Wireless USB Adaptor

# MODEL: SMART CPE

Smart CPE High Power USB Adaptor

WINDOWS USER GUIDE

Version 1.0

LIMITED WARRANTY
We guarantee that each SMART CPE will be free from physical defects in material and workmanship under normal use for two (2) years from the date of purchase. If the product proves defective during this two-year warranty period, call our Technical Support in order to obtain a Return Authorization Number.
When returning a product, mark the Return Authorization number clearly on the outside of the package and include a copy of your original proof of purchase.
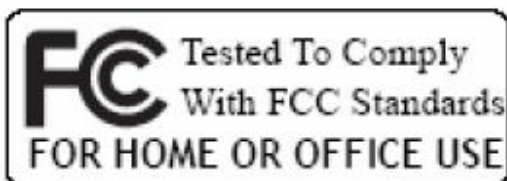
Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

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

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.

CHAPTER 1: INTRODUCTION

USB ADAPTOR INTRODUCTION

Thank you for your purchase of the SMART CPE USB Adaptor.

This USB adaptor offers great value whether you are an individual purchasing for use at home or for use in a business of any size.

USB adaptors are a simple and easy way to add wireless to a computer. The majority of computers now ship with wireless cards built- in, but users commonly find weak signals. This weak signal can occur due to several factors. One it may be too far from a wireless router or access point, most internal wireless cards do not provide significant radio frequency (RF) gain. Another factor is that almost all built- in cards have the antennas operating horizontally, where the wireless router or access point has vertically polarized antennas. This results in significant signal loss. Whatever the resulting cause of the weak signal is, the SMART CPE Adaptor with its internal 6 dBi antenna will enhance your wireless experience. This key to successful wireless experience is adjusted with flexibility of using different SMART CPE Adaptor antenna's angle.

The compact design makes it easy for you to travel with the adaptor. It draws its power from the USB port, so you do not need an external power supply. This adaptor supports high speed networking up to 54 Mbps per the IEEE 802.11g specification. Of course, most broadband connections are DSL or cable modems that are limited generally to less than 6 Mbps, which determines the ultimate throughput rates in accessing the Internet. As with all USB stick type devices care should be taken while connected to a laptop.

FEATURES

• Compact Size
• High gain 6 dBi Directional Antenna H-Plane & E-Plane: 80 Degree
• USB 1.1 and 2.0 Compliant
• Modulation Method:
   IEEE 802.11b: DSS (Direct Sequence Spread Spectrum)
   IEEE 802.11g: OFDM (Ortho Frequency Division Multiplexing)
• Supports Microsoft Windows 98SE, Me, 2000, XP, XP x64, Vista (x32 and x64)
• Easy Setup and Operation
• Powered by Host Computer
• Basic to Superior Security Encryption: 64-bit, 128-bit or 256-bit WEP; WPA and   WPA2
• 54/48/36/24/18/12/11/9/6/5.5/1 Mbps Selectable Data Rate
• Supports WMM™ (Wi-Fi Multimedia) Function
• 2400 to 2485 MHz unlicensed ISM Frequency Band
• 2-Year Limited Warranty

SYSTEM REQUIREMENTS

• Windows System: Windows 98SE, Me, 2000, XP, XP (x32 and x64), Vista (x32 and x64)
• PCs must have a device driver installed to allow communication with the USB adaptor.

PACKAGE CONTENTS
• USB Adaptor
• CD (Driver/Utility/User's Manual)

CHAPTER 2: NETWORK PLANNING AND ARCHITECTURE

AD-HOC VERSUS INFRASTRUCTURE MODE
Wireless local area networks (WLAN), as specified in the IEEE 802.11b/g standards have two different configuration modes:
• Ad-Hoc
• Infrastructure

Ad-Hoc is a group of computers equipped with either WLAN cards or wireless USB adapters. The group of computers is called a Basic Service Set (BSS). They communicate with each other eliminating the need for an access point or router device. Computers in Ad-Hoc mode cannot communicate with computers on a wired network or connect to the Internet. In our configuration software it is referred to as, "AP mode". However this does not imply that it is an access point in the normal sense. Ad-Hoc is shown in the diagram on the left side below.
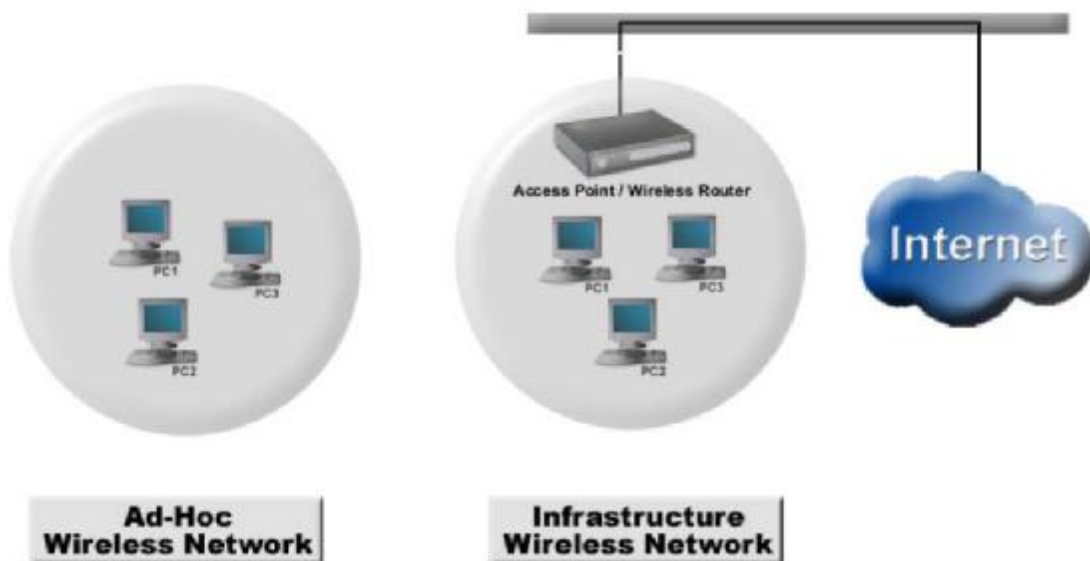
Infrastructure is where a computer or other network device equipped with the WLAN card or USB adapter communicates directly with an access point or wireless router. Infrastructure mode is the normal mode of use for most users. It is referred to as, "station mode" in our configuration software. An infrastructure example is shown in the diagram on the right above.

ANTENNA

The SMART CPE Adaptor with internal 6 dBi direction antenna. This antenna radiates radio frequency (RF) in 80 degrees. Users may depending on their access point or wireless router to adjust correct angle on the antenna to enhance their wireless.
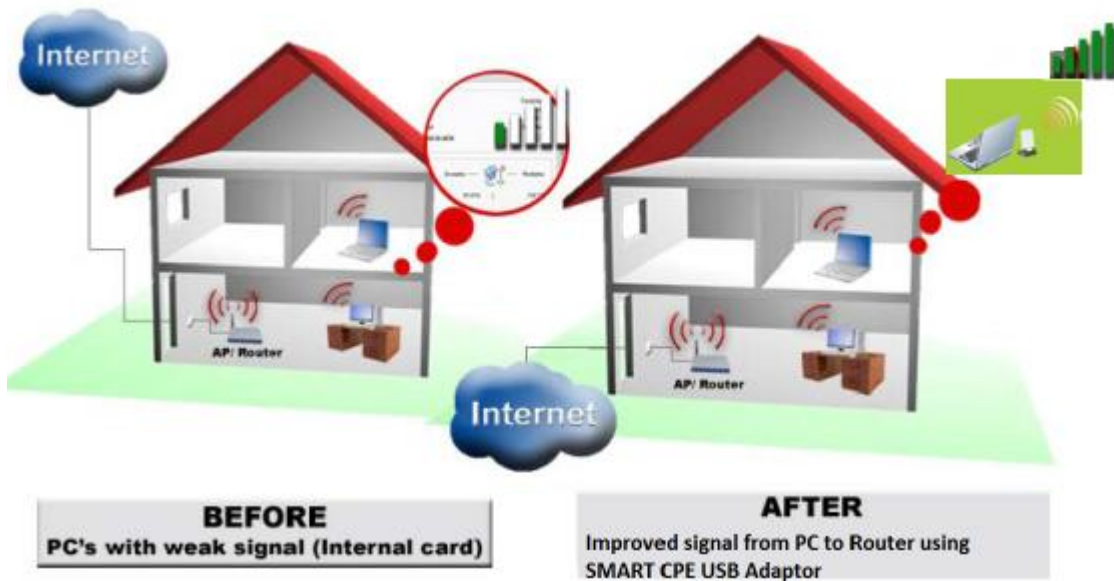

APPLICATIONS

Residential Network – Computer to Router Connectivity

• Residential users commonly do not receive adequate signal coverage throughout their home. It is often assumed that replacing the existing router antenna for a model with higher gain will resolve the issue. While in some circumstances this may help, often the problem is that the internal wireless card in the computer produces to weak of a signal to reach the router. Installing the SMART CPE device will normally significantly improve this scenario.

<u>HOME Network</u>

BEFORE
PC's with weak signal (Internal card)

AFTER
Improved signal from PC to Router using
SMART CPE USB Adaptor

Municipal Network Connectivity

• Municipal or city wide network are becoming commonly available. However, users often have weak or non-existent signal levels. The connectivity can be greatly enhanced through the use of the SMART CPE wireless adaptor.

 •Whether lounging at the pool or sitting in a local park or in your home, the USB adapter with an internal direction antenna is the key to improved experience.

CHAPTER 3: INSTALL DRIVER (Win 98, 2000, XP)

The installation & driver CD will automatically activate the autorun installation program after you insert the disk into your CD drive.
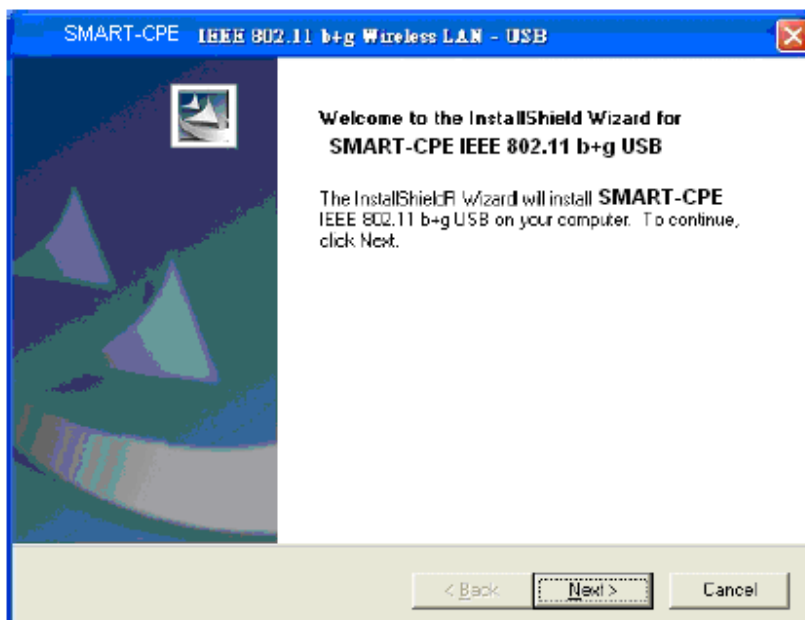
Step 1:

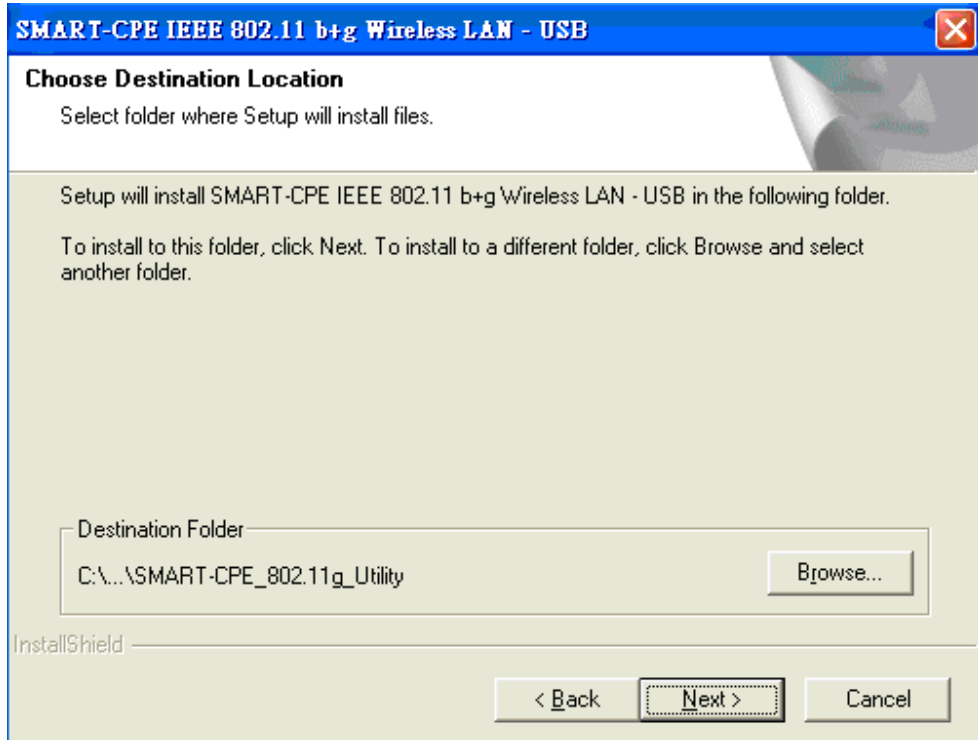Insert the installation & driver CD into your CD-ROM drive.
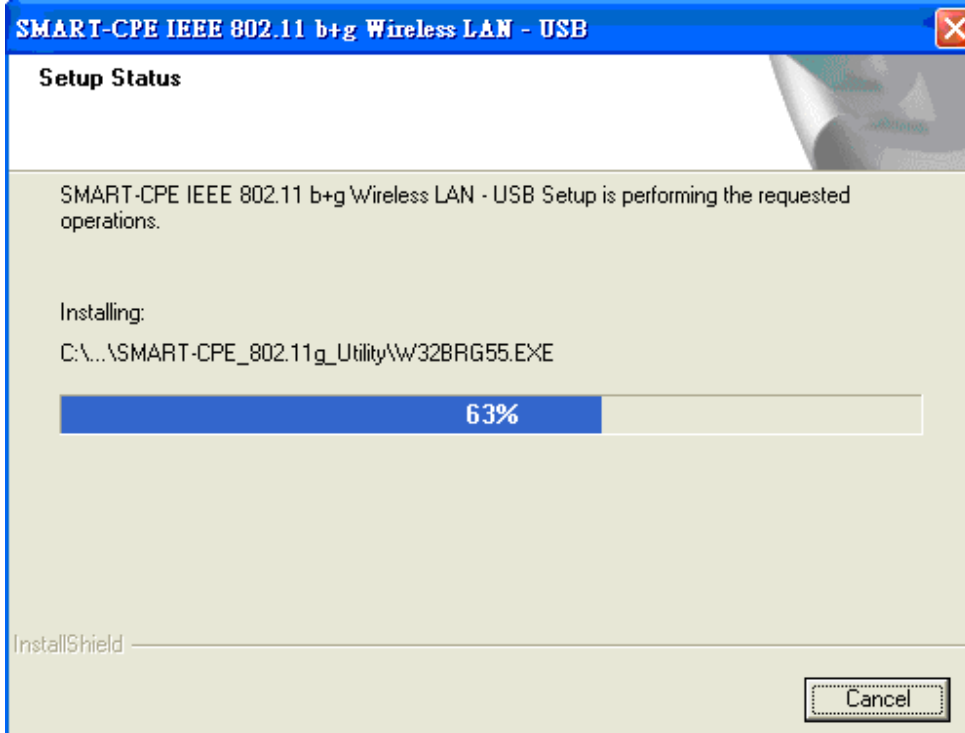

Step 2:

Click **Next** to continue.

Step 3:

Click **Next** to install at the designated folder.
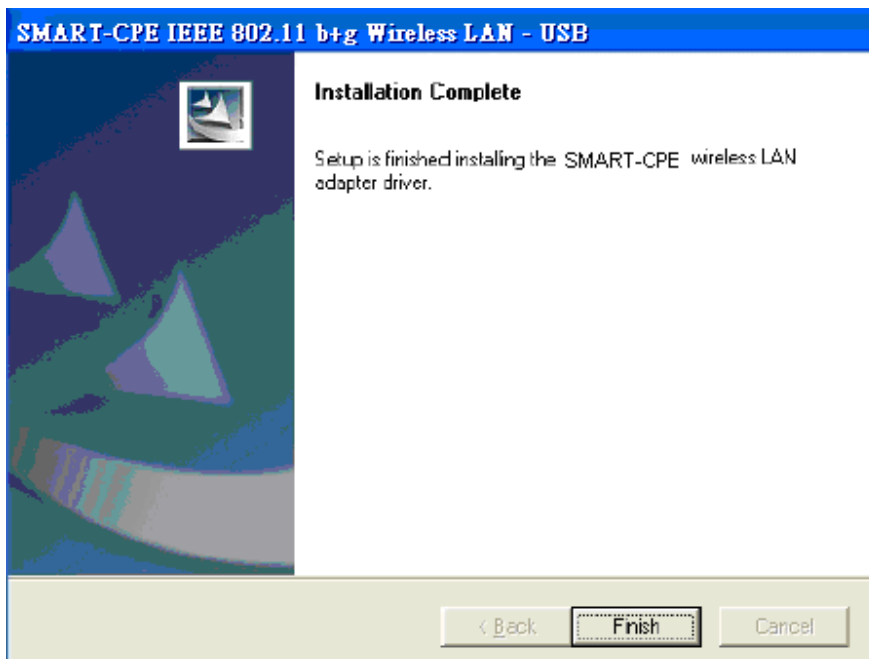Or, click "Browse" to select a folder.

Step 4:

Start copying files until the installation is finished.


Step 5:

Click **Finish** to complete installation

.

After finishing installing the driver and utility on your system, plug the USB

adapter into the USB port of your PC. Windows XP/2000 will automatically

detect the USB Adapter.

Notes On Windows Zero Configuration Service

Microsoft Windows XP includes the Zero Configuration Service which is used to configure your wireless client. After clicking on the computer icon on Windows bar in the lower right hand corner of your screen, you may encounter the following screen. If you have this screen, Windows Zero Configuration Service is managing your wireless connection and not the Client Utility.
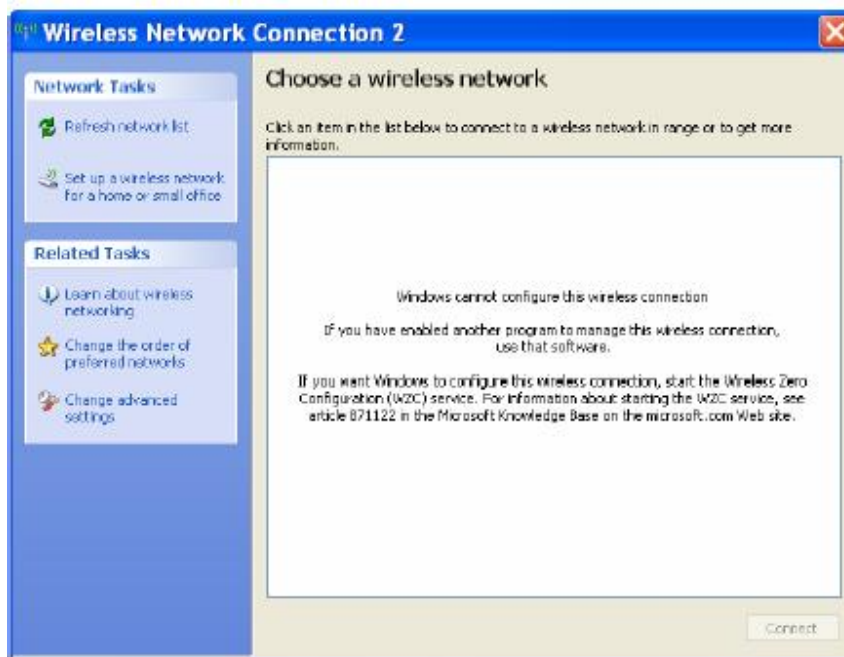
The client manager for the USB adapter and Windows Wireless Zero Configuration Service will not operate together. You may select to use the Windows Zero Configuration Service (if using your existing internal wireless card) or the Client Utility (for the USB adapter).

Enable Windows Wireless Zero Configuration Service

Click Start >> Control Panel >> Administrative Tools >> Services to open the Services configuration window. Select Automatic in the Startup Type field of Wireless Zero Configuration Service to enable the Wireless Zero Configuration Service and click apply. The default Startup Type value of Wireless Zero Configuration Service is Automatic.

Disabling Windows Wireless Zero Configuration Service

Click Start >> Control Panel >> Administrative Tools >> Services to open the Services configuration window. Select Disabled in the Startup Type field of Wireless Zero Configuration Service to disable the Wireless Zero Configuration Service and click apply.

CHAPTER 4: INSTALL DRIVER (Windows Vista)

Plug your USB dongle into USB interface, windows Vista will search for compatible driver to install.
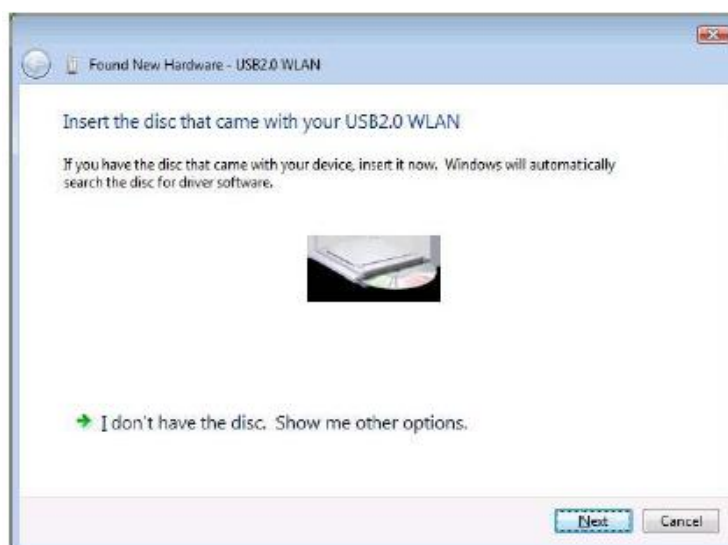
Step 1:

Select "Locate and install the driver software", Windows will guide you through the process of installing driver software for your device.
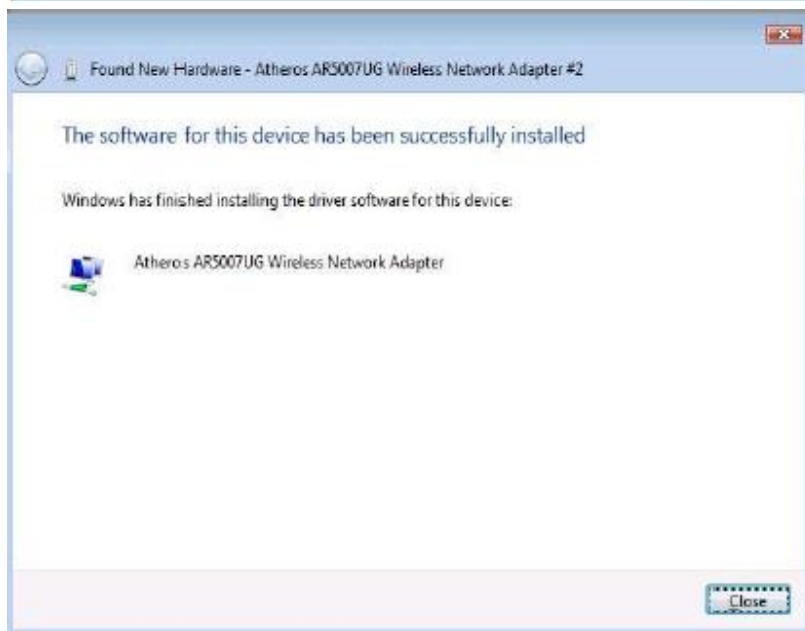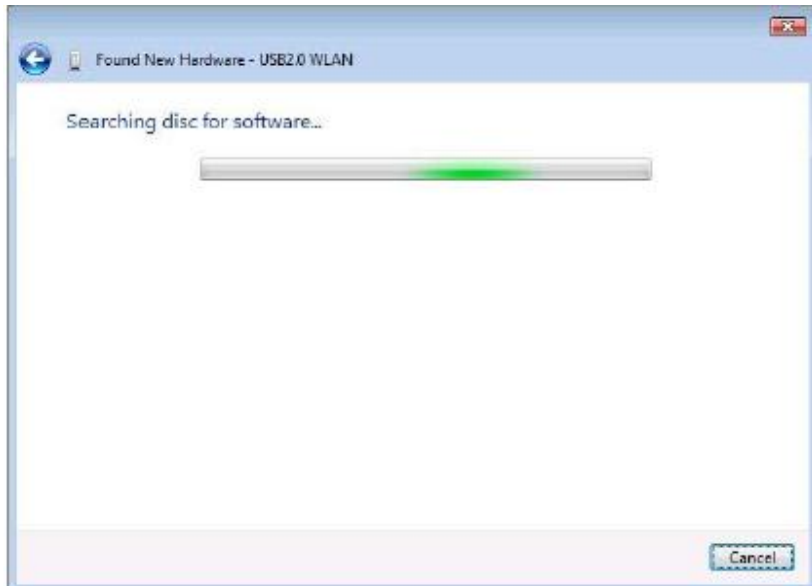

Step 2:

Insert the installation disc into the CD-ROM and click "next" to continue installation.

Step 3:

Windows Vista searches for the software and it will be installed successfully.

Step 4:

After installation, right click the network icon on the Windows Vista System Tray, and click "Connect to a network".
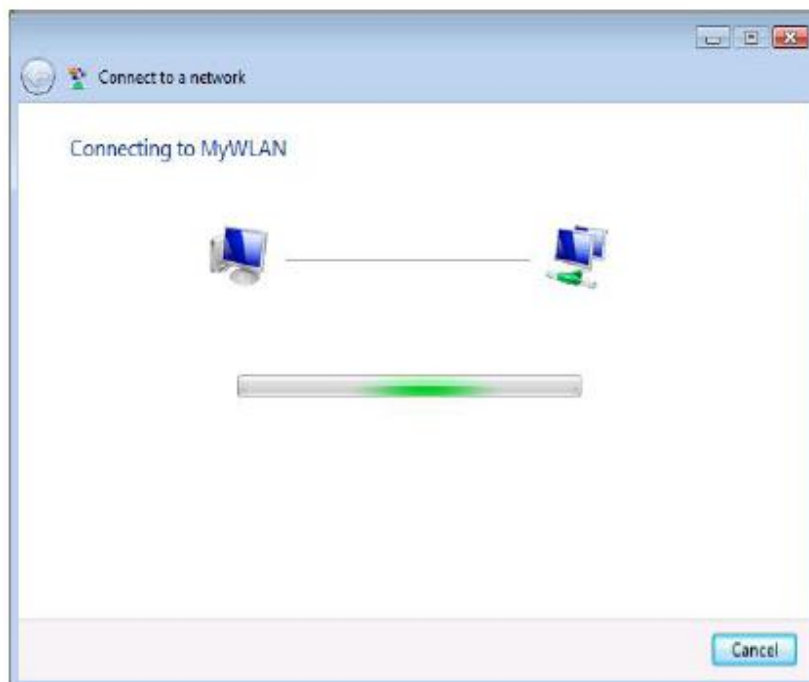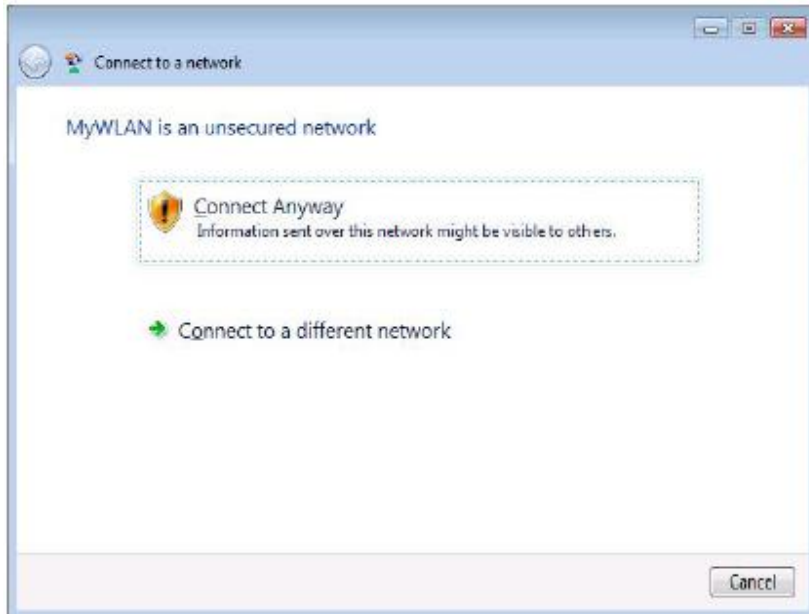

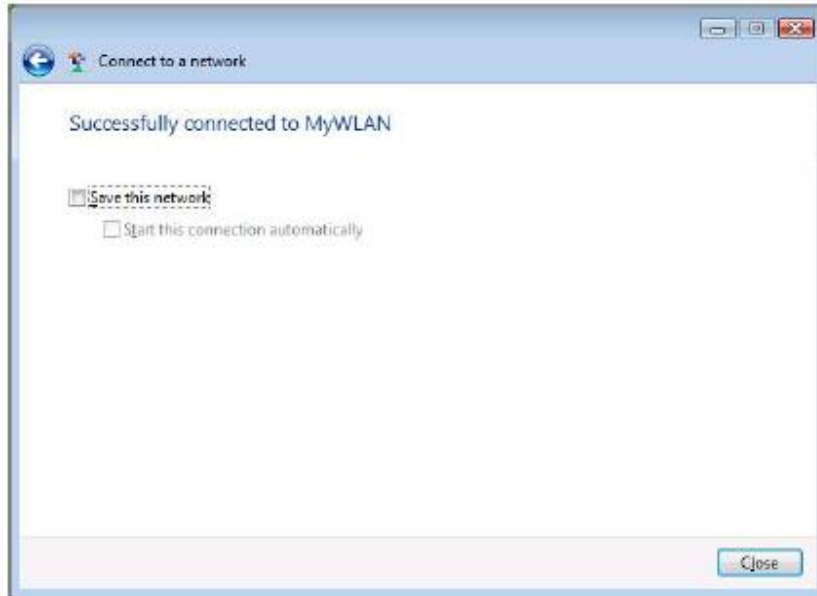**Step 5:**

Select a network to connect to and click "Connect".

Step 6:

Click "Connect Anyway" if the network is an unsecured network.

Step 7:

USB Dongle successfully connected to the network, click "Close"
.

CHAPTER 5: CONFIGURATION – STATION MODE

Station mode is synonomous with infrastructure mode. This is the most commonly used mode for the majority of users. Through this mode, users may access the Internet by connecting wirelessly to an Access Point or wireless router.

The SMART-CPE
adapter uses its own management software. After installing the driver outlined in either C hapter 3 or Chapter 4 and the USB adapter has been inserted into a USB port, a new icon should appear in the Windows System Tray automatically such as shown below:

If the icon is in red, it means that an USB adapter configuration is invalid or incomplete. Double click on that icon and the configuration window (maybe referred to as the Utility Screen) will pop up as shown below.

UNDERSTANDING THE UTILITY INFORMATION   − STATION MODE
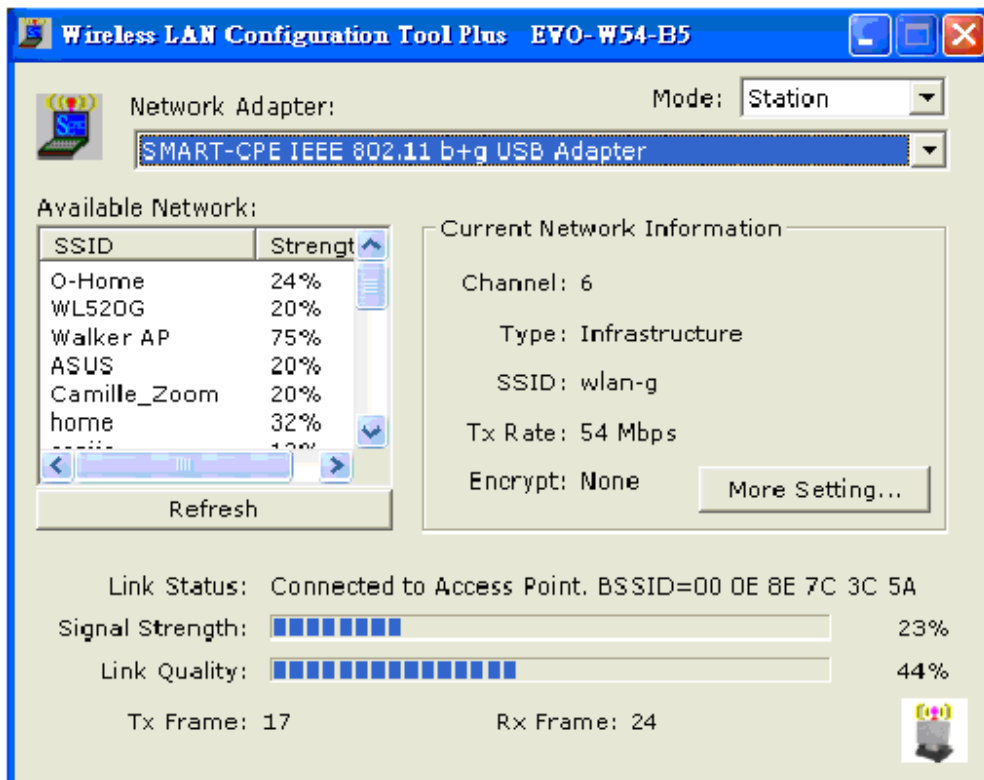
Mode:
• Located in the upper right, this is where you may select either Station (Infrastructure) mode or AP (Ad-Hoc) mode.
•The normal mode for most users will be the default Station mode.

Available Networks:
• Located on the left-hand side of the screen, it displays the SSID of available networks
• Click the Refresh button to update the current networks and their respective SSIDs that are turned on and operating at any given moment.

• Double click on the chosen SSID from the "Available Networks.

Current Network Information:
• After double clicking on the chosen SSID, the network information will appear under the Current Network Information on the right-hand side.
• The channel number will be indicated.
• The Type field indicates if in Infrastructure or Ad-Hoc mode.
• The TX rate indicates the transmission rate.
• The Encrypt field indicates if the network is running encryption or none.
• The More Settings button is described in more detail below in the next section.

Link Status:
• Information about the link status is shown on the bottom one-third of the utility screen.
• The BSSID of the associated access point or wireless router is displayed in the "Link Status" field.

• The "Signal Strength" and "Link Quality" are displayed below the BSSID and described with percentages (link quality is a measurement of receiving and transmitting performance over the radio link).

• The number of TX and RX Frames are displayed underneath the Signal Strength and Link Quality fields.

• The number of TX Frames indicates the total amount of data going out of the adapter towards the network, whereas the the number of RX Frames   indicate the total amount of data coming into the adapter from the network.

MORE SETTINGS – ADVANCED SETTINGS – STATION MODE

After clicking "More Settings" from the Utility main settings window, a new window, titled, "More Settings" will appear as shown below.
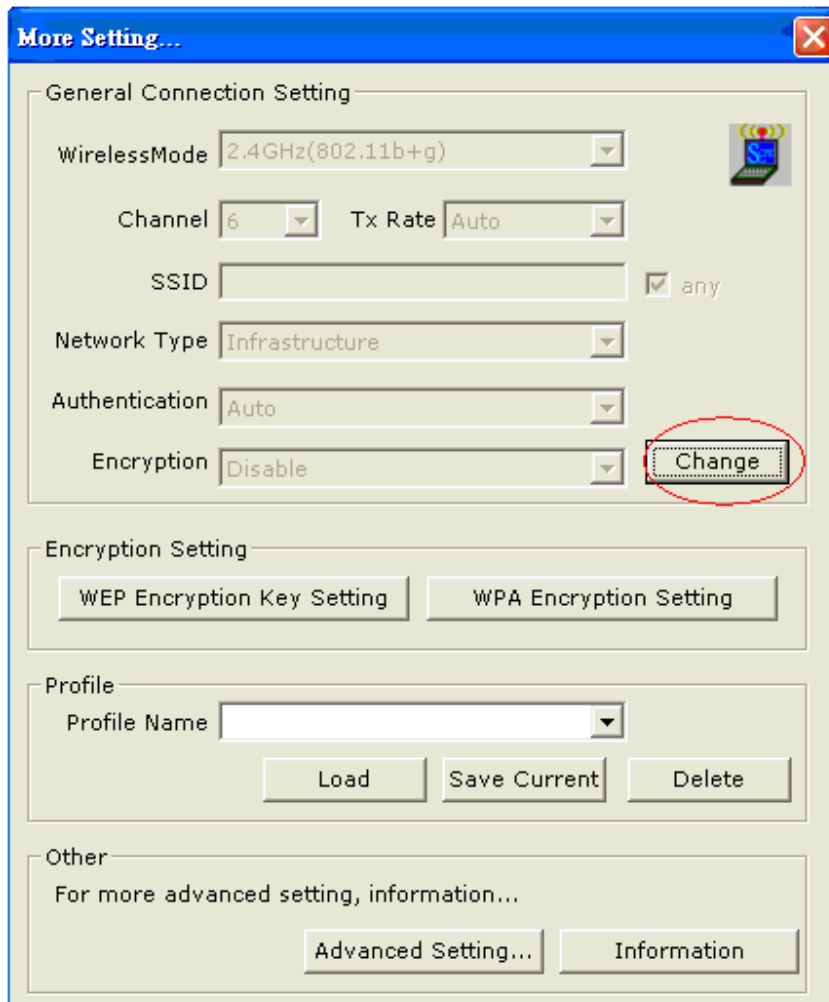
General Connection Setting:
• To adjust settings in the General Connection Settings area, you must click the "Change" button.
• The following parameter choices can be made:
 • Transmit (TX) rate: Auto

                     802.11b (1, 2, 5.5, 11 Mbps)

                     802.11g (6, 9, 12, 18, 24, 36, 48, 54 Mbps)

 • SSID: Can enter specific SSID or click Any
 • Network Type: Infrastructure or Ad-Hoc
 • Authentication: Auto, Open, Shared, WPA, WPA PSK, WPA2, WPA PSK

• Encryption: Disable, WEP, TKIP, AES
• After any desired changes have been made to the above parameters, click "Apply" as shown in the diagram at the top of the following page to confirm the changes. Note that the Change/Apply button alternate between each other.
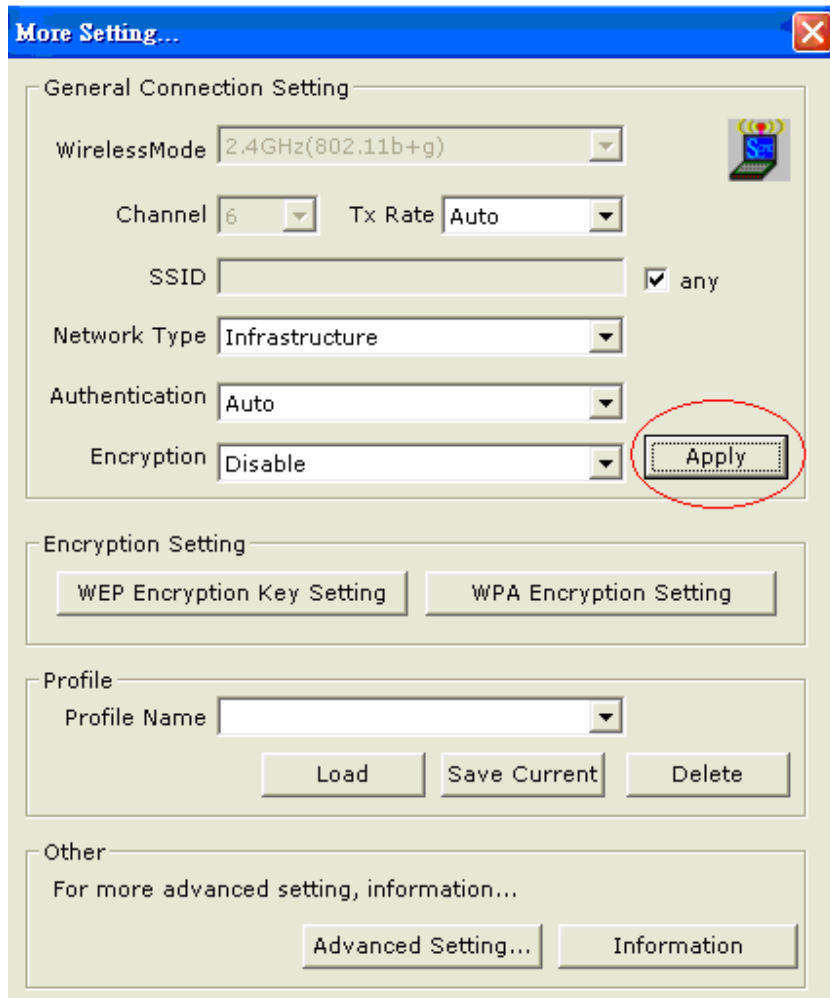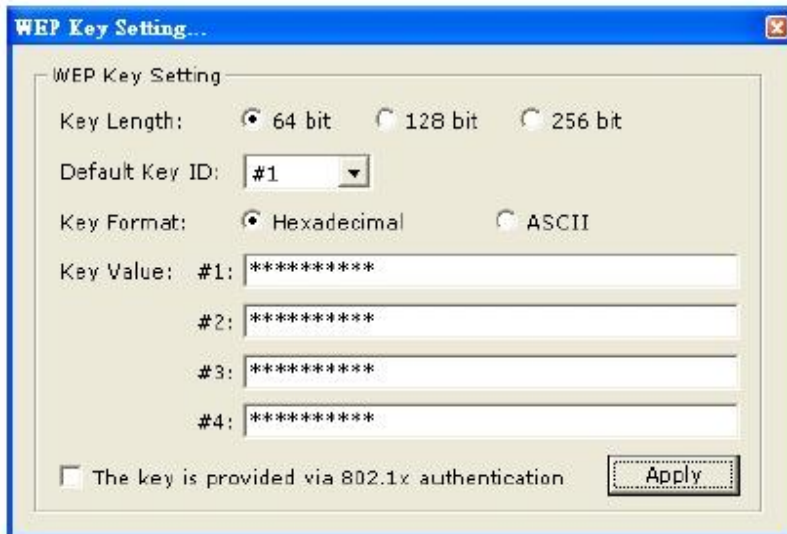
WEP ENCRYPTION KEY SETTING – STATION MODE

Wired Equivalent Privacy (WEP) encryption is the basic standard wireless network security protocol used to protect wireless data from being hacked and intercepted. WEP encrypts each frame transmitted from the radio using one of the Keys entered in the WEP settings window. When an encrypted frame is received it will only be accepted if it decrypts correctly. This will only happen if the receiver has the same WEP key used by the transmitter. The default state in Encryption Setting is WEP disabled.

First Steps:

• Three authentication modes are available:
    • Open System
        • Uses default key to authenticate the station (PC) and the Access Point/
                Wireless Router.
   Once both parties are authenticated, the station
                (PC) is allowed to send and receive data from the network. The data is not
                encrypted
    .

    • Shared Key System
        • Station and Access Point/Wireless Router authenticate each other. Data   frame is also encrypted by the WEP key.

    • Auto
        • The Access Point/Wireless Router takes control of network security setting and station (PC) will follow the setting required from the AP/Wireless Router.

• From the previous "More Settings" screen, you should have selected one of above three authentication modes and have selected WEP from the encryption options.

WEP Key Settings:
• The WEP Key Setting screen as shown below has three "key lengths". Select either 64, 128, 256 (bit) key length.
• Select which key set will be used by the field of "Default Key ID".
• Modify the 4 sets of keys depending on the selected key format in the field of "Key Value" The key value is used in hexadecimal format.
• Select the key format "hexadecimal" or "ASCII" will be used from the "Key Format" selection.
• Encryption keys are made of a random combination of numbers (0 through 9) and letters (A through F)
• 64-bit keys require 10 hexadecimal digits or 5 ASCII digits
• 128-bit keys require 26 hexadecimal digits or 13 ASCII digits
• 256-bit keys require 58 hexadecimal digits or 29 ASCII digits

802.1x:

• In the bottom right-hand corner of the WEP Key Setting Screen as shown above, the option to click "The key is provided via 802.1x authentication" exists. If you click this press the button, then "Apply", the following window will open.
• Press "Yes" if you wish to use the previous settings. Select "No", if you wish to have new settings.

WPA ENCRYPTION SETTING – STATION MODE

WPA and WPA2 (WiFi Protected Access) is an advanced wireless- security standard. WPA is more complex and offers more robust security authentication and encryption features. WPA is commonly known as WPA-TKIP and WPA2 as WPA-AES.
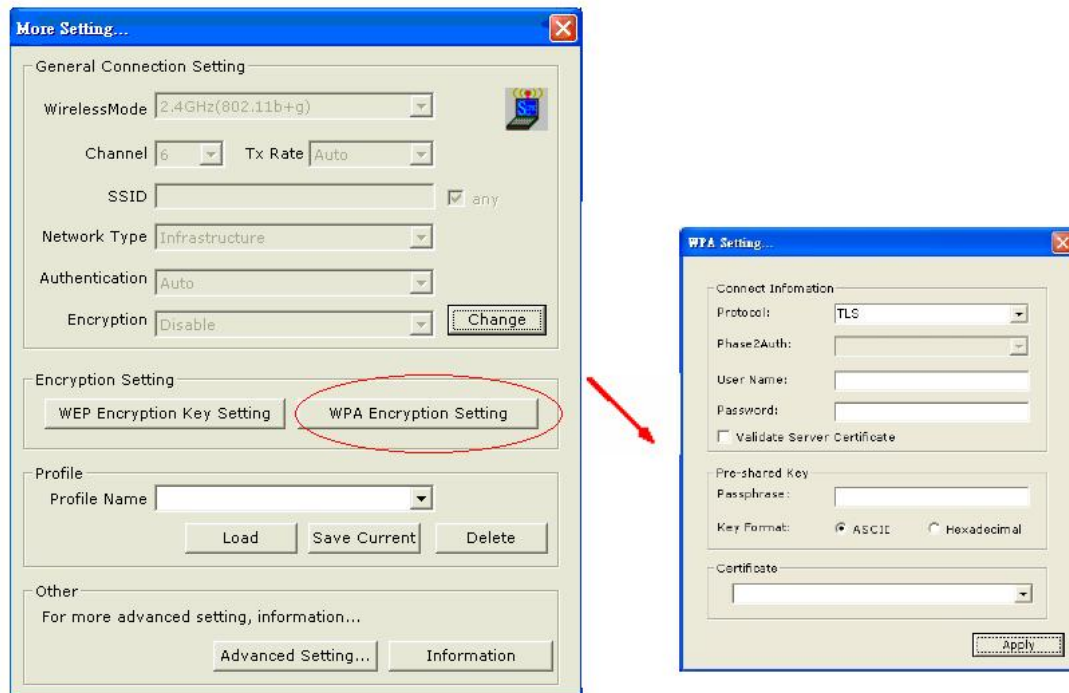
- There are three protocols choices (drop down choices under Protocol):
  - TLS (Transport Layer Security)
    - TLS authenticates peers by exchanging digital certificates.
    - Applicable Fields
      - User Name
      - Password
      - Validate Server Certificate
      - Pre-shared Key Passphrase
      - Certificate
  - PEAP (Protected Extensible Authentication Protocol)
    - PEAP authentication does not require client certificates
    - Applicable Fields
      - User Name
      - Password
      - Validate Server Certificate
      - Pre-shared Key Passphrase

- TTLS (Tunneled Transport Layer Security)
    - TTLS authentication does not require client certificates
    - Applicable Fields
        - Phase2Auth (with the following drop down choices)
            - PAP
            - CHAP
            - MSCHAP
            - MSCHAPv2
        - User Name
        - Password
        - Validate Server Certificate
        - Pre-shared Key Passphrase

PROFILE – STATION MODE

Profiles permit saving of different connection and authentication settings for different net work setups. For example, you may have one configuration for the office another for your home network where security settings or other information is different. When switching networks, select the network profile name previously saved and click the load button.

ADVANCED SETTINGS – STATION MODE

Under this utility screen, advanced settings can be adjusted. These settings are not recommended to be changed unless by an advanced wireless user.
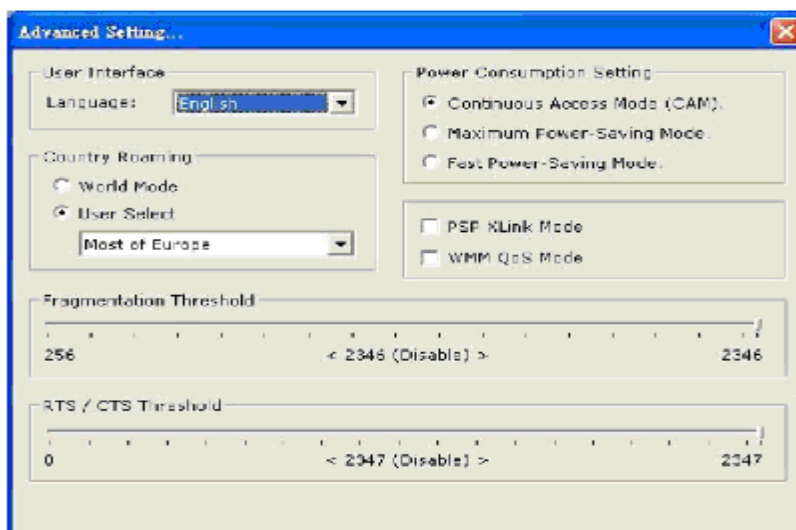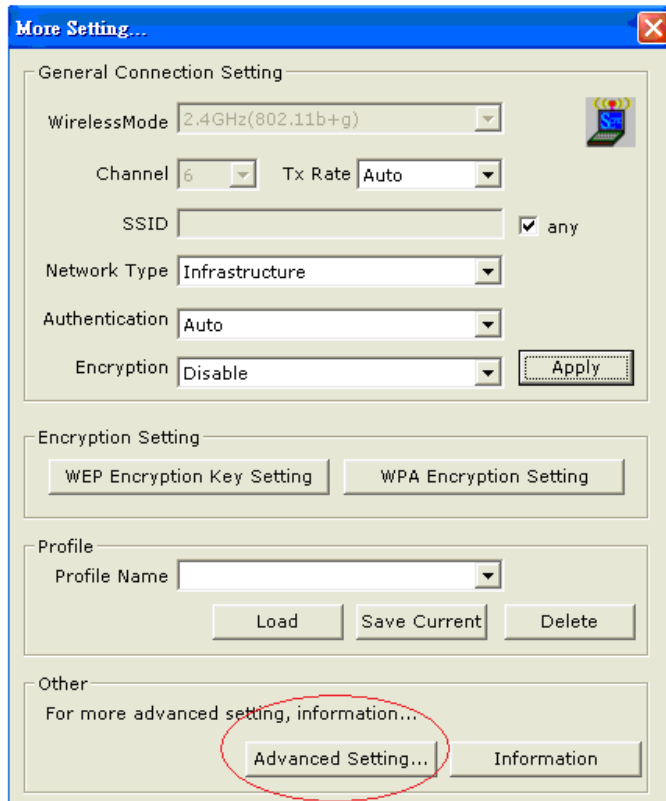
- Language
  - Two languages are currently available
    - English
    - Traditional Chinese
- Power Consumption Setting
  - Continuous Access Mode (CAM)
    - This is the default mode
  - Maximum Power-Saving Mode
    - Provides the lowest power saving capability, but throughput will be lower than other modes
  - Fast Power-Saving Mode
    - Saves less energy than CAM mode, but provides better throughput than with Maximum Power Saving Mode

- Other - Miscellaneous Settings
  - PSP XLINK Mode
    - Use with Xlink Kai online gaming
  - WMM QoS (Quality of Service) Mode
    - WMM Quality of Service is based upon a subset of the IEEE 802.11e standard
    - WMM prioritization minimizes delay in the wireless network for time-sensitive applications like VoIP, Video or Gaming
- Fragmentation Threshold Setting
  - Permits adjustment of fragmentation threshold point from 256 to 2346 bytes
- RTS/CTS Threshold
  - Permits adjustments of the RTS threshold point from 0 to 2347 bytes

SYSTEM INFORMATION – STATION MODE

Click on the Information button, a pop-up window will display the driver version, utility version and the USB adapters MAC address.
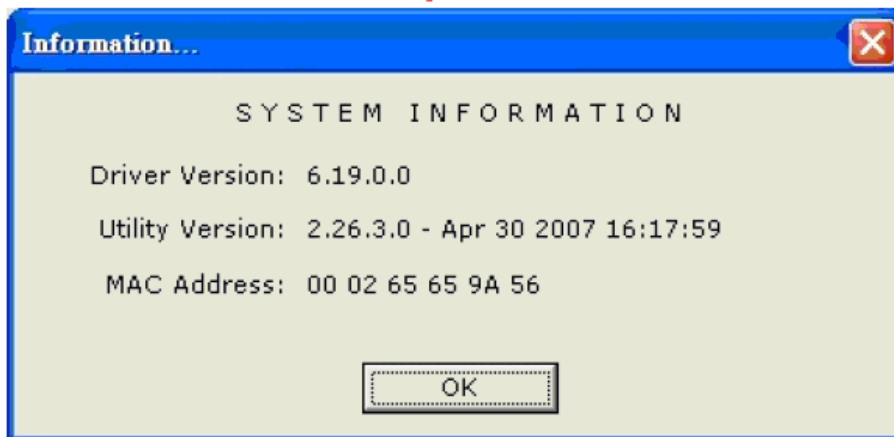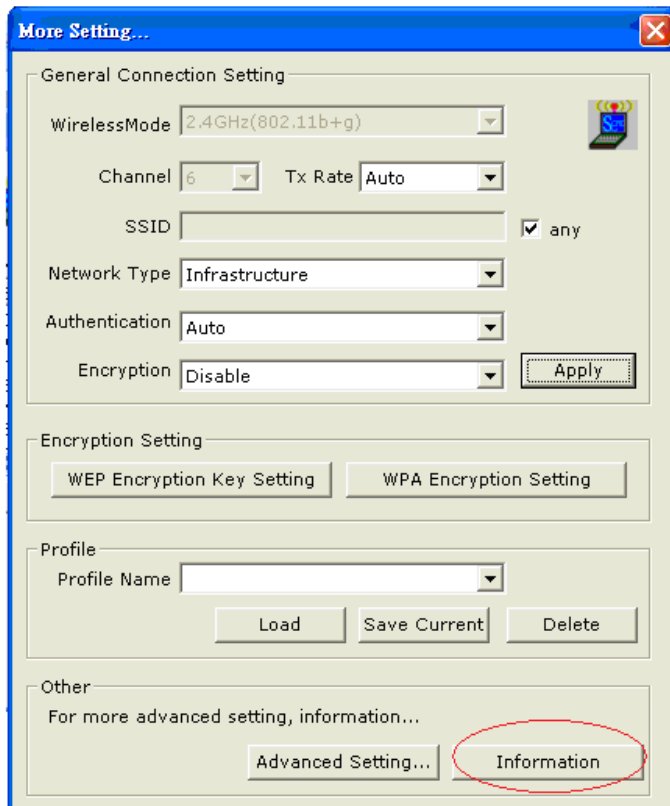
CHAPTER 6: CONFIGURATION – AP MODE

AP mode is synonymous with Ad-Hoc mode in this device. AP mode does not imply that the device can become a full access point in the normal sense. Ad-Hoc mode allows computers with the USB adapter to communicate with each other, eliminating the need

for a wireless router or access point. The limitation is that you will not have access to the Internet. Most users will use the station (infrastructure) mode.

The SMART CPE adapter uses its own management software.

Once the USB adapter has been inserted into a USB port, a new icon should appear in the Windows System Tray automatically such as shown below:

If the icon is in red, it means that an USB adapter configuration
is invalid or incomplete. Double click on that icon and the configuration window (maybe referred to as the Utility Screen) will pop up as shown below.
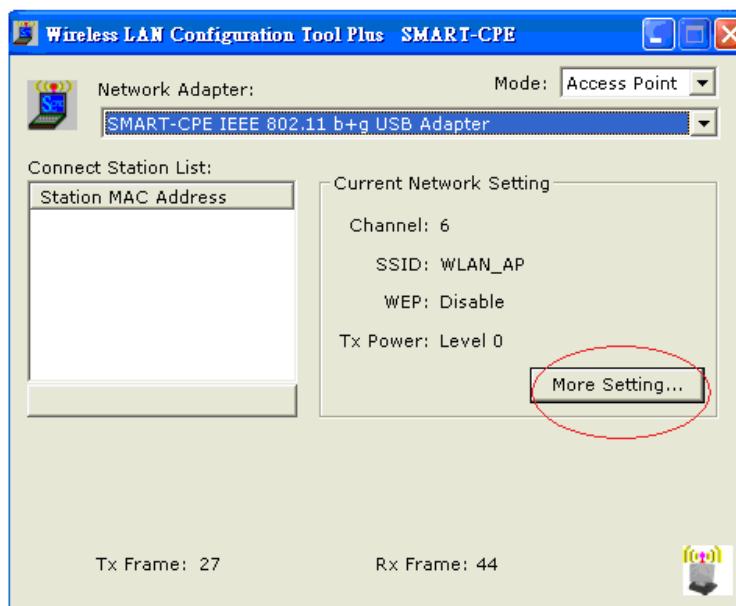
UNDERSTANDING THE UTILITY INFORMATION – AP MODE

Mode:
• Located in the upper right, this is where you may select either Station (Infrastructure) mode or AP (Ad-Hoc) mode.
• Select Access Point. The normal mode for most users will be the default Station mode.

Connect Station List:
• Client computers that connect to your USB adapter, configured as an AP will have their MAC addresses populated into the Station MAC Address list.

Current Network Information:
• Indicates the current channel
• Indicates the SSID of the AP
• Indicates the WEP encryption status (enabled or disabled)
• Indicates the transmit power level, Level 0 (maximum) to Level 3 (minimum)

Other Information:
• The Tx Frame shows how many frames have been transmitted by the "soft" AP.
• The Rx Frame shows how many frames have been received by the "soft" AP.

For further configuration, click on "More Setting" button to access the Access Point Setting Window.
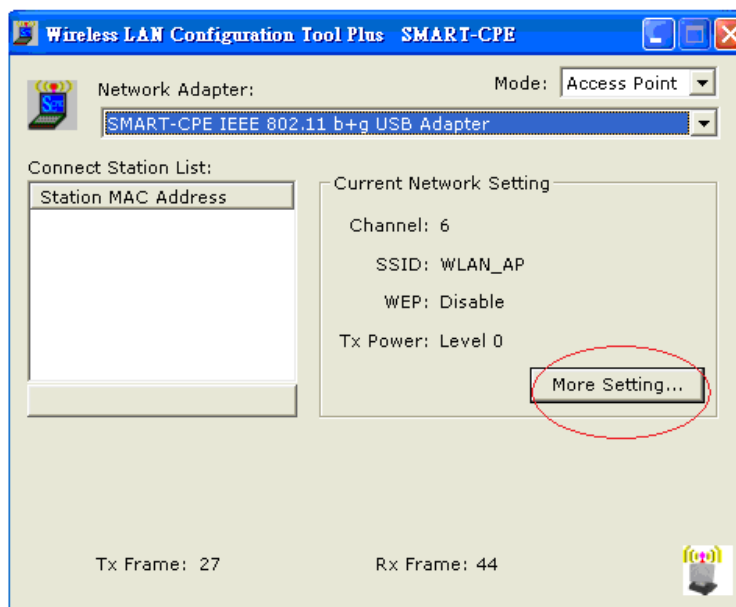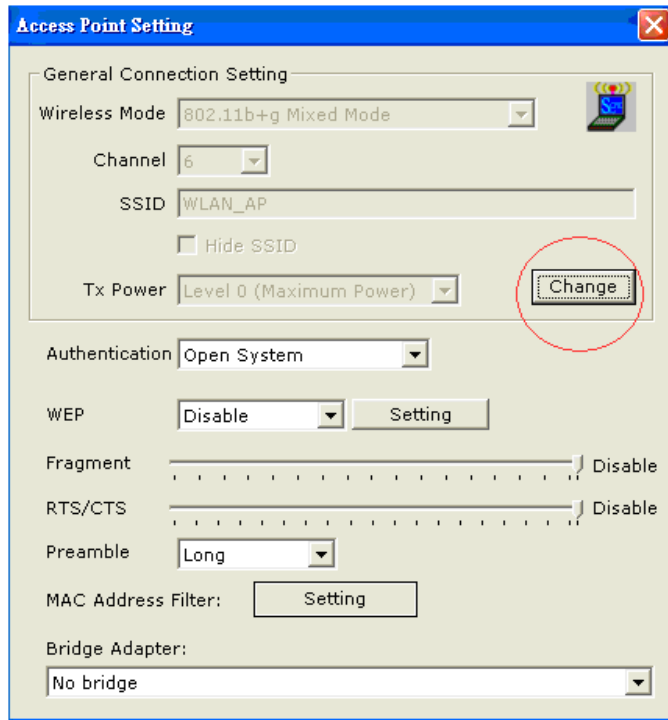
GENERAL CONNECTION SETTING – AP MODE

After clicking "More Settings" from the Utility main settings window, a new window, titled, "Access Point Setting" will appear as shown above. Press the Change button to modify the "General Connection Settings", and press "Apply" to save the changes. The "Change" and "Apply" button are alternatively shown in the same position.

UNDERSTANDING THE AP MODE SETTINGS – ACCESS POINT MODE

Wireless Mode:
• Three modes for the "soft AP" are selectable:
   • 802.11b+g Mixed Mode *normal suggested mode
   • 802.11g only
   • 802.11b only

Channel:
• Selectable from channel 1 to 13 – Default is channel 6.

SSID:
• Modify the SSID as desired.
• Check the "Hide SSID" box to hide the SSID from outside clients attempting to connect
 to your "soft AP". If checked, computers outside of your network search for available
networks, your specific SSID will not be displayed.

Transmit Power:
• For optional radio frequency transmits power level are selectable:
    • Level 0 (Maximum Power) *default mode
    • Level 1
    • Level 2
    • Level 3 (Minimum Power)

Authentication:
• Two authentication choices are available:
    • Open System *default mode
        • Uses default key to authenticate the station(PC) and the Access Point/Wireless
Router. Once both parties are Authenticated, the station(PC) is allowed to send and
receive data from the network. The data is not encrypted.
    • Shared Key
        • Station and Access Point/Wireless Router authenticate each other. Data frame is
also encrypted by the WEP key.

WEP:
• Select either to Disable (default) or Enable WEP encryption.
• Click the Setting... button. The WEP Key Setting screen will appear as shown to the
 right.

WEP Key Settings:
• The WEP Key Setting screen as shown below has three "key lengths". Select either 64, 128, 256 (bit) key length.
• Select which key set will be used by the field of "Default Key ID".
• Modify the 4 sets of keys depending on the selected key format in the field of "Key Value".
  The key value is used in hexadecimal format.
• Select the key format "hexadecimal" or "ASCII" will be used from the "Key Format" selection.
• Encryption keys are made of a random combination of numbers (0 through 9) and letters (A through F)
• 64-bit keys require 10 hexadecimal digits or 5 ASCII digits
• 128-bit keys require 26 hexadecimal digits or 13 ASCII digits
• 256-bit keys require 58 hexadecimal digits or 29 ASCII digits
• Fragmentation Threshold Setting
    • Permits adjustment of fragmentation threshold point from 256 to 2346 bytes
• RTS/CTS Threshold
    • Permits adjustments of the RTS threshold point from 0 to 2347 bytes
• Preamble
    • The Preamble can be set for long or short. The default setting is long.
• MAC Address Filter
    • Click on the Settings button as indicated below on the left.
    • A table will appear as shown below on the right.
    • Select Enable or Disable
    • Enter up to 16 MAC addresses to filter – Click Apply.
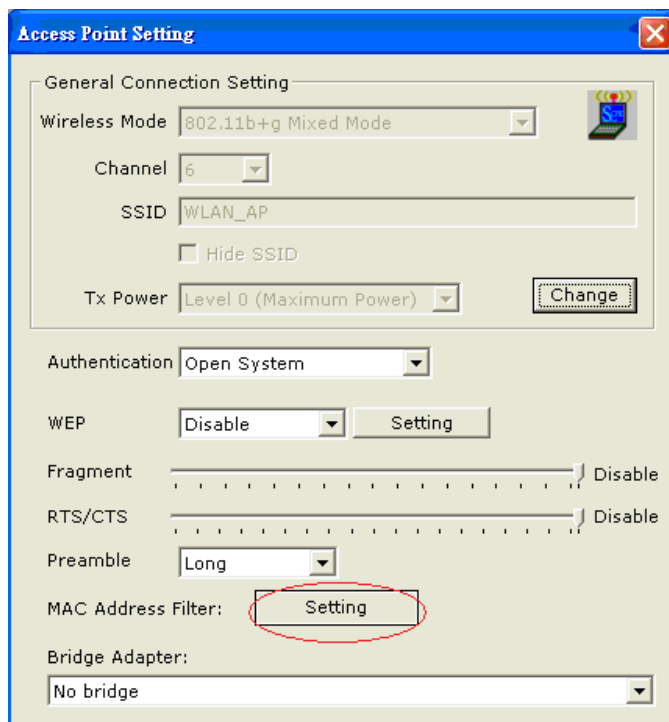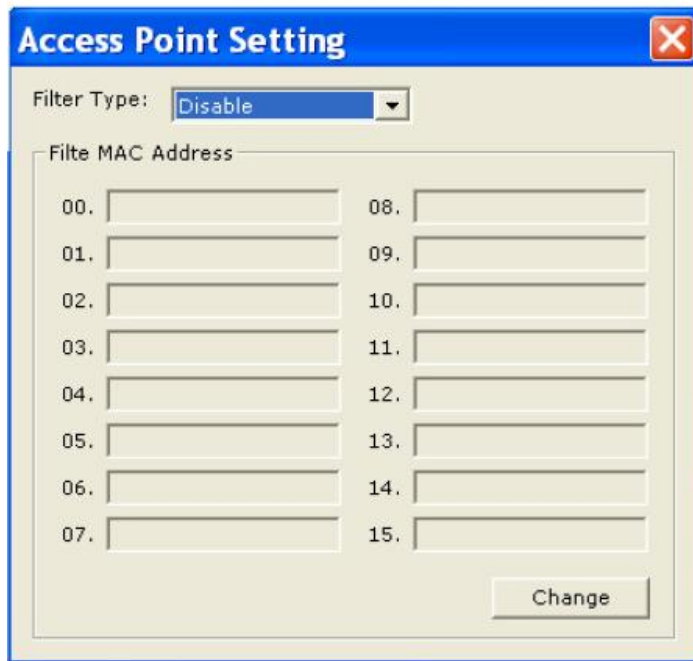
• Bridge Adapter
   • To use the adapter as a Bridge Adapter, you must first select the adapter from the drop down menu.

APPENDIX A: TROUBLESHOOTING

The USB icon does not appear in our icon tray.
• Make sure that you have installed the Utility from the attached CD.

The Utility is installed and appears in the icon tray, but no networks are found.
• If no networks are listed, you may move the directional antenna angle to research your area of any networks.
• If you have a portable computer, move it within close range to an access point or router and see if the network can be seen. If so, the adapter is functioning and your first attempt may have been out of range.

Why won't the Utility Tool function properly in Windows XP?
• If you are using Windows XP as your operating system, the "Zero Configuration" feature/tool of Windows XP must be disabled first, and then the SMART CPE Wireless Utility can be used.
To disable:

Click Start >> Control Panel >> Administrative Tools >> Services.
Select Disabled in the Startup Type field of Wireless Zero Configuration Service to enable the Wireless Zero Configuration Service. The default value of Wireless Zero Configuration Service is Automatic.

How can I improve the signal levels even further?
• If your USB adapter is plugged directly into a computer low to the floor, you may benefit by moving antenna near outside windows or select right antenna angle at a higher level more in line with the wireless router or access point.
• Wireless communications is a 2-way communications link. Often, the weak link is the PC itself, but if after installing the SMART CPE USB adapter you still have weak communications it maybe due to interference from other devices in the 2.4 GHz band and/or your wireless router or access point may offer low RF output power and receiver sensitivity. If this is case you may attempt to upgrade the antenna on the router and the USB adapter or purchase a high quality router.

APPENDIX B: GLOSSARY

802.11 – The Institute of Electrical and Electronic Engineers (IEEE) has created a number of wireless standards. This helps to insure that products built to comply with a specific standard are interoperable with one another even if manufactured by different companies.

802.11b – Specifies a maximum data transfer rate of 11 Mbps, an operating frequency of 2.4 GHz, and WEP encryption for security. Commonly referred to as Wi-Fi.

802.11g – Specifies a maximum data transfer rate of 54 Mbps, an operating frequency of 2.4 GHz and is backwards compatible with 802.11b. Commonly referred to as Wi-Fi.

Access Point – An interworking device that seamlessly connects wired and wireless networks together.

Ad-Hoc – An Ad-Hoc wireless LAN is a group of computers, each with a WLAN card, connected as an independent wireless LAN. Ad-Hoc wireless LAN is applicable at a departmental scale for branch SOHO operation.

BSS – Basic Service Set is an 802.11 interworking framework that includes an Access

Point. Computers in a BSS must be configured with the same BSSID.

CTS (Clear to Send) – An RS-232 signal sent from the receiving station to the transmitting station that indicates is is ready to accept data.

Client – A workstation or PC on a network.

Default Gateway – The IP Address of either the nearest router or server for the LAN.

DHCP – Dynamic Host Configuration Protocol is a method in which IP addresses are assigned from a pool of IP addresses by a server dynmically to clients on the network. DHCP is used for Dynamic IP Addressing and requires a dedicated DHCP server on the network.

DNS – Domain Name System is used to map readable machine names (Internet domain names) into IP addresses.

DSSS – Direct Sequence Spread Spectrum is a method the wireless cards use to transmit data over the frequency spectrum. The other method is frequency hopping. Direct sequence spreads the data over one frequency range (channel) while frequency hopping jumps from one narrow frequency band to another many times per second.

Dynamic IP Address – An IP address that is automatically assigned to a client station in a TCP/IP network, generally by a DHCP server. Network devices that serve multiple users, such as servers and printers, are usually assigned static IP addresses.

ESS – Extended Service Set is a set of two or more BSSs (multiple access points) that form a single network.

Firmware – Programming code that is written onto read-only memory (ROM) or p rogrammable read-only memory (PROM). Once written into memory, it is retained ev en after the device is turned off.

IEEE – Institute of Electrical and Electronics Engineers is a professional society that promotes the development of standards.

Infrastructure Network – One or more computers or other devices, each with a wireless adapter, connected to an Access Point. An infrastructure wireless network connected to a wired network is referred to as a Basic Service Set (BSS). A set of two or more BSS in a single network is referred to as an Extended Service Set (ESS).

ISM Band – Industrial, Scientific and Medical Band operates in the frequency band 2.4 and 2.48 GHz. It is the only unlicensed band approved worldwide.

LAN – A group of computers and other peripheral devices connected to share resources through wired or wireless technology, within a small geographic area.

Protocol – A standard set of rules for exchanging information (format, timing, sequencing, error checking, etc.) between computers or network devices.

Roaming – In infrastructure mode, this refers to a computer moving out of the range of one Access Point and connecting transparently to a new Access Point.

SSID – Service Set Identifier is a unique network identification name. All client devices and Access Points that share the same SSID are able to communicate with each other.

Static IP Addressing – A permanent or manually assigned IP address. Once a static IP address is assigned, a computer or network device will use the same IP address every time it reboots and logs on to the network, unless manually changed.

TKIP – Temporal Key Integrity Protocol is part of the IEEE 802.11i encryption standard for wireless LANs. TKEP is the next generation of WEP (Wired Equivalency Protocol), which is used to secure 802.11 wireless LANs. TKIP provides per-packet key mixing, a message integrity check and a re-keying mechanism.

WEP – Wired Equivalent Privacy mechansim is based on a 64, 128 or 256 bit algorithm.

WPA – Wi-Fi Protected Access was created by the Wi-Fi Alliance as a data encryption m ethod for 802.11 wireless LANs. WPA is an industry-supported, pre-standard version of 8 02.11i utilizing TKIP.

WLAN – Wireless Local Area Network is a group of computers and associated devices that communicate with each other wirelessly.