ASUS WLAN PC CARD

USER'S MANUAL

FCC Regulation

INTERFERENCE INFORMATION: PART 15 OF FCC RULES
Some telephone equipment generates and uses radio frequency energy, which if not properly installed, may cause interference to radio and television reception.

This unit has been tested and found comply with the limits for a Class B computing device in accordance with Part 15 of the FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, when it's in use, the user is encouraged to try to correct the interference by one or more of the following measures:
A. Where it can be done safely, reorient the radio or TV receiving antenna.
B. To the extent possible, relocate the television, radio, or other receiver with respect to telephone equipment.
C. If your telephone product runs on AC power, plug your product into an AC outlet that's not on the same circuit as the one used by the radio or television.

SAFETY INFORMATION

Your device contains a low power transmitter. When device is transmitted it sends out radio frequency (RF) signal.

CAUTION: To maintain compliance with FCC's RF exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body. Use on the supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

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TODO Items:

1. Add Windows NT/2000/XP setup chapter

Contents

1. Introduction

1.1 Overview

Thank you for purchasing an ASUS Wireless LAN PC Card. The WLAN PC Card is a wireless network interface card (NIC) for any computer equipped with a Personal Computer Memory Card International Association (PCMCIA) Type II. WLAN PC Card conforms to the PCMCIA release 2.x standard and is designed to fully compliant with the final IEEE 802.11b wireless local area network (WLAN) standard. As a result of the completion of the standard, the interoperability of the WLAN products among multiple manufacturers will be guaranteed.

The WLAN PC Card product provides high-speed, standards-based WLAN solutions. Supporting data rates up to 11 Mbps, with automatic fallback to 5.5, 2, and 1 Mbps. It operates in the unlicensed 2.4 GHz frequencies Instrumentation, Science, and Medical (ISM) band, which means free of charge use. The configuration utility of WLAN PC Card is a user-friendly application helps you quickly setup stations containing WLAN PC Card. You can save the configuration to a file and import the file to other stations for fast installation. It also helps user to get/set the setting of any parameter about WLAN PC Card, to change the AP for joining, to show some statistics of the Link Quality.

Wireless LANs are a complementary extension to existing wired LANs, offering complete mobility while maintaining continuous network connectivity to both corporate and home Intranets. They add a new level of convenience for LAN users. PC users stay connected to the network anywhere throughout a building without being bound by a wire. This is accomplished through the use of a device known as the Access Point (AP). By making use of AP in the office, you can easily establish mobile network connections to the enterprise Intranet or Internet. Moreover, you can bring your WLAN PC Card home to make your home-networking dream come true! A home-dedicated AP, with built-in Internet gateway capability, allows your family to share a broadband Modem and one ISP account simultaneously with no excessive, tedious ties! Connected anywhere, at any time, your family will feel closer by the invisible magic of WLAN PC Card!

1.2 Product kits

When you first open the WLAN package, the package contains the following components:

◆ *ASUS WLAN PC card*

◆ *Quick installation guide*

◆ *Software driver, configuration utilities and electronic manual in a CD*

◆ *Warranty and registration card*

NOTE: If any of the listed products are not included or damaged, please immediately contact with your local dealer or our WLAN technical support department for replacement.

2. Installation

This chapter explains how to install the ASUS Wireless LAN PC Card. The product is designed to operate in Windows 98 and Windows Me. The sample here is based on Windows 98, and the installation procedure the same.

Do the following steps to install the ASUS Wireless LAN PC Card.

1. Install the software using the installation CD. The software includes the drivers for the PC Card and the ASUS software utilities.

2. Install the PC Card.

3. Install the TCP/IP protocol to communicate with your network.

2.1 Installing the Wireless LAN Card Utility/Driver

1. Insert the ASUS WLAN Card installation CD disc or double click the CD drive icon in My Computer, then the Setup program will then automatically start to guide you through the Setup process. If not, run **Setup.exe** in the root directory of your CD-ROM drive.

2. From the ASUS WLAN Card installer, select **Install ASUS WLAN Card Utility & Driver** to install all the drivers and utilities into your computer.

3. Just follow the on-screen instructions to complete the installation.

2.2 Installing the ASUS Wireless LAN PC Card

1. Hold the ASUS Wireless LAN PC Card such that the 68-pin connector is next to the PCMCIA Type II slot of your notebook with the printed label facing up. Insert PC Card into the slot in the computer and slide it in until it is firmly seated.

2. Windows automatically detects the PC Card insert into the slot, opens a New Hardware Found dialog and then starts collecting driver information. If you have installed the Wireless LAN Card Utility/Driver, Windows will find match driver for the PC Card to install, please go to step 6 to continue. Otherwise, Windows opens Add New Hardware Wizard dialog, the dialog states that Windows will search for new drivers for the PC Card. Click **Next**.

3. Select **Search for the best driver for your device** (Recommended) and then click **Next**.

4. Check the **CD-ROM driver**, uncheck all the other options, insert the ASUS WLAN Card installation CD disc, and then click **Next**.

5. Please wait while Windows system searches the device driver for the PC Card. It will display the search result "Windows driver file search for the device: ASUS Wireless LAN PC Card 2.5". Click **Next**.

6. During the installation, Windows will prompt to insert a "Windows 98 CD-ROM", which contains some driver files. Type the "Windows 98 CD-ROM" path and click **Yes**. Windows will start copying the necessary files.

7. When the installation procedure is completed, click **Finish**. You can use the ASUS WLAN Card utilities to configure your PC Card, please refer to Chapter 3.

ASUS Wireless LAN PC Card Antenna

The ASUS Wireless LAN PC Card has two integrated antennas, one external omni-directional antenna and another one build-in diversity antenna. We recommend

you to adjust the external antenna straight up for maximum range and higher link quality.

ASUS Wireless LAN PC Card LEDs

The upper panel consists of two LEDs that indicate the basic status of PC Card. See ① (LINK LED) and ② (AIR LED) in the figure below
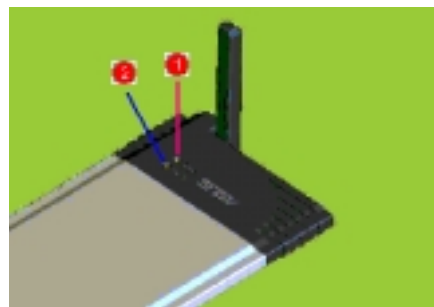
- The LINK LED is used to indicate the status of the system status. During initial stage of the system power on this LED will blink constantly, until a system ready has reached that this LED will keep on. If there are errors during the power on self-testing period, this LED will keep off to indicate error status.
- The AIR LED is used to indicate there are packets that are transmitting over the air.

2.3 Installing the TCP/IP Protocol

**To add TCP/IP Protocol in Network Properties**

1. Press the **Start** button on the Windows Taskbar. Move the pointer to **Settings**, and then click the **Control Panel**.

2. From the Control Panel window, double-click the **Network** icon.

3. Select the **Configuration** page. All network components that have been added to

windows system will appear in the list. Try to find the NIC with name "TCP/IP -> ASUS Wireless LAN PC Card 2.5". If you cannot find, continue the following steps.

4. Click the **Add**… button.

5. From the Network Component Type list, double-click **Protocol**.

6. Select **Microsoft** as the Manufacturers and **TCP/IP** for the Network Protocols, and then click **OK**.

To configure TCP/IP Settings

1. Select the NIC with name "TCP/IP -> ASUS Wireless LAN PC Card 2.5".

2. Click **Properties** button and select **IP Address** page on TCP/IP Properties window.
    -   If IP address can be automatically assigned to this computer, select "Obtain an IP address automatically" (left).
    -   If network does not automatically assign IP address, select "Specify an IP address" to type in IP address and Subnet Mask. If you want to route traffic through IP sharing mechanism in AP, you have to setup WLAN PC Card in the same Subnet as that of AP (right).
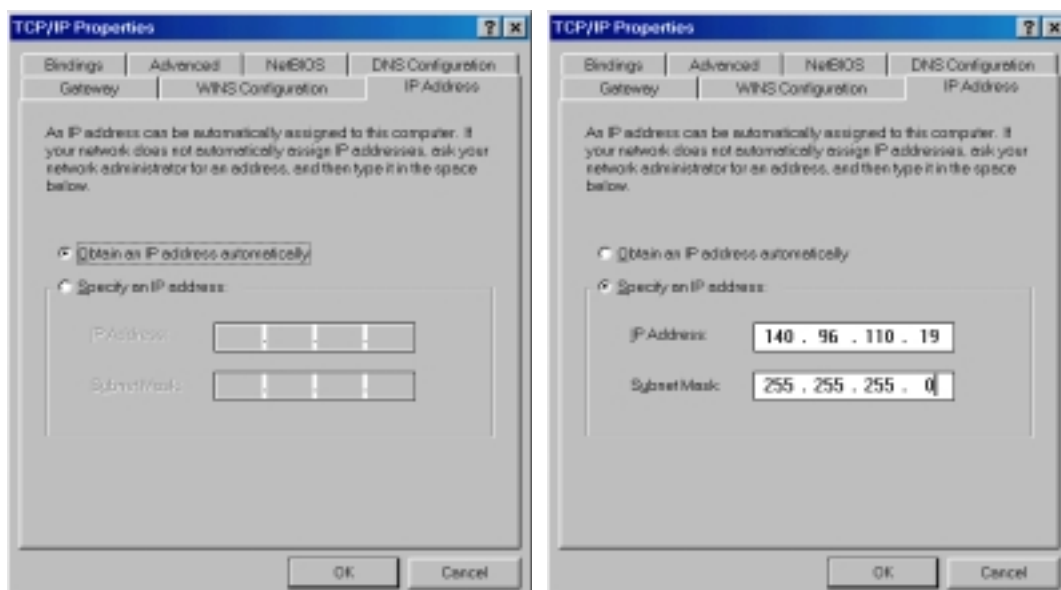
3. Choose the **Gateway** page. Setup IP gateway. If you want to route traffic through IP sharing mechanism in AP, you have to set the IP address of AP as your default gateway.

4. Choose the **DNS Configuration** page. Setup the DNS Configuration, then presses **OK**. You could get the DNS IP address from you ISP.

5. The windows system asks if restart computer now, press **Yes**. After restarting, the new settings would take effect.
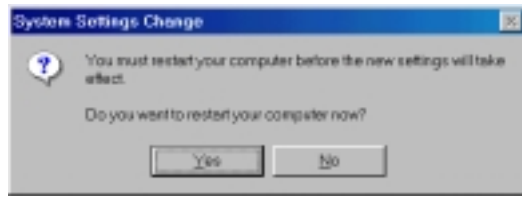
3. Software Reference

The ASUS Wireless LAN Card software includes four groups of utilities:

- **Control Center** – Makes it easy to launch applications and activate network location settings.

- **Wireless Settings** – Allows user to control the ASUS WLAN PC Card.

- **Mobile Manager** – A convenient tool to setup and manager network location settings.

- **Live Update** – Provide the on-line update PC Card's firmware and driver function.

3.1 Control Center

Control Center is an application that makes it easy to launch applications and activate network location settings. Control Center starts automatically when the system boots. Whenever Control Center is running, you will see an ASUS Control Center icon displayed on the Windows taskbar.
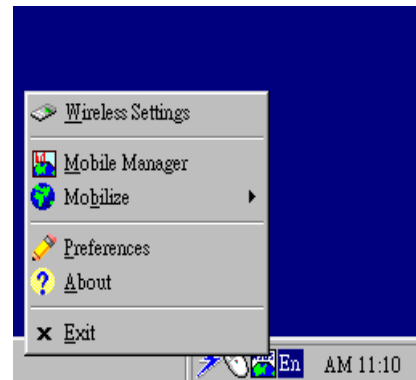
To start Control Center manually

ASUS Control Center icon

Do any of the following:

♦ Click the Windows **Start** button, point to **Programs**, point to **ASUS Wireless LAN Card**, and then click **Control Center**.

♦ Double click the ASUS Control Center icon on the desktop.

To use the Control Center icon:

1. The taskbar icons display the following information:

   - The link quality of ASUS Wireless LAN PC Card
   - Whether connect to Internet
   - Whether the modem is connected

Icon	Status
	Excellent link quality and connect to Internet (Infrastructure)

	Good link quality and connect to Internet (Infrastructure)
	Fair link quality and connect to Internet (Infrastructure)
	Poor link quality and connect to Internet (Infrastructure)
	Not linked but connect to Internet (Infrastructure)
	Excellent link quality but does not connect to Internet (Infrastructure)
	Good link quality but does not connect to Internet (Infrastructure)
	Fair link quality but does not connect to Internet (Infrastructure)
	Poor link quality but does not connect to Internet (Infrastructure)
	Not linked but does not connect to Internet (Infrastructure)
	Linked (Ad Hoc)
	Not Linked (Ad Hoc)
	Connect to Internet
	Using modem connect to Internet

2. Clicking or right-clicking this icon shows a menu composed of shortcuts of all wireless applications and other functions.

- *Wireless Settings* – Launches ASUS Wireless Settings application.
- *Mobile Manager* – Launches ASUS Mobile Manager application.
- *Mobilize* – Activates network location settings.
- *Preferences* – Customizes the way the ASUS Control Center program behaves. You can create a Control Center shortcut on the desktop. You can also set whether Control Center on the Windows startup.
- *Exit* – Closes the ASUS Control Center program.

3.2 Wireless Settings

ASUS Wireless Settings is an application that allows you to control your ASUS WLAN PC Card. Use Wireless Settings you can View/Modify the configuration settings and monitor the operational status of your PC Card. Once Wireless Settings is lunched, you can see the tabbed property sheet. This property sheet is composed of tabbed "pages", each with its own group of feature-specific settings.

To start Wireless Settings

Do any of the following:

♦   Open the Windows **Control Panel**, and then double-click the icon "**ASUS WLAN Card Settings**".

♦   Click the Windows **Start** button, point to **Programs**, point to **ASUS Wireless LAN Card**, and then click **Card Settings**.

♦   Click the **ASUS Control Center** icon on the Windows taskbar, a popup menu appears, and then click **Wireless Settings**.

3.2.1 General tab

You can view the information about the ASUS WLAN PC Card from the general menu. These fields are blank if PC Card does not exist.
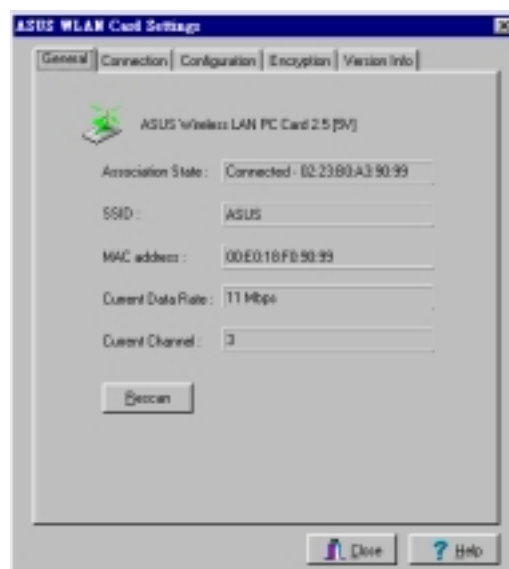
- **Association State**
  Shows the ASUS WLAN PC Card association status, the states include:
  Connected – Now Station associates with one wireless LAN device. Also, indicates the MAC address of this device.
  Scanning... – Now Station attempts to authenticate and associate with the desired Access Point.
  Disconnected – If the link is connected and no beacon received, then set adapter is no longer connected.
  INT_TEST_FAIL – Interrupt test failed.
  NOT_AVAILABLE – Cannot get PC Card status.

- **SSID**

  Shows the SSID that the ASUS WLAN PC Card is currently used.

- **MAC address**

  Indicates the hardware address of the ASUS WLAN PC Card. MAC address is a unique identifier for networking devices (typically written as twelve hexadecimal digits 0 through 9 and A through F, six hexadecimal numbers separated by colons, i.e. 00:01:24:F0:05:C0). This parameter is read-only and unique.

- **Current Data Rate**

  Shows the data rate in Mbit/s that the ASUS WLAN PC Card is currently used for message transmission.

- **Current Channel**

  Shows the radio channel that the ASUS WLAN PC Card is currently used.

- **Rescan**

  It is a button that controls PC Card to scan again for available networks. Then connect to one Access Point whose SSID matches yours or establish a new Ad Hoc network. This function will take a little time.

3.2.2 Connection tab

You can view the current link statistics about the ASUS WLAN PC Card. These statistics are updated once per second and are valid only if PC Card exists.

- **Throughput**

  Transmitted – The number of bytes in frames that were transmitted.

  Received – The number of bytes in frames that were received.

- **Frame Error**

  Transmitted – The number of frames that were not successfully transmitted.

  Received – The number of frames that were not successfully received.

- **Connection Quality**

  Link Quality – Reflects the quality level related to the Access Point the station is currently connected to. Ratings are Excellent, Good, Fair, and Poor.

  Signal Strength – Reflects the signal level related to the Access Point the station is currently connected to. Ratings are Excellent, Good, Fair, and Poor.

- **Overall Connection Quality**

  Derives from the current Link Quality and the current Signal Strength. A graph displays a connection quality range from 0 to 100 percent.

3.2.3 Configuration tab

Let you can change the configurations of the ASUS WLAN PC Card without rebooting your computer.

- **Network Type**

  Infrastructure – Select the Infrastructure mode to establish a connection with an Access Point. Your computer is able to access to the wireless LAN and wired LAN (Ethernet), via an associated access point. The *Channel* filed turns into Auto when Infrastructure is selected.

  Ad Hoc – Select the Ad Hoc mode to communicate directly with each other without using an Access Point. An Ad Hoc network is typically formed quickly and easily without pre-planning. For example, share meeting information

between networked computers in a convention room.

- **SSID**

  Using the SSID filed to configure the SSID setting for PC Card. You can enter a new SSID or select one from the drop-down list box. SSID stands for Service Set Identifier, which is a string used to identify a wireless LAN. You will only be able to connect with an Access Point, which has the same SSID. Use different SSIDs to segment the wireless LAN and add security.

  Note that the SSID must be all printable character string (case sensitivity) and up to 32 characters long, such as "ASUS WIRELESS LAN". Set the SSID to "any" if you wish to allow your station to connect to any IEEE 802.11 Infrastructure Network it can find.

- **Channel**

  Using the Channel filed to select the radio channel for PC Card. In infrastructure network, your PC Card will automatically select the correct frequency channel required to communicate with an Access Point, this parameter will be fixed in "Auto" and can't change it. In an Ad Hoc Network, you can decide channel number for the PC Card to operate. PC Cards can communicate in the network if each has the same frequency channel setting. The radio channels you may use depend on the regulations in your country. For United States (FCC) and Canada (IC), channels 1 to 11 are supported. For Europe (ETSI) except Spain and France, channels 1 to 13 are supported. For Spain channel 10 and 11 are supported. For France channels 10 to 13 are supported. For operation in Japan (MKK), channels 1 to 14 are supported.

- **Data Rate**

  Fully Auto – Automatic transmit data rate fallback to 1, 2, 5.5, or 11 megabits per second for communication with other devices.

  Auto 1 or 2 Mbps – The PC Card will tune to the most suitable transmission rate for use. The transmit data rate is either 1 Mbps or 2Mbps.

  11 Mbps – Fix transmit data rate to 11 megabits per second.

  5.5 Mbps – Fix transmit data rate to 5.5 megabits per second.

  2 Mbps – Fix transmit data rate to 2 megabits per second.

  1 Mbps – Fix transmit data rate to 1 megabits per second.

- **PS Mode**

  Using the PS Mode field to control PC Card's power saving settings. Uncheck the checkbox will be in fully powered state that yields the best performance. This mode is recommended for devices running on AC power. Check the checkbox will enable the power saving function. The stations will wake up periodically to

see if there is any data sending to them. This mode is recommended for devices running on battery power.

- **Others**

  WEP – Click on it to link to the Encryption tab.

  Advanced – Click on it to link to the Advanced tab. In most cases, the default values will not need to be changed.

- **Button**

  Undo – Change the current configurations to the current PC Card settings.

  Apply – Save and implement the current configurations to the PC Card.

  Restore Default – Restore the PC Card configurations to its defaults.

  Save as Default – Save the current configurations as defaults.

3.2.4 Encryption tab

Let you configure the ASUS WLAN PC Card Encryption settings. Eavesdropping is a serious problem, especially in wireless environment. For data confidentiality, IEEE 802.11 specifies a Wired Equivalent Privacy (WEP) algorithm to offer transmission privacy similar to wired network. The WEP uses keys to encrypt transmit data packets and decrypt received data packets can scramble frame bits to avoid disclosure to eavesdroppers.
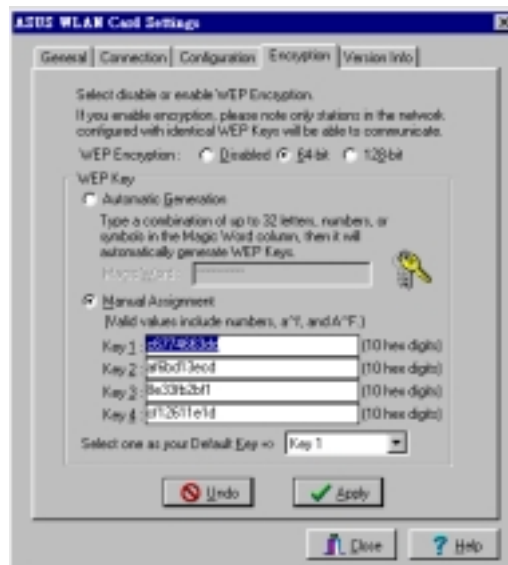
- **WEP Encryption**

  Select disable or enable (64-bit or 128-bit) WEP encryption. Note that if you enable WEP encryption, you will only connect (can associate, but no data transmission) with wireless devices that have the same WEP settings.

- **WEP Key**

    This option is enable only if you enable WEP Encryption. The WEP Key is a 64-bit (5 byte) or 128-bit (13 byte) Hexadecimal digit that is used to encrypt transmit data packets and decrypt received data packets.

    Default Key – Determines which entry in the default key table to use for transmitted packets.

    You have two ways to assign WEP keys.

    1. *Automatic Generation* – Type a combination of up to 32 letters, numbers, or symbols in the *Magic Word* column, then it will automatically generate four WEP Keys.

    NOTE: This function ease users to remember their key as password and compatible to some existing WLAN utility, but it is **un-secure**! Uses below manual assignment method will more safe from air peeper.

    2. *Manual Assignment* – Manually types WEP Keys. When 64-bit encryption is selected, you are required to enter four WEP Keys. Each Key contains 10 hex digits (0~9, a~f, and A~F). When 128-bit encryption is selected, you are required to enter four WEP Keys. Each Key contains 26 hex digits (0~9, a~f, and A~F).

- **Button**

    Undo – Change the current configurations to the current PC Card settings.

    Apply – Save and implement the current configurations to the PC Card.

3.2.5 Advanced tab

Advanced tab provides some advanced settings for the ASUS WLAN PC Card.

- **RTS Threshold**

  Define the size packet that the station used for RTS/CTS handshake boundary. Be aware that setting the minimum size packet too small causes RTS packets to be sent more often, adding excessive overhead to the network, therefore decreasing network utilization. However, the more often RTS packets are sent, the more transmission collisions can avoid. That's trade-off. RTS Threshold ranged from 0 to 2432 steps 64.

- **Fragmentation Threshold**

  Define the number of bytes used for fragmentation boundary. If the length of the data unit exceeds this parameter, it will be divided into smaller fragments for transmission. Each of the fragments is sent independently. If there is a significant interference present, set the fragment size smaller. Otherwise, set the fragment size larger. Because send multiple frames lead to overhead on the network. Fragmentation Threshold ranged from 256 to 2432 steps 128.

- **Authentication Algorithm**

  Because there is no precise bound in wireless LAN, it needs to implement another mechanism to provide higher level of security, that's Authentication services. If a mutual authentication relationship has not been established between stations and Access Point, an association cannot be established.

  Automatic based on WEP setting – Switch the authentication mode based upon the PC Card is using WEP encryption or not.

  Must be Shared with WEP – In a Share Key Authentication system, it requires four-step exchange of frames to validate that the station is using the same WEP Key as the Access Point. Use this Authentication mechanism requires implementation of the WEP option.

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WECA Compliant (always use Open) – It's a null authentication algorithm. A station can authenticate with any other station or Access Point and without checking any WEP Key, if one even exists.

- **Maximum Listen Interval**

  This value is used to indicate how often a station will wake to listen to Beacon management frames. Listen Interval ranged from 0 to 77 steps 1.

- **Preamble Mode**

  This parameter is used to control whether frames will transmit with the Long or Short Preamble. An Auto state will cause management and multicast/broadcast frames to go out with long preambles and unicast frames to use short preambles.

- **Button**

  Undo – Change the current configurations to the current PC Card settings.

  Apply – Save and implement the current configurations to the PC Card.

  Restore Default – Restore the PC Card configurations to its defaults.

  Save as Default – Save the current configurations as defaults.

NOTE: This page is for advanced users; please do not attempt to try this if you are not confident with these settings.

3.2.6 Version Info tab

Use the Version Info tab to view program and PC Card version information.
The program version information field includes the Copyright and utility version. The PC Card version information field includes the adapter driver version, hardware version, and firmware version. User can use this information to determine whether PC Cards need to upgrade firmware to a new version.

To Exit Wireless Settings

To exit Wireless Settings, you can click the Close button or press Esc (the escape key). This utility may be closed at any time and from any tab. If you did not save the PC Card configuration settings, you will be prompted to do so.

3.3 Mobile Manager

ASUS Mobile Manager is a convenient tool to setup and manager network location settings. Mobile Manager lets users configure multiple alternative configurations for different locations. You just need to set once, and then easily mobilize a configuration with a push of a button when you change location. Mobile Manager would determine whether or not the new settings would require rebooting Windows to take effect.

To start Mobile Manager

Do any of the following:

♦ Click the Windows **Start** button, point to **Programs**, point to **ASUS Wireless LAN Card**, and then click **Mobile Manager**.

♦ Click the **ASUS Control Center** icon on the Windows taskbar, a popup menu appears, and then click **Mobile Manager**.

Quick start guide to use Mobile Manager

1. The first time you launch the Mobile Manager utility, it will automatically generate configurations that stores the current settings of all installed network devices in your system.

2. Change the name of the configuration to a descriptive name like "OFFICE-conference room" or "HOME-ADSL".

3. On the *File* menu, click *New Configuration*, the New Configuration Wizard dialog appears. Follow the on-screen instructions to create your own location configurations.

4. After you have created configurations, you can see them in the main window.

5. Select the configuration you want to use. Click on the *Mobilize* menu. Then your system is ready for the network settings according to that selected configuration.

3.3.1 Main Window

You can use the Mobile Manager utility main window to create a new configuration, edit a configuration or activate a configuration. The main window includes a menu bar, toolbar, and a list view for showing existing configurations.
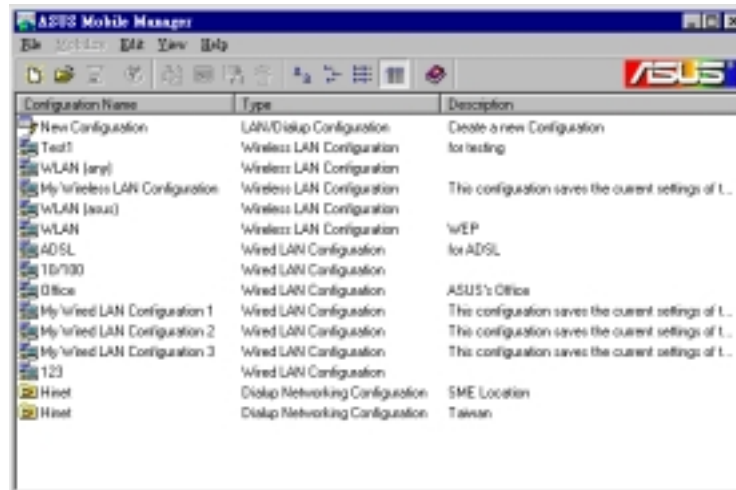
Using menu bar and toolbar

The following topics show the commands available from each menu on the Mobile Manager menu bar. If no configuration is selected, some commands will be grayed out and inaccessible.

The toolbar contains buttons for many of the most commonly used commands in Mobile Manager. It allows quick access to some of the most useful features of Mobile Manager. All the buttons are also available from the menu.

- **File Menu**

  New Configuration   Select New Configuration in the File menu to open a New Configuration Wizard dialog. Use the New Configuration Wizard dialog to create a new configuration. See Using New Configuration Wizard for details on this command.

  Import Configuration   Load a configuration from an INI File.

  Export Configuration   Save the selected configuration to an INI File.

  Exit   Close the Mobile Manager utility.

- **Mobilize Menu** 🌐

  Click *Mobilize menu* to let one configuration that you selected from the list view take effect. You may be prompted to restart Windows depend on the settings you changed, please follow the instructions on screen.

- **Edit Menu** All these commands are also available from the context menu that appears when you right-click with a configuration in the Mobile Manager window.

Edit Configuration	📇	Select Edit Configuration in the Edit menu to open an Edit Configuration dialog. Use the Edit Configuration dialog to edit the selected configuration. See Using Edit Configuration for details on this command.
Rename	🖼	Change the name of the selected configuration.
Copy	📋	Duplicate the selected configuration.
Delete	🗑	Discard the selected configuration.

- **View Menu**

Large Icons		Displays large icons for each configuration.
Small Icons		Displays small icons for each configuration.
List		Shows the configuration names in a list.
Details		The Detailed view expands this list to include information about the configurations. The information includes configuration name, type, and description.

- **Help Menu**

Contents	📙	Displays the WinHelp contents window (the one you are reading now) for online Help.
About Mobile Manager		Displays the version number and copyright information for Mobile Manager. Click on the logo image, you will connect to the Websites of ASUS.

3.3.2 Using New Configuration Wizard

Create a new configuration

Create a new configuration if you are in a specific location that does not have an existing configuration defined. Use the New Configuration Wizard to create a configuration in a few easy steps.

1. Do one of the following:

    - On the *File menu*, click *New Configuration*.

    - Double-click *New Configuration* on the Main window.

    Then the New Configuration Wizard dialog starts.

2. Choose the type of configuration that you want to create and click Next.

    - Wireless Local Area Network Configuration: You must have an ASUS WLAN PC Card installed on your PC.

    - Wired Local Area Network Configuration: You must have a NIC except ASUS WLAN PC Card installed on your PC.

    - Dialup Networking Configuration: You must have a modem installed on your PC.

3. Enter the name and description you want to use for this configuration in the Name and description field. And Click Next.

4. Follow the on-screen instructions, it guides you through the process of specifying the settings in your configuration. The Wizard reads the current system settings (TCP/IP, NT Domain, Proxy, File and Printer Sharing) and displays it. Depend on your create configuration, you can set the following groups of settings:

    - Wireless settings (for Wireless Configuration)

    - Network settings (for Wireless/Wired Configuration)

    - TCP/IP settings (for Wireless/Wired Configuration)

    - Dialing settings (for Dialup Configuration)

    - Dialup Networking settings (for Dialup Configuration)

    - Internet settings (for Wireless/Wired/Dialup Configuration)

    - Sharing settings (for Wireless/Wired/Dialup Configuration)

    See Using Edit Configuration for details information.

5. Enter the appropriate information in the wizard. After specifying the appropriate

information on each page, click Next to continue.

6. On the final window of the New Configuration Wizard, the Next button would become to Finish button.

    - If you do not want to use this new configuration now, click Finish, and then the new configuration will be saved. You can see it appears in Mobile Manager main window.

    - If you want to use this new configuration now, click Mobilize.

3.3.3 Using Edit Configuration

Edit an existing configuration

Edit a configuration if you want to view or change dialup or LAN settings.

1. Do one of the following:

    - On the *Edit menu*, click *Edit Configuration*.

    - Double-click one existing configuration on the Main window.

    Then the Edit Configuration dialog starts.

2. The Edit Configuration dialog contains various settings, which you select by clicking the buttons at the left of the window. Each setting is described below.

    General settings

    - *Name* – This field is mandatory, and used for indicating the location from which you are dialing or connecting to the network. For example, if this is used for conference room at your office, you can name like "OFFICE-conference room". If it is used for home on your ADSL, you can name like "HOME-ADSL".

    - *Description* – This field is optional, you can use it to provide more details about this configuration.

    Network settings

    Network settings include two tabs: Identification and Microsoft Networking.

    Identification

- *Computer name* – Give your computer a unique name of up to 15 characters. The computer name is the name that computers on your network will see your computer as. It's generally the same as the DNS hostname, for example, "S82000W".

- *Workgroup* – Type an existing workgroup name or create a new workgroup by typing a new name that contains up to 15 characters. Use it to identify the group of computer that your computer is in.

- *Computer Description* – This information is displayed as a comment next to the computer name when users are browsing the network while viewing it in Details mode. Use it to describe your computer, for example, your name, or location.

Microsoft Networking

- *Logon validation* – Specify how Windows 9x clients connect to a Windows NT Server Domain at this location. Check *Log on to Windows NT domain* box if you are using a Windows NT Server in domain controller mode. And then enter the Window NT server domain name in *Window NT domain* field.

- *Network logon options* – Specify how Windows 9x clients try to logon. Select *Quick logon* to wait until the shared network drives is actually used to attempt the login. Select *Logon and restore network connections* to logon to all shared network drives when the user logs into Windows.

Wireless settings

- **Network Type**
  Infrastructure – Select the Infrastructure mode to establish a connection with an Access Point.
  Ad Hoc – Select the Ad Hoc mode to communicate directly with each other without using an Access Point.

- **SSID**
  Using the SSID filed to configure the SSID setting for PC Card. SSID stands for Service Set Identifier, which is a string used to identify a wireless LAN. You will only be able to connect with an Access Point, which has the same SSID. Use different SSIDs to segment the wireless LAN and add security.
  Note that the SSID must be all printable character string (case sensitivity) and up to 32 characters long, such as "ASUS WIRELESS LAN". Set the SSID to "any" if you wish to allow your station to connect to any IEEE

802.11 Infrastructure Network it can find.

- **Channel**

  Using the Channel filed to select the radio channel for PC Card. In infrastructure network, your PC Card will automatically select the correct frequency channel required to communicate with an Access Point, this parameter will be fixed in "Auto" and can't change it. In an Ad Hoc Network, you can decide channel number for the PC Card to operate. PC Cards can communicate in the network if each has the same frequency channel setting.

- **Data Rate**

  Fully Auto – Automatic transmit data rate fallback to 1, 2, 5.5, or 11 megabits per second for communication with other devices.

  Auto 1 or 2 Mbps – The PC Card will tune to the most suitable transmission rate for use. The transmit data rate is either 1 Mbps or 2Mbps.

  11 Mbps – Fix transmit data rate to 11 megabits per second.

  5.5 Mbps – Fix transmit data rate to 5.5 megabits per second.

  2 Mbps – Fix transmit data rate to 2 megabits per second.

  1 Mbps – Fix transmit data rate to 1 megabits per second.

- **WEP**

  Select disable or enable (64-bit or 128-bit) WEP encryption. The *WEP Key* is a 64-bit (5 byte) or 128-bit (13 byte) Hexadecimal digit that is used to encrypt transmit data packets and decrypt received data packets.

TCP/IP settings

TCP/IP settings include five tabs: Device, IP Address, Gateway, DNS, and WINS.

Device

Choose the network adapter that you want to use for this configuration.

IP Address

- *Obtain an IP address from a DHCP server* – Dynamic host configuration protocol (DHCP) server assigns IP addresses automatically within a specified range to devices.

- *Specify an IP address* – Ask for your network administrator to determine which IP address and subnet mask you will use. Type in the IP Address and Subnet Mask fields manually.

Gateway

Specify the gateways. There can be more than one specified. Set up the primary gateway first.

- Add a gateway. Type the IP address of the gateway in the **New Gateway** field and then click **Add**. The gateway you specified appears in the **Installed Gateways** list. Repeat to specify another gateways. The value in each field must be a number between 0~255. You can have up to eight IP addresses for gateways.

- Remove a gateway. Select the gateway from the **Installed Gateways** list and click **Remove**.

DNS

Select Enable or Disable DNS. If you enable DNS, fill the following parameters.

- *Host* – Enter the name of your computer. That is used to identifier the computer on the Internet. The hostname is generally the same as the Microsoft networking computer name, for example, "S82000W".

- *Domain* – Enter the TCP/IP domain name for your network. The full domain name consists of one or more names that are separated by dots, for example, "asus.com".

- *DNS Server Search Order* – Specify the DNS Servers in the desired order to search for DNS information.

- *Domain Suffix Search Order* – Add any domain suffixes that may be valid attached to the end of Internet domain name.

WINS

Specify the WINS server. There can be more than one specified. Set up the primary WINS server first.

- *Disable WINS Resolution* – Do not use WINS resolution.

- *Enable WINS Resolution* – Use WINS resolution. Specify the IP addresses of the WINS servers in the desired search order. *Scope ID* is used when NetBIOS over TCP/IP is enabling on the workstations. If this protocol has been enabled, then every workstation group must have the same Scope ID for those computers to communicate within the group. The Scope ID is usually left blank.

- *Use DHCP for WINS Resolution* – If a DHCP server is available that is configured to provide information on available WINS servers.

Dialing settings

Specify how the call will be dialed. This is useful if you want to change the call to a calling card, use your computer from different locations, or add a dial prefix, country code, or area code automatically.

Dialup Networking settings

Dialup Networking settings include four tabs: Device, Phone Number, Server Type, and TCP/IP.

Device

Choose the modem you want to use by Dial-Up Networking to connect to another computer for this connection.

Phone Number

Specify area code, telephone number, and country code for this connection. Clear the *Use area code and Dialing Properties* checkbox, if you want to ignore area code and dialing settings.

Server Type

- *Type of Dial-Up Server* – Select the server type for this connection.

- *Advanced options*

  Select *Log on to network* checkbox to specify that Dial-Up Networking will attempt to log on to the network you are connecting to, using the user name and password you typed when you logged on to Windows 98.

  Select *Enable software compression* checkbox to specify whether incoming or outgoing information is compressed before it is sent. This is useful to speed up the transfer of information. Compression occurs only if both computers are using compatible compression.

  Select *Require encrypted password* checkbox to specify that only encrypted passwords can be sent to or accepted by your computer. This is useful if you need additional security for this connection. If you are dialing out type your password in regular form. Your computer encrypts it for you. The computer you are connecting to must support encrypted passwords for this option to take effect.

- *Allowed network protocols* – Specifies the network protocols that your

computer can use.

Select *NetBEUI* protocol to connect to Windows NT, Windows for Workgroups, or LAN Manager servers.

Select *IPX/SPX Compatible* protocol to connect to Netware and Windows NT servers and Windows 98 computers.

Select *TCP/IP* protocol to connect to Internet and wide-area networks.

TCP/IP

- *Server assigned IP address* – Specifies whether Dialup Networking accepts an IP address from a ppp server. If the ppp server does not offer an IP address, the IP address specified for TCP/IP Dial-Up Adapter in the Network dialog box is used.
  Specify an IP address – Provides a space for you to type the preferred IP address for this connection. Dial-Up Networking tries to use this address first.

- *Server assigned name server addresses* – Specifies whether Dial-Up Networking accepts a DNS and WINS server addresses from a ppp server. If the ppp server does not offer DNS and WINS addresses, DNS and WINS server addresses specified for TCP/IP Dial-Up Adapter in the Network dialog box are used.

  Specify name server addresses – Provides a space for you to type one or two DNS and WINS server addresses for this connection only. Dial-Up Networking tries to use these addresses first.

- *Use IP header compression* – Specifies whether Dial-Up Networking uses IP header compression for this connection. IP header compression optimizes data transfer between computers.

- *Use default gateway on remote network* – Specifies whether IP traffic is routed to the WAN connection by default.

Internet settings

A proxy server acts as a security barrier between your internal network (intranet) and the Internet, keeping other people on the Internet from gaining access to confidential information on your internal network or your computer.

- *Disable Proxy Server* – Do not use proxy server.

- *Enable Proxy Server* – Use the Proxy server to gain access to the Internet.

- *Use the same proxy server for all protocols* – Specifies whether you want to use the same proxy server to gain access to the Internet using all protocols.

- *Servers* – Provides spaces for you to type the address and port number of the proxy server you want to use to gain access to the Internet over HTTP, Secure, FTP, Gopher, and Socks protocol.

- **Exceptions**

  Do not use proxy server for address beginning with – Provides a space for you to type the Web addresses that do not need to be accessed through your proxy server. If you want to connect to a computer on your Intranet, make sure you type its address in this box. You can use wild cards to match domain and host names or addresses, for example, "*.asus.com", "192.72.159.*".

  Bypass proxy server for local addresses – Specifies whether you want to use the proxy server for all local (Intranet) addresses. You might be able to gain access to local addresses easier and faster if you do not use the proxy server.

Sharing settings

- *I want to be able to give others access to my files* – Turn file sharing on or off. File sharing enables people using other computers to read or modify files you share on your computer.

- *I want to be able to allow others to print to my printer(s)* – Turn printer sharing on or off. Printer sharing enables people using other computers to printer their files on your printers.

3. Click **Save** button to save all the changes you have made without closing the Edit Configuration dialog box.

   Click **Cancel** button to close the Edit Configuration dialog box without saving any changes you have made.

   Click **Close** button to close the Edit Configuration dialog box and saves any changes you have made.

3.4 Live Update

The ASUS Live Update is a utility that allows you to update your WLAN Card's firmware and drivers. The use of this utility assumes that you are properly connected

to Internet through an Internet Service Provide (ISP).

1. Insert the CD installation disc into your CD-ROM drive or double-click the CD drive icon in My Computer to bring up the autorun screen or run **Setup.exe** in the root directory of your CD-ROM drive.
   When the **Main menu** appears, click Run **ASUS Live Update**.
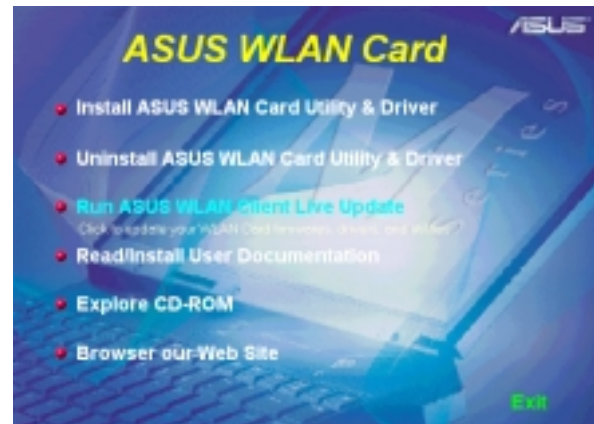
2. Select an update method form the drop-down list box.

   - *Update Firmware/Driver from the Internet* lets you update PC Card's firmware or driver from the Internet. The updating (running the flash utility or the installation program) will be done automatically.

   - *Update Firmware/Driver from the Disk* lets you specify the update firmware or driver file form the disk. Then the updating (running the flash utility or the installation program) will be done automatically.

   - *Download Firmware/Driver from the Internet* lets you download the firmware or driver to a folder in your computer.

3. After you have selected your preferred update method is update or download form the Internet, you need to set proxy server. When you set done, click **Next**.

   - *Proxy Setup* – If checked, Live Update connects to the proxy server using the information specified in the **Address** and **Port** text boxes. Consult your network administrator for specific address and port settings for your proxy server.

4. Follow any on-screen instructions or prompts to complete setup.

   If you already have the latest revision of your PC Card's firmware files or driver files, Live Update reports that no update is necessary.

   When Live Update starts the firmware upgrade, a warning message that incorrect

upgrade program will cause your PC Card unfunctional appears. You can cancel the update process at this point. A message displays advising users that the update process has started. Please do not turn the PC off until the upgrade has completed. The upgrade will take approximately 30 seconds. A subsequent message states whether the update was successful.

4. Troubleshooting

The below troubleshooting guides provide answers to some of the more common problems, which you may encounter while installing and using ASUS Wireless LAN PC Card products. If problems not mentioned in this section, please contact our Wireless LAN Technical Support Department.

Verify if the PC Card is installed correctly.

When the PC Card setup task is complete, you can verify if the driver has been set properly. Right click **My Computer**, select **Properties**, and click the **Device Manager** tab. Then double-click the **Network adapters** icon; you should see the ASUS Wireless LAN PC Card 2.5 string installed in your system.

There is a yellow exclamation mark or a yellow question mark in Device Manager in front of my ASUS Wireless LAN PC Card.

A. To resolve the problem, you should update the device driver. In **Device Manager** screen, right click ASUS Wireless LAN PC Card 2.5, select **Properties**, and select **Driver** tab. Click on **Update Driver** button, then follow the Update Device Driver Wizard to complete the driver installation. In addition, you may be able to resolve this issue by reinstalling the driver. Choose ASUS Wireless LAN PC Card 2.5, click **Remove** button in Device Manager, and then running the **Add New Hardware Wizard** from **Control Panel**.

Cannot connect to Access Point

Follow the procedure below to configure your PC Card.
   a.   Verify that the Network Type is in Infrastructure mode.
   b.   Verify that the SSID of PC Card is set to "any" or matches the SSID of Access Point.
   c.   Verify that the Encryption type is the same as that of Access Point. If enable WEP encryption, you must also set the same WEP Keys on both side.

Cannot connect to Station (Wireless LAN Card)

Follow the procedure below to configure your PC Card.
   a.   Verify that the Network Type is in Ad Hoc mode.
   b.   Verify that the SSID of PC Card is set to "any" or matches the SSID of station.
   c.   Verify that the channel of WLAN PC Card is "Auto" or the same as that of station.
   d.   Verify that the Encryption type is the same as that of station. If enable WEP

encryption, you must also set the same WEP Keys.

Bad link quality or signal strength

There are two possible reasons. First is radio interference, keep the environment around the PC Card away from microwave oven and large metal objects. Then try to reorient the PC Card antenna. Second is the distance, decrease the distance between your PC Card and Access Point (or another Cards).

5. Glossary

Access Point (AP)
An internetworking device that seamlessly connects wired and wireless networks. Access Points combined with a distributed system support the creation of multiple radio cells that enable roaming throughout a facility.

Ad Hoc
A wireless network composed solely of stations within mutual communication range of each other (no Access Point).

Basic Service Area (BSS)
A set of stations controlled by a single coordination function.

Channel
An instance of medium use for the purpose of passing protocol data units that may be used simultaneously, in the same volume of space, with other instances of medium use (on other channels) by other instances of the same physical layer, with an acceptably low frame error ratio due to mutual interference.

Extended Service Set (ESS)
A set of one or more interconnected basic service set (BSSs) and integrated local area networks (LANs) can be configured as an Extended Service Set.

Ethernet
The most widely used LAN access method, which is defined by the IEEE 802.3 standard. Ethernet is normally a shared media LAN meaning all devices on the network segment share total bandwidth. Ethernet networks operate at 10Mbps using CSMA/CD to run over 10-BaseT cables.

Gateway
A network component that acts as an entrance to another network.

IEEE 802.11
IEEE 802.xx is a set of specifications for LANs from the Institute of Electrical and Electronic Engineers (IEEE). Most wired networks conform to 802.3, the specification for CSMA/CD based Ethernet networks or 802.5, the specification for

token ring networks. 802.11 defines the standard for wireless LANs encompassing three incompatible (non-interoperable) technologies: Frequency Hopping Spread Spectrum (FHSS), Direct Sequence Spread Spectrum (DSSS), and Infrared. 802.11 specifies a carrier sense media access control and physical layer specifications for 1 and 2 Mbps wireless LANs.

IEEE 802.11b

802.11b specifies a carrier sense media access control and physical layer specifications for 5.5 and 11 Mbps wireless LANs.

Infrastructure

A wireless network centered about an access point. In this environment, the access point not only provides communication with the wired network but also mediates wireless network traffic in the immediate neighborhood.

IP (Internet Protocol)

The TCP/IP standard protocol that defines the IP datagram as the unit of information passed across an Internet and provides the basis for connectionless packet delivery service. IP includes the ICMP control and error message protocol as an integral part. It provides the functional equivalent of ISO OSI Network Services.

IP Address

An IP address is a 32-bit number that identifies each sender or receiver of information that is sent across the Internet. An IP address has two parts: the identifier of a particular network on the Internet and an identifier of the particular device (which can be a server or a workstation) within that network.

ISM Bands (Industrial, Scientific, and Medicine Bands)

Radio frequency bands that the Federal Communications Commission (FCC) authorized for wireless LANs. The ISM bands are located at 902 MHz, 2.400 GHz, and 5.7 GHz.

ISP (Internet Service Provider)

An organization that provides access to the Internet. Small ISPs provide service via modem and ISDN while the larger ones also offer private line hookups (T1, fractional T1, etc.).

LAN (Local Area Network)

A communications network that serves users within a defined geographical area. The benefits include the sharing of Internet access, files and equipment like printers and storage devices. Special network cabling (10 BaseT) is often used to connect the PCs together.

NIC (Network Interface Card)

A network adapter inserted into a computer so that the computer can be connected to a network. It is responsible for converting data from stored in the computer to the form transmitted or received.

Packet

A basic message unit for communication across a network. A packet usually includes routing information, data, and sometimes error detection information.

PCMCIA (Personal Computer Memory Card International Association)

The Personal Computer Memory Card International Association (PCMCIA), develops standards for PC cards, formerly known as PCMCIA cards. These cards are available in three types, and are have about the same length and width as credit cards. However, the different width of the cards ranges in thickness from 3.3 mm (Type I) to 5.0 mm (Type II) to 10.5 mm (Type III). These cards can be used for various functions, including memory storage, landline modems and wireless modems.

Radio Frequency (RF) Terms: GHz, MHz, Hz

The international unit for measuring frequency is Hertz (Hz), equivalent to the older unit of cycles per second. One megahertz (MHz) is one million Hertz. One gigahertz (GHz) is one billion Hertz. The standard US electrical power frequency is 60 Hz, the AM broadcast radio frequency band is 0.55-1.6 MHz, the FM broadcast radio frequency band is 88-108 MHz, and wireless 802.11 LANs operate at 2.4 GHz.

SSID (Service Set ID)

SSID is a group name shared by every member of a wireless network. Only client PCs with the same SSID are allowed to establish a connection.

Station

Any device contains 802.11 conformant wireless medium access ability.

TCP (Transmission Control Protocol)

The standard transport level protocol that provides the full duplex, stream service on

which many application protocols depend. TCP allows a process or one machine to send a stream of data to a process on another. Software implementing TCP usually resides in the operating system and uses the IP to transmit information across the network.