802.11b Access Point

User's Guide

FCC Certifications

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

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

FCC RF Radiation Exposure Statement

This device and its antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

All trademarks and brand names are the property of their respective proprietors.

Specifications are subject to change without prior notification.

Table of Content

INTRODUCTION

The **Wireless 802.11b Access Point** is an IEEE802.11b compliant access point, which provides a powerful high-speed wireless connection for compatible wireless-enabled devices into the network with the freedom to roam.

This Access Point provides 64/128bit WEP encryption, WPA and IEEE802.1x which ensures a high level of security to protects users' data and privacy. The MAC Address filter prevents the unauthorized MAC Addresses from accessing your Wireless LAN. Your network security is therefore double assured.

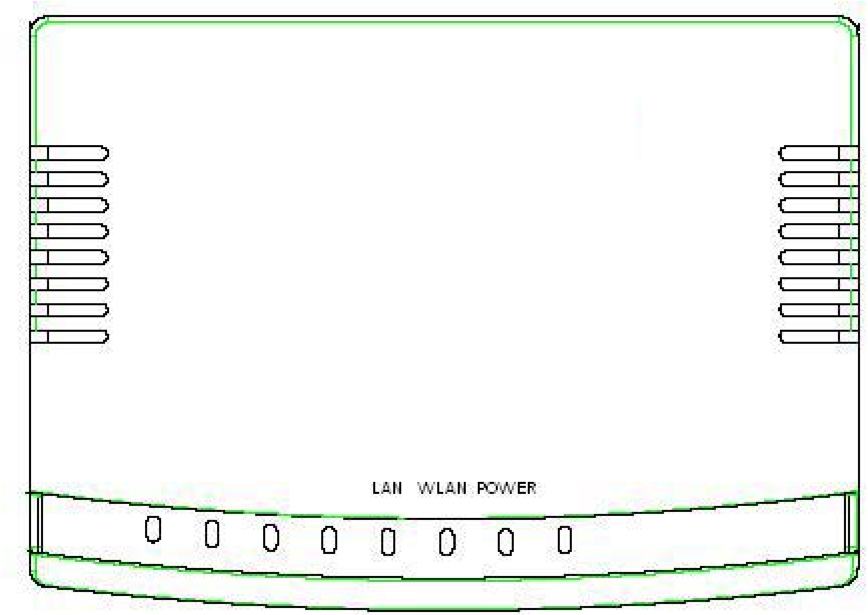
The web-based management utility is provided for easy configuration that your wireless network connection is ensured to be always solid and hassle free.

Features

- Support WPA.
- Support AP client mode.
- Support WDS for bridge mode.
- Support data rate automatic fallback.
- Automatic channel selection.
- Client access control.
- Support 802.1x/Radius client with EAP-MD5, TKIP encryption.
- Support IAPP.
- Adjustable Tx power, Tx rate, and SSID broadcast.
- Allow WEP 64/128 bit.
- Support SNMP v1/v2.
- Web redirection for unauthorized clients.
- Web interface management.
- Support System event log and statistics.
- MAC filtering.

Parts Names and Functions

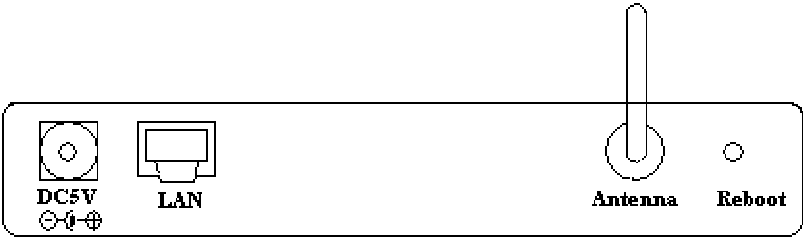
1. Front Panel: (LED Indicators)



LED Indicator	*Status*	
	Solid	**Dim/ Flashing**
Power	Turns green when the device is turned on.	Dim when no power is applied.
WLAN	Turns green when this device is connected to a network equipment. The green light will vanish once a wireless LAN card is connected to the device.	Flashing when this device is sending/receiving data
LAN	**10M:**Turns yellow when the LAN port is connected with 10M Ethernet cable. **100M:** Turns green when the LAN port is connected with 100M Ethernet cable.	Flashing when this device is sending/receiving data

Table 1: LED Indicators

2. Rear Panel: Connection Ports



Port/button	Functions
DC 5V	Connects the power adapter plug
LAN	Connects to Ethernet
ANTENNA	2.5dBi 1/4 λ dipole antenna with reverse SMA connector
REBOOT	Use a pin-shape item, for example a pin tip, to press this button to re-boot this device when the device stop working properly.

Table 2: Connection Ports

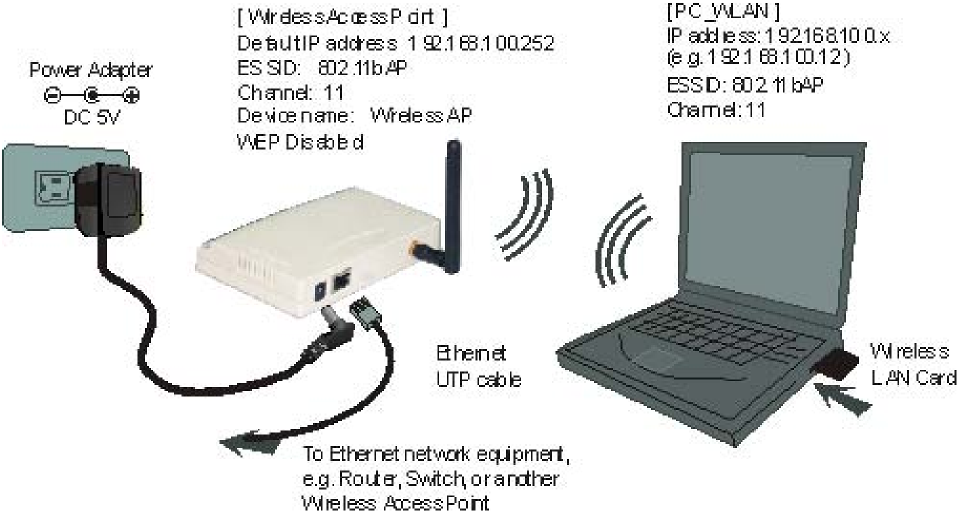
Factory Default Settings

Setting	**Wireless Access Point**
Device Name	**Wireless AP**
SSID	Default value: **802.11bAP**
Channel	**11**
WEP	Default value: **Disabled**
IP Address	**192.168.100.252**

▪

HARDWARE CONNECTION

Note: Before you starting hardware connection, you are advised to find an appropriate location to place the Access Point. Usually, the best place for the Access Point is at the center of your wireless network, with line of straight to all your wireless stations. Also, remember to adjust the antenna; usually the higher the antenna is placed, the better will be the performance.



1. **Connect to your local area network:** connect an **Ethernet cable** to the **Ethernet** port of this Wireless Access Point, and the other end to a hub, switch, router, or another wireless access point.
2. **Power on the device**: connect the included AC power adapter to the Wireless Access Point's power port and the other end to a wall outlet.
3. **Configure your PC:** Make sure your local PC(s) has wireless network adapter installed.

ABOUT THE OPERATION MODES

This device provides four operational applications with **Access Point, Bridge, Client (Ad-hoc) and Client (Infrastructure)** modes, which are mutually exclusive.

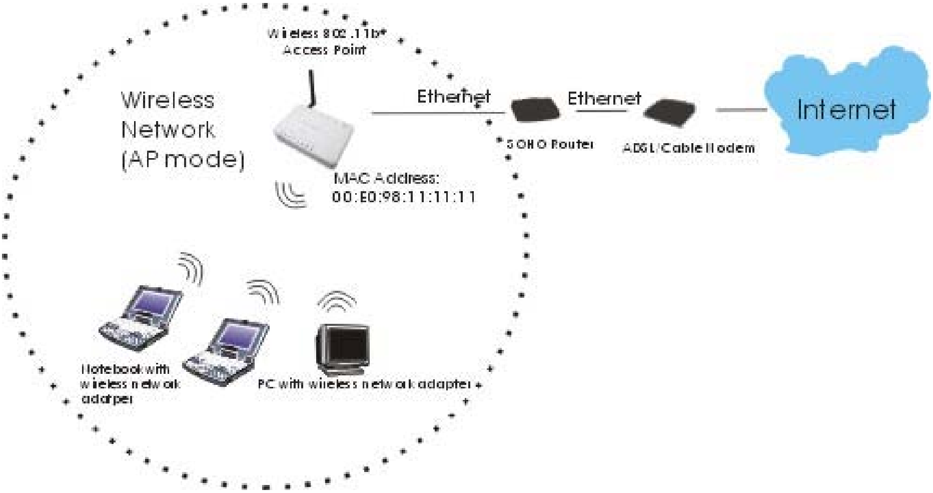
This device is shipped with configuration that is functional right out of the box. If you want to change the settings in order to perform more advanced configuration or even change the mode of operation, you can use the web-based utility provided by the manufacturer as described in the following sections.

Access Point Mode

When acting as an access point, this device connects all the stations (PC/notebook with wireless network adapter) to a wired network. All stations can have the Internet access if only the Access Point has the Internet connection.

See the sample application below.

To set the operation mode to **Access Point,** please go to "**Wireless →Basic Settings"**, in the "**Mode**" field click the down arrow ▼ to select AP mode.



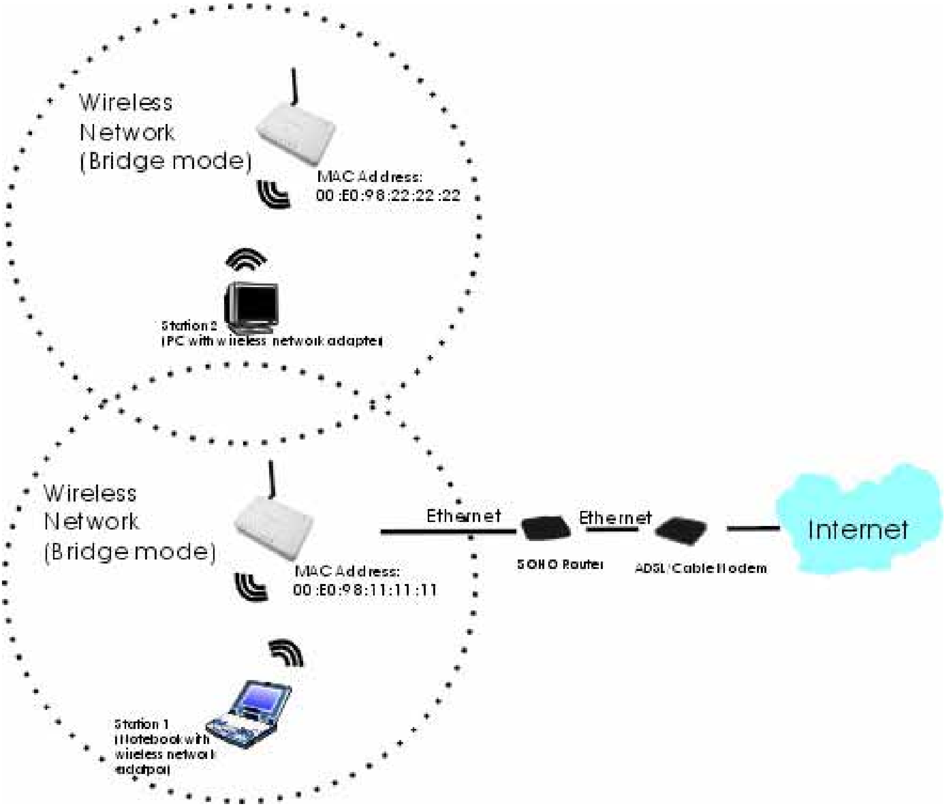
Bridge Mode

Refer to the illustration below. While acting as Bridges, AP1 (with Station 1 being associated to) and AP2 (with Station 2 being associated) can communicate with each other through wireless interface (with WDS). Thus Station 1 can communicate with Station 2 and both Station 1 and Station 2 are able to access the Internet if only AP1 or AP2 has the Internet connection.

To set the operation mode to **Bridge**, please go to "**Wireless →Basic Settings"**, in the "**Mode**" field click the down arrow ▼ to select **AP** mode. And go to "**Wireless →WDS Settings"** to enable **WDS.**

Note:

To act as Bridge, both AP1 and AP2 must have WDS enabled and add each other as its WDS Access Point. (e.g. Add AP2's MAC address to AP1's "WDS AP List" and vice versa)

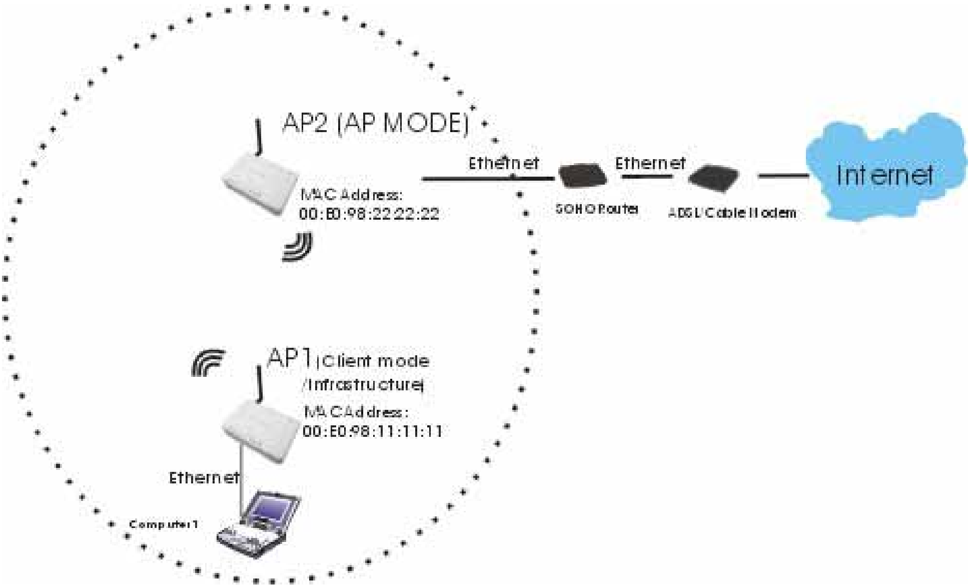


Client Mode (Infrastructure)

If set to Client (Infrastructure) mode, this device can work like a wireless station when it’s connected to a computer so that the computer can send packets from wired end to wireless interface.

Refer to the illustration below. This station (AP1 plus the connected computer 1) can associate to another Access Point (AP2), and then can have the Internet access if the other Access Point (AP2) has the Internet connection.

To set the operation mode to **Client (Infrastructure),** please go to “**Wireless →Basic Settings**”, in the “**Mode**” field click the down arrow ▼ to select **Client** mode, and then select **“Network Type”** as “**Infrastructure**”.

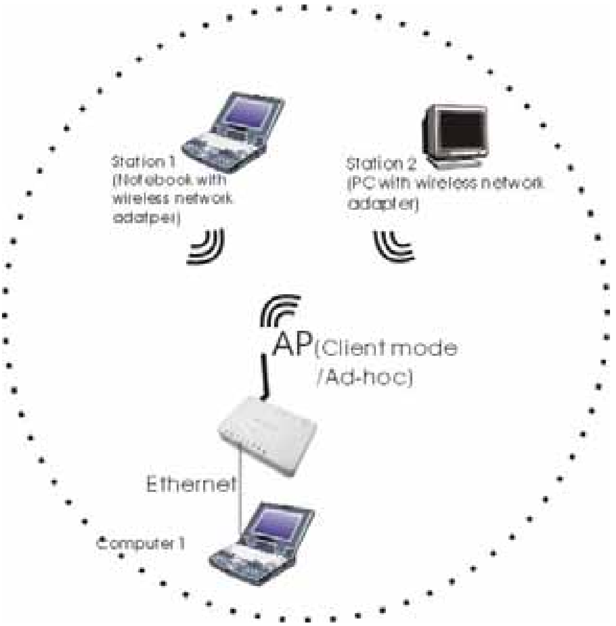


Client Mode (Ad-hoc)

If set to the Client (Ad-hoc) mode, this device can work like a wireless station when it is connected to a computer so that the computer can send packets from wired end to wireless interface. You can share files and printers between wireless stations (PC and laptop with wireless network adapter installed).

See the sample application below.

To set the operation mode to **Client (Ad-hoc),** please go to "**Wireless →Basic Settings**", in the "**Mode**" field click the down arrow ▼ to select **Client** mode, and then select Network Type as "**Ad-hoc**".

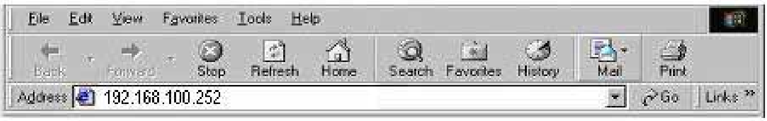


CONFIGURATION

Login

1. Start your computer. Connect an Ethernet cable between your computer and the Wireless Access Point.
2. Make sure your wired station is set to the same subnet as the Wireless Access Point, i.e. 192.168.100.12.
3. Start your WEB browser. In the *Address* box, enter the following:

HTTP://192.168.100.252



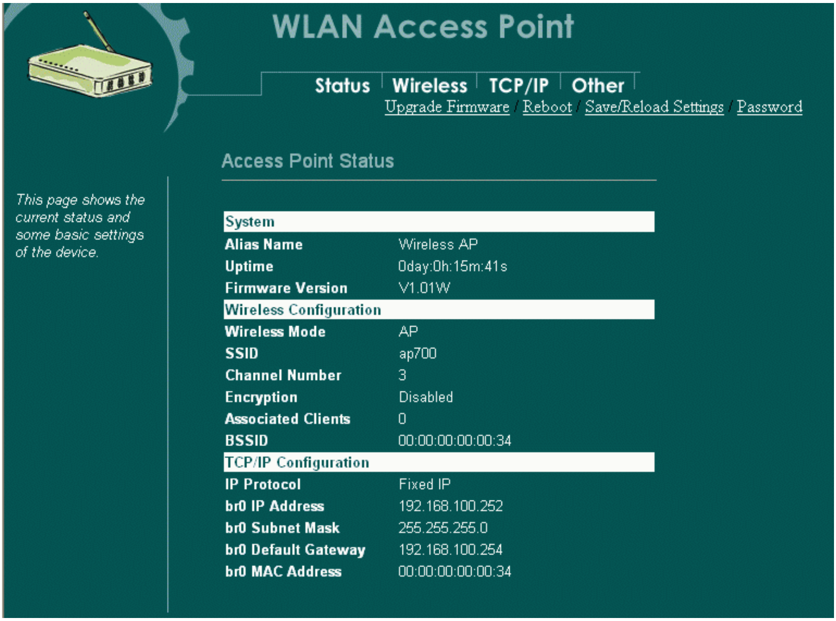
192.168.100.252

The configuration menu is divided into four categories: **Status, Wireless, TCP/IP,** and **Other settings**. Click on the desired setup item to expand the page in the main navigation pane. The setup pages covered in this utility are described below.

Status

In this screen, you can see the current settings and status of this Access Point. You can change settings by selecting specific tab described in below.

System



Access Point Status

This page shows the current status and some basic settings of the device.

System	
Alias Name	Wireless AP
Uptime	0day:0h:15m:41s
Firmware Version	V1.01W
Wireless Configuration	
Wireless Mode	AP
SSID	ap700
Channel Number	3
Encryption	Disabled
Associated Clients	0
BSSID	00:00:00:00:00:34
TCP/IP Configuration	
IP Protocol	Fixed IP
br0 IP Address	192.168.100.252
br0 Subnet Mask	255.255.255.0
br0 Default Gateway	192.168.100.254
br0 MAC Address	00:00:00:00:00:34

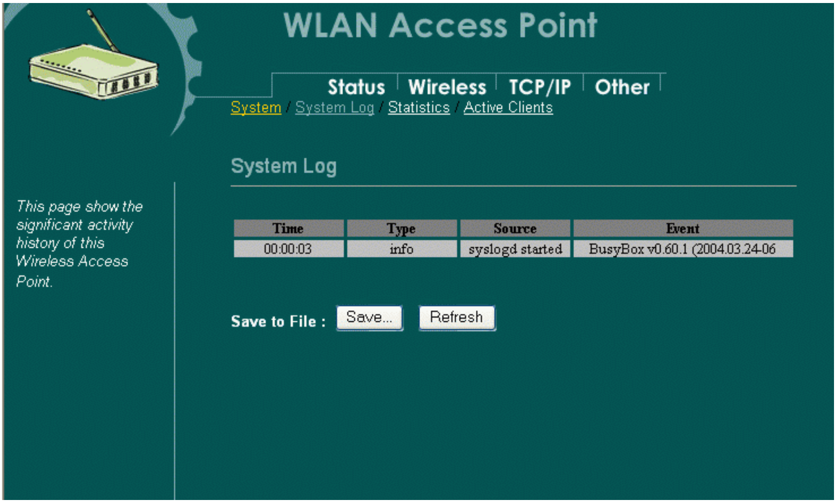
System	
Alias Name	You can assign a unique name to this Access Point. The alias name is especially important for identification when there are more than one Access Point is applied in a network.
Uptime	The time period since the device was up.
Firmware Version	The current version of the firmware installed in this device.
Wireless Configuration	
Wireless Mode	There are four modes supported, **Access Point, Client (Ad-hoc and Infrastructure), and Bridge**. The default mode is **Access Point**. If you want to change to **bridge** mode, please go to **Wireless/WDS Setting** to enable the WDS function.
SSID	The SSID differentiates one WLAN from another, therefore, all access points and all devices attempting to connect to a specific

	WLAN must use the same SSID. It is case-sensitive and must not exceed 32 characters. A device will not be permitted to join the BSS unless it can provide the unique SSID. An SSID is also referred to as a network name because essentially it is a name that identifies a wireless network.
Channel Number:	The number of channels supported depends on the region of this Access Point. All stations communicating with the Access Point must use the same channel.
Encryption	WEP Encryption (Wired Equivalent Privacy) is set to **Disabled** by default. When WEP is enabled, data packet is encrypted before being transmitted. The WEP prevents data packets from being eavesdropped by unrelated people. By using WEP data encryption, there may be a significant degradation of the data throughput on the wireless link.
Associated Clients	Displays the total number of clients associated to this AP. You can have up to 64 clients to associate to this Access Point.
BSSID	**BSSID** displays the ID of current BSS, which uniquely identifies each BSS. In AP mode, this value is the MAC address of this Access Point.

TCP/IP Configuration	
IP Protocol	Display the method to get the IP of this AP, which could be obtained by Fixed-IP or DHCP-client.
br0 IP Address	Current IP address for this Access Point
br0 Subnet Mask	Current Subnet mask for this Access Point
br0 Default Gateway	Default Gateway for this Access Point
br0 MAC Address	The MAC Address for this Access Point

System Log

This page display log events with time when events happened, log events' types, log sources and the description for events themselves. System manager can use the system log to trace when problems occur.



System Log

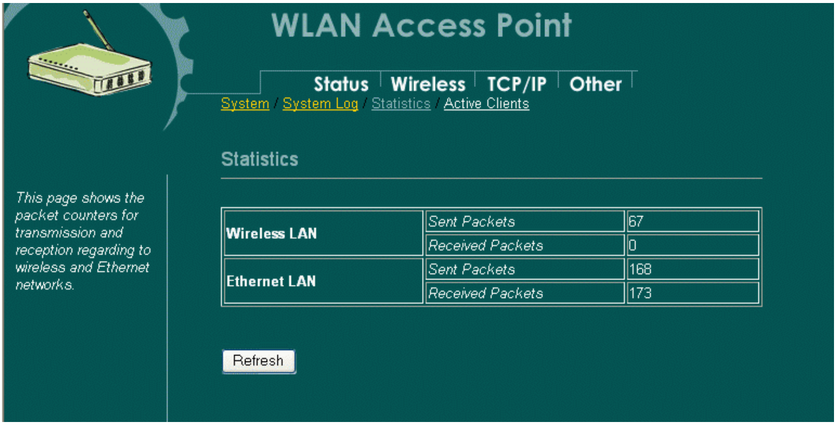
This page show the significant activity history of this Wireless Access Point.

Time	Type	Source	Event
00:00:03	info	syslogd started	BusyBox v0.60.1 (2004.03.24-06

Save to File : Save... Refresh

Statistics

The Statistics table shows the packets sent/received over wireless and ethernet LAN respectively.



Statistics

This page shows the packet counters for transmission and reception regarding to wireless and Ethernet networks.

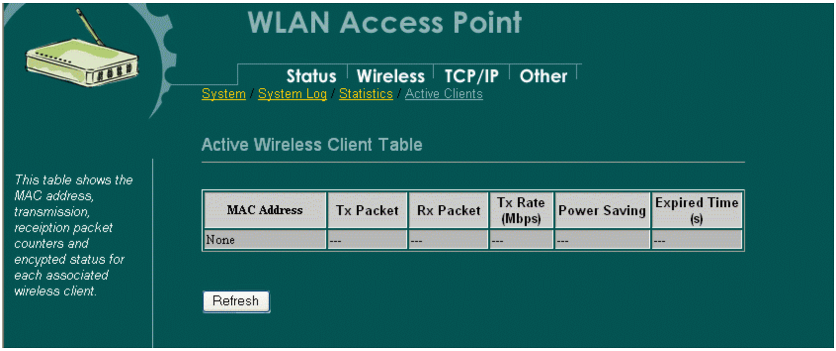
Wireless LAN	Sent Packets	67
	Received Packets	0
Ethernet LAN	Sent Packets	168
	Received Packets	173

Refresh

Active Clients

This page display wireless stations that are associated to this Access Point, with information of their MAC addresses, transmitted/received packets, transmitting rate, power saving mode, and expired time.

Press Refresh to get the latest information.



Active Wireless Client Table

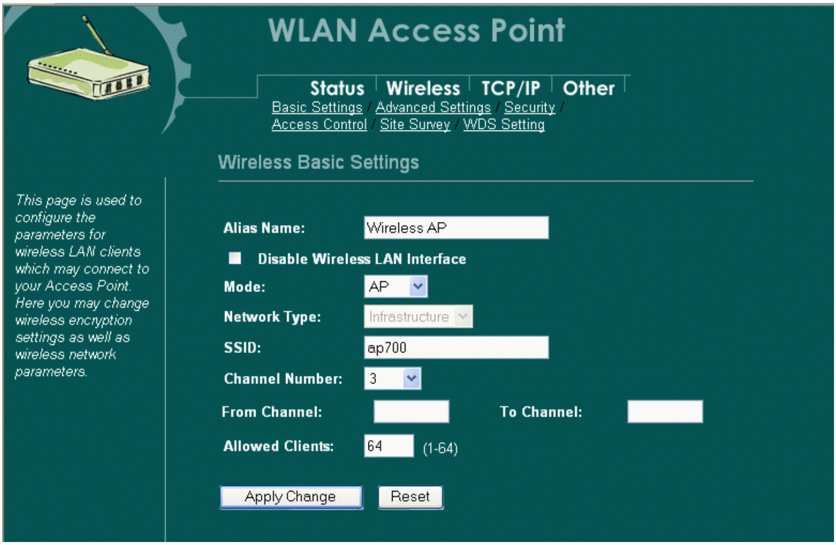
This table shows the MAC address, transmission, reception packet counters and encypted status for each associated wireless client.

MAC Address	Tx Packet	Rx Packet	Tx Rate (Mbps)	Power Saving	Expired Time (s)
None	---	---	---	---	---

Wireless

Basic Settings

This page includes all primary and major parameters. Any parameter change will cause the device to reboot for the new settings to take effect.



WLAN Access Point

Status
Wireless
TCP/IP
Other
Basic Settings / Advanced Settings / Security /
Access Control / Site Survey / WDS Setting

Wireless Basic Settings

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

Alias Name: Wireless AP

☐ Disable Wireless LAN Interface

Mode: AP

Network Type: Infrastructure

SSID: ap700

Channel Number: 3

From Channel: To Channel:

Allowed Clients: 64 (1-64)

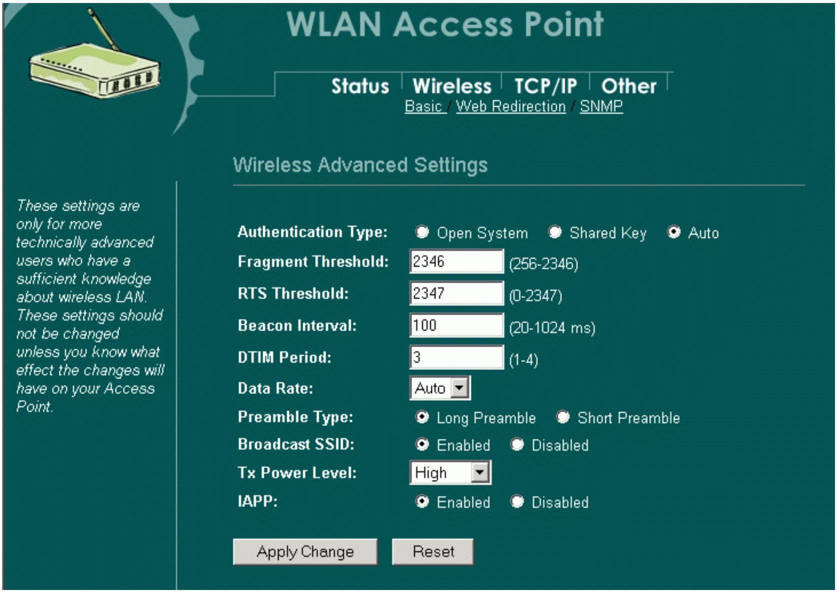
Alias Name:	Maximum 32 characters alpha-numeric You can assign a unique name to this Access Point. The alias name is especially useful for identification when there are more than one Access Point is applied in a network.
☐ **Disable Wireless LAN Interface**:	Check the box to disable the Wireless LAN Interface, by so doing, you won't be able to make wireless connection with this Access Point in the network you are located. In other words, this device will not be visible by any wireless station.
Mode:	This Wireless Access Point can support four modes **AP**, **Client (Ad-hoc), Client (Infrastructure)**, and **Bridge**. The default is set to **AP** mode. In the "Mode" field Click the pull down arrow ▼ then you can change it to **Client** mode. To change to **Bridge** mode, you will have to set to **AP** mode, and go to **Wireless/WDS setting** to enable WDS.

Network Type:	When in **Client** mode, you can select between **Ad-Hoc** and **Infrastructure**.
SSID:	The SSID differentiates one WLAN from another, therefore, all access points and all devices attempting to connect to a specific WLAN must use the same SSID. It is case-sensitive and must not exceed 32 characters. A device will not be permitted to join the BSS unless it can provide the unique SSID. An SSID is also referred to as a network name because essentially it is a name that identifies a wireless network.
Channel Number:	Allow user to set the channel **manually** or **automatically**. If set channel manually, just select the channel you want to specify. If "Auto" is selected, user can set the channel range to have Wireless Access Point automatically survey and choose the channel with best situation for communication. The number of channels supported depends on the region of this Access Point. All stations communicating with the Access Point must use the same channel.
From Channel: □ **To Channel:** □	When select "Auto" in "Channel Number, you have to set a range of channels for the Access Point to automatically survey and choose the channel for optimal performance.
Allowed Clients	Enter a number ranging from 1 to 64.

Apply Change	Press to save the new settings on the screen.
Reset	Press to discard the data you have entered since last time you press Apply Change.

Advanced Settings

It is not recommended that settings in this page to be changed unless advanced users want to change to meet their wireless environment for optimal performance



Wireless Advanced Settings

These settings are only for more technically advanced users who have a sufficient knowledge about wireless LAN. These settings should not be changed unless you know what effect the changes will have on your Access Point.

Authentication Type:	○ Open System ○ Shared Key ● Auto
Fragment Threshold:	2346 (256-2346)
RTS Threshold:	2347 (0-2347)
Beacon Interval:	100 (20-1024 ms)
DTIM Period:	3 (1-4)
Data Rate:	Auto
Preamble Type:	● Long Preamble ○ Short Preamble
Broadcast SSID:	● Enabled ○ Disabled
Tx Power Level:	High
IAPP:	● Enabled ○ Disabled

Authentication Type	To provide a certain level of security, the IEEE 802.11 standard has defined two types of authentication methods, Open System and Shared Key. With Open System authentication, a wireless PC can join any network and receive any messages that are not encrypted. With Shared Key authentication, only those PCs that possess the correct authentication key can join the network. By default, IEEE 802.11 wireless devices operate in an Open System network. Wired Equivalent Privacy (WEP) data encryption is used when the wireless devices are configured to operate in Shared Key authentication mode. If the Access Point is using "**Open Authentication**", then the wireless adapter will need to be set to the same authentication mode. **Shared Authentication** is used when both the sender and the recipient share a secret key. Select **Auto** for the network adapter to select the Authentication mode automatically depending on the Access Point Authentication mode.

Fragment Threshold	Fragmentation mechanism is used for improving the efficiency when high traffic flows along in the wireless network. If your 802.11g Wireless LAN PC Card often transmit large files in wireless network, you can enter new Fragment Threshold value to split the packet. The value can be set from 256 to 2346. The default value is **2346**.
RTS Threshold	RTS Threshold is a mechanism implemented to prevent the "**Hidden Node**" problem. "Hidden Node" is a situation in which two stations are within range of the same Access Point, but are not within range of each other. Therefore, they are hidden nodes for each other. When a station starts data transmission with the Access Point, it might not notice that the other station is already using the wireless medium. When these two stations send data at the same time, they might collide when arriving simultaneously at the Access Point. The collision will most certainly result in a loss of messages for both stations. Thus, the RTS Threshold mechanism provides a solution to prevent data collisions. When you enable RTS Threshold on a suspect "hidden station", this station and its Access Point will use a Request to Send (RTS). The station will send an RTS to the Access Point, informing that it is going to transmit the data. Upon receipt, the Access Point will respond with a CTS message to all station within its range to notify all other stations to defer transmission. It will also confirm the requestor station that the Access Point has reserved it for the time-frame of the requested transmission. If the "Hidden Node" problem is an issue, please specify the packet size. *The RTS mechanism will be activated if the data size exceeds the value you set.*. The default value is **2347**. **Warning:** Enabling RTS Threshold will cause redundant network overhead that could negatively affect the throughput performance instead of providing a remedy. This value should remain at its default setting of **2347**. Should you encounter inconsistent data flow, only minor modifications of this value are recommended.
Beacon Interval	Beacon Interval is the amount of time between beacon transmissions. Before a station enters power save mode, the station needs the beacon interval to know when to wake up to receive the beacon (and learn whether there are buffered frames at the access point).
DTIM Period	DTIM stands for **Delivery Traffic Indication Message**. A DTIM is a countdown field informing clients of the next

	window for listening to broadcast and multicast messages. When the access point has buffered broadcast or multicast message for associated clients, it sends the next DTIM with a DTIM Period value. Access point clients hear and awaken to receive the broadcast and multicast messages. The default DTIM period is ‘3’.
Data Rate	By default, the unit adaptively selects the highest possible rate for transmission. Select the basic rates to be used among the following options: Auto, 1, 2, 5.5, or 11 Mbps. For most networks the default setting is **Auto** which is the best choice. When **Auto** is enabled the transmission rate will select the optimal rate. If obstacles or interference are present, the system will automatically fall back to a lower rate.
Preamble Type	A preamble is a signal used in wireless environment to synchronize the transmitting timing including Synchronization and Start frame delimiter. In a "noisy" network environment, the Preamble Type should be set to **Long Preamble**. The **Short Preamble** is intended for applications where minimum overhead and maximum performance is desired. If in a "noisy" network environment, the performance will be decreased.
Broadcast SSID	Select **enabled** to allow all the wireless stations to detect the SSID of this Access Point.
IAPP	To enable IAPP means that Access Points will communicate across the backbone network, so that mobile stations can roam between them.

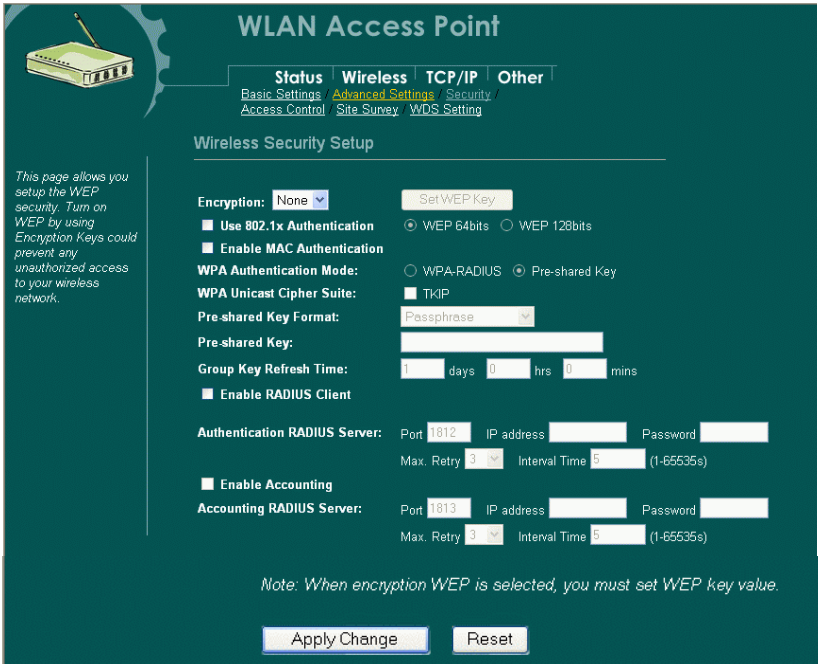
Apply Change	Press to save the new settings on the screen.
Reset	Press to discard the data you have entered since last time you press Apply Change.

Security

Here you can configure the security of your wireless network. Selecting different method will enable you to have different level of security. Please note that by using any encryption, by which data packet is encrypted before transmission to prevent data packets from being eavesdropped by unrelated people, there may be a significant degradation of the data throughput on the wireless link.

Encryption : **None** (Encryption is set to **None** by default. **)**

- If **None** is selected, you can still select to **Use 802.1x Authentication** and **Enable MAC Authentication**.
- To **Enable MAC Authentication** means to use client MAC address for authentication with RAIDUS server
- If both **Use 802.1x Authentication** and **Enable MAC Authentication** are selected, the RADIUS Server will check MAC Authentication first; if the MAC Authentication passes, the 802.1x Authentication will be skipped. If not, the RADIUS Server will proceed to check the 802.1x Authentication.


WLAN Access Point
Status
Wireless
TCP/IP
Other
Basic Settings / Advanced Settings / Security /
Access Control / Site Survey / WDS Setting

Wireless Security Setup

This page allows you setup the WEP security. Turn on WEP by using Encryption Keys could prevent any unauthorized access to your wireless network.

Encryption: None

Set WEP Key

□ Use 802.1x Authentication ● WEP 64bits ○ WEP 128bits

□ Enable MAC Authentication

WPA Authentication Mode: ○ WPA-RADIUS ● Pre-shared Key

WPA Unicast Cipher Suite: □ TKIP

Pre-shared Key Format: Passphrase

Pre-shared Key:

Group Key Refresh Time: 1 days 0 hrs 0 mins

□ Enable RADIUS Client

Authentication RADIUS Server: Port 1812 IP address Password

Max. Retry 3 Interval Time 5 (1-65535s)

□ Enable Accounting

Accounting RADIUS Server: Port 1813 IP address Password

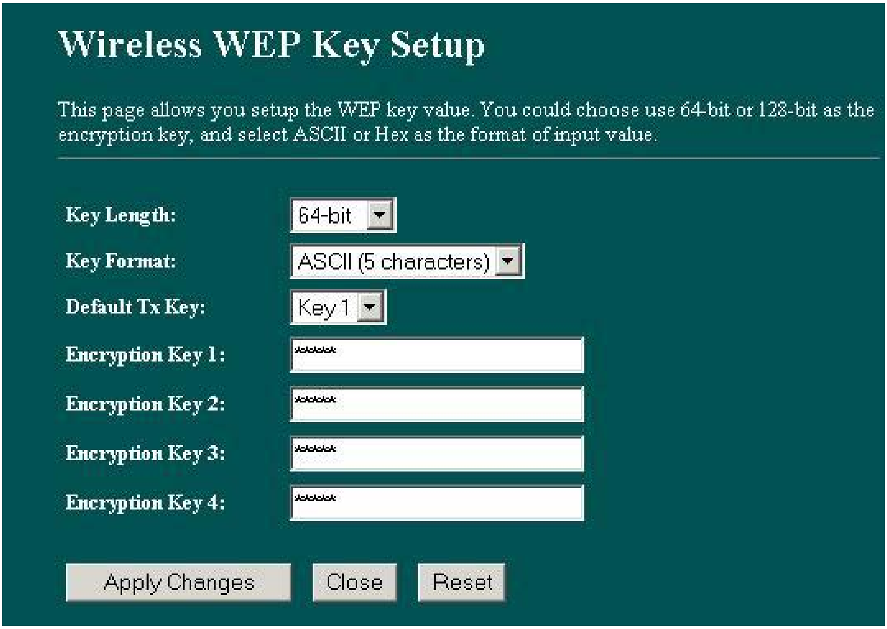
Max. Retry 3 Interval Time 5 (1-65535s)

Note: When encryption WEP is selected, you must set WEP key value.

Apply Change Reset

Encryption : **WEP**

If **WEP** is selected, users will have to **Set WEP keys** either manually, or select to **Use 802.1x** to make the RADIUS server to issue the WEP key dynamically.



Wireless WEP Key Setup

This page allows you setup the WEP key value. You could choose use 64-bit or 128-bit as the encryption key, and select ASCII or Hex as the format of input value.

Key Length: 64-bit

Key Format: ASCII (5 characters)

Default Tx Key: Key 1

Encryption Key 1: *****

Encryption Key 2: *****

Encryption Key 3: *****

Encryption Key 4: *****

Set WEP key	▪ Click the **Set WEP Keys** will prompt you a window to set **64bit** or **128bit** Encryption. ▪ Select **HEX** if you are using hexadecimal numbers (**0-9, or A-F**). Select **ASCII** if you are using ASCII characters (**case-sensitive**). ▪ **Ten hexadecimal digits** or **five ASCII characters** are needed if **64-bit WEP** is used; **26 hexadecimal digits** or **13 ASCII characters** are needed if **128-bit WEP** is used.
Use 802.1x Authentication	▪ If **Use 802.1x** is selected**,** then the **Set WEP Key** won't be usable. ▪ If **Use 802.1x** is selected, the **Enable RADIUS Client** will be automatically selected too. ▪ If **Use 802.1x** is selected and "WEP" is selected in **Encryption** field, then the authentication mechanism to the RADIUS Server will be TTLS.

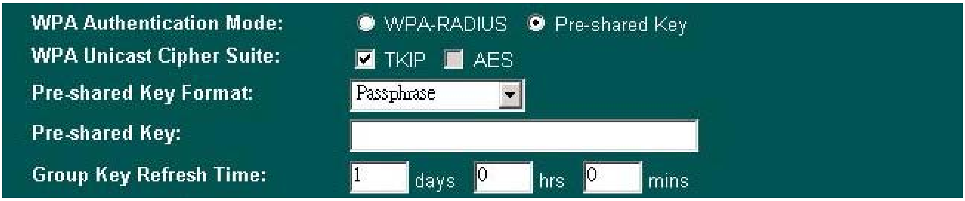
Encryption **:** **WPA**

WPA: If **WPA** is selected, users will have to select the Authentication modes between **WPA-RADIUS** and **Pre-shared Key**, both modes need to have **TKIP** selected. (*AES is not functional at present*.)

.

Pre-shared Key	Pre-Shared-Key serves as a password. Users may key in a 1 to 63 characters string to set the password or leave it blank, in

	which the 802.1x Authentication will be activated. Make sure the same password is used on client's end. There are two formats for choice to set the Pre-shared key, i.e. Passphrase and Hex. If Hex is selected, users will have to enter a 64 characters string. For easier configuration, the Passphrase format is recommended.
Group Key Refresh Time	Enter the number of seconds that will elapse before the group key change automatically. The default is 300 seconds.



WPA Authentication Mode: ○ WPA-RADIUS ● Pre-shared Key

WPA Unicast Cipher Suite: ☑ TKIP ☐ AES

Pre-shared Key Format: Passphrase

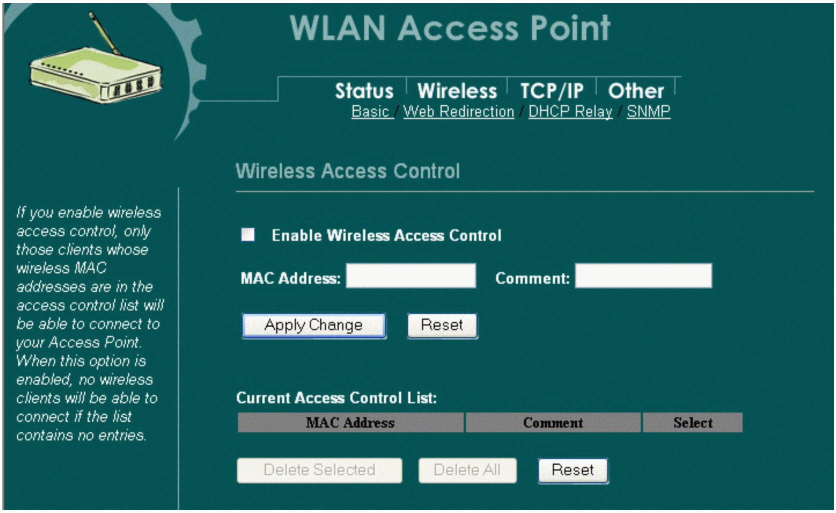
Pre-shared Key:

Group Key Refresh Time: 1 days 0 hrs 0 mins

Apply Change	Press to save the new settings on the screen.
Reset	Press to discard the data you have entered since last time you press Apply Change.

Access Control

When **Enable Wireless Access Control** is checked, only those clients whose wireless MAC addresses listed in the access control list can access this Access Point. If the list contains no entries with this function being enabled, then no clients will be able to access this Access Point.



Wireless Access Control

If you enable wireless access control, only those clients whose wireless MAC addresses are in the access control list will be able to connect to your Access Point. When this option is enabled, no wireless clients will be able to connect if the list contains no entries.

■ Enable Wireless Access Control

MAC Address: Comment:

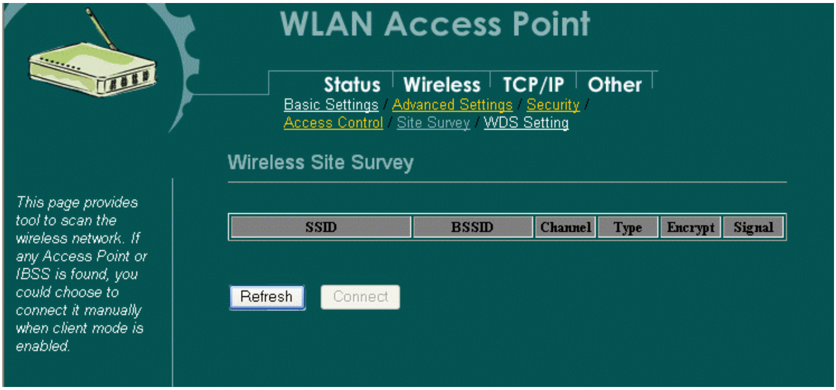
Current Access Control List:

MAC Address	Comment	Select

□ Enable Wireless Access Control	Check the checkbox to enable this function.
MAC Address	Enter the MAC Address of a station that is allowed to access this Access Point.
Comment	You may enter up to 20 characters as a remark to the previous MAC Address.
Apply Change	Press to save the new settings on the screen.
Reset	Press to discard the data you have entered since last time you press Apply Change.
Delete Selected	To delete clients from access to this Access Point, you may firstly check the **Select** checkbox next to the MAC address and Comments, and press **Delete Selected**.
Delete All	To delete all the clients from access to this Access Point, just press **Delete All** without selecting the checkbox.
Reset	If you have made any selection, press **Reset** will clear all the select mark.

Site Survey

Site survey displays all the active Access Points and IBSS in the neighborhood. When you are in the client mode, you can select one AP to associate.
Press **Refresh** to get the latest information.


WLAN Access Point
Status
Wireless
TCP/IP
Other
Basic Settings / Advanced Settings / Security /
Access Control / Site Survey / WDS Setting
Refresh
Connect

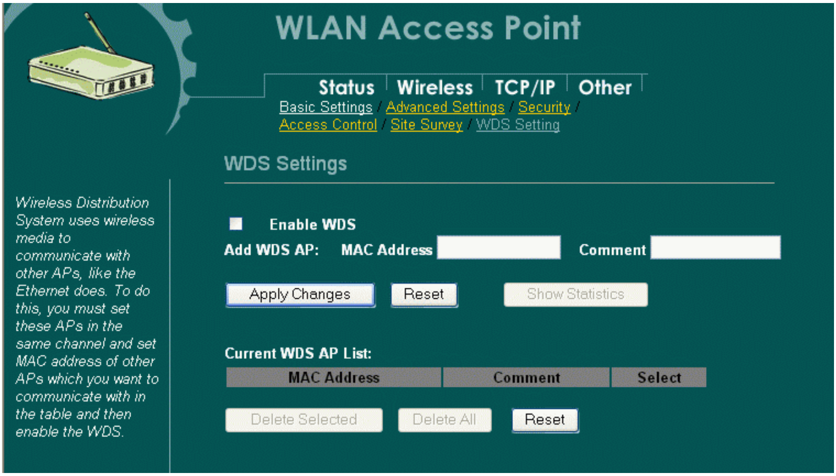
Wireless Site Survey

This page provides tool to scan the wireless network. If any Access Point or IBSS is found, you could choose to connect it manually when client mode is enabled.

SSID	BSSID	Channel	Type	Encrypt	Signal

WDS Setting

To enable WDS function will let this AP enter “Bridge Mode”. Two APs in bridge modes can communicate with each other through wireless interface. That is, two stations associated to different AP in bridge mode can communicate with each other.



WDS Settings

Wireless Distribution System uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel and set MAC address of other APs which you want to communicate with in the table and then enable the WDS.

□ Enable WDS

Add WDS AP: MAC Address Comment

Current WDS AP List:

MAC Address	Comment	Select

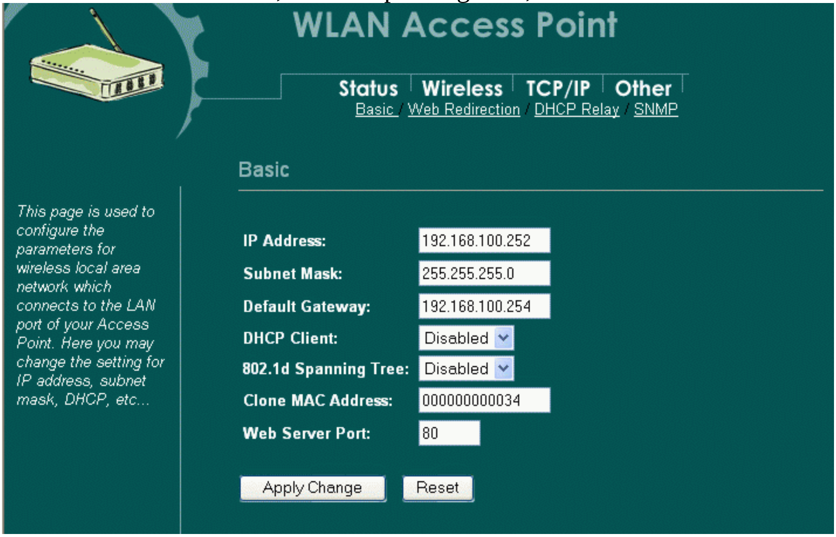
□ Enable WDS	Check the checkbox to enable WDS.
Add WDS AP MAC Address	Enter the MAC Address for the new Access Point to participate the WDS with this Access Point.
Apply Change	Press to save the new settings on the screen.
Reset	Press to discard the data you have entered since last time you press Apply Change.
Current WDS AP List	The added Access Points for participating WDS with this Access Point are shown.
Delete Selected	You can delete the WDS Access Points listed above by marking the checkbox.

Delete All	You can delete all of the WDS Access Points listed above.
Reset	Press to discard the data you have entered since last time you press Apply Change.

TCP/IP

Basic

In this page, you can change the TCP/IP settings of this Access Point, select to enable/disable the DHCP Client, 802.1d Spanning Tree, and Clone MAC Address.

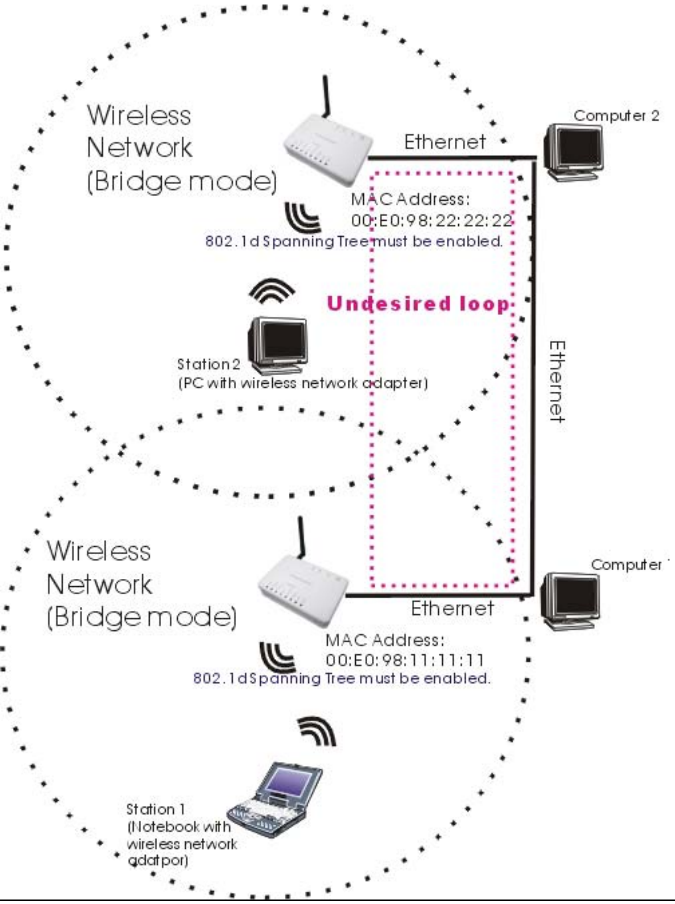


Basic

This page is used to configure the parameters for wireless local area network which connects to the LAN port of your Access Point. Here you may change the setting for IP address, subnet mask, DHCP, etc...

IP Address: 192.168.100.252
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.100.254
DHCP Client: Disabled
802.1d Spanning Tree: Disabled
Clone MAC Address: 000000000034
Web Server Port: 80

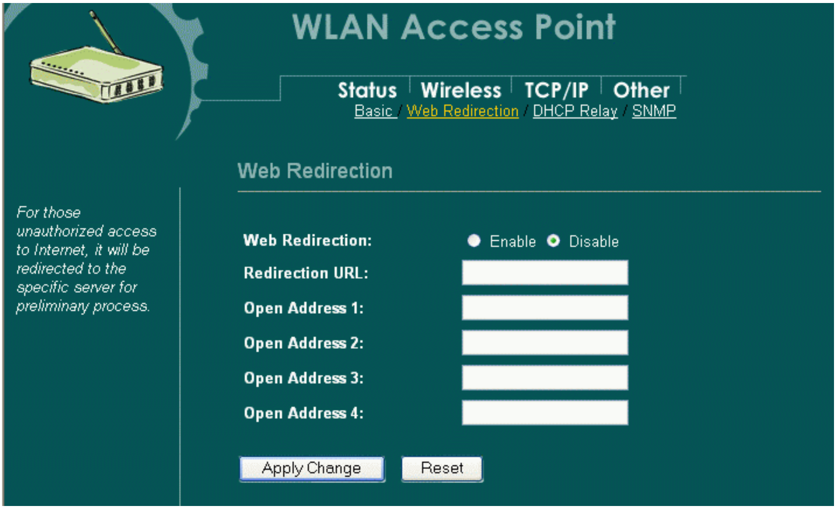
IP Address	This field can be modified only when DHCP Client is disabled. If your system manager assigned you static IP settings, then you will have to enter the information provided.
Subnet Mask	Enter the information provided by your system manager.
Default Gateway	Enter the information provided by your system manager.
DHCP Client	To enable the DHCP Client will let the Access Point obtain IP address automatically from DHCP Server in the network.

802.1d Spanning Tree	To enable 802.1d Spanning Tree will prevent the network from infinite loops. Infinite loop will happen in the network when WDS is enabled and there are multiple active paths between stations.  Wireless Network (Bridge mode) Ethernet Computer 2 MAC Address: 00:E0:98:22:22:22 802.1d Spanning Tree must be enabled. Undesired loop Ethernet Station2 (PC with wireless network adapter) Wireless Network (Bridge mode) Computer ' Ethernet MAC Address: 00:E0:98:11:11:11 802.1dSpanning Tree must be enabled. Station 1 (Notebook with wireless network adatpor)

Clone MAC Address	You can specify the MAC address of your Access Point to replace the factory setting.
Web Server Port:	The web server provides the configuration service to manage this Access Point. Generally the web server port is set to 80. You can change it in this field.
Apply Change	Press to save the new settings on the screen.
Reset	Press to discard the data you have entered since last time you press Apply Change.

Web Redirection

If "Web Redirection" is enabled, unauthorized clients associating to this AP will be re-directed to the specified "Redirection URL" when they are trying to access the Internet



Web Redirection

For those unauthorized access to Internet, it will be redirected to the specific server for preliminary process.

Web Redirection: ○ Enable ● Disable

Redirection URL:

Open Address 1:

Open Address 2:

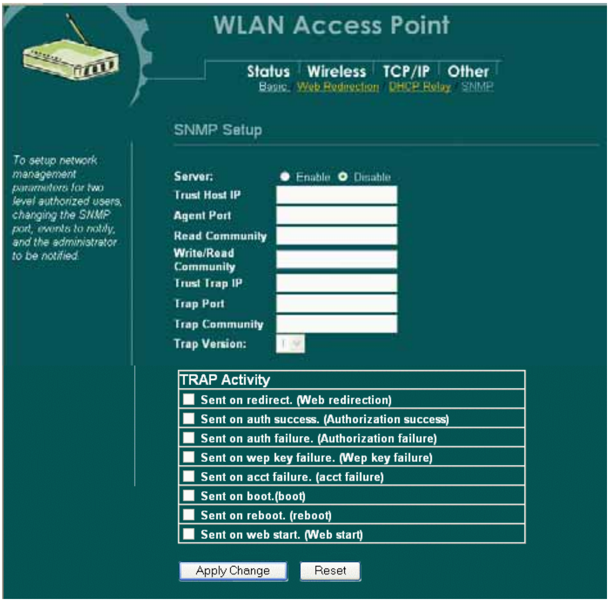
Open Address 3:

Open Address 4:

Web Redirection	Click the "**Enable/Disable**" radio button to enable/disable the function of "Web Redirection".
Redirection URL	This URL (Universal Reference Locator) must be a complete one, which means you can not leave out URL protocol - **http://** before the full domain name, i.e. http://www.mycompany.com. Or the web redirection will not work properly.
Open Address 1	The IP address for the URL you entered in the previous field.
Open Address 2	The IP address for your ISP's DNS.
Open Address 3	Other open IP address allowed to be connected to.
Open Address 4	
Apply Change	Press to save the new settings on the screen.
Reset	Press to discard the data you have entered since last time you press Apply Change.

SNMP

SNMP is an application-layer protocol widely used to facilitate the exchange of management information between network devices. By using SNMP-transported data, network administrators can more easily manage network performance, find and solve network problems, and plan for network growth.



To setup network management parameters for two level authorized users, changing the SNMP port, events to notify, and the administrator to be notified.

SNMP Setup

Server: ● Enable ○ Disable

Trust Host IP

Agent Port

Read Community

Write/Read Community

Trust Trap IP

Trap Port

Trap Community

Trap Version: 1

TRAP Activity
□ Sent on redirect. (Web redirection)
□ Sent on auth success. (Authorization success)
□ Sent on auth failure. (Authorization failure)
□ Sent on wep key failure. (Wep key failure)
□ Sent on acct failure. (acct failure)
□ Sent on boot.(boot)
□ Sent on reboot. (reboot)
□ Sent on web start. (Web start)

SNMP Setup

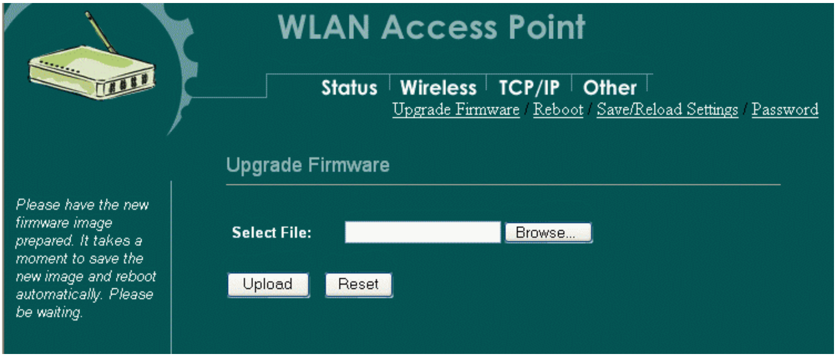
Server	Click the radio button to enable/disable the SNMP server. You have to enable this function first to set the following settings.
Trust Host IP	Enter the IP address of the **NMS** (Network Monitoring Stations). The NMS is the only host PC that is allowed to access this AP. If this filed is left blank, it means that every host PC is allowed to access the AP if only its "Community string" is correct.
Trust Trap IP	Enter the IP address of the SNMP Trap Receiver. Leave it blank to disable the SNMP trap function.
Agent Port	Enter the SNMP listening port.
Read Community	Enter the communicty string for the NMS to read only this AP's MIB.
Write/ReadCommunity	Enter the communicty string for the NMS to read/write this AP's MIB.
Trap Port	Enter the remote Trap Receiver port.
Trap Community	Enter a trap community string that is used as a password for the Trap Receiver.
Trap Version	SNMP Trap version 1 and 2 are both supported. Select your preference.

Trap Activity

Sent on redirect	Send a trap to the Trap Receiver (already defined in the Trust Trap IP) when a station (wireless client) is redirected to the default web site.
Sent on Auth Success (Authorization success)	Send a trap to the Trap Receiver (already defined in the Trust Trap IP) when a station (wireless client) gets authorization from the 802.1x server (or RADIUS server).
Sent on Auth Failure (Authorization failure)	Send a trap to the Trap Receiver (already defined in the Trust Trap IP) a wireless client fails to get authorization from the 802.1x server (or RADIUS server).
Sent WEP key failure	Send a trap to the Trap Receiver (already defined in the Trust Trap IP) when a wireless client fails to associate to the AP because of wrong WEP keys.
Sent on acct failure	Send a trap to the Trap Receiver (already defined in the Trust Trap IP) when the accounting server of a wireless client is invalid or fails.
Sent on boot	Send a trap when the AP has booted.
Sent on reboot	Send a trap when the AP is asked to reboot itself.
Sent on web start	Send a trap once the AP web server is ready for use.

Other

Upgrade Firmware

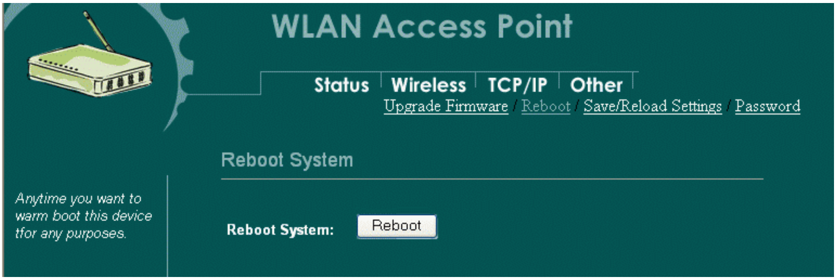


Please have the new firmware image prepared. It takes a moment to save the new image and reboot automatically. Please be waiting.

1. Download the latest firmware from your distributor and save the file on the hard drive.
2. Start the browser, open the configuration page, click on **Other,** and click **Upgrade Firmware** to enter the **Upgrade Firmware** window. Enter the new firmware’s path and file name (i.e. C:\FIRMWARE\firmware.bin). Or, click the **Browse** button, find and open the firmware file (the browser will display to correct file path).
3. Click **Reset** to clear all the settings on this page. Or click **Upload** to start the upgrade.

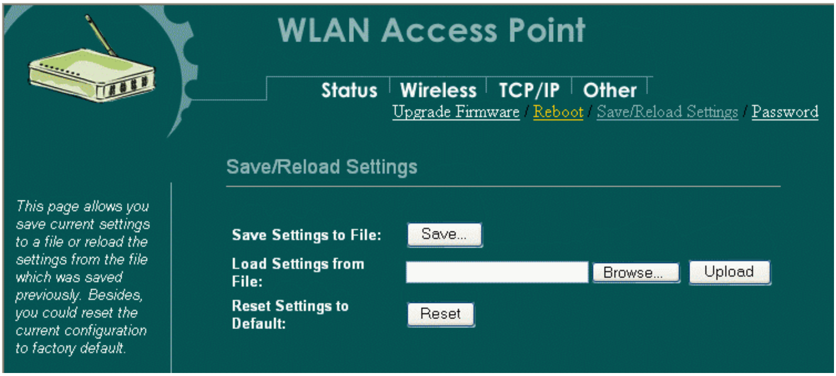
Reboot

Click “Reboot” button to do warm system reboot of this device.



Anytime you want to warm boot this device tfor any purposes.

Save/Reload Settings



Save/Reload Settings

This page allows you save current settings to a file or reload the settings from the file which was saved previously. Besides, you could reset the current configuration to factory default.

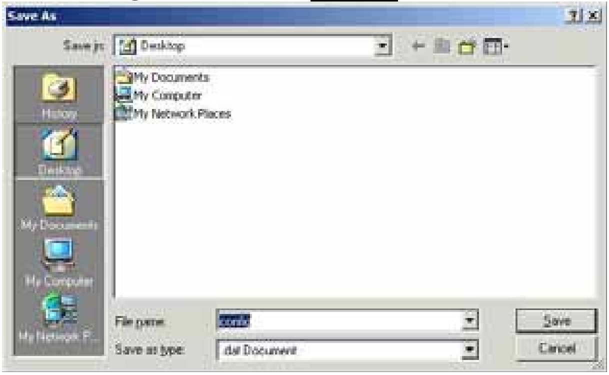
Save Settings to File: Save...

Load Settings from File: Browse... Upload

Reset Settings to Default: Reset

This function enables users to save the current configuration~~s~~ as a file (i.e. **config.dat**) To load configuration from a file, enter the file name or click **Browse…** to find the file from your computer.

Save Settings to File: Click **SAVE..** to save the current configuration to file.

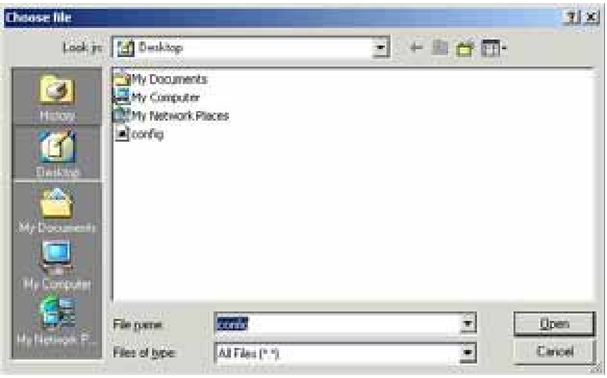


File name: config

Save as type: .dat Document

When prompted the upper left screen, select “**Save this file to disk**”, and the upper right screen will prompt you a dialog box to enter the file name and the file location.

Load Settings From File: Click **Browse…** if you want to load a pre-saved file, enter the file name with the correct path and then click on **Upload**. Or click **Browse…** to select the file.



Look in: Desktop

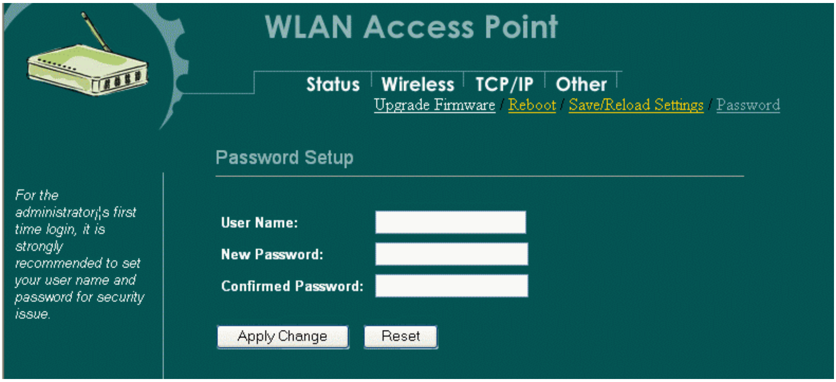
File name: config

Files of type: All Files (*.*)

Reset: Click to restore the default configuration.

Password

For secure reason, it is recommended that you set the account to access the web server of this Access Point. Leaving the user name and password blank will disable the protection. The login screen prompts immediately once you finish setting the account and password. Remember your user name and password for you will be asked to enter them every time you access the web server of this Access Point.



For the administrator¦s first time login, it is strongly recommended to set your user name and password for security issue.

User Name	Enter your new user name to access the web server. User name can be up to 30 characters long. User name can contain letter, number and space. It is case sensitive.
New Password	Set your new password. Password can be up to 30 characters long. Password can contain letter, number and space. It is case sensitive.
Confirm Password	Re-enter the new password for confirmation.
Apply Change	Press to save the new settings on the screen.
Reset	Press to discard the data you have entered since last time you press Apply Change.