300 Mbps CEILING ACCESS POINT

Comply with IEEE 802.11b/g/n standard

Model: GC300N

Professional Qualcomm Chipset
Comply with IEEE 802.11b/g/n standard

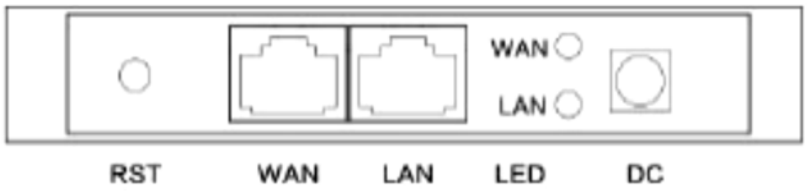




HOSPITALITY	HOME	PUBLIC	GENERALITY	FACTORY

1st Hardware and Operation mode Instruction

1) Hardware interface



DC Power: DC power connector

LED Lights: LED Indicator of WAN port and LAN port using.

WAN: Gigabit WAN/POE Port this port using connect with ADSL modem or Internet mainly or over POE adaptor *(if do not use DC Power connector)*.

LAN: Gigabit LAN Port for more cable end users.

Reset Button (RST): it make AP revert to factory default after press and hold it 15 seconds.

LED indicator

- Power Indicator
- Wi-Fi Indicator
- Wan Indicator

2) How to supply data and power to GC300N?

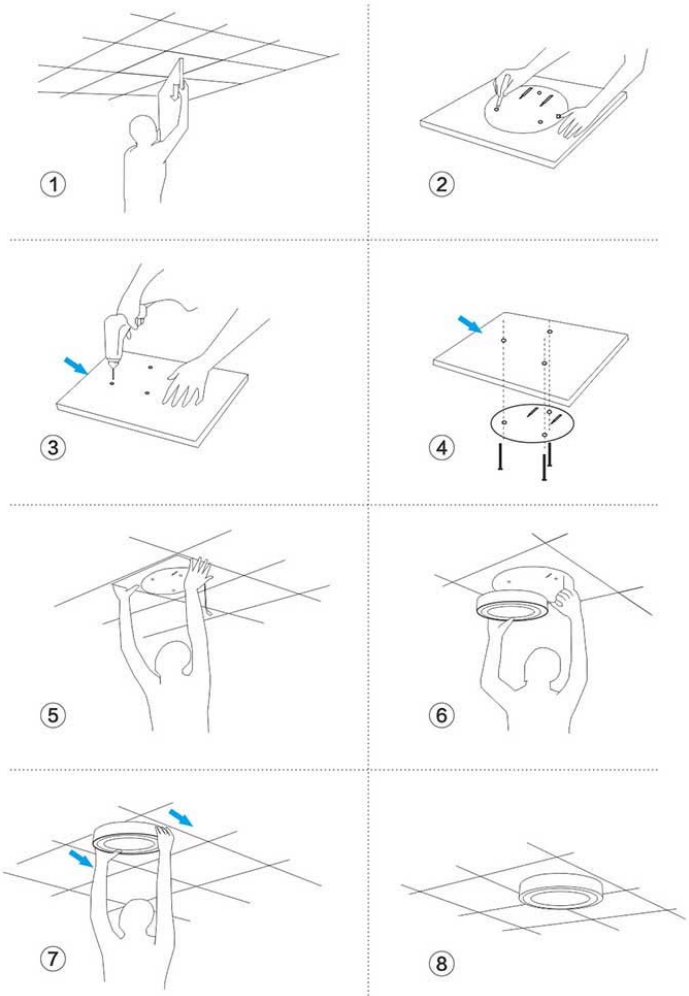
The connection diagram showed as P1, internet cable connect to PoE adapter's LAN Port, GC300N's WAN port connect to POE adapter's POE Port, then end users will access into GC1200ac through cable (GC300N's LAN port) or wireless (2.4GHz).

P1

Please note: *if the Wireless AP support 24V passive PoE then the PoE adapter should be 24V Passive PoE. If the wireless AP support 48V IEEE 802.3af standard PoE then the PoE adapter should be 48V PoE standard.*

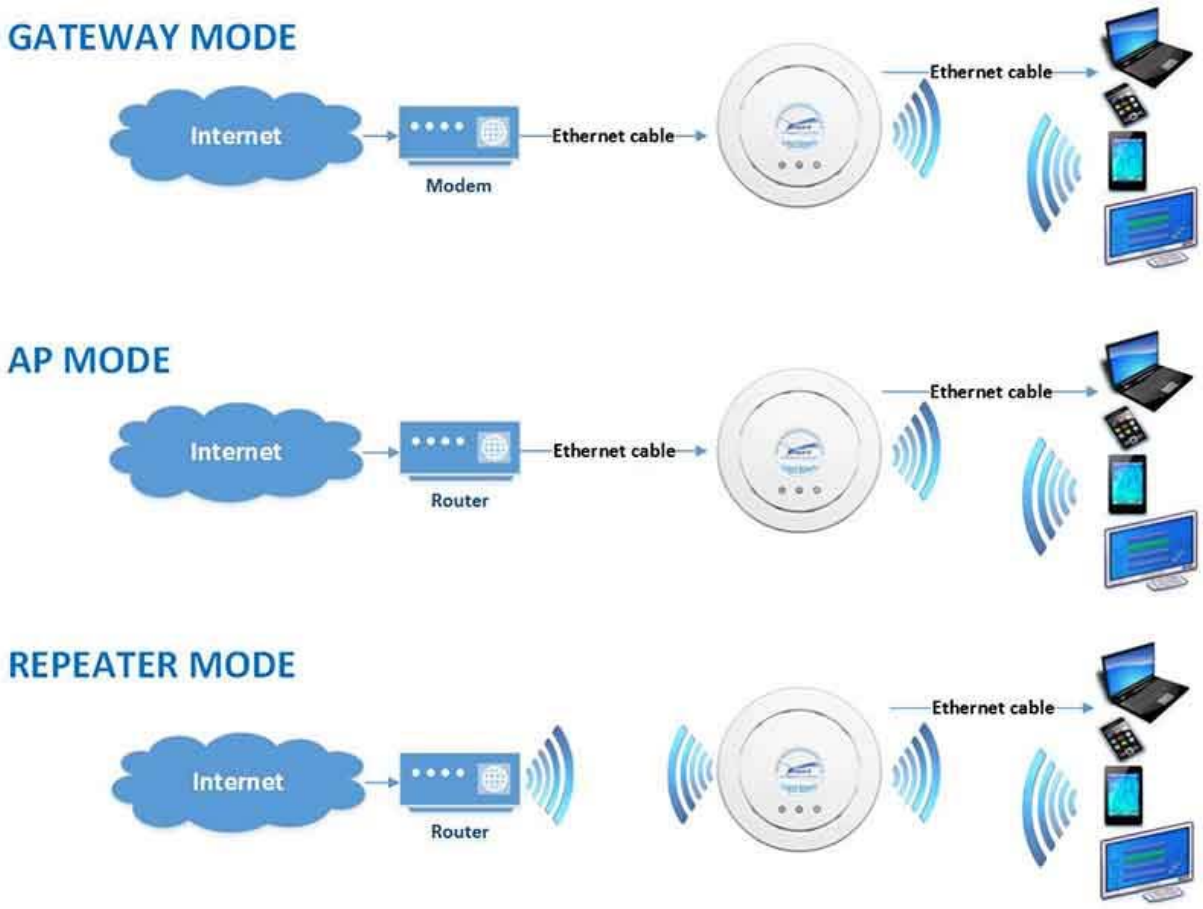
3) How to setup GC300N on celling?

Setup as guiding picture as below:



Operation modes

Operation as diagram as below:



P2. Operation modes diagram

There are three operation mode on this wireless AP:

- ***Gateway mode:*** The cable internet can be transmitted to wireless internet through PPPOE, Static IP, and Dynamic IP. The connection topology is showed as follows: Connect Internet cable to Ceiling AP's WAN port, PC or end user connect with Ceiling AP through wired/wireless (2.4GHz).
- ***AP Mode:*** plug and play, suitable for hotel, school, and shopping mall and so on. The connection is: the internet cable is connected from router/switch to ceiling AP, then ceiling AP will transmit Wi-Fi signal, PC and end user can access into internet by wired/wireless (2.4GHz).
- ***Repeater Mode:*** The ceiling AP can extend the existing Wi-Fi range if its signal is weak. The connection shows as above: Ceiling AP can search the existing Wi-Fi signal then connect it's wirelessly, then PC or end user can access into ceiling AP wireless (2.4GHz)/wired.

How to connect GC300N Wireless AP

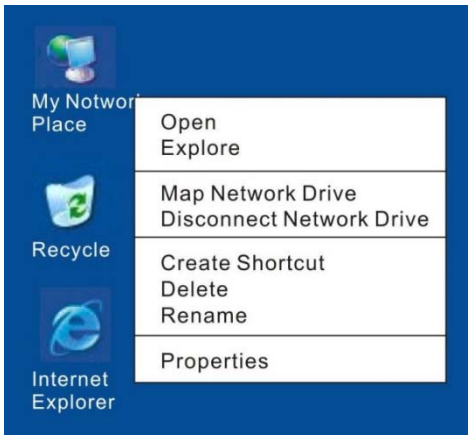
Users can connect the PC/Laptop/Smartphone/Tablet… with wireless AP by Wireless SSID and LAN cable:The default SSID is **GC300N** for 2.4GHz, SSID's password is **66666666** *(number six eight times)*.

2st GUI Login (Graphic User Interface)

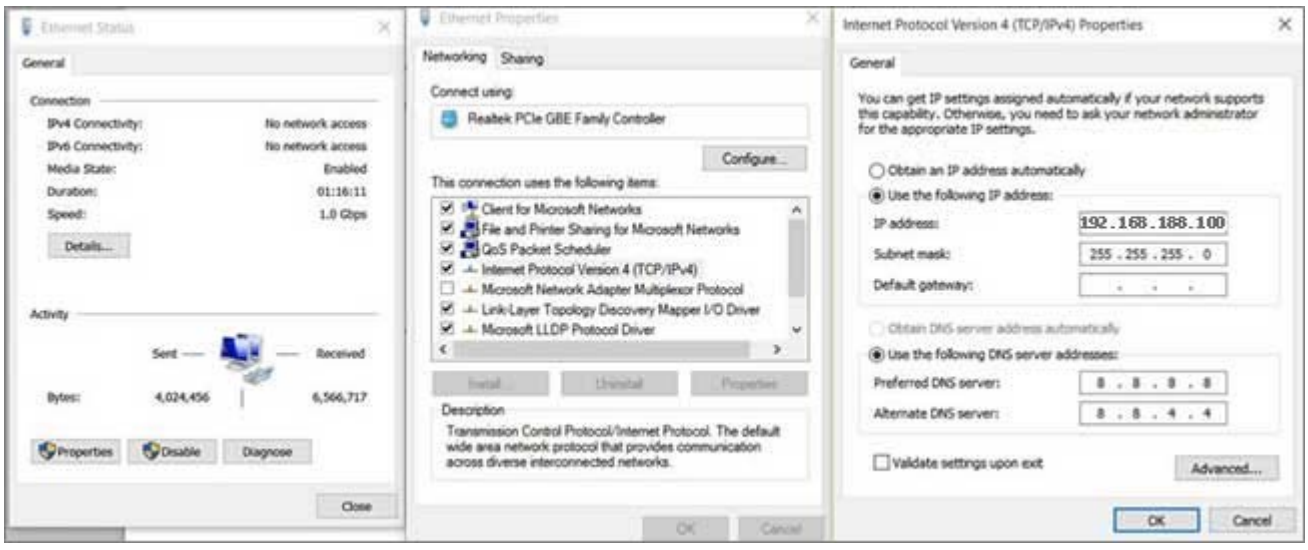
1） Choose the proper power supply mode and operation mode

2） Assign an IP address for local PC

Following steps will show how to assign an IP address (static IP) for PC after connect wireless AP and PC by wired cable or wireless : configure local IP address as **192.168.188.X** *(X can be selected from 2-252)* the same network segment as ceiling AP, subnet mask 255.255.255.0, As P3 and P4 shows.



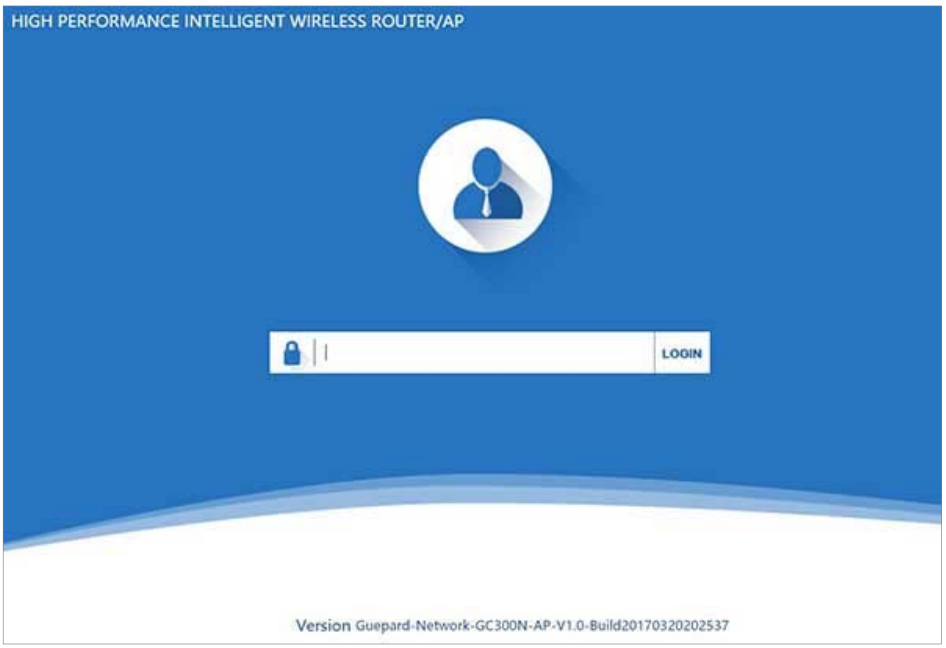
*P3. Check **Local Area Connection** or **Open network and sharing center** (Win 10)*



P4. Assign IP address for PC (Such as: 192.168.188.100)

3) Open Internet Explorer (IE), Chrome, Firefox… and input

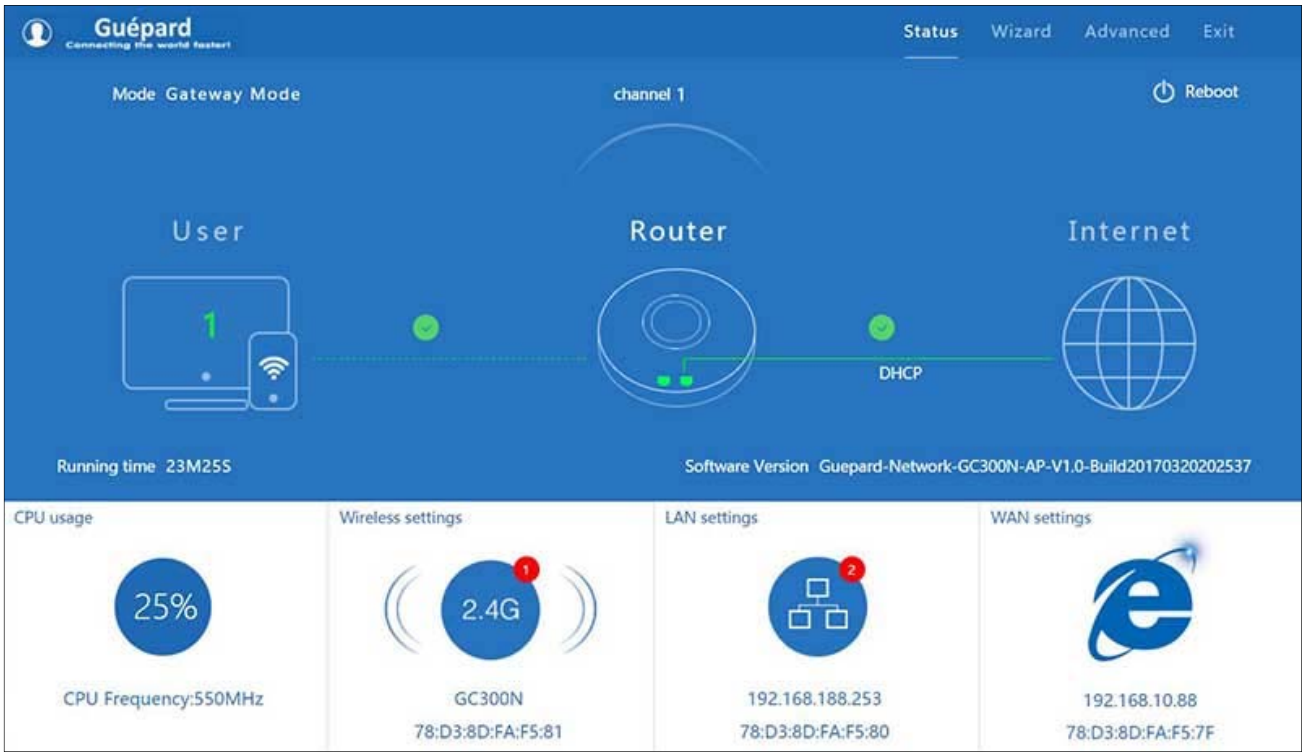
192.168.188.253 *(this is IP default of Wireless AP)* on the address bar, then press Enter, a login page will pop up, input **admin** in Login cell, then press Enter or Login button on Admin interface.



P5. Login interface.

3rd Settings GUI (Graphic User Interface)

1) Status: After login, then P6 Device Status will be showed:



P6. Info-graphic of Device Status.

Detail of indexes:

Top menu:

- Status: listing all indexes and status of wireless AP.
- Wizard: Shortcut for switching wireless AP's operation mode.
- Advanced: all of features which configure wireless AP.
- Exit: out of administration interface.

Next Indexes row below:

- Gateway Mode: current wireless AP mode status.
- Channel 1: current wireless AP channel in 2.4GHz band.
- Reboot: click this button if you want to reboot device.

Next Info-graphic below:

- User: number of users connected Wireless AP and using internet. (Ex: 01 users on P6)
- Green mark: users connected LAN stable (Red mark: disconnected).
- Router: Wireless AP run as router role.
- Green mark (DHCP): Wireless AP connected modem with "DHCP WAN connect type" stable (Red mark: disconnected).

Next Indexes row below:

- Running time: total time Wireless AP had run.
- Software Version: version of Guepard Networks's firmware.

Next Infographic below:

- CPU usage: running status of CPU (percent).
- 2.4 Wireless Settings: indicate number of users connected 2.4GHz band, SSID, MAC address and fast configuration: the SSID, band width, channel, encryption, password then ***Apply*** to finish.
- LAN Settings: indicate number of users was assigned IP by Wireless AP and fast configuration: wireless AP's IP, subnet mask, DHCP status, DHCP Client IP Start – End, Lease Time (hour) then ***Apply*** to finish.
- WAN Settings: indicate IP WAN of wireless AP and WAN access mode, fast configuration: PPPoE, DHCP, Static IP.

2) Wizard: Shortcut for switching wireless AP's operation modes.

Click ***Wizard*** in Status page will have pop-up following page to configure the operation mode:

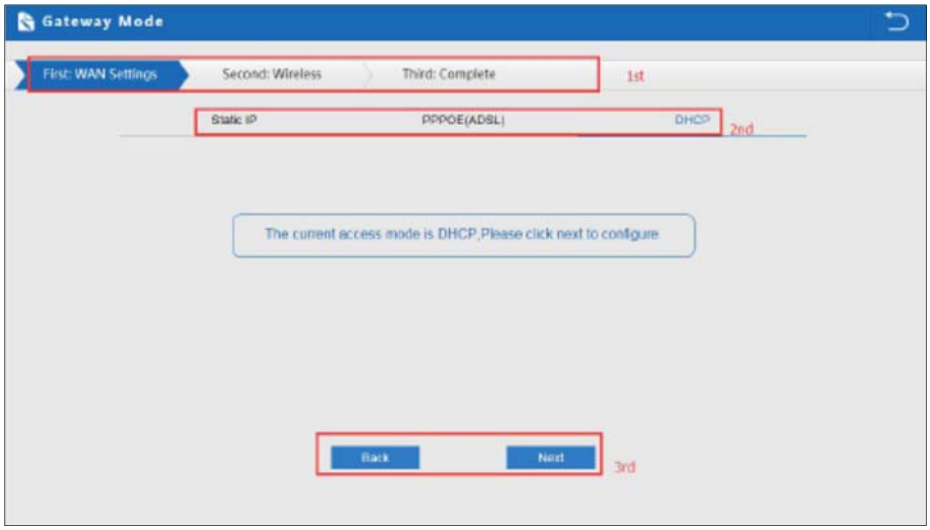
There are four operation mode of ceiling wireless AP and there are explanation for each operation mode for better use, see P7 below:

P7. Switching function between wireless AP's operation modes.

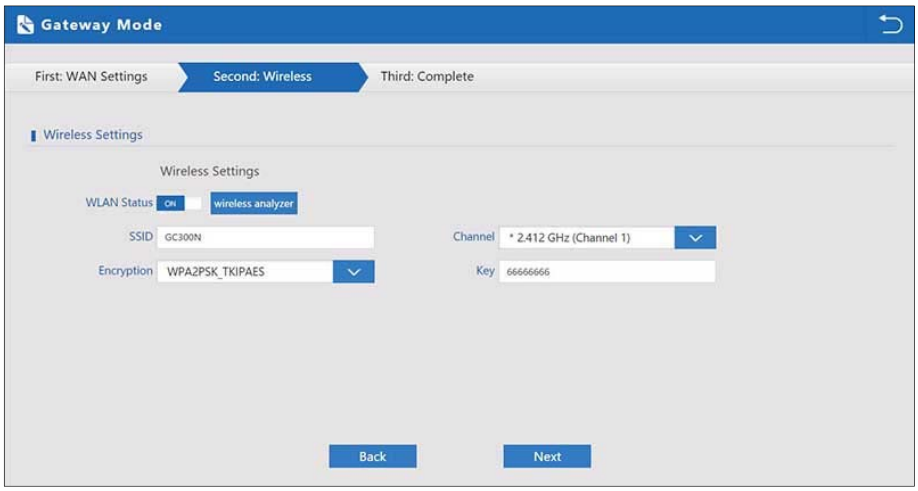
There are four operation modes of ceiling wireless AP and there are explanation for each operation mode for better use.

- ***Gateway Mode:*** In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enable and PCs in LAN ports share the same IP to ISP through WAN port. The connection type can be setup in WAN page by using PPPOE, DHCP client or static IP.

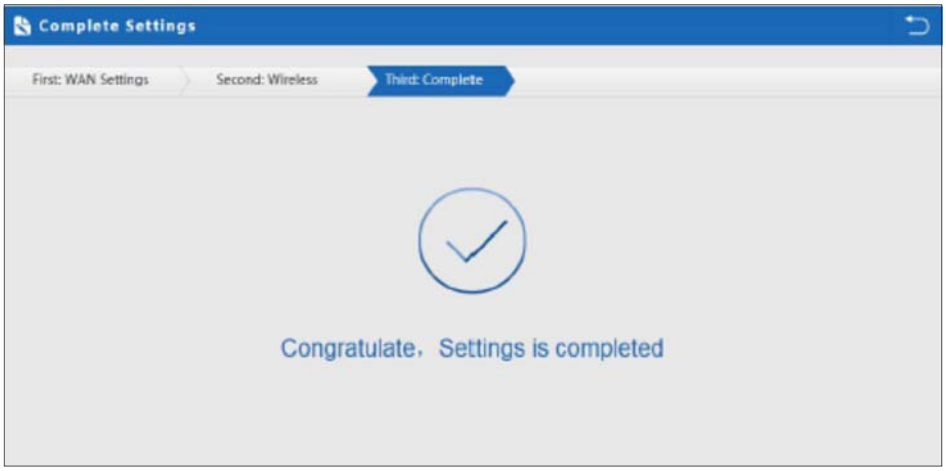
  Configuration describe on P8, P9, P10 and P11 as following:



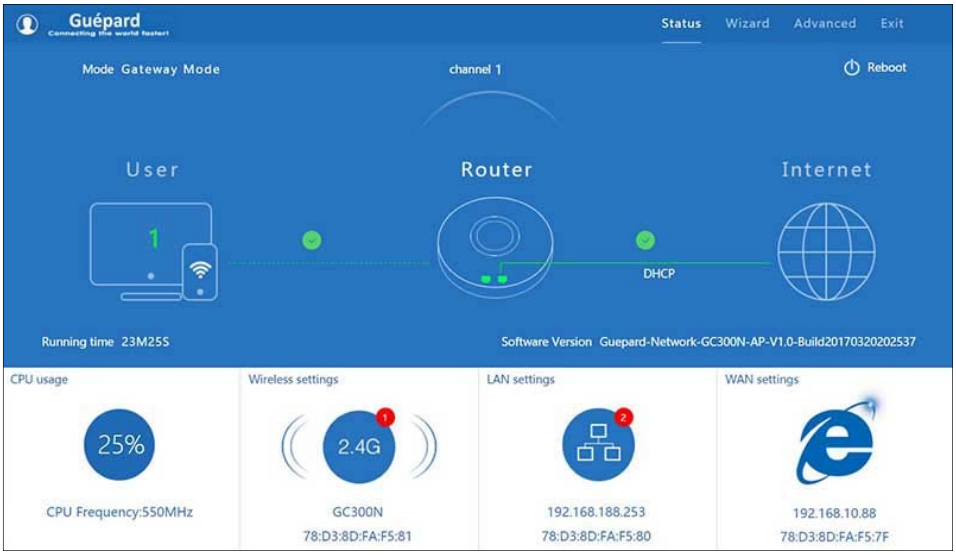
P8. WAN setting in Gateway Mode.



P9. Wireless Settings for 2.4GHz band in Gateway Mode.



P10. Complete the setting in Gateway Mode.



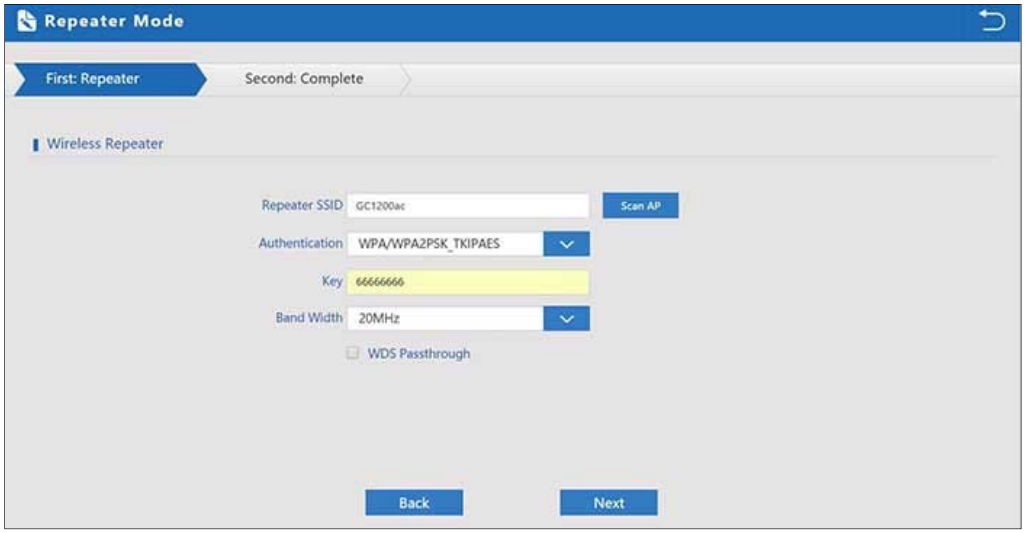
P11. Status in Gateway Mode.

- ***Repeater Mode:*** In this mode, the user can access wireless AP, device can be connected to other wireless network using the wireless. All interfaces are bridged together. Without NAT, firewall and all network related functions.

  Configuration describe on P12, P13, P14 and P15 as below:

  Click ***Repeater mode*** in Wizard, then following page will pop up and choose the right SSID (click ***Scan AP*** button) to bridge.

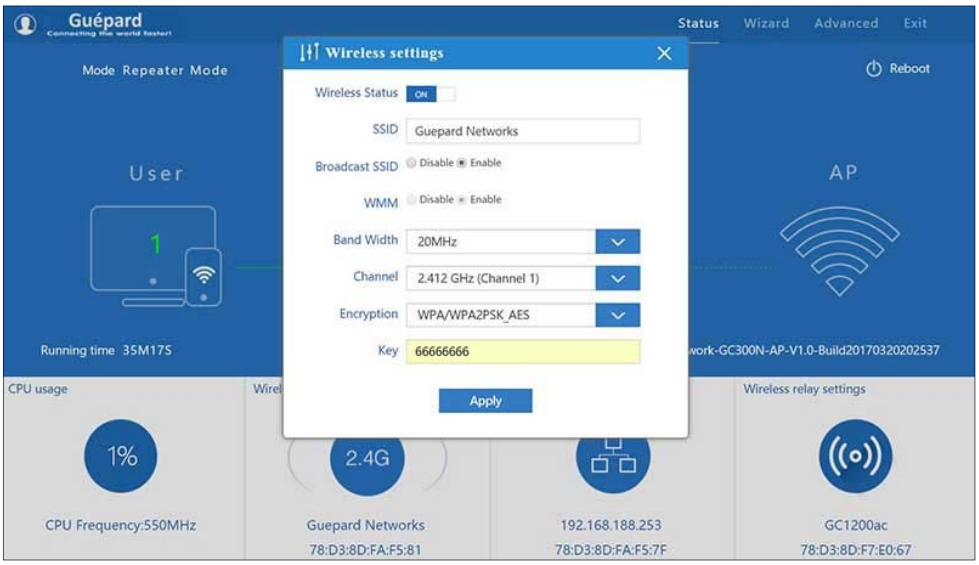
  Note: *Do not check* ***WDS pass through*** *if you do not know this function.*



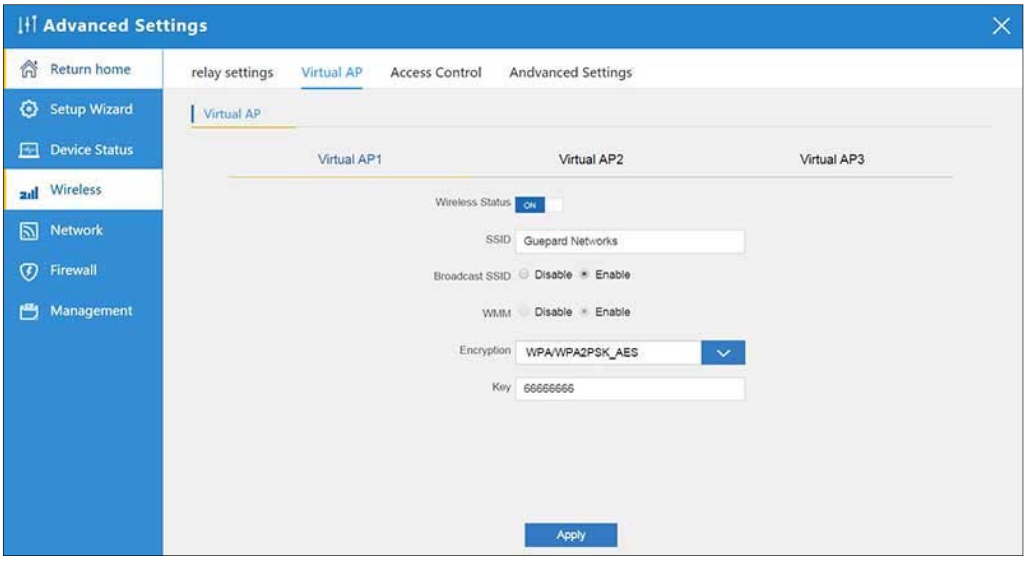
P12. Wireless settings in Repeater Mode

And then click ***Next*** to finish. **Re-login** Administrator interface configure SSID (in this case, we configure SSID ***"Guepard Networks"***) for users.

P13. Status in Repeater Mode



P14. Configure SSID for users in Repeater Mode



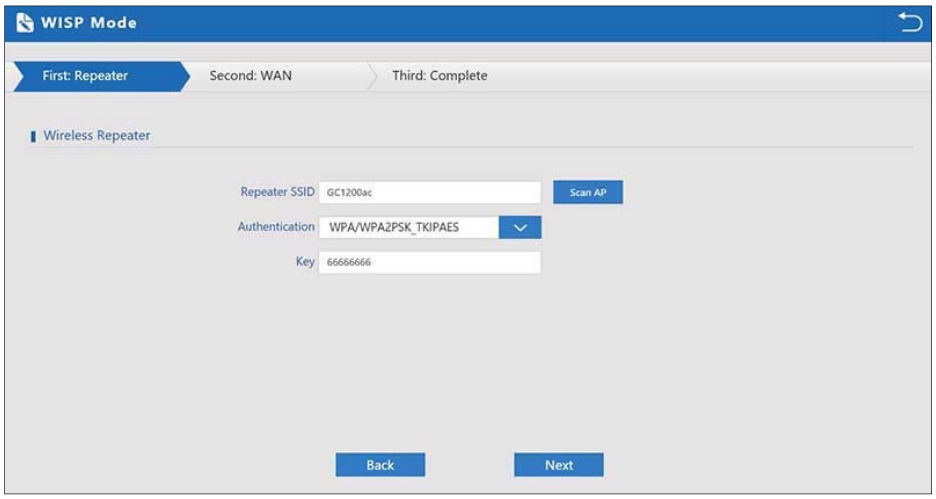
P15. Configure another SSIDs for users (Max 3 SSID can be created).

Note: *Click* ***Wireless relay settings*** *if you want to make change Wi-Fi router or modify indexes fast.*

- ***WISP Mode:*** In this mode, all Ethernet ports are bridged together and wireless clients will connect ISP access point. The NAT is enabled and PCs in Ethernet port share the same IP to ISP through wireless LAN. You must set wireless to client mode first and connect to the ISP AP in Site-Survey page. The connection type can be setup in WAN page by using PPPOE, DHCP client and static IP.

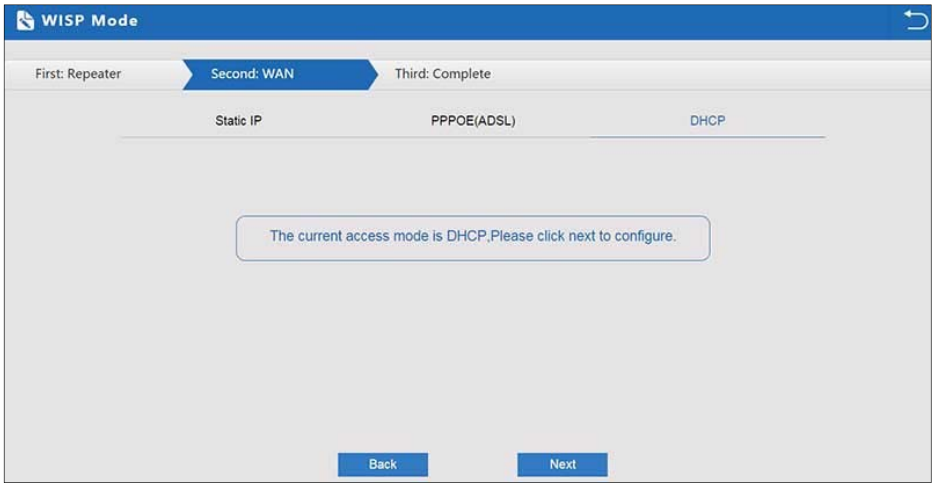
  Configuration describe on P16, P17, P18,P19 and P20 as below:

  Click ***WISP mode*** in Wizard, then following page will pop up and choose the right SSID (click ***Scan AP*** button) to ISP access point (or Wi-Fi Router).



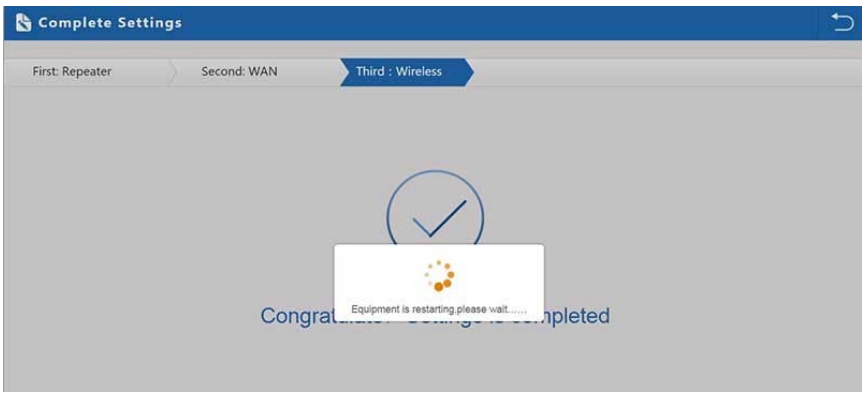
P16. WISP Mode

After click ***Next*** button, configure the right WAN setting in WISP operation mode, then next *(In this case, we choose DHCP).*

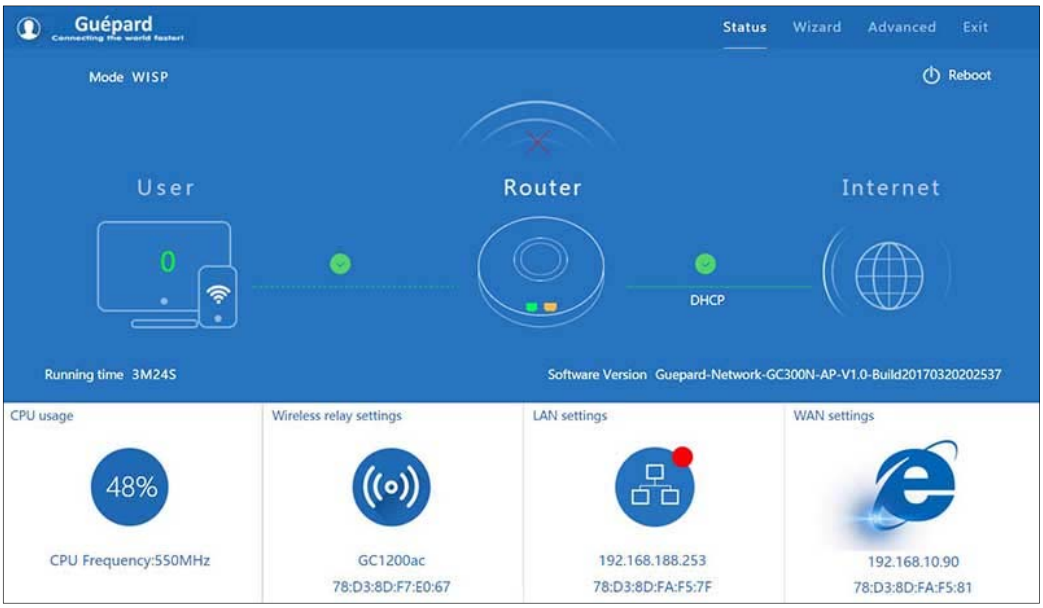


P17. WAN setting in WISP mode

And click ***Next*** to complete.



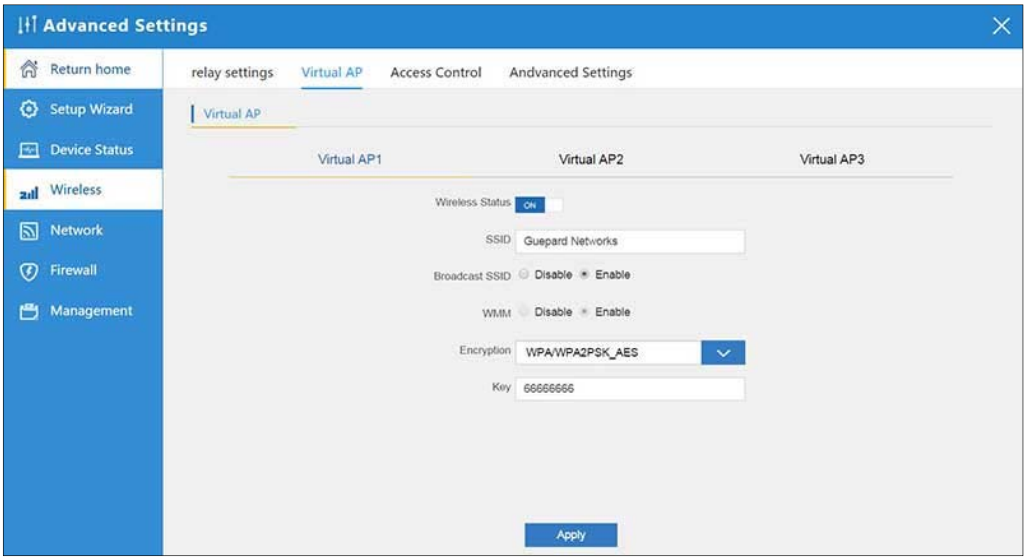
P18. Complete WISP configuration.



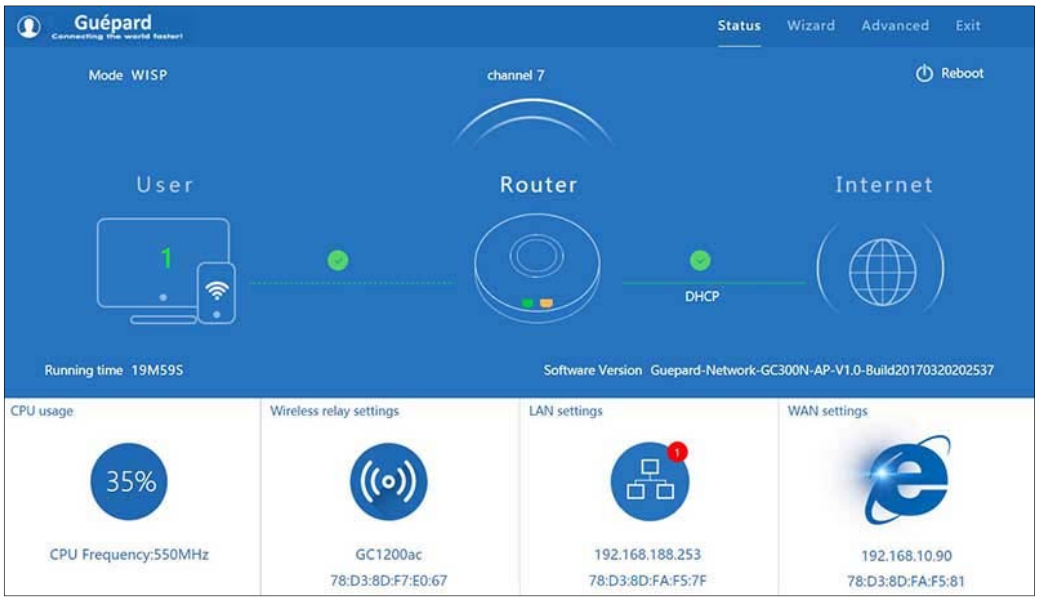
P19. WISP mode Status (without SSID for users).

We should create another SSIDs for users by configuring Virtual AP as follow:

Go to menu ***Advanced > Wireless > Virtual AP***



P20. Configure SSID for users (Max 3 SSID can be created).



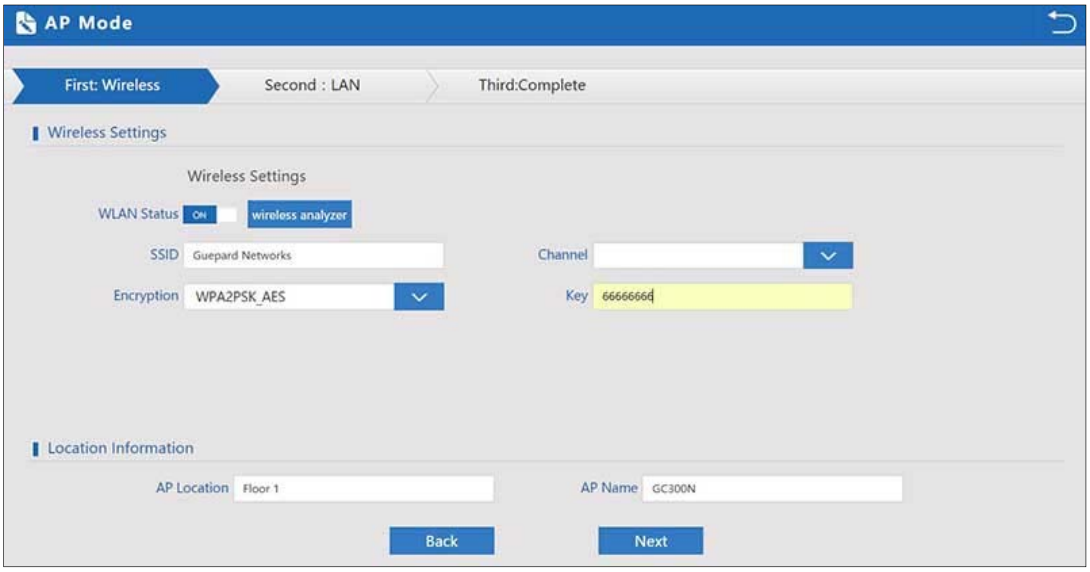
P21. WISP mode Status.

Note: *Click* ***Wireless relay settings*** *if you want to make change Wi-Fi router or modify indexes fast.*

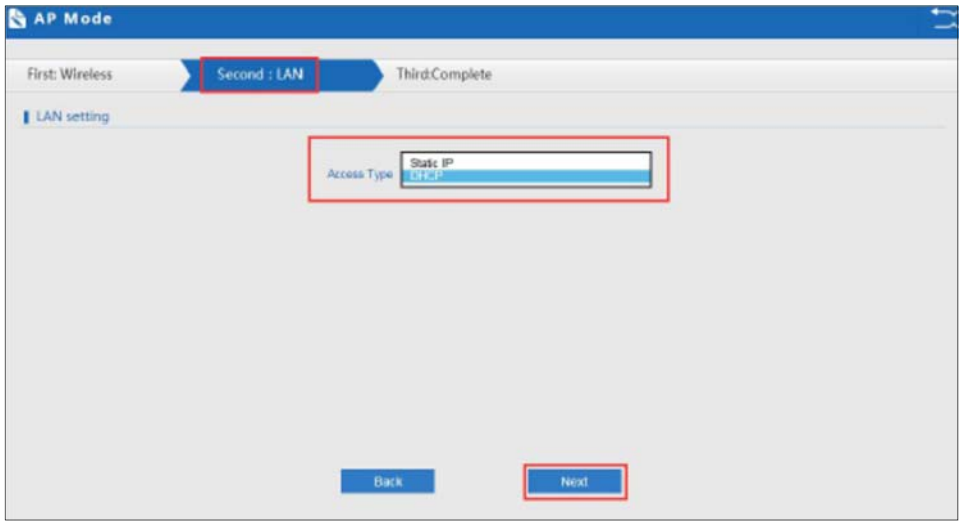
- ***AP Mode:*** In this mode, the AP wireless Ethernet interface and cable interface bridging together. Without NAT, firewall and all network related functions.

Configuration describe on P22, P23 and P24 as below:

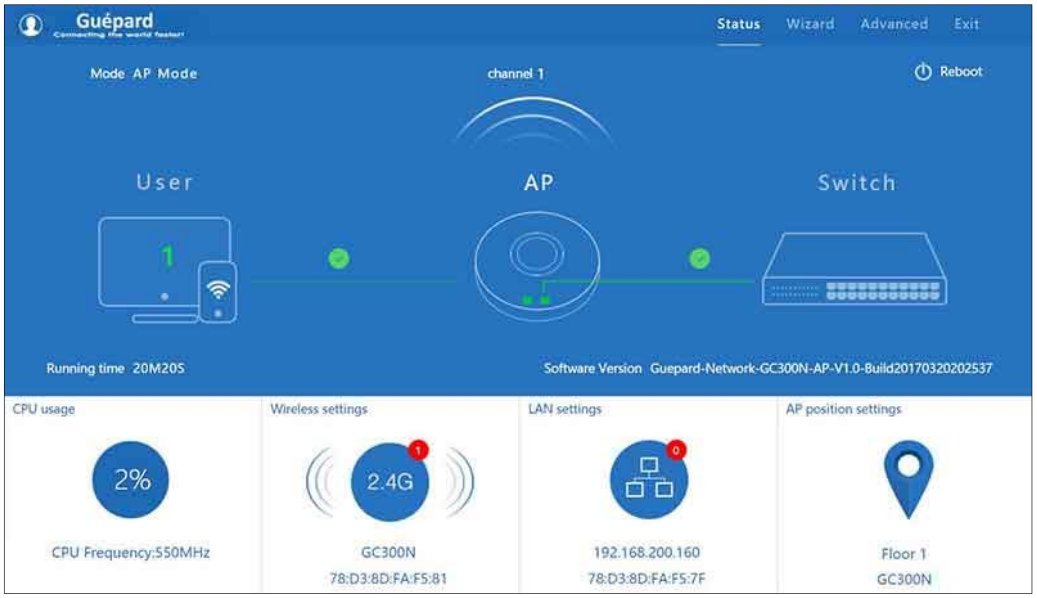
Set the wireless data, AP Location, AP Name information as required, then click next to continue and enter into LAN setting. After LAN setting, complete the AP mode configuration and back to Status:



P22. Wireless setting in AP Mode



P23. LAN Setting in AP Mode

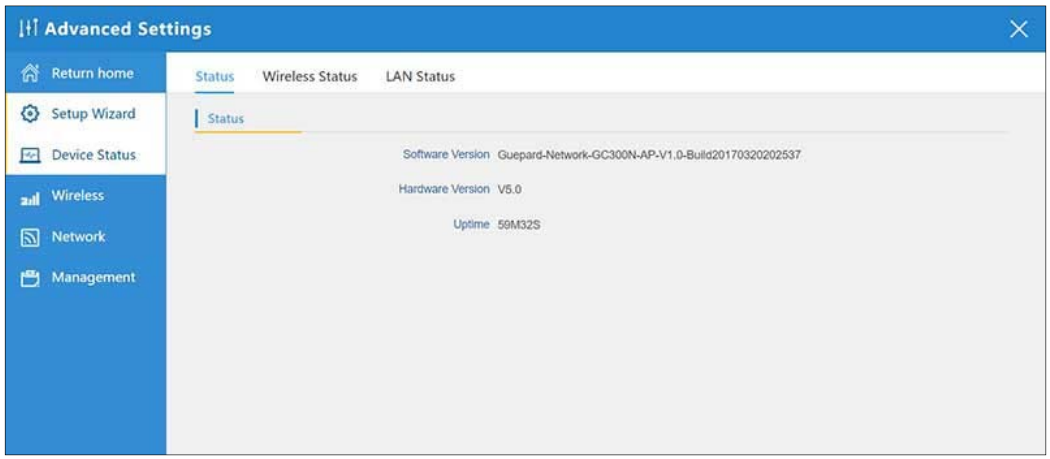


P24. AP Mode Status

3) Advanced:

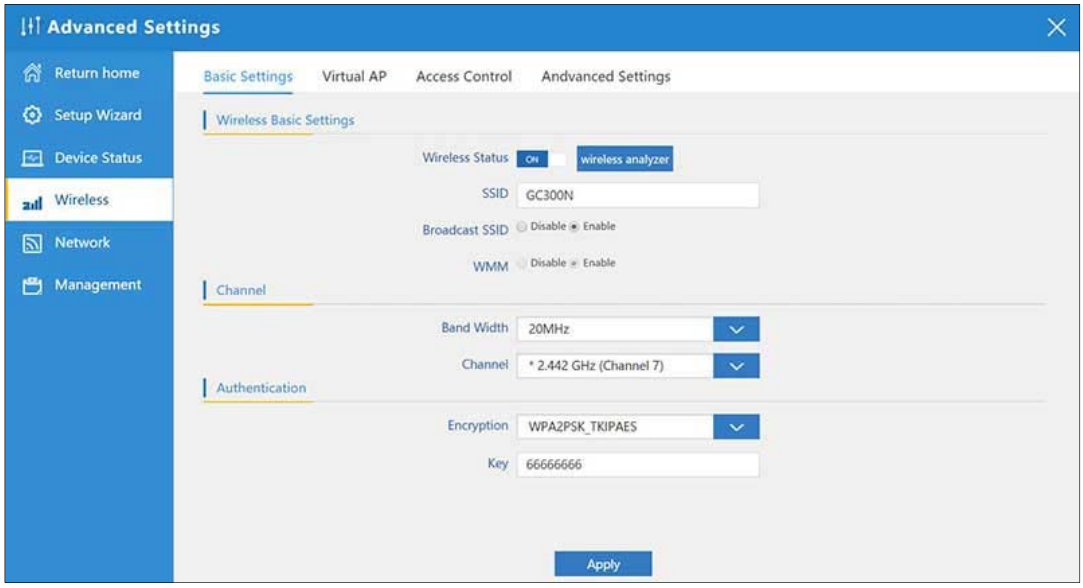
In ***Advanced*** *settings*, administrator can check and configure all indexes: the AP's firmware version, working status, 2.4G wireless, LAN Status, upgrade firmware, system time, reset...

a) ***Device status*** page will show status of: Firmware Version, hardware version, uptime, Wireless status, and LAN/WAN status.



P25. Device Status

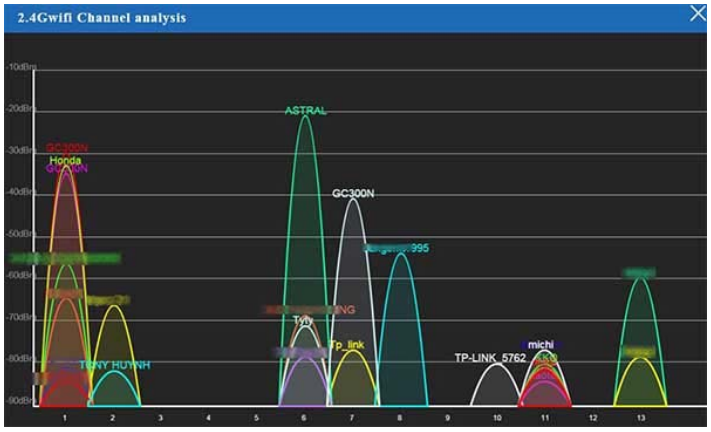
b) ***Wireless*** This menu allow us configuring 2.4GHz band. This place will show Basic Settings, Virtual AP, Access control and Advanced Settings:



P26. Basic Setting in 2.4G Wireless

Basic Settings include:

- Wireless Status: the status of 2.4GHz wireless and on/off switch. W***ireless analyzer*** button use for checking all wirelesses in this zone, mainly to analyze the AP's signal strength in some channel, to make sure user easy to choose the right channel.

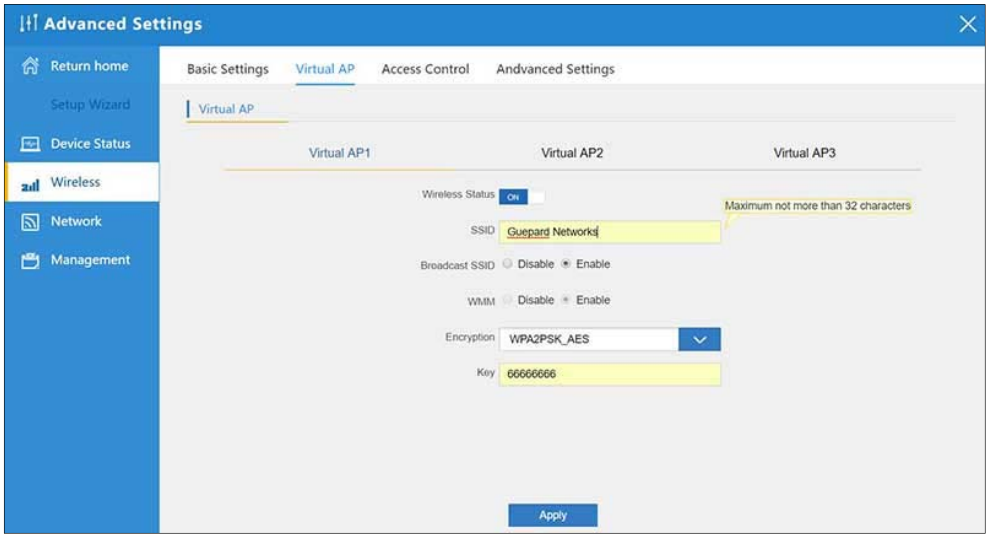


P27. Wireless analyzer

- SSID: input SSID for this device broadcast on 2.4GHz band.
- Band Width: band width of channel 40MHz or 20MHz for increasing band width in small area or increasing distance in large area.
- Channel: choose channel which haven't in this area. This choice keep AP was not interference another wireless device.
- Encryption: choose encryption type.
- Key: password to access SSID.
- ***Apply*** button: configuration finished.

Virtual AP there are 3 virtual APs (03 SSIDs) include:

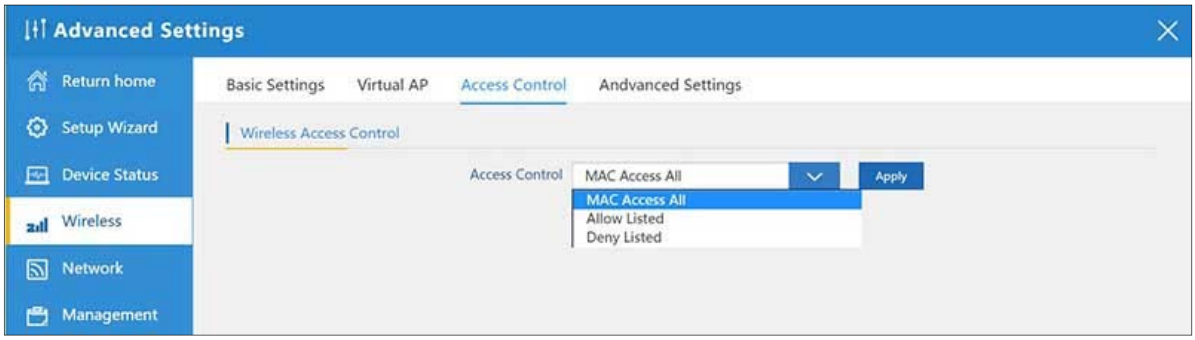
- Wireless Status: the status of 2.4GHz wireless and on/off switch.
- SSID: input SSID for this device broadcast on 2.4GHz band.
- Encryption: choose encryption type.
- Key: password to access SSID.
- ***Apply*** button: configuration finished.



P28. Virtual AP Settings

Note: *GC300N allow to create Max 04 SSIDs for multi-using.*

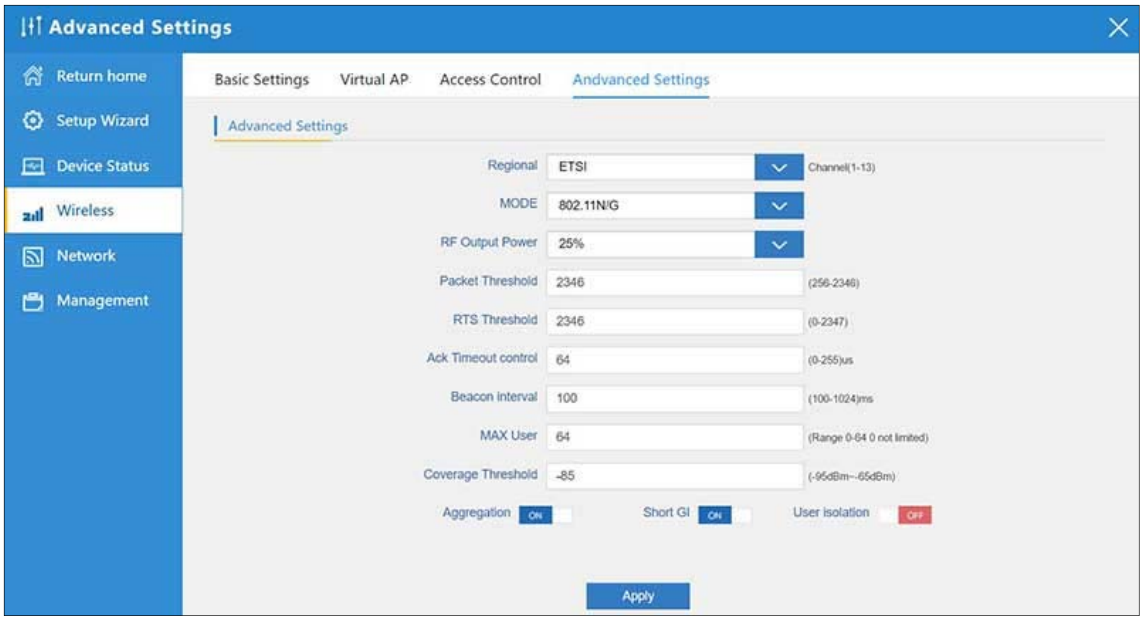
Access Control: This function help administrator can be control all MACs allowed or denied accessing networks.



P29. Access Control

- MAC Accept All: This option allow all MACs accessing device.
- Allow Listed: This option allow choosing MACs accessing device.
- Deny Listed: This option deny choosing MACs accessing device.
- ***Apply*** button: configuration finished.

Advanced Settings: Administrator can configure detail functions of GC300N as P30 below:



P30. Advanced Settings

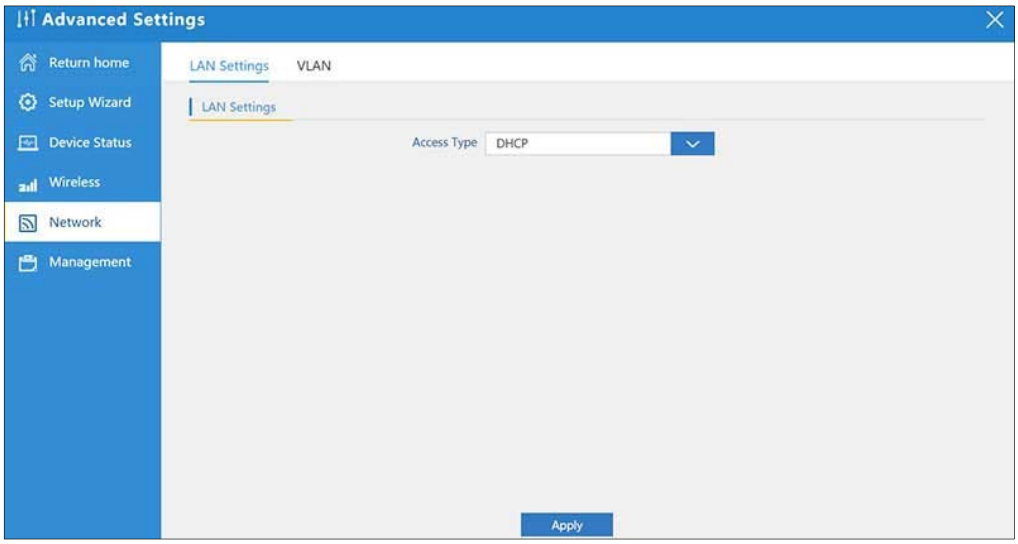
- Regional: Regional default ESTI (Europe).
- Mode: Choosing IEEE 802.11 standards as: 802.11N/G or 802.11B/G.
- RF Output Power: Power of "Radio Frequency" output. This function allow device's antennas

improve broadcasting distance (default 25%) from 20-200 meters (RF Output Power: 100%).

- Packet Threshold: This value is used to set the maximum size of packet a client can send. Smaller packets improve reliability, but they will decrease performance. Unless you're facing problems with an unreliable network, reducing the fragmentation threshold is not recommended. Make sure it is set to the default settings (usually 2346).
- RTS Threshold: RTS stands for 'Request to send' and is send by the client to the access point – it essentially asks for permission to send the next data packet. The lower the threshold, the more stable your Wi-Fi network, since it essentially asks more often when sending packages. However, if you don't have problems with your Wi-Fi you should make sure that the RTS Threshold is set to the maximum allowed.
- Ack Timeout control: 802.11 a/b/g wireless devices use a number of time constants, defined by the IEEE specifications, to sense other carriers using the wireless media and avoid collisions.
- Beacon interval: The lower the value, the smaller the time lag which means that the beacon is sent more frequently. The higher the value, the bigger the time lag which means that the beacon is sent broadcasted less frequently.
- Max user: Maximum simultaneous users can access device (number 0 for unlimited users).
- Coverage Threshold: This function allow GC1200ac's antennas improving more sensitive to client devices. Which help GC1200ac can keep tight connection with clients and improving broadcasting distance.
- Aggregation (switch On/Off): Frame aggregation is a feature of the IEEE 802.11e, 802.11n and 802.11ac wireless LAN standards that increases throughput by sending two or more data frames in a single transmission.
- Short GI (switch On/Off): Guard Interval is intended to avoid signal loss from multipath effect.
- User isolation (switch On/Off): User Isolation is normally reserved for public hotspots. It isolates each user, so that other users of the hotspot cannot connect to your machine via the access point. This is great at public hot spots as someone could use the wireless network to hack your machine (Hence you should always use a personal firewall).
- ***Apply*** button: configuration finished.

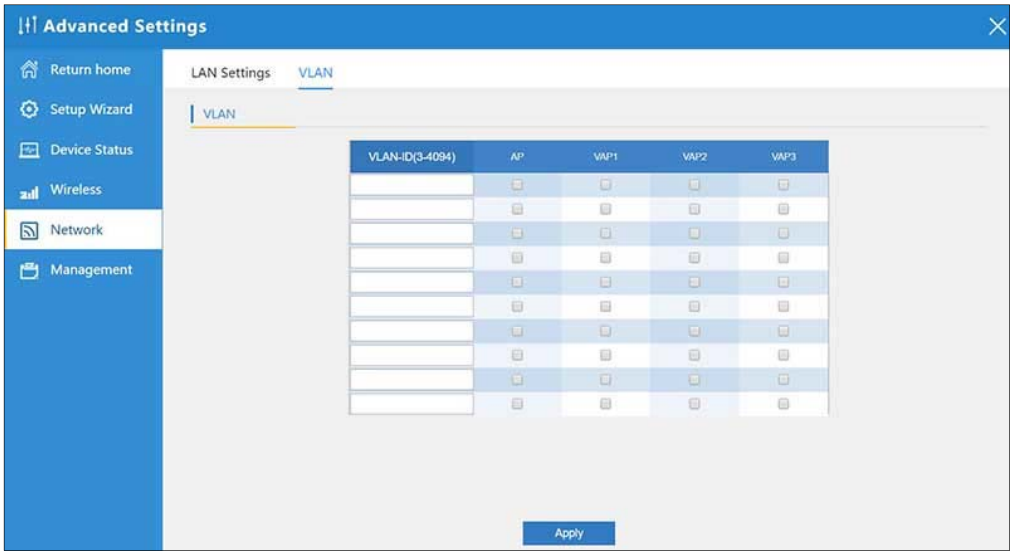
c) Network

In this page, mainly to show the LAN settings and VLAN as follow P33, P34:



P31. Network Settings.

You can mark tag VLAN for 4 SSIDs as P32 follow:

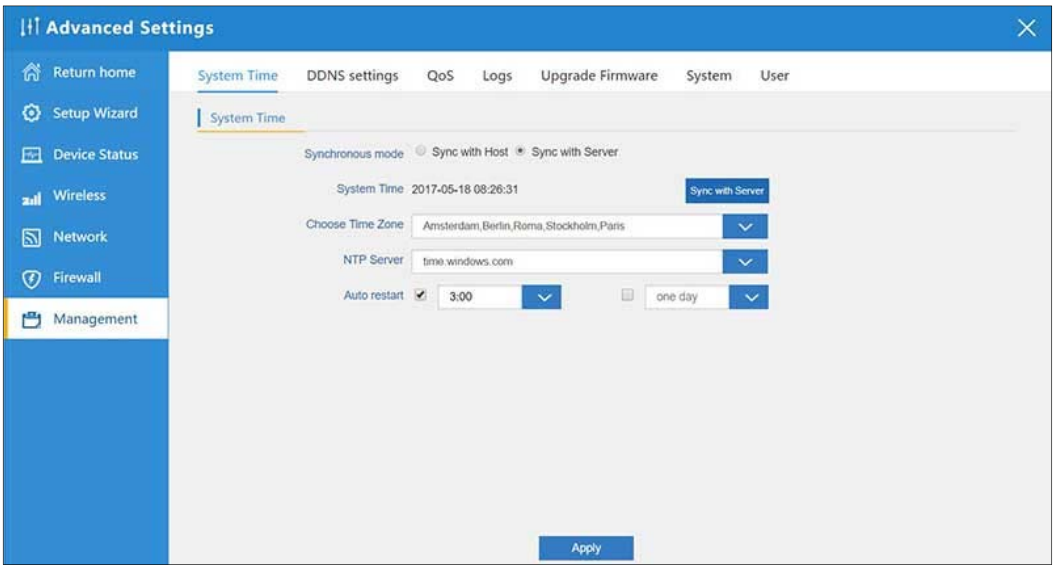


P32. Tag VLAN Settings on GC300N.

d) Management

In this part, showing the System time, DDNS, QoS, Logs, Upgrade firmware, System and User info.

You should configure synchronous system time of GC300N with your location when run GC300N. Details as P33 follow:



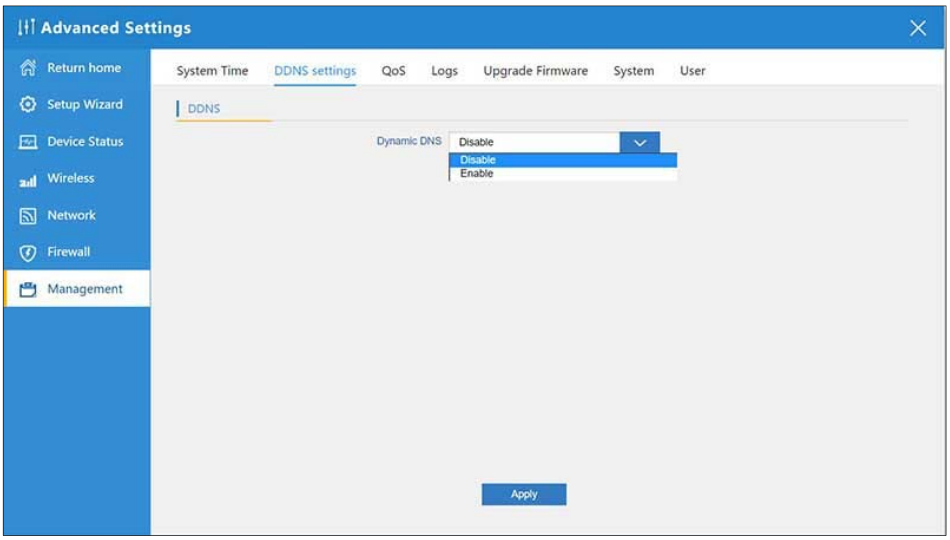
P33. System Time Settings.

System Time Settings:

- Sync with host (Synchronous mode): Synchronous system time of GC300N with your device (which connected GC300N for configuration: laptop, PC, smartphone…).
- Sync with Server (Synchronous mode): Synchronous system time of GC300N with world clock servers such as: Windows server, European server, North American server, Asia Pacific server .
- Choose Time Zone: choosing your place's time zone (In our case, we choose *Amsterdam, Berlin, Roma, Stockholm, and Paris*).
- Auto restart: you can restart GC300N at the time you want set for device maintenance. There are 2 options: one time daily (can choose time exactly) and many times daily.

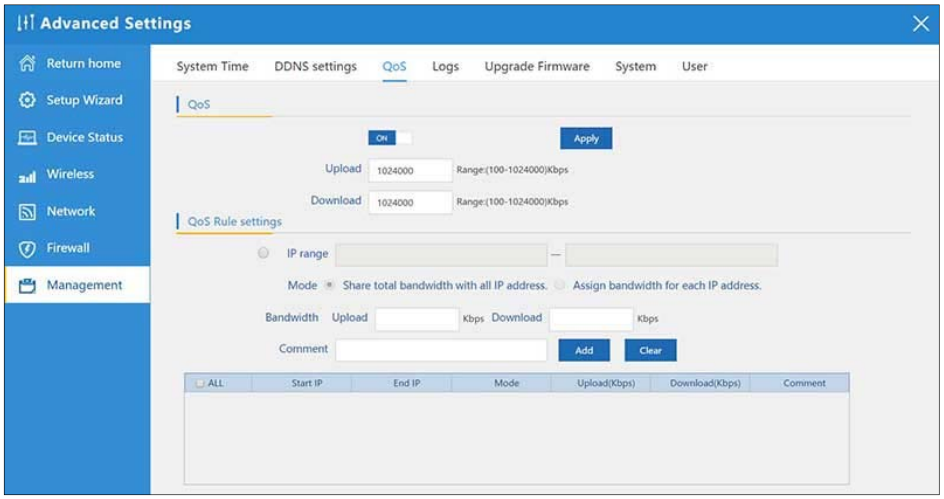
Note: *We recommend you should choose restarting GC300N daily for device maintenance. This settings will assure AP device working 24/7/365 fluently.*

DDNS Settings: Disable or Enable Dynamic Domain Name System configuration. See P 36:



P34. DDNS Settings.

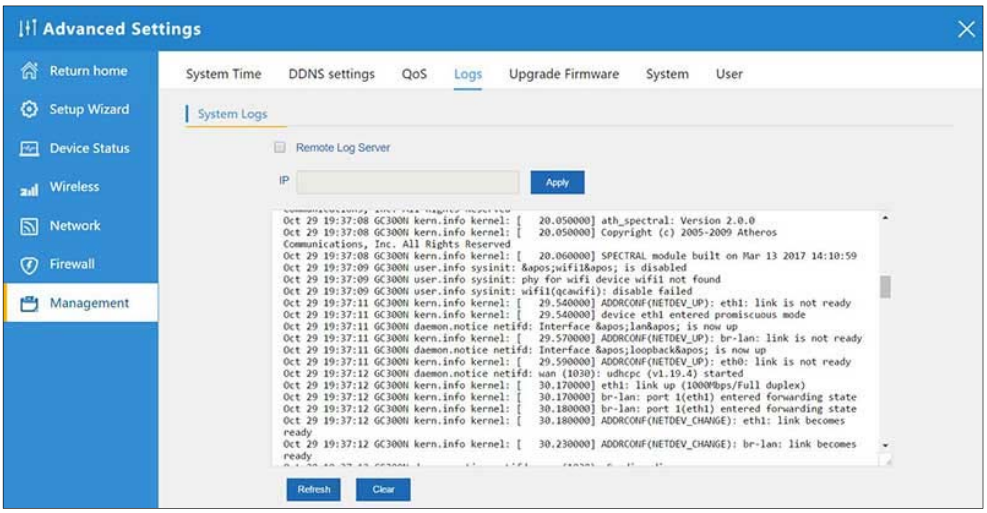
QoS Settings: Quality of Service function control all of clients accessing this device. This function assure appropriate connecting speed (bandwidth of connection) per clients and network capacity.



P35. QoS Settings.

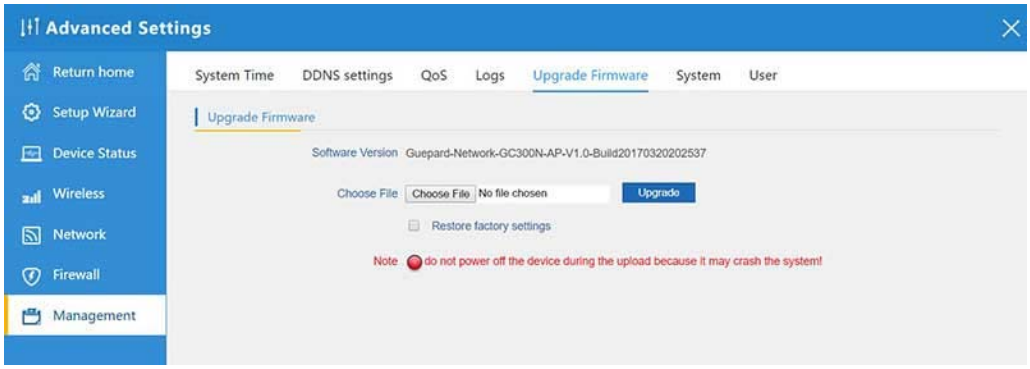
- QoS switch: On/Off switch.
- Upload: Client's connecting speed (bandwidth of connection) for uploading.
- Download: Client's connecting speed (bandwidth of connection) for downloading.
- QoS Rule settings: setting rules for clients when they join this network.

Logs: This Logs saved all configuring records of this device.



P36. Logs.

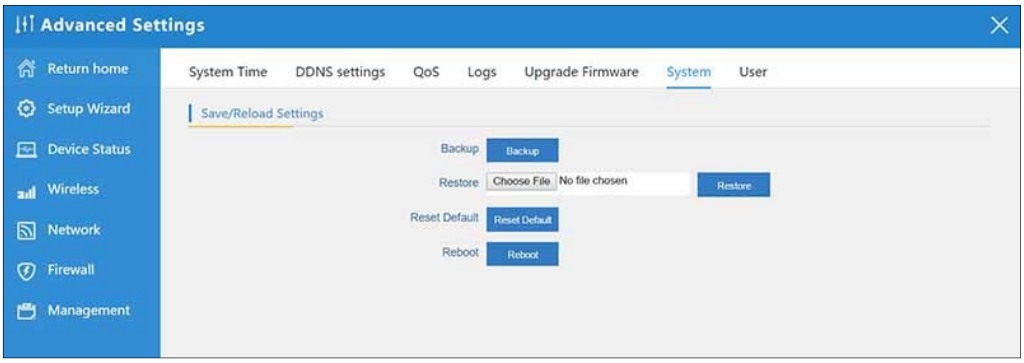
Update Firmware: This function allow administrator upgrading manufacture's new firmware for device.



P37. Update Firmware.

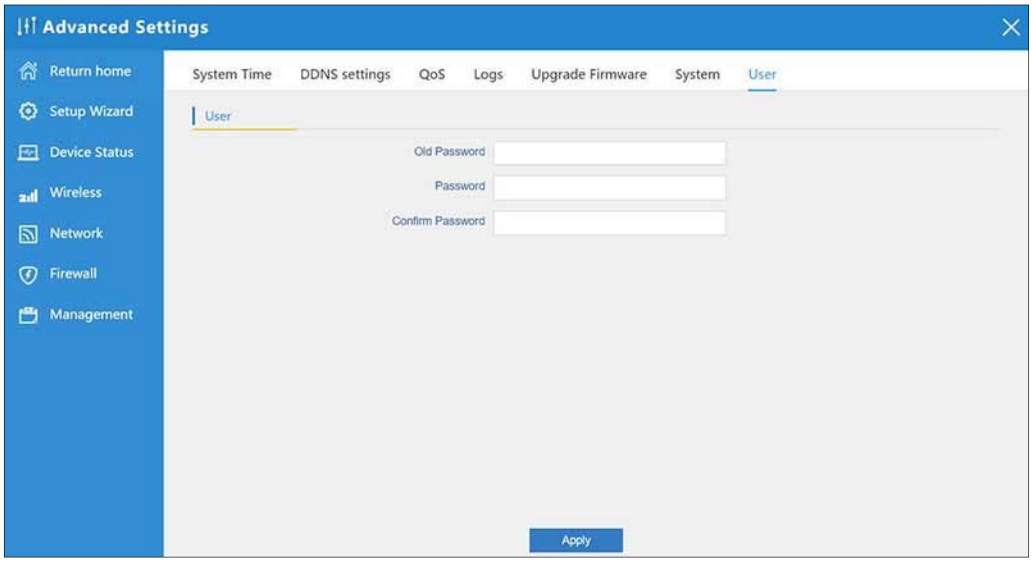
Note: *This function use for specialist who have device's knowledge. So if you do not know this particularized function, you shouldn't try this function.* ***Warranty policy deny in this case.***

System: This feature allow backup, Restore, Reset and Reboot AP device**.**



P38. System.

User: This feature allow to change AP device's login password.



P39. Change Login password.

4) Exit: Exit GUI (Graphic User Interface).

4th Trouble Shooting:

No.	Symptoms of AP device	Solution
1	***AP's Indicator off***	Please make sure the POE module connection is connected right POE Port.
2	***I forget user name and password in login***	Restore to factory default
3	***I cannot login the AP through WEB management***	1. Please make sure PC and ceiling AP's IP Address are same network segment, then check if can Ping AP's IP address: PC start--input "and" in Run, then ping 192.168.188.253 2. Login again after Restore this ceiling AP to factory default. 3. Make sure there isn't any equipment to take IP address of 192.168.188.253 in the same network 4. Check LAN cable to avoid any problem, recommend do not use unshielded twisted pair Ethernet cable.
4	***I forget the AP's SSID and passwords***	1. Login to AP's interface page by internet cable, then reset password in wireless setting. 2. Restore to factory default

5	***I can't access to AP's IP address***	1. Check AP's DHCP and make it enabled in Gateway mode. 2. Check the internet connection between ceiling AP and the root router/switch in AP and Repeater mode.
6	***I can't access into Internet even finished the settings of wireless AP***	1. If dynamic IP user, login wireless AP's WEB page, check Internet settings--WAN Setting--Dynamic IP, fill in right info 2. If ADSL user, login wireless AP's WEB page, check Internet settings--WAN setting--PPPOE, then input the right user name and password 3. Please set PC's IP address as obtain IP address automatically
7	***How to change IP address in local network***	Click **Advanced** settings-**Network**-**LAN** settings-**IP** address setting-**Apply**
8	***How to Reset Wireless AP***	Press and hold the "Reset" button more than 15 seconds after power on. The Wireless AP will be restored back factory default after the Wireless AP restart.