

# **Wireless LAN Device Series**

**Wireless LAN 802.11g Adapter**

## **User's Manual**

**Version. 1.21 (11.17.2004)**

## Notice

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**Our WLAN products can sell to the following European countries:  
Germany, France, Italy, Netherlands, United Kingdom.**

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.

**Warning:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.

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. The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**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 needed.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter

Shielded interface cables must be used in order to comply with emission limits.

This EUT is in compliance with SAR for general population /uncontrolled exposure limits in ANSI/IEEE C95.1-1999 and had been tested in accordance with the measurement methods and procedures specified in OET Bulletin 65 Supplement C

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter



CAUTION:

- 1. To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.**
- 2. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.**

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# 1 Introduction

This device is a Wireless LAN Adapter with a rate of 1, 2, 5.5, 11Mbps operating in the ISM band using DSSS, complying with the IEEE802.11b standard. A rate of 6, 9, 12, 18, 24, 36, 48 and 54 Mbps operating in the ISM band using Orthogonal Frequency Division Multiplexing (OFDM) transmission, complying with the IEEE 802.11g standard.

## 1.1 Package Contents

When you open the package, it should include:

- A Wireless LAN 802.11g Adapter
- A Installation CD contains Setup Utility and User's Manual
- A USB cable only for USB adapter
- An external antenna only for PCI adapter

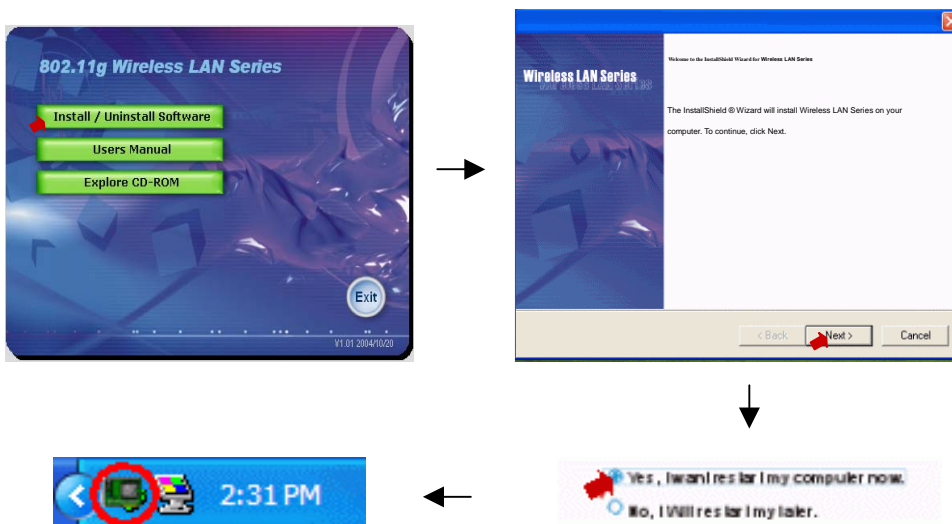
## 1.2 System Requirements

- Operating System: Microsoft Windows<sup>®</sup> 98SE/Me/2000/XP.
- Desktop/Notebook PC with CD-ROM device and the interface for connecting the Wireless LAN Adapter.

## 2 Quick Installation

This section provides a quick step by step guide to install the Wireless LAN Adapter. Please follow the steps described below and refer to the appropriate sections for further details:

- Power on the computer.
- Please make sure that ***you don't insert your wireless LAN adapter before install the driver.***
- Install the drivers and application:
  1. Insert the Installation CD into your CD-ROM device.
  2. Click "Install/Uninstall software" button to install.
  3. Follow the installation instructions from the InstallShield Wizard by pressing the "Next" button.
  4. If you want to set the path of your choice, select "Browse" and then "Next".
  5. Choose the appropriate of installation according to the type of the Wireless LAN Adapter (PCI/mini-PCI/CardBus or USB)
  6. Setup wizard will start to install the necessary driver software.
  7. Push the "OK" button, and then reboot system.
  8. The installation process will be completed after reboot.
- Insert your Wireless LAN Adapter.
- The "Add New Hardware Wizard" will automatically load the necessary software drivers from CD.
- Refer to sections 3 for more details on the installation and configuration under Microsoft Windows® 98SE/Me/2000/XP respectively. Section 4 gives the detailed instructions on how to use the Configuration Utility.



## 3 Installation Procedures Under MS Windows

The procedures described in this section to install and configure the Wireless LAN Adapter under MS Windows 98SE/Me/2000/XP.

### 3.1 Installing the Application and Drivers under Windows 98SE/Me/2000/XP

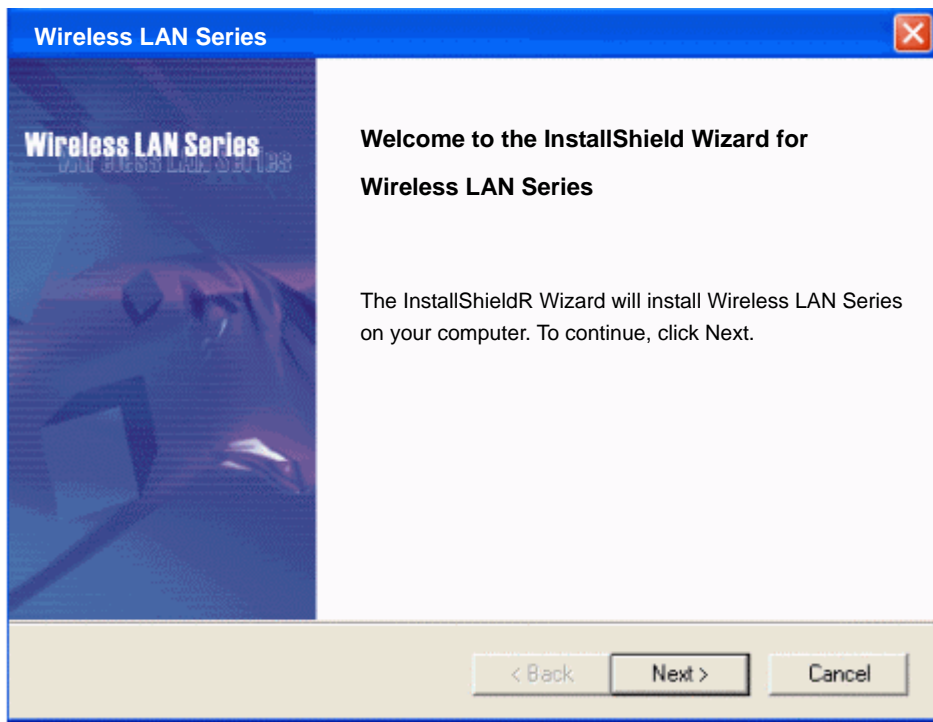


*Please do not plug your wireless LAN Adapter until the Application setup has been completed. The setup procedure described below for installing both the drivers and the Configuration & Monitor Utility.*

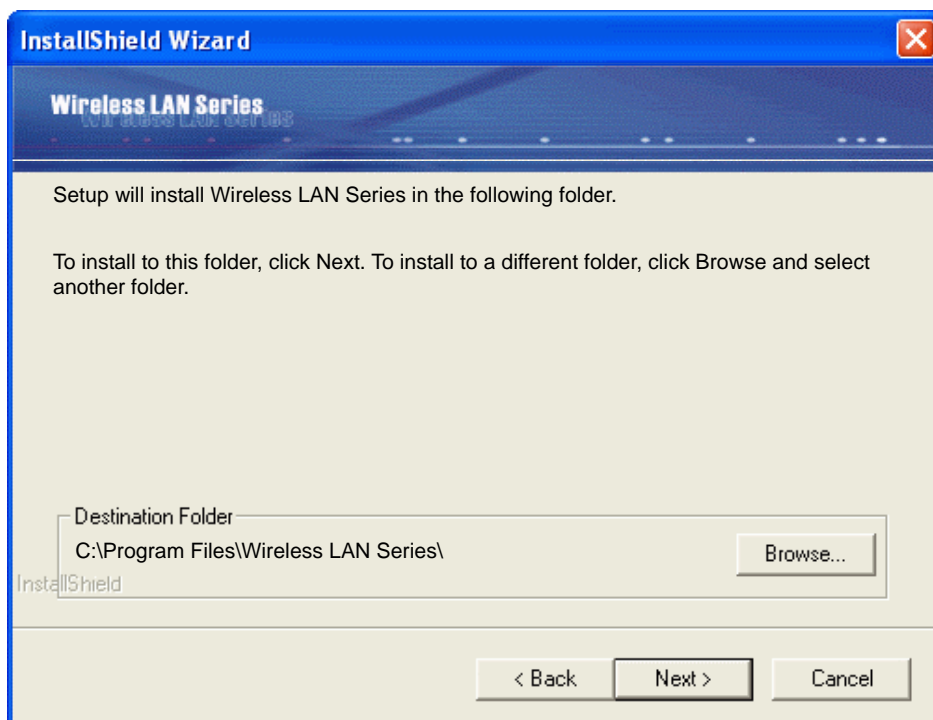
1. Insert the Installation CD to your CD-ROM device, the following window will pop up and Click "Install/Uninstall software" button to install. (If the following window doesn't pop up, click the **Start** button at the Taskbar and then select **Run**. Enter **E:\autorun.exe** if E is your CD-ROM device.)



2. Follow the installation instructions from the InstallShield Wizard by pressing the "Next" button.

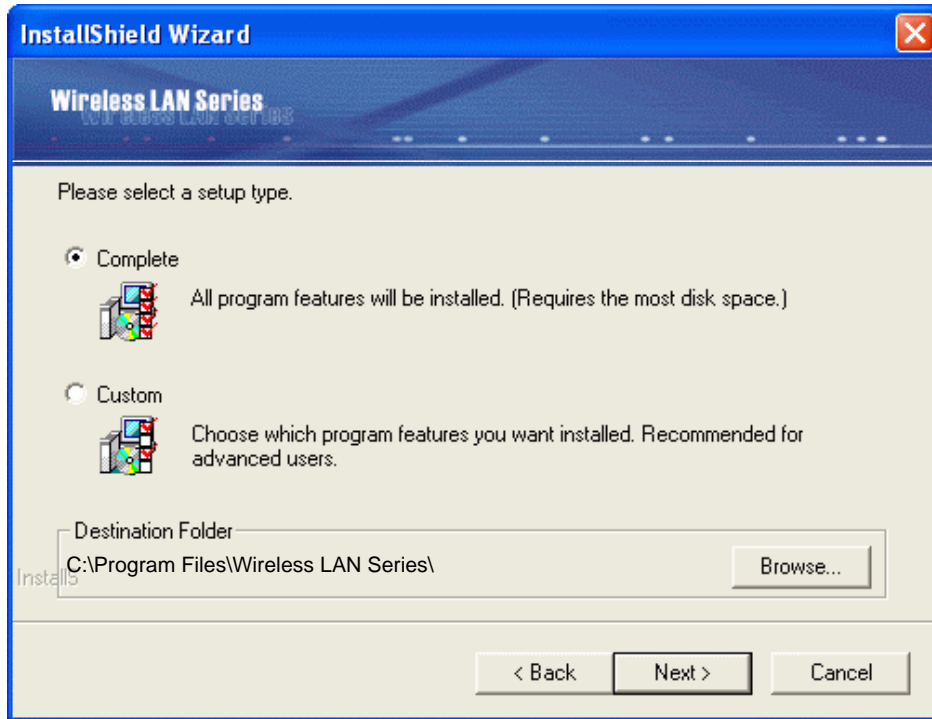


3. The InstallShield Wizard will install the needed files to a folder named "C:\Program Files\Wireless LAN Series\". If you want to change this, Click "Browse" and select a folder. Click "Next" to continue.

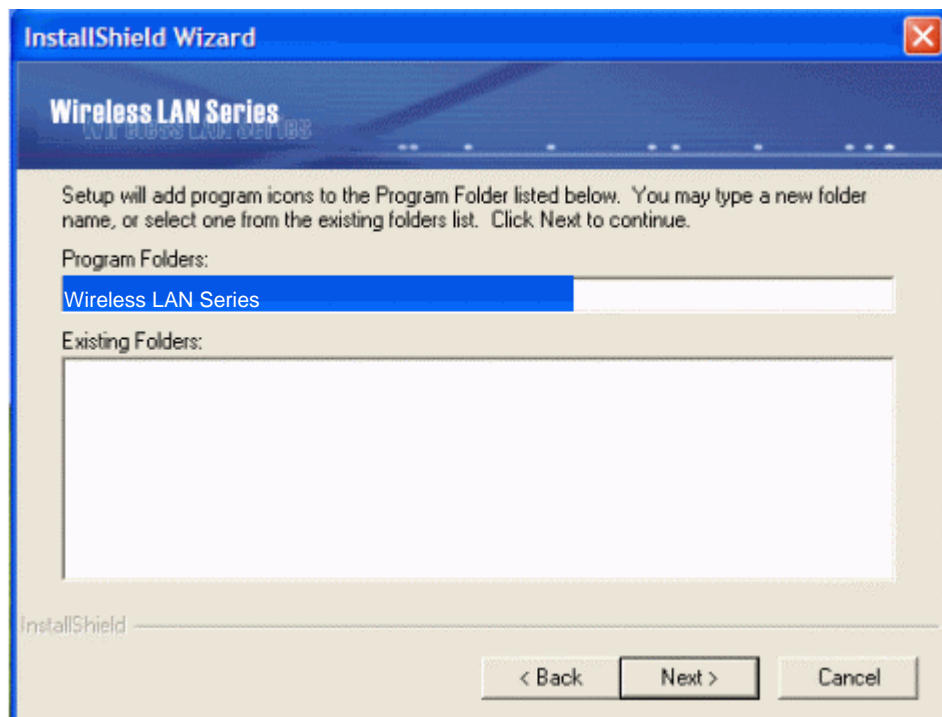




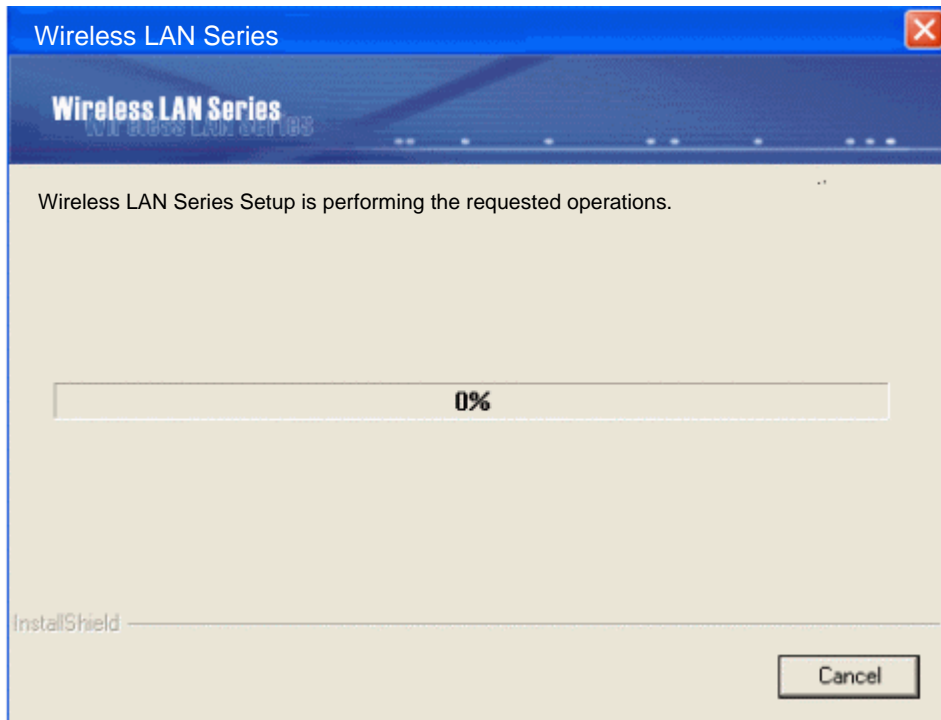
4. Choose "Complete" to install all necessary software for all types of adapters (PCI/mini-PCI/CardBus or USB.) If you want to use only a specific adapter, click "Custom" and choose the appropriate software drive for the wanted adapter. Click "**Next**" to continue.



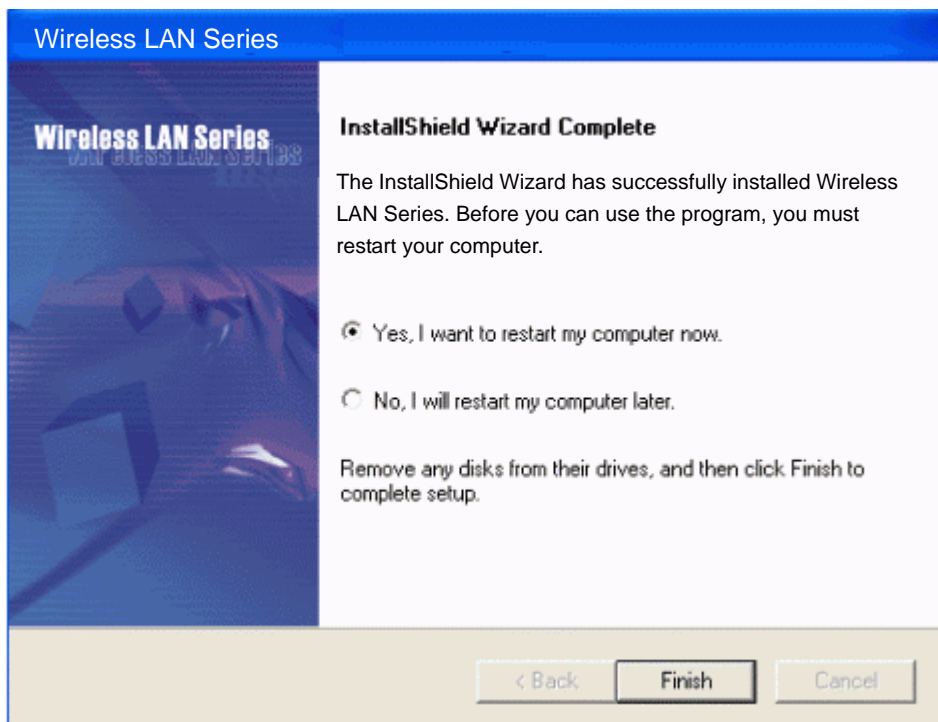
5. The InstallShield Wizard will create a program folder called **Wireless LAN Series**. If you want to change the program folder, enter a name or select from the list below. Click "**Next**" to continue.



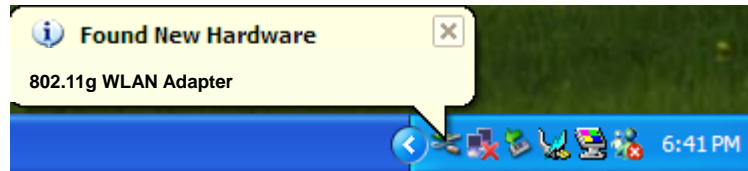
6. Setup and installation process begin.



7. Click "OK" to complete the installation and restart the computer.



- After the computer restarts, plug your Wireless LAN Adapter into your computer, **Windows XP** detects the device automatically, briefly showing a message “**Found New Hardware**” and starts collecting information for the device. There will be a new device icon shown in the system tray. And the pop-up dialog will show the model name of this new hardware.



- Windows XP** will automatically complete the installation. When **Windows XP** finish the installation of the Wireless LAN Adapter, you will find an icon in indicated “WLAN Monitor” in your system tray. You can double-click on it to configure the Wireless LAN Adapter.



### 3.2 Uninstall the Drivers/Application

There are three ways to uninstall the driver/application.

- Uninstall from windows “**Control Panel**”
- Uninstall from “**Installation CD**”
- Uninstall from MS Windows “**Start Menu**”

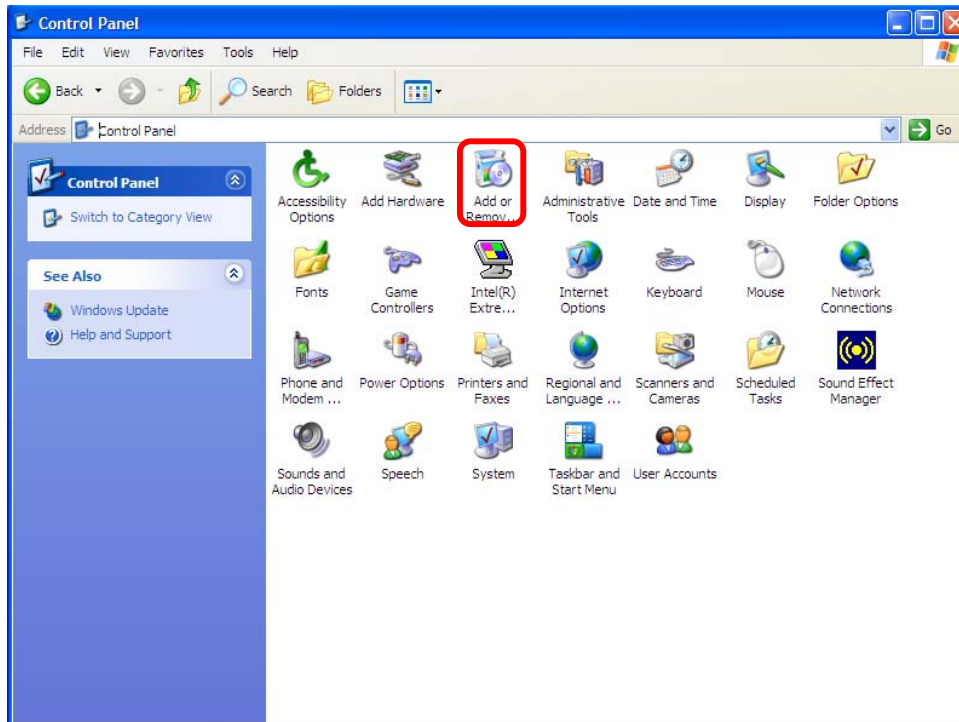
**Note:** No matter what way you choose to uninstall. It is recommended to “**Exit**” the “**Configuration & Monitor Utility**” before you performing the uninstall function.



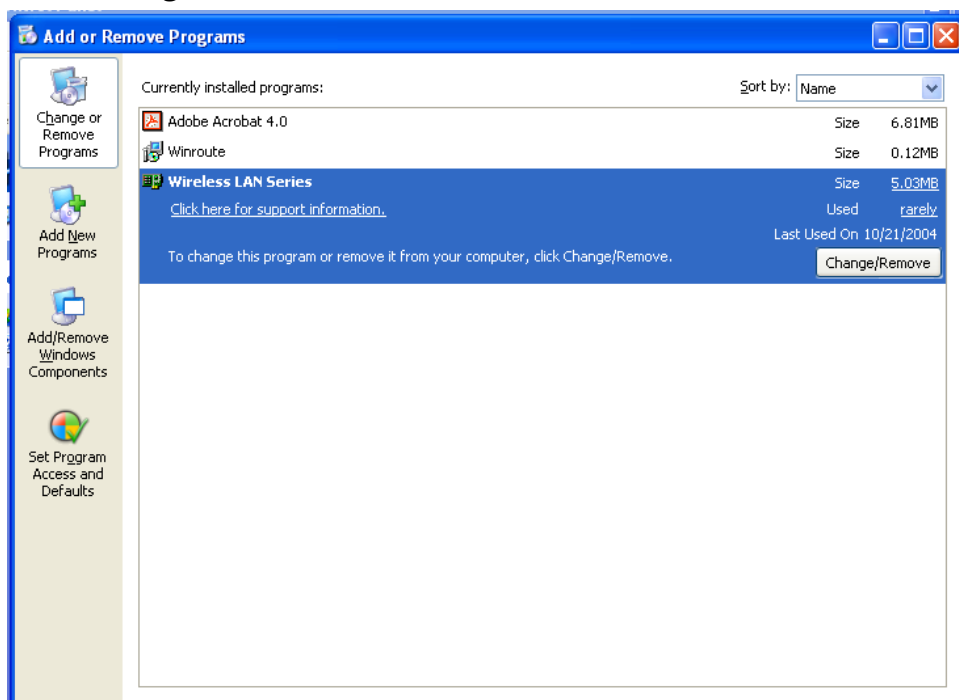
## Uninstall from MS Windows "Control Panel"

*Under MS Windows XP (similar process for Windows 2000)*

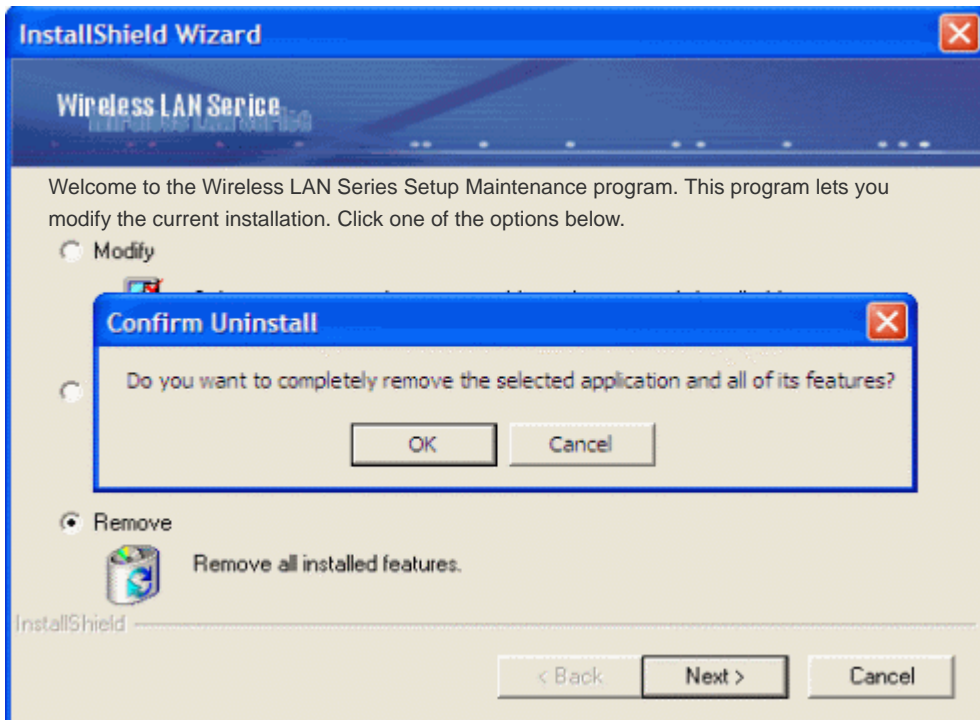
1. Open **"Control Panel"**.
2. Double click **"Add or Remove Programs"**.



3. Choose the **"Change or Remove Programs"**.
4. Select the **"Wireless LAN Series"** from the list.
5. Click the **"Change/Remove"** button.



6. Click the ***“Next”*** button, and then click ***“OK”***.



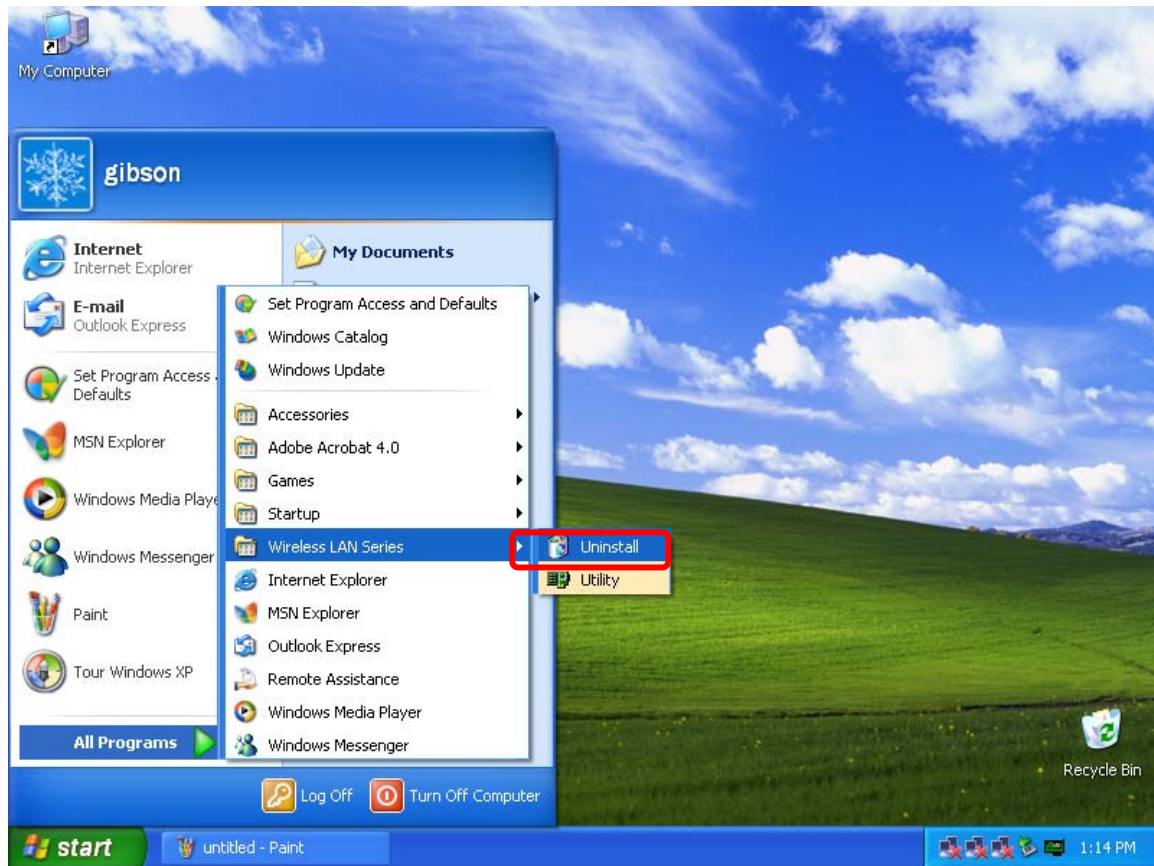
**Uninstall from Installation CD**

Insert the Installation CD to your CD-ROM device, the following window will pop up and click ***“Install/Uninstall software”*** button to uninstall.




**Uninstall from Windows Start Menu**

**Select "Start->All Program->Wireless LAN Series ", Choose "Uninstall".**



## 4 Configuration & Monitor Utility (NIC)

The “**Configuration & Monitor Utility**” is a powerful application that helps you to configure the Wireless LAN Adapter and monitor the statistics of the communication. Unlike the standard method of configuring the device via the operating system utilities (e.g. Control Panel), this application permits the dynamic modification of the configuration parameters while the adapter is operating. It also offers more configuration options.

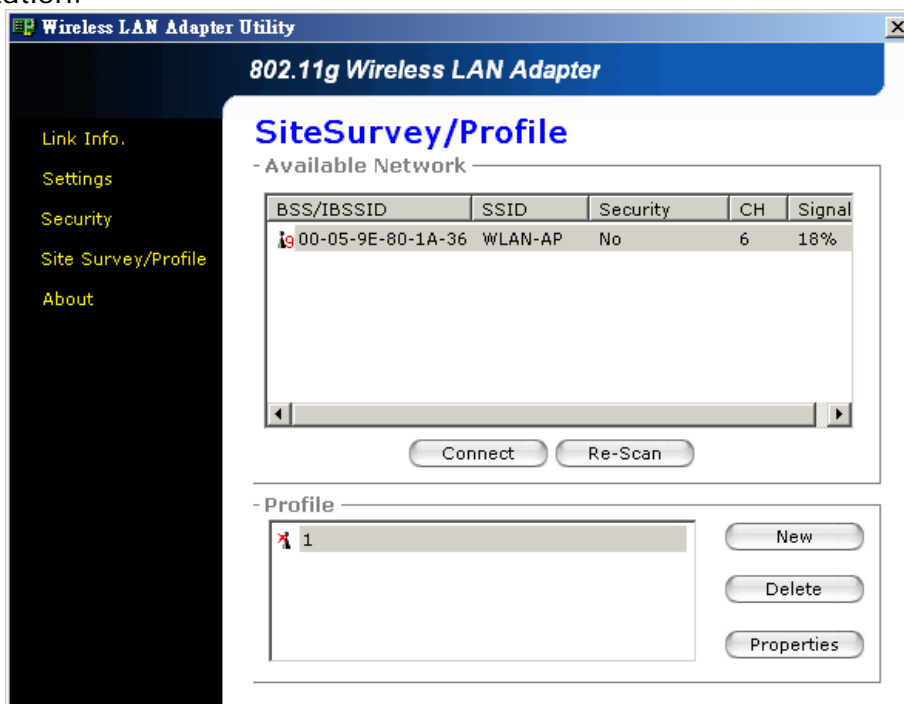
 **Note:** Please keep in mind that the Configuration & Monitor Utility can be used to change the configuration parameters only while the device is operating.

### 4.1 Quick step-by-step to connect a WLAN AP/Station

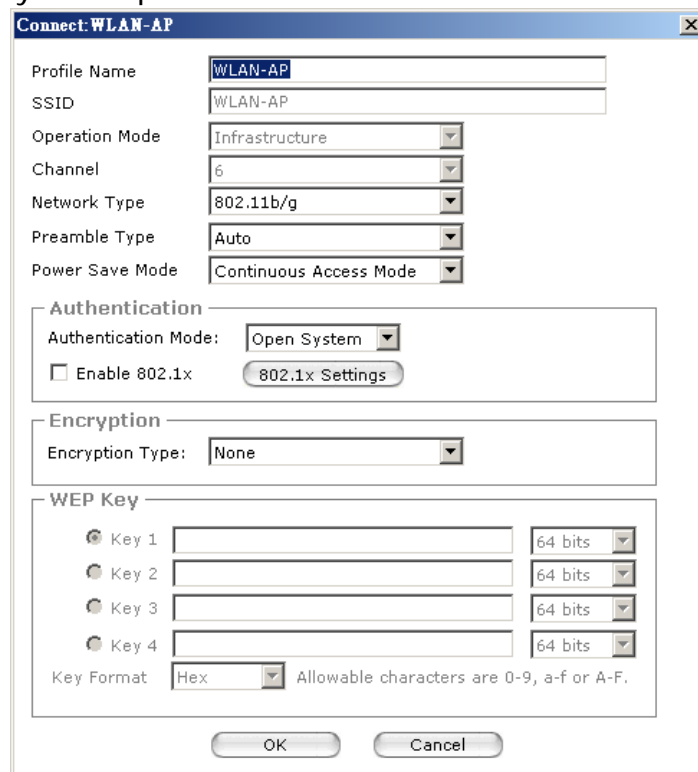
- Double-click the icon on the system tray to open “**Configuration & Monitor utility**”.



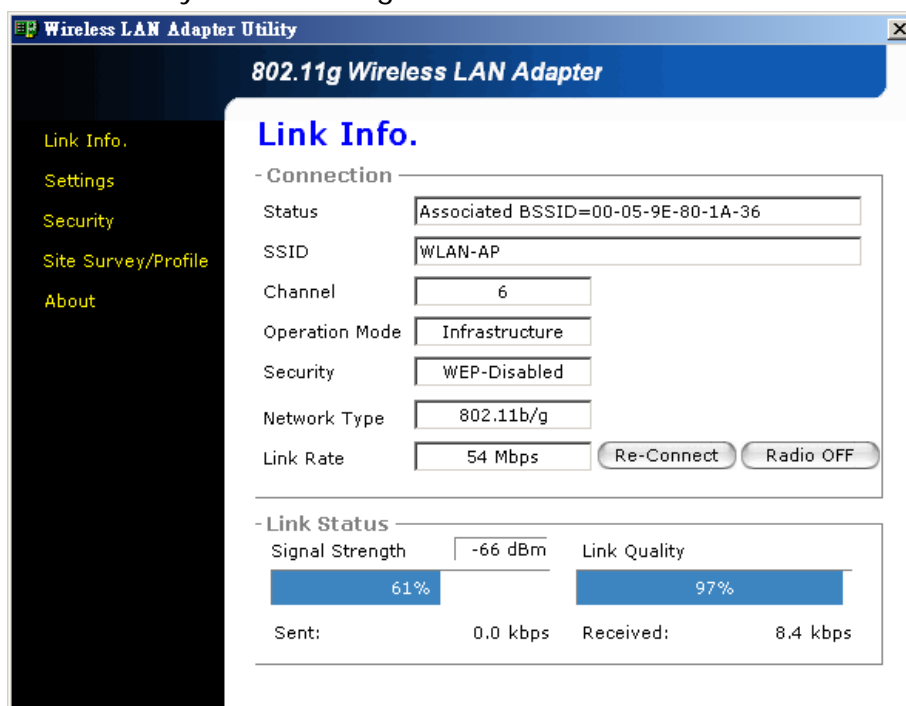
- Select “Site Survey/Profile” page, the utility will scan available WLAN AP (Access Point)/Station nearby. If an available WLAN AP/Station is found, you can connect to your wanted WLAN AP/Station by double-clicking the item from the list of the “Available Network”. You can click the “Re-Scan” button to rescan the other WLAN AP/Station.



- After you choose the WLAN AP/Station, a new dialog box will pop up, which show the profile of the station you choice. Click "OK", the utility will try to connect the station via the value you setup.



- If the adapter connects successfully, you can get all the information about the WLAN AP/Station you connecting from the "Link Info".





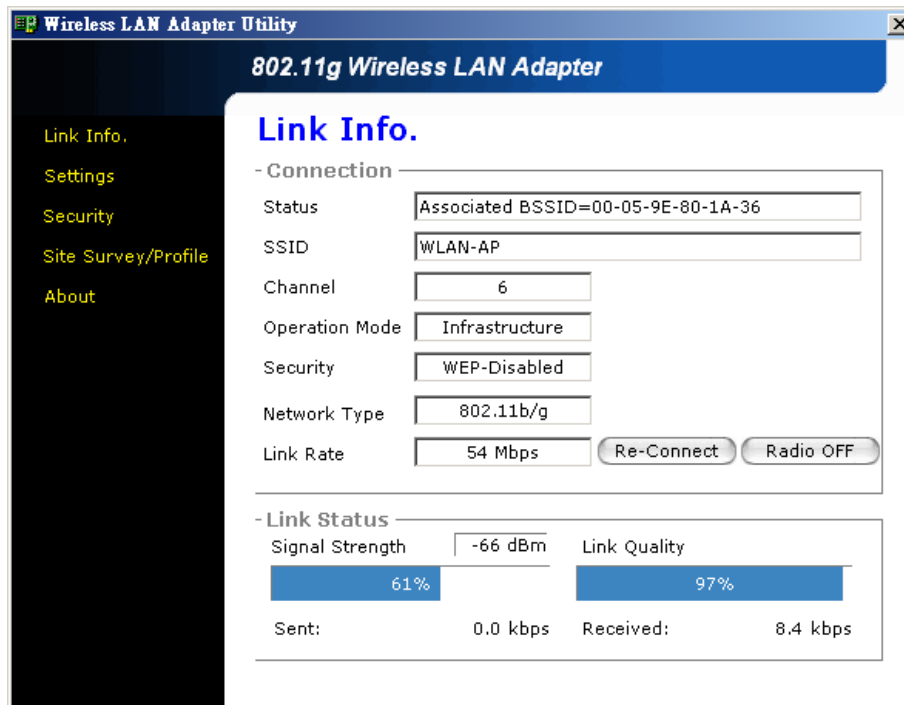
## 4.2 First Dialog Box of Utility

This dialog box consists five buttons, which help you to monitor and configure the Wireless LAN Adapter. The five buttons are **“Link Info”**, **“Setting”**, **“Security”**, **“Site Survey/Profile”** and **“About”**.

- **Link Info**—About Connected to Connect Status, SSID, Channel, Operation Mode, Security, Network type, Link Rate and Link Status.
- **Setting**—About SSID, Operation Mode, Channel, Network Type, Preamble Type, Power Save Mode, Auto Re-connect.
- **Security**—About Authentication Mode, Encryption Type, WEP Key value, WEP Key Length, Default WEP Key and WEP Key Format.
- **Site Survey/Profile**— Site Survey is related to BSSID/IBSS, SSID, Security, CH and Signal. Profile is about Available WLAN station list, Profile Information, which include Profile Name, SSID, Operation Mode, Channel, Network Type, Preamble Type, Power Save Mode, Authentication Mode, Encryption Type, WEP Key and WEP Key Format.
- **About**— Shown the information of Device Name, Country Region (can be configured), MAC Address, Driver Version, Configuration Utility Version, Firmware Version and Language Setting (can be configured).

### 4.3 Link Info.

This page shows current link information of the Wireless LAN Adapter to other WLAN AP/Station. To change any of these settings, click setting button at the right hand side of this screen.

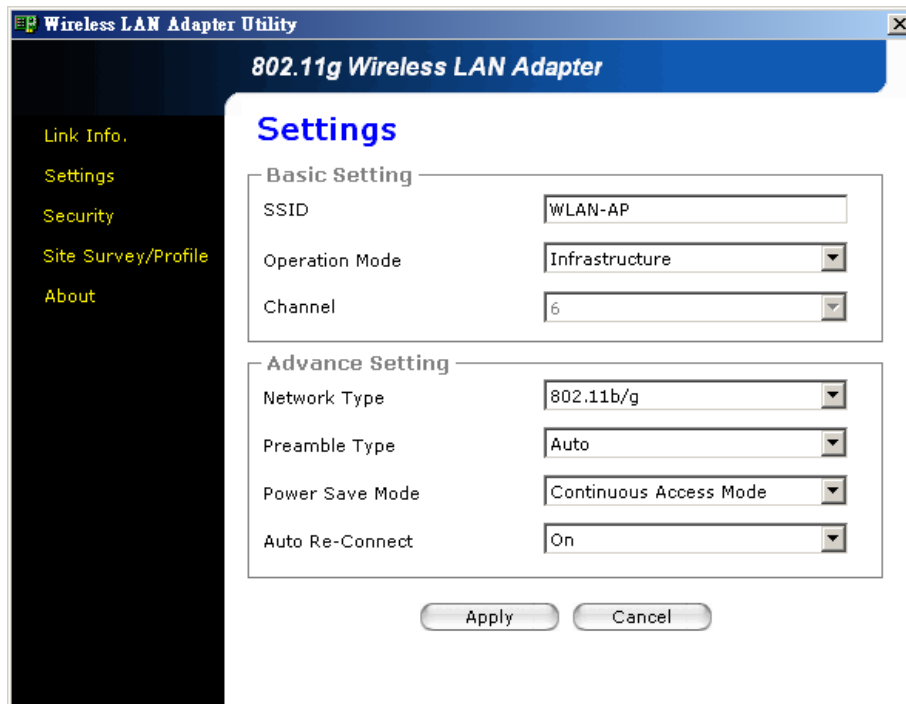


**Re-Connect:** This option allows your wireless adapter to automatically search for available WLAN AP when the current connection is dropped. When Auto Re-connect function enabled, your computer will attempt to connect to a WLAN AP/Station listed under the Profile of Site Survey/Profile page. (referred to Setting section)

**Radio OFF:** It can allow you turn the radio of the Wireless LAN Adapter off. You can press the same button to turn it on again.

## 4.4 Setting

This page shows the operating parameters of your Wireless LAN Adapter. You can select the “Operation Mode” to be Infrastructure or Ad-Hoc mode. Only Ad-Hoc can select the favor channels. The channels differ from country to country. Press the “Apply” button to take effect of the changed settings.



**SSID:** SSID is the group name that will be shared by every member of your wireless network. You are only able to connect with a WLAN AP/Station, which has the same SSID.

**Operation Mode:** The 802.11b/g standards support two network topologies: Infrastructure and Ad Hoc mode.

**Infrastructure** – This mode of operation requires the presence of 802.11b/g Access Point. All communication is done via the Access Point.

**Ad Hoc** – This is the peer-to-peer mode of operation. All communication is done from Client to Client without WLAN AP. Ad Hoc networking uses the same SSID for establishing the wireless connection.

**Channel:** There are 14 channels available. But the channels differ from country to country. The detail information you can see the section 4.7.

### **Advance Setting:**

**Network Type** – This option allows your wireless adapter can set only support the 802.11b standard or support both 802.11b and 802.11g standard.

**Preamble Type** – This option allows you to set up the preamble type as the long or the short type, or it can set to select preamble type automatically.

**Power Save Mode** – You can set you Wireless LAN Adapter to save the power consumption through three modes: *Continuous Access Mode*, *Maximum Power Save* or *Fast Power Save* when you use the wireless adapter with the limited power condition.

#### **Auto Re-Connect –**

**Off:** the Wireless LAN Adapter will only attempt to re-connect the last disconnected WLAN AP/Station.

**On:** your computer will attempt to connect to the WLAN AP/Station, which listed under the profile section of the *Site Survey/Profile* page.

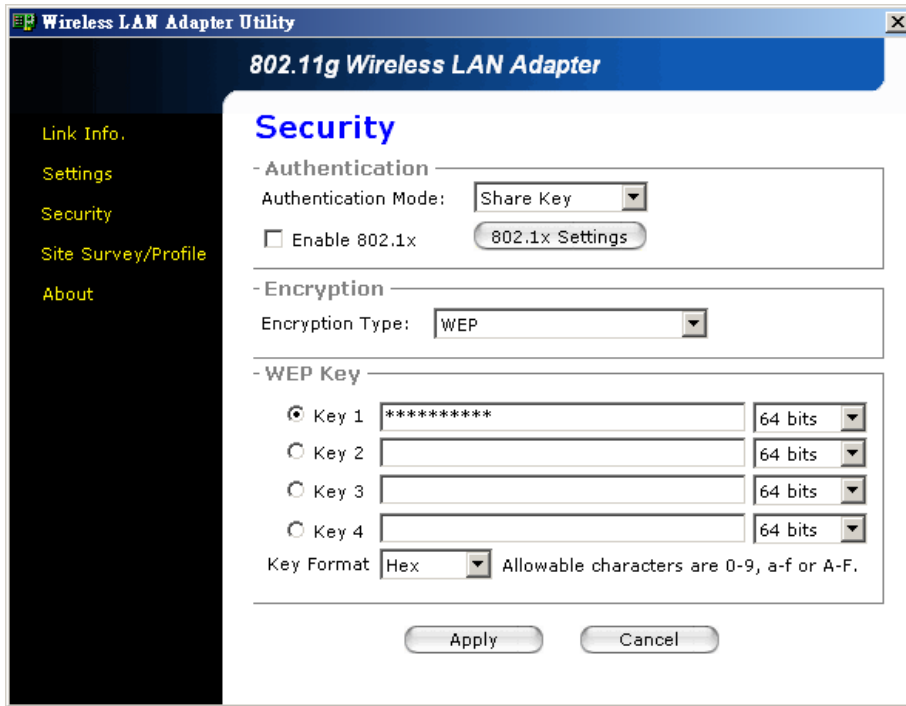
## 4.5 Security

You can choose different Authentication Mode, Open System, Share Key, Leap, WPA, WPA-PSK. If you need the 802.1x function, enable the 802.1x function.

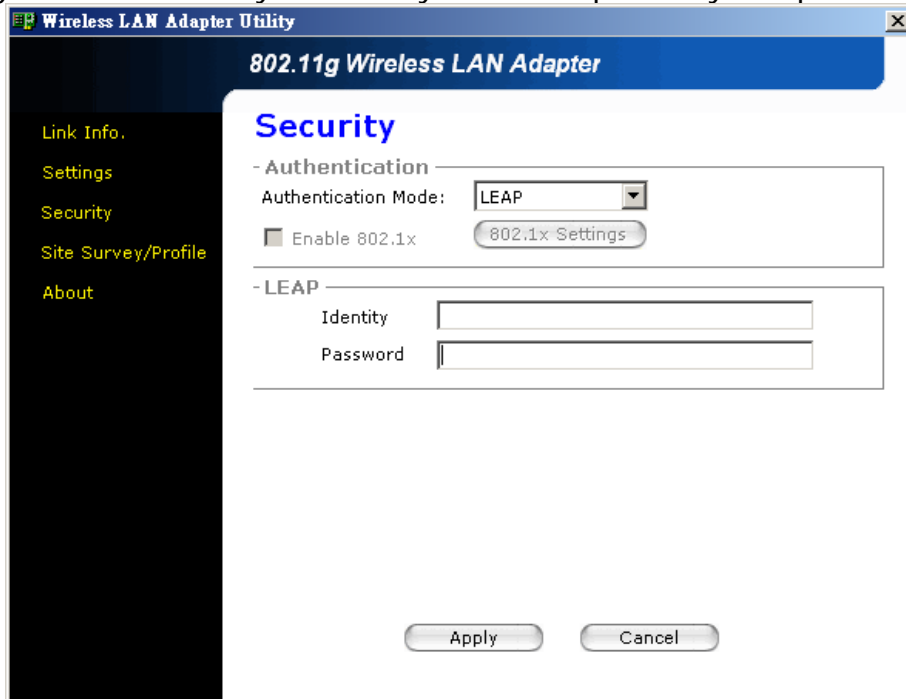
**Open System:** If you don't want to use any security function, you can select the **Authentication Mode** as "**Open System**" and the **Encryption Type** as "**None**".



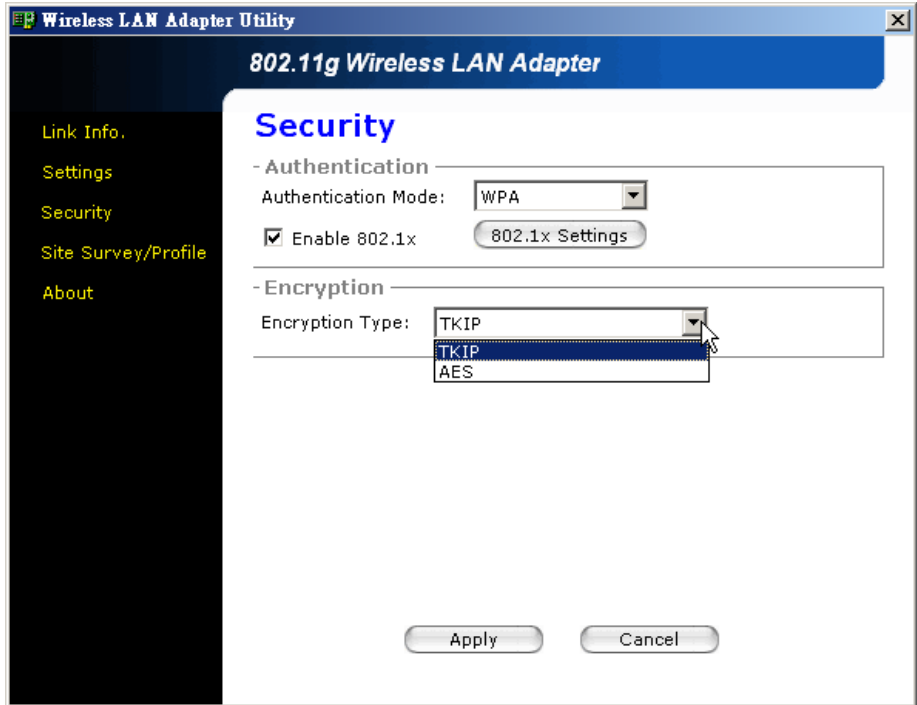
**Share Key:** You can choose Share Key and the encryption type is WEP. There are four sets of WEP Key you can choose. Select which default key you want to use, and set each length of Key. Please keep in mind that the WEP keys must match the format (Hex or ASCII) you set in this page. Finally, in order to take effect the changes you wish to make up, press the "Apply" button at the bottom of this page. You can load the default setting by press the "Cancel" button.



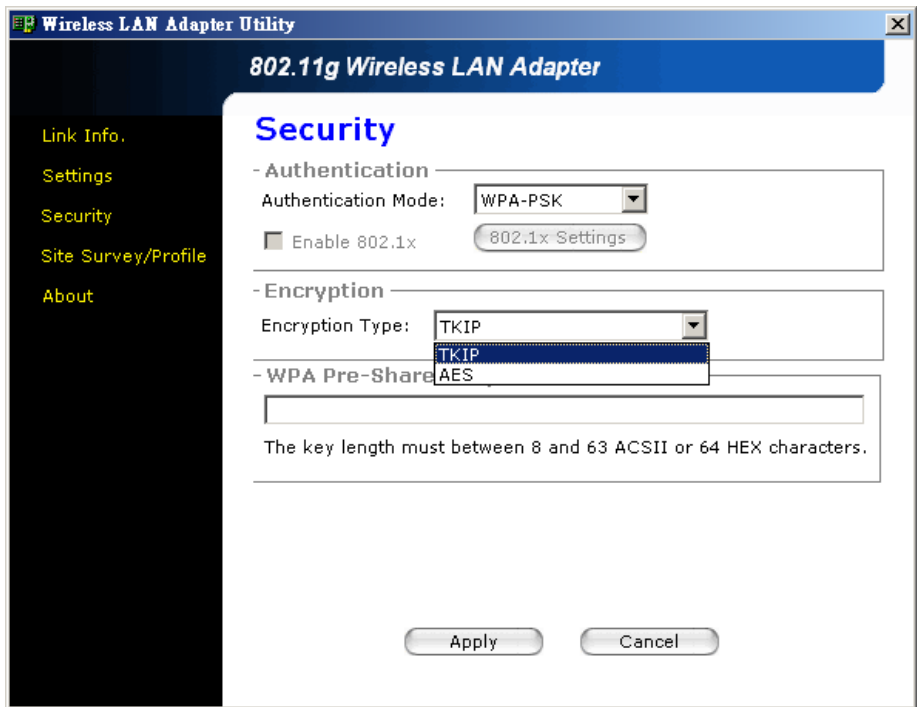
**LEAP:** If you choice *LEAP*, you can only set the leap identity and password.



**WPA:** If you choose **WPA** authentication mode, you can choose the TKIP and AES encryption type. Under this mode 802.1x must be enabled. Click the 802.1x Settings button to apply the appropriate settings (details referred to 802.1x Settings)

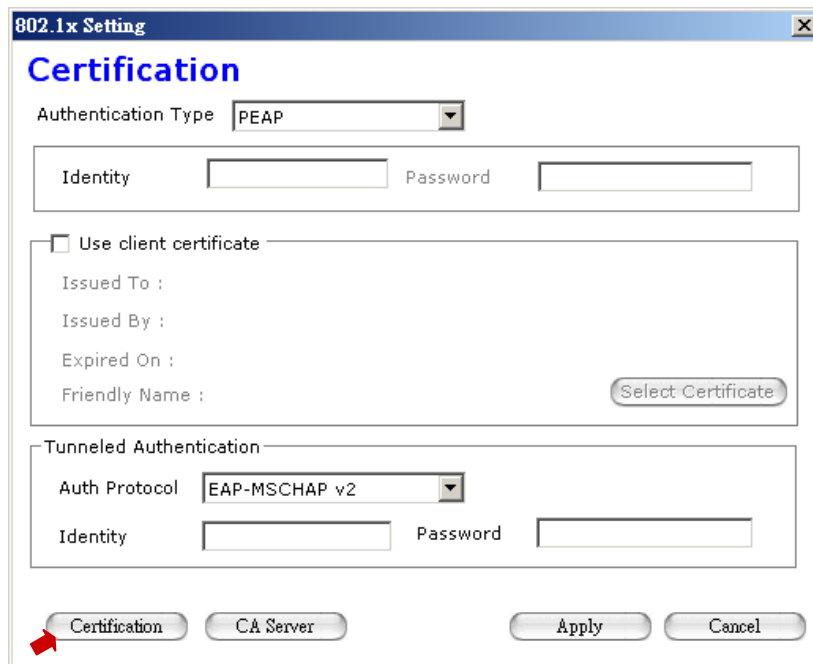


**WPA-PSK:** If you choose **WPA-PSK** authentication mode, you can set **Encryption Type** as "TKIP" or "AES". Then, type the appropriate value at the WPA Pre-Shared Key field.

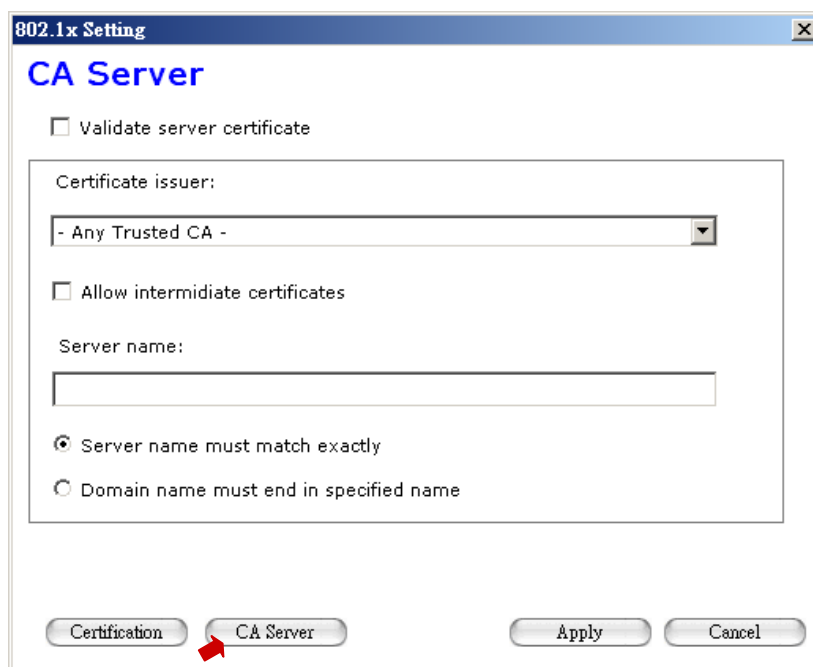


**802.1x:** If the Authentication mode you choice is Open system, Share Key or WPA, you can enable the 802.1x function, then press the “802.1x Settings”.

You can set the certification and CA server in two different pop-up dialog boxes.

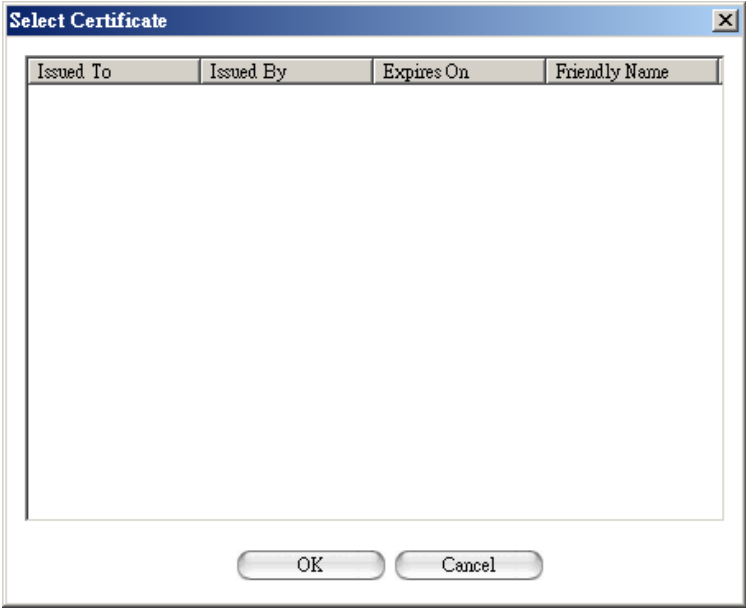


Then switch these two pages by pressing the “Certification” and “CA Server” buttons that located the left bottom of the dialog box.



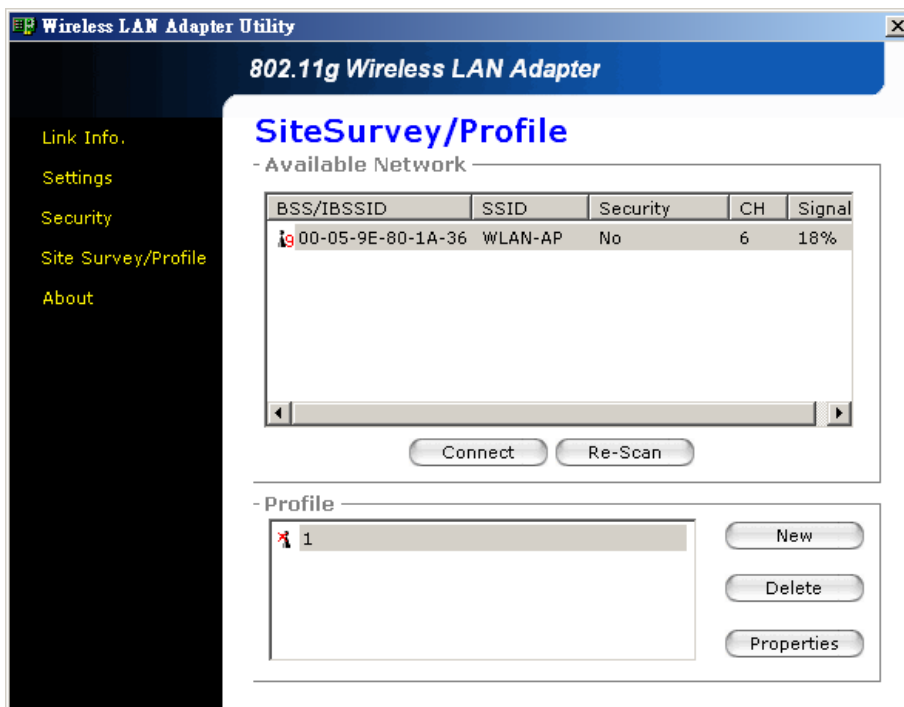


If you enable the *"Use client certificate"* function, click the "Select Certificate" button and certification dialog box will pop up.



## 4.6 Site Survey/Profile

This page, the utility will scan available WLAN AP (Access Point)/Station nearby. If an available WLAN AP/Station is found, you can connect to your wanted WLAN AP/Station by double-clicking the item from the list of the "Available Network". You can click the "Re-Scan" button to rescan the other WLAN AP/Station.



**"Connect" Button:** Pop-up profile dialog and load the selected WLAN AP/Station information (SSID, operation mode, security and channel).

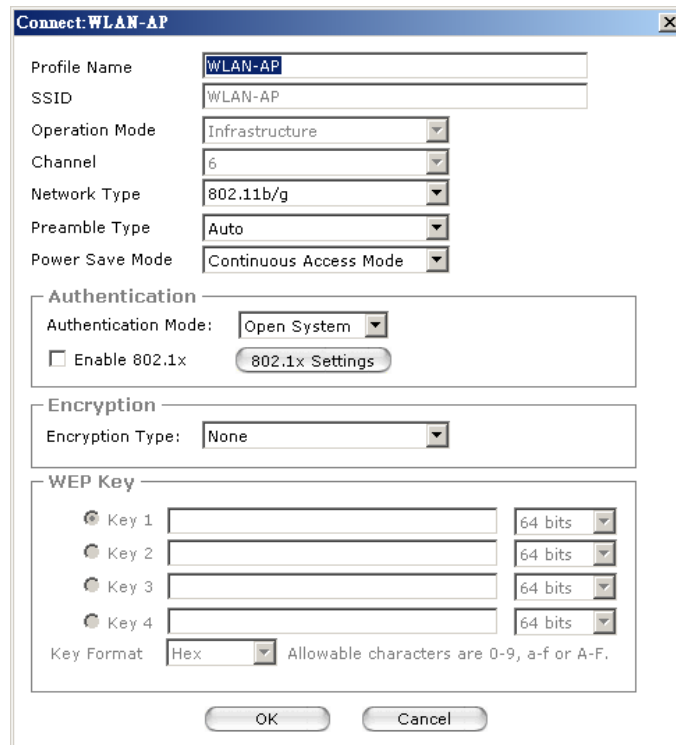
**"Re-Scan" Button:** Re-scan the available WLAN AP/Station.


**"New" Button:** Pop-up profile dialog and load the default information (operation mode, security and channel.....). Press "New" button, you can set different WLAN AP/Station information.

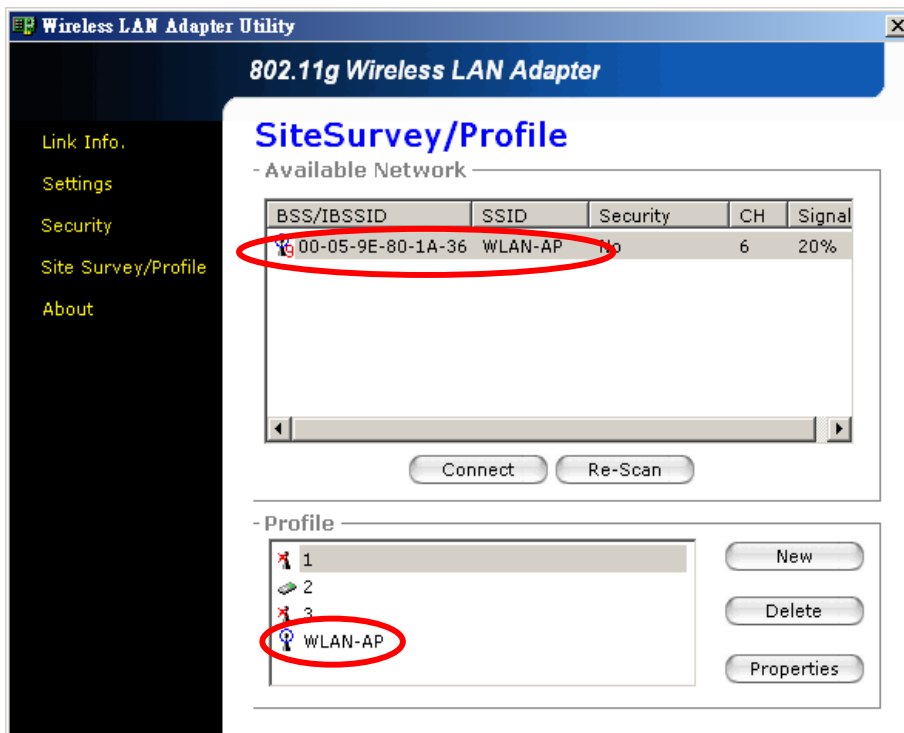
**"Delete" Button:** Delete selected profile that no longer in use.

**"Properties" Button:** Pop-up profile dialog and load the selected profile information, and you can modify all the value (SSID, operation mode, security and channel.....).

After you press the **"Connect"** button or double click the "BSS/IBSSID" item, the profile setting page will pop up. You can set all the profile value, then press "OK" to connect the WLAN AP/Station via the value you set in the profile.



When you connect one WLAN AP/Station which in the profile list, the list icon will become the connect status icon .

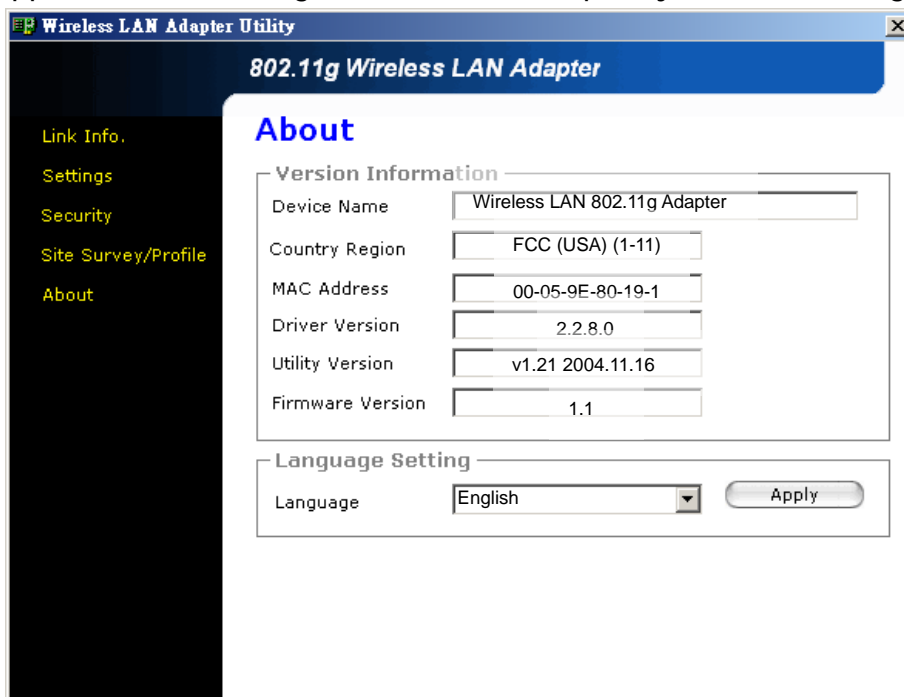


## 4.7 About

You will see the System Information about **“Device Name”**, **“Country Region”**, **“MAC address”**, **“Driver Version”**, **“Utility Version”**, and **“Firmware Version”** in this dialog box.

**Language:** You can choose different language from the below language list, then click **“Apply”** button to take effect the change.

**Country Region:** It shows the domestic region when you travel to another country, the adapter supports the 802.11b/g standard radio frequency for different region.



The standard of 802.11b/g is able to support channel 1-14. The following table is shown the available channels in the various countries, which is based upon local constraints and regulations.

Countries	Allowable Channel
USA (FCC)	Channel 1~11
Canada (IC)	Channel 1~11
Europe (ETSI)	Channel 1~13
SPAIN	Channel 10~11
France	Channel 10~13
Japan(MKK1)	Channel 1~14
Japan(MKK)	Channel 14

## 5 Switch the NIC and SWAP mode

You can switch Wireless LAN Adapter between two different operation modes, the NIC (Network Interface Card) and SWAP (Software AP).



**Note: You must be the system admin user to switch to SWAP function.**

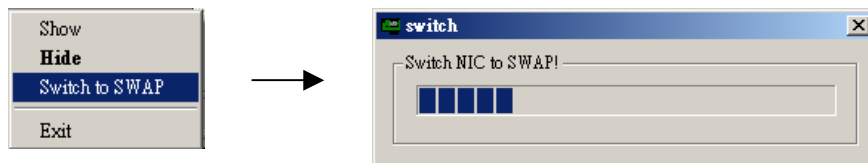
**PC Card and PCI adapters support SWAP function in Windows XP and 2000. USB adapter only support SWAP function in Windows XP.**

### 5.1 NIC to SWAP

- Right click your mouse button on the system tray icon.



- Select "**Switch to SWAP**".
- The utility will switch the Wireless LAN Adapter from NIC to SWAP mode. After a few seconds, the operation system and utility transport to SWAP mode.

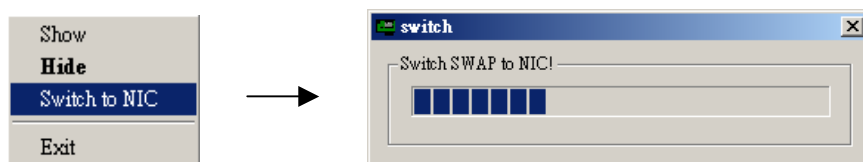


- Now the system tray icon will be changed as below. Now, the Wireless LAN Adapter is working under the AP mode.



### 5.2 SWAP to NIC

- If you want to swap the mode from SWAP to NIC, you can click your mouse right button on the system tray icon.
- The utility will change the Wireless LAN Adapter from SWAP to NIC mode. Please wait a few seconds.



- The system tray icon will change into the NIC icon. The Wireless LAN Adapter is operated under NIC mode.



## 6 Configuration & Monitor Utility (SWAP)

The “SWAP” is a powerful application that helps you to configure the Wireless LAN Adapter for software AP functions.



**Note: You must be the system admin user to switch to SWAP function.**

**PC Card and PCI adapter support SWAP function in Windows XP and 2000. USB adapter only support SWAP function in Windows XP.**

### 6.1 Quick step-by-step to set up SWAP

If you want to set up the SWAP, double click the system tray icon as below. The dialog page of software AP utility will pop up.



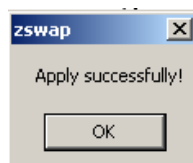
You can set all basic values about the software AP, like “SSID”, “Channel”, “Network Type”, “Authentication Mode”, “Encryption Type” and “WEP Key”. Press “**Apply**” to make the setting effect. The software AP function will be enabled.

The screenshot shows the 'Software AP' window with the '802.11g Software AP' tab selected. The 'Wireless Basic Settings' section is active, displaying the following configuration options:

- SSID: SoftAP (with a 'Hide SSID' checkbox)
- Channel: 8
- Network Type: 802.11 B/G Mixed
- Authentication Mode: Shared Key
- Encryption Type: WEP

Under the 'WEP Key' section, there are four key slots, each with a radio button and a 'HEX' dropdown menu. The first slot is selected, and its value is masked with asterisks. At the bottom of the window, there are three buttons: 'Load Default', 'More Setting...', and 'Apply'.

After you apply the new setting values successfully, it will pop up a message box to remind you.



## 6.2 Settings

Double-click the icon on the system tray to open “SWAP” utility.



In the **Settings** page, you can set all basic values about the software AP, like “SSID”, “Channel”, “Network Type”, “Authentication Mode”, “Encryption Type” and “WEP Key”. Press “**Apply**” to make the setting effect. You can press the “Load Default” to get the system default values.

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#### Wireless Basic Settings

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

SSID:   Hide SSID

Channel:

Network Type:

Authentication Mode:

Encryption Type:

WEP Key

Key 1

Key 2

Key 3

Key 4

You can press “More Setting...” button to set advance system values, like “Tx Rate”, “Preamble Type” and “Beacon Period”. You also can see the “RTS Threshold” and Fragmentation Threshold” values in this dialog box.

Advanced

### Advanced Wireless Settings

This page allows you to configure the advanced wireless parameters in order to optimize the wireless performance.

Tx Rate:

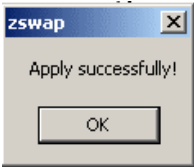
Preamble Type:

Beacon Period (ms):  (ms)

RTS Threshold:

Fragmentation Threshold:

After you apply the new setting values successfully, it will pop up a message box to remind you.

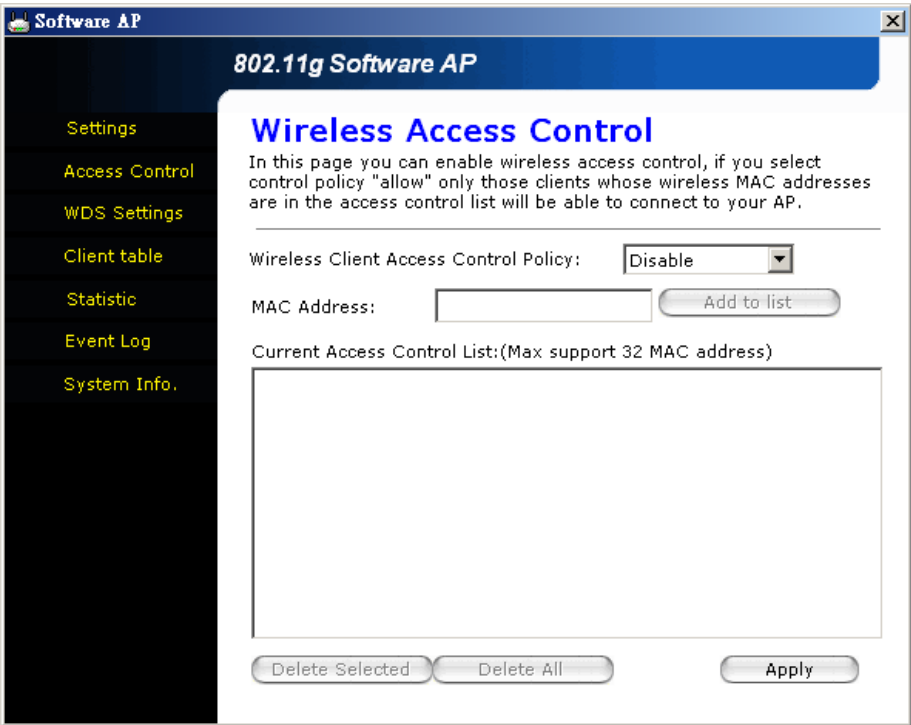


### 6.3 Access Control

In the "Access Control" page, you can set the MAC address of Stations to control which Station is allowed to access to this SWAP. Type the MAC address and then press the "Add to list" button to add the MAC address into the control list.

You also can remove the MAC address from control list by select the entry and then you press the "Delete Selected" button. If you want delete all MAC address in the control, you can click the "Delete All" button to remove all list from the control list.

The **Access Control Policy** can make you control the list easily. There are "Disable", "Allow All" and "Reject all" entries to be selected.





## 6.4 WDS Settings

The **WDS** (Wireless Distribution System) function allow you software AP to communicate with other APs. You can set the WDS that make your software AP co-work with other APs. As the **Access Control** page, you can press the "Apply" button to make effect this function. Use the "Add to list", "Delete Selected" and "Delete All" buttons to manage the MAC address of other APs in WDS control list, and use the radio button "WDS Control policy" to enable/disable the WDS function.



**Note: USB Adapter SWAP function does not support the WDS function.**

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### WDS Settings

Wireless Distribution System uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel and No loop allowed in a WDS. Then set MAC address of other APs which you want to communicate with in the table and then enable the WDS.

WDS Control policy:  Enable  Disable

AP MAC Address:

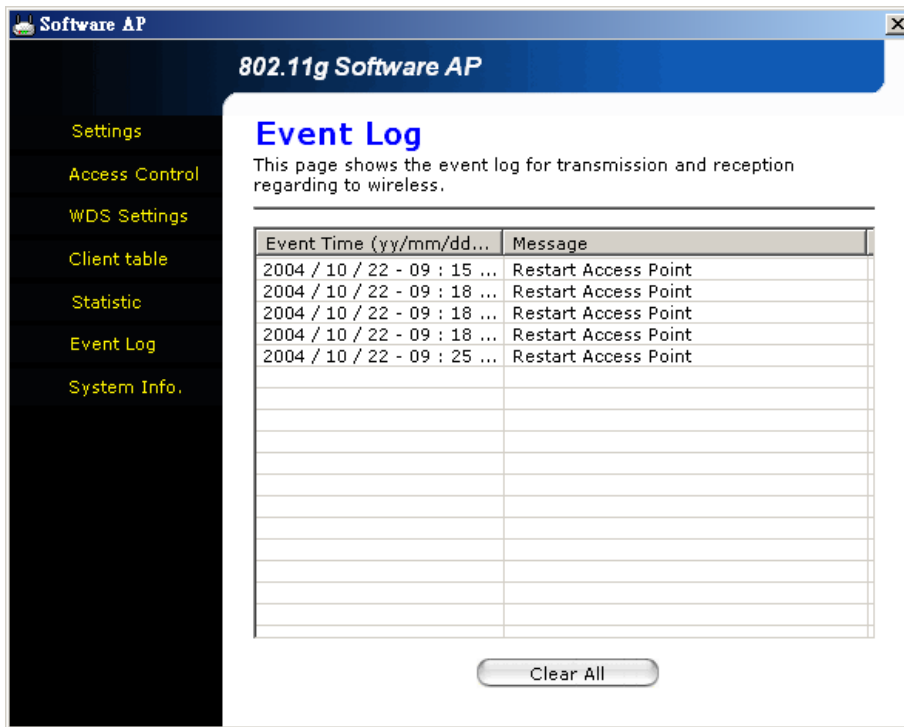
Current WDS AP List:(Max support 3 WDS AP)

00-05-9E-80-19-19
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## 6.7 Event Log

The "Event Log" page shows all the events of this software AP. You can press the button "Clear All" to clear the record of the event log.



## 6.8 System Info

The "System Info" page shows the "Configuration Utility Version", "Driver Version" and "MAC Address" about the software AP. You can choose the wanted language through this page.

