802.11b/g Series

Wireless LAN Adapter

(For OEMs use only) User's Manual

Contents

PACKAGE CONTENTS

Unpack your *G101 WLAN adapter* kit and verify that all items are present.

- *G101 MiniPCI* Wireless LAN Adapter

- User's Manual (on CD)

- Driver (on CD)

If any of the items described appear to be damaged or missing, please contact TwinMOS

INTRODUCTION

The *G101* WLAN adapter is a wireless network client that complies with the IEEE 802.11b/g standard on wireless LANs. The IEEE 802.11b/g standards compliance means this adapter gives you the flexibility to connect it to any 802.11b/g network. The IEEE 802.11b/g Ethernet standard allows you to have network connection speed of up to 11Mbps, dependent upon the distance between wireless adapters, the configuration of your working environment, or the capabilities or limitations of the applicable network systems.

This *G101* WLAN Adapter supports following WLAN features：

- Automatic transmit data rate select mechanism in the transmit range of 1, 2, 5.5, 6, 9, 12, 18, 24, 36, 48 and 54 Mbps.
- Center frequency channel selection (2.4 GHz)
- Roaming over multiple channels.
- Supports MiniPCI interface for G101
- Supports power save mode
- Supports WPA
- Supports 64/128/152-bit Wired Equivalent Privacy (WEP), TKIP, AES data encryption.

This *G101* 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.

G101 WIRELESS NETWORK SCENARIOS

The *G101* WLAN adapter offers to:

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

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

● Connect 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 an Access Point, supporting wireless devices that have been equipped with *G101*.

Ad-Hoc Workgroup

The Ad-Hoc workgroup configuration facilitates 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.
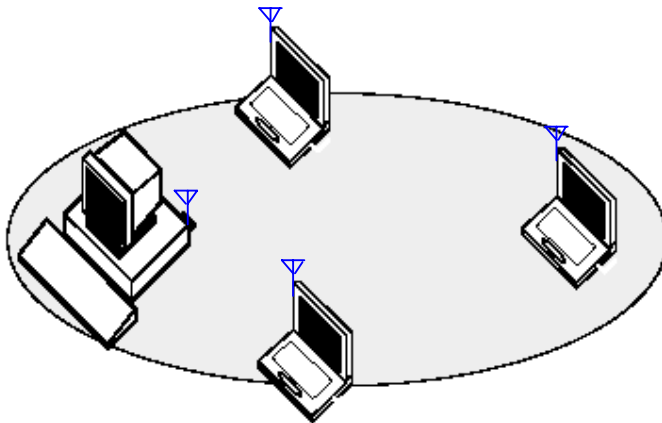

Figure 1-1 Ad-Hoc Wireless Workgroup

This option offers 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 *G101* WLAN adapter, wireless access to the Internet or other computing devices is fingertips. What needs to do is to connect the wireless devices to an external cable, an xDSL or a ISDN modem and you are ready to：
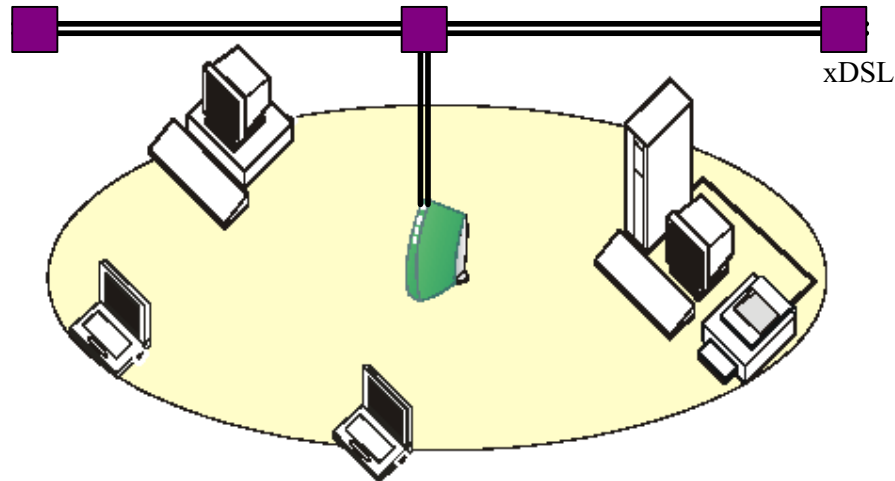
- Share files and printers, and
- Access the Internet

xDSL

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

Enterprise Networking

With the 11 Mbps Wireless LAN access point, one 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
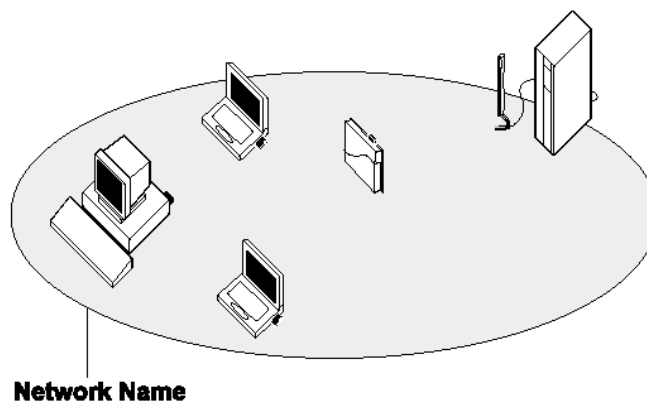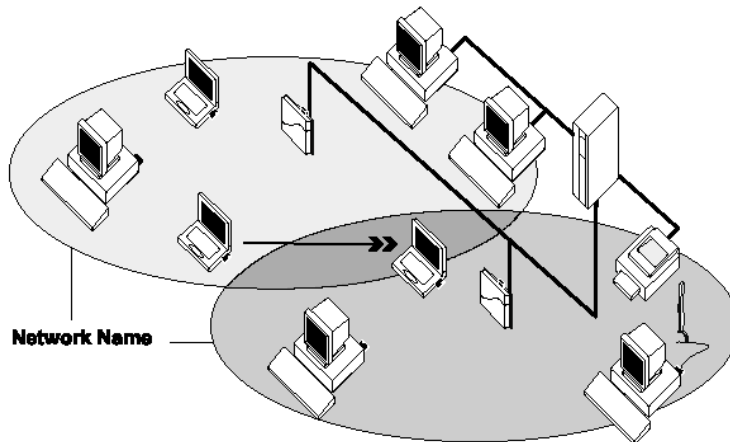
Figure 1-3 Stand Alone Wireless LAN

Figure 1-4 LAN Infrastructure

It's Easy

The **G101** functions like any standard wired Ethernet card, but G101 does not need any wires!

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

G101 offers connection to a Local Area Network (LAN) system from anywhere within the wireless coverage area. Expanding or re-designing user network is easy: Add or relocate access point, power-up your (new) wireless device, and the job is done!

Unlike Ethernet, **G101** will allow you to roam throughout the network while remaining connected to the LAN.

Note：The G101 wireless adapter is a radio product. Refer to the flyer "Information to the User" for regulatory information that may apply in your country.

HARDWARE INSTALLATION

■ *Product View*

Antenna connectors, J1 (Main) and J2 (Aux)

J1   J2

Golden Finger
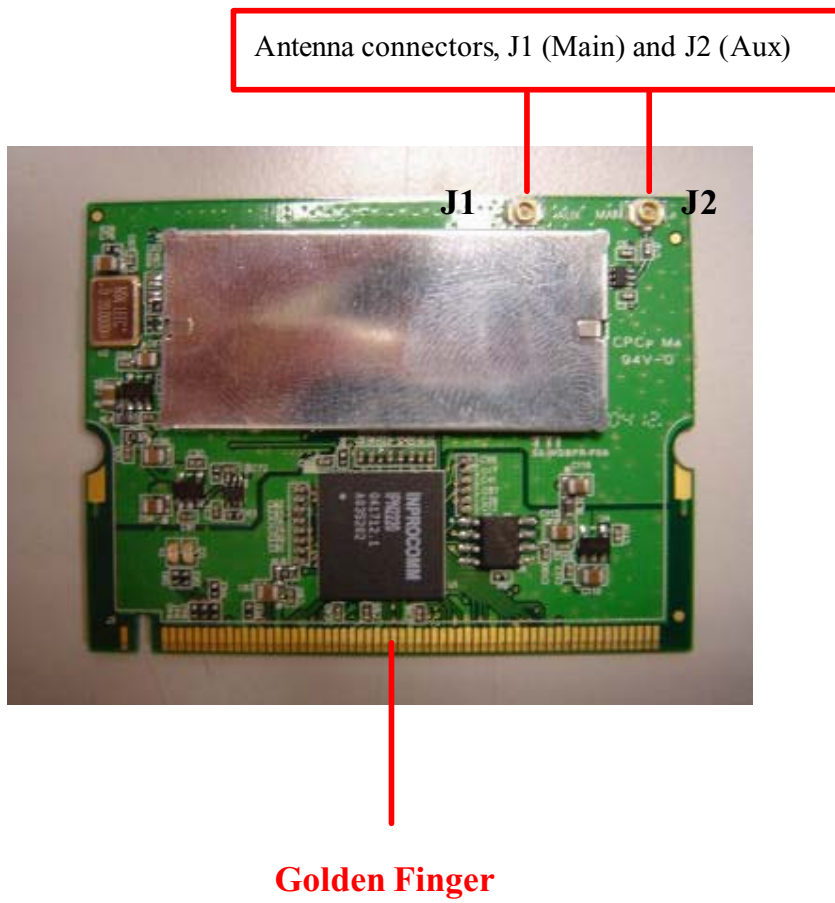
■ *Installing the G101*

The following diagrams provide the basic installation for the *G101*, including how to install into and remove from the MiniPCI slot the MiniPCI card.

1. Locate the Mini PCI slot.
2. Place the *G101* over the MiniPCI slot (at an angle of 30 degrees). Then, gently insert it into the slot until the golden finger of the card gets fully inserted.
3. Press down the card, and the retaining clips (on two sides of the slot) will lock onto the notches of the card.

Foolproof notch

30°
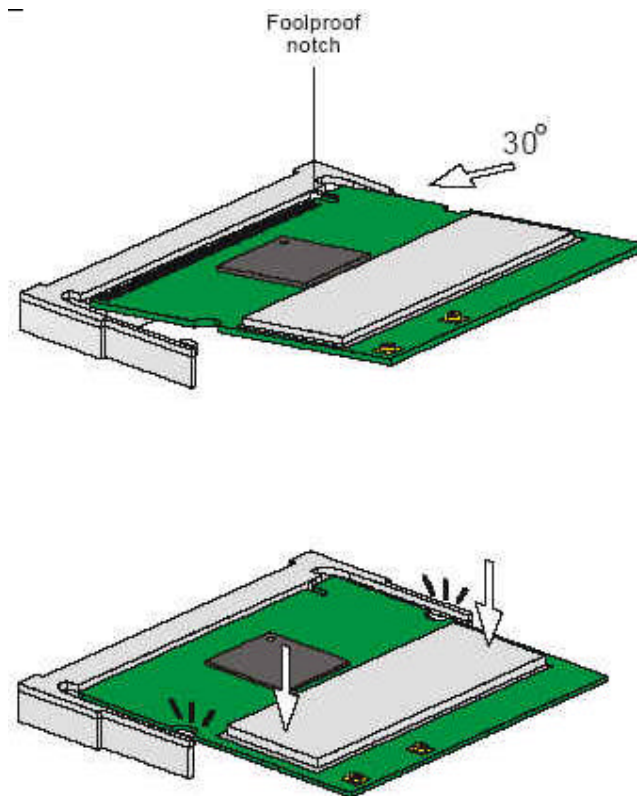
■ *Removing the G101*

1. Locate the MiniPCI slot with *G101* installed.
2. Press the retaining clips outwards, and the card should bound upwards slightly after being released from the slot.
3. Remove the card from the MiniPCI slot carefully.
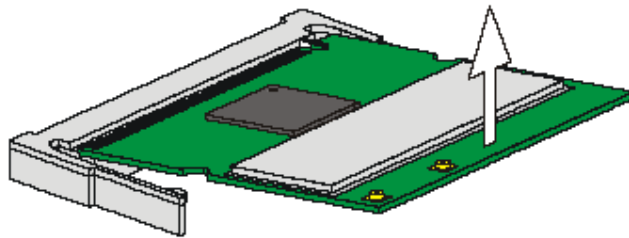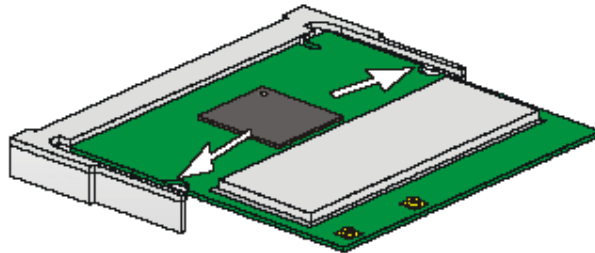
SOFTWARE INSTALLATION FOR WINDOWS (XP/2000/98SE)

The following section assists to install **G101** WLAN adapter successfully. The driver will firstly be installed, the **G101** WLAN adapter will then be installed, and the network properties are finally set to accommodate resource sharing and select the type of wireless network.

In order to establish a wireless network connection, make sure that some steps below is performed.

¦ Install the Access Point (AP) at first if user use Access Point network mode.
¦ Install the driver using the Installation CD.
¦ Plug in the **G101** wireless LAN adapter.
¦ Install the network protocol(s) required to communicate on a network. Most likely the TCP/IP protocol will be needed.

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 an administrator to install software. If this is the case, be sure to have such privileges before executing the Setup.exe file. To upgrade an existing driver, it is not necessary to remove an existing Octopus driver. Simply run the Setup.exe file to replace the existing driver with the latest version. After the new driver is installed, the operating system (depending on the Windows' OS) might be requested to be re-started.

Please follow the following steps one by one in order to install the **G101** WLAN adapter successfully.

Before proceeding with the installation, please notice the following description.

Note1: After running the driver package, re-starting will be needed for Win98 OS and re-starting will not be needed for Win2000 or WinXP OS.

Note2: Please do not insert G101 WLAN *adapter into the MiniPCI slot until Application setup has been completed.*
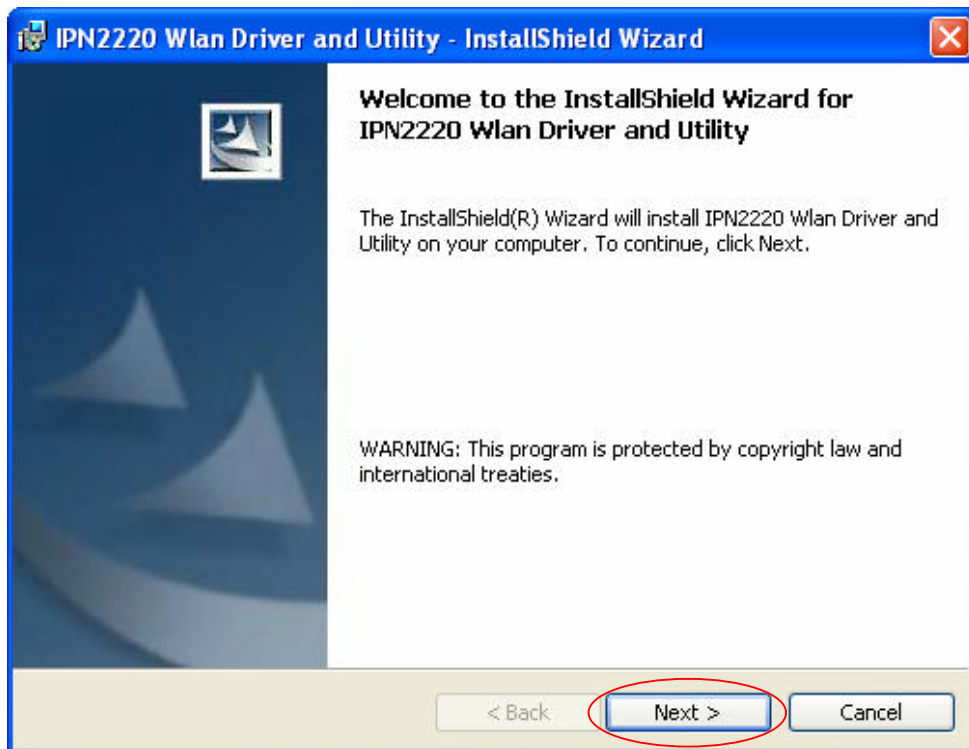
For Windows XP
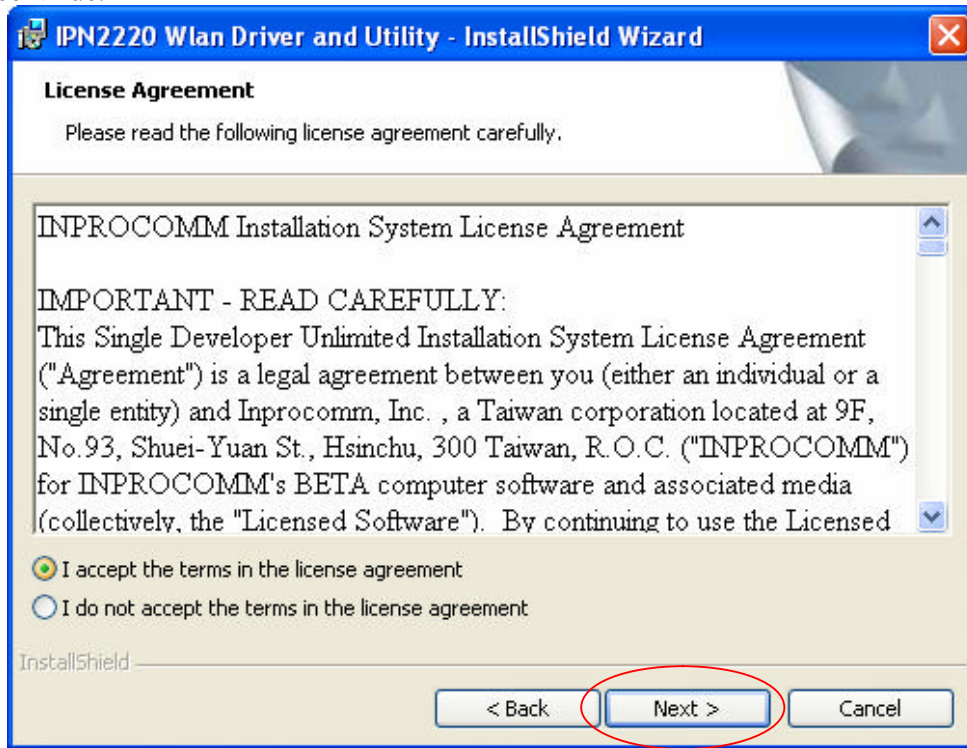
Install the Driver and Utility

1. Insert the CD into the CD-ROM device and execute the "setup.exe" program.
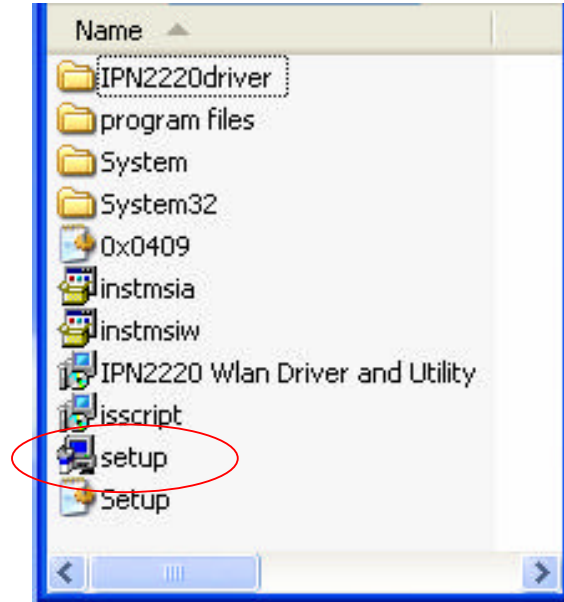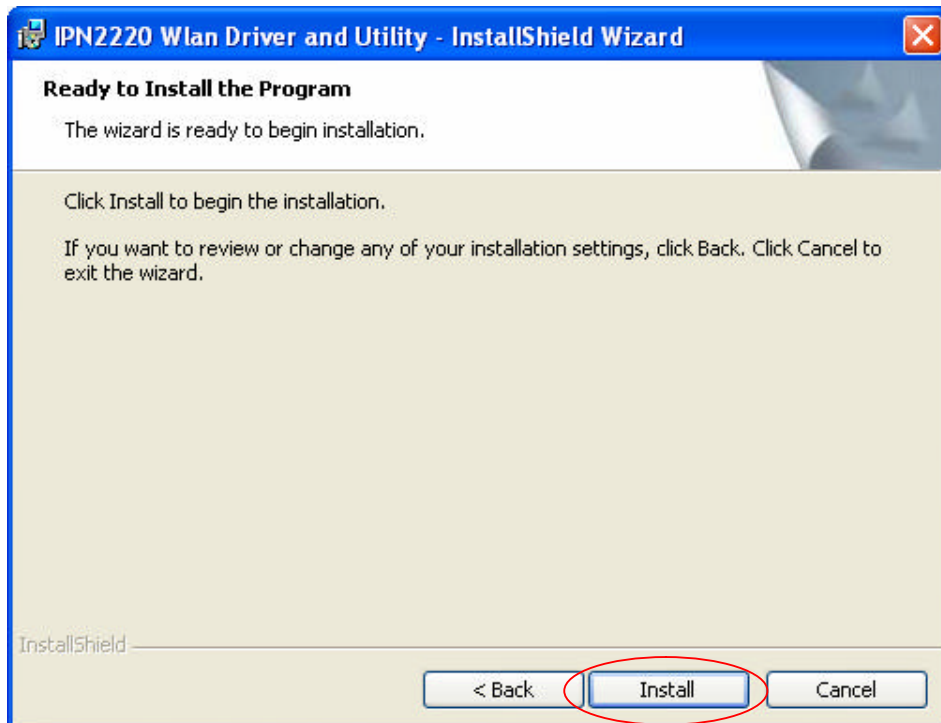

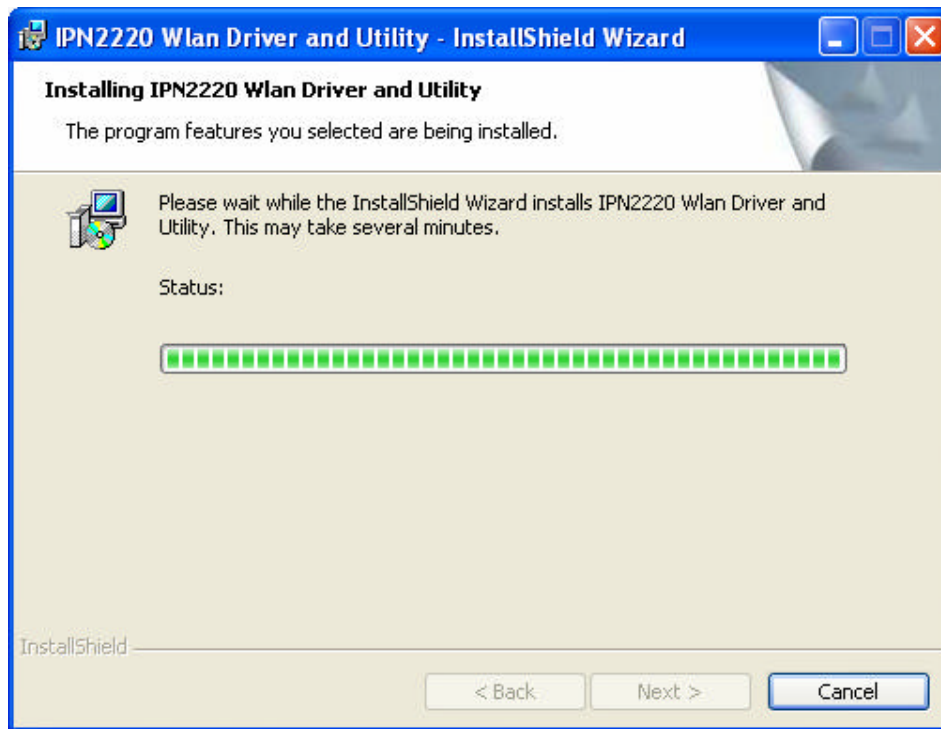2. The InstallShield Wizard box will appear, click "Next" to continue.

3. Licence Agreement appears. Please choice "I accept the terms in the license agreement" and click
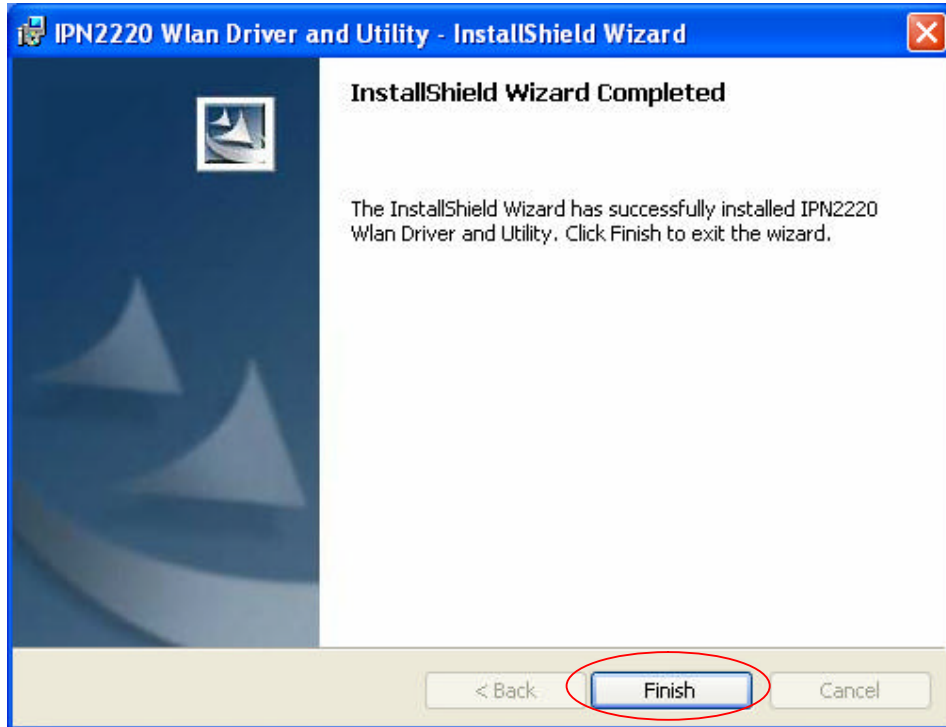"Next" to continue.

4. Click "Install" button to continue.

- The driver and utility are Installing.

- Don't care about the message below and click "Continue Anyway" button to continue.

● Click finish button to complete install procedure.

1. Insert the G101 WLAN adapter into the MiniPCI slot. The system will automatically find the device and search for its software.

     Note: Please turn-off the power before you insert G101.

● Please wait while the wizard installs the software.
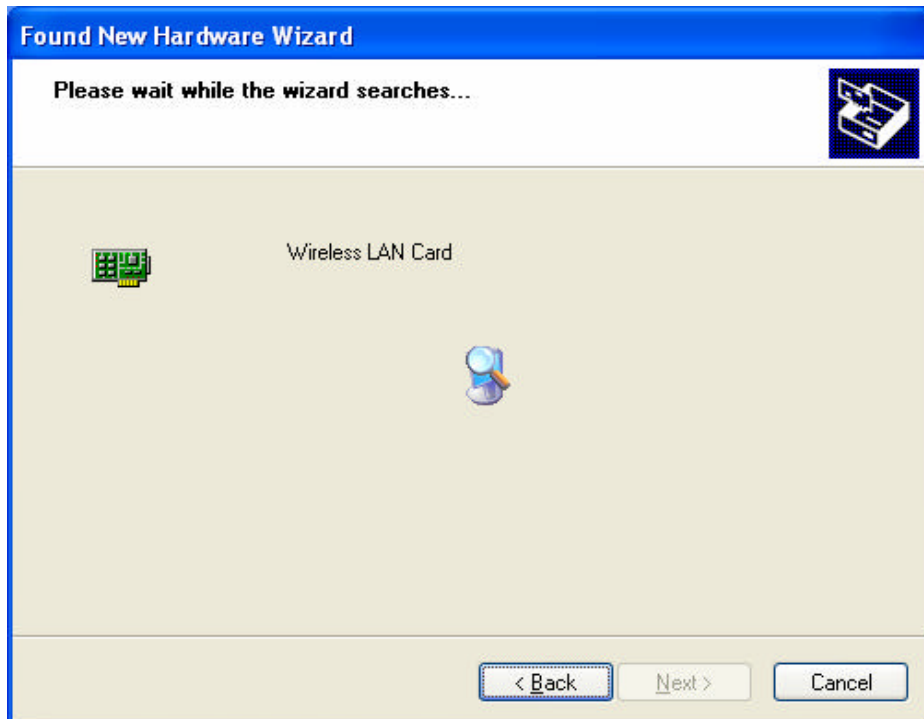
● Don't care about the message below and click "Continue Anyway" button to continue.

● Please wait while the wizard installs the software.

● Complete device install.

Using the Windows XP's Utility

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

1. Double-click the icon marked in red in the taskbar and start using the Windows XP's wireless utility
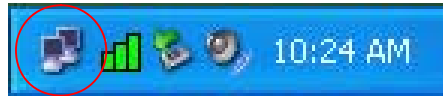
- Get into Windows XP's utility, click "Advanced" button.
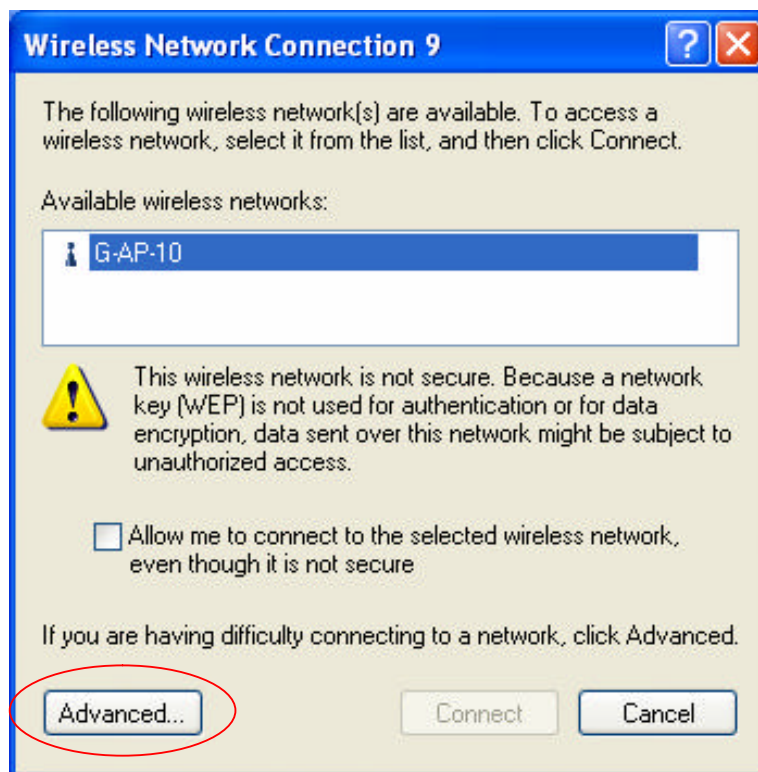
2.The "Connect to Wireless Network" window will contain a list of all the available Wireless Networks. Select the proper network as appropriate. In this example, "AP(G-AP-10)" network was selected as shown.
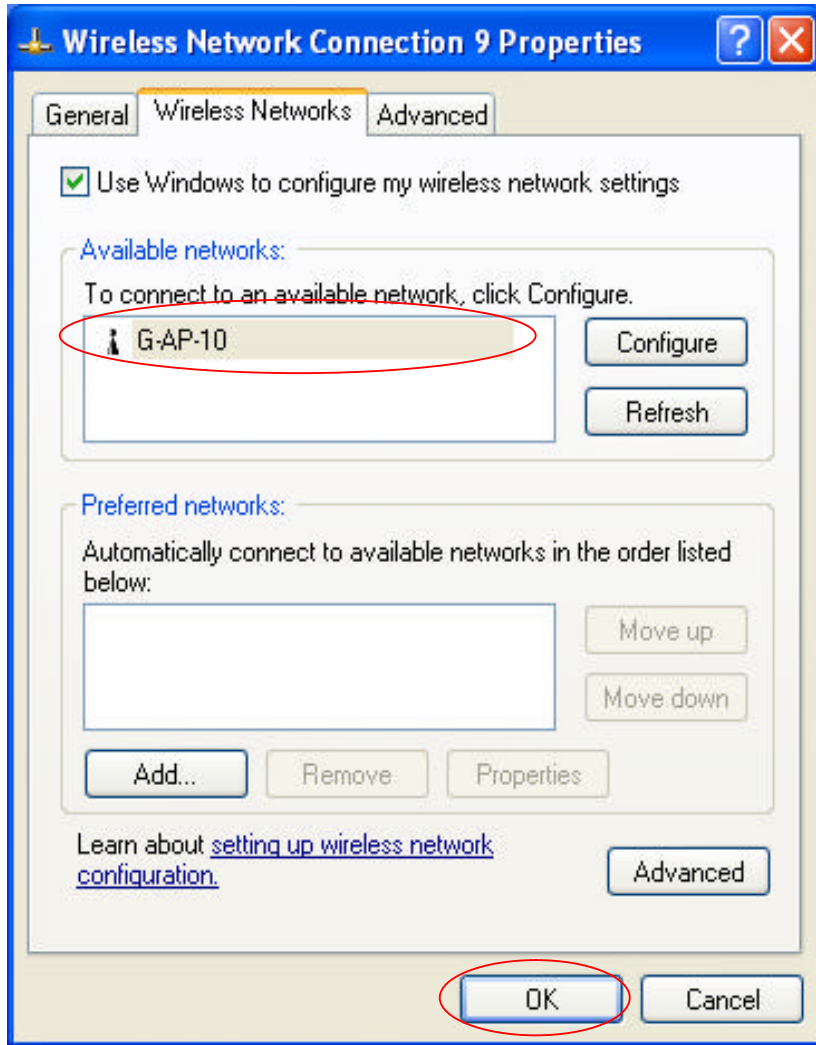
Using the Utility of G101 adapter

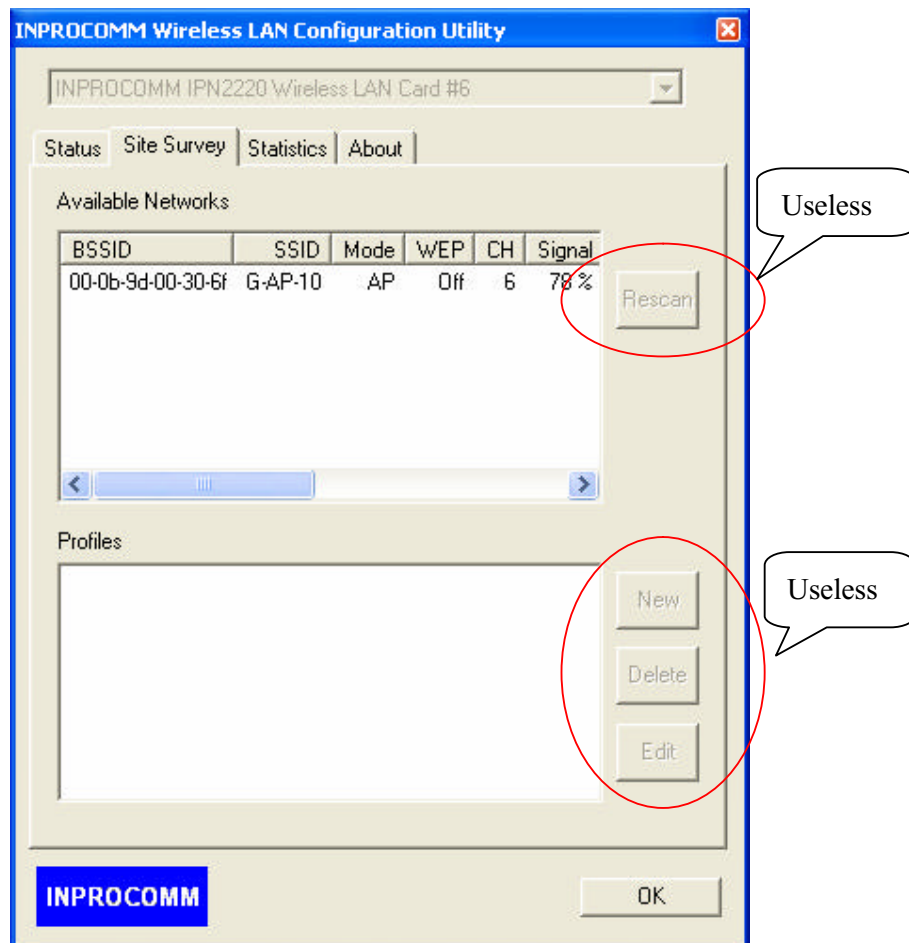**1. *If the XP's Utility is no disabled, the adapter's utility will not be applicable.***

- Clicking on the utility icon.

- Click "Yes",then Radio ON
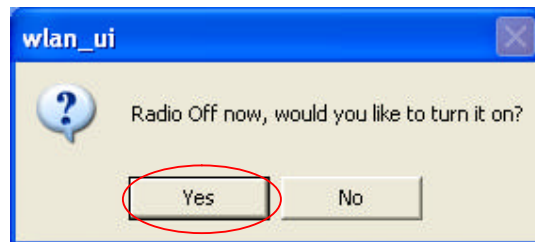
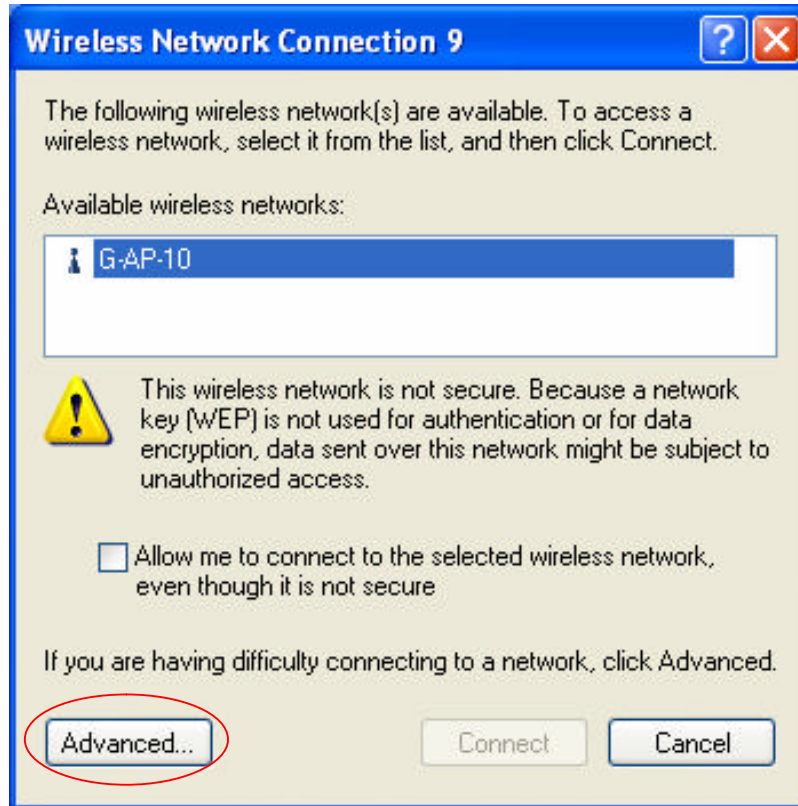- *You can not use function of the adapter's utility as below.*

2. To Disable the XP's Utility for Using "Wireless LAN Configuration Utility"

- Double-click the icon marked in red in the taskbar and start using the Windows XP's wireless utility
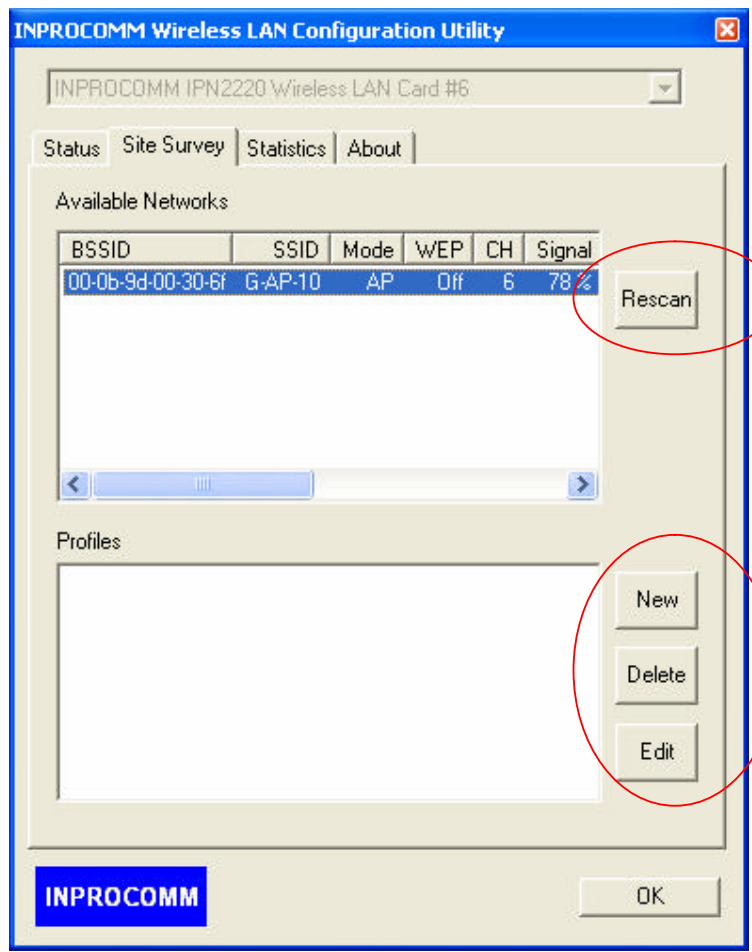
- Get into Windows XP's utility, click "Advanced" button.

- In "Wireless Network Connection Properties" screen, uncheck the setting "Use Windows to configure my wireless network settings". Note that if it is requested to change back to the Windows XP built-in utility, check the item again.
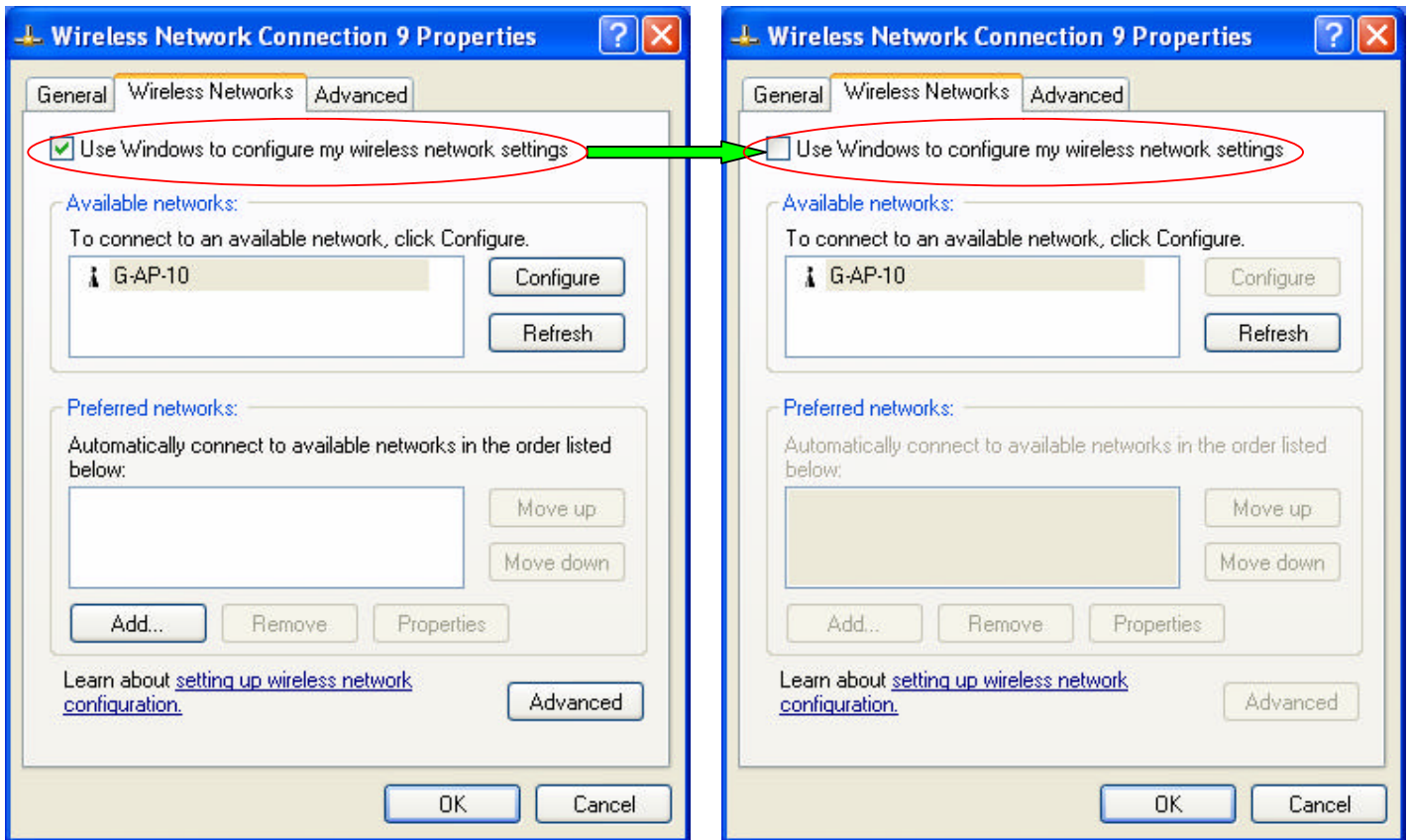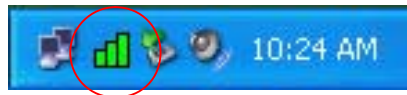
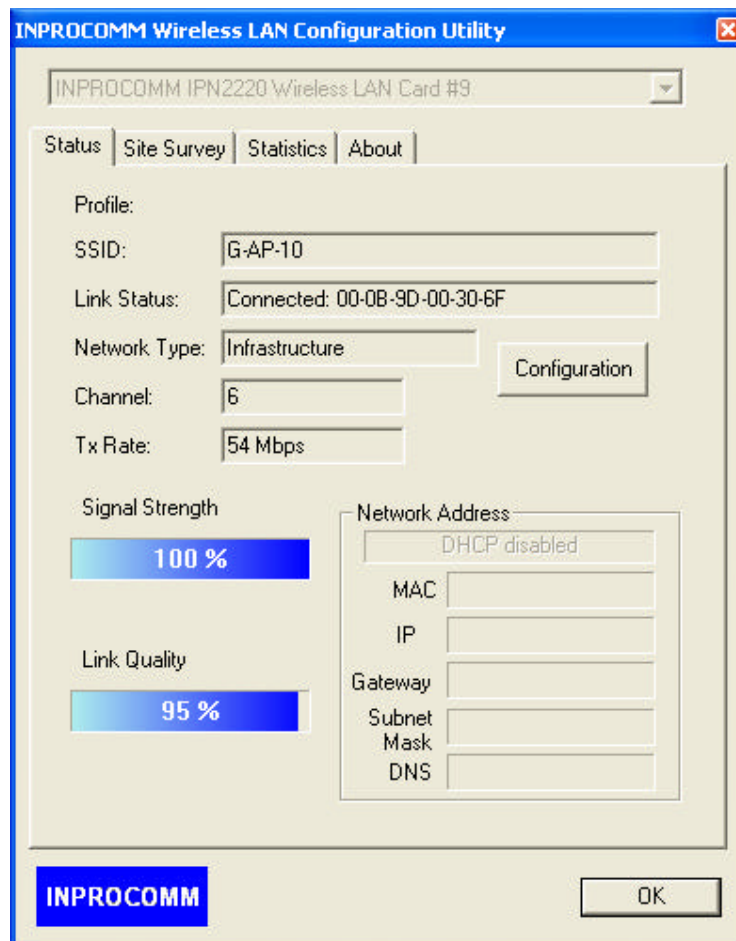● Clicking on the utility icon will start the Configuration Utility.

3. Please click "**All programs-> Inprocomm->IPN2220 WLAN Configuration Utility**". Or to double-click on the icon shown below. The "WLAN Configuration" screen will appear.
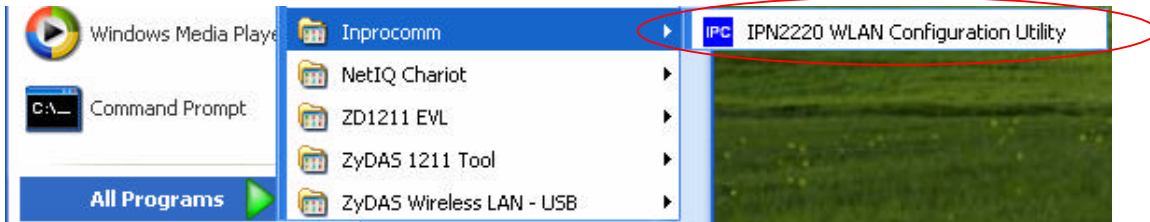
● Or to double click the icon

● The "WLAN Configuration Utility" screen will appear.

Using WPA of the Windows XP's Utility

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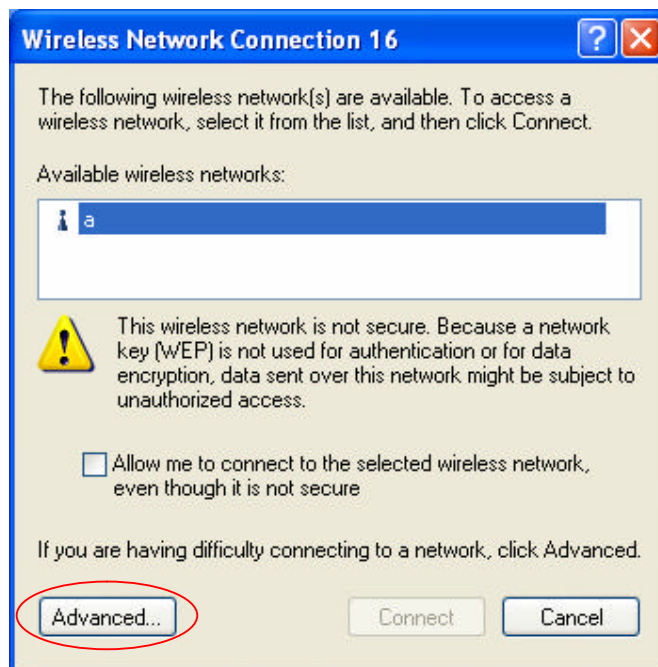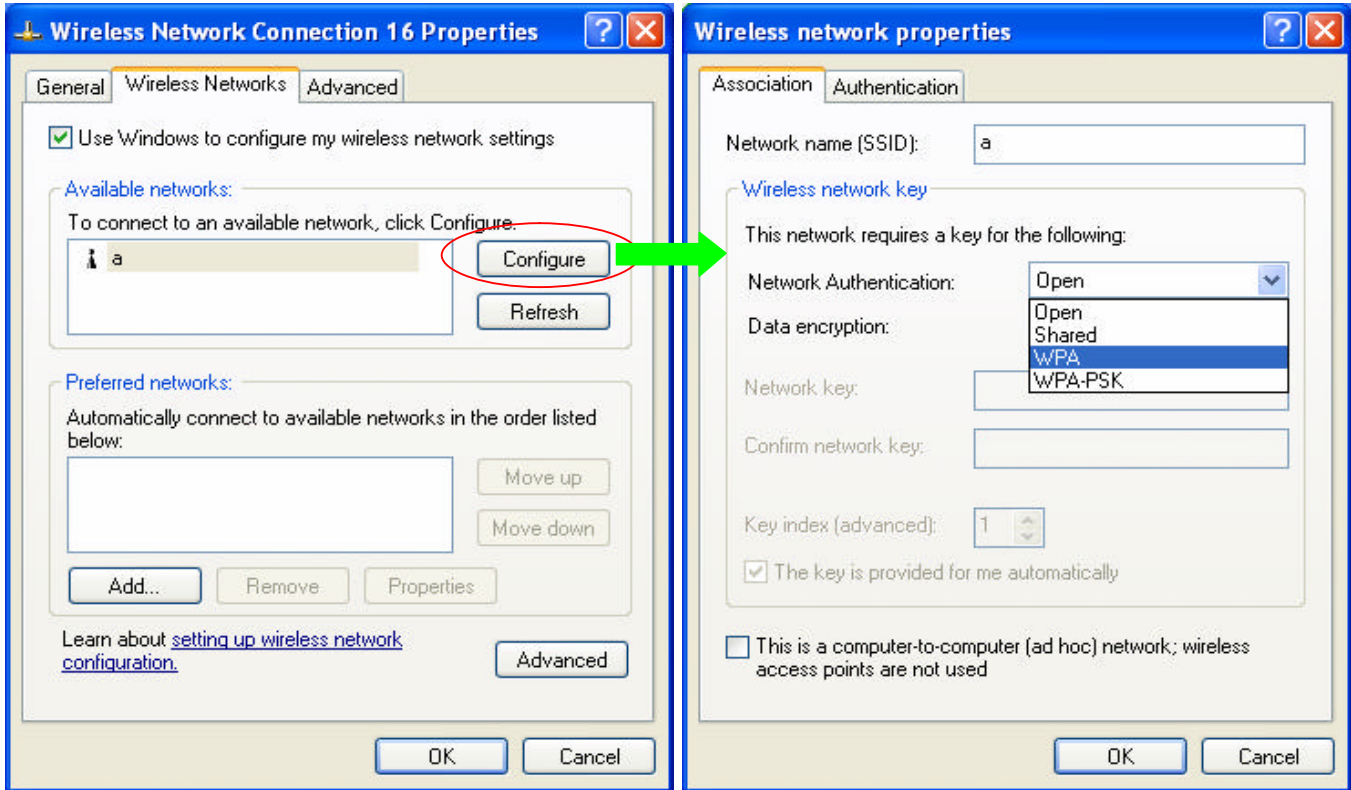
● Example :
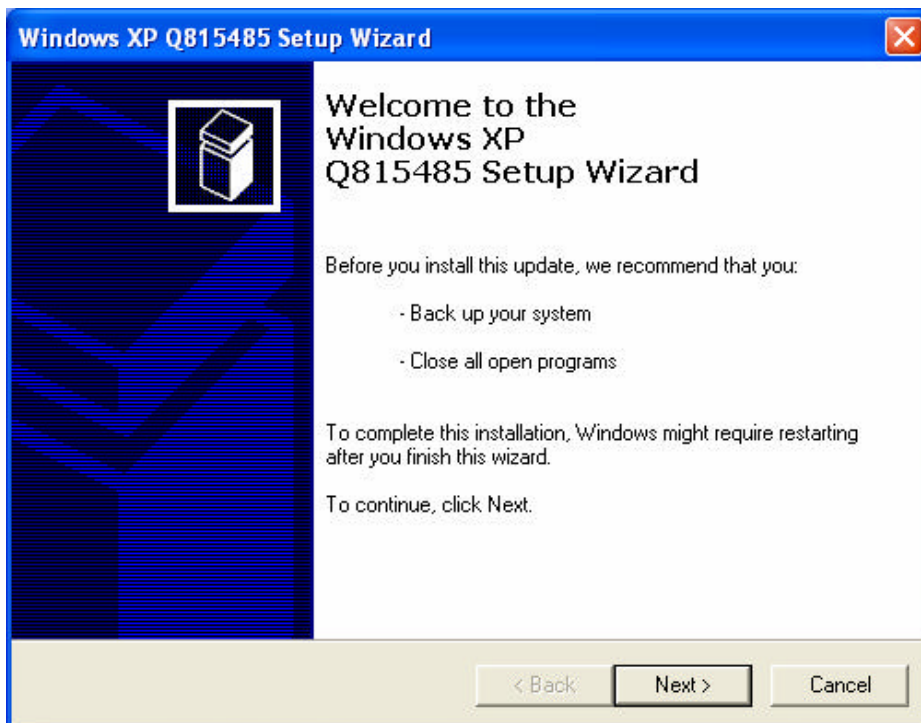
1: Right click the icon to select "View Available Wireless Networks".
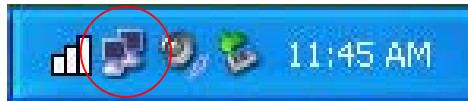
2: Click "Advanced" button from "Wireless Network Connection".

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.
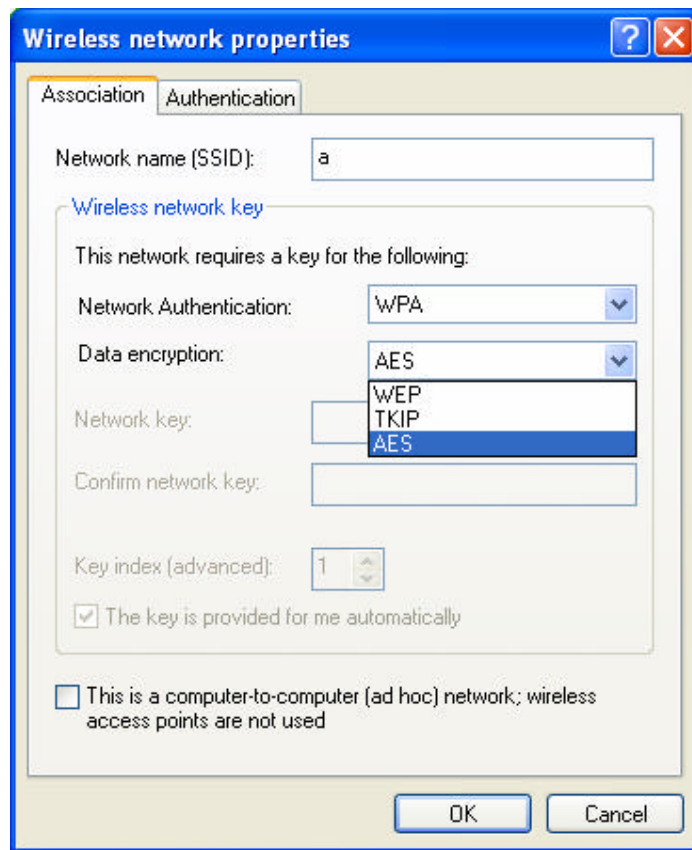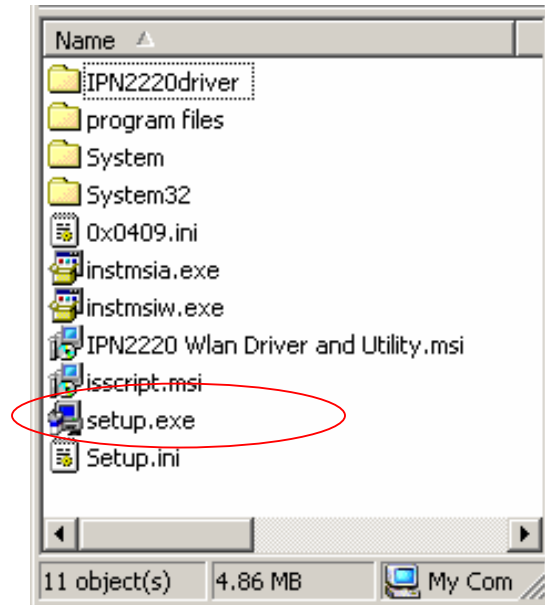
- **Data Encryption**
  - **WEP** – In WPA or WPA-PSK mode, WEP is also able to be the encryption method for the transmission data.
  - **TKIP** – TKIP (Temporal Key Integrity Protocol) changes the temporal key every 10,000 packets (a packet is a kind of message transmitted over a network.) This insures much greater security than the standard WEP security.
  - **AES** – AES has been developed to ensure the highest degree of security and authenticity for digital information and it is the most advanced solution defined by IEEE 802.11 i for the security in the wireless network.

For Windows 2000

Install the Driver and Utility

1.Insert the CD into the CD-ROM device and execute the "setup.exe" program for G101 series to select.

2.   The InstallShield Wizard box will appear, click "Next" to continue.