EDIMAX
NETWORKING PEOPLE TOGETHER

OAP1750

User Manual

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CONTENTS

OVERVIEW

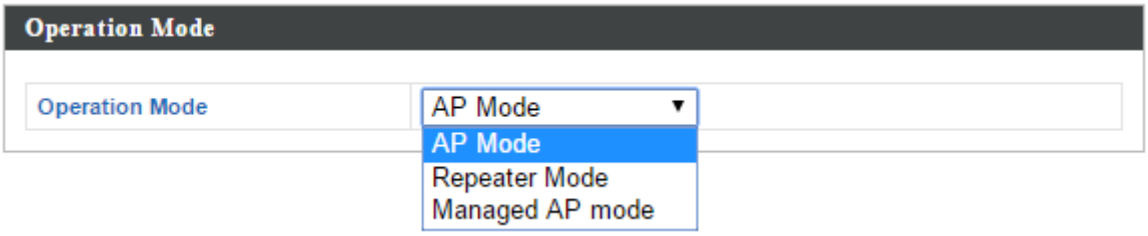
Your access point can function in three different modes.

The default mode for your access point is **AP mode**.

AP mode is a regular access point for use in your wireless network.

Managed AP mode acts as a “slave” AP within the AP array (controlled by the AP Controller “master”).

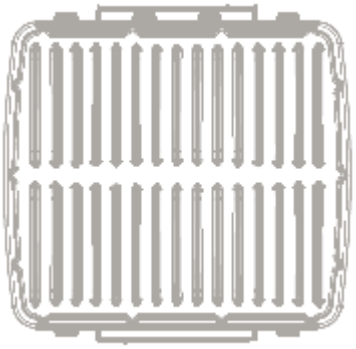
In **Repeater mode** the access point connects wirelessly to your existing 2.4GHz and/or 5GHz network and repeats the wireless signal(s).



I. Product Information

I-1. Package Contents

1



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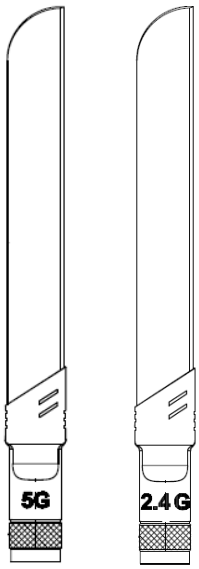

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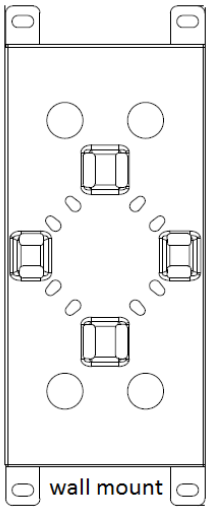


4

5

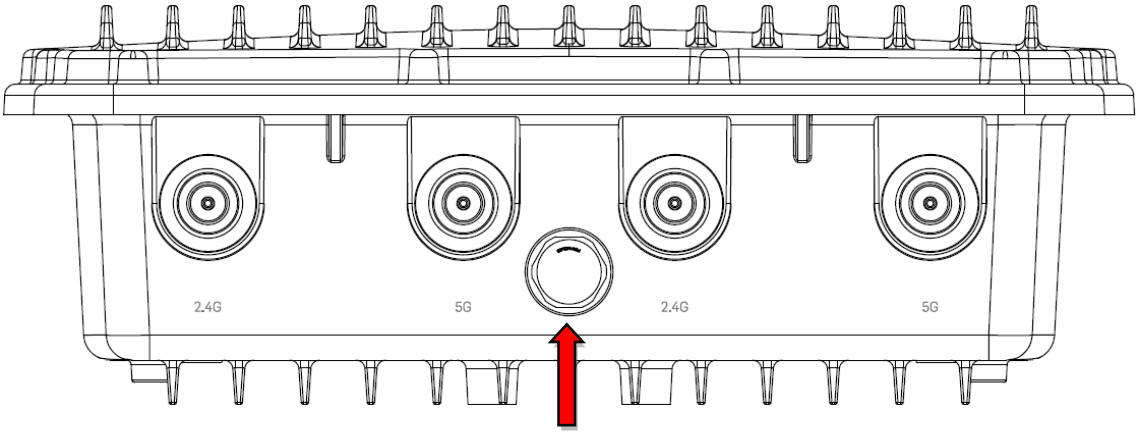
6

1. Access Point
2. Antennas (2.4G x 3 & 5G x 3)
3. Wall Mount Bracket x 1
4. CD
5. Quick Installation Guide
6. Wall/Pole Mount Screws Kits

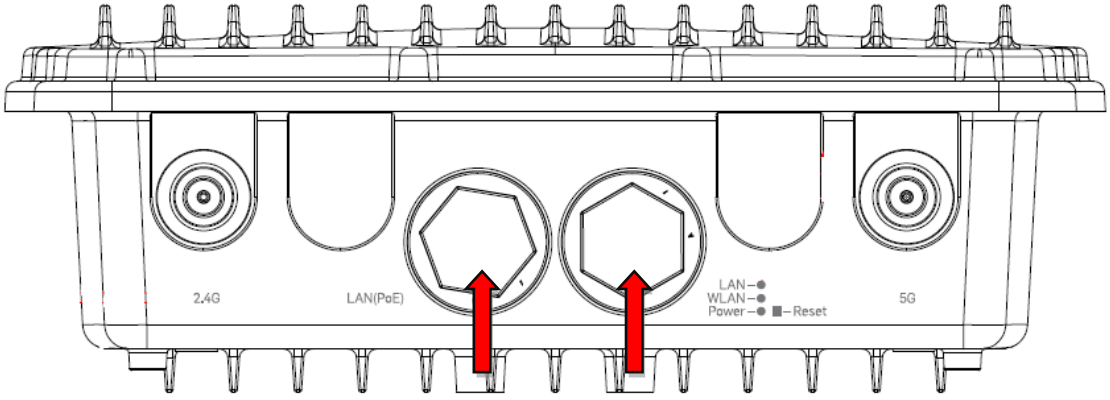
I-2. System Requirements

- Existing cable/DSL modem & router
- Computer with web browser for access point configuration

I-3. Hardware Overview



Protective Vents



A LAN (PoE) **B** 3 LEDs & Reset

A. LAN port with Power over Ethernet (PoE PD)

B. 3 LEDs + Reset M-smart interface

I-4. LED Status

LED Behavior		
Power	Green	The access point is on.
	Off	The access point is off.
LAN	Green	LAN port is connected.
	Flashing	Activity (transferring and receiving)
	Off	LAN port is unconnected.
Wireless	Green	Wireless enabled.
	Flashing	Activity (transferring and receiving)
	Off	Wireless disabled.

I-5. Reset

If you experience problems with your access point, you can reset the device back to its factory settings. This resets all settings back to default.

1. Press and hold the reset button on the access point for at least 10 seconds. Then release the button.

You may need to use a pencil or similar sharp object to push the reset button.

2. Wait for the access point to restart. The access point is ready for setup when the LED is **green**.

I-6. Safety Information

In order to ensure the safe operation of the device and its users, please read and act in accordance with the following safety instructions.

1. Do not place the access point in or near hot/humid places, such as a kitchen or bathroom.

2. Do not pull any connected cable with force; carefully disconnect it from the access point.

3. Handle the access point with care. Accidental damage will void the warranty of the access point.

4. The device contains small parts which are a danger to small children under 3 years old. Please keep the access point out of reach of children.

5. Do not place the access point on paper, cloth, or other flammable materials. The access point may become hot during use.

6. There are no user-serviceable parts inside the access point. If you experience problems with the access point, please contact your dealer of purchase and ask for help.

7. If you smell burning or see smoke coming from the access point or power adapter, then disconnect the access point and power adapter immediately, as far as it is safely possible to do so. Call your dealer of purchase for help.

II. Hardware Installation

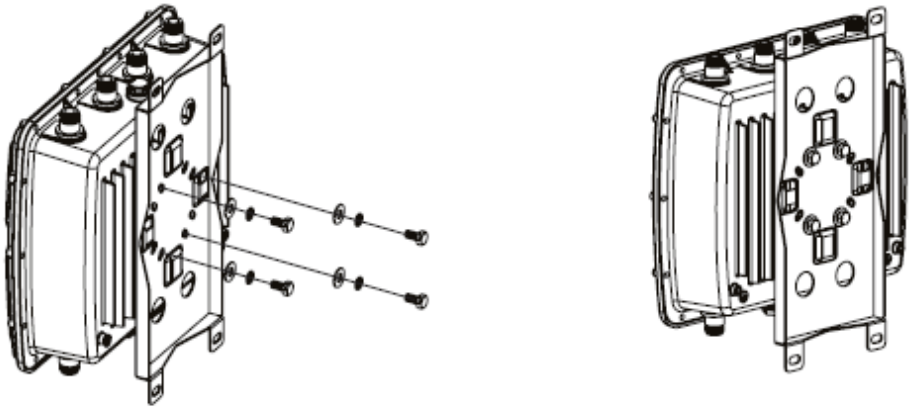
When using the access point in AP mode it is recommended to configure some basic settings as shown in** III. Quick Setup **before hardware installation.

The access point includes a mount for wall or pole which requires some assembly.

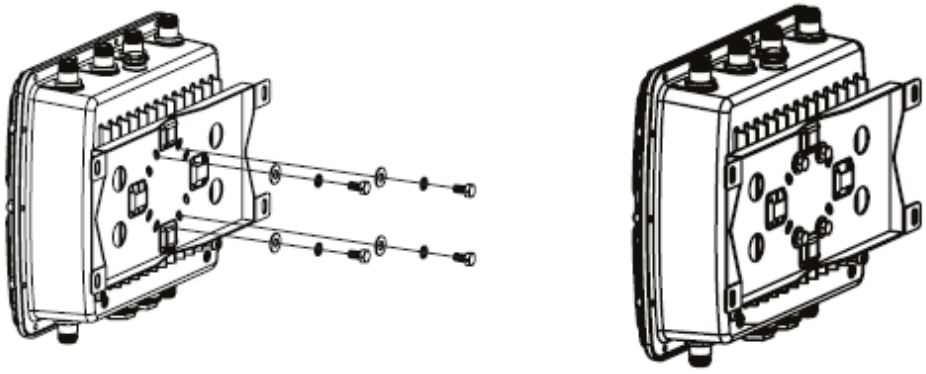
Attach the mount to the back of the access point using the twelve included M6 screws and four washers, as shown below.

Ensure your access point is securely attached to the wall mount bracket.

1.Vertical

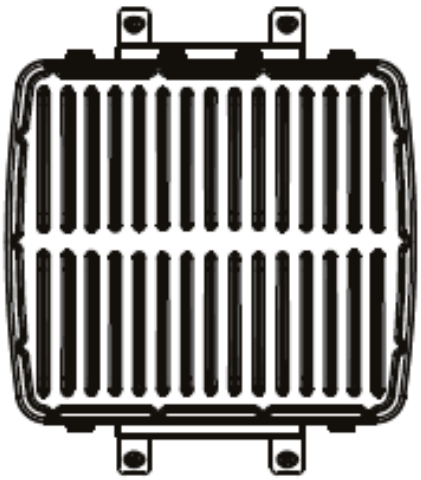


2.Horizontal



II-1. Wall Mount

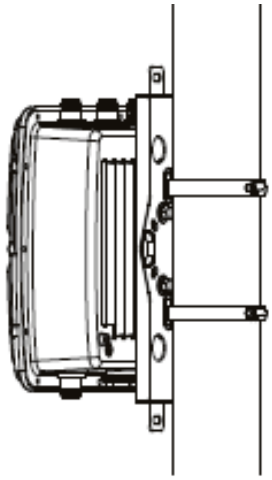
1. Attach the mount and access point to a wall using the included wood screws and plugs.



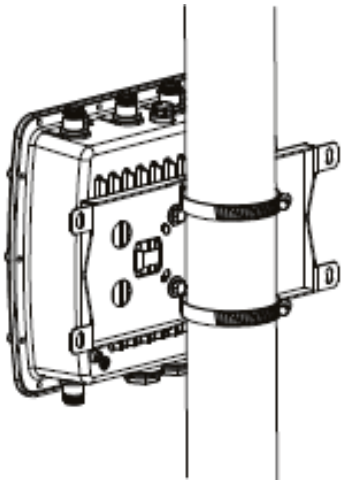
II-2. Pole Mount

1. Fix the mount and access point to a pole using the included stainless tie back straps.

Type 1



Type 2



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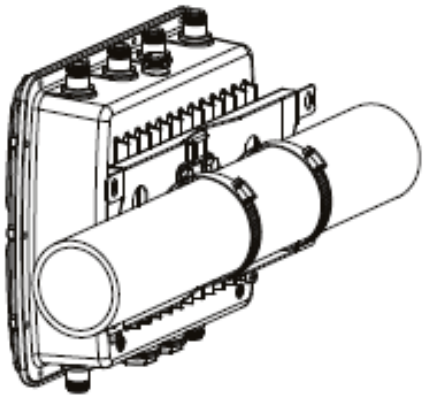


III. Quick Setup

The Long Range 802.11ac Dual-Band Concurrent Outdoor Access Point features a range of powerful functions:

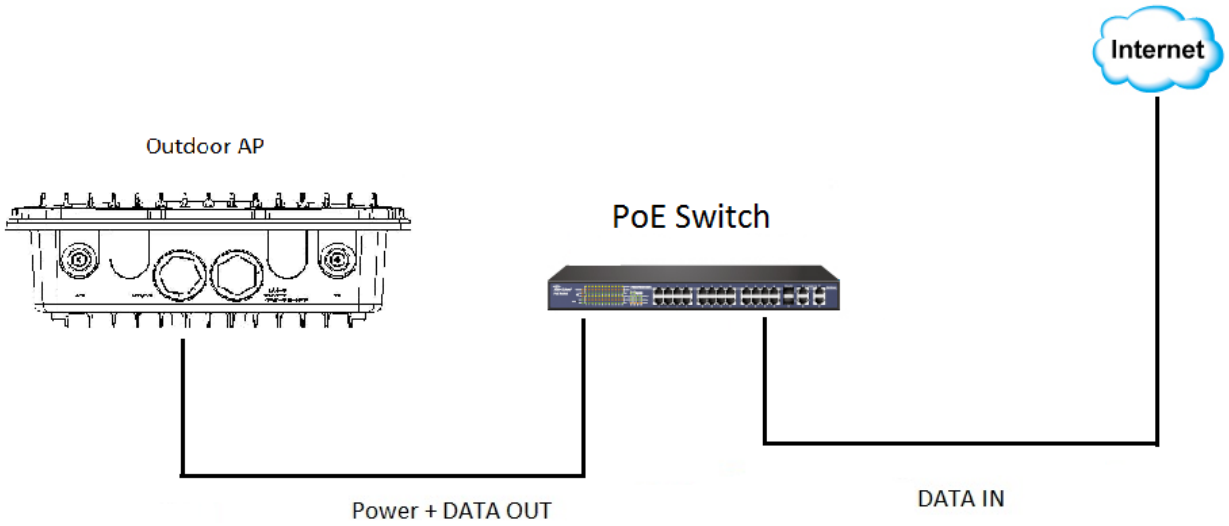
- 802.11ac Dual-band Concurrent high speed wireless technology
- 32 SSIDs for Management
- SNMP v1/v2c/v3

Your access point can be up and running in just a few minutes. It can function as a standalone access point (AP mode) or as part of an AP array (Managed AP mode).

For use a Managed AP in an AP array, the access point will automatically switch mode when an AP Controller is configured as described in **III-2. Edimax Pro NMS.**

III-1. AP Mode Initial Setup

1. Connect the access point to a PoE Switch or PoE Injector via Ethernet cable which can supply power and data out.



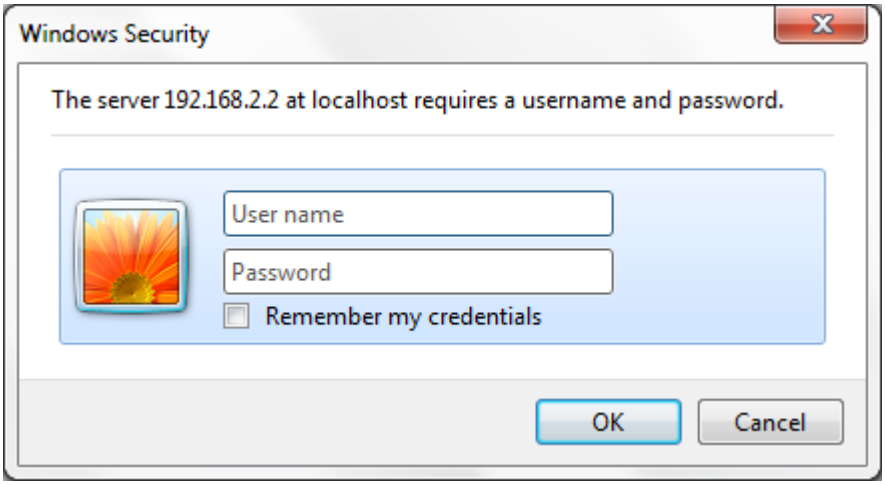
2. Please wait a moment for the access point to start up. The access point is ready when the LED is **green**.

3. Set your computer's IP address to **192.168.2.x** where **x** is a number in the range **3 – 100**.

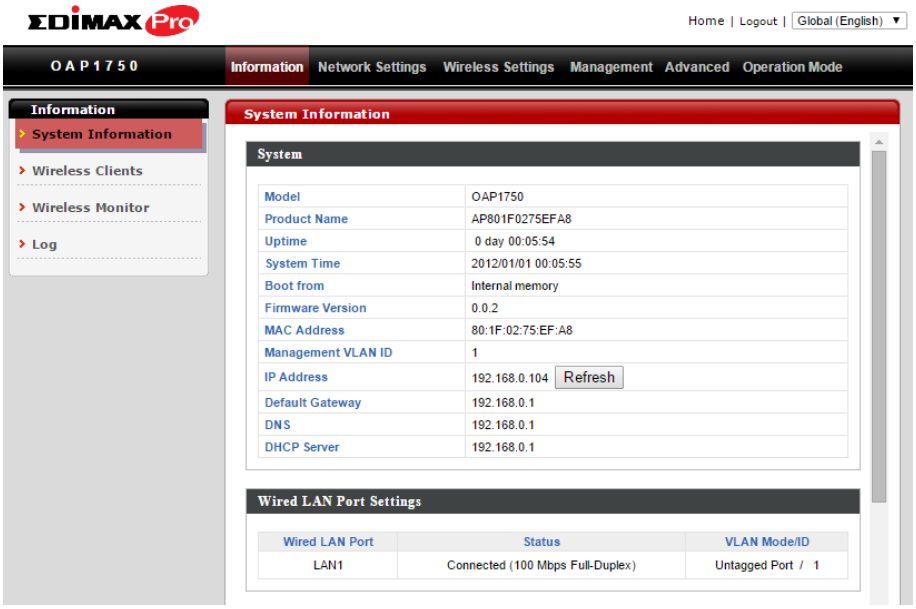
Please ensure there are no other active network connections on your computer (disconnect Wi-Fi connections and Ethernet cables).

4. Enter the access point's default IP address **192.168.2.2** into the URL bar of a web browser.

5. You will be prompted for a user name and password. Enter the default username "admin" and the default password "1234".



6. You will arrive at the "System Information" screen shown below.

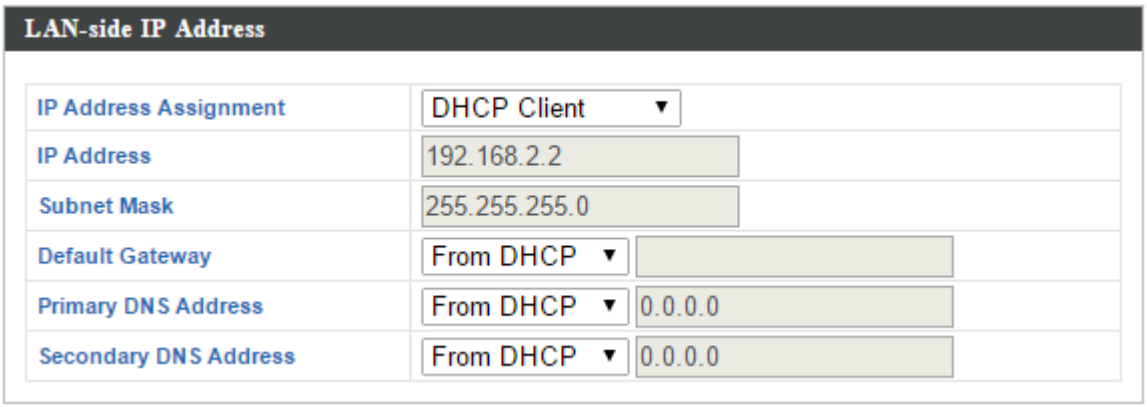


The next steps will help you to configure the following basic settings of the access point:

- ***LAN IP Address***
- ***2.4GHz & 5GHz SSID & Security***
- ***Administrator Name & Password***
- ***Time & Date***

It is recommended you configure these settings before using the access point.

1. To change the access point's LAN IP address, go to **"Network Settings" > "LAN-side IP Address"** and you will see the screen below.



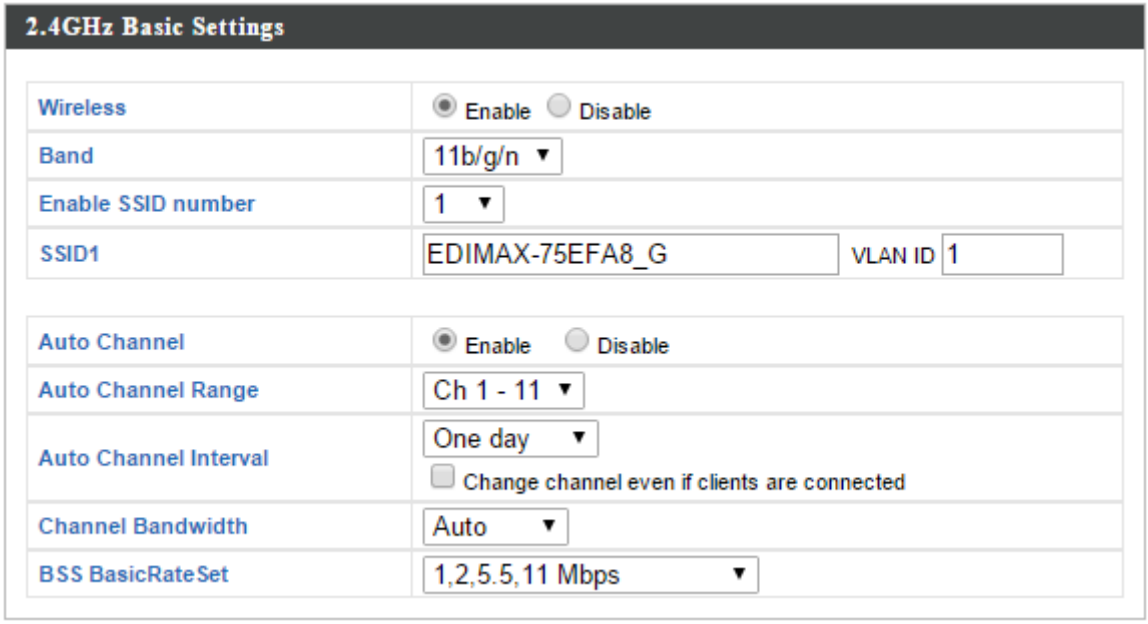
2. Enter the IP address settings you wish to use for your access point. You can use a dynamic (DHCP) or static IP address, depending on your network

environment. Click “Apply” to save the changes and wait a few moments for the access point to reload.

When you change your access point’s IP address, you need to use the new IP address to access the browser based configuration interface instead of the default IP *192.168.2.2.*

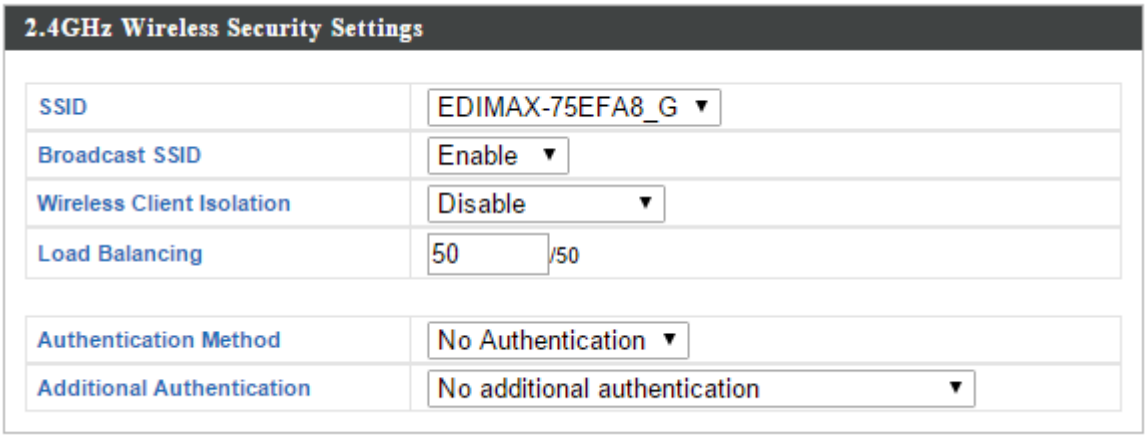
3. To change the SSID of your access point’s 2.4GHz wireless network(s), go to **“Wireless Settings” > “2.4GHz 11bgn” > “Basic”**. Enter the new SSID for your 2.4GHz wireless network in the “SSID1” field and click “Apply”.

To utilize multiple 2.4GHz SSIDs, open the drop down menu labelled *“Enable SSID number”* ***and select how many SSIDs you require. Then enter a new SSID in the corresponding numbered fields below, before clicking “Apply”.***

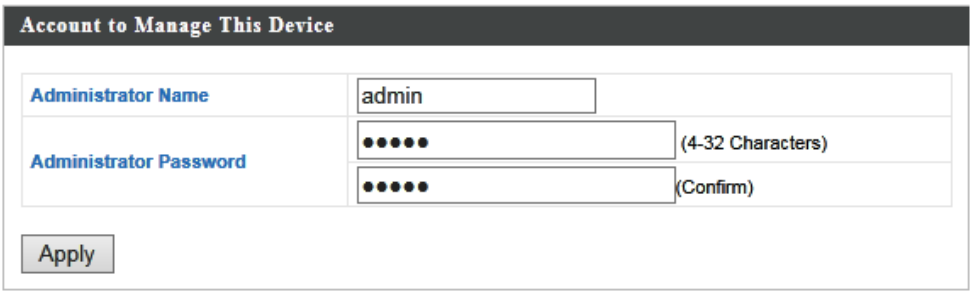


4. To configure the security of your access point’s 2.4GHz wireless network(s), go to **“Wireless Settings” > “2.4GHz 11bgn” > “Security”**. Select an “Authentication Method” and enter a “Pre-shared Key” or “Encryption Key” depending on your choice, then click “Apply”.

If using multiple SSIDs, specify which SSID to configure using the “SSID” drop down menu.

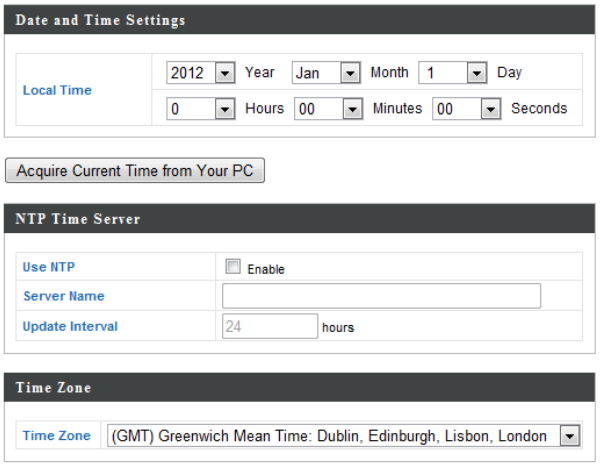


5. Go to **"Wireless Settings" > "5GHz 11ac 11an"** and repeat steps **3 & 4** for the access point's 5GHz wireless network.
6. To change the administrator name and password for the browser based configuration interface, go to **"Management" > "Admin"**.



7. Complete the "Administrator Name" and "Administrator Password" fields and click "Apply".

8. To set the correct time for your access point, go to **"Management" > "Date and Time Settings"**.



9. Set the correct time and time zone for your access point using the drop down menus. The access point also supports NTP (Network Time Protocol) so alternatively you can enter the host name or IP address of a time server. Click "Apply" when you are finished.

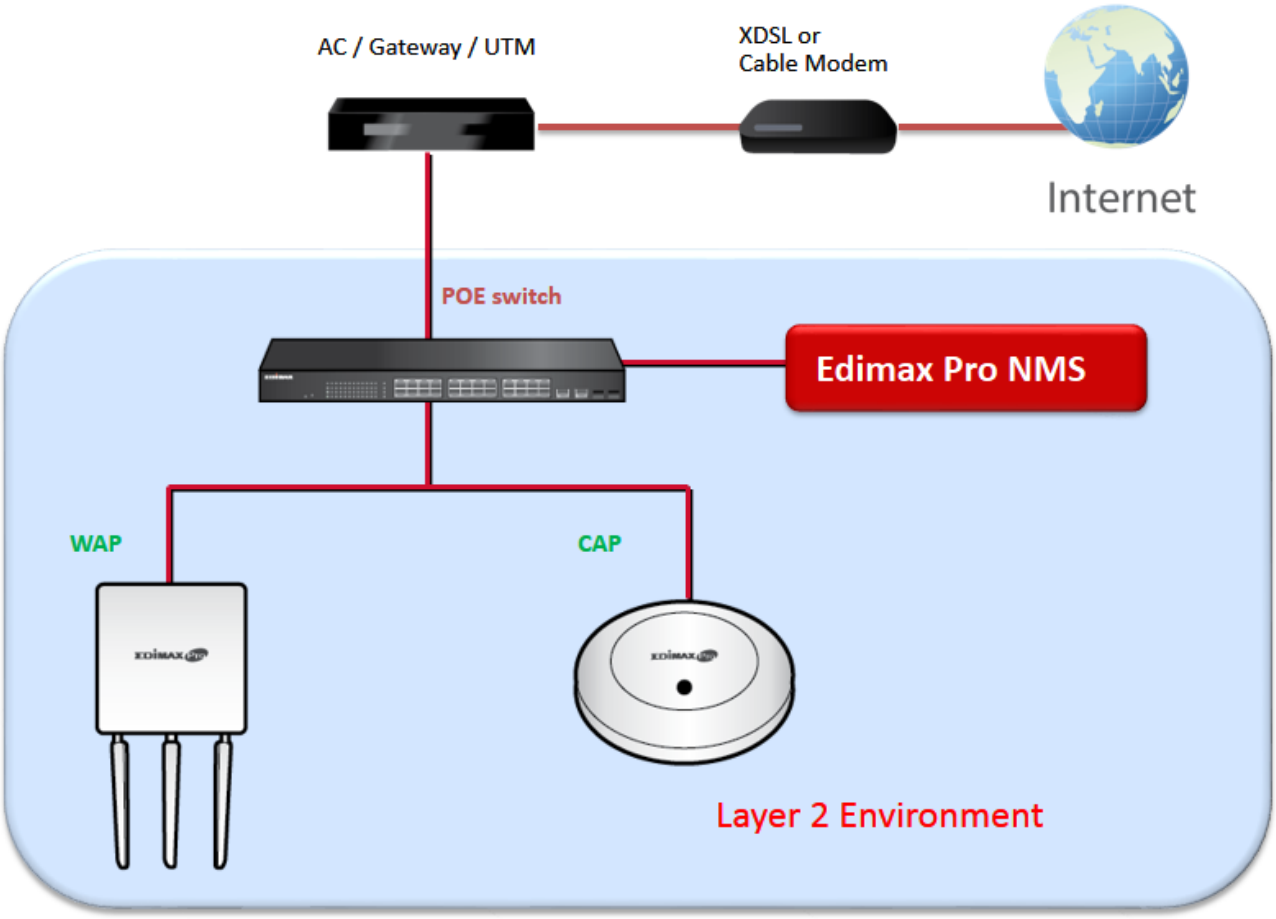
You can use the "Acquire Current Time from your PC" button if you wish to set the access point to the same time as your PC.

10. The basic settings of your access point are now configured.

III-2. Edimax Pro NMS

Edimax Pro Network Management Suite (NMS) supports the central management of a group of access points, otherwise known as an AP Array. NMS supports up to 16 Edimax Pro access points with no additional wireless controller required or 32 access points with the APC 500 AP controller - reducing costs and facilitating efficient remote AP management.

Edimax Pro NMS is simple to setup. An overview of the system is shown below:



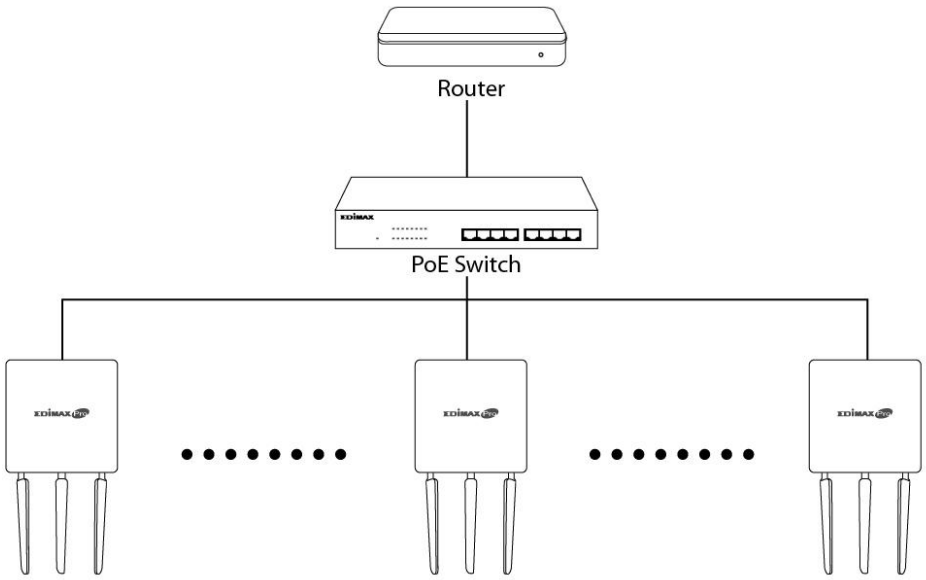
One AP (access point) is designated as the AP Controller (master) and other connected Edimax Pro APs are automatically designated as Managed APs (slaves). Using Edimax Pro NMS you can monitor, configure and manage all Managed APs (up to 32) from the single AP Controller.

The OAP1750 functions as a Managed AP and cannot act as an AP Controller.

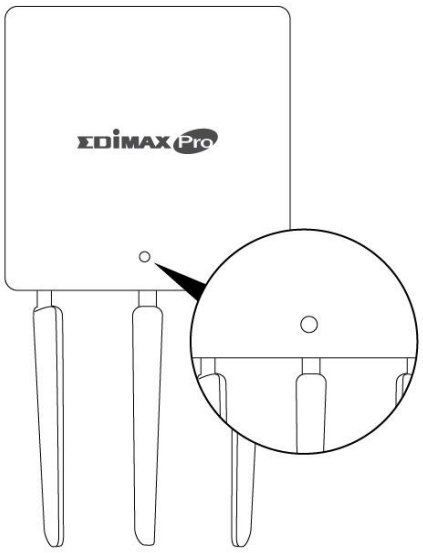
When using an Edimax NMS AP controller, other connected APs are automatically set to Managed APs. In the case that the AP Controller cannot find your OAP1750 as a Managed AP, you can configure the setting manually as below:

1. Ensure all APs including your OAP1750 are connected to an Ethernet or PoE switch which is connected to a gateway/router.

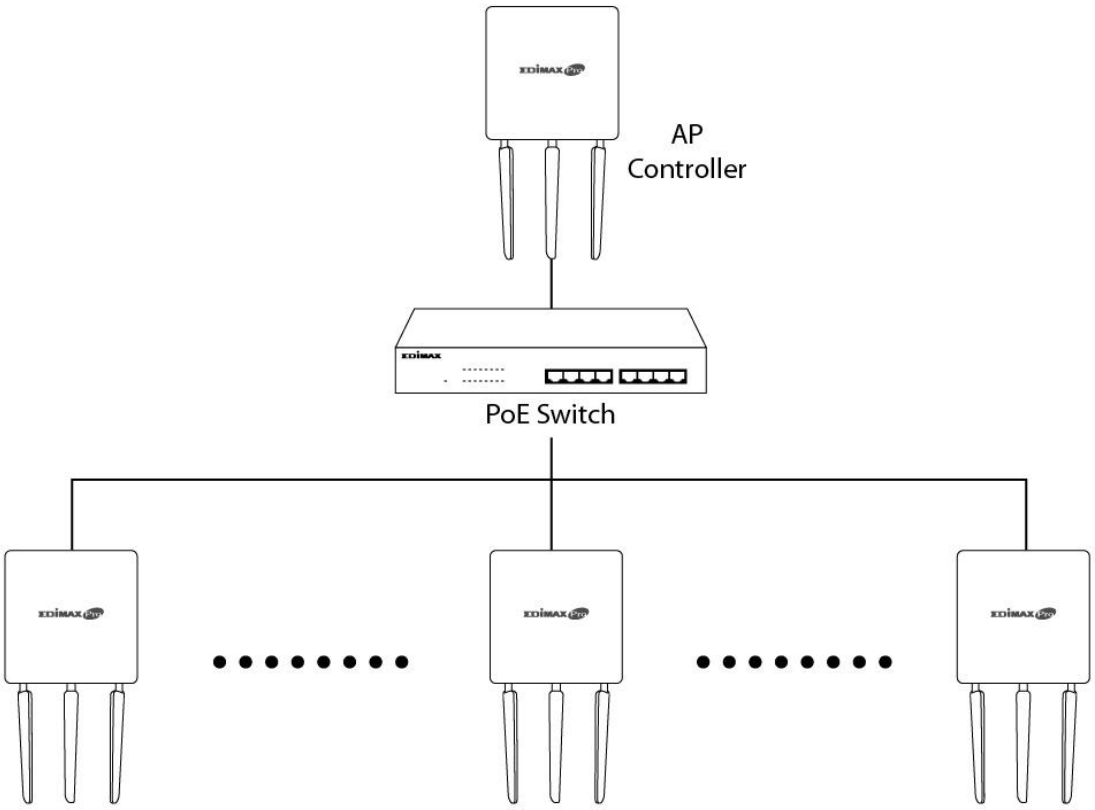
You can use your router as a DHCP server or you can later configure your AP Controller as a DHCP server.



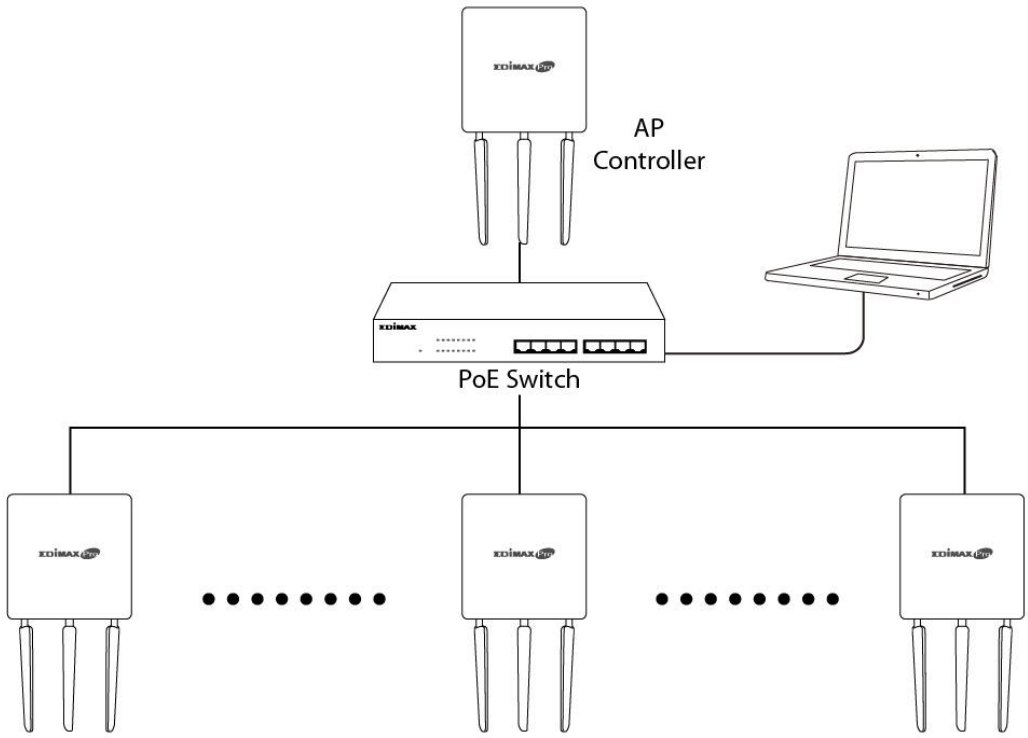
2. Ensure all APs are powered on and check LEDs.



3. Ensure you have setup and designated one AP as the AP Controller which will manage all other connected APs (up to 32 depending on model).



4. Connect a computer to the OAP1750 via PoE switch using an Ethernet cable.



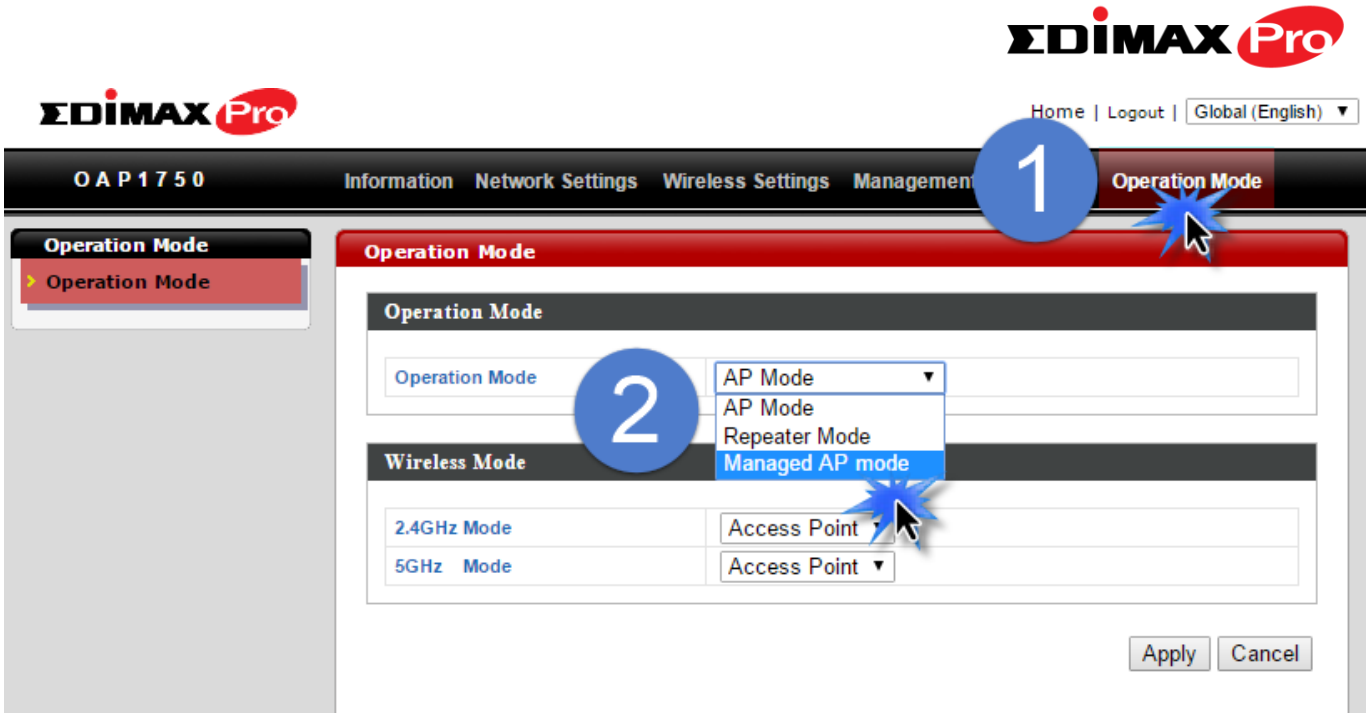
5. Open a web browser and enter the OAP1750's IP address in the address field. The default IP address is **192.168.2.2**

Your computer's IP address must be in the same subnet as the OAP1750. Refer to the user manual for more help.

If you changed the AP Controller's IP address, or if your gateway/router uses a DHCP server, ensure you enter the correct IP address. Refer to your gateway/router's settings.

6. Enter the username & password to login. The default username & password are **admin** & **1234**.

7. You will arrive at the Edimax Pro NMS Dashboard. Go to **"Operation Mode"** and select **"Managed AP Mode"** from the drop down menu.



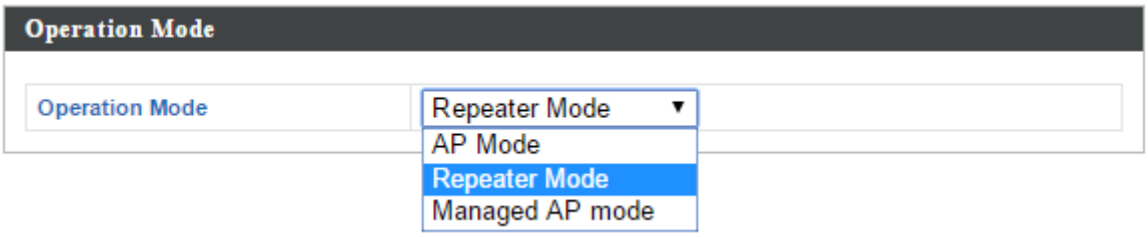
8. Click “Apply” to save the settings and your AP Controller & Managed APs should be fully functional. Use Edimax NMS on your AP controller to manage & monitor your Managed APs.

Refer to your AP controller’s user manual for help with Edimax NMS.

III-3. Repeater Mode

When you set the **operation mode** to **repeater mode**, the AP will not get an IP address from the router/root AP. You will need to set your computer's IP address and use the APs default IP address to access the UI for the first time, refer to **Appendix** for more help.

Wireless Settings → Wireless Extender displays details about the APs wireless connection in repeater mode and enables you to connect to a source SSID and configure the new (repeater) SSID. Settings are saved as **profiles**.



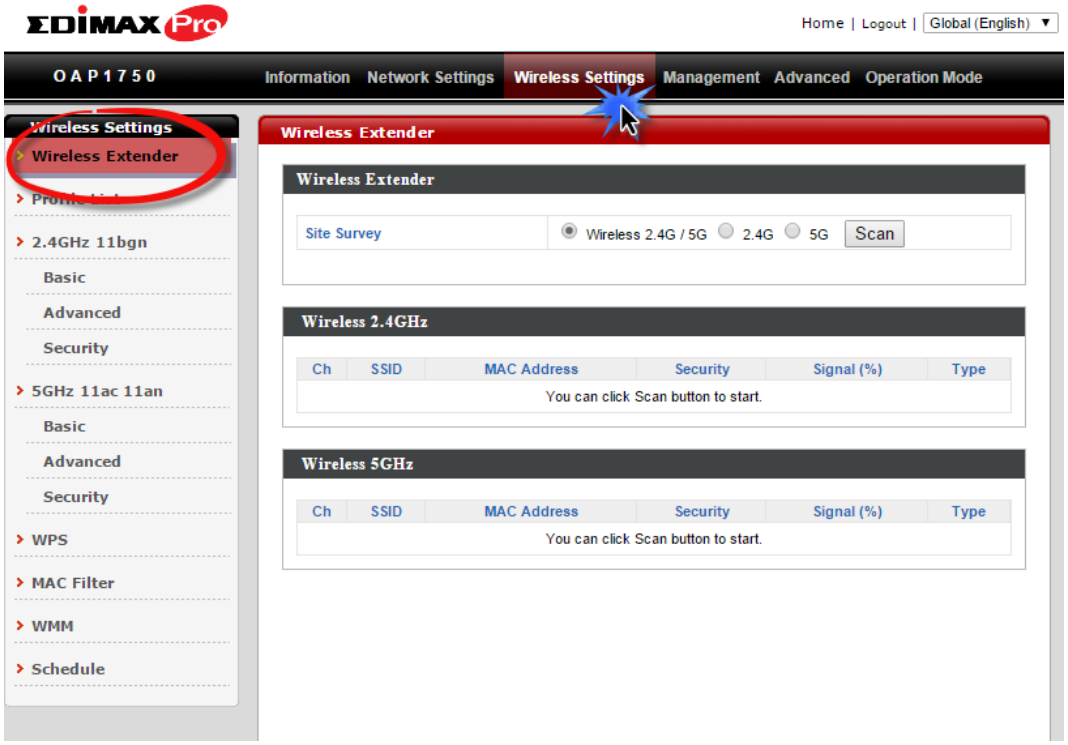
1. Set your computer's IP address to **192.168.2.x** where **x** is a number in the range **3 – 100**.

Please ensure there are no other active network connections on your computer (disconnect Wi-Fi connections and Ethernet cables).

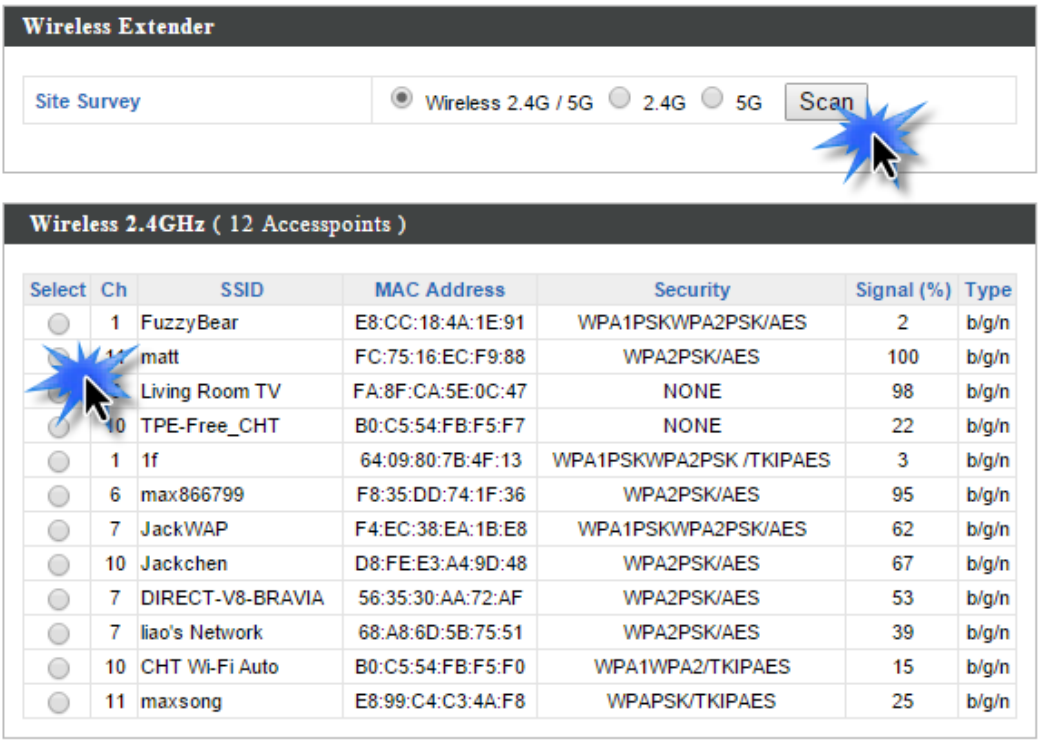
2. Enter the access point's default IP address **192.168.2.2** into the URL bar of a web browser.

3. You will be prompted for a user name and password. Enter the default username "admin" and the default password "1234".

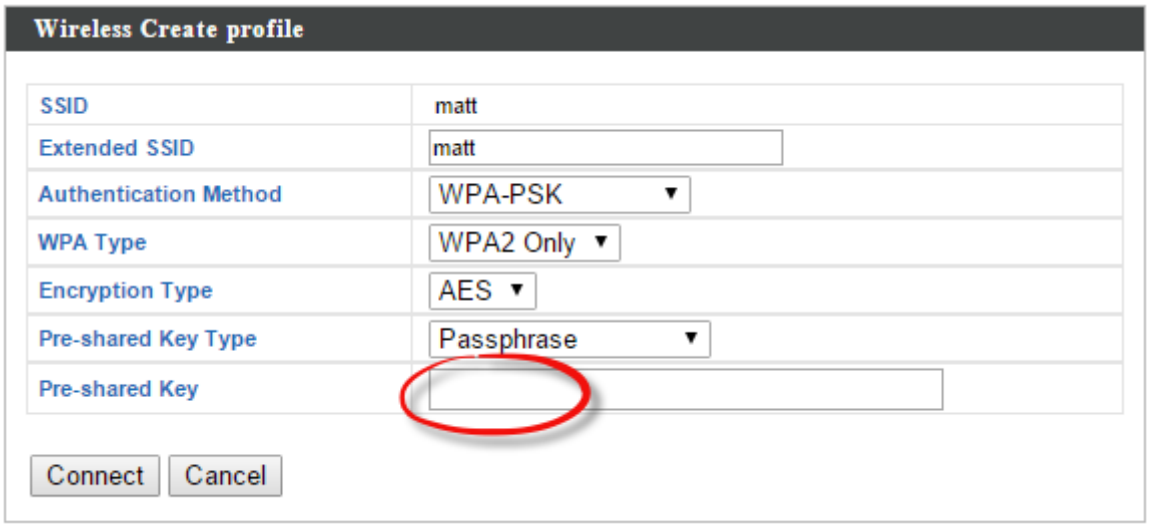
4. Go to **Wireless Settings → Wireless Extender.**



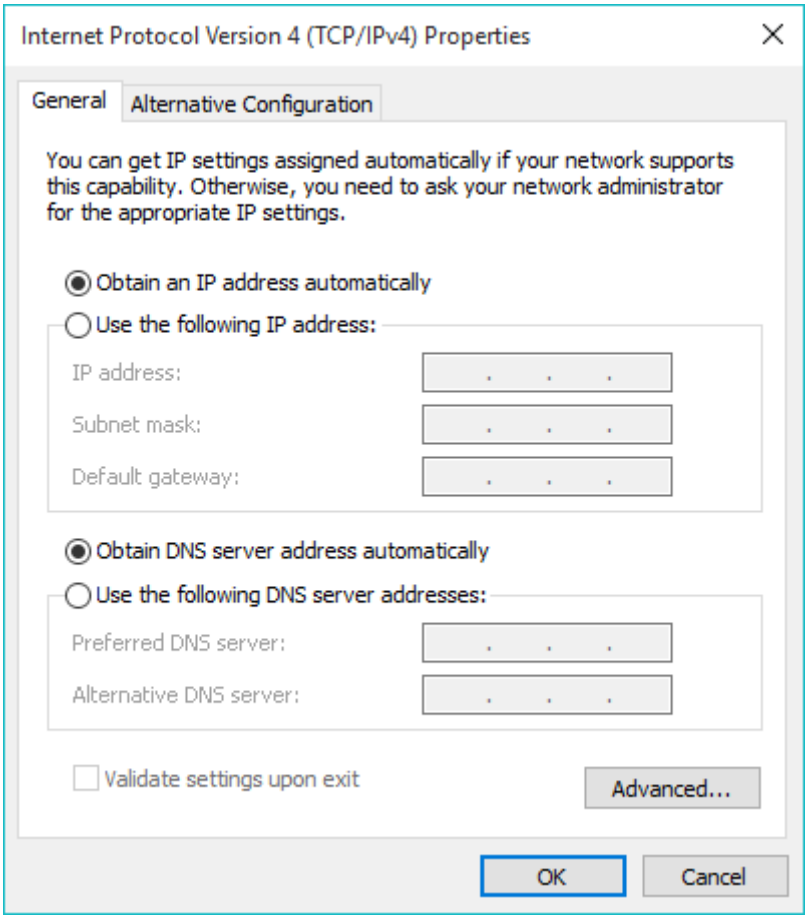
5. Click **Scan** to search for and display available SSIDs and click **Select** to connect to an available source SSID. SSIDs can be configured independently for each frequency 2.4GHz & 5GHz.



6. Edit the new **extended** SSID according to your preference and enter the security details for the source SSID, and then click **Connect**.



7. The AP in repeater mode will establish a connection to the source SSID and repeat the extended SSID. The repeater AP will become a DHCP client of the router/root AP. Switch your computer back to a dynamic IP address.



8. To access the web U.I. use the URL **http://edimax.setup.com** when connected to the same network as the repeater, or check your router/root AP's settings to determine the repeater's new IP address.

IV. Browser Based Configuration Interface

In Managed AP mode some functions of the browser based configuration interface are disabled. Please use Edimax Pro NMS on your Controller AP to configure your Managed AP(s).

The browser-based configuration interface enables you to configure the access point's advanced features. The OAP1750 features a range of advanced functions such as MAC filtering, MAC RADIUS authentication, VLAN configurations, up to 32 SSIDs and many more. To access the browser based configuration interface:

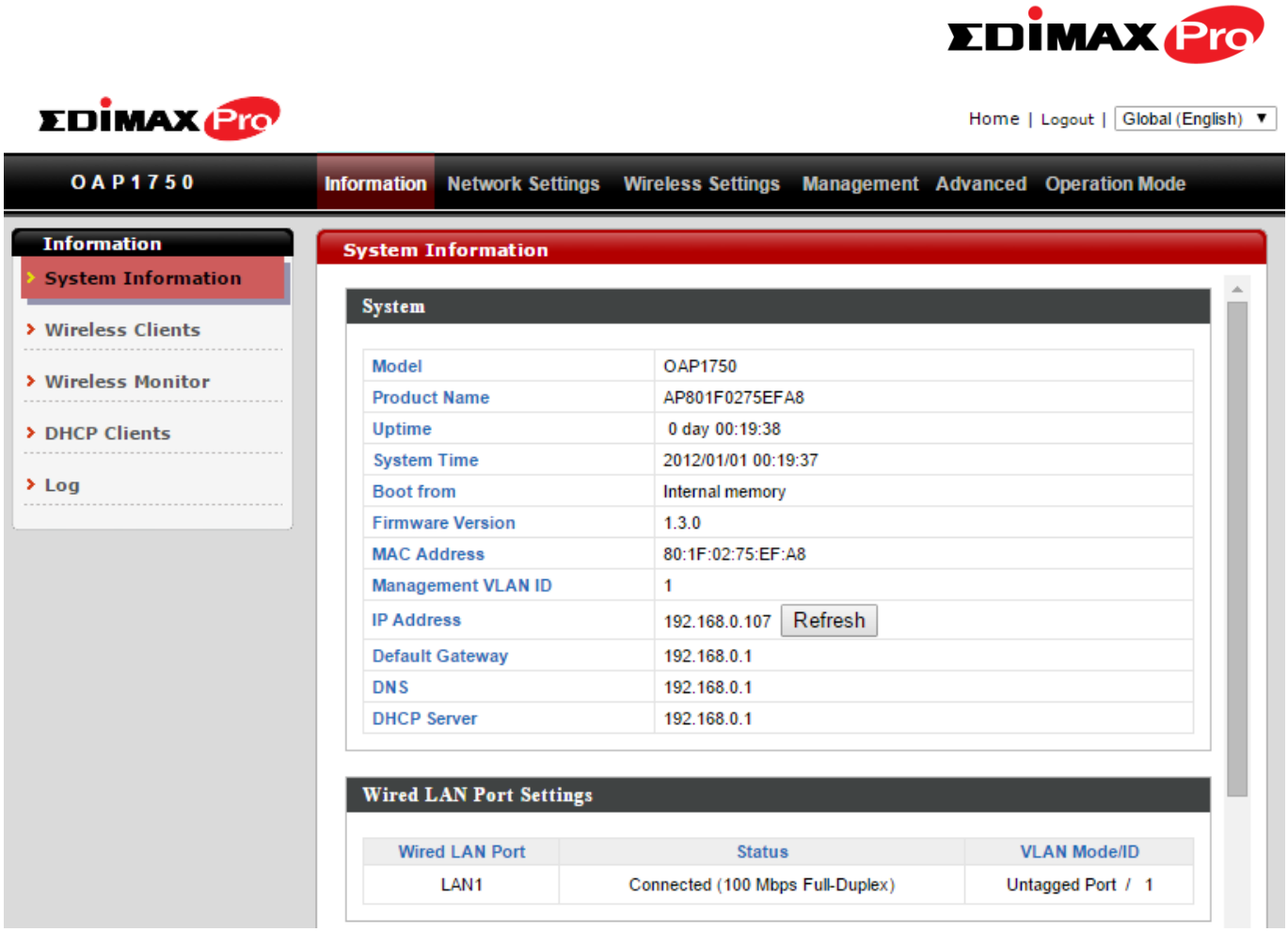
1. Connect a computer to your access point using an Ethernet cable.

2. Enter your access point's IP address in the URL bar of a web browser. The access point's default IP address is **192.168.2.2.**

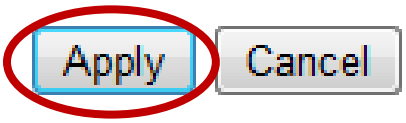
3. You will be prompted for a username and password. The default username is "admin" and the default password is "1234", though it was recommended that you change the password during setup (see **III-2. Basic Settings**).

If you cannot remember your password, reset the access point back to its factory default settings. Refer to *I-5. Reset*

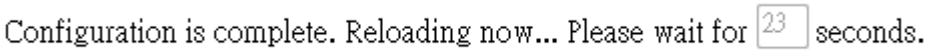
4. You will arrive at the "System Information" screen shown below.



5. Use the menu across the top and down the left side to navigate. Click "Apply" to save changes and reload the access point, or "Cancel" to cancel changes.

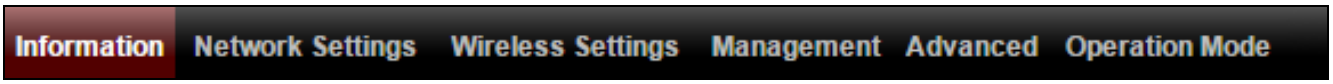


Please wait a few seconds for the access point to reload after you "Apply" changes, as shown below.



6. Please refer to the following chapters for full descriptions of the browser based configuration interface features.

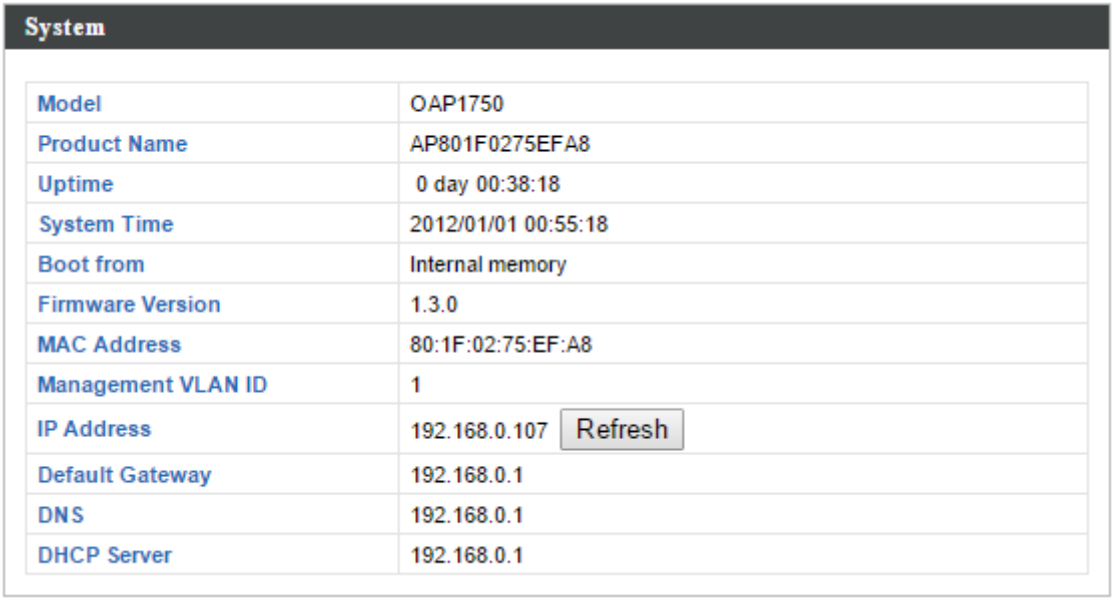
IV-1. Information



Screenshots displayed are examples. The information shown on your screen will vary depending on your configuration.

IV-1-1. System Information

The “System Information” page displays basic system information about the access point.



System

Model	OAP1750
Product Name	AP801F0275EFA8
Uptime	0 day 00:38:18
System Time	2012/01/01 00:55:18
Boot from	Internal memory
Firmware Version	1.3.0
MAC Address	80:1F:02:75:EF:A8
Management VLAN ID	1
IP Address	192.168.0.107 Refresh
Default Gateway	192.168.0.1
DNS	192.168.0.1
DHCP Server	192.168.0.1

Wired LAN Port Settings

Wired LAN Port	Status	VLAN Mode/ID
LAN1	Connected (100 Mbps Full-Duplex)	Untagged Port / 1

Wireless 2.4GHz

Status	Enabled
MAC Address	80:1F:02:75:EF:A8
Channel	Ch 2 (Auto)
Transmit Power	100%
RSSI	-91/-83/-80

Wireless 2.4GHz /SSID

SSID	Authentication Method	Encryption Type	VLAN ID	Additional Authentication	Wireless Client Isolation
EDIMAX-75EFA 8_G	No Authentication	No Encryption	1	No additional authentication	Disabled

Wireless 2.4GHz /WDS Disabled

MAC Address	Encryption Type	VLAN Mode/ID
No WDS entries.		

Wireless 5GHz

Status	Enabled
MAC Address	80:1F:02:75:EF:A9
Channel	Ch 36 + 40 + 44 + 48 (Auto)
Transmit Power	100%
RSSI	0/0

Wireless 5GHz /SSID

SSID	Authentication Method	Encryption Type	VLAN ID	Additional Authentication	Wireless Client Isolation
EDIMAX-75EFA 8_A	No Authentication	No Encryption	1	No additional authentication	Disabled

Wireless 5GHz /WDS Disabled

MAC Address	Encryption Type	VLAN Mode/ID
No WDS entries.		

System	
Model	Displays the model number of the access point.
Product Name	Displays the product name for reference, which consists of “AP” plus the MAC address.
Uptime	Displays the total time since the device was turned on.
Boot From	Displays information for the booted hardware, booted from either USB or internal memory.
Firmware Version	Displays the firmware version.
MAC Address	Displays the access point’s MAC address.
Management VLAN ID	Displays the management VLAN ID.
IP Address	Displays the IP address of this device. Click “Refresh” to update this value.
Default Gateway	Displays the IP address of the default gateway.
DNS	IP address of DNS (Domain Name Server)
DHCP Server	IP address of DHCP Server.

Wired LAN Port Settings	
Wired LAN Port	Specifies which LAN port.
Status	Displays the status of the specified LAN port (connected or disconnected).
VLAN Mode/ID	Displays the VLAN mode (tagged or untagged) and VLAN ID for the specified LAN port. See **IV-2-3. VLAN**

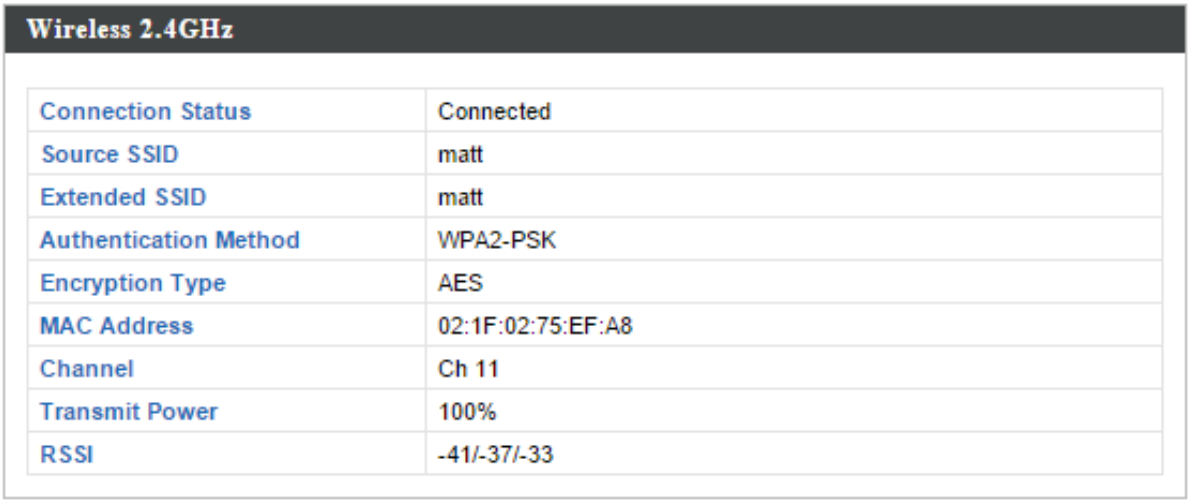
Wireless 2.4GHz (5GHz)	
Status	Displays the status of the 2.4GHz or 5GHz wireless (enabled or disabled).
MAC Address	Displays the access point’s MAC address.
Channel	Displays the channel number the specified wireless frequency is using for broadcast.
Transmit Power	Displays the wireless radio transmit power level as a percentage.
RSSI	Displays Received Signal Strength Indicator.

Wireless 2.4GHZ (5GHz) / SSID	
SSID	Displays the SSID name(s) for the specified frequency.
Authentication Method	Displays the authentication method for the specified SSID. See **IV-3. Wireless Settings**
Encryption Type	Displays the encryption type for the specified SSID. See **IV-3. Wireless Settings**
VLAN ID	Displays the VLAN ID for the specified SSID. See **IV-2-3. VLAN**
Additional Authentication	Displays the additional authentication type for the specified SSID. See **IV-3. Wireless Settings**
Wireless Client Isolation	Displays whether wireless client isolation is in use for the specified SSID. See **IV-2-3. VLAN**

Wireless 2.4GHZ (5GHz) / WDS Status	
MAC Address	Displays the peer access point's MAC address.
Encryption Type	Displays the encryption type for the specified WDS. See **IV-3-1-4. WDS**
VLAN Mode/ID	Displays the VLAN ID for the specified WDS. See **IV-3-1-4. WDS**

Refresh	Click to refresh all information.

Extender Mode:



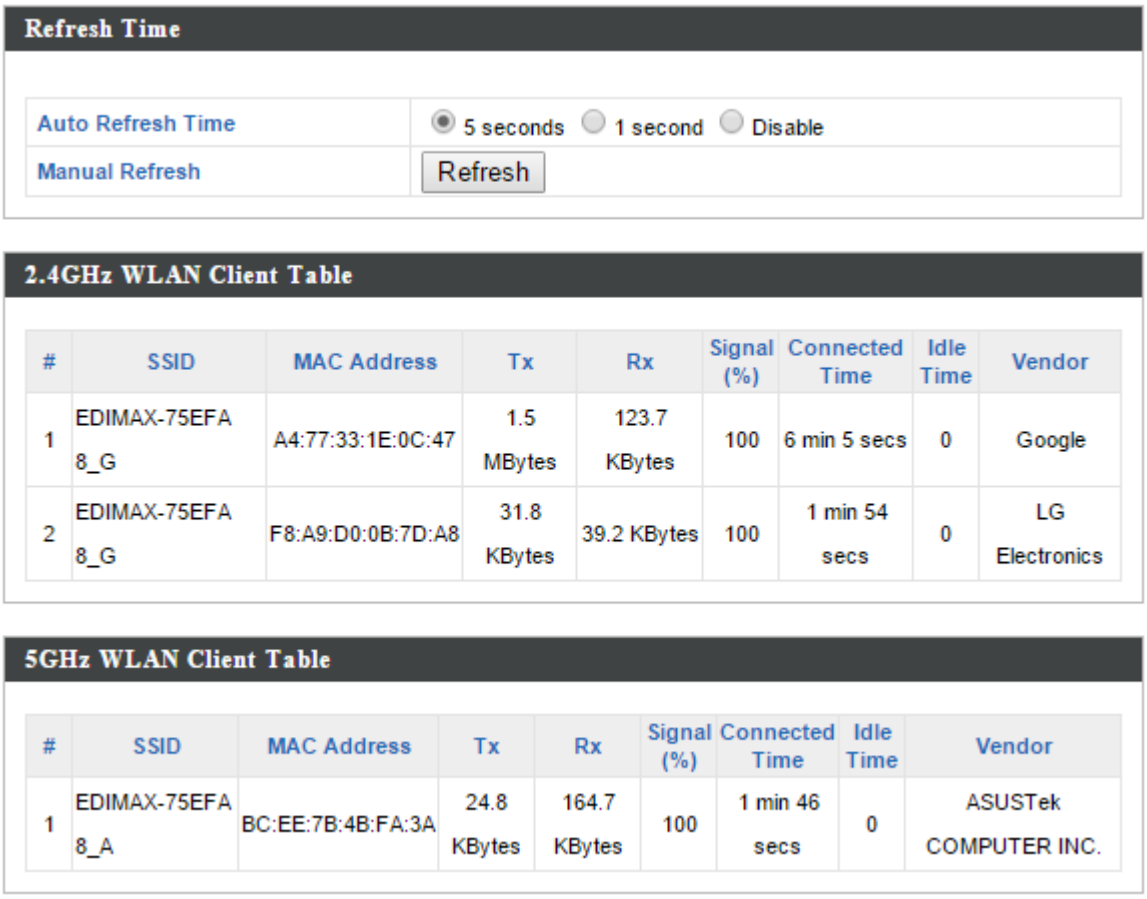
Wireless 2.4GHZ (5GHz) / SSID	
Connection Status	Current status of the repeater's connection.
Source SSID	Displays the SSID name(s) for the repeater's source.

Extended SSID	Displays the SSID name(s) of the repeater.
Authentication Method	Displays the authentication method for the specified SSID. See **IV-3. Wireless Settings**
Encryption Type	Displays the encryption type for the specified SSID. See **IV-3. Wireless Settings**
MAC Address	Displays the access point's MAC address.
Channel	Displays the channel number the specified wireless frequency is using for broadcast.
Transmit Power	Displays the wireless radio transmit power level as a percentage.
RSSI	Displays Received Signal Strength Indicator.

IV-1-2. Wireless Clients

Wireless Clients

The “Wireless Clients” page displays information about all wireless clients connected to the access point on the 2.4GHz or 5GHz frequency.



Refresh Time

Auto Refresh Time	5 seconds 1 second Disable
Manual Refresh	Refresh

2.4GHz WLAN Client Table

#	SSID	MAC Address	Tx	Rx	Signal (%)	Connected Time	Idle Time	Vendor
1	EDIMAX-75EFA 8_G	A4:77:33:1E:0C:47	1.5 MBytes	123.7 KBytes	100	6 min 5 secs	0	Google
2	EDIMAX-75EFA 8_G	F8:A9:D0:0B:7D:A8	31.8 KBytes	39.2 KBytes	100	1 min 54 secs	0	LG Electronics

5GHz WLAN Client Table

#	SSID	MAC Address	Tx	Rx	Signal (%)	Connected Time	Idle Time	Vendor
1	EDIMAX-75EFA 8_A	BC:EE:7B:4B:FA:3A	24.8 KBytes	164.7 KBytes	100	1 min 46 secs	0	ASUSTek COMPUTER INC.

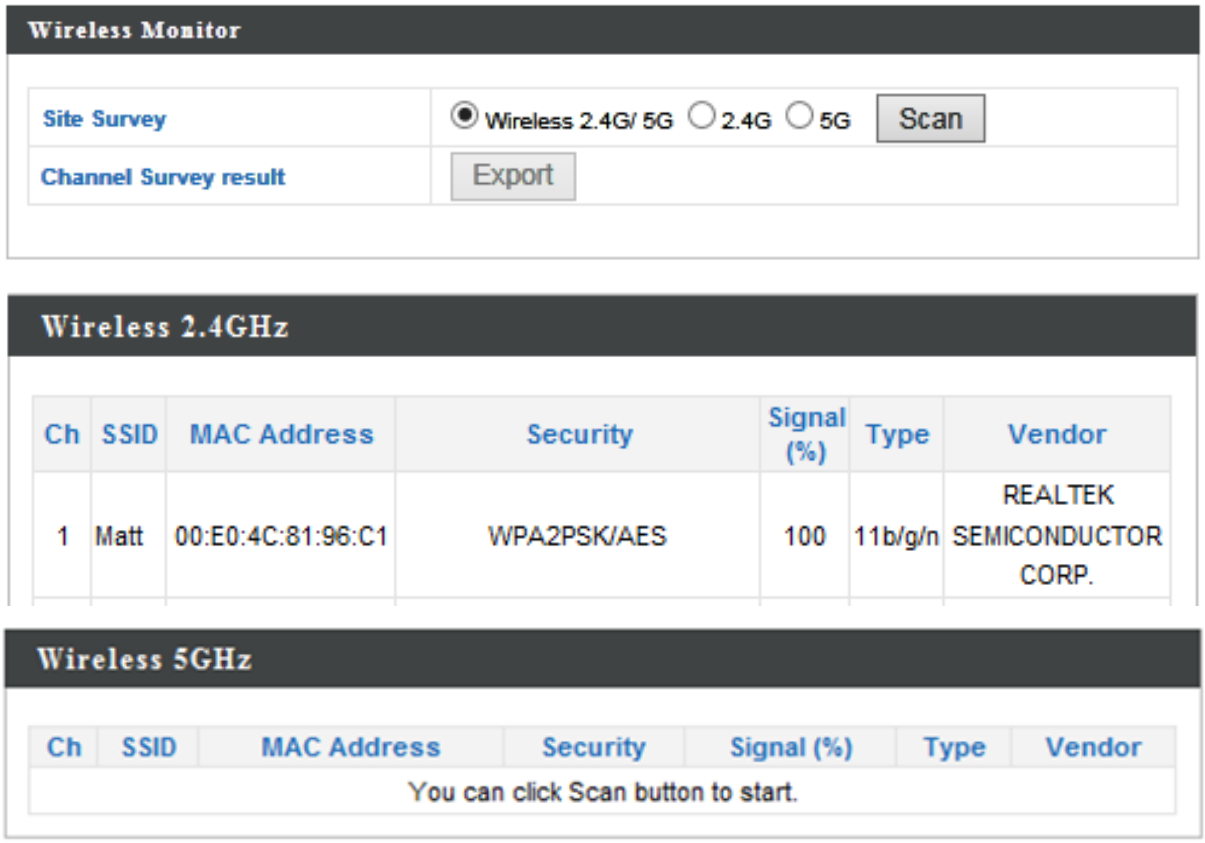
Refresh time	
Auto Refresh Time	Select a time interval for the client table list to automatically refresh.
Manual Refresh	Click refresh to manually refresh the client table.

2.4GHz (5GHz) WLAN Client Table	
SSID	Displays the SSID which the client is connected to.
MAC Address	Displays the MAC address of the client.
Tx	Displays the total data packets transmitted by the specified client.
Rx	Displays the total data packets received by the specified client.

Signal (%)	Displays the wireless signal strength for the specified client.
Connected Time	Displays the total time the wireless client has been connected to the access point.
Idle Time	Client idle time is the time for which the client has not transmitted any data packets i.e. is idle.
Vendor	The vendor of the client's wireless adapter is displayed here.

IV-1-3. Wireless Monitor

Wireless Monitor is a tool built into the access point to scan and monitor the surrounding wireless environment. Select a frequency and click “Scan” to display a list of all SSIDs within range along with relevant details for each SSID.



Wireless Monitor	
Site Survey	Select which frequency (or both) to scan, and click “Scan” to begin.
Channel Survey Result	After a scan is complete, click “Export” to save the results to local storage.

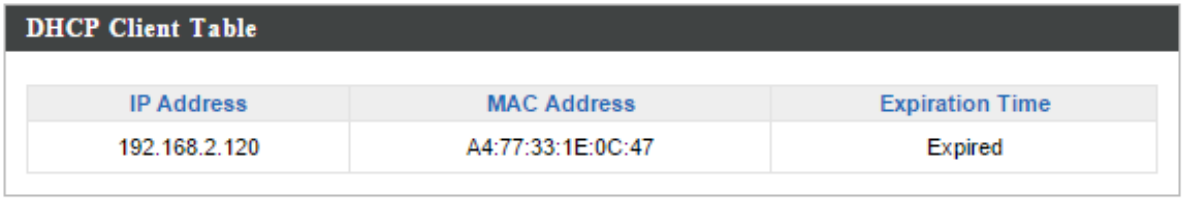
Site Survey Results	
Ch	Displays the channel number used by the specified SSID.
SSID	Displays the SSID identified by the scan.
MAC Address	Displays the MAC address of the wireless router/access point for the specified SSID.
Security	Displays the authentication/encryption type of the specified SSID.

Signal (%)	Displays the current signal strength of the SSID.
Type	Displays the 802.11 wireless networking standard(s) of the specified SSID.
Vendor	Displays the vendor of the wireless router/access point for the specified SSID.

IV-1-4. DHCP Client Table

DHCP Clients

The DHCP client table displays information about DHCP clients when DHCP server is enabled.

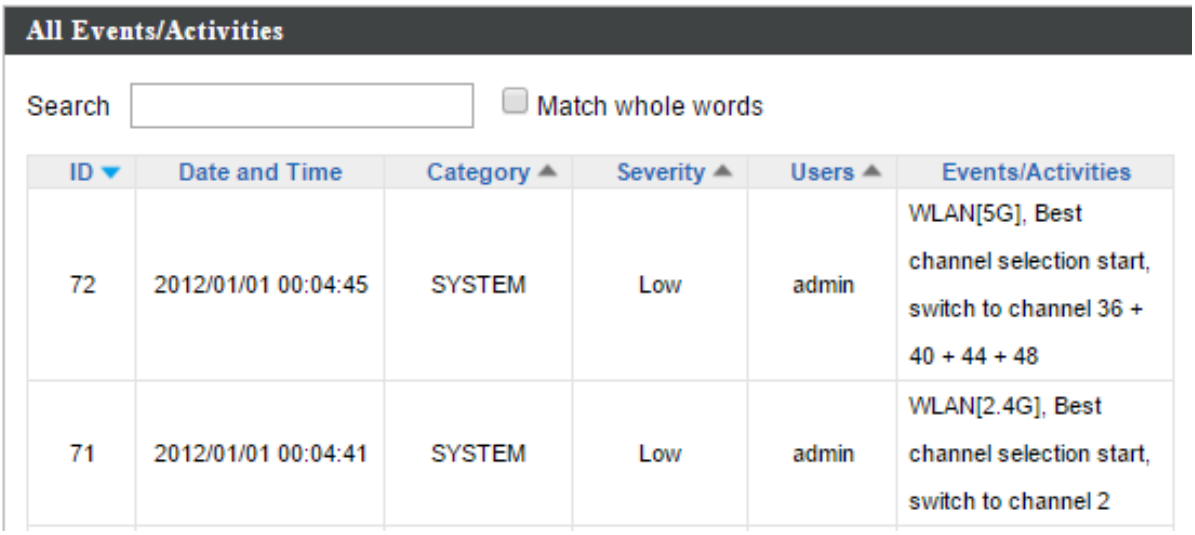


DHCP Client Table	
IP Address	Displays the IP address of listed DHCP client.
MAC Address	Displays the MAC address of listed DHCP client.
Expiration Time	Displays the expiration time for listed DHCP client.

IV-1-5. Log

System Log The system log displays system operation information such as up time and connection processes. This information is useful for network administrators.

When the log is full, old entries are overwritten. Use the Search function to quickly locate log entries.

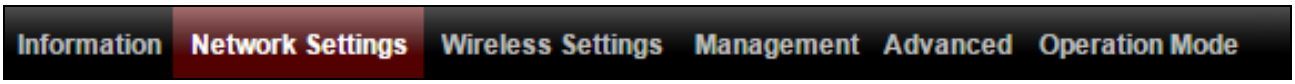


Save	Click to save the log as a file on your local computer.
Clear	Clear all log entries.
Refresh	Refresh the current log.

The following information/events are recorded by the log:

- **USB**
  Mount & unmount
- **Wireless Client**
  Connected & disconnected
  Key exchange success & fail
- **Authentication**
  Authentication fail or successful.
- **Association**
  Success or fail
- **WPS**
  M1 - M8 messages
  WPS success
- **Change Settings**
- **System Boot**
  Displays current model name
- **NTP Client**
- **Wired Link**
  LAN Port link status and speed status
- **Proxy ARP**
  Proxy ARP module start & stop
- **Bridge**
  Bridge start & stop.
- **SNMP**
  SNMP server start & stop.
- **HTTP**
  HTTP start & stop.
- **HTTPS**
  HTTPS start & stop.
- **SSH**
  SSH-client server start & stop.
- **Telnet**
  Telnet-client server start or stop.
- **WLAN (2.4G)**
  WLAN (2.4G] channel status and country/region status
- **WLAN (5G)**
  WLAN (5G) channel status and country/region status

IV-2. Network Settings

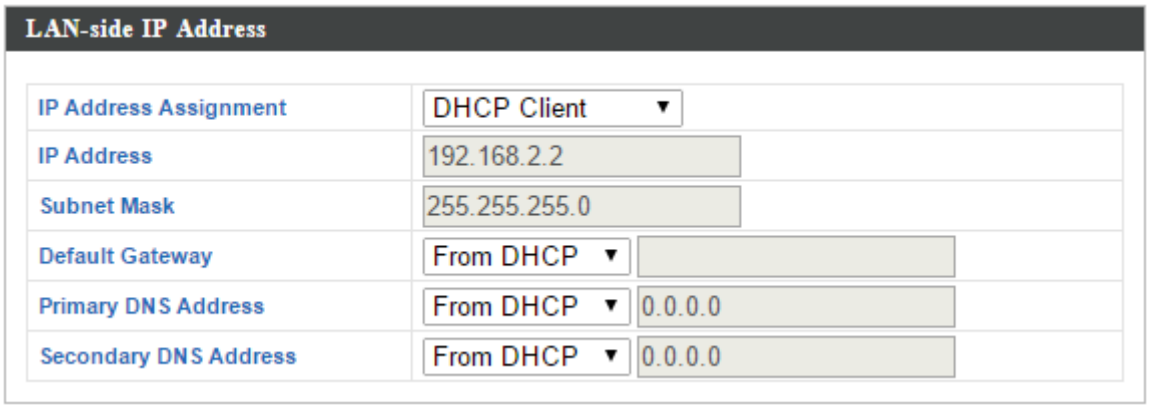


Screenshots displayed are examples. The information shown on your screen will vary depending on your configuration.

IV-2-1. LAN-Side IP Address

The "LAN-side IP address" page allows you to configure your access point on your Local Area Network (LAN). You can enable the access point to dynamically receive an IP address from your router's DHCP server or you can specify a static IP address for your access point, as well as configure DNS servers.

The access point's default IP address is 192.168.2.2.



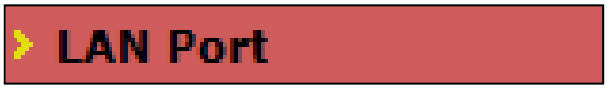
LAN-side IP Address	
IP Address Assignment	Select "DHCP Client" for your access point to be assigned a dynamic IP address from your router's DHCP server, or select "Static IP" to manually specify a static/fixed IP address for your access point (below).
IP Address	Specify the IP address here. This IP address will be assigned to your access point and will replace the default IP address.
Subnet Mask	Specify a subnet mask. The default value is 255.255.255.0

Default Gateway	For DHCP users, select “From DHCP” to get default gateway from your DHCP server or “User-Defined” to enter a gateway manually. For static IP users, the default value is blank.

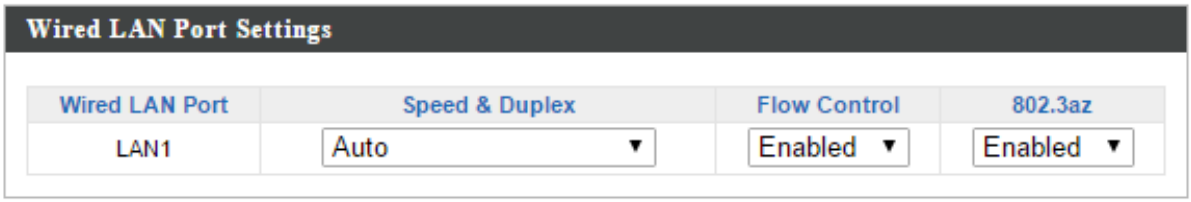
DHCP users can select to get DNS servers’ IP address from DHCP or manually enter a value. For static IP users, the default value is blank.

Primary Address	DHCP users can select “From DHCP” to get primary DNS server’s IP address from DHCP or “User-Defined” to manually enter a value. For static IP users, the default value is blank.
Secondary Address	Users can manually enter a value when DNS server’s primary address is set to “User-Defined”.

IV-2-2. LAN Port



The “LAN Port” page allows you to configure the settings for your access point’s two wired LAN (Ethernet) ports.

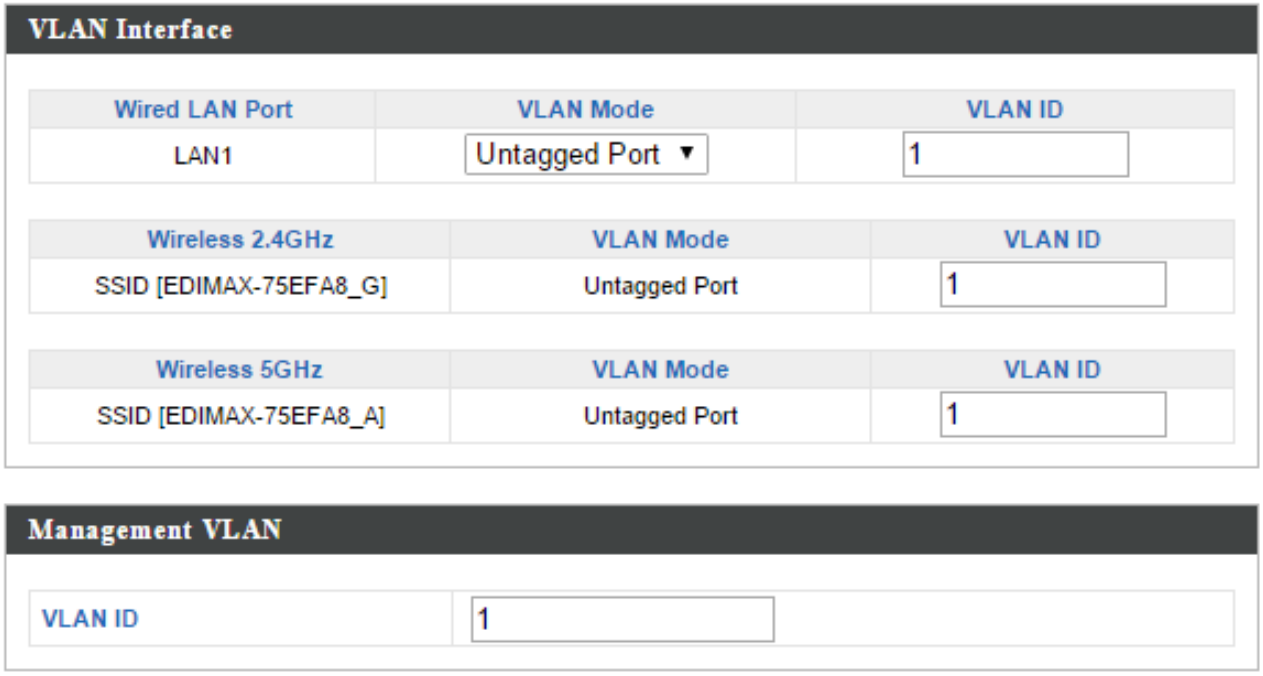


Wired LAN Port	Identifies LAN port number.
Enable	Enable/disable specified LAN port.
Speed & Duplex	Select a speed & duplex type for specified LAN port, or use the “Auto” value. LAN ports can operate up to 1000Mbps and full-duplex enables simultaneous data packets transfer/receive.
Flow Control	Enable/disable flow control. Flow control can pause new session request until current data processing is complete, in order to avoid device overloads under heavy traffic.
802.3az	Enable/disable 802.3az. 802.3az is an Energy Efficient Ethernet feature which disables unused interfaces to reduce power usage.

IV-2-3. VLAN

The "VLAN" (Virtual Local Area Network) enables you to configure VLAN settings. A VLAN is a local area network which maps workstations virtually instead of physically and allows you to group together or isolate users from each other. VLAN IDs 1 – 4095 are supported.

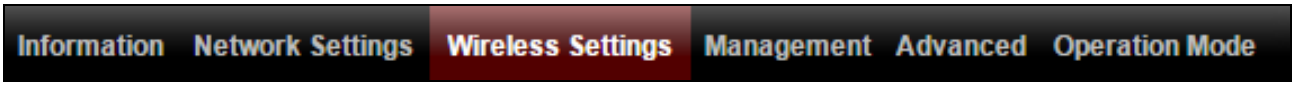
VLAN IDs in the range 1 – 4095 are supported.



VLAN Interface	
Wired LAN Port/Wireless	Identifies LAN port number and wireless SSIDs.
VLAN Mode	Select "Tagged Port" or "Untagged Port" for specified LAN interface.
VLAN ID	Set a VLAN ID for specified interface, if "Untagged Port" is selected.

Management VLAN	
VLAN ID	Specify the VLAN ID of the management VLAN. Only the hosts belonging to the same VLAN can manage the device.

IV-3. Wireless Settings

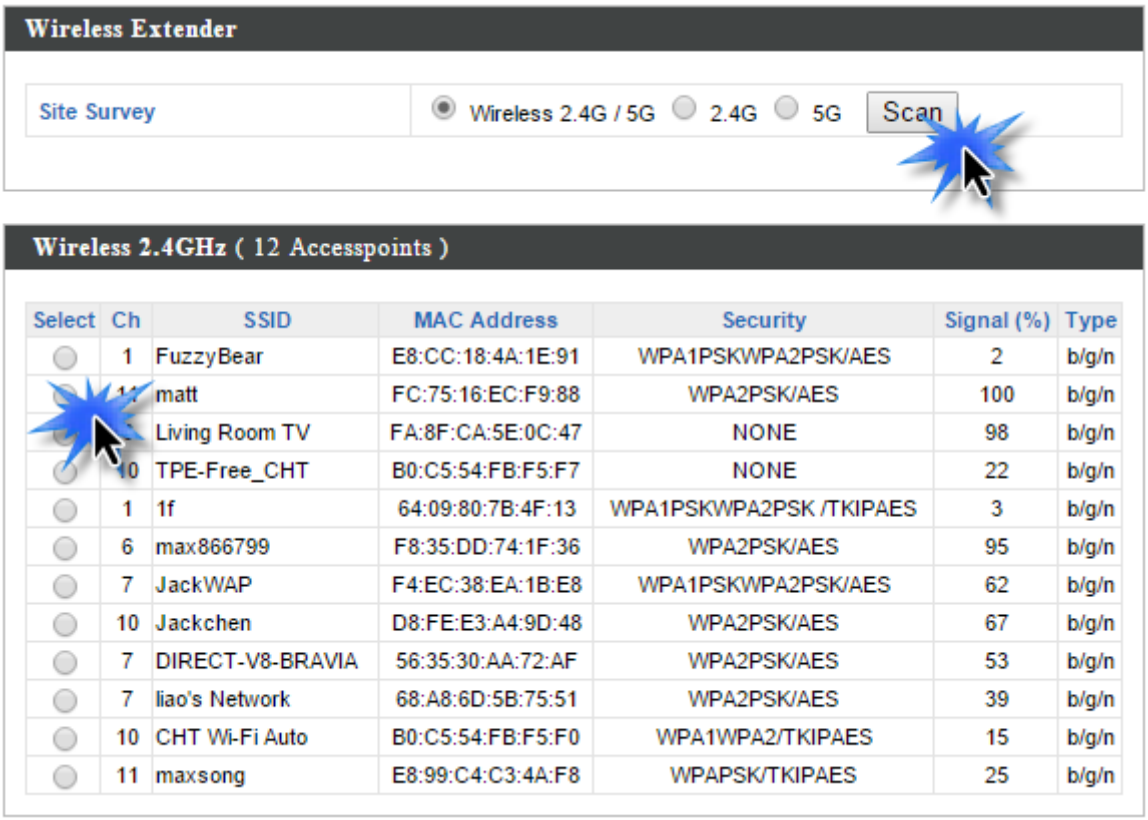


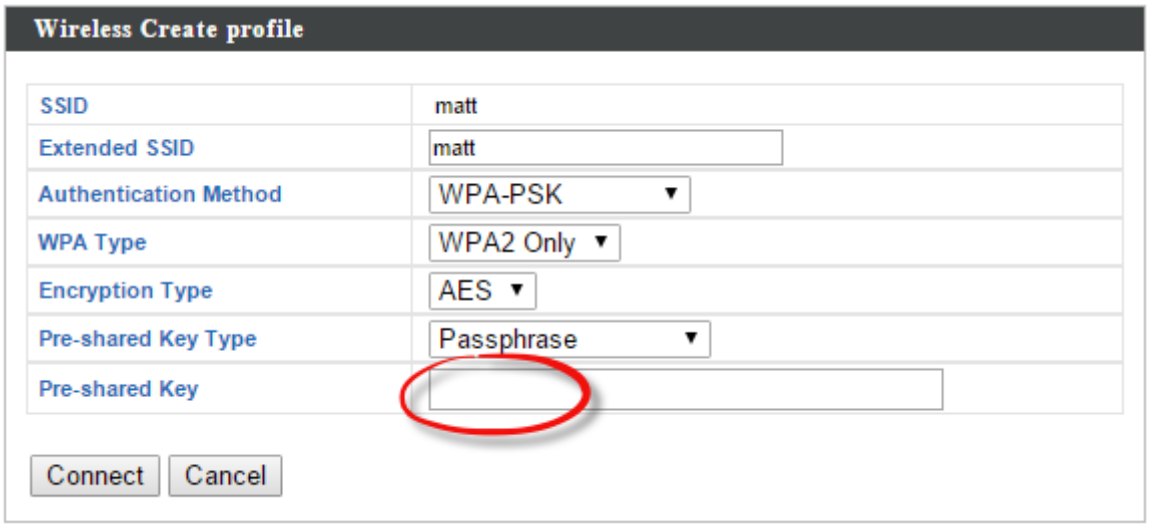
Screenshots displayed are examples. The information shown on your screen will vary depending on your configuration.

IV-3-1. Wireless Extender

Only available in Repeater Mode

The wireless extender page displays details about the APs wireless connection in repeater mode and enables you to connect to a source SSID and configure the new (repeater) SSID. Settings are saved as **profiles**. Click **Scan** to search for and display available SSIDs and click **Select** to connect to an available SSID. SSIDs can be configured independently for each frequency 2.4GHz & 5GHz.





Wireless 2.4GHz/5GHz	
Select	Click to select an SSID and display a new **Create Profile** window to enter security information (below).
Channel	Displays the channel number of listed SSID.
SSID	Displays the SSID.
MAC Address	Displays the MAC address of specified SSID.
Security	Displays the existing security type for listed SSID.
Signal (%)	Displays the available signal strength for listed SSID.
Type	Displays the wireless 802.11 standard for each SSID.

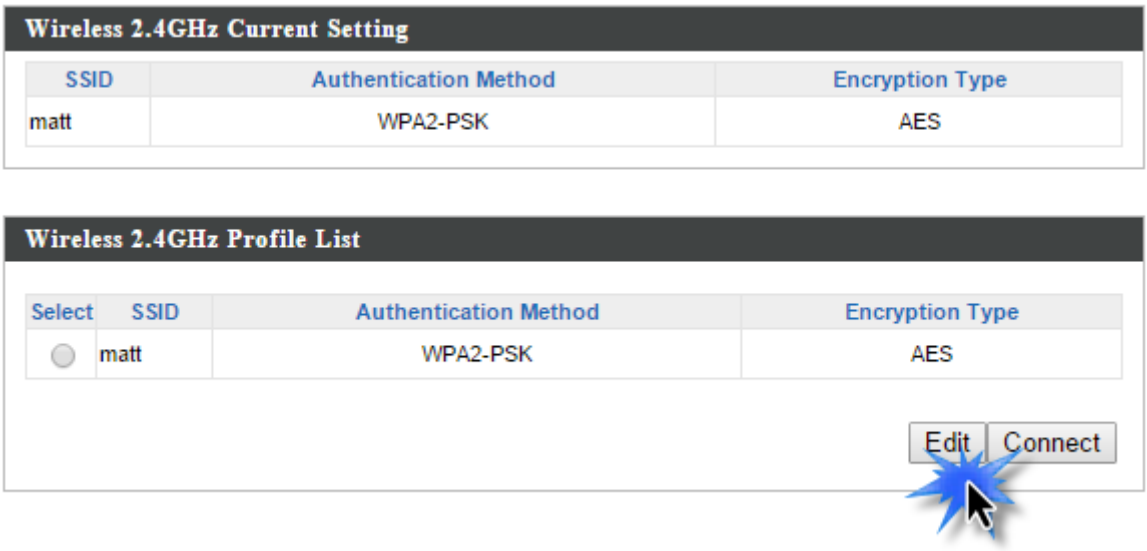
Wireless Create Profile	
SSID	Displays the selected source SSID for this profile.
Extended SSID	Edit the new SSID for this profile.
Authentication Method	Select the source SSIDs authentication method and enter encryption key/pre-shared key.

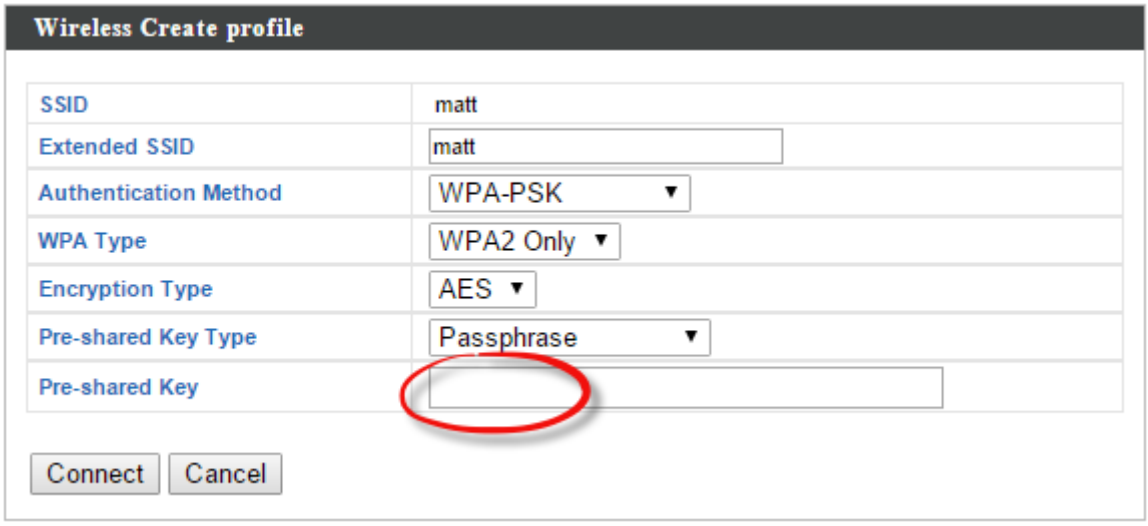
IV-3-2. Profile List

Only available in Repeater Mode

Profile List

Repeater mode settings are saved as profiles. Profiles can be edited and multiple profiles can be created to switch between profiles easily as required. Select an existing profile and click **Edit** or **Connect**.





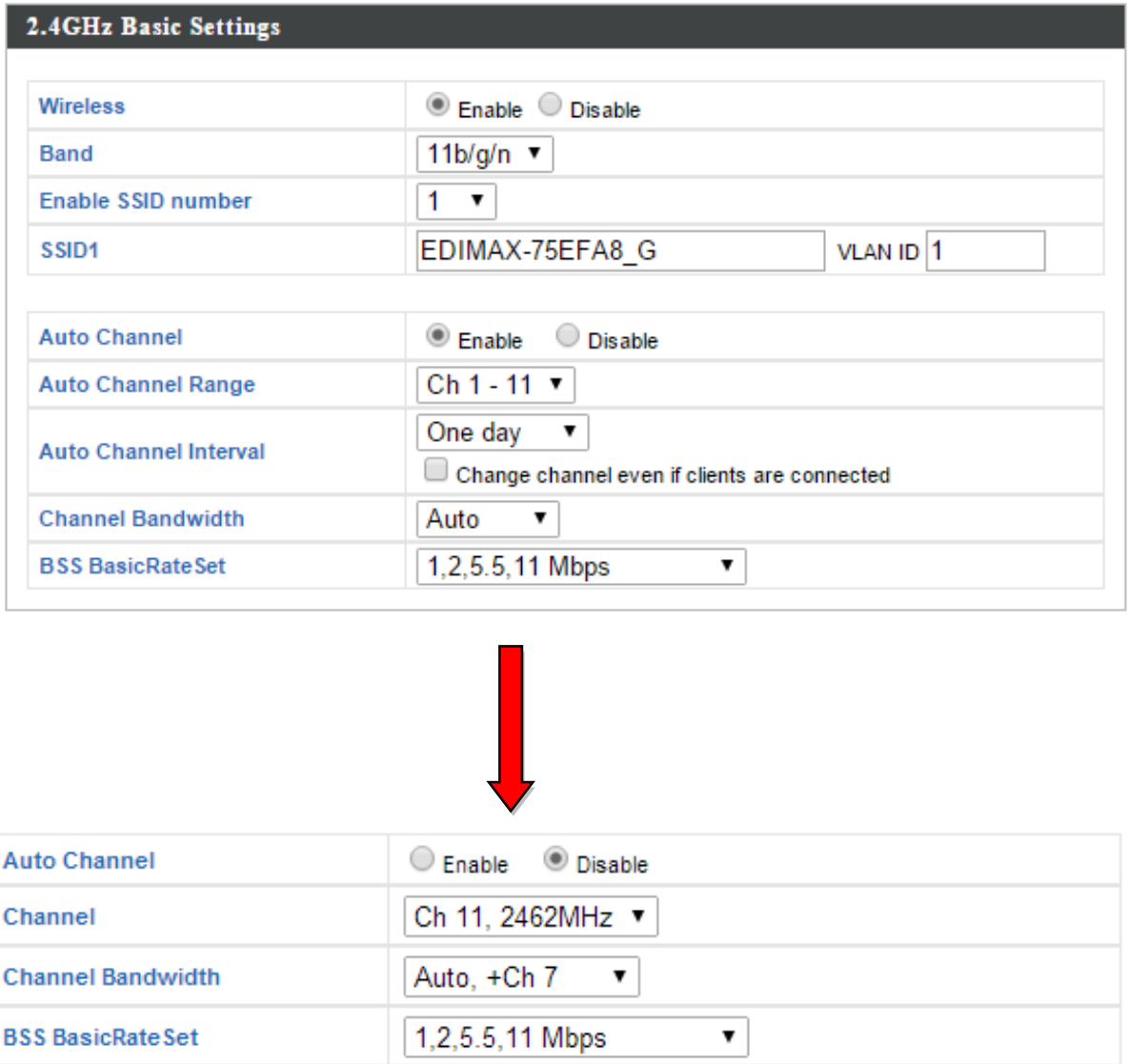
Wireless Create Profile	
SSID	Displays the selected source SSID for this profile.
Extended SSID	Edit the new SSID for this profile.
Authentication Method	Select the source SSIDs authentication method and enter encryption key/pre-shared key.

IV-3-3. 2.4GHz 11bgn

The “2.4GHz 11bgn” menu allows you to view and configure information for your access point’s 2.4GHz wireless network across five categories: Basic, Advanced, Security, WDS & Schedule.

IV-3-3-1. Basic

The “Basic” screen displays basic settings for your access point’s 2.4GHz Wi-Fi network (s).



Wireless	Enable or disable the access point's 2.4GHz wireless radio. When disabled, no 2.4GHz SSIDs will be active.
Band	Select the wireless standard used for the access point. Combinations of 802.11b, 802.11g & 802.11n can be selected.
Enable SSID Number	Select how many SSIDs to enable for the 2.4GHz frequency from the drop down menu. A maximum of 16 can be enabled.
SSID#	Enter the SSID name for the specified SSID (up to 16). The SSID can consist of any combination of up to 32 alphanumeric characters.
VLAN ID	Specify a VLAN ID for each SSID.
Auto Channel	Enable/disable auto channel selection. Auto channel selection will automatically set the wireless channel for the access point's 2.4GHz frequency based on availability and potential interference. When disabled, select a channel manually as shown in the next table.
Auto Channel Range	Select a range from which the auto channel setting (above) will choose a channel.
Auto Channel Interval	Specify a frequency for how often the auto channel setting will check/reassign the wireless channel. Check/uncheck the "Change channel even if clients are connected" box according to your preference.
Channel Bandwidth	Set the channel bandwidth: 20MHz (lower performance but less interference), 40MHz (higher performance but potentially higher interference) or Auto (automatically select based on interference level).
BSS BasicRateSet	Set a Basic Service Set (BSS) rate: this is a series of rates to control communication frames for wireless clients.

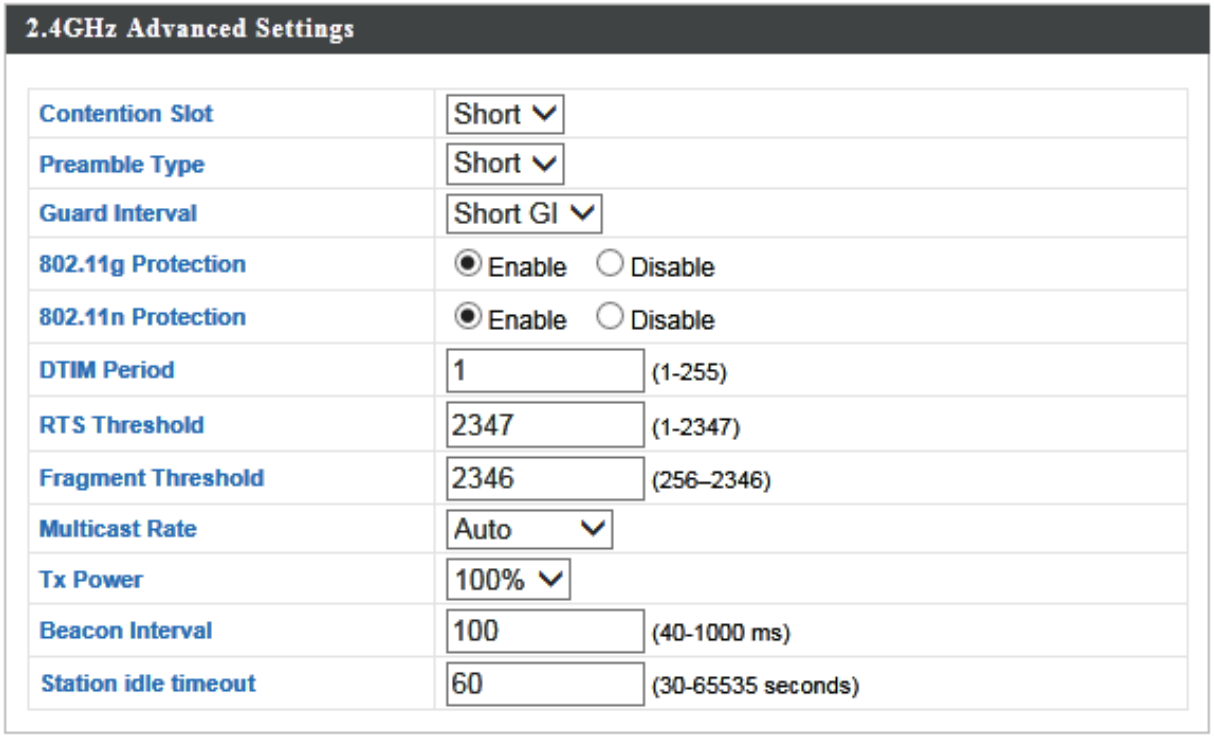
When auto channel is disabled, select a wireless channel manually:

Channel	Select a wireless channel from 1 – 11.
Channel Bandwidth	Set the channel bandwidth: 20MHz (lower performance but less interference), 40MHz (higher performance but potentially higher interference) or Auto (automatically select based on interference level).
BSS BasicRate Set	Set a Basic Service Set (BSS) rate: this is a series of rates to control communication frames for wireless clients.

IV-3-3-2. Advanced

These settings are for experienced users only. Please do not change any of the values on this page unless you are already familiar with these functions.

Changing these settings can adversely affect the performance of your access point.



Contention Slot	Select “Short” or “Long” – this value is used for contention windows in WMM (see **IV-3-6. WMM**).
Preamble Type	Set the wireless radio preamble type. The preamble type in 802.11 based wireless communication defines the length of the CRC (Cyclic Redundancy Check) block for communication between the access point and roaming wireless adapters. The default value is “Short Preamble”.
Guard Interval	Set the guard interval. A shorter interval can improve performance.

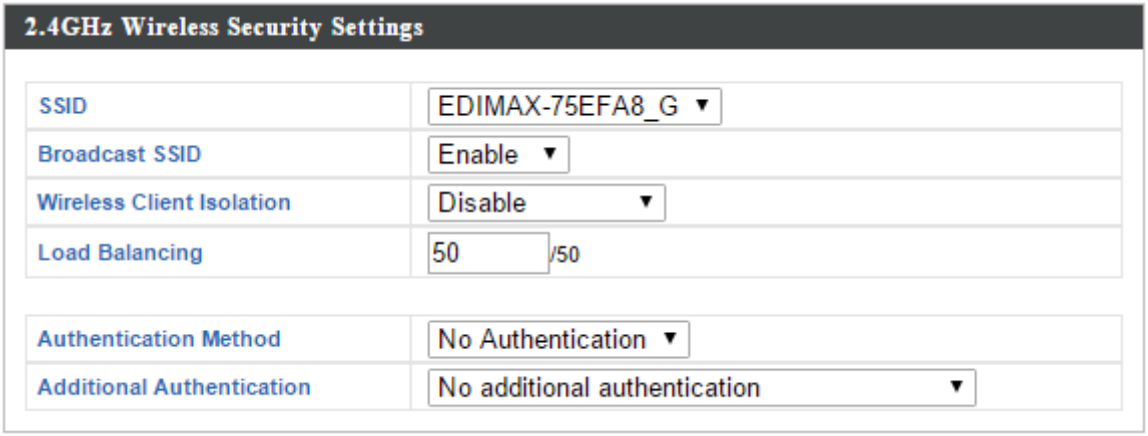
802.11g Protection	Enable/disable 802.11g protection, which increases reliability but reduces bandwidth (clients will send Request to Send (RTS) to access point, and access point will broadcast Clear to Send (CTS), before a packet is sent from client.)
802.11n Protection	Enable/disable 802.11n protection, which increases reliability but reduces bandwidth (clients will send Request to Send (RTS) to access point, and access point will broadcast Clear to Send (CTS), before a packet is sent from client.)
DTIM Period	Set the DTIM (delivery traffic indication message) period value of the wireless radio. The default value is 1.
RTS Threshold	Set the RTS threshold of the wireless radio. The default value is 2347.
Fragment Threshold	Set the fragment threshold of the wireless radio. The default value is 2346.
Multicast Rate	Set the transfer rate for multicast packets or use the “Auto” setting.
Tx Power	Set the power output of the wireless radio. You may not require 100% output power. Setting a lower power output can enhance security since potentially malicious/unknown users in distant areas will not be able to access your signal.
Beacon Interval	Set the beacon interval of the wireless radio. The default value is 100.
Station idle timeout	Set the interval for keepalive messages from the access point to a wireless client to verify if the station is still alive/active.

IV-3-3-3. Security

Security The access point provides various security options (wireless data encryption). When data is encrypted, information transmitted wirelessly cannot be read by anyone who does not know the correct encryption key.

It's essential to configure wireless security in order to prevent unauthorised access to your network.

Select hard-to-guess passwords which include combinations of numbers, letters and symbols, and change your password regularly.



2.4GHz Wireless Security Settings	
SSID Selection	Select which SSID to configure security settings for.
Broadcast SSID	Enable or disable SSID broadcast. When enabled, the SSID will be visible to clients as an available Wi-Fi network. When disabled, the SSID will not be visible as an available Wi-Fi network to clients – clients must manually enter the SSID in order to connect. A hidden (disabled) SSID is typically more secure than a visible (enabled) SSID.
Wireless Client Isolation	Enable or disable wireless client isolation. Wireless client isolation prevents clients connected to the access point from communicating with each other and improves security. Typically, this function is useful for corporate environments or public hot spots and can prevent brute force attacks on clients' usernames and passwords.
Load Balancing	Load balancing limits the number of wireless clients connected to an SSID. Set a load balancing value (maximum 50).
Authentication Method	Select an authentication method from the drop down menu and refer to the information below appropriate for your method.
Additional Authentication	Select an additional authentication method from the drop down menu and refer to the information below (**IV-3-1-3-6.**) appropriate for your method.

2.4GHz Wireless Advanced Settings	
Smart Handover	Enable or disable smart handover.
RSSI Threshold	Set the Received Signal Strength Indicator (RSSI) threshold to maintain quality connection speeds (minimum receiver sensitivity required for a connection).

IV-3-3-3-1. No Authentication

Authentication is disabled and no password/key is required to connect to the access point.

Disabling wireless authentication is not recommended. When disabled, anybody within range can connect to your device's SSID.

IV-3-3-3-2. WEP

WEP (Wired Equivalent Privacy) is a basic encryption type. For a higher level of security consider using WPA encryption.

Key Length	Select 64-bit or 128-bit. 128-bit is more secure than 64-bit and is recommended.
Key Type	Choose from "ASCII" (any alphanumerical character 0-9, a-z and A-Z) or "Hex" (any characters from 0-9, a-f and A-F).
Default Key	Select which encryption key (1 – 4 below) is the default key. For security purposes, you can set up to four keys (below) and change which is the default key.
Encryption Key 1 – 4	Enter your encryption key/password according to the format you selected above.

IV-3-3-3-3. IEEE802.1x/EAP

Key Length	Select 64-bit or 128-bit. 128-bit is more secure than 64-bit and is recommended.

IV-3-3-3-4. WPA-PSK

WPA-PSK is a secure wireless encryption type with strong data protection and user authentication, utilizing 128-bit encryption keys.

WPA Type	Select from WPA/WPA2 Mixed Mode-PSK, WPA2 or WPA only. WPA2 is safer than WPA only, but not supported by all wireless clients. Please make sure your wireless client supports

	your selection.
Encryption	Select “TKIP/AES Mixed Mode” or “AES” encryption type.
Key Renewal Interval	Specify a frequency for key renewal in minutes.
Pre-Shared Key Type	Choose from “Passphrase” (8 – 63 alphanumeric characters) or “Hex” (up to 64 characters from 0-9, a-f and A-F).
Pre-Shared Key	Please enter a security key/password according to the format you selected above.

IV-3-3-3-5. WPA-EAP

WPA Type	Select from WPA/WPA2 Mixed Mode-EAP, WPA2-EAP or WPA-EAP.
Encryption Type	Select “TKIP/AES Mixed Mode” or “AES” encryption type.
Key Renewal Interval	Specify a frequency for key renewal in minutes.

WPA-EAP must be disabled to use MAC-RADIUS authentication.

IV-3-3-3-6. Additional Authentication

Additional wireless authentication methods can also be used:

WPS must be disabled to use additional authentication. See *IV-3-3.* ***for WPS settings.***

MAC Address Filter
Restrict wireless clients access based on MAC address specified in the MAC filter table.

See *IV-3-5.MAC Filter* ***to configure MAC filtering.***

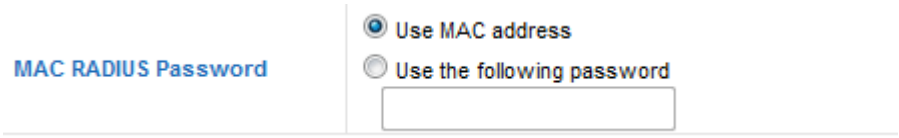
MAC Filter & MAC-RADIUS Authentication
Restrict wireless clients access using both of the above MAC filtering & RADIUS authentication methods.

MAC-RADIUS Authentication

Restrict wireless clients access based on MAC address via a RADIUS server, or password authentication via a RADIUS server.

See** IV-3-4.RADIUS **to configure RADIUS servers.

WPS must be disabled to use MAC-RADIUS authentication. See** IV-3-3**. for WPS settings.



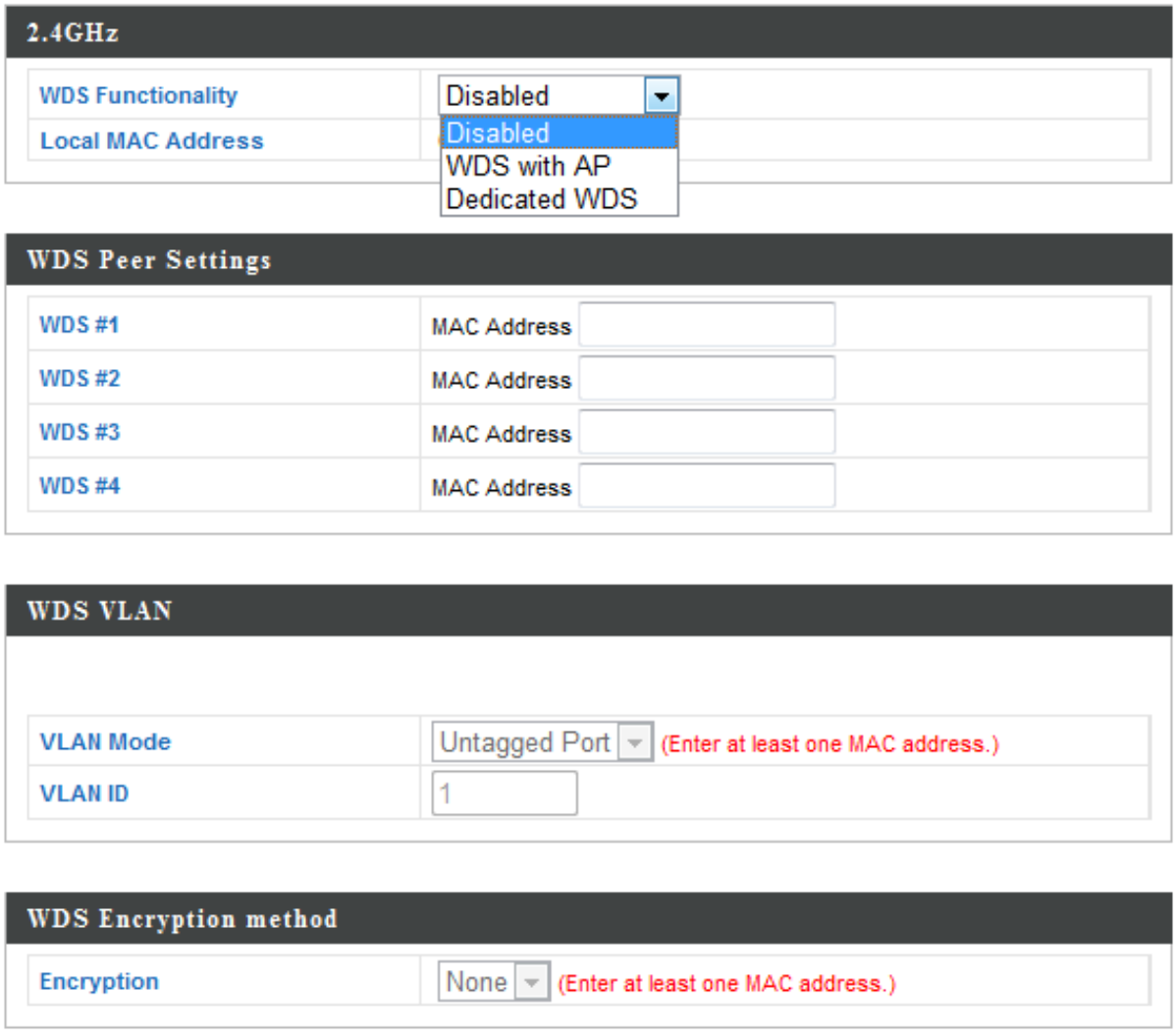
MAC RADIUS Password	Select whether to use MAC address or password authentication via RADIUS server. If you select “Use the following password”, enter the password in the field below. The password should match the “Shared Secret” used in **IV-3-4. RADIUS**.

IV-3-3-4. WDS

Wireless Distribution System (WDS) can bridge/repeat access points together in an extended network. WDS settings can be configured as shown below.

When using WDS, configure the IP address of each access point to be in the same subnet and ensure there is only one active DHCP server among connected access points, preferably on the WAN side.

WDS must be configured on each access point, using correct MAC addresses. All access points should use the same wireless channel and encryption method.



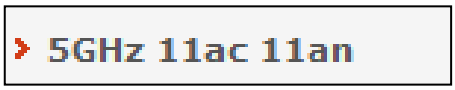
2.4GHz	
WDS Functionality	Select “WDS with AP” to use WDS with access point or “WDS Dedicated Mode” to use WDS and also block communication with regular wireless clients. When WDS is used, each access point should be configured with corresponding MAC addresses, wireless channel and wireless encryption method.
Local MAC Address	Displays the MAC address of your access point.

WDS Peer Settings	
WDS #	Enter the MAC address for up to four other WDS devices you wish to connect.

WDS VLAN	
VLAN Mode	Specify the WDS VLAN mode to “Untagged Port” or “Tagged Port”.
VLAN ID	Specify the WDS VLAN ID when “Untagged Port” is selected above.

WDS Encryption method	
Encryption	Select whether to use “None” or “AES” encryption and enter a pre-shared key for AES consisting of 8-63 alphanumeric characters.

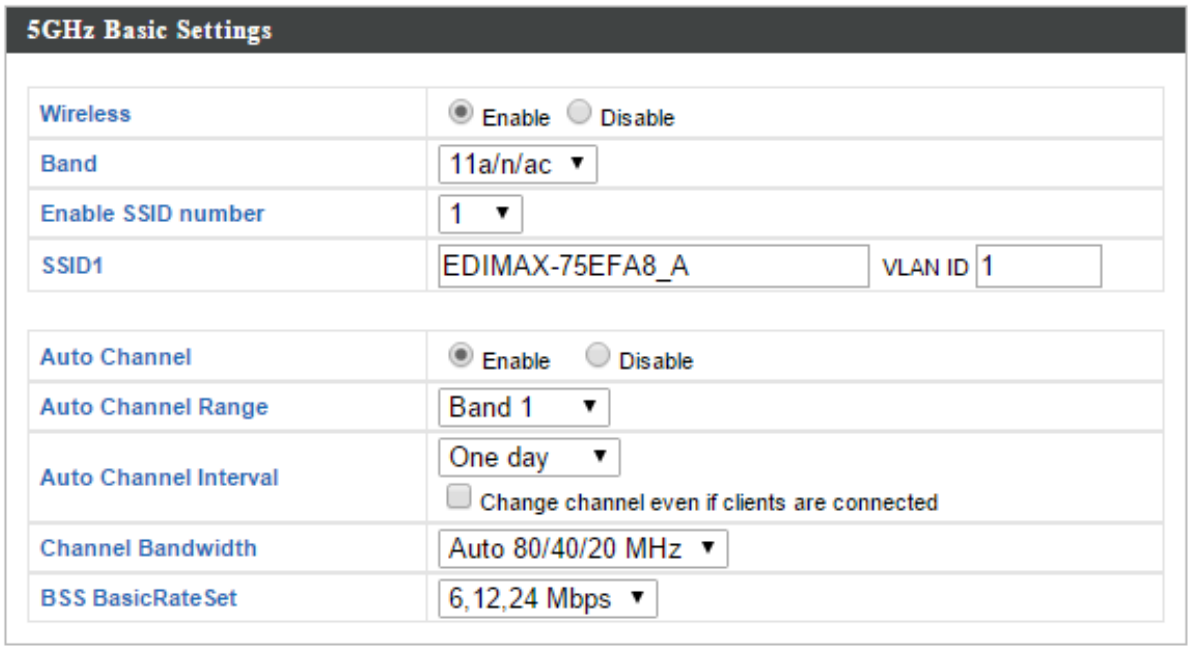
IV-3-4. 5GHz 11ac 11an

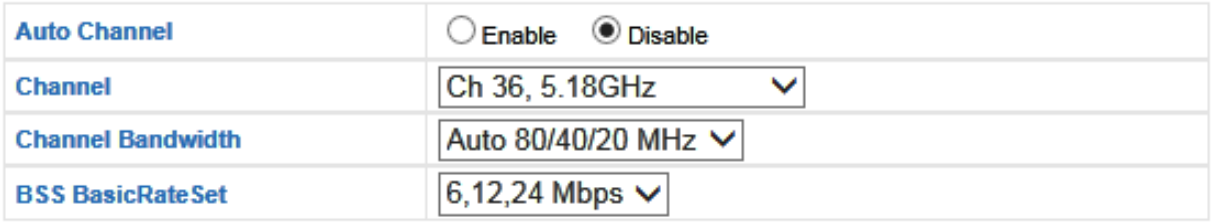


The “5GHz 11ac 11an” menu allows you to view and configure information for your access point’s 5GHz wireless network across five categories: Basic, Advanced, Security, WDS & Schedule.

IV-3-4-1. Basic

The “Basic” screen displays basic settings for your access point’s 5GHz Wi-Fi network (s).





Wireless	Enable or disable the access point’s 5GHz wireless radio. When disabled, no 5GHz SSIDs will be active.
Band	Select the wireless standard used for the

	access point. Combinations of 802.11a, 802.11n & 802.11ac can be selected.
Enable SSID Number	Select how many SSIDs to enable for the 5GHz frequency from the drop down menu. A maximum of 16 can be enabled.
SSID#	Enter the SSID name for the specified SSID (up to 16). The SSID can consist of any combination of up to 32 alphanumeric characters.
VLAN ID	Specify a VLAN ID for each SSID.
Auto Channel	Enable/disable auto channel selection. Auto channel selection will automatically set the wireless channel for the access point's 5GHz frequency based on availability and potential interference. When disabled, select a channel manually as shown in the next table.
Auto Channel Range	Select a range from which the auto channel setting (above) will choose a channel.
Auto Channel Interval	Specify a frequency for how often the auto channel setting will check/reassign the wireless channel. Check/uncheck the "Change channel even if clients are connected" box according to your preference.
Channel Bandwidth	Set the channel bandwidth: 20MHz (lower performance but less interference), Auto 40/20MHz or Auto 80/40/20MHz (automatically select based on interference level).
BSS BasicRate Set	Set a Basic Service Set (BSS) rate: this is a series of rates to control communication frames for wireless clients.

When auto channel is disabled, select a wireless channel manually:

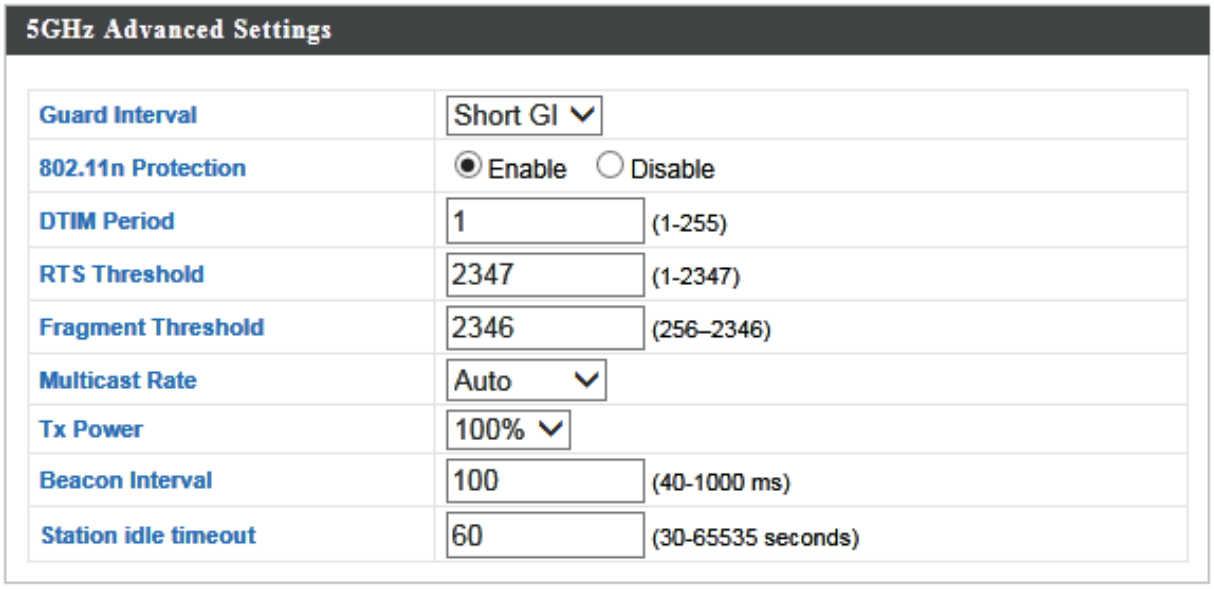
Channel	Select a wireless channel.
Channel Bandwidth	Set the channel bandwidth: 20MHz (lower performance but less interference), Auto 40/20MHz or Auto 80/40/20MHz (automatically select based on interference level).

BSS BasicRate Set	Set a Basic Service Set (BSS) rate: this is a series of rates to control communication frames for wireless clients.

IV-3-4-2. Advanced

These settings are for experienced users only. Please do not change any of the values on this page unless you are already familiar with these functions.

Changing these settings can adversely affect the performance of your access point.



Guard Interval	Set the guard interval. A shorter interval can improve performance.
802.11n Protection	Enable/disable 802.11n protection, which increases reliability but reduces bandwidth (clients will send Request to Send (RTS) to access point, and access point will broadcast Clear to Send (CTS), before a packet is sent from client.)
DTIM Period	Set the DTIM (delivery traffic indication message) period value of the wireless radio. The default value is 1.
RTS Threshold	Set the RTS threshold of the wireless radio. The default value is 2347.

Fragment Threshold	Set the fragment threshold of the wireless radio. The default value is 2346.
Multicast Rate	Set the transfer rate for multicast packets or use the “Auto” setting.
Tx Power	Set the power output of the wireless radio. You may not require 100% output power. Setting a lower power output can enhance security since potentially malicious/unknown users in distant areas will not be able to access your signal.
Beacon Interval	Set the beacon interval of the wireless radio. The default value is 100.
Station idle timeout	Set the interval for keepalive messages from the access point to a wireless client to verify if the station is still alive/active.

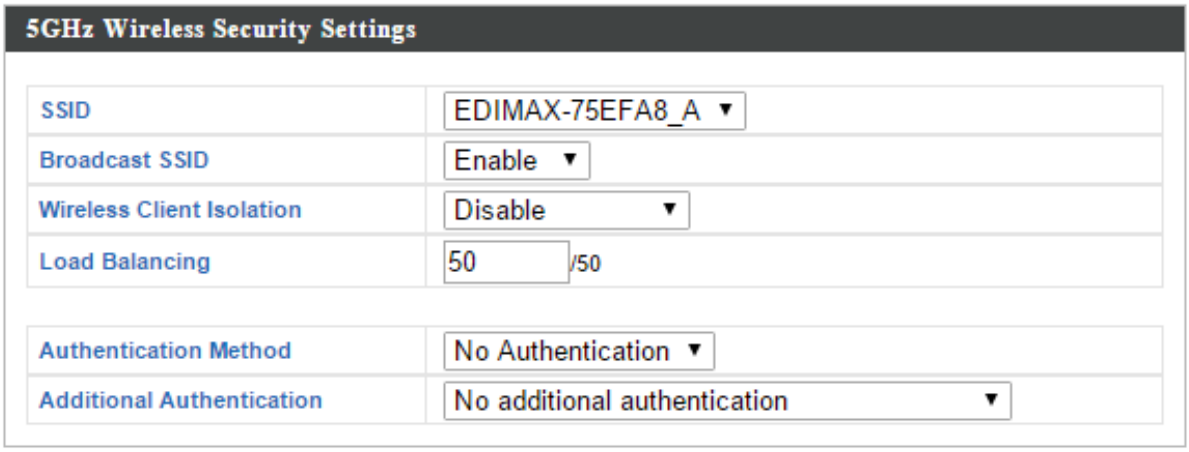
IV-3-4-3. Security

Security

The access point provides various security options (wireless data encryption). When data is encrypted, information transmitted wirelessly cannot be read by anyone who does not know the correct encryption key.

It's essential to configure wireless security in order to prevent unauthorised access to your network.

Select hard-to-guess passwords which include combinations of numbers, letters and symbols, and change your password regularly.



SSID Selection	Select which SSID to configure security settings for.
Broadcast SSID	Enable or disable SSID broadcast. When enabled, the SSID will be visible to clients as an available Wi-Fi network. When disabled, the SSID will not be visible as an available Wi-Fi network to clients – clients must manually enter the SSID in order to connect. A hidden (disabled) SSID is typically more secure than a visible (enabled) SSID.

Wireless Client Isolation	Enable or disable wireless client isolation. Wireless client isolation prevents clients connected to the access point from communicating with each other and improves security. Typically, this function is useful for corporate environments or public hot spots and can prevent brute force attacks on clients' usernames and passwords.
Load Balancing	Load balancing limits the number of wireless clients connected to an SSID. Set a load balancing value (maximum 50).
Authentication Method	Select an authentication method from the drop down menu and refer to the information below appropriate for your method.
Additional Authentication	Select an additional authentication method from the drop down menu and refer to the information below appropriate for your method.

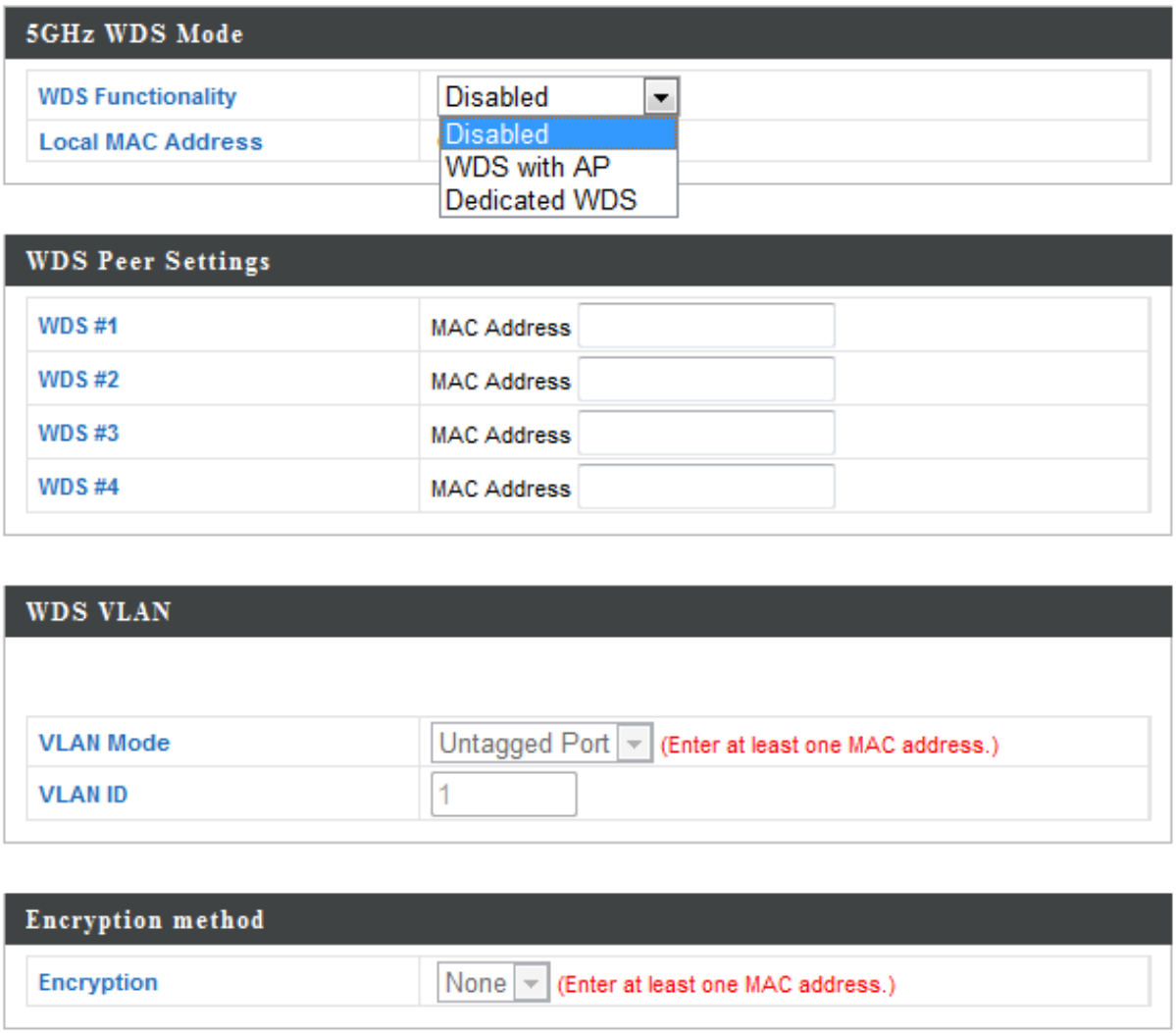
Please refer back to **IV-3-1-3. Security** for more information on authentication and additional authentication types.

IV-3-4-4. WDS

Wireless Distribution System (WDS) can bridge/repeat access points together in an extended network. WDS settings can be configured as shown below.

When using WDS, configure the IP address of each access point to be in the same subnet and ensure there is only one active DHCP server among connected access points, preferably on the WAN side.

WDS must be configured on each access point, using correct MAC addresses. All access points should use the same wireless channel and encryption method.



5GHz WDS Mode	
WDS Functionality	Select “WDS with AP” to use WDS with access point or “WDS Dedicated Mode” to use WDS and also block communication with regular wireless clients. When WDS is used, each access point should be configured with corresponding MAC addresses, wireless channel and wireless encryption method.
Local MAC Address	Displays the MAC address of your access point.

WDS Peer Settings	
WDS #	Enter the MAC address for up to four other WDA devices you wish to connect.

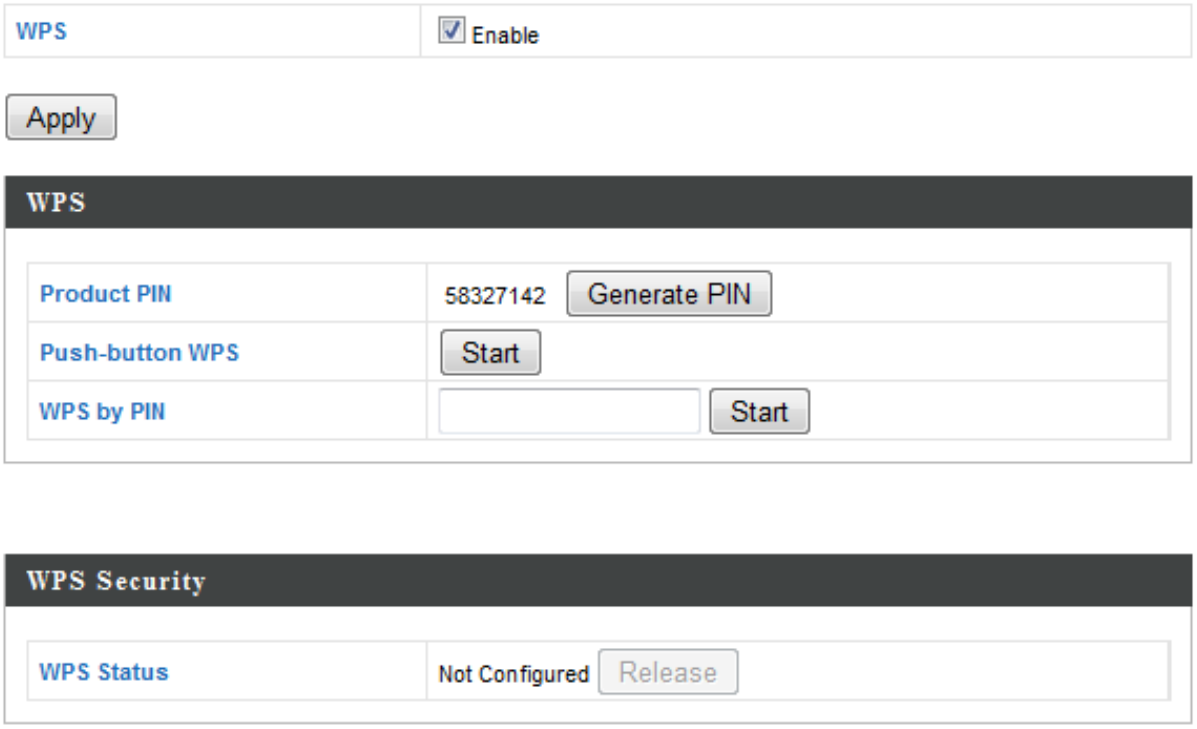
WDS VLAN	
VLAN Mode	Specify the WDS VLAN mode to “Untagged Port” or “Tagged Port”.
VLAN ID	Specify the WDS VLAN ID when “Untagged Port” is selected above.

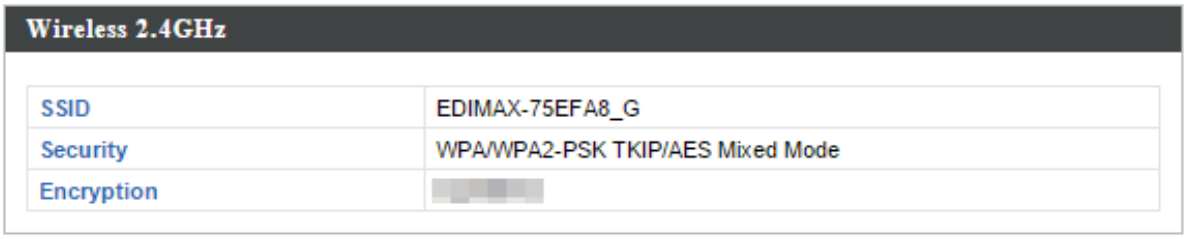
WDS Encryption	
Encryption	Select whether to use “None” or “AES” encryption and enter a pre-shared key for AES with 8-63 alphanumeric characters.

IV-3-5. WPS

Wi-Fi Protected Setup is a simple way to establish connections between WPS compatible devices. WPS can be activated on compatible devices by pushing a WPS button on the device or from within the device's firmware/configuration interface (known as PBC or "Push Button Configuration"). When WPS is activated in the correct manner and at the correct time for two compatible devices, they will automatically connect. "PIN code WPS" is a variation of PBC which includes the additional use of a PIN code between the two devices for verification.

Please refer to manufacturer's instructions for your other WPS device.





WPS	Check/uncheck this box to enable/disable WPS functionality. WPS must be disabled when using MAC-RADIUS authentication (see **IV-3-1-3-6 & IV-3-4**).

WPS	
Product PIN	Displays the WPS PIN code of the device, used for PIN code WPS. You will be required to enter this PIN code into another WPS device for PIN code WPS. Click “Generate PIN” to generate a new WPS PIN code.
Push-Button WPS	Click “Start” to activate WPS on the access point for approximately 2 minutes. This has the same effect as physically pushing the access point’s WPS button.
WPS by PIN	Enter the PIN code of another WPS device and click “Start” to attempt to establish a WPS connection for approximately 2 minutes.

WPS Security	
WPS Status	WPS security status is displayed here. Click “Release” to clear the existing status.

Wireless 2.4GHz/5GHz	
SSID	Displays the SSID name(s) for the specified frequency.
Security	Displays the security for the specified SSID.
Encryption	Displays the encryption type for the specified SSID. See **IV-3. Wireless Settings**

IV-3-6. RADIUS

The RADIUS menu allows you to configure the access point's external RADIUS server settings.

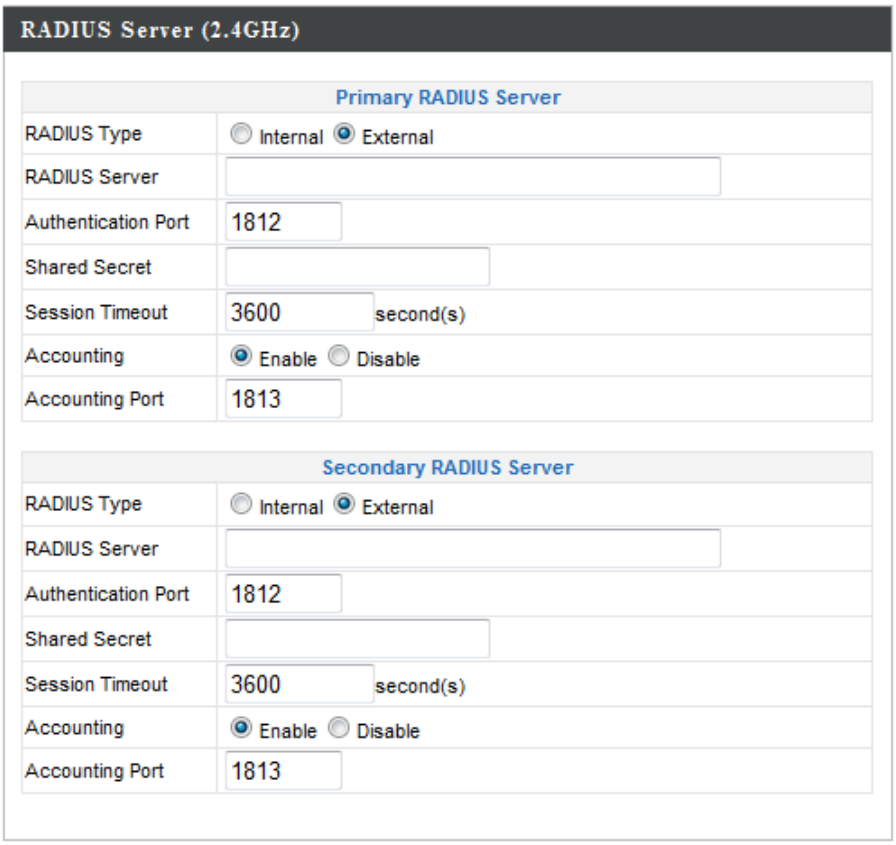
A RADIUS server provides user-based authentication to improve security and offer wireless client control – users can be authenticated before gaining access to a network.

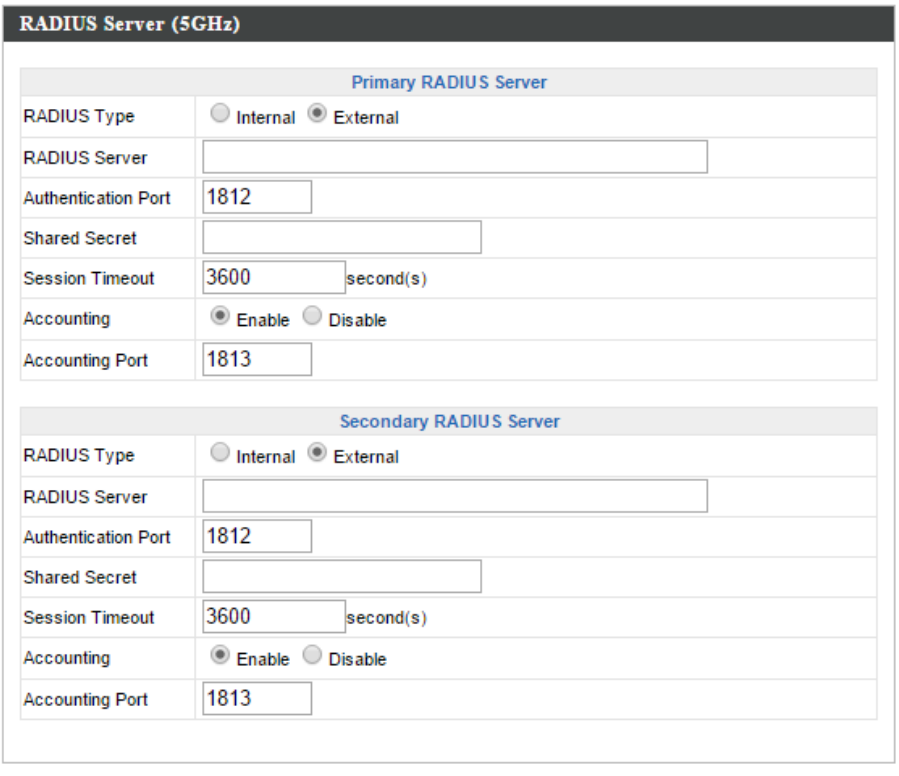
The access point can utilize both a primary and secondary (backup) external RADIUS server for each of its wireless frequencies (2.4GHz & 5GHz)..

To use RADIUS servers, go to *"Wireless Settings"* → *"Security"* ***and select*** *"MAC RADIUS Authentication"* → *"Additional Authentication"* ***and select*** *"MAC RADIUS Authentication"* ***(see*** *IV-3-1-3.* ***&*** *IV-3-2-3****).***

IV-3-6-1. RADIUS Settings

Radius Settings Configure the RADIUS server settings for 2.4GHz. Each frequency can use an internal or external RADIUS server.



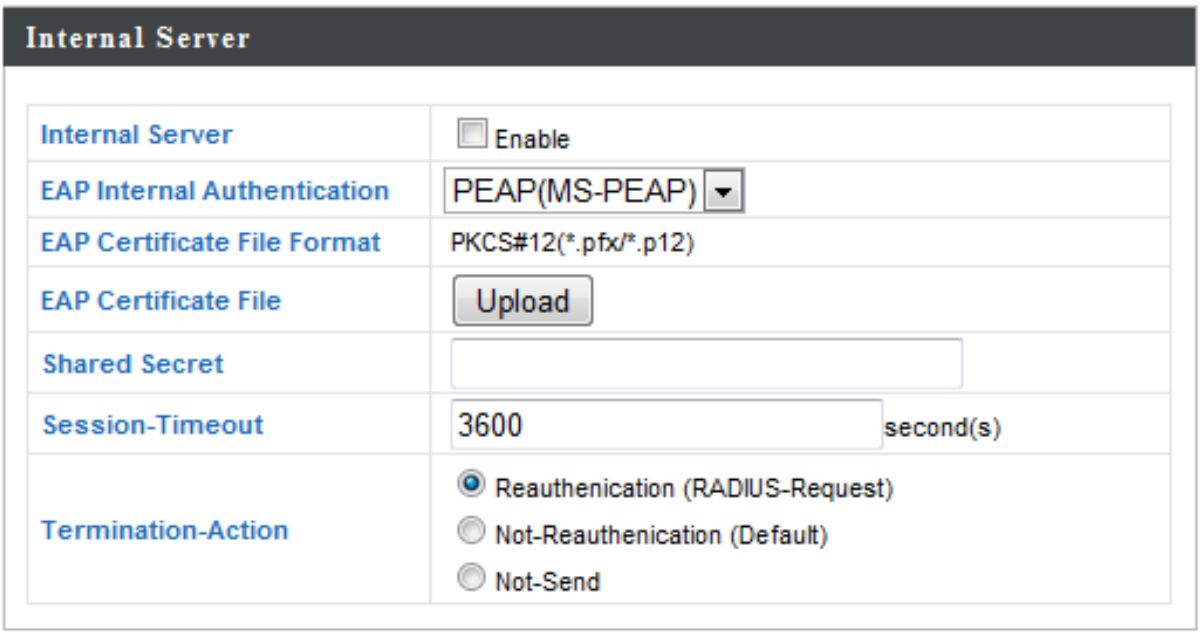


RADIUS Type	Select “Internal” to use the access point’s built-in RADIUS server or “external” to use an external RADIUS server.
RADIUS Server	Enter the RADIUS server host IP address.
Authentication Port	Set the UDP port used in the authentication p rotocol of the RADIUS server.
Shared Secret	Enter a shared secret/password between 1 – 99 characters in length. This should match the “MAC-RADIUS” password used in **IV-3-1-3-6** or **IV-3-2-3**.
Session Timeout	Set a duration of session timeout in seconds between 0 – 86400.
Accounting	Enable or disable RADIUS accounting.
Accounting Port	When accounting is enabled (above), set the U DP port used in the accounting protocol of the RADIUS server.

IV-3-6-2. Internal Server

The access point features a built-in RADIUS server which can be configured as shown below used when “Internal” is selected for “RADIUS Type” in the “Wireless Settings” → “RADIUS” → “RADIUS Settings” menu.

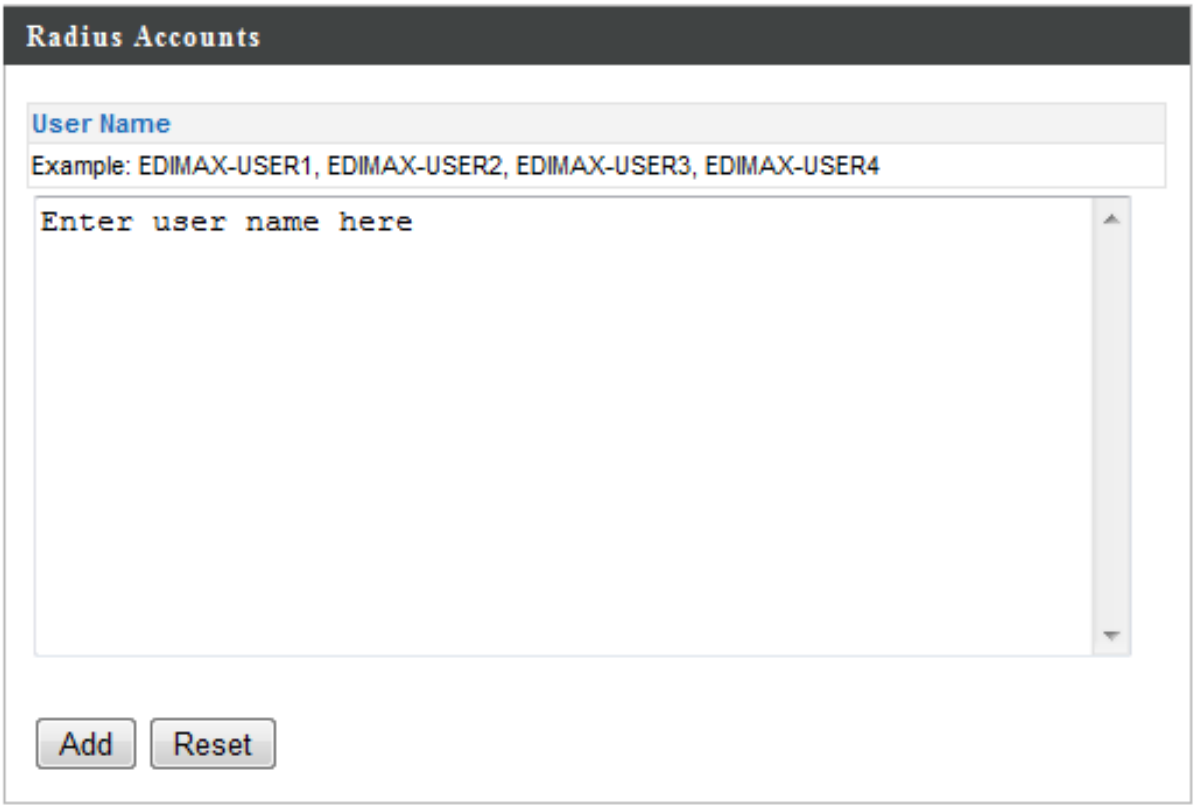
To use RADIUS servers, go to *“Wireless Settings”* → *“Security”* ***and select*** *“MAC RADIUS Authentication”* → *“Additional Authentication”* ***and select*** *“MAC RADIUS Authentication”* ***(see*** *IV-3-1-3.* ***&*** *IV-3-2-3****).***

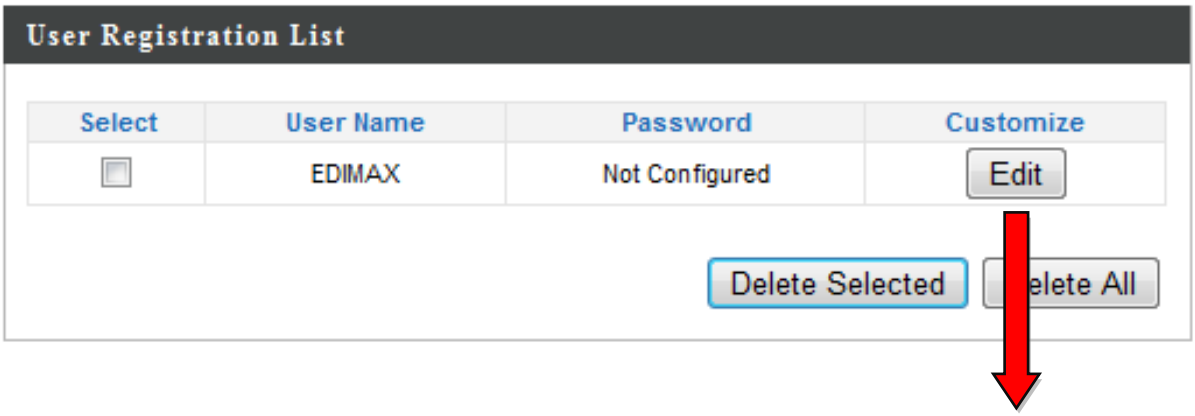


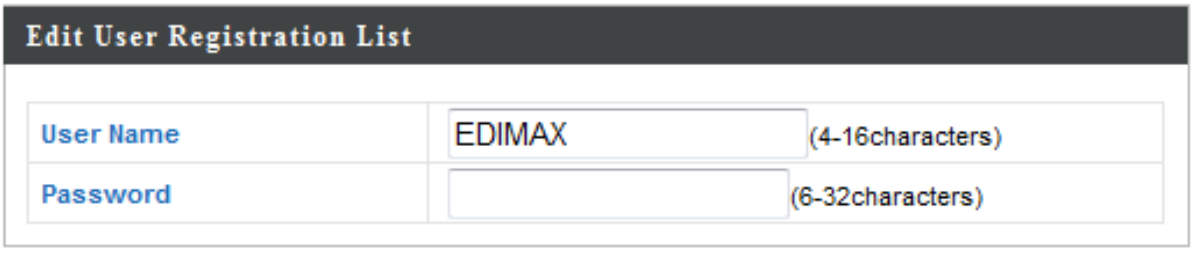
Internal Server	Check/uncheck to enable/disable the access point's internal RADIUS server.
EAP Internal Authentication	Select EAP internal authentication type from the drop down menu.
EAP Certificate File Format	Displays the EAP certificate file format: PCK#12(*.pfx/*.p12)
EAP Certificate File	Click "Upload" to open a new window and select the location of an EAP certificate file to use. If no certificate file is uploaded, the internal RADIUS server will use a self-made certificate.
Shared Secret	Enter a shared secret/password for use between the internal RADIUS server and RADIUS client. The shared secret should be 1 – 99 characters in length. This should match the "MAC-RADIUS" password used in **IV-3-1-3-6** or **IV-3-2-3**.
Session Timeout	Set a duration of session timeout in seconds between 0 – 86400.
Termination Action	Select a termination-action attribute: "Reauthentication" sends a RADIUS request to the access point, "Not-Reathentication" sends a default termination-action attribute to the access point, "Not-Send" no termination-action attribute is sent to the access point.

IV-3-6-3. RADIUS Accounts

The internal RADIUS server can authenticate up to 256 user accounts. The "RADIUS Accounts" page allows you to configure and manage users.







User Name	Enter the user names here, separated by commas.
Add	Click “Add” to add the user to the user registration list.
Reset	Clear text from the user name box.

Select	Check the box to select a user.
User Name	Displays the user name.
Password	Displays if specified user name has a password (configured) or not (not configured).
Customize	Click “Edit” to open a new field to set/edit a password for the specified user name (below).

Delete Selected	Delete selected user from the user registration list.
Delete All	Delete all users from the user registration list.

Edit User Registration List

User Name	Existing user name is displayed here and can be edited according to your preference.
Password	Enter or edit a password for the specified user.

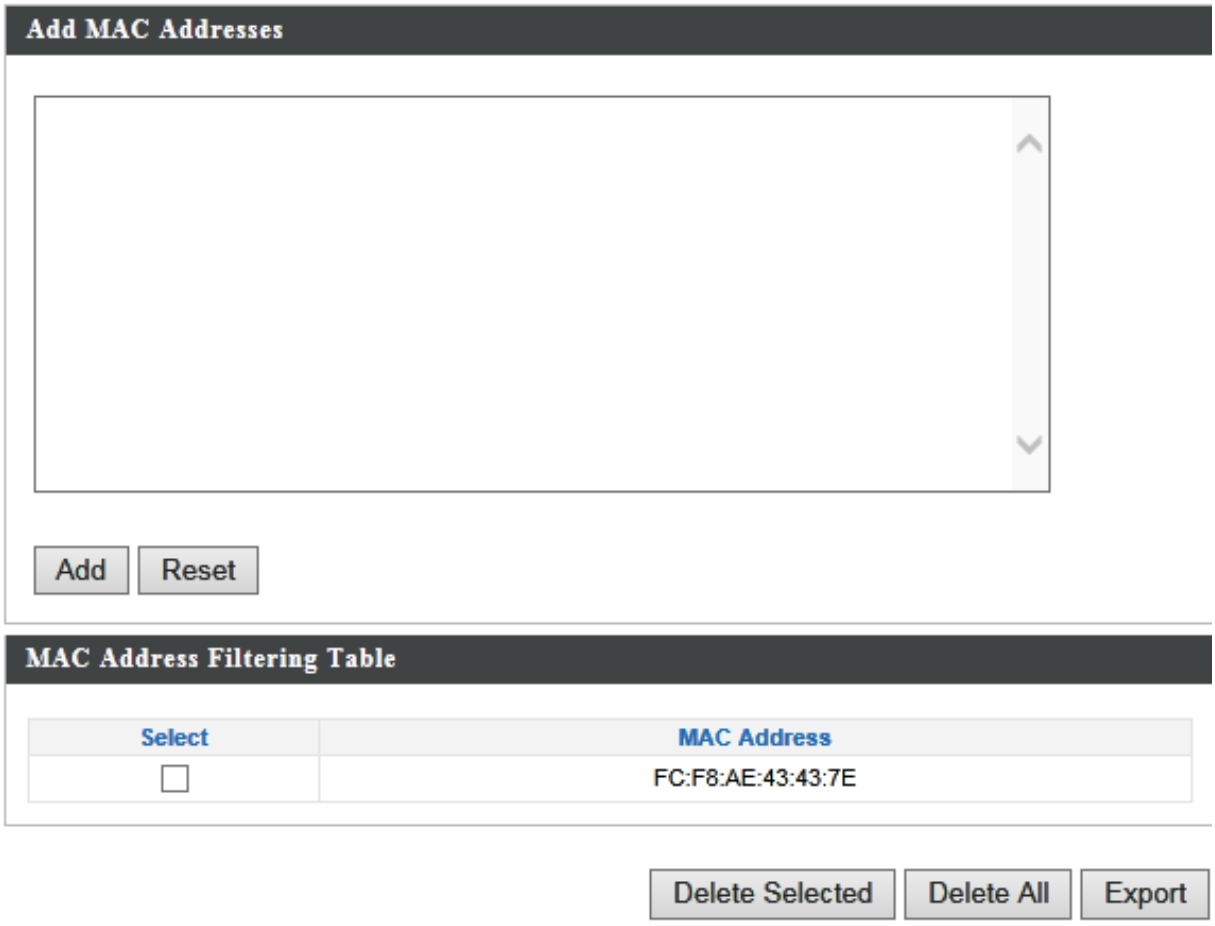
IV-3-7. MAC Filter

Mac filtering is a security feature that can help to prevent unauthorized users from connecting to your access point.

This function allows you to define a list of network devices permitted to connect to the access point. Devices are each identified by their unique MAC address. If a device which is not on the list of permitted MAC addresses attempts to connect to the access point, it will be denied.

> ***To enable MAC filtering, go to*** *"Wireless Settings"* → *"2.4G Hz 11bgn"* → *"Security"* → *"Additional Authentication"* ***and select*** *"MAC Filter"* ***(see*** *IV-3-1-3****).***

The MAC address filtering table is displayed below:



Add MAC Address	Enter a MAC address of computer or network device manually e.g. 'aa-bb-cc-dd-ee-ff' or enter multiple MAC addresses separated with

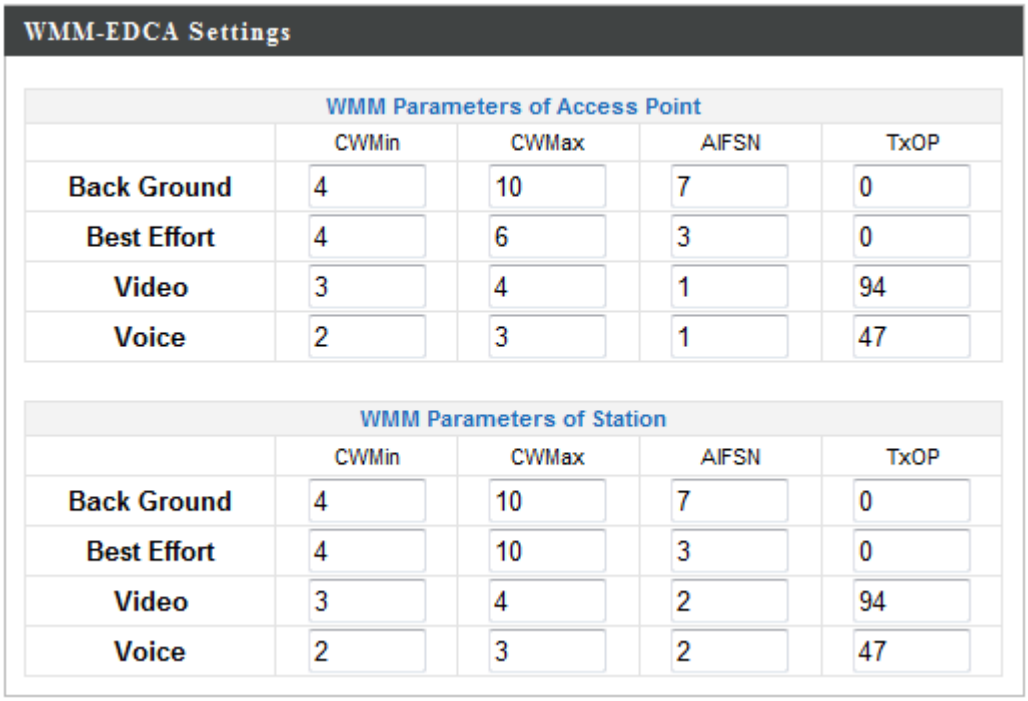
	commas, e.g. 'aa-bb-cc-dd-ee-ff,aa-bb-cc-dd-ee-gg'
Add	Click "Add" to add the MAC address to the MAC address filtering table.
Reset	Clear all fields.

MAC address entries will be listed in the "MAC Address Filtering Table". Select an entry using the "Select" checkbox.

Select	Delete selected or all entries from the table.
MAC Address	The MAC address is listed here.
Delete Selected	Delete the selected MAC address from the list.
Delete All	Delete all entries from the MAC address filtering table.
Export	Click "Export" to save a copy of the MAC filtering table. A new window will pop up for you to select a location to save the file.

IV-3-8. WMM

Wi-Fi Multimedia (WMM) is a Wi-Fi Alliance interoperability certification based on the IEEE 802.11e standard, which provides Quality of Service (QoS) features to IEE 802.11 networks. WMM prioritizes traffic according to four categories: background, best effort, video and voice.



Configuring WMM consists of adjusting parameters on queues for different categories of wireless traffic. Traffic is sent to the following queues:

Background	Low Priority	High throughput, non time sensitive bulk data e.g. FTP
Best Effort	Medium Priority	Traditional IP data, medium throughput and delay.
Video	High Priority	Time sensitive video data with minimum time delay.
Voice	High Priority	Time sensitive data such as VoIP and streaming media with minimum time delay.

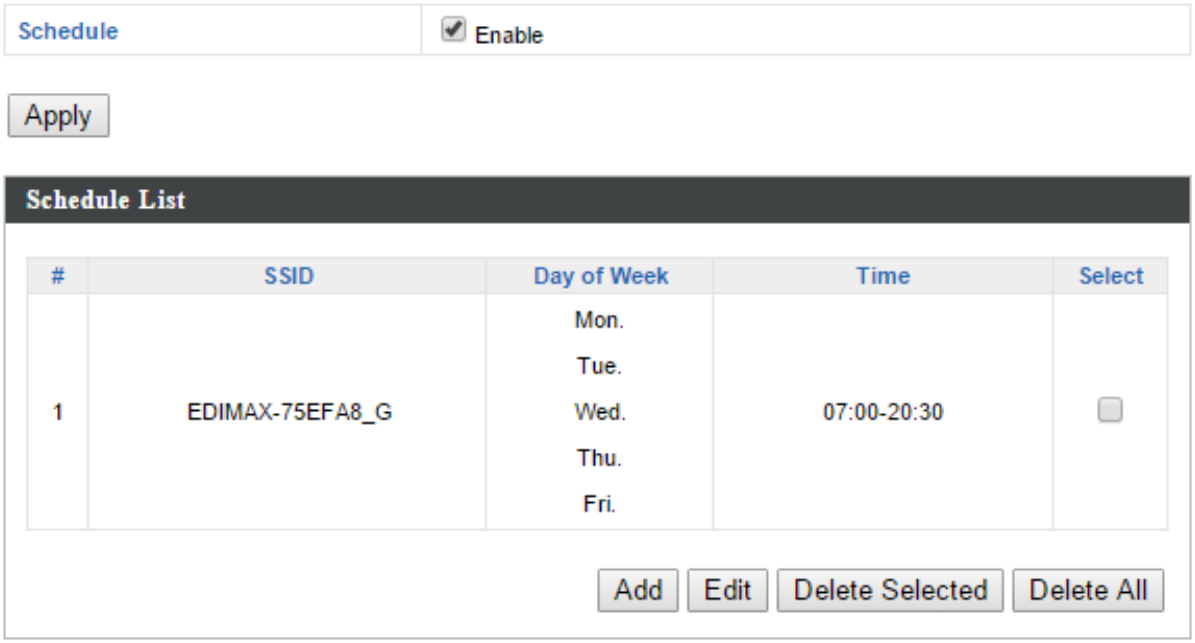
Queues automatically provide minimum transmission delays for video, voice, multimedia and critical applications. The values can further be adjusted manually:

CWMin	Minimum Contention Window (milliseconds): This value is input to the initial random backoff wait time algorithm for retry of a data frame transmission. The backoff wait time will be generated between 0 and this value. If the frame is not sent, the random backoff value is doubled until the value reaches the number defined by CWMax (below). The CWMin value must be lower than the CWMax value. The contention window scheme helps to avoid frame collisions and determine priority of frame transmission. A shorter window has a higher probability (priority) of transmission.
CWMax	Maximum Contention Window (milliseconds): This value is the upper limit to random backoff value doubling (see above).
AIFSN	Arbitration Inter-Frame Space (milliseconds): Specifies additional time between when a channel goes idle and the AP/client sends data frames. Traffic with a lower AIFSN value has a higher priority.
TxOP	Transmission Opportunity (milliseconds): The maximum interval of time an AP/client can transmit. This makes channel access more efficiently prioritized. A value of 0 means only one frame per transmission. A greater value effects higher priority.

IV-9. Schedule

The schedule feature allows you to automate the wireless network for specified times. Check/uncheck the box “Enable Wireless Schedule” to enable/disable the wireless scheduling function.

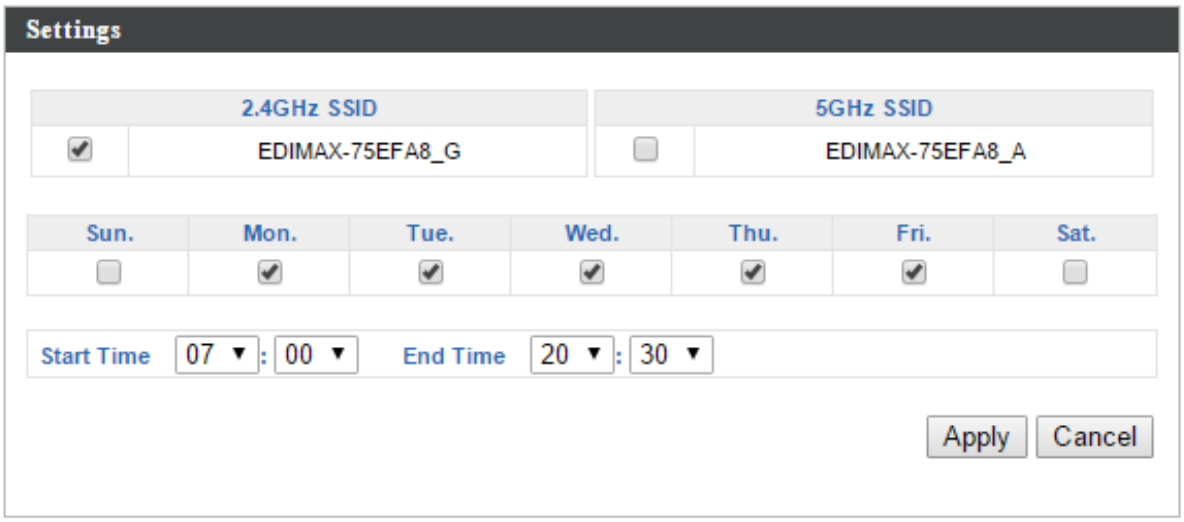
The access point’s time and date settings must be set in order to use this function.



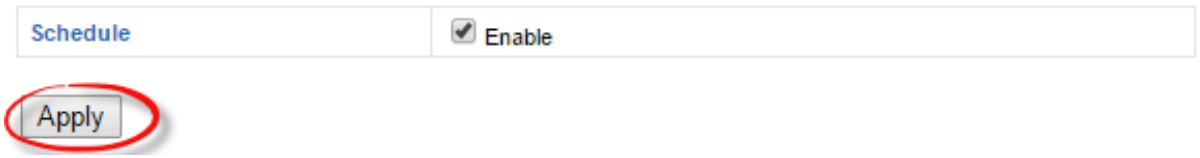
Wireless scheduling can save energy and increase the security of your network.

1. Check **Enable** and use the **Select**, **Add**, **Edit** or **Delete** checkboxes to select and modify schedule(s).

2. When you click **Add**, specify day(s), start time and end time for the schedule using the drop-down menus and click **Apply**.



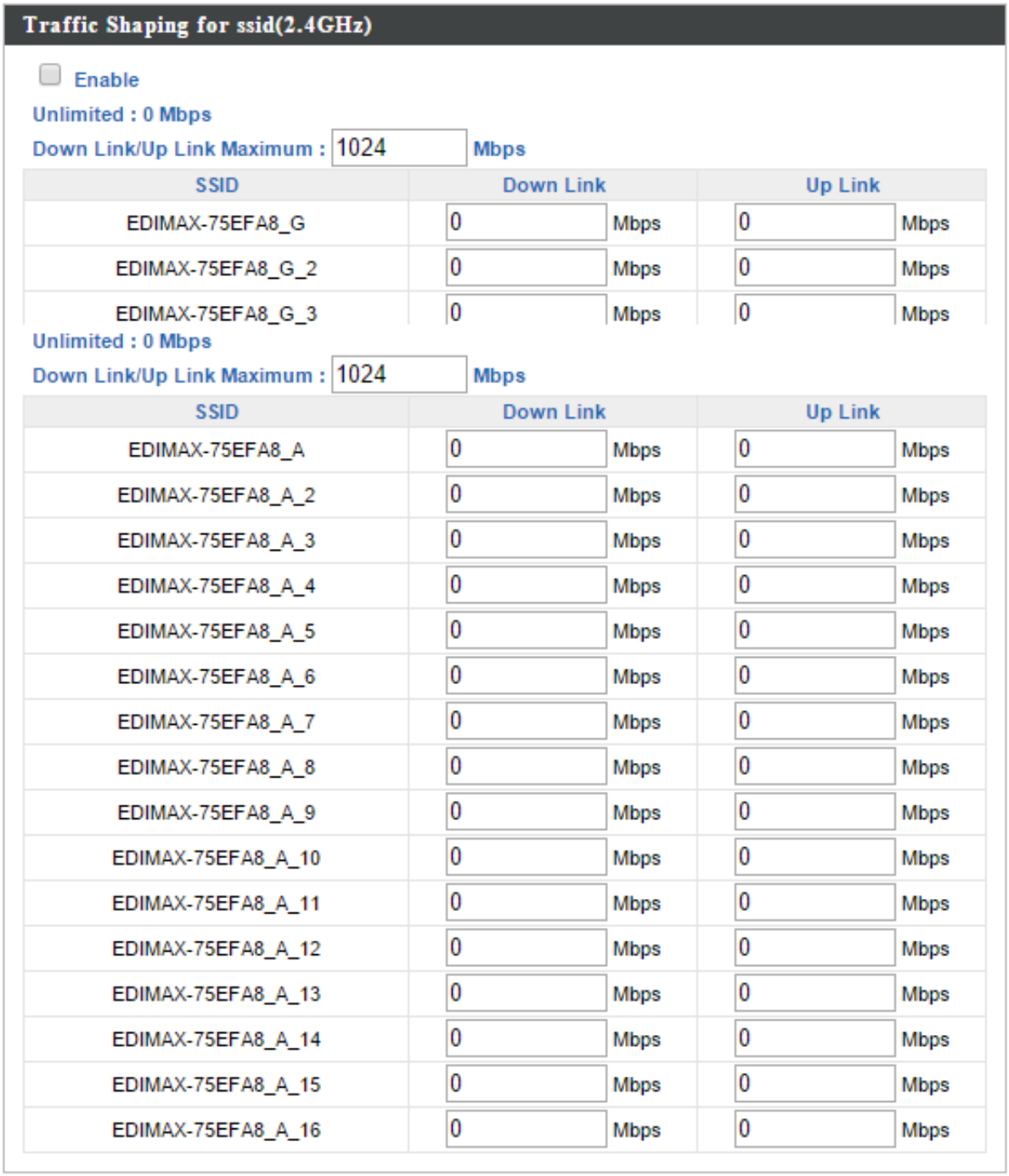
3. Remember to **Apply** your changes and make sure **Enable** is checked.



IV-3-10. Traffic Shaping

Traffic Shaping

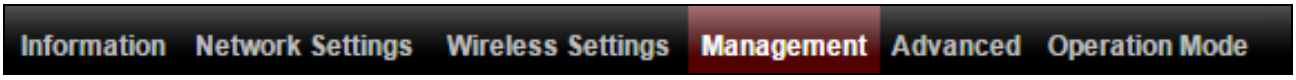
The traffic shaping function allows you to regulate network data transfer to ensure or prioritize performance by limiting uplink and downlink speeds according to SSID.



Enable Unlimited: 0 Mbps	Check/uncheck to enable or disable unlimited transfer speed.
Downlink/Uplink	Specify the maximum down/uplink capacity in

Maximum	Mbps.
Downlink	Enter a downlink limit in MB for the listed SSID.
Uplink	Enter an uplink limit in MB for the listed SSID.

IV-4. Management

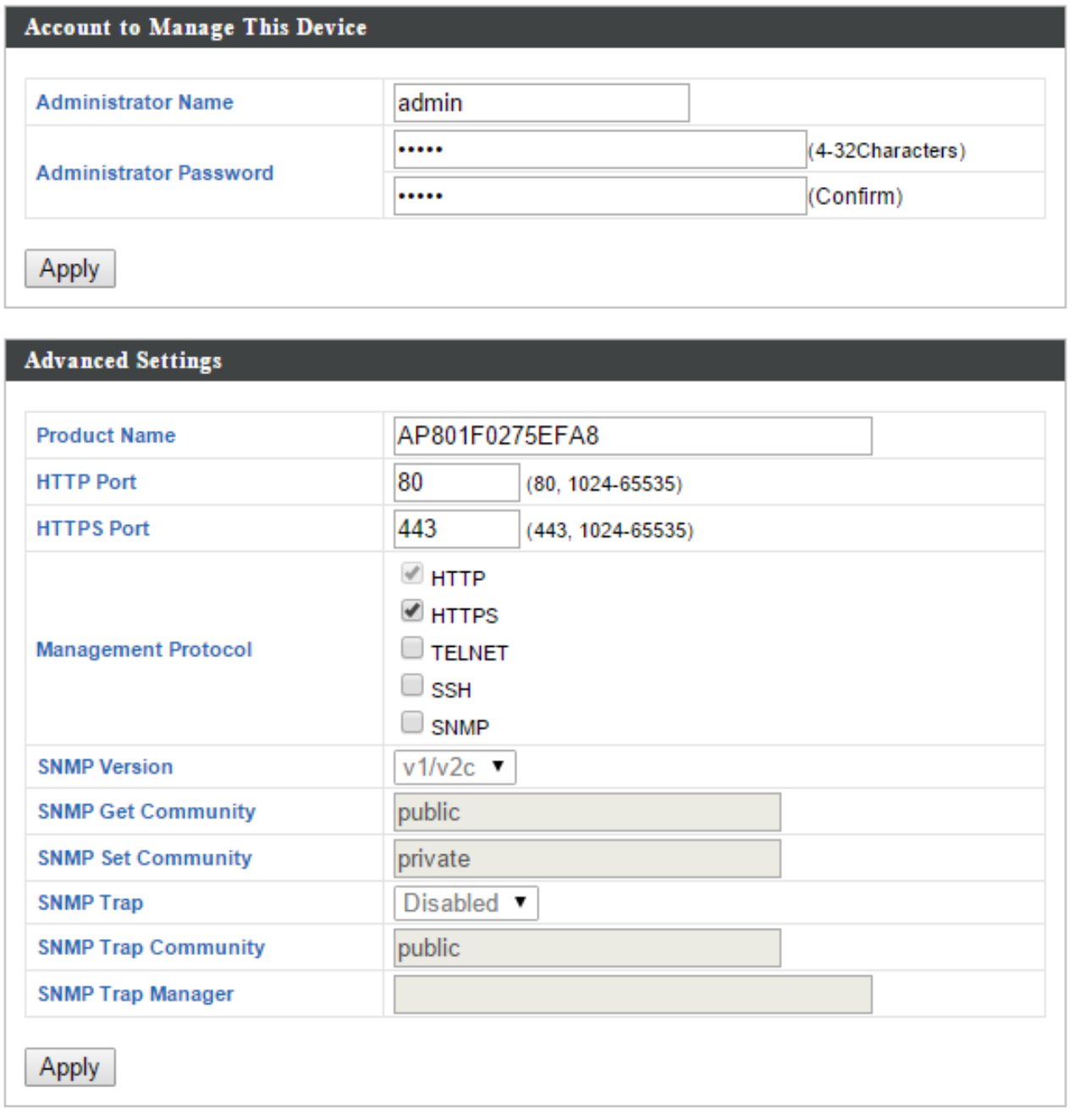


Screenshots displayed are examples. The information shown on your screen will vary depending on your configuration.

IV-4-1. Admin

You can change the password used to login to the browser-based configuration interface here. It is advised to do so for security purposes.

If you change the administrator password, please make a note of the new password. In the event that you forget this password and are unable to login to the browser based configuration interface, see *I-5. Reset* ***for how to reset the access point.***



Account to Manage This Device	
Administrator Name	Set the access point's administrator name. This is used to log in to the browser based configuration interface and must be between 4-16 alphanumeric characters (case sensitive).
Administrator Password	Set the access point's administrator password. This is used to log in to the browser based configuration interface and must be between 4-32 alphanumeric characters (case sensitive).

Advanced Settings

Product Name	Edit the product name according to your preference consisting of 1-32 alphanumeric characters. This name is used for reference purposes.
HTTP Port	Specify HTTP port number.
HTTPS Port	Specify HTTPS port number.
Management Protocol	Check/uncheck the boxes to enable/disable specified management interfaces (see below). When SNMP is enabled, complete the SNMP fields below.
SNMP Version	Select SNMP version appropriate for your SNMP manager.
SNMP Get Community	Enter an SNMP Get Community name for verification with the SNMP manager for SNMP-GET requests.
SNMP Set Community	Enter an SNMP Set Community name for verification with the SNMP manager for SNMP-SET requests.
SNMP Trap	Enable or disable SNMP Trap to notify SNMP manager of network errors.
SNMP Trap Community	Enter an SNMP Trap Community name for verification with the SNMP manager for SNMP-TRAP requests.
SNMP Trap Manager	Specify the IP address or sever name (2-128 alphanumeric characters) of the SNMP manager.

HTTP

Internet browser HTTP protocol management interface

TELNET

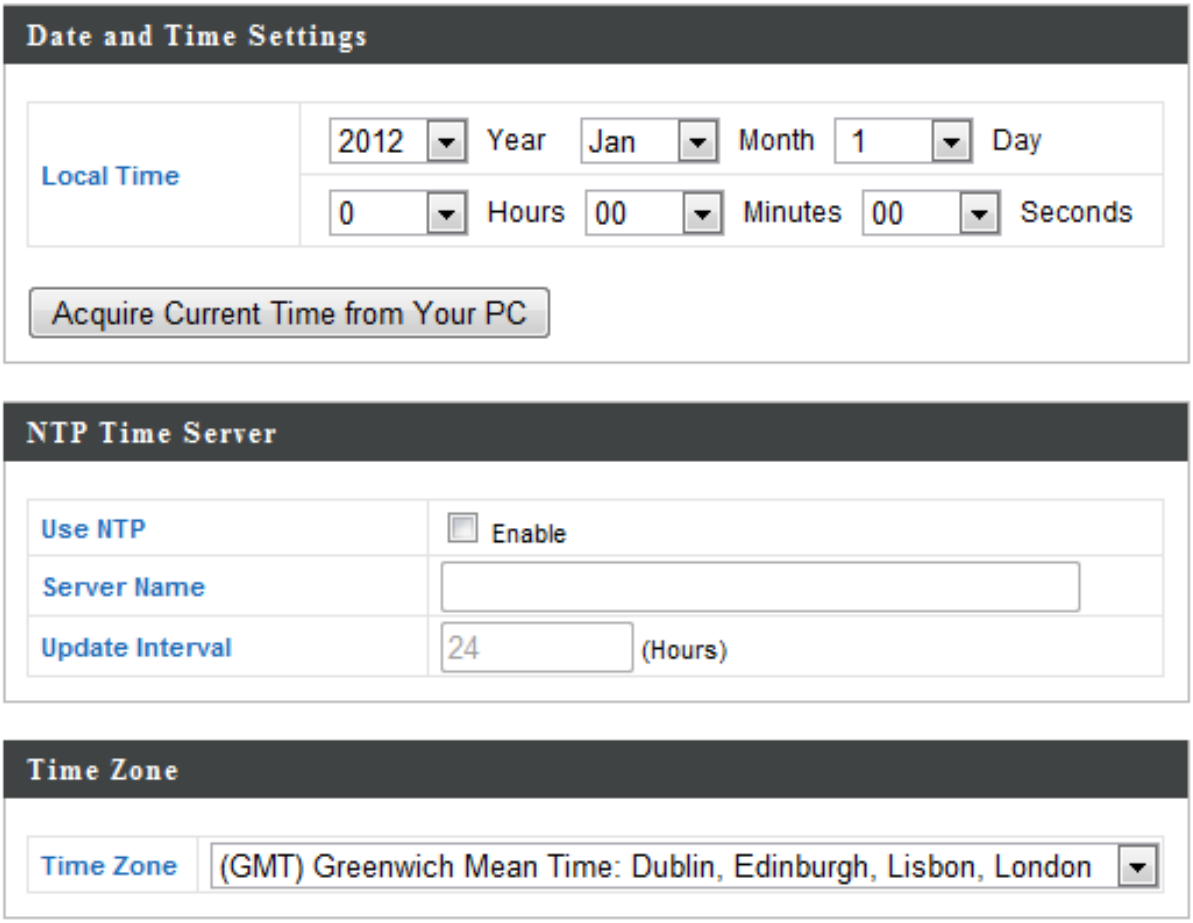
Client terminal with telnet protocol management interface

SNMP

Simple Network Management Protocol. SNMPv1, v2 & v3 protocol supported. SNMPv2 can be used with community based authentication. SNMPv3 uses user-based security model (USM) architecture.

IV-4-2. Date and Time

Date and Time You can configure the time zone settings of your access point here. The date and time of the device can be configured manually or can be synchronized with a time server.



Date and Time Settings	
Local Time	Set the access point's date and time manually using the drop down menus.
Acquire Current Time from your PC	Click "Acquire Current Time from Your PC" to enter the required values automatically according to your computer's current time and date.

NTP Time Server	
Use NTP	The access point also supports NTP (Network Time Protocol) for automatic time and date setup.

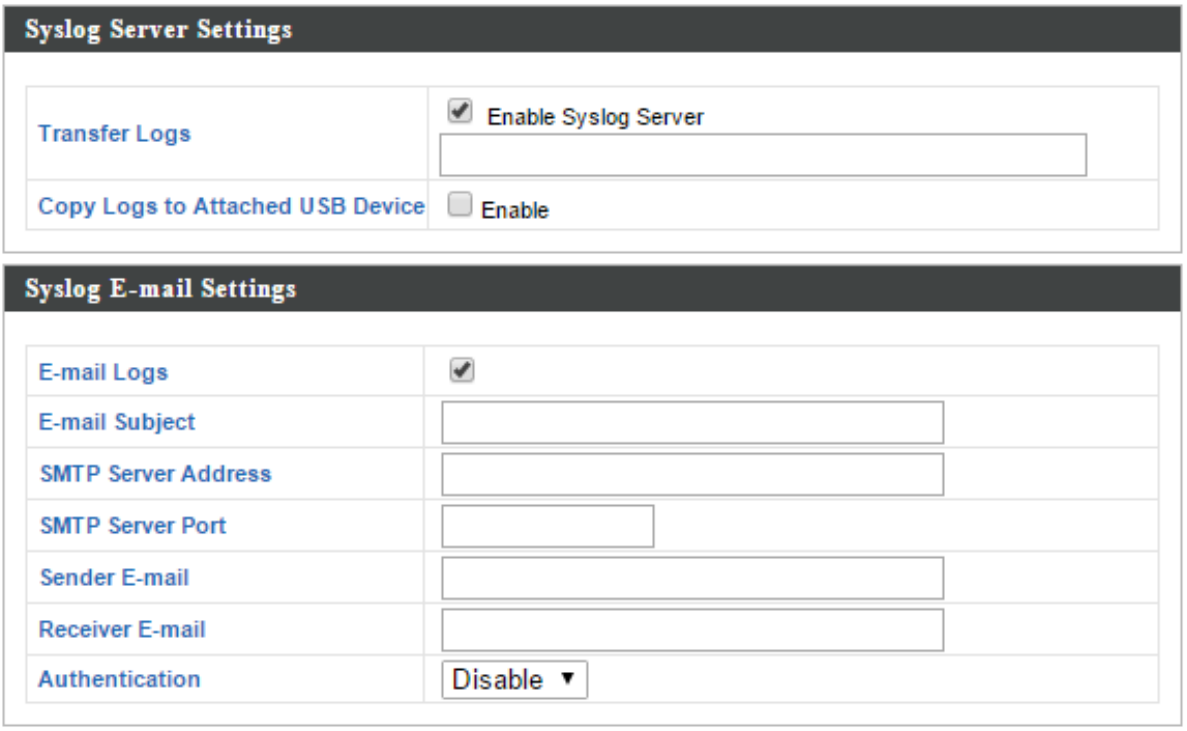
Server Name	Enter the host name or IP address of the time server if you wish.
Update Interval	Specify a frequency (in hours) for the access point to update/synchronize with the NTP server.

Time Zone	
Time Zone	Select the time zone of your country/ region. If your country/region is not listed, please select another country/region whose time zone is the same as yours.

IV-4-3. Syslog Server

Syslog Server

The system log can be sent to a server or to attached USB storage.



Syslog Server Settings	
Transfer Logs	Check/uncheck the box to enable/disable the use of a syslog server, and enter a host name, domain or IP address for the server, consisting of up to 128 alphanumeric characters.
Copy Logs to Attached USB Device	Check/uncheck the box to enable/disable copying logs to attached USB storage.

Syslog E-mail Settings	
E-mail Logs	Check the box to enable/disable e-mail logs.
E-mail Subject	Specify the subject line of log emails.
SMTP Server Address	Specify the SMTP server address used to send log emails.
SMTP Server Port	Specify the SMTP server port used to send log emails.
Sender E-mail	Specify the sender email address.
Receiver E-mail	Specify the email to receive log emails.

Authentication	Disable or select authentication type: SSL or TLS. When using SSL or TLS, enter the username and password.

IV-4-4. Ping Test

The access point includes a built-in ping test function. Ping is a computer network administration utility used to test whether a particular host is reachable across an IP network and to measure the round-trip time for sent messages.

Destination Address	Enter the address of the host.
Execute	Click execute to ping the host.

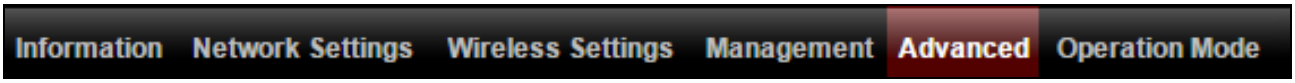
IV-4-5. I’m Here

The access point features a built-in buzzer which can sound on command using the “I’m Here” page. This is useful for network administrators and engineers working in complex network environments to locate the access point.

The buzzer is loud!

Duration of Sound	Set the duration for which the buzzer will sound when the “Sound Buzzer” button is clicked.
Sound Buzzer	Activate the buzzer sound for the above specified duration of time.

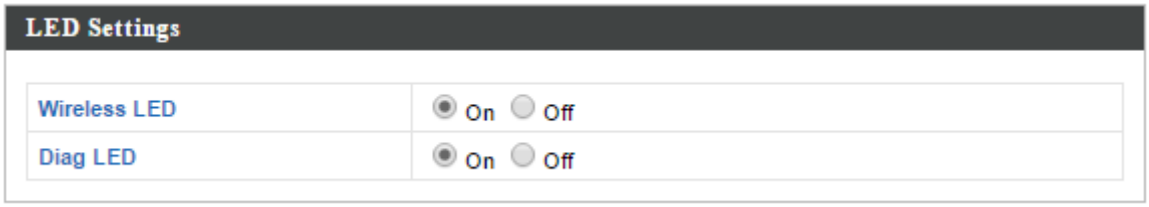
IV-5. Advanced



Screenshots displayed are examples. The information shown on your screen will vary depending on your configuration.

IV-5-1. LED Settings

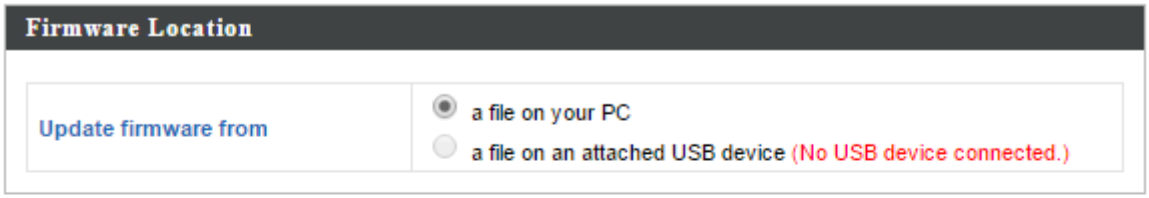
The access point's LEDs can be manually enabled or disabled according to your preference.

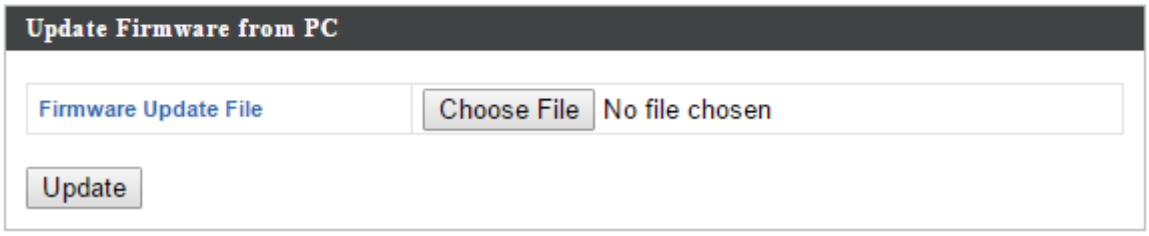


Power/Diag LED	Select on or off.

IV-5-2. Update Firmware

The “Firmware” page allows you to update the system firmware to a more recent version. Updated firmware versions often offer increased performance and security, as well as bug fixes. You can download the latest firmware from the Edimax website.



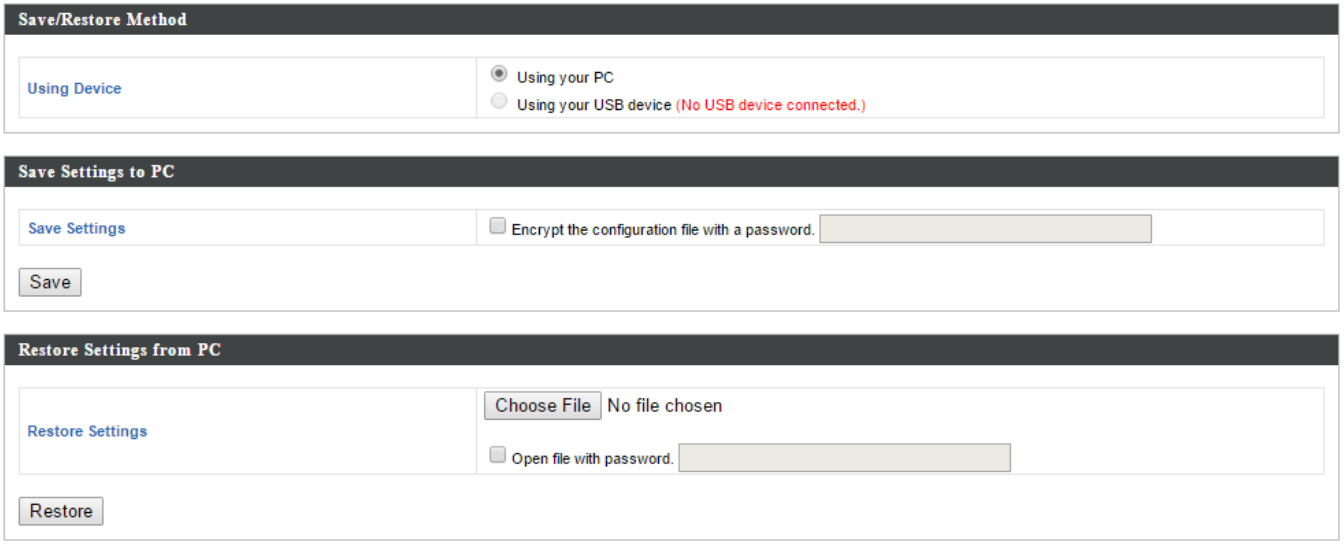


Do not switch off or disconnect the access point during a firmware upgrade, as this could damage the device.

Update Firmware From	Select “a file on your PC” to upload firmware from your local computer or from an attached USB device.
Firmware Update File	Click “Choose File” to open a new window to locate and select the firmware file in your computer.
Update	Click “Update” to upload the specified firmware file to your access point.

IV-5-3. Save/Restore Settings

The access point's "Save/Restore Settings" page enables you to save/backup the access point's current settings as a file to your local computer or a USB device attached to the access point, and restore the access point to previously saved settings.



Save / Restore Settings	
Using Device	Select "Using your PC" to save the access point's settings to your local computer or to an attached USB device.

Save Settings to PC	
Save Settings	Click "Save" to save settings and a new window will open to specify a location to save the settings file. You can also check the "Encrypt the configuration file with a password" box and enter a password to protect the file in the field underneath, if you wish.

Restore Settings from PC	
Restore Settings	Click the browse button to find a previously saved settings file on your computer, then click "Restore" to replace your current settings. If your settings file is encrypted with

	a password, check the “Open file with password” box and enter the password in the field underneath.

IV-5-4. Factory Default

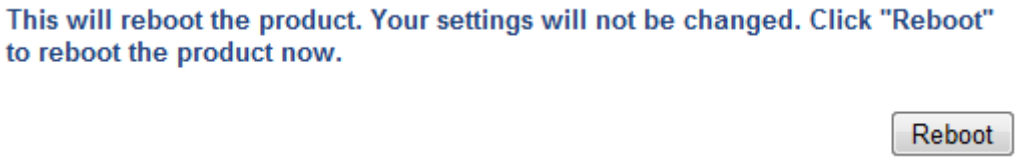
If the access point malfunctions or is not responding, then it is recommended that you reboot the device (see **IV-5.5**) or reset the device back to its factory default settings. You can reset the access point back to its default settings using this feature if the location of the access point is not convenient to access the reset button.

Factory Default	Click “Factory Default” to restore settings to the factory default. A pop-up window will appear and ask you to confirm.

After resetting to factory defaults, please wait for the access point to reset and restart.

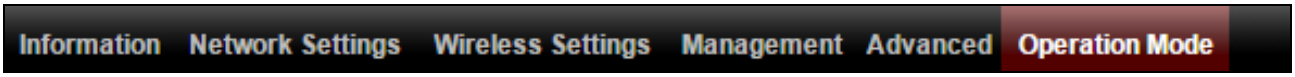
IV-5-5. Reboot

If the access point malfunctions or is not responding, then it is recommended that you reboot the device or reset the access point back to its factory default settings (see **IV-5-4**). You can reboot the access point remotely using this feature.



Reboot	Click “Reboot” to reboot the device. A countdown will indicate the progress of the reboot.

IV-6. Operation Mode



Screenshots displayed are examples. The information shown on your screen will vary depending on your configuration.

The access point can function in three different modes. Set the operation mode of the access point here.

Your access point can function in three different modes.

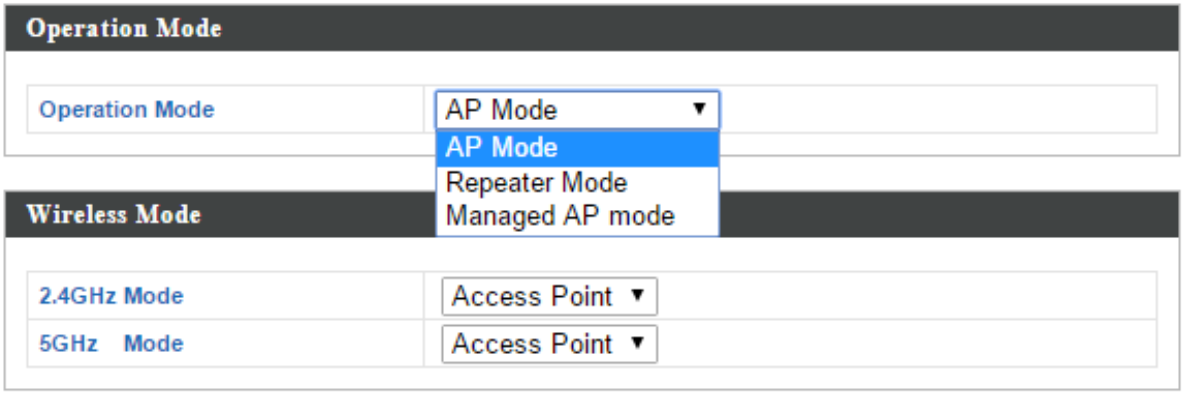
The default mode for your access point is **AP mode**.

AP mode is a regular access point for use in your wireless network.

Managed AP mode acts as a "slave" AP within the AP array (controlled by the AP Controller "master").

In **Repeater mode** the access point connects wirelessly to your existing 2.4GHz and/or 5GHz network and repeats the wireless signal(s).

In Managed AP mode some functions of the access point will be disabled in this user interface and must be set using Edimax Pro NMS on the AP Controller.



Operation Mode	AP Mode is a standard access point in a wireless network.

	AP Controller Mode is the master of an AP array and controls all other managed APs (below) using Edimax Pro NMS. Managed AP mode is an AP which is part of the AP array and is managed by the Controller AP.

When you set the operation mode to** repeater mode**, the AP will not get an IP address from the router/root AP. You will need to set your computer's IP address and use the APs default IP address to access the UI for the first time, refer to** Appendix **for more help.

V. Appendix

V-1. Configuring your IP address

The access point uses the default IP address **192.168.2.2**. In order to access the browser based configuration interface, you need to modify the IP address of your computer to be in the same IP address subnet e.g. **192.168.2.x (x = 3 – 254).**

The procedure for modifying your IP address varies across different operating systems; please follow the guide appropriate for your operating system.

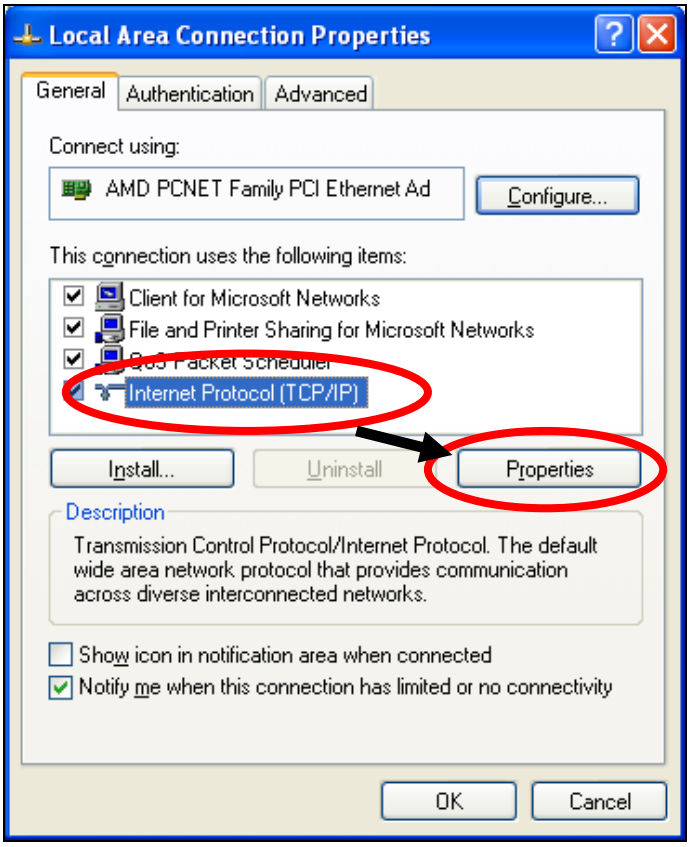
In the following examples we use the IP address **192.168.2.10** though you can use any IP address in the range **192.168.2.x (x = 3 – 254).**

If you changed the AP Controller's IP address, or if your gateway/router uses a DHCP server, ensure you enter the correct IP address. Refer to your gateway/router's settings. Your computer's IP address must be in the same subnet as the AP Controller.

If using a DHCP server on the network, it is advised to use your DHCP server's settings to assign the AP Controller a static IP address.

V-1-1. Windows XP

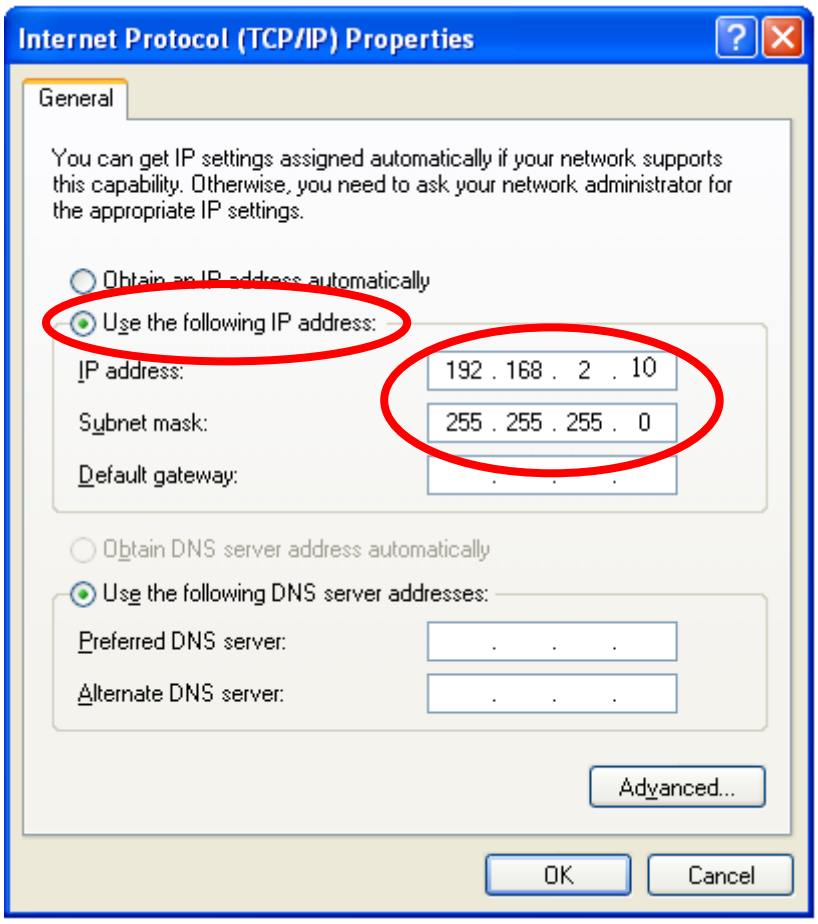
1. Click the “Start” button (it should be located in the lower-left corner of your computer), then click “Control Panel”. Double-click the “Network and Internet Connections” icon, click “Network Connections”, and then double-click “Local Area Connection”. The “Local Area Connection Status” window will then appear, click “Properties”.



2. Select “Use the following IP address”, then input the following values:

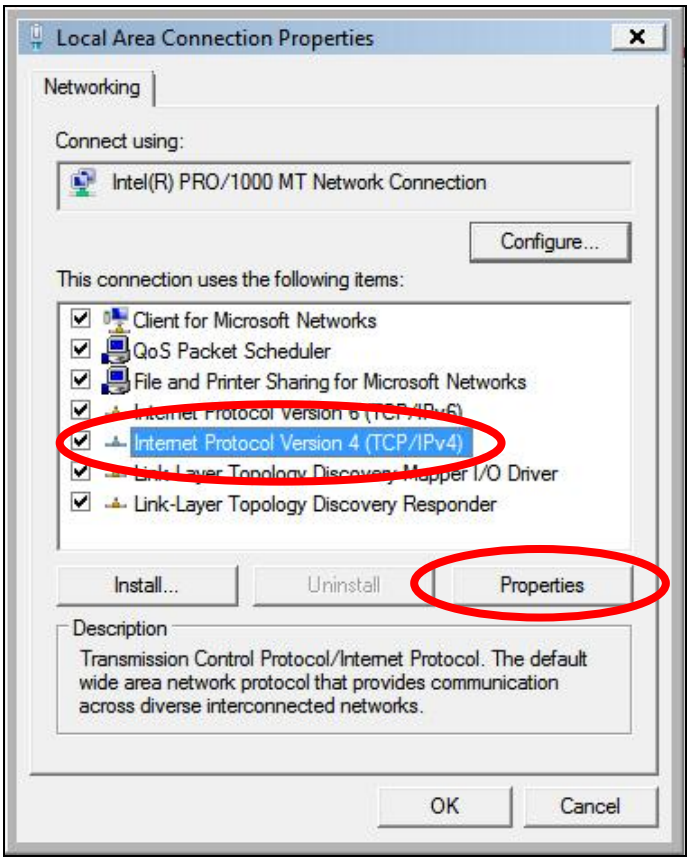
IP address: 192.168.2.10
Subnet Mask: 255.255.255.0

Click ‘OK’ when finished.


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 . 2 . 10
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:
Advanced...
OK
Cancel

V-1-2. Windows Vista

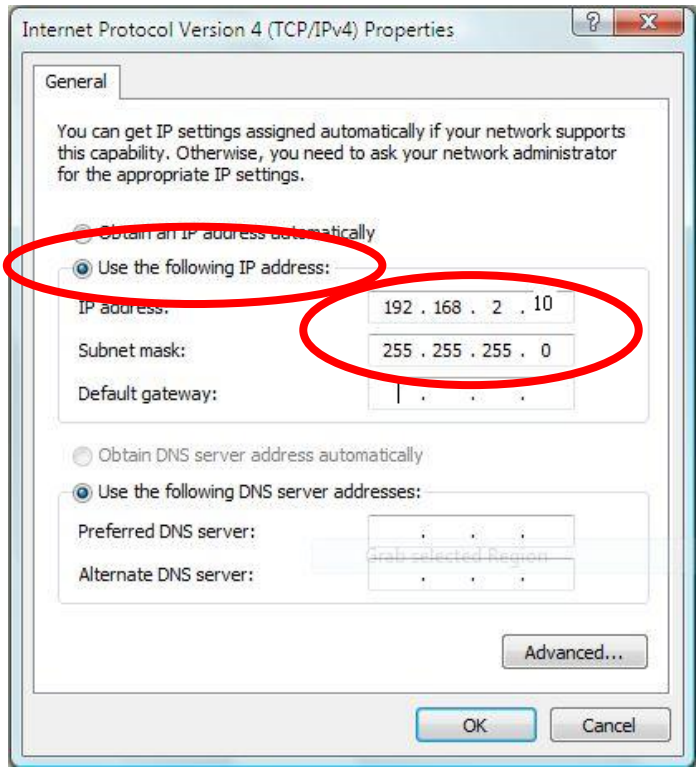
1. Click the “Start” button (it should be located in the lower-left corner of your computer), then click “Control Panel”. Click “View Network Status and Tasks”, then click “Manage Network Connections”. Right-click “Local Area Network”, then select “Properties”. The “Local Area Connection Properties” window will then appear, select “Internet Protocol Version 4 (TCP / IPv4)”, and then click “Properties”.



2. Select “Use the following IP address”, then input the following values:

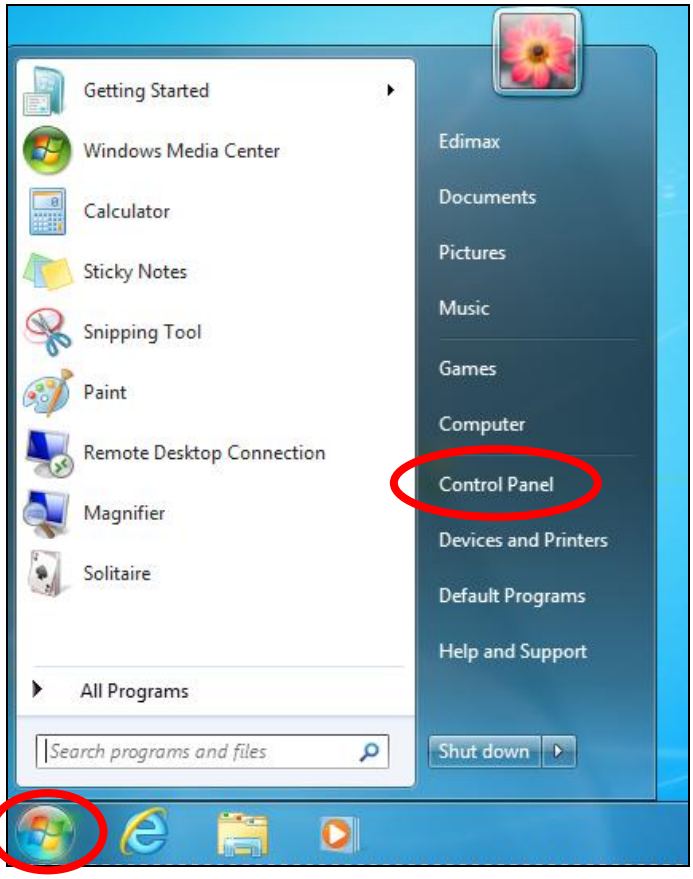
IP address: 192.168.2.10
Subnet Mask: 255.255.255.0

Click ‘OK’ when finished.

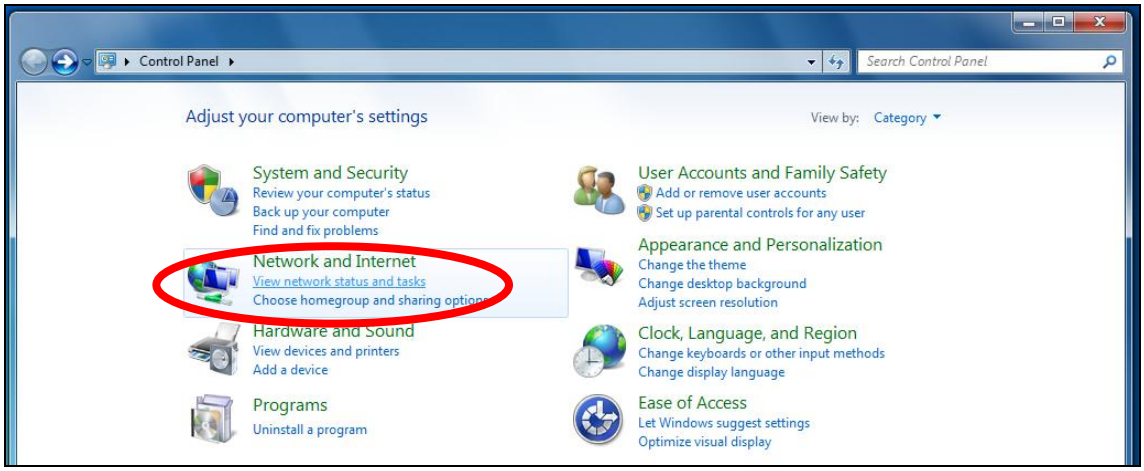

Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Use the following IP address:
IP address:
192 . 168 . 2 . 10
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

V-1-3. Windows 7

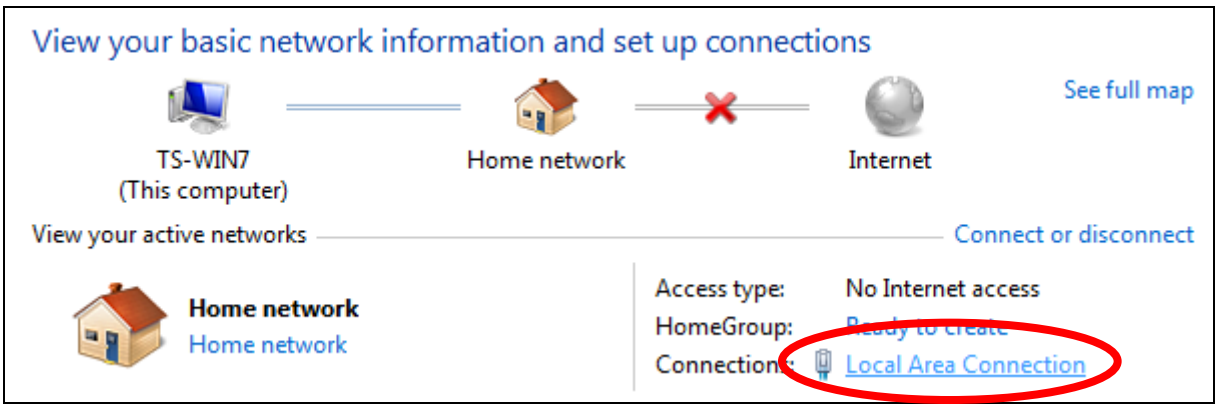
1. Click the “Start” button (it should be located in the lower-left corner of your computer), then click “Control Panel”.



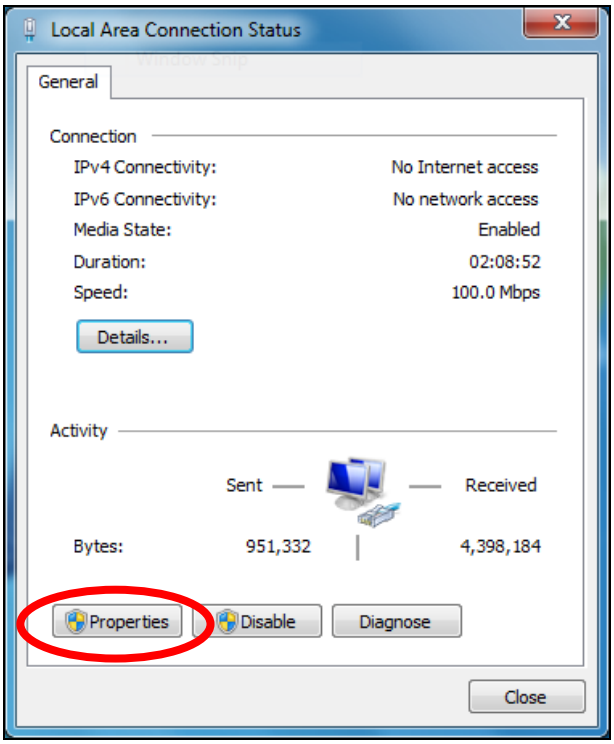
2. Under “Network and Internet” click “View network status and tasks”.



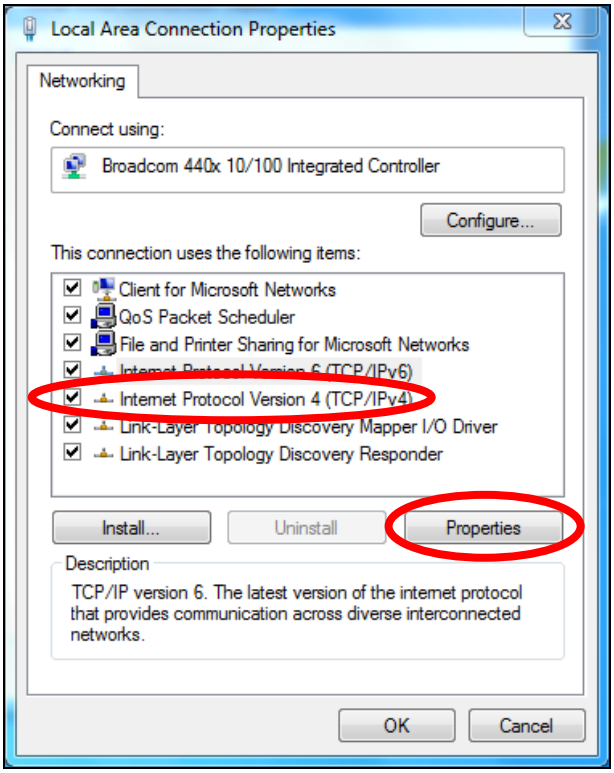
3. Click “Local Area Connection”.



4. Click “Properties”.



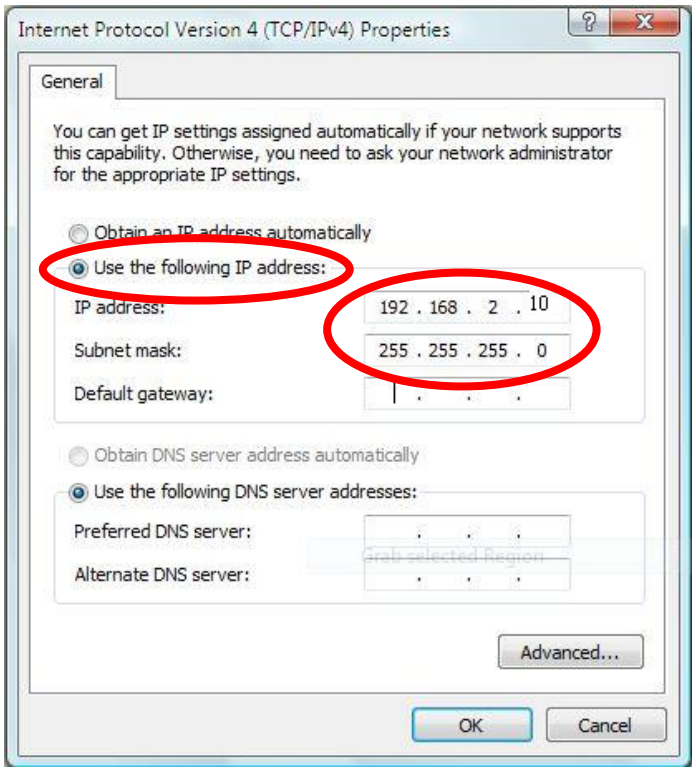
5. Select “Internet Protocol Version 4 (TCP/IPv4) and then click “Properties”.



6. Select “Use the following IP address”, then input the following values:

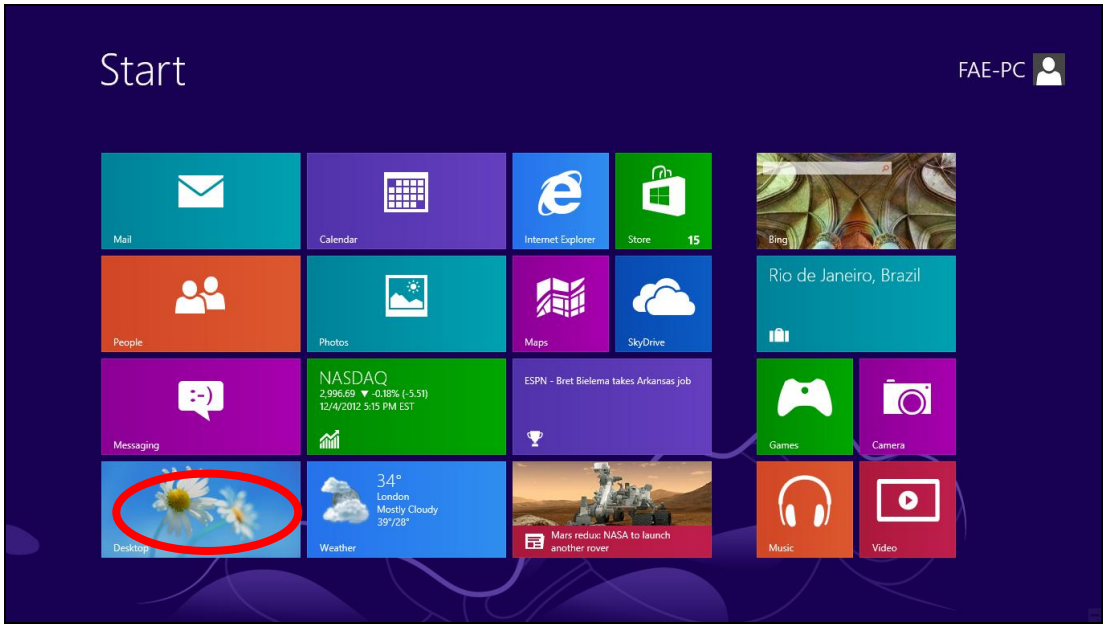
IP address: 192.168.2.10
Subnet Mask: 255.255.255.0

Click ‘OK’ when finished.

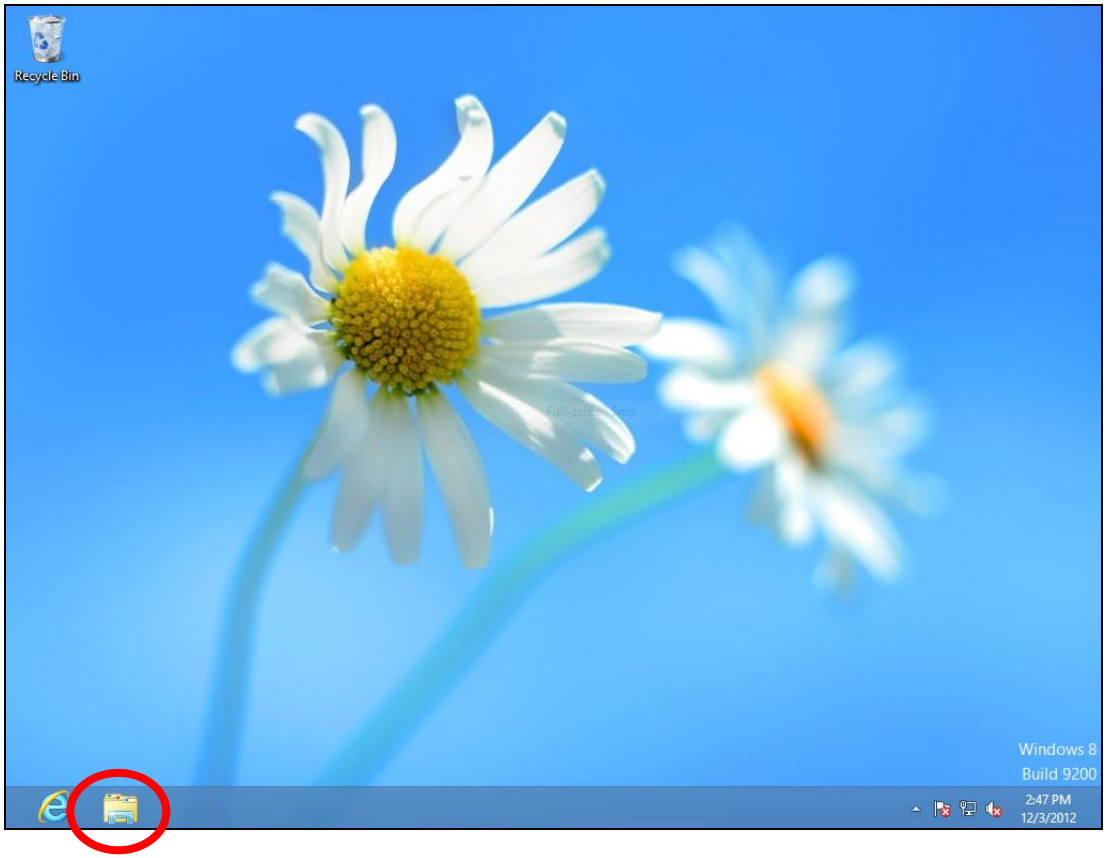

Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 2 . 10
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:
Advanced...
OK
Cancel

V-1-4. Windows 8

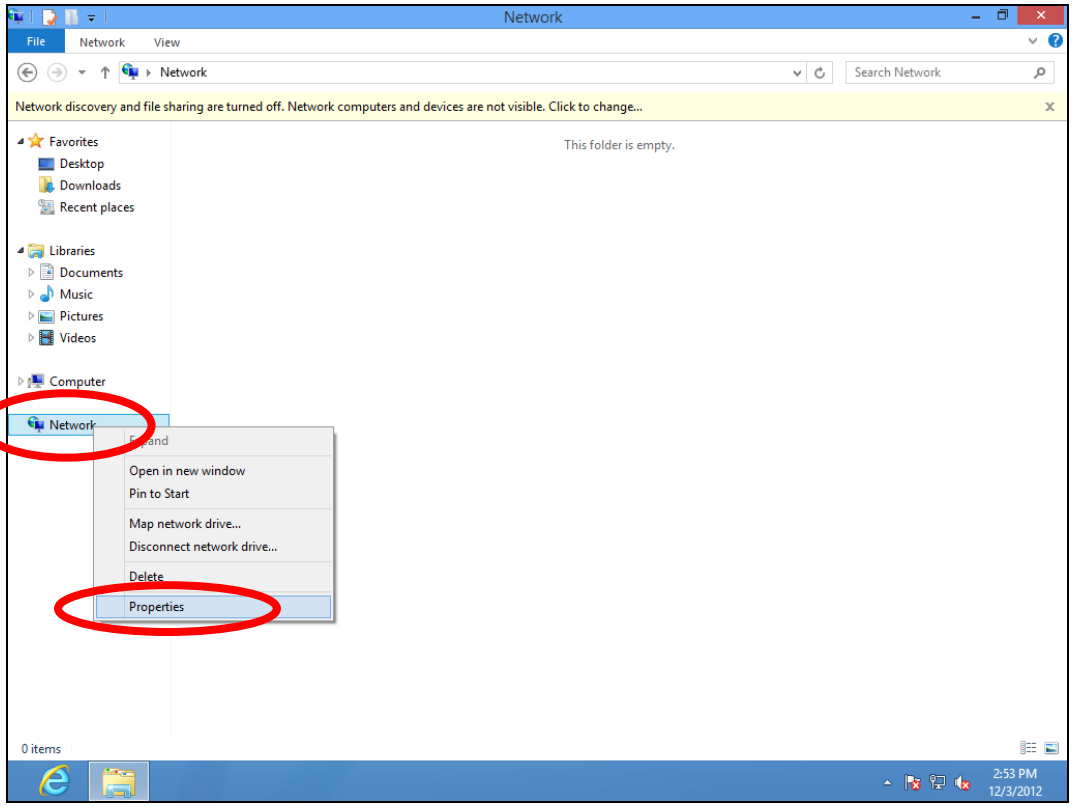
1. From the Windows 8 Start screen, you need to switch to desktop mode. Move your curser to the bottom left of the screen and click.



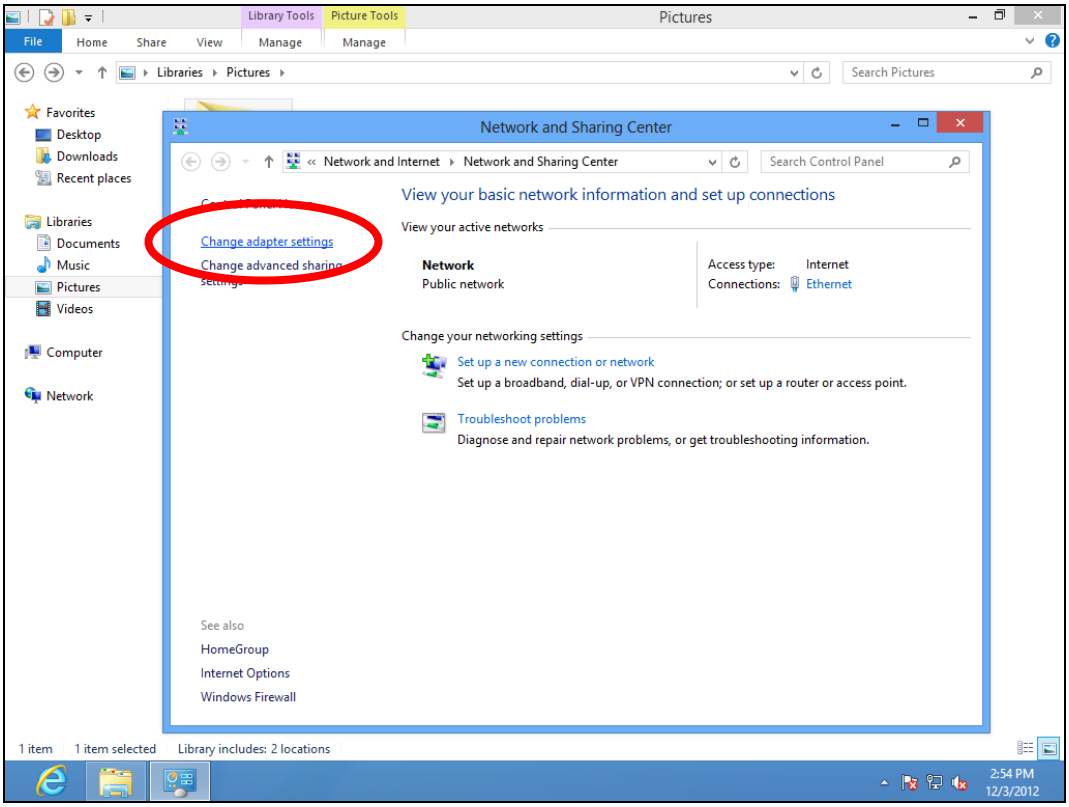
2. In desktop mode, click the File Explorer icon in the bottom left of the screen, as shown below.



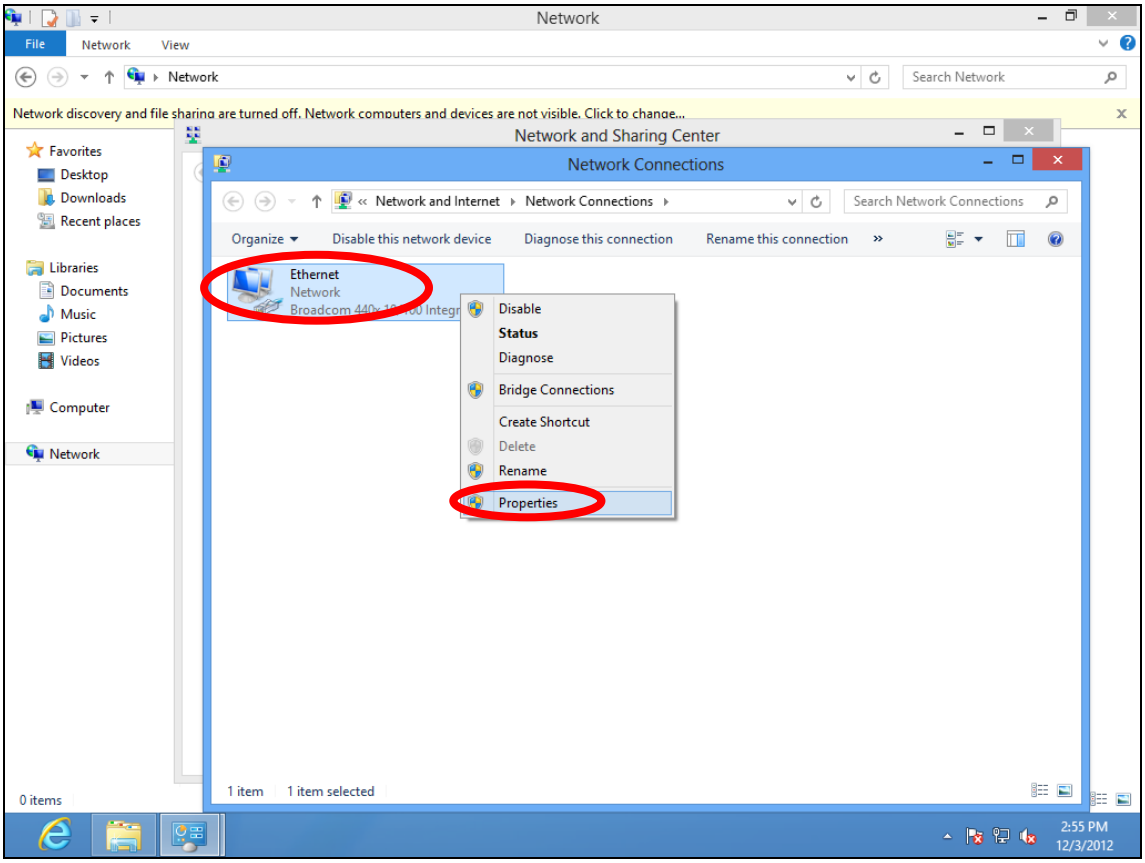
3. Right click “Network” and then select “Properties”.



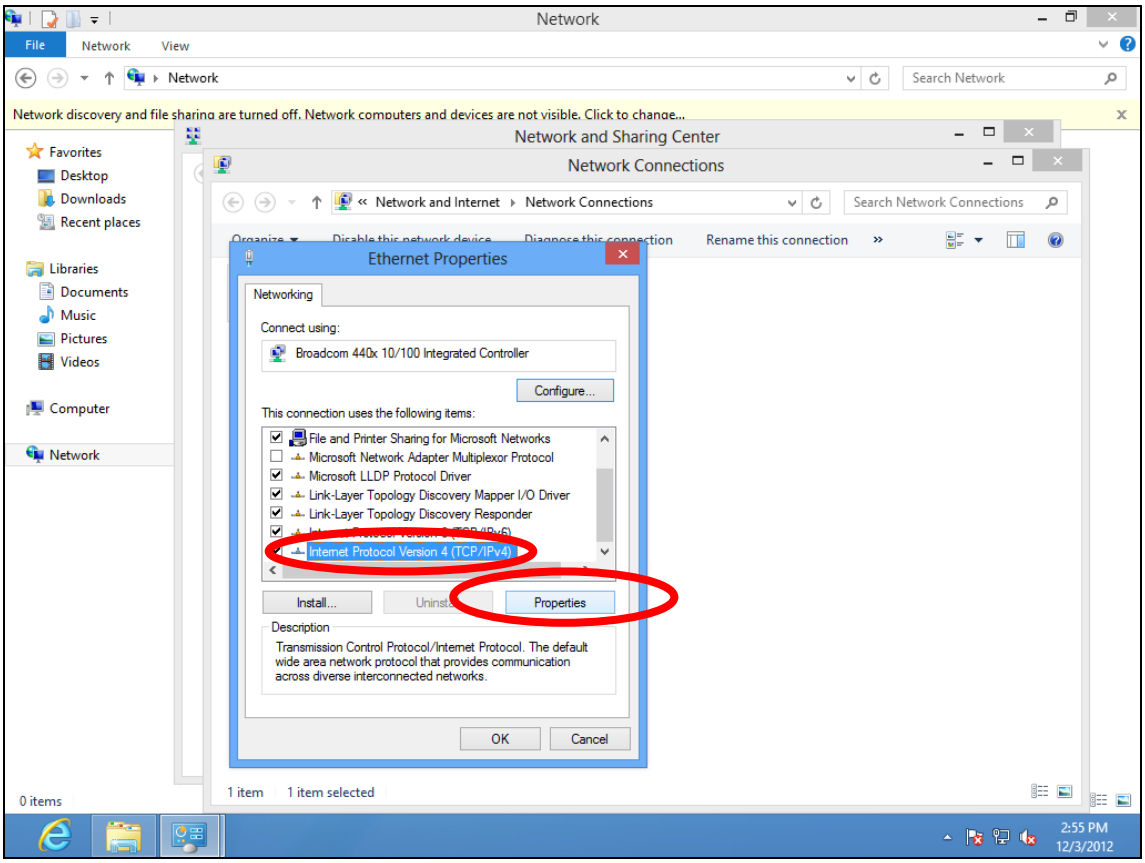
4. In the window that opens, select “Change adapter settings” from the left side.



5. Choose your connection and right click, then select “Properties”.



6. Select “Internet Protocol Version 4 (TCP/IPv4) and then click “Properties”.



7. Select “Use the following IP address”, then input the following values:

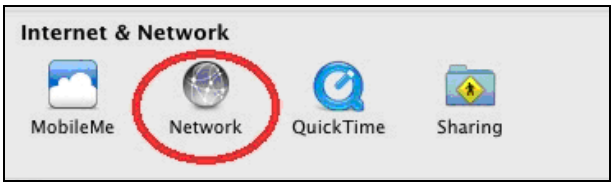
IP address: 192.168.2.10
Subnet Mask: 255.255.255.0

Click ‘OK’ when finished.

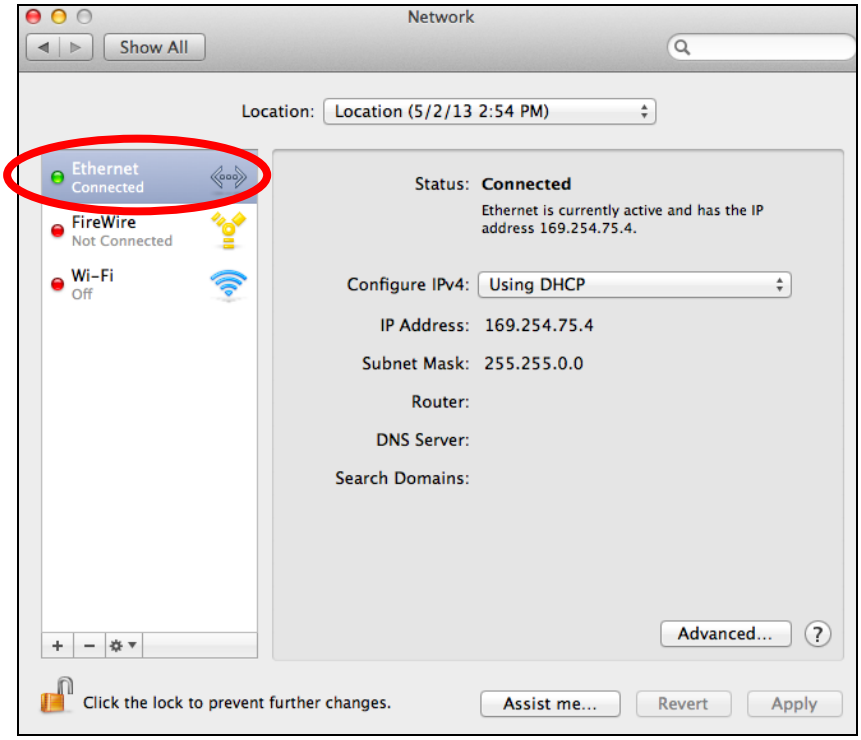
V-1-5. Mac

1. Have your Macintosh computer operate as usual, and click on “System Preferences”

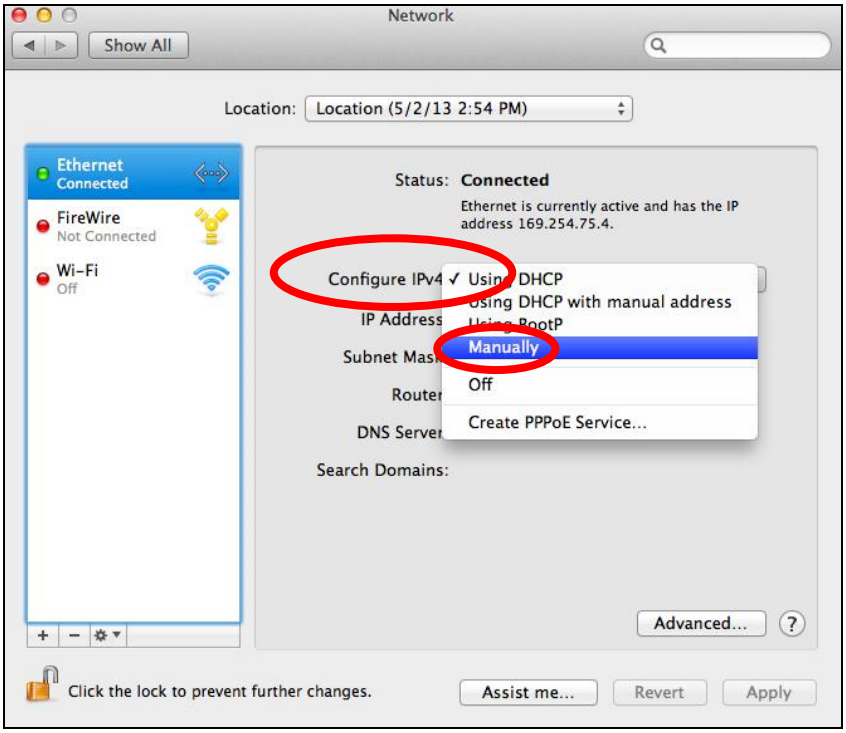
2. In System Preferences, click on “Network”.



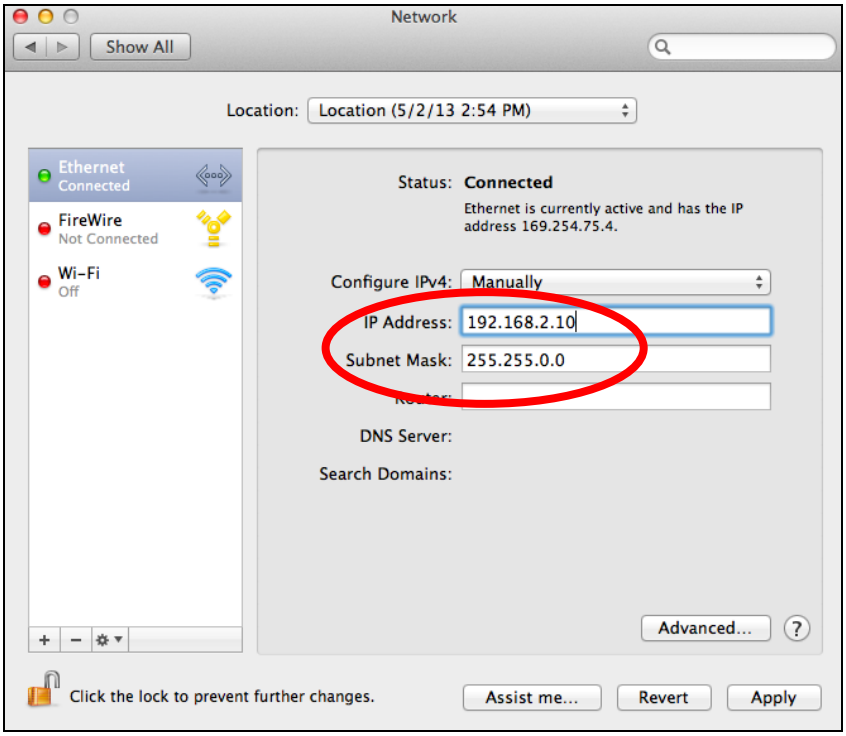
3. Click on “Ethernet” in the left panel.



4. Open the drop-down menu labeled “Configure IPv4” and select “Manually”.



5. Enter the IP address 192.168.2.10 and subnet mask 255.255.255.0. Click on “Apply” to save the changes.



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Federal Communication Commission Interference Statement

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

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

FCC Caution

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC Radiation Exposure Statement:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body or nearby persons.

RED Compliance Statement

Compliance with 2014/53/EU Radio Equipment Directive (RED)

In accordance with Article 10.8(a) and 10.8(b) of the RED, the following table provides information on the frequency bands used and the maximum RF transmit power of the product for sale in the EU:

Frequency range (MHz)	Max. Transmit Power (dBm)
2412-2472	18.80 dBm
5500-5700	28.75 dBm

A simplified DoC shall be provided as follows: Article 10(9)

Hereby, Edimax Technology Co., Ltd. declares that the radio equipment type **11ac Dual Band Concurrent Outdoor AP** is in compliance with Directive 2014/53/EU

The full text of the EU declaration of conformity is available at the following internet address: http://www.edimax.com/edimax/global/

Safety

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

EU Countries Intended for Use

The ETSI version of this device is intended for home and office use in Austria, Belgium, Bulgaria, Cyprus, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Turkey, and United Kingdom. The ETSI version of this device is also authorized for use in EFTA member states: Iceland, Liechtenstein, Norway, and Switzerland.

EU Countries Not Intended for Use

None

EU Declaration of Conformity

English: This equipment is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU, 2014/35/EU.

Français: Cet équipement est conforme aux exigences essentielles et autres dispositions de la directive 2014/53/EU, 2014/35/EU.

Čeština: Toto zařízení je v souladu se základními požadavky a ostatními příslušnými ustanoveními směrnic 2014/53/EU, 2014/35/EU.

Polski: Urządzenie jest zgodne z ogólnymi wymaganiami oraz szczególnymi warunkami określonymi Dyrektywą UE 2014/53/EU, 2014/35/EU.

Română: Acest echipament este în conformitate cu cerinţele esenţiale şi alte prevederi relevante ale Directivei 2014/53/UE, 2014/35/UE.

Русский: Это оборудование соответствует основным требованиям и положениям Директивы 2014/53/EU, 2014/35/EU.

Magyar: Ez a berendezés megfelel az alapvető követelményeknek és más vonatkozó irányelveknek (2014/53/EU, 2014/35/EU).

Türkçe: Bu cihaz 2014/53/EU, 2014/35/EU direktifleri zorunlu istekler ve diğer hükümlerle ile uyumludur.

Українська: Обладнання відповідає вимогам і умовам директиви 2014/53/EU, 2014/35/EU.

Slovenčina: Toto zariadenie spĺňa základné požiadavky a ďalšie príslušné ustanovenia smerníc 2014/53/EU, 2014/35/EU.

Deutsch: Dieses Gerät erfüllt die Voraussetzungen gemäß den Richtlinien 2014/53/EU, 2014/35/EU.

Español: El presente equipo cumple los requisitos esenciales de la Directiva 2014/53/EU, 2014/35/EU.

Italiano: Questo apparecchio è conforme ai requisiti essenziali e alle altre disposizioni applicabili della Direttiva 2014/53/EU, 2014/35/UE.

Nederlands: Dit apparaat voldoet aan de essentiële eisen en andere van toepassing zijnde bepalingen van richtlijn 2014/53/EU, 2014/35/EU.

Português: Este equipamento cumpre os requesitos essênciais da Directiva 2014/53/EU, 2014/35/EU.

Norsk: Dette utstyret er i samsvar med de viktigste kravene og andre relevante regler i Direktiv 2014/53/EU, 2014/35/EU.

Svenska: Denna utrustning är i överensstämmelse med de väsentliga kraven och övriga relevanta bestämmelser i direktiv 2014/53/EU, 2014/35/EU.

Dansk: Dette udstyr er i overensstemmelse med de væsentligste krav og andre relevante forordninger i direktiv 2014/53/EU, 2014/35/EU.

suomen kieli: Tämä laite täyttää direktiivien 2014/53/EU, 2014/35/EU. oleelliset vaatimukset ja muut asiaankuuluvat määräykset.

FOR USE IN AT BE CY CZ DK EE FI FR DE GR HU IE IT LV LT LU MT NL PL PT SK SI ES SE GB IS LI NO CH BG RO RU TR UA

WEEE Directive & Product Disposal

At the end of its serviceable life, this product should not be treated as household or general waste. It should be handed over to the applicable collection point for the recycling of electrical and electronic equipment, or returned to the supplier for disposal.

Declaration of Conformity

We, Edimax Technology Co., Ltd., declare under our sole responsibility, that the equipment described below complies with the requirements of the European Radio Equipment directives.

Equipment: 11ac Dual Band Concurrent Outdoor AP
Model No.: OAP1750

The following European standards for essential requirements have been followed:

Directives 2014/53/EU

Spectrum	:	EN 300 328 V2.1.1 (2016-11)
		EN 301 893 V2.1.1 (2017-05)
EMC	:	Draft EN 301 489-1 V2.2.0 (2017-03), Class B
		Draft EN 301 489-17 V3.2.0 (2017-03)
EMF	:	EN 62311:2008
Safety (LVD)	:	IEC 62368-1:2014 (2nd Edition) and/or EN 62368-1:2014+A11:2017

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No. 278, Xinhu 1st Rd.,
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Taiwan

Printed Name: David Huang
Title: Director
Edimax Technology Europe B.V.

Date of Signature: Nov., 2020
Signature:

Printed Name: Albert Chang
Title: Director
Edimax Technology Co., Ltd.

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