

Wireless Network PCI Adapter

Model Name: WPIR-501 / Brand Name: SparkLAN

User's Guide

Version 2.3

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1. Introduction

Thank you for purchasing your Wireless LAN Adapter. This User's Guide will assist you with the installation procedure.

The package you have received should contain the following items:

- Wireless LAN PCI Adapter
- User's Guide
- Warranty Card

Note: if anything is missing, please contact your vendor

2. Wireless LAN Basics

Wireless LAN (Local Area Networks) systems offer a great number of advantages over a traditional, wired system. Wireless LANs (WLANs) are more flexible, easier to setup and manage and often more cost effective than their wired equivalence.

Using radio frequency (RF) technology, WLANs transmit and receive data over the air, minimizing the need for wired connections. Therefore, WLANs combine data connectivity with user mobility, and, through simplified configuration, enable movable LANs.

With wireless LANs, users can access shared information without looking for a place to plug in and network managers can set up or augment networks without installing or moving wires. Wireless LANs offer the following productivity, convenience and cost advantages over traditional wired networks:

- **Mobility** - Wireless LAN systems can provide LAN users with access to real-time information anywhere in their organization. This mobility supports productivity and service opportunities not possible with wired networks.
- **Installation Speed and Simplicity** - Installing a wireless LAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings.
- **Installation Flexibility** - Wireless technology allows the network to go where wires cannot go.
- **Reduced Cost-of-Ownership** - While the initial investment required for wireless LAN hardware might be higher than the cost of wired LAN hardware, overall installation expenses and life-cycle costs will be significantly lower. Long-term cost benefits are greatest in dynamic environments requiring frequent moves, adds, and changes.
- **Scalability** - Wireless LAN systems can be configured in a variety of topologies to meet the needs of specific applications and installations. Configurations are easily changed and range from peer-to-peer to full infrastructure networks, also allow roaming over a broad area.

3. Installation for Windows platform

The following section will assist you in installing wireless LAN PCI Adapter successfully. You will first install software (Utility) and then insert / attach the Wireless LAN PCI Adapter to your system, and finally set the network properties to accommodate resource sharing and select the type of wireless network that you wish to install. The Wireless LAN PCI card can easily be installed and used, without bothering to connect cables for keeping your computer to use network resources.

3.1. Installation Overview

Here are some steps you will perform in establishing your wireless network connection:

- Install the Access Point at first. AP is needed in case of Infrastructure network mode.
- Install the software using the Install CD.
- Install the Wireless LAN PCI Card.
- Install the network protocol(s) required to communicate on your network. Most likely you will need the TCP/IP protocol.

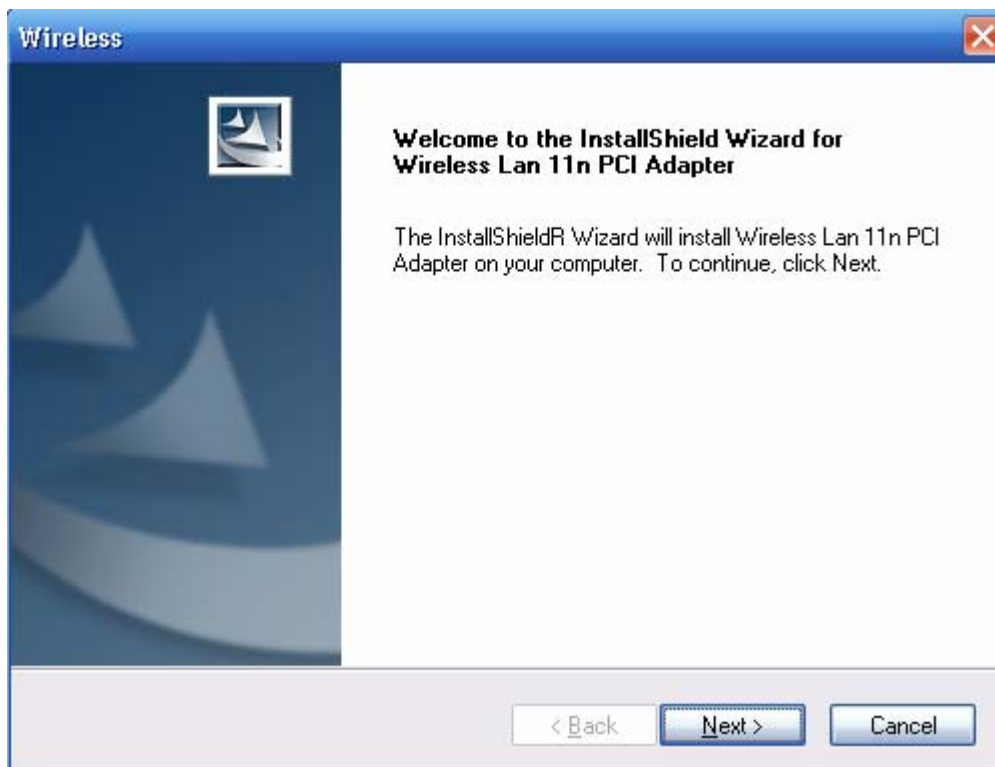
3.2. Install Procedure for Windows

Note: Do not insert the **WLAN Adapter** until you are asked to do so, failure of which may result in unsuccessful installation of your WLAN device.

1. Insert the given Install CD in the CD-ROM, and wait for the Autorun prompt. If Autorun does not work, please browse the CD content and double click the “ Autorun.exe ”.



2. Click WPIR-501.
3. Follow the instruction to finish the installation.



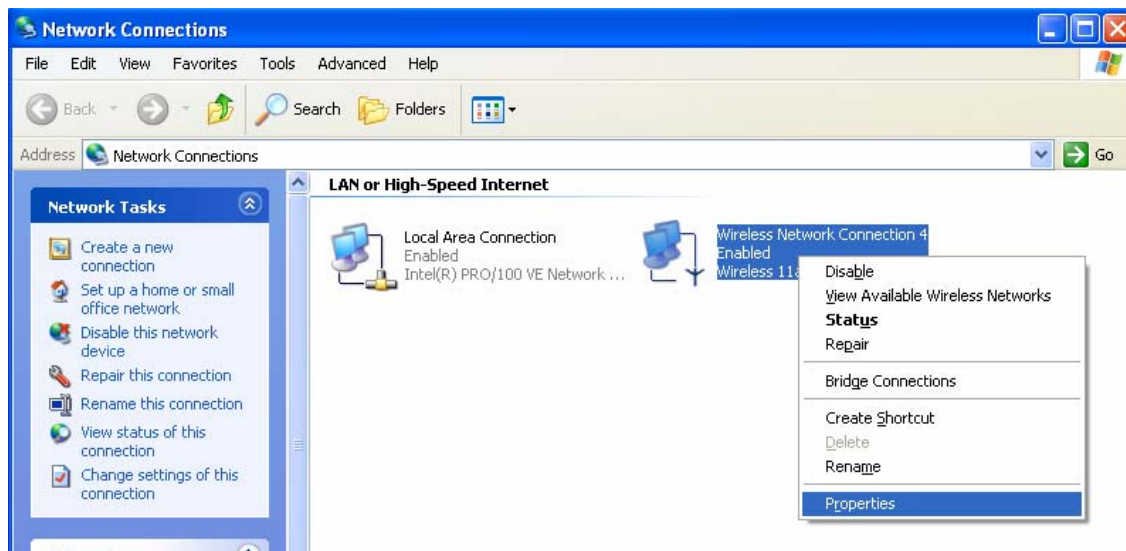
After complete the procedure, insert your WLAN card into PCI connector of your system, and then system will detect new hardware. Select “**Install the software automatically (Recommended)**”, and then click **Next** to continue. After copy the file to your system, then the setup is finish.

4. Click the right button of mouse on **My Computer** → **Manage** → **Device Manager**.

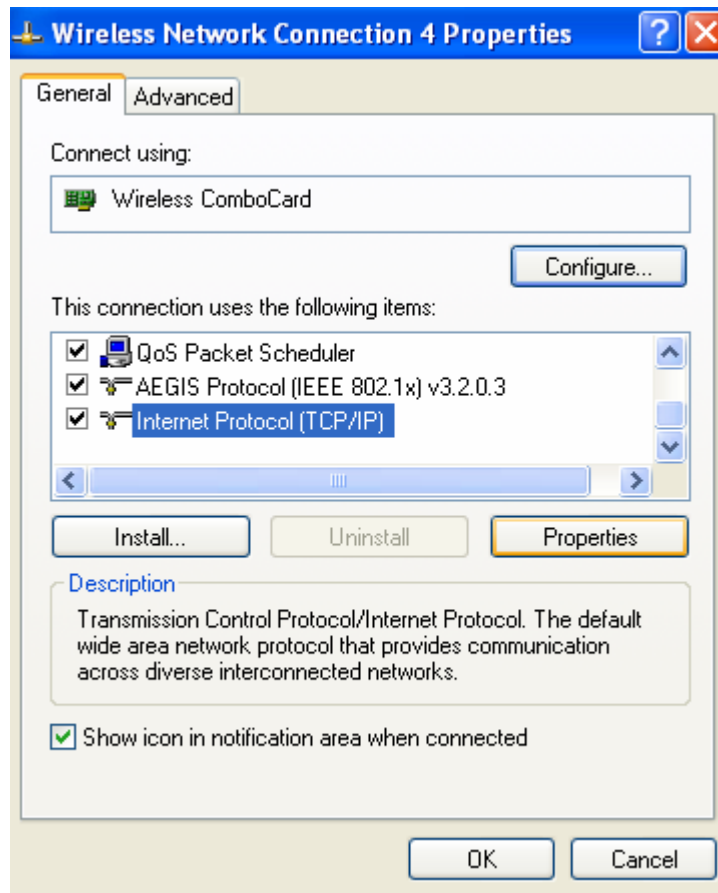
Check whether it has WLAN adapter in one of the sockets or not. If you find **Wireless 11n PCI Adapter** in one of the sockets, it means the card is detected properly.

If you cannot find this adapter on device manager, please click the **Action** → **Scan for hardware changes** to search again. If this adapter is shown with yellow exclamation mark, please remove it and click the **Action** → **Scan for hardware changes** to search this hardware again for proper hardware installation.

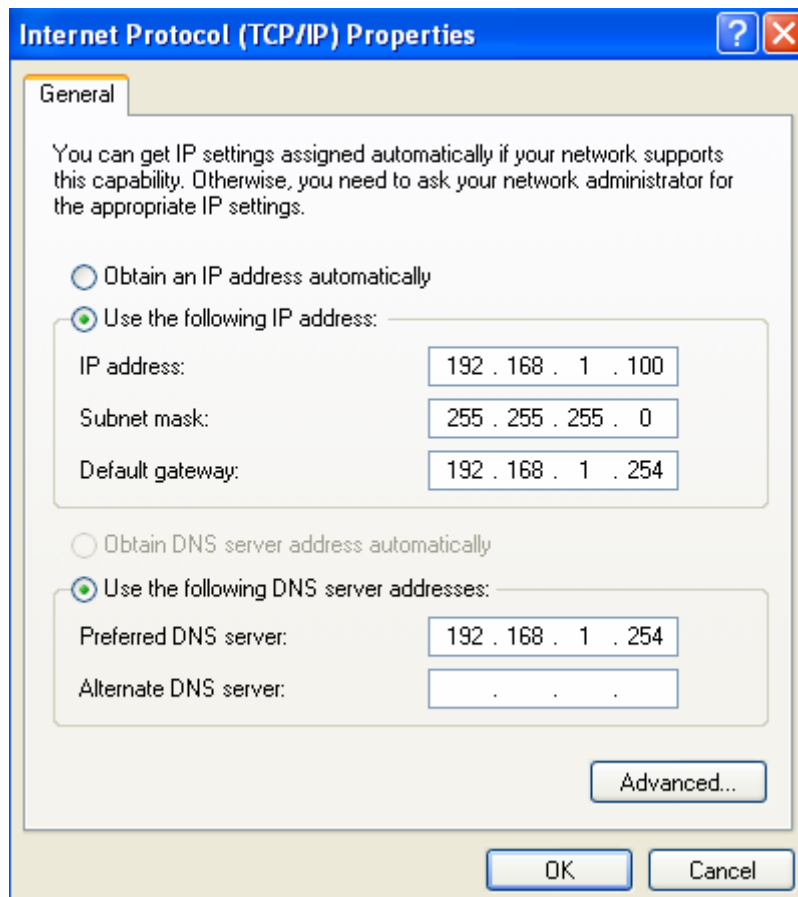
5. Click **Start**→ **Settings**→ **Network Connections** or right click mouse on the **My Network Places (Network Neighborhood)** for TCP/IP setting.



6. Click **Properties** from the pop up menu. Select the **Internet Protocol(TCP/IP)** and click Properties button.



7. You can select either **Obtain an IP address automatically** or **Use the following IP address setting**. If your choice is the second one then entering the **IP address, Subnet mask, Default gateway and DNS**. After setting these parameters appropriately, click OK to make the changes work.



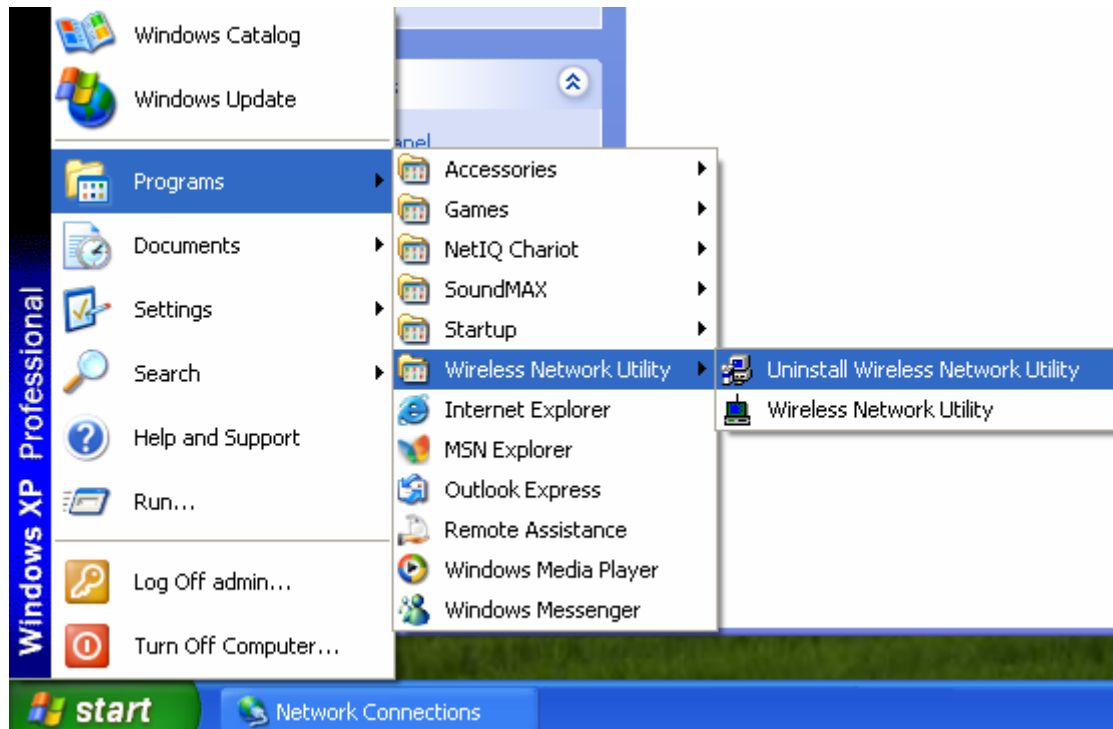
3.3 Uninstall Procedure

Step 1:

If you want to uninstall the WLAN adapter, just simply click

Start → Program → Wireless Network Utility→ Uninstall

It shall uninstall all related programs.





Step 2:

Restart your Computer.

4. Configuration Utility

Wireless network adapter uses its own management software. All functions controlled by user are provided by this application.

Usually this application starts automatically, or click  icon from **Start Menu** to start the Utility application.

A new icon -  should appear in your Icon tray if your WLAN adapter is working properly. If the icon is in red color, it means that WLAN adapter is under poor signal or the connection is unavailable.



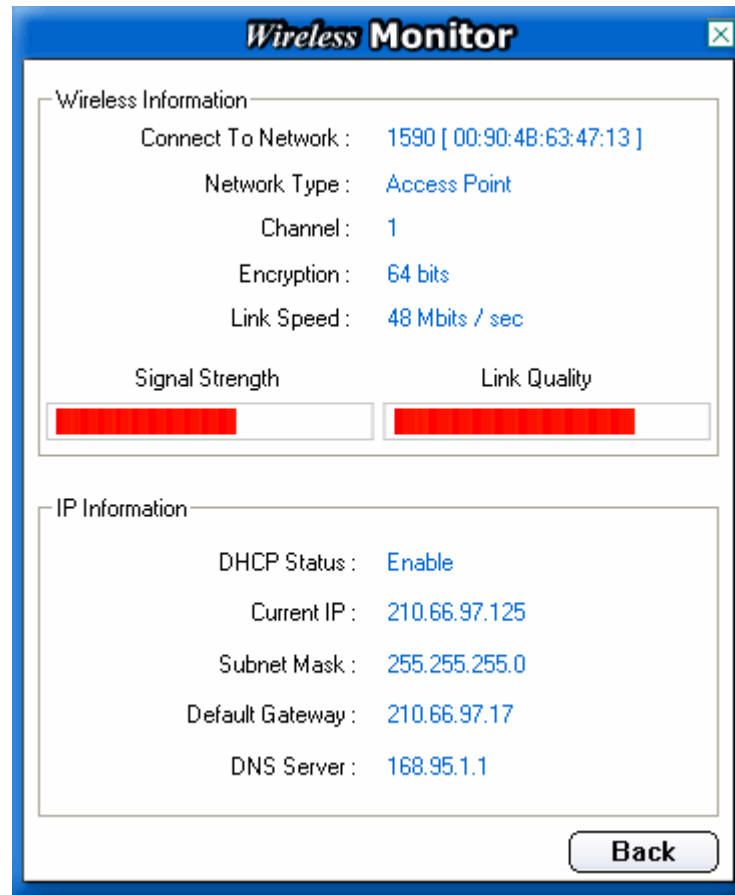
User can navigate through “sheets” by clicking tabs; “X” button will minimize the window.

To provide more link information, click “More...” button. Below description explains the usage of this utility.



4.1 Link Information

Connected To Network



This field is used to display the current status of connection. There are two states of it.

The first one is "Connected to Network" means normal flow of operation in Infrastructure mode. The PC is connected to access point. Networking is available.

The second one is "Scanning" means that the node is searching for available Access Point within effective range. This field will also display an error message for some reason if the driver fails to initial.

◆ Network Type

Infrastructure Mode - The driver will scan all available channels continuously until it found one or more Access Points that match its SSID. At that point it will try and authenticate and associate with the Access Point.

Peer to Peer Mode - The driver will scan for 5 seconds looking for an existing Ad Hoc network using the same SSID.

- ◆ **Channel**

The current channel that be used for this WLAN adapter will be shown in this field.

- ◆ **Encryption**

All encryption status will be shown in this field.

- ◆ **Link Speed**

The current transmit rate will be shown in this field.

- ◆ **Signal Strength**

The signal strength bar graph is only active when the node is in infrastructure mode. The bar graph displays normalized signal strength as reported by the radio, averaged over all frames over 100 bytes long that are received from the AP.

- ◆ **Link Quality**

The Link Quality bar graph is only active when the node is in Infrastructure Mode. The bar graph displays the quality of the link between the node and Access Point.

4.2 WPS Function

Wi-Fi Protected Setup (WPS) is a standard for easy and secure establishment of a wireless home network, created by the Wi-Fi Alliance.

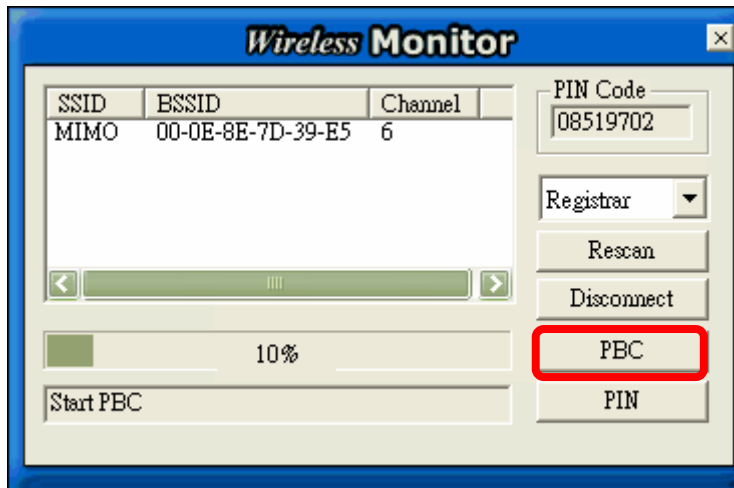
The goal of the WPS protocol is to simplify the process of connecting any home device to the wireless network.

To secure your wireless network, you could push the “WPS” button under user interface as below:

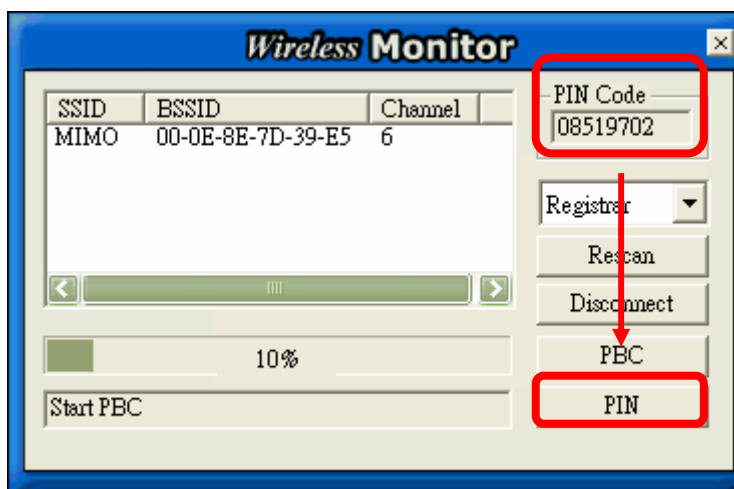


There are two ways to enable WPS connection:

1. PBC mode: Choose a Router in the list then click “PBC” button.



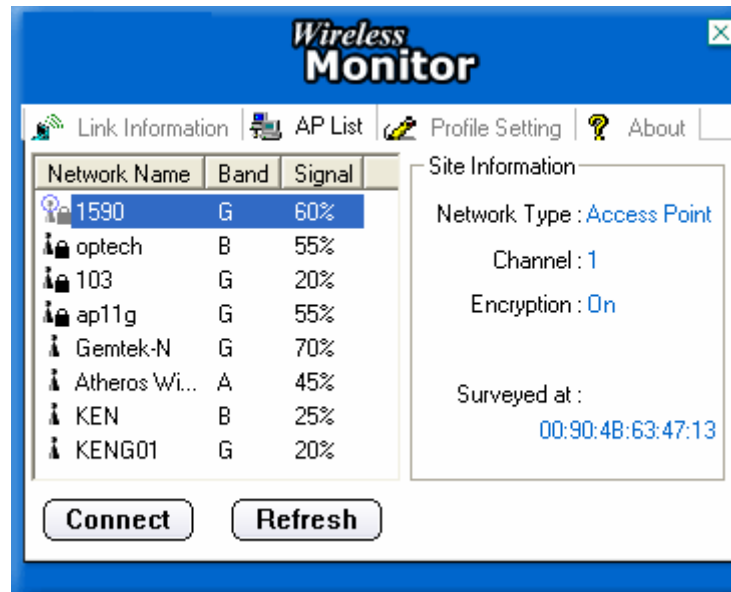
2. PIN mode: Choose a Router in the list and check the PIN codes are the same between Router and Client then click “PIN” button.



Note. To make sure the PIN codes are the same between Router and Client.
Type the Client’s PIN Code into Router’s PIN Code setting then click PIN button to start WPS connection at Client side.

4.3 AP List

The Connections Tab shows current status of available APs within the network.



User may select profile or ESSID from above list, click “Connect” to connect with the AP.

Click “Refresh” to rescan the network, this utility with site survey function, it will detect and list all available APs within effective range.

4.4 Profile Setting

Profile Setting allows user to create profiles for different network environments.



Click “Add” button to create new profiles.

“Edit” for editing current existed profiles.

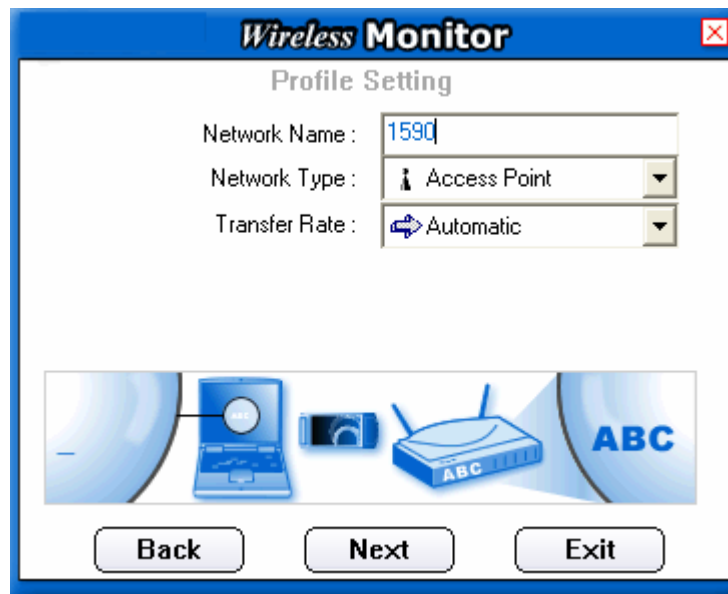
Click “Delete” button if you wish to delete profiles.

◆ **Network Name**

The name of Profile, users can define it by themselves.

◆ **Network Type**

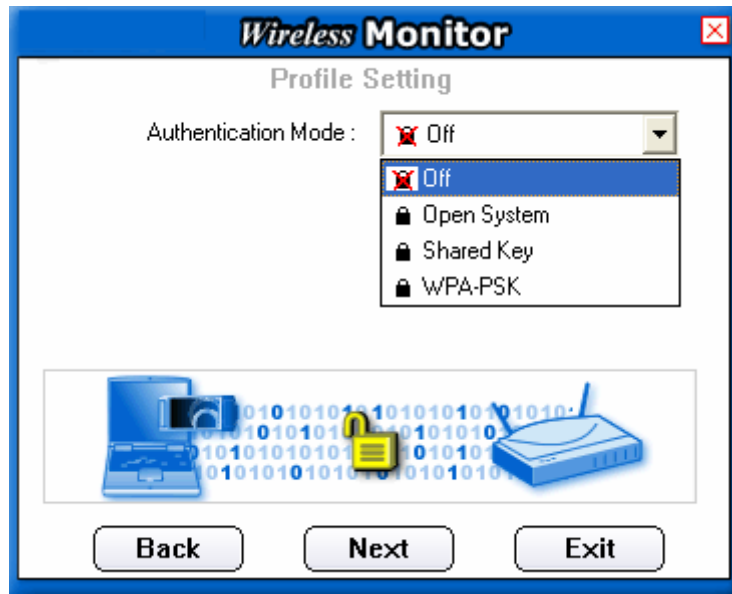
This field allows you to select from a list of supported Network “Modes”. The modes displayed will have two values: “Peer to Peer” and “Access Point”.



Peer to Peer - This is 802.11 peer-to-peer mode. In 802.11 Ad Hoc, only one wireless “cell” is supported for each different SSID. All communication is done from Client to Client without the use of an Access Point. 802.11 Ad Hoc networking uses the same SSID for establishing the wireless connection.

Access Point - This mode of operation requires the presence of an 802.11 Access Point. All communication is done via the Access Point, which relays packets to other wireless Clients in the Basic Service Set as well as to nodes on a wired network such as Ethernet.

- ◆ **Transmit Rate** - The transmission rate at which client of AP transmits the data packets. You may set this to fixed 1Mbps, fixed 2 Mbps, fixed 5.5 Mbps or higher or Automatic for 802.11 AP.
- ◆ **Authentication Mode** - You may desire an additional measure of security on your WLAN which can be achieved by using WEP or WPA encryption.



This panel allows to entry for 64/128-bit encryption according to WEP function select. To be written to the driver and registry, such as Hexadecimal format, each key must consist of hex digits, which means that only digit 0-9 and letters A-F are valid entries. If entered format is incorrect, the utility will not accept it.

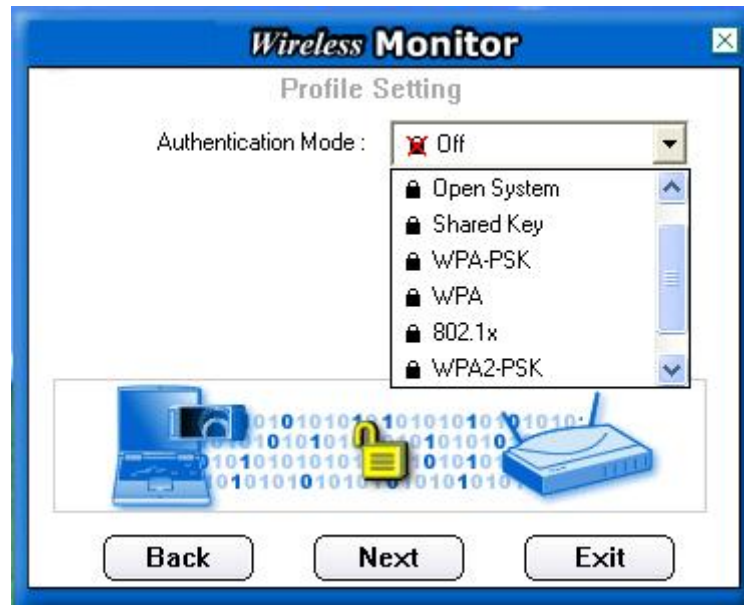
WPA PSK is one advanced security for wireless network. There are 2 types algorithm could be supported – one is TKIP, and the other is AES.

To use WPA PSK, enter a password in the WPA Shared Key field between 8 and 63 characters long.

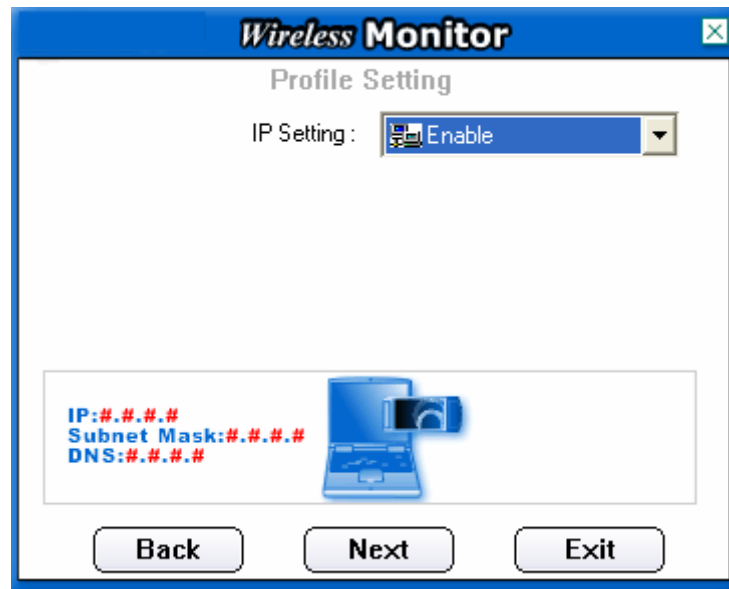
WPA is advance WPA security that require Radius server using EAP–TLS or PEAP for user authentication.

WPA 2 PSK is the enhanced version of WPA PSK, it eliminate TKIP security with enhanced AES security to 128bits encryption. To use this WPA2 PSK, enter the password in the WPA2 shared key field between 8 and 63 characters long.

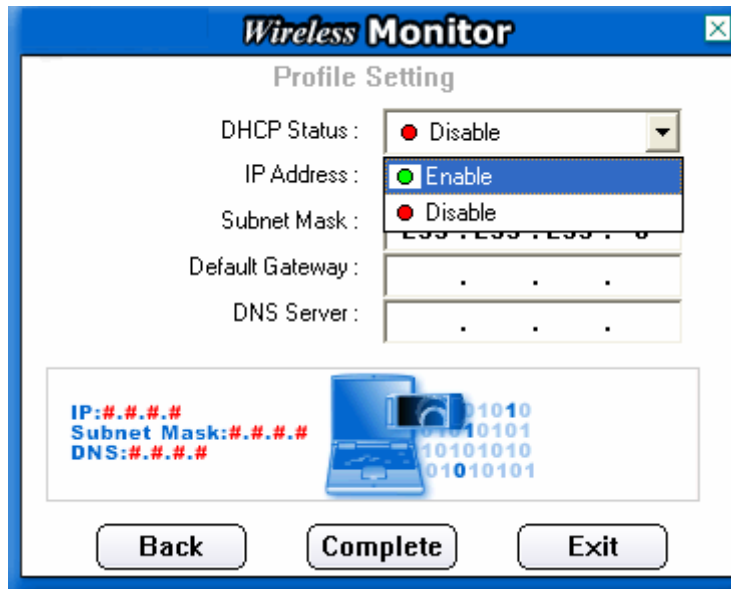
WPA 2 is advanced WPA security with Radius server that using EAP-TLS or PEAP for user authentication.



To enable IP Setting function, please select enable.



Please define if the current Profile IP setting will be assign by a DHCP Server or just assign by a fixed IP that is determinate by the Network Administrator.



When the DHCP Status is Enable, the TCP/IP information will be assigned by a DHCP Server. Or otherwise please fill up with the correspondence data of the IP settings.

4.4 About



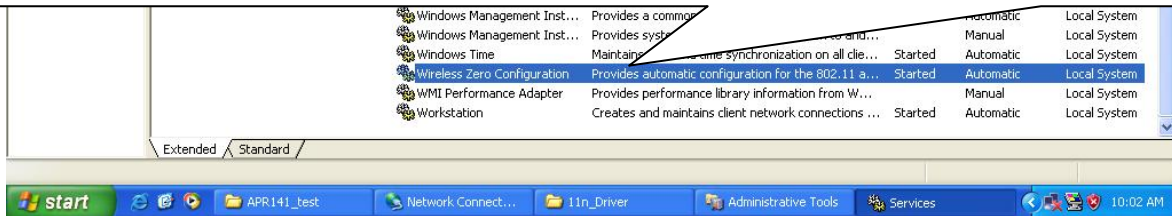
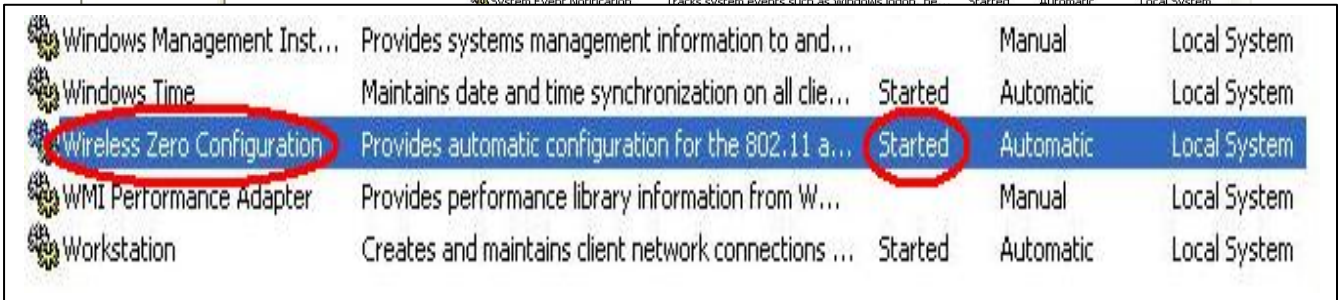
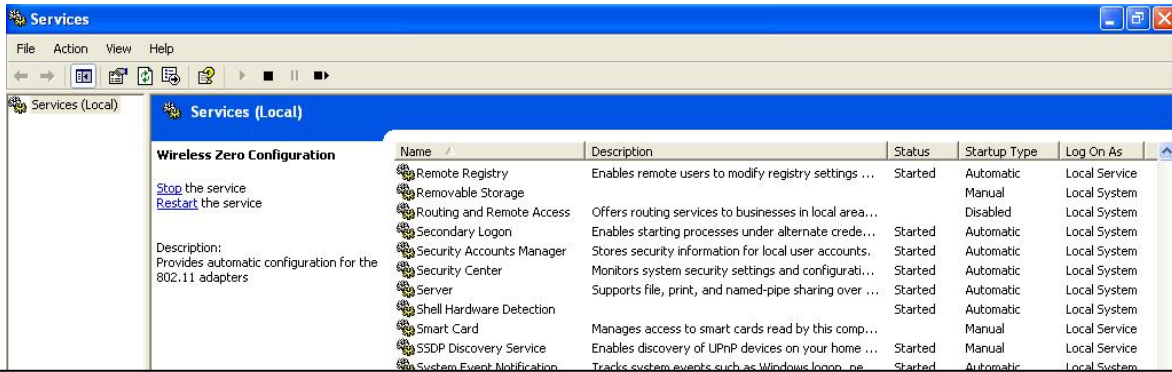
“About” tab shows the product version including the detail of Driver, Application and firmware versions. Users must use this version number when reporting their problems to technical support.

5. Appendix

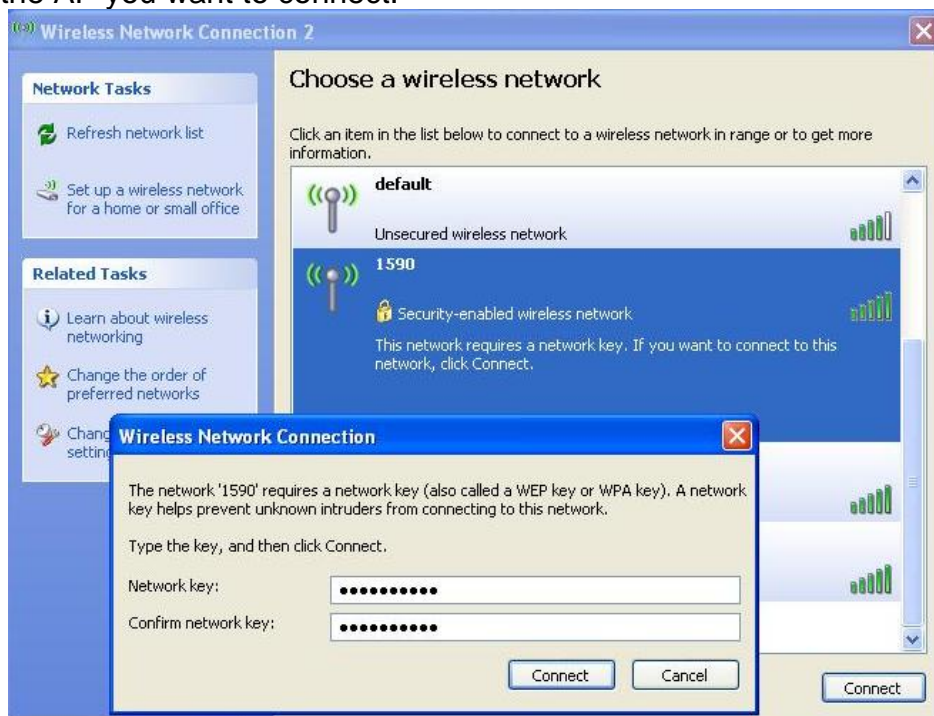
5.1 Use Wireless Zero configuration

Windows XP:

Check and make sure that the Wireless Zero Configuration service is running.
Click **Start** → **Settings** → **Control Panel** → **Administrative Tools** → **Services**



Then click the AP you want to connect.



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.

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.

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.

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.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.