GAC7000 Multi-WAN CONTROLLER
Authentication Gateway & Controller

User Manual of **Gateway & WLAN Controller**

This manual is subject to tell users how to use this WLAN management platform properly, suit for those familiar with basic networking knowledge and terminology,
Then this user manual including the product main features, packing content, hardware introduce and connection, Log in , Controller and Management, LAN Setting and WAN setting. Pre-reading this manual before operation is highly recommended;

Content:

Chapter 1: Product Main Features and Packing Content

Item		Specification
Standard		IEEE 802.3, IEEE 802.3u
QTY of managed AP		1~300PCS wireless AP can be managed, Max 300PCS
Ports		1*10/100/1000Mbps WAN Port in Default, max 4 WAN Ports
		4*10/100/1000Mbps LAN Ports in Default, min 1 LAN port
LED indicator	Power	Power LED Indicator
	Run	System LED Indicator
Environment		Working Temperature: -10℃~ 50℃
		Working Humanity: 10% ~ 90%RH (No condensation)
		Storage Temperature: -40℃ ~ 70℃
		Storage Humanity: 5% ~ 90%RH (No condensation)
Packing Content		GAC7000 WLAN Controller
		Power Adapter
		Setting Accessory
		User Manual

Chapter 2: Hardware Introduce and Connection

Hardware:

WAN1: WAN Port in Default
WAN2/LAN4; WAN3/LAN3; WAN4/LAN2: LAN Port in default, but can set up as WAN port in gateway operation mode based on needs.
LAN1: LAN Port in default
Reset: Press it 15 second, it return to default setting.
Power: When power on, power LED indicator will be on;
RUN: When this device run in good status, this LED indicator will be flashing

Application and Connection:
If there is a Gateway in the whole network, then this WLAN controller work as Controller to manage wireless AP only;

If AC controller work as gateway and controller together, it can access into cloud server for captive portal authentication like Google/Facebook/SMS/WeChat/Member Log in.

The working diagram show as follow:

Working diagram as AC Controller

Working diagram as Gateway and AC Controller

Chapter 3: Login

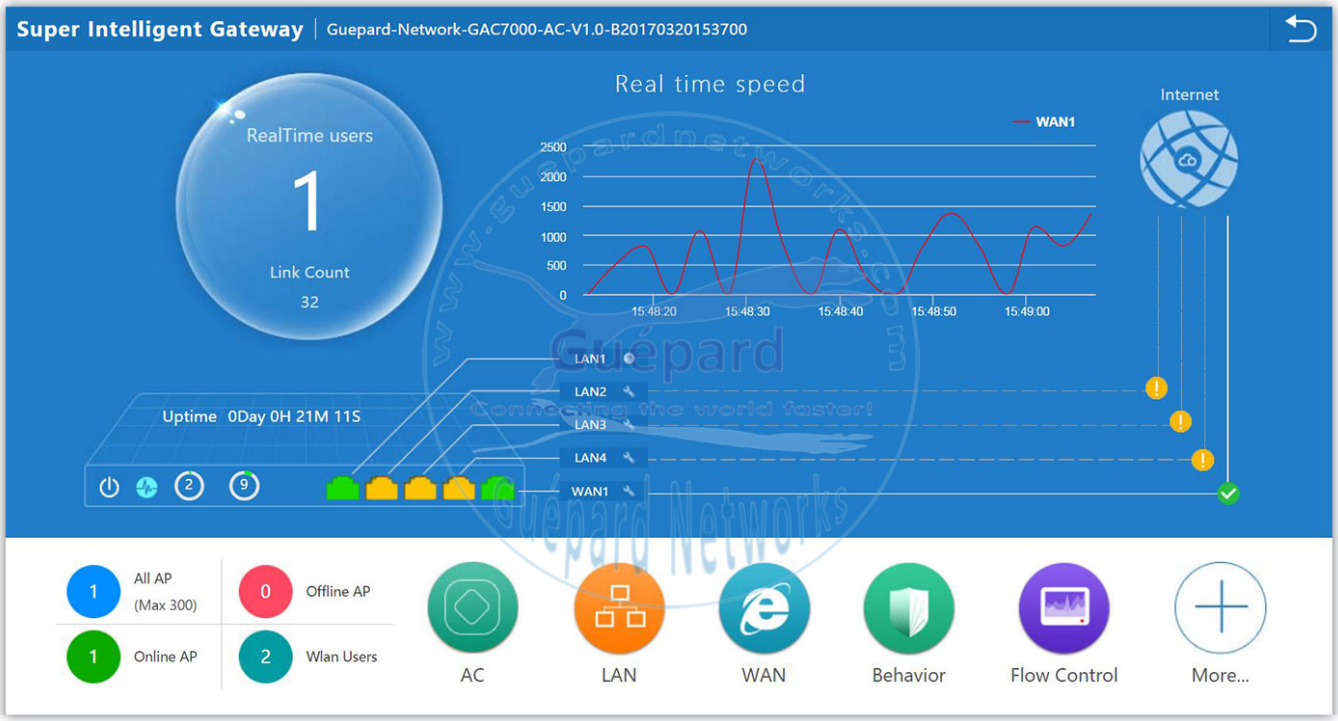
3.1: Setup an IP address for PC, The IP address should be anyone between 192.168.10.2~192.168.10.254;

3.2 Open IE browser, input AC Controller's IP address **192.168.10.1**, Enter to log in AC controller's WEB GUI.

3.3 Choose the Language, then input **admin** and Login

Chapter 4: WEB GUI Configuration

When login this AC controller, the following home page will pop up; let's introduce it first!



RealTime Users: Mean the QTY of end users access into it when it work as Gateway.
Link Count: Mean the QTY of
Real time speed: Mean the WAN Ethernet speed

Internet : Make this AC controller access into cloud server in Gateway mode.

Uptime: Mean AC controller running time

: Click to Reboot this AC controller

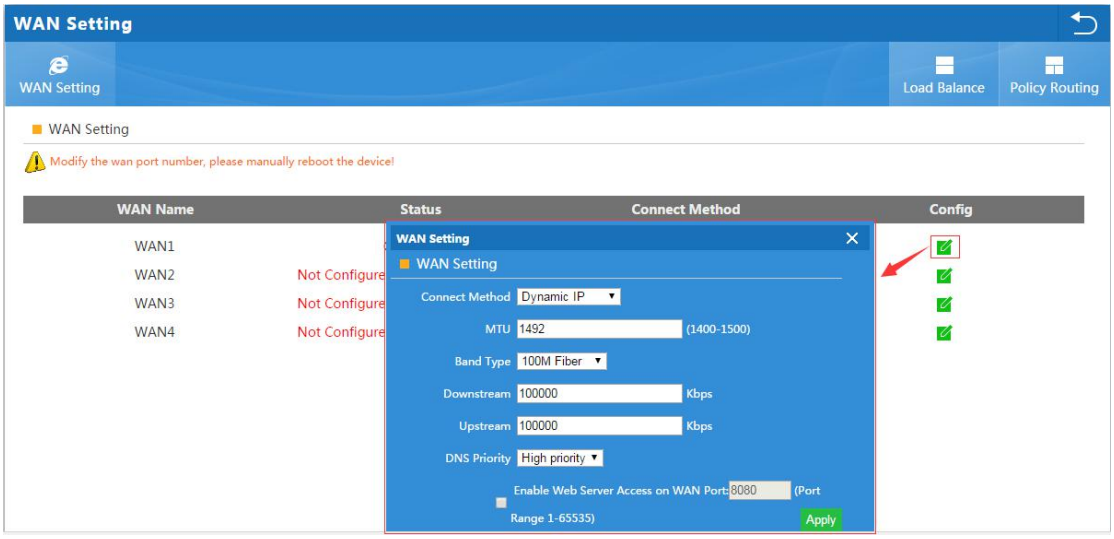
: Examination: disable in default, can enable

: CPU Usage

: Memory usage

: Yellow show disconnect, Green show connected

: Setup button, click it, will show following picture to show the status and setup WAN/LAN port; will show more in chapter 5.



All AP: Show QTY of wireless AP which connected with this WLAN controller
Offline AP: Show QTY of wireless AP which offline already
Online AP: Show QTY of wireless AP which online
WLAN Users: Show QTY of end users which access into this wireless AP.
AC: Wireless AP control and management
LAN: mean Local Area Network, is a computer network locally managed
WAN: Wide Area Network, it involves internet links
Behavior: end users actions based on rules or policy
Flow Control: manage the rate of data transmission between two nodes to prevent a fast sender from overwhelming a slow receivers
More: including network function and device management

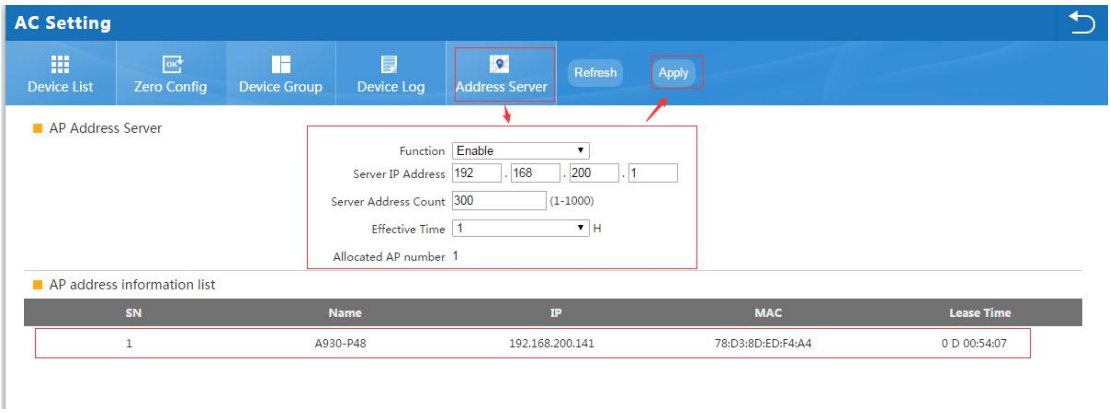
Let's introduce AC, LAN, WAN, Behavior, Flow Control and other function one by one to make users with more understanding in this product.

4. 1. AC

Click button of AC, it will pop up following picture, which showed all the wireless AP connected into this WLAN controller.

4.1.1: Address Server:

Address Server: Mean this AC controller can assign IP address for wireless AP automatic, no need to change wireless AP's IP address one by one



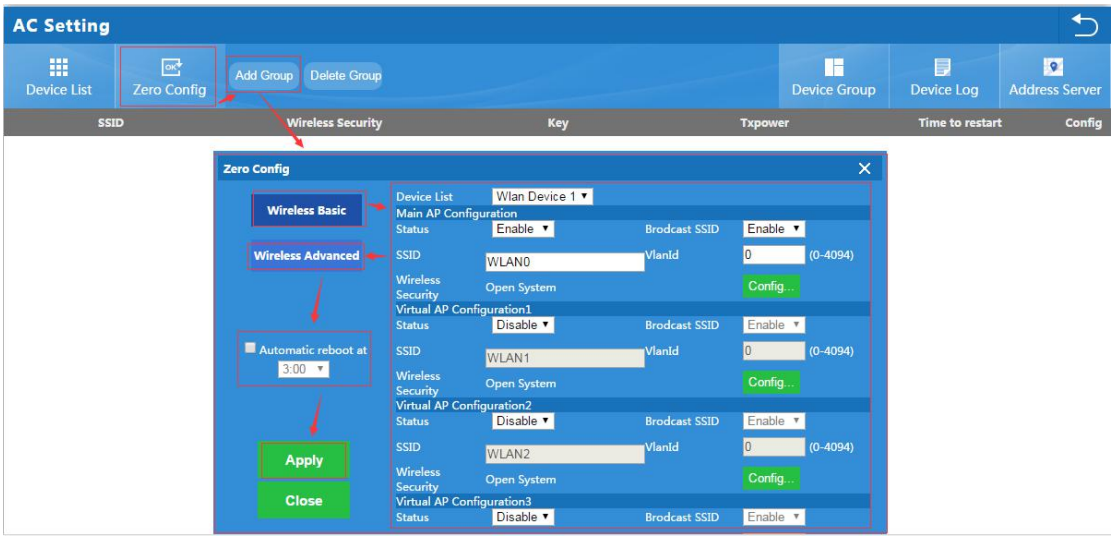
Refresh: to refresh the wireless AP's IP address
Function: Enable/Disable, default is Enable
Server IP address: default is 192.168.200.1; can change to anyone you like, but pls note, if server IP is 192.168.200.1, then wireless AP's IP address will be one from 192.168.200.2~192.168.200.254 if server address count is 300.
Server Address Count: default is 300, can be 1~1000, based on the QTY of wireless AP.
Effective Time: can be 1~24 hours
Allocated AP number: show the QTY of wireless AP which assigned IP address by this WLAN controller.
When setup the above data, click Apply to save it.

AP address information list: to show wireless AP's model number, IP address, MAC address and running time.

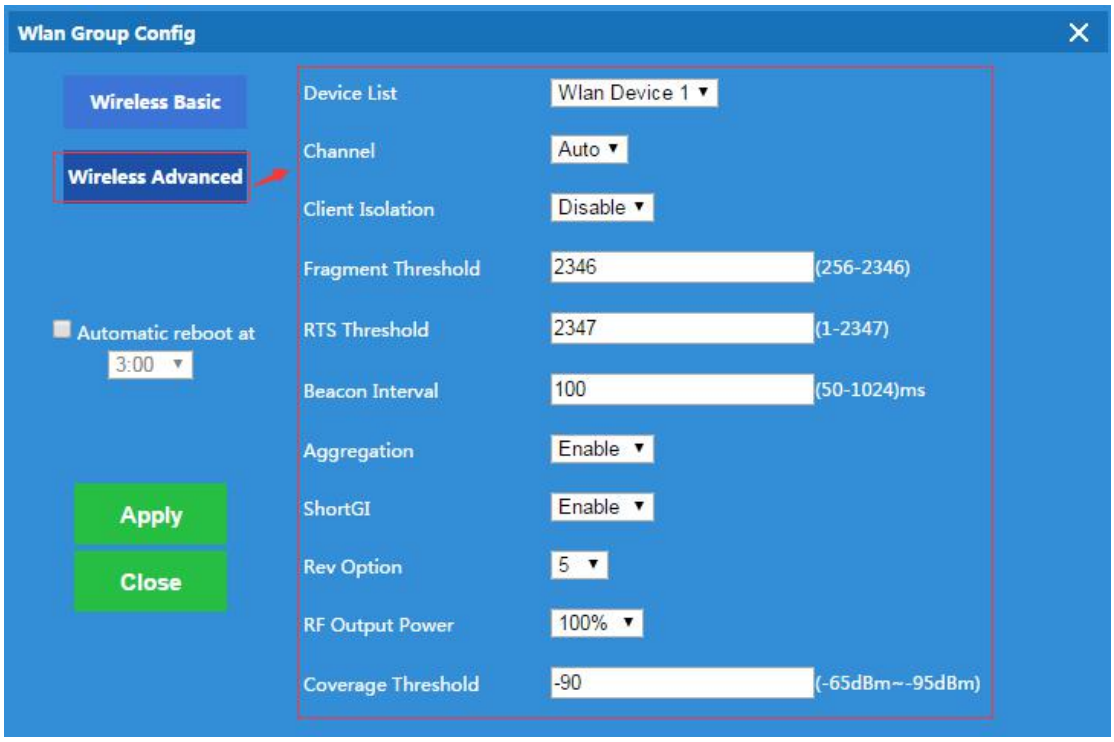
4.1.2: Zero Config

This function make wireless AP plug and play, but recommend to config this function before connect wireless AP into this network as following reason:
1. If config this function after wireless AP connected into this network, then all wireless AP should be reboot, then wireless AP will get the configuration from Zero config.

2. There is one group only in Zero config, which will make all wireless AP in same SSID, password, channel..., if want to different AP in different group, recommend Device Group function in 4.1.3.



Wireless Basic: to setup wireless AP's SSID, password, Tag VLAN
Device List: Wlan Device 1 and Wlan Device 2; Wlan Device 1 mean 2.4G Radio mainly; Wlan Device 2 mean 2.4G or 5.8G radio, based on wireless AP.
Main AP Configuration: setup the wireless AP's main SSID, Tag VLAN, Config Password.
Virtual AP Configuration: setup the wireless AP's virtual SSID, Tag VLAN, Config Password. The default status is disable for this virtual SSID.
Automatic Reboot at: Mean can setup this wireless AP reboot at certain time automatic, to improve the performance.
Wireless Advanced: to set up the channel, RF power, ShortGI, Coverage Threshold of wireless AP



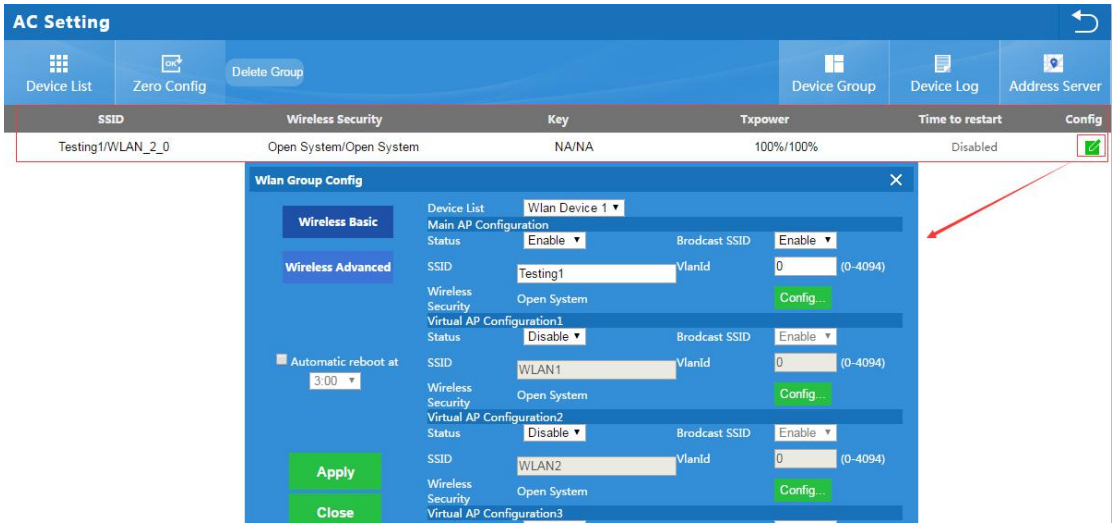
Channel: Auto in default, but recommend to setup channel by manual based on environment.
RF Output Power: 100%, 75%, 50%, 25%, 12.5%, can adjust it based on application. More RF Power, mean more WiFi Range;

Coverage Threshold: This make end users to connect the outdoor CPE with stronger signal strength;

For example, If one outdoor CPE with -80dBm coverage threshold data, another outdoor CPE with -95dBm coverage threshold data, then end users will connect the outdoor CPE with -95dBm coverage threshold always even this outdoor CPE with very weak signal strength.

After setup all the data, click Apply to add zero config group as follow:

Pls note, click config button , can modify the data if you need.



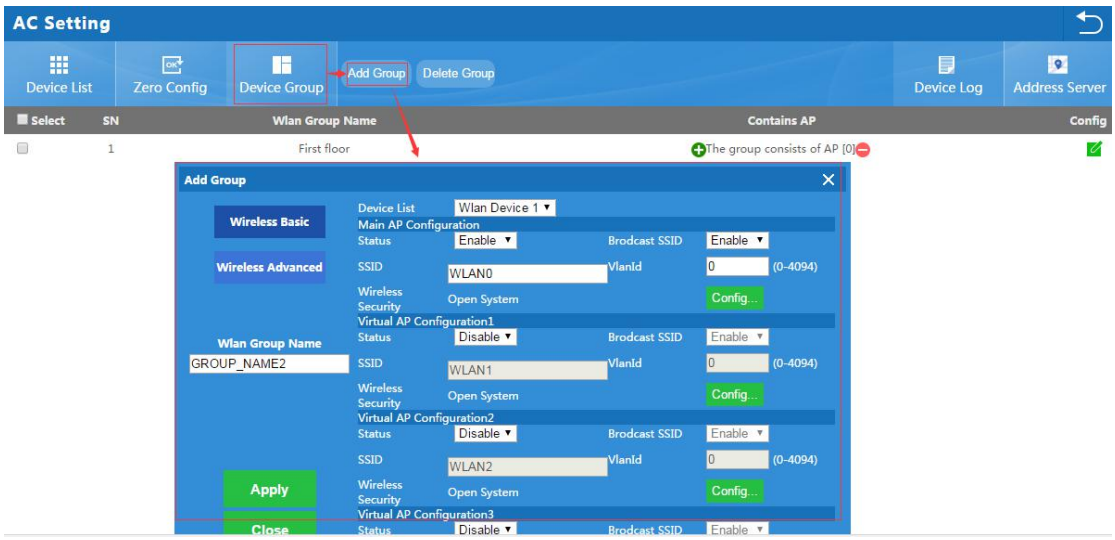
Delete Group: If need, can delete this zero config group.

4.1.3 Device Group

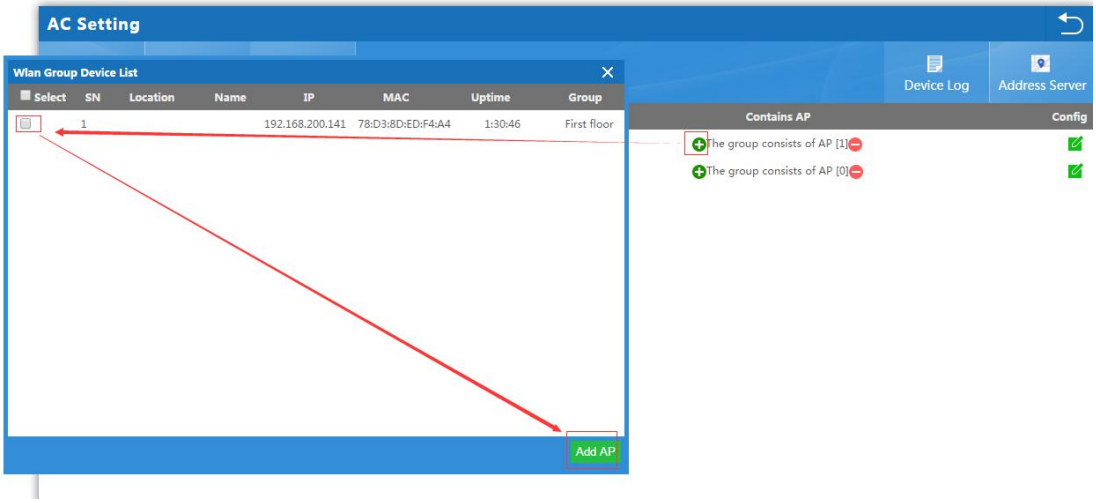
In device group, can be more than one group, then different AP can be in different group.

The steps is: Add Group----Config Group----Click to Add AP into this group----Wireless AP will get data from this group.
Pls note, the configuration in device group is same as Zero Config.

Add Group

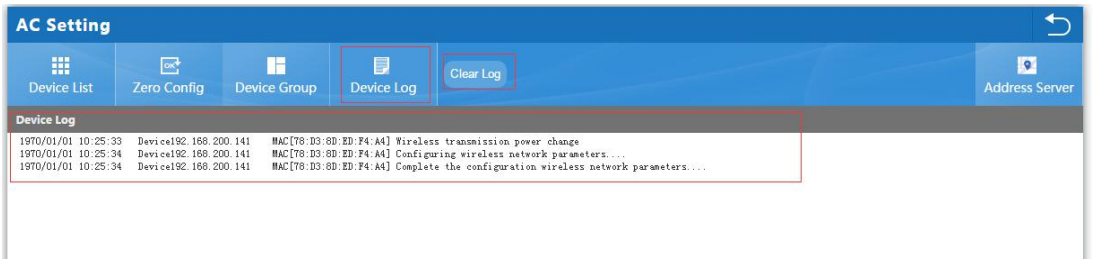


Add AP to Group:



4.1.4: Device Log

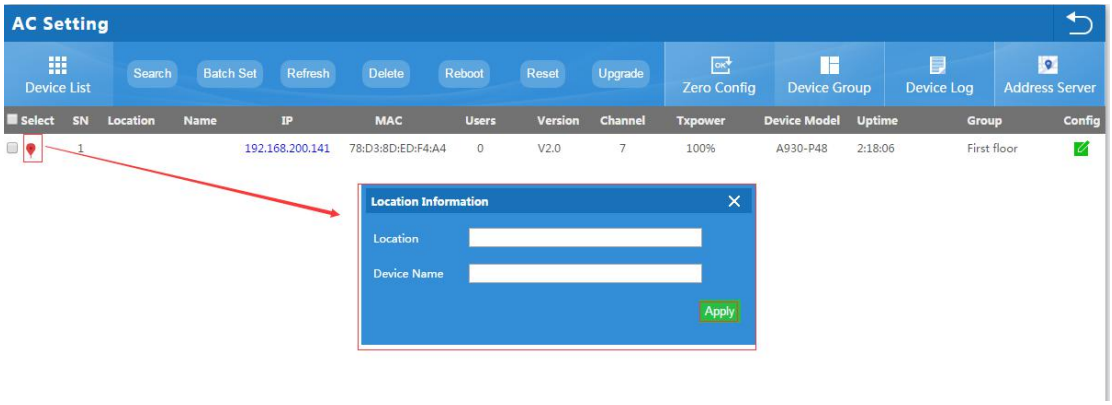
Device Log is keeping the management record of this WLAN controller.



When finish the Address Server, Zero Config and Device Group, can connect wireless AP into this network.

4.1.5: AC Setting:

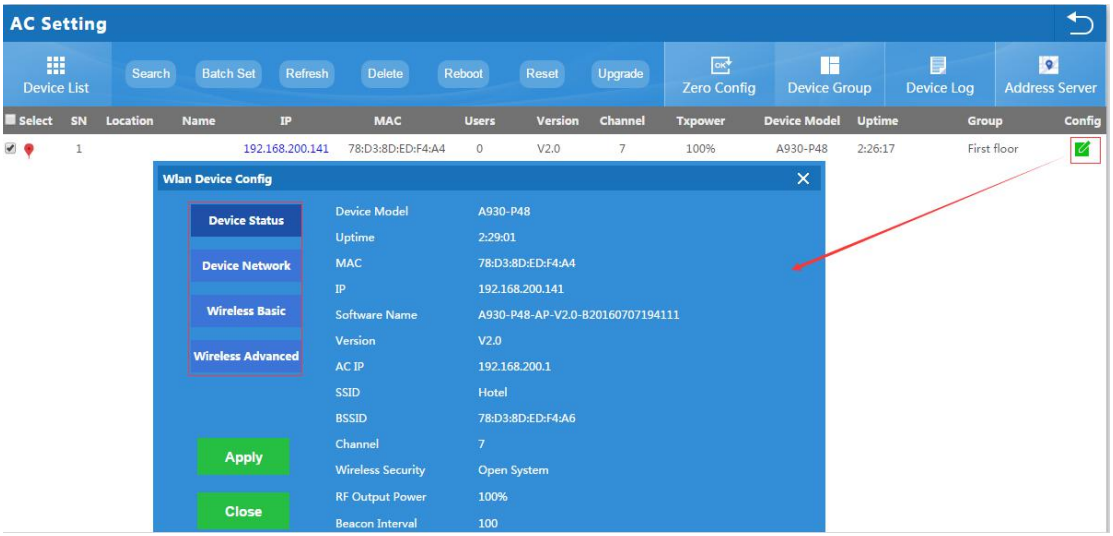
When back to AC setting, let's introduce more management functions:

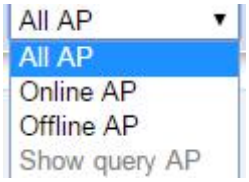


Location : Click it to setup the location and name of Wireless AP.

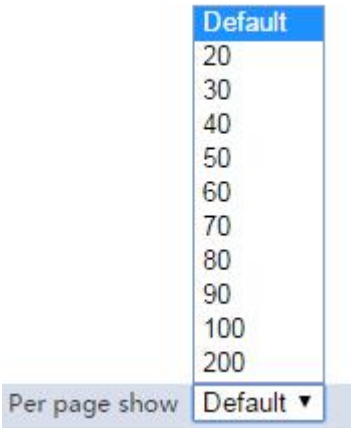
Search: Search wireless AP by IP address or MAC address
Batch Set: Set Channel, TX Power, Time to restart, Max users, device login password in batch.
Refresh: Fresh the status of wireless AP
Delete: Delete wireless AP from this device list
Reboot: Restart this wireless AP
Reset: return to factory default
Upgrade: Upgrade firmware.

If need to setup wireless AP one by one, can click cofig button  to check device status, modify device network, wireless basic and wireless advanced also:





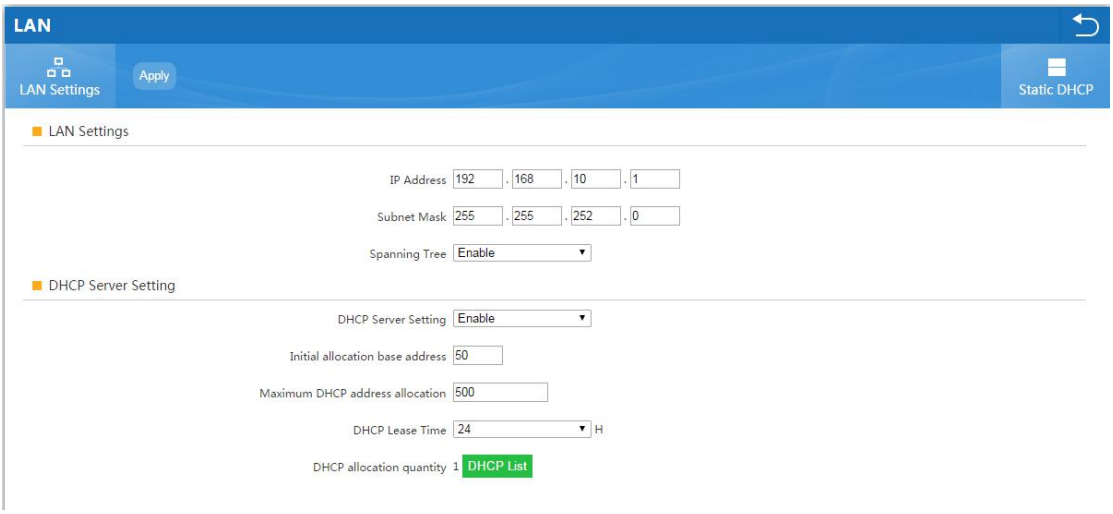
This button can show all AP, online AP or Offline AP;



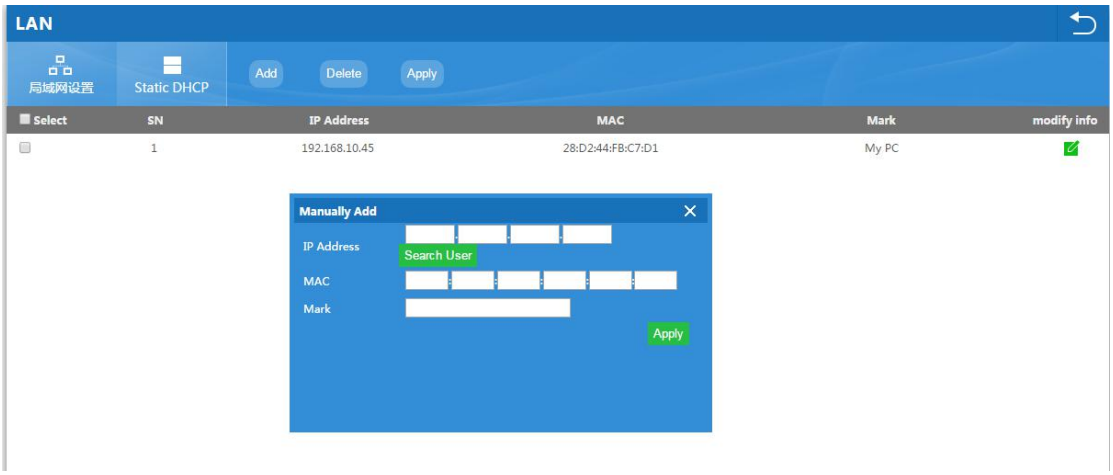
: this show how many AP in each page for better checking.

4.2 LAN

This including LAN setting,DHCP Server Setting and Static DHCP



IP address: mean AC controller's IP address
Subnet Mask: to set the subnet of LAN
Spanning Tree: Enable to show the assigned IP list in DHCP list; Disable mean will not show it.
DHCP Server Setting: Enable mean can assign IP address automatic.
Initial allocation base address:
Maximum DHCP address allocation: QTY of max DHCP address
DHCP Lease Time: the IP address lease time by DHCP server
DHCP allocation quantity: QTY of IP address that DHCP assigned.
Static DHCP: Can add, delete the IP address set by static.



4.3. WAN

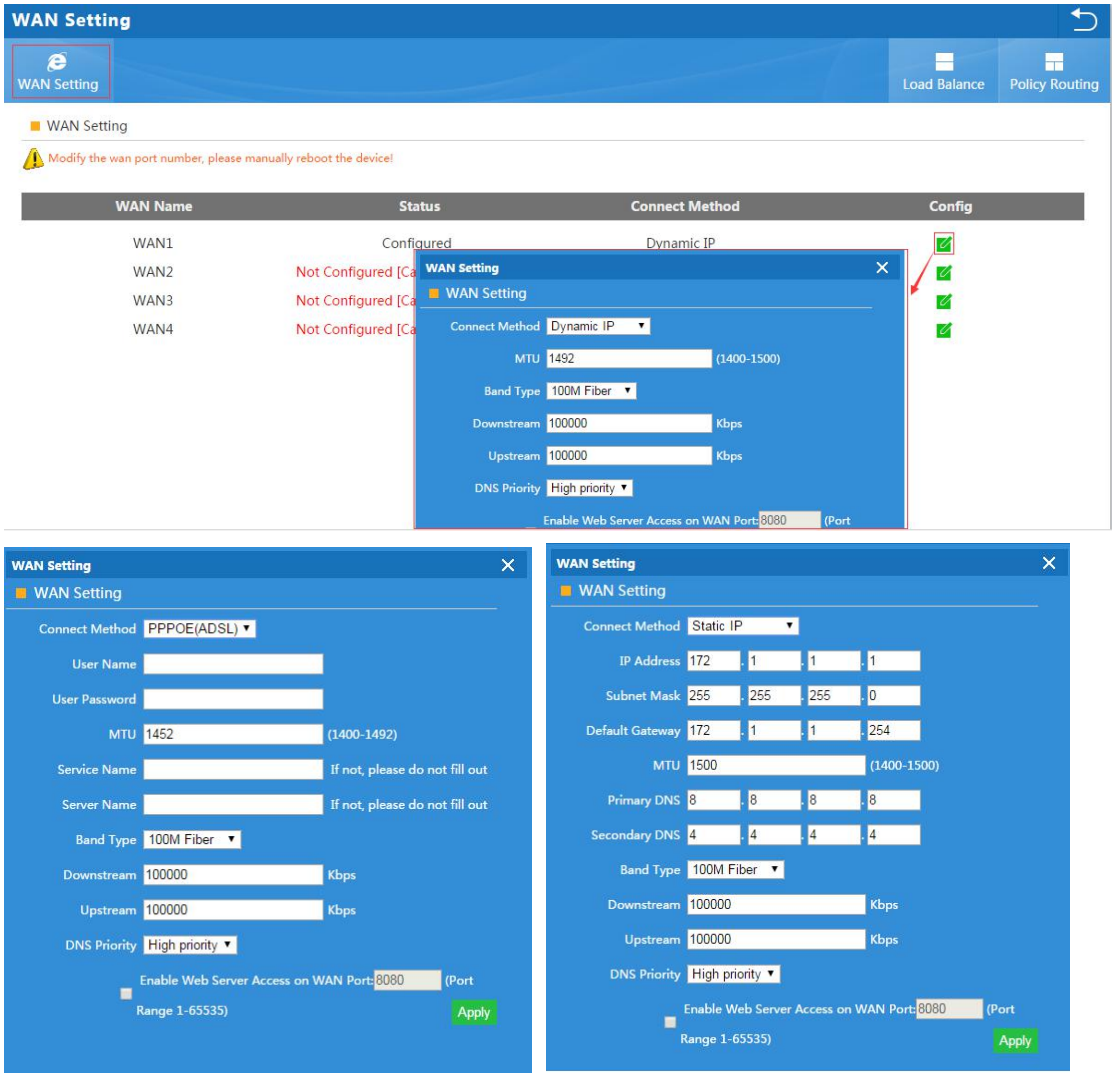
If AC controller work as Gateway also in the whole networking, then we should click WAN, which including WAN setting, Load Balance, Policy Routing

4.3.1 WAN Setting:

WAN1 is WAN port in default; WAN2, WAN3, WAN4 is LAN ports in default, but can config as WAN ports, which make Ethernet backup.

When click WAN, it will show following picture, click config button, will show Connect Method, MTU, Band Type, Downstream, Upstream, DNS Priority, Remote control

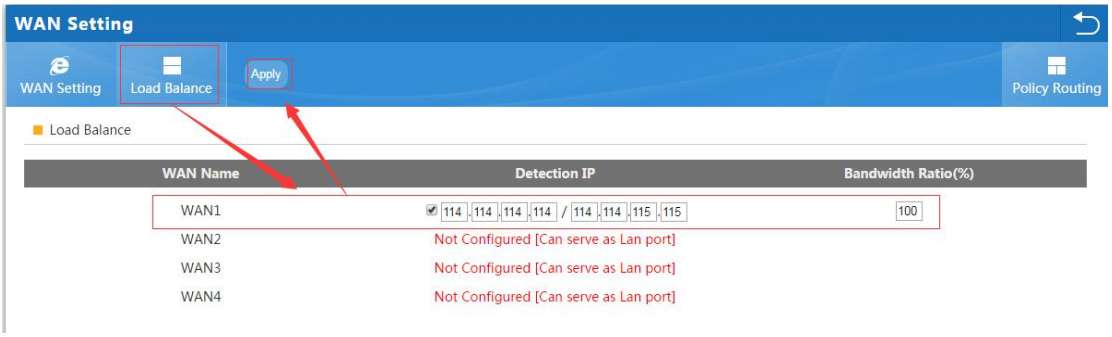
In connect method, it including Dynamic IP, PPPoE, Static IP, here show one by one:



4.3.2 Load Balance

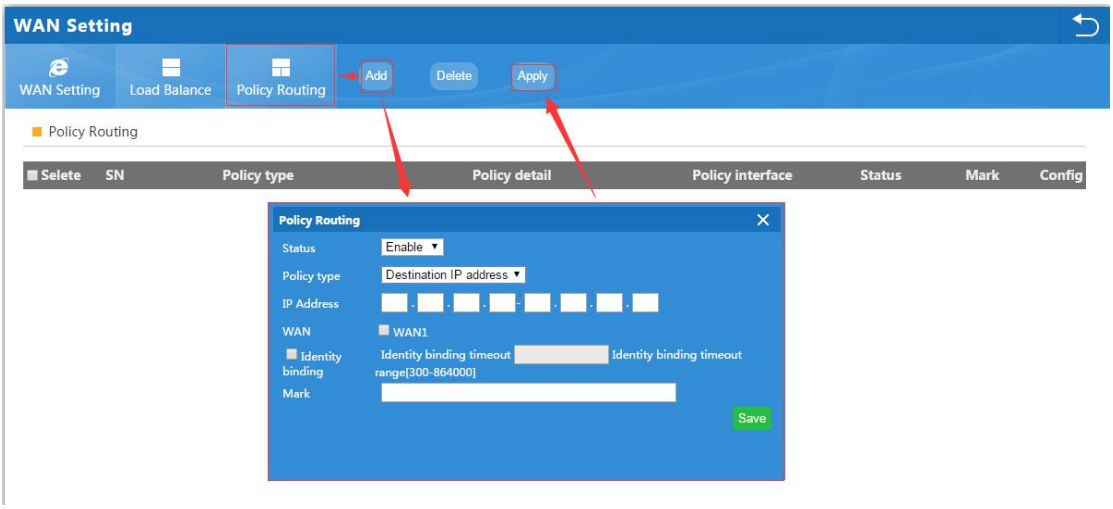
Load Balance is set bandwidth when there are multiple WAN ports; It can detect the IP address auto or manual;

But pls note, when WLAN controller is in multiple WAN, pls restart the WLAN controller by manual.



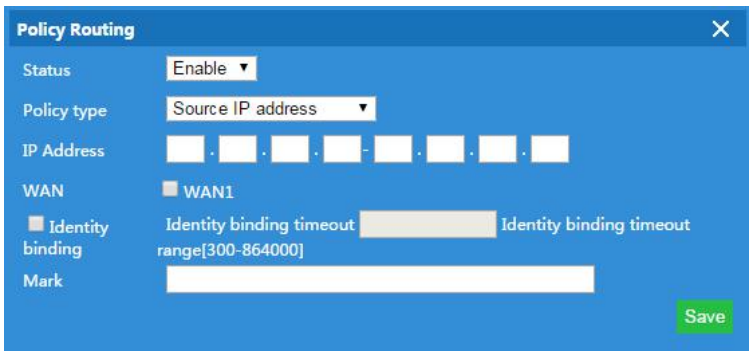
4.3.3 Policy Routing

Policy Routing is some policy to control the router; Manager can make this policy to control the router.

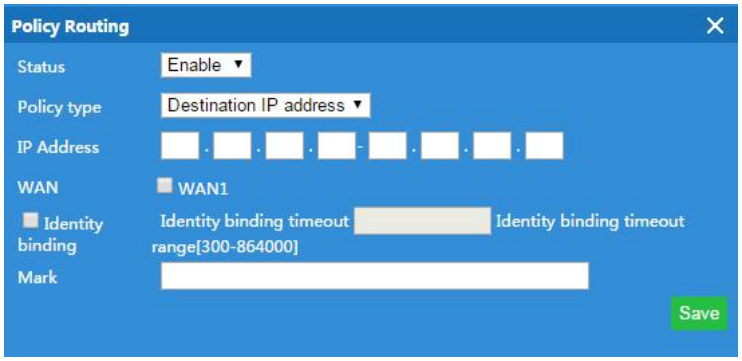


Policy Type:

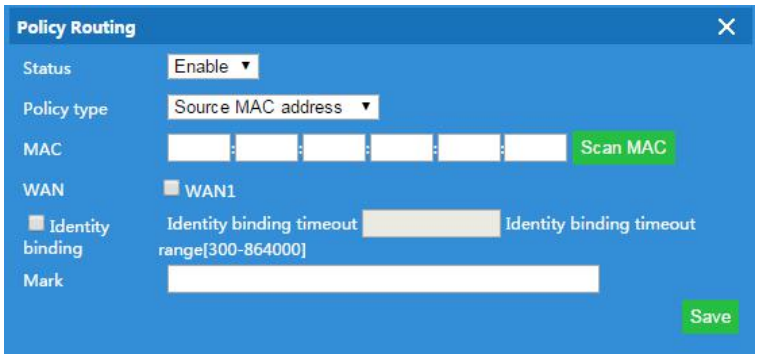
Source IP Address: Policy based on source IP address



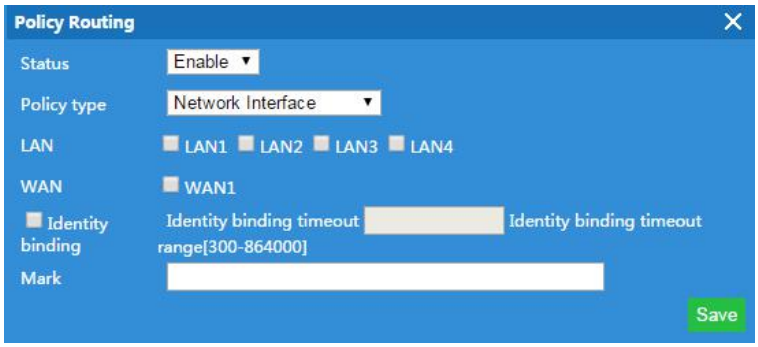
Destination IP address: Policy based on destination IP address



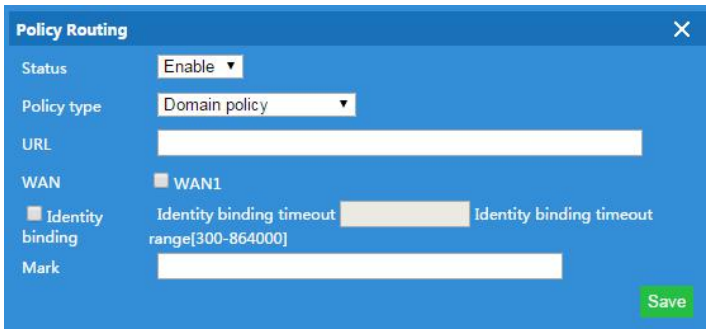
Source MAC address: Policy based on source MAC address



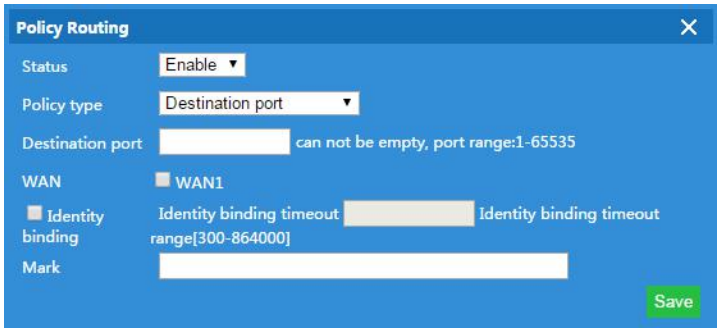
Network Interface: Policy based on router interface



Domain Policy: Policy based on router domain

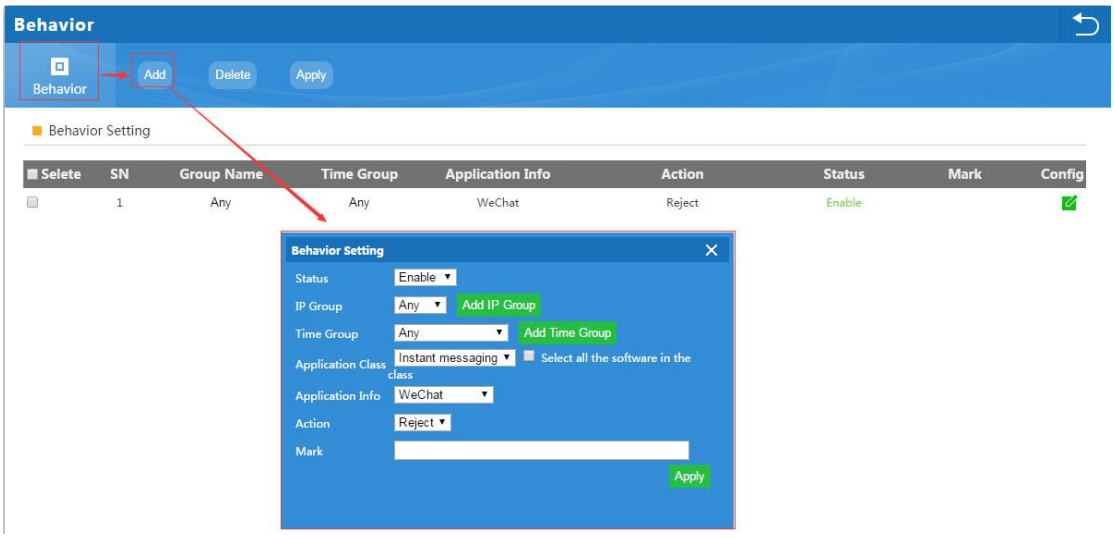


Destination Port: Policy based on destination port.



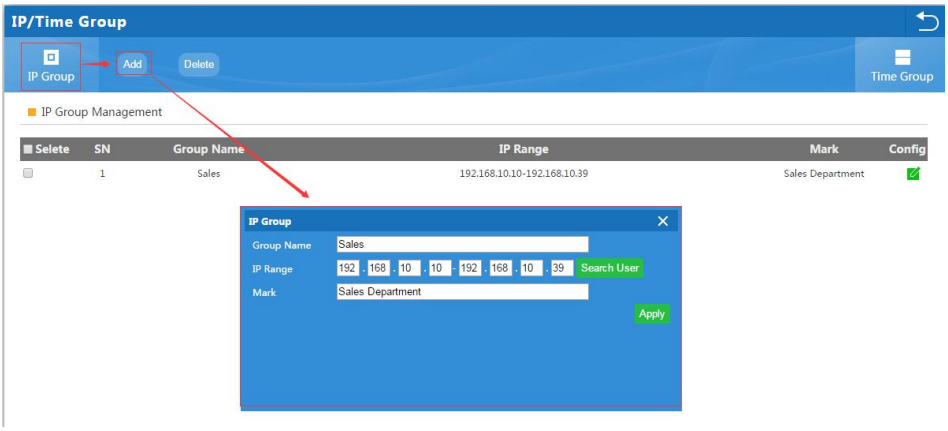
4.3.4 Behavior

In behavior part, it allow/reject end users some behavior based on rules.

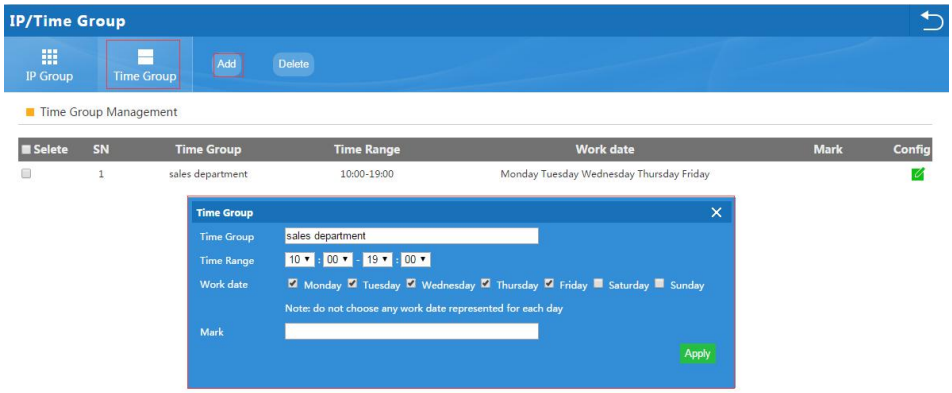


Status: Enable or Disable

IP Group: Can add the IP group if need based on following picture



Time Group: Can add time group based on requirement in following picture:



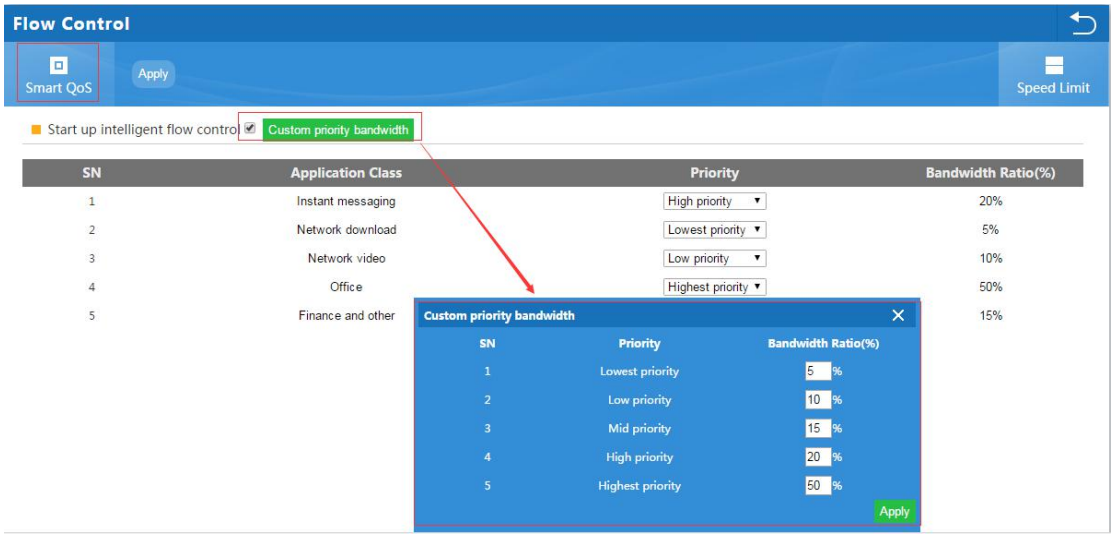
Application Class: Including
Instant messaging (QQ, Trade Manager, WeChat);
Network Download (Thunder, BT, Edonkey);
Network Video (Youtube, PPTV, Tencent Video, Ppstream, Youku, Sohu Video, Letv, RSTP, Douyu, Storm web version, funsh, YY)
Office (FTP, DNS, Http, NTP, NFS, DHCP, RTSP, IRC, Telnet, Stun, System Log, IPSEC, IGMP, SSH, TFTP, PPTP, Radius, OpenVPN)
Finance and other (ICMP, Flush, DZH, Eastmoney)

4.3.5 Flow Control

It is including smart QoS and Speed Limit in Flow Control.

Smart QoS

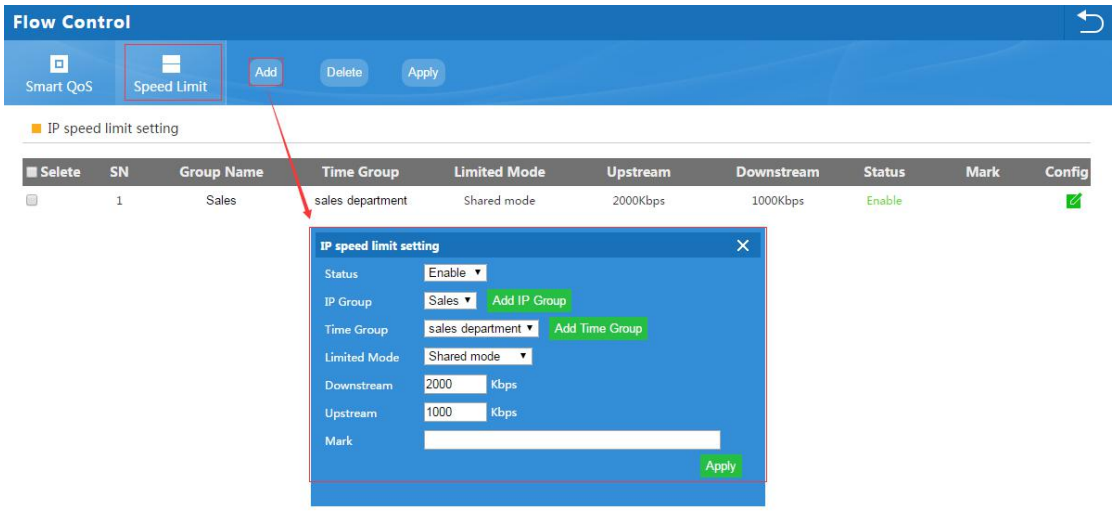
It is set priority bandwidth for application class to make it work freely.



Speed Limit

Speed Limit: Mean limit end users Ethernet speed;
Should add IP group first, then choose the limited mode.
Pls note: Shared Mode: mean all users end this IP group share the downstream and

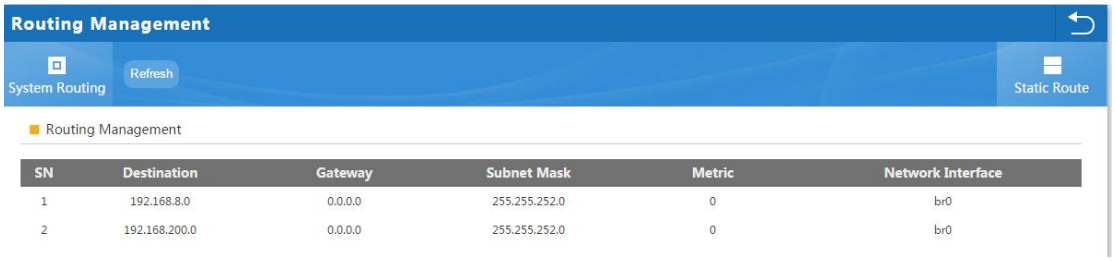
upstream Ethernet speed; Exclusive Mode mean each end users in this IP group get the downstream and upstream.



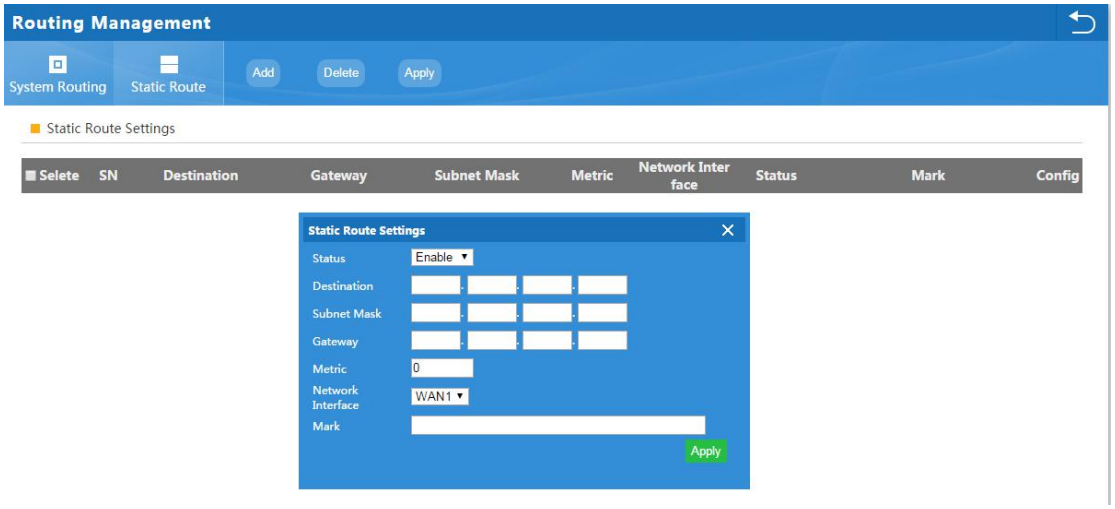
4.3.6 Routing Management

Including system routing and static route

In System routing, it show system routing form as follow:

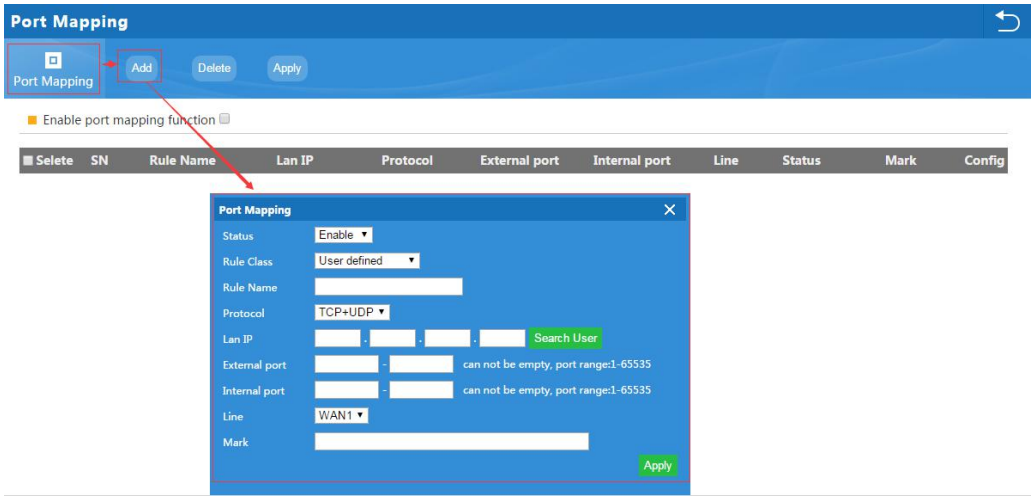


Static Route: add the static router based on destination IP address.



4.3.7 Port Mapping

Port forwarding: called port forwarding also, it an application of network address translation(NAT) that redirects a communication request from one address and port number combination to another while the packets are traversing a network gateway, such as a router or firewall



Status: Enable/Disable

Rule Class: Including user defined, http, https, FTP, POP3, SMTP, DNS, telnet, IPSEC, Remote Desktop

Rule name: Show the name of choosed rule class;

Protocol: Including TCP, UDP, TCP+UDP

LAN IP: port mapping LAN IP address

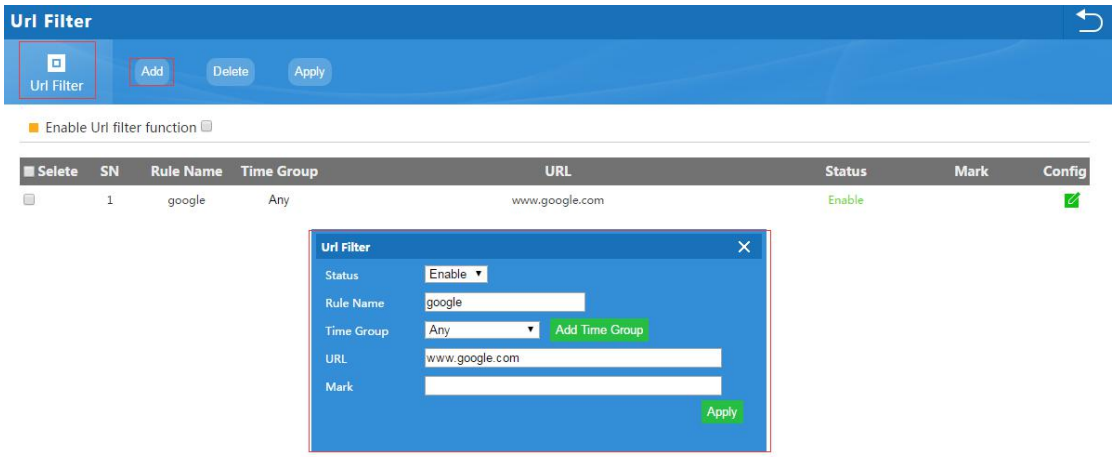
External Port: Set external port rule

Internet Port: Set internal port rule

Line: the Ethernet Line which will be applied in this rules

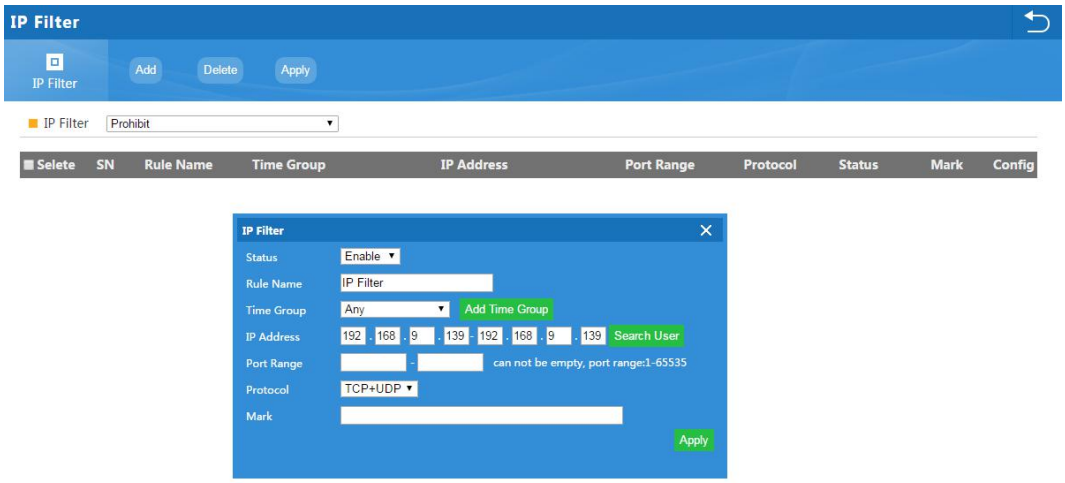
4.3.8 URL Filter

When enable URL filter, the router can reject users to visit the denied URL.



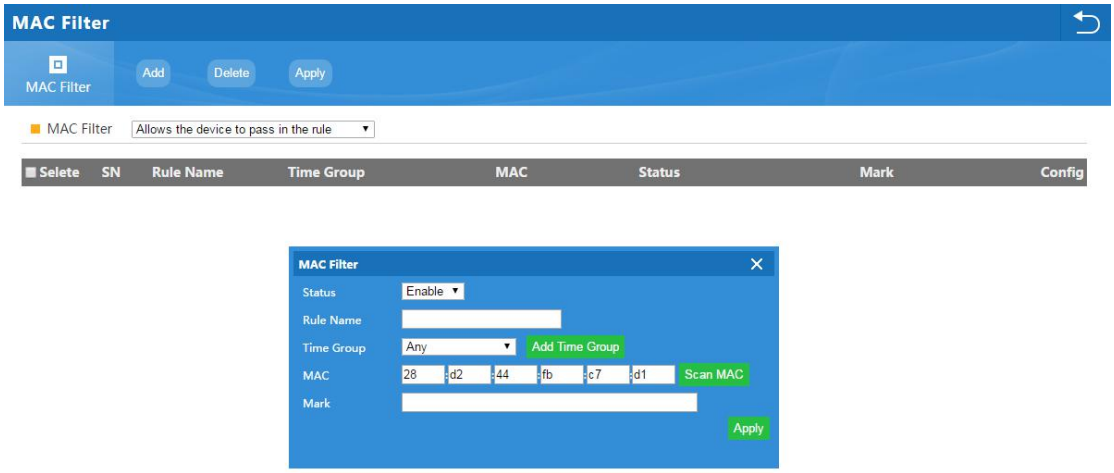
4.3.9 IP Filter

When enable this function, router will allow or limited this IP address to access into this router based on rules.



4.3.10 MAC Filter

When enable MAC filter, router will allow or prohibit this MAC address to access into this router based on rules.

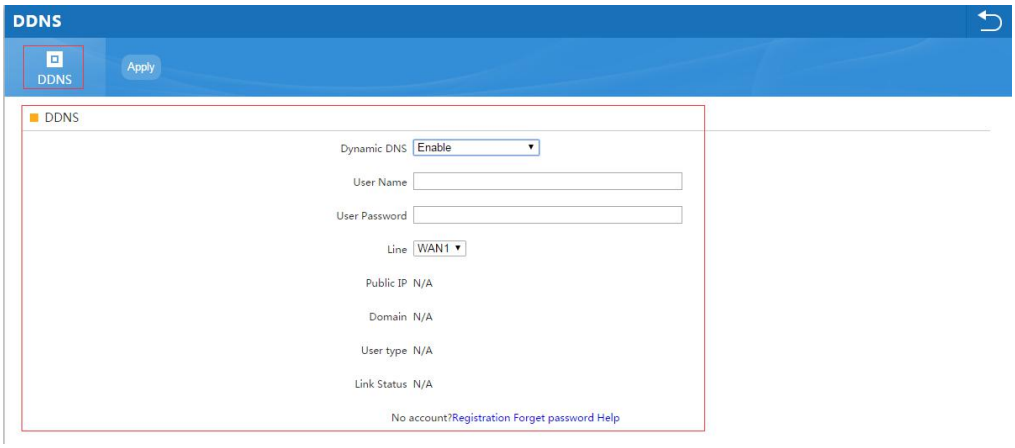


4.3.11 DMZ

Demilitarized Zone:

4.3.12 DDNS

DDNS:



4.3.13 IP/Time Group

For this part, pls check more on chapter 4.3.4 Behavior

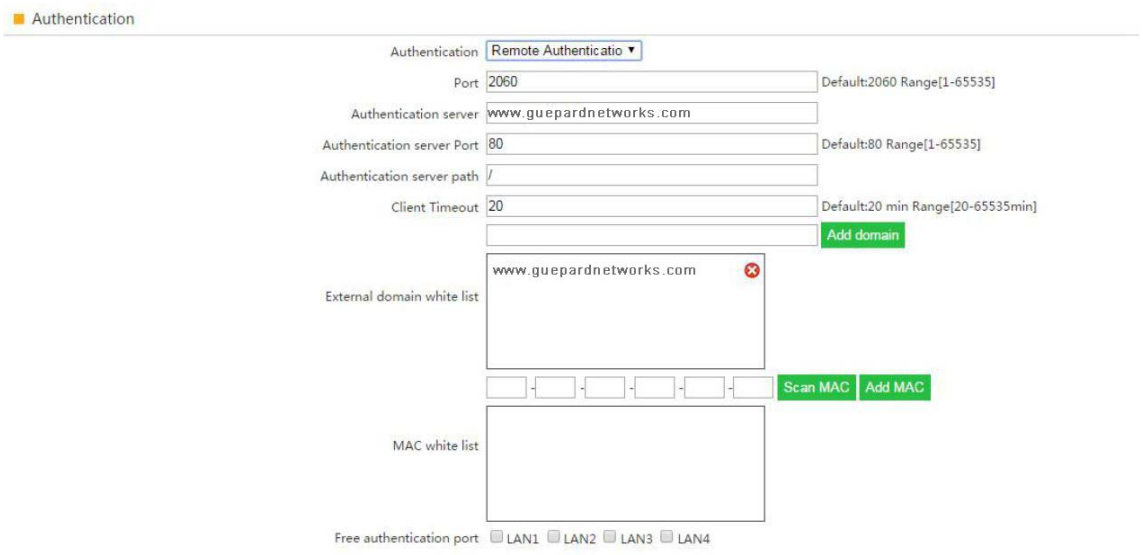
4.3.14 Authentication

There are local authentication and remote authentication.

Remote Authentication:

Remote authentication need to access into cloud server, then make this cloud server as an authentication server;

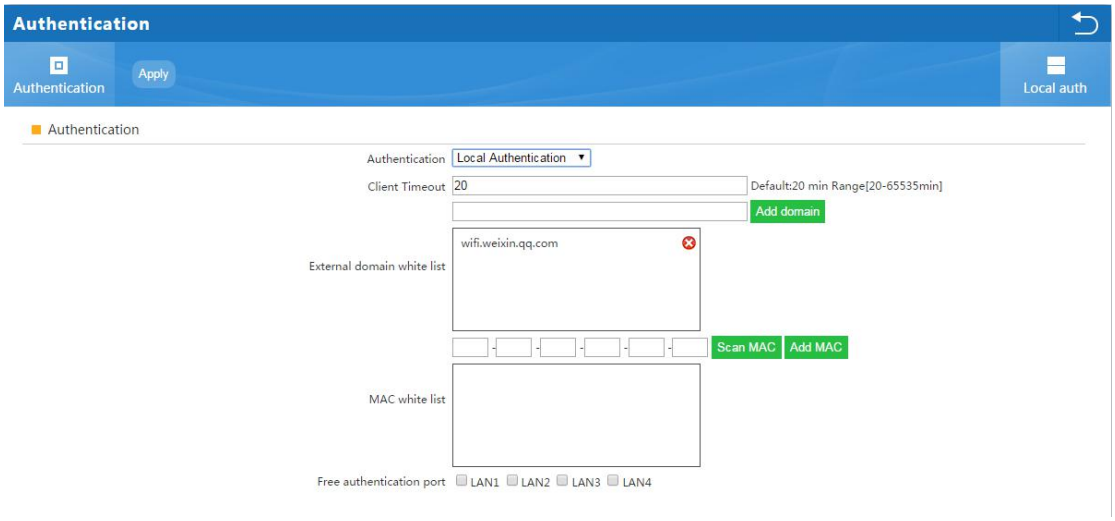
After finish configuration in WLAN controller, should config cloud server, which will show more in 4.3.14 chapter.



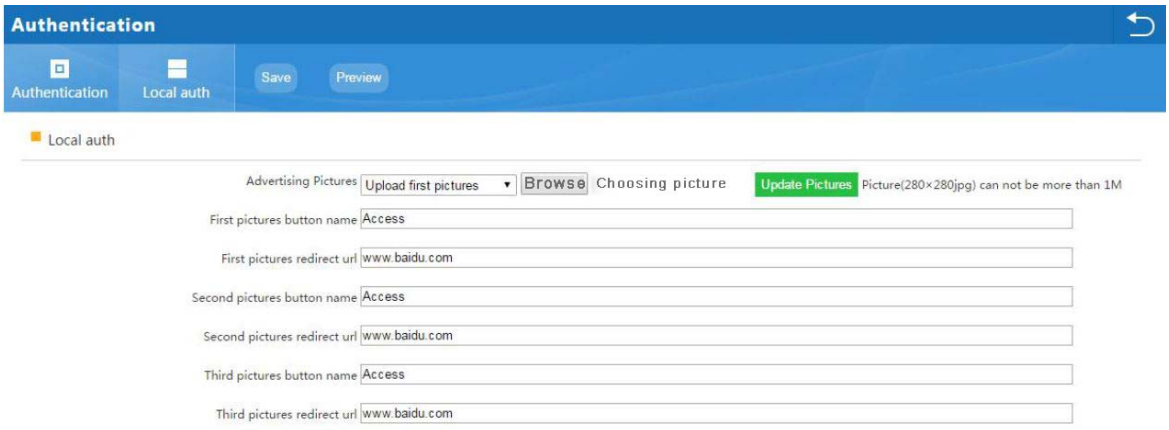
Local Authentication:

Local authentication, no need access into cloud server, but can show advertisement only.

A. set up the local authentication in following picture:



B. Upload advertisement pictures in local auth showed in following picture:



4.3.15 Cloud

This chapter to show how to make WLAN controller access into cloud server in gateway mode; Take our cloud server www.guepardnetworks.com for example *(This function will be available on final quarter of 2018)*:

Cloud Server: input the cloud server's IP address
Shop ID: This is the shop account showed as follow:

Contact information: no need fill.

4.3.16 Device Management

This is management for WLAN Controller, such as backup, reset, reboot, device log, upgrade firmware, modify password...