TwinMOS

802.11g Series

G245

Wireless LAN Adapter

User's Manual

TwinMOS®

Contents

PACKAGE CONTENTS

Unpack your *G245 WLAN adapter* kit and verify that all items are present.

- *G245* Wireless LAN Adapter
- User's Manual (on CD)
- Driver (on CD)
- USB Cable

If any of the items described appear to be damaged or missing, please contact your reseller.

INTRODUCTION

The *G245* WLAN adapter is a wireless network client that complies with the IEEE 802.11g standard on wireless LANs. The IEEE 802.11g standards compliance means this adapter gives you the flexibility to connect it to any 802.11g network. The IEEE 802.11g Ethernet standard allows you to connect computers and devices at speeds up to 11Mbps, dependent upon the distance between wireless adapters, the configuration of your working environment, or the capabilities or limitations of your computer systems.

This *G245* WLAN Adapter supports following WLAN features：

- Automatic transmit data rate select mechanism in the transmit range of 1, 2, 5.5,6,9,11,12,18,24,36,48 and 54 Mbps.
- Center frequency channel selection (2.4 GHz)
- Roaming over multiple channels.
- Supports USB interface
- Supports power save mode
- 128-bit Wired Equivalent Privacy (WEP) data encryption.
- Plug and Play installation

This *G245* comes with software drivers for the most popular Microsoft Windows operating systems and can be integrated into a larger network, running Windows XP, Windows 2000, Windows ME, or Windows 98 in either Ad-Hoc mode or infrastructure mode. This manual provides a quick introduction to wireless technology and its application as it relates to networking. Take a moment to read through this manual and familiarize you with wireless technology. You should also give yourself some time to become familiar with your new wireless network.

WIRELESS NETWORK OVERVIEW

A wireless local area network (LAN) is a flexible data communications system implemented as an extension to, or as an alternative for, a wired LAN. Using radio frequency (RF) technology, wireless LANs transmit and receive data over the air, minimizing the need for wired connections. Thus, wireless LANs combine data connectivity with user mobility.

A local area network that transmit and receive over the air typically in an unlicensed frequency such as the 2.4GHz band. A wireless LAN does not require lining up devices for line of sight transmission like IrDA. Wireless access points (base stations) are connected to an Ethernet hub or server and transmit a radio frequency over an area of several hundred to a thousand feet which can penetrate walls and other nonmetal barriers. Roaming users can be handed off from one access point to another like a cellular phone system. Laptops use wireless modems that plug into an existing Ethernet port or that are self contained on PC cards, while stand-alone desktops and servers use plug-in cards (ISA, PCI, etc.).

Wireless LANs offer the following productivity, convenience, and cost advantages over traditional wired networks：

Mobility - WLAN provide LAN users to access data in any location within the operating range of the WLAN. Ad-hoc management decisions based on real-time information can significantly improve worker efficiency.

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 wire cannot go.

Reduced Cost-of-Ownership - While the initial investment required for wireless LAN hardware can be higher than the cost of wired LAN hardware, overall installation expenses and life-cycle costs can be significantly lower. Long-term cost benefits are greatest in dynamic environments requiring frequent moves 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 networks suitable for a small number of users to full infrastructure networks of thousands of users that enable roaming over a broad area.

Installation Considerations

Designed to go up to 300 feet (100 meters) indoors and up to 900 feet (273 meters) outdoors, *G245* WLAN adapter lets you access your network from virtually anywhere you want. Keep in mind, however, that the number and thickness of walls, ceilings or other objects that the wireless signals must pass thru may limit range. Typical ranges vary depending on the types of materials and background RF noise in your home or business. The key to maximizing range is to follow these basic principles:

Keep the number of walls and ceilings between the access point and your receiving device to a minimum - Each wall or ceiling can reduce your TwinMOS *G245* Wireless product's range from 3-90 feet (1-30 meters.) For some businesses or for a large residential home deployment, it may be more beneficial to have more than one access point with overlapping coverage.

1. *Be aware of the direct line between Access Points, Residential Gateways, and Computers* - A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) thick! Try to make sure that the Access Points and Adapters are positioned so that the signal will travel straight through a wall or ceiling for better reception.

2. *Building Materials make a difference* - A solid metal door or aluminum studs may have a negative effect on range. Try to position Access Points, Residential Gateways, and Computers so that the signal passes through drywall or open doorways and not other materials.

3. Make sure that the antenna is positioned for best reception by using the software signal strength tools included with your product.

4. Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices that generate RF noise, like microwaves, monitors, electric motors, etc.

For the average residence, range should not be a problem. If you experience low or no signal strength in areas of your home that you wish to access, consider positioning the Access Point in a location directly between the Residential Gateways and/or Computers that will be connected. Additional Access Points can be connected to provide better coverage in rooms where the signal does not appear as strong as desired.

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

G245 WIRELESS NETWORK SCENARIOS

The *G245* WLAN adapter enables you to:

● Connect your computer to an Ad-Hoc workgroup of wireless computing devices (see Figure 1-1 on page 6).

● Connect your computer to a Small Office/Home Office (SOHO) network that includes a Residential Gateway (RG) access point (see Figure 1-2 on page 7).

● Connect your computer to a Local Area Network (LAN) Infrastructure that includes Access Points, or other IEEE 802.11 compliant LAN systems (see Figure 1-3 and Figure 1-4).

● Expand the capabilities of your Access Points, to support wireless devices that have been equipped with *G245*.

Ad-Hoc Workgroup

The Ad-Hoc workgroup configuration enables you to quickly set up a small wireless workgroup, where the workgroup participants can exchange files using features like "Files and Printer Sharing" as supported by Microsoft Networking.
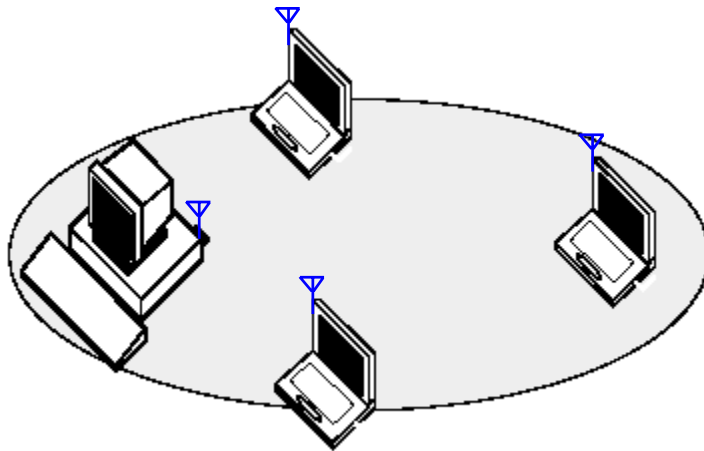
Figure 1-1 Ad-Hoc Wireless Workgroup

You can use this option to setup a temporary or ad-hoc network in environments where no access points are available (for example in Small Office/Home Office (SOHO) environments). As long as the stations are within range of one another, this is the easiest and least expensive way to set up a wireless network.

Home Networking

With the TwinMOS *G245* WLAN adapter, wireless access to the Internet or other computers is at your fingertips. All you need to do is connect the wireless computers to an external cable, an xDSL or a ISDN modem and you are ready to：
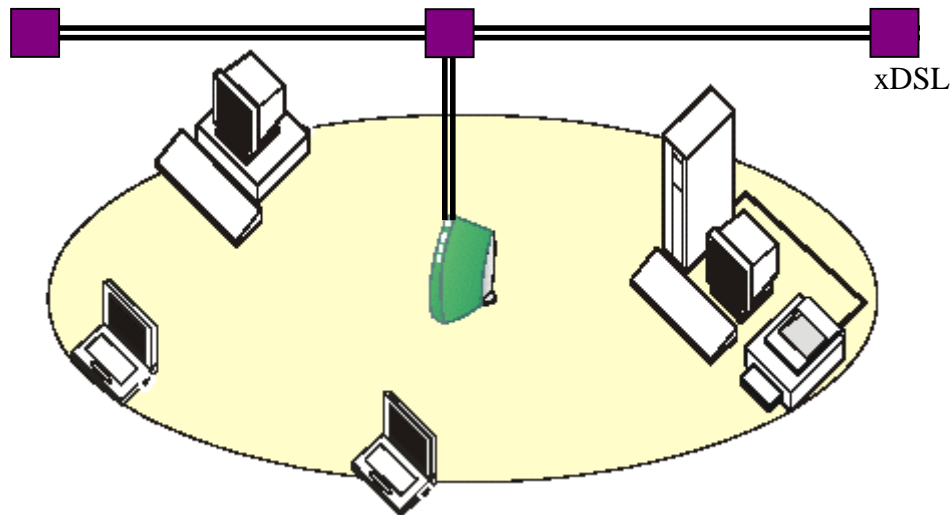
- Share files and printers, and
- Access the Internet

xDSL

Figure 1-2 Connect to a Residential Gateway (RG)

Enterprise Networking

With the 11 Mbps Wireless LAN access point you can connect to a corporate Local Area Network (LAN) infrastructure to have wireless access to all network facilities. LAN Infrastructures may either be:

- Stand-alone wireless LANs (Figure 1-3).
- Wireless network infrastructures connected to an existing Ethernet network (Figure 1-4).

Network Name
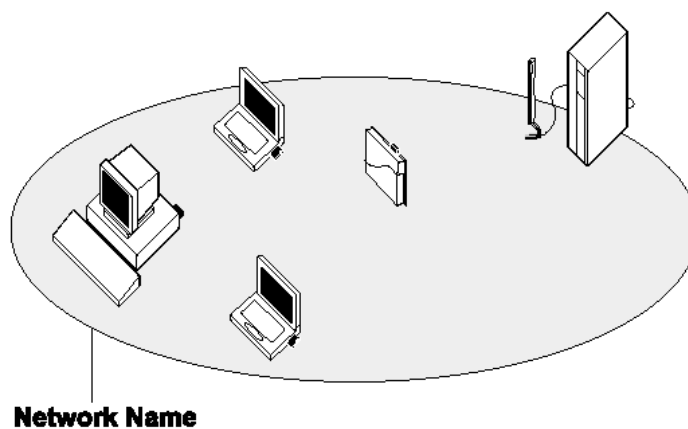
Figure 1-3 Stand Alone Wireless LAN
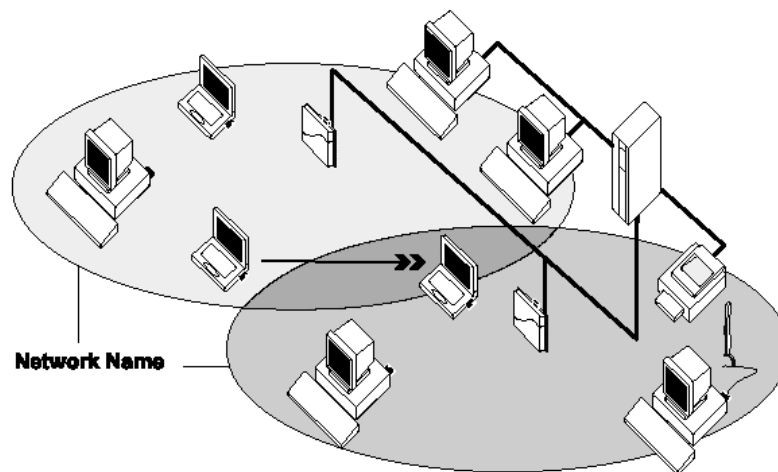
Figure 1-4 LAN Infrastructure

It's Easy

The *G245* functions like any standard wired Ethernet card, but G245 does not need any wires!

Where an Ethernet card requires a cable connection to a hub and/or patch panel, the cable physically ties you down to the location of the wired connection.

G245 allows you to connect your computer to a Local Area Network (LAN) system from anywhere within the wireless coverage area. Expanding or re-designing your network is easy: Add or relocate access point, power-up your (new) wireless computers, and you're done!

Unlike Ethernet, TwinMOS *G245* will enable you to roam throughout the network while remaining connected to the LAN.

Note ：*The G245 wireless adapter is a radio product. Refer to the flyer "Information to the User" for regulatory information that may apply in your country.*

INSTALLATION FOR WINDOWS (XP/2000/98SE)

The following section will assist you to install *G245* WLAN adapter successfully. You will install driver firstly and then plug in the *G245* WLAN adapter, and finally set the network properties to accommodate resource sharing and select the type of wireless network that you want to install.

In order to establish your wireless network connection, make sure some steps below will be performed.

- Install the Access Point (AP) at first if you use Access Point network mode.
- Install the driver using the Installation CD.
- Plug in the *G245* wireless LAN adapter.
- Install the network protocol(s) required to communicate on your network. Most likely you will need the TCP/IP protocol.

The Octopus Wireless LAN Configuration Utility is installed simultaneously with the driver by executing the Setup.exe file. Note also that some versions of Microsoft Windows operating systems require administrator to install software. If this is the case for your operating system, be sure that you have such privileges before executing the Setup.exe file. To upgrade an existing driver, it is not necessary to remove your Octopus driver from your computer. Simply run the Setup.exe file to replace the existing driver with the latest version. After the new driver is installed, maybe you must restart the operating system (depend on the Windows' OS).

Please follow the following steps one by one in order to install the *G245* WLAN adapter successfully.

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

Note1: After running the driver package, the Notebook (or PC) with Win98 OS shall be restarted, for Win2000 or WinXP OS the Notebook (or PC) doesn't need to be restarted.

Note2: Please do not insert USB Stick adapter into USB port of your computer until Application setup has been completed.
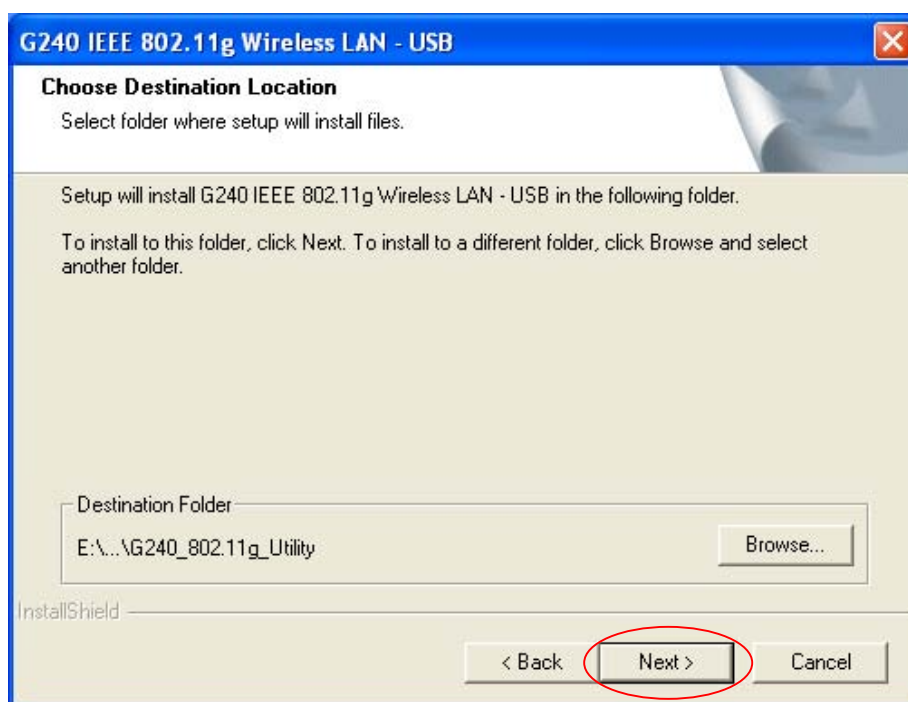
For Windows XP

Install the Driver and Utility

1. Insert the CD into the CD-ROM device and execute the "G245_4618A.exe" program of your purchace G245 to select. The InstallShield Wizard box will appear, click "Next" to continue.
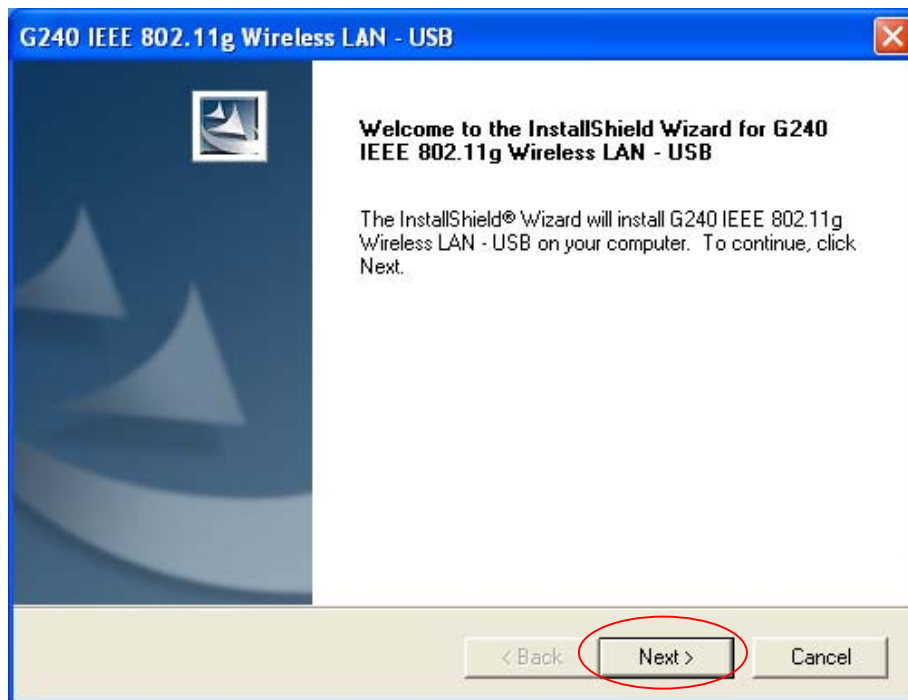
2. Choose install folder

● Don't care below to click "Continue Anyway" button to next setp

3. Insert the G245 WLAN adapter into the USB port of your computer, the system will automatically find the device and search for its software.
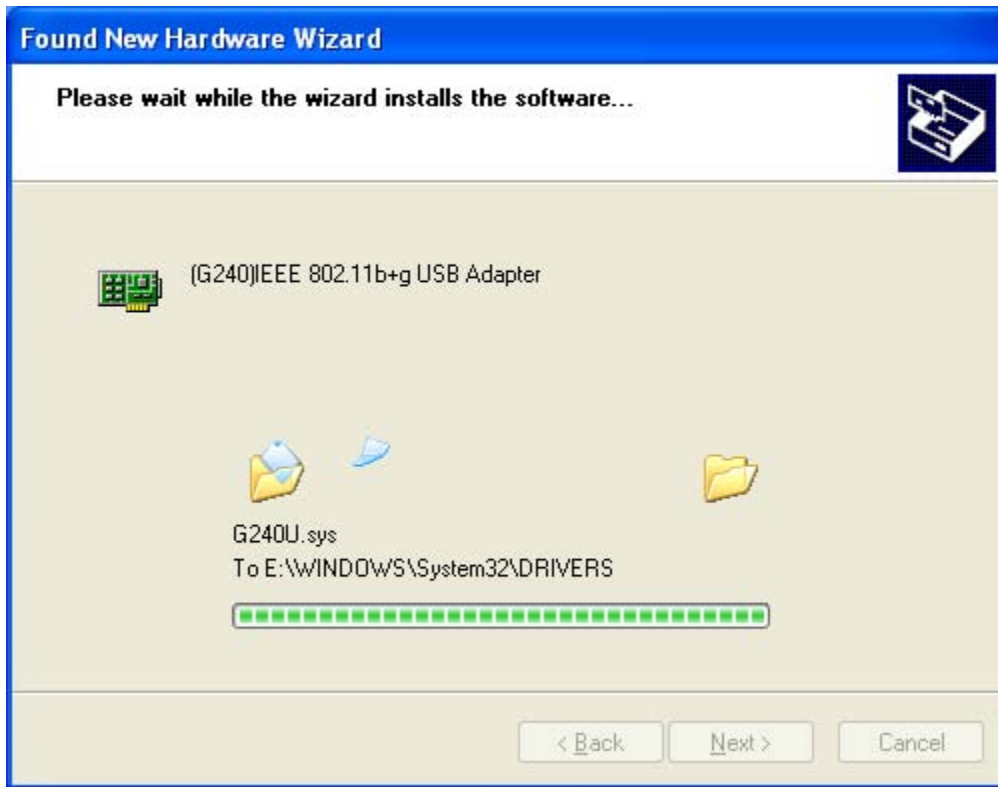
● Please wait while the wizard installs the software.

● Don't care below to click "Continue Anyway" button to next setp

● Please wait while the wizard installs the software.

● Completing the "G245 Series USB Adapter" installing the software.

Using the Utility of G245 adapter

Note: If you don't disable the XP's Utility, you can not use function of the adapter's utility.

1.The way disable the XP's Utility, please do the following:

● Clicking on the utility icon.

● Click "Yes".
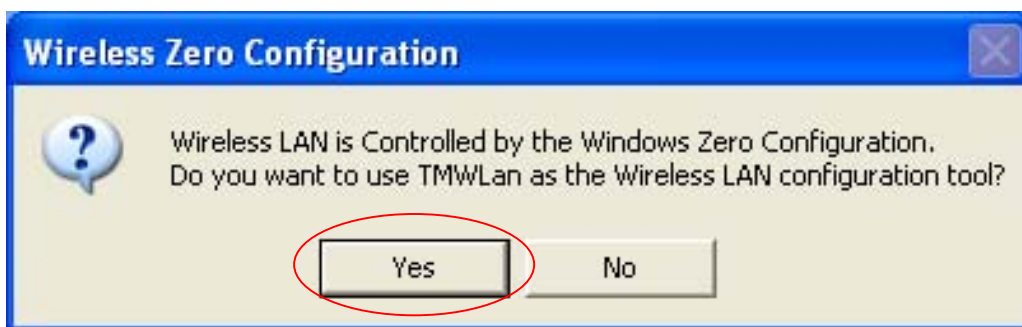
● The "TwinMOS WLAN Configuration" screen will appear.
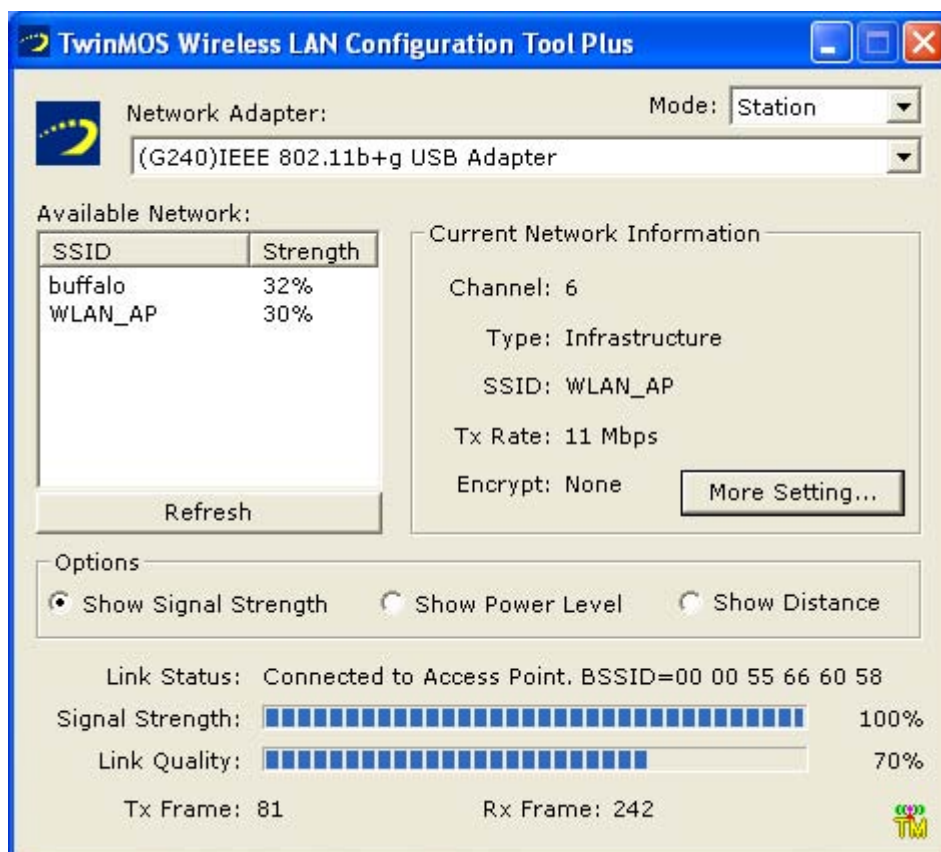
2.The another way disable the XP's Utility, please do the following:

● Get into Windows XP's utility, click "Advanced" button.
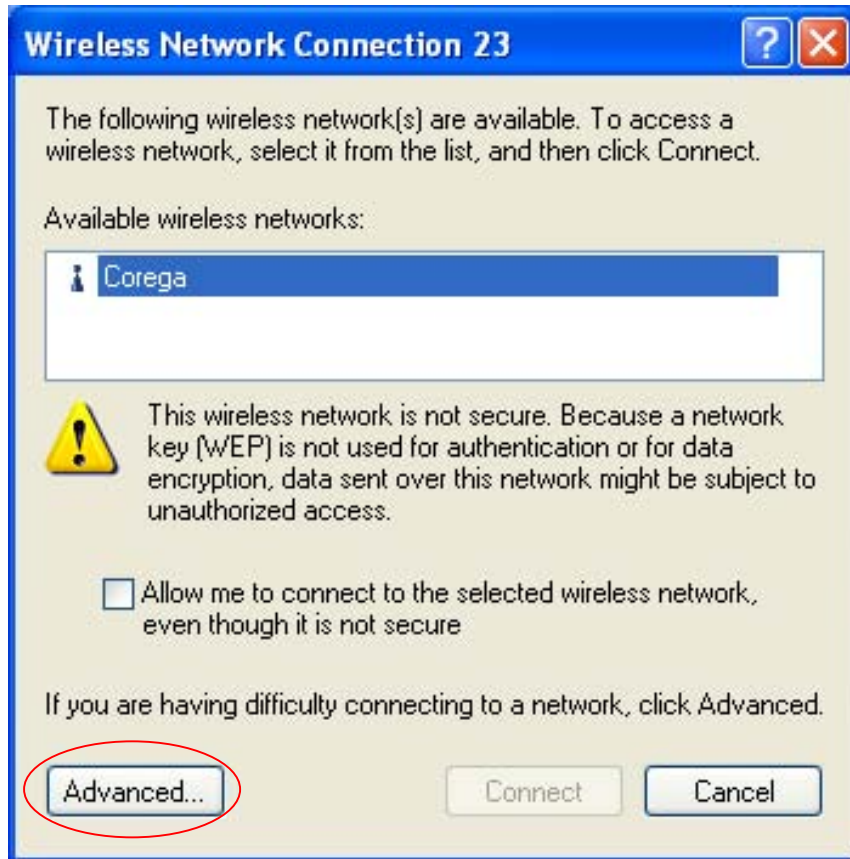
- In "Wireless Network Connection Properties" screen, uncheck the setting "Use Windows to configure my wireless network settings". Note that if you want to change back to the Windows XP built-in utility, check the item again.
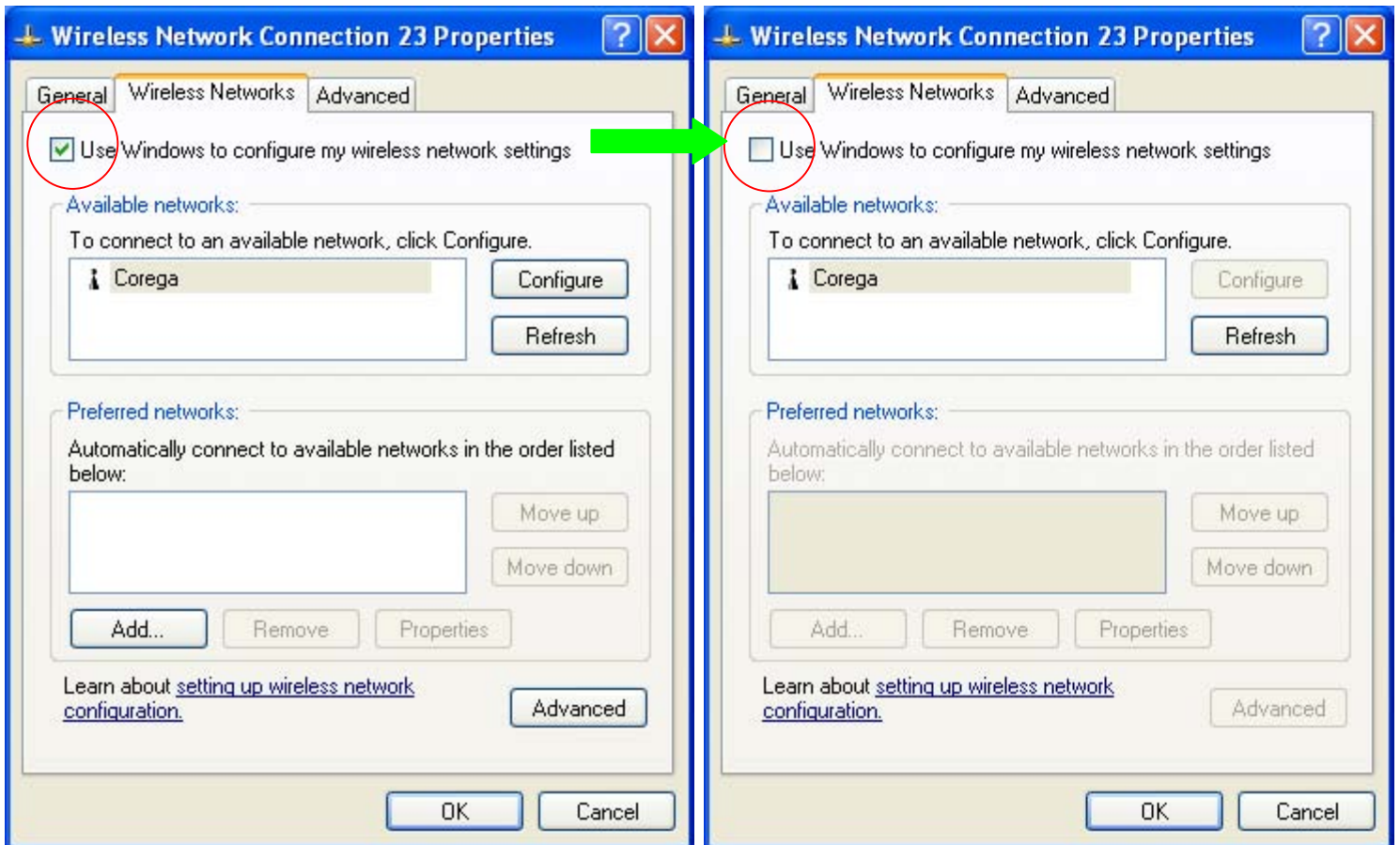
- Please click "**Start->All programs->G245 IEEE 802.11g Wireless LAN - USB ->TMWLan Utiliy**" or to Double-click on the icon shown below.

- The "TwinMOS Wireless LAN Configuration Tool Plus" screen will appear. Double click the icon and start using the WLAN USB Stick Adapter.
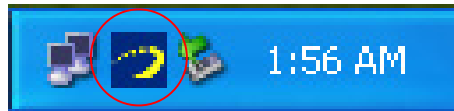
- The "TwinMOS Wireless LAN Configuration Tool Plus" screen show below.
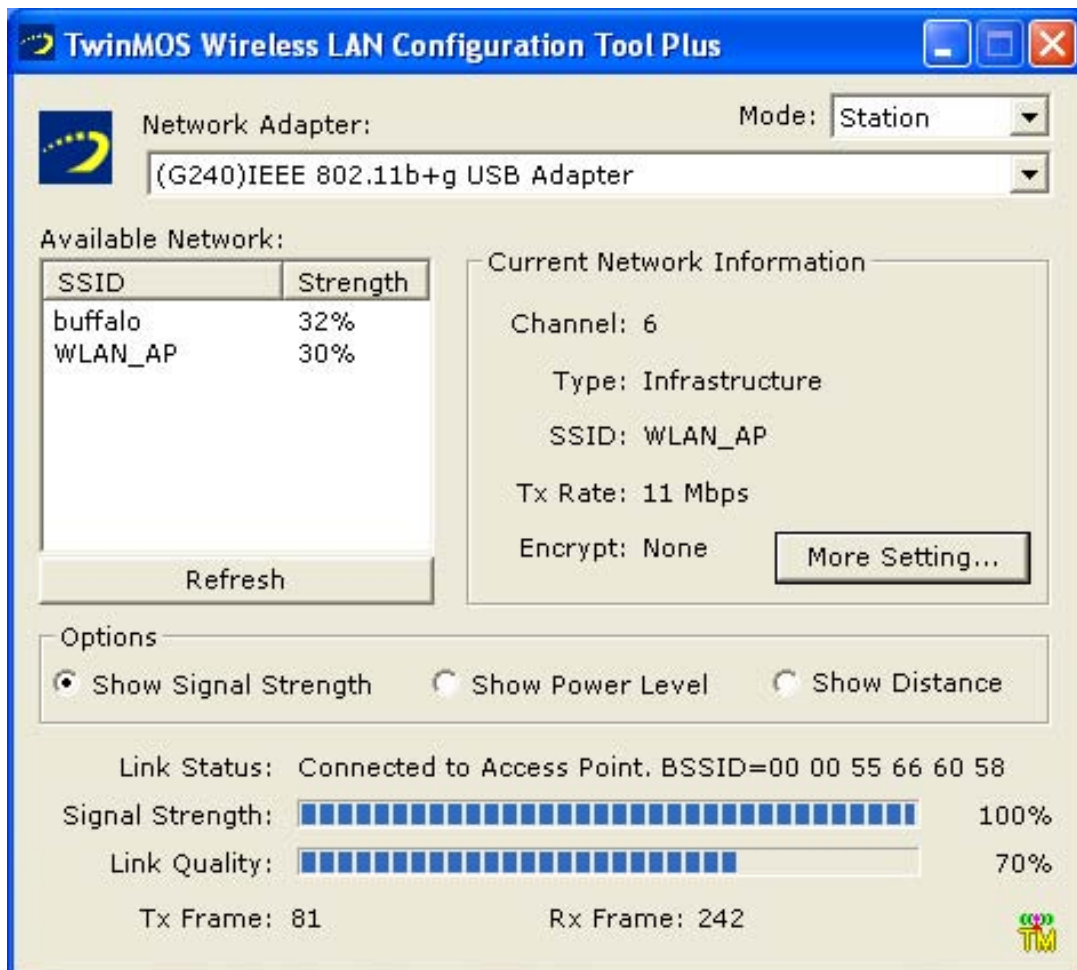
Using the Windows XP's Utility

To connect to your wireless network, please do the following:

◎Double-click the icon marked in red in the taskbar and you may start using the Windows XP's wireless utility
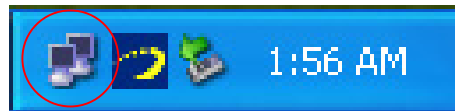
- To click "Properties" to next step.

◎ The "Connect to Wireless Network" window will contain a list of all the available Wireless Networks. Select the proper network for your needs. In this example, "Corega" network was selected as shown.
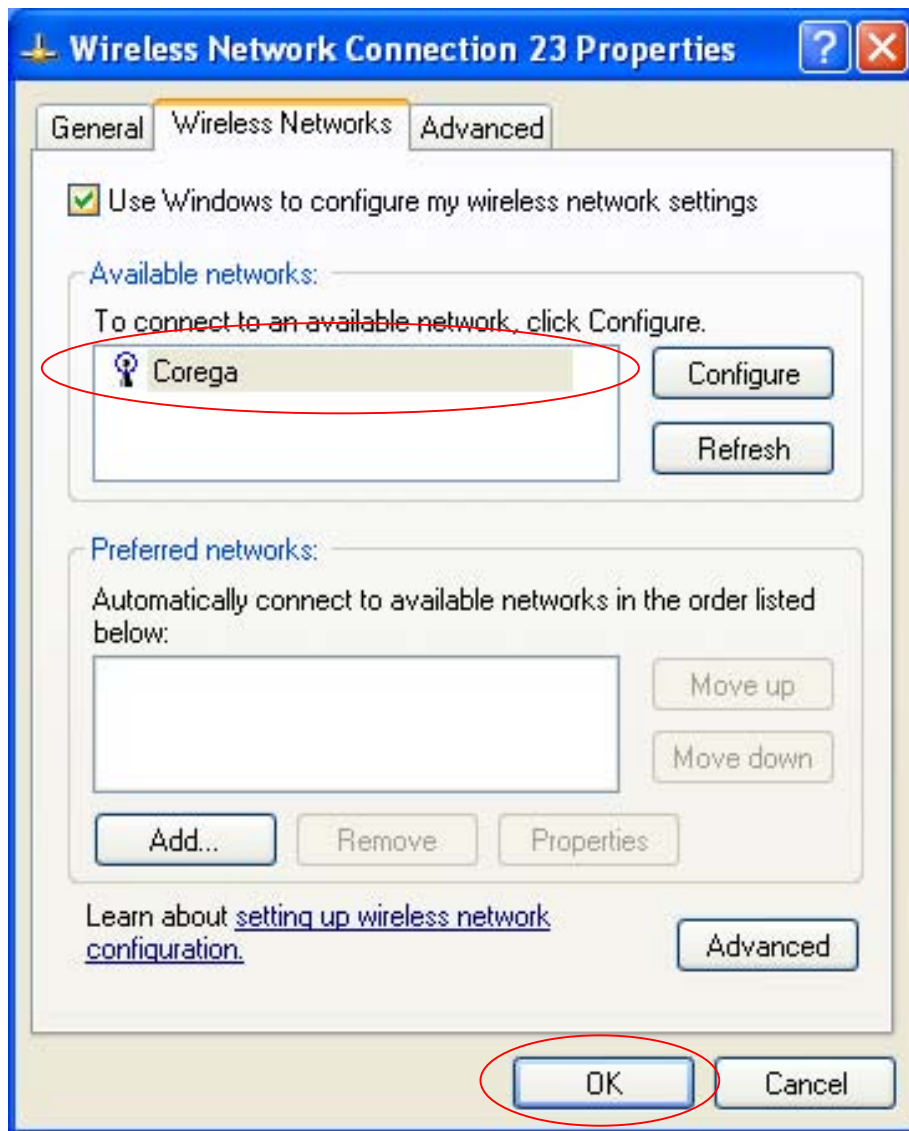
Using WPA of the Windows XP's Utility

Note1: Before use the WPA feature, please install Windows XP Service Pack 1 with Windows XP Support Patch for Wi-Fi Protected Access program

Note2: Configure the card by Wireless built-in utility (Wireless Zero Configuration).

Note3: All devices in the network should use the same encryption method to ensure the communication.

Wi-Fi Protected Access (WPA) is a specification of standards-based, interoperable security enhancements that strongly increase the level of data protection (encryption) and access control (authentication) for existing and future wireless LAN systems. The technical components of WPA include Temporal Key Integrity Protocol (TKIP) for dynamic key exchange, and 802.1x for authentication.
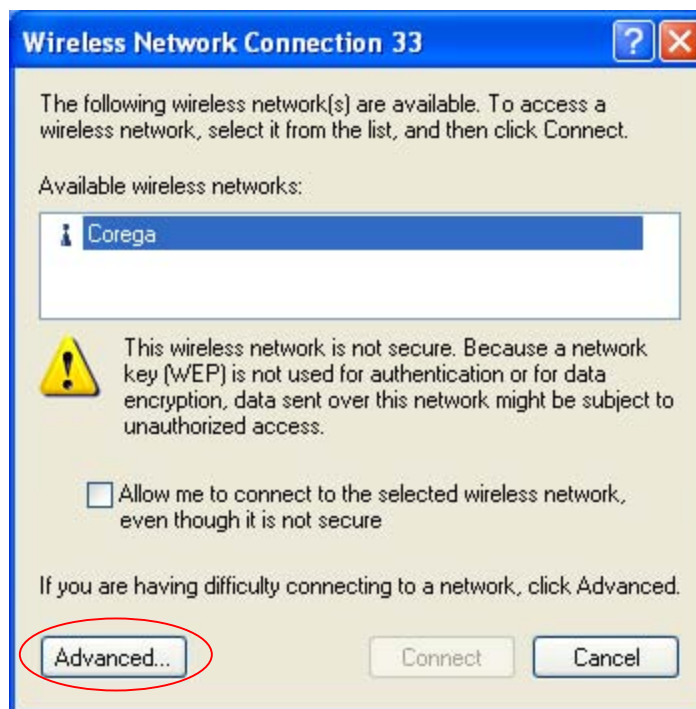
● Example :

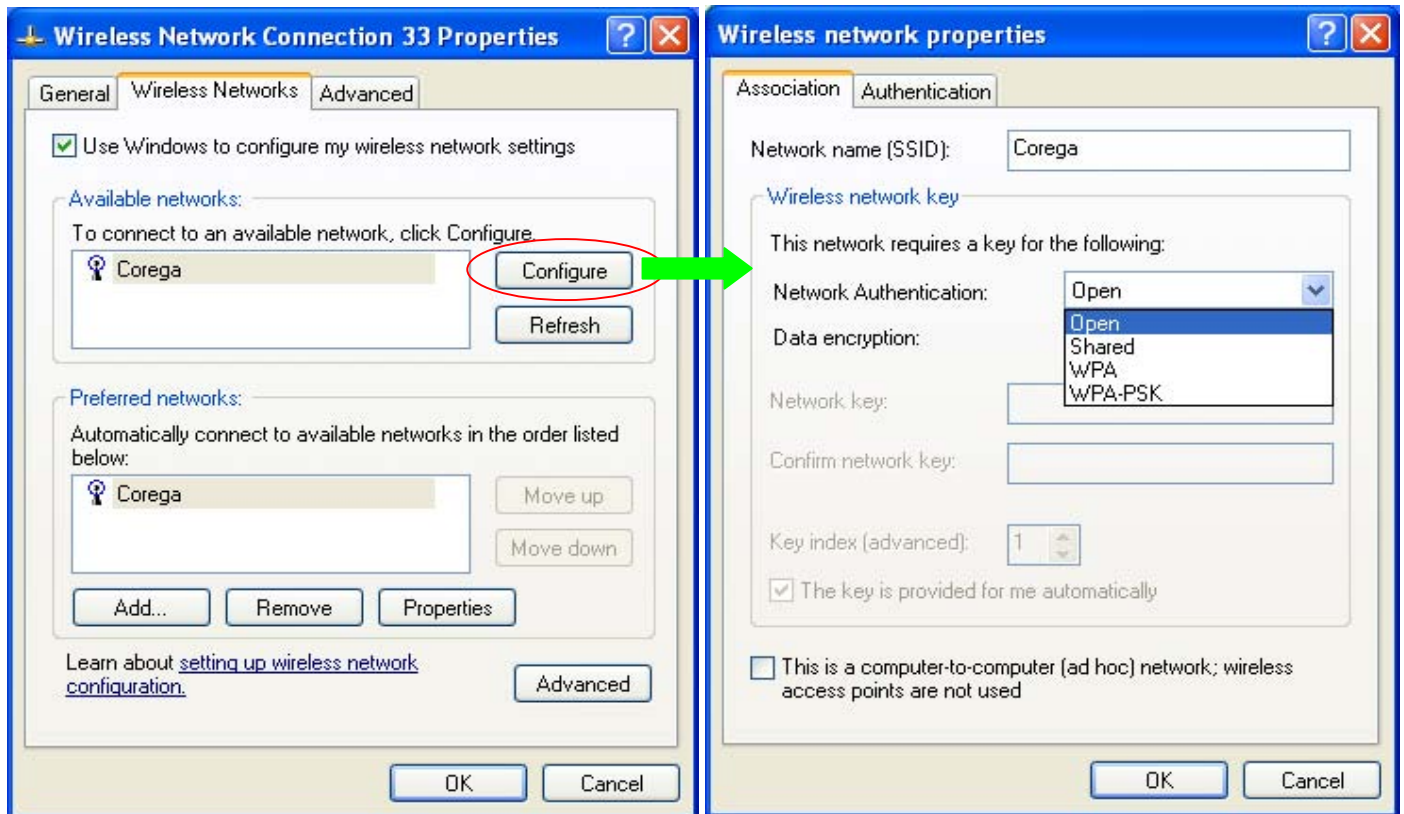1: Right click the icon to select "View Available Wireless Networks".
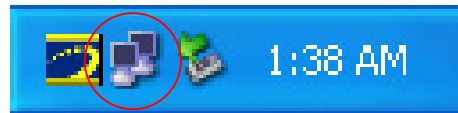
2: Click "Advanced" button from "Wireless Network Connection".

3: Click"Configure" button to configure the WPA function for the current network.

● **Network Authentication**

・**Open** –No authentication is needed among the wireless network.

・**Shared** – Only wireless stations using a shared key (WEP Key identified) are allowed to connecting each other.

・**WPA** – This mode is for enterprise with an authentication server (Radius Server), WPA-enabled access point, and a WPA-enabled client. Once WPA is enabled, all clients and access points on the network must be WPA-enabled in order to access the network.

・**WPA-PSK** – It is a special mode designed for home and small business users who do not have access to network authentication servers. In this mode, known as Pre-Shared Key, the user manually enters the starting password in their access point or gateway, as well as in each PC on the wireless network. WPA takes over automatically from that point, keeping unauthorized users that don't have the matching password from joining the network, while encrypting the data traveling between authorized devices.
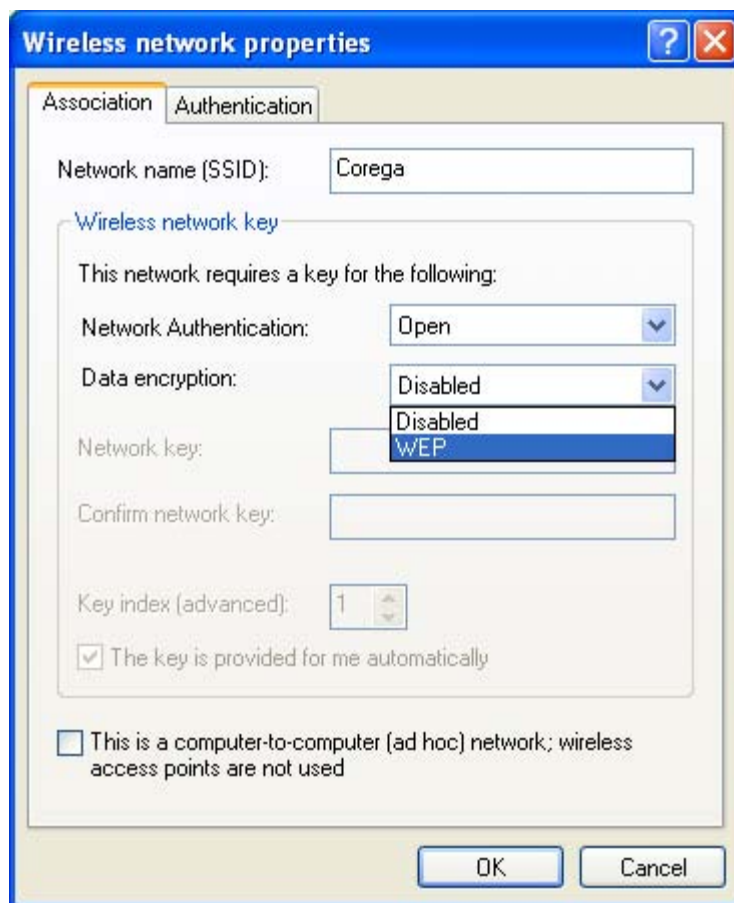
● **Data Encryption**

‧**Disabled** –Disable WEP by the "Data encryption" drop down menu..

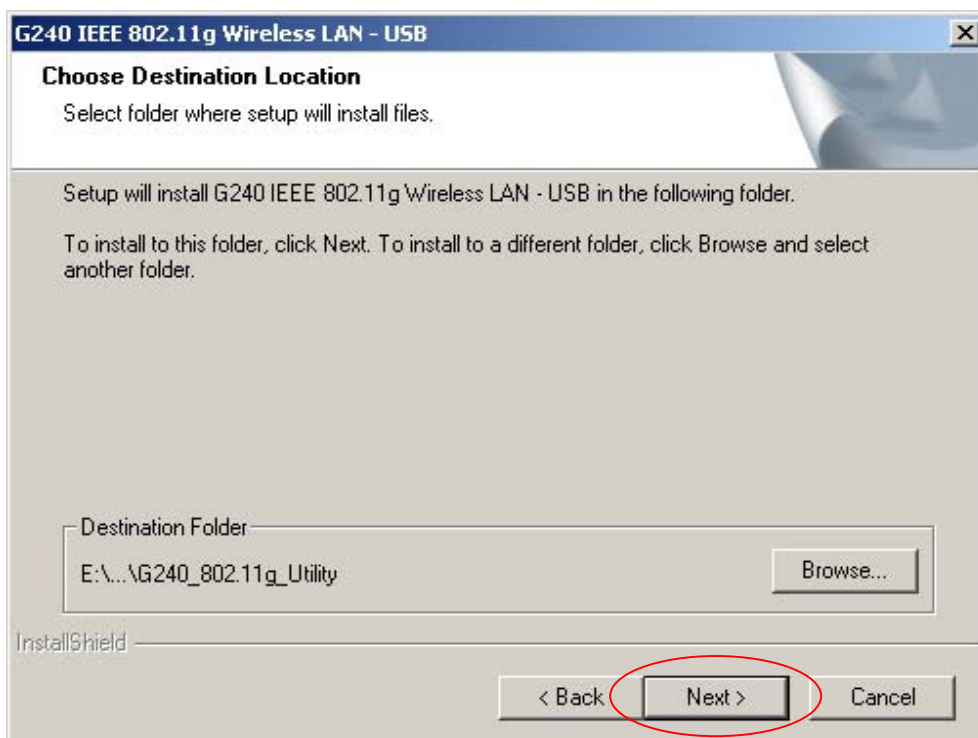‧**WEP** – In WPA or WPA-PSK mode, WEP is also able to be the encryption method for the transmission data.

For Windows 2000

Install the Driver and Utility

1. Insert the CD into the CD-ROM device and execute the "G245_4618A.exe" program of your purchace G245 to select. The InstallShield Wizard box will appear, click "Next" to continue.
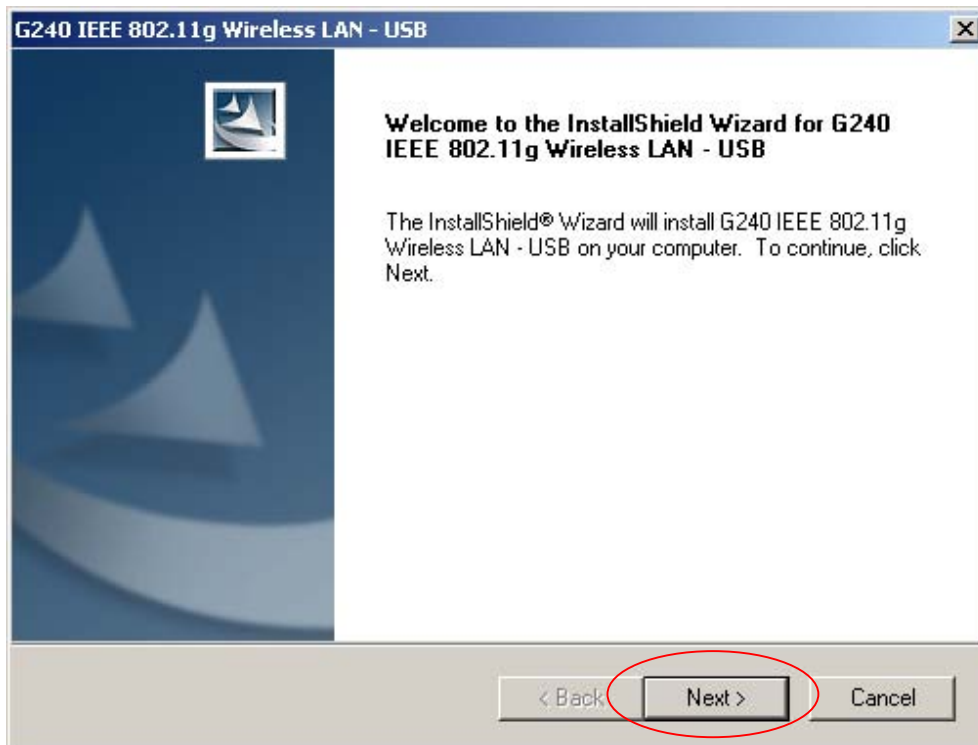

2. Choose install folder

● Don't care below to click "Yes" button to next setp.

2. Insert the G245 WLAN adapter into the USB port of your computer, the system will automatically find the device and search for its software then the InstallShield Wizard finished installation and the system tray icon is loaded in the taskbar (see illustration below.).
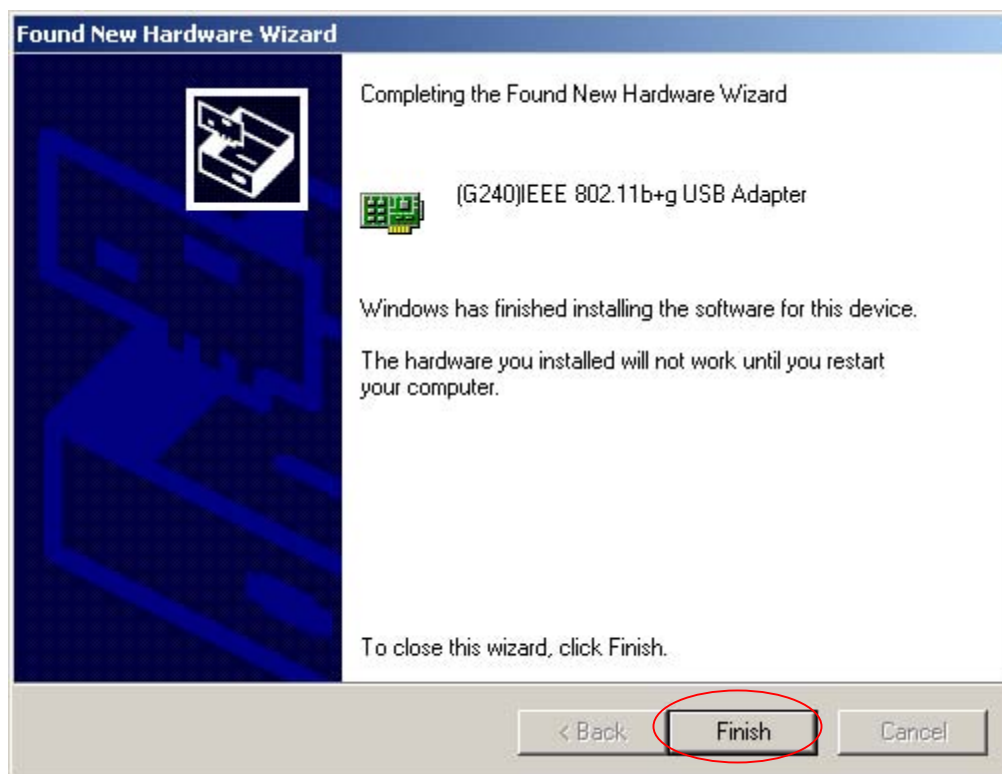
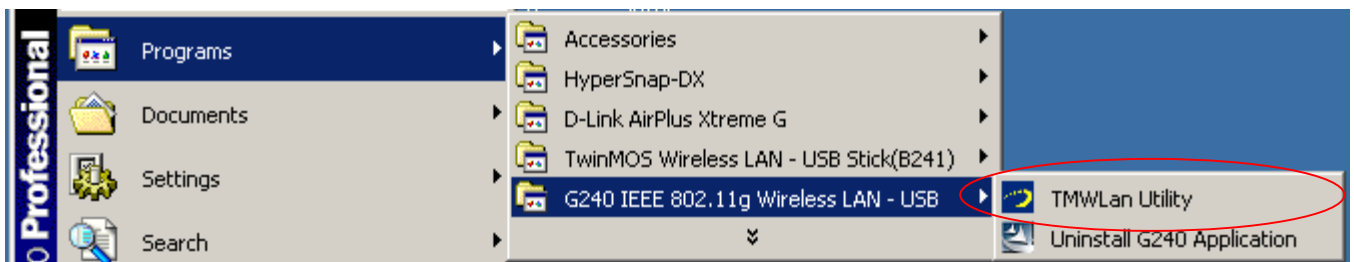● Don't care below to click "Yes" button to next setp.
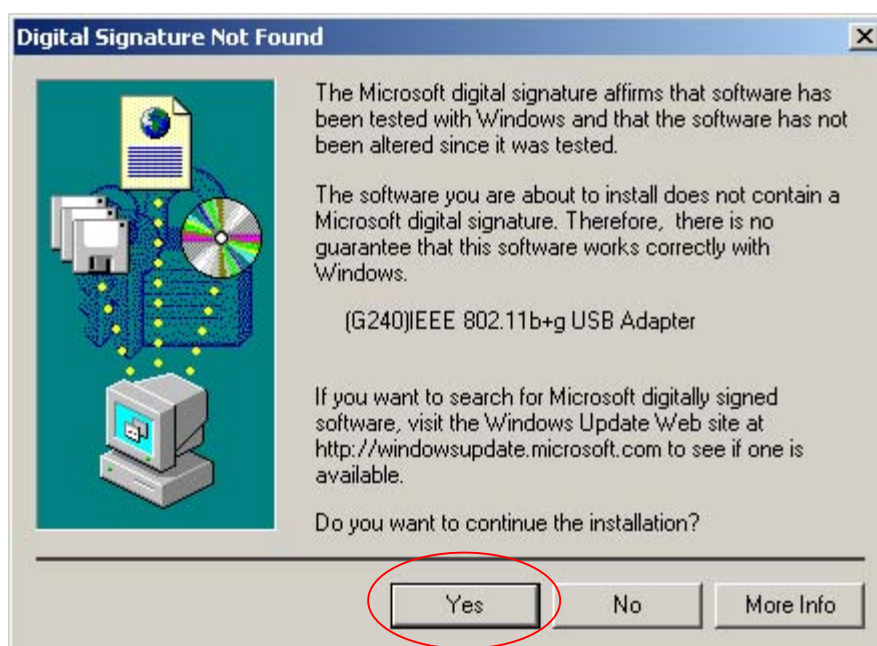
- Found New Hardware and Installing.
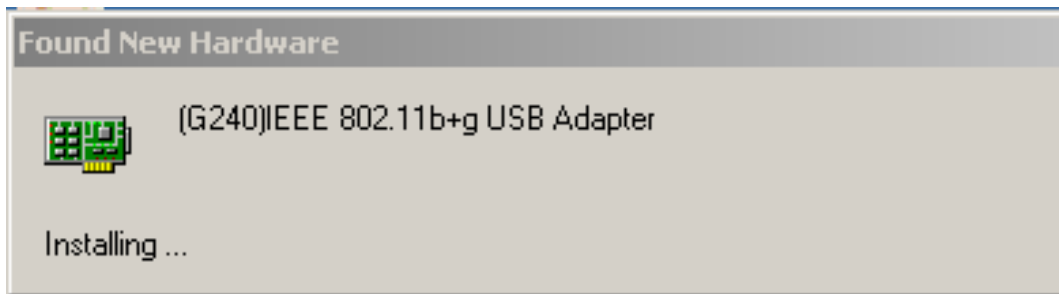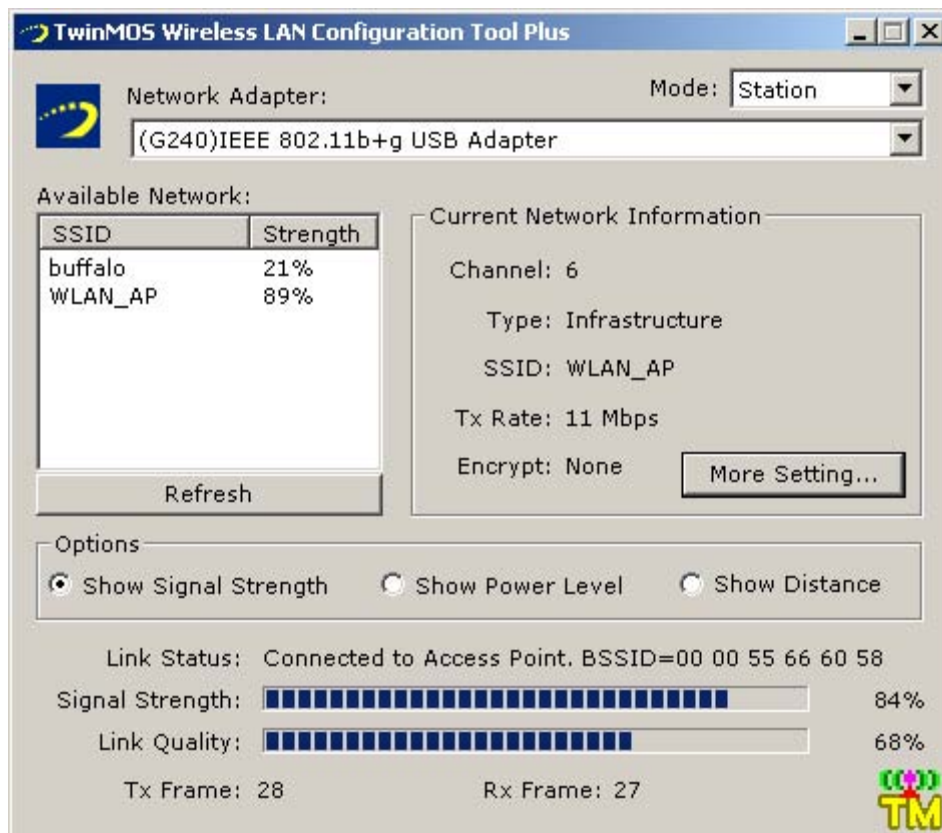

- Complete device install.

● Please click "**Start->programs->G245 IEEE 802.11g Wireless LAN - USB ->TMWLan Utiliy**" or to Double-click on the icon shown below.

● The "TwinMOS Wireless LAN Configuration Tool Plus" screen will appear. Double click the icon and start using the WLAN USB Stick Adapter.
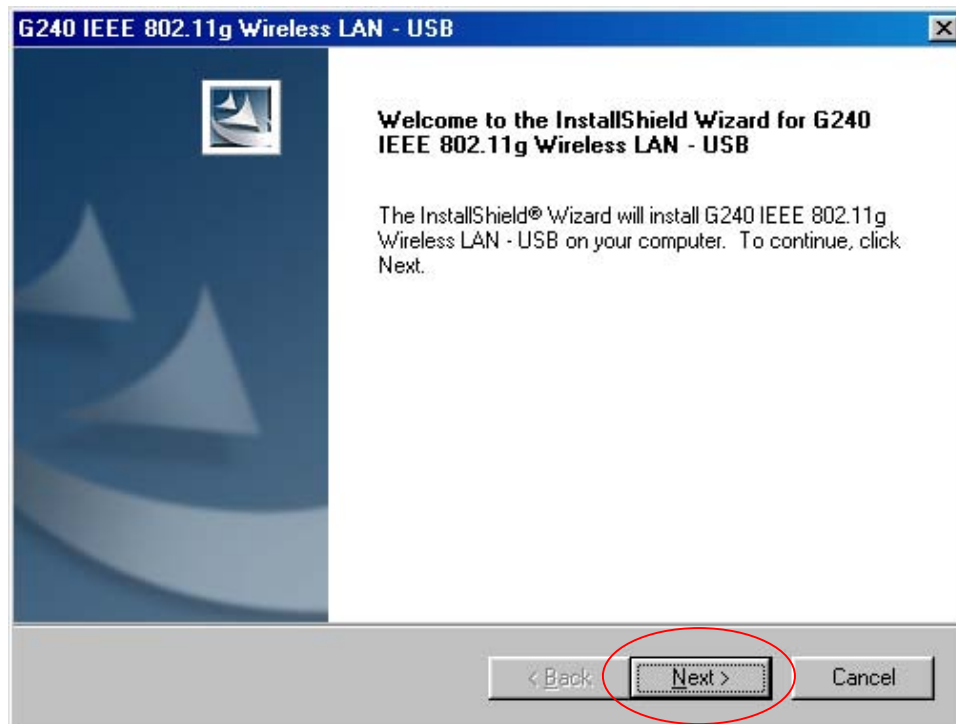

● The "TwinMOS Wireless LAN Configuration Tool Plus" screen show below.

For Windows 98SE

Install the Driver and Utility

1. Insert the CD into the CD-ROM device and execute the "G245_4618A.exe" program of your purchace G245 to select. The InstallShield Wizard box will appear, click "Next" to continue.

2. Choose install folder
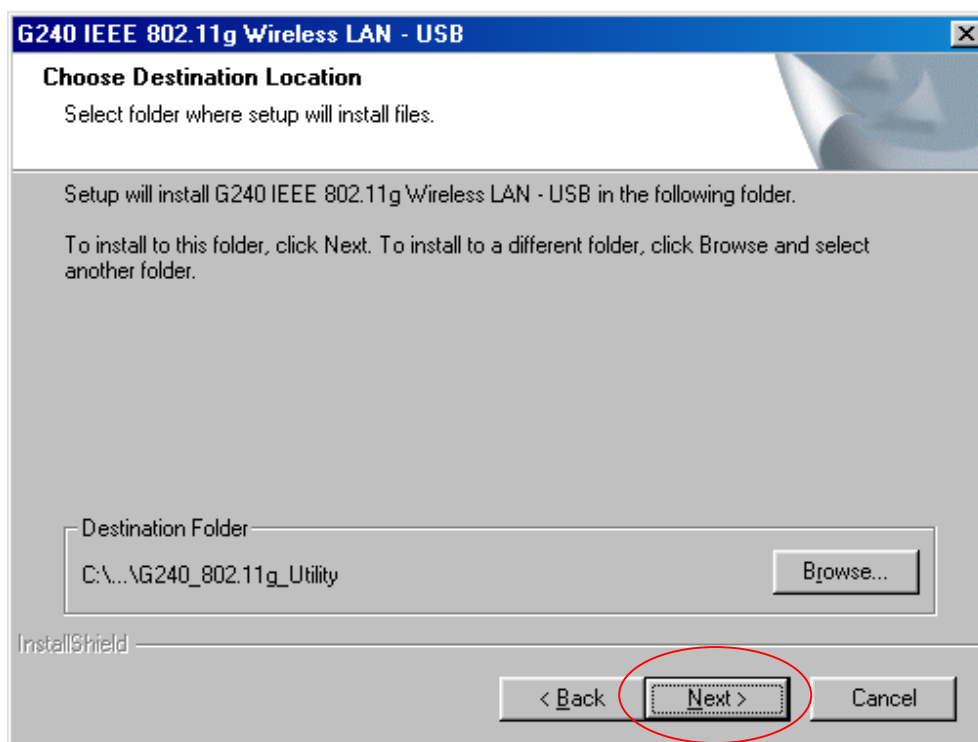
3. *After running the driver package, the Notebook (or PC) with Win98 OS shall be restarted*

4.Insert the G245 WLAN adapter into the USB port of your computer, the system will automatically find the device and search for its software then the InstallShield Wizard finished installation and the system tray icon is loaded in the taskbar (see illustration below.).

- New Hardware Found

- Please insert the disk labeled "Windows 98 Second Edition CD-ROM."
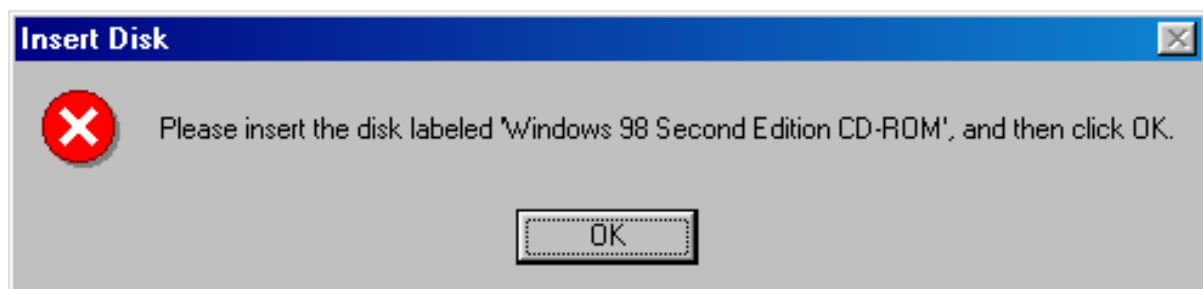
● To Choose Windows 98SE installing folder
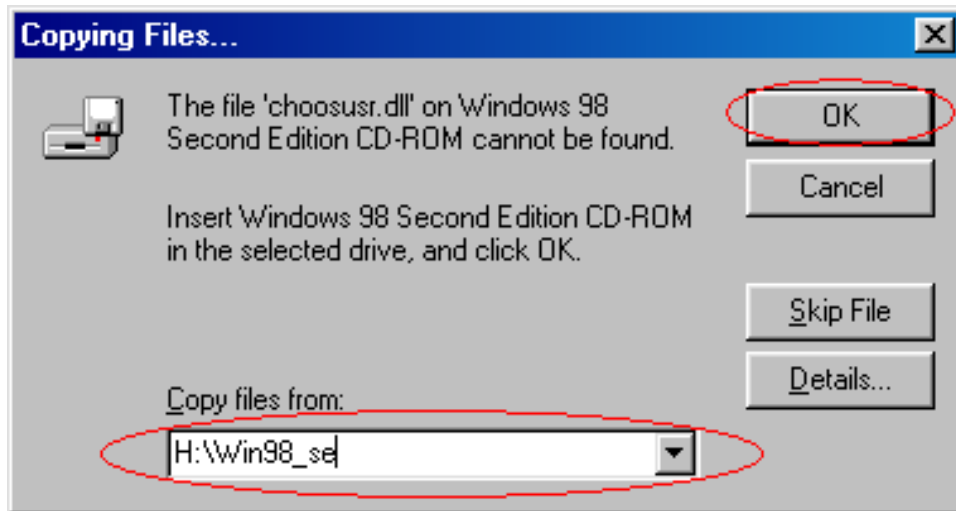
● Copying Files
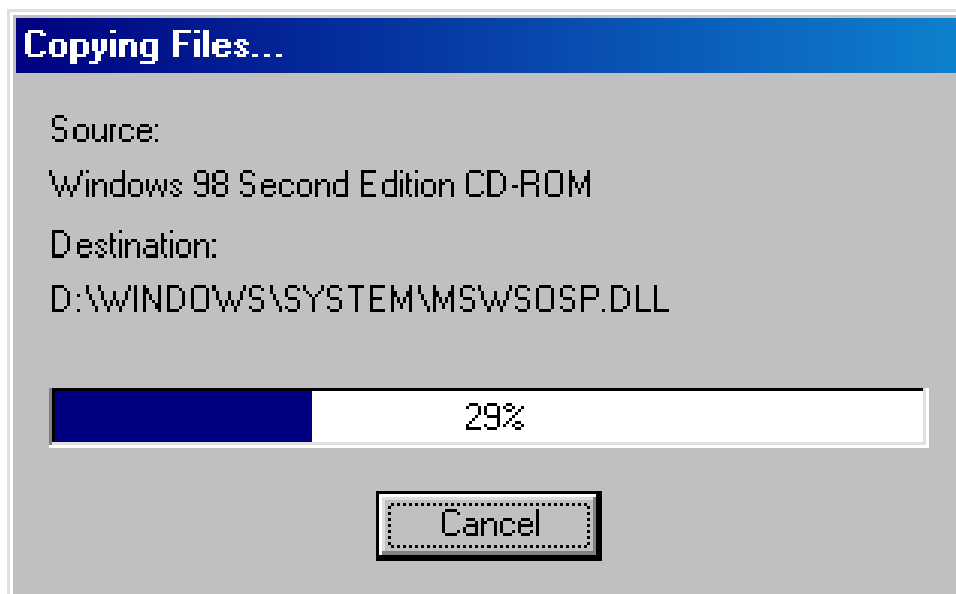
● Please click "**Start->programs->G245 IEEE 802.11g Wireless LAN - USB ->TMWLan Utiliy**" or to Double-click on the icon shown below.

● The "TwinMOS Wireless LAN Configuration Tool Plus" screen will appear. Double click the icon and start using the WLAN USB Stick Adapter.

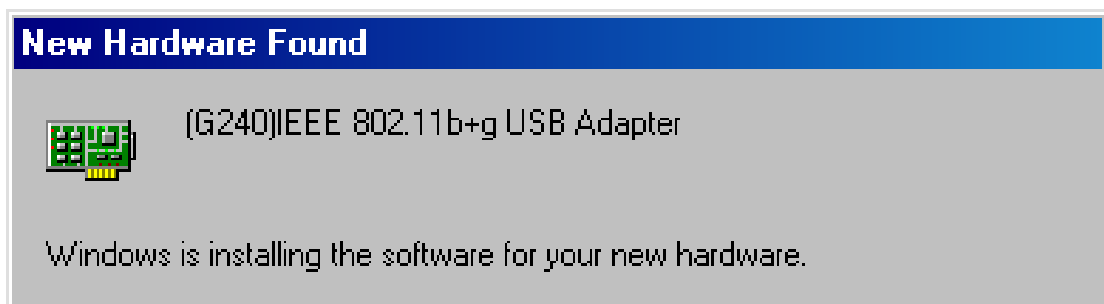● The "TwinMOS Wireless LAN Configuration Tool Plus" screen show below.
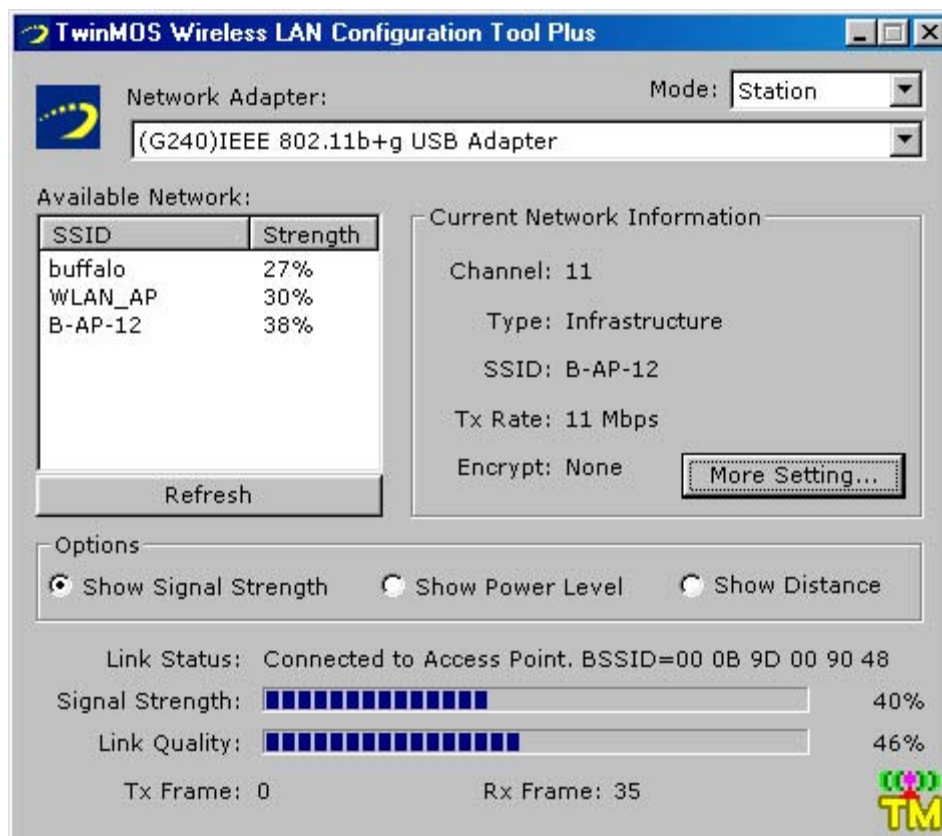
CONFIGURATION UTILITY

The status of utility icon shown below.

AP_Mode Status

Windows Zero Configuration Status

Connect Status

Disconnect Status
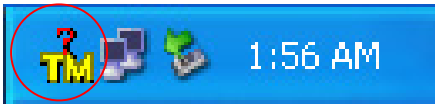
Exit TMConfig
Right-click on the icon shown below
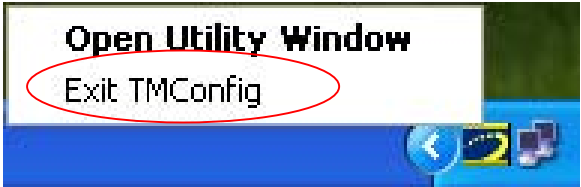
Clicking on the "Exit TMConfig" Button will leave the Configuration Utility.

Note: The following Configuration Utility *was operated under Windows 2000. (Procedures will be the same for Windows 98SE/XP.)*

TwinMOS G245 uses the Configuration Utility as the management software. The utility provides the user an easy interface to change any settings related to the wireless adapter. When the computer is started, the Configuration Utility starts automatically and the system 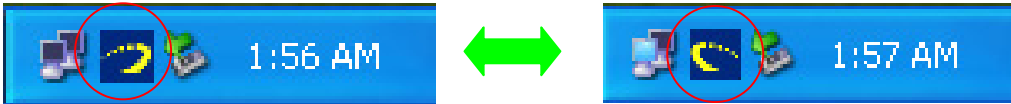tray icon is loaded in the toolbar (see illustration below.) Clicking on the utility icon will start the Configuration Utility.

Double-click on the icon shown above. The screen below will appear.
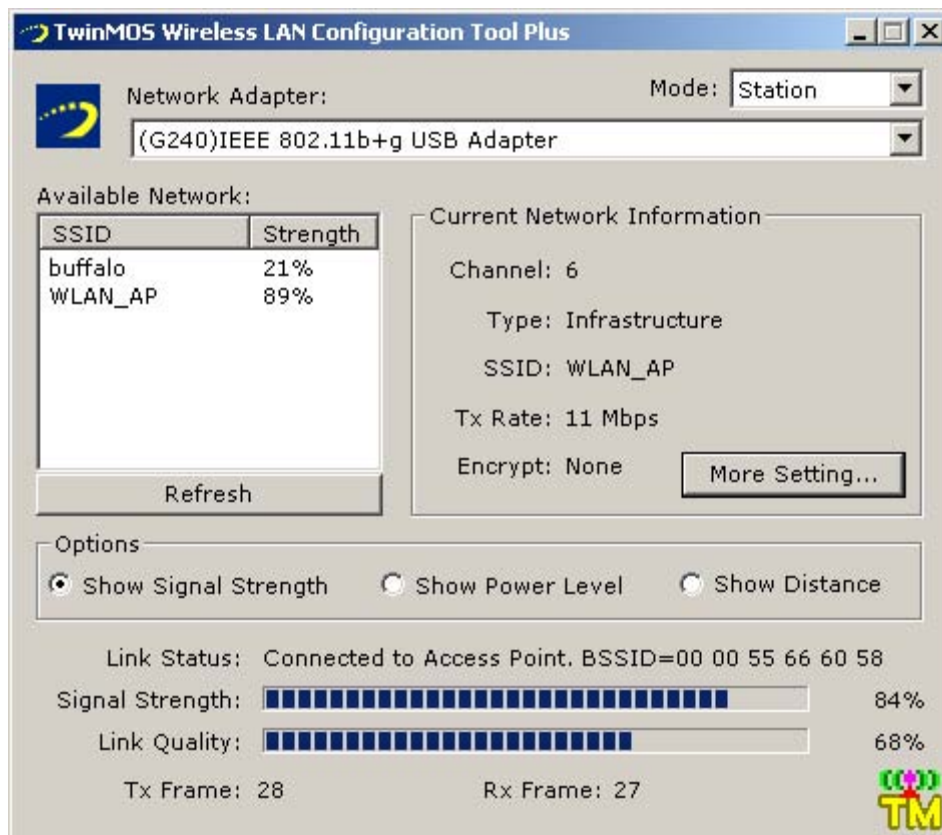
Available Network

This screen shows all Access Points or Adapters nearby when operating in Ad-Hoc mode. Click "Refresh" button to collect the SSID and Strength information of all the wireless devices nearby. If you want to connect to any device on the list, double-click the item on the list, and the adapter will automatically connect to the selected device.

Link Quality

This bar indicates the quality of the link. The higher the percentage, the better the quality.

Options
- Show Signal Strength
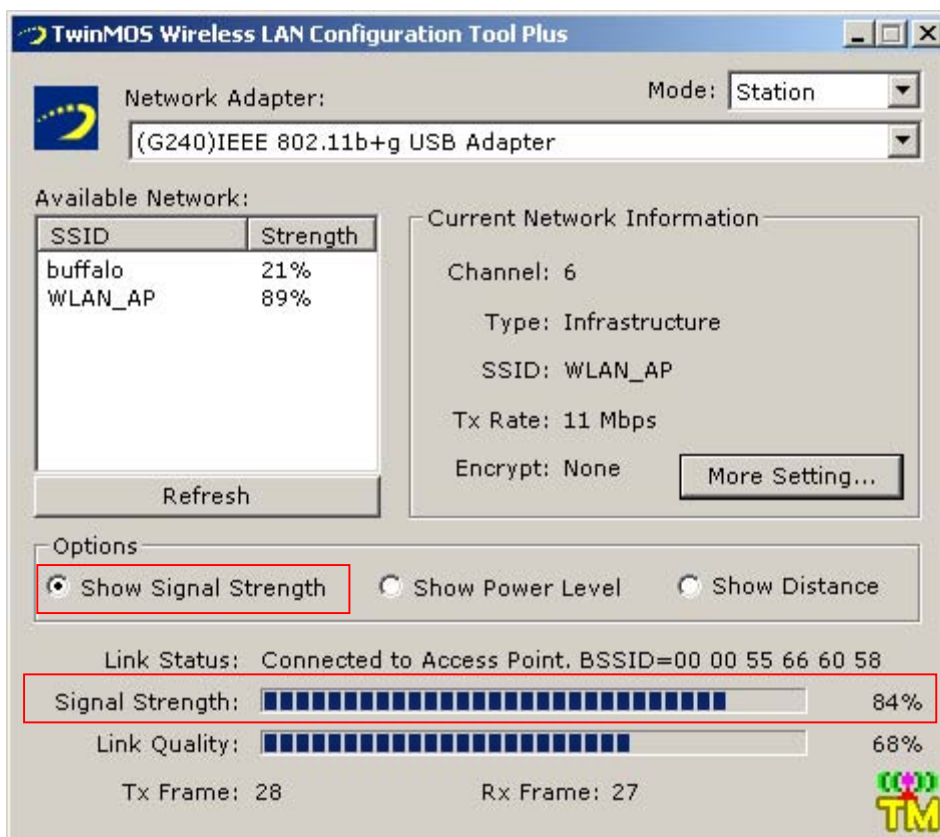
- Signal Strength

This bar shows the signal strength level. The higher percentage shown in the bar, the more radio signal been received by the adapter. This indicator helps to find the proper position of the wireless device for quality network operation.

● Show Power Level
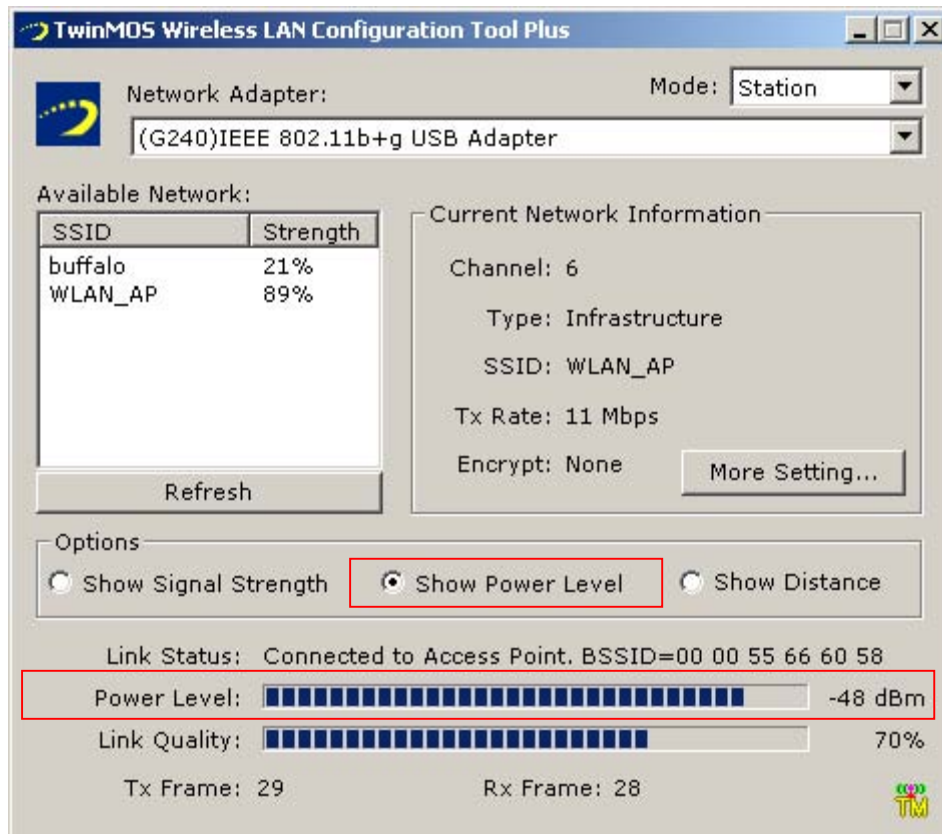
● Power Level
This bar shows the power level. The higher dBm value shown in the bar, the more radio power been transmited by the AP. This indicator helps to find the proper position of the wireless device for quality network operation.

● Show Distance
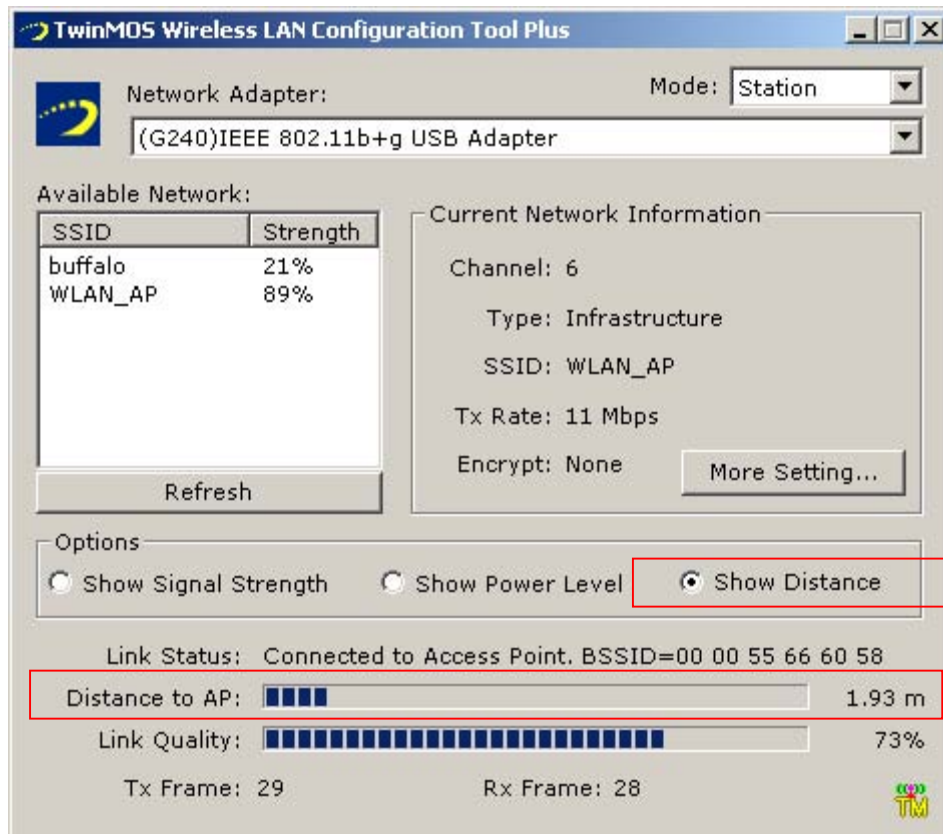
● Distance to AP

This bar shows the distance to AP. The higher value shown in the bar, the more distance between adapter with AP. This indicator helps to find the proper position of the wireless device for quality network operation.

General Connection Setting Group

Select the More Setting Page to access the Configuration menu, as shown below. You can make changes to any of the fields shown below, without the need to restart your computer.

Channel

When "Ad-Hoc " mode is selected, the utility will provide a selection for setting the channel.When communicating in Ad-Hoc mode, you must specify a channel on which communications will take place. This field is grayed in infrastructure mode because the Access Point automatically selects the channel.
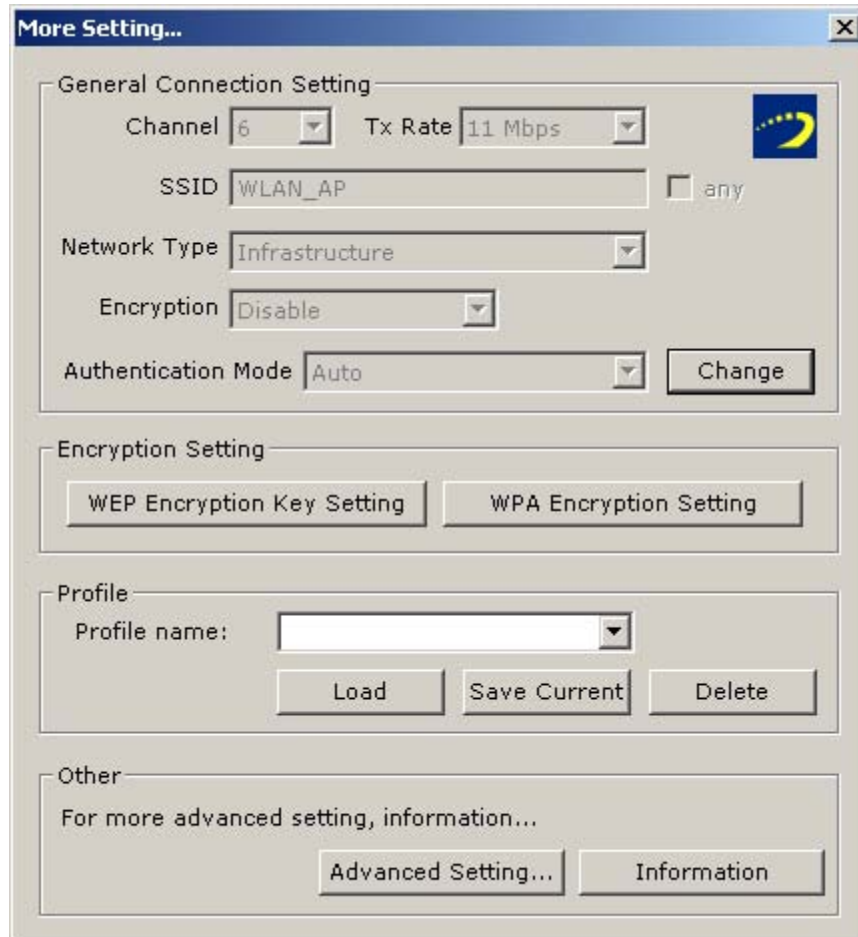
Tx Rate

The Transmit Rate field specifies the rate at which the radio in your *G245* WLAN adapter transmits and receives data. You can set this to the following fixed rates: 1 Mbps; 2Mbps; 5.5 Mbps; 6 Mbps; 9 Mbps; 11 Mbps; 12 Mbps; 18 Mbps; 24 Mbps; 36 Mbps; 48 Mbps or 54 Mbps.

Auto - When it is enabled, the device will choose the most suitable transmission rate automatically.

SSID

The name of the wireless network. This name cannot be longer than 32 characters. The default value is "any", which will automatically scan and connect the best performance Access point nearby. You may specify a SSID for the adapter and then only the device with the same SSID can interconnect to the adapter.

any

Click "any" button to enable SSID.

Network Type

The *G245* WLAN adapter can operate in one of two modes, which are specified in the Mode field of the Configuration menu. Clicking the down arrow at the right of the Mode field displays the available modes.

- *Ad-Hoc* - This is the 802.11g Ad-Hoc mode of operation. In "Ad-Hoc" mode, only one wireless " cell " is supported for each different NETWORK NAME. All communication is done from client to client without the use of an Access Point. "Peer-to-Peer" networking uses the same NETWORK NAME for the wireless adapters in establishing the network connection. When "Ad-Hoc " mode is selected, the utility will provide a selection for setting the channel.

- *Infrastructure* - This mode of operation requires the presence of an 802.11g Infrastructure. All communication is done through the Infrastructure, which relays packets to other wireless clients as well as to nodes on a wired Ethernet network.

- *Pseudo IBSS* - This mode is for manufacture testing.

Encryption

Select the "Enable WEP" or "Disable WEP" by the "Encryption" drop down menu.

Authentication Mode

This setting has to be consistent with the wireless devices, which the adapter intends to connect.

・ **Auto –** Auto switch the authentication algorithm depending on the wireless devices, which the adapter is connecting to.

・ **Open System –** No authentication is needed among the wireless devices.

・ **Shared Key –** Only wireless devices using a shared key (WEP Key identified) are allowed to connecting each other. Setup the same key as the wireless devices, which the adapter intends to connect.
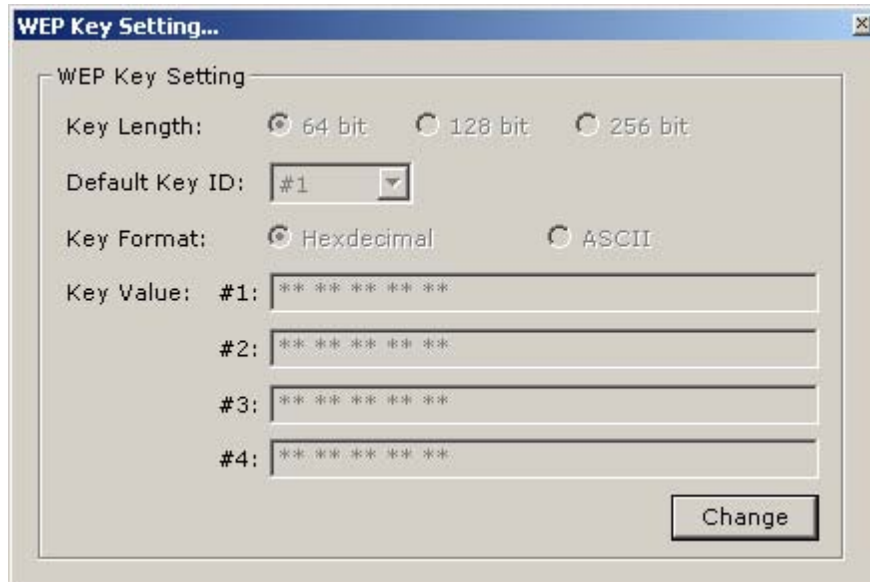
Change

Click "Change" button to enable General Connection Setting Table.

Apply

Click "Apply" button to save and implement the new settings.

Encryption Setting Group

"WEP Key Setting" page allows you to enhance the security of a network. Every station in a secured network should enable the Encryption function and the values of the Network Key should be the same.

Key Length

You may select the 64-bit or 128-bit to encrypt transmitted data. Larger key length will provide higher level of security, but the throughput will be lower.

Default Key ID

Select one of the keys (1~4) as the encryption key.

Key Format

 ・**Hexdecimal** –Input digit Hex value to key value.

 ・ **ASCII** –Input ascii value to key value.

Key Value

The keys are used to encrypt data transmitted in the wireless network. Fill the text box by following the rules below.

 ・ **64-bit** – Input 10 digit Hex values (in the "A-F", "a-f" and "0-9"range) as the encryption keys. For example: "0123456aef".

 ・ **128-bit** – Input 26 digit Hex values (in the "A-F", "a-f" and "0-9" range) as the encryption keys. For example:"01234567890123456789abcdef".

 ・ **256-bit** – Input 58 digit Hex values (in the "A-F", "a-f" and "0-9" range) as the encryption keys. example: "0123456789012345678901234567890123456789ab ".

"WPA Encryption Setting" page

Click "WPA Encryption Setting Button" get into "WPA Setting" page
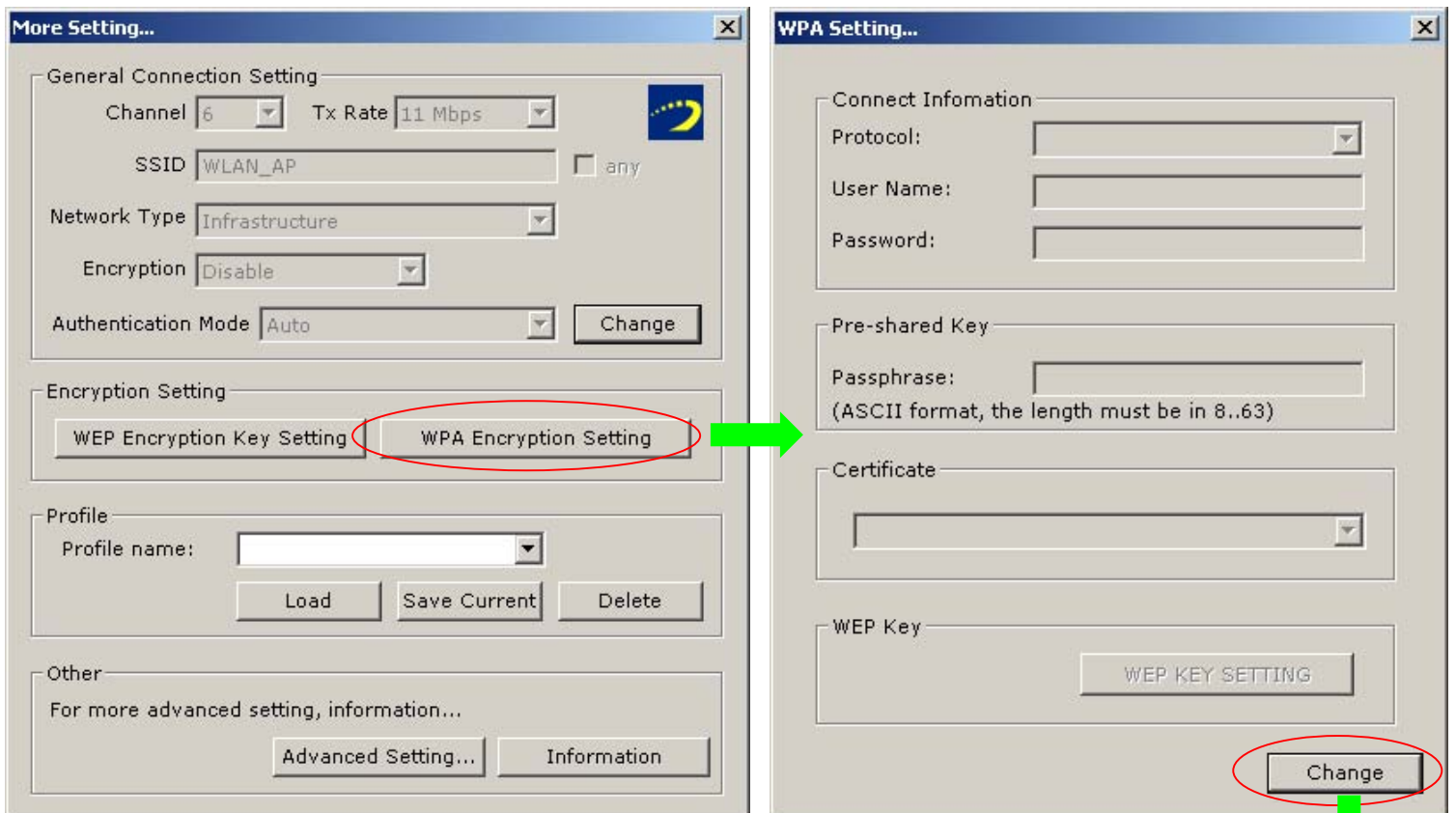
Change

Click "Change" button
to enable WPA Setting Table.

Apply

Click "Apply" button to save and implement
the new settings.
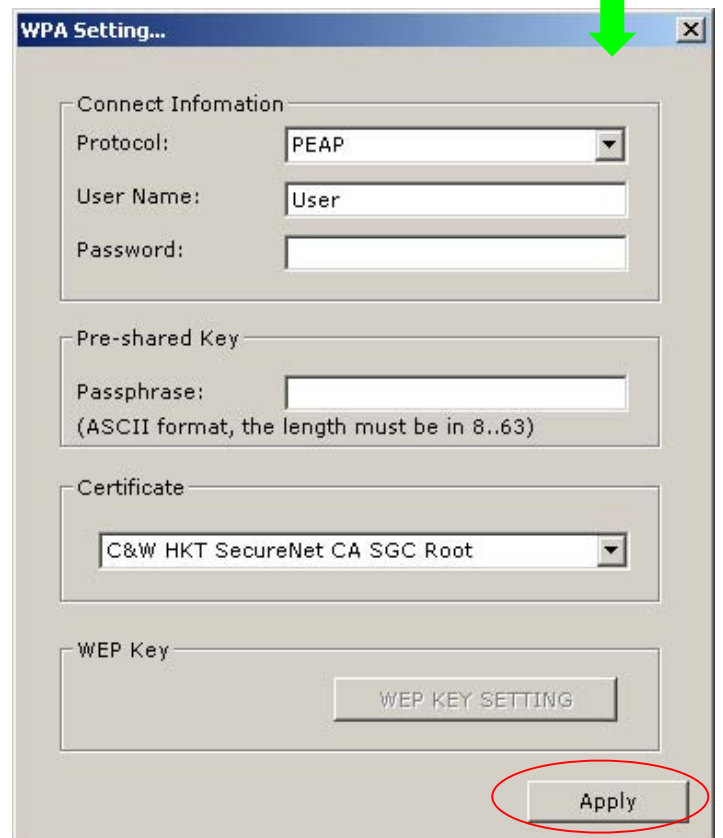
Connect Information

Select the Connect Information by the "Protocol" down drop menu.

PEAP is another Cisco developed protocol. It encompasses EAP and provides the ability to seamlessly roam between access points. This protocol should function like LEAP and be transparent with respect to the RADIUS authentication protocol. More study of this protocol is necessary.

TLS is the next generation of SSL encryption. EAP uses TLS to create a secure tunnel through which authentication and encryption keys can be passed. EAP-TLS requires server and client side keys. Microsoft has implemented EAP-TLS authentication in the Windows XP operating system, with a focus on the Microsoft Active Directory as the authentication engine.

Pre-shared Key

WPA and 802.11i provide for a Pre-Shared Key (PSK) as an alternative to 802.1X based key establishment. A PSK is a 256 bit number or a passphrase 8 to 63 bytes long. Each station MAY have its own PSK, tied to its MAC address. To date, vendors are only providing for one PSK for an ESS, just as they do for WEP keying.

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Profile Group

Select the profile that has been saved previously from the "Profile name" drop down menu, then press "Load " button to load the status to use.

Write the profile name on the field of "Profile name", and press the "Save Current" button to save the current status on the profile.

Select the profile name that wanted to delete from the "Profile name" drop down menu, and press "Delete" button to delete it

Profile name
A profile is a named set of operating parameters for your *G245* WLAN adapter. The Profile field lets you set values for all parameters by selecting a previously defined profile. Click the down arrow at the right of the Profile field to display the available profiles for your *G245* WLAN adapter.

Other Group

● **Press the "Advanced Setting" button, then the Advanced Setting page is shown as below.**
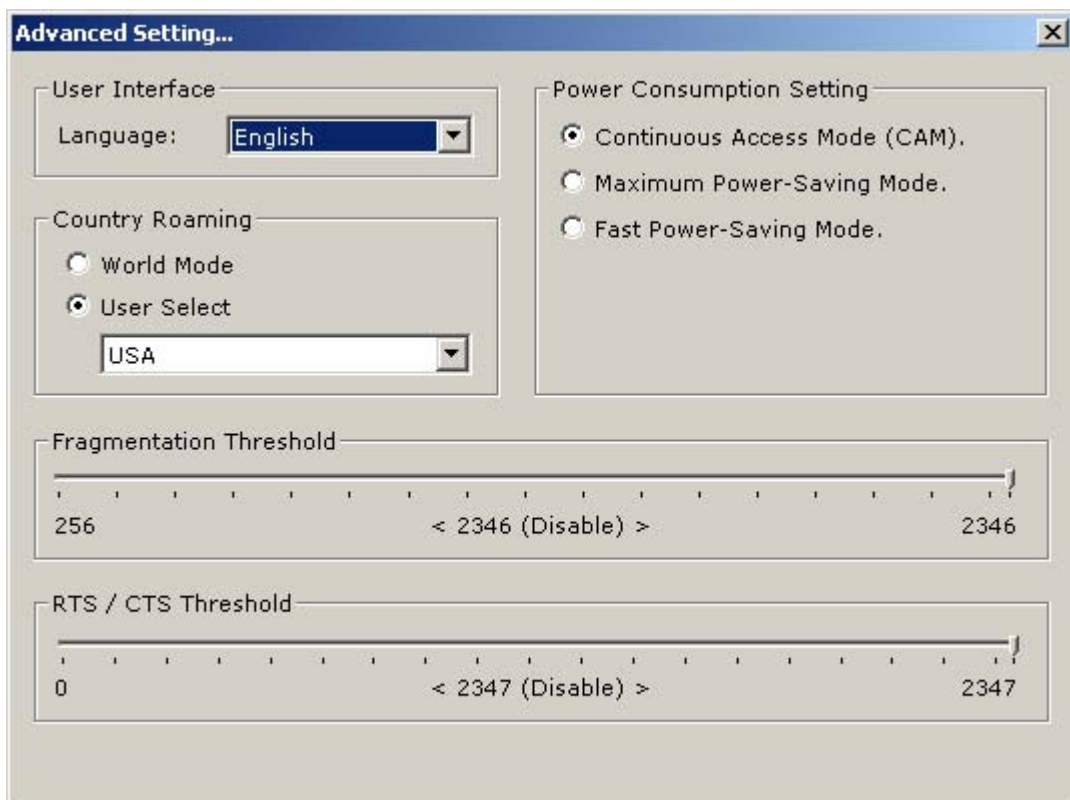
User Interface Group

Select the Window User Interface by the "Language" down drop menu.

If the English item is selected, all functions of window are described with English. Select the Traditional Chinese item, and they are described with Traditional Chinese.

Power Consumption Setting Group

which power save level want to be set by checking CAM Mode, Fast Power-Saving mode or Maximum Power-Saving mode. The default is CAM mode. If the most save mode want to use, select the Maximum Power-Saving mode, but it throughput is lower than CAM and Fast Power-Saving mode.

The throughput of "Fast Power-Saving mode" is better than "Maximum Power-Saving mode", but its power save is less than "Maximum Power-Saving mode".

Country Roaming Group

"Country Roaming" group, the default depends on the region of EEPROM. Select other region from "User Select" drop down menu, or check "World Mode" item to set it to the word mode. When the word mode is set, it depends on the behavior of AP. If the WLAN card is re-plug , the setting will return to default setting.

Fragmentation Threshold Group

The value defines the maximum size of packets, any packet size larger than the value will be fragmented. If you have decreased this value and experience high packet error rates, you can increase it again, but it will likely decrease overall network performance. Select a setting within a range of 256 to 2346 bytes. Minor change is recommended.

RTS/CTS Threshold Group

Minimum packet size required for 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. Select a setting within a range of 0 to 2347 bytes. Minor change is recommended.

⚫ *Press the "Information" button, then the Advanced Setting page is shown as below.*

The Information Page provides information on the version of the Network Driver, the Configuration Utility. In addition, this page also provides the MAC address of the USB Stick adapter , as shown in the following illustration.
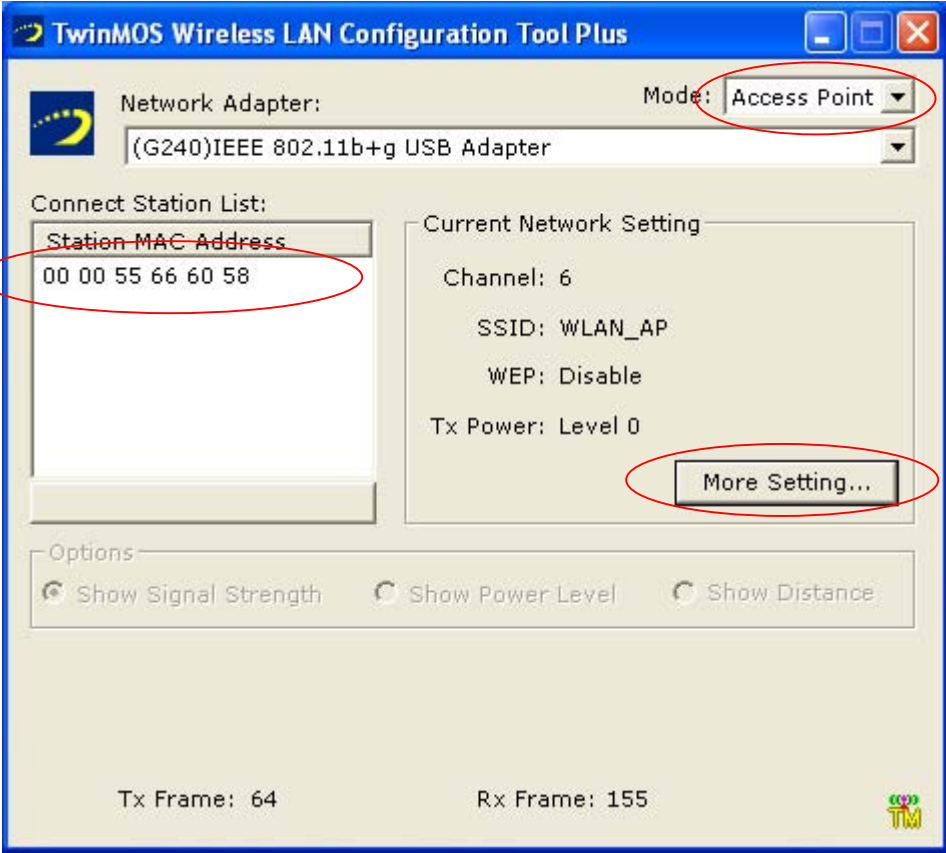
Configuration Utility of G245 AP

TwinMOS G245 uses the Configuration Utility as the software AP. The utility provides the user an easy interface to change any settings related to the *G245* AP. Select the "Access Point" by the "Mode" down drop menu to start the software AP.
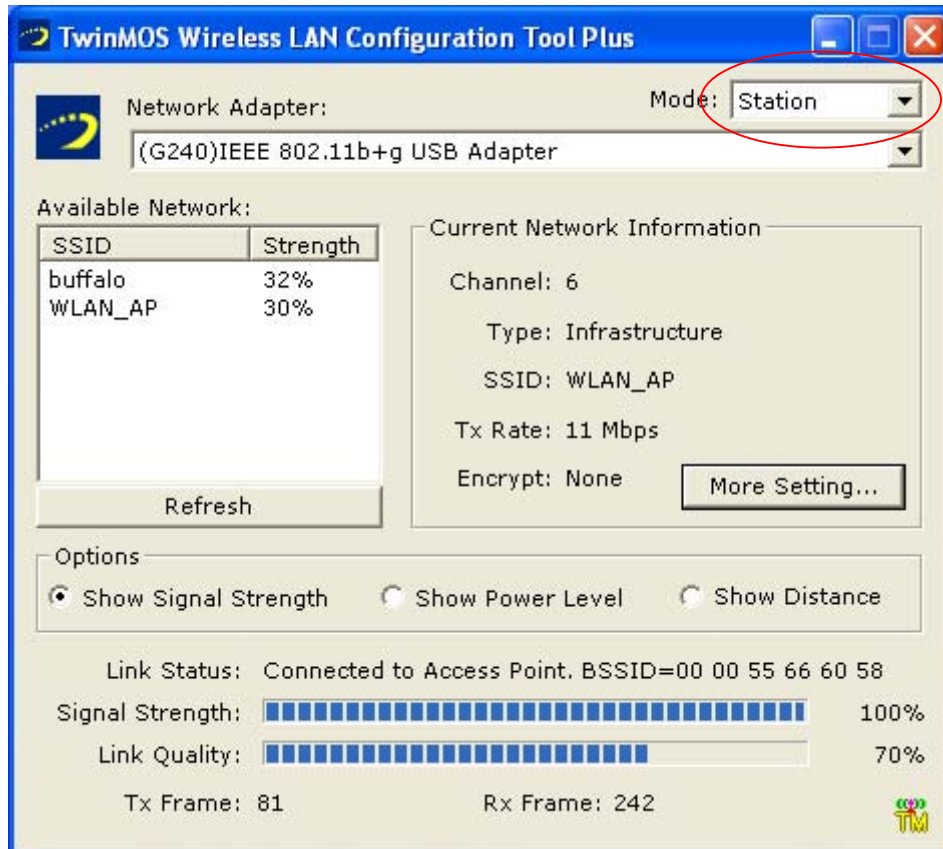
This page as below will appear.

Connect Station List

This screen shows all Adapters nearby. The " Station MAC Address " Show information of all the wireless devices nearby.

General Connection Setting Group

To Get into the "Access Point Setting Page" with clicking button "More Setting" to access the Configuration menu, as shown below. You can make changes to any of the fields shown below, without the need to restart your computer.

Change

Click "Change" button to enable "General Connection Setting" page to Change the current settings.

Apply

Click "Apply" button to save and implement the new settings.

Channel

When communicating in Ad-Hoc mode, you must specify a channel on which communications will take place. This field is grayed in infrastructure mode because the Access Point automatically selects the channel.

Basic Rate

The Basic Rate field specifies the rate at which the radio in your *G245* AP transmits and receives data. You can set this to the following fixed rates: 1, 2 Mbps or 1, 2, 5.5, 11 Mbps or 1, 2, 5.5, 11, 6, 12, 24, Max 54 Mbps or 6, 12, 24 ,Max 54 Mbps (g only).

SSID

The name of the wireless network. This name cannot be longer than 32 characters. You may specify a SSID for the *G245* AP and then only the device with the same SSID can interconnect to the AP.
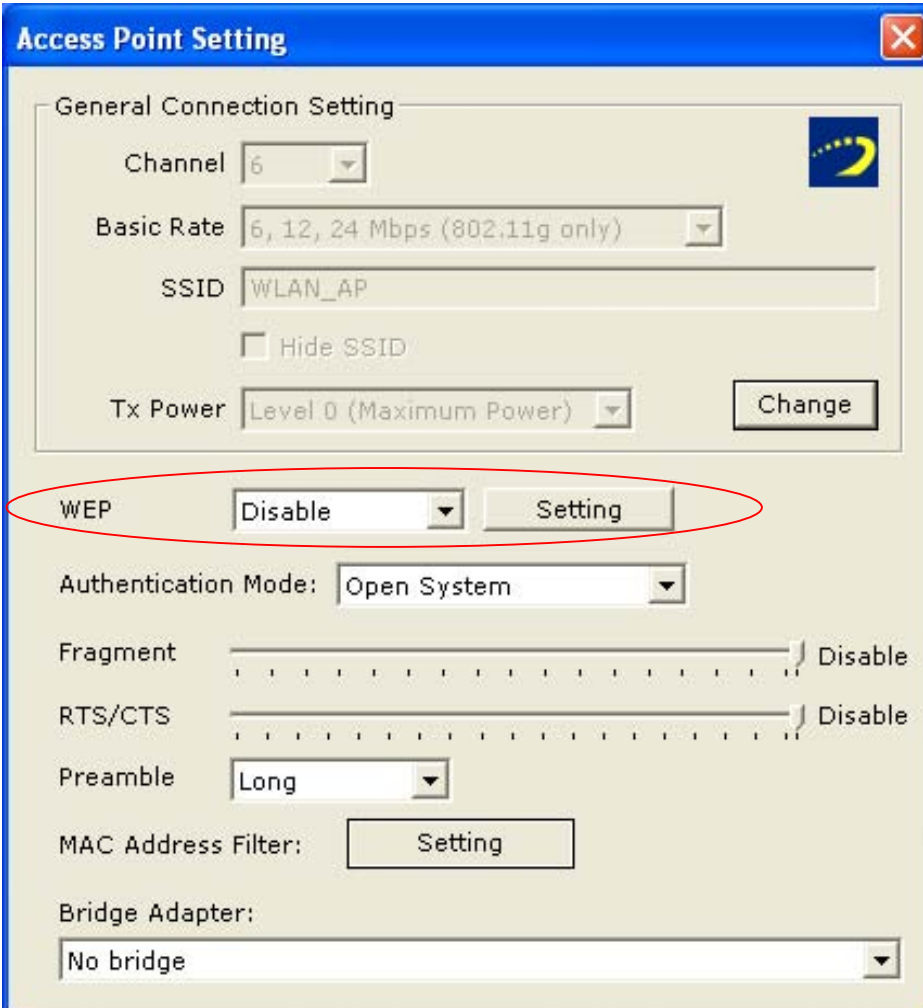
Hide SSID

"Hide SSID" check box allows you to hide SSID of Soft AP.

Tx Power

The *G245* AP can operate in one of four Level, which are specified in the Level field of the Configuration menu. Clicking the down arrow at the right of the Level field displays the available level.
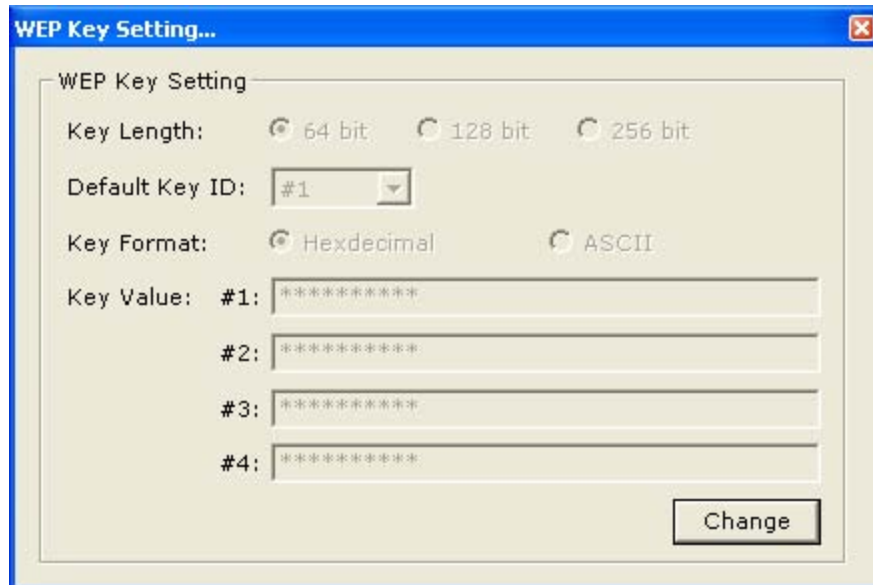
WEP Key Setting Page

"WEP Key Setting" page allows you to enhance the security of a network. Every station in a secured network should enable the Encryption function and the values of the Network Key should be the same.

Select "Enable" from WEP and Clicking on the "Setting".

This page as below will appear.

Key Length
You may select the 64-bit or 128-bit to encrypt transmitted data. Larger key length will provide higher level of security, but the throughput will be lower.

Default Key ID
Select one of the keys (1~4) as the encryption key.

Key Format
· **Hexdecimal** –Input digit Hex value to key value.
· **ASCII** –Input ASCII Character Codes to key value.

Key Value
The keys are used to encrypt data transmitted in the wireless network. Fill the text box by following the rules below.

· **64-bit** – Input 10 digit Hex values (in the "A-F", "a-f" and "0-9"range) as the encryption keys. For example: "0123456aef".

· **128-bit** – Input 26 digit Hex values (in the "A-F", "a-f" and "0-9" range) as the encryption keys. For example:"01234567890123456789abcdef".

· **256-bit** – Input 58 digit Hex values (in the "A-F", "a-f" and "0-9" range) as the encryption keys. example: "01234567890123456789ab".

Authentication Mode

This setting has to be consistent with the wireless devices, which the adapter intends to connect.

・ **Open System –** No authentication is needed among the wireless devices.

・ **Shared Key –** Only wireless devices using a shared key (WEP Key identified) are allowed to connecting each other. Setup the same key as the wireless devices, which the adapter intends to connect.

Fragmentation Threshold

The value defines the maximum size of packets, any packet size larger than the value will be fragmented. If you have decreased this value and experience high packet error rates, you can increase it again, but it will likely decrease overall network performance. Select a setting within a range of 256 to 2346 bytes. Minor change is recommended.

RTS/CTS Threshold

Minimum packet size required for 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. Select a setting within a range of 0 to 2347 bytes. Minor change is recommended.

Preamble

defines the length of CRC block in the frames during the wireless communication.

・ **Long –**"Long " can provide more reliable communication.

・ **Short –**"Short " is suitable for high traffic wireless network.

MAC address Filter Page
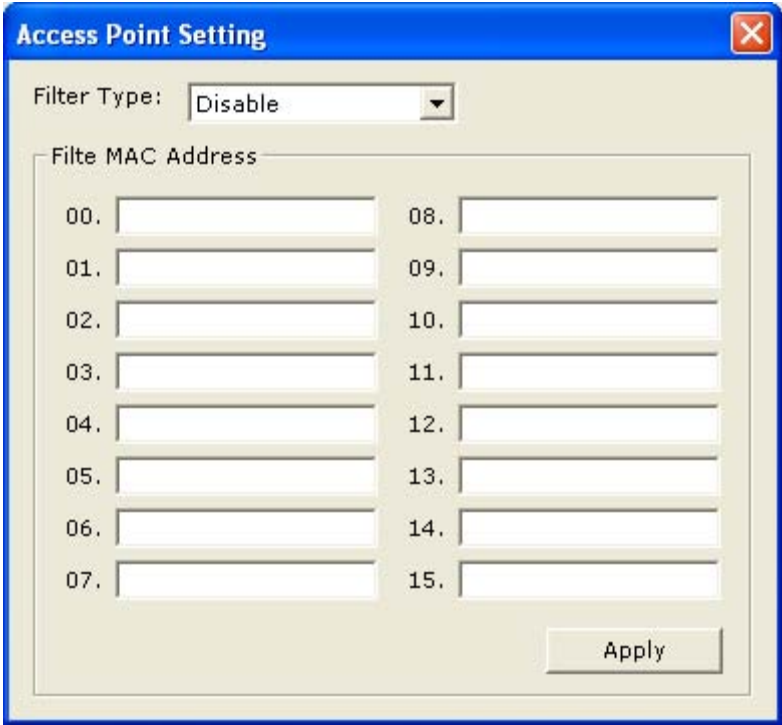
If you select "Accept" from Filter Type, only those clients whose wireless MAC addresses are in the "Filte MAC Address" list will be able to connect to Access Point. When this option is Disable, wireless clients will be able to connect if the list contains entries. When this option is Reject, no wireless clients whose wireless MAC addresses are in the "Filte MAC Address" list will be able to connect .

WIRELESS BRIDGE MODE

Bridge Adapter Page

The utility provides the user an easy interface to provide the bridge mode.
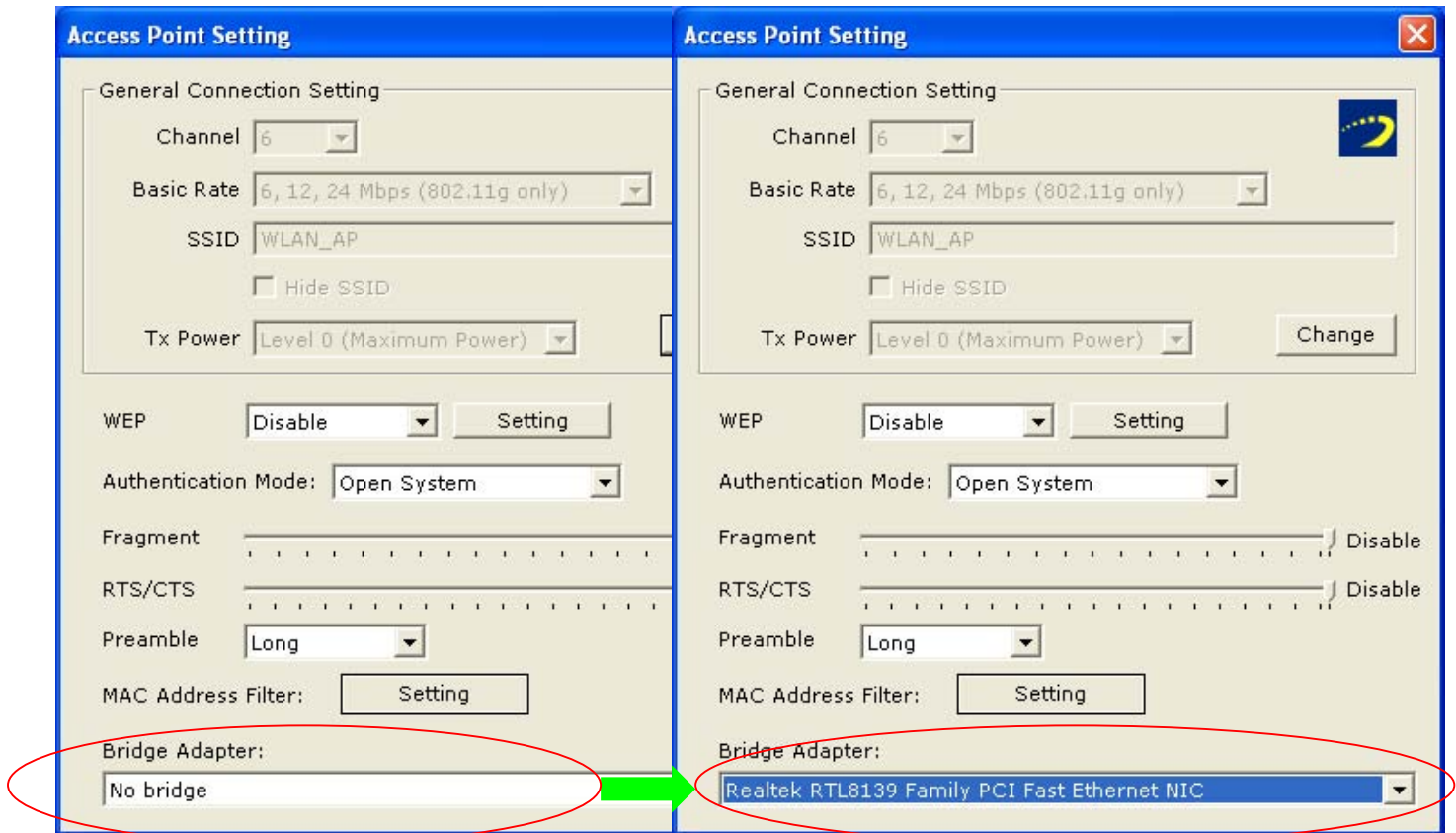
Select the "Bridge Mode" by the "Bridge Adapter" down drop menu.

If the item is selected,The Status of ″Bridge Mode ″ will be ″Enabled″.

TROUBLESHOOTING

If you encounter some problems while installing the *G245* WLAN adapter or you want to confirm whether your adapter is installed properly or not, we have listed the procedure for checking the various components after you have installed the adapter. In first part of Troubleshooting, we have suggested the users to check the various properties of the card to check the proper installation. In second section, we have listed the various problems that you may encounter during the installation and have also listed the possible solution. Check the first part to guess the probable reason of unsuccessful installation.

Please check the followings if you encounter some problem while installing the *G245* or yours *G245* are non-functional.

In Windows 2000:

To check that the *G245* is installed properly, please do the following:

1. Check the Windows 2000 Diagnostics. See if there is any conflict in the Resource allocation or the I/O Address, IRQ allocations. If you find that the IRQ or I/O Addresses are already assigned to some other devices, you must change that value.

2. Go to the Control Panel. Double click on the Network Adapter, you will see *G245* Wireless Adapter. Double clicking on that will show you the status of the *G245* network adapter. If there are no error signs, the adapter has been installed properly.

In Windows XP:

To check that the *G245* is installed properly, please do the following:

1. Go to START->CONTROL PANEL. Double-click on Network Connections. Right-click on LAN. Click Properties.

2. The *G245* network adapter will appear, indicating proper installation.

TECHNICAL SPECIFICATIONS

Networking Characteristics

Standard & Compatibility	● USB 2.0 ● IEEE 802.11g Standard for WLAN (DSSS) ● Internal Wi-Fi certified by TwinMOS
Host OS	● Windows 98SE/ME/2000/XP ● Linux
Media Access Protocol	CSMA/CA with ACK
Network Protocol	● TCP/IP ● IPX ● NetBEUI
Network Type	● Infrastructure ● Ad-Hoc ● Pseudo IBSS ● Soft AP
Network Setting	● Auto available network search ● Auto Transmission Rate switch ● Dynamic Distance Check between Station and Infrastructure ● Dynamic Signal Strength Check ● Dynamic Power Level Check

RF Characteristics

Frequency Range	2.400-2.4835 GHz, Direct Sequence Spread Spectrum (DSSS)
Operating Channels	● 1-11 United States (FCC) ● 1-11 Canada (DOC) ● 1-14 Japan (MKK) ● 1-13 Europe (Except Spain and France) (ETSI)
Modulation Technique	● 11 Mbps: CCK ● 5.5 Mbps: CCK ● 2 Mbps: DQPSK ● 1 Mbps: DBPSK

Spreading	11-chip Barker Sequence
Transmit Power	15 dBm @ Nominal Temp Range
Receive Sensitivity	Nominal Temp Range: 11 Mbps 10^{-5} BER @ -80 dBm, minimum
Security	64/128-bit WEP Encryption
Operating Range	Open Space: 100 ~ 400m; Indoor: 30m ~ 100m The transmission speed varies in the surrounding environment.
EMC Certification	FCC part 15B, 15C; R&TTE

FEDERAL COMMUNICATIONS COMMISSION

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.

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

FCC CAUTION

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. This equipment generates, uses and can radiated 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 connected.

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

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.