



ALL0282 IEEE 802.11b/g Wireless Cardbus Card User's Guide

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Package Contents



Contents of Package:

- 2.4 GHz IEEE 802.11b/g Cardbus Wireless Network Adapter
- Manual and Drivers/Utility on CD

Note: 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 802.11b/g Access Point for (**Infrastructure Mode**) or another computer with an 802.11b/g wireless card installed (for **Ad-Hoc Mode**)

Introduction

The 802.11b/g Wireless Cardbus Card 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.

The 802.11b/g Wireless Cardbus Card 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, in either Ad Hoc mode (without an Access Point) or Infrastructure mode (with an Access Point).

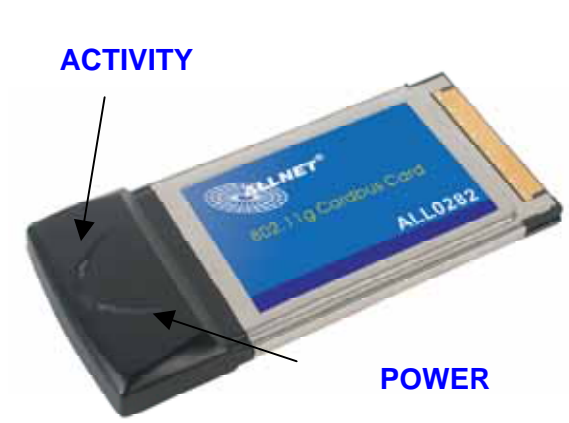
This manual provides a quick introduction to wireless technology and its application as it relates to networking. Take a moment to read through this manual and get acquainted with wireless technology.

Product Features

- Compatible with IEEE 802.11b standard to provide wireless Ethernet data rates of up to 11Mbps data rate
- Compatible with IEEE 802.11g high rate standard to provide wireless 54Mbps data rate
- Operation at dual 2.4 GHz frequency bands to meet worldwide regulations
- Dynamic data rate scaling at 1, 2, 5.5, and 11Mbps for IEEE 802.11b
- Dynamic data 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 and ad-hoc network via peer-to-peer communication
- Built-in dual diversity antenna for reduction of interference in a multi-path environment
- Supports AES enhanced security
- Supports DFS/TPC for European operation
- 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 802.11b/g Wireless Cardbus Card 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 **802.11b/g Wireless Cardbus Card** 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 **802.11b/g Wireless Cardbus Card** 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 802.11b/g Wireless Cardbus Card.
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:

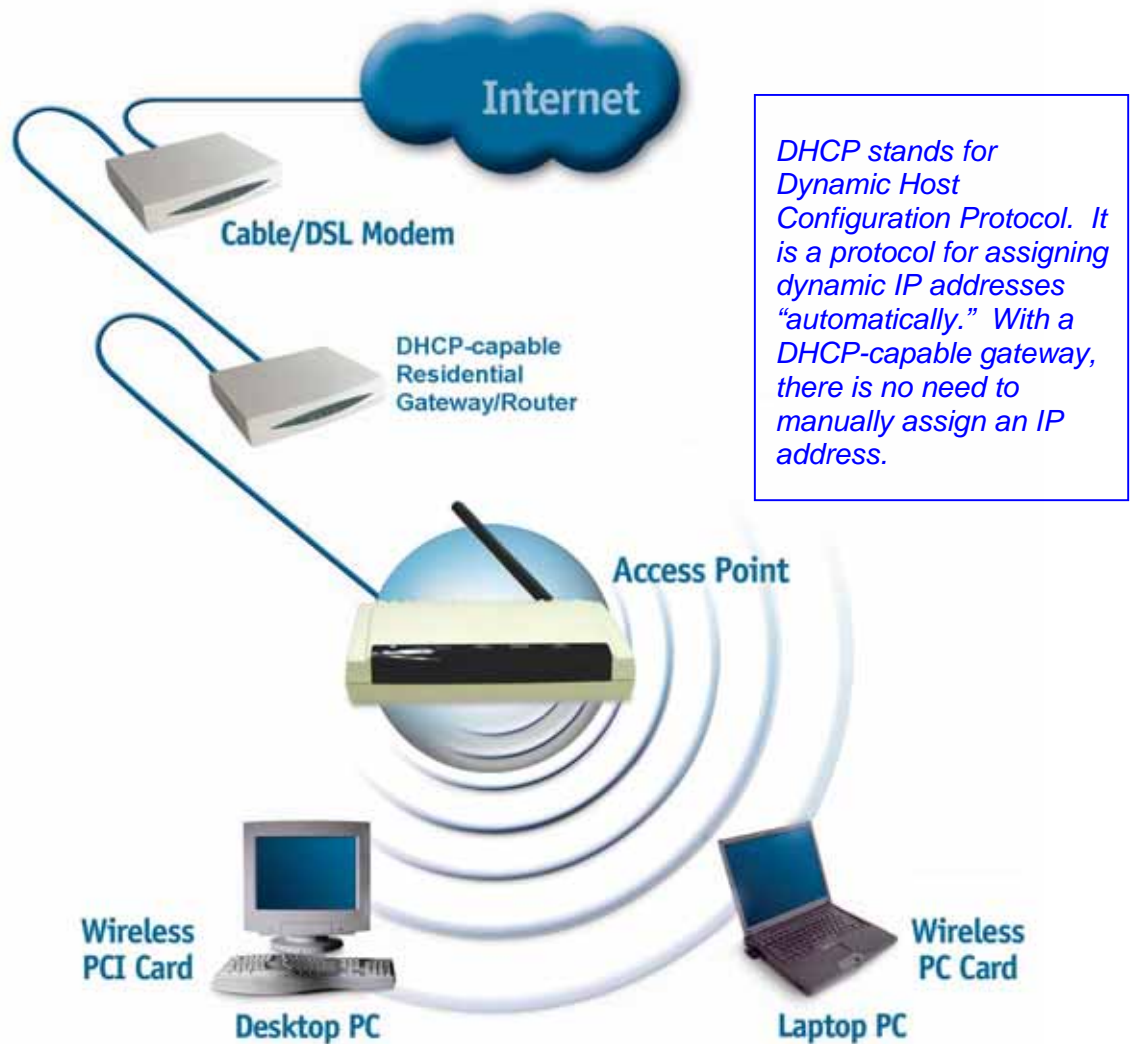
- 1. A Home Internet Network with A Residential Gateway/Router*
- 2. A Home Internet Network with Multiple IP Addresses*
- 3. An Ad Hoc Network*
- 4. An Ad Hoc Network with Internet Sharing*

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:



(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 **802.11b/g Wireless Cardbus Card** into a laptop computer on your wireless network.
4. Check the **Device Manager** to confirm that the wireless card is installed correctly.
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.

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) provide 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 **802.11b/g Wireless Cardbus Card** into the laptop computer(s) on your wireless network.
3. Check the **Device Manager** to confirm that the **wireless card** is installed correctly.
4. Set the **Static IP Address** of the **wireless cards**.

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 computers on your 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.x (where x is a number between 3 and 254) 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.*

3. An Ad-Hoc Network

If you have two or more computers (desktops or laptops) and want to share files and printers, but no Internet connection, please complete the following instructions. When your Ad Hoc network is complete it may look similar to this:



(Requirements: Wireless network cards -for example, the **IEEE 802.11g Carbus Wireless Network Adapter**.)

To complete this installation, please follow these steps:

1. Install The **802.11b/g Wireless Cardbus Card** into your desktop computers.
2. Set the **Static IP Address** of the **wireless cards**.

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 computers on your 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.x (where x is a number between 3 and 254) with a Subnet Mask of 255.255.255.0, etc.*

3. Check the **Device Manager** to confirm that the **wireless card** is installed correctly.
4. Check the **Wireless Configuration** for each **wireless card**.

4. An Ad Hoc Network with Internet Sharing

If you have two or more computers (desktops or laptops) and want to share files, printers, and Internet access using one computer or laptop as an Internet Server, then follow the instructions below. When you have completed your network, it should look similar to this:



To share an Internet connection with Internet Sharing software you will need to purchase Internet Sharing software or use the Internet Connection

Sharing (ICS) utility provided with Windows XP, Windows 2000, Windows ME or Windows 98SE. Please follow your software documentation to properly configure the Internet sharing software after you install your wireless networking cards. To install your wireless network card follow the instructions on the next page.

If the Internet Sharing Software will be installed on the same computer into which you are installing this wireless network card, then follow these steps:

1. Install The **802.11b/g Wireless Cardbus Card**.
2. Check the **Device Manager** to confirm that your card is installed correctly.
3. Install your **Internet Sharing Software**
4. If required by the ICS software, set the static IP Address for the wireless card.

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 computers on your 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.x (where x is a number between 3 and 254) with a Subnet Mask of 255.255.255.0, etc.

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 (The **802.11b/g Wireless Cardbus Card**) 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) or another 802.11b/g wireless card (for Ad-Hoc mode.)

Installing the 802.11b/g Wireless Cardbus Card

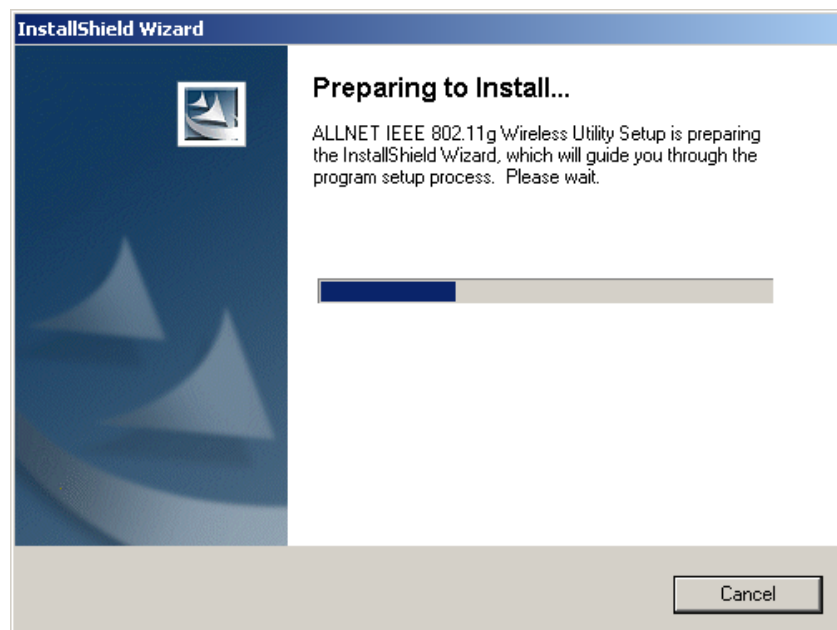
1. Installing The Configuration Utility

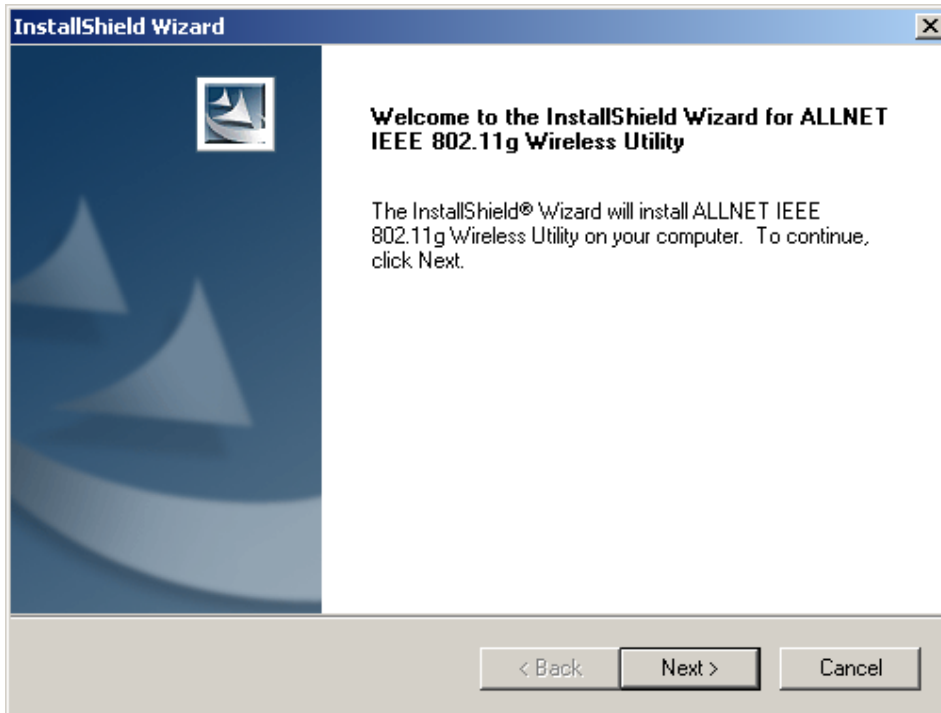
Look for the file named “Setup.exe” on the installation CD-ROM. Double-click on it to start the installation for the configuration utility.



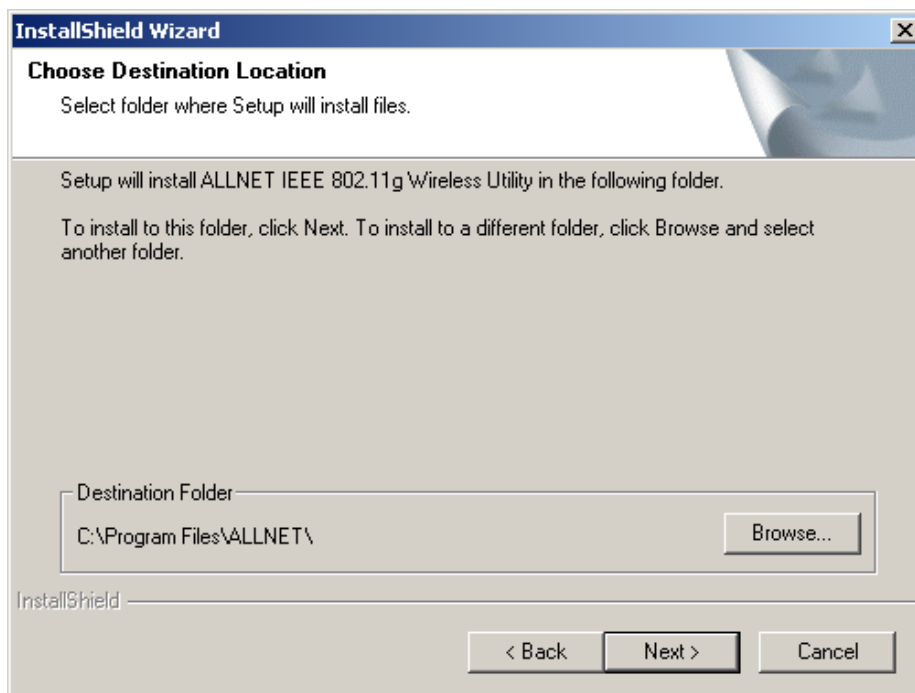
Setup.exe

- This screen appears.



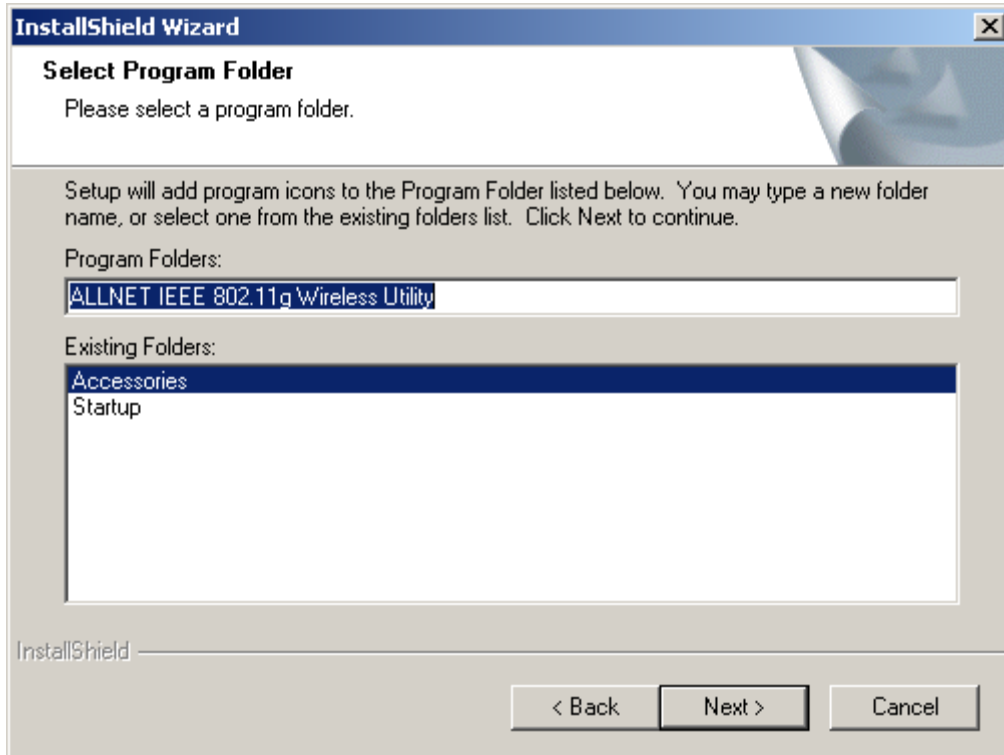


- To install to the folder C:\Program Files\WLAN\ Utility click *Next*. Otherwise click on *Browse* to choose an alternate location.

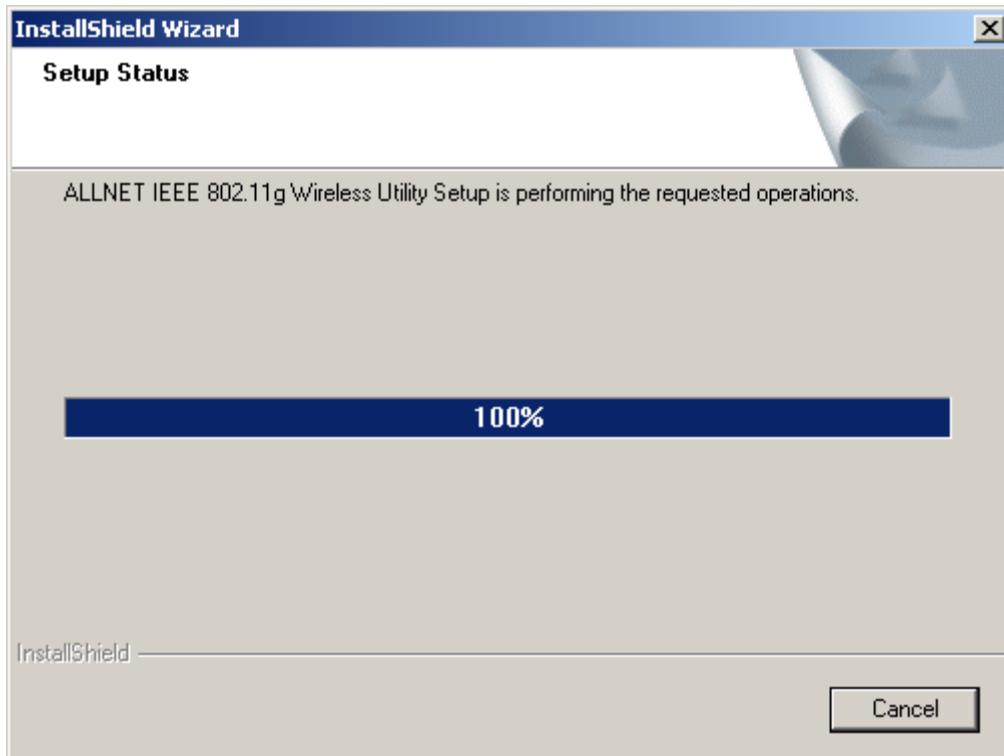


- Click *Next* to proceed with the utility installation.

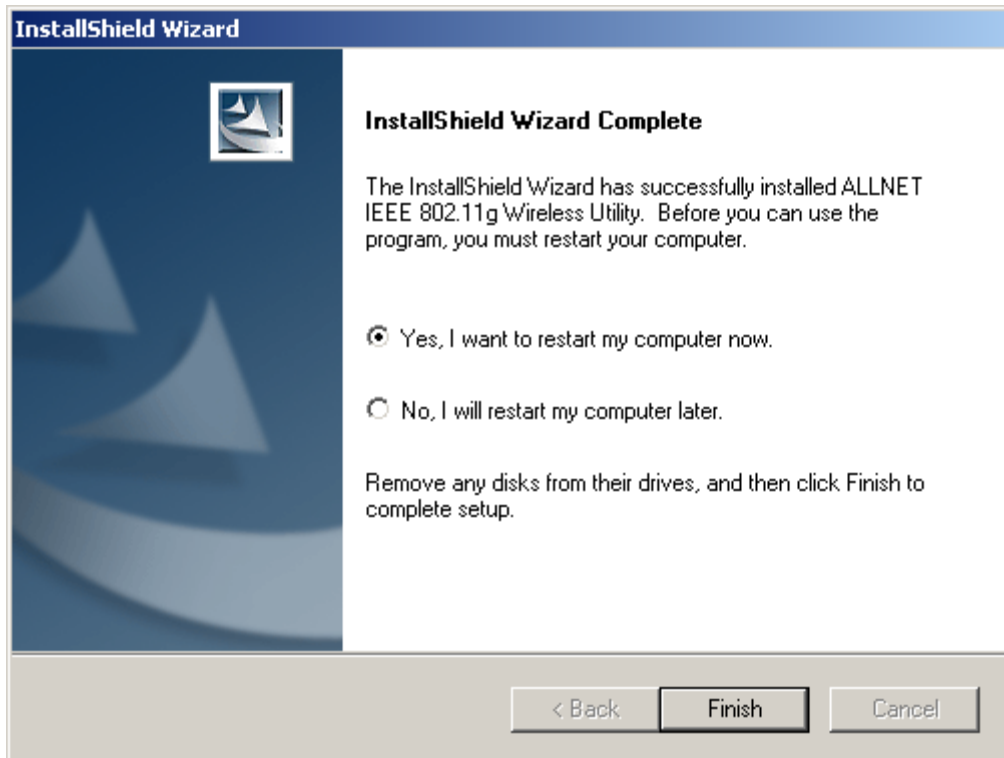
- The **Select Program Folder** will then appear. You may add a new folder you wish to contain a start up icon or choose one from the list provided. Click **Next** to proceed.



- 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**.



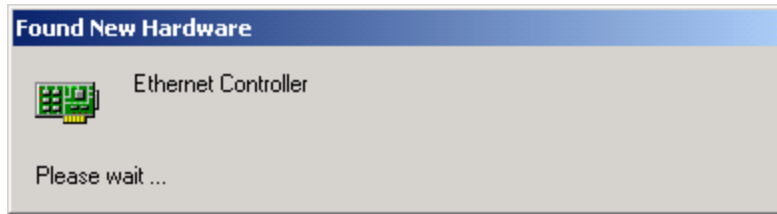
2.Installing The Driver

- Turn on the computer
- Insert The **802.11b/g Wireless Cardbus Card** into an available 32-bit Cardbus slot.

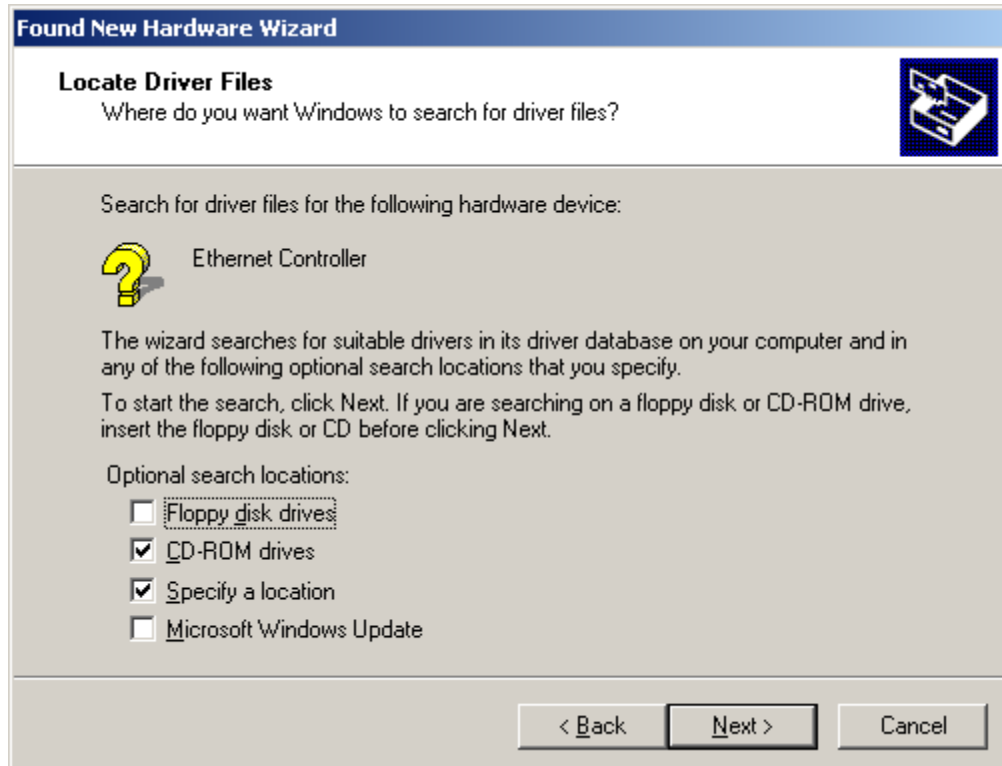


Installing the software involves two steps. The first is to install the Driver and the second is to install the Configuration Utility.

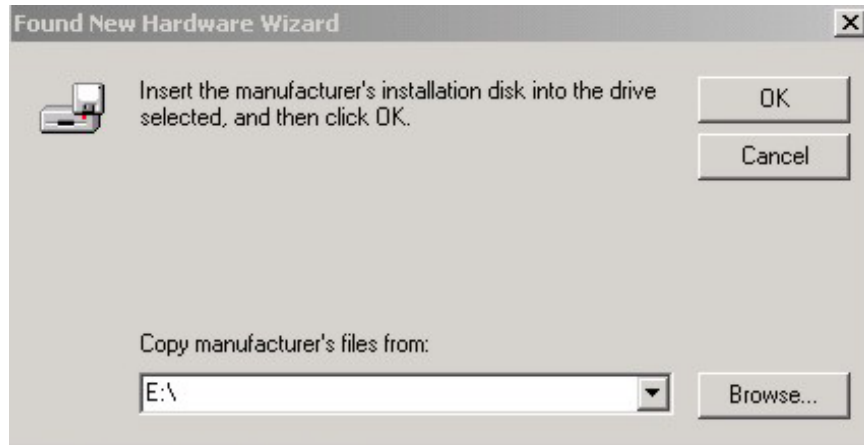
- When the **802.11b/g Wireless Cardbus Card** has been inserted into a 32-bit Cardbus slot, the **Found New Hardware** screen appears.



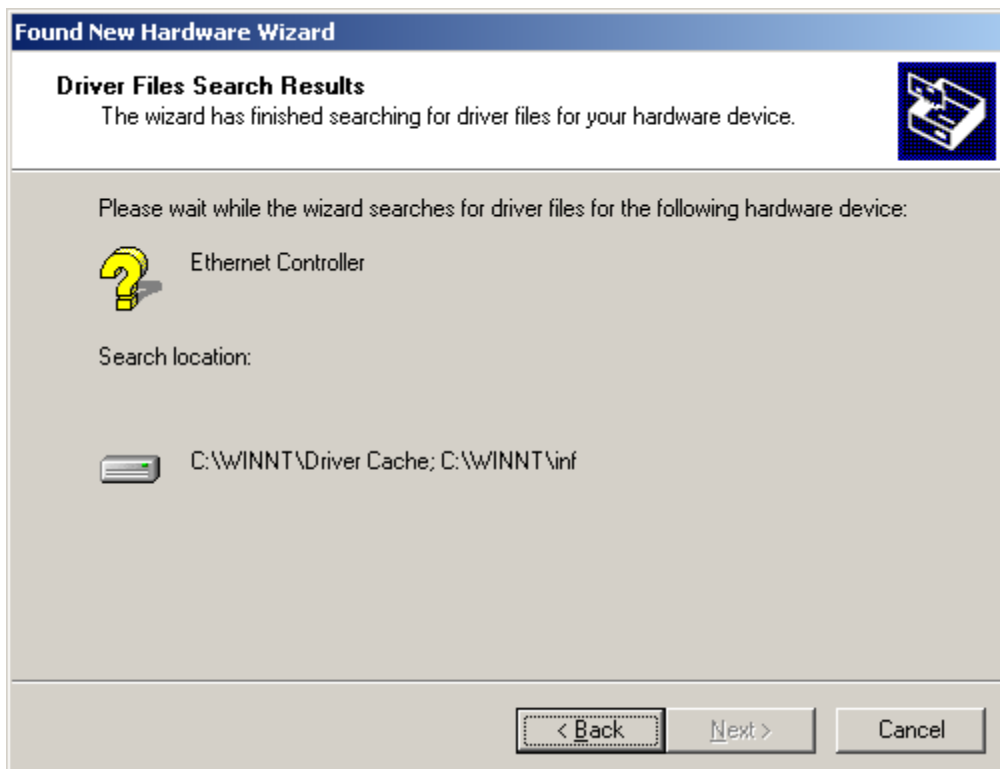
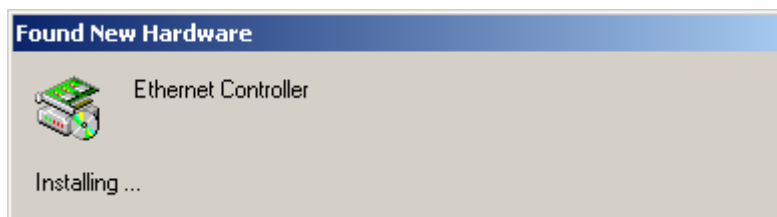
- Continue with the installation and the screen below may appear. Click on *Next* to proceed with the installation.

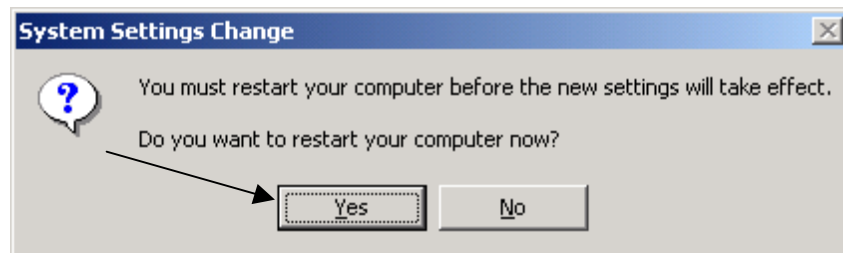
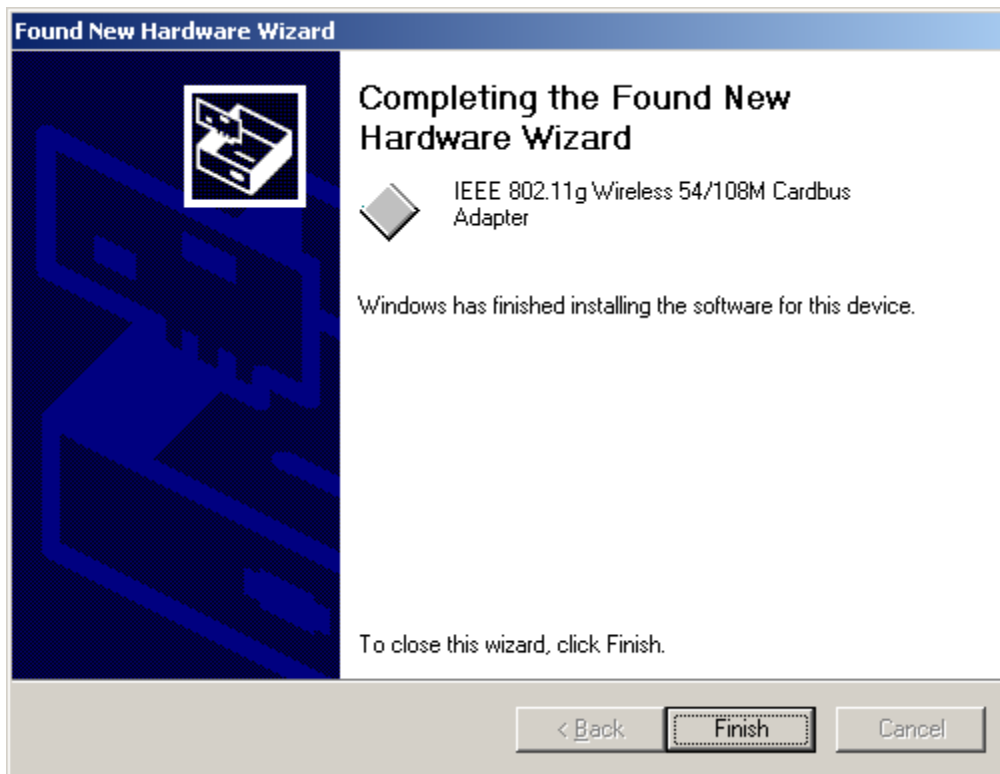


- Insert the Driver CD into the CD-ROM drive. If you have not inserted the Driver CD into the CD-Rom a prompt such as the one below will appear. Click **OK**.



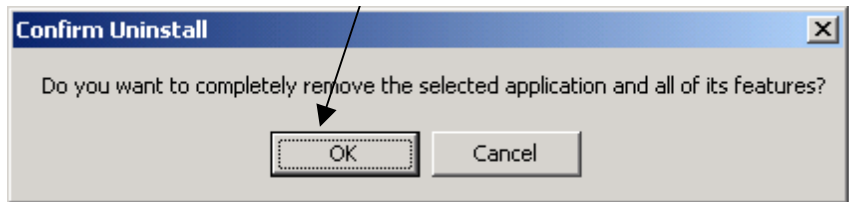
- Then, the installation will continue with the following screen and come to completion.





1 Uninstalling the Configuration Utility

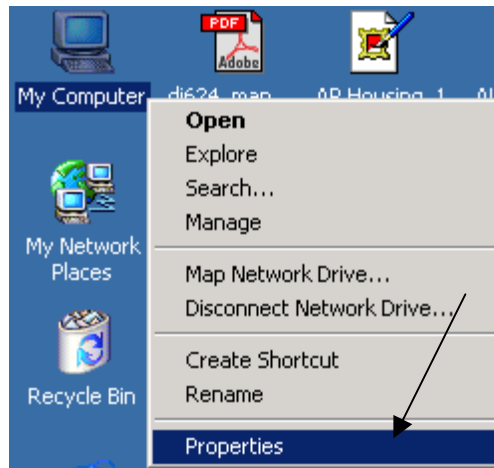
To uninstall the configuration utility simply click **Uninstall** under **Programs**→**WLAN Monitor**→**Uninstall**.



2 Uninstalling the Driver

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

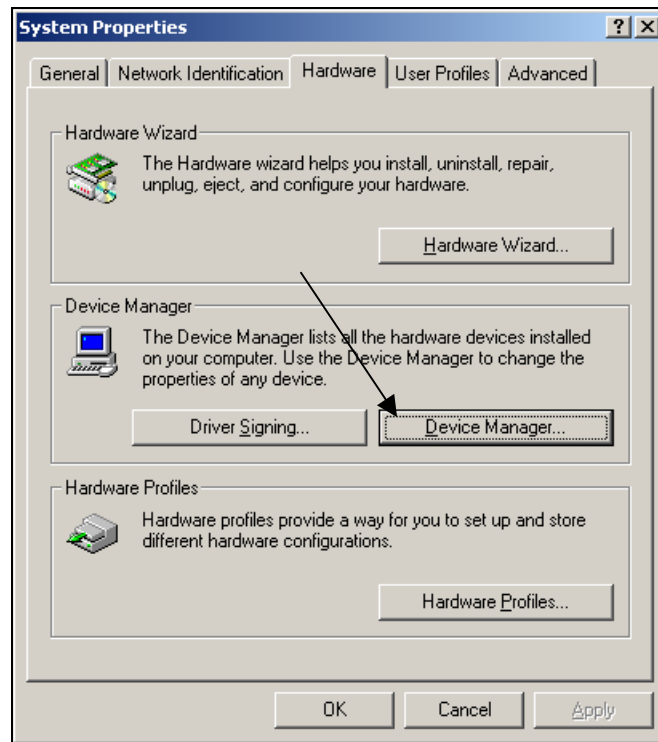
- Left-click on **Properties** to bring up the **System Properties** screen.



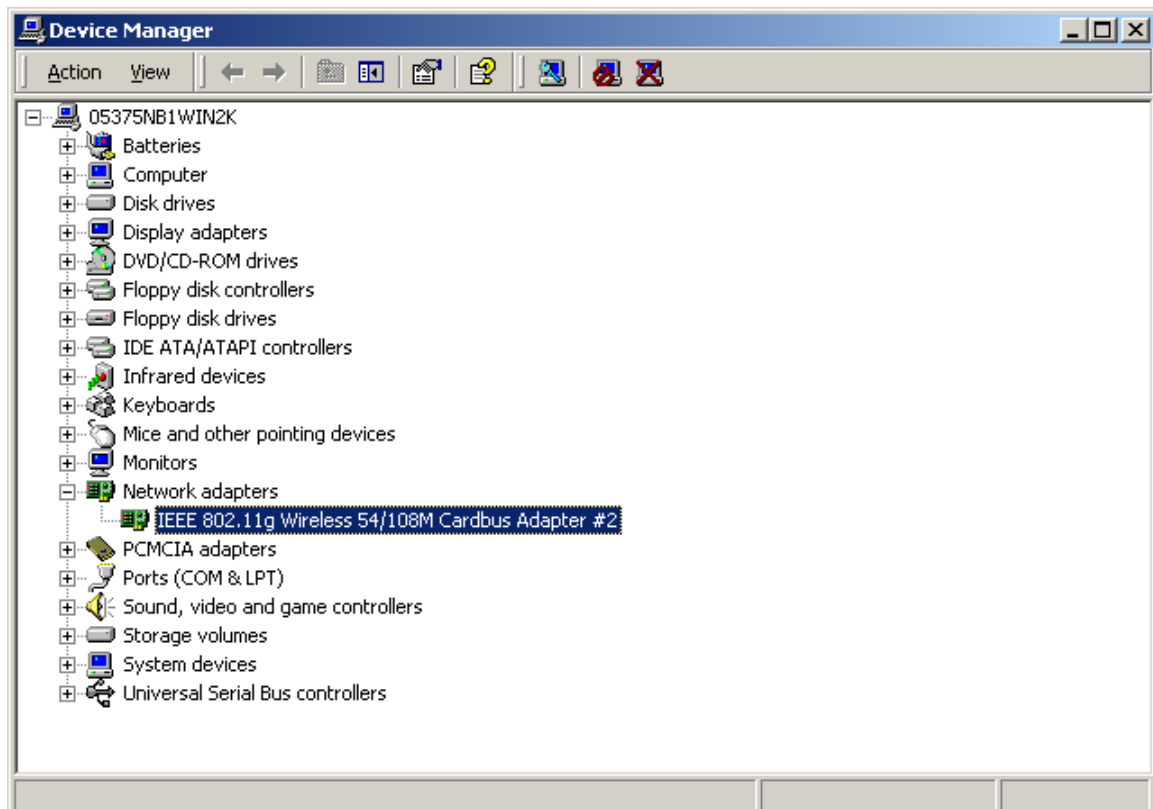
- Click on the **Hardware** tab.



- Click on **Device Manager**.



- Double-click on **Network adapters**.



- Right-click on the “**802.11b/g Wireless Cardbus Card**” 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

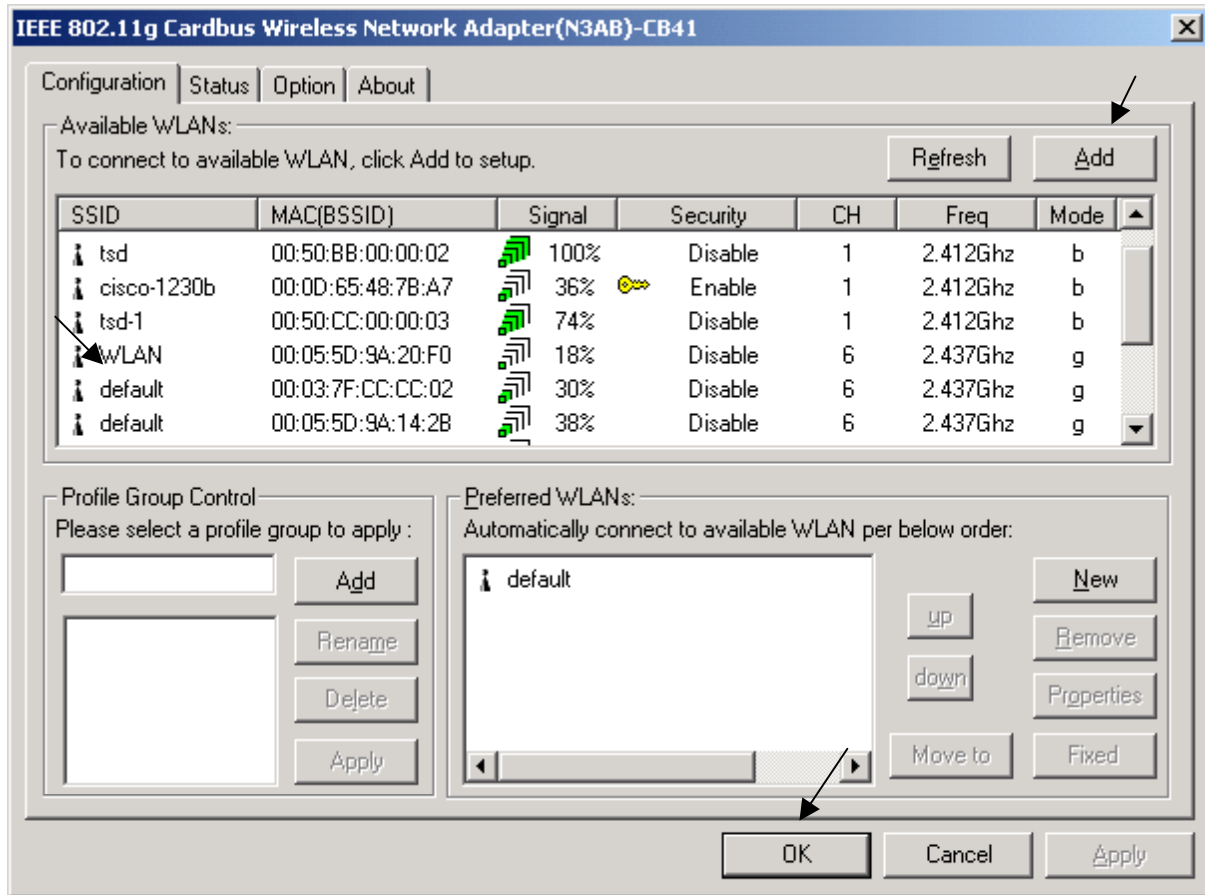
If you are using Windows 2000, ME or 98SE the Configuration Utility program for The **802.11b/g Wireless Cardbus Card** is called **WLAN**. Once you have installed **WLAN Monitor** (the configuration utility), you can read this section of the manual to find out how to monitor and configure your The **802.11b/g Wireless Cardbus Card** using **WLAN Monitor**. Screenshots for this section have been taken in Windows 2000. There are four tabs in the **WLAN Monitor** Configuration Utility program. In this section we will describe the uses for each tab in the Configuration Utility window.

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

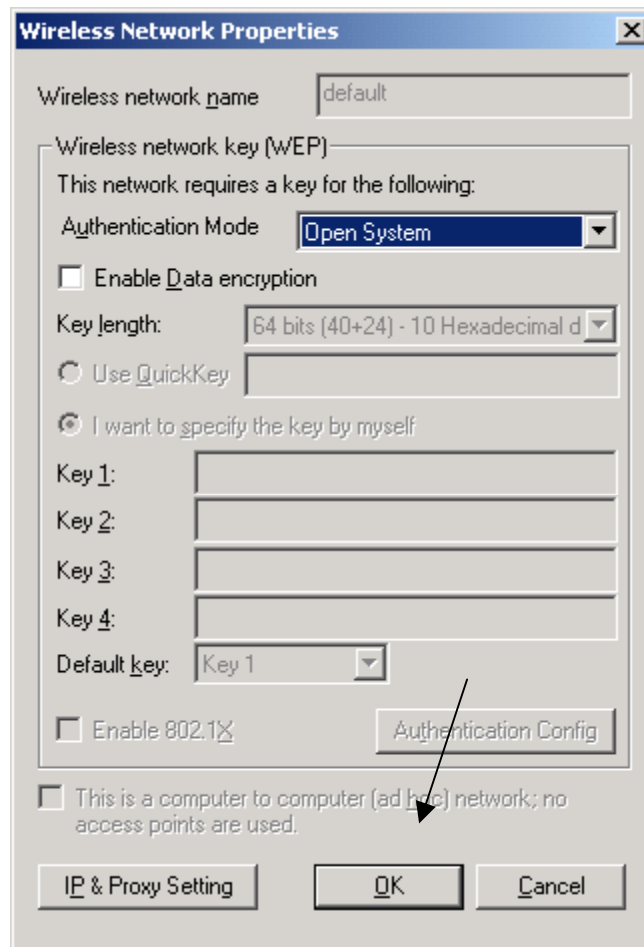


Under the **Configuration Tab** you will find a list of access points to which you may add or change connections.

Configuration Tab



The listed SSIDs are *Available WLANs*. You may connect to the available WLAN that has the strongest signal 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 **Wireless network name**. 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.

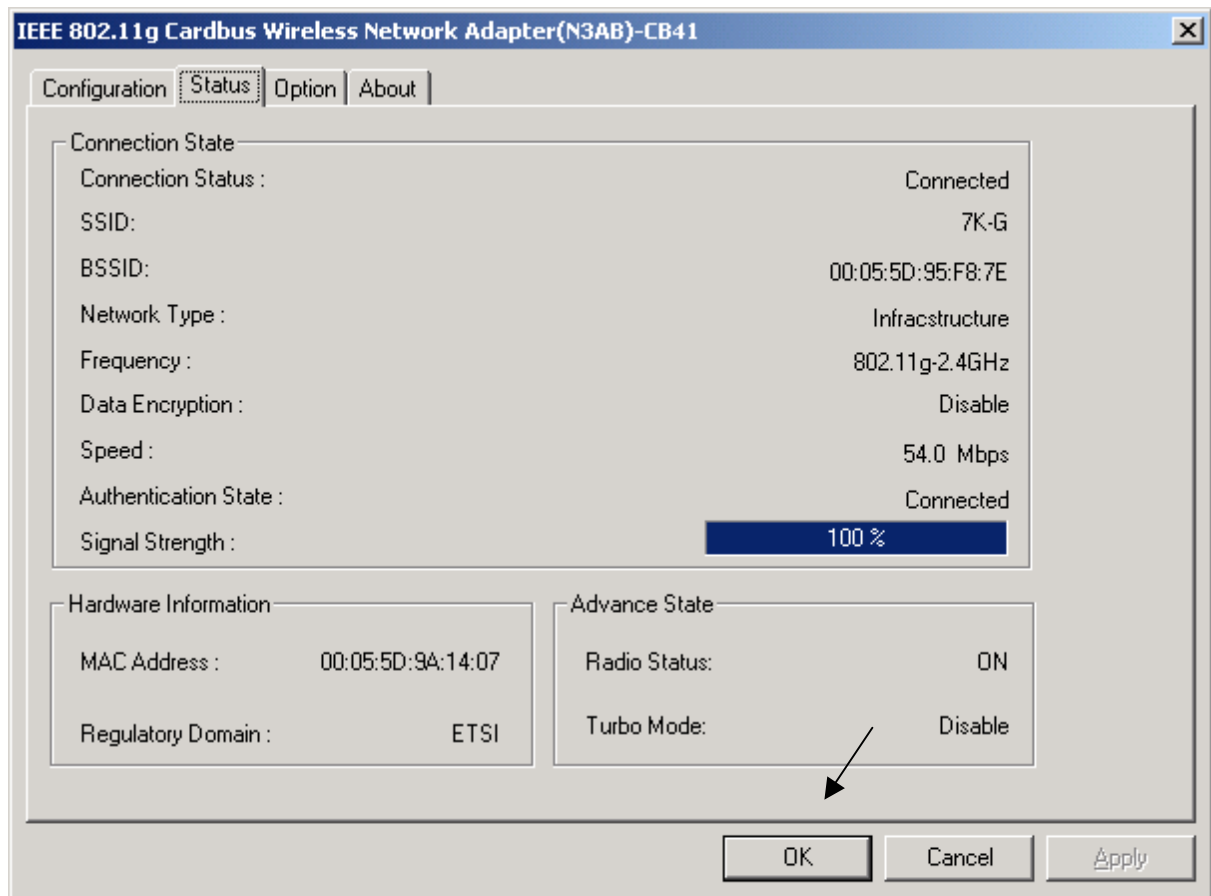
On the right side of the screen you may click **Move Up** to move the selected WLAN up in the order it is displayed on the **Preferred WLANs** screen. You may click **Move Down** to move the selected WLAN down in the order in which it is displayed.

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.

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*** implements the setting entered, 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



Settings under **Connected State** are the **Connection status** (connected or disconnected), **SSID**, **Network type** (infrastructure or Ad Hoc), **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).

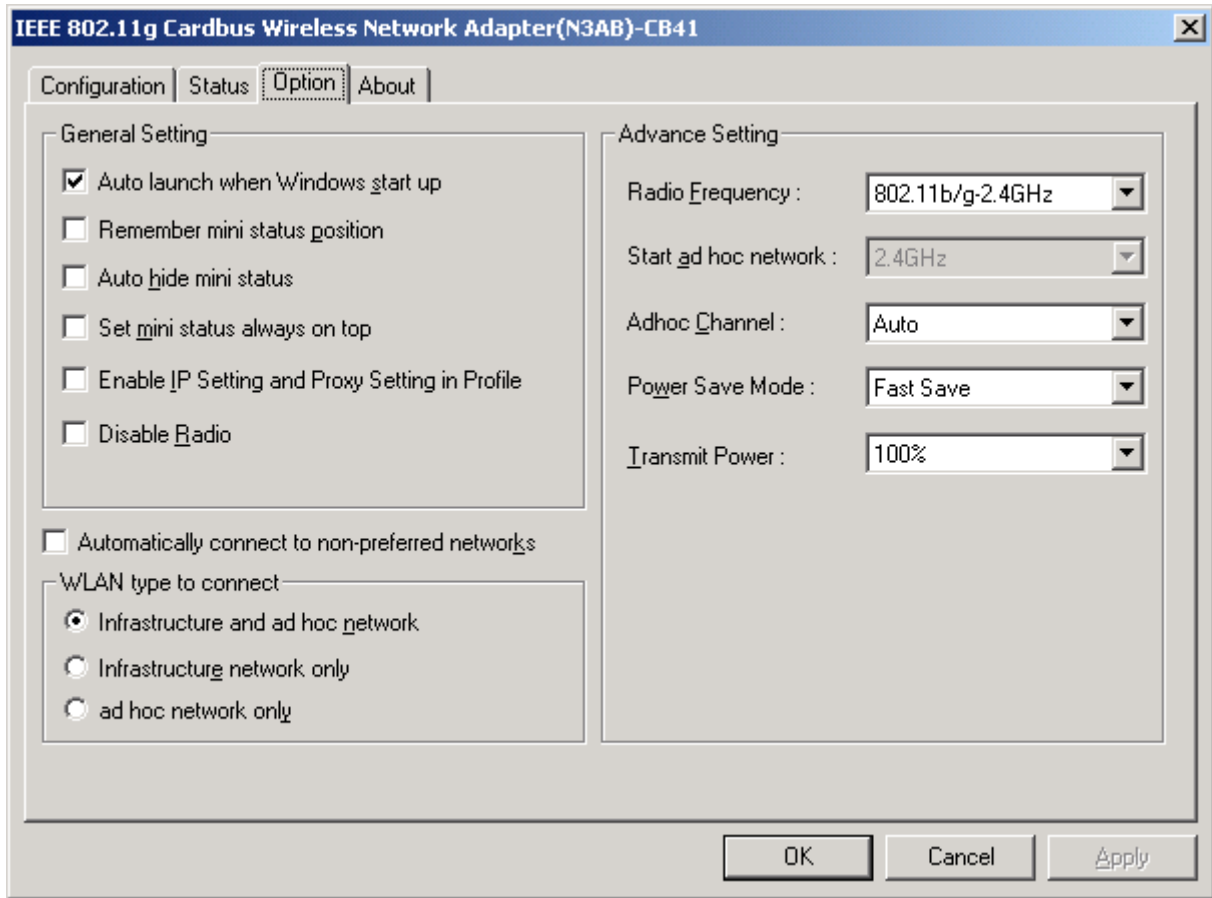
Under **Hardware Information** the Media Access Control (MAC) address of the hardware (WLAN cardbus card) is given. The MAC address is a factory given address that cannot be changed.

Advanced State shows the **Radio Status** (ON or OFF).

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.

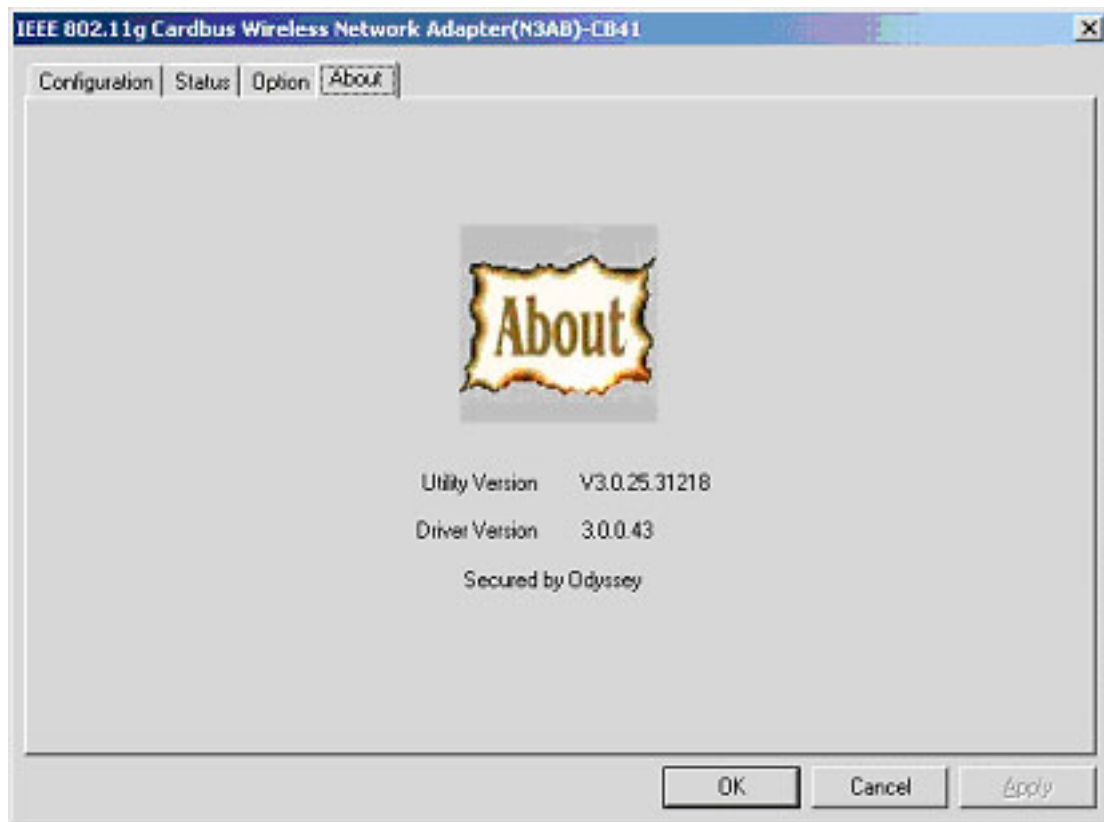
Option Tab



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

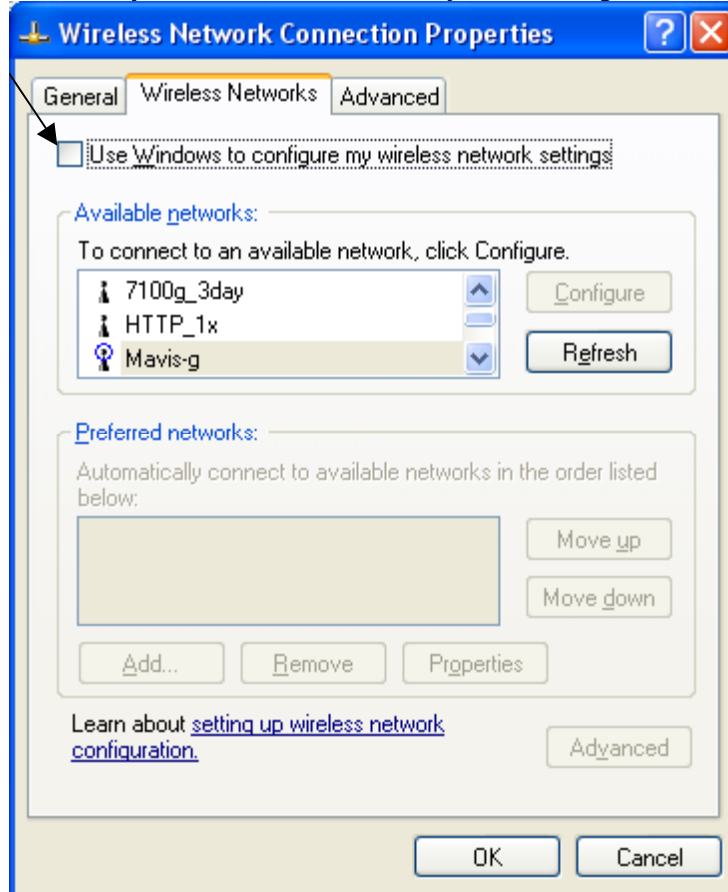
The **About Tab** gives the utility version number of the **WLAN Monitor** utility.

About Tab

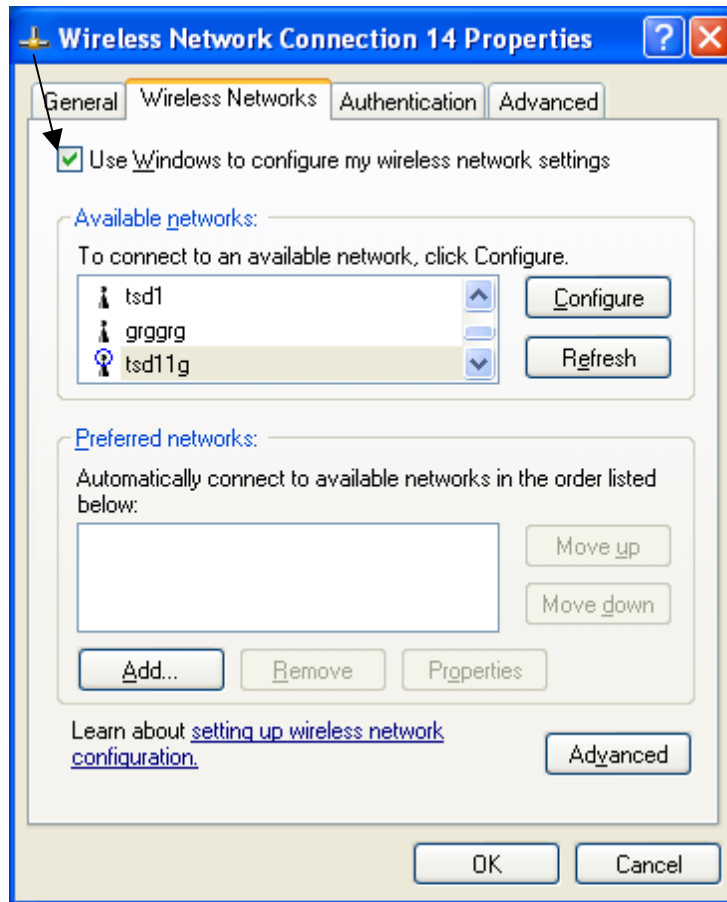


Using The Configuration Utility for Windows XP

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

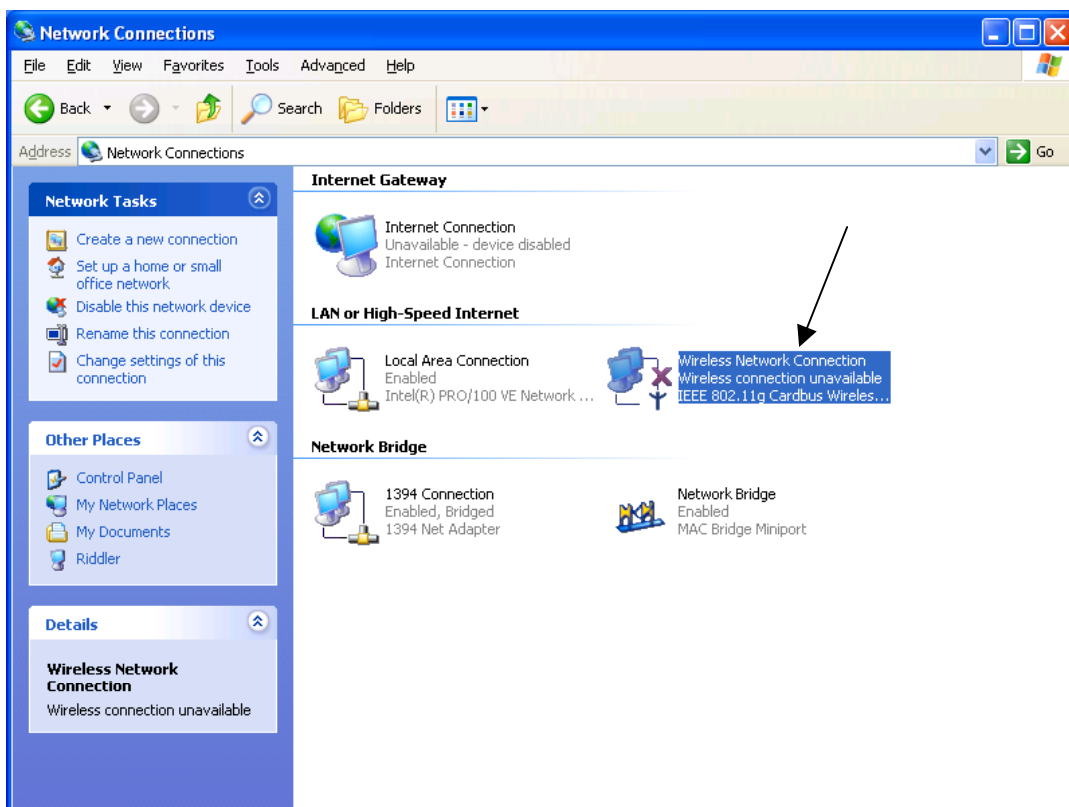


Creating a Connection

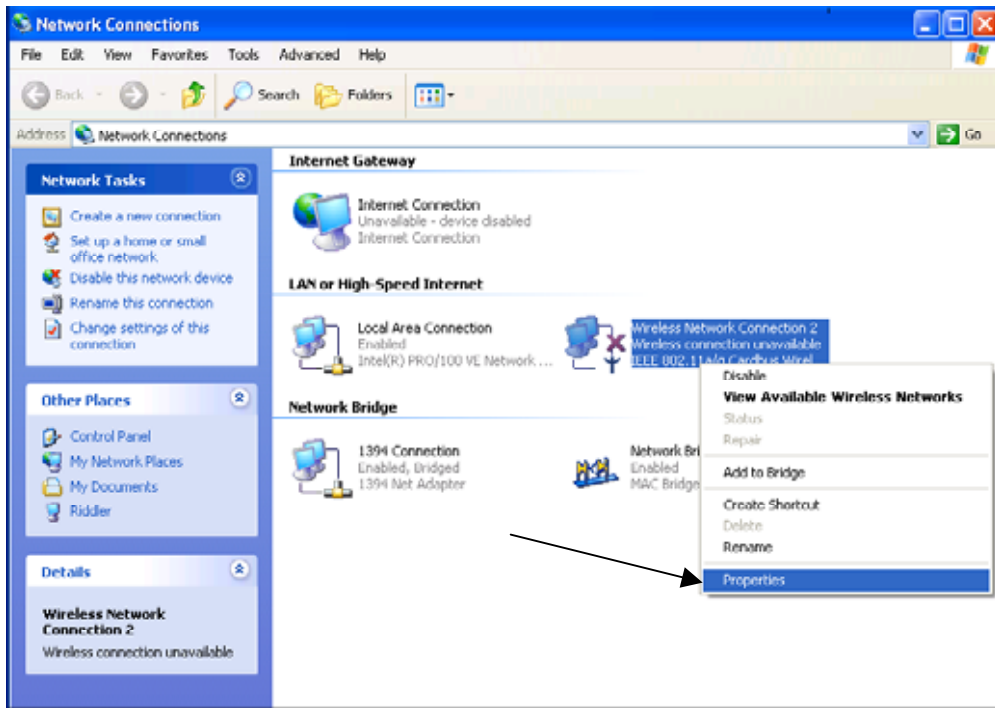
Right click on “My Network Places” to obtain a drop-down menu with **Properties** listed.



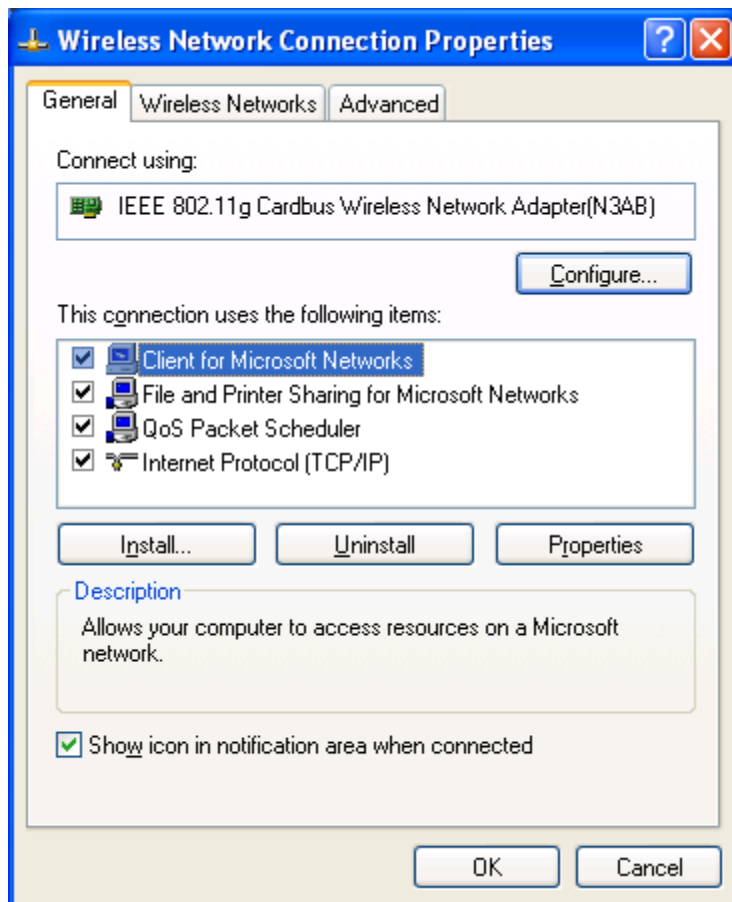
Left-click on **Properties** to obtain the **Network Connections** screen.



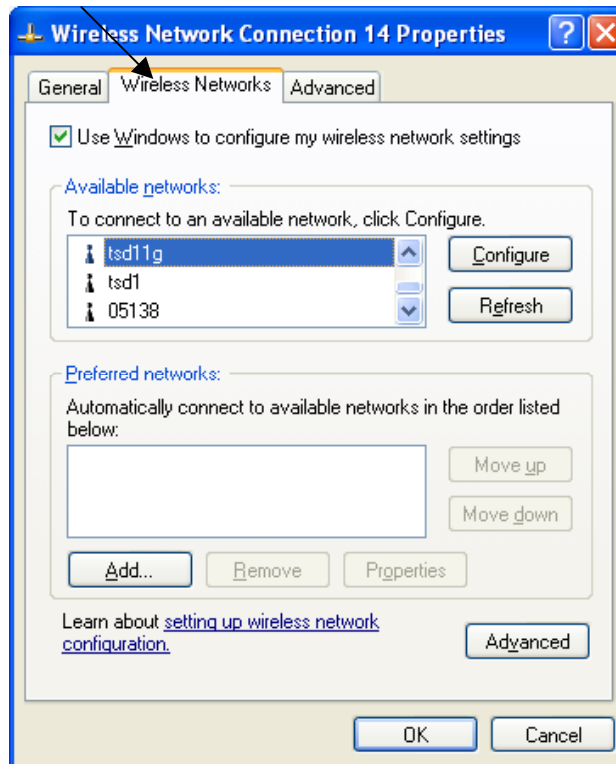
Right-click on the “Wireless Network Connection” icon to produce another drop-down menu with item **Properties**.



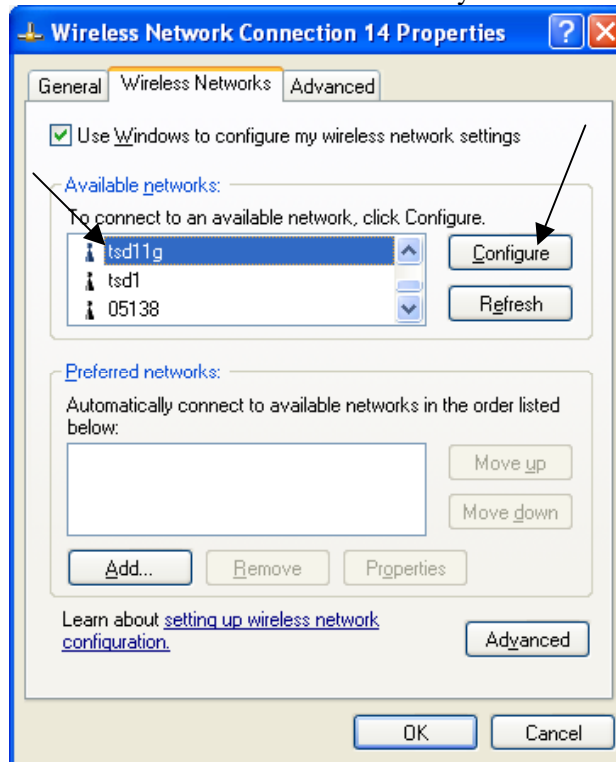
Left-click on **Properties** to bring up the screen below.



Click on the **Wireless Networks** tab.

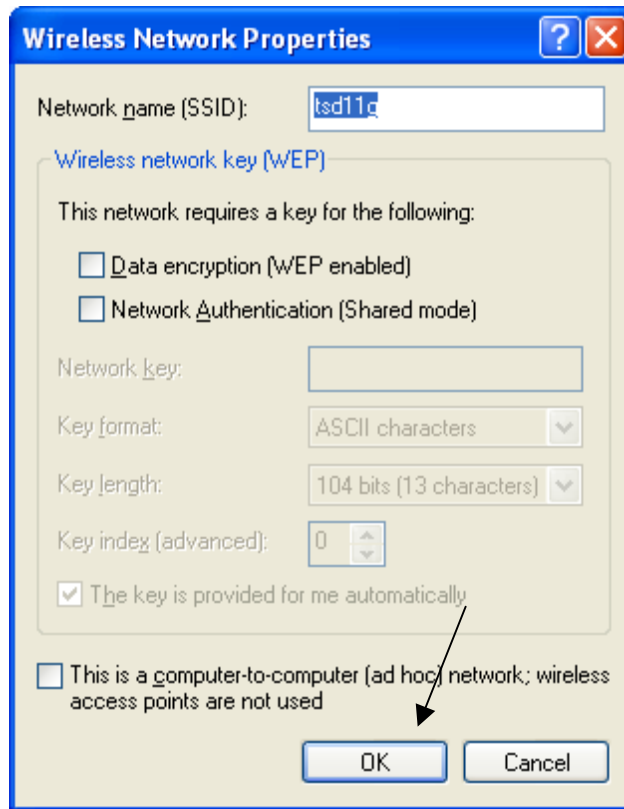


Click on the Access Point under **Available Networks** with which you wish to establish a connection.

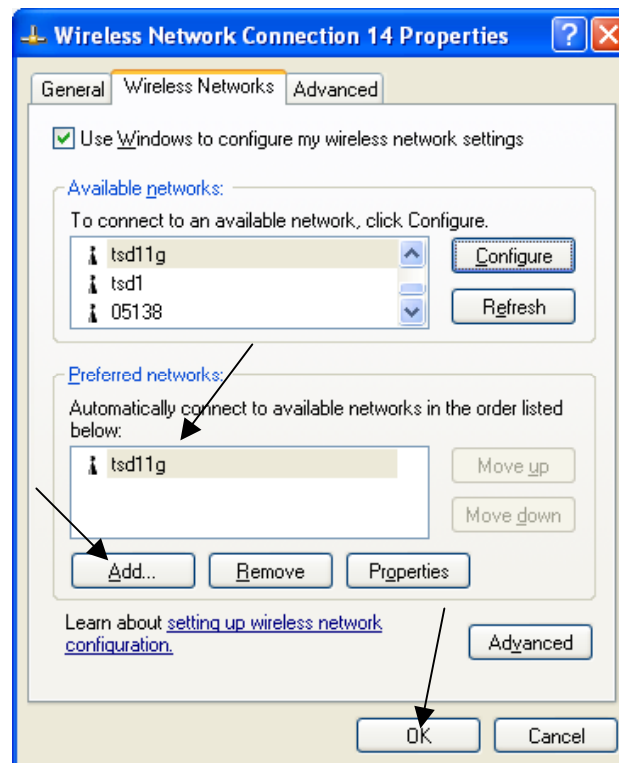


Click on **Configure** to establish a connection with the chosen access point “tsd11g.” A screen such as the following called **Wireless Network Properties** will then appear.

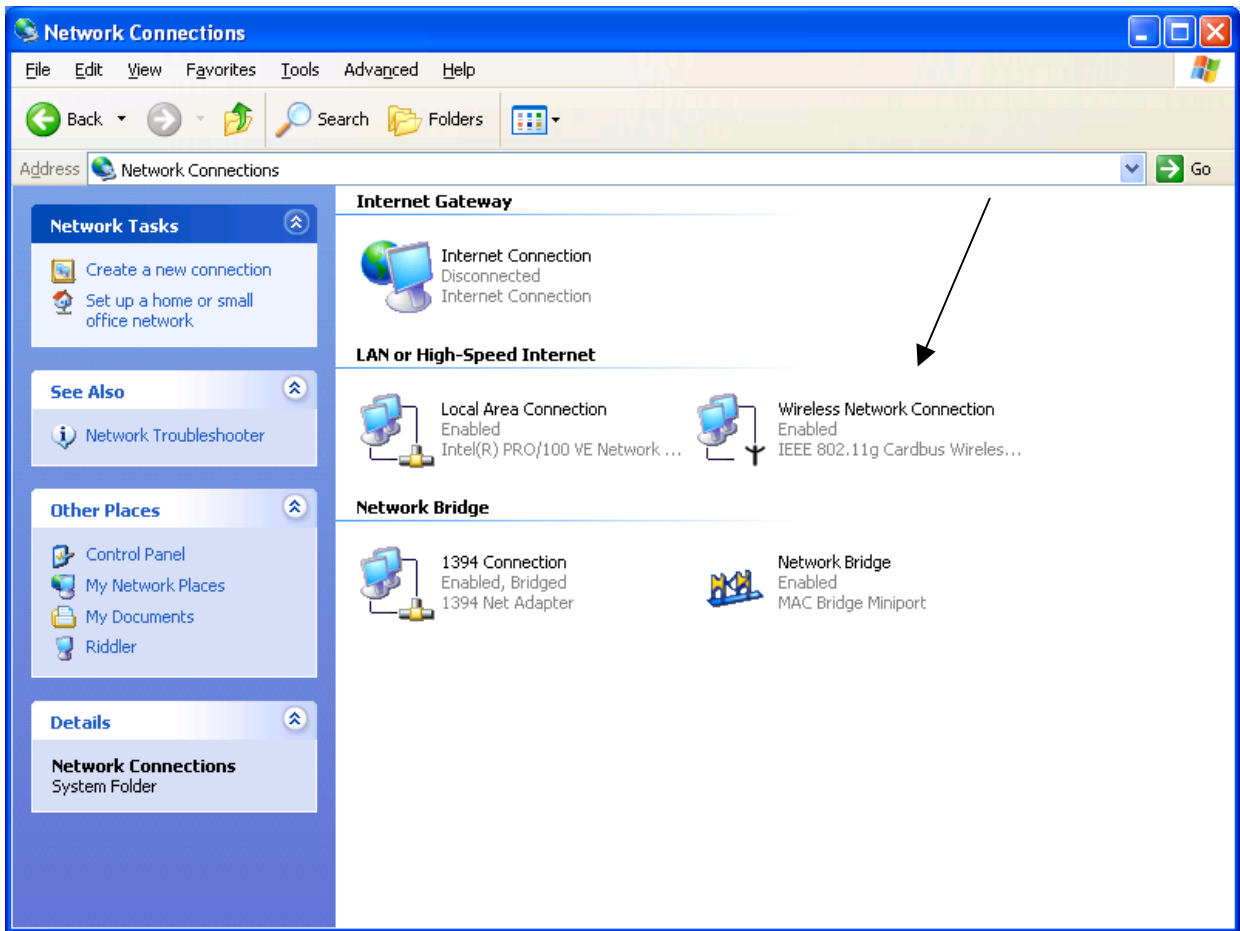
Enter the appropriate settings on the screen below and click **OK**.



The access point “tsd11g” has been added to the network under **Preferred networks**. Click **OK**.

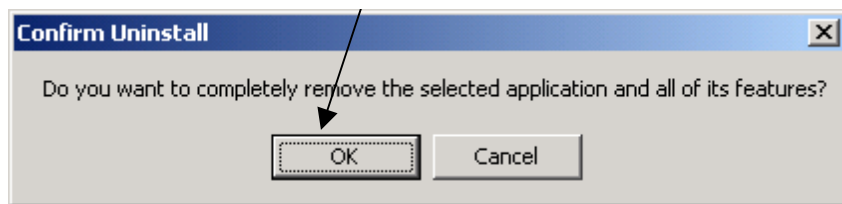


The **Network Connections** window now shows the wireless network connection as “**Enabled**”.



3 Uninstalling the Configuration Utility

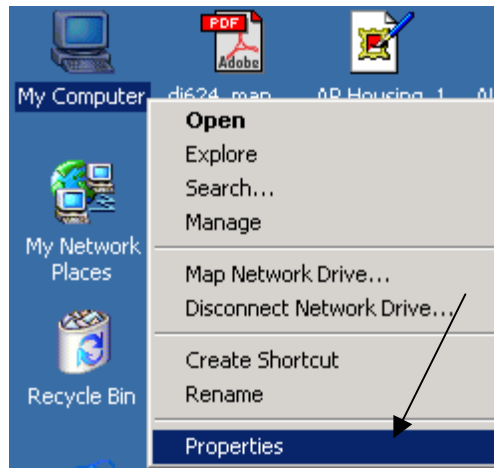
To uninstall the configuration utility simply click **Uninstall** under **Programs**→**WLAN Monitor**→**Uninstall**.



4 Uninstalling the Driver

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

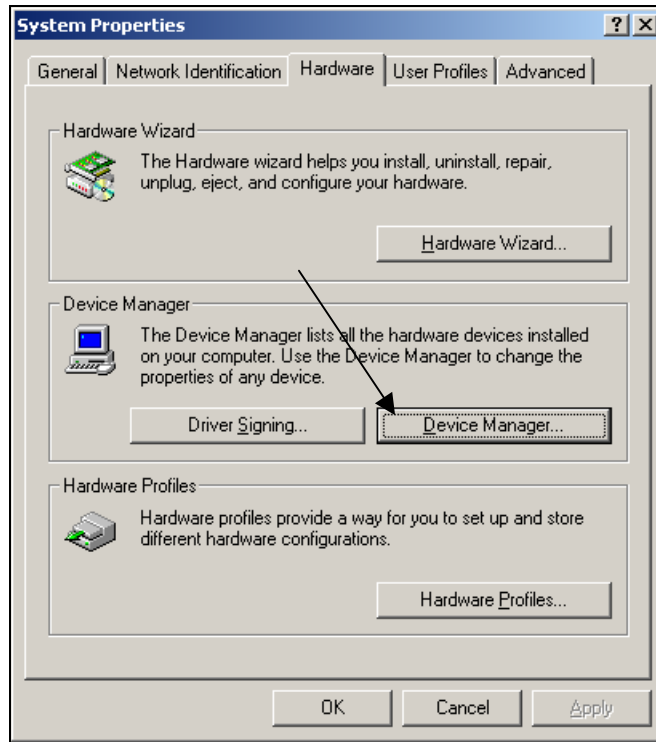
- Left-click on **Properties** to bring up the **System Properties** screen.



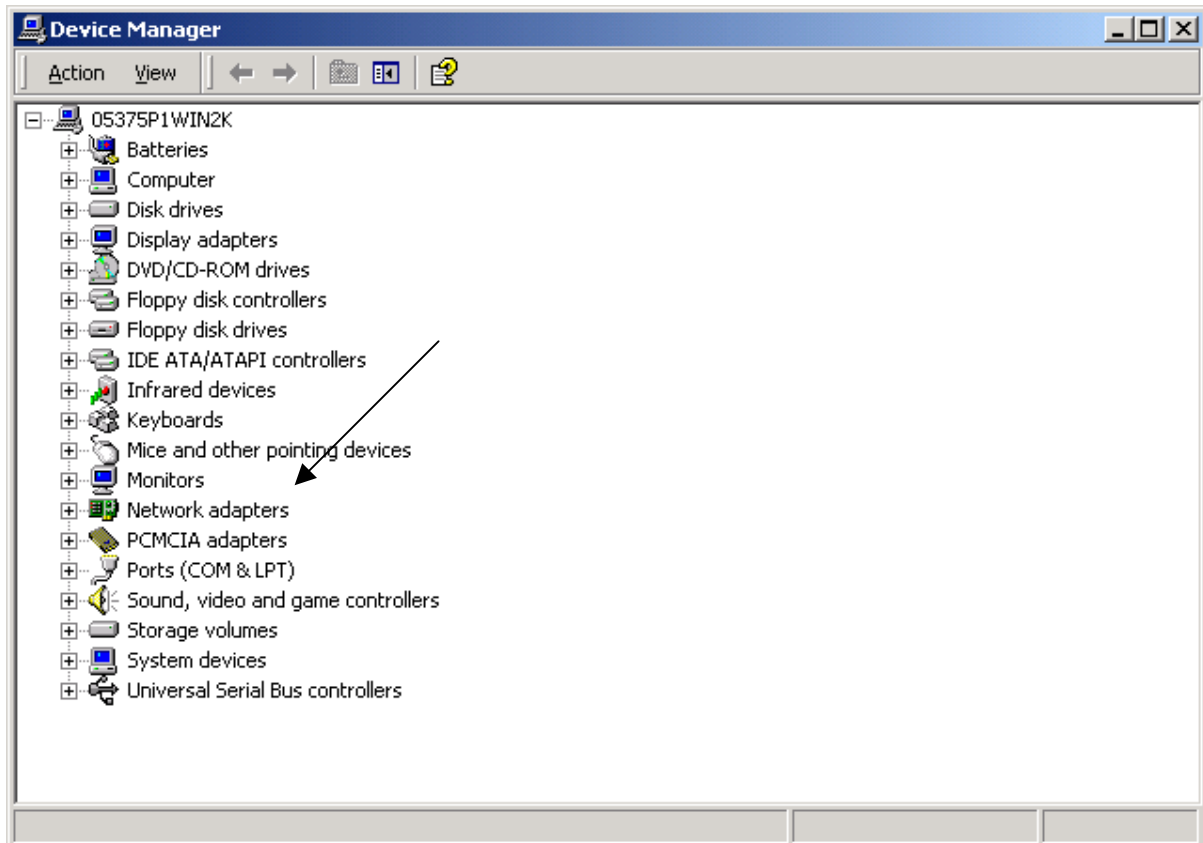
- Click on the **Hardware** tab.



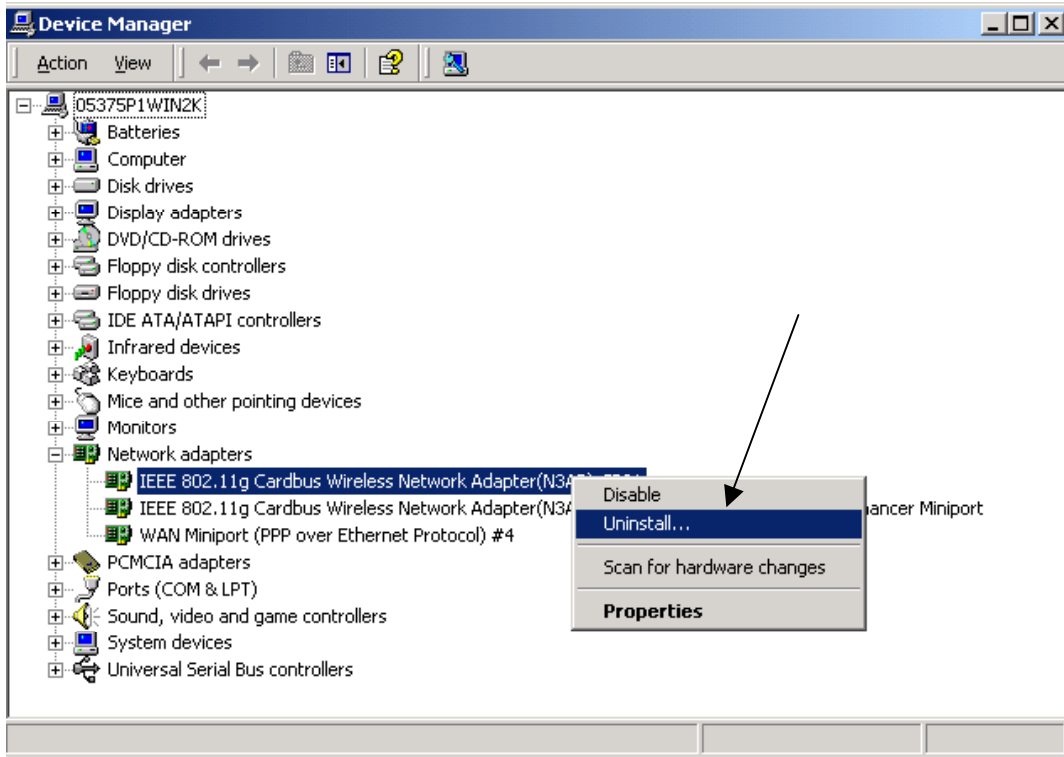
- Click on **Device Manager**.



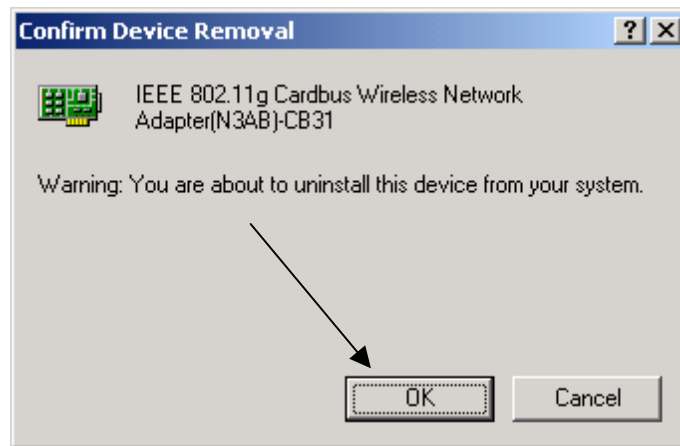
- Double-click on **Network adapters**.



- Right-click on the “802.11b/g Wireless Cardbus Card” 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

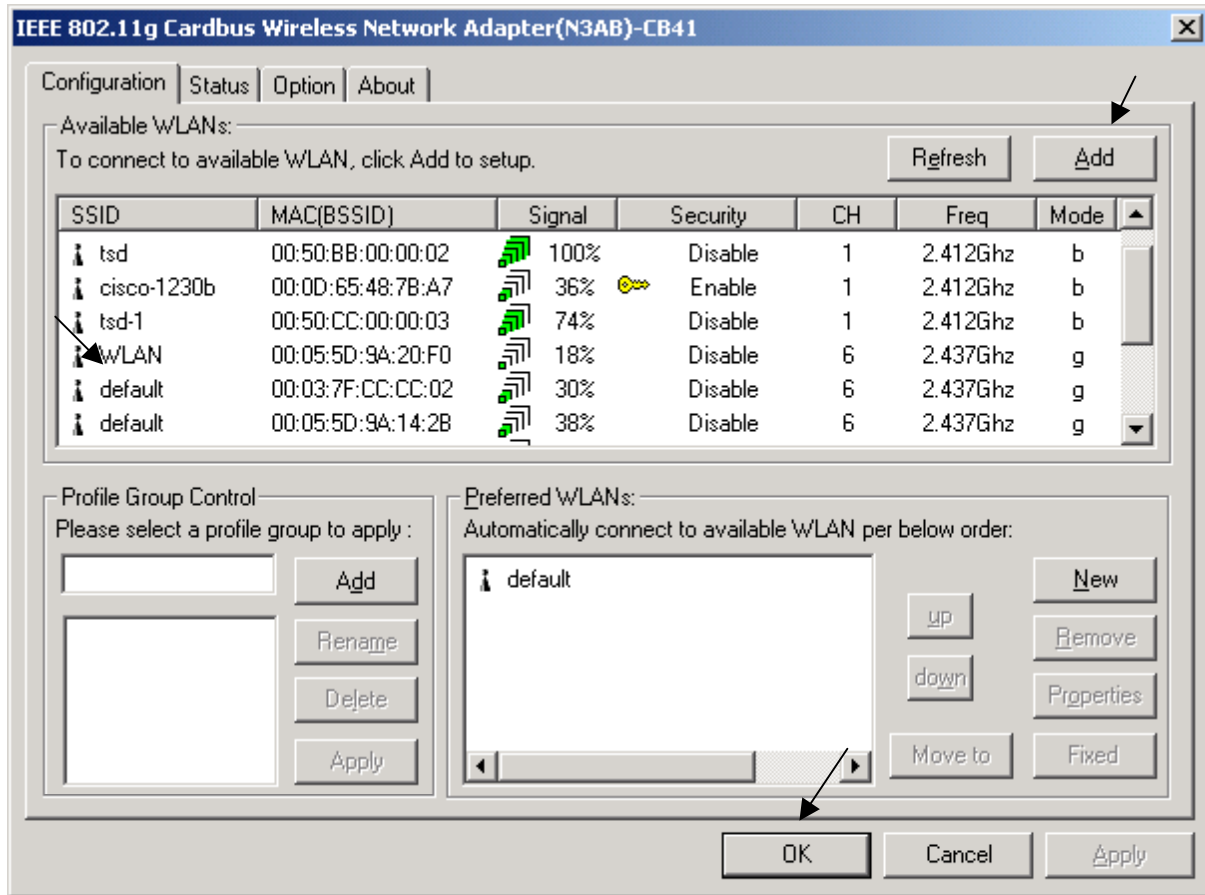
If you are using Windows 2000, ME or 98SE the Configuration Utility program for The **802.11b/g Wireless Cardbus Card** is called **WLAN**. Once you have installed **WLAN Monitor** (the configuration utility), you can read this section of the manual to find out how to monitor and configure your The **802.11b/g Wireless Cardbus Card** using **WLAN Monitor**. Screenshots for this section have been taken in Windows 2000. There are four tabs in the **WLAN Monitor** Configuration Utility program. In this section we will describe the uses for each tab in the Configuration Utility window.

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

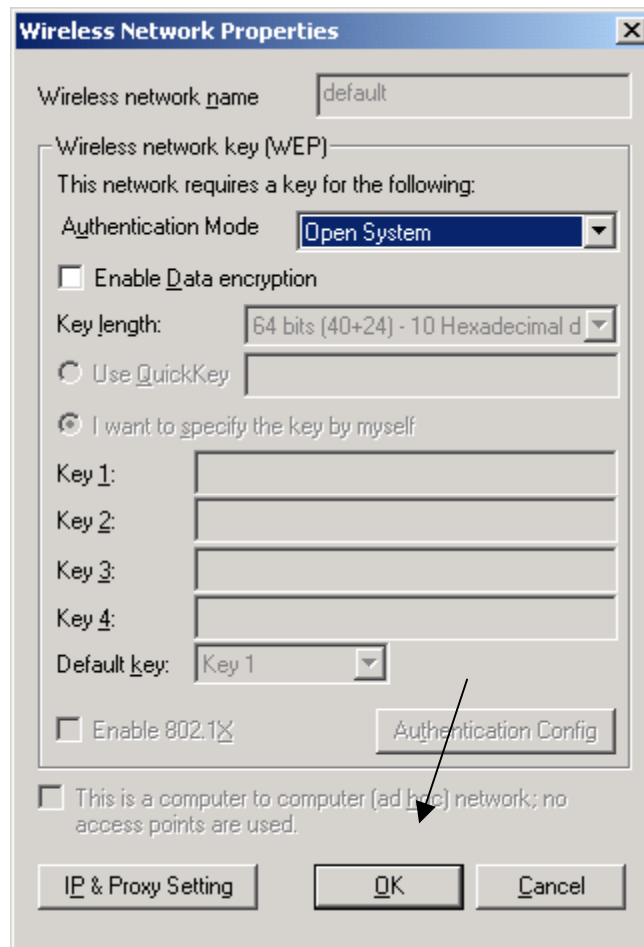


Under the **Configuration Tab** you will find a list of access points to which you may add or change connections.

Configuration Tab



The listed SSIDs are *Available WLANs*. You may connect to the available WLAN that has the strongest signal 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 **Wireless network name**. 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 (DHCP) 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.

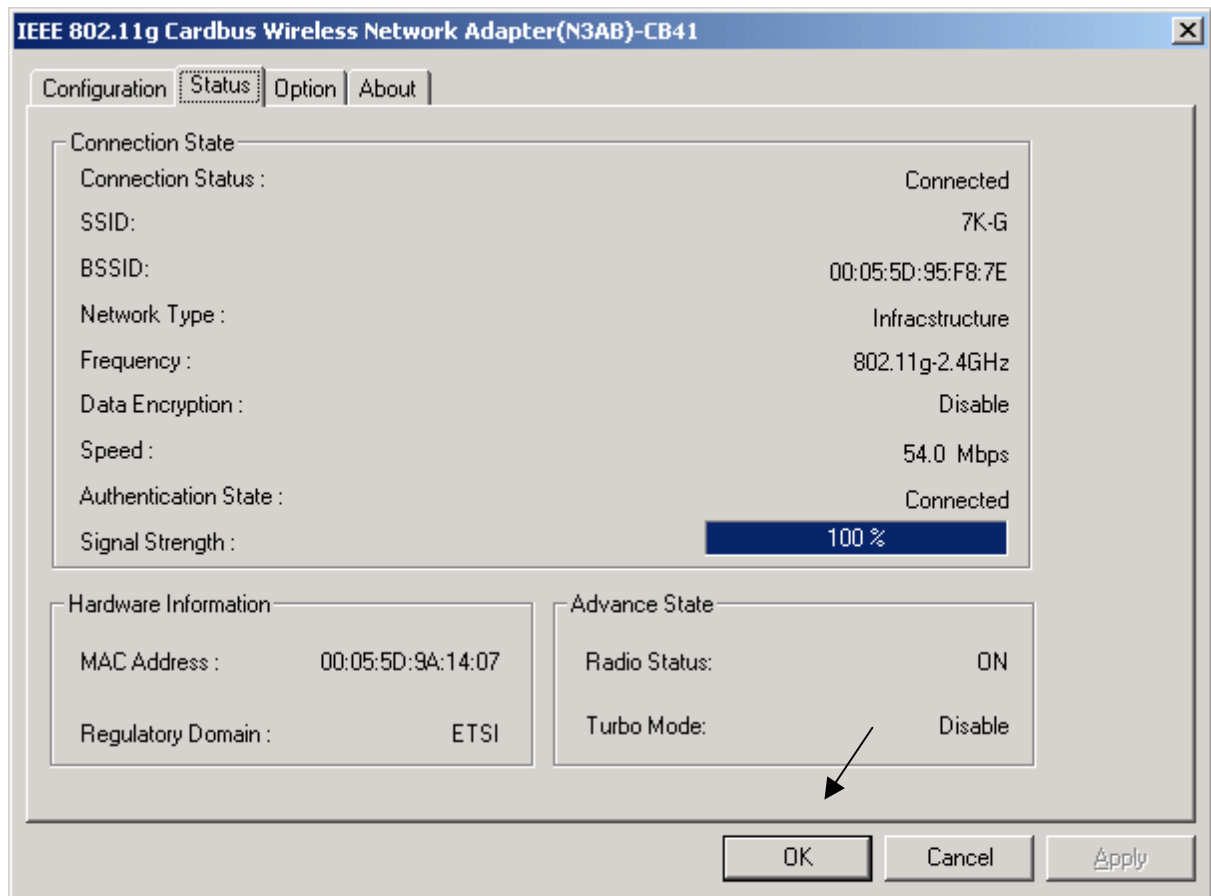
On the right side of the screen you may click **Move Up** to move the selected WLAN up in the order it is displayed on the **Preferred WLANs** screen. You may click **Move Down** to move the selected WLAN down in the order in which it is displayed.

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.

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*** implements the setting entered, 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



Settings under **Connected State** are the **Connection status** (connected or disconnected), **SSID**, **Network type** (infrastructure or Ad Hoc), **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).

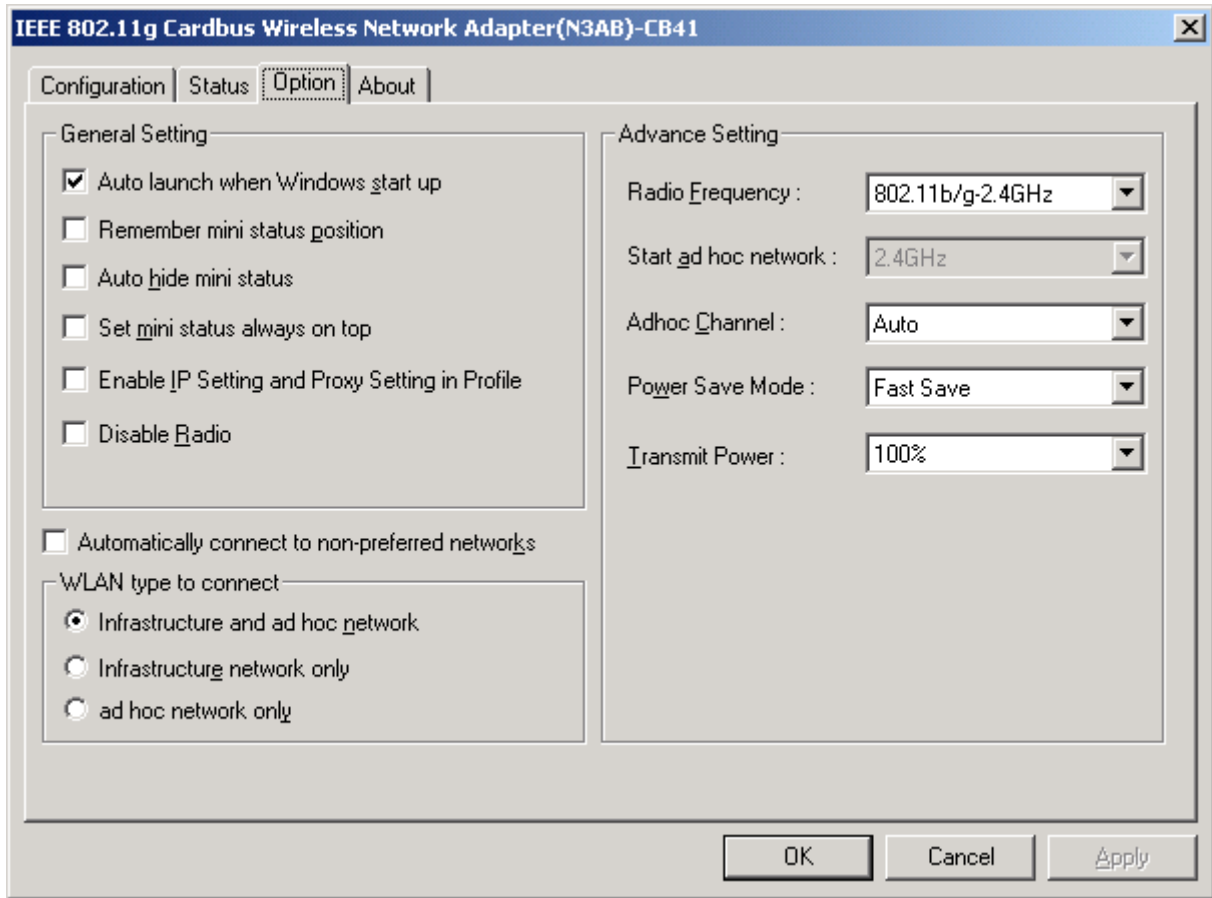
Under **Hardware Information** the Media Access Control (MAC) address of the hardware (WLAN cardbus card) is given. The MAC address is a factory given address that cannot be changed.

Advanced State shows the **Radio Status** (ON or OFF).

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.

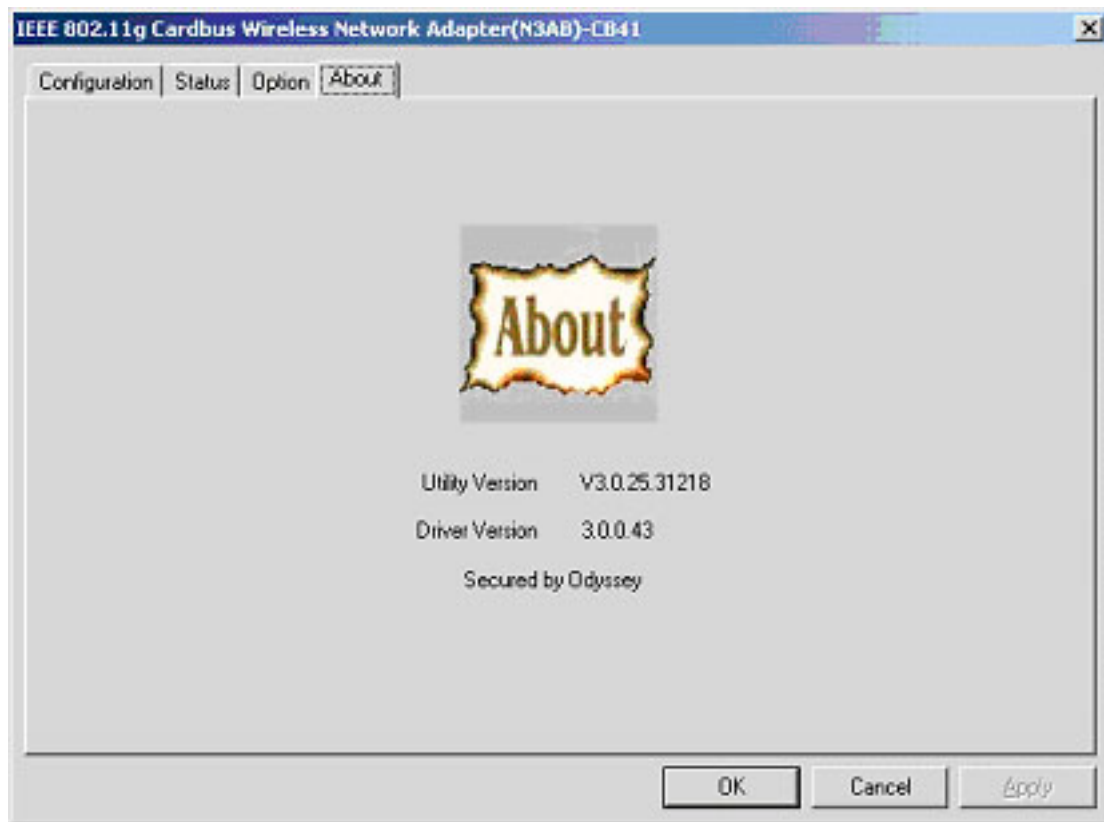
Option Tab



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

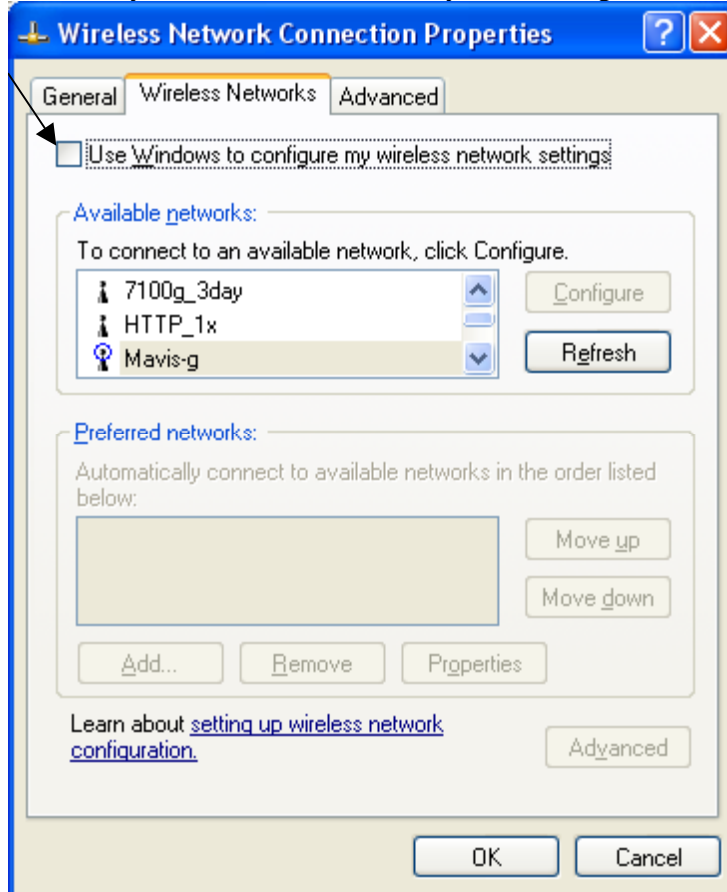
The **About Tab** gives the utility version number of the **WLAN Monitor** utility.

About Tab

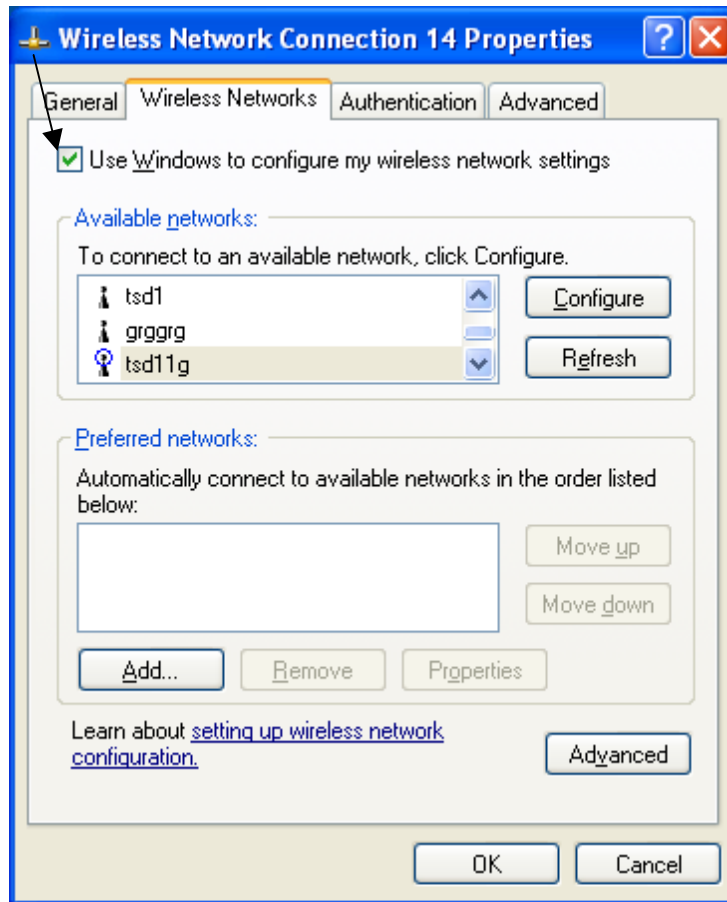


Using The Configuration Utility for Windows XP

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

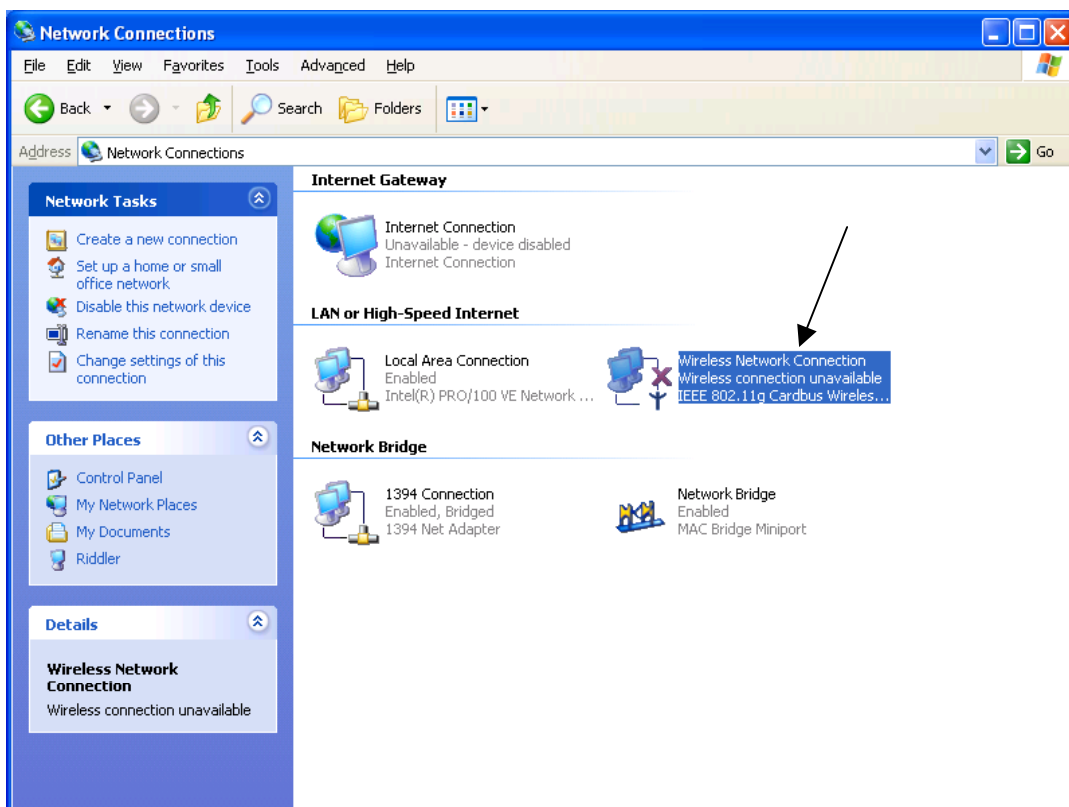


Creating a Connection

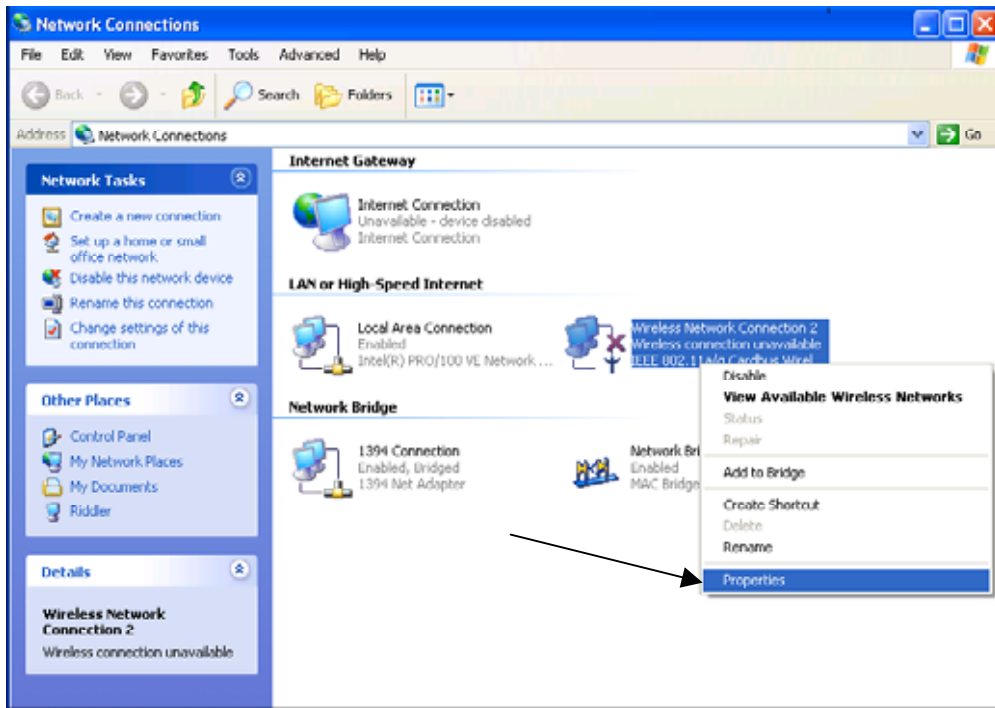
Right click on “My Network Places” to obtain a drop-down menu with **Properties** listed.



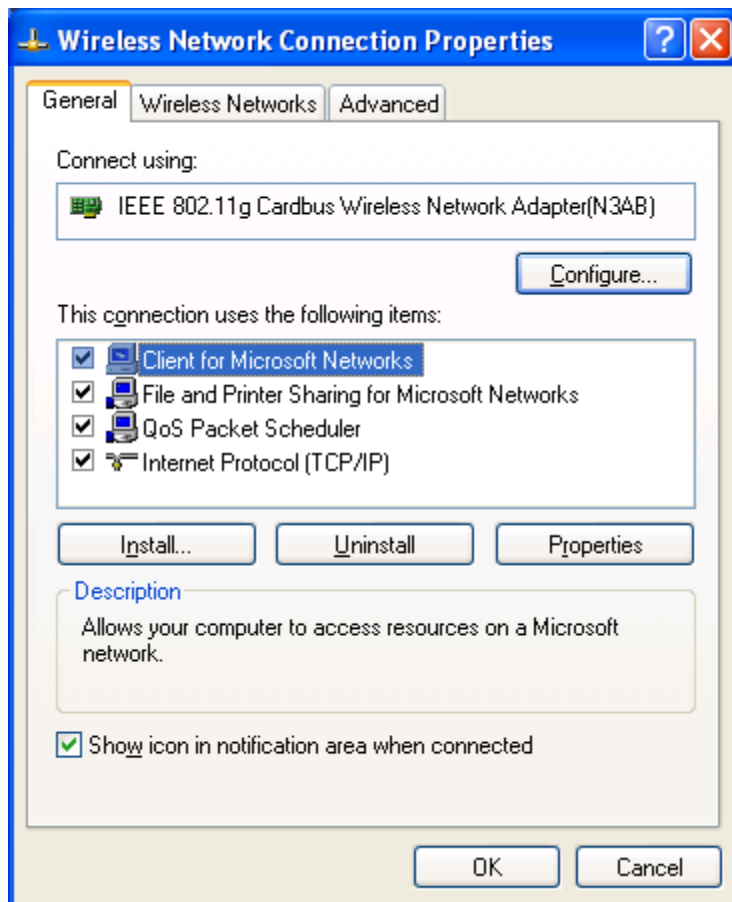
Left-click on **Properties** to obtain the **Network Connections** screen.



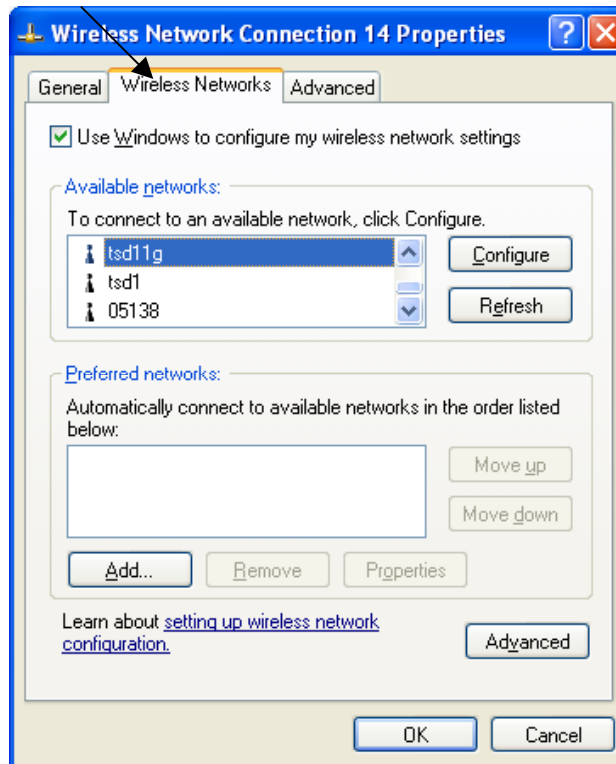
Right-click on the “Wireless Network Connection” icon to produce another drop-down menu with item **Properties**.



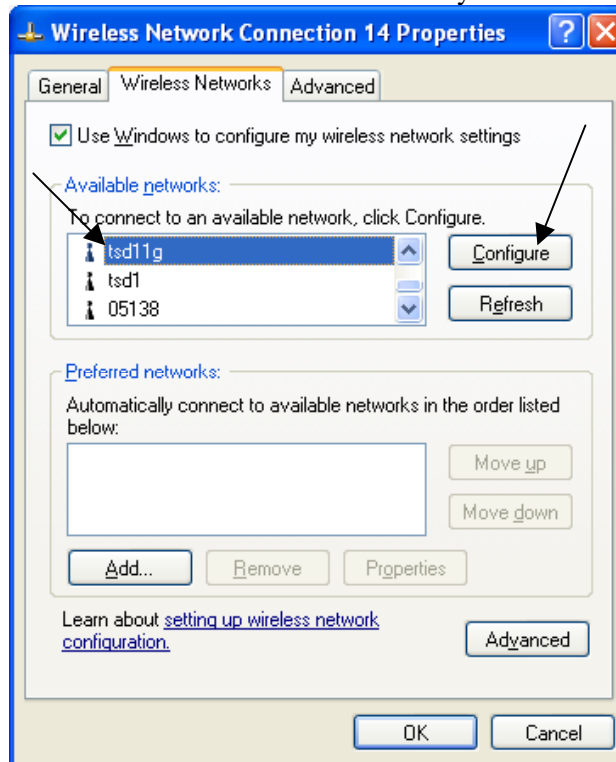
Left-click on **Properties** to bring up the screen below.



Click on the **Wireless Networks** tab.

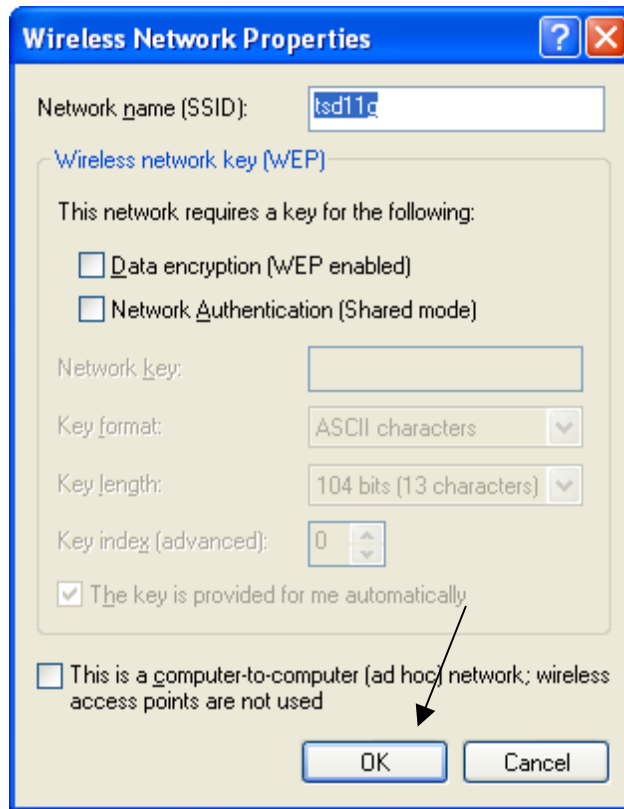


Click on the Access Point under **Available Networks** with which you wish to establish a connection.

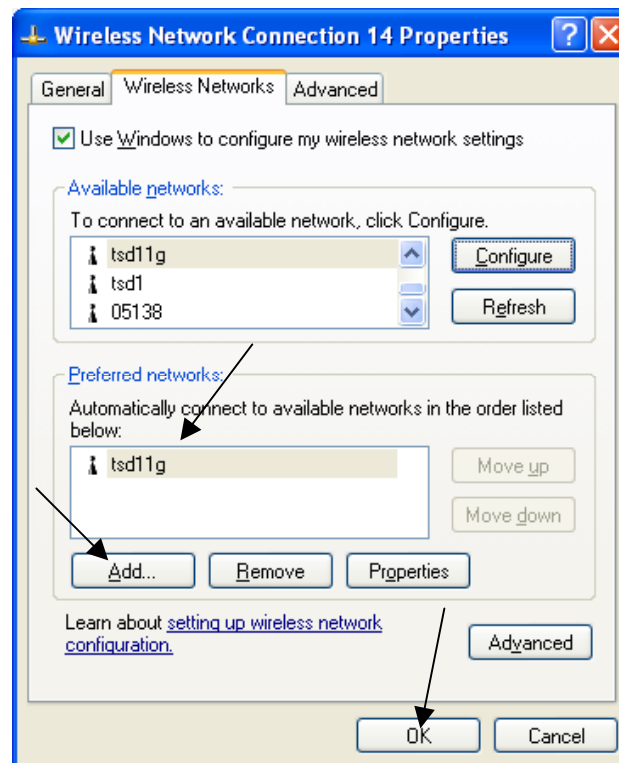


Click on **Configure** to establish a connection with the chosen access point “tsd11g.” A screen such as the following called **Wireless Network Properties** will then appear.

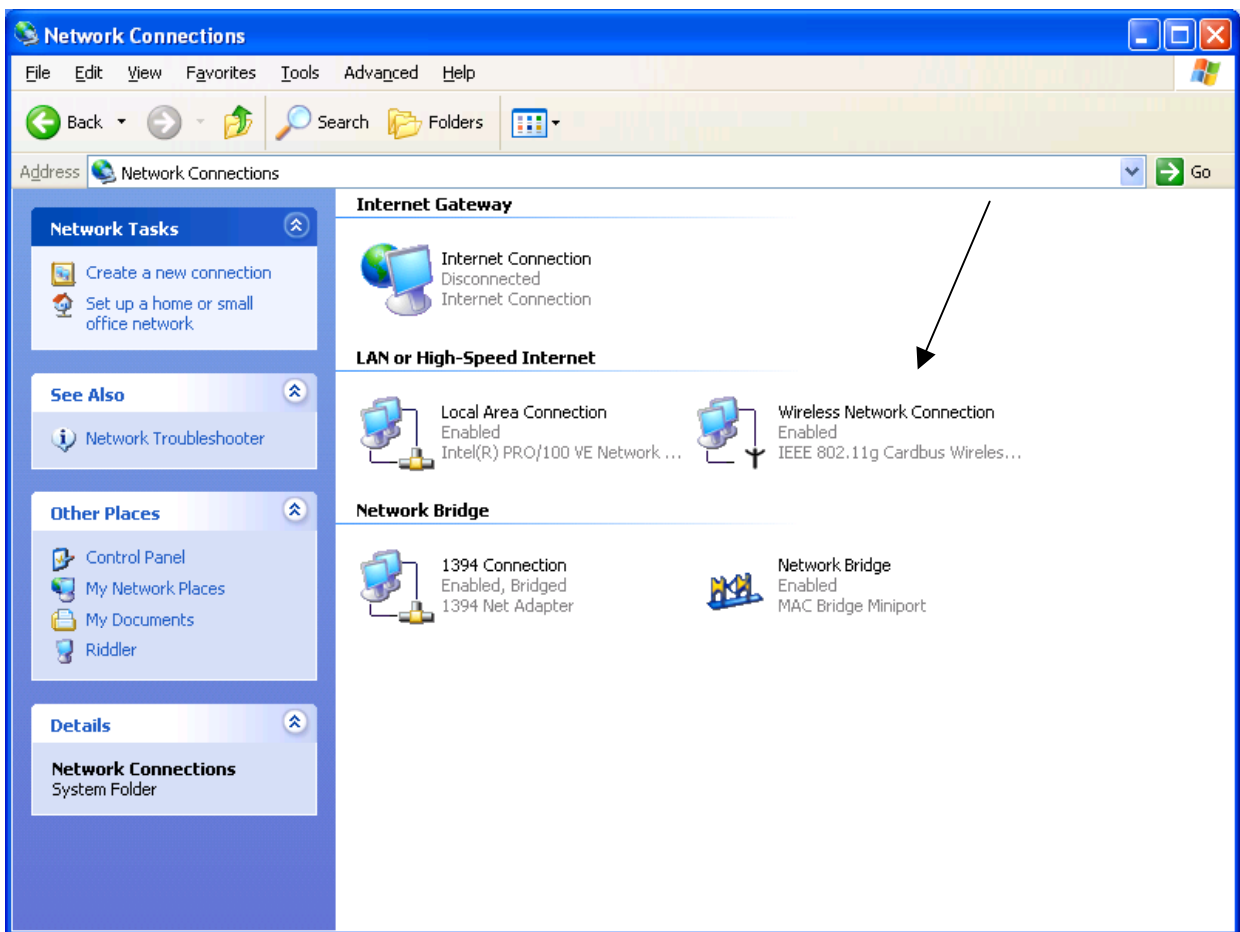
Enter the appropriate settings on the screen below and click **OK**.



The access point “tsd11g” has been added to the network under **Preferred networks**. Click **OK**.



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

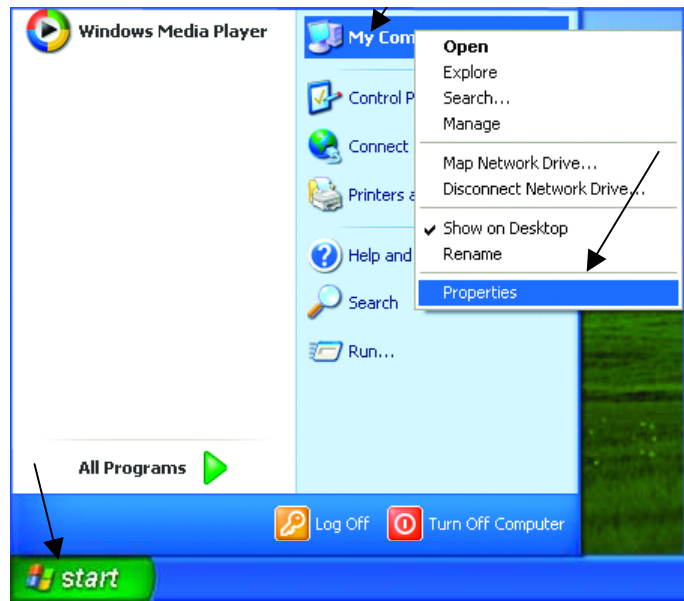


Troubleshooting

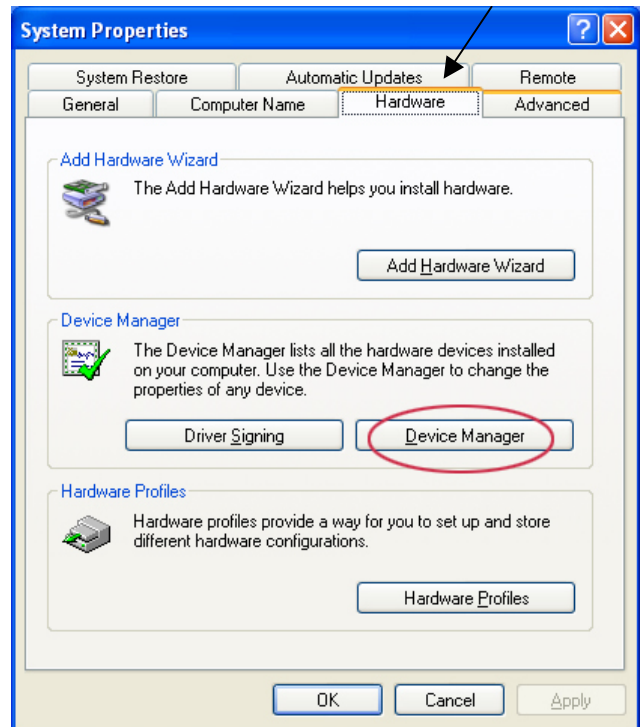
This chapter provides solutions to problems that can occur during the installation and operation of The **802.11b/g Wireless Cardbus Card**. Read the following descriptions if you are having problems.

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

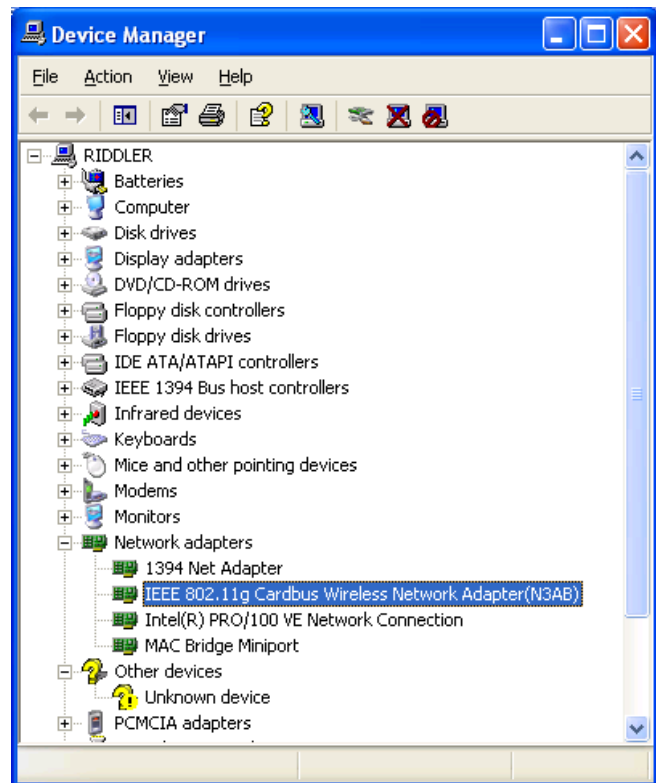
- Go to **Start**.
- Right-click on **My Computer**.
- Click **Properties**.



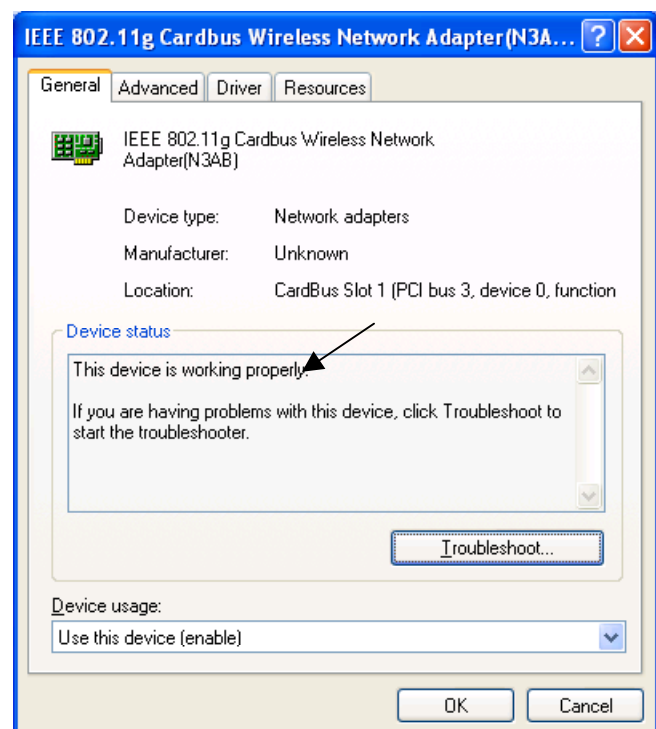
- Select the **Hardware Tab**.
- Click **Device Manager**.



- Click on **Network adapters**.
- Right-click on the **802.11g Wireless PC-Card**.
- 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 802.11b/g Wireless Cardbus Card.

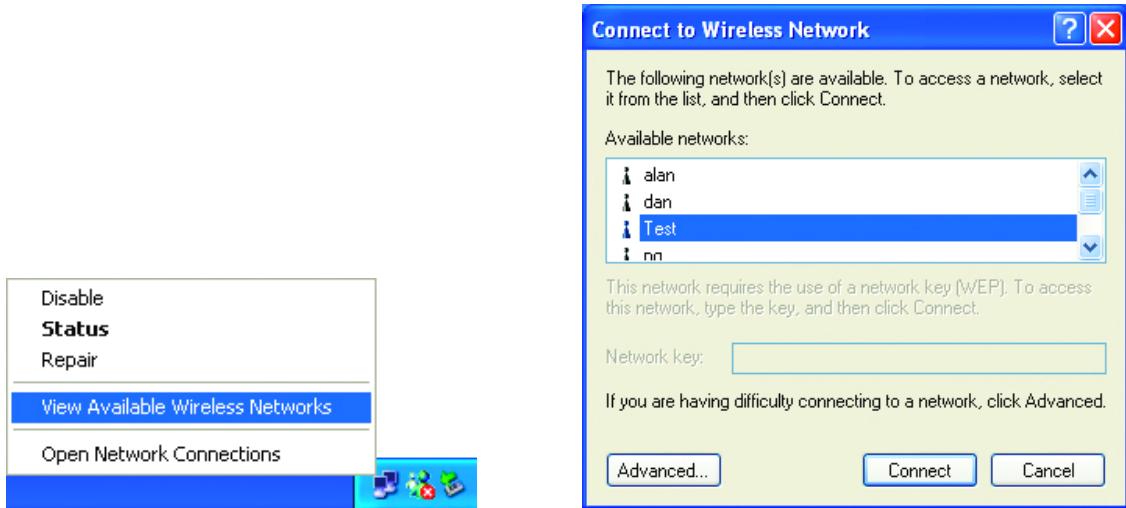
- Make sure that the **802.11b/g Wireless Cardbus Card** is properly seated in the computer's cardbus slot.
- If Windows does not detect the hardware upon insertion of the card, make sure to completely remove drivers that were previously installed. To remove the drivers, do the following:
 - A. Under **Control Panel**> select **Folder Option**> 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 **netN3AB.inf** that have not received certification into **oem.inf** files (e.g., **oem1.inf**). .

3. The 802.11b/g Wireless Cardbus Card 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 The **802.11b/g Wireless Cardbus Card** > make sure that "**This device is working properly**" is displayed under **Device Status** under the **General Tab**.
- 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 and 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 in the same range of 192.168.0.x where x is a number between 3 and 254. 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 and select the **Support tab** and the **IP Address** will be displayed.

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 (IEEE 802.11b)
- 2400-2472MHz Ism band (IEEE 802.11g)

Data Rates

- 1, 2, 5.5, 11 Mbps (IEEE 802.11b)
- 6, 9, 12, 18, 24, 36, 48, 54 Mbps (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 - 15mW
- Transmit mode - 500mW
- Receive mode – 365mW

Operating Voltage

- 3.3V± -10%

Network Architecture

- Ad-Hoc Mode (Peer-to-Peer without Access Point)
- Infrastructure Mode (Communications to wired networks via Access Points with Roaming)

Antenna Type

- Integrated Printed-PCB antennas with dual diversity function

Available Channels:

- Thirteen channels for European countries (IEEE 802.11b)
- Thirteen channels for European countries (IEEE 802.11g)

MTBF (Mean Time Between Failure)

- 30,000 hours

Physical Dimensions

- L ~ 110 mm
- W~ 54 mm
- H ~ 5mm

Temperature

- Operating: 0°C to 55°C (32°F to 140°F)
- Storing: -20°C to 75°C (-4°F to 167°F)

Humidity:

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

Regulatory Requirements:

- EMC: EN 300 328, EN 300 826, EN 60950