

# **@ K ' %1&%5 %11b/g/n USB Wireless User Manual**

Wireless Local Area Network USB Card

(For 802.11b/g/n Wireless Networks)

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# **1 Overview**

## **1.1 Product Introduction**

Thank you for choosing the Realtek 11b/g/n USB adapter.

The adapter is designed for providing high-speed and unrivaled wireless performance for your computer. The faster wireless connection can bring you a better Internet experience, such as downloading, on-line game, and video streaming.

The Realtek 11b/g/n USB adapter supports IEEE 802.11b/g/n 2.4GHz radio operation. With auto-sensing capability, the adapter packet transfer rate is up to 150 Mbps. In addition, the Realtek 11b/g/n USB adapter has good anti-jamming capability. It supports WEP, TKIP, AES, WPA and WPA2 encryption, which prevents outside intrusion and protects your personal information from being exposed. Featuring high performance transmission rates, simple installation and adaptability, as well as strong security, the Realtek 11b/g/n USB adapter is the perfect solution for small office and home needs.

## **1.2 System Requirements**

System configuration recommended is as follows:

- Windows XP/2000/vista/win7
- Standard USB 2.0 port
- 128MB system memory or larger
- 300MHz processor or higher

## 1.3 Package List

The Realtek 11b/g/n USB adapter product package contains the following items:

- 1x Realtek 11b/g/n USB adapter
- 1 x CD (Driver & User Manual)

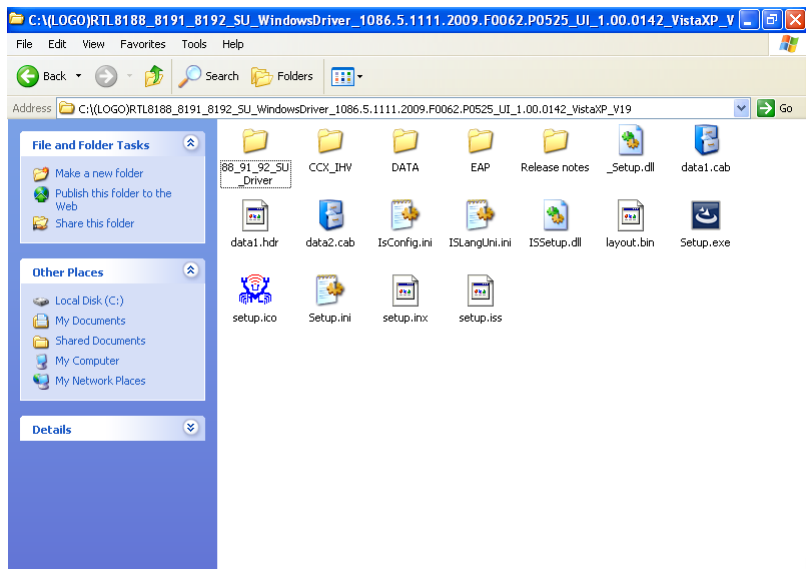
## 2 Driver and Utility Installation

This chapter mainly describes how to install the Realtek 11b/g/n driver and utility. The installation procedures are illustrated on Windows XP.

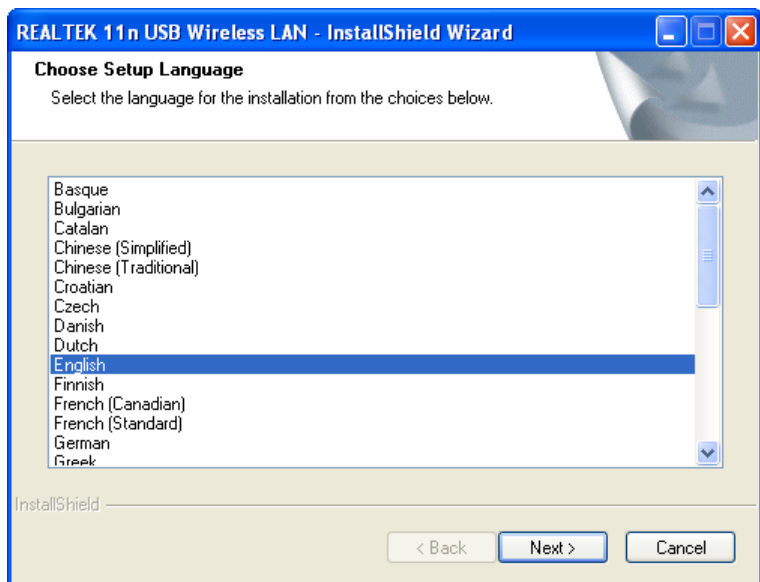
### 2.1 Installing the Driver and Utility

**Step1** Double-click the rar file

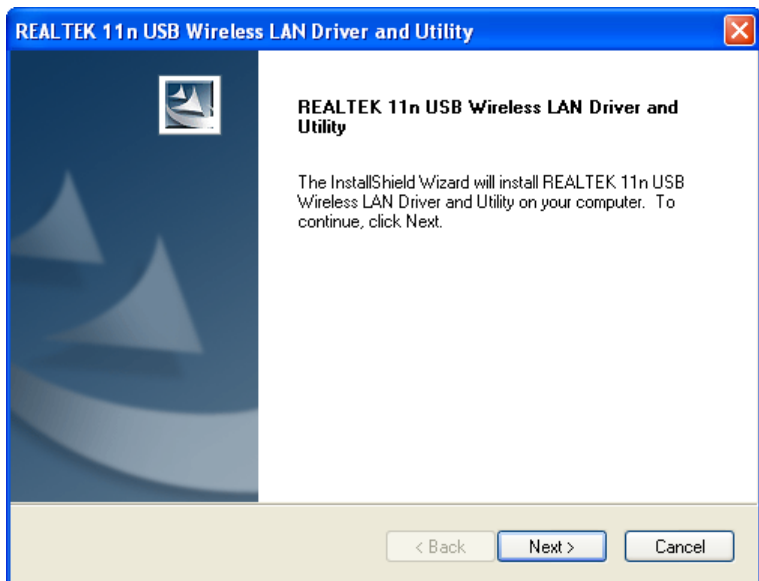
(LOGO)RTL8188\_8191\_8192\_SU\_WindowsDriver\_1086.5.1111.2009.F0062.P0525\_UI\_1.00.0142\_VistaXP\_V19.zip and then the following page appears.



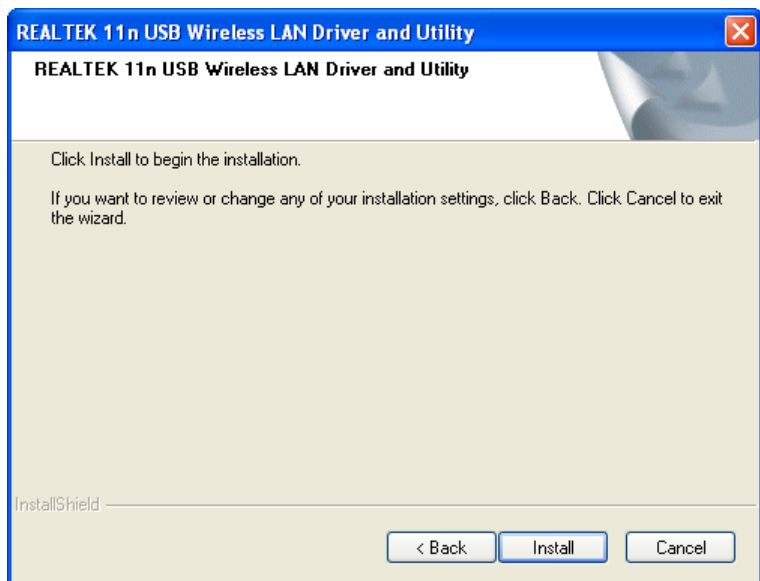
**Step2** Find the setup file named Setup.exe, and then double-click Setup.exe to start the installation. After a while, the **Choose Setup Language** page appears.



**Step3** Choose the appropriate language according to your needs, and then click **Next >**.

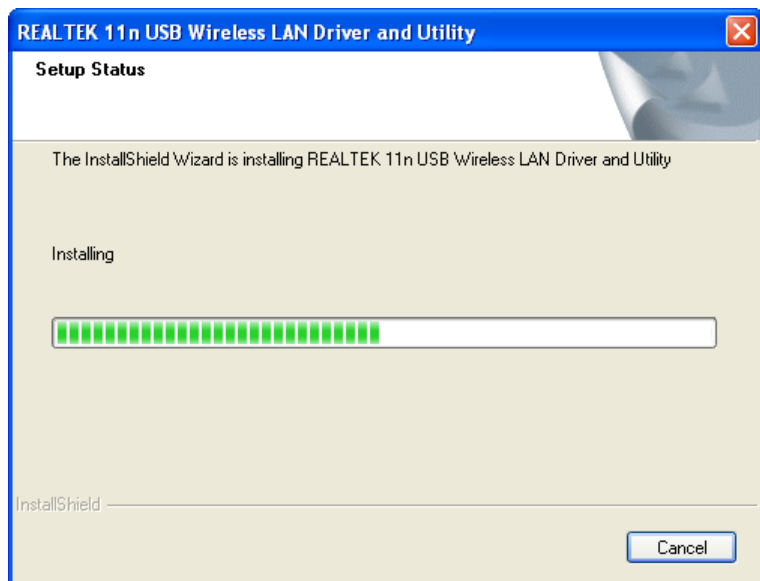


**Step4** Click **Next >** to continue.

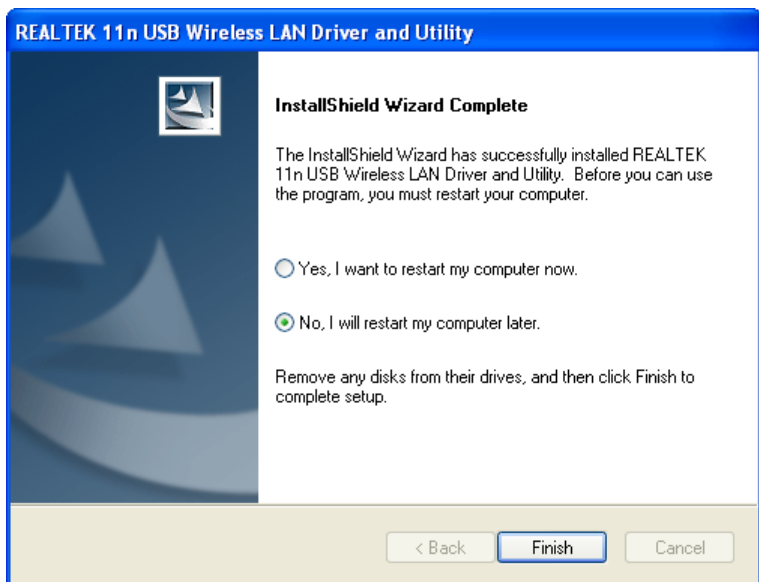


**Step5** Click **Install** to begin the installation.






**Step6** After a while, the following page appears.




**Step7** Click **Finish** to complete the installation.

After installing the driver successfully, the shortcut icon of REALTEK 11n USB

Wireless LAN Utility  appears on the desktop. At the same time, the utility tray



appears on the lower right corner of the window. After Inserting the Realtek 11b/g/n USB adapter into the USB interface on your PC, the

wireless connection icon  appears on the lower right corner of the window and

the utility tray  will change as .

**Note:**

The utility tray color might be different according to the wireless signal quality.

### 3 Uninstalling the Driver and Utility

Click **Start > All programs > REALTEK 11n USB Wireless LAN Utility > Uninstall** to begin the uninstallation on your PC. See the following figure:




### 4 Configuring the Utility

The Realtek 11b/g/n Wireless USB adapter can be configured by its utility for Windows 2000, Windows XP, Vista, and Windows 7. This section will take the configuration on Windows XP for example and guide you to configure your wireless adapter for wireless connectivity with trustable data security encryption features. The configuration steps in Windows 2000 & XP & Vista & Win7 are similar. For the configurations in Windows XP, please refer to the instructions in Windows XP.

**Note:**

If your OS is Windows XP, you can use Windows XP to configure the wireless network settings. (To use this function, you must upgrade the OS with sp2).

## 4.1 Checking the Utility Status

After the adapter's driver and utility have been installed, the adapter's tray  will appear on the lower right corner of the window. It means the utility is running on your system. If the utility does not run, you can run the utility by clicking: **Start> All Programs> REALTEK 11n USB Wireless LAN Utility> REALTEK 11n USB Wireless LAN Utility**. If the tray still does not appear, the driver or utility may be installed incorrectly or the adapter is unplugged, please try again.

## 4.2 Signal Strength Indicated by the Utility Icon



: It indicates that the connection and the signal strength are good.



: It indicates that the connection and the signal strength are normal.




: It indicates that it has not connected yet.




: It indicates that no wireless NIC can be detected.

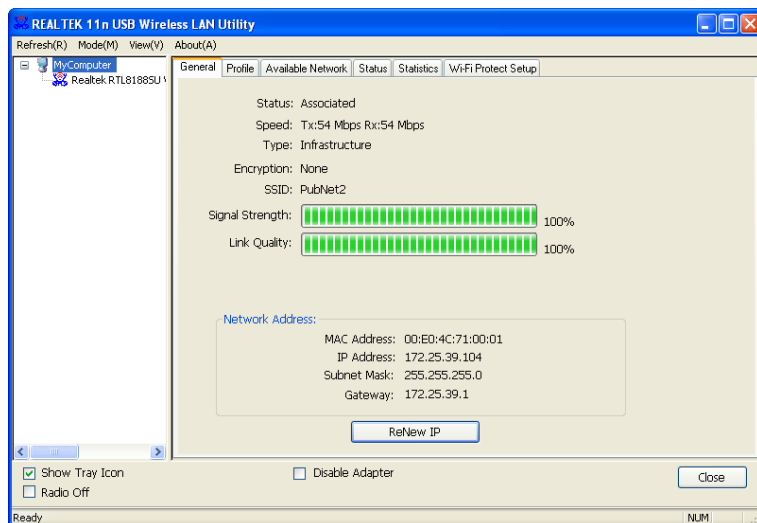
## 4.3 Opening the Utility

You can choose one of the following methods to open the utility:

- Double-click the shortcut icon on the desktop
- Click the utility icon 

- Right-click the utility icon  and select **Open Config Utility** in the menu.

## 4.4 General Page



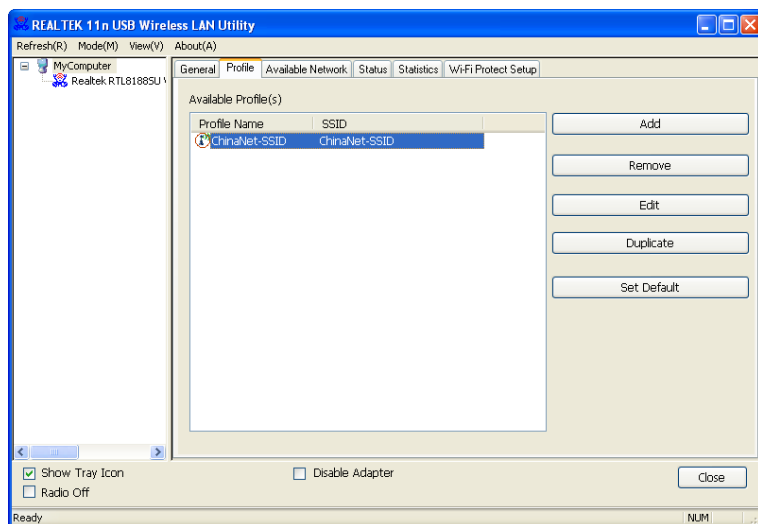
The **General** page shows the status of the wireless card such as speed, network type, Encryption type, SSID, signal strength, link quality and so on. If it connects to an AP, it shows the MAC Address, IP Address, subnet Mask, gateway information of the USB adapter.

On the left hand side of the page, it shows the adapter numbers installed on your computer.

At the bottom of the page, there are three options:

- Show tray Icon: Whether to show the utility icon on the lower right corner of window.
- Radio Off: Whether to enable the radio switch.
- Disable Adapter: Whether to enable the Realtek USB wireless adapter.

## 4.5 Profile Page



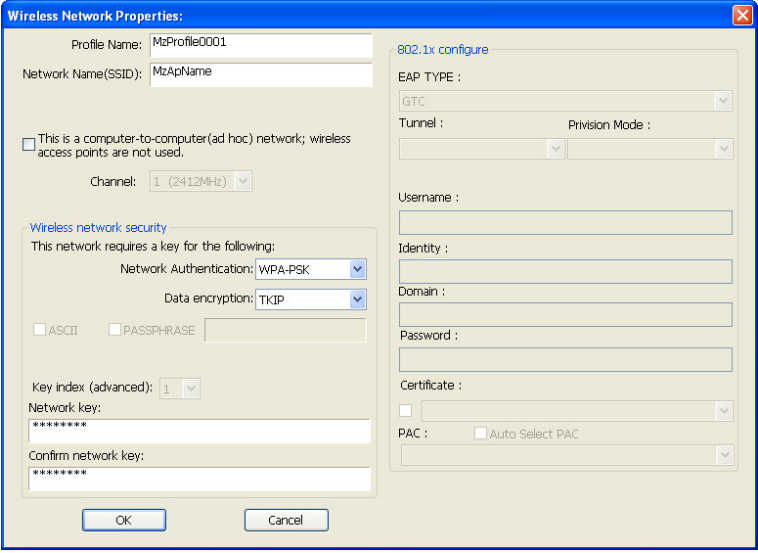
The **Profile** page provides the following functions:

- Adding a profile
- Removing a profile
- Editing a profile

- Duplicating a profile
- Setting a default profile

### 4.5.1 Adding a Profile

Click the **Add** button on the **Profile** page, and then the following page appears.



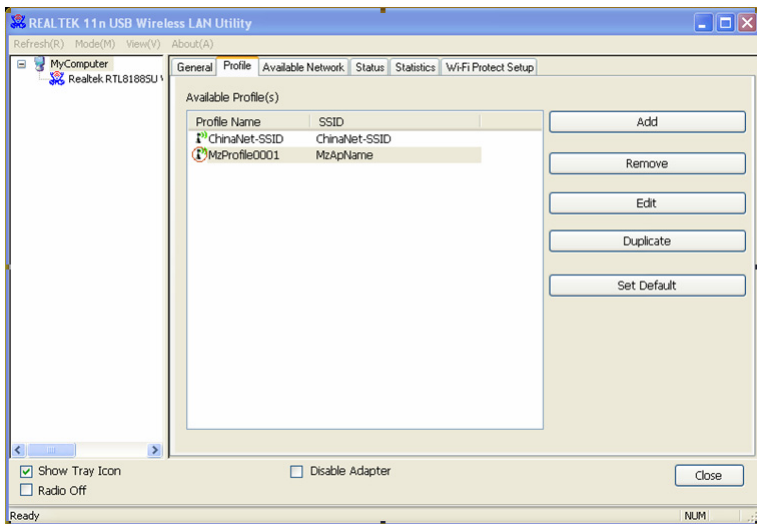
The image shows a Windows-style dialog box titled "Wireless Network Properties:". It is divided into several sections for configuring a wireless network profile.

- Profile Name:** A text field containing "MzProfile0001".
- Network Name (SSID):** A text field containing "MzApName".
- Ad Hoc Network:** A checkbox labeled "This is a computer-to-computer (ad hoc) network; wireless access points are not used." is currently unchecked.
- Channel:** A dropdown menu showing "1 (2412MHz)".
- Wireless network security:** A section with a header "This network requires a key for the following:".
  - Network Authentication:** A dropdown menu set to "WPA-PSK".
  - Data encryption:** A dropdown menu set to "TKIP".
  - Below these are two checkboxes: "ASCII" and "PASSPHRASE", both unchecked.
  - Key index (advanced):** A dropdown menu set to "1".
  - Network key:** A text field with masked characters "\*\*\*\*\*".
  - Confirm network key:** A text field with masked characters "\*\*\*\*\*".
- 802.1x configure:** A section on the right side.
  - EAP TYPE:** A dropdown menu set to "GTC".
  - Tunnel:** and **Provision Mode:** are dropdown menus.
  - Username:** An empty text field.
  - Identity:** An empty text field.
  - Domain:** An empty text field.
  - Password:** An empty text field.
  - Certificate:** A section with a checkbox (unchecked) and a dropdown menu.
  - PAC:** A section with an unchecked checkbox labeled "Auto Select PAC" and a dropdown menu.

At the bottom of the dialog are "OK" and "Cancel" buttons.

In this page, enter the profile name, SSID, network authentication type, data encryption type, and network key.

After clicking the **OK** button, the new added profile appears in the **Available Profile(s)** list of the **Profile** page. See the following page:



## 4.5.2 Removing a Profile

To delete a profile, highlight the desired profile name in the **Available Profile(s)** list, and then click the **Remove** button.

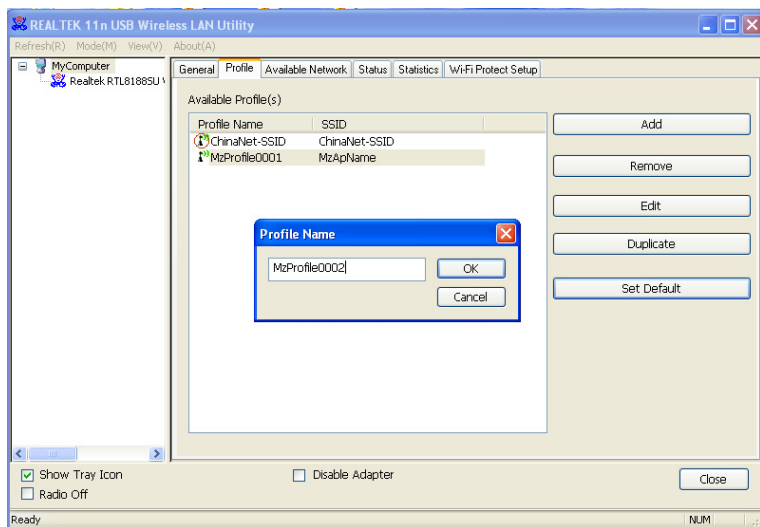
## 4.5.3 Editing a Profile

To edit a profile, highlight the desired profile name in the **Available Profile(s)** list, and then click the **Edit** button. You can modify the SSID, network authentication type, data encryption type, and network key of the selected profile.

## 4.5.4 Duplicating a Profile

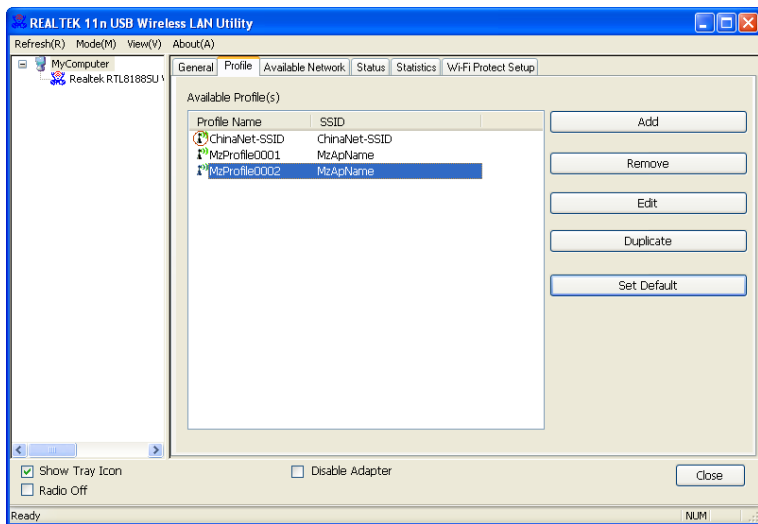
To duplicate a profile, highlight the desired profile name in the **Available Profile(s)** list, and then click the **Duplicate** button. A **Profile Name** window pops up.





Enter the profile name that needs to be duplicated in the **Profile Name** Window.

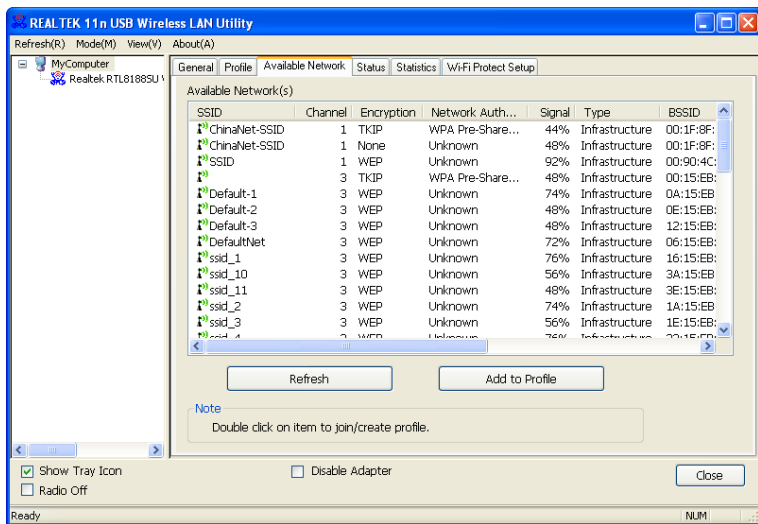
After clicking the **OK** button, the duplicated profile appears in the **Available Profile(s)** list.



### 4.5.5 Setting a Default Profile

To set a profile to be the default one, highlight the desired profile name in the **Available Profile(s)** list, and then click the **Set Default** button.

## 4.6 Available Network Page



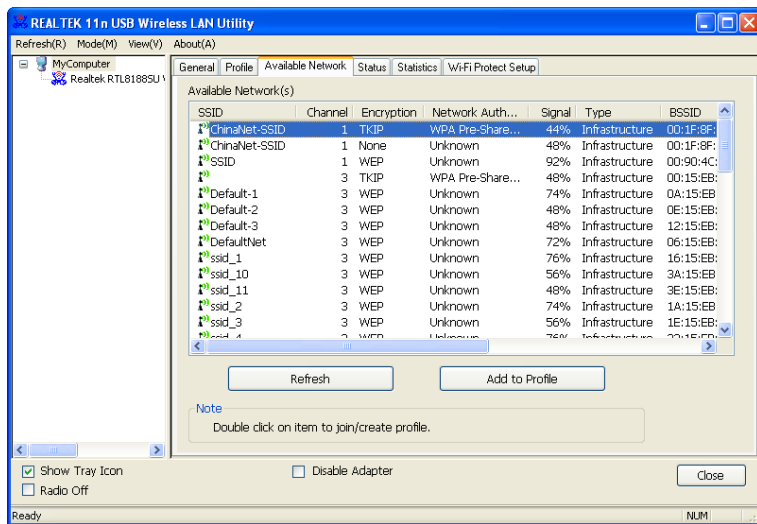
The **Available Network** page displays the information of current available networks, including SSID, channel, encryption type, authentication type, signal strength, BSSID, supported rates, and mode.

There are two buttons under the **Available Network(s)** list.

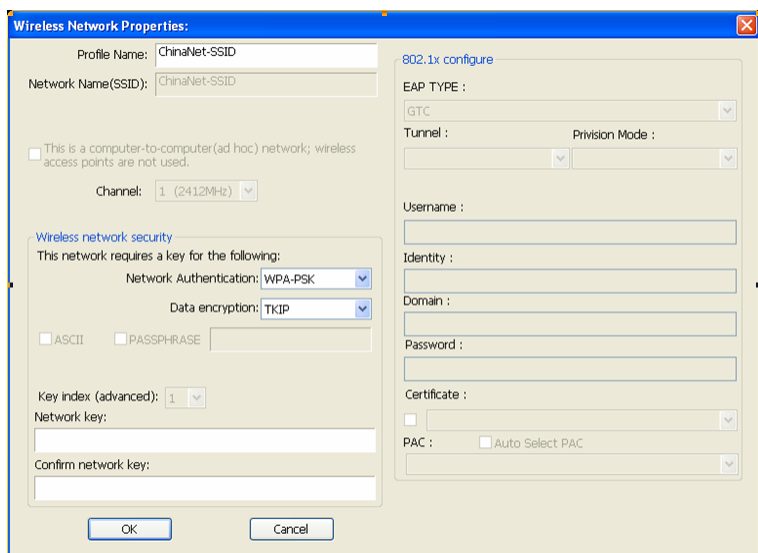
- **Refresh:** Click this button to refresh the **Available Network(s)** list.
- **Add to Profile:** Select an AP in the **Available Network(s)** list to create a profile.

To add an AP in the **Available Network(s)** list to create a profile, do as follows:

**Step1** Select an AP in the **Available Network(s)** list.



**Step2** Click the **Add to Profile** button.



The image shows a Windows-style dialog box titled "Wireless Network Properties:". It is divided into several sections for configuring a wireless network profile.

**Profile Name:** ChinaNet-SSID

**Network Name(SSID):** ChinaNet-SSID

☐ This is a computer-to-computer(ad hoc) network; wireless access points are not used.

**Channel:** 1 (2412MHz)

**Wireless network security**

This network requires a key for the following:

**Network Authentication:** WPA-PSK

**Data encryption:** TKIP

☐ ASCII ☐ PASSPHRASE

**Key index (advanced):** 1

**Network key:**

**Confirm network key:**

**802.1x configure**

**EAP TYPE :** GTC

**Tunnel :** **Prvision Mode :**

**Username :**

**Identity :**

**Domain :**

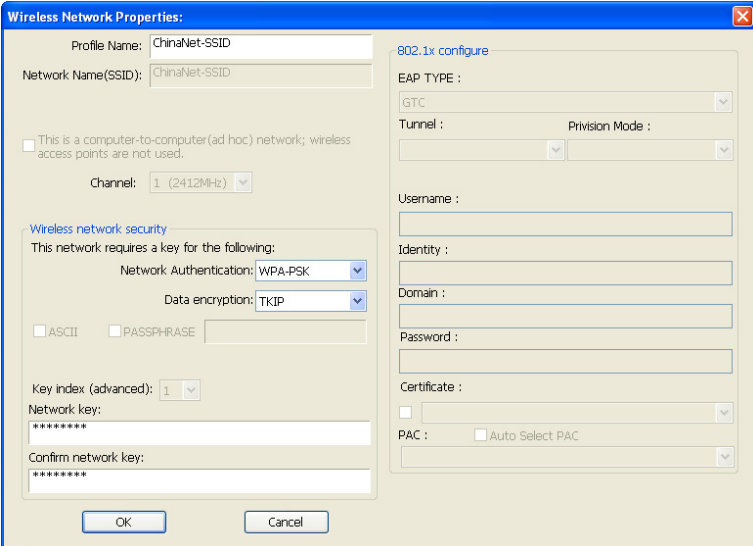
**Password :**

**Certificate :**

☐ **PAC :** ☐ Auto Select PAC

At the bottom are "OK" and "Cancel" buttons.

**Step3** Enter the profile name, network authentication type, data encryption type, and network key.



The image shows a 'Wireless Network Properties' dialog box with a blue title bar and a close button in the top right corner. The dialog is divided into several sections. The top left section contains 'Profile Name' and 'Network Name (SSID)', both set to 'ChinaNet-SSID'. Below this is a checkbox for 'This is a computer-to-computer (ad hoc) network; wireless access points are not used.' and a 'Channel' dropdown set to '1 (2412MHz)'. The 'Wireless network security' section has a note 'This network requires a key for the following:' followed by 'Network Authentication' (WPA-PSK) and 'Data encryption' (TKIP). There are checkboxes for 'ASCII' and 'PASSPHRASE', and a text field for a passphrase. Below these are 'Key index (advanced)' (1), 'Network key' (masked with asterisks), and 'Confirm network key' (masked with asterisks). The right side of the dialog is titled '802.1x configure' and contains 'EAP TYPE' (GTC), 'Tunnel' and 'Provision Mode' dropdowns, 'Username', 'Identity', 'Domain', 'Password', and 'Certificate' fields. At the bottom are 'OK' and 'Cancel' buttons.

**Wireless Network Properties:**

Profile Name: ChinaNet-SSID

Network Name (SSID): ChinaNet-SSID

☐ This is a computer-to-computer (ad hoc) network; wireless access points are not used.

Channel: 1 (2412MHz)

**Wireless network security**

This network requires a key for the following:

Network Authentication: WPA-PSK

Data encryption: TKIP

☐ ASCII ☐ PASSPHRASE

Key index (advanced): 1

Network key: \*\*\*\*\*

Confirm network key: \*\*\*\*\*

**802.1x configure**

EAP TYPE : GTC

Tunnel : Provision Mode :

Username :

Identity :

Domain :

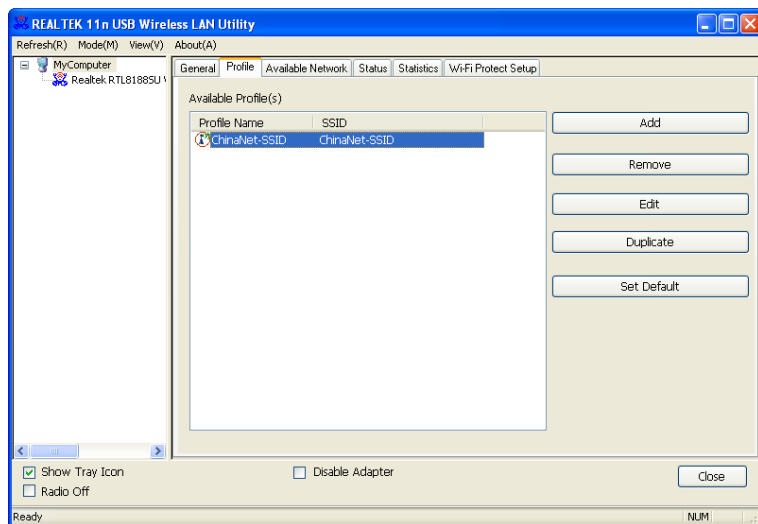
Password :

Certificate :

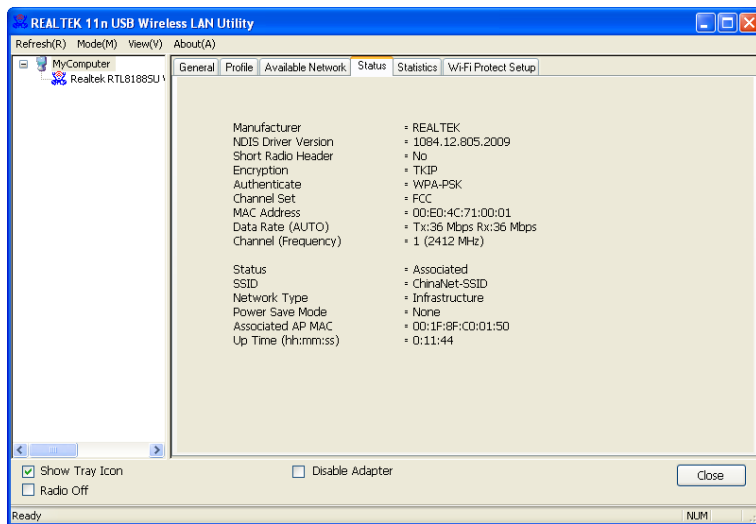
PAC : ☐ Auto Select PAC

OK Cancel

**Step4** After clicking the **OK** button, the new added profile appears in the **Available Profile(s)** list of the **Profile** page. See the following page:



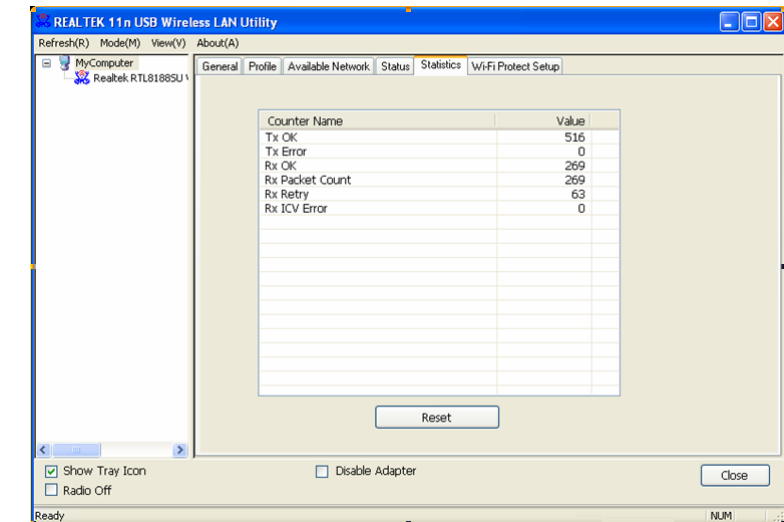
## 4.7 Status Page



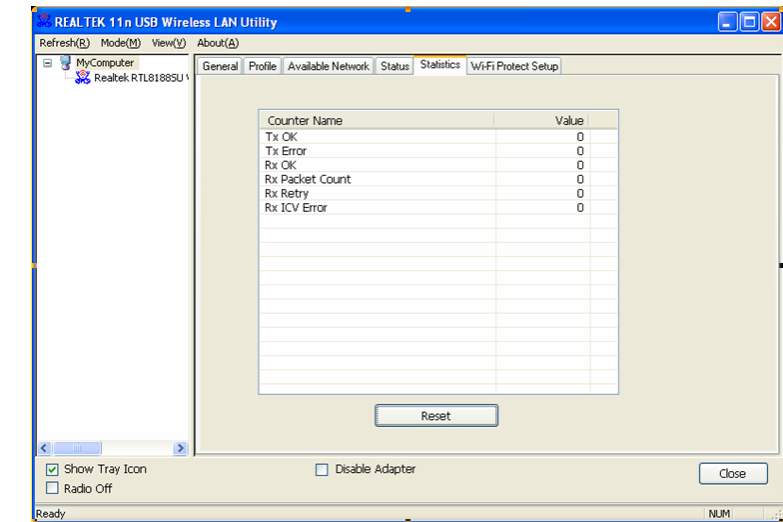
The **Status** page displays the information about current connection status, such as SSID, Network type, associated AP MAC.

## 4.8 Statistics Page





The **Statistics** page displays the statistical information of the receiving and transmitting frames. Click the **Reset** button to reset the count of the frames to zero. See the following figure:



## 4.9 Wi-Fi Protected Setup Page

This page allows you to set the WPS function for the Realtek 11b/g/n USB wireless adapter and a wireless AP (Access point).

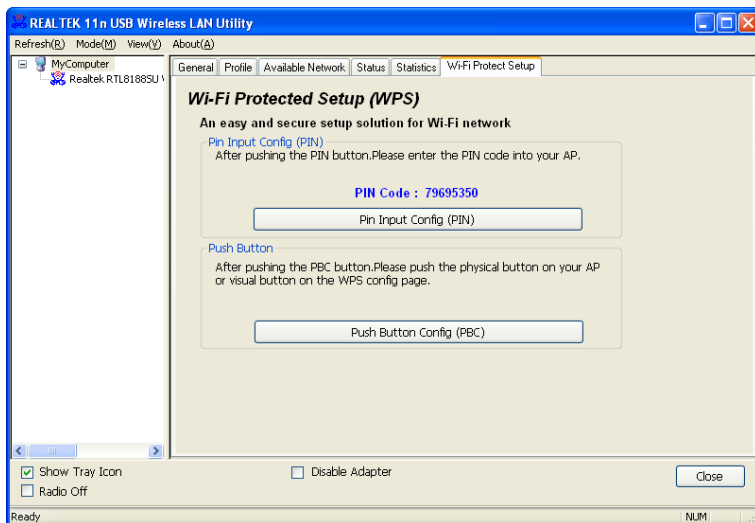
If a wireless AP supports Wi-Fi Protected Setup (WPS), you can establish a wireless connection between this card and the AP by using either PIN method or Push Button Configuration (PBC) method. It is recommended that you choose the simplest method that your AP supports.

**Note:**

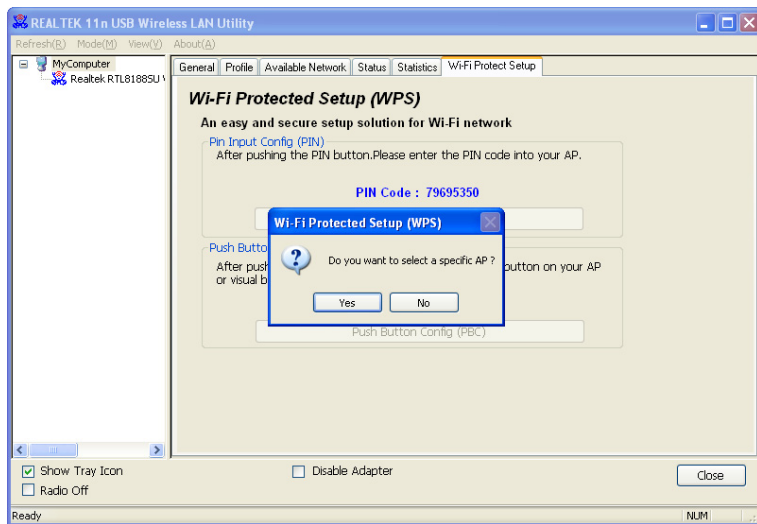
To create a successful connection by WPS, meanwhile, you should also configure the WPS parameters on AP.

## 4.9.1 PIN

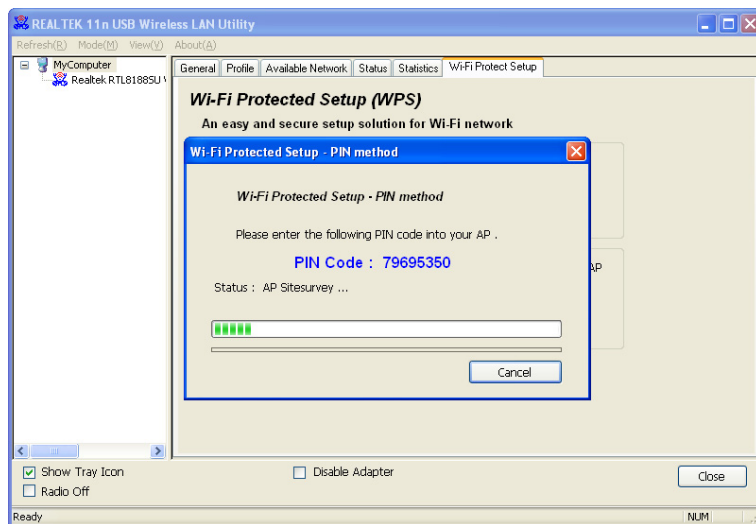
To configure PIN mode, do as follows:



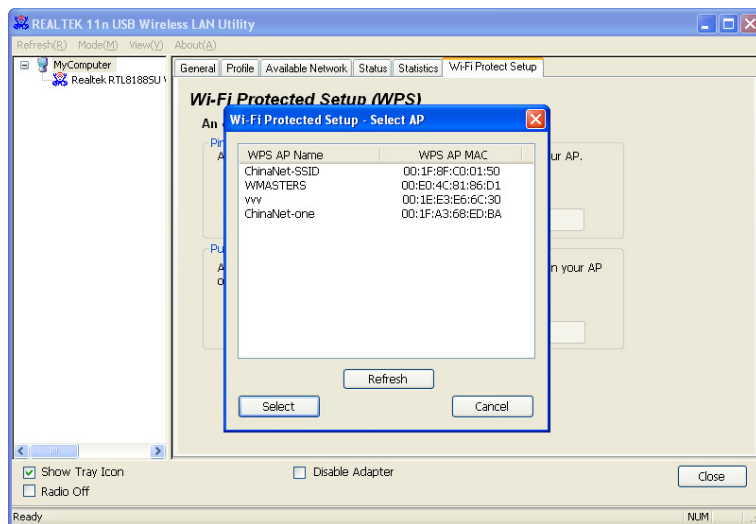
- Step1** Memorize the PIN code (e.g. 79695350). Click the **Pin Input Config (PIN)** button in the **Wi-Fi Protect Setup** page, and then a dialogue box of **Wi-Fi Protect Setup (WPS)** pops up.



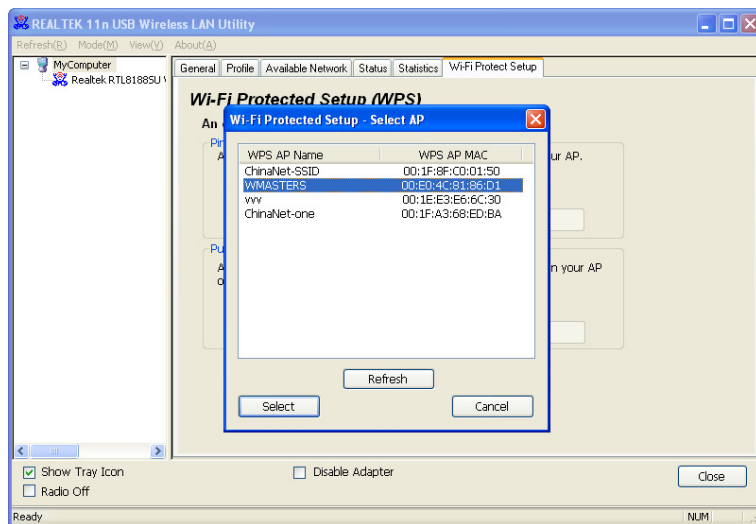
**Step2** (a)If you choose **No**, it means the utility automatically connects to an AP.



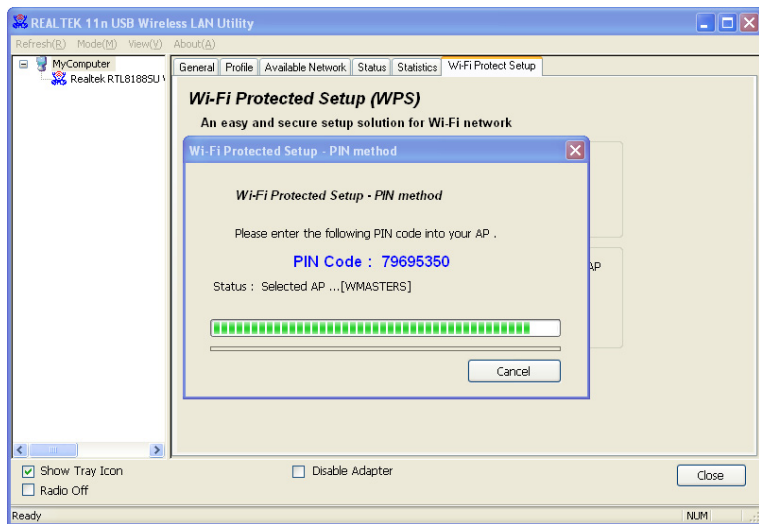
(b) If you choose **Yes** to select an AP, the following page appears.



Select an AP in the list, and then click the **Select** button.



After clicking the **Select** button, the wireless network card begins WPS connection.



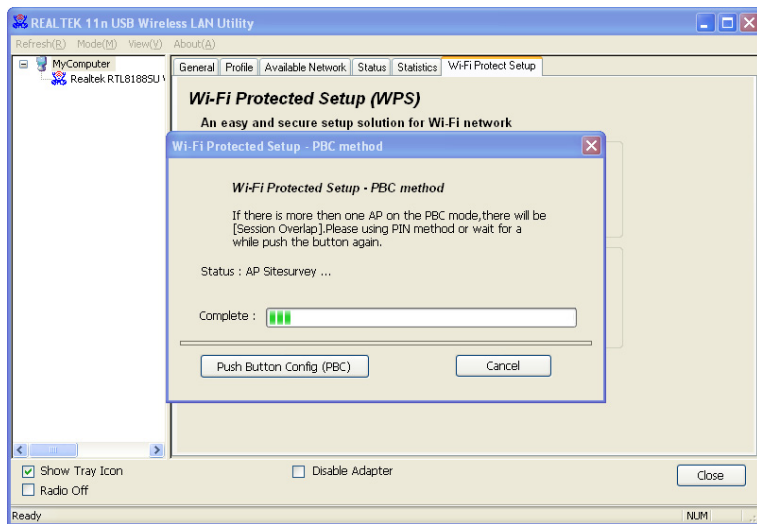
**Step3** Within two minutes, enter the Pin code on AP, and then the Realtek USB wireless card connects to AP.

## 4.9.2 PBC

To configure PBC mode, do as follows:

**Step1** Click the **Push Button Config (PBC)** in the **Wi-Fi Protect Setup** page, and then the wireless network card begins WPS connection.





**Step2** Within two minutes, Press the PBC button on AP, and then the Realtek USB wireless card can connect to AP.

## Appendix A: Glossary

**802.11b** - The 802.11b standard specifies a wireless 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.

**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 for 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.

**Spread Spectrum** - Spread Spectrum technology is a wideband radio frequency technique.

## Appendix B: Country Channel List

The following table displays the country name, channel classification, and range.

Country Name	Classification	Range
Argentina	0	CH1~11
Australia	1	CH1~13
Austria	1	CH1~13
Bahrain	1	CH1~13
Belarus	1	CH1~13
Belgium	1	CH1~13
Bolivia	1	CH1~13
Brazil	0	CH1~11
Bulgaria	1	CH1~13
Canada	0	CH1~11
Chile	1	CH1~13
China	1	CH1~13
Colombia	0	CH1~11
Costa Rica	1	CH1~13
Croatia	1	CH1~13
Cyprus	1	CH1~13
Czech Republic	1	CH1~13

Denmark	1	CH1~13
Ecuador	1	CH1~13
Egypt	1	CH1~13
Estonia	1	CH1~13
Finland	1	CH1~13
France	3	CH10~13
France2	1	CH1~13
Germany	1	CH1~13
Greece	1	CH1~13
Hong Kong	1	CH1~13
Hungary	1	CH1~13
Iceland	1	CH1~13
India	1	CH1~13
Indonesia	1	CH1~13
Ireland	1	CH1~13
Israel	6	CH3~9
Italy	1	CH1~13
Japan	5	CH1~14
Japan2	4	CH14~14
Japan3	1	CH1~13
Jordan	3	CH10~13

Kuwait	1	CH1~13
Latvia	1	CH1~13
Lebanon	1	CH1~13
Latvia	1	CH1~13
Lebanon	1	CH1~13
Liechtenstein	1	CH1~13
Lithuania	1	CH1~13
Luxembourg	1	CH1~13
Macedonia	1	CH1~13
Malaysia	1	CH1~13
Mexico	0	CH1~11
Morocco	1	CH1~13
Netherlands	1	CH1~13
New Zealand	1	CH1~13
Nigeria	1	CH1~13
Norway	1	CH1~13
Panama	1	CH1~13
Paraguay	1	CH1~13
Peru	1	CH1~13
Philippines	1	CH1~13
Poland	1	CH1~13

Portugal	1	CH1~13
Puerto Rico	1	CH1~13
Romania	1	CH1~13
Russia	1	CH1~13
Saudi Arabia	1	CH1~13
Singapore	1	CH1~13
Slovakia	1	CH1~13
Slovenia	1	CH1~13
South Africa	1	CH1~13
South Korea	1	CH1~13
Spain	2	CH10~11
Sweden	1	CH1~13
Switzerland	1	CH1~13
Taiwan	0	CH1~11
Thailand	1	CH1~13
Turkey	1	CH1~13
United Arab Emirates	1	CH1~13
United Kingdom	1	CH1~13
United States of America	0	CH1~11
Uruguay	1	CH1~13
Venezuela	1	CH1~13

Yugoslavia

0

CH1~11