Wireless USB Adapter

User Manual

Copyright

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: To assure continued compliance.(example-use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's 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.

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 20 cm(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 9 March 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 Not Intended for Use

The ETSI version of this device is intended for home and office use in Austria Belgium, Denmark , Finland , France (with Frequency channel restrictions). Germany ,Greece, Ireland , Italy , Luxembourg .The Netherlands, Portugal , Spain , Sweden and 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.

Potential restrictive use

France: Only channels 10,11,12 ,and 13
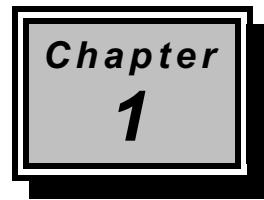
Manual Contents

Introduction

Thank you for purchasing USB Wireless LAN Adaptor. This device features the latest innovation wireless technology making the wireless networking world happened. This manual guides you on how to install and properly use the *Wireless USB Adapter* in order to take full advantage of its features.

Package Contents

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

- One Wireless USB Adapter

- One USB Cable

- One User Manual

- One CD-Based software(Including the Wireless LAN Management Utility & Driver)

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

Minimum System Requirements

Before installation, please check the following requirements with your equipment.

- Pentium Based (above) IBM-compatible PC system with an USB support
- CD-ROM driver
- One Available USB Connector
- Windows 98/2000/ME Operating System
- At least 500Kbytes of free disk space for utility and driver installation

SAFETY PRECAUTION

Only use the accessories and connection cables attached with the device package. Otherwise, the device may not function. If you miss or damage the accessories or connection cables, please contact your local dealer.

Installation Procedure
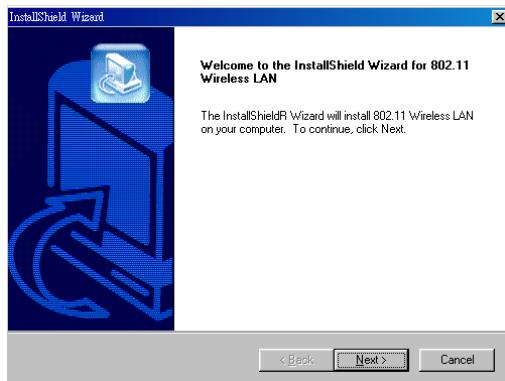
Before you proceed with the installation, it is necessary that you have enough information about the *Wireless USB Adapter*

Note1:The following installation operates under Window 2000.
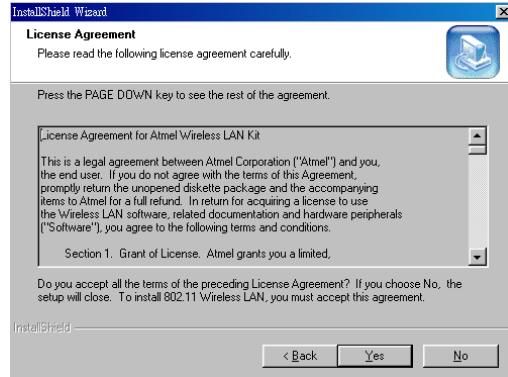
Procedures will be the same for Window 98/ME

Note2: If you ever install the Wireless USB Adapter before ,please uninstall the old driver and utility first. If this is the first time to install the Wireless USB Adapter, please continue from A step to use the Wizard to continue.
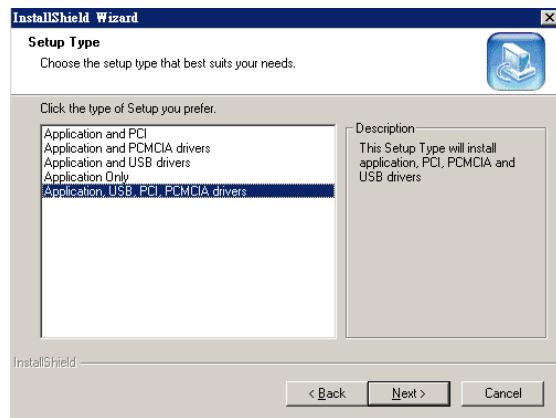
A. Execute the **"Setup.exe"** program under the **"WU221P Driver ->Win98-2K"** folder .The following InstallShield Wizard box will show up to guide you how to install properly then click **"Next".**
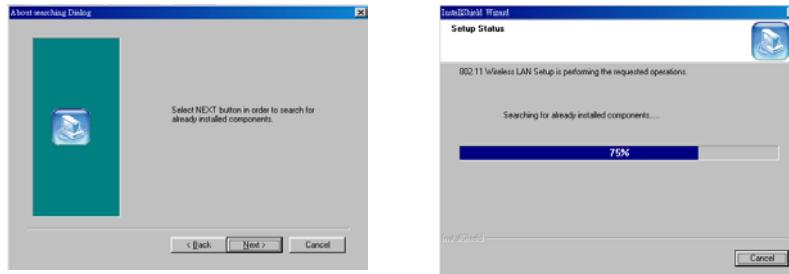
**B.** Below dialog show the *"License Agreement"* .To install the device you must accept this agreement to continue the process or select no to exit the installation. Select " *Yes* " to continue.
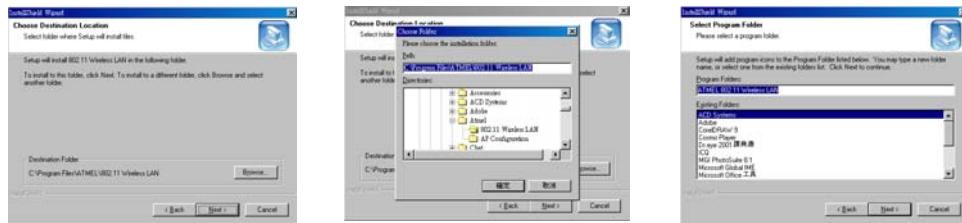
C. Choose the *"Application , USB , PCI , PCMCIA Drivers"* type under the Adapter Type Dialog Window. Then click the *"Next "* to continue.
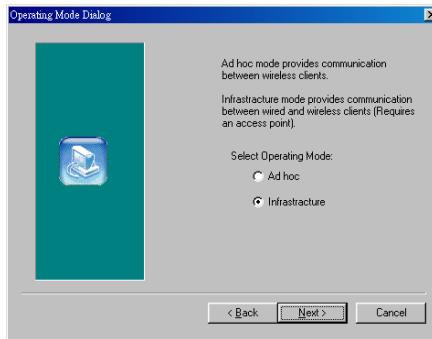
D. Click the *"next"* to search for already installed component.
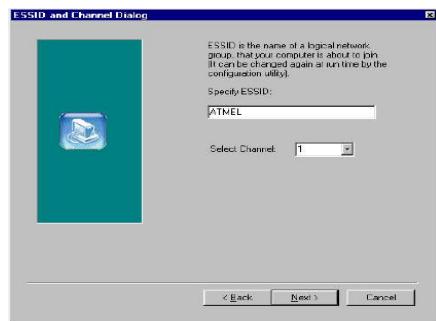
E. To install to this folder in program files, click *"Next"* .To install to a different folder click **"** *Browse* **"** and select another folder .Then click **"Next "** .
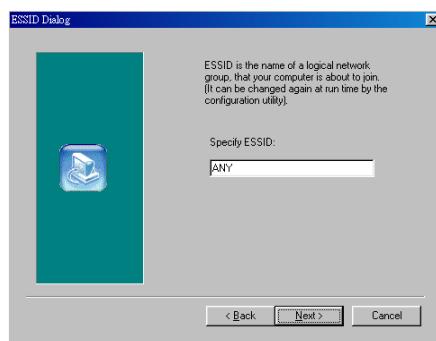
F. In the following Wizard box, You have to select the operating mode to *"Ad-Hoc"* or *" Infrastructure "*, then click *" Next "*.
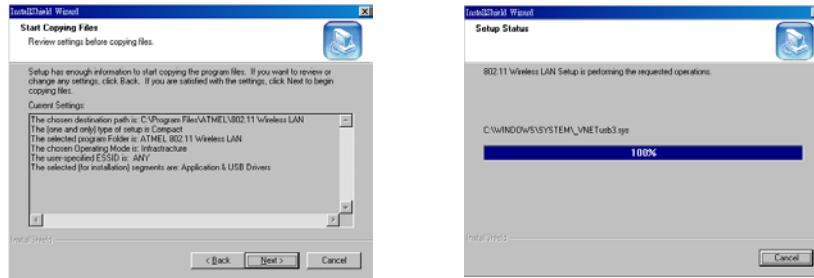
1. **Ad Hoc mode** : In this mode you will be asked to set ESSID and the Channel as desired. Then click *"Next"* to complete the setting.
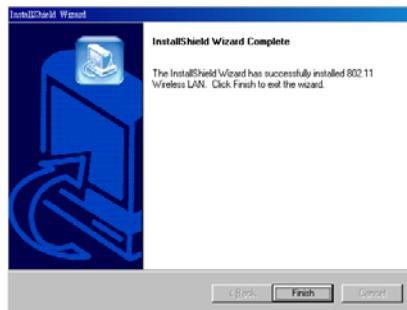
2. **Infrastracture** : In this mode you will be asked to specify the ESSID only and click *"Next"* to complete the setting.

G. Click **" Next "** to begin copying file to your hard disk.

H. After Windows 2000 finishes copying the files, it shows **" Window has finished installing the software for this device"** .Click **" Finish "** to complete the installation.

G. When you complete the installation, the Configuration & Monitor Utility icon will be shown on system tray, If not, that mean the installation is fail. Please uninstall the driver form the system then repeat the installation process.
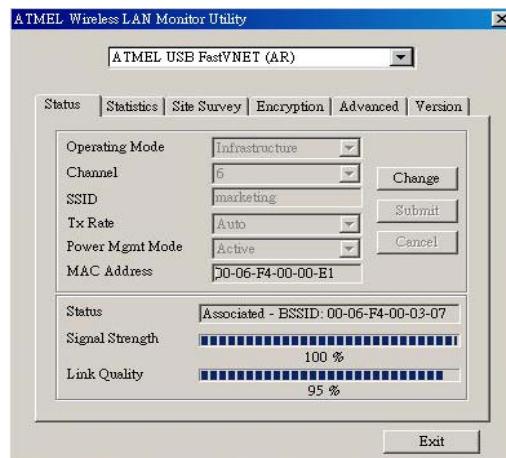
Now, the Wireless LAN USB adaptor is SUCCESSFULLY installed.

Configuration Utility

The Configuration Utility is a powerful application that helps you to configure the Wireless USB Adapter and monitor the statistics of the communication process. By Double Click the icon on the system tray will brings you to the configuration mode.
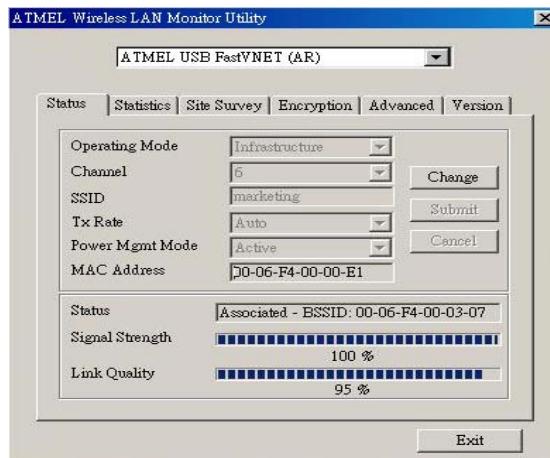
This utility can be used to change the following configuration parameters when the device is active.

Following details the configuration tabs.

NOTE   :Click the "Exit" button will exit the configuration application.

3.1   "Status"
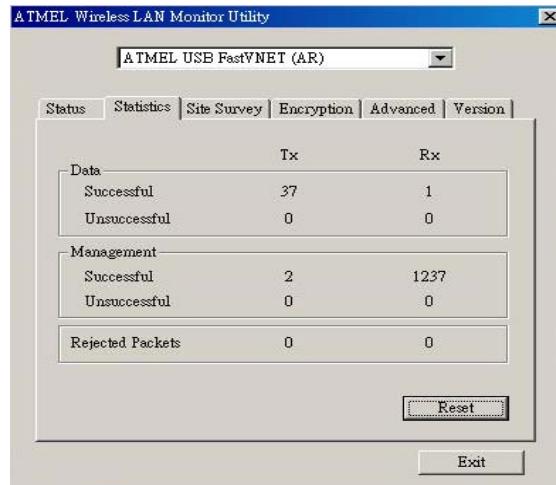
Click the **"*Change*"** tab when set up the necessary parameters, and click "*Submit*" after the configuration has been changed.

◆   **Operation mode :**   Shows the following network modes   :

>   **Infrastructure --** This operation mode requires the presence of an 802.11 Access Point. All communication is done via the Access Point.

>   **Ad-Hoc** -- This mode indicates the 802.11 peer-to-peer operation. All communication is done from client to client without the use of an Access Point.

◆   **Channel   :**   Shows the number of the radio channel used for the networking. Only Access Points and Ad-Hoc nodes creates the BSSID. This parameters is not active in the infrastructure operation mode.

◆   **SSID :**   Shows the SSID of the BSS that one willing to join.

◆ **Tx Rate :** Shows the Data Transfer Rate. There are 1 Mbps, 2M bps, 5.5 Mbps, 11 Mbps, and auto mode. If Auto Mode is been selected, the device will select the most suitable rate automatically.

◆ **Power Mgmt Mode :** Shows Power Management modes. There are two optional selections for this mode.

  ➢ **Active --** Adaptor will always set in active mode.

  ➢ **Power Save** -- Adaptor will enter power saving mode when it is idle.

◆ **Signal Strength :** This bar shows the signal strength level. The higher the blue bar , the more radio signal been received by the USB WLAN adaptor. This indicator helps to find the most comfortable antenna/workstation position for quality network operation.

◆ **Link quality :** The measured Signal Strength level gives the overall Link Quality and Connection Status.

◆ **MAC Address :** The MAC Address of the Wireless USB Adaptor. Unique 48-bit, hard-coded Media Access Control address known as the station identifier.
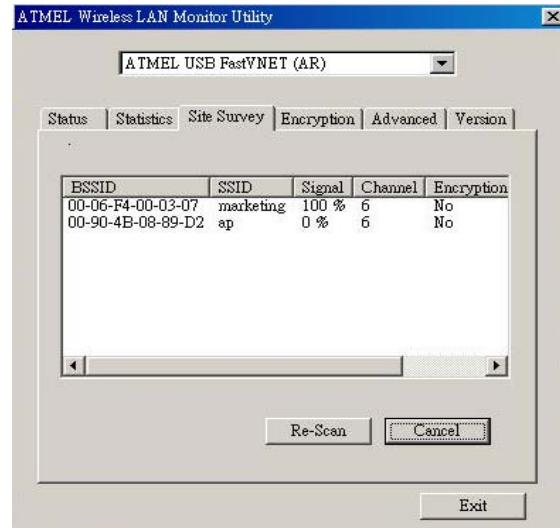
3.2 "Statistics"

Shows the total amounts of packets been received or transmitted by the adaptor.

◆ **Data Field** : Shows the total amounts of data packets been successful/unsuccessful transmitted or received by the adaptor..

◆ **Management Field** : Shows the total amounts of management packets been successful/unsuccessful transmitted or received by the adaptor.

◆ **Rejected Packets Field** : Shows the total amounts of rejected packets been transmitted or received by the adaptor.

3.3 "Site Survey"
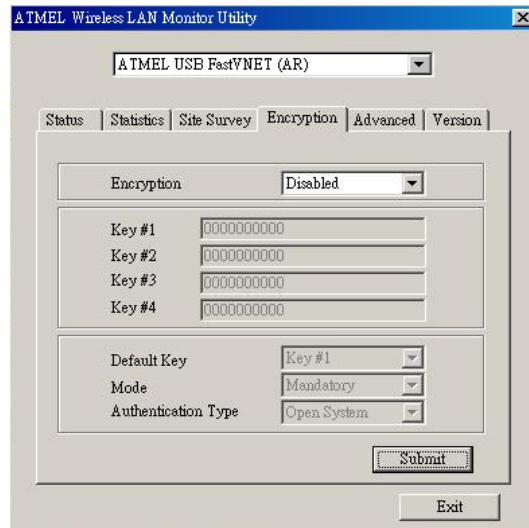
This screen shows all the AP or Adaptor nearby when operating in Ad-Hoc mode.

Click **" *Re-Scan* "** to collect the BSSID and Channel information of all the wireless devices near by.

If one wish to connect to any device on the list, double-click the selected list and the adaptor will connect to the selected device automatically.

3.4 "Encryption"
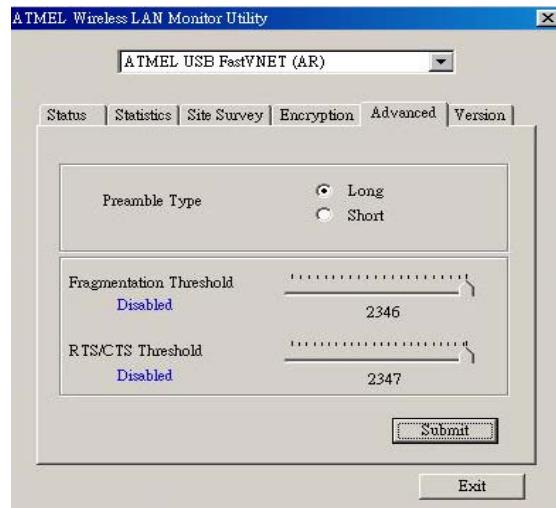
Additional security can be achieved by using the WEP (Wired Equivalent Privacy) encryption. WEP encrypts each frame transmitted from the radio using one of the keys entered from this panel.

There are four 10 Hex digit encryption keys value available for the WEP. One can define the encryption key values of their own choice.

Enable the WEP (Wired Equivalent Privacy) option in order to activate WEP encryption for transmissions between the stations and the Access Point. WEP is an authentication algorithm which protects authorized Wireless LAN users against eavesdropping.
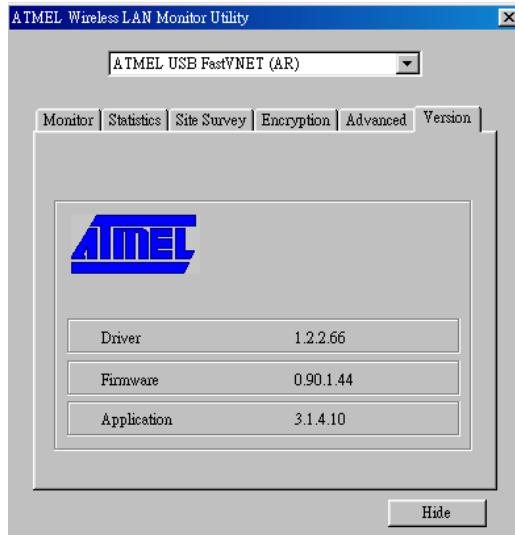
3.5　　"Advanced"

There are **Preamble Type**, **Fragmentation Threshold**, and **RTS/CTS Threshold** setting under this mode.

◆　**Preamble Type (Short/Long) :** Preamble is the first subfield of PPDU, which is the appropriate frame format for transmission to PHY (Physical layer). There are two options, Short Preamble and Long Preamble. The Short Preamble option improves throughput performance.

◆　**Fragmentation threshold :** The size at which packets will be fragmented. Choose a setting within a range of 256 to 2346 bytes.

◆　**RTS Threshold :** Minimum packet size to require an RTS (Request To Send). For packets smaller than this threshold, an RTS is not sent and the packet is transmitted directly to the WLAN. This is the option for the RTS Threshold activation.

3.6 "Version"
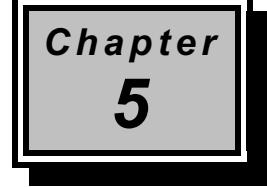
It shows the current **Driver, Firmware,** and **Application Version** of this device.

Technical Specification

➢ Standard : IEEE802.11b

➢ Frequency Band : 2.400 GHz ~2.4835GHz

➢ Data Rate : Up to 11Mbps

➢ Interface : Mni USB / USB V1.1

➢ Transmission Range : Outdoor:100~300M , Indoor: 40~100M

➢ LED Indicators : Power, WEP, Link

➢ Power consumption : USB Bus Power Only

➢ Operating Temperature : 0℃ to 55℃

➢ Storage Temperature : -20℃ to 70℃

➢ Operating Humidity : 0% to 70% Non-Condensing

➢ Storage Humidity : 0% to 95% Non-condensing

➢ Data Encryption : 64 bit/128 bit WEP Encryption

➢ Software : Configuration Utility software

➢ USB Cable : 1M

➢ Compatibility : Windows 98/2000/ME, Windows XP

➢ Certification : FCC, CE

➢ Dimensions : 95mm X 65mm X 13mm

Troubleshooting

This section provides solutions to problems usually encountered during the installation and operation of this Wireless USB Adaptor. Read the description below to solve your problems.

✓ **What is the IEEE 802.11b standard**？

The IEEE 802.11b Wireless LAN standards subcommittee, which is formulating a standard for the industry. The objective is to enable wireless LAN hardware from different manufactures to communicate.

✓ **What IEEE 802.11 feature are supported**？

The product supports the following IEEE 802.11 functions:

- CSMA/CA plus Acknowledge protocol

- Multi-Channel Roaming

- Automatic Rate Selection

- RTS/CTS feature

- Fragmentation

- Power Management

✓ **What is Ad-hoc**？

An Ad-hoc integrated wireless LAN is a group of computers, each with a WLAN adapter, Connected as an independent wireless LAN. Ad hoc wireless LAN is applicable at a departmental scale for a branch or SOHO operation.

✓ **What is Infrastructure** ?

An integrated wireless and wireless and wired LAN is called an Infrastructure configuration. Infrastructure is applicable to enterprise scale for wireless access to central database, or wireless application for mobile workers.

✓ **What is BSS ID** ?

A specific Ad hoc LAN is called a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.

✓ **What is WEP** ?

WEP is Wired Equivalent Privacy, a data privacy mechanism based on a 40 bit shared key algorithm, as described in the IEEE 802 .11 standard.

✓ **Can Wireless products support printer sharing** ?

Wireless products perform the same function as LAN products. Therefore, Wireless products can work with Netware, Windows NT/2000, or other LAN operating systems to support printer or file sharing.

✓ **Would the information be intercepted while transmitting on air** ?

WLAN features two-fold protection in security. On the hardware side, as with Direct Sequence Spread Spectrum technology, it has the inherent security feature of scrambling. On the software side, WLAN series offer the encryption function (WEP) to enhance security and Access Control. Users can set it up depending upon their needs.

✓ **What is DSSS** ? **What is FHSS** ? **And what are their differences** ?

Frequency-hopping spread-spectrum (FHSS) uses a narrowband carrier that changes frequency in a pattern that is known to both transmitter and receiver. Properly synchronized, the net effect is to maintain a single logical channel. To an unintended receiver, FHSS appears to be short-duration impulse noise. Direct-sequence spread-spectrum (DSSS) generates a redundant bit pattern for each bit to be transmitted. This bit pattern is called a chip (or chipping code). The longer the chip, the greater the probability that the original data can be recovered. Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the radio can recover the original data without-the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers.

✓ **What is Spread Spectrum** ?

Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communication systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission , but the trade off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread –spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).