



# User's Guide

Wireless 802.11n PCI Card

W403

# FCC Certifications



## **Federal Communication Commission Interference Statement**

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 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.

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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

## **IMPORTANT NOTE:**

### **FCC Radiation Exposure Statement:**

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

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

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

## Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the R&TTE Directive 1999/5/EC:

- EN 60950-1: 2001  
Safety of Information Technology Equipment
  
- EN 50392: 2004  
Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz - 300 GHz)
  
- EN 300 328 V1.6.1 (2004-11)  
Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive
  
- EN 301 489-17 V1.2.1 (2002-08) and EN 301 489-1 V1.5.1 (2004-11)  
Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment

This device is a 2.4 GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services.

This device may not be used for setting up outdoor radio links in France and in some areas the RF output power may be limited to 10 mW EIRP in the frequency range of 2454 – 2483.5 MHz. For detailed information the end-user should contact the national spectrum authority in France.

**CE 0560** 

<p>☐ Česky [Czech]</p>	<p><i>[Jméno výrobce]</i> tímto prohlašuje, že tento <i>[typ zařízení]</i> je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.</p>
<p>☐ Dansk [Danish]</p>	<p>Undertegnede <i>[fabrikantens navn]</i> erklærer herved, at følgende udstyr <i>[udstyrets typebetegnelse]</i> overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.</p>
<p>☐ Deutsch [German]</p>	<p>Hiermit erkläre <i>[Name des Herstellers]</i>, dass sich das Gerät <i>[Gerätetyp]</i> in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.</p>
<p>☐ Eesti [Estonian]</p>	<p>Käesolevaga kinnitab <i>[tootja nimi = name of manufacturer]</i> seadme <i>[seadme tüüp = type of equipment]</i> vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.</p>
<p>☐ English</p>	<p>Hereby, <i>[name of manufacturer]</i>, declares that this <i>[type of equipment]</i> is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.</p>
<p>☐ Español [Spanish]</p>	<p>Por medio de la presente <i>[nombre del fabricante]</i> declara que el <i>[clase de equipo]</i> cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.</p>
<p>☐ Ελληνική [Greek]</p>	<p>ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ <i>[name of manufacturer]</i> ΔΗΛΩΝΕΙ ΟΤΙ <i>[type of equipment]</i> ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.</p>
<p>☐ Français [French]</p>	<p>Par la présente <i>[nom du fabricant]</i> déclare que l'appareil <i>[type d'appareil]</i> est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.</p>
<p>☐ Italiano [Italian]</p>	<p>Con la presente <i>[nome del costruttore]</i> dichiara che questo <i>[tipo di apparecchio]</i> è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.</p>
<p>Latviski [Latvian]</p>	<p>Ar šo <i>[name of manufacturer / izgatavotāja nosaukums]</i> deklarē, ka <i>[type of equipment / iekārtas tips]</i> atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.</p>

Lietuvių [Lithuanian]	Šiuo [ <i>manufacturer name</i> ] deklaruoja, kad šis [ <i>equipment type</i> ] atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
 Nederlands [Dutch]	Hierbij verklaart [ <i>naam van de fabrikant</i> ] dat het toestel [ <i>type van toestel</i> ] in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
 Malti [Maltese]	Hawnhekk, [ <i>isem tal-manifattur</i> ], jiddikjara li dan [ <i>il-mudel tal-prodott</i> ] jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
 Magyar [Hungarian]	Alulírott, [ <i>gyártó neve</i> ] nyilatkozom, hogy a [ <i>... típus</i> ] megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
 Polski [Polish]	Niniejszym [ <i>nazwa producenta</i> ] oświadczam, że [ <i>nazwa wyrobu</i> ] jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
 Português [Portuguese]	[ <i>Nome do fabricante</i> ] declara que este [ <i>tipo de equipamento</i> ] está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
 Slovensko [Slovenian]	[ <i>Ime proizvajalca</i> ] izjavlja, da je ta [ <i>tip opreme</i> ] v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	[ <i>Meno výrobcu</i> ] týmto vyhlasuje, že [ <i>typ zariadenia</i> ] spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
 Suomi [Finnish]	[ <i>Valmistaja = manufacturer</i> ] vakuuttaa täten että [ <i>type of equipment = laitteen tyyppimerkintä</i> ] tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
 Svenska [Swedish]	Härmed intygar [ <i>företag</i> ] att denna [ <i>utrustningstyp</i> ] står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

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# Overview

**Thank you for purchasing this product. Read this chapter to know about your IEEE 802.11n Wireless PCI/ Mini PCI Adapter.**

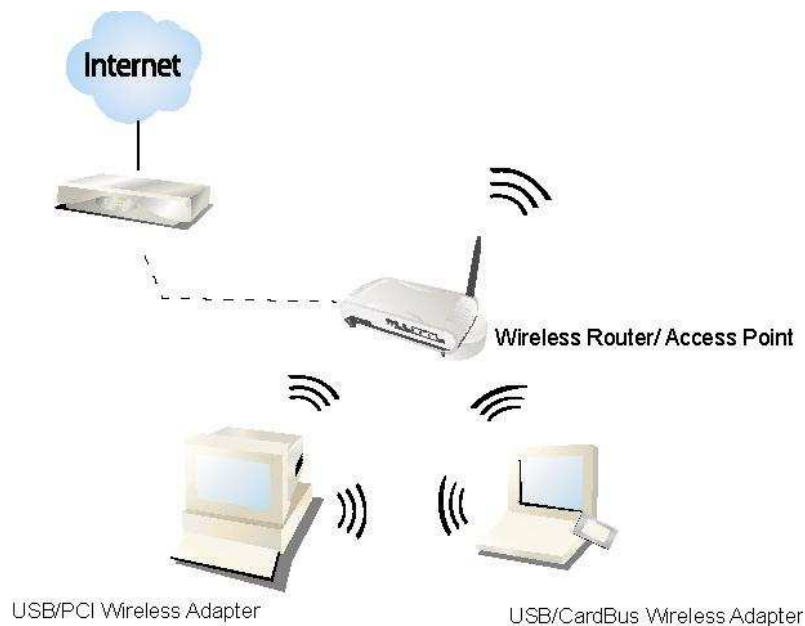
## Unpacking Information

Before getting started, please verify that your package includes the following items:

1. IEEE 802.11n Wireless PCI/ Mini PCI Adapter.
2. One Utility/ Manual CD.

## Introduction to the IEEE 802.11n Wireless PCI/ Mini PCI Adapter

The IEEE 802.11n Wireless PCI/ Mini PCI adapter provides users to launch IEEE 802.11n wireless network at 300 Mbps in the 2.4GHz band, which is also compatible with IEEE 802.11b/g wireless devices at 11/54 Mbps. You can configure this adapter with Ad-hoc mode to connect to other 2.4GHz wireless computers, or with Infrastructure mode to connect to a wireless AP or router for accessing to Internet. This adapter includes a convenient Utility for scanning available networks and saving preferred networks that users usually connected with. Security encryption can also be configured by this Utility.



## Key Features

- Complies with IEEE 802.11n/b/g wireless standards
- 2.4GHz Frequency band, MIMO 2T3R
- Complies with PCI 2.3 or Mini PCI type III
- High Speed transfer data rate up to 300 Mbps
- Supports auto-installation.
- Supports driver for Windows 2000, XP 32/64, Vista 32/64, Linux (2.4.x/2.6.x), and Mac (10.3.x/10.4.x).
- Supports QoS: WMM, WMM-PS
- Supports wireless data encryption with 64/128-bit WEP, WPA, WPA2
- Supports Multiple BSSID

## Installation Guide

### Software Installation

**Note:**

- For Linux or Mac driver installation guide, please refer to the instruction in **/Driver/Linux** or **/Driver/Mac** in the CD-Rom.
  - The following driver installation guide uses Windows XP as the presumed operation system. The procedures and screens in Windows 2000 and Vista are familiar with Windows XP.
1. Insert this product to your computer. The system finds the newly installed device automatically. Click **Cancel** to close this window.



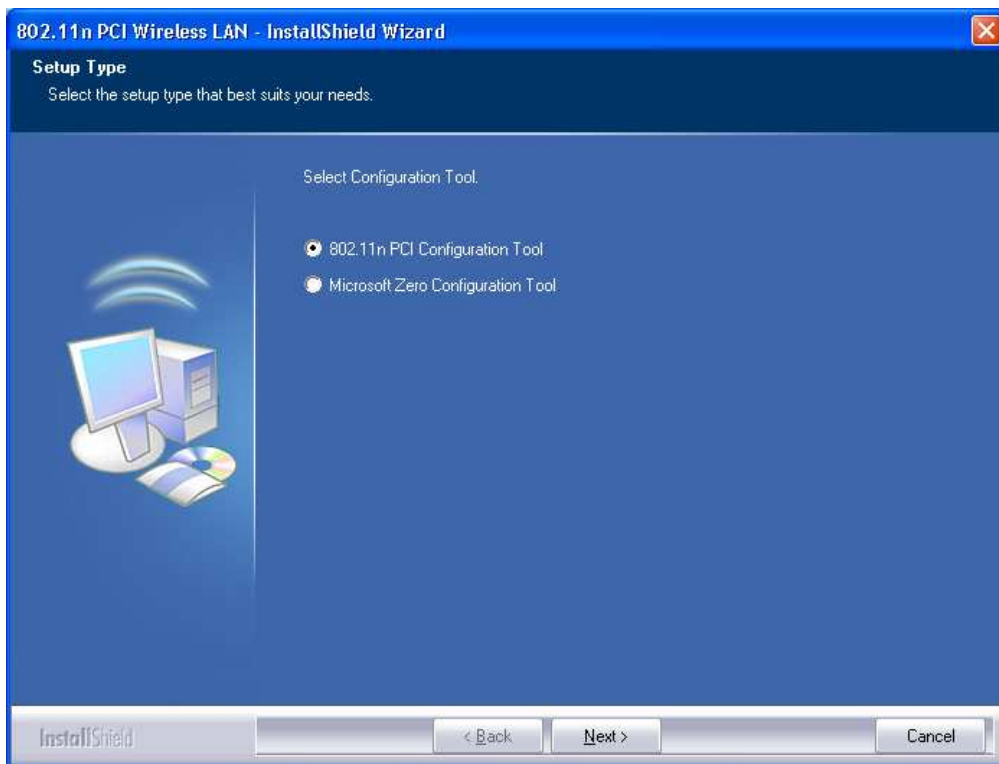
2. Insert the CD-Rom that came with this product to your CD-Rom drive. The menu window pops up automatically. Please click the **Driver** button of this product.

**Note:** If the CD-Rom fails to auto-run, please click on **My Computer > your CD-Rom drive > (folder of this product) > Driver** then double-click the **Setup** icon to start this menu.



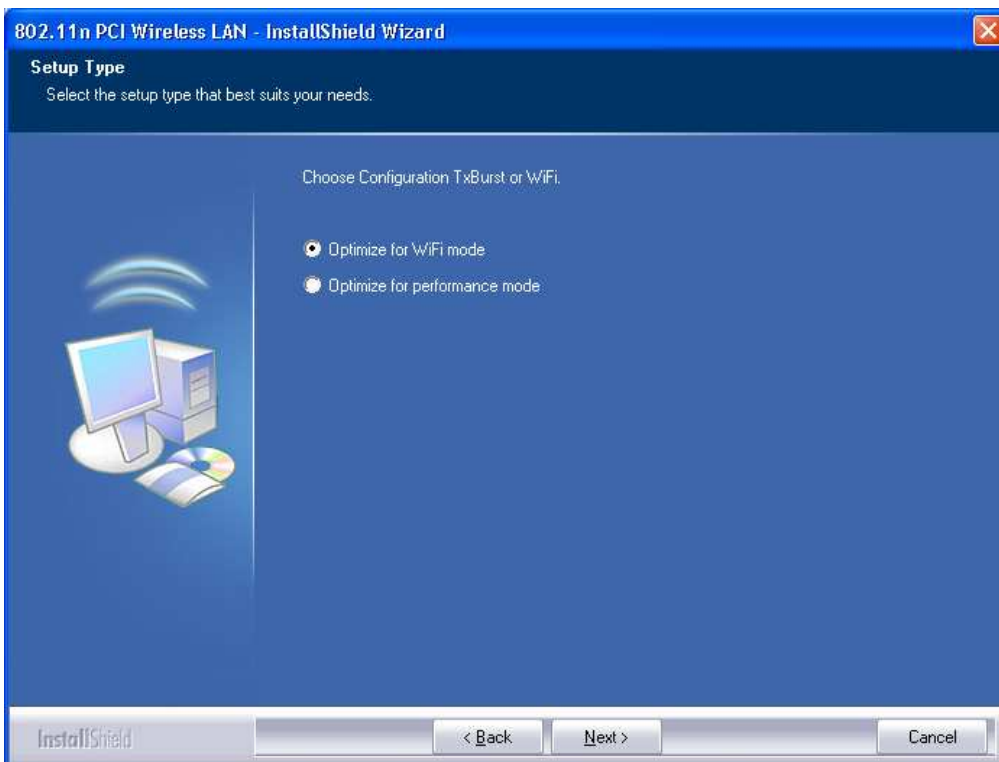
3. Select if you are going to configure your wireless network with this device or with Microsoft Zero Configuration tool.

**Note:** This can be changed after installing this software.

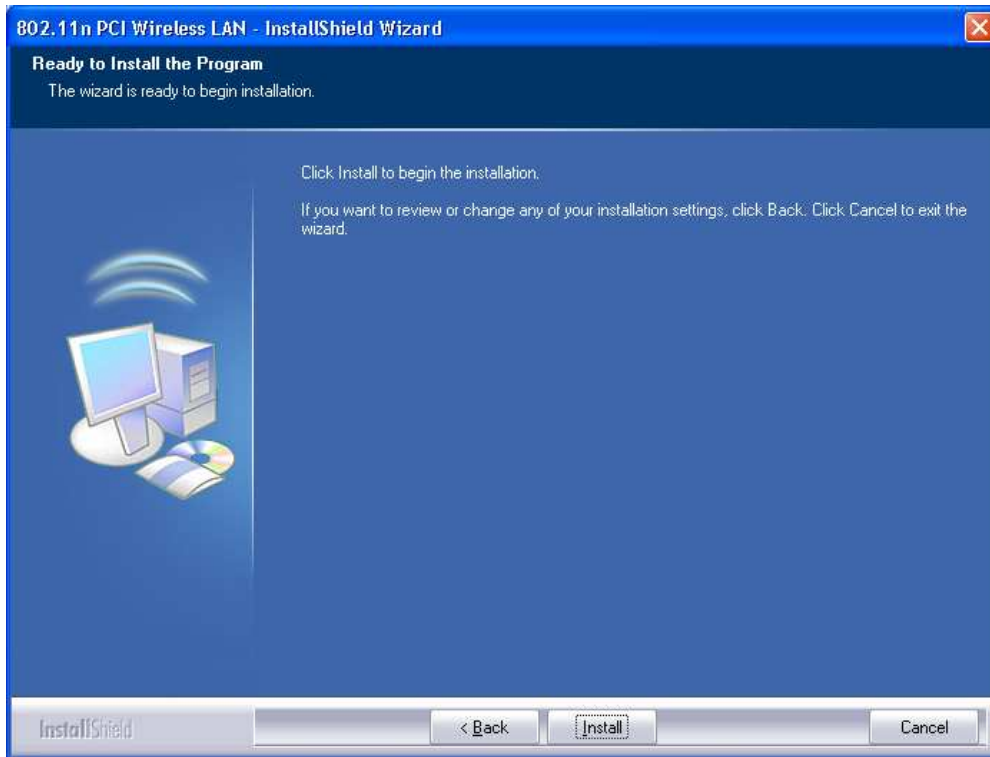


4. Select to optimize this adapter in WiFi mode or performance mode.

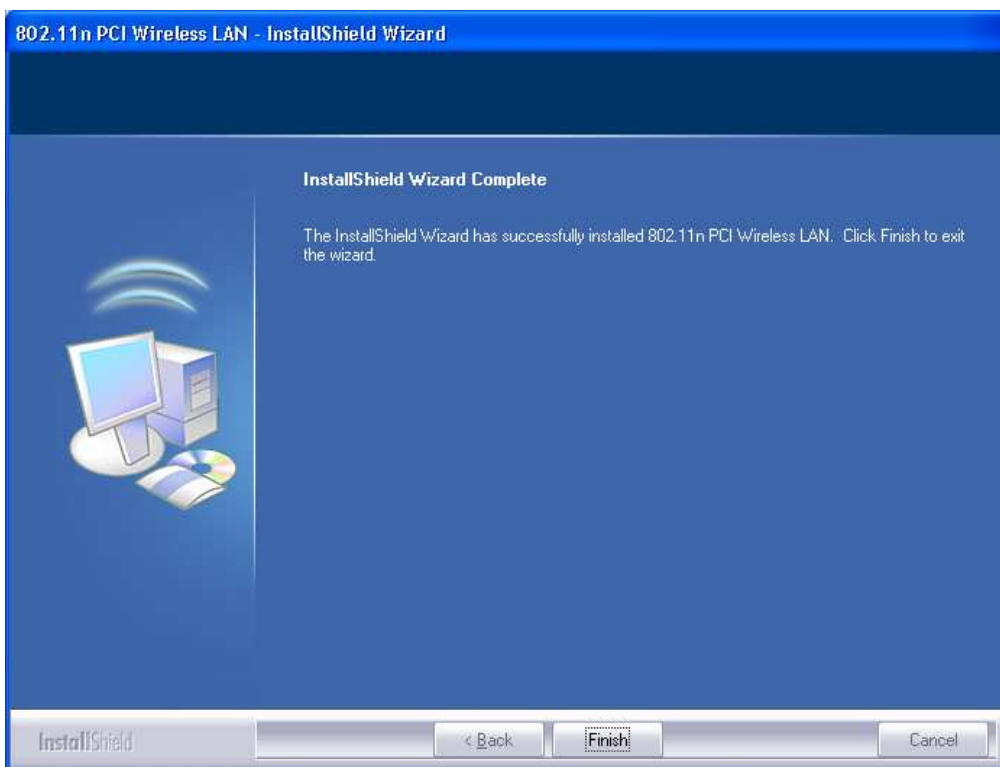
**Note:** The performance mode is only available while connecting to a TX Burst supported AP. Users that uses the AP without TX Burst please select WiFi mode (standard mode).



5. Click the **Install** button to start installing.



6. Click the **Finish** button to complete installation.




# Management Guide

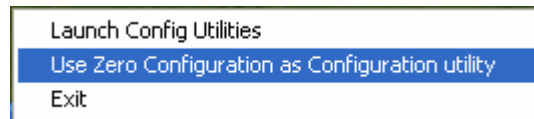
Read this chapter to understand the management interface of the device and how to manage the device.

## Making a Basic Network Connection


### Select a configuration tool

In the following instruction for making a network connection, we use the Utility we provide to configure your wireless network settings.

**Note:** You could use either the software we provide or Microsoft Zero Configuration tool to configure this adapter. To switch between the two configuration tools, please right click on the  icon on system tray to select.

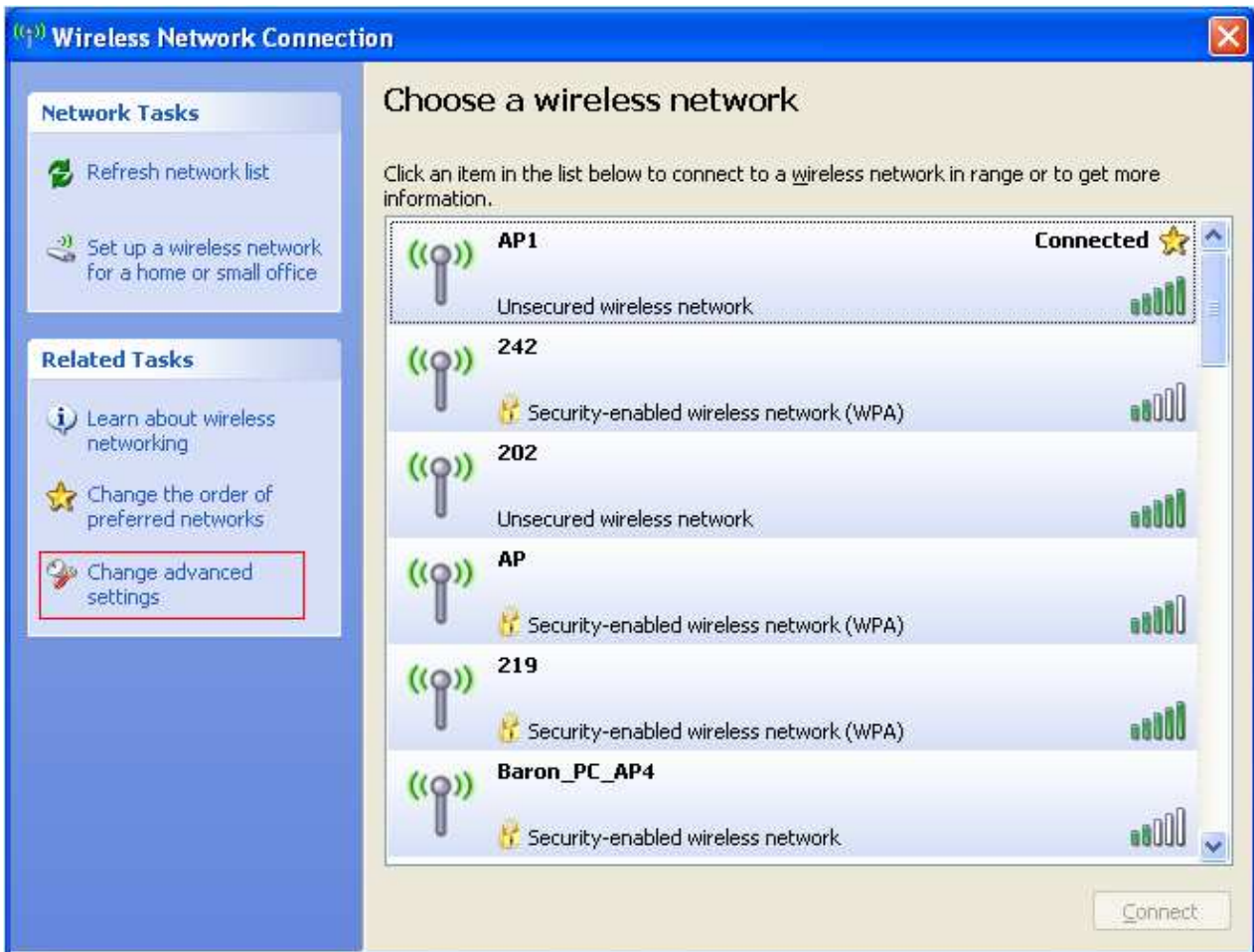


### To connect with Microsoft Zero Configuration tool


After specifying the Microsoft Zero Configuration tool to configure your wireless network, right click on the  icon on system tray. Select **View Available Wireless Networks** to specify your wireless network.

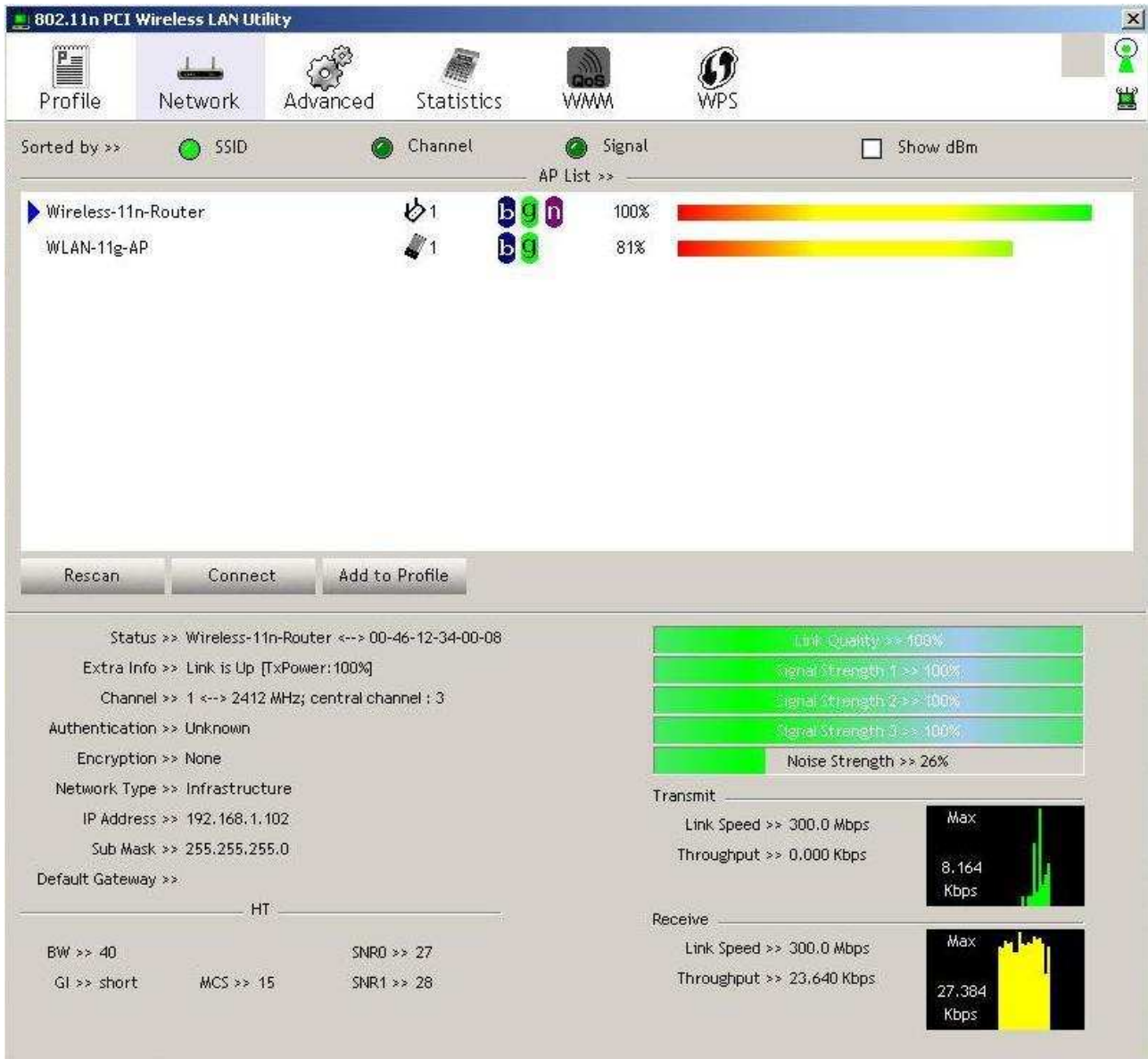


The tool shows the available wireless networks. Select your demanding network to connect with. To connect to a wireless network with more security settings, please click **Change advanced settings** to be compatible with your wireless network security settings.



## To connect with 802.11n Wireless LAN Utility

We provide this Utility for users to connect to a wireless network easily. It provides more information and configuration for this adapter. As default, the Utility is started automatically upon starting your computer and connects to a connectable wireless network with best signal strength. Right click on the  icon and select **Launch Config utilities** if the Utility does not start. Please refer to the following chapters to get information regarding to the functions of this Utility.



The screenshot displays the '802.11n PCI Wireless LAN Utility' window. The interface includes a menu bar with 'Profile', 'Network', 'Advanced', 'Statistics', 'WMM', and 'WPS'. Below the menu, there are sorting options for 'SSID', 'Channel', and 'Signal', along with a 'Show dBm' checkbox. The main area shows an 'AP List' with two entries: 'Wireless-11n-Router' (100% signal) and 'WLAN-11g-AP' (81% signal). At the bottom, there are 'Rescan', 'Connect', and 'Add to Profile' buttons. The status section provides detailed information about the selected network, including link quality, signal strength, noise strength, link speed, and throughput.

AP Name	Channel	Signal Strength
Wireless-11n-Router	1	100%
WLAN-11g-AP	1	81%

**Status >>** Wireless-11n-Router <-> 00-46-12-34-00-08

**Extra Info >>** Link is Up [TxPower: 100%]

**Channel >>** 1 <-> 2412 MHz; central channel : 3

**Authentication >>** Unknown

**Encryption >>** None

**Network Type >>** Infrastructure

**IP Address >>** 192.168.1.102

**Sub Mask >>** 255.255.255.0

**Default Gateway >>** HT

**Transmit**

Link Speed >> 300.0 Mbps

Throughput >> 0.000 Kbps

Max 8.164 Kbps

**Receive**

Link Speed >> 300.0 Mbps

Throughput >> 23.640 Kbps

Max 27.384 Kbps

**Link Quality >>** 100%

**Signal Strength 1 >>** 100%

**Signal Strength 2 >>** 100%

**Signal Strength 3 >>** 100%

**Noise Strength >>** 26%

**BW >>** 40

**GI >>** short

**MCS >>** 15

**SNR0 >>** 27

**SNR1 >>** 28

# Introduction to the 802.11n Wireless LAN Utility

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**Note:** The Utility in Windows Vista, Linux and Mac are different from the following.

- For instructions on using the Utility included in Windows Vista please refer to the instruction in [Appendix](#).
- For instructions on using the Utility included in Linux please refer to the instruction in **/Driver/Linux/readme.txt** in the CD-Rom.
- For instructions on using the Utility included in Mac please refer to the instruction in **/Driver/Mac/readme.txt** in the CD-Rom.

## Interfaces

This Utility is basically consisted of three parts:

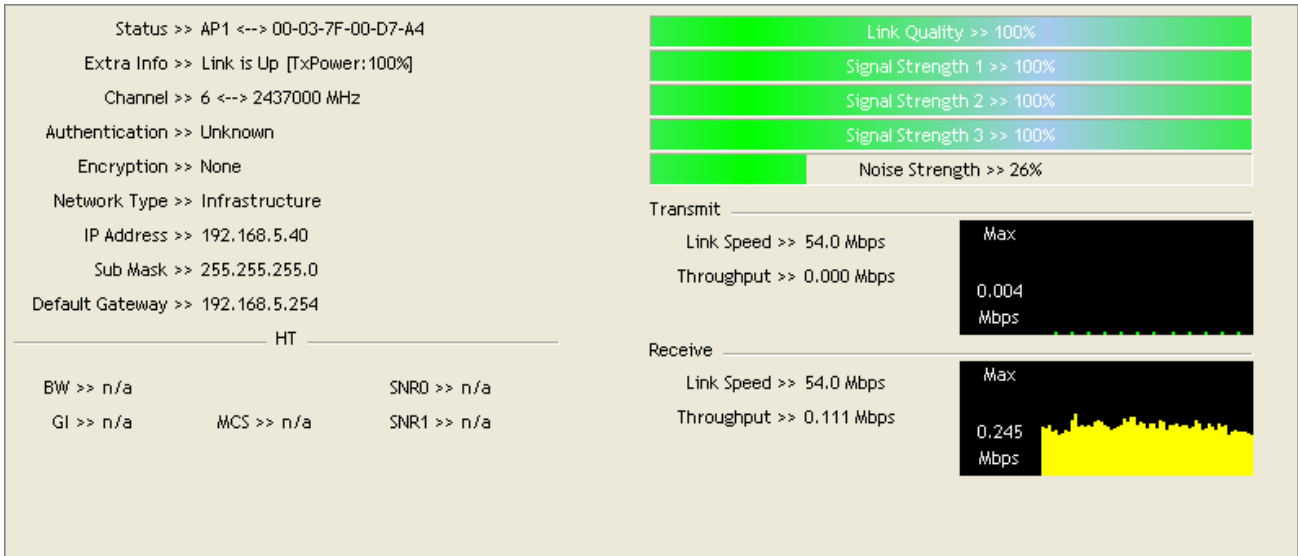
1. Functional buttons: on top of the window. You can click each button to access each configuration window.

**Note:** Click  on the top right window to enable/disable wireless connection status.  
Click  to show the wireless information.



2. Configuration column: Center of the Utility window. Make your changes for each function in this part.
3. Status information: bottom of the utility window. Shows the connection status and system information.

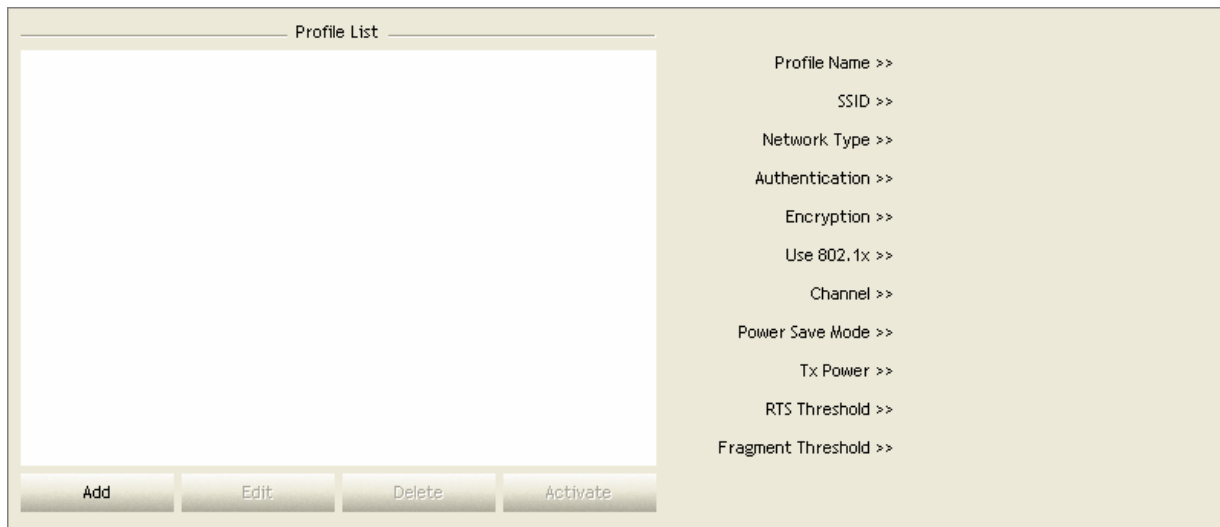
## Information



Items	Information
<b>Status</b>	Shows the connecting status. Also shows the SSID while connecting to a valid network.
<b>Extra Info</b>	Display link status in use.
<b>Channel</b>	Display current channel in use.
<b>Authentication</b>	Authentication mode in use.
<b>Encryption</b>	Encryption type in use.
<b>Network Type</b>	Network type in use.
<b>IP Address</b>	IP address of current connection.
<b>Sub Mask</b>	Subnet mask of current connection.
<b>Default Gateway</b>	Default gateway of current connection.
<b>Link Speed</b>	Show current transmit rate and receive rate.
<b>Throughput</b>	Display transmit and receive throughput in Mbps.
<b>Link Quality</b>	Display connection quality based on signal strength and TX/RX packet error rate.
<b>Signal Strength 1</b>	Receive signal strength 1, user can choose to display as percentage or dBm format.
<b>Signal Strength 2</b>	Receive signal strength 2, user can choose to display as percentage or dBm format.
<b>Signal Strength 3</b>	Receive signal strength 3, user can choose to display as percentage or dBm format.
<b>Noise Strength</b>	Display noise signal strength.
<b>HT</b>	Display current HT status in use, containing BW, GI, MCS, SNR0, and SNR1 value.

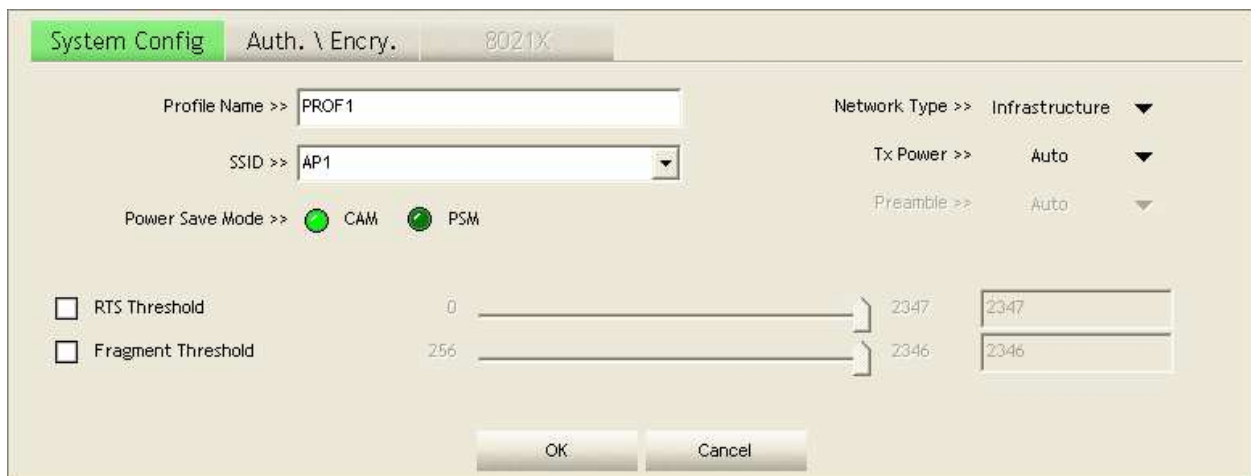
## Profile

This profile page allows users to save different wireless settings, which helps users to get access to wireless networks at home, office or other wireless network environments quickly.



To add a new profile:

1. Click the **Add** button. The add profile window pops up.  
**Note:** you could also add a new profile quickly by selecting an available network in the **Network** function then click the **Add to Profile** button.
2. Fill in information for this profile in the system config section:



Items	Information
<b>Profile Name</b>	Choose a name for this profile, or use default name defined by system.
<b>SSID</b>	Fill in the intended SSID name or use the drop list to select from available Aps.
<b>Power Save Mode</b>	Choose from CAM (Constantly Awake Mode) or PSM (Power Saving Mode).
<b>Network Type</b>	There are two types, infrastructure and 802.11 Ad-hoc modes. Under Ad-hoc mode, you could also choose the preamble type; the available preamble type includes auto and long. In addition to that, the channel field will be available for setup in Ad-hoc mode.
<b>RTS Threshold</b>	For adjusting the RTS threshold number by sliding the bar or key in the value directly. The default value is 2347.
<b>Fragment Threshold</b>	Adjust the Fragment threshold number by sliding the bar or key in the value directly. The default value is 2346.



3. Select an encryption type and fill in the corresponding wireless network information:

Items	Information
<b>Authentication Type</b>	There are 7 types of authentication modes supported by Utility including open, Shared, LEAP, WPA and WPA-PSK, WPA2 and WPA2-PSK.
<b>Encryption Type</b>	For open and shared authentication mode, the selection of encryption type are None and WEP. For WPA, WPA2, WPA-PSK and WPA2-PSK authentication mode, the encryption type supports both TKIP and AES.
<b>802.1x</b>	Use 802.1x to make WPA and WPA2 certification. This functions only works when connecting to a WPA and WPA2 supported device.
<b>WPA Pre-shared Key</b>	This is the shared secret between AP and STA. For WPA-PSK and WPA2-PSK authentication mode, this field must be filled with character longer than 8 and less than 32 length.
<b>WEP Key</b>	Only valid when using WEP encryption algorithm. The key must matched AP's key.

4. Specify the 802.1x information if you are using the 802.1X certification method.

Users that do not use this function or connecting to an open-wireless network please skip this part.

Items	Information
<b>EAP method</b>	To select an EAP method.
<b>Tunnel Authentication</b>	Select a Tunnel authentication mode.
<b>Session Resumption</b>	Select to enable this function or unmark it to disable.

## ID \ PASSWORD

Items	Information
<b>Authentication ID / Password</b>	The identity, password and domain name for server. Only "EAP-FAST" and "LEAP" authentication can be key in domain name. Blank space can be key in domain name.
<b>Tunnel ID / Password</b>	Identity and Password for server.

## Client Certification

Items	Information
<b>Use Client certificate</b>	Client certificate for server authentication.

## EAP Fast

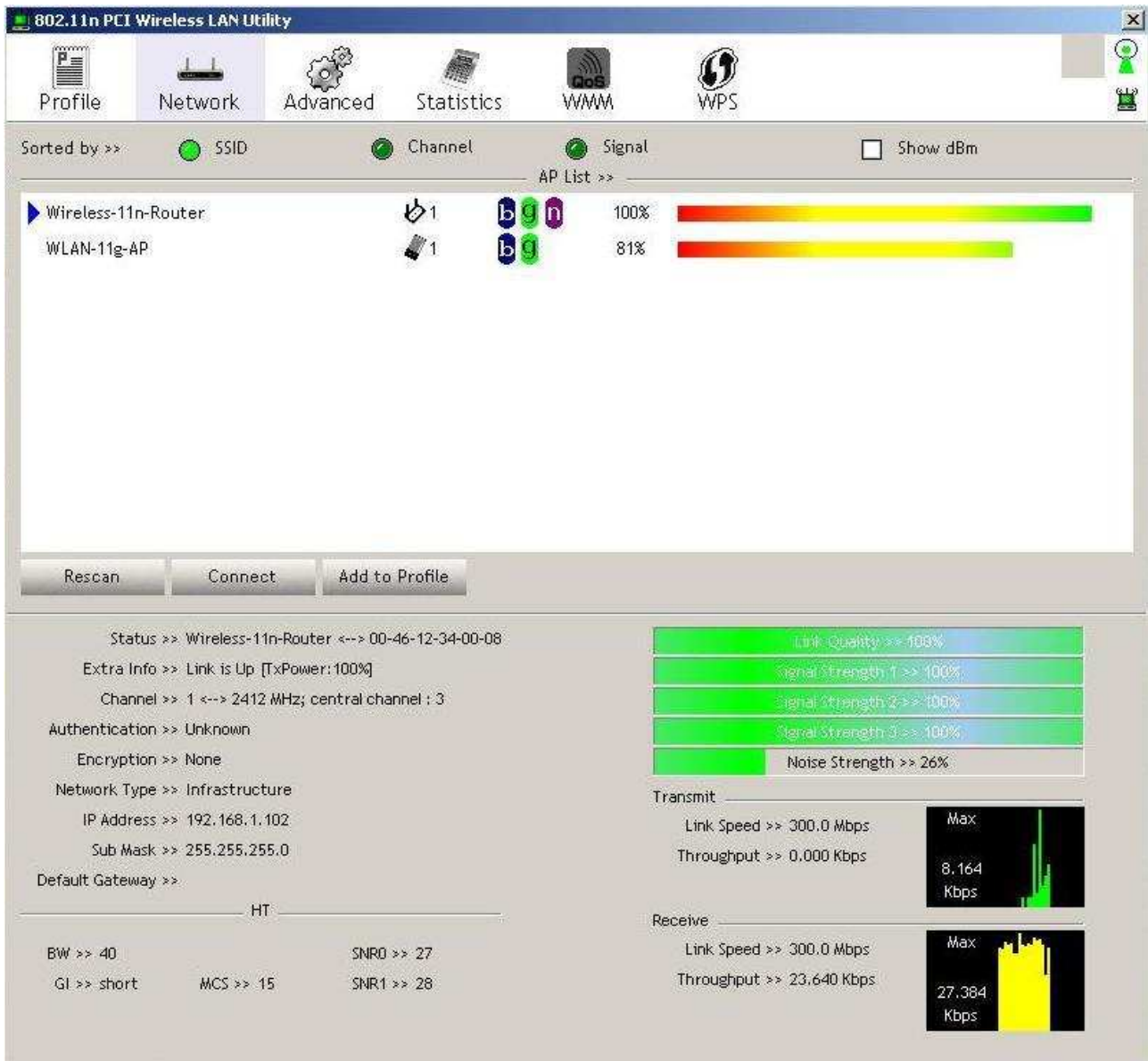
Items	Information
<b>Allow unauthenticated provision mode</b>	Mark to enable unauthenticated provision mode.
<b>Use protected authentication credential</b>	Mark to use protected authentication credential.

## Server Certification

Items	Information
<b>Use Certificate chain</b>	Mark the checkbox to enable using certification chain.
<b>Allow intimidate certificates</b>	Mark to allow intimidates certification.
<b>Server name</b>	Enter an authentication sever root.

## Network

This network lists the available wireless networks. The Utility connects to a wireless network with best signal strength automatically. You can change the connecting network by clicking on the network name and click the **Connect** button. To see detail information of each network, please double click on each item to pop up the information window.



Items	Information
<b>SSID, Channel and Signal buttons</b>	Click each button to sort the listing networks by SSID, channel and Signal strength.
<b>Show dBm</b>	Mark the checkbox to show the signal strength in dBm.
<b>Rescan</b>	To rescan available wireless networks.
<b>Connect</b>	Click this button to connect to a designated network.
<b>Add to Profile</b>	Click this button to add a network to profile after selecting a network.

## Advanced

This page provides advanced configurations to this adapter. Please refer to the following chart for definitions of each item.

Items	Information
<b>Wireless mode</b>	Click the drop list to select a wireless mode.
<b>Enable TX Burst</b>	Select to enable connecting to a TX Burst supported device.
<b>Enable TCP Window Size</b>	Mark the checkbox to enable TCP window size, which help enhance throughput.
<b>Fast Roaming at ___ dBm</b>	Mark the checkbox to enable fast roaming. Specify the transmit power for fast roaming.
<b>Show Authentication Status Dialog</b>	Mark the checkbox to show "Authentication Status Dialog" while connecting to an AP with authentication. Authentication Status Dialog displays the process about 802.1x authentication.
<b>Enable CCX (Cisco Compatible extensions)</b>	Select to enable CCX. This function can only be applied when connecting to a Cisco compatible device.

## Statistics

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

Transmit		Receive
Frames Transmitted Successfully	=	1432
Frames Retransmitted Successfully	=	4
Frames Fail To Receive ACK After All Retries	=	0
RTS Frames Successfully Receive CTS	=	0
RTS Frames Fail To Receive CTS	=	0

Reset Counter

Items	Information
<b>Use Client certificate</b>	Client certificate for server authentication.
<b>Frames Transmitted Successfully</b>	Frames successfully sent.
<b>Frames Retransmitted Successfully</b>	Successfully retransmitted frames numbers.
<b>Frames Fail To Receive ACK After All Retries</b>	Frames failed transmit after hitting retry limit.
<b>RTS Frames Successfully Receive CTS</b>	Successfully receive CTS after sending RTS frame.
<b>RTS Frames Fail To Receive CTS</b>	Failed to receive CTS after sending RTS.
<b>Restart Counter</b>	Reset counters to zero.

Transmit	Receive	
Frames Received Successfully	=	3153
Frames Received With CRC Error	=	201964
Frames Dropped Due To Out-of-Resource	=	0
Duplicate Frames Received	=	0

Reset Counter

Items	Information
<b>Use Client certificate</b>	Client certificate for server authentication.
<b>Frames Received Successfully</b>	Frames received successfully.
<b>Frames Received With CRC Error</b>	Frames received with CRC error.
<b>Frames Dropped Due To Out-of-Resource</b>	Frames dropped due to resource issue.
<b>Duplicate Frames Received</b>	Duplicate received frames.

## WMM

This page allows users to activate the WMM function for this device. Please note that this function only works while connecting to a WMM compatible device.

**WMM Setup Status**

WMM >> Enabled      Power Save >> Disabled      Direct Link >> Disabled

WMM Enable

WMM - Power Save Enable

AC\_BK       AC\_BE       AC\_VI       AC\_VO

Direct Link Setup Enable

MAC Address >>

Timeout Value >>  sec

Items	Information
<b>Use Client certificate</b>	Client certificate for server authentication.
<b>WMM Enable</b>	Enable Wi-Fi Multi-Media.
<b>WMM - Power Save Enable</b>	Enable WMM Power Save. Please enable WMM before configuring this function.
<b>Direct Link Setup Enable</b>	Enable DLS (Direct Link Setup). Please enable WMM before configuring this function.

## WPS

WPS Configuration: 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 adapter supports the configuration setup using PIN configuration method or PBC configuration method through an internal or external Registrar.

WPS AP List

ID	AP Name	MAC Address	Priority	Icon
ID : Unknown	AP1-WPS	00-10-18-90-2E-27	1	
ID : Unknown	Ubicom_Sample	00-0C-43-28-60-20	1	
ID : Unknown	arvint-2860AP	00-0C-43-28-60-60	3	
ID : Unknown	default	00-18-02-4A-0A-6B	6	

WPS Profile List

PIN

WPS Associate IE

Progress >> 0%

PBC

WPS Probe IE

WPS status is disconnected

Items	Information
<b>Use Client certificate</b>	Client certificate for server authentication.
<b>WPS AP List</b>	Display the information of surrounding APs with WPS IE from last scan result. List information includes SSID, BSSID, Channel, ID (Device Password ID), and Security-Enabled.
<b>Rescan</b>	Click to rescan the wireless networks.
<b>Information</b>	Display the information about WPS IE on the selected network. List information include Authentication Type, Encryption Type, Config Methods, Device Password ID, Selected Registrar, State, Version, AP Setup Locked, UUID-E and RF Bands.
<b>PIN Code</b>	8-digit numbers. It is required to enter PIN Code into Registrar using PIN method. Each Network card has only one PIN Code of Enrollee.
<b>Config Mode</b>	Enrollee or an external Registrar.
<b>Table of Credentials</b>	Display all of credentials got from the Registrar. List information includes SSID, MAC Address, Authentication and Encryption Type. If STA Enrollee, credentials are created as soon as each WPS success. If STA Registrar, Utility creates a new credential with WPA2-PSK/AES/64Hex-Key and doesn't change until next switching to STA Registrar.
<b>Detail</b>	Information about Security and Key in the credential.
<b>Connect</b>	Command to connect to the selected network inside credentials.
<b>Rotate</b>	Command to connect to the next network inside credentials.
<b>Disconnect</b>	Stop WPS action and disconnect this active link. And then select the last profile at the Profile Page of Utility if exist. If there is an empty profile page, the driver will select any non-security AP.
<b>Delete</b>	Delete an existing credential. And then select the next credential if exist. If there is an empty credential, the driver will select any non-security AP.
<b>PIN</b>	Start to add to Registrar using PIN configuration method.
<b>PBC</b>	Start to add to AP using PBC configuration method.
<b>WPS associate IE</b>	Send the association request with WPS IE during WPS setup. It is optional for STA.
<b>WPS probe IE</b>	Send the probe request with WPS IE during WPS setup. It is optional for STA.
<b>Progress Bar</b>	Display rate of progress from Start to Connected status.
<b>Status Bar</b>	Display currently WPS Status.

**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 click Disconnect to stop WPS action.





To add a new profile:

1. Click the **Add** button. The add profile window pops up.

**Note:** you could also add a new profile quickly by selecting an available network in the **Site Survey** function then click the **Add to Profile** button.

2. Fill in the information of this wireless network and its relative security settings. Please note that the information should be corresponding to the wireless network you are connecting to.

Configuration | Authentication and Security

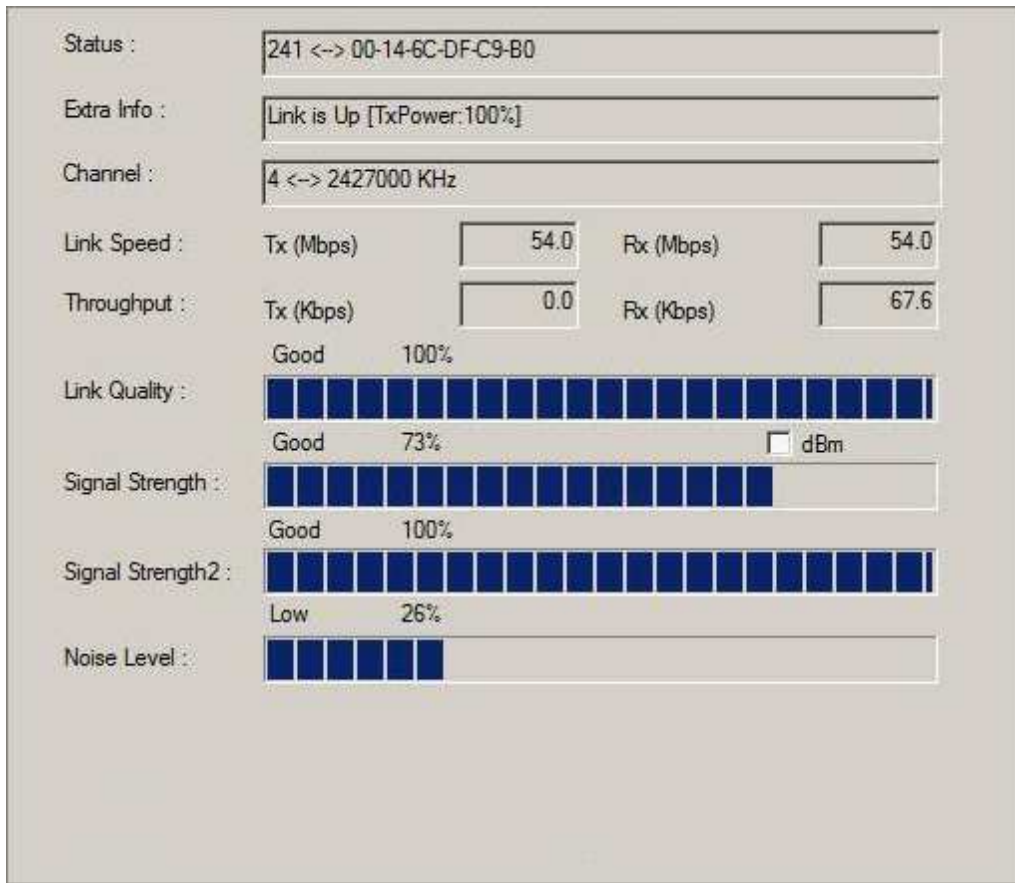
Profile Name: PROF2      SSID: [dropdown]

Network Type: Infrastructure      TX Power: Auto

Items	Information
<b>Deleting profile</b>	Click the <b>Delete</b> button to delete the selected profile.
<b>Editing profile</b>	Click the <b>Edit</b> button to pop up the profile-setting page for users to edit the existing profile.
<b>Activating profile</b>	Click the <b>Activate</b> button to activate the selected profile.

## Link Status

This Link status shows the information about the connecting. Please refer to the following chart for definition.

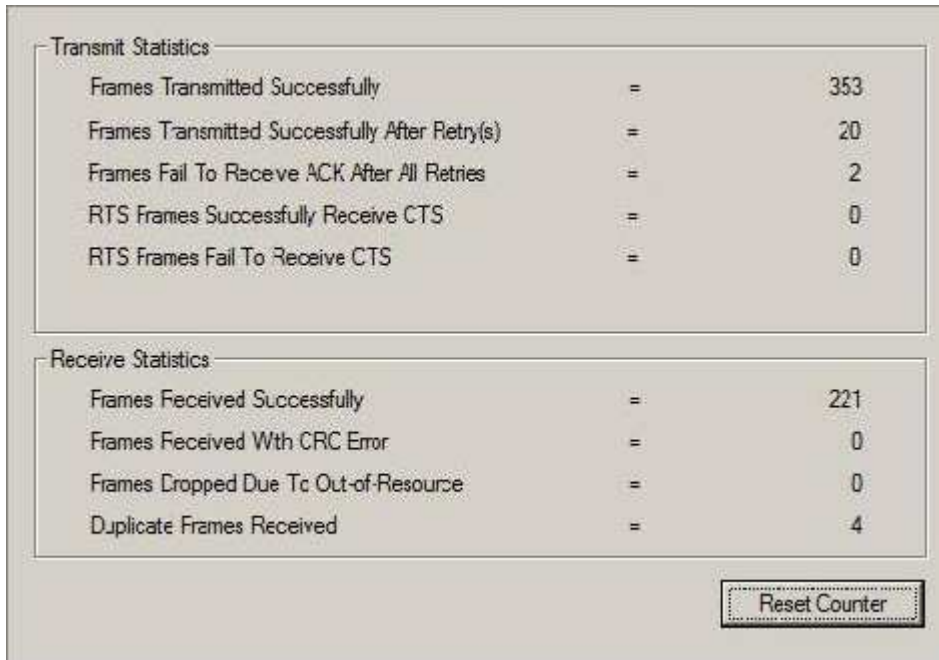


Items	Information
<b>Status</b>	Display current connection status.
<b>Extra Info</b>	Display link status and current channel in use.
<b>Link Speed</b>	Display current transmitting and receiving rates.
<b>Throughput</b>	Display transmitting and receiving throughputs.
<b>Link Quality</b>	Display connecting quality based on signal strength and TX/RX packet error rate.
<b>Signal Strength</b>	Display receiving signal strength either in percentage or dBm format.
<b>Noise Level</b>	Display noise signal strength.



## Statistics

This page provides the statistics about the connection of this adapter.



Items	Information
<b>Frames Transmitted Successfully</b>	Frames sent successfully.
<b>Frames Transmitted Successfully After Retry</b>	Frames sent successfully with retry.
<b>Frames Fail To Receive ACK After All Retries</b>	Frames transmitted failed after hitting the retrying limit.
<b>RTS Frames Successfully Receive CTS</b>	CTS frames received successfully after sending RTS frames.
<b>RTS Frames Fail To Receive CTS</b>	The missing CTS frames after sending RTS frames.
<b>Frames Received Successfully</b>	Frames received successfully.
<b>Frames Received With CRC Error</b>	Frames received with CRC error.
<b>Frames Dropped Due To Out-of-Resource</b>	Frames dropped due to insufficient resource.
<b>Duplicate Frames Received</b>	Duplicate frames received.

## WPS Configuration

This page provides users to connect this adapter to a WPS (Wi-Fi Protected Setup) AP. Those available WPS supported AP are listed on the upper column. Select the AP that you want to connect to and click the **Connect** button to activate.

### WPS Associate IE:

If the "WPS Associate IE" option is checked, station sends a association request with WPS IE during WPS setup.

### WPS Probe IE:

If the "WPS Probe IE" option is checked, station probes a request with WPS IE during WPS setup.

The screenshot displays the WPS Configuration window. It features two main tables for AP discovery and selection, along with control buttons and status indicators.

SSID	BSSID	Channel	ID	Authentic...	Encryption
2860AP	00-0C-43-28-60-31	11		Unknown	None
WPSAP	00-0C-43-28-60-60	6		WPA-PSK	TKIP
ClaudeWpsAP	00-14-85-E3-D7-8B	1		WPA-PSK	TKIP

Buttons on the right side include: Rescan, WPS Information, Pin Code (66851882), Detail, Connect, Rotate, Disconnect, and Delete.

SSID	MAC Address	Authentication	Encryption
<input checked="" type="checkbox"/> 2860AP	00-0C-43-28-60-31	OPEN	NONE

At the bottom, there are checkboxes for  WPS Associate IE and  WPS Probe IE. A PIN field is also present. A status bar at the bottom right shows: WPS status is connected successfully - RT2860AP\_Baron.

### Re-scanning:

Click the **Rescan** button to perform the re-scanning.

### WPS AP Information:

Click the **WPS information** button to bring up the WPS capable AP information dialog window. The window shows the information including:

### Authentication Type:

There are three types of supported authentication modes including Open, Shared, WPA-PSK and WPA modes.

### Encryption Type:

For Open and Shared authentication modes, the available encryption types are None and WEP. For WPA, WPA2, WPA-PSK and WPA2-PSK authentication modes, the available encryption types are TKIP and AES.

**Config Methods:**

This attribute contains the config methods supported and enabled by the selected Registrar.

**Device Password ID:**

Device Password ID indicates the method or identifies the specific password that the selected Registrar intends to use.

**Selected Registrar:**

Selected Registrar indicates if the user has recently activated a Registrar to add an Enrollee.

**State:**

This attribute is used to indicate the current configuration state. This attribute is either "Un-configured" or "Configured".

**Version:**

This attribute is the specified WPS version.

**AP Setup Locked:**

AP Setup Locked indicates if AP has entered a setup locked state.

**UUID-E:**

UUID-E is universally unique identifier (UUID) generated by the Enrollee.

**RF Bands:**

RF Bands indicate the available RF bands.

The image shows a dialog box titled "WPS Information" with a close button (X) in the top right corner. The dialog contains a list of configuration attributes and their values:

Authentication	WPA-PSK
Encryption	TKIP
Config Methods	0x008A
Device Password ID	
Selected Registrar	
State	Unconfigured
Version	1.0
AP Setup Locked	
UUID-E	30313233303031336433366264353766
RF Bands	

At the bottom center of the dialog is an "OK" button.

**Configure WPS profiles:**

The user can configure WPS profiles with either PIN method or PBC method.

**PIN Method:**

Step 1: The Registrar enters the pin code generated by station.

Step 2: Push the **PIN** button.

**PBC Method:**

Push the **PBC** button within 2 second while the Registrar pushes the button.

**Manage WPS profiles:**

The received WPS profiles are listed in the lower frame, and the listed WPS profile attributes are SSID, MAC address, authentication type, and encryption type.

**WPS profile detail information:**

Selecting a profile then pushing the **Detail** button brings up the WPS profile.



This profile shows information including:

**Connect with WPS profile:**

Clicking the **Connect** button will connect to AP with the selected WPS profile.

**Rotate WPS profiles:**

If there are more than two WPS profiles, clicking the **Rotate** button will rotate to next profile and connect to AP with this profile. If the connection can't be established successfully, station will perform the WPS profile rotation repeatedly.

**Disconnect from WPS AP:**

Click the **Disconnect** button to stop the WPS connection.


**Delete WPS profile:**

Click the **Delete** button to delete the selected WPS profile.



## AP mode management guide

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This adapter can be configured as AP mode. To function this adapter as an AP, please right click the  icon on system tray and select **Switch to AP mode**. Please refer to the following introduction to information about this AP-mode utility.

**Note:** In windows XP, it provides WPA support at hotfix Q815485 However; you have to make sure that hotfix Q815485 (require XP SP1 installed) has been installed in your system before you can start using WPA features. You can check the installation of hotfix in add/remove software page under control panel.

## Security Settings

This page pops up after clicking the **Security Settings** button. Please follow the instructions below:

Items	Information
<b>1. Authentication Type</b>	Select to be open or WPA-PSK system.
<b>2. Encryption Type</b>	Select an encryption type from the drop list.
<b>3. WPA Pre-shared Key</b>	A shared string between AP and STA. For WPA-PSK authentication mode, this field must be filled with character longer than 8 and less than 32 length. (PCI only)
<b>4. Group Rekey Interval</b>	Only valid when using WPA-PSK encryption algorithm. The key will change compliance with seconds or beacon that user set. (PCI device only)
<b>5. WEP Key</b>	Only valid when using WEP encryption algorithm. The key must match the key on AP. There are several formats to enter the keys. a. Hexadecimal (40bits): 10 Hex characters. b. Hexadecimal (128bits): 32Hex characters. c. ASCII (40bits): 5 ASCII characters. d. ASCII (128bits): 13 ASCII characters.

## Access Control

This function filters users to use this device by designating MAC address. Please refer to the following chart for introduction.

Items	Information
<b>1. Access Policy</b>	Choose a method to process access control from the drop list to determine the MAC addresses that you designated are allowed to access the AP or not.
<b>2. MAC Address</b>	Add allowed (or denied) MAC addresses to the MAC address list.
<b>3. Access List</b>	Display all Mac Addresses that you designated.
<b>4. Delete</b>	Delete Mac addresses that you selected.
<b>5. Remove All</b>	Remove all Mac address in [Access List].
<b>6. Apply</b>	Apply changes.



## Statistics

Statistics page displays the detail counter information based on 802.11 MIB counters.

The screenshot shows a web interface with a navigation bar containing 'Config', 'Access Control', 'Mac Table', 'Event Log', 'Statistics', and 'About'. The 'Statistics' tab is active. Below the navigation bar, there are three main sections:

- 1 Transmit Statistics:** A table with 5 rows showing various transmit metrics and their values.
- 2 Receive Statistics:** A table with 4 rows showing various receive metrics and their values.
- 3 RESET COUNTERS:** A button with a dashed border and a dotted background, used to reset the statistics.

### 1. Transmit Statistics

Items	Information
<b>Frames Transmitted Successfully</b>	Frames that successfully sent.
<b>Frames Fail To Receive ACK After All Retries</b>	Frames that failed to transmit after hitting retry limit.
<b>RTS Frames Successfully Receive CTS</b>	Counts of CTS that successfully received after sending RTS frame.
<b>RTS Frames Fail To Receive CTS</b>	Counts of CTS that fail to be received after sending RTS frame.
<b>Frames Retransmitted Successfully</b>	Successfully retransmitted frames numbers.

### 2. Recieve Statistics

Items	Information
<b>Frames Received Successfully</b>	Frames received successfully.
<b>Frames Received With CRC Error</b>	Frames received with CRC error.
<b>Frames Dropped Due To Out-of-Resource</b>	Frames dropped due to resource issue.
<b>Duplicate Frames Received</b>	Duplicate received frames.

**3. Reset Counters:** Reset counters to zero.

# Product Specification

## Standard

IEEE 802.11n draft 2.0, IEEE 802.11b, IEEE 802.11g

## Interface

PCI 2.3 or Mini PCI type III

## Antenna

Antenna gain: 2dB

Antenna type: Dipole

Antenna connector type: Reverse SMA

## LED indication

Link/Act (Green)

## Security

64/128-bit WEP, WPA, WPA2

## Receiver Sensitivity

802.11b-88dBm, 802.11g-75dBm, 802.11n-65dBm

## Channel

USA 11, Europe 13

## Transmit Power

802.11b 18dBm, 802.11g 15dBm, 802.11n 20MHz and 802.11n 40MHz 18dBm

## Network Data Rate

802.11b: 1,2,5.5 and 11Mbps

802.11g: 6,9,12,18,24,36,48 and 54Mbps

802.11n: up to 300Mbps

## Range Coverage

Indoor 35~100 meters

Outdoor 100~300 meters

## Operating Temperature

0- 40°C (32 - 104°C)

## Operating Humidity

10% ~ 90% (non-condensing)

## Emission

FCC Class B, CE

FCC Part 15.247 for US (2.142~2.462 MHz)

ETS 300 328 for Europe (2.400~2483.5 MHz)

DGT LP0002 for Taiwan (2.412~2.462MHz)