WaveCast

Wireless LAN PCMCIA Card

User's Guide

MMC Technology

The specifications and information herein are subject to change without notice. Please download the latest driver software or manual free of charge from the MMC Technology, Inc. homepage at http://www.mmctech.com.

WaveCast PCMCIA LAN Card is approved by the MIC (Ministry of Information and Communication) of Korea.

Points of contact:
MMC Technology, Inc.
E-mail: webmaster@mmctech.com
Homepage: http://www.mmctech.com

Table of Contents

Precautions

Before using WaveCast Products, please carefully read cautions described below to ensure proper operation.

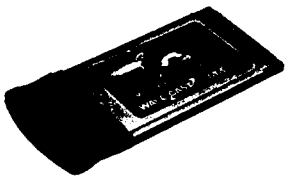
- To prevent the risk of losing data saved on PC during installation of the WaveCast wireless LAN card, please backup important files before installation.
- Do not open the case or modify its contents. Seek the help of an authorized professional if some problem occurs with WaveCast products.
- WaveCast wireless LAN card and other wireless devices may cause interference on each other and as a result the WaveCast product's performance may be affected.
- Moving the PC during data transfer may damage the data being transferred.
- Make sure to stop all wireless data transfer prior to removing WaveCast products from the PC in order to avoid damage to transferred data, PC or WaveCast wireless LAN card.
- Please make sure WaveCast wireless LAN products will not cause hazards to other local equipment prior to operating in hospitals, airplanes, etc. or other locations susceptible to interference.
- Do not expose WaveCast wireless LAN cards to dangerous environments like flames, chemicals or explosives, which may damage the WaveCast wireless LAN products.
- Unplug power and telephone cables from PCs and WaveCast wireless LAN products during severe thunderstorms or lightning.

2. Before Installation

Package Contents

Unpack and confirm that the following contents (in addition to this User's Guide) are included:

- WaveCast MW311P PCMCIA Card (1 ea.)
- Driver and Utility CD (1 ea.)
- Quick Installation Guide (1 ea.)



MW311P PCMCIA Card

Driver and Utility CD

Quick Installation Guide

Check Information

Ask your system administrator for the following information, which you may need to provide during driver installation:

- Your Wireless SSID
- Your IP address, gateway address, and subnet mask if you're not using a DHCP server.

To use the WaveCast PCMCIA card with a computing device, the device must be equipped with an internal or external PCMCIA Card Type II slot.

You must have all drivers and supporting software for the WaveCast PCMCIA Card (please visit our website for the latest drivers and supporting software).

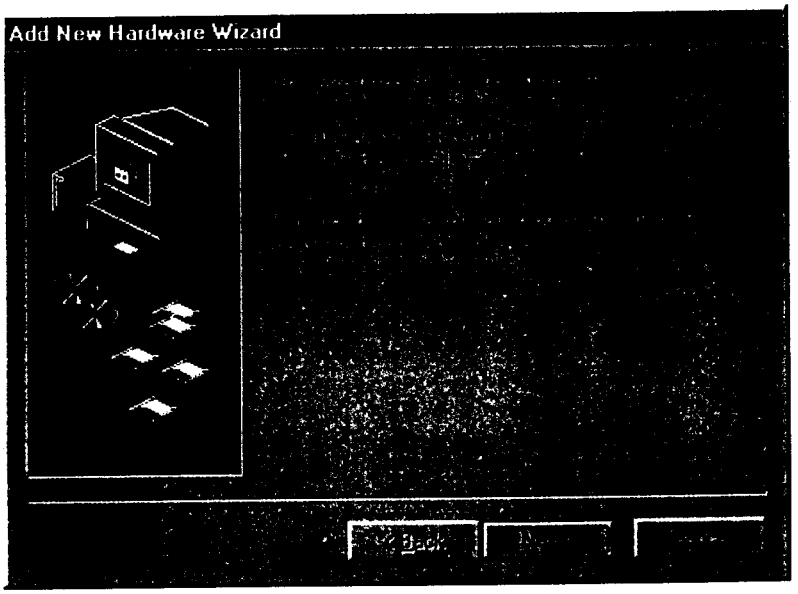
Original OS (e.g. Windows 98SE) installation CD is required to set up the network environment.

3. Installation

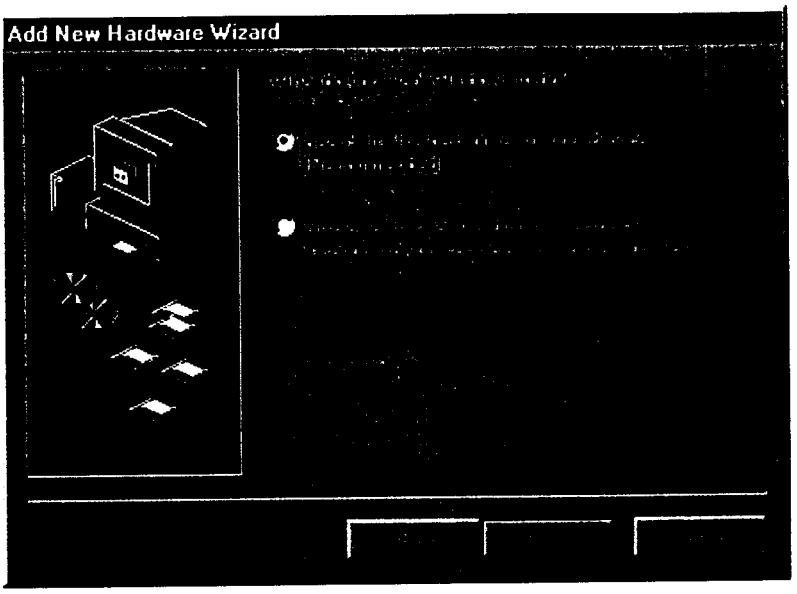
This section describes the procedures for installing the WaveCast MW311P PC Card under the Windows 98 SE operating system and the CD-ROM drive is assumed to be D:.

3.1. Installing the WaveCast MW311P PCMCIA Card

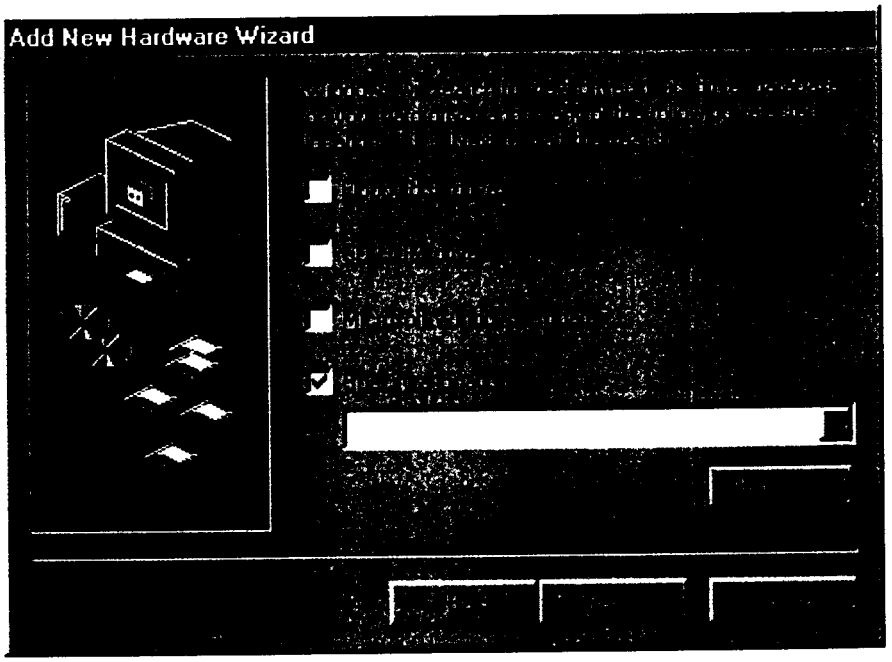
Step 1. Hold the WaveCast MW311P PCMCIA card with the logo facing up and insert it into the Type II or Type III slot of your computing device, applying just enough pressure to make sure it is fully seated. Windows 98 automatically detects the PCMCIA card, briefly opens a New Hardware Found window, and starts collecting information for a driver information database. When Windows 98 is ready to configure the new hardware, it opens the **Add New Hardware Wizard** dialog box as shown, Click **Next.**



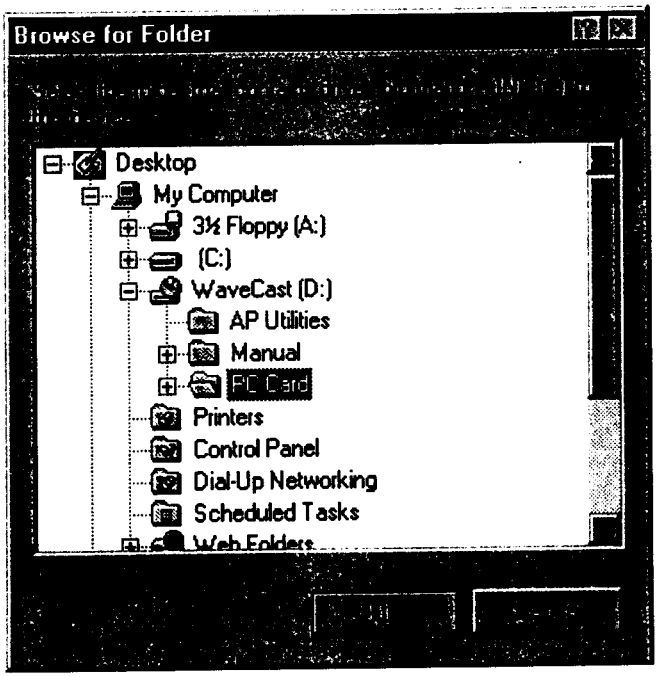
Step 2. A dialog box appears asking what you want Windows to do. Select **Search for the best driver for your device (recommended)** and click **Next.**


Add New Hardware Wizard

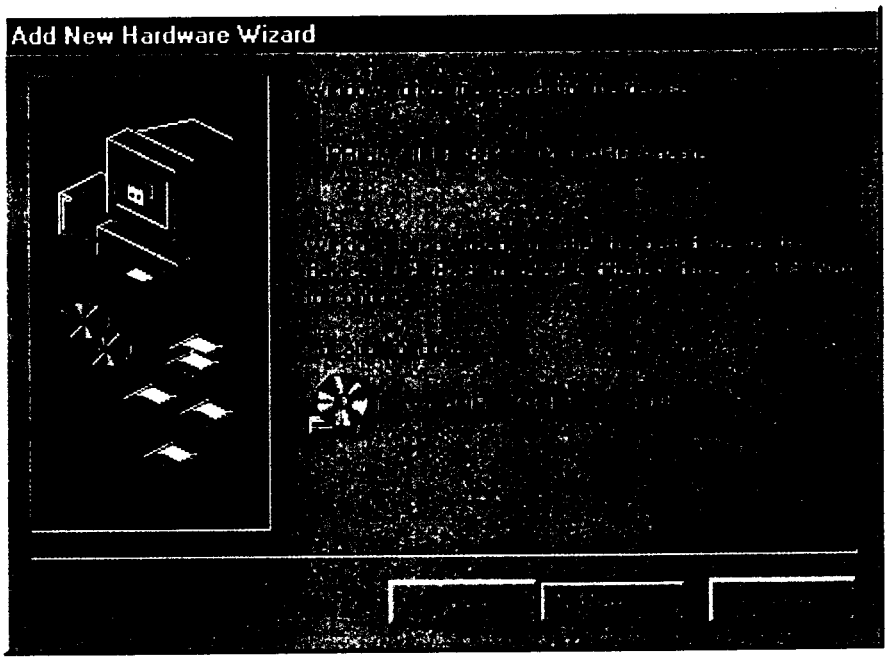
Step 3. Select **Specify a location**, insert the WaveCast Driver and Utility CD, and click **Browse** to select the "PC Card" folder from CD Drive.



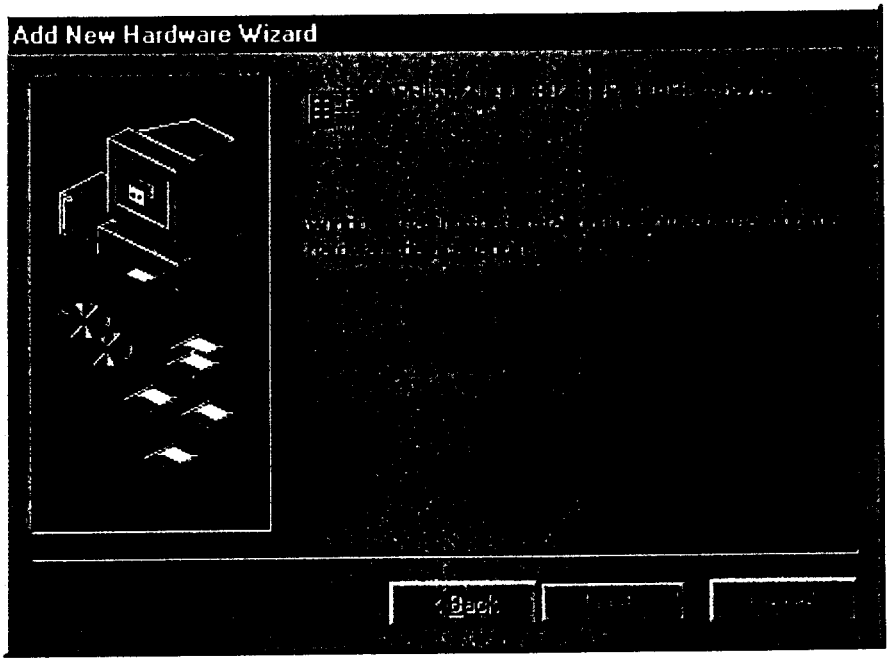
Step 4. Select the folder that contains the driver (D:\PC Card\), then click **OK** to return to the previous menu and click **Next**.



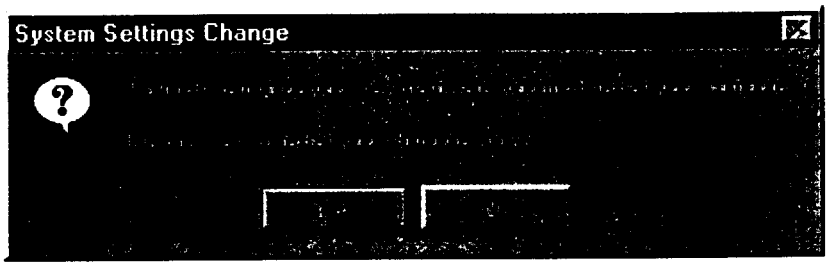
Step 5. After the hardware wizard finds the installation files in the software CD, it displays the search results: "Windows driver file search for the device: PRISM2 IEEE 802.11 PC CARD Adapter." Click **Next** to copy the required files.



Step 6. The **Add New Hardware Wizard** window appears stating that Windows has finished installing the software that your new hardware device requires. Click **Finish**.

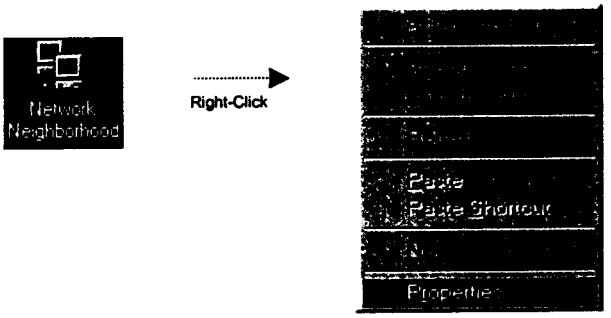


Step 7. The System Settings Change window states: "To finish setting up your new hardware, you must restart your computer. Do you want to restart your computer now?" Remove the software CD and click **Yes** to restart the computer.

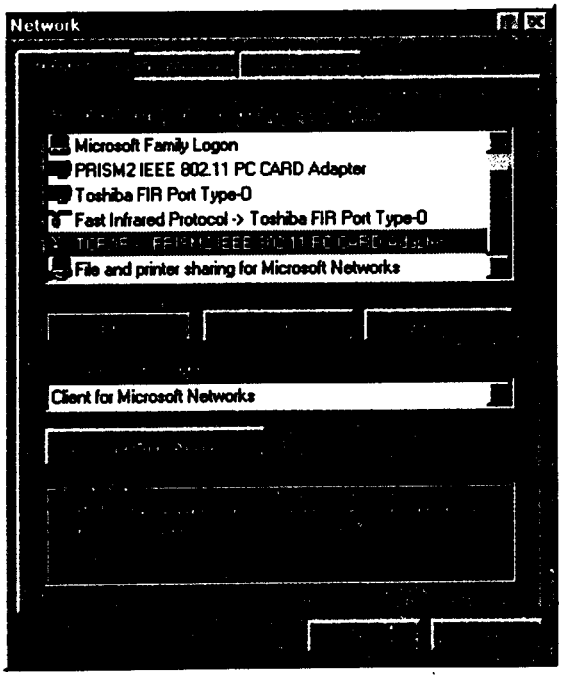


3.2. Configuring Your Network

Step 1. After the computer restarts, Right-click on the **Network Neighborhood** icon, located on the Windows background screen, and select "Properties".



Step 2. Select the **TCP/IP->PRISM2 IEEE 802.11 PC CARD Adapter** for setting the IP address. Click **Properties**.



Step 3. Select either **Obtain an IP address automatically** (DHCP addressing) or **Specify an IP address** (Static IP addressing).

Every computer on a network is identified by a unique network address. There are two methods of assigning network addresses to computer on a TCP/IP network:

- Dynamic IP addressing (DHCP)
- Static IP addressing

In networks with dynamic IP addressing, a DHCP server in the network dynamically assigns IP addresses to all clients every time they log on to the network. Network using dynamic IP addresses require setting up and running a DHCP Server or installing the Wingate software package.

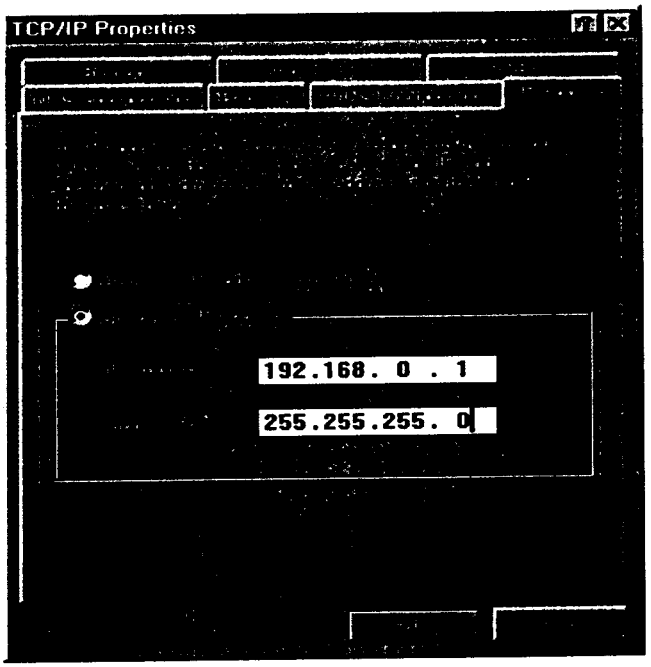
In networks with static IP addressing, the network administrator manually assigns an IP address to each computer. Once a static IP address is assigned, a computer uses the same IP address every time it reboots and logs on to the network. You may manually change the IP address in the *Network Properties dialog box*. Networks using static IP addresses are easy to set up and do not require additional network management software.

- When selecting **Obtain an IP address automatically**:

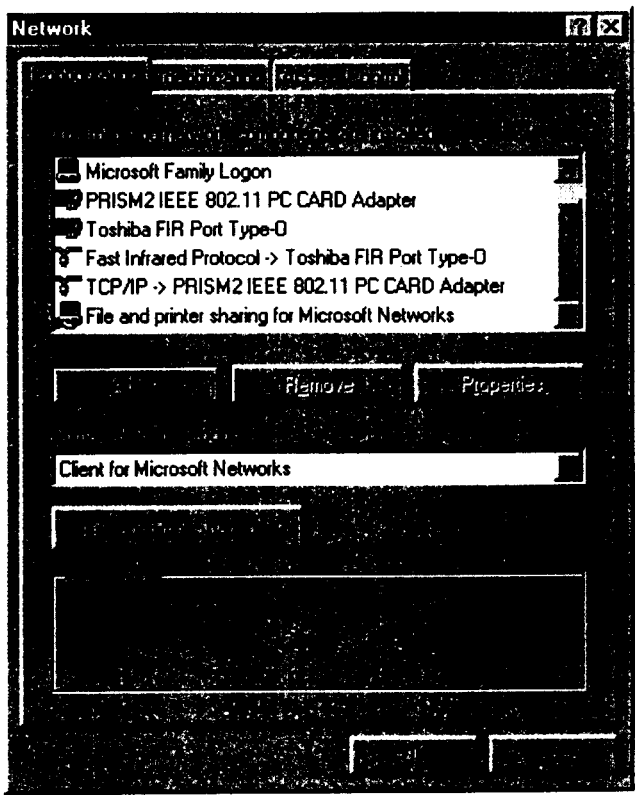
  Select **Obtain an IP address automatically** and click **OK** to return to Step 2 *Network* dialog box.

- When selecting **Specify an IP address**:

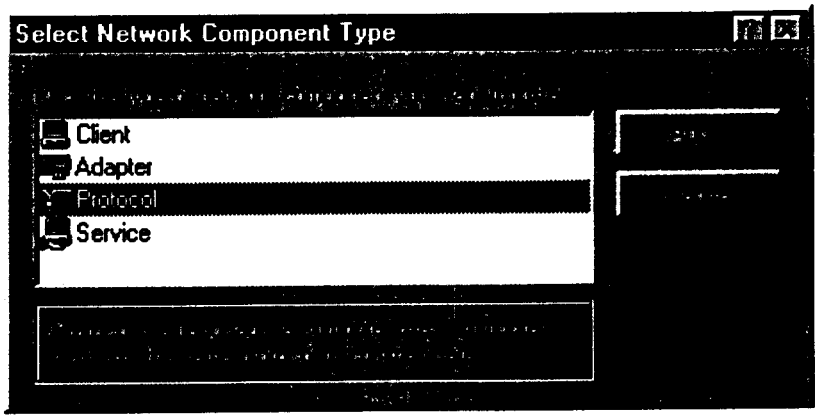
  Set the **IP address** and **Subnet Mask**. You should ask your network administrator for an address, and then type it into the blanket boxes as below. Then click **OK** to return to Step 2 *Network* dialog box.



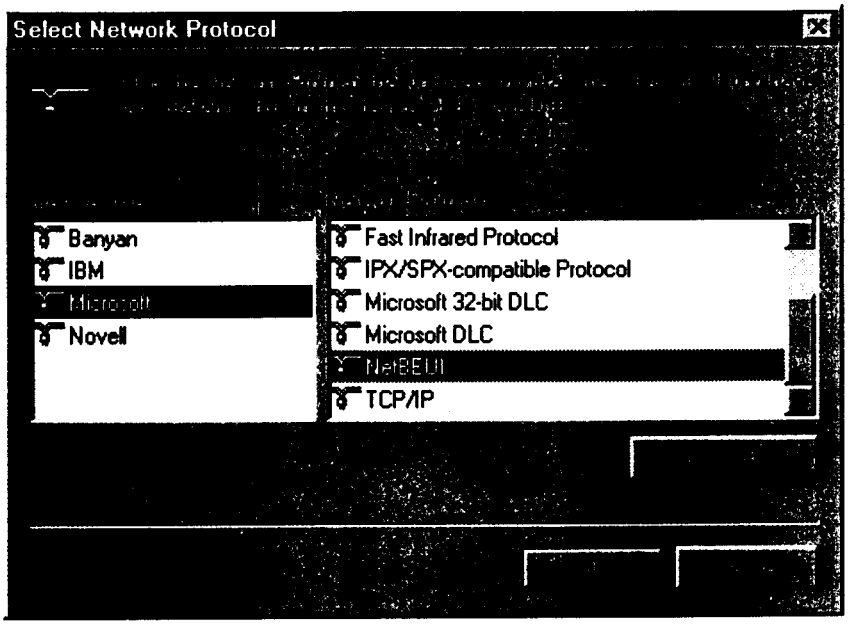
Step 4. Click **Add** to select Network Protocol.



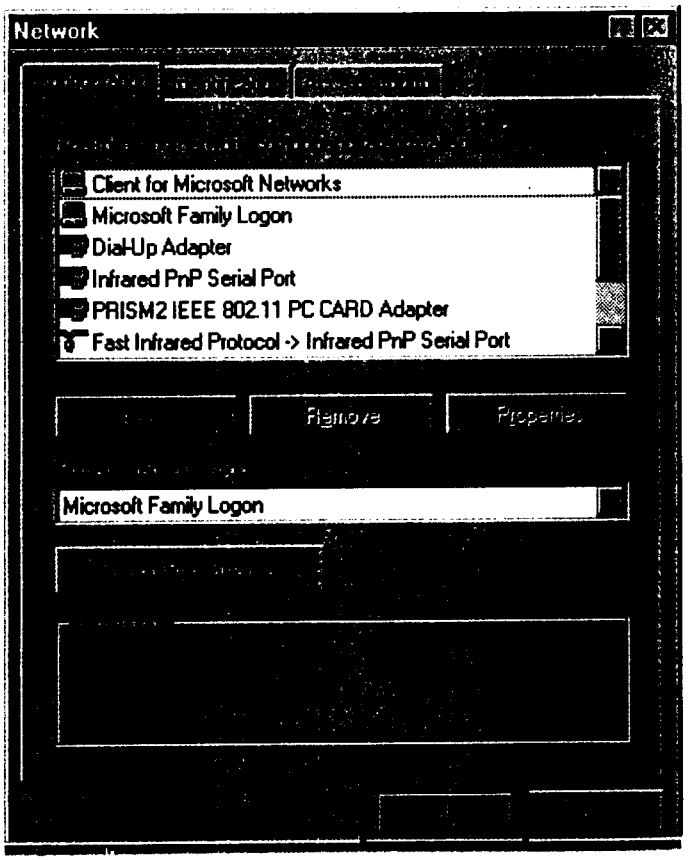
Step 5. Select the type of network component you want to install, and then click **Add**.



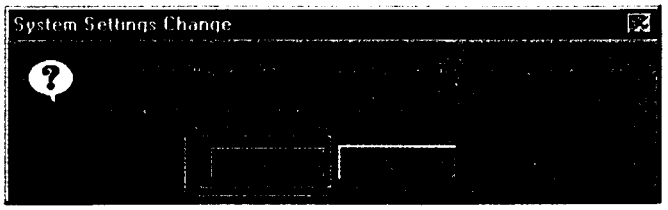
Step 6. The Select Network Protocols box appears. From the list of manufactures, click on **Microsoft**. From the list of network protocols list, select **NetBEUI**, then click **OK**.



Step 7. The **NetBEUI** protocol is now installed. When back to the Network Component Type box, click **OK**.

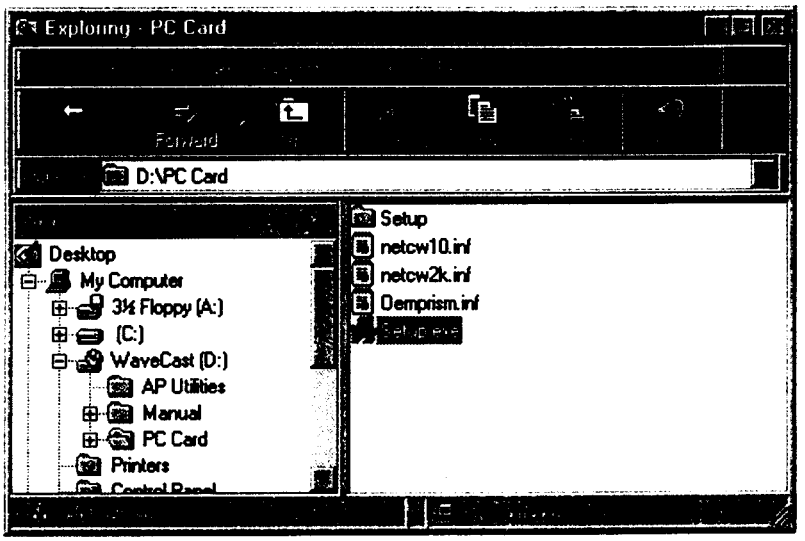


Step 8. The Systems Settings Change window states: "To finish setting up your new hardware, you must restart your computer. Do you want to restart your computer now?" Click **Yes** to restart the computer.

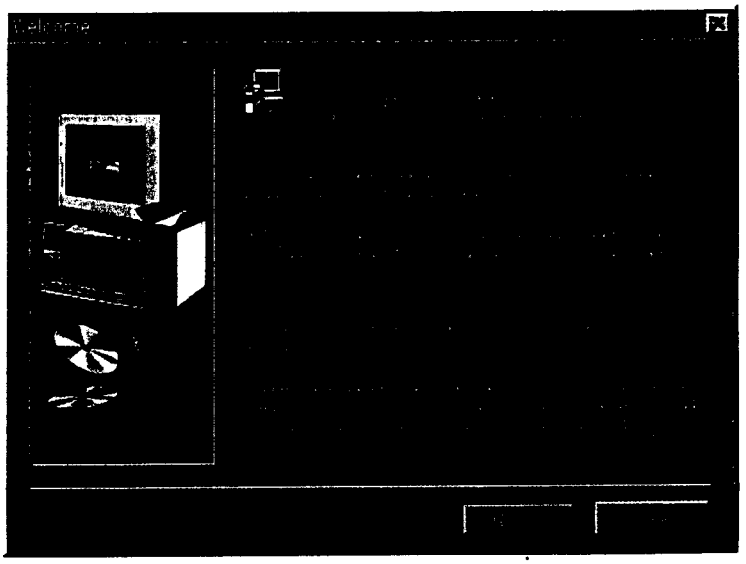


3.3. Installing the Utility

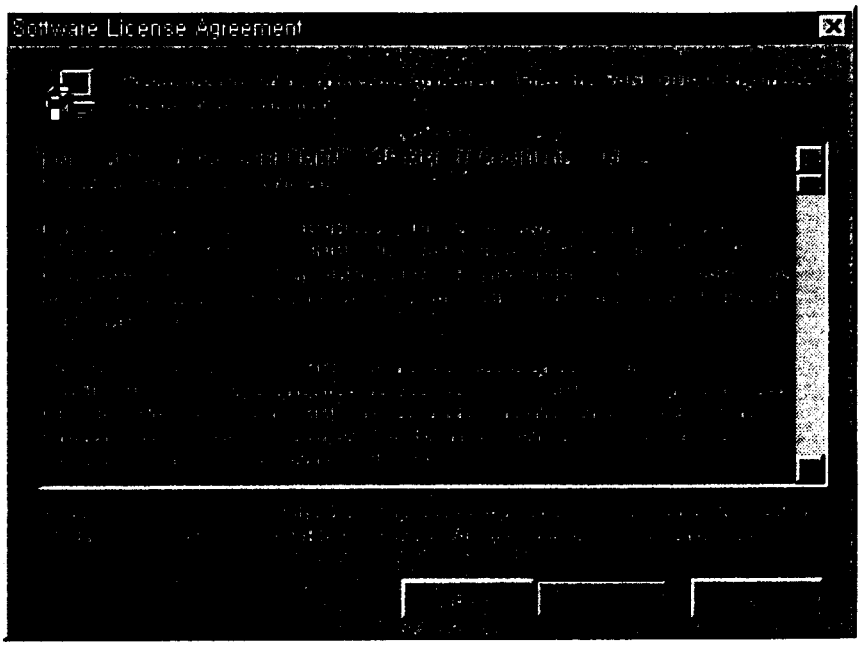
Step 1. Open Windows Explorer and double click on **Setup.exe**, located in D:\PC Card\.



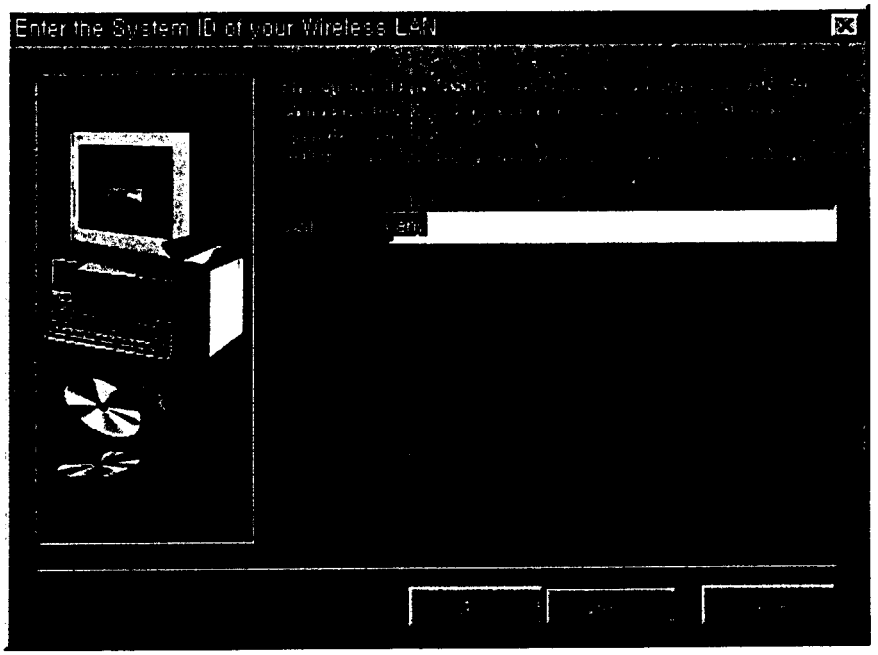
Step 2. The Welcome window will appear. Click **Next**.



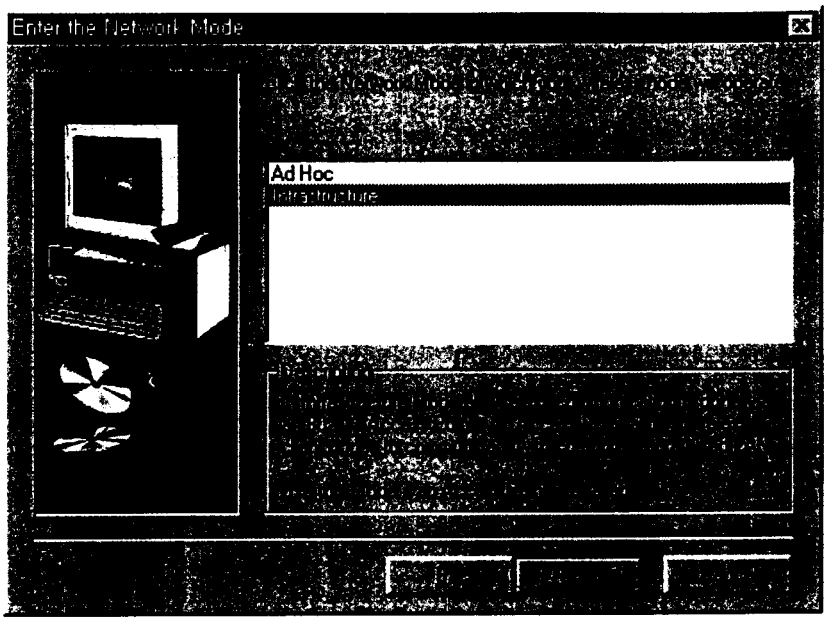
Step 3. In the Software License Agreement window, click **Yes.**



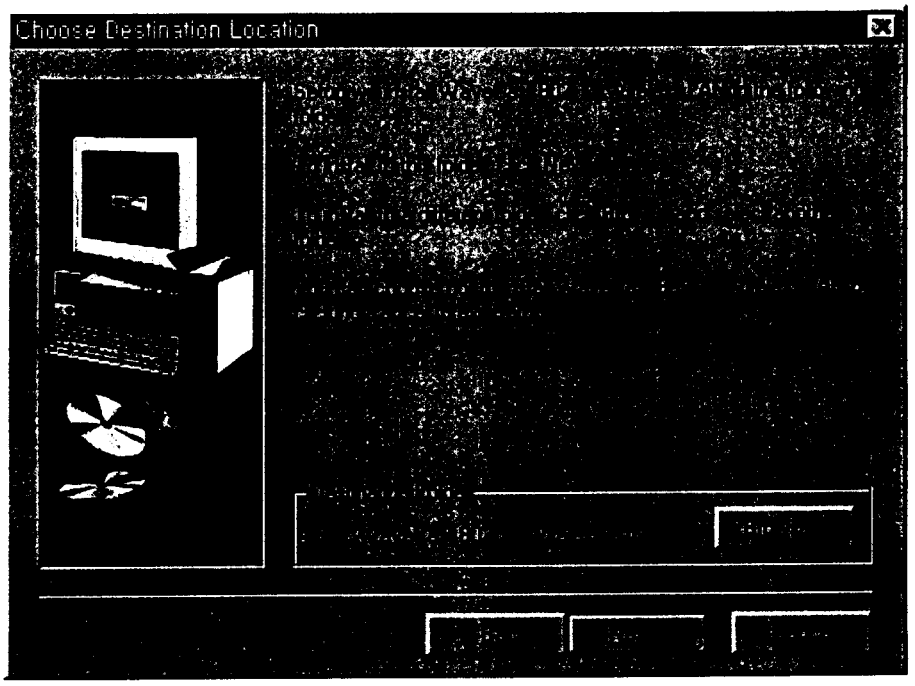
Step 4. Type in a **SSID**. The System ID (or SSID) is the name for your wireless LAN network. All computers that are to be part of the same wireless LAN network must have the same SSID (the factory default is *any*, which can connect to any wireless network. When using a WaveCast MW411AP Access Point with your wireless LAN network, refer to the back of the MW411AP Access Point for its default SSID). Click **Next.**



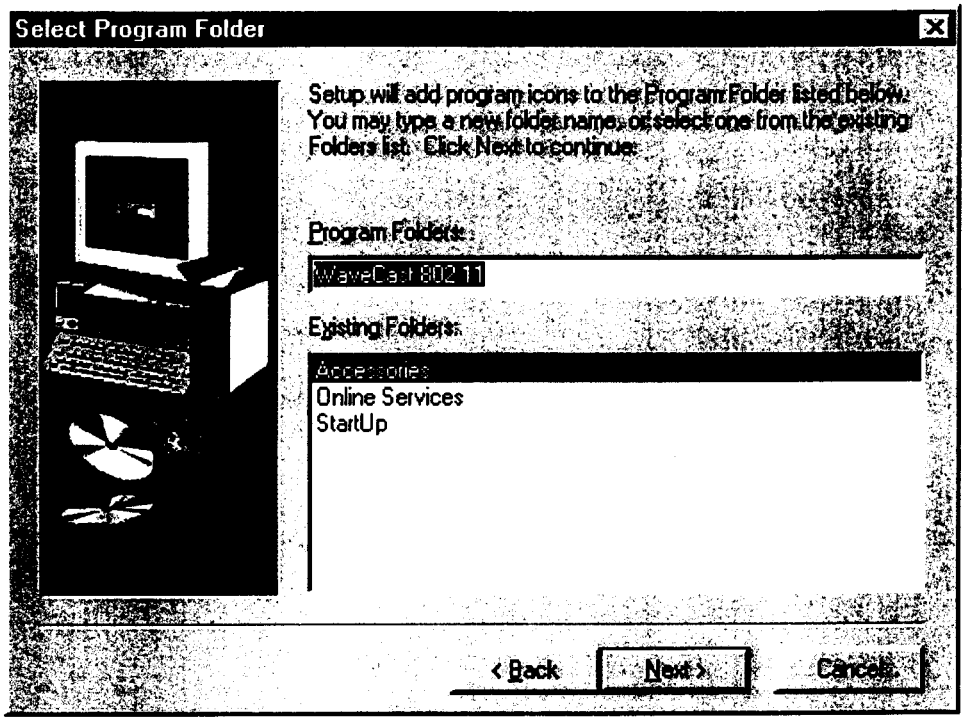
Step 5. Choose the Network Mode in which your WaveCast MW311P PCMCIA Card will operate and click **Next**.



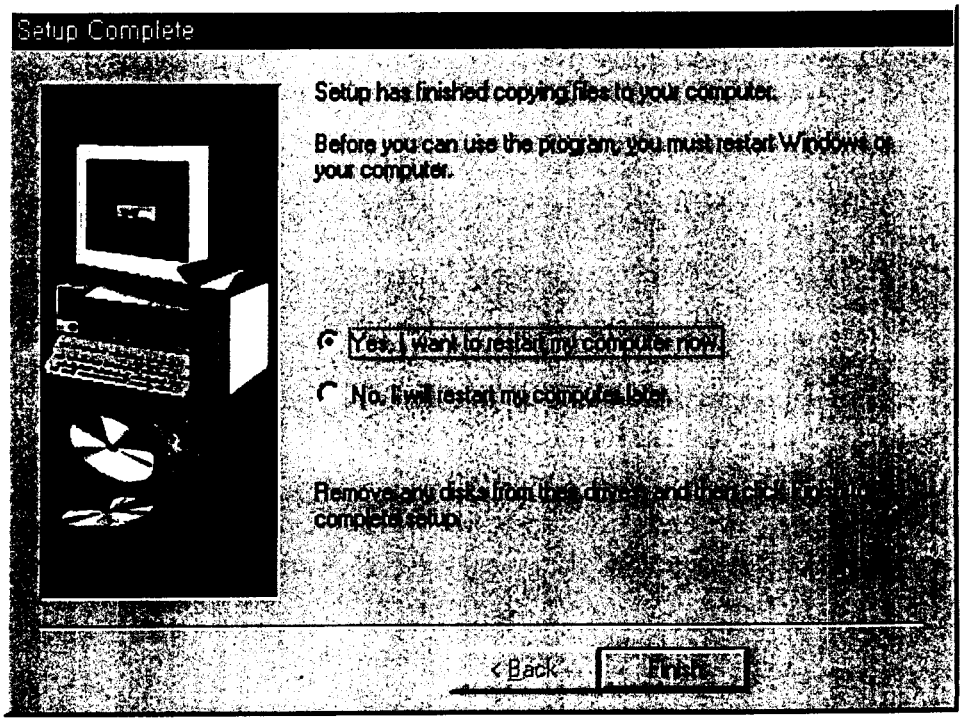
Step 6. Choose the **Destination Location** and click **Next**.



Step 7. Click **Next**



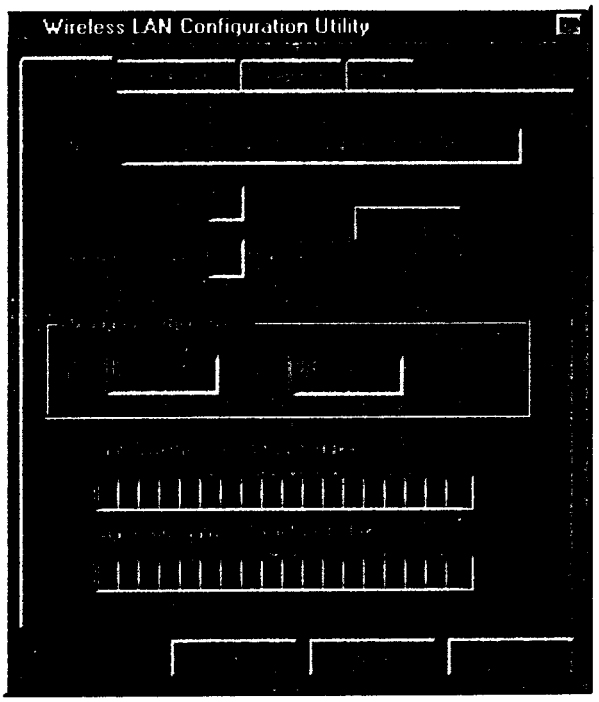
Step 8. Click **Finish** to restart your computer.



4. Configuring the Utility

The WaveCast MW311P PCMCIA Card uses its own management software. All functions controlled by the user are provided in this application. When you WaveCast MW311P PCMCIA card into the PCMCIA slot, a new icon should appear in your icon tray automatically after a few seconds. If the icon is in red, it means that WLAN PC Card configuration is invalid or incomplete.

Double clicking on this icon will show you the screen as shown below.



User can navigate through the tab pages by clicking on them with the mouse. The following are explanations on the use and meanings of the various tab pages

Link Info

State

The field shows the association to available Access Point with BSSID, MAC ID of WLAN PC Card. When the state is "Associated" means normal flow of operation in infrastructure mode. The PC is connected to Access Point. BSSID is chose in the form of hex digits. Networking is available.

Throughput

This displays the instantaneous wireless Receive and Transmit throughput in bytes per second. These values are updated every two seconds.

Link Quality / Signal Strength

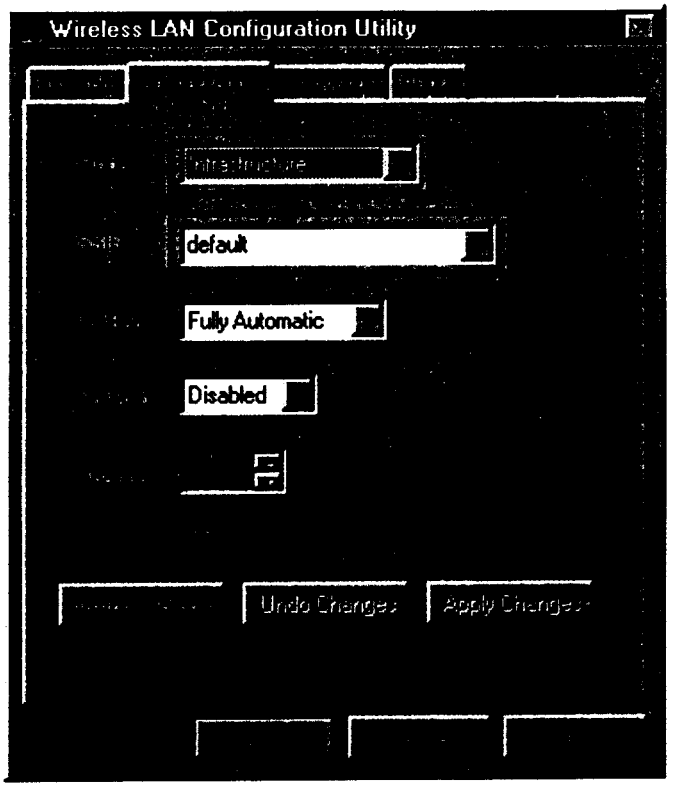
The Link Quality and Signal Strength bar graph is only active when the node is in Infrastructure Mode and are a rough approximation of the PCMCIA Card's performance. The bar graph displays the quality and strength of the link between the node and its Access Point. A label summarizes the quality of the Link over the bar graph, which can take on one of the following values:

"Not Applicable"
"Poor"
"Fair"
"Good"
"Excellent"

The driver will start looking for a better Access Point if the Link Quality becomes "Poor". Link Quality is a measure of receiving and transmitting errors over the radio.

Configuration

The Configuration tab page contains several fields where operating parameters of the driver can be viewed or changed. Changes to any of the parameters in this panel can be applied to the driver without the need to restart the PC.



Mode

This field allows you to select from a list of supported Network "Modes". Possible mode selections include *Infrastructure*, *Ad Hoc* and *802.11 Ad Hoc*.

Infrastructure: The infrastructure mode of operation requires the presence of an 802.11b Access Point. All communication is done via the Access Point, which relays packets to other wireless clients in the BSS (Basic Service Set) as well as to modes on a wired network such as the Ethernet.

Ad Hoc: This is the peer-to-peer and peer-to-multipeer mode of operation where all communication is done from Client to Client without the use of an Access Point. The same SSID must be used by all the nodes (PCs) composing the Ad Hoc network. Scanning for the Channel number will be done automatically in this mode.

802.11 Ad Hoc: This mode is very similar to the Ad Hoc network mode but its functions more rigidly complies to the 802.11b standard. This is the recommended mode for Ad Hoc networking.

SSID

SSID is the group name that will be shared by every member of your wireless network. You will only be able to connect to an Access Point which has the same SSID. The same applies to an Ad Hoc network, where only those members sharing the same SSID will be able to connect to that particular network.

Tx Rate

The transmission rate at which a client to the AP transmits the data packets. You can set this to fixed 1 Mbps, 2 Mbps, 5.5 Mbps, 11 Mbps or Fully Automatic.

"Apply Changes" button

This button becomes active only when one of the fields has been modified. Pressing this button applies the changed values to the driver and also saves them to the registry for the next time the PC boots up

Encryption

You may desire an additional measure of security on your wireless network, which can be achieved by using WEP (Wired Equivalent Privacy) encryption. WEP encrypts each frame transmitted from the radio using one of the Keys entered from this panel.

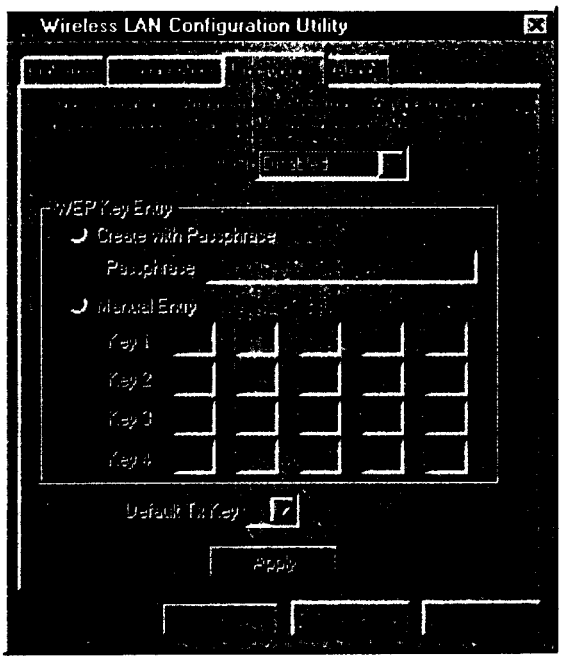
When an encrypted frame is received it will only be accepted if it decrypts correctly. This will only happen if the receiver has the WEP Key used by the transmitter.

To be written to the driver and registry, 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.

Encryption options include *Disabled*, *64 bit* and *128 bit*.

Encryption (WEP) Disabled

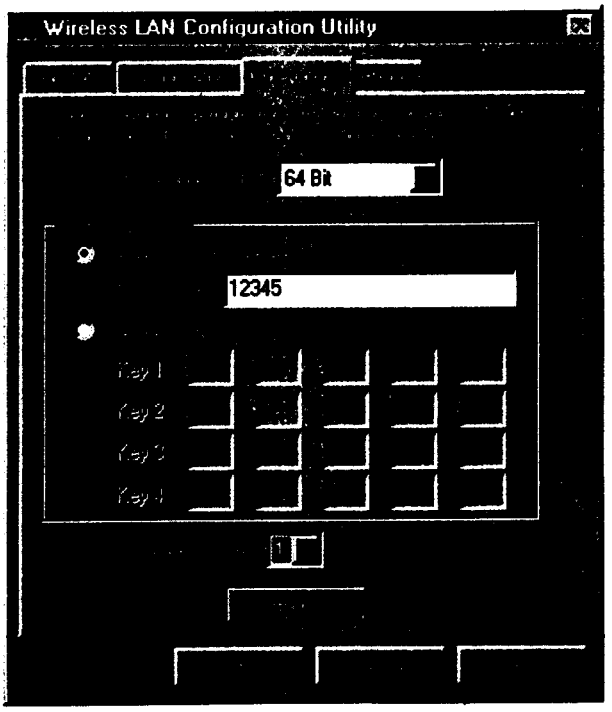
WEP encryption will not be used.



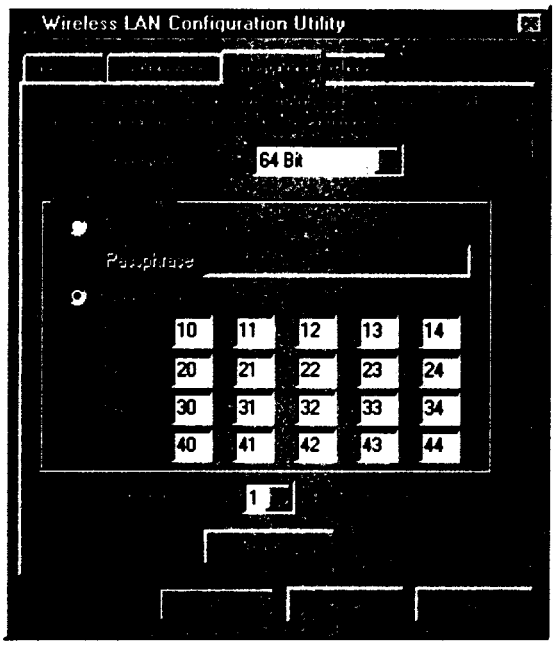
Encryption (WEP) 64 bit / 128 bit

There are two methods of WEP key generation:

Create with Passphrase: You must type any word for a passphrase and then upon clicking **Apply** encryption keys will be automatically generated. Four encryption keys will be generated in 64 bit encryption and one encryption key will be generated in 128 bit encryption.



Manual Entry: Encryption keys (composed of hex characters) can be typed in their respective fields. The encryption keys generated by the user will become effective upon clicking **Apply**. This may be necessary if you wish this node to match encryption keys used in different vendors' products.

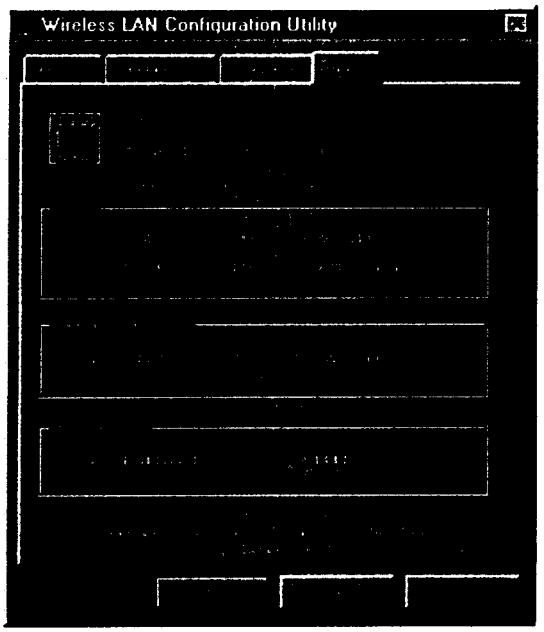


Apply

This button updates the driver with the keys displayed in Key field. The keys are also written to the registry for permanent storage.

About

This tab page shows the product's version as well as information on the Driver, Configuration Utility, and NIC firmware versions. You must inform these version numbers when reporting problems for technical support.



5. Technical Specifications of WaveCast MW311P PCMCIA Card

Standards Supported

Compliant to IEEE 802.11b standard for Wireless LAN

Compliant to ETS 300-328, ETS 300-826 and EN60950.

Compliant to FCC Part 15

Radio Specifications

Frequency Range: 2.4-2.4835 GHz

Modulation: Direct Sequence Spread Spectrum (DBPSK, DQPSK, CCK)

Transmission Power (typical): 15 dBm (30 mW)

Receiver Sensitivity: -84 dBm at 11 Mbps (minimum)

Antenna: Internal diversity patch antenna

General Specification

Interface: PCMCIA Type II

Transmission Rate: 1 Mbps, 2 Mbps, ,5.5 Mbps, 11 Mbps

Power Consumption: Tx 330 mA (max.), Rx 210 mA (max.)

Range: Max. 300 m (open space), max. 70 m (office environment)

Software Specification

Media Access Protocol: CSMA/CA; IEEE 802.11b Standard

Roaming Function

Security: 64/128 bits WEP encryption

Supported OS: Windows 95 (OSR2) / 98 (SE) / ME / 2000 / NT / Win CE (optional)

Operation Environment Conditions and Physical Dimensions

Temperature: -20 ~ 70 °C (storage), 0 ~ 55 °C (operation)

Humidity: 0 ~ 75 %

Size: 55 x 129 x 5 (mm)

Weight: 44 g

The specifications and information herein are subject to change without notice. Please download the latest driver software or manual free of charge from the MMC Technology Inc. homepage, http://www.mmctech.com.

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WaveCast Access Point is approved by the MIC (Ministry of Information and Communication) of Korea.

Points of contact:
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E-mail: webmaster@mmctech.com
Homepage: http://www.mmctech.com

Precautions

Before using WaveCast Products, please carefully read the precautions described below to ensure proper operation.

- Do not open the case or modify the contents of the WaveCast Access Point. Seek the help of an authorized professional if some problem occurs with it.
- When repairing the WaveCast Access Point, use only components specifically designed for it.
- WaveCast Access Point and other wireless devices may cause interference on each other and thus affect its performance.
- Use only the power supply adapter supplied with the WaveCast Access Point. Using other power supply adapter may damage the WaveCast Access Point.
- Avoid excessive physical shock (e.g. dropping, etc.) to the WaveCast Access Point.
- Moisture, excessive humidity, excessive high and low temperatures may cause the WaveCast Access Point's performance to deteriorate or even cause permanent damage to it. Avoid using the WaveCast Access Point under such conditions.
- Do not expose WaveCast wireless LAN products to dangerous environments like flames, chemicals or explosives.
- Unplug power and telephone cables from PCs and WaveCast wireless LAN products during thunderstorms or lightning.
- Like any other wireless system, powering on the WaveCast Access Point before the PC will ensure proper operation of the system.

User's Guide Abstract

This User's Guide explains the fundamentals of how to install and use WaveCast wireless LAN products. It is most recommended for new and old users of wireless LAN products to carefully read this User's Guide and follow its installation instructions.

This guide is most useful to users with a basic knowledge in computers for home or SOHO (Small Office Home Office) use as well as in Windows 95-OSR2 or higher. The directions shown in this manual are based on Windows 98SE.

➔ **Note:** Make sure the wireless products used together with the WaveCast Access Point are compliant to the IEEE 802.11b standard.

Index

Introduction

The WaveCast system is a wireless network device appropriate for home or SOHO users. WaveCast users can wirelessly access other PCs, or peripheral devices attached to them, and surf the web.

WaveCast system has many features as described below:

- Many users can access the Internet simultaneously.
- Users can implement a network environment without the need of cumbersome network cables.
- Users can enjoy the Internet on the dinner table, bed, garden or anywhere using notebook PCs or portable devices.
- Users can access the Internet or LAN within maximum indoor range of 70 meters and maximum outdoor range of 300 meters.
- Everyone in a family can play together in a network game.

WaveCast Access Point

The WaveCast Access Point (AP) MW411AP has the ability to interconnect a wireless network with a wired network. Thus, PCs in a wireless network can also access the Internet when AP is connected to the Internet by dedicated Internet line, ADSL, or cable modem.
The MW411AP supports ADSL, Cable, and T-LAN modem and has roaming capability that guarantees failure-free mobility. Wireless network security is provided by its 64- and 128-bit WEP encryption function.
It is also interoperable with other companies' IEEE 802.11b devices operating under the DSSS (Direct Sequence Spread Spectrum) method.

Package Contents

Unpack and confirm that the following contents are included.

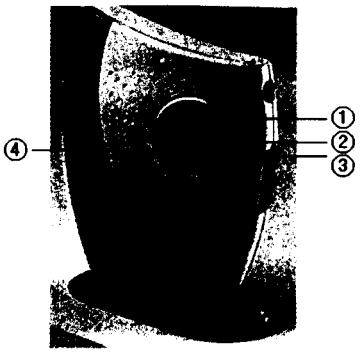
① WaveCast Access Point MW411AP (1 ea)
② AP stand base (1 ea)
③ RJ-45 Ethernet Cable (1 ea)
④ 5V Power Supply Adapter (1 ea)
⑤ User's Guide (1 ea)
⑥ Installation CD-ROM (1 ea)
⑦ Fastener for the stand base (1 ea)
⑧ Rubber padding for stand base (4 ea)
⑨ Antenna set (1 ea - optional)

Name and Function

This section describes the names and functions of various components found on the WaveCast MW411AP Access Point.

■ LED

The figure below is a front view of AP. The LEDs shown in the figure provide information on the operation status of the many functions found in the WaveCast MW411AP Access Point and are described in the following table.

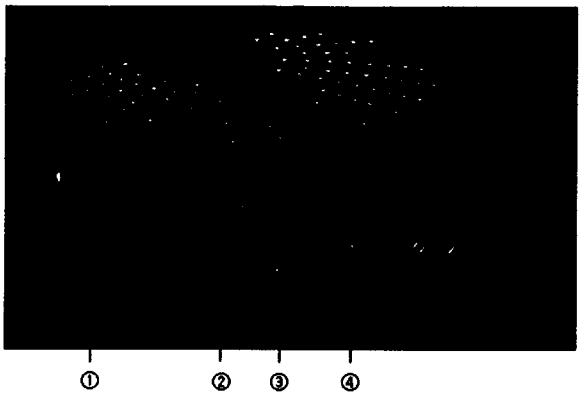


No	Name	Function
①	COM	Indicates PPP connection status when connecting via PPPoE. The green LED lights up when PPP connection is established and blinks during data transfer.
②	POWER	Indicates the status on power supply. The red LED lights up when AP is on.
③	LAN	Indicates the connection status between AP and a wired network. The green LED lights up when connection is established and blinks during data transfer.
④	WLAN	Indicates the link status between AP and a wireless network. The green LED lights up when link is established and blinks during data transfer.

Note: When the wireless network and the wired Ethernet network are interconnected and under normal operation, LEDs ②, ③ and ④ will be lit.
When connecting via PPPoE, LEDs ①, ②, ③ and ④ will be lit.

■ Switch and Port

The rear view of AP is shown below. Functions for the ports found in AP are described in the following table.



No.	Name	Function
①	COM	RS232 serial port
②	5V DC	Adapter jack to power supply
③	LAN	Ethernet Port
④	RESET	Reset switch

Refer to the above figures of the WaveCast MW411AP Access Point's rear view for the following cable installation.

① Place the rubber paddings in their appropriate location on the bottom of the stand base.

② Remove the cover from the back of the Access Point.

③ Connect the RJ-45 Ethernet cable from a dedicated line to the "LAN" port (port no. ③).

④ Connect the power supply adapter to the "5V DC" jack (port no. ②).

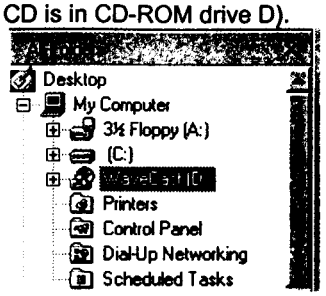
➧ **Caution:** Use only the power supply adapter provided with the WaveCast Access Point..

⑤ Place the cover back on the back of the AP and assemble the stand base back on its place.

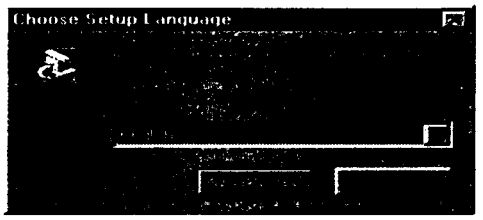
⑥ Plug the power supply adapter to the power outlet.

4. How to Install the AP Manager

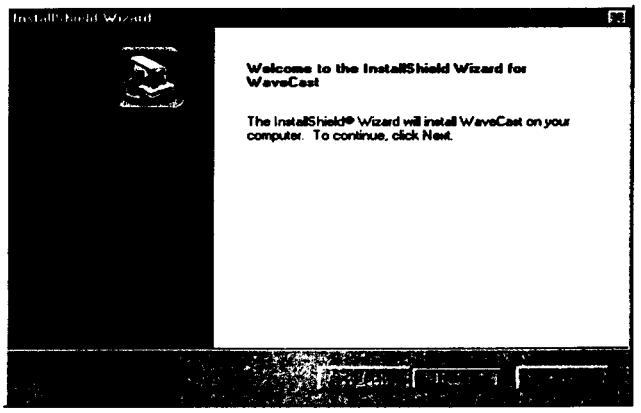
1) Place the WaveCast's Installation CD into the CD-ROM drive and use Windows Explorer to located the WaveCast's Installation CD. Run D:\AP Utilities\Setup.exe (assuming the Installation CD is in CD-ROM drive D).



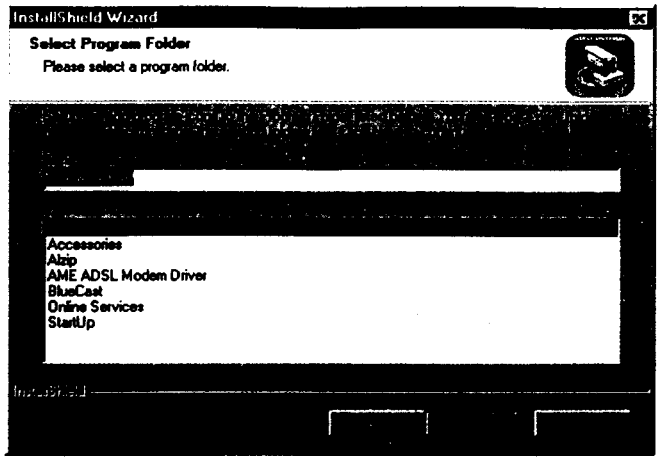
2) The following screen will appear. Choose the appropriate language (setup directions will be given in the language of choice) and click on [OK].



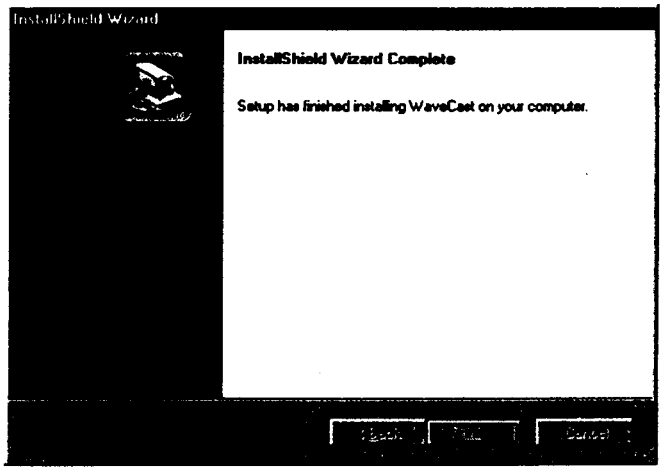
3) Click on [Next >] when the following screen appears



4) Select the program folder for the AP manager and click on [Next >].



5) The following screen will appear when the installation is complete. Click on [Finish] to exit the setup program.

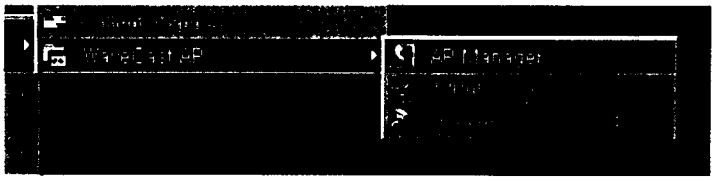


➧ **Caution:** Should you wish to change configuration settings of the station managing the Access Point, always do so after changing the configuration settings of the Access Point first. Changing the configuration settings of the station before the Access Point runs the risk of not being able to communicate with the Access Point from that point on.

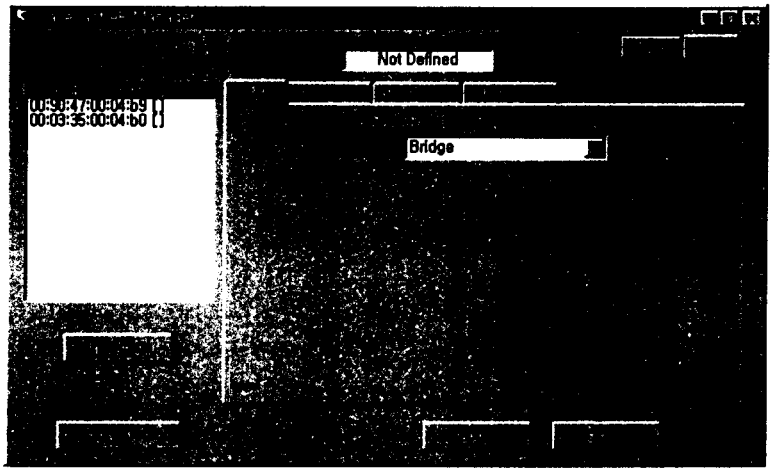
Running the WaveCast AP Manager

➧ **Caution:** Before using the WaveCast AP Manager to configure the MW411AP Access Point, wired or wireless network connection must be established between PC and MW411AP Access Point.

1) Select [Start] > [Programs] > [WaveCast AP] > [AP Manager].



2) The WaveCast AP Manager window will appear as shown below.



The WaveCast AP Manager window contains the following features:

- **[AP List] box**
  When opening the AP Manager, it will automatically scan for Access Points present in the network environment and show them represented by the respective MAC address in the [AP List] window. Selecting one of the MAC addresses from the list will display the current setting of its respective AP.

  Note: When the station connects to the Access Point via a wired network, the [AP List] will display all the Access Points connected to the wired network. When a station connects to the Access Point wirelessly, only the Access Point to which the station is connected will be displayed.

- **[AP Name] box**
  This shows the current name assigned to the Access Point. This name can be changed by inputing a new name in this box and clicking on [Appply].

- **[Rescan] button**
  This button rescans for Access Points. The results are displayed in the [AP List] box.

- **[Factory Default] button**
  This button resets the configuration of the Access Point selected from the [AP List].

- **[Apply] button**
  This button updates the confiuration of the Access Point selected from [AP List] to the new settings.

- **[Exit] button**
  This button closes the WaveCast AP Manager program.

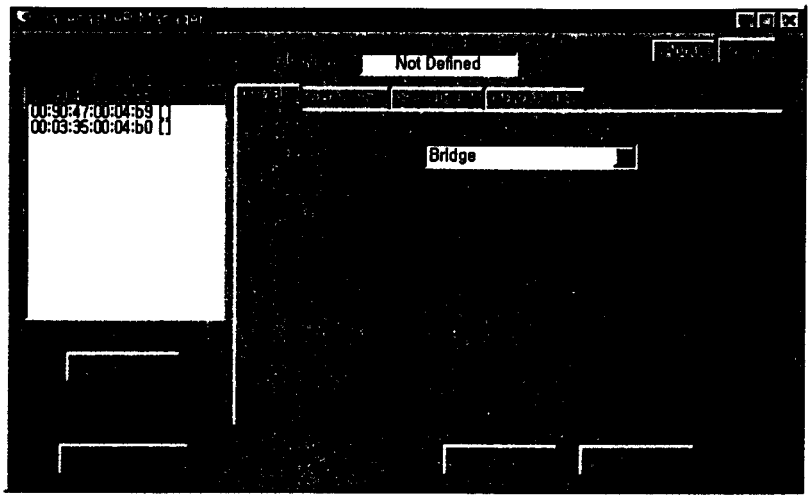
- **[About] button**
  This button displays the version number of the WaveCast AP Manager and the firmware's version of the selected Access Point.

- **[Help] button**
  This button shows the help contents for the WaveCast AP Manager.

- **Tab Page Menu**
  The WaveCast AP Manager displays the Access Point's configuration settings in four different tab pages: [MODE], [CHANNEL], [SECURITY] and [ADVANCED]. Refer below for explanatin on these tab pages.

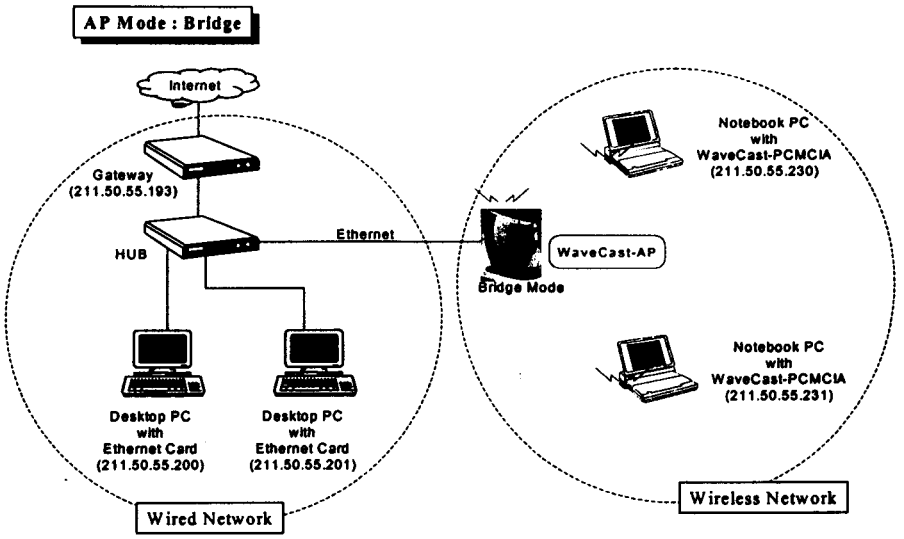
MODE Tab Page

The operation mode of the MW411AP Access Point can be changed from this tab page. There are basically two operation modes: Bridge mode and IP Sharing mode. In IP Sharing mode, the following sub-modes can be used according to the connection type of the Ethernet Port: Fixed IP, Automatic IP, and PPPoE. The MW411AP Access Point's default operation mode is Bridge Mode.

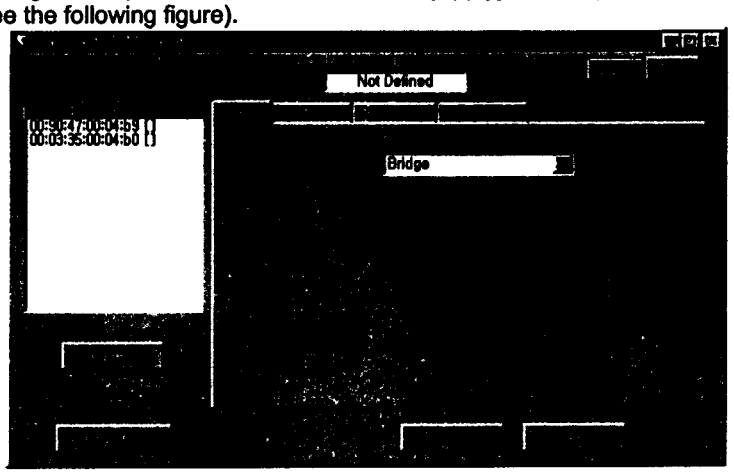


▶ Configuring the Access Point to Bridge Mode

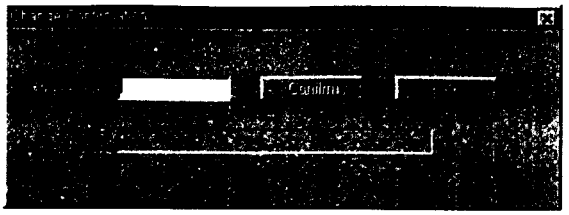
At this mode the AP operates as bridge between the wired network and the wireless network, much like a wireless network HUB (see the following figure).



Select "Bridge" as Operation Mode and click on [Apply] to configure the AP to Bridge mode (see the following figure).



A confirmation dialog box appears as shown below. Type in the password and click on [Confirm].

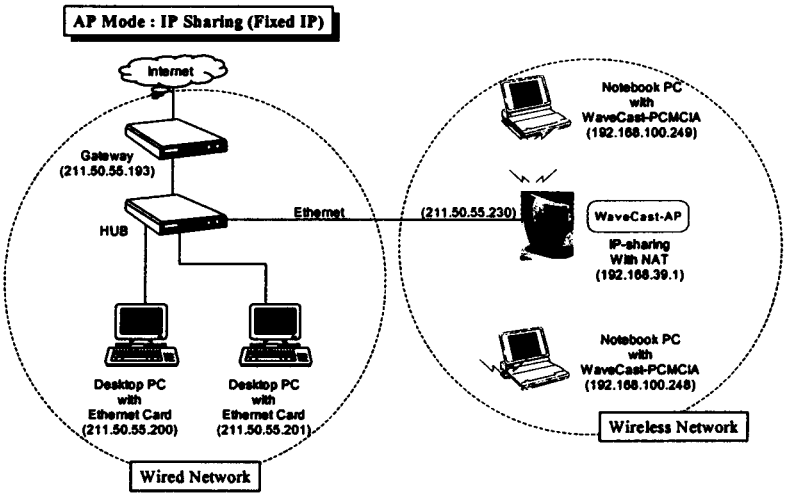


Note: The factory default password is "password". Changing the password is done in the ADVANCED tab-page (refer below for explanation).

Click on [Rescan] after returning to the AP Manager screen to confirm the change.

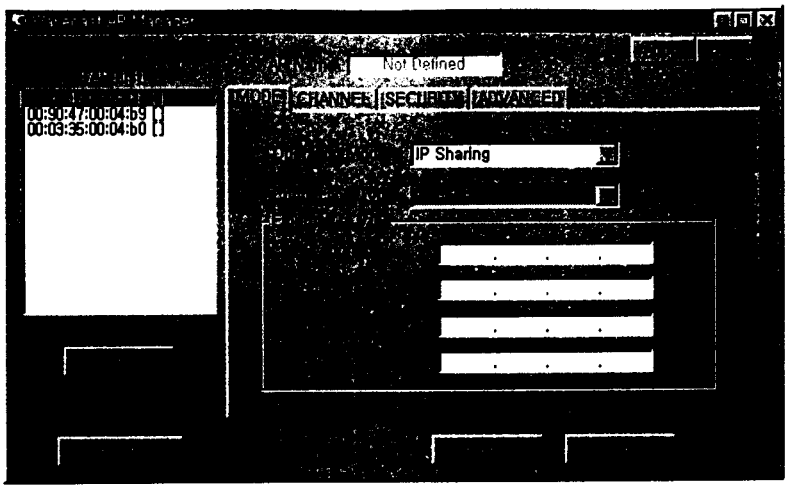
▶ Configuring the Access Point to IP Sharing Mode's Fixed IP Method

In this Static IP Sharing Mode's Fixed IP Method, a specific IP is assigned to the Access Point with which it will access the wired network. The AP then uses its NAT (Network Address Translation) function to share that IP with other PCs in its wireless network. Each PC in the wireless network can then independently access the Internet as well as access other PCs of the wired network. (PCs of the wired network can also access the PCs of the wireless network)

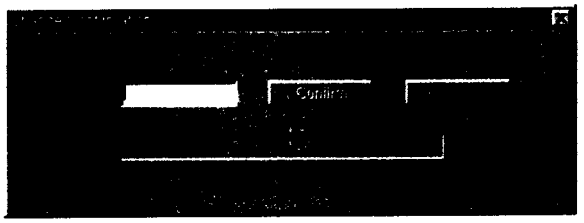


Note: The Access Point acts as a gateway in the wireless network.

Select "IP Sharing" as Operation Mode and "Fixed IP" as Connection Type. Input the TCP/IP that will be assigned to the Access Point and click on [Apply].



A confirmation dialog box appears as shown below. Type in the password and click on [Confirm].



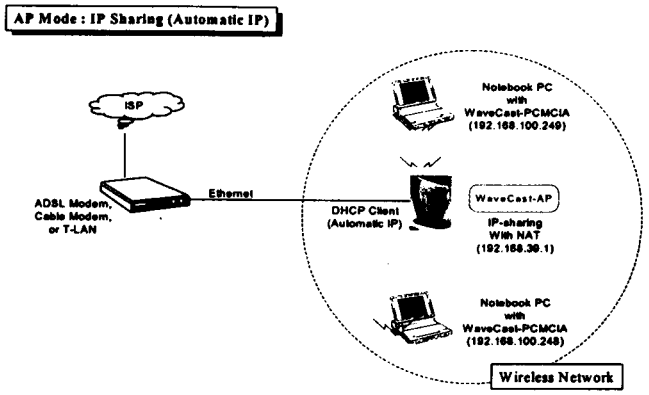
➔**Note:** The factory default password is "password". Changing the password is done in the ADVANCED tab-page (refer below for explanation).

Click on [Rescan] after returning to the AP Manager screen to confirm the change.

➔**Caution:** When setting the Access Point to "IP Sharing" mode, set the stations so that they automatically receive an IP address (select "Obtain an IP address automatically" in [Network Neighborhood]> [Properties]>[IP Address]).

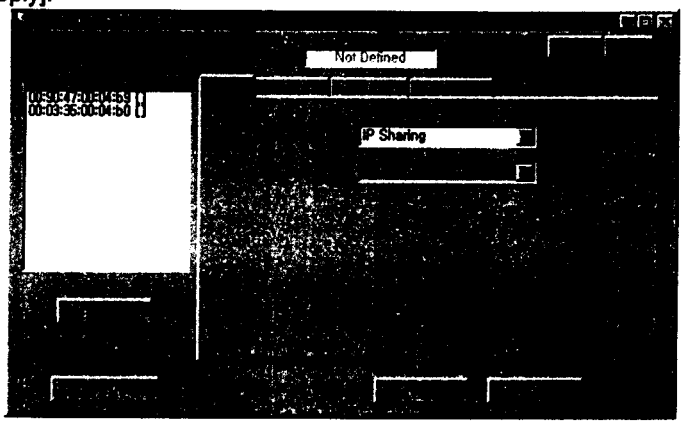
▶ Configuring the Access Point to IP Sharing Mode's Automatic IP Method

In this Static IP Sharing Mode's Automatic IP Method, the Access Point is assigned an IP from the ISP via the ISP's DHCP Client protocol. The AP then uses its NAT (Network Address Translation) function to share that IP with other PCs in its wireless network. Each PC in the wireless network can then independently access the Internet as well as access other PCs of the wired network. (PCs of the wired network can also access the PCs of the wireless network)

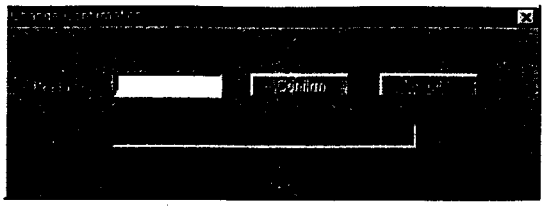


➧ **Note:** The Access Point acts as a gateway in the wireless network.

Select "IP Sharing" as Operation Mode and "Automatic IP (DHCP)" as Connection Type. Click on [Apply].



A confirmation dialog box appears as shown below. Type in the password and click on [Confirm].



Note: The factory default password is "password". Changing the password is done in the ADVANCED tab-page (refer below for explanation).

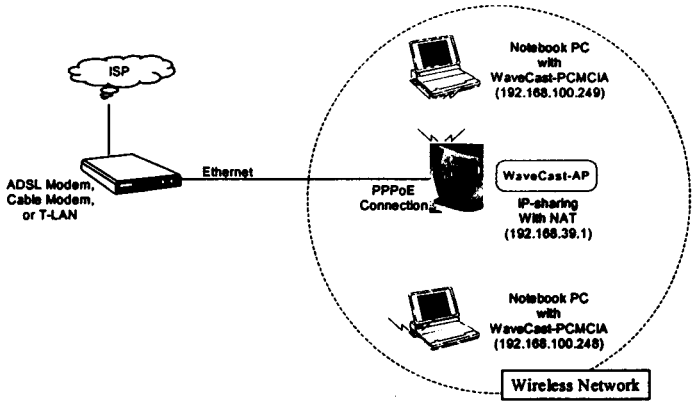
Click on [Rescan] after returning to the AP Manager screen to confirm the change.

Caution: When setting the Access Point to "IP Sharing" mode, set the stations so that they automatically receive an IP address (select "Obtain an IP address automatically" in [Network Neighborhood]> [Properties]>[IP Address]).

▶ Configuring the Access Point to IP Sharing Mode's PPPoE Method

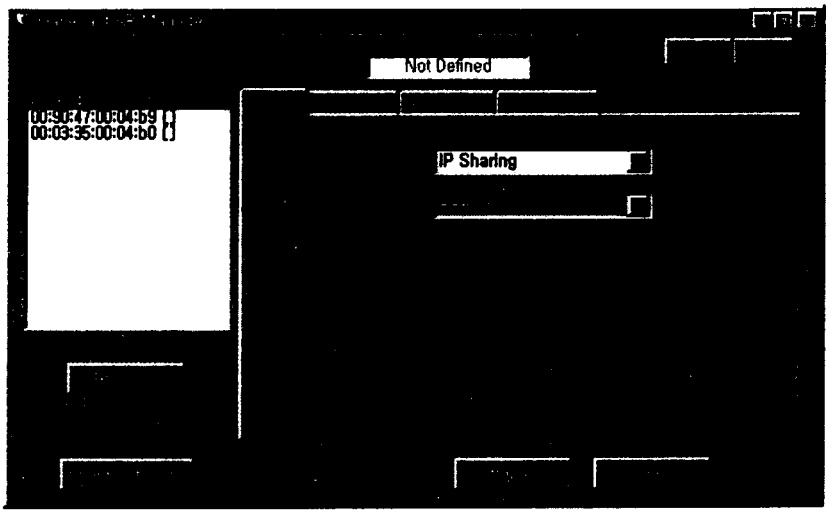
In this Static IP Sharing Mode's PPPoE Method, the AP accesses the Internet via PPPoE connection service of ADSL, cable modem, T-LAN, etc. Using its built-in PPPoE protocol, the Access Point makes use of its NAT (Network Address Translation) function to enable network sharing of a single Public IP allocated by an ISP amongst the stations connected wirelessly to it. In such way, each station can independently access the Internet through AP.

AP Mode : IP Sharing (PPPoE)

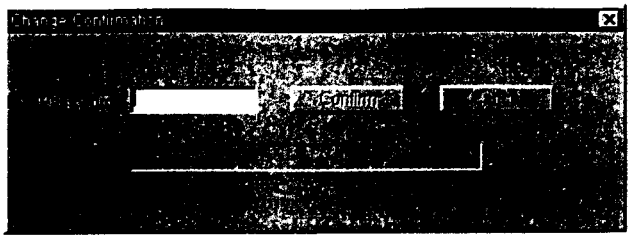


➧ **Note:** The Access Point acts as a gateway in the wireless network.

Select "IP Sharing" as Operation Mode and "PPPoE" as Connection Type. Click on [Apply].



A confirmation dialog box appears as shown below. Type in the password and click on [Confirm].



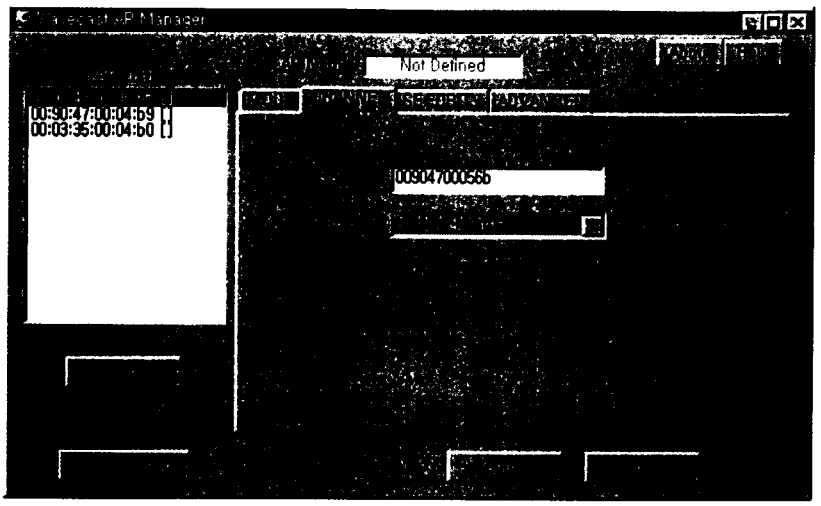
Note: The factory default password is "password". Changing the password is done in the ADVANCED tab-page (refer below for explanation).

Click on [Rescan] after returning to the AP Manager screen to confirm the change.

Caution: When setting the Access Point to "IP Sharing" mode, set the stations so that they automatically receive an IP address (select "Obtain an IP address automatically" in [Network Neighborhood]> [Properties]>[IP Address]).

CHANNEL Tab Page

The SSID and Channel the WaveCast MW411AP Access Point uses can be configured in this tab page.



▶ **SSID**

The current SSID being used by the selected Access Point is displayed in the SSID field. In order to change the Access Point's SSID, type in the new SSID in the field and click on [Apply]. The SSID can be up 32 characters and made of any combination of letters, numbers and symbols. The factory default SSID is written on the back label of the Access Point.

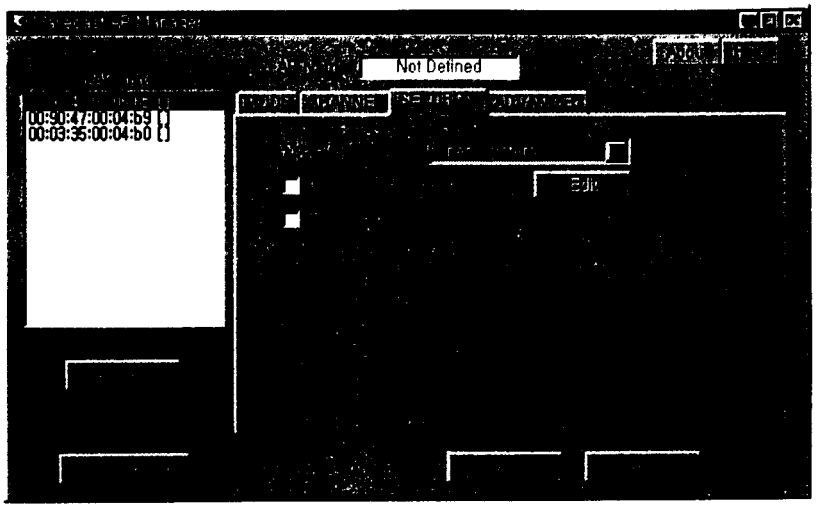
▶ **Channel**

The current channel being used by the Access Point is displayed in the Channel field. In order to change the Access Point's Channel, select the new channel (channels 1 through 11) and click on [Apply]. The factory default channel is channel 3.

If various Access Points are being used at the same area, it is advisable to select different channels (at intervals of 5 channels) for each Access Point in order to prevent interference with each other.

SECURITY Tab Page

Encryption settings for the Access Point can be changed in this tab page.



▶ **Authentication Algorithm**

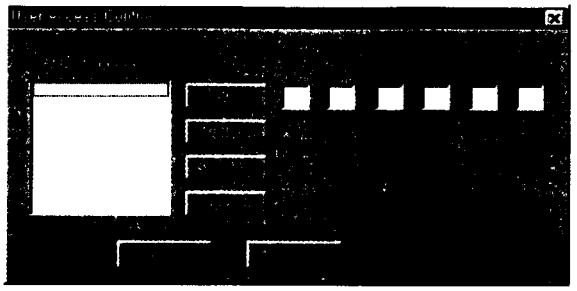
Authentication Algorithms supported by the WaveCast MW411AP Access Point are Open System and Shared Key. Factory default is Open System.

Open System: all stations having the same channel information can connect to the wireless network.

Shared Key: stations having the same channel information **and** WEP Key and those in which the authentication algorithm is set to Shared Key can connect to the wireless network.

▶ **User Access Control**

Selecting User Access Control will enable the Access Point to filter which stations will be allowed to access the network via the Access Point. Only those stations whose MAC addresses are added to the MAC Address list will be allowed access to the network via the Access Point. A maximum of 255 station MAC addresses can be entered into the list..



[Add] button

In order to add a new station's MAC address into the address list on the left and enable it to access the network via Access Point, input the station's MAC address in the right box and click on [Add]. The added station's MAC address will then appear in the address list.

[Delete] button

In order to remove a station's MAC address from the address list, select it with the mouse and click on [Delete].

[Save File] button

Clicking on this button will save the displayed MAC address list into the computer. This function can be used with [Import File] to manage various MAC address lists.

[Import File] button

Clicking on this button will call up a saved MAC address list from the computer. This function can be used with [Save File] to manage various MAC address lists. [Send] must be clicked in order for the imported list to take into effect.

[Send] button

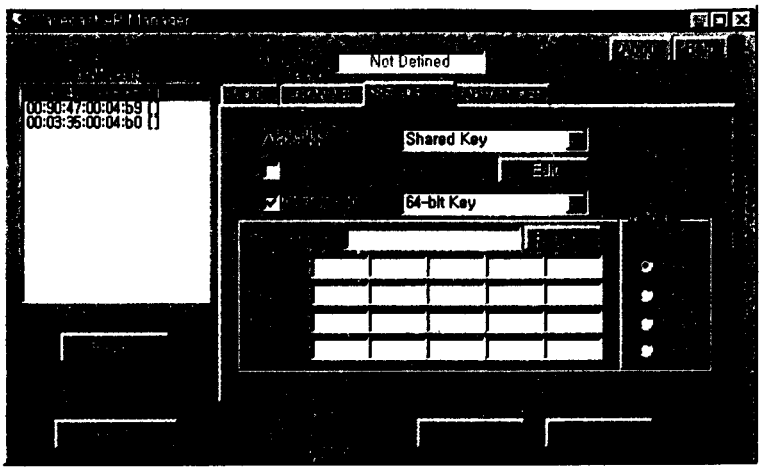
Clicking on this button will send the displayed MAC address list to the Access Point in order for a new (added or imported) list to take into effect.

[Cancel] button

Clicking on this button will close the User Access Control (MAC address filtering) window.

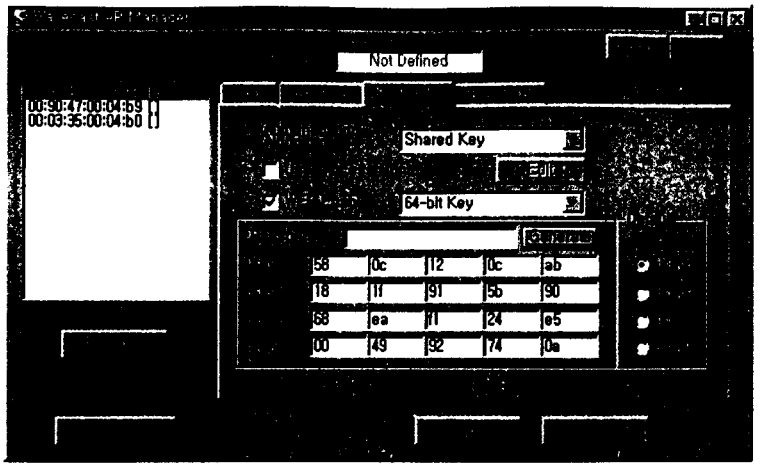
▶ WEP Enable

Select [WEP Enable] to use the WEP encryption function and increase the security of the wireless network managed by the Access Point.



After selecting [WEP Enable] and the type of encryption (64-bit or 128-bit), type in a "Passphrase" (up to 31 characters and combinations of numbers, letters and symbols) and click on [Generate] to generate encryption "keys." Then click on [Apply] in order for the encryption to take into effect with the desired key encryption selection.

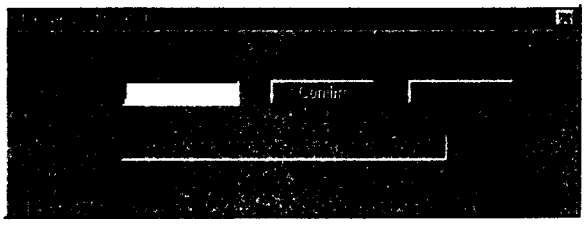
Instead of selecting one of the generated keys, you can also input your own encryption key by typing in the boxes.



64-bit Key: After typing in the passphrase and clicking on [Generate], 4 encryption keys will be generated for selection.

128-bit Key: After typing in the passphrase and clicking on [Generate], only one encryption key will be generated and will be automatically selected.

After clicking on [Apply], a confirmation dialog box appears as shown below. Type in the password and click on [Confirm].



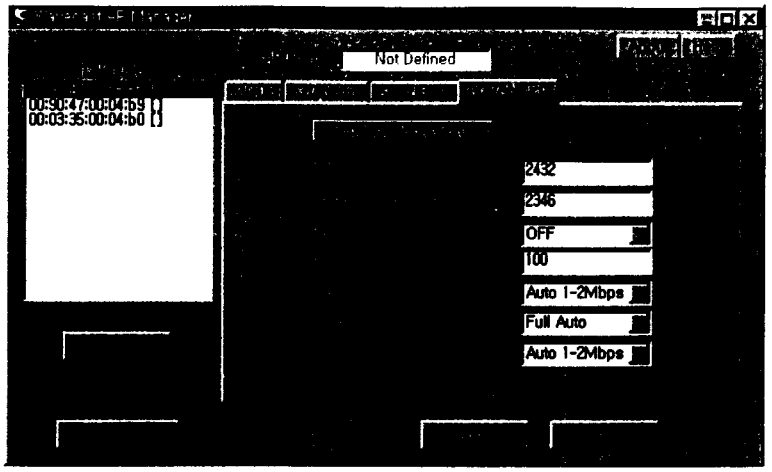
➧**Note:** The factory default password is "password". Changing the password is done in the ADVANCED tab-page (refer below for explanation).

Click on [Rescan] after returning to the AP Manager screen to confirm the change.

➧**Caution:** In order for a station to communicate with an Access Point that has WEP enabled, the station's PCMCIA Card must also have its WEP fuction enabled and use the same encryption key as the Access Point.

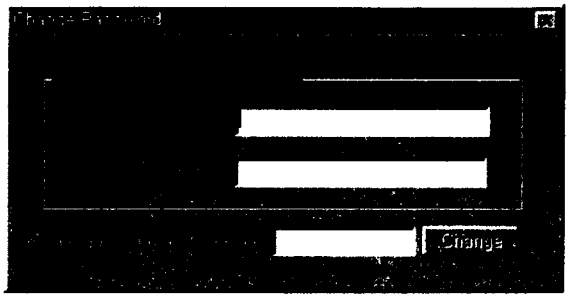
ADVANCED Tab Page

Advanced settings such as password, RTS threshold, etc. can be configured from this tab page.



▶ **Change Password**

Click on [Change Password] and the screen below will appear.



Type in the new password in the [New Password] and [Confirm Password] fields and enter the current password in the [Enter the Current Password] field. Click on [Change] to make the new password effective.

Note: In case the password is lost or forgotten and connection between Access Point and station cannot be achieved, press the "RESET" button on the back of the WaveCast MW411AP Access Point for more than one second and all the configuration settings (including the password) will be changed back to the factory default settings. The factory default's password is "password".

- **RTS Threshold**
  Specifies the number of bytes used for the RTS/CTS handshake boundary.

- **Fragment Threshold**
  Specifies the number of bytes used for the fragmentation boundary for directed messages.

- **Power Save Mode**
  Specifies the power save mode.

- **Beacon Interval**
  Specifies the beacon interval duration in milliseconds. The default value is 100ms.

- **Basic Rates**
  Specifies the Access Point's basic rate.

- **Supported Rates**
  Specifies the data rate supported by the Access Point.

- **Tx Control Rates**
  Specifies the data rate for message transmission.

6. Using the PPPoE Dialer

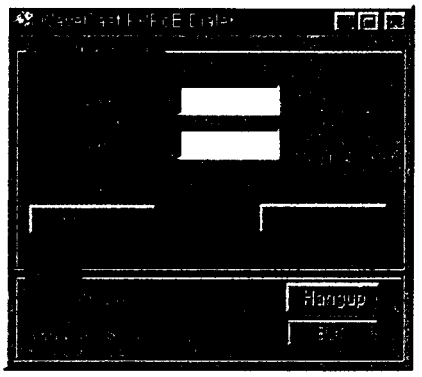
The PPPoE Dialer program can be used to establish a PPPoE connection via the MW411AP Access Point.

➧ **Caution:** Make sure the MW411AP Access Point is set to "IP Sharing" mode and "PPPoE" connection type (set-up via WaveCast AP Manager).

■ PPPoE Connection

1) Click on [Start] > [Program] > [WaveCast AP] > [PPPoE Dialer].

2) The following "WaveCast PPPoE Dialer" screen will appear.

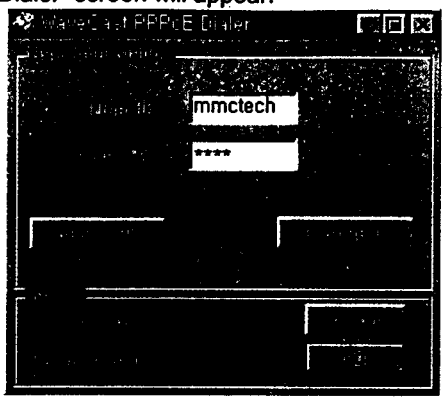


3) Input the appropriate User ID and User Password (provided by the ISP) and click on [Connect]. When PPPoE connection is established, a tray icon will appear at the task bar as shown below.

4) Access the Internet via a web-browser.

Terminating the PPPoE Connection

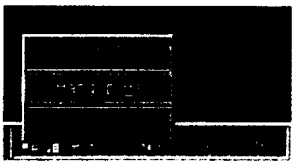
1) Click on [Start] > [Program] > [WaveCast AP] > [PPPoE Dialer] and the following "WaveCast PPPoE Dialer" screen will appear.



2) Click on [Hangup].

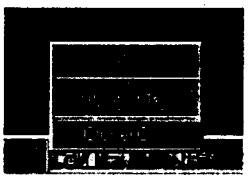
3) Click on [OK] to confirm termination of connection.

➧ **Note:** An alternative way to terminate the PPPoE connection is to right-click on the tray icon and select [Hangup] from the pop-up menu.



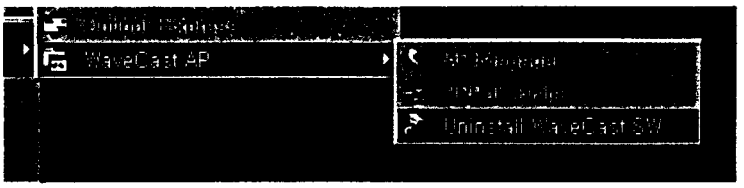
Closing the PPPoE Dialer Program

Right-click on the tray icon and select [Close] from the pop-up menu to close the PPPoE Dialer program.

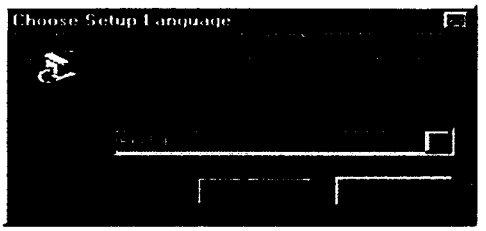


7. Uninstalling the AP Manager

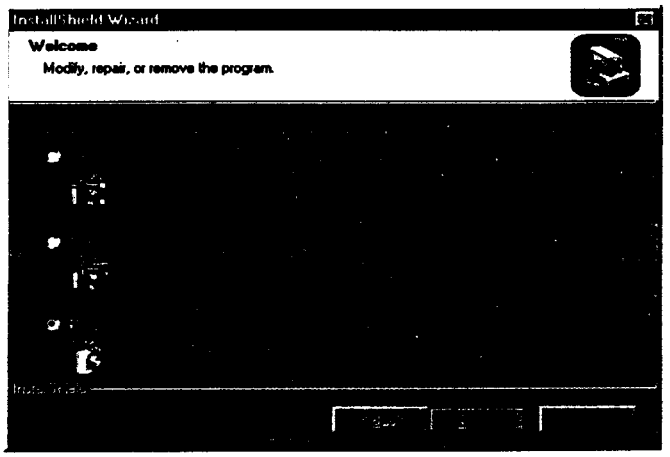
1) Select [Start]>[Programs]>[WaveCast AP]>[Uninstall WaveCast SW].



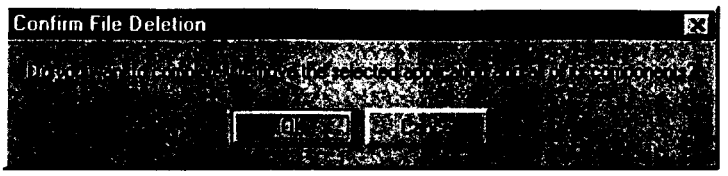
2) The WaveCast uninstall program will start.



3) The following screen will then appear. Select "Remove" and click on "Next".



4) The following confirmation prompt screen will appear. Click on "OK" to confirm removal of the WaveCast program.



5) The screen as shown below will appear informing uninstall is complete. Click on "Finish".