MSI US54G (MS-6861) Wireless 11g USB 2.0 Adapter

User's Guide

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.
- 3. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- 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 INTERNA-TIONAL. 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 August 2004

Important Safety Precautions

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

- 1. Keep this *User's Guide* 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.
- 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.

How to Use This Guide

This User's Guide provides instructions and illustrations on how to install and use your MSI US54G - the Wireless 11g USB 2.0 Adapter.

- Chapter 1, Introduction, provides a general information on the product you bought, including its application, specification, and requirements.
- Chapter 2, Hardware Installation, tells you how to install the product into your system.
- Chapter 3, Software Installation, guides you through the installation of the product's driver and utility.
- Chapter 4, Wireless Network Utility, describes the MSI Wireless Network Utility that lets you configure your product to connect the network quickly and easily.
- Chapter 5, Networking Basic, helps you to build your network and share resources over the network.

Please note that the setting diagrams or values in this guide are **FOR YOUR REFER-ENCE ONLY**. The actual settings and values depend on your system and network. If you are not sure about these information, please ask your network administrator or MIS staff for help.

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*.

Table of Contents

ı.	Introduction	I
	1.1 US54G - Wireless 11g USB 2.0 Adapter	1
	1.2 How US54G Works	2
	1.3 Specifications	4
	1.4 System Requirements	5
	1.5 Package Contents	
	1.6 Product View	6
2.	Hardware Installation	7
	2.1 Connecting US54G	7
	2.2 Removing US54G	
3.	Software Installation	9
4.	Wireless Network Utility	12
	4.1 Introduction	
	4.1.1 The MSI Wireless LAN Icon	
	4.1.2 Changing the Control Setting (for Windows XP only)	
	4.2 Networking	
	4.2.1 Infrastructure Mode	16
	4.2.2 Ad-hoc Mode	19
	4.3 Encryption	22
	4.4 Status	. 24
	4.5 Information	25
5.	Networking Basics	26
	5.1 Checking the Network Elements	26
	5.2 Computer Identification	
	5.3 Configuring a Dynamic/Fixed IP Address	29
	5.4 Checking TCP/IP Address	
	5.5 Checking Connection by Pinging	32
	5.6 Sharing Files	

Introduction

>>> 1.1 US54G - Wireless 11g USB 2.0 Adapter

The MSI Wireless 11g USB 2.0 Adapter US54G (hereafter called US54G), compliant with IEEE802.11g, is a high-efficiency wireless adapter for wireless networking at home, in office or in public places. The data rate can be up to 54 Mbps and autonegotiated to 48, 36, 24, 18, 12, 9, 6Mbps (IEEE 802.11g), or 11, 5.5, 2, 1Mbps (IEEE802.11b).

With US54G, you can roam between conference room and office without being disconnected the LAN cables; in addition, sharing files and printers can be easy tasks.

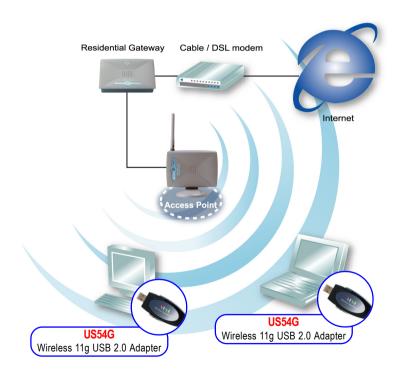
The US54G is available to Microsoft Windows operating systems (Windows® XP/2000) and can be integrated into networking with either **Ad-hoc mode** (computer-to-computer, without an Access Point) or **Infrastructure mode** (computer-to-access point, an Access Point is required).

>>> 1.2 How US54G Works

Ad-hoc Mode: An Ad-hoc network is a local area network or other small network, especially one with wireless or temporary plug-in connections, in which some of the network devices are part of the network only for the duration of a communications session. Users in the network can share files, print to a shared printer, and access the Internet with a shared modem. In this kind of network, new devices can be quickly added; however, users can only communicate with other wireless LAN computers that are in this wireless LAN workgroup, and are within range.



☑ Infrastructure Mode: The difference between Infrastructure network and Ad-hoc network is that the former one includes an Access Point. In an Infrastructure network, the Access Point can manage the bandwidth to maximize bandwidth utilization. Additionally, the Access Point enables users on a wireless LAN to access an existing wired network, allowing wireless users to take advantage of the wired networks resources, such as Internet, email, file transfer, and printer sharing. The scale and range of the Infrastructure networking are larger and wider than that of the Ad-hoc networking.



>>> 1.3 Specifications

Form Factor / Operation Voltage	USB 2.0; 5 ± 0.5V (from USB port)
Network Standard	IEEE 802.11g/b
Frequency Range	2.412 ~ 2.484GHz
Data Rate and Modulation Types	- IEEE 802.11b (Auto-Fallback): CCK @ 5.5 and 11Mbps; DQPSK @ 2Mbps; DBPSK @ 1Mbps - IEEE 802.11g (Auto-Fallback): OFDM @ 54, 48, 36, 24, 18, 12, 9, 6Mbps
Operating Channels	- USA/Canada: 11 channels (1~11); - Europe: 13 channels (1~13); - Japan: 14 channels (1~14); - Spain: 2 channels (10~11); - France: 4 channels (10~13)
Media Access Protocol	Direct Sequence Spread Spectrum (DSSS) with ACK
Security / Encryption	Hardware 64/128 bit WEP/TKIP/ AES-OCB/802.1x, support for WPA
Range	Up to 400m (outdoor)
Antenna	Chip Antenna
Operating system	Microsoft® Windows® 98SE/ME/ 2000/XP
Environmental	 Operating Temperature: 0 ~ 50°C Storage Temperature: -40 ~ 75°C Operating Humidity: 10 ~ 90%, non-condensing

>>> 1.4 System Requirements



Before installing the US54G, your PC should meet the following items:

- One desktop/notebook PC with an available USB port.
- Windows® 98SE/ME/2000/XP operating system.
- Minimum 5MB free disk space for installing the driver and utilities
- One CD-ROM drive, double speed or higher.

>>> 1.5 Package Contents

Unpack the package and check all the items carefully. If any item contained is damaged or missing, please contact your local dealer as soon as possible. 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:



Wat wa w





- One Wireless 11g USB 2.0 Adapter US54G.
- One USB cable (45cm, Type-A).
- One Neck Strap.
- One Quick Start Guide.
- One Installation CD-ROM including drivers, utilities, and the user's manual.

>>> 1.6 Product View



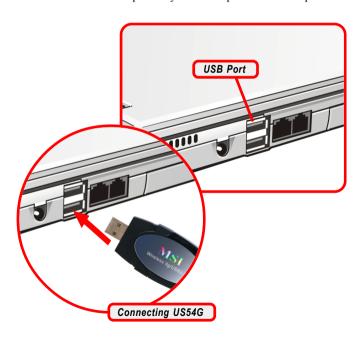


Hardware Installation

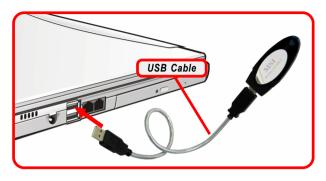
The following diagrams provide you with a basic installation for your US54G, including how to install and remove the USB adapter.

>>> 2.1 Connecting US54G

Connection 1. The hardware installation for US54G is simply plugging it into an available USB port on your desktop/notebook computer.



Connection 2. If necessary, you can connect the provided USB cable to your computer, and connect US54G to the cable.



>>> 2.2 Removing US54G

The MSI US54G supports hot-plug function, so that you can remove it under Windows operating system without shutting down the system. **Note:** DO NOT remove US54G while transferring data (the LED is flashing). Please close the communication programs or stop the task before removing it.





Software Installation

This chapter describes the procedures of installing the driver and utility. Follow the instruction step by step to finish the installation

Please **NOTE** that your US54G should be installed into the computer before installing the driver and utility. Then, the operating system will detect a new device and start to configure the new device. Click **Cancel** here to start installation from the InstallShield Wizard



Step 1. Insert the software CD into your CD-ROM drive, and the Setup program should launch automatically.

If the Autorun program doesn't launch automatically, click **Start** at the taskbar and select **Run...**. Type **E:\setup.exe** (where **E** is your CD-drive) in the Open box and click **OK** to launch the Setup program manually.

The main screen of Setup program will appear as below. Click the **Install Software** button.



Step 2. The welcome screen of InstallShield Wizard appears. Click *Next*.

Read and accept the License Agreement; then, click Next.

In the following window, enter the user's information (*User Name, Organization*) in the respective fields; then, click **Next**.

- **Step 3.** Click *Install* and the program will copy the necessary files to the system. The progress indicator shows the installing status.
- **Step 4.** Click *Finish* when the installation is completed. The **MSI Wireless LAN** icon* will appear in the status area.





Wireless Network Utility

After installing the driver, MSI US54G provides a convenient and powerful utility that allows you to set up, configure, and know your networking status easily and clearly.

>>> 4.1 Introduction

4.1.1 The MSI Wireless LAN icon



- Not connected to the network.
- Connected to the network.



- Receiving/transmitting data from/to the network.

When you move the mouse over the icon, it shows the current connection information



• Right-clicking the icon will bring up a sub-menu containing more settings:





Language

You can select language according to your operating system.

Switch to AP Mode (optional)

If your MSI wireless LAN adapter supports Software AP function, you can see this item in the sub-menu, and which allows you to use your MSI wireless adapter as a virtual access point. For details, refer to the MSI Software AP/ Gateway User's Guide.

Switch to Gateway Mode (optional)

If your MSI wireless LAN adapter supports Software Gateway function, you can see this item in the sub-menu, and which allows you to use your MSI wireless adapter as a virtual gateway. For details, refer to the MSI Software AP/Gateway User's Guide.

Open Network Connections

Select to open the Network Connections window.

View Available Wireless Networks

Launch the utility to configure your network settings.

Exit

Close the program.

Clicking the icon will launch the utility as shown below to configure your network settings.



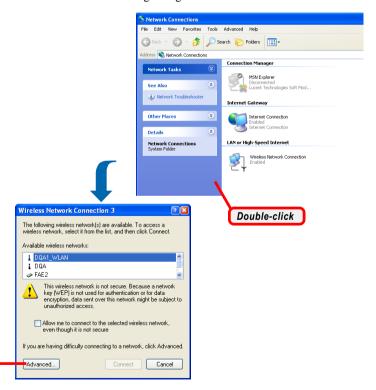


4.1.2 Changing the Control Setting (for Windows XP only)

If you use Windows XP, the wireless LAN is controlled by the operating system (default). To take full advantage of your MSI wireless adapter, it is recommended to use the MSI Wireless Network Utility to control your wireless LAN.

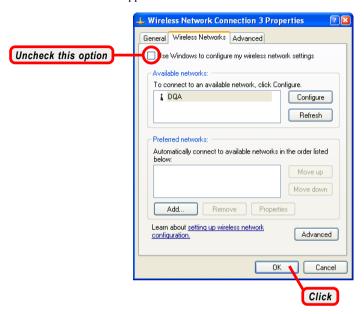
Q To change the control setting:

- Right-click the MSI Wireless LAN icon and select the Open Network Connections option.
- In the Network Connections window, double-click the Wireless Network Connection icon to bring up the following dialog window.



Click

Click Advanced, and the Properties window will appear as below.



- Uncheck the Use Windows to configure my wireless network settings option. Then, click OK.
- Now, you can use MSI Wireless Network Utility to configure your network.

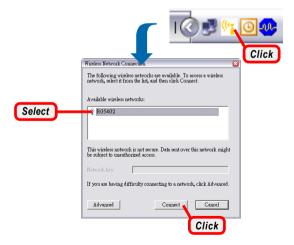
>>> 4.2 Networking

Since the US54G is installed in your computer, you have to configure the settings for communication to start working in your network environment.

4.2.1 Infrastructure Mode - Authentication (802.1x authentication) Using 802.1x Authenticate is to provide: when the wireless network you are configuring requires that you authenticate using your personal credentials, check Authenticate using profile, and select the profile to use for authentication from the drop-down list at the right. You must have already configured a profile appropriate for authenticating onto this network. When you check Authenticate using profile, MSI utility performs an 802.1X authentication using your password, certificate, or by other means, as is configured in the selected profile.

Q Connecting to the Access Point:

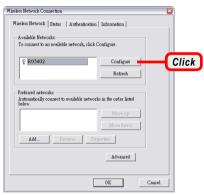
 Click the MSI Wireless LAN icon to bring up the Wireless Network Connection window.



In the list of Available wireless networks, select (highlight) the network you want, and then click Connect.

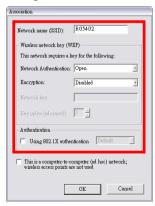
• If you want to configure the network settings:

- Click Advanced in the Wireless Network Connection window
- 2. The Available Networks field contains a list of available Access Points in your network. Select (highlight) one network you want, and then click *Configure* to set up the selected network. You can click *Refresh* to search the available Access Points in the network again.

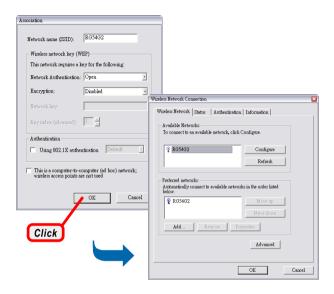


3. Setup the Network Key (if needed) in the Wireless Network Key (WEP) field according to the network's settings.

Only the network administrator can change the SSID and WEP settings in the Association window; if you have problem of accessing the network, please ask the administrator for help.



4. Click OK. The selected network will appear in the Preferred Networks field. If it contains two or more networks in the list, you can use Move up/Move down to set the priority.



 Click OK to complete the configuration, and an icon indicating connected to the network will appear in the status area.



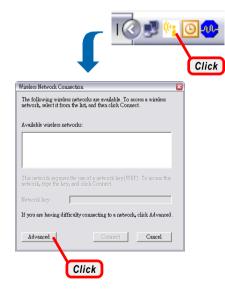
4.2.2 Ad-hoc Mode

Ad-hoc mode allows your computer to communicate directly with any computer installed with compatible wireless adapter. If you want to use the network in Ad-hoc mode:

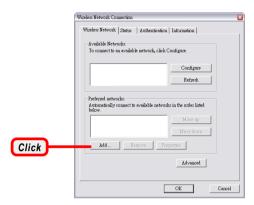
- All the computers connected should be set to Adhoc mode.
- The computers have the same SSID (network name) setting.

Q To configure the settings:

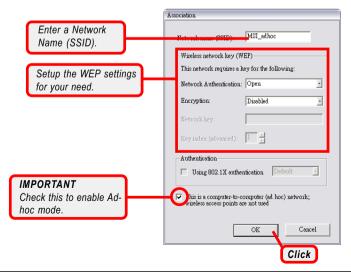
 Click the MSI Wireless LAN icon to bring up the Wireless Network Connection window. Then, click Advanced



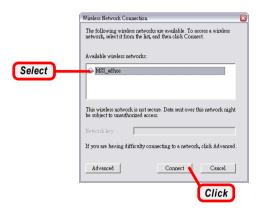
 You can build up the Ad-hoc network by clicking Add... in the Preferred Networks field.



3. Set up the Network Name (SSID) and Network Key (if needed) for the network. Then, check the This is a computer-to-computer [ad hoc] network; wireless access points are not used option and click OK to enable the Ad-hoc mode.



4. The computer set up with this Ad-hoc network in step 3 is the designated administrator of the network. Any computer can access the network by selecting Connect in the Wireless Network Connection window.



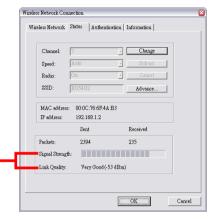
 Click **OK** to complete the configuration, and an icon indicating connected to the network appears in the status area.



connected

>>> 4.3 Status

In the **Status** tab, you can configure more network settings.



Signal Strength: shows the received signal

strength level.

Link Quality:

shows the measured signal level and connection status.

Channel

Specifies the operating radio frequency channel in Ad-hoc mode, which should be set to the same channel as the other points in the wireless network.

Speed

This field sets the current transmitting rate. The speed should be set to Auto rate to optimize performance and range, which will adjust the transfer speed for best performance and longest range automatically.

Radio

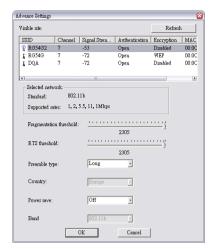
Set to **On** to activate the radio.

SSID

Means Service Set Identifier, a unique name shared among all points in a wireless network. It must be identical for all points in the network. Then the card will be able to connect to an access point with the same SSID.

Click Advance, and you can get more information about the LAN traffic status and more detailed settings.

It is not recommended to change these settings if you are not familiar with the advanced configuration.



Fragmentation Threshold

You may set the length of the fragment in this field. Please note that each fragment should not be larger than the Fragmentation Threshold.

RTS Threshold

You may set the length threshold.

Preamble Type

You may set the length of preamble in this field. The available options are:

- Long: It is set to 144 bits.
- Short: It is set to 72 bits.
- Auto: The card supports an auto-detection feature, it will automatically select the **Preamble Type** depending on the Access Point Preamble Type if this option is selected.

Country

Display the country that you are in (read only).

Power save

The card will turn into power save mode when idle.

Band

Display the information of current band.

>>> 4.4 Authentication

The **Authentication** page is to provide users to build different authentication type, the authentication type includes *MD5-Challenge*, *TLS* and *PEAP*.



Profile

You can Add/Delete/Save the settings of your configuration.

Authentication type

According to your network configuration, select one authentication type from the pull-down menu:

- MD5-Challenge: Only one-way authentication and does not facilitate generation of key, use a login name that matches the form of the user name as it is stored in the authentication database. Enter the User name and Pasword that provided by the server.
- TLS: TLS requires that both user and authentication server have certificates for mutual authentication. While TLS is cryptographically strong, it requires that the cor poration that deploys it maintain a certificate infrastruc ture for all of its users
- Protected EAP: PEAP is a suitable protocol for performing secure authentications against Windows domains and directory services.

>>> 4.5 Information

In the **Information** tab, you can get some information about the manufacturer, hardware and software.





Networking Basics

This chapter describes how to prepare for connection to network and some basic outline of networking basics, including sharing files, printing from a computer on the network, or accessing the Internet on multiple computers with one connection.

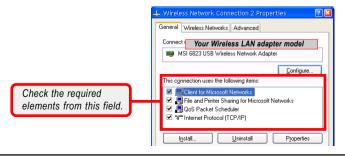
>>> 5.1 Checking the Network Elements

The following elements are required for all computers if you want to connect to a network:

- Client for Microsoft Network
- TCP/IP
- File and printer sharing for Microsoft Networks

To check the required elements are installed in the system, you can:

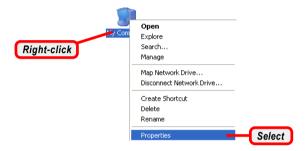
- Click Start and choose Control Panel to open the Control Panel window.
- Double-click the Network Connection icon to open the Network Connection window.
- Right-click the Wireless Network Connection icon and click Properties from the shortcut menu.
- The Wireless Network Connection Properties window appears to show the current network settings of the system.



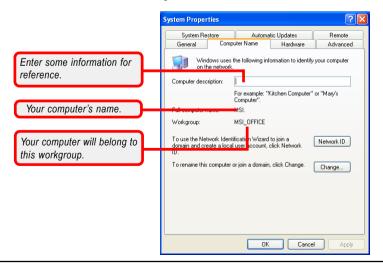
>>> 5.2 Computer Identification

Please verify that each computer has a unique name and common workgroup name, if you had previously given your Windows 2000/XP computer's name.

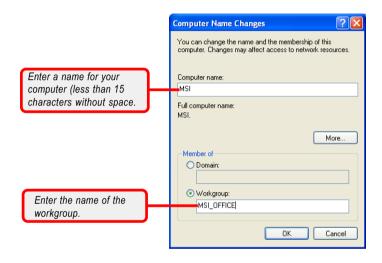
 Right-click My Computer icon on your Windows desktop, and click Properties from the shortcut menu.



The System Properties window appears; choose Computer Name tab.



- To rename the computer and join a workgroup/domain, click Change.
- 4. The Computer Name Changes window appears as below. Enter a Computer Name, select Workgroup and enter the name of your workgroup. Please NOTE that each computer's name must be unique on a particular network to avoid confusion.

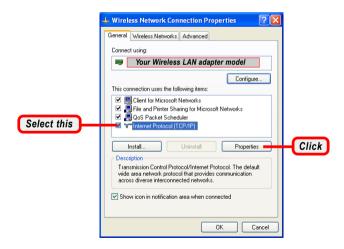


5. Click **OK** to save changes.

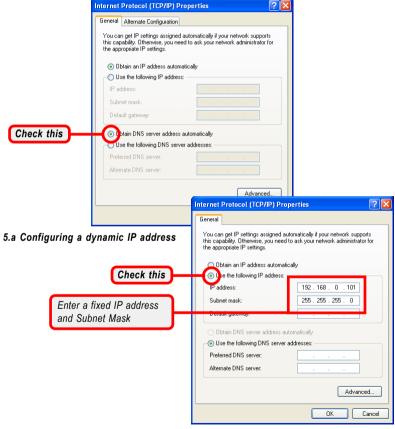
>>> 5.3 Configuring a Dynamic/Fixed IP Address

When the drivers are installed, the default setting here is set to obtain IP dynamically through a DHCP server. If you want to change the settings, please follow the steps below:

- Click Start and choose Control Panel to open the Control Panel window.
- Double-click the Network Connection icon to open the Network Connection window.
- Right-click the USB Wireless Network Adapter icon and click *Properties* from the shortcut menu.
- When the Wireless Network 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.a To configure a dynamic IP address, check the Obtain an IP Address Automatically option.
- 5.b To configure a fixed IP address, check the Use the following IP address option. 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.

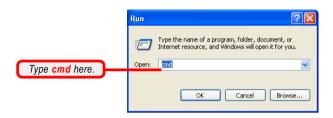


5.b Configuring a fixed IP address

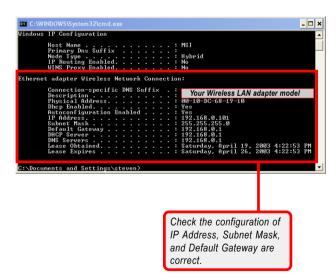
6. Click **OK** to complete the configuration.

>>> 5.4 Checking TCP/IP Address

- 1. Go to Start -> Run....
- 2. Type *cmd* in the Open box and click **OK**.

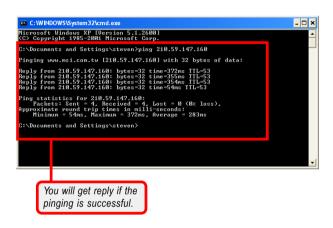


3. A DOS prompt window appears. Type *ipconfig/all* and press [Enter] to display IP information.



>>> 5.5 Checking Connection by Pinging

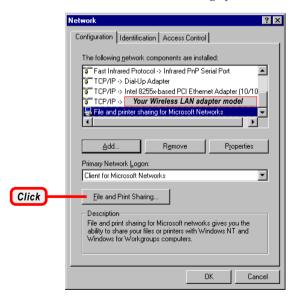
- 1. Go to Start -> Run....
- 2. Type *cmd* in the Open box and click **OK**.
- A DOS prompt window appears. Type ping 210.59.
 147.160 (or any URL address), which is the IP address of the Gateway in this case, and press [Enter].



>>> 5.6 Sharing Files

You may now open and save files on other computers once your computers are connected together on a network. You will also be able to specify particular folders or disk drives to share and even password to protect them. Please verify that each computer has a unique name and common workgroup name, if you had previously given your Windows® 2000/XP computers names. Follow the steps below to share specific files and folders with other computers on your network.

- On your Windows desktop, right-click My Network Place icon and select Properties from the shortcut menu.
- You will configure your computers network settings in this dialog. It is also available through the Network icon in the Control Panel.
- 3. Click the File and Print Sharing option.



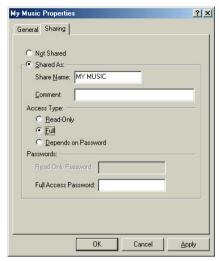
 Select the I want to be able to give others access to my files option, and click OK.



- 5. Click **OK** in the Network dialog box.
- **6.** Provide the Windows Setup CD or direct the path to the proper location of the installation files if prompted. Then, reboot if prompted.
- 7. Now you can identify a particular folder or disk drive to share, which means you can share a folder that both you and your family member/colleague needs to access occasionally. You can also share your CD-ROM drive for others to use if your other computers do not have one. Both of these processes are the same. Only the disk drives and folders that you specifically identify as shared will be accessible to other computers on your network.
- Locate the disk drive or folder you want to share in Windows Explore or My Computer icon on your desktop.
- 9. Right-click the disk drive or folder and select **Sharing**.



10. Select the Share As option to set the parameters for sharing this particular disk drive or folder.



Share Name

This is used to identify the disk drive or folder you are sharing to other computers in the network, which can be helpful as more resources in your network for others.

Comment

This field is optional, which can be used to further describe the disk drive or folder for others in the network.

Access Type

This option allows you to designate how much someone else can do with this shared disk drive or folder. Setting options are:

- Read-Only: only allows others to look at or open the files in the disk drive or folder.
- Full: allows others to read, write, open, save, copy, move, and even delete files.
- Depends on Password: gives other computers access conditional on the password they provide.

Password

This option allows you to apply a level of security to your shared disk drive and folder. Any other computer (user) will be asked to enter the password you set here before accessing the disk drive or folder. Two passwords are used to give two levels of security (or access) to others in the network using the *Depends on Password* setting. Leaving the Password boxes empty will give everyone in the network access to the disk drive or folder.

- 11. Click OK to continue. You will be prompted to type the password(s) you provided for verification. Type the password(s) just as you typed them again.
- 12. Now you may access this disk drive or folder from another computer in your network. You may do so by double-clicking the My Network Place icon on your Windows desktop or inside Windows Explorer.
- 13. Navigate to the computer with the shared disk drive or folder (recognized by the Computer Name you provided), and double-click it. If you specified a password when sharing this disk drive or folder, you will be asked for the password.
- 14. You can access a disk drive of folder shared over the network from most Windows 2000/XP applications. you can map these disk drives and folders to a drive letter on another computer to make this process easier. For example, on a computer where you are accessing a shared folder from another computer, inside Windows Explorer right-click and select the Map Network Drive option. Now you are able to assign an available drive letter. Checking the Reconnect at logon option allows Windows to map this network drive each time when you start your computer.