



## User's Guide

**TEW-646UBH**

1.01

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## ***INTRODUCTION***

The High Power 150Mbps Wireless N USB Adapter (model TEW-646UBH) connects a laptop or desktop computer to a high speed wireless n network.

An adjustable external antenna and a 200% increase\*\* in power output maximizes wireless throughput and coverage.

Setup is a breeze with one-touch Wi-Fi Protected Setup (WPS) technology. Advanced wireless encryption protects your valuable data. Wi-Fi Multimedia (WMM) Quality of Service prioritizes important video, audio and gaming traffic. Stream video, download files, play games, and talk online with this high power adapter.

## **Package Contents**

This section provides unpacking and setup information for the Micro Wireless N USB Adapter.

## **Unpacking**

The box should contain the following items:

- TEW-646UBH Micro Wireless N USB Adapter
- CD-ROM (Utility & User's Guide)
- Multi-Language Quick Installation Guide

If any item is found missing or damaged, please contact your local reseller for replacement.

## **System Requirements**

Before installation, check the following:

- Make sure your computer is running at least a 300MHz or above processor with 256MB RAM or above
- Make sure the USB ports are is USB 2.0 port
- The operating system on your computer must be the following: XP (Service Pack 2), Windows Vista, Windows 7
- 802.11n or 802.11b/g access point or router.
- Make sure the environment has minimal interference and obstructions.

## ***WIRELESS PERFORMANCE CONSIDERATIONS***

There are a number of factors that can impact the range of wireless devices.

1. Adjust your wireless devices so that the signal is traveling in a straight path, rather than at an angle. The more material the signal has to pass through the more signal you will lose.
2. Keep the number of obstructions to a minimum. Each obstruction can reduce the range of a wireless device. Position the wireless devices in a manner that will minimize the amount of obstructions between them.
3. Building materials can have a large impact on your wireless signal. In an indoor environment, try to position the wireless devices so that the signal passes through less dense material such as dry wall. Dense materials like metal, solid wood, glass or even furniture may block or degrade the signal.
4. Antenna orientation can also have a large impact on your wireless signal. Use the wireless adapter's site survey tool to determine the best antenna orientation for your wireless devices.
5. Interference from devices that produce RF (radio frequency) noise can also impact your signal. Position your wireless devices away from anything that generates RF noise, such as microwaves, radios and baby monitors.
6. Any device operating on the 2.4GHz frequency will cause interference. Devices such as 2.4GHz cordless phones or other wireless remotes operating on the 2.4GHz frequency can potentially drop the wireless signal. Although the phone may not be in use, the base can still transmit wireless signal. Move the phone's base station as far away as possible from your wireless devices.

If you are still experiencing low or no signal consider repositioning the wireless devices or installing additional access points. The use of higher gain antennas may also provide the necessary coverage depending on the environment.

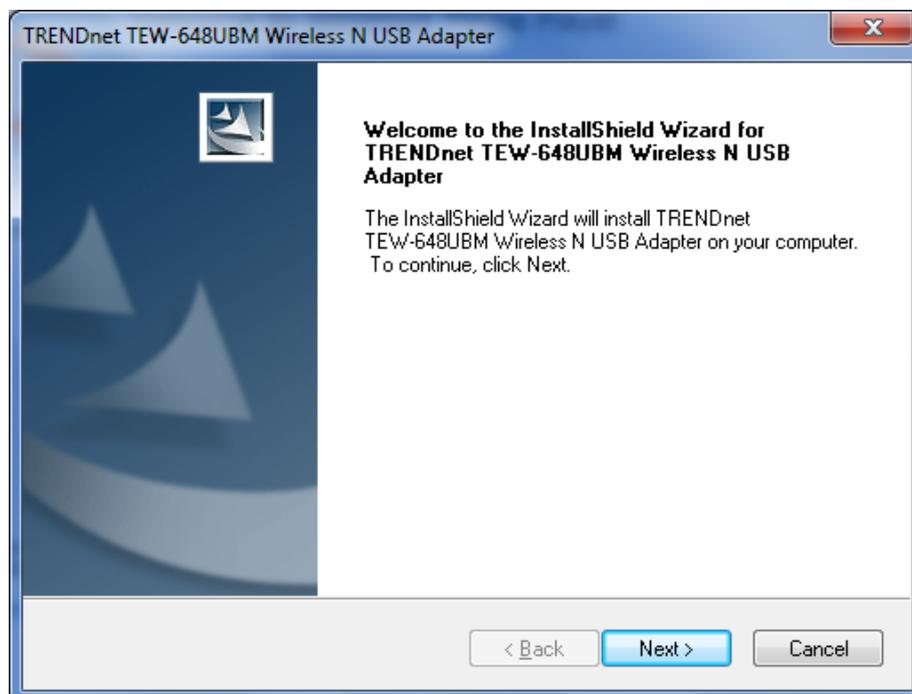
## SOFTWARE INSTALLATION

This section describes how to install the driver and utility for the High Power 150Mbps Wireless N USB Adapter.

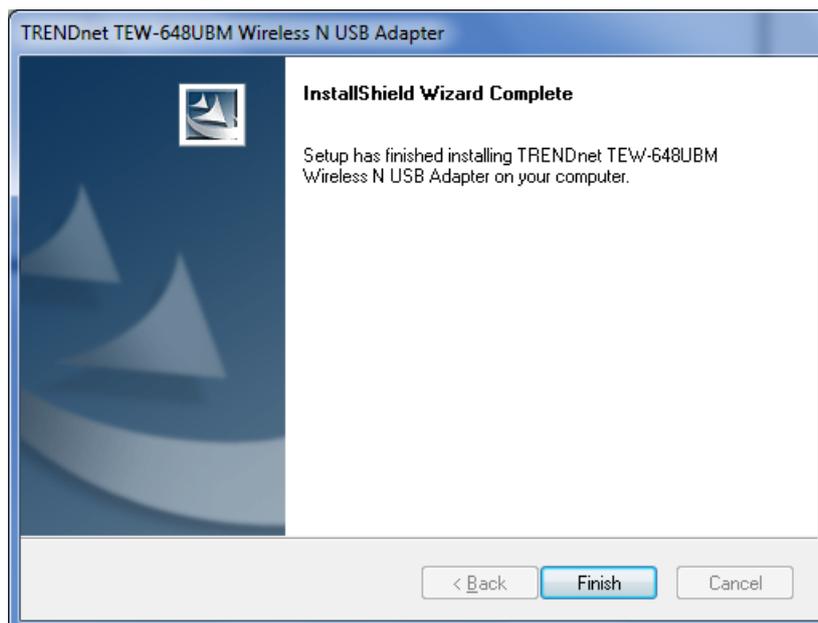
- 1) Insert the Utility and Driver CD-ROM into your computer's CD-ROM drive and then click **Install Utility**.



- 2) Follow the InstallShield Wizard Instructions



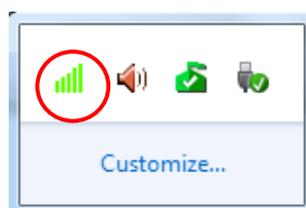
3) Click **Finish** to restart the computer.



4) After the computer is rebooted, plug the High Power 150Mbps Wireless N USB Adapter into an available USB slot on your computer.

## ***WIRELESS UTILITY***

The user can configure the wireless settings using the Wireless Adapter Configuration Utility. Double-click the utility icon that appears in the taskbar.



### **Mode**

The Micro Wireless N USB Adapter has 2 operating modes Station and Access Point.

#### **Station**

This mode is the default mode for the wireless adapter. When this mode is selected the wireless adapter functions as a wireless client.

#### **Access Point**

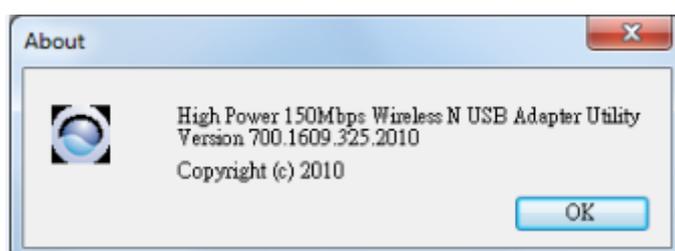
Select this mode when to have the wireless adapter function as a wireless access point. This feature is similar to "tethering" and will allow you to share an Internet connection to other wireless clients. Please note that to share internet connection the computer with the Micro Wireless N USB Adapter must have a valid Internet connection using a wired connection.

## Refresh

Click this option to refresh the utility for any changes.

## About

This screen displays information about the Micro Wireless N USB Adapter, such as the Driver and Utility version. When a new version of the utility becomes available for upgrade, users will be able to identify by version numbers.

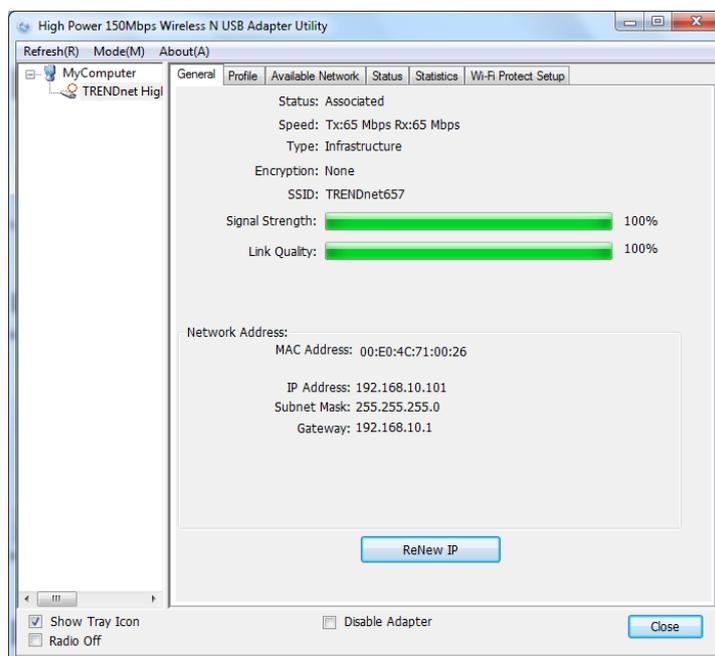


## STATION MODE

This mode is the default mode for the wireless adapter. When this mode is selected the wireless adapter functions as a wireless client.

## General

This is the default screen after launching the Utility program.



**Status:** Shows if the associated status of the wireless adapter

**SSID:** Shows the current SSID, which must be the same as your wireless access point or router in order to establish the connection correctly.

**Speed:** Shows the current connection speed.

**Type:** Shows the connection type of Infrastructure or Ad-Hoc.

**Encryption:** Shows the current encryption mode used.

**SSID:** Shows the SSID the adapter is associated with.

**Signal Strength:** Shows the wireless signal strength of the connection between the adapter with the Access Point.

**Link Quality:** Shows the wireless link quality between the adapter and access point.

**MAC Address:** Shows the MAC address information of the adapter

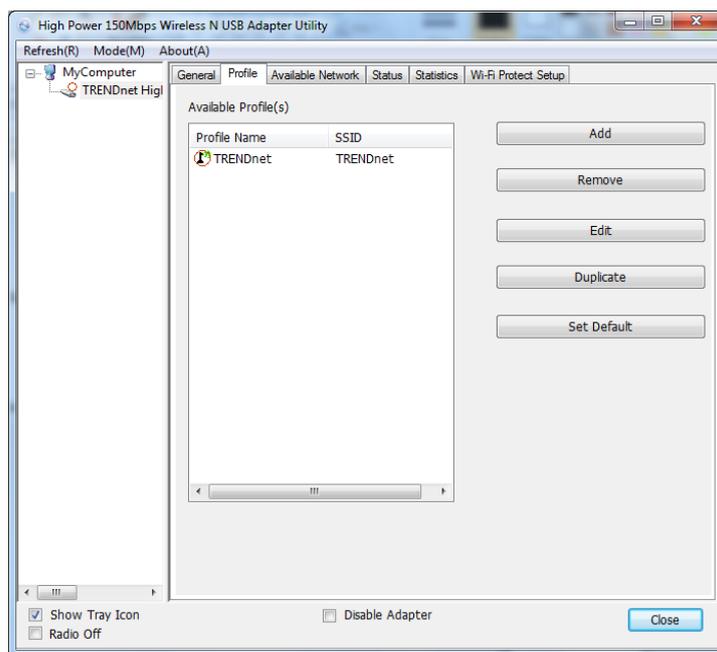
**IP Address:** Shows the IP address the adapter obtained from the access point.

**Subnet Mask:** Shows the subnet mask the adapter obtained

**Gateway:** Shows the gateway information obtained by the adapter.

## Profile

This screen is where you set the basic wireless settings of the wireless adapter.



**Profile Name:** You can modify the Profile Name to anything you would like, for example Home, Office, Play Room and etc.

**SSID:** Service Set Identifier, which is a unique name shared among all wireless clients in a wireless network. The SSID must match the wireless access point or router's SSID that you are connecting to.

**Add:** Adds a profile. The user can enter the necessary information required for accessing the particular Access Point or Wireless Router.

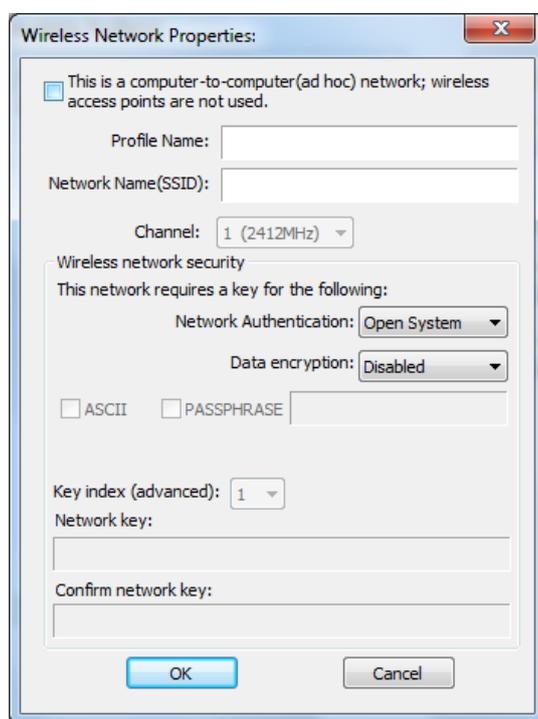
**Remove:** Deletes the selected profile

**Edit:** Edit an exist profile. The screen will back to profile. Edit the SSID and select the Wireless Mode, Authentication and Encryption then click **Apply** to save the profile. When the Profile name was changed, a new profile will be added in the list.

**Duplicate:** Duplicate the settings of the selected profile.

**Set Default:** Selected a profile from list then click the **Connect** to connecting to the wireless network with the profile setting.

**Adding Profile** – The user can create and manage the created profiles for home, work or public areas. By double-clicking on Add user can adjust to the specific setting such as SSID, channel, and encryption as saved by that particular profile.



**Ad-Hoc:** Check this option to establish a point-to-point wireless communication directly with other wireless client devices.

**Profile Name:** User can create a profile name to distinguish each wireless networks created.

**SSID:** Enter the SSID or wireless network name of the access point.

## Wireless Network Security

**Authentication:** The following options are available: Open System, Shared Key, WPA-PSK, WPA2-PSK, WPA EAP-TLS, WPA2 EPA-TLS . Select Open System, Shared Key for WEP data encryption feature.

## Open or Shared Key

**Open System** and **Shared Key** require the user to set a WEP key to exchange data with other wireless clients that have the same WEP key. WEP is considered basic level of wireless encryption, if you would like higher security connection, WPA2 encryption is recommended.

- Default Key: select one of the 4 keys to use.
- Network Key: choose the encryption way, either in HEX or ASCII formats, and enter the password in the blank space.
- Key Length: select 64 or 128 bits as the length of the keys  
Key Format: HEX or ASCII

Key Length	Hex	ASCII
Type	characters 0-9, A-F, a-f	alphanumeric format
64-bit	10 characters	5 characters
128-bit	26 characters	13 characters

## WPA-PSK / WPA2-PSK

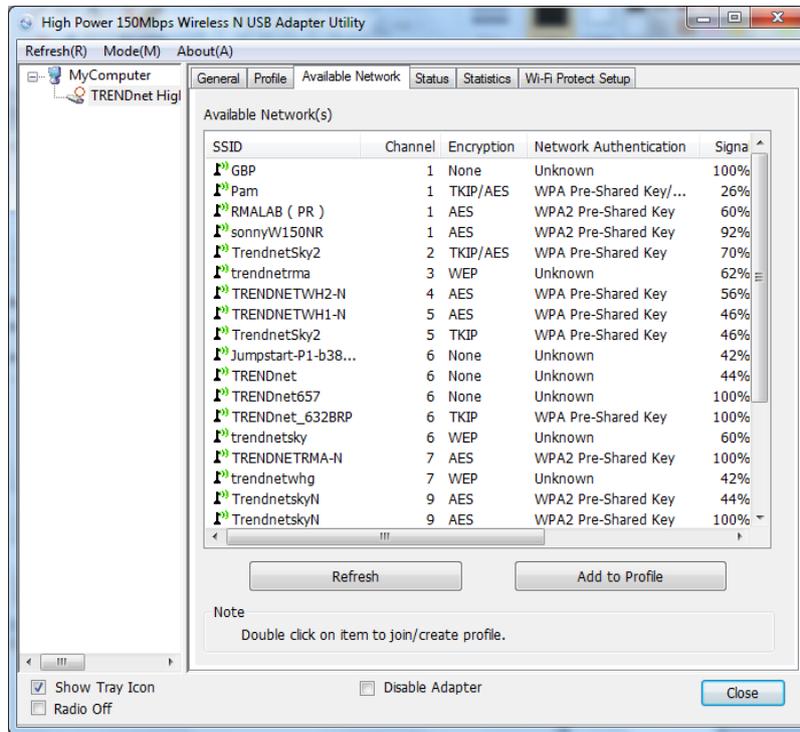
If using the **WPA-PSK/WPA2-PSK** authentication method, please select the **Encryption** type for TKIP or AES then enter the Passphrase key. The minimum length is 8 characters.

## WPA EAP-TLS

If using the **WPA/WPA2 EAP-TLS** authentication method, please select the **Encryption** type for TKIP or AES then select the **WPA/WPA2 Certificate** from drop down list.

## Available Network

This screen allows the user to scan for available wireless network. It also allows the user to establish wireless communications with an target device.

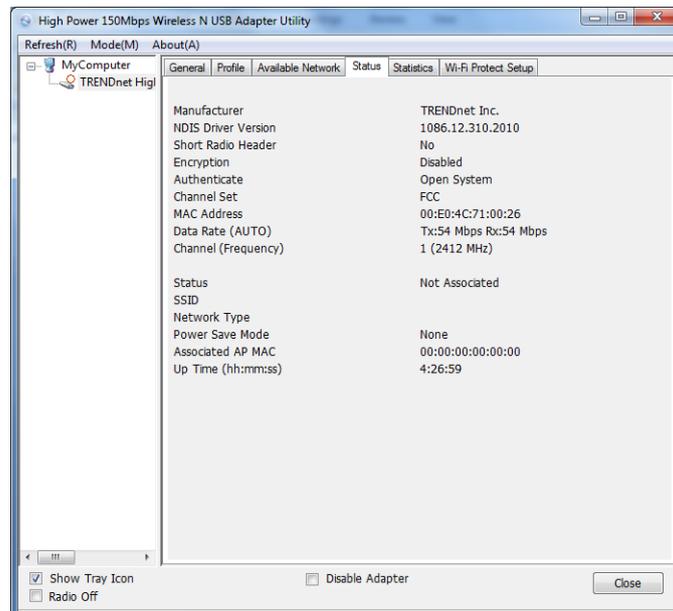


Select any one of the wireless networks by **double-clicking** on it or select the SSID then click the **“Add to Profile”** button.

Click the **“Refresh”** button to scan for available networks.

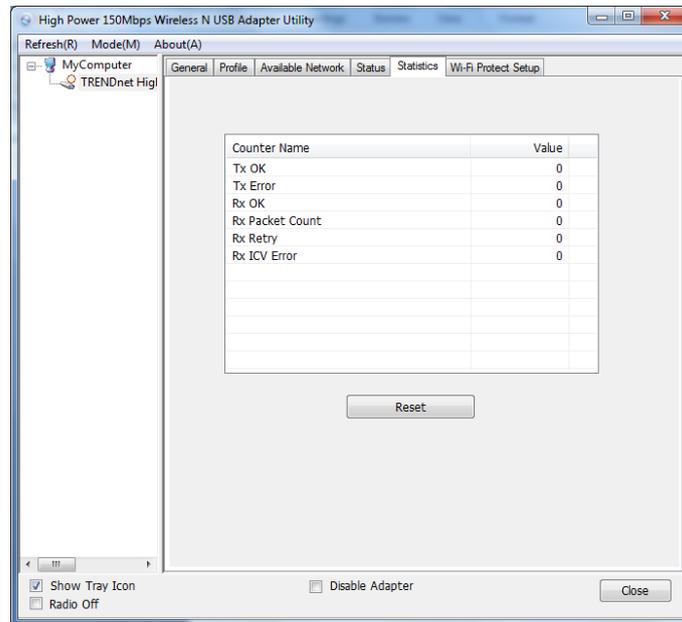
## Status

The status tab shows user the current status of the wireless adapter.



## Statistics

The statistics tab shows the current packet statistics of the wireless adapter.



## Wi-Fi Protected Setup (WPS)

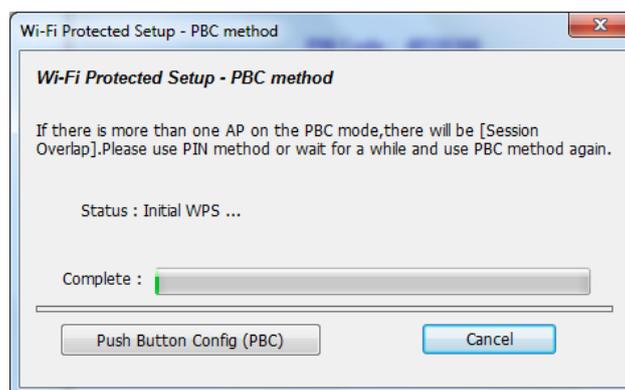
Wi-Fi Protected Setup (WPS) is designed to ease the task of setting up and configuring security on a wireless network. There are two methods used in the WPS as below instruction.

### Push Button Config (PBC)

There are 2 ways on how to initialize WPS Push Button Config (PBC), follow the steps below :

Wireless utility:

- Open the utility and select “Wi-Fi Protected Setup” tab.
- Click on “Push Button Config (PBC) button



-Log into your wireless access point’s user interface and start the access point’s WPS push button configuration. Please refer to the wireless access point’s manual on how to initialize WPS Push Button Config.

Note: Most wireless access points have a physical WPS button. Pressing the button will initialize WPS Push Button Config.

Physical button:

- Press the WPS button on the wireless adapter for 3 seconds and let go.

-Log into your wireless access point's user interface and start the access point's WPS push button configuration. Please refer to the wireless access point's manual on how to initialize WPS Push Button Config.

The LED will begin to blink during authentication. Once the connection has been successfully establish the LED will remain solid.

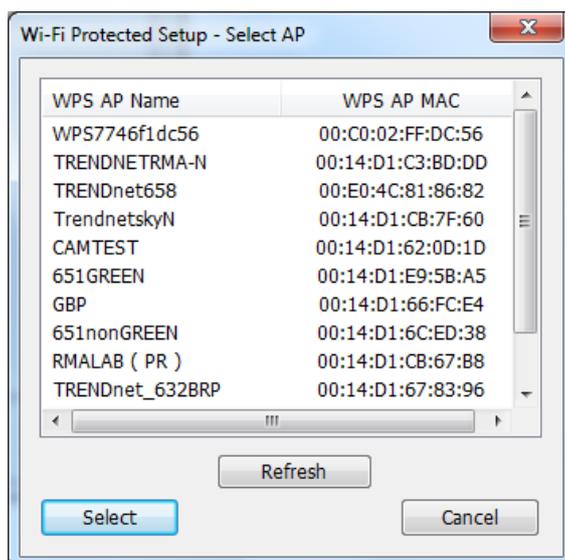
**Note:** Most wireless access points have a physical WPS button. Pressing the button will initialize WPS Push Button Config.

## **PIN Code**

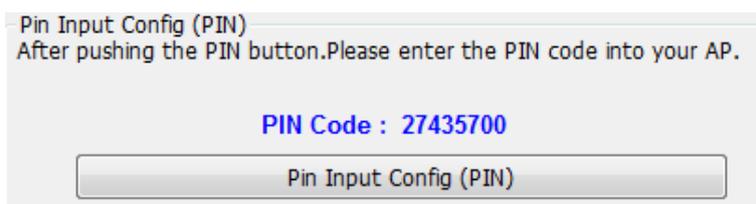
For PIN Code configuration the user is required to log into the wireless access point's user interface and follow the steps below. Please refer to the wireless access point's manual on how to initialize WPS Push Button Config.

-Open the wireless utility and select "Wi-Fi Protected Setup" tab.

-Click on "Pin Input Config (PIN)" button. You will be prompted to select your wireless access point's SSID. Click yes if you are aware of the access point's SSID.



-Log into the wireless access point's user interface and input the PIN Code information provided on the wireless utility



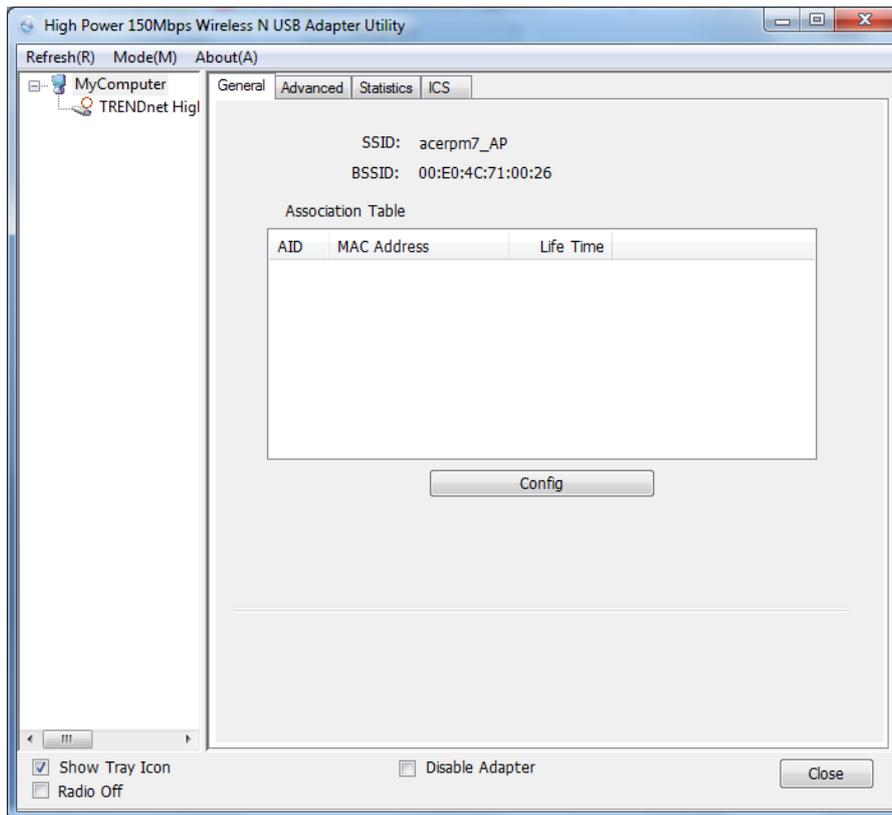
-Initialize the wireless access point's WPS PIN configuration.

## ACCESS POINT MODE

Select this mode when to have the wireless adapter function as a wireless access point. This feature is similar to “tethering” and will allow you to share an Internet connection to other wireless clients. Please note that to share internet connection the computer with the Micro Wireless N USB Adapter must have a valid Internet connection using a wired connection.

### General

This section allows user to configure the access point settings.

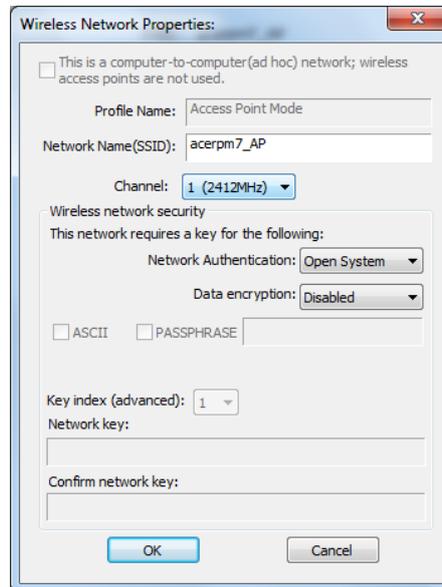


**SSID:** Shows the SSID if the wireless adapter’s network.

**BSSID:** Shows the MAC information of the wireless adapter.

**Association Table:** Shows all wireless clients connected to your adapter’s wireless network. which must be the same as your wireless access point or router in order to establish the connection correctly.

**Config:** Click this button to configure the access point settings.



**Network Name (SSID):** Enter the SSID or wireless network name of the access point

**Channel:** Set the channel that you want the access point to operate on.

**BSSID:** Shows the MAC information of the wireless adapter.

## Wireless Network Security

**Authentication:** The following options are available: Open System, Shared Key, WPA-PSK, WPA2-PSK, WPA EAP-TLS, WPA2 EPA-TLS . Select Open System, Shared Key for WEP data encryption feature.

### Open or Shared Key

**Open System** and **Shared Key** require the user to set a WEP key to exchange data with other wireless clients that have the same WEP key. WEP is considered basic level of wireless encryption, if you would like higher security connection, WPA2 encryption is recommended.

- Default Key: select one of the 4 keys to use.
- Network Key: choose the encryption way, either in HEX or ASCII formats, and enter the password in the blank space.
- Key Length: select 64 or 128 bits as the length of the keys  
Key Format: HEX or ASCII

Key Length	Hex	ASCII
Type	characters 0-9, A-F, a-f	alphanumeric format
64-bit	10 characters	5 characters
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### WPA-PSK / WPA2-PSK

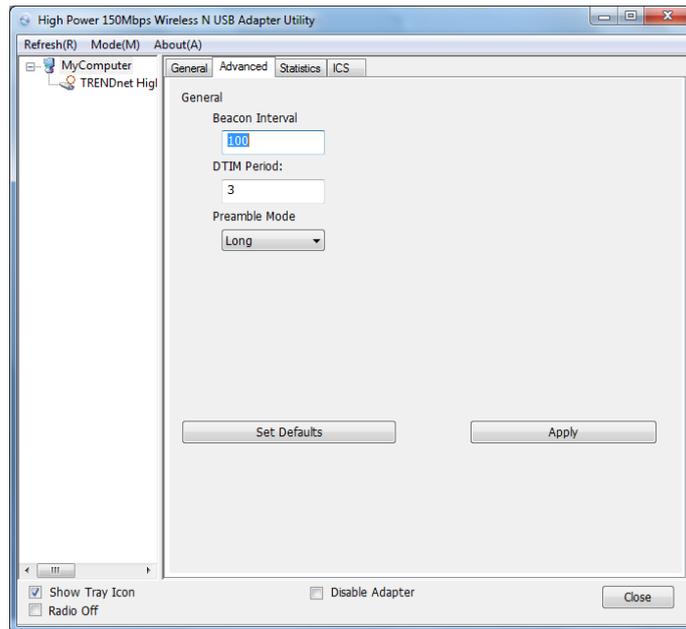
If using the **WPA-PSK/WPA2-PSK** authentication method, please select the **Encryption** type for TKIP or AES then enter the Passphrase key. The minimum length is 8 characters.

## WPA EAP-TLS

If using the **WPA/WPA2 EAP-TLS** authentication method, please select the **Encryption** type for TKIP or AES then select the **WPA/WPA2 Certificate** from drop down list.

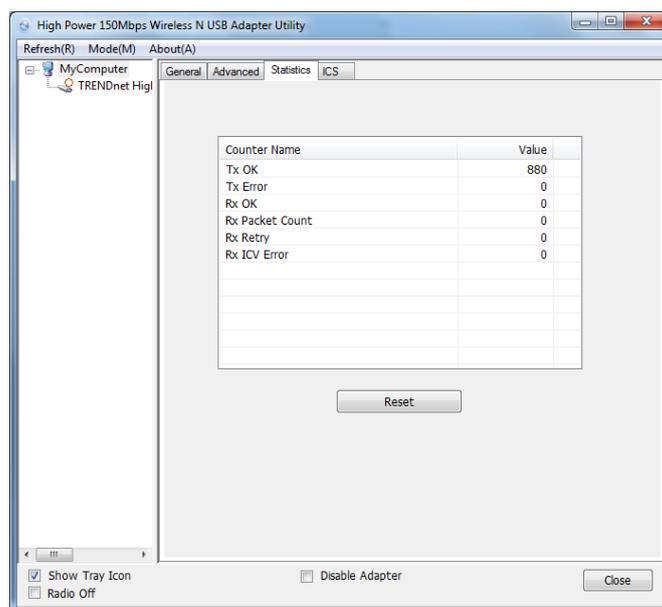
## Advance

This section allows user to configure access point mode's advance settings.



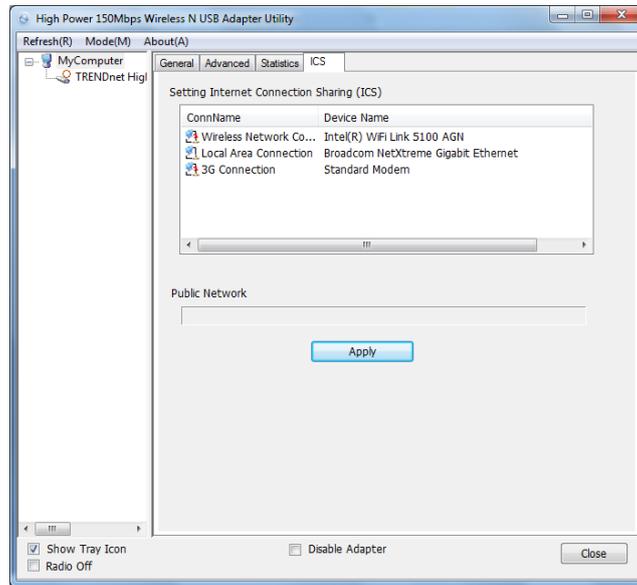
## Statistics

The statistics tab shows the current packet statistics of the wireless adapter.



# ICS

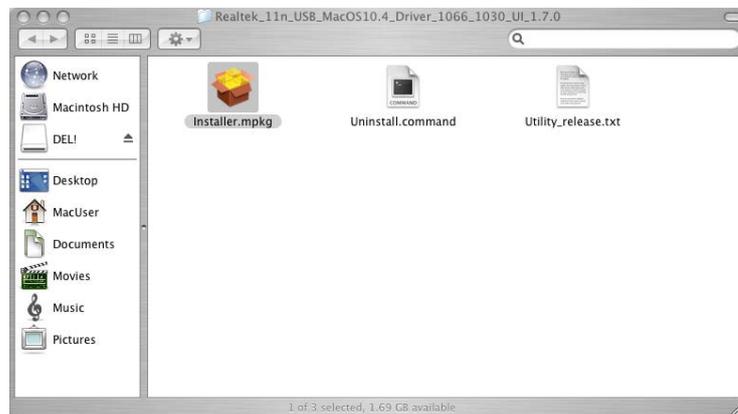
The section shows user the status of the computer's network adapters.



## MAC OS X SOFTWARE INSTALLATION

This section describes how to install the driver and utility for the High Power 150Mbps Wireless N USB Adapter with MAC OS X operating system

- 1) Insert the Utility and Driver CD-ROM into your computer's CD-ROM.
- 2) Browse the TEW-646UBH CD-ROM and go to MAC OS X folder
- 3) Select the correct Mac OS X version drivers to install and click "Installer.mpkg"



- 4) Click on "Continue" to continue with the installation



- 5) When prompted for license agreement, click "Agree" to continue



- 6) If prompted, select the destination volume to install the utility and click "Continue".



7) Click "Install" or "Upgrade to continue.



8) Input your password then click "OK" password.



9) Click "Continue Installation"



10) When installation is complete click on “Restart”



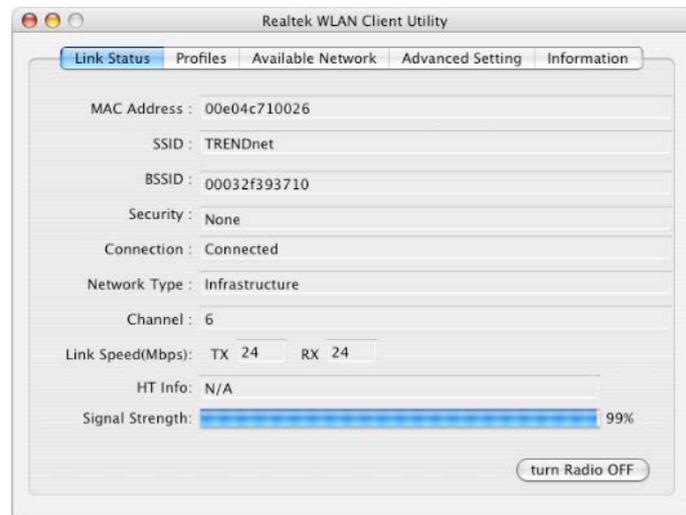
11) Once restart is completed insert the TEW-646UBH on your Mac. The wireless utility will automatically appear. IF the utility does not appear you will find the utility icon in the Dock menu. Click on the icon to start the TEW-646UBH configuration.



## MAC OS X UTILITY

This section describes how to install the driver and utility for the High Power 150Mbps Wireless N USB Adapter with MAC OS X operating system

### Link Status



**MAC Address:** Shows the MAC address of the wireless USB adapter

**SSID/BSSID:** Shows the SSID that USB wireless adapter is connected to

**Security:** Shows the type of security used

**Connection:** Shows the connection status of the wireless USB adapter

**Network Type:** Shows the type of network the wireless USB adapter is set on

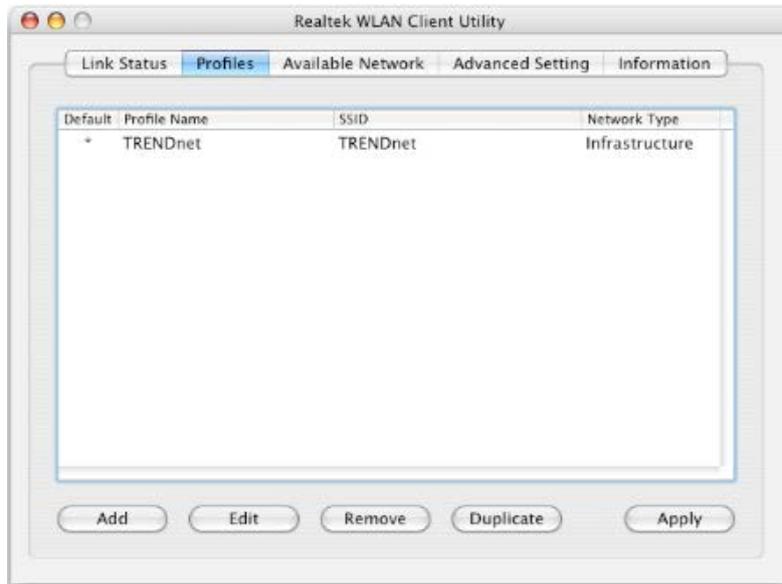
**Channel:** Shows the current channel being used on the connection

**Link Speed:** Shows the current linking speed both transmission and receive

**HT Info:** Shows the HT information including bandwidth 20 or 40MHz, GI (Grand Interval) short of long, MCS index when connected in 802.11n mode

**Signal Strength:** Shows the current wireless signal strength

# Profiles



**Add:** Select this option to add a new profile, user can enter the necessary information required for access the access point or wireless router

**Edit:** View and edit the selected profile

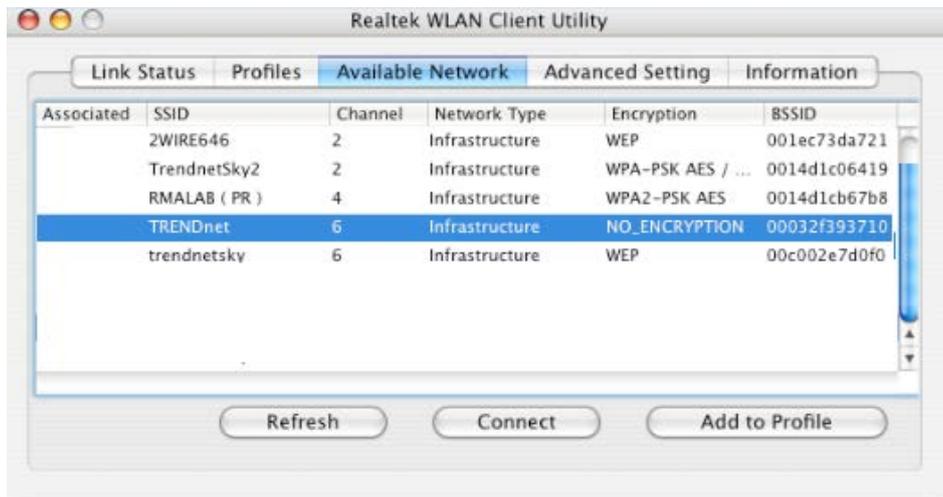
**Remove:** Select this option to delete the selected profile

**Duplicate:** Select this option to copy the selected profile

**Apply:** Click this option to apply/activate the selected profile

## Available Network

This tab allows users to scan for available wireless networks .

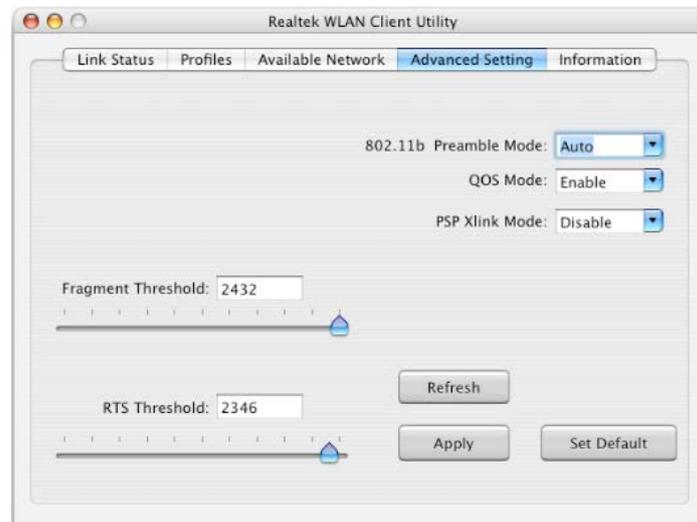


**Refresh:** Click this option to refresh the available network list

**Connect:** Click this option to establish connection to a select available network.

**Add to Profile:** Select an available network and click this option to save the network as a profile.

## Advance Setting



**802.11b preamble mode:** To set the preamble mode

**QOS Mode:** This option allows users to enable or disable QoS feature

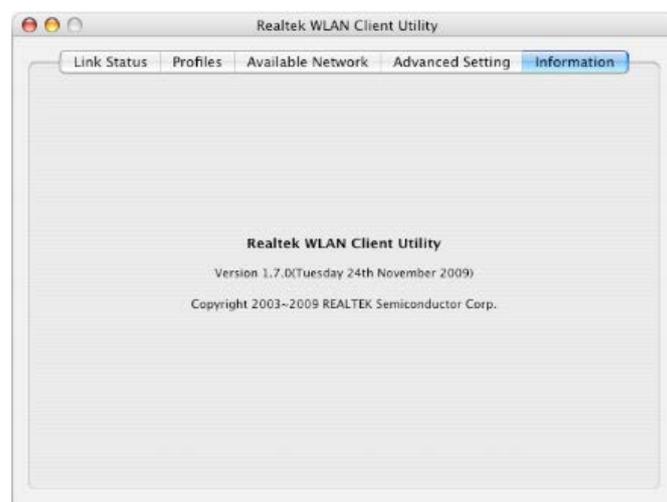
**PSP Xlink Mode:** This option allows users to enable or disable PSP mode

**Fragment Threshold:** This option allows users to set the fragment threshold of the wireless adapter:

**RTS Threshold:** This option allows users to set the RTS threshold of the wireless adapter:

## About

This tab shows the wireless adapter's utility information



## SPECIFICATIONS

Hardware	
Interface	USB 2.0
Standards	IEEE 802.11b, IEEE 802.11g, based on IEEE 802.11n draft 2.0 technology
LED Indicator	Power, Link
WPS Button	Enables WPS connection
Power Consumption	2.5 W
Antenna Connector	SMA
Supported OS	Windows: 7 (32/64-bit), Vista (32/64-bit), XP(32/64-bit) Mac: OS 10.4-10.6
Dimensions (LxWxH)	60 x 16 x 8 mm (2.3 x 0.6 x 0.3 in.)
Weight	5.7 g (0.2 oz)
Temperature	Operating: 0° ~ 55° C (32° ~ 131° F); Storage: -20° ~ 70° C (-4 ~ 158° F)
Humidity	Max. 90% (non-condensing)
Certifications	CE, FCC
Wireless	
Modulation	OFDM, DSSS
Antenna	1 x 2dBi omni-directional detachable antenna (Reverse SMA)
Frequency	2.4 ~ 2.497 GHz
Quality of Service	802.11e, WMM
Date Rate (auto fallback)	802.11b: 11Mbps 802.11g: 54Mbps 802.11n: 150Mbps
Output Power	802.11b: 15dBm 802.11g: 14dBm 802.11n: 12dBm
Receiving Sensitivity	802.11b: -78dBm at 11mpbs 802.11g: -65dBm at 54Mbps 802.11n: -93dBm at 150Mbps
Encryption	64/128-bit WEP, WPA/WPA2-RADIUS, WPA /WPA2-PSK
Channels	1~11 (FCC), 1~13 (ETSI)

## **LIMITED WARRANTY**

TRENDnet warrants its products against defects in material and workmanship, under normal use and service, for the following lengths of time from the date of purchase.

TEW-646UBH – 3 Years Warranty

AC/DC Power Adapter, Cooling Fan, and Power Supply carry 1 year warranty.

If a product does not operate as warranted during the applicable warranty period, TRENDnet shall reserve the right, at its expense, to repair or replace the defective product or part and deliver an equivalent product or part to the customer. The repair/replacement unit's warranty continues from the original date of purchase. All products that are replaced become the property of TRENDnet. Replacement products may be new or reconditioned. TRENDnet does not issue refunds or credit. Please contact the point-of-purchase for their return policies.

TRENDnet shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to TRENDnet pursuant to any warranty.

There are no user serviceable parts inside the product. Do not remove or attempt to service the product by any unauthorized service center. This warranty is voided if (i) the product has been modified or repaired by any unauthorized service center, (ii) the product was subject to accident, abuse, or improper use (iii) the product was subject to conditions more severe than those specified in the manual.

Warranty service may be obtained by contacting TRENDnet within the applicable warranty period and providing a copy of the dated proof of the purchase. Upon proper submission of required documentation a Return Material Authorization (RMA) number will be issued. An RMA number is required in order to initiate warranty service support for all TRENDnet products. Products that are sent to TRENDnet for RMA service must have the RMA number marked on the outside of return packages and sent to TRENDnet prepaid, insured and packaged appropriately for safe shipment. Customers shipping from outside of the USA and Canada are responsible for return shipping fees. Customers shipping from outside of the USA are responsible for custom charges, including but not limited to, duty, tax, and other fees.

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**Governing Law:** This Limited Warranty shall be governed by the laws of the state of California.

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Go to <http://www.trendnet.com/gpl> or <http://www.trendnet.com> Download section and look for the desired TRENDnet product to access to the GPL Code or LGPL Code. These codes are distributed WITHOUT WARRANTY and are subject to the copyrights of the developers. TRENDnet does not provide technical support for these codes. Please go to <http://www.gnu.org/licenses/gpl.txt> or <http://www.gnu.org/licenses/lgpl.txt> for specific terms of each license.



**TRENDNET<sup>®</sup>**

## Product Warranty Registration

Please take a moment to register your product online.  
Go to TRENDnet's website at <http://www.trendnet.com/register>