802.11g

Wireless LAN MINI PCI Card

User's Manual

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

CAUTION:
This device is intended only for OEM integrators under the following conditions:
The antenna must be installed such that 20 cm is maintained between the antenna and users, and
The transmitter module may not be co-located with any other transmitter or antenna.
As long as 2 conditions   above are met, further transmitter test 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:
In the event that 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.
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. 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.

LABELING REQUIREMENT FOR OEM INTEGRATOR:
This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users
The final end product must be labeled in a visible area with the following: "Contains TX FCC ID: MQ4WMG2501".

Note for Installation (MQ4WMG2501)

The attached antenna cable has to be connected on the port shown below for Tx/Rx.

Port for Tx/Rx

# Table of Contents

INTRODUCTION

The **802.11g Wireless LAN MINI PCI 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 MINI PCI, you can share files and printers between each PC and laptop.
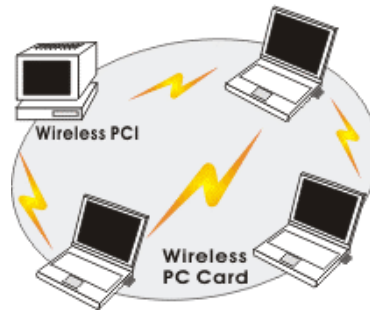
You can also use one computer as an Internet Server to connect to a wired global network and share files and information with other computers via a wireless LAN.
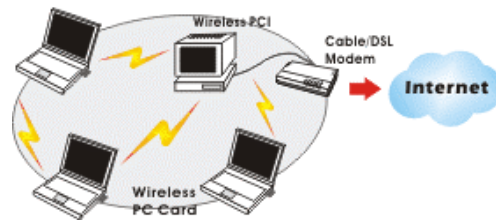
The Access Point Network

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**.
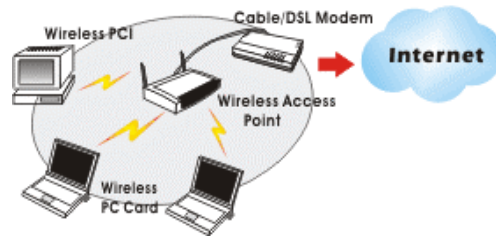
INSTALLATION

Install the device

1. Make sure the computer is turned off. Remove the expansion slot cover from the computer.
2. Carefully slide the Wireless MINI PCI Card into the MINI PCI slot. Push evenly and slowly and ensure it is properly seated, 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.

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.
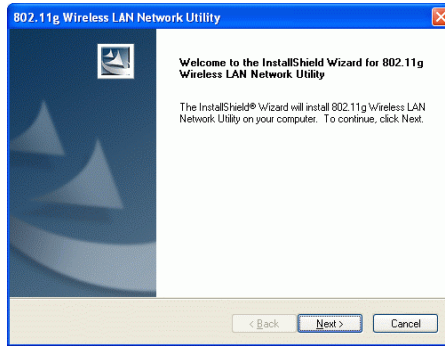

Install the Driver & Utility

1. 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.**

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

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

6. Select **Yes, I want to restart my computer now** and click Finish to complete the software installation.
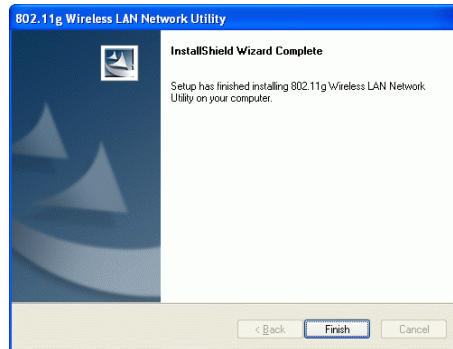
Verify Device Installation

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 LAN MINI PCI Card** is listed, it means that your device is properly installed and enabled.
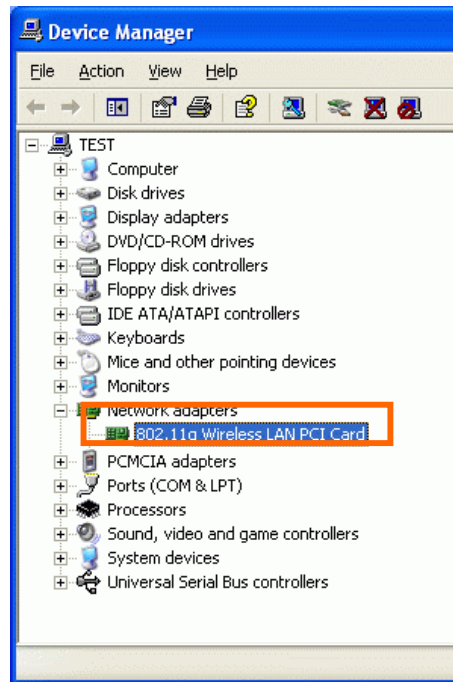
CONFIGURATION

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 → 802.11g Wireless LAN MINI PCI Card Driver and Utility → Wireless LAN MINI PCI Card Utility**, it will appear in the task bar.

Accessing the Configuration Utility

All settings are categorized into 5 Tabs:
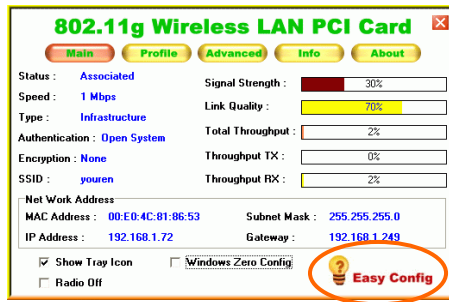**Main Tab**
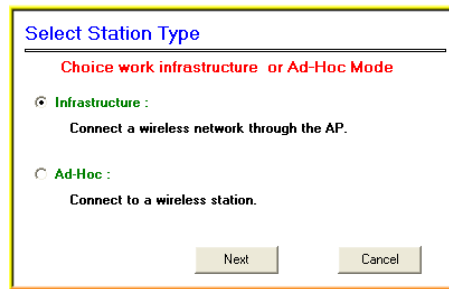**Profile Manager Tab**
Advanced Tab
Info Tab
About Tab

Easy Config

1. In the **Main** tab, click **Easy Config** on the right down corner to start quick configuration.
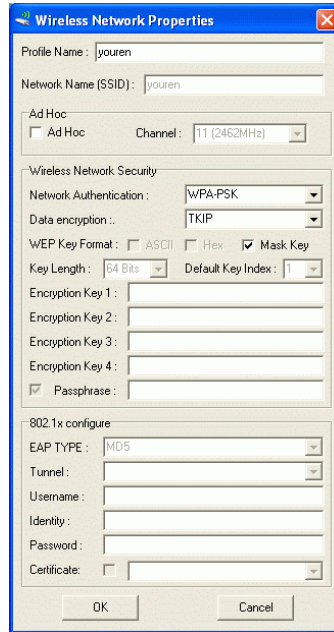

2. Select the wireless connection type, either **Infrastructure** or **Ad-Hoc**. Click **Next** to continue.

3. Select a wireless station on the list, and click **Next** to configure its settings.
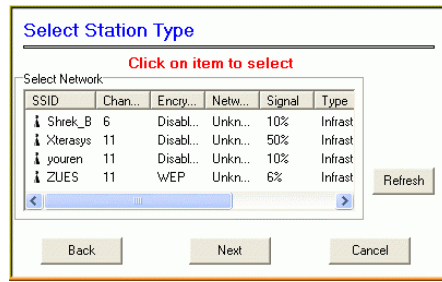
The following screen will appear for you to configure, for detailed configuration, please refer to **Profile Manager** tab in the later selection.

4. Configure the network TCP/IP, you may select **DHCP** to obtain an IP address automatically or select **Manual** to set an IP address. Click **Next** to continue.

5. Select **DNS Auto** to obtain DNS automatically or select **Manual** to set the primary and secondary DNS. Click Finish to complete the **Easy Config** procedure.

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.
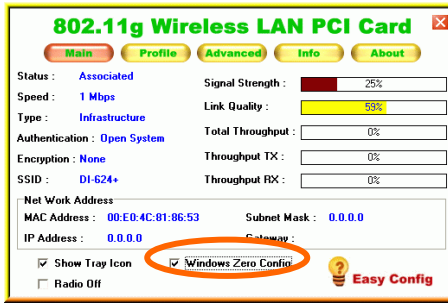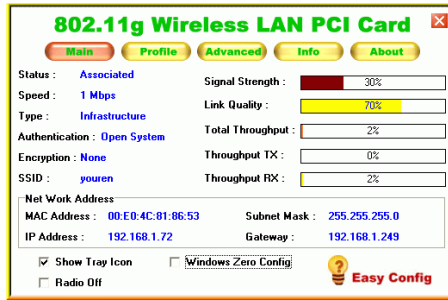
Status	Shows the current connection status.
Speed	Shows the connection speed.
Type	Shows the wireless connection type.
Authentication	Shows the authentication type.
Encryption	Shows the encryption type.

|	
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.
Signal Strength	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.
Link Quality	Shows the link quality percentage.
Total Throughput	Shows the total throughput percentage.
Throughput TX	The actual instantaneous transmitting rates.
Throughput RX	The actual instantaneous receiving rates.
Network Address	
MAC Address	The MAC address of this wireless adapter.
IP Address	The IP address of this wireless adapter.
Subnet Mask	The subnet mask of this wireless adapter.
Gateway	The default gateway address of the adapter.
☐ **Show Tray icon**	Place a check in the check box to show the utility icon in the tray.
☐ **Radio Off**	Place a check in the check box to disable the radio function.
☐ **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 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' priority.
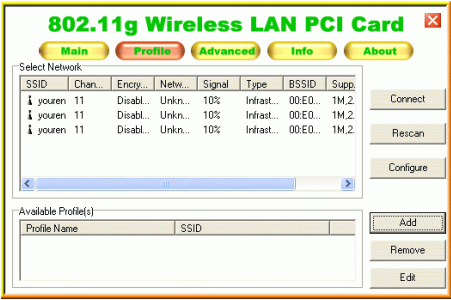
Connect	Select a wireless device that you want to connect with and click **Connect** to make a connection. The wireless device you have connected will be added into the **Available Profile(s)** field below.
Rescan	Click **Rescan** to refresh the wireless device list.
Configure	Click Configure to set up the detailed configuration.

Add	Click **Add** to add a wireless device into the Available Profile(s) field below.
Remove	Select a wireless device that listed in the **Available Profile(s)** field and then click Remove to delete it.
Edit	Select a wireless device in the **Available Profile(s)** field and then click **Edit** to change its configuration.

Add	Click **Add** to add a wireless device into the Available Profile(s) field below.
Remove	Select a wireless device that listed in the **Available Profile(s)** field and then click Remove to delete it.
Edit	Select a wireless device in the **Available Profile(s)** field and then click **Edit** to change its configuration.

The following configuration screen will appear if you just click Connect, Configure or Add buttons.
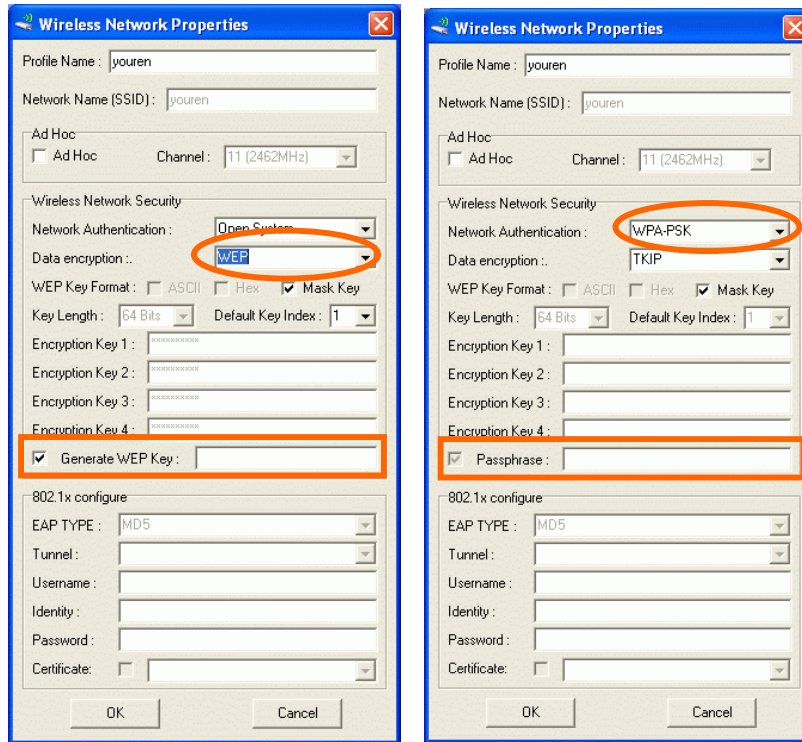
Note:

WEP: If **WEP** is selected, you can either input Encryption Key #1~4 or check the **Generate WEP Key** and enter a WEP, the system will automatically generate.

WPA-PSK/WPA2-PSK: If **WPA-PSK/WPA2-PSK** is selected, enter the Passphrase in the column.
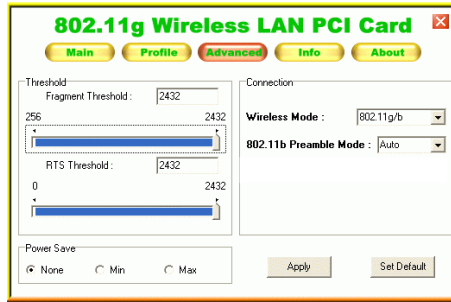
Profile Name	You may enter the preferred profile name in this column.
Network Name (SSID)	The SSID for the current profile.
Ad Hoc	
☐ **Ad Hoc**	Place a check in the check box to enable the Ad Hoc function. This mode allows wireless-equipped computers to communicate directly with each other. No access point is used. **Note**: **Infrastructure**: The infrastructure allows wireless and wired networks to communicate through an access point.
Channel	Select the channel (Channel 1-11) from the pull-down list.
Wireless Network Security	
Network Authentication	The authentication type defines configuration options for the sharing of wireless networks to verify identity and access privileges of roaming wireless network cards. Select the Network Authentication from the pull-down list. **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. **WPA-PSK/WPA2-PSK**: In the **Passphrase** field, enter the key (8~63 characters, case sensitive.) 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 M**ask Key**. **WPA 802.1x /WPA2 802.1x**: Require setting up a RADIUS sever for authentication, RADIUS server manager will assign the username and password.

Data encryption	Select the data encryption from the pull-down menu, either TKIP or AES.
WEP Key Format	☐ **ASCII:** ASCII (American Standard Code for Information Interchange), the standard for assigning numerical values to the set of letters in the Roman alphabet and typographic characters. ☐ **HEX**: HEX (Hexadecimal): numbers from 0 to 9 and letters from A to F. ☐ **Mask Key**: Place a check in the check box to enable the Unmask Key function, this function is for concealing the WEP key.
☐ **Passphrass**	Instead of manually entering WEP keys, you can enter a Passphrase, so that a WEP key is automatically generated. It is case-sensitive and should not be longer than 16 alphanumeric characters. This Passphrase must match the Passphrase of your wireless network.
Key Length	Select the key length from the pull-down menu, either 64Bit or 128 Bit. If you are using 64-bit WEP encryption, then the key must consist of exactly ten hexadecimal characters. If you are using 128-bit WEP encryption, then the key must consist of exactly 26 he xadecimal characters. Valid hexadecimal characters are "0" to "9" and "A" to "F".
Default Key Index	Select the default key index from the pull-down menu.
Encryption1~4	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) 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.
802.11x configure	
EAP TYPE	Select the EAP TYPE from the pull-down list. Including MD5, GTC, TLS, LEAP, TTLS and PEAP.
Tunnel	Select the tunnel from the pull-down menu, including CHAP, MSCHAP, MSCHAP-V2, PEAP and EAP-MD5.
Username	Type in the user name assigned to the certificate.
Identity	Enter the identity in this column.
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.
Certificate	Please query your network manager about the certificate, select the same certificate as the certification server.
OK	Click **OK** to save the configuration.
Cancel	Click **Cancel** to exit the configuration screen.

Advanced Tab

The **Advanced** tab displays the current status of the Wireless MINI PCI Card.

Threshold	
Fragment Threshold	The mechanism of Fragmentation Threshold is used to improve the efficiency when high traffic flows along in the wireless network. If your 802. Wireless LAN Adapter often transmit large files in wireless network, you can enter new Fragment Threshold value to split the packet. The value can be set from 256 to 2346. The default value is **2346**.
RTS Threshold	RTS/CTS Threshold is a mechanism implemented to prevent the "**Hidden Node**" problem. If the "Hidden Node" problem is an issue, users have to specify the packet size. *The RTS/CTS mechanism will be activated if the data size exceeds the value you set.*. The default value is **2347**. This value should remain at its default setting of **2347**. Should you encounter inconsistent data flow, only minor modifications of this value are recommended.
Power Save	
None Min Max	**None**: Select **None** will disable the power save function. **Min**: Select **Min** will adjust the power save function as the minimum value. **Max**: Select **Max** will adjust the power save function as

	the maximum value.
Connection	Wireless Mode: Select **802.11b** or **802.11g/b** from the pull-down menu. 802.11b Preamble Mode: A preamble is a signal used in wireless environment to synchronize the transmitting timing including Synchronization and Start frame delimiter. Select from the pull-down menu to change the Preamble type into **Auto**, **Long** or **Short**.
Apply	Click Apply to save current changes.
Set Default	Click Set Default to restore default settings.

Info Tab

The **Info** 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.

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**.
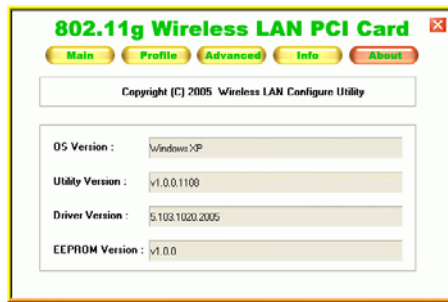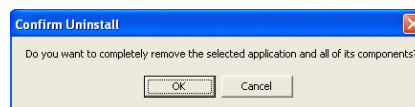
UNINSTALLATION

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 → (All) Programs →802.11g Wireless LAN MINI PCI Card Driver and Utility → Uninstall.**

2. Click **OK** to continue.

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