

802.11g

Wireless LAN Card

User's Manual

Federal Communication Commission Interference Statement

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

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

IMPORTANT NOTE:**FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

AboCom declared that WPG2401 is limited in CH1~11 from 2400 to 2483.5 MHz by specified firmware controlled in USA.

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INTRODUCTION

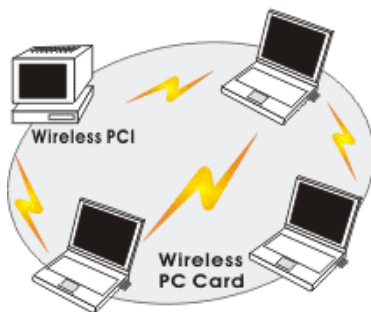
The **802.11g Wireless LAN Card** is a device that allows you connect your computer to a wireless local area network (LAN). A wireless LAN allows your system to use wireless Radio Frequency (RF) technology to transmit and receive data without physically attaching to the network. The Wireless protocols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

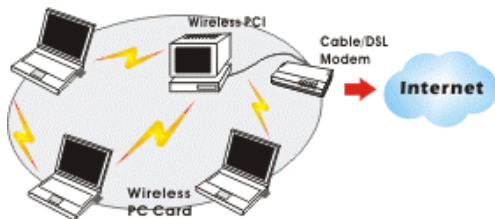
Wireless Network Options

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.

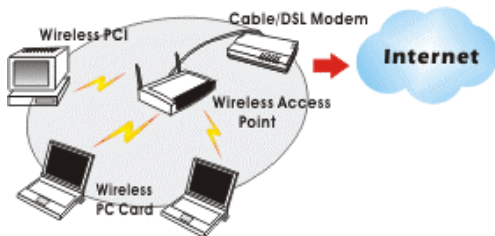


You can also use one computer as an Internet Server to connect to a wired global network and share files and information with other computers via a wireless LAN.



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)

The power LED will appear as solid orange when the Wireless PC card is connected with an AP. If the Wireless PC card is not connected with an AP, the power LED will be blank.

Act Indicator: (Green LED)

The Act LED will be blinking green 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 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**.

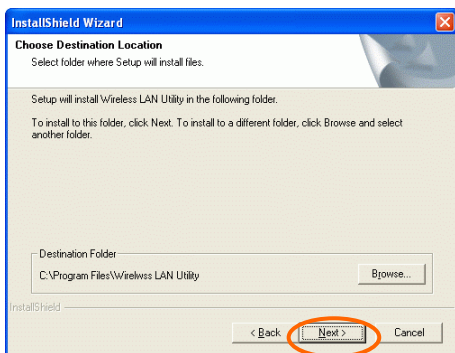
4. The main screen of the CD-ROM opens. Click **Install Driver & Utility** to start the installation.



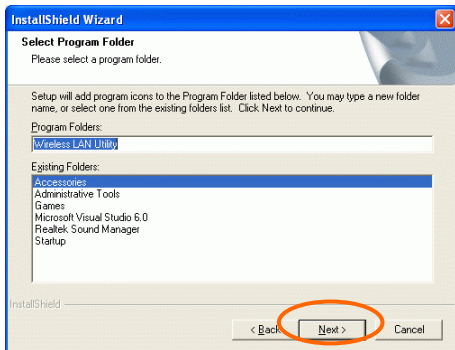
5. When the Welcome screen appears, click **Next** to continue.

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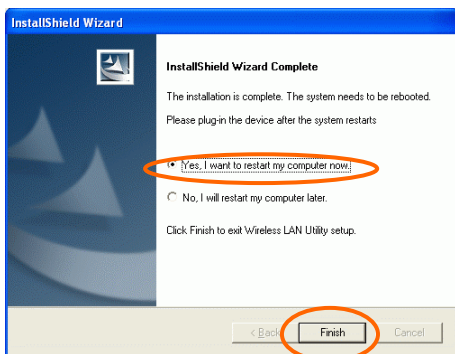
6. The **Choose Destination Location** screen will show you the default destination chosen by the utility. Click **Next** to continue.



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



9. Select **Yes, I want to restart my computer now** and click **Finish** to complete the software installation.



Install the device¹

Note: Make sure the procedures in “**Install 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:

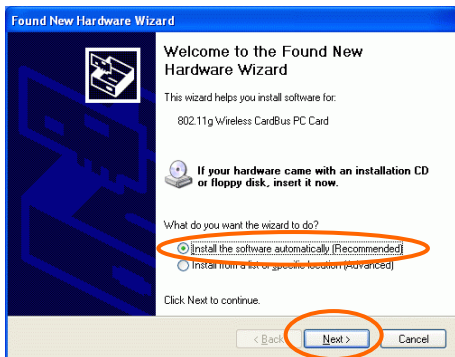
Before installation of the device, make sure you have your operating system CD-ROM at hand. You may be asked to insert the OS CD-ROM in order to download specific drivers.



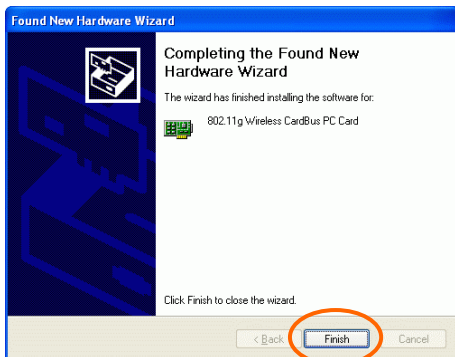
¹ If you are using the Wireless PCI Card, the product descriptions shown on the screen will differ from the illustrations shown in this document. Please discard the discrepancy and follow the installation procedures to continue anyway.

Note for Windows XP users:

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

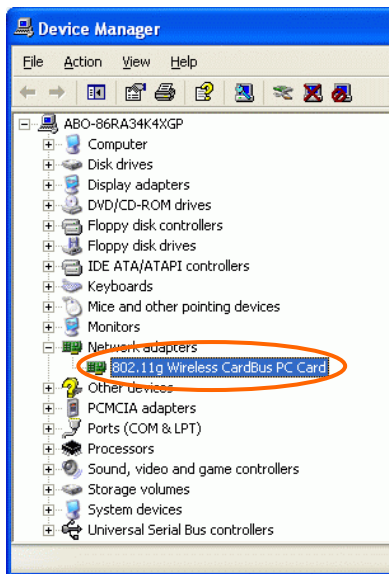


4. Click **Finish** to complete the installation.



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.

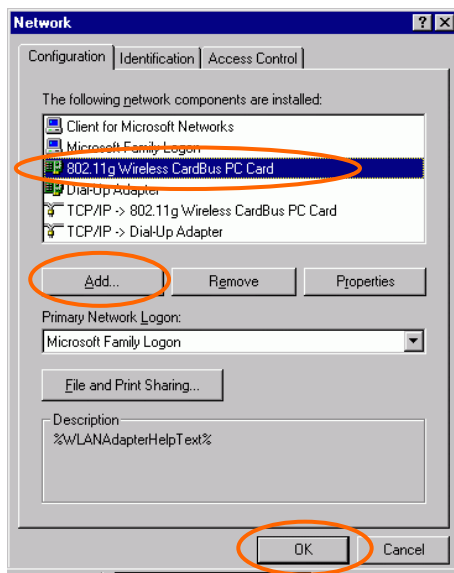


NETWORK CONNECTION

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

In Windows 98/ME

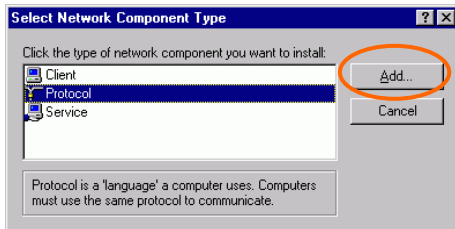
1. Go to **Start → Settings → Control Panel → Network**.
2. Make sure that you have all the following components installed.



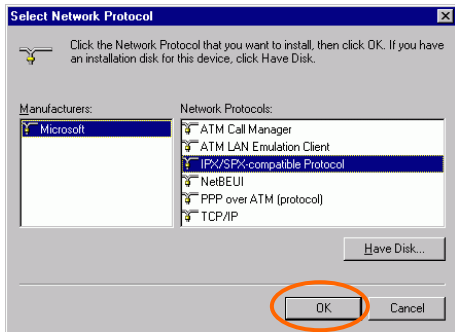
- 802.11g Wireless PCI / CardBus PC Card
- IPX/SPX-compatible Protocol
- NetBEUI
- TCP/IP

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**.

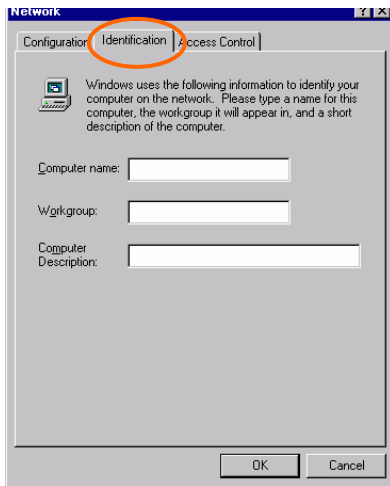


4. Highlight **Microsoft**, and then double click on the item you want to add. Click **OK**.

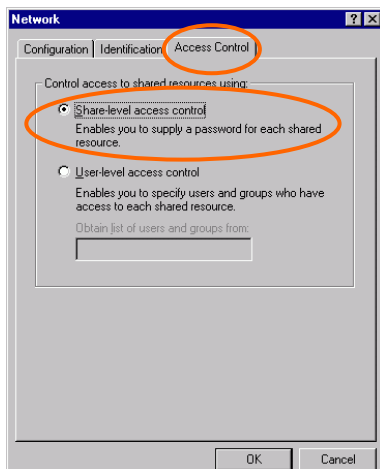


After returning to the Network screen, you can make your computer is visible on the network by enabling the **File and Print Sharing**.

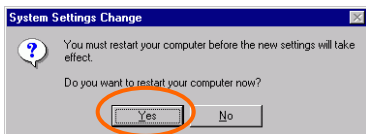
5. Click the **Identification** tab. Enter a name that is unique on the network. Type the name of your workgroup, which should be the same name used by all of the other PCs on the network.



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.

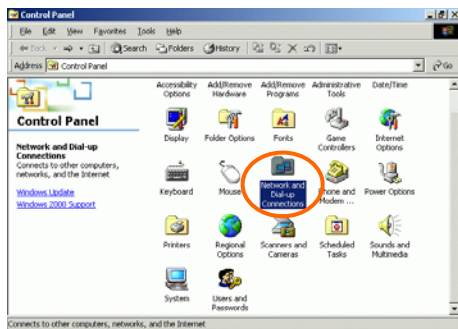
In Windows 2000/XP

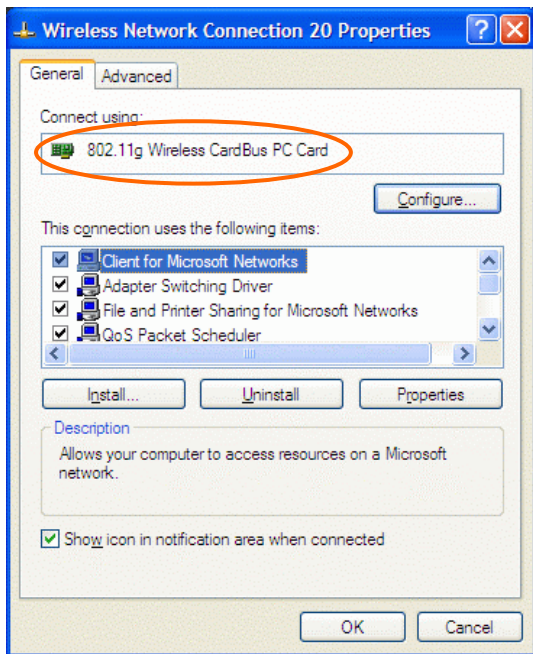
1. (In Windows 2000)

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**.



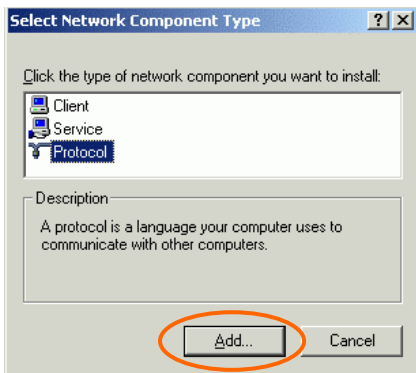


2. Make sure that you have all the following components installed.

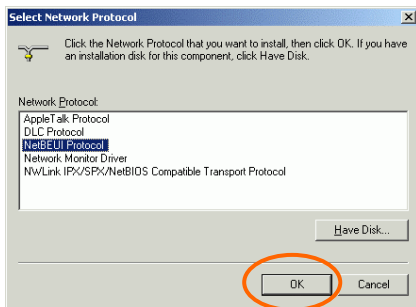
- **Client for Microsoft Networks**
- **NWLink NetBIOS**
- **NWLink IPX/SPX/NetBIOS Compatible Transport Protocol**
- **Internet Protocol (TCP/IP)**

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.



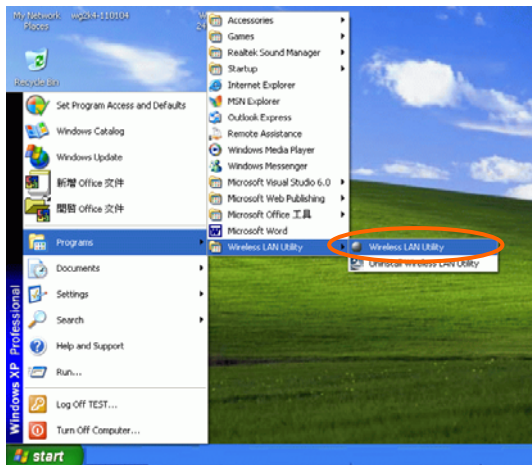
5. To allow your computer to be visible on the network, make sure you have checked off the **File and Printer Sharing for Microsoft Networks**.
6. When finished, you must restart your computer to complete the installation.

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



Accessing the Configuration Utility

All settings are categorized into 4 Tabs:

Main Tab

Profile Manager Tab

Information Tab

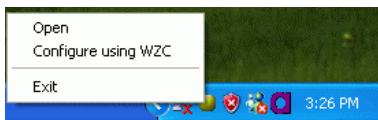
About Tab

Main Tab

The main tab enables you to scan for available networks, select a network to which to connect, modify the settings for the current connection, or set up your station for Ad Hoc connection.

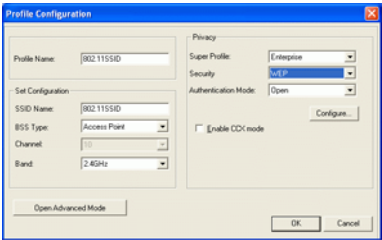


Note : Only one configuration utility can be active at a time. When the ZCU is set to be the active utility, opening the TI utility—by double-clicking on the utility icon in the system tray or right-clicking the icon and selecting Open—launches the ZCU instead of the TI utility.



Configure using Windows Zero Config.	External Configuration Checkbox (Windows XP only): A checkbox that enables you to disable the WLAN Station Configuration Utility and indicates that the station driver is to be configured with Windows XP's built-in Zero Configuration Utility (ZCU). On Windows XP systems, the ZCU service is automatically stopped when the WLAN utility is installed. The ZCU is started when you check the Configure using Windows Zero Configuration checkbox. The checkbox is only displayed on Windows XP systems.
Profile name	The profile name that is currently connected.
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. ✔ Indicates that the network does not require special security settings and access rights in order to connect to it (that is, you can connect to the network by setting the station's privacy mode to None and authentication mode to None.) 🔒 Indicates that the network requires special security settings and access rights in order to connect to it. 🚫 Indicates a hidden network which is not

	broadcasting its SSID. The SSID for such networks are listed as < Hidden Network >. In order to connect to such a network, you must know the network's SSID.
BBS ID	The MAC address for the Access Point or station.
Current Tx Rate	It displays the currently connected rate.
Channel	The channel that is currently connected.
BSS type	The type of connection, either Access Point or Peer-to-Peer.
Tx Rate /Rx Rate	The actual instantaneous transmit and receive rates, in Mbps.
Signal quality	The signal strength from the network Access Point or station. The strength is displayed in three formats: a signal quality level (one of five levels, from Bad to Best), a numerical value in dBm, and a signal quality bar graph with a scale of -82 to -10.

Connect	Highlight one of the devices from the list area and press the Connect button to access it.  Profile Name : Enter the profile name you wish to have. Set Configuration : The Set Configuration area contains the following fields SSID Name : The SSID for the current profile BSS Type : The BSS type, either peer-to-peer or Access Point Channel : The preferred channel on which to make a connection (available for peer-to-peer connections only)
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Band : The band on which to make a connection.

Super Profile : Determines the security settings available to you, and can be one of the following:

Personal: Enables only the basic security settings that you are likely to need at home.

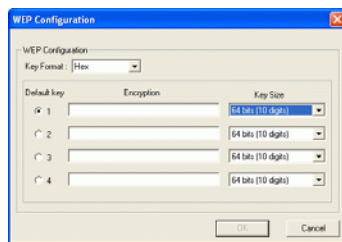
Enterprise: Enables all security settings, including more complex certificate-based settings that you may need in an office.

Security : Determines the type of security to use for this connection, and can be one of the following:

- ♦ **None**
- ♦ **WEP**
- ♦ **WPA2**
- ♦ **Any WPA**

WEP : WEP (Wired Equivalent Privacy) is a data security mechanism based on a 64 Bit/128 Bit/256 Bit shared key algorithm.

Press the **Configure** button to change WEP configuration.



Note: You must use the same **Default Key #**, **Key Size**, and **Encryption Key** on both the host and destination devices in order to establish a connection.

KEY1 ~ KEY 4 : You can specify up to 4 different keys, but only one can be used at a time.

Encryption : Enter the key value in this field.

A key of **10** hexadecimal characters (0-9, A-F) is required if a **64-bit Key Size** is selected.

A key of **26** hexadecimal characters (0-9, A-F) is required if a **128-bit Key Size** is selected.

A key of **58** hexadecimal characters (0-9, A-F) is required if a **256-bit Key Size** is selected.

WPA2 & Any WPA : (**WiFi Protected Access**) is more secure than WEP, and should be used if possible.

Authentication Mode : Determines the type of authentication to use for this connection.

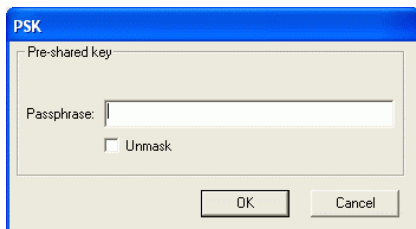
With **Super Profile** set to **Personal**, this field can be one of the following:

Open : If your access point/wireless router is using "Open" 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 automatically select the appropriate

PSK : In the **Passphrase** field, enter the key that you are sharing with the network for the WLAN connection. By default, the key that you type is masked with asterisks (*). To view the key that you entered, check **Unmask**.



With **Super Profile** set to **Enterprise**, this field can also be one of the following:

TLS

PEAP – MS-CHAP-V2 (only with CCX mode enabled)

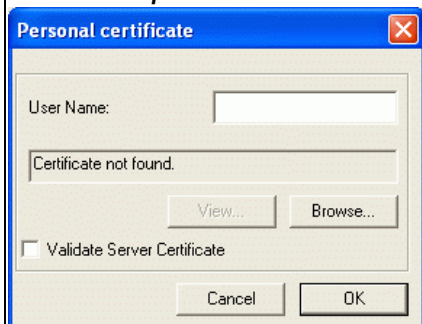
PEAP – GTC (only with CCX mode enabled)

LEAP (only with CCX mode enabled)

The *Personal Certificate* window enables you to supply a personal certificate for use with TLS and PEAP – MS-CHAP-V2 authentication.

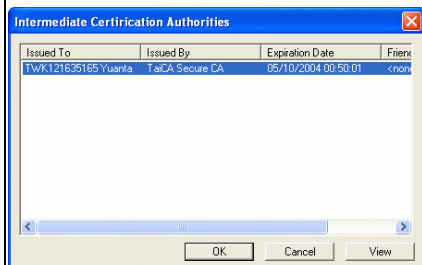
This window is only applicable with Enterprise security.

Personal Certificate :



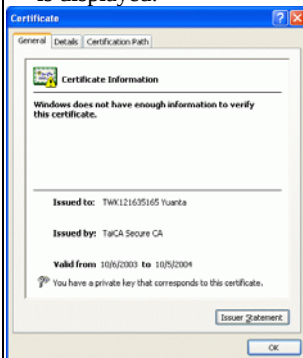
To supply a personal certificate:

1. In the **User Name** field, type in the user name assigned to the certificate.
2. Select a certificate by clicking **Browse**. The standard Windows *Select Certificate* window is displayed:



3. Select a certificate from the list, and click **OK**. The name of the certificate is displayed in the textbox in

- the middle of the *Personal Certificate* window.
4. To view the certificate, click **View**. The certificate is displayed:



The *Password* window enables you to supply a login name and password for use when selecting LEAP or PEAP – GTC authentication.



To specify a user name and password:

1. Select the appropriate radio button to indicate whether:
 - ♦ You are supplying a user name and password now.
 - ♦ The utility prompts you for them each time you try to connect to a network.
2. To provide a user name and password now, enter them in the fields provided.

Not all values for **Authentication Mode** are available

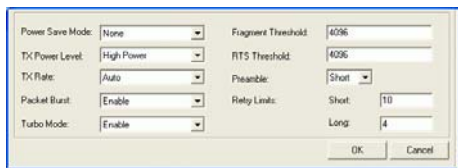
for all **Security** settings.

Enable CCX mode : Enables connections in CCX mode. When checked, additional authentication modes are available.

This checkbox is only enabled when **Super Profile** is set to **Enterprise**.

Configure : Click **Configure** to open the configuration window.

Open Advanced Mode : Click **Open Advanced Mode** to configure the following screen :

A screenshot of a configuration window titled 'CCX Configuration'. It contains several settings: 'Power Save Mode' is set to 'None'; 'TX Power Level' is set to 'High Power'; 'TX Rate' is set to 'Auto'; 'Packet Burst' is set to 'Enable'; 'Turbo Mode' is set to 'Enable'; 'Fragment Threshold' is set to '4096'; 'RTS Threshold' is set to '4096'; 'Preamble' is set to 'Short'; 'Retry Limits' are set to 'Short: 10' and 'Long: 4'. At the bottom right are 'OK' and 'Cancel' buttons.

Power Save Mode: Indicates whether to use power saving. This field can be one of the following:

- ◆ **None** : No power save mode.
- ◆ **Max** : Max power save mode.

TX Power Level: The transmit power level, which can be one of the following:

- ◆ **Low Power** (6% of full power)
- ◆ **Medium-Low Power** (12%)
- ◆ **Medium-Power** (25%)
- ◆ **Medium-High Power** (50%)
- ◆ **High Power** (100%)

TX Rate: The preferred rate of transmission, in Mbps. The options for this field are based on the selected band and channel,

Packet Burst: Indicates whether the Packet Bursting feature is enabled.

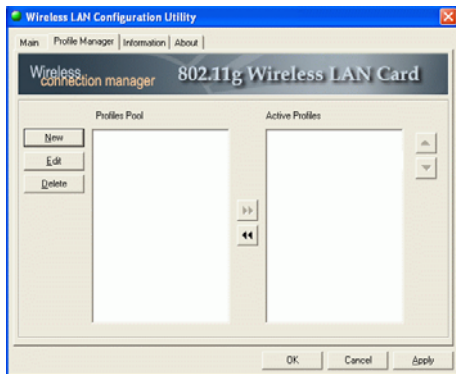
Turbo Mode: Indicates whether the 4X feature is enabled.

Fragment Threshold: The maximum fragment length, in bytes. The value is an even number from 256 to 4096 (default is 4096).

	RTS Threshold: The minimum packet length for sending an RTS frame, in bytes. The value must be greater than 0 (default is 4096). Preamble: Either short or long Retry limits: The number of retries to attempt, if necessary, when sending a frame. There are two Retry limits fields: Short: For frames without an RTS frame Long: For frames with an RTS frame To hide the advanced fields, click Close Advanced Mode. OK : When the configuration is done, click OK to save. Cancel : Click Cancel to discard changes.
Rescan	Searches for all available networks. Clicking on the button, the device will start to rescan and list all available sites.
Configure	Click Configure to modify the settings for the profiles with the SSID of the selected network. If no profile exists, the Profile Configuration window is displayed so that you can create a profile. The Profile Name field is blank If no profile exists, the Profile Configuration window is displayed so that you can modify its settings.
OK	Click OK to save your settings.
Cancel	Click Cancel to discard changes.
Apply	Click Apply to save any changes to profiles and connection settings.

Profile Manager Tab

The Profile Manager enables you to create, modify and delete the profiles that the station uses to connect to WLAN networks, to activate and de-activate profiles, and to raise and lower a profiles's priority.



All profiles are displayed in one of the following lists:

Profiles Pool: A list of inactive profiles, that is, profiles that cannot currently be used for making a connection.

Active Profiles: A list of active profiles, that is, profiles that can be used for making a connection.

Each profile in the **Active Profiles** list has a priority based on its location in the list. The higher in the list, the higher the profile's priority.

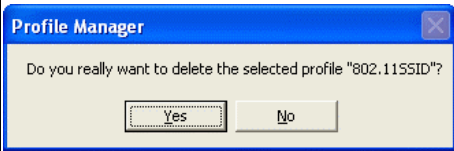
When the station tries to connect to a network with a specific SSID, the station first tries to connect to the network using the profile with the highest priority (that is, the profile highest in the list of active profiles) that is set to the selected SSID. If the station cannot connect using the first profile, the station tries to connect using the next-highest profile, and so forth.

Likewise, when the station loses the connection with the current network, the station tries to make a connection with any available network for which a profile exists. The station first tries to connect to a network using the profile with the highest

priority. If the station cannot connect using the first profile, the station tries to connect using the next-highest profile, and so forth.

To move a profile up one spot in the **Active Profiles** list, select the profile by clicking on it, and then click .

To move a profile down one spot in the **Active Profiles** list, select the profile by clicking on it, and then click .

New	Click New to create a new profile. The new profile is inactive and is added to the Profiles Pool list.
Edit	Click Edit to edit an exiting profile.
Delete	Click Delete to delete the profile that is currently selected in the Profile Manager tab. The following confirmation dialog box is displayed : 
OK	Click OK to save any changes to profiles and connection settings, and then minimizes the utility to the Windows system tray
Cancel	Click Cancel to discard any changes to profiles and connection settings, and then minimizes the utility to the Windows system tray.
Apply	Click Apply to save any changes to profiles and connection settings.

Information Tab

The **Information** tab displays information maintained by the driver, such as the number of packet errors and the total number of bytes received or transmitted. The

tab also displays information about the current connection, as well as network information about the station. The statistics are for the period starting when you last connected to a network. The statistics are refreshed at least twice a second.



Connection Status	Indicates whether the station is currently connected to a network. This is the same connection status as displayed on the Main tab.
Duration	The time since the station last connected to a network.
Receive / Transmit Statistics	All information is for the period starting when you last connected to a network, except for Beacons, which is for the period starting when you installed the driver.
Connection Information	Information about association and authentication attempts with the currently selected network, as well as some connection settings.
Network Information	Network information, such as the IP address, of the station.

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**.

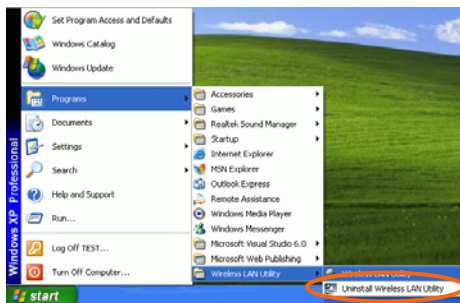


UNINSTALLATION

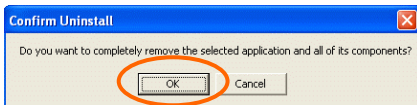
In case you need to uninstall the Utility and driver, please refer to below steps.

(As you uninstall the utility, the driver will be uninstalled as well.)

1. Go to **Start → Programs → Wireless LAN Utility → Uninstall Wireless LAN Utility**.



2. Click **OK** to continue.



3. Click **Finish** to complete the uninstalled procedure.