



11Mbps Wireless Access Point w/Bridge

WAP-1963A

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 w/Bridge

Model: WAP-1963A

Rev: 1.0 (November, 2003)

Part No. EM-WAP1963A

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Chapter 1 Introduction

Thank you for purchasing WAP-1963A. The WAP-1963A 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 the most security functions such as WPA, 802.1X authentication, 64/128-bit WEP (Wired Equivalent Privacy) Encryption and MAC address filter to consolidate the wireless network security; you can prevent unauthorized wireless stations from accessing your wireless network. WAP-1963A also offers a RADIUS-based access control, for the enterprise manage requirement.

With its Bridge and Station modes, that it can provide more elasticity for users create their Wireless Network. Connected to your LAN, it is able to access the network via Access Point or join to a small wireless network without Access Points. Its 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 configure 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-1963A
- One AC Power Adapter
- One User's Manual CD
- One Quick Installation Guide
- One External Antenna

Note:	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

- I Compliant with the IEEE 802.11b (DSSS) 2.4GHz specification
- I High data rate 11, 5.5, 2 and 1Mbps network speed, Auto rate fallback
- I Seamlessly integrate wireless and wired Ethernet LAN networks
- I 64/128-bit WEP Encryption and MAC Filter to protect the wireless data transmissions
- I Supports Wireless AP / Bridge / Station mode
- I WPA, 802.1X authentication
- I MAC Address Filter
- I Built-in DHCP server supports auto IP addresses assignment
- I Web-based configuration
- I Wireless connection without the hassles and cost of cabling

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-1963A.

2.1 Hardware Connection



- 1. Locate an optimum location for the WAP-1963A.** The best place for your WAP-1963A 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-1963A.** 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-1963A.** Connect this WAP-1963A to your LAN switch/hub or a single PC.
- 4. Plug in power adapter and connect to power source.** After power on, WAP-1963A will start to work.

Note:	ONLY use the power adapter supplied with the WAP-1963A. Otherwise, the product may be damaged. If you want to reset your WAP-1963A to default settings, press the Reset button 5 second. And then wait for 10 seconds for WAP-1963A restart.
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Chapter 3 Configuration

Web configuration provides a user-friendly graphical user interface (web pages) to manage your WAP-1963A. 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-1963A 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-1963A.
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". Click "OK".



4. Then you will see the WAP-1963A information in the web page as the picture in section 3.1.

3.1 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.

PLANET
Networking & Communication

11Mbps Access Point

- Home
- Wireless Setting
- Advanced Setting
- Security
- Radius Server
- MAC Filtering
- System Utility
- Configuration Tool
- Upgrade
- Reset

Status and Information

You can use the information to monitor the Access Point's MAC address, runtime code and hardware version.

System	
Alias Name	Wireless AP
Uptime	0day:0h:8m:33s
Runtime Code Version	2.60

Wireless Configuration	
Mode	AP
ESSID	default
Channel Number	11
Security	Disable
Associated Clients	0
BSSID	00:30:4f:33:22:55

LAN Configuration	
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
MAC Address	00:30:4f:33:22:55

3.2 Wireless Setting

In this option, you can set the Mode, Alias Name, ESSID and Work Channel to this Access Point. There are six operating modes available in WAP-1963A: AP, Station-Ad hoc, Station-Infrastructure, AP Bridge-Point to Point, AP Bridge-Point to Multi-Point, and AP Bridge-WDS. When configuration finished, please click "Apply" to save.

3.2.1 AP mode

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

The screenshot shows a web browser window titled "Access Point - Microsoft Internet Explorer". The address bar shows "http://192.168.0.1/index.asp". The page header includes the "PLANET" logo and "11Mbps Access Point". A sidebar on the left contains a list of navigation links: Home, Wireless Setting (selected), Advanced Setting, Security, Radius Server, MAC Filtering, System Utility, Configuration Tool, Upgrade, and Reset. The main content area is titled "Wireless Setting" and contains a description: "This page allows you to define Alias Name, ESSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point." Below the description are five configuration fields: "Mode" (set to AP), "Alias Name" (set to Wireless AP), "ESSID" (set to default), "Channel Number" (set to 11), and "Associated Clients" (with a "Show Active Clients" button). At the bottom right of the form are "Apply" and "Cancel" buttons.

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 “**default**”.

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.

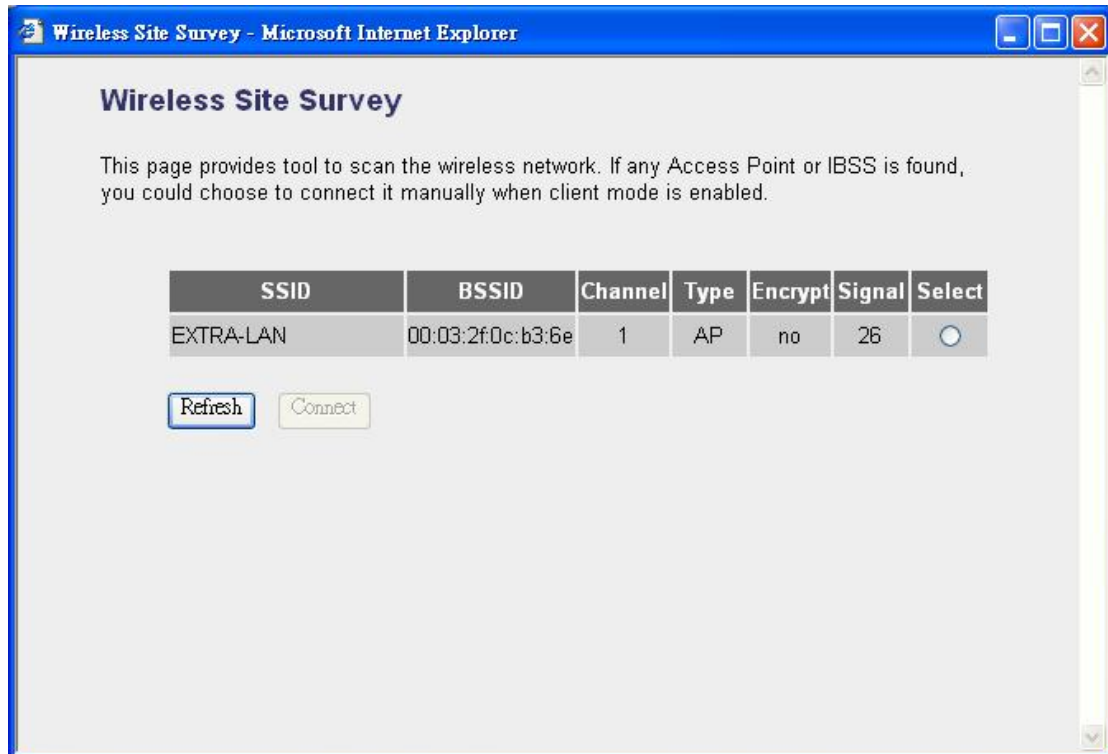
Refresh	Refresh the “Active Wireless Client Table”.
Close	Close “Active Wireless Client Table” window.

3.2.2 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.
Site Survey	After WAP-1963A apply to this mode, this button will appear for user to find out the devices that it can connect to. When you press the button, the dialog box will

appear as below. You can select the AP you want to connect and press “Connect” button to connect. If you don’t have find the AP you want to connect, please press “Refresh” to rescan.



3.2.3 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.

Access Point - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://192.168.0.1/index.asp

PLANET Networking & Communication

11Mbps Access Point

- Home
- Wireless Setting
- Advanced Setting
- Security
- Radius Server
- MAC Filtering
- System Utility
- Configuration Tool
- Upgrade
- Reset

Wireless Setting

This page allows you to define Alias Name, ESSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point.

Mode : Station-Infrastructure

Alias Name : Wireless AP

ESSID : default

Site Survey : Select Site Survey

Apply Cancel

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".
Site Survey	After WAP-1963A apply to this mode, this button will appear for user to find out the devices that it can connect to. When you press the button, the dialog box will appear as picture in section 3.1.2.2.

3.2.4 AP Bridge – Point to Point Mode

This mode can use to connect to another Bridge Mode WAP-1963A that the MAC Address is entered in the setting. It can work as a bridge to connect two LANs in distant place.

Access Point - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail

Address http://192.168.0.1/index.asp Go Links

PLANET
Networking & Communication

11Mbps Access Point

- Home
- **Wireless Setting**
- Advanced Setting
- Security
- Radius Server
- MAC Filtering
- System Utility
- Configuration Tool
- Upgrade
- Reset

Wireless Setting

This page allows you to define Alias Name, ESSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point.

Mode : AP Bridge-Point to Point

Channel Number : 11

MAC Address : 000000000000

Set Security : Set Security

Apply Cancel

Done Internet

Parameters	Description
Channel Number	Select the appropriate channel from the list provided to correspond with your network settings.
MAC Address	Please enter the MAC Address of the WAP-1963A that you want to connect to.
Set Security	Set a WEP Key to protect your wireless connection. It is support 64/128bit Key to the WEP function. If you want to change WAP-1963A to other operate mode, please disable this function before change operating mode. Please make sure the WEP Key have set to another WAP-1963A is the same.

3.2.5 AP Bridge – Point to Multi-Point Mode

This mode can use to connect to other Bridge Mode WAP-1963A that the MAC Address is entered in the setting. It can work as a bridge to connect max 7 LANs in distant place.

Access Point - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail

Address http://192.168.0.1/index.asp Go Links

PLANET
Networking & Communication

11Mbps Access Point

- Home
- Wireless Setting
- Advanced Setting
- Security
- Radius Server
- MAC Filtering
- System Utility
- Configuration Tool
- Upgrade
- Reset

Wireless Setting

This page allows you to define Alias Name, ESSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point.

Mode : AP Bridge-Point to Multi-Point

Channel Number : 11

MAC Address 1 : 000000000000

MAC Address 2 : 000000000000

MAC Address 3 : 000000000000

MAC Address 4 : 000000000000

MAC Address 5 : 000000000000

MAC Address 6 : 000000000000

Set Security : Set Security

Apply Cancel

Done Internet

Parameters	Description
Channel Number	Select the appropriate channel from the list provided to correspond with your network settings.
MAC Address 1~6	Please enter the MAC Address of the other WAP-1963A that you want to connect to.
Set Security	Set a WEP Key to protect your wireless connection. It is support 64/128bit Key to the WEP function. If you want to change WAP-1963A to other operate mode, please disable this function before change operating mode. Please make sure the WEP Key have set to others are the same.

3.2.6 AP Bridge – WDS Mode

In this mode, WAP-1963A will be a repeater between two AP mode WAP-1963A, that can extend the connect distance. When it works in this mode, it will also be an access point.

The screenshot shows a web browser window titled "Access Point - Microsoft Internet Explorer" with the address bar showing "http://192.168.0.1/index.asp". The page features the Planet logo and the title "11Mbps Access Point". A left sidebar contains a menu with options: Home, Wireless Setting (selected), Advanced Setting, Security, Radius Server, MAC Filtering, System Utility, Configuration Tool, Upgrade, and Reset. The main content area is titled "Wireless Setting" and includes a descriptive paragraph: "This page allows you to define Alias Name, ESSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point." Below this, there is a form with the following fields and controls: "Mode" (dropdown menu set to "AP Bridge-WDS"), "Alias Name" (text box with "Wireless AP"), "ESSID" (text box with "default"), "Channel Number" (dropdown menu set to "11"), "Associated Clients" (button labeled "Show Active Clients"), six "MAC Address" text boxes (all containing "000000000000"), and a "Set Security" button. At the bottom right of the form are "Apply" and "Cancel" buttons. The browser's status bar at the bottom shows "Done" and "Internet".

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 " default ".
Channel Number	Select the appropriate channel from the list provided to correspond with your network settings.
Associated Clients	When you press the "Show Active Clients" button, you can see a dialog box to show you the clients that connect to this WAP-1963A. Please refer to the section 3.1.2.1 to know the detail of the dialog box.

- MAC Address 1~6 Please enter the MAC Address of the other WAP-1963A that you want to connect to.
- Set Security Set a WEP Key to protect your wireless connection. It has support 64/128bit Key to the WEP function. If you want to change WAP-1963A to other operate mode, please disable this function before change operating mode. Please make sure the devices that connect to this WAP-1963A have work with the same WEP Key.

3.3 Wireless Advance Settings

You can set advanced parameters of this WAP-1963A. 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-1963A. When configuration finished, please click “Apply” to save the settings.

The screenshot shows the '11Mbps Access Point' configuration page in Microsoft Internet Explorer. The browser's address bar shows 'http://192.168.0.1/index.asp'. The page has a blue header with the 'PLANET' logo and the title '11Mbps Access Point'. A left sidebar contains a list of navigation links: Home, Wireless Setting, Advanced Setting, Security, Radius Server, MAC Filtering, System Utility, Configuration Tool, Upgrade, and Reset. The main content area is titled 'Wireless Advanced Settings' and includes a warning: '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.' Below this, there is a table of settings:

Authentication Type :	<input type="radio"/> Open System <input type="radio"/> Shared Key <input checked="" type="radio"/> Auto	
Fragment Threshold :	2346	(256-2346)
RTS Threshold :	2347	(0-2347)
Beacon Interval :	100	(20-1024 ms)
Data Rate :	Auto	
Preamble Type :	<input checked="" type="radio"/> Long Preamble <input type="radio"/> Short Preamble	
Broadcast ESSID :	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled	
IAPP :	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled	

At the bottom right of the settings table are two buttons: 'Apply' and 'Cancel'.

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.
IAPP	If you enable “IAPP”, the access point will automatically broadcast information of associated wireless stations to its neighbors. This will help wireless station roaming smoothly between access points. If you have more than one access points in your wireless LAN and wireless stations have roaming requirements, enabling this feature is recommended. Disabling “IAPP” can provide better security.

3.4 Security

In this option, you can select one of the security methods to protect your network. WAP-1963A has provide WEP, 802.1x, 802.1x WEP static key, WPA pre-shared key and WPA RADIUS functions for your network security. Please choose one of them and refer to the below sections for the detail settings.

3.4.1 WEP

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-1963A 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.

The screenshot shows the 'Security' configuration page for a Planet 11Mbps Access Point. The page is displayed in a Microsoft Internet Explorer window. The left sidebar contains a navigation menu with links to Home, Wireless Setting, Advanced Setting, Security (selected), Radius Server, MAC Filtering, System Utility, Configuration Tool, Upgrade, and Reset. The main content area is titled 'Security' and includes a description: 'This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.' Below the description are several configuration fields: 'Encryption' (set to WEP), 'Key Length' (set to 64-bit), 'Key Format' (set to Hex (10 characters)), 'Default Tx Key' (set to Key 1), and four 'Encryption Key' fields (Key 1 through Key 4), each containing a series of asterisks. At the bottom right of the configuration area are 'Apply' and 'Cancel' buttons.

Parameters	Description
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”.
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

Default Tx 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.

3.4.2 802.1x

IEEE 802.1x is an authentication protocol. Every user must use a valid account to login to this Access Point before accessing the wireless LAN. The authentication is processed by a RADIUS server. You can use an external RADIUS server or use the RADIUS server built-in with the Access Point. This mode only authenticates user by IEEE 802.1x, but it does not encryption the data during communication.

The screenshot shows a web browser window titled "Access Point - Microsoft Internet Explorer". The address bar shows "http://192.168.0.1/index.asp". The page header includes the "PLANET" logo and "11Mbps Access Point". A left sidebar contains a menu with items: Home, Wireless Setting, Advanced Setting, Security (highlighted), Radius Server, MAC Filtering, System Utility, Configuration Tool, Upgrade, and Reset. The main content area is titled "Security" and contains the following text: "This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network." Below this text are several input fields: "Encryption:" with a dropdown menu showing "802.1x"; a checked checkbox labeled "Use internal MD5 RADIUS Server"; "RADIUS Server IP address:" with an empty text box; "RADIUS Server Port:" with a text box containing "1812"; and "RADIUS Server Password:" with an empty text box. At the bottom right of the form are "Apply" and "Cancel" buttons. The browser's status bar at the bottom shows "Done" and "Internet".

Parameters	Description
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Use Internal MD5 RADIUS Server	WAP-1963A has built-in RADIUS Server. If you have a RADIUS server in your network already, you can disable this option and enter the settings below.
RADIUS Server IP address	Enter RADIUS Serer IP address.
RADIUS Server Pot	Leave the default port setting or assign a new port number for this option.
RADUIS Server Password	Please enter the password that is assigned in RADIUS Server.

3.4.3 802.1x WEP static key

IEEE 802.1x is an authentication protocol. Every user must use a valid account to login to this Access Point before accessing the wireless LAN. The authentication is processed by a RADIUS server. You can use an external RADIUS server or use the RADIUS server built-in with the Access Point. This mode also uses WEP to encrypt the data during communication.

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Security

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

Encryption :	802.1x WEP static key
Key Length :	64-bit
Key Format :	Hex (10 characters)
Default Tx Key :	Key 1
Encryption Key 1 :	*****
Encryption Key 2 :	*****
Encryption Key 3 :	*****
Encryption Key 4 :	*****

☒ Use internal MD5 RADIUS Server

RADIUS Server IP address :	
RADIUS Server Port :	1812
RADIUS Server Password :	

Apply Cancel

Done Internet

Parameters	Description
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".
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
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.

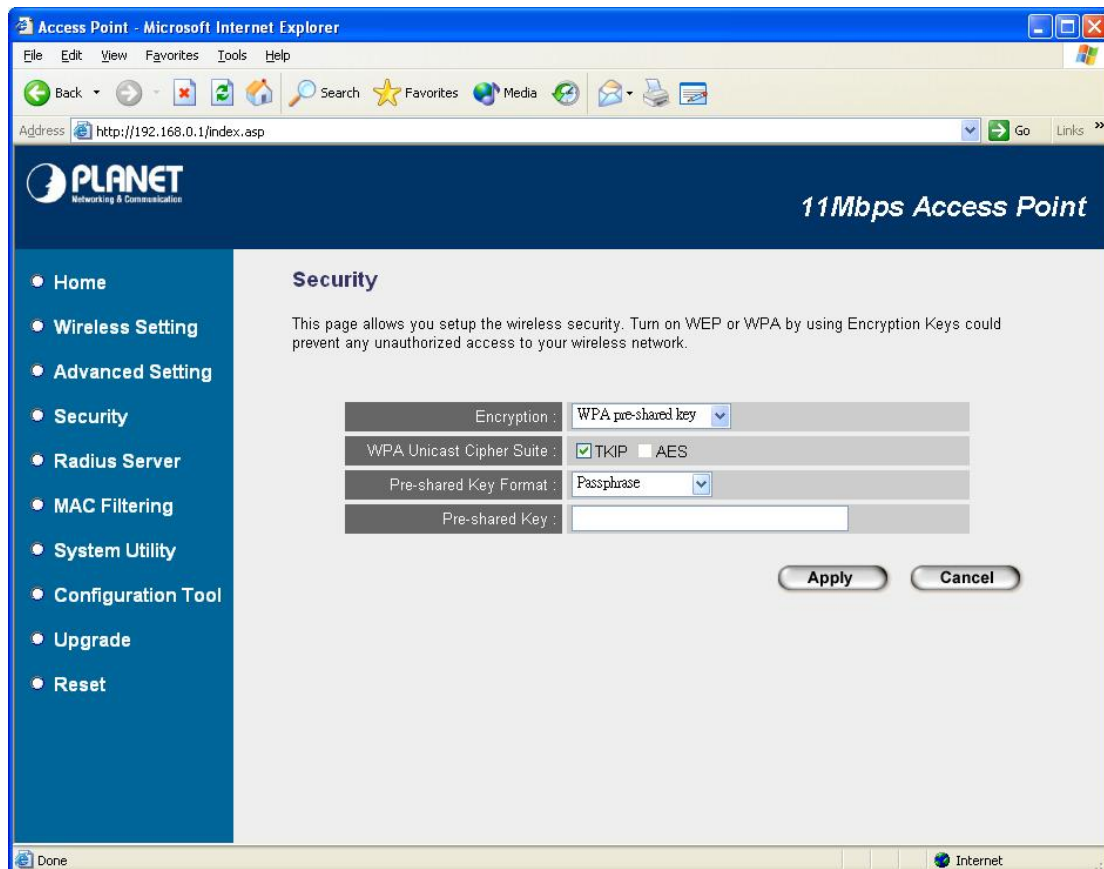
128-bit WEP: input 26-digit Hex values (in the "A-F", "a-f" and "0-9" range) or 10-digit ASCII characters as the encryption keys.

Use Internal MD5 RAIUS Server	WAP-1963A has built-in RADIUS Server. If you have a RADIUS server in your network already, you can disable this option and enter the settings below.
RADIUS Server IP Address	If you have an external RADIUS Server in your LAN, please enter the RADIUS Server's IP address into this field.
RADIUS Server Port	Leave the default port setting or assign a new port number for this option.
RADIUS Server Password	Please enter the password that is assigned in RADIUS Server.

3.4.4 WPA pre-shared key

Wi-Fi Protected Access (WPA) is an advanced security standard. You can use a pre-shared key to authenticate wireless stations and encrypt data during communication. It uses TKIP to change the encryption key frequently. This can improve security much more.

Note: This Access Point does not provide AES encryption method.

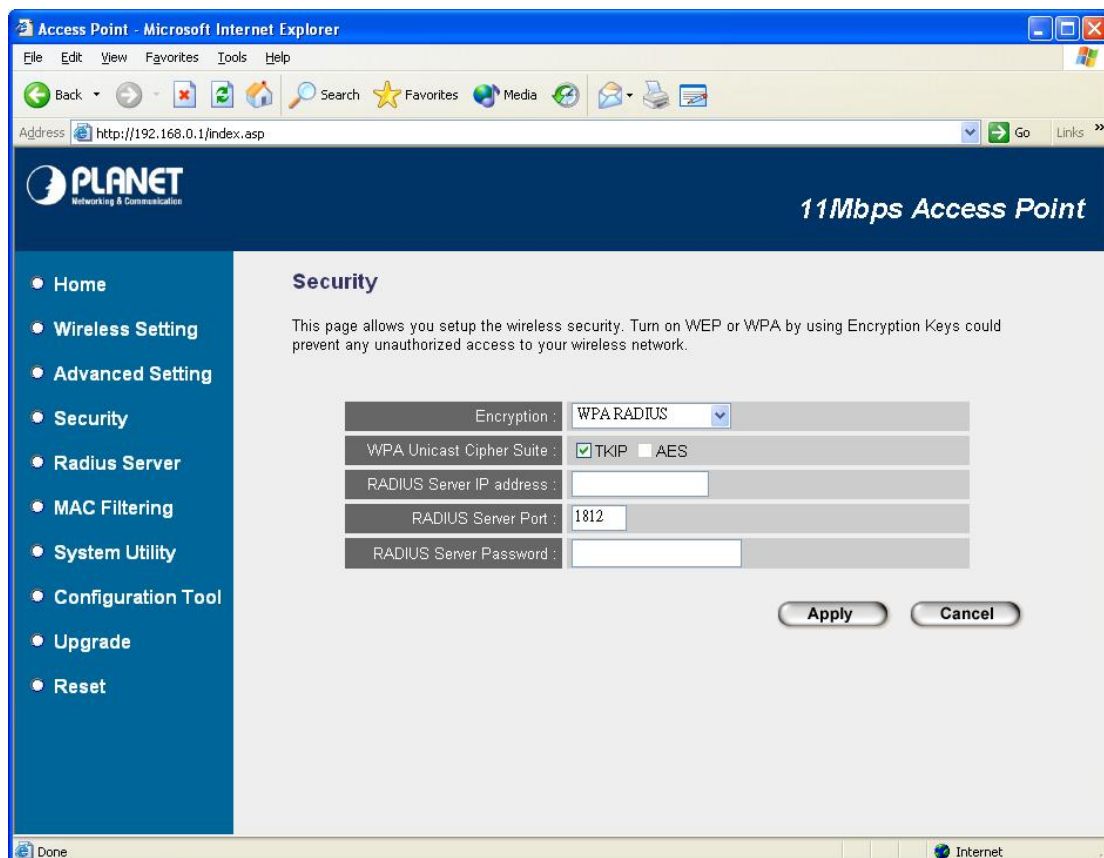


Parameters	Description
TKIP	TKIP can change the encryption key frequently to enhance the wireless LAN security.
Pre-shard Key Format	Please select "Passphrase" or "Hex (64 characters)" to the Pre-shared key.
Pre-shared Key	When "Passphrase" selected. You have to input at least 8 character pass phrase as the pre-shared keys. When "Hex (64 characters)" selected. Please input 64-digit Hex values (in the "A-F", "a-f" and "0-9" range) as the encryption key.

3.4.5 WPA RADIUS

Wi-Fi Protected Access (WPA) is an advanced security standard. You can use an external RADIUS server to authenticate wireless stations and provide the session key to encrypt data during communication. It uses TKIP to change the encryption key frequently. This can improve security very much.

Note:	This Access Point does not provide AES encryption method. WPA can not use the internal RADIUS server for authentication.
--------------	---



Parameters	Description
TKIP	TKIP can change the encryption key frequently to enhance the wireless LAN security.
RADIUS Server IP address	Enter RADIUS Serer IP address.
RADIUS Server Pot	Leave the default port setting or assign a new port number for this option.
RADUIS Server Password	Please enter the password that is assigned in RADIUS Server.

3.5 RADIUS Server

This Access Point provides an internal RADIUS server to authenticate wireless station users. You have to add user accounts to the RADIUS server. The wireless station user has to use one of these accounts to login to the Access Point before access the wireless LAN. You also have to add secret key to the RADIUS server. RADIUS server client has to use one of these secret keys to login the RADIUS server before asking the RADIUS server to authenticate the users for it.

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Radius Server

This page allows you to set the internal Radius Server (EAP-MD5). This server can be used as the Authentication server of other wireless devices.

☐ Enable Radius Server

Users Profile (up to 96 users)

Username	Password	Re-Type Password	Configure
			Add Reset

Select

Delete Selected Delete All Reset

Authentication Client (up to 16 clients)

Client IP	Secret Key	Re-Type Secret Key	Configure
			Add Reset

Select

Delete Selected Delete All Reset

Done Internet

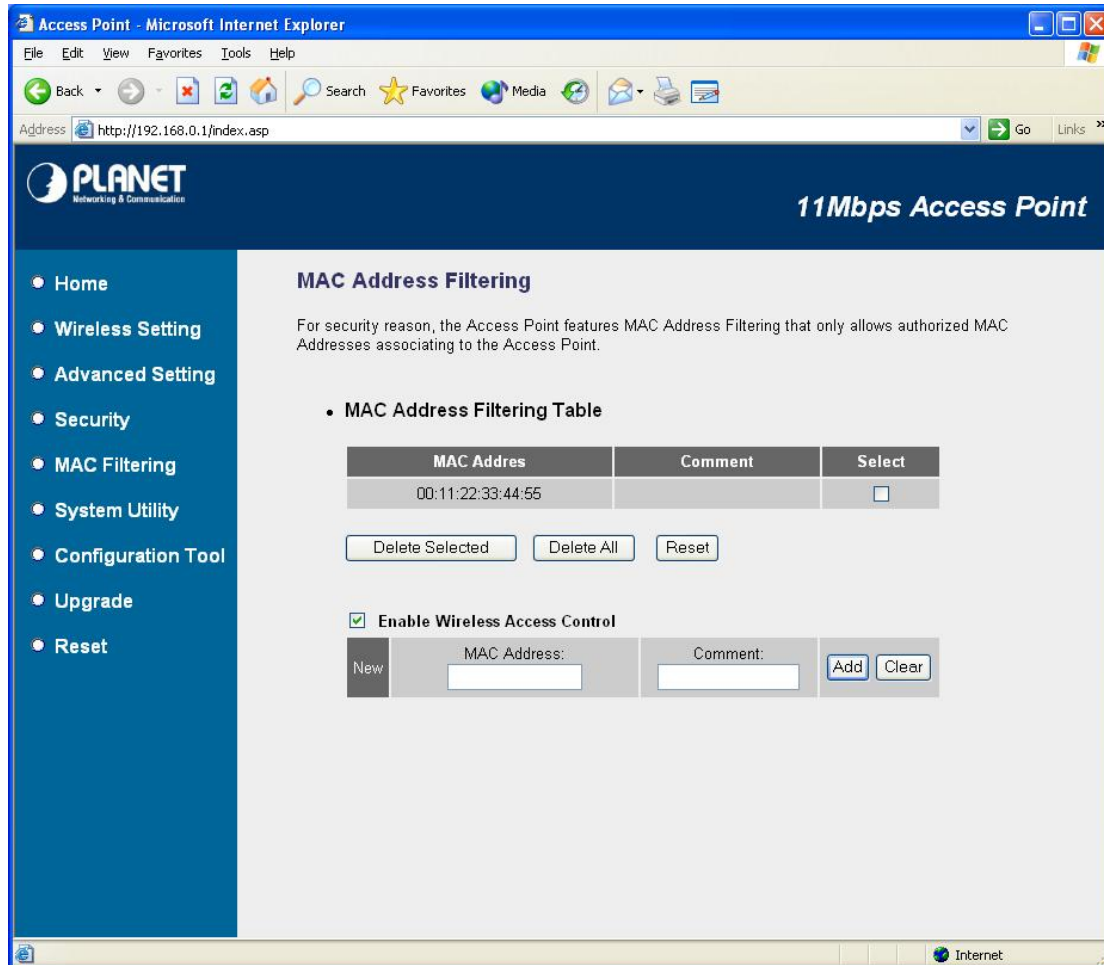
Parameters	Description
Enable Radius Server	Select to enable the RADIUS server.
User Profile table	This table records the accounts of users you want to allow to access your wireless network. An account includes the "User name" and "Password". A wireless LAN user has to enter correct "Username" and "Password" before he/she is allowed to access the wireless LAN.

Add an user account	Fill in the "Username", "Password" and "Re-Type Password" of the new account to be added and then click "Add". Then this new account will be added into the account table below. If you find any typo before adding it and want to retype again. Just click "Reset" and "Username", "Password" and "Re-Type Password" fields will be cleared.
Remove user account from the table	If you want to remove some account from the table, select the accounts you want to remove in the table and then click "Delete Selected". If you want remove all user accounts from the table, just click "Delete All" button.
Reset	Click "Reset" will clear your current selections.
Authentication Client table	The RADIUS server can also be an authentication center of your network. This table records the clients of the RADIUS server that need to authenticate wireless LAN or LAN users. Authentication client information includes the "Client IP" and "Secret Key". An authentication client has to use the "Secret Key" to login to the RADIUS server before it can start to authenticate users.
Add an authentication client	Fill in the "Client IP", "Secret Key" and "Re-Type Secret Key" of the new authentication client to be added and then click "Add". Then this new authentication will be added into the authentication client table below. If you find any typo before adding it and want to retype again. Just click "Reset" and "Client IP", "Secret Key" and "Re-Type Secret" fields will be cleared.
Remove authentication client from the table	If you want to remove some authentication client from the table, select the authentication clients you want to remove in the table and then click "Delete Selected". If you want remove all user authentication clients from the table, just click "Delete All" button.
Reset	Click "Reset" will clear your current selections.

After the RADIUS server configuration finished, please refer to section 3.10 to restart your WAP-1963A to make the RADIUS server affect to your network.

3.6 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	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

table	Selected". If you want remove all MAC addresses from the table, just click "Delete All" button.
Reset	Click "Reset" will clear your current selections.

3.7 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.

The screenshot shows the 'System Utility' page of a Planet 11Mbps Access Point. The browser window is titled 'Access Point - Microsoft Internet Explorer' and the address bar shows 'http://192.168.0.1/index.asp'. The page has a blue header with the Planet logo and '11Mbps Access Point'. A left sidebar contains navigation links: Home, Wireless Setting, Advanced Setting, Security, Radius Server, MAC Filtering, System Utility (selected), Configuration Tool, Upgrade, and Reset. The main content area is titled 'System Utility' and includes a note: 'Enter the IP Address of the Access Point. If you want to use DHCP server service, you should enter a unique IP for the Access Point.' Below this are three sections of configuration fields:

- Password Settings:**
 - Current Password:
 - New Password:
 - Re-Enter Password:
- Management IP:**
 - IP Address:
 - Subnet Mask:
 - DHCP Server:
- DHCP Server:**
 - Default Gateway IP:
 - Domain Name Server IP:
 - Start IP:
 - End IP:
 - Domain Name:
 - Lease Time:

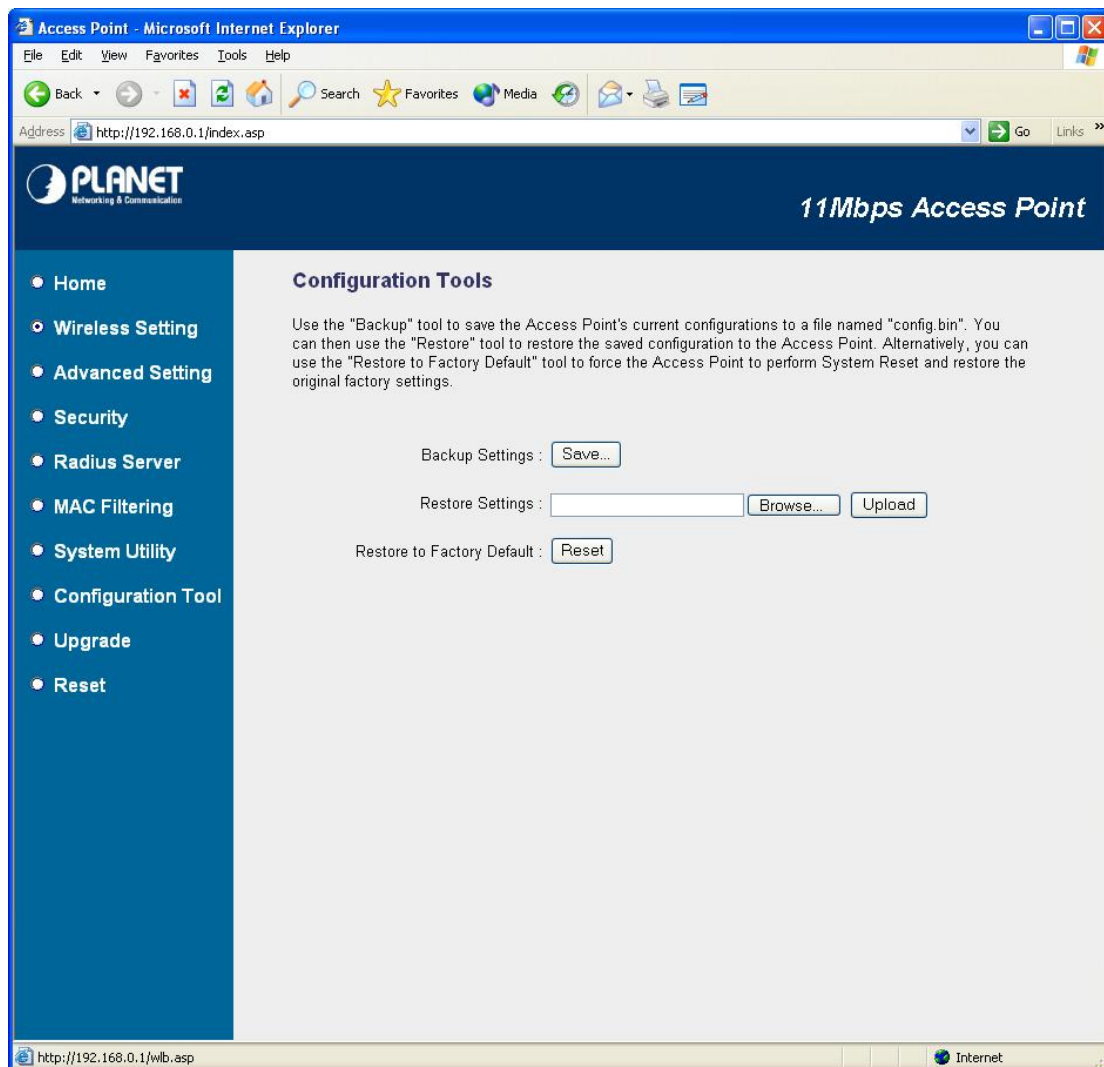
At the bottom right of the form are 'Apply' and 'Cancel' buttons. The browser status bar at the bottom shows 'Done' and 'Internet'.

Parameters	Description
Password Settings	
Current Password	Enter the current password (up to 15-digit alphanumeric string) of the Access

	Point. The default password for the Access Point is admin . 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.

3.8 Configuration Tool

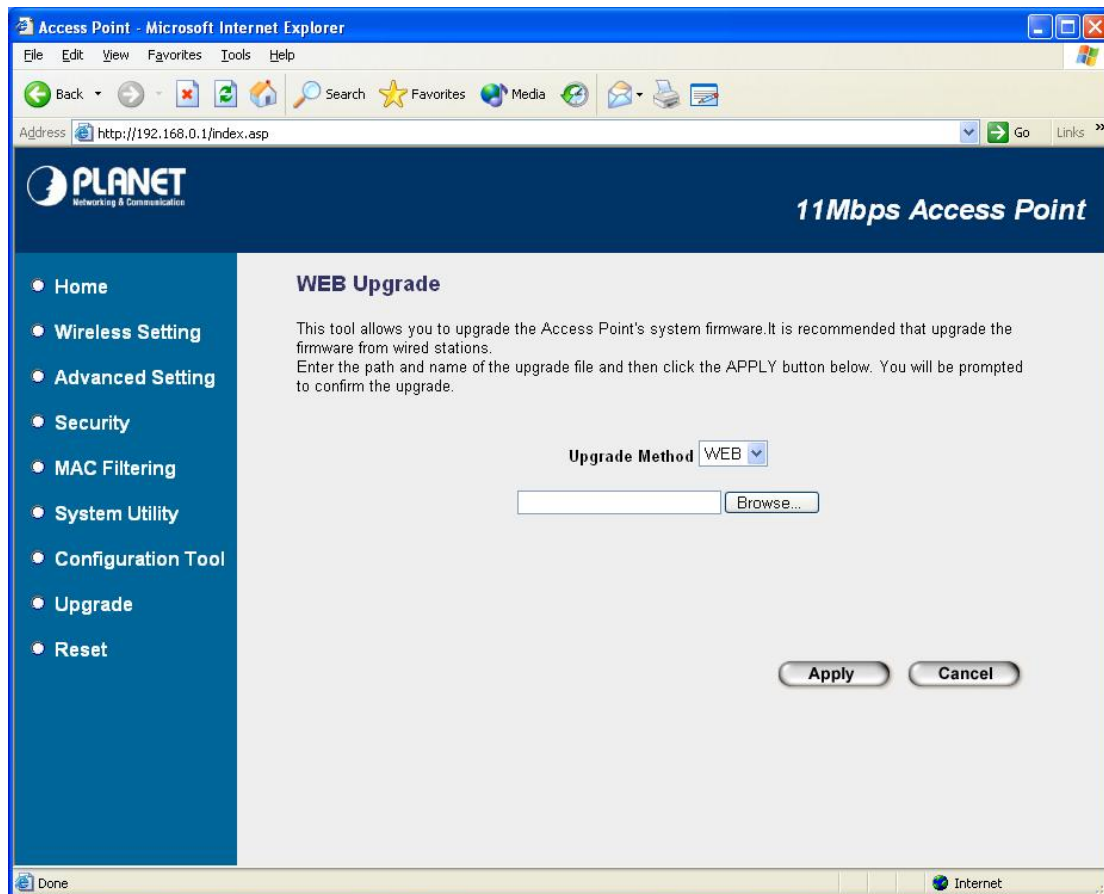
The Configuration Tool screen allows you to backup, restore and reset WAP-1963A configuration settings. Saving the configuration settings provides an added protection and convenience should problems occur with the WAP-1963A and you have to reset to factory default. When you save the configuration setting (**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	Click "Reset". This function will restore WAP-1963A to original factory settings.

3.9 Upgrade

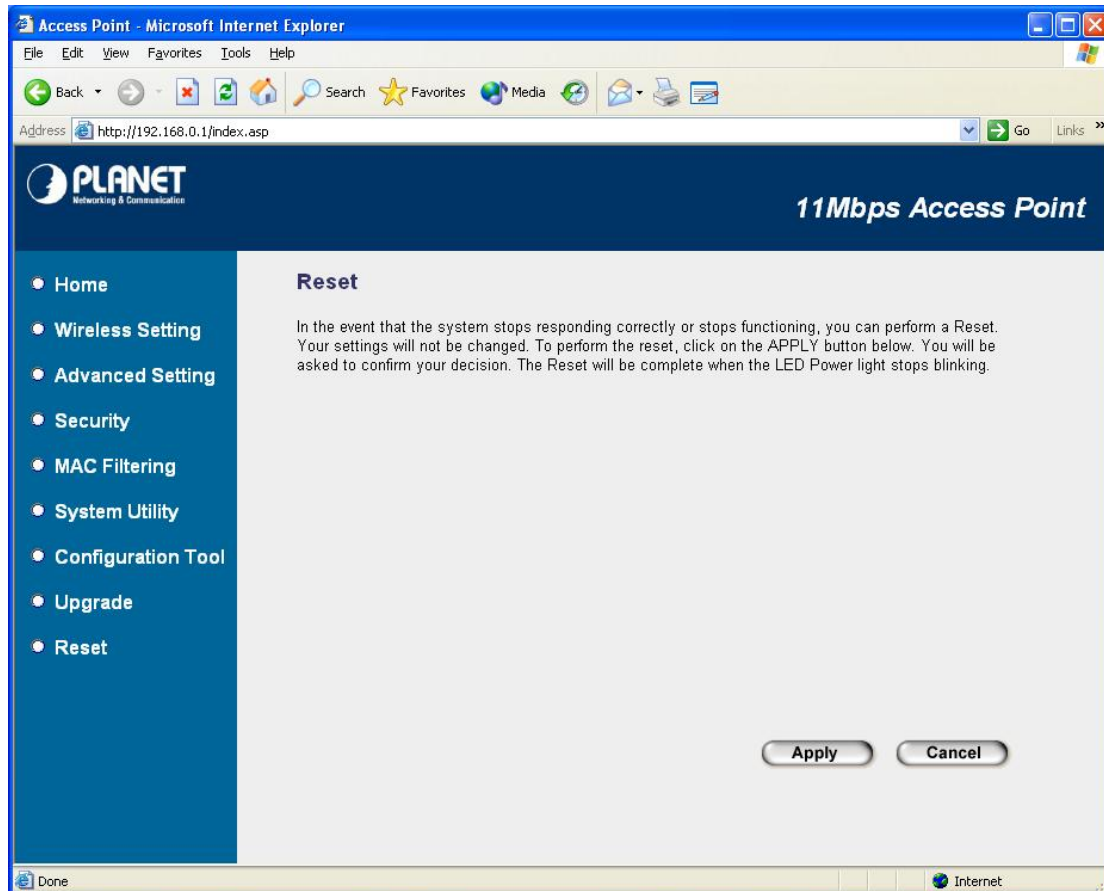
This page allows you to upgrade WAP-1963A with when the new firmware released.



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-1963A.

3.10 Reset

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



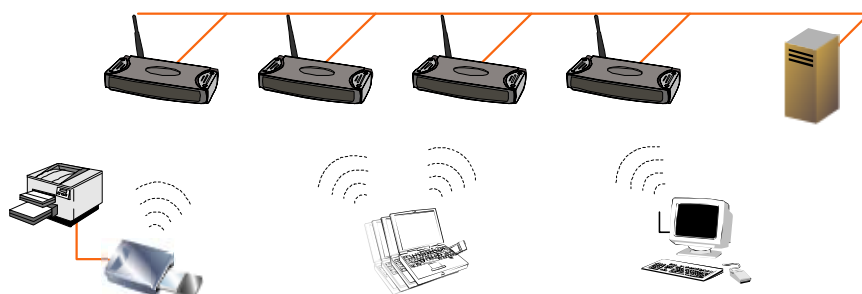
Parameter	Description
Reset	In the event that the system stops responding correctly or in some way stops functioning, you can perform a reset. Your settings will not be changed. To perform the reset, click on the “Apply” button. You will be asked to confirm your decision. Once the reset process is complete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

Chapter 4 Application

This chapter describes the Application of your WAP-1963A. The working modes of WAP-1963A are Access Point, Station Modes, Wireless Bridge modes. In different work mode, you can use WAP-1963A to fit to each environment.

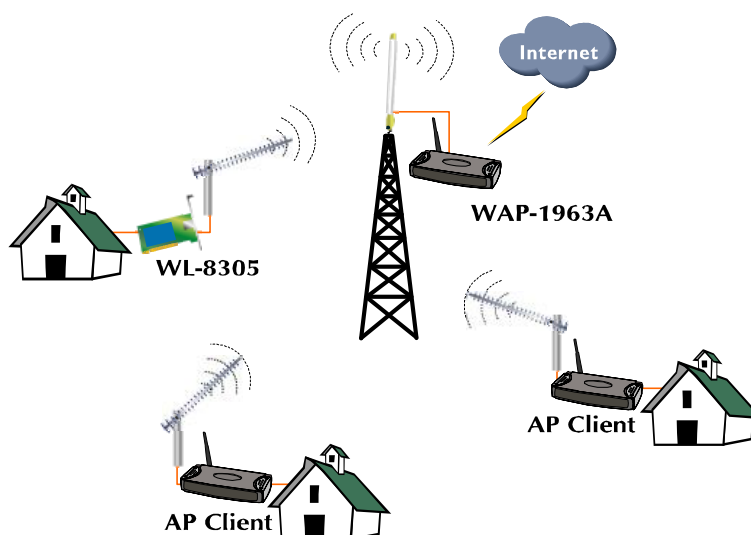
4.1 Enterprise or Campus Users

In an enterprise or campus area, some mobile users may need a continuous network connection. By installing 11Mbps access points in the area, mobile users can be always on the network by installing a wireless card in their notebook or PDA. The roaming capacity allows users connected to the network to transparently roam from one access point to another.



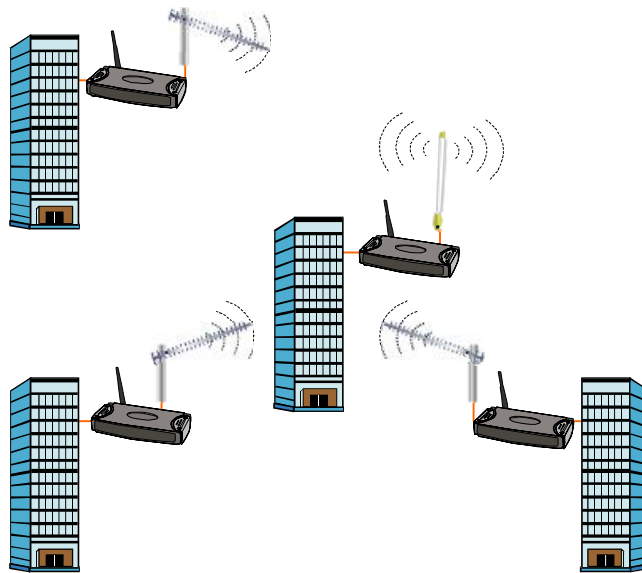
4.2 Wireless ISP

A first mile solution now is now simple with PLANET's wireless devices. No wiring is needed and the provided bandwidth can be up to 11Mbps. By installing PLANET's wireless access point equipped with omni-directional antenna in the user's neighborhood, all users around the access point can easily connect to Internet through the access point by installing a wireless PCI card or a WAP-1963 in AP client mode. By using a directional antenna, the distance between users and AP can be a few kilometers.



4.3 LAN to LAN or LAN to Multi-LAN

Wiring inside your own building may be an easy job, but it is hard if network cabling needs to route through some public areas or difficult wiring environments. PLANET's 11Mbps Wireless access point, the WAP-1963A, can work in bridge or repeater mode to provide a robust solution for connecting two or more buildings wired Ethernet together. By extending distance using PLANET's external antenna, the installation is easy and the distance between buildings can be 10km or more.



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.