CG-WLCB54GL

User's Guide

Contents

Package Contents

Contents of Package:

- CG-WLCB54GL
- Manual and Drivers on CD

If any of the above items are missing, please contact your reseller.

System Requirements:

- A laptop computer with an available 32-bit Cardbus slot
- Windows XP, Windows 2000, Windows ME, or Windows 98SE
- At least 32 MB of memory and a 300 MHz processor or higher
- An 802.11a/b Access Point for (**Infrastructure Mode**)

Introduction

CG-WLCB54GL is an advanced IEEE 802.11b/g compatible, high performance, wireless card that supports data transfer speeds of up to 54 Mbps in **802.11g** mode.

CG-WLCB54GL comes with software drivers for the most popular Microsoft Windows operating systems and can be integrated into a larger network, running Windows XP, Windows 2000, Windows ME, Windows 98SE, **Infrastructure mode** (with an Access Point).

This manual provides a quick introduction to wireless technology and its application as it relates to networking. Take a moment to read through this manual and get acquainted with wireless technology.

Product Features

- Compatible with IEEE 802.11b standard to provide wireless Ethernet data rates of up to11Mbps data rate
- Compatible with IEEE 802.11g high rate standard to provide wireless 54Mbps data rate
- Operation at dual 2.4 ~ 2.5GHz frequency bands to meet worldwide regulations
- Dynamic date rate scaling at 1, 2, 5.5, and 11Mbps for IEEE 802.11b
- Dynamic date rate scaling at 6, 9, 12, 18, 24, 36, 48, 54Mbps for IEEE 802.11g
- Maximum reliability, throughput and connectivity with automatic data rate switching
- Supports wireless data encryption with 64/128/152-bit WEP for security
- Supports infrastructure networks via Access Point
- Built-in printed inverted F antenna
- Supports AES enhanced security
- Supports CardBus (32-bit) Type II PC Card
- User-friendly configuration and diagnostic utilities
- Driver support for Windows 98SE, ME, 2000, and XP

LEDS

LED stands for Light-Emitting Diode. The **IEEE 802.11g Cardbus Wireless Network Adapter** has two **LEDs: POWER** and **ACTIVITY**.

Network Mode	LED Activity
Network Activity	Both LEDs flash in unison
Searching for a Network Connection	Both LEDs flash alternately
Associated with the Network, but No Activity	Both LEDs flicker dimly
Power Save Mode (Power-up or Reset)	POWER LED – slow rate blink
Card is disabled	Only the POWER LED flashes

Wireless Basics

Wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home or business. Strictly adhering to the 802.11b and 802.11g standards, our wireless family of products will allow you to access the data you want, when and where you want it. No longer will you be limited to one location or forced to run new wiring through your home or office. You will be able to enjoy the freedom that wireless networking delivers.

A Wireless LAN (WLAN) is a cellular computer network that transmits and receives data with radio signals instead of wires. Wireless LANs are used increasingly in both home and office environments. Innovative ways to utilize WLAN technology are helping people to work and communicate more efficiently. Increased mobility and the absence of cabling and other fixed infrastructure have proven to be beneficial for many users.

Wireless users can use the same network applications they use on an Ethernet LAN. Wireless card cards used on laptop and desktop systems, support the same protocols as Ethernet card cards. For most users, there is no noticeable functional difference between a wired Ethernet desktop computer and a wireless computer equipped with a wireless card other than the added benefit of the ability to roam within the wireless-cell. Under many circumstances, it may be desirable for mobile network devices to link to a conventional Ethernet LAN in order to use servers, printers or an Internet connection supplied through the wired LAN. A Wireless Access Point (AP) is a device used to provide this link. Your new IEEE 802.11g Carbus Wireless Network Adapter can connect to an 802.11b/g AP, as well as other computers that have an 802.11b/g WLAN card installed.

People use wireless LAN technology for many different purposes:

Mobility - Productivity increases when people have access to data in any location within the operating range of the WLAN. Ad-hoc management decisions based on real-time information can significantly improve worker efficiency.

Low Implementation Costs - WLANs are easy to set up, manage, change and relocate. Networks that frequently change, both physically and logically, can benefit from WLANs' ease of implementation. WLANs can operate in locations where installation of wiring may be impractical. Furthermore, IEEE

standardization facilitates interoperability of all WLAN devices that conform to the 802.11b or 802.11g sets of standards.

Installation Speed and Simplicity - Installing a wireless LAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings.

Installation Flexibility - Wireless technology allows the network to go where wires cannot go.

Reduced Cost-of-Ownership - While the initial investment required for wireless LAN hardware might be higher than the cost of wired LAN hardware, overall installation expenses and life-cycle costs will be significantly lower. Long-term cost benefits are greatest in dynamic environments requiring frequent moves, adds, and changes.

Scalability - Wireless LAN systems can be configured in a variety of topologies to meet the needs of specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users to full infrastructure networks of thousands of users that allow roaming over a broad area.

Standards - Based Technology

The IEEE 802.11g standard designates that devices operate at an optimal data rate of 54 Megabits per second. This means you will be able to transfer large files quickly or even watch a movie in MPEG format over your network without noticeable delays. This technology works by transmitting high-speed digital data over a radio wave utilizing **OFDM** (Orthogonal Frequency Division Multiplexing) technology. **OFDM** works by splitting the radio signal into multiple smaller sub-signals that are then transmitted simultaneously at different frequencies to the receiver. **OFDM** reduces the amount of **crosstalk** (interference) in signal transmissions. Our products will automatically sense the best possible connection speed to ensure the greatest speed and range possible with the technology.

Installation Considerations

Designed to traverse distances up to 900 feet (~300 meters), the CG-WLCB54GL lets you access your network from your laptop computer virtually anywhere you want. Keep in mind, however, that the number and thickness of walls, ceilings or other objects that the wireless signals must pass thru may limit range. Typical ranges vary depending on the types of materials and background RF noise in your home or business. The key to maximizing the transmission range is to follow these basic principles:

1. Keep the number of walls and ceilings between the Access Point and your receiving device to a minimum - Each wall or ceiling can reduce your Wireless product's range from 3-90 feet (1-30 meters.) For some businesses or for a large residential home deployment, it may be beneficial to have more than one access point with overlapping coverage.

2. Be aware of the direct line between Access Points and computers with wireless cards - A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks as if it were over 42 feet (14 meters) thick! Try to make sure that the Access Points and Cards are positioned so that the signal will travel in as straight a line through a wall or ceiling as possible for better reception.

3. Building Materials make a difference - A solid metal door or aluminum studs can have a negative effect on range. Try to position Access Points and computers with wireless cards so that the signal passes through drywall or open doorways and not other materials.

4. Make sure that the antenna is positioned for best reception by using the software signal strength tools included with your IEEE 802.11g Carbus Wireless Network Adapter.

5. Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate RF noise.

For the average residence, range should not be a problem. If you experience low or no signal strength in areas of your home that you wish to access, consider positioning the Access Point in a location directly between the computers with wireless cards that will be connected. Additional Access Points can be connected to provide better coverage in rooms where the signal does not appear as strongly as desired.

Getting Started

To begin, select the type of wireless network you will be building.
We will discuss the following types of networks in this section:

1. ***A Home Internet Network with A Residential Gateway/Router***
2. ***A Home Internet Network with Multiple IP Addresses***

Please select, from the four types of networks described above, the type of network that is appropriate for your needs. Please follow the instructions in the corresponding section that follows.

1. A Home Internet Network with A Residential Gateway/Router

(Network administrators with Dynamic IPs can also follow these instructions.)
If you have two or more computers (laptops or desktops) and want to share files, printers, and Internet access using a DHCP-capable Residential Gateway/Router – or – if you want to connect to an Ethernet network that uses Dynamic (DHCP) IP addresses, then follow the instructions on the next page. When it is complete, your network may look similar to this:

DHCP stands for Dynamic Host Configuration Protocol. It is a protocol for assigning dynamic IP addresses "automatically." With a DHCP-capable gateway, there is no need to manually assign an IP address.

(Requirements: A Residential Gateway/Router connected with an Ethernet (CAT5) cable to an 802.11a/b Access Point or an 802.11a/g Access Point or another computer with an 802.11b/g WLAN card installed).

This type of installation requires that you provide a dynamic IP address for each computer on your network. You will need a DHCP-capable Residential Gateway/Router for your network.

To complete the installation, please follow these steps:

1. Connect the **Router/Gateway** to a Broadband connection, (e.g., a **Cable** modem or a **DSL** modem.)
2. Connect the WLAN Access Point to the router.
3. Install the**CG-WLCB54GL** into a laptop computer on your wireless network.
4. Check the **Device Manager** to confirm that the wireless card is installed correctly. Please refer to the **Networking Basics** section in this manual entitled: **Checking the Installation of the Drivers for the Wireless Card.**
5. *By default, the wireless card is set to obtain a Dynamic IP Address.* If you are having difficulty connecting, check to make sure that the **IP Address** of the **wireless card** is within the IP address range of your network. Please refer to the **Networking Basics** section in this manual entitled: **Checking The IP Address**.
6. Learn to share printers and files. Please refer to the **Networking Basics** section in this manual entitled: **Adding and Sharing Printers in Windows XP**.

2. A Home Internet Network with Multiple IP Addresses

(Network administrators with Static IPs can also follow these instructions.)
If you have two or more computers (laptops or desktops) and want to share files, printers, and Internet access using multiple IP addresses that you have purchased from your Internet Service Provider **-or-** you want to connect to an Ethernet network that uses Static IP Addresses, then follow the instructions on the next page. When you have completed your network, it should look similar to this:

Please note that this type of installation requires that your ISP (Internet Service Provider) provides you a static IP address for each computer and the Access Point on your network. Please refer to the manual that came with your Access Point to determine its configuration.

Please follow these steps to complete the installation:

1. Connect the **Wireless Access Point** to a Broadband connection.
2. Install the **CG-WLCB54GL** into the laptop computer(s) on your wireless network.
3. Check the **Device Manager** to confirm that the **wireless card** is installed correctly. Please refer to the **Networking Basics** section in this manual entitled: **Checking the Installation of the Drivers for the Wireless Card**.
4. Set the **Static IP Address** of the **wireless cards**. Please refer to the **Networking Basics** section in this manual entitled: **Assigning an IP Address**.

Note: *The IP Address for all computers must be in the same IP Address range, and the Subnet Mask must be the same for all the computers on the network. For example: If the first computer is assigned an IP Address of 192.168.0.2 with a Subnet Mask of 255.255.255.0, then the second computer can be assigned an IP Address of 192.168.0.3 with a Subnet Mask of 255.255.255.0, etc.*

*If you are using a **PPPoE client** (**Point to Point Protocol over Ethernet**) please contact your **ISP** (**Internet Service Provider**) for further instructions regarding connecting to the Internet.*

5. To learn to share printers and files. Please refer to the **Networking Basics** section in this manual entitled: **Adding and Sharing Printers in Windows XP**.

Installation

This section shows you how to install the Utility if you are using the operating systems Windows 2000, ME, 98SE. Follow the instructions given below on how to install the hardware (CG-WLCB54GL) and then the software (driver and utility). For those using Windows XP, the installation procedure will be the same until the utility installation. Windows XP has a built in utility for wireless devices. The configuration utility does not need to be installed for users using the XP operating system.

System Requirements:

- ***A laptop computer with an available 32-bit Cardbus slot***
- ***At least a 300 MHz processor and 32 MB of memory***
- ***Cardbus Controller properly installed and working***
- ***An 802.11b/g Access Point (for Infrastructure Mode)***

1. Installing the CG-WLCB54GL

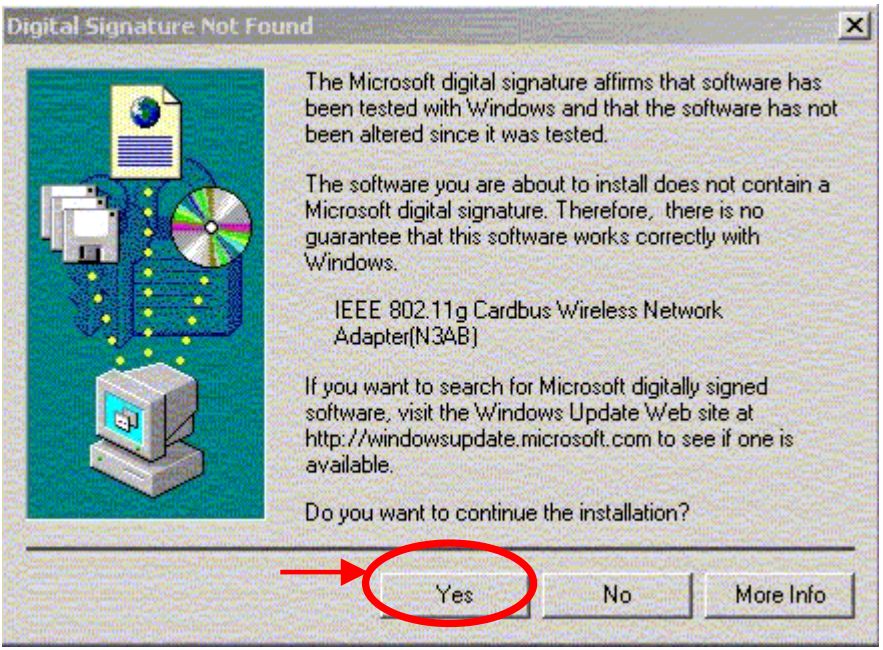
- Turn on the computer
- Insert theCG-WLCB54GL into an available 32-bit Cardbus slot.

Installing the Driver

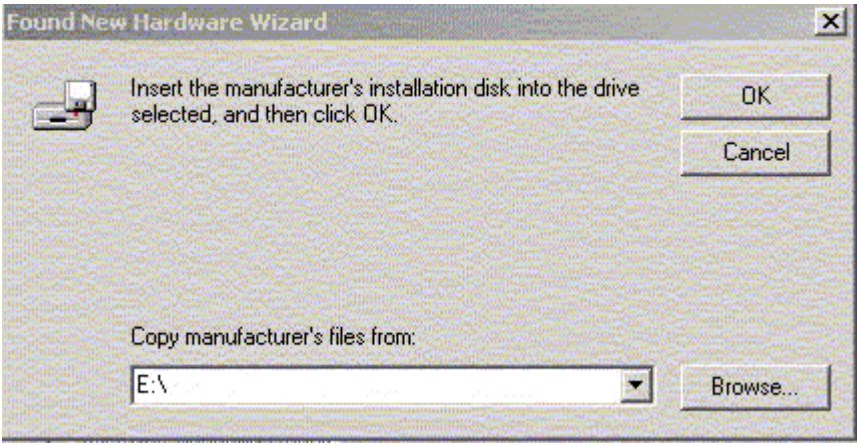
Installing the software involves two steps. The first is to install the Driver and the second is to install the Configuration Utility.

- ***When CG-WLCB54GL has been inserted into a 32-bit Cardbus slot, the*** *Found New Hardware* ***screen appears.***

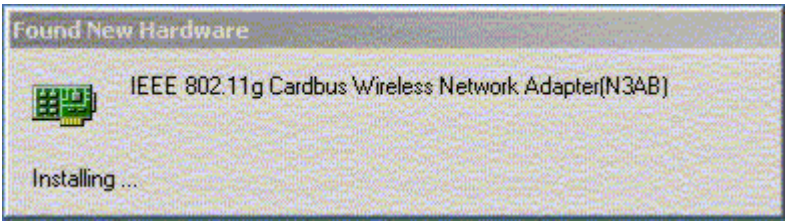
- ***Continue with the installation and the screen below should appear. Click on*** Yes ***to proceed with the installation.***



- ***Insert the Driver CD into the CD-ROM drive. If you have not inserted the Driver CD into the CD-Rom a prompt such as the one below will appear. Click*** OK***.***



- ***Otherwise installation will continue with the following screen and come to completion.***

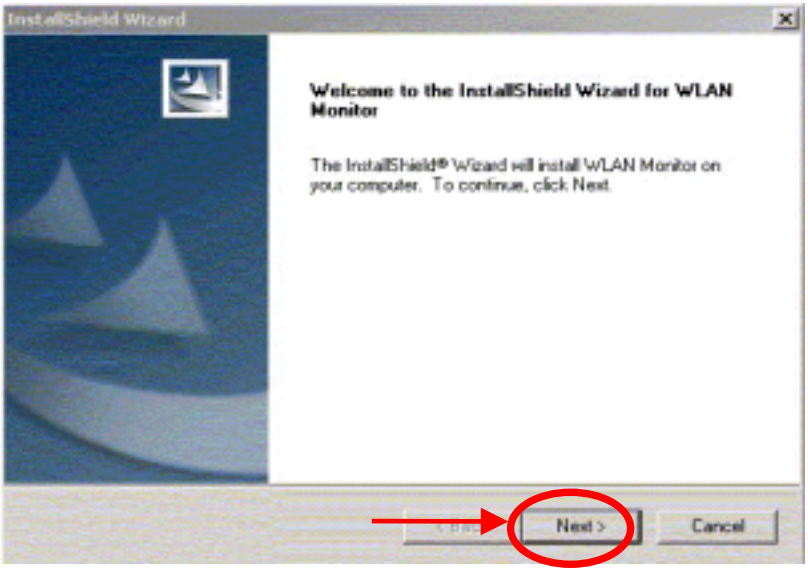


3. Installing the Configuration Utility

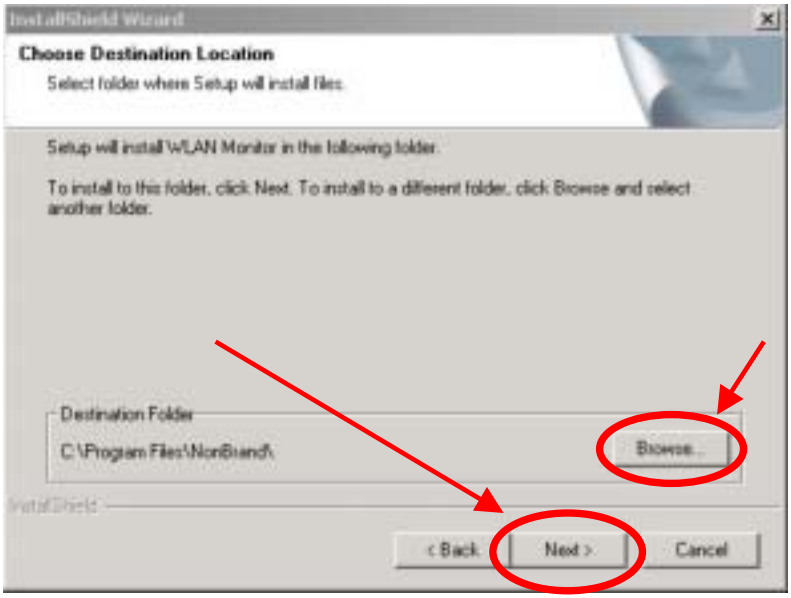
Look for the file named “Setup.exe” on the installation CD-ROM. Double-click on it to start the installation for the configuration utility.

Setup.exe

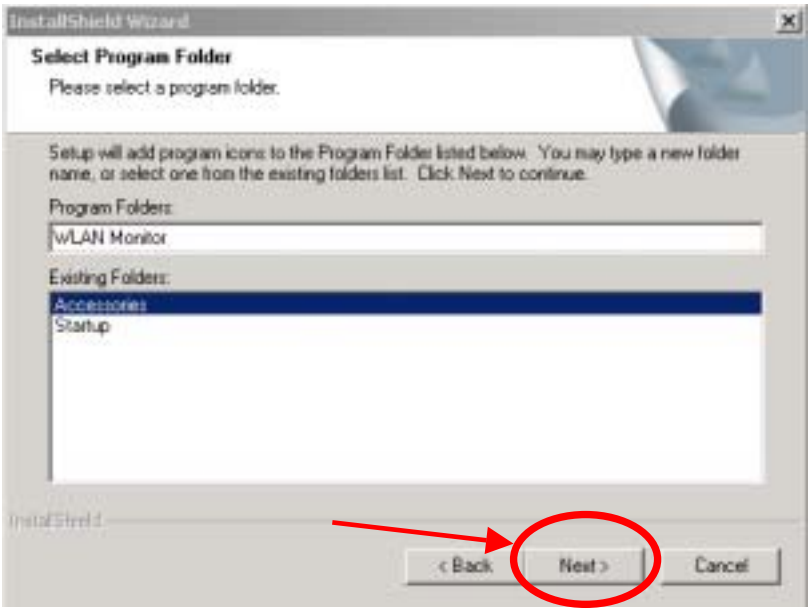
- ***When this screen appears click*** Next.



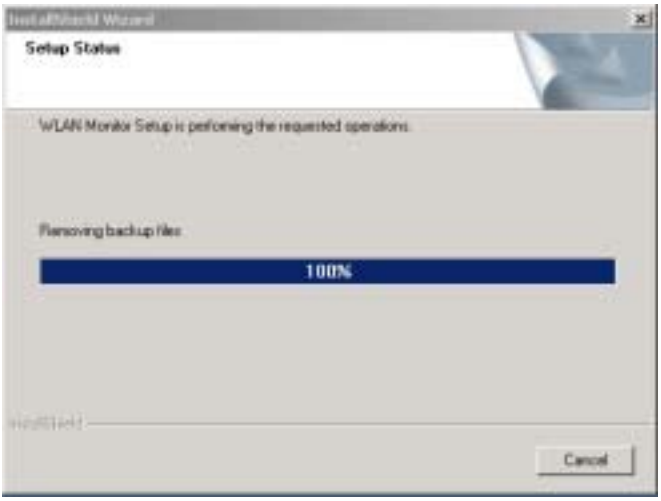
- To install to the folder C:\Program Files\NonBrand Utility click ***Next***. Otherwise click on ***Browse*** to choose an alternate location.



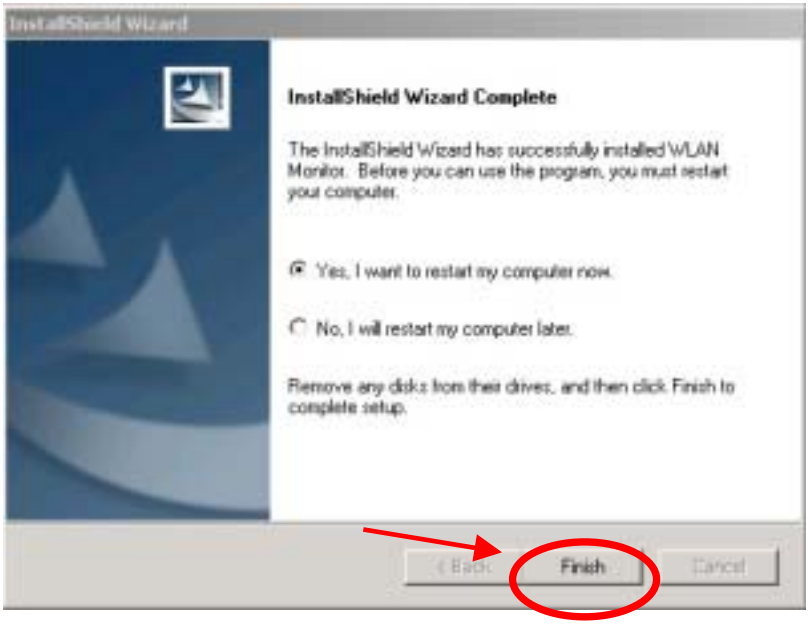
- Click ***Next*** to proceed with the utility installation.



- The Setup Status screen will appear to inform you that the installation is in process, as seen below. This same screen will then alert you that all backup files have been removed.

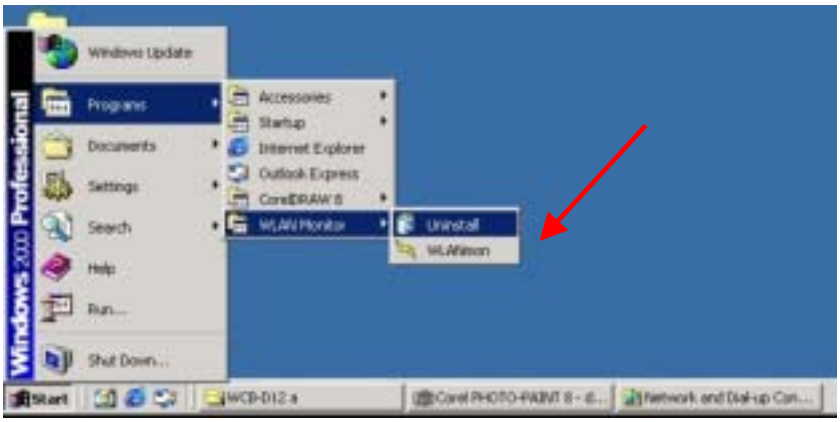


- After WLAN Utility has been successfully installed, InstallShield Wizard will prompt you to restart your computer. Select “Yes, I want to restart my computer now,” and click on ***Finish***.



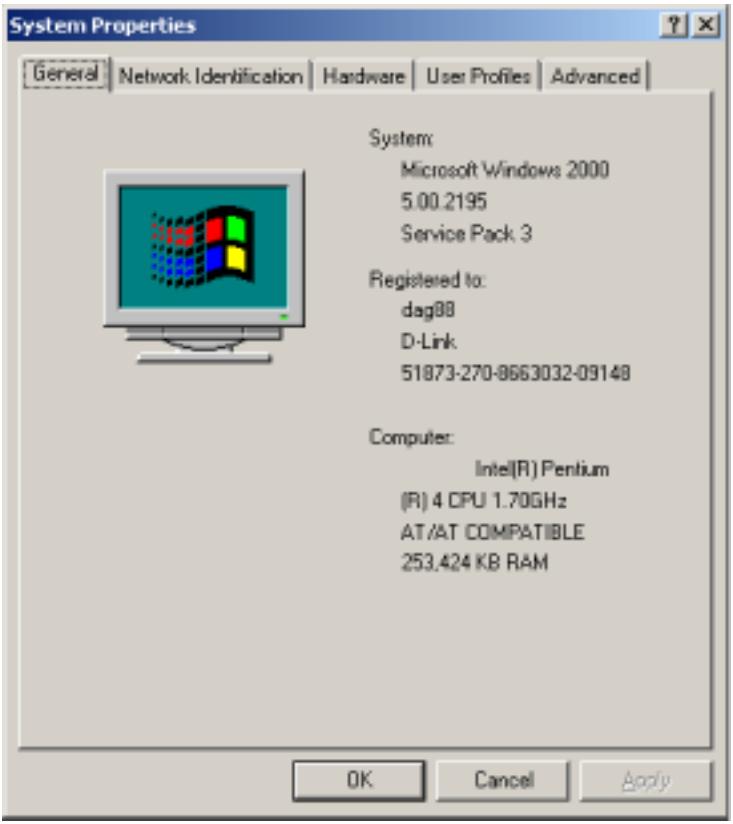
4. Uninstalling the Configuration Utility

To uninstall the configuration utility simply click **Uninstall** under **Programs→WLAN Monitor→Uninstall**.

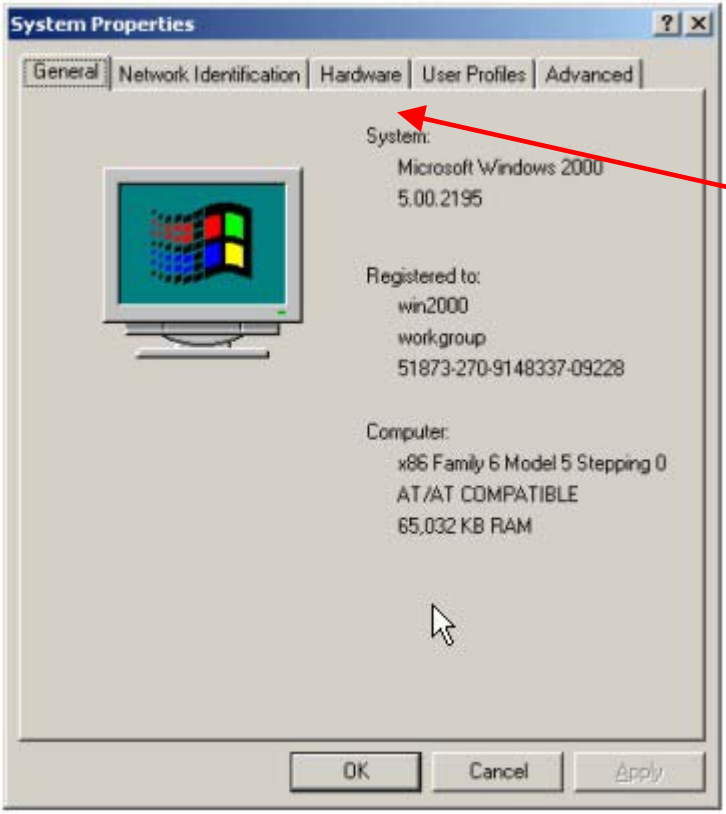


To uninstall the driver, right-click on **My Computer**.

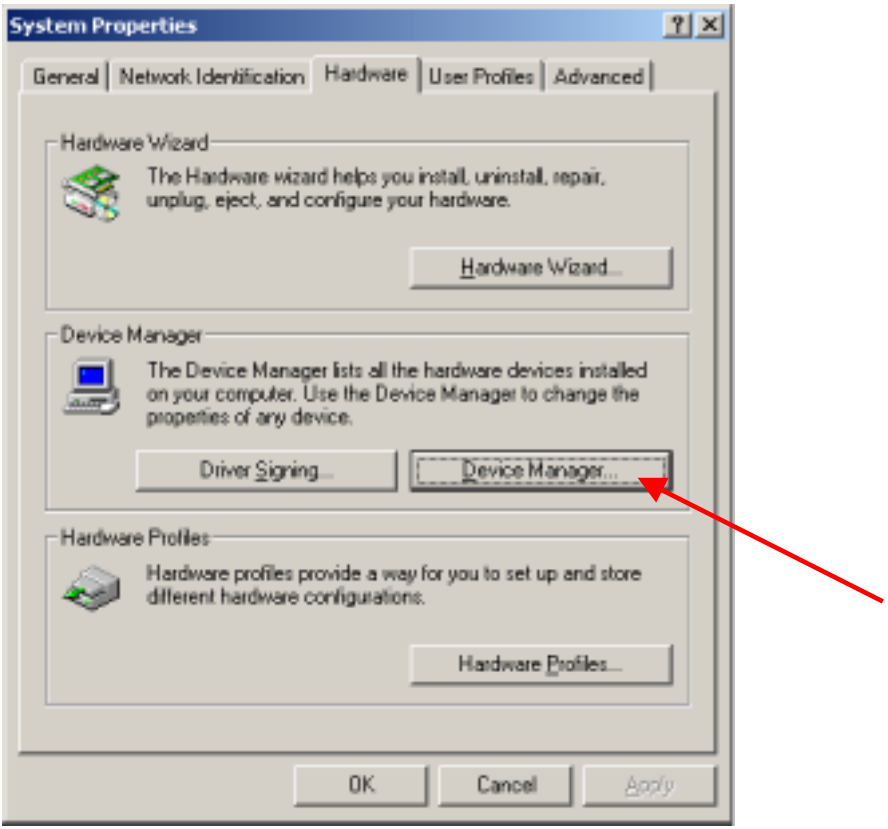
Left-click on **Properties** to bring up the **System Properties** screen.



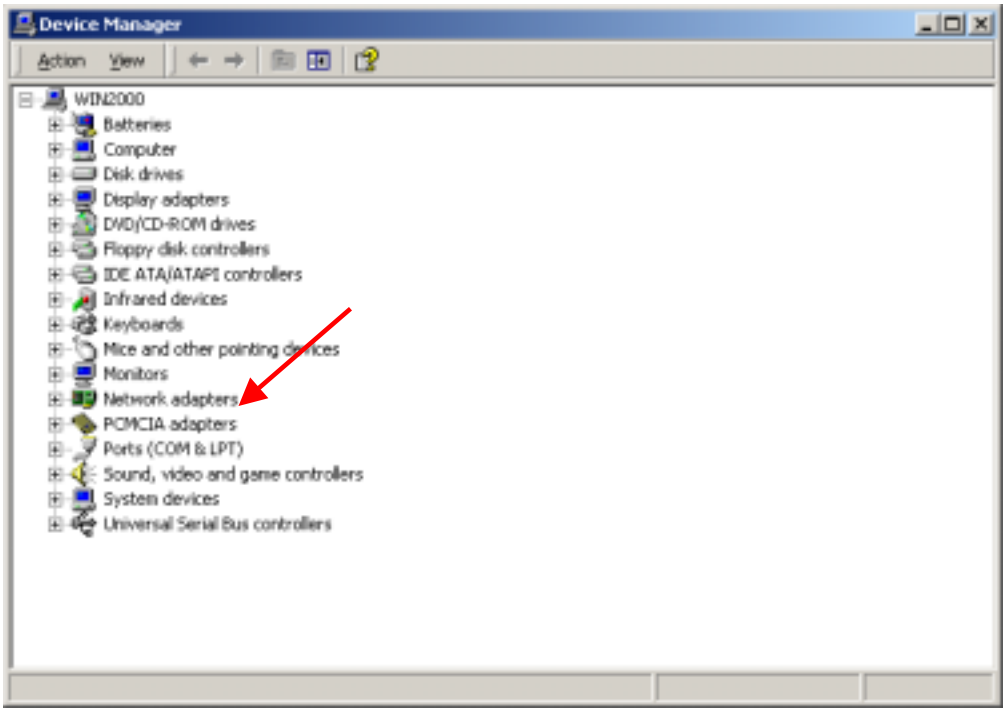
Click on the **Hardware** tab.


System Properties
General
Network Identification
Hardware
User Profiles
Advanced
System:
Microsoft Windows 2000
5.00.2195
Registered to:
win2000
workgroup
51873-270-9148337-09228
Computer:
x86 Family 6 Model 5 Stepping 0
AT/AT COMPATIBLE
65,032 KB RAM
OK
Cancel
Apply

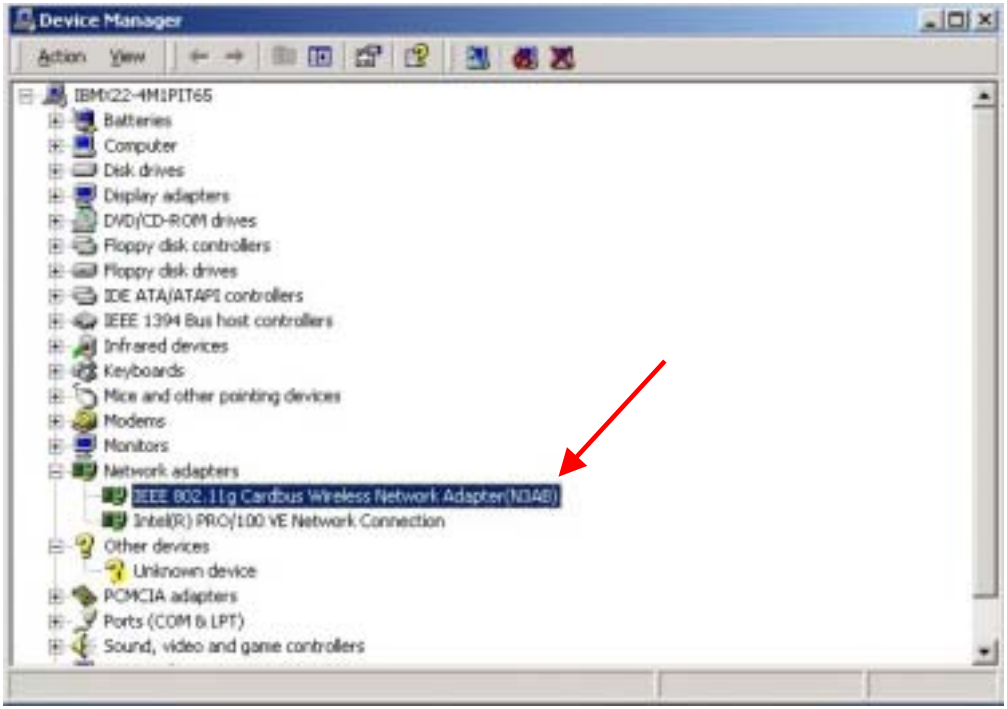
Click on **Device Manager**.

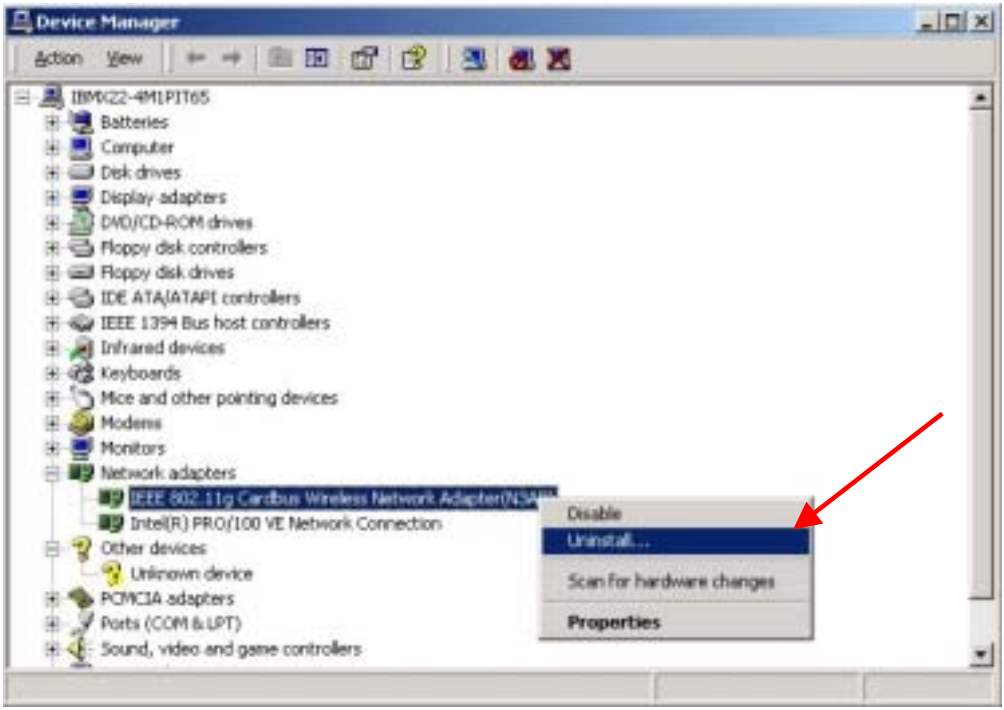


Double-click on **Network adapters**.



Right-click on the "**CG-WLCB54GL**" icon.





Click on **Uninstall**. You will then receive a **Confirm Device Removal** screen. Click ***OK*** to complete the uninstall procedure.

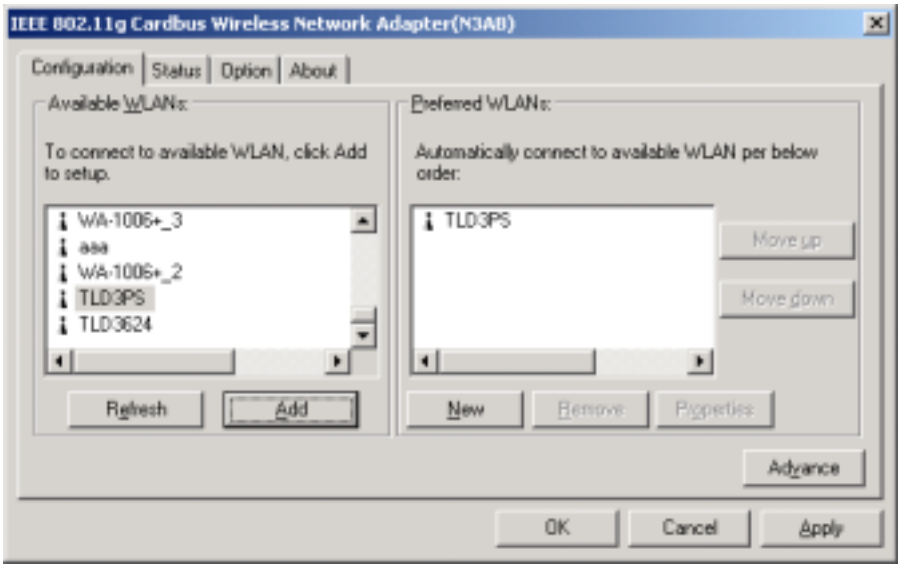
Using the Configuration Utility *for Windows 2000, 98, or ME*

If you are using Windows 2000, ME or 98SE the Configuration Utility program for the CG-WLCB54GL is called **WLAN**. Once you have installed **WLAN** (the configuration utility), you can read this section of the manual to find out how to monitor and configure your CG-WLCB54GL using **WLAN**. Screenshots for this section have been taken in Windows 2000. There are four tabs in the **WLAN** Configuration Utility program. In this section we will describe the uses for each tab in the Configuration Utility window.

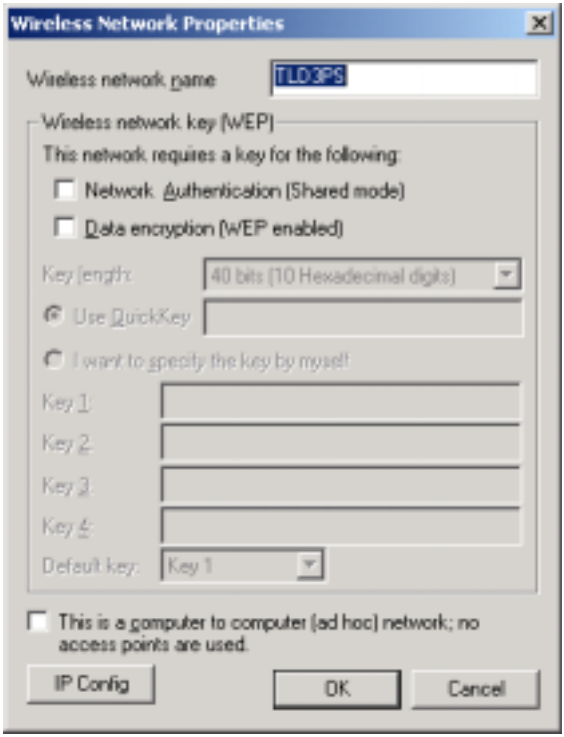
To access **WLAN** once it has been installed, just right-click on the **WLAN** icon in the taskbar and click on **Wireless Networks**:

Under the **Configuration Tab** you will find a list of access points to which you may add or change connections.

Configuration Tab



On the left side of the screen are *Available WLANs*, which you may connect to by first selecting the WLAN (it will appear highlighted) and then clicking on ***Add***. When you do so a screen like the one below will pop up:



In the **Wireless Network Properties** screen you may change the name of the WLAN. You may also enter wireless network encryption keys by checking **Network Authentication (Shared mode)** or **Data encryption (Wep enabled)**. You may enter up to four keys of length 10 or 25 hexadecimal digits. You may also set one of the four keys as a default key.

Click on **IP Config** to set the IP address, Subnet mask, and Default gateway manually instead of obtaining the IP address automatically through the Dynamic Configuration Host Protocol (DCHP) server. You may also set the DNS server address settings and WINS address settings.

If the network you are using is a computer-to-computer network or ad hoc network, no access points are used. You may check the box “This is a

computer to computer (ad hoc) network; no access points are used" to enable this option.

On the **Configuration Tab** click on ***Refresh*** to call up all the available WLANs. On the right side of the screen is a list of ***Preferred WLANs***. These are WLANs that have already been added to the wireless network. Click ***New*** to rename the WLAN and reset its properties. You will see the **Wireless Network Properties** screen as displayed previously when you click ***New***. This is also the same screen that will appear when you click ***Properties*** on the right side of the **Configuration Tab** screen. Click ***Remove*** to remove the connection.

On the right side of the screen you may click ***Move Up*** to move the selected WLAN up in the order it is displayed on the ***Preferred WLANs*** screen. You may click ***Move Down*** to move the selected WLAN down in the order in which it is displayed.

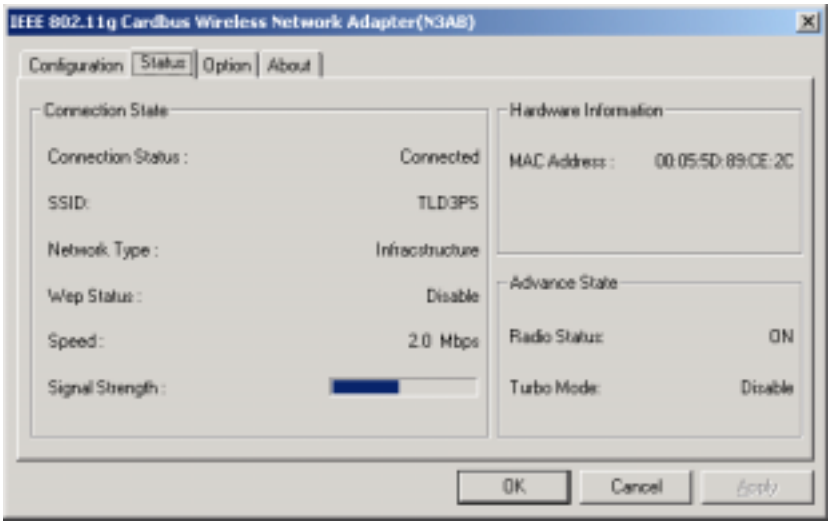
The ***Advance*** button allows the user to set the WLAN type to connect: infrastructure and ad hoc network, infrastructure network only, or ad hoc network only. You may also automatically connect to non-preferred networks by checking the option.

Note: *The following countries cannot use the ad hoc network: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Poland, Sweden, Switzerland, and the United Kingdom.*

When you are done entering the settings and options for the wireless network click on ***OK***, ***Cancel***, or ***Apply***. ***OK*** places the settings into effect and closes the graphical user interface (GUI). ***Cancel*** makes invalid all settings entered. ***Apply*** places the settings entered into effect but does not close the GUI.

Under the **Status Tab** you will find information on the connection state, hardware information, and advanced state.

Status Tab



Information given under **Connected State** are the **Connection status** (connected or disconnected), **SSID**, **Network type** (infrastructure or adhoc), **Wep Status** (enabled or disabled), **Speed** (of the wireless connection), and **Signal Strength** (a colored bar shows the intensity of the radio signals in the network).

Under **Hardware Information** the Media Access Control (MAC) address of the hardware (WLAN cardbus card) is given. The MAC address is a factory given address that cannot be changed.

Advanced State shows the **Radio Status** (ON or OFF) and **Turbo Mode** (Enabled or Disabled).

Click ***OK*** to accept the connection status and exit the GUI. Click ***Cancel*** to not accept the status settings and exit the GUI.

Under the **Option Tab** general settings and advanced settings are shown.

Option Tab

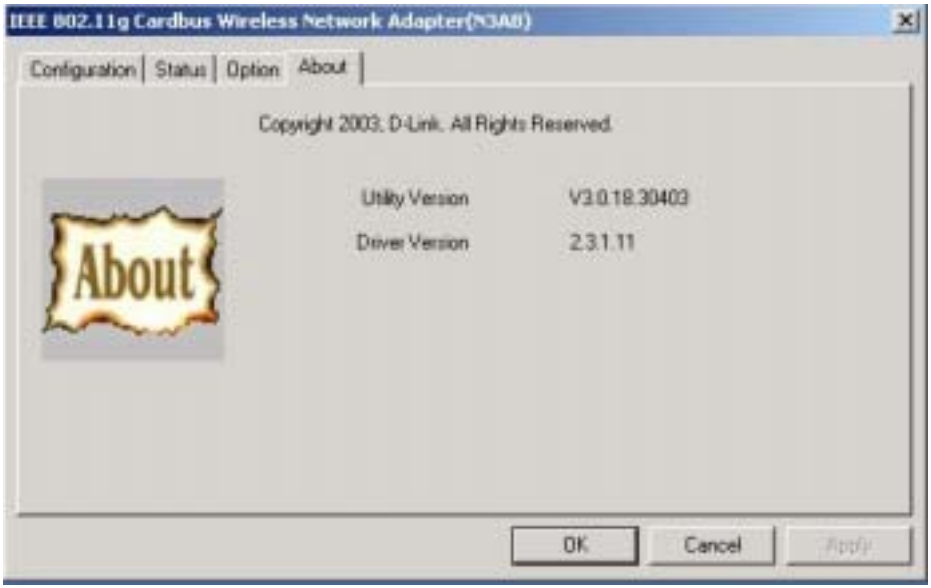
Under **General Setting**, check “Auto launch when Windows starts up” so that WLAN automatically launches when Windows starts up. Check “Use IP Setting in Profile” to enable the IP settings made under **IP Config** in the **Wireless Network Properties** screen. If checked current IP settings will be saved. If unchecked (and previously checked), previous IP settings will be restored. If “Use Windows IP settings” is checked, IP settings from “Network and Dial-up connections” will be used. Check “Disable Radio” to disconnect the network connection without removing the WLAN cardbus card.

Under **Advanced Settings**, check “Enable Turbo Mode” to enable turbo mode. Turbo mode can then take effect if you are using a turbo mode enabled Access Point. Set the **Encryption Type** to Auto, WEP, or Advanced Encryption Standard (AES). The **Radio Frequency** has been preset to 802.11g-2.4GHz.

Note: *Currently, the Turbo Mode is only available in the United States.*

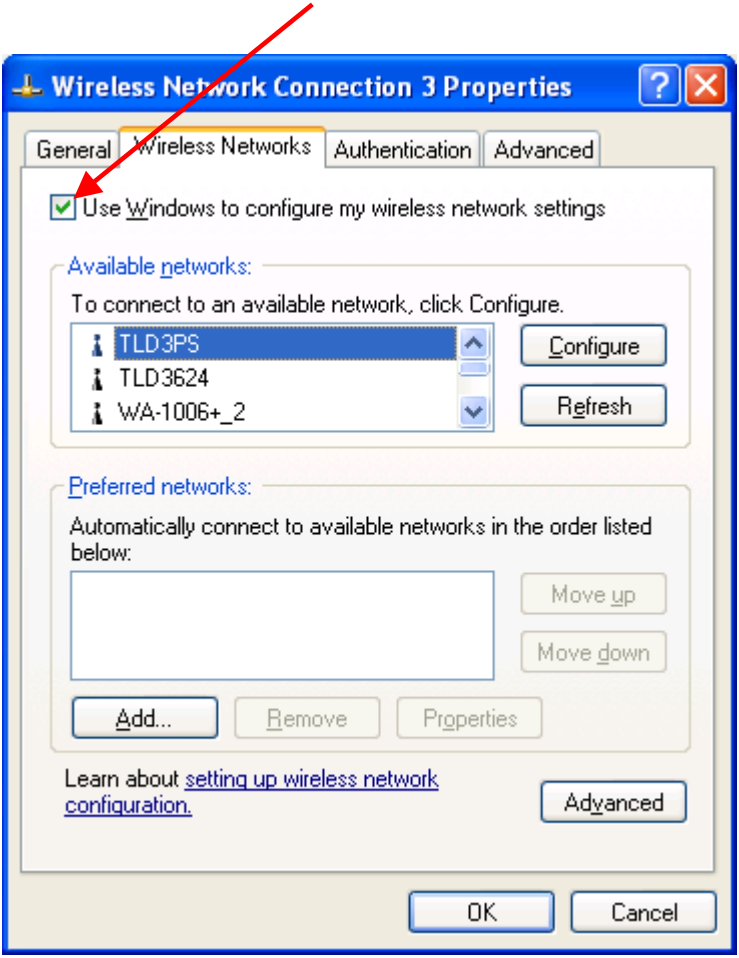
The **About Tab** gives the utility version number of the WLAN utility.

About Tab



Using the Configuration Utility for Windows XP

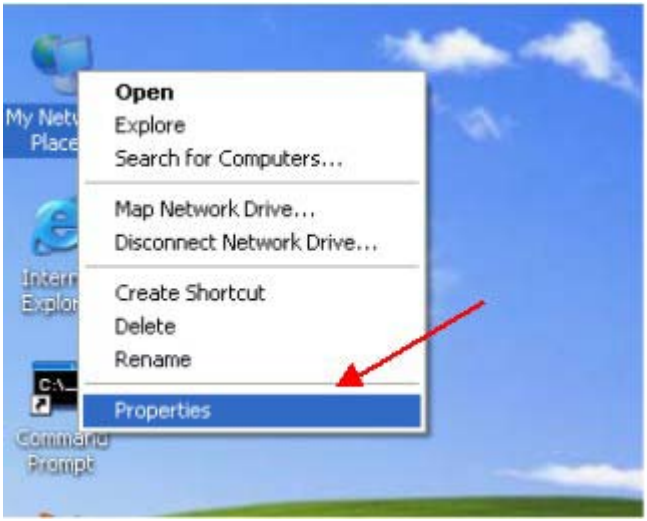
The WLAN Configuration Utility supports Windows XP; however, Windows XP has its own utility for wireless devices. In order to use the WLAN Configuration Utility as described in the last section you must disable the utility built into Windows XP by unchecking the box below.



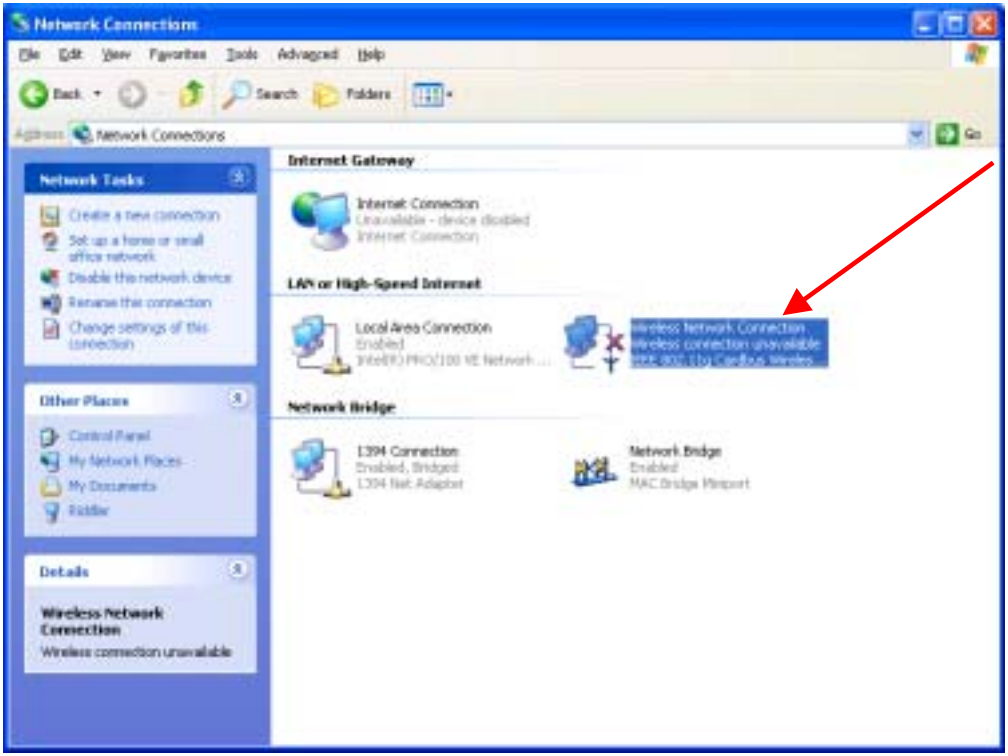
If you leave the “Use Windows to configure my wireless network settings” box checked, you will use the Windows XP utility for wireless devices.
The following demonstrates how to manage wireless network connections with the Windows XP built-in utility.

Creating a connection

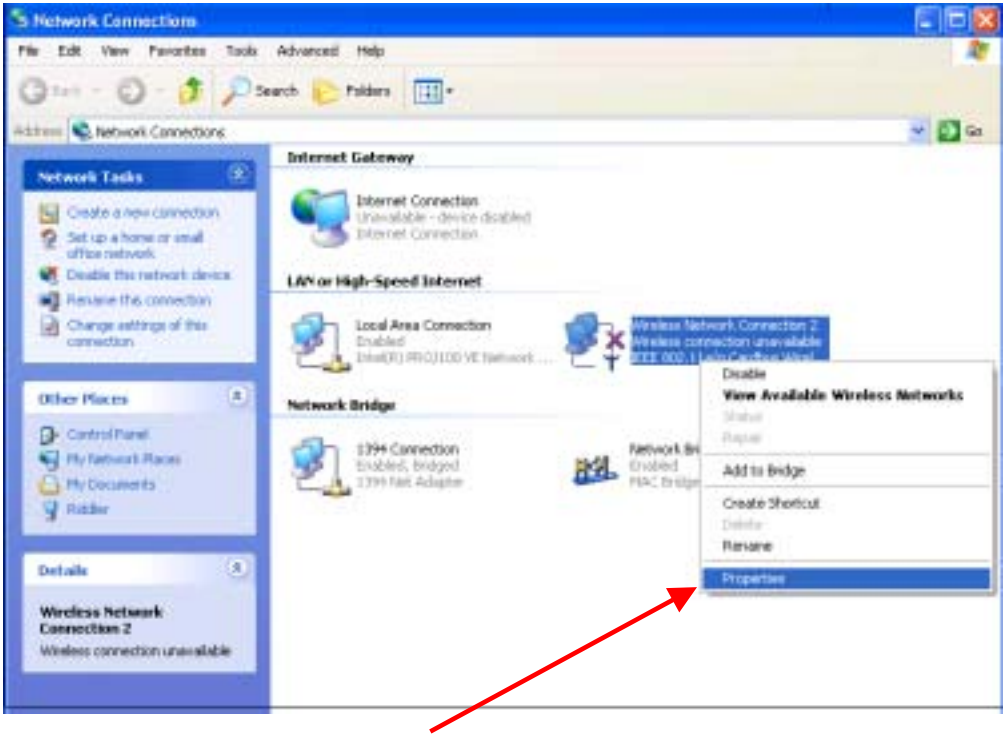
Right click on **“My Network Places”** to obtain a drop-down menu with **Properties** listed.



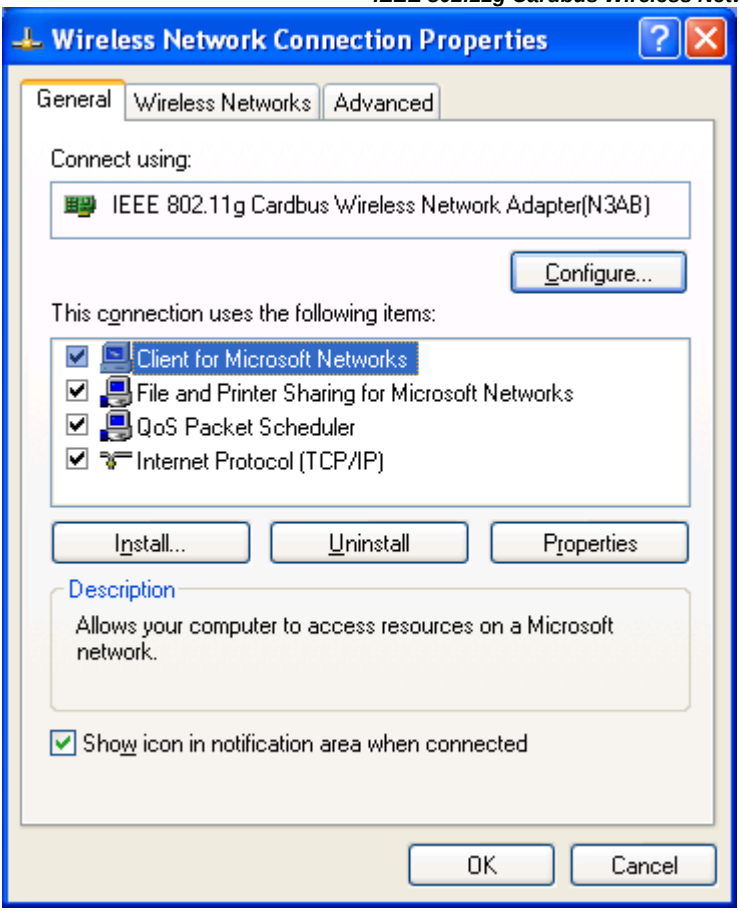
Left-click on **Properties** to obtain the **Network Connections** screen.



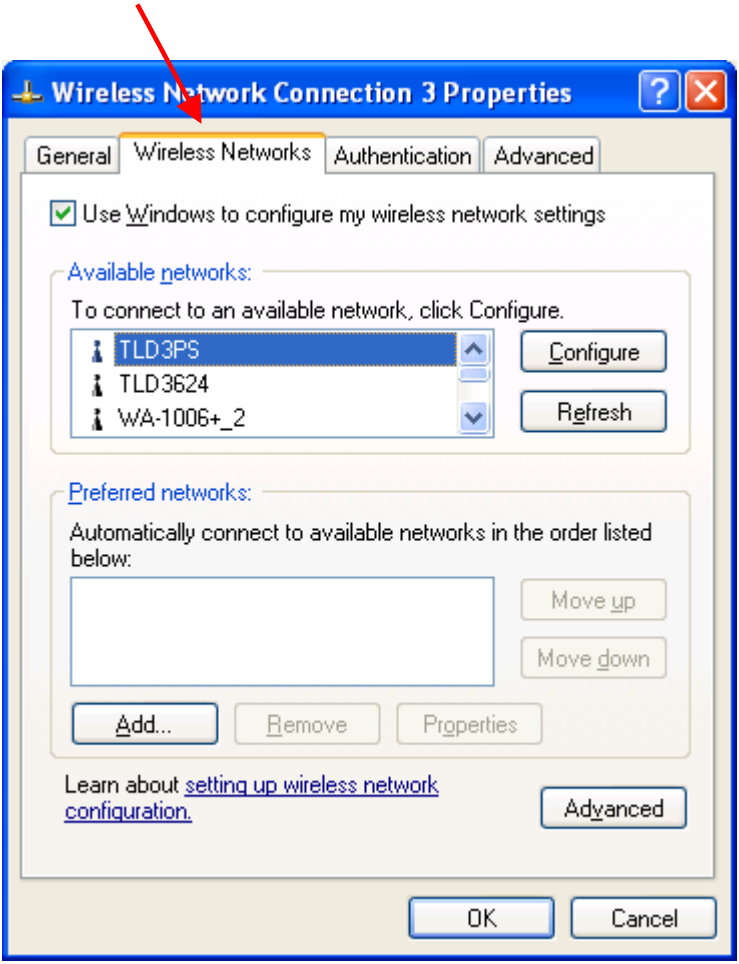
Right-click on the "**Wireless Network Connection**" icon to produce another drop-down menu with item **Properties**.



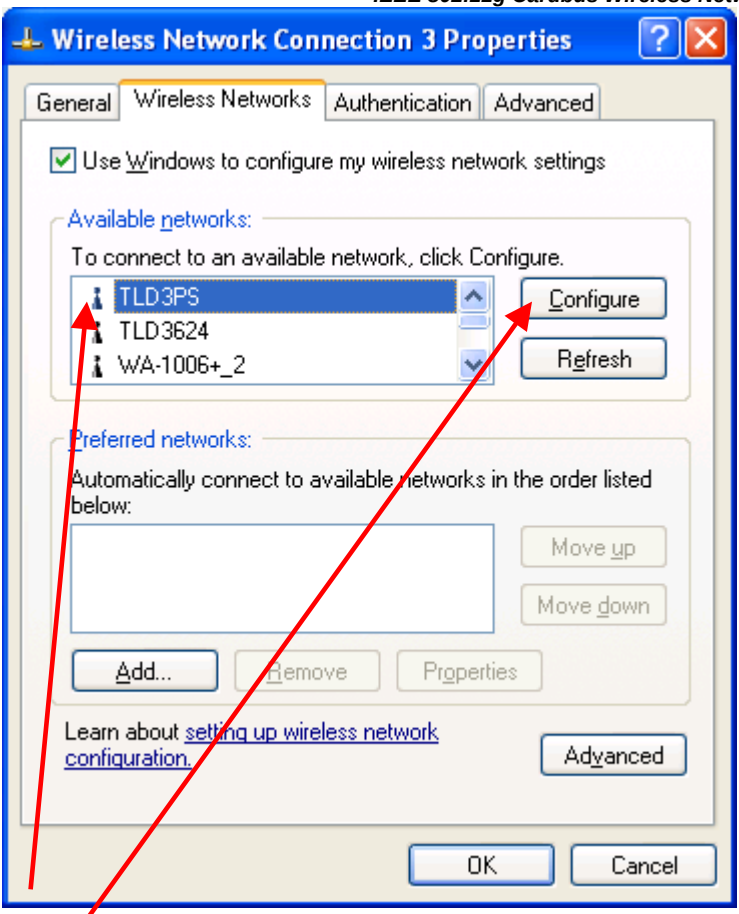
Left-click on **Properties** to bring up the screen below.


Wireless Network Connection Properties
General
Wireless Networks
Advanced
Connect using:
IEEE 802.11g Cardbus Wireless Network Adapter(N3AB)
Configure...
This connection uses the following items:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
QoS Packet Scheduler
Internet Protocol (TCP/IP)
Install...
Uninstall
Properties
Description
Allows your computer to access resources on a Microsoft network.
Show icon in notification area when connected
OK
Cancel

Click on the **Wireless Networks** tab.

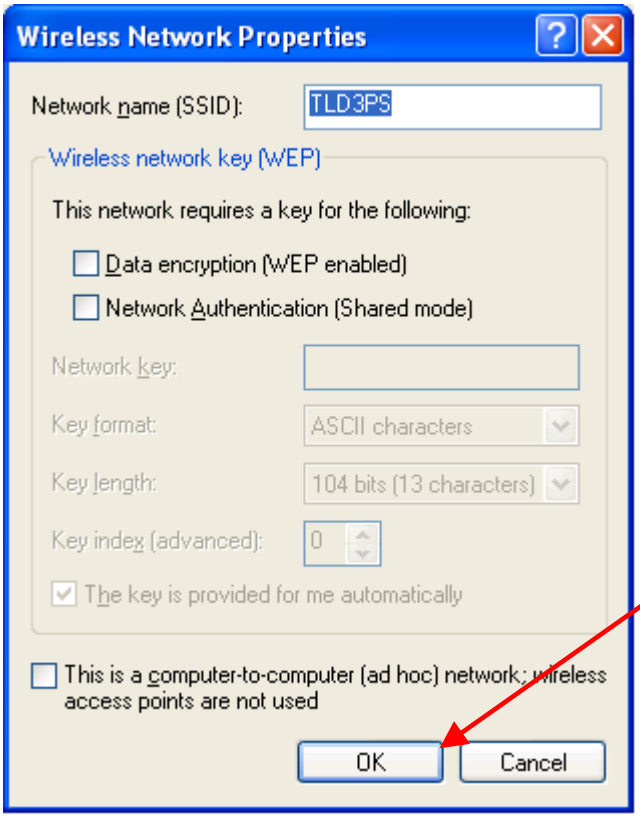


Click on the Access Point under **Available Networks** with which you wish to establish a connection.

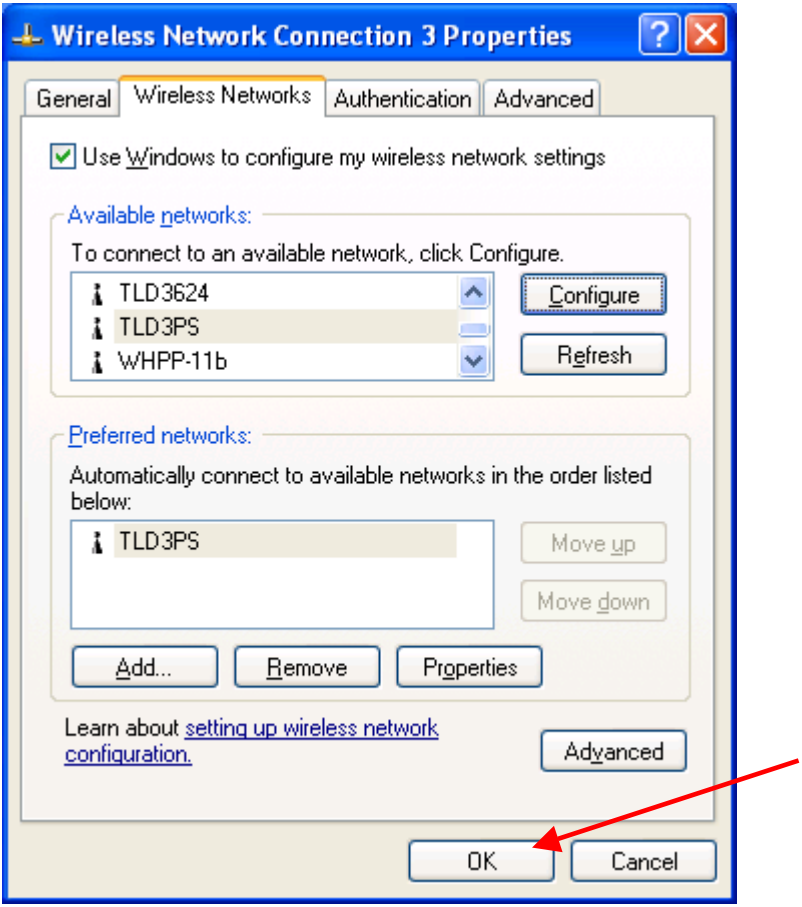


Click on ***Configure*** to establish a connection with the chosen access point "TLD 3PS." A screen such as the following called **Wireless Network Properties** will then appear.

Enter the appropriate settings on the screen below and click ***OK***.

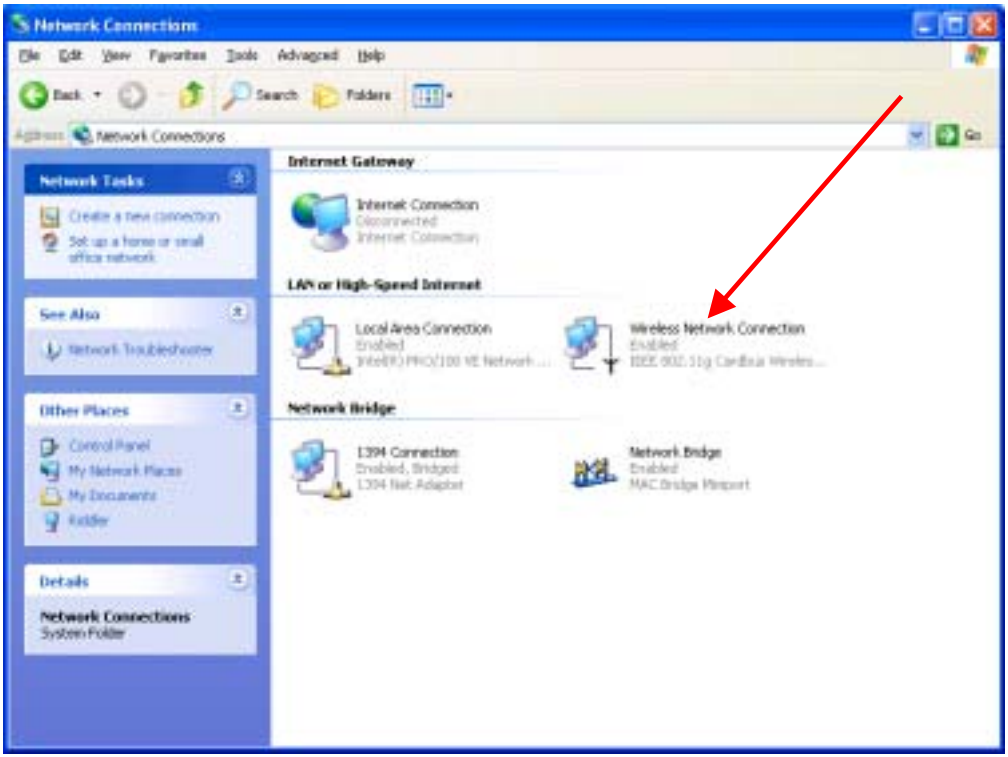


The access point “TLD 3PS” has been added to the network under **Preferred networks**.



Click **OK**.

The **Network Connections** window now shows the wireless network connection as "**Enabled"**.



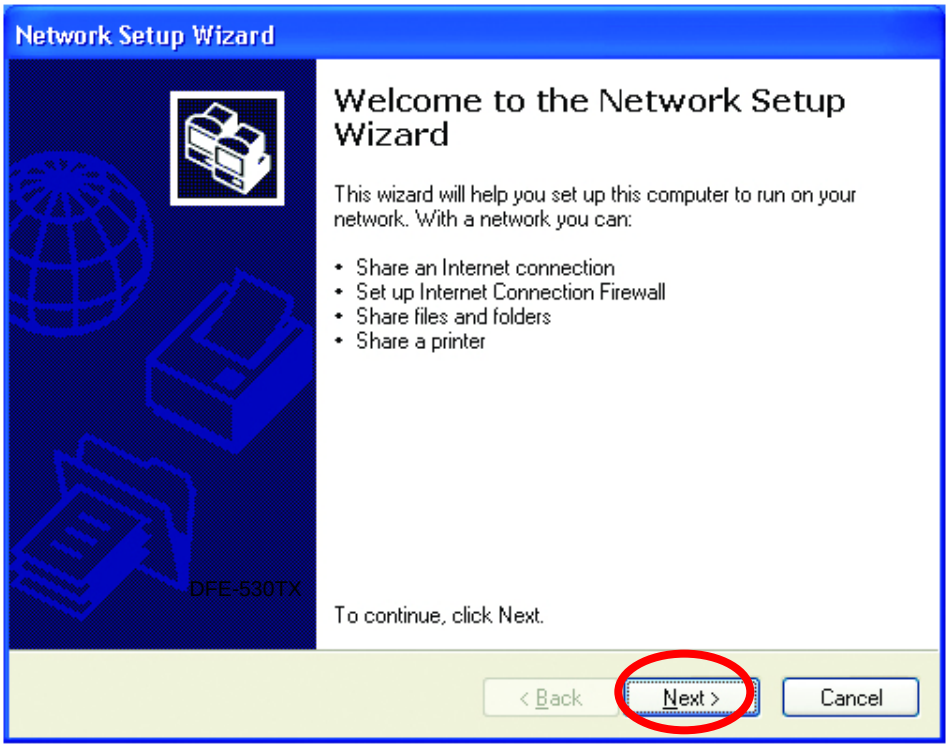
Networking Basics

Using the Network Setup Wizard in Windows XP

In this section you will learn how to establish a network at home or work, using **Microsoft Windows XP.**

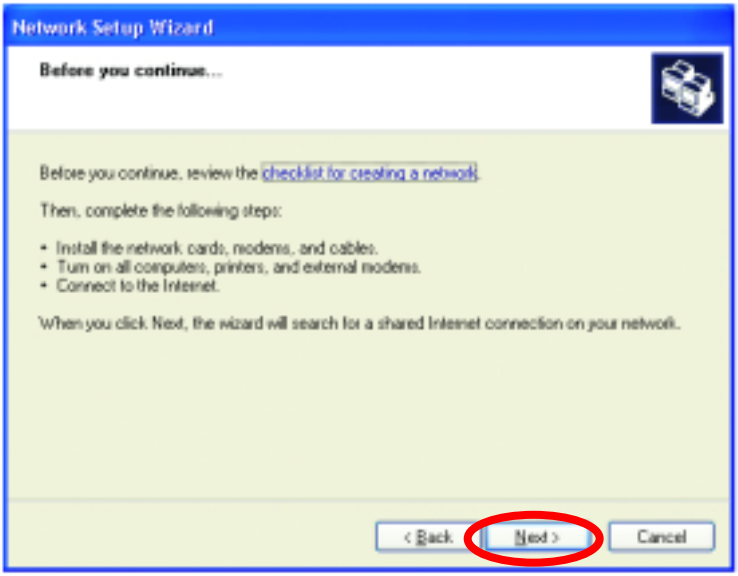
Note: *Please refer to websites such as http://www.homenethelp.com and http://www.microsoft.com/windows2000 for information about networking computers using Windows 2000, ME or 98.*

Go to START>CONTROL PANEL>NETWORK CONNECTIONS
Select **Set up a home or small office network**



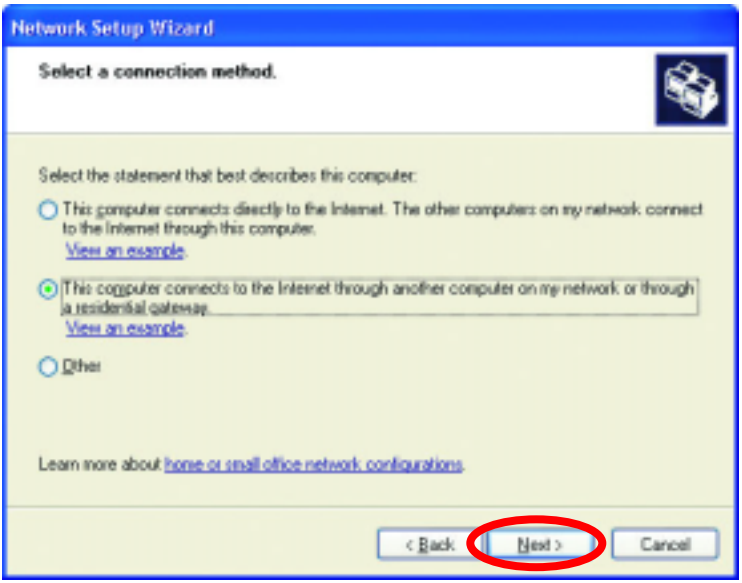
When this screen appears, click **Next**.

Please follow all the instructions in this window:

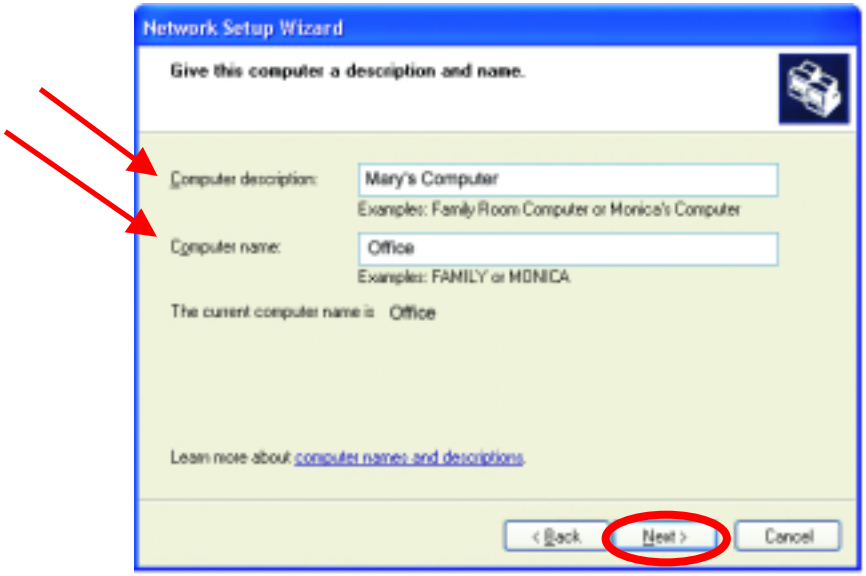


Click **Next**.

In the following window, select the best description of your computer. If your computer connects to the internet through a gateway/router, select the second option as shown.

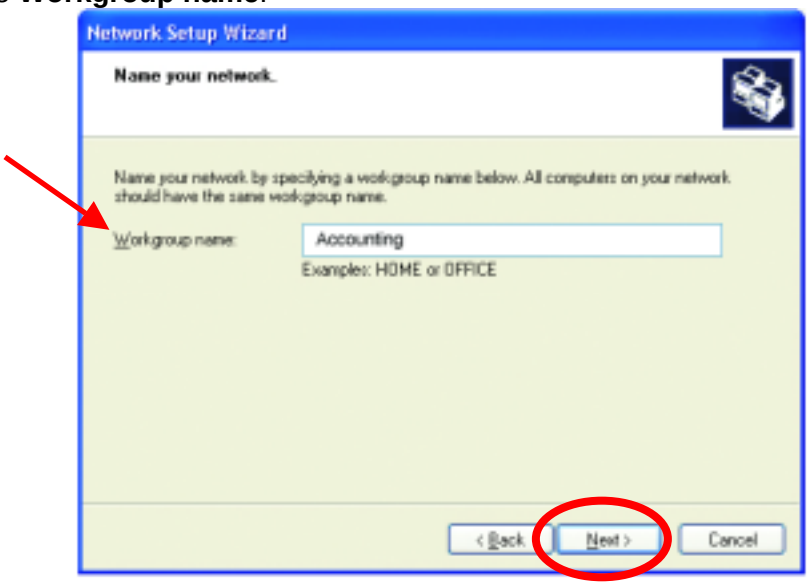


Click **Next**.
Enter a **Computer description** and a **Computer name** (optional.)



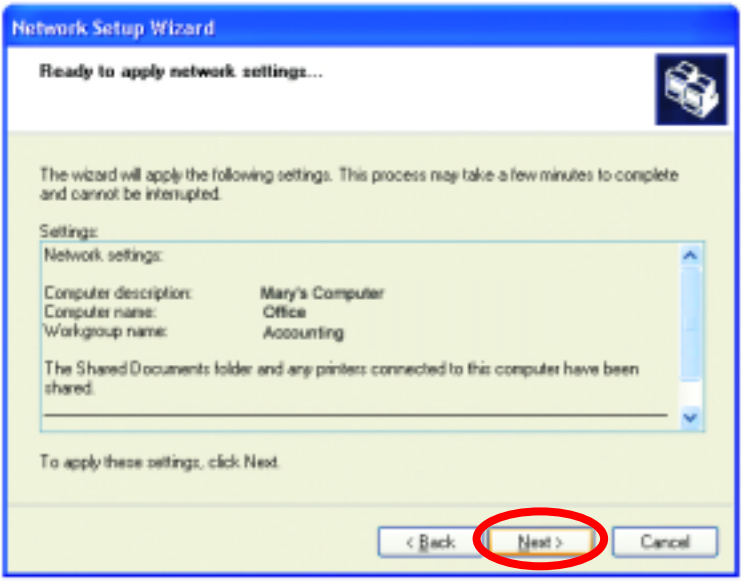
Click **Next**.

Enter a **Workgroup** name. All computers on your network should have the same **Workgroup name**.

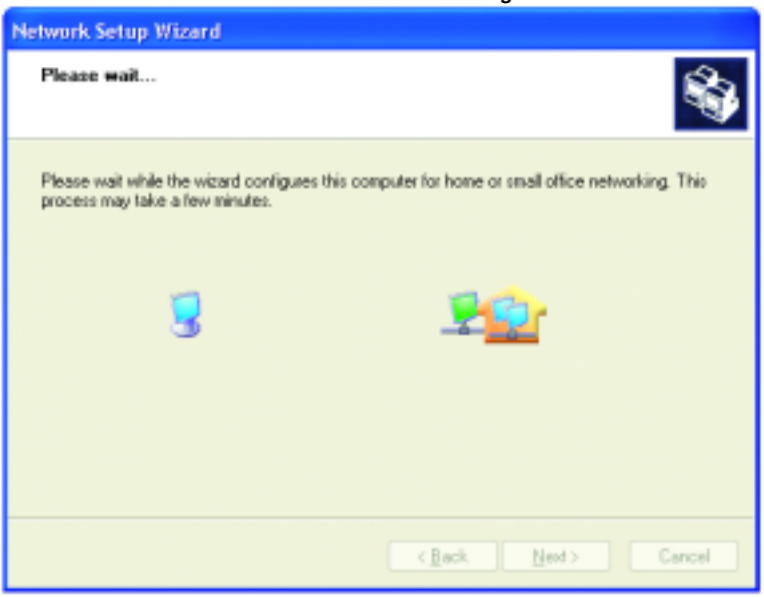


Click **Next**.

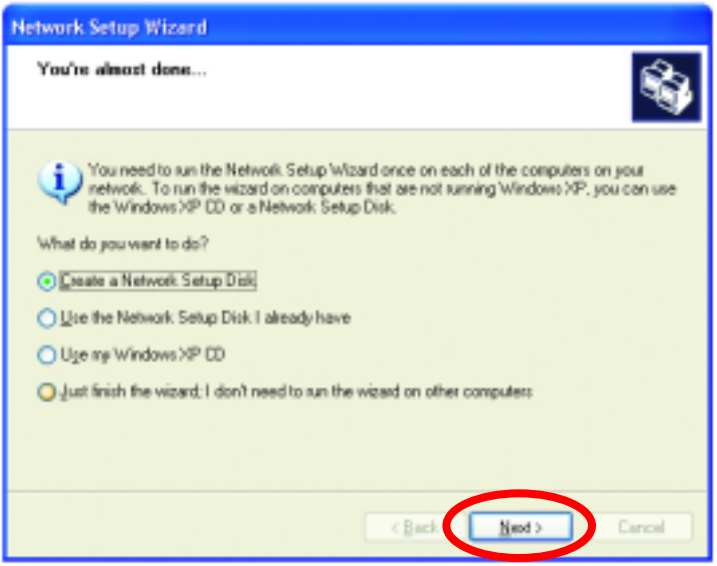
Please wait while the wizard applies the changes.



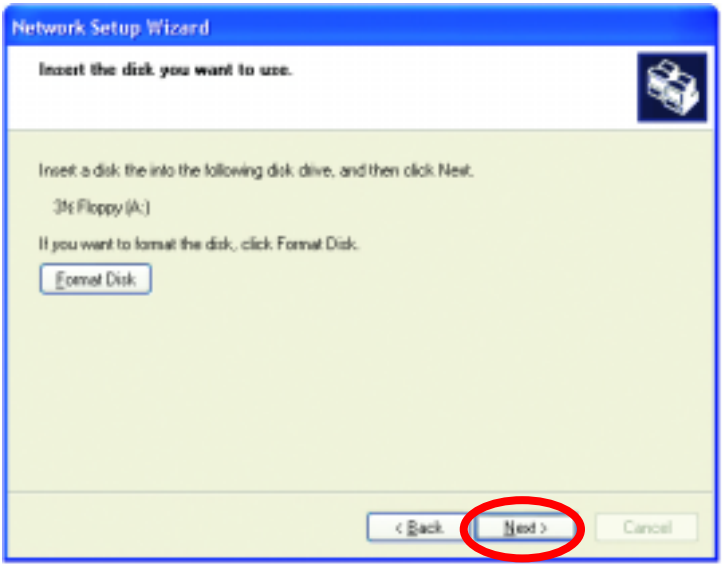
When the changes are complete, click **Next**.
Please wait while the wizard configures the computer.
This may take a few minutes.



In the window below, select the best option. In this example, **"Create a Network Setup Disk"** has been selected. You will run this disk on each of the computers on your network. Click **Next**.



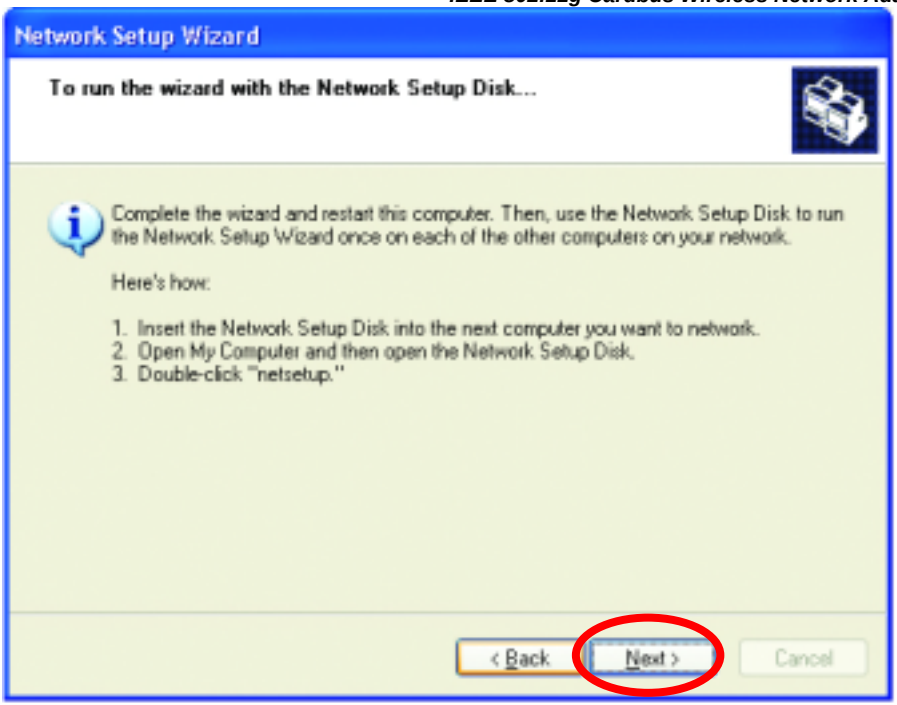
Insert a disk into the Floppy Disk Drive, in this case drive **"A:"**



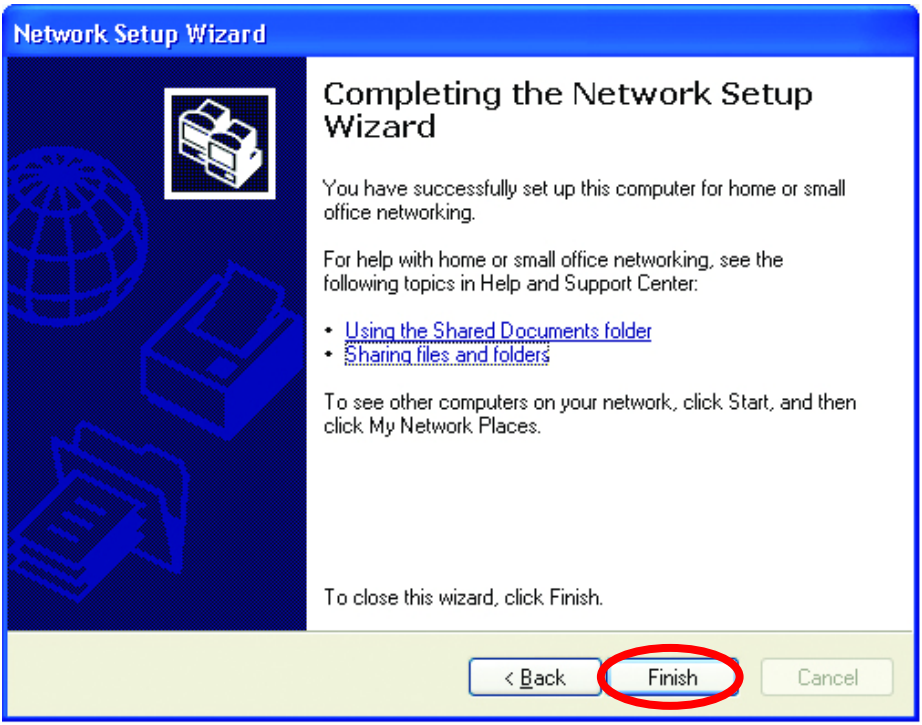
Format the disk if you wish, and click **Next**.

Please wait while the wizard copies the files.

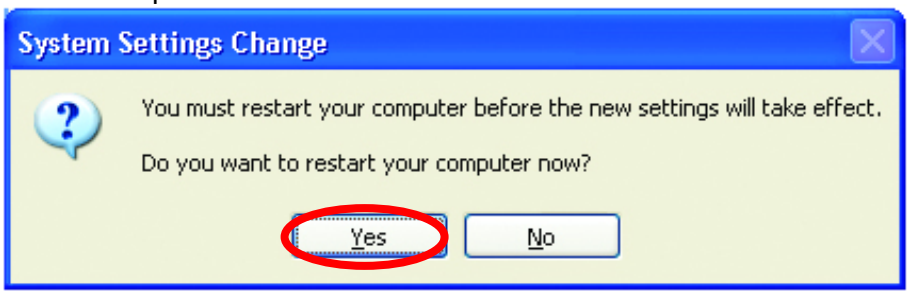
Please read the information under **Here's how** in the screen below. After you complete the **Network Setup Wizard** you will use the **Network Setup Disk** to run the **Network Setup Wizard** once on each of the computers on your network. To continue, click **Next**.



Please read the information on this screen, and then click **Finish** to complete the **Network Setup Wizard**.



The new settings will take effect when you restart the computer. Click **Yes** to restart the computer.



You have completed configuring this computer. Next, you will need to run the **Network Setup Disk** on all the other computers on your network. After running the **Network Setup Disk** on all your computers, your new wireless network will be ready to use.

Networking Basics

Naming your Computer

To name your computer, please follow these directions:

In **Windows XP**:

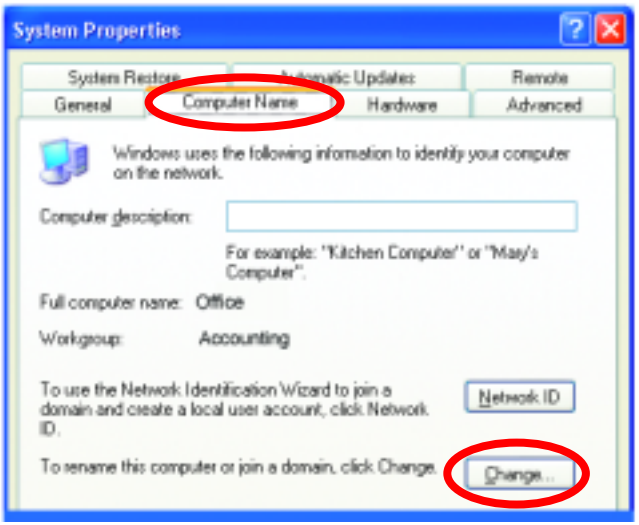
- Click **START** (in the lower left corner of the screen).
- Right-click on **My Computer**.
- Select **Properties** and Click.

- Select the **Computer Name Tab** in the **System Properties** window.

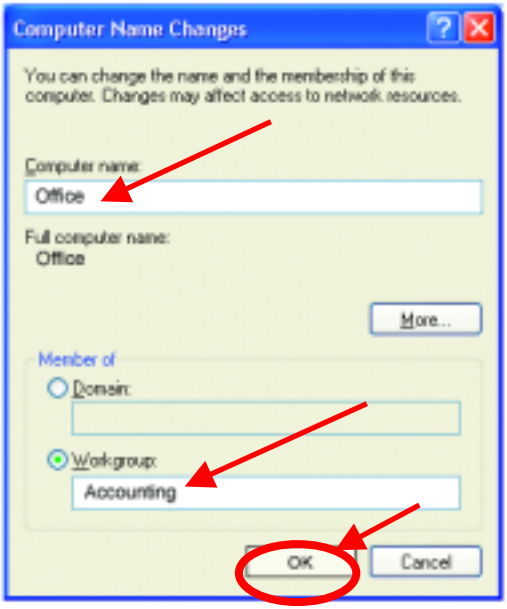
*You may enter a **Computer description** if you wish, this field is optional.*

To rename the computer and join a domain,

- Click **Change**



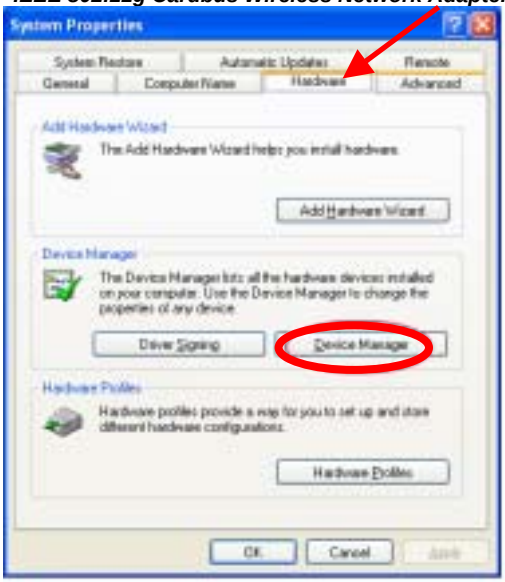
- In this window, enter the **Computer name**.
- Select **Workgroup** and enter the name of the **Workgroup**.
- All computers on your network must have the same **Workgroup** name.
- Click **OK**.



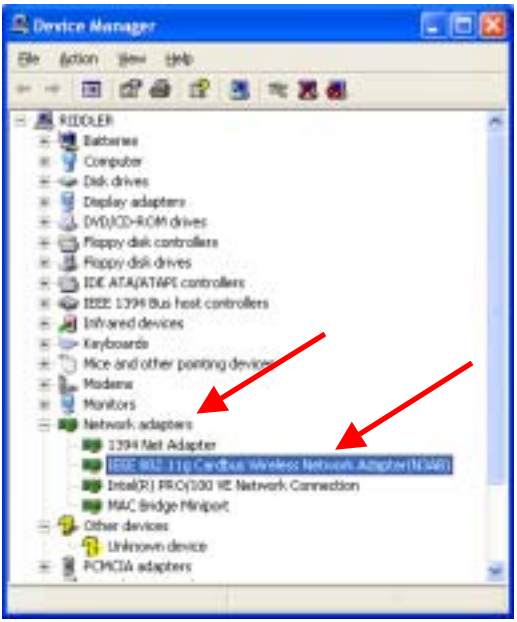
Checking the Installation of the Drivers for the Wireless Card

- Go to **Start**.
- Right-click on **My Computer**.
- Click **Properties**.

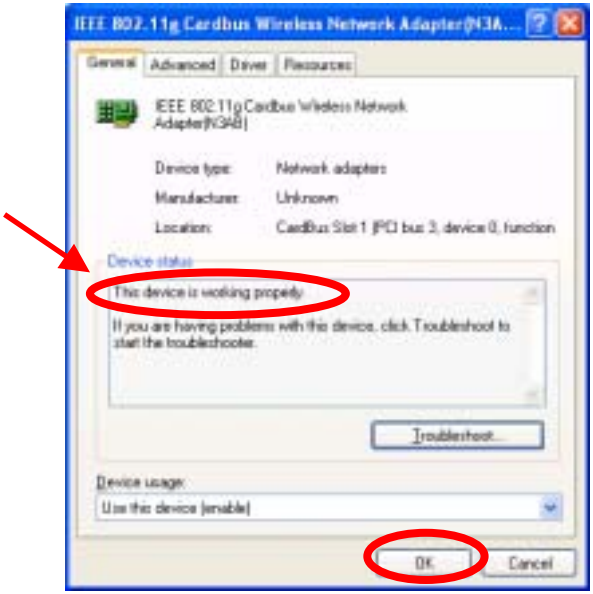
- Select the **Hardware Tab**.
- Click **Device Manager**.



- Click on **Network Adapters**
- Right-click on **IEEE 802.11g Cardbus Wireless Network Adapter**
- Select **Properties** to check that the drivers are installed properly



- Look under **Device Status** to check that the device is working properly.



- Click **OK**.

Networking Basics

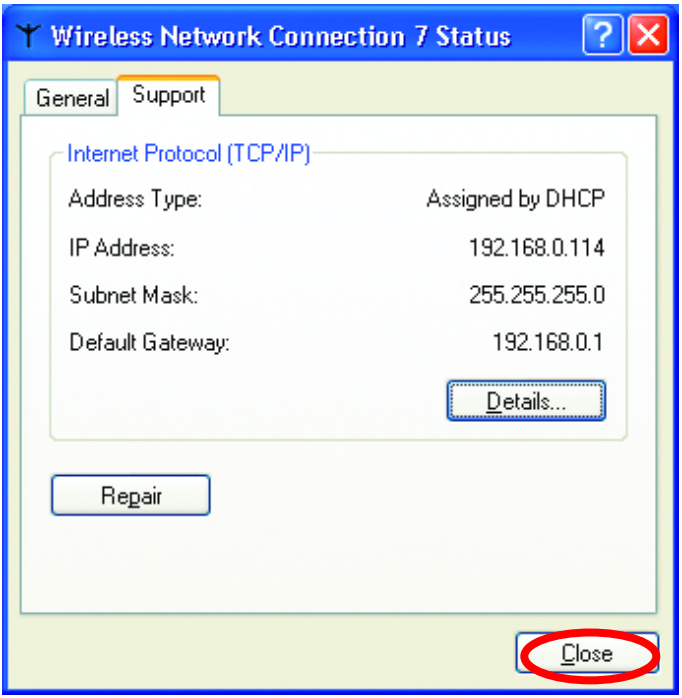
Checking the IP Address in Windows XP

- Right-click on the networking icon in the task bar.

- Click on **Status**.

The following window will display

- Click the **Support tab**.



- Click **Close**.

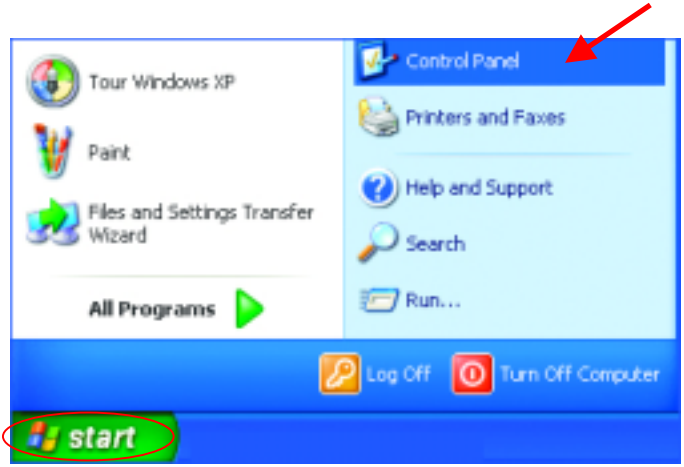
Networking Basics

Assigning a Static IP Address

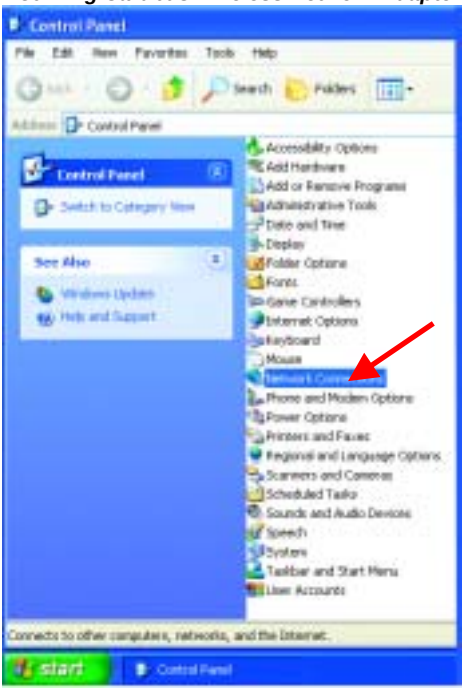
Note: *Residential Gateways/Broadband Routers will automatically assign IP Addresses to the computers on the network, using DHCP (Dynamic Host Configuration Protocol) technology. If you are using a DHCP-capable Gateway/Router you will not need to assign Static IP Addresses.*

If you are not using a DHCP capable Gateway/Router, or you need to assign a Static IP Address, please follow these instructions:

- Go to **START**.
- Double-click on **Control Panel**.



- Double-click on **Network Connections**.

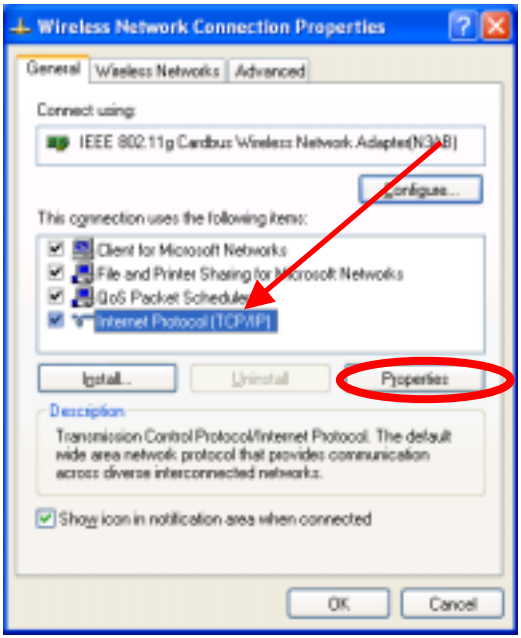


- Right-click on **Local Area Connections**.

- Click **Properties**.

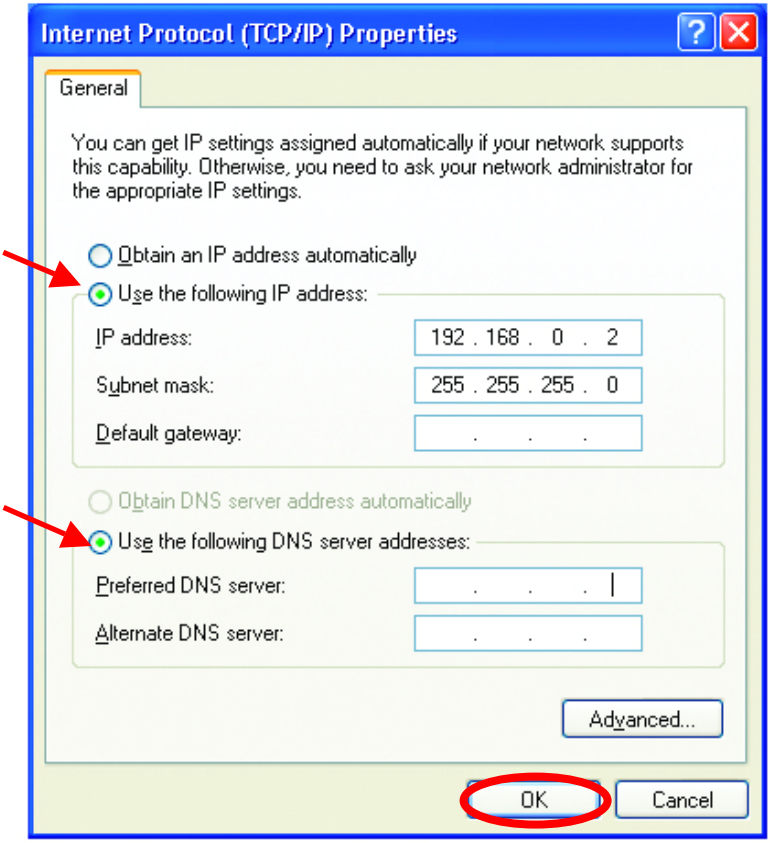
- Highlight **Internet Protocol (TCP/IP)**.

- Click **Properties**.



- Select **Use the following IP address** in the **Internet Protocol (TCP/IP) Properties** window.
- Input your **IP address and subnet mask**. (The IP Addresses on your network must be within the same range. For example, if one computer has an IP Address of 192.168.0.2, the other computers should have IP Addresses that are sequential, like 192.168.0.3 and 192.168.0.4. The subnet mask must be the same for all the computers on the network.)
- Input your **DNS server addresses. (Note: If you are entering a DNS server address, you must enter the IP Address of the Default Gateway.)**

The DNS server information will be provided by your ISP (Internet Service Provider.)



- Click **OK**.

You have completed the assignment of a Static IP Address. *(You do not need to assign a Static IP Address if you have a DHCP-capable Gateway/Router.)*

Networking Basics

Adding and Sharing Printers in Windows XP

After you have run the **Network Setup Wizard** on all the computers in your network (please see the **Network Setup Wizard** section at the beginning of **Networking Basics**,) you can use the **Add Printer Wizard** to add or share a printer on your network.

Whether you want to add a **local printer** (a printer connected directly to one computer,) share an **LPR printer** (a printer connected to a print server) or share a **network printer** (a printer connected to your network through a Gateway/Router,) use the **Add Printer Wizard**. Please follow the directions below:

First, make sure that you have run the Network Setup Wizard on all of the computers on your network.

We will show you 3 ways to use the **Add Printer Wizard**

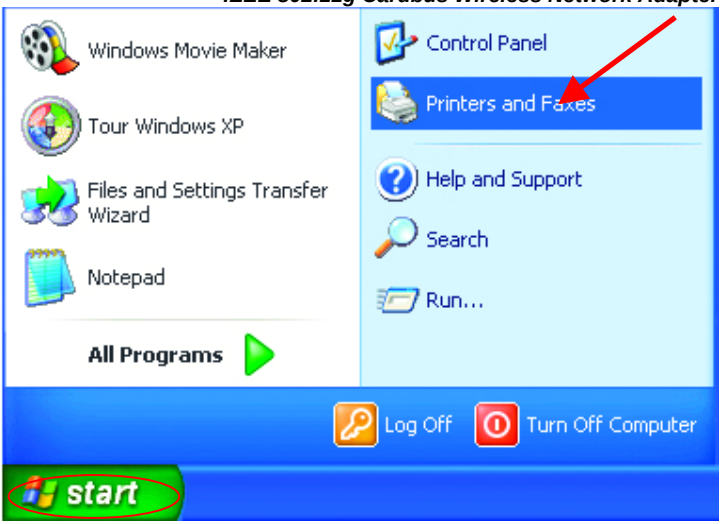
1. Adding a local printer
2. Sharing an network printer
3. Sharing an LPR printer

Adding a local printer

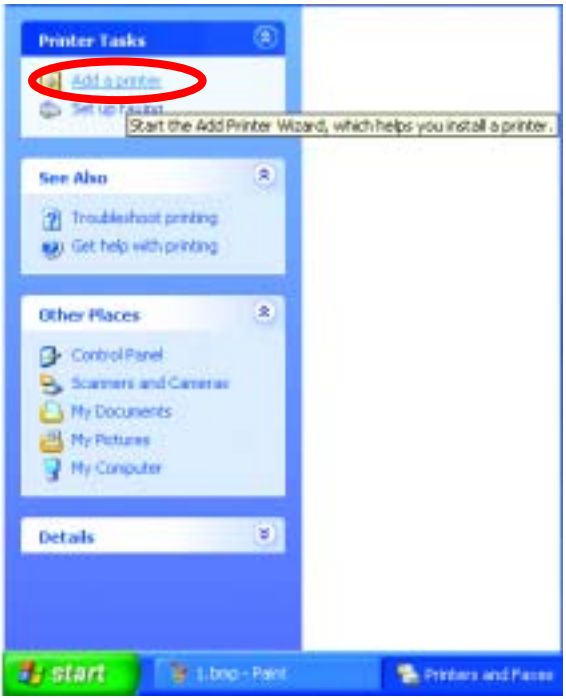
(A printer connected directly to a computer)

A printer that is not shared on the network and is connected directly to one computer is called a **local printer**. If you do not need to share your printer on a network, follow these directions to add the printer to one computer.

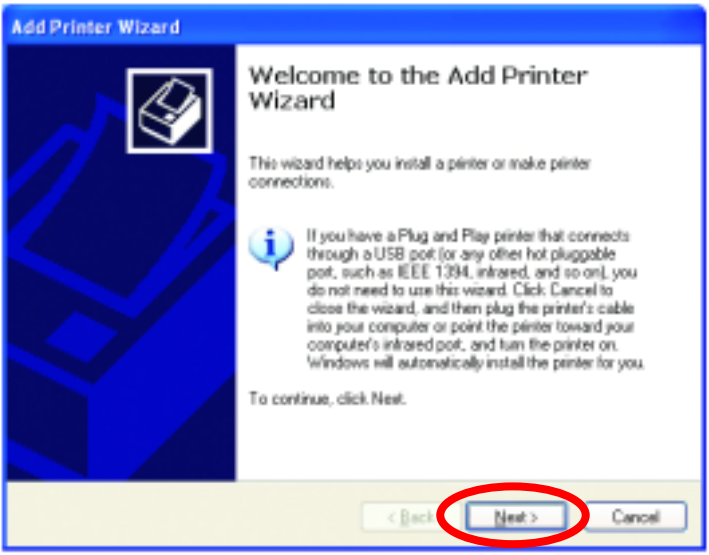
- Go to **Start> Printers and Faxes**.



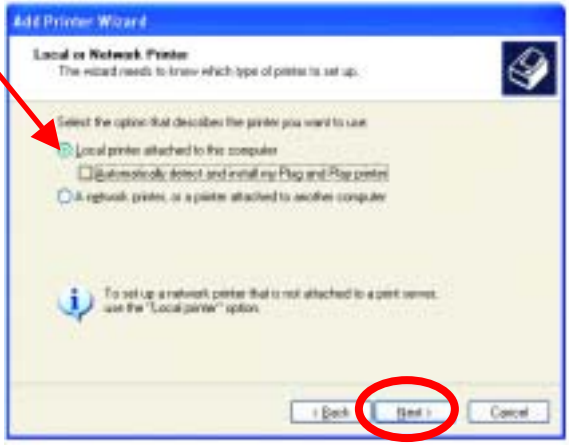
- Click on **Add a printer**.



- Click **Next**.



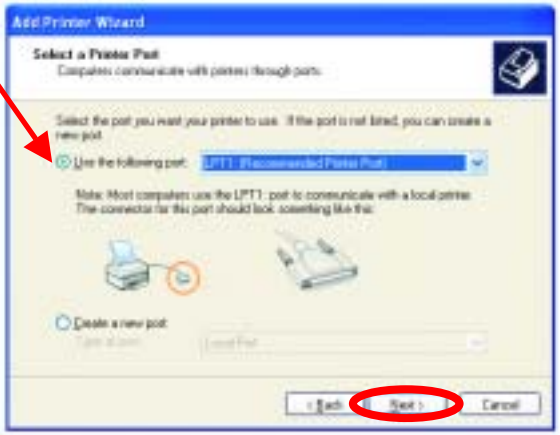
- Select **Local printer attached to this computer**.
- *(Deselect **Automatically detect and install my Plug and Play printer** if it has been selected.)*
- Click **Next**.



- Select **Use the following port:**
- From the pull-down menu **select the correct port** for your printer.

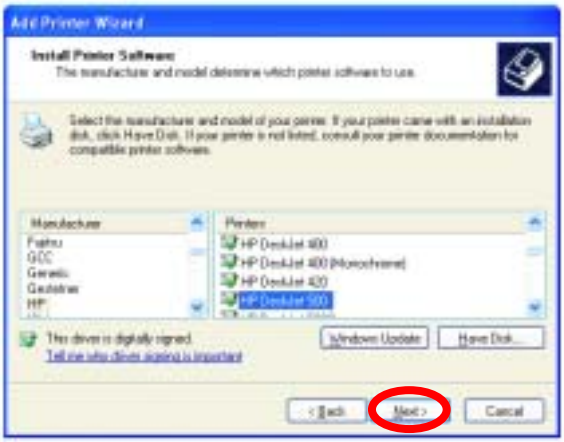
*(Most computers use the **LPT1:** port, as shown in the illustration.)*

- Click **Next**.



- Select and highlight the correct driver for your printer.
- Click **Next**.

*(If the correct driver is not displayed, insert the CD or floppy disk that came with your printer and click **Have Disk**.)*



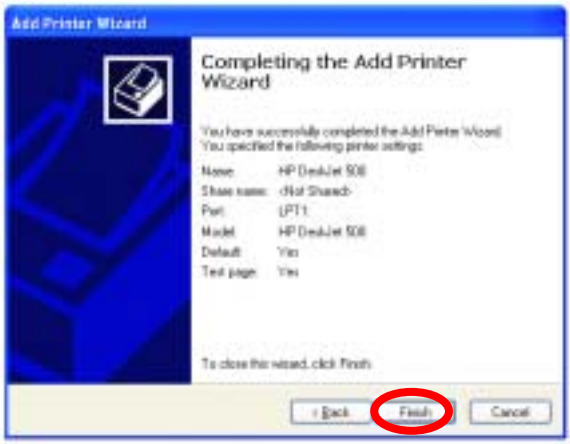
- At this screen, you can change the name of the printer (optional.)

- Click **Next**.

- Select **Yes** to print a test page. A successful printing will confirm that you have chosen the correct driver.

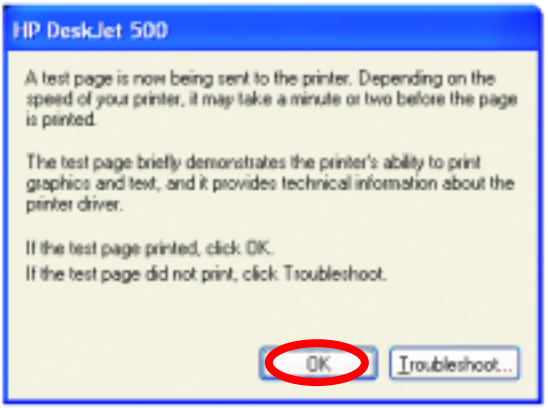
- Click **Next**.

This screen gives you information about your printer.



- Click **Finish**.

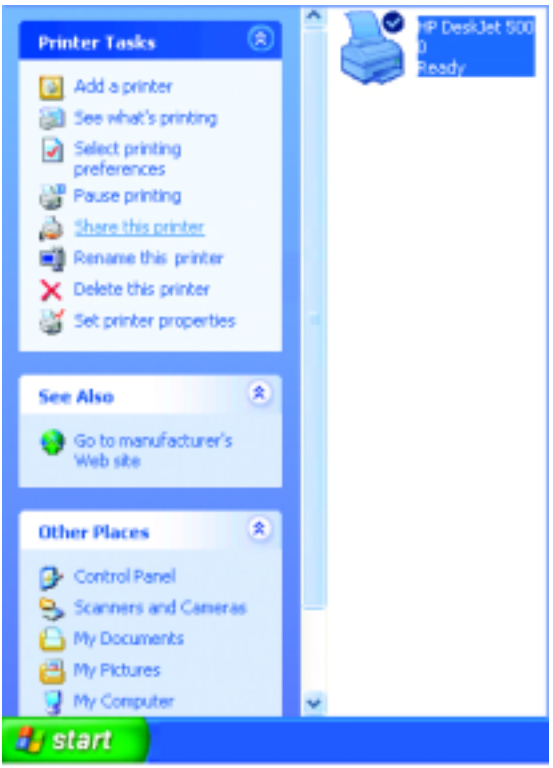
When the test page has printed,



- Click **OK**.

- Go to **Start**> **Printers and Faxes**.

A successful installation will display the printer icon as shown at right.



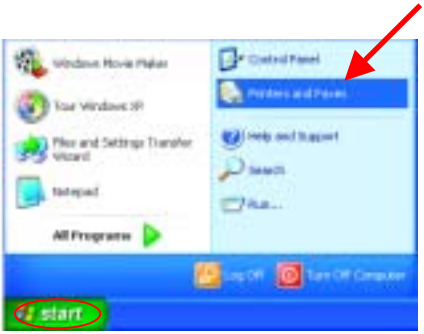
You have successfully added a local printer.

Networking Basics

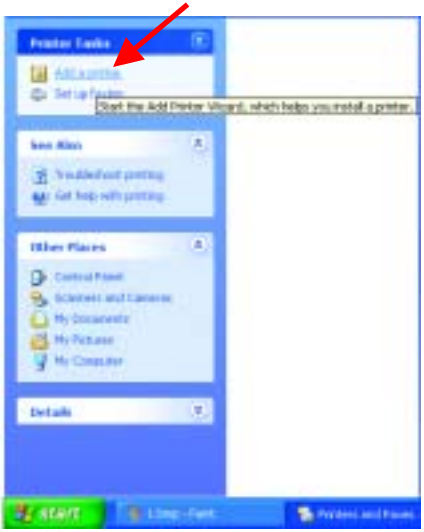
Sharing a network printer

After you have run the **Network Setup Wizard** on all the computers on your network, you can run the **Add Printer Wizard** on all the computers on your network. Please follow these directions to use the **Add Printer Wizard** to share a printer on your network:

- Go to **Start**> **Printers and Faxes**.

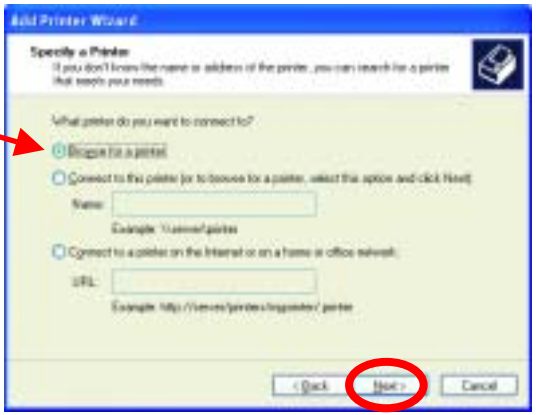


- Click on **Add a Printer**.



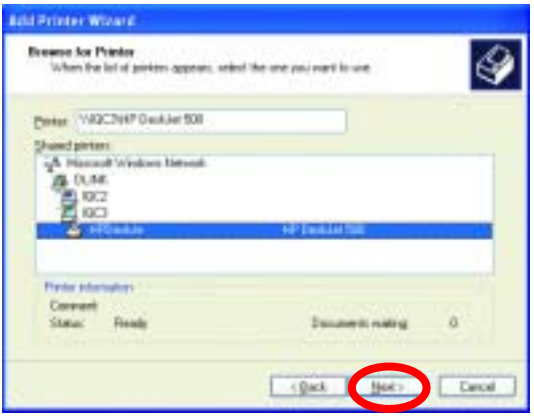
- Click **Next**.

- Select **Browse for a printer**



- Click **Next**.

- Select the printer you would like to share.

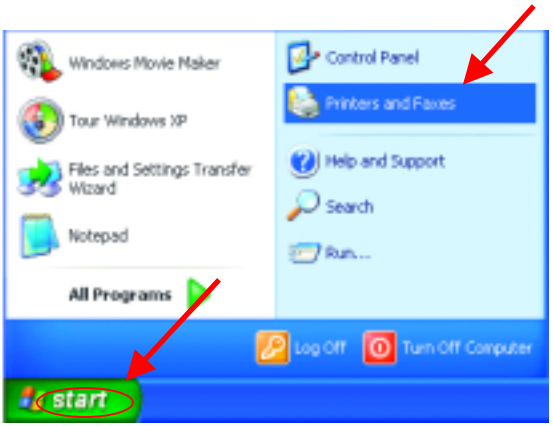


- Click **Next**.

- Click **Finish**.

To check for proper installation:

- Go to **Start> Printers and Faxes**.



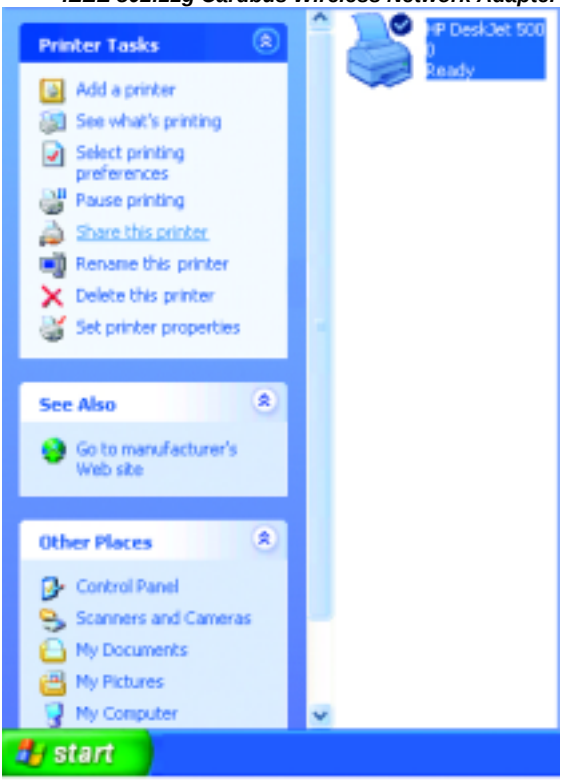
The printer icon will appear at right, indicating proper installation.

You have completed adding the printer.

To share this printer on your network:

- Remember the **printer name**
- Run the **Add Printer Wizard** on all the computers on your network.
- Make sure you have already run the **Network Setup Wizard** on all the network computers.

After you run the **Add Printer Wizard** on all the computers in the network, you can share the printer.



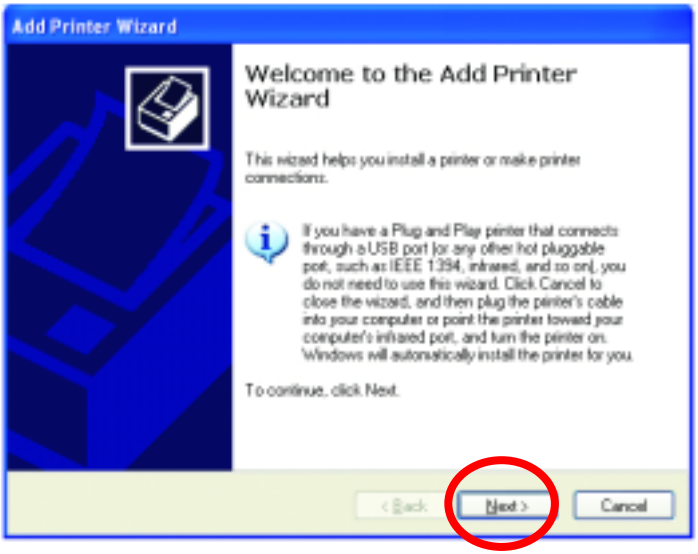
Networking Basics

Sharing an LPR printer

To share an** LPR printer **(using a print server,) you will need a Print Server or a Gateway/Router with a printer port**. **Please make sure that you have run the** Network Setup Wizard **on all the computers on your network. To share an** LPR printer**, please follow these directions:

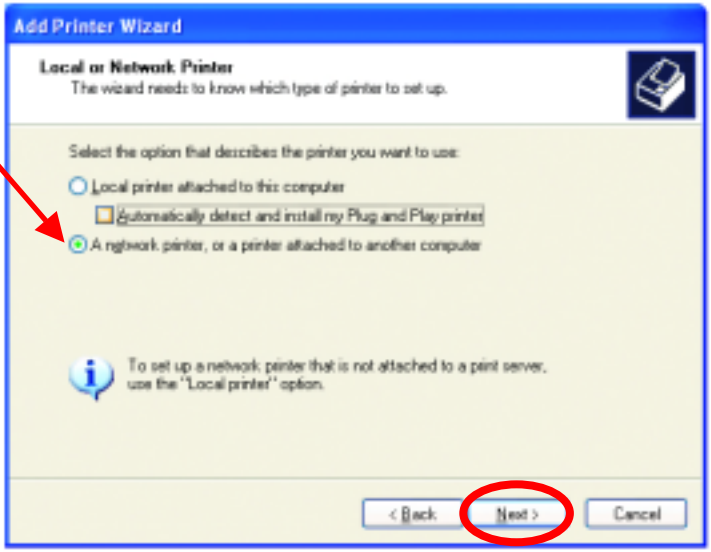
- Go to **Start> Printers and Faxes**.
    - **Click** on **Add a Printer**.

The screen to the right will display.



- Click **Next**.

- Select **A Network Printer**.



- Click **Next**.

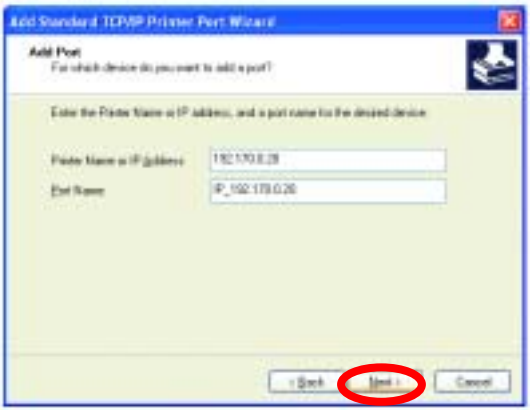
- Select **Create a new port**.
- From the pull-down menu, select **Standard TCP/IP Port**, as shown.

- Click **Next**.

- Please read the instructions on this screen.

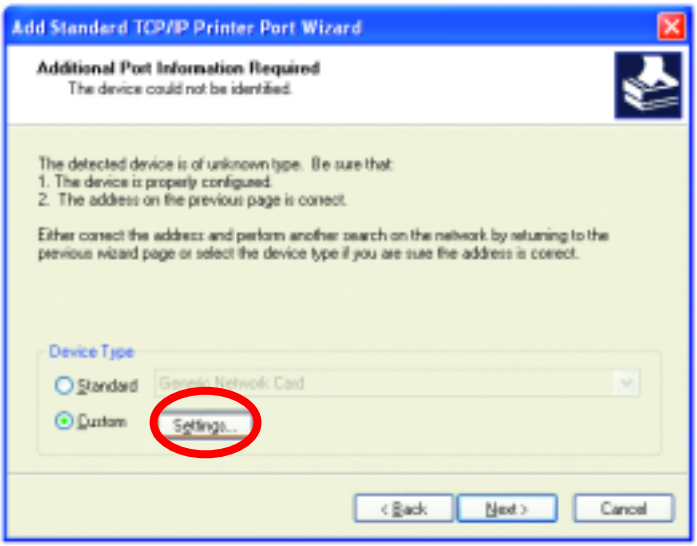
- Click **Next**.

- Enter the **Printer IP Address** and the **Port Name**, as shown.



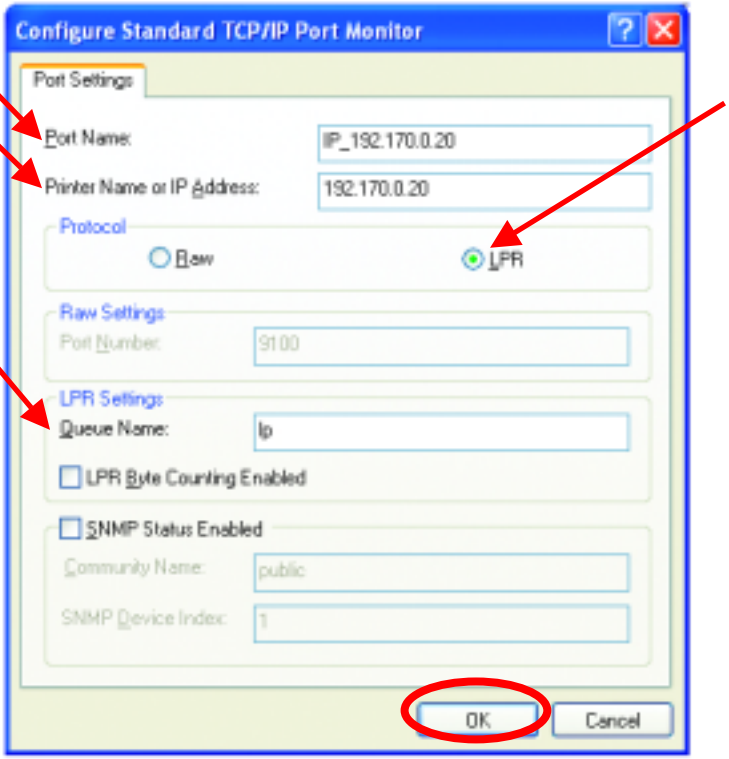
- Click **Next**.

- In this screen, select **Custom**.



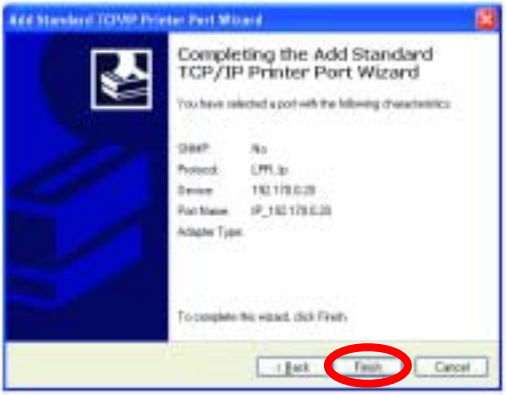
- Click **Settings**.

- Enter the **Port Name** and the **Printer Name** or **IP Address**.
- Select **LPR**.
- Enter a **Queue Name.** If there is more than one port on the print server, you must name the **Queue**.



- Click **OK**.

- This screen will show you information about your printer.



- Click **Finish**.

- **Select the printer** you are adding from the list of **Printers**.
- Insert the printer driver disk that came with your printer.
- Click **Have Disk**.

If the printer driver is already installed,

- Select **Keep existing driver**.

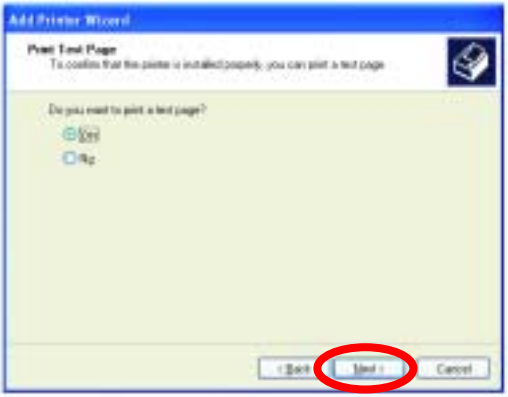
- Click **Next**.

- You can rename your printer if you choose. It is optional.

*Please remember the name of your printer. You will need this information when you use the **Add Printer Wizard** on the other computers on your network.*

- Click **Next**.

- Select **Yes**, to print a test page.



- Click **Next**.

This screen will display information about your printer.

- Click **Finish** to complete the addition of the printer.

- Please run the **Add Printer Wizard** on all the computers on your network in order to share the printer.

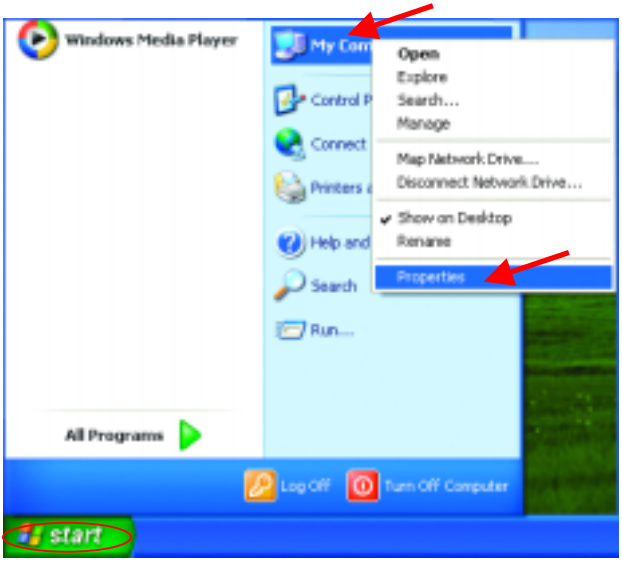
***Note:** You must run the **Network Setup Wizard** on all the computers on your network before you run the **Add Printer Wizard**.*

Troubleshooting

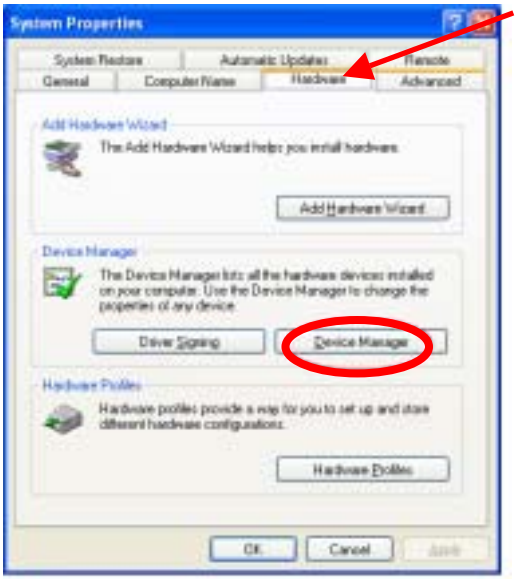
This chapter provides solutions to problems that can occur during the installation and operation of the CG-WLCB54GL. Read the following descriptions if you are having problems.

1. Checking the Installation of the Drivers for the Wireless Card

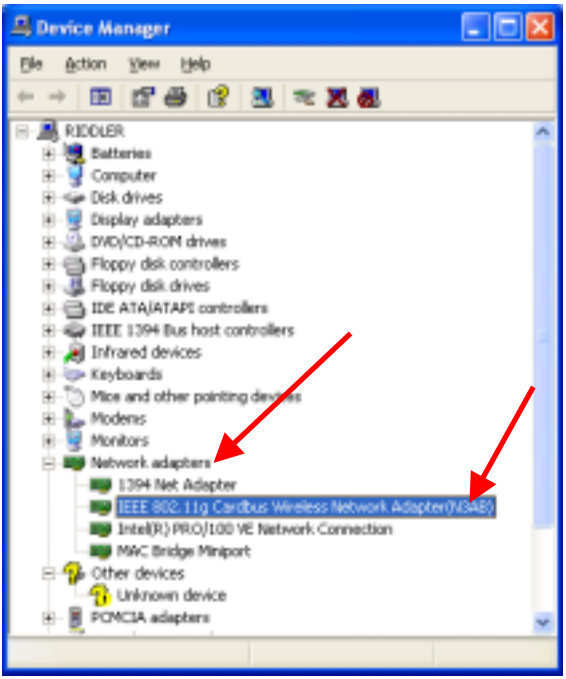
- Go to **Start**.
- Right-click on **My Computer**.
- Click **Properties**.



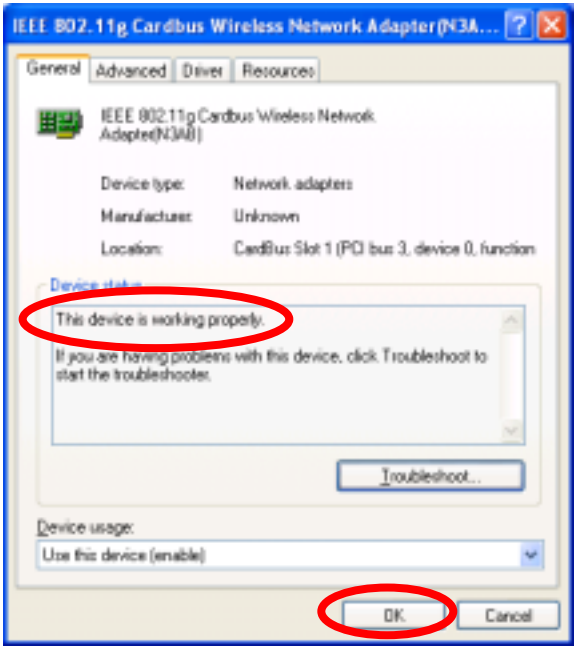
- Select the **Hardware Tab**.
- Click **Device Manager**.



- Click on **Network adapters**.
- Right-click on **CG-WLCB54GL**.
- Select **Properties** to check that the drivers are installed properly.



- Look under **Device Status** to check that the device is working properly.



- Click **OK**.

2. The computer does not recognize the CG-WLCB54GL.

- Make sure that the CG-WLCB54GL is properly seated in the computer's cardbus slot.
- If Windows does not detect the hardware upon insertion of the card, make sure to completely remove drivers that were previously installed. To remove the drivers, do the following:

  A. Under **Tools**> select **Folder Options**…> select **View** > under **Hidden files and folders** > select **Show hidden files and folders**.

  B. Uncheck **Hide extension for known file types** > click on **Apply**.

  C. Search for the files **N3AB.sys** and **netN3AB.inf**. Remove these files from the **INF** and **SYSTEM32** (DRIVERS) folders in the Windows directory. Note: Windows XP and Windows 2000 will rename **.inf** files that have not received certification into **oem.inf** files (e.g., **oem1.inf.)**.

3. The CG-WLCB54GL does not work properly after the driver is installed.

- **Restart** the computer. (In some cases, it will be necessary to restart the computer after installing the drivers.)
- In Windows XP, go to **Start**>**Control Panel**>**System**>**Hardware** Tab> click on the **Device Manager** Tab> click on **Network Cards**> double click on **CG-WLCB54GL** > make sure that **"This device is working properly"** is displayed under **Device Status** under the **General** Tab. (Please refer to **Checking the Installation of the Drivers for the Wireless Card** in the **Networking Basics** section of this manual for more information.)
- If the device is not working properly and a yellow exclamation mark is displayed, then there is probably a resource conflict. In this case, make sure the computer system has a free IRQ and if necessary, uninstall the drivers, restart the system, and repeat the driver installation procedure.

4. The wireless client cannot access the Internet in the Infrastructure mode.

- Make sure the wireless client is associated and joined with the correct Access Point. To check this connection: Right-click on the **Networking Icon** in the taskbar> select **View Available Wireless Networks**. The **Connect to Wireless Network** screen will appear. Please make sure you have selected the correct available network, as shown in the illustrations below.

- Check that the **IP Address** assigned to the wireless card is within the same **IP Address range** as the access point and gateway. *(For example: if one computer has an IP Address of 192.168.0.2, the other computers should have IP Addresses that are sequential, like 192.168.0.3 and 192.168.0.4. The subnet mask must be the same for all the computers on the network.)* To check the **IP Address** assigned to the wireless card, double-click on the **Network Connection Icon** in the taskbar > select the **Support tab** and the **IP Address** will be displayed. (Please refer to **Checking the IP Address** in the **Networking Basics** section of this manual.)

If it is necessary to assign a **Static IP Address** to the wireless card, please refer to the appropriate section in **Networking Basics**. If you are entering a **DNS Server Address**, you must also enter the **Default Gateway Address**. *(Remember that if you have a DHCP-capable router, you will not need to assign a Static IP Address. See **Networking Basics: Assigning a Static IP Address**.)*

Technical Specifications

Standards

- IEEE 802.11b (up to 11 Mbps)
- IEEE 802.11g (up to 54 Mbps)

Card Type

- Cardbus Type II

Supported OS

- Windows XP
- Windows 2000
- Windows ME
- Windows 98SE

Frequency Range

- 2400-2483.5 MHz ISM band

Data Rates

- 1, 2, 5.5, 11 Mbps (IEEE 802.11b)
- 6, 9, 12, 18, 24, 36, 48, 54Mbps (IEEE 802.11g)

Modulation Techniques

IEEE 802.11g

- BPSK
- QPSK
- 16 QAM
- 64 QAM
- OFDM

IEEE 802.11b

- DQPSK
- DBPSK
- DSSS
- CCK

Data Security

- 64, 128, 154-bit WEP (Wired Equivalent Privacy) Encryption

Media Access Control

- CSMA/CA with ACK

Diagnostic LED

- Power
- Link

Current Consumption

- Sleep mode - 40mW
- Transmit mode - 2310mW
- Receive mode – 1320mW

Operating Voltage

- 3.3V± -10%

Network Architecture

- Infrastructure Mode (Communications to wired networks via Access Points with Roaming)

Antenna Type

- Printed inverted F antenna

Available Channels:

- Eleven channels for USA
- Thirteen channels for European countries

MTBF (Mean Time Between Failure)

- 30,000 hours

Physical Dimensions

- L ~ 4.53 inches (115 mm)
- W ~ 2.13 inches (54 mm)
- H ~ 0.2 inches (5mm)

Temperature

- Operating: 0ºC to 55ºC (32ºF to 140ºF)
- Storing: -20ºC to 75ºC (-4ºF to 167ºF)

Humidity:

- 10%-90%, non-condensing (operating)
- 5%-95%, non-condensing (non-operating)

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC RF Radiation Exposure Statement: This equipment complies with FCC RF radiation □ exposure limits set forth for an uncontrolled environment. This device and its antenna must □ not be co-located or operating in conjunction with any other antenna or transmitter.