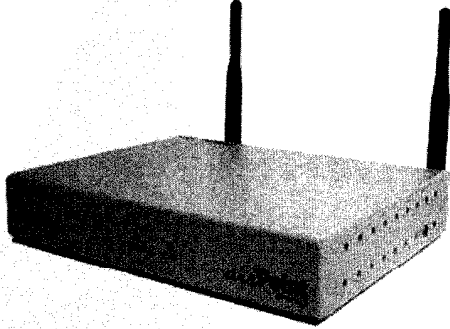# *air*Point
PRO
## Wireless Access Point for the Enterprise

Instant Wireless Access for all Ethernet Equipment

Contents of the airPoint-PRO Package :

- airPoint-PRO hardware
- Ethernet Cable 1.5 meter long
- airPoint-PRO Software Setup CD with User Manual
- 2 External Antennas
- Quick Install Guide
- AC Adapter
- Two Pin Plug for AC Adapter
- PowerShot, Power Injector
- Ethernet Cross Connection Adapter
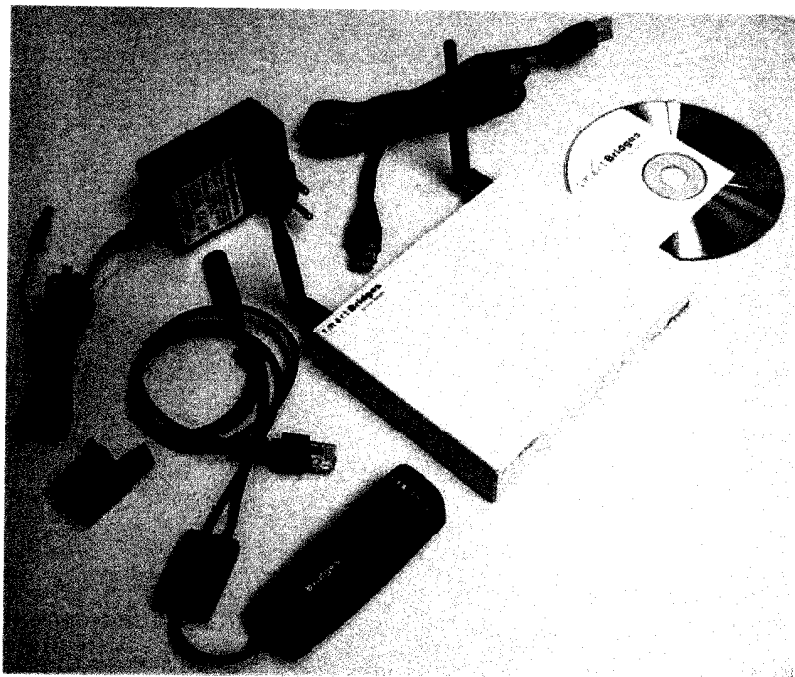
Note :

Unpack the airPoint-PRO kit and make sure that all the items are present. Please Contact your supplier in case of any damage or missing items.

Getting Started

Thank you for purchasing smartBridges' airPoint-PRO Wireless Access Point for Enterprise.

The airPoint-PRO provides instant high speed wireless network connectivity for practically any PC equipped with wireless network card. The airPoint-PRO provides a complete solution to customers who require mobility and freedom in a wireless Local Area Network and wireless Internet connectivity through a gateway. The airPoint-PRO connects directly to the existing LAN/Modem through the Ethernet port. airPoint-PRO Setup Software ensures easy installation and configuration through the Ethernet port. airPoint-PRO draws power from the wide range AC Adapter provided or can use Power Over Ethernet (PoE).

The airPoint-PRO allows you :

- Wireless connectivity of any PC with wireless network card and the wireless network
- Wireless connectivity to a wired LAN.
- Bridging of wireless LANs.

Minimum PC configuration required for Installation / Configuration of airPoint-PRO using setup Software.

- An IBM compatible PC
- Pentium processor (166 MHz or above recommended)
- Microsoft Windows 98SE / Windows 2000/ Windows ME / Windows XP
- Memory - Windows 98SE / ME — at least 16 MB RAM
- Windows 2000 / XP — at least 64 MB RAM
- Free space on Hard Disk Drive — 10 MB recommended
- SVGA display (minimum 800 x 600 resolution with 256 colours)
- A CD-ROM drive
- Ethernet port with the functioning network card configured with TCP / IP for connecting to LAN.

airPoint-PRO Setup Software

Setup Software is a proprietary software developed by smartBridges for the easy installation and configuration of airPoint-PRO. It consists of,

- simpleMonitor – used to configure and set operational parameters of airPoint-PRO.
- FWUpgrade – used to upgrade the firmware residing inside the internal flash memory of airPoint-PRO.

Power supply for airPoint-PRO

airPoint-PRO can be powered through the DC jack mounted on the device or through the Power over Ethernet. Power over Ethernet is preferred and is described. Alternatively the AC adapter (Standard accessory to airPoint-PRO) output can be directly plugged into the DC jack input of airPoint-PRO. User is advised not to use both together although the airPoint-PRO takes power from the DC jack when both are present simultaneously. AC adapter provided gives 12V DC output from a wide range AC Power supply (100V to 264V AC 50 / 60 Hz).
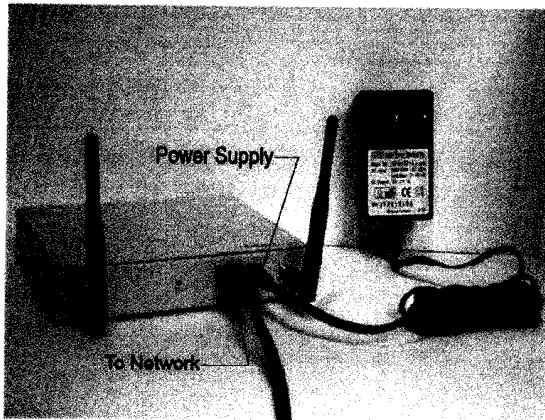

PoE (Power Over Ethernet)

airPoint-PRO can be powered by the DC power sent through the Ethernet cable itself. It works from 12V DC to 50V DC of either polarity. IEEE 802.3af specifies 48V DC for PoE applications. Besides supporting wide DC voltages the airPoint-PRO can provide identification for the capacitive signature identification systems. The Power Sourcing Equipment (PSE) which powers the Powered Device (PD) looks for capacitance as the validity at the terminal device which can take power and not get spoiled. airPoint-PRO supports this identification. BesidesIEEE 802.3af it accepts supply of negative polarity also CISCO systems and normal telephone applications. When there is very cable between the injector and airPoint-PRO the user must increase the DC supply at the injector point so that a minimum of 12V appears at the airPoint-PRO. For short lengths upto 20 meter cable length, the 12 V DC supply at the output of power injector is adequate. For longer lengths please request for higher voltage AC adapter from smartBridges.

Power Injector

smartBridges Power Injector is a standard accessory for airPoint-PRO. It consists of two modules namely AC adapter and power injector. The AC adapter supplied is wide range device operable from 100V to 264V AC 50 / 60Hz AC input. Its output is 12 V DC center pin negative and 2.5 mm dia. User is advised to use the UL to VDE AC inlet plug when using with AC sockets which are not UL type. This plug is standard accessory for airPoint-PRO.

The power injector has two input points and an outlet. One input is DC jack adaptable to the AC adapter output. This is a flying lead connector as shown in the diagram. Other input is RJ 45 Ethernet male connector with a short cable as shown in the diagram. This can be directly plugged into the ethernet signal port of the LAN or PC. There is an LED indicator on the injector indicating power is ON. The outpu port is RJ 45 socket with DC power and is part of the casing itself. A standard RJ 45 male to male cable is provided as standard accessory to power injector to airPoint-PRO. When the user wants to use a longer cable to position airPoint-PRO at a distance, the user is advised to use a standard RJ 45 cable (CAT 5 cable) with 8 wires.
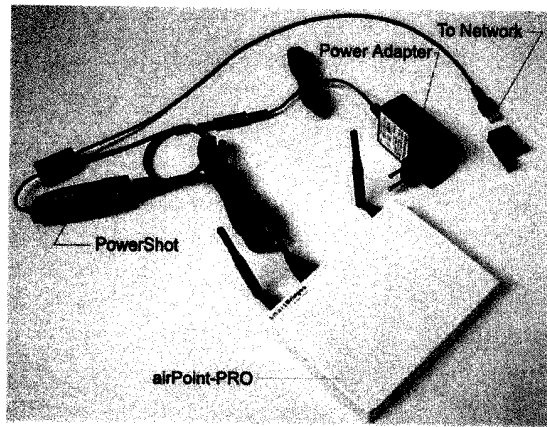
Installing hardware :

Take out the airPoint-PRO from its packing and place it on the desk. airPoint-PRO can be powered in 2 different ways.

- **Power from mains Inlet**

Connect the AC adapter to the mains inlet. If the mains inlet is of different type use necessary adapter. Plug the output cord of the AC adapter into The airPoint-PRO's 12V DC IN socket.

Please do not use other AC adapters because the polarity could be reverse or the current rating may not be adequate.

- **Power Over Ethernet**

The airPoint-PRO can be powered through the ethernet cable itself. This is a preferred mode of operation and flexibility for the user to position the airPoint-PRO at any location for best radio coverage. A detaileddescription of powering through PoE is described in the chapter called PowerSupply for airPoint-PRO

Once the airPoint-PRO is powered, the Orange LED PWR lights up indicating the device is powered. Now connect the Ethernet port of airPoint-PRO to the existing LAN/Modem through the Power Injector (In the case of PoE) or directly (non PoE Operation) with the Ethernet cable provided. User can connect to the PC using cross Ethernet cable. (You can cross the supplied Ethernet cable using the cross connector provided) On the airPoint-PRO the Orange LED shows POWER, Green LED indicates Ethernet activity, Blue LED indicates RF Link.

By default the airPoint-PRO should automatically associate and work with the available Access Point Clients on the network. If you want to select a specific Access Point Client or configure the additional parameters (like WEP Keys) please install the setup Software.

Installing setup Software :

- Insert the CD into the CDROM drive of the PC, the CD will autorun, If it does not autorun, browse the CD and run **setup.exe**

- The installation will create the shortcuts in your Program Menu at smartBridges/airPoint-PRO.
    - Firmware upgrade utility allows upgrading of firmware.
    - simpleMonitor allows configuration of the airPoint-PRO.
    - User Guide shows the User Manual in HTML version.
    - Uninstall the Setup Software

The factory default parameters for the airPoint-PRO are

- IP Address ?192.168.0.24
- Subnet Mask - 255.255.255.0
- Default Gateway - 192.168.0.1
- Administrator Password : public (case sensitive)
- User Password : public (case sensitive)
- Authentication Type : open key

- WEP Keys - None
- Preamble - Long
- WEP Algorithm - Disabled
- Operating Channel : 11
- Regulatory Domain : ETSI
- Operational Mode : Access Point
- Client Authorisation Alogorithm : Disabled

Note :

The administrator should change his password so that configuration settings are not modified by unauthorized personnel, User password allows User to view the config settings but doesn't allow to Change. Only administrator has the authority to change config setting.

Hardware restoration of factory settings :

Use this option to restore back to the factory settings in case of any error or forgotten password. Press and hold the ☐eset?key on the back of the airPoint-PRO continuously. The TX/RX LED will stop blinking for a few seconds. Release the key when the LED resumes blinking again. After restoring the factory settings reconfigure the airPoint-PRO again.

Configuring the airPoint-PRO

The setup software installed on the windows PC will allow the user to modify the configuration and operating parameters of the airPoint-PRO and upgrade the latest firmware.

It consists of 2 parts.

- **simpleMonitor** ?used to modify the configuration and operational parameters of airPoint-PRO.
- **FWUpgrade** ?used to upgrade the firmware residing inside the airPoint-PRO.

At the time of installation the shortcuts for the simpleMonitor and FWUpgrade are created on your PC.

The simpleMonitor

The simpleMonitor Utility is provided to allow the user to configure the airPoint-PRO through the Ethernet connection.

> Linux/Unix Users: Though these operating systems are not supported by simpleMonitor, the airPoint-PRO works in these environments and it can be configured under these operating systems using SNMP. A configurable Management Information Base file (MIB) named AT76C510.MIB can be found on the Setup CD Linux Folder. This file is for Linux/Unix users only, and is not necessary for any Windows installation.

Setting the Temporary IP Address :

To use the simple Monitor for configuring airPoint-PRO through your standalone PC, you must assign a temporary IP address to your computer as below :

1. Start -> Settings -> Control Panel, then Network.
2. Click on the network adapter associated with the TCP/IP and click Properties.
3. Note your current settings in order to restore your TCP/IP configuration.
4. Select Specify an IP address and enter the following values as per your Network Configuration: e.g.
   - IP ?192.168.0.30,
   - Subnet Mask- 255.255.255.0
5. Click OK and click OK again in the Network window.
6. Restart the computer if asked.

> Note : The default IP of the airPoint-PRO is set as 192.168.0.24, the default Subnet Mask as 255.255.255.0 and default Gateway as 192.168.0.1. If you have changed it to some other values, while configuring previously, please assign the suitable setting to the network card.

Once you have completed the airPoint-PRO Configuration, you can set the PC back to its previous mode.

Restoring the Original IP Configuration

To restore your original IP address configuration, follow the steps below:

1. Follow steps 1 and 2 in the instructions above.

2. Select either Specify an IP address or Obtain IP address automatically and enter in the original values you noted earlier.
3. Click OK and click OK again in the Network window.
4. Restart your computer if asked.

Connecting airPoint-PRO to the LAN/PC

Either connect the airPoint-PRO to the PC using the Cross Ethernet cable(you can convert the supplied Ethernet cable into cross Ethernet Cable using the cross connector provided), Or Connect it to your normal LAN using straight Ethernet cable. Make sure the power to the airPoint-PRO is ON.

Starting simple Monitor

Start the simple Monitor from the shortcut provided on the Program Menu. as smartbridges/airPoint-PRO/simpleMonitor. simpleMonitor window will open.
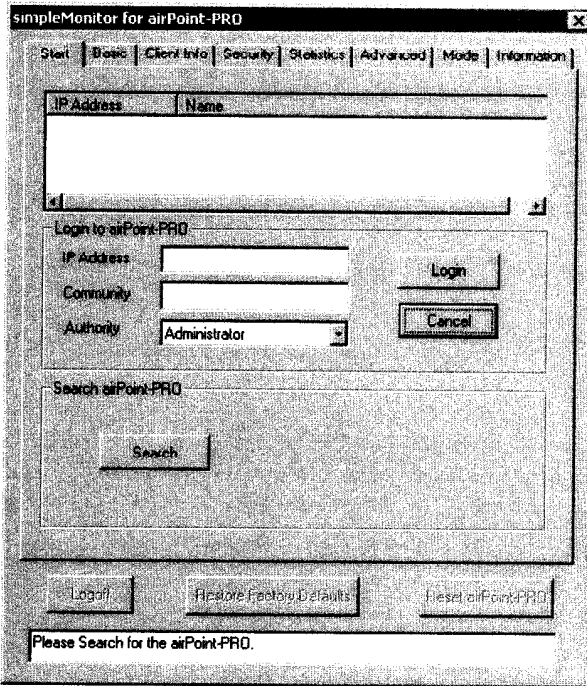

Click on Search to find the airPoint-PRO you have connected.

If the airPoint-PRO is found then it will show the airPoint-PRO entry as below and request you to select and Login.

Click on IP address of the desired device and Key in the community name (Default is ublic? and desired
Autority (User/Administrator) and Click Login button to log in to airPoint-PRO.
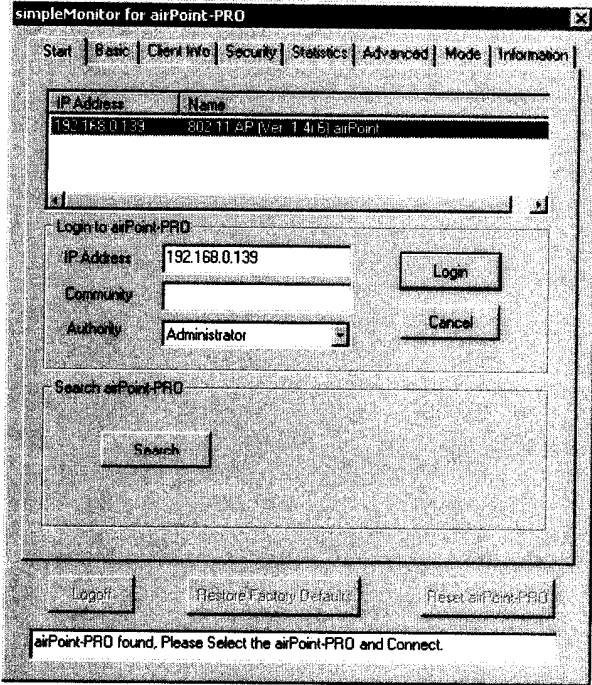
In case of a successful connection to the airPoint-PRO, simpleMonitor acknowledes by enabling all the tabs.
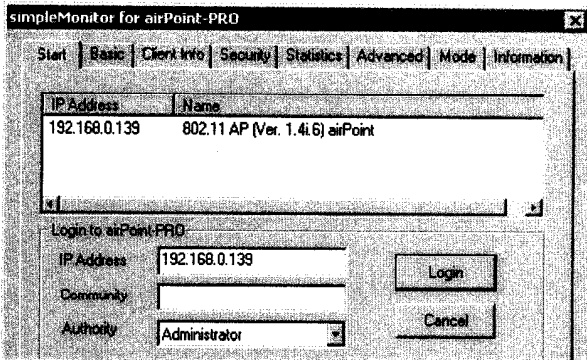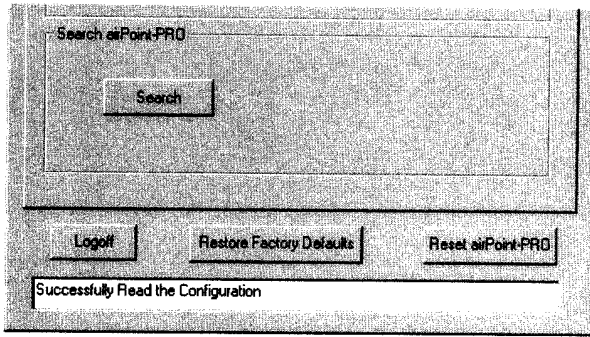
If the airPoint-PRO is not found on the network simpleMonitor gives the message below. Under this condition the user
should look for connections to the airPoint-PRO, power ON and temporary IP setting to correct the situation.
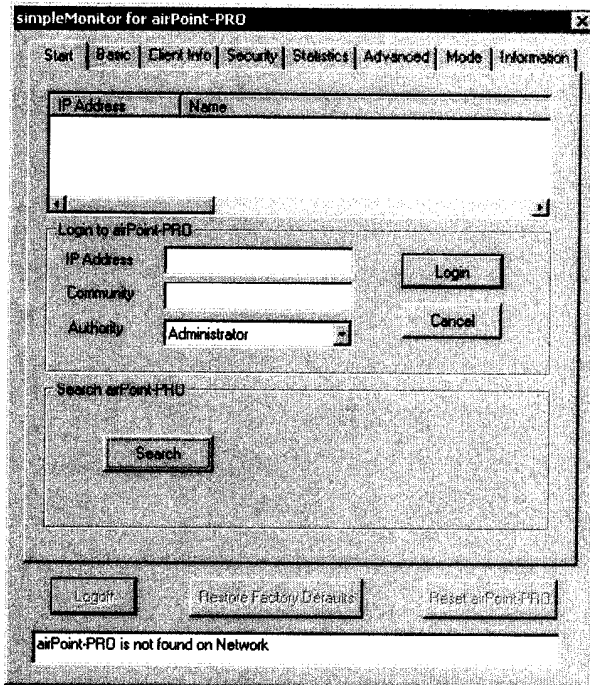
Once the Connection is Established with the airPoint-PRO, then user has access to most of the Settings.

You can reset the airPoint-PRO by clicking .eset airPoint-PRO?Button. This is equivalent to power ON/OFF of a device.

You can restore the factory default values of the airPoint-PRO by clicking .estore Factory Defaults" Button. If you mess around with the setting, and can not connect any more, use this option to restore the Factory Defaults. Once you restore the defaults you need to login to airPoint-PRO again. The factory defaults include

- IP Address : 192.168.0.24
- Mask : 255.255.255.0
- Gateway : 192.168.0.1

Configuring airPoint-PRO

As soon as the connection has been established, you are able to start viewing or setting the airPoint-PRO parameters.

Basic Settings
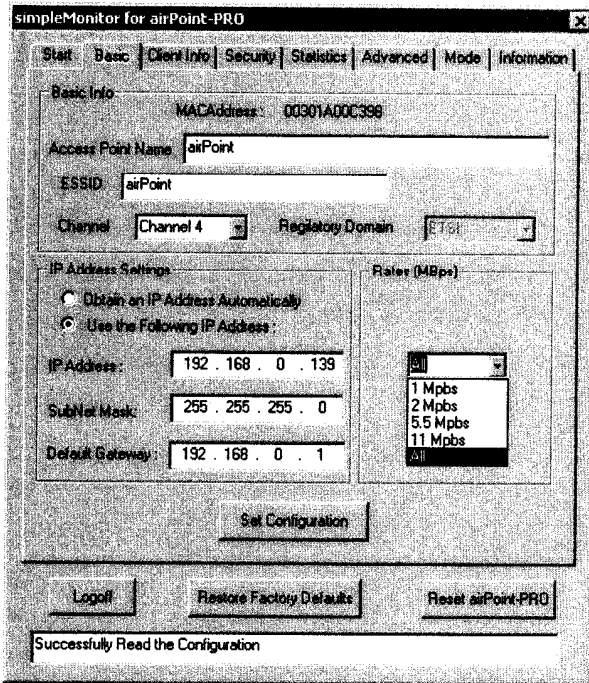
- MAC Address : Unique 48-bit, hard-coded Media Access Control address known as the station identifier. (User can not change it).

- Access Point Name : The name of the Access Point. (Max. Length 32 Characters).

- ESSID : The ESSID or SSID is the unique name shared among all points in a wireless network. The ESSID must be identical for all points in the network. It is case sensitive and must not exceed 30 characters. Make sure that all points in the network are given the same ESSID. It is used to identify a WLAN that prevents the unintentional merging of two co-located WLANs or intrusion of outsider.

- Channel : There are 14 channels available. The channels differ from country to country. Select the channel to be used in your Country. The list of different Channels allowed in different Domains as follows.

Regulatory Domain	Channels Allowed
FCC	1-11
DOC	1-11
ETSI	1-13
SPAIN	10,11
FRANCE	10,11,12,13
MKK	14
MKK1	1-14

- Regulatory Domain :The value of this field is already set and can not be modified.
- IP Address : Network-assigned Internet Protocol address of the airPoint-PRO.
- IP Mask : Four sets of three digits that divide a network into subnetworks.
- Gateway : Default Gateway on the network.
- The DHCP client can run on the airPoint-PRO. If you wish to use the DHCP client then select □btain IP Address Automatically?otherwise you have to manually enter the IP Address, IP Mask and Gateway values.
- Rates : By default the unit adaptively selects the highest possible rate for transmission. Select the basic rates to be used among the following options 1 - 2 - 5.5 - 11 (Mbps)- all.

If any changes are made in the above configuration, you need to Click on □et Configuration?in order to save them. If you change the IP settings of the airPoint-PRO then you need to login again into the airPoint-PRO.

Client Information
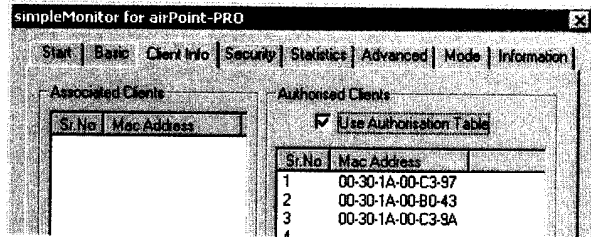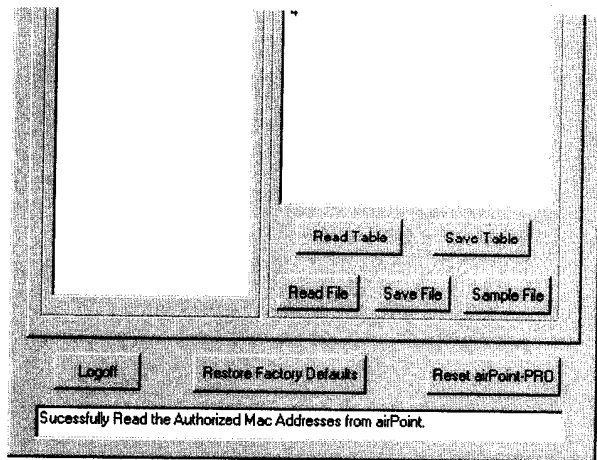
This tab allows you to know which are the associated the airPoint-PRO clients with the airPoint-PRO and the Authorized Clients option allows the airPoint-PRO to associate with the certain clients for which the MAC Addresses are known.

1. **Associated Clients**

   The windows shows the MAC Addresses of the Associated Access Point Clients.

   o For USB or PCMCIA or onboard Access Point Clients it shows the MAC Address of the Client
   o For Ethernet based clients it may show the MAC Address of the network device at the back of Client.

2. **Authorized Clients**

   The authorized client option can be enabled by selecting the "Use Authorization Table" option.

   The authorized client table can be retrieved from the Access Point by using "Read Table" option". If the entries are found then it will be displayed on the screen or one need to key in the entries. Entries can be entered one by one manually or by using the entries in the file.

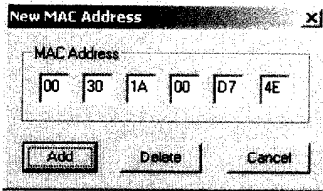   1. **Loading entries stored in the text file**

      ▪ The Read file?button in used to load the MAC Addresses stored in a file (say MAC.TXT).
      ▪ To create a text file (e.g. MAC.TXT) using Notepad or another text editor.
      ▪ Enter the 12 digit MAC address of each adapter that you wish to authorize communication with the airPoint-PRO. ONE PER LINE!!!!!!!!
      ▪ You can have a look at the sample file by clicking ample File?button
      ▪ Save the file. Be sure to note the full path to the saved file.
      ▪ Click the Read File button.

- A screen will pop-up prompting you to browse for the file (e.g. MAC.TXT). Once you have located the file, highlight it and click Open.
- All the MAC addresses that you entered into the text file should now appear in the window.
- You can save the MAC Addresses on the screen into a file by clicking Save File?option.

2. **Loading Manual Entry**

You can change the MAC address or Add more MAC addresses by double clicking on the individual entry. A popup screen will be displayed as below which will allow you to change the value.

Press the ?u>**Save Table**?button in order to download the Authorized MAC Address to the airPoint-PRO

Security Tab

Sucessfully Read the Authorized Mac Addresses from airPoint.
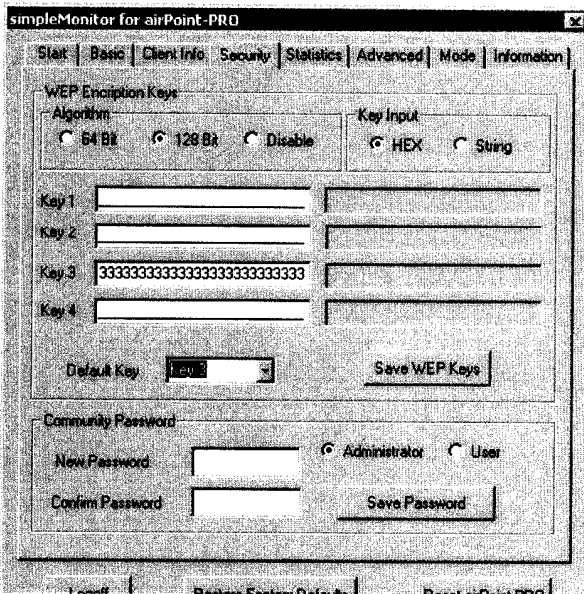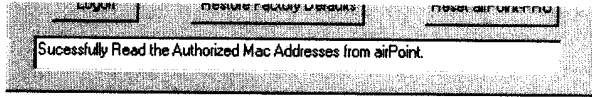
There are four 5 digit encryption keys available if you select 64bit WEP or there are four 13 digit encryption keys available if you select 128bit WEP. Both String and HEX Keys are provided, but String Based Keys are for smartBridges specific products. For interoperability with other vendors please use the HEX Keys. The key is enabled only if you select it in the   efault key?option in the Enable the WEP (Wired Equivalent Privacy) option in order to activate WEP encryption for transmissions between the stations and access points. WEP is an authentication algorithm which protects authorized Wireless LAN users against Eavesdropping.

If any changes are made in the above configuration, you need to Click on   ave WEP Keys?in order to save them.

> **Note :** The Authentication type must be the same on the Access Point Clients and on the Access Point. All shared keys on the wireless station must be the same as those on the Access point Clients with which the airPoint-PRO is associated.

The Administrator can change the passwords which refer to the community field for the User and the Administrator Authority. Only by entering these passwords, administrator can change the settings. So it is highly recommended that you should change them from factory defaults. Default passwords for both USER and ADMINISTRATOR are **?u>public.?/b>**
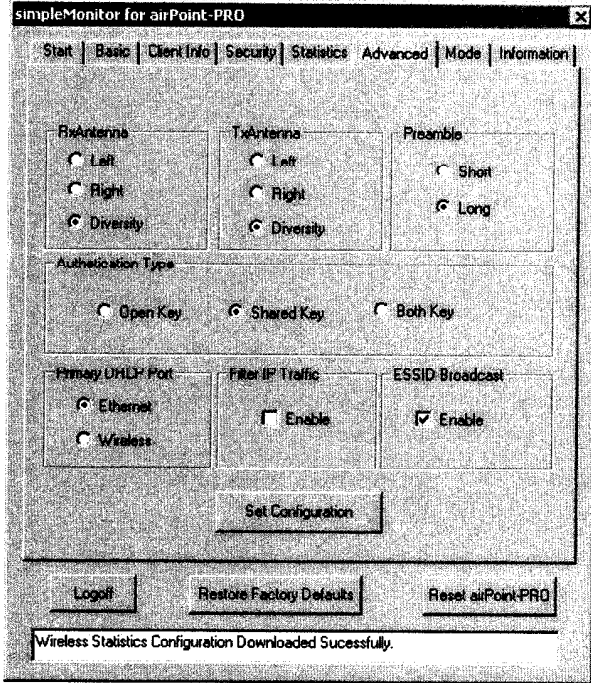
airPoint-PRO Statistics
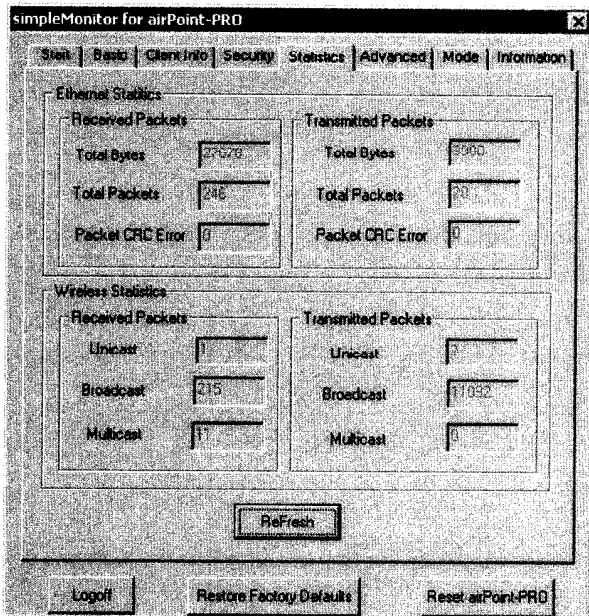
Wireless Statistics Configuration Downloaded Sucessfully.

- **Wireless statistics** : Wireless statistics reports the statistics concerning the airPoint-PRO Wireless activity.
- **Ethernet statistics** : Ethernet statistics reports the statistics concerning the airPoint-PRO Ethernet port activity.

Advanced Settings

RxAntenna : Allows the user to select between Left and Right Antenna for Reception of signals. Diversity options will select the Antenna with best possible signal reception sensitivity(recommended).

TxAntenna : Allows the user to select between Left and Right Antenna for Transmission of signals. Diversity options will select the Antenna according to signal reception sensitivity(recommended).

Preamble Type : Preamble is the first subfield of PDU, 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.

Authentication Type : The authentication type defines configuration options for the sharing of wireless networks to verify identity and access privileges of roaming wireless network cards.

1. **Open System** : With this setting any station in the WLAN can associate with an Access Point and receive and transmit data (null authentication).
2. **Shared Key** : With this setting only stations using a shared key encryption identified by the Access Point are allowed to associate with it.
3. **Both** : With this setting stations communicate with the access point either with or without data encryption
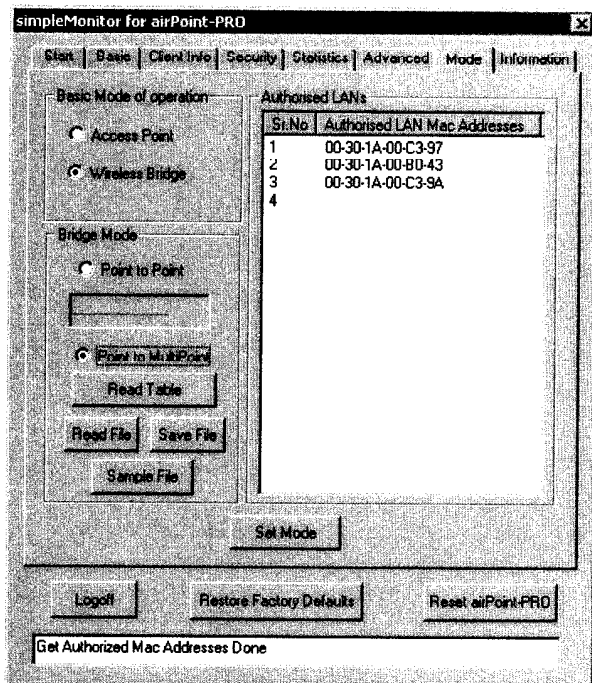
You can select the **Primary Port** of the device which is the interface that determines the DHCP server.

If the **IP Routing** is enabled, only the IP protocol packets will pass through the airPoint-PRO and any other protocol will be filtered out.

SSID of the airPoint-PRO will be broadcasted if **ESSID broadcast** option is enabled.

If any changes are made in the above configuration, you need to Click on ☐et Configuration?in order to save them.

Mode of Operation

simpleMonitor for airPoint-PRO

Start | Basic | Client Info | Security | Statistics | Advanced | Mode | Information

Basic Mode of operation
- ○ Access Point
- ● Wireless Bridge

Bridge Mode
- ○ Point to Point
- ● Point to MultiPoint
- Read Table
- Read File | Save File
- Sample File

Authorised LANs

Sl.No	Authorised LAN Mac Addresses
1	00-30-1A-00-C3-97
2	00-30-1A-00-B0-43
3	00-30-1A-00-C3-9A
4	

Set Mode

Logoff | Restore Factory Defaults | Reset airPoint-PRO

Get Authorized Mac Addresses Done

airPoint-PRO has 2 different Mode of operation.

1. **Access Point Mode**

   This is a normal Access Point Mode in which various Access Point Clients can associate with airPoint-PRO.

2. **Wireless Bridge Mode**

   In this mode 2 or more LANs can be bridged wirelessly.

   1. **Point to Point**

      This mode lets one airPoint-PRO talk to another airPoint-PRO wirelessly linking two Ethernet LANs behind together. A feature in this mode is that each airPoint-PRO must specify the MAC address of the airPoint-PRO at the opposite end of the wireless bridge. When the airPoint-PRO is set to this mode, it can't talk to Access Point clients.

   2. **Point to MultiPoint**

      This mode lets multiple airPoint-PRO linking multiple Ethernet LANs. In order to bridge multiple LANs, simply key in the MAC address of the Network Bridges on different LANs into the corresponding authorization tables.

      The authorized LAN table can be retrieved from the Access Point by using "Read Table" option". If the entries are found then it will be displayed on the screen or one need to key in the entries. Entries can be entered one by one manually or by using the entries in the file.

      1. **Loading entries stored in the text file**

         - The ⬚ead file?button is used to load the MAC Addresses stored in a file (say MAC.TXT).
         - To create a text file (e.g. MAC.IXI) using Notepad or another text editor.
         - Enter the 12 digit MAC address of each LAN Bridge that you wish to authorize communication with the airPoint-PRO. ONE PER LINE!!!!!!!!
         - You can have a look at the sample file by clicking ⬚ample File?button.
         - Save the file. Be sure to note the full path to the saved file.
         - Click the Read File button.
         - A screen will pop-up prompting you to browse for the file (e.g. MAC.TXT). Once you have located the file, highlight it and click Open.
         - All the MAC addresses that you entered into the text file should now appear in the window.
         - You can save the MAC Addresses on the screen into a file by clicking ⬚ave File? option.

      2. **Loading Manual Entry**

         You can change the MAC address or Add more MAC addresses by double clicking on the individual entry. A popup screen will be displayed as below which will allow you to change the value.