Quanta Computer Inc.

BCM94309MP
Mini-PCI Card

User's Manual

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Copyright statement

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1. Introduction

Thank you for purchasing your Wireless LAN, Wireless LAN mini-PCI Adapter. This manual will assist you with the installation procedure.

The package you have received should contain the following items:

- User manual
- CD containing Wireless LAN Management utility and drivers
  Note: if anything is missing, please contact your vendor

The CD contains drivers and Configuration Utility program that is used for managing the Wireless LAN Card and establishing the wireless connection with your Local Area Network.

2. Wireless LAN Basics

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

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

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

- Mobility - Wireless LAN systems can provide LAN users with access to real-time information anywhere in their organization. This mobility supports productivity and service opportunities not possible with wired networks.

- Installation Speed and Simplicity - Installing a wireless LAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings.

- Installation Flexibility - Wireless technology allows the network to go where wires cannot go.

- Reduced Cost-of-Ownership - While the initial investment required for wireless LAN hardware might be higher than the cost of wired LAN hardware, overall installation expenses and life-cycle costs will be significantly lower. Long-term cost benefits are greatest in dynamic environments requiring frequent moves, adds, and changes.

- Scalability - Wireless LAN systems can be configured in a variety of topologies to meet the needs of specific applications and installations. Configurations are easily changed and range from peer-to-peer to full infrastructure networks, also allow roaming over a broad area.

3. Installation for Windows platform

The following section will assist you to in installing wireless LAN Adapter successfully. You will first install software (Utility) and then set the network properties to accommodate resource sharing and select the type of wireless network that you wish to install.

3.1. Installation Overview

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

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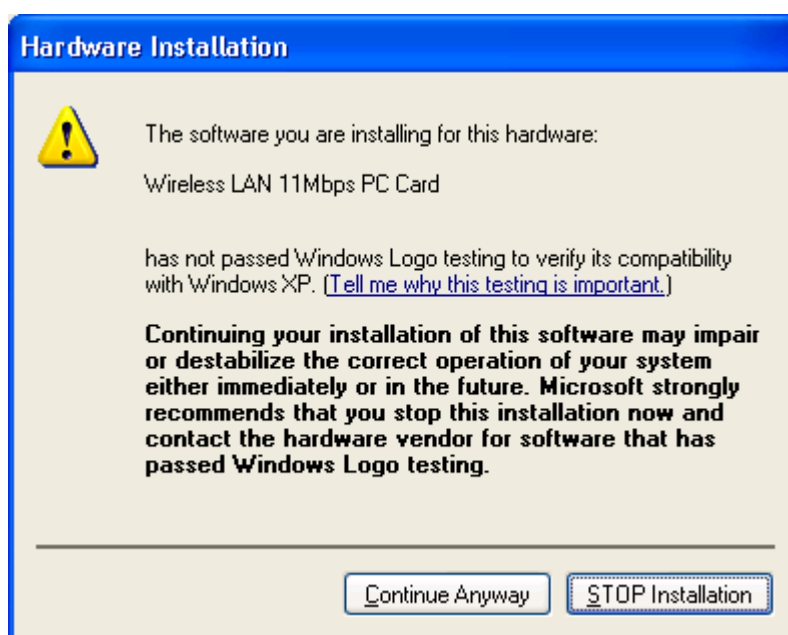
3.2. Install Procedure for Windows XP

1. Insert the given Installation CD in the CD-ROM and then click on the **Setup.**
    Follow the instruction to finish the installation.
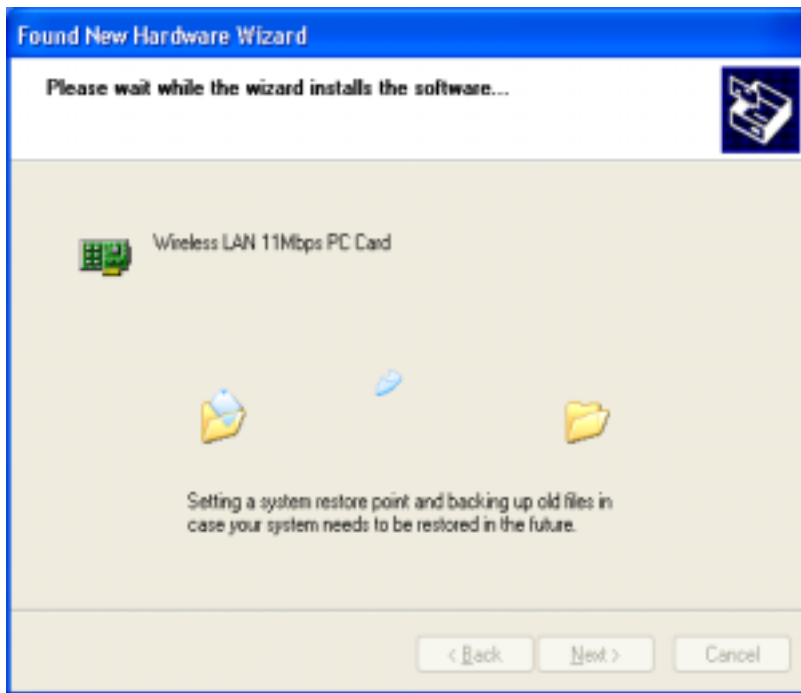

Select **"Install the software automatically (Recommended) "**, and then click **Next** to continue.

Once your system detected the driver, Microsoft will show a warning message as below.

Click **" Continue Anyway "** for next step.

After copy the file to your system, then the setup is finish.

3.3. Install Procedure for Windows 98/ME/2000

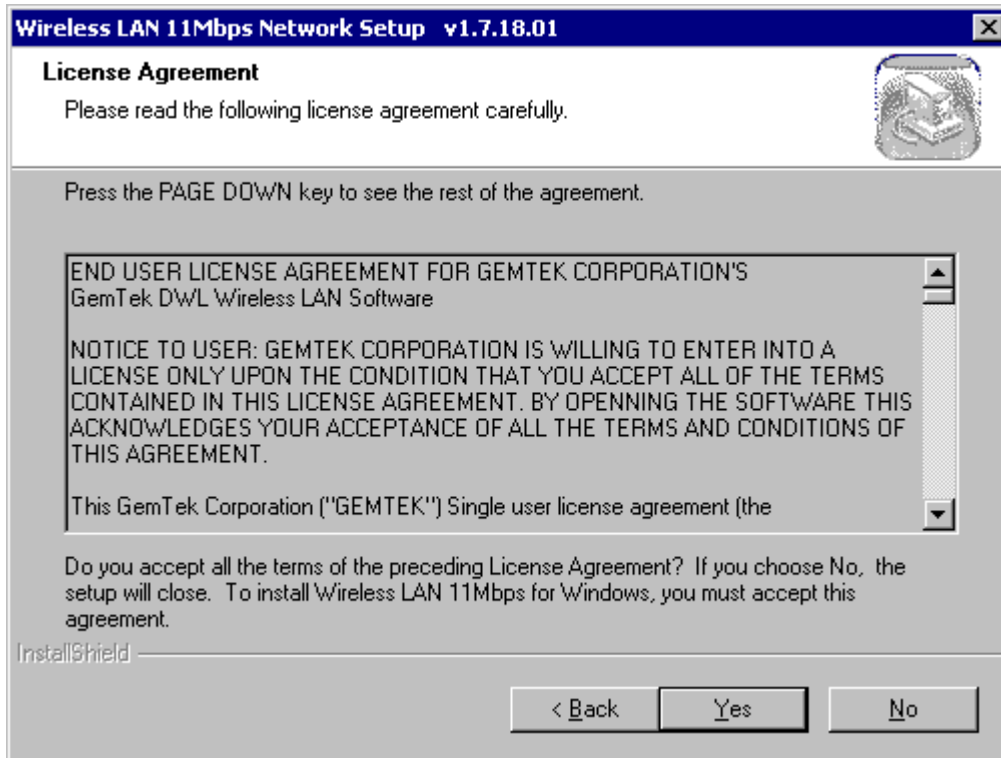## Please follow the following steps one by one in order to install the software successfully.

1. Power on your computer and allow Windows 98/ME/2000 to load fully.
2. Insert the given Installation CD in the CD-ROM and then click on the **Setup.**
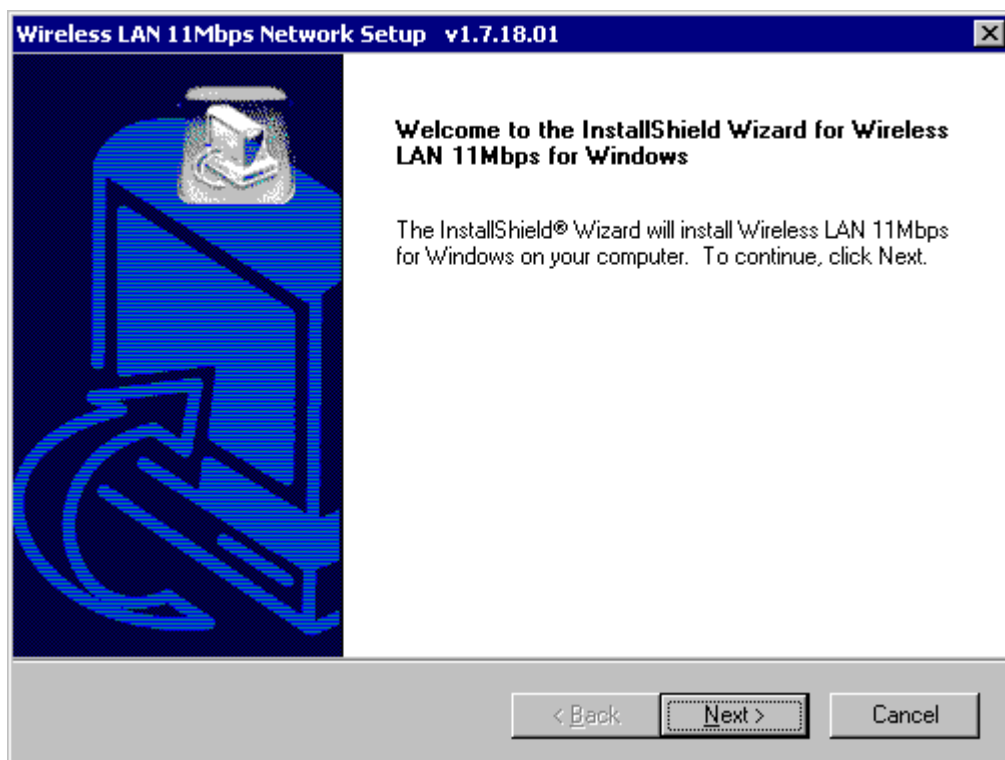
At the " Welcome" window, click **Next.**

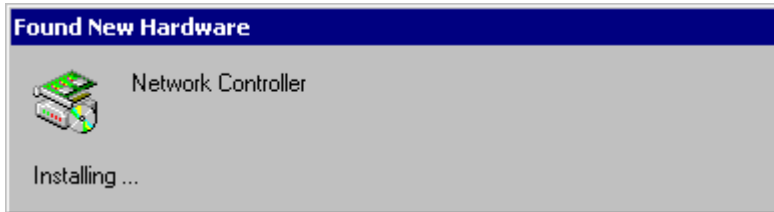3. Accept the license agreement.

Accept the license agreement. Click **Yes** to accept.


Click **Yes** to finish the setup.

Windows will recognize the WLAN adapter and auto detect the driver, if the system did not find the driver automatically, please install the driver manually.

Found New Hardware

Network Controller

Installing ...

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Digital Signature Not Found   ☒

The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.

The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.

Wireless LAN PC Card

If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.

Do you want to continue the installation?

[Yes]   [No]   [More Info]

Click **Yes** to finish the installation.

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

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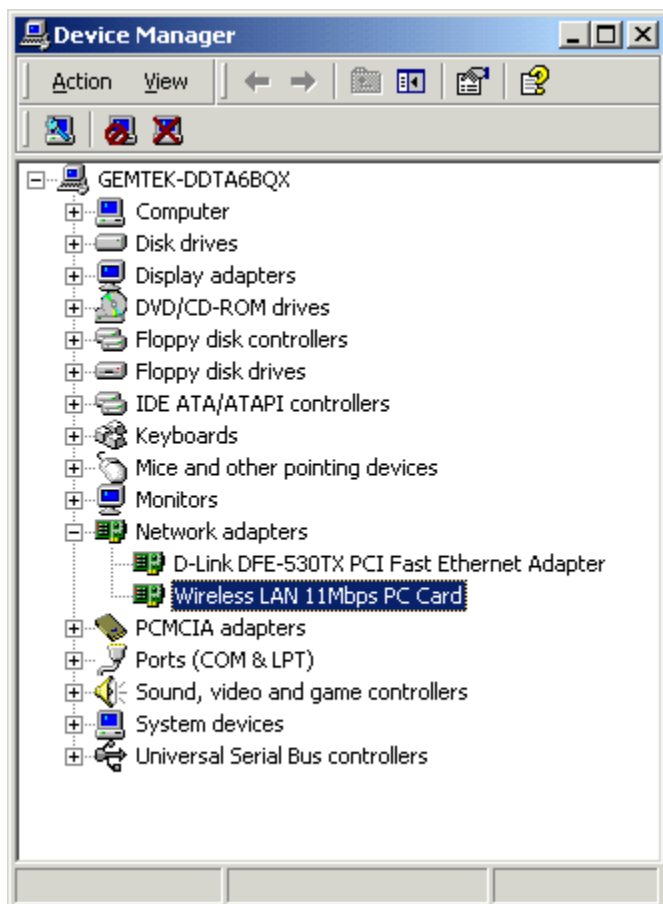

5. Click right button of mouse on the **Network Neighborhood** .

6. Select **Properties** from the pop up menu. The network box appears and you see three main tables: **Configuration**, **Identification**, and **Access Control**.
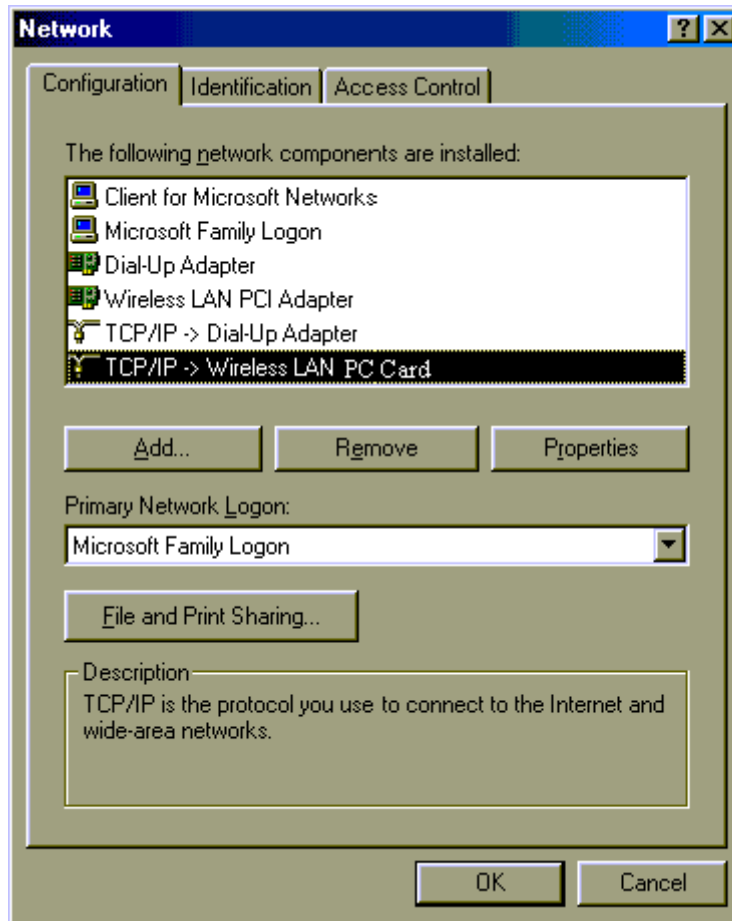
7. Click on the **Configuration** tab and then click on the **Add** button. Select Network Component Type box appears. Click on the **Protocol** the click the **Add** button.

8. Select Network Protocols box appears. From the list of manufactures, click on **Microsoft**. From the list of network protocols list, select **NetBEUI**, then click **OK**.
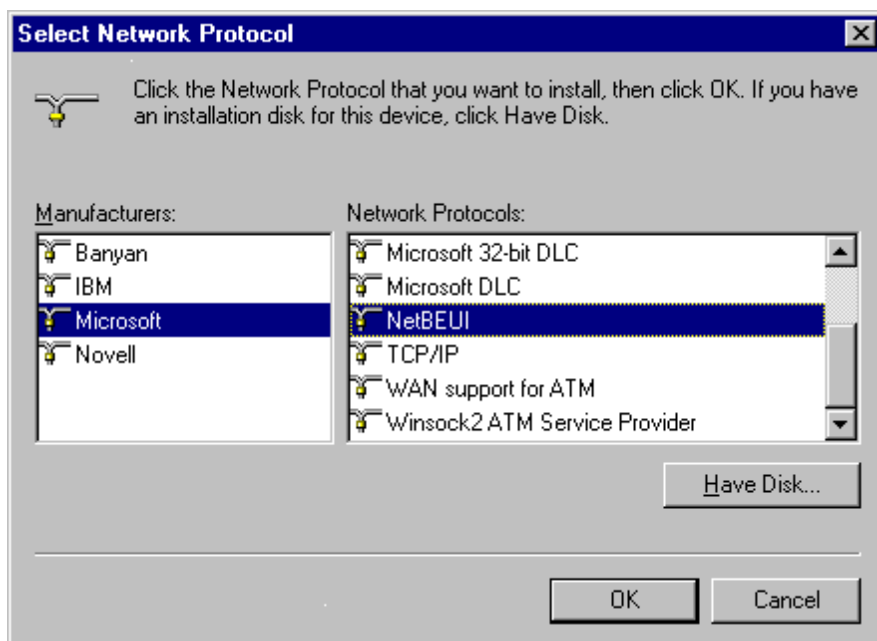
9. The **NetBEUI** protocol is now installed. After clicking on **OK** return back to Network Component Type box.

10. Repeat the step 15 and 16 to add IPX/SPX protocol.

11. Repeat the step 15 and 16 to add TCP/IP protocol.

12. Click on the **TCP/IP** option for setting the **IP** address for your computer. You can select either **Static** or **DHCP** setting. If you use the static IP setup then enter the **IP** value, **Subnet** masking, **DNS**, **Domain**/ **Workgroup** name, and **Gateway** Address values. After setting these parameters appropriately, click OK to return to Network Component Type and you can select the **File and Printer Sharing** options as well as the **Access** to your computer like other users connected to that network by setting the computer sharing options. Click on **OK**.
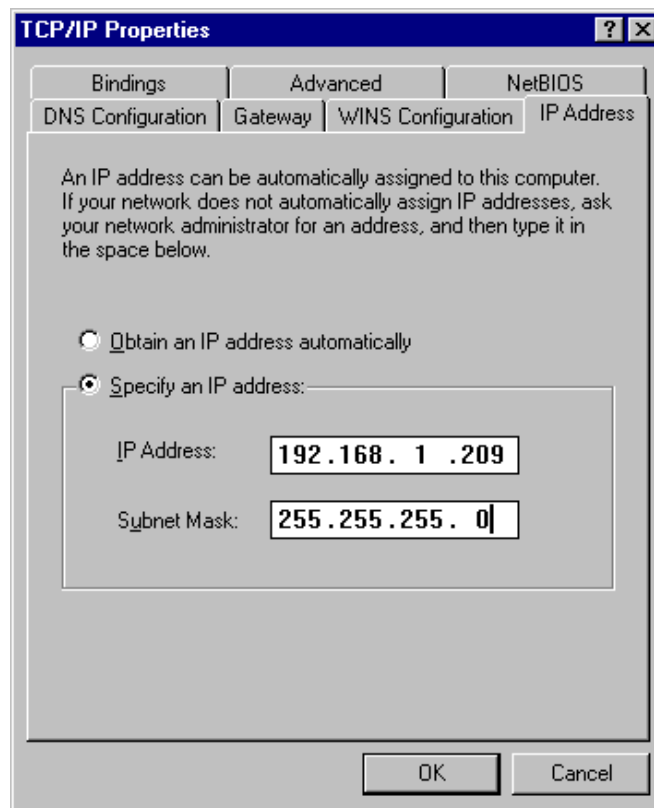
13. Screen message **do want to restart your Computer** will pop up. Select **Yes**. It will shut down your computer and restart.
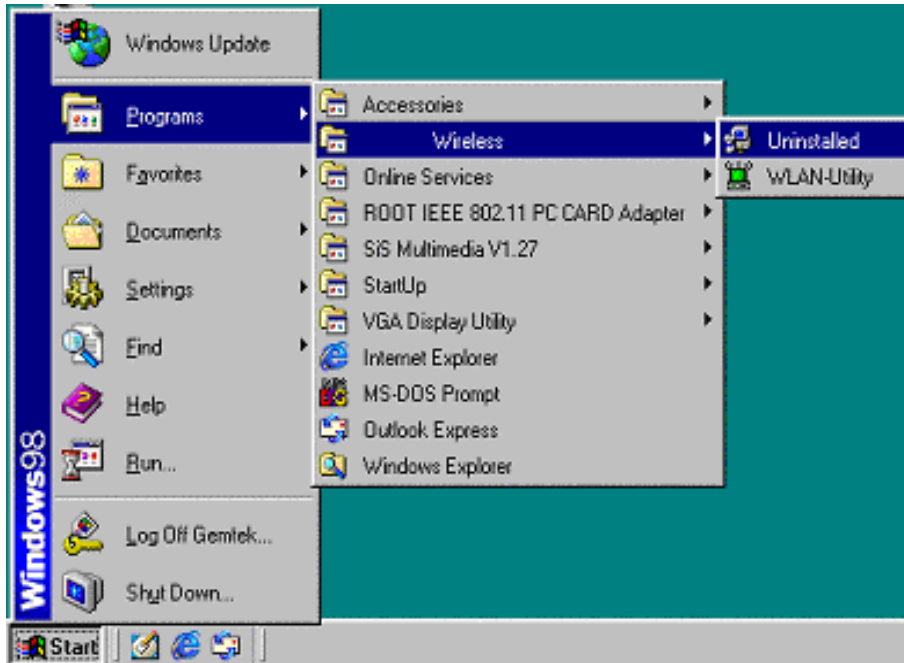
Important: Restart your computer to make the changes effective before you reinstall the driver.

Uninstall Procedure

Step 1:

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

Start Menu → Program File → Wireless → Uninstalled, it shall uninstall all related programs.

Step 2:

Restart your Computer.

4. Configuration Utility

Wireless LAN 11 Mbps Wireless LAN adapter uses its own management software. All functions controlled by user are provided by this application. Usually this application starts automatically,

or click ⬛ icon from Start Menu to start the Utility application.

A new icon - ⬛ should appear in your Icon tray. If the icon is in red, it means that Wireless LAN 11 Mbps NIC configuration is invalid or incomplete. Sometimes icon can be colored in red. This may happen when communication is defined poor connection or incorrectly.

Figure 1 Icon tray with a new icon
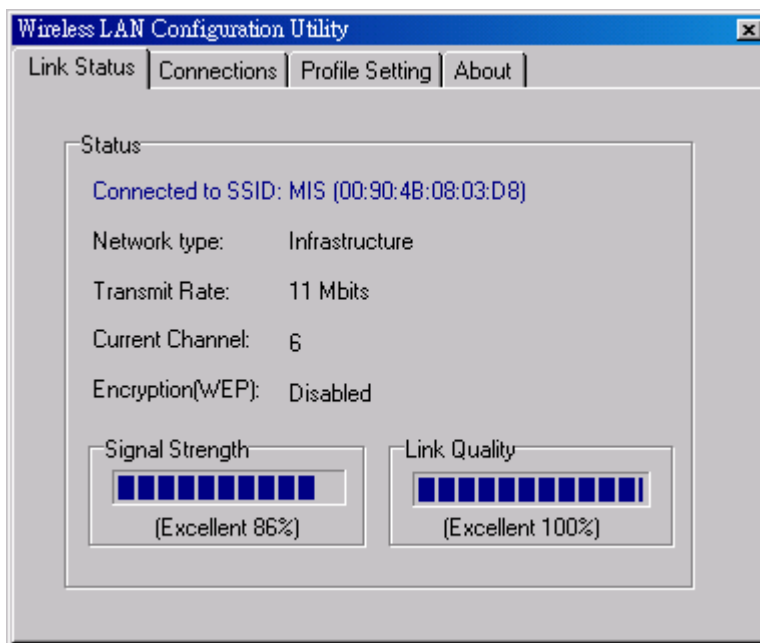
User can navigate through "sheets", by clicking tabs. "X" button will minimize window.

 Below description explains the use and meanings of the various screen messages.

4.1 Link Status

- **Status**

    This field is used to display the current status of connection. When the state shows "Connected to SSID"means normal flow of operation in Infrastructure mode. The PC is connected to access point. Networking is available.

    A state of "Scanning" means that the node is searching for available access point and unable detects the SSID for an available access point within range.

    This field will also display an error message for some reason if the driver failed to initialize.

    Network Type

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

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

- **Current Channel and Transmit Rate**

    Shows the channel of the radio and transmit rate are being currently used for an active connection. This value has no meaning when the radio is "Scanning"

- **Link Quality**

    The Link Quality bar graph is only active when the node is in Infrastructure Mode. The bar graph displays the quality of the link between the node and Access Point. It summarizes the quality of the link over the bar graph, which can take on one of the following values:

   "Poor"
    "Fair"
    "Good"
    "Very Good"
    "Excellent"

- **Signal Strength**

    The Signal Strength bar graph is only active when the node is in Infrastructure Mode. The bar graph displays normalized signal strength as reported by the radio, averaged over all frames over 100 bytes long that are received from the Access Point.

4.2 Connections

The Connections Tab shows current status of available APs within the network.
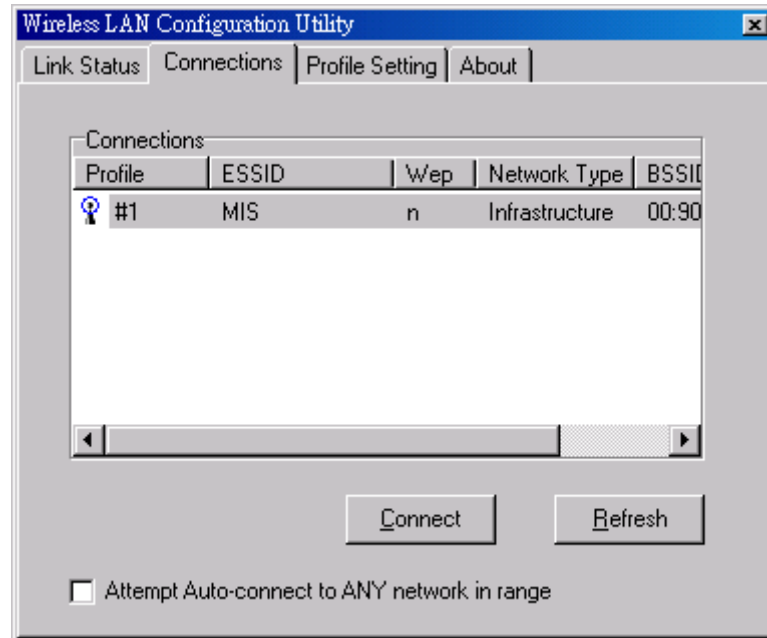
User may select profile or ESSID from above list, click **"Connect"** to connect with the AP.

Click **"Refresh"** to rescan the network, this utility with site survey function, it will detect and list all available APs within network.

Place a check mark in the field if you wish attempt Auto-connect to ANY network in the range.

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4.3 Profile Setting

Profile Setting allow user to create profiles for different network environments.
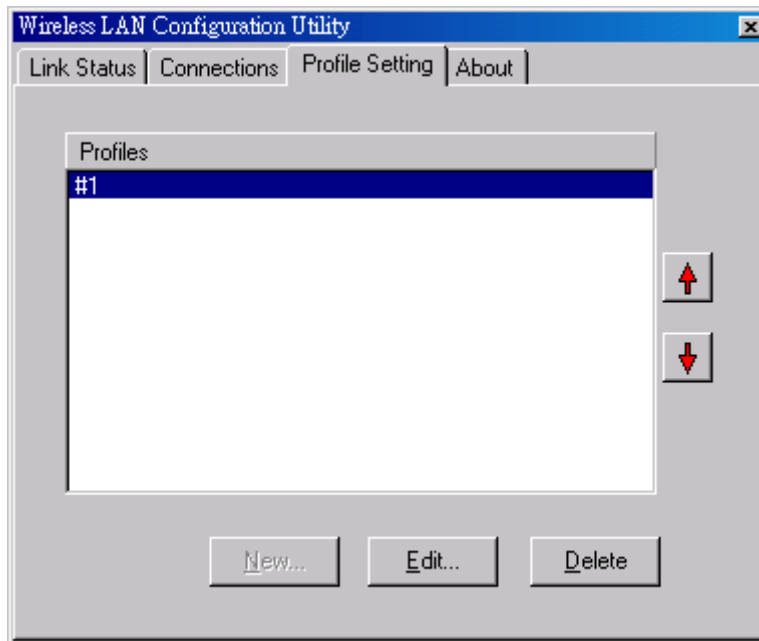
Click **"New"** button to create new profiles.
"Edit" for edit current exist profile.
Click **"Delete"** button if you wish to delete profiles.

- **Network Type**

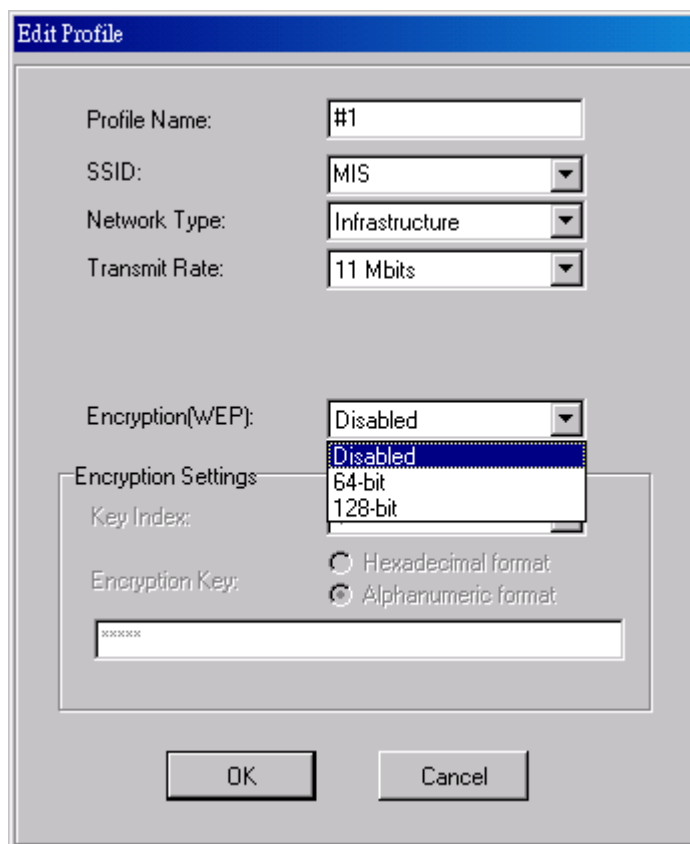This field allows you to select from a list of supported Network "Modes". The modes displayed will have two values: "Ad Hoc" and "Infrastructure".

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

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

Transmit Rate – The transmission rate at which client of AP transmits the data packets. You may set this to fixed 1Mbps, fixed 2 Mbps, fixed 5.5 Mbps or 11 Mbps.

Encryption (WEP) - You may desire an additional measure of security on your wireless network, which can be achieved by using WEP (Wired Equivalent Privacy) encryption.

When an encrypted frame is received it will only be accepted if it decrypts correctly. This will only happen if the receiver has the WEP Key used by the transmitter.

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

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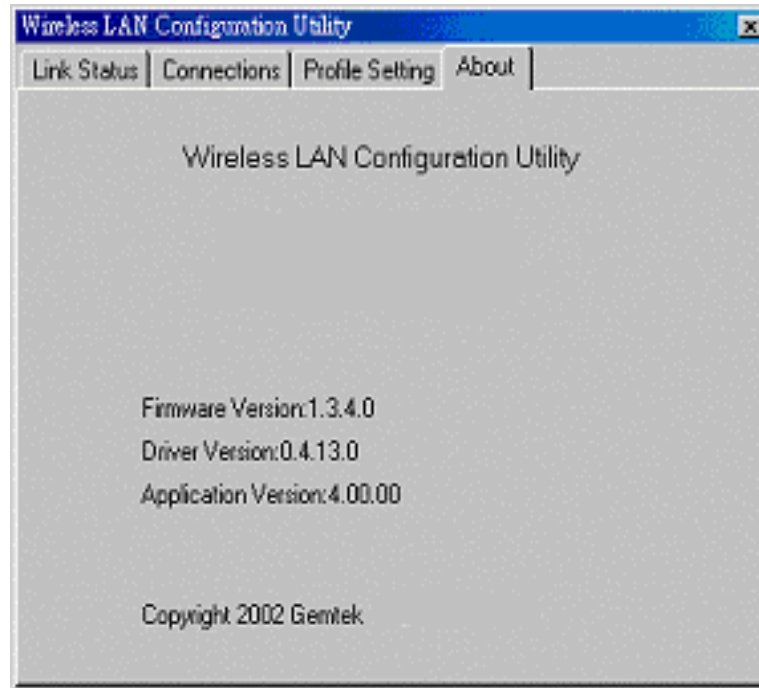
About tab shows the product version including the detail of Driver, Application and firmware version. Users must use this version number when reporting their problems to technical support.

4.5 Windows XP Zero Configuration

Microsoft provides Windows XP Zero Configuration, which means user doesn't need to use software provided by the manufacturer. Instead, Windows XP recognizes the adapter and provides the necessary driver and configuration software.

If your station is within range of a WLAN, Windows XP announces that one or more wireless networks are available and suggests that you click the Network icon to see a list of available networks.
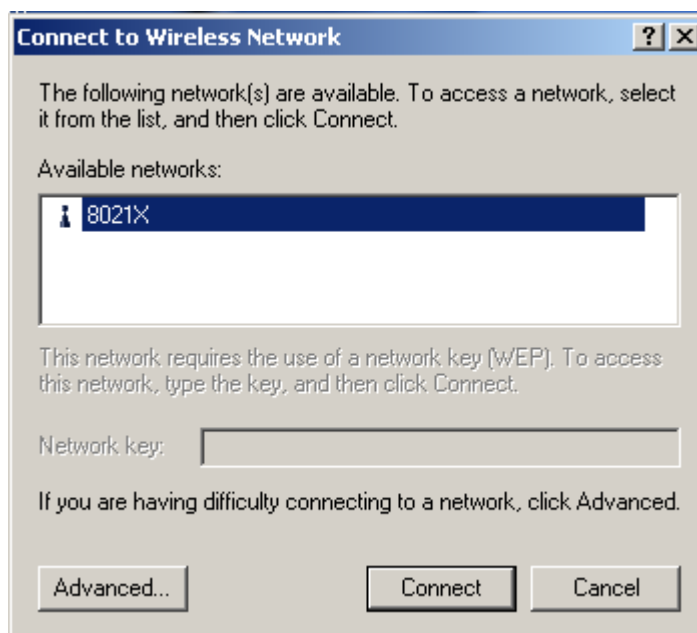
Configuring Automatic Network Connections

To configure one or more wireless networks for auto connection, follow these steps:

1. Right-click a Network icon in the notification area at the bottom of the screen to display a pop-up menu. Click the Open Network Connections option.

2. Right-click the Wireless Network Connection icon and click Properties in the Pop-up menu. Windows XP displays the Wireless Network Connection Properties dialog.

3. Click the Wireless Networks tab, shown as below. Notice that the wireless network that was present when you first inserted the wireless NIC is already listed.
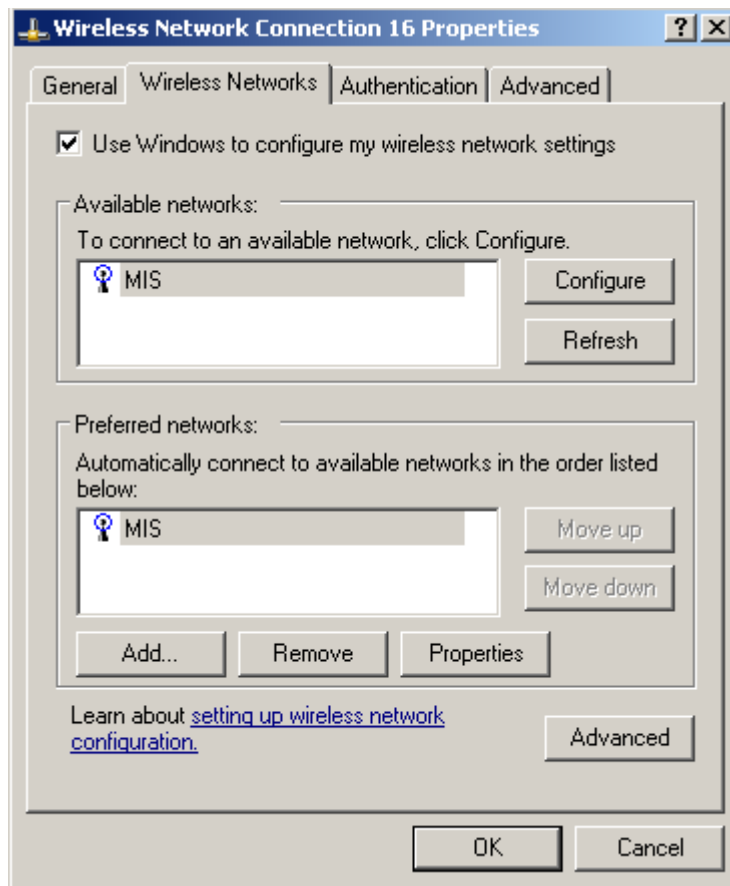
4. To add another network to the list, click the Add button on the Wireless Networks tab to display the Wireless Network Properties dialog.

5. Type a network name (SSID) in the Network name test box.

6. If you have implemented a system automatically providing users with network keys and /or WEP keys, click OK to save this network SSID and move on to the next network that you want to configure.

7. If you are setting up an ad hoc mode wireless connection, click the last check box in the dialog. Otherwise, if you are configuring a connection to an AP, leave the check box uncheck and click **OK**. Windows XP adds the network to the list of preferred networks in the Wireless Network Connection Properties dialog box.

8. When you finish adding all wireless networks to which you expect this computer to need access, click OK.

Note: XP includes support for IEEE 802.1X standard for port –level authentication of stations in the network.

5. Troubleshooting

If you encounter any problems during the installation, or to confirm that the WLAN 11Mbps device is installed properly, please read the following troubleshooting section.

In Windows 98:

To check that the **WLAN 11Mbps device** is installed properly, please do the following:

1. Go to **START>SETTINGS>CONTROL PANEL>NETWORK.** Choose the **Configuration Tab**. If you find the **WLAN 11Mbps Adapter**, it means the card is installed properly. If you see the **Yellow Question-mark (?)** means the resources are conflicting. (Please read further in this section for solutions.)

<div align="center">-or-</div>

2. Right click on **My Computer** and select **Properties.** Select the **Device Manager** and click on the **Network Adapter.** You will find the **WLAN 11Mbps Adapter** if it is installed successfully. If you see the **Yellow** sign, the resources are conflicting. Click on the PCMCIA Card and then on the PCMCIA Card Service, you can see the status of the PC card. If there is a yellow sign either on the adapter or the PC card, please check the following.

   1. Check to see if your computer supports **3.3V** Card.

   2. Check to see if your computer has a free **IRQ.** If not, make an IRQ free by assigning the same IRQ to some devices, for example COM 1; COM 2 can be assigned the same IRQ values.

   3. Check that you have inserted the right card and have installed the proper driver.

Troubleshooting (Continued)

<u>**In Windows 2000:**</u>

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. **I/O Address** needs 40h byte length.

2. Go to the **Control panel.** Double click on the **PCMCIA Card** and you will see **WLAN Adapter.** Double clicking on that will show you the **Card Information,** driver name and the driver **file.** You must confirm the name of the driver and the driver file as **"prismnic.inf"** and **"prismnds.sys".** If you do not find the names listed above, there are some problems and the driver is not installed properly. Reinstall the driver.

   Note: Check the PnP BIOS setup menu and select **no** in case of the **WLAN Adapter** installation.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
-       Reorient or relocate the receiving antenna.
-       Increase the separation between the equipment and receiver.
-       Connect the equipment into an outlet on a circuit different from that
     to which the receiver is connected.
-       Consult the dealer or an experienced radio/TV technician for help.

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

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

IMPORTANT NOTE:
FCC RF Radiation Exposure Statement:
This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

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

R&TTE Compliance Statement

This equipment complies with all the requirements of the DIRECTIVE 1999/5/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of 9 March 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE).

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8, 2000 .

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this manual and of the computer manufacturer must therefore be allowed at all times to ensure the safe use of the equipment.

EU Countries intended for use

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

The ETSI version of this device is also authorized for use in EFTA member states Iceland, Liechtenstein, Norway and Switzerland.

EU Countries Not intended for use

None.

Potential restrictive use

France: Only channels 10,11,12, and13