

INTRODUCTION

Congratulations on your purchase of this Micro Wireless N USB Adapter. This manual contains detailed instructions regarding the operation of this product. Please keep this manual for future reference.

With the Micro Wireless N USB Adapter, a desktop or laptop computer can communicate with another computer wirelessly. An easy-to-use utility is bundled with the Wireless USB Adapter for configuration, monitoring, and diagnostic purposes.

The Micro Wireless N USB Adapter can wirelessly transmit and receive data, at a speed of up to 150 megabits per second.

The Micro Wireless N USB Adapter provides users with access to real-time information anywhere in their organization. The mobility of the Micro Wireless N USB Adapter provides productivity and service, which are not available under wired networks. The Micro Wireless N USB Adapter can easily adapt from peer-to-peer networks, suitable for a small number of users, to full infrastructure networks of thousands of users that allow roaming around a broad area.

UNPACKING AND SETUP

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

Unpacking

The box should contain the following items:

- ◆ TEW-648UBM Micro Wireless N USB Adapter
- ◆ Multi-Language Quick Installation Guide
- ◆ CD-ROM (Utility & Driver)

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

System Requirements

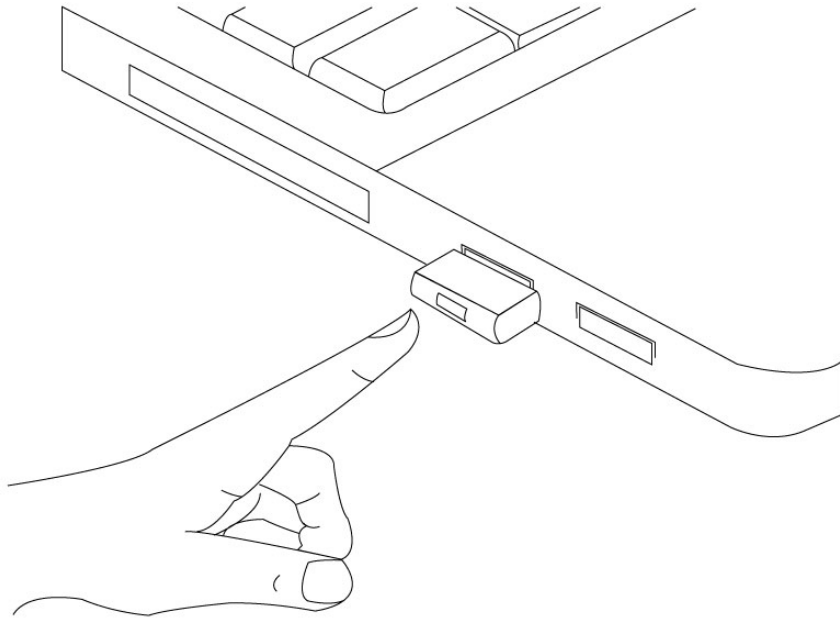
Before installation, check the following:

- ◆ 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.

IDENTIFYING EXTERNAL COMPONENTS

WPS Button

Press the WPS button to start the WPS pairing, the LED will begin to blink for 3 blinks/second, once the connection is successfully established between the AP and the adapter, the LED will remain solid for 5 seconds to tell the user that the connection has been established. After 5 seconds, the LED will light off to indicate to the user that the Access Point or Wireless Router is ready for a new WPS connection and the adapter is associated with the Access Point or Wireless Router.



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

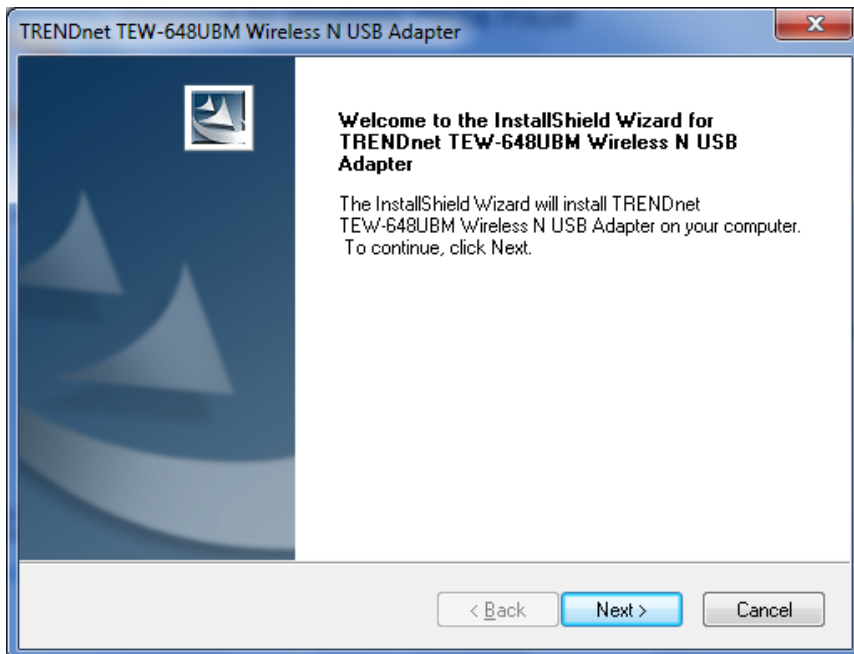
This section describes how to install the driver and utility for the Micro Wireless N USB Adapter.

Windows Based Utility Installation

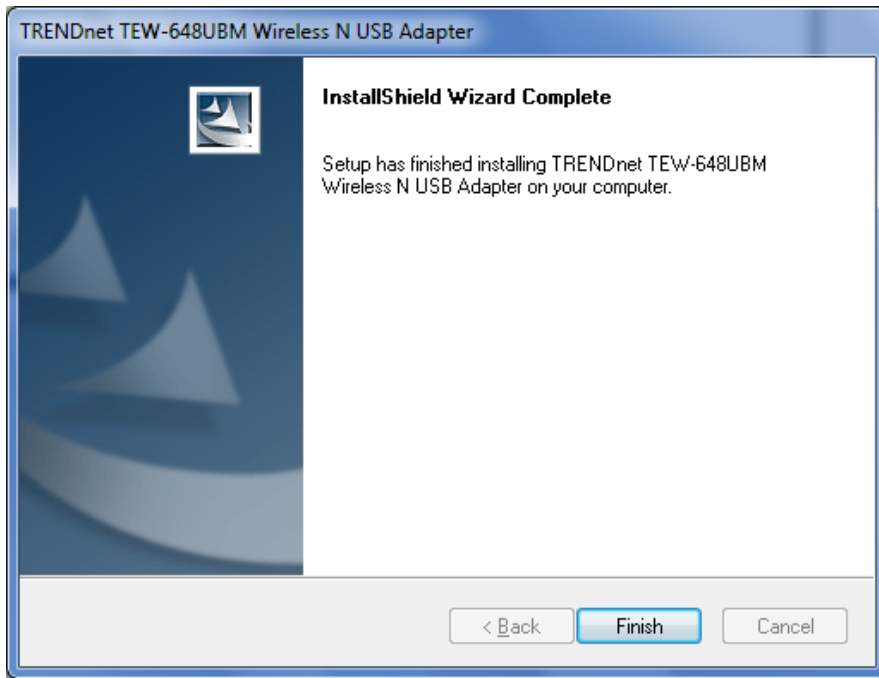
- 1) Insert the Utility and Driver CD-ROM into your computer's CD-ROM drive and then click **Install Utility**.



- 2) Follow the InstallShield Wizard Instructions



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



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

WIRELESS UTILITY SETTING

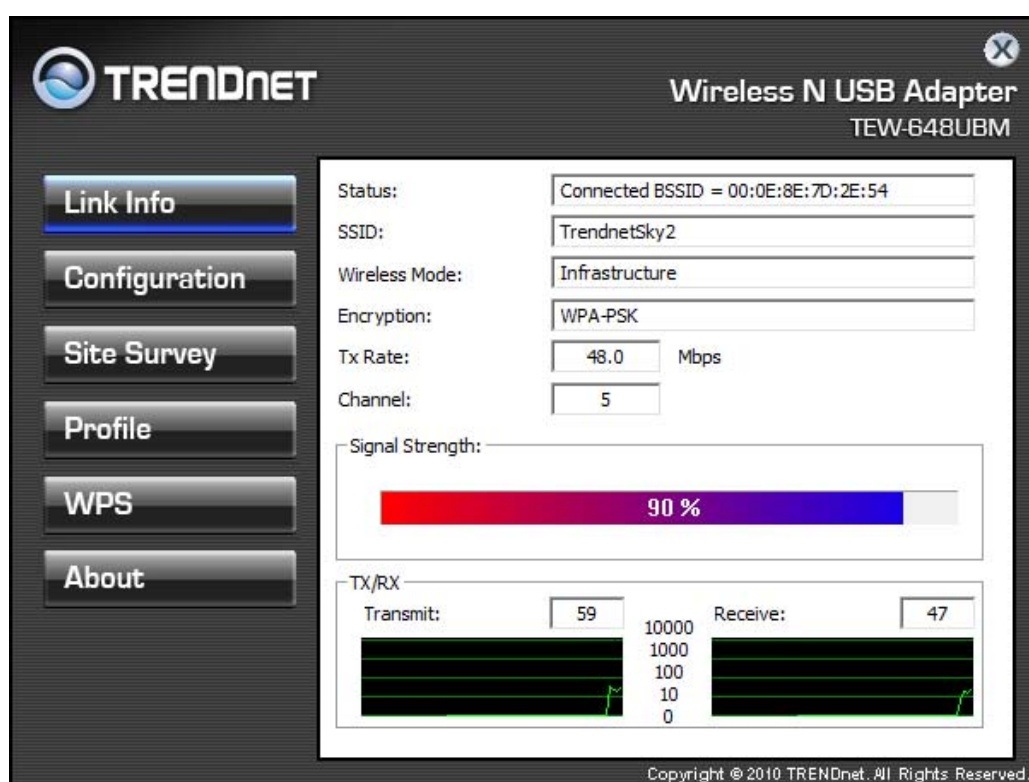
The user can configure the wireless settings using the Wireless Adapter Configuration Utility. Double-click the utility icon that appears in the taskbar.



The Wireless Adapter Configuration Utility is divided into six sections: Link Info, Configuration, Site Survey, Profile, WPS and About.

Link Information

This is the default screen after launching the Utility program.



Status: Shows the associated BSSID (MAC address), which can be used to identify the wireless access point or router that you are connecting to.

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

Wireless Mode: Shows the current wireless mode used.

Encryption: Shows the current encryption mode used.

TxRate: Shows the current data rate used for transmitting.

Channel: Shows the current channel for communication.

Signal Strength: Shows the wireless signal strength of the connection between the Micro Wireless N USB Adapter with the Access Point.

Data Rate: Shows the statistics of data transfer, and the calculation is based on the number of packets transmitted and received.

Configuration

This screen is where you set the basic wireless settings for the Micro Wireless N USB Adapter.

TRENDnet Wireless N USB Adapter
TEW-648UBM

Link Info
Configuration
Site Survey
Profile
WPS
About

Profile Name: TrendnetSky2
SSID: TrendnetSky2
Wireless Mode: Infrastructure
Authentication: WPA-PSK
Encryption: TKIP

WPA-PSK
Enter your WPA Passphrase. The minimum length is 8 characters.

Apply Cancel

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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.

Wireless Mode: There are two modes available for selection

- Infrastructure – to establish wireless communication with the LAN and other wireless clients through the use of Access Points or Wireless Router. This is most common type of connection.
- Ad-Hoc – to establish point-to-point wireless communication directly with other wireless client devices.

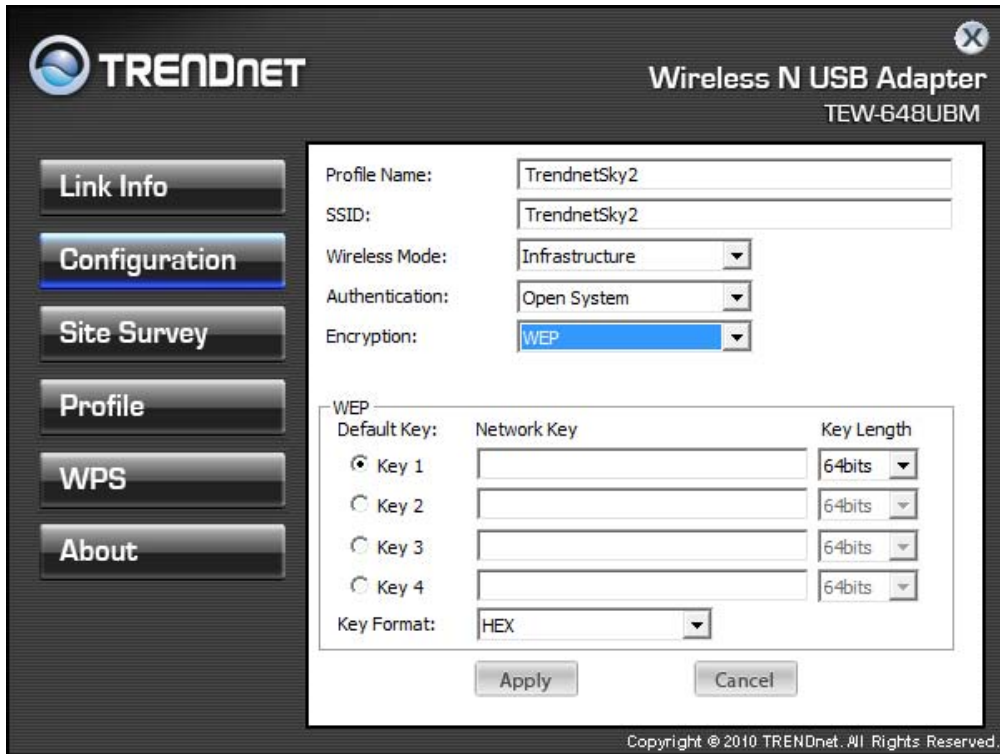
Authentication: The following options are available: Open System, Shared Key, WPA-PSK, WPA2-PSK, WPA EAP-TLS, WPA2 EPA-TLS . Select Open System, Shared Key for WEP data encryption feature.

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.

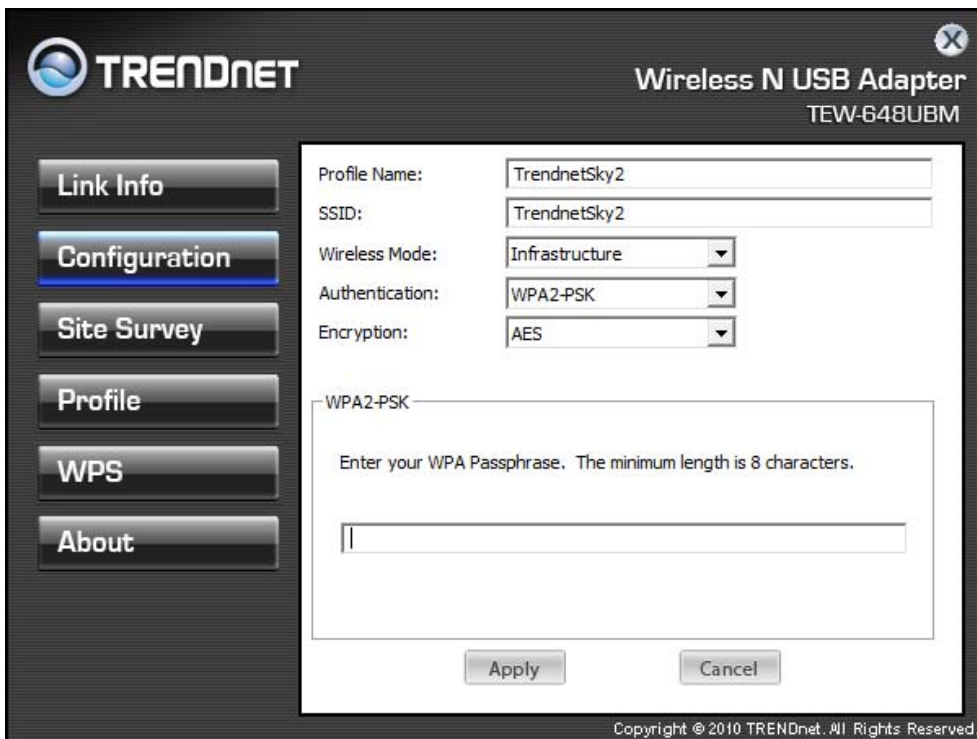
- Default Key: select one of the 4 keys to use.
- Network Key: choose the encryption way, either in HEX or ASCII formats, and enter the password in the blank space.
- Key Length: select 64 or 128 bits as the length of the keys
Key Format: HEX or ASCII

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



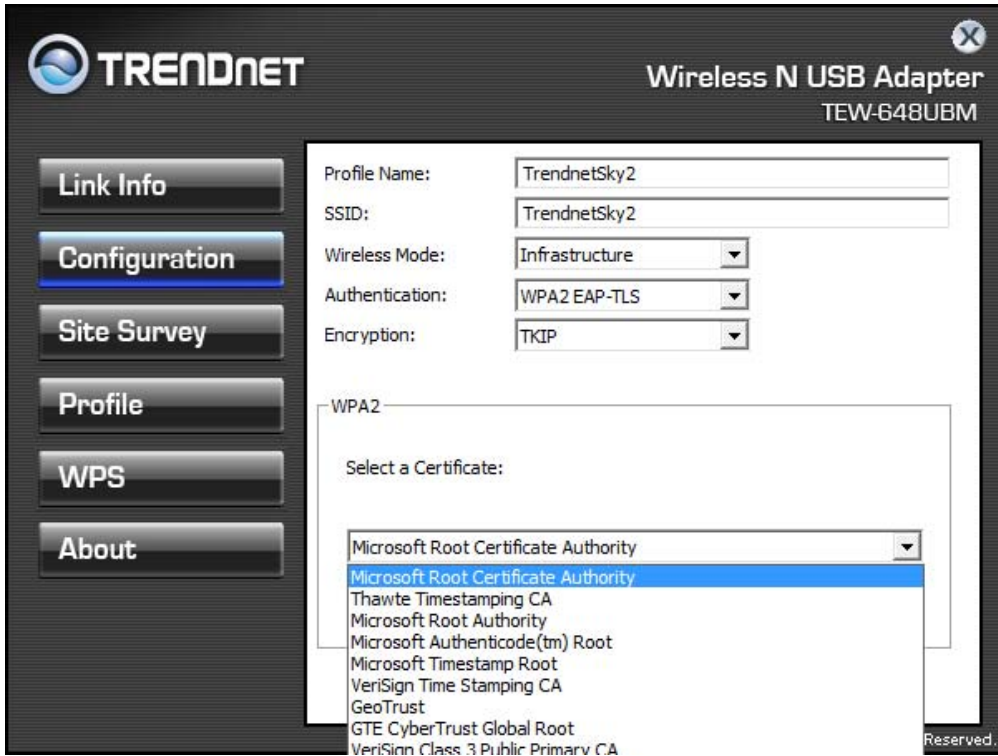
WPA-PSK / WPA2-PSK

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.



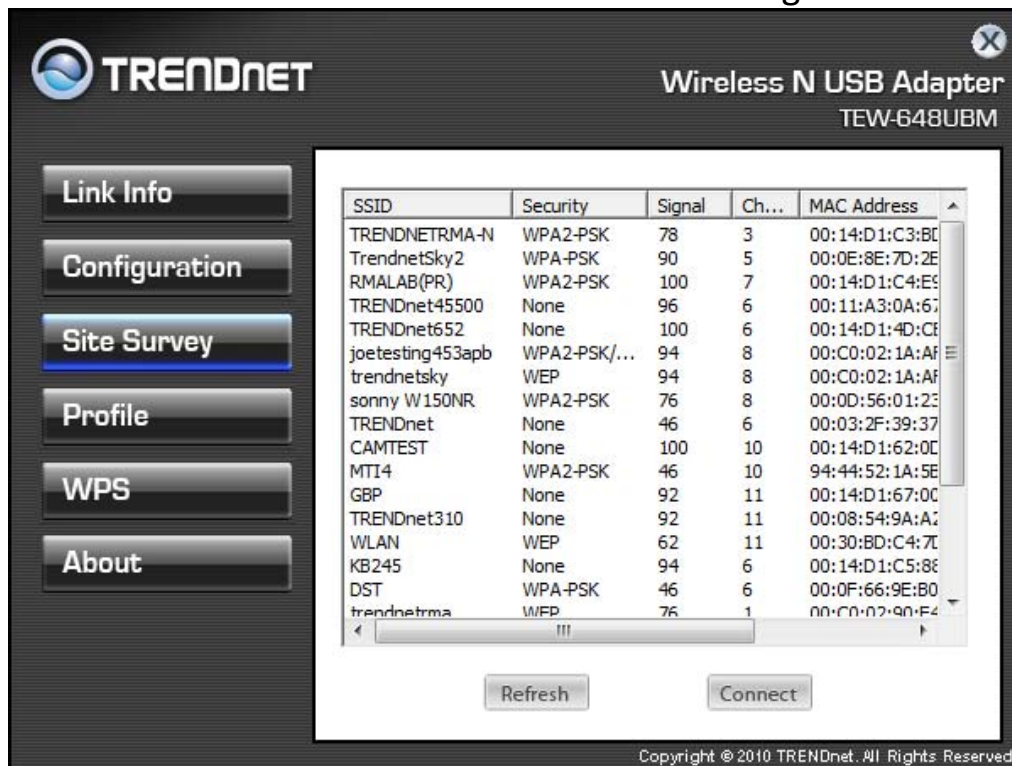
WPA EAP-TLS

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.



Site Survey

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



TRENDnet Wireless N USB Adapter
TEW-648UBM

Link Info
Configuration
Site Survey
Profile
WPS
About

SSID	Security	Signal	Ch...	MAC Address
TRENDNETRMA-N	WPA2-PSK	78	3	00:14:D1:C3:BE
TrendnetSky2	WPA-PSK	90	5	00:0E:8E:7D:2E
RMALAB(PR)	WPA2-PSK	100	7	00:14:D1:C4:E5
TRENDnet45500	None	96	6	00:11:A3:0A:67
TRENDnet652	None	100	6	00:14:D1:4D:CE
joetesting453apb	WPA2-PSK/...	94	8	00:C0:02:1A:AF
trendnetsky	WEP	94	8	00:C0:02:1A:AF
sonny W150NR	WPA2-PSK	76	8	00:0D:56:01:23
TRENDnet	None	46	6	00:03:2F:39:37
CAMTEST	None	100	10	00:14:D1:62:0C
MTI4	WPA2-PSK	46	10	94:44:52:1A:5E
GBP	None	92	11	00:14:D1:67:0C
TRENDnet310	None	92	11	00:08:54:9A:A7
WLAN	WEP	62	11	00:30:BD:C4:77
KB245	None	94	6	00:14:D1:C5:8E
DST	WPA-PSK	46	6	00:0F:66:9E:B0
trendnetma	WEP	76	1	00:00:02:90:F4

Refresh Connect

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Available Network – displays the wireless networks (wireless clients, access points or routers) that are within range.

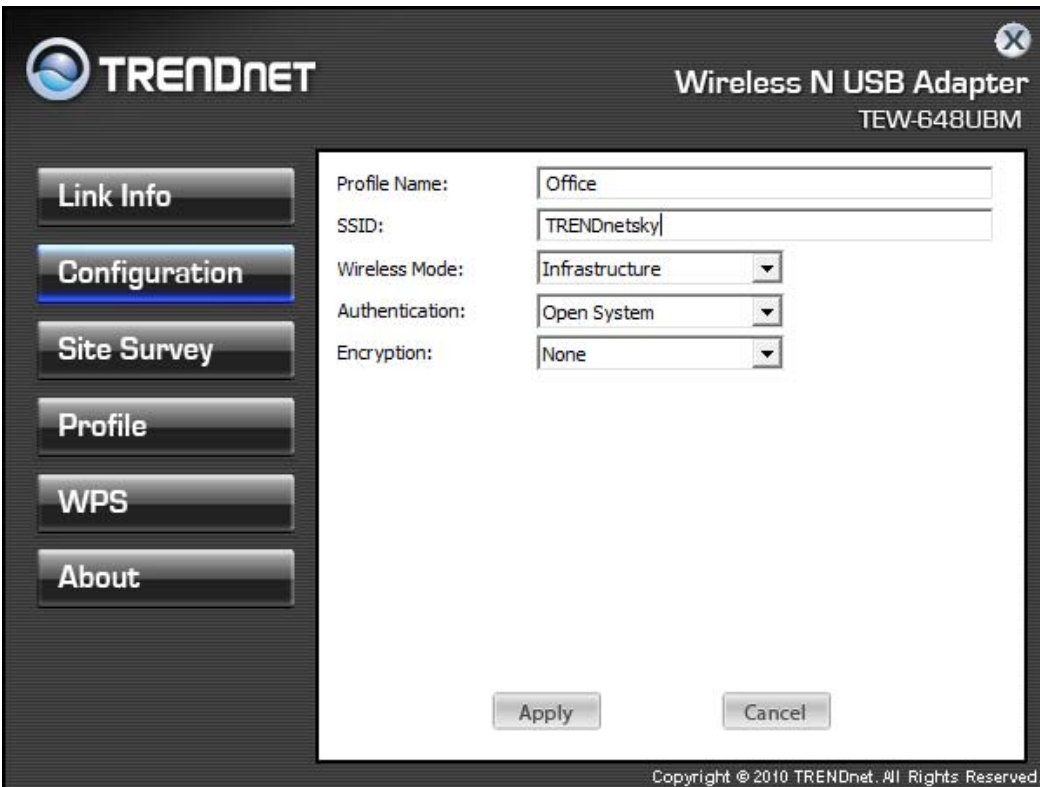
Select any one of the wireless networks by **double-clicking** on it or select the SSID then click the **“Connect”** button.

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

Profile

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

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



The screenshot shows the configuration window for a TRENDnet Wireless N USB Adapter (TEW-648UBM). The window has a dark grey header with the TRENDnet logo on the left and the product name and model number on the right. On the left side, there is a vertical menu with buttons for 'Link Info', 'Configuration', 'Site Survey', 'Profile', 'WPS', and 'About'. The 'Profile' button is currently selected. The main area of the window is a white form with the following fields and options:

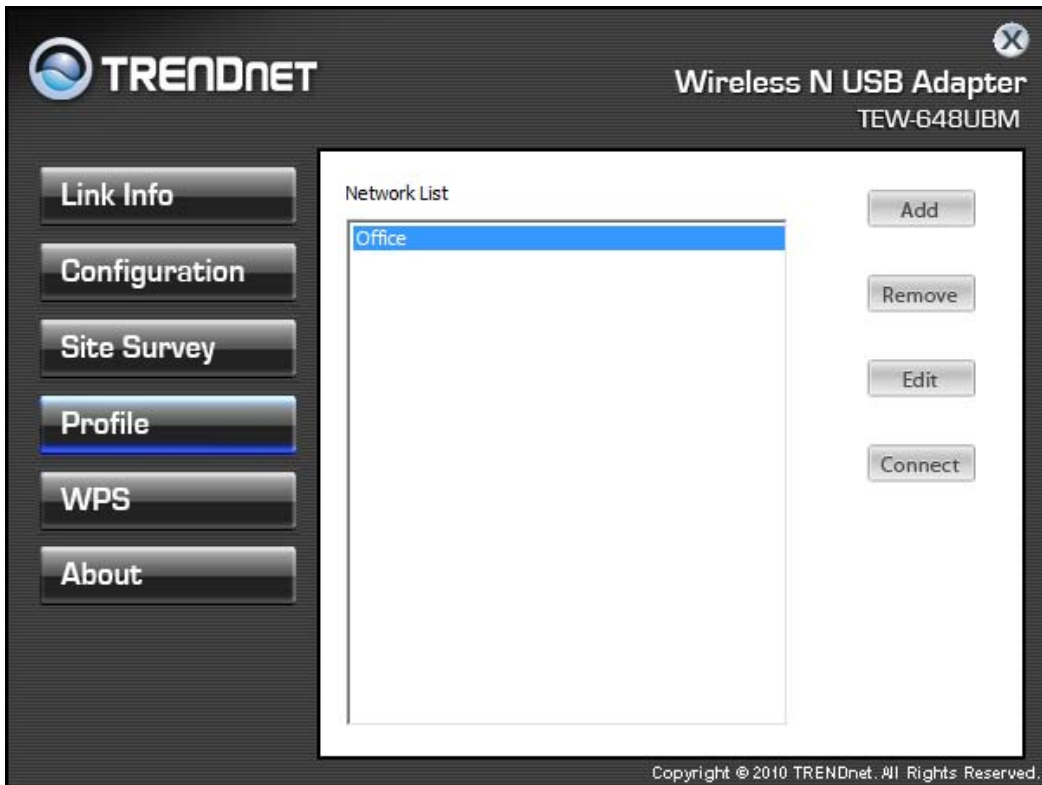
- Profile Name: Office
- SSID: TRENDnetsky|
- Wireless Mode: Infrastructure (dropdown menu)
- Authentication: Open System (dropdown menu)
- Encryption: None (dropdown menu)

At the bottom of the form, there are two buttons: 'Apply' and 'Cancel'. A copyright notice 'Copyright © 2010 TRENDnet. All Rights Reserved.' is visible at the bottom right of the window.

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.

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



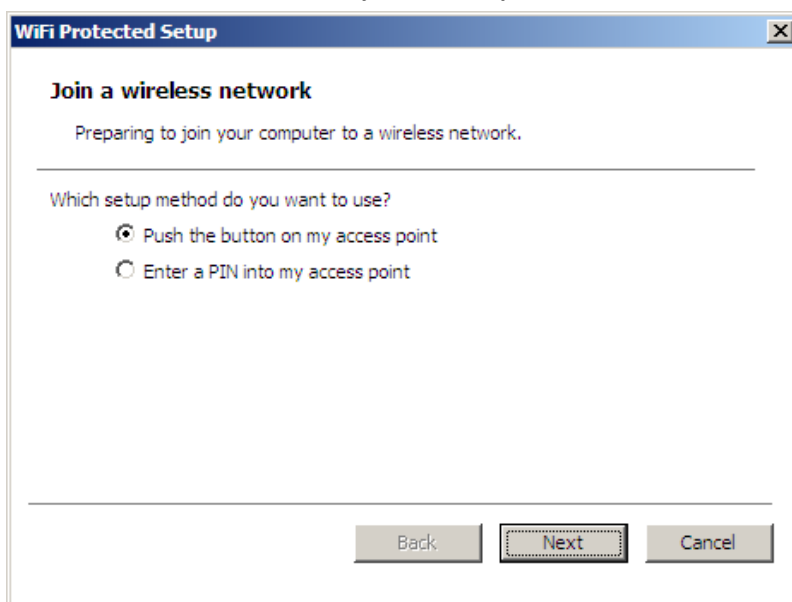
WPS

Wi-Fi Protected Setup (WPS) is an optional certification program from the Wi-Fi Alliance that 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 the button on my access point

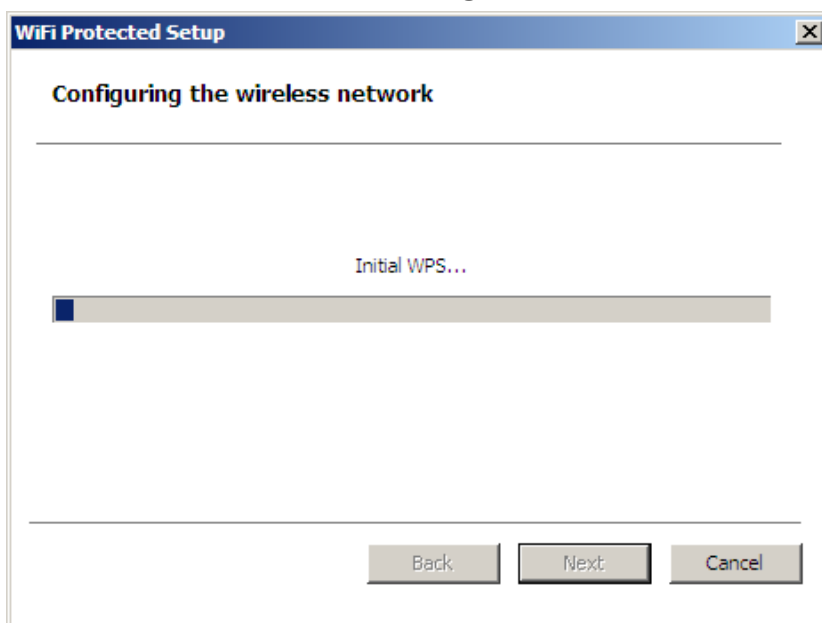
Using the WPS configuration with the “Push the button on my access point” method, the configuration steps as below:

1) Selected the “Push the button on my access point”.

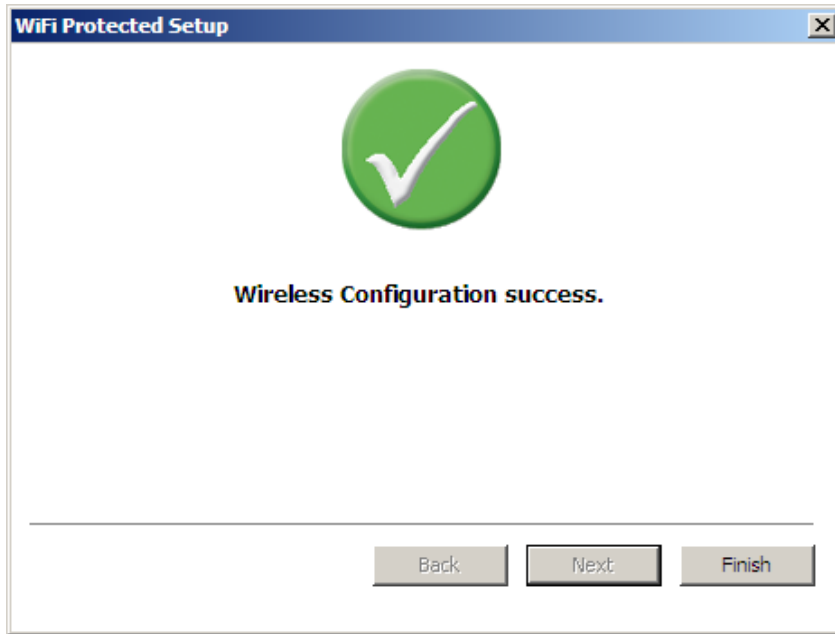


2) Push the WPS configuration button on your wireless access point or router.

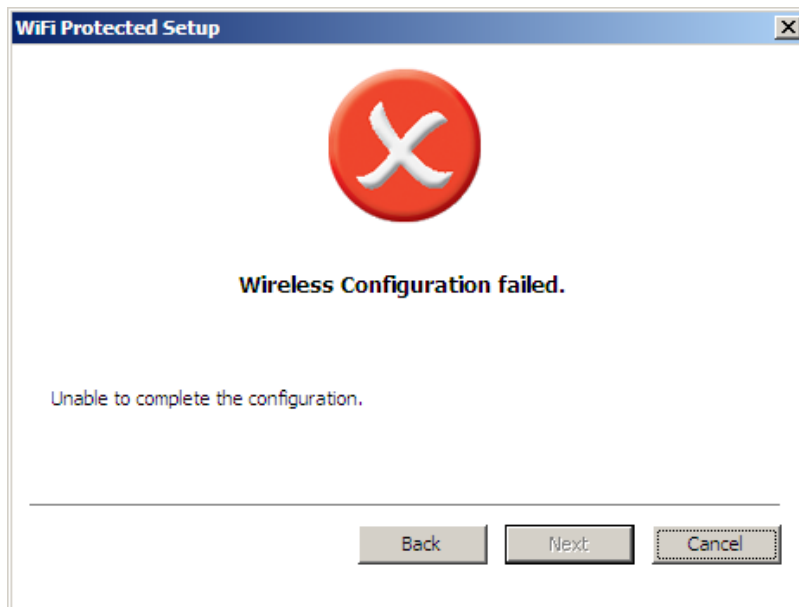
3) Click the **Next** button start the WPS configuration.



4) If the WPS configuration was successful, the follow window will show on.



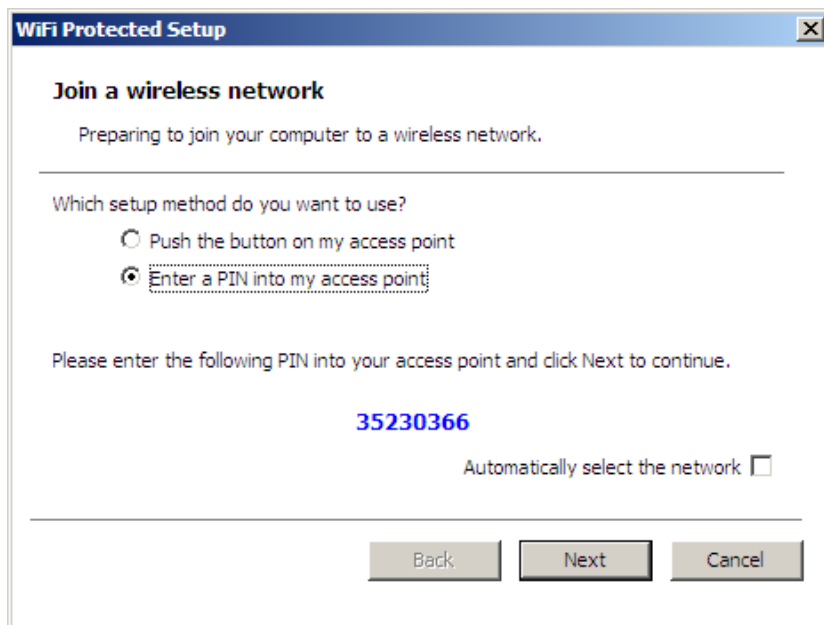
5) If the WPS configuration was failed, the follow window will show on.



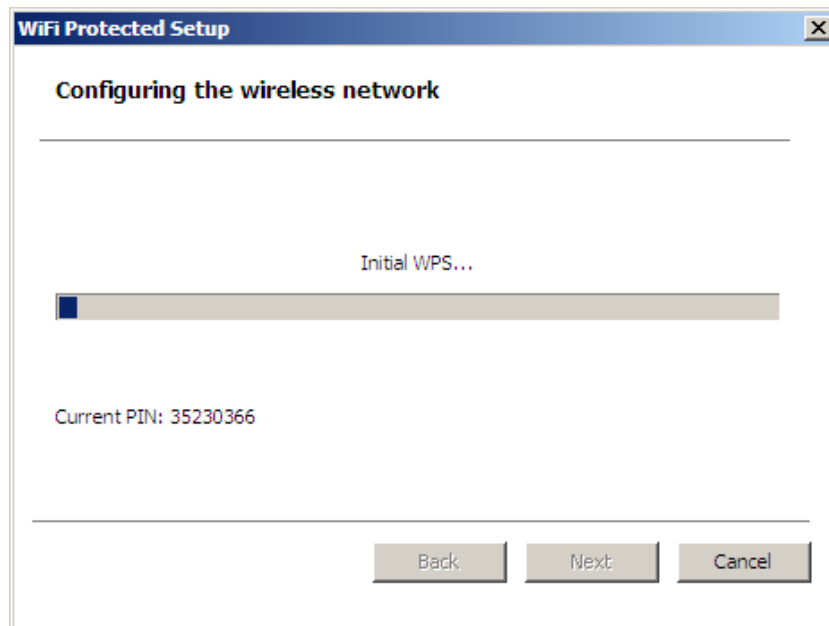
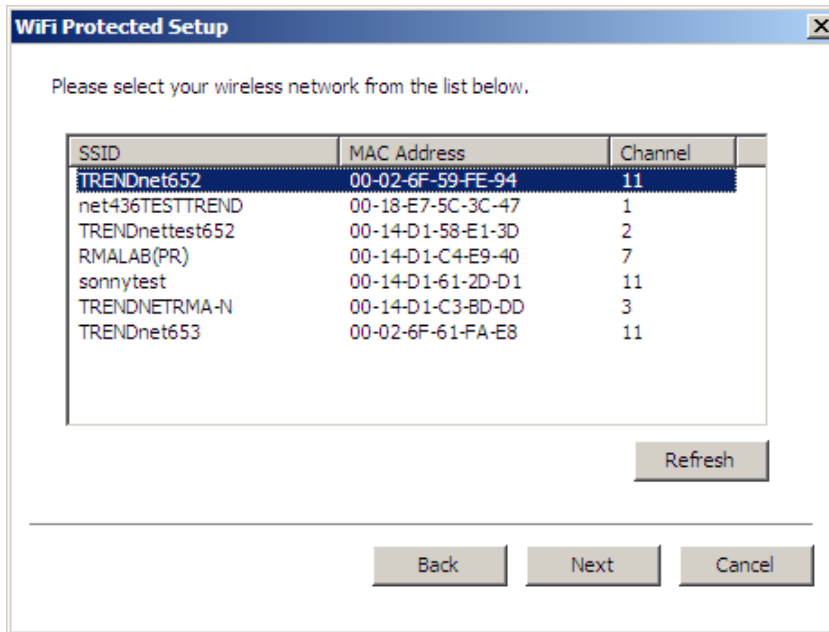
Enter a PIN into my access point

Using the WPS configuration with the “Enter a PIN into my access point” method, the configuration steps as below:

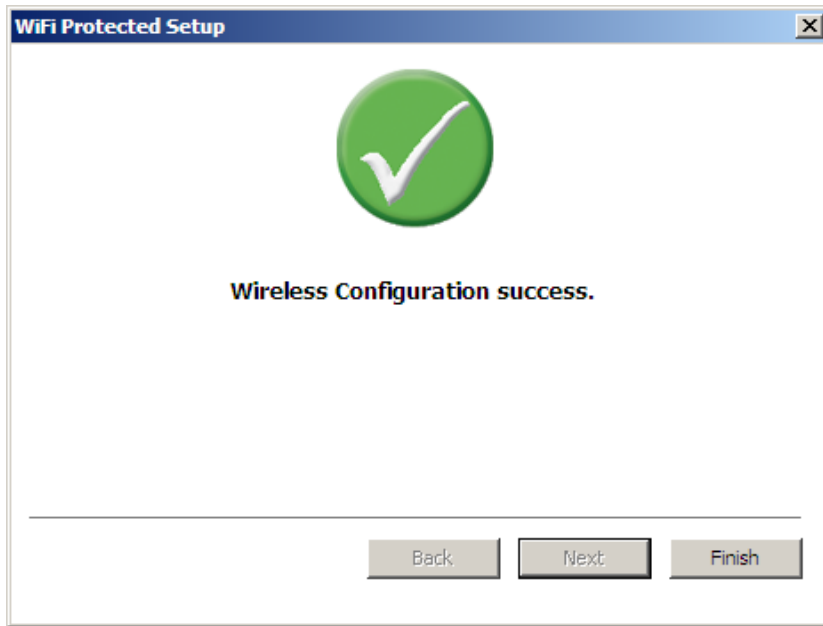
- 1) Selected the “Enter a PIN into my access point”, the PIN will be show on the button of the windows.



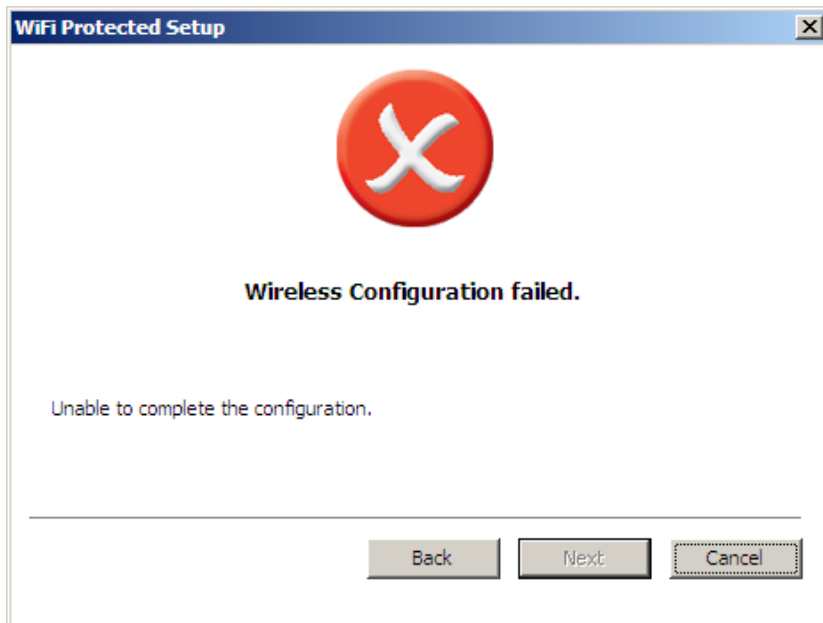
- 2) Enter the PIN code into the WPS “Client PIN number” of you wireless access point or router then click the **Start PIN** button, the wireless access point or router will start the WPS configuration process.
- 3) Selected a wireless access point or router which one will be connecting then click the **Next** button start the WPS configuration. If the “Automatically select the network” was checked, the setup step will be skip.



4) If the WPS configuration was successful, the follow window will show on.



5) If the WPS configuration was failed, the follow window will show on.



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.

The screenshot shows the 'About' screen of the TRENDnet Wireless LAN Configuration Utility. The interface includes a sidebar with navigation buttons: Link Info, Configuration, Site Survey, Profile, WPS, and About. The main content area displays the following information:

TRENDnet Wireless N USB Adapter
TEW-648UBM

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Wireless LAN Configuration Utility

Adapter Information

MAC Address:	00:18:E7:6A:33:5A
Utility Version:	1.25.124.50
Driver Version:	1006.0.614.2010

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TECHNICAL SPECIFICATIONS

Hardware	
Interface	USB 2.0
Standards	IEEE 802.11b, IEEE 802.11g, and IEEE 802.11n (draft 2.0)
Button	WPS button: enables quick wireless connection with WPS function
Power Consumption	Receive mode: 100mA (max.) ; Transmit mode : 210mA (max)
Supported OS	Windows 7 (32/64-bit), Vista (32/64-bit), XP(32/64-bit)
Dimensions (LxWxH)	20 x 15 x 7 mm (0.8 x 0.6 x 0.3 in.)
Weight	1 g (0.03 oz)
Temperature	Operating: 0° ~ 40° C (32° ~ 104° F) Storage: -10° ~ 70° C (14° ~ 158° F)
Humidity	Max. 95% (non-condensing)
Certifications	CE, FCC
Wireless	
Modulation	OFDM, DSSS
Antenna	Built-in on board antenna
Frequency	2.412 ~ 2.484 GHz
Data Rate (auto fallback)	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n: up to 135Mbps
Output Power	25dBm
Receiving Sensitivity	802.11b: -84dBm (typical) at 11mpbs 802.11g: -69dBm (typical) at 54Mbps 802.11n: -66dBm (typical) at 150Mbps
Encryption	64/128-bit WEP, WPA/WPA2-RADIUS, WPA-PSK/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-648UBM – 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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