2.4 GHz IEEE 802.11g 54Mbps Wireless LAN 2-WAY Access Point

GW-AP54SP-P

PLANEX COMMUNICATIONS INC.

Table of Contents

Foreword

Explanation of the signals

In order to let you set up and use this product correctly, please pay attention when reading or browsing the manual as you see these signals listed below.

Warning/ Danger

Users should read the explanation carefully and understand it completely; otherwise users might be in danger or even be injured.

Caution/ Be Careful

Remind users to be careful when setting up the product and to avoid damaging the product or its system programs.

Seeking for service or searching for an agent or a distributor

Thank you for purchasing products from Planex Communications Inc. If you have any operational problems while configuring or setting up the product, you may contact with our Customer Service Department or ask the agent or the distributor from which you bought the product for help. Moreover, during warranty, if you find any defect or breakdown of the product, you may bring the product, assembly, and its warranty card to our company or to where you bought the product to ask for repair.

★ Every product has different warranty period and contract; please refer to our company for further information or consult the agent or the distributor.

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Chapter1 Introduction to GW-AP54SP-P

Introduction

Thank you for purchasing **2.4GHz IEEE 802.11g 54Mbps Wireless LAN 2-WAY Access Point (AP)**, **GW-AP54SP-P**. This 802.11b/g Wireless AP is equipped with two 10/100M auto-sensing Ethernet ports for connecting to LAN and also for cascading to next Wireless AP.

GW-AP54SP-P Wireless AP incorporates many advanced features, and it was designed to provide sophisticated but easy to use functions.

GW-AP54SP-P has a built-in Web server, thus you can access its settings through Web browsers, such as IE, Netscape, Firefox, and so on. You can set up and configure the settings easily and completely and enjoy the convenience instantly. The web-based management utility is provided for easy configuration that your wireless network connection is ensured to be always solid and hassle free.

In addition, this Access Point provides 64/128bit WEP encryption, WPA and IEEE802.1x which ensures a high level of security to protect 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 following chapters will introduce you the configuration steps and fantastic functions of GW-AP54SP-P. With all these features, GW-AP54SP-P Wireless AP must be the best solution for both beginners and advanced users.

Key Features

- **Configuration & Management**
  - **Easy Setup.** Use your WEB browser from anywhere on the LAN or WLAN for configuration.
  - **Remote Management.** The Wireless AP can be managed from any PC on your LAN. And, if the Internet connection exists, it can also (optionally) be configured via the Internet.
- **Internet Access Features**
  - **2 LAN ports for Wireless AP Cascade.** The Wireless AP incorporates 2 LAN ports, making it easy to connecting to the LAN or cascading to next Wireless AP.
  - **Support AP Client Mode.**
  - **Adjustable Tx Power, Tx Rate, and SSID Broadcast.** .
- **Wireless Features**

- **Standards Compliant.** The Wireless AP complies with the IEEE802.11g specifications for Wireless LANs.
- **Support IEEE 802.11b/g.** The IEEE 802.11g standard provides for backward compatibility with 802.11b standard.
- **Speeds to 54Mbps.** All speeds up to the 802.11g maximum of 54Mbps are supported.

➢ **Advanced Functions**

- **MAC Filtering.** Use MAC Filter to prevent LAN users from accessing undesirable Web sites. (Wireless only)
- **System Event Log & Statistics.** To monitor the connections that has been made.
- **Watch Dog**

➢ **Security Features**

- **Password - protected Configuration**. Optional password protection is provided to prevent unauthorized users from modifying the configuration data and settings.
- **Wireless LAN Security**. WEP (Wired Equivalent Privacy) and WPA-PSK are supported, as well as client access control to prevent unknown wireless stations from accessing your LAN.
- **WEP Support.** Support for WEP (Wired Equivalent Privacy) is included. Key sizes of 64 Bit and 128 Bit are supported.
- **WPA, WPA-PSK Support.**
- **Support 802.1X / RADIUS Client with, TKIP, AES Encryption.**
- **WDS Security Support.** GW-AP54SP-P supports **WDS (Wireless Distribution System)** for Bridge Mode.
- **Wireless MAC Access Control.** The Wireless Access Control feature can check the MAC address (hardware address) of Wireless stations to ensure that only trusted Wireless Stations can access your LAN.

1. Contents of Package

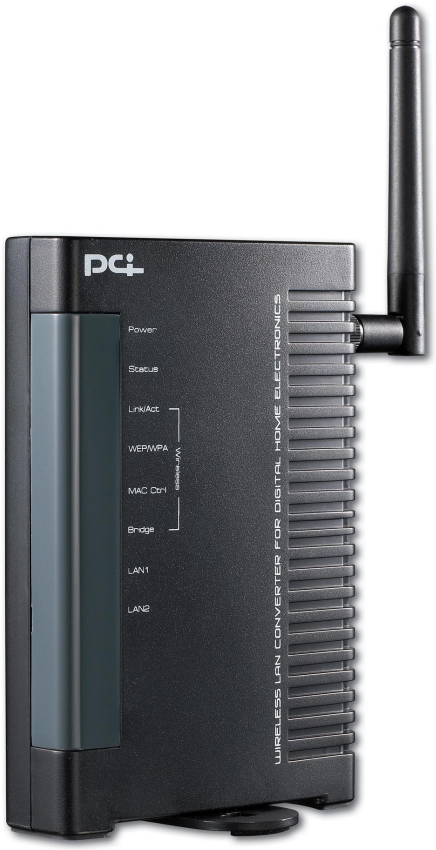
After purchasing **GW-AP54SP-P** Wireless AP form a distributor or an agency, please open the package and check that all the components listed below are included. If there is any item missing or damaged, please contact with the distributor or the agency at once.

- GW-AP54SP-P x 1
- User's Manual x 1
- UTP Cable(1 Meter) x 1
- AC Adapter x 1
- Warranty Card x 1

If plug the AC adapter which includes in the product package into a socket with different voltage power supply, it will cause damage and that is not included in warranty.

2. Product Functions

Front Panel—LEDs

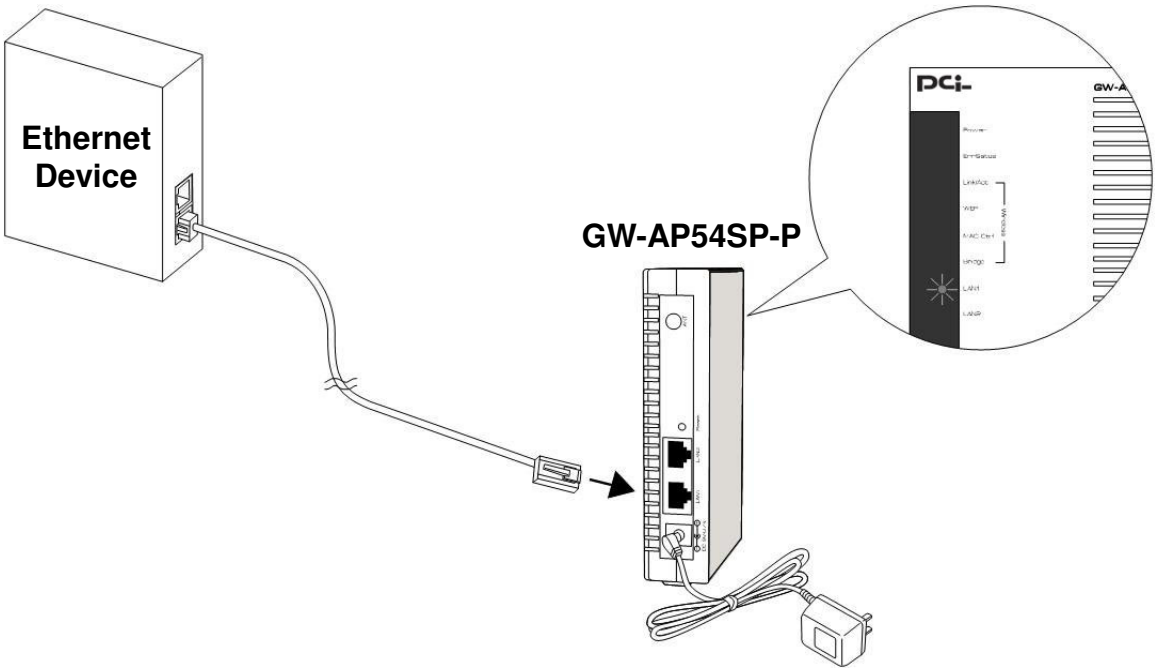


LEDs	Status	Meaning
Power	On/Off	Turns solid **green** when power is applied to this device.
Status	On/Off	Turns solid **red** when the device is booting, after successfully booted, the light turn off.
Link/Act	On/Off	Turns solid **green** when connected and associated to at least a client station. And when transmitting or receiving data, the LED will be blinking.
	Blinking	
WEP	On/Off	Turns solid **orange** when wireless security is enabled.
MAC Ctrl	On/Off	Turns solid **orange** when MAC Control is enabled.
Bridge	On/Off	Turns solid **orange** when WDS is enabled.
LAN1 / 2	On/Off	Turns solid **green** when linked to a local network. And when transmitting or receiving data, the LED will be blinking.
	Blinking	

Antennas & Ports

Ports	Function
Power Port	Plug the power cord into this port and the other side of the adaptor (12VDC) should be plugged into the socket.
LAN1 Port	Use standard LAN cables (RJ45 connectors) to connect your PC to LAN1 port. Any LAN port can be connected with another hub, if required.
LAN2 Port	Use standard LAN cables (RJ45 connectors) to connect your PC to LAN2 port. Any LAN port can be connected with another hub, if required.
Button	**Usage**
Reset	Press the button 3-5 seconds to reboot GW-AP54SP-P. Press the button for 10 seconds and then release the Reset button and GW-AP54SP-P will automatically restart and back to the default settings.

3. How to Set Up GW-AP54SP-P



1. Unwrap the package of GW-AP54SP-P Wireless AP and check if the components are complete with nothing missing.

2. **Choose an Installation Site.**

   Select a suitable place on the network to install GW-AP54SP-P Wireless AP.

> For best Wireless reception and performance, the Wireless AP should be positioned at the center of your wireless network, with minimum obstructions between the PCs. Also, remember to adjust the antenna; usually the higher the antenna is placed, the better the performance will be.

3. **Connect LAN Cables.**

   Connect a standard Ethernet LAN cable to one of the Ethernet ports (LAN1 or LAN2) on GW-AP54SP-P, and the other end to a hub, switch, router or another wireless AP.

4. **Power On.**

   At last, connect the adapter with GW-AP54SP-P and plug the other side of the power cord into the power socket. While detecting, the **Power** LED and **LAN1/2** LED will be on, and **LAN** LED will be blinking for a while if there's traffic. The **Link/Act** LED will be on when associated with a station and blink whenever this AP receives data packets. If the **Status** LED glows after self-test, it means this Wireless AP fails on self-test. Please contact with your dealer for technical support.

Plug the AC Adapter which comes with GW-AP54SP-P in a different voltage power supply will cause damage on GW-AP54SP-P, and it is not included in warranty.

Chapter2 Setup & Configuration

1. Clients' Computer Setup

The computers on your LAN need to be set up to cooperate with GW-AP54SP-P Wireless AP. Please make sure that your operating system already enabled your interface card on the host and connected to one of the LAN ports on GW-AP54SP-P through Cat.5 cable. Be sure that LEDs on GW-AP54SP-P are already on and the LED corresponds with the port which you connected. If you switch on GW-AP54SP-P for the first time, owing to the default status, it will automatically enable the embedded DHCP server and start to distribute IP to your host. In addition, the default IP address of GW-AP54SP-P is "**192.168.1.100**." If your operating system is Windows 98/2000/XP, you may be able to use command of "**ipconfig**" to inquire whether you have the correct IP address or not. If you are using Linux/Unix-Like system, you can use "**ifconfig**" to check your NIC (Network Interface Card) address. The instructions are as follows:

- **Windows98**

1. Click "**Start→Programs→MS-DOS**" or "**Start→Run…**", and type in "**command.exe**" and then press enter.
2. "**MS-DOS**" window will appear.
3. Type "**ipconfig**" after the command of "**c:>**" and then press enter.
4. MS-DOS will appear your NIC address in the window, please take notice of the value of "**IP Address**" and "**Default Gateway**."
5. The value of "**Default Gateway**" is the IP address of GW-AP54SP-P.

- **Windows2000/XP**

1. Please make sure that you do have the authority to access as an "**Administrator**" or you are already one of the "System Administrators."
2. Click "**Start→Programs→Accessories→Command Prompt**" or "**Start→Run…**," and then type in "**cmd.exe**" and press enter.
3. It will appear a "**MS-DOS**" window.
4. Type "**ipconfig**" after the command of "**c:>**" and then press enter.
5. MS-DOS will appear your NIC address in the window, please take notice of the value of "IP Address" and "**Default Gateway**."
6. The value of "**Default Gateway**" is the IP address of GW-AP54SP-P.

- **Linux / Unix-Like**

1. At first please make sure that your NIC are already enabled and works properly.
2. And be sure you have "**root**" number or your already are one of the members of a "root" group.
3. Please type "**ifconfig**" of "**ifconfig -a**" after "**#**" and then press enter.
4. It will appear your present NIC address in the window, please take notice of the value of "**IP Address**" and "**Gateway**."

5. The value of "**Gateway**" is the IP address of GW-AP54SP-P.

If you can get "**IP Address**" and "**Gateway**," normally, it means that you may use web browser to configure GW-AP54SP-P. Type your destination "**http://192.168.1.100**" (default IP Address of GW-AP54SP-P) on the Address Bar in the web browser. If you have changed the default IP Address of GW-AP54SP-P, please type in the new address on the address bar.

2. Web Configuration

The GW-AP54SP-P Wireless AP contains an HTTP server. This enables you to connect with the Wireless AP, and configure it by using the web browser.

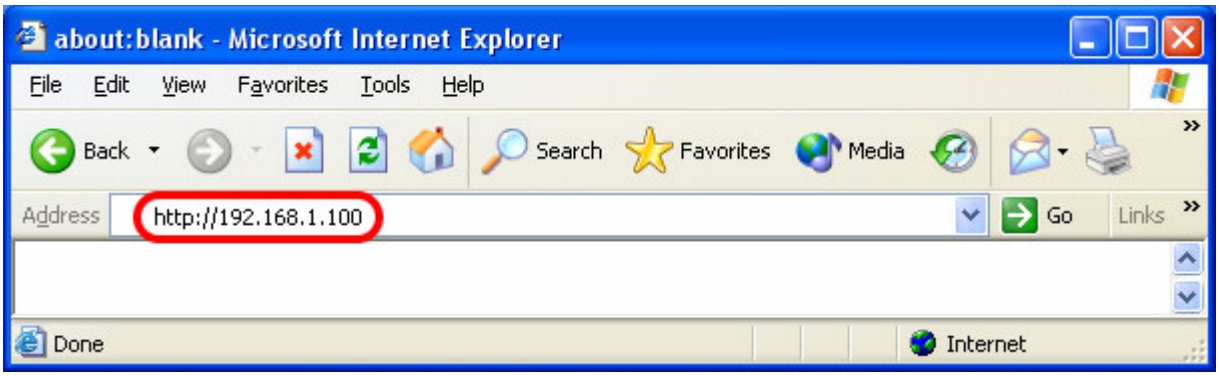
Before attempting to configure GW-AP54SP-P Wireless AP, please ensure that your PC can establish a physical connection to the Wireless AP. The PC and the GW-AP54SP-P Wireless AP must be directly connected with each other (using the LAN ports on GW-AP54SP-P) or on the same LAN segment. Besides, the GW-AP54SP-P Wireless AP must be set up and powered on.

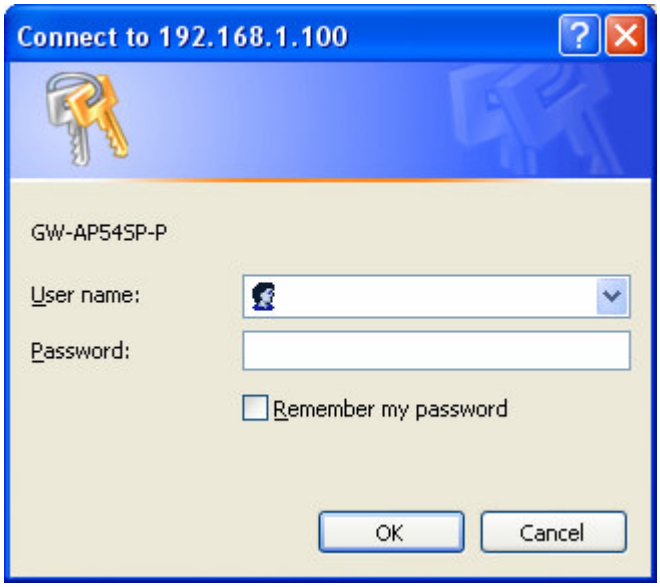
The GW-AP54SP-P Wireless AP's default IP Address is "**192.168.1.100**." If the IP address has already been used by another device, the other device must be turned OFF until GW-AP54SP-P is allocated a new IP Address.

2.1. Using Web Browser

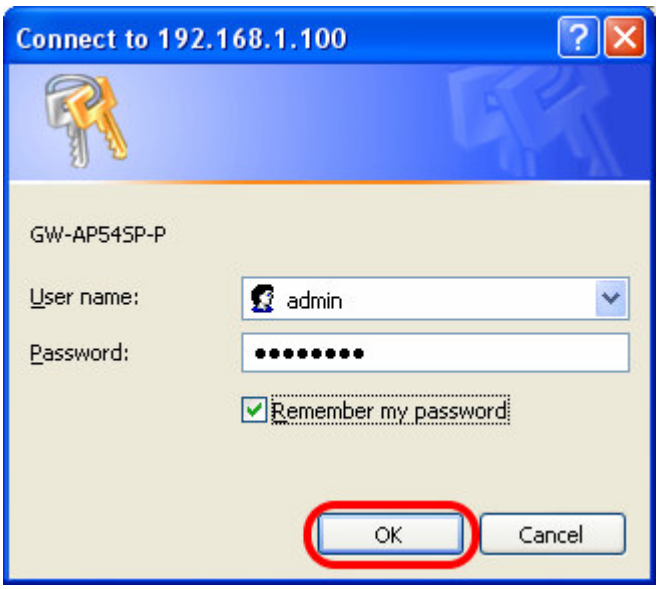
To establish a connection between your PC and the GW-AP54SP-P Wireless AP:

1. Start the WEB browser.
2. In the Address box, enter "http://192.168.1.100" which is the default IP Address of the GW-AP54SP-P Wireless AP. Press "**Enter**" on your keyboard, and the pop-up will ask you to enter the **User name** and **Password** to get into the program.

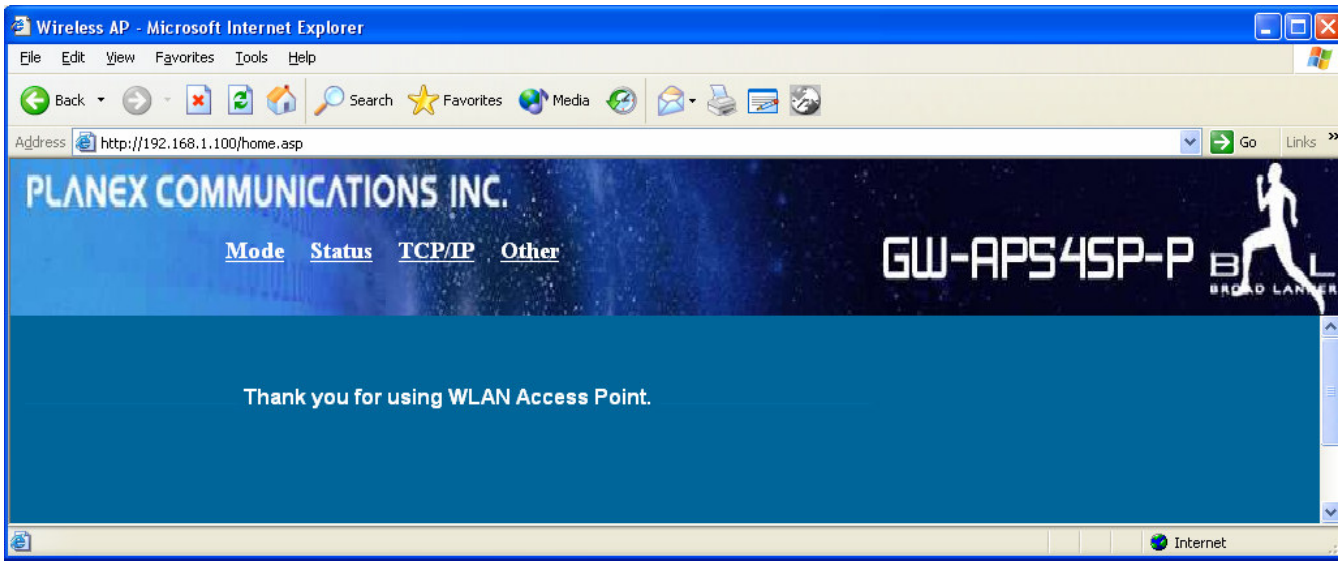




3. Enter the default User Name "**admin**" and Password "**password**" and then click "**OK**" to enter the system. You can also click "**Remember my password**" to memorize the password in the system, and you do not need to enter the password whenever entering the system.



4. After entering the system, GW-AP54SP-P will show you the welcome page. During configuration, you can use the links on the top of the page to navigate.



If your GW-AP54SP-P Wireless AP does not response, and you cannot enter the web configuration page, please follow the steps below to check if there is any problem:

1. Make sure that GW-AP54SP-P Wireless AP is properly installed and powered on, and LAN connection is O.K. You can test the connection by using "**Ping**" command:
   - Open MS-DOS window or click "**Start→Run...**" on the desktop to show the command prompt window.
   - Enter the command: **ping 192.168.1.100**
   - If it shows the message of "**Request time out**," the problem can be either disorder of connection, or the conflict between your PC's IP address and the router's IP address.
2. If your PC uses static IP address, the IP address must between in the range of 192.168.1.1~192.168.1.99 and 192.168.1.101~192.168.1.254, in order not to occupy the GW-AP54SP-P's default IP address "**192.168.1.100**." In addition, the subnet mask must be "**255.255.255.0**." To know more details of your PC and Internet connection, please check the TCP/IP settings on your PC.
3. You have to make sure that your PC and GW-AP54SP-P are on the same segment. Besides, you have to use the wired LAN interface when first accessing the web configuration page, the wireless interface only works when the settings of GW-AP54SP-P matches your PC's wireless settings.

3. Status

3.1. System

After entering the system, you can click the "**Status**" link on the top of the page to check all the settings.

Choose "**System**" on the page to check the general situation of GW-AP54SP-P Wireless AP.

System

- **Uptime**：The time period since the device was up.

- **Firmware Version** : The current version of the firmware installed in this device.

Wireless

- **Mode** : GW-AP54SP-P supports four modes: **Access Point**, **Client (Ad-hoc and Infrastructure)**, **WDS Bridge** and **WDS repeater**. 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.
- **Band** : Here shows the current band in use.
- **SSID** : Every SSID is unique in the WLAN (SSID can not exceed 32 characters and case-sensitive). An SSID is also referred to as a network name because essentially it is a name that identifies a wireless network. SSID can prevent two nearby WLAN from combining to be one. You can give GW-AP54SP-P an SSID, and only whose SSID is the same with it can connect with it.
- **Channel Number** : Here shows the channels provided by the local wireless connection. The number of channels supported depends on the region of this Access Point. The setting of the channels of the wireless network should be the same as the wireless APs.
- **Encryption** : The default settings of WEP Encryption (Wired Equivalent Privacy) is **Disabled**. When WEP is enabled, data packet is encrypted before being transmitted. The WEP prevents data packets from being eavesdropped by unknown 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 with this AP. You can have the maximum of **64** clients to connect with this Access Point.
- **BSSID** : **BSSID** (Basic Service Set IDentifier) displays the ID of current BSS and uniquely identifies each BSS. In AP mode, this value is the MAC address of this Access Point.

LAN Configuration

- **Connection Method** : Shows the currently used connection method.
- **Physical Address** : Shows the MAC address of this device.
- **IP Address** : Shows the LAN IP address.
- **Network Mask** : Shows the LAN subnet mask.
- **Default Gateway** : Shows the LAN default gateway.
- **DHCP Server** : Shows the current DHCP Server status.
- **DHCP Start IP Address** : Shows the DHCP Start IP address.
- **DHCP Finish IP Address** : Shows the DHCP Finish IP address.

Internet Configuration

- **Connection Method** : Shows the current used internet connection method.
- **Physical Address** : Shows the MAC address of this device.
- **IP Address** : Shows the Internet IP address.
- **Network Mask** : Shows the IP address of Internet subnet mask.

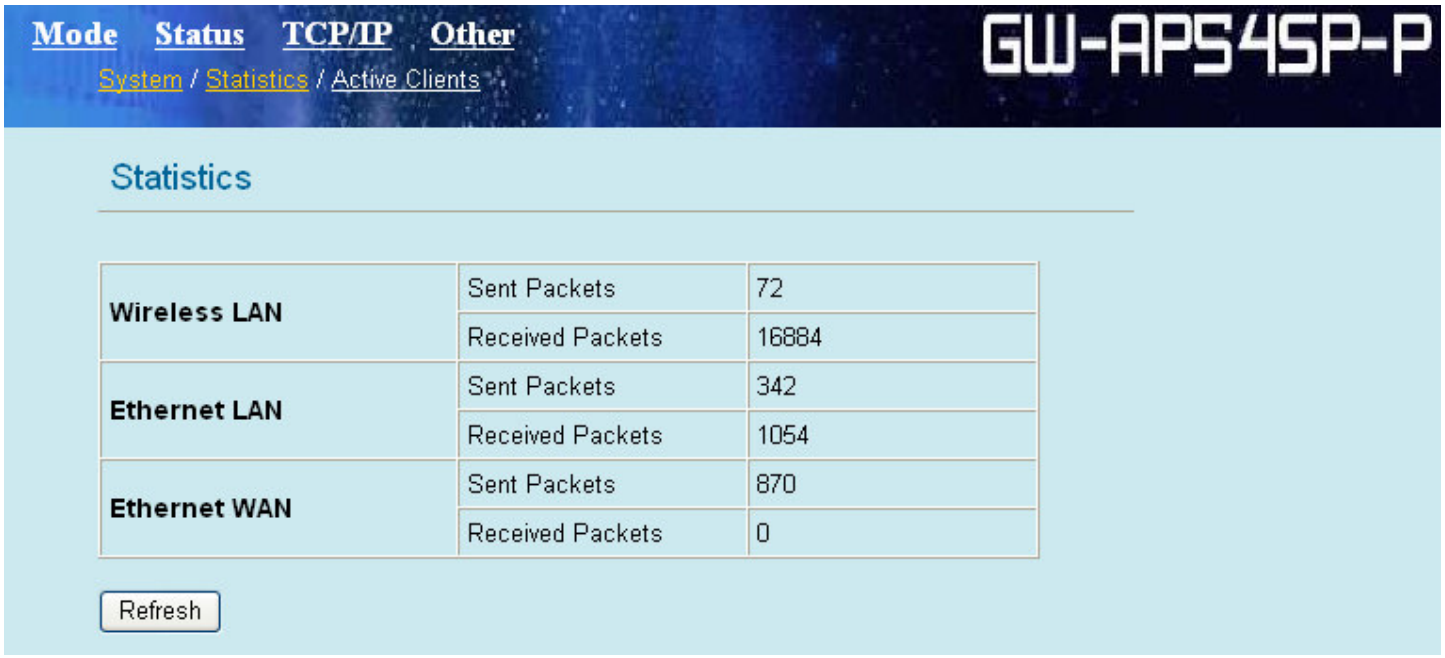
- **Default Gateway**：Shows the Internet default gateway.

Button

- **Refresh**：Click this button to refresh the current system data.

3.2. Statistics

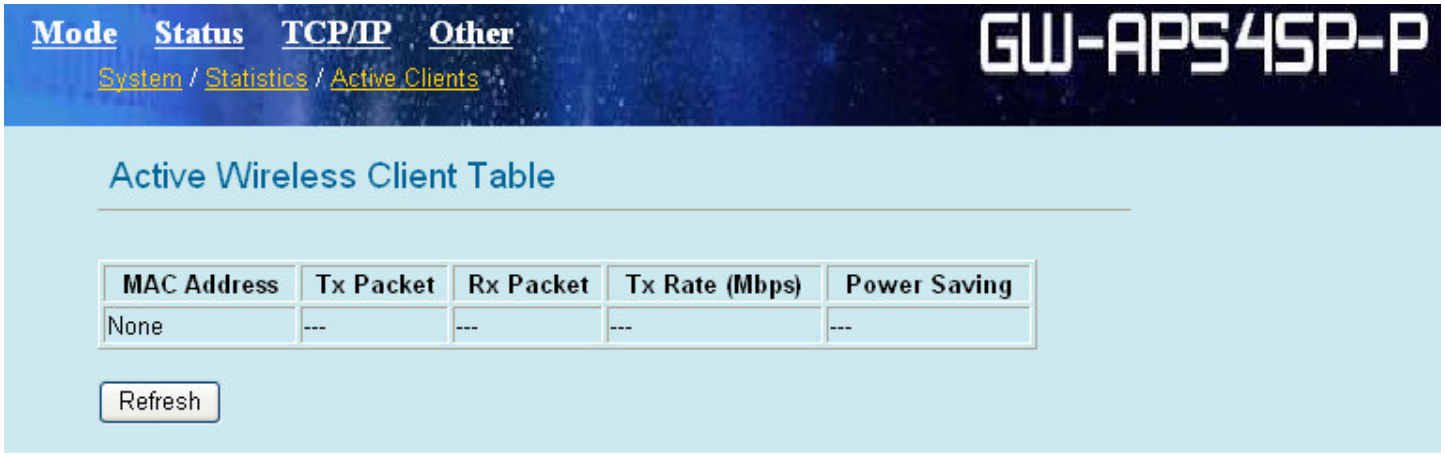
This page shows the statistics of the received and transmitted packets on both LAN and WAN side.



- **Refresh** : Click this button to refresh the current statistics table.

3.3. Active Clients

The client table shows the MAC Address, Tx (Transmitted) Packets, Rx (Received) Packets, Tx Rate and Power Saving mode of the active wireless clients.



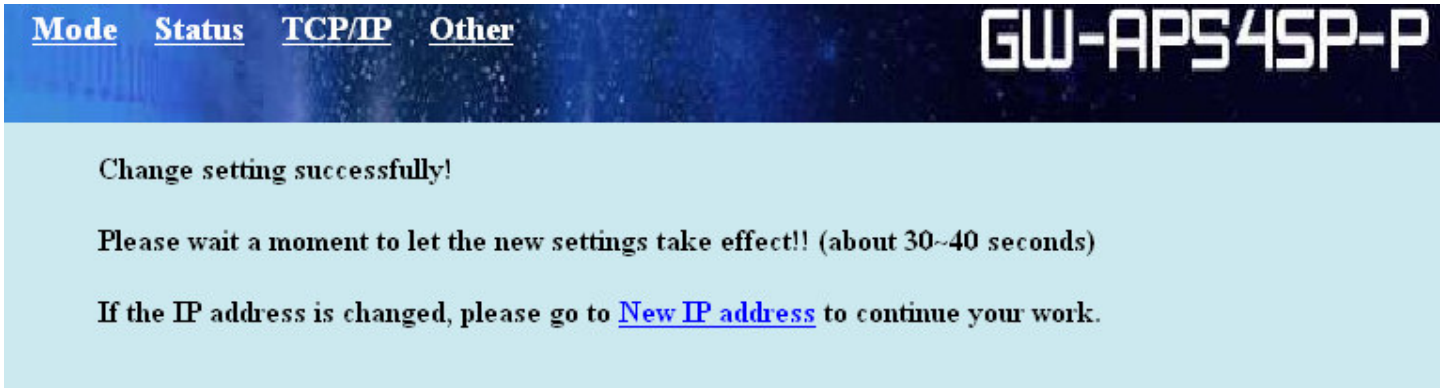
- **Refresh** : Click this button to refresh the Active Wireless Client Table.

4. TCP/IP

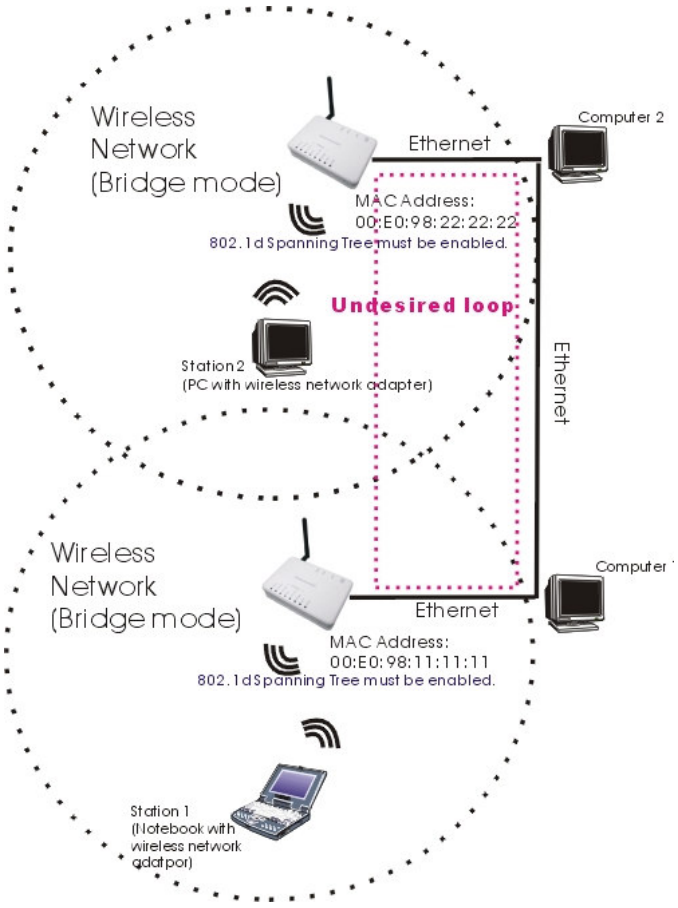
4.1. DHCP Disabled

DHCP stands for **Dynamic Host Control Protocol**. GW-AP54SP-P Wireless AP has a built-in DHCP server which can automatically assign an IP address to those computers/devices on the LAN/private network. If you enable DHCP server, the clients will obtain an IP address automatically. Whenever you turn on the connected device, it will automatically load the proper TCP/IP settings from GW-AP54SP-P. The DHCP server will allocate an unused IP address from the IP address pool to the requesting device, but you must specify the beginning and ending address of the IP address pool.

If you change any setting and click "**Apply Changes**", the following page will remind you to wait for the settings to take effect. And if the IP address is changed, please enter the configuration page again by using the new IP address.



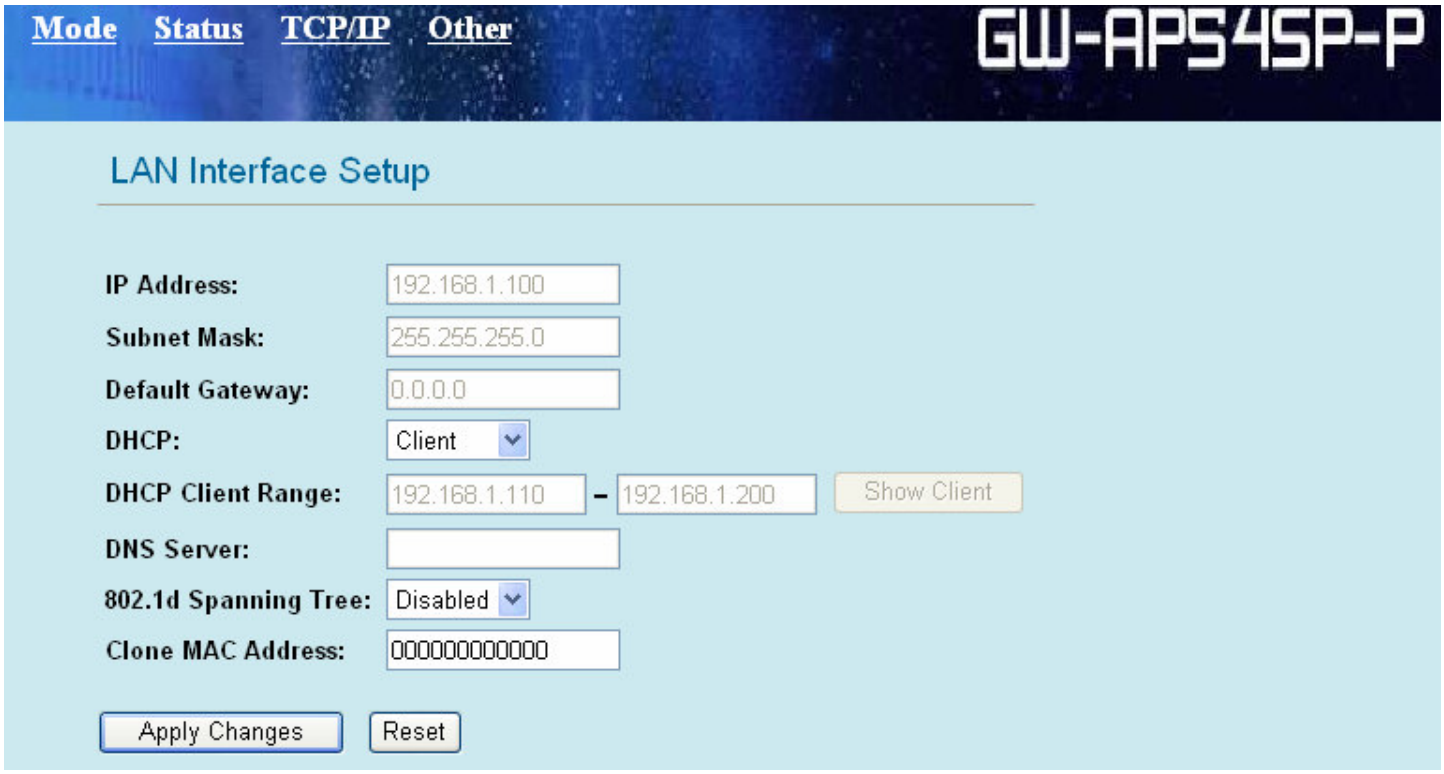
- **IP Address** : The IP address on GW-AP54SP-P's LAN interface and usually is used as default gateway for the clients' PCs on the LAN. The default IP address is "**192.168.1.100**".
- **Subnet Mask** : The subnet mask address on GW-AP54SP-P's LAN interface is default as "**255.255.255.0.**"
- **Default Gateway** : Type in the gateway IP address used by the LAN side network.
- **DHCP** : The default status of DHCP server is **Disable**. Select **Disable** to disable GW-AP54SP-P to distribute IP Addresses.
- **DNS Server** : Enter the IP address of the Domain Name Service's Server.
- **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. The default value is **Disabled**.



- **Clone MAC Address**：You can specify the MAC address of your Access Point to replace the factory setting.
- **Apply Changes**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to restore to the default value.

4.2. DHCP Client Mode

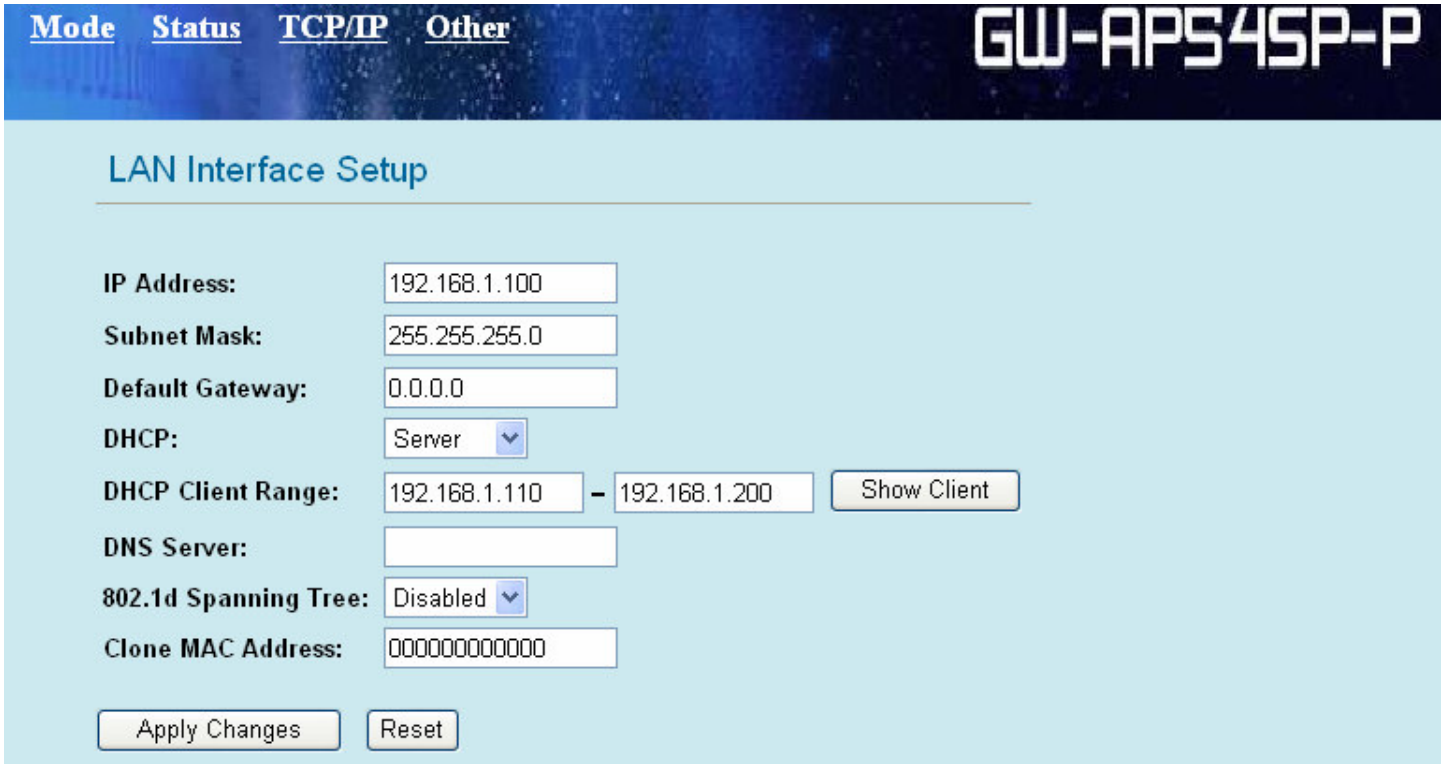
If you enable the **DHCP Client Mode**, the Wireless AP will not distribute IP addresses, but receiving the IP address instead.



- **DHCP** : The default status of DHCP server is **Disable**. Select **Client** mode to disable GW-AP54SP-P to distribute IP Addresses, but receiving the IP address instead.
- **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. The default value is **Disabled**.
- **Clone MAC Address** : You can specify the MAC address of your Access Point to replace the factory setting.
- **Apply Changes** : After completing the settings on this page, click this button to save the settings.
- **Reset** : Click this button to restore to the default value.

4.3. DHCP Server Mode

Select **Server Mode** to enable GW-AP54SP-P to distribute IP Addresses (DHCP Server). And the following field will be activated for you to enter the starting IP Address.



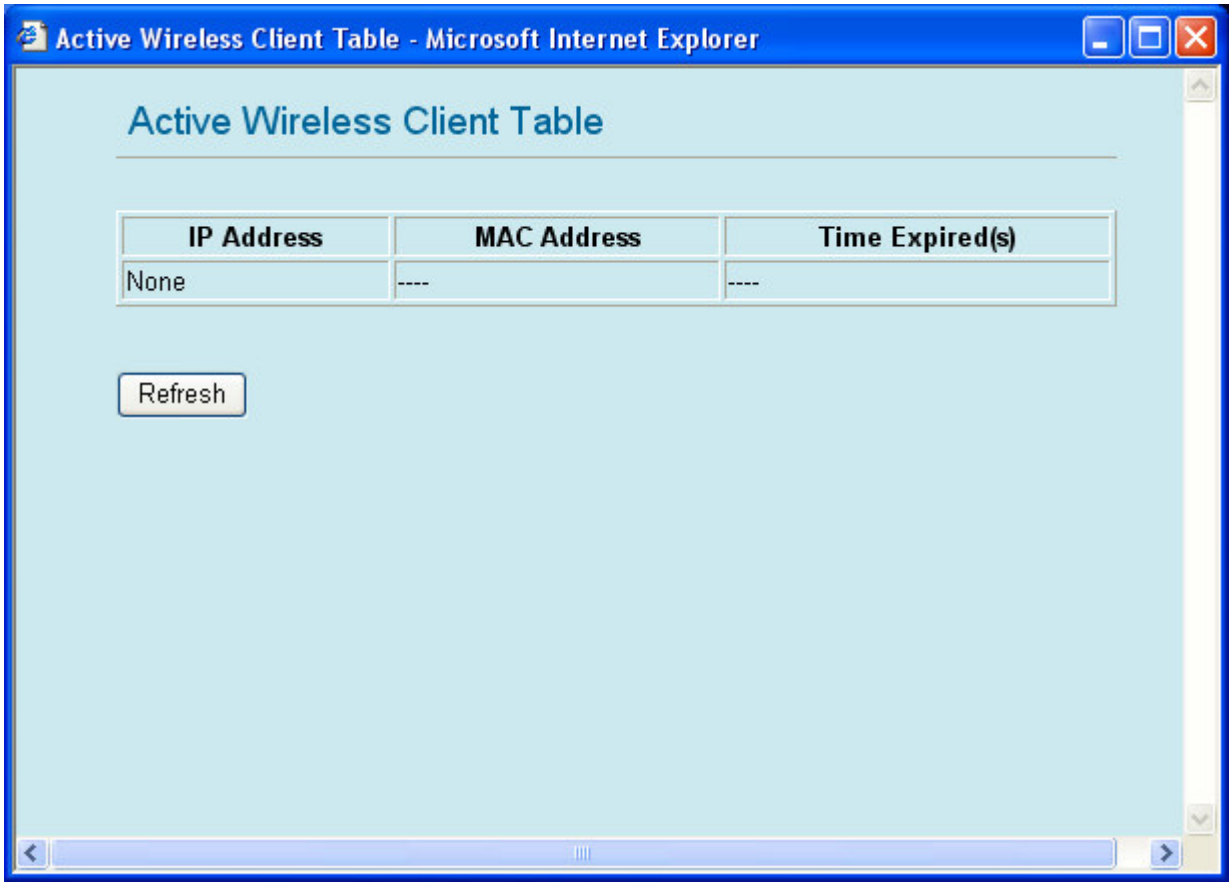
- **IP Address** : The IP address on GW-AP54SP-P's LAN interface and usually is used as default gateway for the clients' PCs on the LAN. The default IP address is "**192.168.1.100**".
- **Subnet Mask** : The subnet mask address on GW-AP54SP-P's LAN interface is default as "**255.255.255.0.**"
- **Default Gateway** : Type in the gateway IP address used by the LAN side network.
- **DHCP** : The default status of DHCP server is **Disable**. Select **Server** to enable GW-AP54SP-P to distribute IP Addresses.
- **DHCP Client Range** : Please enter the first and the last IP addresses which GW-AP54SP-P distribute IP addresses to. The IP addresses in this range can get assigned IP addresses from GW-AP54SP-P.
- **Show Client** : Click to show **Active DHCP Client Table**.
- **DNS Server** : Enter the IP address of the Domain Name Service's Server.
- **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. The default value is **Disabled**.
- **Clone MAC Address** : You can specify the MAC address of your Access Point to replace the factory setting.
- **Apply Changes** : After completing the settings on this page, click this button to save the

settings.

- **Reset**：Click this button to restore to the default value.

4.4. Active Wireless Client Table

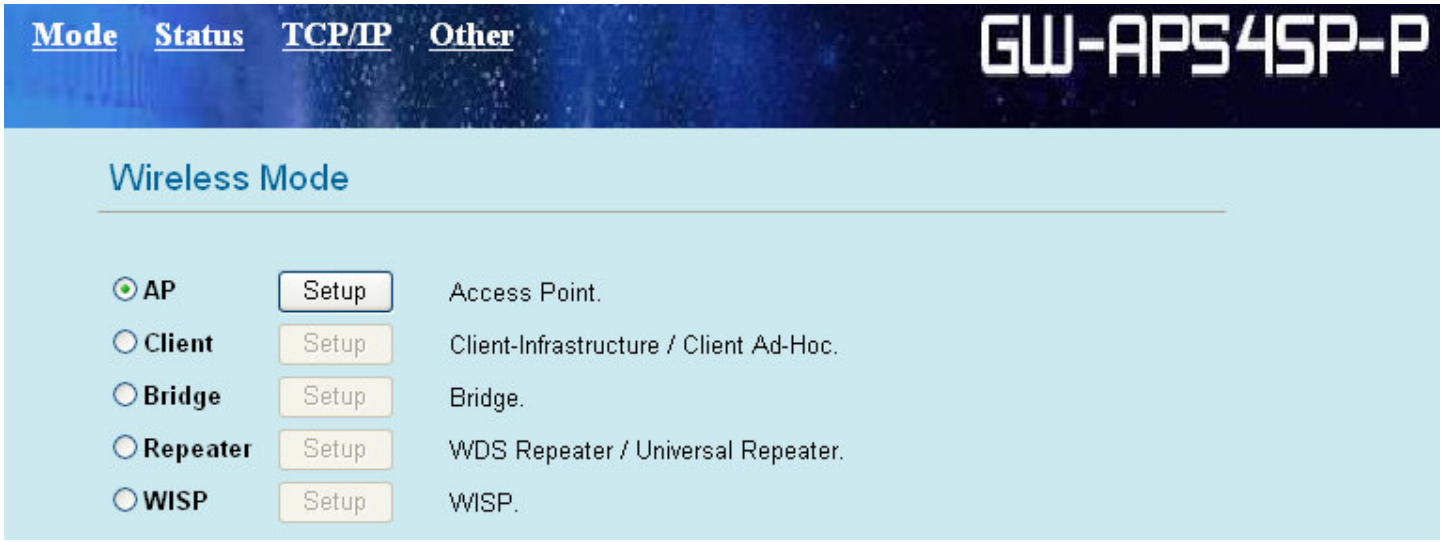
Click the "**Show Clients**" button on the **LAN Interface Setup page**, the following window will pop up. If you already set a range of IP addresses for the DHCP server to distribute, the clients who get the IP addresses will be listed here.



- **IP Address** : The client's assigned IP address will show here.
- **MAC Address** : The client's MAC address will show here.
- **Time Expired(s)** : Here shows when the assigned IP address is expired.
- **Refresh** : Click this button to refresh the Active Wireless Client Table.

5. Mode

There are 5 kinds of wireless mode. Select a wireless mode below and then click the "**Setup**" button to enter its configuration page.

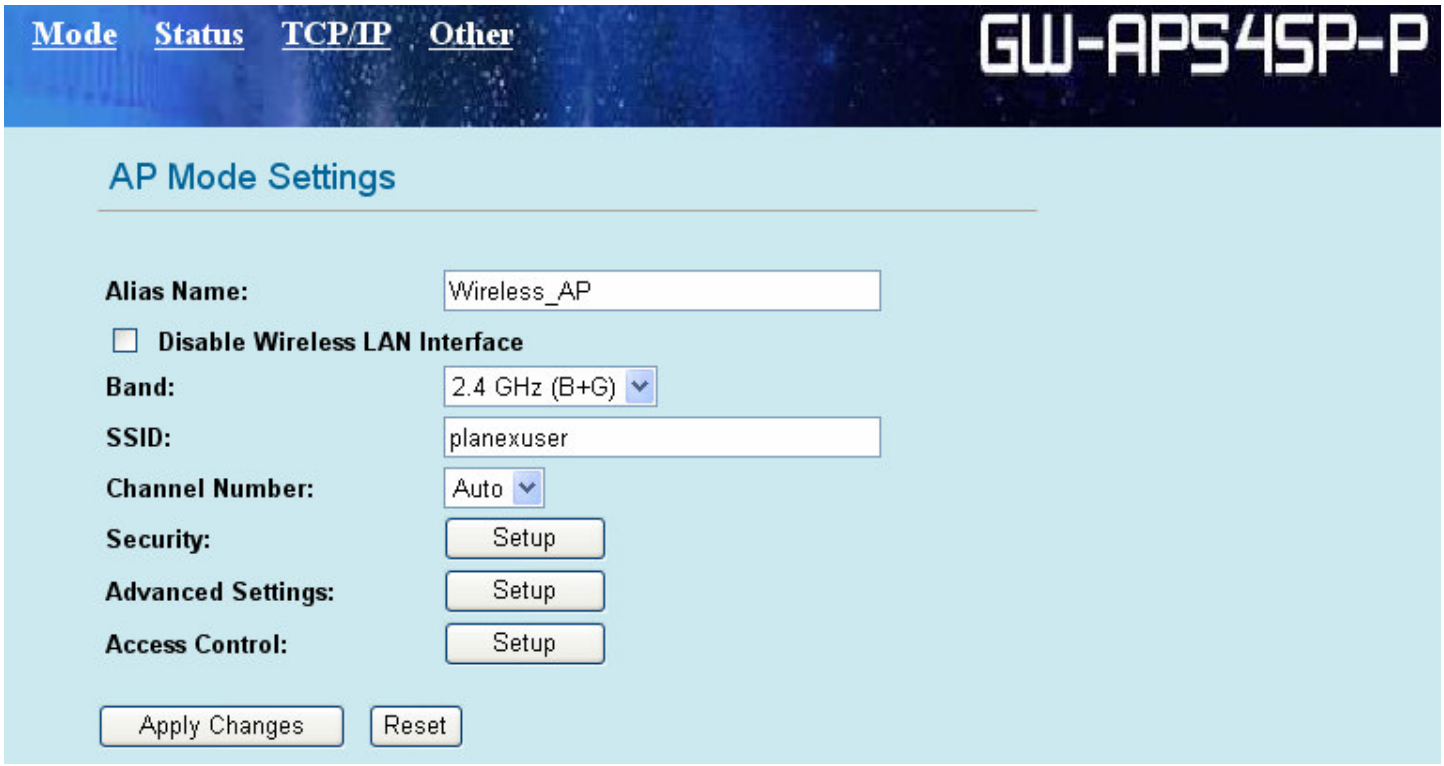


Mode	Functions
Wireless Mode	
AP	When acting as an access point, this device connects all the stations (PC/notebook with wireless network adapter) to a wired network. All stations can have the Internet access if only the Access Point has the Internet connection.
Client	**Infrastructure** – An 802.11 networking framework in which devices communicate with each other by first going through and Access Point (AP). In infrastructure mode, wireless devices can communicate with each other or can communicate with a wired network. **Ad-hoc** –An 802.11 networking framework in which devices or stations communicate directly with each other, without the use of an Access Point (AP). Ad-hoc mode is useful for establishing a network where wireless infrastructure does not exist or where services are not required. If choose this mode, you can select a channel for GW-AP54SP-P.
Bridge	The **WDS** (Wireless Distribution System) function lets this access point act as a wireless LAN access point and repeater at the same time. Users can use this feature to build up a large wireless network in a large space like airports, hotels and schools …etc. This feature is also useful when users want to bridge networks between buildings where it is impossible to deploy network cable connections between these buildings.

Repeater	When set to Wireless Repeater mode, the Wireless Repeater is able to talk to one remote access point within its range and retransmit its signal.
WISP	Short for **wireless ISP**, an Internet Service Provider (ISP) that offers services Internet connection services to subscribers using a wireless connection. Select the WISP function and press **Setup** button for WISP (Client Router) and WISP + Universal Repeater configuration.

5.1. AP

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.



- **Alias Name** : You can give GW-AP54SP-P a unique name to be easily distinguished from other APs. It can be 32 alphanumeric characters.
- **Disable Wireless LAN Interface** : Check the box to disable the Wireless LAN Interface. By doing so, 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.
- **Band** : You may scroll down the list to choose one mode from the following:
  - **2.4GHz (B)** : This mode refers to 802.11b standard (also referred to as 802.11 High Rate or Wi-Fi) -- an extension to 802.11 that applies to wireless LANS and provides 11 Mbps transmission (with a fallback to 5.5, 2 and 1 Mbps) in the 2.4 GHz band.
  - **2.4GHz (G)** : This mode refers to 802.11g standard which applies to wireless LANs and provides 2-54 Mbps in the 2.4 GHz band.
  - **2.4GHz (B+G)** : To use both 802.11g and 802.11b standards. This is the default mode.
- **SSID** : Enter an SSID which is referred to as a network name because essentially it is a name that identifies a wireless network. The SSID (Service Set Identifier) can be attached to the header of packets sent over a WLAN that acts as a password when a mobile device tries to connect to the BSS (Basic Service Set). Every SSID is unique in the WLAN. SSID

can prevent two nearby WLAN from combining to be one. You can give GW-AP54SP-P an SSID, and only whose SSID is the same with it can connect with it.

- **Channel Number**：Here shows the channels provided by the local wireless connection. The setting of the wireless AP's channel should be the same as the wireless network which it is on. Please choose a right channel according to the region you are in.
- **Security**：Click to set up the security settings for GW-AP54SP-P. Please refer to the following **Security** chapter.
- **Advanced Settings**：Click to set up the advanced settings for GW-AP54SP-P. Please refer to the following **Advanced Settings** chapter.
- **Access Control**：Click to set up the access control list for GW-AP54SP-P. Please refer to the following **Access Control** chapter.
- **Apply Changes**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to restore to the default value.

5.1.1. Security

In this page, you can configure the security of your wireless network. Selecting different method can make different levels of security. However, no matter what kind of authentication or encryption you use to prevent data packets from being eavesdropped by people without authentication, it may cause decrease of the data throughput of the wireless connection.
There are eight (8) kinds of security authentication to choose from: **Open system or Shared Key**, **Open System**, **Open System with 802.1x**, **Shared Key**, **WPA-RADIUS**, **WPA-PSK**, **WPA2-RAIDIUS**, and **WPA2PSK**. After selecting the authentication mode, it has to cooperate with the encryption type. The settings of authentication on the destination network must be the same with GW-AP54SP-P.

Authentication	Functions
Open system or Shared Key	**Open System** – If enabling this mode, there is no need authentication to access AP or wireless NIC. **Shared Key** – Only those who are sharing the same key with the AP can connect with it.
Open System	If enabling this mode, there is no need authentication to access AP
Open System with 802.1x	802.1x security options include authentication and encryption services that are based on the WEP algorithm. Open system with 802.1x is a default null authentication algorithm that involves a two-step process: an identity assertion and request for authentication and an authentication result.
Shared Key	Only those who are sharing the same key with the AP can connect with it.
WPA-RAIDIUS	**WPA** is short for Wi-Fi Protected Access. It was designed to improve upon the security features of WEP. The technology is designed to work with existing Wi-Fi products that have been enabled with WEP. Through the data encryption, access control and authentication, it provides better protection over data transmission. WPA uses 128-digit keys to ensure the wireless network privacy and security. **RADIUS** is short for Remote Authentication Dial-In User Service, an authentication and accounting system used by many Internet Service Providers (ISPs). RADIUS setup is used to set up additional parameters for authorizing wireless clients through RADIUS server. The RADIUS setup is required when you select to use **Open System with 802.1x** or **WPA** authentication.

WPA-PSK	**WPA-PSK** is short for Wi-Fi Protected Access-Pre-Shared Key. WPA-PSK uses the same encryption way with WPA, and the only difference between them is that WPA-PSK recreates a simple shared key, instead of using the user's certification.
WPA2-RAIDIUS	**WPA2** is short for Wi-Fi Protected Access 2. It is the follow on security method to WPA for wireless networks that provides stronger data protection and network access control. It provides enterprise and consumer Wi-Fi users with a high level of assurance that only authorized users can access their wireless networks. There are two versions of WPA2: WPA2-Personal, and WPA2- Enterprise. WPA2-Personal protects unauthorized network access by utilizing a set-up password. WPA2-Enterprise verifies network users through a server. WPA2 is backward compatible with WPA.
WPA2-PSK	**WPA2** is short for Wi-Fi Protected Access 2. It is the follow on security method to WPA for wireless networks that provides stronger data protection and network access control. It provides enterprise and consumer Wi-Fi users with a high level of assurance that only authorized users can access their wireless networks. There are two versions of WPA2: WPA2-Personal, and WPA2- Enterprise. WPA2-Personal protects unauthorized network access by utilizing a set-up password. WPA2-Enterprise verifies network users through a server. WPA2 is backward compatible with WPA. **WPA-PSK** is short for Wi-Fi Protected Access-Pre-Shared Key. WPA-PSK uses the same encryption way with WPA, and the only difference between them is that WPA-PSK recreates a simple shared key, instead of using the user's certification.

Encryption	WEP Key 1~4	Passphrase
Open System or Shared Key		
WEP64 (bit)	10 hex characters	Null
WEP128 (bit)	26 hex characters	Null
Open System		
WEP64 (bit)	10 hex characters	Null
WEP128 (bit)	26 hex characters	Null
Open System with 802.1x		
WEP64 (bit)	Null	Null

WEP128 (bit)	Null	Null
Shared Key		
WEP64 (bit)	10 hex characters	Null
WEP128 (bit)	26 hex characters	Null
WPA		
TKIP	Null	Null
AES	Null	Null
WEP64 (bit)	Null	Null
WEP128 (bit)	Null	Null
WPA-PSK		
TKIP	Null	8-63 characters
AES	Null	8-63 characters
WEP64 (bit)	Null	8-63 characters
WEP128 (bit)	Null	8-63 characters

Open system or Shared Key

- **Encryption** : Select a type of encryption from the scroll-down list either **None** or **WEP**. WEP is short for Wired Equivalent Privacy, a security protocol for WLANs defined in the 802.11b standard.
- **Key Length** : There are two kinds of WEP encryption: 64 bit and 128 bit. 64 bit needs 10 hex characters to be the key and 128 bit needs 26 hex characters.
- **Key Format** : Select **ASCII (5 characters)** or **Hex (10 characters)**.
- **Default Tx Key** : Choose from Key 1~4 to be the default Tx Key.
- **Encryption Key 1~4** : This setting only takes effect under "Open" or "Shared" mode. There are four types of WEP key settings, please set the key depending on the real environment. According to the type and length, there are four WEP Key types:

- **Hexadecimal** – Only “A~F,” “a~f,” and “0~9” are allowed to be set in a WEP key.
- **ASCII** –Numerical values, characters or signs are all allowed to be arranged into a WEP key. It is more recognizable for user.
- **64-bit** – Enter 10-digit Hex values or 5-digit ASCII values as the encryption keys. For example: “0123456aef” or “Guest.”
- **128-bit** – Enter 26-digit Hex values or 13-digit ASCII values as the encryption keys. For example: “01234567890123456789abcdef” or “administrator.”

- **Apply Changes**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to restore to the default value.

Open System

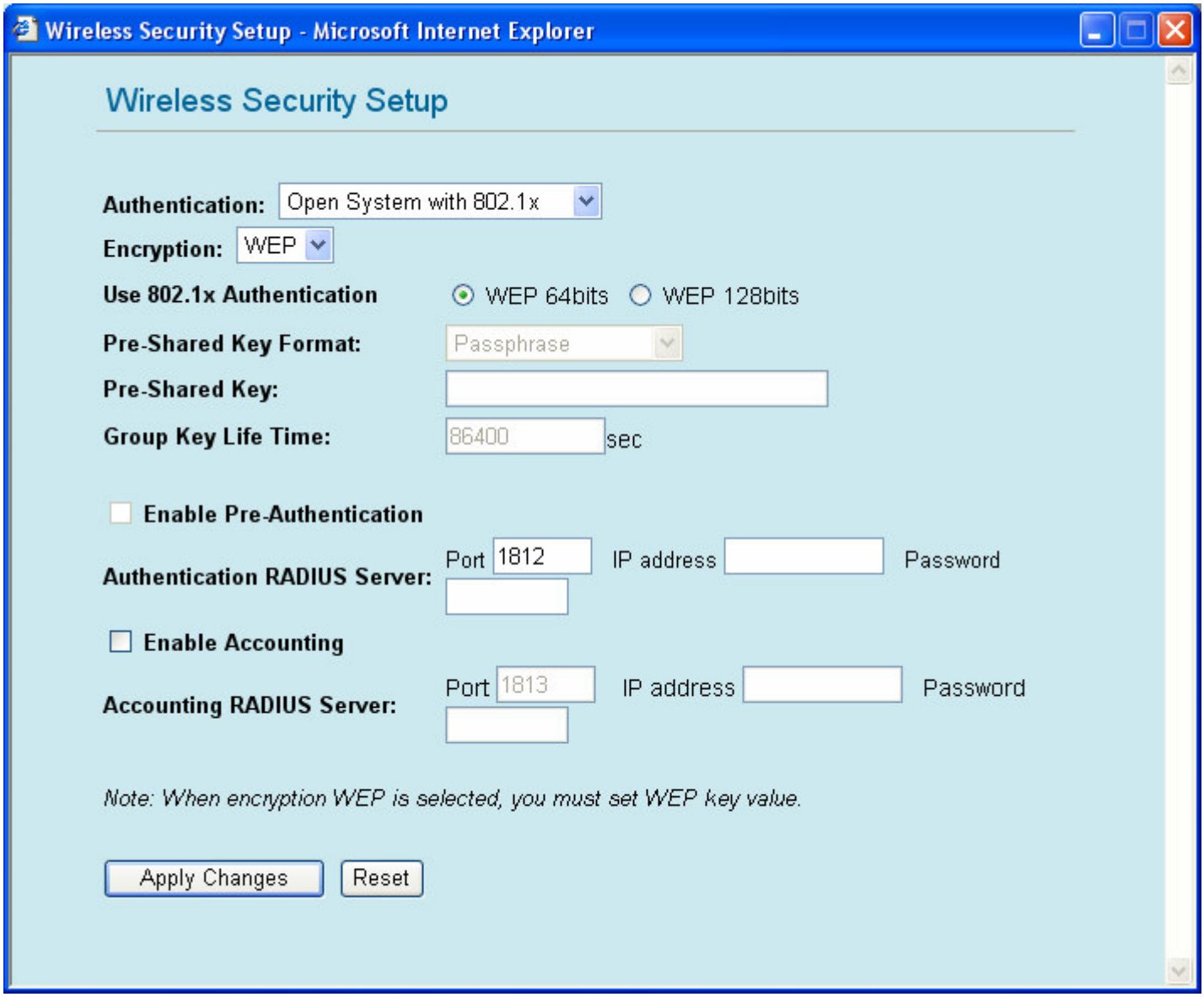
- **Encryption** : Select a type of encryption from the scroll-down list either **None** or **WEP**. WEP is short for Wired Equivalent Privacy, a security protocol for WLANs defined in the 802.11b standard.
- **Key Length** : There are two kinds of WEP encryption: 64 bit and 128 bit. 64 bit needs 10 hex characters to be the key and 128 bit needs 26 hex characters.
- **Key Format** : Select **ASCII (5 characters)** or **Hex (10 characters)**.
- **Default Tx Key** : Choose from Key 1~4 to be the default Tx Key.
- **Encryption Key 1~4** : This setting only takes effect under "Open" or "Shared" mode. There are four types of WEP key settings, please set the key depending on the real

environment. According to the type and length, there are four WEP Key types:

- **Hexadecimal** – Only "A~F," "a~f," and "0~9" are allowed to be set in a WEP key.
- **ASCII** –Numerical values, characters or signs are all allowed to be arranged into a WEP key. It is more recognizable for user.
- **64-bit** – Enter 10-digit Hex values or 5-digit ASCII values as the encryption keys. For example: "0123456aef" or "Guest."
- **128-bit** – Enter 26-digit Hex values or 13-digit ASCII values as the encryption keys. For example: "01234567890123456789abcdef" or "administrator."

- **Apply Changes**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to restore to the default value.

Open System with 802.1x



- **Encryption** : Select a type of encryption from the scroll-down list either **None** or **WEP**. WEP is short for Wired Equivalent Privacy, a security protocol for WLANs defined in the 802.11b standard.
- **Use 802.1x Authentication** : Select **64bit** or **128bit** WEP authentication. Select HEX if you are using hexadecimal numbers (0-9, or A-F). Select ASCII if you are using ASCII characters (case-sensitive). 10 hexadecimal digits or 5 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.
- **Authentication RADIUS Server** : RADIUS is an authentication, authorization and accounting client-server protocol. The client is a Network Access Server that desires to authenticate its links. The server is a server that has access to a user database with authentication information. The default is **1812**.
- **Enable Accounting** : Check to enable this function.

- **Accounting RADIUS Server**：Enter the RADIUS Server's port number provided by your ISP. The default is **1813**.
- **Apply Changes**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to restore to the default value.

Shared Key

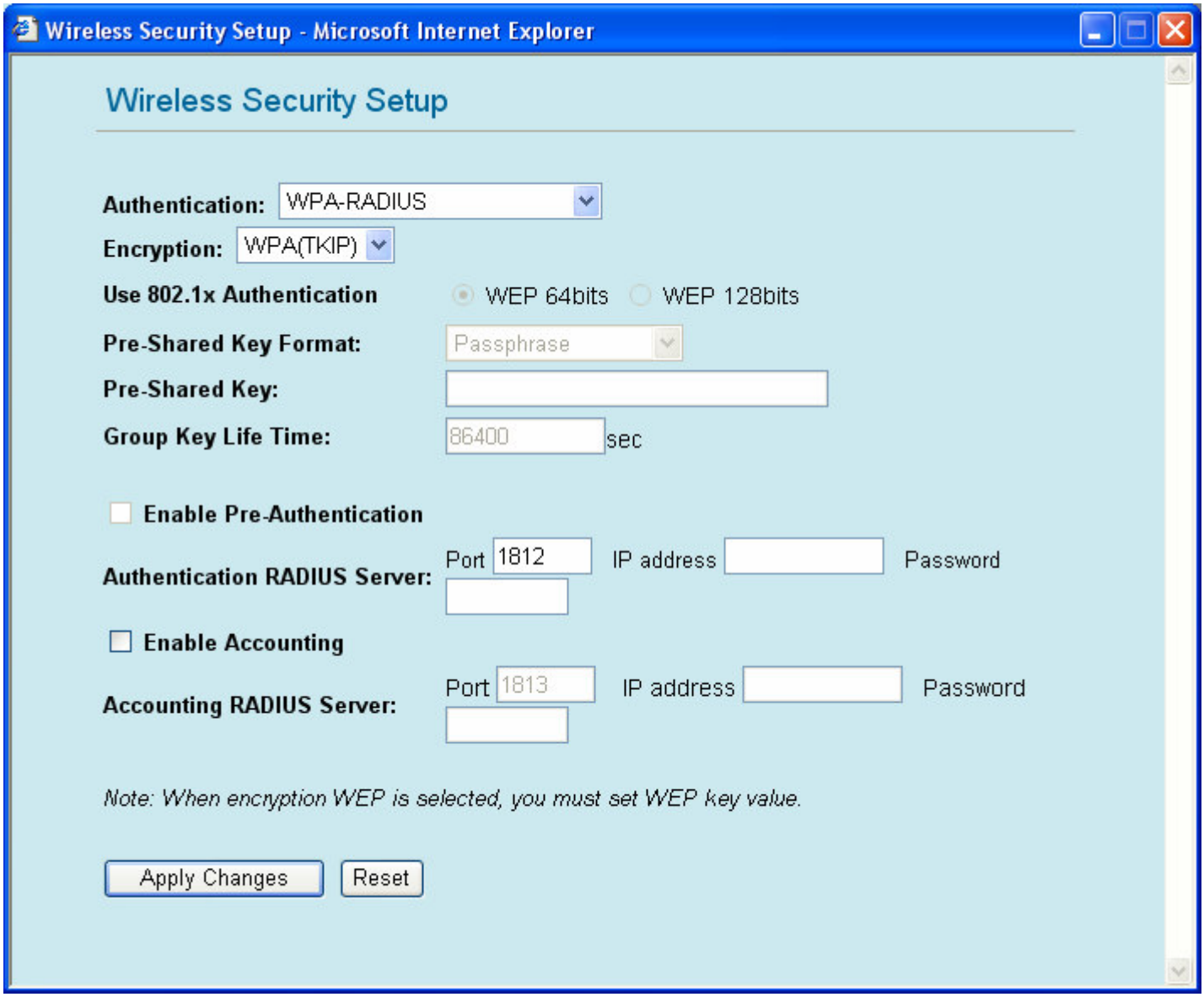
- **Encryption** : Select a type of encryption from the scroll-down list either **None** or **WEP**. WEP is short for Wired Equivalent Privacy, a security protocol for WLANs defined in the 802.11b standard.
- **Enable Accounting** : Check to enable this function and then the key value is not needed.
- **Key Length** : There are two kinds of WEP encryption: 64 bit and 128 bit. 64 bit needs 10 hex characters to be the key and 128 bit needs 26 hex characters.
- **Key Format** : Select **ASCII (5 characters)** or **Hex (10 characters)**.
- **Default Tx Key** : Choose from Key 1~4 to be the default Tx Key.
- **Encryption Key 1~4** : This setting only takes effect under "Open" or "Shared" mode.

There are four types of WEP key settings, please set the key depending on the real environment. According to the type and length, there are four WEP Key types:

- **Hexadecimal** – Only "A~F," "a~f," and "0~9" are allowed to be set in a WEP key.
- **ASCII** –Numerical values, characters or signs are all allowed to be arranged into a WEP key. It is more recognizable for user.
- **64-bit** – Enter 10-digit Hex values or 5-digit ASCII values as the encryption keys. For example: "0123456aef" or "Guest."
- **128-bit** – Enter 26-digit Hex values or 13-digit ASCII values as the encryption keys. For example: "01234567890123456789abcdef" or "administrator."

- **Apply Changes**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to restore to the default value.

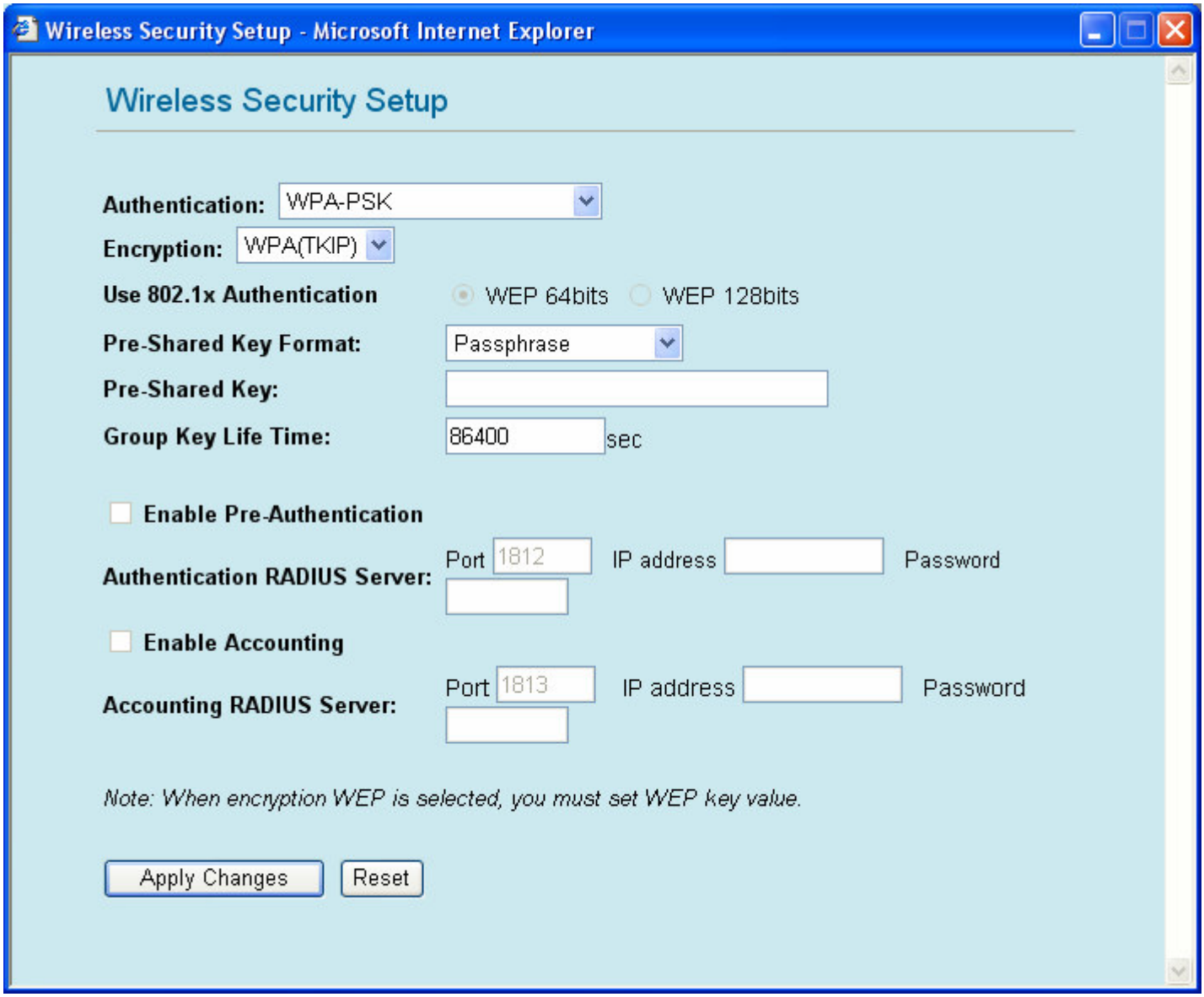
WPA-RADIUS



- **Encryption** : Select a type of encryption from the scroll-down list either **WPA (TKIP)** or **WAP (AES)**.
  - **TKIP** is short for **Temporal Key Integrity Protocol**. TKIP scrambles the key using a hashing algorithm and, by adding an integrity-checking feature, ensures that the keys haven't been tampered with.
  - **AES** is short for **Advanced Encryption Standard**, a symmetric 128-bit block data encryption technique. It works at multiple network layers simultaneously and has a fixed block size of 128-bits and a key size of 128, 192, or 256-bits.
- **Authentication RADIUS Server** : RADIUS is an authentication, authorization and accounting client-server protocol. The client is a Network Access Server that desires to authenticate its links. The server is a server that has access to a user database with authentication information. The default is **1812**.
- **Enable Accounting** : Check to enable this function.

- **Accounting RADIUS Server**：Enter the RADIUS Server’s port number provided by your ISP. The default is **1813**.
- **Apply Changes**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to restore to the default value.

WPA-PSK

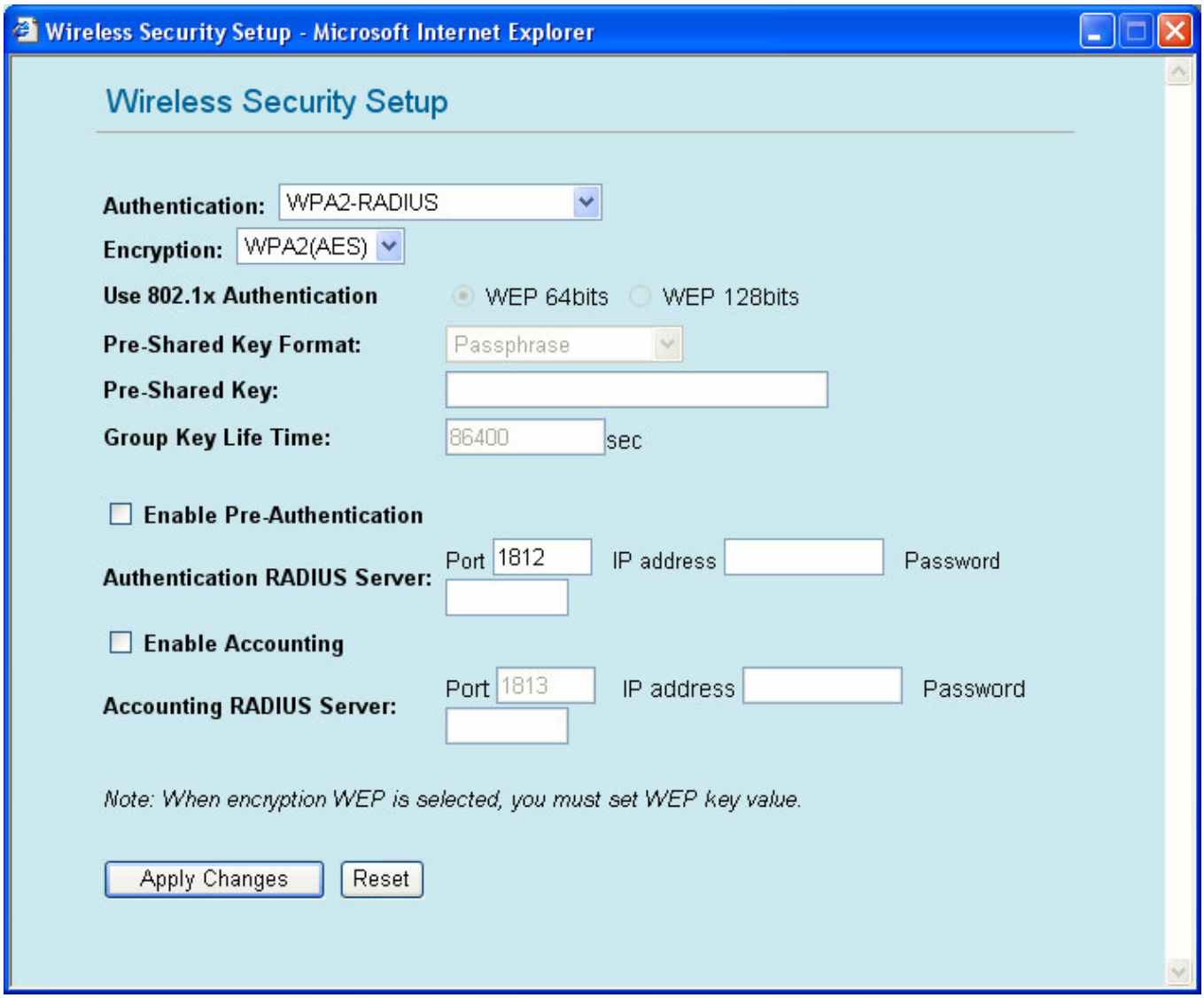


- **Encryption**：Select a type of encryption from the scroll-down list either **WPA (TKIP)** or **WAP (AES)**.
  - **TKIP** is short for **Temporal Key Integrity Protocol**. TKIP scrambles the key using a hashing algorithm and, by adding an integrity-checking feature, ensures that the keys haven't been tampered with.
  - **AES** is short for **Advanced Encryption Standard**, a symmetric 128-bit block data encryption technique. It works at multiple network layers simultaneously and has a fixed block size of 128-bits and a key size of 128, 192, or 256-bits.
- **Pre-Shared Key Format**：Select **Passphrase** or **Hex (64 characters)**.
- **Pre-Shared Key**：This setting only takes effect under "**WPA-PSK**" or "**WPA2-PSK**" mode. Besides, the key should be at least 8 characters and 63 characters at maximum. This Passphrase (also called a shared secret) that must be entered in both the wireless access point and the WPA clients (computers). The WPA pre-shared key should be a random

sequence of either keyboard characters (upper and lowercase letters, numbers, and punctuation). You have to enter the same Passphrase or Hexadecimal key into both your access points and computers but the length requirement is changed. The more random your WPA pre-shared key, the safer it is to use.

- **Group Key Life Time**：Enter the number of seconds that will elapse before the group key change automatically. The default is **86400** seconds.
- **Apply Changes**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to restore to the default value.

WPA2-RADIUS

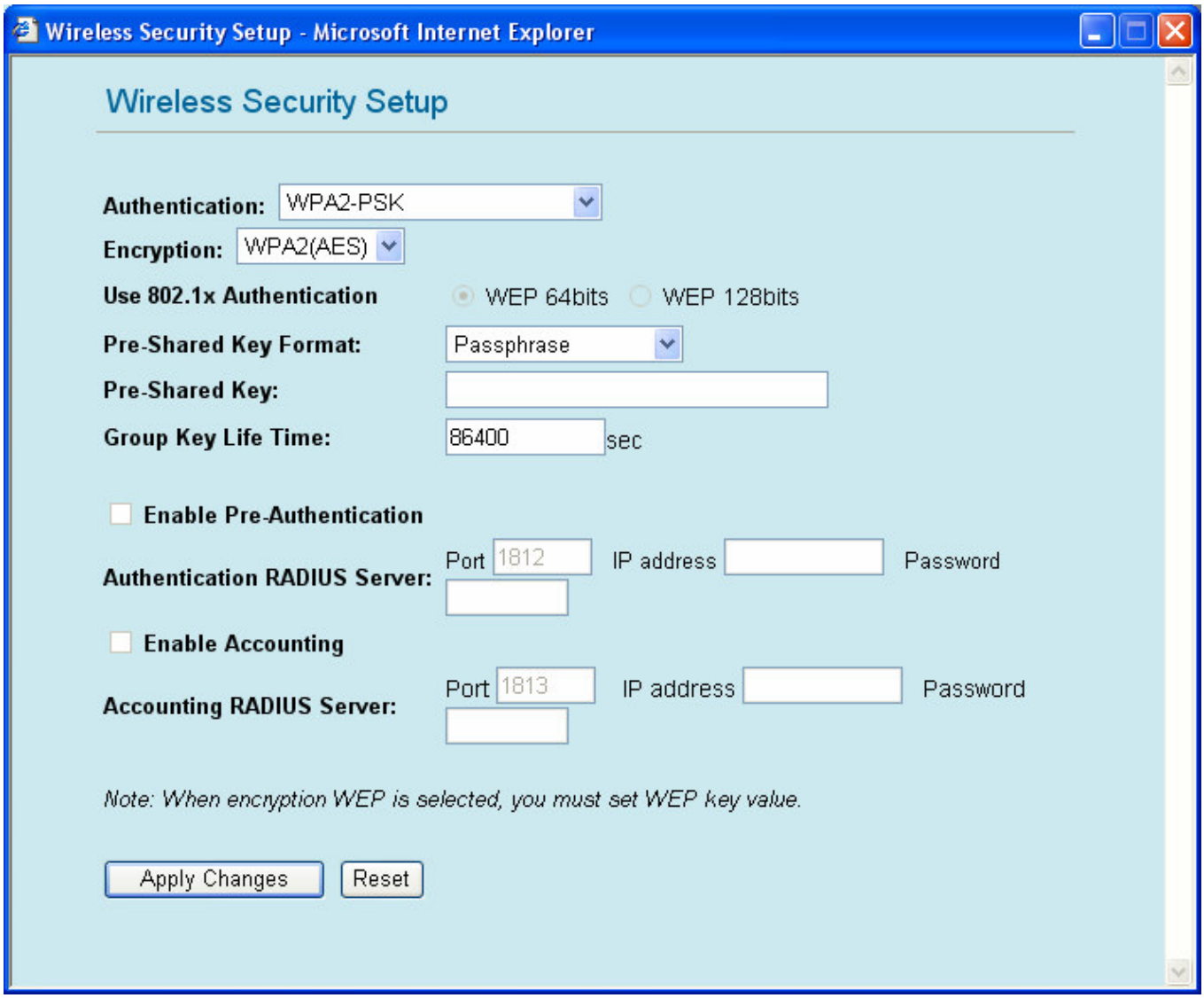


- **Encryption** : Only can chose **WAP2 (AES)** encryption type.
- **Enable Pre-Authentication** : The two most important features beyond WPA to become standardized through 802.11i/WPA2 are: pre-authentication, which enables secure fast roaming without noticeable signal latency. Pre-authentication provides a way to establish a PMK security association before a client associates. The advantage is that the client reduces the time that it's disconnected to the network.
- **Authentication RADIUS Server** : RADIUS is an authentication, authorization and accounting client-server protocol. The client is a Network Access Server that desires to authenticate its links. The server is a server that has access to a user database with authentication information. The default is **1812**.
- **Enable Accounting** : Check to enable this function.
- **Accounting RADIUS Server** : Enter the RADIUS Server's port number provided by your ISP. The default is **1813**.
- **Apply Changes** : After completing the settings on this page, click this button to save the

settings.

- **Reset**：Click this button to restore to the default value.

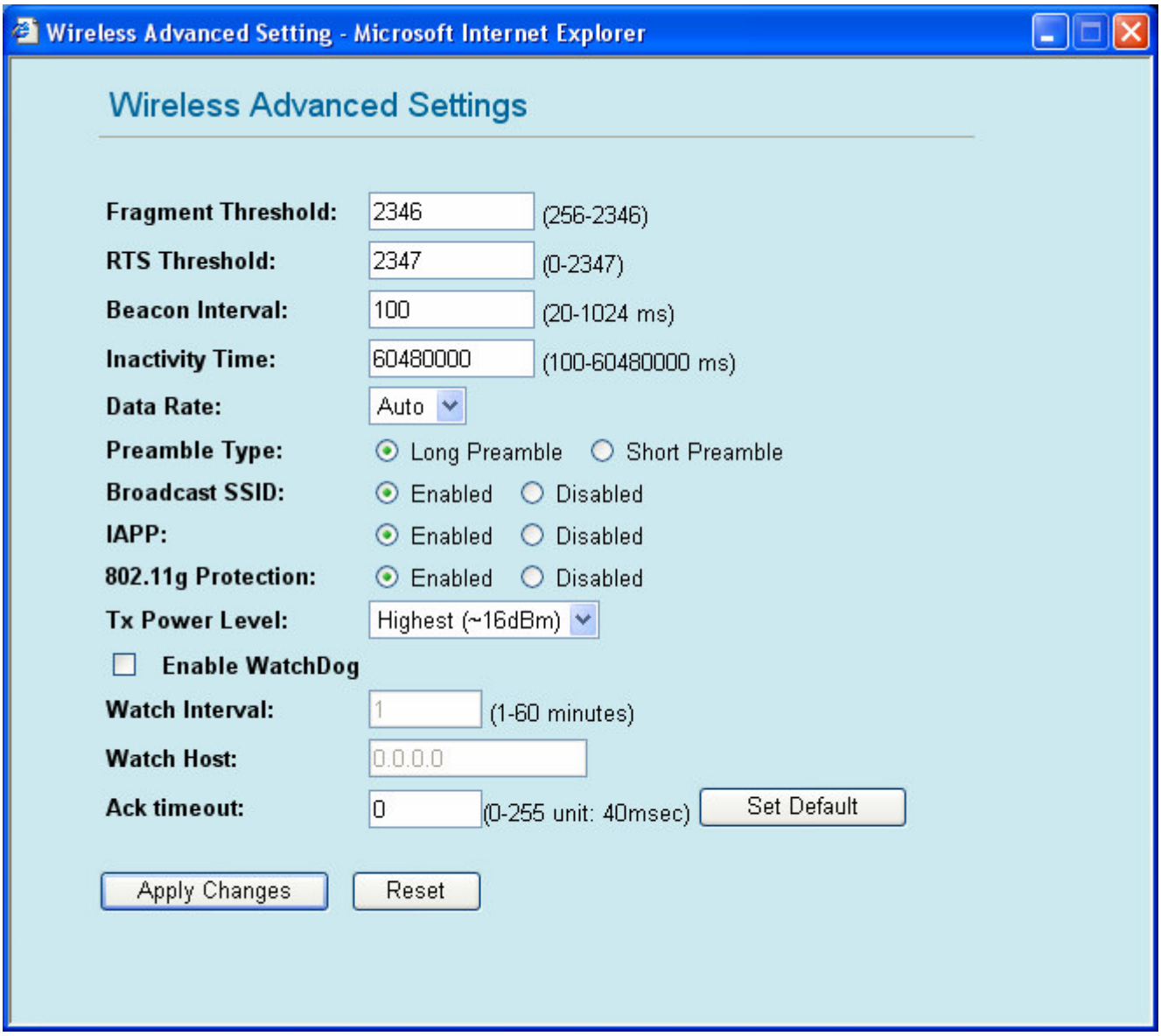
WPA2-PSK



- **Encryption**：Only can chose **WAP2 (AES)** encryption type.
- **Pre-Shared Key Format**：Select **Passphrase** or **Hex (64 characters)**.
- **Pre-Shared Key**：This setting only takes effect under "**WPA-PSK**" or "**WPA2-PSK**" mode. Besides, the key should be at least 8 characters and 63 characters at maximum. This Passphrase (also called a shared secret) that must be entered in both the wireless access point and the WPA clients (computers). The WPA pre-shared key should be a random sequence of either keyboard characters (upper and lowercase letters, numbers, and punctuation). You have to enter the same Passphrase or Hexadecimal key into both your access points and computers but the length requirement is changed. The more random your WPA pre-shared key, the safer it is to use.
- **Group Key Life Time**：Enter the number of seconds that will elapse before the group key change automatically. The default is **86400** seconds.
- **Apply Changes**：After completing the settings on this page, click this button to save the settings.

- **Reset**：Click this button to restore to the default value.

5.1.2. Advanced Settings



- **Fragment Threshold** : This value can define the maximum packet sized, so the packets bigger than this size will be segmented. If you set the lower value, and found there is higher packets error value, you can set the value higher, however, that may decrease the whole performance of GW-AP54SP-P. The default value is **2346**, and you can set a value between **256~2346**.
- **RTS Threshold** : Here you can define the minimum value of RTS (Request to Send) packets and prevent "**Hidden Nodes**" problems. Please enter a value between 0~2347, and when the packets are bigger than the RTS value the function will start to work.
- **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 start up again and receive the beacon.
- **Inactivity Time** : Enter a Max Inactivity Time in minutes to define a maximum period of

time when the Internet connection is still on but inactive. If the connection is inactive for longer than the defined maximum idle time, GW-AP54SP-P will disconnect it.

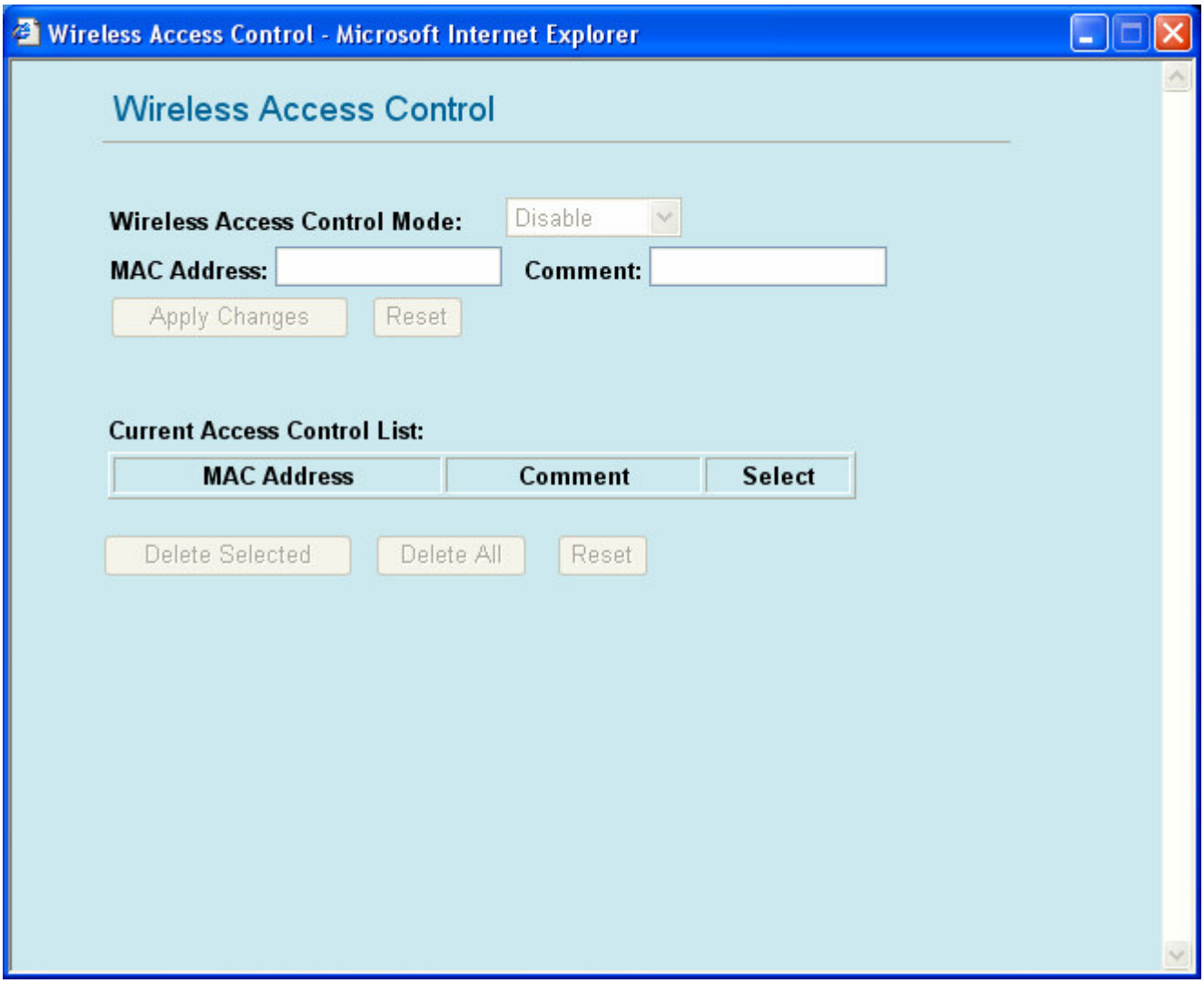
- **Data Rate**：The transmission rate can be: Auto/1/2/5.5/11/6/9/12/ 18/24/36Mbps. When you choose "**Auto**," GW-AP54SP-P will automatically find the proper transmission rate for you. If you choose higher transmission rate, the distance between the AP and the Wireless NIC must be closer. Besides, when the Wireless NIC is 802.11b type, the maximum transmission rate is 11Mbps.
- **Preamble Type**：A preamble is a signal used in wireless environment to synchronize the transmitting timing including synchronization and start frame delimiter. It can also define the length of CRC (cyclic redundancy check) blocking. There are two Preambles: **Long** and **Short**. When the traffic is heavier, the shorter preamble should be used.
- **Broadcast SSID**：If you choose "**Disabled**," SSID of GW-AP54SP-P will not appear on the other PC's wireless network list. It also means that only whose SSID is the same with GW-AP54SP-P can connect with GW-AP54SP-P. Therefore, the Wireless AP can block the users without authentication.
- **IAPP**：IAPP (Inter Access Point Protocol) is designed for the enforcement of unique association throughout a ESS (Extended Service Set) and a secure exchange of station's security context between current access point (AP) and new AP during handoff period.
- **802.11g Protection**：The 802.11g standard includes a protection mechanism to ensure mixed 802.11b and 802.11g operations. If there is no such kind of mechanism exists, the two kinds of standards may mutually interfere and decrease network's performance.
- **Tx Power Level**：Choose the TX (transmission) Power according to the real environment. If you want to lower the transmit power of the AP for saving the power of the system, you can select the lower percentages from the list. The lower power will cause the lower signal strength and the coverage range. The default setting is "**Auto**". Select the Tx Power Level from the scroll-down men including Highest (~16dBm), High (~15dBm), Middle (~13dBm), Low (~10dBm) and Lowest (~3dBm).
- **Enable WatchDog**：Check to enable the WatchDog function. WatchDog is a kind of monitor system which can check if the hardware is working fine. It monitors the system log for firewall log messages generated by a running firewall.
- **Watch Interval**：Set the Watch Interval in from 1 to 60 minutes.
- **Watch Host**：Set the Watch Host in this column.
- **Ack Timeout**：When a packet is sent out from one wireless station to the other, it will waits for an Acknowledgement frame from the remote station. If the ACK is NOT received within that timeout period then the packet will be re-transmitted resulting in reduced throughput. If the ACK setting is too high then throughput will be lost due to waiting for the ACK Window to timeout on lost packets. By having the ability to adjust the ACK setting we can effectively optimize the throughput over long distance links. This is especially true for 802.11a and 802.11g networks.
- **Apply Changes**：After completing the settings on this page, click this button to save the

settings.

- **Reset**：Click this button to restore to the default value.

5.1.3. Access Control

If you set the wireless access control to be "**Enable**," only those whose wireless MAC addresses listed on the Access Control List **can** connect with GW-AP54SP-P. Contrarily, if you set the mode to be "Reject," only those whose MAC addresses listed on the list **cannot** connect with GW-AP54SP-P. The default mode is "**Disable**," which means all the wireless stations are allowed to access GW-AP54SP-P.



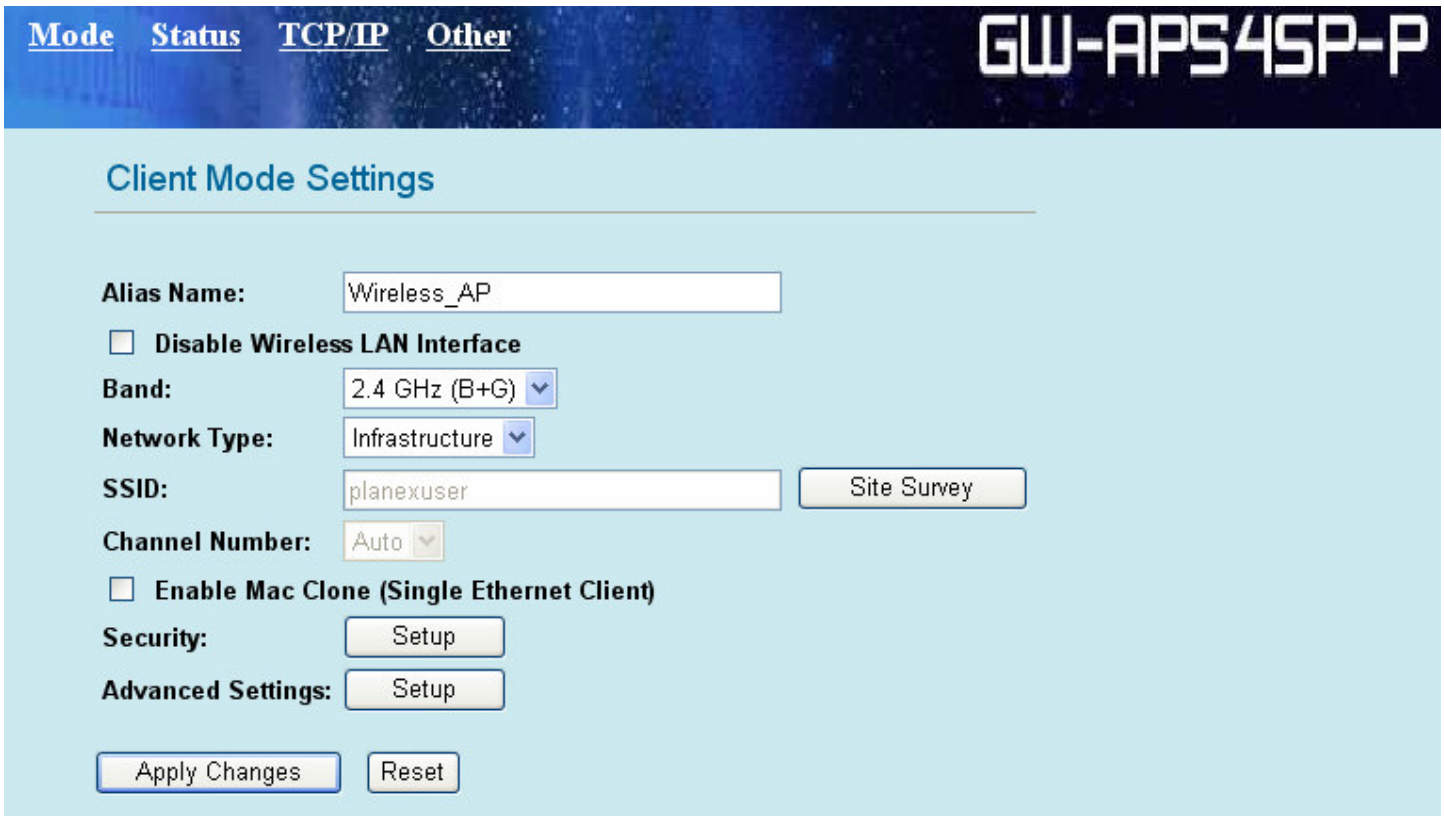
- **Wireless Access Control Mode** : Scroll down the list to choose if you want to access the wireless network. You can also **Disable** this function, and there will be no limits when accessing wireless network.
- **MAC Address** : Enter the MAC address which you want to **Allow** or **Reject**.
- **Comment** : You can add some comments, description or information about this MAC address.
- **Apply Changes** : Click this button to save the setting and the MAC address which has been configured will be listed on the page
- **Reset** : Click this button to restore to the default value.

- **Current Access Control List**：.
- **Delete Selected**：You can check the Current Access MAC List on the bottom of the page. If you do not want to connect with one of the MAC address, you can put a check in the check box of which MAC address you want to delete.
- **Delete All**：Click this button to delete all the configured MAC addresses.
- **Reset**：If there is anything wrong with the settings, you can click "**Reset**" to configure the page again.

5.2. Client

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.

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).



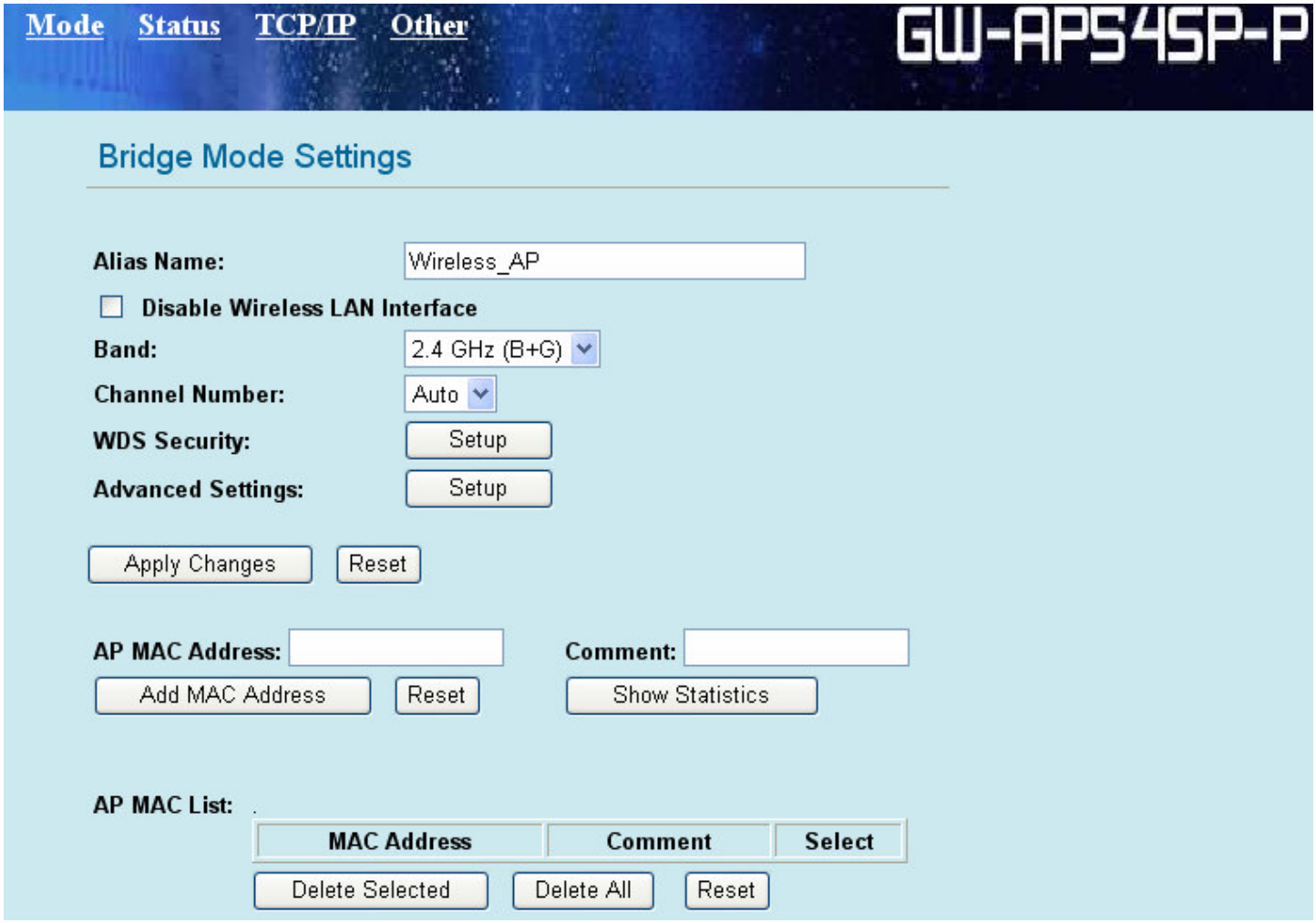
- **Alias Name** : You can give GW-AP54SP-P a unique name to be easily distinguished from other APs. It can be 32 alphanumeric characters.
- **Disable Wireless LAN Interface** : Check the box to disable the Wireless LAN Interface. By doing so, you won't be able to make wireless connection with this Access Point in the network you are located. In other words, this device will not be visible by any wireless station.
- **Band** : You may scroll down the list to choose one mode from the following:
  - **2.4GHz (B)** : This mode refers to 802.11b standard (also referred to as 802.11 High Rate or Wi-Fi) -- an extension to 802.11 that applies to wireless LANS and provides 11 Mbps transmission (with a fallback to 5.5, 2 and 1 Mbps) in the 2.4 GHz band.
  - **2.4GHz (G)** : This mode refers to 802.11g standard which applies to wireless LANs and provides 2-54 Mbps in the 2.4 GHz band.
  - **2.4GHz (B+G)** : To use both 802.11g and 802.11b standards. This is the default

mode.

- **Network Type**：You may scroll down the list to choose one mode from the following:
  - **Infrastructure**：An 802.11 networking framework in which devices communicate with each other by first going through and Access Point (AP). In infrastructure mode, wireless devices can communicate with each other or can communicate with a wired network.
  - **Ad-Hoc**：An 802.11 networking framework in which devices or stations communicate directly with each other, without the use of an Access Point (AP). Ad-hoc mode is useful for establishing a network where wireless infrastructure does not exist or where services are not required. If choose this mode, you can select a channel for GW-AP54SP-P.
- **SSID**：Enter an SSID which is referred to as a network name because essentially it is a name that identifies a wireless network. The SSID (Service Set Identifier) can be attached to the header of packets sent over a WLAN that acts as a password when a mobile device tries to connect to the BSS (Basic Service Set). Every SSID is unique in the WLAN. SSID can prevent two nearby WLAN from combining to be one. You can give GW-AP54SP-P an SSID, and only whose SSID is the same with it can connect with it.
- **Channel Number**：Here shows the channels provided by the local wireless connection. The setting of the wireless AP's channel should be the same as the wireless network which it is on. Please choose a right channel according to the region you are in.
- **Enable MAC Clone (Single Ethernet Client)**：If your ISP restricts service to PCs only, use the MAC Clone feature to copy a PC Media Access Control (MAC) address to your router. This procedure will cause the router to appear as a single PC, while allowing online access to multiple computers on your network.
- **Security**：Click **Setup** to set up the security settings for GW-AP54SP-P. Please refer to the **Security** chapter.
- **Advanced Settings**：Click **Setup** to set up the advanced settings for GW-AP54SP-P. Please refer to the **Advanced Settings** chapter.
- **Apply Changes**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to restore to the default value.

5.3. Bridge

The **WDS (Wireless Distribution System)** function lets this access point act as a wireless LAN access point and repeater at the same time. Users can use this feature to build up a large wireless network in a large space like airports, hotels, schools and etc. This feature is also useful when users want to bridge networks between buildings where it is impossible to deploy network cable connections between these buildings.



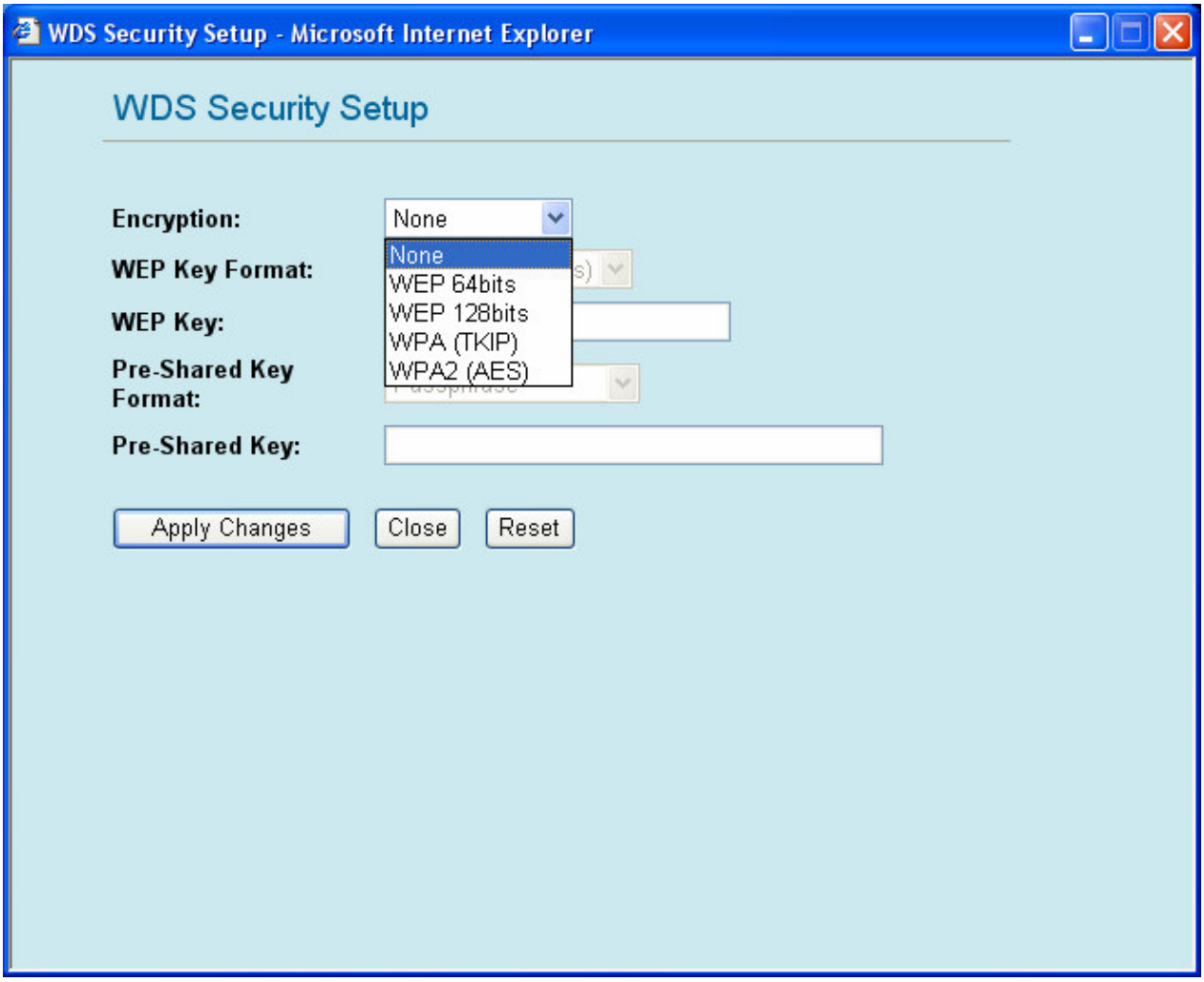
- **Alias Name** : You can give GW-AP54SP-P a unique name to be easily distinguished from other APs. It can be 32 alphanumeric characters.
- **Disable Wireless LAN Interface** : Check the box to disable the Wireless LAN Interface. By doing so, you won't be able to make wireless connection with this Access Point in the network you are located. In other words, this device will not be visible by any wireless station.
- **Band** : You may scroll down the list to choose one mode from the following:
  - **2.4GHz (B)** : This mode refers to 802.11b standard (also referred to as 802.11 High Rate or Wi-Fi) -- an extension to 802.11 that applies to wireless LANS and provides 11 Mbps transmission (with a fallback to 5.5, 2 and 1 Mbps) in the 2.4 GHz band.
  - **2.4GHz (G)** : This mode refers to 802.11g standard which applies to wireless LANs

and provides 2-54 Mbps in the 2.4 GHz band.

- **2.4GHz (B+G)**：To use both 802.11g and 802.11b standards. This is the default mode.

- **Channel Number**：Here shows the channels provided by the local wireless connection. The setting of the wireless AP's channel should be the same as the wireless network which it is on. Please choose a right channel according to the region you are in.
- **WDS Security**：Click **Setup** to set up the advanced settings for GW-AP54SP-P. Please refer to the following **WDS Security** chapter.
- **Advanced Settings**：Click **Setup** to set up the advanced settings for GW-AP54SP-P. Please refer to the **Advanced Settings** chapter.
- **Apply Changes**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to restore to the default value.
- **AP MAC Address**：Click to add a new MAC address.
- **AP MAC List**：This table displays the AP MAC information.
- **Delete Selected**：You can check the Current Access MAC List on the bottom of the page. If you do not want to connect with one of the MAC address, you can put a check in the check box of which MAC address you want to delete.
- **Delete All**：Click this button to delete all the configured MAC addresses.
- **Reset**：If there is anything wrong with the settings, you can click "**Reset**" to configure the page again.

5.3.1. WDS Security

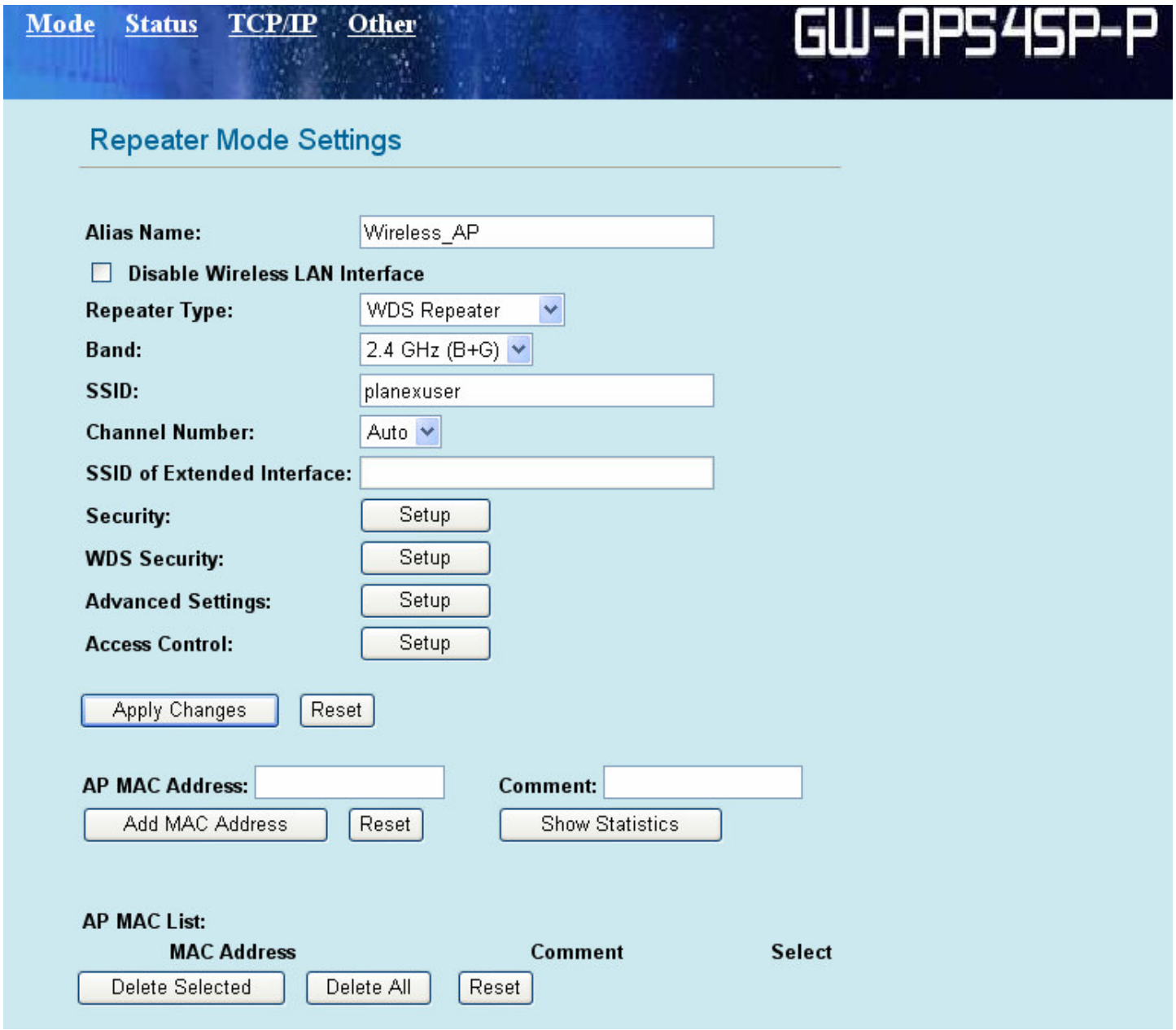


- **Encryption** : Select a type of encryption from the scroll-down list either **None**, **WEP 64bits**, **WEP 128bits**, **WPA (TKIP)** or **WPA2(AES)**.
- **WEP Key Format** : Select **HEX** if you are using hexadecimal numbers (0-9, or A-F). Select **ASCII** if you are using ASCII characters (**case-sensitive**). 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.
- **WEP Key** : Enter the WEP key in this column.
- **Pre-Shared Key Format** : Select the Pre-Shared Key from the scroll-down menu.
- **Pre-Shared Key** : Pre-Shared-Key serves as a password. Users may key in 8 to 63 characters a 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 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 (at least 8 characters) format is recommended.
- **Apply Changes** : After completing the settings on this page, click this button to save the settings.

- **Close**：Click to close this configuration window.
- **Reset**：Click this button to restore to the default value.

5.4. Repeater

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.

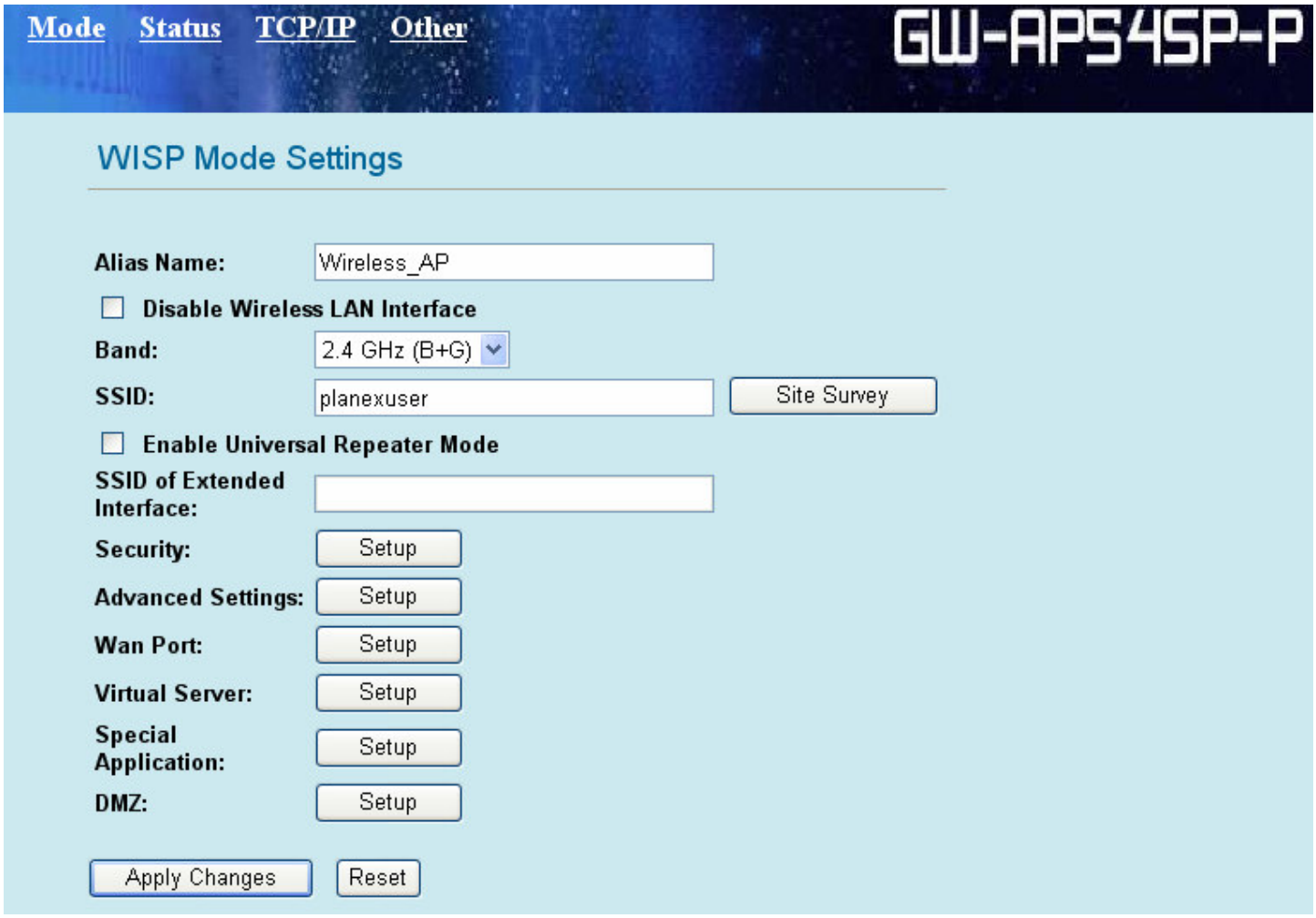


- **Alias Name** : You can give GW-AP54SP-P a unique name to be easily distinguished from other APs. It can be 32 alphanumeric characters.
- **Disable Wireless LAN Interface** : Check the box to disable the Wireless LAN Interface. By doing so, you won't be able to make wireless connection with this Access Point in the network you are located. In other words, this device will not be visible by any wireless station.

- **Repeater Type**：Select **WDS Repeater** or **Universal Repeater** from the scroll-down menu.
- **Band**：You may scroll down the list to choose one mode from the following:
  - **2.4GHz (B)**：This mode refers to 802.11b standard (also referred to as 802.11 High Rate or Wi-Fi) -- an extension to 802.11 that applies to wireless LANS and provides 11 Mbps transmission (with a fallback to 5.5, 2 and 1 Mbps) in the 2.4 GHz band.
  - **2.4GHz (G)**：This mode refers to 802.11g standard which applies to wireless LANs and provides 2-54 Mbps in the 2.4 GHz band.
  - **2.4GHz (B+G)**：To use both 802.11g and 802.11b standards. This is the default mode.
- **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**：Here shows the channels provided by the local wireless connection. The setting of the wireless AP's channel should be the same as the wireless network which it is on. Please choose a right channel according to the region you are in.
- **SSID of Extended Interface**：When the **Universal Repeater** is checked and enabled, the SSID of other AP must be entered in this field.
- **Security**：Click **Setup** to set up the advanced settings for GW-AP54SP-P. Please refer to the **Security** chapter.
- **WDS Security**：Click **Setup** to set up the advanced settings for GW-AP54SP-P. Please refer to the **WDS Security** chapter.
- **Advanced Settings**：Click **Setup** to set up the advanced settings for GW-AP54SP-P. Please refer to the **Advanced Settings** chapter.
- **Access Control**：Click **Setup** to set up the advanced settings for GW-AP54SP-P. Please refer to the **Access Control** chapter.
- **Apply Changes**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to restore to the default value.
- **AP MAC Address**：Click to add a new MAC address.
- **AP MAC List**：This table displays the AP MAC information.
- **Delete Selected**：You can check the Current Access MAC List on the bottom of the page. If you do not want to connect with one of the MAC address, you can put a check in the check box of which MAC address you want to delete.
- **Delete All**：Click this button to delete all the configured MAC addresses.
- **Reset**：If there is anything wrong with the settings, you can click "**Reset**" to configure the page again.

5.5. WISP

In WISP mode, the AP will behave just the same as the Client mode for wireless function. However, router functions are added between the wireless WAN side and the Ethernet LAN side. Therefore, the WISP subscriber can share the WISP connection without the need for extra router.

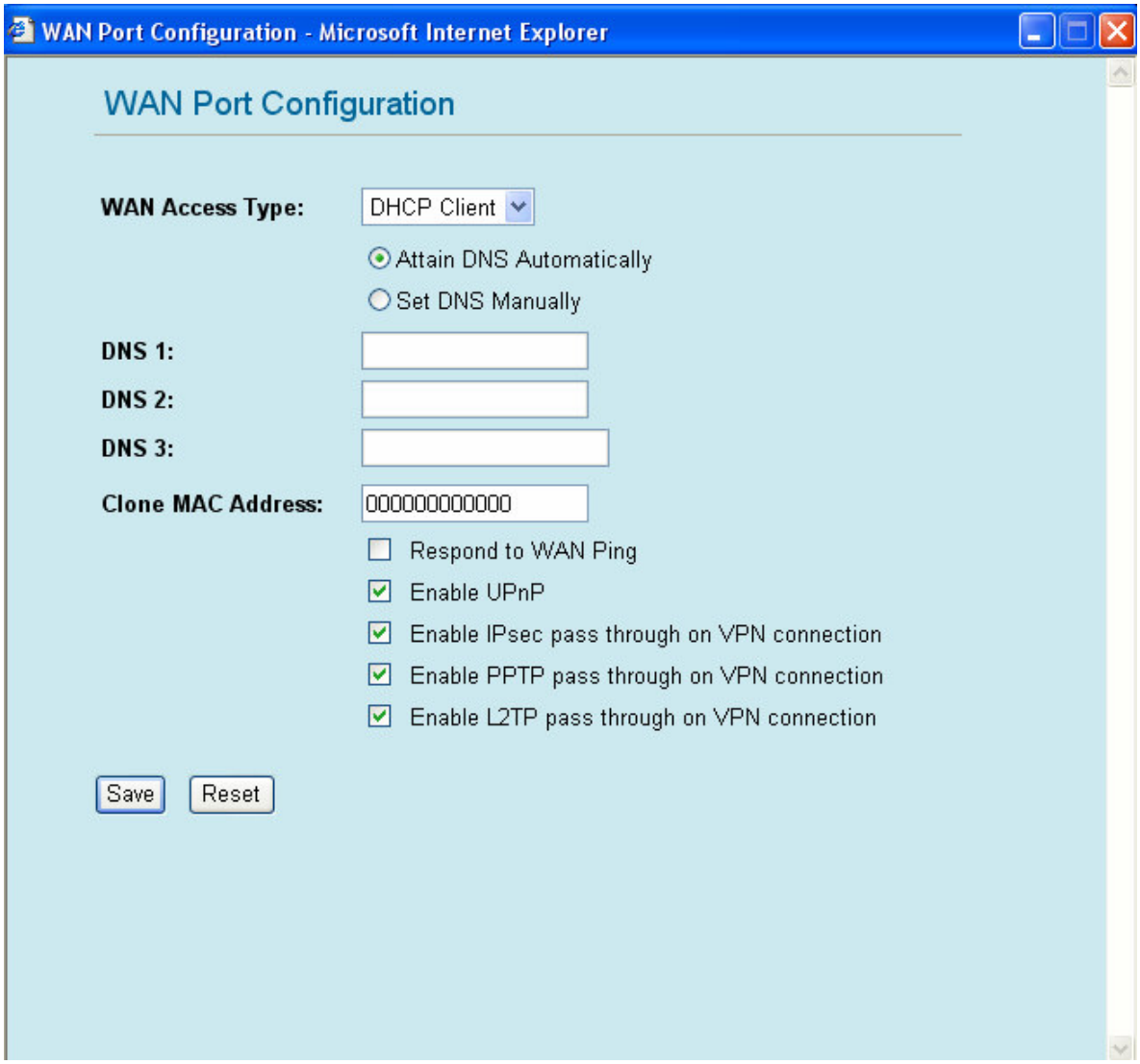


- **Alias Name** : You can give GW-AP54SP-P a unique name to be easily distinguished from other APs. It can be 32 alphanumeric characters.
- **Disable Wireless LAN Interface** : Check the box to disable the Wireless LAN Interface. By doing so, you won't be able to make wireless connection with this Access Point in the network you are located. In other words, this device will not be visible by any wireless station.
- **Band** : You may scroll down the list to choose one mode from the following:
  - **2.4GHz (B)** : This mode refers to 802.11b standard (also referred to as 802.11 High Rate or Wi-Fi) -- an extension to 802.11 that applies to wireless LANS and provides 11 Mbps transmission (with a fallback to 5.5, 2 and 1 Mbps) in the 2.4 GHz band.
  - **2.4GHz (G)** : This mode refers to 802.11g standard which applies to wireless LANs and provides 2-54 Mbps in the 2.4 GHz band.
  - **2.4GHz (B+G)** : To use both 802.11g and 802.11b standards. This is the default mode.

- **SSID**：Displays the wireless network name.
- **Enable Universal Repeater Mode**：Check to enable the universal repeater mode.
- **SSID of Extended Interface**：When the **Universal Repeater** is checked and enabled, the SSID of other AP must be entered in this field.
- **Security**：Click **Setup** to set up the advanced settings for GW-AP54SP-P. Please refer to the **Security** chapter.
- **Advanced Settings**：Click **Setup** to set up the advanced settings for GW-AP54SP-P. Please refer to the **Advanced Settings** chapter.
- **Wan Port**：Click **Setup** to set up the advanced settings for GW-AP54SP-P. Please refer to the following **Wan Port** chapter.
- **Virtual Server**：Click **Setup** to set up the advanced settings for GW-AP54SP-P. Please refer to the following **Virtual Server** chapter.
- **Special Application**：Click **Setup** to set up the advanced settings for GW-AP54SP-P. Please refer to the following **Special Application** chapter.
- **DMZ**：Click **Setup** to set up the security settings for GW-AP54SP-P. Please refer to the following **DMZ** chapter.
- **Apply Changes**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to restore to the default value.

5.5.1. WAN Port

In the WAN settings, GW-AP54SP-P Wireless AP provides many kinds of access. You can configure the WAN side according to the real environment of your WAN side network.



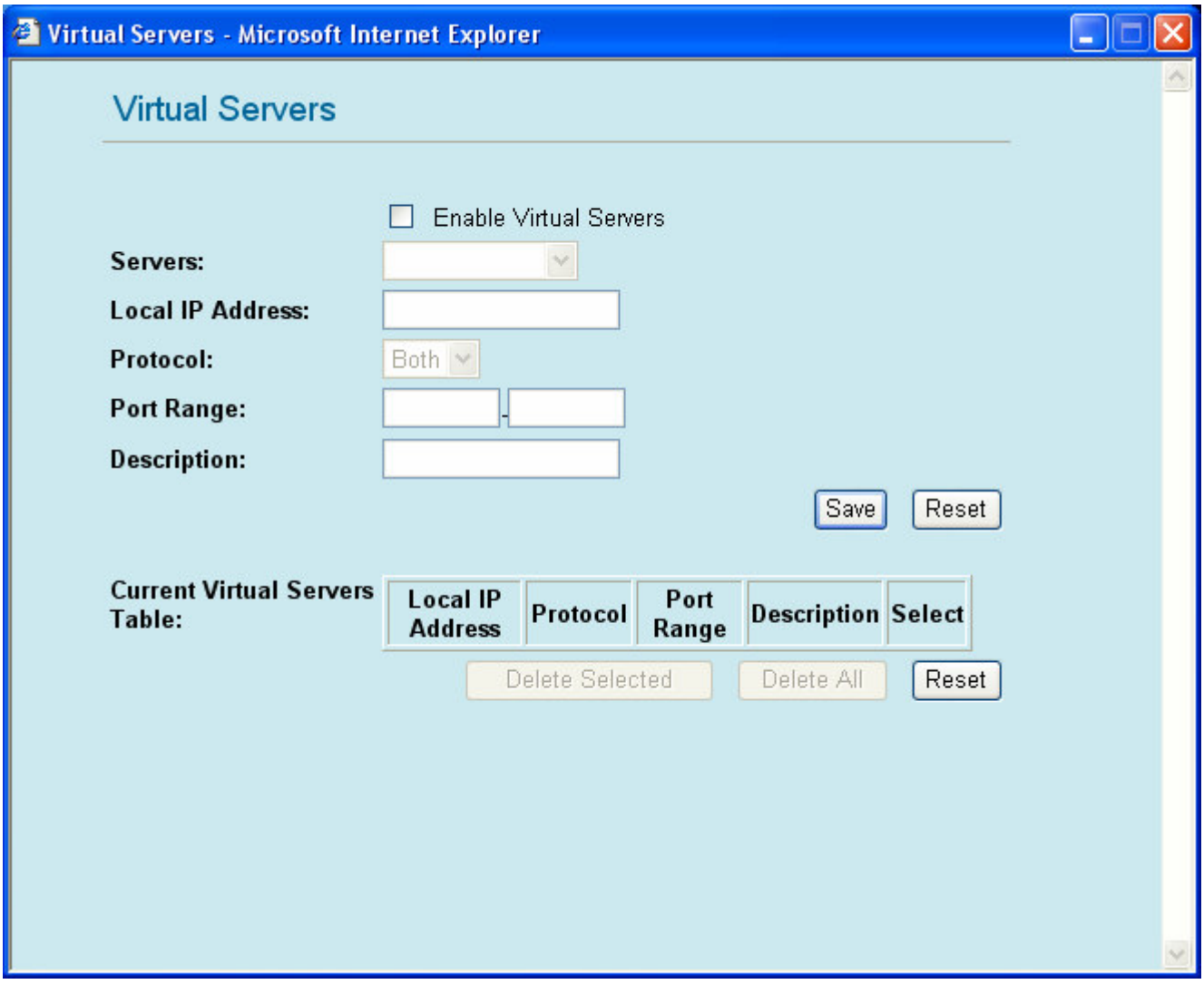
- **WAN Access Type** : Select the WAN access type (Static IP, DHCP, PPPoE and PPTP) from the scroll-down menu.
- **Attain DNS Automatically** : Enter the DNS Server IP address provided by your ISP.
- **Set DNS Manually** : Or you can specify your own preferable DNS Server IP address(es).
- **DNS 1~3** : DNS 2 and DNS 3 Servers are optional. You can enter those DNS Servers' IP address as a backup. DNS 2 and DNS 3 Servers will be used when the DNS 1 server fails.
- **Clone MAC Address** : Your ISP may require a particular MAC address in order for you to connect to the Internet. This MAC address is the PC's MAC address that your ISP had originally connected your Internet connection to. Type in this Clone MAC address in this section to replace the WAN MAC address with the MAC address of that PC.
- **Save** : Click to save and apply the current settings.
- **Reset** : If there is anything wrong with the settings, you can click "**Reset**" to restore the

default value and to configure the page again.

5.5.2. Virtual Server

GW-AP54SP-P can enable Virtual Server function, and remote hosts can use public IP address to connect with the Internet and FTP and then enter the LAN, but all the PCs on the LAN will not be seen from the outside. Virtual Server function can let users set a local server with specific port number which stands for the specific port, such as Web (80), FTP (21), Telnet (23). When GW-AP54SP-P receives an incoming access request to the specific port, it will forward the request to the corresponding internal server which means the external request for accessing a specific port will be reassigned to a different port.

To enable Server Port is like to open the firewall, which exposes your LAN to users on the Internet. It is to say that the NAT function of GW-AP54SP-P will not be able to provide protection and prevent hackers.



- **Enable Virtual Servers** : Put a check in the check box to enable virtual server function.
- **WAN Port Range** : You can set up a local server with specific port number that stands for the service (e.g. web (80), FTP (21), Telnet (23)). When this device receives an incoming

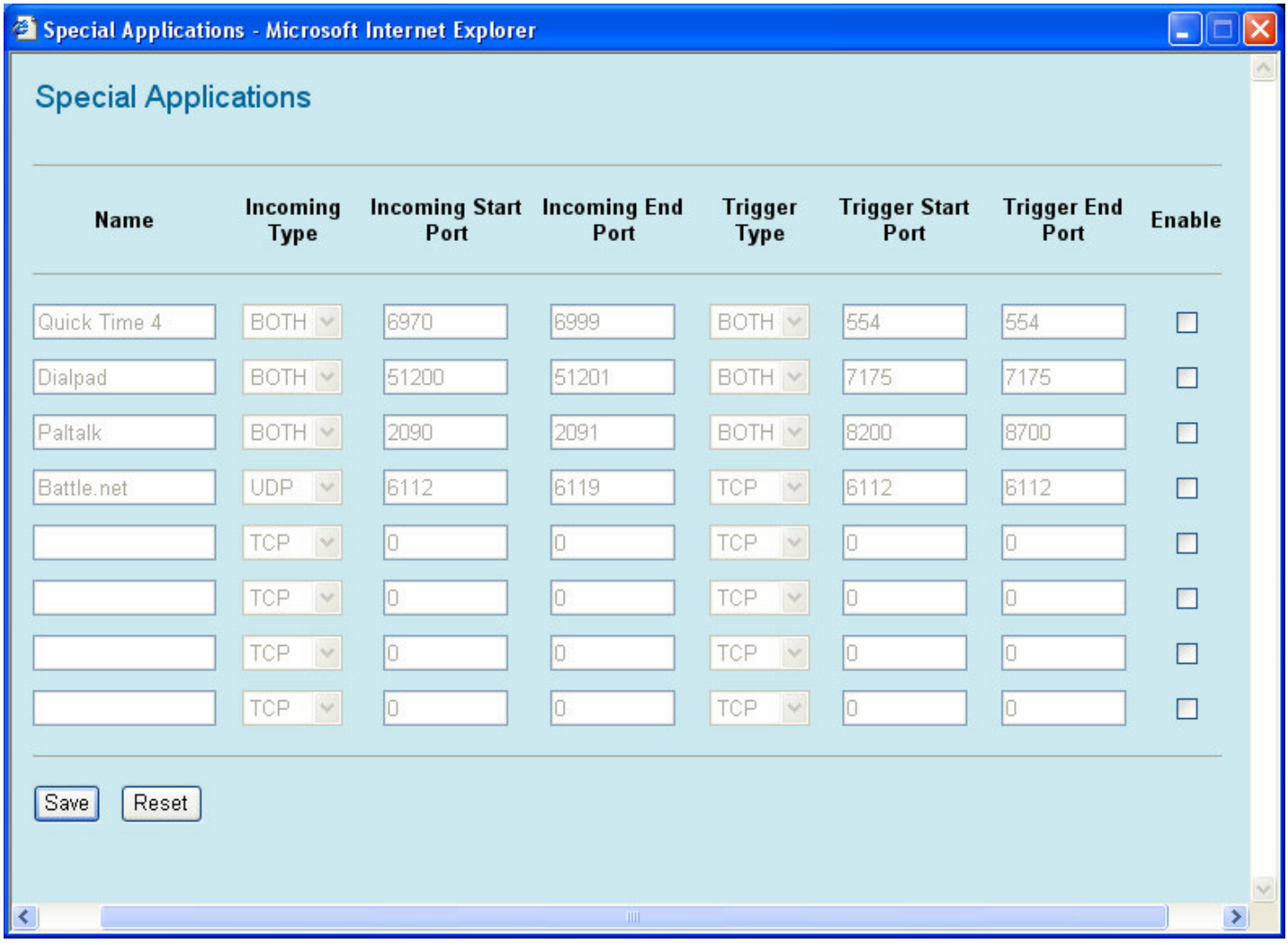
access request for this specific port, it will be forwarded to the corresponding internal server. You can add virtual servers by either port numbers or by names. Maximum 24 Server entries are allowed and each port number can only be assigned to one IP address.

- **Local IP Address**：Please enter the IP address of the server on the LAN side which provides virtual server service.
- **Protocol**：You can set the protocol of the virtual server to be **TCP**, **UDP** or **BOTH**.
- **Port Range**：Enter the port number that you want to set for virtual server port which might be different from the external port number. It can be a single port number or a range of ports. When receiving an incoming packet corresponding with the specific port number, the packet will be transferred to the appointed port.
- **Description**：You may key in a description for the local IP address.
- **Save**：Click to save and apply the current settings.
- **Reset**：If there is anything wrong with the settings, you can click "**Reset**" to restore the default value and to configure the page again.
- **Current Virtual Servers Table**：Shows the current virtual servers information.

5.5.3. Special Application

If the Internet applications do not use standard connections or port numbers, it might be unable to work because the connections of the applications could probably be blocked by the firewall of GW-AP54SP-P Wireless AP. In this case, you can define these kinds of Internet applications as "**Special Applications**" to make them work properly.

You can define the special applications by your own, but you need detailed information about the applications such as port number, which normally can be available from the application providers. Moreover, you have to check "**Enable**" before add or edit an application.



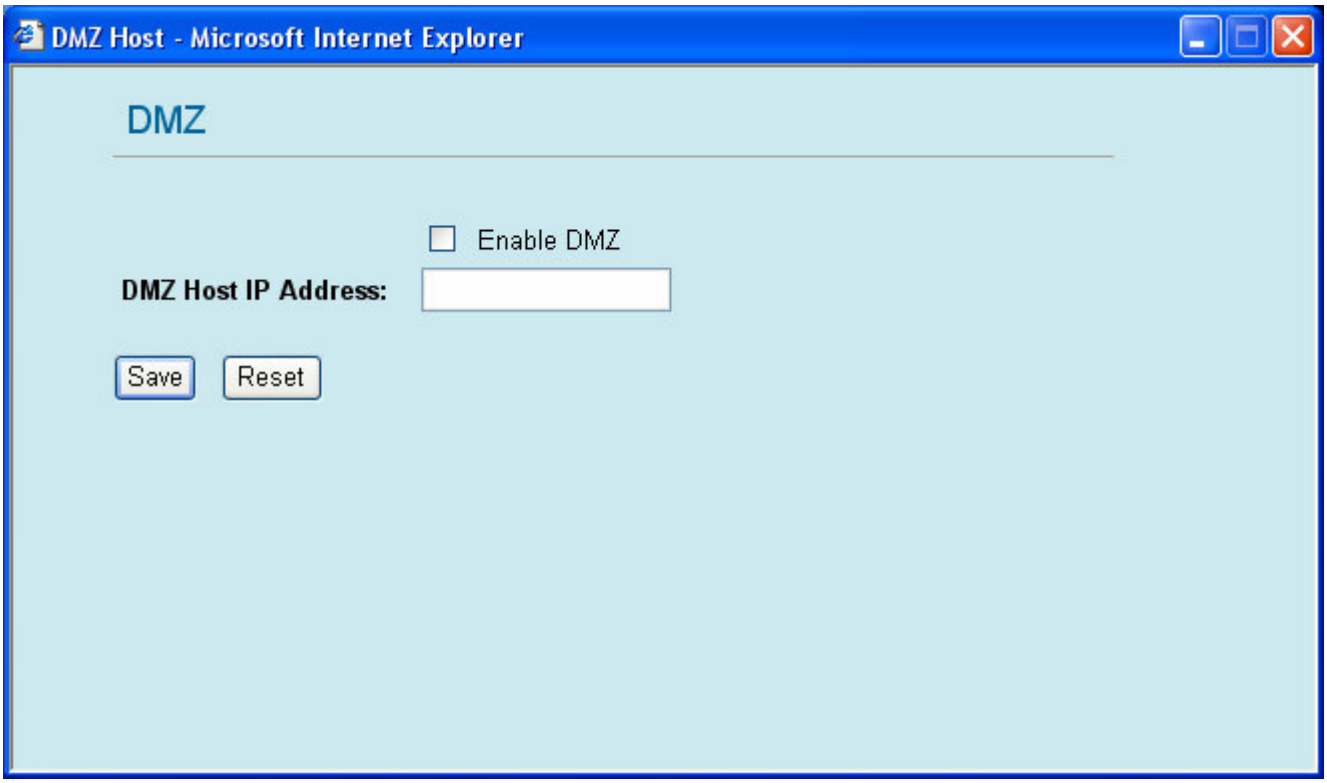
- **Name** : Enter the name of the application which you want configure.
- **Incoming Type** : Scroll down the list to choose the incoming application type: **TCP**, **UDP** or **BOTH** type.
- **Incoming Start Port/Incoming End Port** : Enter a port or a range of port to be the incoming port. Once the trigger port is detected, the incoming packets are allowed to pass the firewall to the specified incoming ports.
- **Trigger Type** : Scroll down the list to choose the trigger type: **TCP**, **UDP** or **BOTH** type.
- **Trigger Start Port** : Enter the starting port number as the starting outbound port for the

special application.

- **Trigger End Port**：Enter the finish port number as the ending outbound port for the special application.
- **Enable**：Click the check box to enable the settings.
- **Save**：Click this button to save the setting and restart the router.
- **Reset**：If there is anything wrong with the settings, you can click "**Reset**" to restore the default value and to configure the page again.

5.5.4. DMZ

If your computer cannot use Internet applications or cannot provide services to remote users when applying GW-AP54SP-P at the same time, you can let the host which wants to access to the Internet using DMZ function. Enter the host's LAN IP address to enable this function, but be aware that one GW-AP54SP-P can only correspond to a single DMZ host.



- **Enable DMZ** : Put a check in the check box to start entering the DMZ host's IP address and then the "**DMZ Host**" will begin to receive all unknown connections and data. Besides, you must enter the IP address of the PC which is being the "**DMZ Host**."
- **DMZ Host IP Address** : Please fill in an IP address of a LAN host to enable DMZ function. However, a GW-AP54SP-P can only simultaneously correspond to a single IP address.
- **Save** : After completing the settings on this page, click **Save** to save the settings
- **Reset** : Click this button to restore to the default values on this page.

Adding a client host to DMZ might expose it to a variety of danger such as virus or worm attacks because of unrestricted Internet access; therefore, only use this option as the last means. Besides, before using DMZ function, you should update the up-to-date settings of security system and virus signatures on the host.

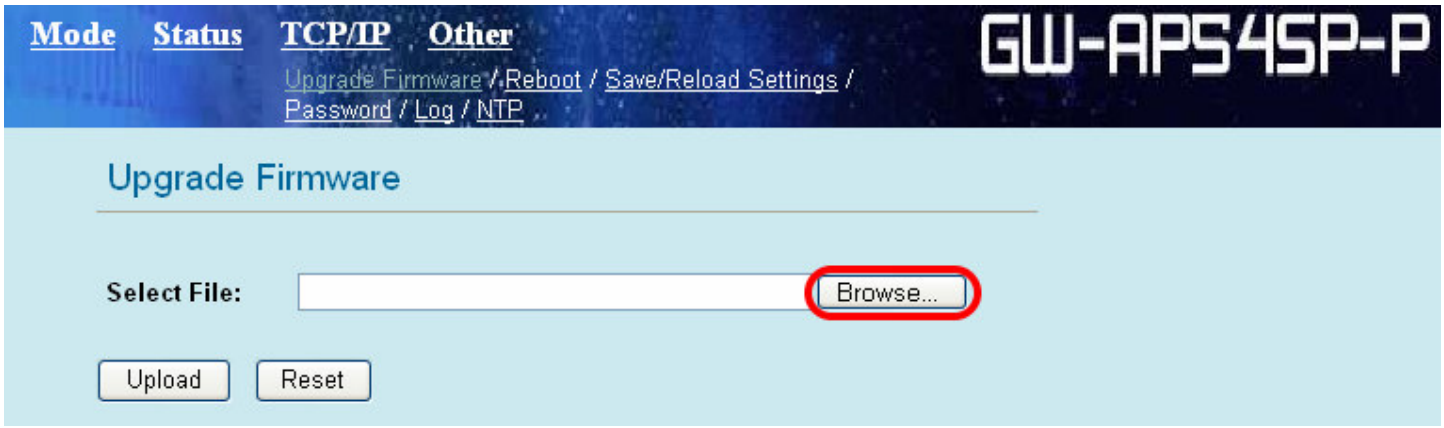
Chapter3 Other Setup & Configuration

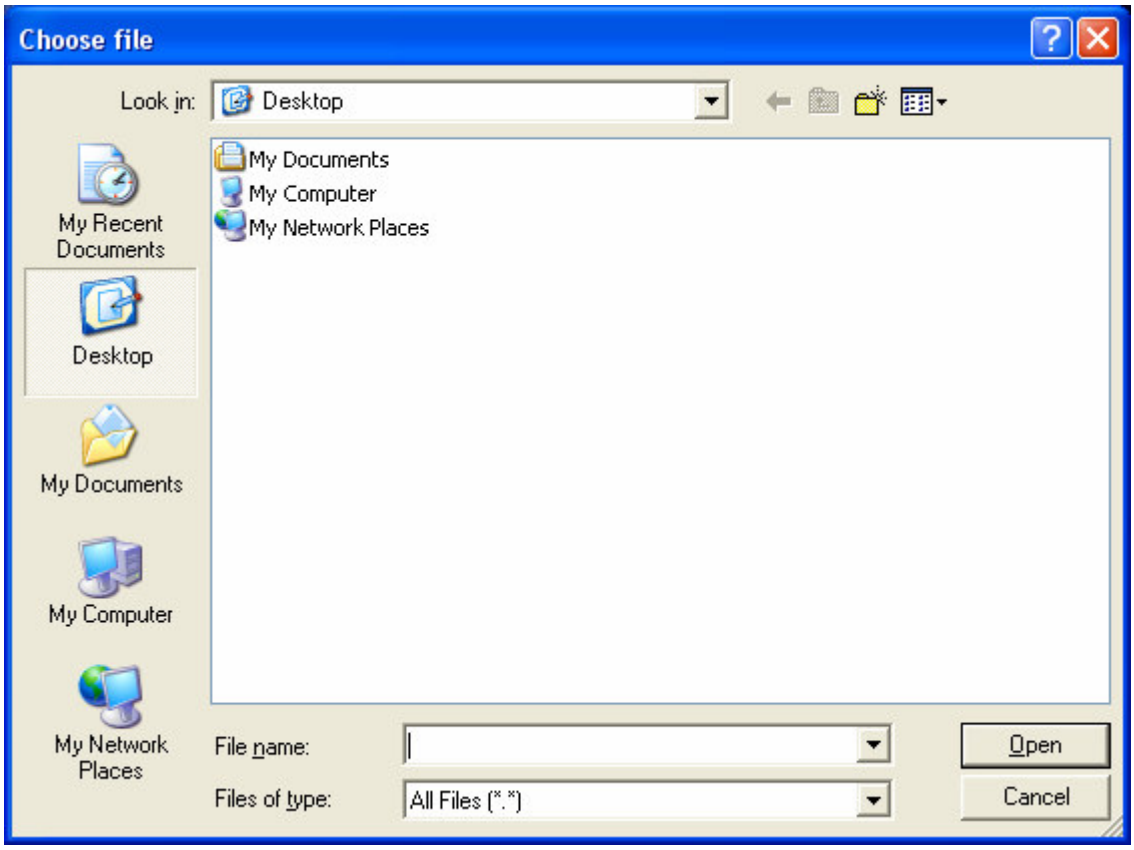
1. Other Setup

1.1. Upgrade Firmware

You can upgrade the firmware of GW-AP54SP-P via Web Browser.
First, please go to the website: http://www.planex.com.tw/download/index.htm to download the latest firmware of GW-AP54SP-P. Be sure that the firmware is stored in your PC's disk and then click "**Browse...**" to search for the firmware file which you just downloaded. Click "**Open**" to use the firmware and click "**Upload**." After the dialog box pops up and ask you if you want to continue upgrading the firmware, you can click "**OK**" to start upgrading immediately.
Upgrading firmware will not change any settings, but it is recommended that you should save the settings before upgrading the firmware.

It takes about 2~3 minutes to upgrade the firmware. When upgrading, please do not turn off the power of GW-AP54SP-P. After finishing upgrading, GW-AP54SP-P will restart automatically.

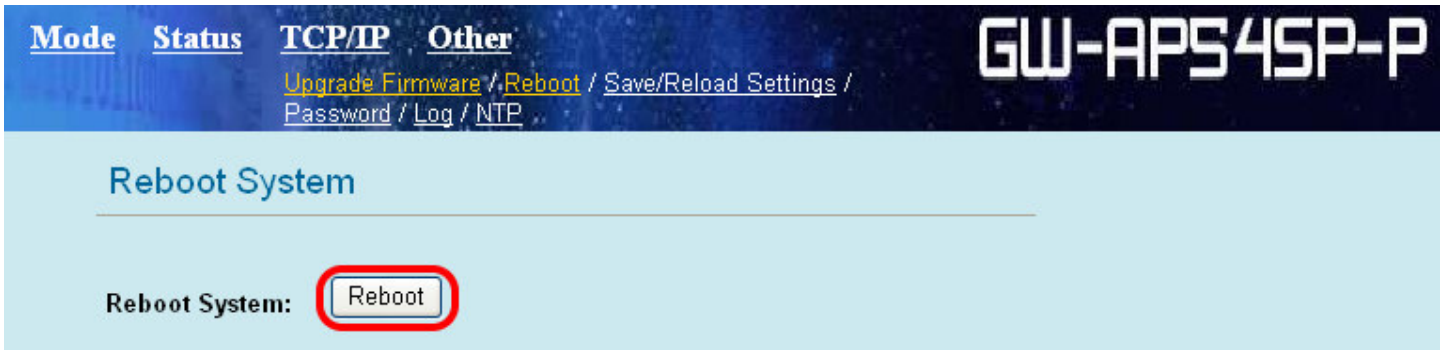


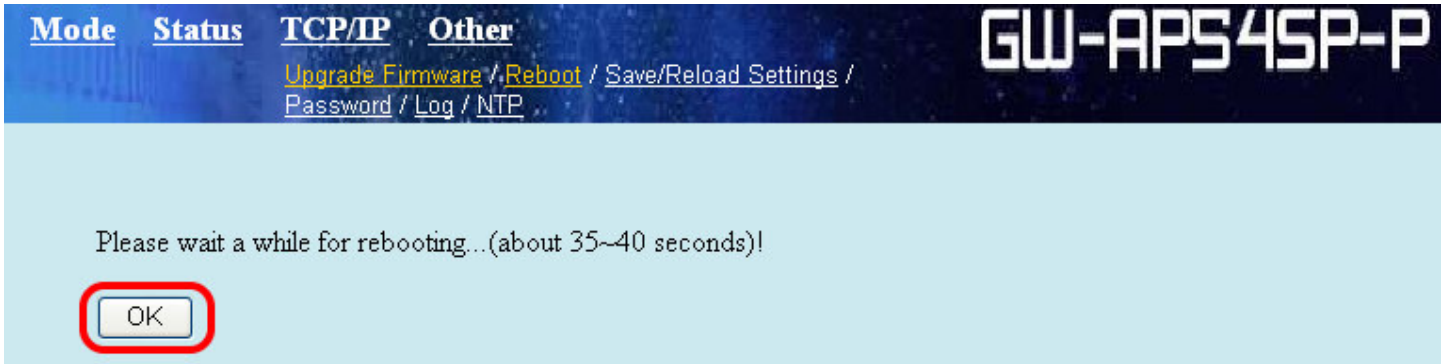


- **Upgrade Firmware**：Please download the latest firmware file on PCI official website. After that you may use "**Browse...**" and "**Upload**" to easily upgrade the firmware.
- **Browse...** ：After downloading the firmware file, click this button to find the firmware file in you disk.
- **Upload** ：Click this button to start upgrading.
- **Reset** ：Click this button to clear the settings which you just made.

1.2. Reboot

Click the "**Reboot**" button to reboot the hardware system. When the Microsoft Internet Explorer warning dialog box pops up, just click "**OK**" to continue. The system will ask you again to wait for a while when rebooting, click "**OK**" to start to reboot.



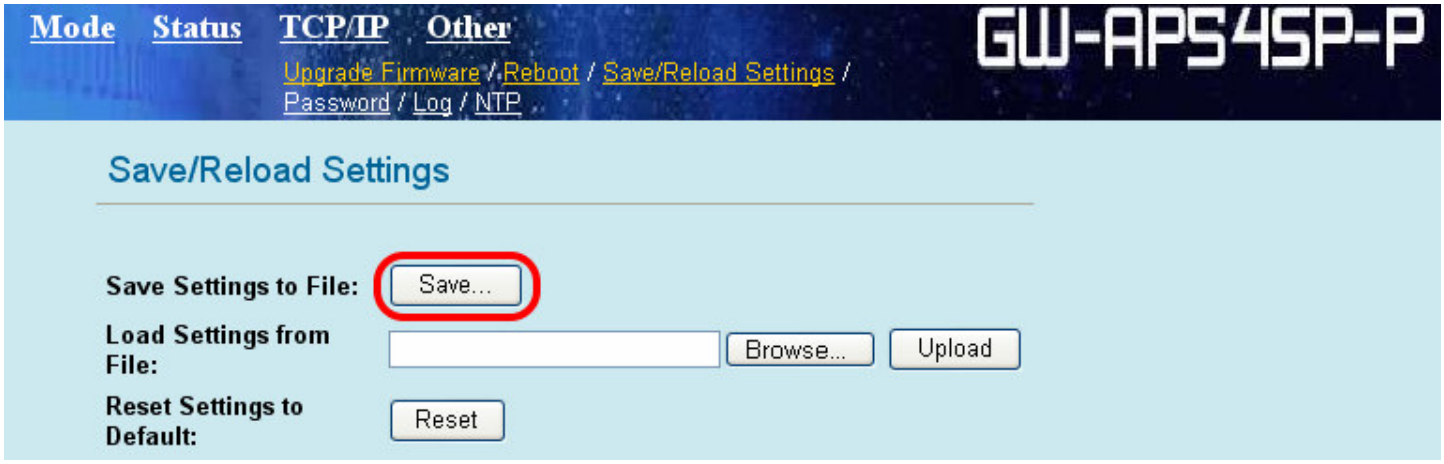


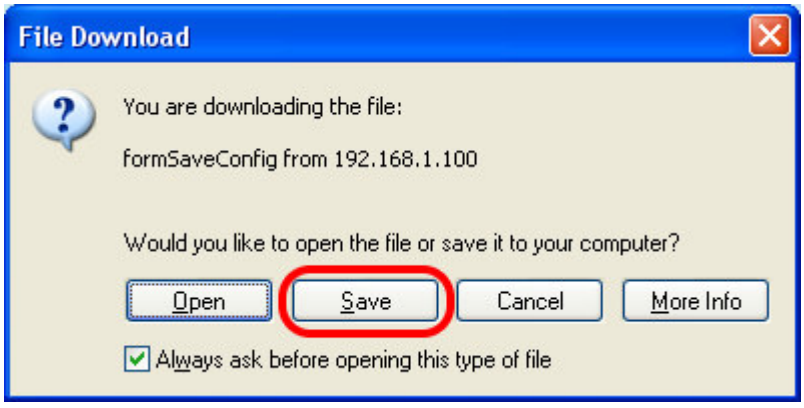
1.3. Save/Reload Settings

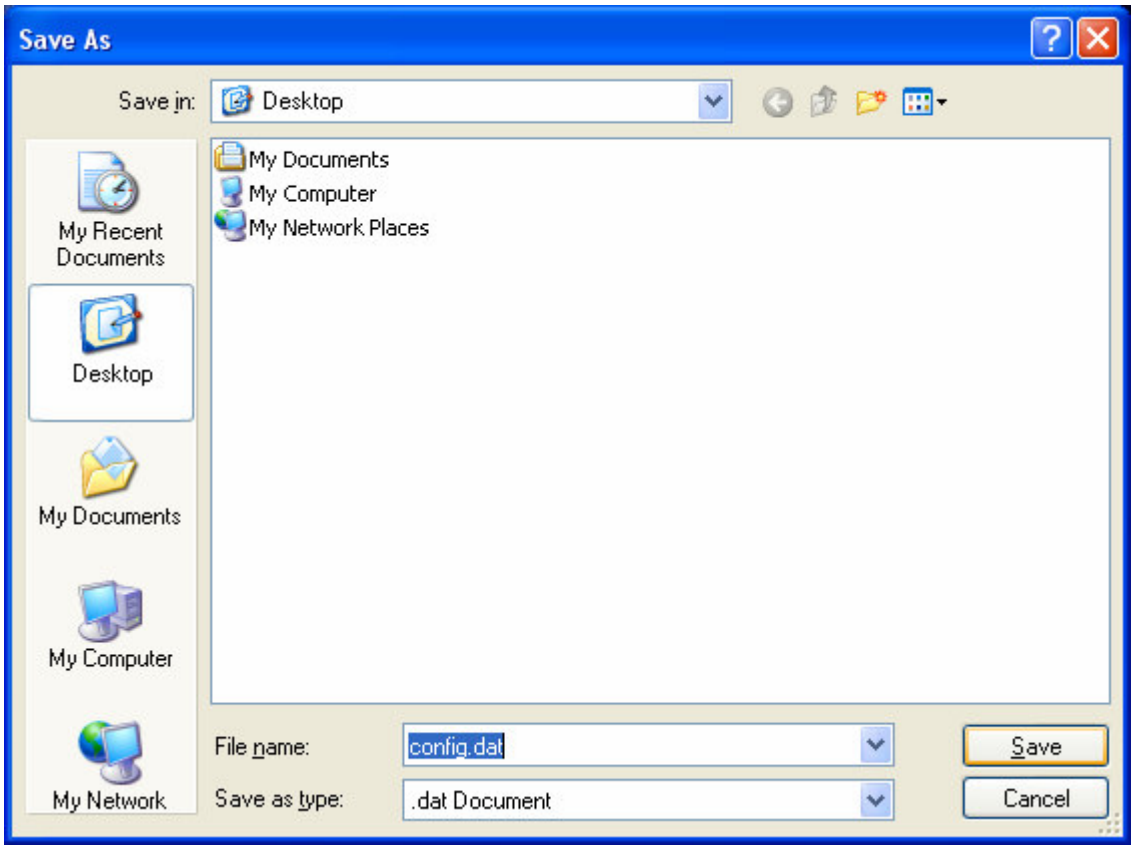
Save function can let users to save the current configurations as a file (and the form of the file will be like "***.dat**"). Reload function is to load configuration from a file by entering the file name or clicking "**Browse…**" to find the saved file from your computer.

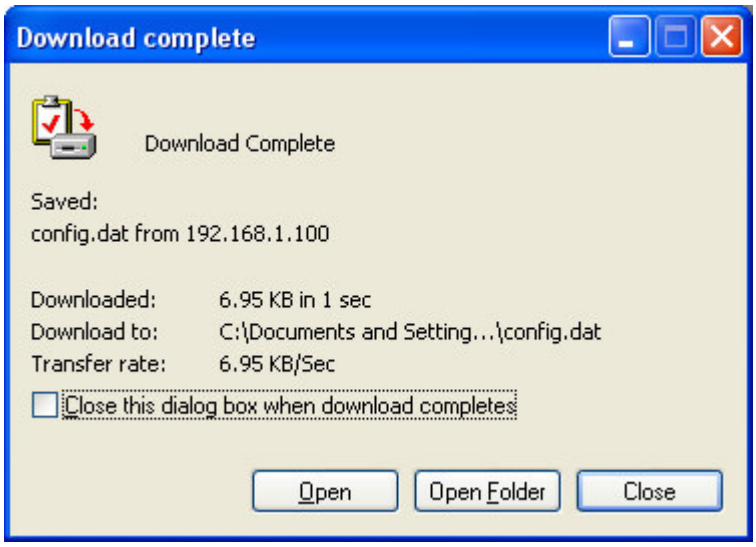
Save Settings

Click "**Save…**" to start saving the current settings to your disk. When the "**File Download**" dialog box pops up, select "**Save**" and then it will prompt a "**Save As**" window and ask you to enter the file name and the file location. After decided the path, you may click "**Save**" to continue saving the file. After the work has done, you may just click "**Close**" to leave the screen.



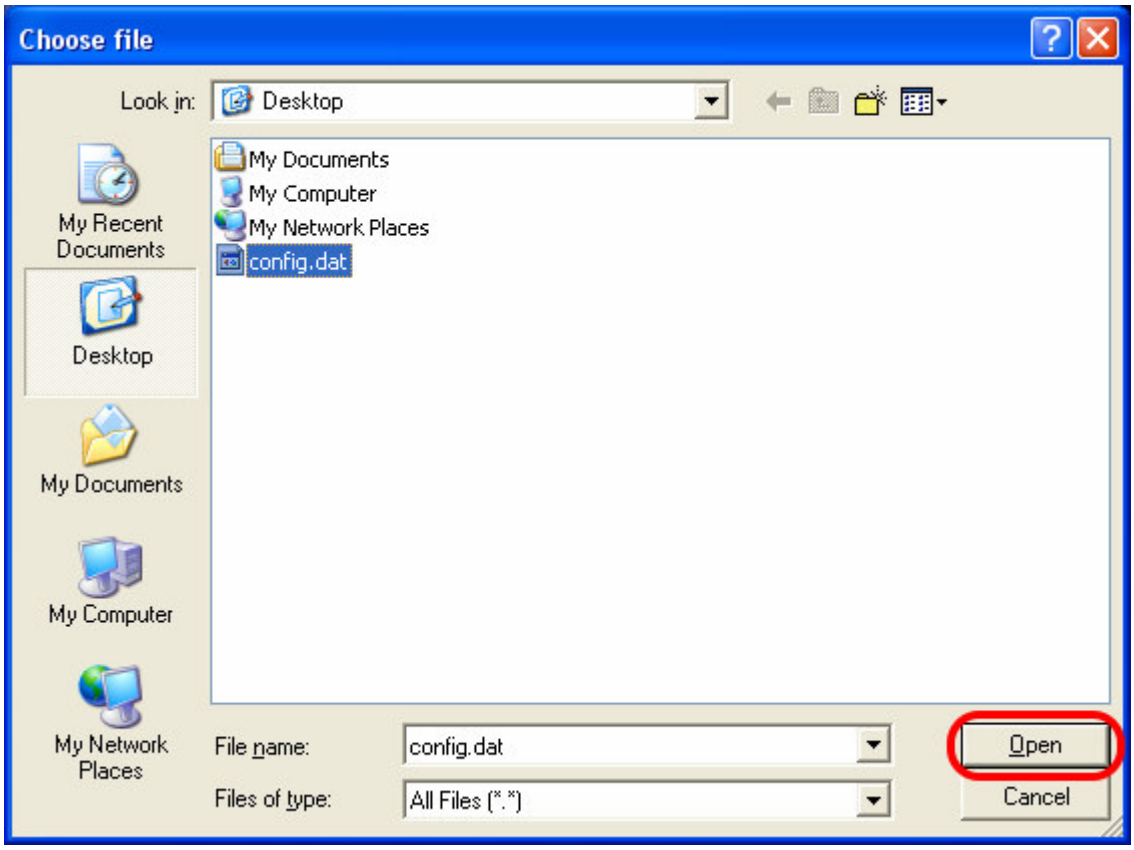


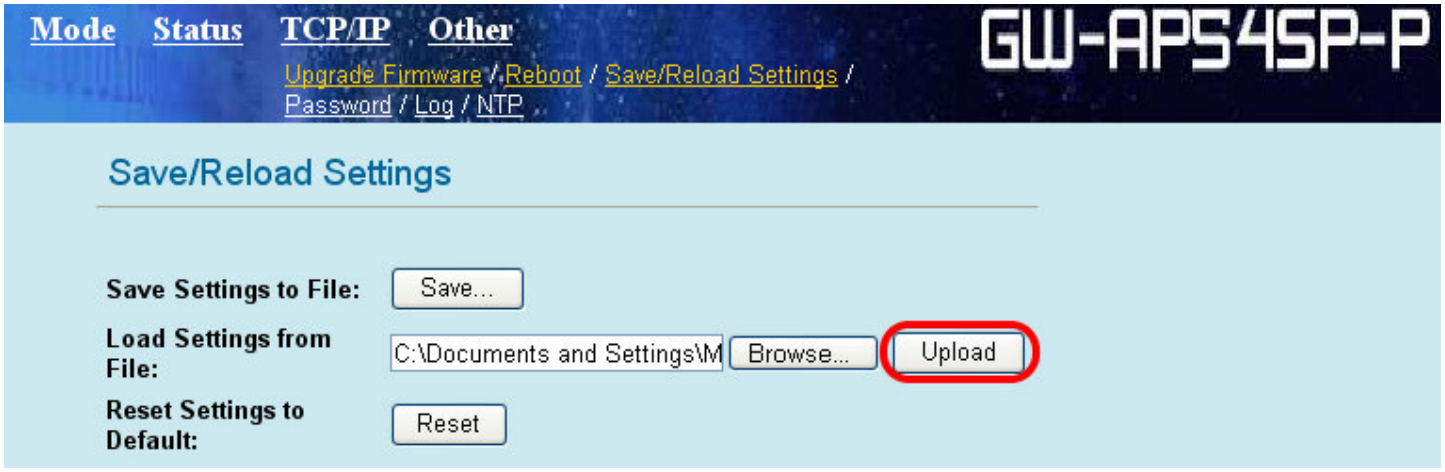


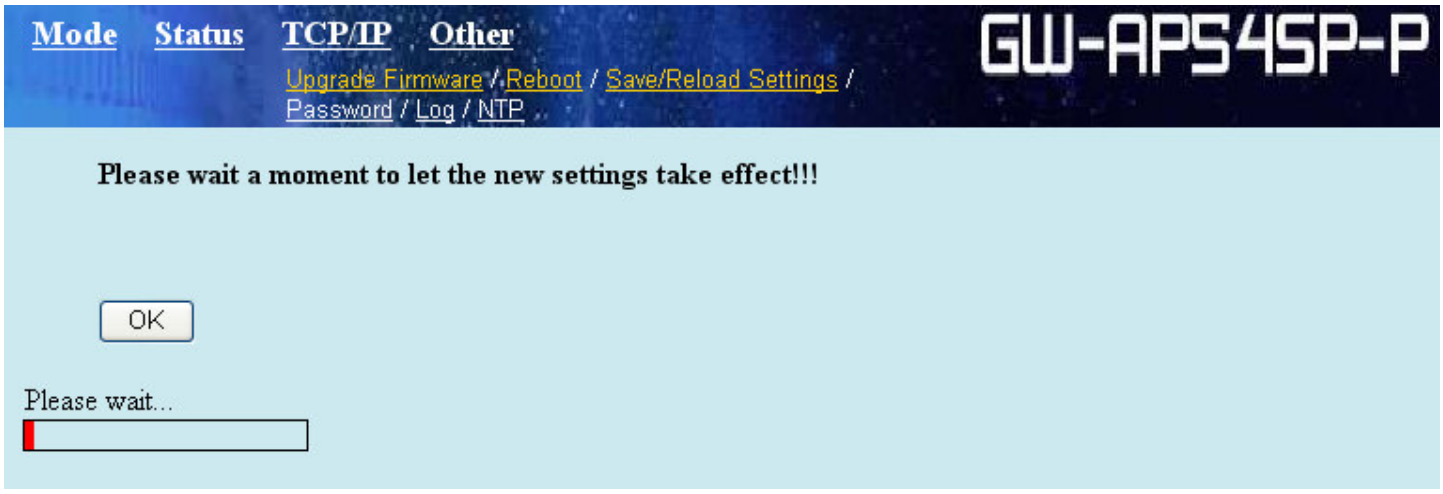


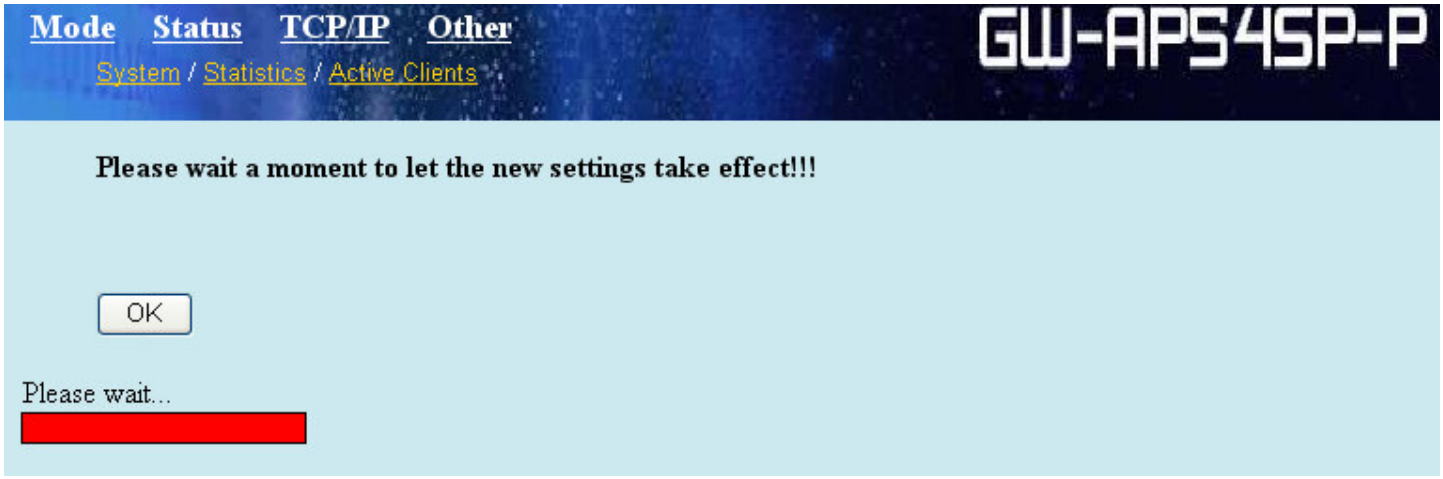
Reload Settings

Click "**Browse...**" to load the previously saved file. Find the file in your disk and then click "**Open**" to give the right path to the system and then click "**Upload**" to start reloading the configuration.


Choose file
Look in:
Desktop
My Documents
My Computer
My Network Places
config.dat
My Recent Documents
Desktop
My Documents
My Computer
My Network Places
File name:
config.dat
Files of type:
All Files (*.*)
Open
Cancel

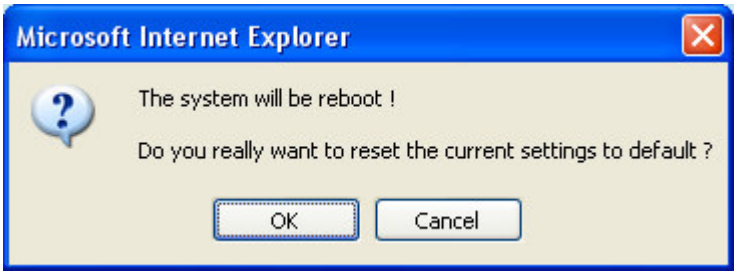

Mode
Status
TCP/IP
Other
Upgrade Firmware / Reboot / Save/Reload Settings / Password / Log / NTP
GW-APS4SP-P
Save/Reload Settings
Save Settings to File:
Save...
Load Settings from File:
C:\Documents and Settings\M
Browse...
Upload
Reset Settings to Default:
Reset


Mode
Status
TCP/IP
Other
Upgrade Firmware / Reboot / Save/Reload Settings / Password / Log / NTP
GW-APS4SP-P
Please wait a moment to let the new settings take effect!!!
OK
Please wait...



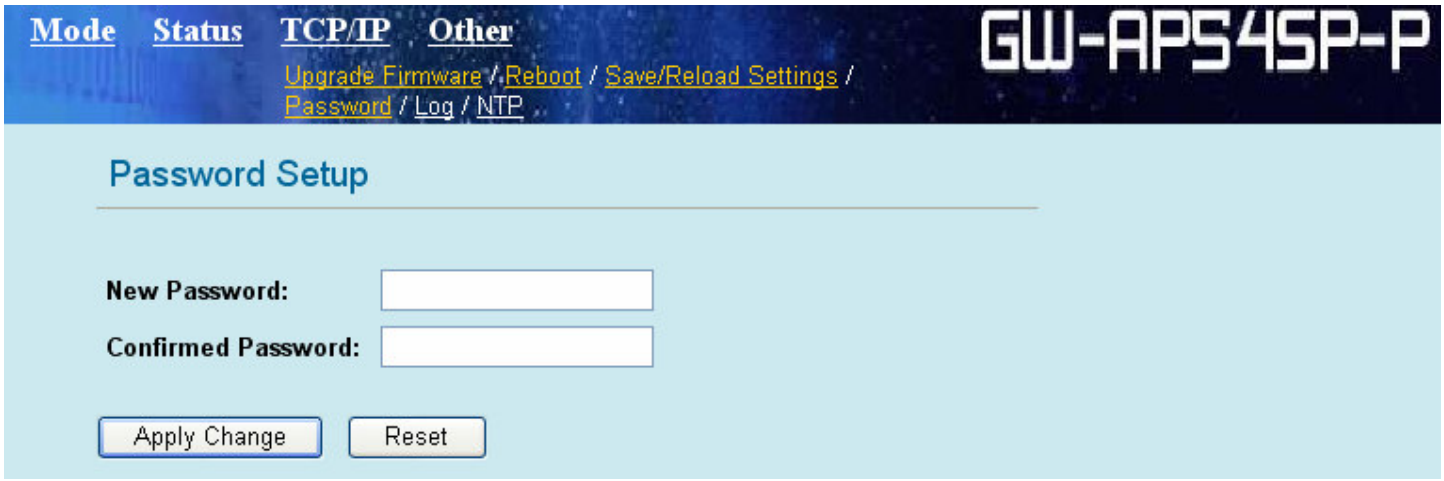
Reset Settings

Click "**Reset**" button to restore the default configuration. If you do want to reset the settings to default, please click "**OK**" on the following dialog box. After 1-2 minutes, when the red bar indicator is done, please click "**OK**" on the page to go back to the system.



1.4. Password

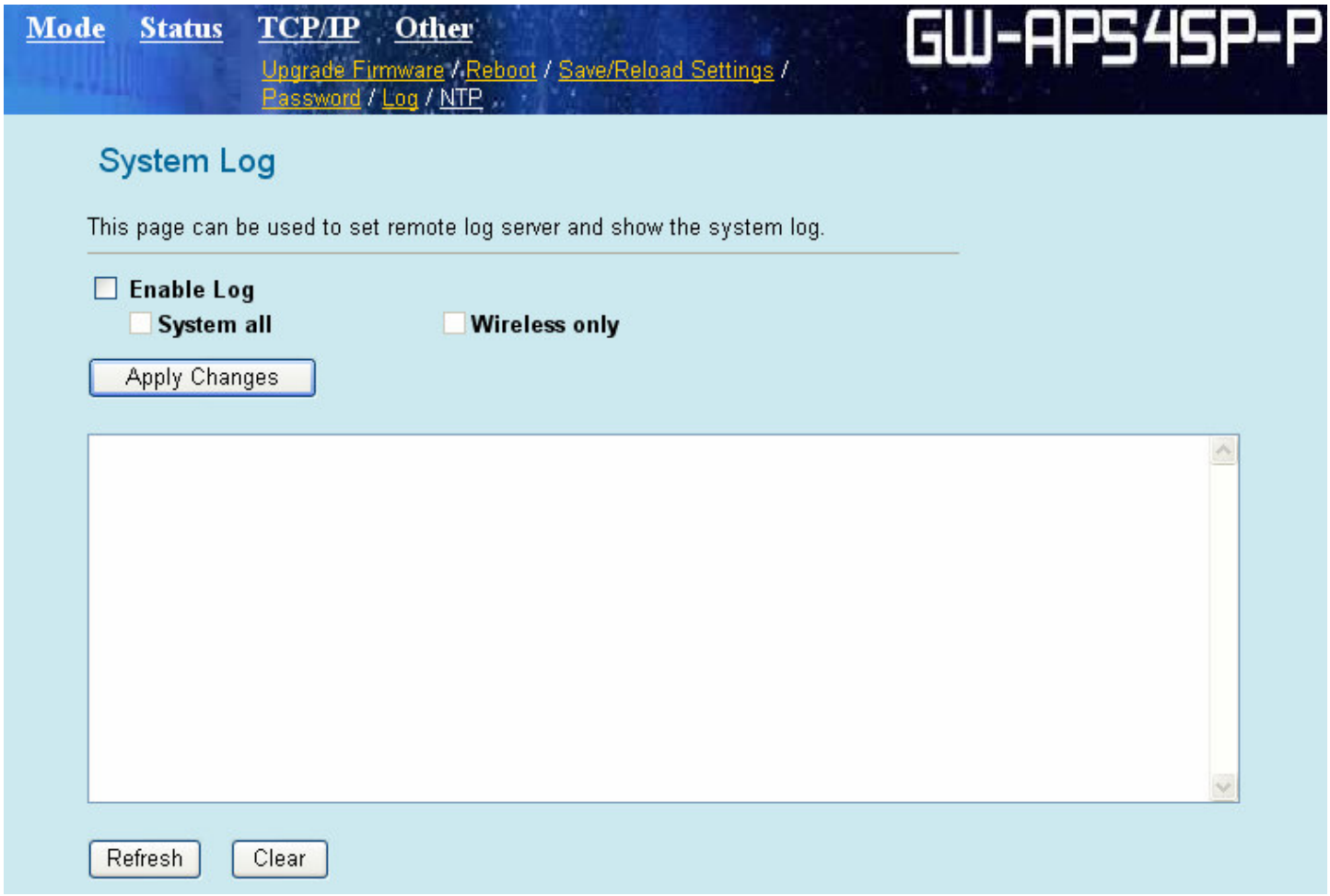
The default User Name of GW-AP54SP-P Wireless AP is "**admin**" and Password is "**password**." It is recommended that you should change the default password to have better protection over the AP and the LAN. You must memorize the password set by you to enter the system; otherwise, you have to restore the whole system and then configure the settings again.



- **New Password**：Enter the Password of the administration. (Enter 36 alphanumeric characters at most and it's case-sensitive.)
- **Confirm Password**：Please enter the password again for confirmation.
- **Apply Change**：After completing the settings on this page, click this button to save the settings.
- **Reset**：Click this button to clear the settings which you just made.

1.5. Log

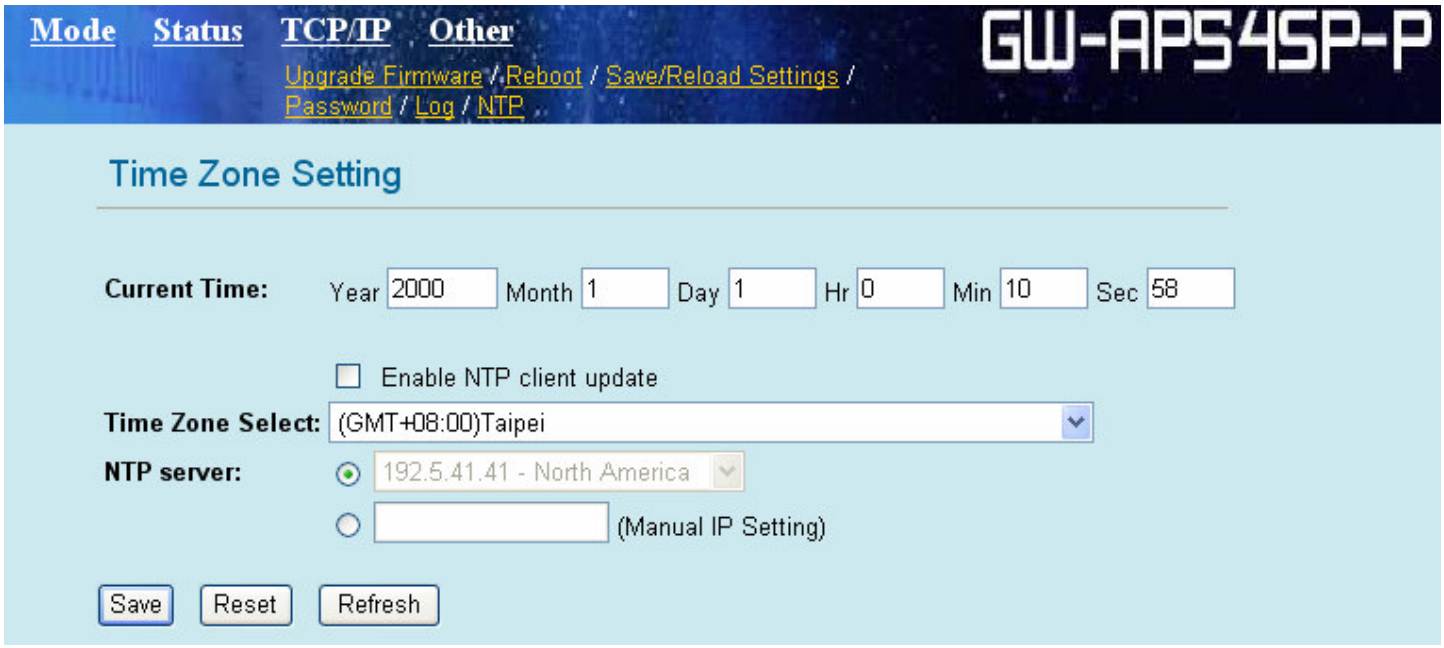
GW-AP54SP-P Wireless AP can record various types of activities.



- **Enable Log** : Put a check in this check box to enable system log function and then choose a kind of log to apply to.
- **System all** : Click the check box to enable the system all log function. This function records every events happened on the GW-AP54SP-P Wireless AP. These data are useful for troubleshooting, but enabling all logs will generate a large amount of data and affect the performance.
- **Wireless only** : Click the check box to enable the log function, but only record the wireless system logs.
- **Apply Changes** : Click this button to save the settings.
- **Refresh** : Click this button to reload the current status.
- **Clear** : Click this button, the system will delete all the logs happened before.

1.6. NTP

You can set the system time according to the time zone where you locate now.



- **Current Time** : Here will show you the present system date and time.
- **Enable NTP client update** : If you want update the GS-AP54SP-P system time automatically from remote NTP server, please check the "**Enable NTP client update**" check box.
- **Time Zone Select** : Scroll the list to choose the time zone for GW-AP54SP-P.
- **NTP Server** : You can choose an NTP(Network Time Protocol) server from the scroll down list, or you can manually enter the Internet address for your system to synchronize with.
- **Save** : Click this button, the system will synchronize with the NTP Server and save the settings.
- **Reset** : Click this button to clear the settings which you just made.
- **Refresh Time** : Click this button, the system will update the present time and show it on the page.