IEEE802.11n Wireless USB Adaptor

RF Adjustable
High Power Adaptor

NSU-11NP10-2

User Manual

Version: 1.00

Date: February 2009

Copyright Statement

Section 15.21 Information to user

Caution: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

To comply with FCC RF exposure requirements, the device and the antenna for this device must be installed to ensure a minimum separation distance of 20 cm or more from a person's body. Other operating configurations should be avoided.

Section 15.19 Labeling requirements

(a)(3)

All other devices shall bear the following statement in a conspicuous location on the device:

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.

Section 15.105

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. 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 the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

Rule of 15.247

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitte

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Chapter 1 INTRODUCTION

NSK-11NP10-2 employs the most advanced wireless networking technology, IEEE802.11n. By using the reflection signal, 802.11n's “Multiple In, Multiple Out” (MIMO) technology increases the range and reduces “dead spots” in the wireless coverage area. Unlike ordinary wireless networking of 802.11b/g standards that are confused by wireless reflections, MIMO can actually use these reflections to increase four times transmission range of 802.11g products. Besides, when both ends of the wireless link are 802.11n products, MIMO technology can utilize twice radio band to increase three times transmission speed of ordinary 802.11g standard products, and can comply with backwards 802.11b/802.11g standards.

1.1 Feature

- 2.4Ghz ISM unlicensed band.
- Compliant with IEEE 802.11n, IEEE 802.11g & IEEE 802.11b
- Provides USB1.1/2.0 interface
- Provides 150Mbps Uplink and 150Mbps Downlink data rate
- Supports 20MHz/40MHz frequency width
- Auto-detects and changes network transmission rate
- Supports 64/128-bit WEP, WPA, WPA2 encryption methods and 802.1x security authentication standard
- Supports WMM for seamless voice and video transmission
- Supports Windows XP, 2000, Vista & MAC etc.

1.2 Deployment

NSU-11NP10-2 Wireless USB Adapter offers a fast, reliable and

cost-effective solution for wireless access. Deployment as follows:

1. For company personnel who require wireless mobility and access to network anywhere in the organization.
2. Enterprise or residential users who would like to convert from wired to wireless network.
3. Limited budgets for cabling and particular locations such as hotels or conference rooms where wired networking is not handy.

1.3 Package Contents

Please check the content of package for items described below:

NSU-11NP10-2

- One NSU-11NP10 Wireless USB Adapter
- One 2dbi Dipole Antenna
- One USB cable

If any of listed items are missing or damaged, please contact the reseller or distributor from whom you purchased for replacement immediately.

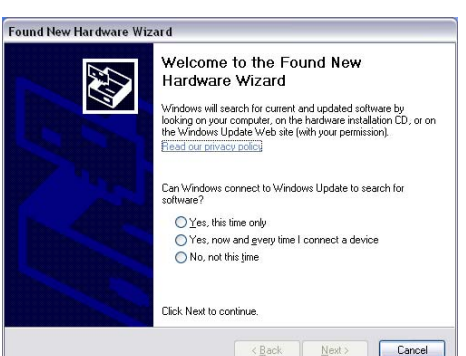
Chapter 2 Installation Guide

This chapter will assist you in using the included CD-ROM for driver and configuration utility installations. While installing the configuration utility, the driver program will install automatically.

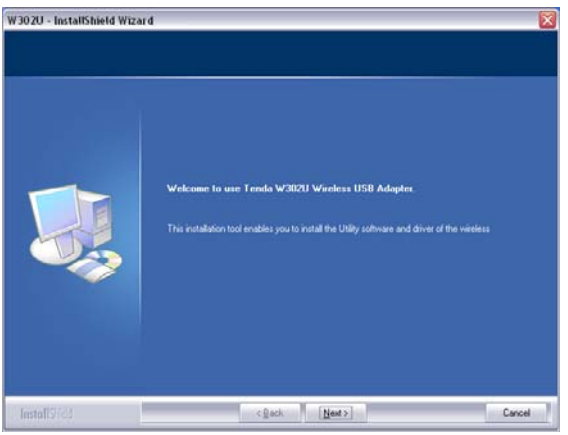
The following installation steps were based on Windows XP. Installation steps on other operating systems please refer to the User Guide and the instructions on OS to follow.

1、 Insert the wireless USB adapter into the USB interface of your computer.

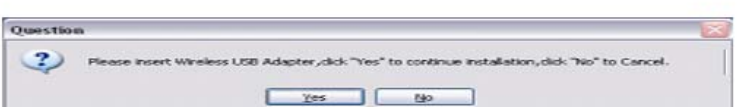
2、 “Found New Hardware” system dialogue appears, and selects “Cancel”.



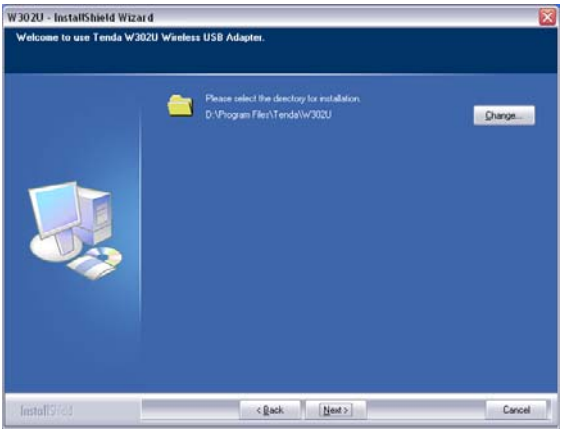
3、 Insert the included CD-ROM into the CD-ROM drive of your computer, and the Welcome screen appears. (If not appear, double click the “Setup.exe” icon.)



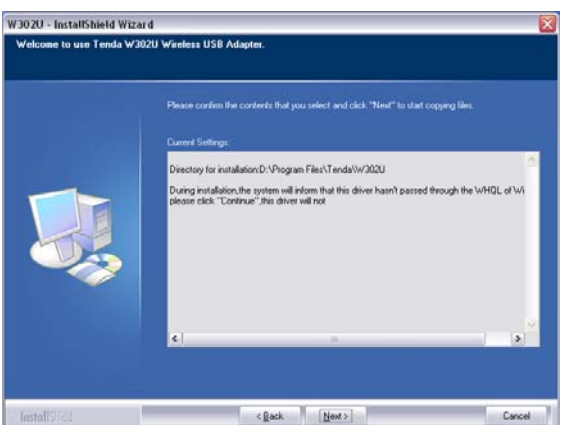
4、 If there is no wireless USB adapter or incorrect connection, the following window will appear. Click “Yes” to connect the wireless USB adapter mentioned step 1.



5、 Click “Next” to select the setup path, or you also can click “Change” to change the path or folders.

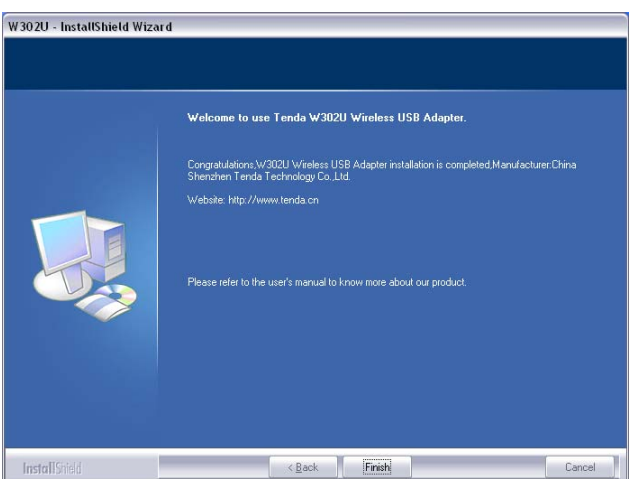


6、 Click “Next” to confirm the setup path.



7、 During the installation, the following dialogue maybe appears. Click the “Continue Anyway” to continue. There is no security threat to your computer.

8、 Click “Finish” to complete the installation.



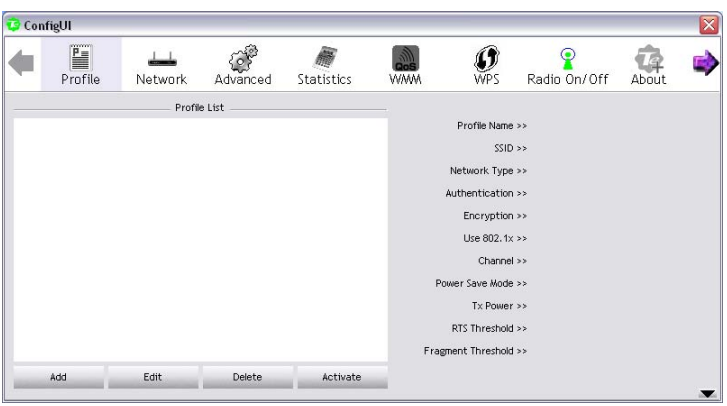
9、 The NSU-11NP10-2 will appear on the screen. Please select the AP you would like to connect and press “Connect” button and fill in the

security information, then click “OK” to proceed to the wireless network.

Chapter 3 How to Use the Wireless Utility Interface (Client Mode)

This Utility Interface is provides basic configuration functions to NSU-11NP10-2 Wireless USB Adapter management. If the UI does not appear automatically, please select from the CD to run the application.

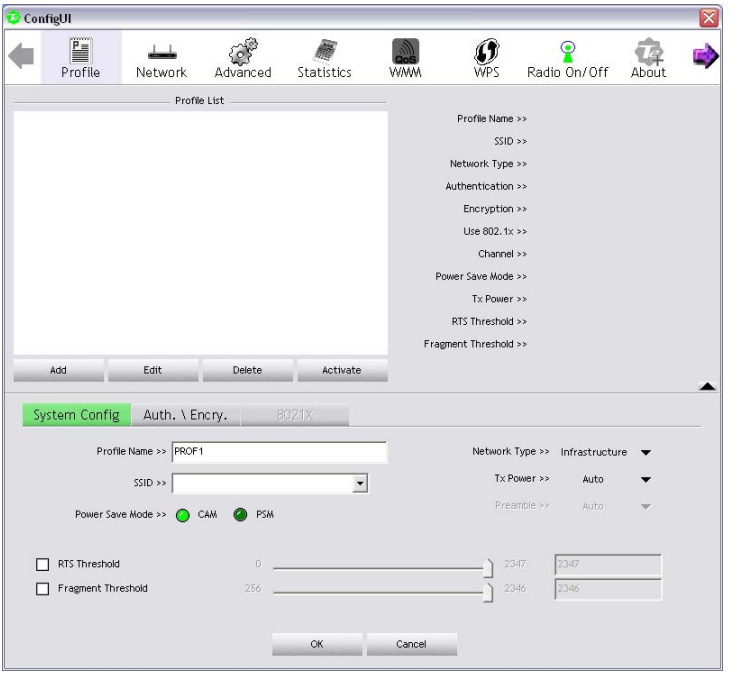
3.1 Profile Management



◆ **Profile List**

Profile can book keeping your favorite wireless setting among your home, office, and other public hot-spot. You may save multiple profiles, and activate the correct one at your preference in the profile list.

◆ **Add: Click this button to add a new profile**



➢ System Configuration

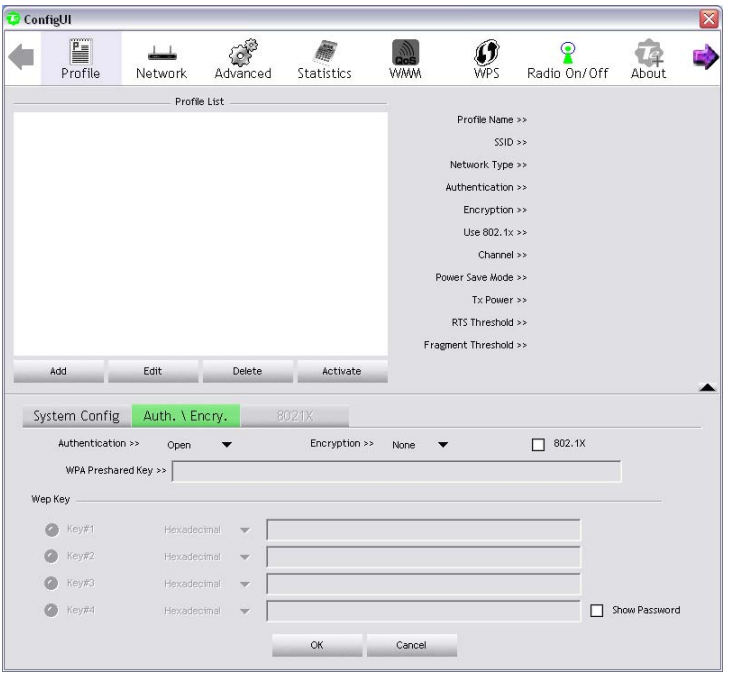
- Profile Name: Specify one name for the profile
- SSID: Name of intended wireless network, User can key in the intended SSID name or use pull down menu to select from available APs.
- Network Type: you can select one from Infrastructure and 802.11 Ad-hoc modes
- Tx Power: Transmit power, the amount of power used by the wireless adapter to send the signal out.
- Power Save Mode: Choose from CAM (Constantly Awake Mode) or PSM (Power Saving Mode).

- RTS Threshold: you can adjust the RTS threshold number by sliding the bar or key in the value directly.

■ Fragment Threshold: you can adjust the Fragment threshold number by sliding the bar or key in the value directly.

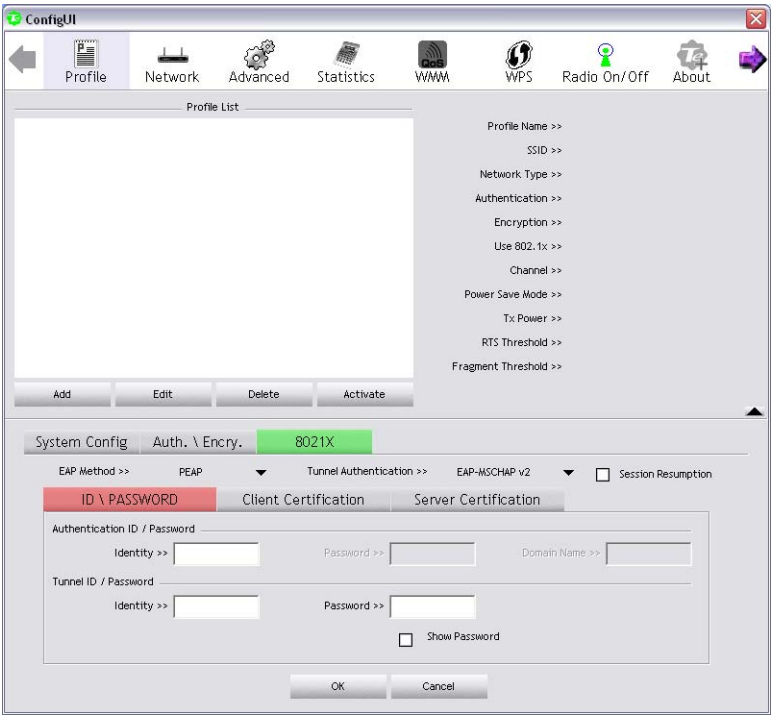
➢ **Authority / Encryption.**

Authority / Encryption is to set the wireless authentication type and encryption type. It is by the encrypted AP based on security authentication that the device is connected to wireless network.



➢ **802.1X**

It is an advanced encryption mode based on Radius server or authentication credentials.



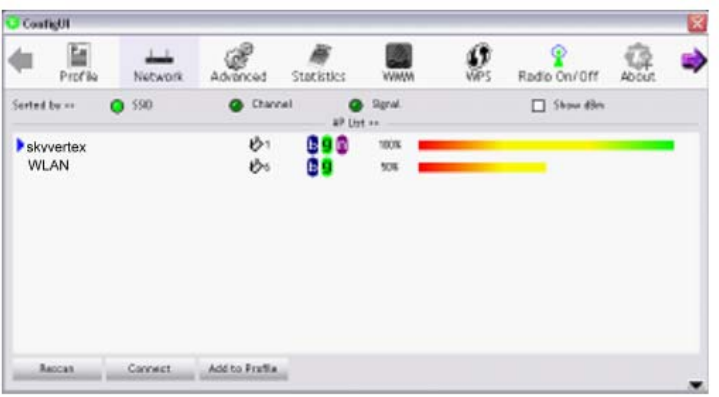
- ◆ Edit: Edit an existing profile.
- ◆ Delete: Delete an existing profile.
- ◆ Activate: Activate selected profile

Note:

1. A SSID is the public name of a wireless network. Only the same SSID can communicate with each other on a WLAN.
2. You need to know and keep the same authentication mode and encryption method on a WLAN.

3.2 Network Configuration Utility

Under this function, system will display the information of surrounding APs from last scan result. List information includes SSID, Signal, and Channel and so on as shown below.



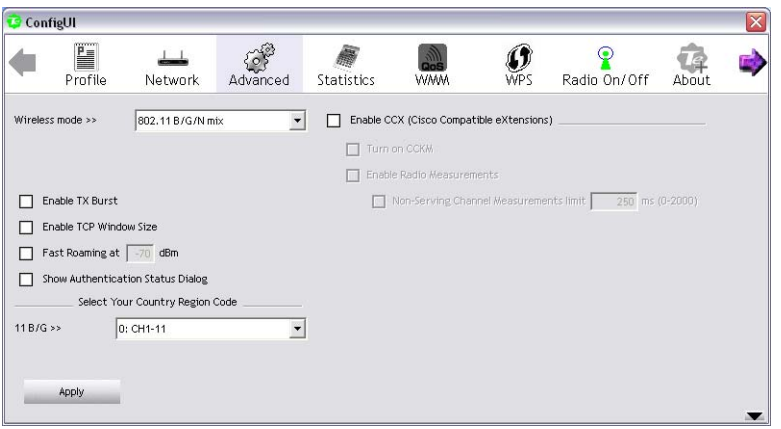
- ◆ Rescan: Issue an rescan command to wireless NIC to update information on surrounding wireless network
- ◆ Connect: Click this button to connect to the selected network.
- ◆ Add to Profile: Add the selected AP to Profile setting. It will bring up profile page and save user's setting to a new profile.

Click right corner icon to display the information on Wireless adapter and AP. It contains Status, Authentication, Encryption, Network Type, IP address, Sub Mask, Default Gateway, Link Speed, Channel, signal/Noise Strength as shown below.

Select one wireless network in AP list and double click it, you can view the detailed information about this access point as shown below.

3.3 Advanced Settings

The following figure shows Advance function of UI



- ◆ Wireless mode: Select wireless mode. 802.11 B, 802.11 B/G mix, 802.11 B/G/N mix modes are supported;
- ◆ Enable TX Burst: Tenda's proprietary frame burst mode;
- ◆ Enable TCP Window Size: Enhance throughput;
- ◆ Fast Roaming at: fast to roaming, setup by transmit power;
- ◆ Show Authentication Status Dialog: When you connect AP with authentication, choose whether show "Authentication Status Dialog" or not. Authentication Status Dialog display the process about 802.1x authentication;
- ◆ Enable CCX (Cisco Compatible eXtensions): support Cisco Compatible Extensions function;

- ◆ Enable Radio Measurement: can channel measurement every

0~2000 milliseconds;

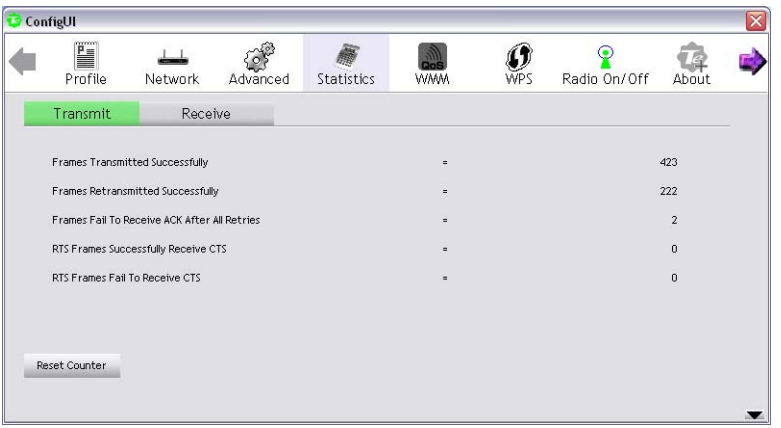
◆ Select Your Country Region Code: eight countries to choose;

◆ Apply: Click Apply to implement changes made.

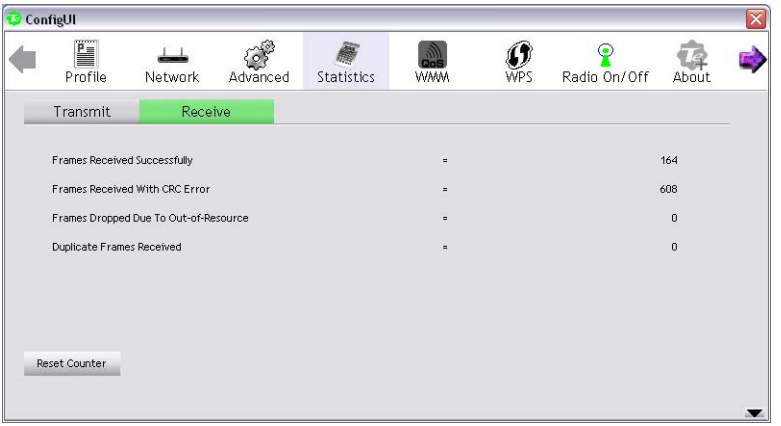
3.4 View Network Statistics

Statistics page displays the detail counter information based on 802.11 MIB counters. This page translates that MIB counters into a format easier for user to understand

◆ Show Transmit Statistics



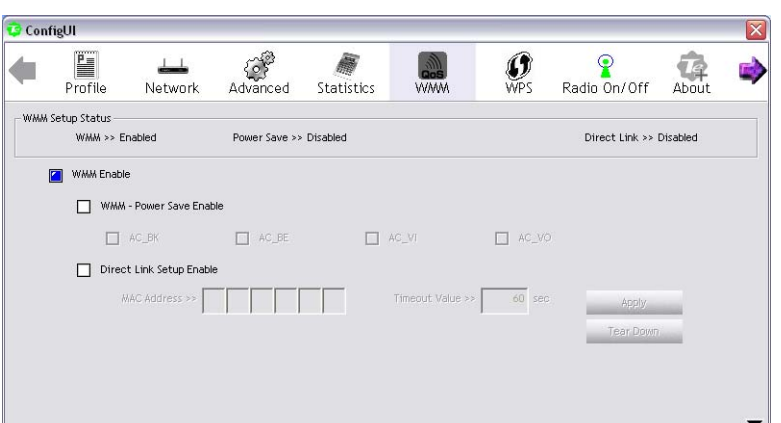
◆ Show Receive Statistics



◆ Reset Counter: Reset counters to zero

3.5 WMM Setting

The following figure shows WMM function of UI. It involves "WMM Enable", "WMM - Power Save Enable" and DLS setup. The introduction indicates as follow:



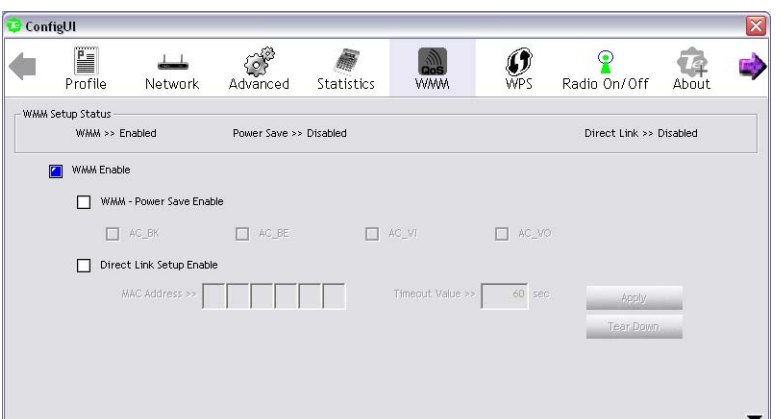
◆ WMM Enable: Enable Wi-Fi Multi-Media;

- ◆ WMM - Power Save Enable: Enable WMM Power Save;
- ◆ Direct Link Setup Enable: Enable DLS (Direct Link Setup).

Example to Configure to Enable DLS (Direct Link Setup)

1、Click "Direct Link Setup Enable"

2、Change to "Network" function. And add a AP that supports DLS features to a Profile. The result will look like the below figure in Profile page.

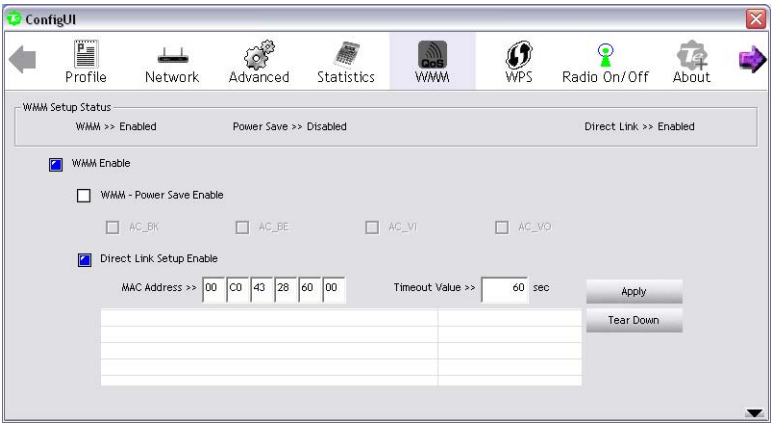


3、The setting of DLS indicates as the following:

Fill in the blanks of Direct Link with MAC Address of STA. The STA must conform to two conditions as follow:

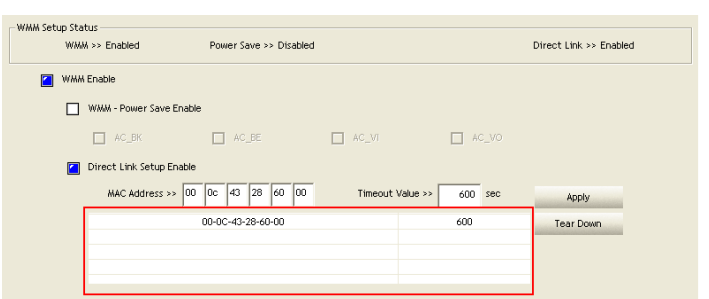
a. Connect with the same AP that supports DLS features.

b. Have to enable DLS.



4、Timeout Value means that it disconnects automatically after some seconds. The value is in integer. The integer must be between 0~65535. If the value is zero, it means that the device is always connected. Default value of Timeout Value is 60 seconds.

5、Click "Apply" button. The result will look like the following figure.



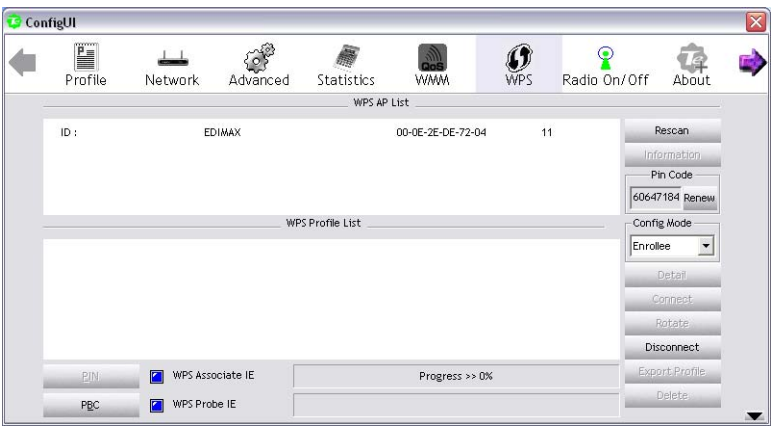
As the up figure, after configuring DLS successfully, show MAC address of the opposite side and Timeout Value of setting in "DLS Status".

6、Disconnect: Select a direct link STA, Click "Tear Down" button to

disconnect.

3.6 WPS Configuration

WPS: The primary goal of Wi-Fi Protected Setup (Wi-Fi Simple Configuration) is to simplify the security setup and management of Wi-Fi networks. This UI supports the configuration setup using PIN configuration method or PBC configuration method.



- WPS AP List: Display the information of surrounding APs with WPS IE from last scan result. List information includes SSID, BSSID, Channel, ID (Device Password ID), Security-Enabled.
- Rescan: Issue a rescan command to wireless NIC to update information on surrounding wireless network.
- Information: Display the information about WPS IE on the selected network. List information includes Authentication Type, Encryption Type, Config Methods, Device Password ID,

Selected Registrar, State, Version, AP Setup Locked, UUID-E and RF Bands

◆ PIN Code: 8-digit numbers. It is required to enter PIN Code into Registrar using PIN method. When STA is Enrollee, you can use "Renew" button to re-generate new PIN Code.

◆ Config Mode: Our station role-playing as an Enrollee or an external Registrar

◆ **Control items on credentials:**

1. Detail: Information about Security and Key in the credential.
2. Connect: Command to connect to the selected network inside credentials.
3. Rotate: Command to rotate to connect to the next network inside credentials.
4. Disconnect: Stop WPS action and disconnect this active link.
5. Export Profile: Export all credentials to Profile.
6. Delete: Delete an existing credential.

◆ PIN: Start to add to AP using PIN configuration method

◆ PBC: Start to add to AP using PBC configuration method

Note: When you click PIN or PBC, please don't do any rescan within two-minute connection. If you want to abort this setup within the interval, restart PIN/PBC or press Disconnect to stop WPS

◆ WPS associate IE: Send the association request with WPS IE during WPS setup.

◆ WPS probe IE: Send the probe request with WPS IE during WPS setup.

◆ Progress Bar: Display rate of progress from Start to Connected status.

◆ Status Bar: Display currently WPS Status.

3.7 Radio On/Off

Turn on/off the wireless radio.

3.8 About

About function displays the wireless card and driver version information as shown below.

Appendix One: Glossary

WLAN	Wireless Local Area Network
802.11	A family of specifications developed by the IEEE for WLAN technology.
802.11a	An extension to 802.11 WLAN standard that provides up to 54 Mbps transmission in the 5 GHz UNI radio band.
802.11b	An extension to 802.11 WLAN standard that provides up to 11 Mbps transmission in the 2.4 GHz ISM radio band. 802.11b uses DSSS modulation.
802.11g	An extension to 802.11 WLAN standard that provides up to 54 Mbps transmission in the 2.4 GHz ISM radio band. 802.11b uses OFDM modulation and is backwards compatible with 802.11b.
Ad-Hoc	A group of computers each with wireless adapters, connected as an independent WLAN.
AES	Advanced Encryption Standard
BSSID	Basic Service Set ID
DHCP	Dynamic Host Configuration Protocol
DSSS	Direct Sequence Spread Spectrum. DSSS is one of two types of spread spectrum radio. The other is frequency-hopping spread spectrum(FHSS).
QoS	Quality of Service
OFDM	Orthogonal Frequency Division Multiplexing
RADIUS	Remote Authentication Dial In User Service
RTS	Request to Send
SSID	Service Set Identifier. A 32-character unique

	identifier attached to the header of packets sent over a WLAN that acts as a password when a mobile device tries to connect to the BSS.
TCP/IP	Transmission Control Protocol/Internet Protocol
TKIP	Temporal Key Integrity Protocol
WDS	Wireless Distribution System
WEP	Wired Equivalent Privacy. A security protocol for WLANs defined in the IEEE 802.11 standard.
WPA	Wi-Fi Protected Access
WPA2	Wi-Fi Protected Access 2. The next generation of Wi-Fi security, based on the 802.11i standard.
WPA2-PSK	Wi-Fi Protected Access 2-Pre-shared Keys
WPA-PSK	Wi-Fi Protected Access-Pre-shared Keys