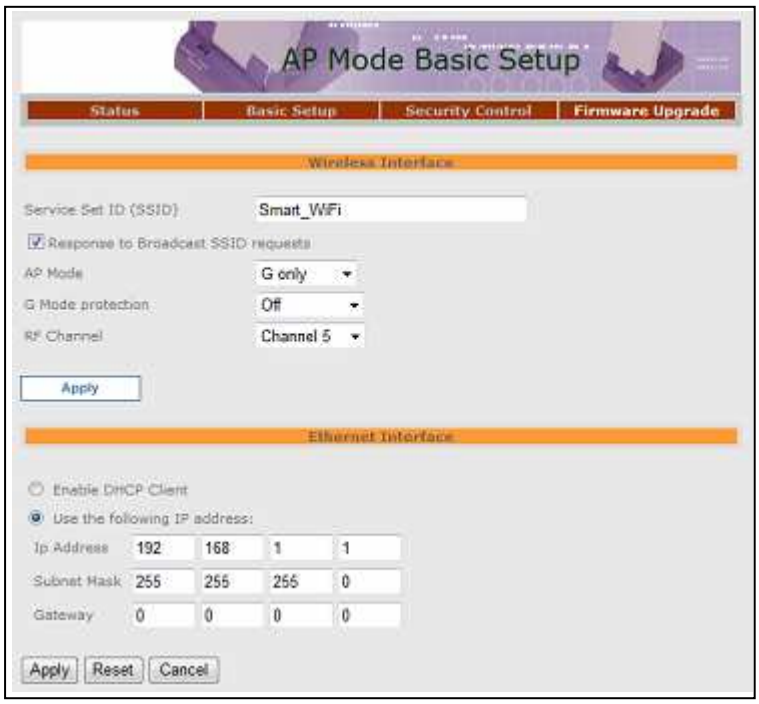


RF Channel. Allows you to specify the channel the device uses to communicate with other wireless device(s) in the network.

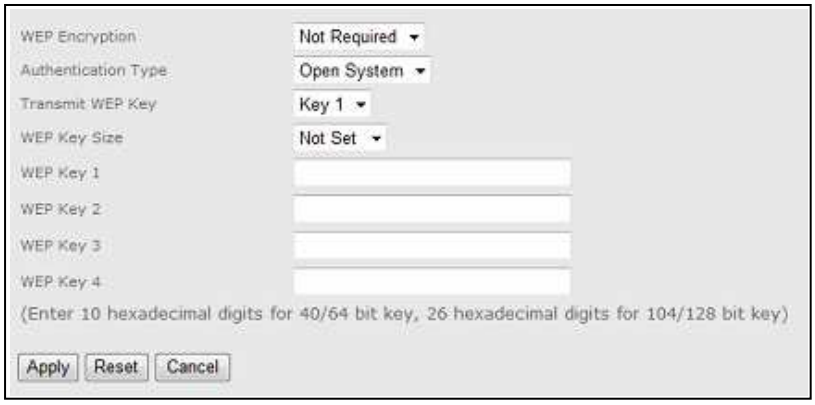
The 802.11g specification supports up to 13 overlapping channels for radio communication. If SAG-1010 is operating in the same area, assign a non-overlapping channel to each device to avoid interference.

AP Mode. You can adjust the SAG-1010 operating mode to support wireless devices using IEEE 802.11b or IEEE 802.11g standards. Setting the AP operating mode to **BG mixed** allows the SAG-1010 to support both wireless standards.

Table 3-2: SAG-1010 AP operating modes

Operation mode	Supported wireless client(s)
B only	IEEE802.11bclient(s) only
G only	IEEE802.11gclient(s) only
BG Mixed	IEEE802.11band IEEE802.11gclients

The following fields allow you to configure the SAG-1010 security settings.



Authentication Type. This option allows you to select the encryption method for securing your wireless communication. Refer to the table below for details.

Table 3-3: Authentication methods

Method	Description
Open system or shared key	This method allows the device to accept connection requests from any wireless device within its operating range.
Shared Key	Only wireless device(s) with the same encryption are allowed to connect to the AP.

WEP Encryption. The encryption field allows you to set the encryption for your selected authentication method. Refer to the table below for a comparison of the encryption settings. specify a 64-bit or a 128-bit WEP key. A 64-bit encryption contains 10 hexadecimal digits or 5 ASCII characters. A 128-bit encryption contains 26 hexadecimal digits or 13 ASCII characters.

Table 3-4: Encryption settings

Method	Encryption	Description
Open system	None	No encryption
Shared Key	64-bitWEP* 128-bitWEP	Contains 10hexadecimal digits or 5 ASCII characters. Contains 26hexadecimal digits or 13 ASCII characters.

Securing your wireless communication using WEP encryption

To secure your wireless communication using the WEP encryption:

1. Assign the WEP encryption keys by manual or automatic generation.

   Manual Assignment. For a 64-bit encryption, enter 10 hexadecimal digits (0~9, a~f, A~F) or 5 ASCII characters in each of the four WEP keys. For 128-bit encryption enter 26 hexadecimal digits (0~9, a~f, A~F) or 13 ASCII characters in each of the four WEP keys.

   Automatic Generation. Type a combination of up to 64 letters, numbers, or symbols in the **Passphrase** field. The Web Configuration utility uses an algorithm to generate four WEP keys based on the typed combination.
2. Specify the default WEP encryption key in the **Default Key** field.
3. Click the **Apply** button when finished.

64-bit and 40-bit WEP keys use the same encryption method and can interoperate on wireless networks. This lower level of WEP encryption uses a 40-bit (10 hexadecimal digits assigned by the user) secret key and a 24-bit Initialization Vector assigned by the device. 104-bit and 128-bit WEP keys use the same encryption method.

Keep a record of the WEP encryption keys

All wireless clients in a network must have identical WEP keys with the access point to establish connection.

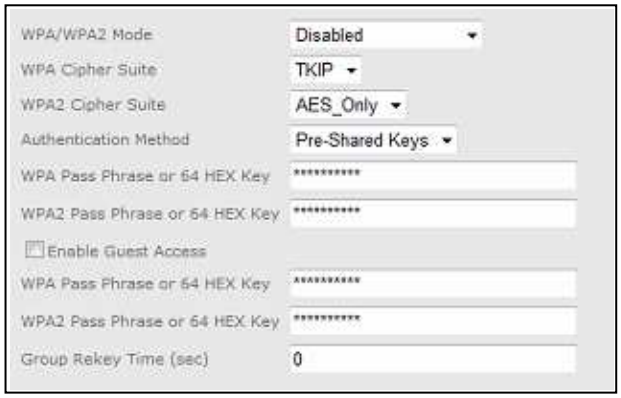
Securing your wireless communication using TKIP (WPA) encryption

The SAG-1010 implements the Wi-Fi Protected Access (WPA)-PSK authentication method to secure communication to and from wireless devices.

This method uses the Temporal Key Integrity Protocol (TKIP) encryption.

To secure your wireless communication using the TKIP:

1. Select **WPA-PSK** as the **Authentication Method**.
2. Type 8 ~ 63 alpha-numeric characters in the **Passphrase** field.
3. Set the **WPA Re-key Timer** (1~2147483647 seconds). The re-key timer allows you to set the time interval before the WPA group key is changed.

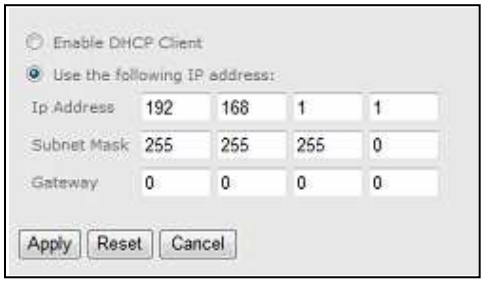


A shorter re-key interval provides a more secure wireless network.

Changing the network settings

The **Ethernet Interface** fields allow you to configure the SAG-1010.

Inquire the correct network settings with your network administrator before changing any Ethernet interface settings.



Enable DHCP Client. When enabled, the Dynamic Host Configuration Protocol (DHCP) server automatically assigns the IP address, Subnet Mask, and Default Gateway of the SAG-1010.

Use the following IP address. Select this option to manually assign the IP address, Subnet Mask, and Default Gateway the SAG-1010.

Click **Apply** after configuring the network settings. Otherwise, click **Reset** to load the default values.

Access Control page

The MAC Access Control page allows you to control the wireless network traffic by specifying the MAC addresses of wireless clients allowed to establish connection to the SAG-1010.

To specify the wireless clients allowed establishing connection to the SAG-1010:

1. Click , then select the **Allow** option. The MAC address fields are activated.

2. Type the MAC address(es) of the wireless clients allowed to establish connection to the SAG-1010, and then click **Apply**.

Selecting the Accept association requests from any station option allows all wireless clients operating within the SAG-1010 range to establish connection.

Firmware Upgrade page

The **Firmware Upgrade** page displays the product ID, firmware version, and regulation domain.

This page allows you to:
1. Upgrade the firmware when it becomes outdated or corrupted, and
2. Change the log on password.

To upgrade the firmware:

The Power LED blinks continuously when the firmware is corrupted or when the firmware upgrade fails.

1. Download and save the latest firmware from the website.
2. Launch the Web Configuration Utility, and then go to the **Firmware Upgrade** page.
3. Click the **Browse** button to locate the new firmware file.
4. Click **Upgrade**.

The browser refreshes after the firmware upgrade process is completed.

To change the log on password:
1. Type the new password in the **New Password** and **Retype New Password** fields, then click **Apply**.

2. A message appears indicating that you have successfully changed the log on password.

   The browser refreshes with the new password.

Use your new password when launching both the Wireless Setting configuration window and Web Configuration utilities.

Regulation Domain

IEEE 802.11b/g networks are regulated worldwide since these networks use the 2.4GHz ~ 2.5GHz ISM (Instrumentation, Scientific, and Medical) Band. The SAG-1010 is shipped with a default regulation domain allowed in your country/location.

The FCC (US) and ETSI (Europe) specify operation from 2.4 GHz to 2.4835 GHz. For Japan, operation is specified as 2.4 GHz to 2.497 GHz. For each supported regulatory domain, all channels marked with “Yes” are supported. The channel center frequencies and CH ID numbers are shown on the next page.

In a multiple cell network topology, overlapping and/or adjacent cells using different channels can operate simultaneously without interference if the distance between the center frequencies is at least 30 MHz. Channel 14 is specifically for operation in Japan.

Table 3-5: DSSS PHY frequency channel plan

CH ID	Frequency	Regulatory Domain		
		X' 10' FCC	X' 30' ETSI	X' 40' MKK
1	2412 MHz	Yes	Yes	Yes
2	2417 MHz	Yes	Yes	Yes
3	2422 MHz	Yes	Yes	Yes
4	2427 MHz	Yes	Yes	Yes
5	2432 MHz	Yes	Yes	Yes
6	2437 MHz	Yes	Yes	Yes
7	2442 MHz	Yes	Yes	Yes
8	2447 MHz	Yes	Yes	Yes
9	2452 MHz	Yes	Yes	Yes
10	2457 MHz	Yes	Yes	Yes
11	2462 MHz	Yes	Yes	Yes
12	2467 MHz	-	Yes	Yes
13	2472 MHz	-	Yes	Yes
14	2484 MHz	-	-	Yes

Table 3-6: Regulating bodies and allowed channels

Country	Regulating body	Allowed channels
Unites States	FCC	1-11
Europe	ETSI	1-13
Japan	MKK	1-14

Use only the allowed channels when you set the SAG-1010 in access point mode.

Restoring the default values

The following are the default values of the SAG-1010 (in AP mode). You can restore the default values by pressing the reset button for more than five seconds.

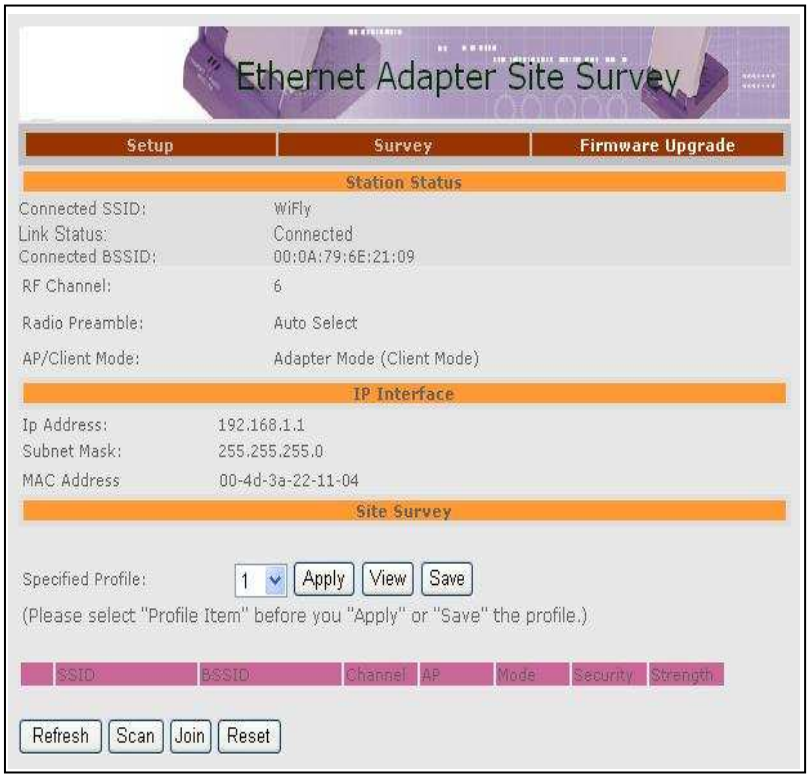
Parameter	Default value
Wireless Interface	
SSID ……...	AP_XXXXXX
Response to broadcast SSID requests ……..	Enabled
Channel ……...	Channel 1
Operation mode ……	Mixed
Transmit Rate ……	Auto
Preamble ……	Long
Authentication Method ……	Open system or Shared Key
Encryption ……...	None
Ethernet Interface	
Enable DHCP ……	No(Disabled)
IP Address ……	192.168.1.1
Subnet Mask ……	255.255.255.0
Default Gateway ……...	Blank
Access Control	
Accept association requests from any station ...	Enabled

3. Configuration

You must switch the device to Ethernet adapter mode using the mode switch before changing any Ethernet adapter settings.

Survey Page

The page allows you to change the basic Ethernet adapter settings. You can use this page when setting the SAG-1010 SSID, station mode, transmission rate, security, and when enabling the MAC cloning and button scan mode features.



SSID (Service Set Identifier). This field allows you to specify the SSID of the SAG-1010 in Ethernet adapter mode.

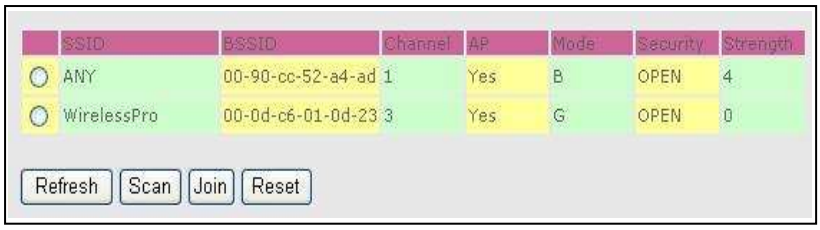
RF Channel. Select the channel used by the AP (Infrastructure) or the wireless device (Ad-hoc) to establish connection.

AP/Client Mode. This field allows you to select the device wireless standard while in Ethernet adapter mode. Selecting 802.11b/g allows the device to connect to both wireless standards.

Site Survey page

The Site Survey page displays the **Station Status**, and allows you to scan and connect to available wireless networks within the SAG-1010 range. This page also allows you to save a wireless connection in the

Profile Table for the **Button Scan Mode** feature.



Station Status

The **Station Status** fields displays the device wireless network connection SSID, operating mode, and encryption settings. You can use these information when you connect to an available wireless connection in the Site Survey table.

Site Survey

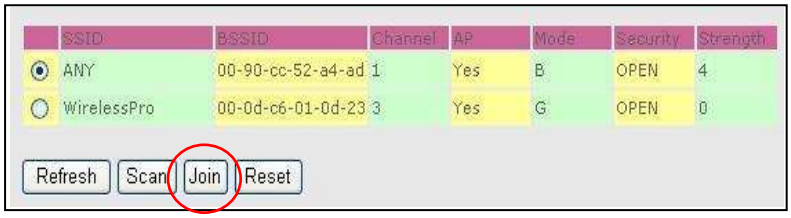
The **Site Survey** table lists the available wireless networks within the device range. The table displays the following wireless network information.

- **BSSID**. The Basic Service Set Identifier (BSSID) is the IEEE MAC address of the wireless network.
- **SSID**. SSID refers to the service set identifier of the wireless network.
- **Channel**. The direct sequence channel used by the wireless network.

3. Configuration

To scan available wireless network(s) in your location:
1. Click the **Survey** button on the bottom of the page.
2. The web displays the available wireless network(s) in the **Site Survey** table.

To connect to an available wireless network with known SSID and disabled encryption:
1. From the Site Survey table, select the wireless network you intend to join.
2. And then click the **Join** button.



3. Click **OK** when this window appears.

4. Select the **Authentication Method** and **Encryption** of the wireless network you intend to join, then enter the encryption keys in the key fields. Click **Apply** when finished.

Restoring the default values

The following are the default values of the SAG-1010 (Ethernet adapter mode). You may restore these values by pressing the reset button for more than five seconds.

Parameter	Default value
Wireless Interface	
SSID ……..	ANY
Operating Mode……	Infrastructure Mode
Channel ……..	Auto
Station Mode ……	802.11b/g
Transmission Rate ……	Automatic
Preamble ……	Long
Authentication Method ……	Open System
Encryption ……..	None
MACC loning ……..	Disabled
Button Scan Mode	
Enable Buttong Scanning……	Enabled
Scan Mode ……	Find the connection with the Strong est link quality
Default Gateway ……..	No saved profile

4. Using the device

4.1 Using the device in a local network

You can use the SAG-1010 to connect a wireless LAN-enabled computer to a local network with or without a DHCP server.

To connect a wireless LAN-enabled computer to a local network:

1. Switch the SAG-1010 to AP mode. (Default SSID: AP_xxxxxx), then turn on the device.
2. Connect one end of the supplied RJ-45 cable to the Ethernet port of the device and the other end to the Ethernet port of the local network.
3. Use the wireless LAN adapter software in the wireless LAN-enabled computer to perform a **Site Survey**. Make sure the computer's wireless LAN adapter is set to **Infrastructure mode**.
4. Establish connection with the SAG-1010.
5. Set the IP configuration of the computer to establish connection to the local network. Verify your connection.

Use the Wireless Setting to change the SAG-1010 SSID or encryption settings.

4.2 Replacing the computer Ethernet cables

You can use the SAG-1010 to replace your wireless LAN-enabled computer cable connection to an ADSL or cable modem.

To do this:

1. Switch the SAG-1010 to AP mode. (Default SSID: AP_xxxxxx), then turn on the device.
2. Connect one end of the supplied RJ-45 cable to the Ethernet port of the device and the other end to the Ethernet port of the ADSL or cable modem.
3. Use the wireless LAN adapter software in the wireless LAN-enabled computer to perform a **Site Survey**. Make sure the computer's wireless LAN adapter is set to **Infrastructure mode**.
4. Establish connection with the SAG-1010.
5. Set the IP configuration of the computer to establish connection to the local network. Verify your connection.

4. Using the device

4.3 Replacing cable connections of other devices

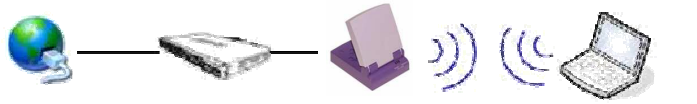
You can also use the SAG-1010 to replace your Xbox, PlayStation® 2, or set-top box network cable connection. To do this:

1. Switch the SAG-1010 to Ethernet adapter mode using the mode switch. (Default SSID: ANY)
2. Place the SAG-1010 nearest the AP you wish to connect, then turn on the device.
3. Connect one end of the supplied RJ-45 cable to the Ethernet port of the device and the other end to the Xbox, PlayStation® 2, or set-top box Ethernet port.
4. Set the IP address of the Xbox, PlayStation® 2, or set-top box to establish connection to the local network. Verify your connection.

Make sure the SAG-1010 MAC cloning feature is enabled when using the device in this setup. Use the Wireless Setting Utility to enable MAC cloning. See page 3-24 for details on MAC cloning.

4.4 Sharing Internet connection with other PCs

Refer to the typical network configuration below and a table on the next page for information on Internet connection sharing with other computers in your office or home network.



Use the mode switch to set the SAG-1010 to AP mode before sharing an Internet connection with other computers in your network.

Table 4-1: Internet connection sharing matrix

If your Internet connection is	Then set the IP of other computer(s)	Number of allowed Internet connections
xDSL[1] with dynamic IP account)	ISP automatically assigns the IP (using PPPoE dial-UP)	Depends on the Internet(PPPoE[2] Service Provider (ISP)
xDSL with static OP	To the provided static IP Service Provider (ISP)	Depends on the Internet
xDSL/Cable with a enable DHCP[3] server	The DHCP server automatically assigns the IP	Depends on the DHCP router and server, usually about 253