User's Guide

CREWAVE Wireless LAN (CW-1100AP/WLB)

If you want to install a networking system that is not only fast and powerful, but also easy to set up and simple to maintain, it is natural that you should choose a CREWAVE Wireless LAN.

In a short time you and those in your network will be able to share a local printer and files, access the Internet, and roam about the office-wire-free.
Installing CREWAVE Wireless LAN allows the computer to join a wireless network based on the IEEE 802.11b wireless LAN standard.

CREWAVE
Human and Wireless Technology

We are always on-line :
http://www.crewave.com

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PREPARATION

To achieve optimum performance of your CREWAVE Wireless LAN:

Evaluate the area in which the network will be arranged and plan the layout accordingly. The key factors in the layout of your CREWAVE Wireless LANs are the evaluated area in which the network will be deployed and plan the layout accordingly. The key factors in the layout of your LANs are the distance between the Access Points and the spatial and structural design of the network area. Test the performance of your infrastructure network by moving the positions of the Access Points. In most buildings, wireless LAN cards maintain a range of 100 to 300 feet. This distance varies depending on the thickness and composition of the walls.

In some situations, you may need to move a computer or add an Access Point in the networked area to achieve optimum performance or range. Consider the following factors when choosing locations for the Access Points:

- Radio waves pass through walls and glass but not through metal. You may find that reinforcing metal in the structure of some concrete walls blocks the signal.
- Open spaces generally provide the best range, but surrounding large metal walls may cause reflections that reduce the data rate.
- Floors typically have steel girders and other metal material that may block radio waves from traveling between floors.

Notice

1. Connect the CREWAVE 11Mbps Wireless LAN Access Point(this "AP") /Wireless Bridge(this "WLB")to a grounding type AC wall outlet(100~240 VAC) using the standard power cord as supplied with the unit.
2. Placement must allow for easily disconnecting the AP from the AC wall-outlet.
3. Do not cover the AP, or block the airflow to the AP with any other objects.
4. Keep the AP away from excessive heat and humidity and keep the AP free from vibration and dust.

Wireless Bridge Installation

Note

CREWAVE SNMP Manager Utility is a Common Program for Access Point (this AP) and Wireless Bridge.
For the steps required for the initial set up of the Wireless Bridge and SNMP Manager Utility Configuration, please refer to "SNMP manual file" contained in the same folder on the given CD-ROM.

This chapter describes an only additional function of CREWAVE Wireless Bridge.

Using the SNMP Manager

Verify that all CREWAVE 11Mbps Wireless LAN Access Point (this "AP") and Wireless Bridge have been properly installed, and have been powered-on.

CREWAVE SNMP Manager window

1. Run the CREWAVE SNMP Manager (this "SNMP Manager") under Windows ME/2000/98/95/NT (v4.0)/MS-DOS operating system.

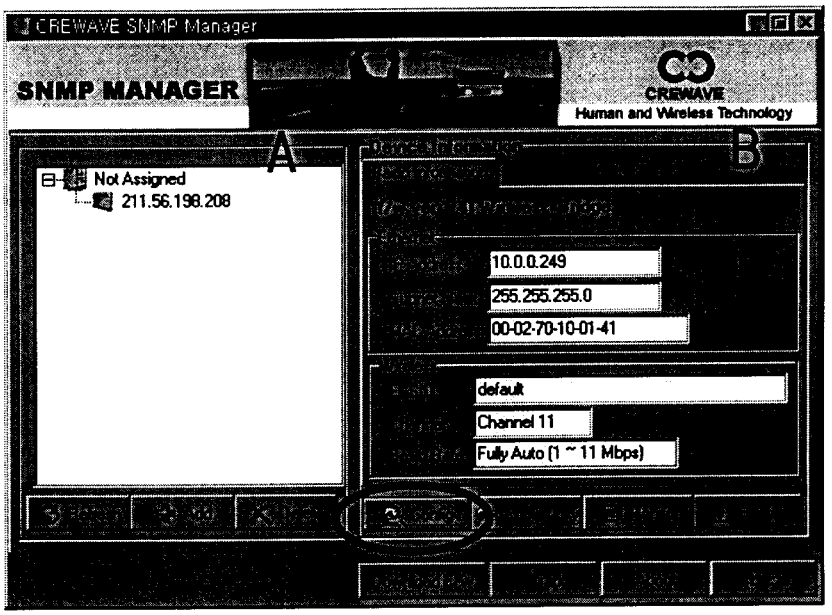
2. Start -> Program -> "CREWAVE SNMP Manager" -> Click "CREWAVE SNMP Manager" Icon.

3. Double-clicking the linked **"Not Assigned"**, and the SNMP Community window appear when you double-click "(211.56.198.208)" using the mouse. Enter the default setting, "public", and then click on "OK" button.

Note

The stored default setting is "public", and you can change the default setting in the Community item : [redacted])

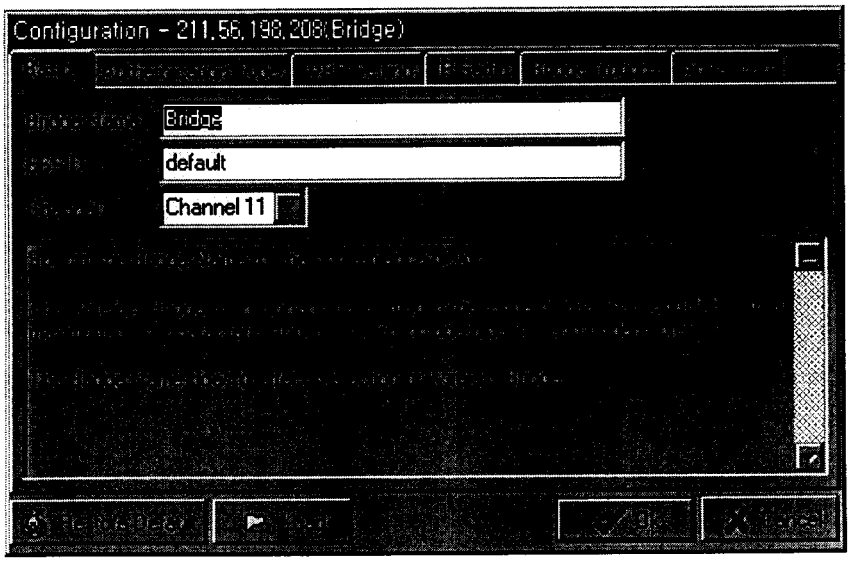
4. Click the "Config" button : 



The following describes an only additional function of CREWAVE Wireless Bridge.

Follow these steps :

1. After clicking the "Config" button, you can specify the AP Name.



(1) Enter a unique ESSID name to be used for the Access Point. ESSID must consist of alphanumeric characters (Max. 32 characters), including '_' except blank and the special characters.

(2) Setting the channel. Channel index should be between 1 and 14(differs from country to country). If you have nothing more to set after consulting with Network Administrator, click the "OK" button.

Notice

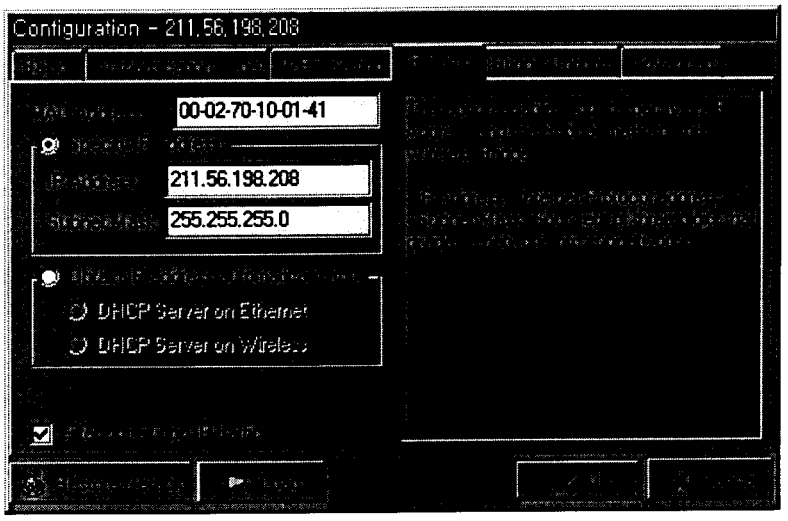
If you are operating two or more Access Point in the adjoining cells, keep the appropriate channel distance to avoid the interference. We recommend you to keep the distance of at least 3 channels in the adjoining cell.

2. "Open System" is recommended.

3. Click the "WEP Setting" button. Encryption uses a 40bits key to control the network access.
   WEP (Wired Equivalent Privacy) is an Encryption scheme that provides the secure wireless data communications to the users.

Please keep the password at a safe place or keep it where it may not get lost.

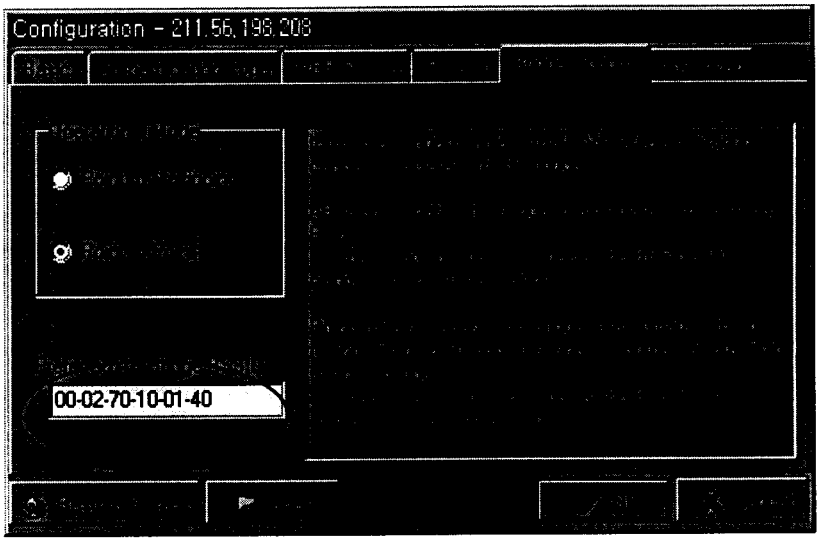
4. In the "IP Setting" Item, set a **IP Address, Subnet Mask** and **Gateway** after consulting with Network Administrator for normal Network.



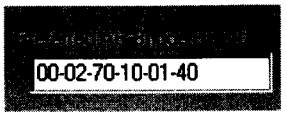
5. Bridge Options Item :

1) Point to Point

This mode allows only two individual LANs to be connected through two Wireless Bridges, creating thus the optimum connection between the two LANs. Packets from any station of the LAN to a station of the same LAN never cross to the other LAN.



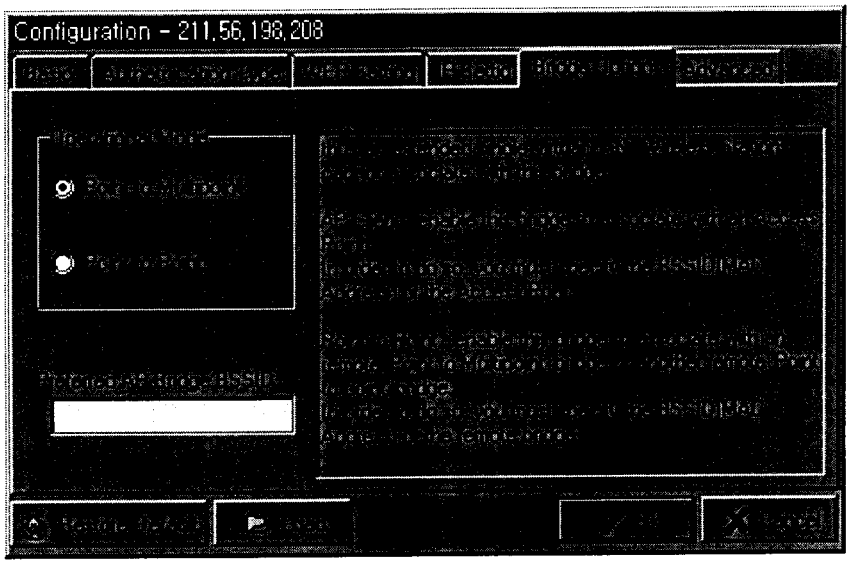
(1) Make it sure that your workgroup have the same channel and ESSID with another clients(the other party).

(2) 

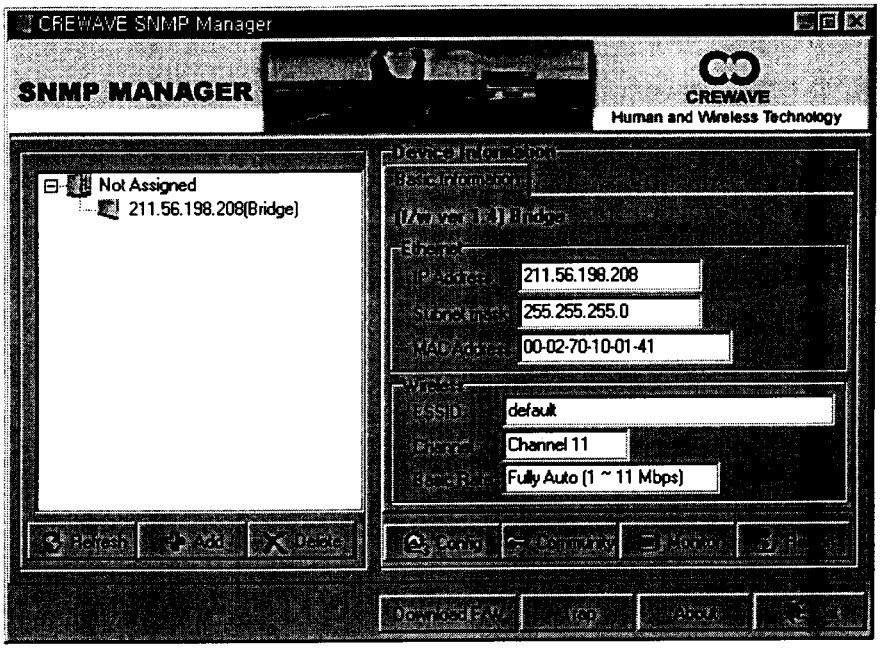
: Enter a MAC Address of the other party.

2) Point to Multi-point

In case the same Channel and ESSID, this mode allows the connection of one or more remote LANs with a central LAN, creating thus an extended single virtual LAN. In this way, any station of the Remote LAN can successfully communicate with any station of the central LAN, as if all of them belonged to the same physical LAN. Wireless Stations can't associate with wireless bridges. The Access Point conducts the designated traffic to the appropriate wired or wireless station.

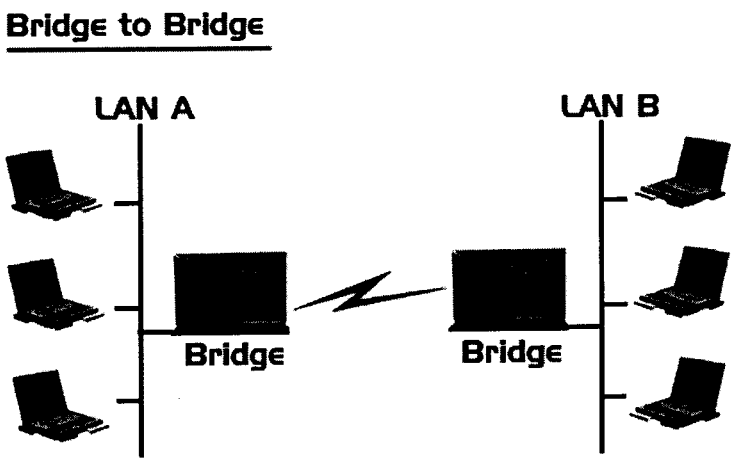


6. The following window appears after clicking the "OK" button.

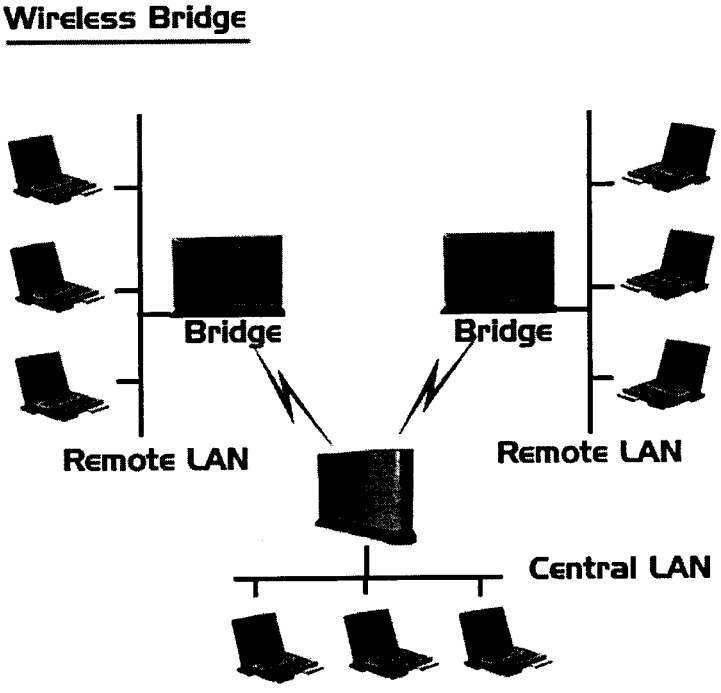

CREWAVE SNMP Manager
SNMP MANAGER
CREWAVE
Human and Wireless Technology
Not Assigned
211.56.198.208(Bridge)
211.56.198.208
255.255.255.0
00-02-70-10-01-41
default
Channel 11
Fully Auto (1 ~ 11 Mbps)

■ Note

- Bridge to Bridge



- Wireless Bridge



INSTALLATION

1. Choose the place with the consideration of power supply and network connection to install the Access Point/Wireless Bridge on a flat surface such as a table or cabinet.

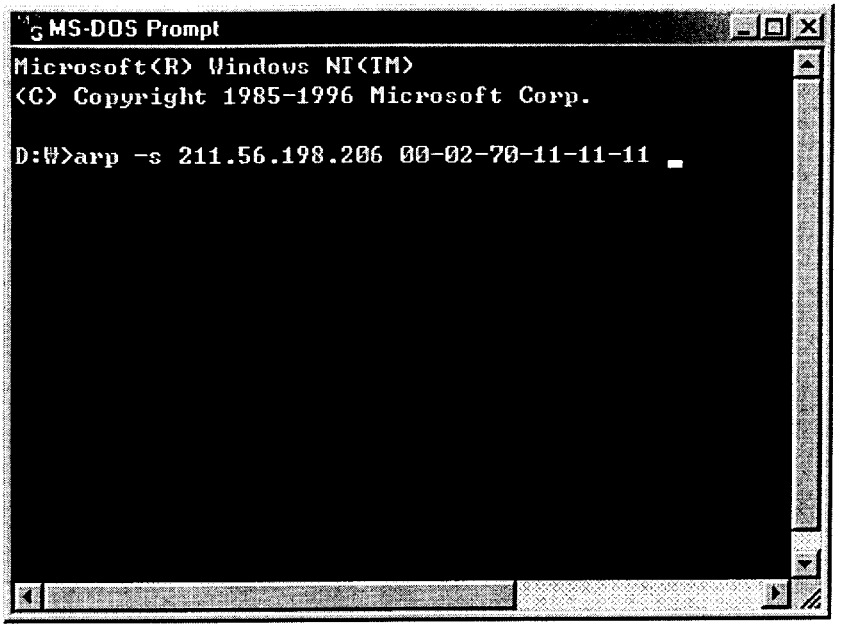
2. Plug in the power cord to the power outlet and adapter. Plug in the DC output to "DC in". Make it sure that the Power LED is on. If the Power LED is not on, please check the connections of the power cord.

Use the supplied power adapter and the standard power supply.

3. Attach Ethernet cable to the RJ-45 Connector. Make it sure that the Ethernet LED is on. If the Ethernet LED is on, you can use the existing network with the Access Point/ Wireless Bridge ; otherwise check the cable connections.

4. You can place the AP on a flat surface as a table or cabinet by the fixed Stand.

5. **The first step in using the CREWAVE Access Point/ Wireless Bridge is to set its IP Address.**
   (1) In order to set the Access Point/ Wireless Bridge IP address you need to know the Access Point/Wireless Bridge MAC address.(**MAC address is marked on products.**)
   (2) Open a MS-DOS Prompt window and enter a static route in the arp table for the new IP address you want to assign. Use the arp –s command to do that : **arp –s "ip_addr" "mac_addr"**
   (For example : arp –s 211.56.198.206 00-02-70-11-11-11)

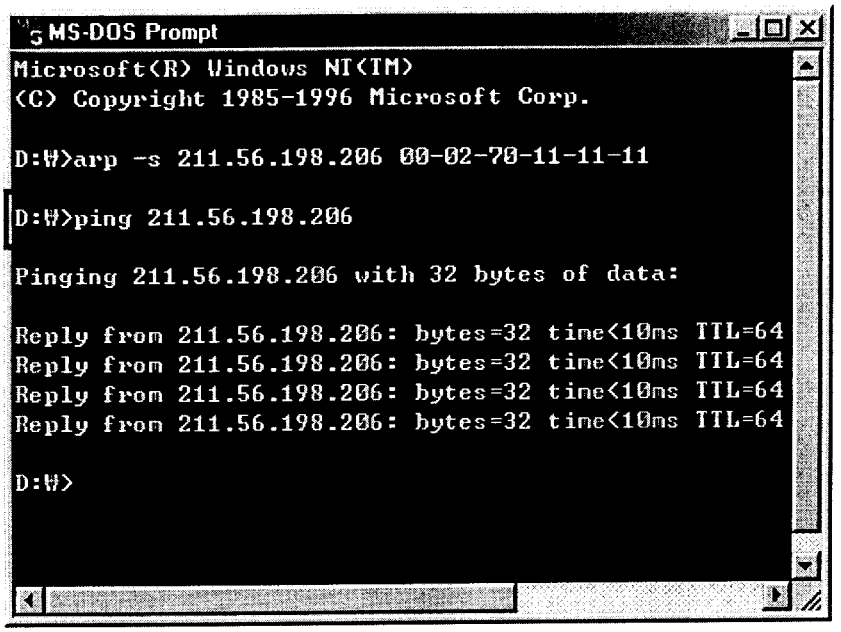


- MAC Address : 00-02-70-11-11-11
- The MAC Address of the Access Point/ Wireless Bridge is indicated in the back of the AP board.

6. Ping the Access Point/ Wireless Bridge, using its new IP address.
   (For example : ping 211.56.198.206)

IF such occasion arises, "Request timed out" in MS-DOS Prompt window, check the cable connections.

If you get a ping reply, then the IP address has been temporarily set. In order to set it permanently you need to proceed to the following process without powering off the Access Point/ Wireless Bridge.


MS-DOS Prompt
Microsoft(R) Windows NT(TM)
(C) Copyright 1985-1996 Microsoft Corp.
D:W>arp -s 211.56.198.206 00-02-70-11-11-11
D:W>ping 211.56.198.206
Pinging 211.56.198.206 with 32 bytes of data:
Reply from 211.56.198.206: bytes=32 time<10ms TTL=64
Reply from 211.56.198.206: bytes=32 time<10ms TTL=64
Reply from 211.56.198.206: bytes=32 time<10ms TTL=64
Reply from 211.56.198.206: bytes=32 time<10ms TTL=64
D:W>

Access Point(include WLB) Software INSTALLATION

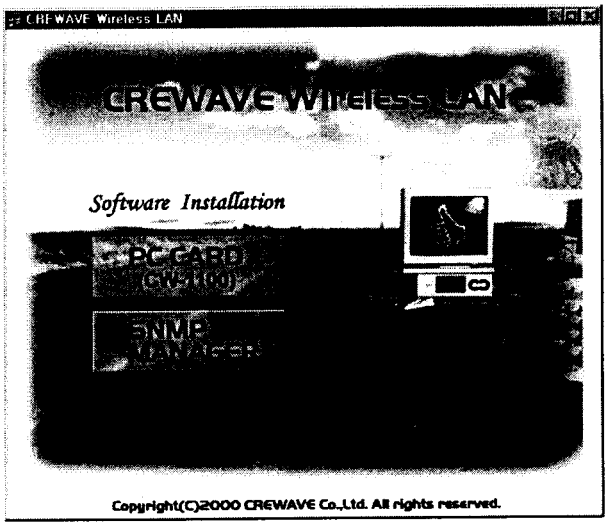
To install and manage the CREWAVE Access Point/ Wireless Bridge Utility (this "SNMP Manager **Utility)** efficiently, please follow the procedure as follows.

■ Note

Before using the SNMP Manager for configuring the CREWAVE AP, verify that the Access Point/ Wireless Bridge IP Address has been set up.

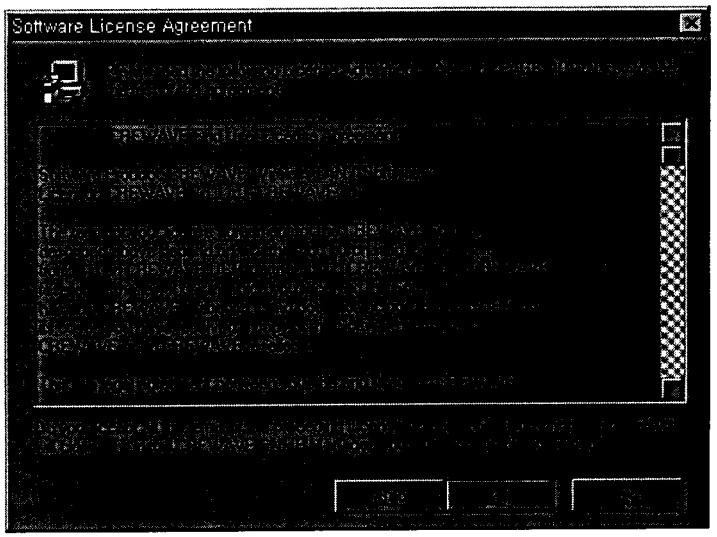
How to Install the SNMP Manager

1. Power on your computer.
2. Exit all windows programs and insert the Installation CD into the CD-ROM drive of your computer.
3. Click **"SNMP MANAGER"** button, and the Installation CD automatically will run a Setup program corresponds with your Operating systems.

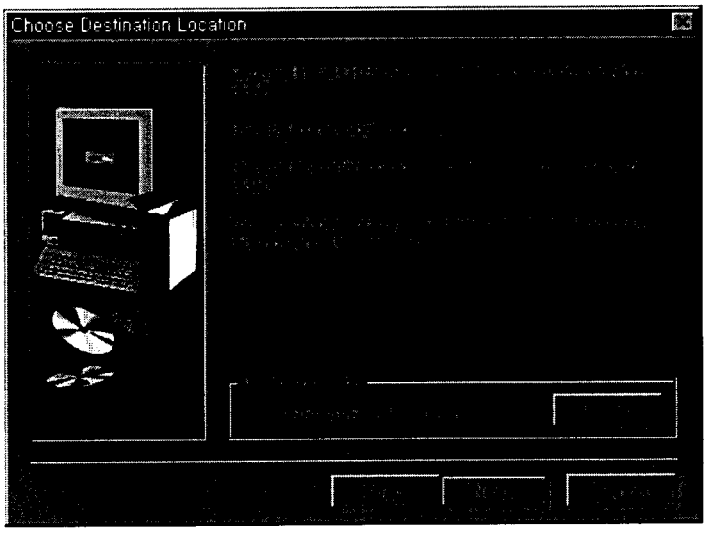


4. Click "**NEXT**" in the **Welcome** dialog box.
5. Accept the **License Agreement** by clicking "**Yes**". If you choose No,

Setup will close. To install CREWAVE SNMP Manager, you must accept this agreement.

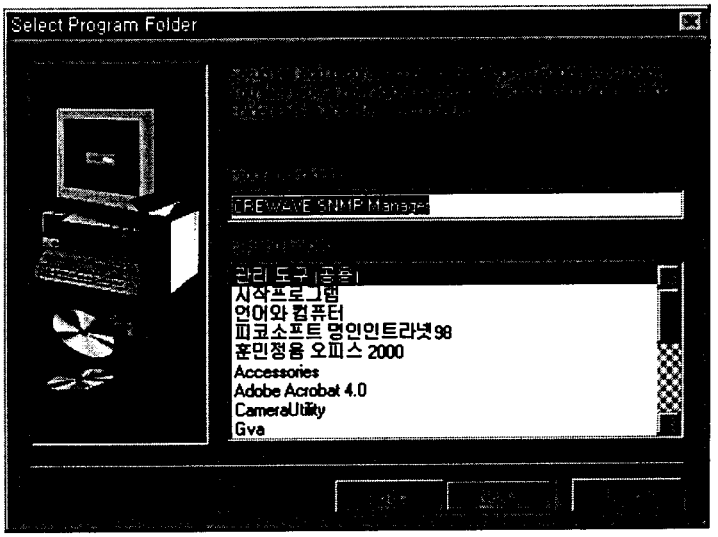


6. You can select another folder, which is where you want to install CREWAVE SNMP Manager in **Choose Destination Location** dialog box.

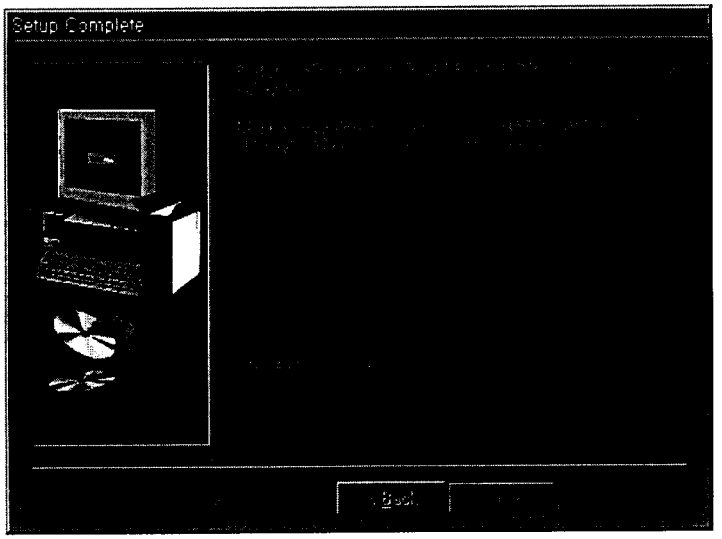


7. Click the Next button after you select a suitable name and list. Setup will

add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing Folder list.



8. Windows Setup automatically will copy files and install the utility files, then click on Finish to complete the installation.



Using the SNMP Manager

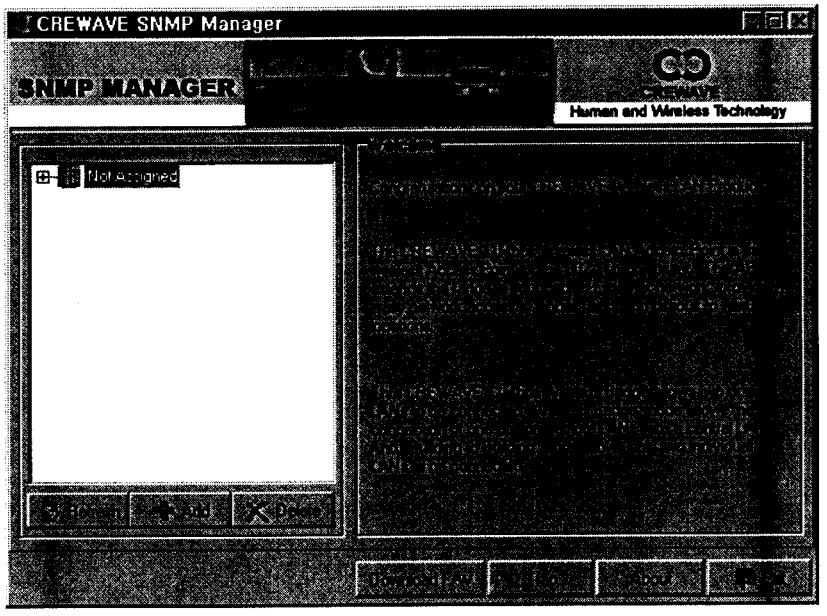
CREWAVE SNMP Manager Utility is a Common Program for CREWAVE Access Point(this AP) and Wireless Bridge.

Verify that all CREWAVE 11Mbps Wireless LAN Access Point (this "AP") and Wireless Bridge have been properly installed, and have been powered-on.

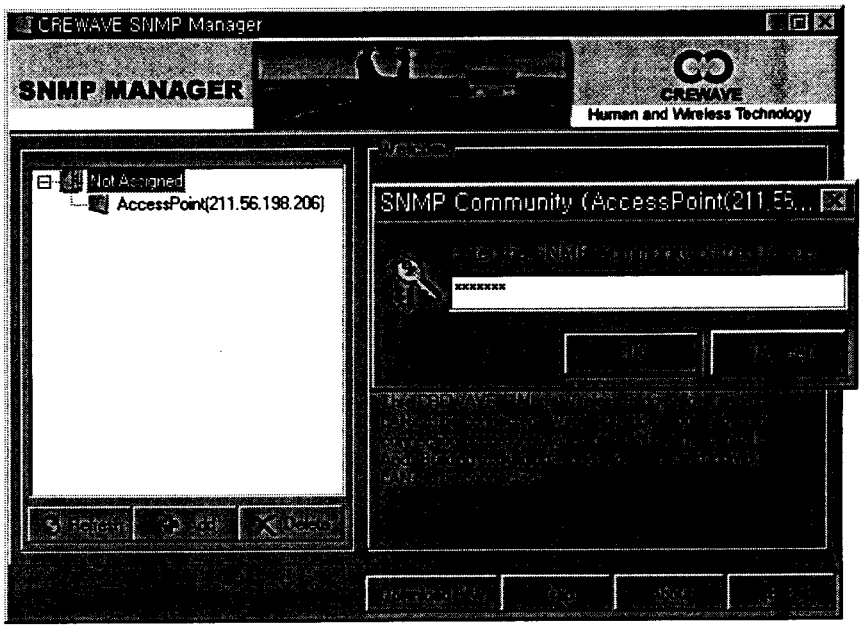
CREWAVE SNMP Manager window

1. Run the CREWAVE SNMP Manager (this "SNMP Manager") under Windows ME/2000/98/95/NT (v4.0)/MS-DOS operating system.

2. You will show the following screen after running the SNMP Manager.



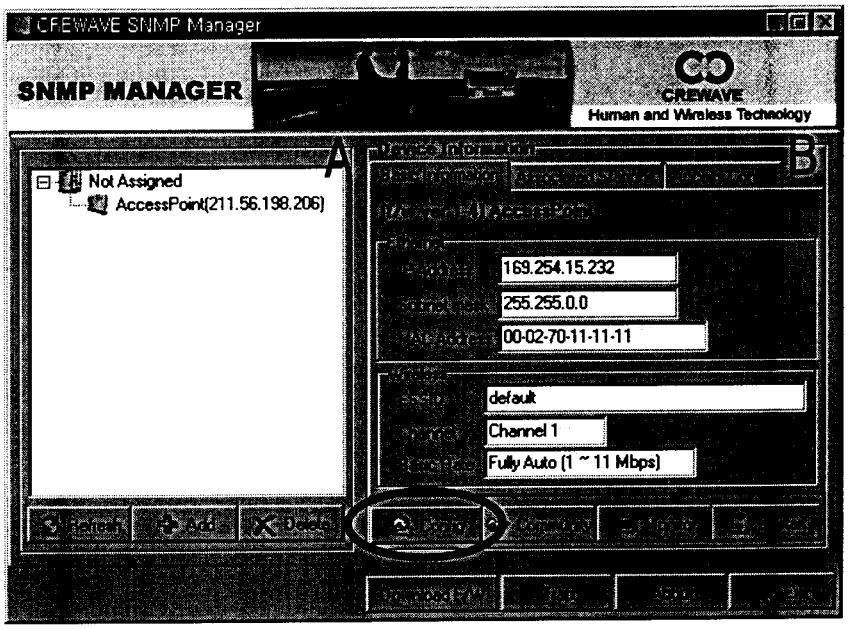
3. Double-clicking the linked **"Not Assigned"**, and the SNMP Community window appear when you double-click "AccessPoint(211.56.198.206)" using the mouse. Enter the default setting, "public", and then click on "OK" button.



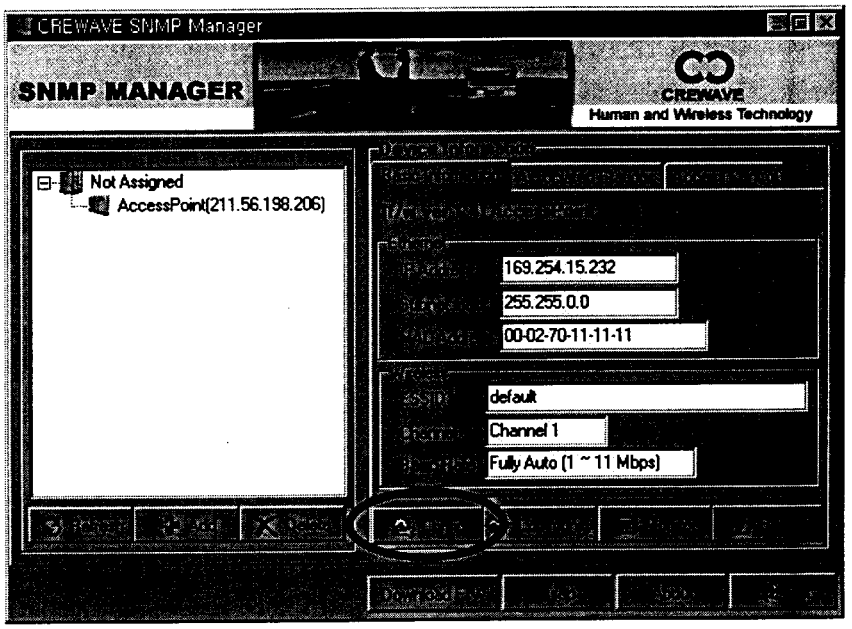
Note

The stored default setting is "public", and you can change the default setting in the Community item : )

4. Click the "Config" button : 

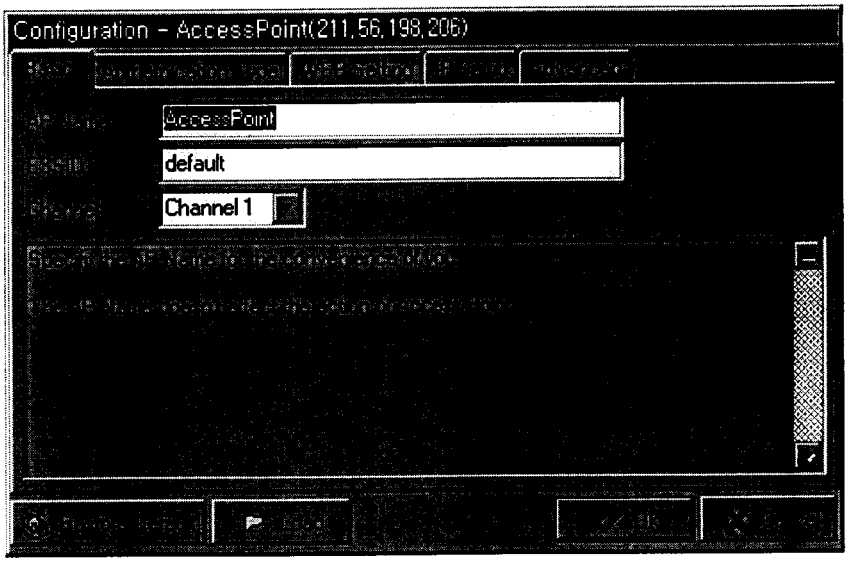

CREWAVE SNMP Manager
SNMP MANAGER
CREWAVE
Human and Wireless Technology
A
B
Not Assigned
AccessPoint(211.56.198.206)
169.254.15.232
255.255.0.0
00-02-70-11-11-11
default
Channel 1
Fully Auto (1 ~ 11 Mbps)

Configuration Utility



Follow these steps :

1. After clicking the "Config" button, you can specify the AP Name.



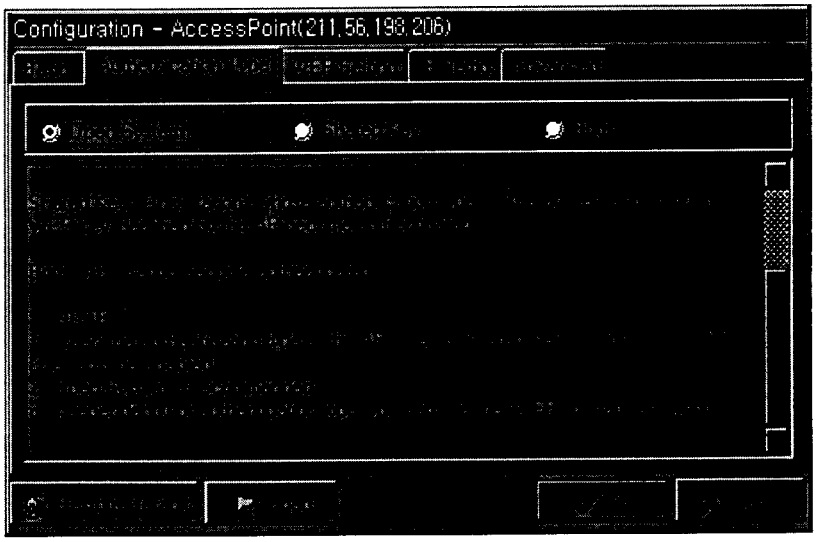
(1) Enter a unique ESSID name to be used for the Access Point. ESSID must consist of alphanumeric characters (Max. 32 characters), including '_' except blank and the special characters.

(2) Setting the channel. Channel index should be between 1 and 14(differs from country to country). If you have nothing more to set after consulting with Network Administrator, click the "OK" button.

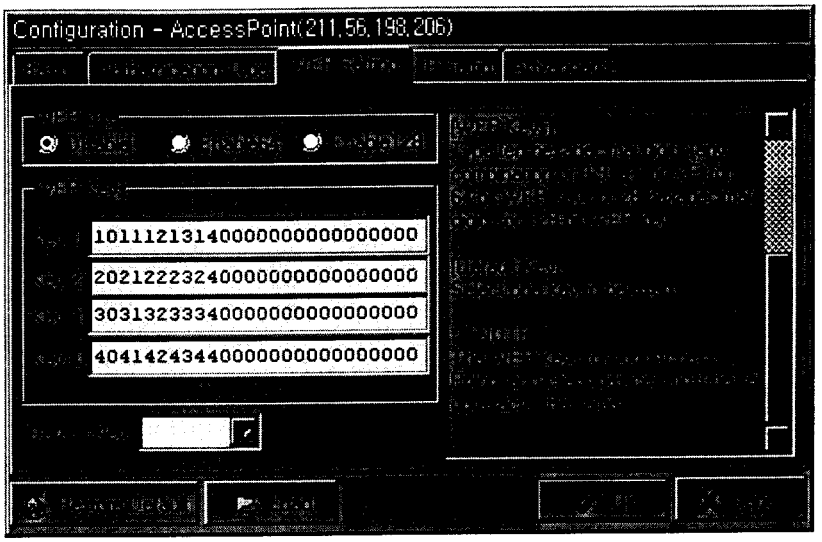
Notice

If you are operating two or more Access Point in the adjoining cells, keep the appropriate channel distance to avoid the interference. We recommend you to keep the distance of at least 3 channels in the adjoining cell.

2. "Open System" is recommended.

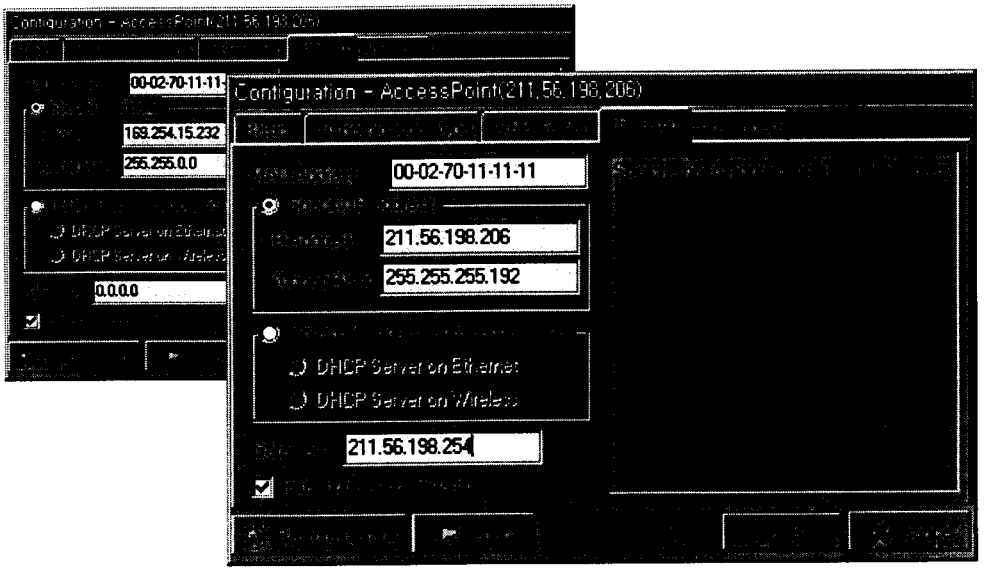


3. Click the "WEP Setting" button. Encryption uses a 40bits key to control the network access.
   WEP (Wired Equivalent Privacy) is an Encryption scheme that provides the secure wireless data communications to the users.

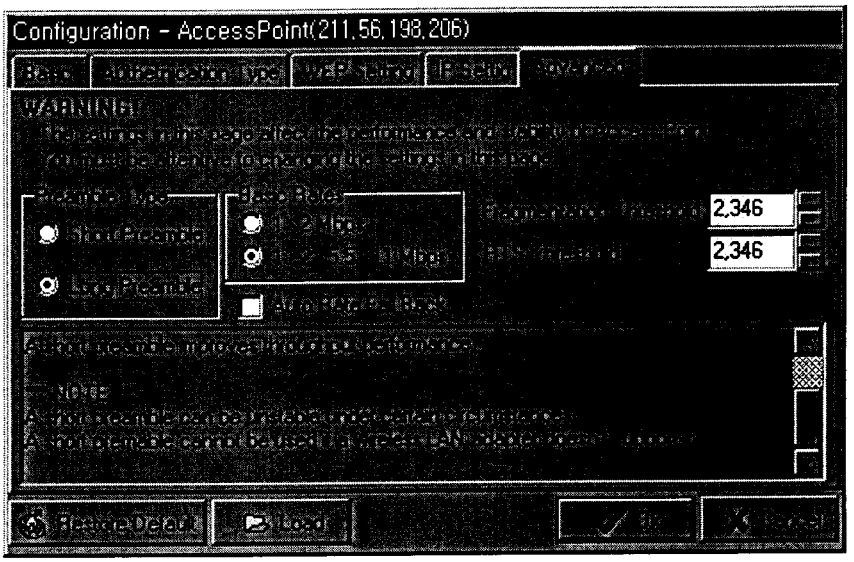


Please keep the password at a safe place or keep it where it may not get lost.

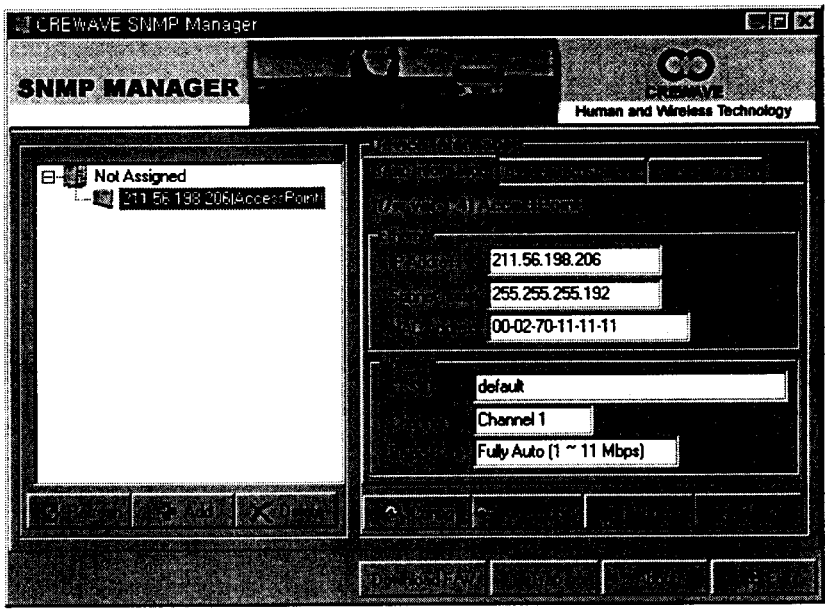
4. In the "IP Setting" Item, set a **IP Address**, **Subnet Mask** and **Gateway** after consulting with Network Administrator for normal Network.



5. The settings in "Advanced" item may affect the performance and stability of Devices. So you must pay attention to change the settings.



6. The following window appears after clicking the "OK" button.



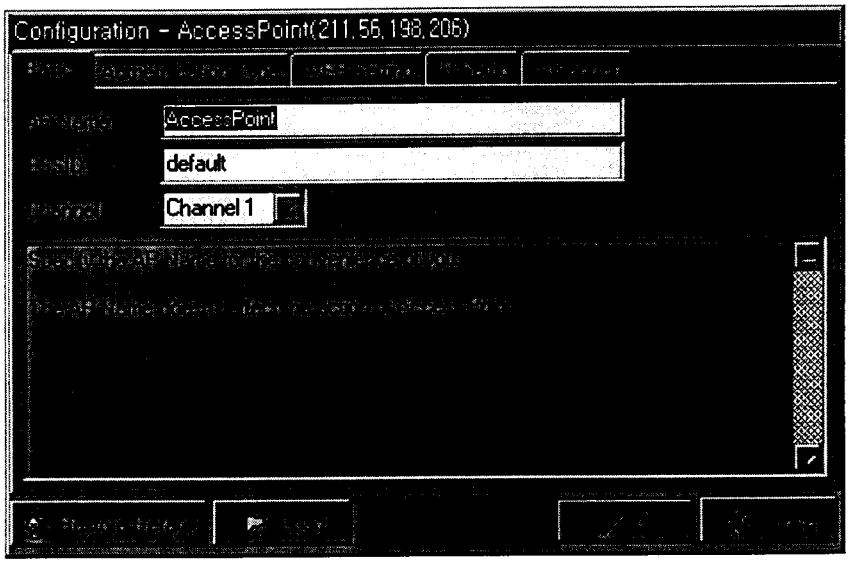
■ Note

(1) Configuration Form

■ Wireless Operational Settings Item

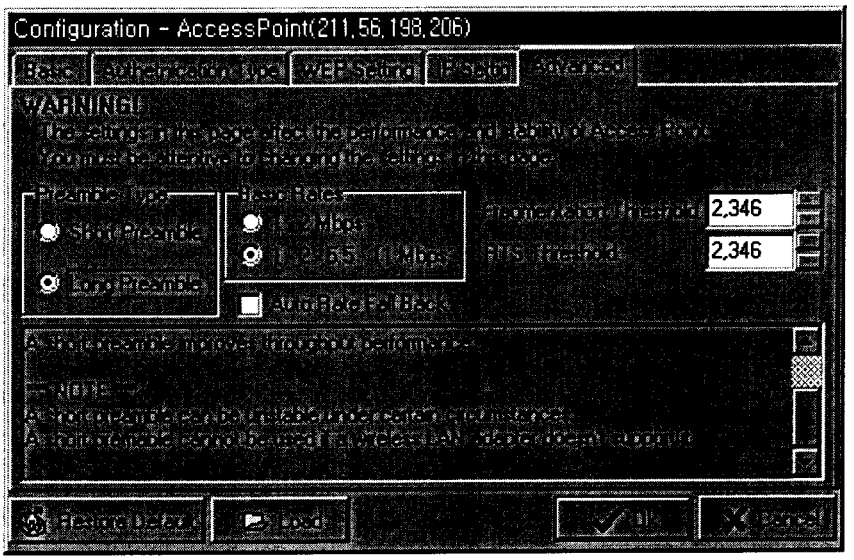
Operation settings : Using this option you can either view or modify the Wireless LAN parameters of the Access Point. These parameters are described below :

Basic window



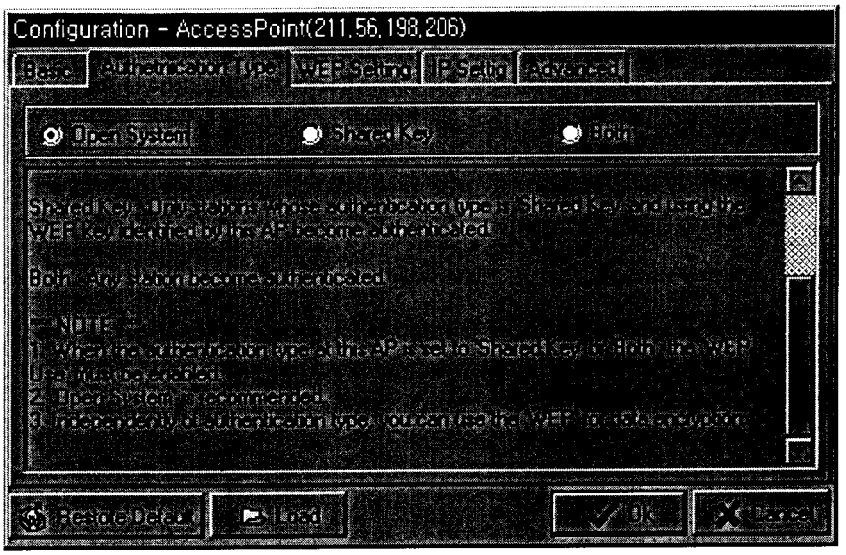
- **ESSID** : It is an ASCII string up to 32 characters used to identify a WLAN that prevents the unintentional merging of two co-located WLANs. The ESSID value must be the same in all stations and Access Point in the extended WLAN. Select the ESSID to be used.
- **Channel** : There are 14 channels available. The channels differ from country to country. Select the channel to be used.

Advanced window



- **Fragmentation threshold** : The size at which packets will be fragmented. Choose a setting within a range of 256 to 2346 bytes.
- **RTS Threshold** : Minimum packet size to require an RTS(Request to Send). For packets smaller than this threshold, an RTS is not sent and the packet is transmitted directly to the WLAN. This the option for the RTS Threshold activation.
- **Preamble Type(Short/Long)** : Preamble is the first subfield of PPDU, which is the appropriate frame format for transmission to PHY(Physical layer). There are two options, Short Preamble and Long Preamble. The Short Preamble option improves throughput performance.
- **Rate** : By default the unit adoptively selects the highest possible rate for transmission Select the basic rates to be used among the following options 1-2(Mbps), 1-2-5.5-11(Mbps)
- **Auto Rate Fall Back** : When this is enabled the transmission rate is the optimum rate. In case of obstacles or interference, the system will automatically fall back.

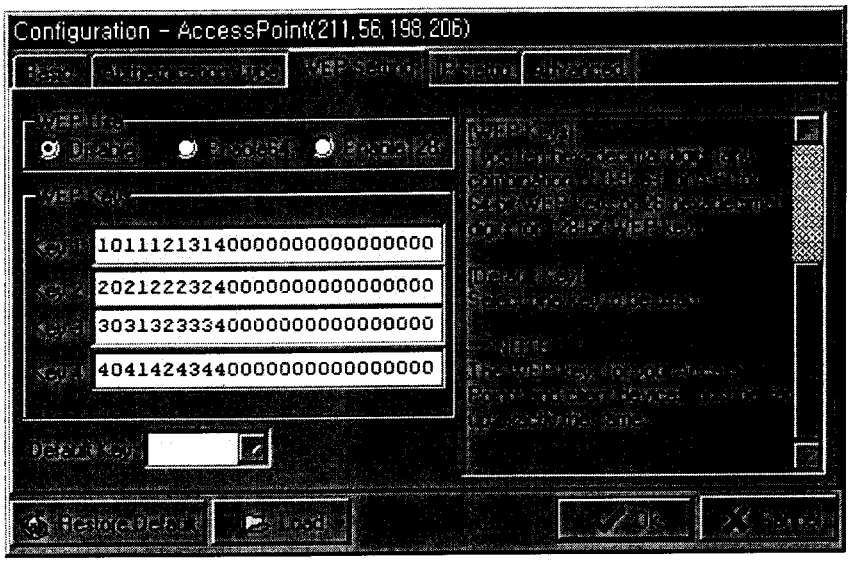
Authentication Type



- **Authentication Type** : Select Open System, Shared Key, or Both
  - **Open System** : With this setting any station in the WLAN can associate with an AP and receive and transmitted data (null authentication)
  - **Shared Key** : With this setting only stations using a shared key encryption identified by the Access Point are allowed to associate with it.
- - **Both** : With this setting stations communicate with the Access Point either with or without data encryption.

Encryption Item

WEP Setting window

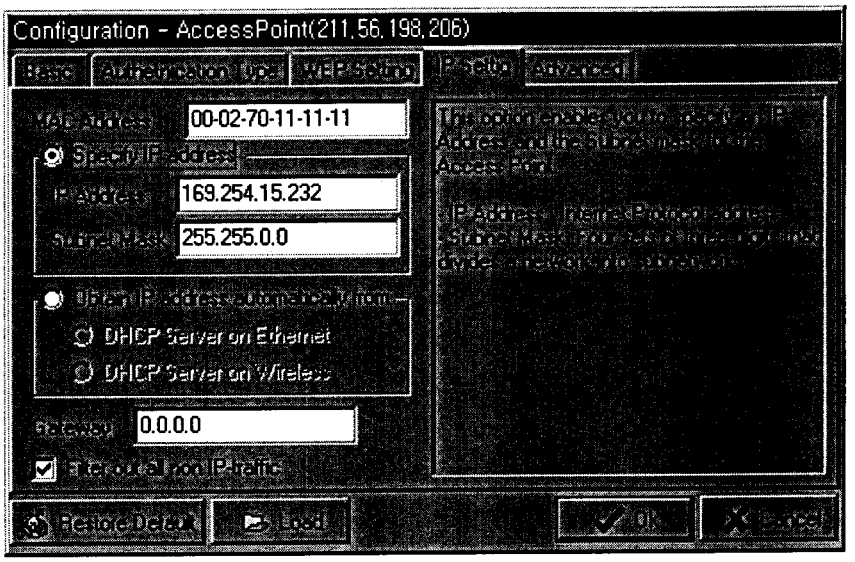


By choosing this option you must define the encryption key values of your choice. There are four 5 Hex digit encryption keys available. The Key is enabled only if you select it in the "Default key" option. Enable the WEP(Wired Equivalent Privacy) option in order to activate WEP encryption for transmissions between the stations and the Access Point. WEP is an authentication algorithm which protects authorized Wireless LAN users against eavesdropping.

The authentication type must be the same on the wireless station and on the access point. All shared keys on the wireless station must be the same as those on the access point with which the client station is associated.

IP Setting Item

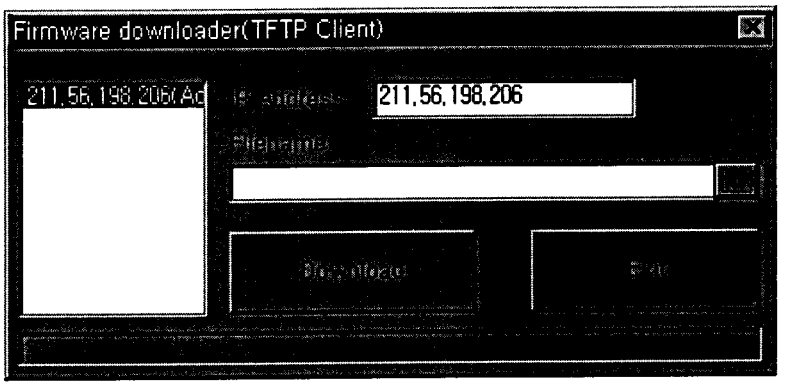
IP Setting window



- MAC Address : Unique 48-bit, hard-coded Media Access Control address known as the station identifier.
- IP Address : Network-assigned Internet Protocol address of the Access Point.
- Subnet Mask : Four sets of three digits that divides a network into subnetworks.
- Obtain IP address automatically from : This option enables this Access Point to obtain IP address automatically from DHCP Server on Network(Ehernet or Wireless)

Download Firmware

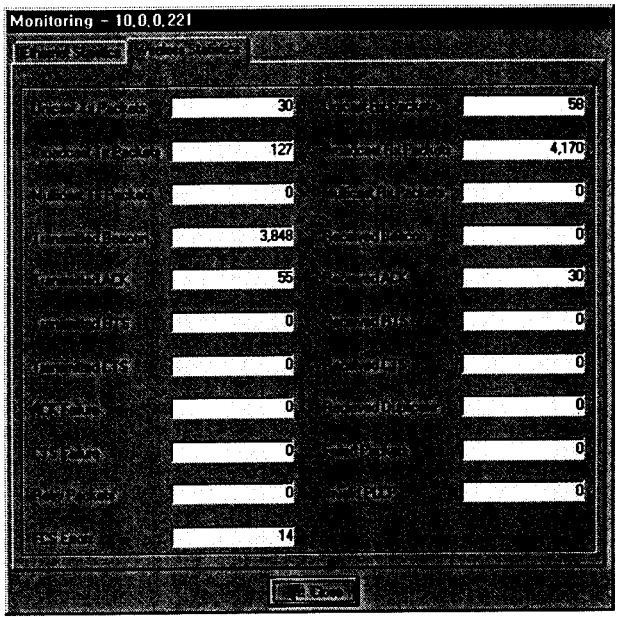
The CREWAVE Firmware upgrade can be done through the TFTP. In order to upgrade the firmware of the CREWAVE - AP/Bridge :



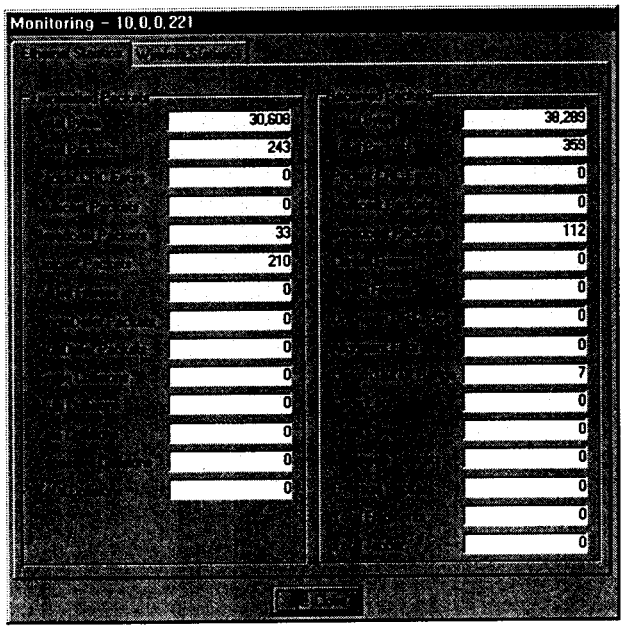
1. Select the appropriate file, by pressing the "Browse (three dots: )" button.
2. Click the "Download" button.
   - All IP addresses of APs/Bridges that are currently running appear in the left-list box.

(2) Monitoring

– Wireless Statistics



- Ethernet Statistics



- **Wireless Statistics**

Field name	Description
[illegible] Packets	The number of unicast packets successfully transmitted
[illegible] Packets	The number of broadcast packets transmitted
[illegible] Packets	The number of multicast packets transmitted
[illegible] Beacon	The number of Beacon packets transmitted
[illegible] ACK	The number of ACK packets transmitted in response to successfully received packets
[illegible] RTS	The number of RTS packets that were successfully transmitted
[illegible] CTS	The number of CTS packets that were successfully transmitted
[illegible] Failure	The number of packets transmitted that did not have their corresponding ACK packet successfully received
[illegible] Failure	The number of packets for which no CTS packet was received in response to a RTS packet being sent.
[illegible] Packets	The number of packets that were retransmitted
[illegible] Errors	Number of frames received with checksum errors
[illegible] Packets	The number of unicast packets that were successfully received
[illegible] Packets	The number of broadcast packets that were successfully received.
[illegible] Packets	The number of multicast packets that were successfully received
[illegible] Beacon	The number of Beacon packets received
[illegible] ACK	The number of packets transmitted that had their corresponding ACK packet successfully received.
[illegible] RTS	The number of RTS received packets
[illegible] CTS	The number of CTS packets received in response to a RTS
[illegible] Packets	Number of duplicate frames received
[illegible]	The packets not transmitted successfully
[illegible] Packets	The number of packets received with Invalid PLCP

- **Ethernet Statistics**

  -Transmitted Packets

Field Name	Description
Total Bytes	The number of bytes in the frames that were received
Total Packets	Total number of transmitted packets
Packets Rx Errors	The number of packets transmitted with CRC Errors
Multicast Packets	The number of Multicast packets that were successfully transmitted (excluded Broadcast packets)
Broadcast Packets	The number of Broadcast packets that were transmitted (excluding Multicast packets)
Unicast Packets	The number of unicast packets that were successfully transmitted.
Pause Frames	The number of pause control frames that were transmitted.
Single Collision Packets	The number of packets which was deferred on its first transmission attempt and did not experience any subsequence collisions during transmission
Multiple Collision Packets	The number of packets aborted which were deferred for an excessive period of time.
Single Collisions	The number of single collision packets. The statistic counter register is incremented during transmission
Multiple Collisions	The number of Multiple Collision Packets. It is incremented for each frame transmitted which experienced 2-15 collisions (including any late collisions) during transmission.
Late Collisions	The number of late collision packets. It is incremented for each packet transmitted which experienced a late collision during a transmission attempt.
Excessive Collisions	The number of Excessive Collision packets. It is incremented for each frame that experienced 16 collisions during transmission and was aborted.

Total Collisions	The number of collisions experienced during the transmission of a frame as defined as the simultaneous presence of signals on the DO and RD circuits.

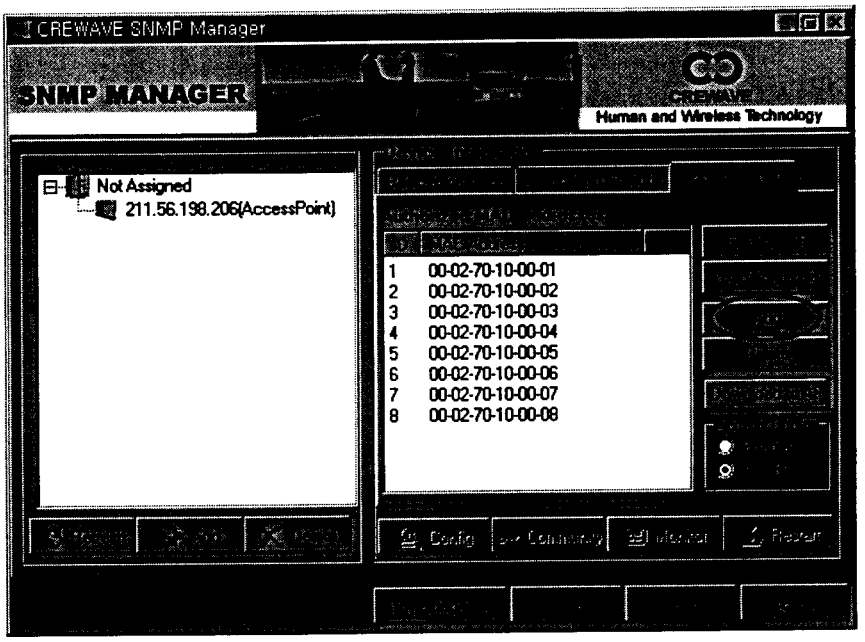
- Received Packets

Field Name	Description
Total Bytes	The number of bytes in the frames that were received
Total Packets	Total number of received packets
Packets CRC Errors	The number of packets with CRC Errors
Multicast Packets	The number of multicast packets that were successfully Received
Broadcast Packets	The number of broadcast packets that were received
Control Frames	The number of control frames that were received
Pause Frames	The number of pause frames that were successfully received
Unknown OP Code	The number of frames that were received which contains an opcode other than a pause
Alignment Error	The number of alignment errors
Length Out of Range	The number of frames received in which the 802.3 length field did not match the number of data bytes actually received.
Code Error	The number of received code errors
False Carrier	The number of false carriers
Undersize Packets	The number of packets that were received which are less than 64 bytes in length and contains a valid FCS and were well formed.
Oversize Packets	The number of packets that were received with exceeded 1518 bytes and contains a valid FCS and were otherwise well formed.
Total Fragments	The number of packets received which are less than 64 bytes in length and contain an invalid FCS, include integral and non-integral lengths.
Total Jabbers	It corresponds to the number of packets received which exceed the 1518 byte length and contain an invalid FCS, include alignment errors.

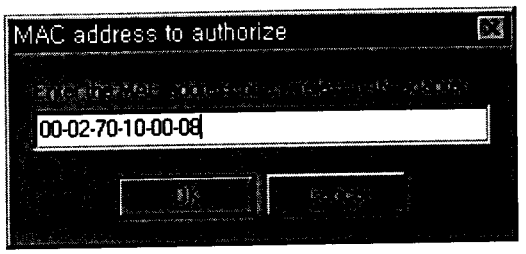
(3) Access Control

Another method (except "WEP Setting") to restrict wireless access to the CREWAVE Access Point/Bridge is to use the access control table feature.

To enable access control you will first need to create an access control table file(*.txt) using the CREWAVE SNMP Manager program.

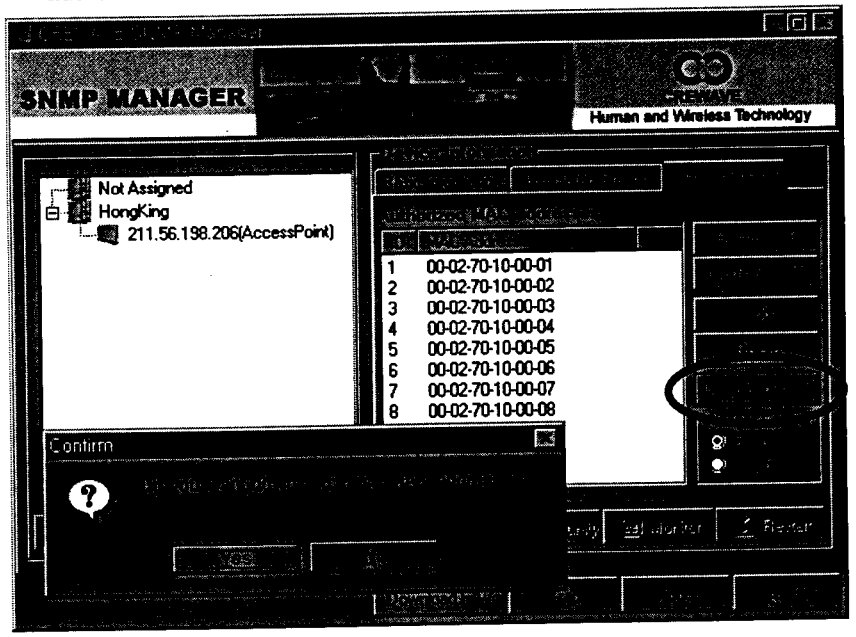


1. Select the **Access Control** tab.
2. Click the **Get from AP** button to display all MAC addresses that are currently authorized.
3. Use the following buttons to modify the MAC address table :
   - Load from a file - to load MAC address that are authorized from a file(*.txt).
   - Add – to add MAC addresses one at a time.



- Delete – to remove MAC addresses one at a time.

4. Click the **Download to AP** button in order to download the listed MAC addresses to the Access Point.



Limited Warranty

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CREWAVE warrants that the CREWAVE Wireless LAN, if properly used and installed, will be free from defects in material and workmanship and will substantially conform to CREWAVE's publicly available specifications for a period of one years after it was purchased.

CREWAVE Wireless LAN is covered by a One(1) Year Limited Warranty.

Warranty remedies, at CREWAVE's option, to repair, replacement, or refund.

EXTENT OF LIMITED WARRANTY

This Limited Warranty entitles you, the original purchaser, to the benefits listed in the CREWAVE Limited Warranty Statements from the date of purchase from a CREWAVE Authorized Reseller.

This limited warranty does not cover damages due to external causes, including accident, problems with electrical power, usage not in accordance with product instructions, misuse, neglect, alteration, repair, improper installation, or improper testing. CREWAVE is not responsible for incidental or consequential damages resulting from any breach of warranty, including but not limited to lost profits, downtime, damage to or replacement of equipment or property.

All CREWAVE products are covered only by the CREWAVE Limited Warranty in the country in which they were purchased. Service for your CREWAVE product in a country other than the one in which it was purchased is available from any CREWAVE Authorized Service Provider in the country concerned, and the full cost of any service

obtained(including parts) must be borne by you.

NOTICE

CREWAVE's responsibility under this, or any other warranty, implied or express, is limited to repair, replacement or refund, as set forth above. These remedies are the sole and exclusive remedies for any breach of warranty. All implied and express warranties are limited in duration to the limited warranty period. No warranties apply after that period.

To obtain warranty service for your CREWAVE products, you may contact CREWAVE Authorized Service Provider, or you may contact CREWAVE.