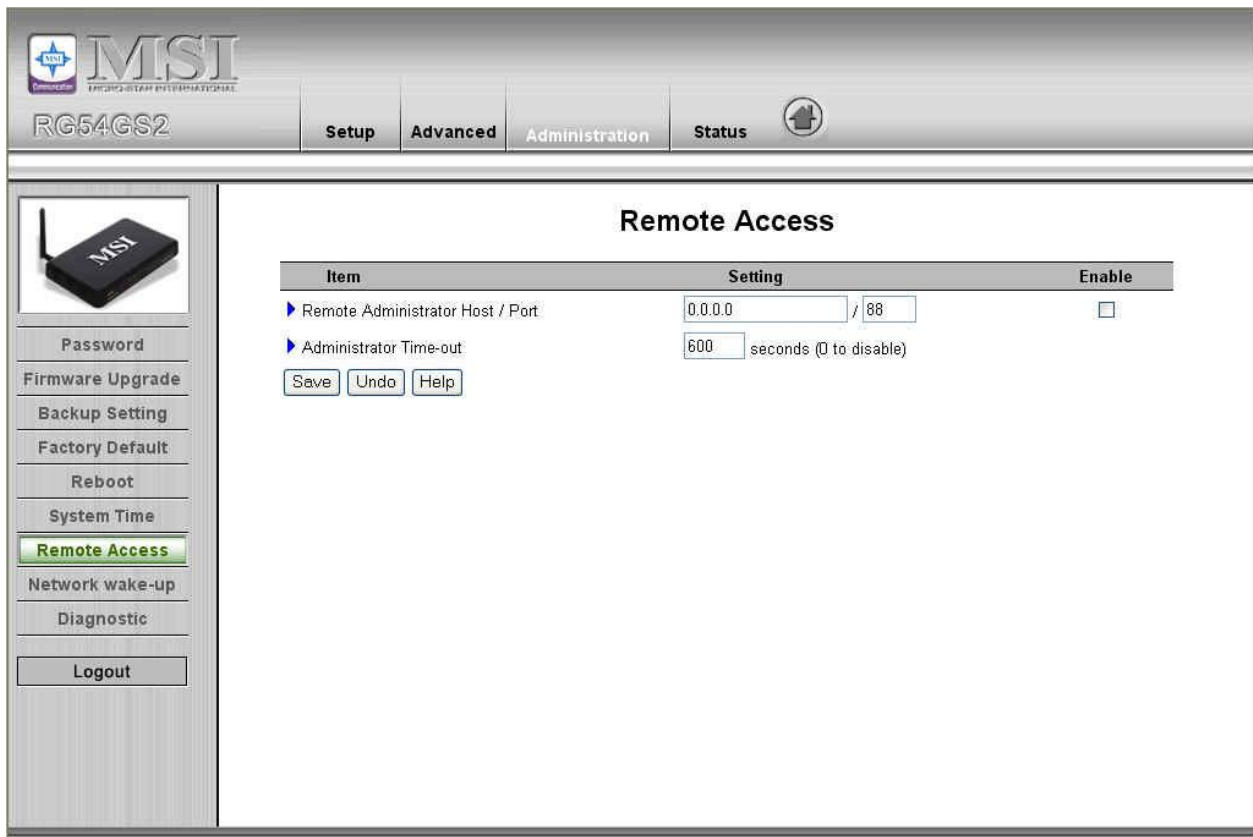
Selected if you want to Set Date and Time manually.

Function of Buttons

Sync Now: Synchronize system time with network time server

Daylight Saving: Set up where the location is.

4.5.7 Remote Access



The screenshot displays the MSI RG54GS2 web interface. The top navigation bar includes tabs for Setup, Advanced, Administration, and Status. The left sidebar contains a list of menu items: Password, Firmware Upgrade, Backup Setting, Factory Default, Reboot, System Time, Remote Access (highlighted), Network wake-up, Diagnostic, and Logout. The main content area is titled 'Remote Access' and contains a table with the following data:

Item	Setting	Enable
Remote Administrator Host / Port	0.0.0.0 / 88	<input type="checkbox"/>
Administrator Time-out	600 seconds (0 to disable)	

Below the table are three buttons: Save, Undo, and Help.

Remote Administrator Host/Port

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

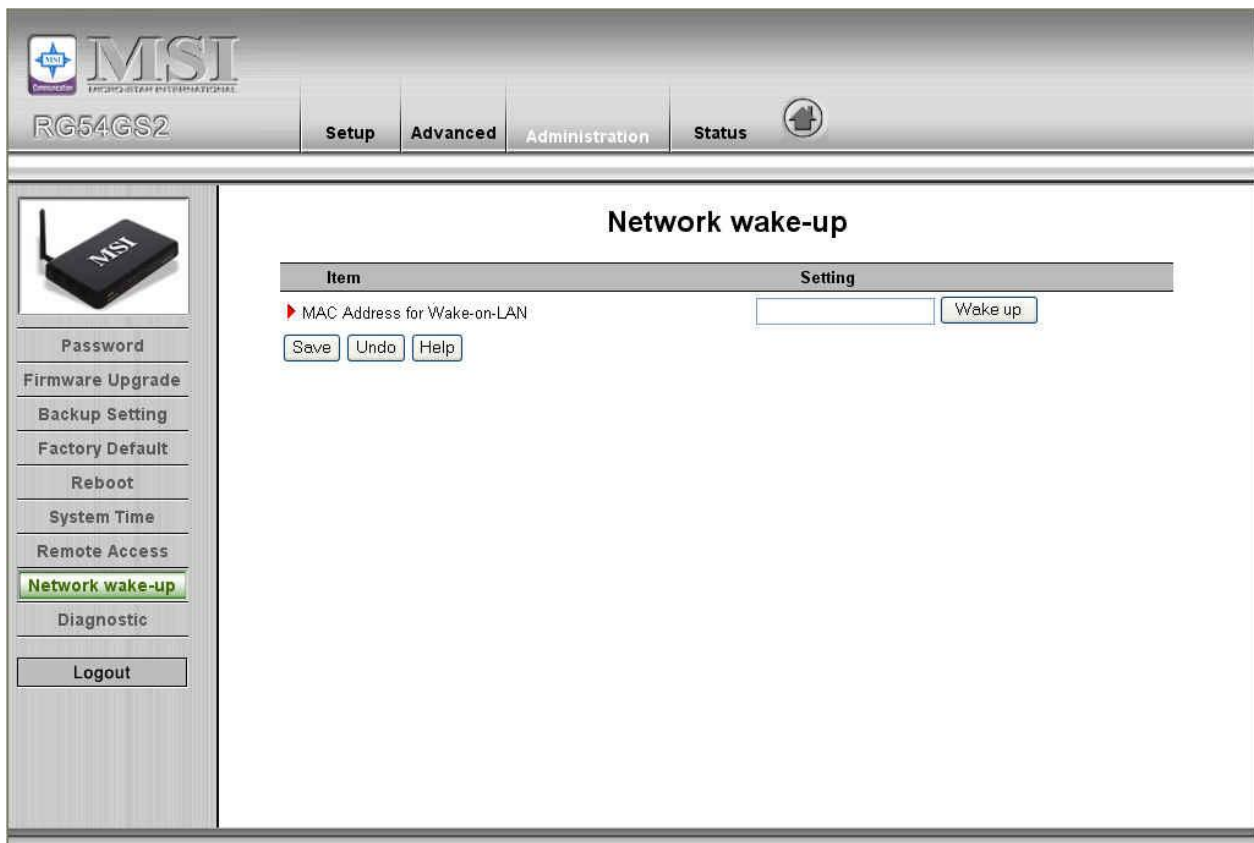
perform remote administration. If the specified IP address is 0.0.0.0, any host can connect to this product to perform administration task. You can use subnet mask bits "/nn" notation to specified a group of trusted IP addresses. For example, "10.1.2.0/24".

NOTE: When Remote Administration is enabled, the web server port will be shifted to 88. You can change web server port to other port, too.

Administrator Time-out

The time of no activity to logout automatically. Set it to zero to disable this feature.

4.5.8 Network wake-up



The screenshot displays the MSI RG54GS2 web interface. The top navigation bar includes the MSI logo, the model name 'RG54GS2', and tabs for 'Setup', 'Advanced', 'Administration', and 'Status'. The 'Administration' tab is selected. On the left sidebar, a list of menu items includes 'Password', 'Firmware Upgrade', 'Backup Setting', 'Factory Default', 'Reboot', 'System Time', 'Remote Access', 'Network wake-up' (highlighted in green), 'Diagnostic', and 'Logout'. The main content area is titled 'Network wake-up'. It features a table with two columns: 'Item' and 'Setting'. The table contains one row with the item 'MAC Address for Wake-on-LAN'. To the right of this item is a text input field and a 'Wake up' button. Below the table are three buttons: 'Save', 'Undo', and 'Help'.

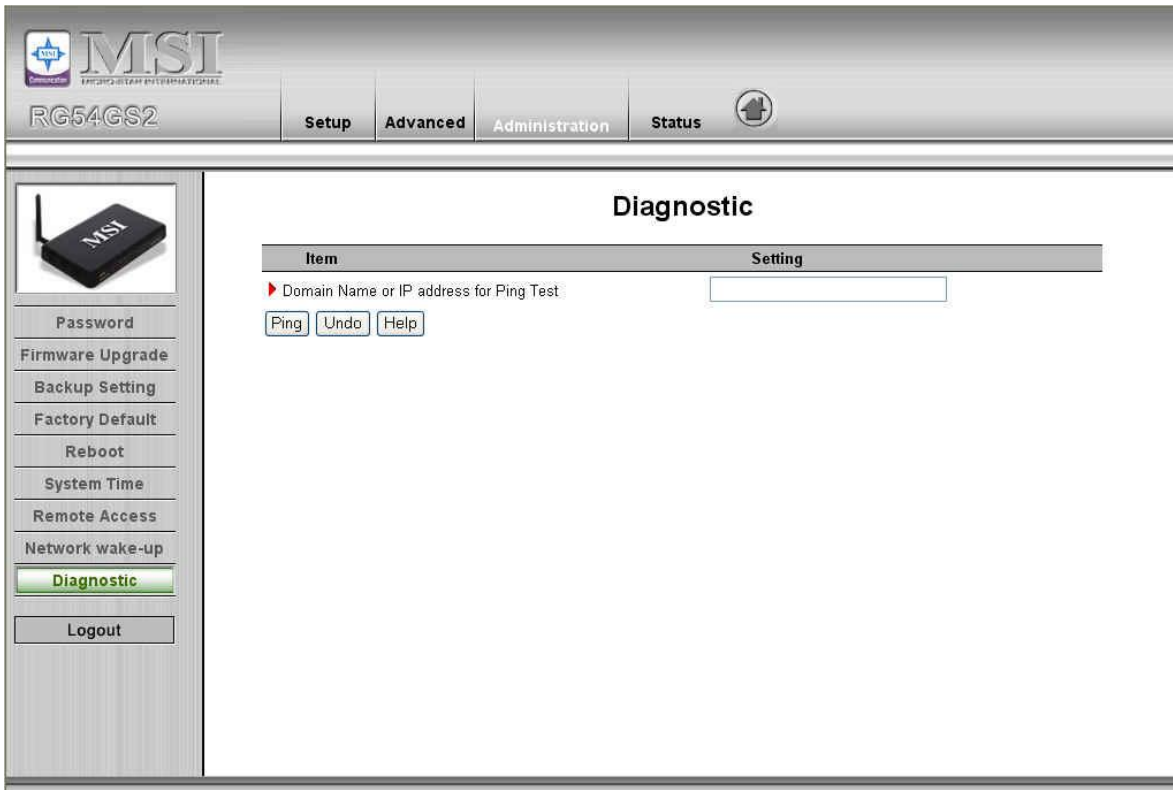
Item	Setting
MAC Address for Wake-on-LAN	<input type="text"/> Wake up

Save Undo Help

MAC Address for Wake-on-LAN

Wake-on-LAN is a technology that enables you to power up a networked device remotely. In order to enjoy this feature, the target device must be Wake-on-LAN enabled and you have to know the MAC address of this device, say 00-11-22-33-44-55. Clicking "Wake up" button will make the router to send the wake-up frame to the target device immediately.

4.5.9 Diagnostic



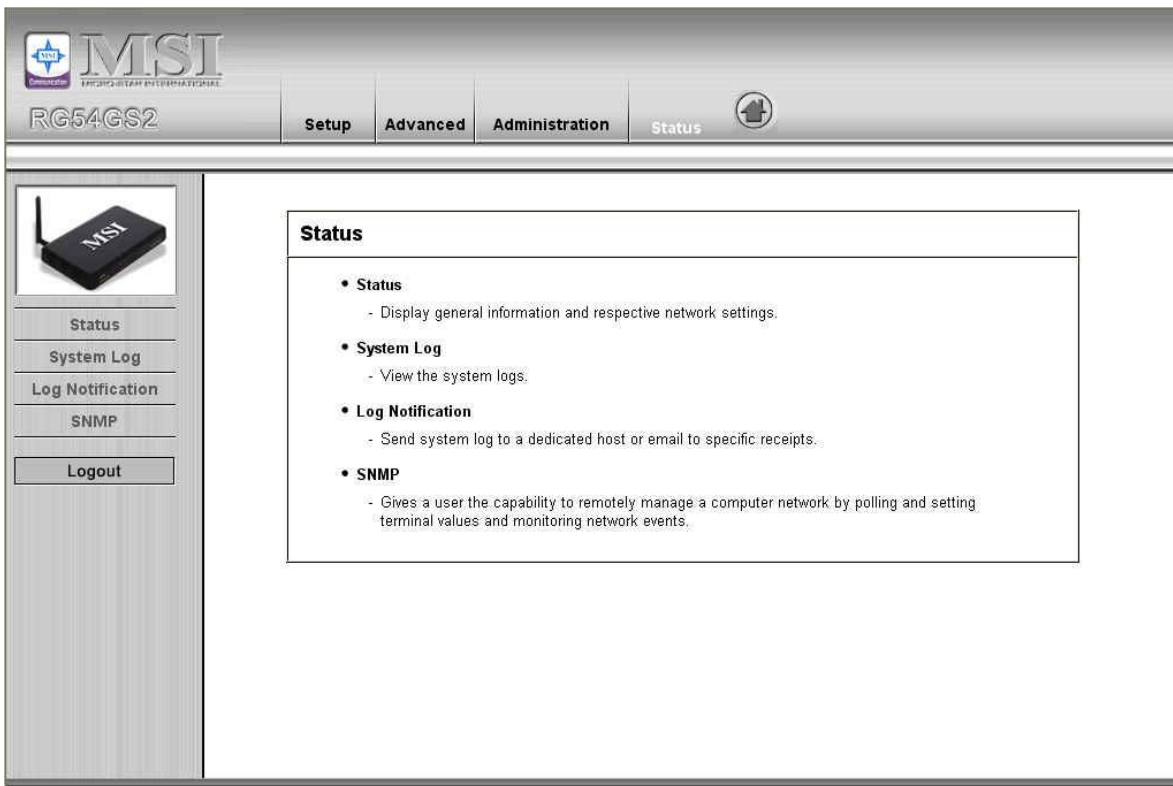
The image shows the MSI RG54GS2 Diagnostic web interface. The top navigation bar includes 'Setup', 'Advanced', 'Administration', and 'Status'. The left sidebar contains links for 'Password', 'Firmware Upgrade', 'Backup Setting', 'Factory Default', 'Reboot', 'System Time', 'Remote Access', 'Network wake-up', 'Diagnostic' (highlighted), and 'Logout'. The main content area is titled 'Diagnostic' and features a table with two columns: 'Item' and 'Setting'. The table contains one row with the item 'Domain Name or IP address for Ping Test' and an empty text input field for the setting. Below the table are three buttons: 'Ping', 'Undo', and 'Help'.

Item	Setting
Domain Name or IP address for Ping Test	<input type="text"/>

Ping Undo Help

This is the graphic interface of “**Ping**” command, you can enter the Domain Name or IP address to ping if it is working.

4.6 Status



The image shows the MSI RG54GS2 Status web interface. The top navigation bar includes 'Setup', 'Advanced', 'Administration', and 'Status'. The left sidebar contains links for 'Status' (highlighted), 'System Log', 'Log Notification', 'SNMP', and 'Logout'. The main content area is titled 'Status' and contains a list of four items: 'Status', 'System Log', 'Log Notification', and 'SNMP', each with a brief description of its function.

Status
<ul style="list-style-type: none">• Status<ul style="list-style-type: none">- Display general information and respective network settings.• System Log<ul style="list-style-type: none">- View the system logs.• Log Notification<ul style="list-style-type: none">- Send system log to a dedicated host or email to specific receipts.• SNMP<ul style="list-style-type: none">- Gives a user the capability to remotely manage a computer network by polling and setting terminal values and monitoring network events.

4.6.1 System Status

MSI
RG54GS2

Setup Advanced Administration **Status**

System Status

Item	WAN Status	Sidenote
IP Address	0.0.0.0	PPPoE
Subnet Mask	0.0.0.0	
Gateway	0.0.0.0	Unreachable
Domain Name Server	0.0.0.0	
Connection Time	-	Connect

Statistics of WAN	Inbound	Outbound
Octets	0	7560
Unicast Packets	0	0
Non-unicast Packets	0	270

[Clients List...](#) [Help](#) [Refresh](#)

Device Time: Thursday, May 05, 2005 3:11:05 PM

This item shows the static data of the router,

4.6.2 System Log

MSI
RG54GS2

Setup Advanced Administration **Status**

System Log

WAN Type: PPP over Ethernet (R1.97d8a-Test)

Display time: Thursday, May 05, 2005 3:11:20 PM

Tuesday, May 03, 2005 4:02:58 PM	DOD:triggered internally
Tuesday, May 03, 2005 4:02:58 PM	L2TP: start to dial-up
Tuesday, May 03, 2005 4:02:58 PM	DHCP:discover(rex)
Tuesday, May 03, 2005 4:03:02 PM	DHCP:discover(rex)
Tuesday, May 03, 2005 4:03:10 PM	DHCP:discover(rex)
Tuesday, May 03, 2005 4:03:26 PM	DHCP:discover(rex)
Tuesday, May 03, 2005 4:03:58 PM	L2TP:LNS=0.0.0.0
Tuesday, May 03, 2005 4:03:58 PM	L2TP:error=-111
Thursday, May 05, 2005 1:33:59 PM	Restarted by 192.168.1.10
Thursday, May 05, 2005 1:34:04 PM	DOD:triggered internally
Thursday, May 05, 2005 1:34:04 PM	PPPoE: start to dial-up
Thursday, May 05, 2005 1:34:04 PM	PADI: sent
Thursday, May 05, 2005 1:34:04 PM	PADI: sent
Thursday, May 05, 2005 1:34:05 PM	PADI: sent
Thursday, May 05, 2005 1:34:11 PM	DOD:triggered internally
Thursday, May 05, 2005 1:34:11 PM	PPPoE: start to dial-up
Thursday, May 05, 2005 1:34:11 PM	PADI:3com sent
Thursday, May 05, 2005 1:34:11 PM	PADI:3com sent

You can View system log by clicking the View Log button

4.6.3 Log Notification

Item	Setting	Enable
▶ IP Address for Syslogd	192.168.1. <input type="text"/>	<input type="checkbox"/>
▶ IP Address of Outgoing Mail Server	<input type="button" value="Send Mail Now"/>	<input type="checkbox"/>
• SMTP Server IP/Port	<input type="text"/>	
• E-mail addresses	<input type="text"/>	
• E-mail Subject	<input type="text"/>	
• User name	<input type="text"/>	
• Password	<input type="text"/>	

This page support two methods to export system logs to specific destination by means of syslog(UDP) and SMTP(TCP). The items you have to setup including:

IP Address for Syslog

Host IP of destination where syslogs will be sent to.

Check **Enable** to enable this function.

E-mail Alert Enable

Check if you want to enable Email alert (send syslog via email).

SMTP Server IP and Port

Input the SMTP server IP and port, which are concated with ':'. If you do not specify port number, the default value is 25.

For example, "mail.your_url.com" or "192.168.1.100:26".

Send E-mail alert to

The recipients who will receive these logs. You can assign more than 1 recipient, using ';' or ',' to separate these email addresses.

4.6.4 SNMP Setting

Item	Setting
▶ Enable SNMP	<input checked="" type="checkbox"/> Local <input type="checkbox"/> Remote
▶ Get Community	<input type="text" value="public"/>
▶ Set Community	<input type="text" value="private"/>
▶ WAN Access IP Address	<input type="text" value="0.0.0.0"/>

Save Undo Help

In brief, SNMP, the Simple Network Management Protocol, is a protocol designed to give a user the capability to remotely manage a computer network by polling and setting terminal values and monitoring network events.

Enable SNMP

You must check either Local or Remote or both to enable SNMP function. If Local is checked, this device will response request from LAN. If Remote is checked, this device will response request from WAN.

Get Community

Setting the community of GetRequest your device will response.

Set Community

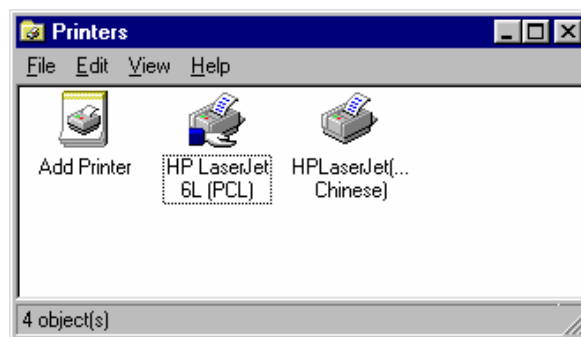
Setting the community of SetRequest your device will accept.

Chapter 5 Print Server

This product provides the function of network print server for MS Windows 95/98/NT/2000 and Unix based platforms. (If the product you purchased doesn't have printer port, please skip this chapter.)

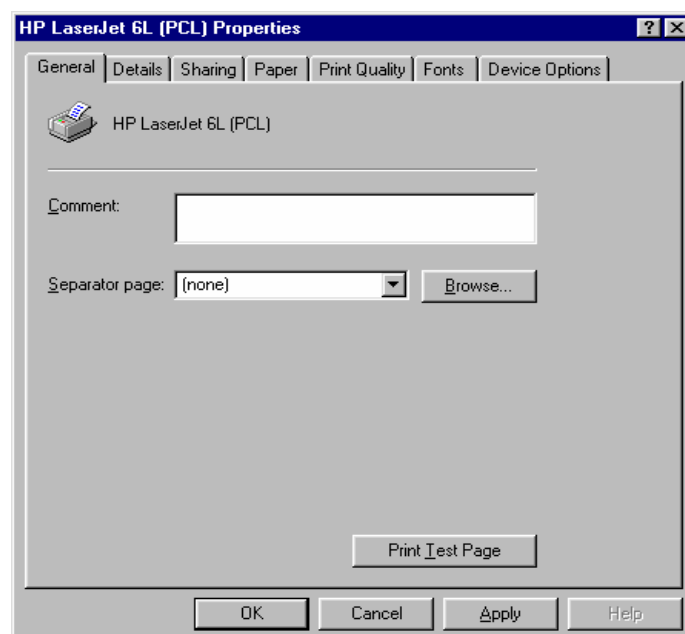
5.1 Configuring on Windows 95/98 Platforms

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 server printer. On a Windows 95/98 platform, open the **Printers** window in the **My Computer** menu:

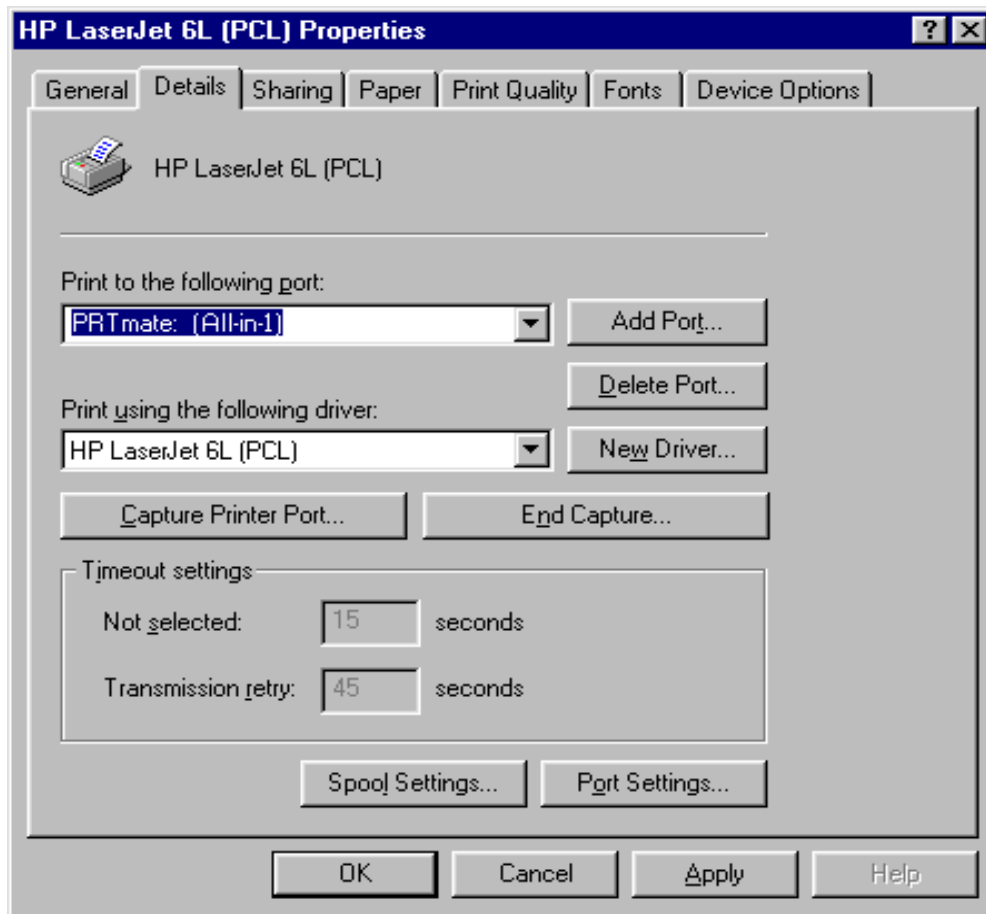


Now, you can configure the print server of this product:

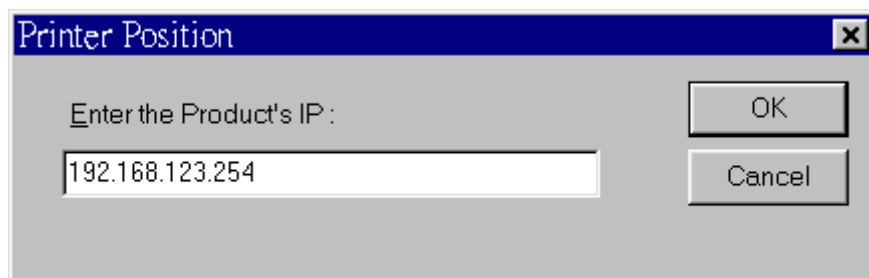
1. Find out the corresponding icon of your server printer, for example, the **HP LaserJet 6L**. Click the mouse's right button on that icon, and then select the **Properties** item:



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**:

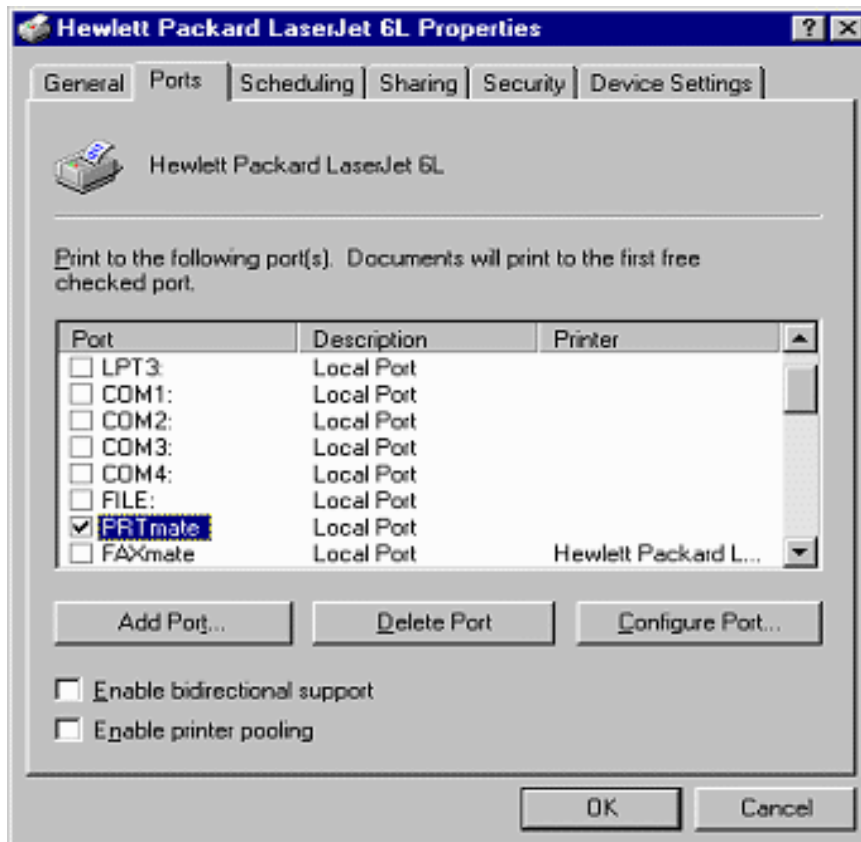


Type in the IP address of this product and then click the **OK** button.

6. Make sure that all 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**:



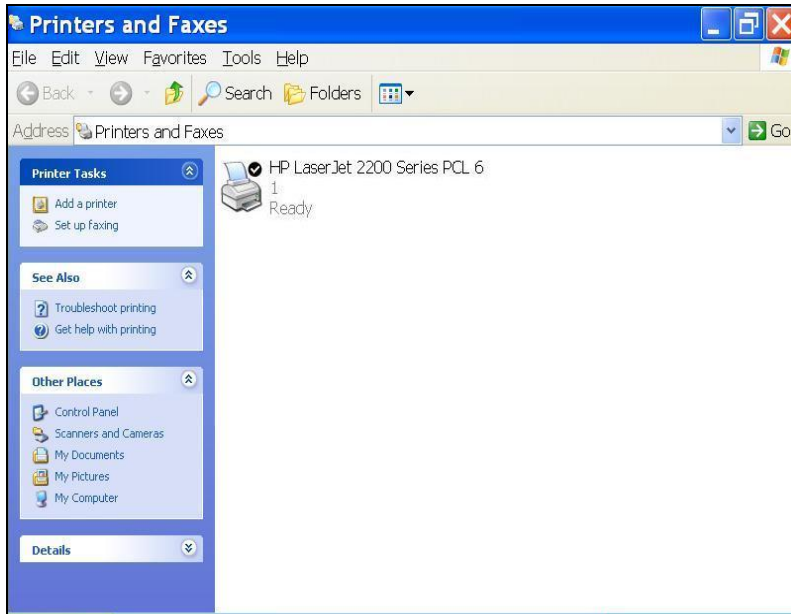
Compared to the procedure in last section, the selection of **Details** is equivalent to the selection of **Ports**, and **Port Settings** is equivalent to **Configure Port**.

5.3 Configuring on Windows 2000 and XP Platforms

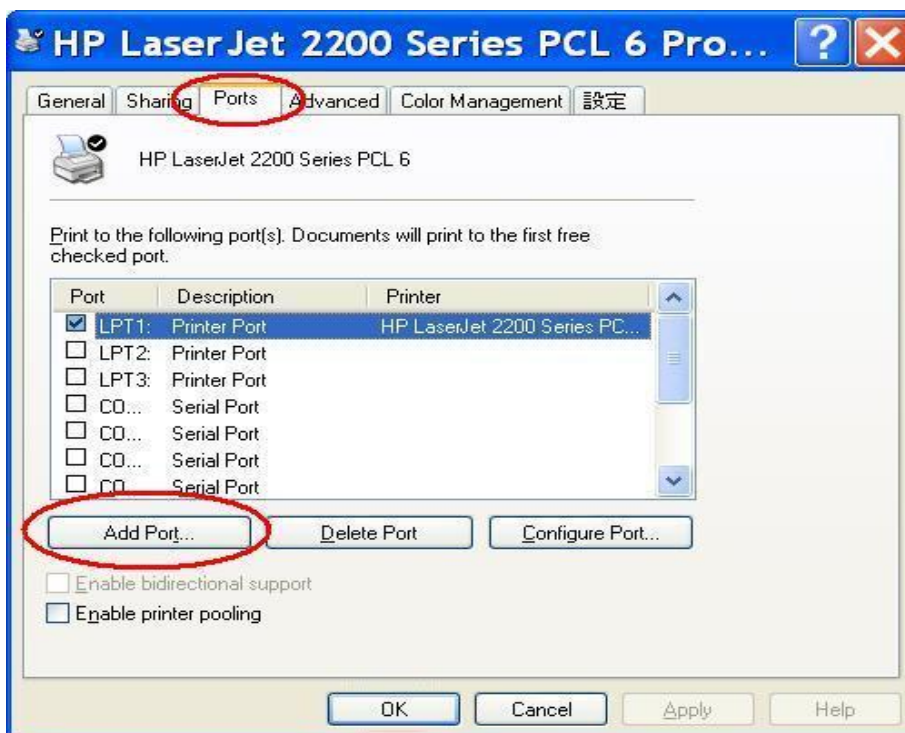
Windows 2000 and XP have built-in LPR client, users could utilize this feature to Print.

You have to install your Printer Driver on LPT1 or other ports before you proceed the following sequence.

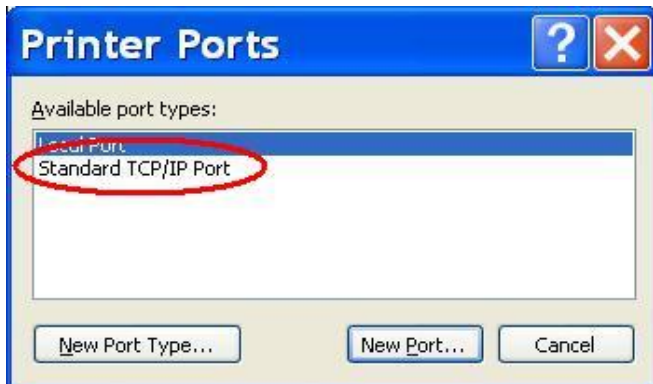
1.Open Printers and Faxes.



2.Select “Ports” page, Click “Add Port...”

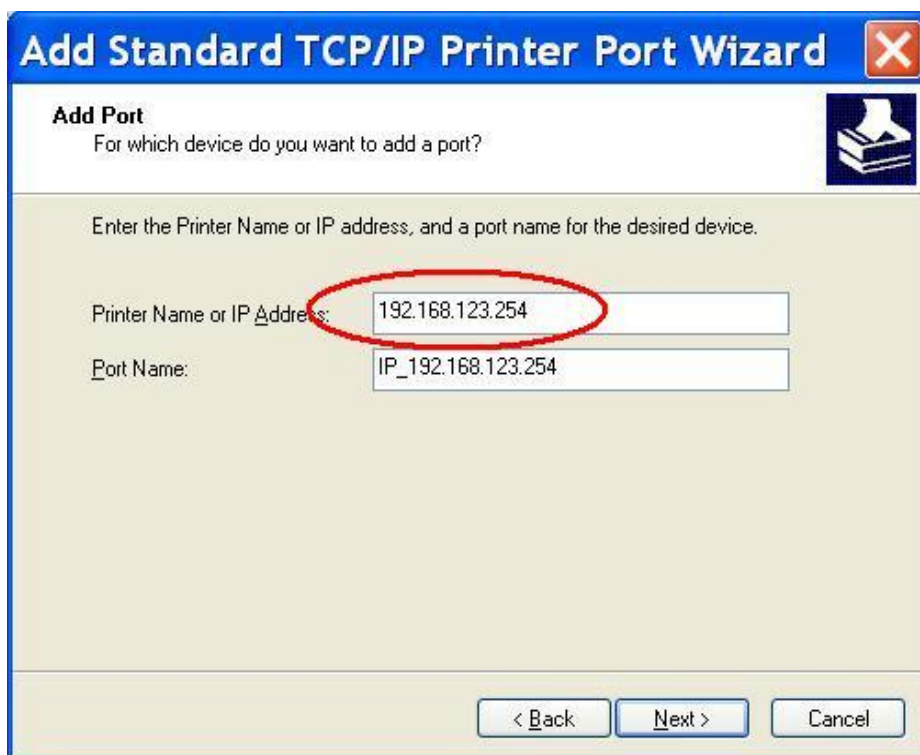


3. Select “Standard TCP/IP Port”, and then click “New Port...”

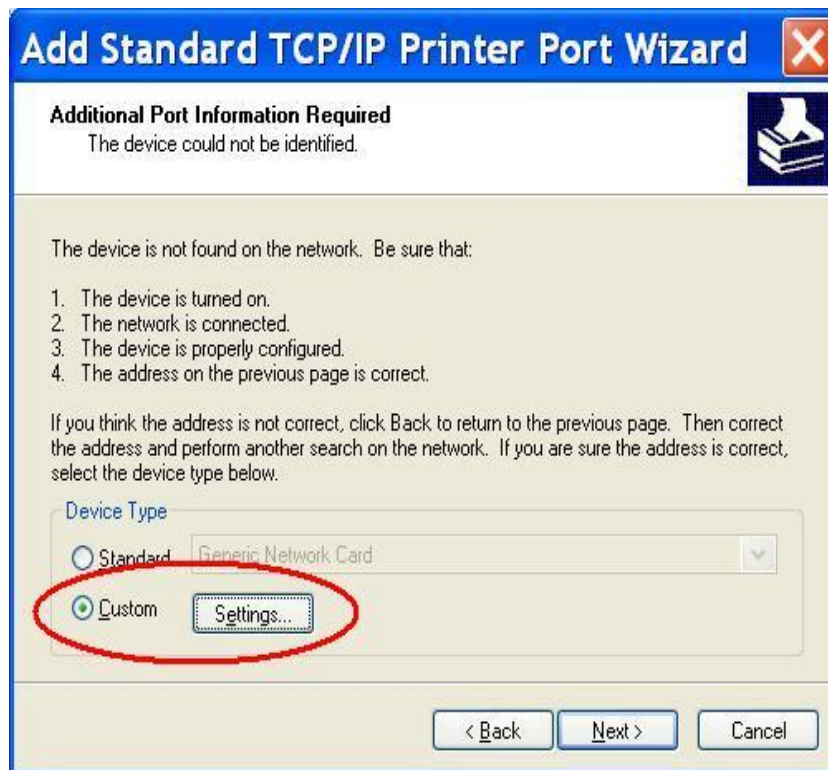


4. Click Next and then provide the following information:

Type address of server providing LPD that is our NAT device: 192.168.1.254

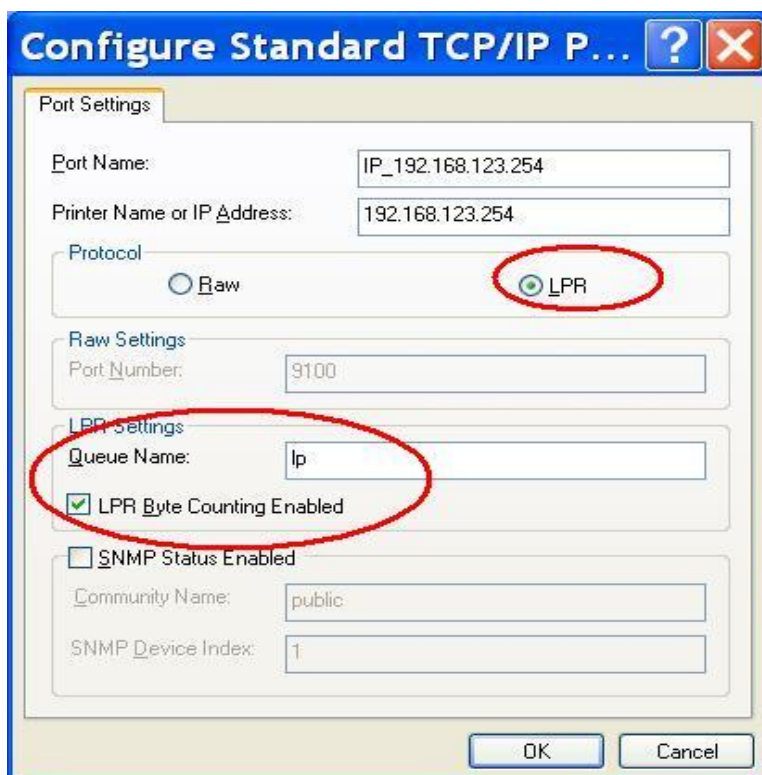


1. Select Custom, then click “Settings...”

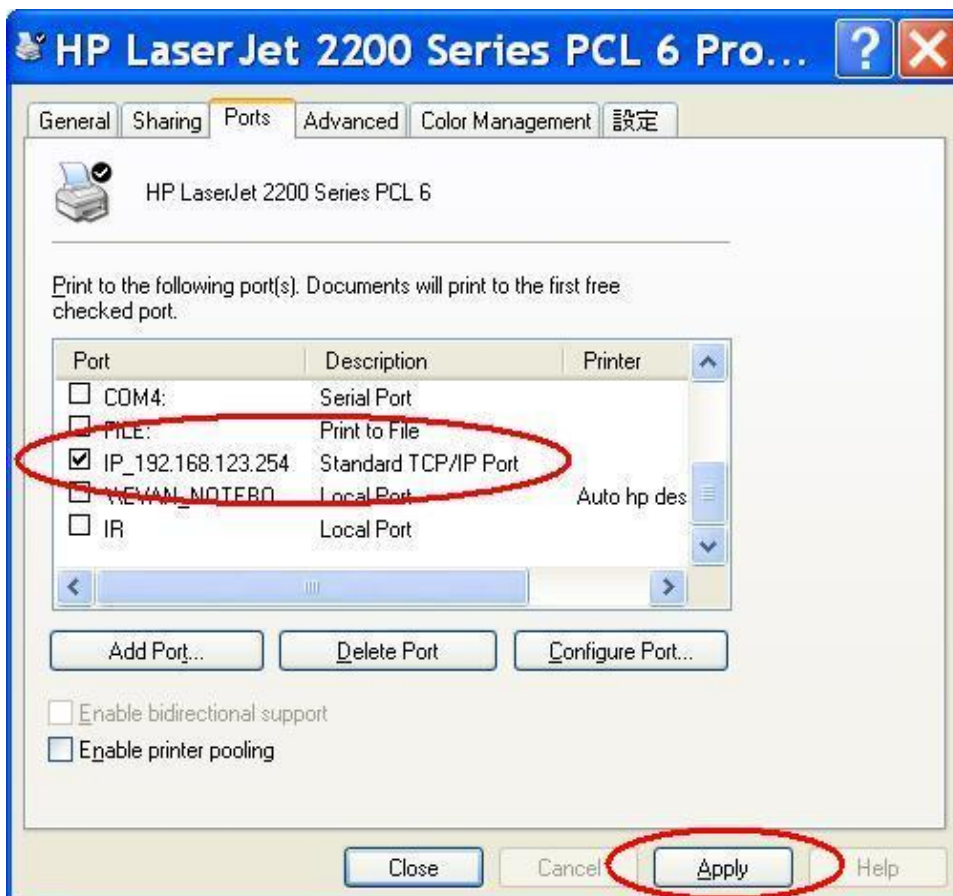


6. Select “LPR”, type ”lp“ lowercase letter in “Queue Name:”

And enable “LPR Byte Counting Enabled”.



7. Apply your settings



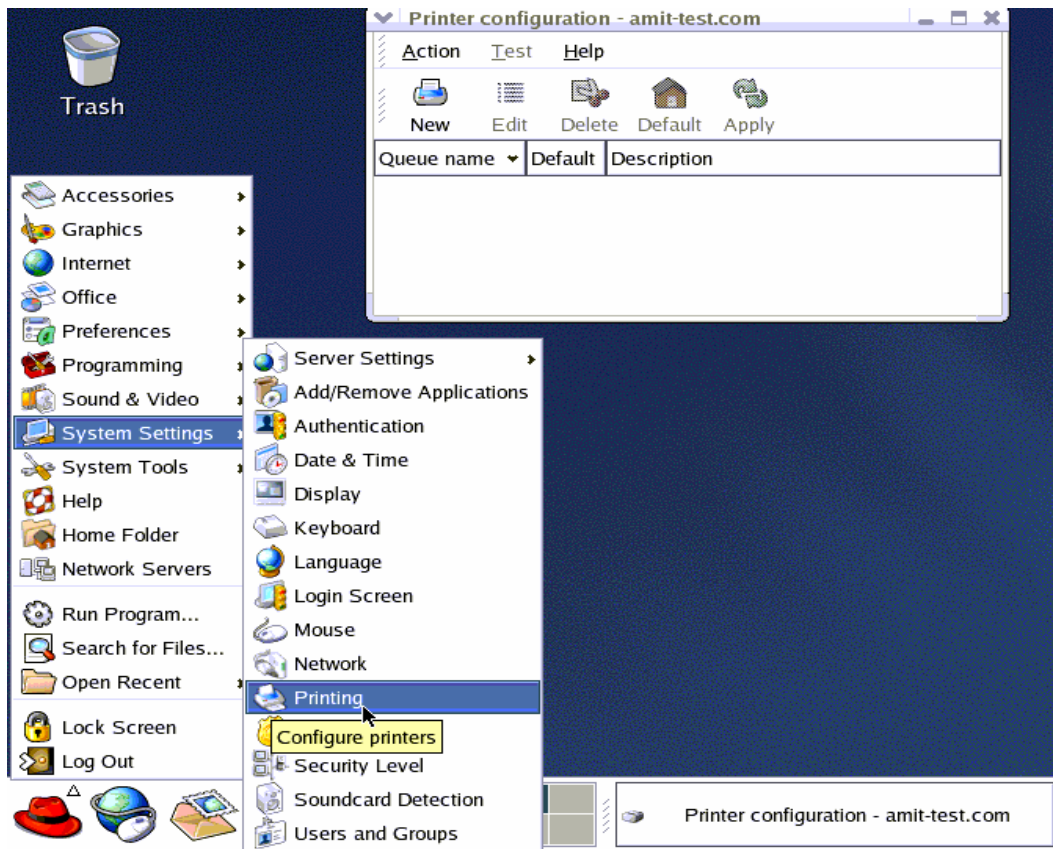
5.4 Configuring on Unix-like based Platforms

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

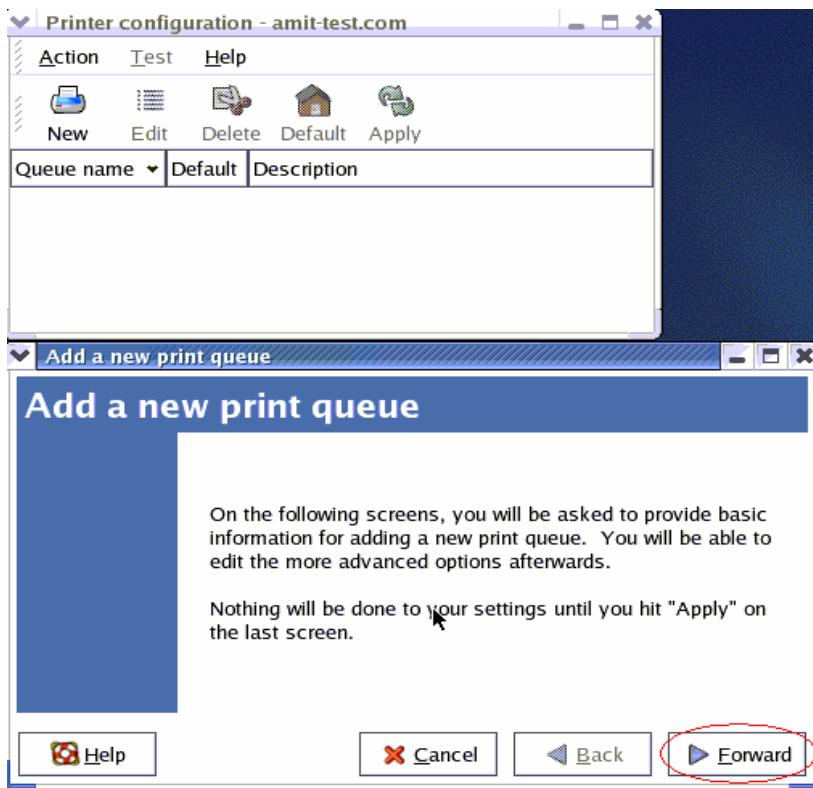
In X-Windows, for example, In Redhat Platforms,

Please follow the below steps to configure your printer on Red Hat 9.0.1. Start from the Red Hat---> System

Setting---> Printing.



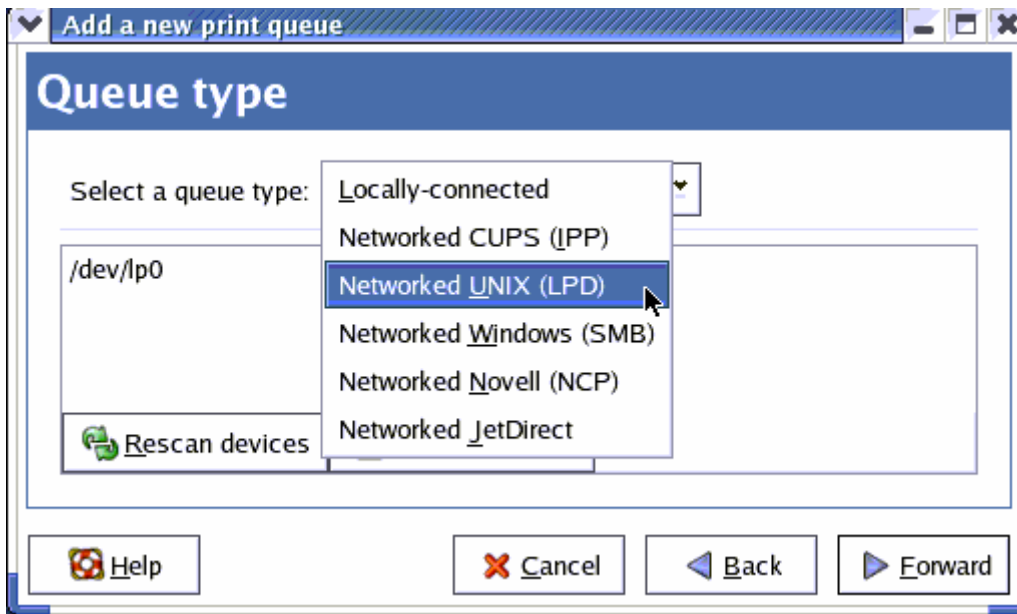
2. Click New---> Forward.



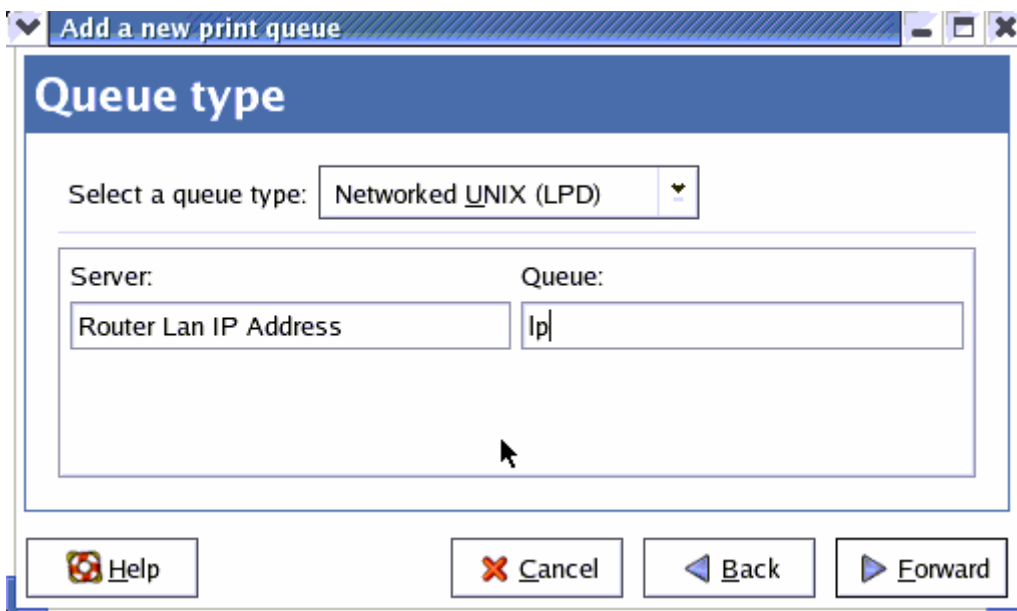
1. Enter the Pinter Name, Comments then forward.

This screenshot shows the 'Add a new print queue' dialog at the 'Queue name' step. The title bar reads 'Add a new print queue'. The main heading is 'Queue name'. The instructions state: 'Please enter a name for this queue. Choose a short name that begins with a letter and contains no spaces.' There is a text input field labeled 'Name:' containing the text 'printertest'. Below this is a section titled 'About' with the text: 'If you like, you can enter a description of the printer to help you identify it more easily.' There is a text input field labeled 'Short description:' containing the text 'test'. At the bottom of the dialog are four buttons: 'Help' (with a question mark icon), 'Cancel' (with a red X icon), 'Back' (with a left arrow icon), and 'Forward' (with a right arrow icon).

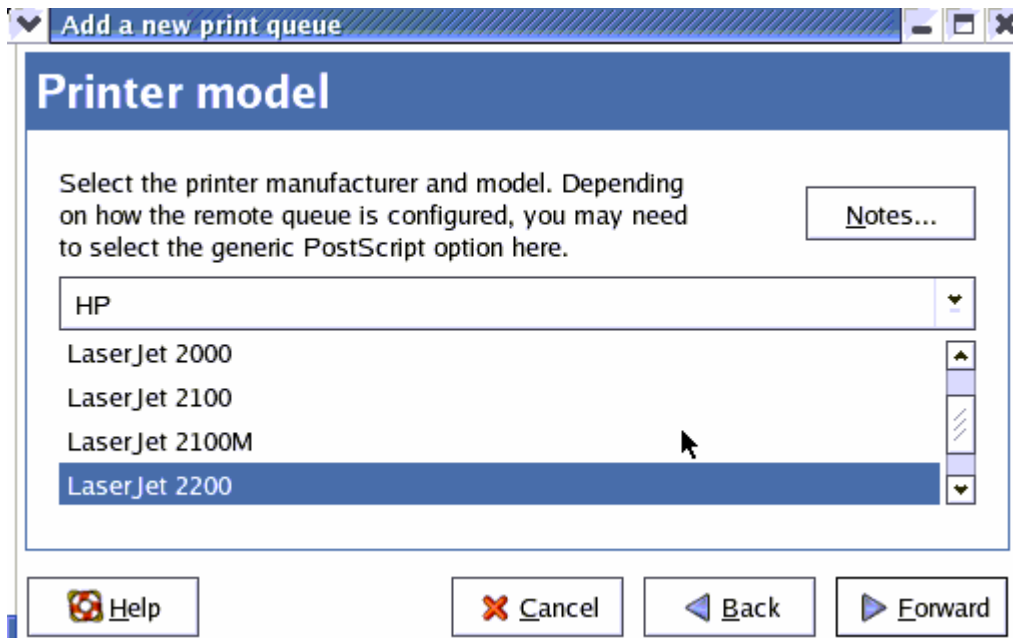
4. Select LPD protocol and then forward.



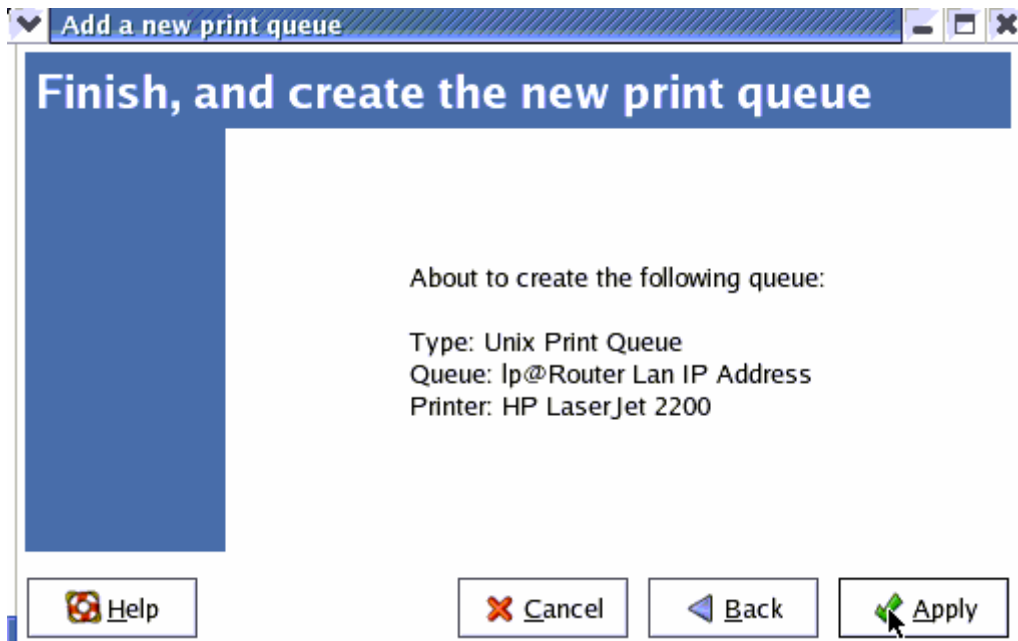
5. Enter Router LAN IP Address and the queue name "lp". Then forward.



6. Select the Printer Brand and Model Name. Then Forward.



7. Click Apply to finish setup.



8. At last you must click Apply on the toolbox to make the change take effective.

In Command Mode:

Linux has built-in LPR client ,You can utilize it for printing.

You can manual set it or via the tool "printtool" in X-windows.

PS: The spool name is "lp"-----all lowercase letter.

Below is my setting.

/etc/printcap

```
-----  
lp:\  
:sd=/var/spool/lpd/lp:\  
:mx#0:\  
:sh:\  
:rm=192.168.1.254:\  
:rp=lp:\ ----->key point  
:if=/var/spool/lpd/lp/filter:  
-----
```

Then add the corresponding directory

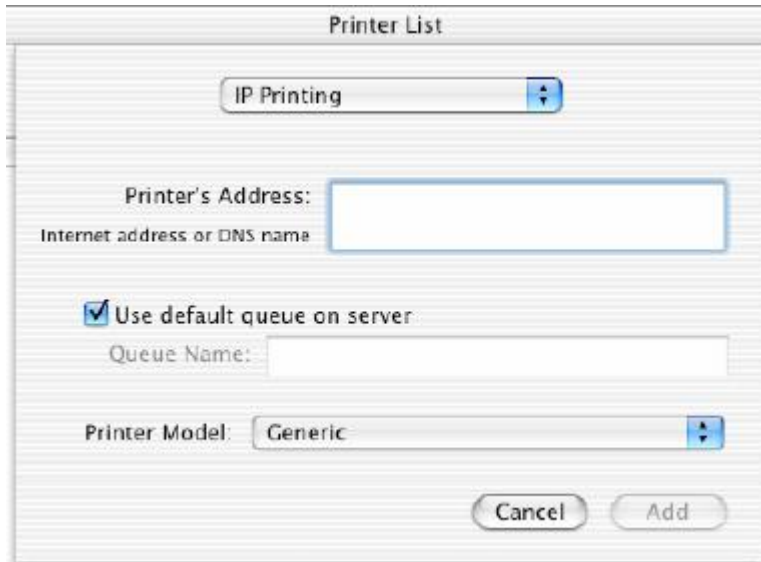
```
#mkdir /var/spool/lpd/lp
```

Too see the detail ,please refer to the online manual in linux.

```
#man printcap
```

5.5 Configuring on Apple PC

1.First, go to Printer center (Printer list) and add printer



Printer List

IP Printing

Printer's Address:
Internet address or DNS name

☒ Use default queue on server
Queue Name:

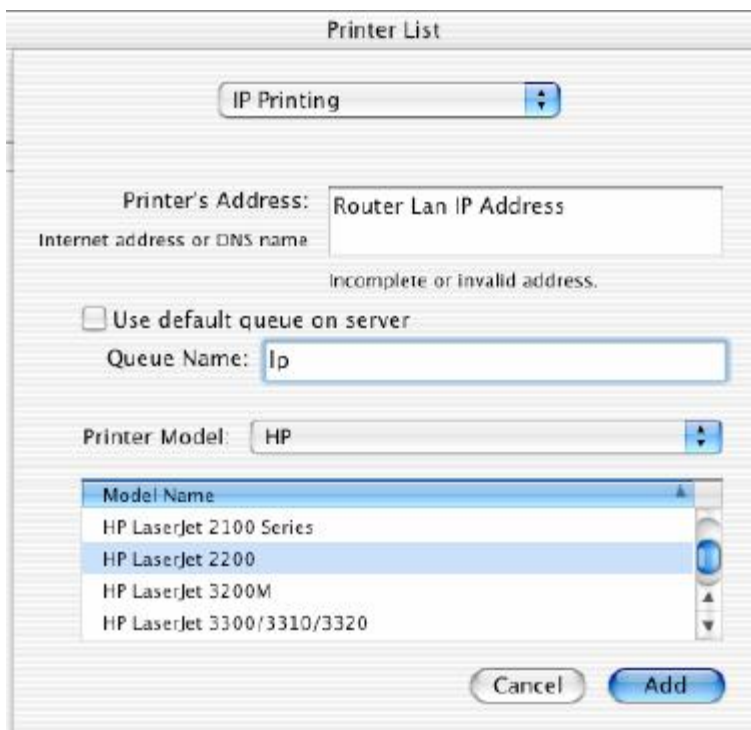
Printer Model: Generic

Cancel Add

2.Choose **IP print** and setup **printer ip address** (router Lan ip address).

3.Disable “**Default Queue of Server.**” And fill in ‘**Ip**’ in Queue name item.

4.Printer Model: Choose “**General**” or Printer as below.



Printer List

IP Printing

Printer's Address: Router Lan IP Address
Internet address or DNS name
Incomplete or invalid address.

☐ Use default queue on server
Queue Name: Ip

Printer Model: HP

Model Name
HP LaserJet 2100 Series
HP LaserJet 2200
HP LaserJet 3200M
HP LaserJet 3300/3310/3320

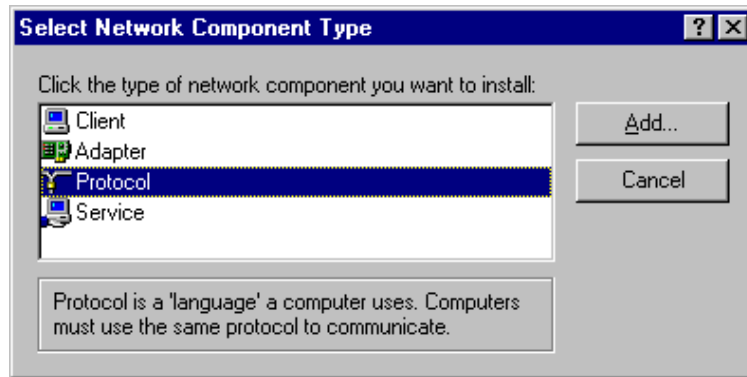
Cancel Add

Appendix A TCP/IP Configuration for Windows 95/98

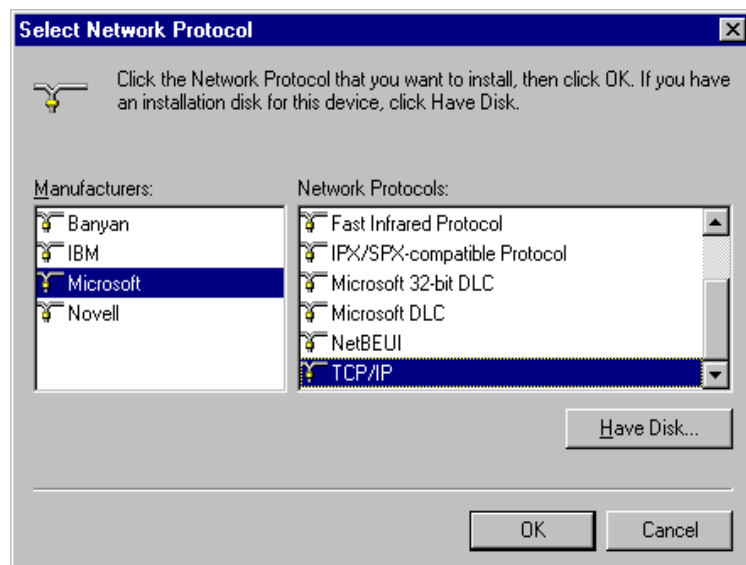
This section introduces you how to install TCP/IP protocol into your personal computer. And suppose you have been successfully installed one network card on your personal computer. If not, please refer to your network card manual. Moreover, the Section B.2 tells you how to set TCP/IP values for working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

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.



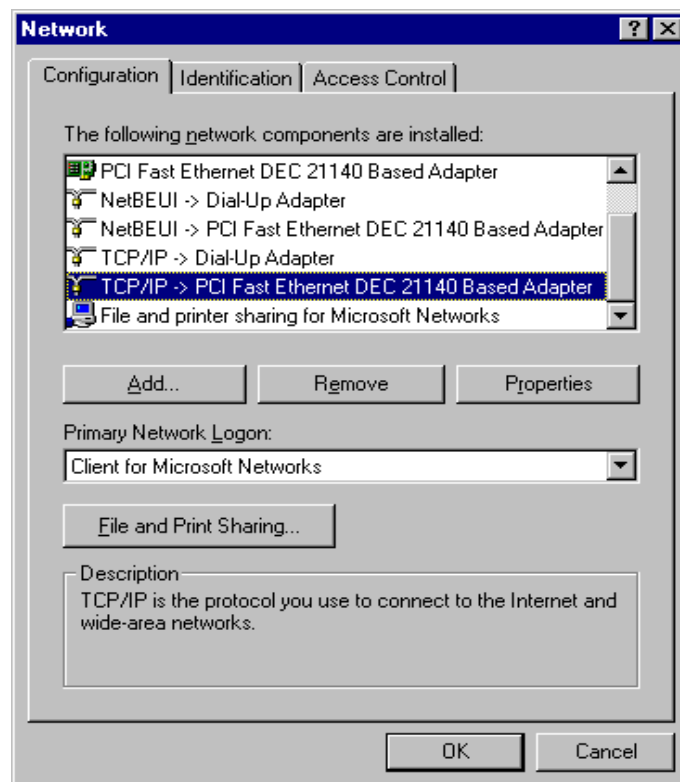
5. Select **Microsoft** item in the manufactures list. And choose **TCP/IP** in the Network Protocols. Click **OK** button to return to Network window.



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.

A.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:

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

TCP/IP Properties [?] [X]

Bindings Advanced NetBIOS

DNS Configuration Gateway WINS Configuration **IP Address**

An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.

☒ Obtain an IP address automatically

☐ Specify an IP address:

IP Address: [] [] [] []

Subnet Mask: [] [] [] []

OK Cancel

- b. Don't input any value in the Gateway tab.

The screenshot shows the 'Advanced' tab of the 'TCP/IP Properties' dialog box. The 'Gateway' sub-tab is selected. The text states: 'The first gateway in the Installed Gateway list will be the default. The address order in the list will be the order in which these machines are used.' Below this, there is a section for 'New gateway:' with an input field containing '1 . . .' and an 'Add' button. Below that is a section for 'Installed gateways:' with an empty list box and a 'Remove' button. At the bottom are 'OK' and 'Cancel' buttons.

TCP/IP Properties [?] [X]

Bindings Advanced NetBIOS

DNS Configuration Gateway WINS Configuration IP Address

The first gateway in the Installed Gateway list will be the default.
The address order in the list will be the order in which these machines are used.

New gateway:

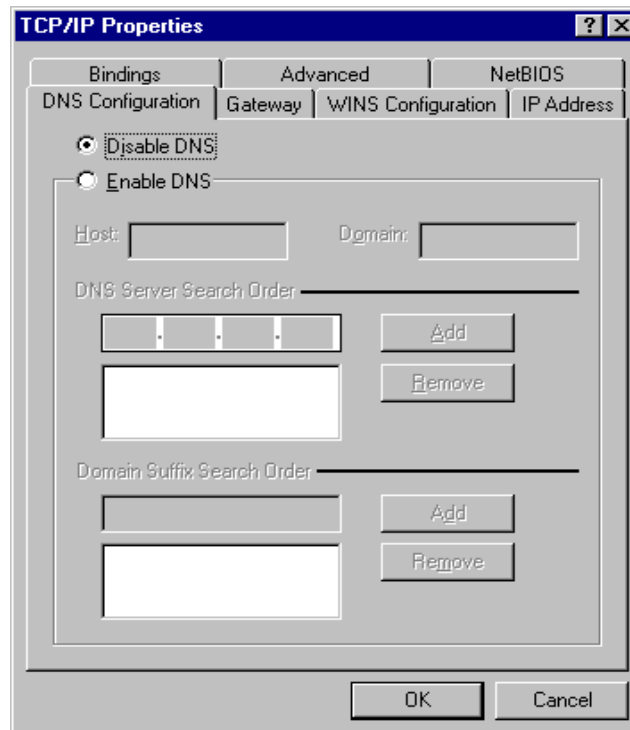
1 . . . Add

Installed gateways:

Remove

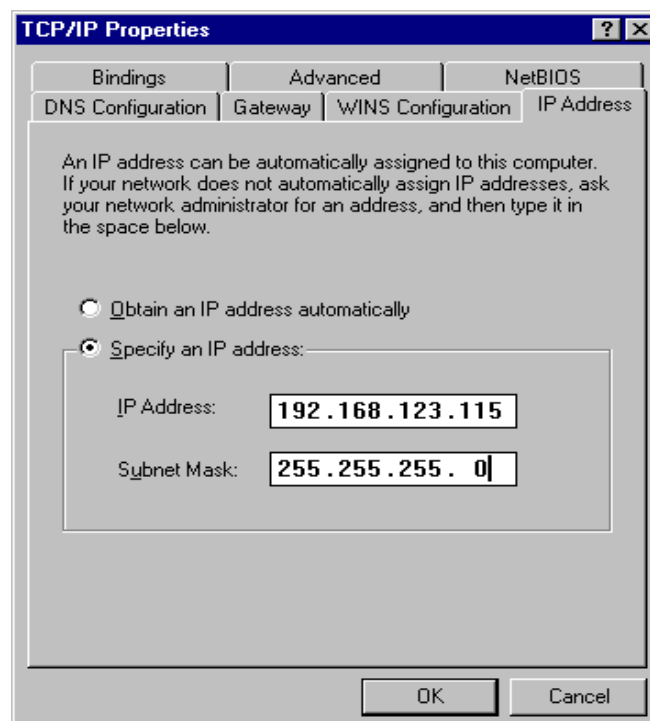
OK Cancel

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

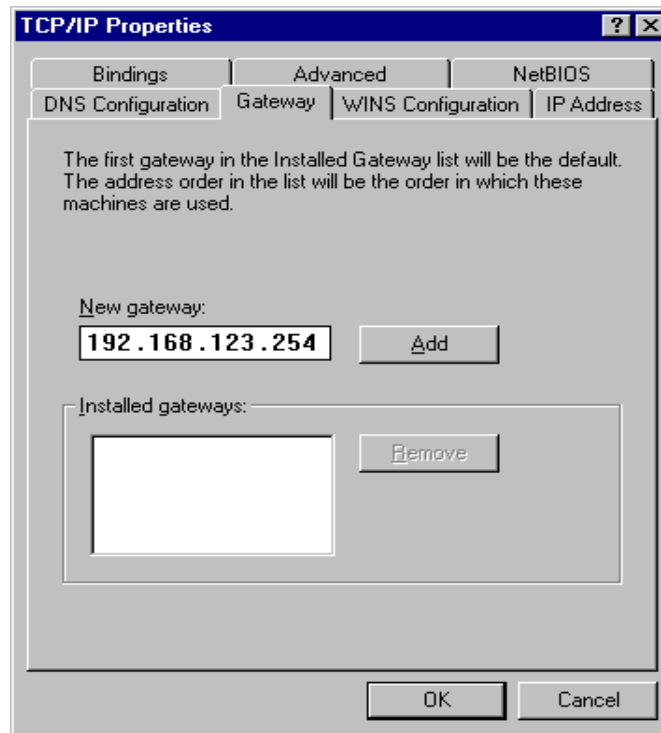


B. Configure IP manually

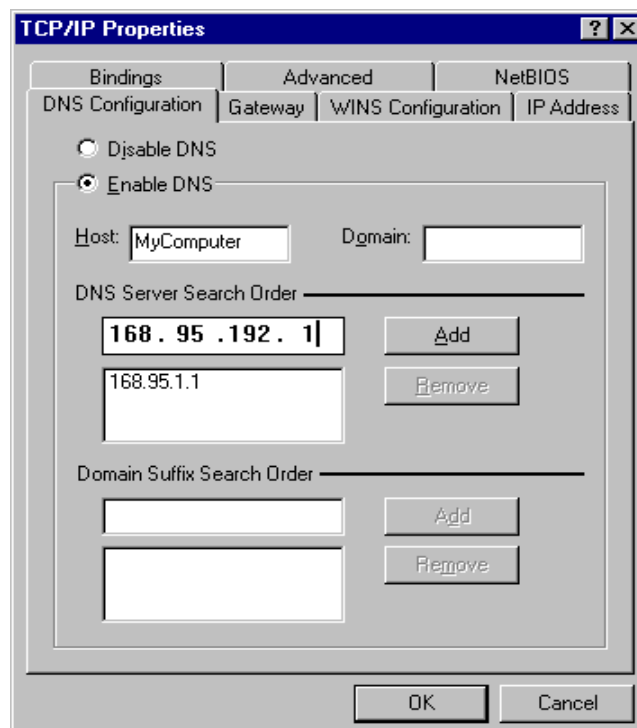
- a. Select **Specify an IP address** in the IP Address tab. The default IP address of this product is 192.168.1.254. So please use 192.168.1.xxx (xxx is between 1 and 253) for IP Address field and 255.255.255.0 for Subnet Mask field.



- b. In the Gateway tab, add the IP address of this product (default IP is 192.168.1.254) 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.



Appendix B 802.1x Setting

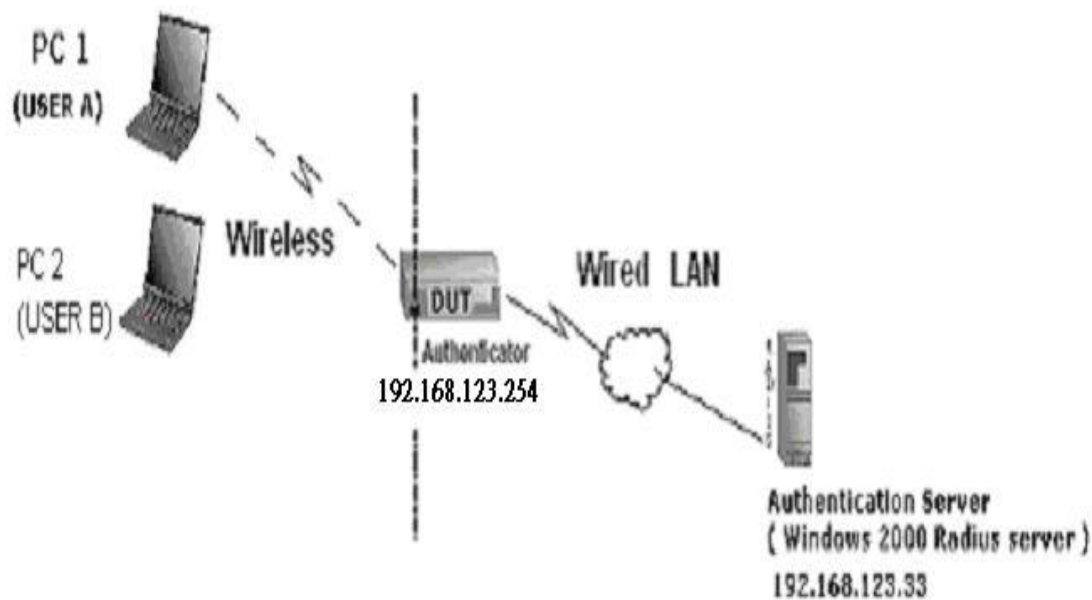


Figure 1: Testing Environment (Use Windows 2000 Radius Server)

1 Equipment Details

PC1:

Microsoft Windows XP Professional without Service Pack 1.

D-Link DWL-650+ wireless LAN adapter

Driver version: 3.0.5.0 (Driver date: 03.05.2003)

PC2:

Microsoft Windows XP Professional with Service Pack 1a.

Z-Com XI-725 wireless LAN USB adapter

Driver version: 1.7.29.0 (Driver date: 10.20.2001)

Authentication Server: Windows 2000 RADIUS server with Service Pack 3 and HotFix Q313664.

Note. Windows 2000 RADIUS server only supports PEAP after upgrade to service pack 3 and HotFix Q313664 (You can get more information from <http://support.microsoft.com/default.aspx?scid=kb;en-us;313664>)

2 DUT

Configuration:

- 1.Enable DHCP server.
- 2.WAN setting: static IP address.
- 3.LAN IP address: 192.168.1.254/24.
- 4.Set RADIUS server IP.
- 5.Set RADIUS server shared key.
- 6.Configure WEP key and 802.1X setting.

The following test will use the inbuilt 802.1X authentication method such as ,EAP_TLS, PEAP_CHAPv2(Windows XP with SP1 only), and PEAP_TLS(Windows XP with SP1 only) using the Smart Card or other Certificate of the Windows XP Professional.

3. DUT and Windows 2000 Radius Server Setup

3-1-1. Setup Windows 2000 RADIUS Server

We have to change authentication method to MD5_Challenge or using smart card or other certificate on RADIUS server according to the test condition.

3-1-2. Setup DUT

- 1.Enable the 802.1X (check the “Enable checkbox”).
- 2.Enter the RADIUS server IP.
- 3.Enter the shared key. (The key shared by the RADIUS server and DUT).
- 4.We will change 802.1X encryption key length to fit the variable test condition.

3-1-3. Setup Network adapter on PC

- 1.Choose the IEEE802.1X as the authentication method. (Fig 2)

Note.

Figure 2 is a setting picture of Windows XP without service pack 1. If users upgrade to service pack 1, then they can't see MD5-Challenge from EAP type list any more, but they will get a new Protected EAP (PEAP) option.

- 2.Choose MD5-Challenge or Smart Card or other Certificate as the EAP type.
- 3.If choosing use smart card or the certificate as the EAP type, we select to use a certificate on this computer. (Fig 3)

4. We will change EAP type to fit the variable test condition.

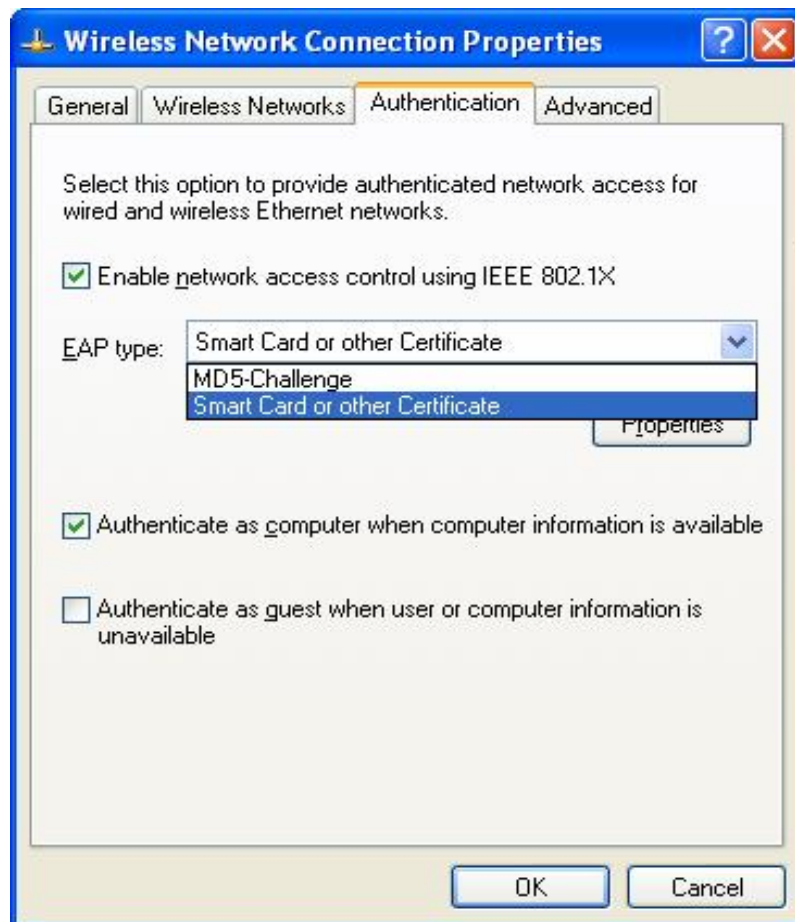


Figure 2: Enable IEEE 802.1X access control

Figure 3: Smart card or certificate properties

4. Windows 2000 RADIUS server Authentication testing:

4.1 DUT authenticate PC1 using certificate. (PC2 follows the same test procedures.)

1. Download and install the certificate on PC1. (Fig 4)
2. PC1 choose the SSID of DUT as the Access Point.
3. Set authentication type of wireless client and RADIUS server both to EAP_TLS.
4. Disable the wireless connection and enable again.
5. The DUT will send the user's certificate to the RADIUS server, and then send the message of authentication result to PC1. (Fig 5)
6. Windows XP will prompt that the authentication process is success or fail and end the authentication procedure. (Fig 6)
7. Terminate the test steps when PC1 get dynamic IP and PING remote host successfully.

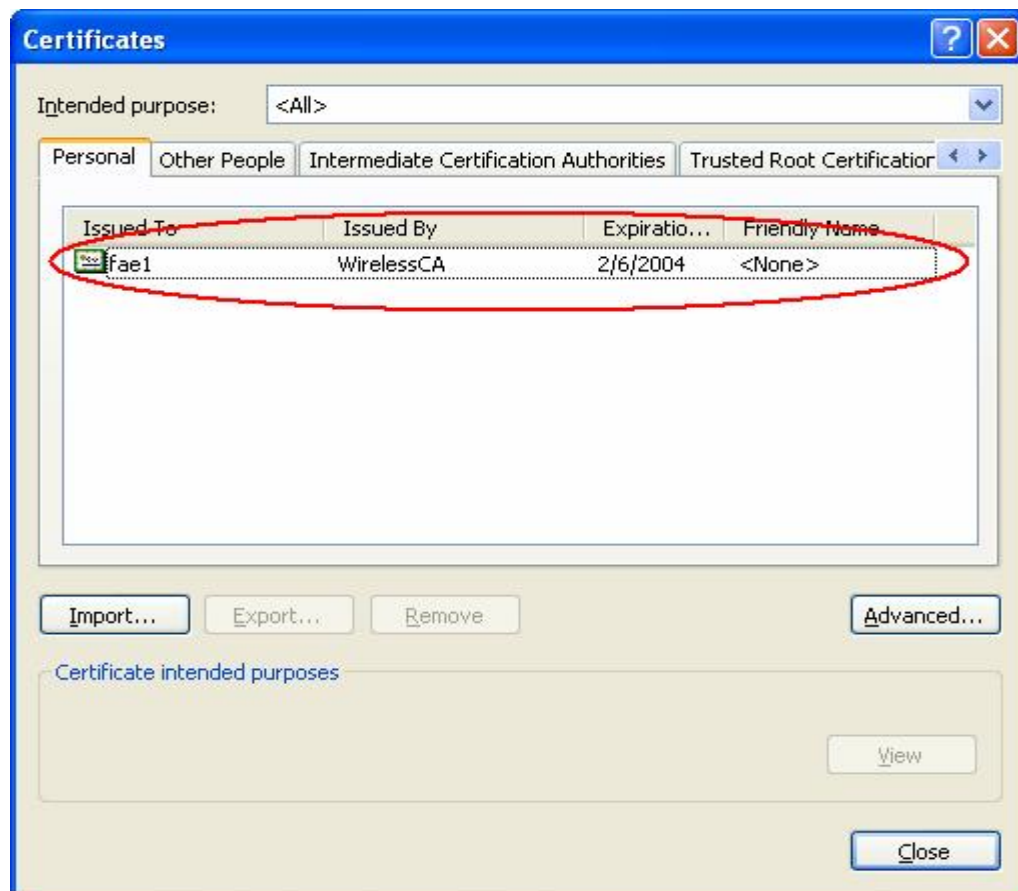


Figure 4: Certificate information on PC1

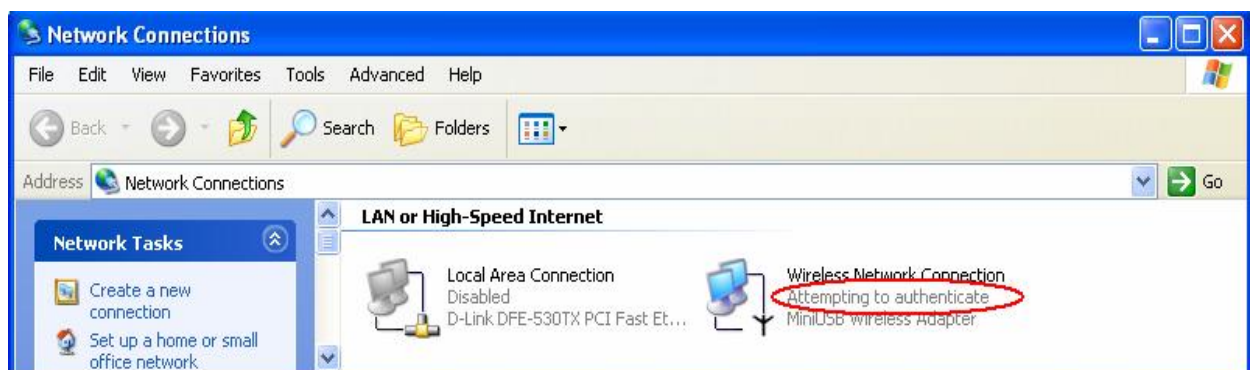


Figure 5: Authenticating

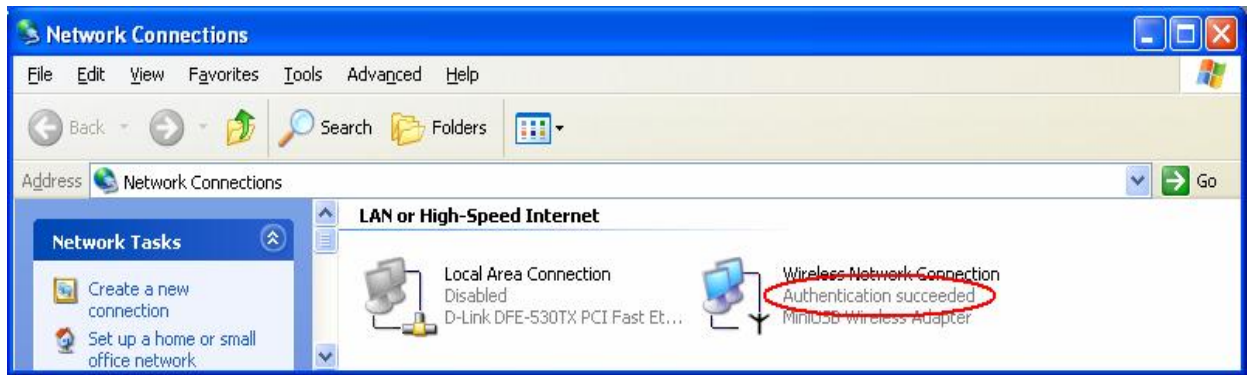


Figure 6: Authentication success

4.2DUT authenticate PC2 using PEAP-TLS.

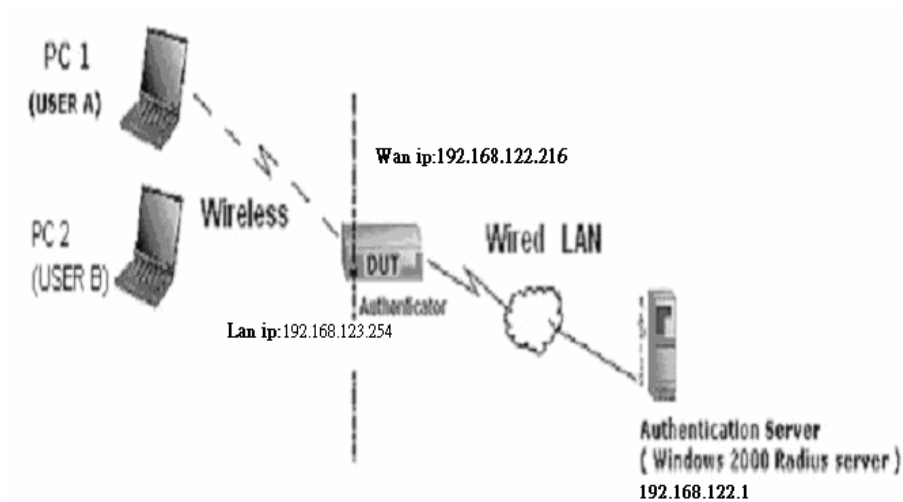
1. PC2 choose the SSID of DUT as the Access Point.
2. Set authentication type of wireless client and RADIUS server both to PEAP_TLS.
3. Disable the wireless connection and enable again.
4. The DUT will send the user's certificate to the RADIUS server, and then send the message of authentication result to PC2.
5. Windows XP will prompt that the authentication process is success or fail and end the authentication procedure.
6. Terminate the test steps when PC2 get dynamic IP and PING remote host successfully.

Support Type: The router supports the types of 802.1x Authentication: PEAP-CHAPv2 and PEAP-TLS.

Note.

1. PC1 is on Windows XP platform without Service Pack 1.
2. PC2 is on Windows XP platform with Service Pack 1a.
3. PEAP is supported on Windows XP with Service Pack 1 only.
4. Windows XP with Service Pack 1 allows 802.1x authentication only when data encryption function is enable.

Appendix C WPA-PSK and WPA



Wireless Router: LAN IP: 192.168.123.254

WAN IP: 192.168.122.216

Radius Server: 192.168.122.1

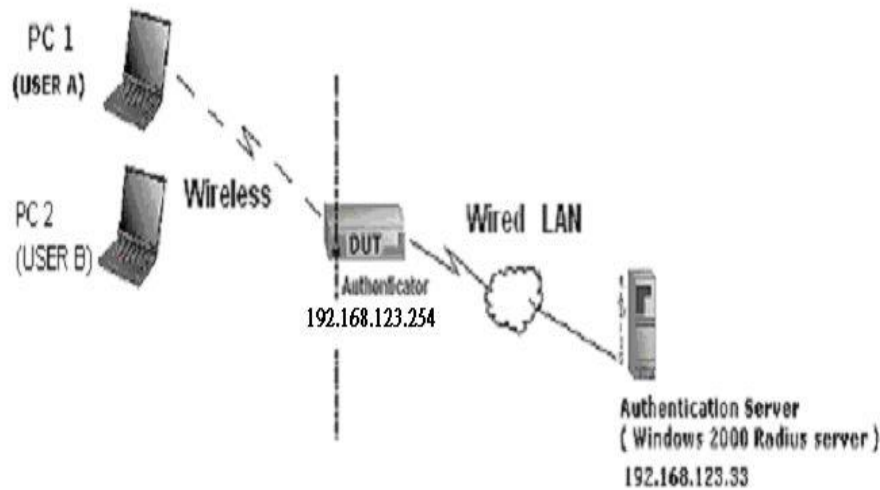
UserA : XP Wireless Card:Ti-11g

Tool: Odyssey Client Manager

Refer to: www.funk.com

Download: http://www.funk.com/News&Events/ody_c_wpa_preview_pn.asp

Or Another Configuration:



WPA-PSK

In fact, it is not necessary for this function to authenticate by Radius Server, the client and wireless Router authenticate by themselves.

Method1:

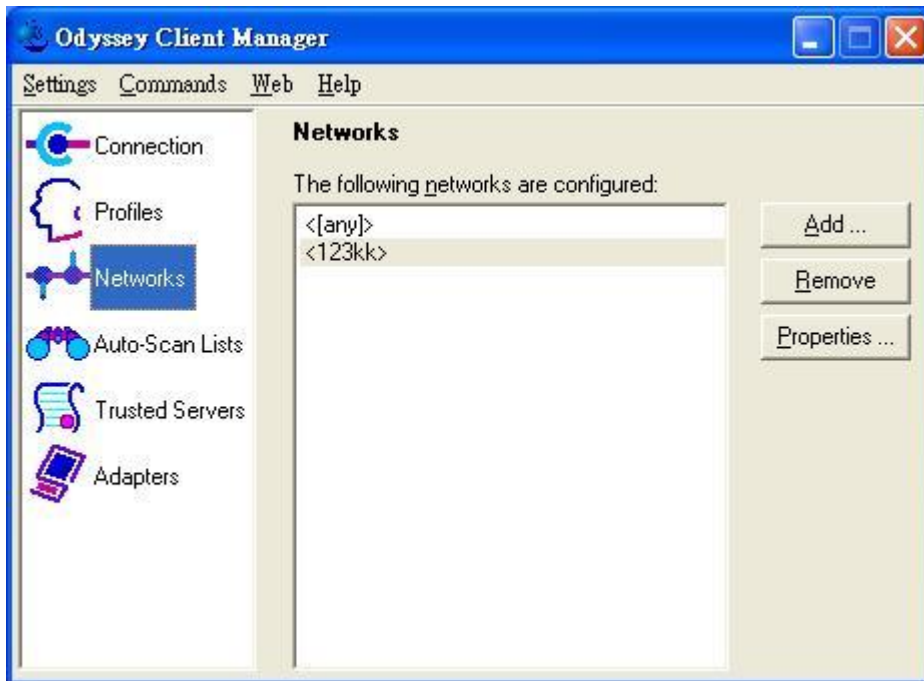
1. Go to the Web manager of Wireless Router to configure, like below:

Network ID(SSID)	123kk
Channel	8
Security	WPA-PSK
Key Mode	ASCII
Preshare Key	12345678

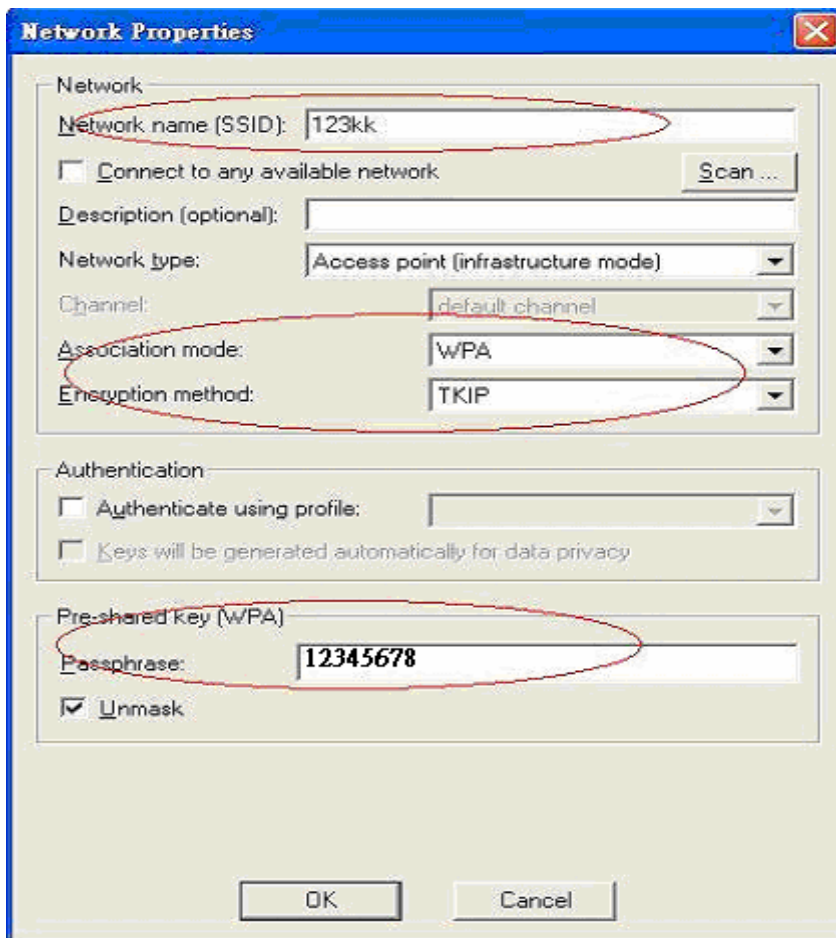
2. Go to Odyssey Client Manager, first choose "Network"

Before doing that, you should verify if the software can show the wireless card.

Open "Adapters"

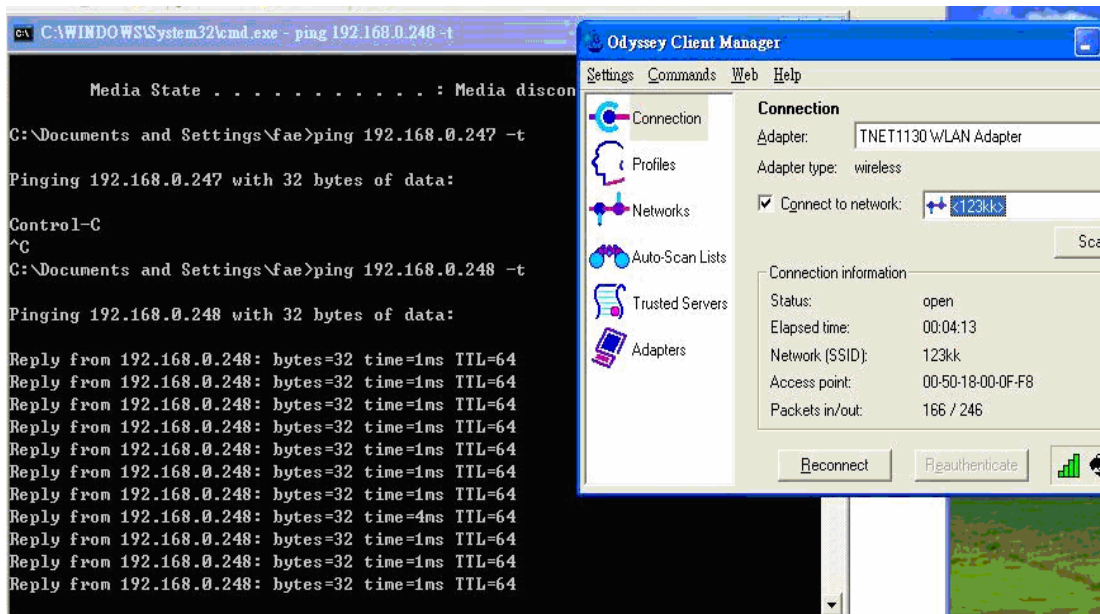


3. Add and edit some settings:



4. Back to Connection:

Then Select “Connect to network” You will see:



Method2:

1. First, patch windows XP and have to install “Service package 1”

Patch:

<http://www.microsoft.com/downloads/details.aspx?displaylang=en&FamilyID=5039ef4a-61e0-4c44-94f0-c25c9de0ace9>

2. Then reboot.
3. Setting on the router and client:

Router:

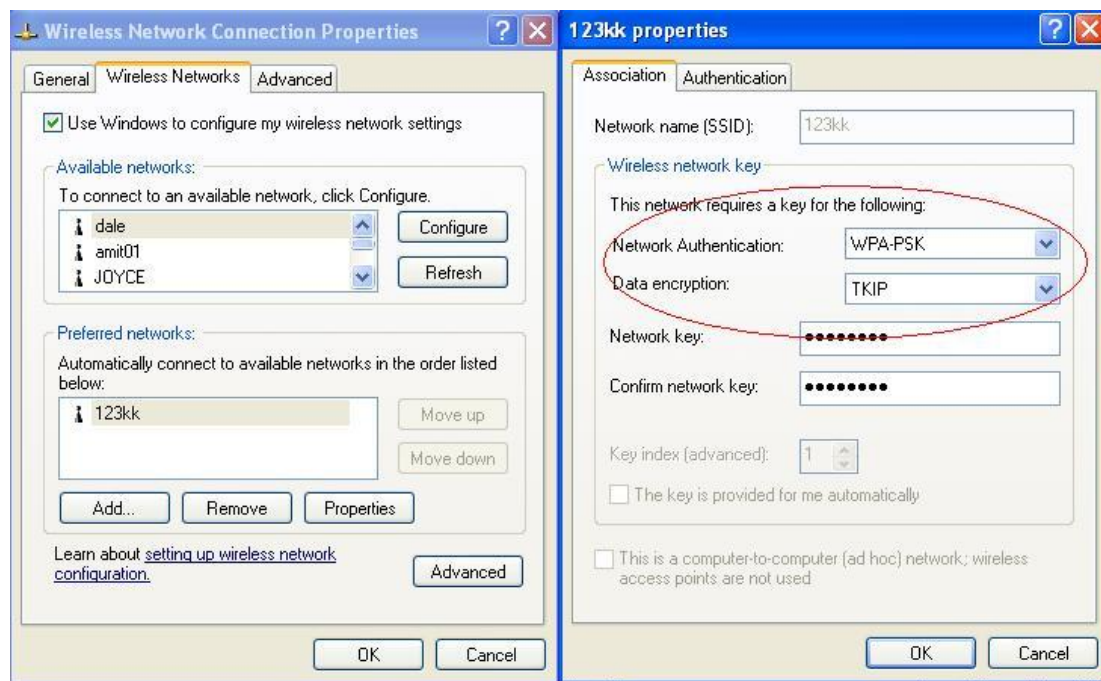
Network ID(SSID)	123kk
Channel	8
Security	WPA-PSK
Key Mode	ASCII
Preshare Key	12345678

Client:

Go to “Network Connection” and select wireless adapter.

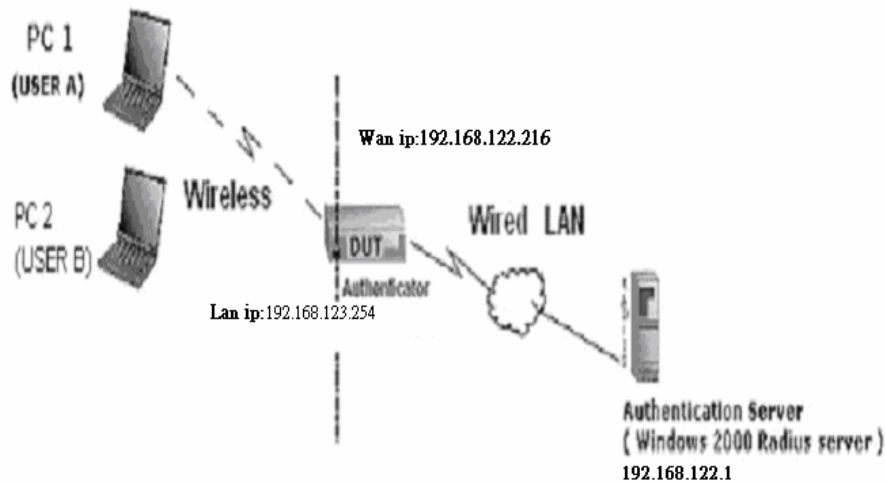
Choose “View available Wireless Networks” like below:

Advancedà choose “1kk”



WPA:

For this function, we need the server to authenticate. This function is like 802.1x.



The above is our environment:

Method 1:

1. The UserA or UserB have to get certificate from Radius, first.

<http://192.168.122.1/certsrv>

account : fael

passwd : fael



2. Then, Install this certificate and finish.

3. Go to the Web manager of Wireless Router to configure, like below:

Network ID(SSID)	123kk
Channel	8
Security	WPA

802.1X Settings

RADIUS Server IP	192.168.122.1
RADIUS port	1812
RADIUS Shared Key	costra

4. Go to Odyssey Client Manager, choose “Profiles” and Setup Profile name as “1”

Add Profile

Profile name: 1

User Info | Authentication | ITLS Settings | PEAP Settings

Login name: fae1

Password

☒ Permit login using password

☐ use Windows password

☐ prompt for password

☒ use the following password:

fae1

☒ Unmask

Certificate

☒ Permit login using my certificate:

fae1

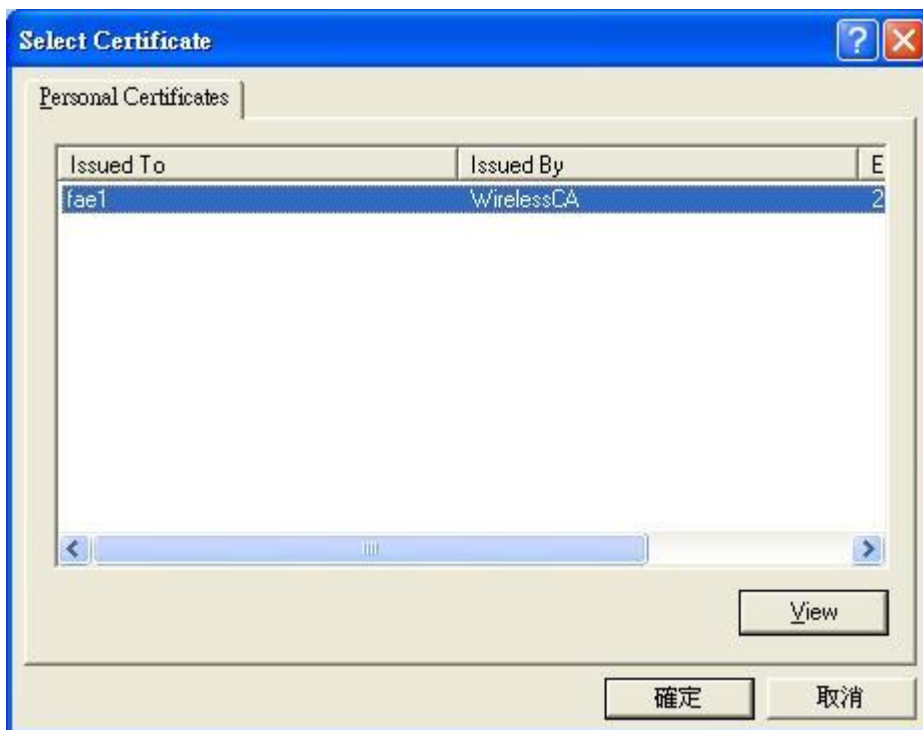
View ... Browse ...

OK Cancel

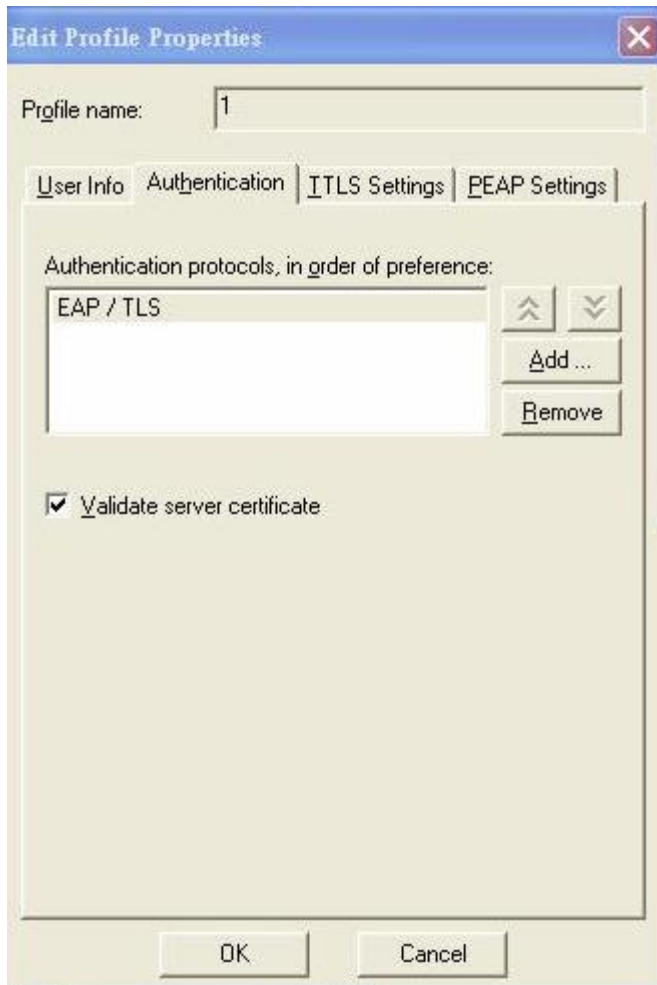
Login name and passwd are fae1 and fae1.

Remember that you get certificate from Radius in Step1.

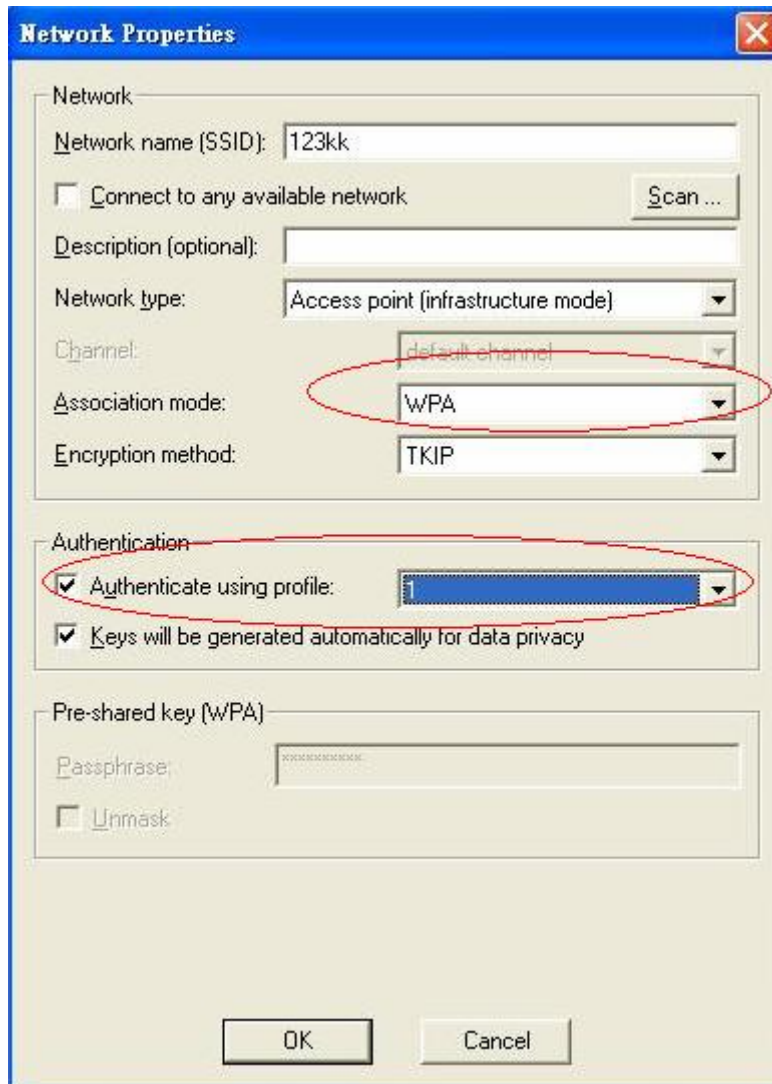
5. Then Choose “certificate” like above.



6. Then go to Authentication and first Remove EAP/ TLS and Add EAP/TLS again.



7. Go “Network” and Select “1” and ok



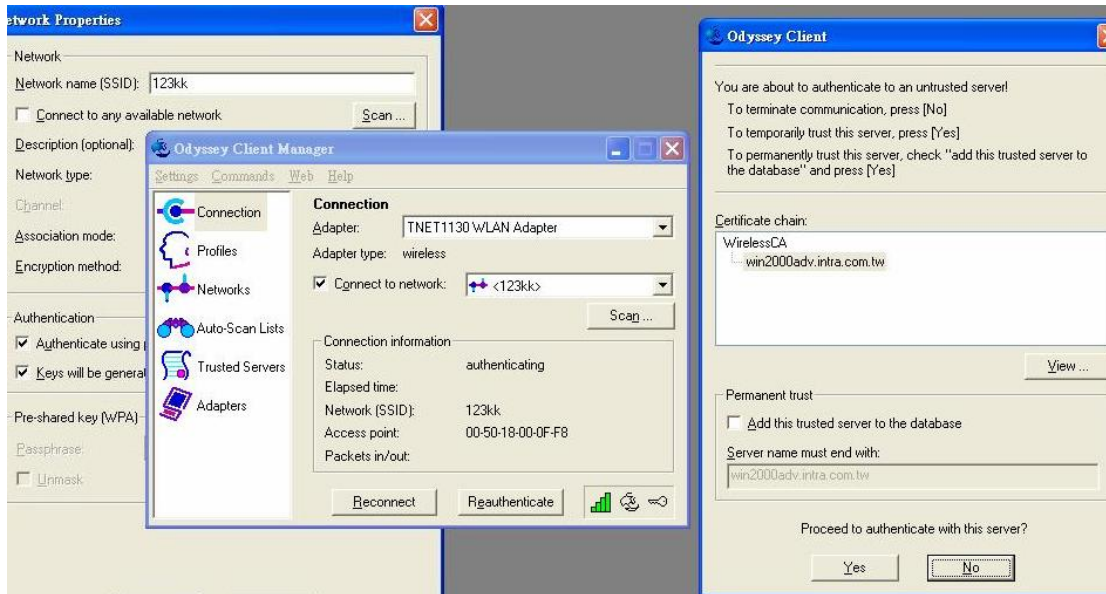
The image shows a Windows XP-style "Network Properties" dialog box. It has a blue title bar with the text "Network Properties" and a close button. The dialog is divided into three main sections: "Network", "Authentication", and "Pre-shared key (WPA)".

- Network section:**
 - Network name (SSID):** A text box containing "123kk".
 - Connect to any available network:** An unchecked checkbox.
 - Description (optional):** An empty text box.
 - Network type:** A dropdown menu showing "Access point (infrastructure mode)".
 - Channel:** A dropdown menu showing "default channel".
 - Association mode:** A dropdown menu showing "WPA". This dropdown is circled in red.
 - Encryption method:** A dropdown menu showing "TKIP".
- Authentication section:**
 - Authenticate using profile:** A checked checkbox followed by a dropdown menu showing "1". This dropdown is circled in red.
 - Keys will be generated automatically for data privacy:** A checked checkbox.
- Pre-shared key (WPA) section:**
 - Passphrase:** A text box containing "YOURPASSWORD".
 - Unmask:** An unchecked checkbox.

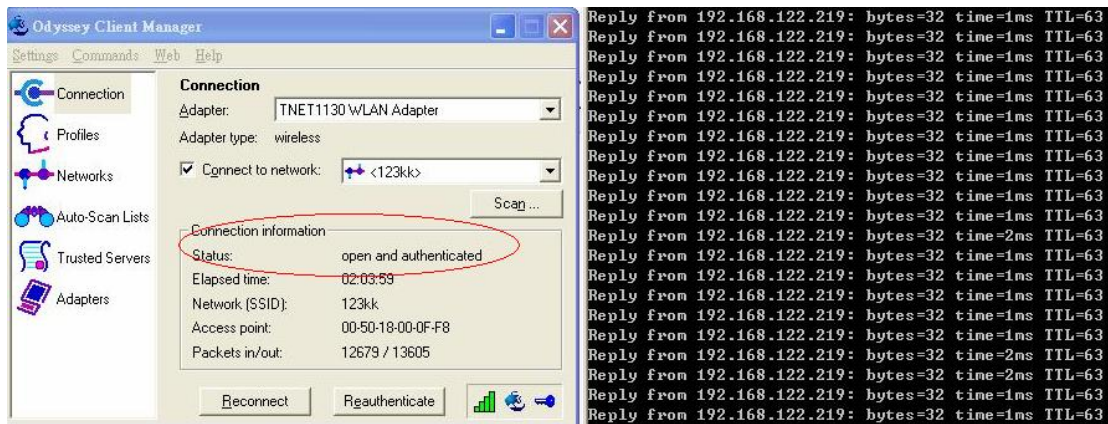
At the bottom of the dialog are two buttons: "OK" and "Cancel".

8. Back to Connection and Select “1kk.

If **successfully**, the wireless client has to authenticate with Radius Server, like below:



9.Result:



Method 2:

1. The UserA or UserB have to get certificate from Radius,first.

<http://192.168.122.1/certsrv>

account:fael

passwd:fael



2. Then Install this certificate and finish.

3. Setting on the router and client:

Router:

Network ID(SSID)	<input type="text" value="123kk"/>
Channel	<input type="text" value="8"/>
Security	<input type="text" value="WPA"/>

802.1X Settings

RADIUS Server IP	<input type="text" value="192.168.122.1"/>
RADIUS port	<input type="text" value="1812"/>
RADIUS Shared Key	<input type="text" value="costra"/>

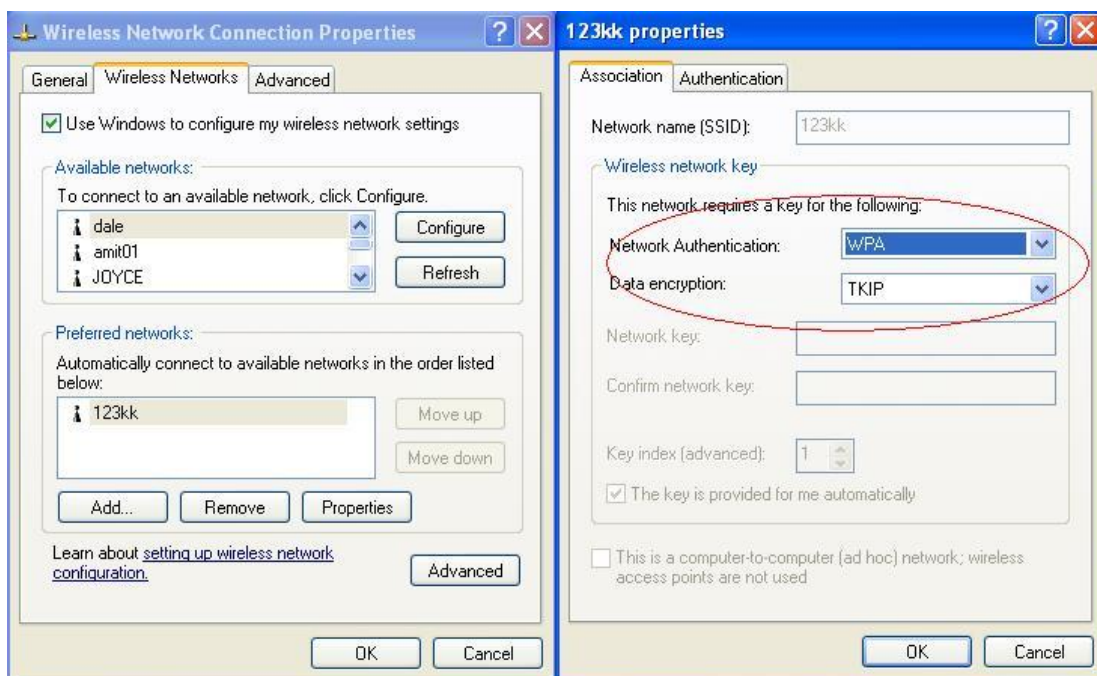
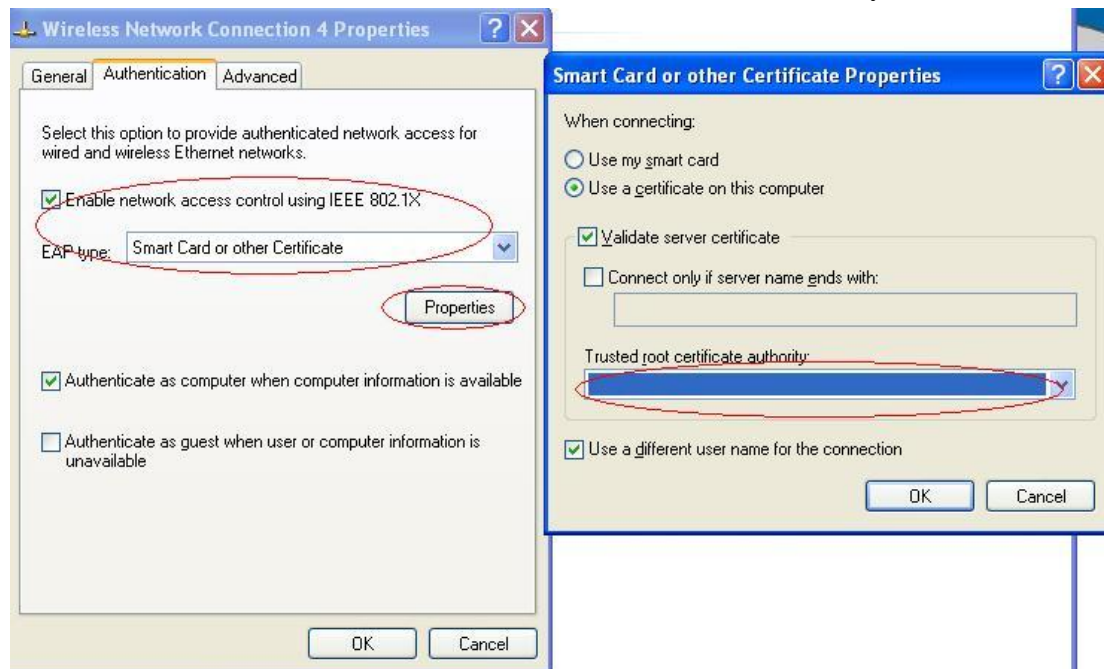
Client:

Go to “Network Connection” and select wireless adapter.

Choose “View available Wireless Networks” like below:

Advancedà choose “1kk”

Select “WirelessCA and Enable” in Trusted root certificate authority:



Then, if the wireless client wants to associate, it has to request to authenticate.

Appendix D FAQ and Troubleshooting

Reset to factory Default

There are 2 methods to reset to default.

1. Restore with RESET button

First, turn off the router and press the RESET button in. And then, power on the router and push the RESET button down until the M1 and or M2 LED (or Status LED) start flashing, then remove the finger. If LED flashes about 8 times, the RESTORE process is completed. However, if LED flashes 2 times, repeat.

2. Restore directly when the router power on

First, push the RESET button about 5 seconds (M1 will start flashing about 5 times), remove the finger

. The RESTORE process is completed.

Appendix E Product Specification

Hardware and Port Characteristic	
CPU	AMRISC 10020
Memory	Flash 1MB, DRAM 2MB
LAN Port	4 x RJ45, 10/100 Mbps with Auto-MDI/MDIX
WAN Port	1 x RJ45, 10/100 Mbps with Auto-MDI/MDIX
USB Port	1 x USB Jack (type A), USB 2.0 Compliant
Input Power	DC 5V2A
Operational & Functional Characteristic	
Firmware Platform	MSI Proprietary Kernel
Management Method	Web-based
Supported WAN Type	Static IP Address
	Dynamic IP Address (DHCP Client)
	PPP over Ethernet
	Multi-session PPP over Ethernet (For Japan only)
	PPTP
	L2TP
Connection Scheme	Connect on Demand / Auto-Disconnect
	Manually Connect/Disconnect
	Auto Reconnect
NAT Functionality	One-to-Many NAT
	One-to-One NAT
	Virtual Server
	Special Application
	DMZ Host
Access Control	MAC-level Access Control
	Inbound/Outbound IP Filter
	Domain Access Control
Firewall	NAT Firewall with SPI mode
	DoS Detection
Event Logging	On-web logging

	Syslog supported
	Email Alert
VPN Supporting	IPSec, PPTP, LT2P Pass-Through
Routing	Static Route
Upgrade Method	Web-based
	Windows Application
Other Features	DDNS Supported
	UPnP Supported
	SNMP Supported
Wireless Support	
Standard	IEEE 802.11b / 802.11g
Data Rate	6/12/18/24/36/48/54Mbps in 802.11g mode 1/2/5.5/11Mbps in 802.11b mode
Operating Frequency	2.4GHz
Range Coverage	Per cell indoors approx. 35-100 meters Per cell outdoors up to 100-300 meters
Antenna	2 dBi antenna x 1
Number of Channels	America/ FCC: 2.412~2.462GHz (11 Channels) Japan/ TELEC: 2.412~2.484GHz (14 Channels) Europe/ ETSI: 2.412~2.472GHz (13 Channels)
Security	WEP encryption and WPA supported
Environment, Certification and Reliability	
Operating Temperature	Temperature: 0~40°C, Humidity 10%~90% non-condensing
Storage Temperature	Temperature: -20~70°C, Humidity: 0~95% non-condensing
EMC/Safety	FCC, CE, DGT