

USB Wireless LAN Adapter

User's Manual

November 2010

FCC Warning

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 communication. 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
- Consult the dealer or an experienced radio/TV technician for help. the receiver is connected.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of about eight inches (20cm) between the radiator and your body.

This transmitter must not be co-located or operated 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.

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Revision History

Revision

V1.0

History

1st Release

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1. Introduction

This is a wireless 11n USB Adapter that provides unsurpassed wireless performance for your Desktop PC or Notebook. It complies with IEEE 802.11n draft 2.0 wireless standard and is backward compatible with IEEE 802.11b/g. This USB adapter provides better wireless reception and up to 150Mbps data transfer rates in 11n mode. With this adapter, you can easily upgrade your Desktop PC or Notebook wireless connectivity. Once connected, to access the network with high-speed Internet connection while sharing photos, files, music, video, printers, and storage. Get a better Internet experience with a faster wireless connection so you can enjoy smooth digital phone calls, gaming, downloading, and video streaming.

The Wireless USB adapter provides peer-to-peer communication among any compatible wireless client users and no Access Point required. It also supports WEP, WPA, WPA2, WPS, 802.1x high-level WLAN security features that guarantee the best security for users.

1.1 Features

- Complies with draft IEEE 802.11n standard
- Up to 150Mbps data transfer rates in IEEE 802.11n mode
- Backward compatible with IEEE 802.11b/g
- Legacy and High Throughput Modes
- Supports 64/128-bit WEP Data Encryption
- Supports WPA, WPA2 (802.11i), WPS, 802.1x advanced security
- Supports Quality of Service (QoS) - WMM, WMM-PS
- Supports both Infrastructure and Ad-Hoc Networking Modes
- Supports Multiple BSSID
- Simple user setup and diagnostics utilities

1.2 Package Contents

- One Wireless USB Adapter
- One USB A-type male to female extension cable
- One CD disk includes driver/utility and user's manual

1.3 LED Indicator

LED	Light Status	Description
ACT	Blinking	Data is being transmitted or received

1.4 Minimum System Requirements

Computer with:

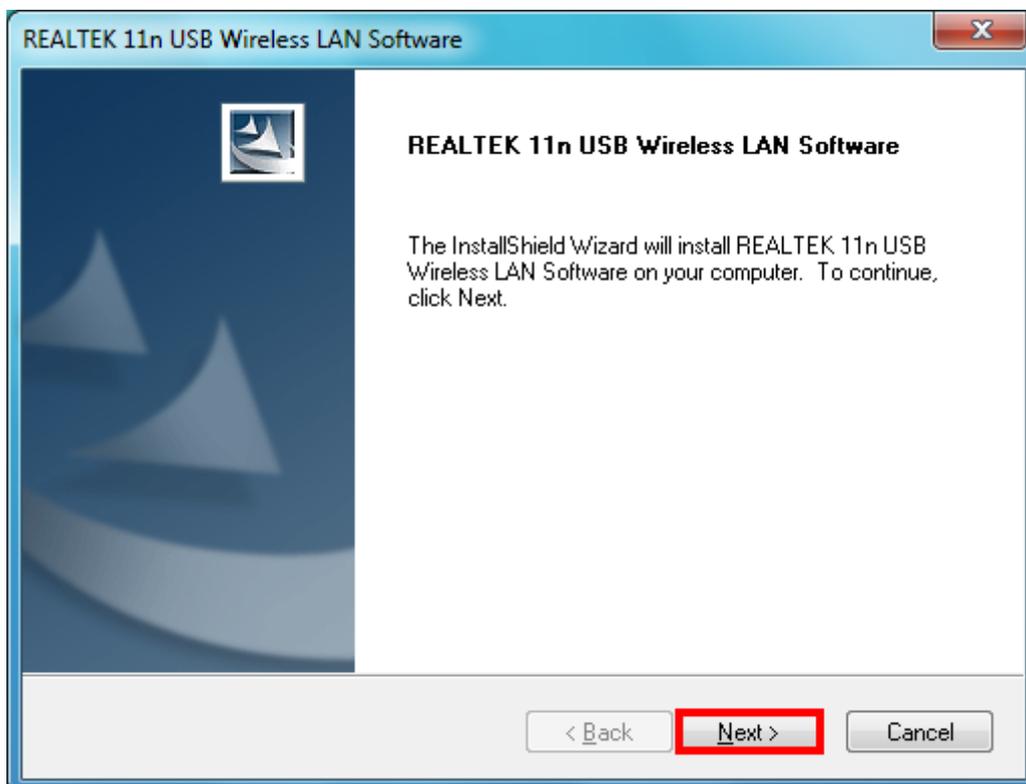
- 300MHz processor and minimum 64MB RAM
- Windows 2000, XP(32/64bit), Vista(32/64bit) or Windows 7 (32/64bit)
- A CD-ROM Drive
- An available USB 2.0 port

2. Install Driver/Utility

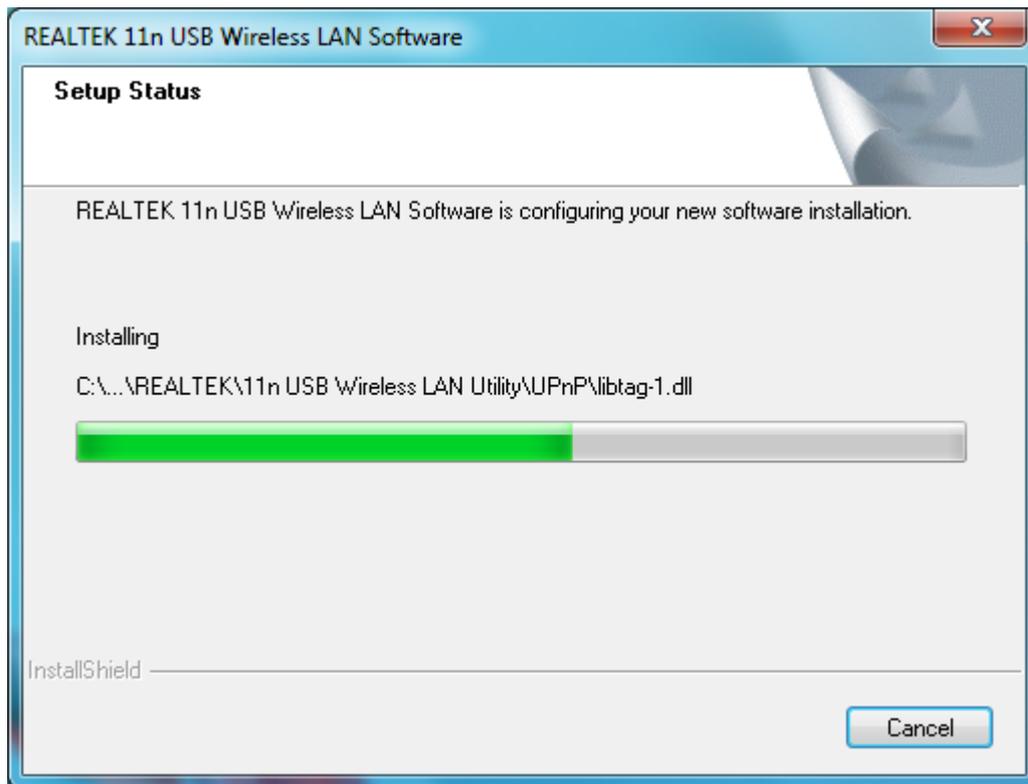
Step1: Inset Wireless LAN USB Adapter Installation CD into CD-ROM drive then windows below will appear. Click **Install Driver & Utility** to begin Driver Installation.



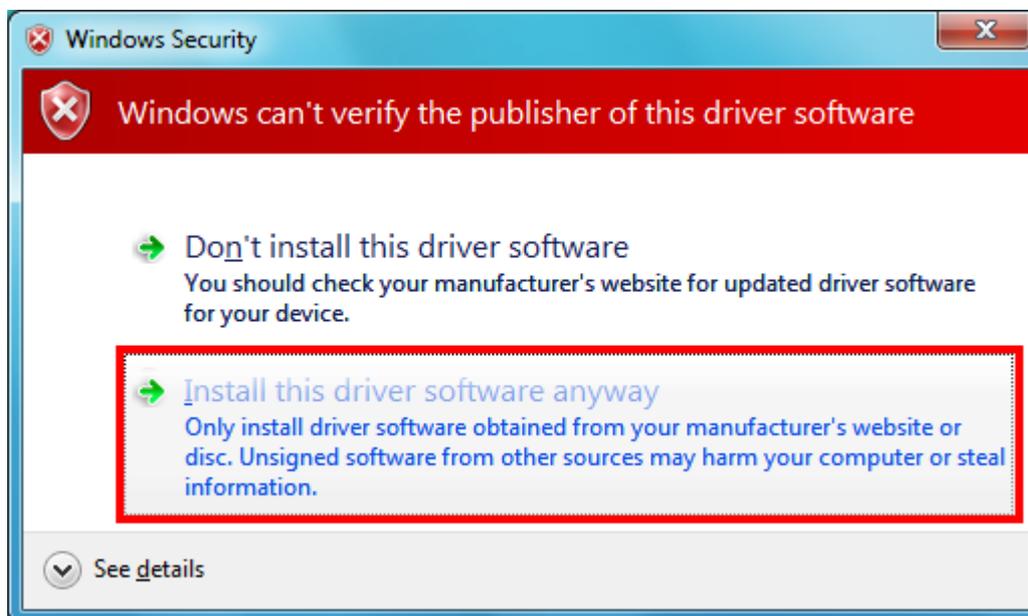
Step2: After click **Install Driver Utility**, the USB Wireless LAN Software wizard will appear and then click **Next** to continue.



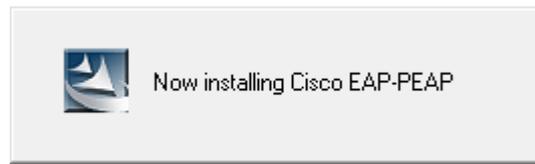
Step 3: Please wait for a while during wizard is configuring.



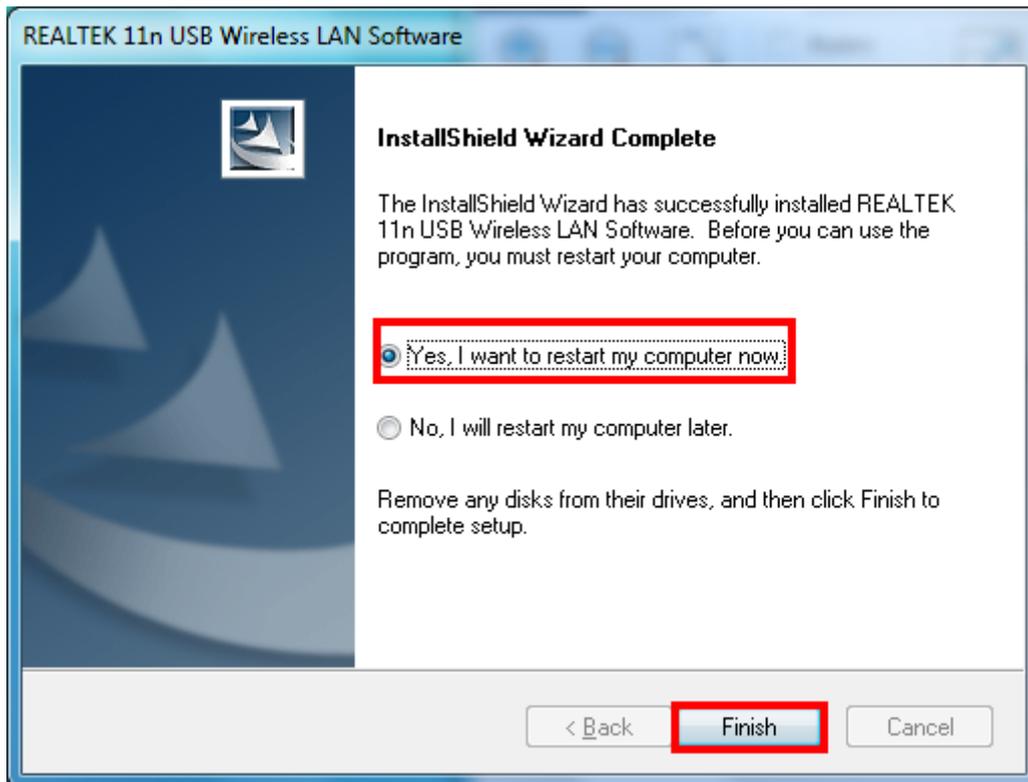
(For Windows 7 OS, if bellow screen is appeared, choose **Install this driver software anyway** to continue.)



Step 4: Please wait for while during setup program is configuring.

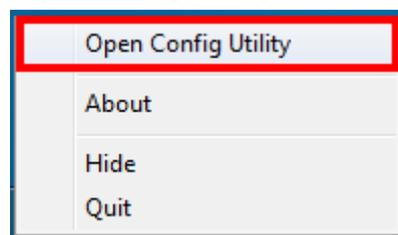


Step 5: Choose **Yes, I want to restart my computer now** and Click **Finish** to complete installation.

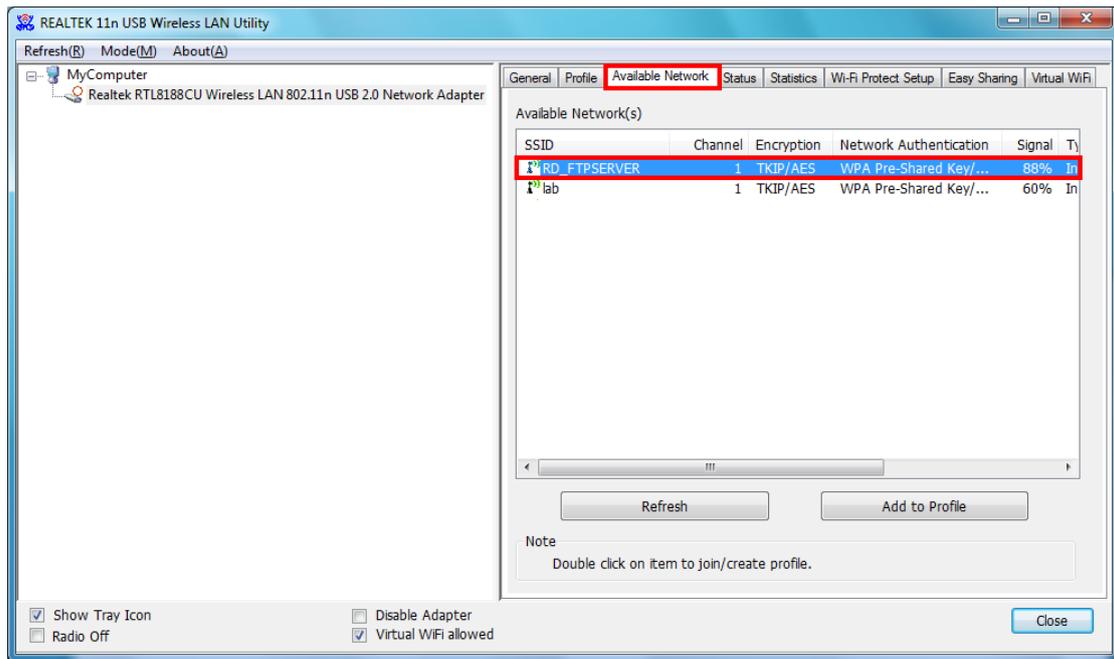


[Configure Wireless LAN Utility]

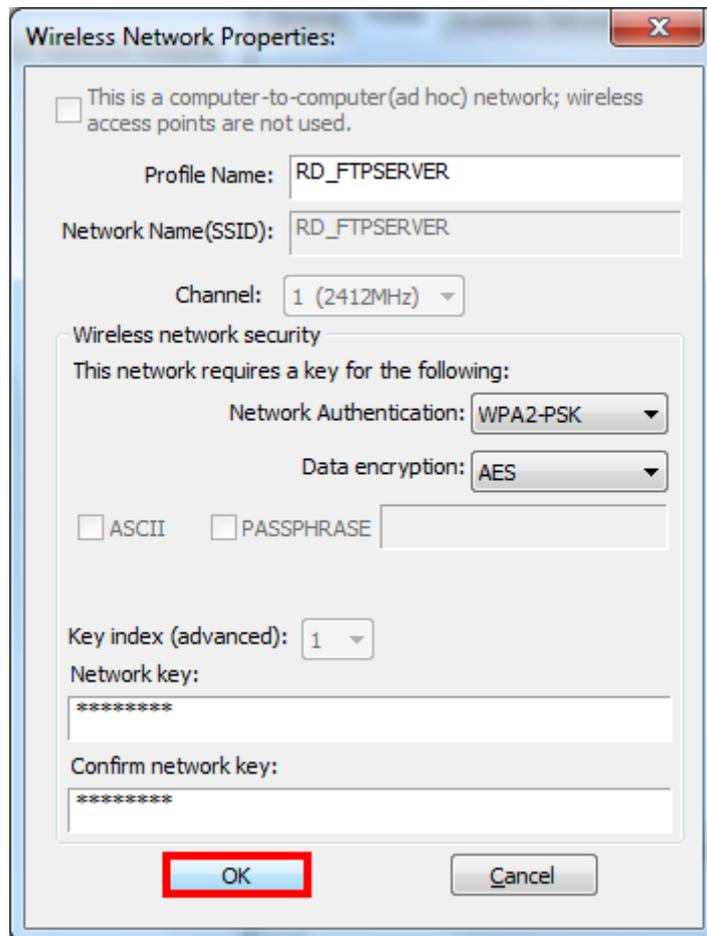
Step 1: After Setup has finished installing the driver, please right-click the Wireless LAN icon on the system tray, and select **Open Config Utility**.



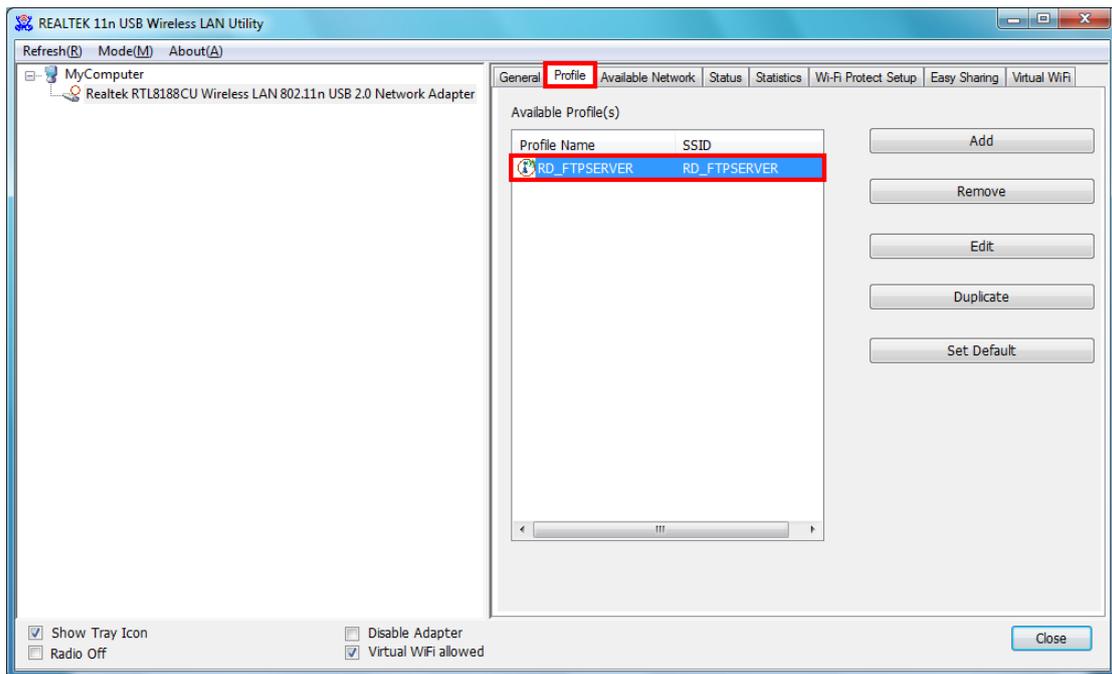
Step 2: The USB Wireless LAN Utility will be displayed; select **Available Network** tab and the utility will auto-detect the available network channels and shows them in the list. Choose one you would like to connect.



Step 3: The **Wireless Network Properties** windows will show. You will see the network channel which you choose show in the **Profile Name**. Enter the Network Key (if it is necessary) and click **OK** to continue.



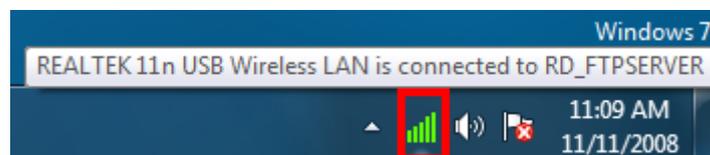
Step 4: The chosen Wireless network will be listed in the **Profile** tab.



Step 5: Now you can browse the Internet Explorer and connect to the Internet.



Step 6: You can also move your mouse to wireless LAN icon in the system tray and check the current Wireless Network Connection status.

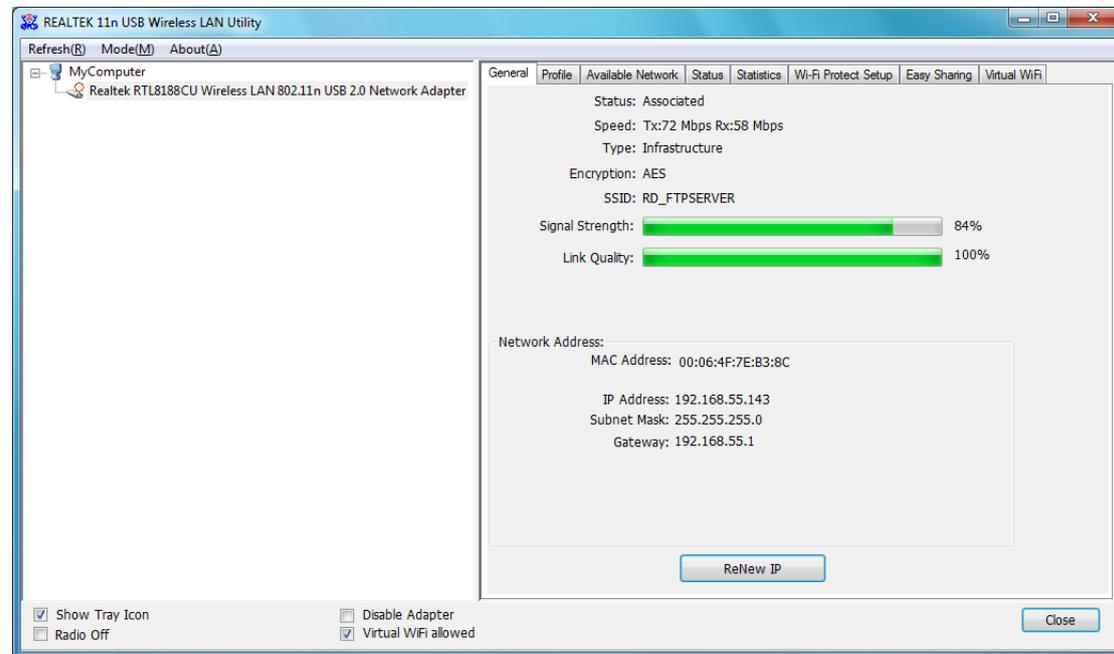


3. Wireless Network Configuration

The Configuration Utility is an application that helps you to configure the Wireless LAN adapter and monitor the link status and statistics during the communication process.

3.1 General

In the “General”, you can immediately monitor the link status.



Status: Current connection status

Speed: Show current transmit rate and receive rate.

Type: Network type in use.

Encryption: Encryption type in use.

SSID: The Current AP name of user type.

Signal Strength: Receive signal strength

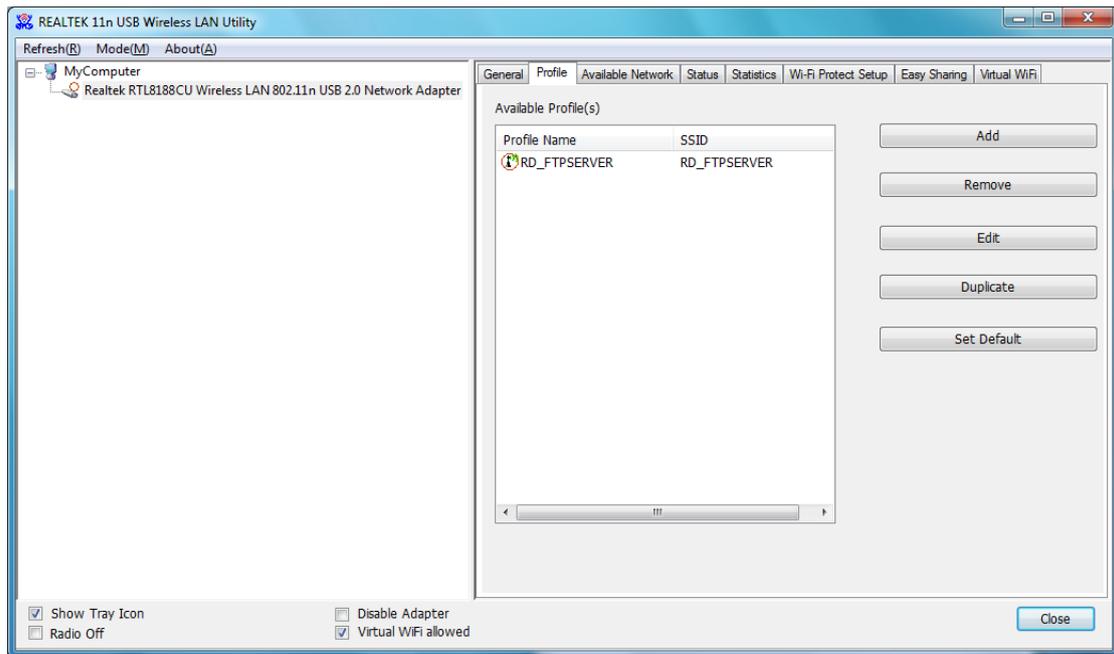
Link Quality: Display link quality strength

Network Address: Display the current connection’s MAC Address, IP address, Subnet Mask, and Gateway information.

Click “ReNew IP” button to refresh the current AP.

3.2 Profile

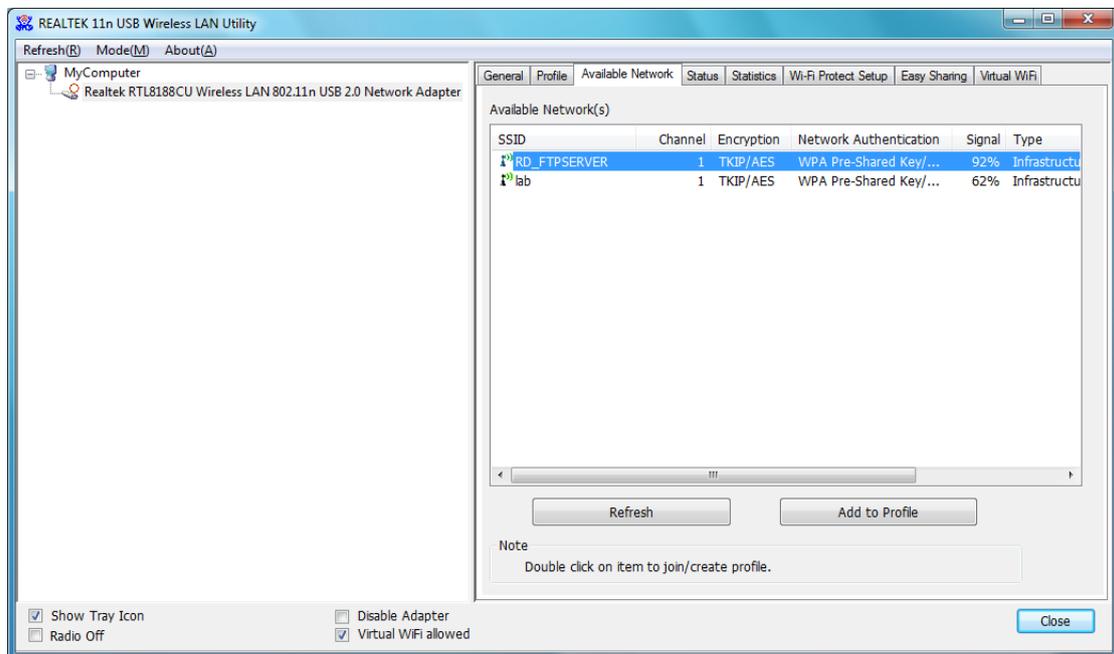
In the “Profile”, you can view the current using Available Point(s). You can add, remove or edit the current Available Point(s). Also you can duplicate the AP or Set current AP as Default.



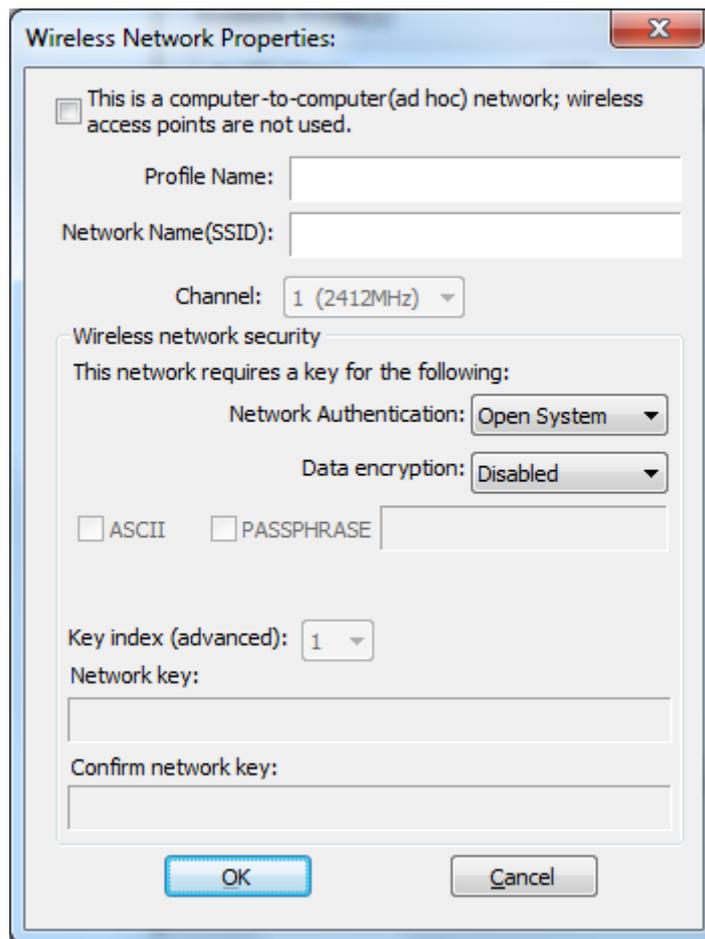
3.3 Available Network

The “**Available Network**” shows all Access Points, Routers or Adapters nearby when operating in Ad-Hoc mode.

Click “**Refresh**” button to collect the SSID and Channel information of all the wireless devices nearby. If you want to connect to any device on the list, double-click the item on the list, and the card will automatically connect to the selected device.



If you want to add one Access Point to the profile, click “**Add to Profile**” button. The **Wireless network properties** windows will display. You can configure your Wireless Network Security for the card.



[Network Authentication]

- **Open System:** No authentication is needed among the wireless devices.
- **Shared Key:** Only Wireless device using a shared key (WEP Key identified) is allowed to connecting each other. Setup the same key as the wireless device which the card intends to connect.
- **WPA-PSK:** It is a special modem of WPA for home users without an enterprise authentication server and provides the same strong encryption protection.
- **WPA2-PSK (for WPA2 Personal):** This option will be present only if the wireless network adapter and its driver support WPA2.
- **WPA 802.1X:** 802.1x authentication is required in WPA. In the 802.11 standard, 802.1x authentication was optional.
- **WPA2 802.1X:** WPA2 is the next-generation Wi-Fi security standard, combining the most powerful authentication and encryption techniques to protect wireless networks from unauthorized use. Based upon the recently-ratified IEEE 802.11i standard, WPA2 adds the Advanced Encryption Standard (AES) to the original WPA specification to provide the greatest levels of network security available. The National Institute of Standards and Technology (NIST) advocates the use of AES security to protect sensitive digital information on government networks.

[Data Encryption]

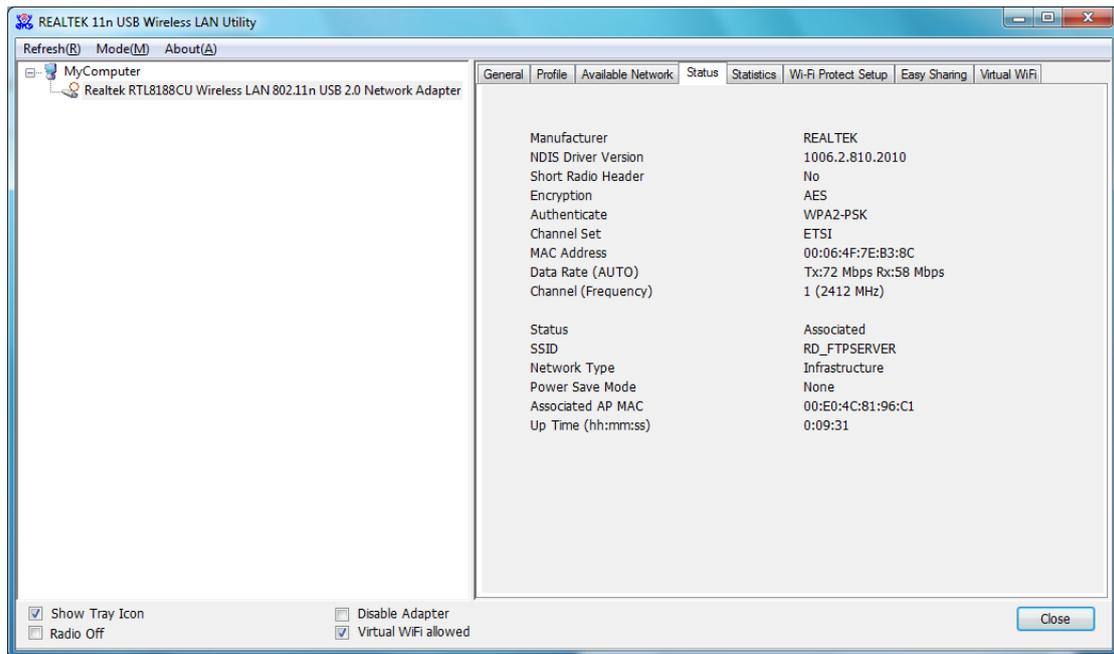
- **Disabled:** Disable the WEP Data Encryption.
- **WEP:** Enabled the WEP Data Encryption. When the item is selected, you have to continue setting the WEP Key Length & the key Index.
- **TKIP:** Enable the TKIP Data Encryption. When the item is selected, you have to continue setting the Network Key & Confirm network key.
- **Network Key:** The keys are used to encryption data transmitted in the wireless network. Fill in the text box by following rules below:
 - **64-bit:** Input 10 digit Hex values (in the “A-F”, “a-f”, and “0-9” range) as the encryption keys. For example: “0123456aef”
 - **128-bit:** Input 26 digit Hex values (in the “A-F”, “a-f”, and “0-9” range) as the encryption keys. For example: “01234567890123456789abcdef”
- **Confirm Network Key:** Re-type again the Network key in this text box.
- **Key Length:** You may select the 64-bit or 128-bit to encryption transmitted data. Larger key length will provide higher level of security, but the throughput will be lower.
- **Key Index (Advanced):** The maximum of key index is 4.

[802.1X configure]

- **EAP TYPE (Extensible Authentication Protocol Authentication Types):** Because WLAN security is essential and EAP authentication types provide a potentially better means of securing the WLAN connection, vendors are rapidly developing and adding EAP authentication types to their WLAN access points. Some of the most commonly deployed EAP authentication types include **MD5, GTC, TLS, EAP, TTSL, and PEAP.**
- **Tunnel:** Use the drag-down list to choose the tunnel.
- **Username:** Enter the username for personal certificate.
- **Identity:** Enter the Identity for personal certificate.
- **Password:** Enter the password in advance.
- **Certificate:** Click drag-down list to choose certificate that you want to use.

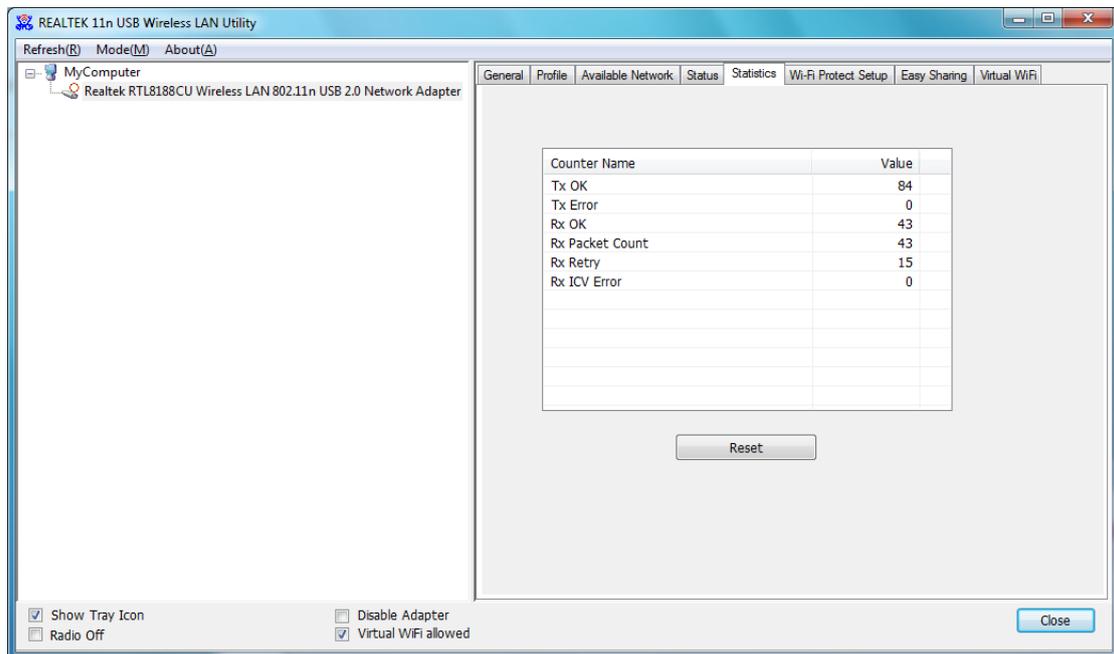
3.4 Status

In the “**Status**”, you can view the current link status of Wireless LAN adapter.



3.5 Statistics

In the “Statistics”, you can get the real time information about the packet transmission and receiving status.

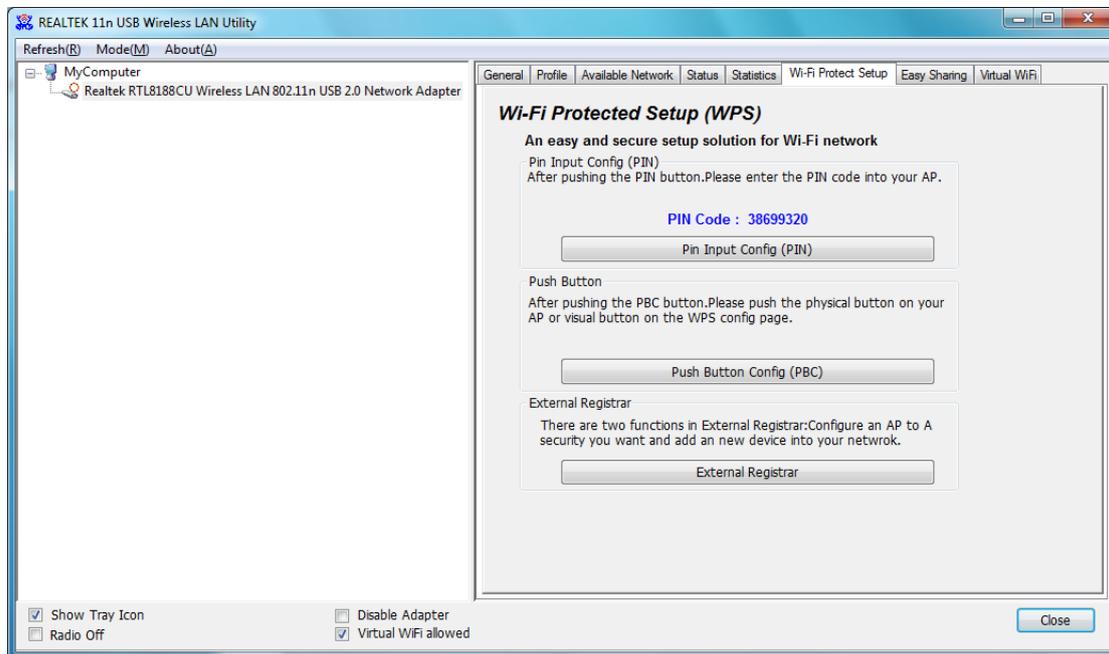


3.6 Wi-Fi Protected Setup (WPS)

In the “Wi-Fi Protect Setup”, you can setup the Wi-Fi network more easily and secure. . There are two main methods for you: **Pin Input Config (PIN) Method & Push Button Config (PBC) Method**”. Select one of following methods to setup your AP.

The primary goal of Wi-Fi Protected Setup (Wi-Fi Simple Configuration) is to simply the

security setup and management of Wi-Fi networks. This Wireless LAN utility as an Enrollee or external Registrar supports the configuration setup using PIN configuration method or PBC configuration setup using PIN configuration method or PBC configuration method through an internal or external Registrar.



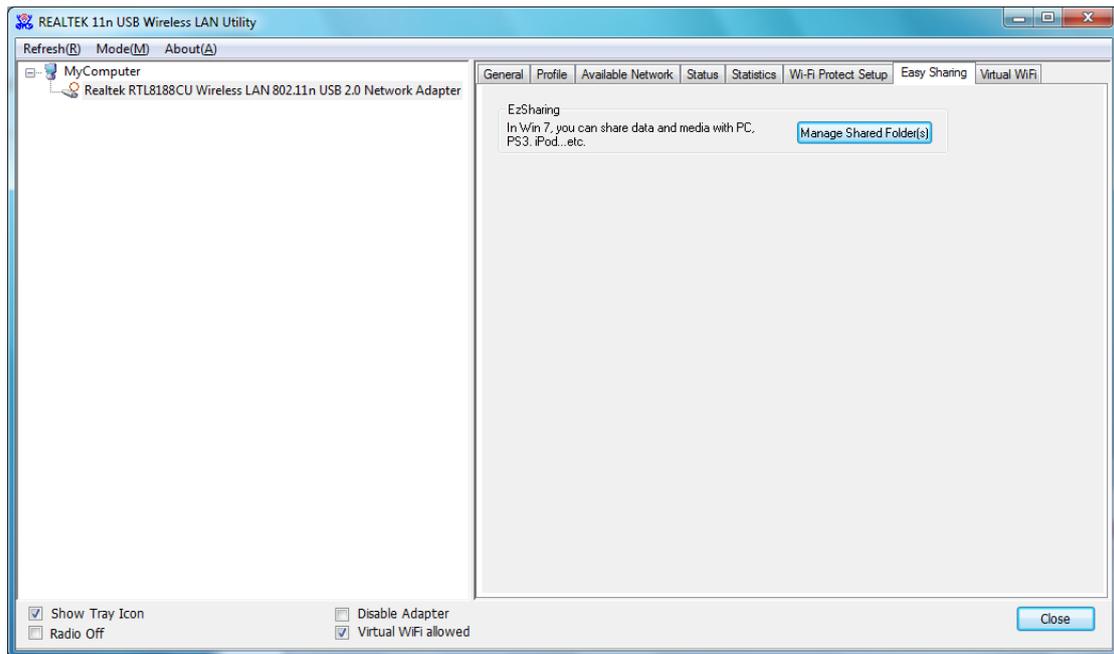
Pin Input Config (PIN): Start to add to Registrar using PIN configuration method. If STA Registrar, remember that enter PIN Code read from you Enrollee before starting PIN.

Push Button Config (PBC): Start to add to AP using PBC configuration method.

External Registrar: There are 2 functions in External Registrar – **Configure an AP to A security you want & Add an New device into your network.**

3.7 Easy Sharing

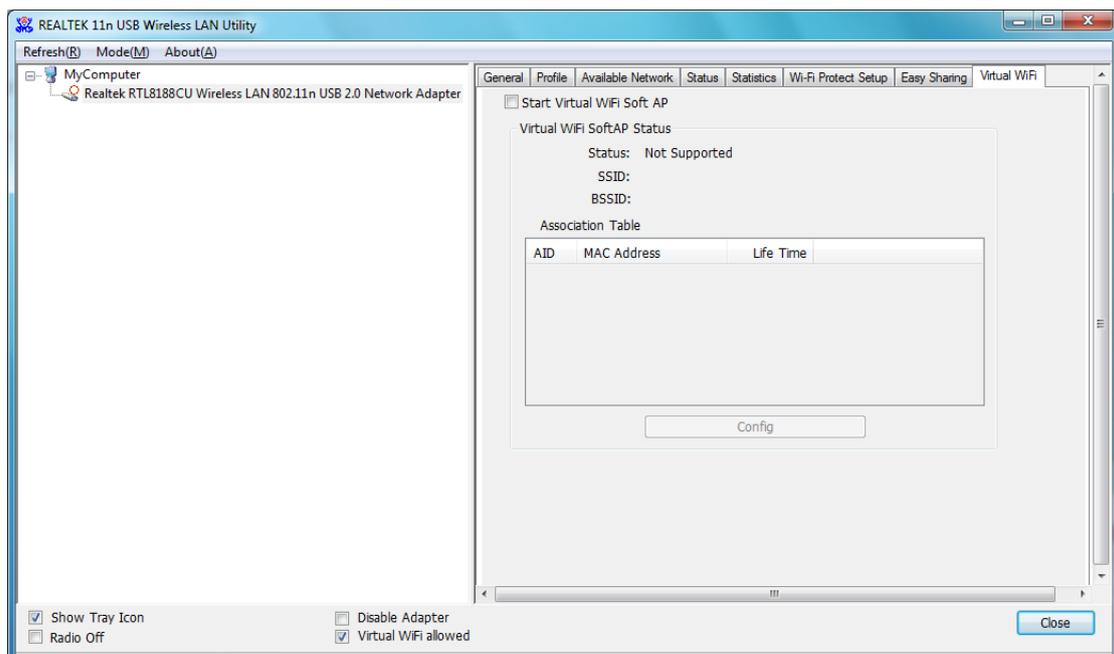
In Windows 7 Operation System, you can share data and media with PC, PS3, iPod...etc.



3.8 Virtual WiFi

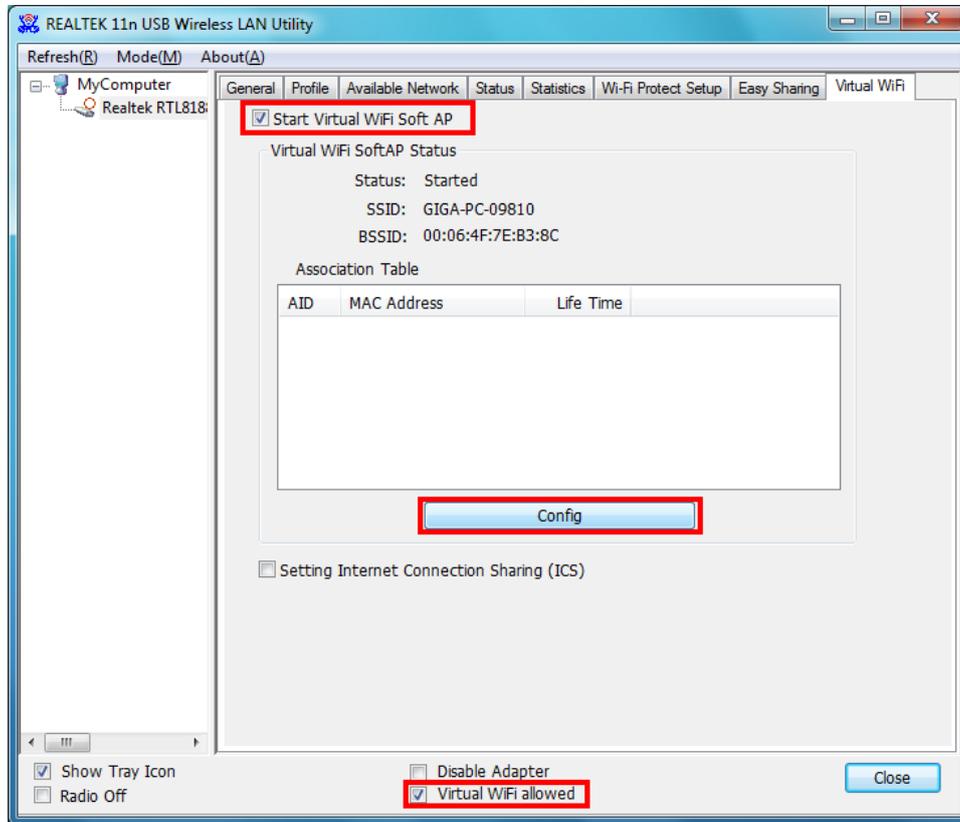
Virtual WiFi is a technology which virtualizes wireless adapter into as many wireless adapter depending upon the requirement, and make the machine to think that it has many wireless adapter in it thus provides the ability to connect to multiple hotspots simultaneously i.e. it allows a single wireless adapter to act like two, two NIC in one machine.

SoftAP function is to enable your wireless adapter as a Virtual Wi-Fi AP to extend wireless coverage and share internet connection with others. (SoftAP is only supported in Windows 7.)



How to use Virtual WiFi Function:

Step1: Enable “**Virtual WiFi Allowed**” on the bottom of USB wireless utility. Next, move to **Virtual WiFi tab** and enable “**Start Virtual Wifi SoftAP**”. The System will create a SSID and BSSID after SoftAP is enabled.



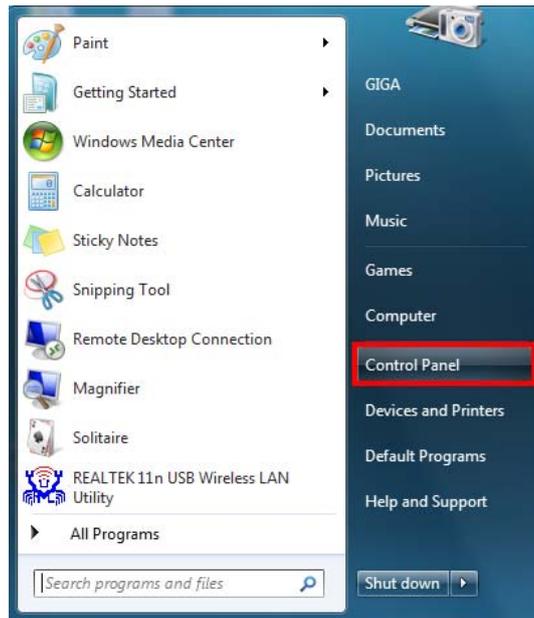
Step2: Click “**Config**” button to enter wireless network properties. You can change the network name (SSID) and network key for other wireless devices connection. (SoftAP adopts WPA2-PSK(AES) as Wireless network security)



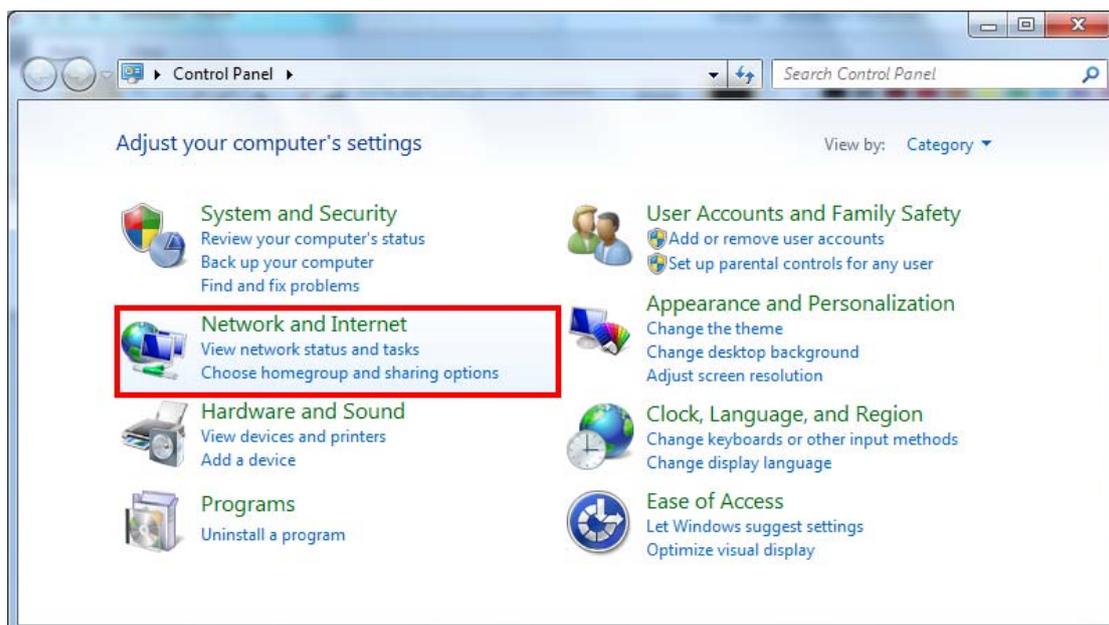
Step3: If you want to share Internet connection to other wireless device through USB Wireless, besides enabling the SoftAP function, you have to enable “**Internet Connection Sharing**” function in Windows 7 as well.

****To enable “Internet Connection Sharing” from Windows 7, please follow the following steps in your computer:**

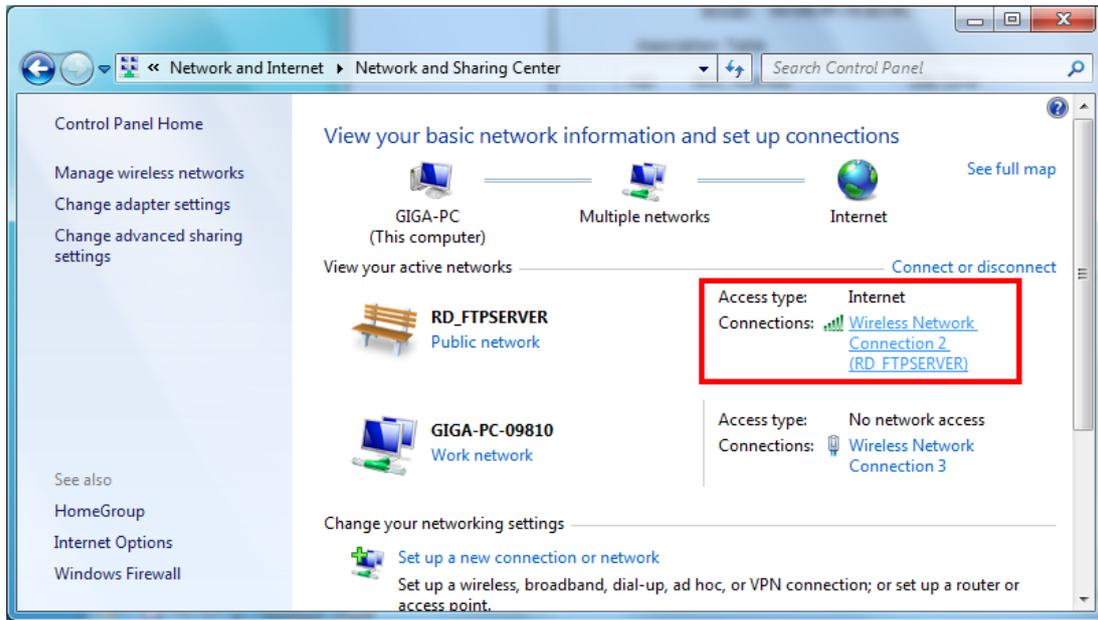
(1) Please log to Windows 7 as administrator or user identification. Click “**Start**” → “**Control Panel**”



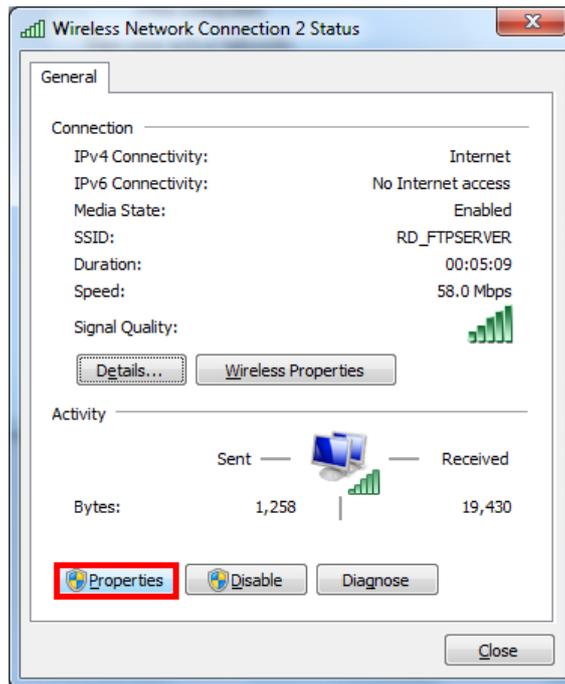
(2) Select “**Network and Internet**” then Click “**View network status and tasks**”.



(3) Right click wireless network connection to enter Wireless Network Connection Status

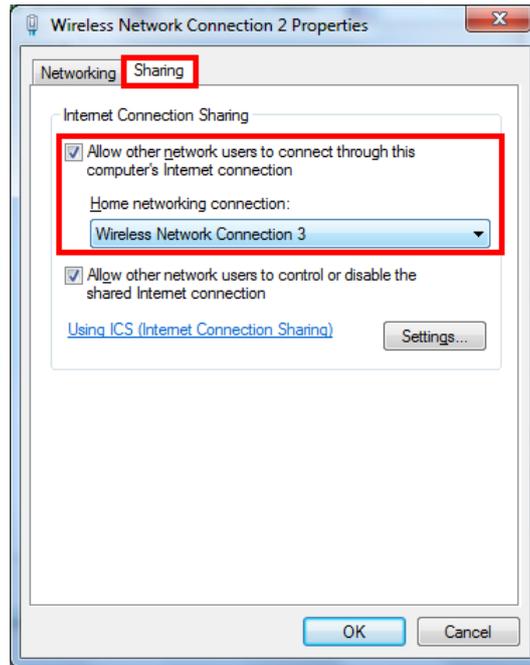


(4) In Wireless Network Connection Status, please select “Properties”.

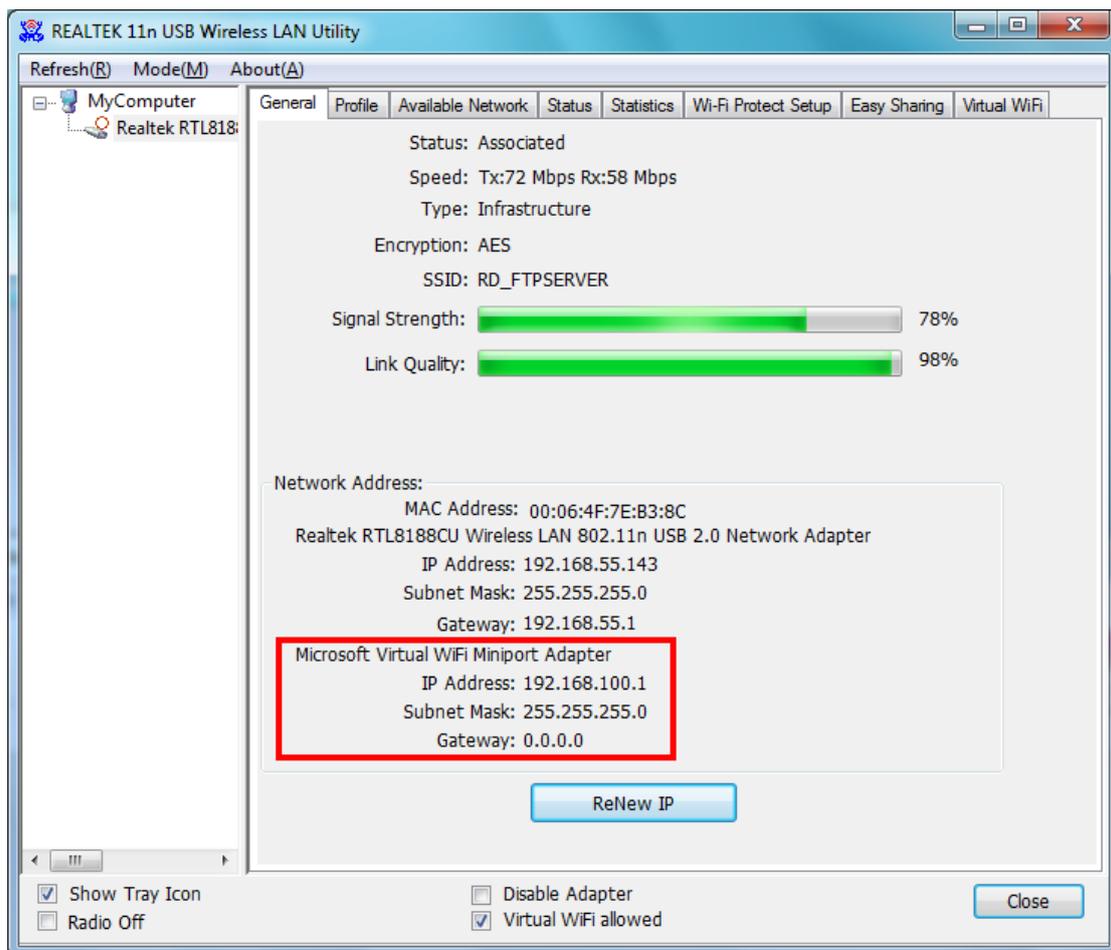


(5) Click “Sharing” tab and enable “All other network users to connect through this computer’s Internet connection”.

For Home networking connection: Please select Microsoft Virtual WiFi Miniport device (example here is named Wireless Network Connection 3.)

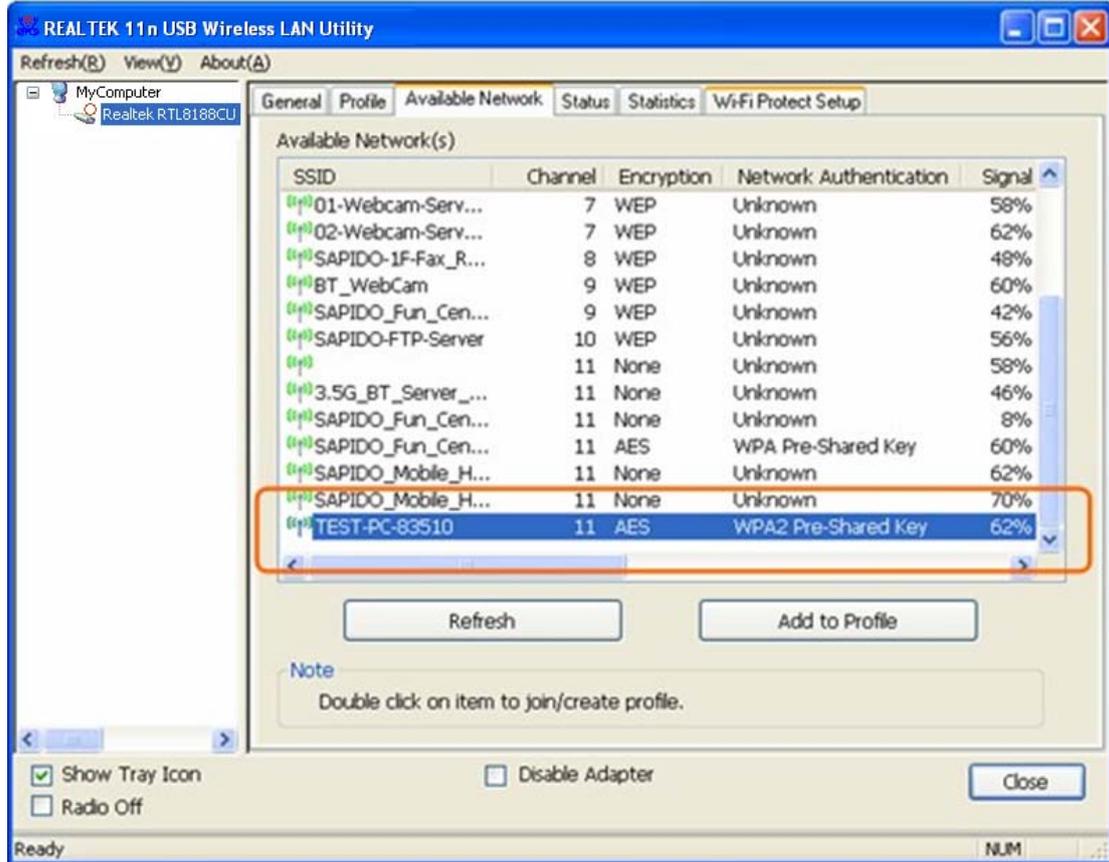


(6) After above configuration in Windows 7, in USB Wireless Utility “General” page, it will indicate Microsoft Virtual WiFi Miniport Adapter IP 192.168.100.1.

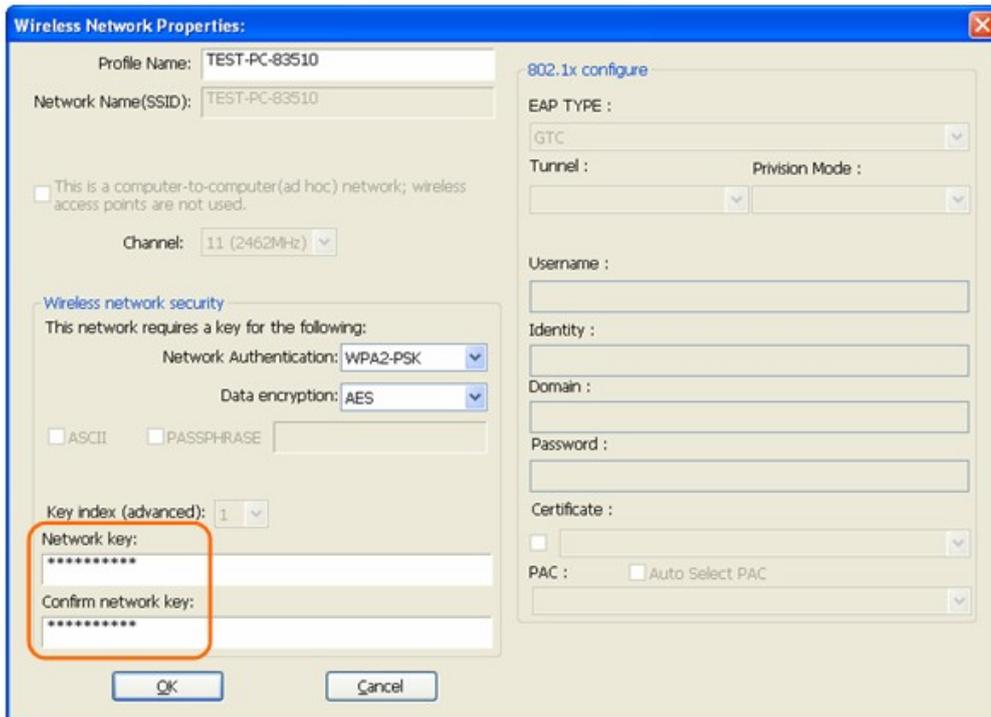


****For other LAN users' connection:**

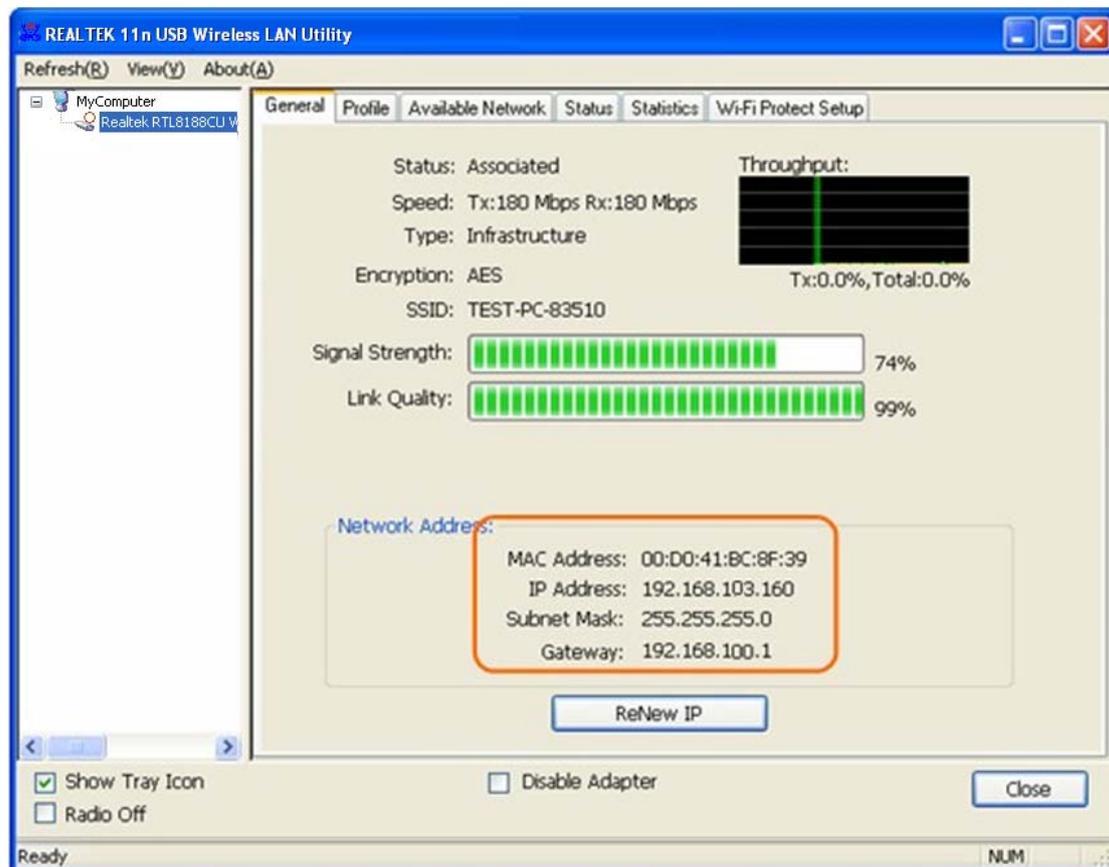
Please select the network name (SSID) from Microsoft Virtual WiFi Miniport Adapter.



Next, in Wireless Network Properties: Please input same network security and key as Microsoft Virtual WiFi Miniport Adapter.



Once the wireless network is connected successfully, the Network Address will indicate same IP range as Microsoft Virtual WiFi Miniport Adapter.



4. Soft-AP Function

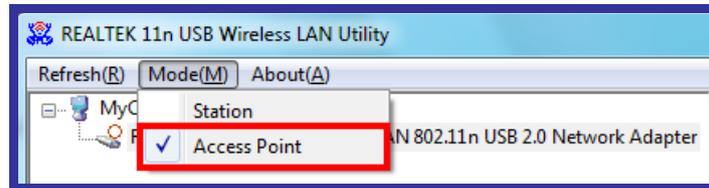
Except becoming a wireless client of other wireless access points, this USB Wireless LAN utility can act as a wireless service provider. You can switch the operating mode to “**Access Point**” mode to simulate the function of a real wireless access point by software, and all other computers and wireless devices can connect to your computer wirelessly, even share the internet connection you have.

To use the Wireless LAN USB Adapter to bridge your wired and wireless network, the following requirements must be met :

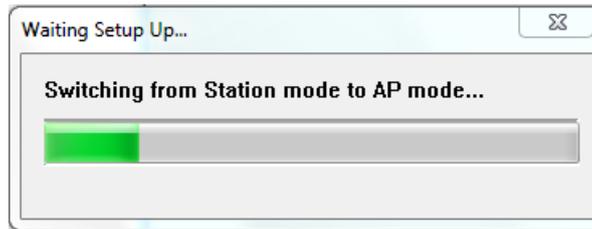
1. The Wireless LAN USB Adapter must be installed on a computer connected to the wired network.
2. Either configure network sharing (refer to the appendix for an example) or bridge the two interfaces (wireless and wired) on the computer.
3. Set the wireless station's IP address to be in the same subnet as the computer in which the Wireless LAN USB Adapter is installed.

4.1 Switching to AP Mode

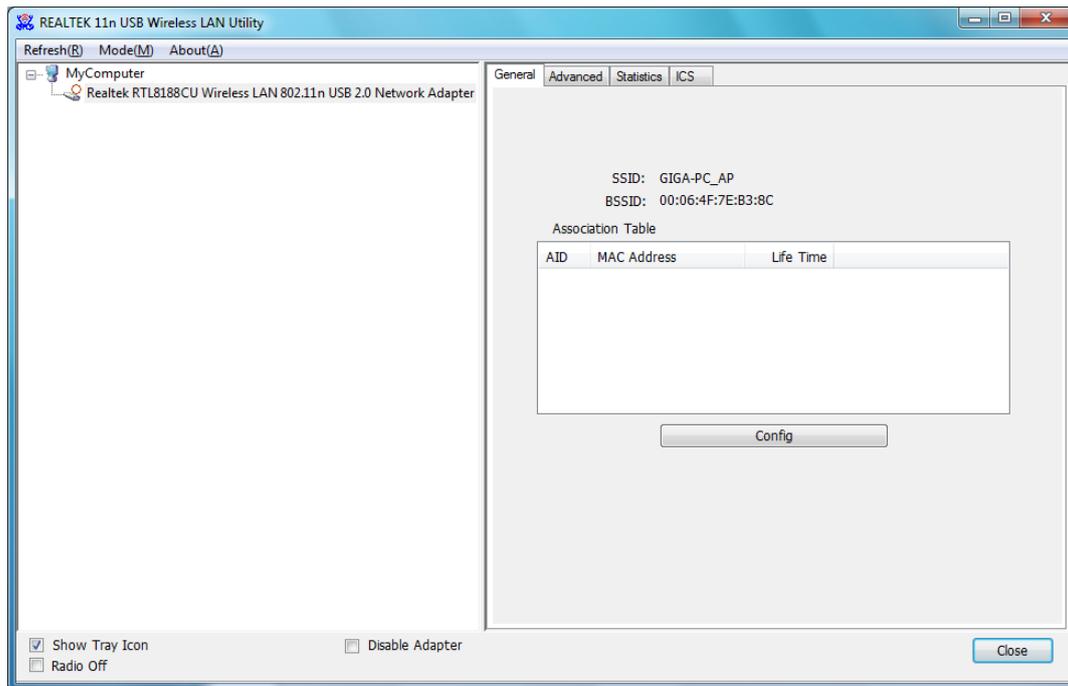
Select “**Access Point**” from **Mode(M)** tab to make the Wireless LAN USB adapter act as a wireless AP.



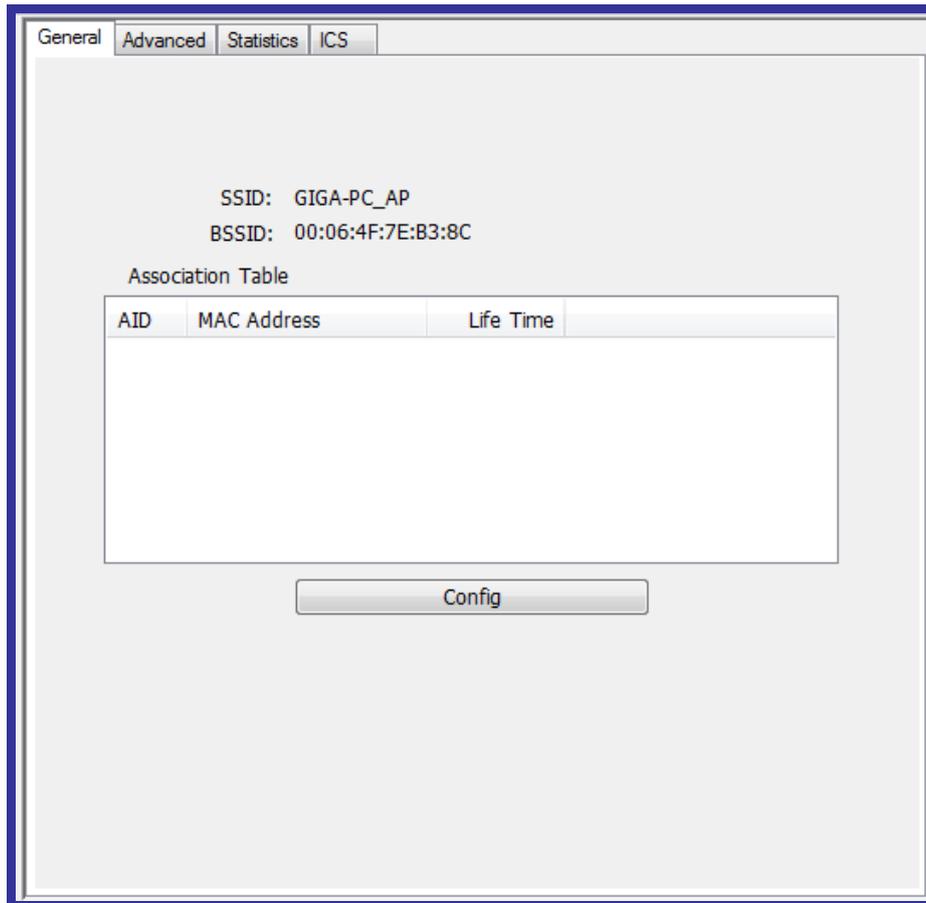
After you select “**Access Point**” mode, the Wireless LAN USB adapter available options will change.



You will see the basic configuration menu of the AP function:



4.2 General



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. It shows the current SSID setting of the Wireless USB adapter.

BSSID: It shows the current BSSID's MAC address.

AID: Raise value by current connection.

MAC Address: The station MAC address of current connection

Life Time: The status of current connection.

4.3 Advanced

The screenshot shows a configuration window with the following elements:

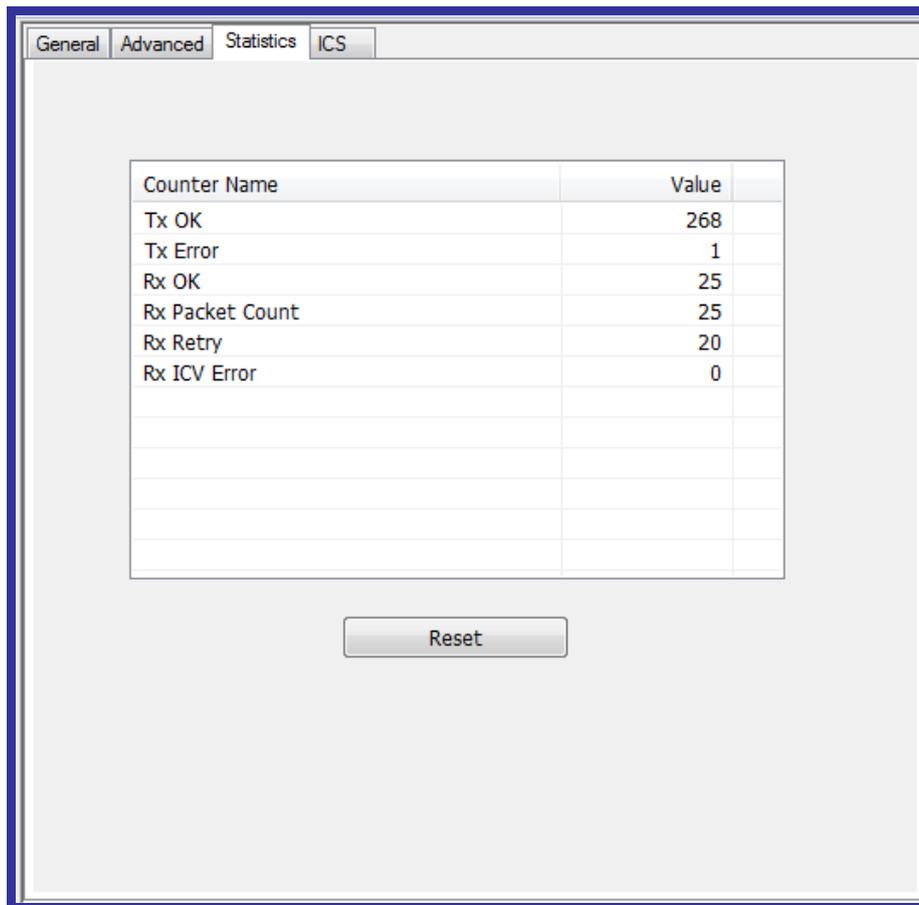
- Tabbed interface with tabs: General, Advanced, Statistics, ICS.
- Section: General
- Field: Beacon Interval (value: 100)
- Field: DTIM Period: (value: 3)
- Field: Preamble Mode (value: Short)
- Buttons: Set Defaults, Apply

Beacon Interval: The time between two beacons. (The system default is 100 ms.)

DTIM Period: DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages. **3** is the default setting.

Preamble Mode: This function will show up when Ad-hoc network type be selected. 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**.

4.4 Statistics



Counter Name	Value
Tx OK	268
Tx Error	1
Rx OK	25
Rx Packet Count	25
Rx Retry	20
Rx ICV Error	0

Reset

If you want to know detailed information about how your software access point works, you can view the statistics of the access point.

You can click “Reset” button to reset all counters to zero.

4.5 ICS

The **Internet Connection Sharing (ICS)** function allows wireless clients to share a single internet connection. In the setup, Wireless USB adapter automatically assigns a virtual IP address to each of the wireless clients. (Please make sure your local network connection is connecting.)

