User Manual

(WAB-5010)

V1.0

Digital Data Communications GmbH, Germany.

http://www.level1.com

Default Settings

IP Address	192.168.188.253	
User name	user	Admin
Password	admin	root

Attention:

Check box contents:

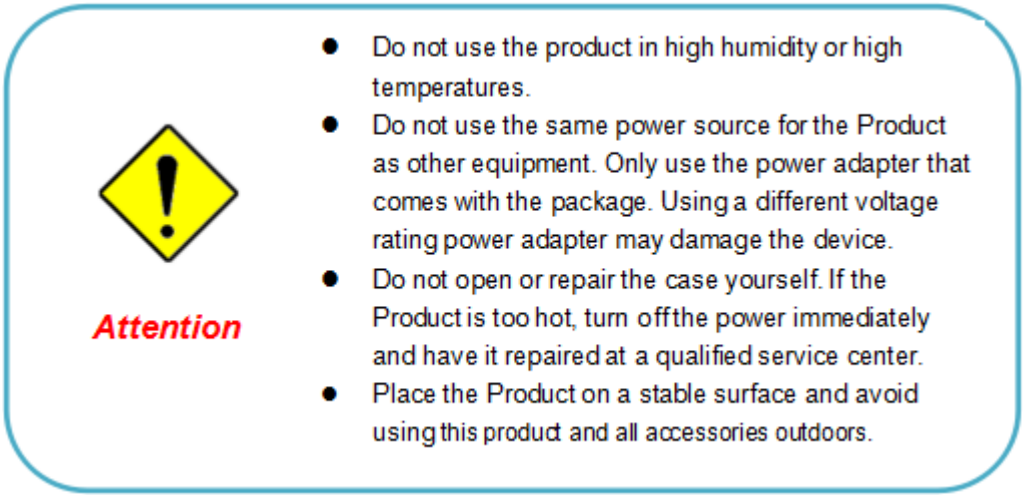
1.Pole Mounting Hose Clamp (40-64mm)

2.RJ45 Network Cable

3.Resource CD (User Manual, QIG)

4.Quick Installation Guide

Warning:



Contents

Chapter 1 Hardware and Operation mode Instruction

1.1 Interface Instruction:

▲ P1 Product Interface

Marked number	LED/Button/Interface	Description
1	LED display Function Button	Select modify location
2	LED display	show AP/Client operation mode, Channels, IP address and RF Power .(If not operate this LED display in 10 mins, the screen will be automatically black screen)
3	LED display Selection Button	Can select the Increase or decrease value ; View Channels, IP address and Signal strength status.
4	DC	12V/1A DC input injector (Power adapter unit is to be ordered separately)
5	RST(Reset to Default)	With the AP powered on, press the Reset button for 10 seconds until the Signal Strength LED blink faster than ever. The AP will restart itself and reset the device to factory default settings.
6	WAN/POE port (10/100Mbps RJ45 port)	The WAN/POE port is used to connect to network devices, such as a switch OR POE adapter to power the device
7	LAN port (10/100Mbps RJ45 port)	The LAN port is used to connect to network devices, such as a switch or PC / NB

1.2 LED light instruction:

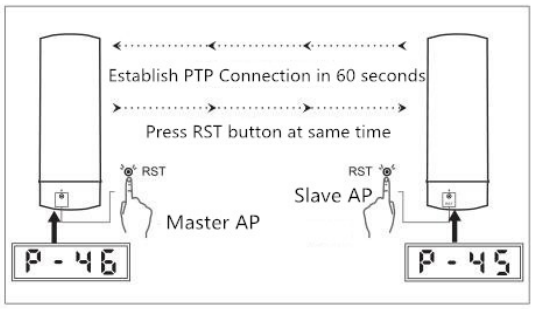
LED	Color	Status	Description
5G	Green	Blinking	On 5.8G WIFI is on
LAN	Green	On	On LAN is connected
WAN	Green	On	On WAN is connected
SYS	Green	Solow Blinking	WDS Mode, Master AP
	Green	On	WDS Mode Client / Slave AP
	Green	Fast Blinking	Reset to Defaults

1.3 LED Display instruction:

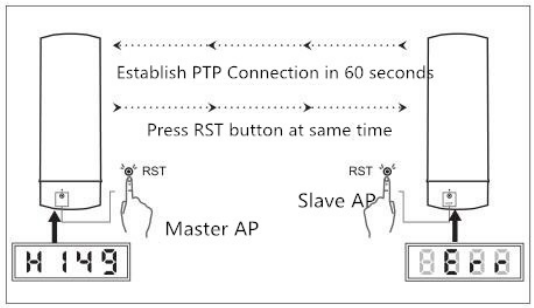
LED Display Content	Content Instruction	Remark
	H: Hotspot, WDS mode, Master AP 44: Channel is 44	Show the channel of AP and Client; Pls note, the channel should be same of AP and Client. If not operate this LED display in 10 mins, the screen will be automatically black screen
	C: Client, WDS Mode, Slave AP 44: Channel is 44	
	A: IP Address 253: IP address is 192.168.188.253	Show AP or Client's IP address; Remark: In AP and Clients, there is one device with IP address: 192.168.188.253; Other device with IP of 192.168.188.X, to avoid the IP address conflict.
	P: RF Power -42: The signal Strength is -42dBm	The signal strength is different if distance different.

1st: In default, all device is in Client(Slave AP) Mode, the IP address is 192.168.188.253;
So, please setup one device when bridge the two outdoor WAB-5010 together.
In 5G Outdoor WAB-5010, the default channel is 44 ; Picture showed as follow:

2nd: Configure the Point to Point connection by press reset button, then waiting for the PTP connection, No need to setup client side:



Connection Success



Connection Fail

Press mater AP and slave AP's reset button at same time to establish the point to point connection;

When LED display show  , mean is in connecting, should be connected in 60 seconds;

When PTP connection success, the LED display will show WAB-5010's signal strength  ;

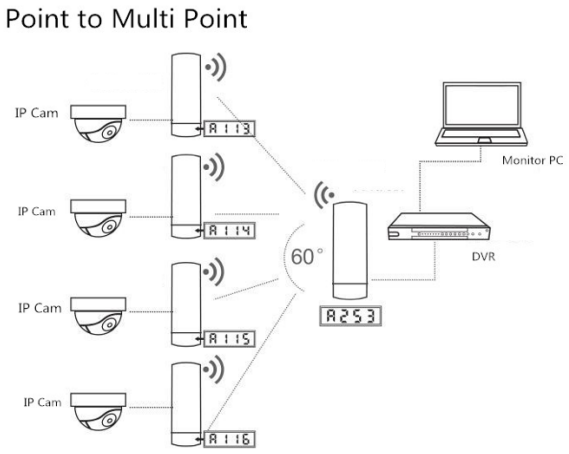
We can press "S"button to view WAB-5010's IP address, channel, signal strength; If connection fail, the LED display show  , will back to default page after 10 seconds.

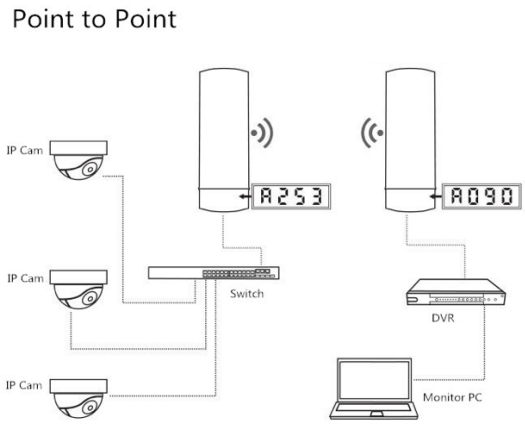
3rd: Firmware Status
When PTP connection success, can view the connection status in WEB interface, picture showed as follow:

CHANEL: 36

Device List	Description	MAC Address	IP Address	Signal	Status	Uptime
DEV0	N/A	44:D1:FA:21:A3:7E	192.168.188.253	-53 dBm	on-line	00:6:37
DEV1	N/A	44:D1:FA:21:68:E9	192.168.188.156	-53 dBm	on-line	00:6:37

4th: The application network topology.

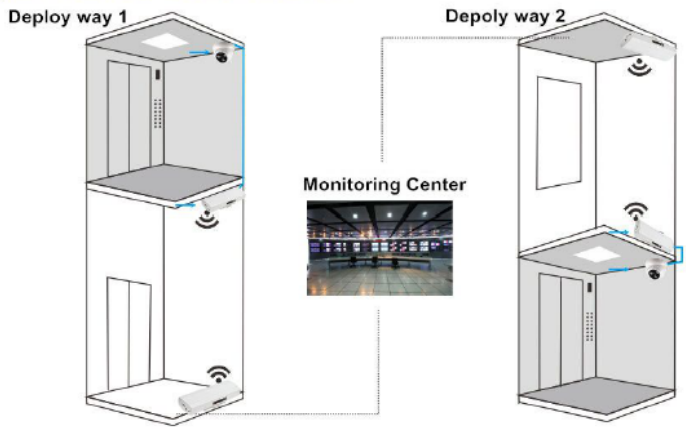




Chapter 2 Working Diagram

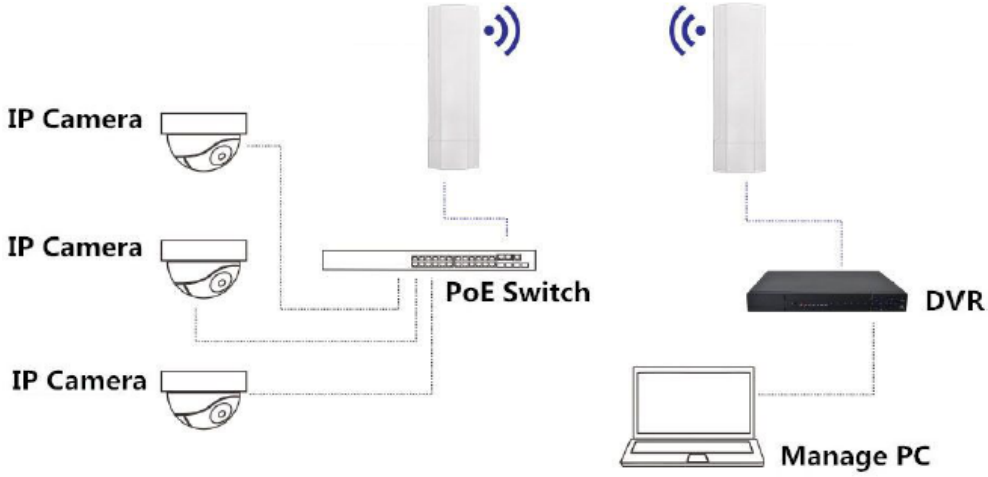
Mostly for Point to Point and Point to multi Point connections, outdoor WAB-5010 work with IP camera for example to show the working diagram:

A. PTP Working Diagram of Outdoor WAB-5010 work in Elevator:



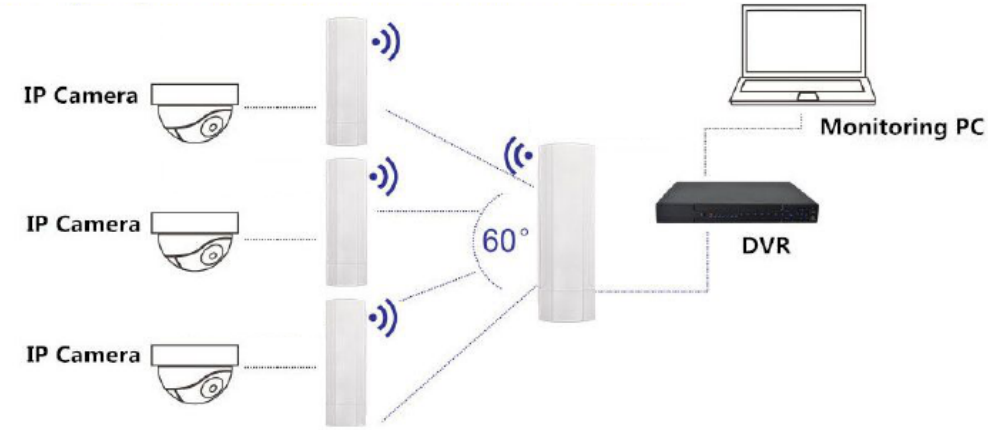
▲ P3: Working diagram

B. PTP Working Diagram of Outdoor WAB-5010 work with Multiple IP Camera:



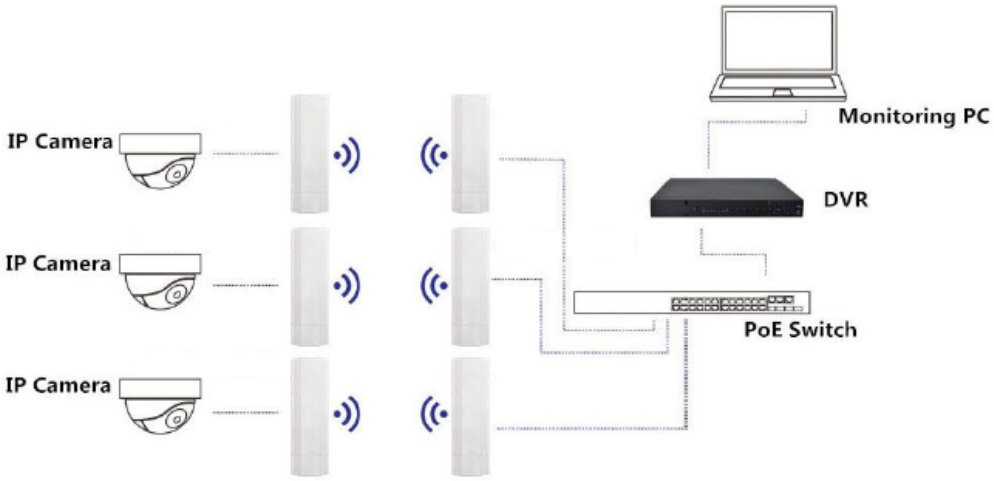
▲ P4: Working diagram

C. PTMP Working Diagram of Outdoor WAB-5010 work with IP Camera:



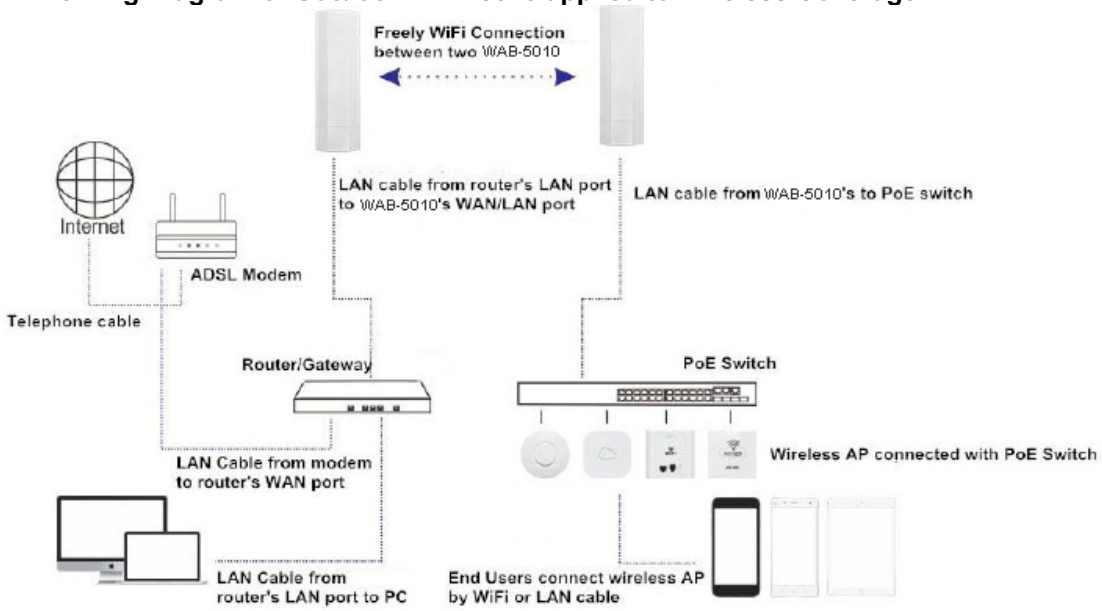
▲ P5: Working diagram

D. PTMP Working Diagram of Outdoor WAB-5010 work with Multiple IP Camera:



▲ P6: Working diagram

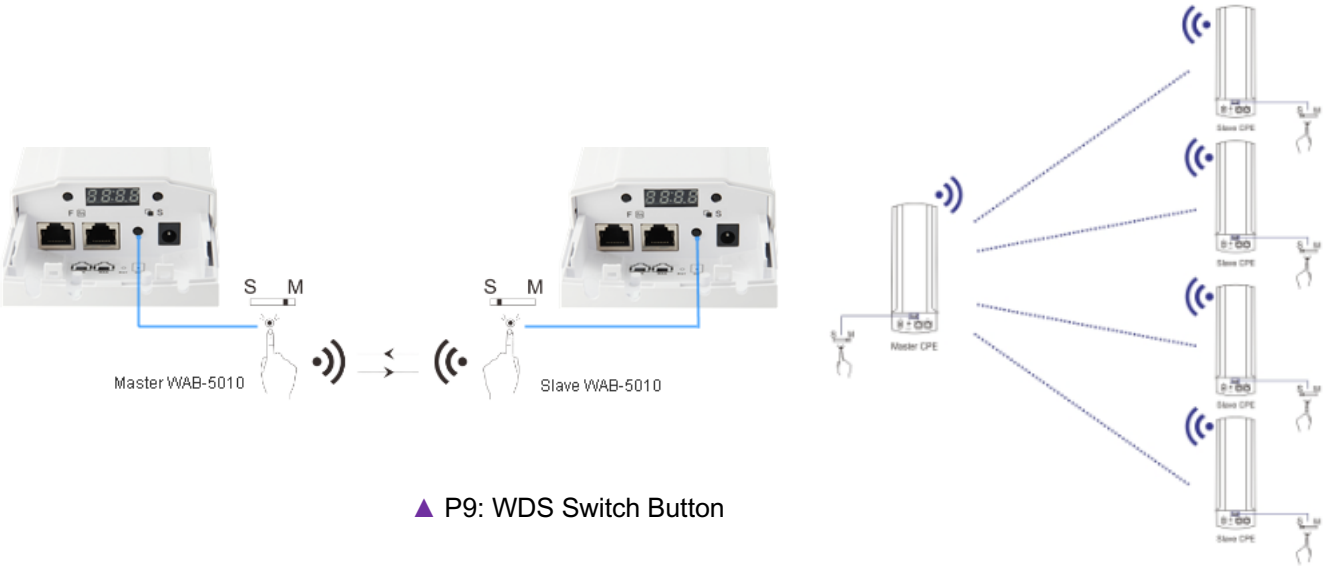
E. PTP Working Diagram of Outdoor WAB-5010 applied to Wireless Coverage:



▲ P7: Working diagram

Chapter 3 WDS Switch Button Configuration

This Outdoor WAB-5010 support Wireless AP, Gateway, WISP, Wireless Bridge, WDS operation mode, effective solution for PTP, PTMP application and outdoor long range wifi coverage application. What's more, there is WDS button on the case, easy to do PTP,PTMP connection by press the WDS button and reset button, no need to access into product GUI.

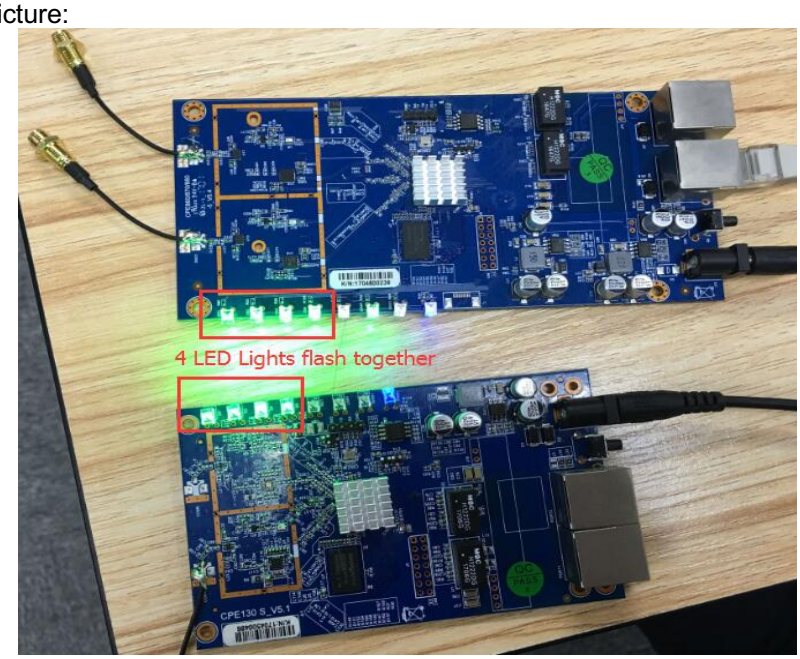


▲ P9: WDS Switch Button

Here we are show how to the connection by press the WDS switch button:
S: Mean Slave AP
M: Mean Master AP
When WDS switch button on M side, mean this outdoor WAB-5010 is a master AP;
When WDS switch button on S side, mean this outdoor WAB-5010 is an slave AP

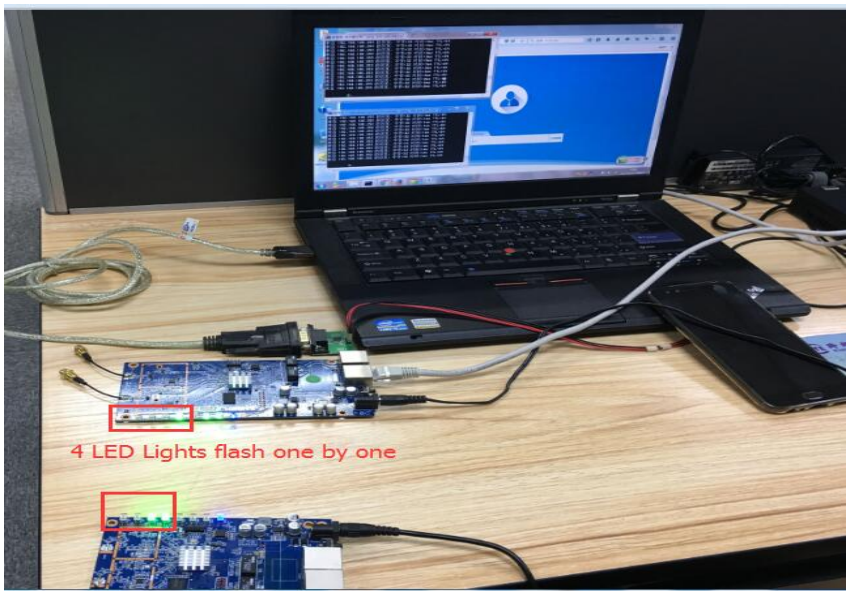
Remark:
The master AP can connect with 1~4 slave AP
The WDS switch button in S side in default
The default IP address of master AP and slave AP is 192.168.288.253.

Operation:
1st : Power on the Master AP and Slave AP;
2nd: Push the WDS switch button to M side on Master AP, Master AP's IP address will change to 192.168.188.252.
3rd: Press the reset button on master AP and Slave AP together in 1 second, then 4 signal LED light will flash together like following picture:



▲ P10: LED Light Status

4th: Wait a while, the slave AP will connect with master AP automatically, then master AP and slave AP LED signal LED lights flash one by one as following picture:



▲ P11: LED Light Status

If there are 2~4 Slave APs, the 4 steps will change to as follow:

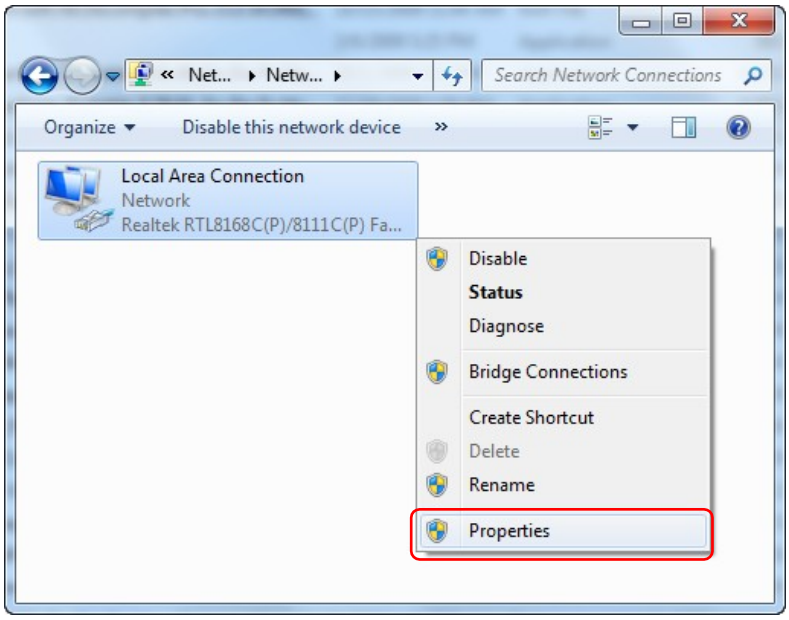
Press the reset button around 1 second on the 2nd slave AP, 3rd slave AP, 4th slave AP, and finish this step in 2 mins, then all slave AP will connect with master AP automatically; The LED lights status is same.

Chapter 4 Login

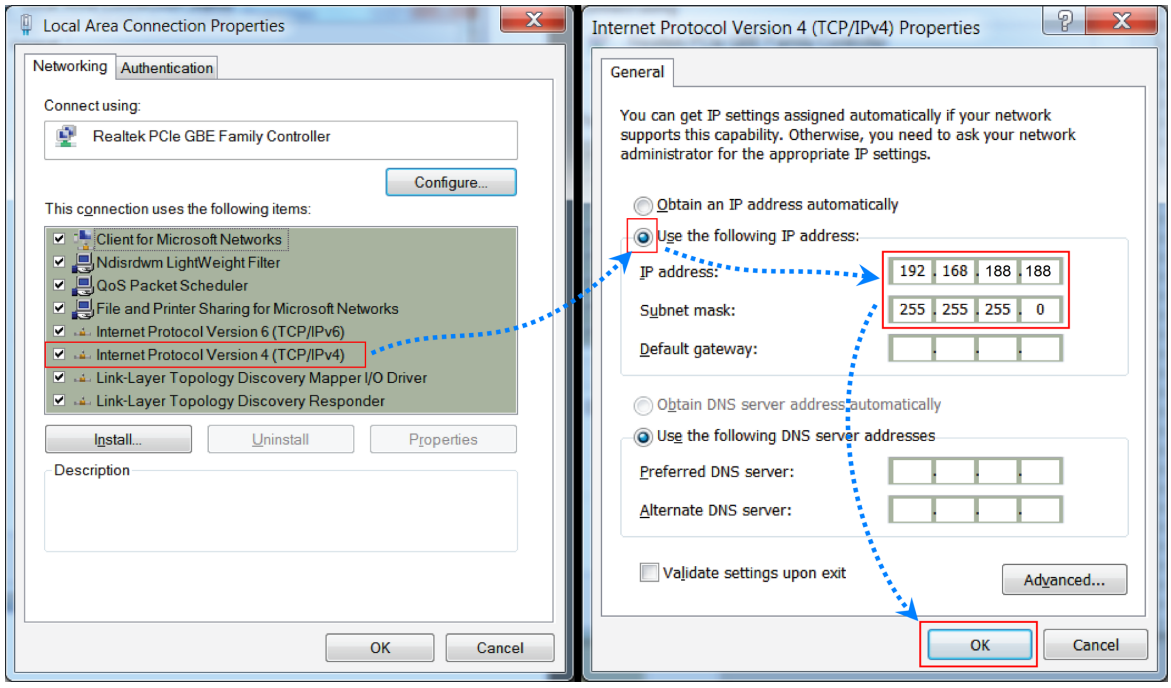
The necessary information about log in is displayed on the sticker of the product, including the URL, User Name and Pass Word

1.Connect the Ceiling AP with computer

2.Configure the PC's local connection IP address as 192.168.188.X (X is number from 2 to 252), subnet mask is 255.255.255.0, follow P1 and P2 to finish.

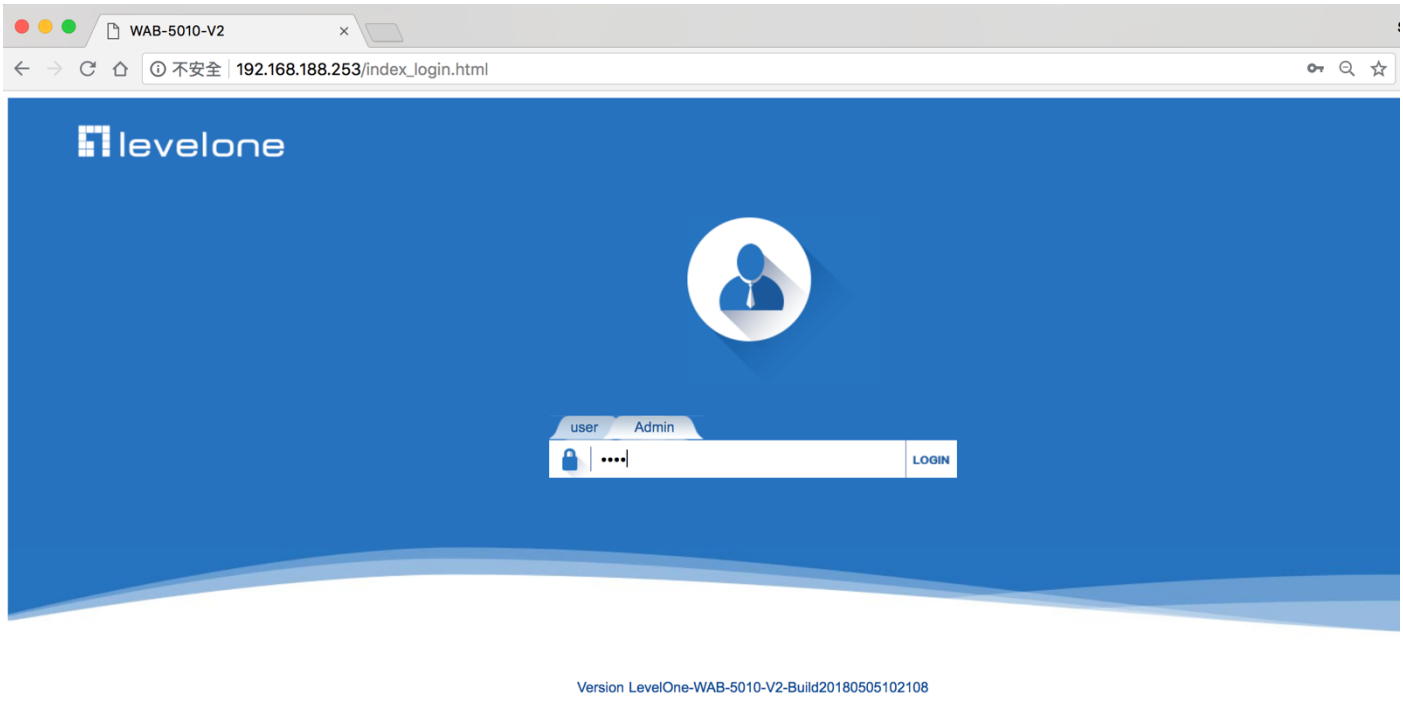


▲ P1 Setting of computer's IP address



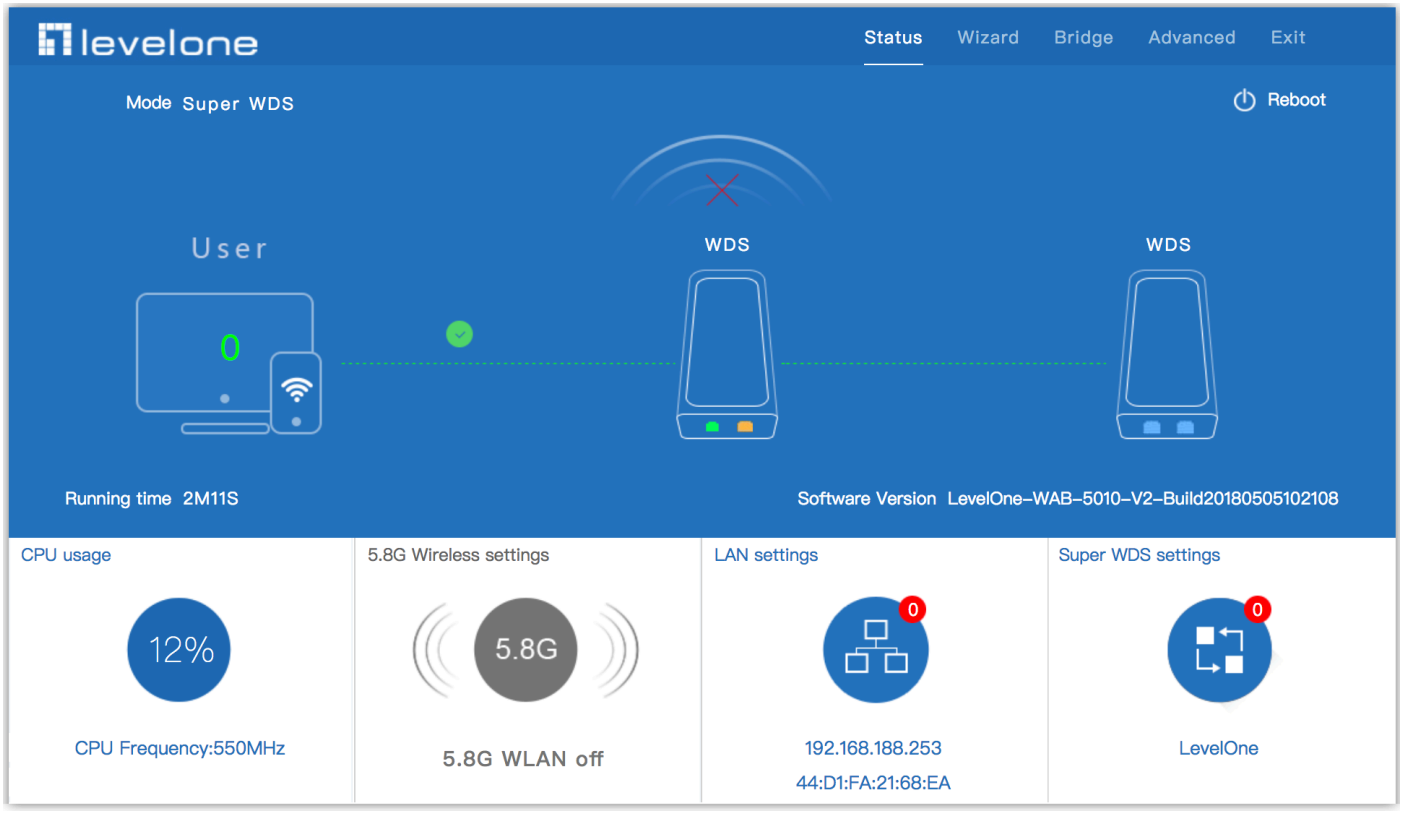
▲ P 2 Setting of computer's IP address

3. Input 192.168.188.253 into browser, then pop up the login page, there are user/Admin login page, input Admin to login the user page; input root to login the admin page.



4.After login, then P4 Device Status will be showed;

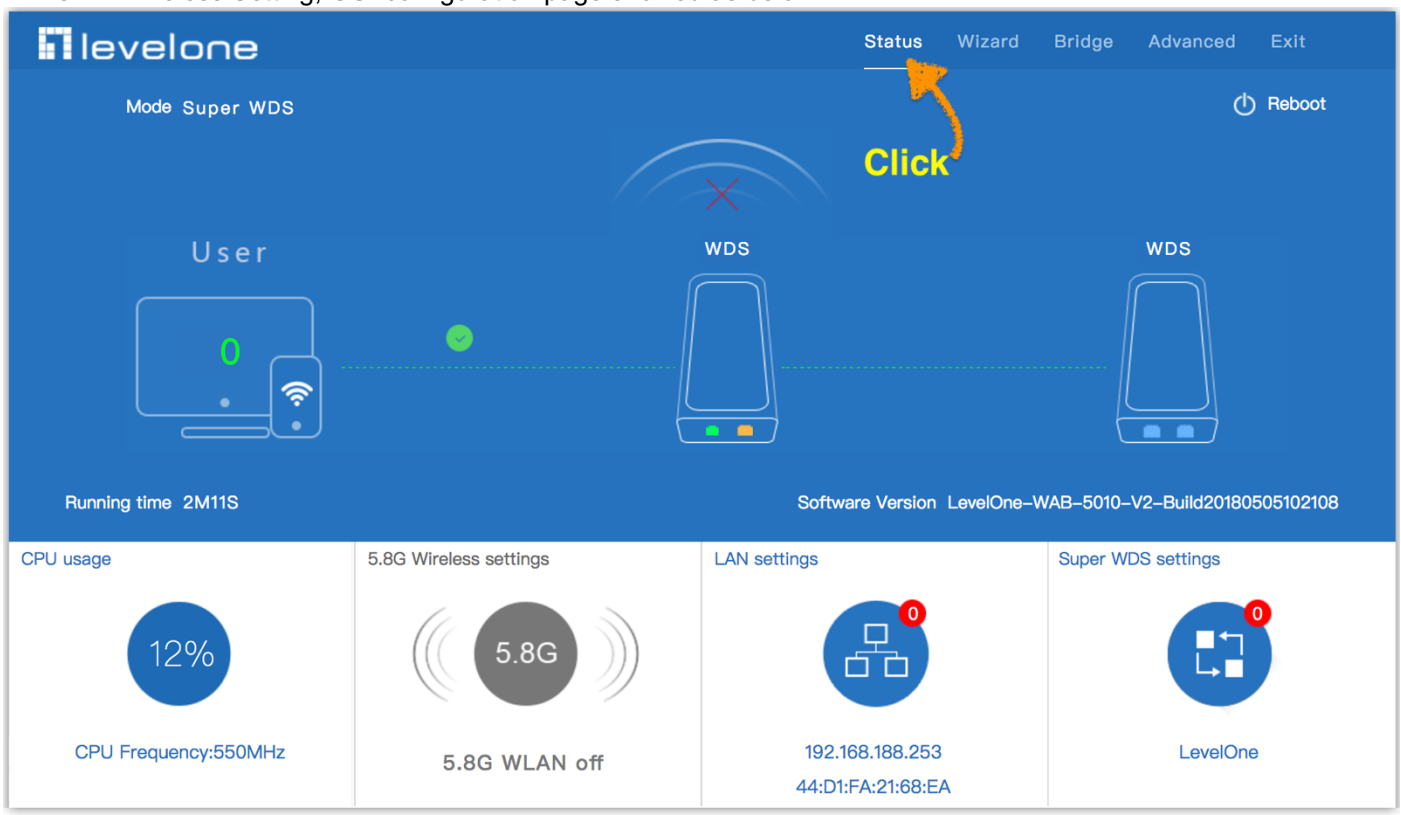
This page will show the Wireless AP's default operation mode, channel, connection status, CPU usage, Wireless settings, LAN Setting, Wireless AP's Location, hardware/firmware version.



Chapter 5 WEB GUI interface Setting

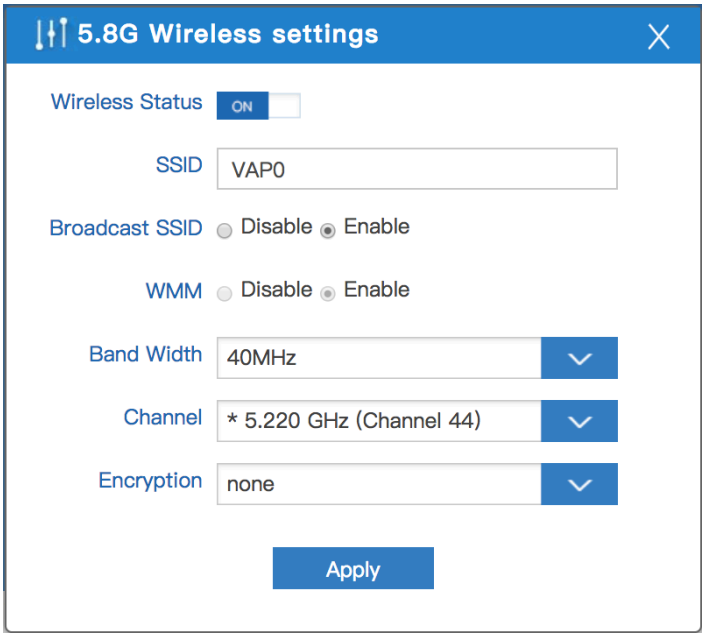
5.1 Status:

1.Then in Wireless Setting, GUI configuration page showed as below



2.Then in Wireless Setting, GUI configuration page showed as below:
User can configure the SSID, password, band width, channel here, then Apply to finish.

3.User can configure the SSID, password, bandwidth, channel in the above picture, then Apply to finish.

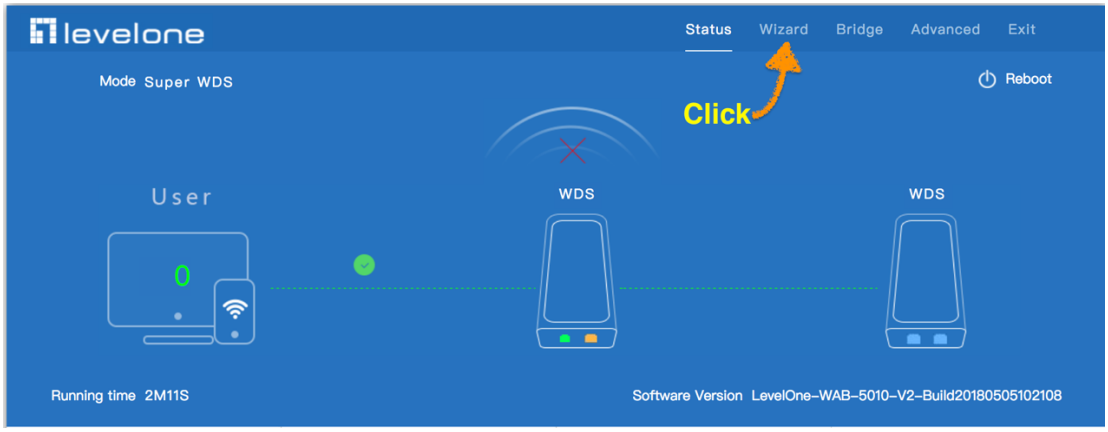


4. LAN Setting can be used in one of the modes depending on your network environment.

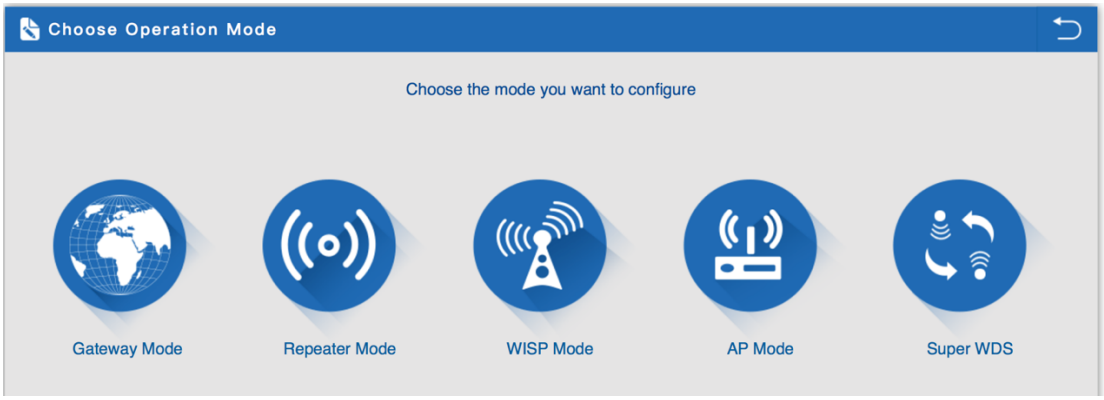
Note : GHCP will only be available in WDS Mode

5.2 Wizard :

1.Click Wizard in Status page, will pop up following page to configure the operation mode and there are explanation for each operation mode for better application.

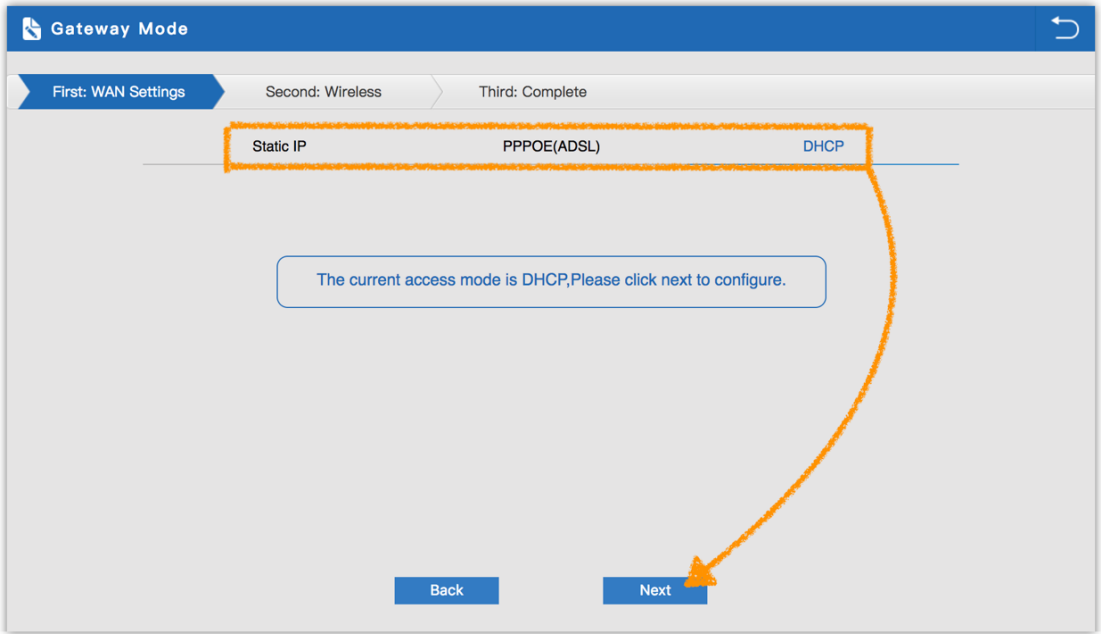


2. In admin login to Wizard, There are Gateway, Repeater, WISP, AP and Super WDS operation mode, Please confirm the operation mode first before configuration starting.Click Wizard in Status page, will pop up following page to configure the operation mode and there are explanation for each operation mode for better application.



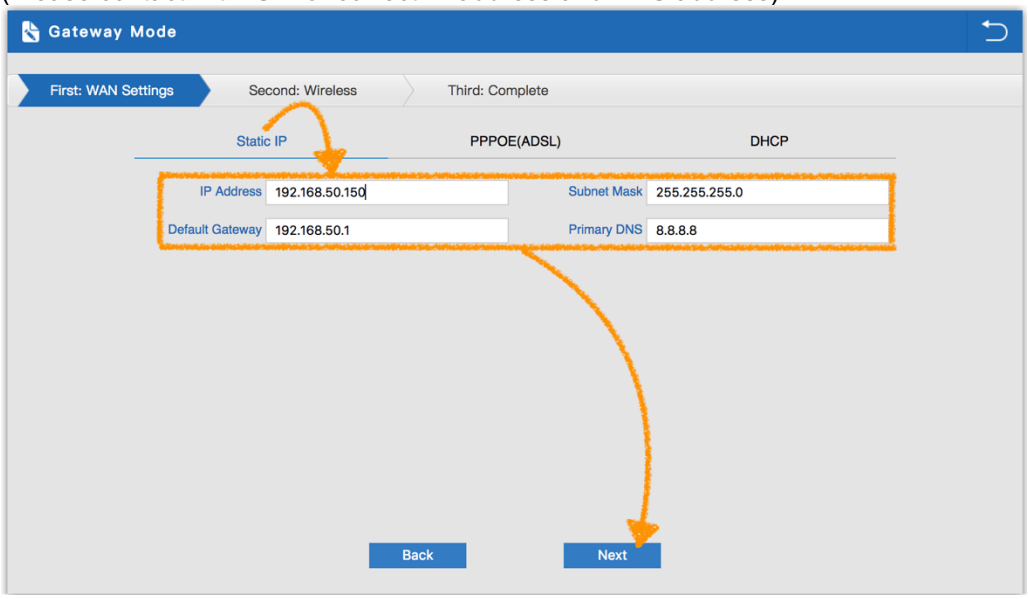
5.2.1 Gateway Mode:

Before Click Gateway mode, confirm your internet will be static IP, PPPoE, or DHCP: Then will pop up following picture after click it, Please choose the right WAN setting mode, then click next to continue.

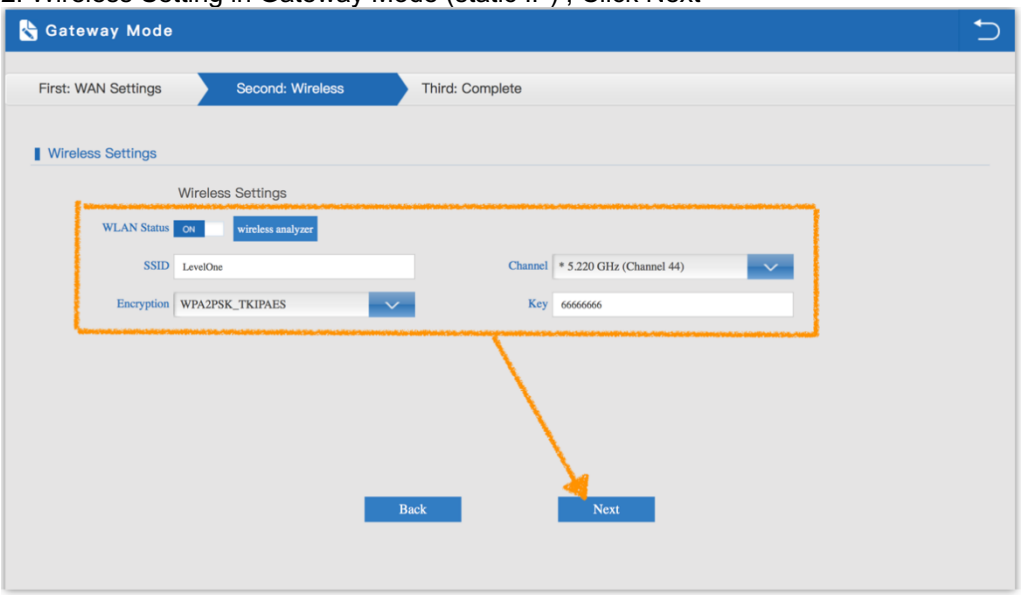


5.2.1.1 Static IP setting in Gateway Mode :

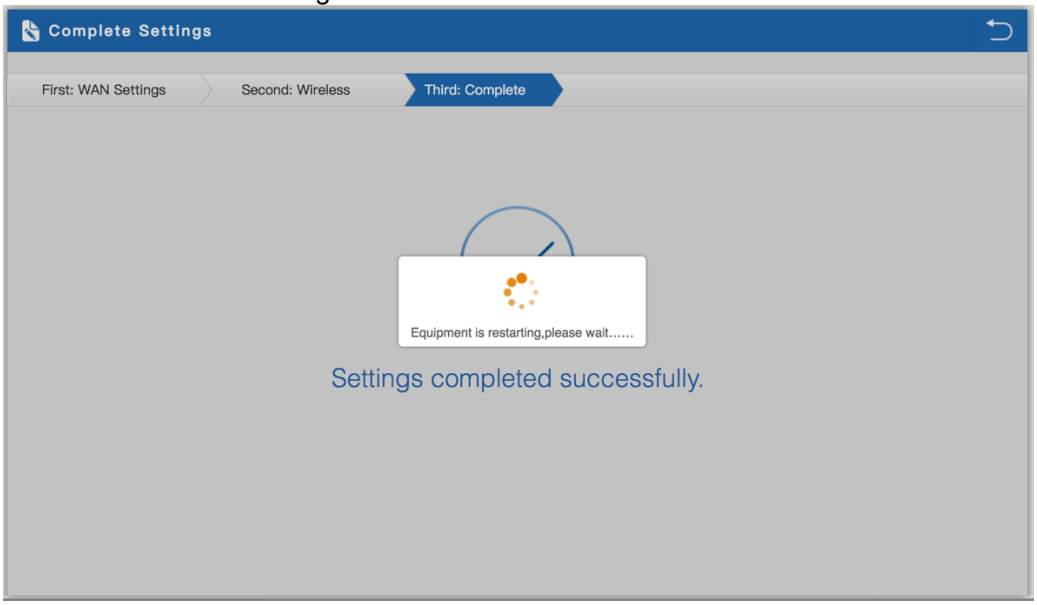
1. Sample Static IP mode setting method, then click next to continue.
(Please contact with ISP for correct IP address and DNS address)



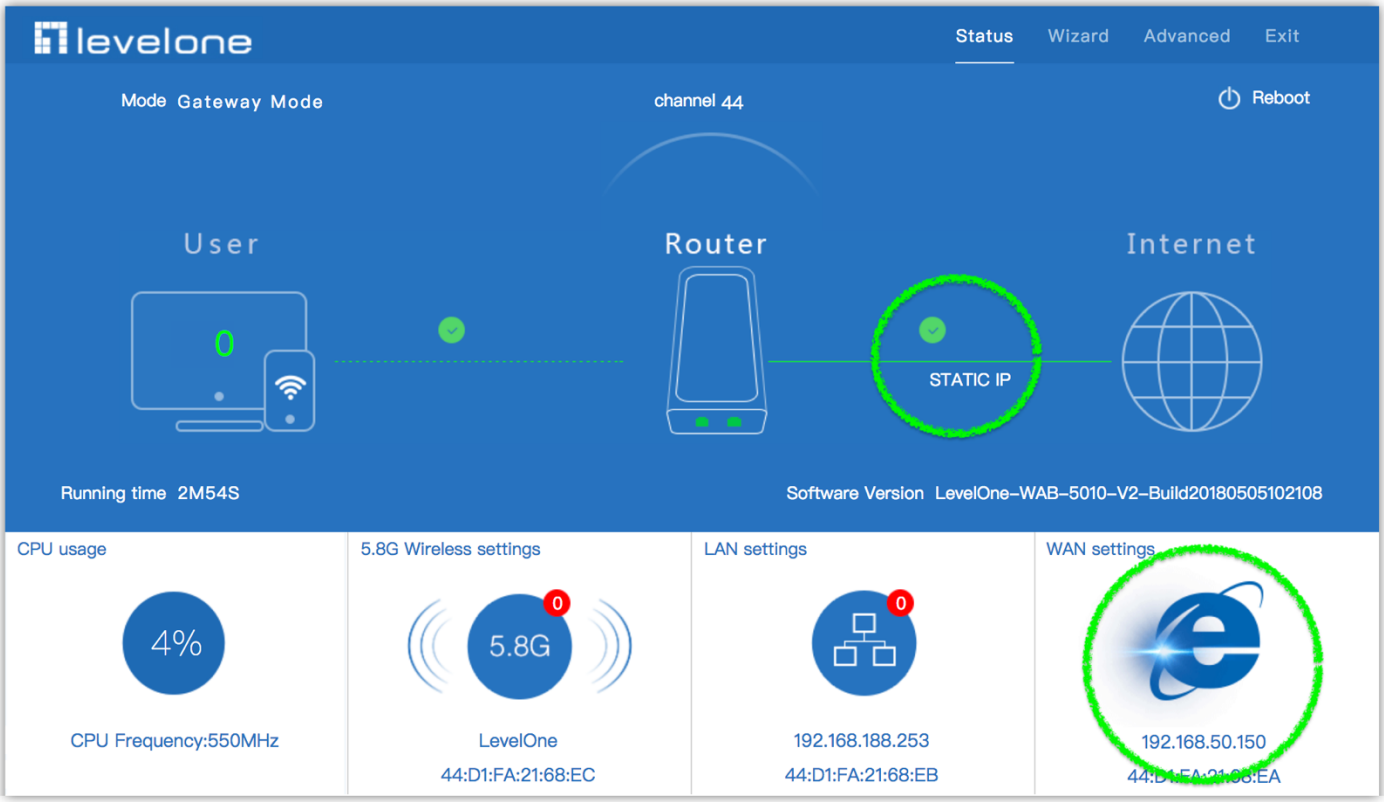
2. Wireless Setting in Gateway Mode (static IP) , Click Next



3. Please wait for the configuration to finish

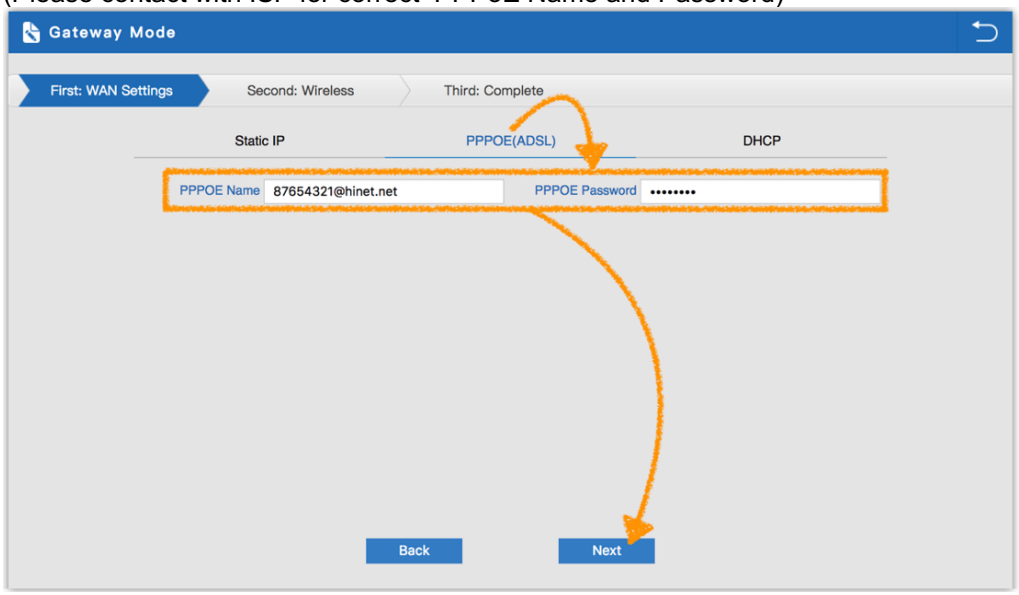


4. Please log in again ,This page will show the connection Static IP status

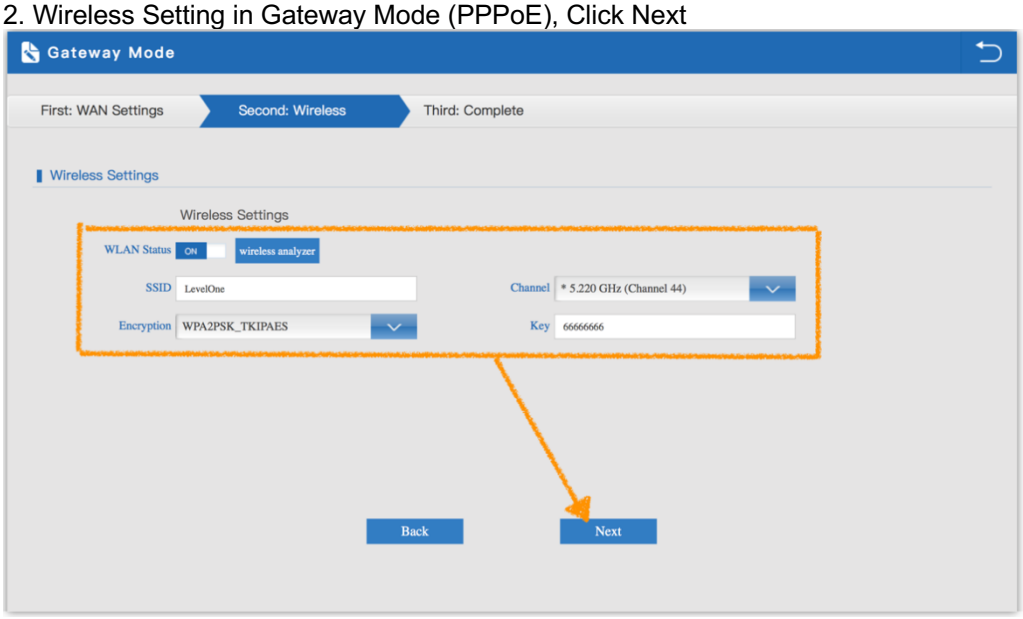


5.2.1.2 PPPoE(ADSL) setting in Gateway Mode :

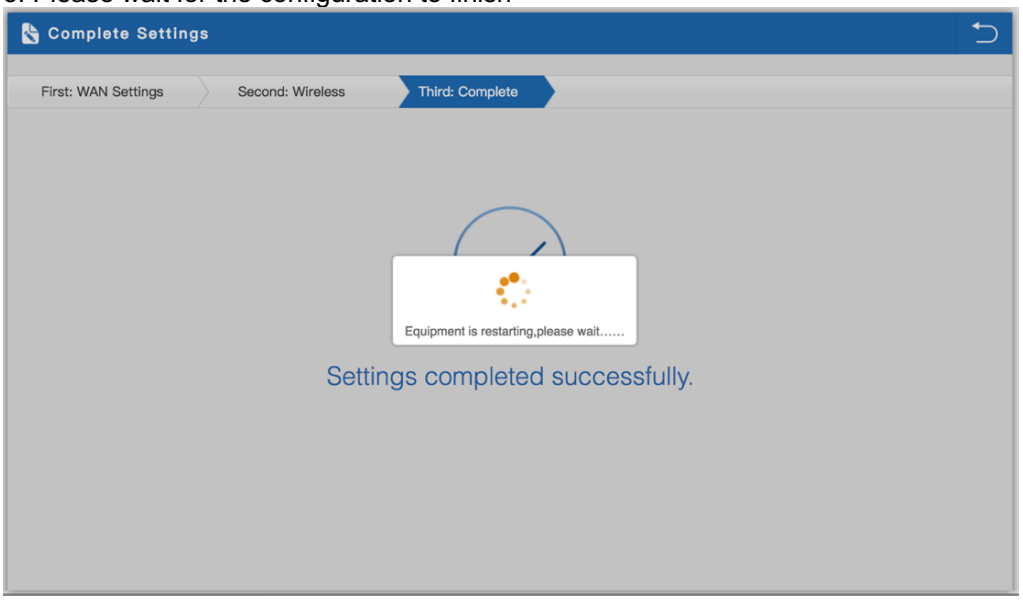
1. Sample PPPoE mode setting method, then click next to continue.
(Please contact with ISP for correct PPPoE Name and Password)



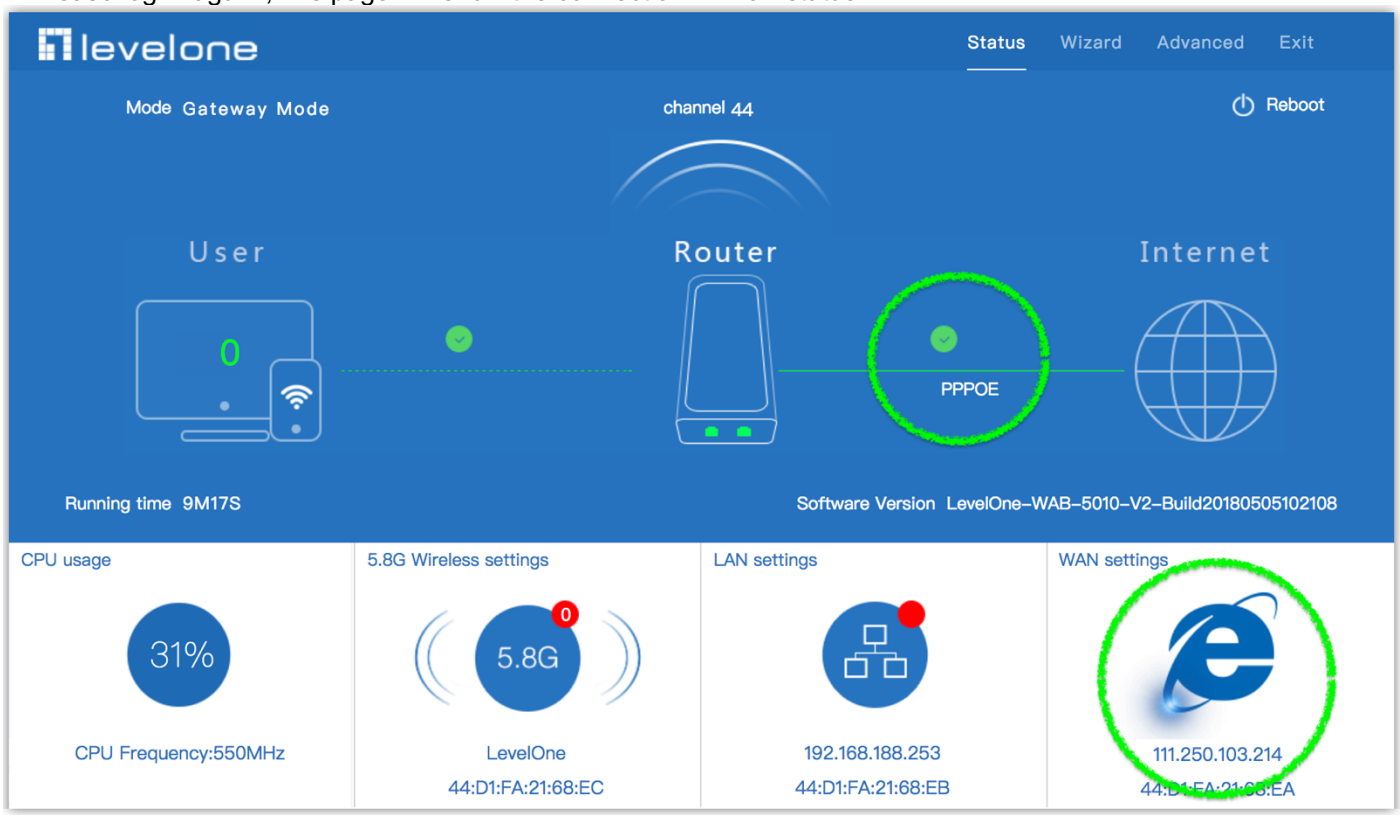
2. Wireless Setting in Gateway Mode (PPPoE), Click Next



3. Please wait for the configuration to finish



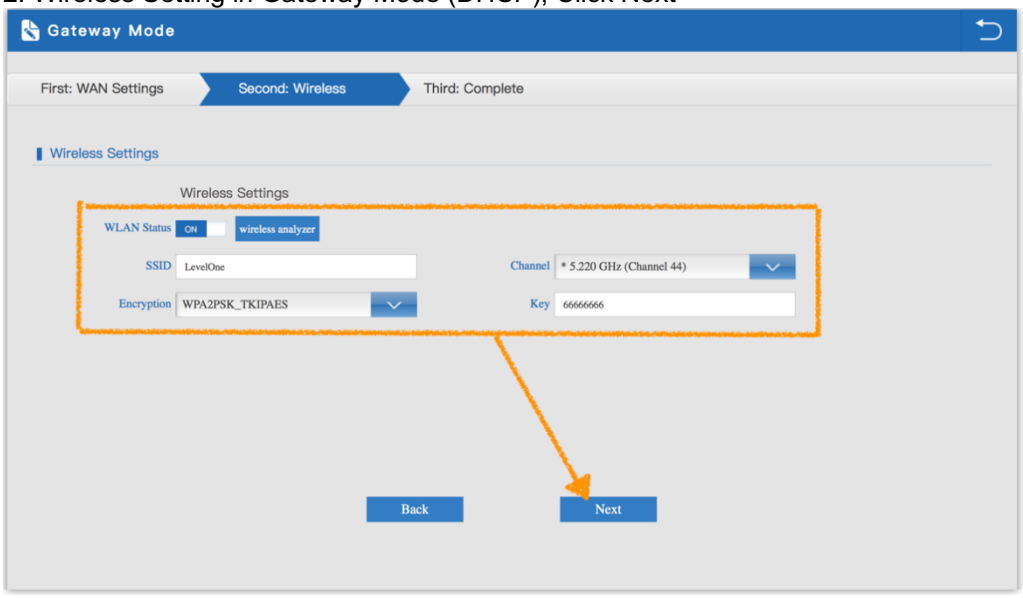
4. Please log in again ,This page will show the connection PPPoE status



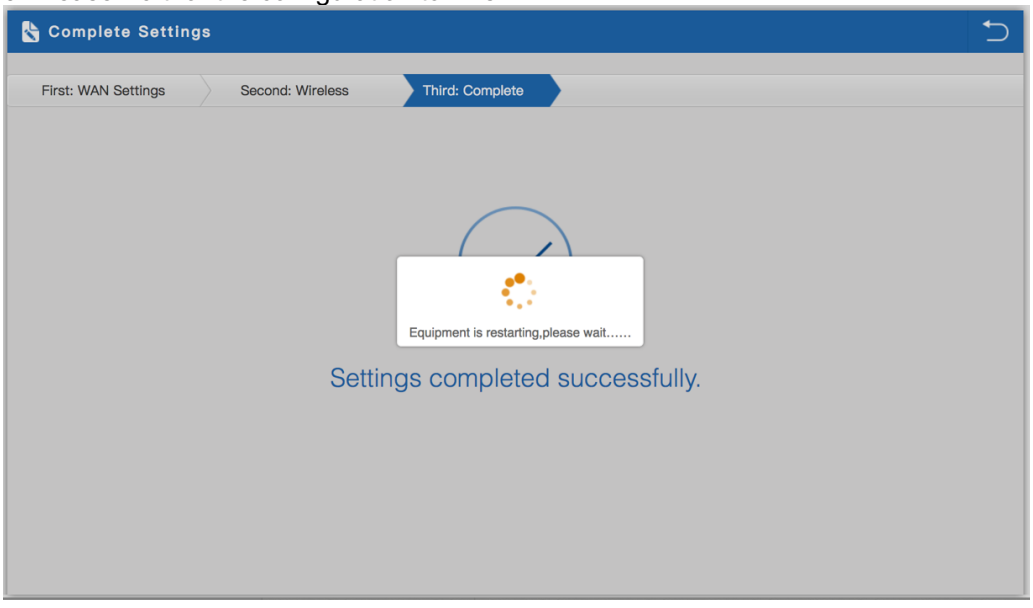
5.2.1.3 DHCP setting in Gateway Mode :

1. Sample DHCP mode setting method, then click next to continue.
(Please contact with ISP for correct IP address and DNS address.)

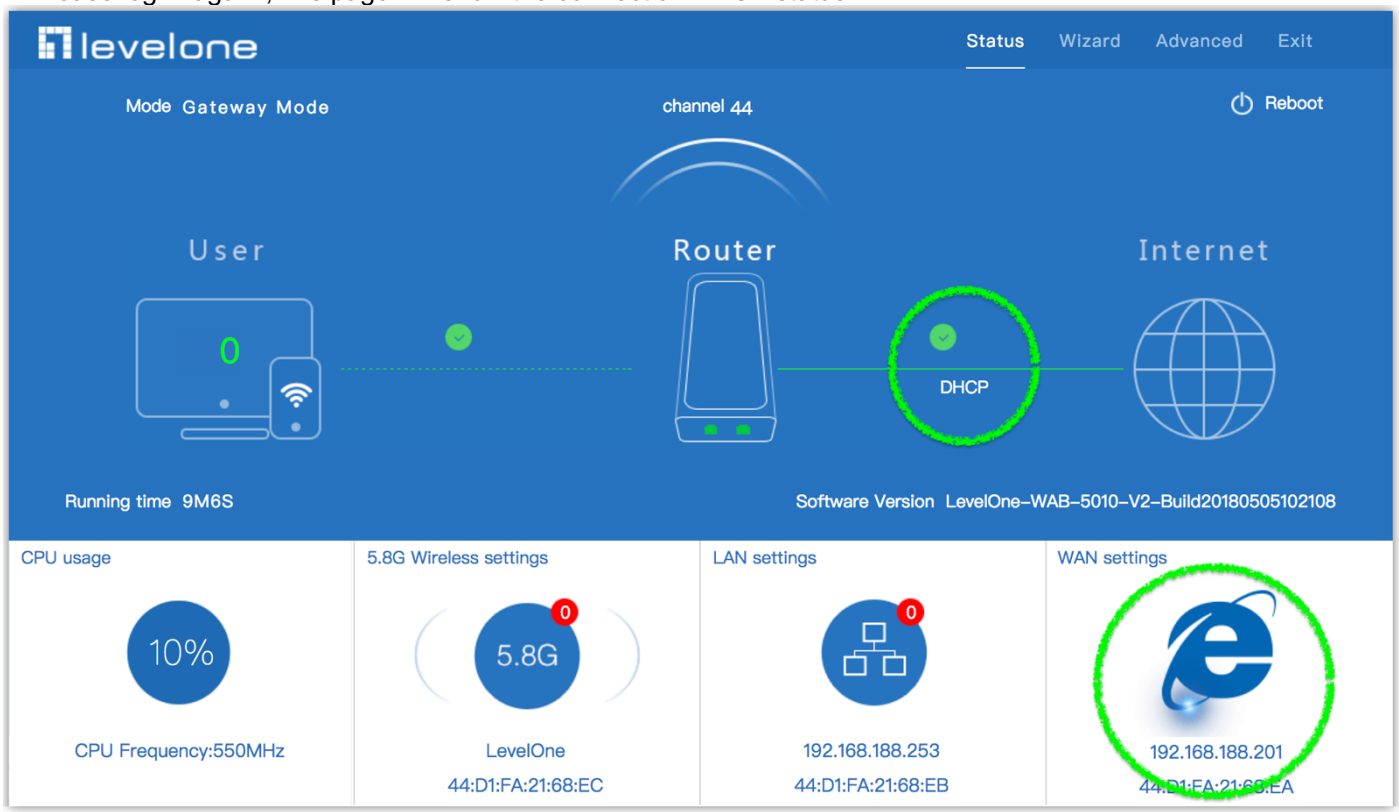
2. Wireless Setting in Gateway Mode (DHCP), Click Next



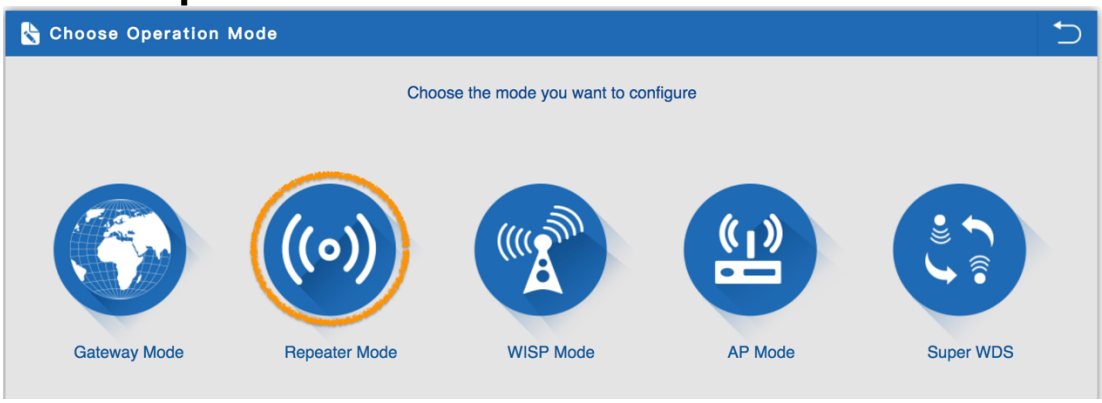
3. Please wait for the configuration to finish



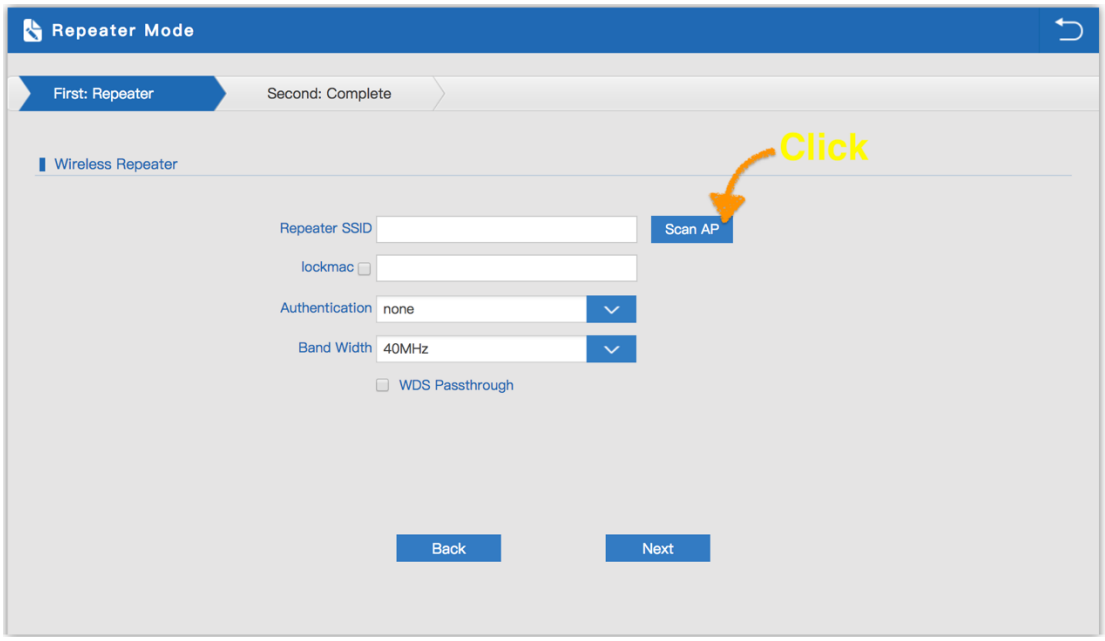
4. Please log in again ,This page will show the connection DHCP status



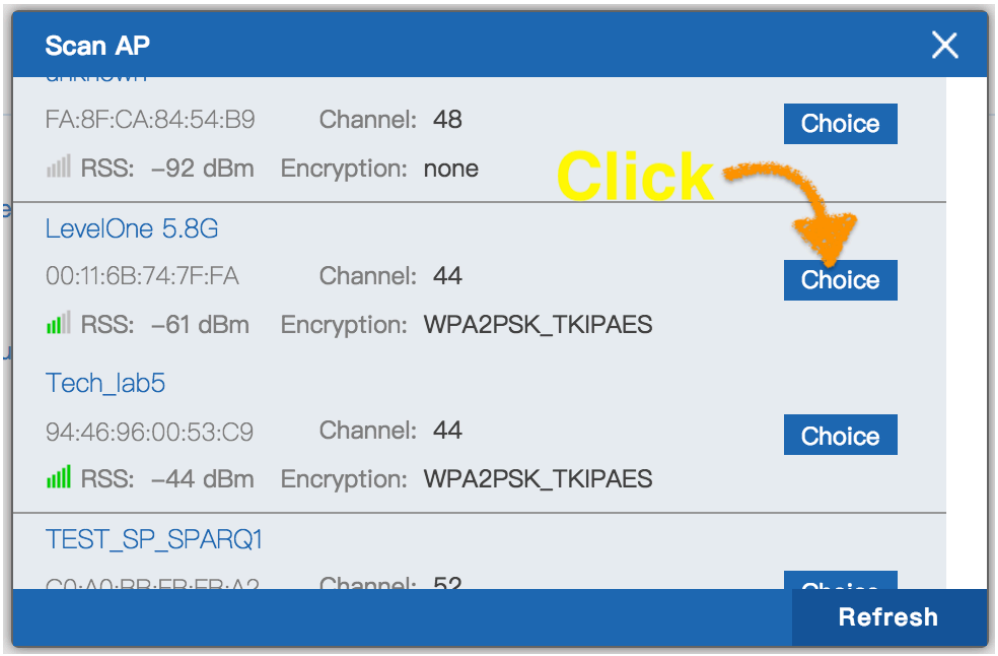
5.2.2 Repeater Mode



1. Can choose to relay the front-end 5.8G wireless signal to extend the wireless signal range.
Select the AP's SSID want to bridge, then input the AP's key, Click Scan AP .
Note: If the upper wireless device is not the same model (WAB-5010), Don't click to WDS Passthrough.

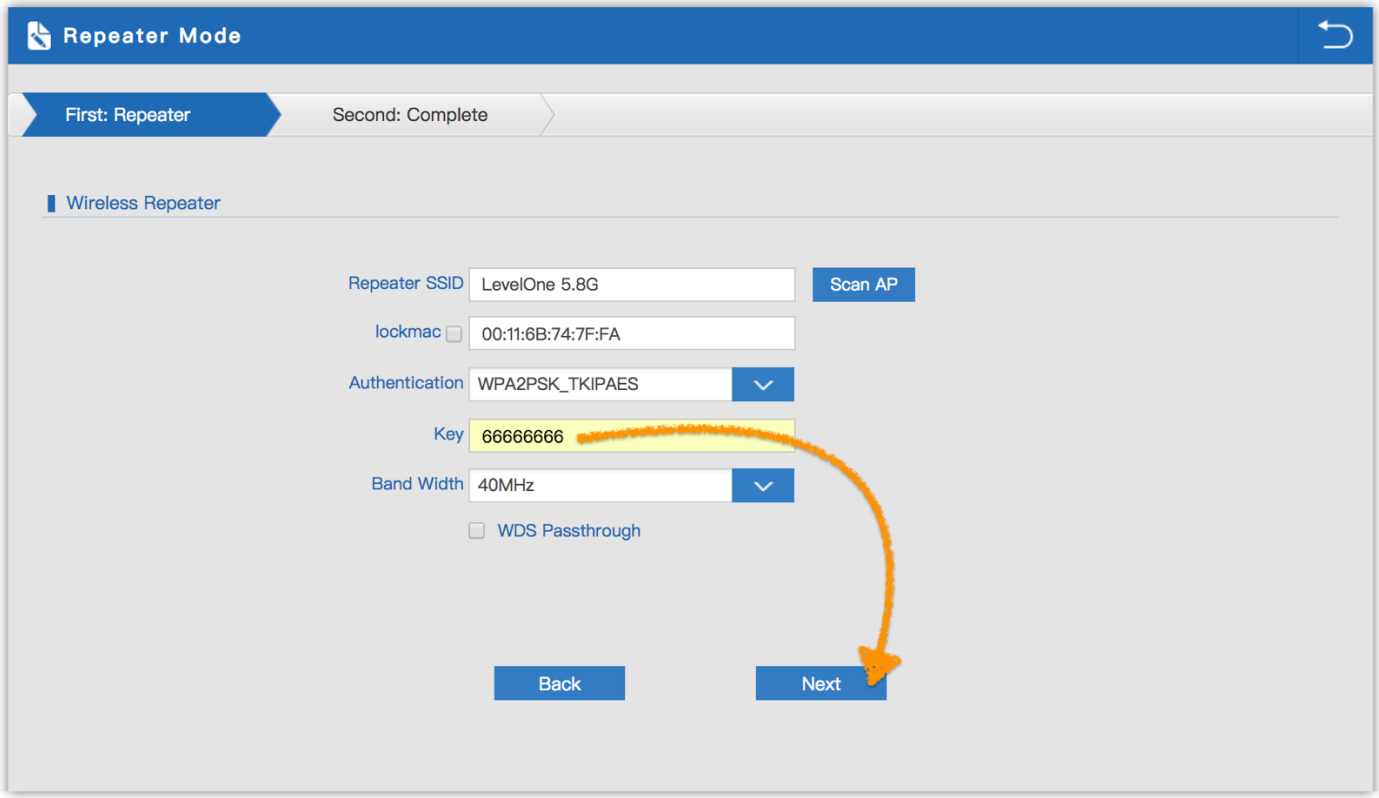


2.Please select WIFI SSID to connect

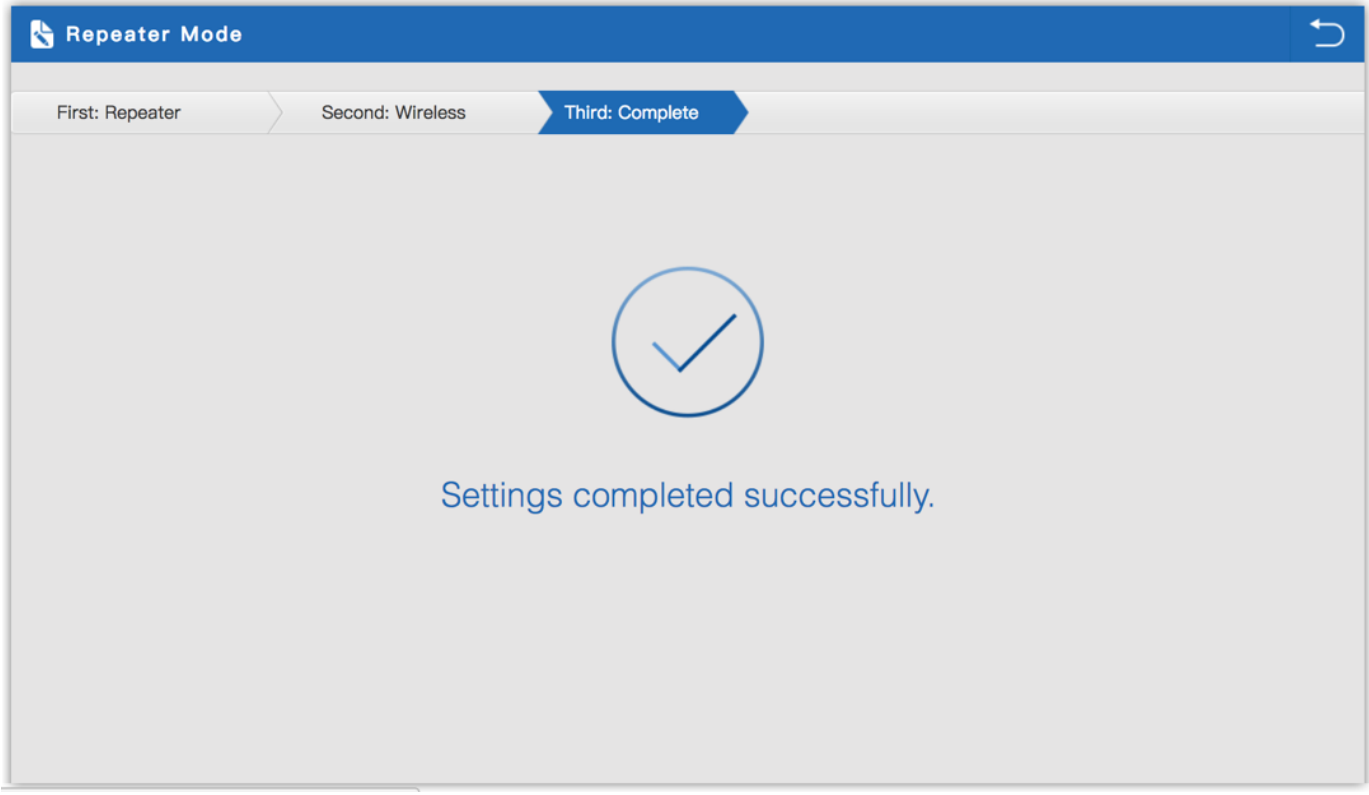


3. Enter the WIFI SSID password to be linked, When click Next

Note: If the upper wireless device is not the same model (WAB-5010), Don't click to WDS Passthrough.



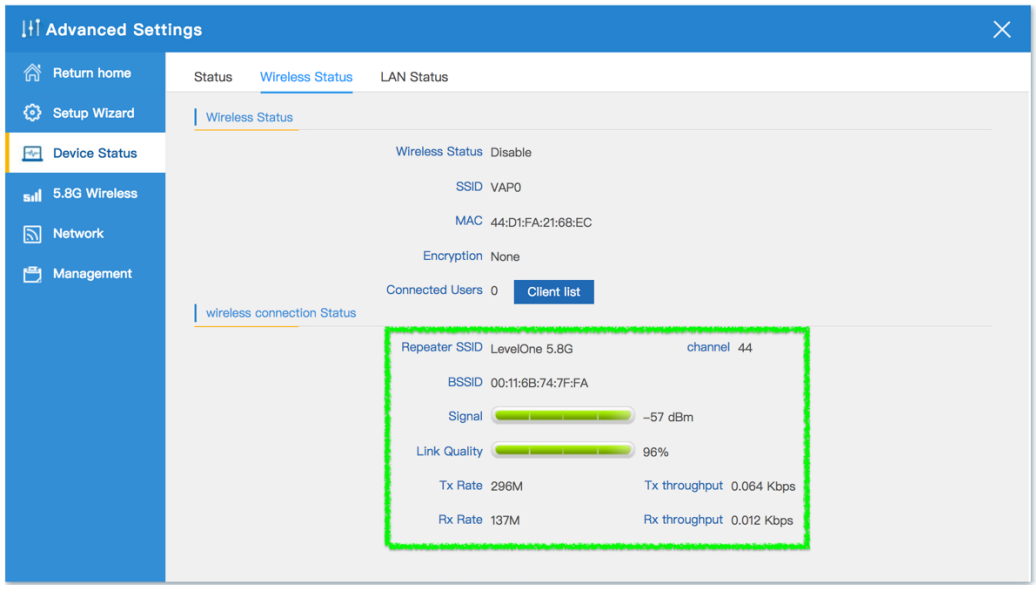
4.Click Return button, will back to Status, show Repeater mode data,
show fail or success



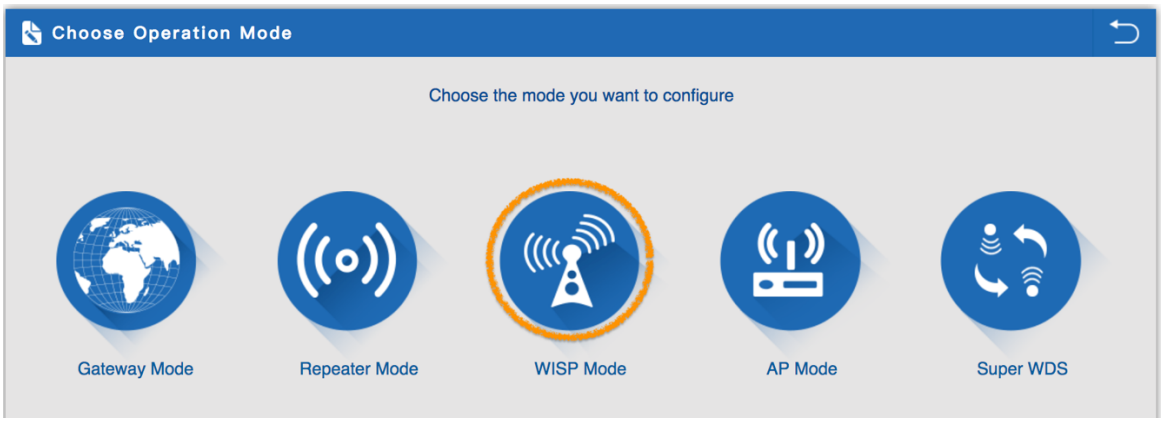
5.Check WIFI Repeater mode data (**NOTE:** In wifi repeater operation mode, the default is SSID disable.)

6.Click Status button

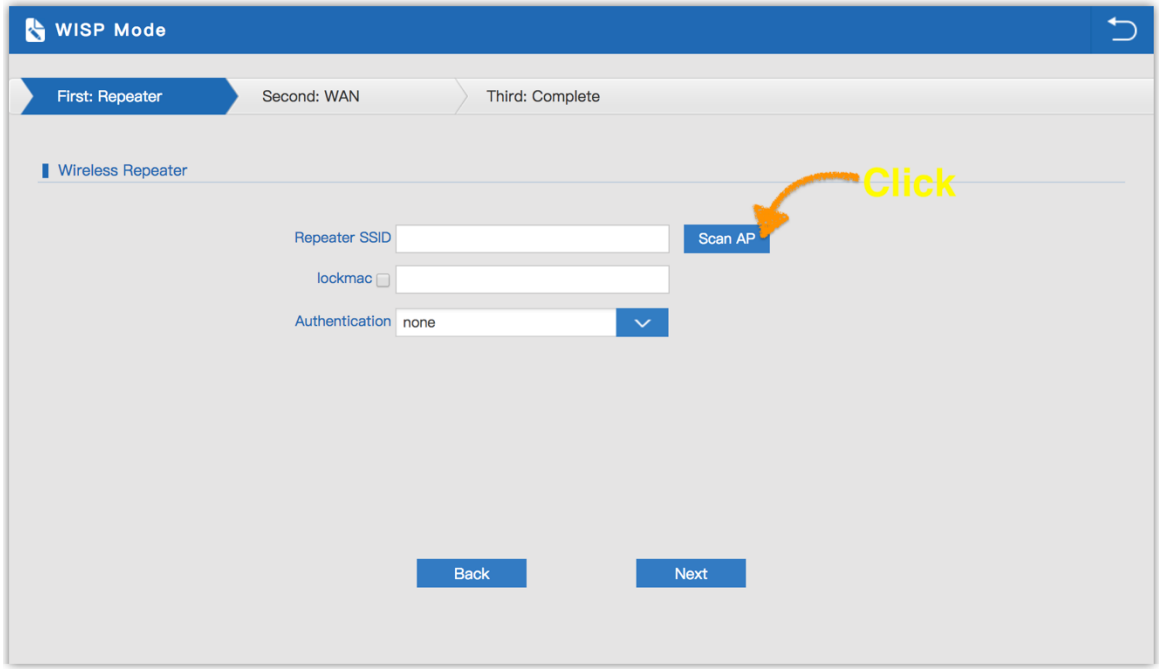
7. Check WIFI Repeater mode data



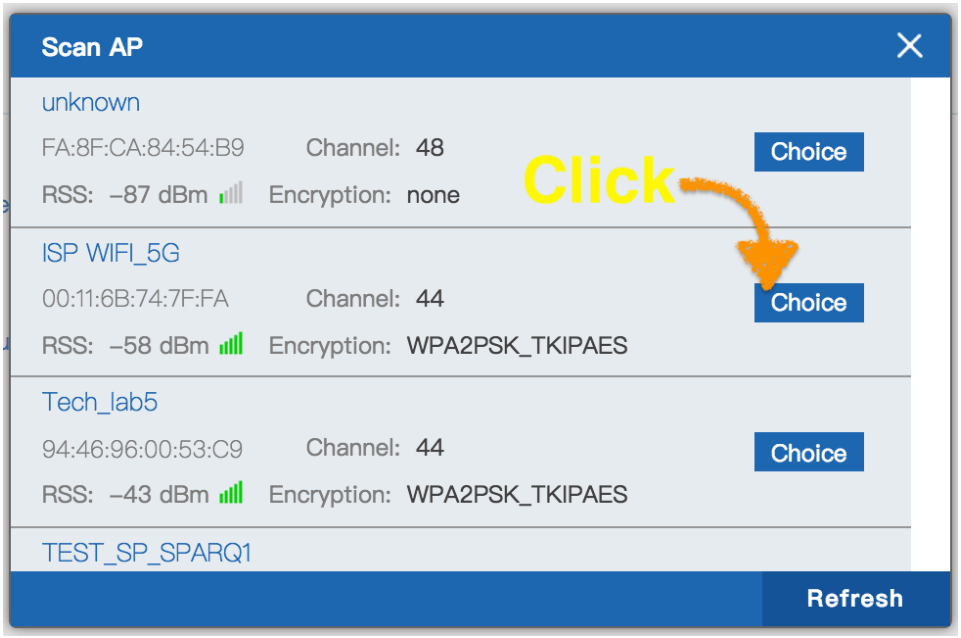
5.2.3 WISP Mode:



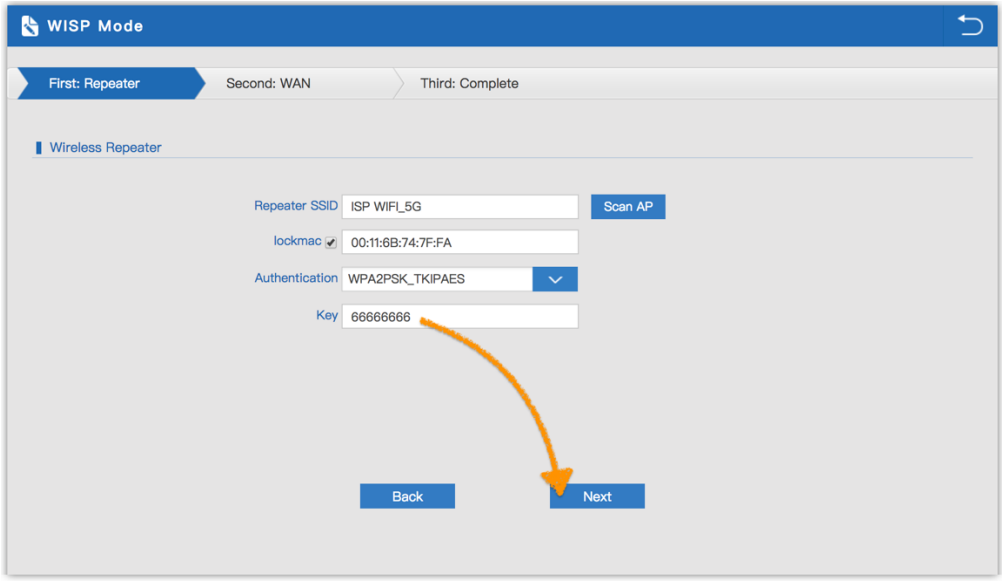
1.Click Scan AP.



2.Select the AP's SSID want to bridge, take "ISP WIFI 5G" for example, then input the AP's key, click Scan AP.

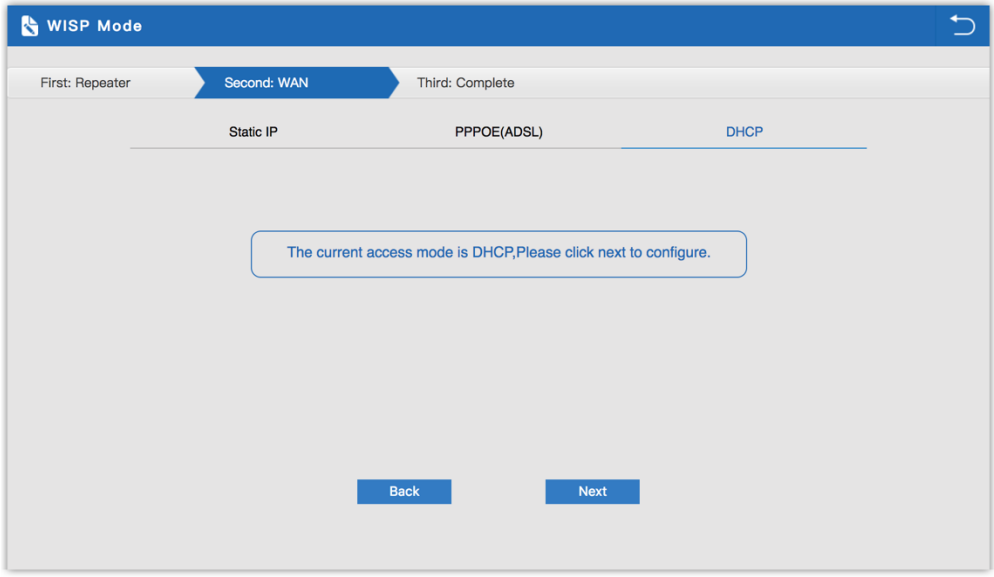


3. Enter the WIFI SSID password to be linked, When click Next

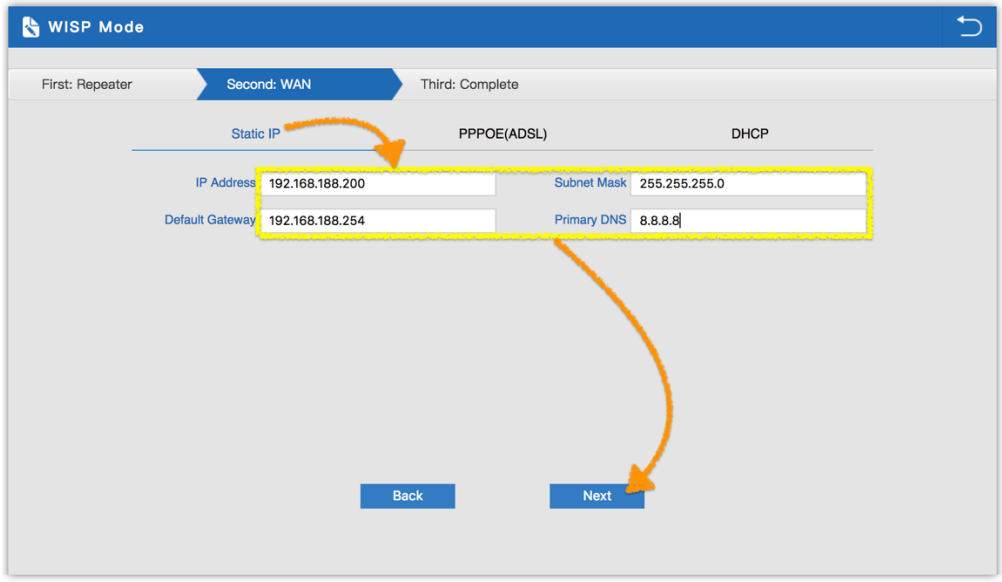


4.Before Click WISP Mode, confirm your ISP WIFI will be static IP, PPPoE, or DHCP:

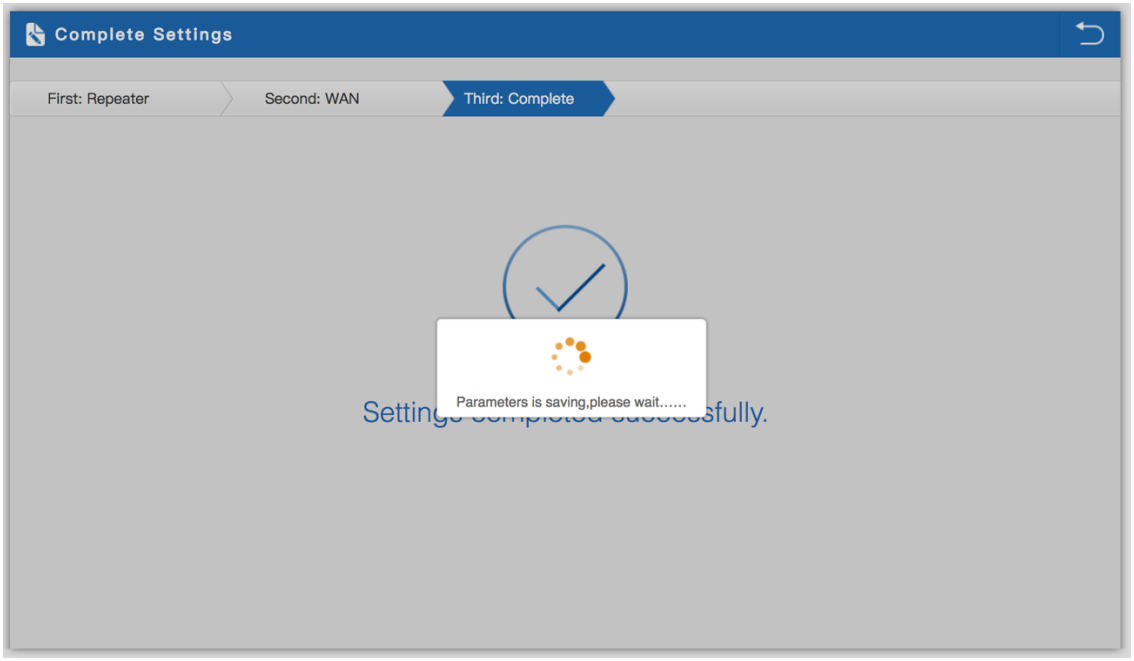
Then will pop up following picture after click it, Please choose the right WAN setting mode,then click next to continue.



5.take “Static IP” for example. (Please contact with ISP for correct IP address and DNS address)

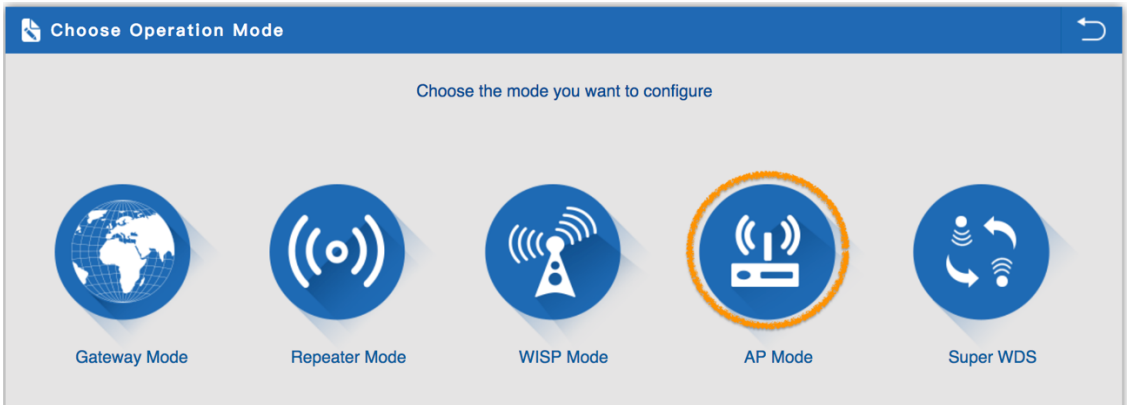


6.Click Return button, will back to Status, show WISP mode data, show fail or success

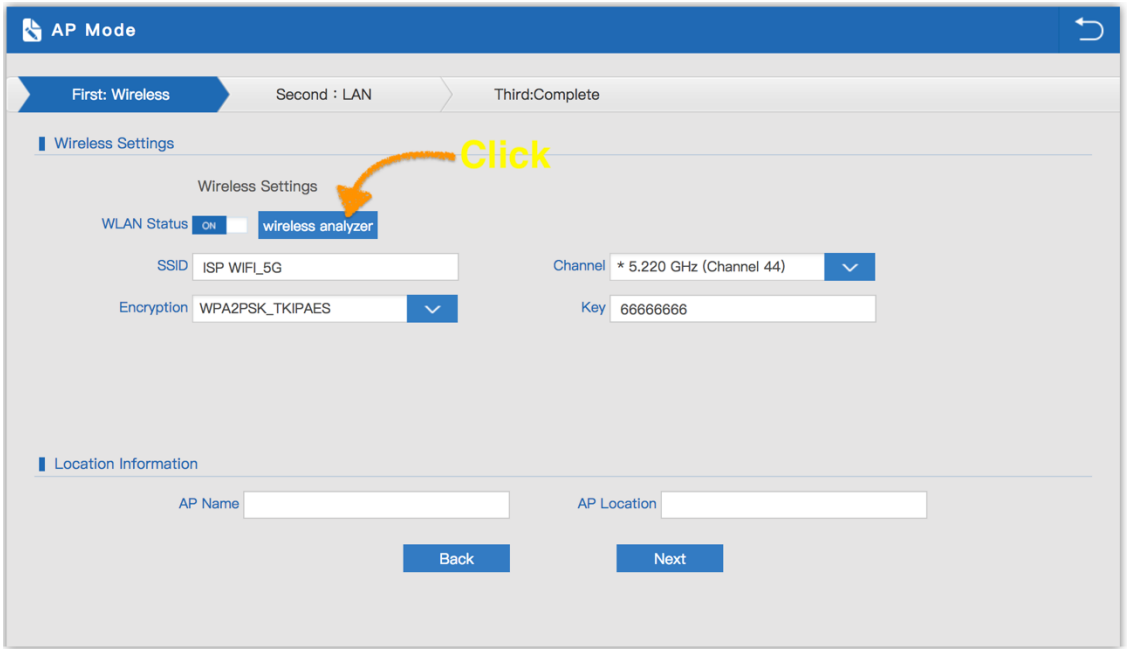


7.Check WISP Mode Status show fail or success

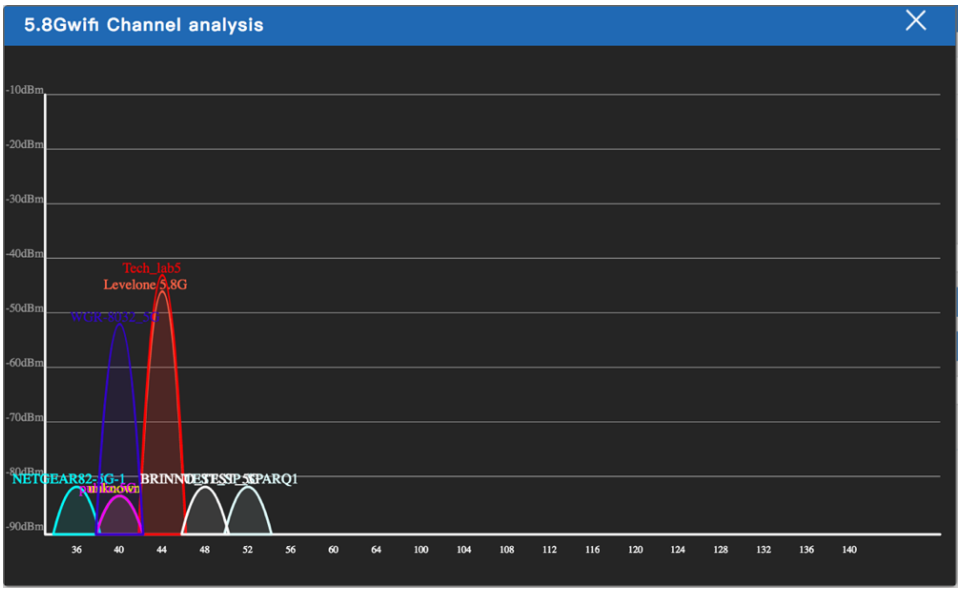
5.2.4 AP mode & Wireless analyzer :



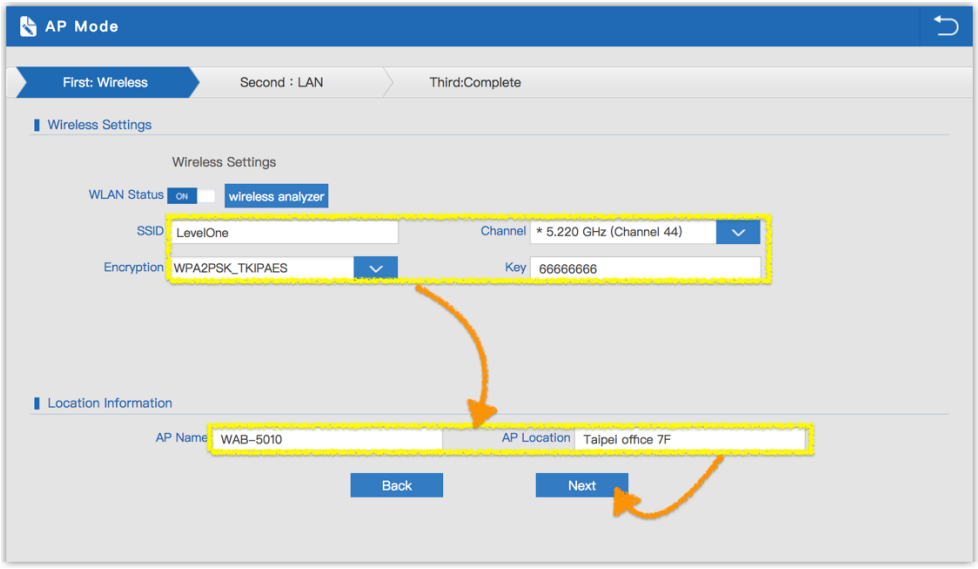
1.To make the WAB-5010 work in some clear channel, user can click wireless analyzer at first.
Look for Unoccupied channel, then Wireless performance will be more stable. Picture showed as below.



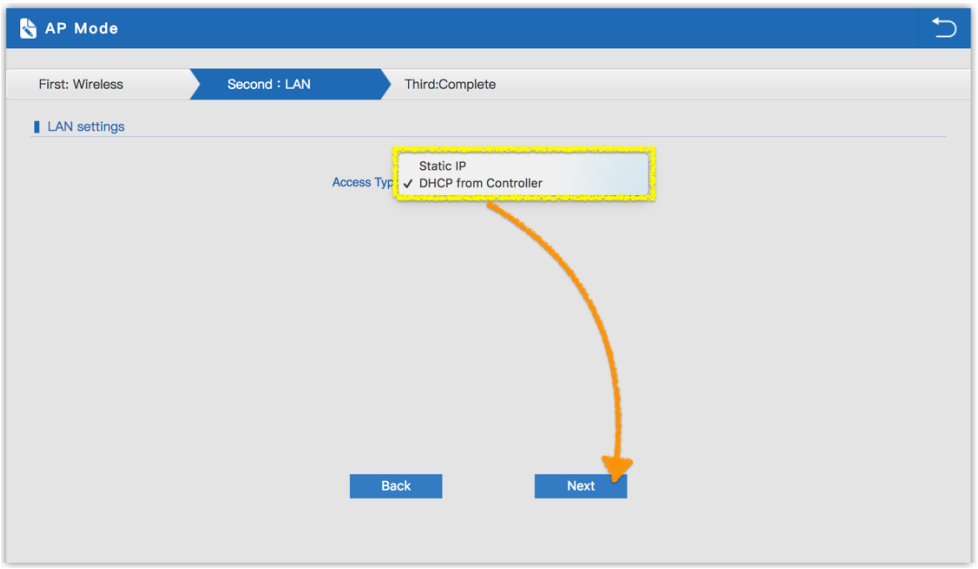
2. Wireless analyzer Look for Unoccupied channel (5.8GHz)



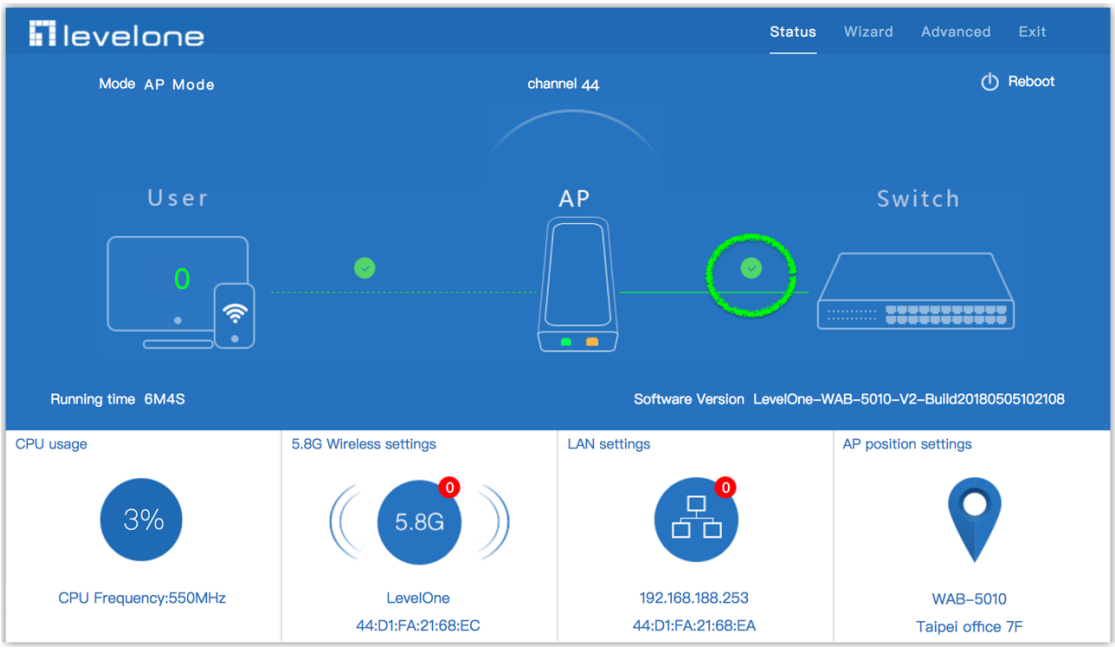
3. Set the wireless data, AP Location info as required, then click next to continue and enter into LAN setting. After LAN setting, complete the AP mode configuration and back to Status.



4.Set according to environmental requirements.

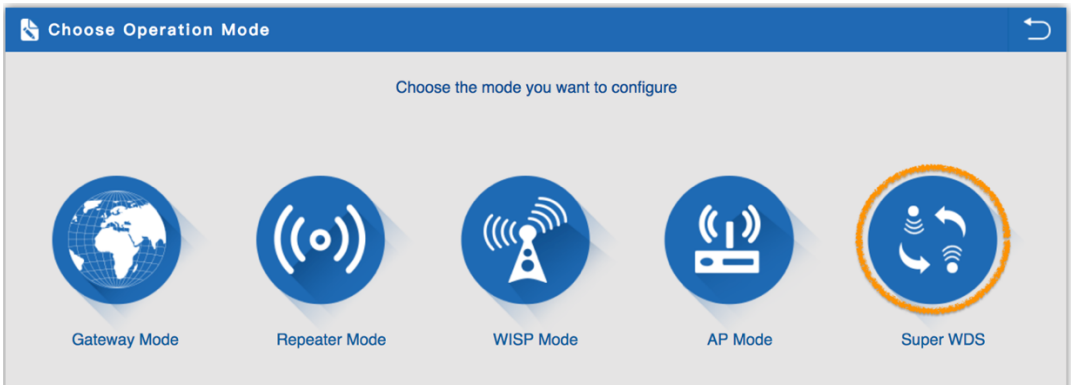


5. Check AP Mode Status show fail or success.

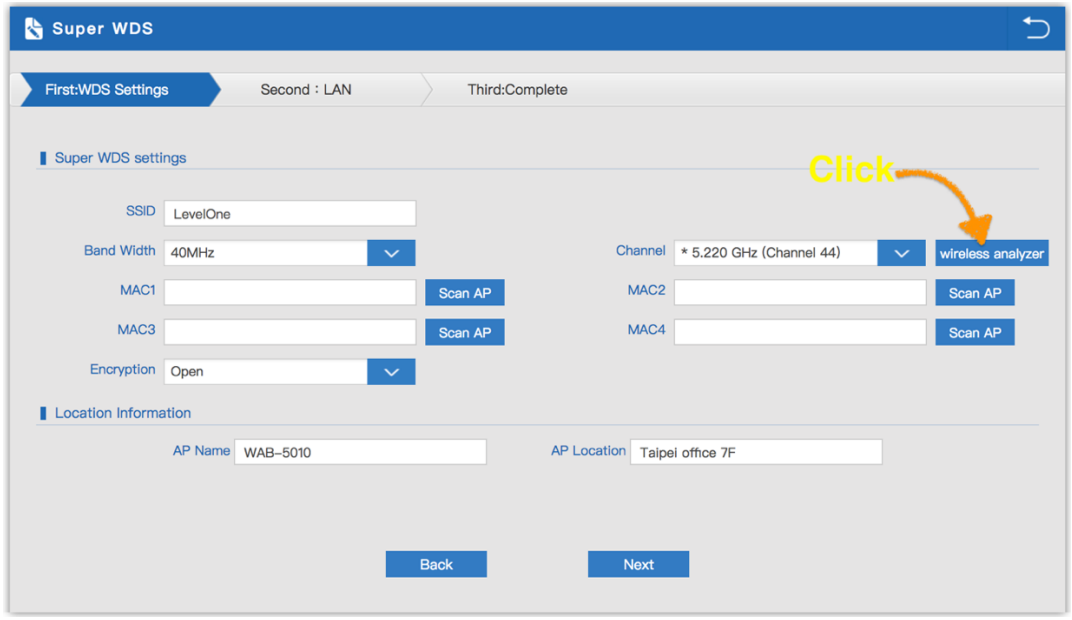


5.2.5 Super WDS Mode & Wireless analyzer

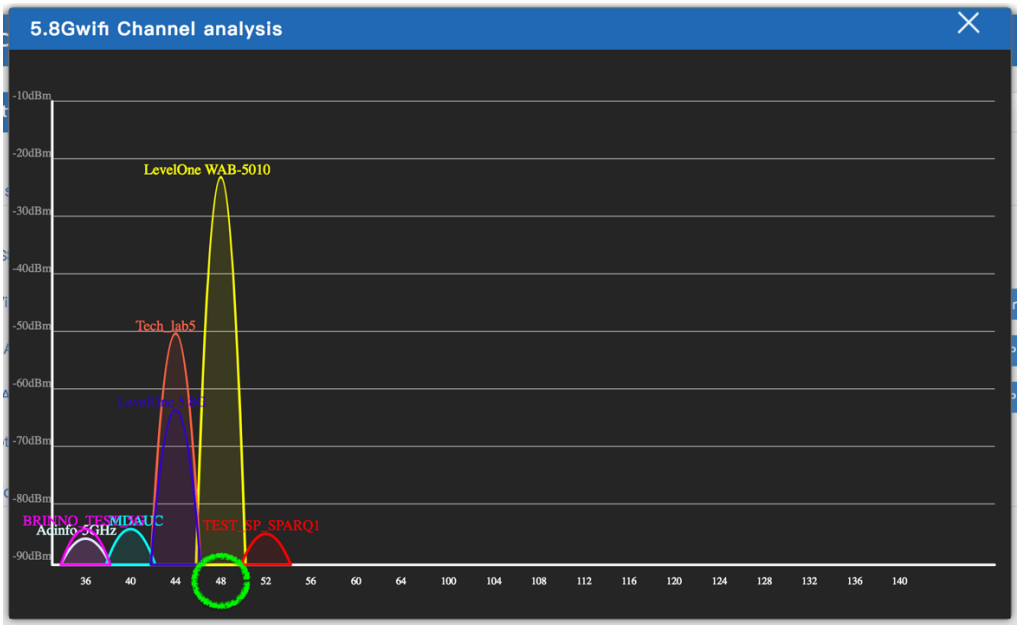
Note: That if you want to use WDS mode connection, Please use the same model wireless ap to avoid compatibility issues. Please check these 2 APs are face(front panel) to face at the same height.



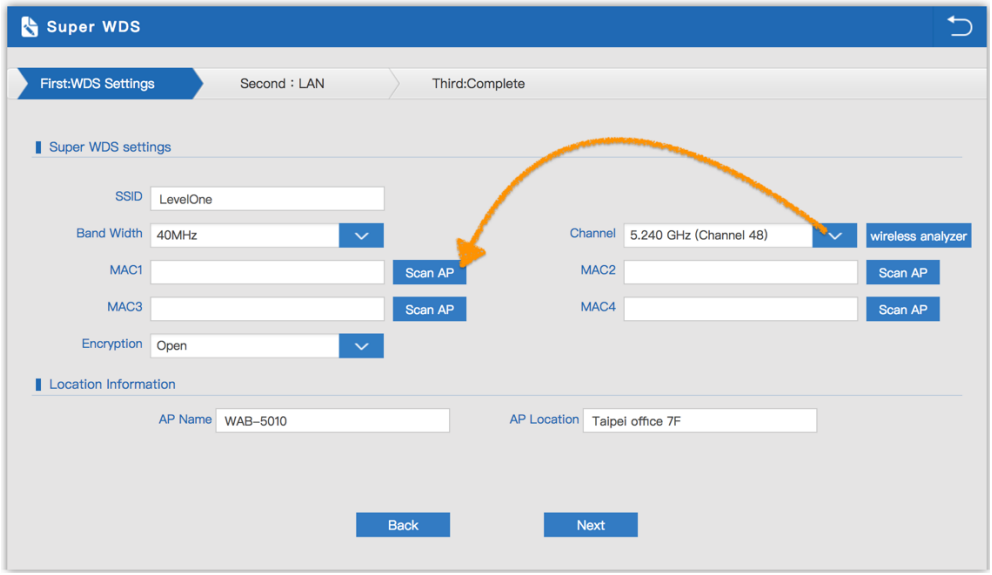
1. Click Wireless analyzer, Confirm the current 5.8G WiFi Channel wireless network environment



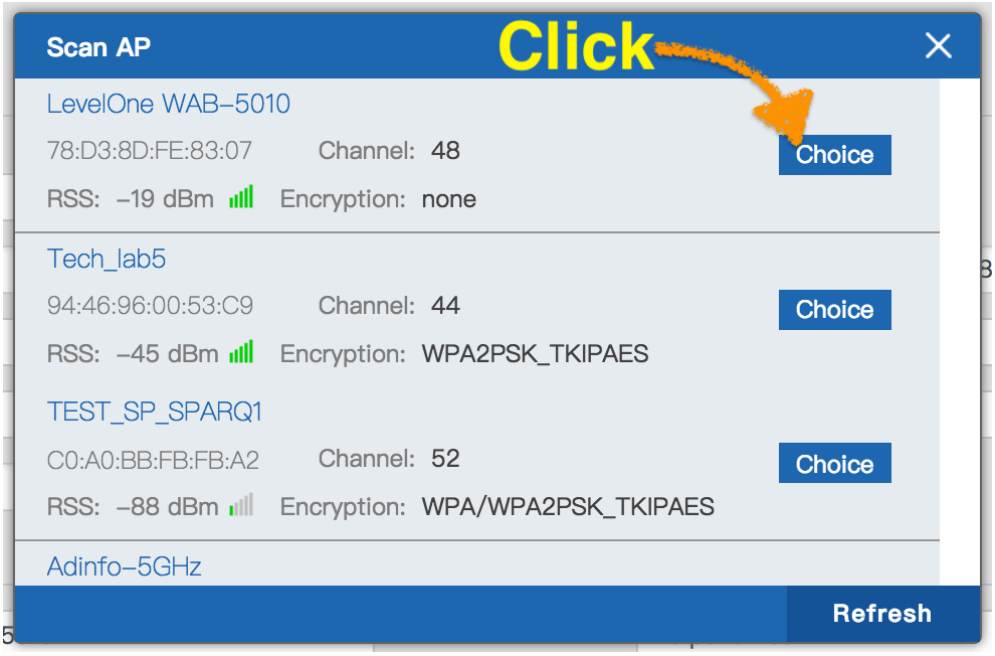
2. WAB-5010 Both parties need to choose the same Wireless Channel.



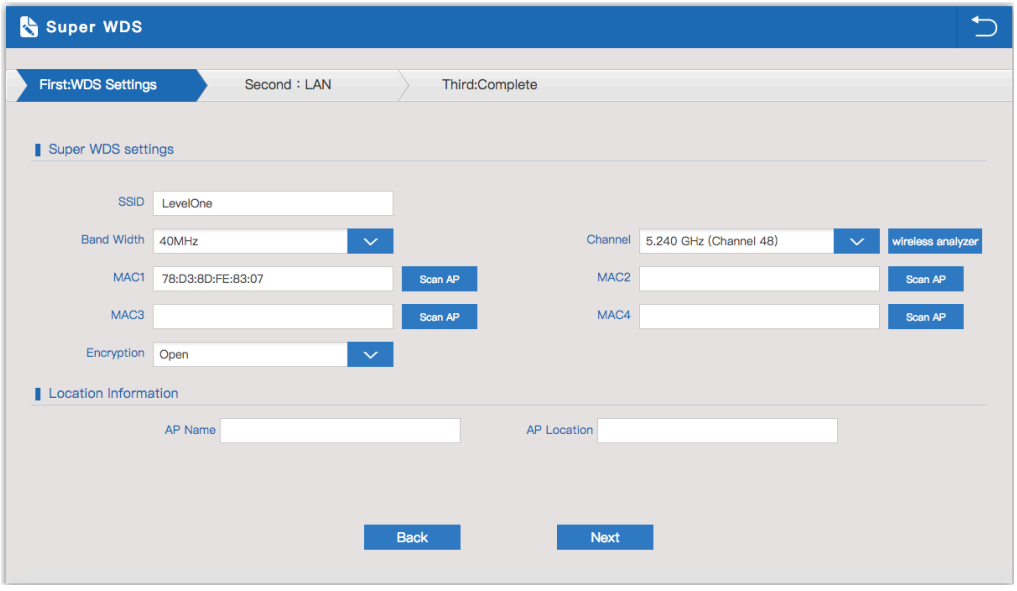
3. After the wireless analysis is confirmed, change to use the same Wireless Channel 48. Click on Scan AP



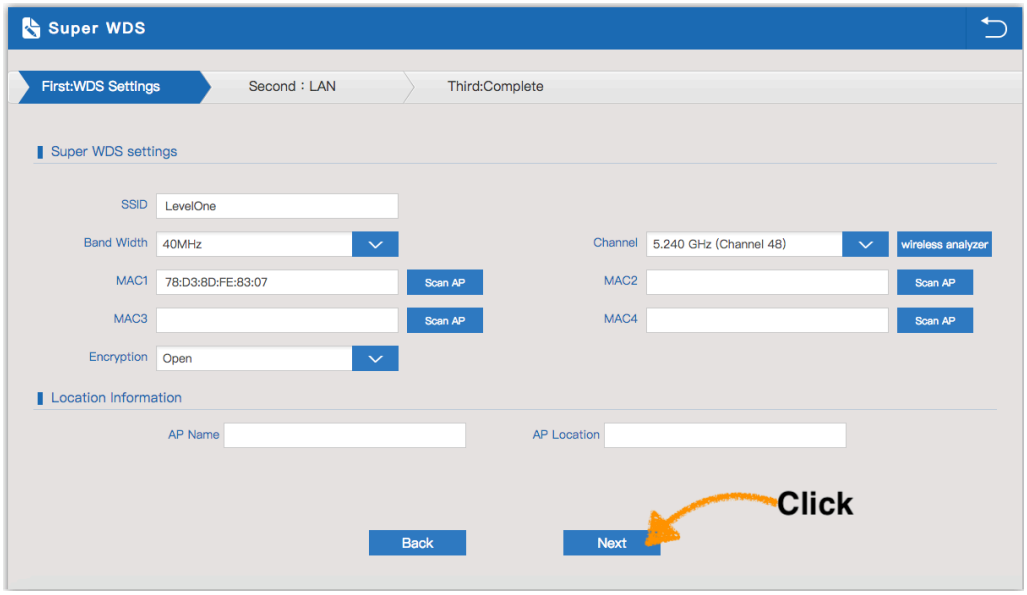
4. Click on Choice



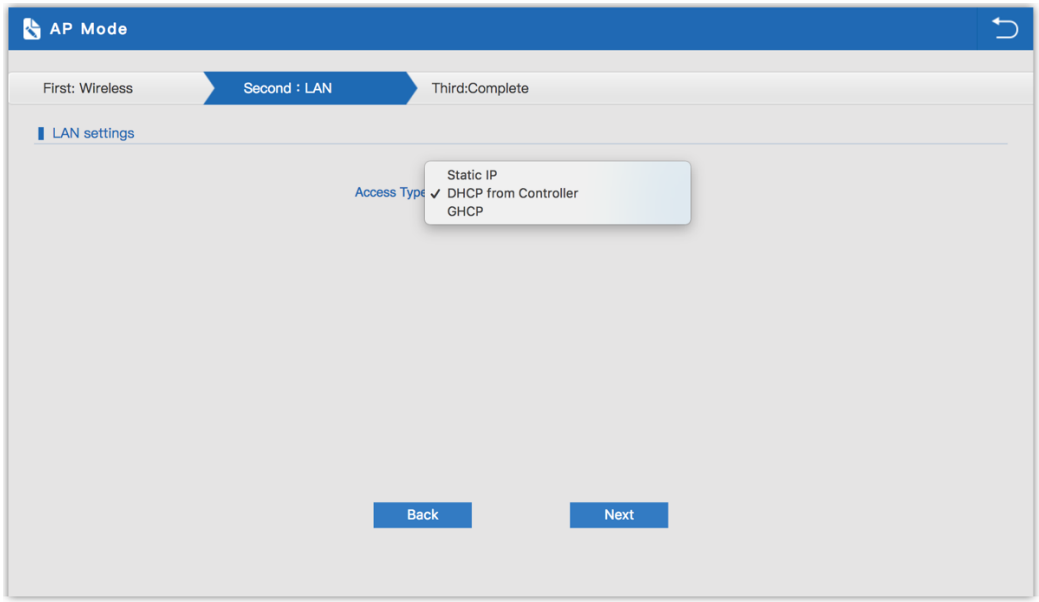
5. The two WAB-5010s can each set Band Width 40 MHz



6. Click on Next.

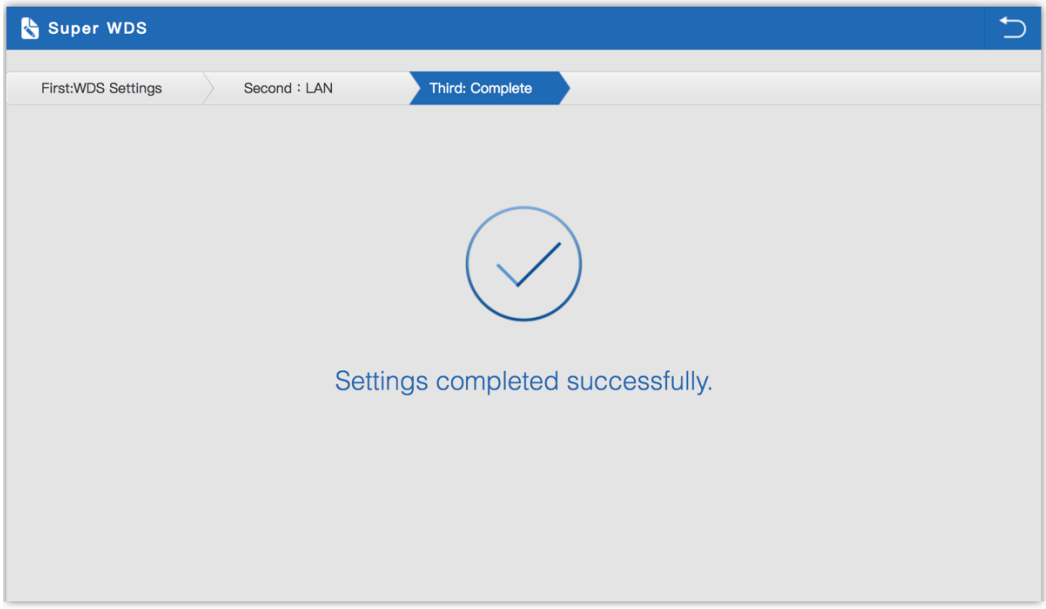


7. Need to confirm the current environment settings to choose one of the 3 modes

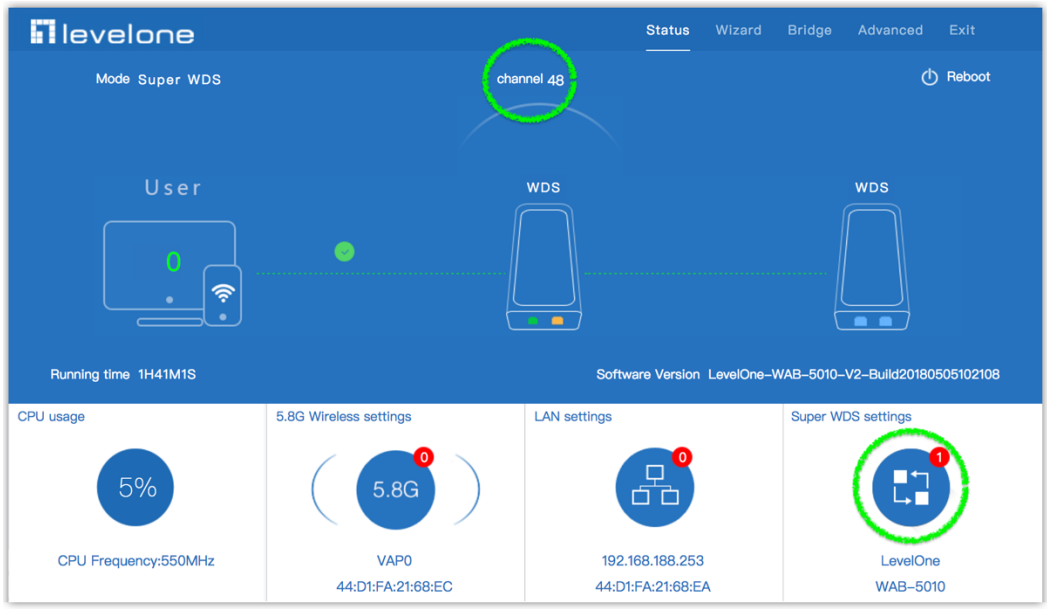


8. The following examples of how the Static IP is set

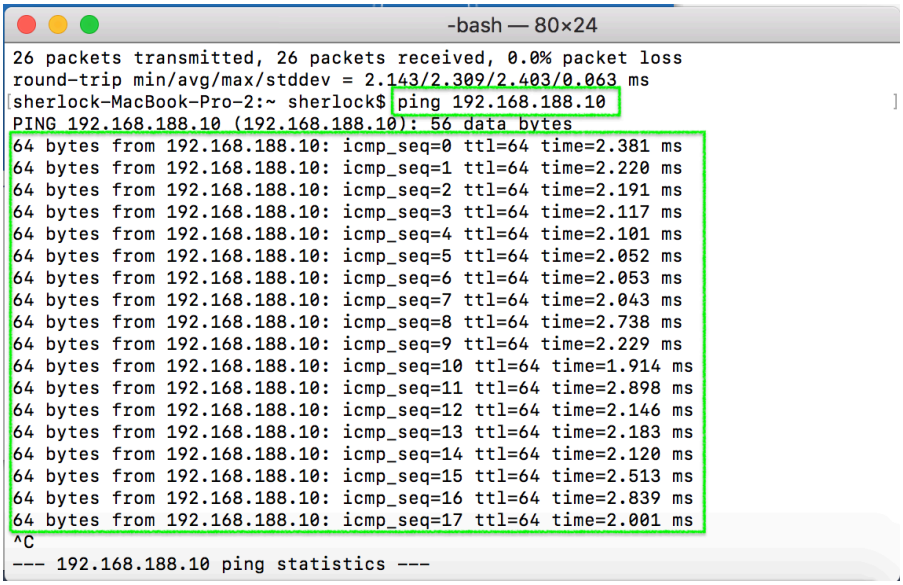
9. Set the save, please wait 30~40 seconds



10. Confirm the status of WDS Mode, whether it is set successfully



11. Use ping another Wireless AP IP Address to confirm the status of the WDS mode.

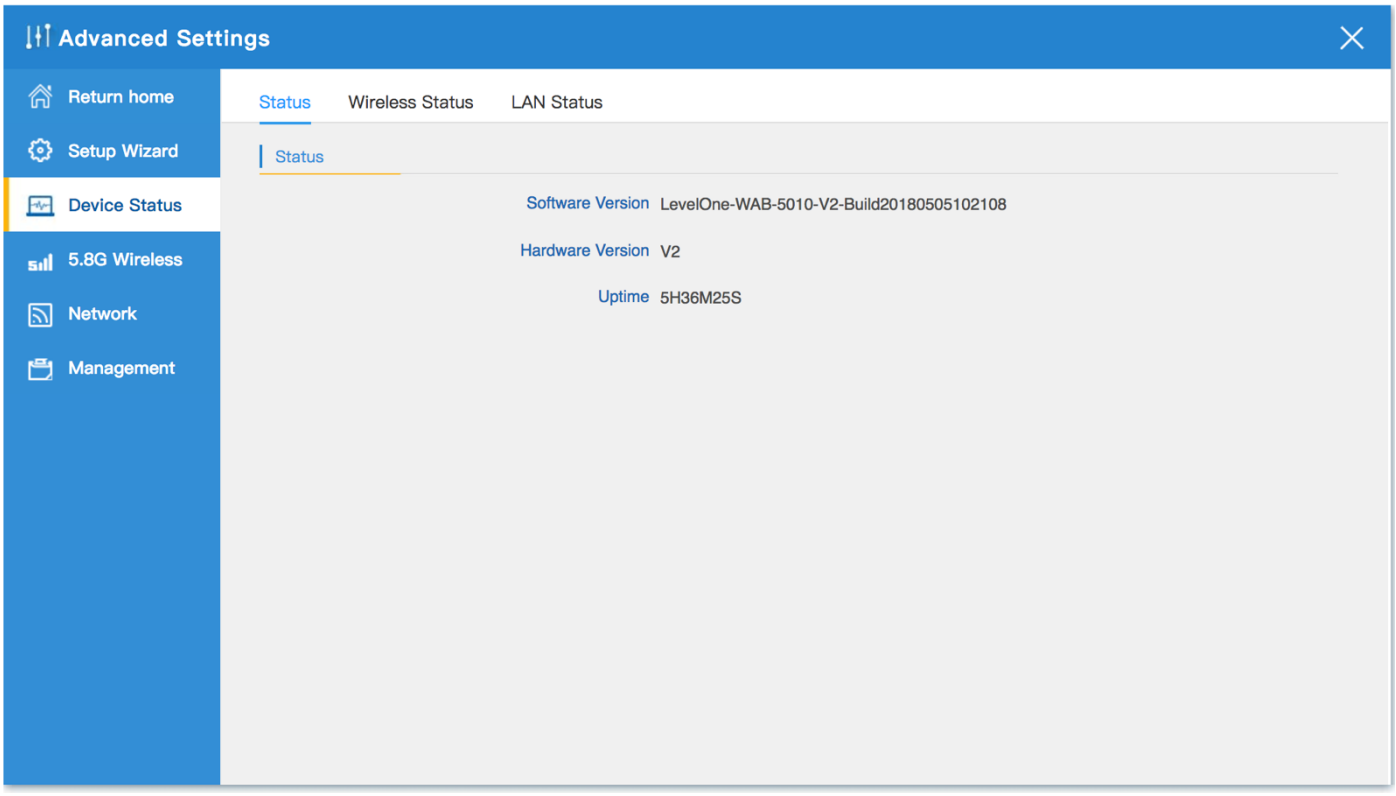


Chapter 6 Advanced Setting

6.1 Device Status

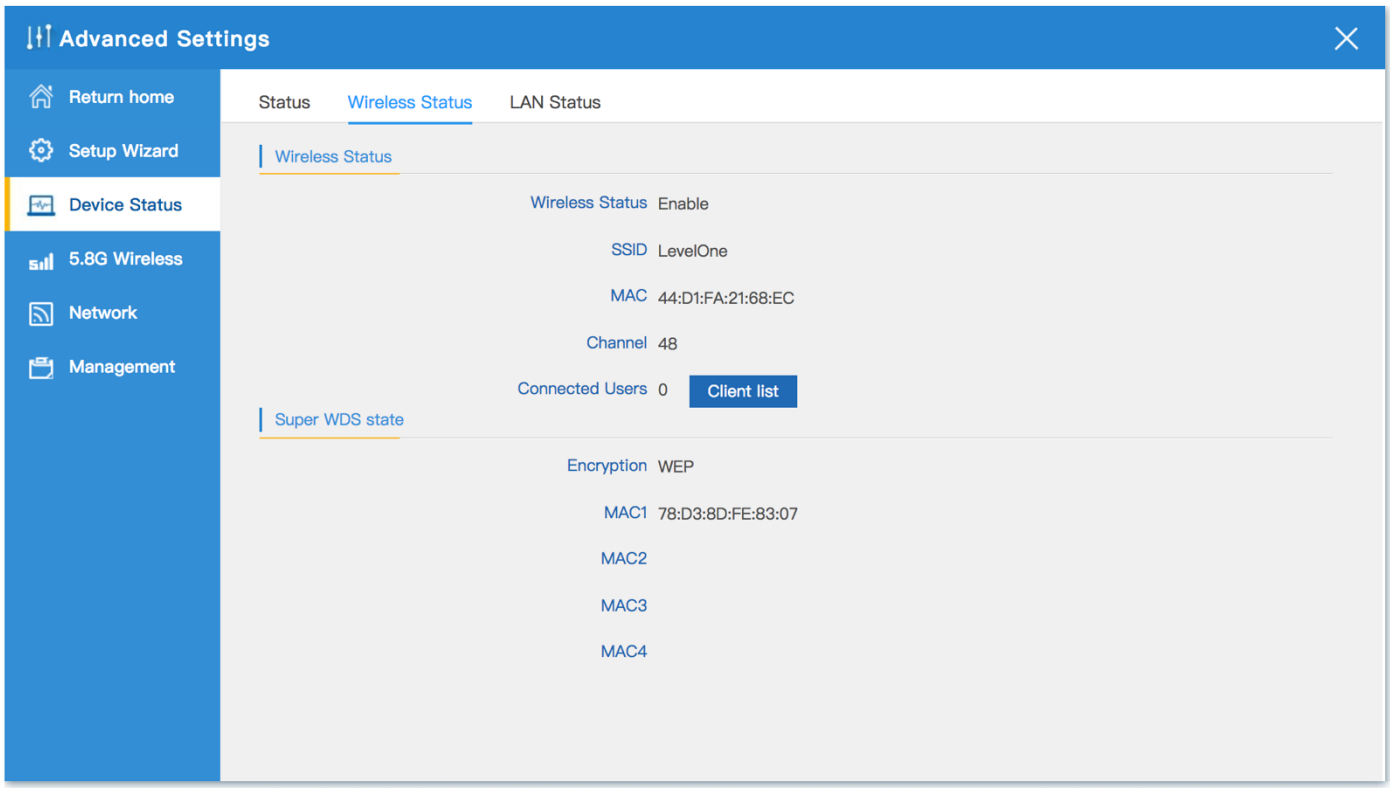
6.1.1 Status:

- Mainly to check the wireless AP's firmware version, hardware version, uptime info.



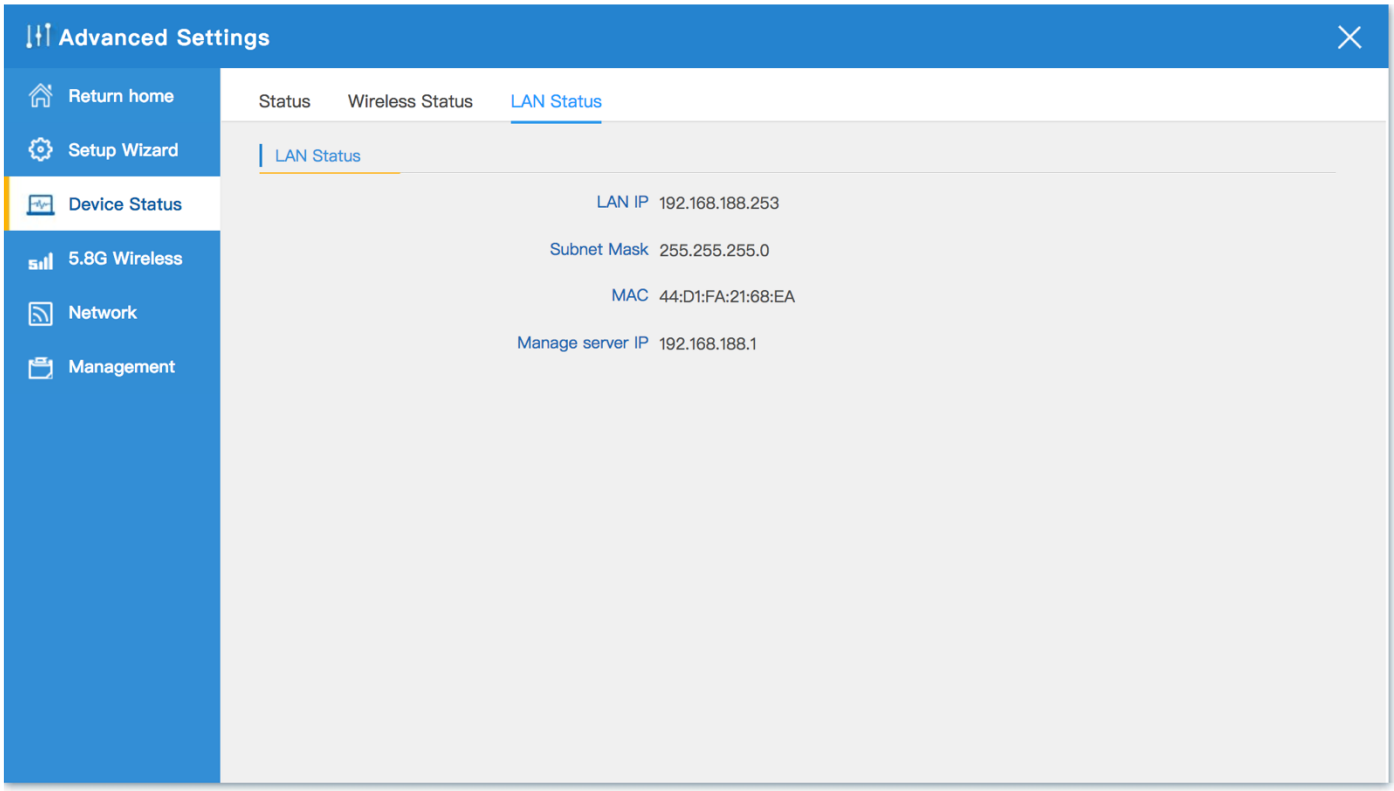
6.1.2 5.8G wireless status:

- Show wireless AP's SSID, MAC address for WiFi, Channel, Encryption, Client List info.



6.1.3 LAN Status:

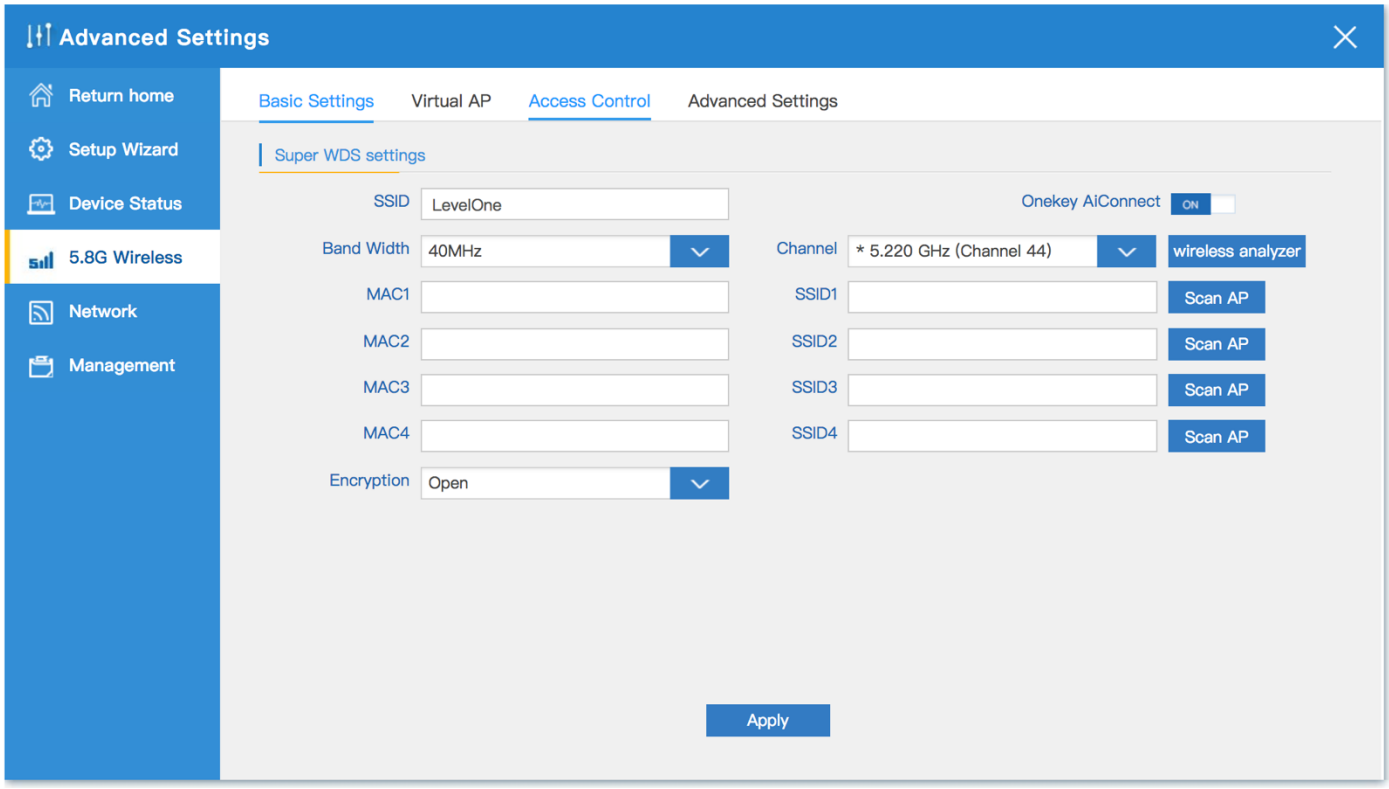
- Check wireless AP's IP address, Subnet Mask, LAN MAC address and other info showed in following picture



6.2 5.8G Wireless

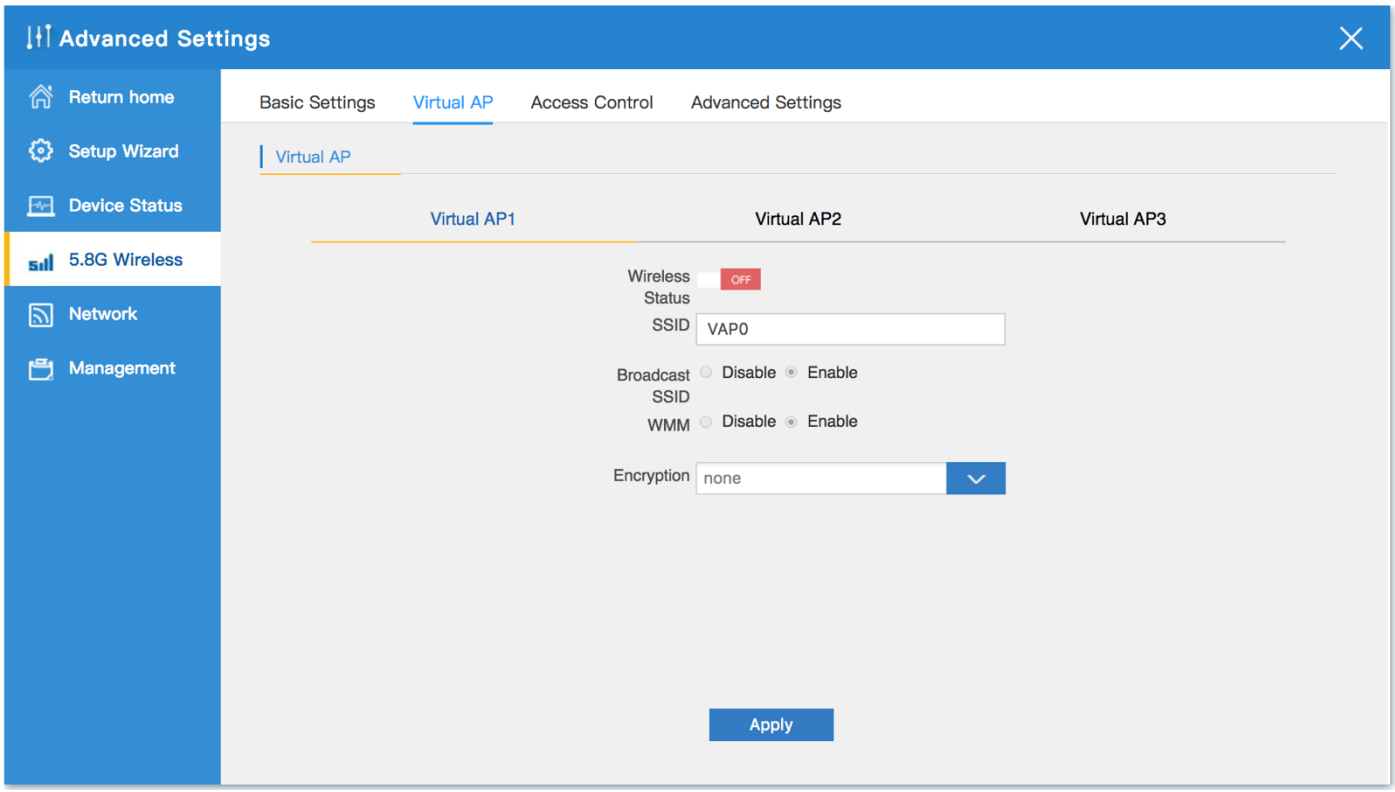
6.2.1 5.8G Basic Settings :

- Mainly to configure the wireless SSID, password, band width ,encryption, channel, Multi SSID.



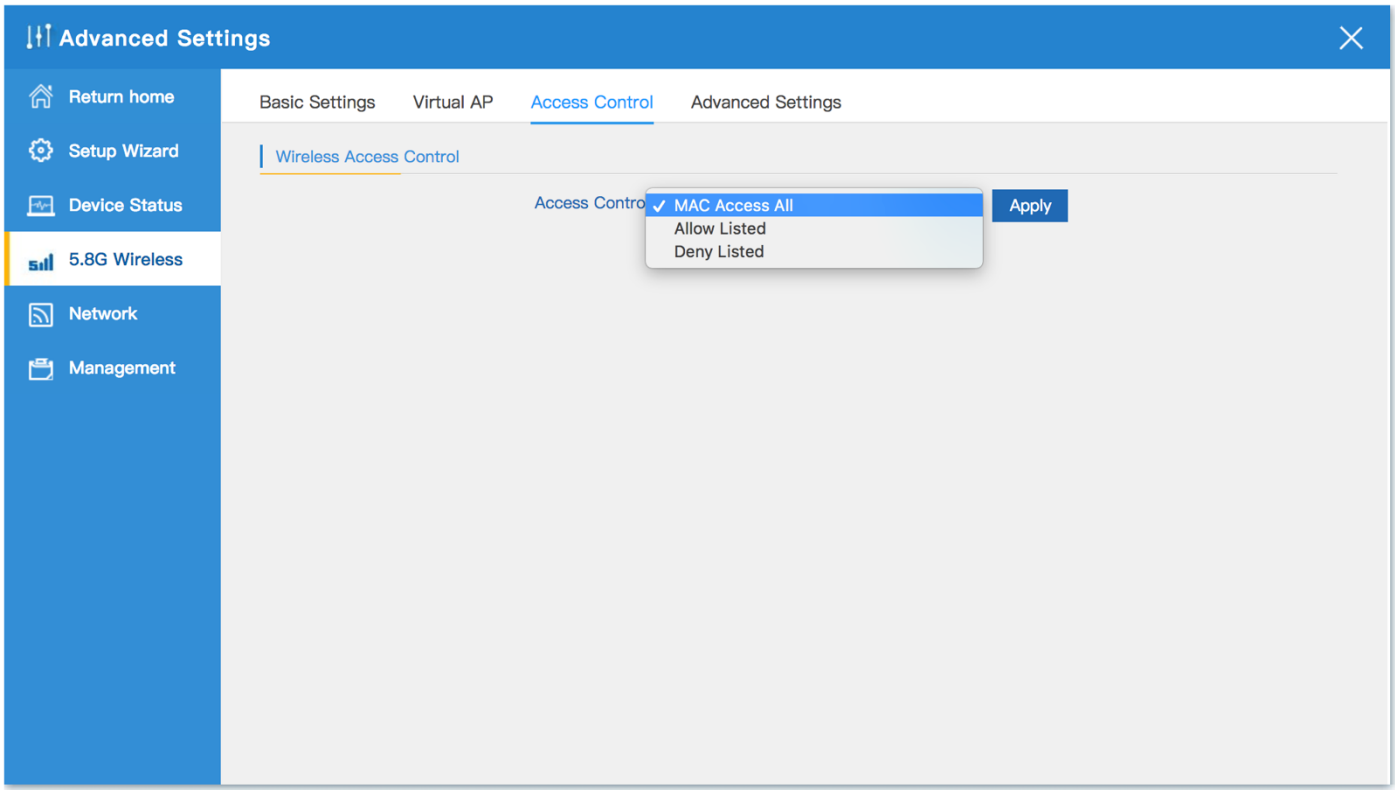
6.2.2 5.8G Virtual AP :

- There are 3 virtual AP in 5.8G wireless, if need enable multi SSIDs, then users can configure it showed in following picture

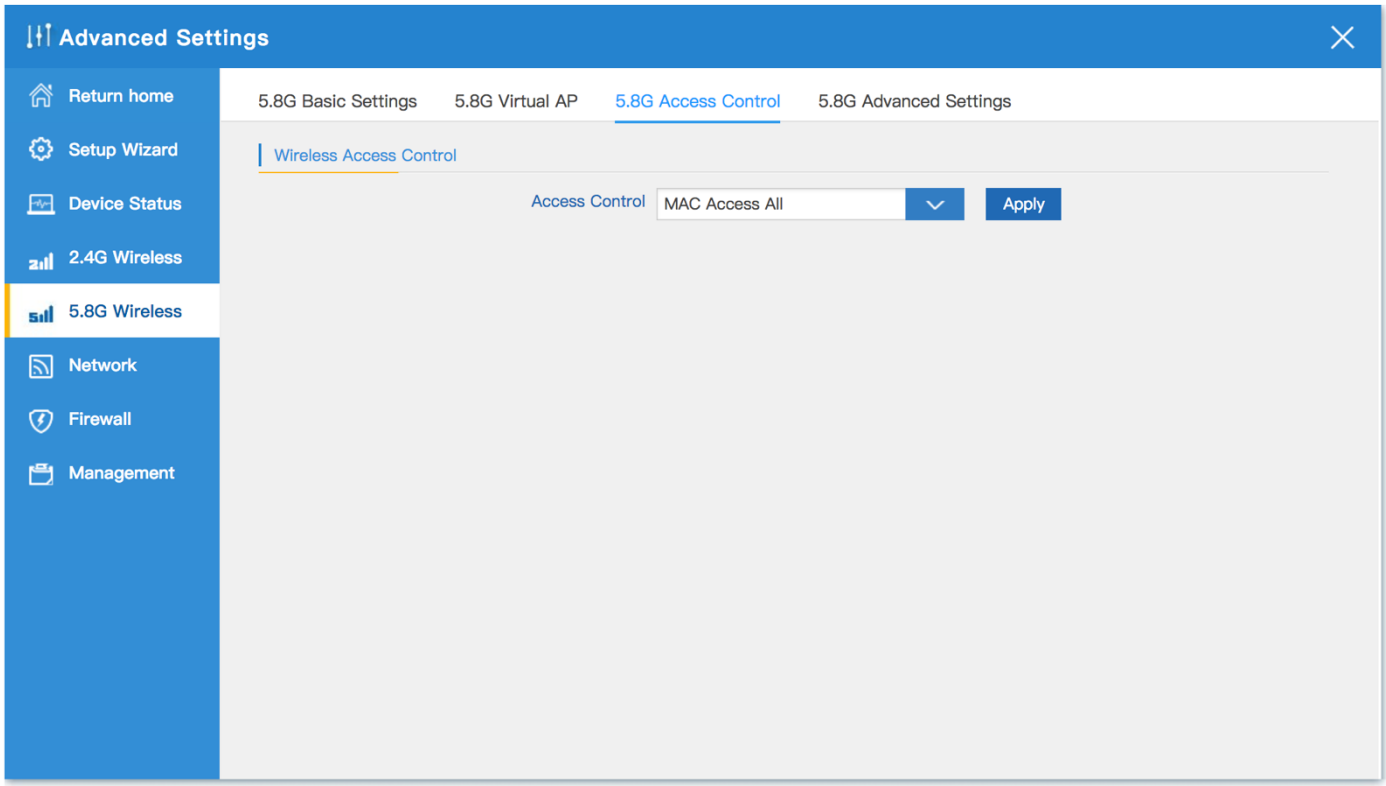


6.2.3 5.8G Access Control :

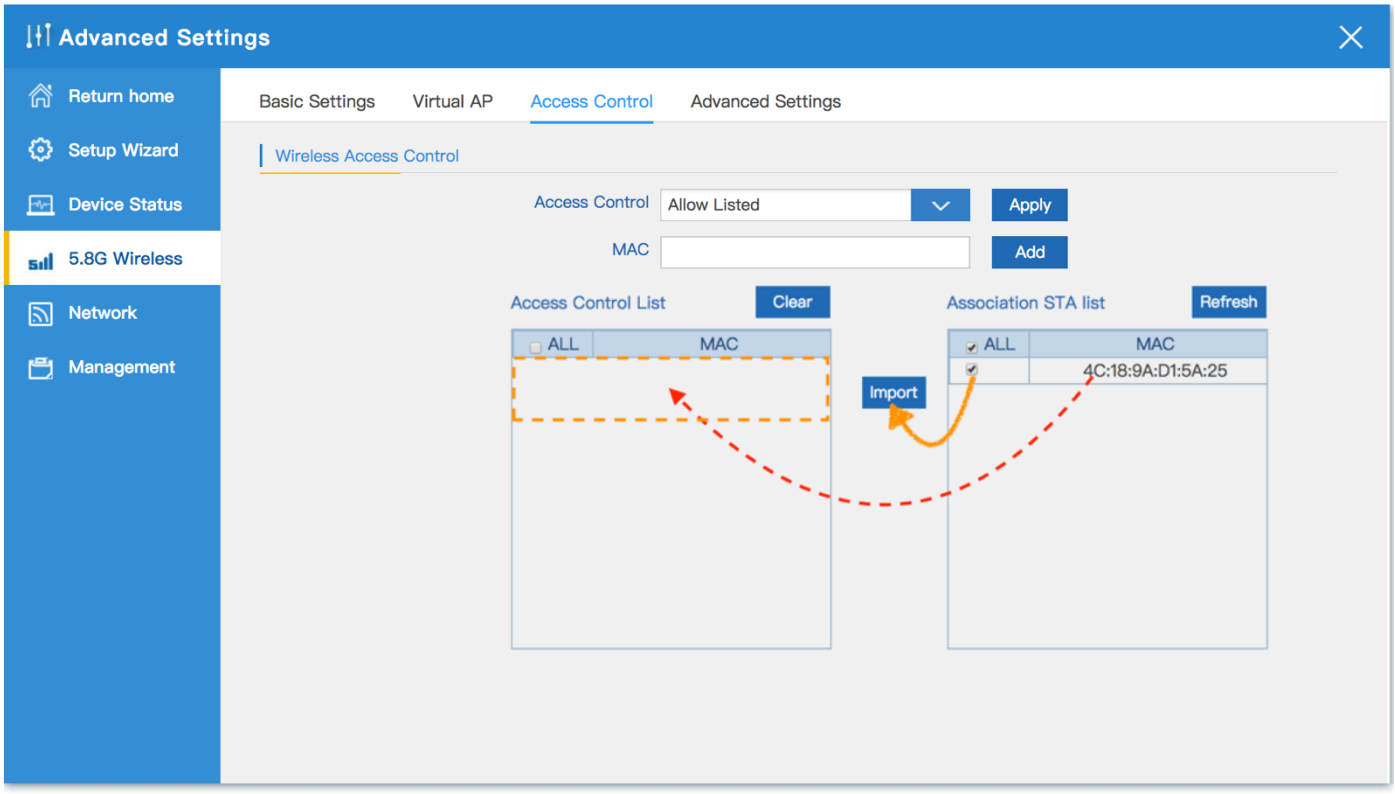
1.Allow or deny the users access into this wireless AP based on MAC address.



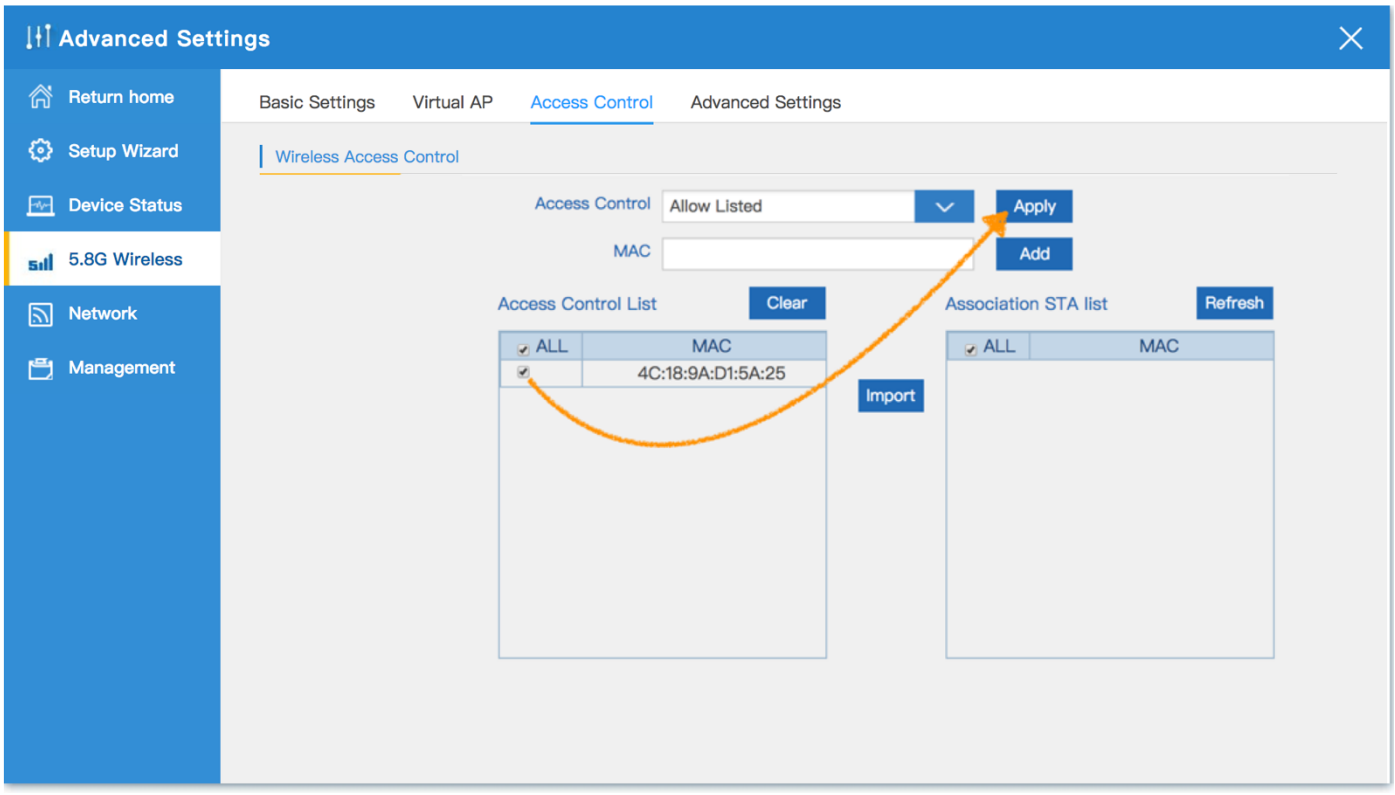
2.Allow all the users access into this wireless AP



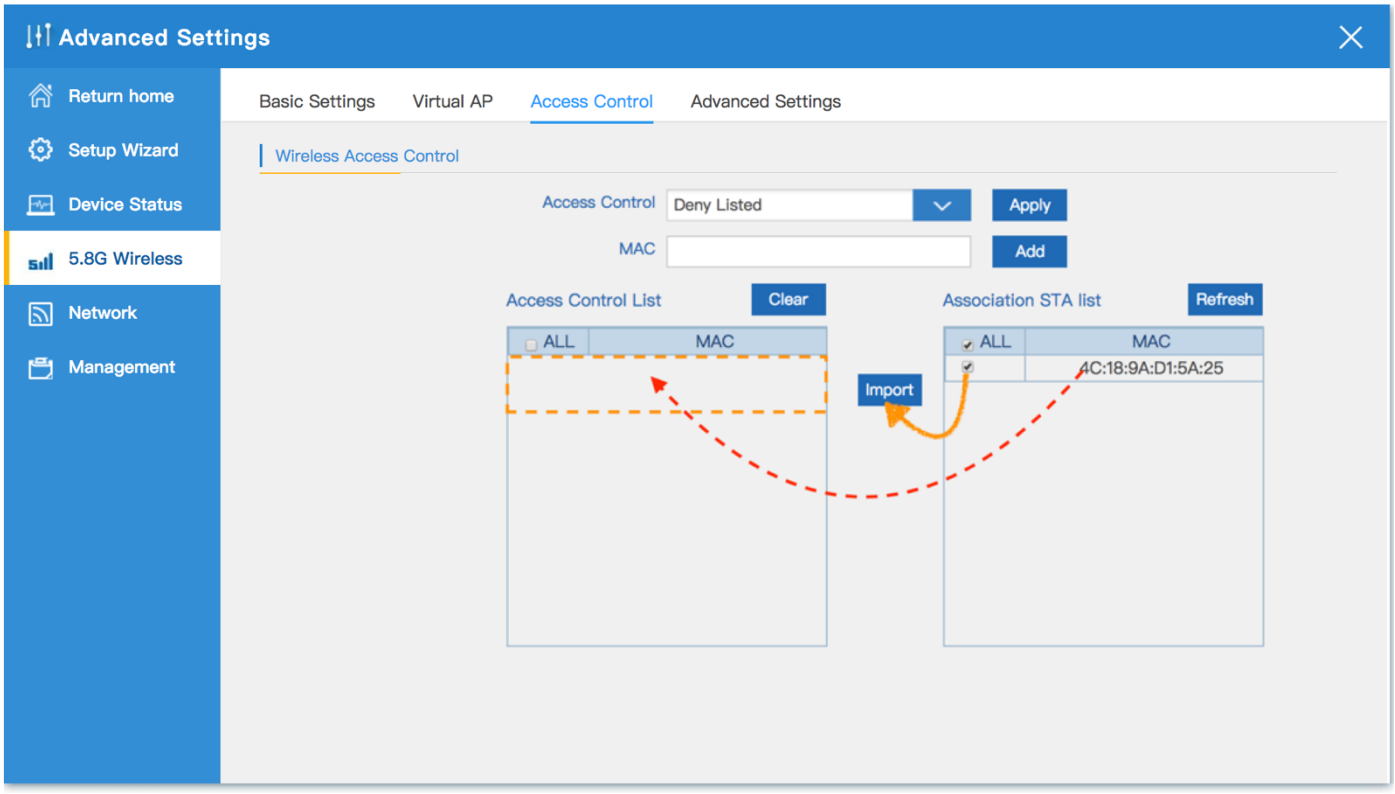
3.Only users who have joined the MAC address list can access the wireless AP. The following is a demonstration of teaching . Add the user MAC address in the list to the access control list.



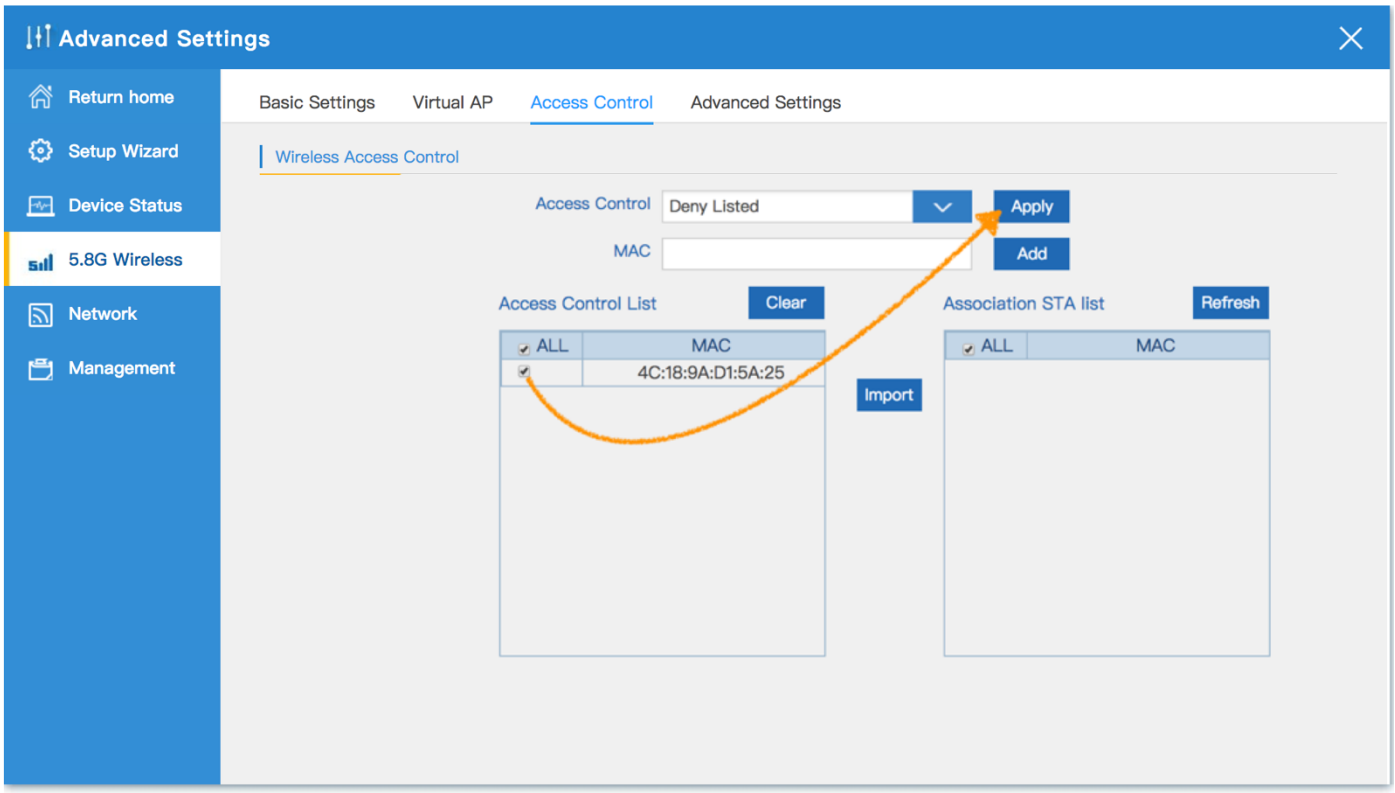
4.After the user's MAC address is added to the access control list, Click Apply. After setting is completed, it will start to allow users access to this wireless AP function



5.Users who have joined the MAC address list are denied access to the wireless AP. The following is a demonstration of teaching . Add the user MAC address in the list to the access control list

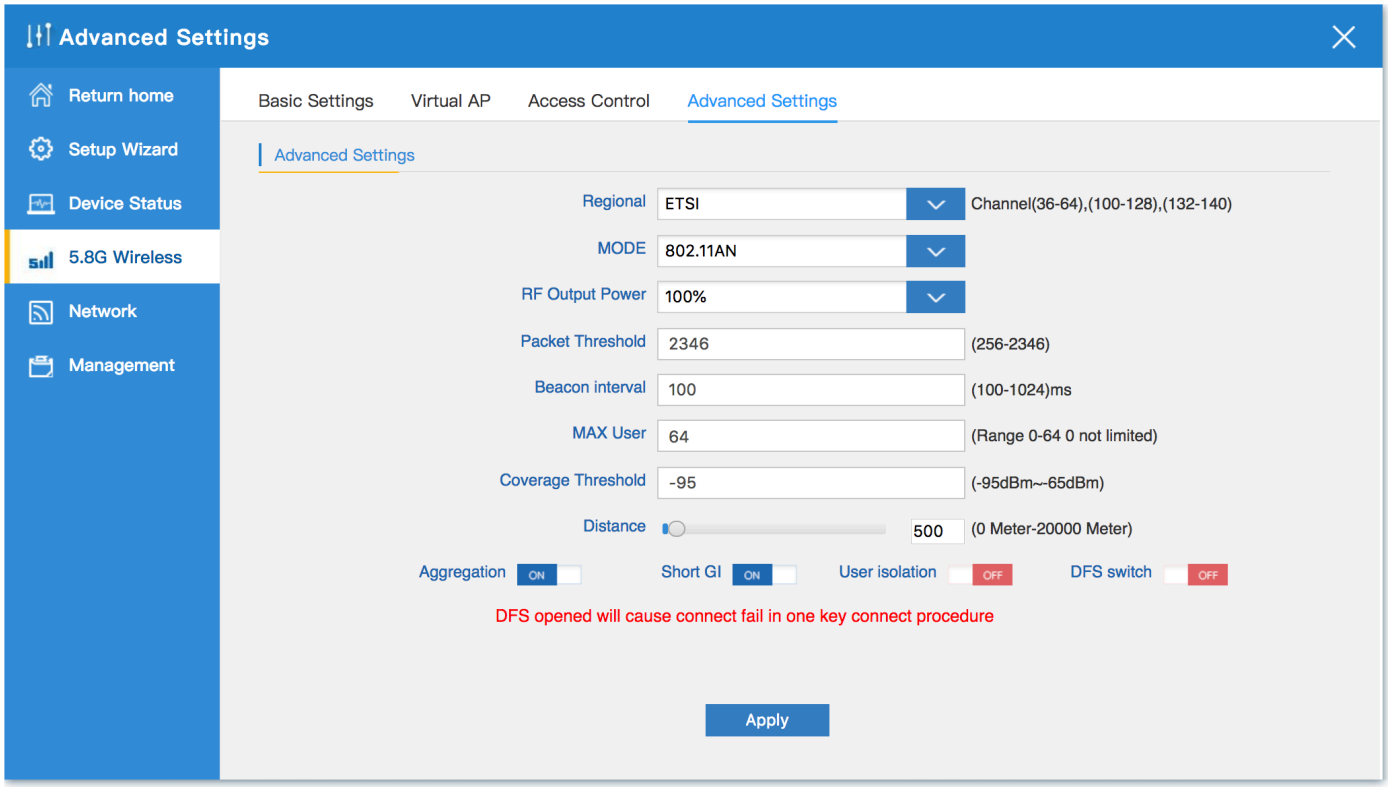


6.After the user's MAC address is added to the access control list, Click Apply. After setting is completed, it will start to deny users access to this wireless AP function

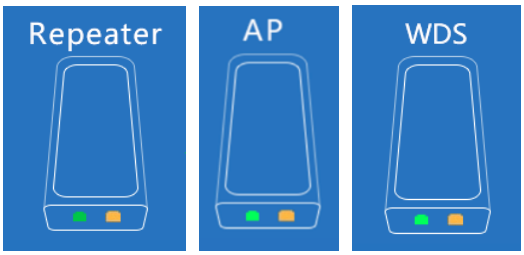


6.2.4 Advanced Settings :

- In this page, will show the regional, mode, RF Power, Max user access...



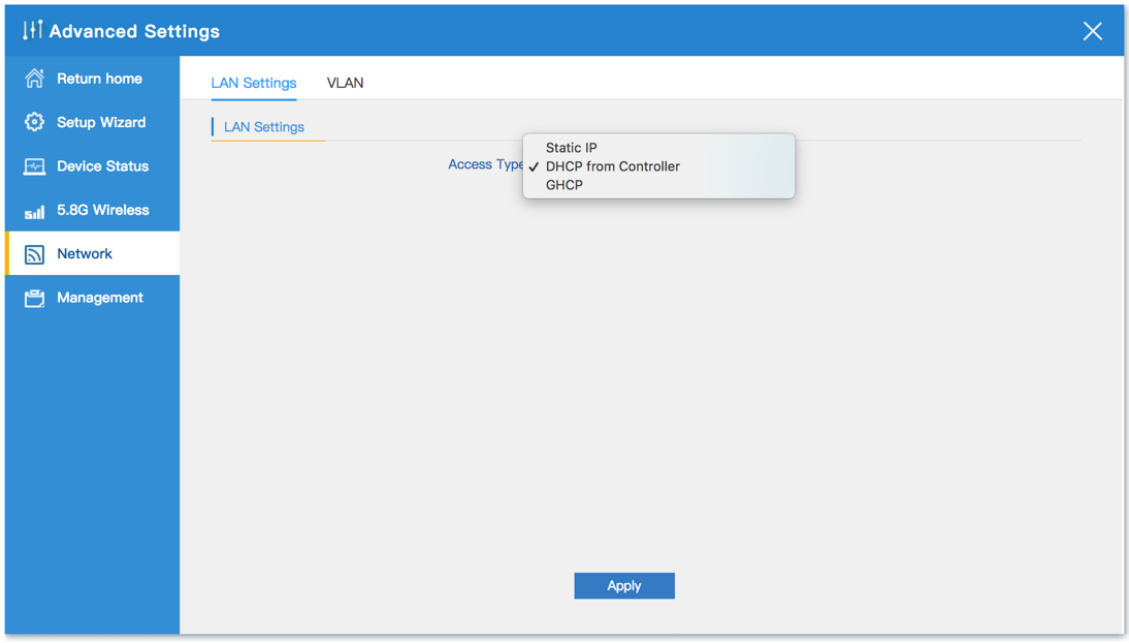
CHAPTER 7 Enable the status of Repeater Mode or AP Mode or WDS Mode



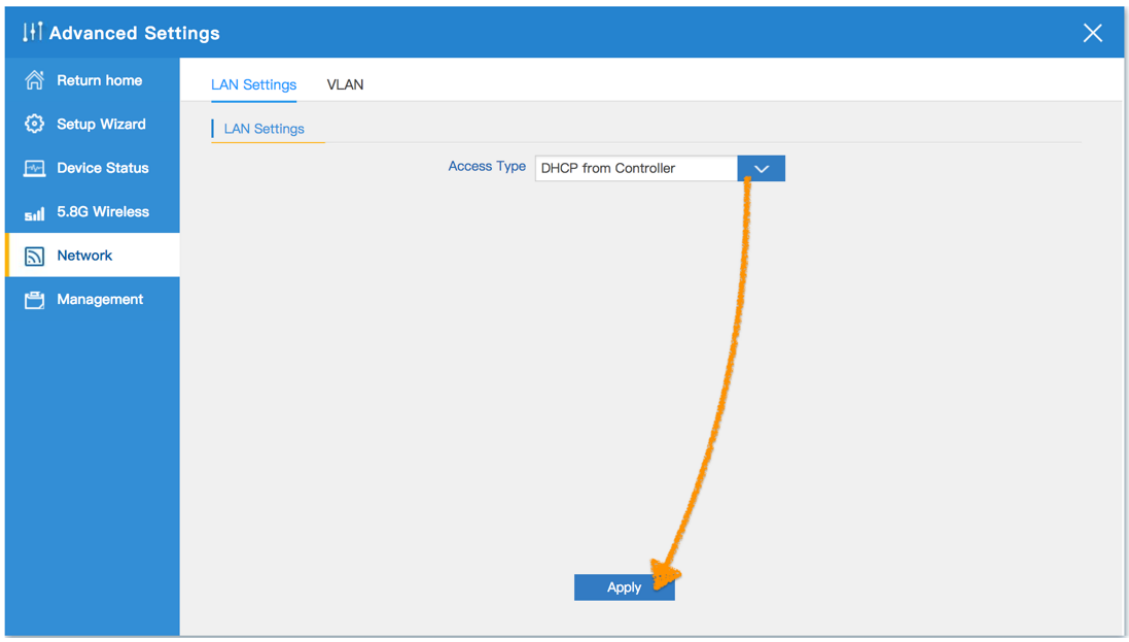
7.1 Network

7.1.1 LAN Settings :

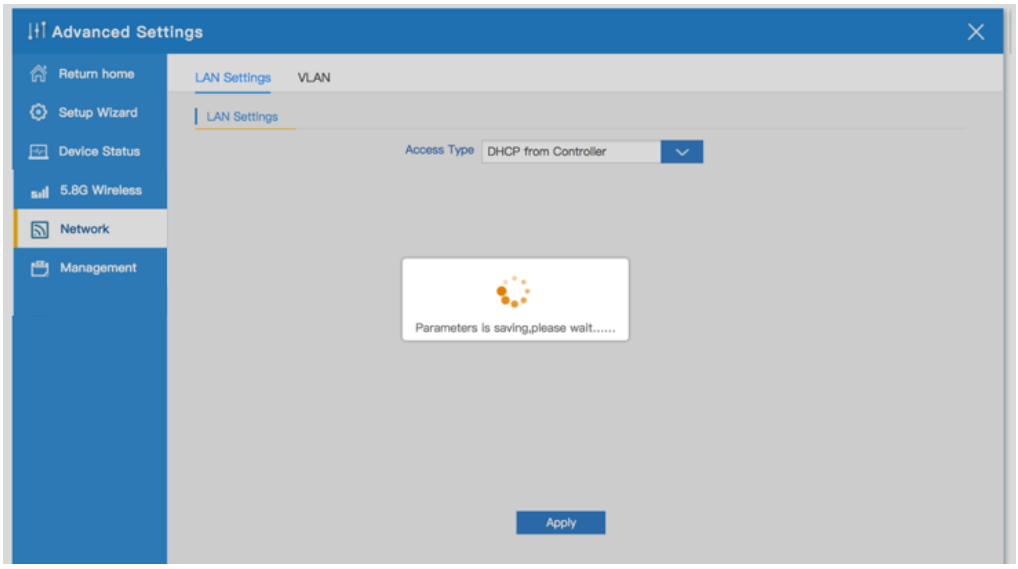
1. Can choose three kinds of usage modes (Static IP, DHCP for Controller ,GHCP) which can be selected according to the current network architecture environment.



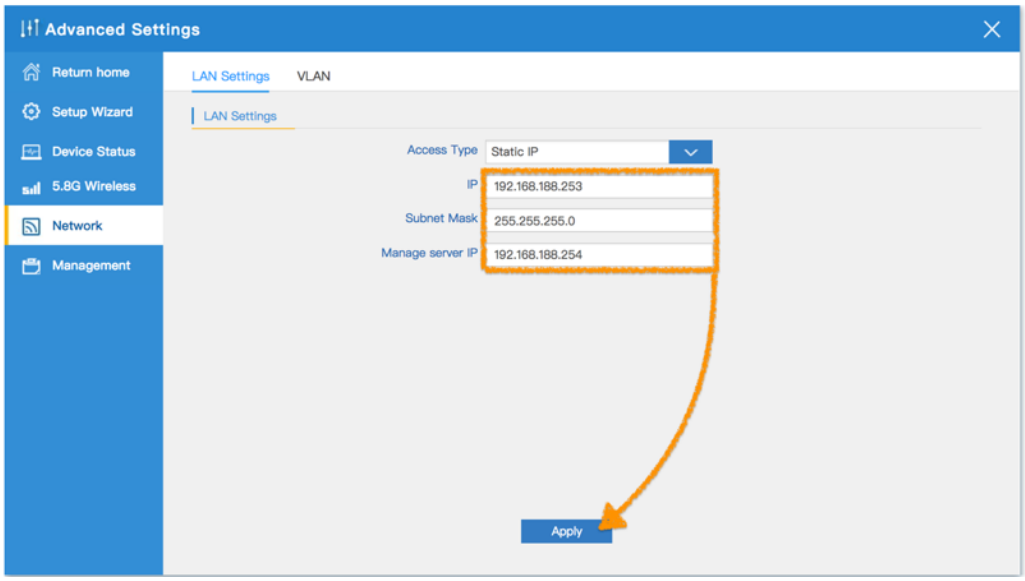
2. Use DHCP for Controller mode, please confirm that the current network architecture has IP address allocation.



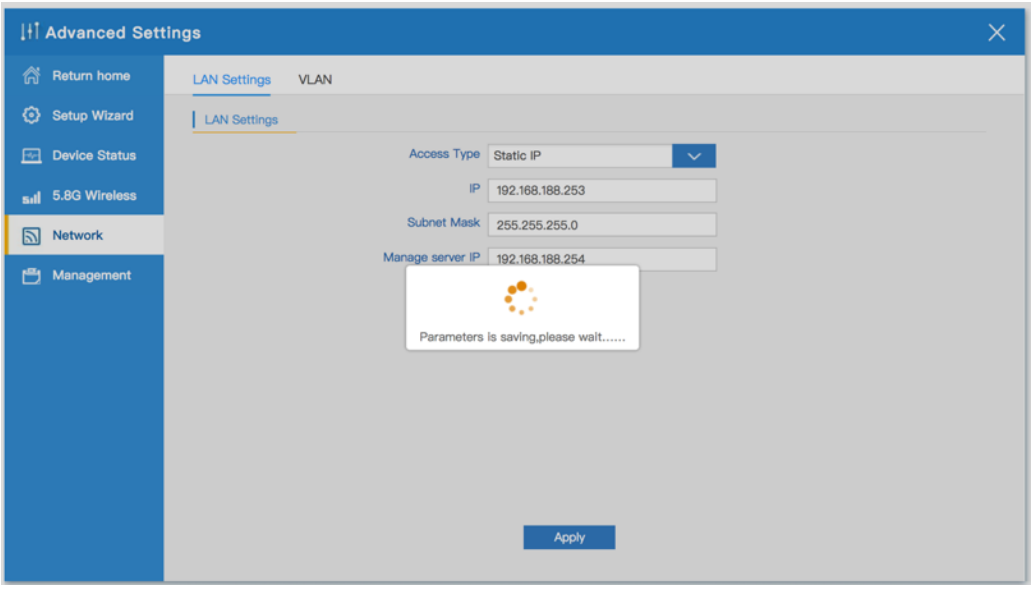
3. Click Apply, Wait for DHCP Controller Mode is Enable, please wait about 20~30 seconds.



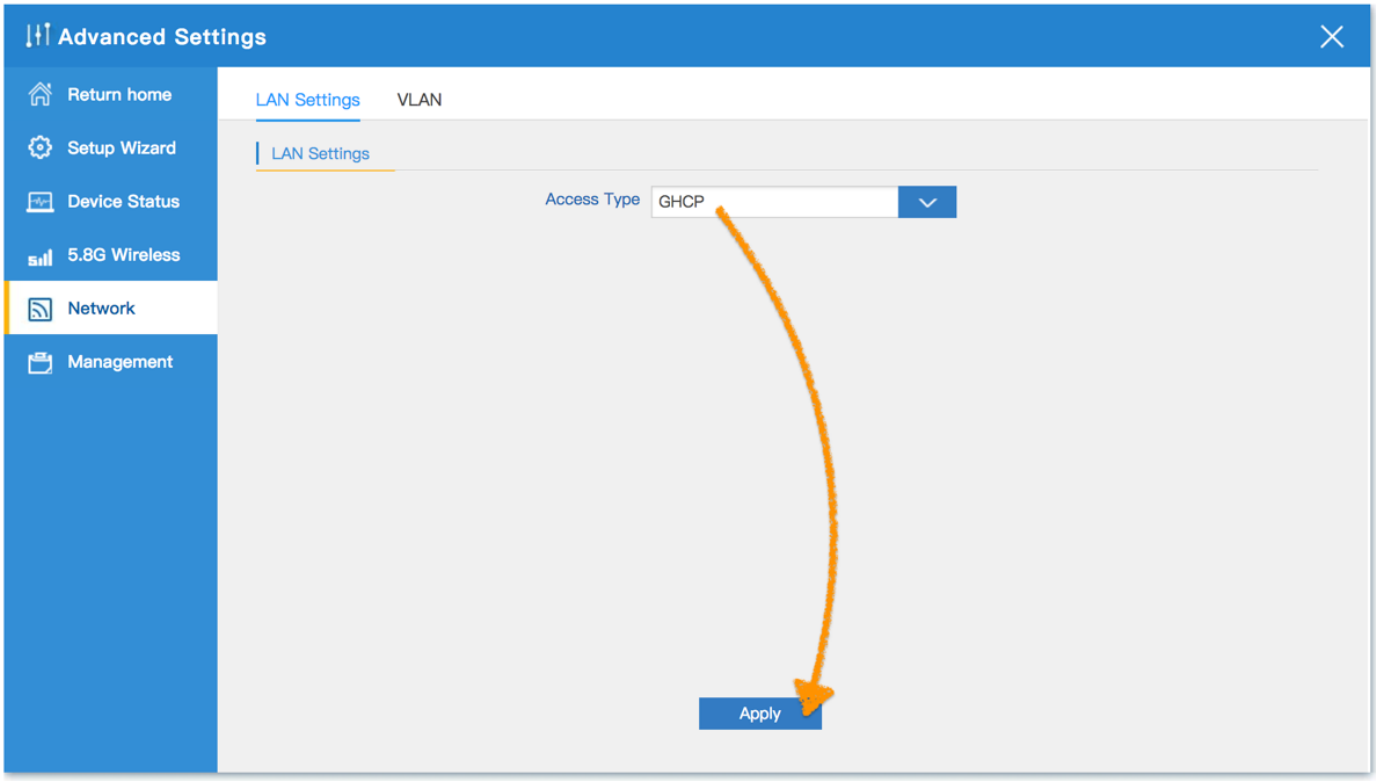
4. Sample Static IP mode setting method, then click Apply to continue.
(Please contact with ISP for correct IP address, Subnet MasDNS address)



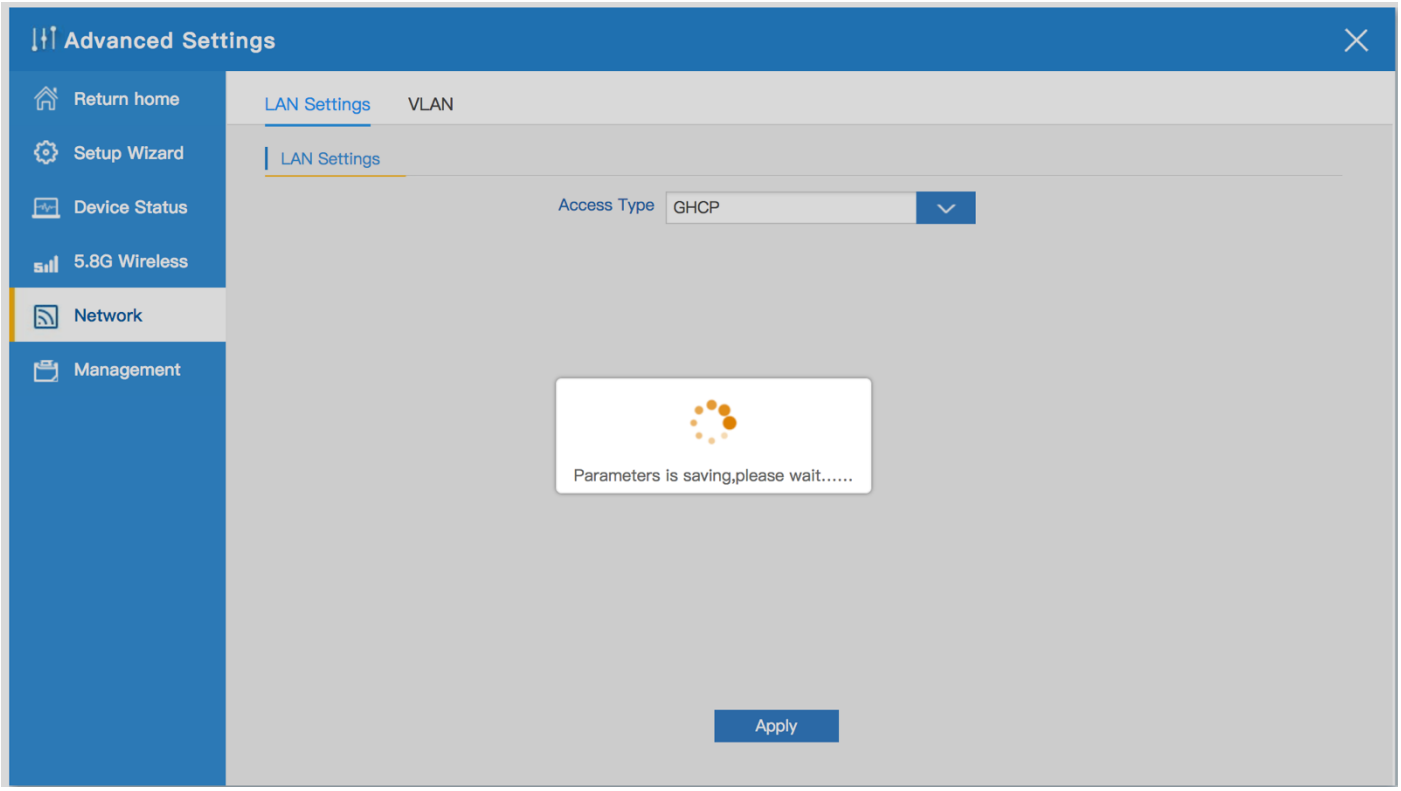
5. Click Apply, Wait for Static IP Mode is Enable, please wait about 40~50 seconds.



6. Use GHCP mode, please confirm that the current network architecture has IP address allocation

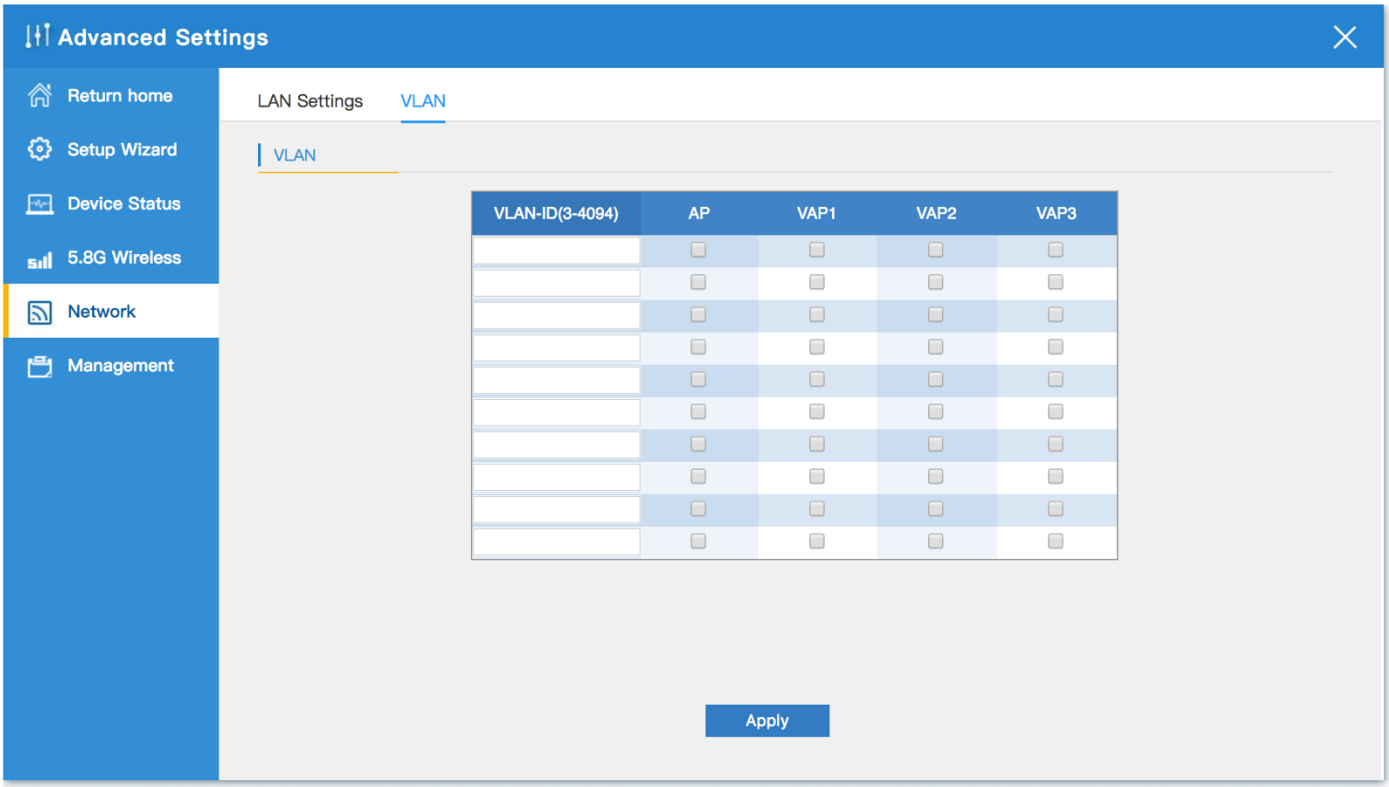


7. Click Apply, Wait for GHCP Mode is Enable, please wait about 20~30 seconds.



6.3.2 VLAN :

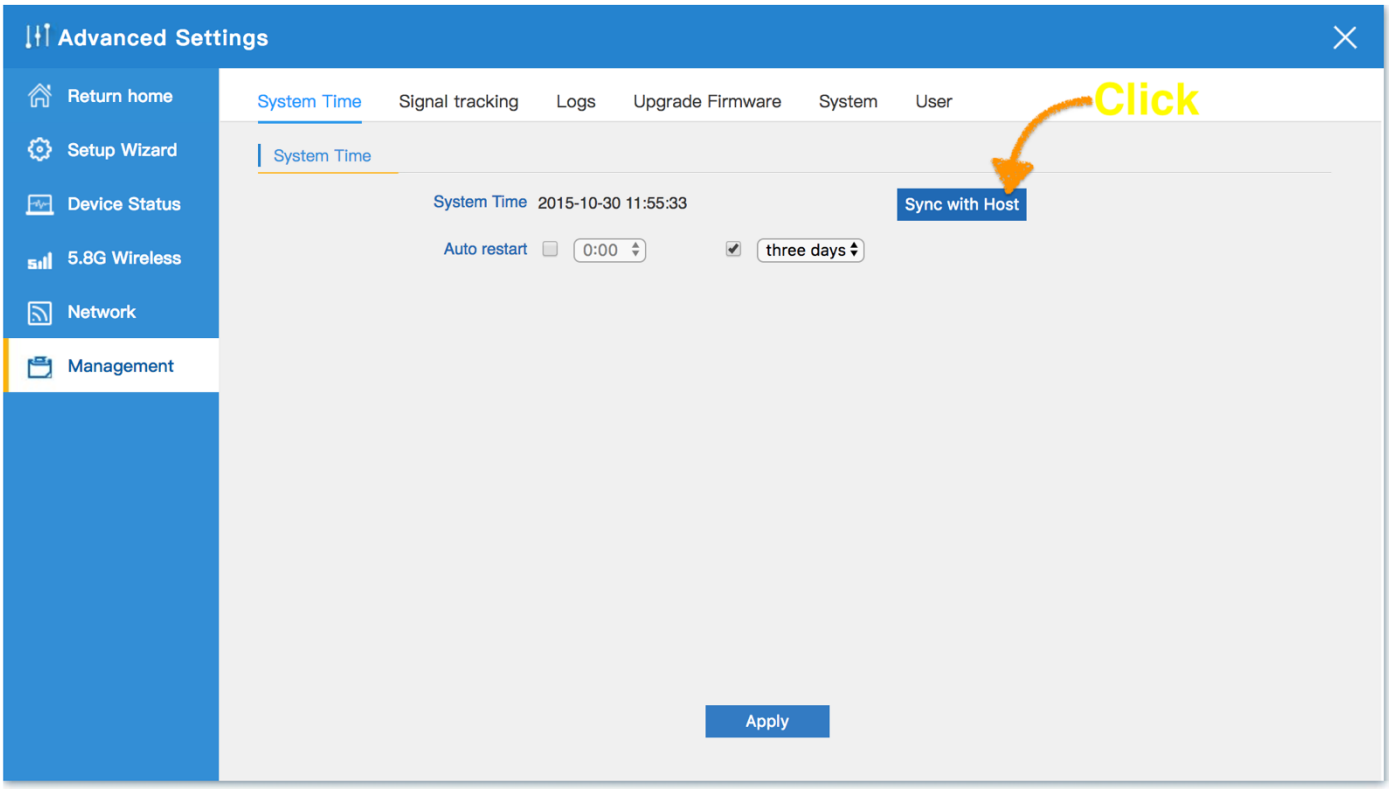
- Please confirm before you can use ,Need support IEEE 802.1Q and VLAN Tagging Managed Switch, Specify WiFi SSID or WAN/LAN Port for WAB-5010 , corresponding to the VLAN-ID (3-4094).



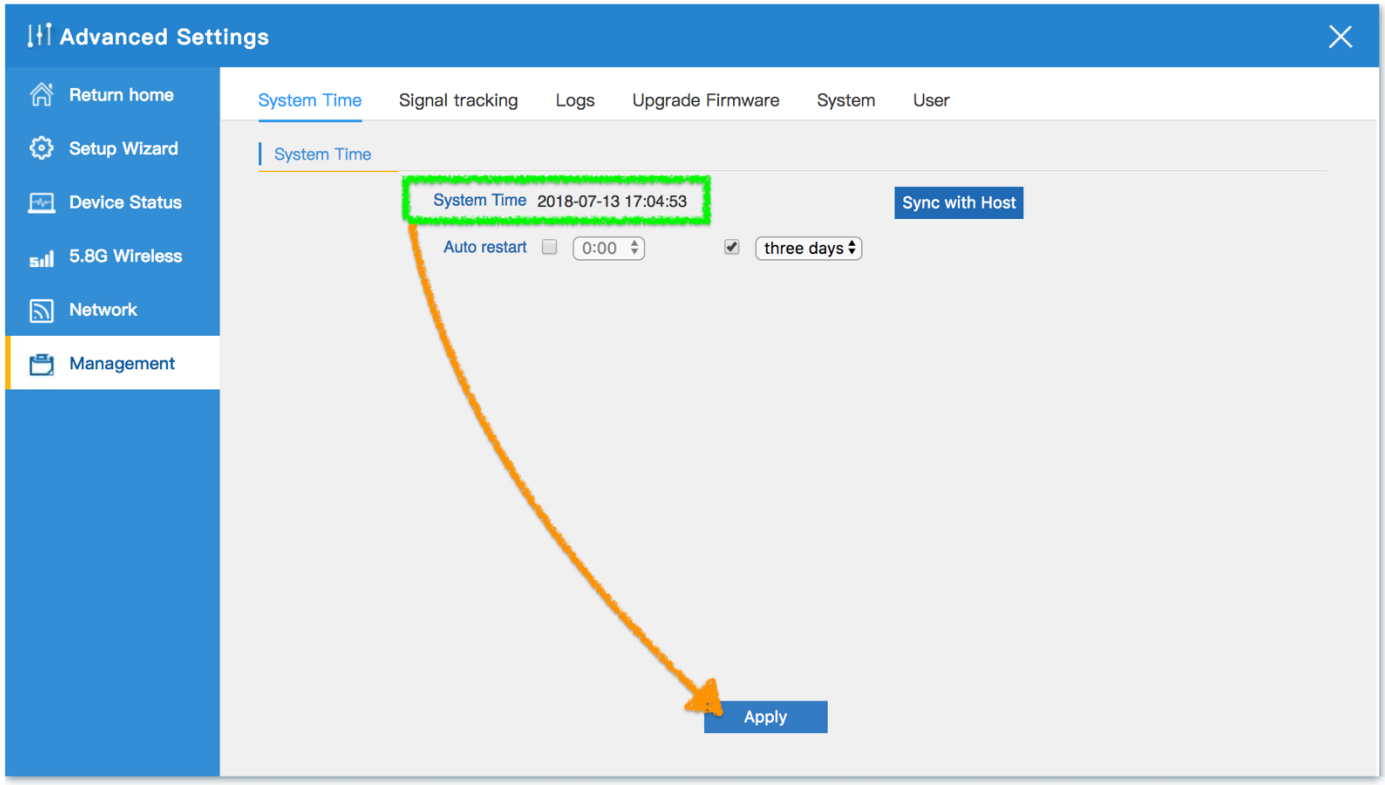
7.2 Management

7.2.1 System Time & Define the system reboot time :

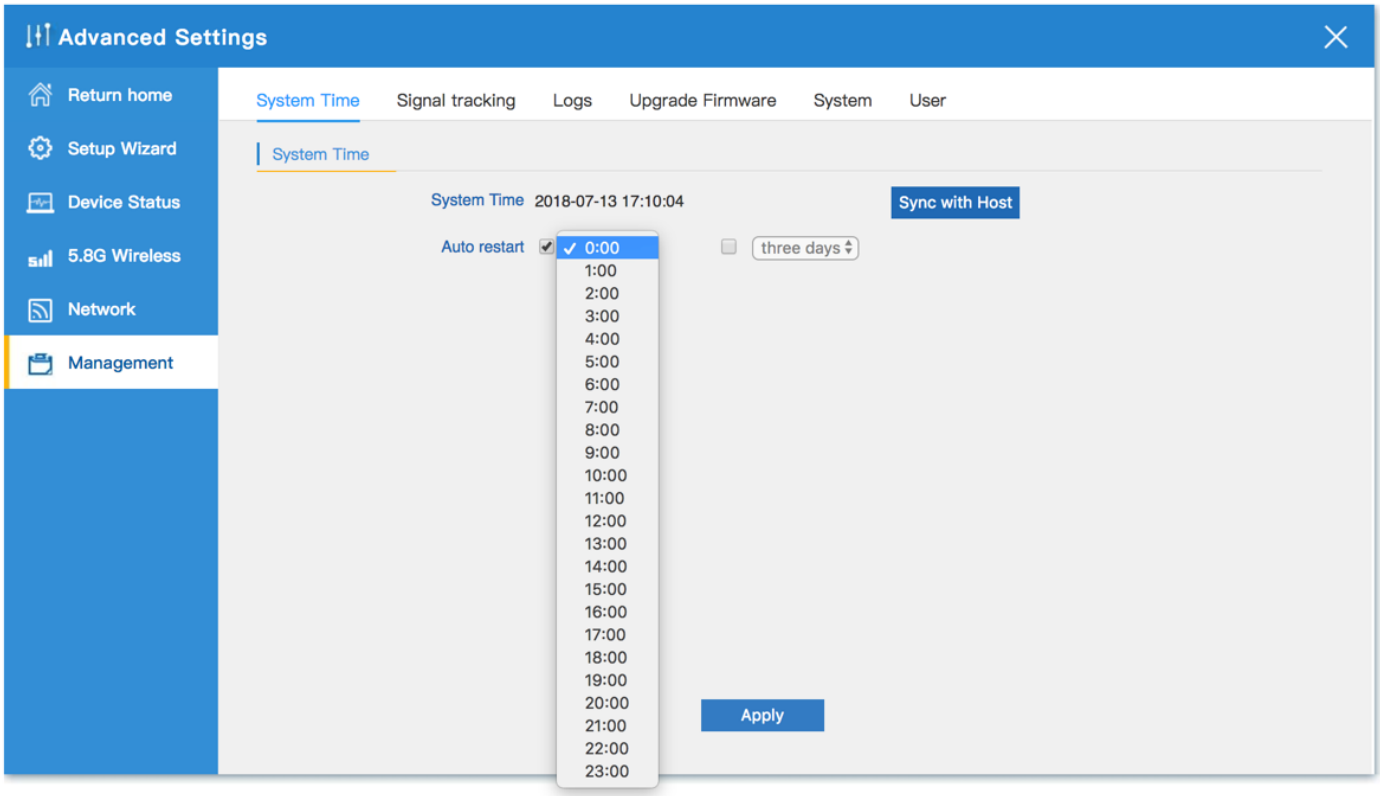
1. Click on Sync with Host to automatically update to the current Time.



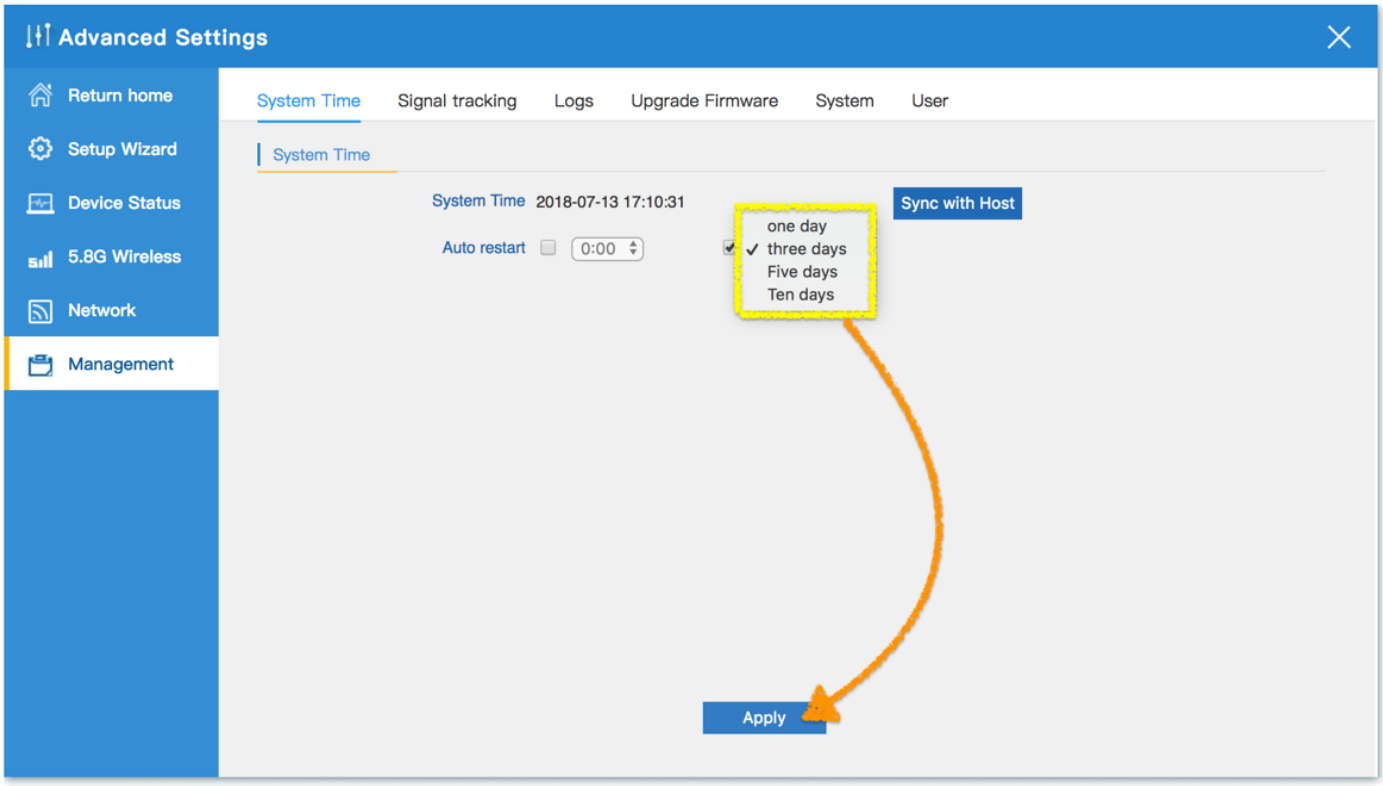
2. Confirm that System Time is correctly refreshed to the current time, Click Apply



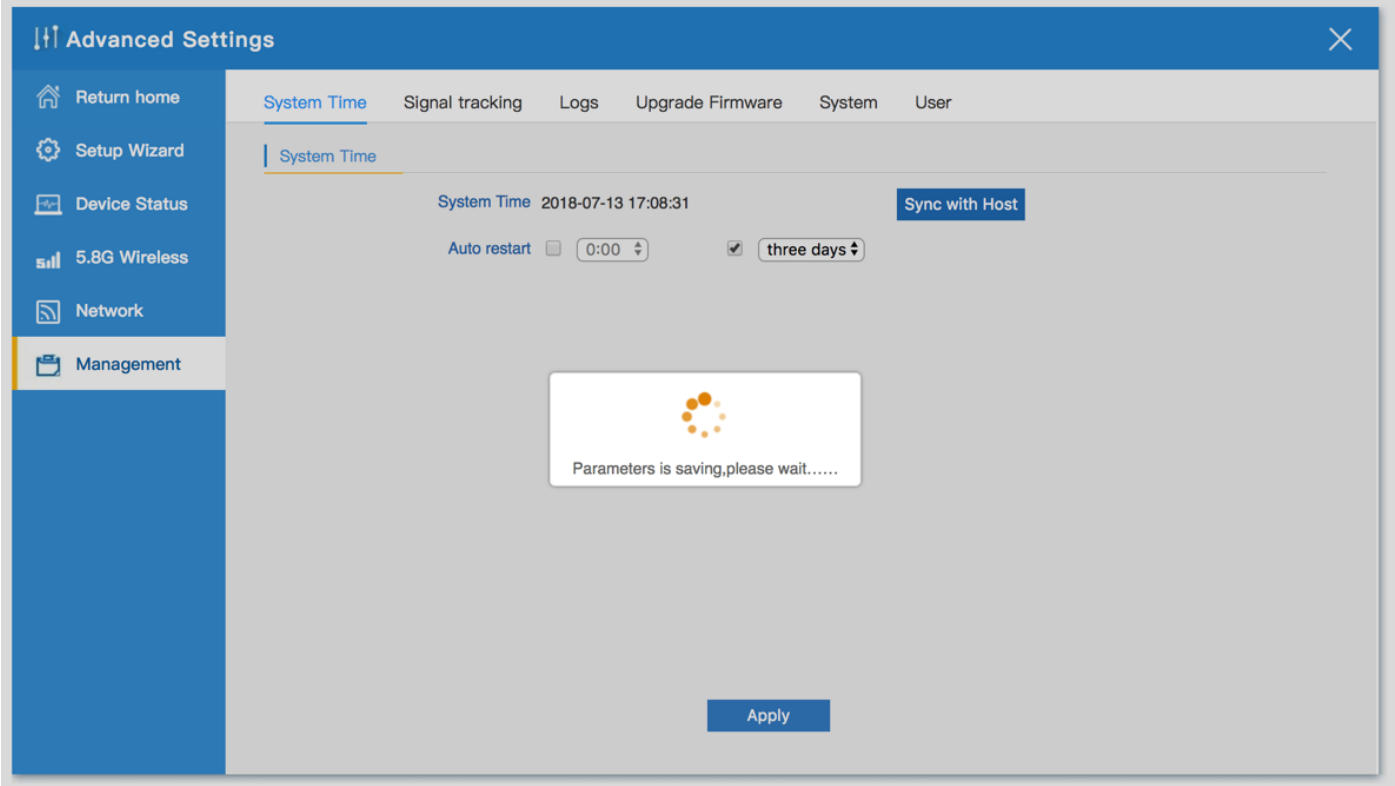
3. Define the system reboot time(0:00~23:00)



4.Can choose every day or every five days or every 10 days , System Reboot Automatically.

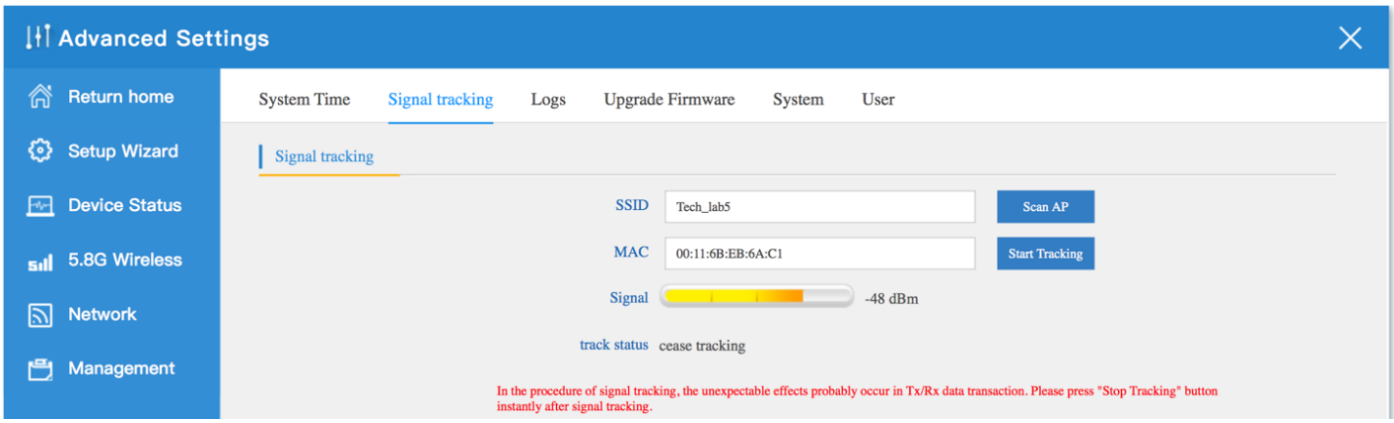


5. Enable Define the system reboot time, please wait about 20~30 seconds.



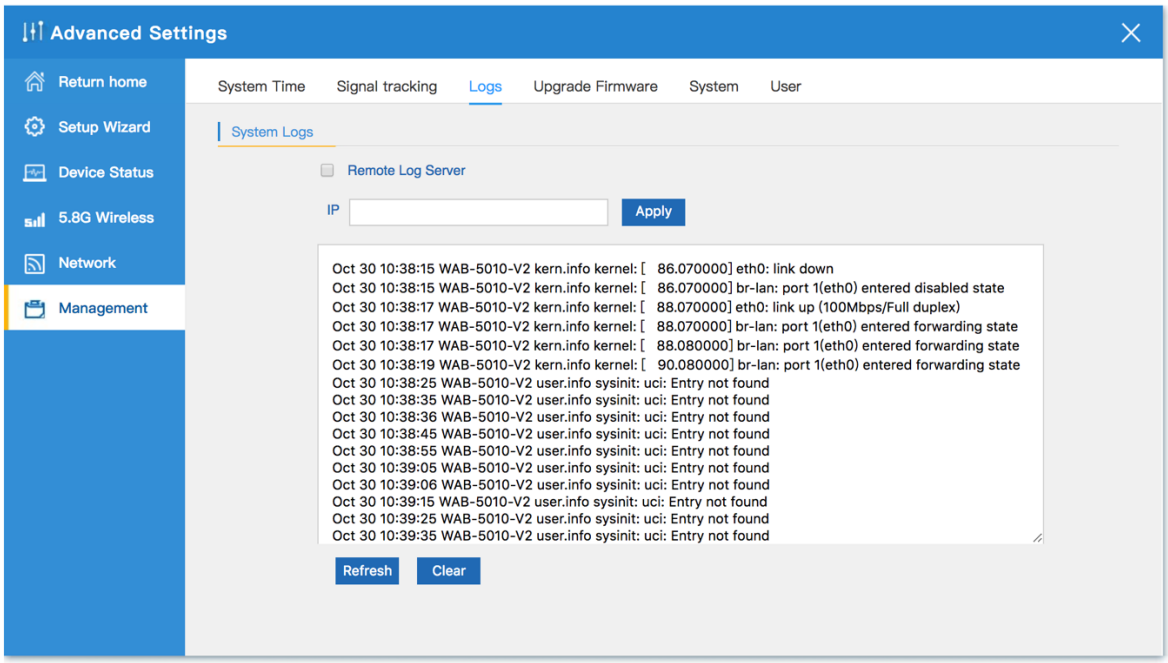
7.2.2 Signal tracking

- can display the information of the AP in the tracking. ex: MAC, Signal receiving strength



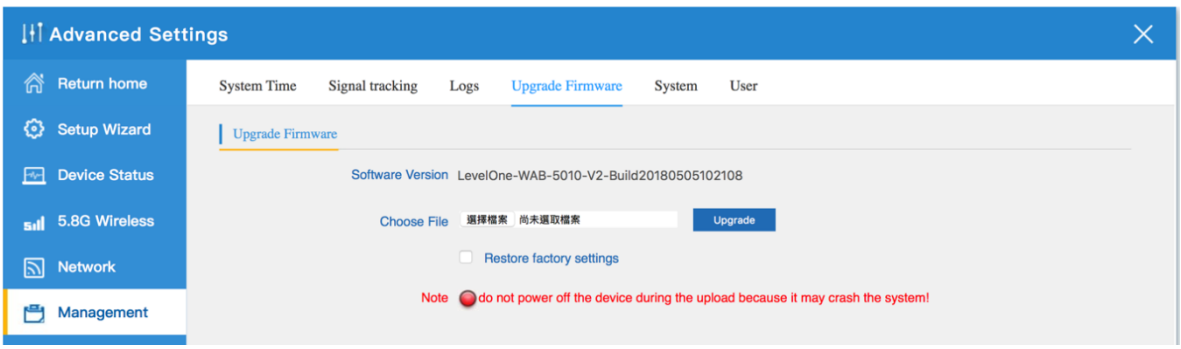
7.2.3 Log

- Logs to show the outdoor WAB-5010's operation logs, useful for problem solved.



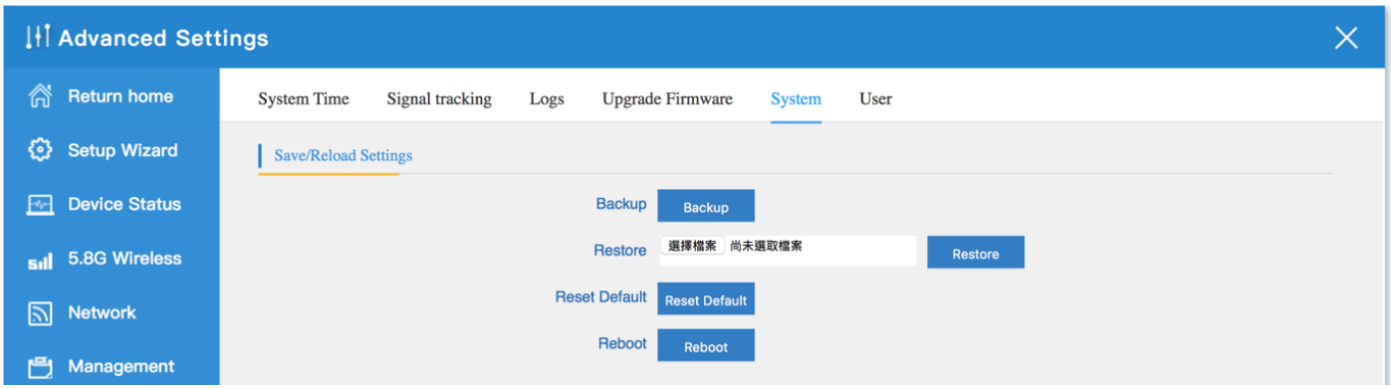
7.2.4 Upgrade Firmware

- The browse the new firmware in your computer and upgrade. Please do not power off the device during upgrade.
- **Note :** The update firmware is recommended to use the connection RJ45 Network Cable update . Not recommended to use the wireless connection method to update the firmware.



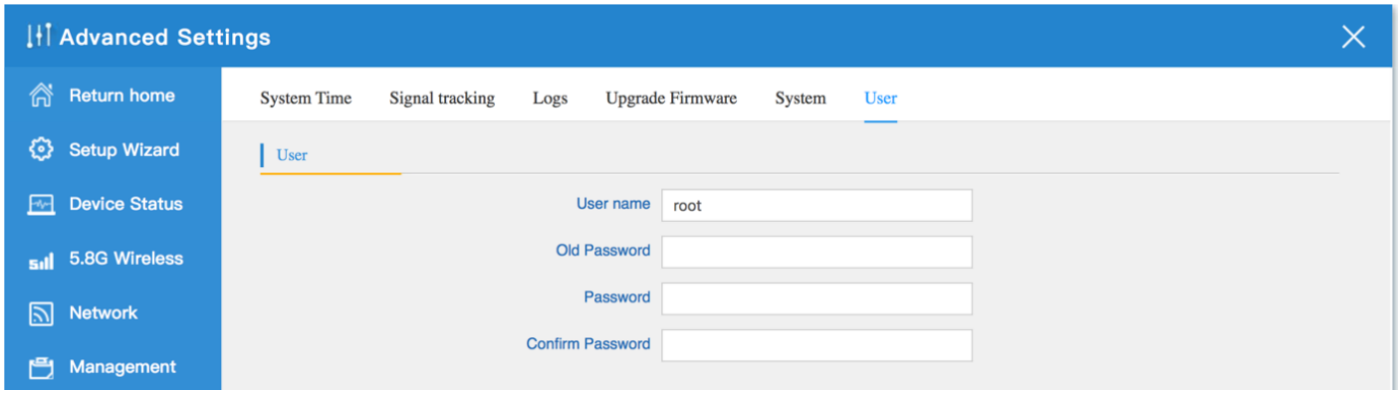
7.2.5 System

- In System, this is for firmware backup or restor, or reset to default. Or reboot, mostly for problem solve.



7.2.6 User

- user can change the login password based on their needs:

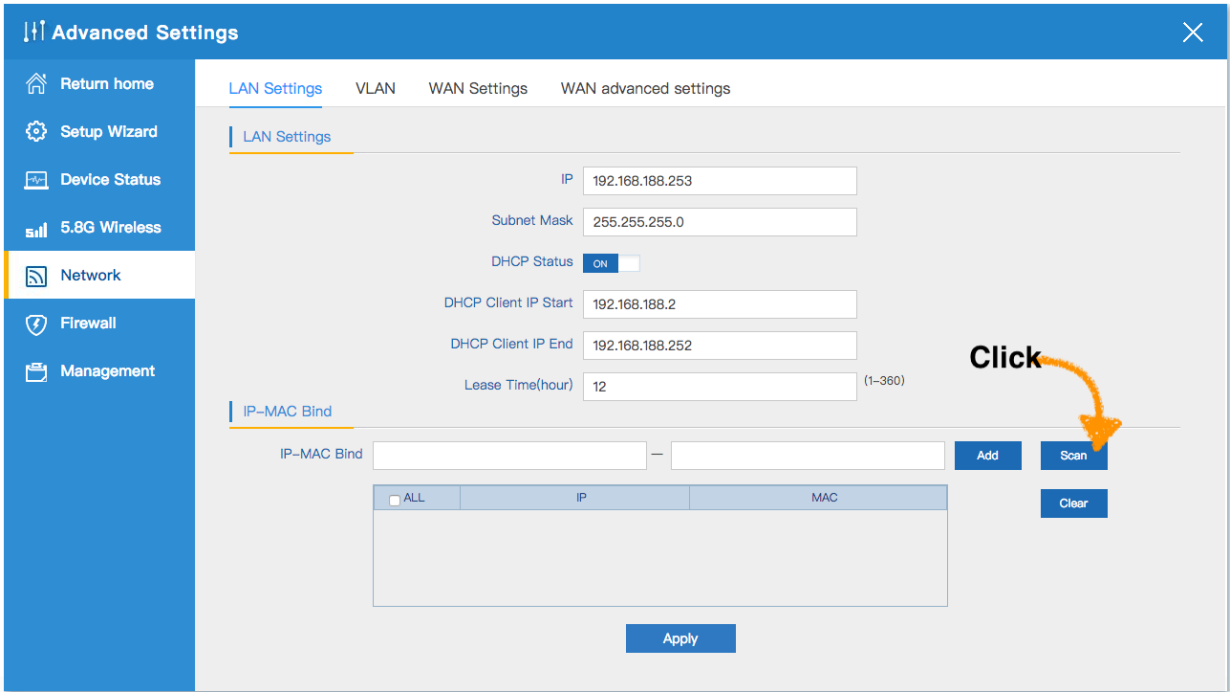


CHAPTER 8 Enable the status of Gateway Mode or WISP Mode

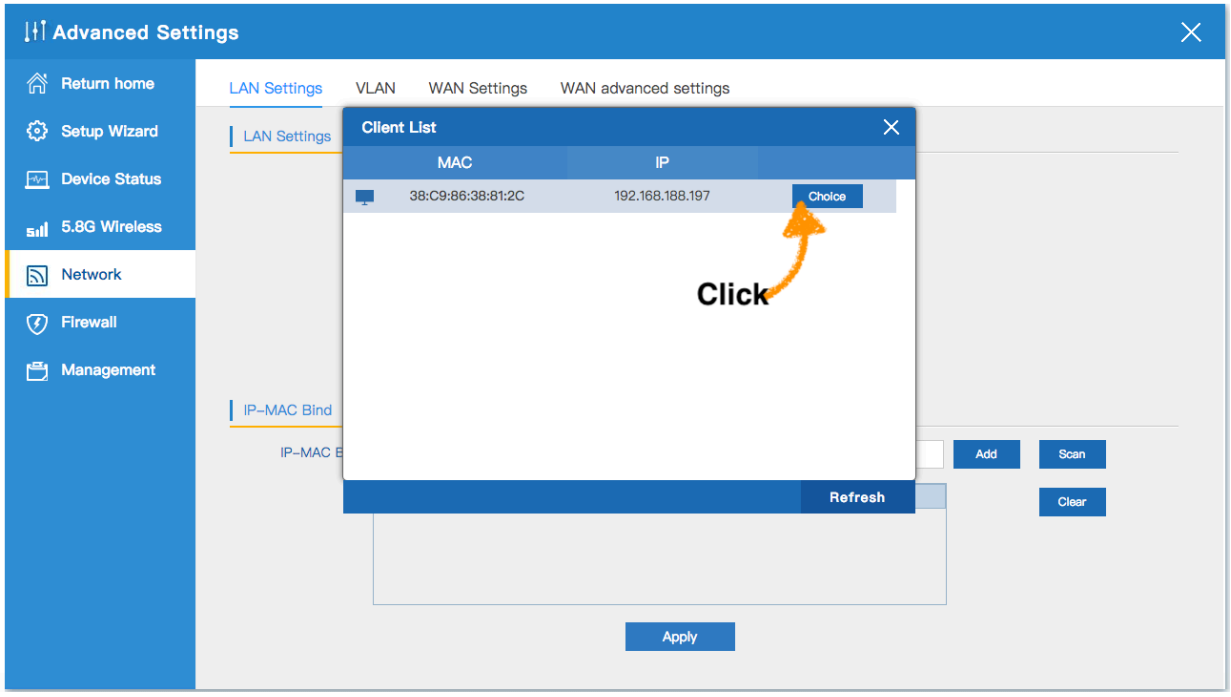
8.1 Network

8.1.1 LAN Settings :

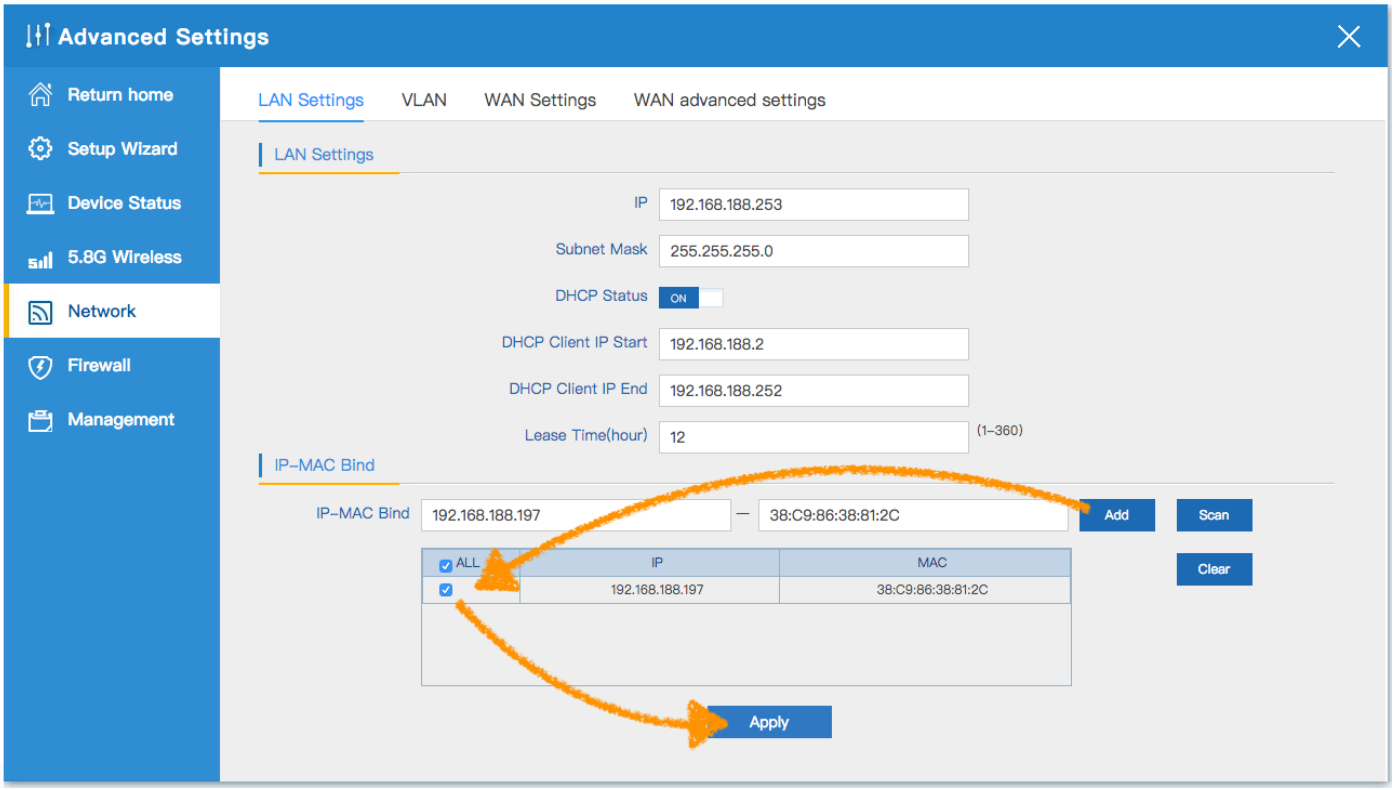
1. Set the specified device retention IP for easy management. The following is a demonstration of teaching .



2.Click Choice

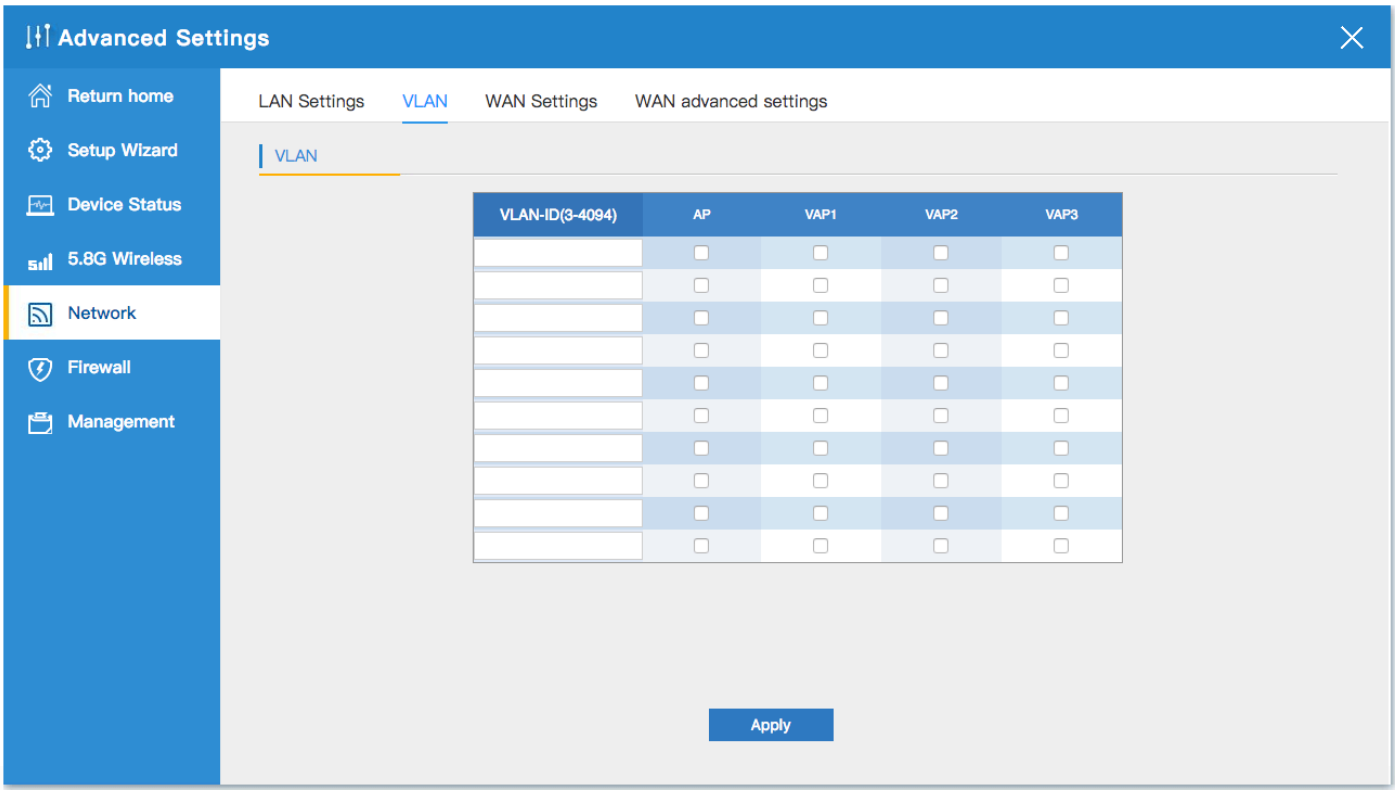


3.Add the user MAC address in the list to the access control list . Completed the reserved IP settings



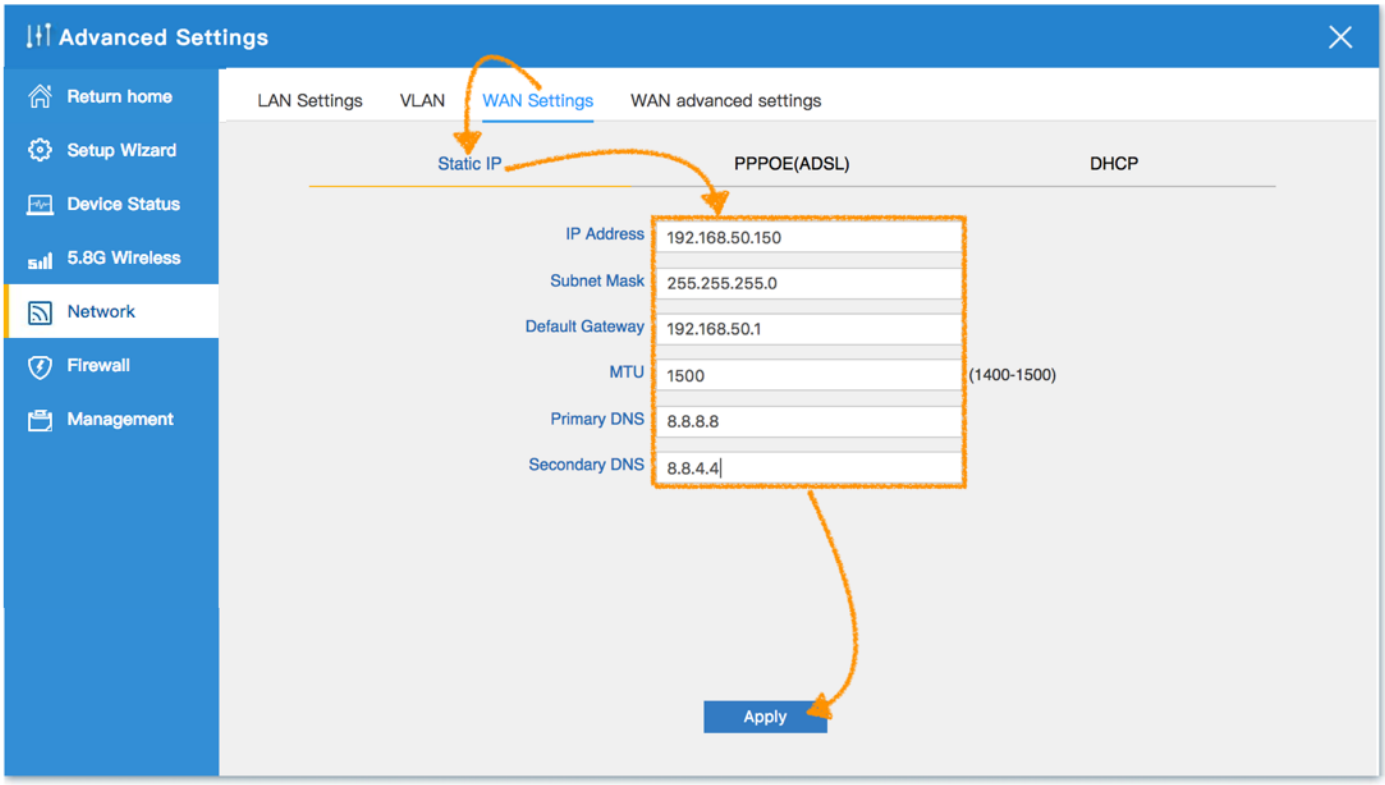
8.1.2 VLAN :

- Please confirm before you can use ,Need support IEEE 802.1Q and VLAN Tagging Managed Switch, Specify WiFi SSID or WAN/LAN Port for WAB-5010 , corresponding to the VLAN-ID (3-4094).

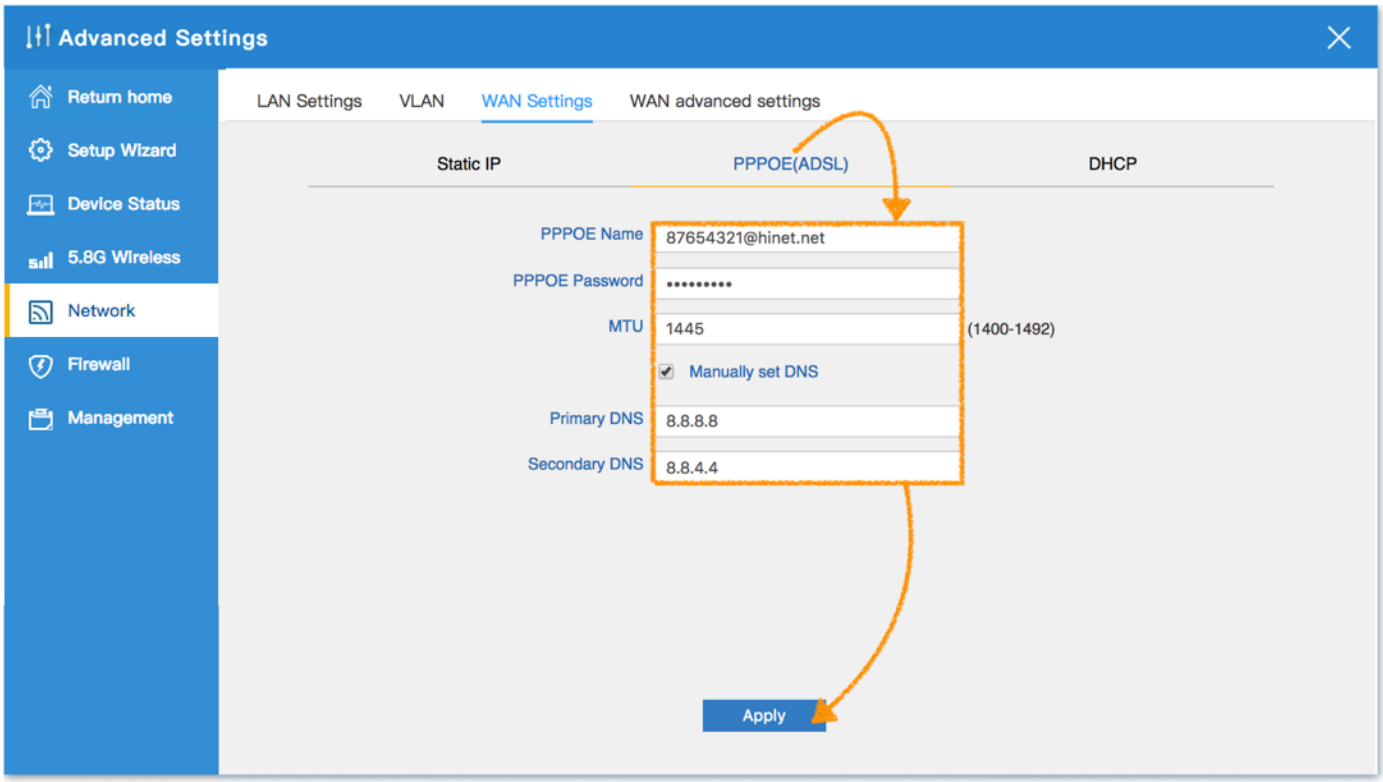


8.1.3 WAN Settings :

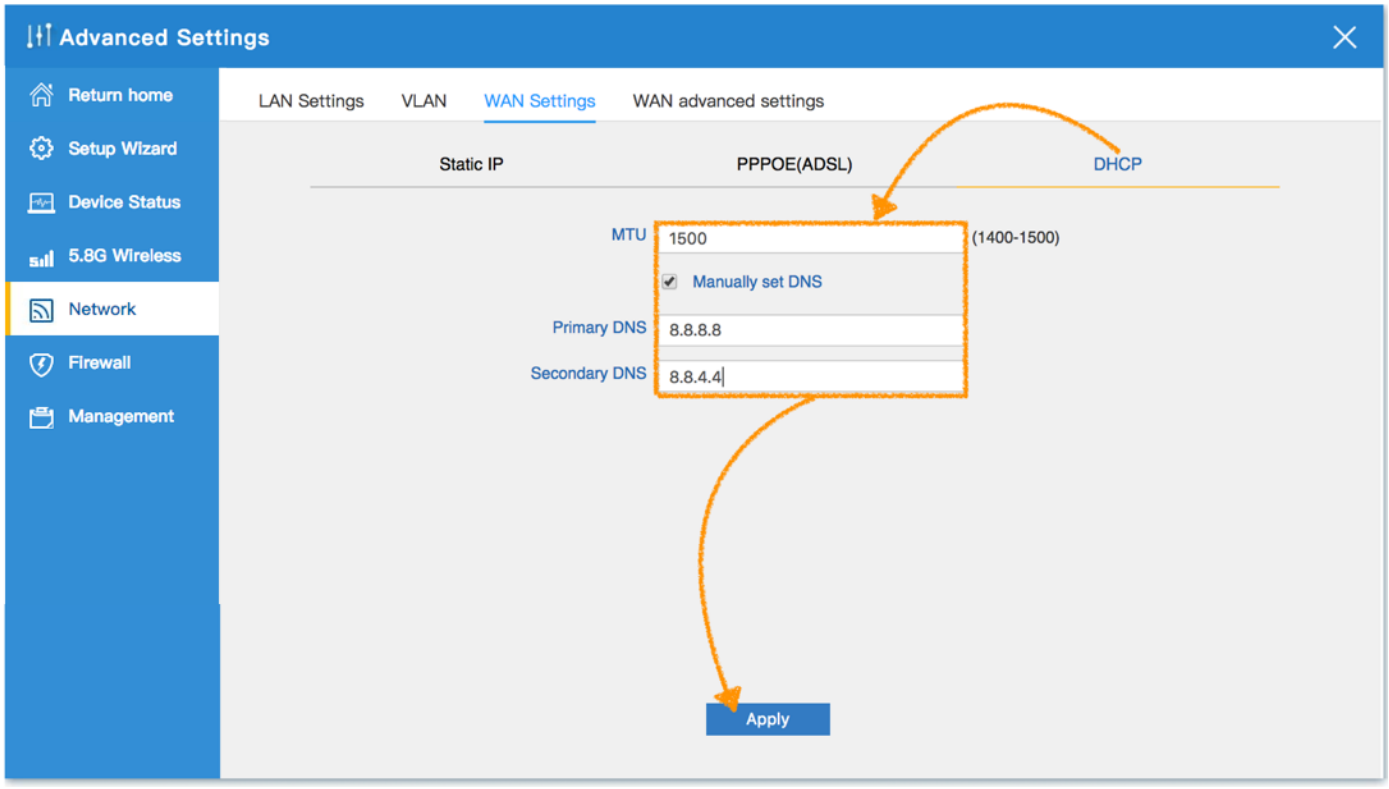
1. Please check with the ISP first how to access the Internet , The following is a demonstration of Static IP teaching .



2.The following is a demonstration of PPPoE teaching .

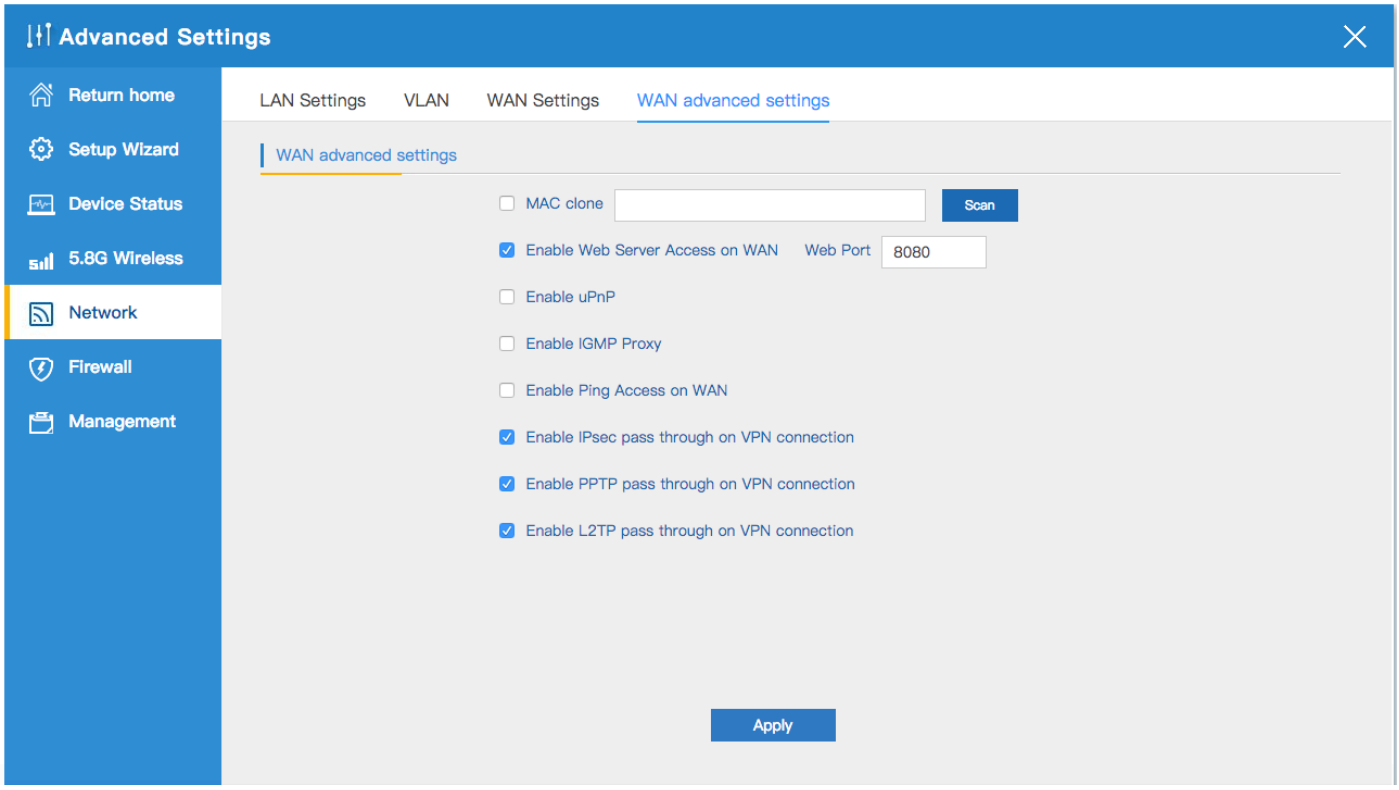


3.The following is a demonstration of DHCP teaching .



8.1.4 WAN advanced settings:

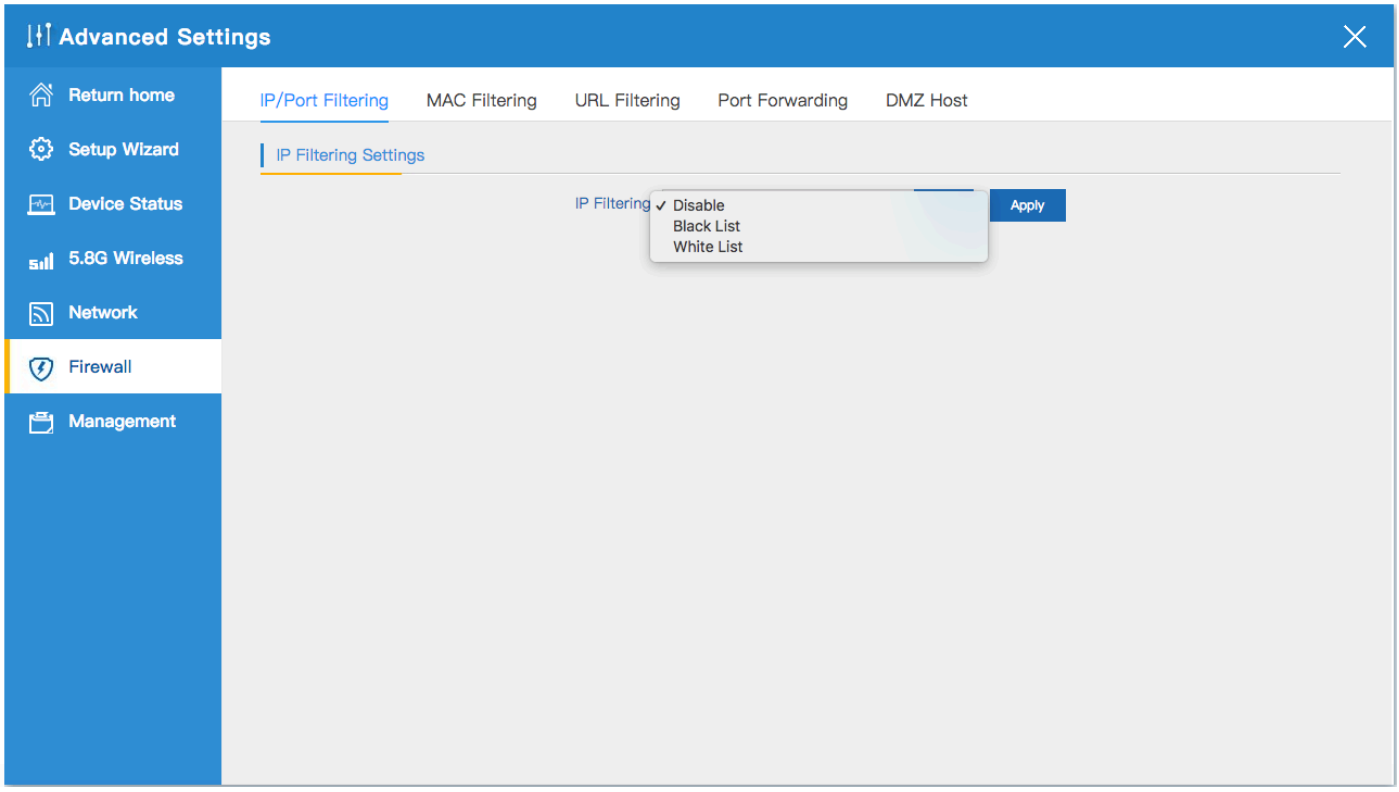
- Internet security does not recommend enable Ping Access on WAN to prevent interested people from knowing the real IP address



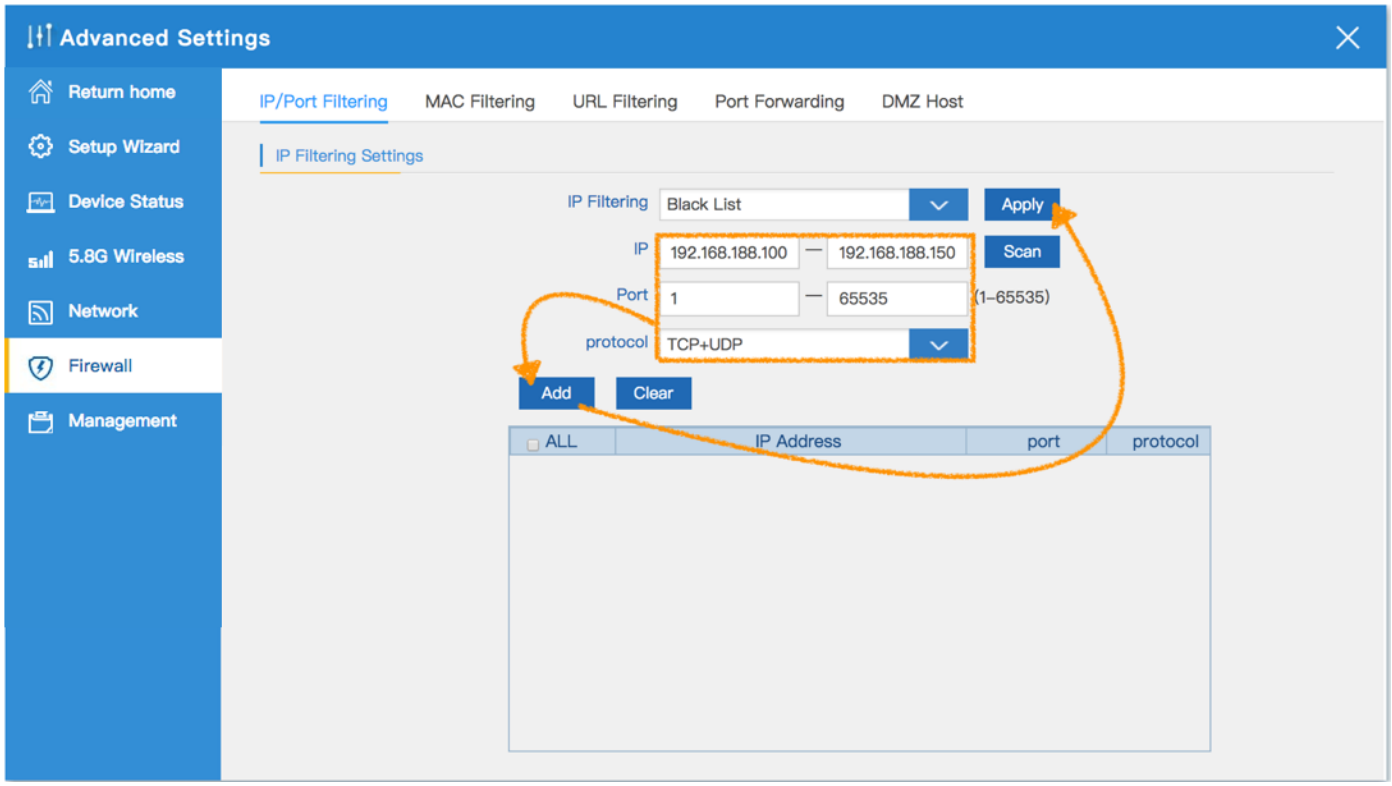
8.2 Firewall

8.2.1 IP/Port Filtering :

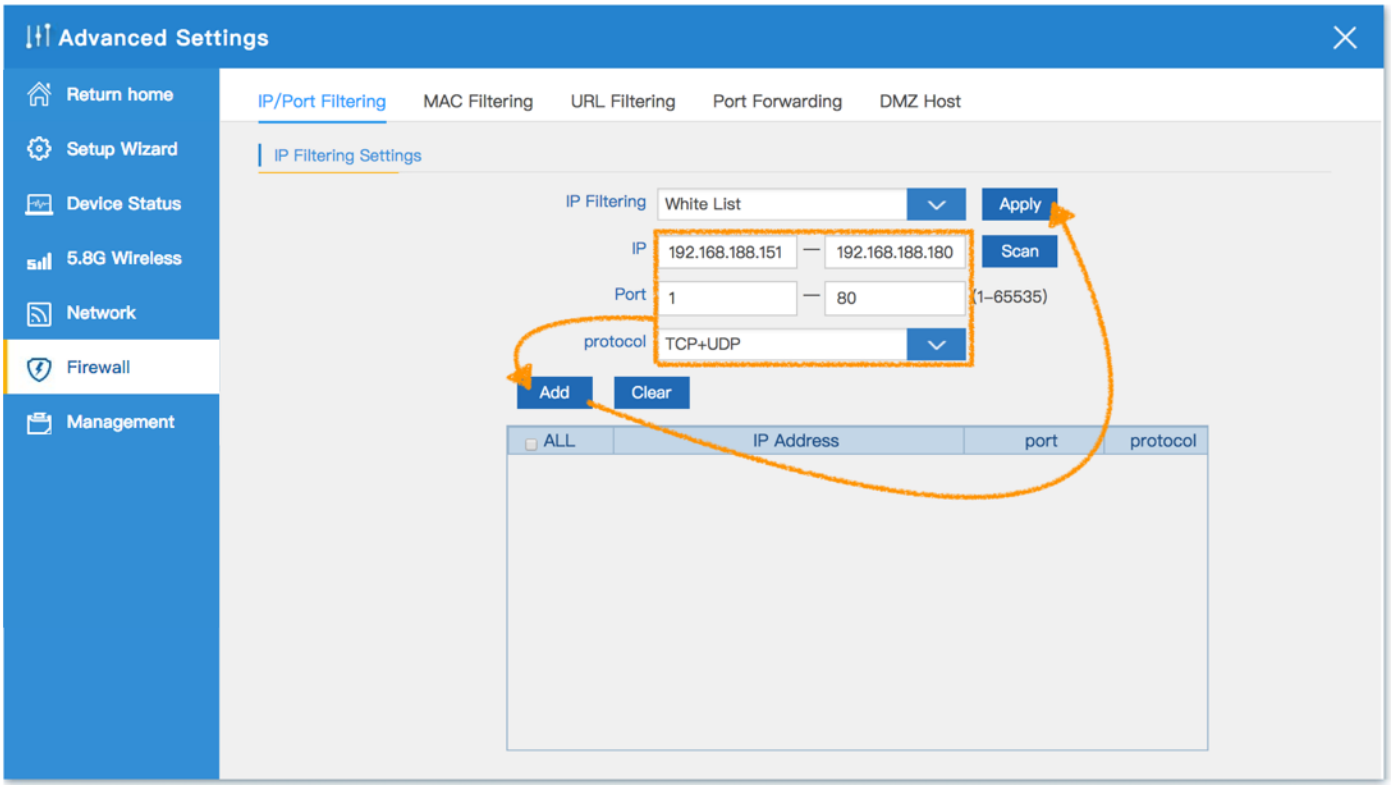
1.Factory default value is Disable, Can be set to whitelist or blacklist. The following will begin to introduce how to set the enable function



2.Black List : IP Address that can be specified as a separate or range , and then specifies the port range (1~65535) and protocol(TCP/UDP) .

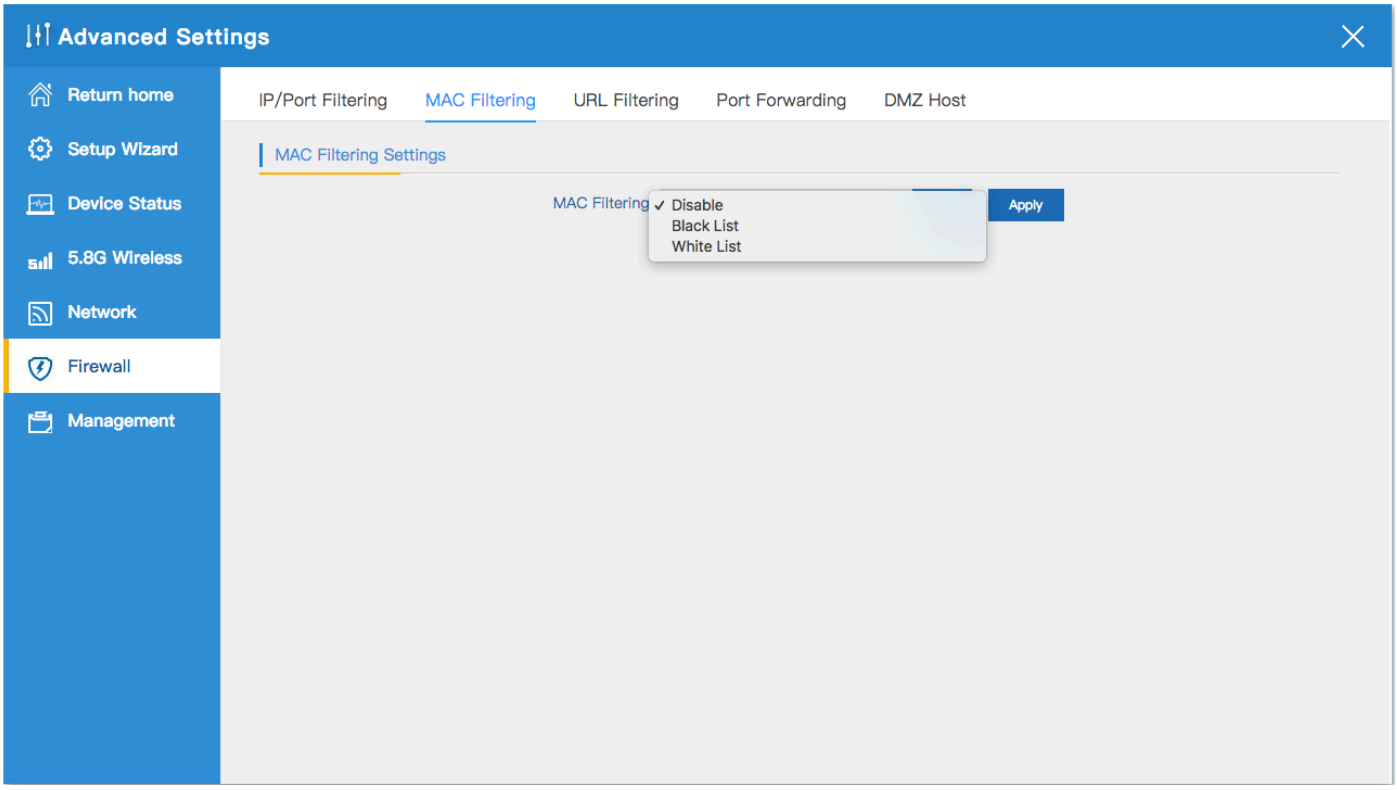


3.White List : IP Address that can be specified as a separate or range , and then specifies the port range (1~65535) and protocol(TCP/UDP) , which is set as the status of the allow.

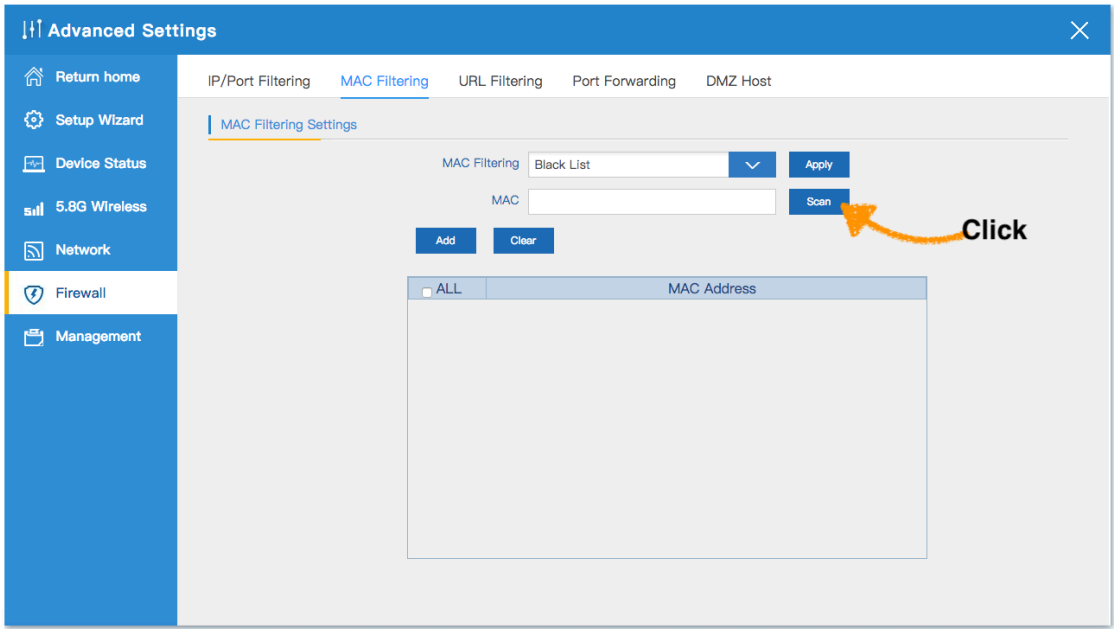


8.2.2 MAC Filtering :

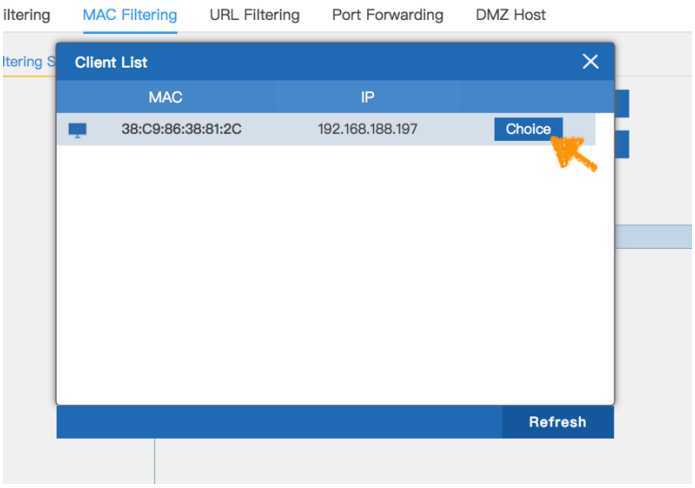
1.Factory default value is disable, Can be set to whitelist or blacklist. The following will begin to introduce how to set the enable function



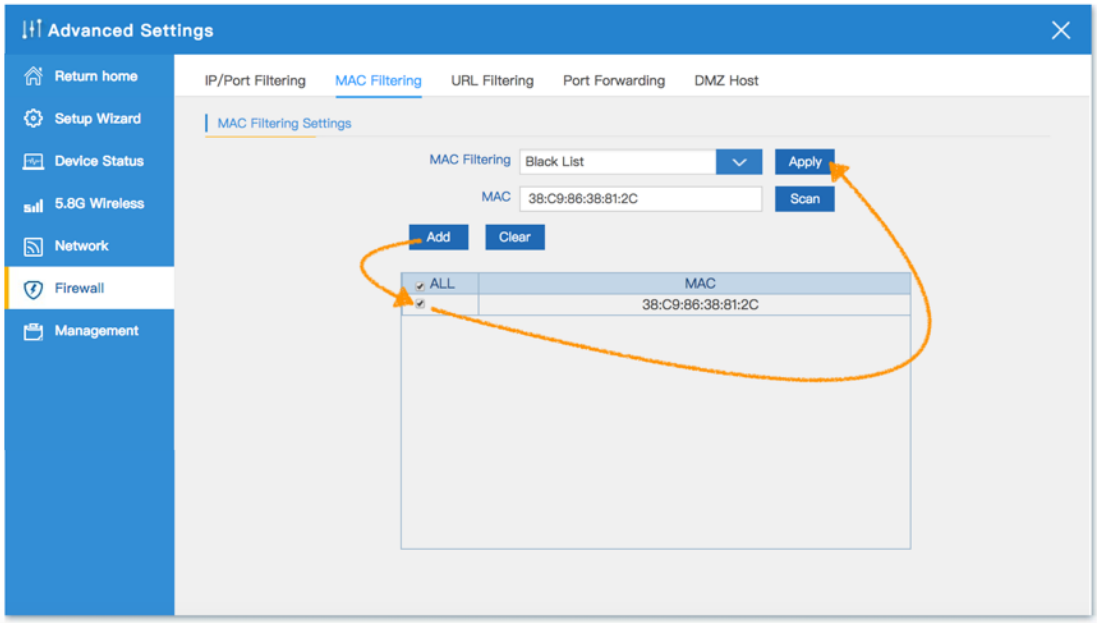
2.Black List : Scan specified mode or manual input mode to set, you can block the specified MAC address to connect to the Internet, leaving only link Regional network function.



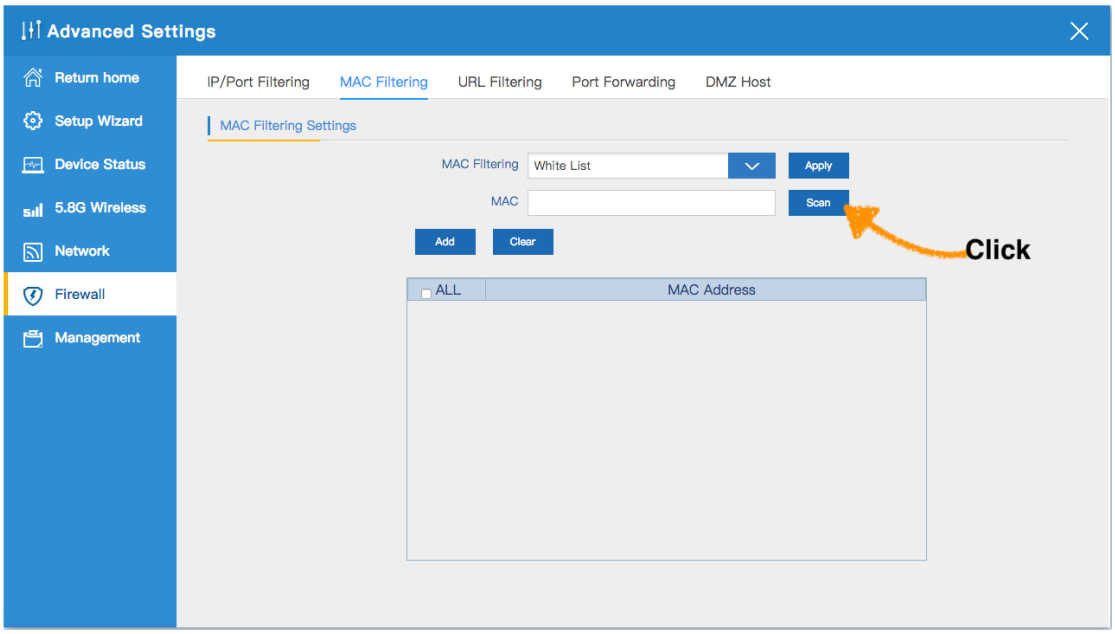
3.Click Choice



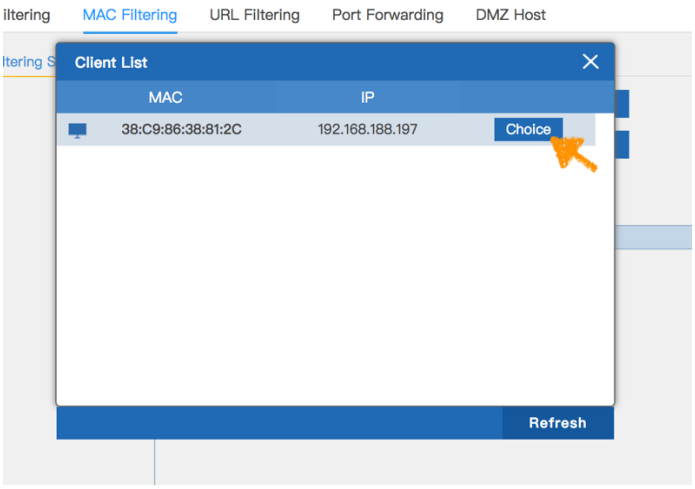
4. Added specified MAC address , Click Apply



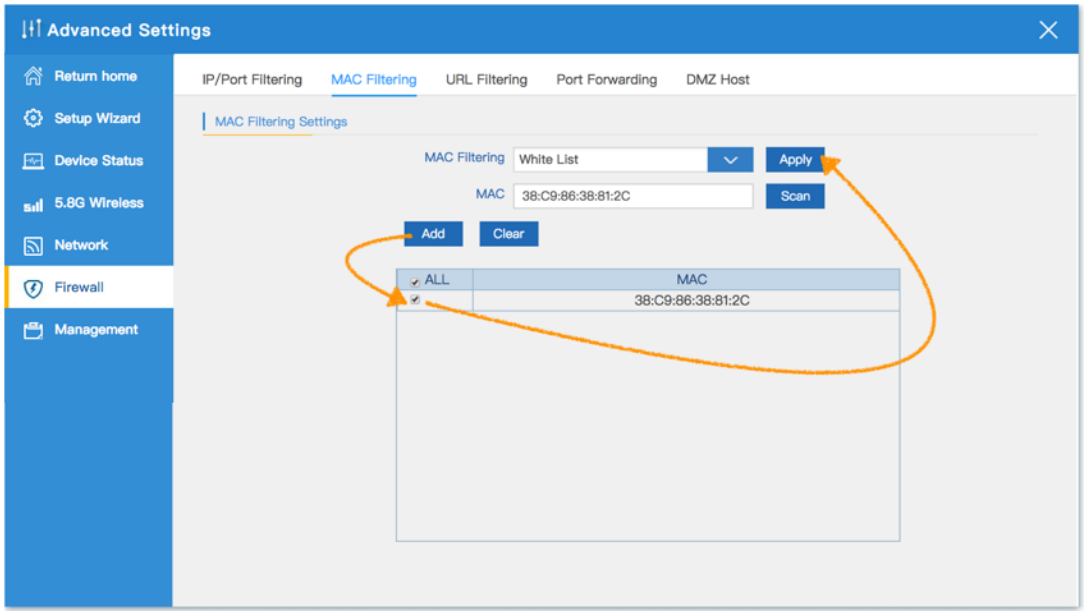
5.White List : Scan specified mode or manual input mode is set to allow the specified MAC address to connect to the Internet



6.Click Choice

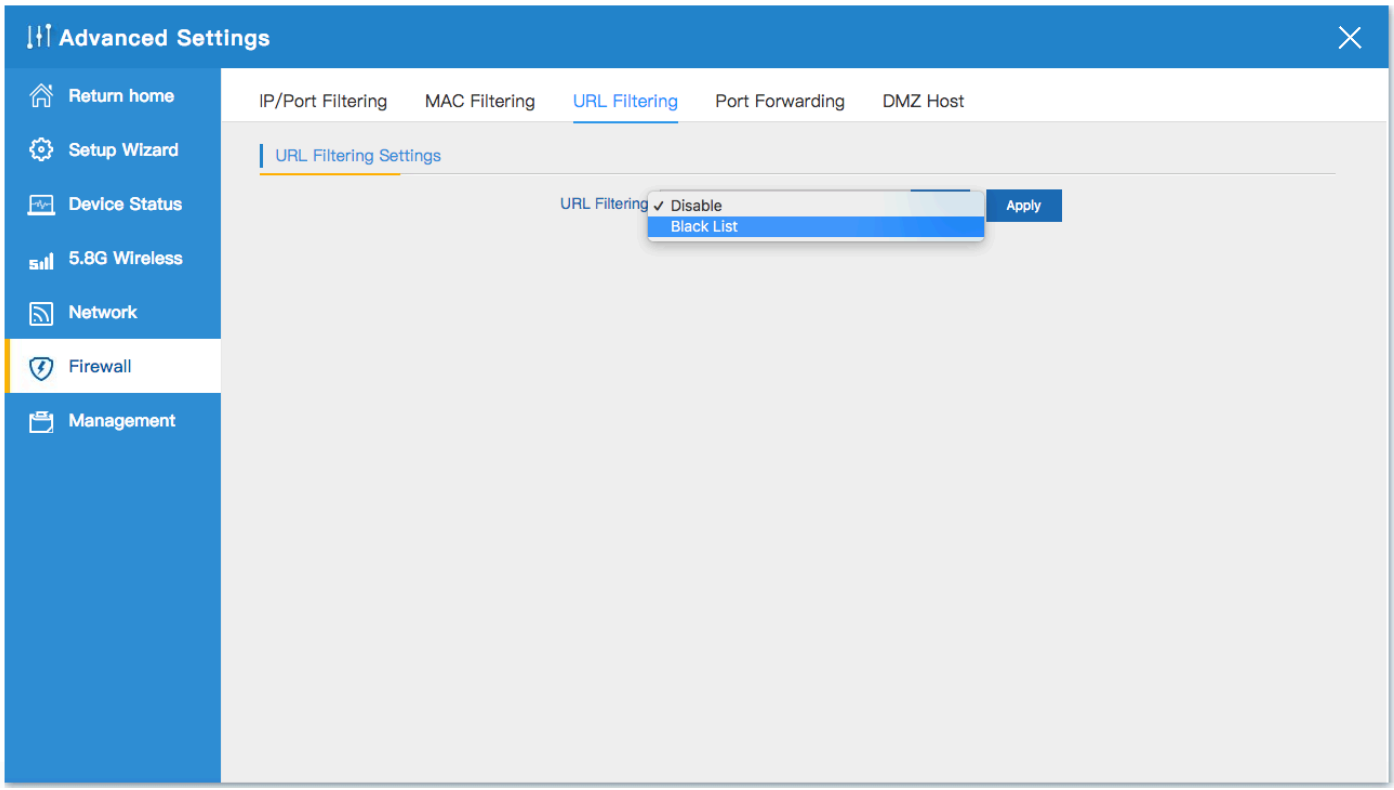


7.Added specified MAC address , Click Apply

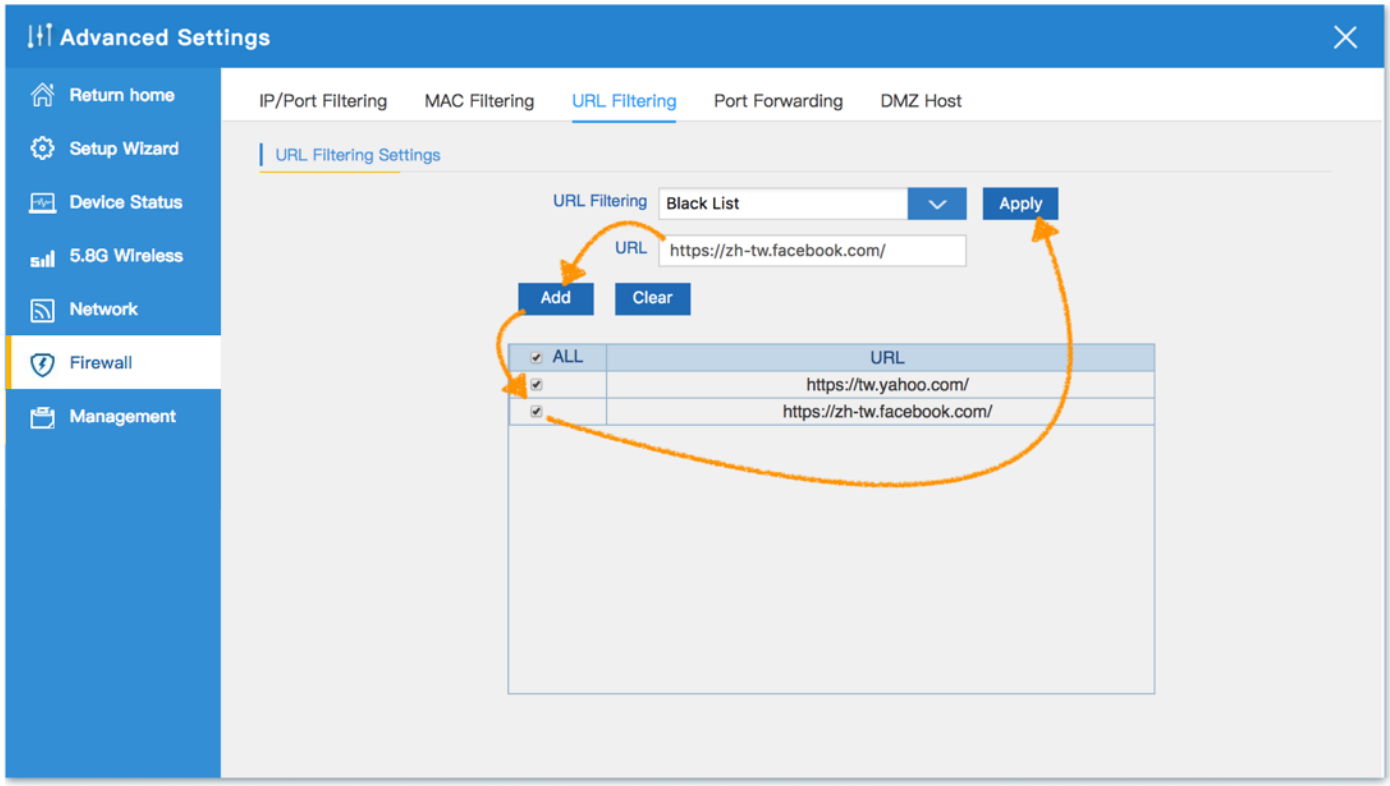


8.2.3 URL Filtering :

1.Factory default value is disable, Can be set to Black List. The following will begin to introduce how to set the enable Black List function



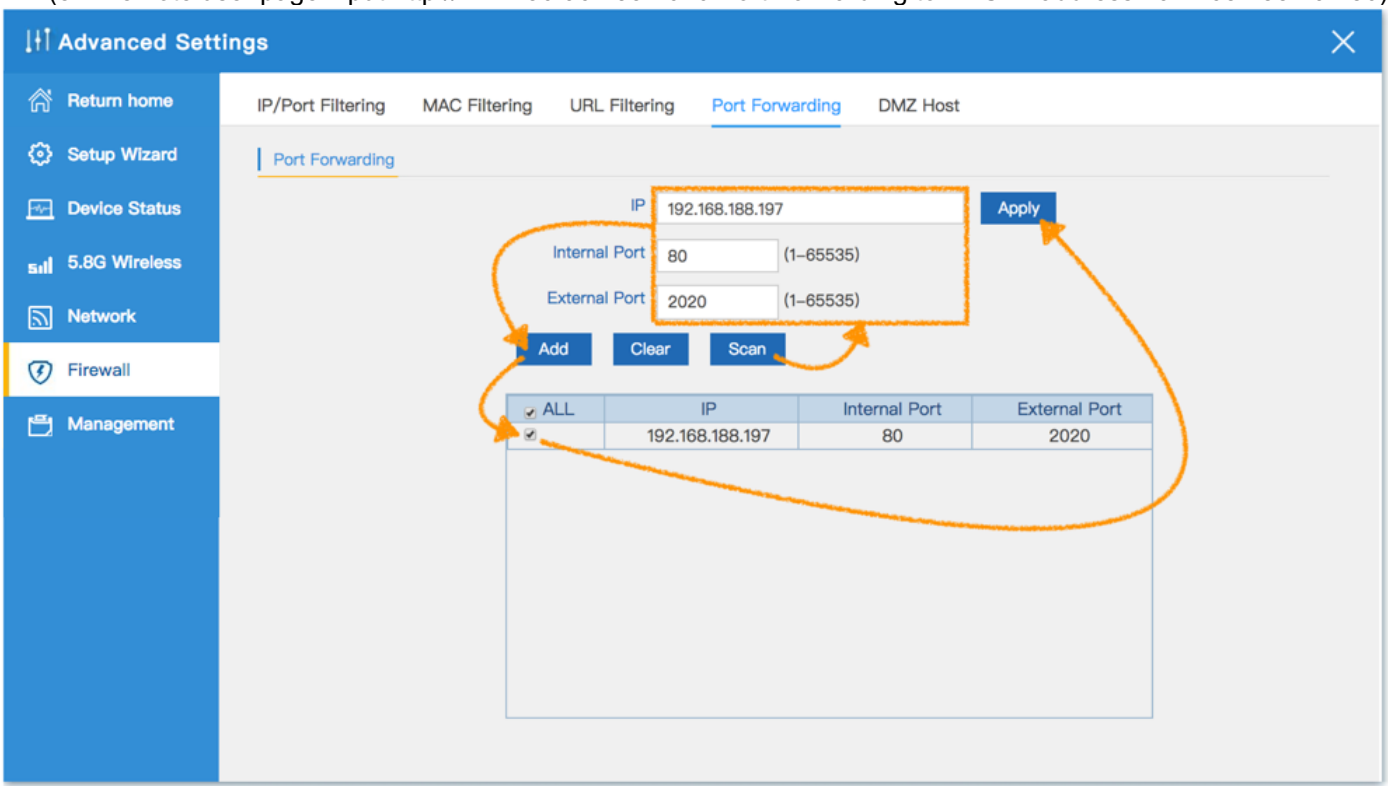
2.**Black List :** Can set the URL refuse to access the list , making all devices unable to connect to the list of websites



8.2.4 Port Forwarding

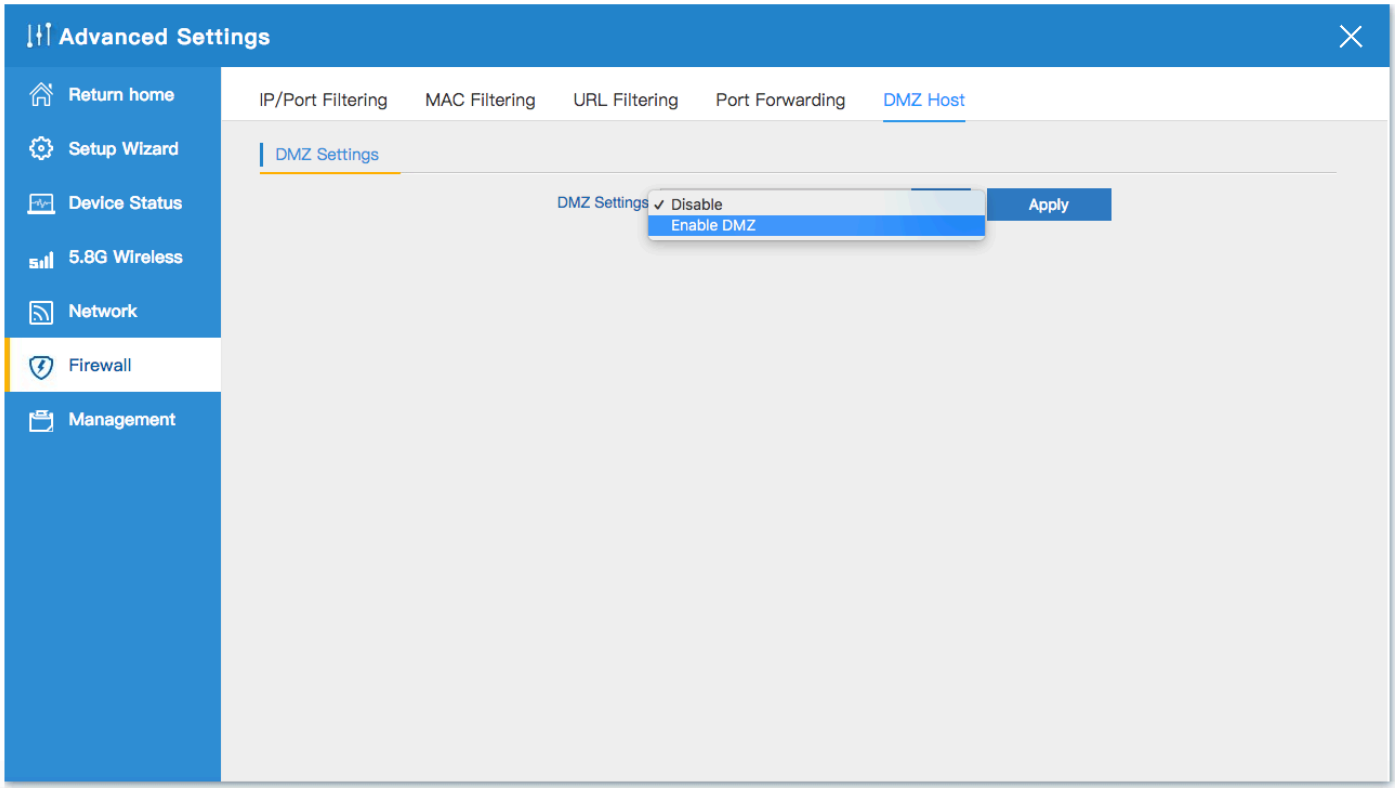
- The scan specified mode or manual input mode is set to allow the specified internal IP address of the External / External port so that other users can connect from the remote network to the WAB-5010 internal network equipment (ex: NAS , IP camera)
- After the setting is completed, the real fixed IP address or DDNS mode can be used to remotely connect to the NAS inside the WAB-5010

(ex: Remote user page input http://111.250.96.135:2020 Port Forwarding to NAS IP address:192.168.188.197:80)



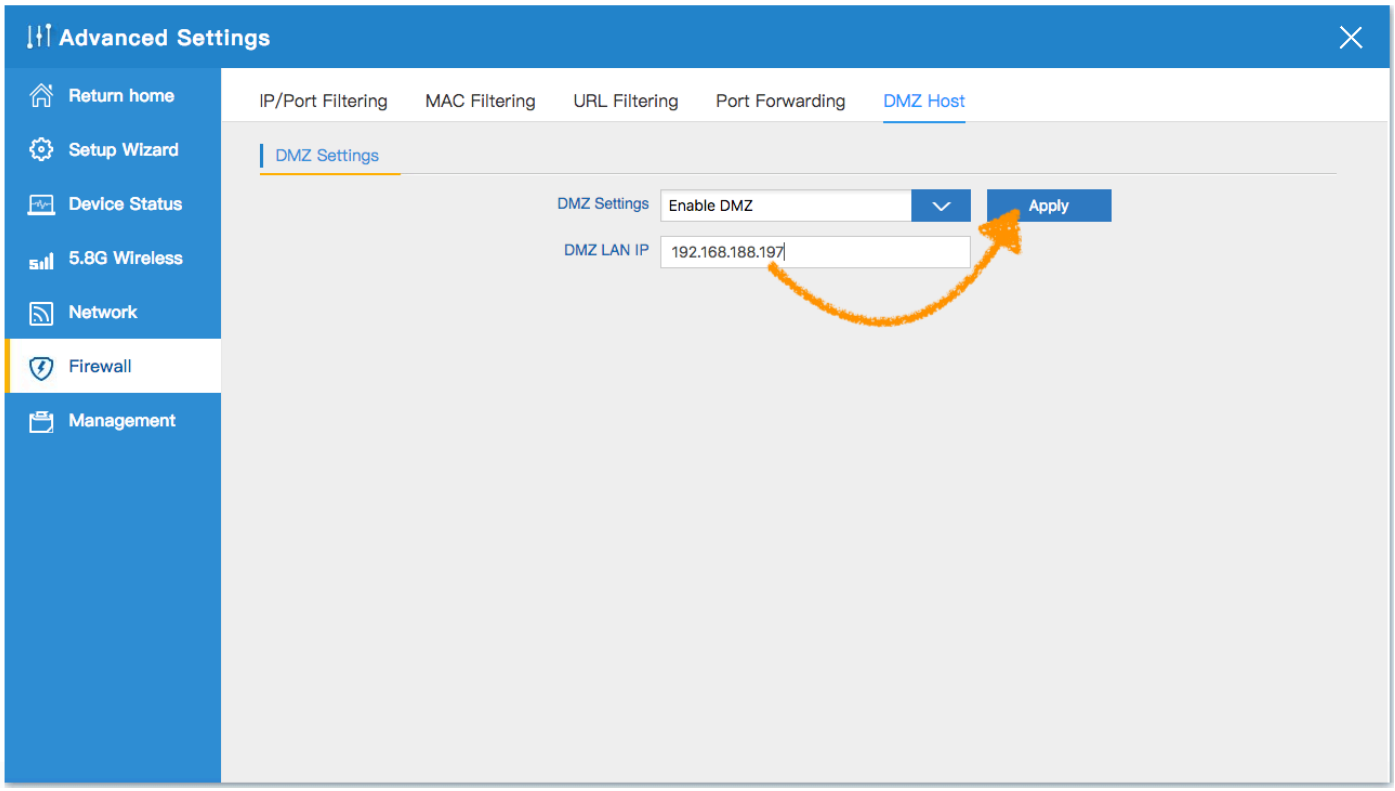
8.2.5 DMZ Host

1.Factory default value is disable . The following will begin to introduce how to set the enable DMZ Host function



2.When enabled, will independent a non-military block for this ip address device.

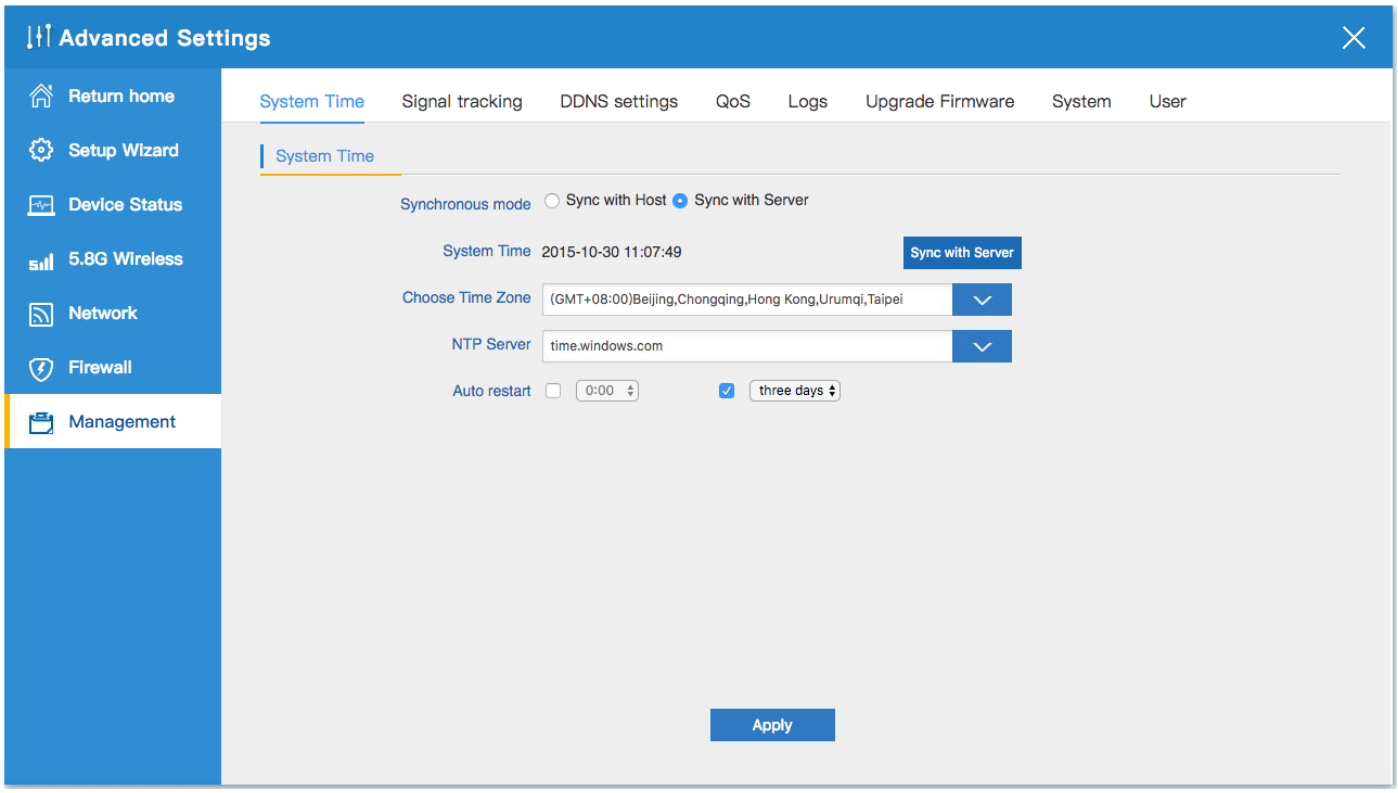
Note : This device will be directly exposed on the Internet, there will be some risk



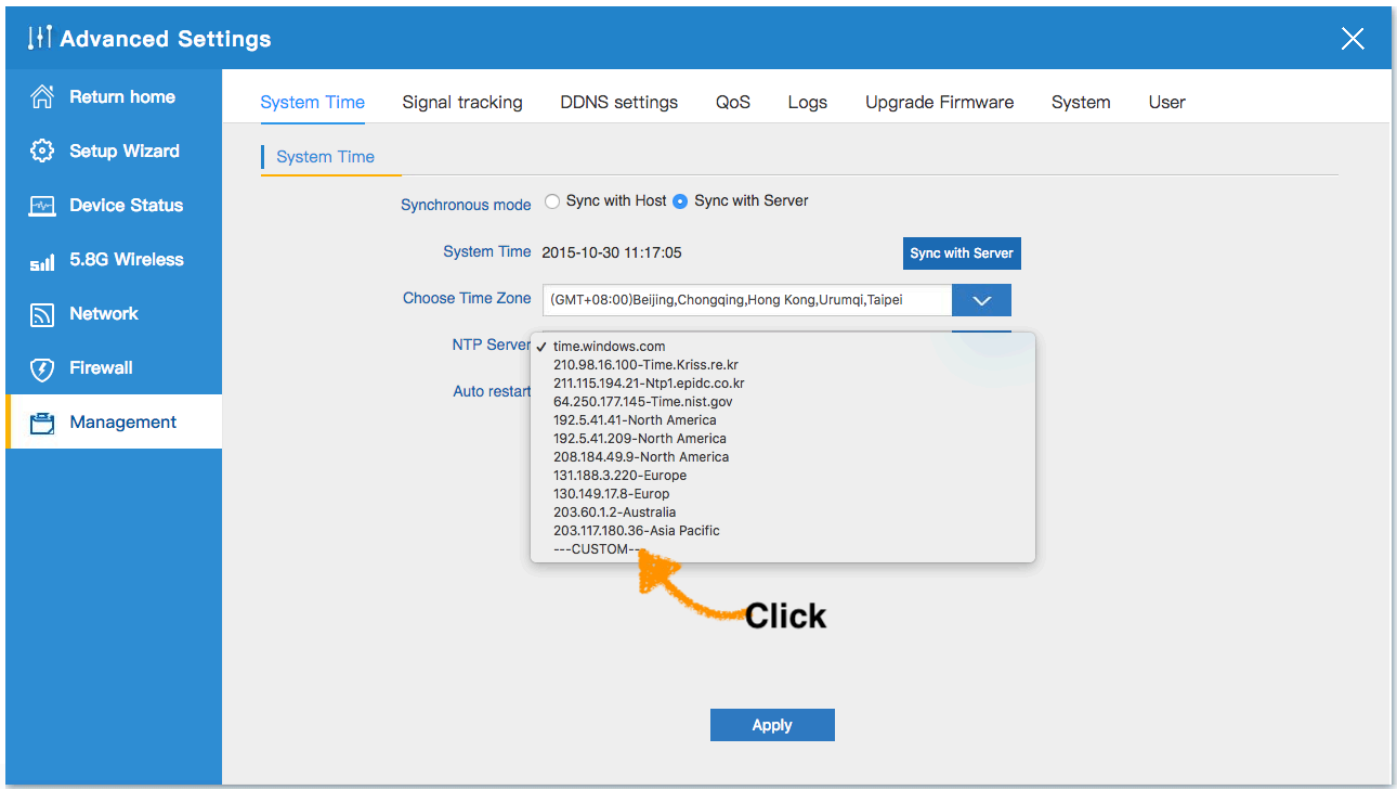
8.3 Management

8.3.1 System Time :

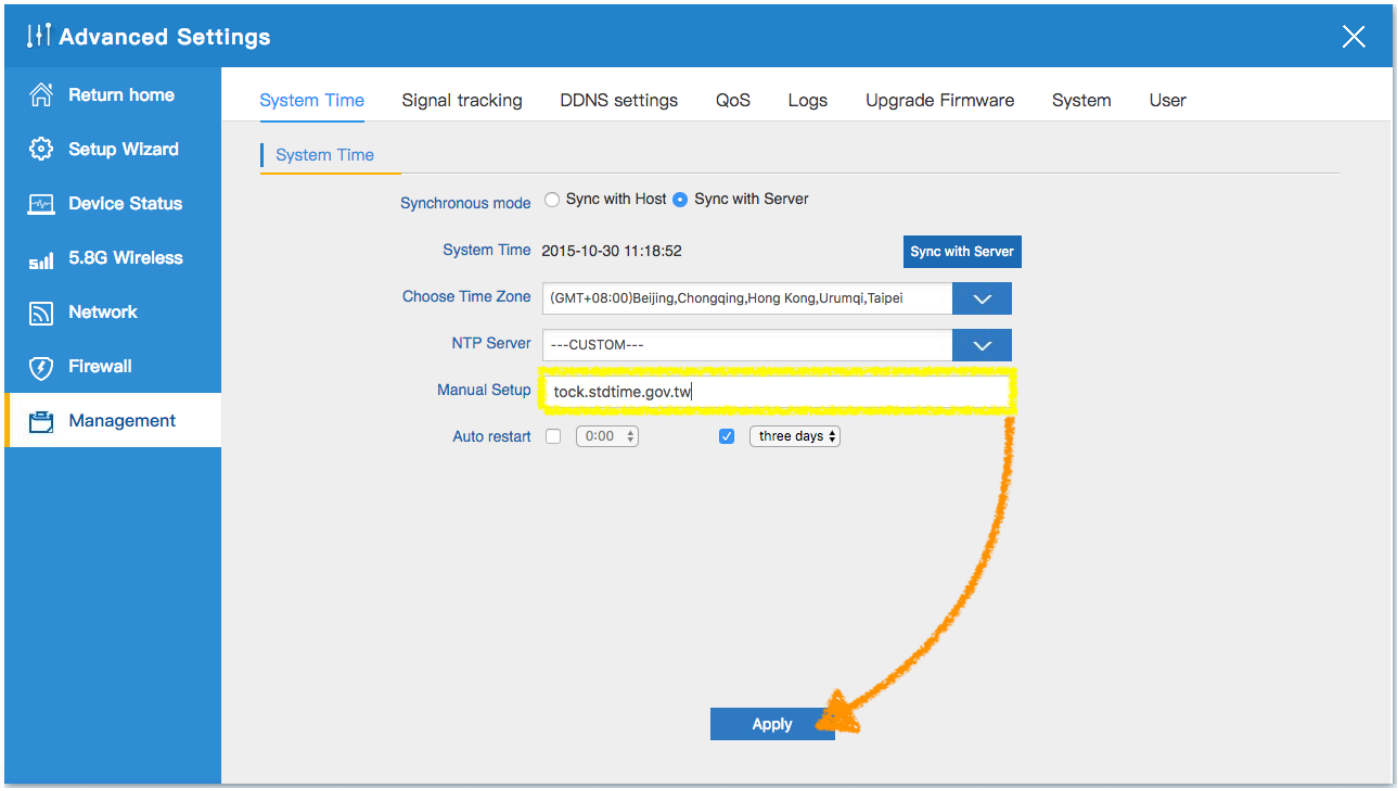
1.Get time from NTP server can only be available under Gateway and WISP Mode. Before sync with host, please select your Time zone. **Auto restart :** Define the system reboot time(0:00~23:00) , Can choose every day or every five days or every 10 days , System Reboot Automatically.



2.Can set up the required NAT Server

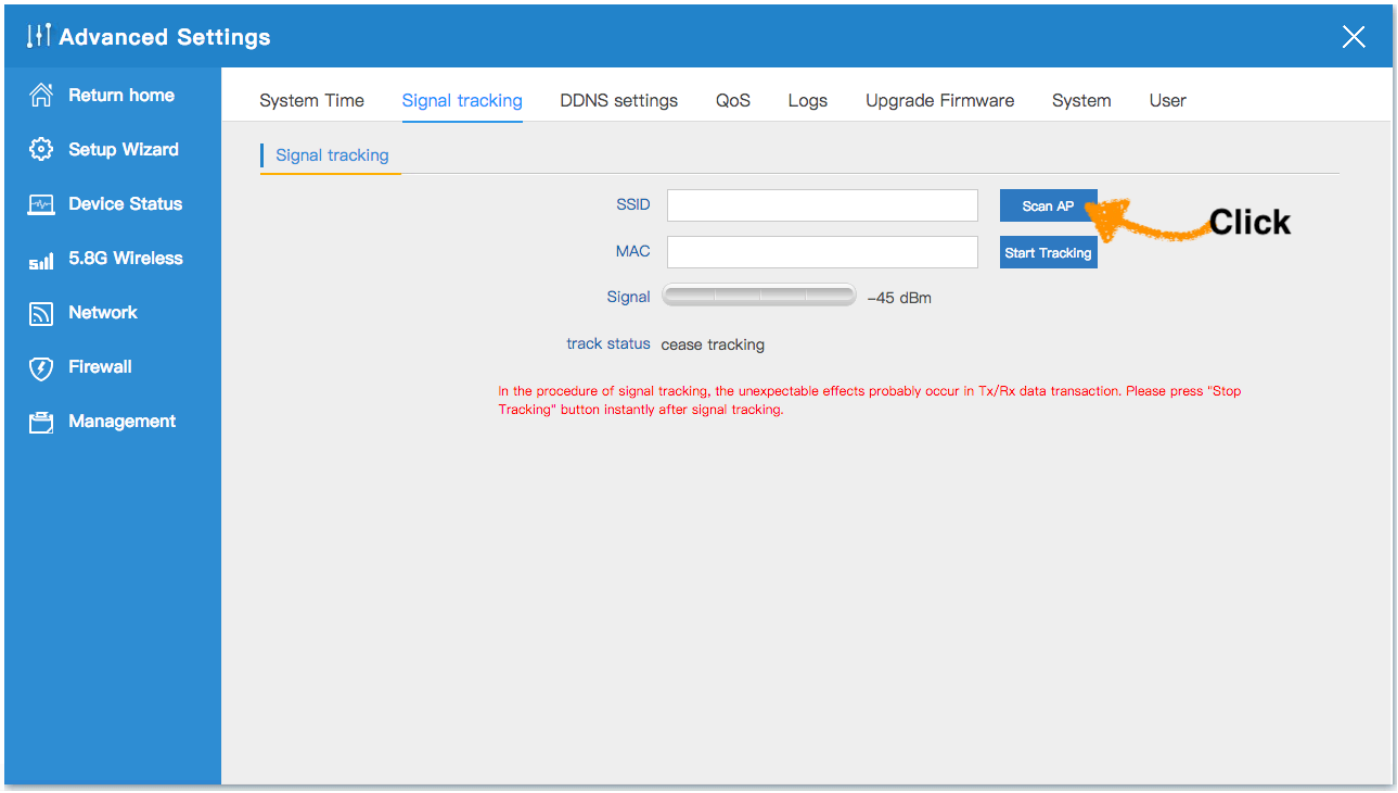


3.Can add NTP Server yourself (ex: Hinet NTP Server)



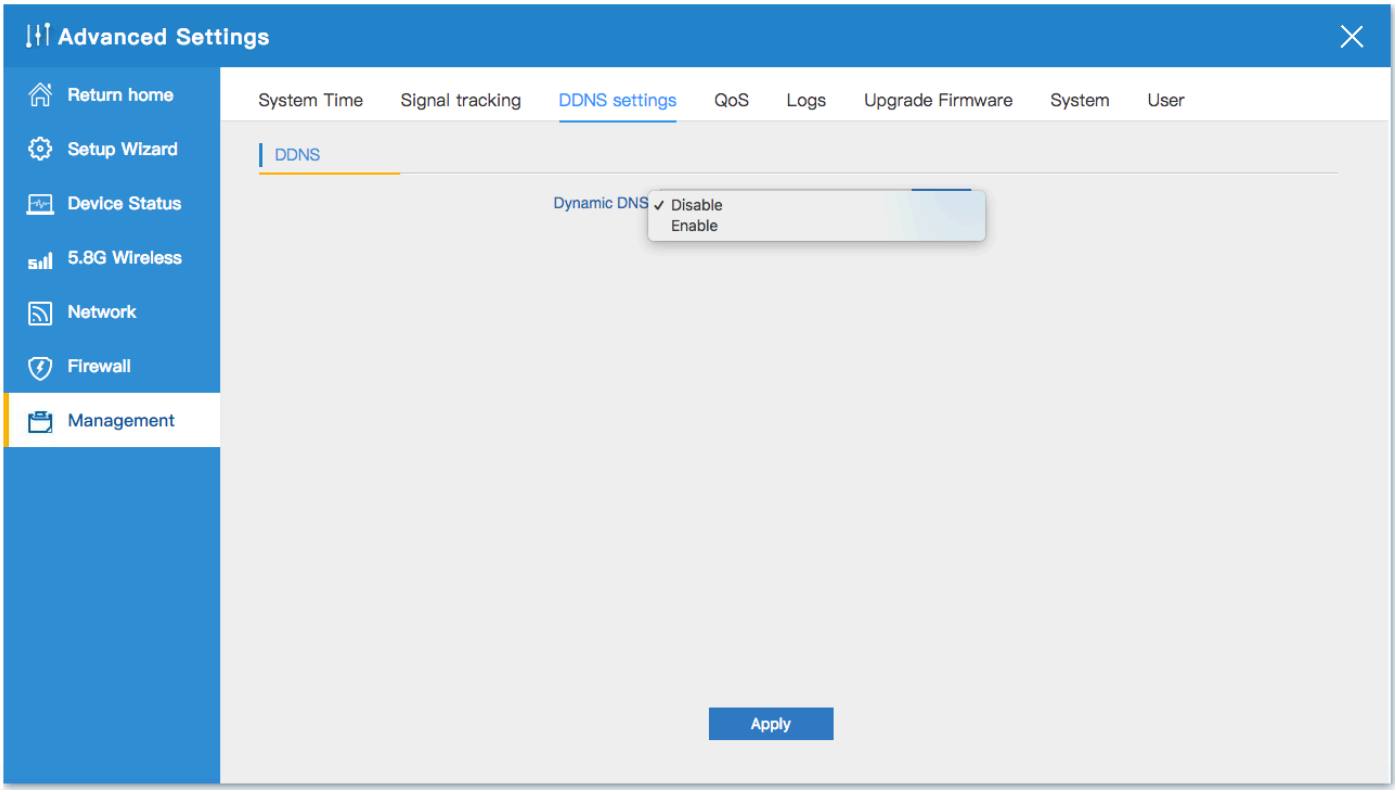
8.3.2 Signal tracking

- can display the information of the AP in the tracking. ex: MAC, Signal receiving strength

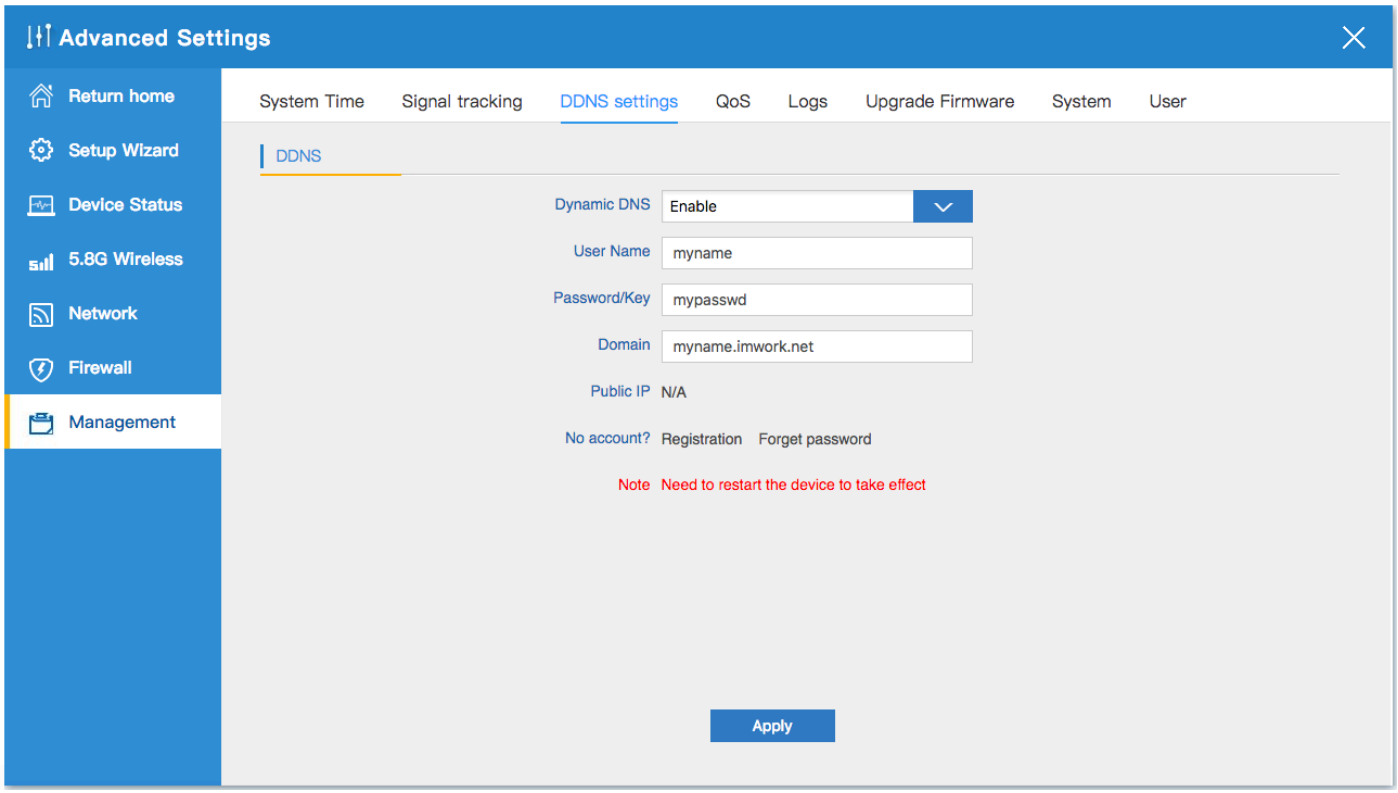


8.3.3 DDNS settings :

1.Factory default value is disable

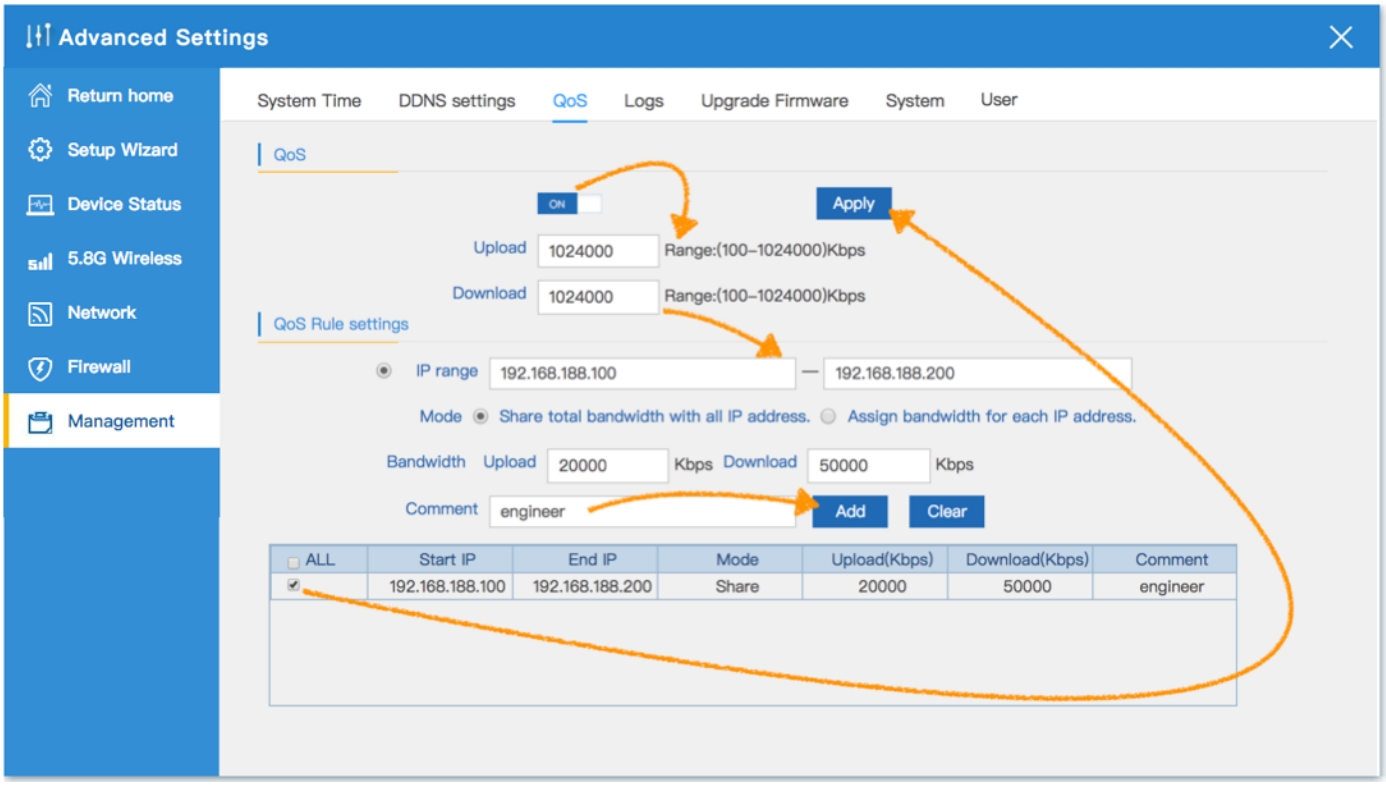


2. For users no apply for an ISP fixed IP address, only Floating real IP address , you can also connect to the network device in WAB-5010 through the DDNS service.



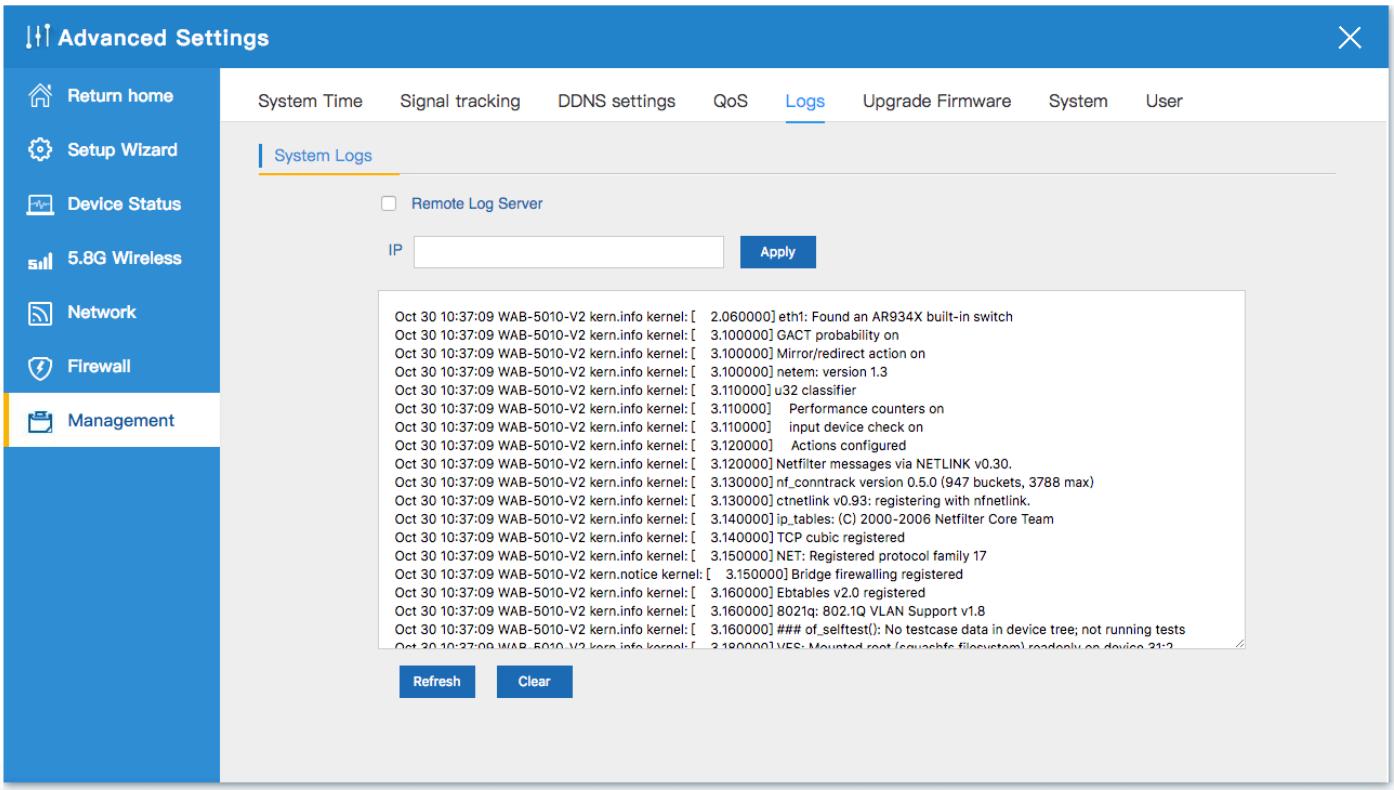
8.3.4 QoS :

- Can manually specify the IP address range of the device to limit the upload and download



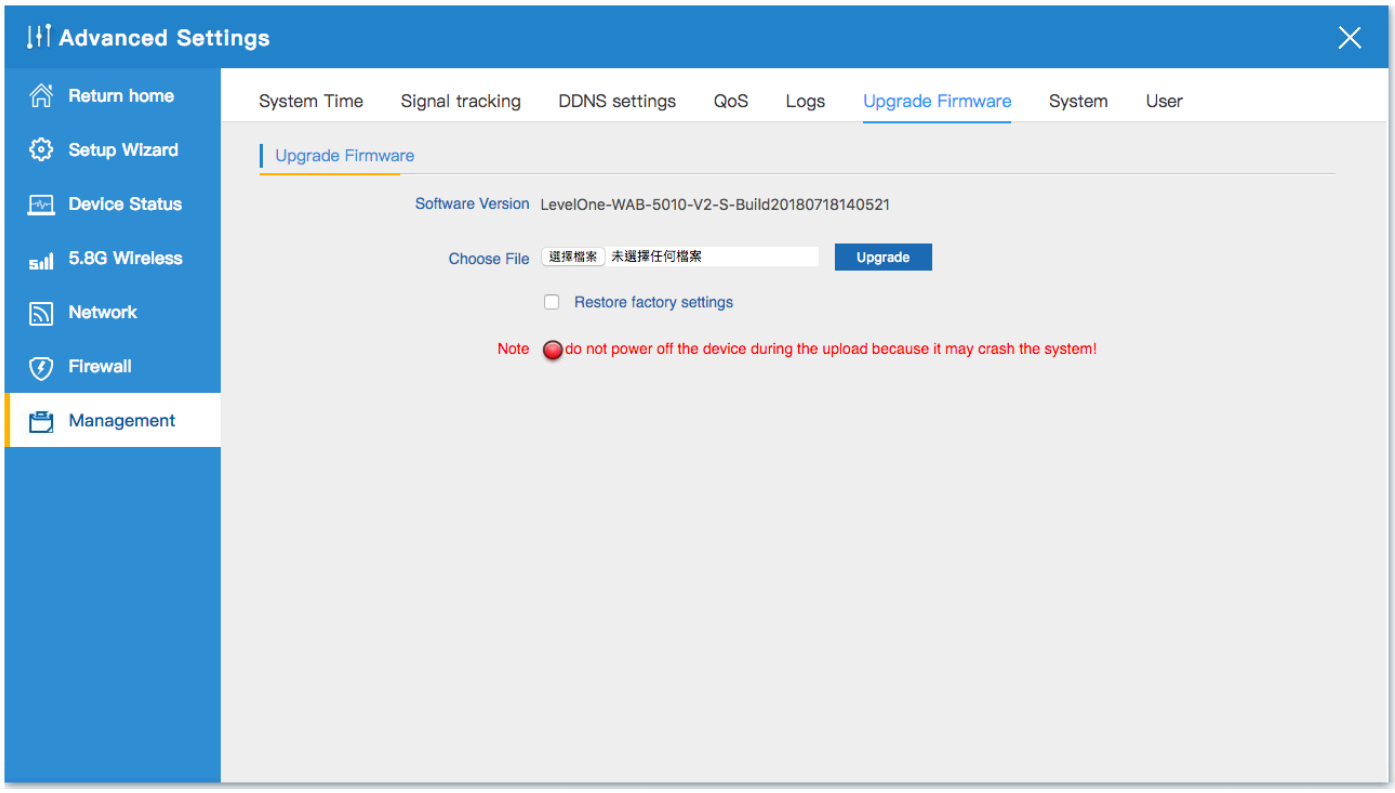
8.3.5 Logs :

- In Logs part, you can copy the running history of the device to consult the engineers when you have any trouble



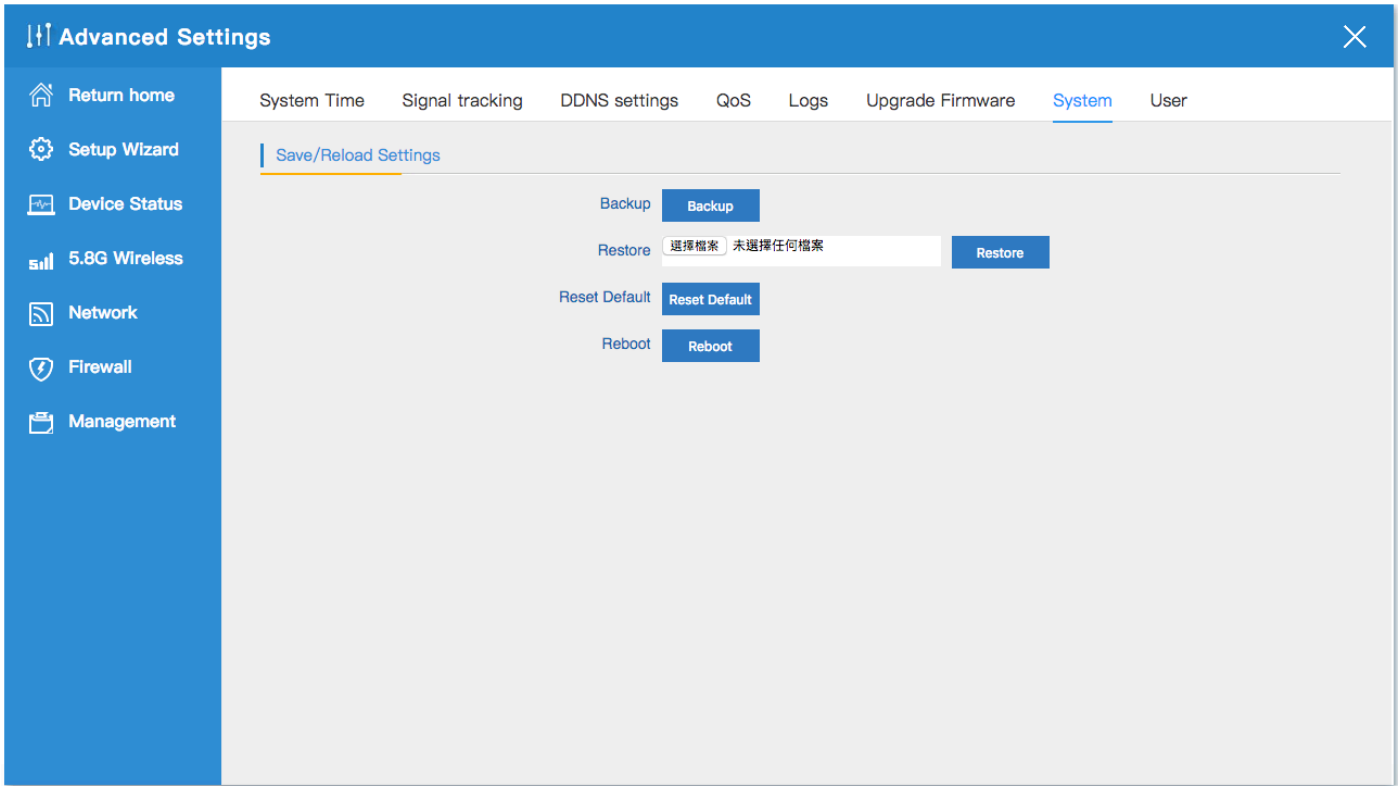
8.3.6 Upgrade Firmware :

- Allows you to browse the new firmware in your computer and upgrade. Please do not power off the device during upgrade.



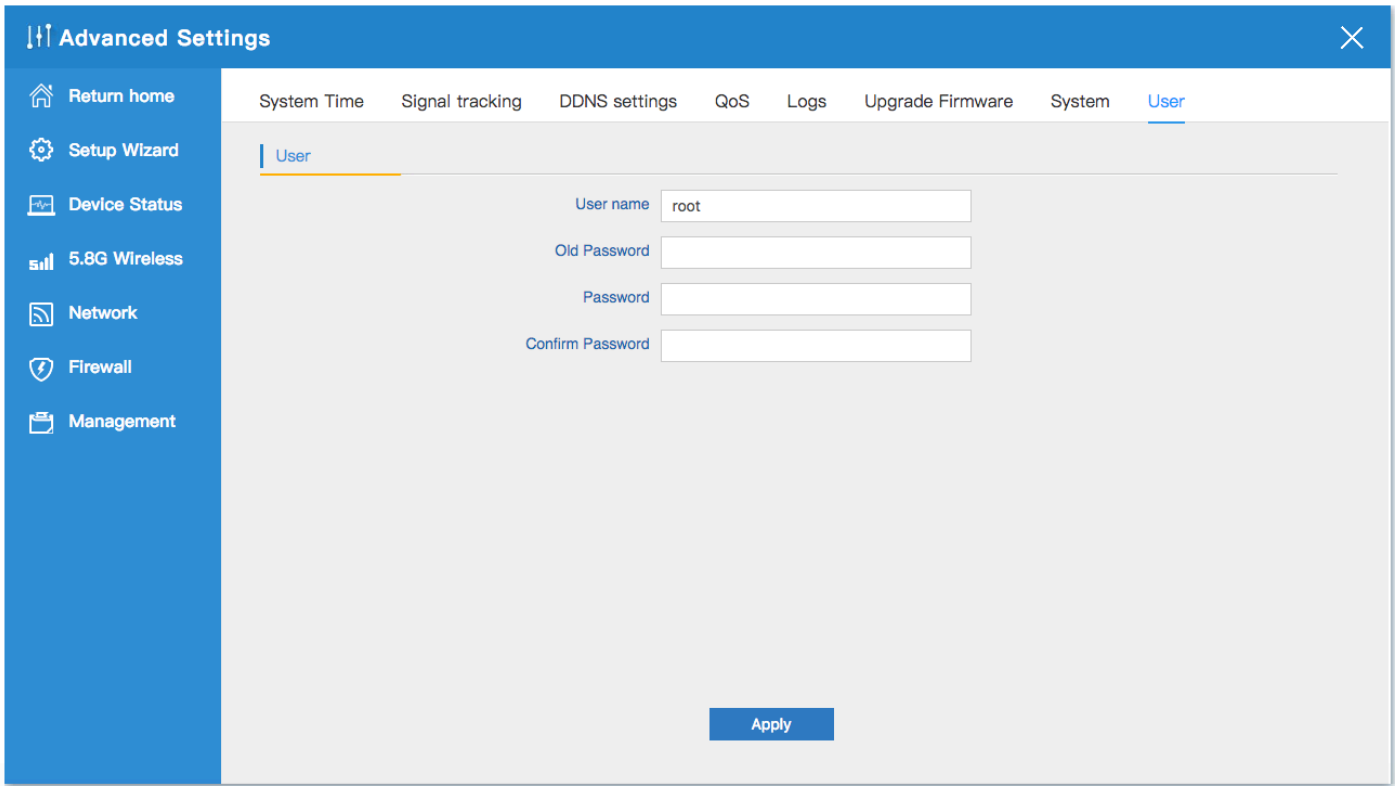
8.3.7 System :

You are able to backup the current configuration to your PC and restore by applying the configuration file from your PC. And you can Reset and Reboot the device with just one click



8.3.8 User :

- Management and change the password for Log in



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Version 2, June 1991

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