802.11 a/b/g

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

This device complies with Part 15 of 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 interfaerence received, including interference 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 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.

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 and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter**.**

If this device is going to be operated in 5.15 ~ 5.25GHz frequency range, then it is restricted in indoor environment only.

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is still responsible for the FCC compliance requirement of the end prouduct which integrates this module.

20cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

USERS MANUAL OF THE END PRODUCT:
In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual:
This device complies with Part 15 of FCC rules. Operationis 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.

LABEL OF THE END PRODUCT:
The final end product must be labeled in a visible area with the following " Contains TX FCC ID: MQ4WM3210 ".
If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of 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.

Note: This module has two antenna connectors with receiver diversity function.
Only 1 antenna will be attached in CON2 port for transmission/receiving mode
in both 2.4GHz/5GHz frequency.

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INTRODUCTION

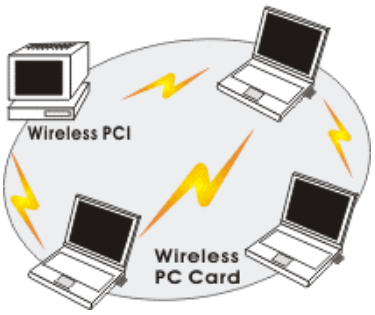
The **802.11a/b/g Wireless LAN PCI Card** is a device that allows you connect your computer to a wireless local area network (LAN). A wireless LAN allows your system to use wireless Radio Frequency (RF) technology to transmit and receive data without physically attaching to the network. The Wireless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

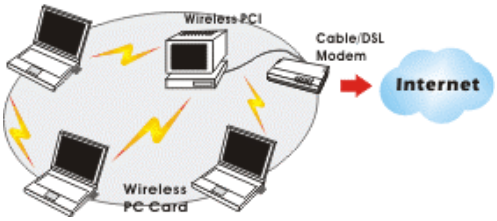
Wireless Network Options

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 PCI, you can share files and printers between each PC and laptop.

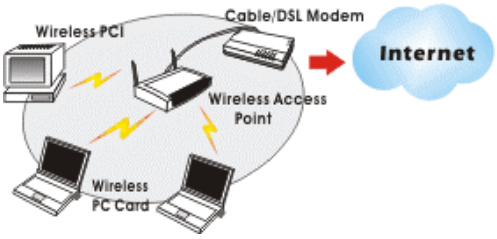


You can also use one computer as an Internet Server to connect to a wired global network and share files and information with other computers via a wireless LAN.



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

Hardware Installation

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.
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.

Software Installation

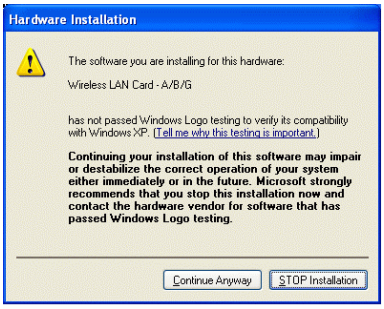
1. Exit all Windows programs. Insert the CD-ROM into the CD-ROM drive of your computer.

   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 License Agreement screen appears, view the contents and then click **Yes** to continue.

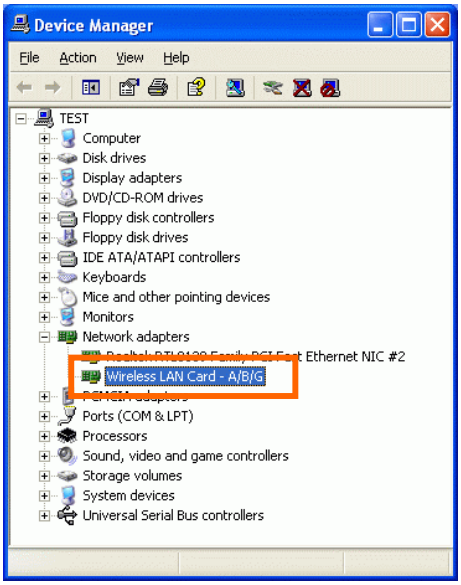
4. Click Continue Anyway to continue the software installation.



5. Click **Finish** to complete the software installation.

Device Installation Verification

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 **Wireless LAN Card – A/B/G** 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 → Wireless Utility → Wireless Utility**, it will appear in the task bar.

Accessing the Configuration Utility

All settings are categorized into Six Tabs:

Profile Tab

Link Status Tab

Site Survey Tab

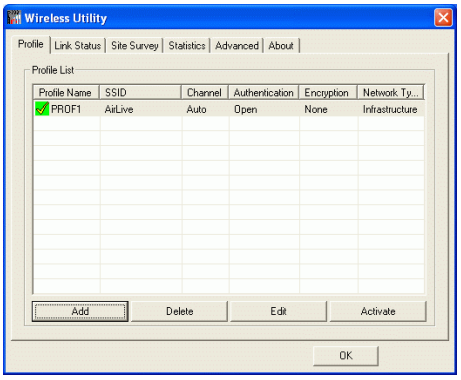
Statistics Tab

Advanced Tab

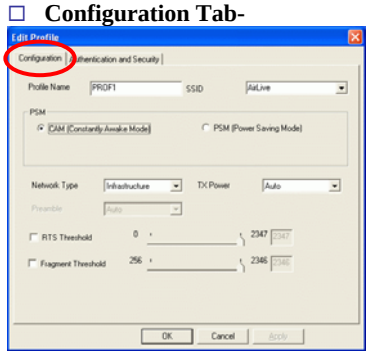
About Tab

Profile Tab

Profiles can bookkeeping your favourite wireless settings among your home, office, and other public hotspots. You may save multiple profiles, and activate the correct one by your preference.



Profile	
Profile Name	Show the profile names that are saved in your profile page. The default profile name is PROF1, PROF2.
SSID	The SSID for the current profile.
Channel	The channel that is currently used.
Authentication	Shows the network authentication in use.

Encryption	Shows the encryption type of the profile.
Network Type	Shows the Network type of the profile.
Add	Click the **Add** button to add up a new profile into the list and configure your profile settings. ☐ **Configuration Tab-**  **Profile Name**: The default profile name is PROF1, you can modify it at will. **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. **PSM**: • **CAM (Constantly Awake Mode)** - When this mode is selected, the power supply will be normally provided even when there is no throughput. • **PSM (Power Saving Mode)** - When this mode is selected, this device will stay in power saving mode even when there is high volume of throughput. **Network Type**: • The **infrastructure** is intended for the connection between wireless network cards and an Access Point. With the wireless adapter, you can connect wireless LAN to a wired global network via an **Access Point** • The **Ad-hoc** lets you set a small wireless workgroup easily and quickly. Equipped with the wireless adapter, you can share files and printers between each PC and laptop.

Tx Power: Select the Tx Power percentage from the pull-down menu, including 100%, 75% and 50%

Preamble: 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 **Long** or **Short**.

RTS Threshold: The minimum packet length for sending an RTS frame, in bytes. The value must be greater than 0 (default is 2347)

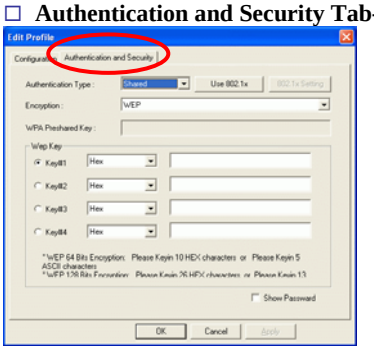
Fragment Threshold: The maximum fragment length, in bytes. The value is an even number from 256 to 2346 (default is 2346).

OK: Click to save and exit the current page.

Cancel: Click to exit the current page.

Apply: Click to apply and save the current settings.

☐ **Authentication and Security Tab-**



Authentication Type: Select an Authentication Type from the pull-down menu, including Open, Shared, LEAP, WPA, WPA-PSK, WPA2 and WPA2-PSK.

- **Shared- Shared Key** is when both the sender and the recipient share a secret key.
- **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.
- **LEAP-** (only with CCX mode enabled)
- **WPA-PSK-** WPA-PSK offers two encryption methods, TKIP and AES. Select the type of algorithm. **TKIP** or

AES and then enter a WPA Shared Key of 8-63 characters in the **WPA Preshared Key** field.

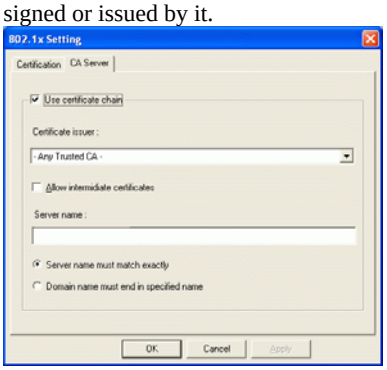
- **WPA/WPA2-**

Use 802.1x: Click to enable 802.1x function, to configure the RADIUS Server setting, click the **802.1x Setting** button to enter the configuration screen.

☐ **Certificate Tab-**

Authentication type:

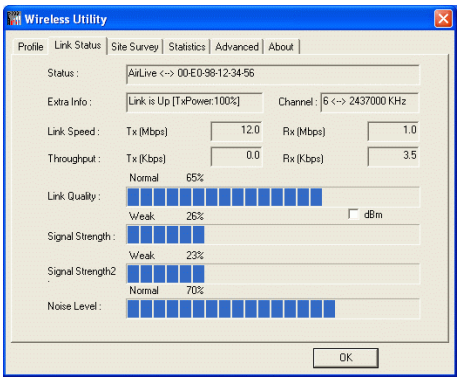
- **PEAP**: Protect Extensible Authentication Protocol. PEAP transport securely authentication data by using tunneling between PEAP clients and an authentication server. PEAP can authenticate wireless LAN clients using only server-side certificates, thus simplifying the implementation and administration of a secure wireless LAN.
- **TLS／Smart Card**: Transport Layer Security. Provides for certificate-based and mutual authentication of the client and the network. It relies on client-side and server-side certificates to perform authentication and can be used to dynamically generate user-based and session-based WEP keys to secure subsequent communications between the WLAN client and the access point.
- **TTLS**: Tunneled Transport Layer Security. This security method provides for certificate-based, mutual authentication of the client and network through an encrypted channel. Unlike EAP-TLS, EAP-TTLS

	requires only server-side certificates. **Session Resumption**: you can choose Disable, Reauthentication, Roaming, SameSsid or Always. **Identity**: Enter the given identity in this column. **Password**: Enter the given password in this column. **Use Client Certificate**: Check to enable this authentication function. **Protocol:** Select a protocol from the pull-down menu, including EAP-MSCHAP v2, EAP-MSCHAP v2, EAP-TLS/Smart card Generic Token Card. **(Tunnel)Identity**: Enter the identity for tunnel. **(Tunnel)Password**: Enter the password for tunnel. ☐ **CA Server Tab-** It is the Certificate Authority Server, each certificate is signed or issued by it.  **Use certificate chain:** Check to enable the certificate function. **Certificate issuer:** Check to enable the certificate issuer function. **Allow intimidate certificates:** It must be in the server certificate chain between the server certificate and the server specified in the certificate issuer must be field. **Server name:** Enter an authentication sever root.
Delete	**Select a profile and click Delete to delete it.**
Edit	Click to edit your existing profiles.
Activate	Click to activate your existing profiles.

OK	Click to exit this page.

Link Status

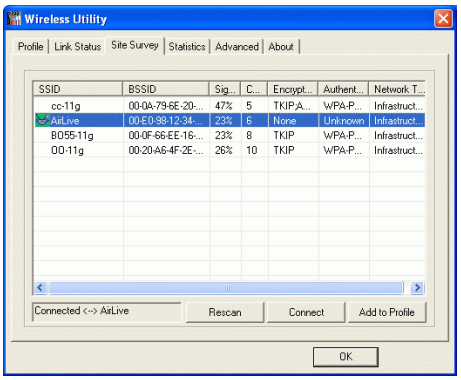
The Link Status page displays the current connection status.



Link Status	
Status	Shows the current connection status.
Extra Info	Shows the extra information of the current status.
Channel	Shows the channel in use.
Link Speed	Shows the current link speed.
Throughput	Shows the current throughput.
Link Quality	Shows the current link quality.
Signal Strength2	Shows the current signal strength percentage.
Noise level	Shows the current noise level.
OK	Click to exit this page.

Site Survey

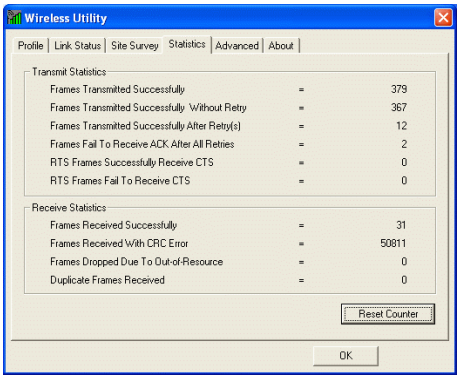
The Site Survey screen displays a list of infrastructure and ad-hoc networks available for connection.



Site Survey	
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.
BSSID	**BSSID displays the ID of current BSS, which uniquely identifies each BSS. The displayed value is the MAC address of the Access Point or station.**
Signal	Shows the current signal strength percentage.
Channel	Shows the channel in use.
Encryption	Shows the encryption type.
Authentication	Shows the current authentication type.
Network Type	Shows the current network type.
Rescan	Click to refresh the current site survey list.
Connect	Select an item and Click to make a connection.
Add to Profile	Select an item and click to add it up into your profile list.
OK	Click to exit the current page.

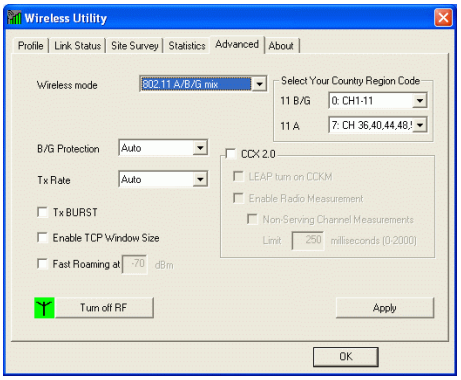
Statistics

The Statistics screen displays the statistics on your current network settings.



Advanced

The Advanced tab lets you configure the advanced wireless settings including wireless security settings.

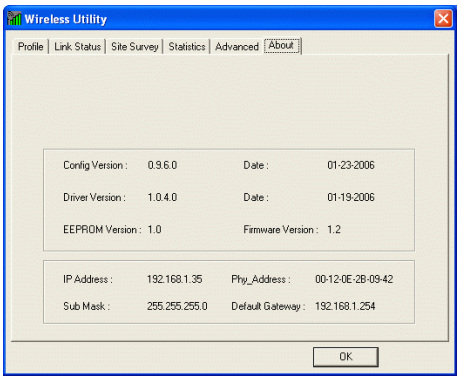


Note: Country Code selection feature to be disabled for products marketed to the US/CANADA.

Advanced	
Wireless mode	Select wireless mode. 802.11B only, 802.11 B/G mix, 802.11A only, 802.11 A/B/G mix and 802.11G only modes are supported.
B/G Protection	ERP protection mode of 802.11G definition. You can choose one from the pull-down list, including Auto, On and Off.
Tx Rate	Manually force the Transmit using selected rate. Dafault is auto.
Tx BURST	Check to enable the Tx BURST mode.
Enable TCP Window Size	Check to enable TCP Window Size function.
Fast Roaming at	**Check to set the fast roaming at certain transmitting power.**
CCX2.0	Check to enable the CCX2.0 function.
Turn off RF	Click to disable the RF function.
Apply	Click to apply the current settings.
OK	Click to save and exit the current page.

About

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


Wireless Utility
Profile
Link Status
Site Survey
Statistics
Advanced
About
Config Version : 0.9.6.0
Date : 01-23-2006
Driver Version : 1.0.4.0
Date : 01-19-2006
EEPROM Version : 1.0
Firmware Version : 1.2
IP Address : 192.168.1.35
Phy_Address : 00-12-0E-2B-09-42
Sub Mask : 255.255.255.0
Default Gateway : 192.168.1.254
OK

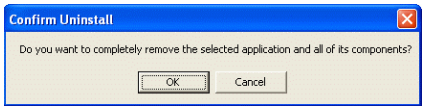
UNINSTALLATION

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 →Wireless Utility → Uninstall-Utility**

2. Click **OK** to continue.



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