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***802.11b/g WLAN USB Adapter  
with Wi-Fi Detector***

**User's Manual**

**Version: 1.1  
(Mar 2006)**

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# 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 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:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio technician for help.

## **FCC Caution**

This equipment must be installed and operated in accordance with provided instructions and a minimum 5 cm spacing must be provided between computer mounted antenna and person's body (excluding extremities of hands, wrist and feet) during wireless modes of operation.

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.

Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

## **Federal Communication Commission (FCC) Radiation Exposure Statement**

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

## **R&TTE Compliance Statement**

This equipment complies with all the requirements of DIRECTIVE 1999/5/CE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of March 9, 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE)

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8, 2000.

## **Safety**

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

## **EU Countries Intended for Use**

The ETSI version of this device is intended for home and office use in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

The ETSI version of this device is also authorized for use in EFTA member states: Iceland, Liechtenstein, Norway, and Switzerland.

## **EU Countries Not intended for use**

None.

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# **1 Introduction**

Thank you for purchasing this 802.11b/g WLAN USB adapter with Wi-Fi Detector. This convenient device instantly detects wireless hotspots anywhere. The backlight LCM display tells the user detailed information about any detected hotspot. There's no need to purchase any battery because there is a rechargeable Li-Polymer battery which recharges whenever the detector is inserted into any USB port.

This Wi-Fi detector also allows the user to go online wirelessly and is designed to comply with IEEE 802.11g Wireless LAN standard. It is suitable for any laptop or desktop computer.

This detector supports 64/128/256-bit WEP data encryption that protects your wireless network from eavesdropping. It also supports WPA (Wi-Fi Protected Access) and WPA2 that combines IEEE 802.1x and TKIP (Temporal Key Integrity Protocol) technologies. Client users are required to authorize before accessing to APs or AP Routers, and the data transmitted in the network is encrypted/decrypted by a dynamically changed secret key. This adapter has built-in AES engine which ensure the highest degree of security and authenticity for digital information and it is the most advanced solution defined by IEEE 802.11i for the security in the wireless network.

## **1.1 Features**

- Complies with the IEEE 802.11b and IEEE 802.11g 2.4GHz standards.
- LCM displays: SSID, Signal Strength, Network type (802.11b/g), Network Mode (infrastructure, Adhoc), operating channel, number of AP's detected, battery strength, Link/Act indicator)
- Up to 54Mbps high data transfer rate.
- Support 64/128/256-bit WEP, WPA (TKIP with IEEE 802.1x) and WPA2 (AES with IEEE 802.1x) functions for high level of security.
- Supports Software AP function, which turns the wireless station into a wireless AP.
- Complies with IEEE 802.11d country roaming standard.
- Support the most popular operating system: Windows 98SE/Me/2000/XP.
- Supports USB 2.0/1.1 interface.
- Portable and mini-size design.
- Suitable for Any Notebook or Desktop PC.

## **1.2 Specifications**

- Standard: IEEE 802.11g/b
- LCM Size: 96x32 with EL backlight
- Battery: 4.2V Rechargeable Li-Polymer Battery
- Bus Type: USB 2.0 Type A
- Frequency Band: 2.4000~2.4835GHz (Industrial Scientific Medical Band)
- Modulation: OFDM with BPSK, QPSK, 16QAM, 64QAM (11g)  
BPSK, QPSK, CCK (11b)

- Data Rate: 54/48/36/24/18/12/11/9/6/5.5/2/1Mbps auto fallback
- Security: 64/128/256-bit WEP Data Encryption, WPA (TKIP with IEEE 802.1x) and WPA2 (AES with IEEE 802.1x)
- Antenna: Internal Antenna
- Drivers: Windows 98SE/Me/2000/XP/2003 Server
- Transmit Power: 16dBm (Typical)
- Dimension: 14(H) x 28.5(W) x 91(D)
- Temperature: 32~140°F (0 ~60°C)
- Humidity: 0-85% (NonCondensing)
- Certification: FCC, CE

### **1.3 Package Contents**

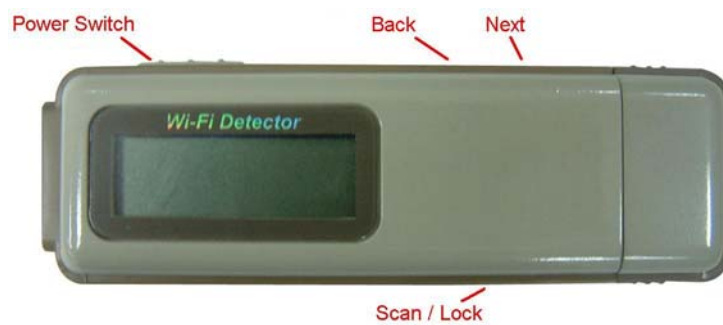
Before you begin the installation, please check the items of your package. The package should include the following items:

- One Wi-Fi Detector
- One Quick Guide
- One USB Cable
- One CD (Driver/Utility/Manual)

***If any of the above items is missing, contact your supplier as soon as possible.***

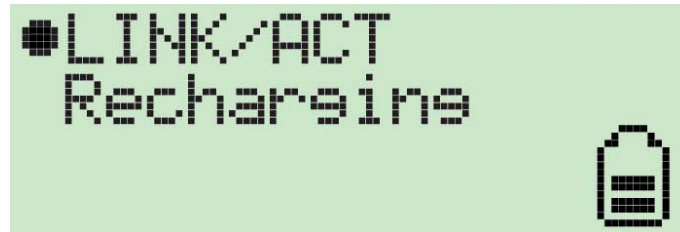


## ***2 The Outward Appearance of the Wi-Fi Detector***



### **3 How to charge the Wi-Fi Detector**

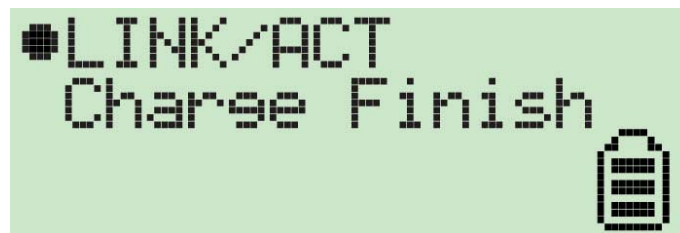
1. Remove the cap from the Wi-Fi Detector, slide the power switch to the “ON” position and carefully insert the USB connector into any available USB port on your computer. You will see the recharging screen.



The battery strength indicator will be animated while the Wi-Fi detector is being recharged.

The “Link/Act” icon will blink when the Wi-Fi detector is being used as a wireless USB adapter to surf the internet.

2. When the Wi-Fi detector is finished recharging it will automatically stop charging the battery. When it is finished recharging the battery you will see “Charge Finish” displayed on the LCM and the battery strength indicator will stop blinking.

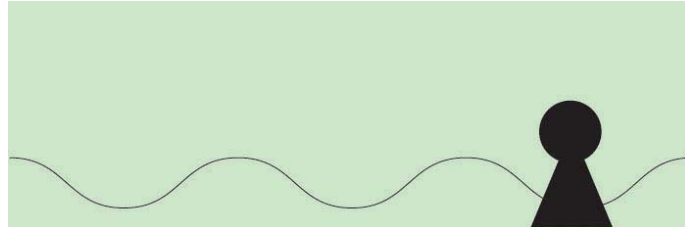


3. If you slide the power switch to the “OFF” position when in recharging, the Wi-Fi detector will stop recharging the battery and you will see “Stop charging” displayed on the LCM and the battery strength indicator will stop blinking.

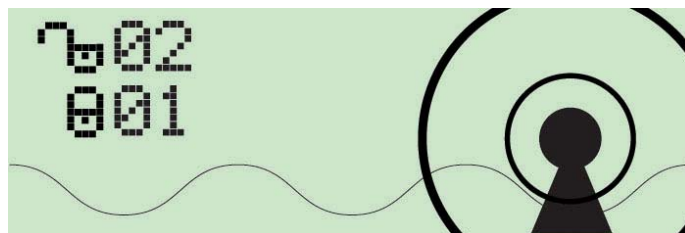


## 4 How to use the Wi-Fi Detector

1. Slide the power switch to the "ON" position, and a welcome screen will greet the user.



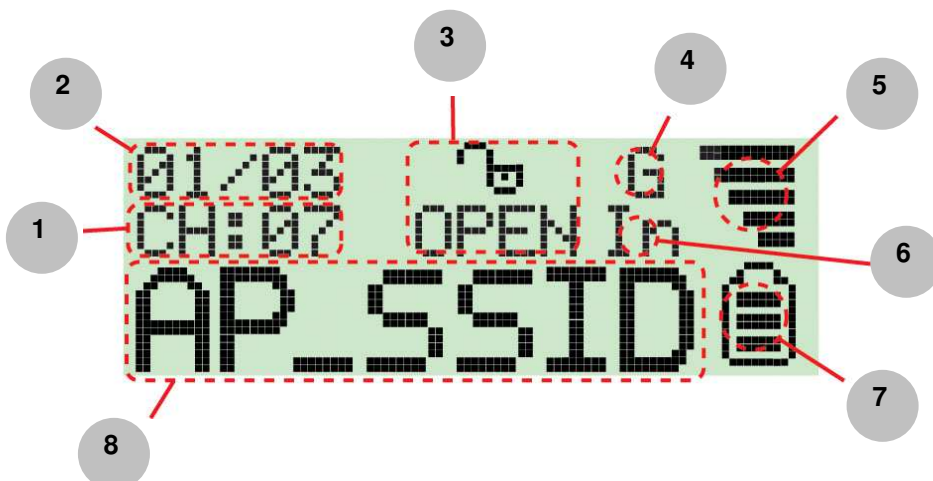
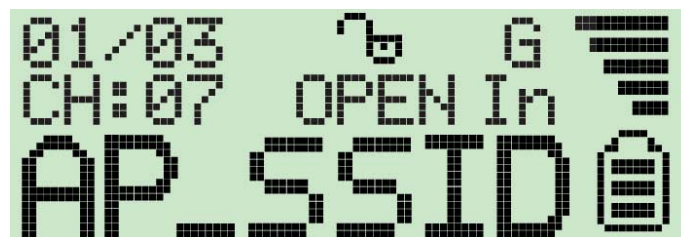
2. After the welcome screen is displayed the Wi-Fi detector will automatically enter scanning mode to detect Wi-Fi signals.



In scanning mode the display will display the total number of both non-encrypted and encrypted Wi-Fi signals detected.

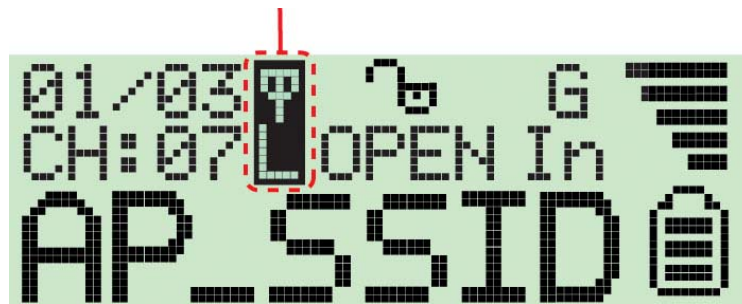
3. Once scanning mode is complete, the detector will enter its standard display mode.

The detector automatically sorts the signals by the following criteria:  
Non-encrypted AP's according to signal strength followed by encrypted AP's according to signal strength.



The Icons on the LCM display are displayed as follows:

1. Operating Channel: Indicates the current operating channel of the detected Wi-Fi signal.
  2. Number of AP's Detected: the left digit indicates which detected Wi-Fi signal is currently displayed and the right digit indicates the total amount of Wi-Fi signals detected.
  3. Encryption indicator: "WEP" for WEP encryption, "WPA" for WPA encryption, and "WPA2" for WPA2 encryption, and "OPEN" indicates it is a non-encrypted signal.
  4. "G" indicates the signal is a 802.11g wireless signal. "B" indicates the signal is a 802.11b wireless signal.
  5. Signal strength indicator with 5 bars indicating the signal strength.
  6. "In" indicates the signal is an infrastructure mode signal, "Ad" indicates the signal is an Adhoc mode signal.
  7. Battery indicator with 3 bars indicating battery power. When the indicator is empty, please recharge the detector by inserting it into a USB port.
  8. SSID Indicator: Displays the SSID of the detected Wi-Fi signal, if the SSID is too long the SSID indicator will scroll to display the complete SSID.
4. If the user wishes to detect a signal with a dedicated SSID, the user simply has to hold down the "scan" button for 4 seconds to enter "lock mode". When the detector is in "lock mode" an icon with a capitalized "L" appears in the upper middle corner of the display.



In "lock mode" the detector constantly refreshes the signal strength so the user can move around to find where the detected signal strength is the strongest.

Just hold down the "scan" button for 4 seconds again to unlock the "lock mode".

## ***5 How to install the driver and utility***

Before you proceed with the installation, please notice following descriptions.

**Note1:** *Please do not install the USB adapter into your computer before installing the software program from the CD.*

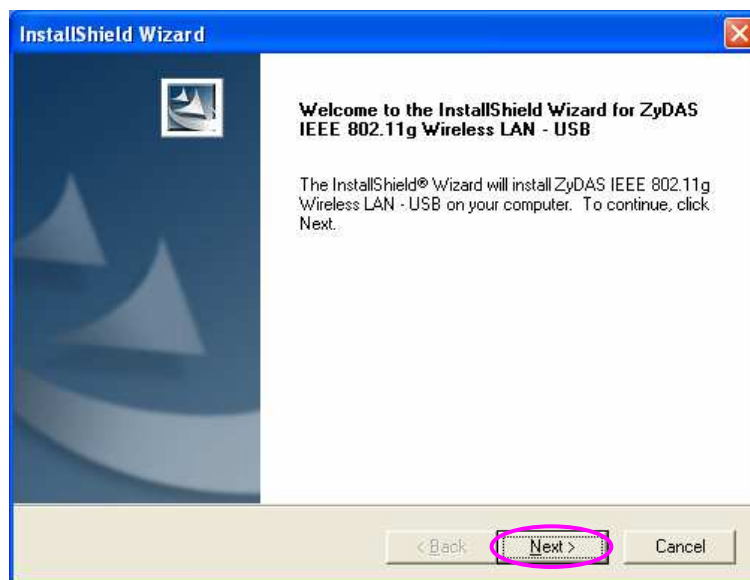
**Note2:** *The following installation was operated in Windows XP. (Procedures are similar for Windows 98SE/Me/2000/2003 Server.)*

**Note3:** *If you have installed the Wireless PC Card driver & utility before, please uninstall the old version first.*

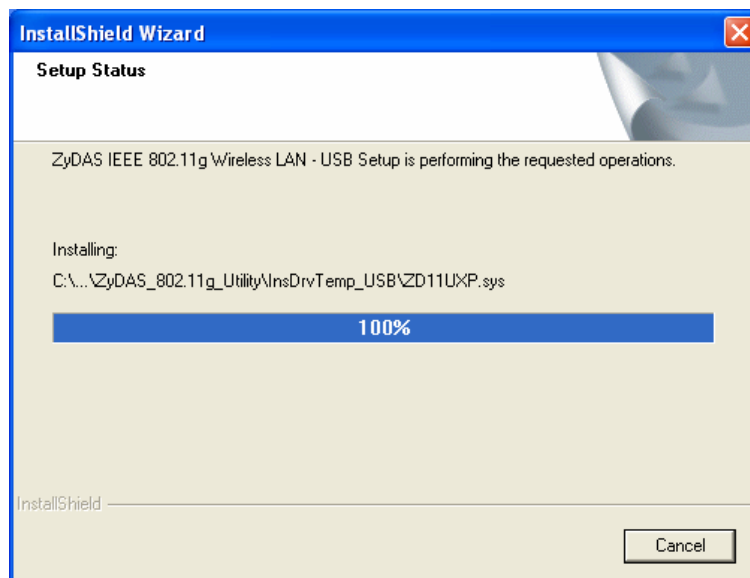
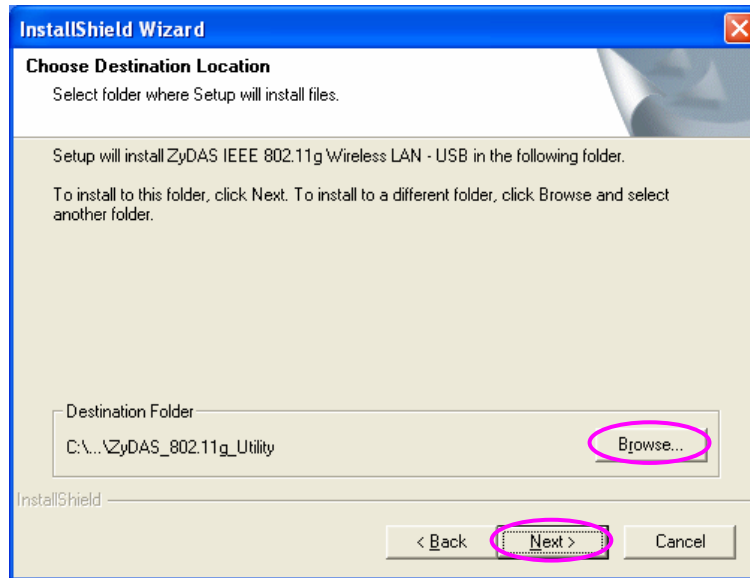
Please follow below instructions to install the USB adapter.

### I. Install the Configuration Utility

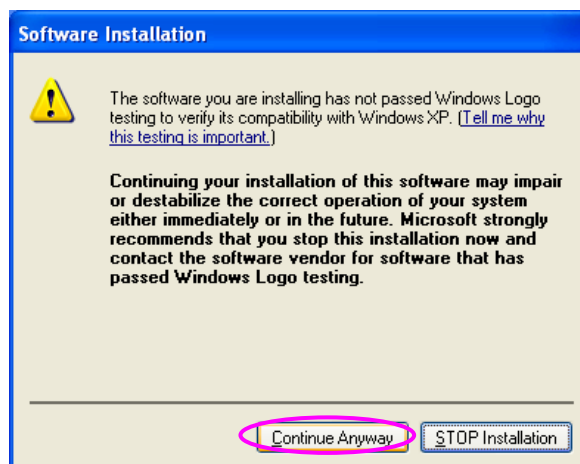
A. Insert the Installation CD to your CD-ROM Drive. Execute the “setup” program.



- B. If you want to install the software program in another location, click “Browse” and select an alternative destination. Then, click “Next”.



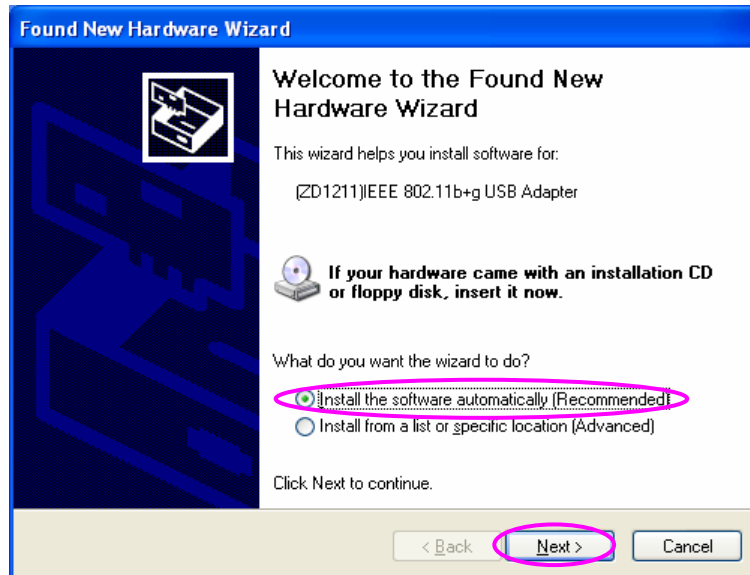
- C. Click “Continue Anyway” to finish the installation.



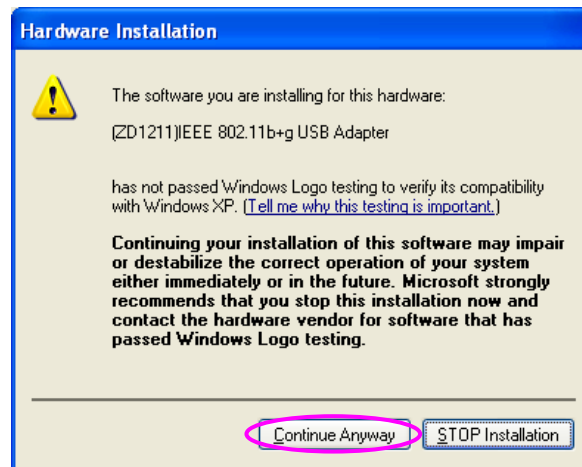
## II. Install the USB adapter

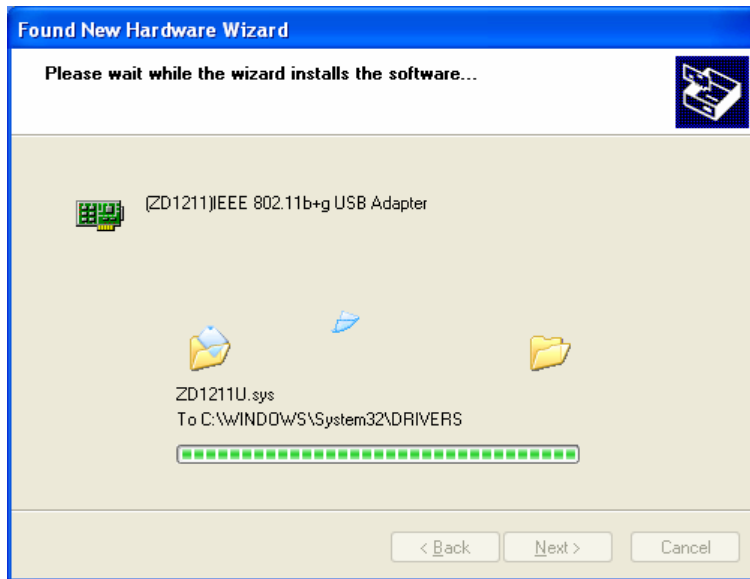
A. Plug the USB adapter into the USB port of your computer.

B. The “Found New Hardware Wizard” is displayed, select “Install the software automatically (Recommended)” and click “Next”.

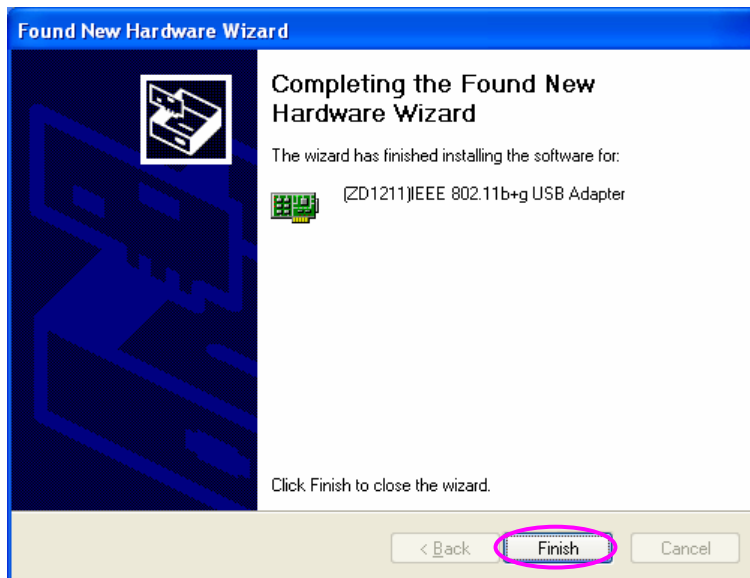


C. Click “Continue Anyway” and the system will start to install the USB adapter.





D. Click "Finish" to complete the installation.



### III. Using the Configuration Utility

To setup the USB adapter, double-click the icon in the system tray.



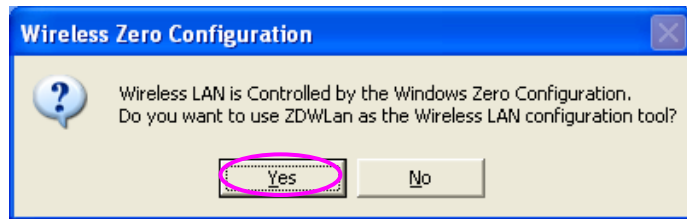
For Windows XP, there is a "Windows Zero Configuration Tool" by default for you to setup wireless clients. If you want to use the Utility of the USB adapter, please follow one of the ways as below.





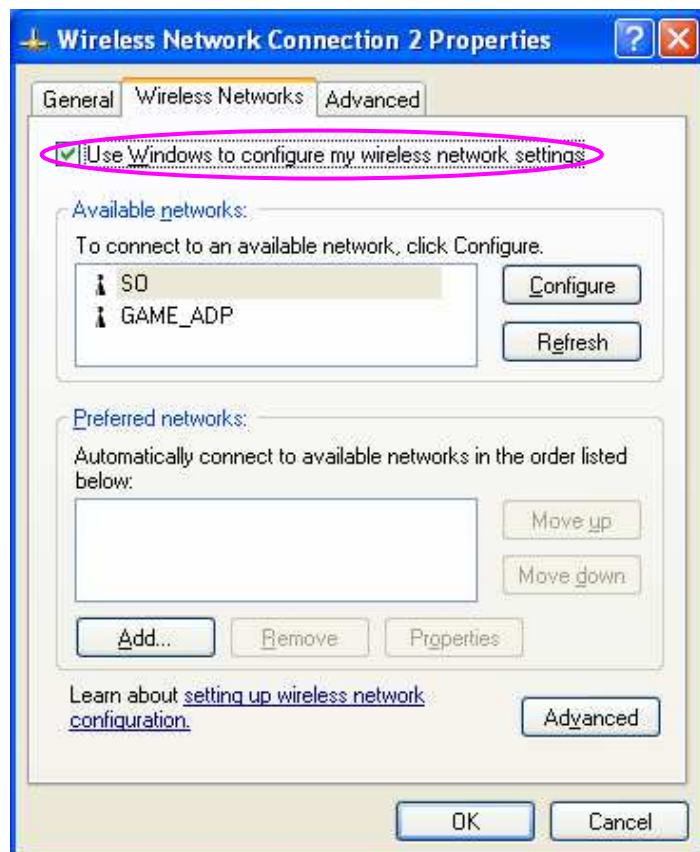
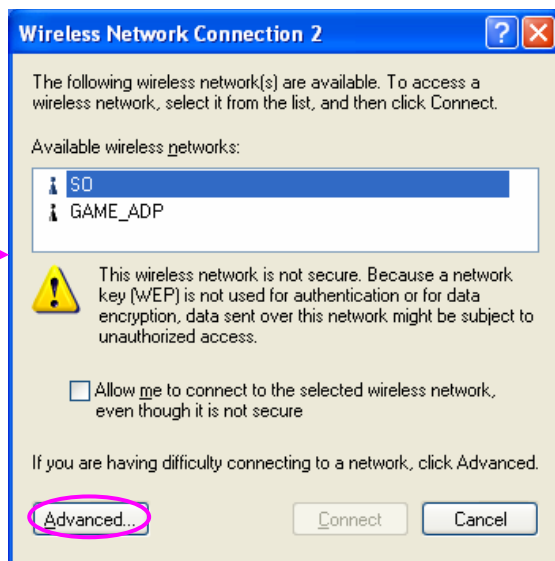
### First Way

- A. Double-click the utility icon in the system tray.
- B. Click "Yes" to use the utility of the USB adapter.



### Second Way

- A. Double-click the icon.
- B. Click "Advance".
- C. Uncheck "Use Windows to configure my wireless network settings".



## 6 How to configure the utility

The Configuration Utility is a powerful application that helps you configure the 802.11g Wireless LAN USB adapter and monitor the link status during the communication process.

The Configuration Utility appears as an icon on the system tray of Windows while the adapter is running. You can open it by double-click on the icon.



Right click the icon, there are some items for you to operate the configuration utility.

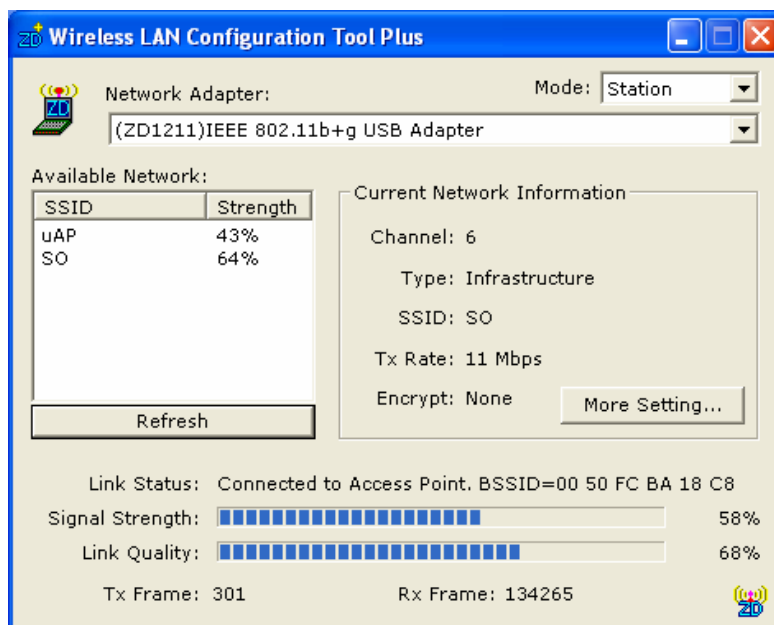
- Open Utility Window  
Select "Open Utility Window" to open the Configuration Utility tool.
- Exit ZDWlan  
Select "Exit ZDWlan" to close the Configuration Utility tool.

Before using the utility, you have to know some restrictions of the utility.

1. If you want to connect to 11g (up to 54Mbps) network, please ensure to install the adapter to PC or laptop with USB 2.0 interface. This adapter runs at lower performance while you connect it to the USB 1.1/1.0 port of your computer instead.
2. This adapter will work in 11b mode when the network type is in Adhoc mode. It is defines by Wi-Fi organization. If you want to enable the data rate up to 54Mbps (11g), please follow steps listed below.
  - A. Go to "Network Connections".
  - B. Right Click the "Wireless Network Connection" and select "Properties".
  - C. From the pop-up screen, click "Configure".
  - D. Enter into "Advanced" page of the "Properties" screen.
  - E. Enable the setting of "IBSS\_G\_Mode".

### 6.1 Wireless Connection Status

When you open the Configuration Utility, the system will scan all the channels to find all the access points/stations within the accessible range of your adapter and automatically connect to the wireless device with the highest signal strength. From the screen, you may know all the information about the wireless connection.

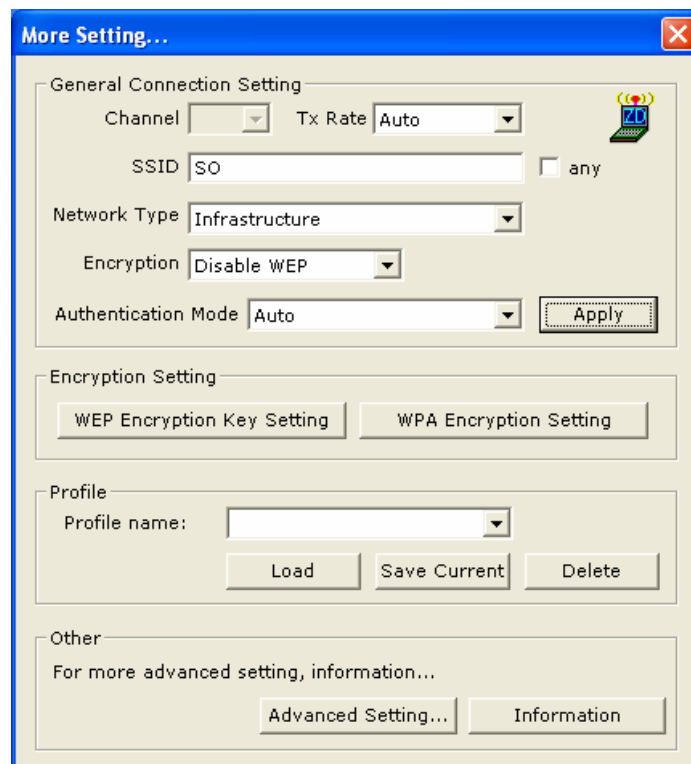


Parameter	Description
Mode	<p><b>Station</b> – Set the USB adapter a wireless client.</p> <p><b>Access Point</b> – Turns the USB adapter to function as a wireless AP. Please refer to Section 6.5 for the AP settings.</p>
Network Adapter	Display the product information of the USB adapter.
Available Network	<p>Display all the SSID and Signal Strength of wireless stations nearby. To re-survey the available wireless devices please click “Refresh”.</p> <p>There are two ways to automatically make the connection between the USB adapter and the wireless station on the list.</p> <ol style="list-style-type: none"> <li>1. Double-click the wireless station on the list directly.</li> <li>2. Select the station you intend to connect and then click “Connect this site”.</li> </ol>
Current Network Information	Display the information about the wireless network this adapter is connecting to. The information includes Channel, Type, SSID, TX Rate and Encrypt settings. Note: Please refer to Section 6.2 for the description of each item.
More Setting	For setting more functions including disable/enable WEP and Power Saving Mode, etc. Please refer to Section 6.2, 6.3 and 6.4.
Link Status	Display the status of the wireless connection.
BSSID	Display the MAC Address of the network the adapter is connecting to.

Parameter	Description
Signal Strength	This bar shows the signal strength level. The higher percentage shown in the bar, the more radio signal been received by the adapter. This indicator helps to find the proper position of the wireless station for quality network operation.
Link Quality	This bar indicates the quality of the link. The higher the percentage, the better the quality.
TX Frame	It shows the number of data frames which are transmitted by the adapter successfully.
RX Frame	It shows the number of data frames which are received by the adapter successfully.

## 6.2 General Connection Setting

Click “More Setting”, users are allowed to setup the wireless connection setting, Encryption Setting of the USB adapter and other advanced functions.



Parameter	Description
General Connection Setting	
Channel	Select the number of the radio channel used for the networking. The channel setting of the wireless stations within a network should be the same.

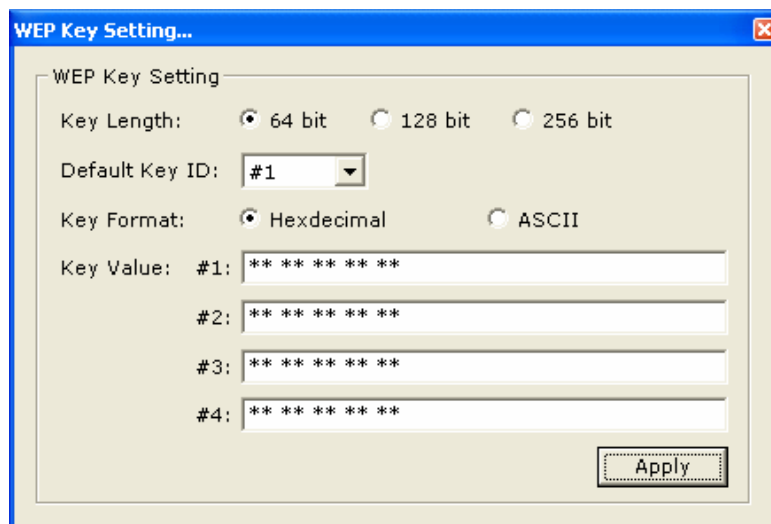
Parameter	Description
Tx Rate	<p>There are several options including Auto/1/2/5.5/11/6/9/12/18/24/36/48/54Mbps for you to select. When the “Auto” is selected, the device will choose the most suitable transmission rate automatically. The higher data rate you designated in the network, the shorter distance is allowed between the adapter and the wireless stations.</p> <p>When the adapter works in 11b mode, the maximum data rate is 11Mbps so that there are only “Auto/1/2/5.5/11Mbps” options you can select.</p>
SSID	<p>The SSID (up to 32 printable ASCII characters) is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs.</p> <p>You may specify a SSID for the adapter and then only the device with the same SSID can interconnect to the adapter.</p>
Any	<p>If “Any“ check box is enabled, the adapter will survey and connect to one of the available wireless stations without checking the consistency of channel and SSID with the wireless station.</p>
Network Type	<p><b>Ad-Hoc</b> – This mode enables wireless network adapters interconnecting without through AP or Router. Select this mode if there is no AP or Router in the network.</p> <p><b>Infrastructure</b> – This operation mode requires the presence of an 802.11 Access Point. All communication is done via the Access Point or Router.</p>
Change/Apply	<p>Click “Change“ will enable you to setup the parameters of “General Connection Setting“. In the meantime, the button will change to “Apply“ for you to confirm your settings.</p>
Encryption Setting	<p>In the block, users may enable/disable WEP and WPA encryption within the network. Please refer to Section 6.3 for more description.</p>

Parameter	Description
Authentication Mode	<p>This setting has to be consistent with the wireless networks that the adapter intends to connect.</p> <p><b>Open System</b> – No authentication is needed among the wireless network.</p> <p><b>Shared Key</b> – Only wireless stations using a shared key (WEP Key identified) are allowed to connect each other.</p> <p><b>Auto</b> – Auto switch the authentication algorithm depending on the wireless networks that the adapter is connecting to.</p>
WEP Encryption Key Setting	Click this button to setup the WEP key. Please refer to Section 6.3 for the details.
WPA Encryption Setting	Click this button to setup the WPA function. Please refer to Section 6.3 for the details.
Profile	
Profile Name	You can save the network setting as a profile. To connect to the network without making additional configuration, you can load the profile.
Load	Load the setting values from the file in the “Profile Name“ list. The new settings will be activated immediately.
Save Current	Input a file name and click “Save Current“ to write the current setting values to be a profile in the “Profile Name“ list.
Delete	Delete the profile you select.
Other	
Advanced Setting...	For more advanced setting, please click it. To know more of the setting, please refer to Section 6.4.
Information	To view the version of the driver, firmware and the MAC Address of the adapter, click the button.

## 6.3 WEP and WPA Encryption

WEP is a data encryption algorithm, which protects Wireless LAN data in the network against eavesdropping. WEP has been found that it has some security problems. The adapter supports WPA (Wi-Fi Protected Access) that combines IEEE 802.1x and TKIP (Temporal Key Integrity Protocol) technologies. Client users are required to authorize before accessing to Aps or AP Routers, and the data transmitted in the network is encrypted/decrypted by a dynamically changed secret key. This adapter is also built-in AES engine which ensure the highest degree of security and authenticity for digital information and it is the most advanced solution defined by IEEE 802.11i for the security in the wireless network.

### 6.3.1 WEP Setting



Parameter	Description
Key Length	You may select the 64-bit, 128-bit or 256-bit to encrypt transmitted data. Larger key length will provide higher level of security, but the throughput will be lower.
Default Key ID	Select one of the keys (1~4) as the encryption key.
Key Format	<b>Hexadecimal</b> – Only “A-F“, “a-f“ and “0-9“ are allowed to be set as WEP key. <b>ASCII</b> –Numerical values, characters or signs are allowed to be the WEP key. It is more recognizable for user.

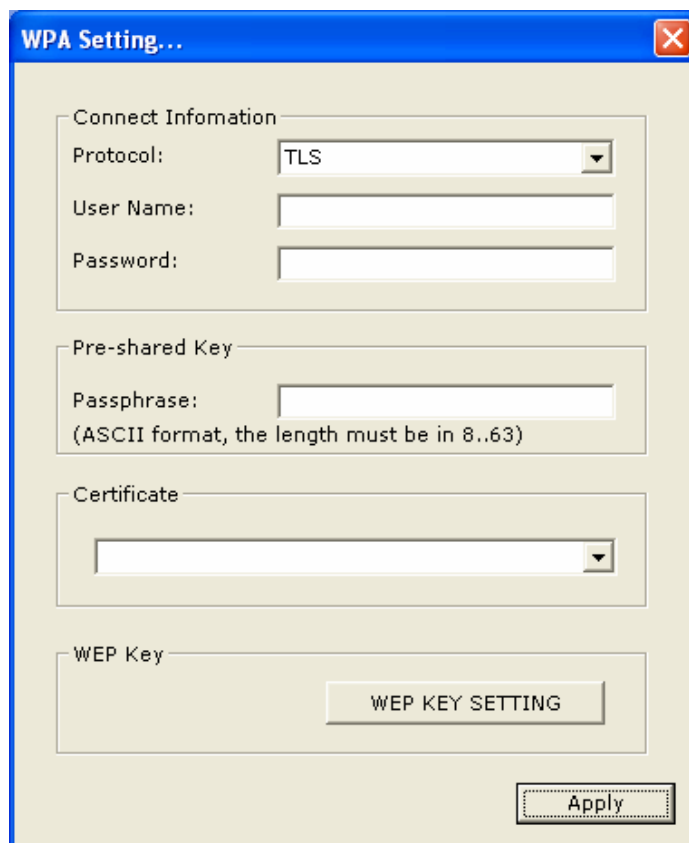
Parameter	Description
Key1 ~ Key4	<p>The keys are used to encrypt data transmitted in the wireless network. Fill the text box by following the rules below.</p> <p><b>64-bit</b> – Input 10-digit Hex values or 5-digit ASCII values as the encryption keys. For example: “0123456aef” or “Guest”.</p> <p><b>128-bit</b> – Input 26-digit Hex values or 13-digit ASCII values as the encryption keys. For example: “01234567890123456789abcdef” or “administrator”.</p> <p><b>256-bit</b> – Input 58-digit Hex values or 29-digit ASCII values as the encryption keys.</p>
Change/Apply	<p>Click “Change” will enable you to setup the WEP key. In the meantime, the button will change to “Apply” for you to confirm your settings.</p>

### 6.3.2 WPA Setting

The adapter can automatically detect the WPA setting of the AP which the adapter intends to connect to. To connect to the AP, you should setup the same setting with the AP.

There are two kinds of WPA mode: WPA and WPA-PSK. WPA is designed for enterprise which requires a RADIUS Server and Certificate Server for the authentication. WPA-PSK is a special mode designed for home and small business users who do not have access to network authentication servers. In this mode, the user manually enters the starting password in their access point or gateway, as well as in each wireless stations in the network. WPA takes over automatically from that point, keeping unauthorized users that don't have the matching password from joining the network, while encrypting the data traveling between authorized devices.



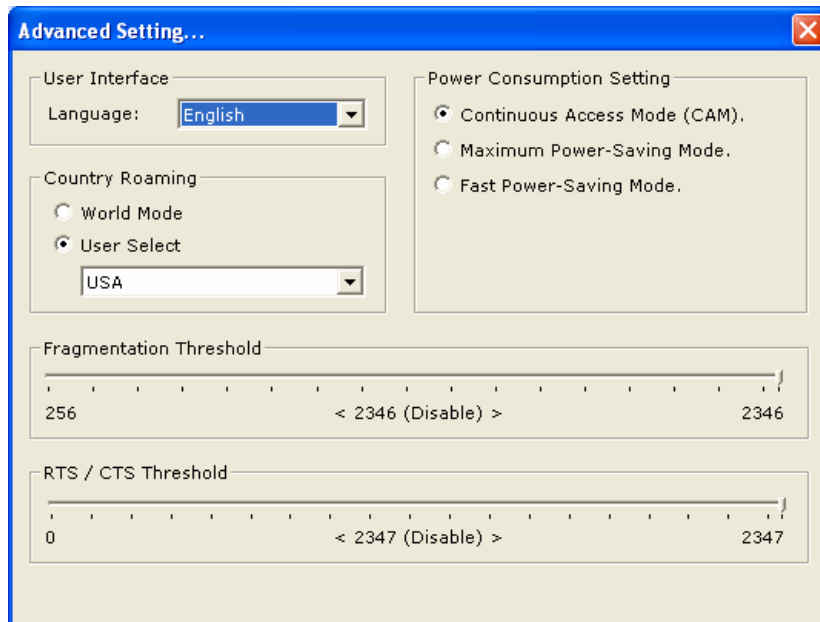


Parameter	Description
Connect Information	It is the setting for WPA mode.
Protocol	This adapter supports two kind of protocol for authentication including TLS and PEAP. TLS and PEAP requires a certificate which is provided by the Certificate Server. PEAP requires a set of user name and password in addition. To get the certificate and the personal user name and password, please contact with your administrator. <b>TLS</b> – Select a certificate from the “Certificate” list. <b>PEAP</b> – Input the “User Name” and “Password” and also select a certificate from the “Certificate” list.
User Name	It is the setting for PEAP protocol.
Password	It is the setting for PEAP protocol.
Pre-shared Key	It is the setting for WPA-PSK mode. Input a 8 to 63 digits of ASCII format to be the password for the authentication within the network.
Certificate	All the available certificates for TLS or PEAP will display in the list. Please select a proper certificate for the wireless authentication.

Parameter	Description
WEP Key	If the AP uses WEP data encryption function, please click "WEP KEY SETTING" to setup the WEP key.
WEP KEY SETTING	Setup the four sets of WEP key by clicking the button.
Change/Apply	Click "Change" will enable you to setup the WPA setting. In the meantime, the button will change to "Apply" for you to confirm your settings.

## 6.4 Advanced Settings

The "Advanced Setting" allows user to enable/disable country roaming and power consumption mode, setup the fragmentation threshold and RTS/CTS threshold of the adapter.



Parameter	Description
User Interface	Select the display language of the utility. Two languages are enabled: English and Chinese.
Country Roaming	IEEE 802.11d (Country Roaming) is a standard that enable the wireless devices work at the proper transmission power and radio channel regulated by the country where the user is located. <b>World Mode</b> – Enable the country roaming function, the adapter will follow the setting of the connecting AP automatically. <b>User Select</b> – Disable the country roaming function, users can select the country where they are located. The channel setting differs from country user selected.