



# *Wireless Access Point*

## **WAP-1963**

## **User's Manual**



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## Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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:

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

## FCC Caution

To assure continued compliance. (example-use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance 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.

## **Federal Communication Commission (FCC) Radiation Exposure Statement**

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

## **R&TTE Compliance Statement**

This equipment complies with all the requirements of DIRECTIVE 1999/5/CE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL OF 9 March 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE)

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8,2000.

## **Safety**

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

## **EU Countries Not Intended for Use**

The ETSI version of this device is intended for home and office use in Austria Belgium, Denmark, Finland, France (with Frequency channel restrictions). Germany, Greece, Ireland, Italy, Luxembourg .The Netherlands, Portugal, Spain, Sweden and United Kingdom.

The ETSI version of this device is also authorized for use in EFTA member states Iceland, Liechtenstein, Norway and Switzerland.

## **Potential restrictive use**

France: Only channels 10,11,12 and 13

## **Revision**

User's Manual for PLANET Wireless Access Point

Model: WAP-1963

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Part No. EM-WAP1963

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# Chapter 1 Introduction

Thank you for purchasing WAP-1963. This device is an access point for IEEE 802.11b 2.4GHz wireless network. You can use this access point to build up a wireless LAN, any wireless LAN station can join the wireless network. It has support 64/128-bit WEP (Wired Equivalent Privacy) Encryption and MAC address filter function to consolidate the wireless network security, you can prevent unauthorized wireless stations from accessing your wireless network.

With it's Station mode, that can served as a wireless station (Infrastructure or Ad-Hoc). Connected to you LAN, it is able to access the network via Access Point or join to a small wireless network without Access Points. It's data rate support 11, 5.5, 2 and 1 Mbps. Maximize network efficiency while minimizing your network investment and maintenance costs.

This product provides easy to use user interface and allows users to configuring from web browser. Also it integrates DHCP server to provide multiple wireless and wired users to get an IP address automatically. With the versatile of features, this product is the best choice for you to integrate your wireless and wired network seamlessly.

## 1.1 Package Contents

Make sure that you have the following items:

- One WAP-1963
- One AC Power Adapter
- One User's Manual CD
- One Quick Installation Guide
- One External Antenna

<b>Note:</b>	If any of the above items are missing, contact your supplier as soon as possible.
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## 1.2 System Requirements

Before installation, please check the following requirements with your equipment.

- Pentium Based (And Above) IBM-Compatible PC System
- CD-ROM drive
- Windows 98/ME/2000/XP/Server2003 Operating System with TCP/IP protocol

## 1.3 Features

- Compliant with the IEEE 802.11b (DSSS) 2.4GHz specification
- High data rate 11, 5.5, 2 and 1Mbps network speed, Auto rate fallback

- Seamlessly integrate wireless and wired Ethernet LAN networks
- Interferences Provide 64/128-bit WEP Encryption and MAC Filter to protect the wireless data transmissions
- Supports Wireless AP/Station mode
- Built-in DHCP server supports auto IP addresses assignment
- Web-based configuration
- Auto Fall-Back Data Rate for Long-Distance Communication and Noisy Environments

## 1.4 Specification

Standard	IEEE 802.11b Compliant
Signal Type	DSSS (Direct Sequence Spread Spectrum)
Modulation	QPSK / BPSK / CCK
Port	One 10/100BASE-TX
Antenna	One Dipole Antenna
Data Encryption	64 bit / 128 bit WEP encryption
Frequency	2.4GHz - 2.4835GHz
Channel	11 Channels (US/ Canada, FCC) 13 Channels (Europe, ETSI) 14 Channels (Japan, TELEC)
Data Rate	Up to 11Mbps(with automatic scale back)
Range Coverage	(In Open Environment) 11M 448 feet = 140m 5.5M 640 feet = 200m 2M 864 feet = 270m 1M 1100 feet = 340m
LED Indicators	PWR, WLAN, LAN
Power Requirement	12V DC, 0.5A
Temperature	Operating :0 ~ 55 degree C Storage: -20 ~ 70 degree C
Humidity	Operating: 10 ~ 90% Storage: 10 ~ 90% Non-Condensing
Dimensions	160 x 87 x 28 mm
Output Power	18dBm
Antenna Gain	2dBi
Antenna Connector	Reversed Polarity SMA Male

## Chapter 2 Hardware Installation

Before you proceed with the installation, it is necessary that you have enough information about the WAP-1963.

### 2.1 Hardware Connection



- 1. Locate an optimum location for the WAP-1963.** The best place for your WAP-1963 is usually at the center of your wireless network, with line of sight to all of your mobile stations.
- 2. Assemble the antennas to WAP-1963.** Try to place them to a position that can best cover your wireless network. The antenna's position will enhance the receiving sensitivity.
- 3. Connect RJ-45 cable to WAP-1963.** Connect this WAP-1963 to your LAN switch/hub or a single PC.
- 4. Plug in power adapter and connect to power source.** After power on, WAP-1963 will start to work.

**Note:** ONLY use the power adapter supplied with the WAP-1963. Otherwise, the product may be damaged.

If you want to reset your WAP-1963 to default settings, press the Reset button 5 second. And then wait for 10 seconds for WAP-1963 restart.

# Chapter 3 Configuration

## 3.1 Configure through Web Browser

Web configuration provides a user-friendly graphical user interface (web pages) to manage your WAP-1963. An AP with an assigned IP address (e.g. <http://192.168.0.1>) will allow you via web browser (e.g., MS Internet Explorer or Netscape) to monitor and configure.

1. Open your web browser.
2. Enter WAP-1963 IP address (default IP address is <http://192.168.0.1>) into the address field of the web browser. Please also make sure your PC's IP address is in the same IP range of WAP-1963.
3. A User Name and Password dialog box will appear. Please enter your User Name and Password here. Default User Name and Password is "admin" and "admin". Click "OK".

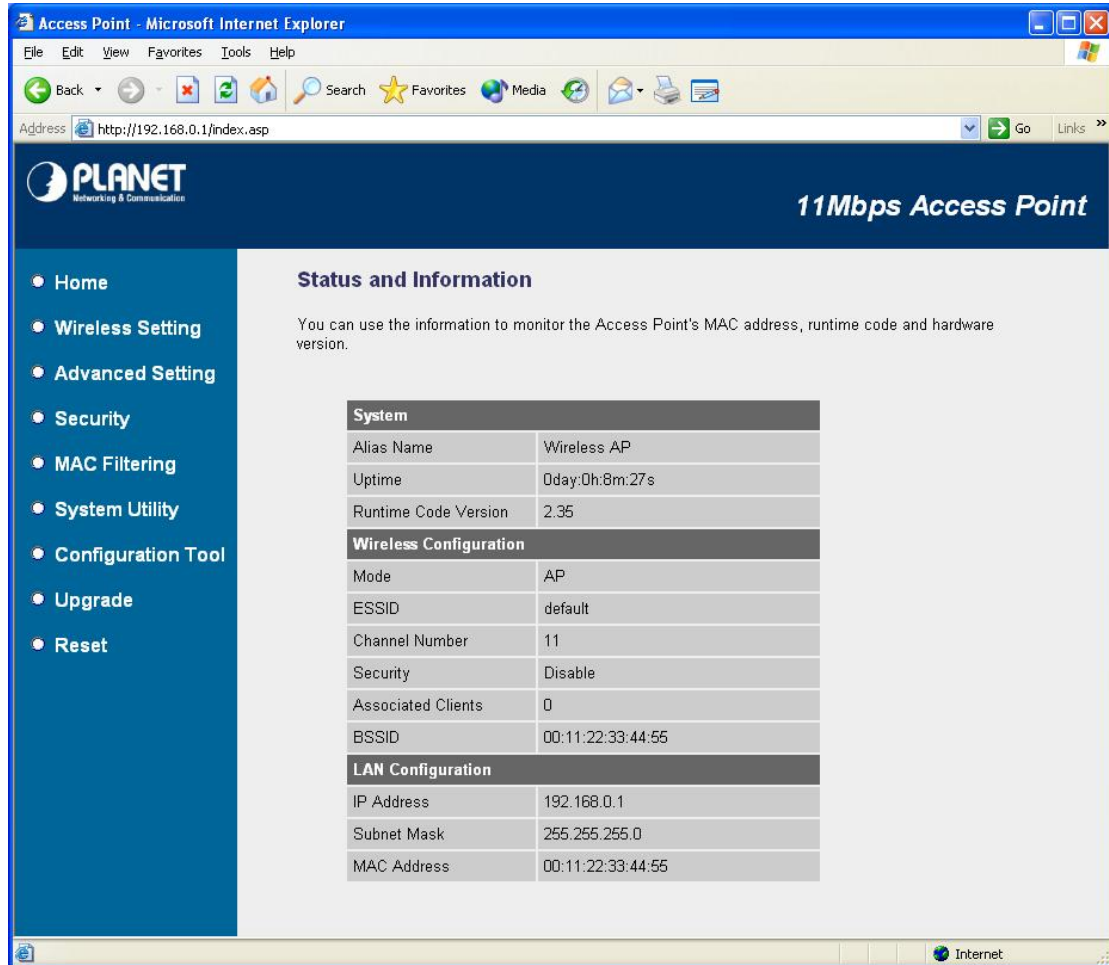


4. Then you will see the WAP-1963 information in the web page as the picture in section 3.1.1.



### 3.1.1 Home:

On this screen, you can see the general information of the Access Point including Alias Name, Firmware Version, SSID, Channel Number, Security, Number of Associated Clients, IP Address, MAC Address, etc.



The screenshot shows a Microsoft Internet Explorer browser window displaying the configuration page for a 11Mbps Access Point. The address bar shows the URL `http://192.168.0.1/index.asp`. The page features a dark blue header with the PLANET logo and the title "11Mbps Access Point". A left-hand navigation menu lists various settings: Home, Wireless Setting, Advanced Setting, Security, MAC Filtering, System Utility, Configuration Tool, Upgrade, and Reset. The main content area is titled "Status and Information" and includes a brief description: "You can use the information to monitor the Access Point's MAC address, runtime code and hardware version." Below this, there are three tables of configuration data.

System	
Alias Name	Wireless AP
Uptime	0day:0h:8m:27s
Runtime Code Version	2.35

Wireless Configuration	
Mode	AP
ESSID	default
Channel Number	11
Security	Disable
Associated Clients	0
BSSID	00:11:22:33:44:55

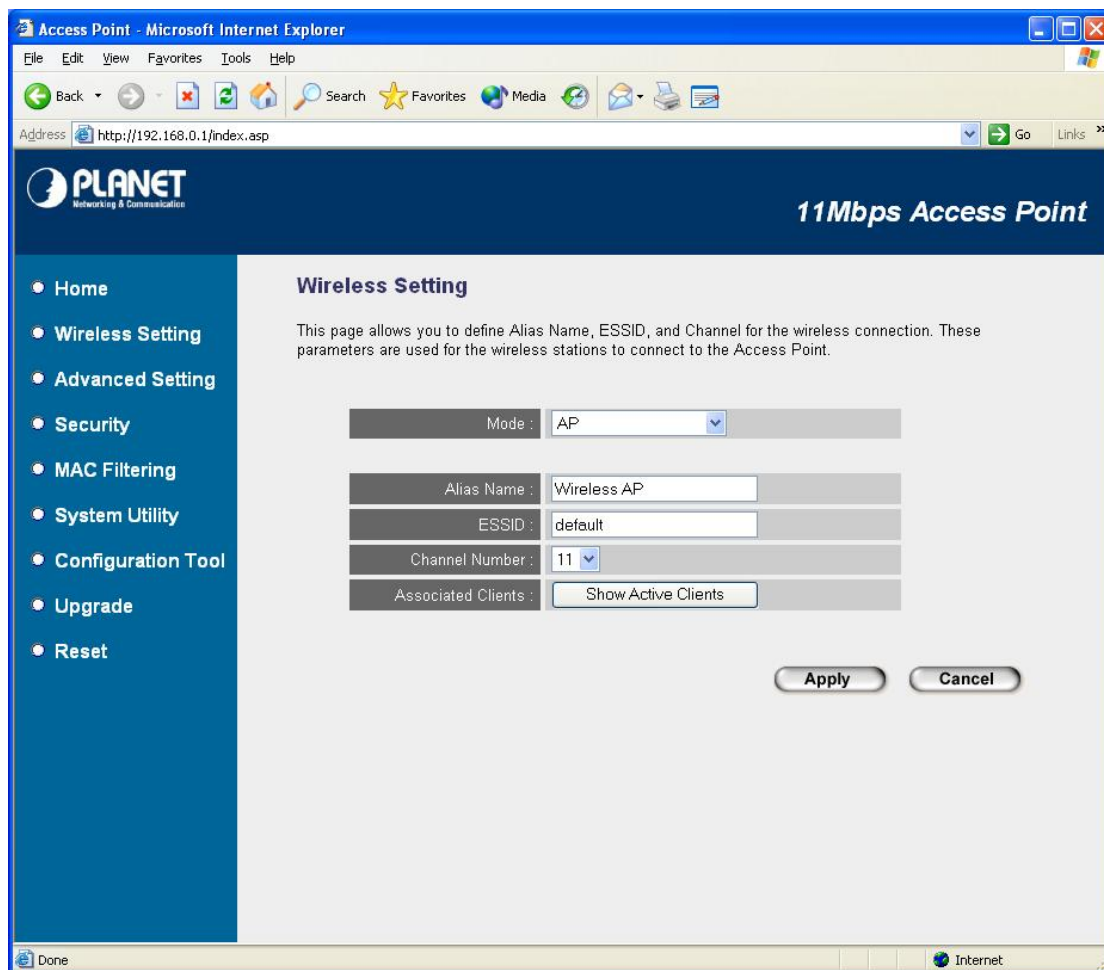
LAN Configuration	
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
MAC Address	00:11:22:33:44:55

### 3.1.2 Wireless Setting:

In this option, you can set the Mode, Alias Name, ESSID and Work Channel to this Access Point. When configuration finished, please click “Apply” to save.

#### 3.1.2.1 AP MODE

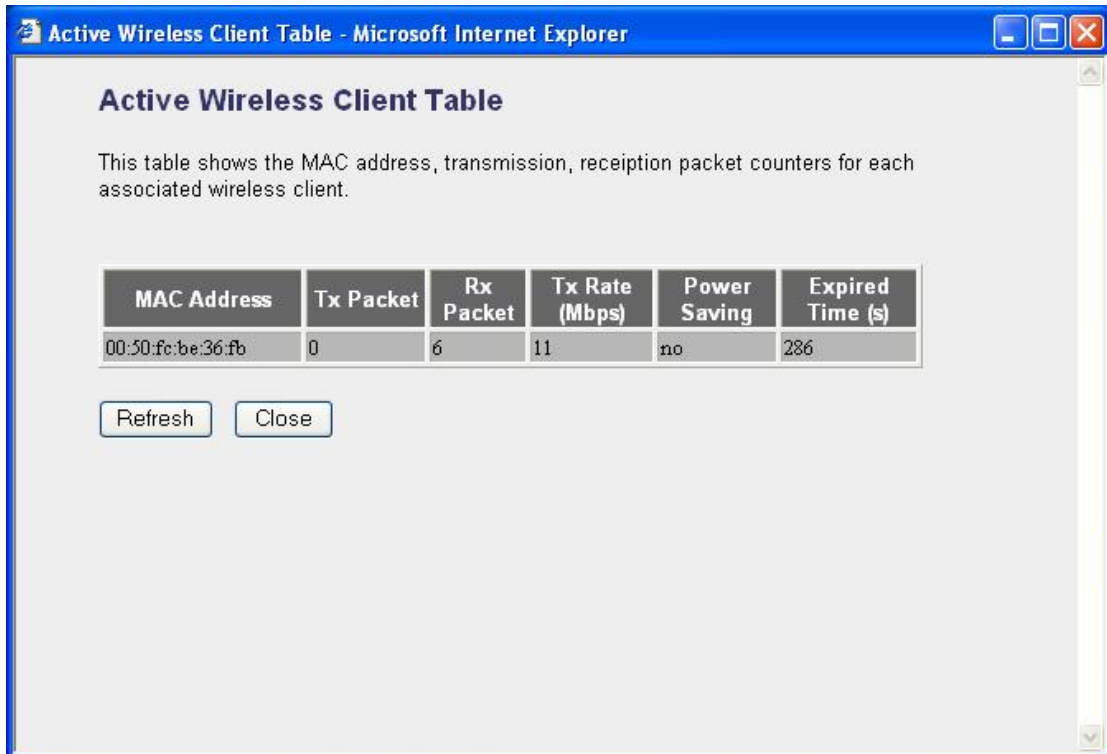
This mode is set to WAP-1963 by default. It served as a transparent Media Access Control (MAC) bridge between wired and wireless network.



Parameters	Description
Alias Name	The alias name of this access point.
ESSID	The ESSID (up to 31 printable ASCII characters) is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs. Please make sure that the ESSID of all stations in the same WLAN network are the same. The default ESSID is “ <b>default</b> ”.
Channel Number	Select the appropriate channel from the list provided to correspond with your network settings. Channels differ from country to country. Channel 1-11 (North America) Channel 1-14 (Japan)

Channel 1-13 (Europe)

Associated Clients Click "Show Active Clients" button, then a "Active Wireless Client Table" will pop up as below. You can see the status of all active wireless stations that are connecting to the access point.

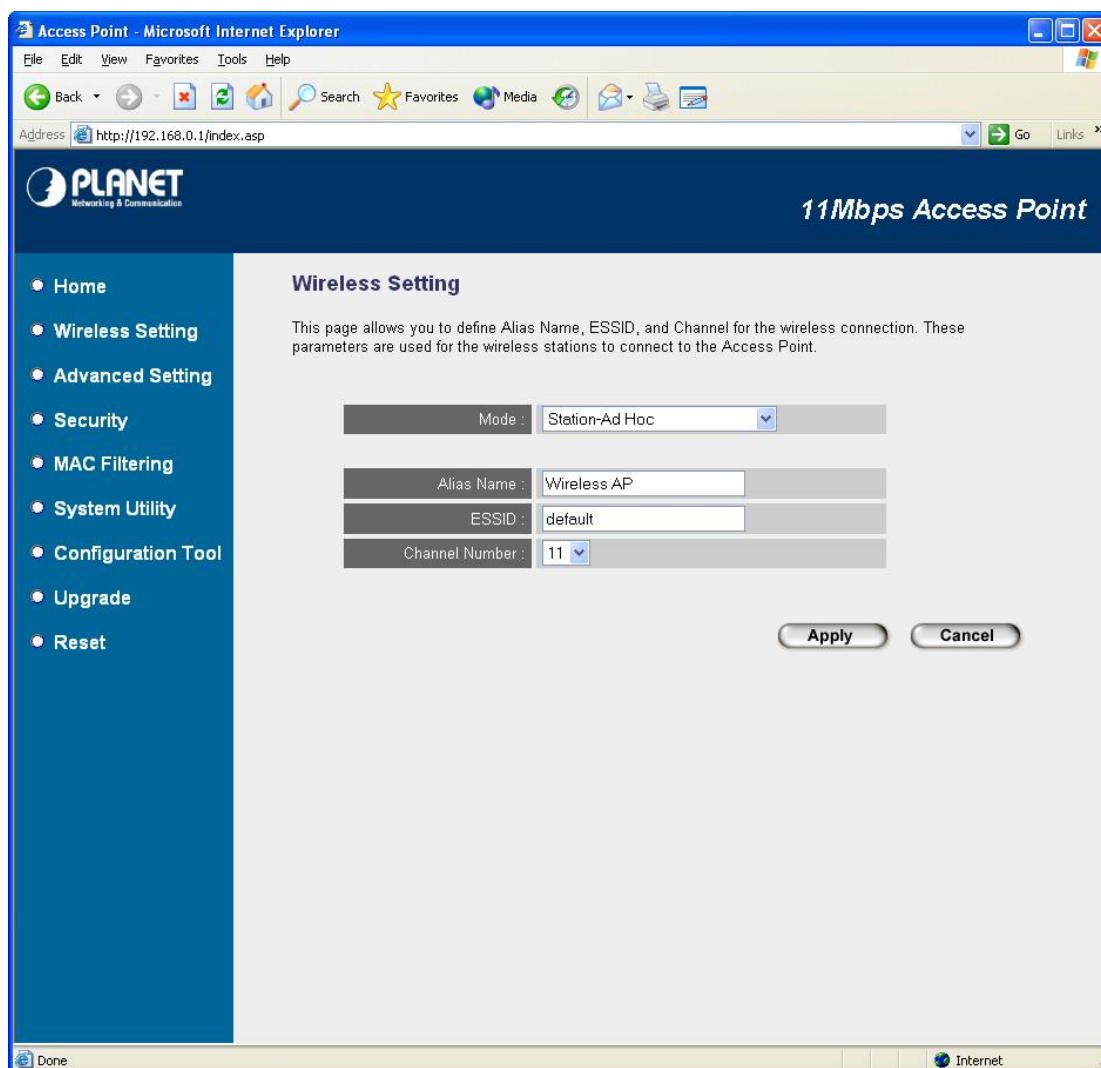


"Active Wireless Client Table" records the status of all active wireless stations that are connecting to the access point. You can lookup the MAC Address, Number of Transmitted Packets, Number of Received Packets and Encryption Status of each active wireless client in this table.

Parameters	Description
MAC Address	MAC address of this active wireless station.
Tx Packet	The number of transmitted packets that are sent out from this active wireless station.
Rx Packet	The number of received packets that are received by this active wireless station.
TX Rate	The transmission rate in Mbps.
Power Saving	Shows if the wireless client is in Power Saving mode.
Expired Time	The time in second before dissociation. If the wireless keeps idle long than the expired time, this access point will dissociate it. The wireless client station has to associate again when it become active.
Refresh	Refresh the "Active Wireless Client Table".
Close	Close "Active Wireless Client Table" window.

### 3.1.2.2 STATION-AD HOC MODE

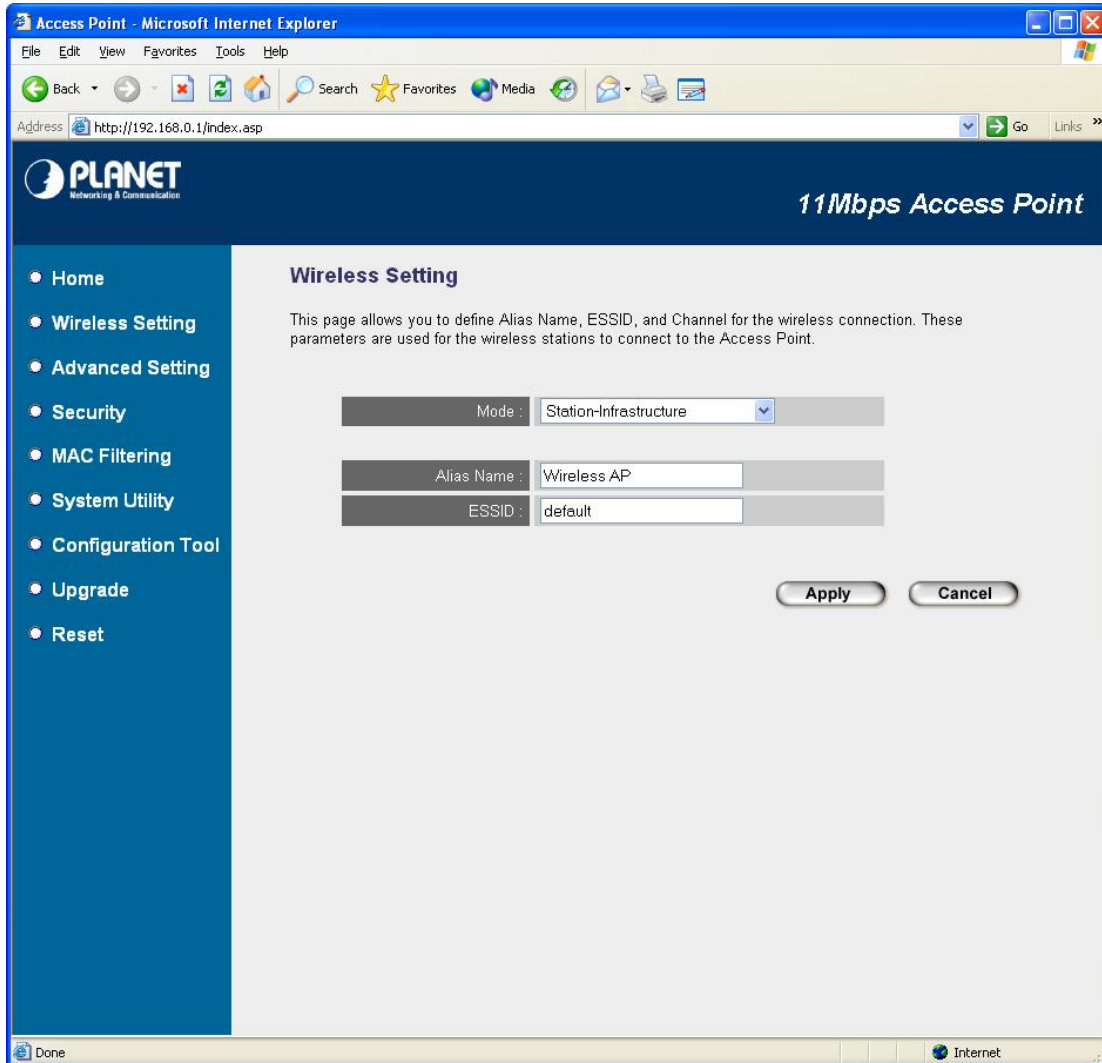
Served as a wireless station (Ad-hoc). Connected to a PC or a small LAN, this station along with other wireless stations can establish a small wireless network without Access Points.



Parameters	Description
Alias Name	The alias name of this access point.
ESSID	The ESSID (up to 31 printable ASCII characters) is the unique name identified in a WLAN. Please set it as the WLAN's ESSID that you want to join. In default, the ESSID is "default".
Channel Number	Select the appropriate channel from the list provided to correspond with your network settings.

### 3.1.2.3 STATION-INFRASTRUCTURE MODE

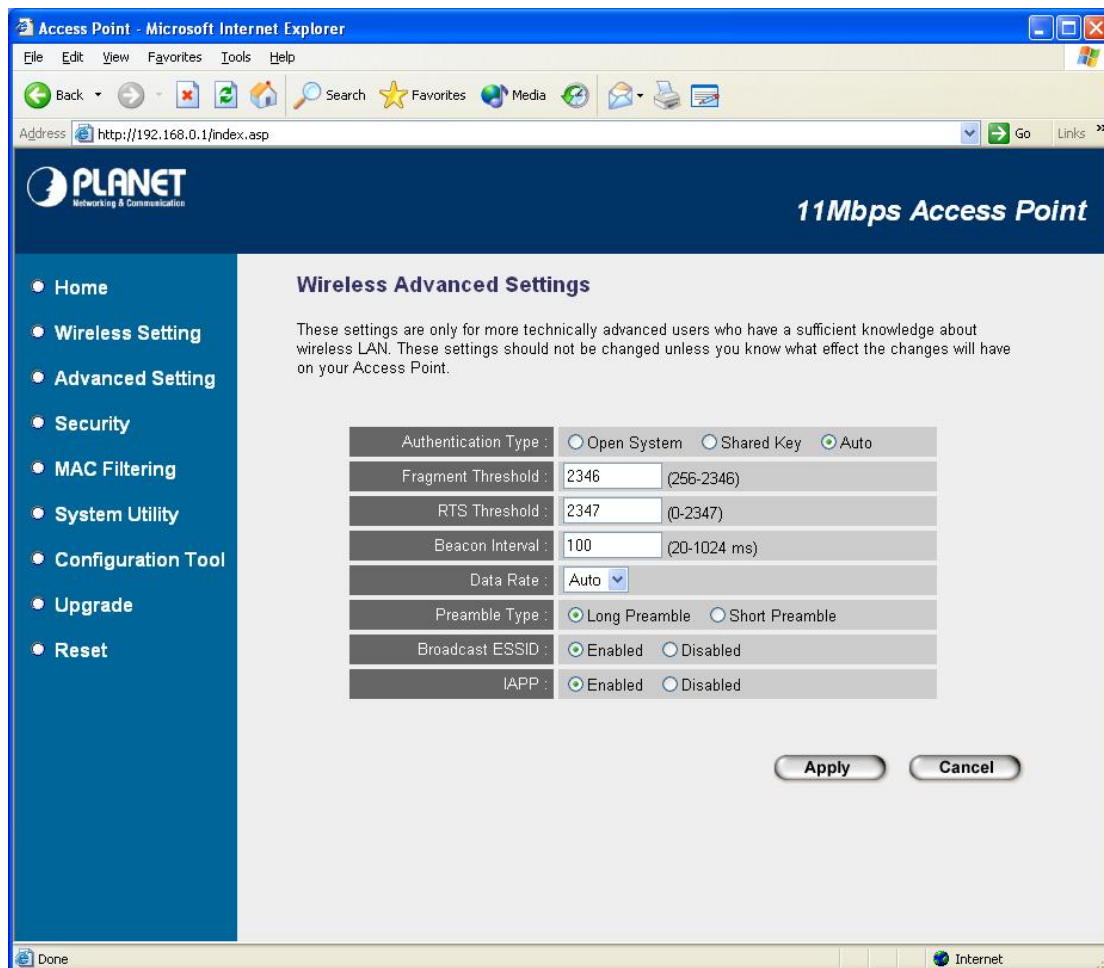
Served as a wireless station (infrastructure). Connected to a PC or a small LAN, it allows the PC or small LAN able to access the wireless network via Access Point.



Parameters	Description
Alias Name	The alias name of this access point.
ESSID	The ESSID (up to 31 printable ASCII characters) is the unique name identified in a WLAN. Please set it as the AP's ESSID that you want to connect to. In default, the ESSID is "default".

### 3.1.3 Wireless Advance Settings:

You can set advanced parameters of this WAP-1963. The parameters include Authentication Type, Fragment Threshold, RTS Threshold, Beacon Interval, Data Rate, Preamble Type, and Broadcast ESSID. You should not change these parameters unless you know what effect the changes will have on WAP-1963. When configuration finished, please click “Apply” to save the settings.



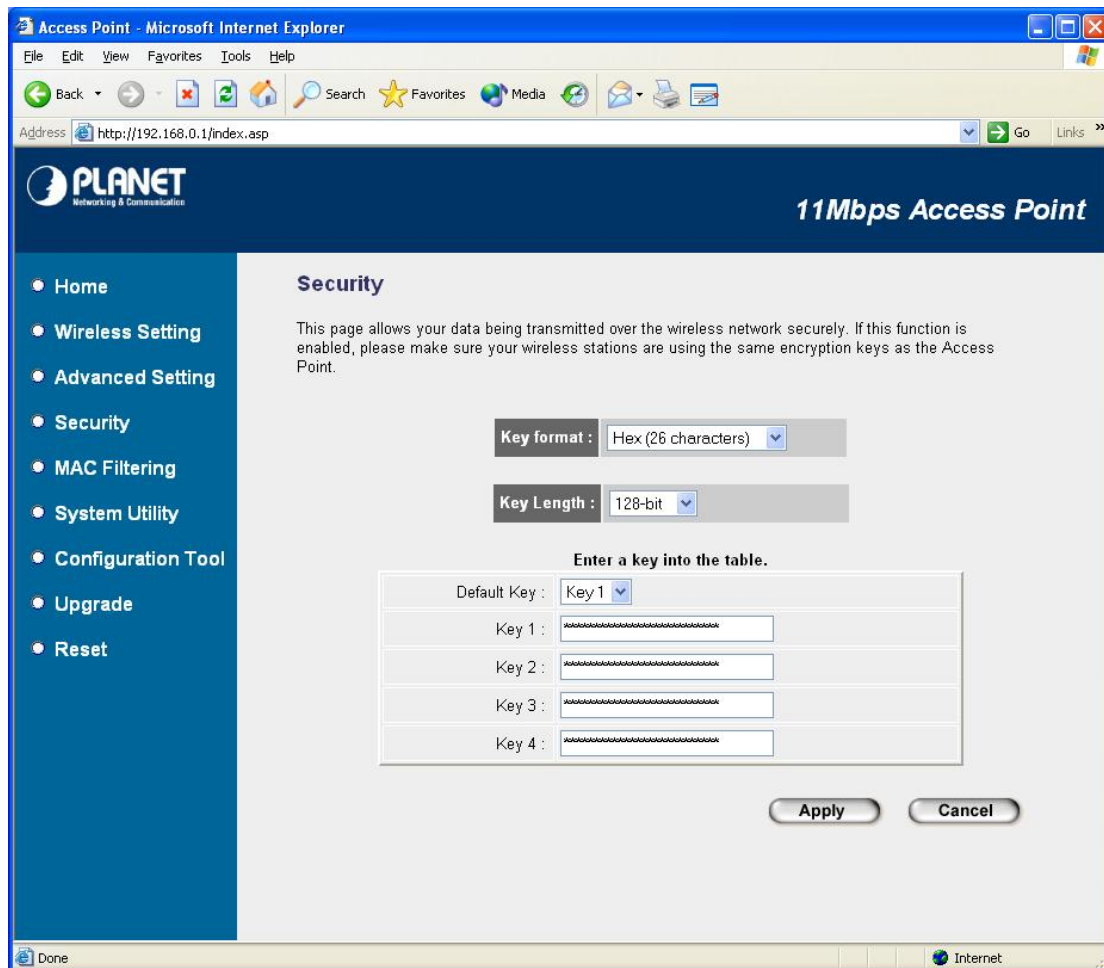
Parameters	Description
Authentication Type	There are two authentication types: “Open System” and “Shared Key”. When you select “Open System”, wireless stations can associate with this access point without WEP encryption. When you select “Shared Key”, you should also setup WEP key in the “Encryption” page and wireless stations should use WEP encryption in the authentication phase to associate with this access point. If you select “Both”, the wireless client can associate with this access point by using any one of these two authentication types.
Fragment Threshold	“Fragment Threshold” specifies the maximum size of packet during the fragmentation of data to be transmitted. If you set this value too low, it will result in bad performance.

RTS Threshold	When the packet size is smaller the RTS threshold, the access point will not use the RTS/CTS mechanism to send this packet.
Beacon Interval	The interval of time that this access point broadcast a beacon. Beacon is used to synchronize the wireless network.
Data Rate	The "Data Rate" is the rate this access point uses to transmit data packets. The access point will use the highest possible selected transmission rate to transmit the data packets.
Preamble Type	Preamble type defines the length of CRC block in the frames during the wireless communication. "Short Preamble" is suitable for high traffic wireless network. "Long Preamble" can provide more reliable communication.
Broadcast ESSID	If you enable "Broadcast ESSID", every wireless station located within the coverage of this access point can discover this access point easily. If you are building a public wireless network, enabling this feature is recommended. Disabling "Broadcast ESSID" can provide better security.

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### 3.1.4 Security:

WEP is an authentication algorithm, which protects authorized Wireless LAN users against eavesdropping. The Authentication type and WEP key of wireless stations must be the same with the Access Point. WAP-1963 has support 64/128-bit WEP Encryption function. With this function, your data will be transmitted over the wireless network securely. In default, this function is “Disable”. When configuration finished, please click “Apply” to save the settings.



Parameters	Description
Key Format	You may select to select ASCII Characters (alphanumeric format) or Hexadecimal Digits (in the “A-F”, “a-f” and “0-9” range) to be the WEP Key. For example: ASCII Characters: guest Hexadecimal Digits: 12345abcde
Key Length	You may enable or disable the WEP function from the setting item. The selections in the setting item are changed based on the key format. Default is “Disable”.
Default Key	Select one of the four keys to encrypt your data. Only the key you select it in the “Default key” will take effect.
Key 1 - Key 4	The WEP keys are used to encrypt data transmitted in the wireless network. Fill the



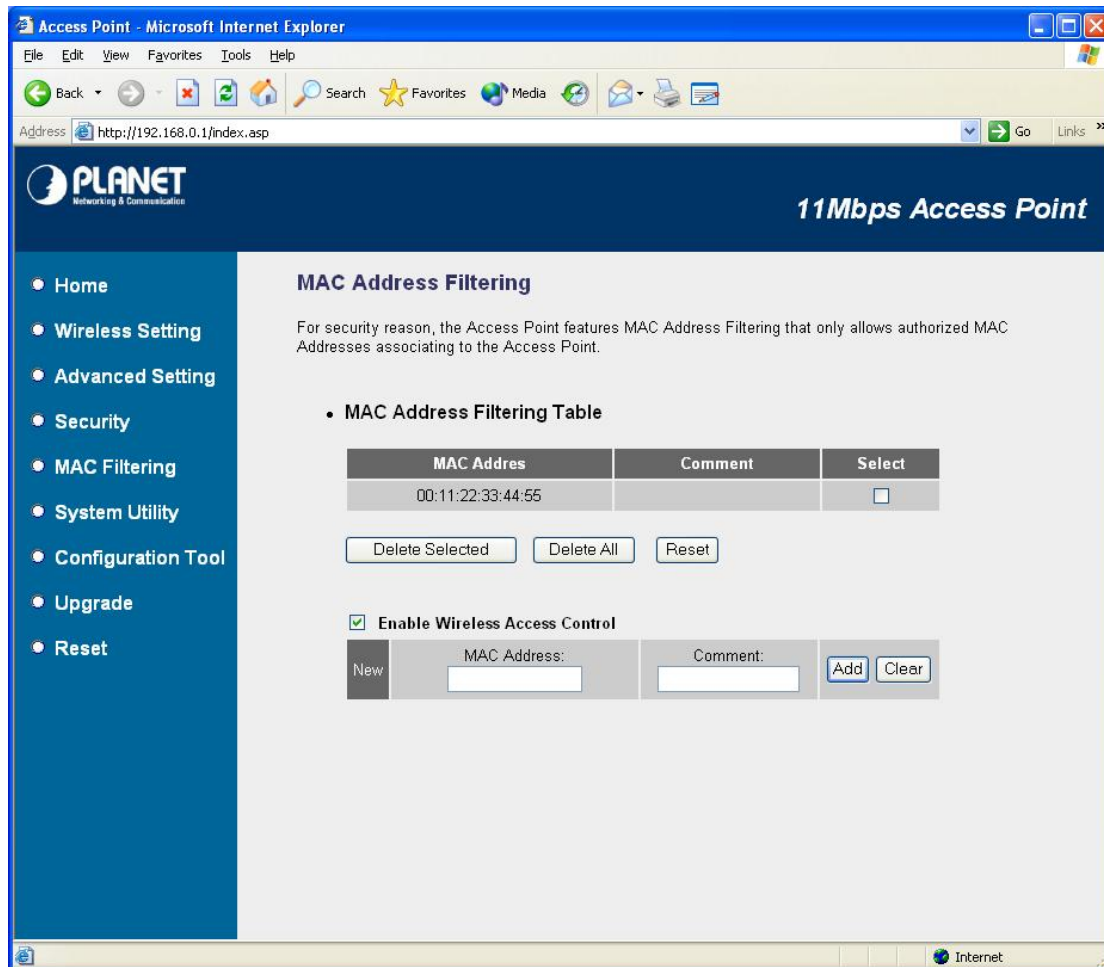
text box by following the rules below.

64-bit WEP: input 10-digit Hex values (in the "A-F", "a-f" and "0-9" range) or 5-digit ASCII character as the encryption keys.

128-bit WEP: input 26-digit Hex values (in the "A-F", "a-f" and "0-9" range) or 10-digit ASCII characters as the encryption keys.

### 3.1.5 MAC Filtering:

This Access Point provides MAC Address Filtering, which prevents the unauthorized MAC Addresses from accessing your wireless network.



Parameters	Description
MAC Address Filtering Table	This table records the MAC addresses of wireless stations you want to allow to access your network. The “Comment” field is the description of the wireless station associated with the “MAC Address” and is helpful for you to recognize the wireless station.
Add MAC address into the table	Please click “Enable Wireless Access Control” first. In the bottom “New” area, fill in the “MAC Address” and “Comment” of the wireless station to be added and then click “Add”. Then this wireless station will be added into the “MAC Address Filtering Table” above. If you find any typo before adding it and want to retype again. Just click “Clear” and both “MAC Address” and “Comment” fields will be cleared.
Remove MAC address from the table	If you want to remove some MAC address from the “MAC Address Filtering Table”, select the MAC addresses you want to remove in the table and then click “Delete Selected”. If you want remove all MAC addresses from the table, just click “Delete

All" button.

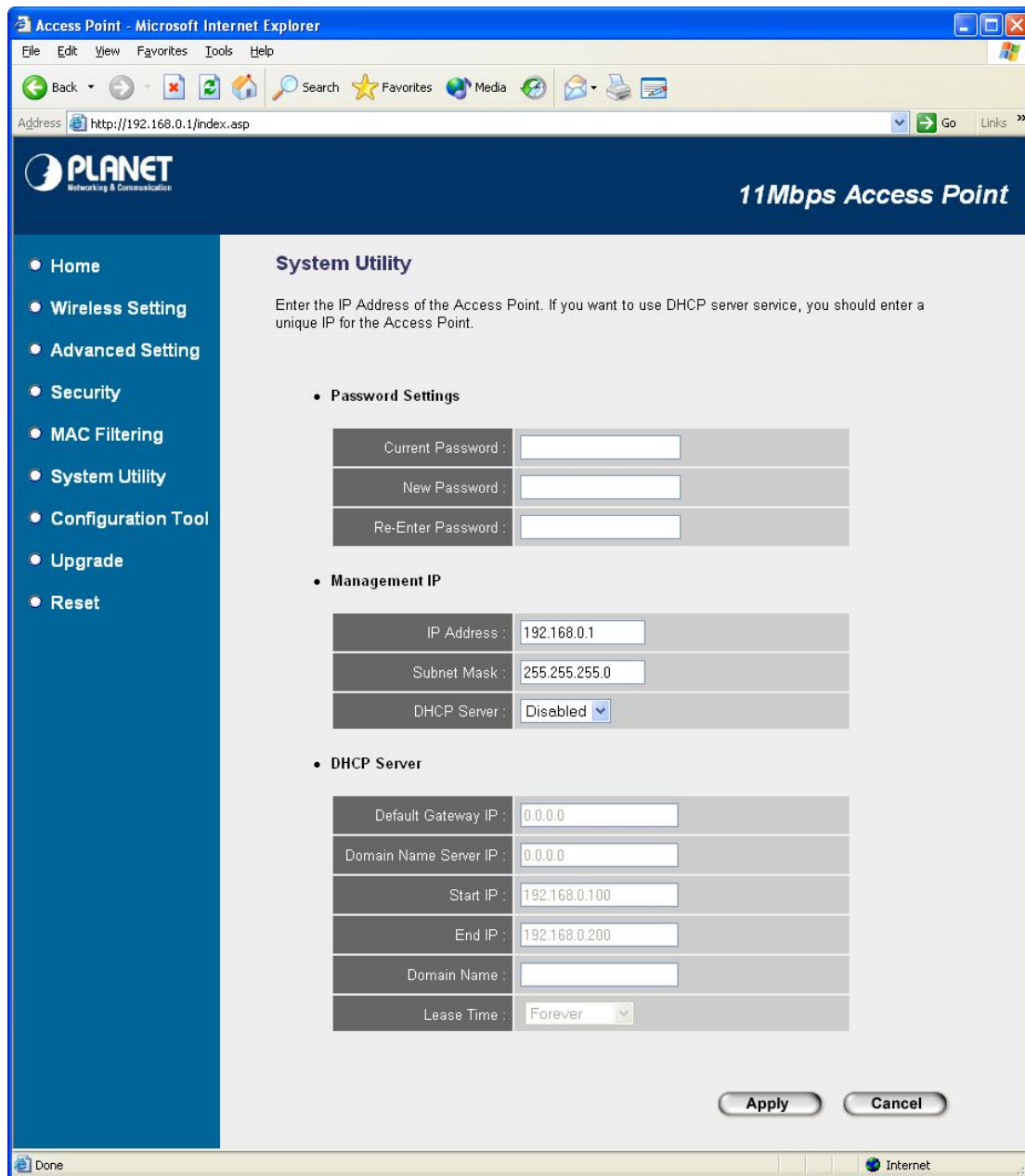
Reset

Click "Reset" will clear your current selections.

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### 3.1.6 System Utility:

From here, you can define the Access Point's IP Address and Login Password and enable the Access Point to be a DHCP Server. After configure, please press "Apply" button to save the settings.



Parameters	Description
<b>Password Settings</b>	
Current Password	Enter the current password (up to 15-digit alphanumeric string) of the Access Point. The default password for the Access Point is <b>admin</b> . Note that the password is case-sensitive.
New Password	Enter the password (up to 15-digit alphanumeric string) you want to login to the Access Point. Note that the password is case-sensitive.

Re-Enter Password Reconfirm the password (up to 15-digit alphanumeric string) you want to login to the Access Point. Note that the password is case-sensitive.

### **Management IP**

IP Address Designate the Access Point's IP Address. This IP Address should be unique in your network. The default IP Address is **192.168.0.1**.

Subnet Mask Specify a Subnet Mask for your LAN segment. The Subnet Mask of the Access Point is fixed and the value is **255.255.255.0**.

DHCP Server Enable or disable the DHCP Server.

### **DHCP Server**

Default Gateway IP Specify the gateway IP in your network. This IP address should be different from the Management IP.

Domain Name Server IP This is the ISP's DNS server IP address that they gave you; or you can specify your own preferred DNS server IP address.

Start IP/End IP You can designate a particular IP address range for your DHCP server to issue IP addresses to your LAN Clients. By default the IP range is from: Start IP **192.168.0.100** to End IP **192.168.0.200**.

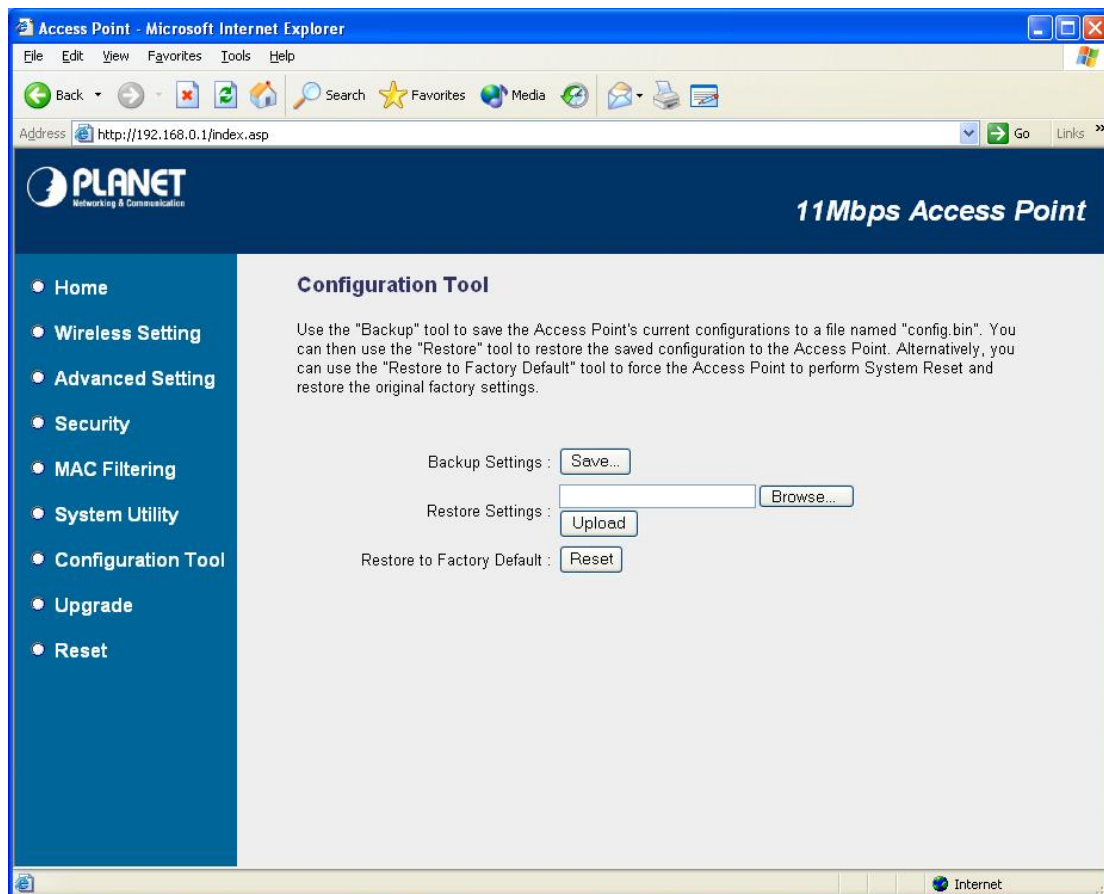
Domain Name You can specify the Domain Name for your Access Point.

Lease Time The DHCP Server when enabled will temporarily give your LAN client an IP address. In the Lease Time setting you can specify the time period that the DHCP Server lends an IP address to your LAN clients. The DHCP Server will change your LAN client's IP address when this time threshold period is reached.

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### 3.1.7 Configuration Tool

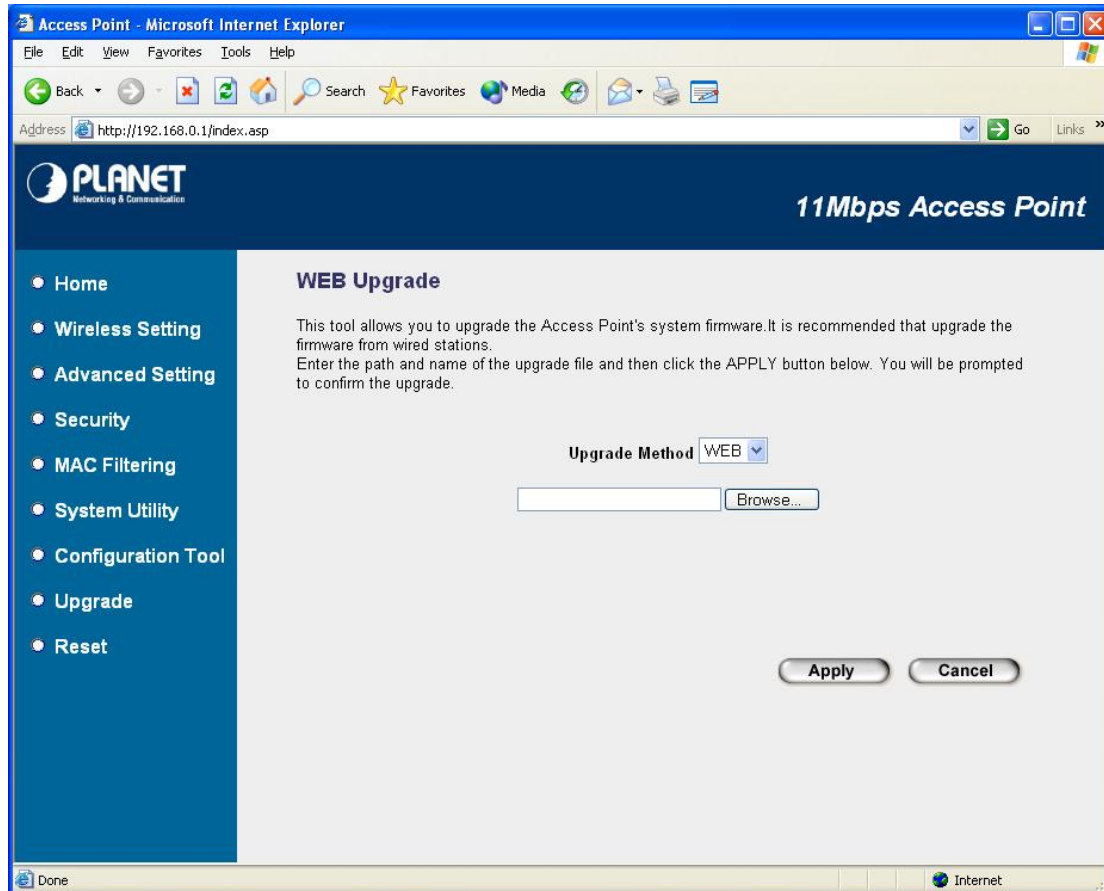
The Configuration Tool screen allows you to backup, restore and reset WAP-1963 configuration settings. Saving the configuration settings provides an added protection and convenience should problems occur with the WAP-1963 and you have to reset to factory default. When you save the configuration setting (**Backup**) you can re-load the saved configuration into the Access Point through the **Restore** selection. If extreme problems occur you can use the **Restore to Factory Default** function, this will set all configurations to its original default settings.



Parameter	Description
Backup Settings	Please click "Save..." button. That will save the Access Point's current configuration to a file named "config.bin" on your PC.
Restore Settings	Please click "Browse..." to find out the config.bin, and then click "Upload" to restore the saved configuration to the Access Point.
Restore to Factory Default	Click "Reset". This function will restore WAP-1963 to original factory settings.

### 3.1.8 Upgrade

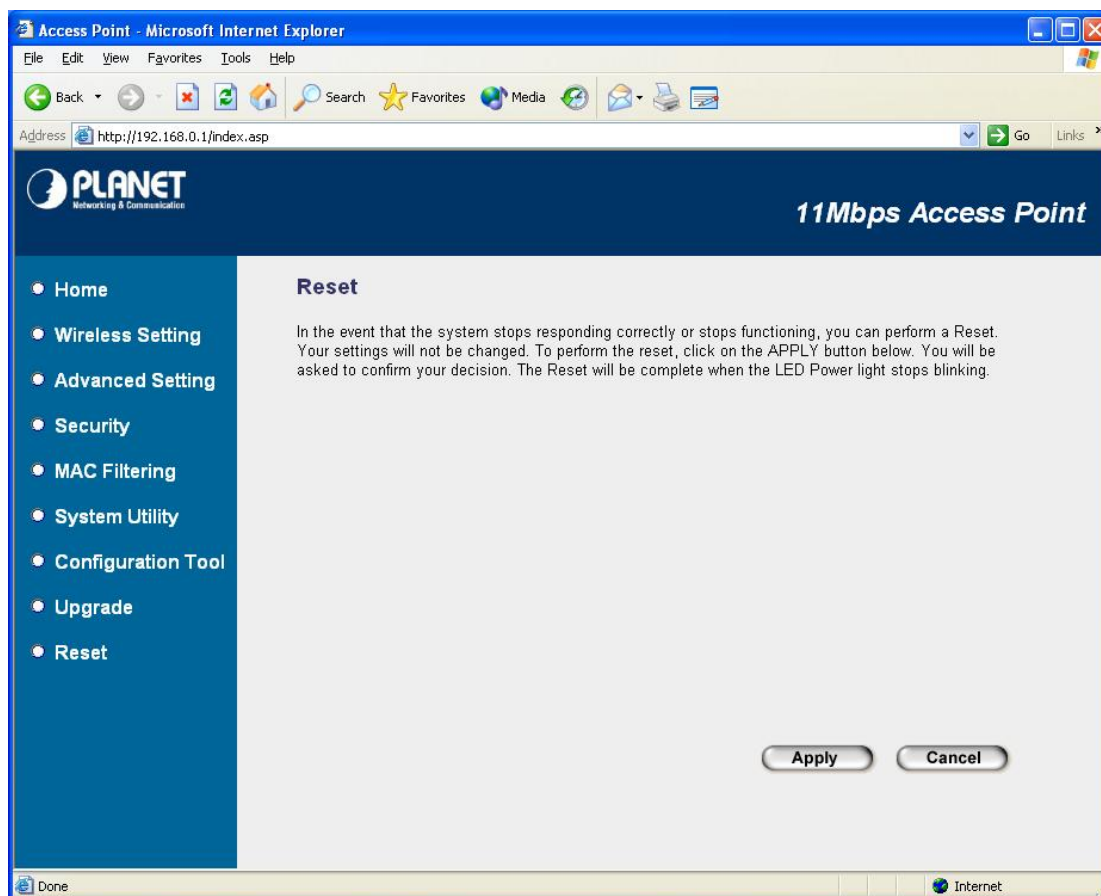
This page allows you to upgrade WAP-1963 with when the new firmware released.



Parameter	Description
Firmware Upgrade	You can use the "Browse..." button to find the firmware location on your PC, and then press "Apply" button to upgrade your Access Point. Please power off and on the Access Point when the upgrade process is complete. That can let the new firmware work properly on WAP-1963.

### 3.1.9 Reset

You can reset the Access Point's system should any problem exist. The reset function essentially Re-boots your Access Point's system.



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Parameter	Description
Reset	In the event that the system stops responding correctly or in some way stops functioning, you can perform a reset. <b>Your settings will not be changed.</b> To perform the reset, click on the “Apply” button. You will be asked to confirm your decision. Once the reset process is complete you may start using the Access Point again.

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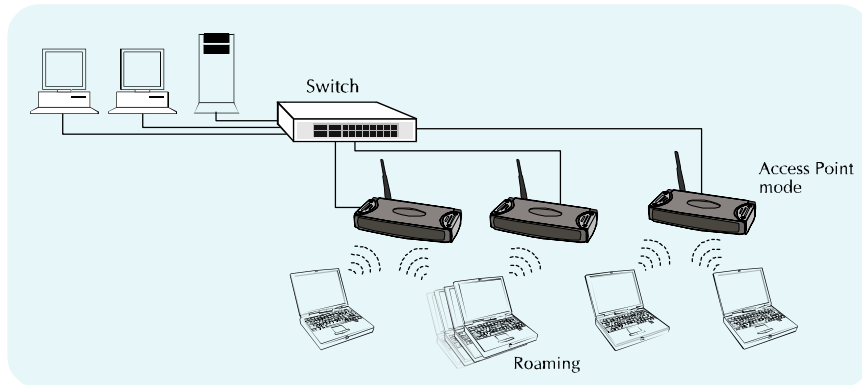


# Chapter 4 Application

This chapter describe the four operating mode of your WAP-1963. The four working modes of WAP-1963 are Access Point, Access Point Client Mode, Wireless Bridge mode and Multiple Bridge mode.

## 4.1 Access Point mode

With this mode, your Wireless network connection could act as following.



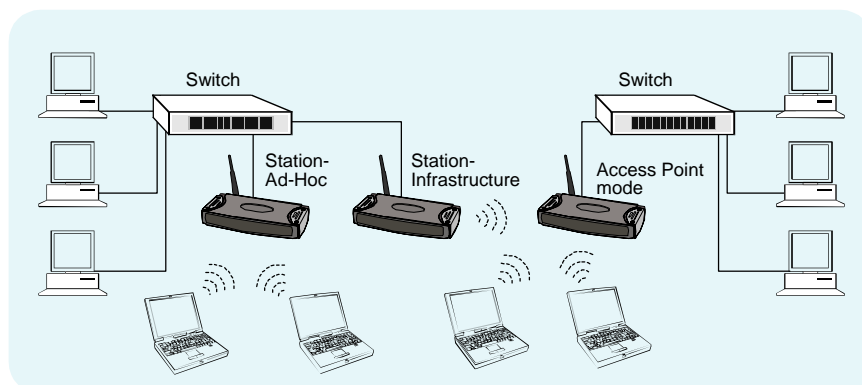
Any of your IEEE802.11b end nodes should found the nearest Access Point to communication with any other Wireless end-nodes or the wired Ethernet network.

There are two things need to be check for your wireless end nodes, the services set ID (SSID) and the Wired Equivalent Protocol (WEP), both parameters should the same with your Access Point.

## 4.2 Wireless Station mode

Infrastructure: Served as a wireless station (infrastructure). Connected to you PCs, it is able to access the network via Access Point. WAP-1963 soon makes your connected PCs a wireless end node.

Ad-Hoc: Served as a wireless station (Ad-hoc). Connected to your PCs, this station adapter along with other wireless stations can establish a small wireless network without Access Points.



## Chapter 5 Troubleshooting

This chapter gives tips on how to configure the communication software. This chapter provides solutions to problems usually encountered during the *installation* and operation of the *Wireless Network Access Point*. Read the description below to solve your problems.

**Q. Can I run an application from a remote computer over the wireless network?**

A. This will depend on whether or not the application is designed to be used over a network. Consult the application's user guide to determine if it supports operation over a network.

**Q. Can, I play games with other members of the cordless network?**

A. Yes, as long as the game supports multiple plays over a LAN (local area network). Refer to the game's user guide for more information.

**Q. What is the IEEE 802.11b standard?**

A. The IEEE 802.11b Wireless LAN standards subcommittee, which is formulating a standard for the industry. The objective is to enable wireless LAN hardware from different manufactures to communicate.

**Q. What IEEE 802.11 features are supported?**

A. The product supports the following IEEE 802.11 functions:

- CSMA/CA plus Acknowledge protocol
- Multi-Channel Roaming
- Automatic Rate Selection
- RTS/CTS feature
- Fragmentation
- Power Management

**Q. What is Ad-hoc?**

A. An Ad-hoc integrated wireless LAN is a group of computers, each with a WLAN adapter, Connected as an independent wireless LAN. Ad hoc wireless LAN is applicable at a departmental scale for a branch or SOHO operation.

**Q. What is Infrastructure?**

A. An integrated wireless and wired LAN is called an Infrastructure configuration. Infrastructure is applicable to enterprise scale for wireless access to central database, or wireless application for mobile workers.

**Q. What is Roaming?**

A. Roaming is the ability of a portable computer user to communicate continuously while moving freely throughout an area greater than that covered by a single Wireless Network Access Point. Before using the roaming function, the workstation must make sure that it is the same channel number with the Wireless Network Access Point of dedicated coverage area.