



USER MANUAL

WUSB-150/WUSB-150A

150Mbps Wireless USB Adapter

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CE DECLARATION OF CONFORMITY

The product fulfils the following requirements according to EMC DIRECTIVE 92/31/EEC, EMC 2004/108/EC and LVD 2006/95/EC:

ETSI EN300328 V1.7.1

ETSI EN301489 V1.6.1

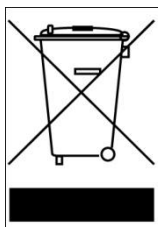
ETSI EN301489-17 V1.2.1

ETSI EN60950-1

SAFETY NOTICE

Do not use this product near water. Using the product during a thunderstorm should be avoided. Do not place heavy objects on the casing.

RECYCLING NOTICE



The symbol of the crossed-out wheeled bin on this product means that it is forbidden to place the equipment waste together with other waste (under penalty of fine). Detailed information about recycling of the product can be obtained at local authorities, local waste treatment plants or local distributors. Forwarding the equipment waste to recycling or recovery points helps to avoid the negative influence of the harmful components present in the equipment on the environment and human health; in this scope the primary role is played by each household.

PACKAGE CONTENTS:

The following elements should be found in the package

- 150Mbps Wireless USB Adapter (WUSB-150 / WUSB-150A)
(depends on the model)
- Quick Installation Guide
- Resource CD

Note: If any of the elements is missing and/or damaged, please contact the retail shop, where you purchased WUSB-150 / WUSB-150A adapter.

Hint: The term 'adapter' used throughout this manual stands for Wireless USB WUSB-150 / WUSB-150A network adapter.

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CHAPTER I (Introduction)

1.1 General information:

Thank you for choosing our **150Mbps Wireless USB Adapter WUSB-150 / WUSB-150A**. The adapter is a client device compliant with 802.11n (Lite N). It has been designed as a device enabling fast and efficient connecting your computer to wireless network.

The adapter is easy to install and configure. Quick Installation Wizard will guide you step by step through the installation process, and configuration application **REALTEK 11n USB Wireless LAN Utility** will enable fast establishing of wireless connection without any troubles.

WUSB-150 / WUSB-150A adapter is designed to use in stationary computers with USB 2.0 port. The adapter is compliant with 802.11n(Lite N)/g/b. Compliance with **802.11n (Lite N)** standard enables to achieve transfer speed of up to **150Mbps** – which is much more than in the case of traditional networks working in 802.11g standard. Many encryption standards are used, including the most secure – **WPA-AES (WPA2)**. The adapter contains an external antenna (detachable), which significantly increases working stability and network range.

1.2 Characteristics:

- Compliant with IEEE802.11n (Lite N), IEEE802.11g and IEEE802.11b
- Supported encryption types: WPA/WPA2, authentication IEEE802.1x, encryption TKIP/AES, 64/128/152-bit WEP encryption
- High transfer speed, up to 150Mbps.
- The device contains USB 2.0 Hi-Speed interface.
- Supporting Ad-Hoc and Infrastructure modes.
- Easy to configure and constant monitoring of work.
- Works with operating systems Windows 2000, XP, Vista, Win7.
- WPS support (Wi-Fi Protected Setup).
- External antenna (detachable) with RP-SMA connector (only model: WUSB-150A).

1.3 LEDs description:

LED		Status	Meaning
Green LED	status	Flashing alternately	The adapter searches for available wireless networks.
Green LED	status	Flashing slowly	The adapter is connected, but does not send or receive any data packets.
Green LED	status	Flashing quickly	The adapter sends or receives data packets.

CHAPTER II (Installation)

2.1 Adapter installation:

The adapter can be installed in two ways:

- 1) Connect it directly to the USB port in your computer.
- 2) Connect the adapter with the computer using USB cable (USB extension) – sold separately.

NOTE: The adapter should be inserted into the USB 2.0 port of the computer during the drivers installation (a suitable message will be displayed – read below).

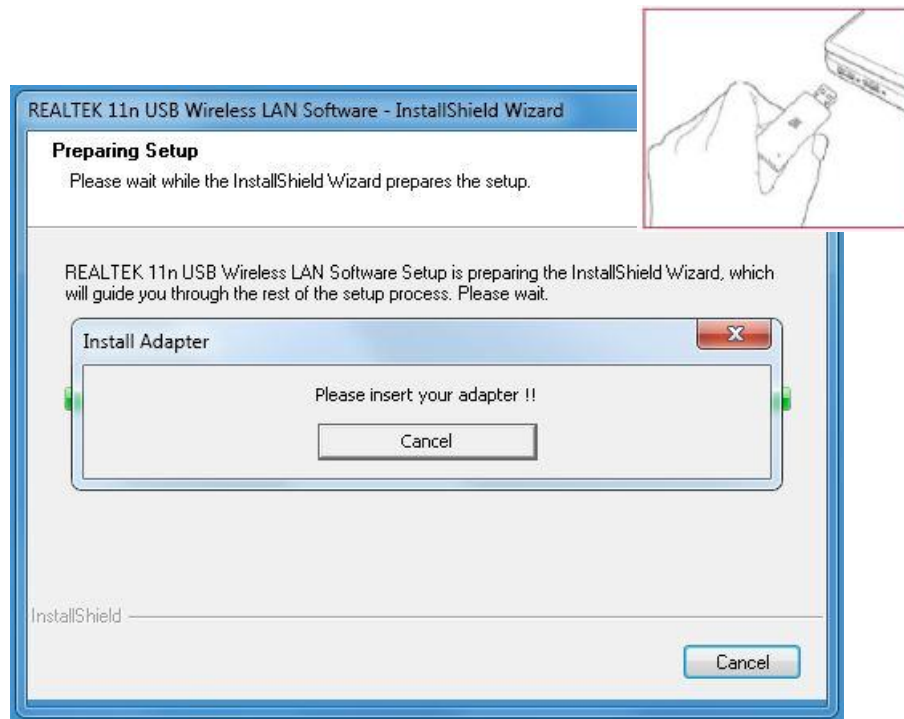
2.2 Instalacja sterowników (Windows 2000, XP, VISTA, 7):

Kreator instalacji karty pomoże Ci w zainstalowaniu urządzenia w systemie Windows 2000 / XP / Vista / 7. Kreator zainstaluje program **REALTEK 11n USB Wireless LAN Utility** oraz sterowniki urządzenia.

Po zainstalowaniu urządzenia, przed instalacją oprogramowania, system zgłosi komunikat „Znaleziono nowe urządzenie”. Kliknij **Cancel** (Anuluj) i uruchom program Kreator Instalacji z płyty CD-ROM.

Poszczególne kroki podczas instalacji są bardzo zbliżone w systemach operacyjnych Windows 2000 / XP / Vista / 7. Proces instalacji przedstawiono na przykładzie systemu Windows XP.

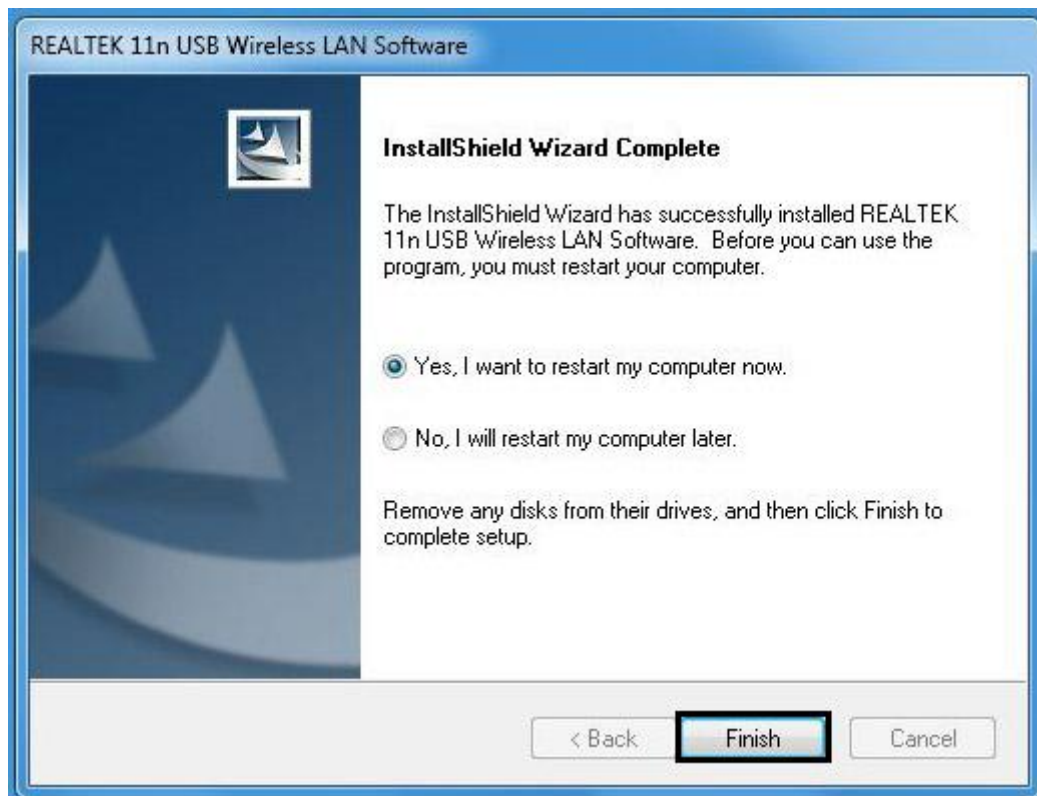
- 1) Insert the CD with software into CD-ROM drive, and then open the catalogue: **x:\driver\WUSB-150\WUSB-150A** (where **x** is the letter of the drive) and choose the catalogue with drivers for your operating system.
- 2) Click the  icon to start the installation process.
- 3) Follow the instructions of the installation application.



Insert the adapter into the USB 2.0 port of the computer (the adapter will be automatically detected and the drivers installation will be continued).



Click **Next**.



Click **Finish** to restart the computer and finish the process of drivers installation.

CHAPTER III (Configuration)

Wireless 8level WUSB-150 / WUSB-150A adapter cards can be configured using **REALTEK 11n USB Wireless LAN Utility**. This Chapter presents the method of wireless adapter card configuration for wireless connection with WLAN network and functions connected with data encryption.

After installing the adapter, an icon will appear in the system tray . It can be found in the bottom of the screen and shows the signal strength and indicator of receiving signal strength using colours.



grey icon means no connection.



red icon means low connection strength (below 5dB).



yellow icon means low connection strength (5dB to 10dB).



green icon means good connection strength (10dB to 20dB).



whole green icon means excellent connection strength (above 20dB).

3.1 Main features description:

Run the pre-installed application **REALTEK 11n USB Wireless LAN Utility** using the “Start” menu or double-click the application icon  in the system tray.



REALTEK 11n USB Wireless LAN Utility enables:

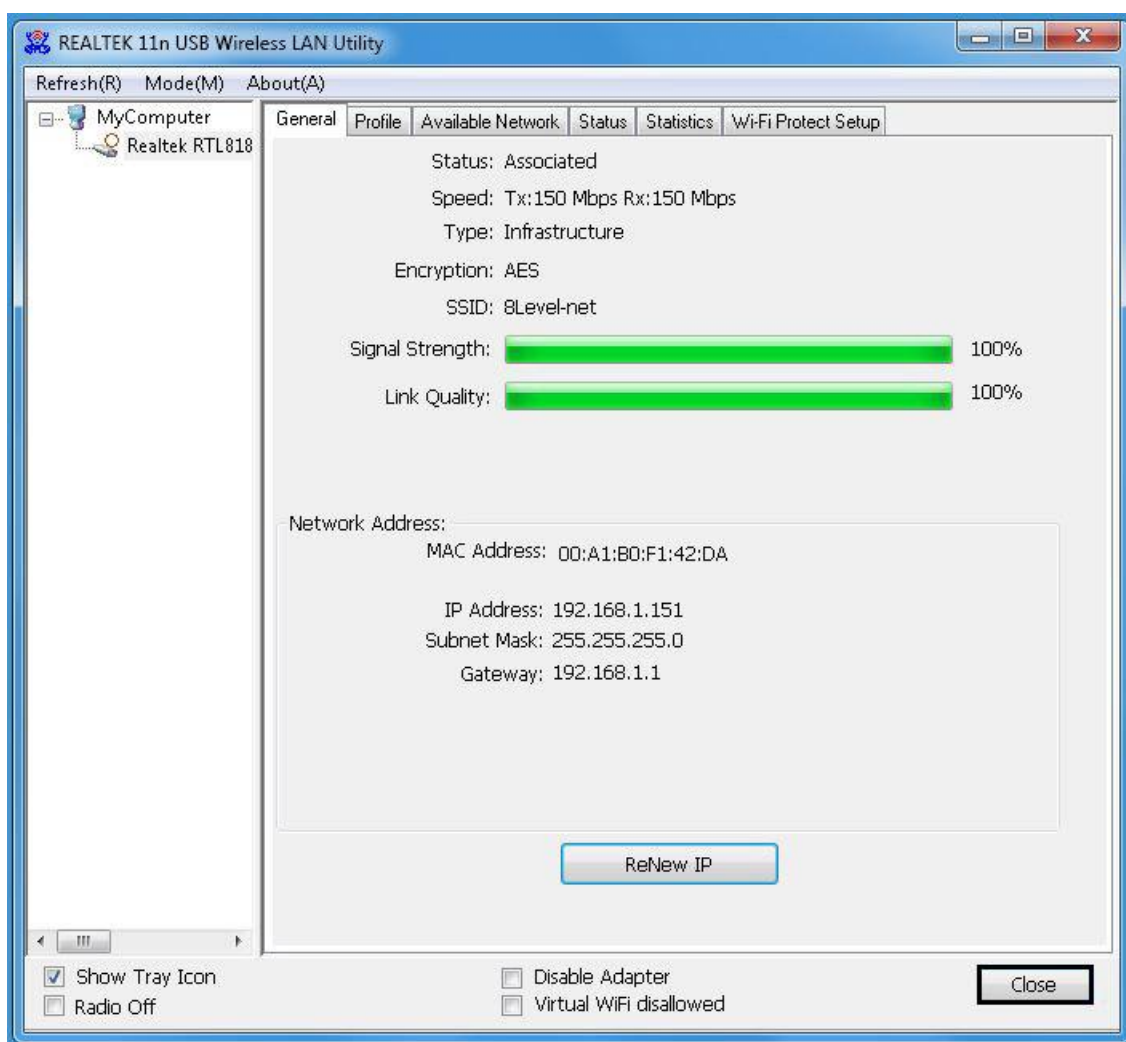
- Displaying current diagnostic messages.
- Displaying current status messages.
- Adding and editing configuration profiles.

BASIC TABS

General	– information about active connection (signal strength, working speed, working mode, encryption type, network name and information about network address)
Profile	– connection configuration (enables adding, deleting, editing and copying network profiles)
Available network	– scanning available networks
Status	– information about the adapter drivers and working status
Statistics	– statistical data (enables checking information about the counter of sent/received packets, transmission errors, etc.)
Wi-Fi Protect Setup	– configuration of connection using WPS function (enables easy and secure establishing/configuration of wireless network connection)
Easy Sharing	– sharing folders using the computer

Tab GENERAL:

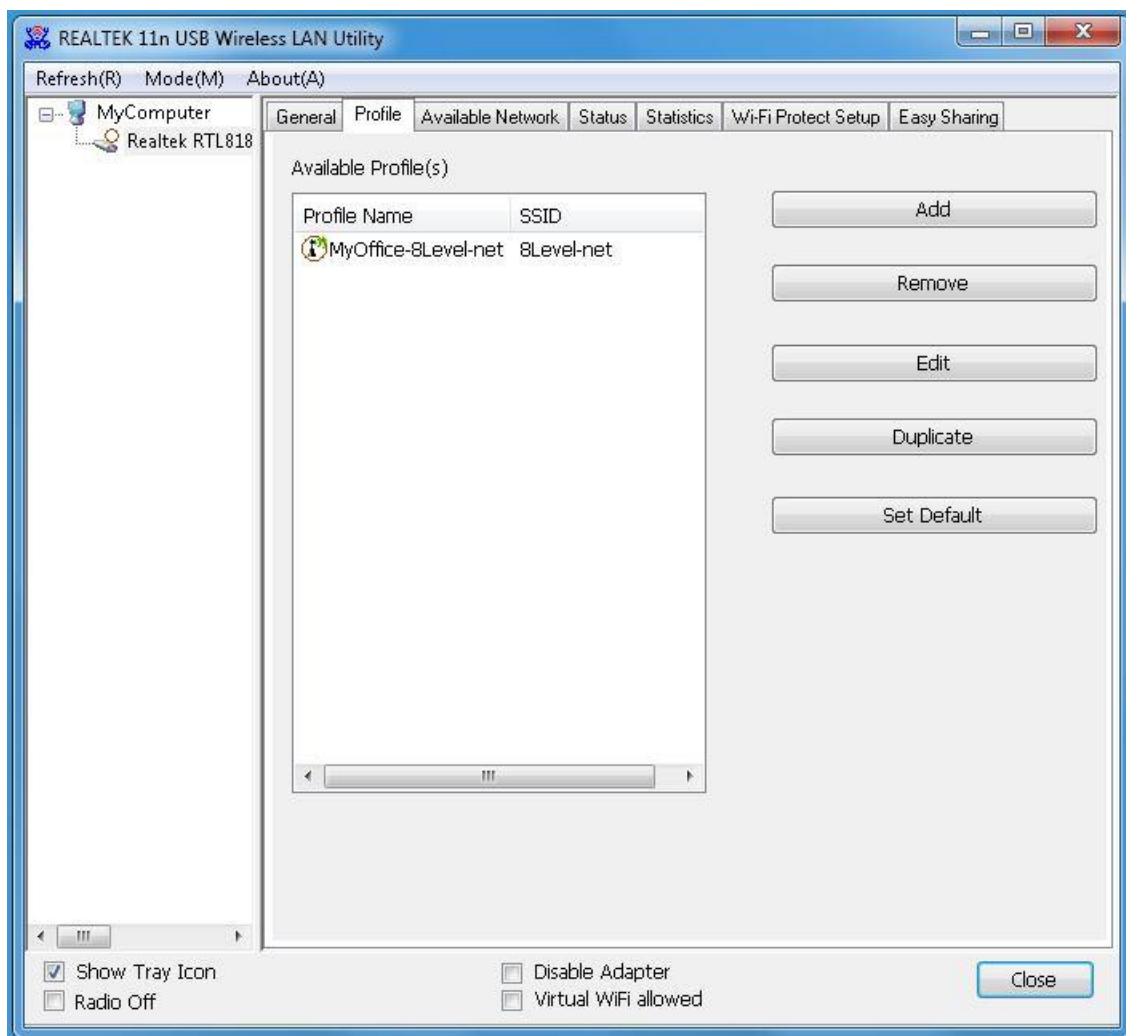
Contains information about active connection (working speed, working mode, encryption type, network name, signal strength, signal quality and information about network address). Using the button **Refresh IP**, you can get a new IP address from DHCP server of transmitting device, which you are connected to.



Tab PROFILE:

Enables connection configuration through adding, deleting, editing and copying network profiles.

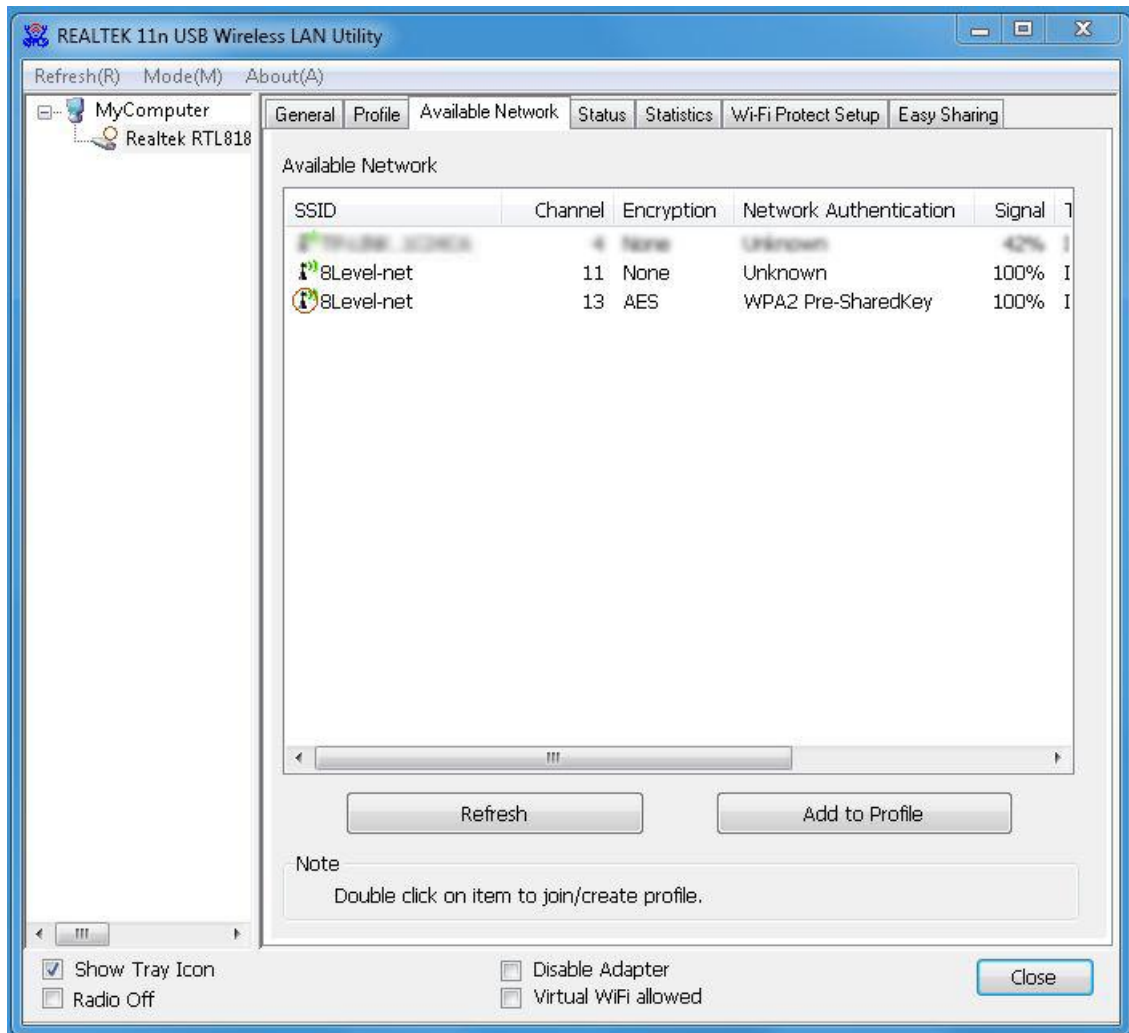
Adding new profile window.



The window to add a new profile

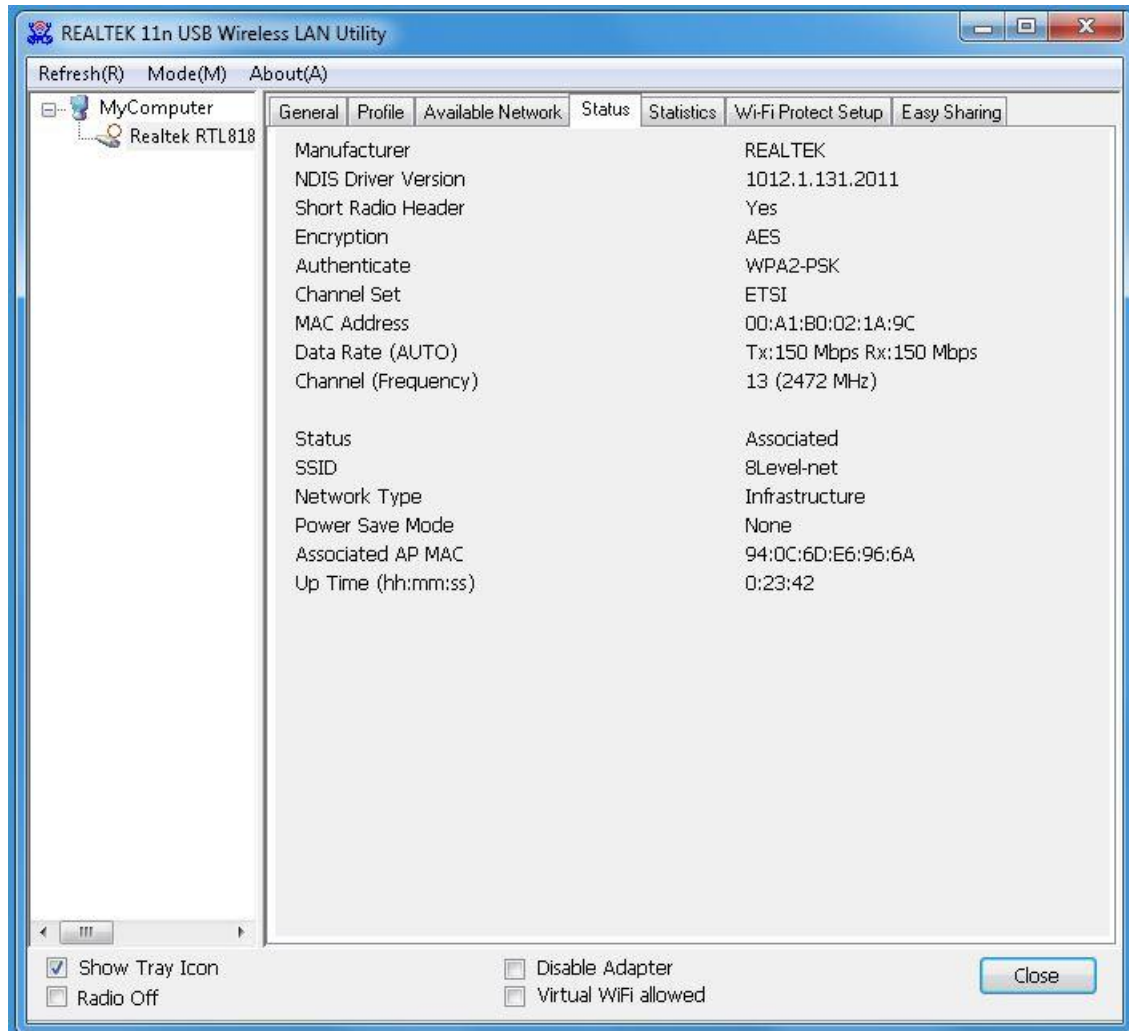
Tab AVAILABLE NETWORK:

Enables to scan available networks, connecting to one of available networks, adding the found network to a new profile. Additionally, the following information is displayed: network name, transmitting channel, encryption type, authentication type, signal strength, working type, MAC address of transmitting device and working standard (b/g/n).

**Tab STATUS:**

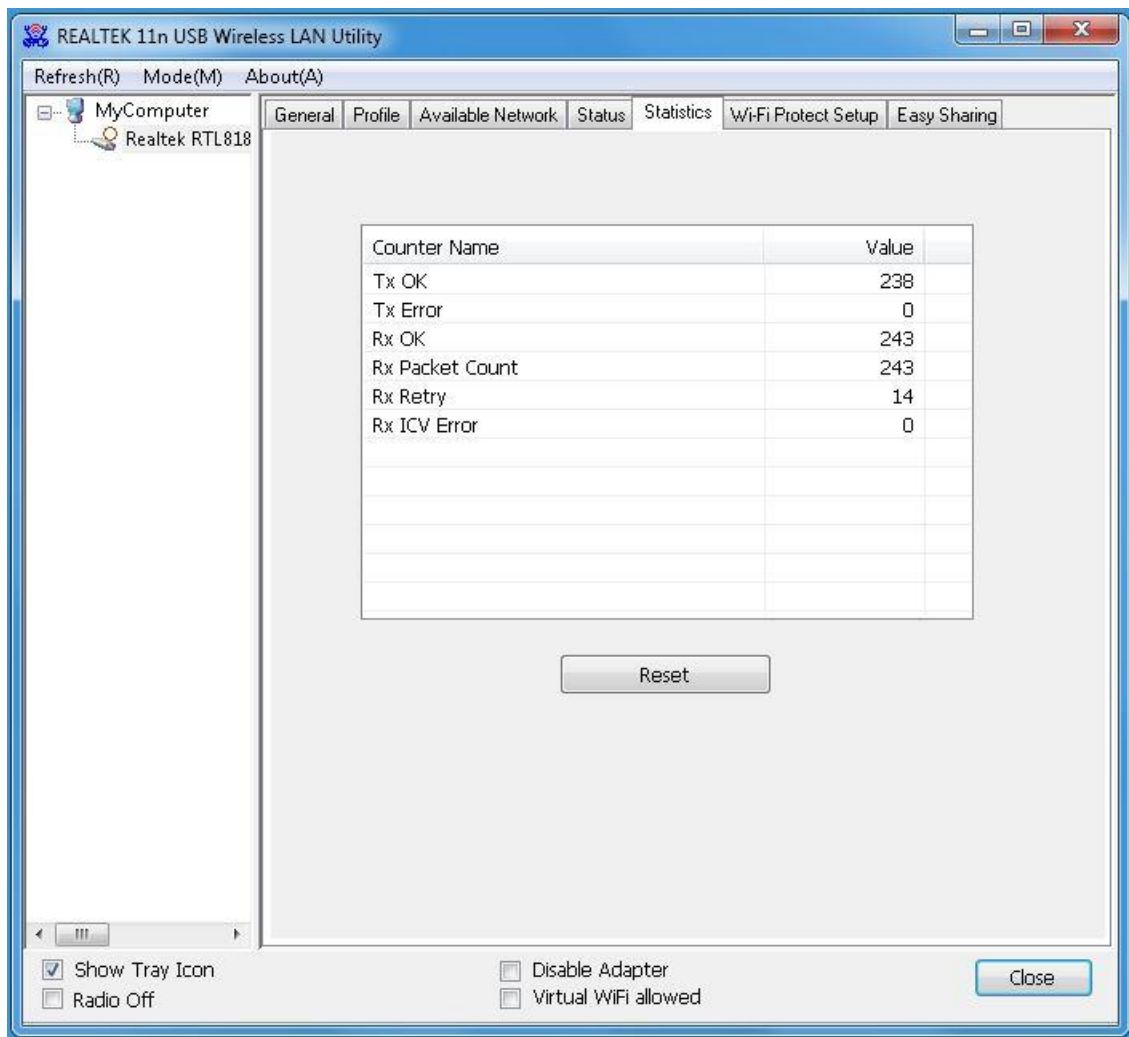
Contains information about the adapter producer, adapter driver version, type of encryption and authentication, MAC address of the adapter, data transfer speed and transmitting channel set. Additionally, basic information about the connected network

is displayed (network name, network working type, MAC address of transmitting device and for how long you have been connected to the network).



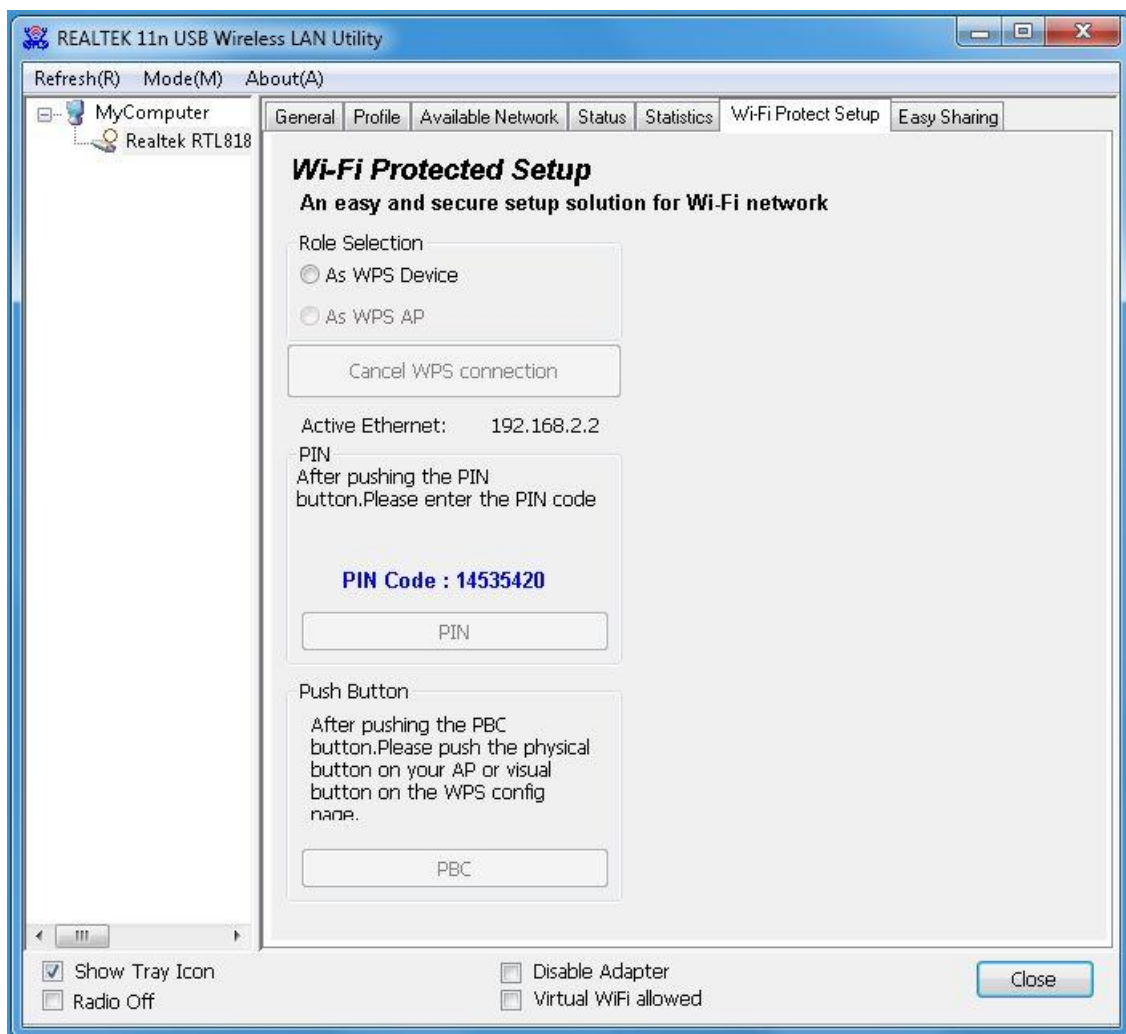
Tab STATISTICS:

Presents statistical data, which allow among others to check information about the counter of sent/received packets, transmission errors, etc.).



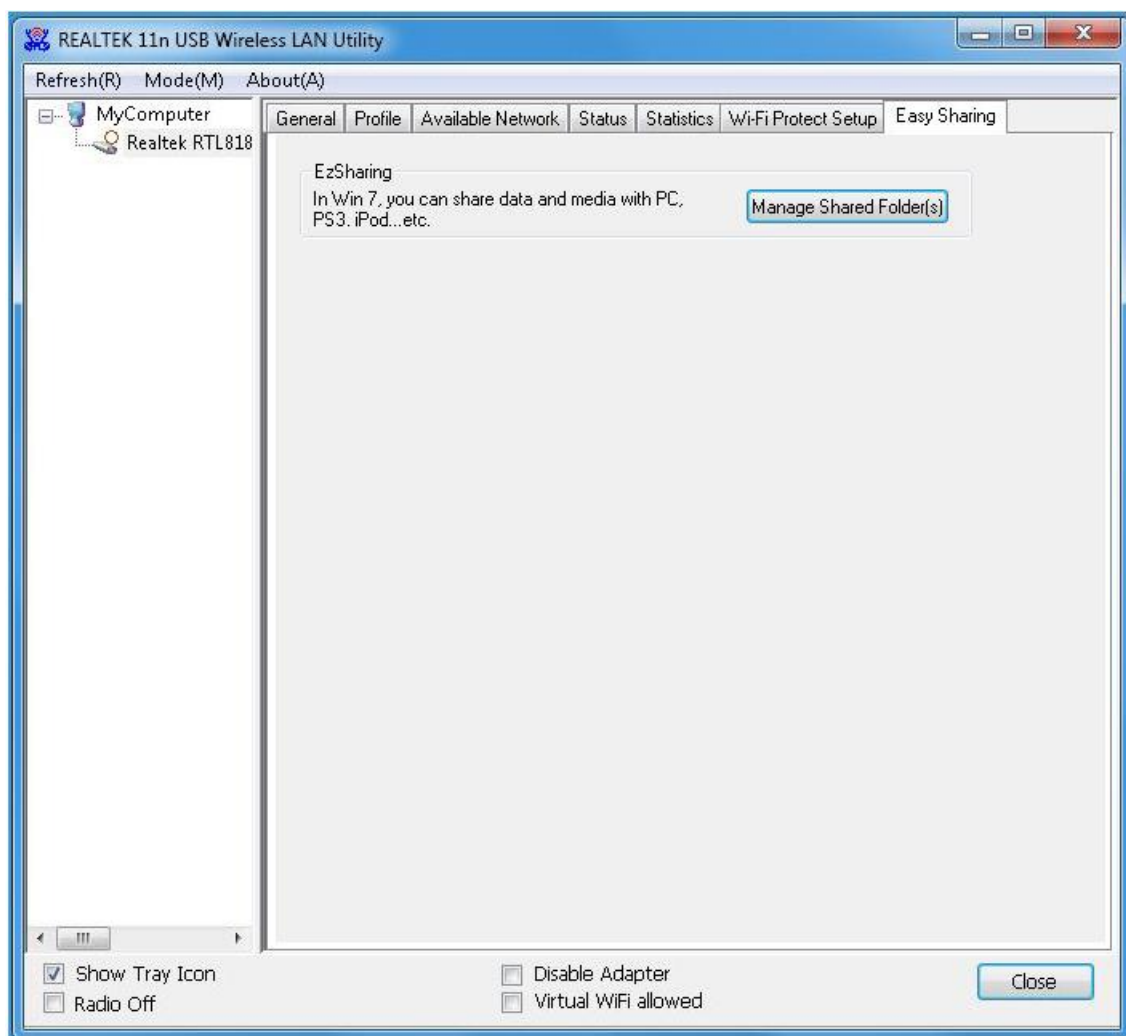
Tab WI-FI PROTECT SETUP:

Enables easy and secure establishing/configuration of wireless network connection. WPS function (Wi-Fi Protect Setup – wireless, secure configuration) enables for quick connection of a new wireless device to existing network. It is possible to use two methods (method I: by pressing the button on the transmitting device; method II: by entering PIN code of the transmitting device; configuration is also possible by simultaneously pressing WPS button on the transmitting device – e.g. router – and on the receiving device – e.g. wireless adaptor card).



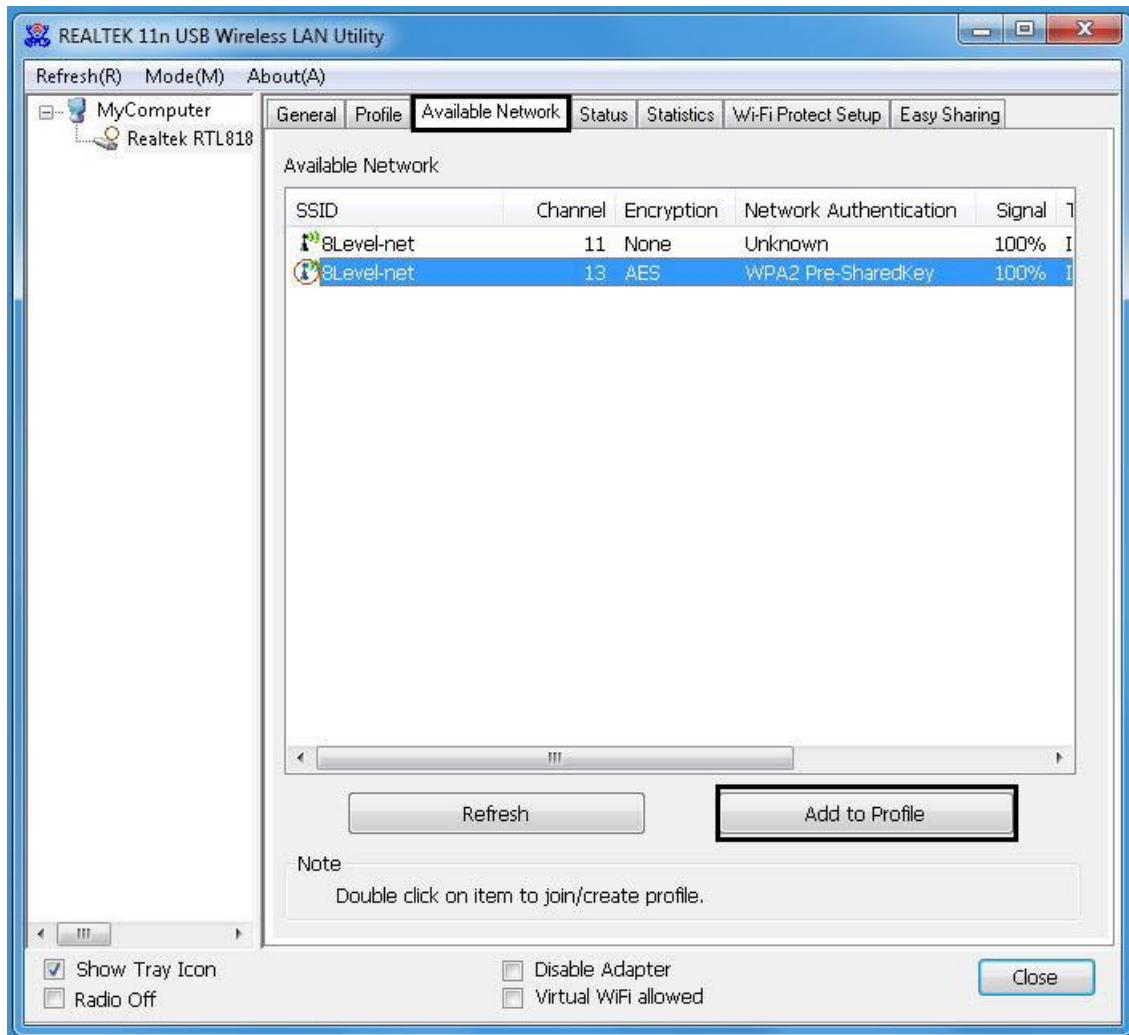
Tab EASY SHARING:

Enables easy sharing of folders using a computer connected to the same local network.

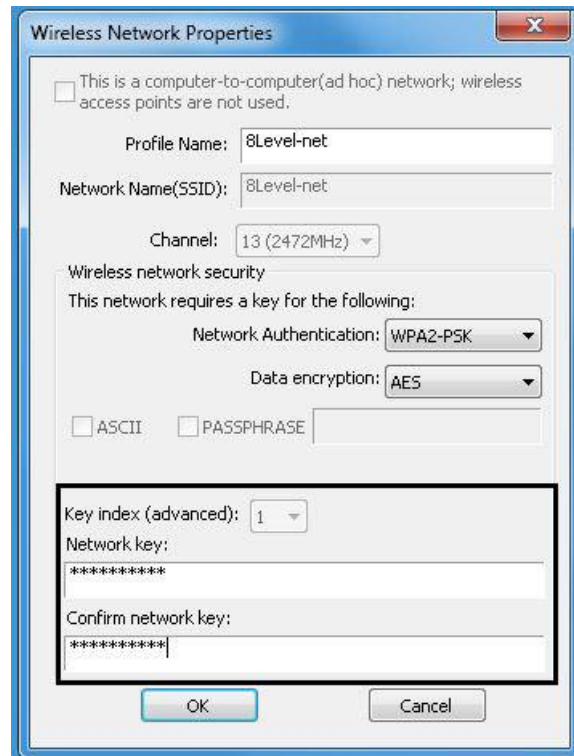


3.2 Connecting to the network using Configuration profile:

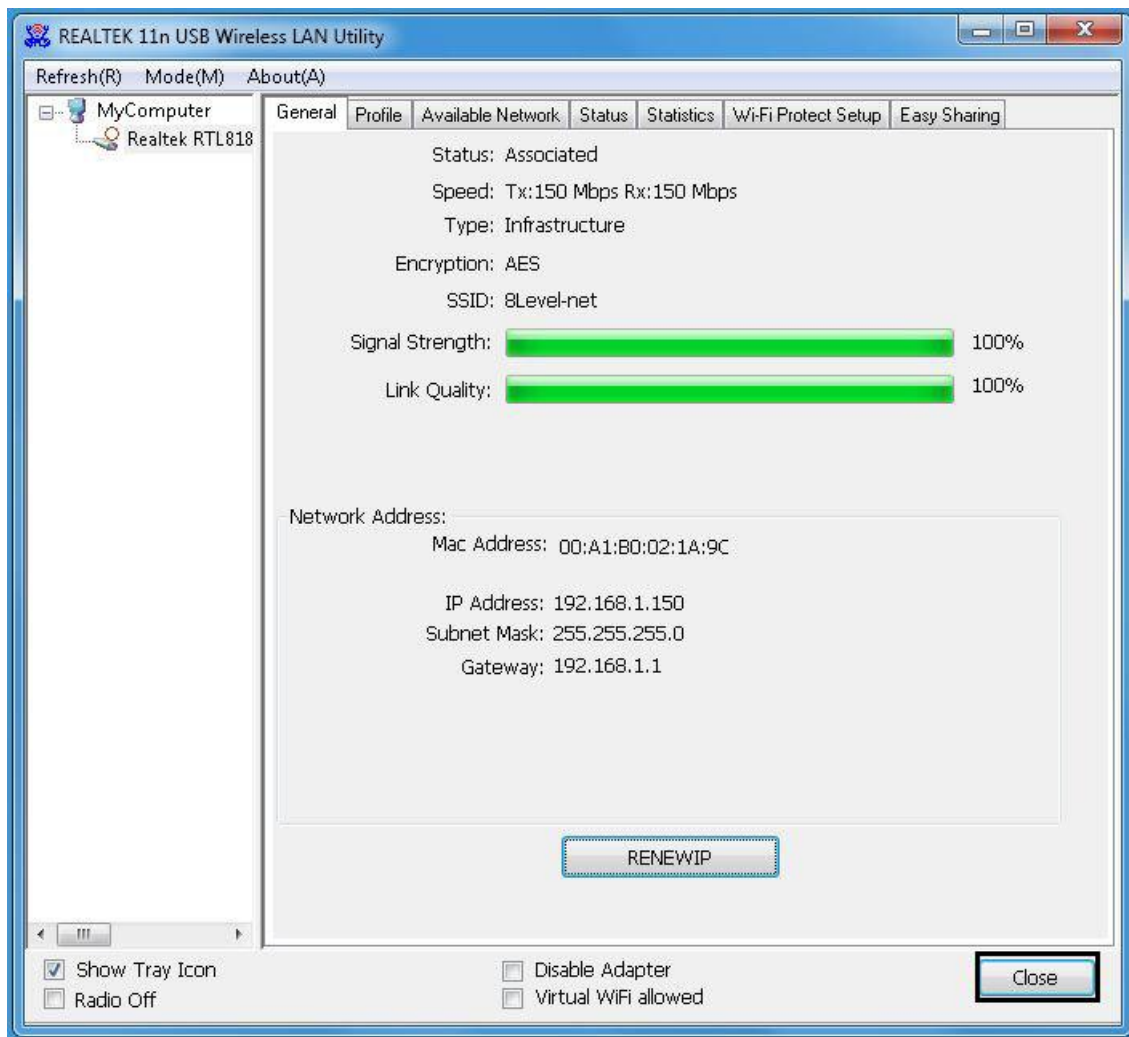
- 1) In the appearing window, from the taskbar choose **Profile**, and then highlight the network, which you want to connect to, and click **Add to profile**.



- 2) Then, a window with the chosen network parameters will be displayed. Choose authentication type, encryption type (network protections) and enter security key (the same as the one set in the transmitting device, e.g. router), then click **OK** to confirm.



- **Profile Name** – enter the name of new profile.
 - **SSID** - choose the network, which you want to connect to.
 - **Channel** – transmitting channel for the network, which you want to connect to.
 - **Authentication/Encryption** – authentication/encryption types: 64/128 bit WEP, WPA/WPA2, WPA-PSK / WPA2-PSK (TKIP/AES)
- 3) The network has been saved and added to the list. Connection has been established successfully, if all the connection parameters are displayed in the tab **General**. Then click **Close**.



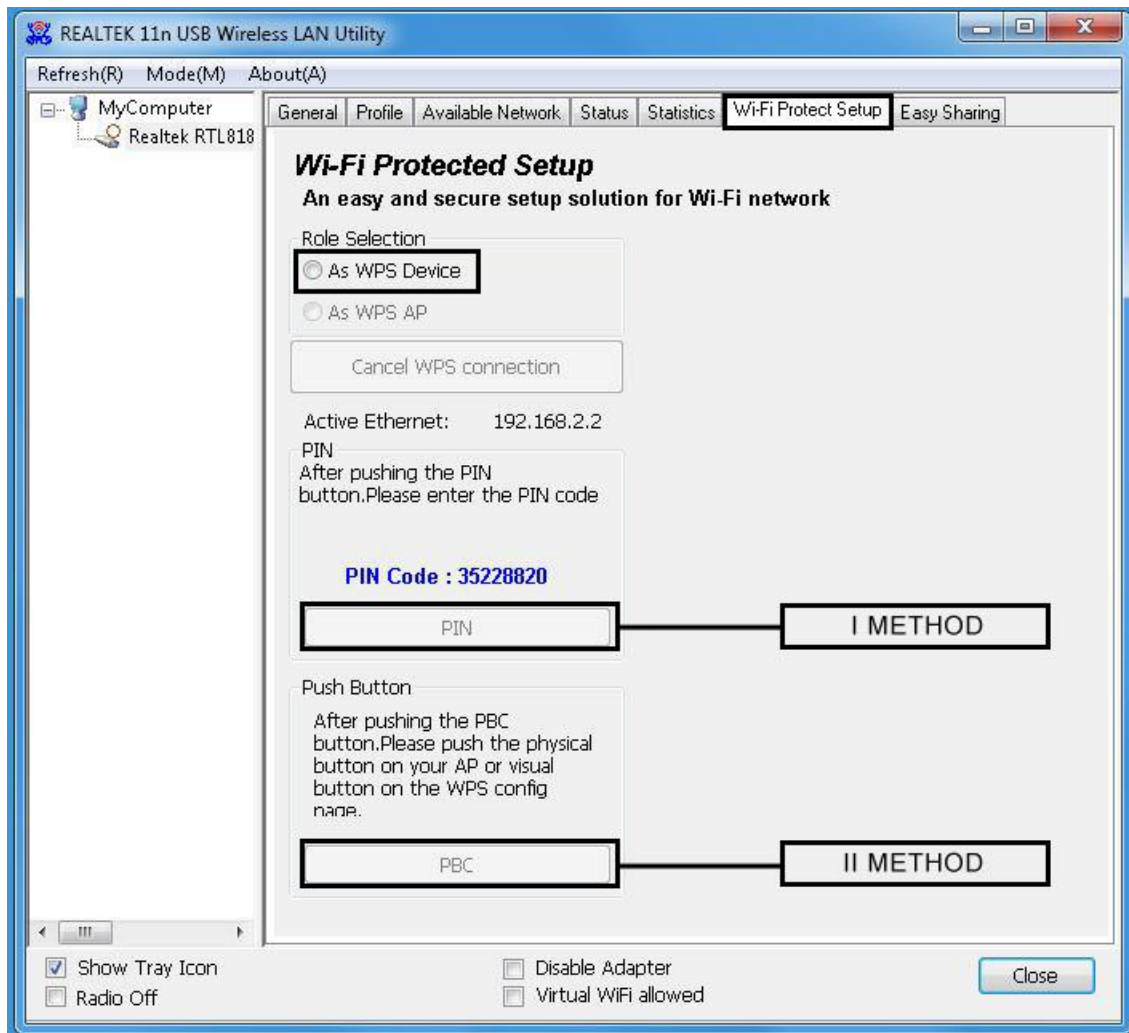
NOTE: The **WUSB-150** and **WUSB-150A** wireless adapters support the **WPS** function, which enables to establish a connection by following a few simple steps (**WPS** function should be turned on in the adapter software, and then press the **WPS** button on the transmitting device, e.g. router).

3.3 Connecting to the network using WPS function:

Run the application **REALTEK 11n USB Wireless LAN Utility** using the “Start” menu or double-click the application  icon in the system tray.



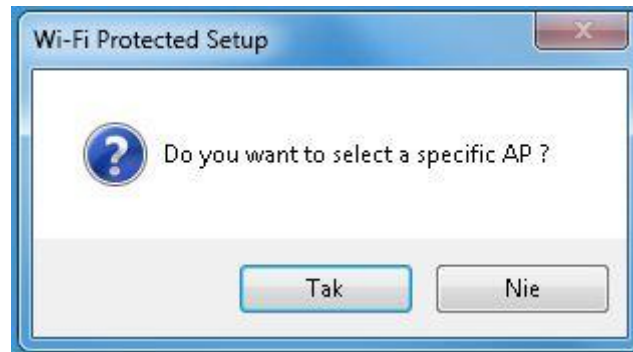
Switch to the tab **Wi-Fi Protect Setup** and set working mode to **As WPS Device**. Two tabs will be activated, through which you can choose the method of establishing connection using WPS function (Through WPS button – **Config PBC button** – or through PIN code – **Pin Input Config PIN**).



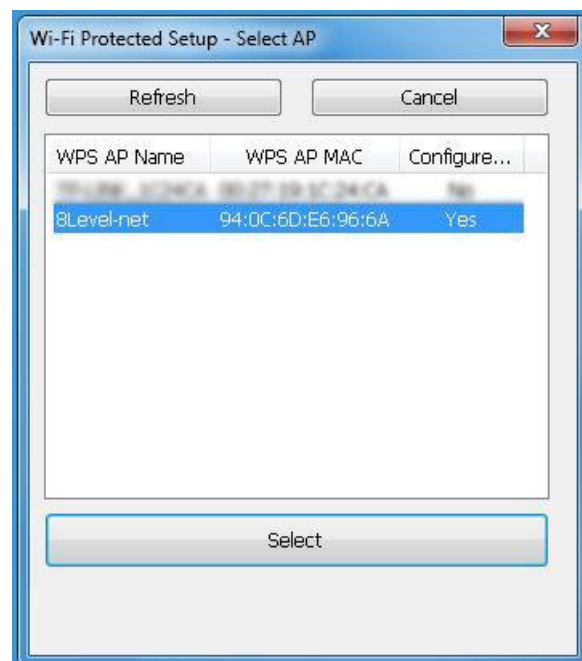
METHOD I: Establishing connection using **PIN** code:

In the manual we present the method of establishing connection using PIN code generated by the adapter card – the generated code should be entered (added) to the transmitting device, e.g. router.

- 1) Press **Pin Input Config PIN** button.
- 2) Choose **YES** if you want to choose a particular transmitting device (AP – Access Point) from the list, or choose **NO** if you want the application to automatically search for transmitting device, which can be connected to.



- 3) If you choose **YES**, a list of available wireless networks will be displayed.



- 4) Highlight the network, which you want to securely connect to using WPS function, and then click **Choose**.
- 5) The application will generate PIN code, which should be entered in the transmitting device, which you want to securely connect to, e.g. router.

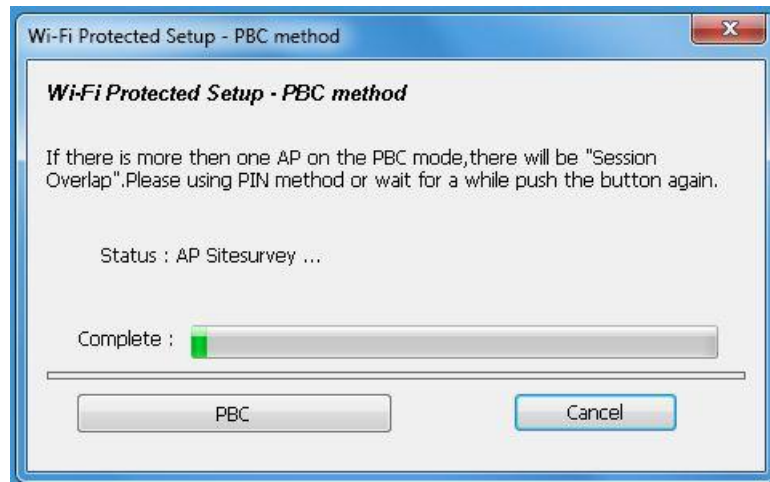


- 6) If the connection has been established correctly, the application automatically adds new profile with established connection (network) and switch to the tab **General** where information about the connected network will be displayed.

NOTE: If in the second step you choose **NO**, the application automatically starts searching for available networks and establishes a secure connection with transmitting device, which sends signal using **WPS** function.

METHOD II: Establishing connection using WPS button on the transmitting or receiving device (e.g. router, adapter card):

- 1) Press **Config (PBC)** button to begin scanning.
- 2) Then press and hold the **WPS** button (2-3 seconds) on the transmitting device, e.g. router or press the **WPS** button on the adapter card, if it has this function (model: WUSB-150A).



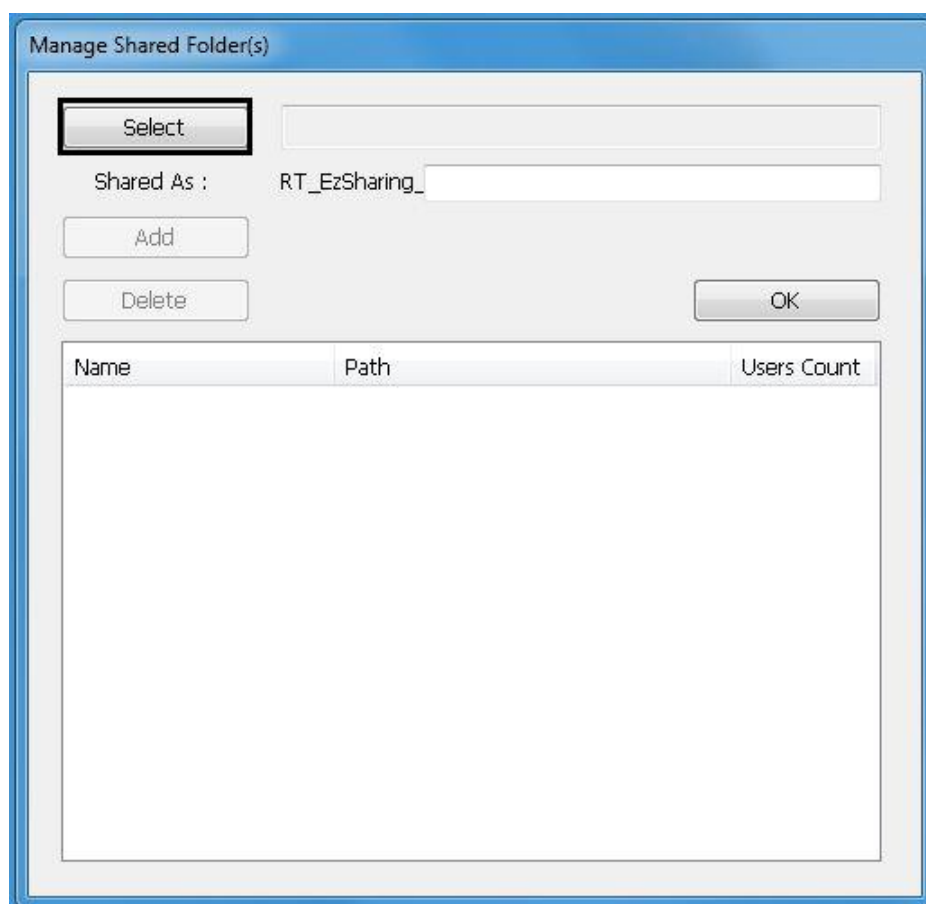
- 3) The device starts searching for available networks and establishes a secure connection with transmitting device, which sends signal using **WPS** function (after pressing the button).
- 4) If the connection has been established correctly, the application automatically adds new profile with established connection (network) and switch to the tab **General** where information about the connected network will be displayed.

3.4 Sharing files and folders using Easy Sharing function:

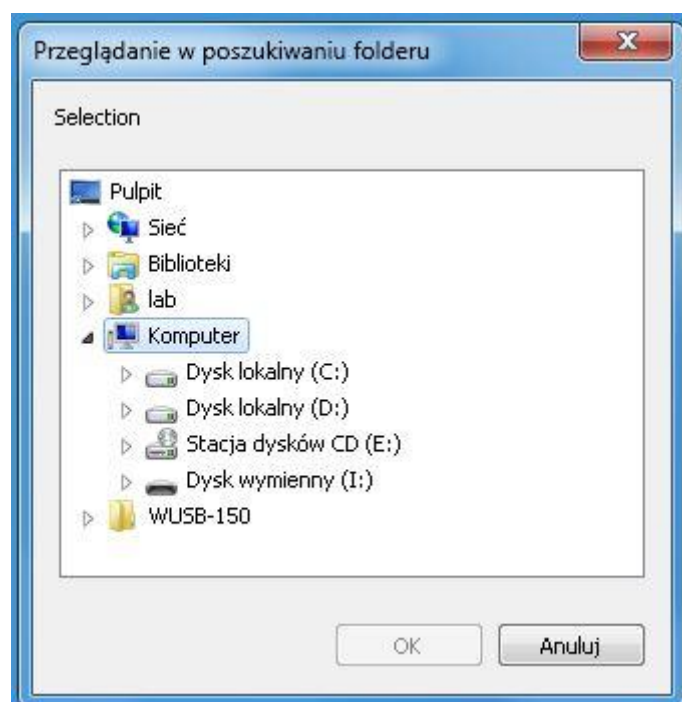
Run the application **REALTEK 11n USB Wireless LAN Utility** using the “Start” menu or double-click the application  icon in the system tray.



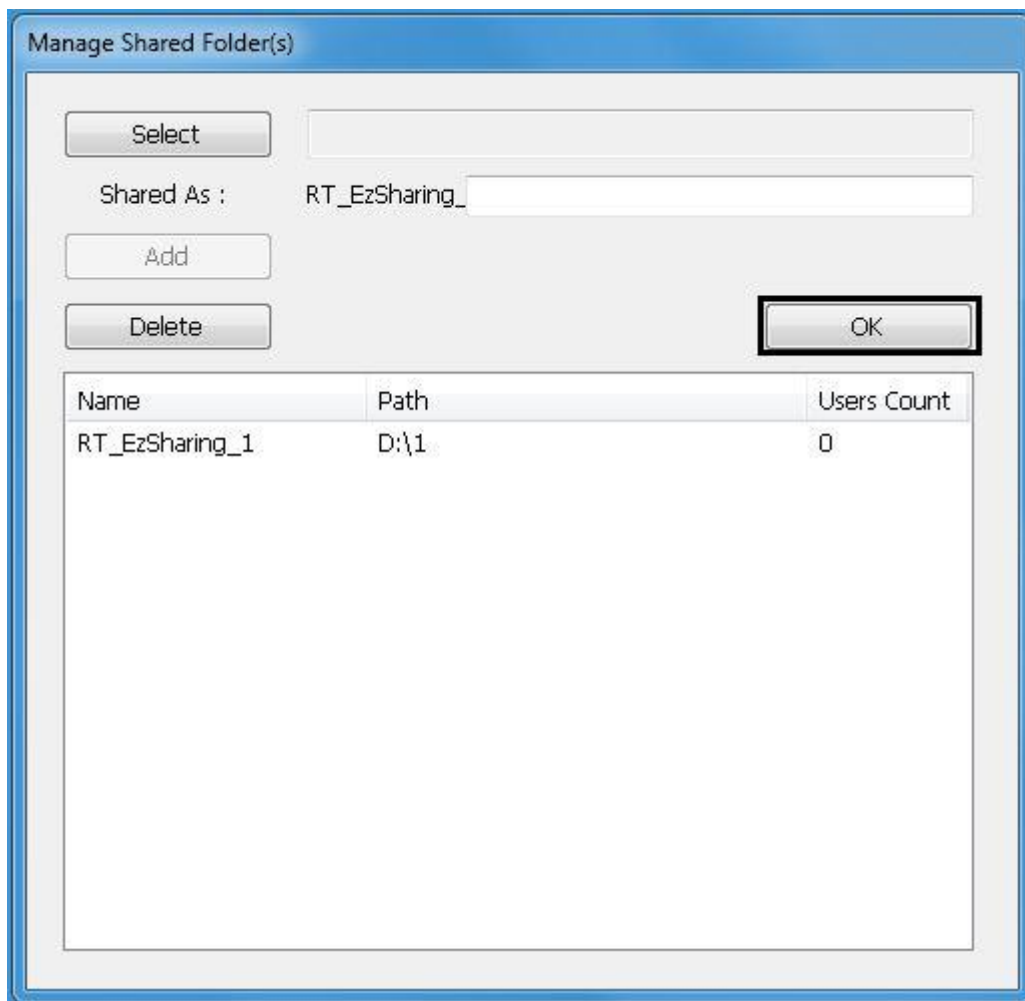
- 1) Go to the tab **Easy Sharing**.
- 2) Click **Manage Shared Folder** to enter the menu of managing the Easy Sharing function.



- 3) Click **Select** to open a window, where you can choose a file or folder, which will be shared in local network.



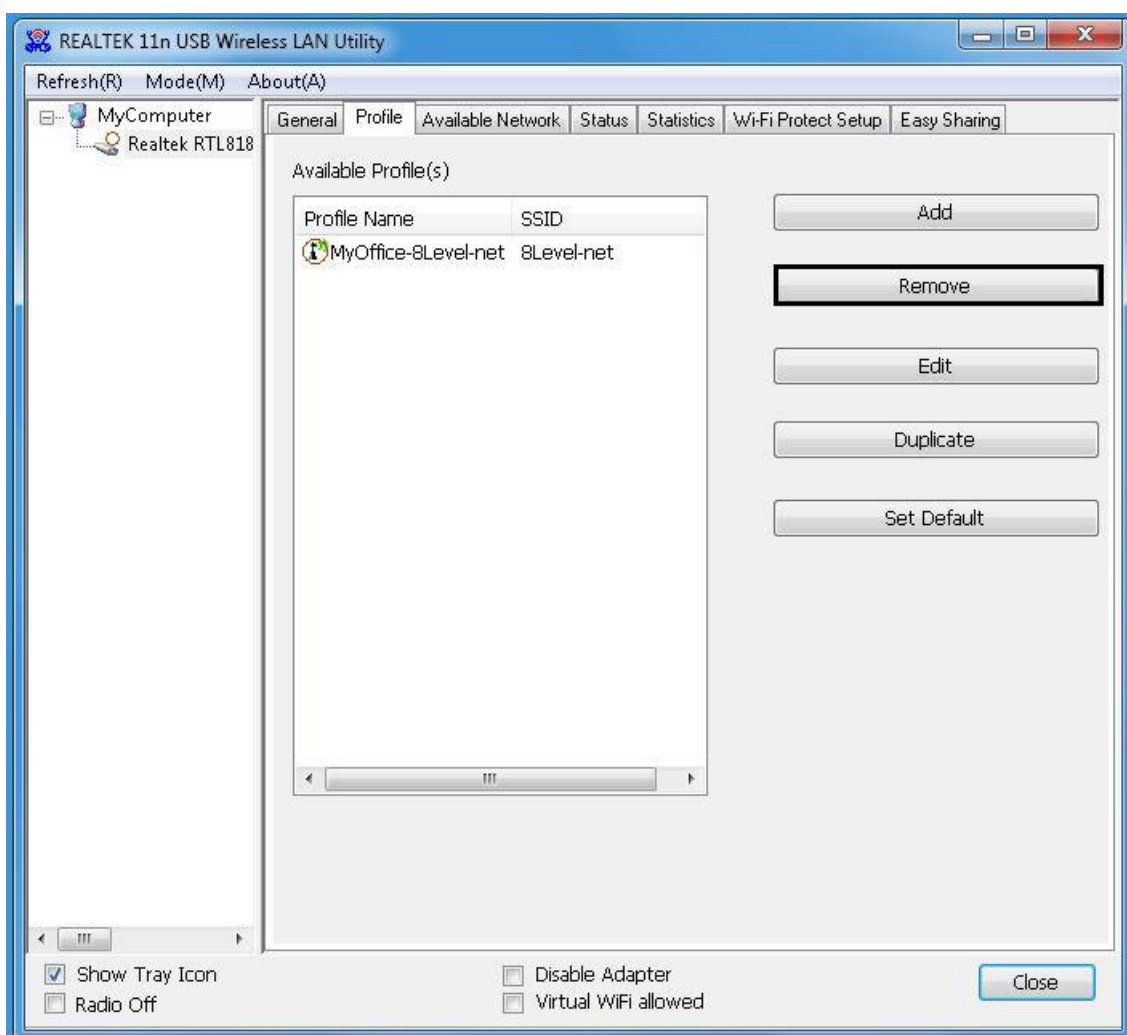
- 4) Click **OK** to confirm the choice of the file or folder, which will be shared in local network.
- 5) In the field **Shared As** give a name of the shared file – it is necessary to be able to locate the file or folder in local network.
- 6) In the application window, name and path of the shared file or folder, with which you can find the file in local network, will be displayed.
- 7) Click OK to save changes.



3.5 Deleting, editing and copying profiles:

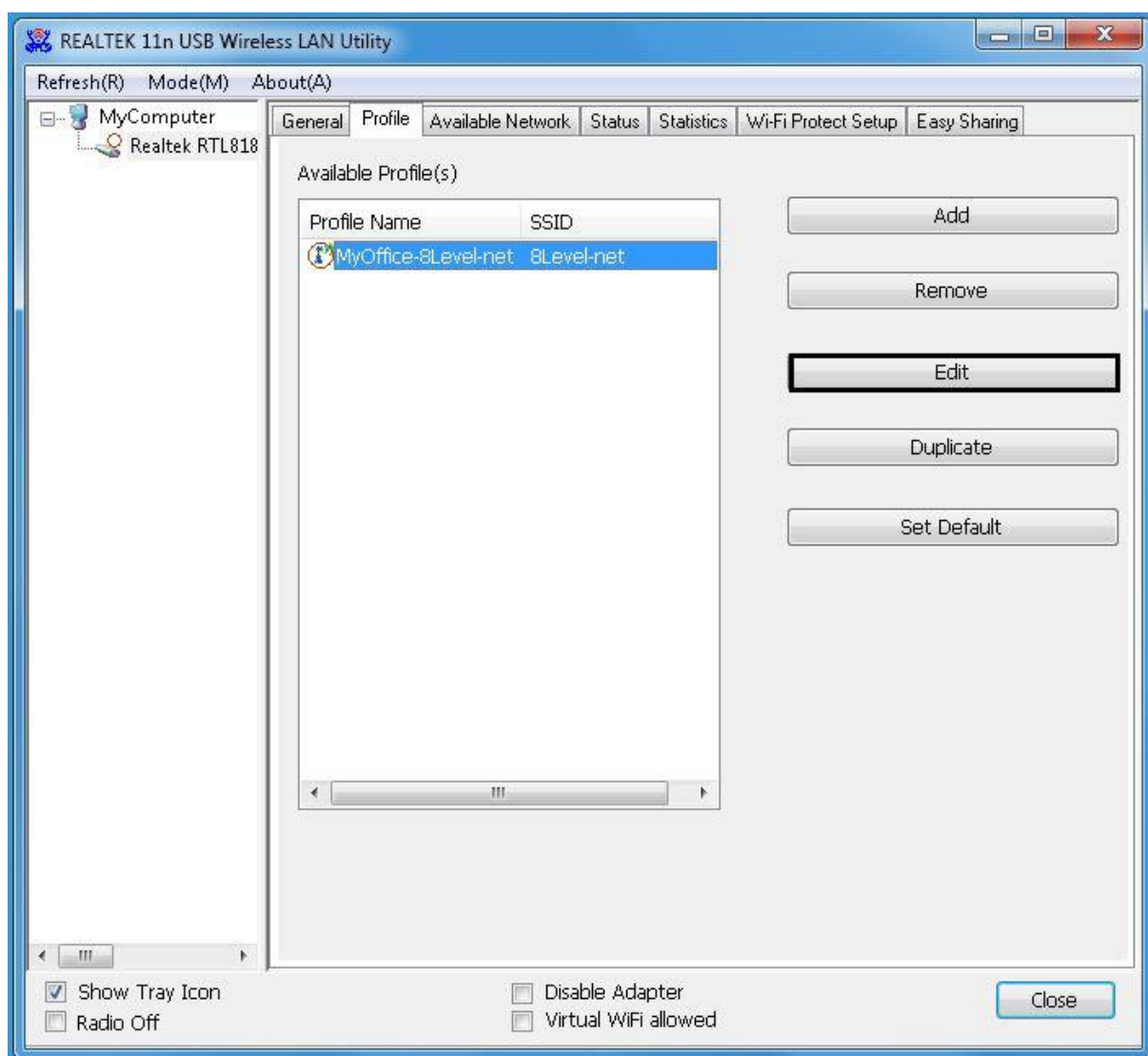
USUWANIE PROFILU:

- 1) Go to **Profile** tab.
- 2) From the list, choose the profile you want to delete and highlight it.
- 3) Click **Remove** to delete the profile.

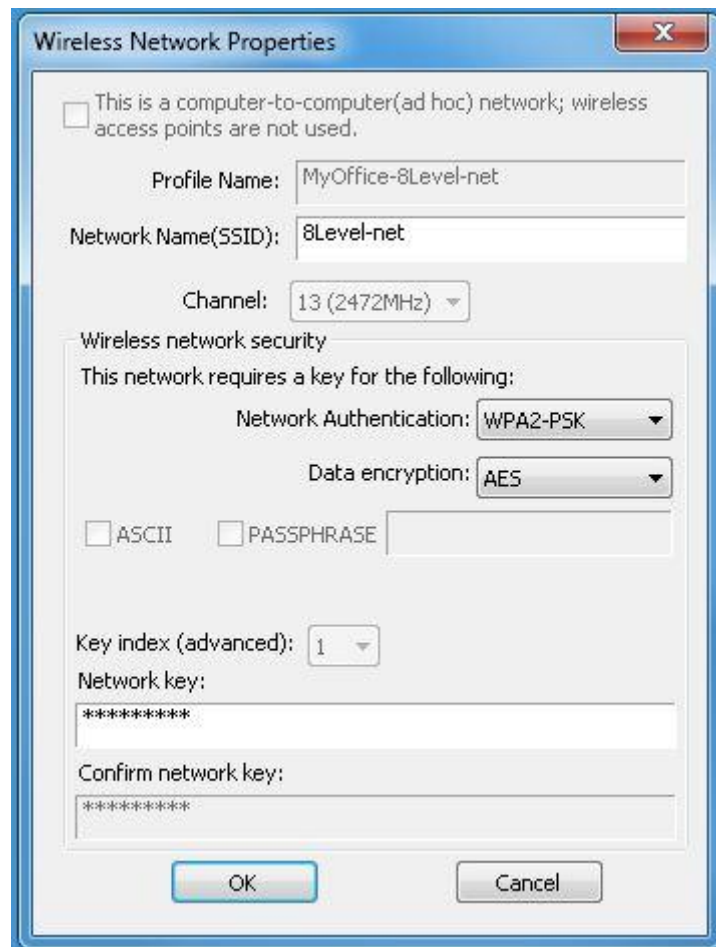


EDITING PROFILE:

- 1) Go to **Profile** tab.
- 2) From the list, choose the profile you want to edit and highlight it.
- 3) Click **Edit** to begin editing profile.

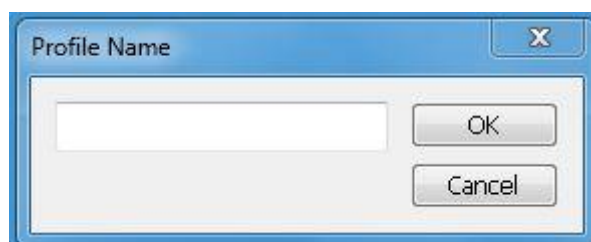


- 4) A window will be displayed, where you can make changes in the chosen profile (changing SSID network name, data authentication and encryption type or changing network key if necessary).



COPYING PROFILE:

- 1) Go to **Profile** tab.
- 2) From the list, choose the profile you want to copy and highlight it.
- 3) Click **Copy** to copy the chosen profile.
- 4) A window will be displayed, where you should enter new name for copied profile.
- 5) Click **OK** to confirm.



CHAPTER IV (Access Point mode)

The 8level WUSB-150 / WUSB-150A wireless adapters can be configured using **REALTEK 11n USB Wireless LAN Utility** in the default mode as adapter card (station – transmitting device) or in the AP (Access Point) mode as transmitting device (sharing wired connection using wireless connection). This chapter presents the method of wireless network adapter card configuration in the Access Point mode - **AP**.

To switch the device from default mode (network adapter- station) to **AP** mode:

- 1) Run the application **REALTEK 11n USB Wireless LAN Utility** using the “Start” menu or double-click the application  icon in the system tray.



- 2) In the pop-up menu choose the tab **Mode (M)**, and then switch working mode from default (station) to AP (Access Point).

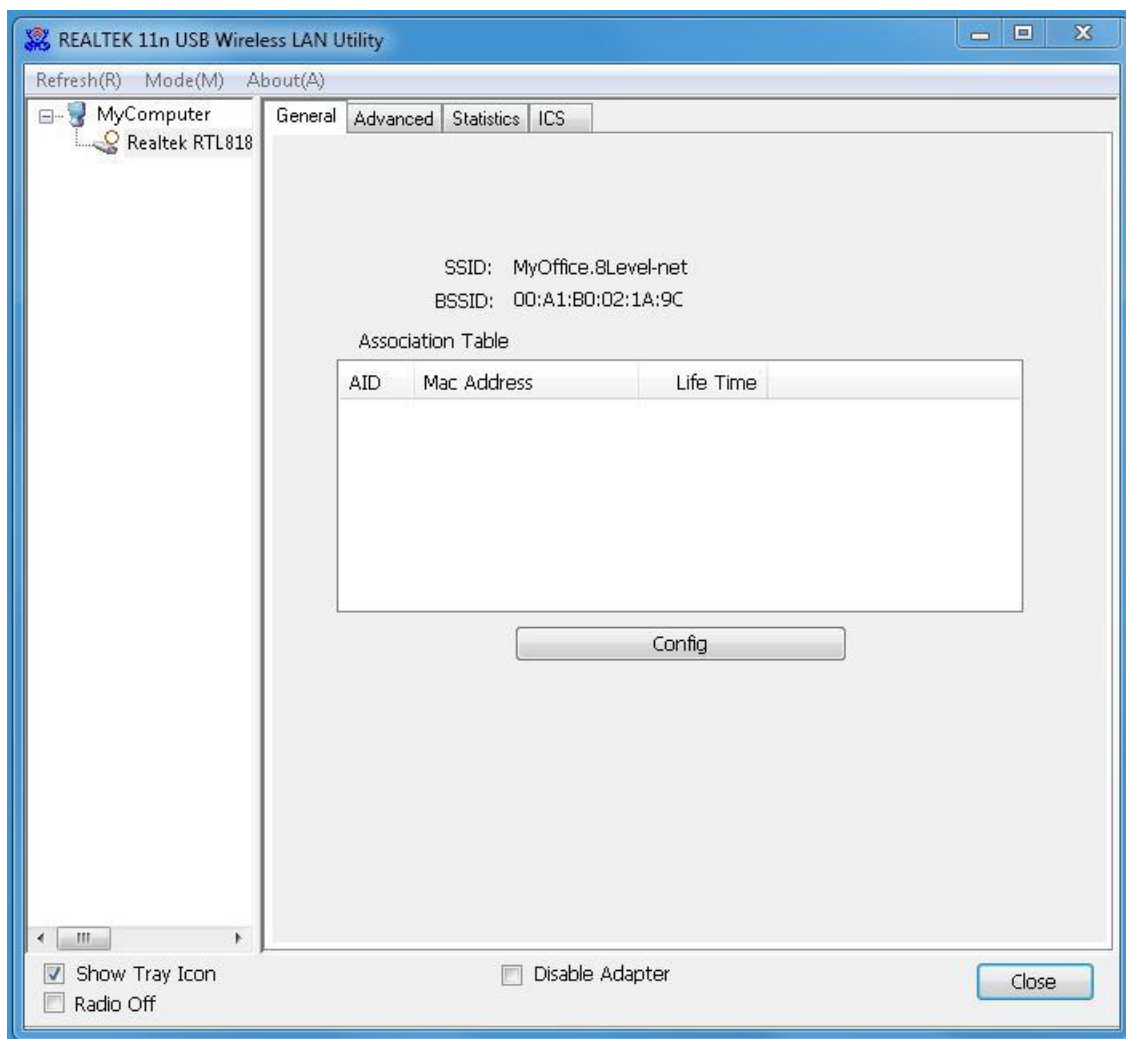
NOTE: To switch the device from AP mode to station (network adapter) mode, follow the same steps, but choose working as a station in the tab **Mode (M)**.

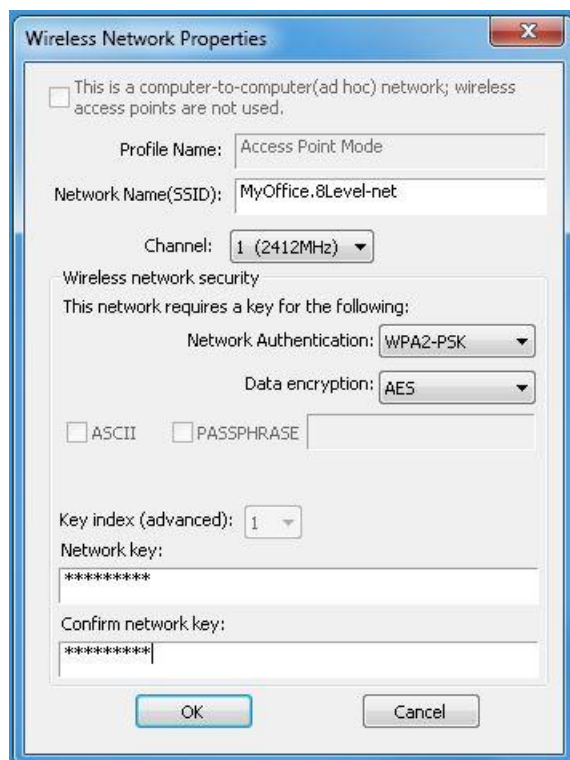
BASIC TABS

General	– information about the working of the device (network name, MAC address)
Advanced	– connection configuration (enables changing signal interval, preamble mode and DTIM period)
Statistics	– statistical data (enables checking information about the counter of sent/received packets, transmission errors, etc.)
ICS	– configuration of Internet Connection Sharing (enables choosing connection, which will be wirelessly shared)

Tab GENERAL:

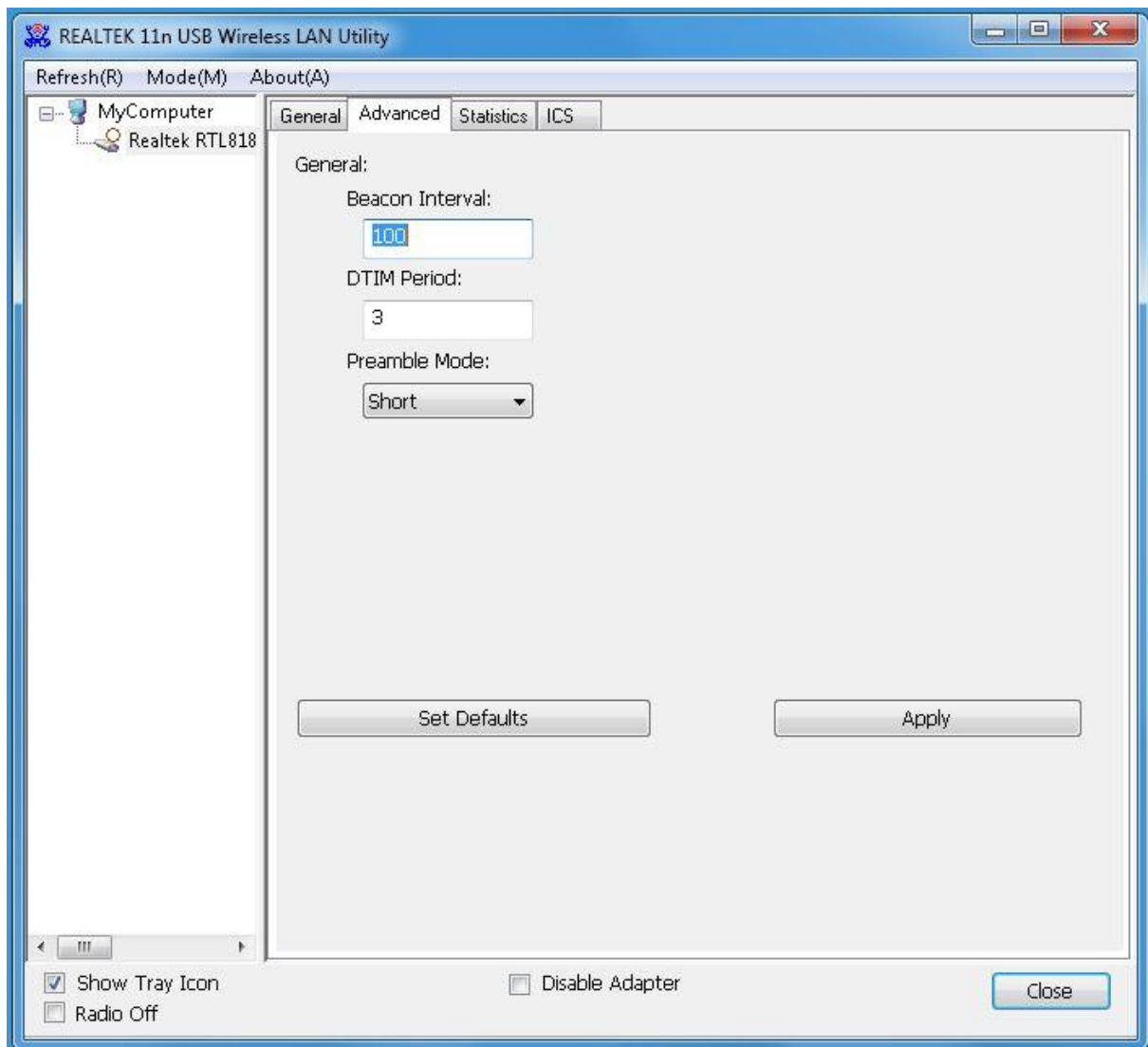
Contains basic information about the working of the device (network name and MAC address). Additionally, after pressing **Config** button you can edit advanced settings of shared network (network name, transmitting channel, data authentication and encryption mode and network key).





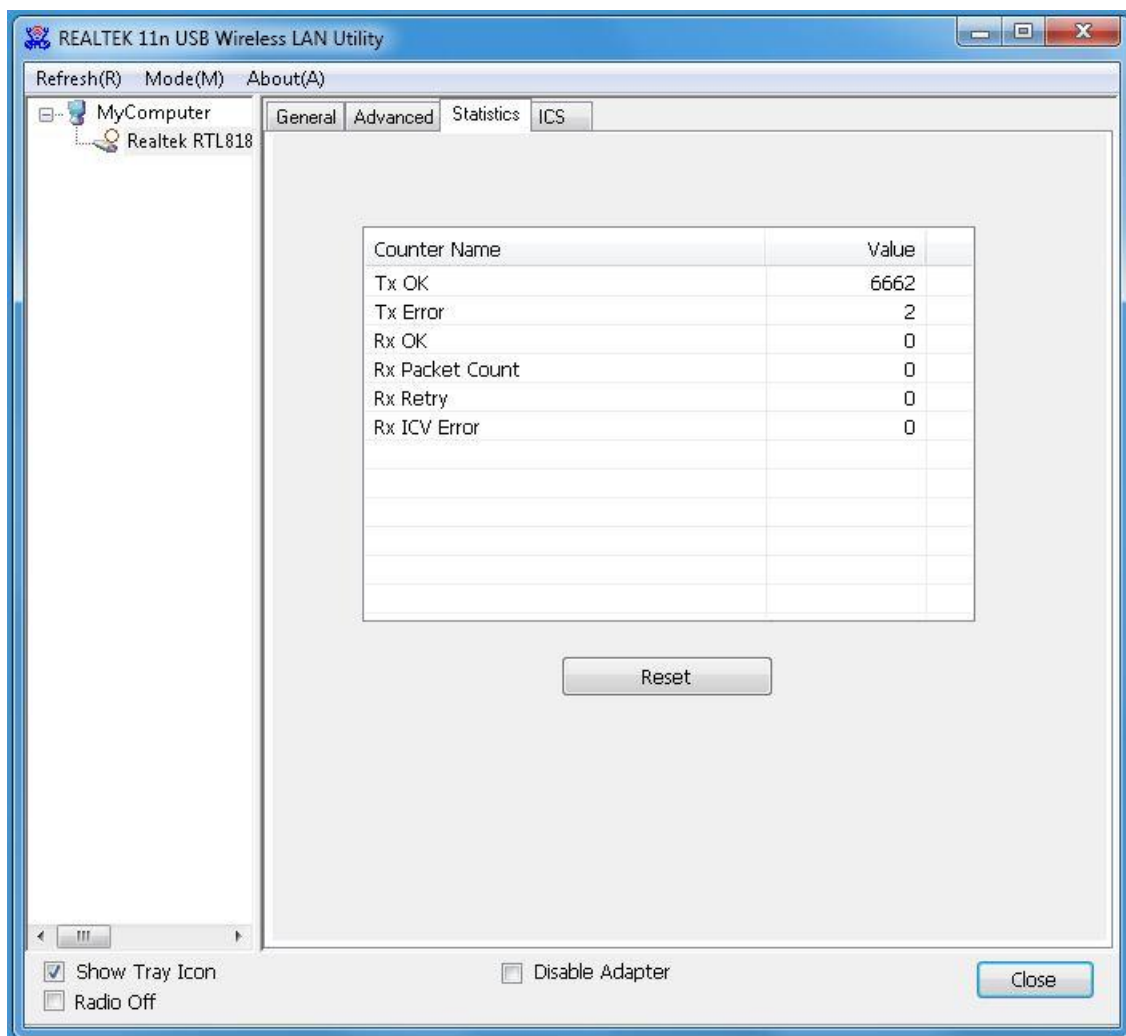
Tab ADVANCED:

Enables changing signal interval, preamble mode and DTIM period.



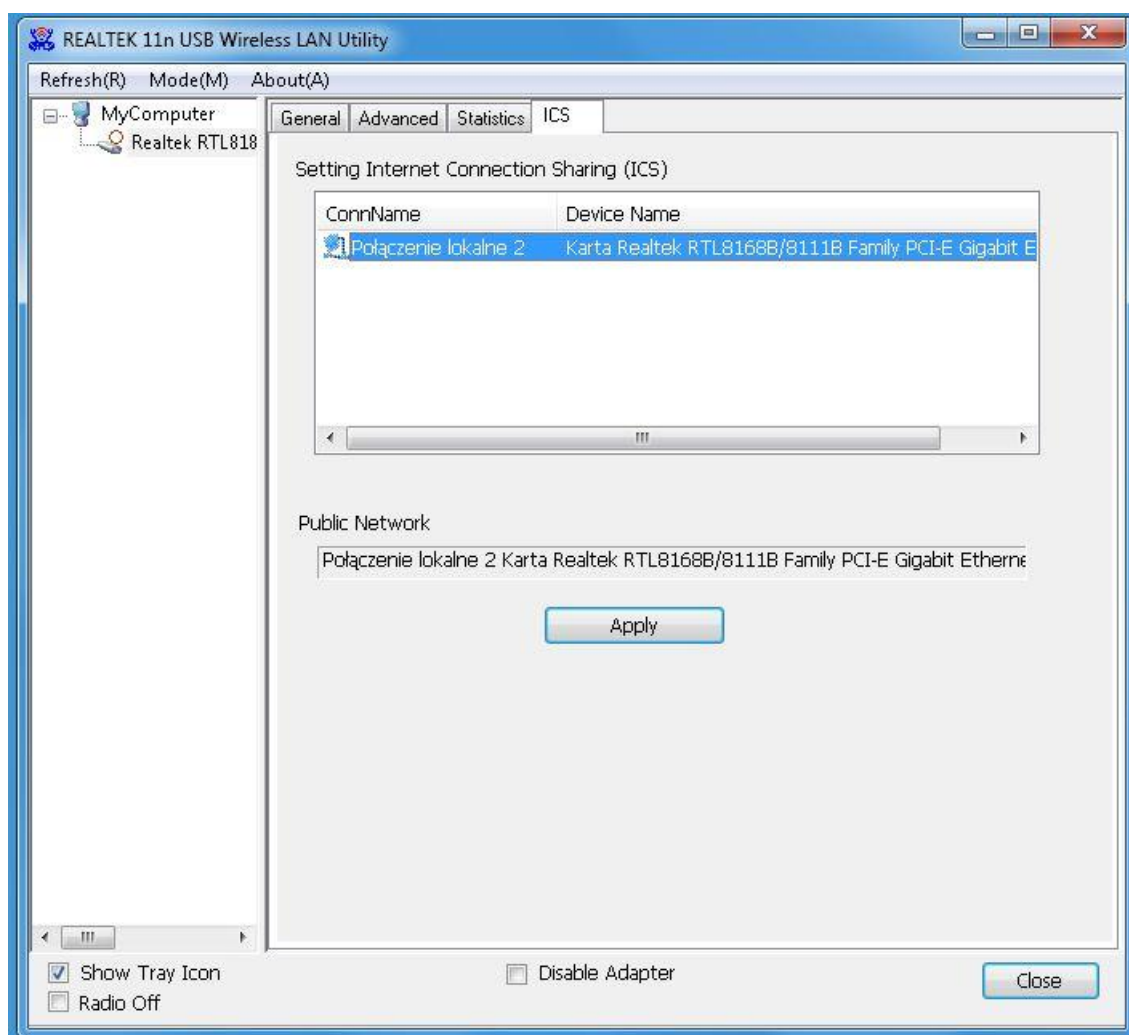
Tab STATISTICS:

Basic statistical data, which allow to among others to check information about the counter of sent/received packets, transmission errors, etc.).



Tab ICS:

Contains information about active connection and enables choosing connection, which will be wirelessly shared.



NOTE: To share connection using access point built in the **WUSB-150 / WUSB-1510A** adapter card, you should connect the computer to wire network first, and then start configuration of sharing connection wirelessly (through radio) using Access Point mode in **WUSB-150 / WUSB-150A** adapter.

CHAPTER V (Features and specification)

- Compliant with IEEE802.11 b/g/n (Lite N)
- Compliant with USB 2.0 Hi-Speed
- Support WPS function
- Connection auto-negotiation function
- Data transfer speed up to 150Mbps
- Two working modes: Ad-Hoc / Infrastructure
- Supported encryption types: 64/128 bit WEP, WPA/WPA2, WPA-PSK / WPA2-PSK (TKIP/AES)

Specyfikacja	
Standard	IEEE 802.11n, IEEE 802.11g, IEEE 802.11b
Wireless Data Rates	802.11n (Lite N): up to 150Mbps 802.11g: up to 54Mbps 802.11b: up to 11Mbps
Frequency Range	2.4-2.4835GHz
Receiver Sensitivity	130M: -68dBm@10% 108M: -68dBm@10% 54M: -68dBm@10% 11M: -85dBm@8% 6M: -88dBm@10% 1M: -90dBm@8%
Working Mode	Ad-Hoc / Infrastructure
Security	64/128 bit WEP, WPA/WPA2, WPA-PSK / WPA2-PSK (TKIP/AES)
Power	17dBm(MAX EIRP)
Interfaces	USB 2.0 Hi-Speed
Operating Temperature	0°C–40°C (32°F–104°F)
Operating Humidity	10%–90%

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 3receiver 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 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.
- **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.

- **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.