802.11g

Wireless LAN Card

User's Manual

Doc. No.:120903-01

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

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

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 mu12st 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 needed.
Consult the dealer or an experienced radio/TV technician for help.

Channel

The Wireless Channel sets the radio frequency used for communication.

Access Points use a fixed Channel. You can select the Channel used. This allows you to choose a Channel which provides the least interference and best performance. In the USA and Canada, 11 channel are available. If using multiple Access Points, it is better if adjacent Access Points use different Channels to reduce interference.

- In "Infrastructure" mode, Wireless Stations normally scan all Channels, looking for an Access Point. If more than one Access Point can be used, the one with the strongest signal is used. (This can only happen within an ESS.)
- If using "Ad-hoc" mode (no Access Point), all Wireless stations should be set to use the same Channel. However, most Wireless stations will still scan all Channels to see if there is an existing "Ad-hoc" group they can join.

CAUTION:

1) To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.
2) This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device is intended only for OEM integrators under the following conditions:

1) The antenna must be installed such that 20 cm is maintained between the antenna and users. For laptop installations, the antenna must be installed to ensure that the proper spacing is maintained in the event the users places the device in their lap during use (i.e. positioning of antennas must be placed in the upper portion of the LCD panel only to ensure 20 cm will be maintained if the user places the device in their lap for use) and
2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as the 2 conditions above are met, further transmitter testing will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

IMPORTANT NOTE: Intheeventthat these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in devices where the antenna may be installed such that 20 cm may be maintained between the antenna and users (for example access points, routers, wireless ASDL modems, certain laptop configurations, and similar equipment). The final end product must be labeled in a visible area with the following: "Contains TX FCC ID: MQ4WMG2400".

RF Exposure Manual Information That Must be Included

The users manual for end users must include the following information in a prominent location "IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter

Additional Information That Must be Provided to OEM Integrators

This device can only installed on the PCI card by the OEM or the OEM integrator. Installation instructions are not allowed to be provided to the end user.

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INTRODUCTION

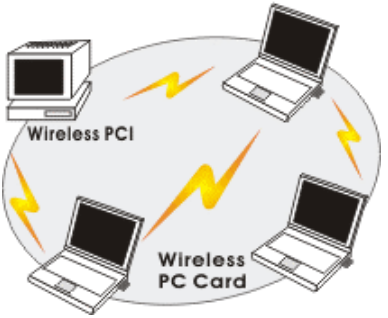
The **802.11g Wireless LAN Card** is a device that allows you connect your computer to a wireless local area network (LAN). A wireless LAN allows your system to use wireless Radio Frequency (RF) technology to transmit and receive data without having to physically attach to the network. The Wireless protocols 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.

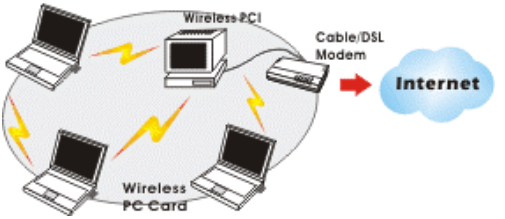
Wireless Network Options

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.

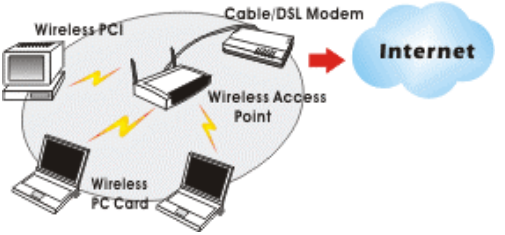


You can also use one computer as an Internet Server to connect to a wired global network and share files and information with other computers via a wireless LAN.



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 For Wireless CardBus Card

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 Driver & Utility**" has been performed.

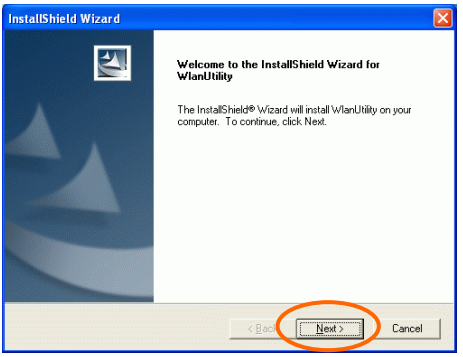
Install the Driver & Utility

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

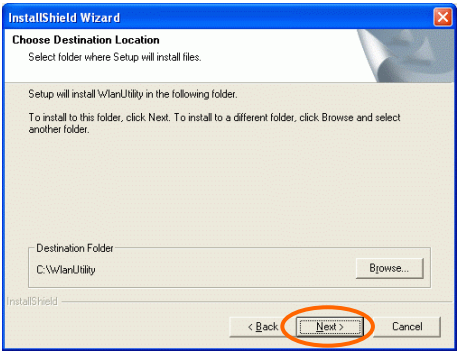
   If the CD-ROM is not launched automatically, go to your CD-ROM drive (e.g. drive D) and double-click on **Setup.exe.**

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

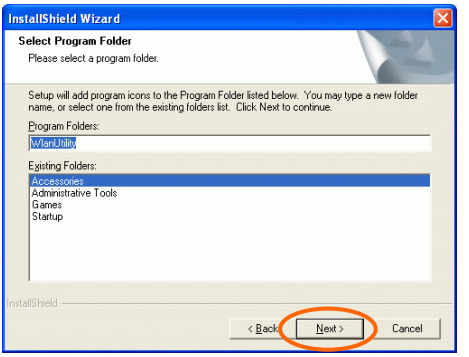
5. When the Welcome screen appears, click **Next** to continue.



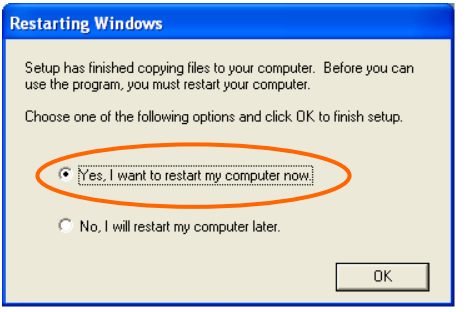
6. The **Choose Destination Location** screen will show you the default destination chosen by the utility. Click **Next** to continue.



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



8. Select **Yes, I want to restart my computer now** and click **OK** 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.

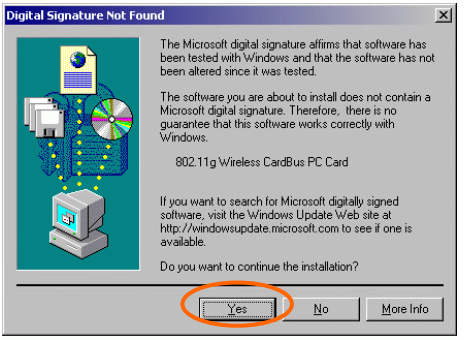
Note for Windows 98 users:

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.

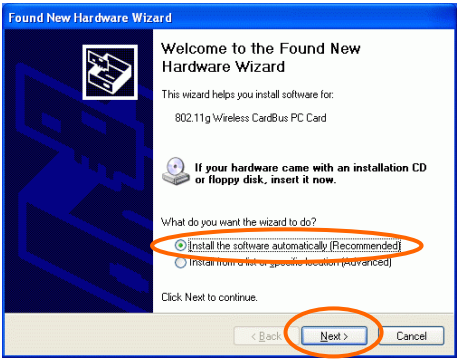
Note for Windows 2000 users:

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

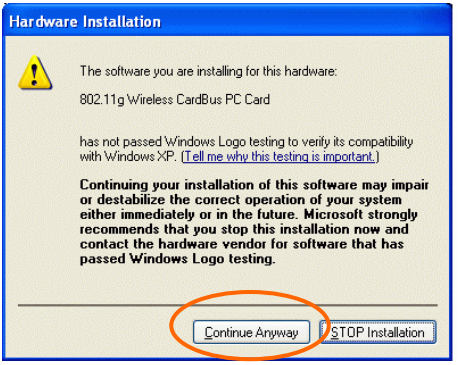


Note for Windows XP users:

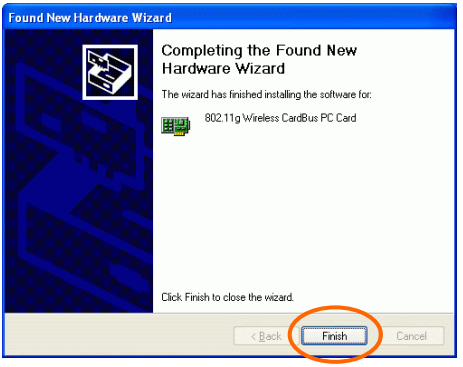
1. Select **Install the software automatically (Recommended)** and click **Next.**



3. Click **Continue Anyway.**



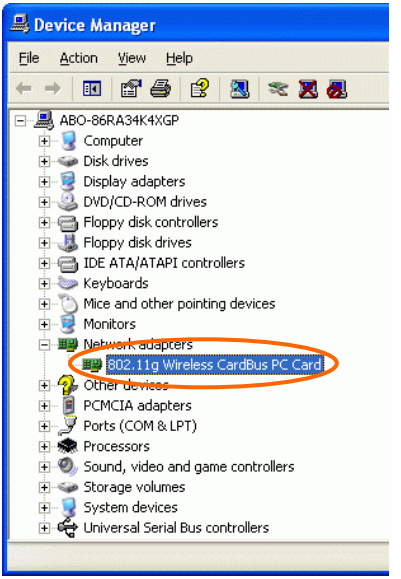
4. Click **Finish** to complete the installation.



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.

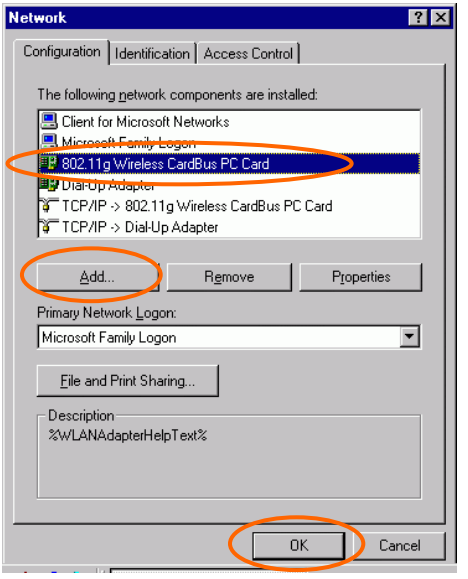


NETWORK CONNECTION

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

In Windows 98/ME

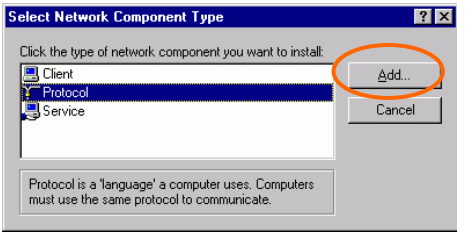
1. Go to **Start → Settings → Control Panel → Network**.
2. Make sure that you have all the following components installed.



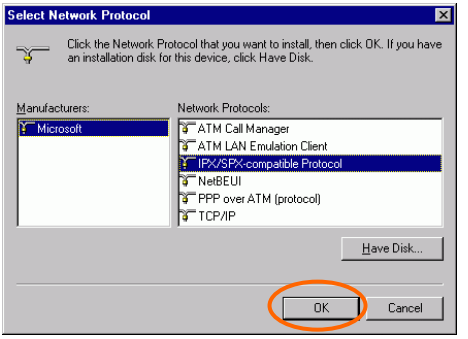
- **802.11g Wireless PCI / CardBus PC Card**
- **IPX/SPX-compatible Protocol**
- **NetBEUI**
- **TCP/IP**

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**.

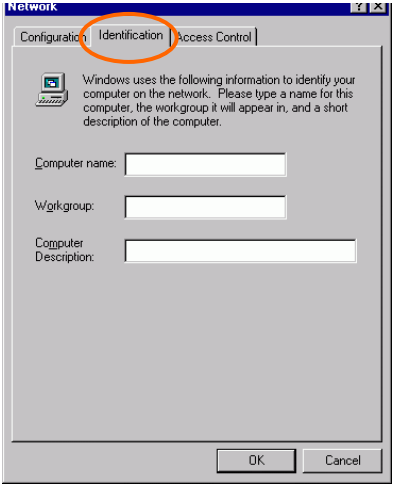


4. Highlight **Microsoft**, and then double click on the item you want to add. Click **OK**.

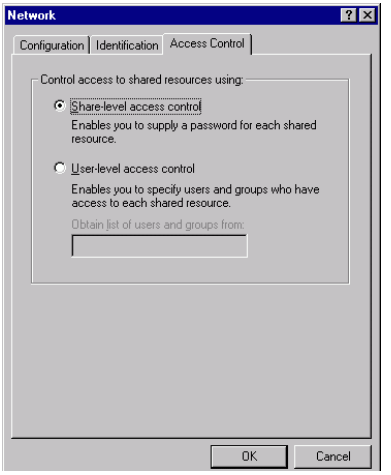


After returning to the Network screen, you can make your computer is visible on the network by enabling the **File and Print Sharing**.

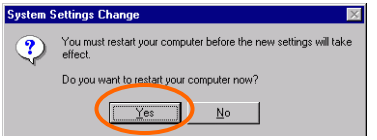
5. Click the **Identification** tab. Enter a name that is unique on the network. Type the name of your workgroup, which should be the same name used by all of the other PCs on the network.



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.



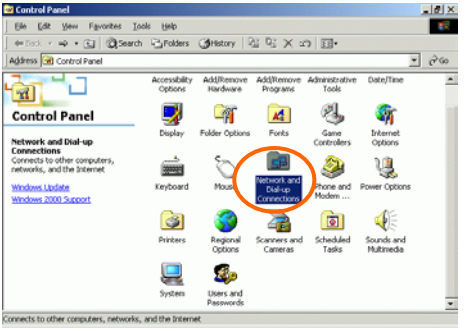
8. Once the computer has been rebooted, a **Logon** window will appear and will require you to enter a username and password. Enter a username and password and click **OK**. Do not click the **Cancel** button, or you won't be able to log onto the network.
9. Double-click the **Network Neighborhood**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

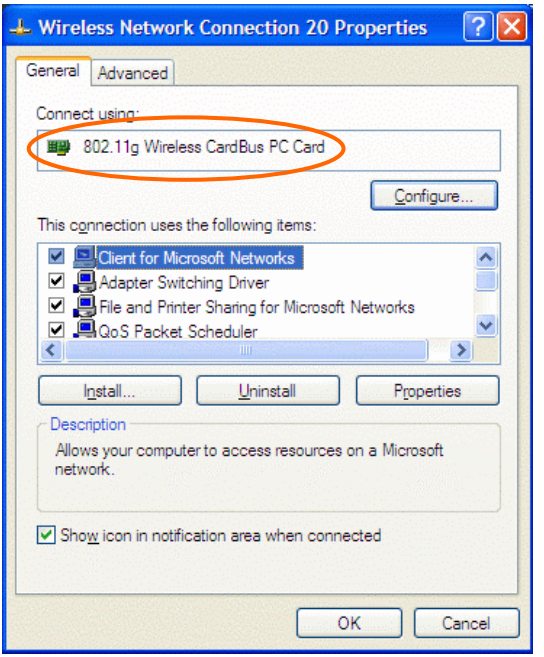
In Windows 2000/XP

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**.

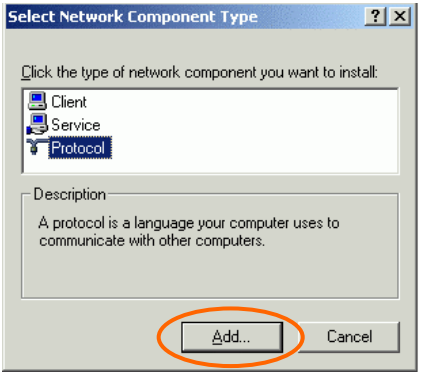




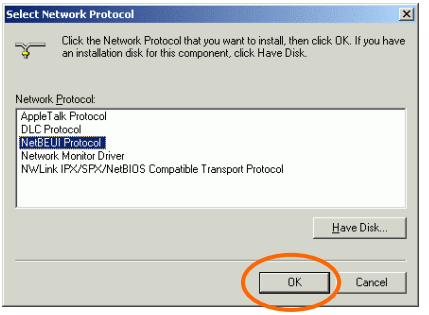
2. Make sure that you have all the following components installed.
   - **Client for Microsoft Networks**
   - **NWLink NetBIOS**
   - **NWLink IPX/SPX/NetBIOS Compatible Transport Protocol**
   - **Internet Protocol (TCP/IP)**

   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, the utility 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 → WlanUtility → Wireless LAN Utility**, it will appear in the task bar.

Accessing the Configuration Utility

All settings are categorized into 5 Tabs:

Main Tab

Advanced Tab

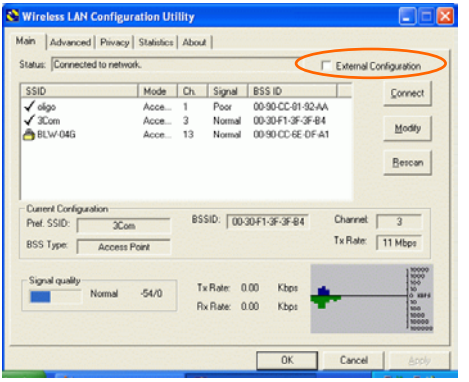
Privacy Tab

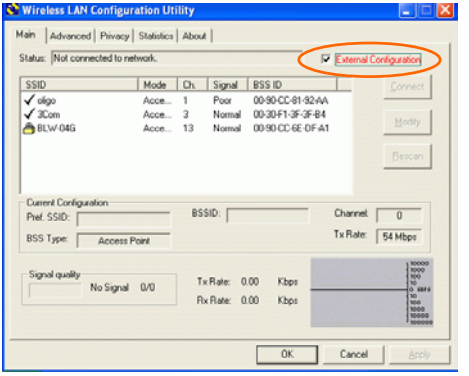
Statistics Tab

About Tab

Main Tab

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





Item	Description
External Configuration	To **Enable** or **Disable** the manufacturer's configuration utility： **Enable** ： Check this item to use Windows XP build-in

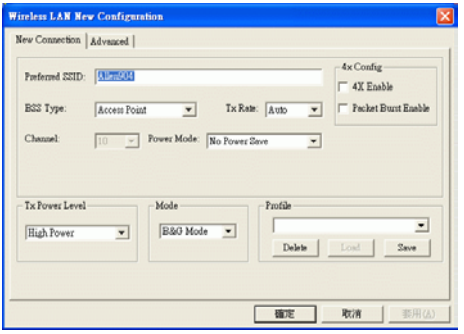
Item	Description
	utility or other manufacturers', such as Funk, Odyssey client utility. **Disable** ：Left this item unchecked to use the utility we provide.XP's built-in utility
Status	Displays the information about the status of the communication.
SSID	The **SSID** is the unique name shared among all 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.
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.
Channel	Shows the selected channel that is currently used. (There are 14 channels available, depends on the country.)
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.

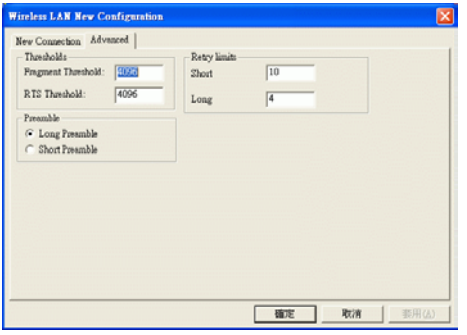
BSSID	the BSSID of the Access Point to which the card is associated

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.
4x Config	Select to disable or enable the **TI-Based** 4x function.
Packet Burst Enable	Enable this function（if the device you connect supports Packet Bursting Mode） to increase the efficiency of your network.

Mode	You can select **IEEE 802.11b(B-Only)**, **802.11b +(B-Plus)** , **802.11g (G-Only)**standard or **B&G** 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. To delete the profiles you saved, select the profile from the pull-down menu and then click the **Delete** button.
Tx Power Level	Transmit power level, includes **Low Power**, **Medium-Low Power**, **Medium Power**, **Medium-High Power**, **High Power**

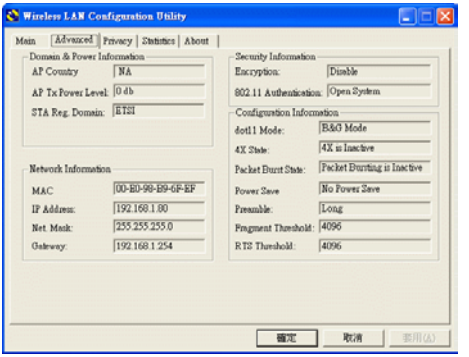


Fragment Threshold	To fragment MSDU or MMPDU into small sizes of frames for increasing the reliability of frame (The maximum value of 4096 means no fragmentation is needed) transmission. The performance will be decreased as well, thus a noisy environment is recommended.
RTS Threshold	This value should 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.)
Retry limits	You can set the number of retries if no acknowledgement appears from the receiving station.

Advanced Tab

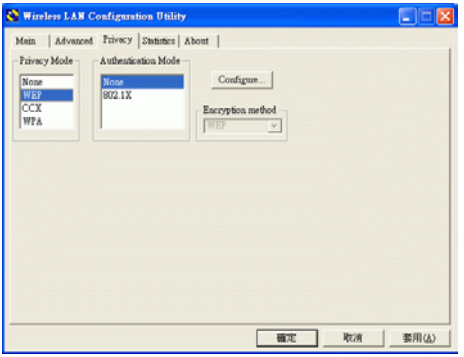
The **Advanced** tab displays the current status of the Wireless Network Adapter.



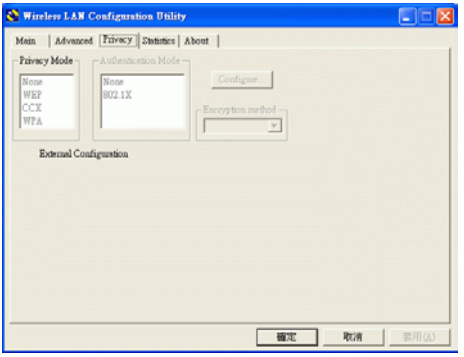
Privacy Tab

Use the **Privacy** Tab to configure your WEP, CCX and WPA settings. **WEP (Wired Equivalent Privacy), CCX（Cisco Compatible Extension）and WPA（WiFi Protected Access）**encryption can be used to ensure the security of your wireless network.

If you left **External Configuration** unchecked in the Main tab (see page 18), functions in the following figure will be enabled.



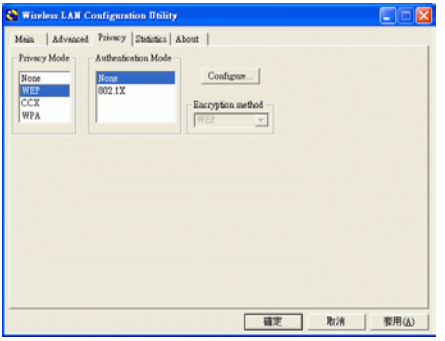
If you checked **External Configuration** in the Main tab (see page 18), functions in the following figure will be disabled.



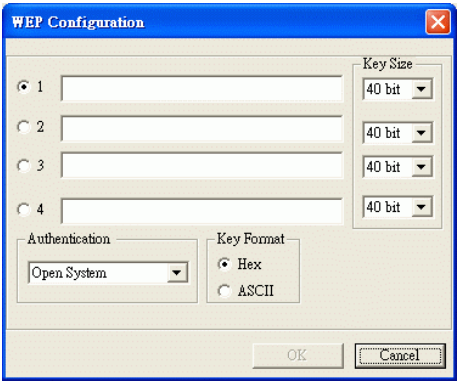
Privacy Mode	Configure your **NONE, WEP**, **CCX, 802.1x and WPA** settings： **NONE**：No security defined. **WEP (Wired Equivalent Privacy)** is a data security mechanism based on a 40 Bit/128 Bit/256 Bit shared key algorithm. Press the **Cofigure** button to change WEP configuration. **CCX（Cisco Compatible Extension）.** It

	provides user-based, centralized authentication, as well as per-user wired equivalent privacy (WEP) session keys. Press the **Configure** button to change CCX configuration. The **802.1X Configuration** window is used to configure WEP, CCX and WPA security with 802.1X authentication. **WPA（WiFi Protected Access）**encryption can be used to ensure the security of your wireless network.

WEP Configuration



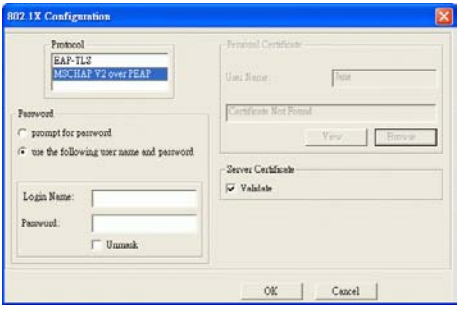
None：



Encryption 1-4	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) or **5** characters (ASCII) is required if a **64-bit Key Length** was selected. A key of **26** hexadecimal characters (0-9, A-F) or 13 characters (ASCII) is required if a **128-bit Key Length** was selected. A key of **58** hexadecimal characters (0-9, A-F) or **29** characters (ASCII) is required if a **256-bit Key Length** was selected.
Key size	**40 Bit**, **128 Bit** or **256 Bit**.

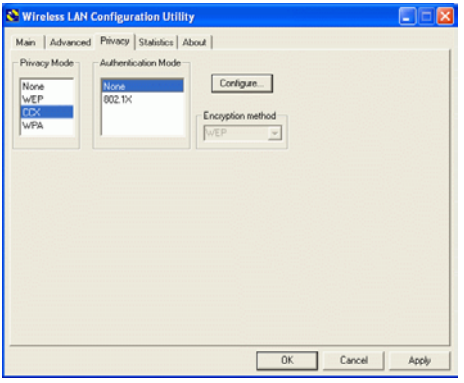
802.1x Configuration

The **802.1X Configuration** window is used to configure WEP, CCX and WPA security with 802.1X authentication.



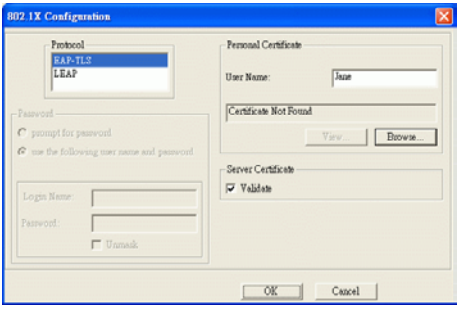
Protocol	This panel enables you to select an authentication protocol.
Password	This panel is available when EAP-TLS is not selected (either MSCHAP V2 over PEAP is selected with WEP or LEAP is selected for CCX). This panel enables you to enter a login name and password or request that the driver prompt for them when you connect to a network.
Personal Certificate	This panel is available when EAP-TLS protocol is selected and enables you to select a certificate for authenticating the station.
User Name	Type in the user name assigned to the certificate.
Browse	Select a certificate by clicking **Browse**.
Server Certificate	You can select to enable or disable server certificate.

CCX Configuration



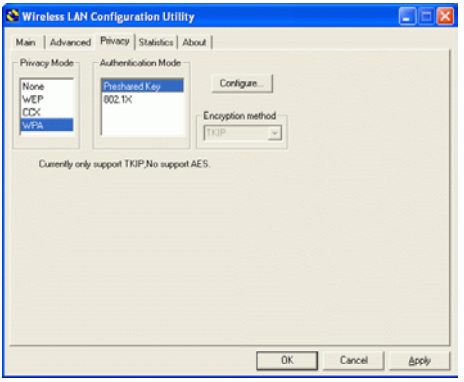
None：You may refer to page 25(WEP Configuration).

802.1x：

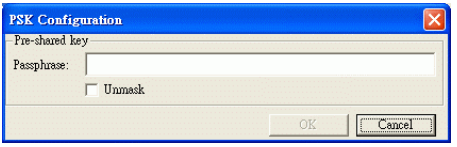


EAP-TLS	EAP-TLS is a mutual authentication method, which means that both the client and the server prove their identities.
LEAP	Network administers have been taking advantage of the simplified user and security administration that **LEAP** provides. Before the security authentication is started, you should enter the **user name** and **password** or the authentication process will fail.

WPA settings

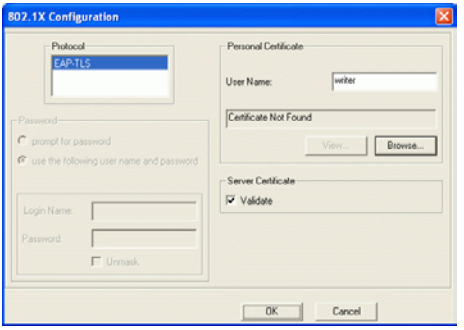


Preshared Key：



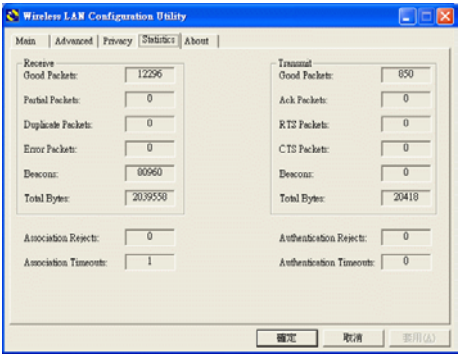
Passphrase：Enter the key that you are sharing with the network for the WLAN connection.

802.1x：You may refer to page 25(802.1x Configuration).



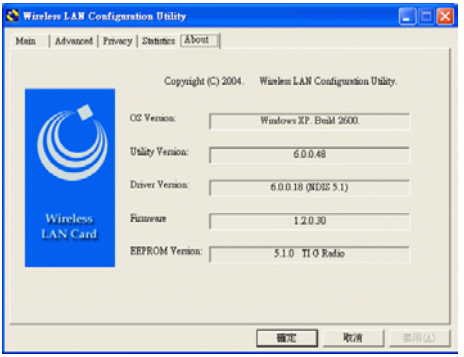
Statistics Tab

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**.

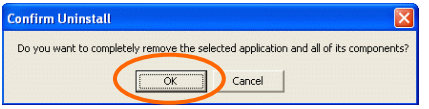


UNINSTALLATION

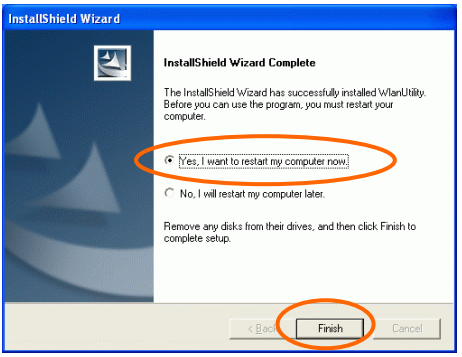
In case you need to uninstall the Utility and driver, please refer to below steps. (As you uninstall the utility, the driver will be uninstalled as well.)

1. Go to **Start → Programs →WLanUtility → Uninstall Wireless LAN 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
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed WlanUtility. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel