

Wireless 11g Residential Gateway

MS-6824

FCC Caution

- 1. This 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: This equipment complies with the FCC RF radiation exposure limits set forth for uncontrolled environment. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."**
- 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.**
- 5. The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.**

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Revision History

Revision	Revision History	Date
V1.0	First Release	March 2003

Important Safety Precautions

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

1. Keep this User's 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's 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.
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Table of Contents

1. Introduction	1
1.1 MSI RG54G - Wireless 11g Residential Gateway	1
1.2 Networking Options	2
1.3 Features and Benefits	3
1.4 Package Contents	4
1.5 System Requirements	4
1.6 Specifications	5
2. Hardware installation	6
2.1 Product View	6
2.2 Connections	7
2.3 LEDs	8
2.2 Installing Your RG54G	9
3. Configuration	10
3.1 Configuration Utility	10
3.2 Typical Configuration	13
3.3 Customized Configuration	17
3.3.1 System	18
3.3.2 Internet	20
3.3.3 LAN	22
3.3.4 Wireless	24
3.3.5 NAT	26
3.3.6 Firewall	27
4. Technical Support	29
Appendix	30
Assigning a Fixed IP Address	30

1

Introduction

>>> 1.1 MSI RG54G - Wireless 11g Residential Gateway

MSI RG54G Residential Gateway (hereafter called RG54G), compliant with IEEE802.11g, is designed for high throughput and fully function that leads you into the wireless network environment. In the rapid growing network environment, MSI RG54G acts as a home-end device that connects your computer to the WAN service (e.g. the Internet). With the RG54G, networking and sharing information throughout the house/office becomes an easy and flexible task. In addition, the RG54G is also a switching device as an aggregating point of the wireless LAN and wired LAN clients, and as a router between LAN and WAN traffic.

MSI RG54G combines the basic firewall, wireless Access Point, and LAN switch into one compact and stylish package to provide security and IP sharing function. These features build the RG54G as a cutting-edge, cost-effective device that fits to SOHO/home application.

>>> 1.2 Networking Options

MSI RG54G is a Base Station that bridges communication between computers (via wireless networking), and connects the computers to the Internet.

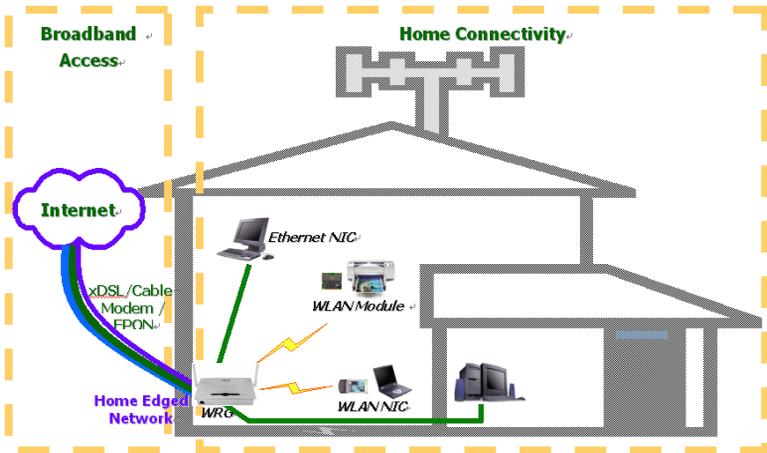
You can use the RG54G in the following applications:

Home connectivity

A stand-alone wireless network.

Broadband access

A wireless/wired Internet access via xDSL/Cable Modem or Ethernet.



Typical Configuration of Wireless LAN

To build your network, you will need:

- One MSI RG54G.
- One or more network adapters/wireless network adapters for computers.
- One ISP (Internet Service Provider) account for connecting to the Internet.

>>> 1.3 Features and Benefits

With MSI RG54G, your network can immediately upgrade to a wireless network, providing wireless access to the LAN and WLAN, and sharing information and printers in the network.

54 Mbps Data Rate (max.)/150-500 ft. Indoor Range

The RG54G runs with data-intensive applications like MP3, multimedia, gaming and streaming video/audio - even through walls, floors and ceilings. You can get Ethernet quality networking without wires and cables - ideal for standard networking requirements.

Superior Antenna Design

Dual dipole antennas provide superior polarized reception and diversity transmission for the best signal quality.

Interoperable with any 802.11g Compliant Device

The RG54G complies with IEEE 802.11g standard and Wi-Fi, allowing full interoperability with any Wi-Fi certified wireless product.

Easy to Install and Use

The Setup Wizard with user-friendly and Windows-based interface provides step-by-step instructions, making the RG54G fast and easy to be installed and used in the network.

WEP Security to Ensure Privacy

Supports 64-/128-bit WEP encryption, which ensures that your network signal is secure and private inband and outband of your home and office.

Scalability

The RG54G can be configured in every way to meet your needs of specific applications and installations. It also provides Flash memory for easy firmware upgrade.

>>> 1.4 Package Contents

Unpack the package and check all the items carefully. If any item contained is damaged or missing, please contact your local dealer immediately. Also, keep the box and packing materials in case you need to ship the unit in the future. The package should contain the following items:



One Wireless 11g Residential Gateway.



One AC Power Adapter, 5VDC/2A output.



One Ethernet cable (RJ-45).



One Quick Installation Guide.



One CD title including drivers, utilities, user's manual and quick guide.

>>> 1.5 System Requirements

After installing the RG54G, you need the followings to configure respective network settings:



A Computer with Windows operating system and installed with Ethernet adapter.



A JavaScript-enabled web browser, such as Internet Explorer 6.0 and later.

>>> 1.6 Specification

Standards

- IEEE802.11g.

LAN Connection

- Four auto-negotiating 10/100Mbps RJ-45 ports.

WAN Connection

- One 10Mbps Ethernet port for connecting to the xDSL/Cable Modem.

Internet Protocol Support

- TCP/IP, NAT, DHCP, HTTP, FTP, PPPoE, DDNS.

Operating System Support

- Microsoft Windows 98SE/Me/2000/XP.

LEDs

- Power, LAN (1~4), WAN, Wireless network.

Environmental and Physical

- Dimension: 180 x 127.2 x 32.2mm (L x W x H).
- Weight: TBDg.
- Operating Temperature: 0°C to 50°C.
- Storage Temperature: -25°C to 70°C.
- Humidity: 5% to 95%, non-condensing.

EMI Compliance

- FCC Class B, CE Class B.

2 Hardware Installation

This chapter provides a quick introduction to your RG54G, including product view, installation and power up.

>>> 2.1 Product View

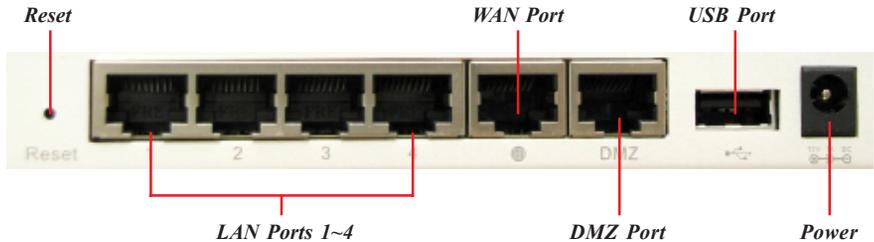


Front View



Rear View

>>> 2.2 Connections



** Use a pointed object
(e.g. a stretched clip)*

Reset Button

1. Press and hold* this button longer than 5 seconds to restart the RG54G.
2. Press and hold* this button longer than 8 seconds, the system will reload the factory default settings.

LAN Ports 1~4

The RG54G provides four 10/100 Mbps RJ-45 ports, allowing connection to the computers and other network devices.

WAN Port

This 10 Mbps Ethernet port provides connection to your xDSL/Cable Modem or Ethernet connection.

Power Connector

Connect the enclosed power adapter and provide power to the RG54G.

>>> 2.3 LEDs



Power

A steady **Blue** light glows to indicate the power adapter is connected.

LAN 1~4

The **Green** light glows when there is a computer/device connected to respective port.



WAN

A **Green** light glows when the system connects to the xDSL/Cable Modem or Ethernet connection, and it will blink when receiving/transmitting data on the link.

Wireless Status

A **Green** light glows to indicate the status of RG54G's wireless networking.

>>> 2.4 Installing Your RG54G

Positioning

The RG54G can be put on a flat surface or can be mounted on the wall. Before connecting the RG54G to your devices, please note that it should be placed in a location where is:

- **Easy to access**; so that you can conveniently connect it to the xDSL/Cable Modem through the WAN port, and to the computers/devices through the LAN ports.
- **Allows you to observe the LEDs clearly**; so that you may monitor the real-time networking status and take instant measures as problems arise.

Connecting Cables

1. Plug the DC end of the power adapter into the power connector of the RG54G (see *page 7, Connections*), and the AC end to the wall outlet later.
2. To connect the Internet, use the suitable cable to connect the RG54G's WAN port to your xDSL/Cable Modem.
3. For wired connection, connect your computers/ devices to the LAN ports (1~4) on the RG54G (see *page 7, Connections*).
4. For wireless connection, install the wireless adapters onto your computers, and you have to configure settings to take full advantages of the RG54G.

Power Up

When the DC end of the power cable is connected to the RG54G, plug the AC end to the wall outlet. The RG54G is powered up immediately.

3 Configuration

>>> 3.1 Configuration Utility

* **admin** is the default password of the wireless gateway, and can be changed in the Configuration Utility. See section 3.3.1 for details.

The MSI RG54G provides you a convenient utility to customize the network settings. Whenever you want to configure the respective settings, open your web browser (e.g. Internet Explorer), and type the default IP address **192.168.1.254** in the Address bar and press [Enter]. Then, type **admin** in the User Name box and **admin** in the Password box*, and click **OK**.

Open the web browser and enter the IP Address of the wireless gateway



Enter the User Name and Password

Check this option to save the settings

Click

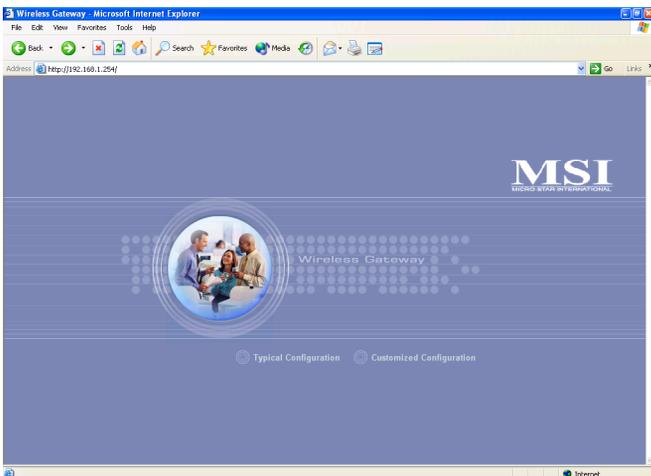
The Home window of the configuration utility will appear as below, which provides two options to select: **Typical Configuration** and **Customized Configuration**.

Typical Configuration

provides a step-by-step Setup Wizard to guide you through the basic settings of the gateway. Generally, after completing the four steps in this option, your gateway can connect to the ISP and your client computer can access to the Internet without any problem.

Customized Configuration

allows you to customize the network settings of your gateway for some specific purposes, such as changing password, updating firmware, and other network settings.



Home Window of the Configuration Utility

Q Before you begin

It's best to use a computer (with an Ethernet adapter installed) that connected to a switch for configuring your RG54G. Also, you will need to assign a fixed IP address to this computer within the IP address range of the RG54G. For example, you can assign a fixed IP address of **192.168.1.253** with a Subnet Mask of **255.255.255.0**. (For more instruction, please refer to *Appendix, Assigning a Fixed IP Address.*)

Q Factory Default Settings of the RG54G

SSID	RG54G
Channel	7
User Name	admin
Password	admin
IP Address	192.168.1.254
Subnet Mask	255.255.255.0
Encryption	Disable

>>> 3.2 Typical Configuration

Click **Typical Configuration**, and the Setup Wizard appears from **Step 1** to guide you through the configuration.

The Menu Bar



Step 1. Setting the Time Zone

The Menu Bar

During the Setup Wizard, whenever you click **HOME** in the menu bar will make you return to the Home window; click **Logout** to exit the Configuration Utility.



The Menu Bar

Step 1. Setting the Time Zone

First, you should set the Time Zone. For system management purpose, a correctly time zone setting will let you have accurate time stamps on the system log. If you are in the area that within the daylight saving period, please also check the **Daylight Saving** option.

When completed, click **Next** to continue *step 2*.

Step 2. Setting the Broadband Type

According to the connection type you are using, click the respective option to configure the settings.



Step 2. Setting the Broadband Type

Step 3 Setting the Broadband Type (continue)

Cable Modem

If your broadband access is through a cable modem, select this option.

Note: If you are not sure on these settings, please ask your ISP for assistance.



In case your ISP provides you a **Host Name** or a locked **MAC Address**, you should enter these information in the respective fields.

Fixed-IP ADSL

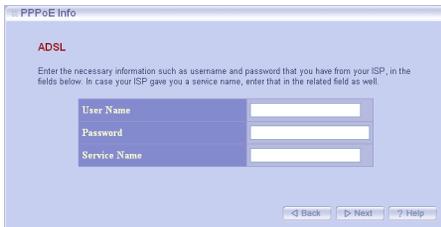
If your broadband access is through an ADSL modem and your ISP assigned you a static IP address, select this option.



Enter the necessary information such as IP address, Subnet Mask, Default Gateway and DNS server provided by your ISP in the respective fields.

ADSL

If your broadband access is through an ADSL modem and your ISP did not assign you a static IP address, select this option.



Note: If you are not sure on these settings, please ask your ISP for assistance.

Enter the necessary information such as user name and password provided by your ISP in the respective fields. In case your ISP gave you a service name, you should put it to the respective field.

When completed, click **Next** to continue step 4.

Step 4. Setting the Wireless Network Settings

You could set the SSID (Network Name) and channel for your wireless gateway.



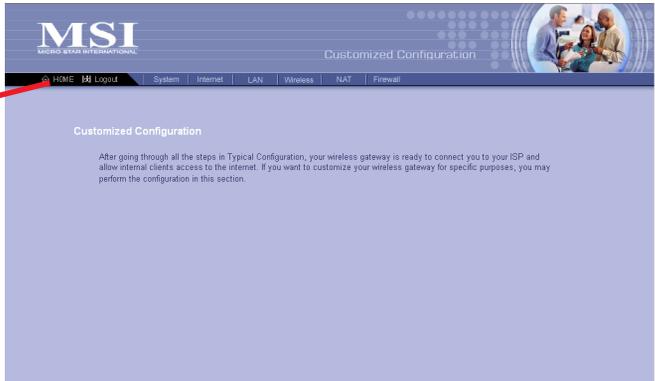
When completed, click **Finish** to save your settings. The **Apply** window appears on the screen, click **Continue** to close the configuration utility and return to the Home window.

>>> 3.3 Customized Configuration

Typically your wireless gateway will have no problem to connect to your ISP and let internal clients to access to the Internet without any problem after going through all steps in Typical Configuration. If you want to customize your wireless gateway for some specific purposes, you may perform the configuration here.

Click **Customized Configuration**, and the main window appears as below.

The Menu Bar



Main Window of Customized Configuration

The Menu Bar

There is a menu bar in the top of the Customized Configuration window, where contains two options to exit the configuration window (**HOME** and **Logout**, as described in *page 15*); and seven options for advanced configuration: **System**, **Internet**, **LAN**, **Wireless**, **NAT**, and **Firewall**, each one allows you to configure the respective settings and view the system status.

3.3.1 System

This page includes all the basic configuration tools such as options to control management access, upgrade system firmware and restart system.

This window includes:

- Time Zone
- Password Setting
- Remote Management
- Firmware Upgrade
- Restart
- Factory Default
- System Status
- Statistics
- Event Log



Tip: Once you have changed the settings in each option, click **Apply** to save the settings, or **Cancel** to abandon. Clicking **Help** can bring up the help window.

Time Zone

For system management purpose, a correctly time zone setting will let you have accurate time stamps on the system log. If you uses the wireless gateway in the country adopting the Daylight Saving Time, please check the **Daylight Saving** option.

Password Setting

The wireless gateway is shipped with default password **admin**. This option allows you to use other password to replace the old password. First, enter the old password, and then enter the new password twice to confirm the password changed. Then, click **Apply** to save the settings.



Changing the password

Remote Management

Setting to **Enable** allows you to manage your wireless gateway through WAN connection (via *port 8080*).

Firmware Upgrade

Once you obtained a new version of firmware (e.g. downloading form the MSI website), you can update the firmware of your wireless gateway. Click **Browse** to point to the firmware file, and then click **Upgrade** to start.

Restart

You may restart your gateway through the Configuration Utility without unplugging the power cable or pressing the Reset button longer than 5 seconds.

Factory Default

You may re-load the factory settings of your gateway. This function is the same as pressing the Reset button longer than 8 seconds.

System Status

This option contains detail information of your wireless gateway, including general information and respective network settings.

Statistics

This option contains the statistics of your gateway, such as respective networking statistics, allowing you to monitor the device clearly. Click **Refresh** to re-load the statistics.

Event Log

You can enable or disable logging function of your gateway. Once enabled, click View can bring up the **Session Event Log** window to display the log file.



3.3.2 Internet

In the Internet settings window, you can configure the way your wireless gateway used to connect to your ISP. Also, we support DDNS for you to run your domain over a changing IP.

This window includes:
 Connection Type
 MAC Clone



Connection Type

This option allows you to configure the way to connect to your ISP. The wireless gateway can be connected to your ISP in any of the following ways: **DHCP Client**, **PPPoE**, and **Fixed IP**.

DHCP Client - If your ISP gives you a host name, select this option to enter the respective information.



PPPoE - If you use xDSL modem to connect to the ISP, select this option and enter the necessary information, including the Username, Password, Connect Option, and Disconnect Option. If your ISP gives you a service name, you should put it to the related field.

Connecting Settings

Username	<input type="text"/>
Password	<input type="password"/>
Service Name	<input type="text"/> (optional)
Connect on Demand	<input type="radio"/> Enable <input checked="" type="radio"/> Disable

PPPoE Settings Information

Fixed IP - If your ISP assigns a fixed IP Address, select this option and enter the necessary information, including IP Address, Subnet Mask, Default Gateway, Primary DNS, and Secondary DNS.

IP Address Settings

IP address:	<input type="text"/> 0 <input type="text"/> 0 <input type="text"/> 0 <input type="text"/> 0
Subnet Mask :	<input type="text"/> 0 <input type="text"/> 0 <input type="text"/> 0 <input type="text"/> 0
ISP Gateway :	<input type="text"/> 0 <input type="text"/> 0 <input type="text"/> 0 <input type="text"/> 0
Primary DNS :	<input type="text"/> 0 <input type="text"/> 0 <input type="text"/> 0 <input type="text"/> 0
Secondary DNS :	<input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/>

Setting fixed IP Address

MAC Clone

If your ISP restricts to PCs only, use this function to copy a PC Media Access Control (MAC) address to your wireless gateway. This procedure will cause the wireless gateway to appear as a single PC.

3.3.3 LAN

In the LAN settings window, you can configure the IP address and DHCP server for your wireless gateway.

- This window includes:
- IP Setting
 - DHCP Server
 - DHCP Client List
 - MAC Filter
 - UPNP Setting



* The default IP Address for the LAN Port is 192.168.1.254; and for DMZ port is 192.168.2.254. See Appendix B for details.

IP Setting

You can setup IP address* information for the LAN ports of your gateway.

DHCP Server

Your wireless gateway can act as a DHCP server, and assigns IP addresses to your clients automatically. The assigned IP addresses will be within the range of IP pool that you have specified in this option. For example, not including the default IP address **192.168.1.254** of the LAN port, you can configure the range from **192.168.1.1** to **192.168.1.253**.

DHCP Server	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
IP Pool Starting Address	192.168.1. <input type="text" value="1"/>
IP Pool Ending Address	192.168.1. <input type="text" value="32"/>
Lease Time	<input type="text" value="24"/> Hours (0 - 720)

DHCP Client List

This option is used to display the DHCP clients assigned by the DHCP server, including the LAN port and DMZ port. Click **Refresh** to re-load the statistics.

MAC Filter

This option is used to setup the Proxy DNS, which is as a DNS server for the Internal and DMZ networks.

UPNP Setting

Setting to **Enable** allows your wireless gateway to be an UPNP manageable device.

3.3.4 Wireless

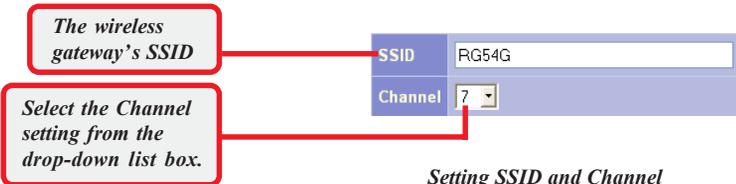
In this section, you can configure all wireless related settings for your wireless gateway.

- This window includes:
- SSID & Channel
 - Radio Setting
 - Encryption
 - Associated Client List
 - Association Control



SSID & Channel

This option is used to set the SSID (Network Name) and channel for your wireless gateway. If you have changed the SSID or Channel settings, click **Apply** to save the settings.



Setting SSID and Channel

Radio Setting

This option allows you to configure the operation parameters of the AP radio settings*.

* These settings are for advanced users or MIS staff only. If you do not know how to set these parameters, it is recommended to use the default value.

Beacon Period	100	TUs (1-65535)
RTS Threshold	2347	(0-2347)
Fragment Threshold	2346	(256-2346)
DTIM Period	3	(1-255)
Rate	Auto	
Basic Rate Set	Default	
54g™ Mode	Auto	

Encryption

This option allows you to configure the setting of data encryption. WEP key must be set before the data encryption is enforced.

Enable WEP

Data Encryption (WEP)	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Authentication Type	Auto
<input checked="" type="radio"/> WEP Key 1	<input type="text"/> 64-bit
<input type="radio"/> WEP Key 2	<input type="text"/> 64-bit
<input type="radio"/> WEP Key 3	<input type="text"/> 64-bit
<input type="radio"/> WEP Key 4	<input type="text"/> 64-bit

Setting WEP

Associated Client List

This option is to display information of stations that are currently associating to your wireless gateway.

Association Control

This option allows you to control which PC can connect to the wireless LAN. If you enabled this feature, only PCs with MAC address located in Association Control List can connect to the wireless LAN.

3.3.5 NAT

NAT (Network Address Translation) allows multiple users at your local site to access the Internet over a single-user account. It can also prevent hacker attacks by mapping local addresses to public addresses for key services, such as Web or FTP.

This window includes:
● Virtual Server
● Special Applications



Virtual Server

You can configure the wireless gateway as a virtual server, so that remote users can access the services (e.g. Web or FTP) at your local site via public IP addresses. It also includes a list of Virtual Server if you have setup (maximum 12 entries).

Special Applications

Some special applications, such as Internet gaming, video conference and Internet telephony, require multiple connections. This feature allows these applications to work properly. It also includes a list of Special Applications if you have setup (maximum 12 entries).

3.3.6 Firewall

The wireless gateway provides extensive firewall protection by restricting connection parameters to limit the risk of hacker attacks, and defending against a wide array of common hacker attacks. However, for applications that require unrestricted access to the Internet, you can configure a specific client/server as a demilitarized zone.

- This window includes:*
- Firewall Control
 - Filters
 - IP Block
 - Virtual DMZ



Firewall Control

You can enable or disable the firewall function in this option.

Filters

You can use this window to create and apply filters that can selectively block traffic to pass in and out of your network according to Protocol Type or Port Number. It also includes a list of Filters if you have setup (maximum 36 entries).

IP Block

You can use this window to create and apply filters that can selectively allow traffic to pass in and out of your network according to the IP addresses. It also includes a list of Filters if you have setup (maximum 6 entries).

Virtual DMZ

If you have a local client PC that cannot run an Internet application properly from behind the NAT firewall, you can open the client up to unrestricted two-way Internet access by defining a virtual DMZ. It also includes a list of DMZ if you have setup (maximum 6 entries).

IP Block

You can use this window to create and apply filters that can selectively allow traffic to pass in and out of your network according to the IP addresses. It also includes a list of Filters if you have setup (maximum 6 entries).

Virtual DMZ

If you have a local client PC that cannot run an Internet application properly from behind the NAT firewall, you can open the client up to unrestricted two-way Internet access by defining a virtual DMZ. It also includes a list of DMZ if you have setup (maximum 6 entries).

4

Technical Support

- Visit the MSI website for FAQ, technical guide, driver and software updates, and other information:
<http://www.msi.com.tw/>
- Contact our technical staff at: ***support@msi.com.tw***

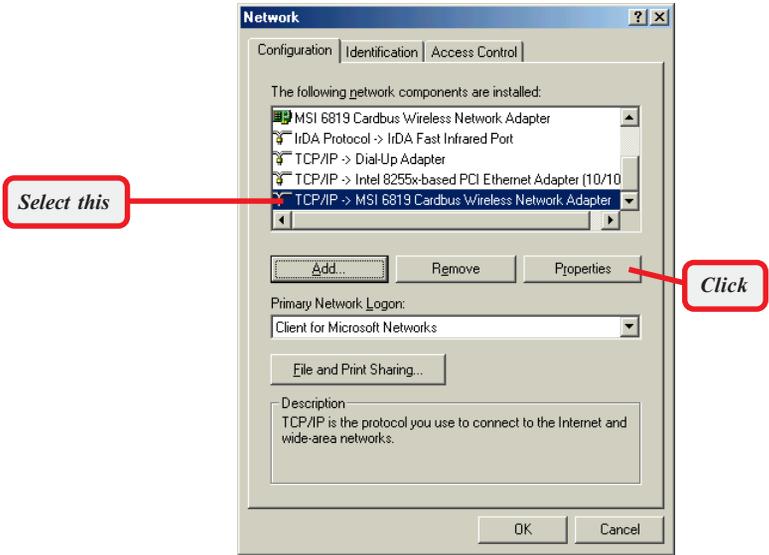
Appendix

- Assigning a Fixed IP Address

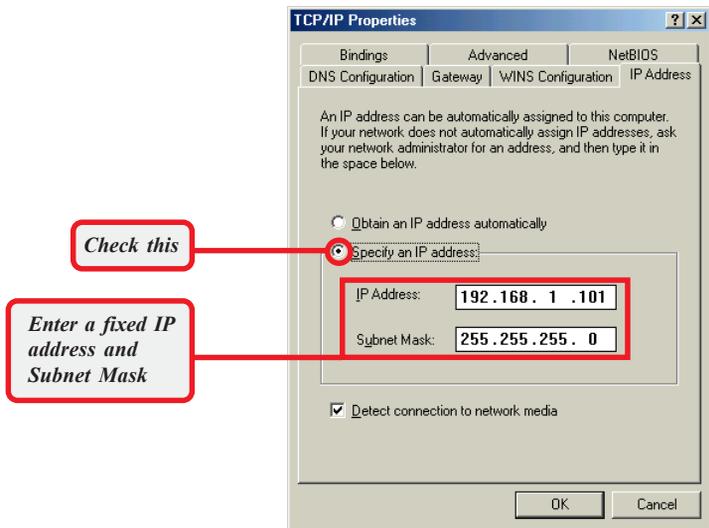
To configure the RG54G, you will need to assign a fixed IP address to this computer within the IP address range of the RG54G.

Under Windows 98SE/ME

1. Go to **Start -> Settings -> Control Panel**.
2. Double-click the **Network** icon.
3. The Network window appears as below. Select **TCP/IP** item, and click **Properties** to bring up the **TCP/IP Properties** window.



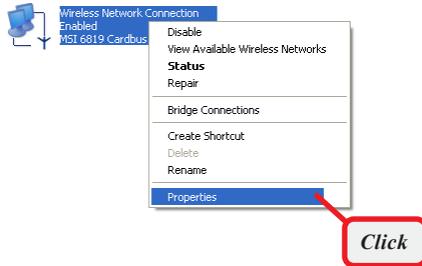
4. Choose **IP Address** tab and check **Specify an IP Address**. Then, enter an IP address into the empty field. Suggested IP Address Range is **192.168.1.1** to **192.168.1.253**, and suggested Subnet Mask is **255.255.255.0**.



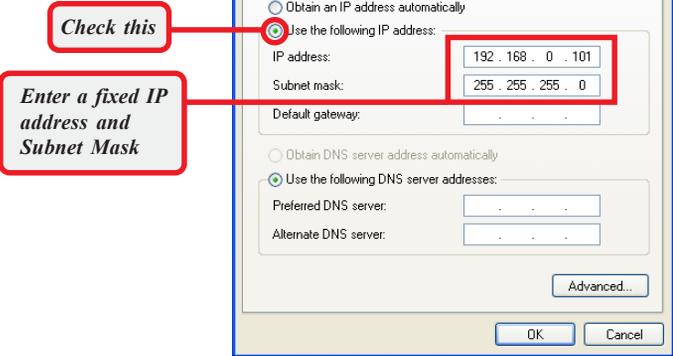
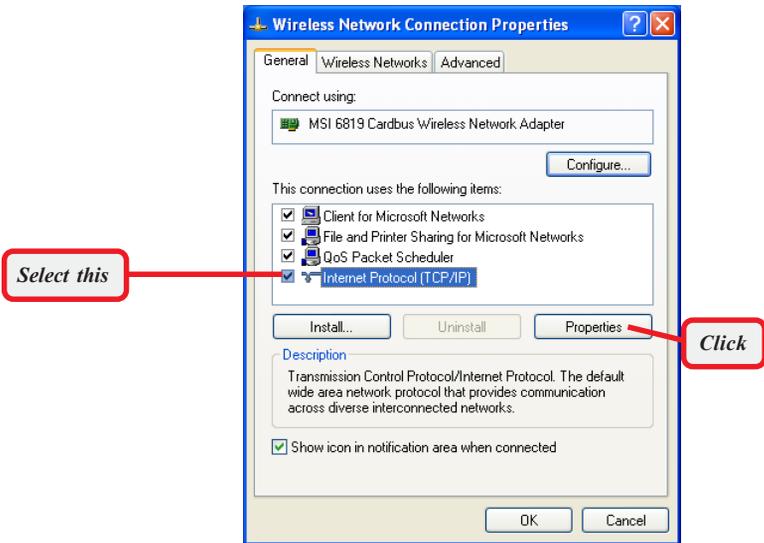
5. Click **OK**. Then, click **Yes** when prompted to reboot the computer.

Under Windows 2000/XP

1. Click **Start** and choose **Control Panel** to open the **Control Panel** window.
2. Double-click the **Network Connection** icon to open the **Network Connection** window.
3. Right-click the **Network Adapter** icon and click **Properties** from the shortcut menu.



4. When the **Connection Properties** window appears, choose **General** tab and select **Internet Protocol [TCP/IP]**, and click **Properties** to bring up the **Internet Protocol [TCP/IP] Properties** window.
5. Check **Use the following IP address**. Then, enter an IP address into the empty field. Suggested IP Address Range is **192.168.1.1** to **192.168.1.253**, and suggested Subnet Mask is **255.255.255.0**.



Configuring a fixed IP address

6. Click **OK** to complete the configuration.