802.11g

Wireless LAN Card

User's Manual

Doc. No.:082603-01

REGULATORY STATEMENTS

FCC Certification

The United States Federal Communication Commission (FCC) and the Canadian Department of Communications have established certain rules governing the use of electronic equipment.

Part15, Class B

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

1) This device may not cause harmful interface, and

2) This device must accept any interface received, including interface that may cause undesired operation. 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 off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

NOTICE:

To comply with FCC RF exposure compliance requirements, the antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. No change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Table of Contents

INTRODUCTION

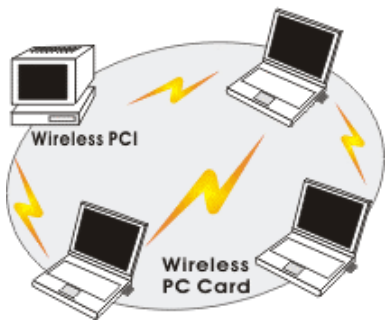
The **802.11g Wireless LAN Card** is a device that allows you connect your computer to a wireless local area network (LAN). A wireless LAN allows your system to use wireless Radio Frequency (RF) technology to transmit and receive data without having to physically attach to the network. The Wireless protocols that come with this product ensure data security and isolation from interference generated by other radio frequencies.

This card also allows you to take full advantage of your computer's mobility with access to real-time information and online services anytime and anywhere. In addition, this device eliminates the bother of pulling cable through walls and under furniture. It even allows you to place your system in locations where cabling is impossible. Modifying and augmenting networks has never been so easy.

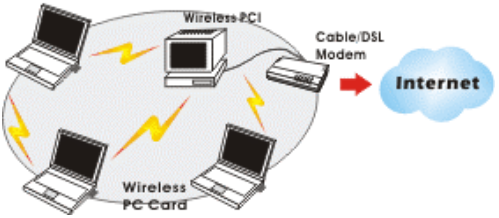
Wireless Network Options

The Peer-to-Peer Network

This network installation lets you set a small wireless workgroup easily and quickly. Equipped with wireless PC Cards or wireless PCI, you can share files and printers between each PC and laptop.

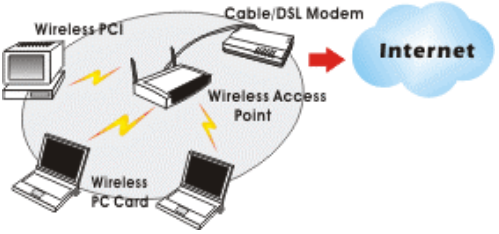


You can also use one computer as an Internet Server to connect to a wired global network and share files and information with other computers via a wireless LAN.



The Access Point Network

The network installation allows you to share files, printers, and Internet access much more conveniently. With Wireless LAN Cards, you can connect wireless LAN to a wired global network via an **Access Point**.



LED Indicators

Power Indicator: (Orange LED)

This LED will illuminate when the driver is well-installed.

Act Indicator: (Green LED)

This LED flickers when transmitting/receiving wireless data.

INSTALLATION

Caution: Do not insert the **Wireless LAN Card** into your computer until the procedures in "**Install the Drive r & Utility**" has been performed.

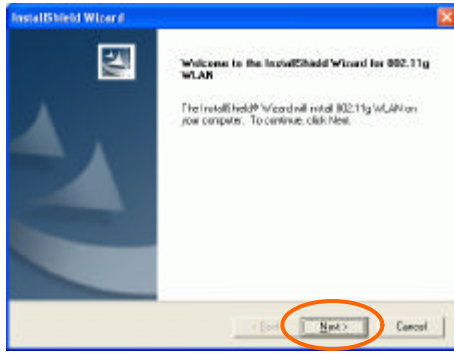
Install the Driver & Utility

3. Exit all Windows programs. Insert the CD-ROM into the CD-ROM drive of your computer.

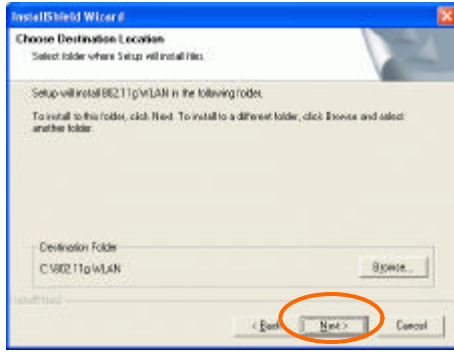
   If the CD-ROM is not launched automatically, go to your CD-ROM drive (e.g. drive D) and double-click on **Setup.exe.**

4. The main screen of the CD-ROM opens. Click **Install Driver & Utility** to start the installation.

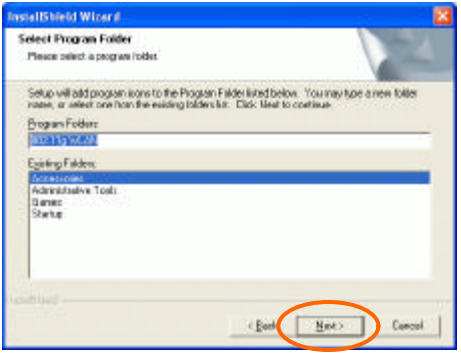
5. When the Welcome screen appears, click **Next** to continue.



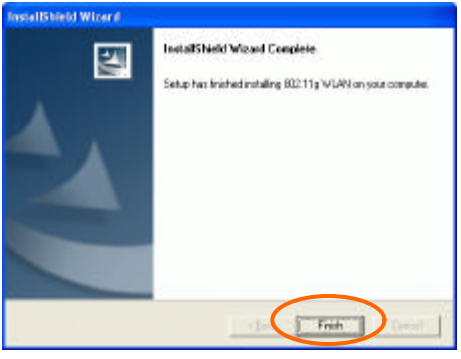
6. The **Choose Destination Location** screen will show you the default destination chosen by the utility. Click **Next** to continue.



7. Follow the instruction to select the program folder. Click **Next** to continue.



8. Click **Finish** to complete the installation



Install the device[1]

Note: Make sure the procedures in "**Install the Driver & Utility**" has been performed.

1. If you are using the Wireless PCI Card, before installing the device, make sure the computer is turned off. Remove the expansion slot cover from the computer. For Wireless CardBus users, please locate your CardBus slot.
2. Carefully slide the Wireless PCI/CardBus Card into the PCI/CardBus slot. Push evenly and slowly and ensure it is properly seated. For Wireless PCI Card, you may have to use the mounting screw to have the card screwed securely in place.
3. After the device has been connected to your computer, turn on your computer. Windows will detect the new hardware and then automatically copy all of the files needed for networking. Recover your expansion slot cover if you are using the Wireless PCI Card.

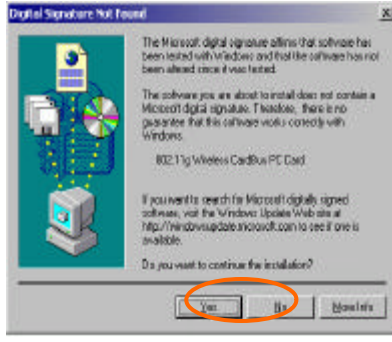
Note for Windows 98 users:

Before installation of the device, make sure you have your operating system CD-ROM at hand. You may be asked to insert the OS CD-ROM in order to download specific drivers.

[1] If you are using the Wireless PCI Card, the product descriptions shown on the screen will differ from the illustrations shown in this document. Please discard the discrepancy and follow the installation procedures to continue anyway.

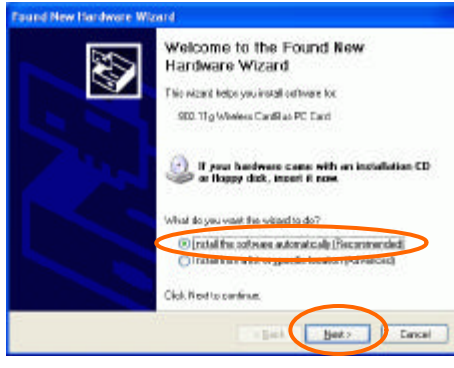
Note for Windows 2000 users:

During the installation, when the "**Digital Signature Not Found**" screen appears, click "**Yes**" to continue.

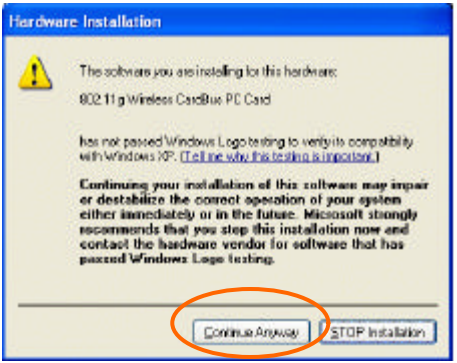


Note for Windows XP users:

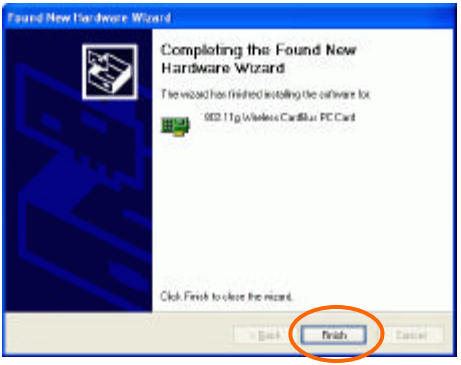
1. Select **Install the software automatically (Recommended)** and click **Next.**



3. Click **Continue Anyway.**



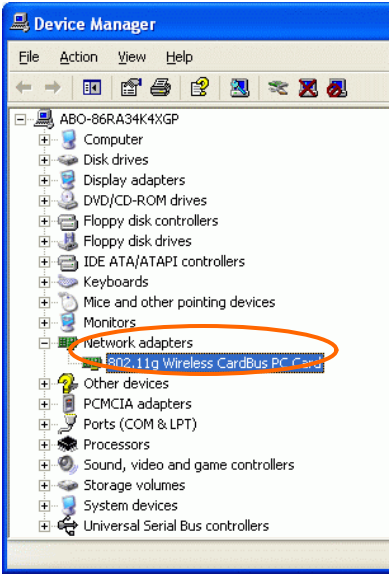
4. Click **Finish** to complete the installation.



Verify Device Installation

To verify that the device has been properly installed in your computer and is enabled, go to **Start → Settings → Control Panel → System (→ Hardware) → Device Manager**. Expand the **Network adapters** item. If

the **802.11g Wireless PCI/CardBus PC Card** is listed, it means that your device is properly installed and enabled.

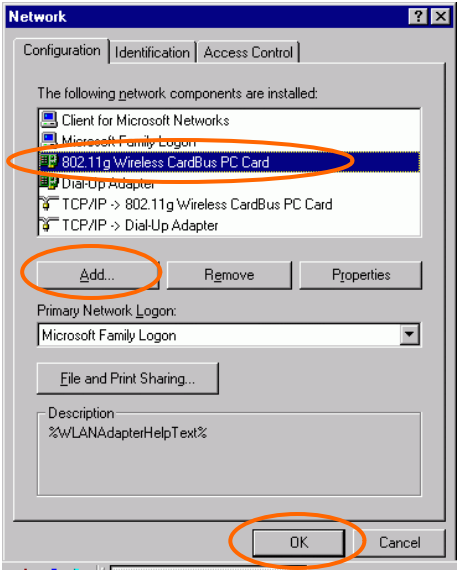


NETWORK CONNECTION

Once the driver has been installed, you will need to make adjustments to your network settings.

In Windows 98/ME

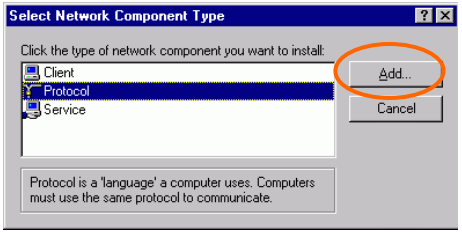
1. Go to **Start → Settings → Control Panel → Network**.
2. Make sure that you have all the following components installed.



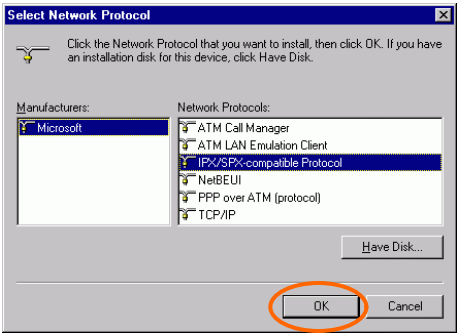
- **802.11g Wireless PCI / CardBus PC Card**
- **IPX/SPX-compatible Protocol**
- **NetBEUI**
- **TCP/IP**

If any components are missing, click on the **Add** button to install them. All of the protocols and clients required (listed above) are provided by Microsoft.

3. Next, highlight the specific network component you need, click **Add**.

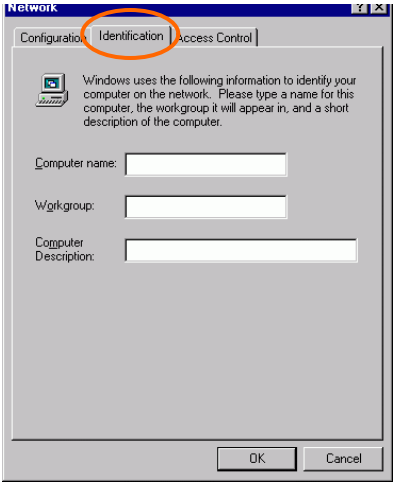


4. Highlight **Microsoft**, and then double click on the item you want to add. Click **OK**.

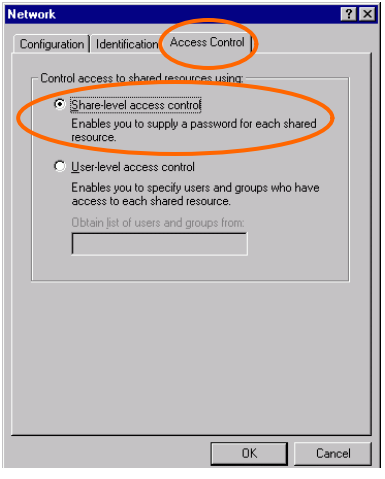


After returning to the Network screen, you can make your computer is visible on the network by enabling the **File and Print Sharing**.

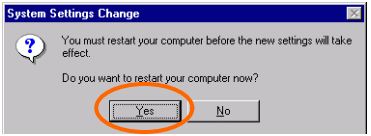
5. Click the **Identification** tab. Enter a name that is unique on the network. Type the name of your workgroup, which should be the same name used by all of the other PCs on the network.



6. Click the **Access Control** tab. Make sure that "**Share-level access control**" is selected. If connecting to a Netware server, share level can be set to "**User-level access control**."



7. When finished, restart your computer to activate the new device.



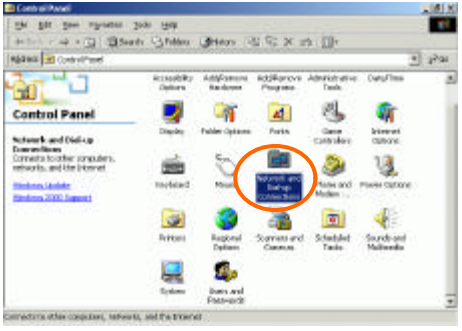
8. Once the computer has been rebooted, a **Logon** window will appear and will require you to enter a username and password. Enter a username and password and click **OK**. Do not click the **Cancel** button, or you won't be able to log onto the network.
9. Double-click the **Network Neighborhood** icon on the windows desktop, and you should see the names of the other PCs on the network.

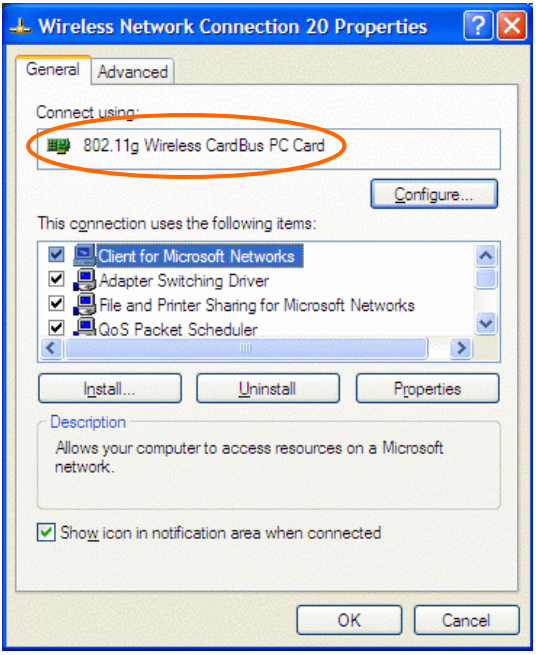
In Windows 2000/XP

1. (In **Windows 2000**)

   Go to **Start→ Settings → Control Panel → Network and Dial-up Connections → Local Area Connection → Properties**.

   (In **Windows XP**)
   Go to **Start → Control Panel → Network Connections → Wireless Network Connection Enabled 802.11g Wireless PCI/CardBus PC Card → Properties**.

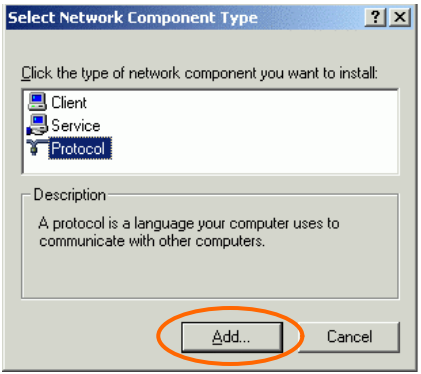




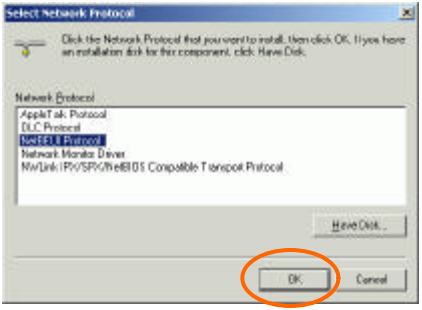
2. Make sure that you have all the following components installed.
   - **Client for Microsoft Networks**
   - **NWLink NetBIOS**
   - **NWLink IPX/SPX/NetBIOS Compatible Transport Protocol**
   - **Internet Protocol (TCP/IP)**

   If any components are missing, click on the **Install...** button to select the **Client/Service/Protocol** required.

3. After selecting the component you need, click **Add...** to install.



4. Select the network protocol you wish to add and click **OK**. This will return you to the **Local Area Connections Properties** window.

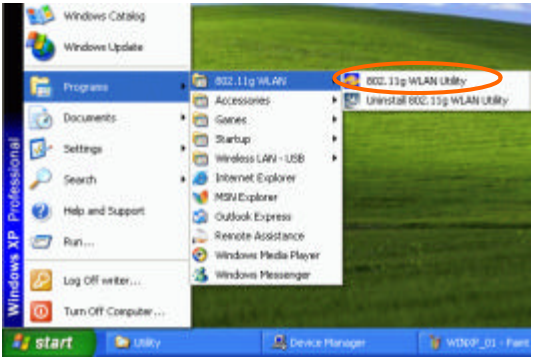


5. To allow your computer to be visible on the network, make sure you have checked off the **File and Printer Sharing for Microsoft Networks**.
6. When finished, you must restart your computer to complete the installation.

CONFIGURATION

After successful installation of the Wireless LAN Card's driver, a **Network Status** icon will display in the task bar. You will be able to access the Configuration Utility through the Network Status icon.

If the icon doesn't appear automatically, go to **Start → Programs → 802.11g WLAN → 802.11g WLAN Utility**, it will appear in the task bar.



The Network Status Icon

The **Network Status Icon** will display on the task bar of your desktop and show the current network connection status of your system.

Icon	Link Status
	Connected to network
	Connecting
	Driver not loaded
	Disconnected from network

Accessing the Configuration Utility

The Configuration Utility is accessed by clicking on the **Network Status Icon**.

All settings are categorized into 5 Tabs:

Main Tab

Advanced Tab

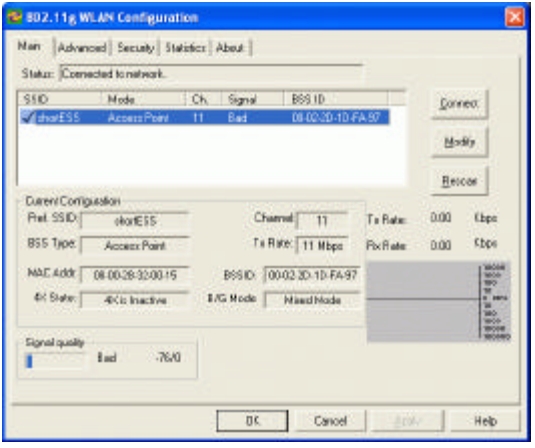
Security Tab

Statistics Tab

About Tab

Main Tab

The **Main** tab displays the current status of the Wireless Network Adapter.



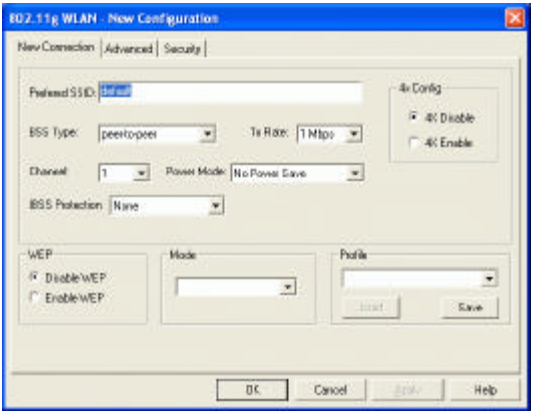
Item	Description
Status	Displays the information about the status of the communication.
SSID	The **SSID** is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting to connect to the same network. ✓ No WEP key With WEP key For TI-Based WLAN devices For TI-Based WLAN devices with WEP key
Mode	Displays the type of Basic Service Set, Access Point or Peer to Peer.
Ch	Displays the channel that is currently in use.

Item	Description
Signal	Displays the signal strength of the connection between the Wireless Network Adapter and the Access Point it connects to.
BBS ID	A set of wireless stations is referred to as a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.

Current Configuration

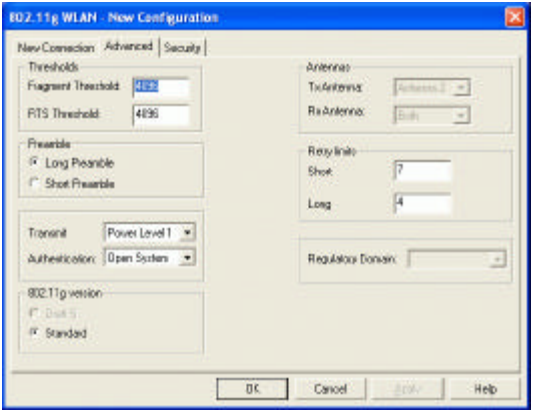
Pref. SSID	It shows the current SSID setting of the Wireless Network Adapter.
BSS Type	Displays the type of Basic Service Set, Access Point or Peer to Peer.
MAC Address	It shows the MAC Address of this device.
4X State	4x technology provides increased throughput in 802.11 Infrastructure and ad hoc networks. The technology only has been implemented in TI-Based WLAN devices
Tx Rate	Shows the current transfer rate.
Signal Quality	Displays the signal strength of the connection between the Wireless Network Adapter and the Access Point it connects.
BSSID	the BSSID of the Access Point to which the card is associated
B/G Mode	It displays the card mode you are currently using.(802.11b, 802.11b+, and 802.11g)

Connect	Highlight one of the device from the list area and press the Connect button to access it.
Modify	There will be three tabs for you to modify, see the detailed information on page 21.
Rescan	Searches for all available networks. Clicking on the button, the device will start to rescan and list all available sites.



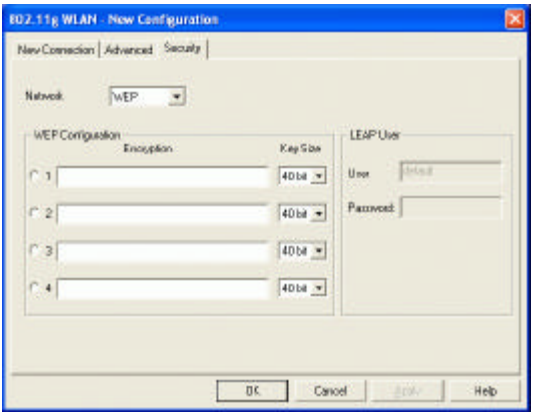
Preferred SSID	Type in the SSID name of the device you want to connect.
BSS Type	You can select **Peer-to-Peer**, **Access Point** or **Auto Mode** of the device you to connect.
Tx Rate	You can select the data rate or set to auto mode from the pull-down menu.
Channel	Select the channel depends on your country.
Power Mode	**No Power Save**：Select this function , the adapter will be in full active mode. **Max Power Save**：Select this function, the power save mode will be enabled.
IBSS protection	The 802.11g standard includes a protection mechanism to ensure mixed 802.11b and 802.11g operation. If there is no such kind of mechanism exists, the two kinds of standards may mutually interfere and decrease network' s performance. **CTS only**：Used only in the co-existing environment of 802.11b and 802.11g protection mechanism. **TI Protection**：For TI-Based WLAN devices
4x Config	Select to disable or enable the **TI-Based** 4x function.
WEP	Select to disable or enable WEP settings.
Mode	You can select **IEEE 802.11b**, **802.11b +** , **802.11g** standard or

	Mixed Mode (If you choose this option the device will automatically convert the suitable standard).
Profile	Enter the profile name and click the **Save** button to save your configuration, To open the profiles you saved, select the profile from the pull-down menu and then click the **Load** button.



Fragment Threshold	To fragment MSDU or MMPDU into small sizes of frames for increasing the reliability of frame (The maximum value of 4096 means no fragmentation is needed) transmission. The performance will be decreased as well, thus a noisy environment is recommended.
RTS Threshold	This value should remain at its default setting of **4096**. Should you encounter inconsistent data flow, only minor modifications of this value are recommended.
Preamble	A preamble is a signal used in wireless environment to synchronize the transmitting timing including Synchronization and Start frame delimiter. (**Note**: If you want to change the Preamble type into **Long** or **Short**, please check the setting of AP.)

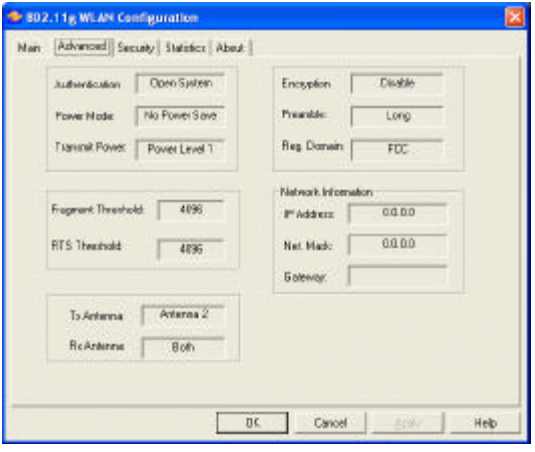
Transmit	The power level function is used to extend communication distance.
Authentication	The authentication type defines configuration options for the sharing of wireless networks to verify identity and access privileges of roaming wireless network cards. You may choose between **Open System**, **Shared Key**, and **Auto Switch**. **Open System:** If the Access Point is using "**Open System**" authentication, then the wireless adapter will need to be set to the same authentication type. **Shared Key**: **Shared Key** is when both the sender and the recipient share a secret key. **Auto Switch:** Select **Auto Switch** for the adapter to select the Authentication type automatically depending on the Access Point Authentication type.
Retry limits	You can set the number of retries if no acknowledgement appears from the receiving station.



Network	Configure your **WEP** or **LEAP** settings： **WEP (Wired Equivalent Privacy)** is a data security mechanism based on a 40 Bit/128 Bit/256 Bit shared key algorithm. **LEAP (Lightweight Extensible Authentication Protocol**). It provides user-based, centralized authentication, as well as per-user wired equivalent privacy (WEP) session keys.
WEP Configuration	To configure your WEP settings. **WEP (Wired Equivalent Privacy)** encryption can be used to ensure the security of your wireless network. Select one **Key** and **Key Size** then fill in the appropriate value/phrase in **Encryption** field. ***Note**: You must use the same **Key** and **Encryption** settings for the both sides of the wireless network to connect* **KEY1 ~ KEY 4**：You can specify up to 4 different keys to *decrypt* wireless data. Select the Default key setting from the radio button. **Encryption**：This setting is the configuration key used in accessing the wireless network via WEP encryption. A key of **10** hexadecimal characters (0-9, A-F) is required if a **64-bit Key Length** was selected. A key of **26** hexadecimal characters (0-9, A-F) is required if a **128-bit Key Length** was selected. A key of **58** hexadecimal characters (0-9, A-F) is required if a **256-bit Key Length** was selected. **Key Size**： **40 Bit**, **128 Bit** or **256 Bit**.
LEAP User	Network administers have been taking advantage of the simplified user and security administration that **LEAP** provides. Before the security authentication is started, you should enter the **user name** and **password** or the authentication process will fail.

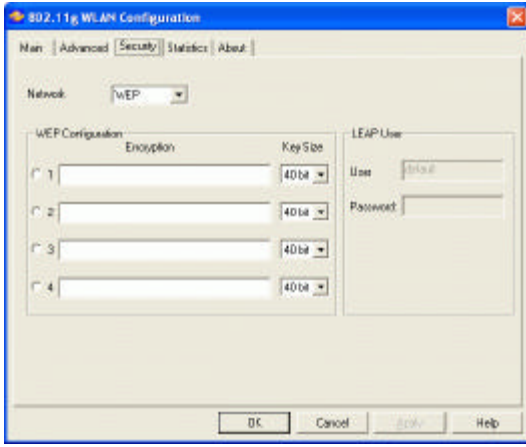
Advanced Tab

The **Advanced** tab displays the current status of the Wireless Network Adapter.



Security Tab

Use the **Security** Tab to configure your WEP settings. **WEP (Wired Equivalent Privacy)** encryption can be used to ensure the security of your wireless network.



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WEP Configuration

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	used in accessing the wireless network via WEP encryption. A key of **10** hexadecimal characters (0-9, A-F) is required if a **64-bit Key Length** was selected. A key of **26** hexadecimal characters (0-9, A-F) is required if a **128-bit Key Length** was selected. A key of **58** hexadecimal characters (0-9, A-F) is required if a **256-bit Key Length** was selected.
Key size	**40 Bit**, **128 Bit** or **256 Bit**.

LEAP User

Network administers have been taking advantage of the simplified user and security administration that **LEAP** provides.

Before the security authentication is started, you should enter the **user name** and **password** or the authentication process will fail.

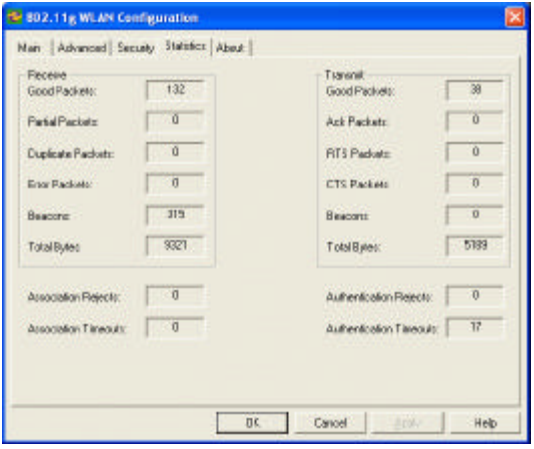
Statistics Tab

The **Statistics** Tab displays the available statistic information including

Receive packets, Transmit packets, Association reject packets,

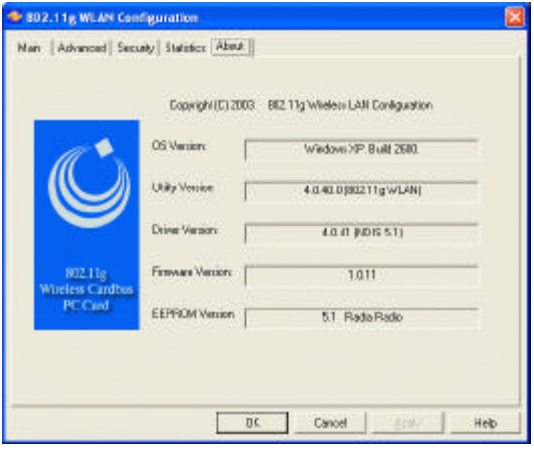
Association timeout packets, Authentication reject packets,

Authentication timeout packets.



About Tab

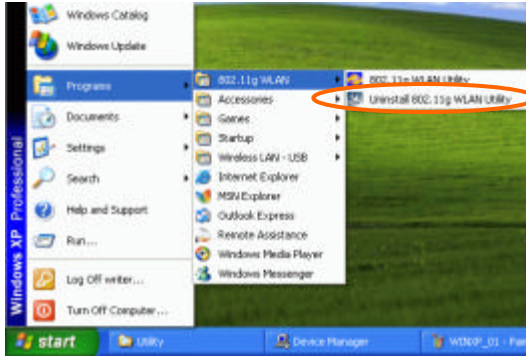
Click on the **About** tab to view basic version information about the **OS Version, Utility Version, Driver Version, Firmware Version** and **EEPROM Version**.


802.11g WLAN Configuration
Main
Advanced
Security
Statistics
About
Copyright (C) 2003 802.11g Wireless LAN Configuration
802.11g
Wireless Cardbus
PC Card
OS Version:
Windows XP Build 2600
Utility Version:
4.0.40.0 [802.11g WLAN]
Driver Version:
4.0.41 (NDIS 5.1)
Firmware Version:
1.011
EEPROM Version:
5.1 Radio Radio
OK
Cancel
Apply
Help

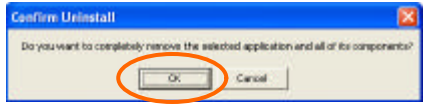
UNINSTALLATION

In case you need to uninstall the Utility and driver, please refer to below steps. (As you uninstall the utility, the driver will be uninstalled as well.)

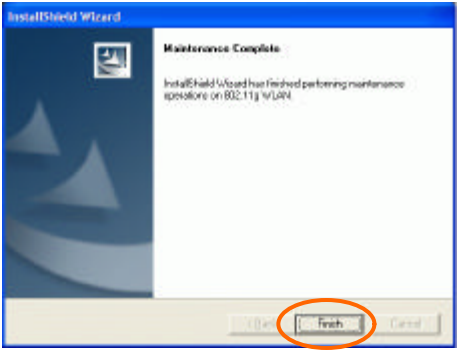
1. Go to **Start → Programs → 802.11g WLAN → Uninstall 802.11g WLAN Utility**.



2. Click **OK** to continue.



3. Select **Yes, I want to restart my computer now**, and then click **Finish** to complete the uninstalled procedure.


InstallShield Wizard
Maintenance Complete
InstallShield Wizard has finished performing maintenance operations on 802.11g WLAN.
Finish