IFS WMC251-1W-1T-300 User Manual

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Other trade names used in this document may be trademarks or registered trademarks of the manufacturers or vendors of the respective products.

Manufacturer UTC Fire and Security

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Intended use Use this product only for the purpose it was designed for; refer to the data sheet and user documentation for details. For the latest product information, contact your local supplier or visit us online at www.Interlogix.com.

Certification CE N4131

ACMA compliance **Notice!** This is a Class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

European Union directives **2004/108/EC (EMC Directive):** Hereby, UTC Building & Industrial Systems, Inc. declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 2004/108/EC.

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 the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense. Any changes or modifications not expressly approved by UTC could void the user's authority to operate this equipment under the rules and regulations of the FCC.

FCC Caution:

To assure continued compliance, (for example, use only shielded interface cables when connecting to computer or peripheral devices) any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

(1) This device may not cause harmful interference
(2) This device must accept any interference received, including interference that may cause undesired operation.

Federal Communication Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

CAUTION: Changes or modifications not expressly approved by UTC for compliance could void the user's authority to operate the equipment.

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Energy Saving Note of the Device

This power required device does not support Standby mode operation. For energy saving, please remove the DC-plug to disconnect the device from the power circuit. Without removing the DC-plug, the device still consumes power from the power circuit. In view of Saving the Energy, it is strongly suggested to remove the DC-plug for the device if this device is not intended to be active.

Canadian Compliance

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. Cet appareil numérique de la classe B respects toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Canada - Industry Canada (IC)

The wireless radio of this device complies with RSS 247 and RSS 102 of Industry Canada.
This Class B digital device complies with Canadian ICES-003 (NMB-003).
Cet appareil numérique de la classe B respects toutes les exigences du Règlement sur le matériel brouilleur du Canada.

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:
(1) This device may not cause interference; and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

WMC251-1W-1T-300 complies with IC requirements, IC: 20201-WMC251300.

This radio transmitter (IC: 20201-WMC251300) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

- Built-in 14dBi Dual-Polarization Antenna

Le présent émetteur radio (IC: 20201-WMC251300) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

- **Intégré 14dBi antenne double polarisation**

Digital Transmission Systems (DTSs)

DTSs include systems that employ digital modulation techniques resulting in spectral characteristics similar to direct sequence systems. The following applies to the bands 902-928 MHz and 2400-2483.5 MHz.

(1) The minimum 6 dB bandwidth shall be 500 kHz.

(2) The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of Section 5.4(4), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. Except as provided in Section 5.4(5), the e.i.r.p. shall not exceed 4 W.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

(5) Fixed point-to-point systems in the bands 2400-2483.5 MHz and 5725-5850 MHz are permitted to have an e.i.r.p. higher than 4 W provided that the higher e.i.r.p. is achieved by employing higher gain directional antennas and not higher transmitter output powers. Point-to-multipoint systems,2 omnidirectional applications and multiple co-located transmitters transmitting the same information are prohibited from exceeding an e.i.r.p. of 4 W.

(6) Transmitters may operate in the band 2400-2483.5 MHz, employing antenna systems that emit multiple directional beams simultaneously or sequentially, for the purpose of directing signals to individual receivers or to groups of receivers, provided that the emissions comply with the following:

(i) Different information must be transmitted to each receiver.

(ii) If the transmitter employs an antenna system that emits multiple directional beams, but does not emit multiple directional beams simultaneously, the total output power conducted to the array or arrays that comprise the device (i.e. the sum of the power supplied to all antennas, antenna elements, staves, etc., and summed across all carriers or frequency channels) shall not exceed the applicable output power limit specified in sections 5.4(2) and 5.4(4). However, the total conducted output power shall be reduced by 1 dB below the specified limits for each 3 dB that the directional gain of the antenna/antenna array exceeds 6 dBi. The directional antenna gain shall be computed as the sum of 10 log (number of array elements or staves) plus the directional gain of the element or stave having the highest gain.

(iii) If a transmitter employs an antenna that operates simultaneously on multiple directional beams using the same or different frequency channels, the power supplied to each emission beam is subject to the applicable power limit specified in sections 5.4(2) and 5.4(4). If transmitted beams overlap, the power shall be reduced to ensure that their aggregate power does not exceed the applicable limit specified in sections 5.4(2) and 5.4(4). In addition, the aggregate power transmitted simultaneously on all beams shall not exceed the applicable limit specified in sections 5.4(2) and 5.4(4) by more than 8 dB.

(iv) Transmitters that transmit a single directional beam shall operate under the provisions of sections 5.4(2), 5.4(4) and 5.4(5).

5.5 Unwanted Emissions

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

The measurement procedure defined in Annex A of RSS-247 shall be used to verify the compliance to the e.i.r.p. at different elevations.

changes in the product(s) described in this manual at any time.

CAUTION: TO ENSURE REGULATORY COMPLIANCE, USE ONLY THE PROVIDED POWER AND INTERFACE CABLES.

CAUTION: DO NOT OPEN THE UNIT. DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE INSTALLATION AND TROUBLESHOOTING INSTRUCTIONS. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL.

R&TTE Compliance Statement

This equipment complies with all the requirements of DIRECTIVE 1999/5/CE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL OF 9 March 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE). The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) as of April 8, 2000.

Safety

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

Wireless LAN and your Health

The WMC251-1W-1T-300 like other radio devices, emits radio frequency electromagnetic energy, but operates within the guidelines found in radio frequency safety standards and recommendations.

Restrictions on Use of Wireless Devices

In some situations or environments, the use of wireless devices may be restricted by the proprietor of the building or responsible representatives of the organization. For example, these situations may include:

Using wireless equipment in any environment where the risk of interference to other devices or services is perceived or identified as harmful.

If you are uncertain of the applicable policy for the use of wireless equipment in a specific organization or environment, you are encouraged to ask for authorization to use the device prior to turning on the equipment.

The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of the devices included with this product, or the substitution or attachment of connecting cables and equipment other than specified by the manufacturer. Correction of interference caused by such unauthorized modification, substitution, or attachment is the responsibility of the user.

The manufacturer and its authorized resellers or distributors are not liable for any damage or violation of government regulations that may arise from failing to comply with these guideline documentation that comes with the product.

Postpone router installation until there is no risk of thunderstorm or lightning activity in the area.

Do not overload outlets or extension cords, as this can result in a risk of fire or electric shock. Overloaded AC outlets, extension cords, frayed power cords, damaged or cracked wire insulation, and broken plugs are dangerous. They may result in a shock or fire hazard.

Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords where they are attached to plugs and convenience receptacles, and examine the point where they exit from the product.

Place this equipment in a location that is close enough to an electrical outlet to accommodate the length of the power cord.

Place this equipment on a stable surface.
When using this device, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:
. Read all of the instructions {listed here and/or in the user manual} before you operate this equipment. Give particular attention to all safety precautions.
Retain the instructions for future reference.
. Comply with all warning and caution statements in the instructions. Observe all warning and caution symbols that are affixed to this equipment.
. Comply with all instructions that accompany this equipment.
. Avoid using this product during an electrical storm. There may be a risk of electric shock from lightning. For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet, and disconnect the cable system. This will prevent damage to the product due to lightning and power surges. We also recommend the use of ESP300 20Kv protection on the input at the switch or network.
. Operate this product only from the type of power source indicated on the product's marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
. Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating condition.
It is recommended that the customer install an AC surge protector in the AC outlet to which this device is connected. This is to avoid damaging the equipment by local lightning strikes and other electrical surges.

Different types of cord sets may be used for connections to the main supply circuit. Use only a main line cord that complies with all applicable product safety requirements of the country of use. Installation of this product must be in accordance with national wiring codes.

Place unit to allow for easy access when disconnecting the power cord/adapter of the device from the AC wall outlet.

Wipe the unit with a clean, dry cloth. Never use cleaning fluid or similar chemicals. Do not spray cleaners directly on the unit or use forced air to remove dust.

This product was qualified under test conditions that included the use of the supplied cables between system components. To be in compliance with regulations, the user must use these cables and install them properly. Connect the unit to a grounding type AC wall outlet using the power adapter supplied with the unit.

Do not cover the device, or block the airflow to the device with any other objects. Keep the device away from excessive heat and humidity and keep the device free from vibration and dust.

Installation must at all times conform to local regulations.

National Restrictions

This device is intended for home and office use in all EU countries (and other countries following the EU directive 1999/5/EC) without any limitation except for the countries mentioned below:

Country	Restriction	Reasons/remarks
Bulgaria	None	General authorization required for outdoor use and public service
France	Outdoor use; limited to 10 mW e.i.r.p. within the band 2454-2483.5 MHz	Military Radiolocation use. Reframing of the 2.4 GHz band has been ongoing in recent years to allow current relaxed regulation. Full implementation planned 2012
Italy	None	If used outside of own premises, general authorization is required
Luxembourg	None	General authorization required for network and service supply(not for spectrum)
Norway	Implemented	This subsection does not apply for the geographical area within a radius of 20 km from the centre of Ny-Ålesund
Russian Federation	None	Only for indoor applications

Note: Please don't use the product outdoors in France.

WEEE regulation

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Contact Information For contact information, see www.-.com or www.utcfssecurityproducts.eu.

User's Manual**CONTENTS**

FIGURES

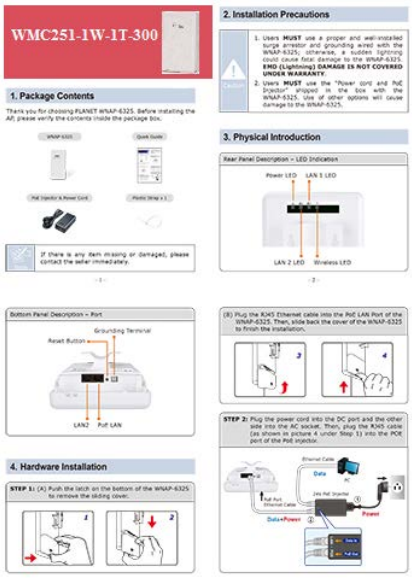
Chapter 1. Product Introduction

1.1 Package Contents

Thank you for choosing IFS, - WMC251. Before installing the AP, please verify the contents inside the package box.

WMC251-1W-1T-300

Quick Installation Guide



PoE Injector & Power Cord

Plastic Strap x 1

Note

If there is any item missing or damaged, please contact the seller immediately.

1.2 Product Description

Cost-effective Wireless Solution with Superior Performance

IFS, WMC251 is designed to provide a highly-stable, better performance and cost-effective wireless solution in outdoor wireless deployment. With the same transmission power, it offers better significant range and excellent throughput than those of the traditional 802.11g wireless device. Via the embedded 12dBi dual-polarization (vertical and horizontal) directional antenna, it provides good diversity coverage and better noise immunity effect, thus heightening the performance of a long-distance, outdoor connectivity even though the environment is flooded with many 2.4GHz wireless equipment.

Designed for Various Requirements

The WMC251 is dedicatedly designed for WISP solution that provides CPE users with Internet access via the WISP provider in rural areas. Besides, it caters to various wireless communication connectivity (AP / Client / WDS PtP / WDS PtMP / WISP), thus meeting users' application requirements.

Advanced Security and Rigorous Authentication

The WMC251 supports WEP, WPA / WPA2, WPA-PSK and WPA2-PSK wireless encryptions, the advanced WPA2-AES mechanism and 802.1X RADIUS authentication, which can effectively prevent eavesdropping by unauthorized users or bandwidth occupied by unauthenticated wireless access. Furthermore, any users are granted or denied access to the wireless LAN network based on the ACL (Access Control List) that the administrator pre-established. In addition, with the multiple-SSIDs feature, you can set up different wireless networks. The WMC251 can therefore serve as a virtual access point for segmented networks tailored to any industrial need.

Flexible and Reliable Outdoor Characteristics

The WMC251 is definitely suitable for such applications as IP surveillance, backhaul link of building to building and backbone of public service. Additionally, the self-healing/schedule reboot capability keeps connection alive all the time. Meeting the IP55 rating for outdoor UV resistant enclosure, the WMC251 can perform normally under rigorous weather conditions, meaning it can be installed in any harsh, outdoor environments. With the proprietary Power over Ethernet (PoE) design, the WMC251 can be easily installed in the areas where power outlets are not available.

Easy Deployment and Management

With user-friendly Web UI and step-by-step setup wizard, the WMC251 is easy to install, even for users who never experience in setting up a wireless network. Furthermore, with the IFS, - SNMP-based management interface, the WMC251 is convenient to be managed and configured remotely.

1.3 Product Features

- **Industrial Compliant Wireless LAN and WAN**
  - Compliant with the IEEE 802.11n wireless technology (with data rate of up to 300Mbps)
  - Backward compatible with 802.11g standard
  - Equipped with 10/100Mbps RJ45 ports for LAN and WAN; auto MDI/ MDI-X supported
- **Fixed-network Broadband Router**
  - Supported connection types: Dynamic IP, Static IP, PPPoE
  - Supports virtual server and DMZ for various networking applications
  - Supports DHCP server, UPnP and IFS, - DDNS
- **RF Interface Characteristics**
  - Built-in 12dBi dual-polarization antenna
  - High output power up to 500mW with multiply-adjustable transmit power control
- **Outdoor Environmental Characteristics**
  - IP55 enclosure
  - Passive Power over Ethernet design
  - Operating temperature: -20~70°C
- **Multiple Operations and Wireless Modes**
  - Multiple operation modes: Bridge, WISP
  - Multiple wireless modes: AP, Client CPE (WISP), WDS PtP, WDS PtMP
  - Supports multiple SSIDs to allow users to access different networks through a single AP
  - Supports WMM (Wi-Fi multimedia)
- **Secure Network Connection**
  - Supports software Wi-Fi Protected Setup (WPS)
  - Advanced security: 64/128-bit WEP, WPA / WPA2, WPA-PSK / WPA2-PSK (TKIP/AES) and 802.1x RADIUS authentication
  - Supports IP / Protocol-based access control and MAC filtering
- **Easy Installation and Management**
  - Web-based UI and quick Setup Wizard for easy configuration
  - SNMP-based management interface
  - System status monitoring includes DHCP Client and System Log

1.4 Product Specification

Product	**WMC251-1W-1T-300** 300Mbps 802.11n Wireless Outdoor CPE	
Hardware		
Standard Support	IEEE802.11b/g/n IEEE 802.3 IEEE 802.3u IEEE 802.3x	
Chipset	Atheros AR9344	
Memory	64 Mbytes DDR SDRAM 16 Mbytes Flash	
PoE	Passive PoE	
Interface	Wireless IEEE802.11b/g/n, 2T2R PoE LAN (LAN 1): 1 x 10/100BASE-TX, auto-MDI/MDIX, passive PoE LAN 2: 1 x 10/100BASE-TX, auto-MDI/MDIX, passive PoE out pass-through	
Antenna	Built-in 12dBi Dual-Polarization Antenna - Horizontal: 30 degrees - Vertical: 20 degrees	
Data Rate	IEEE 802.11b: 1, 2, 5.5, 11Mbps IEEE 802.11g: up to 54Mbps IEEE 802.11n (20MHz): up to 150Mbps IEEE 802.11n (40MHz): up to 300Mbps	
Media Access Control	CSMA/CA	
Modulation	Transmission/Emission type: OFDM Data modulation type: OFDM with BPSK, QPSK, 16-QAM, 64-QAM	
Frequency Band	2.412GHz ~ 2.484GHz	
Operating Channel	America/ FCC: 2.414~2.462GHz (11 Channels) Europe/ ETSI: 2.412~2.472GHz (13 Channels) Japan/ TELEC: 2.412~2.484GHz (14 Channels)	
RF Output Power (dBm)	IEEE 802.11b: up to 26 ± 1dBm IEEE 802.11g: up to 23 ± 1dBm IEEE 802.11n: up to 22 ± 1dBm	
Receiver Sensitivity (dBm)	IEEE 802.11b: -94dBm IEEE 802.11g: -91dBm IEEE 802.11n: -89dBm	
Output Power Control	12~27Bm	
Power Consumption	12W	
Power Requirements	LAN	24VDC, 1A/ Passive PoE Pin 4,5 VDC+ Pin 7,8 VDC- Pin 3 Reset
Environment & Certification		

Operating Temperature	-20~70°c
Operating Humidity	10~95% non-condensing
IP Level	IP55
Regulatory	CE, FCC, RoHS
Software	
LAN	Built-in DHCP server supporting static IP address distributing
	Support 802.1d STP (Spanning Tree)
WAN	■ Static IP ■ Dynamic IP ■ PPPoE
Operation Modes	■ Bridge ■ WISP
Firewall	NAT firewall with SPI (Stateful Packet Inspection)
	Built-in NAT server supporting Virtual Server, and DMZ
	Built-in firewall with Port/ IP address/ MAC/ URL filtering
Wireless Modes	■ AP ■ Client ■ WDS PTP ■ WDS PTMP ■ WISP
Channel Width	20MHz / 40MHz
Wireless Isolation	Enable it to isolate each connected wireless client so that they cannot access mutually.
Encryption Type	64/128-bit WEP, WPA, WPA-PSK, WPA2, WPA2-PSK, 802.1X
Wireless Security	Provides wireless LAN ACL (Access Control List) filtering
	Wireless MAC address filtering
	Enable/Disable SSID Broadcast
Max. Wireless Clients	25
Max. WDS AP	8
Max. Wired Clients	60
WMM	Supports Wi-Fi multimedia
QoS	Supports Quality of Service for bandwidth control
NTP	Network Time Management
Self Healing	Supports Schedule Reboot
Management	Web UI, DHCP Client, Configuration Backup & Restore, Dynamic DNS, SNMP
Diagnostic Tool	System Log, Ping Watchdog

Chapter 2. Hardware Installation

Please follow the instructions below to connect the WMC251 to the existing network devices and your computers.

2.1 Hardware Description

- **Dimensions**: 127 x 63 x 254 mm (W x D x H)

Figure 2-1 Three-way View

Rear Panel – LED

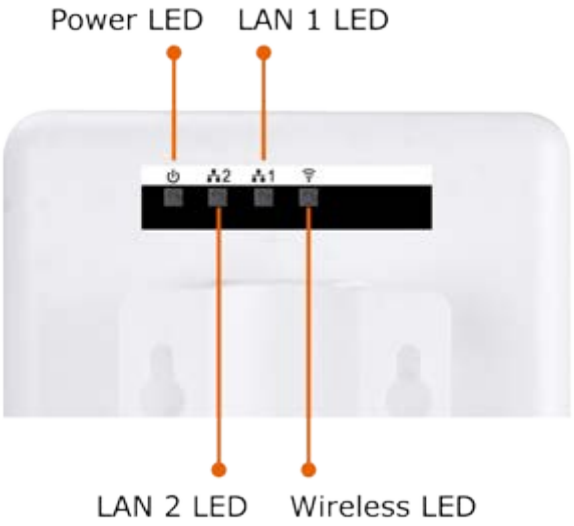


Figure 2-2 LED

LED Definition

LED	State	Meaning
Power	On	System On
	Off	System Off
Wireless	On	Wi-Fi On
	Off	Wi-Fi Off
LAN 1	On	Port linked.
	Off	No link.
LAN 2	On	Port linked.
	Off	No link.

Table 2-1 The LED indication

2.1.1 The Bottom Panel – Port

The Bottom panel provides the physical connectors connected to the power adapter and any other network device. **Figure 2-3** shows the bottom panel of the WMC251.

Bottom Panel

Figure 2-3 Bottom Panel

PoE Injector

Figure 2-4 PoE Injector

H/W Interface Definition

Object	Description
PoE LAN **(Passive PoE)**	10/100Mbps RJ45 port , auto MDI/ MDI-X and passive PoE supported Connect LAN port to the PoE injector to power on the device. **Pin assignment:** **Pin 4, 5 (+)** **Pin 7, 8 (-)** **Pin 3 (Reset)**
LAN 2	10/100Mbps RJ45 port, auto MDI/ MDI-X Connect this port to the network equipment. ※ When the option "**Enable POE Passthrough**" on the System Management page is checked, the LAN2 can supply passive PoE power to the second WMC251 or WMC251 through LAN 2.

Reset	Press the **Reset** button on the device or on the PoE injector over 5 seconds to return to factory default setting. **※ If you have connected with a lightning protector like IFS, - ESP300, please DO NOT press the reset button on the PoE injector to prevent the ESP300 from being damaged. Remove the Lighting protector before push the reset button.**

Table 2-2 The PoE Injector Indication

Chapter 3. Connecting to the AP

3.1 Preparation before Installation

3.1.1 Professional Installation Required

Please seek assistance from a professional installer who is well trained in the RF installation and knowledgeable in the local regulations.

3.1.2 Safety Precautions

1. To keep you safe and install the hardware properly, please read and follow these safety precautions.
2. If you are installing the WMC251 for the first time, for your safety as well as others', please seek assistance from a professional installer who has received safety training on the hazards involved.
3. Keep safety as well as performance in mind when selecting your installation site, especially where there are electric power and phone lines.
4. When installing the WMC251, please note the following things:
   - Do not use a metal ladder;
   - Do not work on a wet or windy day;
   - Wear shoes with rubber soles and heels, rubber gloves, long sleeved shirt or jacket.
5. When the system is operational, avoid standing directly in front of it. Strong RF fields are present when the transmitter is on.

3.2 Installation Precautions

- Users **MUST** use a proper and well-installed surge arrestor and grounding kit with WMC251; otherwise, a random lightning could easily cause fatal damage to the WMC251. **(Lightning DAMAGE IS NOT COVERED UNDER WARRANTY).**
- Users **MUST** use the "Power cord and PoE Injector" shipped in the box with the WMC251. Use of other options will cause damage to the WMC251.

OUTDOOR INSTALLATION WARNING

IMPORTANT SAFETY PRECAUTIONS:

LIVES MAY BE AT RISK! Carefully observe these instructions and any special instructions that are included with the equipment you are installing.

CONTACTING POWER LINES CAN BE LETHAL. Make sure no power lines are anywhere where possible contact can be made. Antennas, masts, towers, guy wires or cables may lean or fall and contact these lines. People may be injured or killed if they are touching or holding any part of equipment when it contacts electric lines. Make sure that equipment or personnel do not come in contact directly or indirectly with power lines.

The horizontal distance from a tower, mast or antenna to the nearest power line should be at least twice the total length of the mast/antenna combination. This will ensure that the mast will not contact power if it falls either during installation or later.

TO AVOID FALLING, USE SAFE PROCEDURES WHEN WORKING AT HEIGHTS ABOVE GROUND.

- Select equipment locations that will allow safe, simple equipment installation.
- Don't work alone. A friend or co-worker can save your life if an accident happens.
- Use approved non-conducting lasers and other safety equipment. Make sure all equipment is in good repair.
- If a tower or mast begins falling, don't attempt to catch it. Stand back and let it fall.
- If anything such as a wire or mast does come in contact with a power line, **DON'T TOUCH IT OR ATTEMPT TO MOVE IT**. Instead, save your life by calling the power company.
- Don't attempt to erect antennas or towers on windy days.

MAKE SURE ALL TOWERS AND MASTS ARE SECURELY GROUNDED, AND ELECTRICAL CABLES CONNECTED TO ANTENNAS HAVE LIGHTNING ARRESTORS. This will help prevent fire damage or human injury in case of lightning, static build-up, or short circuit within equipment connected to the antenna.

- The base of the antenna mast or tower must be connected directly to the building protective ground or to one or more approved grounding rods, using 1 OAWG ground wire and corrosion-resistant connectors.
- Refer to the National Electrical Code for grounding details.

IF A PERSON COMES IN CONTACT WITH ELECTRICAL POWER, AND CANNOT MOVE:

- **DON'T TOUCH THAT PERSON, OR YOU MAY BE ELECTROCUTED.**
- Use a non-conductive dry board, stick or rope to push or drag them so they no longer are in contact with electrical power.

Once they are no longer contacting electrical power, administer CPR if you are certified, and make sure that emergency medical aid has been requested.

3.3 Installing the AP

Please install the AP according to the following Steps. Don't forget to pull out the power plug and keep your hands dry.

Step 1. Push the latch on the bottom of the WMC251 to remove the sliding cover.

Figure 3-1 Connect the Antenna

Step 2. Plug the RJ45 Ethernet cable into the PoE LAN Port of the WMC251. Then, slide back the cover of the WMC251 to finish the installation.

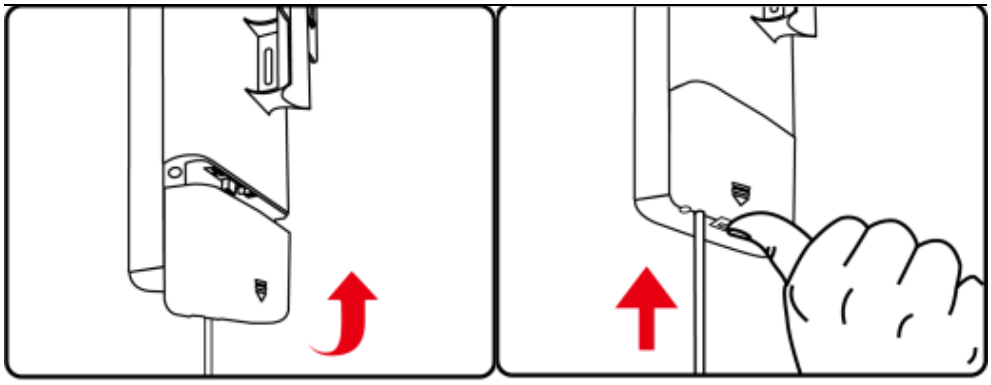


Figure 3-2 Connect the Ethernet cable

Step 3. Plug the power cord into the DC port and the other end into the AC socket. Then, plug the RJ45 cable (as shown in picture 4 under Step 1) into the POE port of the PoE injector.

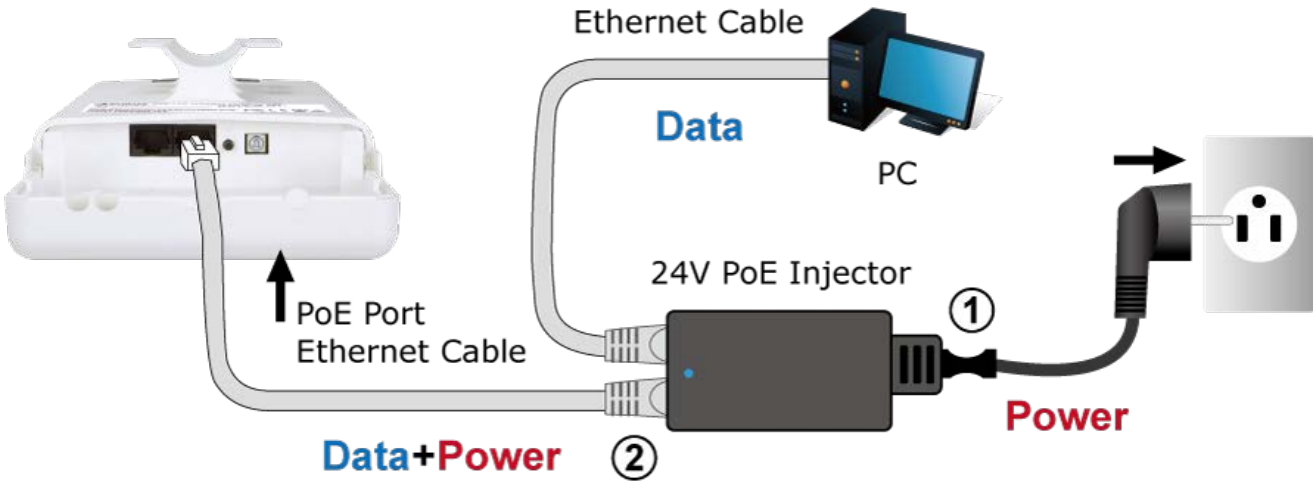


Figure 3-3 Connect the PoE injector

Step 4. Pole Mounting:

Place the strap through the slot on the back of the WMC251 and then around the pole. Tighten the strap to secure the WMC251.

Figure 3-4 Pole Mounting

Chapter 4. Quick Installation Guide

This chapter will show you how to configure the basic functions of your AP within minutes.

A computer with wired Ethernet connection to the Wireless AP is required for the first-time configuration.

4.1 Manual Network Setup - TCP/IP Configuration

The default IP address of the WMC251 is **192.168.0.100**. And the default Subnet Mask is 255.255.255.0. These values can be changed as you desire. In this guide, we use all the default values for description.

Connect the WMC251 with your PC via an Ethernet cable which is then plugged into a LAN port of the PoE injector with one end and into a LAN port of the PC with the other end. Then power on the WMC251 via PoE injector or PoE switch.

In the following sections, we'll introduce how to install and configure the TCP/IP correctly in **Windows 7**. And the procedures in other operating systems are similar. First, make sure your Ethernet adapter is working, and refer to the Ethernet adapter's manual if needed.

4.1.1 Configuring the IP Address Manually

Summary:

- Set up the TCP/IP Protocol for your PC.
- Configure the network parameters. The IP address is 192.168.0.xxx("xxx" is any number from 2 to 252), Subnet Mask is 255.255.255.0, and Gateway is 192.168.0.100 (The AP's default IP address)

1 Select **Use the following IP address** radio button.

2 If the AP's LAN IP address is 192.168.0.1, enter IP address 192.168.0.x (x is from 2 to 254), and **Subnet mask** 255.255.255.0.

3 Select **Use the following DNS server addresses** radio button. In the **Preferred DNS Server** field, you can enter the DNS server IP address which has been provided by your ISP

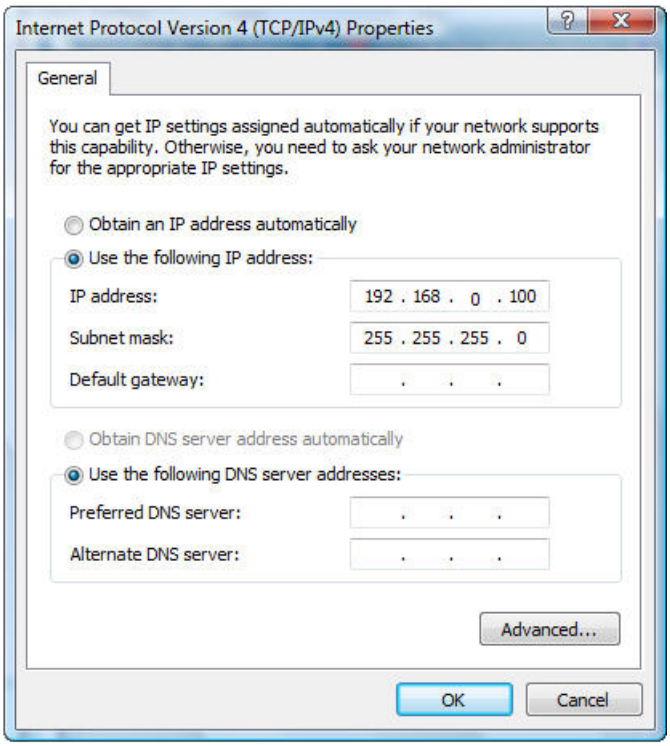


Figure 4-1 TCP/IP Setting

Now click **OK** to save your settings.

Now, you can run the ping command in the **command prompt** to verify the network connection between your PC and the AP. The following example is in **Windows 7** OS. Please follow the Steps below:

1. Click on **Start > Run**.

2. Type "**cmd**" in the Search box.

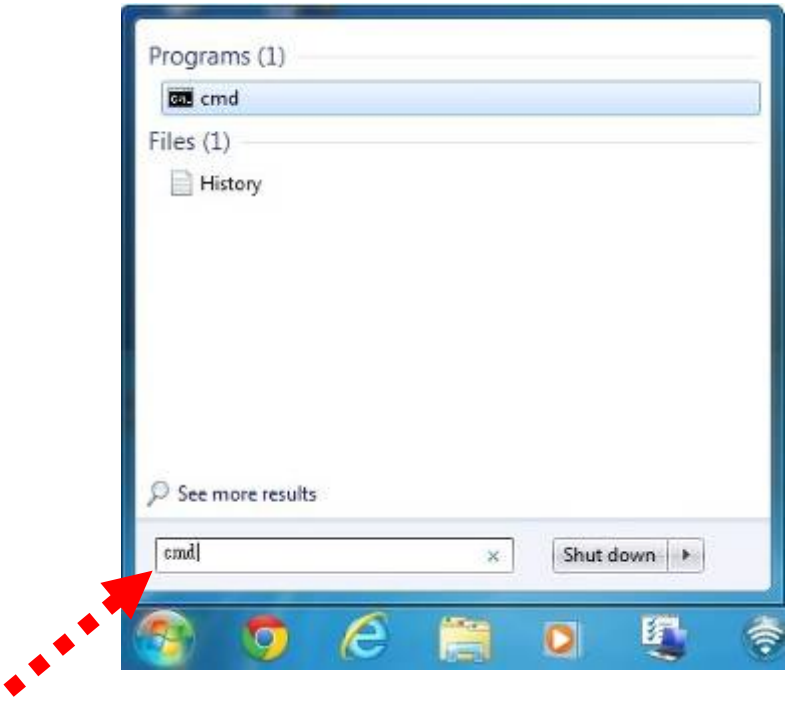


Figure 4-2 Windows Start Menu

3. Open a command prompt and type ***ping 192.168.0.100***, and then press **Enter**.

If the result displayed is similar to **Figure 4-3**, it means the connection between your PC and the AP has been established well.

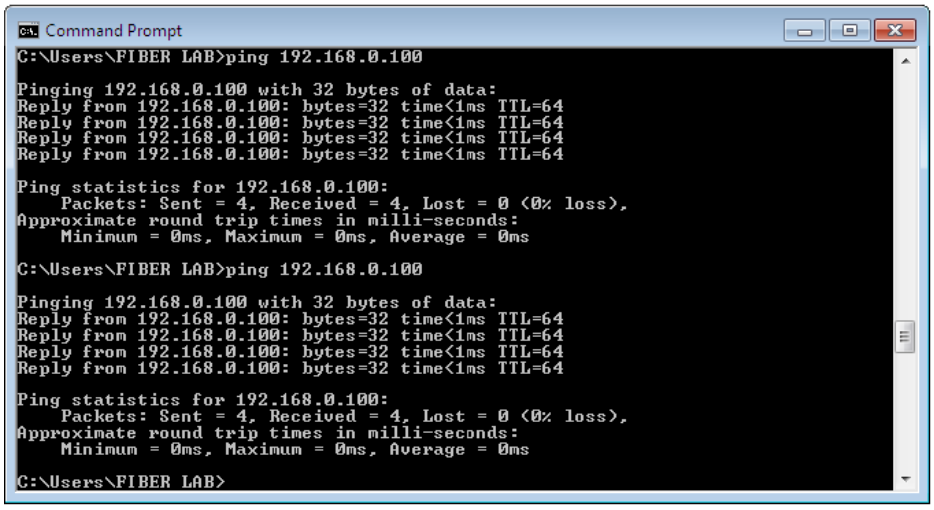


Figure 4-3 Successful result of Ping command

If the result displayed is similar to **Figure 4-4**, it means the connection between your PC and the AP has failed.

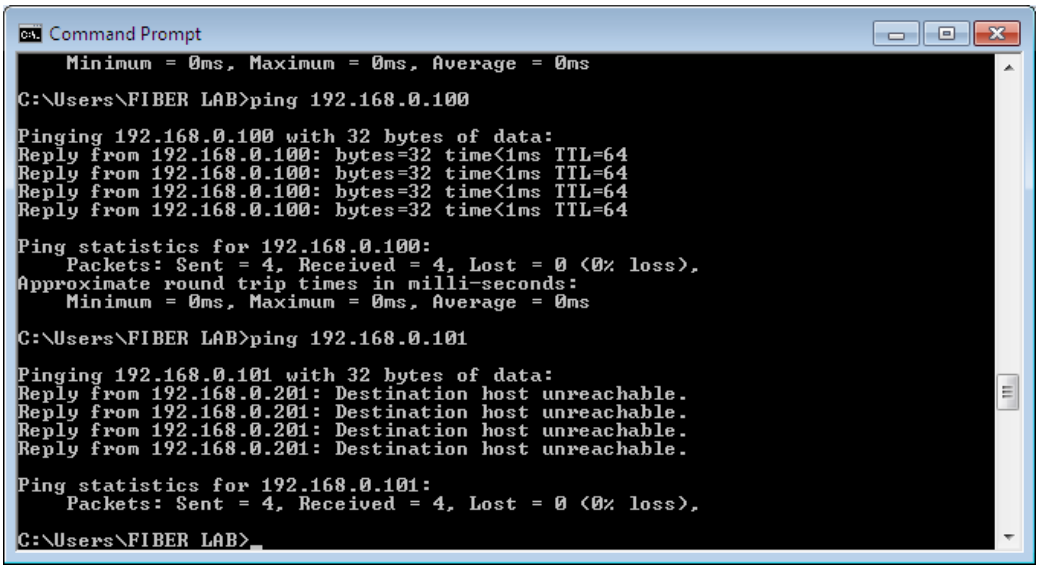


Figure 4-4 Failed result of Ping command

If the address is 0.0.0.0, check your adapter installation, security settings, and the settings on your AP. Some firewall software programs may block a DHCP request on newly installed adapters.

4.2 Starting Setup in the Web UI

It is easy to configure and manage the WMC251 with the web browser.

Step 1. To access the configuration page, open a web browser and enter the default IP address http://192.168.0.100 in the web address field of the browser.

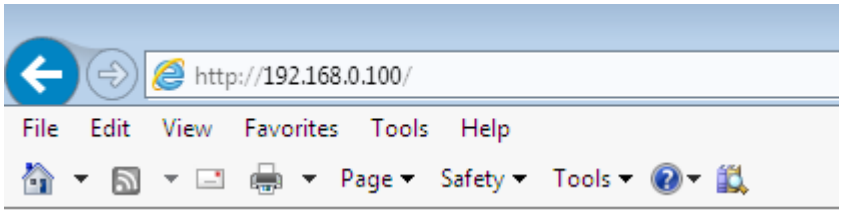


Figure 4-5 Login by default IP address

After a moment, a login window will appear. Enter **admin** for the User Name and Password, both in lower case letters. Then click the **OK** button or press the **Enter** key.

Figure 4-6 Login Window

Default IP Address: **192.168.0.100**

Default User Name: **admin**

Default Password: **admin**

Note

If the above screen does not pop up, it may mean that your web browser has been set to a proxy. Go to **Tools menu>Internet Options>Connections>LAN Settings** in the screen that appears, cancel the Using Proxy checkbox, and click OK to finish it.

After entering the username and password, the **Operation Mode** page screen appears as in **Figure 4-8**

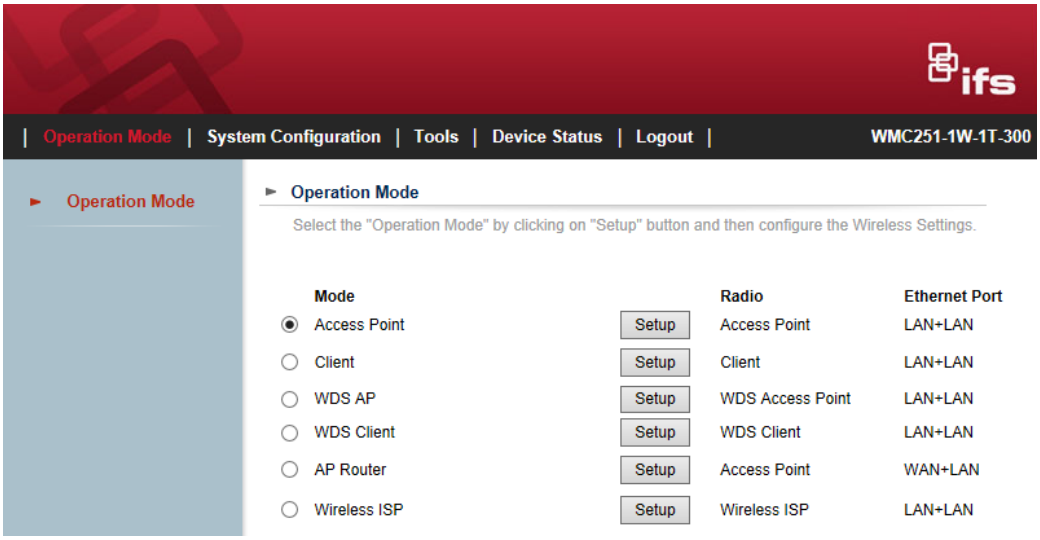


Figure 4-7 WMC251 Web UI Screenshot

Step 2. You can choose an Operation Mode. Please refer to the instructions in the next chapter for configuring

the other Operation Modes.

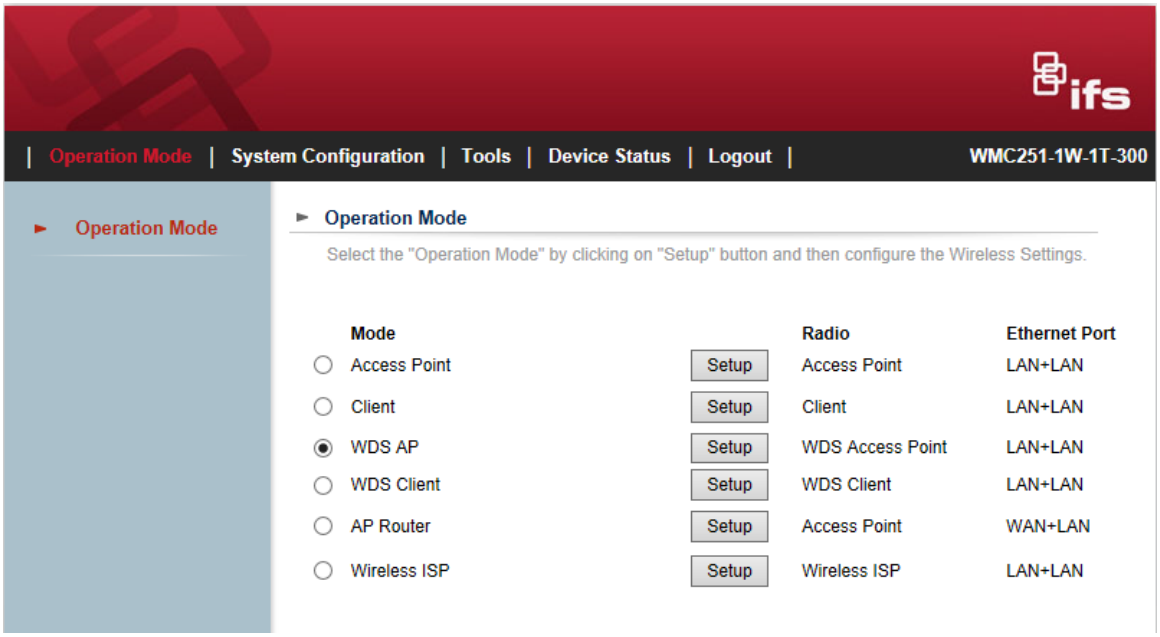


Figure 4-8 Choose Operation Mode

Step 3. Please enter the SSID and configure your Encryption Settings, Pre-Shared Key, etc. Then click the **Save** button to make the configuration take effect immediately.

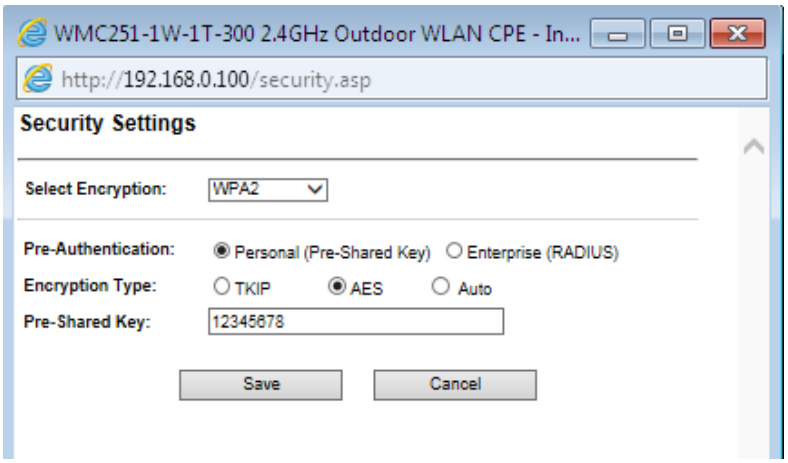


Figure 4-9 Configure Wireless Settings

Chapter 5. Configuring the AP

This chapter delivers a detailed presentation of AP's functionalities and features under 4 main menus (**Operation Mode**, **System Configuration**, **Tools** and **Device Status**) below, allowing you to manage the AP with ease.

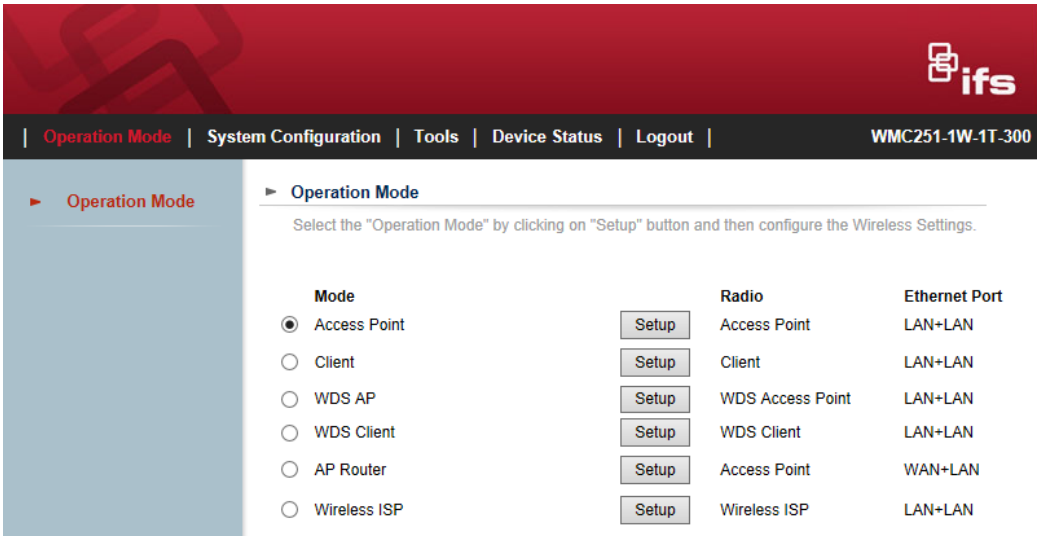


Figure 5-1 Main Menu

5.1 Operation Mode

On this page, you can select different operation modes of the WMC251, including Access Point, Client, WDS AP, WDS Client, AP Router and Wireless ISP.

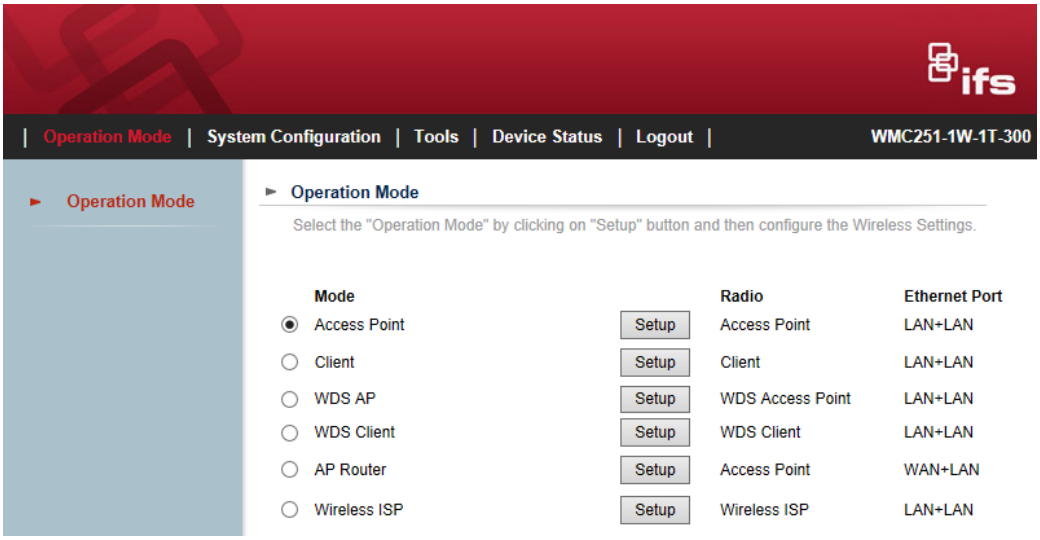


Figure 5-2 Operation Mode

5.1.1 Access Point

Click "**Operation Mode**" → "**Access Point**" and the following page will be displayed. This section allows you to configure the Access Point mode.

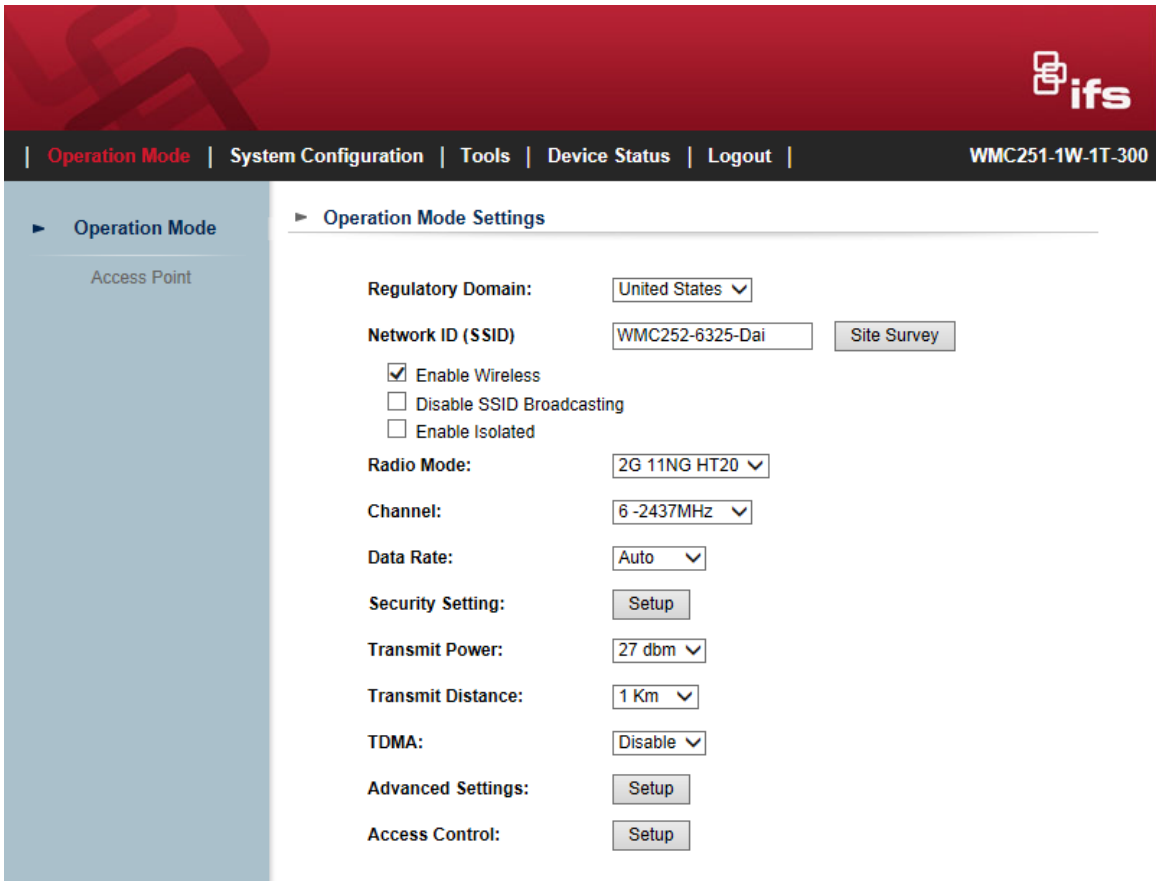


Figure 5-3 Basic Settings - AP

Object	Description
• **Regulatory Domain**	Select your domain from the list.
• **Network SSID**	It is the wireless network name. The default SSID is **WMC251.**
• **Site Survey**	Click "**Site Survey**" to check the signal of remote sites.
• **Enable Wireless**	Check it to enable Wireless function.
• **Disable SSID Broadcasting**	Check it to disable SSID broadcasting.
Enable Isolated	Check it to isolate each connected wireless clients so that they cannot access each other.
Radio Mode	Select the channel width to "**Auto Select**", "**2G 11NG HT20**" or "**2G 11NG HT40**"
• **Channel**	Select the operating channel you would like to use. The channel range will be changed by selecting a different domain.
• **Data Rate**	Select MCS0~15 or Auto from the pull-down menu. The default is "**Auto**".
• **Security Setting**	Press "Setup" for more configurations. Please refer to 5.1.7 Security Setting for more information.
• **Transmit Power**	The range of transmit power is "**12~27 dbm**". In case of shortening the distance and the coverage of the wireless

	network, input a smaller value to reduce the radio transmission power.
• **Transmit Distance**	Select a specified distance of the two nodes.
• **TDMA**	Displays the System Time.
• **Advanced Settings**	Press "**Setup**" for more configurations. Please refer to 5.1.8 Advanced Settings for more information.
• **Access Control**	Press "**Setup**" for more configurations. Please refer to 5.1.9 Access Control for more information.

5.1.2 Client

Click "**Operation Mode**" → "**Client**" and the following page will be displayed. This section allows you to configure the Client mode.

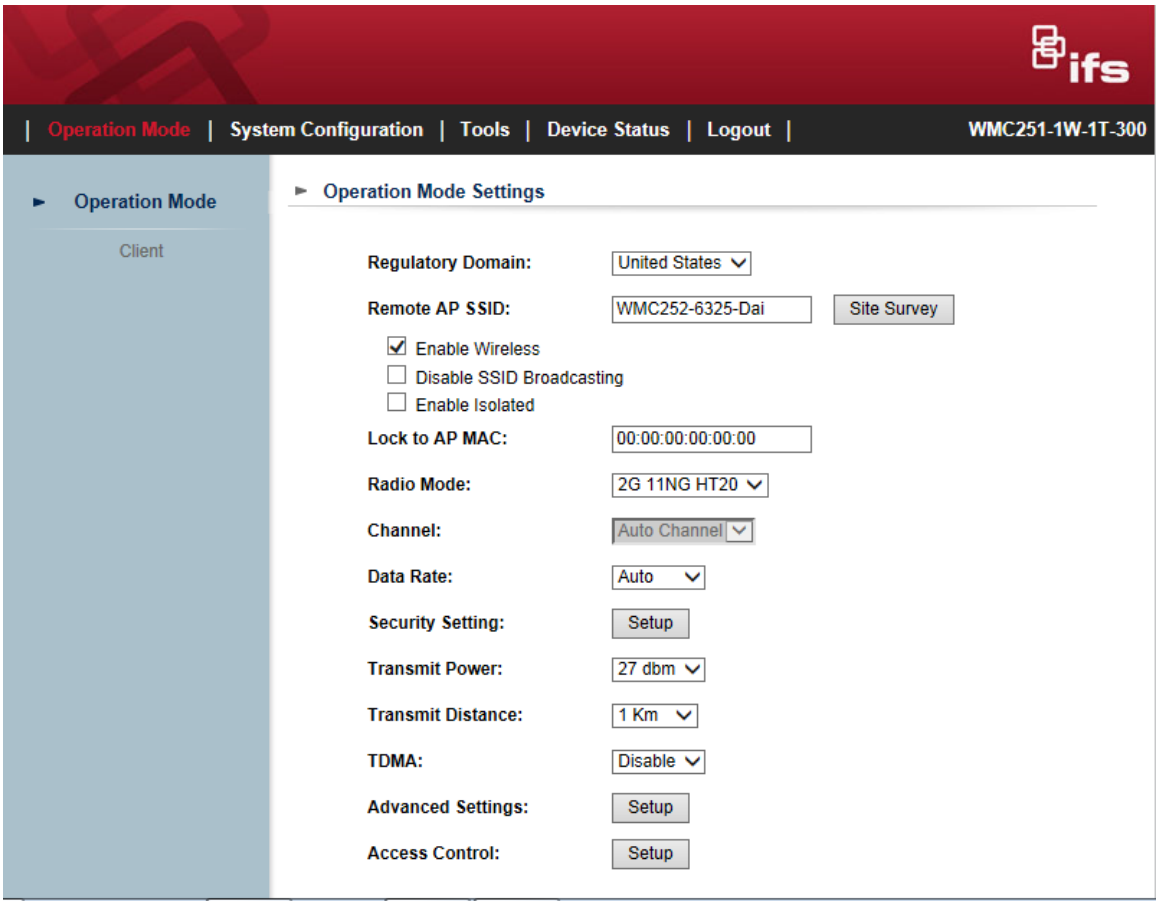


Figure 5-4 Basic Settings - Client

Object	Description
• **Regulatory Domain**	Select your domain from the list.
• **Network SSID**	It is the wireless network name. The default SSID is **WMC251.**
• **Site Survey**	Click "**Site Survey**" to find the remote sites to associate.
• **Enable Wireless**	Check it to enable Wireless function.

• **Disable SSID Broadcasting**	Check it to disable SSID broadcasting.
Enable Isolated	Check it to isolate each connected wireless clients so that they cannot access each other.
Lock to AP MAC	Enter the Mac address of the remote AP.
Radio Mode	Select the channel width to "**Auto Select**", "**2G 11NG HT20**" or "**2G 11NG HT40**"
• **Data Rate**	Select MCS0~15 or Auto from the pull-down menu. The default is "**Auto**".
• **Security Setting**	Press "**Setup**" for more configurations. Please refer to 5.1.7 Security Setting for more information.
• **Transmit Power**	The range of Transmit power is "**12~27 dbm**". In case of shortening the distance and the coverage of the wireless network, input a smaller value to reduce the radio transmission power.
• **Transmit Distance**	Select a specified distance of the two nodes.
• **TDMA**	Displays the System Time.
• **Advanced Settings**	Press "**Setup**" for more configurations. Please refer to 5.1.8 Advanced Settings for more information.
• **Access Control**	Press "**Setup**" for more configurations. Please refer to 5.1.9 Access Control for more information.

5.1.3 WDS AP

Click "**Operation Mode**" → "**WDS AP**" and the following page will be displayed. This section allows you to configure the WDS AP mode. For each wireless parameter, please refer to section **5.1.1 AP** for more information.

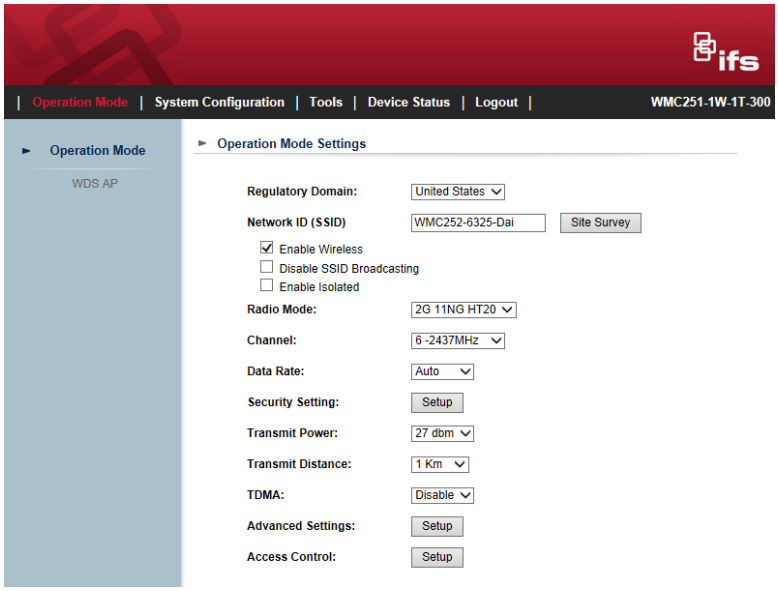


Figure 5-5 Basic Settings – WDS AP

5.1.4 WDS Client

Click "**Operation Mode**" → "**WDS Client**" and the following page will be displayed. This section allows you to configure the WDS Client mode. For each wireless parameter, please refer to section **5.1.2 Client** for more information.

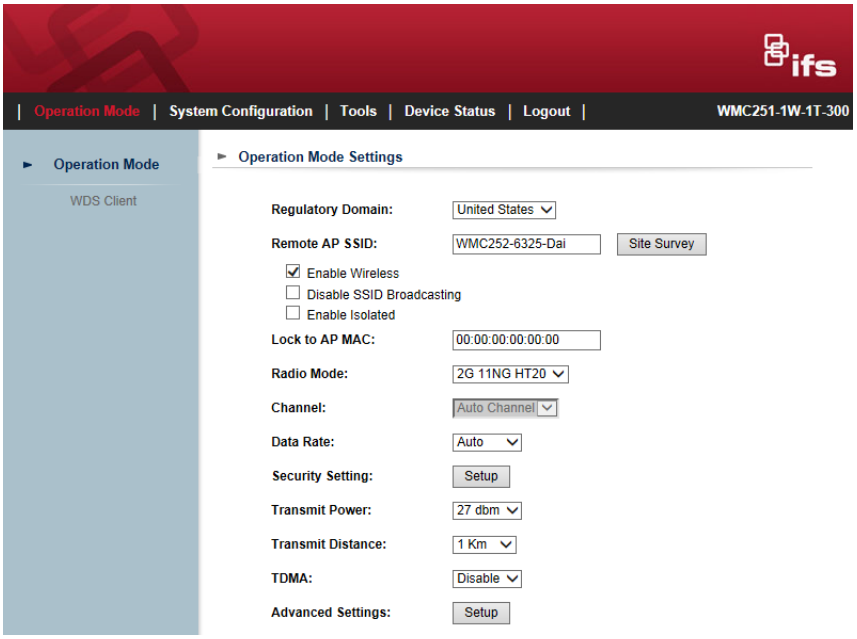


Figure 5-6 Basic Settings – WDS Client

5.1.5 AP Router

Click "**Operation Mode**" → "**AP Router**" and the following page will be displayed. This section allows you to configure the AP Router mode.

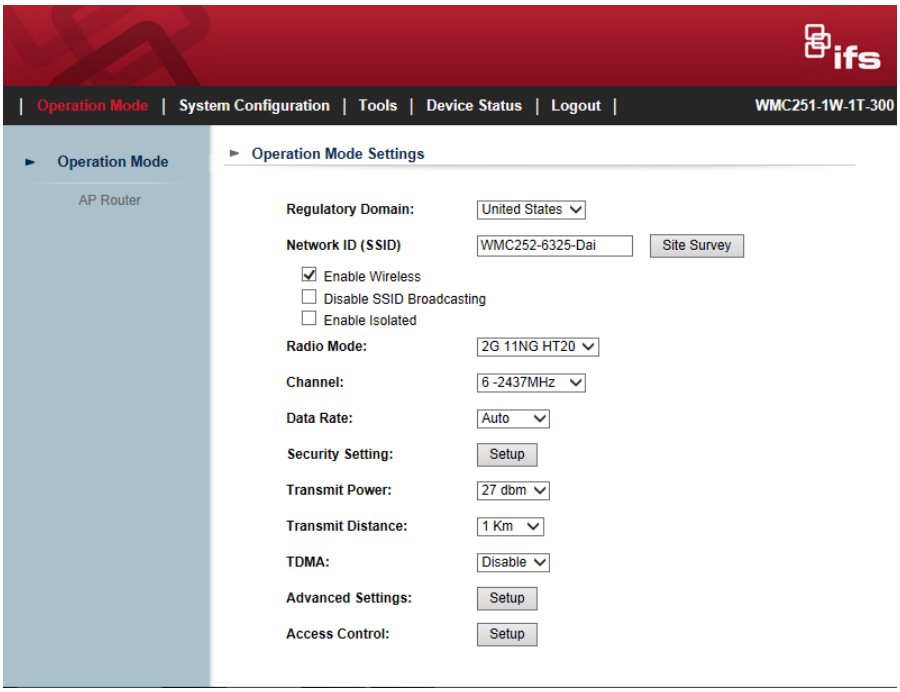


Figure 5-7 Basic Settings – AP Router

5.1.6 Wireless ISP

Click "**Operation Mode**" → "**Wireless ISP**" and the following page will be displayed. This section allows you to configure the Wireless ISP mode.

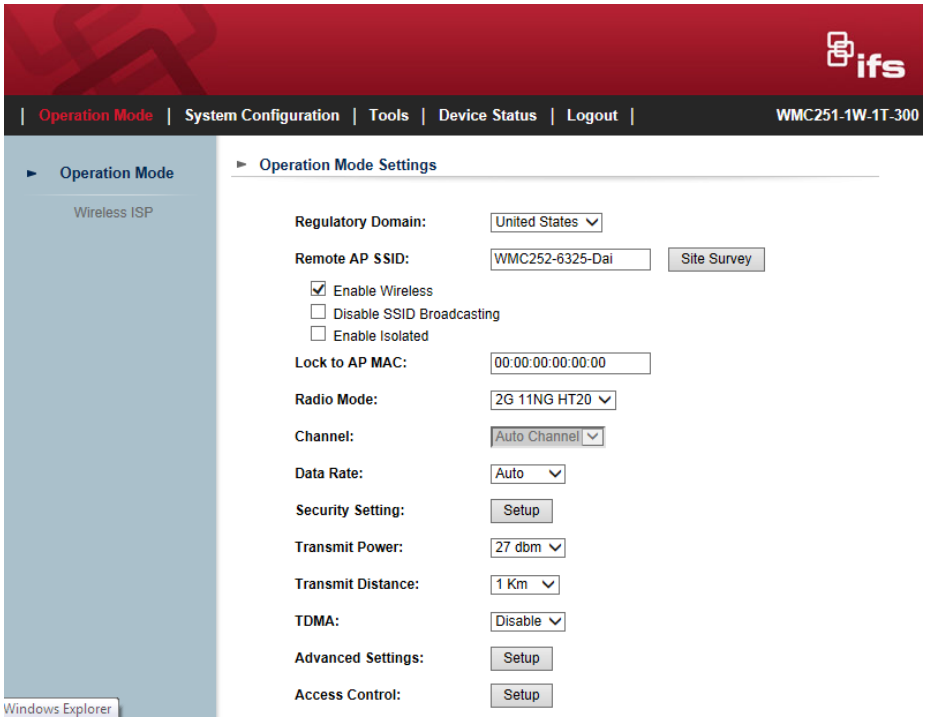


Figure 5-8 Basic Settings – WISP

5.1.7 Security Setting

Choose the operation mode you required, and then enter "**Security Setting**" by clicking the **Setup** button next to it and the following page will be displayed. This section allows you to configure the wireless security settings.

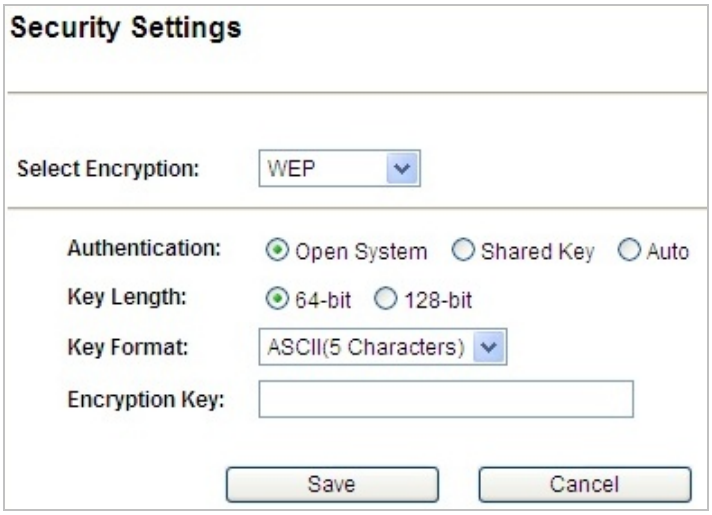


Figure 5-9 Security Settings

Object	Description
• **Select Encryption**	Select the encryption that you need. **None:** No security required **WEP:** Input 5, 13 (ASCII) or 10, 26 (HEX) character for WEP key. **WPA:** Enter ASCII characters between 8 and 63 character or 8 to 64 hexadecimal characters. **WPA2:** Enter ASCII characters between 8 and 63 character or 8 to 64 hexadecimal characters. **WPA-Mixed:** Enter ASCII characters between 8 and 63 character or 8 to 64 hexadecimal characters.

■ **None**

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

■ **WEP**

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

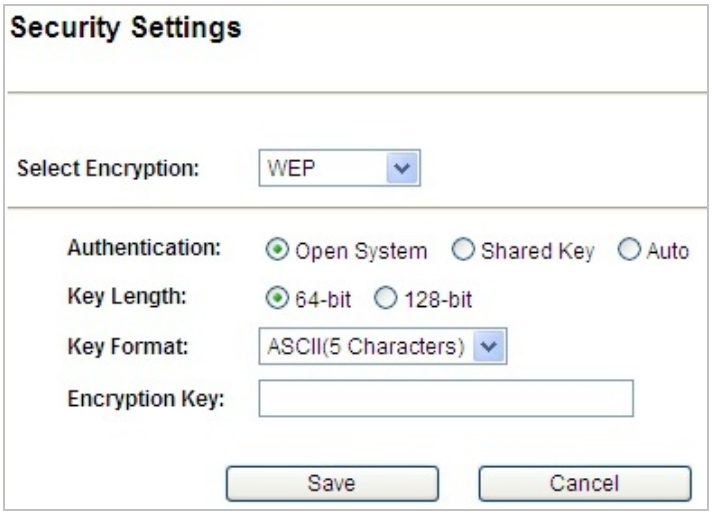


Figure 5-10 Security Settings – WEP

Object	Description
• **Authentication**	You can select **Open System**, **Shared Key** or **Auto**.
• **Key Length**	Choose the WEP key length. You can choose **64-bit** or **128-bit**.
• **Key Format**	You can choose **ASCII** or **Hex**.
• **Encryption Key**	Enter the keys in the fields.

■ **WPA**

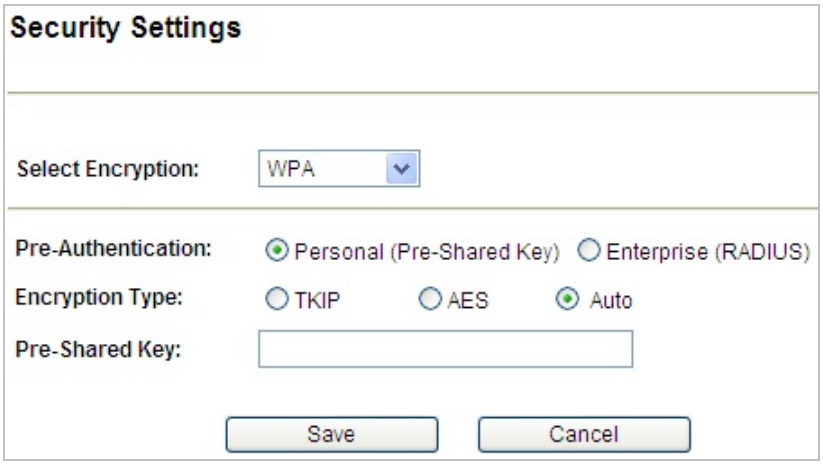


Figure 5-11 Security Settings – WPA Personal

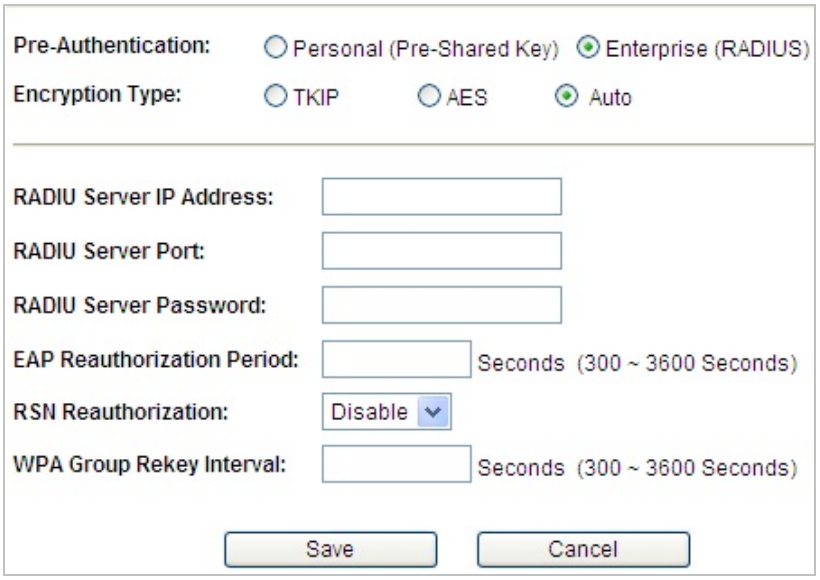


Figure 5-12 Security Settings – WPA Enterprise

Object	Description
• **Pre-Authentication**	Select "**Personal (Pre-Shared Key)**" or "**Enterprise (RADIUS)**" encryption type.
• **Encryption Type**	Set the WPA to be **TKIP**, **AES** or **Auto**.
• **Pre-Shared Key**	Enter the keys in the fields.
• **RADIU Server IP Address**	Enter the RADIUS server host IP address.
• **RADIU Server Port**	Set the UDP port used in the authentication protocol of the RADIUS server. Value must be between 1 and 65535.
• **RADIU Server Password**	Enter a shared secret/password between 1 and 99 characters in length.

• **EAP Reauthorization Period**	Set duration of session timeout in seconds between 300 and 3600.
• **RSN Reauthorization**	Enable or disable RSN reauthorization.
• **WPA Group Rekey Interval**	Set duration of session timeout in seconds between 300 and 3600.

■ **WPA2**

Please refer to WPA for more information.

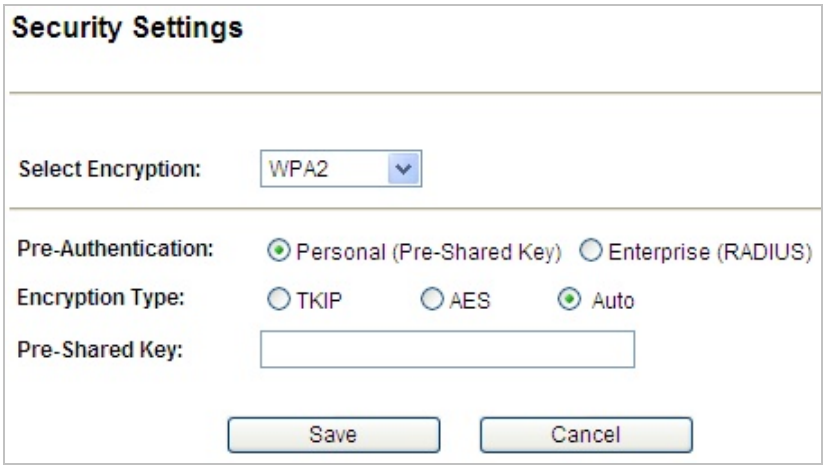


Figure 5-13 Security Settings – WPA2 Personal

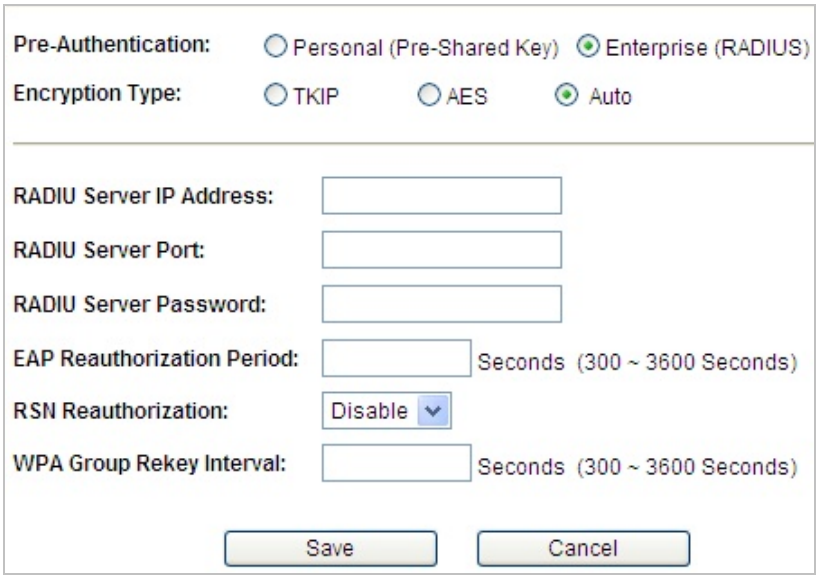


Figure 5-14 Security Settings – WPA2 Enterprise

■ **WPA-Mixed**

Please refer to WPA for more information.

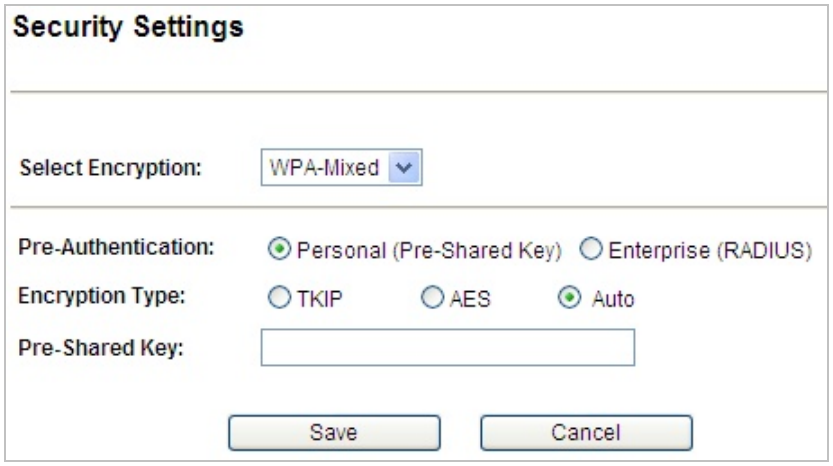


Figure 5-15 Security Settings – WPA-Mixed Personal

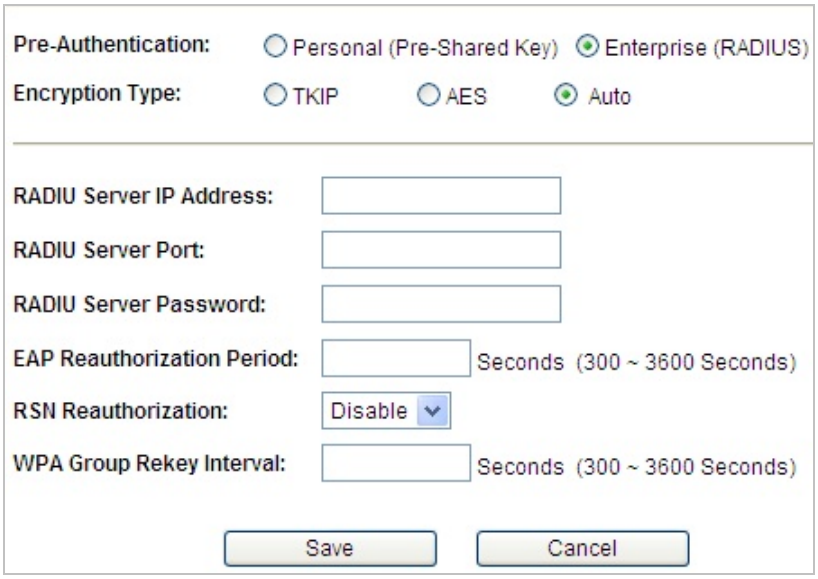


Figure 5-16 Security Settings – WPA-Mixed Enterprise

5.1.8 Advanced Settings

Choose the operation mode you require, and then enter "**Advanced Settings**" by clicking **Setup** button next to it and the following page will be displayed. This section allows you to configure the wireless advanced settings.

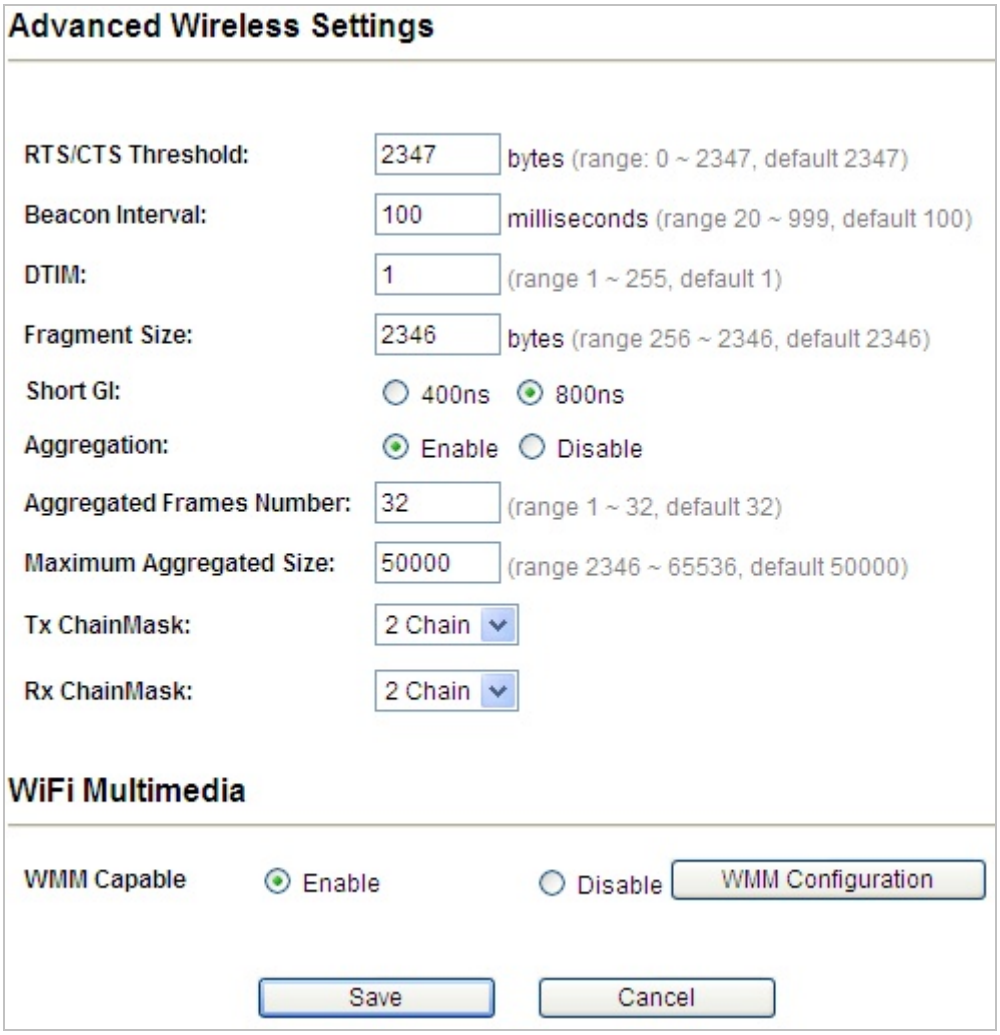


Figure 5-17 Advanced Settings

Object	Description
• **RTS/CTS Threshold**	When the length of a data packet exceeds this value, the router will send an RTS frame to the destination wireless node, and the latter will reply with a CTS frame, and thus they are ready to communicate. The default value is 2347.
• **Beacon Interval**	Set beacon interval, the value range is from 20 to 999. The default value is 100.
• **DTIM**	Set the DTIM (delivery traffic indication message) period value of the wireless radio. The default value is 1.
• **Fragment Size**	A data packet that exceeds this value in length will be divided into multiple packets. The number of packets influences wireless network performance. Avoid setting this value low. Default at 2346.

• **Short GI**	Guard intervals are used to ensure that distinct transmissions do not interfere with one another. Only effect under Mixed Mode.
• **Aggregation**	A part of the 802.11n standard that allows sending multiple frames per single access to the medium by combining frames together into one larger frame. It creates the larger frame by combining smaller frames with the same physical source, destination end points, and traffic class (QoS) into one large frame with a common MAC header
• **Aggregated Frames Number**	Determines the number of frames combined in the new larger frame.
• **Maximum Aggregated Size**	Determines the size (in bytes) of the larger frame.
• **Tx ChainMask**	Displays the number of independent spatial data streams the device is transmitting (TX) and receiving (RX) simultaneously within one spectral channel of bandwidth. Multiple chains increase data transfer performance significantly.
• **Rx ChainMask**	Displays the number of independent spatial data streams the device is transmitting (TX) and receiving (RX) simultaneously within one spectral channel of bandwidth. Multiple chains increase data transfer performance significantly.
• **WMM Capable**	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.

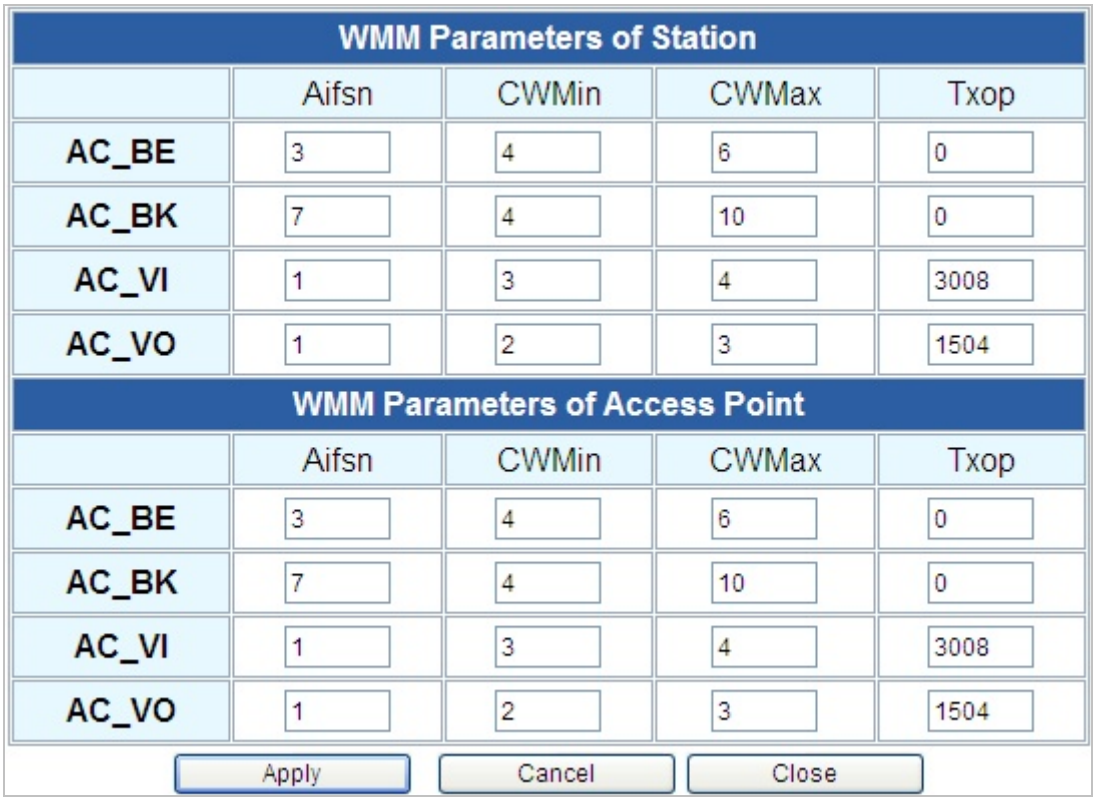


Figure 5-18 WMM Configuration

WMM Capable	
BE	Traditional IP data, medium throughput and delay.
BK	High throughput, non time sensitive bulk data e.g. FTP
VI	Time sensitive video data with minimum time delay.
VO	Time sensitive data such as VoIP and streaming media with minimum time delay.
AIFS, -n	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 AIFS, -N value has a higher priority.
CWMin	Maximum Contention Window (milliseconds): This value is the upper limit to random backoff value doubling (see above).
CWMax	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 AIFS, -N 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.

5.1.9 Access Control

Choose the operation mode you require, and then enter "**Access Control**" by clicking the **Setup** button next to it and the following page will be displayed. This section allows you to configure the wireless access control settings.

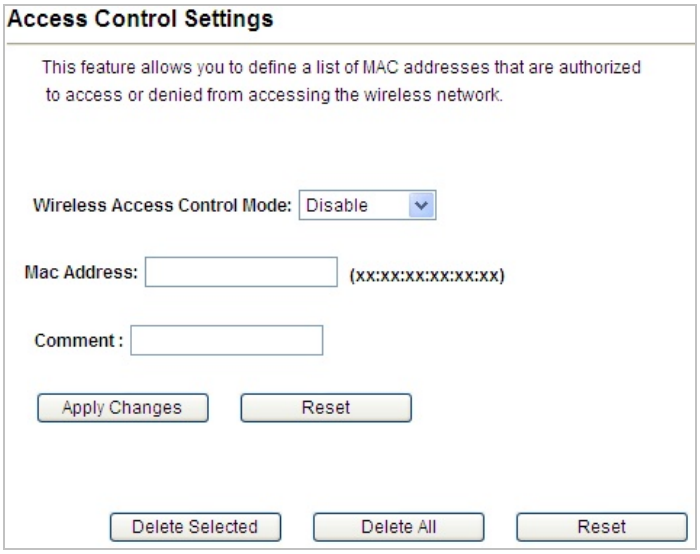


Figure 5-19 Access Control

Object	Description
Wireless Access Control Mode	You can choose "**Disable**", "**Allow Listed**" or "**Deny Listed**".
Mac Address	The MAC address to be filtered.
Comment	Enter a comment of this setting.

5.1.10 WAN Port Settings

Click "**Operation Mode**" → "**AP Router**" or "**Wireless ISP**" and then enter the "**WAN Port Settings**" by clicking the **Setup** button next to it. This section allows you to configure the internet connection settings.

- **DHCP (Auto Config)**

Choose "**DHCP**" and the router will automatically obtain IP addresses, subnet masks and gateway addresses from your ISP.

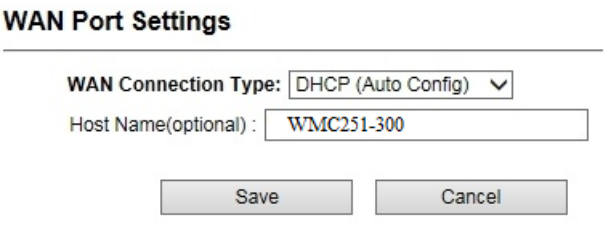


Figure 5-20 WAN Port Settings – DHCP

- **Static Mode (Fixed IP)**

If your ISP offers you static IP Internet connection type, select "**Static Mode**" and then enter IP address, subnet mask, primary DNS and secondary DNS information provided by your ISP in the corresponding fields.

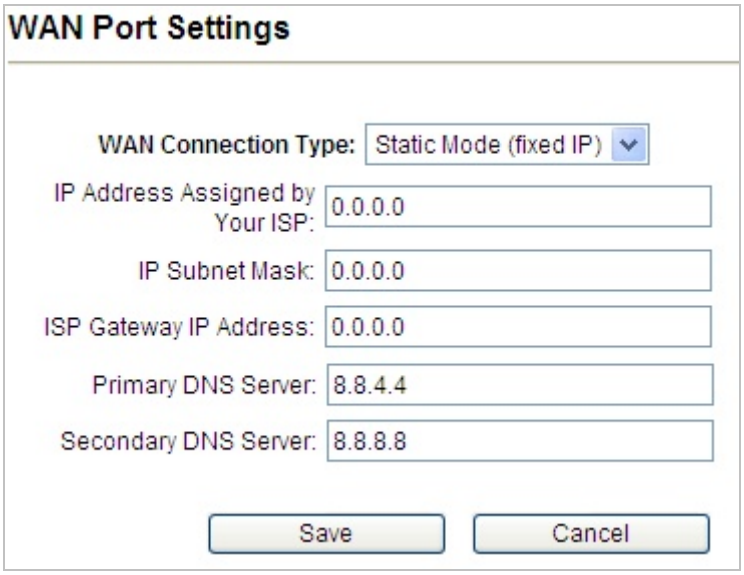


Figure 5-21 WAN Port Settings – Static IP

Object	Description
• **IP Address Assigned by Your ISP**	Enter the WAN IP address provided by your ISP. Enquire your ISP if you are not clear.
• **IP Subnet Mask**	Enter WAN Subnet Mask provided by your ISP.
• **ISP Gateway IP Address**	Enter the WAN Gateway address provided by your ISP.
• **Primary DNS Server**	Enter the necessary DNS address provided by your ISP. Default is 8.8.4.4.
• **Secondary DNS Server**	Enter the other DNS address if your ISP provides you with 2 such addresses. Default is 8.8.8.8.

■ PPPOE (ADSL)

Select **PPPOE** if your ISP is using a PPPoE connection and provide you with PPPoE user name and password info.

Figure 5-22 WAN Port Settings – PPPOE

Object	Description
• **User Name**	Enter the User Name provided by your ISP.
• **Password**	Enter the password provided by your ISP.
• **Verify Password**	Enter the password again to verify if it is correct.

5.1.11 Dynamic DNS Settings

Click "**Operation Mode**" → "**AP Router**" or "**Wireless ISP**" and then enter the "**Dynamic DNS Settings**" by clicking the **Setup** button next to it. This section allows you to configure the DDNS settings.

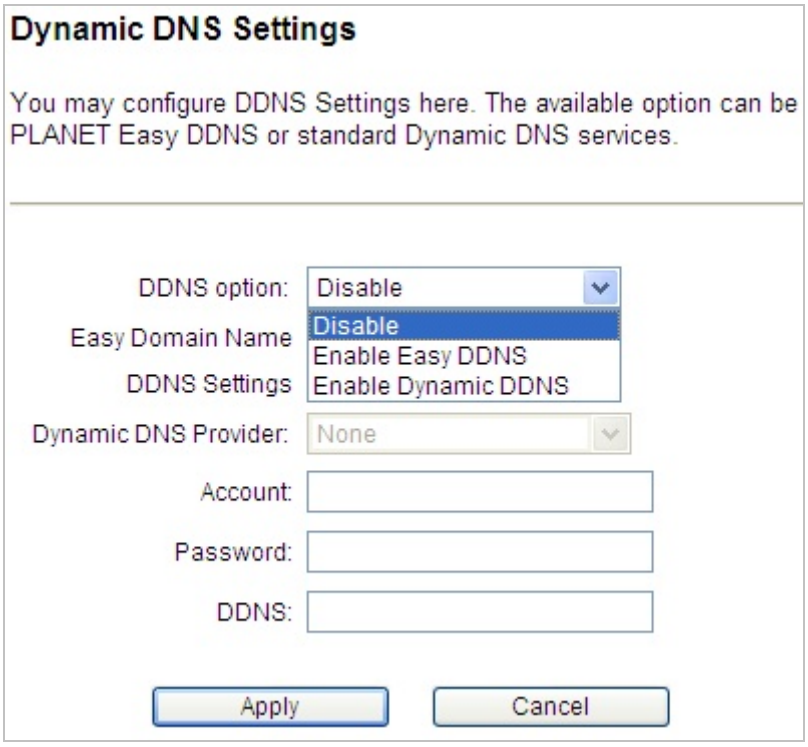


Figure 5-23 Dynamic DNS Settings

Object	Description
• **DDNS option**	**Disable:** Disable DDNS function **Enable Easy DDNS:** Enable IFS, - Easy DDNS **Enable Dynamic DDNS:** You are allowed to modify the DDNS settings.
• **Dynamic DNS Provider**	Select a server provider or disable the existing server.
• **Account**	Enter the DDNS user name of the DDNS account.
• **Password**	Enter the DDNS password of the DDNS account.
• **DDNS**	Enter the host name or domain name provided by DDNS provider.

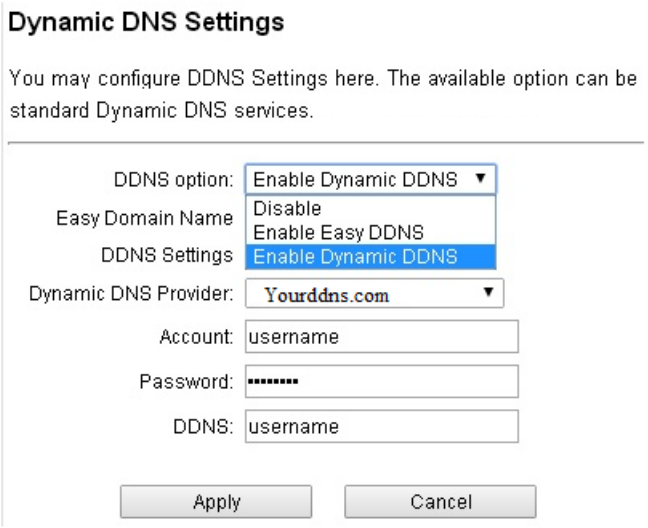
Example of DDNS Settings:

Note

Please go to xxx.Yourddns.xxx to register with a DDNS account.

Click "**Operation Mode**" → "**AP Router**" or "**Wireless ISP**", select **Dynamic DNS Settings** and press "**Setup**".

Step 1. Select "**Enable Dynamic DDNS**" and select from the list your Dynamic DNS Provider.



Step 2. Configure the DDNS account that has been registered in IFS, - DDNS website.

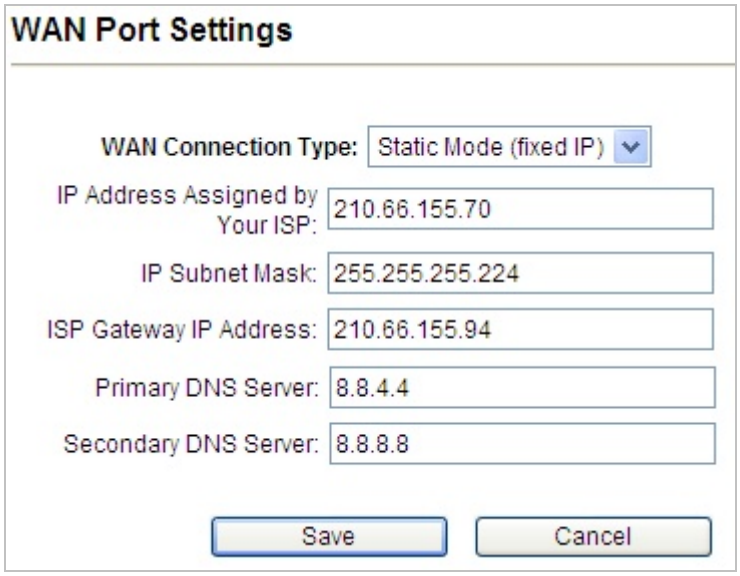
Account: Enter your DDNS host (format: xxx.Yourddns.com, xxx is the registered domain name)

Password: Enter the password of your account.

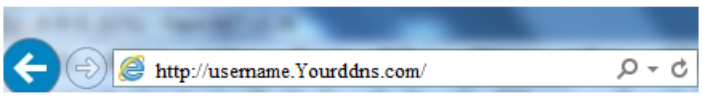
DDNS: Enter your DDNS host again.

Step 3. Go to "**Remote Management**" to enable remote access from WAN port.

Step 4. Go to "**WAN Port Settings**" to configure WAN connection to Static Mode (fixed IP).



Step 5. Save the setting and connect your WAN port of the Wireless AP to the internet via Ethernet cable. In a remote computer, enter the DDNS host name as the figure shown below. Then, you should be able to login the WMC251 remotely.



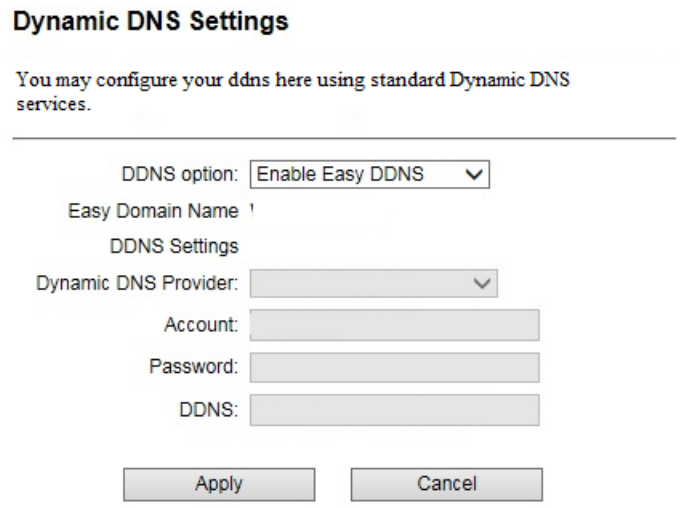
Example of Easy DDNS Settings:

This service is not required to register any DDNS account.

Please refer to the procedure listed as follows to configure using "Enable Easy DDNS"service.

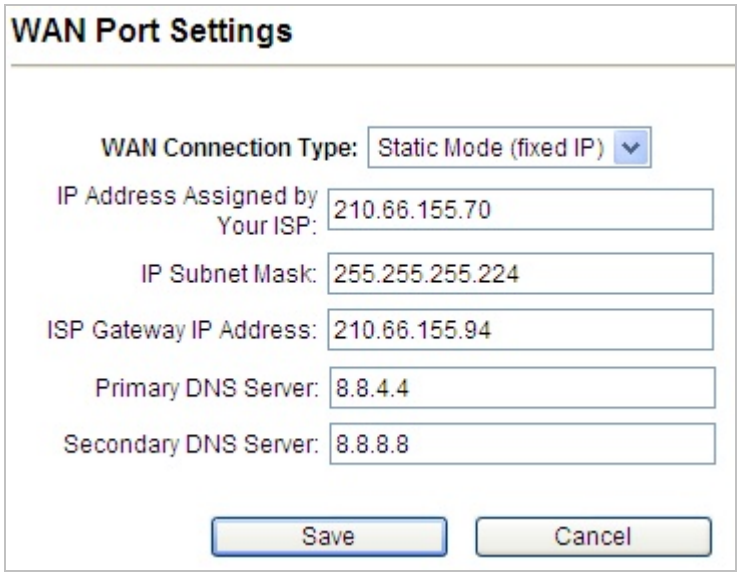
Step 1. Select "**Enable Easy DDNS**" to use your selected DDNS service.

Easy Domain Name: Display the specified domain name for this device. (Format: xxxxxx.Yourddns.com, xxxxxx is the last six-digit of the WAN Port MAC address)

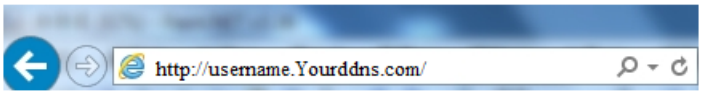


Step 2. Go to "**Remote Management**" to enable remote access from WAN port.

Step 3. Go to "**WAN Port Settings**" to configure WAN connection to Static Mode (fixed IP).



Step 6. Save the setting and connect your WAN port of the Wireless AP to the internet via Ethernet cable. In a remote computer, enter the Easy Domain Name displayed in **Step 1**. Then, you should be able to login the WMC251 remotely.



5.1.12 Remote Management

Click "**Operation Mode**" → "**AP Router**" or "**Wireless ISP**" and then enter the "**Remote Management**" by clicking the **Setup** button next to it. This section allows you to enable or disable the remote management through the WAN port.

Figure 5-24 Remote Management

Object	Description
• **Remote management (via WAN)**	Enable or Disable this function.
• **Ping from WAN**	Enable or Disable this function.

5.1.13 DHCP Server Settings

Click "**Operation Mode**" → "**AP Router**" or "**Wireless ISP**" and then enter the "**DHCP Server Settings**" by clicking the **Setup** button next to it. This section allows you to configure the DHCP server.

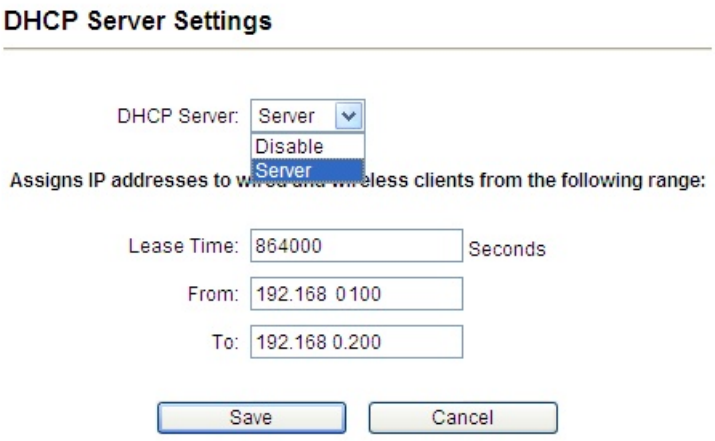


Figure 5-25 DHCP Server Settings

Object	Description

• **DHCP Server**	Select as DHCP server or disable the function.
• **Lease Time**	Select the time for using one assigned IP from the dropdown list. After the lease time, the AP automatically assigns new IP addresses to all connected computers.
• **From**	The start IP address of all the available successive IPs.
• **To**	The end IP address of all the available successive IPs.

5.1.14 DMZ Settings

Click "**Operation Mode**" → "**AP Router**" or "**Wireless ISP**" and then enter the "**DMZ Settings**" by clicking the **Setup** button next to it. This section allows you to configure the DMZ server.

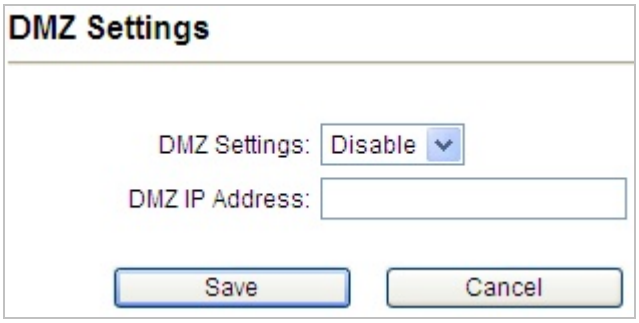


Figure 5-26 DMZ Settings

Object	Description
• **DMZ Setting**	Disable or Enable DMZ function.
• **DMZ IP Address**	Enter the DMZ IP address.

5.1.15 Virtual Server Settings

Click “**Operation Mode**” → “**AP Router**” or “**Wireless ISP**” and then enter the “**Virtual Server Settings**” by clicking the **Setup** button next to it. This section allows you to configure the virtual server.

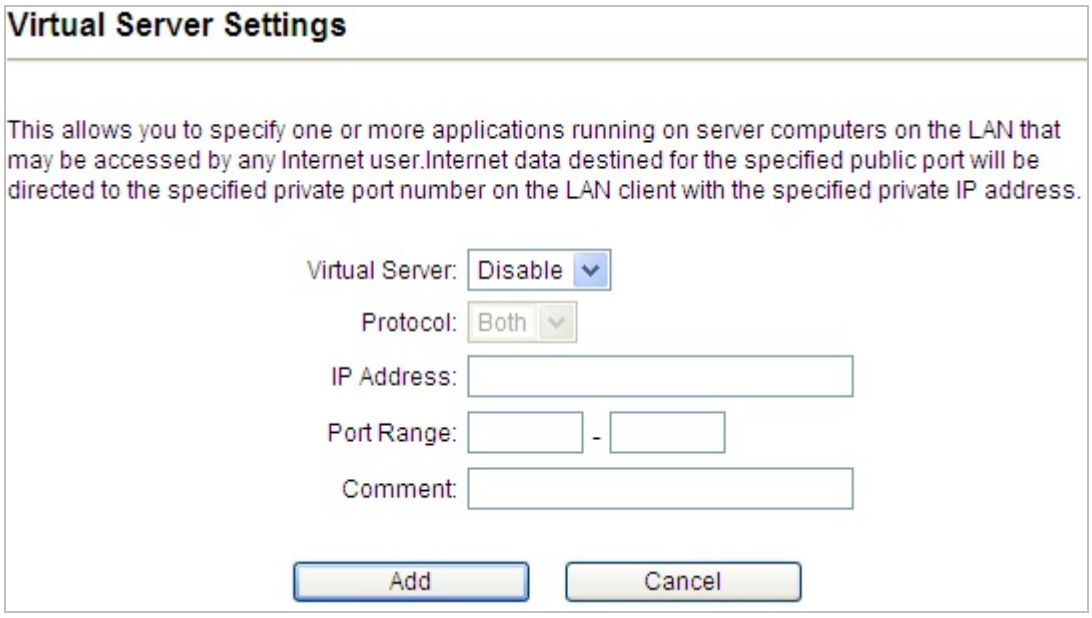


Figure 5-27 Virtual Server Settings

Object	Description
• **Virtual Server**	Enable or disable Virtual Server.
• **Protocol**	You can choose TCP, UDP or Both.
• **IP Address**	Enter the LAN IP.
• **Port Range**	Set the range of public port.
• **Comment**	Set a name for the rule.

5.1.16 IP Filtering Settings

Click “**Operation Mode**” → “**AP Router**” or “**Wireless ISP**” and then enter the “**IP Filtering Settings**” by clicking the **Setup** button next to it. This section allows you to configure the IP filtering settings.

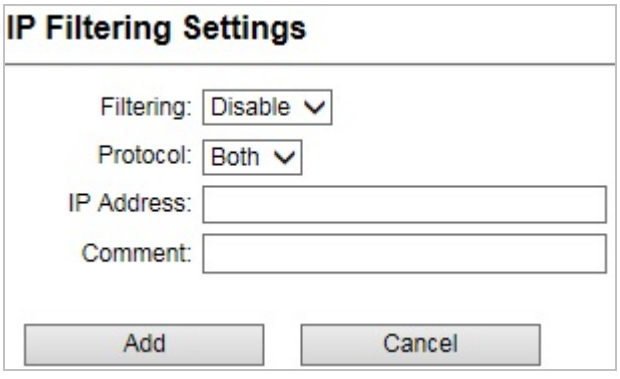


Figure 5-28 IP Filtering Settings

Object	Description
• **Filtering**	Enable or disable IP Filtering.
• **Protocol**	You can choose TCP, UDP or Both.
• **IP Address**	Enter the IP address to be filtered.
• **Comment**	Set a name for the rule.

5.1.17 Port Filtering Settings

Click "**Operation Mode**" → "**AP Router**" or "**Wireless ISP**" and then enter the "**Port Filtering Settings**" by clicking the **Setup** button next to it. This section allows you to configure the port filtering settings.

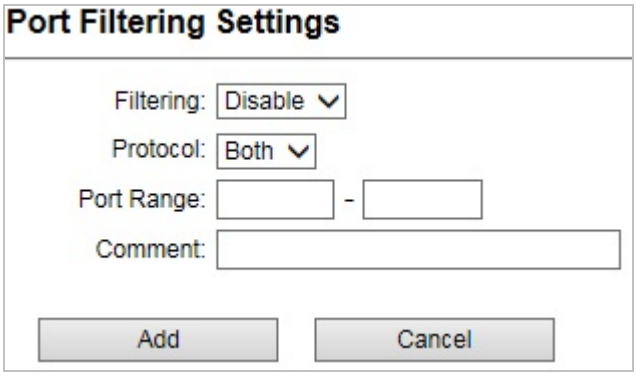


Figure 5-29 Port Filtering Settings

Object	Description
• **Filtering**	Enable or disable IP Filtering.
• **Protocol**	You can choose TCP, UDP or Both.
• **Port Range**	Enter the range of Port to be filtered.
• **Comment**	Set a name for the rule.

5.1.18 MAC Filtering Settings

Click "**Operation Mode**" → "**AP Router**" or "**Wireless ISP**" and then enter the "**Mac Filtering Settings**" by clicking the **Setup** button next to it. This section allows you to configure the MAC filtering settings.

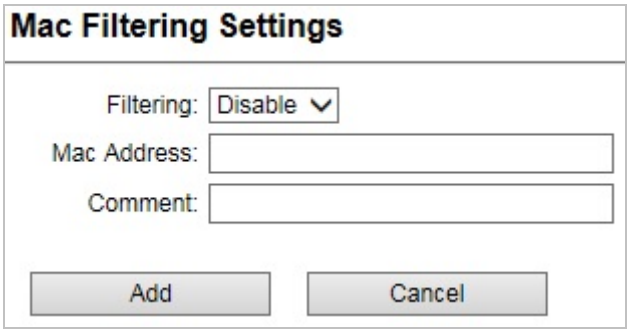


Figure 5-30 Mac Filtering Settings

Object	Description
• **Filtering**	Enable or disable Mac Filtering.
• **Mac Address**	Enter the Mac address to be filtered.
• **Comment**	Set a name for the rule.

5.1.19 Bandwidth Control

Click "**Operation Mode**" → "**AP Router**" or "**Wireless ISP**" and then enter the "**Bandwidth Control**" by clicking the **Setup** button next to it. This section allows you to configure the bandwidth control.

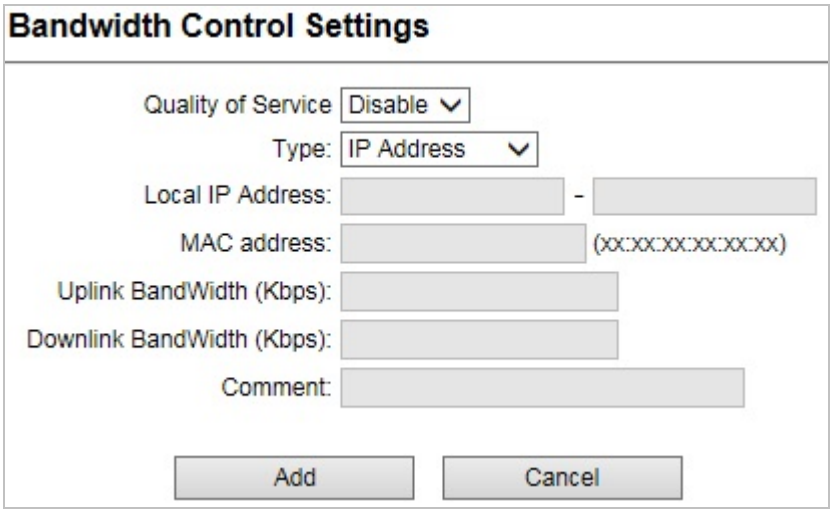


Figure 5-31 Bandwidth Control Settings

Object	Description
• **Quality of Service**	Enable or disable the QoS service.
• **Type**	Select QoS type **IP Address** or **Mac Address**.
• **Local IP Address**	The IP address segment which uses this QoS rule.
• **MAC Address**	The Mac address which uses this QoS rule.
• **Uplink BandWidth (Kbps)**	Set the maximum uplink bandwidth allowed by the listed QoS rules.
• **Downlink BandWidth (Kbps)**	Set the maximum downlink bandwidth allowed by the listed QoS rules.
• **Comment**	Set a name for the rule.

5.1.20 SNMP

Click “**Operation Mode**” → “**AP Router**” or “**Wireless ISP**” and then enter the “**SNMP**” by clicking the **Setup** button next to it. This section allows you to configure the SNMP.

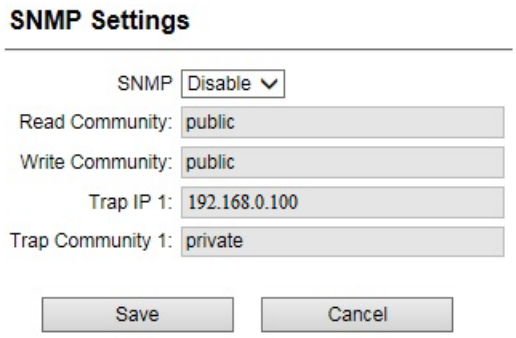


Figure 5-32 SNMP Settings

Object	Description
• **SNMP**	Enable or disable the SNMP service.
• **Read Community**	Enter a Read Community name for verification with the SNMP manager for SNMP Read requests.
• **Write Community**	Enter a Write Community name for verification with the SNMP manager for SNMP Write requests.
• **Trap IP 1**	Enter the Trap IP address.
• **Trap Community**	Enter an SNMP Trap Community name for verification with the SNMP manager for SNMP Trap requests.

5.2 System Configuration

On this page, you can configure the system of the WMC251, including IP settings, Time settings, Password settings, System management, Ping Watchdog, Firmware upgrade, Configuration save and restore, Factory default, Reboot and Schedule reboot.

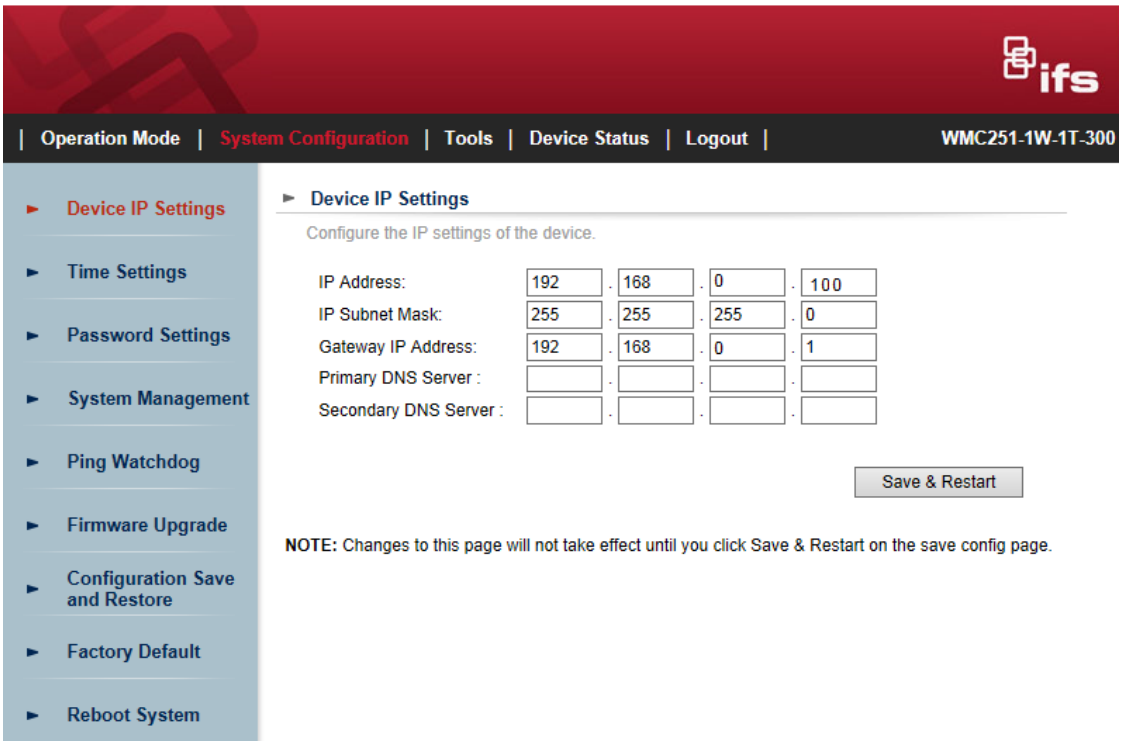


Figure 5-33 System Configuration default page

5.2.1 Default IP Settings

Click "**System Configuration**" → "**Device IP Settings**" and the following page will be displayed.

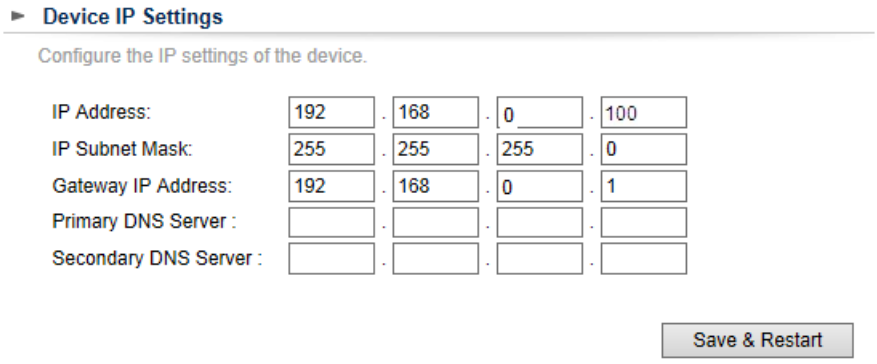


Figure 5-34 Default IP Settings

The page includes the following fields:

Object	Description
• **IP Address**	WMC251's LAN IP. The default is **192.168.0.100**. You can change it according to your needs.
• **IP Subnet Mask**	WMC251's LAN subnet mask.

• **Gateway IP Address**	The Gateway IP address of WMC251.
• **Primary DNS Server**	Enter the DNS server. The default is 8.8.4.4.
• **Secondary DNS Server**	Enter the DNS server. The default is 8.8.8.8.

5.2.2 Time Settings

Click "**System Configuration**" → "**Time Settings**" and the following page will be displayed.

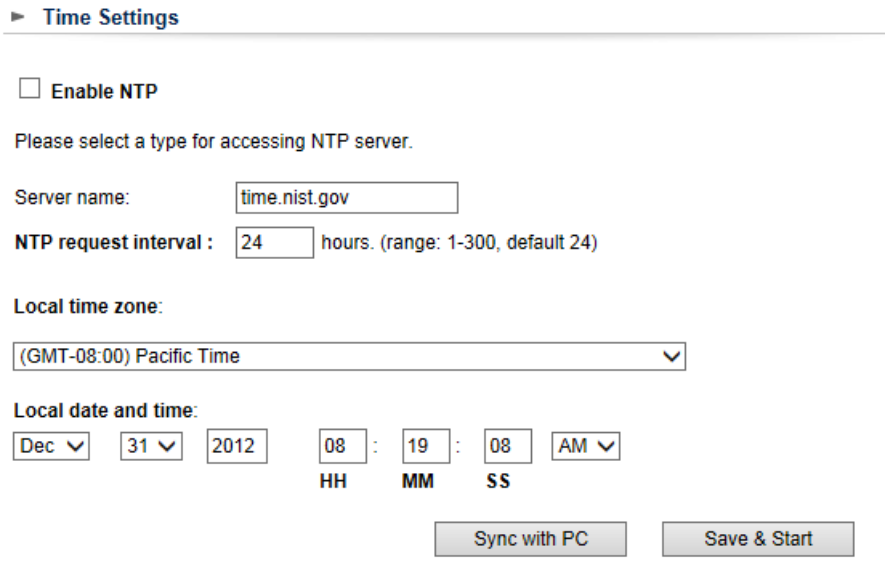


Figure 5-35 Time Settings

Object	Description
• **Enable NTP**	Enable it to support 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.
• **NTP Request Interval**	Specify a frequency (in hours) for the access point to update/synchronize with the NTP server.
• **Local 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.
• **Local Date and Time**	Set the access point's date and time manually.

5.2.3 Password Settings

Click "**System Configuration**" → "**Password Settings**" and the following page will be displayed.

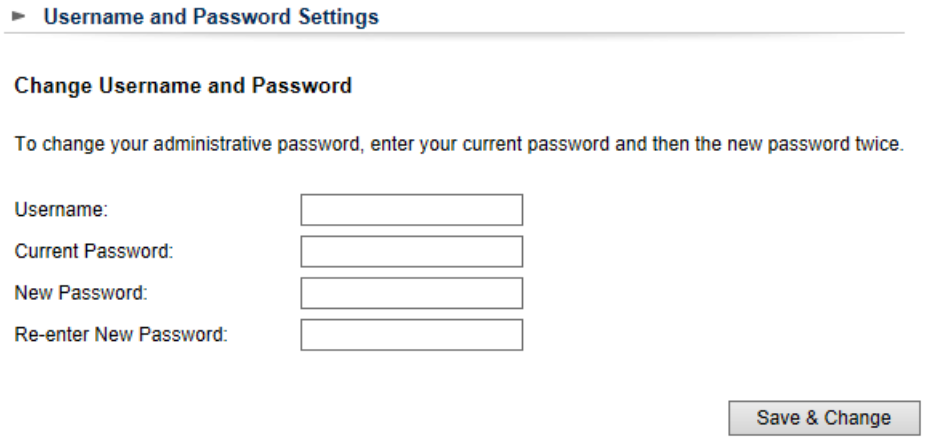


Figure 5-36 Password Settings

Object	Description
• **Current Password**	Set the access point's administrator password. This is used to log in to the browser based on the configuration interface.
• **New Password**	Enter a new password.
• **Re-enter New Password**	Enter the new password again.

5.2.4 System Management

Click "**System Configuration**" → "**System Management**" and the following page will be displayed.

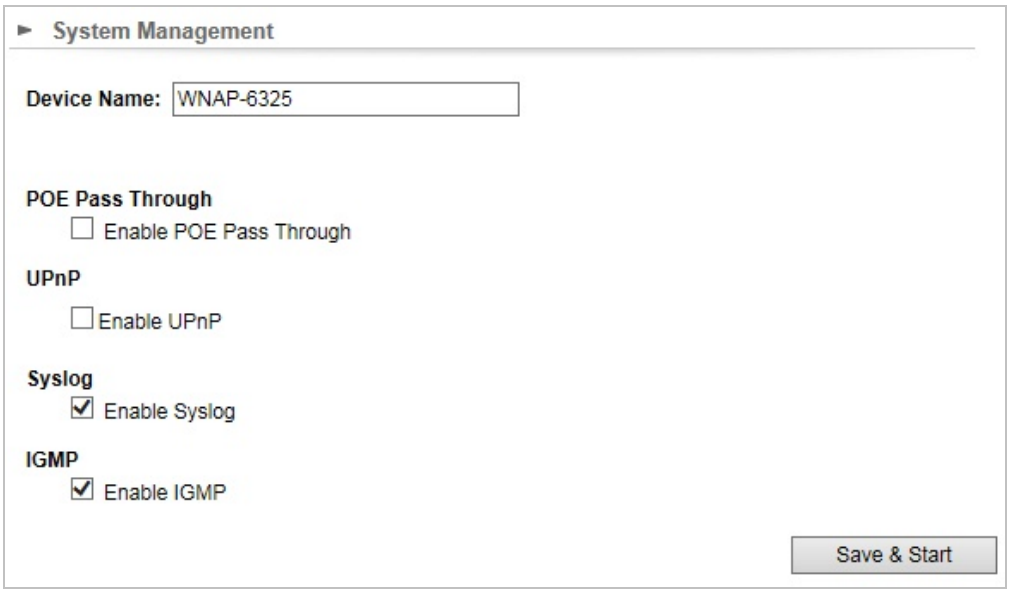


Figure 5-37 System Management

Object	Description
• **Device Name**	Enter a name for this access point. Default is **WMC251**.
• **POE Passthrough**	Enable the POE Passthrough function. ※ When the option "**Enable POE Passthrough**" in the System Management page is checked, the LAN2 can supply passive PoE power to the second WMC251 or WMC251 through the LAN 2.
• **UPnP**	Check to enable the UPnP function. The UPnP feature allows the devices, such as Internet computers, to access the local host resources or devices as needed. UPnP devices can be automatically discovered by the UPnP service application on the LAN. **This option is only available in AP Router mode.**
• **Syslog**	Check to enable Syslog function.
• **IGMP**	Check to enable the IGMP Proxy function. **This option is only available in AP Router mode.**

5.2.5 Ping Watchdog

Click "**System Configuration**" → "**Ping Watchdog**" and the following page will be displayed.

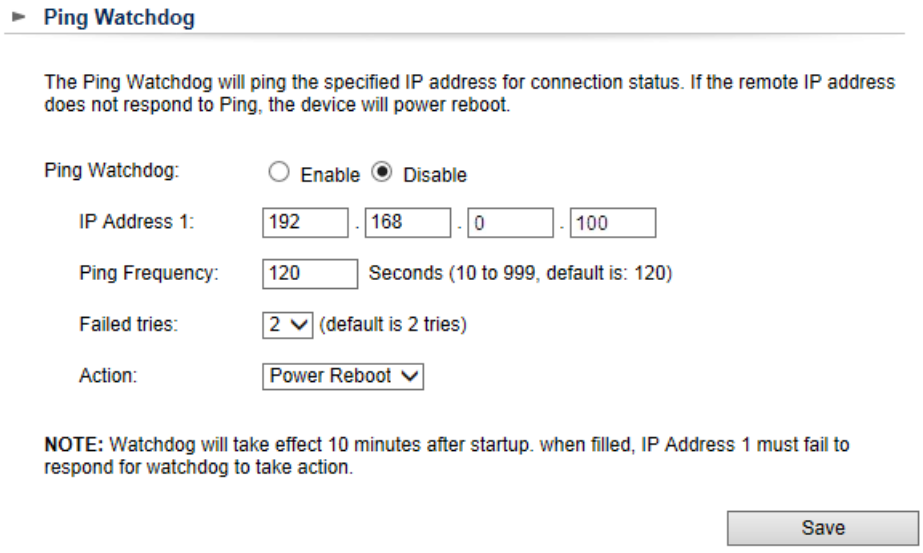


Figure 5-38 Ping Watchdog

Object	Description
• **Ping Watchdog**	**Enable** or **Disable** this function.
• **IP Address 1**	Enter the IP address which pings every time interval
• **Ping Frequency**	Set times from 10 to 999.
• **Failed tries**	Select failed tries from 1 to 5.

• **Action**	System will reboot when failing to ping the IP.

5.2.6 Firmware Upgrade

Click "**System Configuration**" → "**Firmware Upgrade**" and the following page will be displayed.

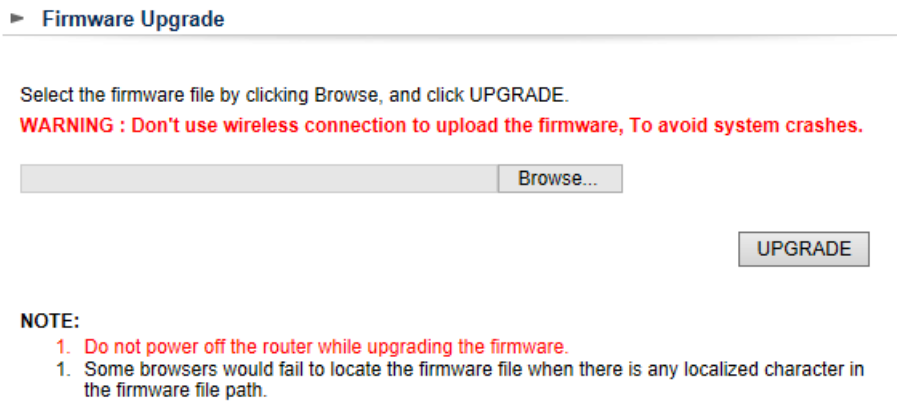


Figure 5-39 Firmware Upgrade

Object	Description
• **Browse**	Click **Browse** to select the firmware file, and click **Upgrade** to upgrade the firmware.

5.2.7 Configuration Save and Restore

Click "**System Configuration**" → "**Configuration Save and Restore**" and the following page will be displayed.

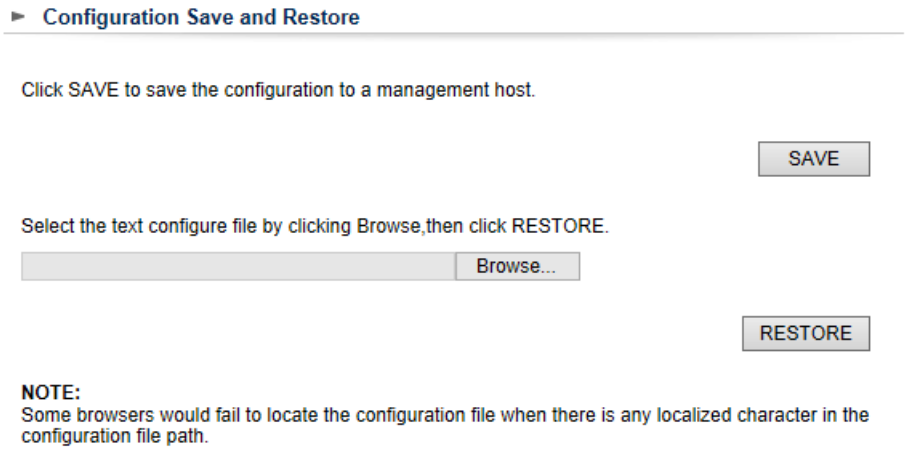


Figure 5-40 Configuration Save and Restore

Object	Description
• **SAVE**	Click **SAVE** to save the configuration to a management host.
• **Browse**	Click **Browse** to select the configuration file, and click **Restore** to restore the configuration file.

5.2.8 Factory Default

Click "**System Configuration**" → "**Factory Default**" and the following page will be displayed.

Press **YES** to restore to factory default.

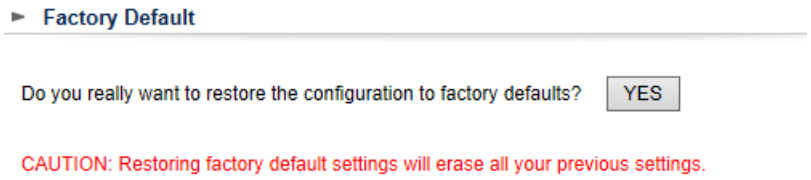


Figure 5-41 Factory Default

5.2.9 Reboot System

Click "**System Configuration**" → "**Reboot System**" and the following page will be displayed.

Press **YES** to reboot the system.

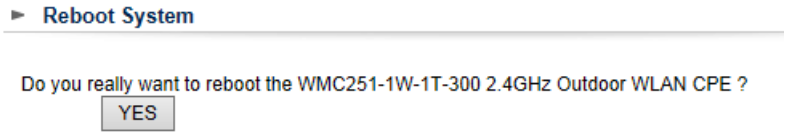


Figure 5-42 Reboot System

5.2.10 Schedule Reboot

Click "**System Configuration**" → "**Schedule Reboot**" and the following page will be displayed.

This page allows you to enable and configure system reboot schedule. The device can regularly reboot according to the reserved time when connecting to the Internet.

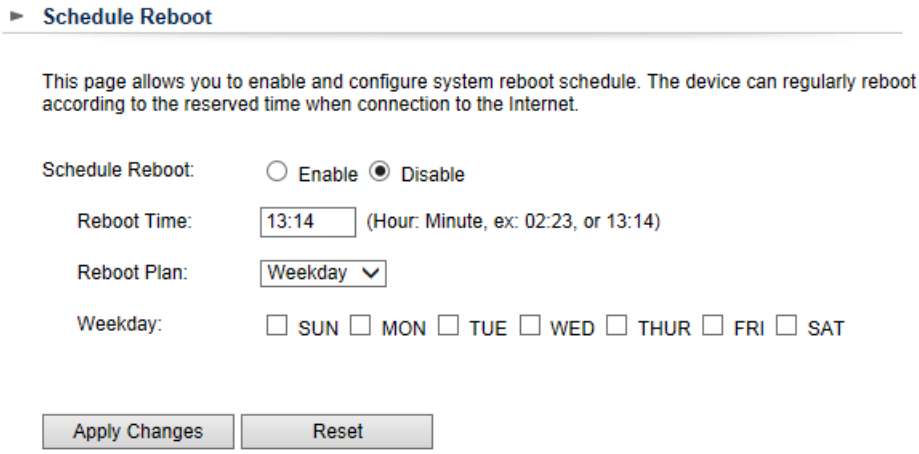


Figure 5-43 Schedule Reboot

Object	Description
• **Schedule Reboot**	**Enable** or **Disable** this function.
• **Reboot Time**	Enter the time that you want to reboot this device.
• **Reboot Plane**	Select **Weekday** to reboot in the day you choose or **Every day**.
• **Weekday**	Select the day that you want to reboot.

Note

1. This setting will only take effect when the Internet connection is accessible and the GMT time is configured correctly.
2. You must select at least one day when choosing "**Weekday**" as your reboot plan.
3. When choosing "**Every day**" as your reboot plan, the "**Weekday**" will be grayed out (disabled), which means **Every day** will auto reboot at the time that you schedule.

■ Example of how to configure **Schedule Reboot**. Please take the following Steps:

Before configuring schedule reboots, please ensure the Internet connection is accessible and the GMT time is configured correctly according to **NTP Settings** page.

Step 1. Enable the "Schedule Reboot".

Step 2. Enter the Reboot Time (24-hour format) to enable this function to take effect. For example, if you want this function to work at 23:00 every Sunday, choose "Weekday" in the Reboot Plan field.

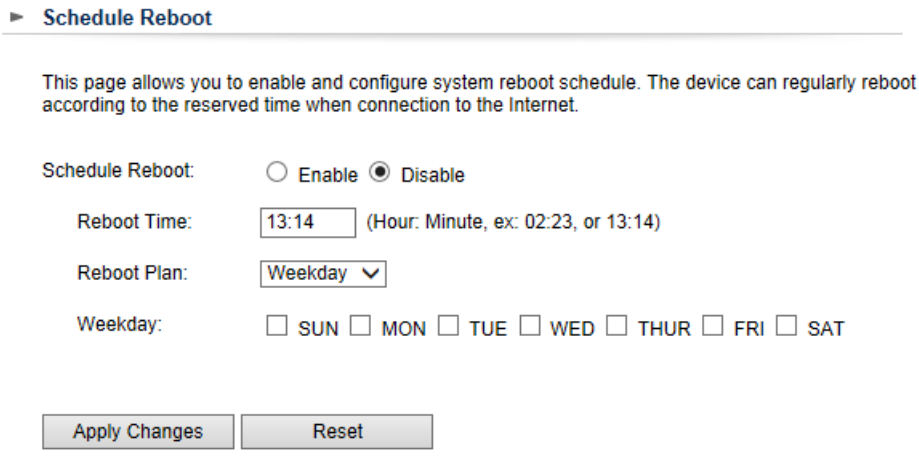


Figure 5-44 Schedule Reboot - Example

Step 3. Click the "Apply Changes" button to take this function effect.

5.3 Tools

5.3.1 Network Ping

Click “**Tools**” → “**Network Ping**” and the following page will be displayed.

Ping is a network tool used to test whether a particular host is reachable across an IP network.

Enter the IP, Ping Count, and click “**Ping**” to diagnostic your internet connection.

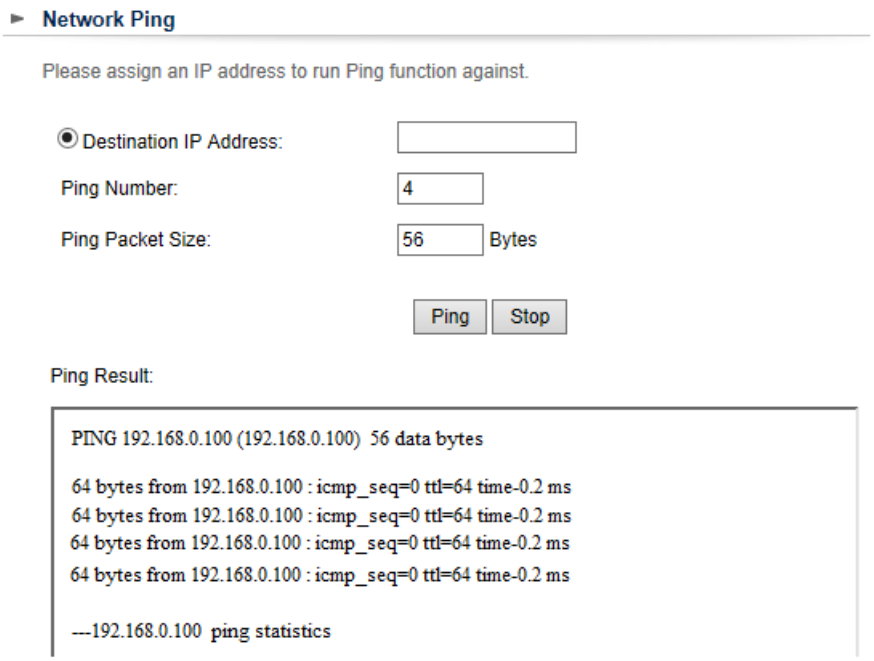


Figure 5-45 Network Ping

5.3.2 Network Traceroute

Click “**Tools**” → “**Network Traceroute**” and the following page will be displayed.

Traceroute is a computer network diagnostic tool for displaying the route (path) and measuring transit delays of packets across an Internet Protocol (IP) network. It can help identify connection problems. Enter the IP and click “**Traceroute**” to diagnostic your internet connection.

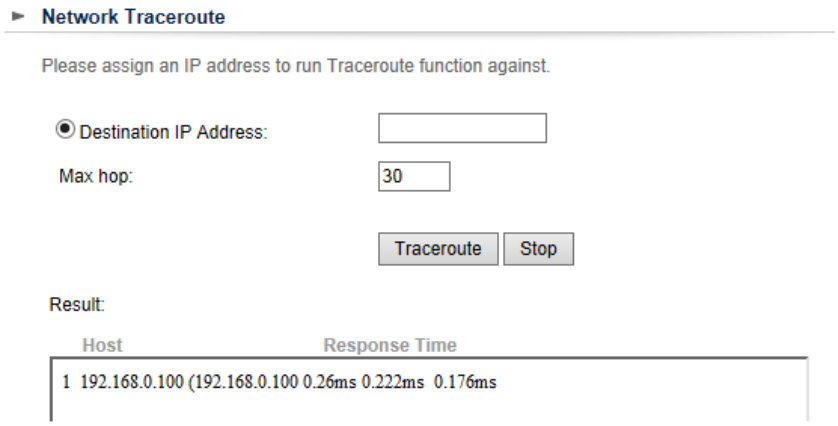


Figure 5-46 Network Traceroute

5.4 Device Status

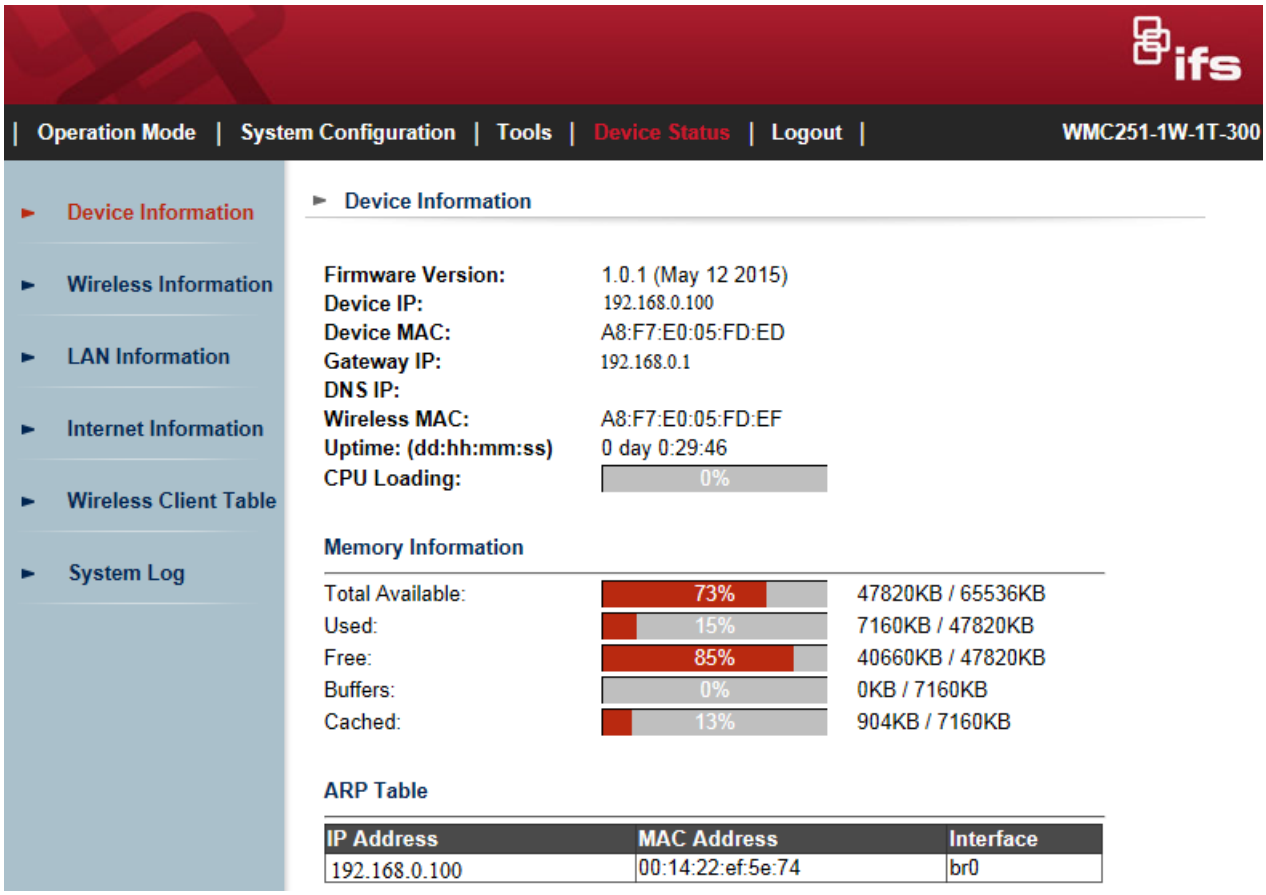


Figure 5-47 Device Status

5.4.1 Device Information

Click “**Device Status**” → “**Device Information**” and the following page will be displayed.

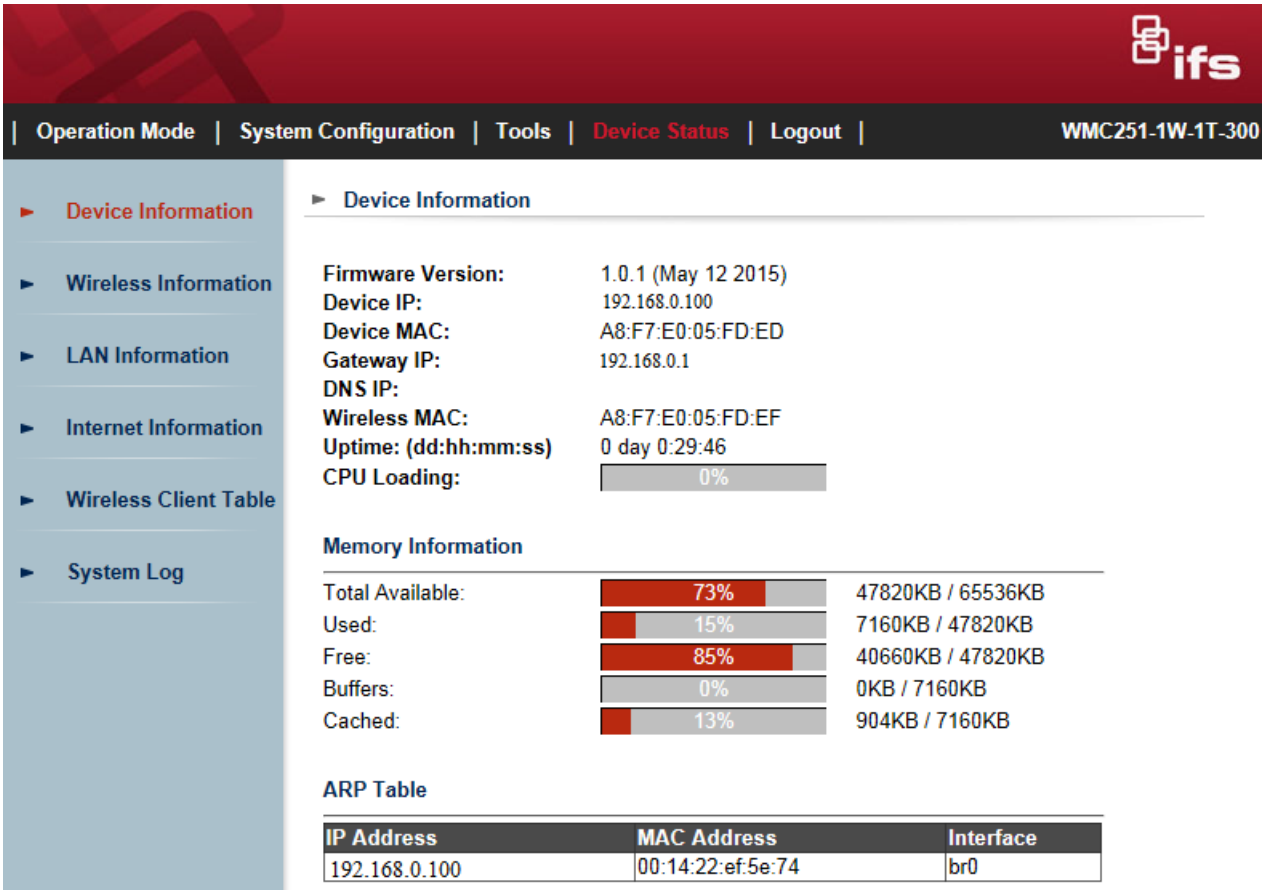


Figure 5-48 Device Information

The page includes the following fields:

Object	Description
• **Firmware Version**	Displays current F/W version.
• **Device IP**	Displays IP of AP.
• **Device MAC**	Displays AP’s LAN MAC address.
• **Gateway IP**	Displays Gateway IP of AP.
• **DNS IP**	Displays DNS IP of AP.
• **Wireless MAC**	Displays AP’s Wireless MAC address.
• **Uptime**	Display the uptime of AP.
• **CPU Loading**	Display the CPU loading of AP.

5.4.2 Wireless Information

Click "**Device Status**" → "**Wireless Information**" and the following page will be displayed.

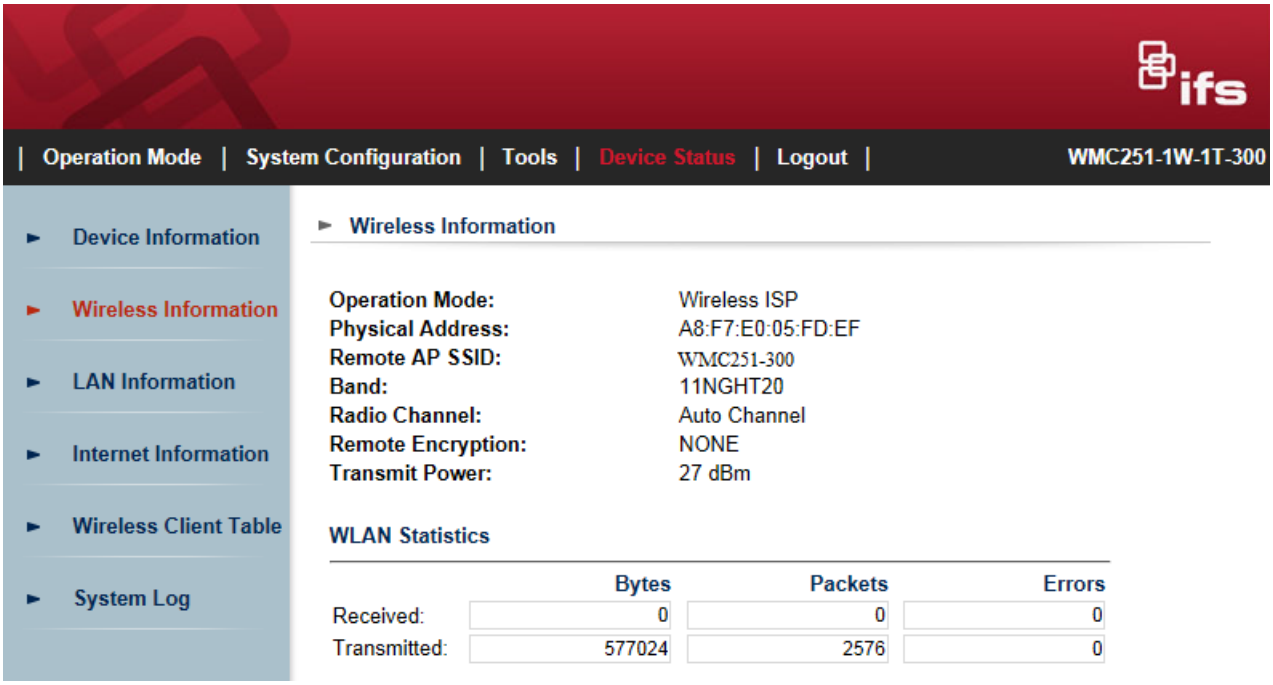


Figure 5-49 Wireless Information

The page includes the following fields:

Object	Description
• **Operation Mode**	Displays current Operation Mode.
• **Physical address**	Displays AP's Wireless MAC address.
• **SSID**	It is the wireless network name. The default SSID is **WMC251**.
• **Band**	Display operating channel width which is **11NG HT20** or **11NG HT40**.
• **Radio Channel**	Display the channel you would like to use. The channel range will be changed by selecting different domain.
• **Wireless Encryption**	Display the encryption type that you would like to use.
• **Transmit Power**	Display the TX power that you would like to use.

5.4.3 LAN Information

Click "**Device Status**" → "**LAN Information**" and the following page will be displayed.

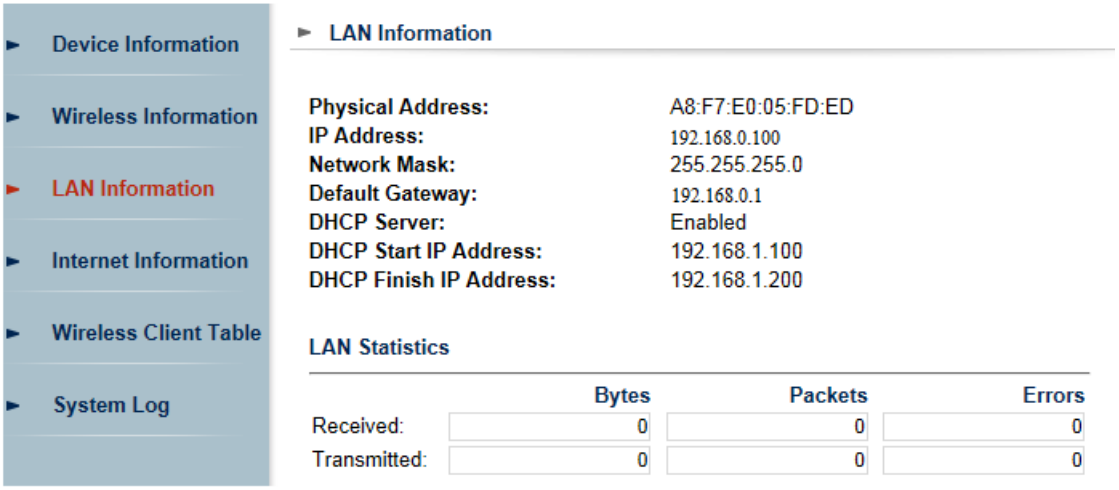


Figure 5-50 LAN Information

The page includes the following fields:

Object	Description
• **Physical Address**	Displays AP's LAN MAC address.
• **IP Address**	Displays IP of AP.
• **Network Mask**	Displays Network Mask of AP.
• **Default Gateway**	Displays Gateway IP of AP.
• **DHCP Server**	**Enable** or **Disable** DHCP server.
• **DHCP Start IP Address**	Enter the starting IP address for the DHCP server's IP assignment.
• **DHCP Finish IP Address**	Enter the ending IP address for the DHCP server's IP assignment.

5.4.4 Wireless Client Table

Click "**Device Status**" → "**Wireless Client Table**" and the following page will be displayed.

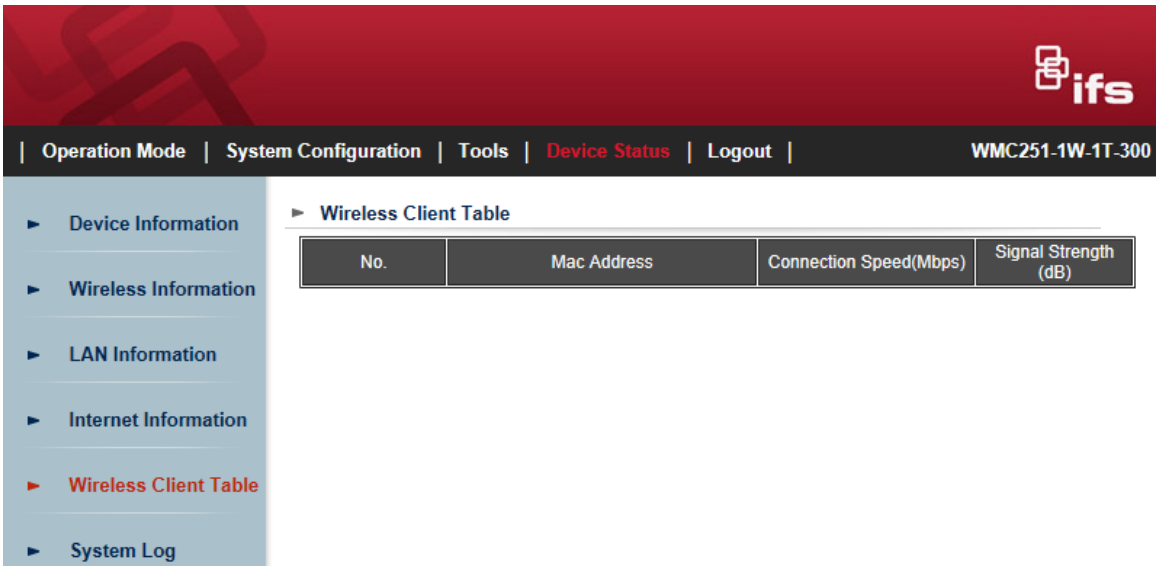


Figure 5-51 Wireless Client Table

The page includes the following fields:

Object	Description
• **No.**	Displays the number of connecting device.
• **Mac Address**	Displays Mac address of AP.
• **Connection Speed**	Displays connection speed of device.
• **Signal Strength**	Display signal strength of device. The signal strength between "**-30 and 70**" can setup a reliable connection.

5.4.5 System Log

Choose menu "**Device Status** → "**System Log**" to view the logs of the Wireless AP.

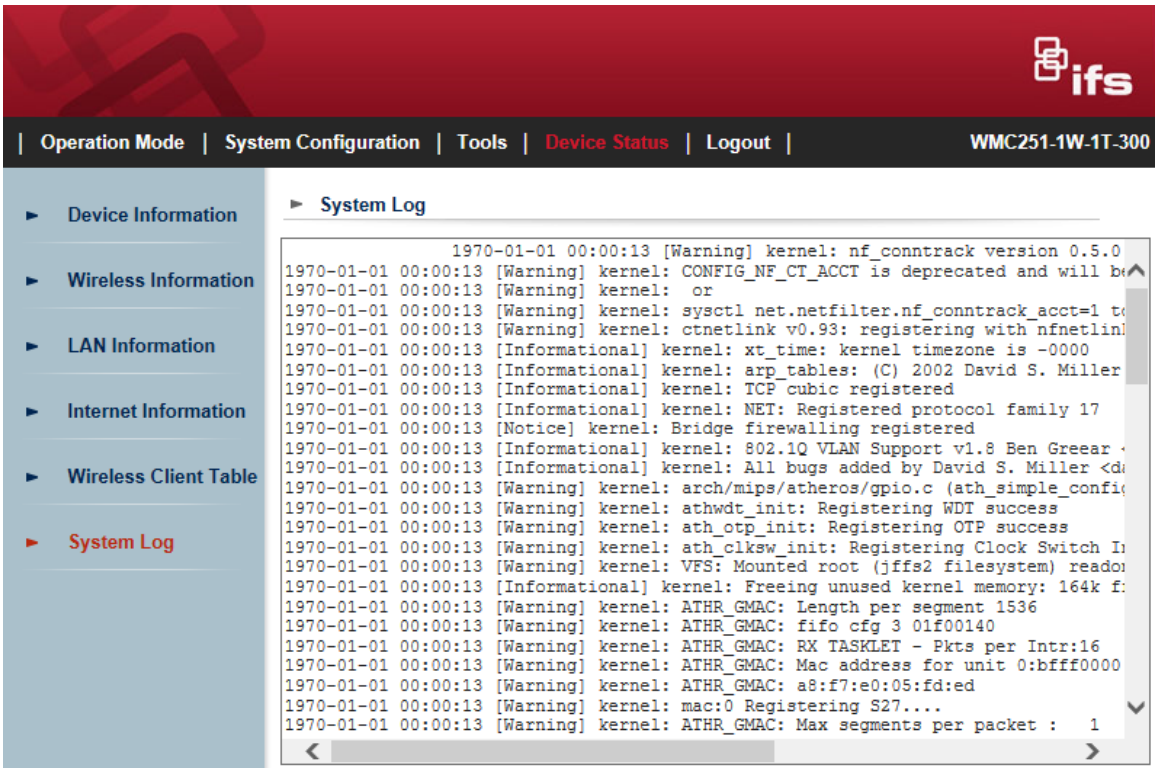


Figure 5-52 System Log

5.5 Logout

Select “**Logout**” to logout the system.

Figure 5-53 Logout

Figure 5-54 Re-login

Appendix A: Troubleshooting

If you found the AP is working improperly or stop responding to you, please read this troubleshooting first before contacting the IFS, - Tech Support for help. Some problems can be solved by yourself within very short time.

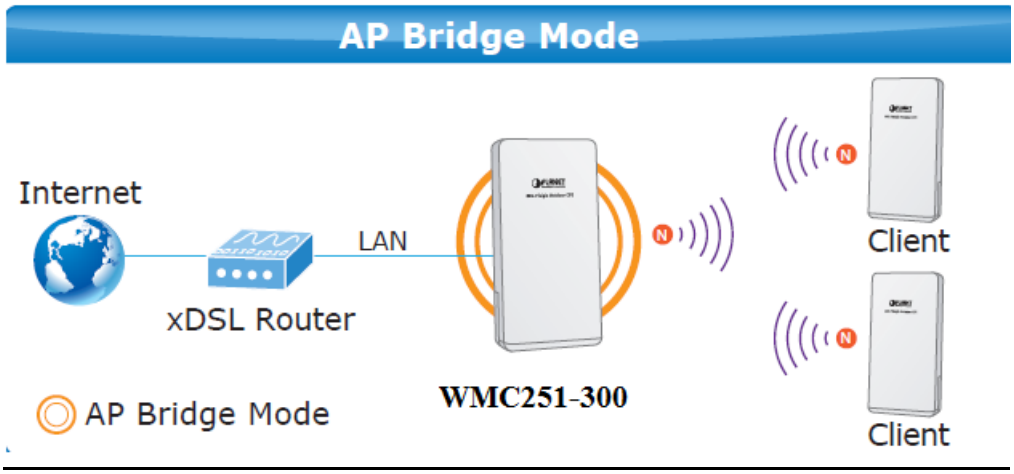
Scenario	Solution
The AP is not responding to me when I want to access it by web browser.	a. Please check the connection of the power cord and the Ethernet cable of this AP. All cords and cables should be correctly and firmly inserted to the AP. b. If all LEDs on this AP are off, please check the status of power adapter, and make sure it is correctly powered. c. You must use the same IP address section that AP uses. d. Are you using MAC or IP address filter? Try to connect the AP by another computer and see if it works; if not, please reset the AP to the factory default settings (Press the 'reset' button for over 10 seconds). e. If you did a firmware upgrade and this happens, contact the IFS, - Tech Support for help. f. If all the solutions above don't work, contact the IFS, - Tech Support for help.
I can't get connected to the Internet.	a. Check the Internet connection status from the router that is connected with the AP. b. Please be patient. Sometimes Internet is just that slow. c. If you have connected a computer to Internet directly before, try to do that again, and check if you can get connected to Internet with your computer directly attached to the device provided by your Internet service provider. d. Check PPPoE / L2TP / PPTP user ID and password in your router again. e. Call your Internet service provider and check if there's something wrong with their service. f. If you just can't connect to one or more website, but you can still use other internet services, please check URL/Keyword filter. g. Try to reset the AP and try again later. h. Reset the device provided by your Internet service provider. i. Try to use IP address instead of hostname. If you can use IP address to communicate with a remote server, but can't use hostname, please check DNS setting.
I can't locate my AP by my wireless device.	a. 'Broadcast ESSID' set to off? b. The antenna is properly secured. c. Are you too far from your AP? Try to get closer.

	d. Please remember that you have to input ESSID on your wireless client manually, if ESSID broadcast is disabled.
File downloading is very slow or breaks frequently.	a. Are you using QoS function? Try to disable it and try again. b. Internet is slow sometimes; try to be patient. c. Try to reset the AP and see if it's better after that. d. Try to know what computers do on your local network. If someone's transferring big files, other people will think Internet is really slow. e. If this never happens before, call you Internet service provider to know if there is something wrong with their network.
I can't log into the web management interface; The password is wrong.	a. Make sure you're connecting to the correct IP address of the AP. b. Password is case-sensitive. Make sure the 'Caps Lock' light is not illuminated. c. If you really forget the password, do a hard reset.
The AP becomes hot	a. This is not a malfunction, if you can keep your hand on the AP's case. b. If you smell something wrong or see the smoke coming out from AP or A/C power adapter, please disconnect the AP and A/C power adapter from utility power (make sure it's safe before you're doing this!), and call your dealer for help.

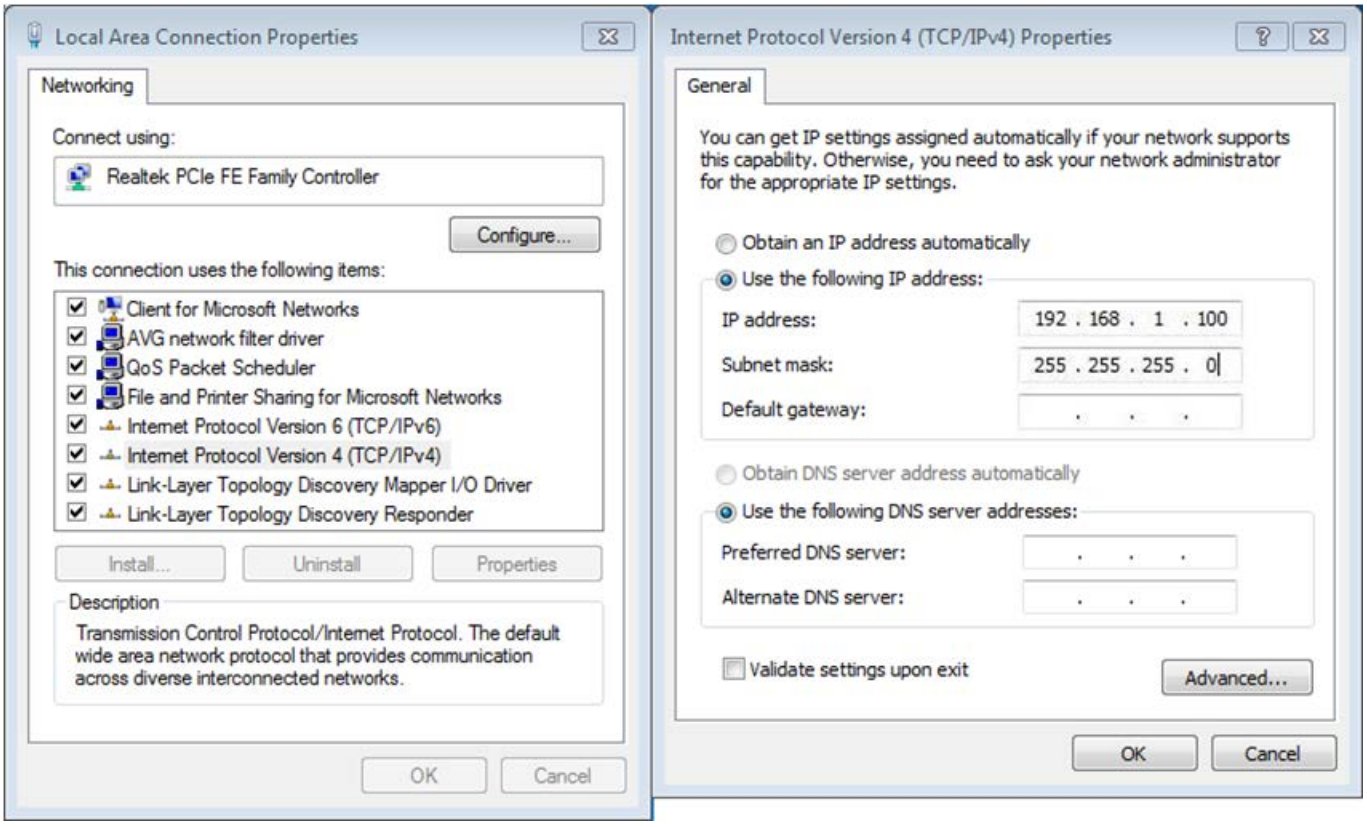
Appendix B: FAQ

Q1: How to set up the AP Client Connection

Topology:

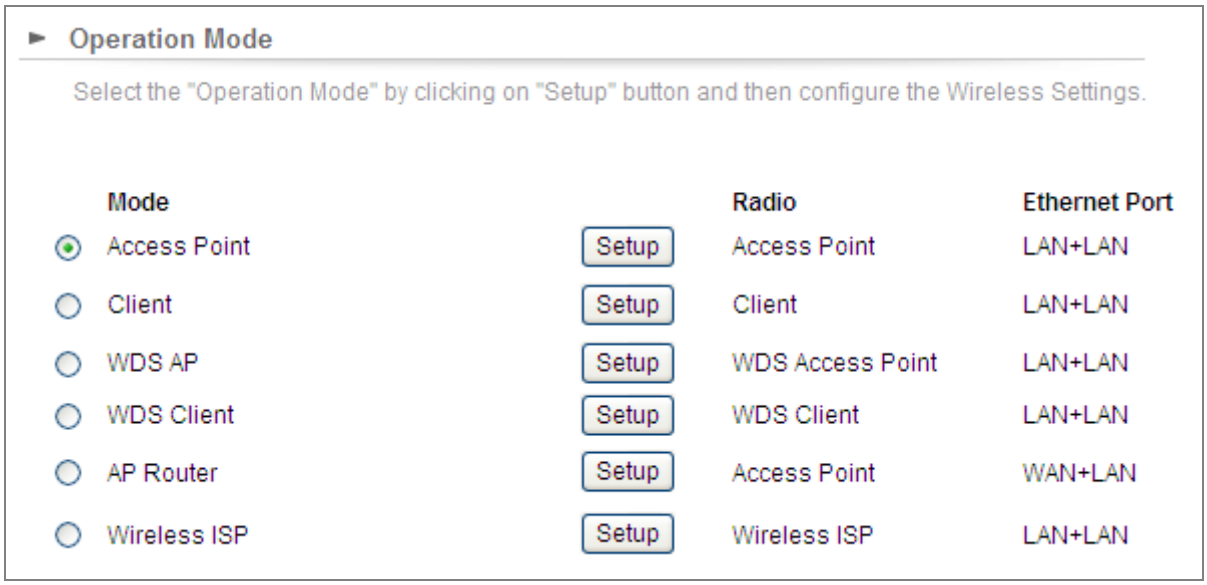


Step 1. Use static IP in the PCs that are connected with AP-1 (Site-1) and AP-2 (Site-2). In this case, Site-1 is "**192.168.0.100**", and Site-2 is "**192.168.1.200**".



Step 2. In AP-1, go to "**Operation Mode**" to configure it to **Access Point** Mode.

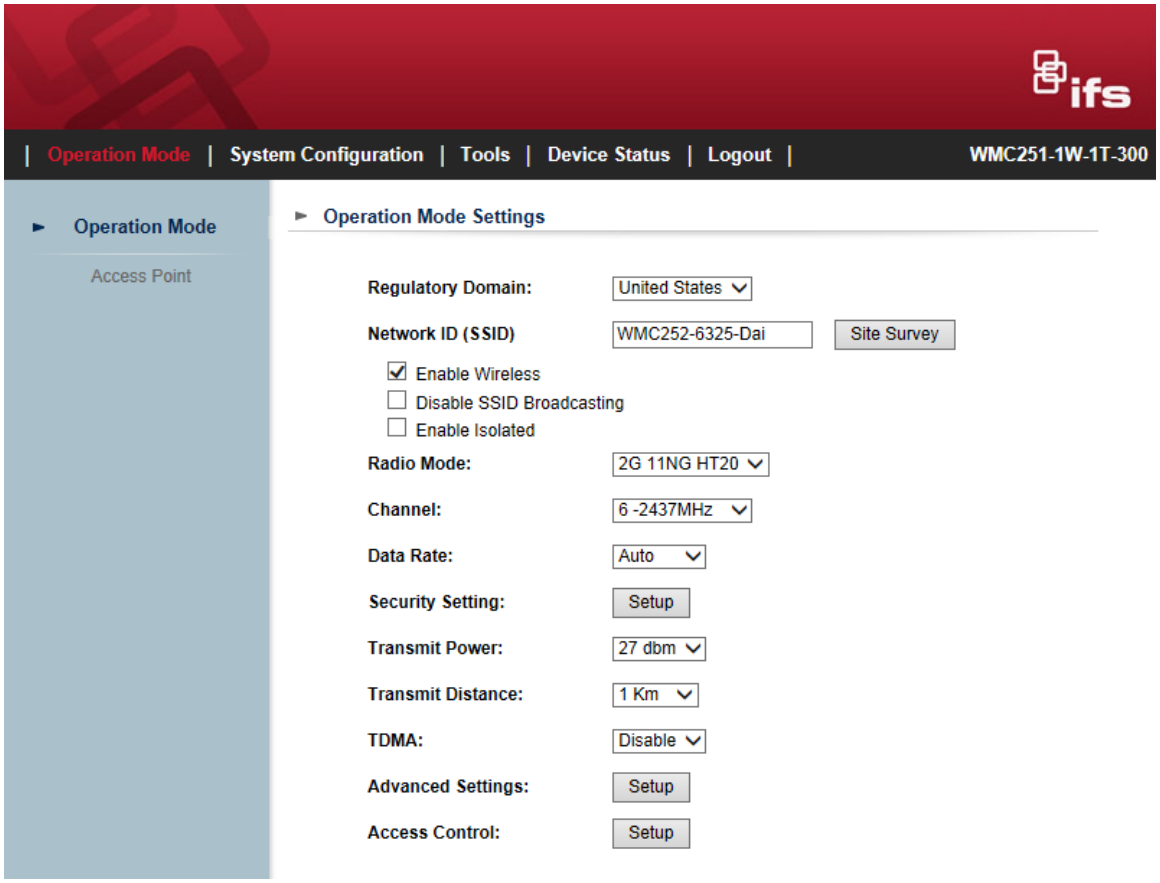
※ **You can also configure it in "AP Router" mode if you want to connect the WAN port of the AP to the internet directly.**

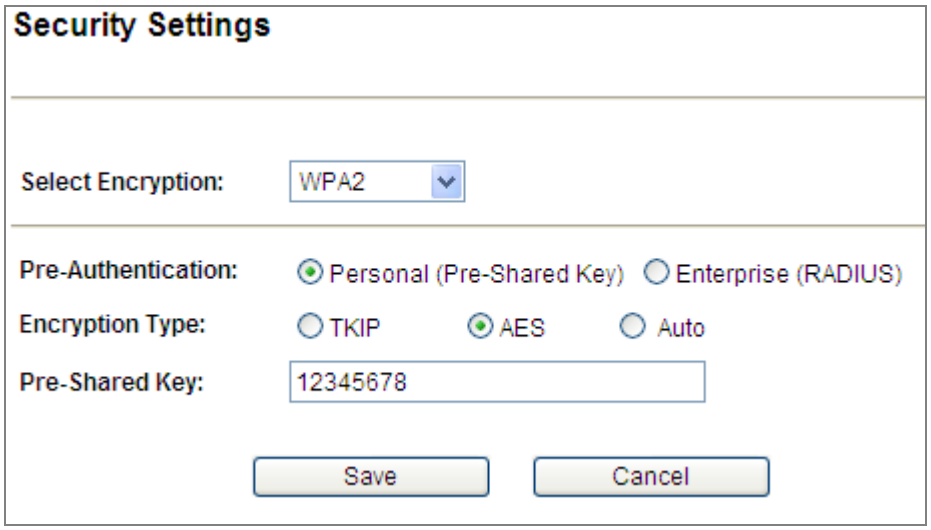


Step 3. Click "**Setup**" to configure the following parameters and then click **Save & Restart** to save the settings.

1) **Network ID (SSID)**: set to a unique value
2) **Channel**: set to a fixed one
3) **Security Setting**: strongly suggested to configure it.

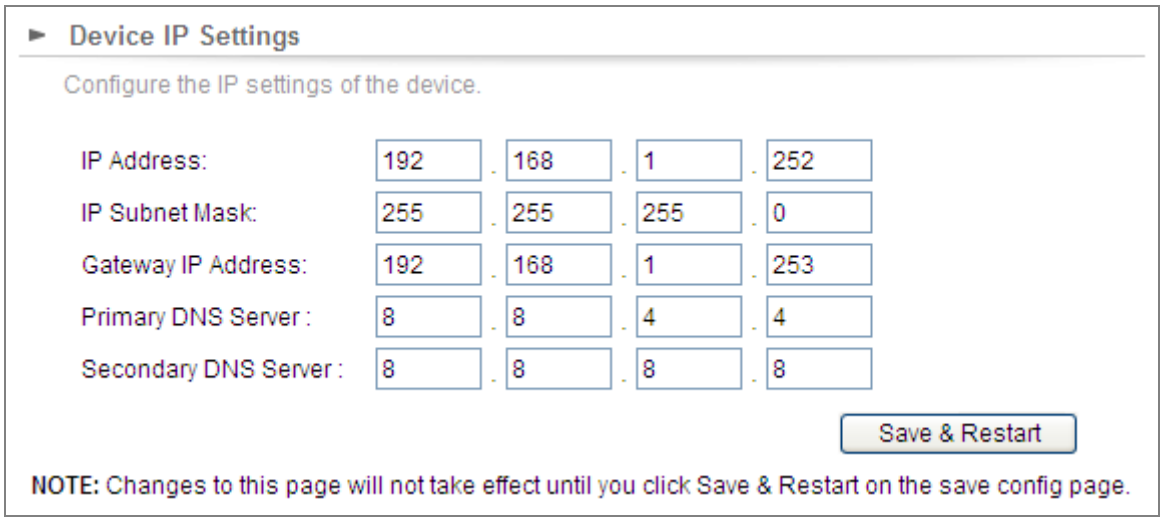
   In this case, we configure it to WPA2-PSK, AES


ifs
| Operation Mode | System Configuration | Tools | Device Status | Logout | WMC251-1W-1T-300
Operation Mode
Access Point
Operation Mode Settings
Regulatory Domain: United States
Network ID (SSID) WMC252-6325-Dai Site Survey
Enable Wireless
Disable SSID Broadcasting
Enable Isolated
Radio Mode: 2G 11NG HT20
Channel: 6 -2437MHz
Data Rate: Auto
Security Setting: Setup
Transmit Power: 27 dbm
Transmit Distance: 1 Km
TDMA: Disable
Advanced Settings: Setup
Access Control: Setup

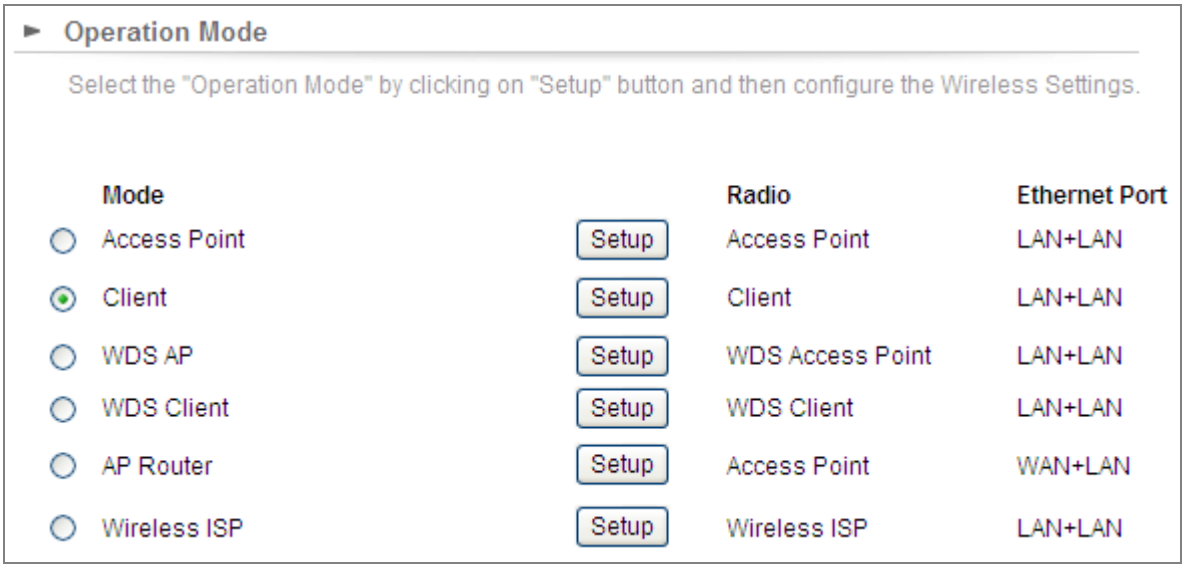

Security Settings
Select Encryption: WPA2
Pre-Authentication: Personal (Pre-Shared Key) Enterprise (RADIUS)
Encryption Type: TKIP AES Auto
Pre-Shared Key: 12345678
Save
Cancel

Step 4. In AP-2, modify the default IP to the same IP range but different from AP-1.

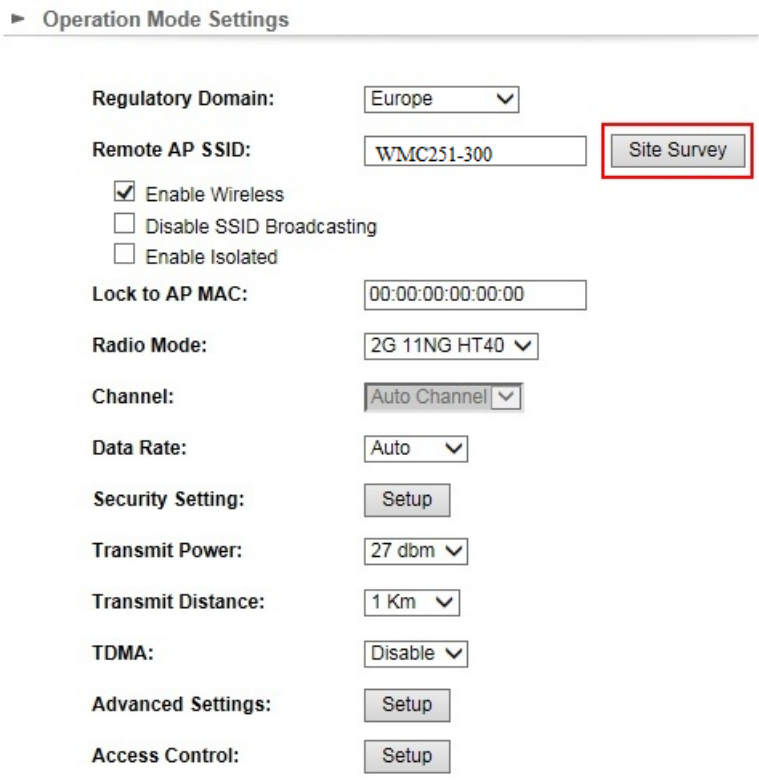
In this case, the IP is changed to **192.168.1.252**.



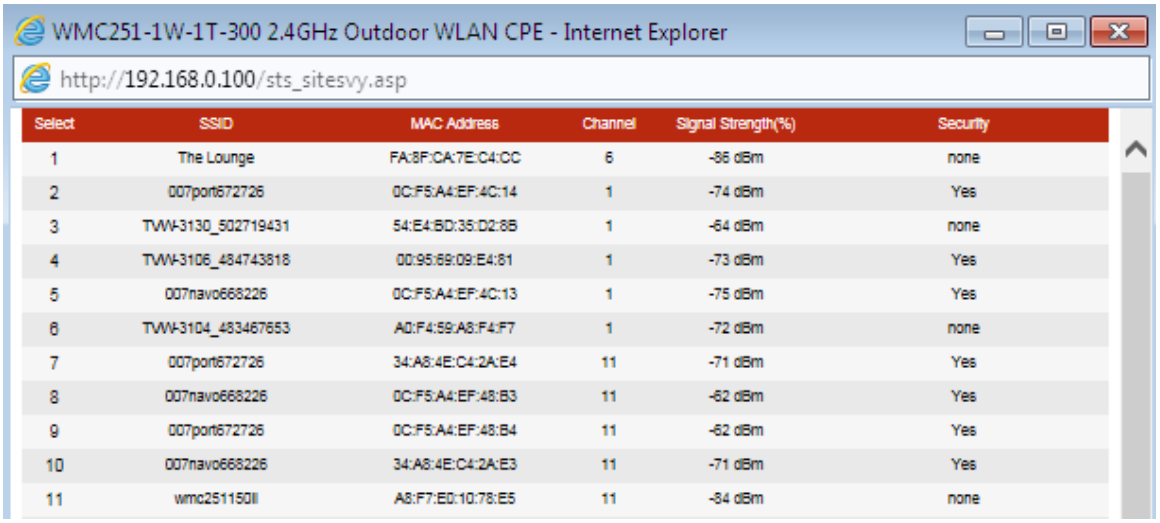
Step 5. In AP-2, configure it in "**Client**" mode and click "**Setup**".



Step 6. Click "**Setup**" and then click **Site Survey** to find AP-1.

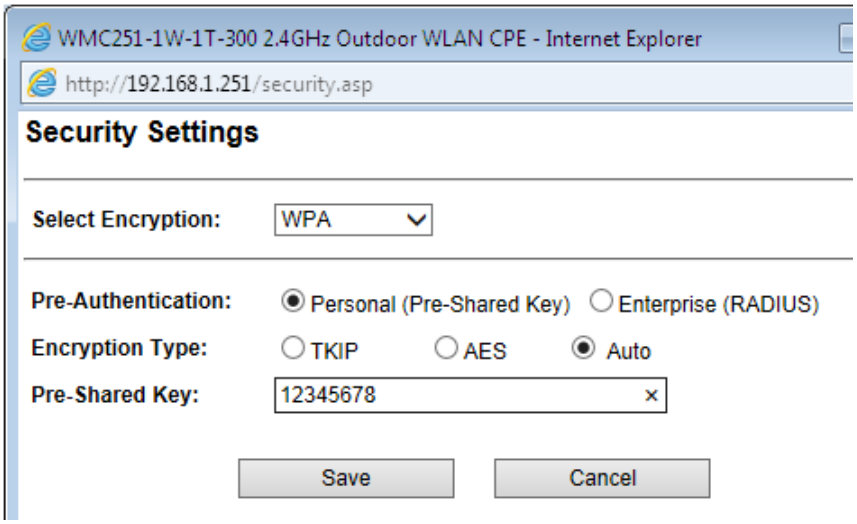


Step 7. Site Survey results

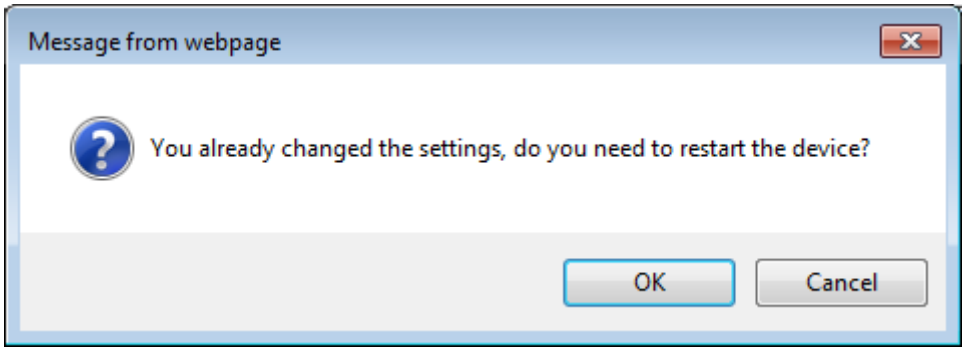


Select	SSID	MAC Address	Channel	Signal Strength(%)	Security
1	The Lounge	FA:8F:CA:7E:C4:CC	6	-86 dBm	none
2	007port672726	0C:F5:A4:EF:4C:14	1	-74 dBm	Yes
3	TVW-3130_502719431	54:E4:BD:35:D2:8B	1	-64 dBm	none
4	TVW-3106_484743818	00:95:69:09:E4:81	1	-73 dBm	Yes
5	007navo668226	0C:F5:A4:EF:4C:13	1	-75 dBm	Yes
6	TVW-3104_483467653	A0:F4:59:A8:F4:F7	1	-72 dBm	none
7	007port672726	34:A8:4E:C4:2A:E4	11	-71 dBm	Yes
8	007navo668226	0C:F5:A4:EF:48:B3	11	-62 dBm	Yes
9	007port672726	0C:F5:A4:EF:48:B4	11	-62 dBm	Yes
10	007navo668226	34:A8:4E:C4:2A:E3	11	-71 dBm	Yes
11	wmc251150ll	A8:F7:E0:10:78:E5	11	-84 dBm	none

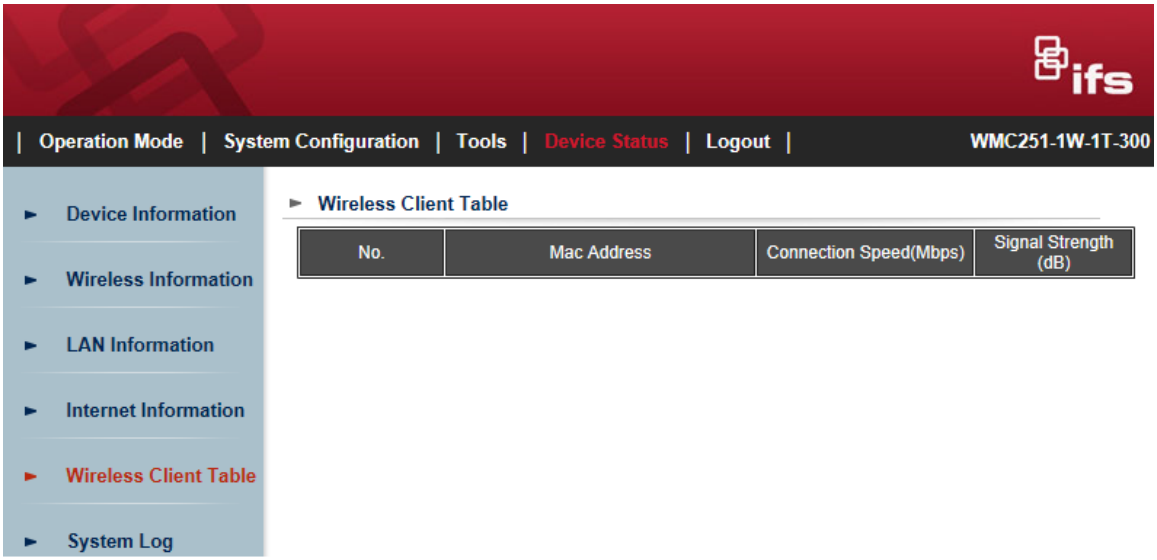
Step 8. Click “**SET SECURITY**” to configure the Pre-Shared Key and then click “**Save**” to close the window.



Step 9. Click “**OK**” and “**Save & Restart**” to apply the setting.

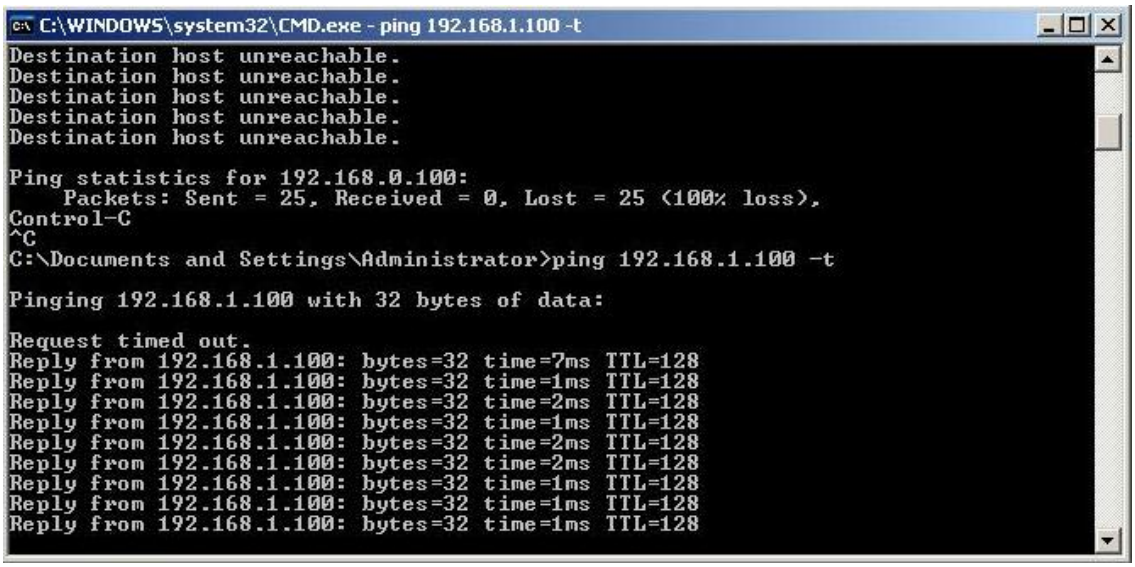


Step 10. In AP-1, go to “**Device Status-> Wireless Client Table**” to check whether AP-2 should be in the list.

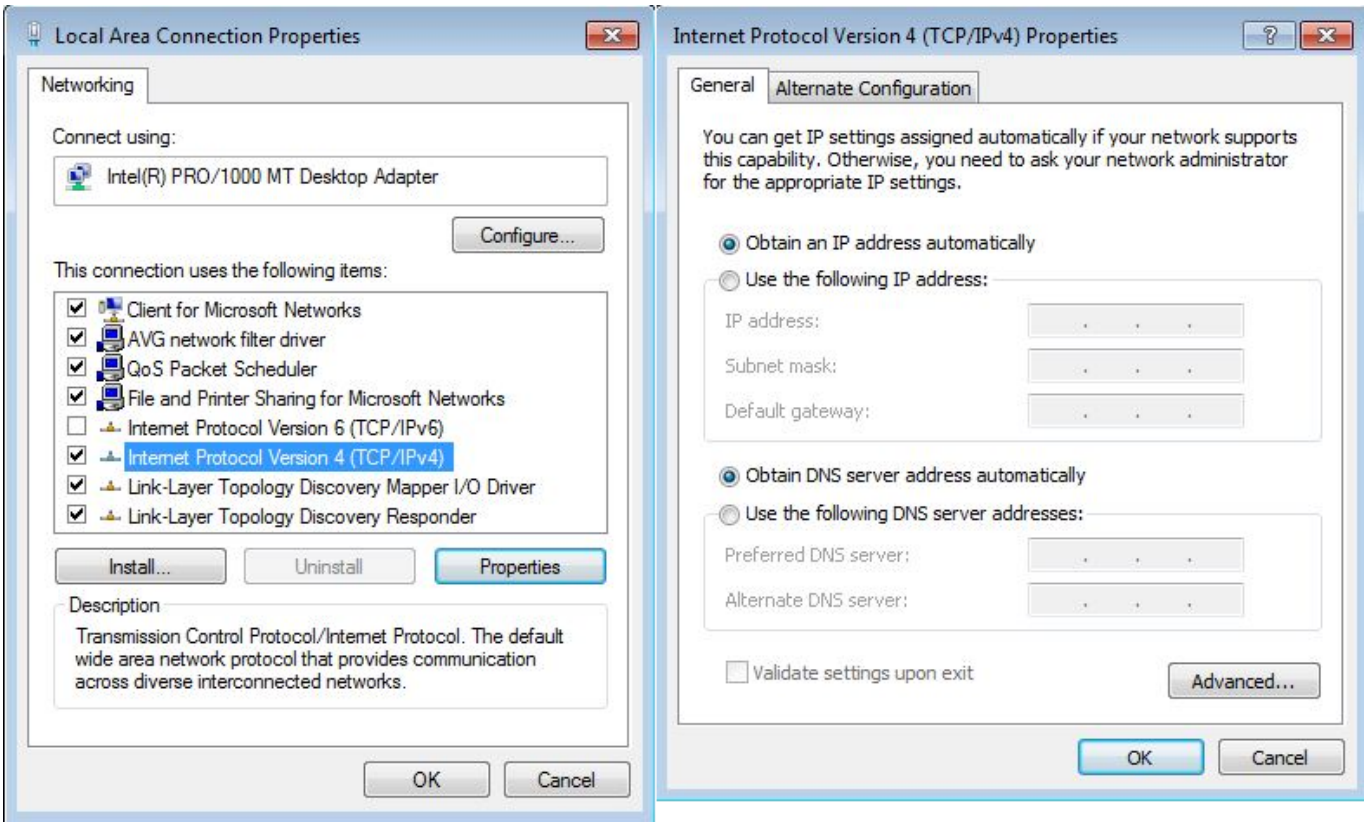


Step 11. Use command line tool to ping each other to ensure the link is successfully established.

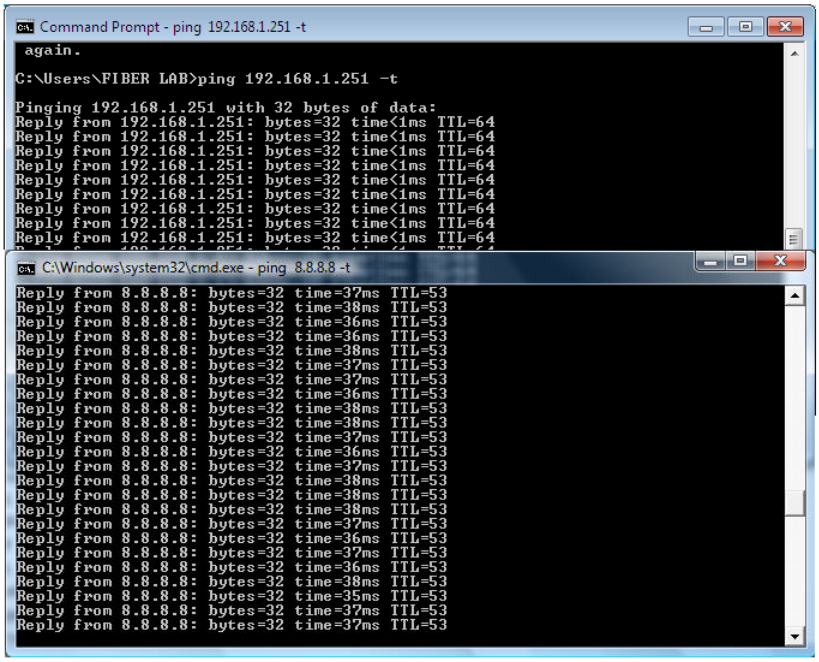
From Site-1, ping 192.168.1.200; and in Site-2, ping 192.168.0.100.



Step 12. Configure the TCP/IP settings of Site-2 to "**Obtain an IP address automatically**".



Step 13. Use command line tool to ping the DNS (e.g. Google) to ensure Site-2 can access internet through the wireless connection.



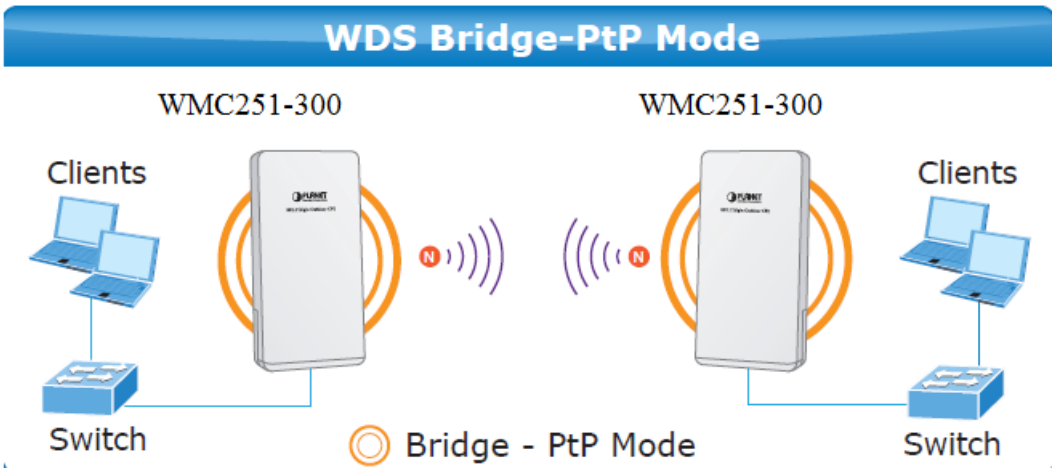
Note

The attention of the following hints should be paid:

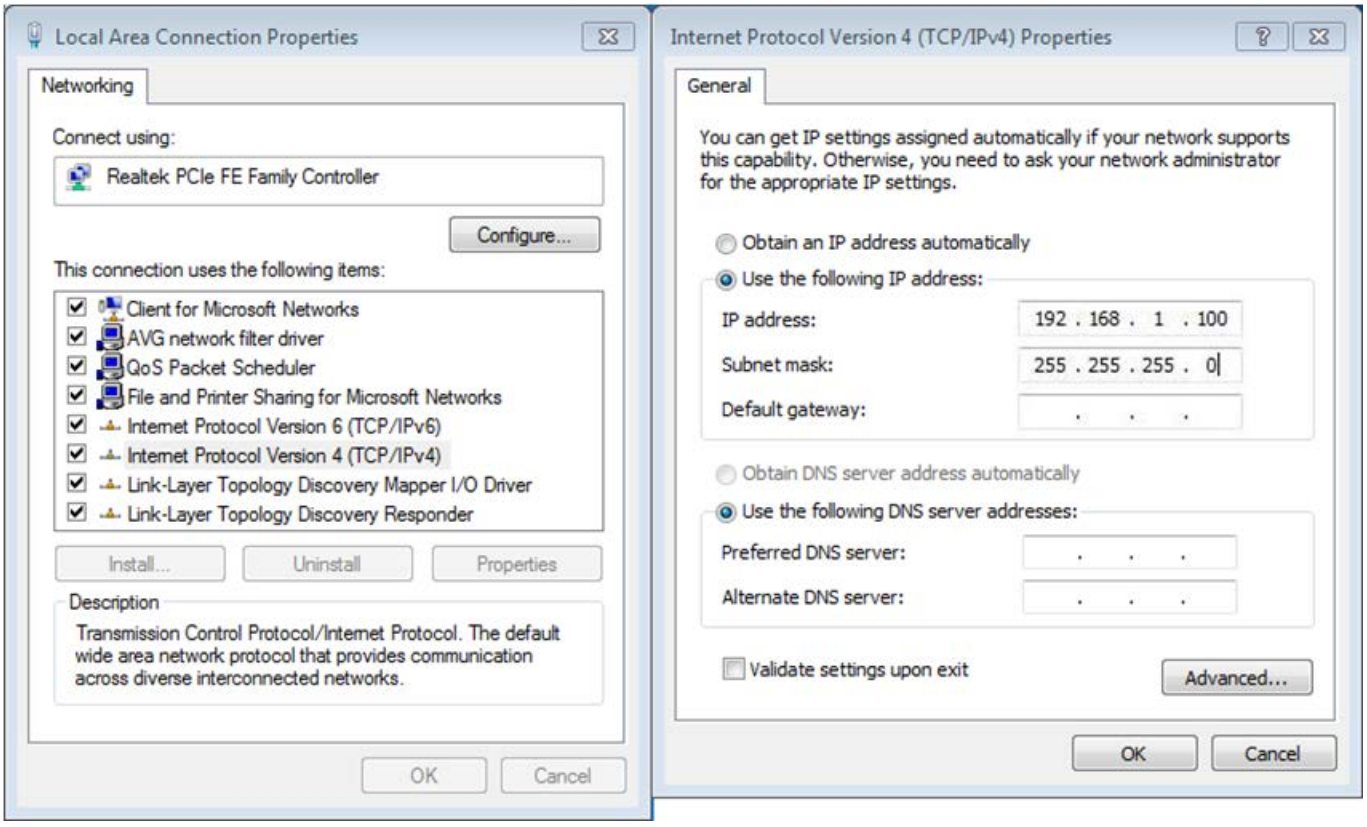
1) The encryption method must be the same as that of both sites if configured.
2) Both sites should be Line-of-Sight.
3) For the short distance connection less than 1km, please reduce the "Transmit power" of both sites.
4) For the long distance connection over 1km, please adjust the "Transmit Distance" to the actual distance or double of the actual distance.

Q2: How to set up the WDS Connection

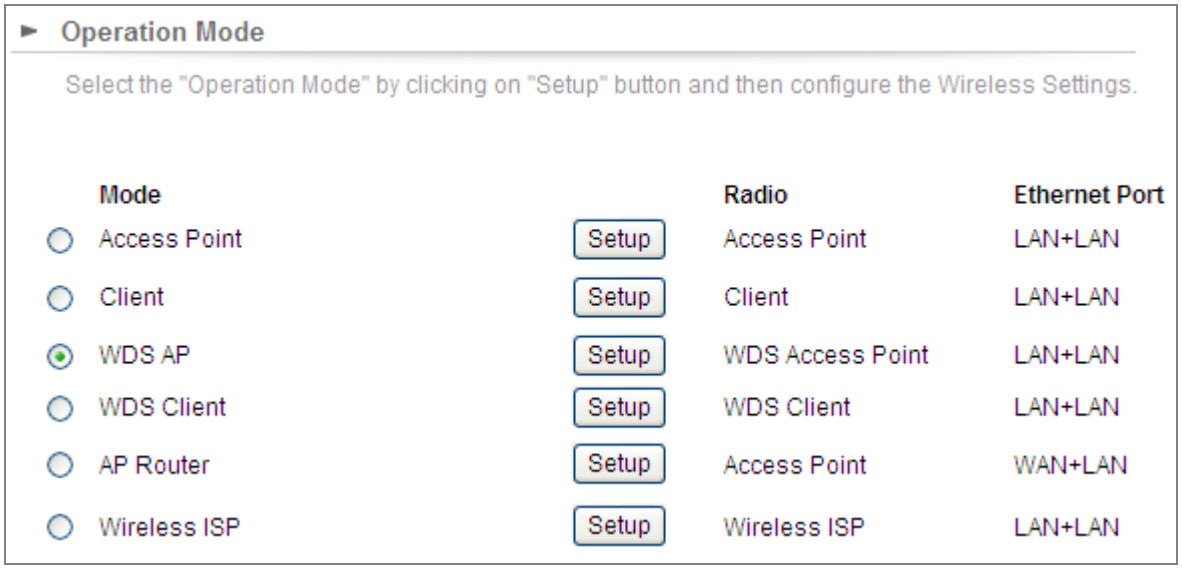
Topology:



Step 1. Use static IP in the PCs that are connected with WMC251-1 (Site-1) and WMC251-2 (Site-2). In this case, Site-1 is "**192.168.0.100**", and Site-2 is "**192.168.1.200**".



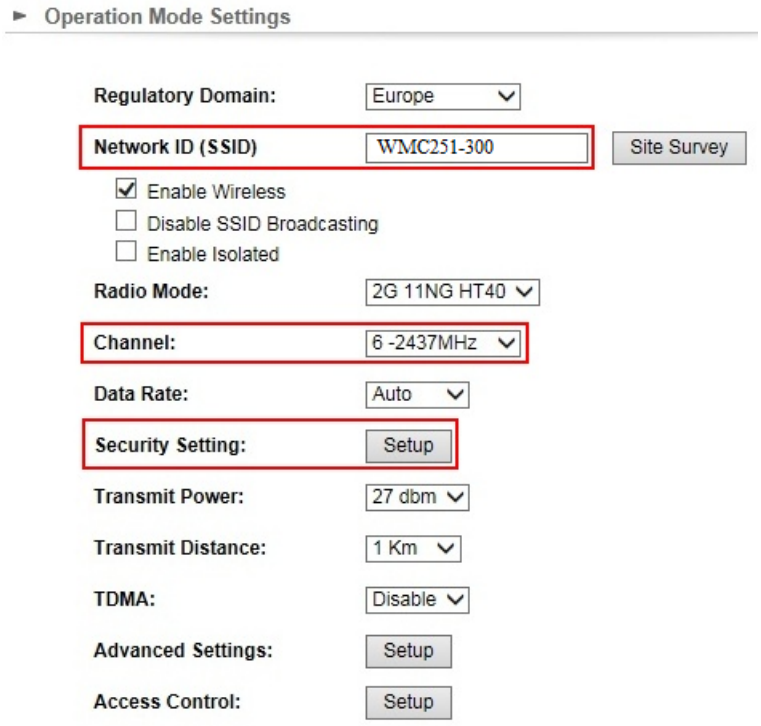
Step 2. In AP-1, go to "**Operation Mode**" to configure it **Access Point** Mode.

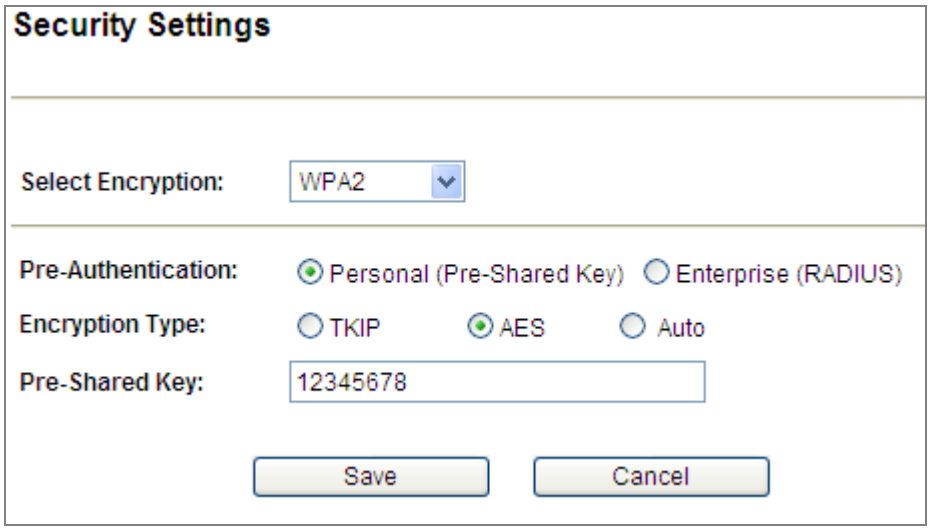


Step 3. Click "**Setup**" to configure the following parameters and then click **Save & Restart** to save the settings.

4) **Network ID (SSID)**: set to a unique value
5) **Channel**: set to a fixed one
6) **Security Setting**: strongly suggested to configure it.

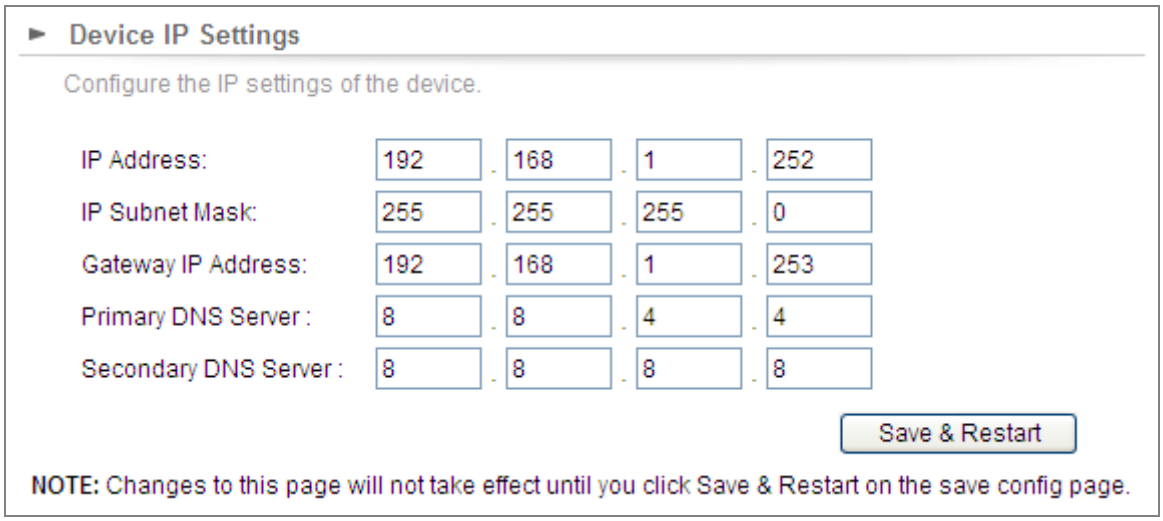
   In this case, we configure it to WPA2-PSK, AES



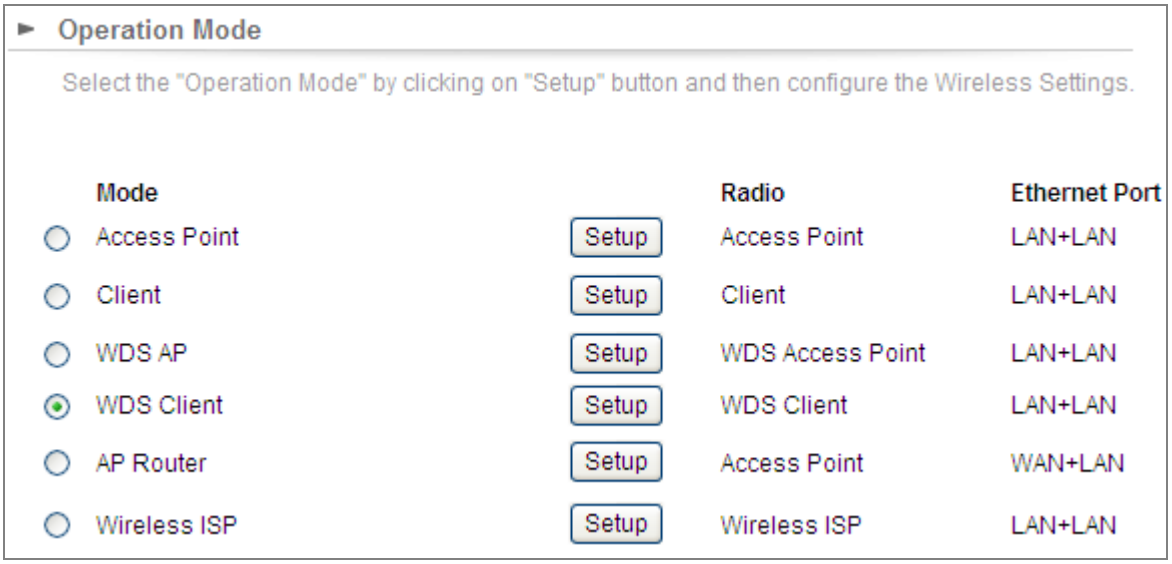


Step 4. In AP-2, modify the default IP to the same IP range but different from AP-1.

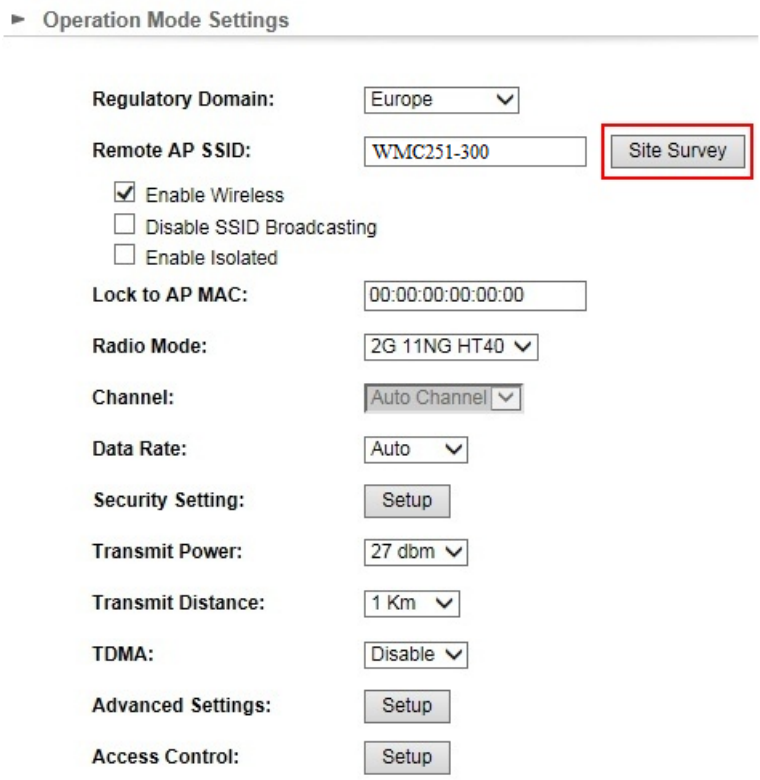
In this case, the IP is changed to **192.168.1.252**.



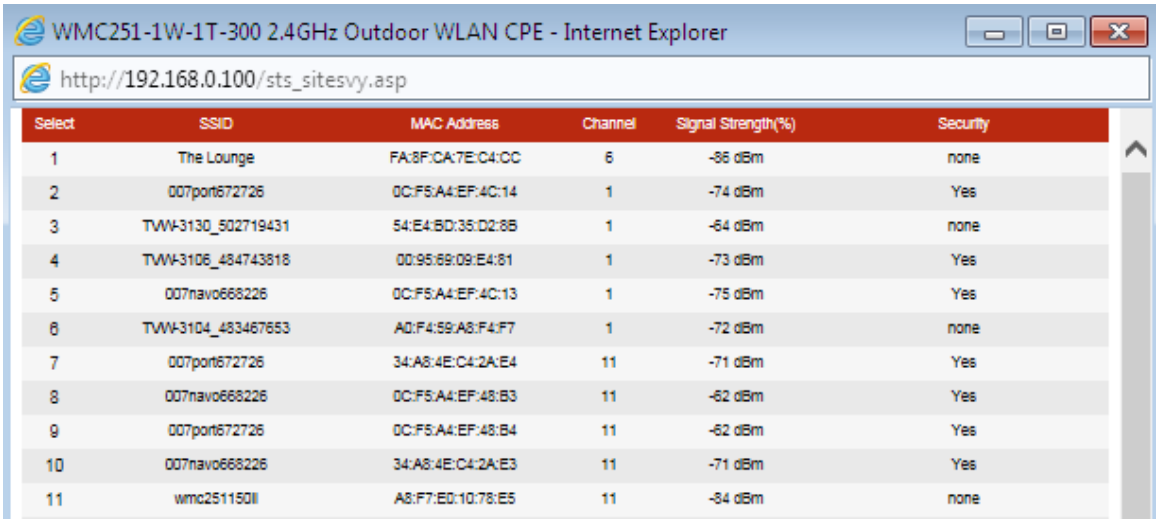
Step 5. In AP-2, configure it in "**Client**" mode and click "**Setup**".



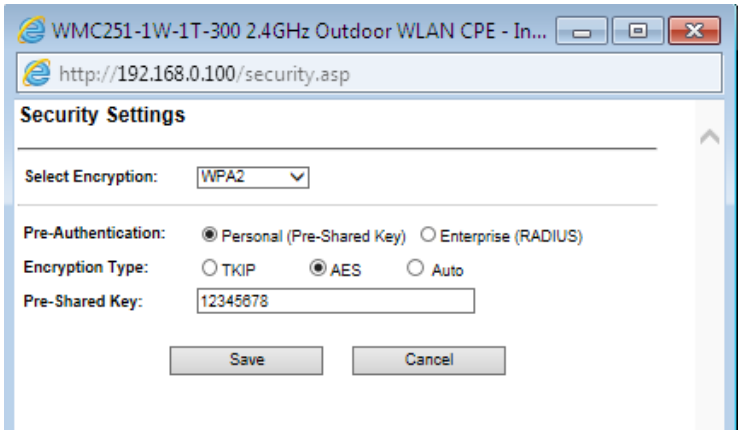
Step 6. Click “**Setup**” and then click **Site Survey** to find AP-1.



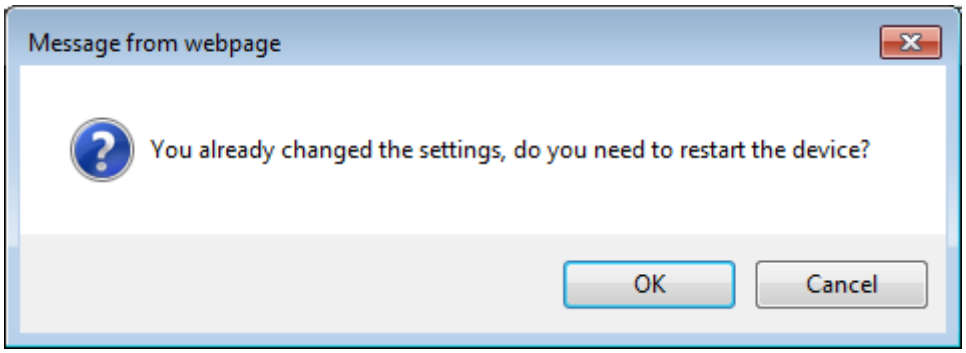
Step 7. Select AP-1 from the list.



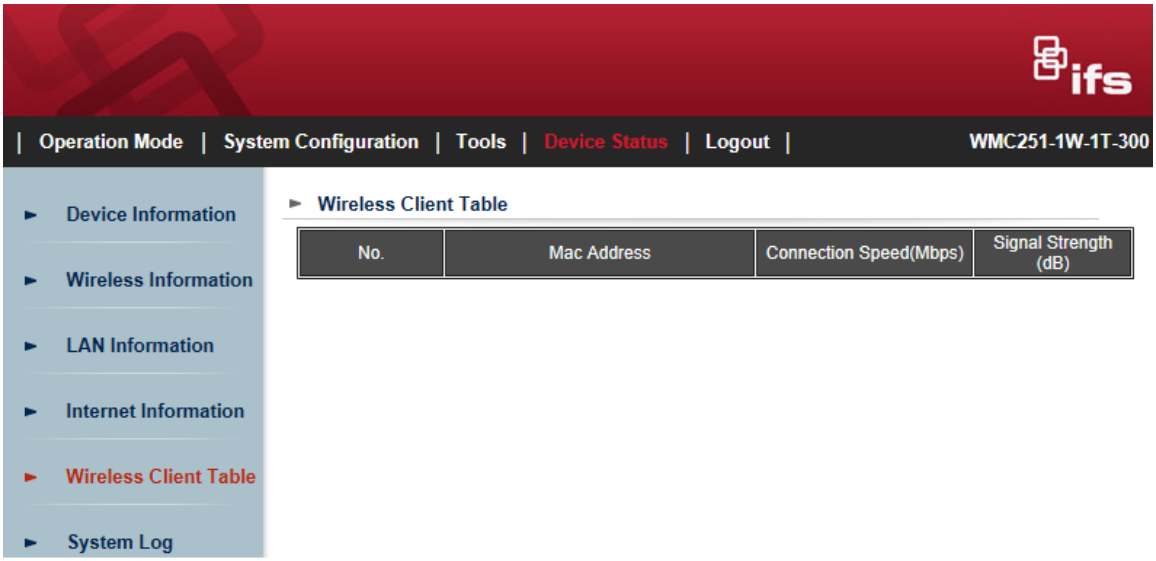
Step 8. Click “**SET SECURITY**” to configure the Pre-Shared Key and then click “**Save**” to close the window.



Step 9. Click “OK” and click “**Save & Restart**” to apply the setting.

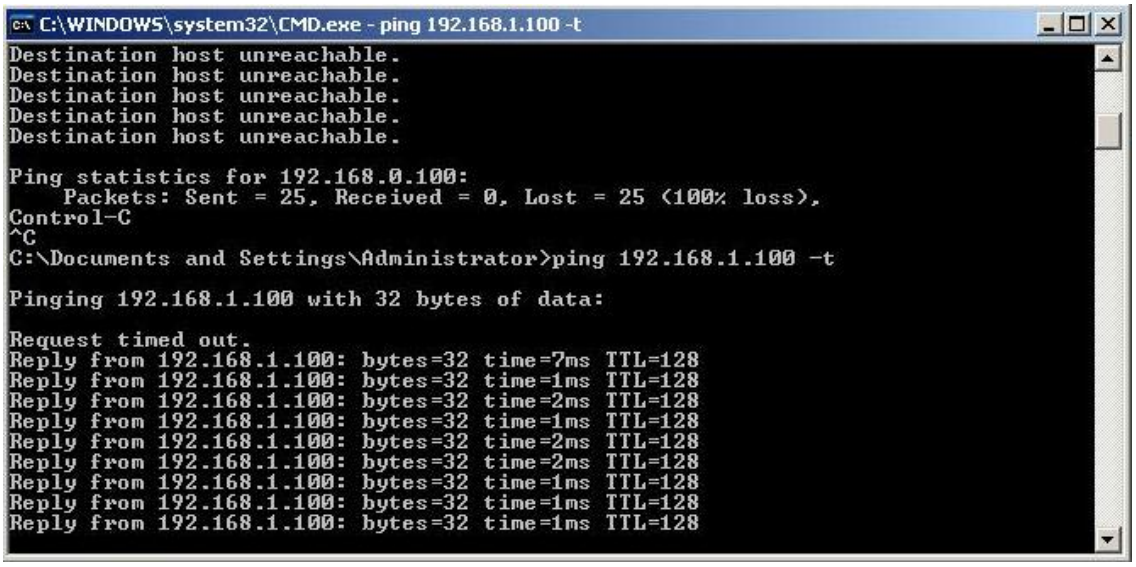


Step 10. In AP-1, go to “**Device Status-> Wireless Client Table**” to check whether AP-2 should be in the list.



Step 11. Use command line tool to ping each other to ensure the link is successfully established.

From Site-1, ping 192.168.1.200; and in Site-2, ping 192.168.1.100.



The attention of the following hints should be paid:

1) The encryption method must be the same as that of both sites if configured.
2) Both sites should be Line-of-Sight.
3) For the short distance connection less than 1km, please reduce the "Transmit power" of both sites.
4) For the long distance connection over 1km, please adjust the "Transmit Distance" to the actual distance or double of the actual distance.

EC Declaration of Conformity

English	Hereby, **IFS, -** declares that this **300Mbps 802.11n Wireless Outdoor CPE** is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.	**Lietuviškai**	Šiuo **IFS, -,**, skelbia, kad **300Mbps 802.11n Wireless Outdoor CPE** tenkina visus svarbiausius 1999/5/EC direktyvos reikalavimus ir kitas svarbias nuostatas.
Česky	Společnost **IFS, -,** tímto prohlašuje, že tato **300Mbps 802.11n Wireless Outdoor CPE** splňuje základní požadavky a další příslušná ustanovení směrnice 1999/5/EC.	**Magyar**	A gyártó **IFS, -**, kijelenti, hogy ez a **300Mbps 802.11n Wireless Outdoor CPE** megfelel az 1999/5/EK irányelv alapkövetelményeinek és a kapcsolódó rendelkezéseknek.
Dansk	**IFS, -,** erklærer herved, at følgende udstyr **300Mbps 802.11n Wireless Outdoor CPE** overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF	**Malti**	Hawnhekk, **IFS, -,** jiddikjara li dan **300Mbps 802.11n Wireless Outdoor CPE** jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC
Deutsch	Hiermit erklärt **IFS, -,** dass sich dieses Gerät **300Mbps 802.11n Wireless Outdoor CPE** in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi)	**Nederlands**	Hierbij verklaart , **IFS, - Technology orporation,** dat **300Mbps 802.11n Wireless Outdoor CPE** in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG
Eestikeeles	Käesolevaga kinnitab **IFS, -,** et see **300Mbps 802.11n Wireless Outdoor CPE** vastab Euroopa Nõukogu direktiivi 1999/5/EC põhinõuetele ja muudele olulistele tingimustele.	**Polski**	Niniejszym firma **IFS, -,** oświadcza, że **300Mbps 802.11n Wireless Outdoor CPE** spełnia wszystkie istotne wymogi i klauzule zawarte w dokumencie „Directive 1999/5/EC".
Ελληνικά	*ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ* , **IFS, -,** *ΔΗΛΩΝΕΙ ΟΤΙ ΑΥΤΟ* **300Mbps 802.11n Wireless Outdoor CPE***ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ*	**Português**	**IFS, -**, declara que este **300Mbps 802.11n Wireless Outdoor CPE** está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Español	Por medio de la presente, **IFS, -,** declara que **300Mbps 802.11n Wireless Outdoor CPE** cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE	**Slovensky**	Výrobca **IFS, -,** týmto deklaruje, že táto **300Mbps 802.11n Wireless Outdoor CPE** je v súlade so základnými požiadavkami a ďalšími relevantnými predpismi smernice 1999/5/EC.
Français	Par la présente, **IFS, -,** déclare que les appareils du **300Mbps 802.11n Wireless Outdoor CPE** sont conformes aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE	**Slovensko**	**IFS, -**, **s tem potrjuje,** da je ta **300Mbps 802.11n Wireless Outdoor CPE** skladen/a z osnovnimi zahtevami in ustreznimi določili Direktive 1999/5/EC.
Italiano	Con la presente , **IFS, -,** dichiara che questo **300Mbps 802.11n Wireless Outdoor CPE** è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.	**Suomi**	**IFS, -,** vakuuttaa täten että **300Mbps 802.11n Wireless Outdoor CPE** tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Latviski	Ar šo **IFS, -,** apliecina, ka šī **300Mbps 802.11n Wireless Outdoor CPE** atbilst Direktīvas 1999/5/EK pamatprasībām un citiem atbilstošiem noteikumiem.	**Svenska**	Härmed intygar, **IFS, -,** att denna **300Mbps 802.11n Wireless Outdoor CPE** står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.