IEEE 802.11n
Wireless PCI Adapter

User's Manual

FCC Warning

This equipment has been tested and found to comply with the limits for a Class C 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: 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.

REMARK

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

IMPORTANT NOTE:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Revision History

Revision	History
V1.0	First release

All brand and product names mentioned in this manual are trademarks and/or registered trademarks of their respective holders.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

FCC RF Radiation Exposure Statement:

1.   This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2.   This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

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

CE0984 ⓘ

Is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (2004/108/EC), Low-voltage Directive (96/68/EEC), the procedures given in European Council Directive 99/5/EC and 2004/104/EC.

The equipment was passed. The test was performed according to the following European standards:

- EN 300 328 V.1.7.1
- EN 301 489-1 V.1.6.1 / EN 301 489-17 V.1.2.1
- EN 301 893 V.1.2.**3**
- EN 50385
- EN 60950-1

Regulatory statement (R&TTE)

- European standards dictate maximum radiated transmit power of 100mW EIRP and frequency range 2.400-2.4835GHz;
- In France, the equipment must be restricted to the 2.4465-2.4835GHz frequency range and must be restricted to indoor use.

Operation of this device is subjected to the following National regulations and may be prohibited to use if certain restriction should be applied.

Contents

1. Introduction

This is a wireless client device that delivers unrivaled wireless performance for your Desktop PC. It complies with IEEE 802.11n draft standard and backward compatible with IEEE 802.11b/g. With this adapter, you can easily upgrade your Desktop PC wireless connectivity. Once the wireless PCI adapter is connected, 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. It also provides peer-to-peer communication among any compatible wireless users and no Access Point required.

This Wireless PCI Adapter provides maximum transfer rate up to 300Mbps and supports WEP, WPA, WPA2 and WPS high-level WLAN security features that guarantee the best security for users.

This product is made in ISO9001 approved factory and complies with FCC part 15 regulations and CE approval.

1.1 Features

- Complies with draft IEEE 802.11n standard
- Up to 150Mbps data transfer rates in 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, 802.11x advanced security
- Supports both Infrastructure and Ad-Hoc Networking Modes
- Supports Windows 2000/XP/Vista
- Simple user setup and diagnostics utilities
- 20MHz/40MHz Bandwidth

1.2 LED Indicator

LED	Light Status	Description
ACT	Blinking	Data is being transmitted or received.
LINK	On	Wireless link is established.

1.3 Package Contents

- One Wireless PCI Adapter
- 2 External Antennas
- One CD-ROM (Drivers / Utility, User's Manual)

If any of the above items is missing, contact your dealer immediately.

1.4 Before you start

You must have the requirements as follow,

- · A computer with an available PCI slot
- · At least a 300MHz processor and 32MB memory
- · Windows 2000/XP/Vista support
- · A CD-ROM drive
- · Wireless PCI Adapter properly installed
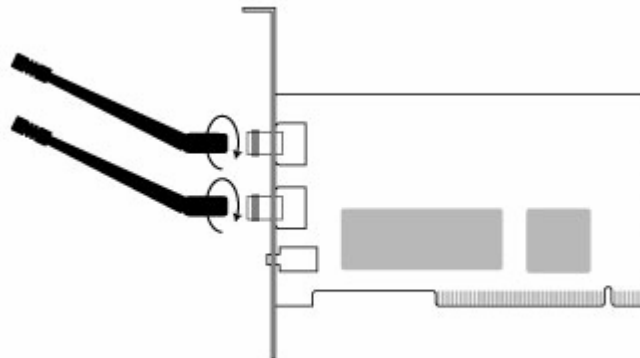
1.5 Hardware Installation

STEP1: Turn off your computer and remove its cover

STEP2: Insert the PCI card to an available PCI slot firmly. Please refer to the illustration below:
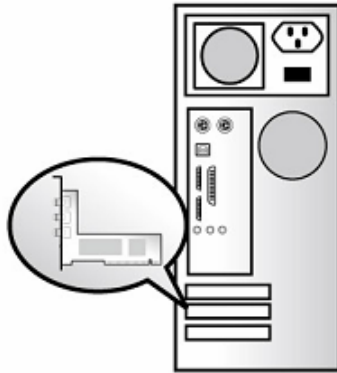
STEP3: Secure this card to the rear of the computer chassis and put back the cover.

STEP4: Secure the antenna to antenna connector of the card. Please refer to the illustration below:

(Diagram 1: The illustration for 2 antennas model)

STEP5: Turn on the computer.

[Guidelines for the Hardware Installation]

Please observe the following guidelines when you are installing the PCI card to the Desktop PC:

▶ **Avoid placing the PC close to obstacles**

Obstructions such as concrete and thick walls limit radio signal penetration and reduce the throughput and the coverage range of the PCI card.

▶ **Place the PC as high as possible**

The higher the PC is placed, the better the performance.

▶ **Adjust the antenna position (Depends on the model)**

For 2 antennas model ➔

The WLAN PCI card has one antenna for signal reception and another one antenna for high power signal transmission. The antenna on the right side is for signal reception/transmission (Rx/Tx) and should be set perpendicular (90 degrees). The left side is for signal reception (Rx) and should be set about 90 degree.

2. Software Installation

Note: The following installation was operated under Windows Vista. (Procedures will be same for Windows XP and 2000 Operation System)

Step1: Turn off your PC.

Step2: Insert the Wireless PCI card into the PCI slot of your computer, and restart your computer. The system will automatically find the device and search for its driver. Please click **Cancel** to continue.
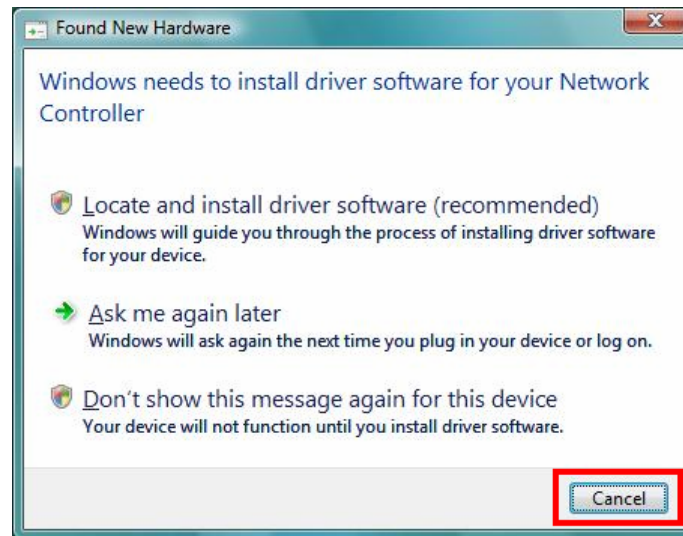

Step3: Insert Wireless LAN PCI Adapter Installation CD into CD-ROM drive then windows below will appear. Click **Install Driver & Utility** to begin device driver installation.
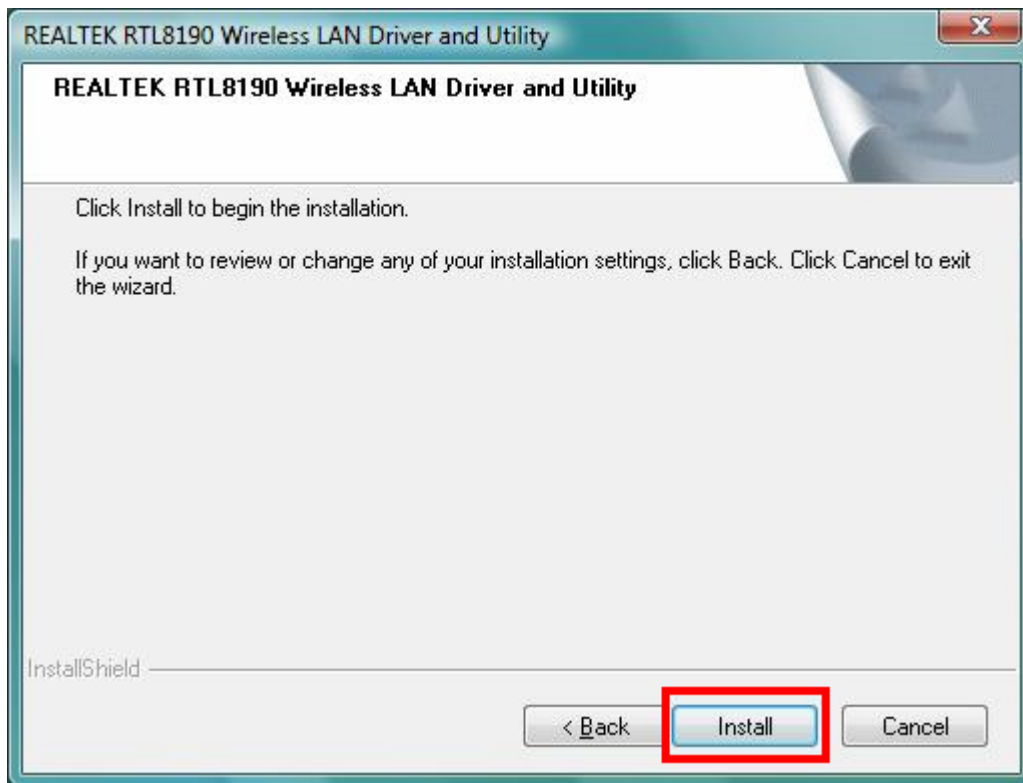
Step4: Select the language for this installation from the choices below and click **Next>** to continue.
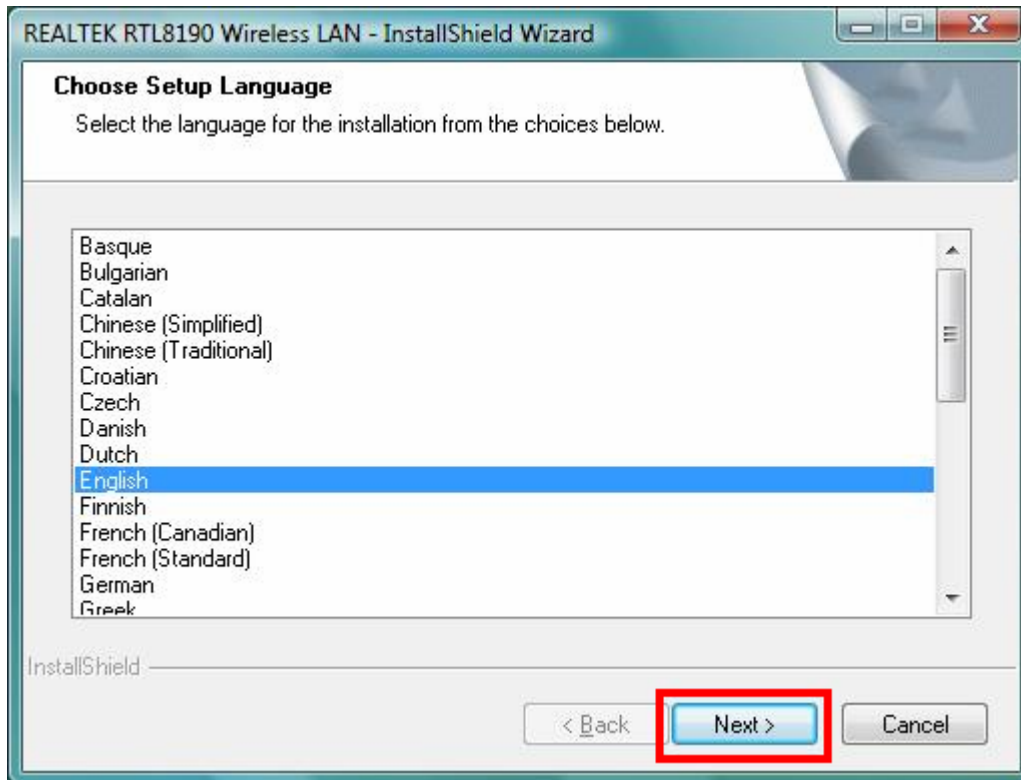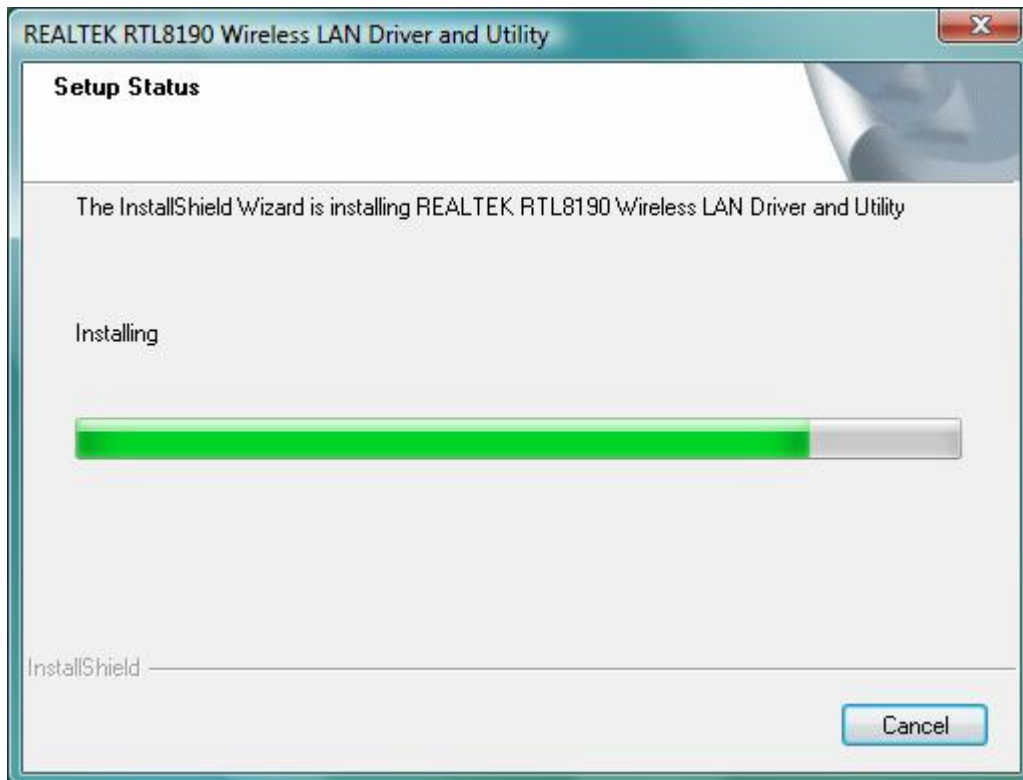

Step5: The InstallShield Wizard will install Wireless LAN Driver and Utility on your computer. To continue, click **Next>** to continue.
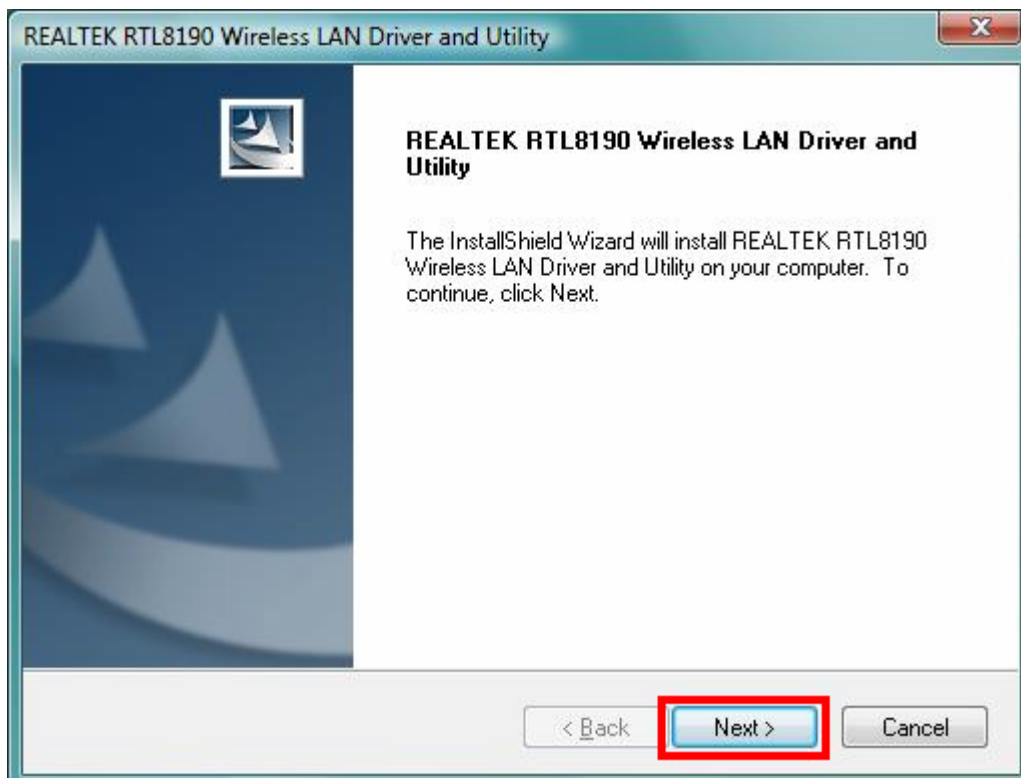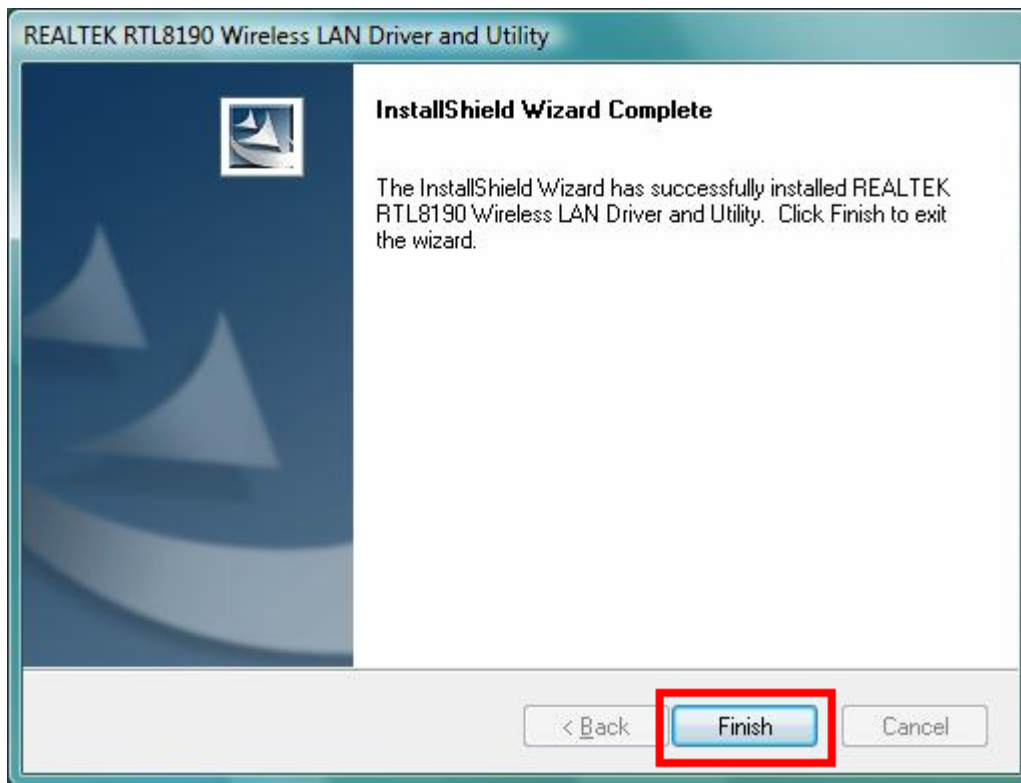
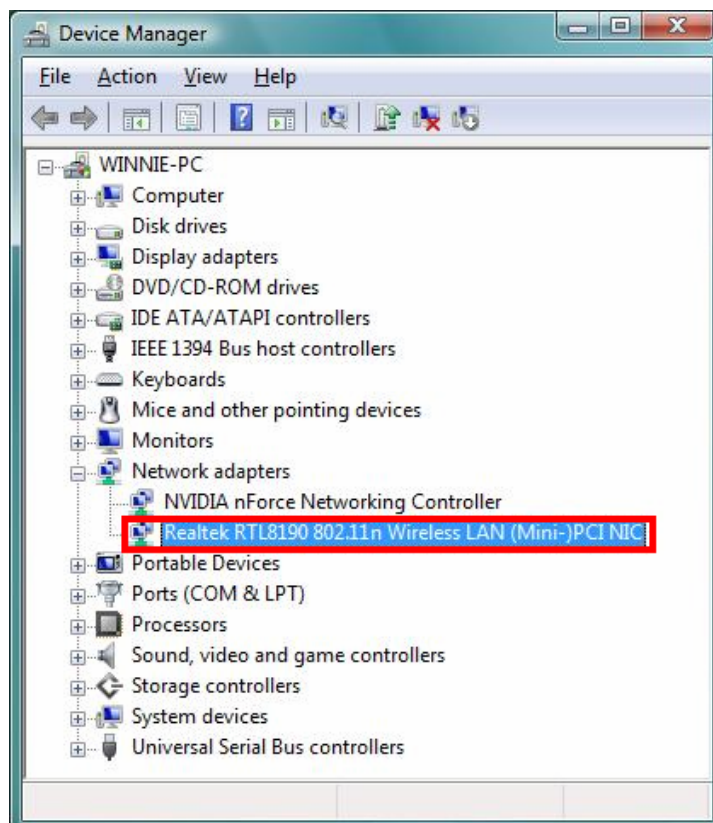**Step6:** Click **Install** begin the installation..

**Step7:** Please wait for a while for installing process.

Step8: After Wizard has finished the installing, click **Finish** to compete the setup.

REALTEK RTL8190 Wireless LAN Driver and Utility

InstallShield Wizard Complete

The InstallShield Wizard has successfully installed REALTEK RTL8190 Wireless LAN Driver and Utility. Click Finish to exit the wizard.

< Back   Finish   Cancel

Step9: To check if Wireless PCI card is properly installed, you can right-click **Computer** → choose **Properties** → click **Device Manager**.

Device Manager

File   Action   View   Help

WINNIE-PC
- Computer
- Disk drives
- Display adapters
- DVD/CD-ROM drives
- IDE ATA/ATAPI controllers
- IEEE 1394 Bus host controllers
- Keyboards
- Mice and other pointing devices
- Monitors
- Network adapters
  - NVIDIA nForce Networking Controller
  - Realtek RTL8190 802.11n Wireless LAN (Mini-)PCI NIC
- Portable Devices
- Ports (COM & LPT)
- Processors
- Sound, video and game controllers
- Storage controllers
- System devices
- Universal Serial Bus controllers

When Utility setup is completed, the Wireless LAN utility's main page will automatically show up on your screen.
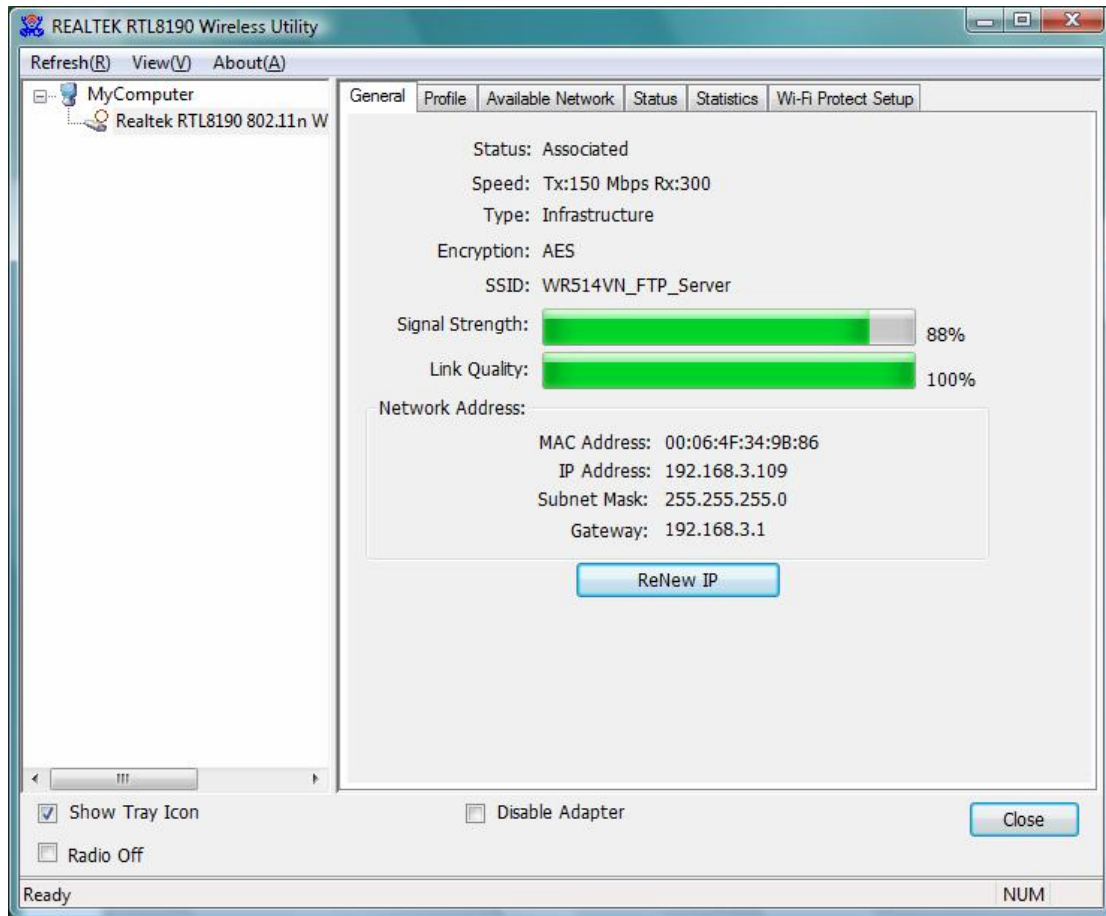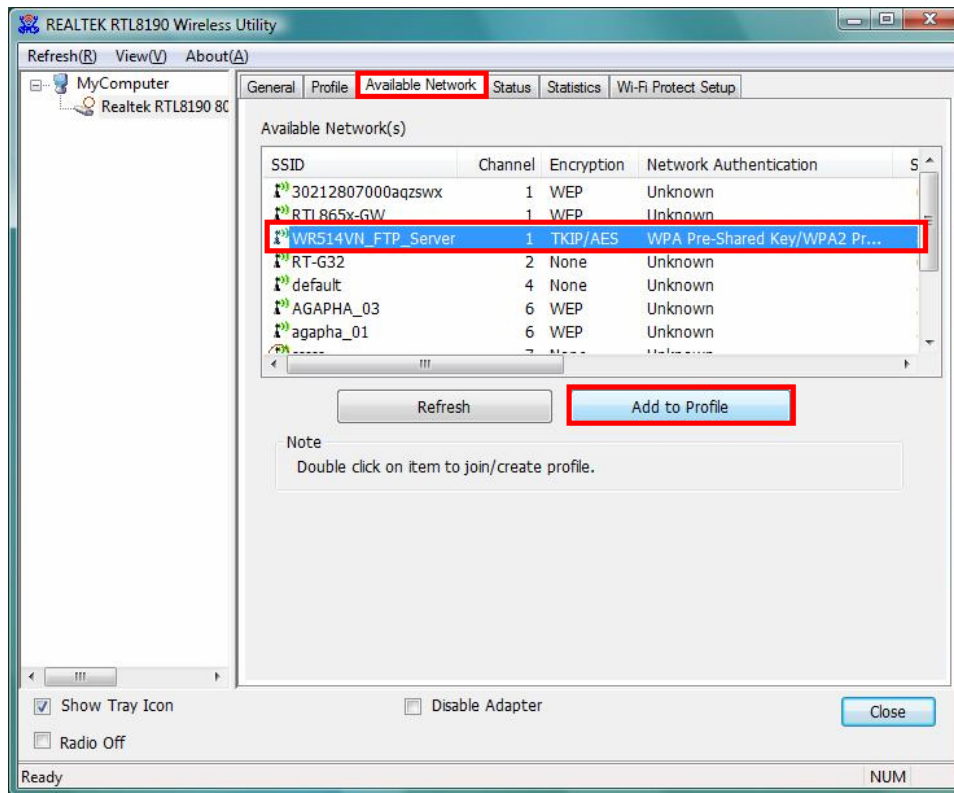

Also, a shortcut of Wireless LAN Utility will appear in the computer's desktop. Double click the shortcut and start using the WLAN PCI Card.
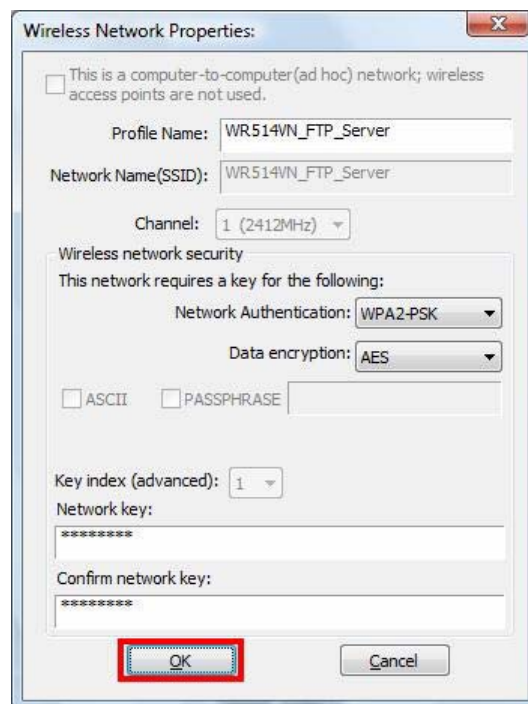
[Configuring Wireless Network]

Step 1: Open the Wireless Utility and go to "**Available Network**" tab, double-click the network which you want to connect or click "Add to Profile" button to continue.
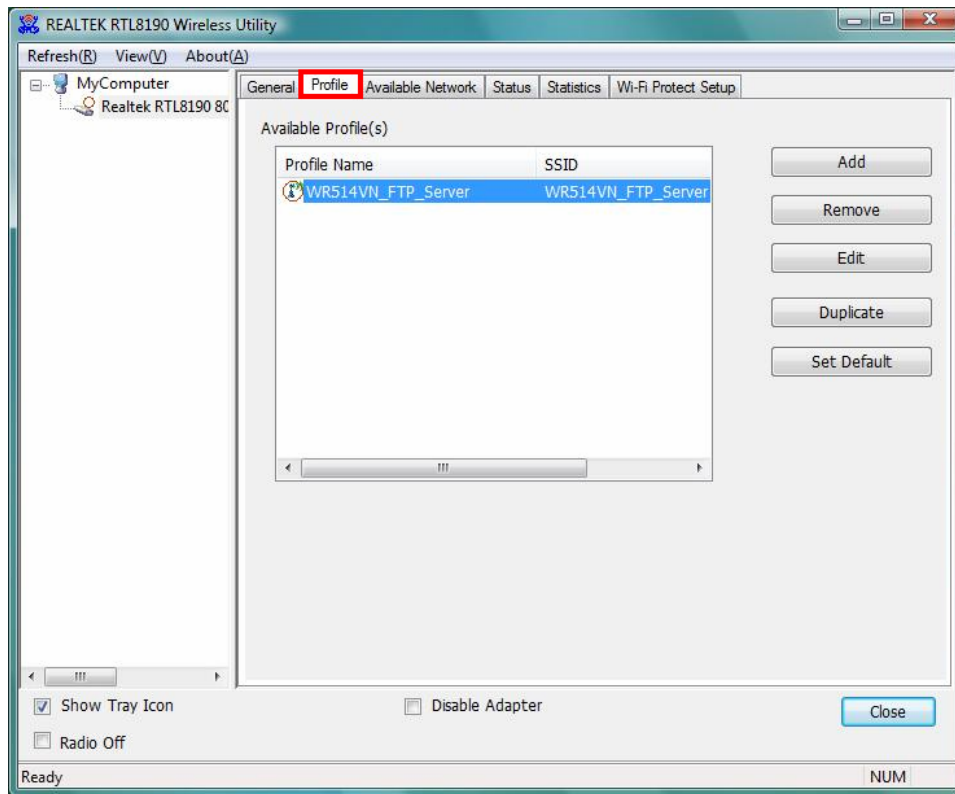

Step 2: The Wireless network properties will be displayed, enter the network key if it is necessary. And click "**OK**" to continue.

Step 3: In the "**Profile**" tab, you can see the available network is listed.

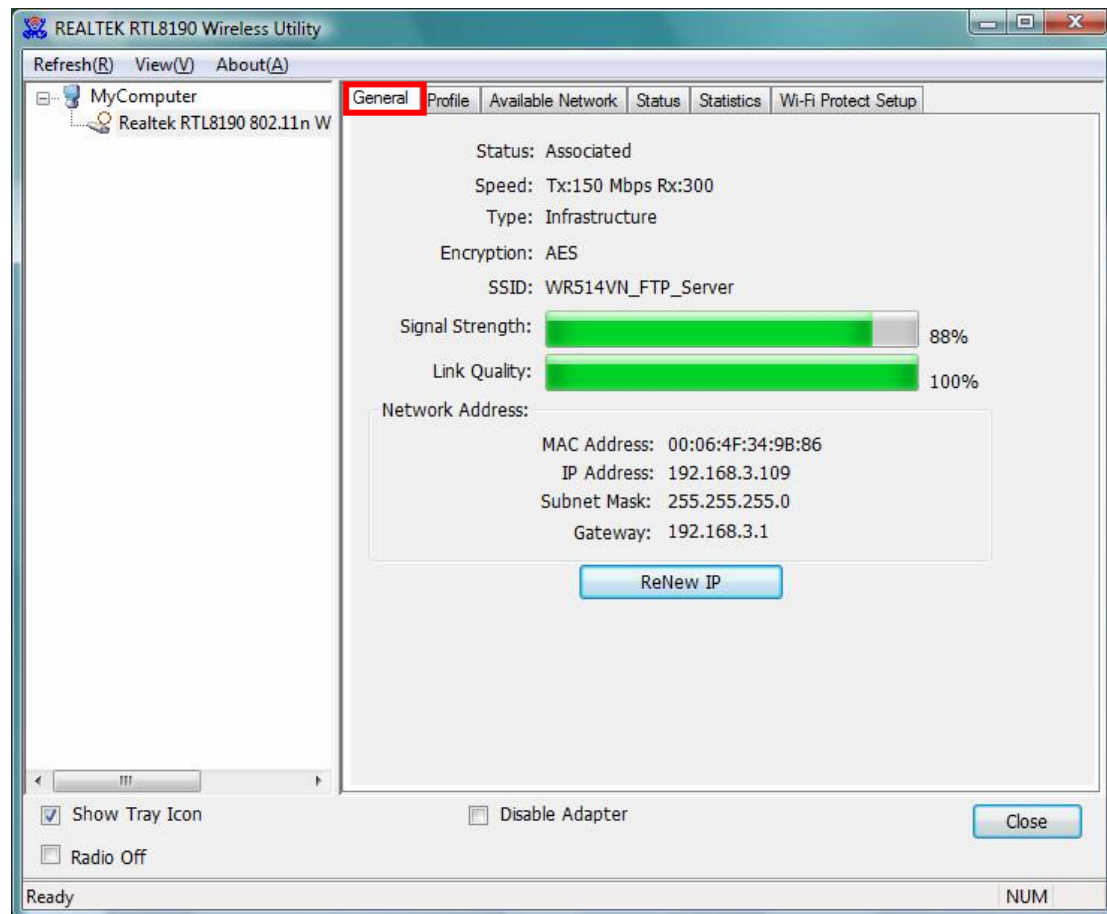**Step 4:** And now, you can browse your Internet Explorer to surfing the web.

3. Wireless LAN Utility

The Wireless LAN Utility is an application that helps you to configure the Wireless LAN PCI Card 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.

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3.2 Profile

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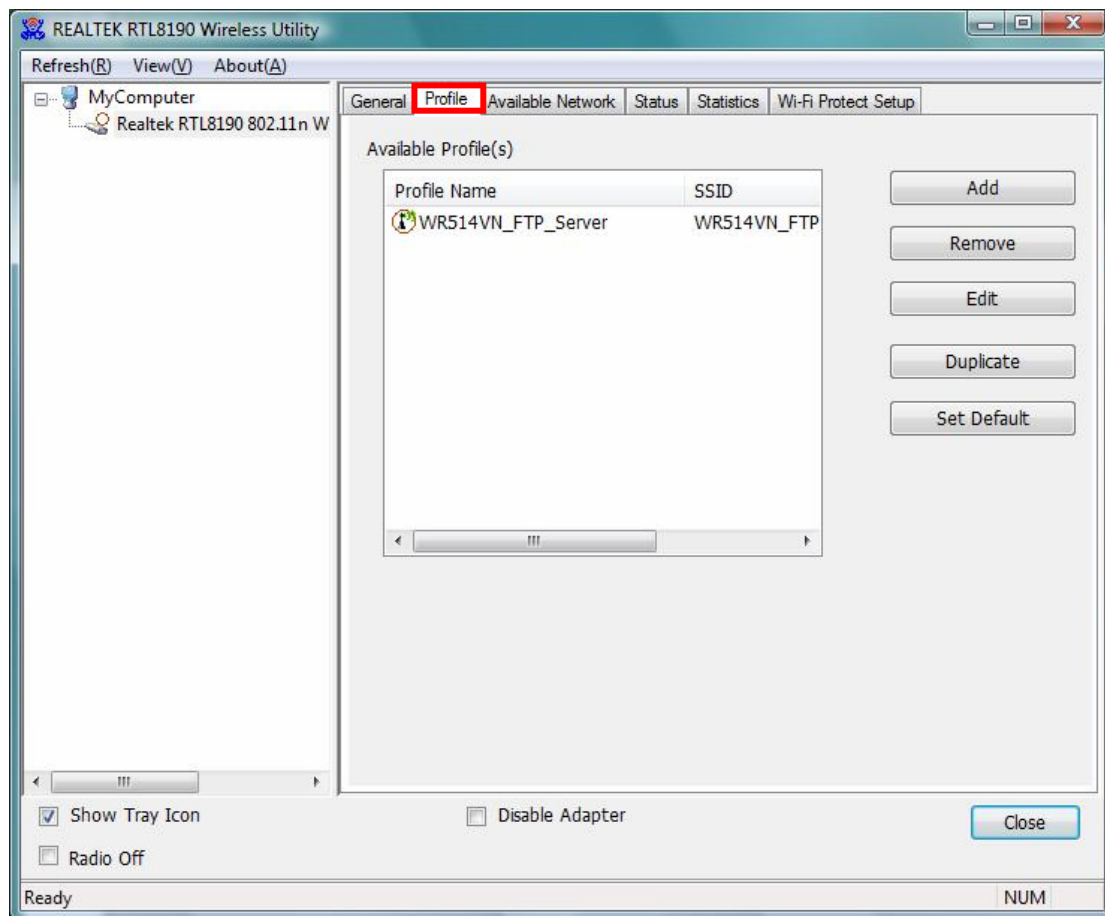

3.3 Available Network

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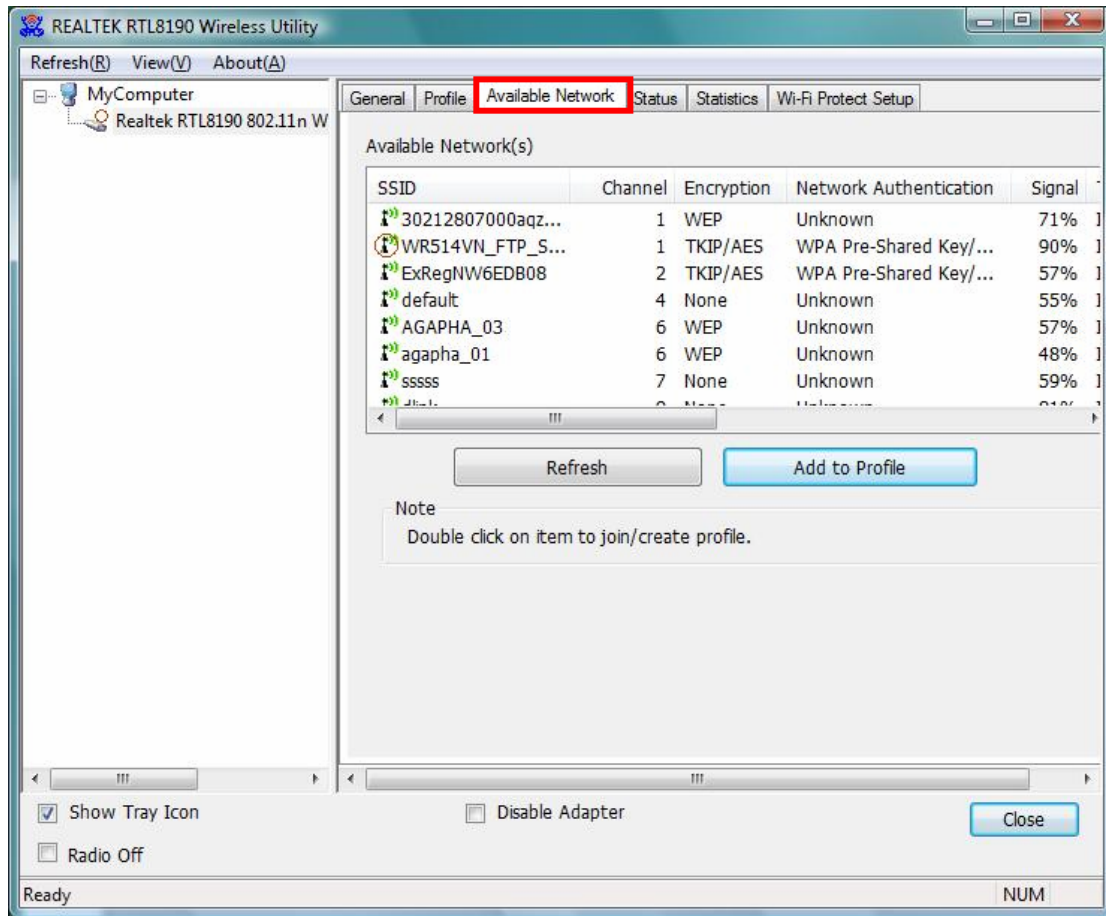
If you want to add one Access Point to the profile, click "**Add to Profile**" button. The Wireless network properties windows will display. You can configure your Wireless Network Security for the card.
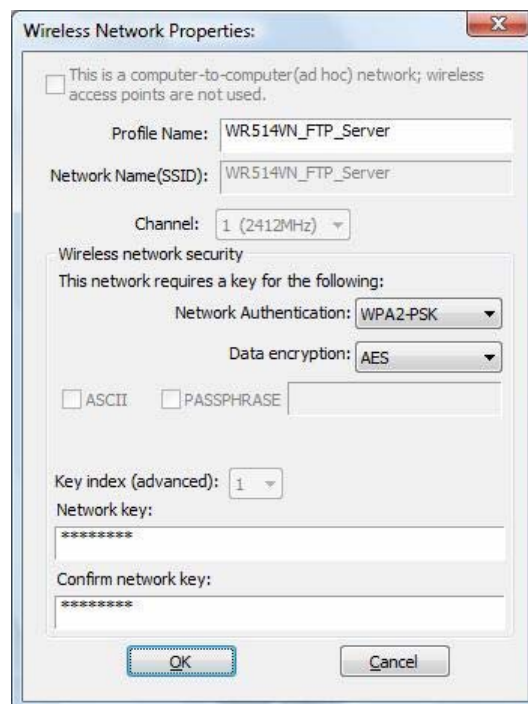
[Network Authentication]

-- 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) advocate the use of AES security to protect sensitive digital information on government networks.

-- WEP 802.1X: Accepts WEP clients and the encryption key is obtained dynamically through 802.1x.

[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.

-- AES: Enabled the AES Data Encryption. When the item is selected, you have to continue setting the Network Key & Confirm network key.

-- Passphrase: Enter a passphrase (password phrase) of up to 63 case-sensitive printable characters.

-- 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 any 5 ASCII characters or 10 digit Hex values (in the "A-F", "a-f", and "0-9" range) as the encryption keys. For example: "0123456aef"

→ **128-bit:** Input any 13 ASCII characters or 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.

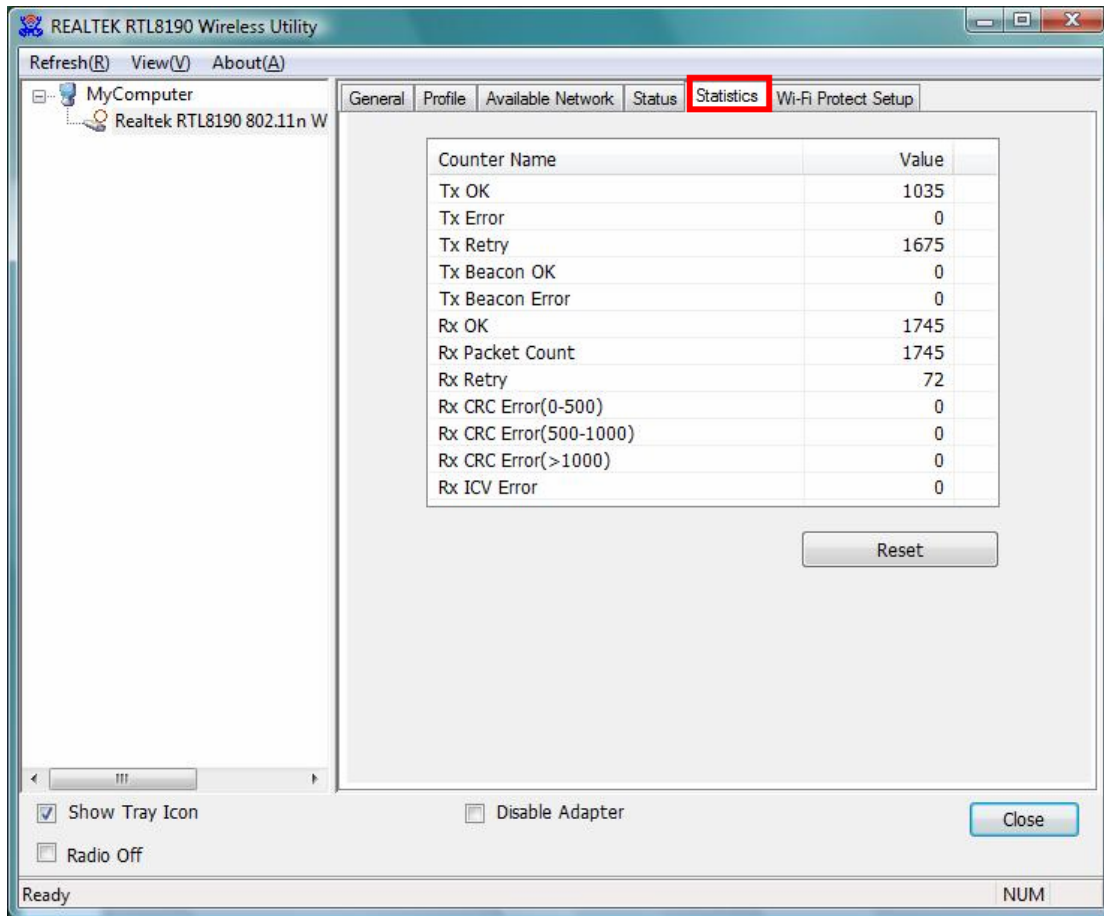-- Key Index (Advanced): The maximum of key index is 4.

3.4 Status

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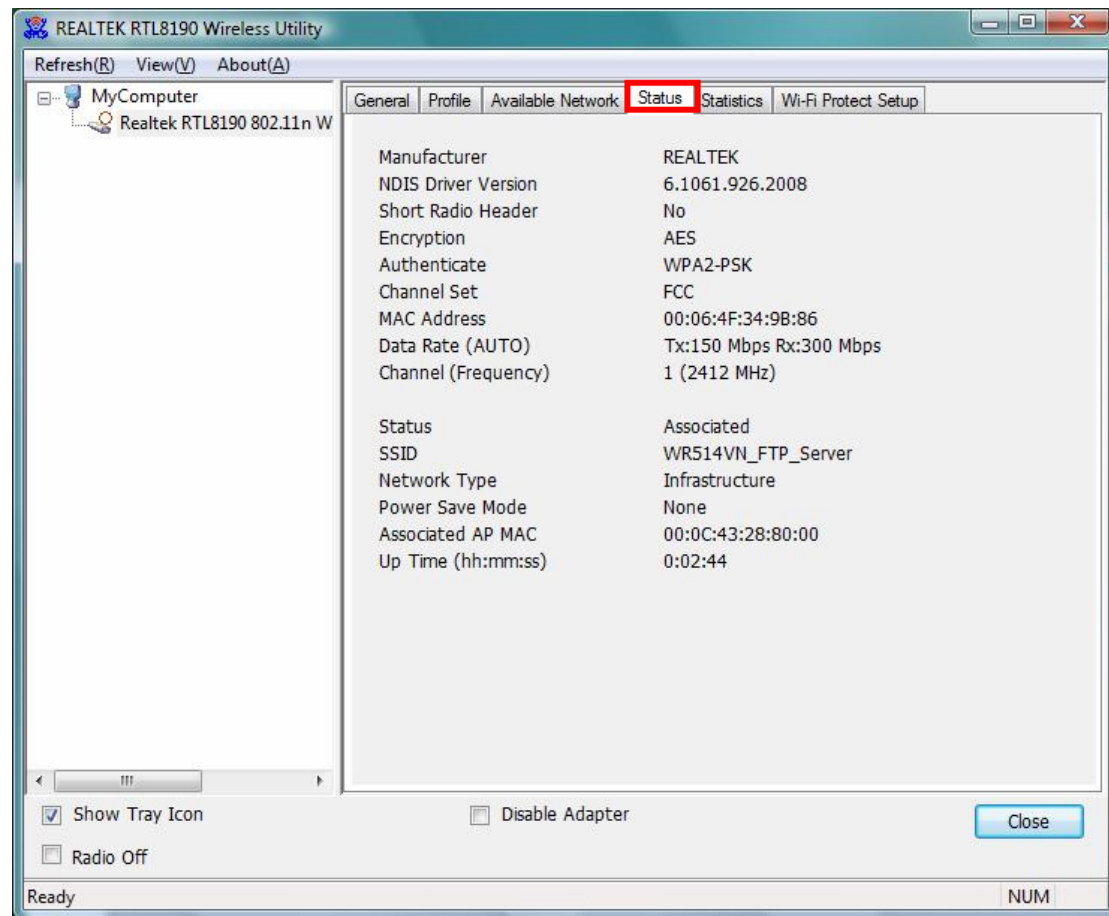

3.5 Statistics

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

3.6 Wi-Fi Protect Setup

In the "**Wi-Fi Protect Setup**", you can setup the Wi-Fi network more easily and secure. . There are two 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.
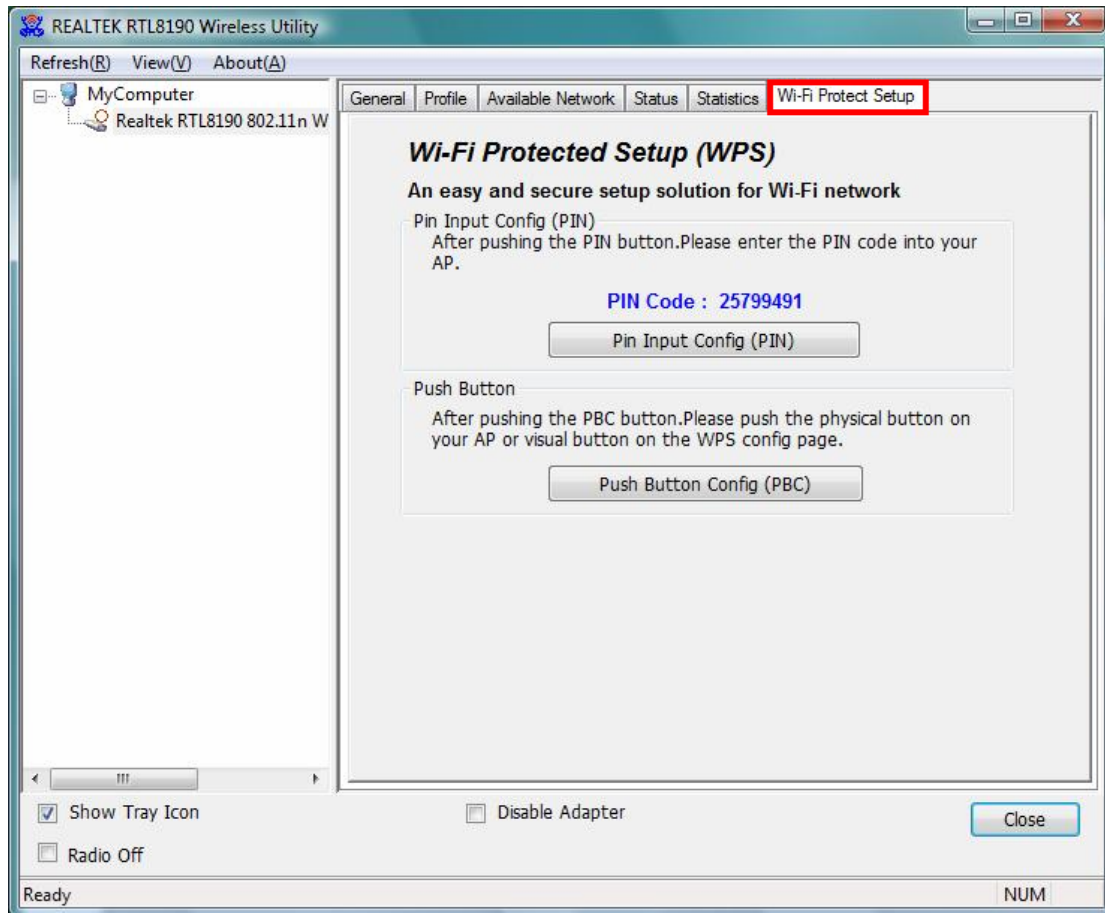
Pin Input Config (PIN): Start to add to Registrar using PIN configuration method. IF STA Registrar, remember that enter PIN Code read from you Enrollee before starting PIN.

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