Rosewill®

Wireless N Adapter RNX-N180PCe

User Manual

FCC 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 pro-vide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not in-stalled 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 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.

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.

2) This device must accept any interference received, including interference that may cause undesired operation.

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

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

"To comply with FCC RF exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

CE Mark Warning

This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

National Restrictions

2400.0-2483.5 MHz

Country	Restriction	Reason/remark
Bulgaria		General authorization required for outdoor use and public service
France	Outdoor use limited to 10 mW e.i.r.p. within the band 2454-2483.5 MHz	Military Radiolocation use. Refarming of the 2.4 GHz band has been ongoing in recent years to allow current relaxed regulation. Full implementation planned 2012
Italy		If used outside of own premises, general authorization is

		required
Luxembourg		General authorization required for network and service supply(not for spectrum)
Norway	Implemented	This subsection does not apply for the geographical area within a radius of 20 km from the centre of Ny-Ålesund
Russian Federation		Only for indoor applications

Note: Please don't use the product outdoors in France.

Table of Content

Chapter 1 Overview

Thank you for choosing Rosewill's 802.11n 1T2R Wireless PCIe adapter – RNX-N180PCe. This chapter is to introduce you more about this Wireless PCIe Adapter.

Package Content

Before getting started, please verify that your package includes the following items:

1. Rosewill 802.11n Wireless PCIe Adapter x 1
2. 2 dBi External Antenna x 2
3. Quick Installation Guide x 1
4. Low Profile Bracket x 1
5. Resource CD x 1, including:
   - Rosewill Wireless N Client Utility and Driver
   - User Manual
   - QIG

Note:

Make sure that the package contains the above items. If any of the listed items are damaged or missing, please contact with your distributor.

1.1 Overview of the Product

Comply with 802.11n Standards

RNX-N180PCe Wireless PCI-E adapter provides users to launch IEEE 802.11n wireless network at 300 Mbps in the 2.4GHz band. It can also interoperate with all 11Mbps wireless (802.11b) products and all 54 Mbps wireless (802.11g) products.

Reliable Coverage and Connection

RNX-N180PCe adopts MIMO has two external detachable Omni-directional antennas providing even better wireless performance, transmission rates, stability and coverage. You can configure this adapter with ad-hoc mode to connect to other 2.4 GHz wireless computers, or with infrastructure mode to connect to a wireless AP or wireless router for accessing to Internet.

Easy Installation, enhanced Wireless Security

As for installation, RNX-N180PCe provides you the flexibility to install your PC in the most convenient location available, without the cost of running network cables. So you can easily connect your PC to your Wireless Access Point and enjoy the pleasure of

Wi-Fi. Also, this product supports WPA / WPA2 encryptions and mechanisms, allowing users to quickly and easily configure wireless security.

1.2 Features

- High Speed transfer data rate up to 300 Mbps
- Supports QoS Enhancement (WMM, WMM-PS Client mode)
- Supports wireless data encryption with 64/128-bit WPA,WPA2
- Supports frame aggregation, Power saving mechanism, channel management and co-existence
- Transmit Opportunity (TXOP) Short Inter-Frame Space (SIFS) bursting for higher multimedia bandwidth
- Supports auto-installation and diagnostic utilities
- Two 802.11n/b/g wireless SMA antennas (Standard 1.8dB)
- Supports driver for Windows 2003, XP 32 and 64 bit, Vista 32 and 64 bit, and Win7 32 and 64 bit

1.3 System Requirement

You must have at least the following

- A desktop PC with an available PCIe slot.
- At least a 300MHz processor and 32MB of memory
- Windows OS for Windows 2003, XP, Vista, and Win7
- A CD-ROM Drive
- A 802.11n 、802.11g or 802.11b Wireless Access Point/Router (for infrastructure Mode) or another 802.11n、802.11g or 802.11b wireless adapter (for Ad-Hoc; Peer-to-Peer networking mode).

1.4 LED Status

LED Indications	Status	Working Status
Link LED	Off	The adapter is Radio off
	Blink green	The adapter is already connected
Act LED	Blink green and flashing intermittently	The adapter is already connected but is not transmitting or receiving data
	Blink green and fast flashing	The adapter is activity and transmitting of receiving data.
	Off	The adapter is Radio off

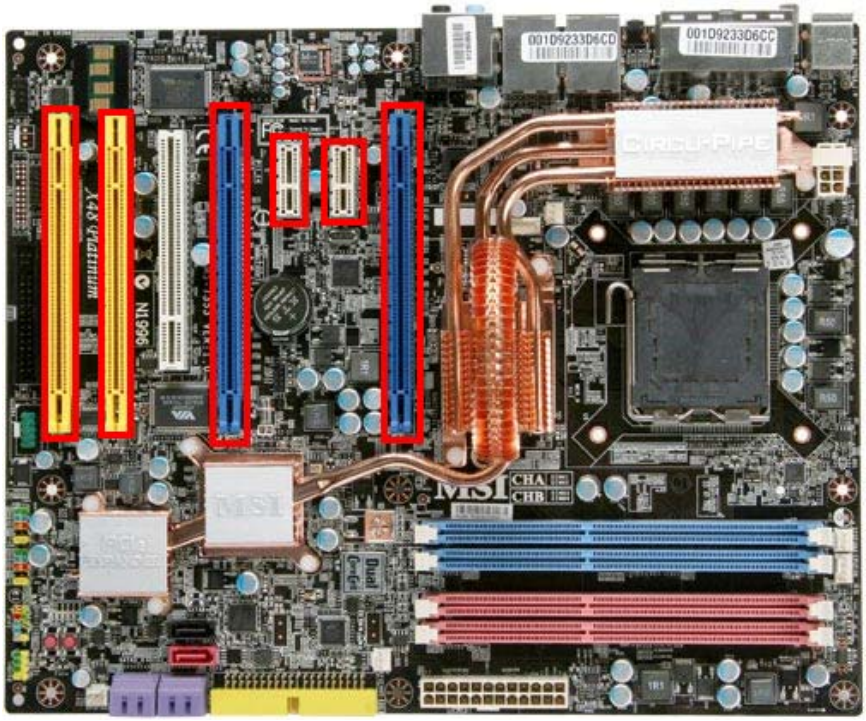
1.5 Product Specification

Standard
IEEE 802.11n draft 2.0, IEEE 802.11g, IEEE 802.11b, IEEE 802.3, IEEE 802.3u
Interface
1Wireless 1T2R PCI-E Card（PCI ExpressTM Base Specification Revision 1.1）
2 2x 2dB reverse SMA detachable antennas (Standard 1.8dB)
Receiver Sensitivity
300 Mbps Typical -68 dBm
54 Mbps Typical -73 dBm
11 Mbps Typical -84 dBm
Channel
USA 11, Europe 13, Japan 14
Transmit Power
16dBm typically @ 802.11b
14dBm typically @ 802.11g
13dBm typically @ 802.11n
Network Data Rate
802.11b: 1,2,5.5 and 11Mbps
802.11g: 6,9,12,18,24,36,48 and 54Mbps
802.11n: up to 300Mbps
Temperature
Operating: 0°C ~ 40°C (32°~104°F)
Storage: -10°C ~ 70°C (14°~158°F)
Humidity
Operating: 10% ~ 90% RH, non-condensing
Storage: 5%~90% RH, non-condensing
Emission
FCC, CE, VCCI Class B

Chapter 2 Installation Guide

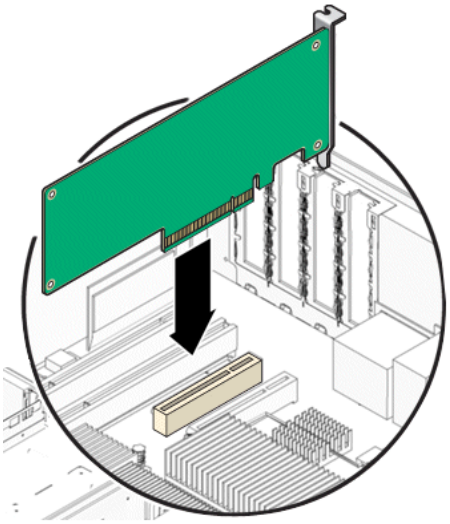
2.1 Hardware Installation

1. Make sure the computer is turned off. Remove the expansion slot cover from the computer.



(The Highlighted slots are the PCIe slot available for RNX-N180PCe to install)

2. Carefully slide RNX-N180PCe into the PCI-E slot. Push evenly and slowly and ensure it is properly seated.



3. Secure the antennas on.
4. Turn on your computer. Windows detects the new hardware and prompts for Driver installation.

2.2 Software Installation for Windows OS

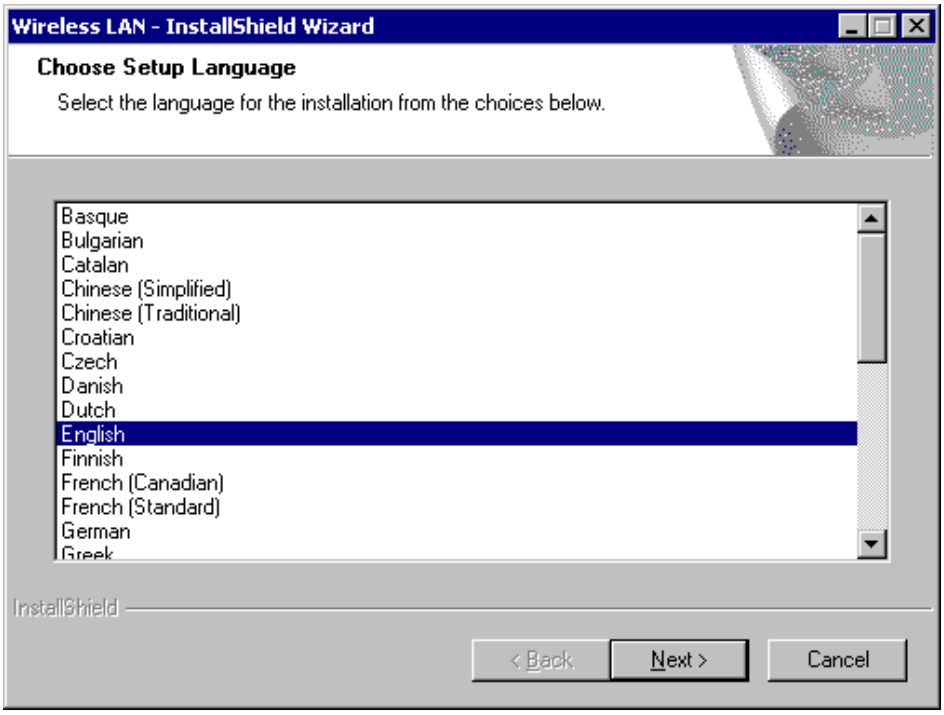
The following driver installation guide uses Windows XP as the presumed operation system.

1. The system finds the newly installed device automatically. Click Cancel to close this window.

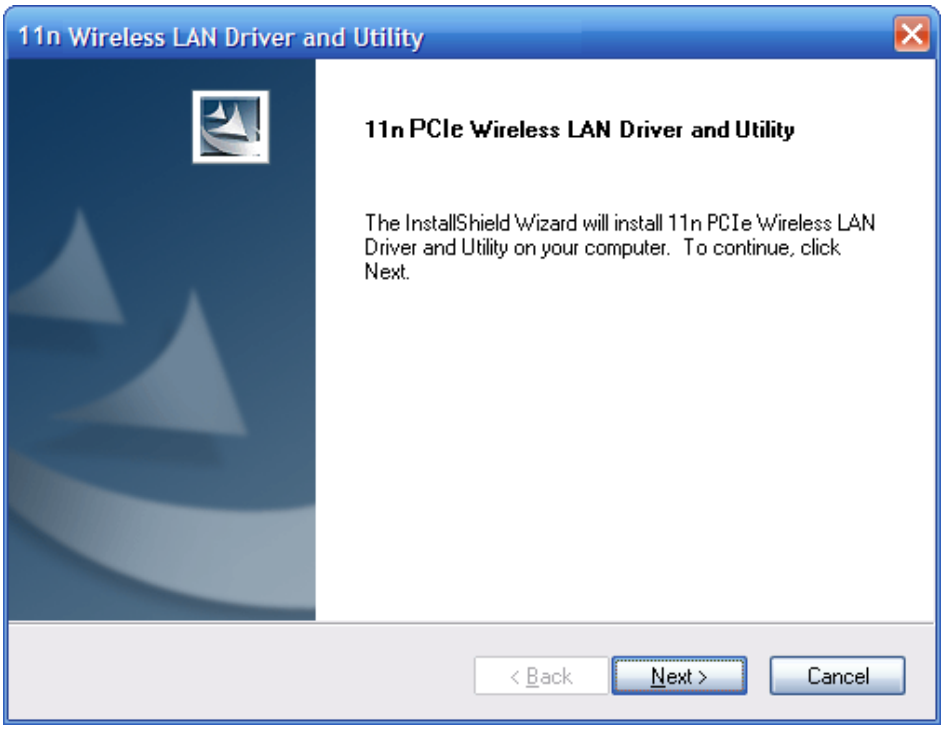
2. Insert the Driver and Utility CD-ROM into the CD-ROM driver.
3. The Wizard should run automatically, and **Error! Reference source not found.** should appear. If not, click the Start button and choose Run. In the field that appears, enter D:\autorun.exe (if ''D'' is the letter of your CD-ROM drive).

4. Click Install Driver Installation on the Wireless Client Configuration Utility dialogue

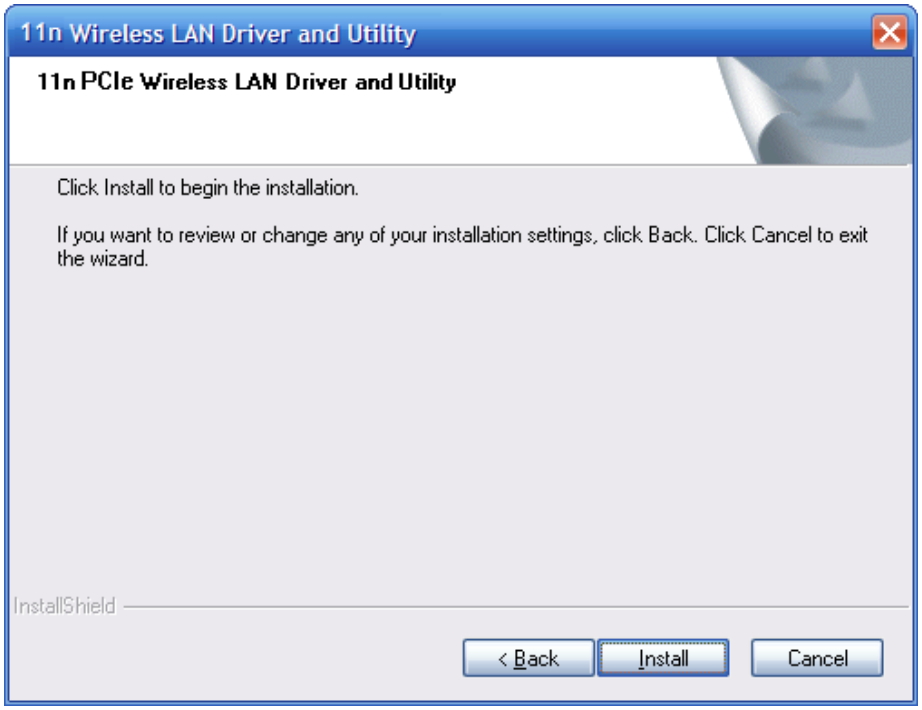
box, and then select the installing language from the next screen and click Next button.



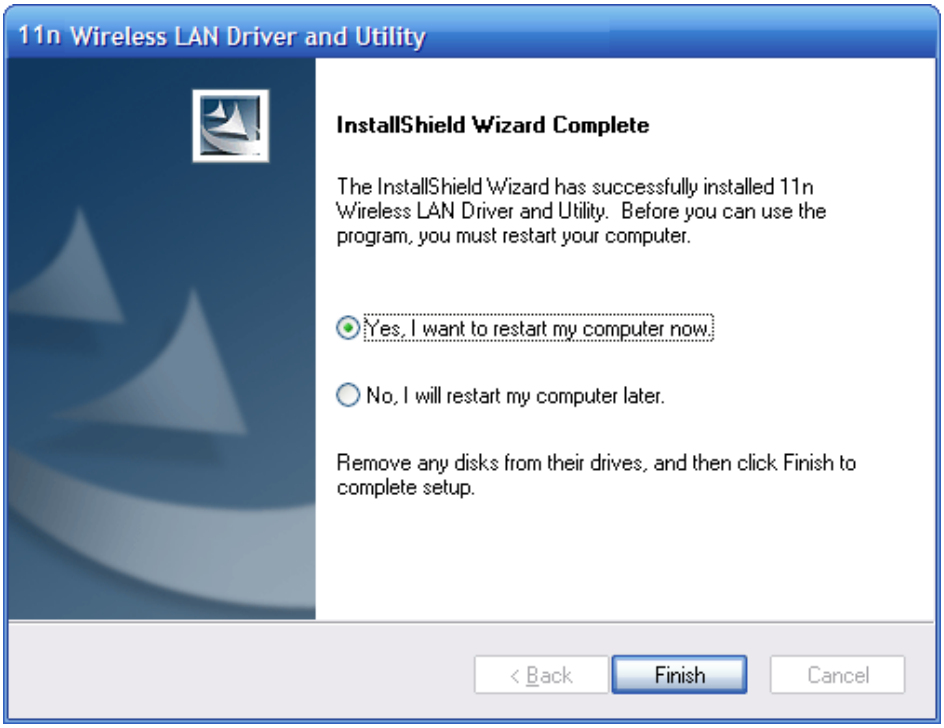
5. Click Next



6. Click Install to start installing

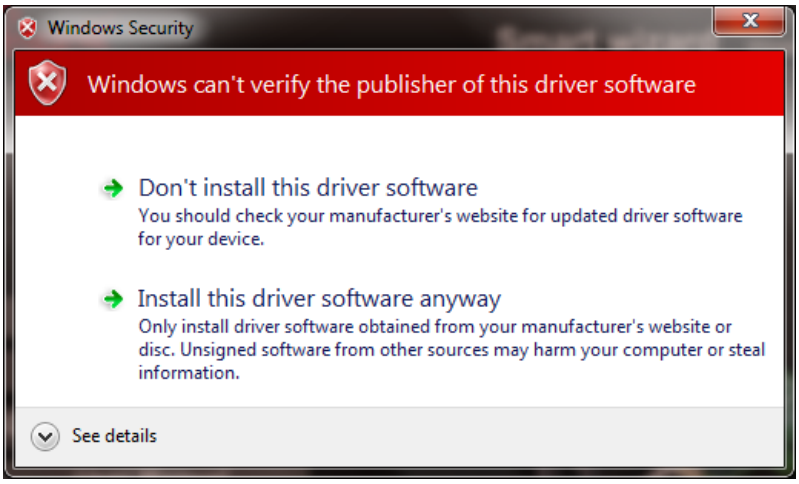


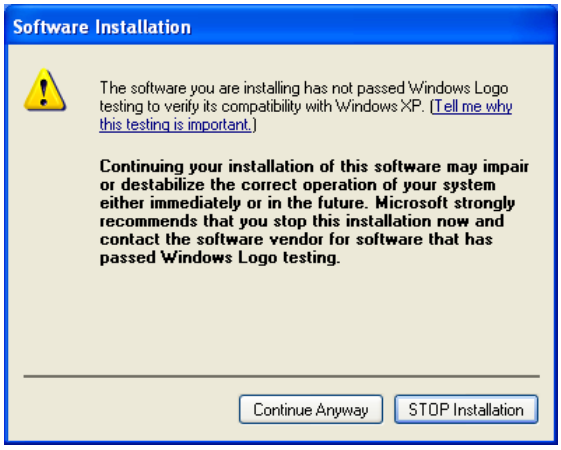
7. Follow the InstallShield Wizard steps, and click Finish when done.

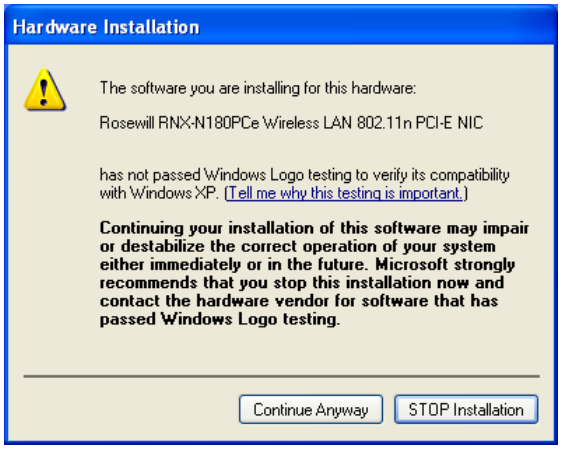


8. Now your PC or notebook will restart automatically.

- **You may encounter warning windows like below, please select "install this driver software anyway" for Win7, or "Continue Anyway" for Vista or XP.**


Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details


Software Installation
The software you are installing has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the software vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation


Hardware Installation
The software you are installing for this hardware:
Rosewill RNX-N180PCe Wireless LAN 802.11n PCI-E NIC
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

Chapter 3 Wireless Connection Guide

This chapter describes how to configure your Adapter for wireless connectivity on your Wireless Local Area Network (WLAN) and use the data security encryption features.

After Installing the Adapter, the Adapter's tray icon will appear in your system tray. It appears at the bottom of the screen, and shows the signal strength using color and the received signal strength indication (RSSI).

 - If the icon is purple, there is no connection.

 - If the icon is white, the network is dropping off.

 - If the icon is green, there is good signal strength.

 - If the icon is green, there is excellent signal strength.

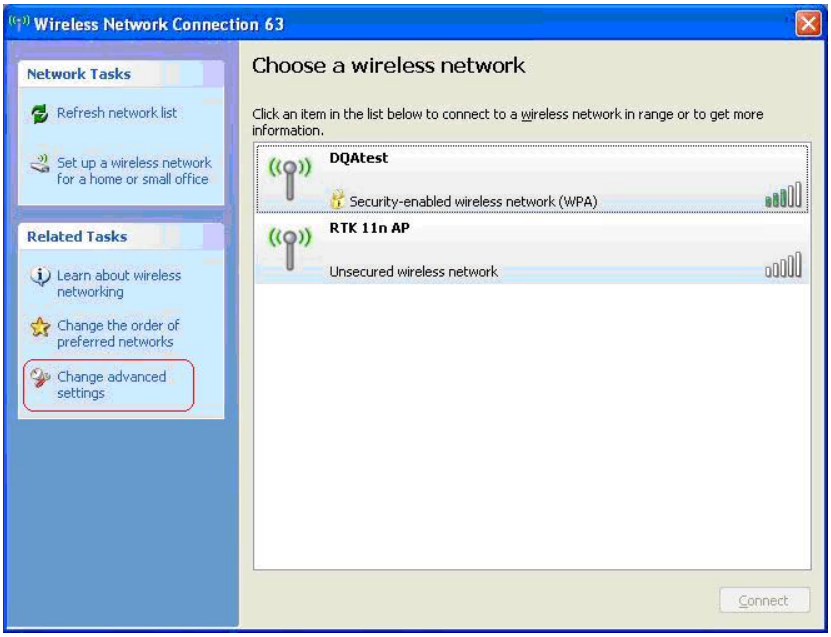
In the following instruction for making a network connection, we use the provided Utility to configure your wireless network settings.

Note: You could use either the software we provide or Microsoft Zero Configuration tool to configure this adapter.

3.1 Connecting with Microsoft Zero Configuration tool (Win XP)

After specifying the Microsoft Zero Configuration tool to configure your wireless network, right click on the  icon on system tray. Select "View Available Wireless Networks" to specify your wireless network.

The tool shows the available wireless networks. Select your demanding network to connect with. To connect to a wireless network, please click **Change advanced settings** to be compatible with your wireless network settings.

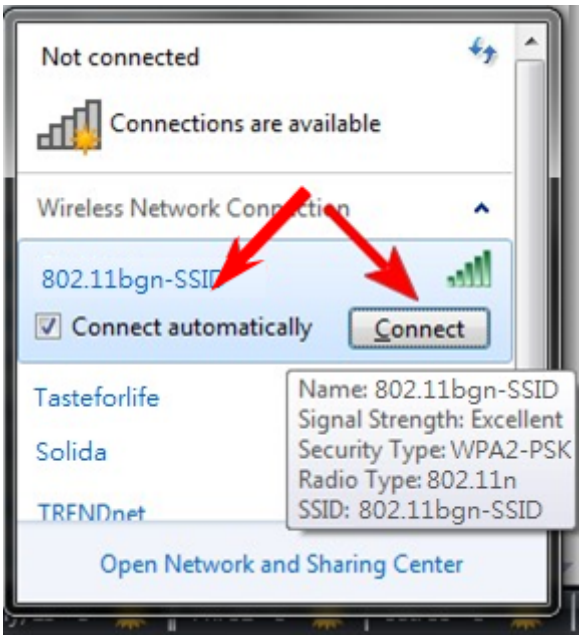


3.2 Connecting with Window 7

You can easily access to wireless with Win7. First, move your mouse to lower right hand corner as below and click on the icon where arrow pointing to.

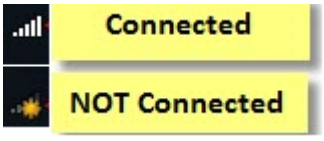
Click Refresh to get an update of your Wireless Network Connection. This should help you search the SSID of the network you want to connect to.

Select your desired SSID, then Click “Connect”.



You will be prompt to ask you entering the network security key. Once entered, please click OK to complete.

You should see below in a very short period and find out whether you are connected or now.



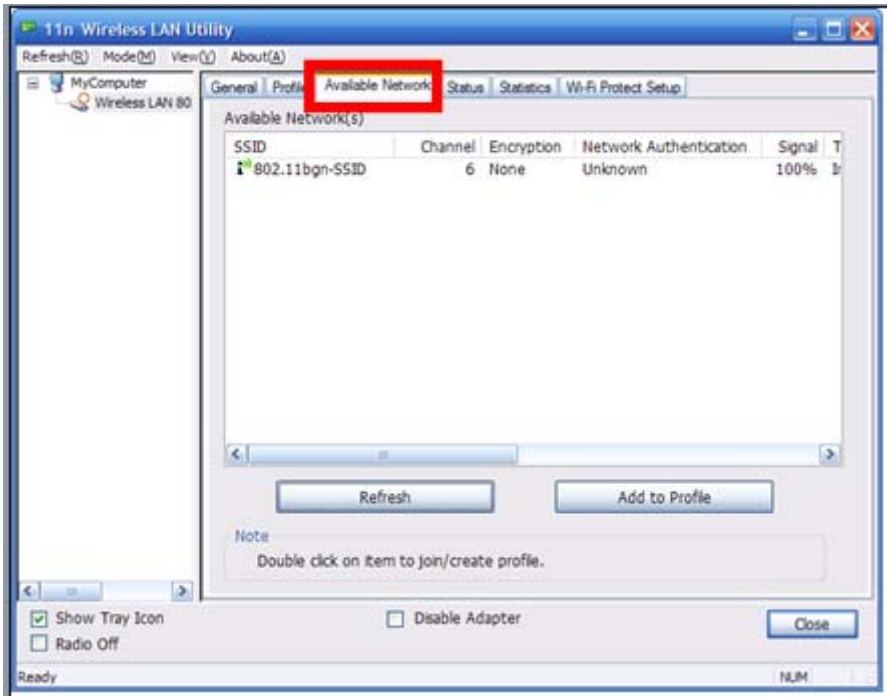
3.3 Connecting with Wireless LAN Utility

We provide this Utility for users to connect to a wireless network easily. It provides more information and configuration for this adapter. As default, the Utility is started

automatically upon starting your computer and connects to a connectable wireless network with best signal strength and with no security setting.

3.3.1 Step 1: Search Available Network

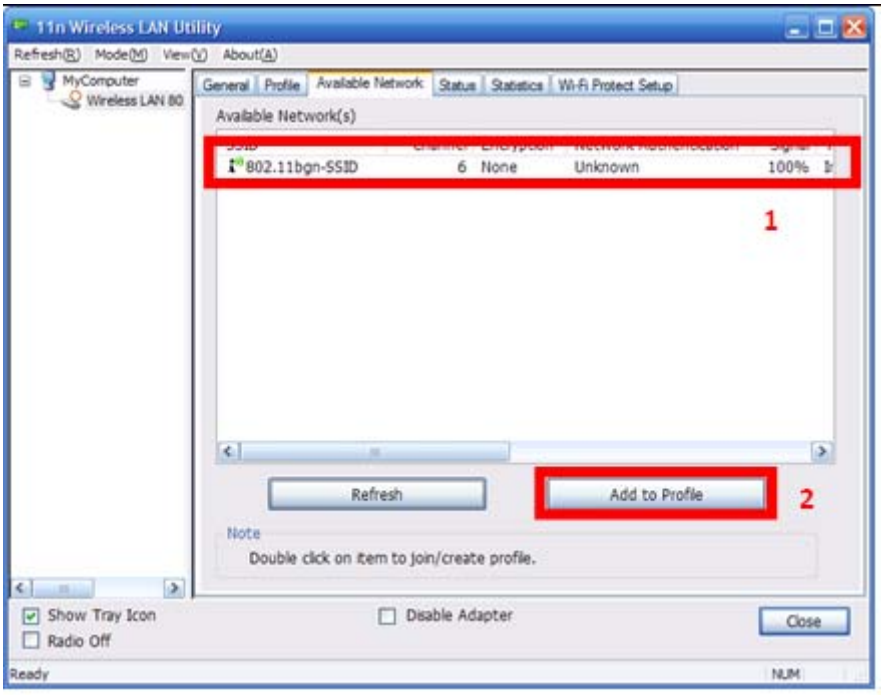
First Select the Available Network option:



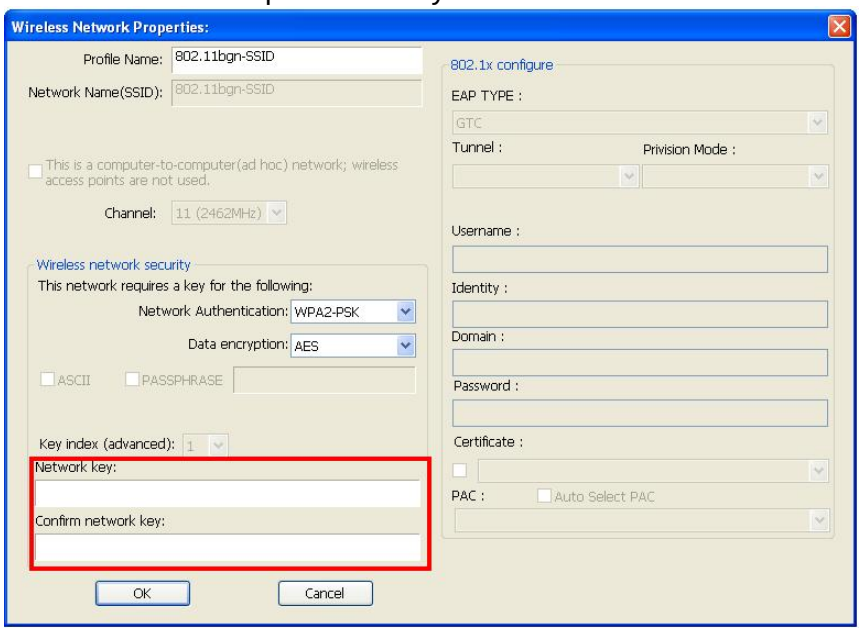
You will see a list of the SSID that your wireless adapter has scanned in your surrounding area. You can also “Refresh” to see the most updated list.

3.3.2 Step 2: Select and Add to Profile

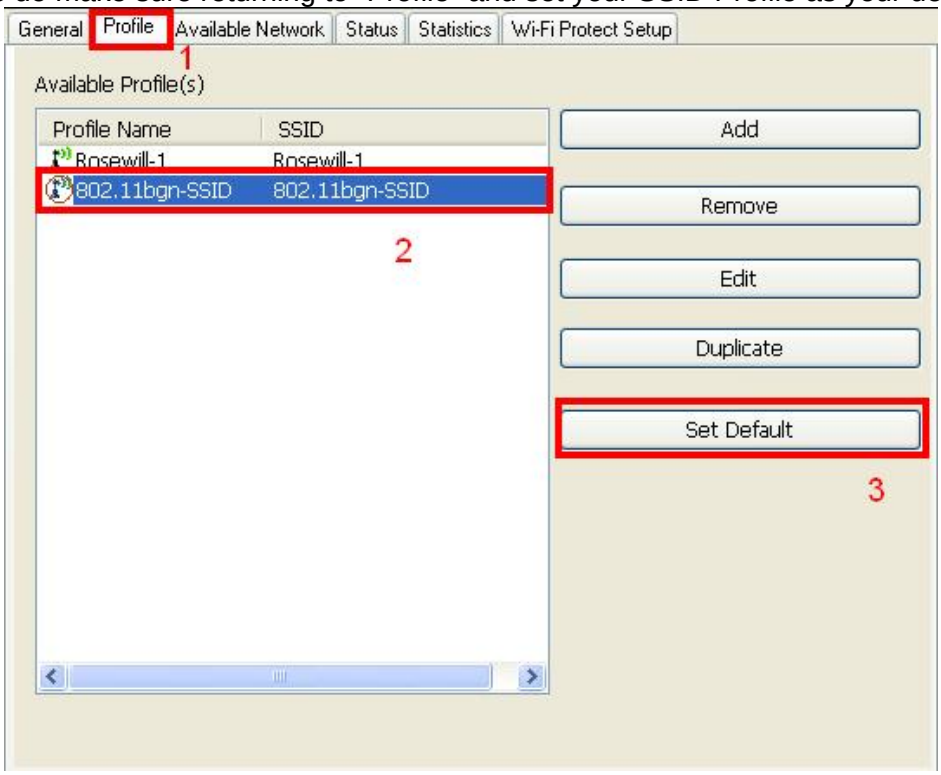
Select your desired SSID (the one you want to link with), then click Add to Profile.



After click “Add to Profile”, you will see the next window “Wireless Network Properties” popup with your current wireless signal’s setting. (RNX-N180PCe will detect the current setting of your SSID). So after the “Wireless Network Properties” popup, all you need to do is to enter the password of your SSID and click OK to continute.



When done, your wireless adapter will automatically connect to this SSID. However, Please do make sure returning to “Profile” and set your SSID Profile as your default.



So your utility will remember for the future to link to this SSID when computer is Power-On.

Now you have complete the setup of the your wireless network. You should be ready to surf!

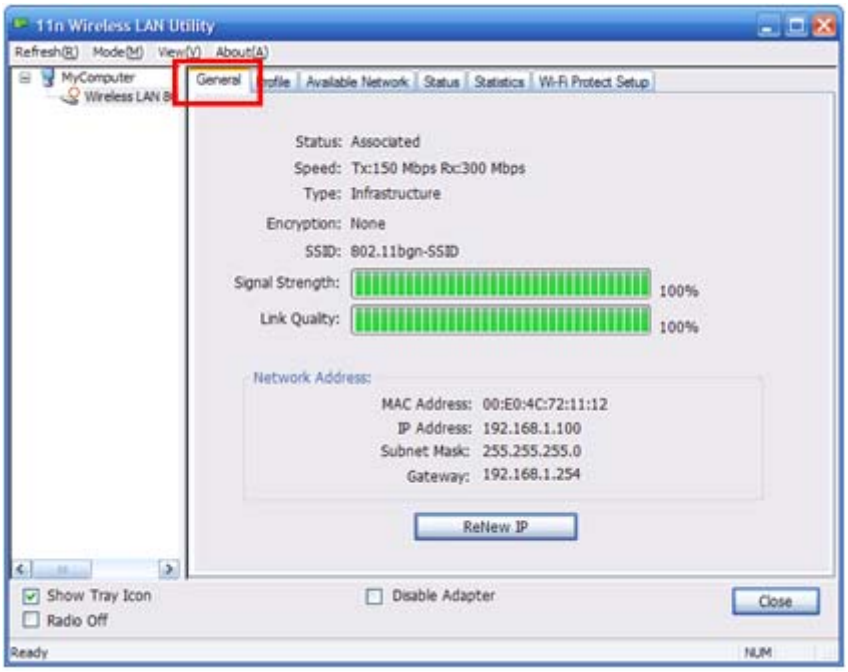
Chapter 4 Utility Configuration – Win XP's Station Mode

The Wireless Adapter provides two modes: **Station mode** and **Access Point mode**, the default is **Station mode** under Window XP.

You can select connect wirelessly to your Wireless router/AP to connect to Internet in station mode. But in the **Access Point mode**, the wireless adapter act as a wireless access point which can share Internet connection with others. (Access Point Mode requires Wired Connection)

4.1 General

The General tab displays current basic wireless connection information.



General Information

- Status: Wireless network Associated, Ad-hoc Mode or Not Associated.
- Speed: The data Tx rate and Rx rate of the current connection.
- Type: The type of the current wireless connection , Infrastructures or ad hoc
- Encryption: Current encryption.
- SSID: The unique name of the wireless network to which the wireless adapter is connecting.
- Signal Strength: The signal quality of the current connection.

- Link Quality: The link quality of the current wireless connection.

Network Address

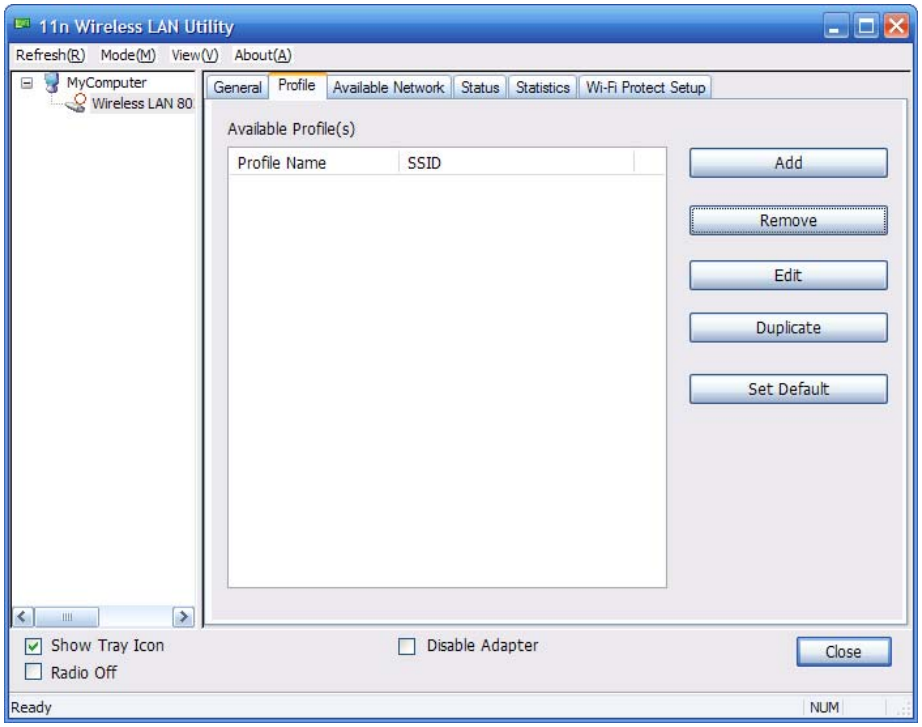
- MAC Address: The MAC Address of the Adapter.
- IP Address: The IP Address of the Adapter.
- Subnet Mask: The Subnet Mask of the Adapter.
- Default Gateway: The Default Gateway address of the Adapter.

Others

- Show Tray Icon: Show USB Wireless LAN Utility icon in the windows taskbar notification area.
- Disable Adapter: Disable the wireless adapter.
- Radio off: Turn off the radio of the wireless adapter.

4.1.1 Profile

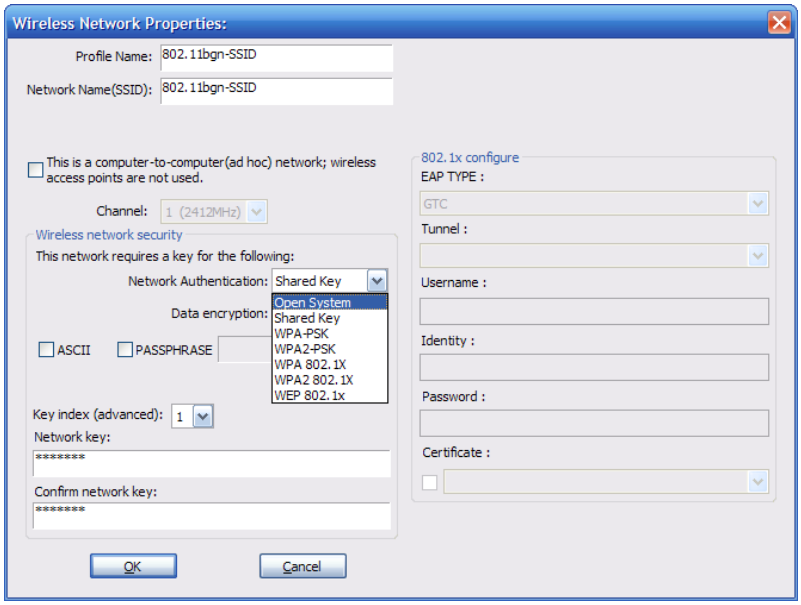
Using the Profile tab, you can add, remove, edit, duplicate, and set default a profile.



4.1.1.1 Add

- **Create a new Infrastructure mode profile**

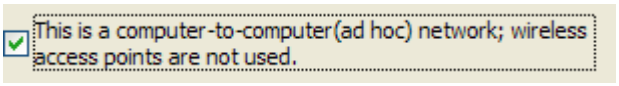
If you want your wireless computers to communicate with other computers on your wired network via a wireless access point. Click the **Add** button to create a new infrastructure profile.



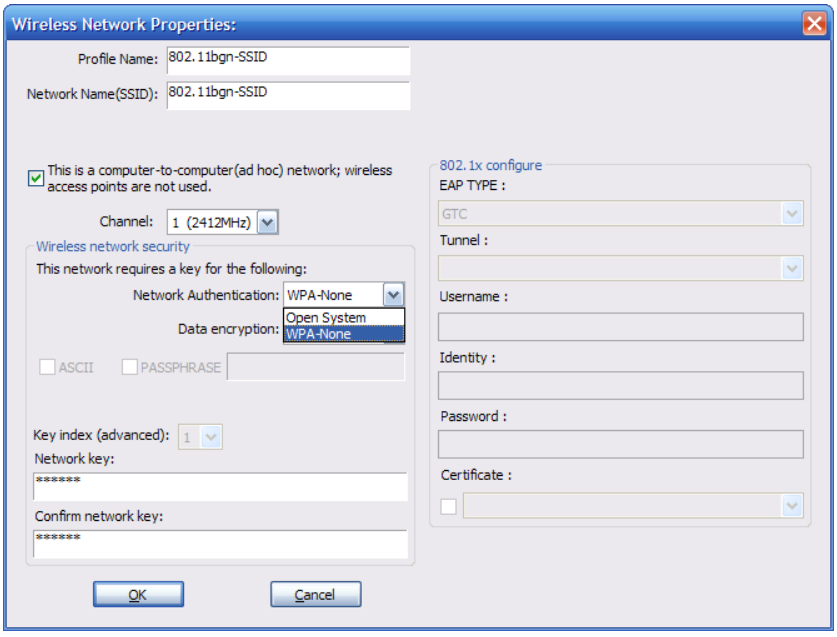
When the Network Info dialog box appears, enter a name for the new profile. Enter the Network SSID. Choose the Network Authentication Mode and Data encryption from the drop-down menu and import the network key. Then click OK button.

- **Create a new ad-hoc mode profile**

If you want your wireless computers communicate with each other directly, click the **Add** button to create a new ad-hoc profile. Then, check on below option:



then select the correct operating channel for your network from the Channel drop-down menu.

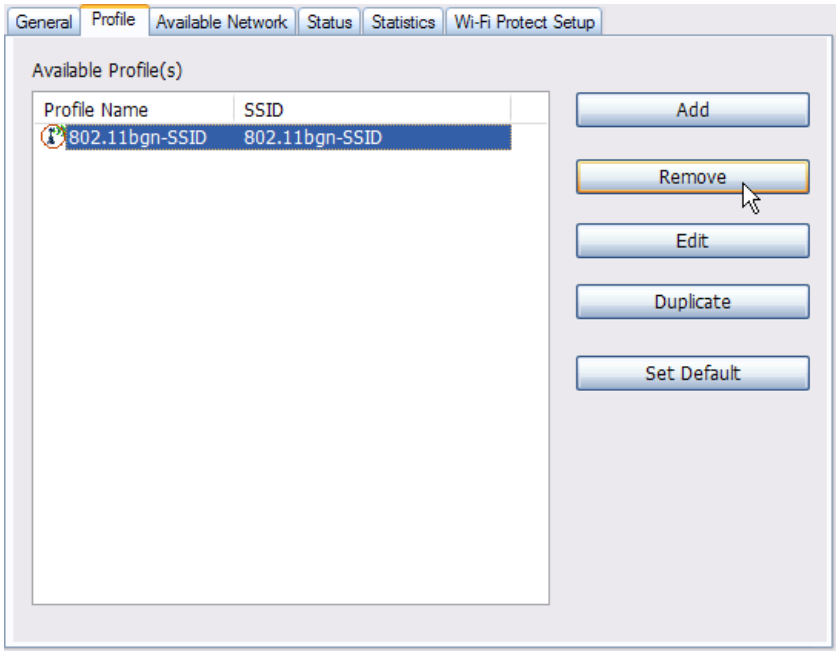


Choose the Network Authentication Mode and Data encryption from the drop-down

menu. And import the network key. Then click OK button. **You have successfully created a profile.**

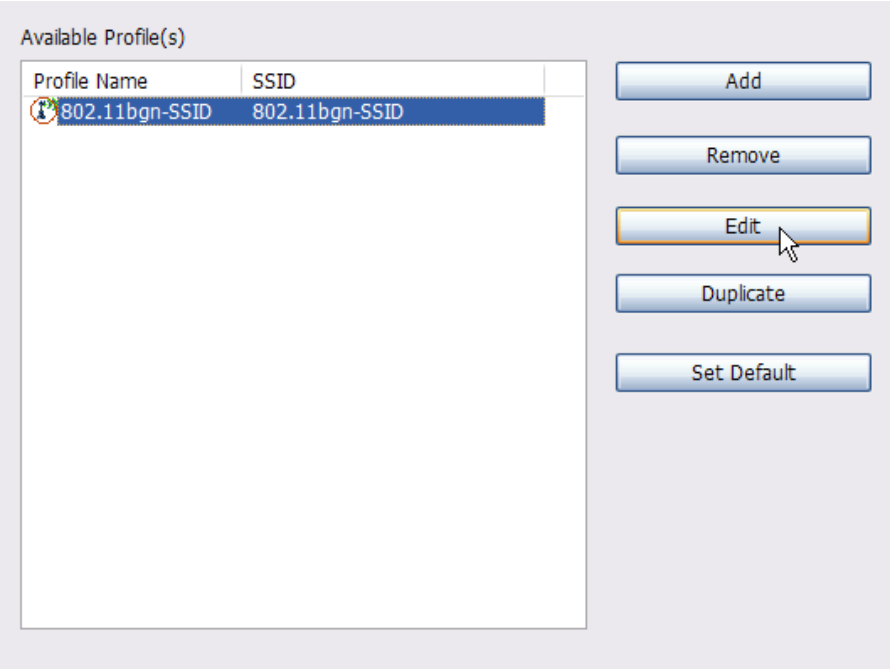
4.1.1.2 Remove

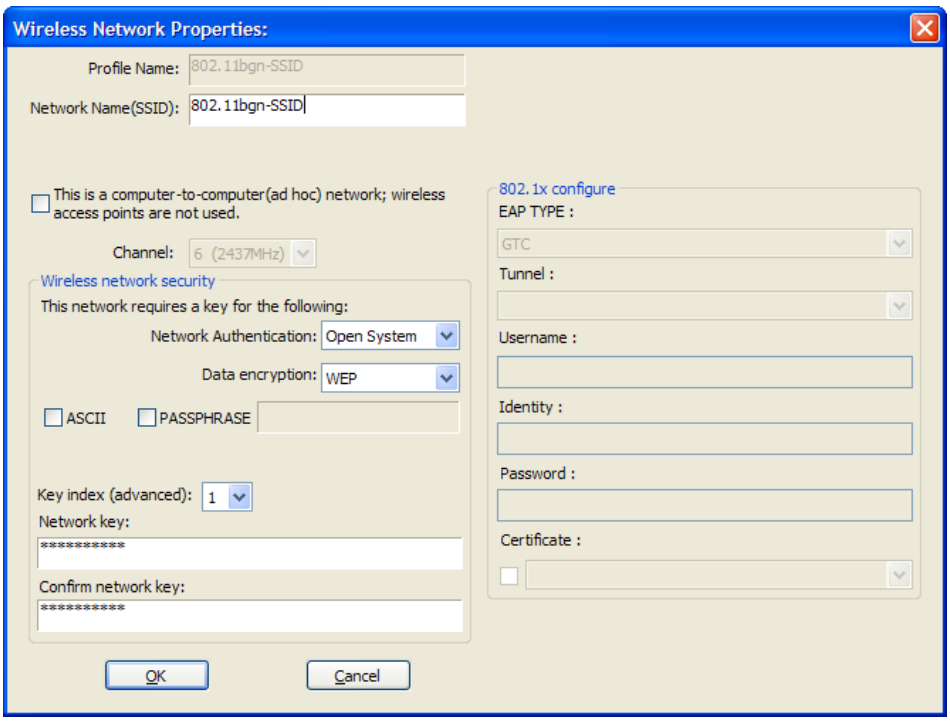
Select a profile and click **Remove** button to delete this profile.



4.1.1.3 Edit

Select a profile and click **Edit** button to edit this profile.

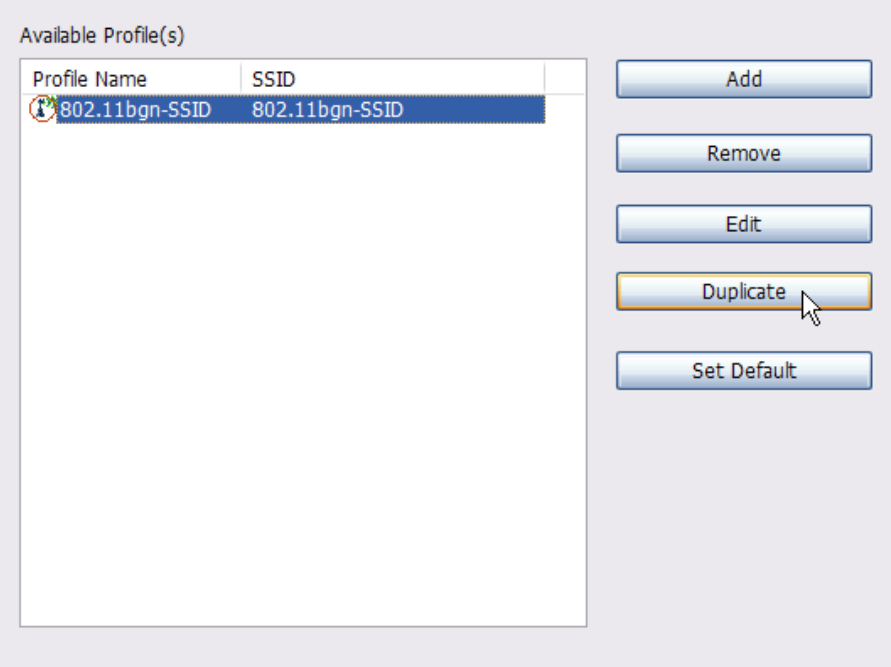




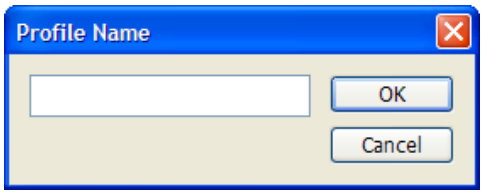
Modify the profile information according to your demand.

4.1.1.4 Duplicate

Select a profile which you want to copy and then click **Duplicate**

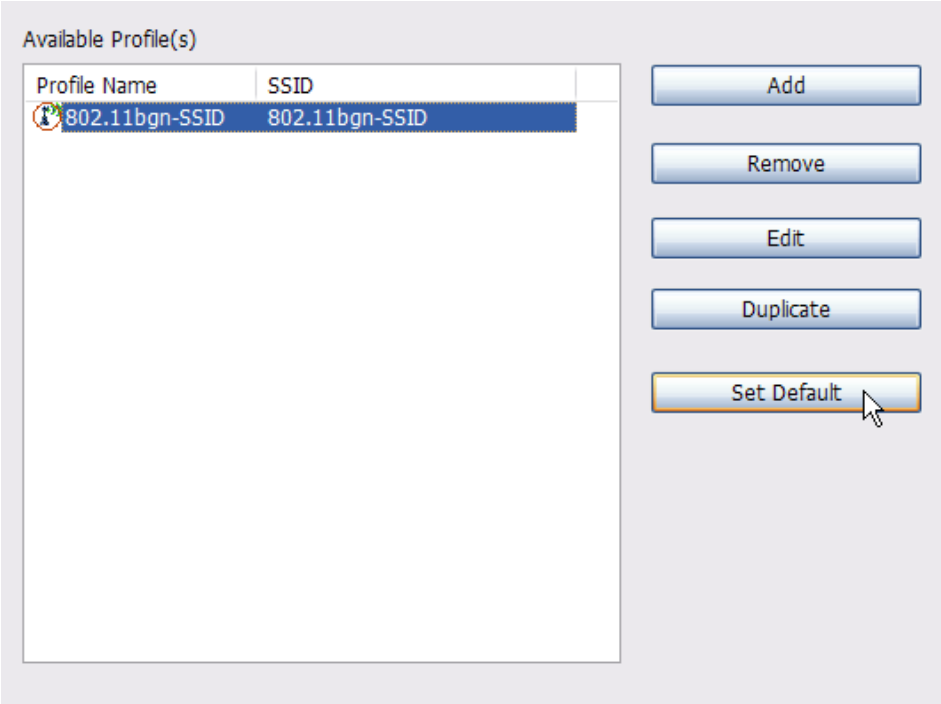


Import the new profile name in the popup window blank



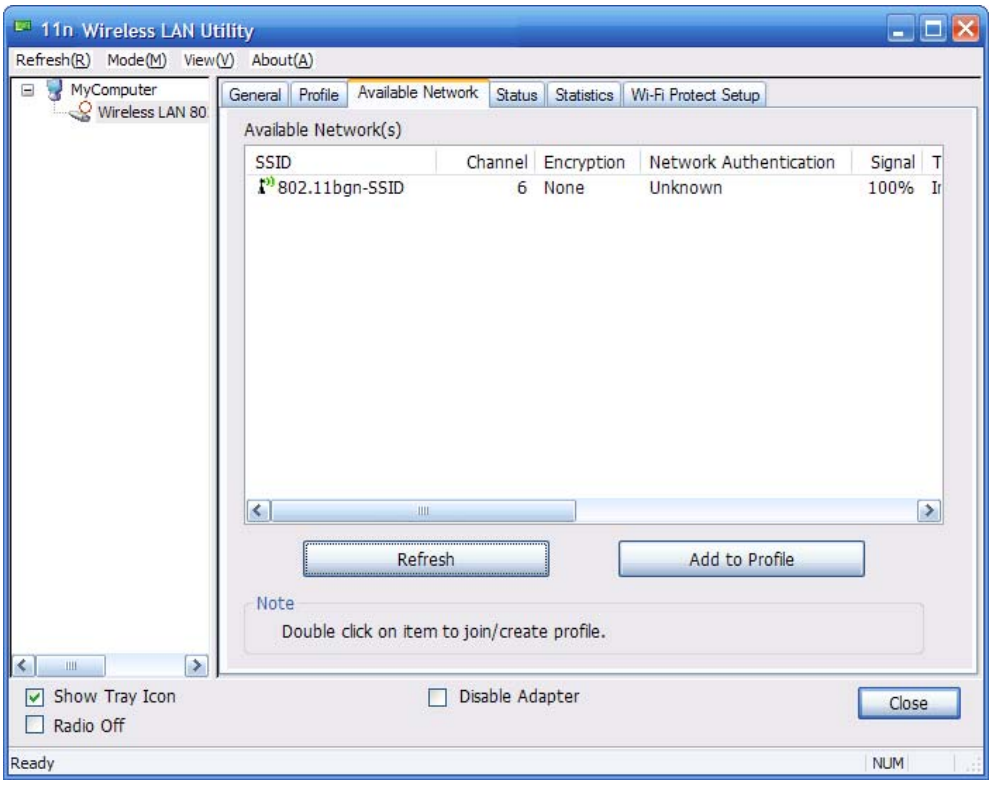
4.1.1.5 Set default

When you want to make one profile as a default wireless connection, you should select the profile and click **Set default** button. The wireless adapter will use this profile to connect to wireless network automatically when the utility running next time.

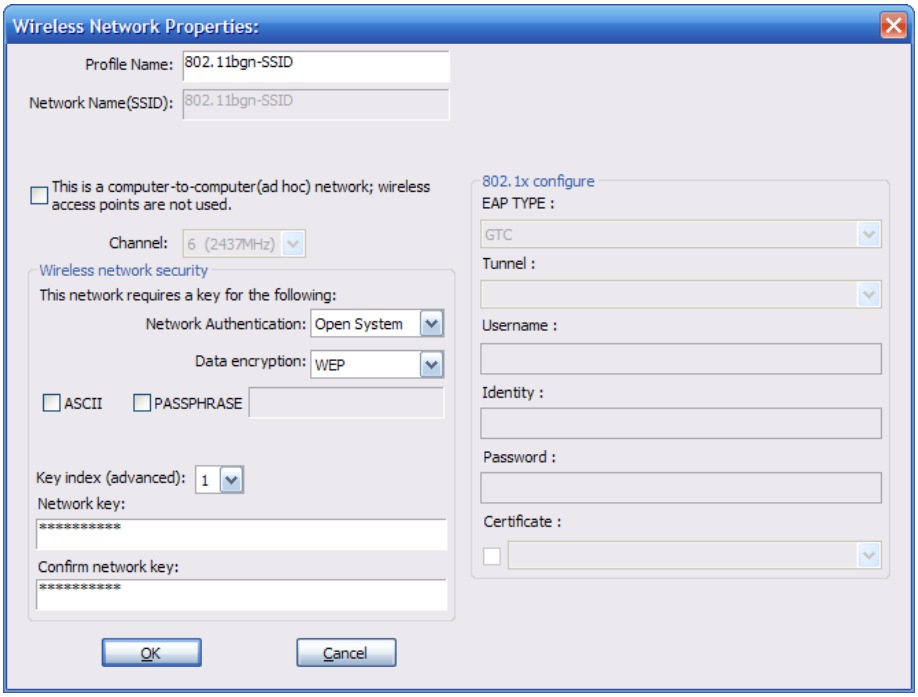


4.2 Available Network

The Available Network tab displays a list of infrastructure and ad-hoc networks for available wireless connection



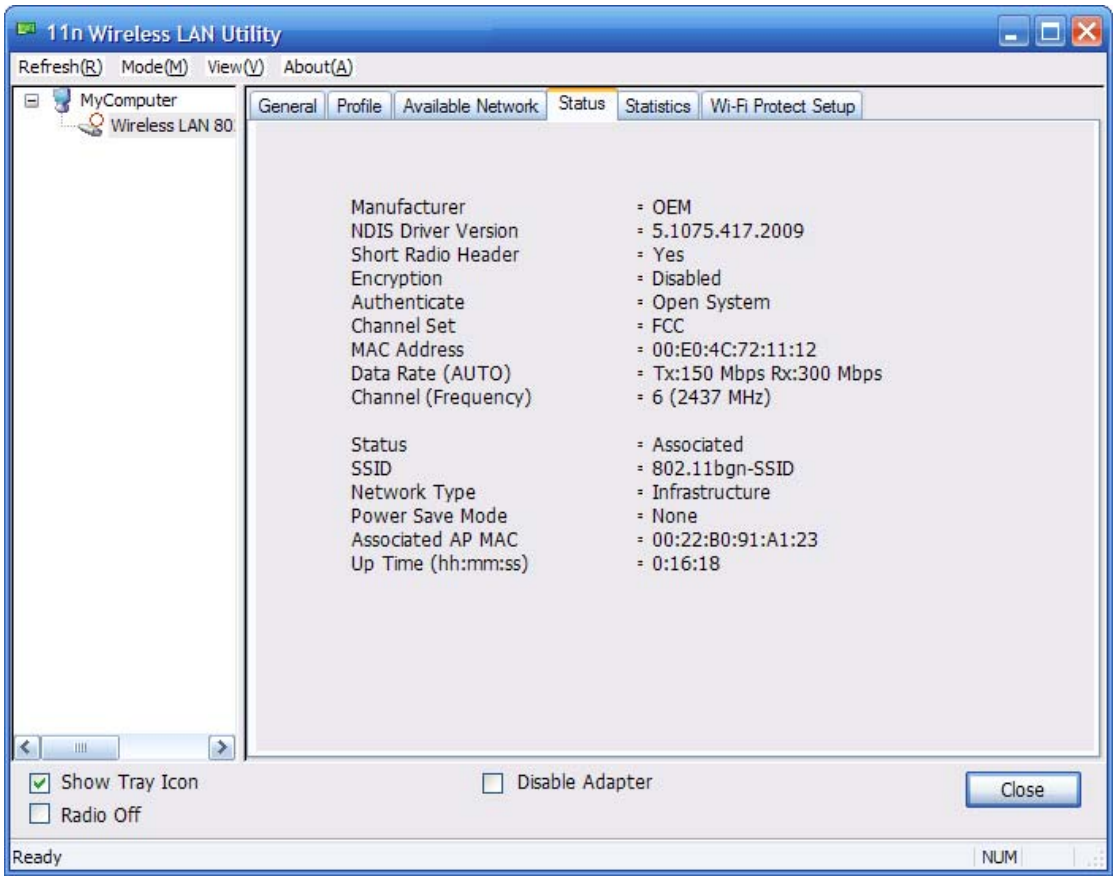
Double-click the network to which you wish to connect.



Choose the Authorization modes and Encryption modes in the drop-down box. If the wireless network uses a Passphrase, enter the Passphrase in the Passphrase field. If the wireless network uses a WEP key, enter the WEP key in the Key field. Click the **OK** button to complete the network connection.

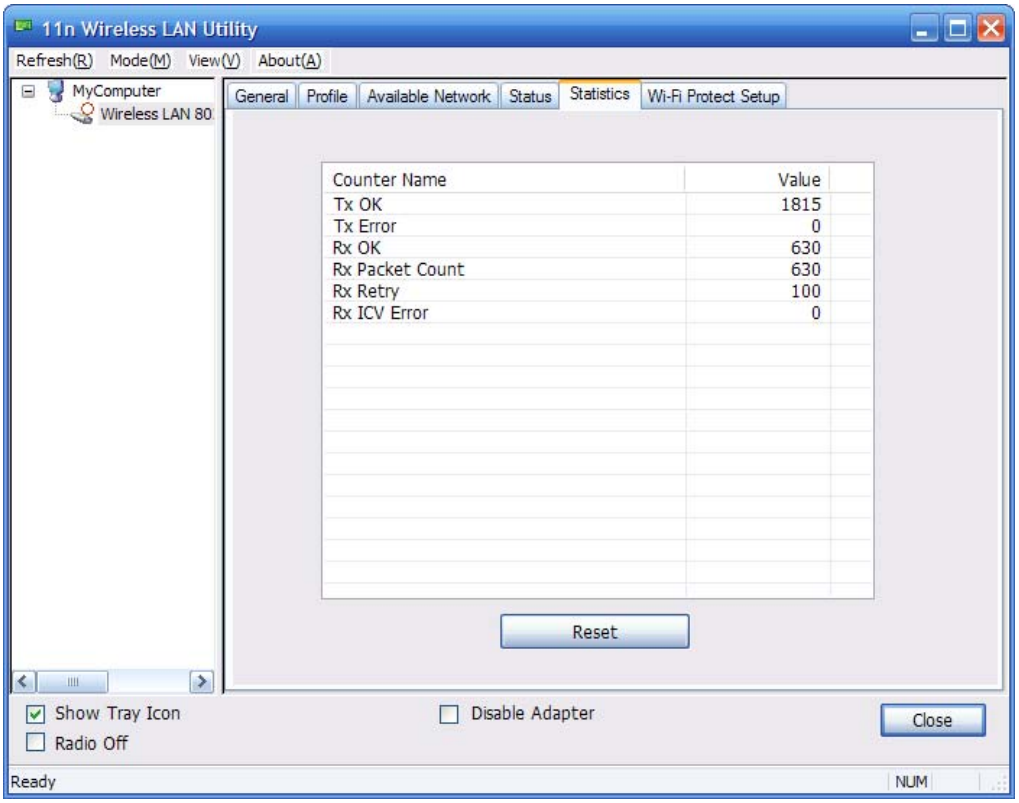
4.3 Status

The Status tab displays the detailed information of current device and wireless connection.

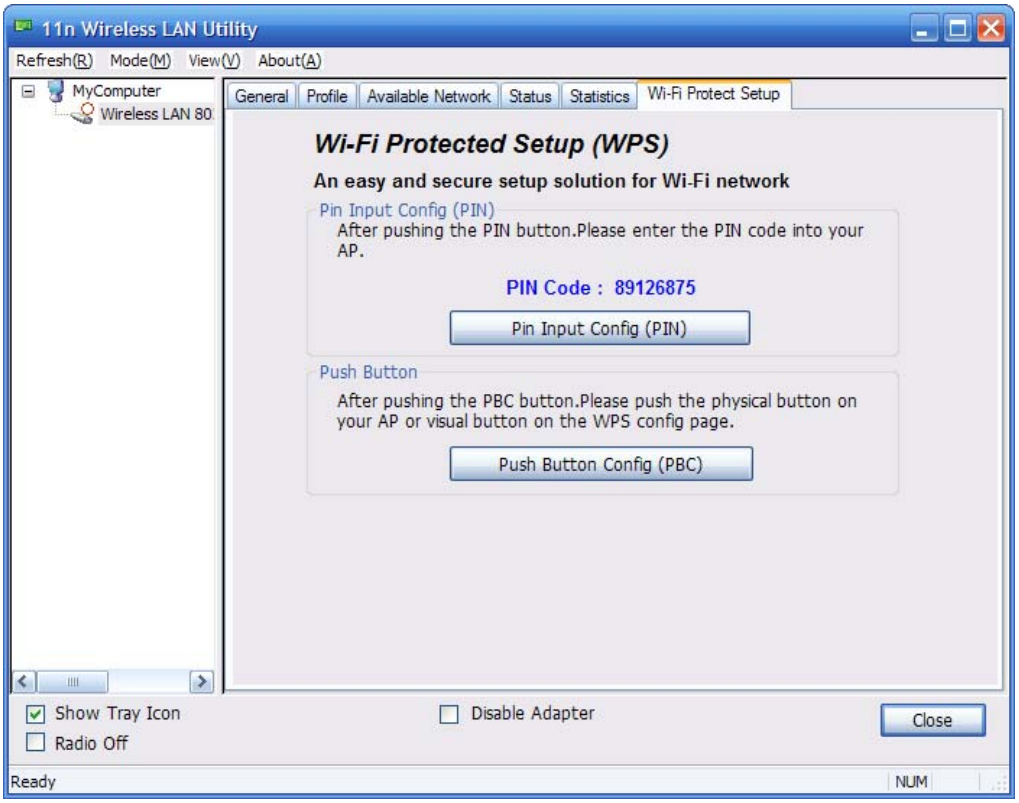


4.4 Statistics

The Statistics tab display the stat. value of current wireless connection Tx and Rx, you can click **Reset** button to reset value and restart to count.



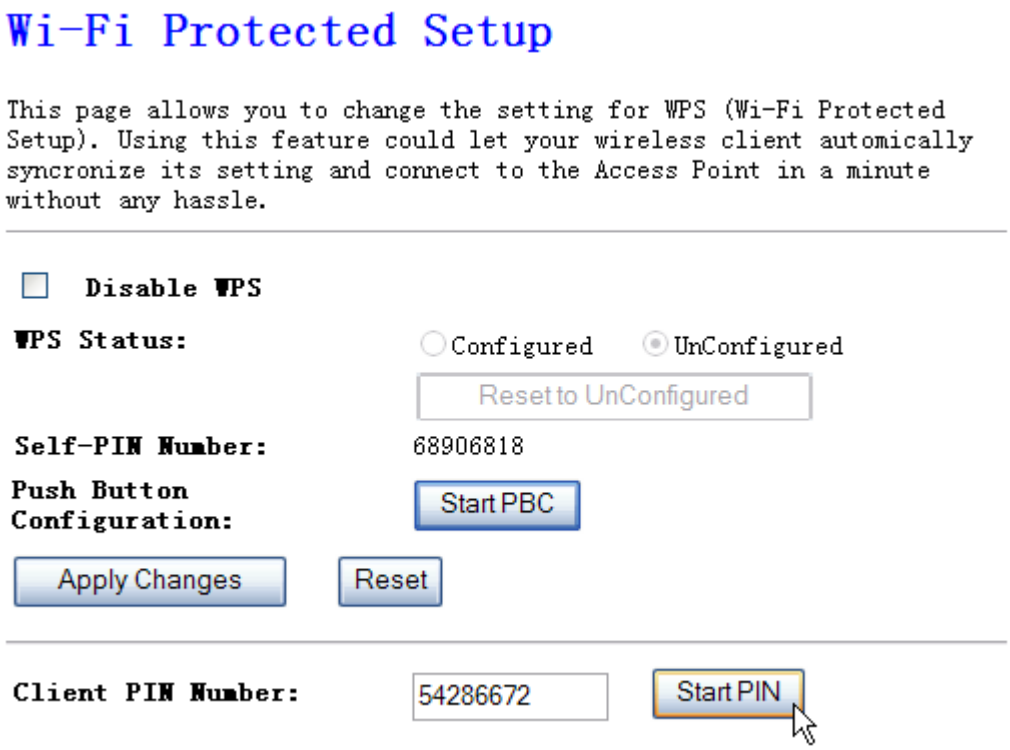
4.5 Wi-Fi Protect Setup



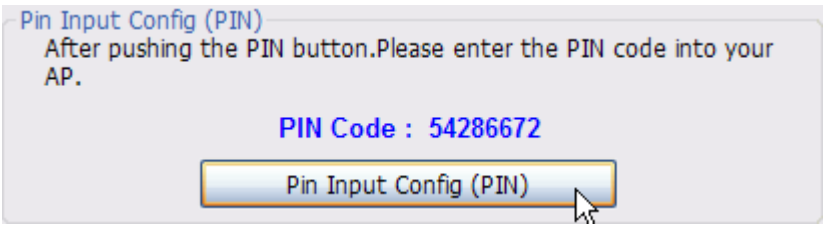
4.5.1 Method 1 PIN Input Config (PIN)

1. Input the wireless NIC's PIN Code into AP and click **Start PIN** on the AP-Router

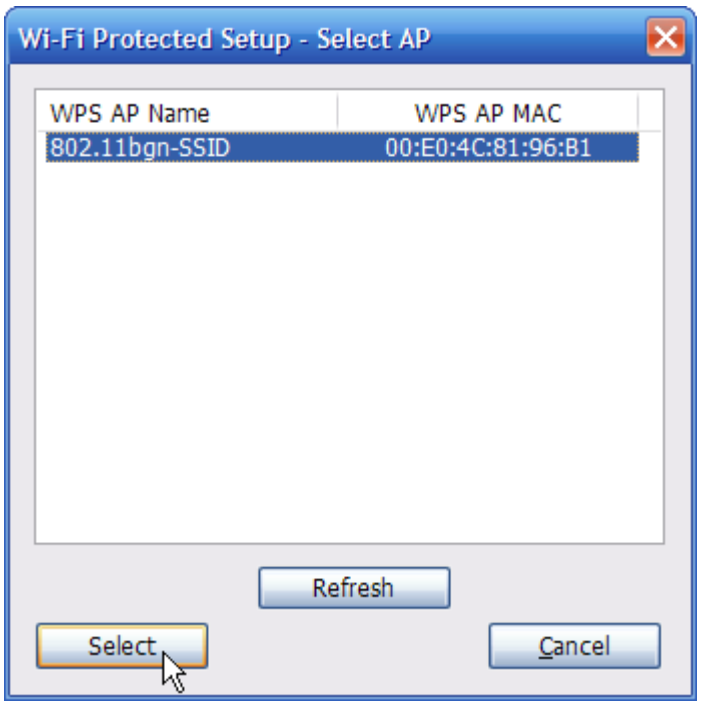
WPS config page



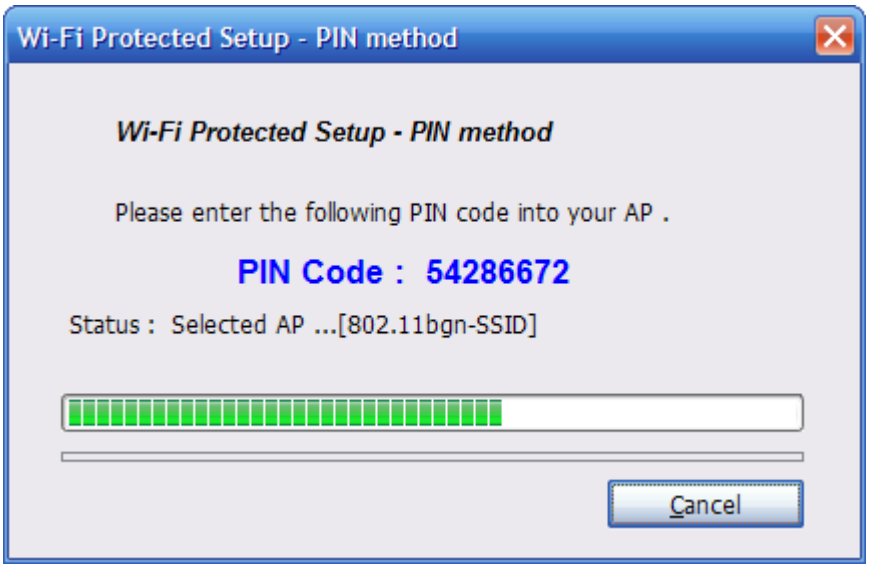
2. Click **Pin Input Config(PIN)**



3. Select one WPS AP which you want connect to and click **Select** button

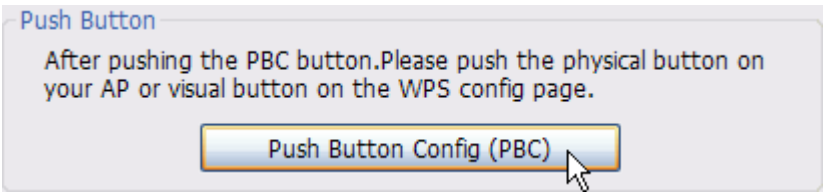


4. Please wait when the PIN Method Window pop-up appear, the secure connection between AP and wireless NIC will be founded automatically.

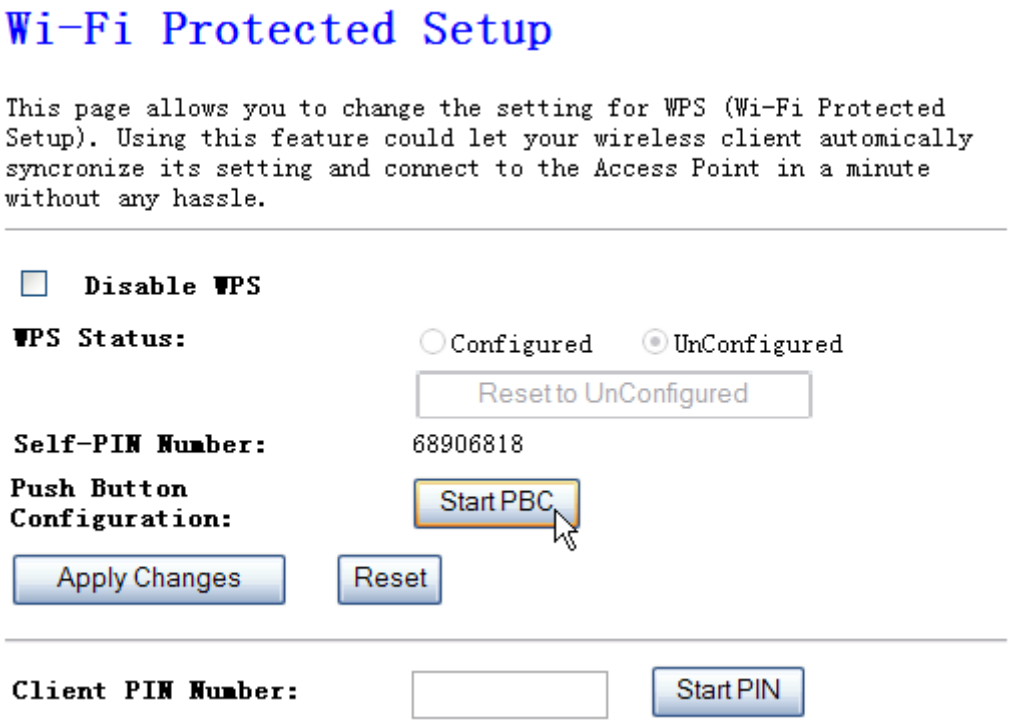


4.5.2 Method 2 Push Button

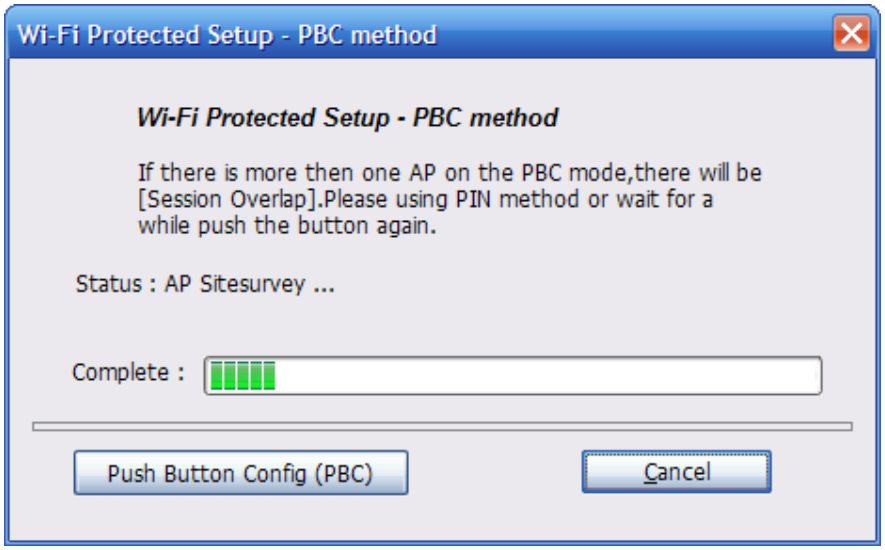
1. Click **Push Button Config(PBC)** on Wi-Fi Protect Setup page



2. Click **Start PBC** on the AP-Router WPS config page



3. Please wait when the PBC method window pop-up appear, the secure connection between AP and wireless NIC will be founded automatically.



Remark

If there is more than one AP on the PBC mode, there will be session overlap. Please using method 1 PIN Input Config(PIN) or wait for a while push the button again.

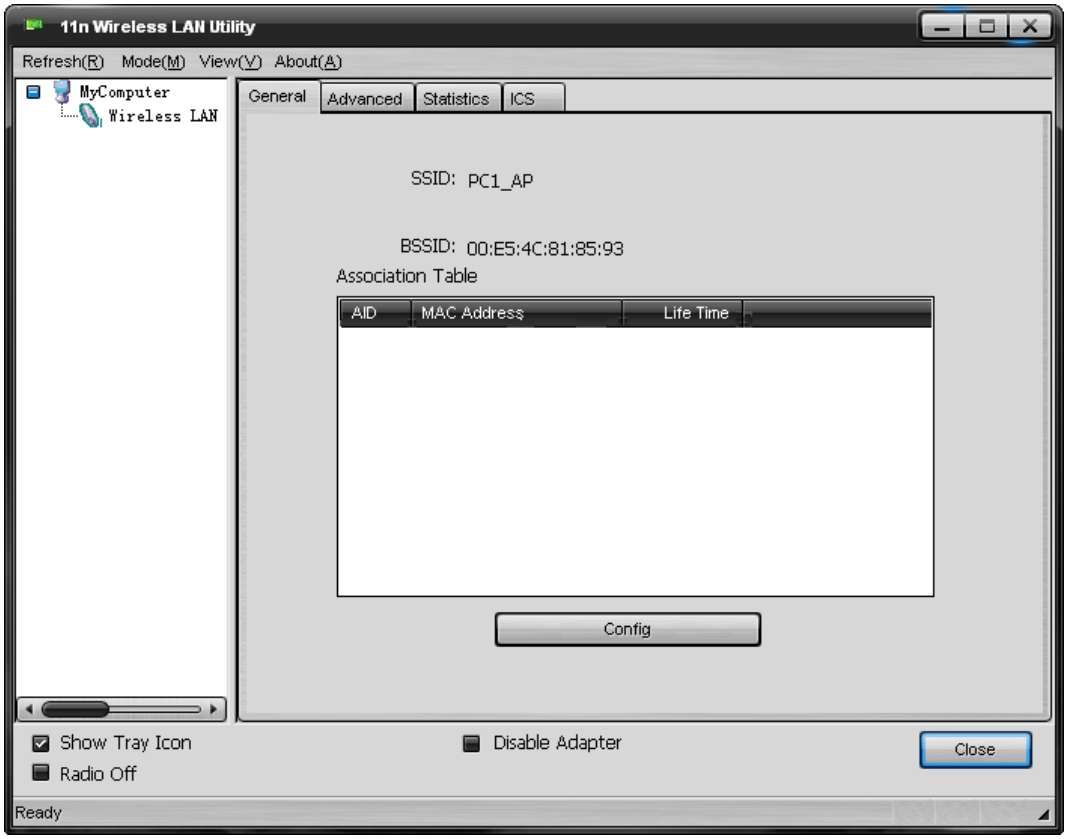
Chapter 5 Configuration – Win XP's Access Point Mode

We can use the wireless USB adapter to build an access point apart from the station mode. The wireless client can connect to it if the wireless USB adapter is set to access point mode, then you can share an Internet connection with others

Click Mode in the menu bar and select Access Point, then it will change to Access Point mode automatically

5.1 General

General displays the basic information of this AP



- SSID:

The SSID of this AP

- BSSID:

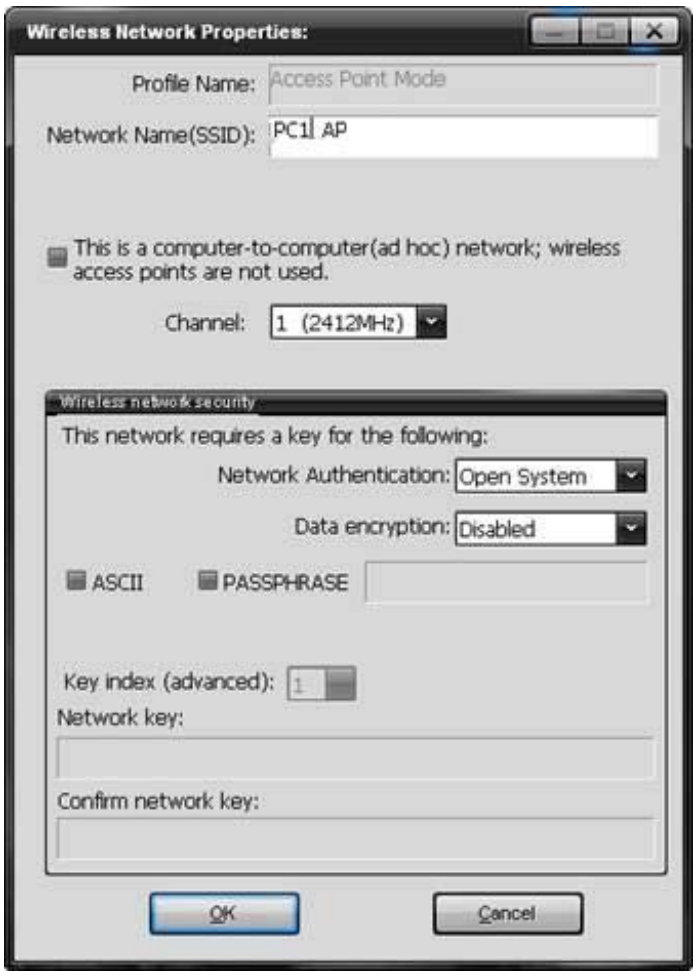
The MAC address of this AP

- Association Table:

It displays the PC's MAC address and life time that connect to this AP

- Config

Configure this AP. Click config, display the following picture



- **Profile name:**

The default is Access Point Mode and can't be modified

- **Network name (SSID):**

The name of this AP and can be modified

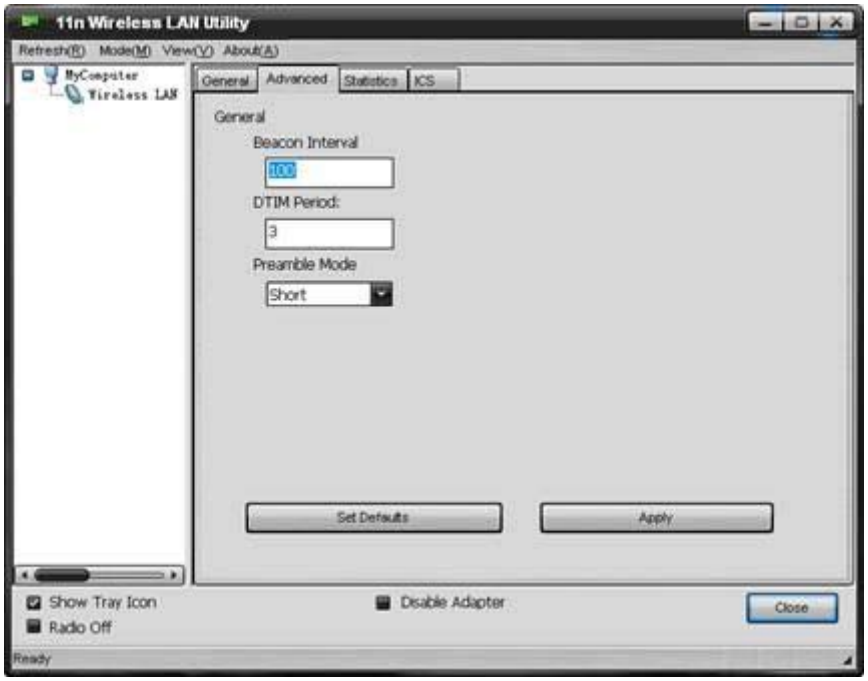
- **Channel**:

You can select channel 1 to 14, which provides a choice of avoiding interference

- **Network authentication:**

It contains open system, shared key, WPA-PSK and WPA2-PSK. You can configure safe encryption mode for this AP. If you select encryption mode, then you will need to enter key

5.2 Advanced



- **Beacon Interval:**

This represents the amount of time between beacon transmissions. Before a station enters power save mode, the station needs the beacon interval to know when to wake up to receive the beacon (and learn whether there are buffered frames at the access point)

- **DTIM period:**

The DTIM period is set on the TIM information element on the DTIM period field. This field is one byte and represents the number of beacon intervals that must go by before a new DTIM is sent.

- **Preamble Mode:**

"Short" is suitable for heavy traffic wireless network. "Long" provides much communication reliability; the default setting is "Short"

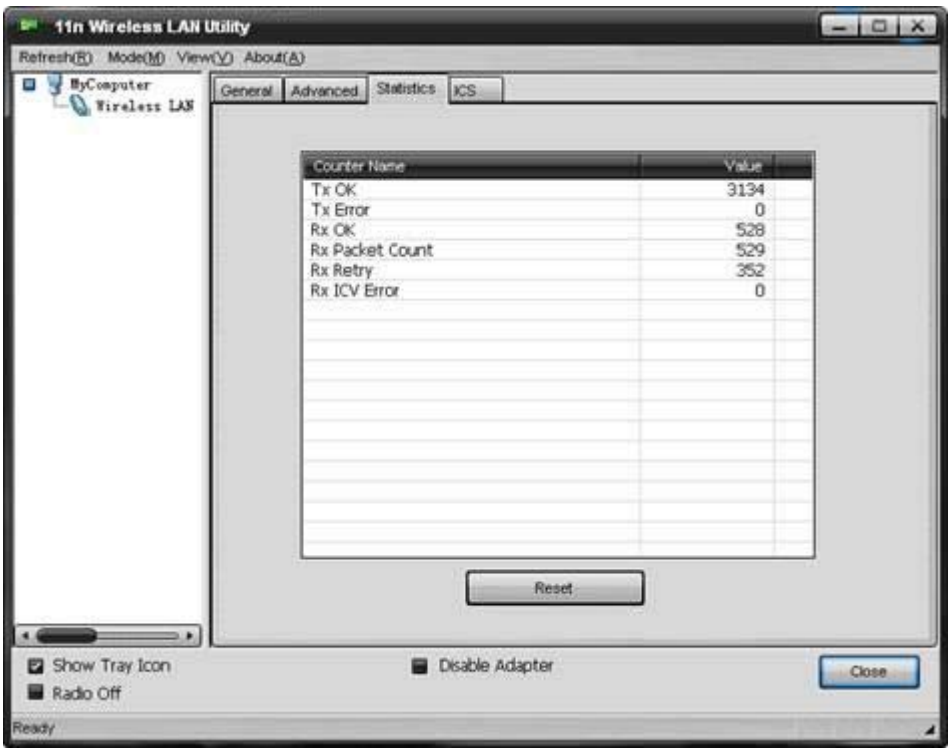
- **Set defaults:**

Set the options in advanced to default

- **Apply:**

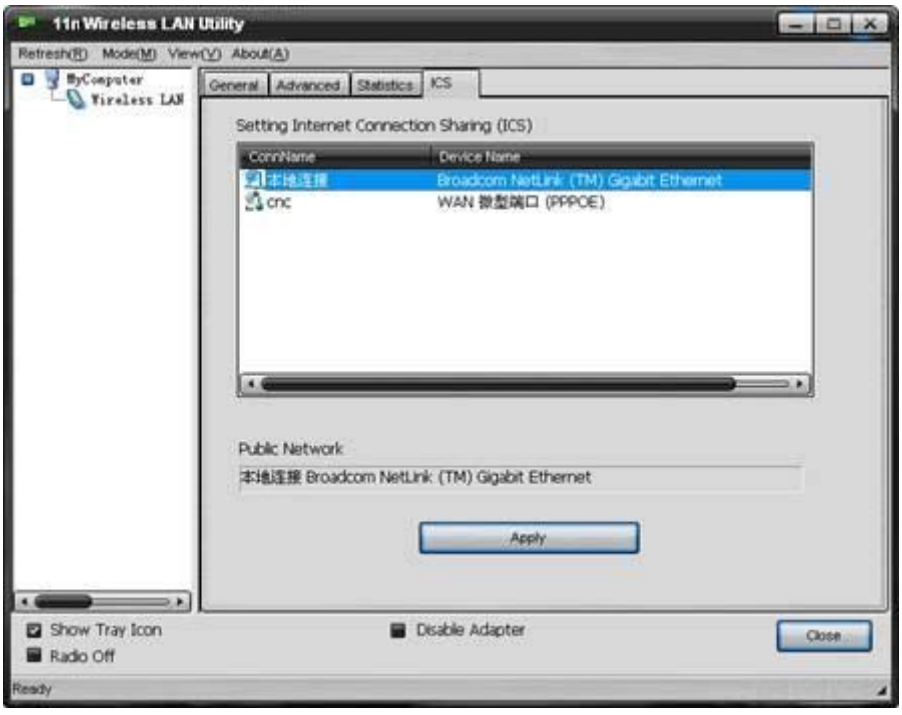
Save the options

5.3 Statistics

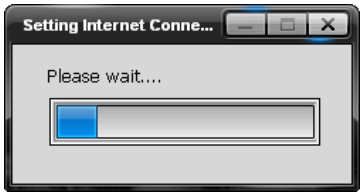


It display receive and transmit information

5.4 ICS



You can set internet connecting sharing (ICS), select the network you want to share in the list, then click ‘apply’, the following picture appears. When you connect successfully, you can share network with others


Setting Internet Conne...
Please wait....

FAQ

This chapter provides solutions to problems that may occur during the installation and operation of the Wireless USB Adapter. Read the descriptions below to solve your problems.

1. I cannot communicate with the other computers linked via Ethernet in the Infrastructure configuration.

Make sure that the PC to which the Adapter is associated is powered on.

Make sure that your Adapter is configured on the same channel and with the same security options as with the other computers in the Infrastructure configuration.

2. What should I do when the computer with the Adapter installed is unable to connect to the wireless network and/or the Internet?

Check that the LED indicators for the broadband modem are indicating normal activity. If not, there may be a problem with the broadband connection.

Check that the LED indicators on the wireless router are functioning properly. If not, check that the AC power and Ethernet cables are firmly connected.

Check that the IP address, subnet mask, gateway, and DNS settings are correctly entered for the network.

In Infrastructure mode, make sure the same Service Set Identifier (SSID) is specified on the settings for the wireless clients and access points.

In Ad-Hoc mode, both wireless clients will need to have the same SSID. Please note that it might be necessary to set up one client to establish a BSS (Basic Service Set) and wait briefly before setting up other clients. This prevents several clients from trying to establish a BSS at the same time, which can result in multiple singular BSSs being established, rather than a single BSS with

multiple clients associated to it.

Check that the Network Connection for the wireless client is configured properly.

If Security is enabled, make sure that the correct encryption keys are entered on both the Adapter and the access point.

Glossary

- **802.11b -** The 802.11b standard specifies a wireless product networking at 11 Mbps using direct-sequence spread-spectrum (DSSS) technology and operating in the unlicensed radio spectrum at 2.4GHz, and WEP encryption for security. 802.11b networks are also referred to as Wi-Fi networks.
- **802.11g -** specification for wireless networking at 54 Mbps using direct-sequence spread-spectrum (DSSS) technology, using OFDM modulation and operating in the unlicensed radio spectrum at 2.4GHz, and backward compatibility with IEEE 802.11b devices, and WEP encryption for security.
- **802.11n -** 802.11n builds upon previous 802.11 standards by adding MIMO (multiple-input multiple-output). MIMO uses multiple transmitter and receiver antennas to allow for increased data throughput via spatial multiplexing and increased range by exploiting the spatial diversity, perhaps through coding schemes like Alamouti coding. The Enhanced Wireless Consortium (EWC) was formed to help accelerate the IEEE 802.11n development process and promote a technology specification for interoperability of next-generation wireless local area networking (WLAN) products.
- **Ad-hoc Network -** An ad-hoc network is a group of computers, each with a Wireless Adapter, connected as an independent 802.11 wireless LAN. Ad-hoc wireless computers operate on a peer-to-peer basis, communicating directly with each other without the use of an access point. Ad-hoc mode is also referred to as an Independent Basic Service Set (IBSS) or as peer-to-peer mode, and is useful at a departmental scale or SOHO operation.
- **DSSS -** (Direct-Sequence Spread Spectrum) **-** DSSS generates a redundant bit pattern for all data transmitted. This bit pattern is called a chip (or chipping code).

Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the receiver can recover the original data without the need of retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers. However, to an intended receiver (i.e. another wireless LAN endpoint), the DSSS signal is recognized as the only valid signal, and interference is inherently rejected (ignored).

- **FHSS -** (Frequency Hopping Spread Spectrum) **-** FHSS continuously changes (hops) the carrier frequency of a conventional carrier several times per second according to a pseudo-random set of channels. Because a fixed frequency is not used, and only the transmitter and receiver know the hop patterns, interception of FHSS is extremely difficult.
- **Infrastructure Network -** An infrastructure network is a group of computers or other devices, each with a Wireless Adapter, connected as an 802.11 wireless LAN. In infrastructure mode, the wireless devices communicate with each other and to a wired network by first going through an access point. An infrastructure wireless network connected to a wired network is referred to as a Basic Service Set (BSS). A set of two or more BSS in a single network is referred to as an Extended Service Set (ESS). Infrastructure mode is useful at a corporation scale, or when it is necessary to connect the wired and wireless networks.
- **SSID -** A Service Set Identification is a thirty-two character (maximum) alphanumeric key identifying a wireless local area network. For the wireless devices in a network to communicate with each other, all devices must be configured with the same SSID. This is typically the configuration parameter for a wireless PC card. It corresponds to the ESSID in the wireless Access Point and to the wireless network name. *See also* Wireless Network Name and ESSID.

- **WEP -** (Wired Equivalent Privacy) - A data privacy mechanism based on a 64-bit or 128-bit or 152-bit shared key algorithm, as described in the IEEE 802.11 standard. To gain access to a WEP network, you must know the key. The key is a string of characters that you create. When using WEP, you must determine the level of encryption. The type of encryption determines the key length. 128-bit encryption requires a longer key than 64-bit encryption. Keys are defined by entering in a string in HEX (hexadecimal - using characters 0-9, A-F) or ASCII (American Standard Code for Information Interchange – alphanumeric characters) format. ASCII format is provided so you can enter a string that is easier to remember. The ASCII string is converted to HEX for use over the network. Four keys can be defined so that you can change keys easily.
- **Wi-Fi -** A trade name for the 802.11b wireless networking standard, given by the Wireless Ethernet Compatibility Alliance (WECA, see http://www.wi-fi.net), an industry standards group promoting interoperability among 802.11b devices.
- **WLAN -** (Wireless Local Area Network) - A group of computers and associated devices communicate with each other wirelessly, which network serving users are limited in a local area.
- **WPA -** (Wi-Fi Protected Access) **-** A wireless security protocol use TKIP (Temporal Key Integrity Protocol) encryption, which can be used in conjunction with a RADIUS server

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