WCM-110

802.11g Wireless Ethernet Adapter

User's Manual

Version 1.0

Federal Communication Commission Interference Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

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

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

CAUTION! You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Reprinted from the Code of Federal Regulations #47, part 15.193, 1993. Washington DC: Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office.

Safety Statements

Regulatory Information/Disclaimers

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user’s authority to operate the equipment. The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution of the connecting cables and equipment other than manufacturer specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

Safety Information

In order to maintain compliance with the FCC RF exposure guidelines, this equipment should be installed and operated with minimum distance [20cm] between the radiator and your body. Use only with supplied antenna.

Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

⚠ **CAUTION!** Any changes or modifications not expressly approved in this manual could void your authorization to use this device.

Caution Statement of the FCC Radio Frequency Exposure

This Wireless LAN radio device has been evaluated under FCC Bulletin OET 65C and found compliant to the requirements as set forth in CFR 47 Sections 2.1091, 2.1093, and 15.247(b)(4) addressing RF Exposure from radio frequency devices. The radiation output power of this Wireless LAN device is far below the FCC radio frequency exposure limits. Nevertheless, this device shall be used in such a manner that the potential for human contact during normal operation – as a mobile or portable device but use in a body-worn way is strictly prohibit. When using this device, a certain separation distance between antenna and nearby persons has to be kept to ensure RF exposure compliance. In order to comply with the RF exposure limits established in the ANSI C95.1 standards, the distance between the antennas and the user should not be less than [20cm].

Copyright Statement

Nov. 2006

Table of Content

1. Introduction

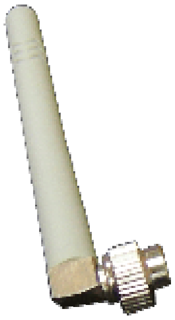
Thank you for choosing the SparkLAN WCM-110 802.11g Wireless Ethernet Adapter! The WCM-110 is a pocket-size wireless client, access point, and universal repeater in one. Packed with features and latest in wireless technology, WCM-110 is sure to keep you ahead in the world of wireless computing!

1.1 Packet Content

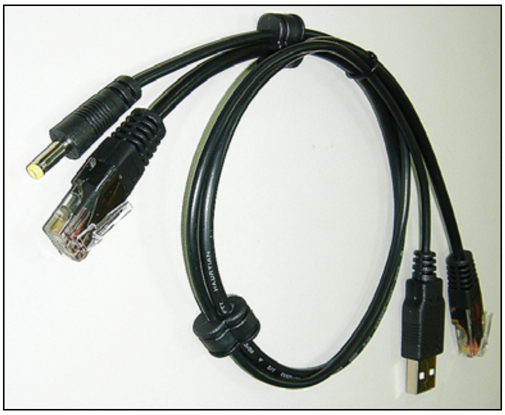
Check the following items in your WCM-110 Adapter package. Contact your retailer if any item is damaged or missing.

- 802.11g Wireless Ethernet Adapter
- 2dBi detachable RSMA Antenna
- Quick Installation Guide
- User Manual CD-ROM
- Combo Cable for Power and Network
- AC Power Adapter, 5V/1A Output

Wireless Ethernet Client Adapter



External Dipole Antenna



Combo Cable for power and network

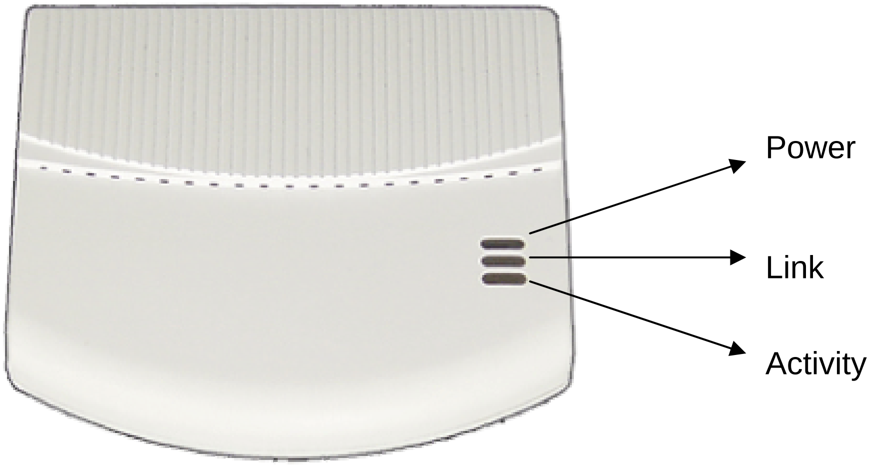
1.2 System requirements

Before installing the SparkLAN WCM-110 client adapter, make sure that your computer meets the following requirements:

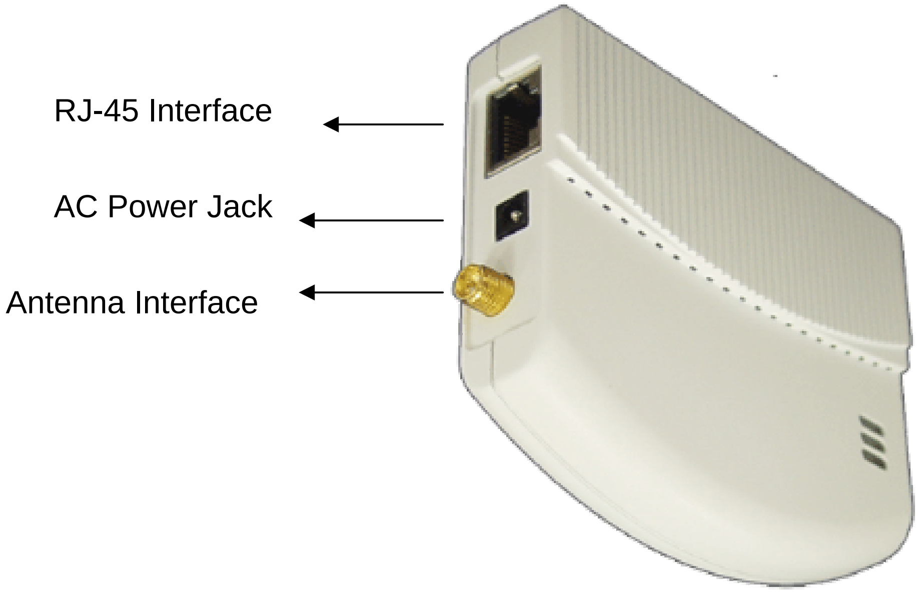
- An Ethernet RJ-45 port (10Base-T/100Base-TX)
- At least one IEEE 802.11b/g device with wireless capability
- An installed TCP/IP and Internet browser

1.3 Hardware View

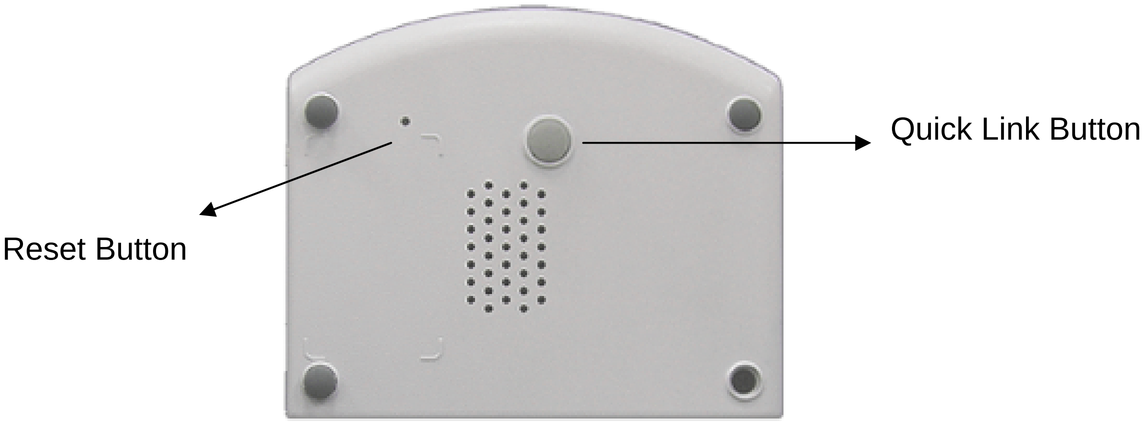
1.3.1 Front view



1.3.2 Side View



1.3.3 Back View



1.4 LED Definition

The WCM-110 comes with Link, Activity, and Power LED indicators. Refer to the table below for LED definitions:

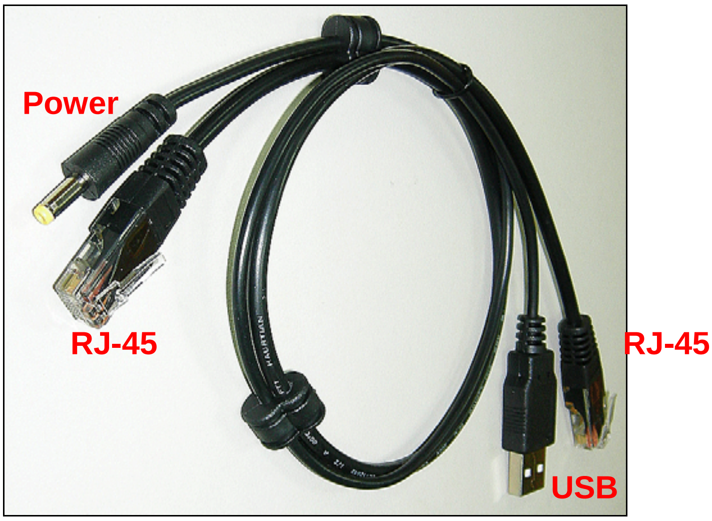
LED	Color	Mode	Definition
Link	Red	On Off	The device is connected to an Ethernet network. The device is off or there is no Ethernet connection.
Activity	Blue	On Off Blinking	The device is on and ready. The device is off. The device is transmitting or receiving data.
Power	Orange	On Off Blinking	The device is on and ready. The device is off or performing boot sequence. Firmware upgrade failed.

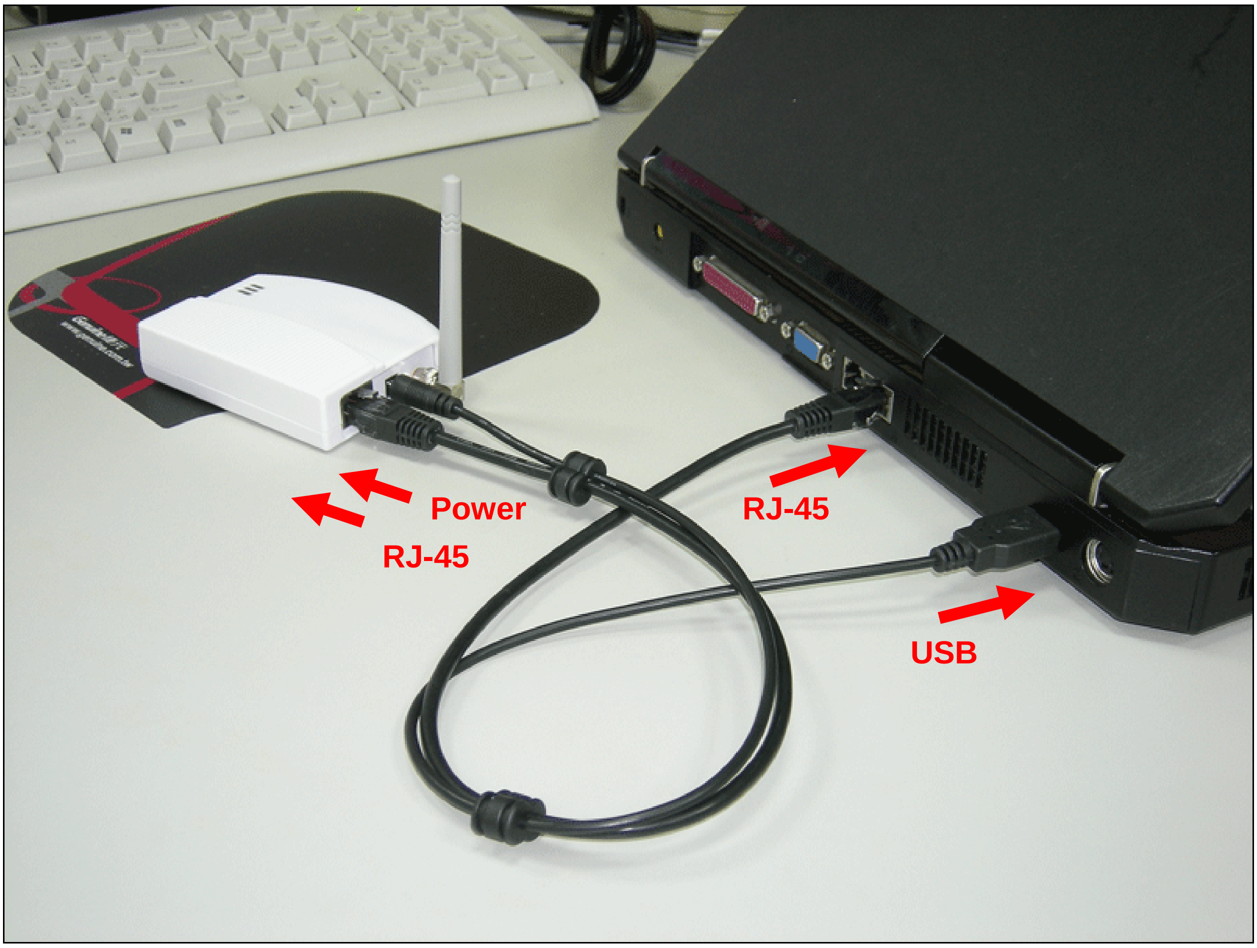
2. Device Installation

1. Connect the antenna with the WCM-110.

2. Plug the power connector into the AC-in port on the unit, and plug the other end into a USB interface of laptop.

3. Connect the WCM-110 with your PC or notebook via a LAN cable.



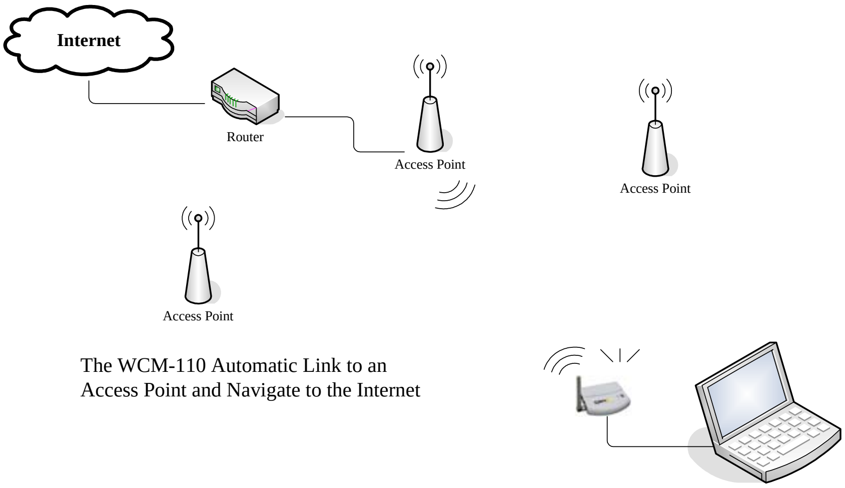


3. Access Point Management

The WCM-110 provides web management interface for function configuration and management. The default IP address of WCM-110 is **192.168.0.10** with subnet mask **255.255.255.0**. To apply the interface, you need to configure your laptop/desktop IP address to be in the same IP segment as the device.
Make sure the WCM-110 is properly installed as the previous section.

3.1 Automatically Access to the Network

After the WCM-110 boot on, it automatically search an access point to access the network.
If there is an available access point in the network, the WCM-100 automatically gets an IP address from the DHCP and access the network.



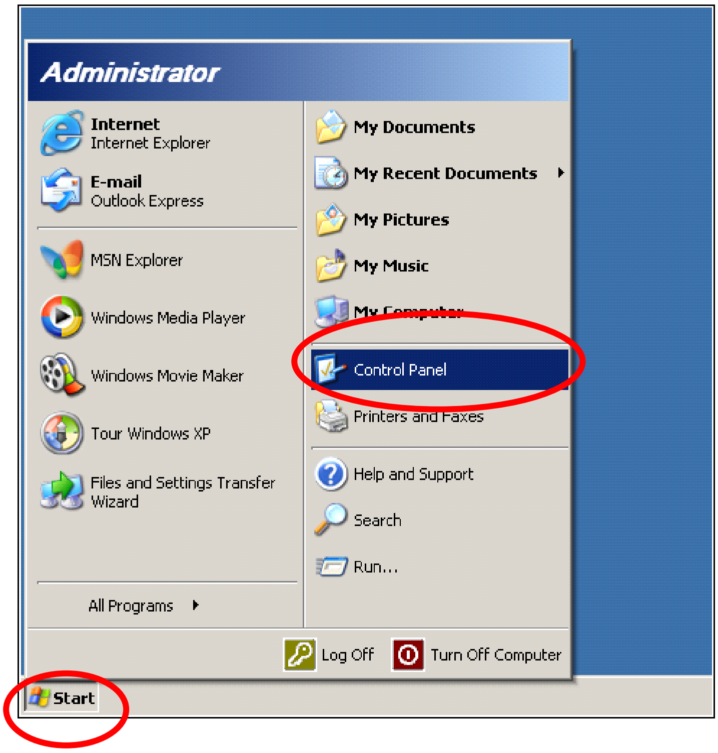
The WCM-110 Automatic Link to an
Access Point and Navigate to the Internet

3.2 Manually Configure for Network Access

Most of time, the Access Point in the network hided the SSID or set a password to prevent illegal access. Please follow the steps for configuration:

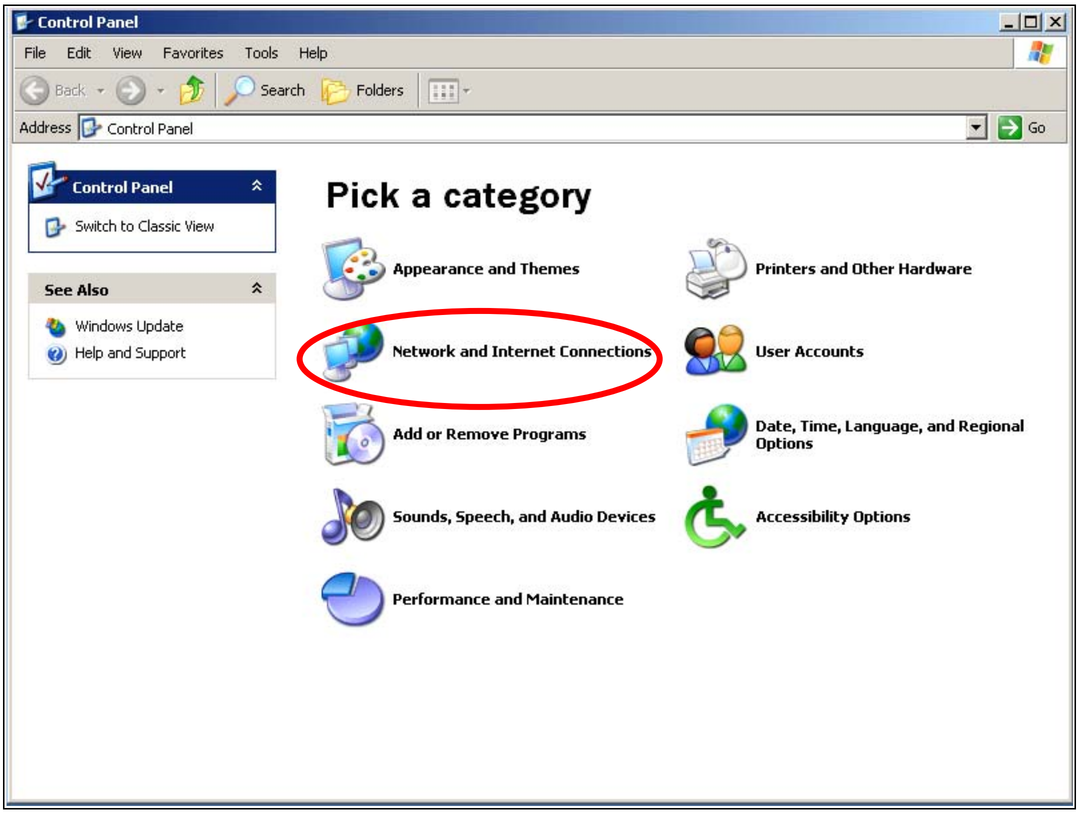
Windows XP System:

Step 1
Click **Start → Control Panel**



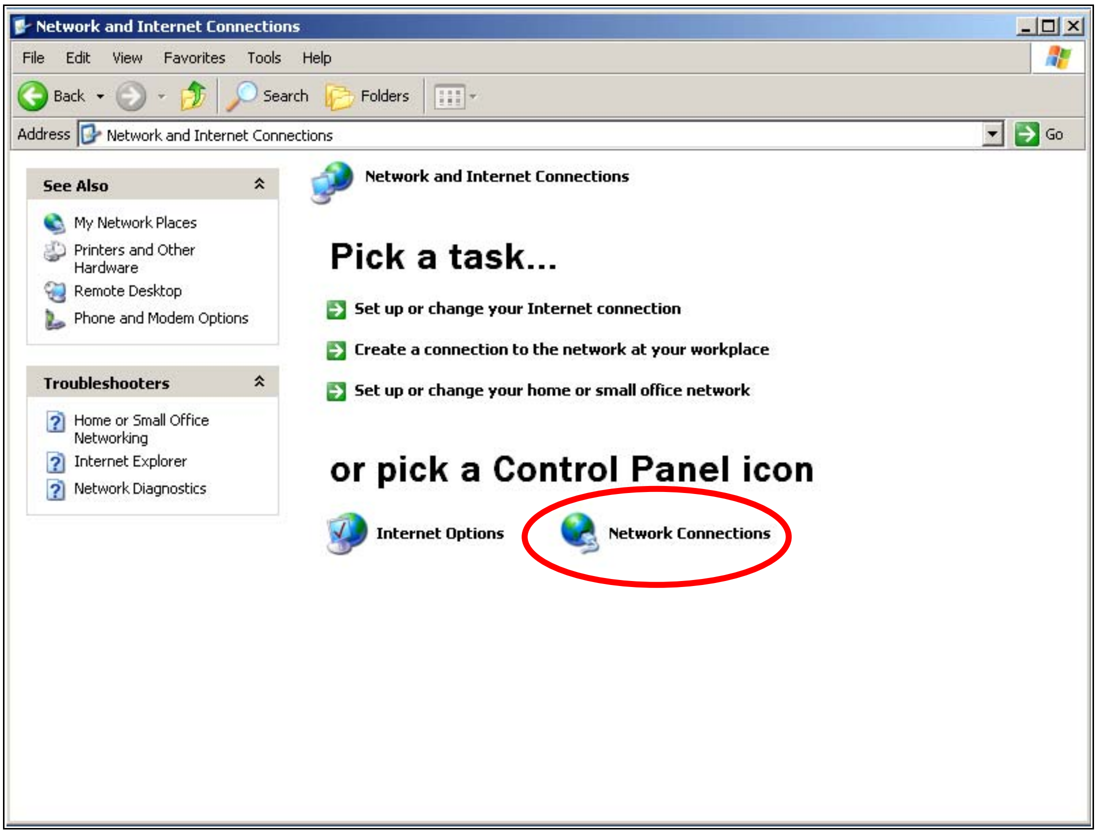
Step 2

The **Control Panel** window shows up. Double-Click on the **Network and Internet Connections** icon:



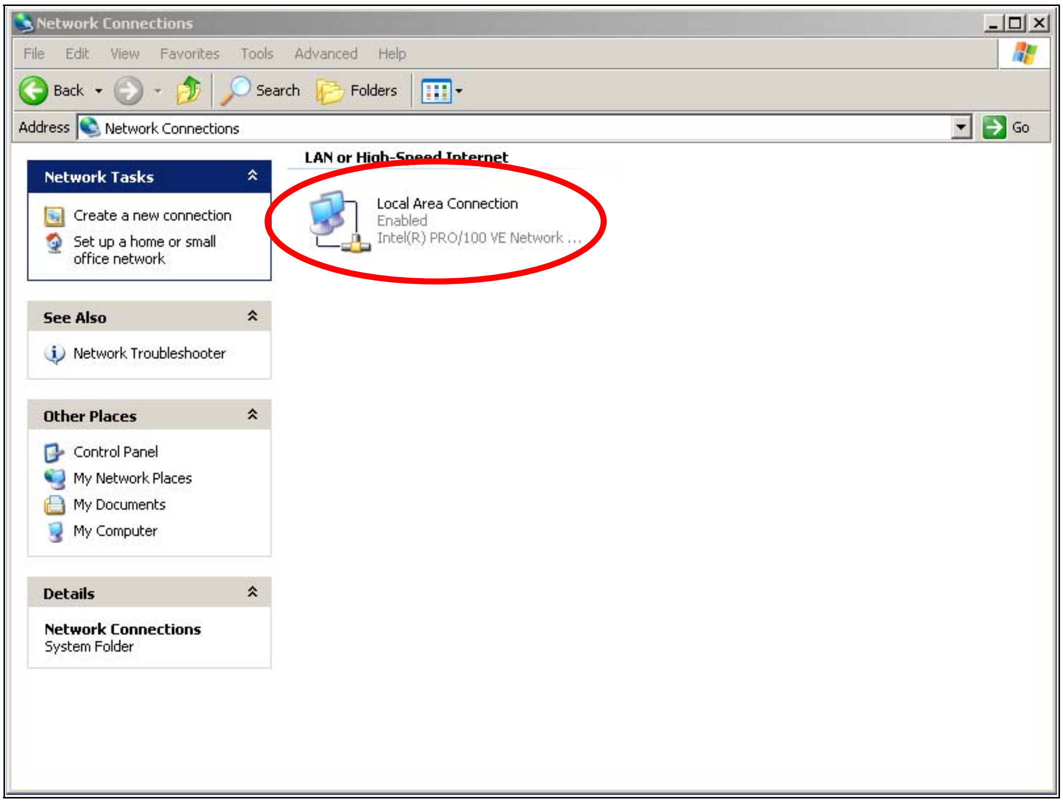
Step 3

Click on the **Network Connections** icon in the following window.


Network and Internet Connections
File Edit View Favorites Tools Help
Back Search Folders
Address Network and Internet Connections
Go
See Also
My Network Places
Printers and Other Hardware
Remote Desktop
Phone and Modem Options
Troubleshooters
Home or Small Office Networking
Internet Explorer
Network Diagnostics
Network and Internet Connections
Pick a task...
Set up or change your Internet connection
Create a connection to the network at your workplace
Set up or change your home or small office network
or pick a Control Panel icon
Internet Options
Network Connections

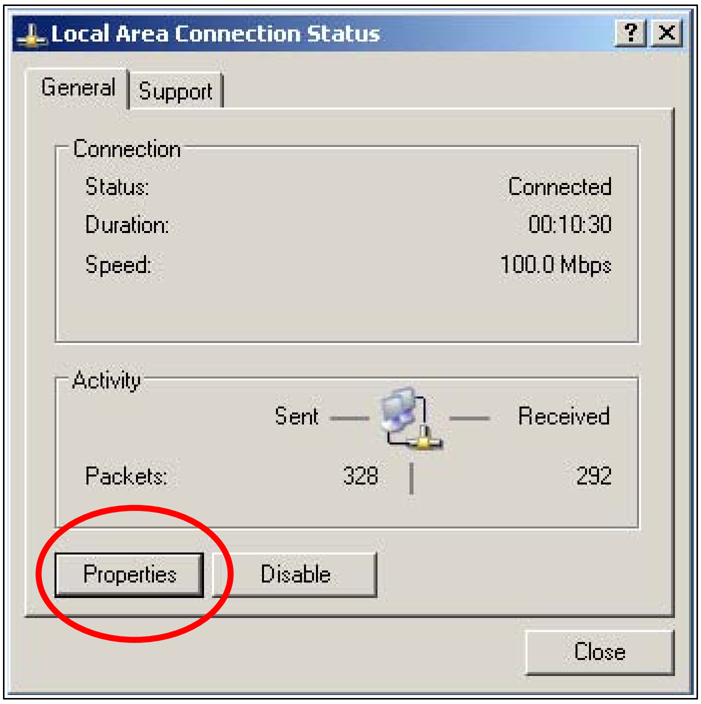
Step 4

Double-Click on the **Local Area Connection** icon in the following window.



Step 5

The **Local Connection Status** menu shows up. Click on the **Property** button.



Local Area Connection Status

General | Support

Connection

Status: Connected

Duration: 00:10:30

Speed: 100.0 Mbps

Activity

Sent — Received

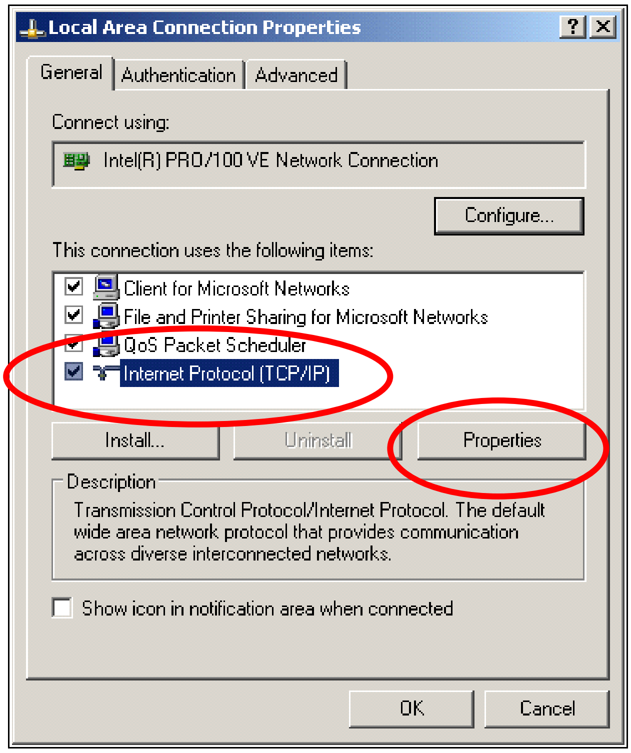
Packets: 328 | 292

Properties | Disable

Close

Step 6

The **Local Area Connection Properties** menu shows up. Under the **General** Configuration Tab, locate and select **Internet Protocol (TCP/IP)** with the corresponding network card, then click **Properties** button.



Local Area Connection Properties

General | Authentication | Advanced

Connect using:

Intel(R) PRO/100 VE Network Connection

Configure...

This connection uses the following items:

- ☑ Client for Microsoft Networks
- ☑ File and Printer Sharing for Microsoft Networks
- ☑ QoS Packet Scheduler
- ☑ Internet Protocol (TCP/IP)

Install... | Uninstall | Properties

Description

Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

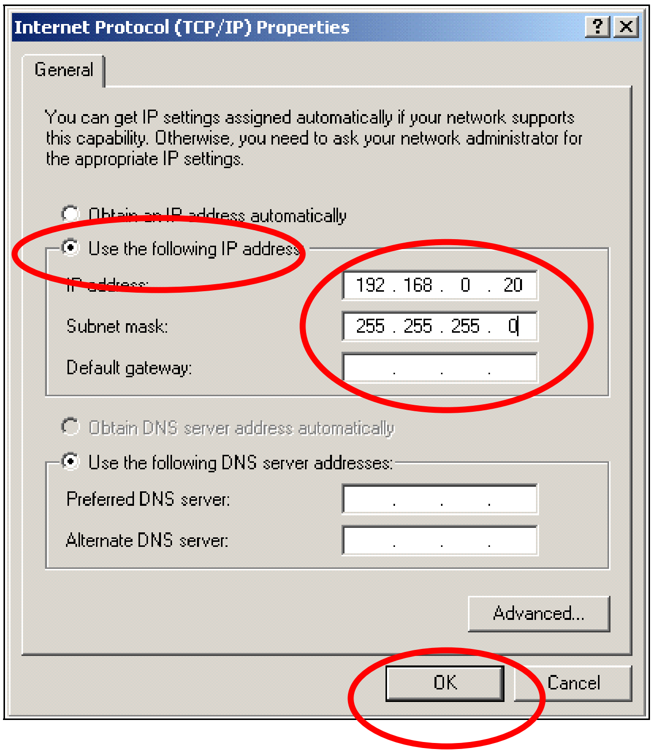
☐ Show icon in notification area when connected

OK | Cancel

Step 7

The **Internet Protocol (TCP/IP) Properties** menu then shows up.

Select **Use the following IP Address** and enter IP Address with **192.168.0.20** and **255.255.255.0** for the Subnet Mask, and then click **OK**.



Internet Protocol (TCP/IP) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address: 192 . 168 . 0 . 20

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

○ Obtain DNS server address automatically

● Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

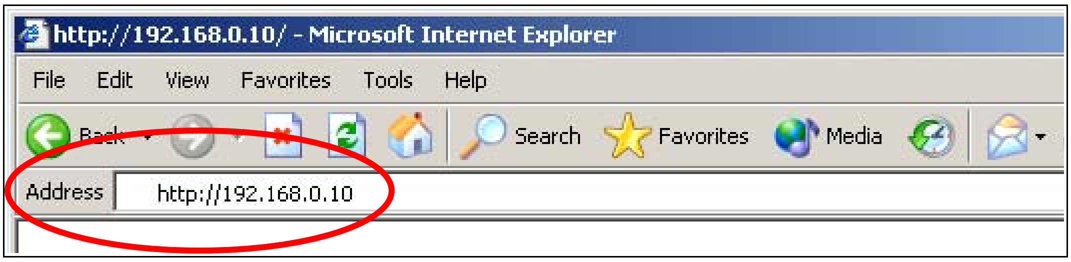
Step 8

Close all the Network configuration menus to save.

4. Web Configuration

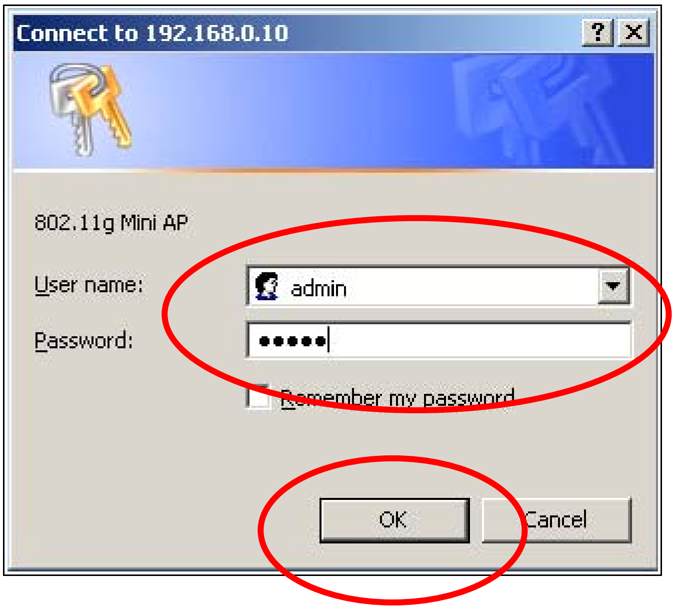
4.1 Login to the Web Management Interface

Open your web browser, and type http://192.168.0.10 in the address bar, and press Enter.



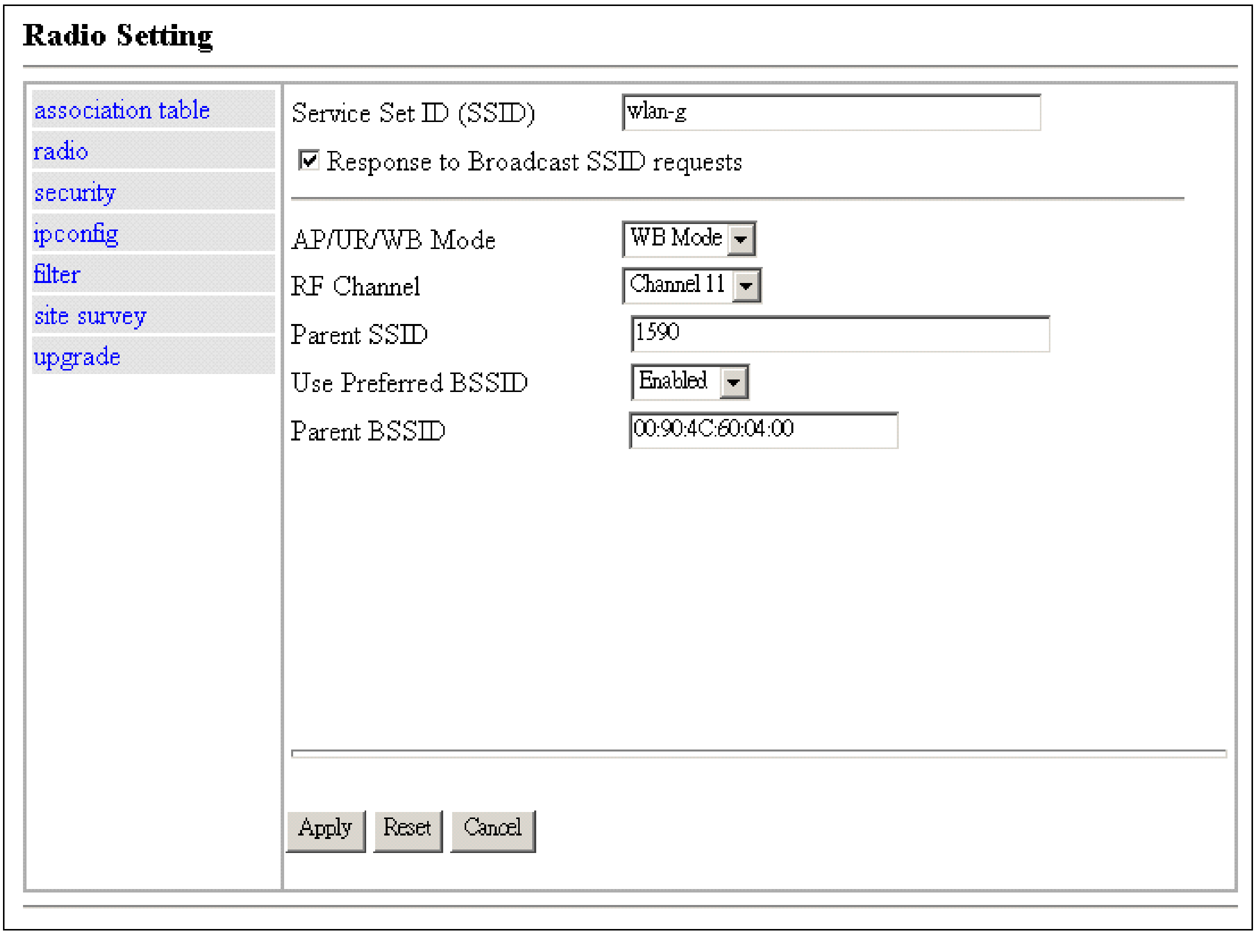
http://192.168.0.10/ - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Media
Address
http://192.168.0.10

An authentication pop up window then appears. Enter **admin** in the username field and **admin** in the password filed, and then click **OK**.



4.2 Radio Setting

After successfully login. The system brings the **Radio Setting** page for basic configuration. You can configure the Service Set ID (SSID) of the device. Select the operation mode of the wireless connection.
Please refer to the following page.



Radio Setting

Service Set ID (SSID) wlan-g

☑ Response to Broadcast SSID requests

AP/UR/WB Mode: WB Mode

RF Channel: Channel 11

Parent SSID: 1590

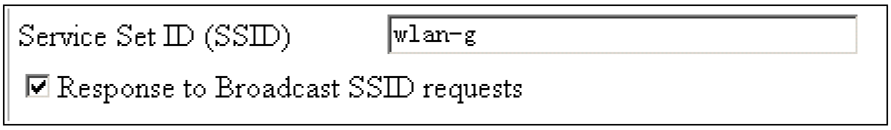
Use Preferred BSSID: Enabled

Parent BSSID: 00:90:4C:60:04:00

4.2.1 Service Set Identifier (SSID)

An SSID is usually referred to as a network name that identifies a wireless network. All access points and all devices attempting to connect to a specific WLAN must use the same SSID. A device will not be permitted to join the BSS unless it can provide the unique SSID.

The default SSID of WCM-110 is **"wlan-g"**. You can change the SSID of WCM-110 in the **Service Set Identifier (SSID)** field. You can also choose to show or hide the AP SSID in the wireless network by selecting or deselecting the **Response to Broadcast SSID requests.**



Service Set ID (SSID) wlan-g

☑ Response to Broadcast SSID requests

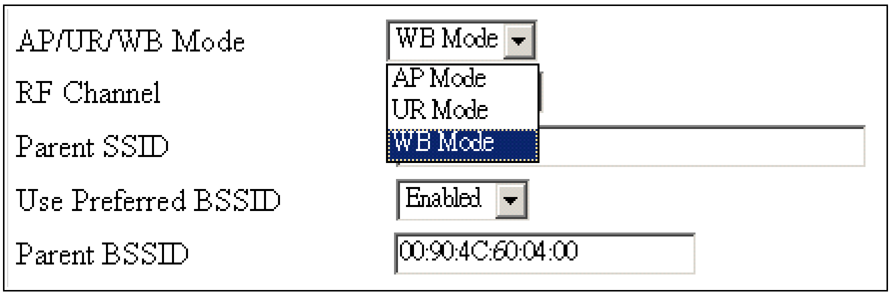
To change the SSID of WCM-110:

1. Enter new SSID in the **Service Set ID (SSID)** field.
2. If you do not want WCM-100 broadcast the SSID, anti-select the **Response to Broadcast SSID request** check button.
3. Click **Apply** button to save.

4.2.2 AP/UR/WB Mode

The WCM-110 provides 3 modes for network infrastructure:

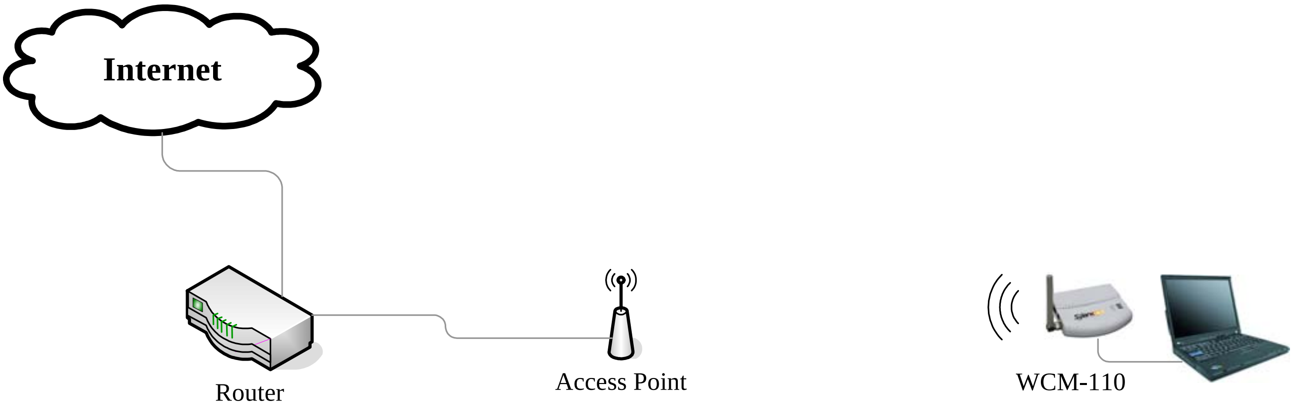
- **WB** mode – **Wireless Bridge** mode. Wireless Bridge is used for connecting two or more physically separated network segments.
- **AP** mode – **Access Point** mode. The device acts as a communication hub for users of a wireless device to connect to a wired LAN.
- **UR** mode – **Universal Repeater** mode. Device act as a access point and reply messages for the wireless client.



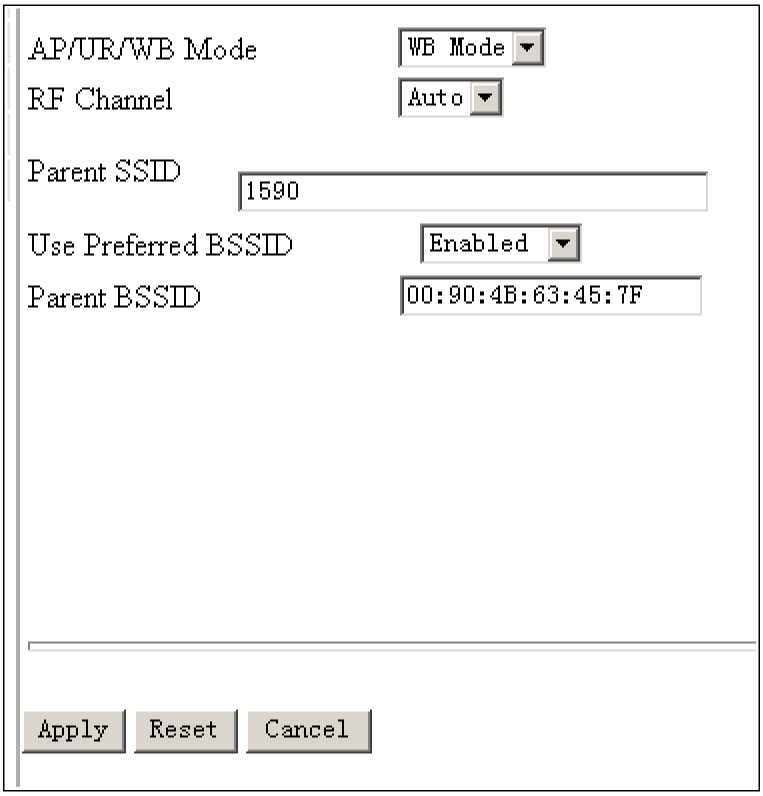
AP/UR/WB Mode: WB Mode

RF Channel
Parent SSID
Use Preferred BSSID: Enabled
Parent BSSID: 00:90:4C:60:04:00

4.2.2.1 WB (Wireless Bridge) Mode



The default wireless mode is the **WB Mode**. Screen shows as following when WB Mode is selected.

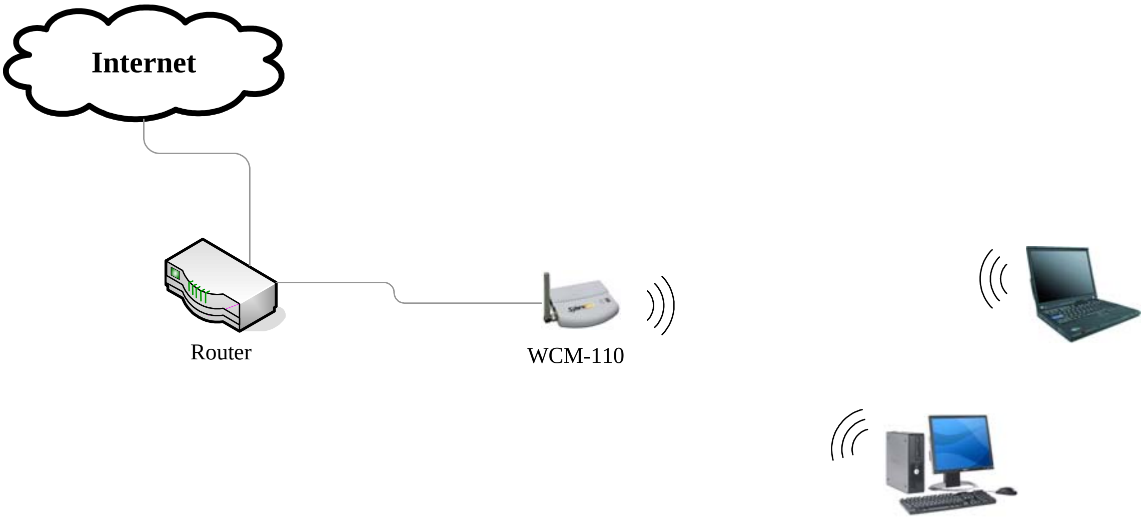


AP/UR/WB Mode: WB Mode
RF Channel: Auto
Parent SSID: 1590
Use Preferred BSSID: Enabled
Parent BSSID: 00:90:4B:63:45:7F

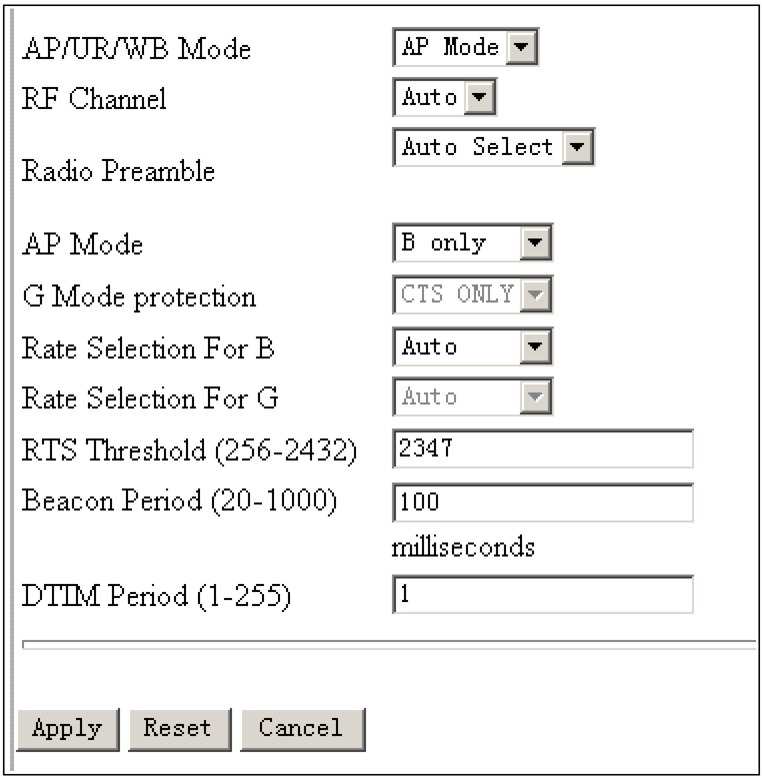
Parent SSID: The SSID of the access point which WCM-110 communicate to.
Use Preferred BSSID: Enabled/Disabled of using the MAC address of the parent access point.
Parent BSSID: The MAC address of the parent access point.

The **Parent SSID** and the **Parent BSSID** is automatically filled when use the **Site Survey** function and join to the parent access point. (See section **4.6 Site Survey**)

4.2.2.2 AP (Access Point) Mode



Select **AP Mode** in the **AP/UR/WB Mode** field. Screen then changes to as the following:



AP/UR/WB Mode: AP Mode

RF Channel: Auto

Radio Preamble: Auto Select

AP Mode: B only

G Mode protection: CTS ONLY

Rate Selection For B: Auto

Rate Selection For G: Auto

RTS Threshold (256-2432): 2347

Beacon Period (20-1000): 100 milliseconds

DTIM Period (1-255): 1

RF Channel: The WCM-110 provides 13 channels and automatically selects a non-overlapping channel for radio communication.

Radio Preamble: Allows to sets the preamble mode for a 2.4GHz/11Mb network.

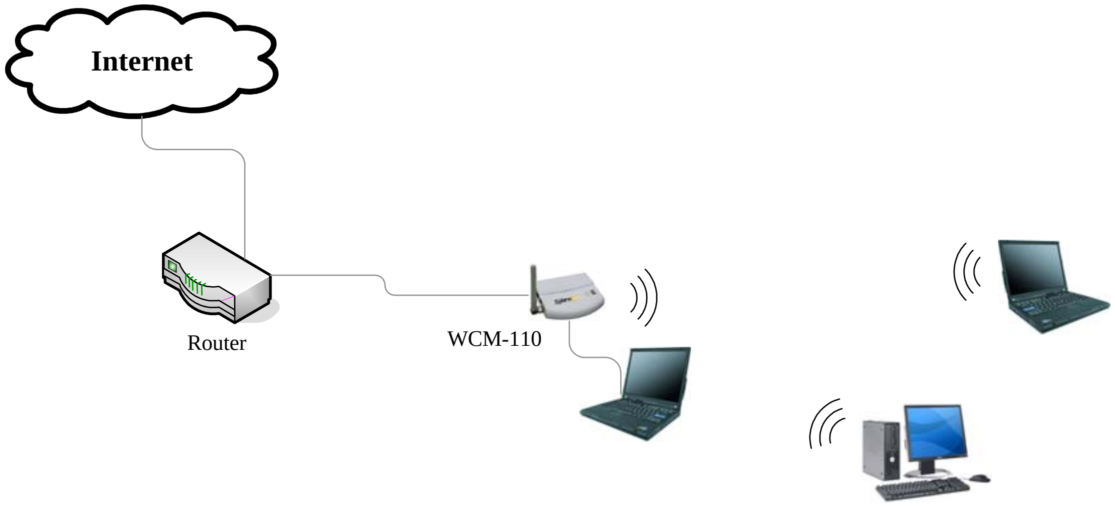
AP Mode: To adjust the operation mode of WCM-110 using IEEE802.11b or IEEE802.11g standards.

Operation Mode	Supported wireless client(s)
B only	IEEE802.11b client(s) only
G only	IEEE802.11g client(s) only
BG mixed	IEEE802.11b and IEEE802.11g client(s)

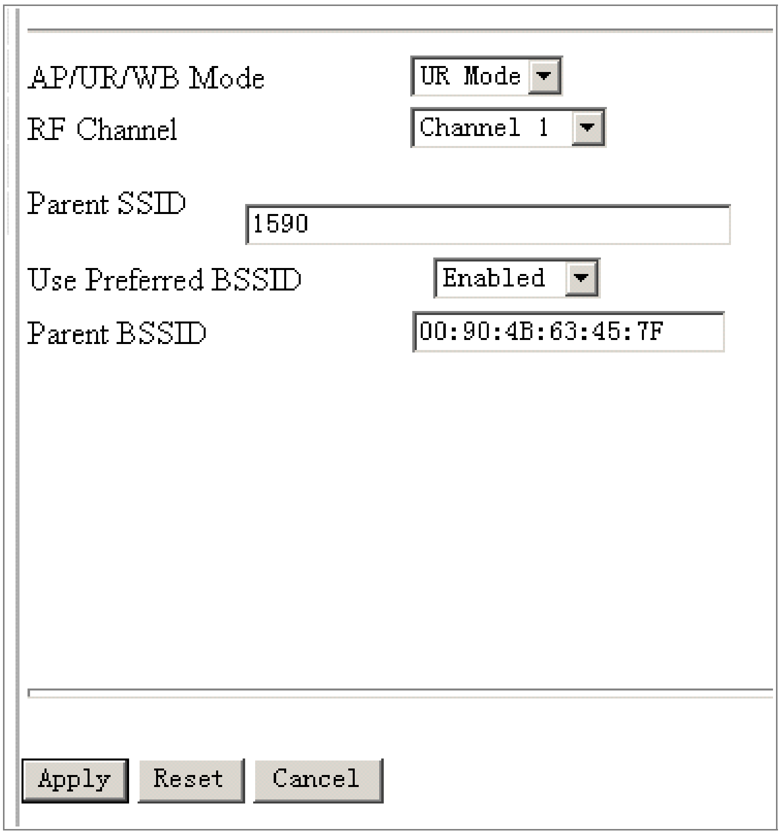
Rate Selection for B/G: Specify the data transmission rate for IEEE802.11b/g devices. Data rate selections are

Wireless	Data Rate (Mbps)
IEEE802.11b	Auto, 1, 2, 5.5, 11
IEEE802.11g	Auto, 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54

4.2.2.3 UR (Universal Repeater) Mode



Select **UR Mode** in the **AP/UR/WB Mode** field. Screen then changes to as the following:



AP/UR/WB Mode UR Mode

RF Channel Channel 1

Parent SSID 1590

Use Preferred BSSID Enabled

Parent BSSID 00:90:4B:63:45:7F

Parent SSID: The SSID of the access point which WCM-110 connect to.

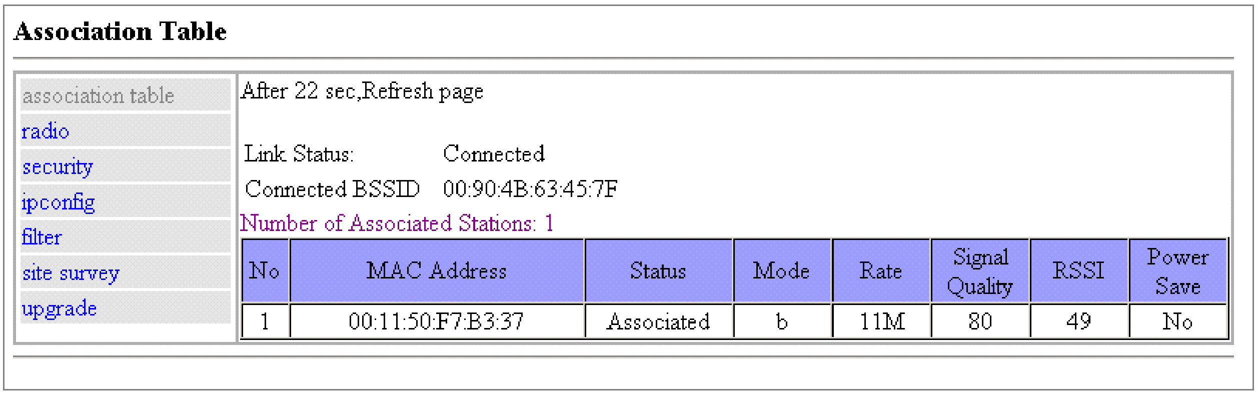
Use Preferred BSSID: Enabled/Disabled of using the MAC address of the parent access point.

Parent BSSID: The MAC address of the parent access point.

The **Parent SSID** and the **Parent BSSID** is automatically filled when use the **Site Survey** function and join to the parent access point.

4.3 Association Table

The association table shows the link status of the device. This screen automatically refresh per 30 seconds.



Association Table

After 22 sec,Refresh page

Link Status: Connected

Connected BSSID 00:90:4B:63:45:7F

Number of Associated Stations: 1

No	MAC Address	Status	Mode	Rate	Signal Quality	RSSI	Power Save
1	00:11:50:F7:B3:37	Associated	b	11M	80	49	No

Link Status: Shows the link status of the WCM-110 to a parent access point.

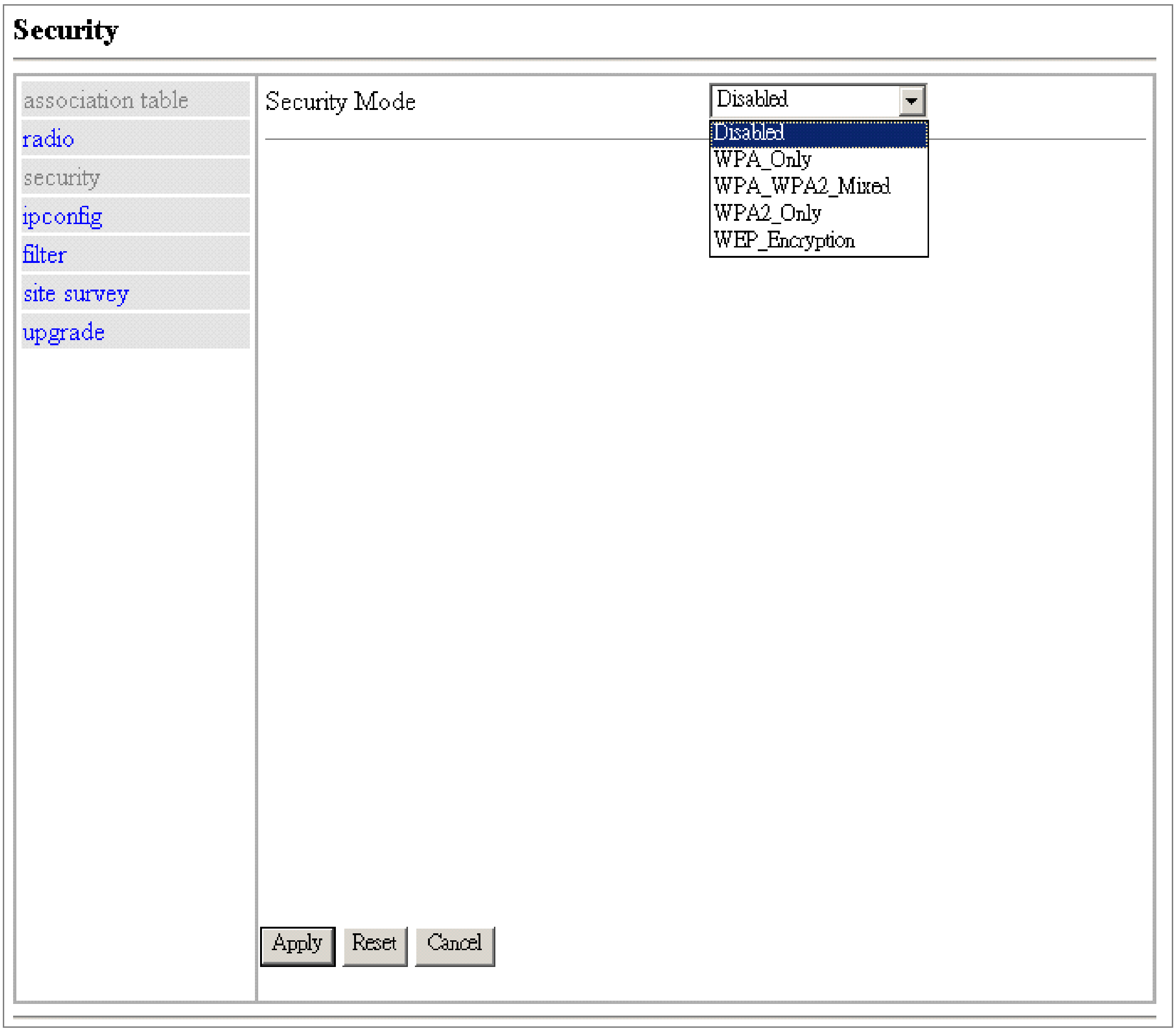
Connected BSSID: Shows the MAC address of the connected parent access point.

Number of Associated Stations: Shows the numbers of wireless clients which connect to WCM-110.

Note: The associated stations table lists the devices which connect to WCM-110 only when WCM-110 is in AP or UR mode.

4.4 Security

The WCM-110 provides authentication methods to secure communication to and from wireless devices.



Security

Security Mode: Disabled

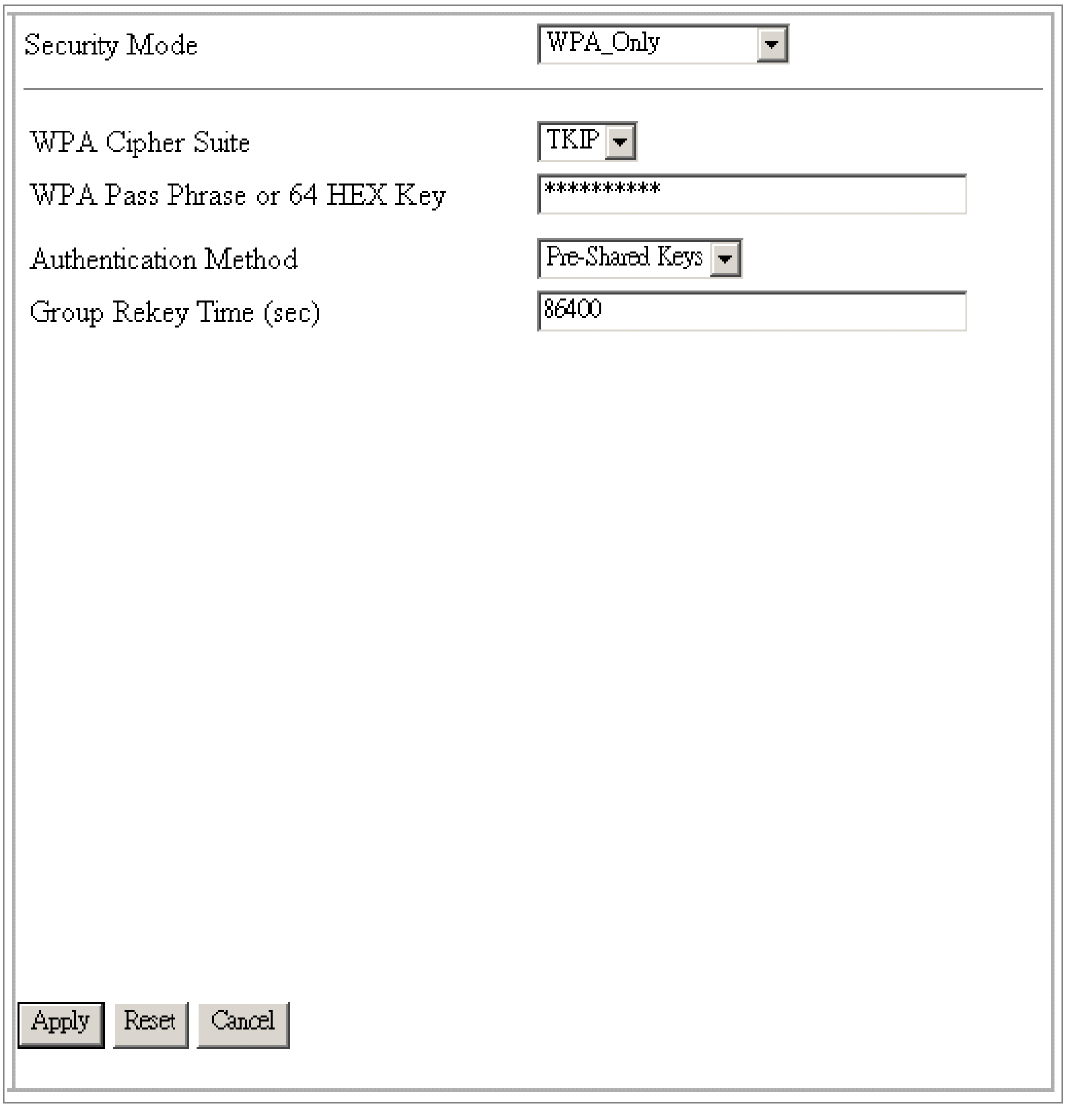
4.4.1 Security Mode:

Disable: Disabled the secure connection.
WPA_Only: Wi-Fi Protectd Access, this provides data protection with the use of encryption and the use of access controls and user authentication.
WPA_WPA2_Mixed: A mixed type of WPA and WPA2.
WPA2_Only: Wi-Fi Protected Access 2, the follow on security method to WPA for wireless networks that provides stronger data protection and network access control.
WEP_Encryption: Wired Equivalent Privacy, a security protocol for wireless local area networks.

4.4.2 WPA_Only Security

WPA is the first generation of advanced wireless security, providing enterprise and consumer Wi-Fi® users with a high level of assurance that only authorized users can access their wireless networks. WPA is based on a sub-set of the IEEE802.11i draft amendment to the 802.11 standard.

WPA is a powerful, standards-based, interoperable security technology for Wi-Fi networks. It provides strong data protection by using encryption as well as strong access controls and user authentication.



Security Mode: WPA_Only

WPA Cipher Suite: TKIP

WPA Pass Phrase or 64 HEX Key: **********

Authentication Method: Pre-Shared Keys

Group Rekey Time (sec): 86400

WPA Cipher Suit: AES or **TKIP**

WPA Pass Phase or 64 HEX Key: Enter characters for encryption

Authentication Method: Pre-Shared Keys or **WPA-RADIUS**

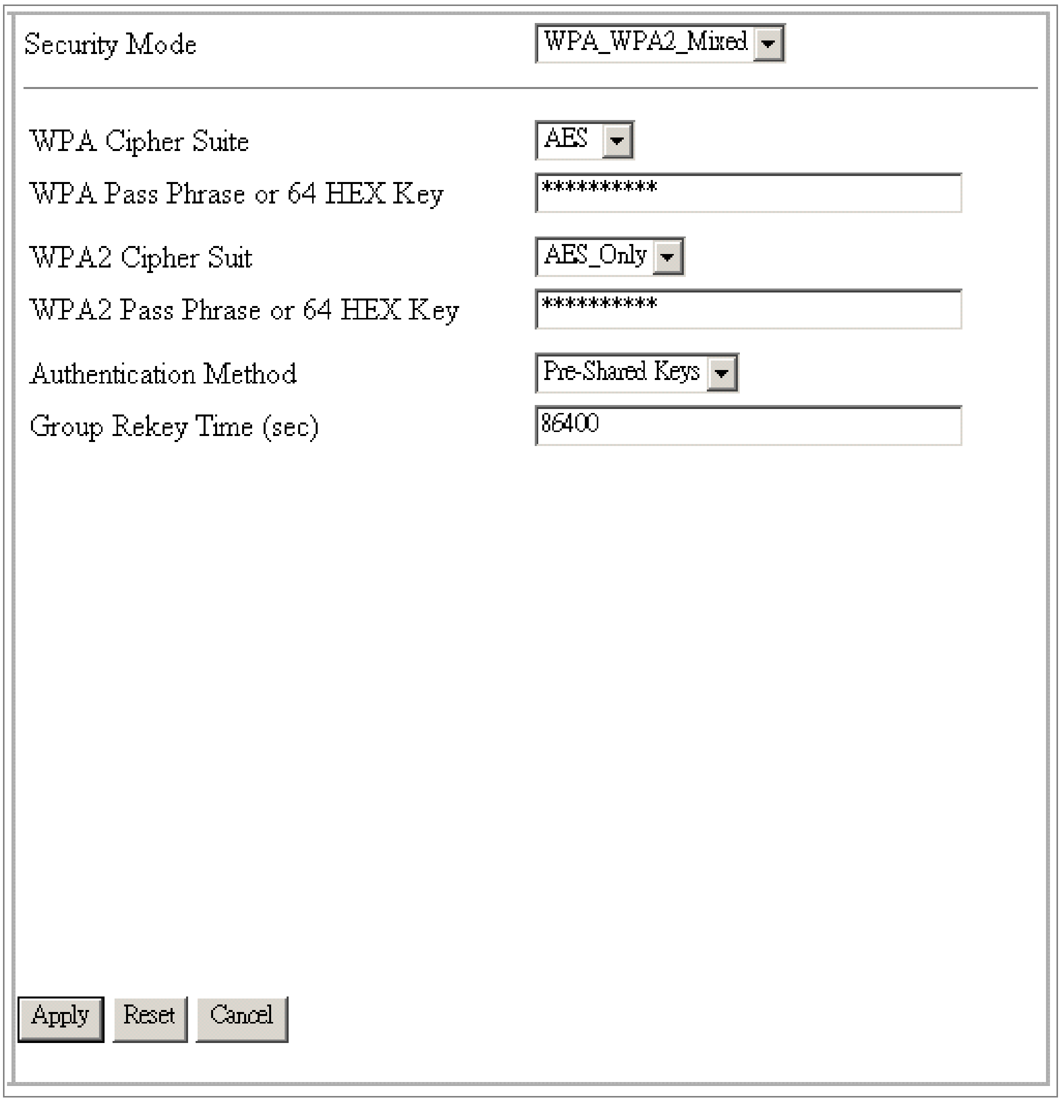
Group Rekey Time (sec): Allows you to set time interval before the WPA group key is changed, a short re-key interval provides a more secure wireless network.

Pre-Shared Keys	Does not require an	Shared secret is used	Device-oriented

	authentication server	for authentication	management of user credentials
WPA-RADIUS	Requires an authentication server	Uses RADIUS protocols for authentication and key distribution	Centralizes management of user credentials

4.4.3 WPA_WPA2_Mixed Security

WPA2 Mixed Mode is a Wi-Fi Alliance supported feature that permits the coexistence of WPA and WPA2 clients on a common SSID. This mode can be used during the transition from WPA to WPA2. In WPA2 Mixed Mode, the access points advertise which unicast encryption ciphers (TKIP or CCMP) are available for use and the client selects the one it would like to use. TKIP is always advertised as the broadcast/multicast traffic cipher because the goal of WPA2 Mixed Mode is to help transition older equipment. Therefore, the weakest broadcast/multicast cipher, TKIP, is advertised in a WPA2 Mixed Mode environment. With WPA2 Mixed Mode, once the client selects the cipher, that cipher is used to encrypt all unicast communications between the client and access point. This option provides enterprise-class security because it supports encryption with either TKIP or AES.



Security Mode: WPA_WPA2_Mixed

WPA Cipher Suite: AES

WPA Pass Phrase or 64 HEX Key: **********

WPA2 Cipher Suit: AES_Only

WPA2 Pass Phrase or 64 HEX Key: **********

Authentication Method: Pre-Shared Keys

Group Rekey Time (sec): 86400

WPA Cipher Suit: AES or **TKIP**

WPA Pass Phase or 64 HEX Key: Enter characters for encryption

WPA2 Cipher Suit: Support **AES_Only**

WPA2 Pass Phase or 64 HEX Key: Enter characters for encryption

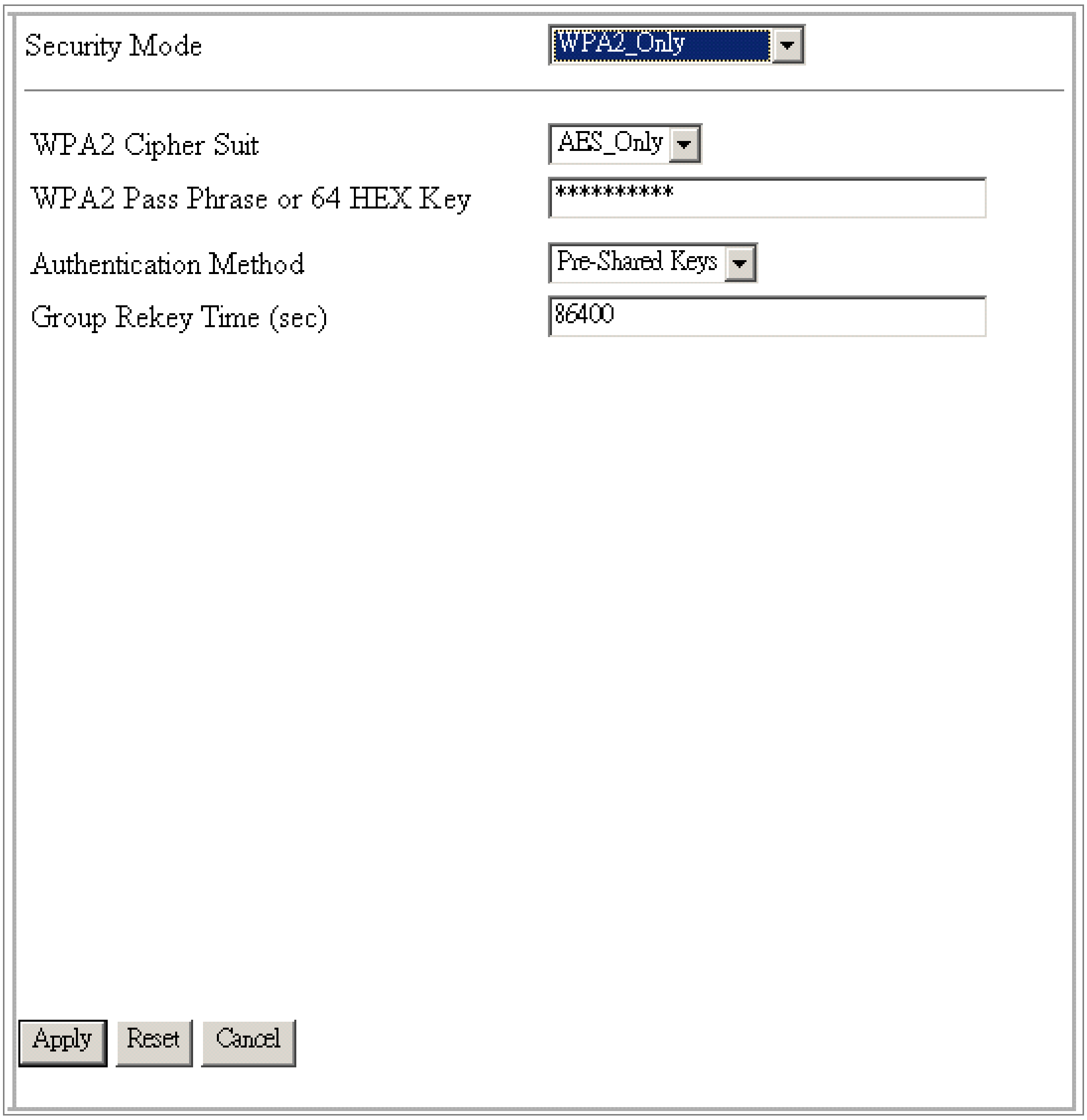
Authentication Method: Pre-Shared Keys or **WPA-RADIUS**

Group Rekey Time (sec): Allows you to set time interval before the WPA group key is changed, a short re-key interval provides a more secure wireless network.

Pre-Shared Keys	Does not require an authentication server	Shared secret is used for authentication	Device-oriented management of user credentials
WPA-RADIUS	Requires an authentication server	Uses RADIUS protocols for authentication and key distribution	Centralizes management of user credentials

4.4.4 WPA2_Only Security

WPA2 (Wi-Fi Protected Access 2) provides network administrators with a high level of assurance that only authorized users can access the network. Based on the ratified IEEE802.11i standard, WPA2 provides government grade security by implementing the National Institute of Standards and Technology (NIST) FIPS 140-2 compliant AES encryption algorithm.



Security Mode: WPA2_Only

WPA2 Cipher Suit: AES_Only

WPA2 Pass Phrase or 64 HEX Key: ***********

Authentication Method: Pre-Shared Keys

Group Rekey Time (sec): 86400

WPA Cipher Suit: Support **AES_Only**

WPA Pass Phase or 64 HEX Key: Enter characters for encryption

Authentication Method: Pre-Shared Keys or **WPA-RADIUS**

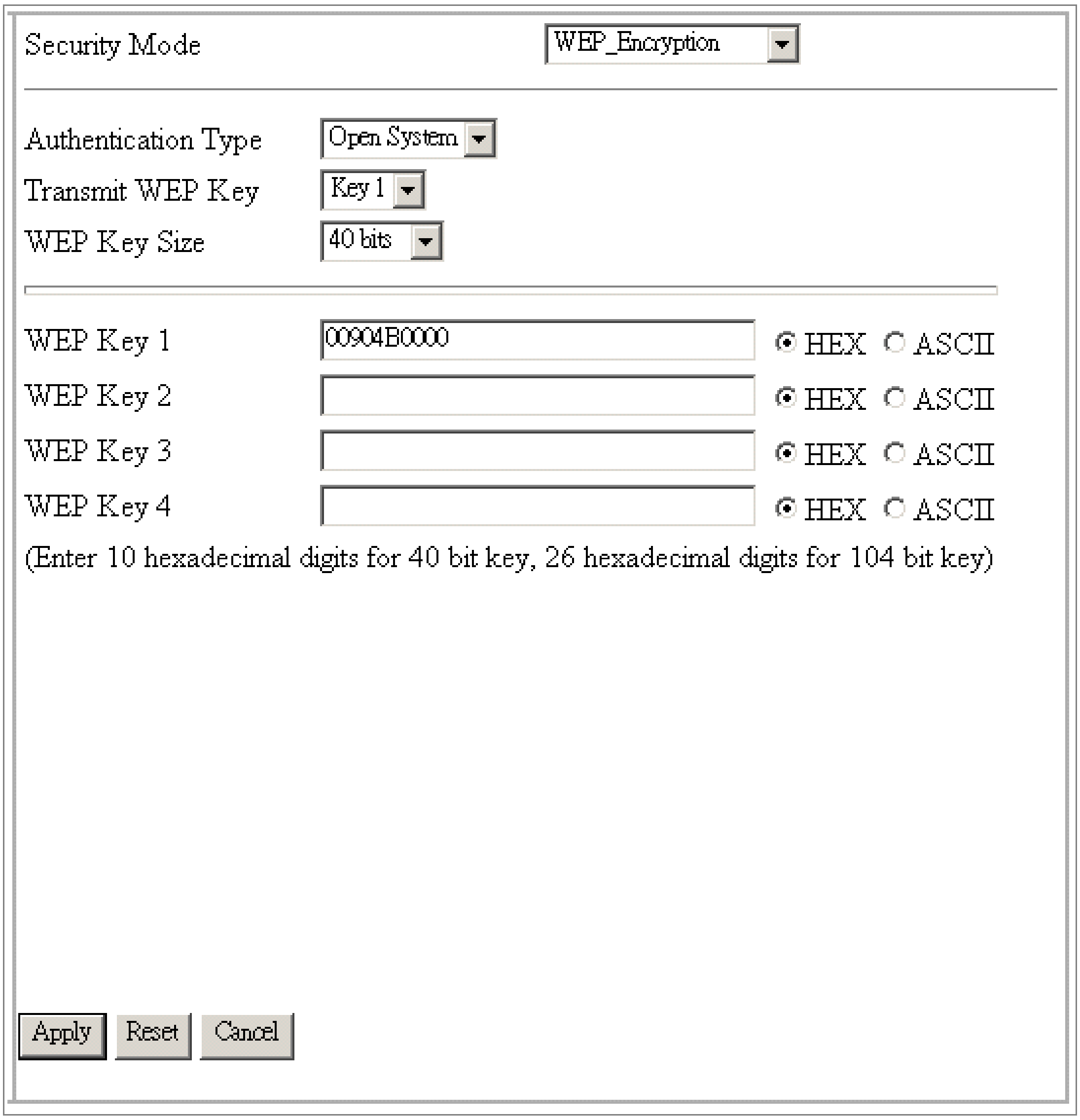
Group Rekey Time (sec): Allows you to set time interval before the WPA group key is changed, a short re-key interval provides a more secure wireless network.

Pre-Shared Keys	Does not require an authentication server	Shared secret is used for authentication	Device-oriented management of user credentials

WPA-RADIUS	Requires an authentication server	Uses RADIUS protocols for authentication and key distribution	Centralizes management of user credentials

4.4.5 WEP_Encryption

WEP is part of the IEEE 802.11 standard ratified in September 1999. WEP uses the stream cipher RC4 for confidentiality and the CRC-32 checksum for integrity.



Security Mode: WEP_Encryption

Authentication Type: Open System

Transmit WEP Key: Key 1

WEP Key Size: 40 bits

WEP Key 1: 00904B0000 ● HEX ○ ASCII

WEP Key 2: ● HEX ○ ASCII

WEP Key 3: ● HEX ○ ASCII

WEP Key 4: ● HEX ○ ASCII

(Enter 10 hexadecimal digits for 40 bit key, 26 hexadecimal digits for 104 bit key)

Authentication Type: Open System, **Shared Key** or **Both.**
Transmit WEP Key: Select using **Key 1, Key 2**, **Key 3** or **Key 4 f**or encryption.
WEP Key Size: No Set, **40 bits**, or **128 bits.**
WEP Key 1~4: Enter WEP Keys in hexadecimal or ASCII digit:

	Hexadecimal	**ASCII**
40 bits	10 digits	5 digits
104 bits	26 digits	13 digits

4.4.6 Configure the security on WCM-110

Situation to use security on WCM-110:

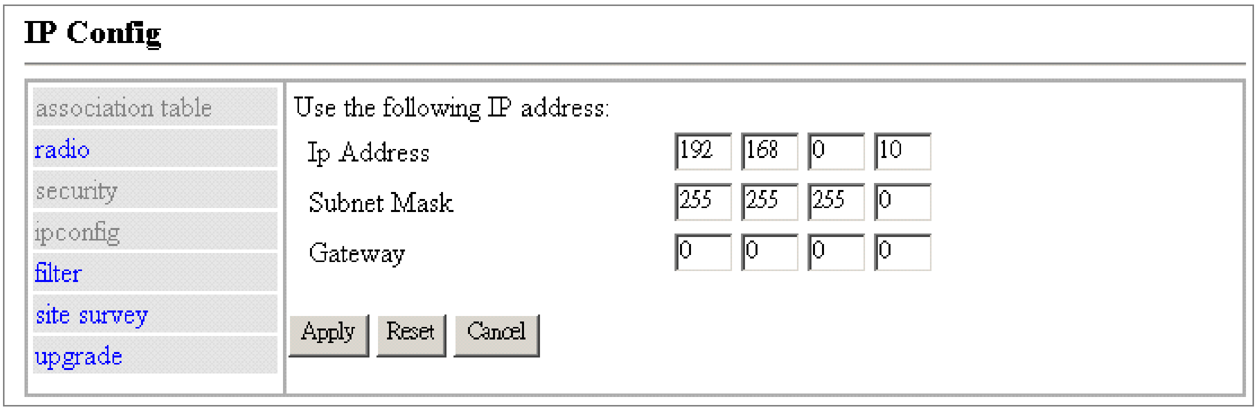
- When WCM-110 is in WB mode, and the access point which WCM-110 communicates to ask for a secure connection. The WCM-110 must use the same security setting as the parent access point.
- When WCM-110 is in AP mode, and asks a security connection for its wireless client. The wireless clients must use the same security setting as WCM-110.
- When WCM-110 is in UR mode, and the access point which WCM-110 communicates to ask for a secure connection. The WCM-110 must use the same security setting as the parent access point. The wireless clients of WCM-110 must use the same security setting.

To configure the security on WCM-110:

1. Select the security mode.
2. Select and filled the parameters on each mode.
3. Click **Apply** button to save.

4.5 Ipconfig

This function is to change the IP address of WCM-110.



IP Config

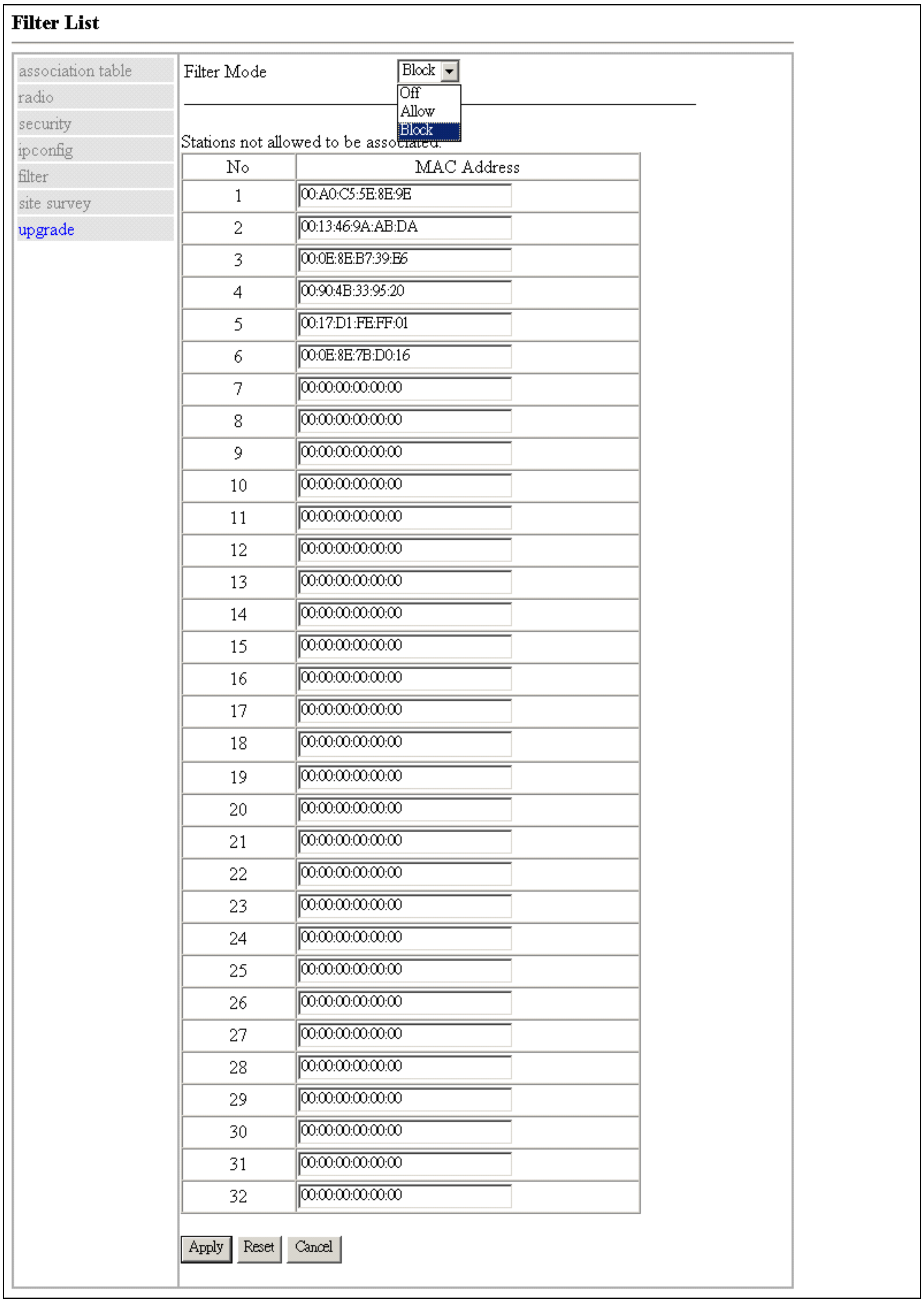
Use the following IP address:

Ip Address	192	168	0	10
Subnet Mask	255	255	255	0
Gateway	0	0	0	0

To change the IP address of WCM-110, change the **IP Address**, **Subnet Mask** and **Gateway** filed. And then click **Apply** button to save.

4.6 Filter List

Filter List allowing filtering network traffic by controlling whether the specified MAC address forwarded or blocked by WCM-100.



Filter List

Filter Mode: Block

Stations not allowed to be associated.

No	MAC Address
1	00:A0:C5:5E:8E:9E
2	00:13:46:9A:AB:DA
3	00:0E:8E:B7:39:E6
4	00:90:4B:33:95:20
5	00:17:D1:FE:FF:01
6	00:0E:8E:7B:D0:16
7	00:00:00:00:00:00
8	00:00:00:00:00:00
9	00:00:00:00:00:00
10	00:00:00:00:00:00
11	00:00:00:00:00:00
12	00:00:00:00:00:00
13	00:00:00:00:00:00
14	00:00:00:00:00:00
15	00:00:00:00:00:00
16	00:00:00:00:00:00
17	00:00:00:00:00:00
18	00:00:00:00:00:00
19	00:00:00:00:00:00
20	00:00:00:00:00:00
21	00:00:00:00:00:00
22	00:00:00:00:00:00
23	00:00:00:00:00:00
24	00:00:00:00:00:00
25	00:00:00:00:00:00
26	00:00:00:00:00:00
27	00:00:00:00:00:00
28	00:00:00:00:00:00
29	00:00:00:00:00:00
30	00:00:00:00:00:00
31	00:00:00:00:00:00
32	00:00:00:00:00:00

Filter Mode: Allow or Block devices pass through WCM-110 by the MAC address of the devices.

Off	Allow	Block
Disable filtering	Allow devices pass through	Block devices pass through

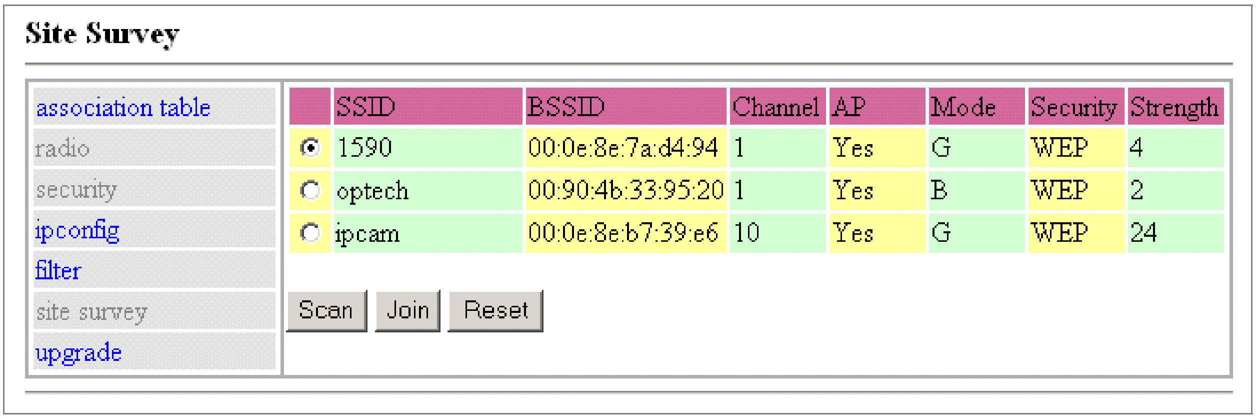
function	WCM-110 with MAC in the list.	WCM-110 with MAC in the list

Stations not allowed being associated: Manually filled the MAC address in the list for the filter function.

To filter devices, select **Filter Mode**, fill the MAC address in the list, and click **Apply** button to save

4.7 Site Survey

Site Survey scans the available wireless devices around the network and lists the information it surveyed. You can manually choose a wireless access point to connect to.



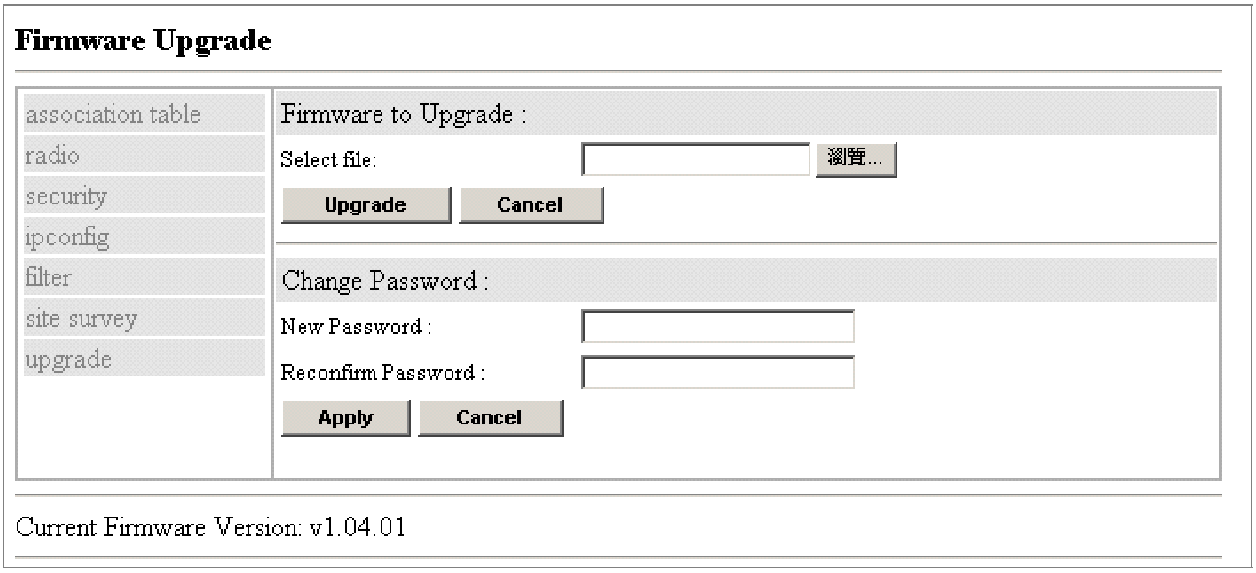
	SSID	BSSID	Channel	AP	Mode	Security	Strength
●	1590	00:0e:8e:7a:d4:94	1	Yes	G	WEP	4
○	optech	00:90:4b:33:95:20	1	Yes	B	WEP	2
○	ipcam	00:0e:8e:b7:39:e6	10	Yes	G	WEP	24

Scan button: Scan the available wireless devices again.
Join button: Communicate to the selected wireless device.
Reset button: Re-Select the wireless device.

To use site survey:
1: Check the list for the access point. Click the **Scan** button to re-scan if needed.
2. Click the radio button which you want to communicate to.
3. Click the **Join** button.
4. Check the **Parent SSID** field in the **Radio Setting** menu if the AP is correctly joined.

4.8 Firmware Upgrade

This interface allows upgrading firmware and changing password. Current firmware version also shows in this interface.



Firmware Upgrade

Firmware to Upgrade :

Select file:

Change Password :

New Password :

Reconfirm Password :

Current Firmware Version: v1.04.01

4.8.1 Firmware Upgrade:

To upgrade firmware:

1. Prepare the new firmware in your PC.
2. Click the **browse** button and select the firmware stored in your PC.
3. Click the **Upgrade** button to process upgrade.

Note: Do not interrupt the upgrade process until it success.

4.8.2 Change Password:

To change password:

1. Filled the **New Password** field.
2. Filled the **Reconfirm Password** field.
3. Click **Apply** button to save.

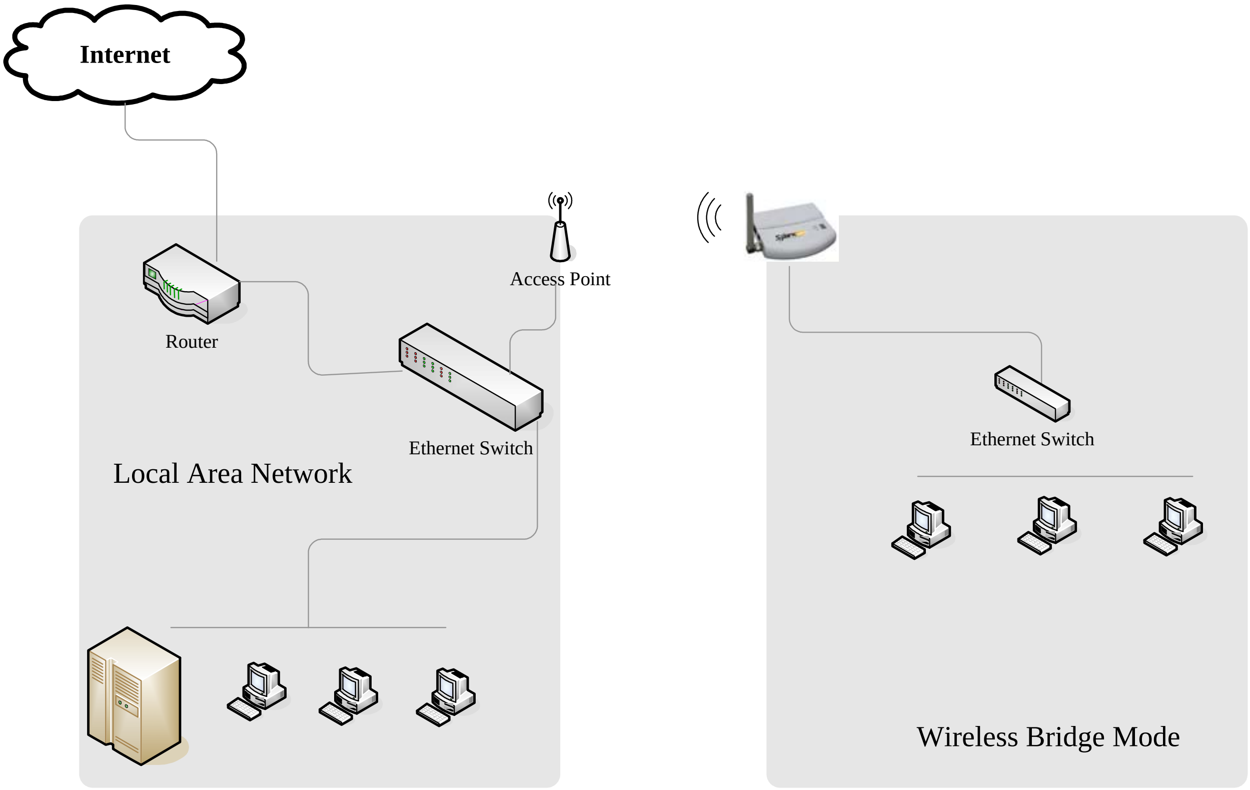
4.8.3 Current Firmware Version:

This information shows the current firmware version of WCM-110.

5. Local Network Connection

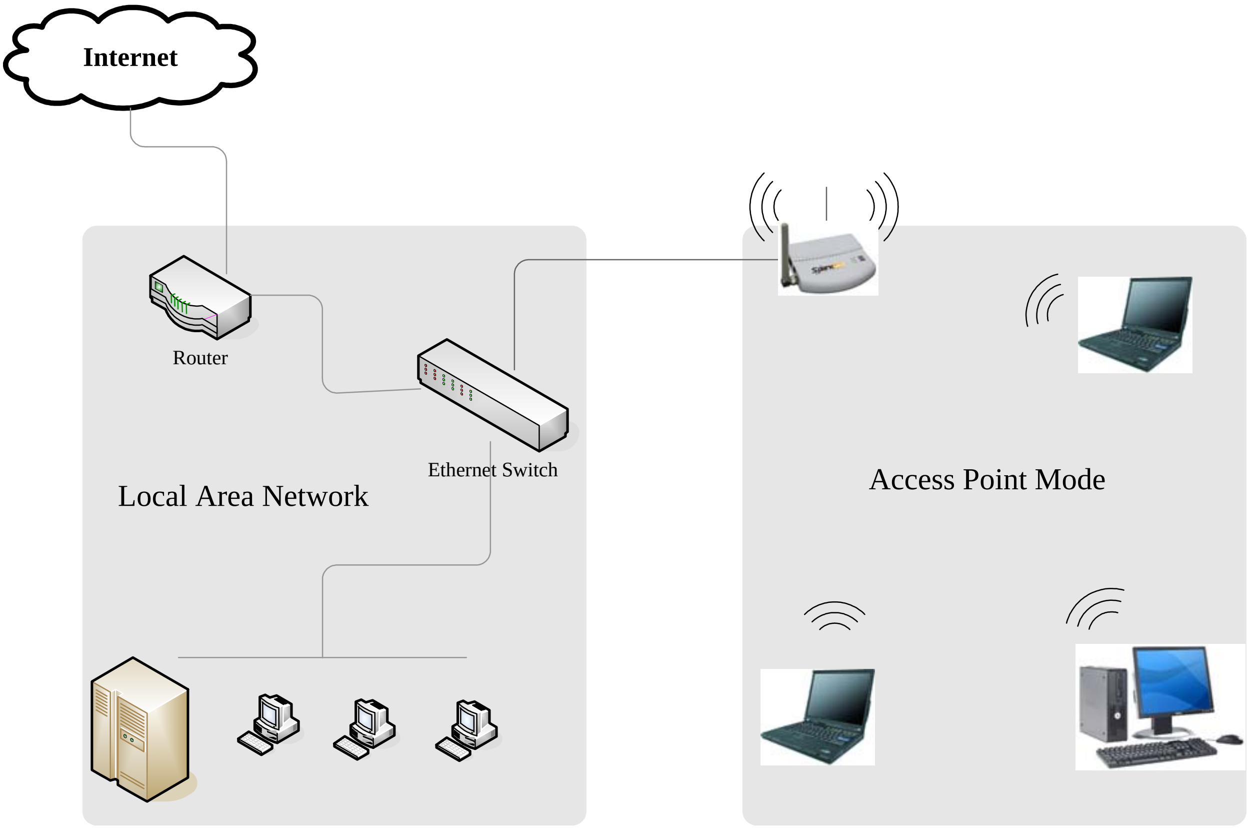
5.1 Wireless Bridge Mode

Refer to the following image for advanced network application of WB (Wireless Bridge) mode. The WCM-110 acts as a wireless client of the access point. Personal computers can access to the Local Area Network and hence to the Internet by way of WCM-110. The wireless server is disabled in this mode.
Note that you need to set up the security for the access point if needed.



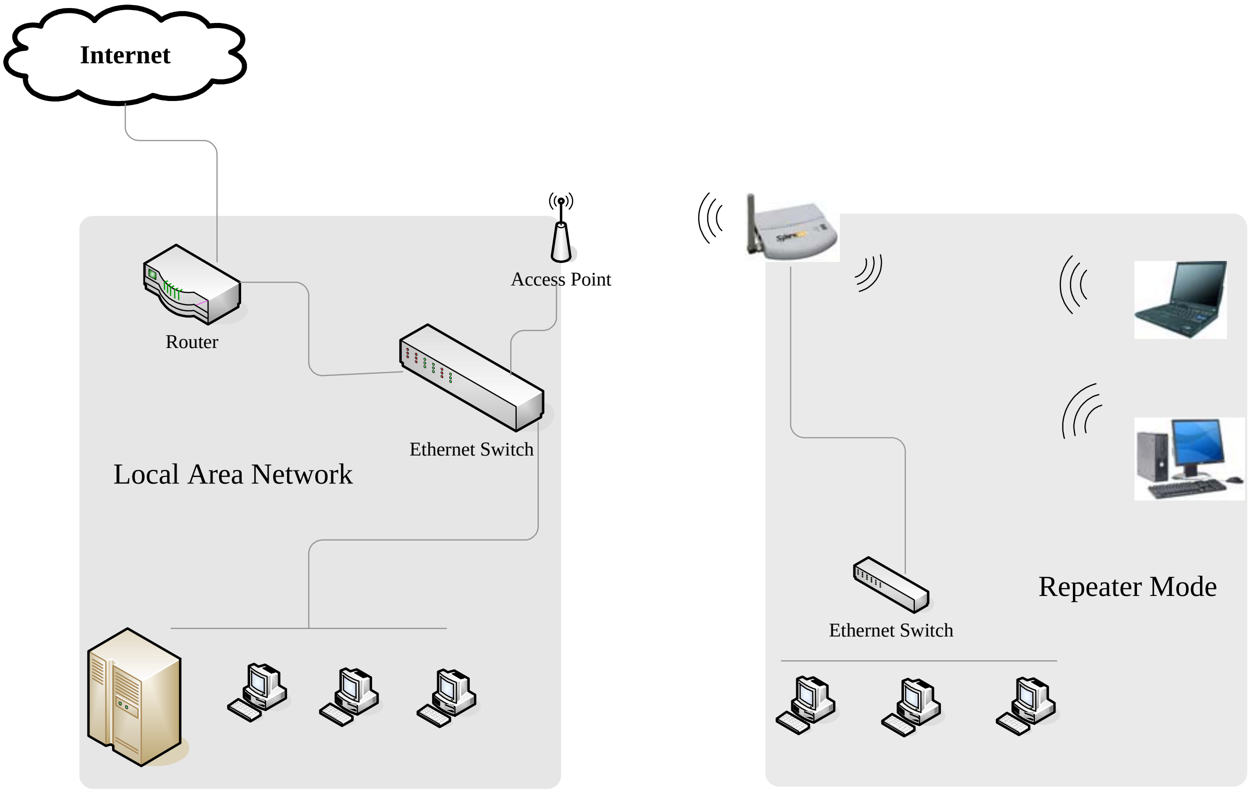
5.2 Access Point Mode

Refer to the following image for advanced network application of AP (Access Point) mode. The WCM-110 links to the Ethernet switch in the local area network and acts as a wireless server for the personal client. Wireless clients of WCM-110 can access to the Local Area Network and hence to the Internet by way of WCM-110.



5.3 Repeater Mode

Refer to the following image for advanced network application of UR (Universal Repeater) mode. The WCM-110 acts as a wireless client of the access point and act as a wireless server at the same time. Wireless clients of WCM-110 can access to the Local Area Network and hence to the Internet by way of WCM-110.
Note if the security is configured on the access point, the WCM-110 ask the same security connection for its wireless client.


Internet
Access Point
Router
Ethernet Switch
Local Area Network
Repeater Mode
Ethernet Switch

6. Specification

Hardware Features	
Wired Interface	10/100Base-T Ethernet Port
Wireless Interface	2dBi detachable RSMA Antenna
LED Indicator	Act, Power, Link
Radio Characteristics	
Standard	IEEE 802.11b/g
Frequency Bands	802.11b/g : ISM-Band 2.412~ 2.484GHz
Receive Sensitivity	802.11g : 54 Mbps 10^{-5} BER @ -75dBm 802.11b : 11 Mbps 10^{-5} BER @ -89dBm
Modulation	802.11g: OFDM 802.11b: CCK,DQPSK, DBPSK
Data Rates	802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11b: 11, 5.5, 2, 1Mbps
Transmit Power	802.11b: 17dBm 802.11g: 14dBm
Environmental	
Power Supply	DC 5V, 1A
Temperature	0 to 70 Degree C
Humidity	95% Non-condensing
Dimension (W x D x H)	102 x 71 x 20 mm
Weight	70g
Software Features	
Management	Web-Based Management Firmware Upgrade via HTTP
Security	64/128-bit WEP, WPA, WPA2
Certification	
FCC, CE	
Warranty	
1 Year	