QPCOM®
QUALITY PRICE

User's Manual

QP-W2410GP

802.11b/g
Wireless LAN PCI Card

wireless

www.qpcom.com

USING THIS DOCUMENT

This document provides detailed user guidelines for Wireless LAN PCI Card operation and settings. Though every effort has been made to ensure that this document is up-to-date and accurate, more information may have become available subsequent to the production of this guide.

RELEASE HISTORY

Version	Author	Date	Note
1.0	Sue	2006/11/17	First Release

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Chapter 1 Introduction

Thank you for purchasing Wireless LAN PCI Card. Wireless card is a perfect combination product of performance and cost-effectiveness. It is sincerely hoped that you can enjoy the wireless world through this solidly profiled wireless card.

It provides a full solution of the IEEE 802.11b/g protocols, this solution passed the WiFi tests that are compatible with all the wireless products with WiFi logo. If you have a wireless card on hand, it means you can connect to the wireless world without any difficulty.

It provides all the data rates in the IEEE 802.1b/g standards, which confines the highest data rate as 54Mbps. In addition, it rewards customers with proprietary “Turbo mode” for a better throughput as well as supports both the short and long preambles to ensure the compatibilities with legacy wireless products and new ones, saving the panic works for finding compatible products.

Since the security has became one of the most important issue in the wireless society, it provides you with the full security coverage from the naïve 64/128bits Wep encryptions, second generation WPA-PSK and WPA-AES encryption, to the most advanced WPA2-PSK and WPA2-AES encryption. WPA2 is the latest security standard currently approved by WiFi standard.

AP mode, Saving mode, Adhoc wireless Lan, Wake on Lan (WOL) and other exciting features are also included in this Wireless LAN PCI Card. It will guide you through these exciting features in the following chapters , and it is believed that you will be greatly satisfied with its performance and ease of use.

Chapter 2 Specifications

Interface	PCI
Standard	802.11b, 802.11g, 802.11i
OS support	98Se, WinMe, Win2000, WinXP, WinXP64
Data rate	1,2,5.5,11,6,8,12,18,24,36,48,54Mbps, depends on the wireless mode
Frequency band	BG:2.4 ~ 2.497 GHz
Operation Channel	1~11(BG)
Coverage Area	Indoors: 100m (BG) Outdoors: 400m (BG)
Compatibility	Fully compatible with IEEE 802.11 b/g devices
Operation Mode	Infrastructure and AdHoc
Security Capacity	64-bit/128-bit WEP, TKIP,WPA-AES, and WPA2-PSK,WPA2-AES
Antenna	External antenna
LED	LED0: On: link is on. Off: link is off LED1:Blinking: data transition
Wake on WLAN	Wake up system by wireless LAN (AP mode)
Turbo mode	Active when there is no other station around
Power Saving mode	Fast wake up and maximum power saving
AP mode	Support both station mode and AP mode operation
Other features	l Dynamically adjust power for the most stable and best throughput l Dynamically adjust receiving ability for the best receiving l Compiled with all the main radio regulations l User can specify certain wireless modes to use l Fully support window's hibernation and standby 2 mode

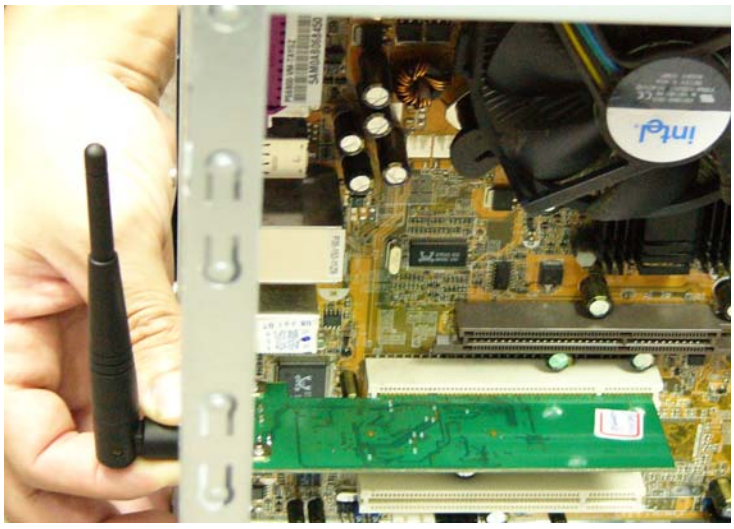
Chapter 3 Installation / Uninstallation

3.1 Installation

Hardware Installation

Step 1:
Install Wireless LAN PCI Card (card only) into your computer PCI slot as below.

Step 2:
Install antenna to your Wireless LAN PCI Card as picture below.



Note: Please make sure that antenna is tightly screwed to get optimal receiving coverage area.

Driver Installation

Before you proceed with the installation, please notice the following descriptions.

Note1: The following installation was operated under Windows XP. (Procedures are similar for Windows 98SE/Me/2000.)

Note2: If you have installed the WLAN PCI Card driver & utility before, please uninstall the old version first.

1. If you insert the Wireless LAN PCI Card into your computer PCI slot before installing the software program from the CD, then auto installation window pops up as follows:
2. Click **Driver Installation**

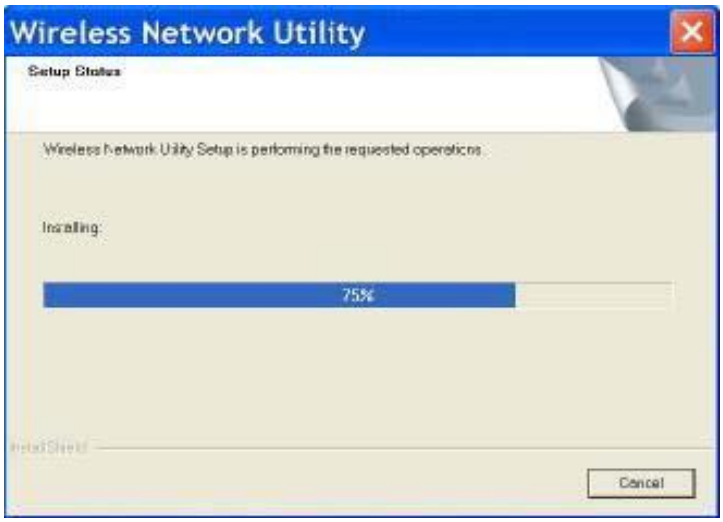
1-1. If you insert the Wireless LAN PCI Card into your computer PCI slot after installing the software program from the CD, then the following window pops up.

2-1. Click **Cancel**.

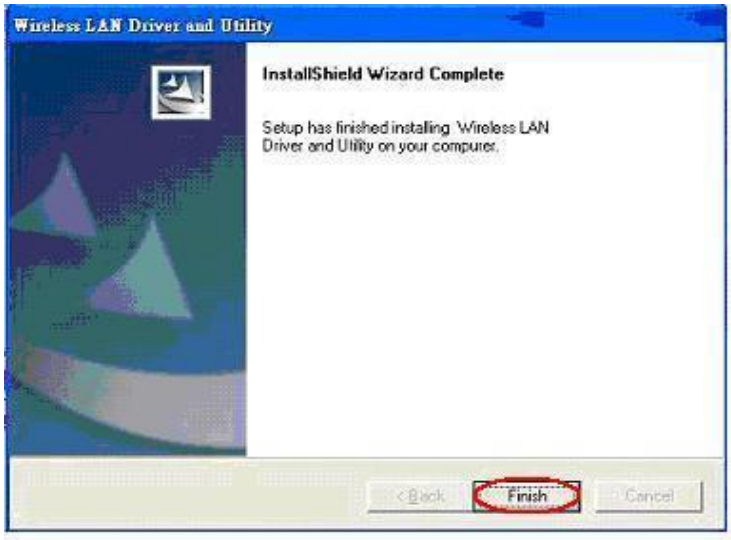
3. Choose a set up language.
4. Click **OK**.

5. Click **Next** to process the installation.

6. The system starts software installation of the WLAN PCI Card.
7. On Windows Logo Software Installation screen, click **Continue Anyway** to continue. Note: Not all the drivers will have this message box. On Found New Hardware Wizard screen, click **Cancel**.



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



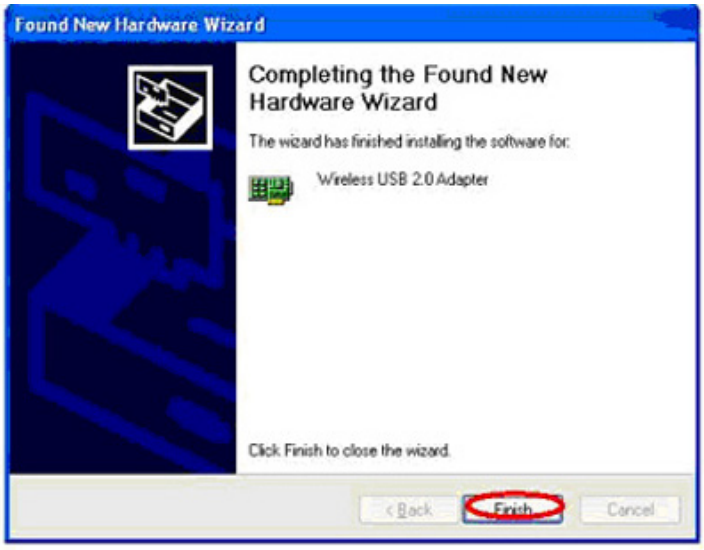
9. After setup, restart your computer.

3.2 Uninstallation

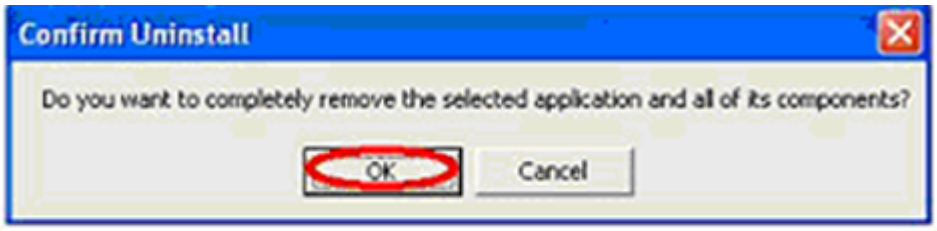
From “Wireless Network Driver and Utility” or “Control Panel”→”Change or Remove Programs”.

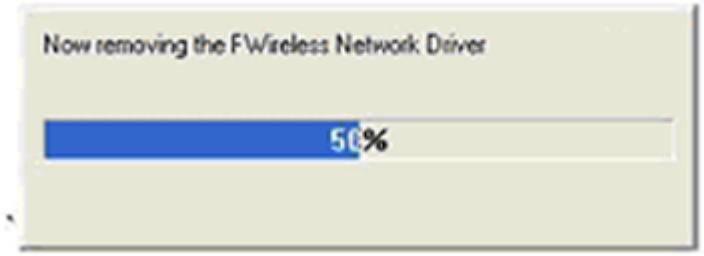
A. Uninstall the WLAN USB Adaptor Driver from “Start”→ “All Programs”→

Click “Uninstall” (or “Change/Remove”) to remove Wireless LAN PCI Card driver.

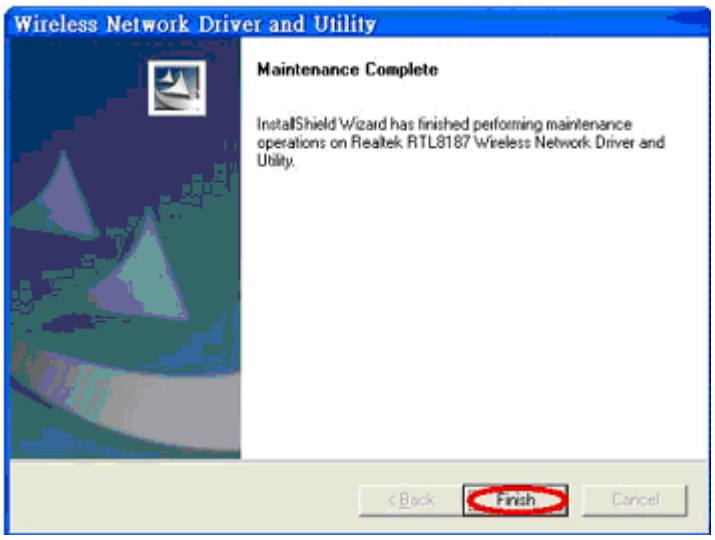


B. Click “OK” if you want to remove Wireless LAN USB Adaptor Driver .



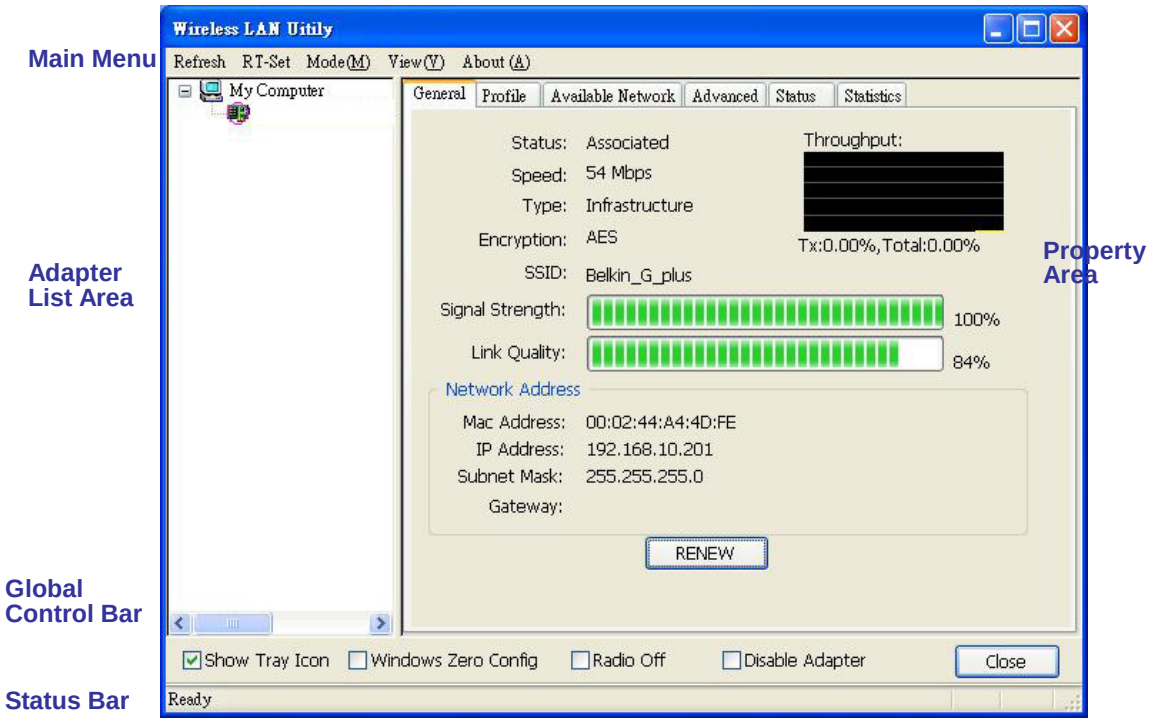


C. Click “Finish” to complete the uninstallation.



Chapter 4 Wireless LAN Management GUI

4.1 Introduction of Main Window



A. Main Menu

The main menu includes five submenus.

- **Refresh**

  By clicking the Refresh, you can update and re-enumerate the contents of the adapter list area.

- **RT-Set**

  Open a wizard that helps you connecting to the wireless network.

- **Mode (M)**

  Wireless configuration can be quickly switched to either [Station] or [Access Point]. Currently supports Station Mode is supported.

- **View (V)**

  Enable/disable the presence of status bar.

- **About (A)**

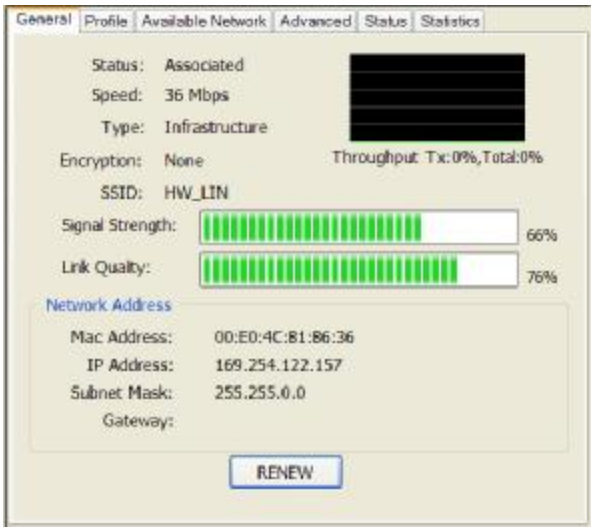
  The application version and license information.

B. Adapter List Area

All enabled adapters on this system are displayed in this area. It is easy for users to change the selected adapter by one click. The contents of properties area are dependant on wireless configuration that the selected adapter is set up. If only single adapter is installed on the system, the only one adapter is always selected.

C. Properties Area

The contents of this area depend on current wireless configuration. The current configuration is determined on previous explanation of submenu “Mode”. Details are described in the following wireless configuration sections.



D. Global Control Bar

Each item on this bar controls the adapter or management GUI.

§ Show Tray Icon

Check this item and clicking “Close” button, the management GUI will be minimized and stay on the tray icon located at the right bottom corner of Windows. Otherwise, management GUI will be shut down while clicking “Close” button with unchecked box.

§ **Windows Zero Config**

Transfer the control to Window Default wireless tool. If you want to use this UI to control wireless adapter, this one should be unchecked.

§ **Radio Off**

Turn off the radio. While the radio is off, the links with other wireless network nodes will be lost. No signal will be sent out.

§ **Disable Adapter**

Disable this wireless adapter. Please notice this action will cause disconnection. The wireless adapter will turn off all the HW function.

§ **Close**

Close the active GUI window. If you have the “Show Tray Icon” checked, the small signal icon will be shown at the system tray bar.

E. Status Bar

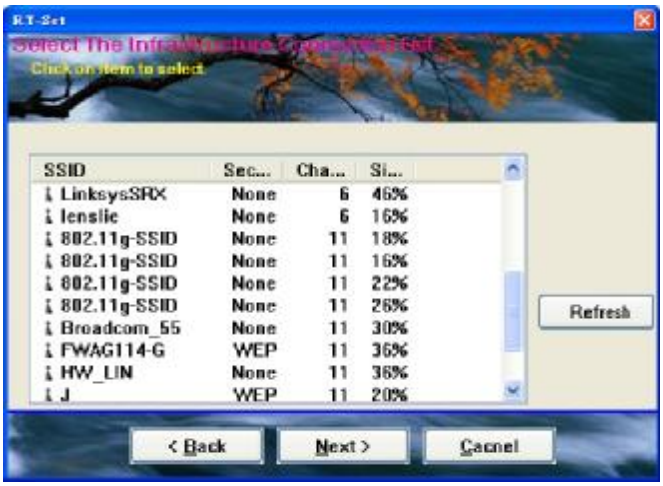
Status of the management GUI is present in the status bar.

4.2 RT-Set

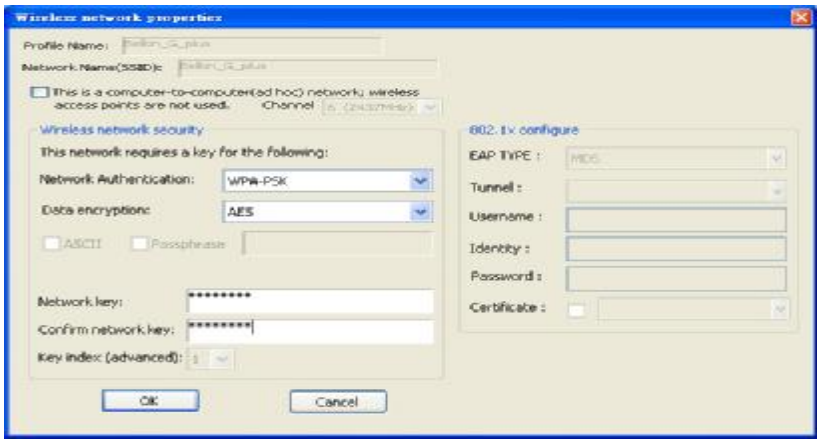
RT-Set is introduced in this section, which is a wizard that can help users to connect to a wireless LAN or build an Ad hoc wireless network.

A. Open RT-Set wizard, and choose a mode you want to connect to. One example is explained to show how to connect to an infrastructure network. Click “Next”.

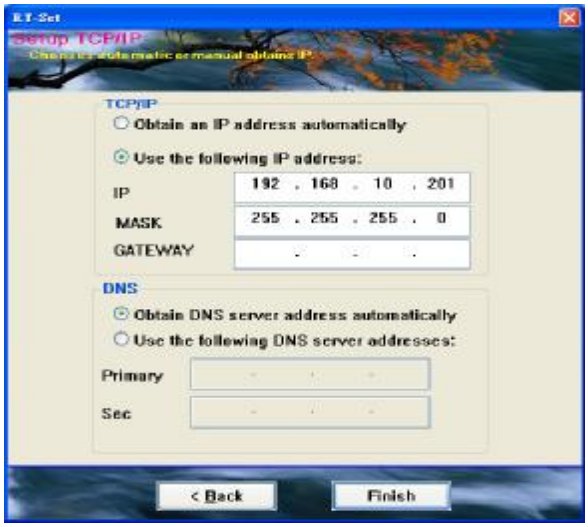
B. The site survey results will show up. It tells you how many networks you can connect to at this time. Pick up the one you'd like to connect to and click “Next”.



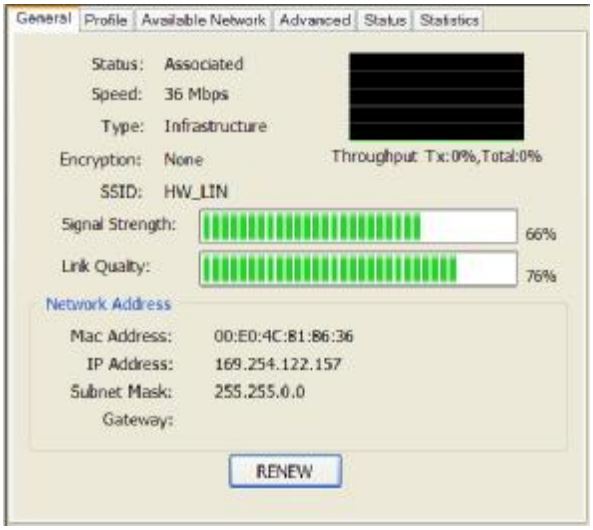
C. A settings window pops up, fill out correct values for this network you'd want to connect to. If this is an open AP without any security, just click “Next”.



D. Choose an IP setting that fits your wireless network. If you don't know, please contact your network administrator .

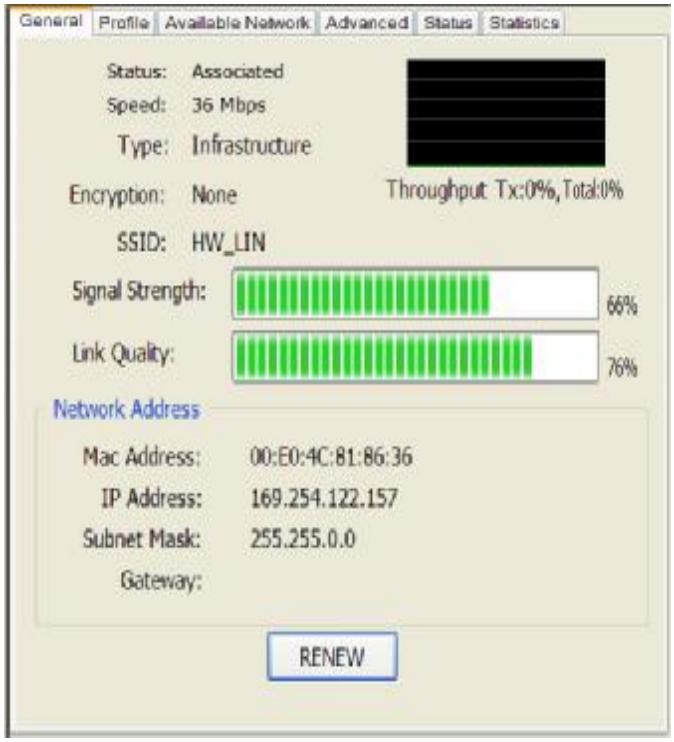


E. Congratulation, you are now connected to the wireless network.



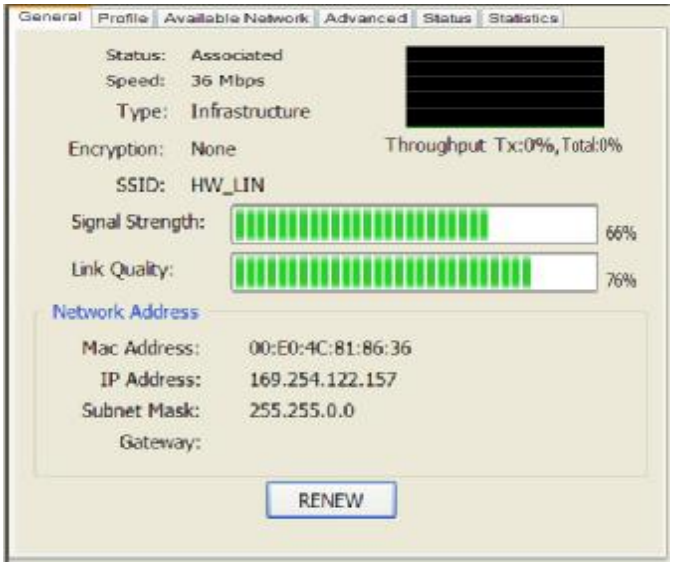
4.3 Station Mode

The following explanations focus on the properties area.



General Page

This page represents the general information of this adapter.



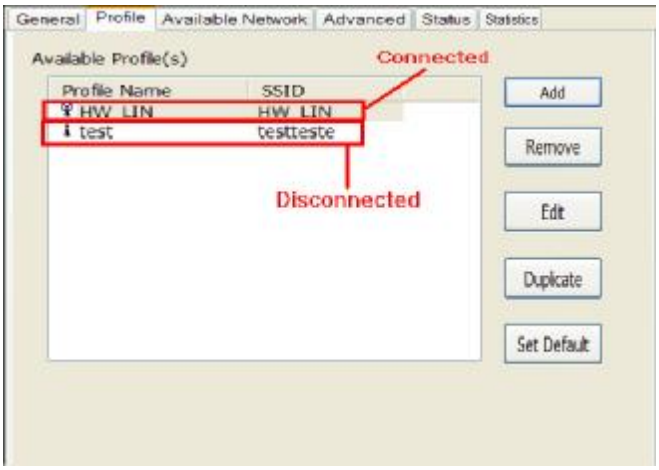
1. **Status**
   This adapter's current connection status.
2. **Speed**
   Current transition speed in Mbps (Mega-Bits-Per-Second).
3. **Type**
   Current wireless LAN configuration type.
4. **Encryption**
   Current encryption mode used.
5. **SSID**
   Name of wireless network.
6. **Signal Strength**
   The average signal strength received by this adapter.
7. **Link Quality**
   The average quality of signal. Signal to Noise ratio.
8. **Throughput Diagram**
   Trasmitting performance.
9. **Network Address**
   - Mac Address: A unique hardware ID for this adapter.
   - IP Address: Assigned by DHCP server or by user manually.
   - Subnet Mask: IP layer subnet mask setting. Most of the network use 255.255.255.0. Contact your network administrator for the right setting. If you use DHCP server, then you don't need to assign this value.
   - Gateway: IP address of your gateway.
10. **Renew**
    Renew all the status on the status page.

Profile Page

This page provides profiles management functions.

Available Profile(s)

The list box shows all the created profiles.



1. Add

Add a new access point profile.

2. Remove

Remove the selected profile.

3. Edit

Edit contents of selected profile.

4. Duplicate

Make copy of selected profile.

5. Set Default

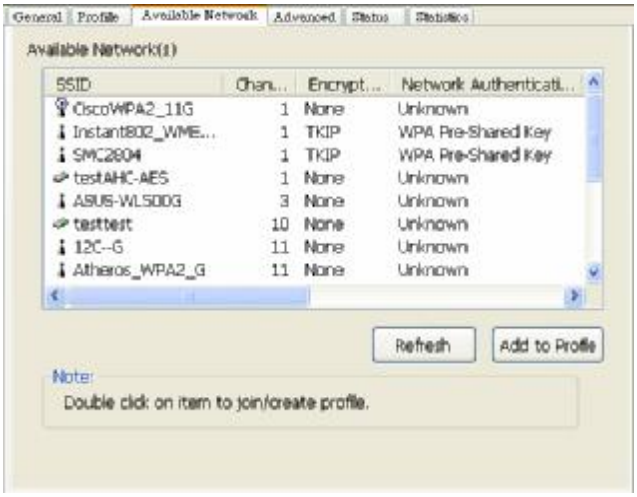
Set the selected profile as default selection. It will automatically connect to this profile when the card is plug in next time.

6. Available Network Page

This page presents all access points around this system. You could connect to one of these networks by double clicking on it.

Available Network(s)

Present networks around this adpater. In order to connect to a network, you can double click and connect to it.



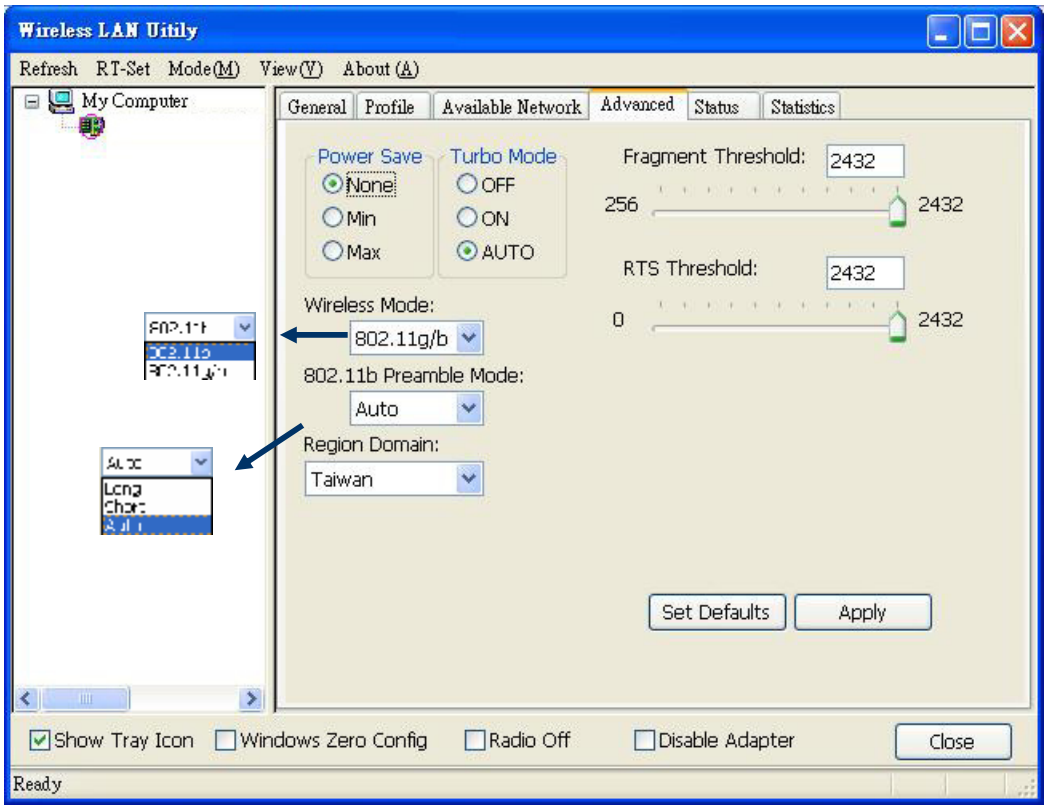
1. **Refresh**

   Rescan networks around this adapter.

2. **Add to Profile**

   Create a profile for selected network connection. This profile will appear in the profile list.

A. <u>Advanced Page</u>



1. **Power Save**

None: without power saving mode.

Min: Medium power saving mode.

Max:Max power saving mode.

2. **Wireless Mode**

   You can choose the B/G mode you want to use.

3. **802.11b Preamble Mode**

   Long: Only use long preamble. Ignore short preamble packets. More reliable signal synchronization quality but with lower effective data throughput than short preamble mode. Usually used by legacy B mode device.

   Short: Only use short preambles. Higher effective data performance than long preamble mode.

   Auto: Accept all preamble modes. It is suggested that you use this setting. Please note that you will need the right settings to be able to connect to certain type of networks.

4. **Fragment Threshold**

   The threshold of fragment length. This value will limit the maximum size of packets this adapter will send out. Higher threshold increases data transition performance. However, Poorer signal quality results worse data throughput on higher fragment threshold.

5. **RTS Threshold**

   Request to send packet's threshold. The RTS packets will not be sent out until the data to be sent reach or over this threshold. Packets shorten than this threshold will be sent out directly.

6. **WOL (Wake On LAN) (Only appear in some versions)**

   The wake-on-LAN is a part of remote control function. You could wake up a system through network packets. It does not exist in some version of UI.

7. **Set Defaults**

   Restore to the default settings.

8. **Apply**

   Apply the current settings to GUI.

9. **Turbomode**

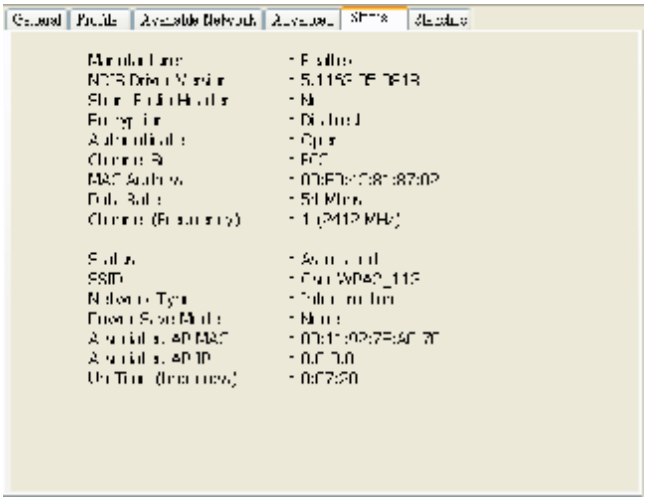
   There are 3 modes. Off/On/Auto. Auto mode only works with certain AP products and it will give user a good experience on these ones.

   Turbo mode "on" means the wireless card will try the turbo mode with other APs, however, the performance is not guaranteed.

10. **Region Domain**

If a user travels around the world and needs to use the wireless LAN. He/she can use this feature to dynamically change country/ region settings.

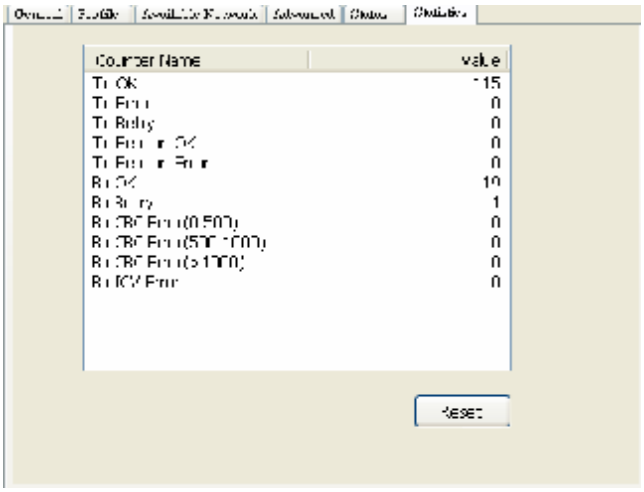
Status Page



- § Manufacturer
- § NDIS Driver Version: Driver version.
- § Short Radio Header: No
- § Encryption: Current encryption mode.
- § Authenticate: Authentication state.
- § Channel Set: Current channel plan.
- § MAC Address: MAC address of this adapter.
- § Data Rate: Wireless LAN transition speed.
- § Channel(Frequency): Current channel number.
- § Status: Wireless network status.
- § SSID: Network SSID this station currently connected to.
- § Network Type: Current network configuration type.
- § Power Save Mode: Current power saving mode.
- § Associated AP MAC: MAC address of connected access point.
- § Associated AP IP: IP address of connected access point
- § Up Time: Total connection time.

B. Statistics Page

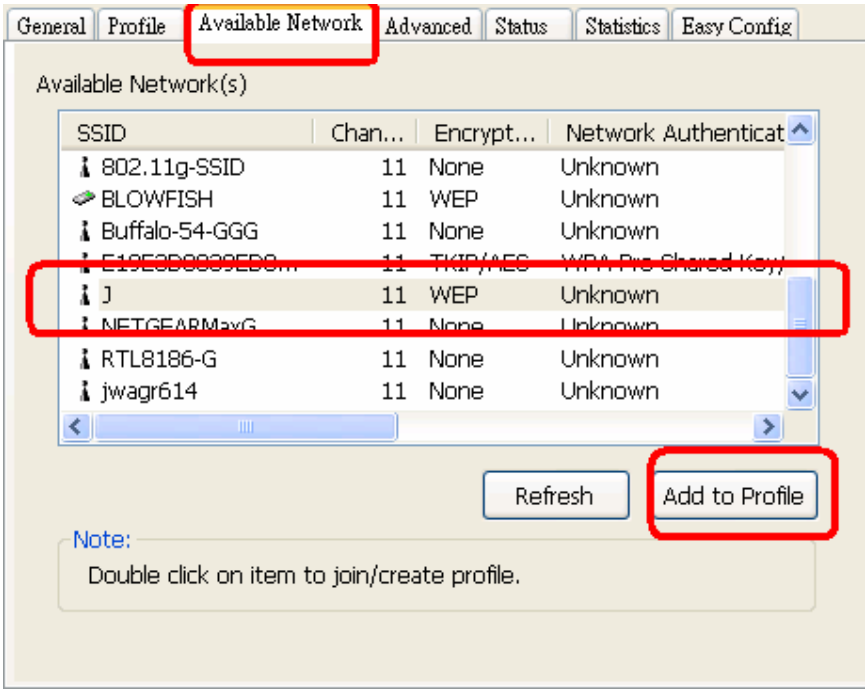
You could monitor the status of current wireless connection. This page shows a statistic analysis of packet transition.


Counter Name
value
Reset

Chapter 5 Connect to AP

There are two major ways you can connect to an AP.

On “Available Network” page, you can directly double click on any network and enter the related settings if the profile page pops up.



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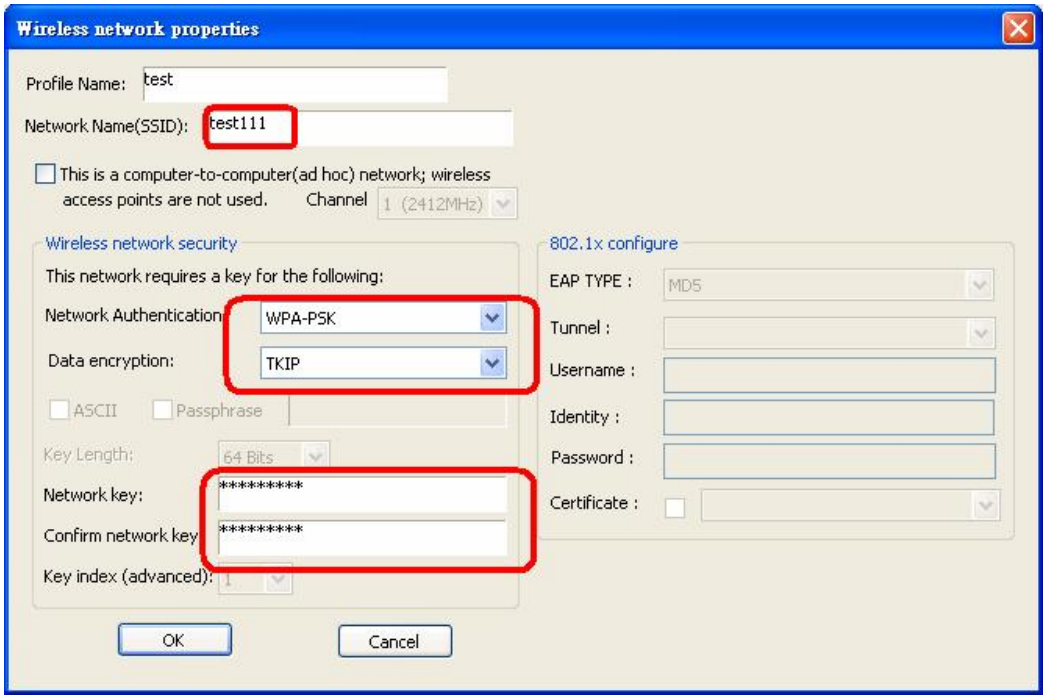
The Second way is through “Profile” tab. You can press the “Add” in the Profile table and enter the related setting. For example, with SSID “test111”.

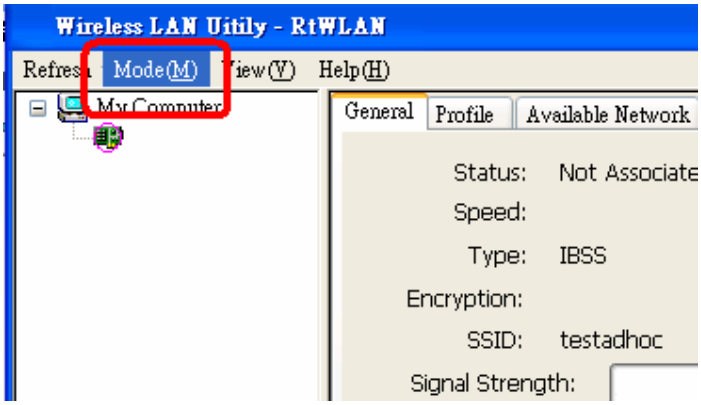
WPA-PSK, TKIP. You should enter the fields on the following page.



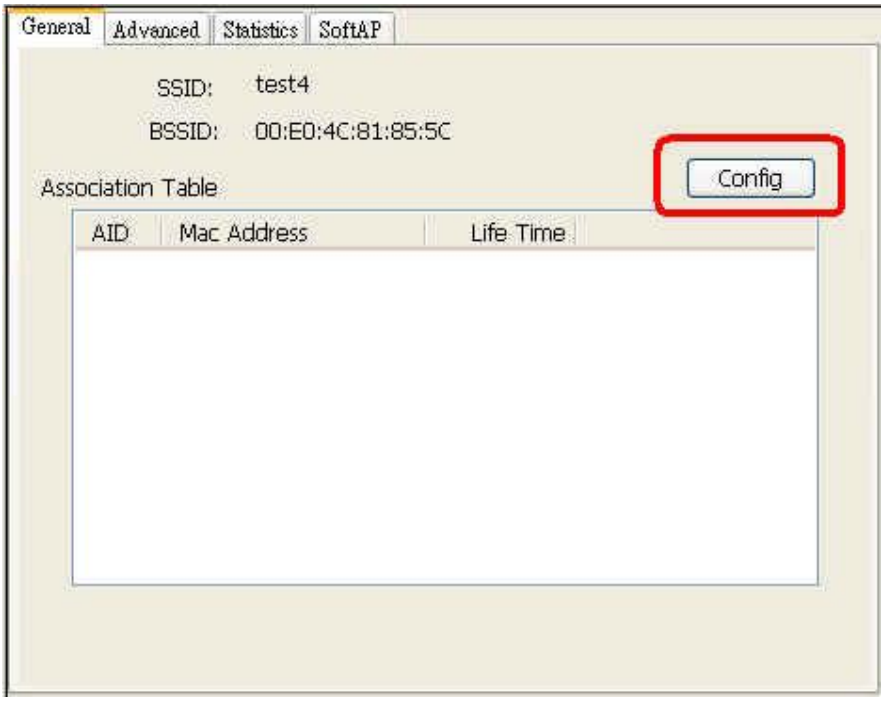
Chapter 6 AP Mode Usage

This UI also support “AP” mode. With the following processes you can set up an AP mode with your wireless card.

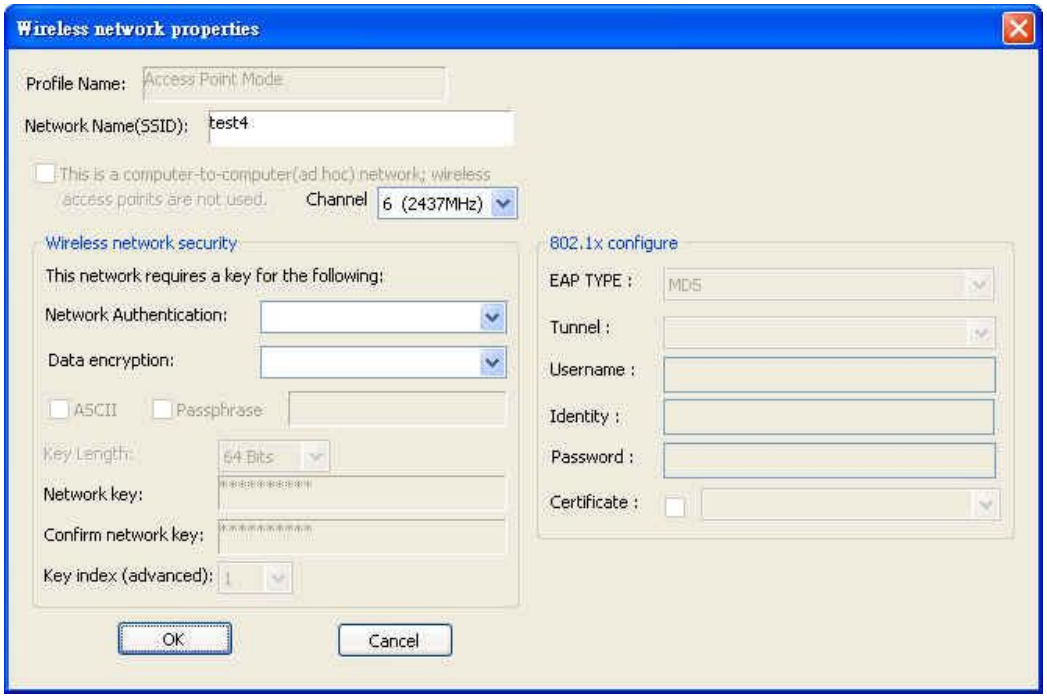
1. **Select AP mode on the main menu.**



2. **On the AP mode settings window. Select “Config”.**

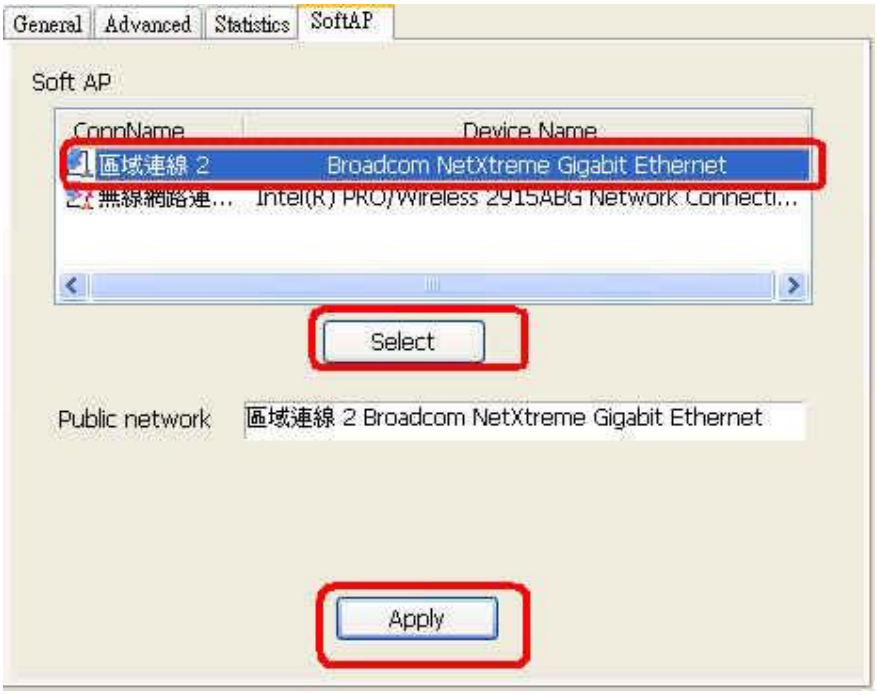


3. **On the Config page, you can choose the settings for your AP. Some settings had been filled with grey color; these settings are not applicable in AP mode.**

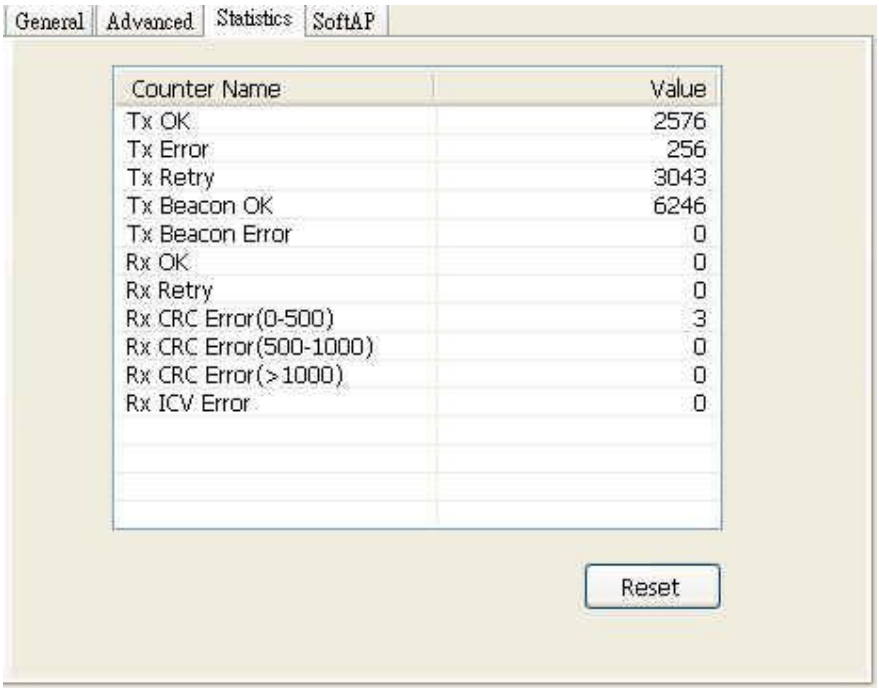


4. **After you fill out the settings, you can connect to this AP.**

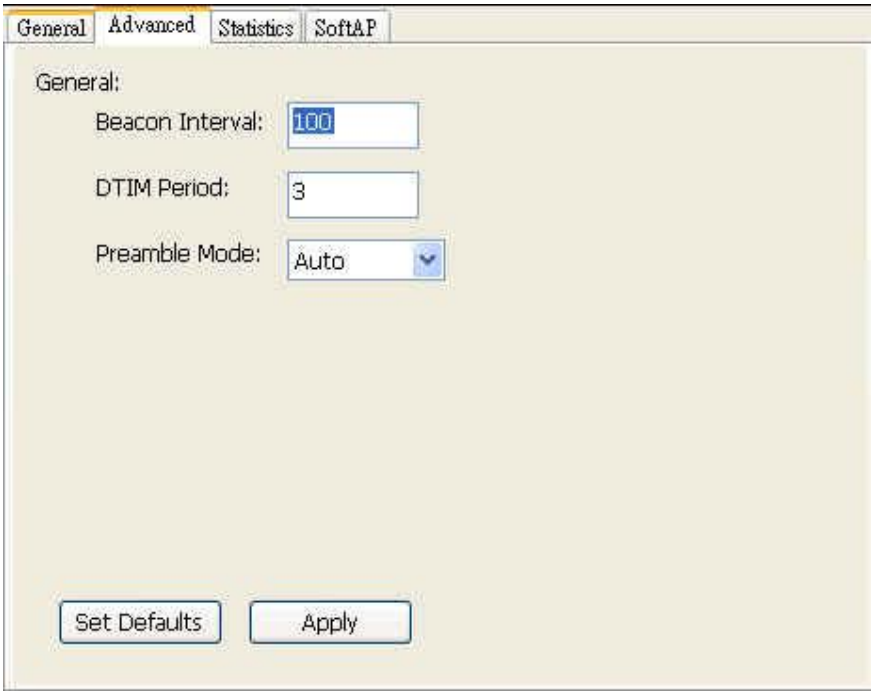
5. **If you want to connect to the internet through this AP, you will need to make a bridge between SoftAP and your internet connect. Select the internet connection in your SoftAP host machine. Select your internet connection network card. Press Apply. For Window 2000, you will need to set up extra steps for internet bridge, Please see the information (**) in the end of this chapter.**



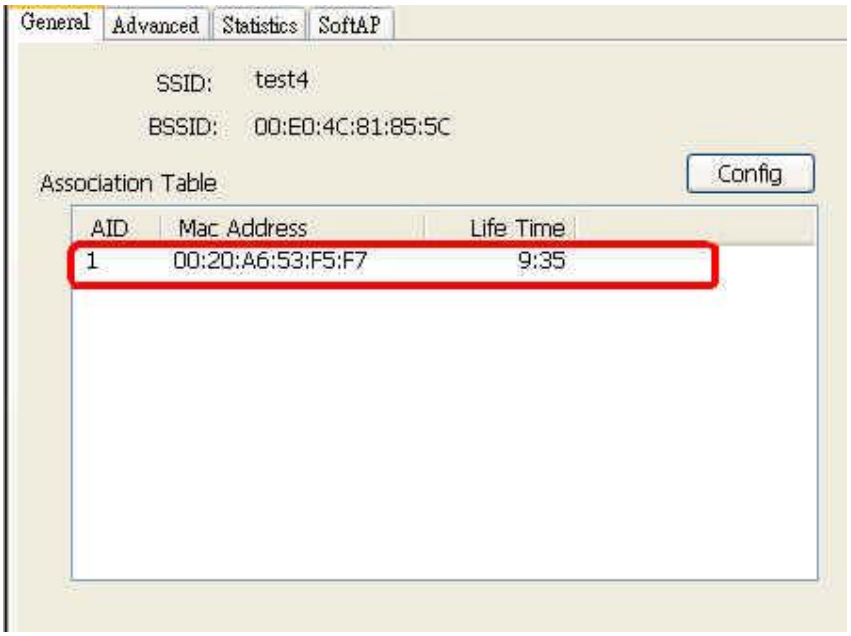
6. **If you want to see the Statistics in your SoftAP, it is on the Statistics page.**



7. **Advanced settings. You can use default values if the fields are blank.**



8. **If a station is connected to this SoftAP, you can see it on the General page. You may also set up a timeout for each station. If a station idles for more than 10 minutes, it will be disconnected to save your resources.**



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For Window 2000, you will need to do extra settings to set up an internet connection bridge. Please follow these steps.

1. Wireless card must be set to enable DHCP and DNS in network properties.
2. Disable protocols other than TCP/IP.
3. There will be a sharing tab on the properties page, select it and check the sharing option.
4. Confirm the warning message after you click “OK”.
5. Now you should be able to share your internet connection to the SoftAP and other people using your AP.

Chapter 7 Frequently Asked Questions

1. What is B/G mode?

These names are from the IEEE standard. It refers to the IEEE 802.11 group name. 802.11B network standard operates at 2.4G band and its maximum throughput is 11Mbps. 802.11G operates at 2.4G band too but has the maximum throughput 54Mbps.

2. What is infrastructure mode? What is Adhoc mode?

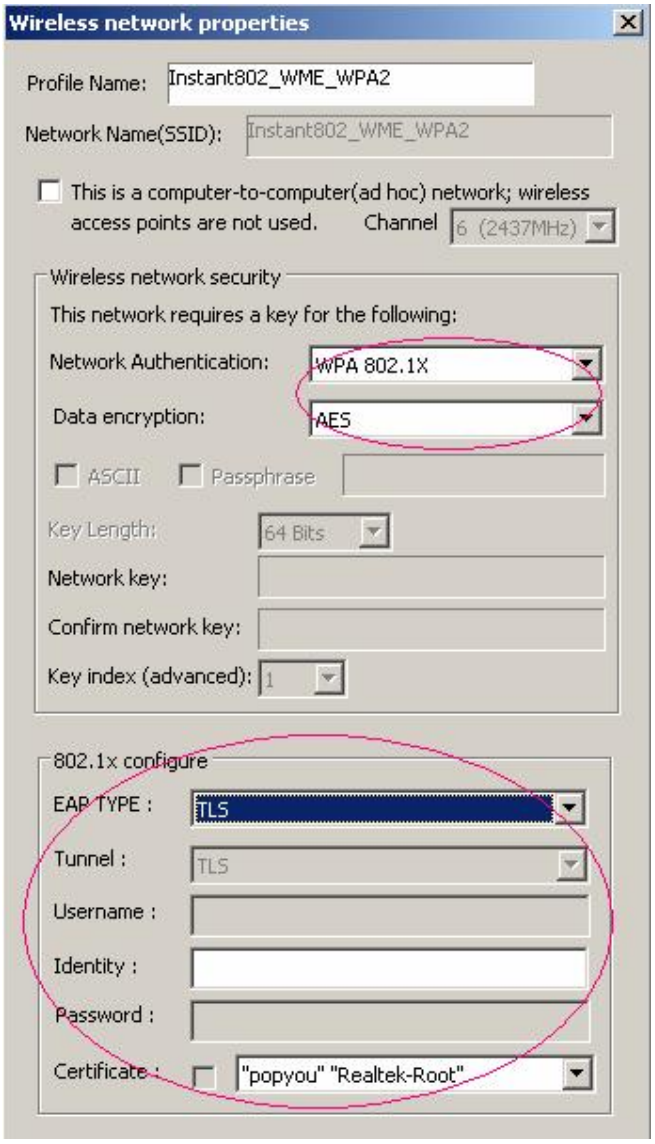
Infrastructure mode refers to a network that operates like an architecture-like network group. Our adapter, as a station, will connect to an access point, which will connect to a gateway and forward our traffic to the internet. Infrastructure mode is the mostly used network type.

Ad hoc mode refer to a network that everyone is equal. All the peers are stations. Usually people use it when there is no network access and people want to connect to each other using wireless networks.

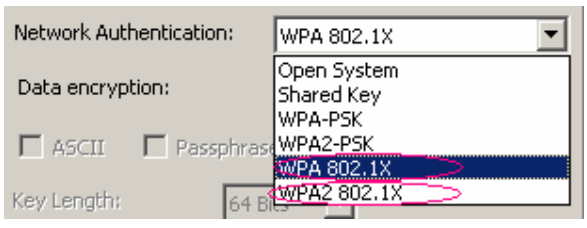
3. How could I get a better throughput?

Throughput depends on a lot of factors. Usually we will suggest you not leave your access point too far away. It usually will be better if your access point is within your line of sight. If there are other access points around, try to keeps your access point channel setting away from their setting.

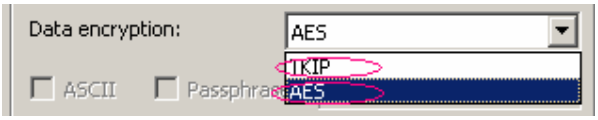
Appendix 1: How to use 802.1x (Step by Step)



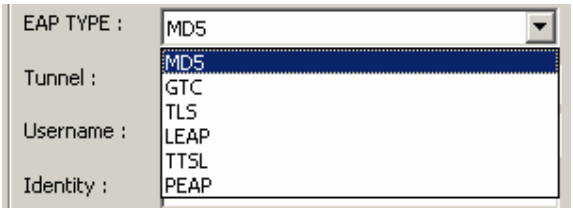
Step 1 : Set Authentication mode to WPA 802.1x ,or WPA2 802.1x



Step 2 : Set encryption to TKIP ,or AES

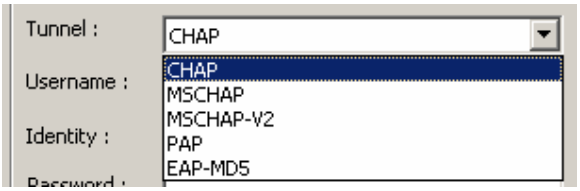


Step 3 : Set EAP Type to MD5 , GTC , TLS , LEAP , TTSL ,or PEAP



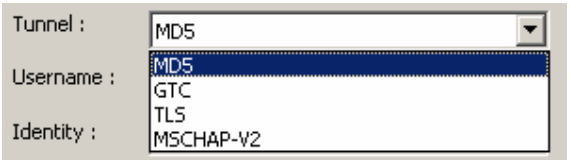
Step 3.1.1 : When set TTSL

Set Tunnel Type to CHAP , MSCHAP , MSCHAP-V2 , PAP , or EAP-MD5

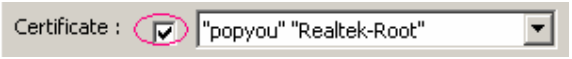


Step 3.1.2 : When set PEAP

Set Tunnel Type to MD5 , GTC , TLS , or MSCHAP-V2



Step 3.2 If you do not set PEAP to TLS ,you could use certificate.



Step 4 : After you finish above steps.

You should fill out the following fields(Username , Identity , Password).

User name : Certificated user name .

Identity : User's identity in the RADIUS server

Password : User's pass word in the RADIUS server

Username :
Identity :
Password :