CAPWAVE
TECHNOLOGIES

UniCAP UC-12-EXP User Manual

Universal Carrier Aggregation Platform

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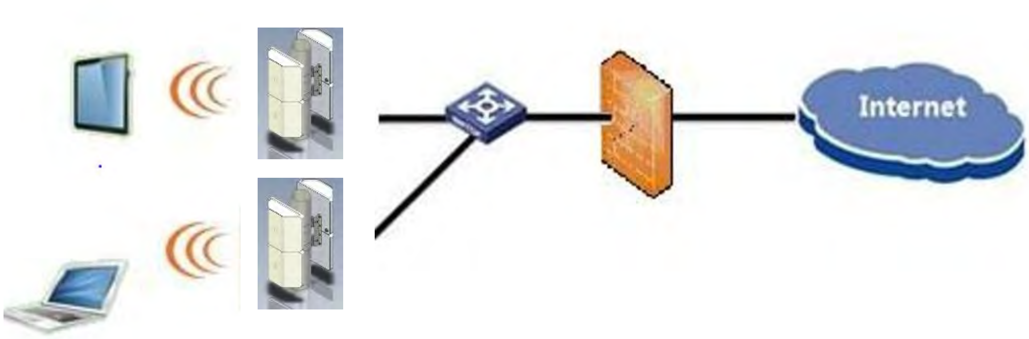
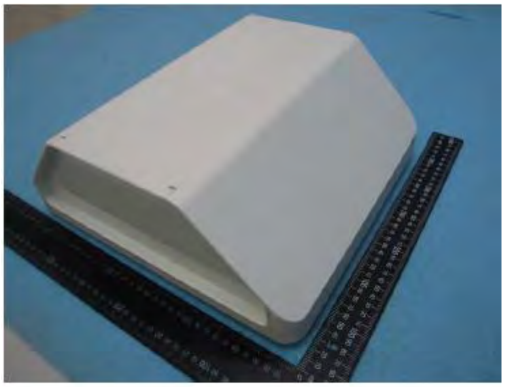
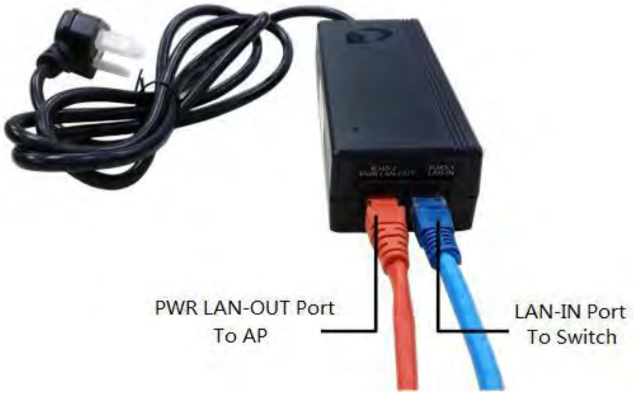
1 UniCAP Access Point (AP) Network Topology

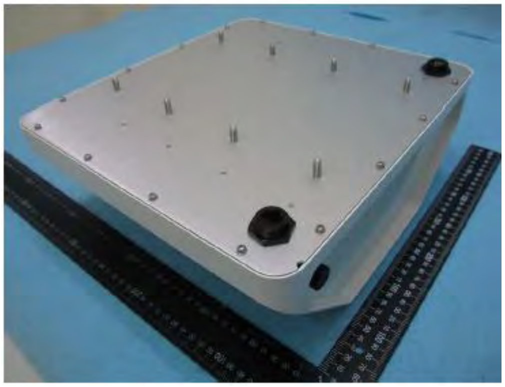


1.1 Connect PoE Adapter to UniCAP AP

uc

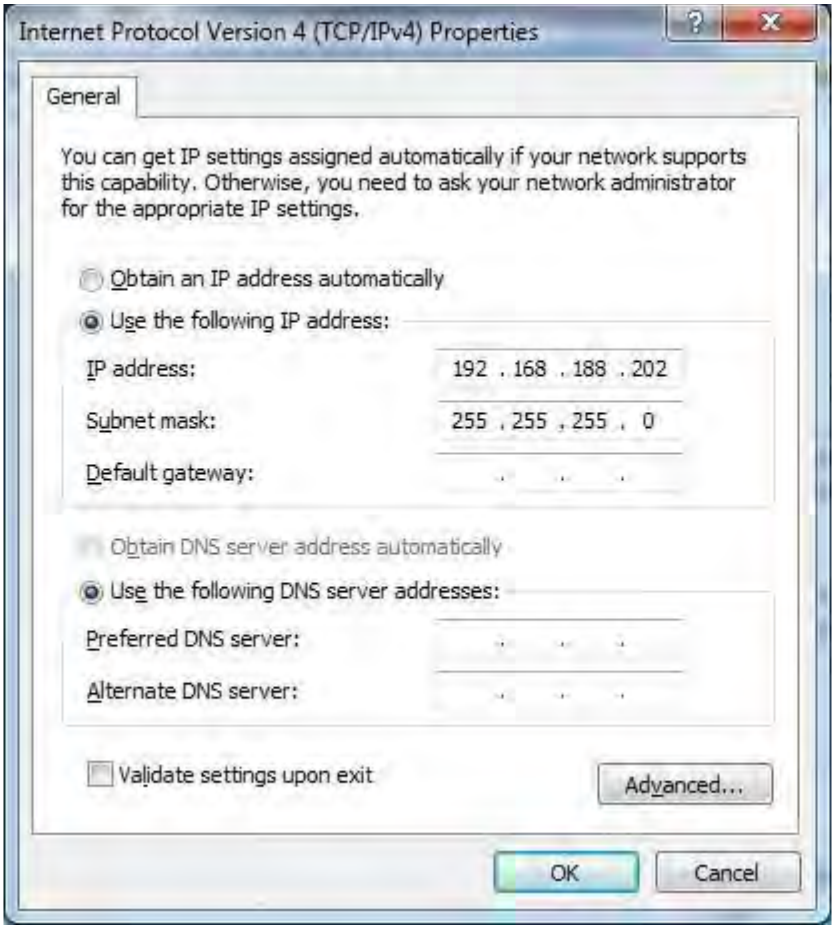






📖Notes: Please connect PoE to UniCAP Expansion Unit AP port and the Ethernet Port labeled "LAN-IN" on PoE Adapter to your PC or Switch.

1.2 Configure PC IP address



Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address: 192 . 168 . 188 . 202

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

○ Obtain DNS server address automatically

● Use the following DNS server addresses:

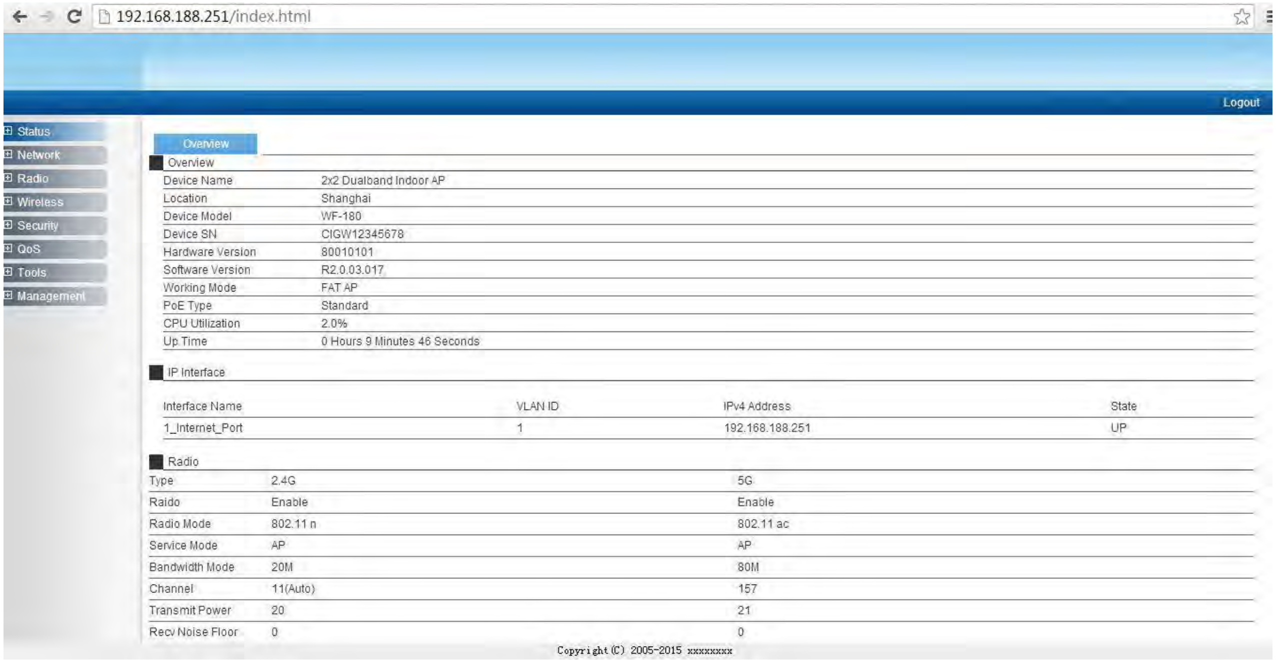
Preferred DNS server: . . .

Alternate DNS server: . . .

□ Validate settings upon exit

📖*Notes: Connect your PC to the "LAN-IN" port on PoE Adapter of AP, manually configure your wired NIC with a static IP address on the 192.168.188.x subnet (e.g. 192.168.188.202).*

1.3 Visit AP Web page



Overview

Device Name	2x2 Dualband Indoor AP
Location	Shanghai
Device Model	WF-180
Device SN	CIGW12345678
Hardware Version	80010101
Software Version	R2.0.03.017
Working Mode	FAT AP
PoE Type	Standard
CPU Utilization	2.0%
Up Time	0 Hours 9 Minutes 46 Seconds

IP Interface

Interface Name	VLAN ID	IPv4 Address	State
1_Internet_Port	1	192.168.188.251	UP

Radio

Type	2.4G	5G
Raido	Enable	Enable
Radio Mode	802.11 n	802.11 ac
Service Mode	AP	AP
Bandwidth Mode	20M	80M
Channel	11(Auto)	157
Transmit Power	20	21
Recv Noise Floor	0	0

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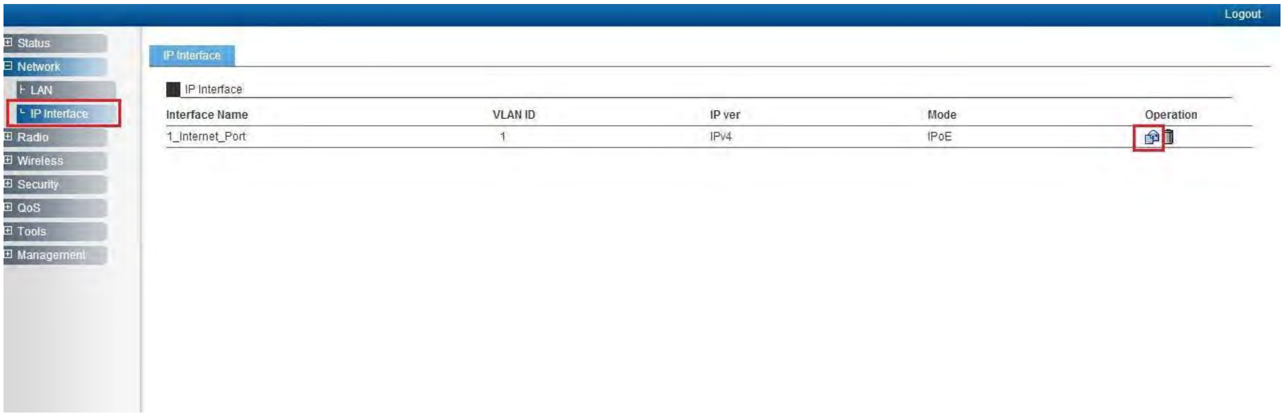
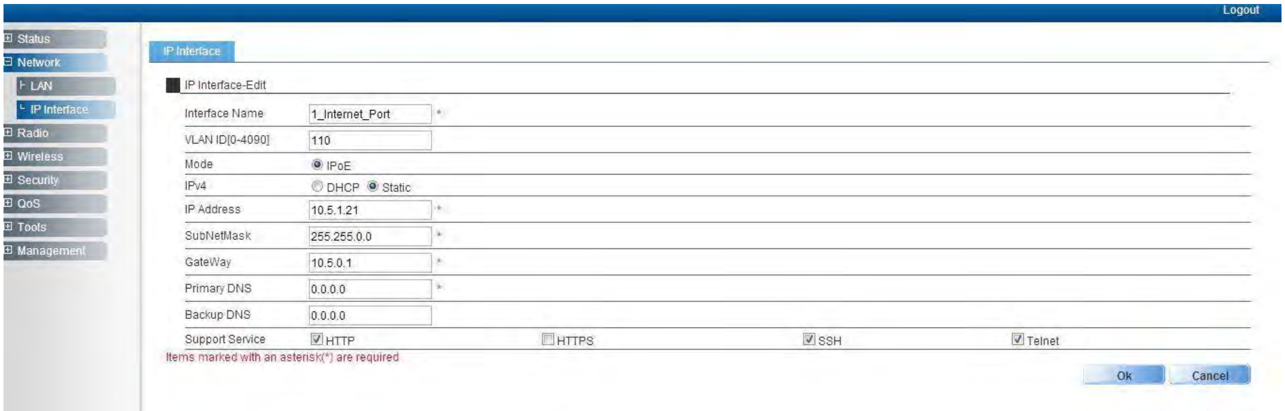
🕮Notes: Input the default IP address "192.168.188.251"in the address bar of browser. Then enter the default username and password (username: admin, password: password) to enter the Webinterface of AP.

1.4 Configure IP address for AP



IP Interface

Interface Name	VLAN ID	IP ver	Mode	Operation
1_Internet_Port	1	IPv4	IPoE	



IP Interface-Edit

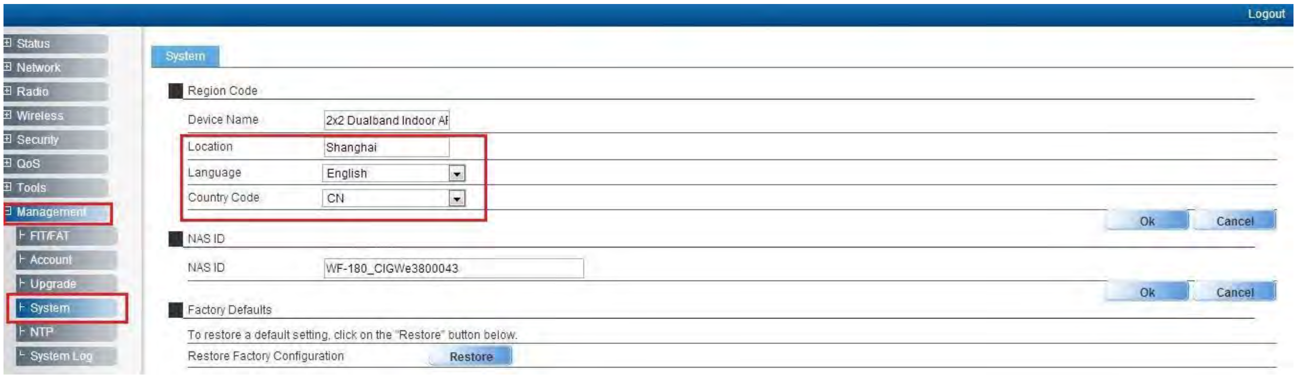
Interface Name	1_Internet_Port *
VLAN ID[0-4090]	110
Mode	● IPoE
IPv4	○ DHCP ● Static
IP Address	10.5.1.21 *
SubNetMask	255.255.0.0 *
GateWay	10.5.0.1 *
Primary DNS	0.0.0.0 *
Backup DNS	0.0.0.0
Support Service	☑ HTTP ☐ HTTPS ☑ SSH ☑ Telnet

Items marked with an asterisk(*) are required

1.5 Connect AP to Switch

🕮Notes: Connect AP to Switch and confirm it can visit Internet, then configure your PC to the same subnet and connect to the same Switch in order to continue to configuring the AP.

1.6 Configure location, Language and Country code for AP



Region Code

Device Name	2x2 Dualband Indoor AI
Location	Shanghai
Language	English
Country Code	CN

NAS ID

NAS ID	WF-180_CIGWe3800043

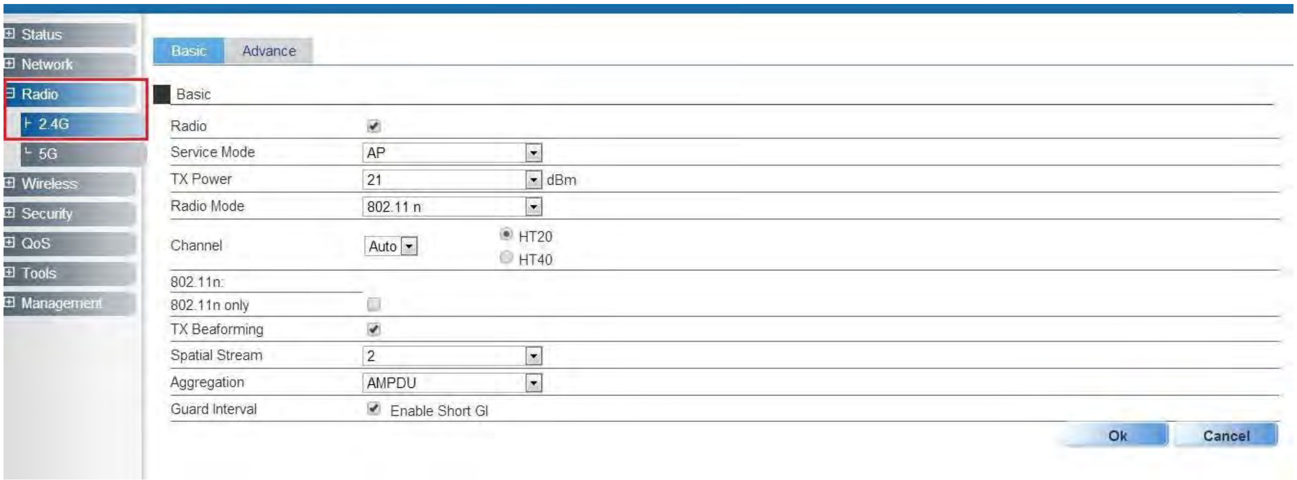
Factory Defaults

To restore a default setting, click on the "Restore" button below.

Restore Factory Configuration

🕮Notes: After change the country code, the AP will be set to factory default.

1.7 Configure detailed WiFi parameters for AP

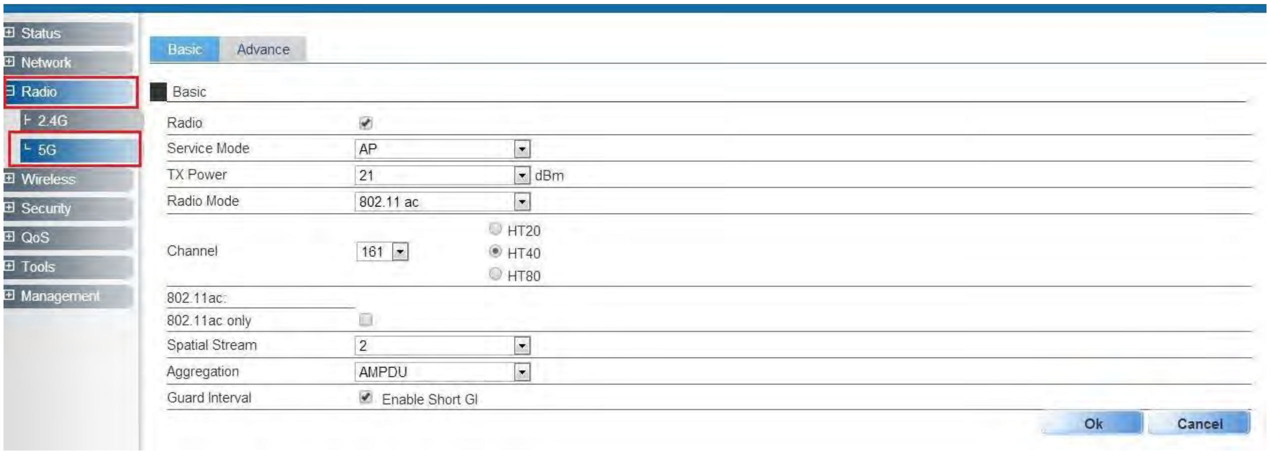


Basic

Radio	☑
Service Mode	AP
TX Power	21 dBm
Radio Mode	802.11 n
Channel	Auto ● HT20 ○ HT40

802.11n:

802.11n only	□
TX Beaforming	☑
Spatial Stream	2
Aggregation	AMPDU
Guard Interval	☑ Enable Short GI



Basic

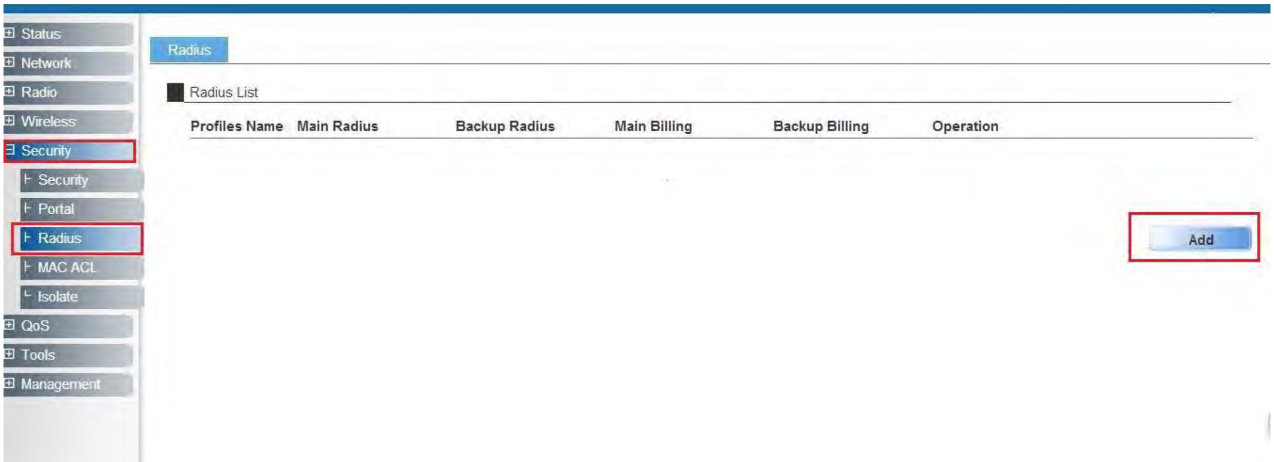
Radio	☑
Service Mode	AP
TX Power	21 dBm
Radio Mode	802.11 ac
Channel	161 ○ HT20 ● HT40 ○ HT80

802.11ac:

802.11ac only	□
Spatial Stream	2
Aggregation	AMPDU
Guard Interval	☑ Enable Short GI

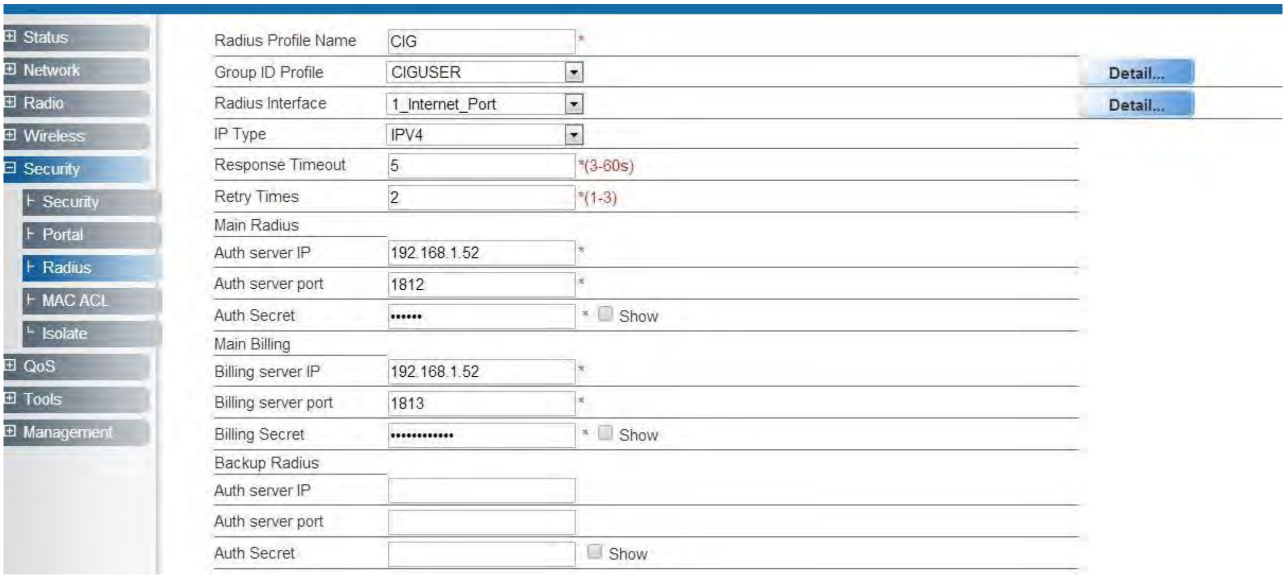
1.8 Configure Radius parameters for AP

🕮Notes: If want to use the 802.1x authentication, it need to configure the Radius profile firstly. Then in the security profile, the radius profile will be presented in the drop-down list.



Radius List

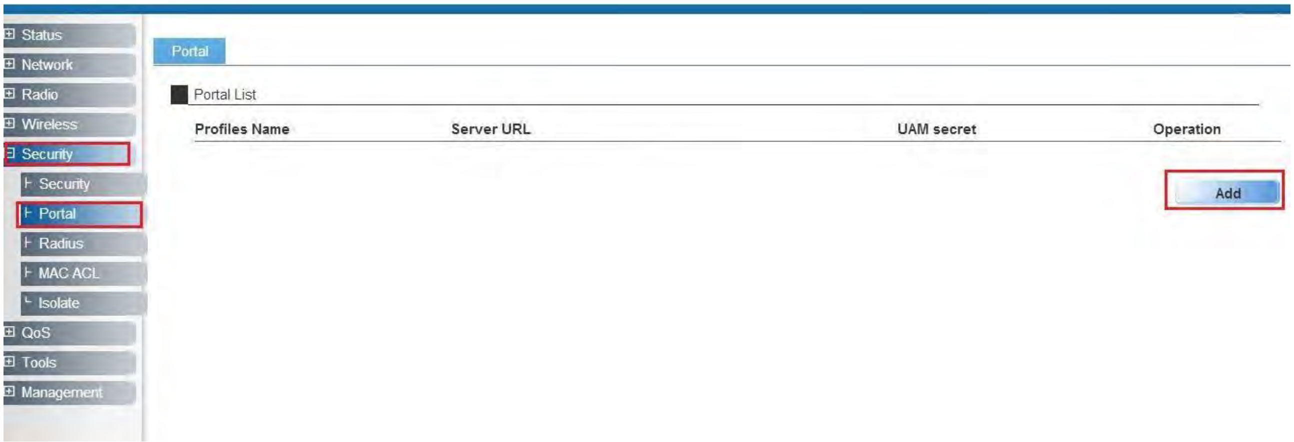
Profiles Name	Main Radius	Backup Radius	Main Billing	Backup Billing	Operation



Radius Profile Name	CIG	*
Group ID Profile	CIGUSER	Detail...
Radius Interface	1_Internet_Port	Detail...
IP Type	IPV4	
Response Timeout	5	*(3-60s)
Retry Times	2	*(1-3)
Main Radius		
Auth server IP	192.168.1.52	*
Auth server port	1812	*
Auth Secret	••••••	* □ Show
Main Billing		
Billing server IP	192.168.1.52	*
Billing server port	1813	*
Billing Secret	••••••••••••	* □ Show
Backup Radius		
Auth server IP		
Auth server port		
Auth Secret		□ Show

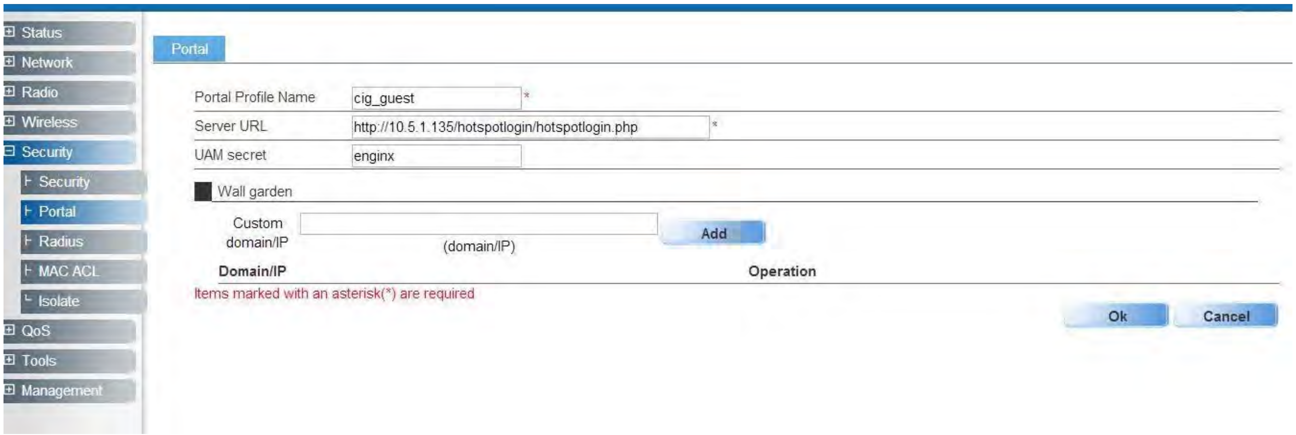
1.9 Configure Portal parameters for AP

🕮Notes: The AP can support Web authentication based on Chillispot. If want to use the Web authentication, it need to configure the Portal profile and Radius profile firstly. Then in the security profile, the Portal profile and Radius profile will be presented in the drop-down list. Above all,you need to setup a Web authentication server and radius server.



Portal List

Profiles Name	Server URL	UAM secret	Operation



Portal Profile Name: cig_guest *
Server URL: http://10.5.1.135/hotspotlogin/hotspotlogin.php *
UAM secret: enginx

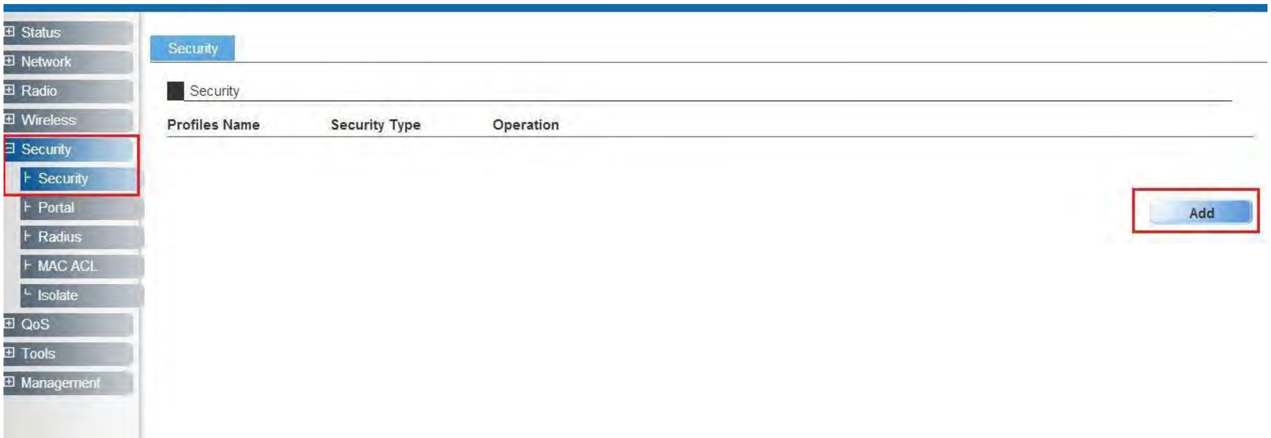
Wall garden

Custom domain/IP: (domain/IP)

Domain/IP	Operation

Items marked with an asterisk(*) are required

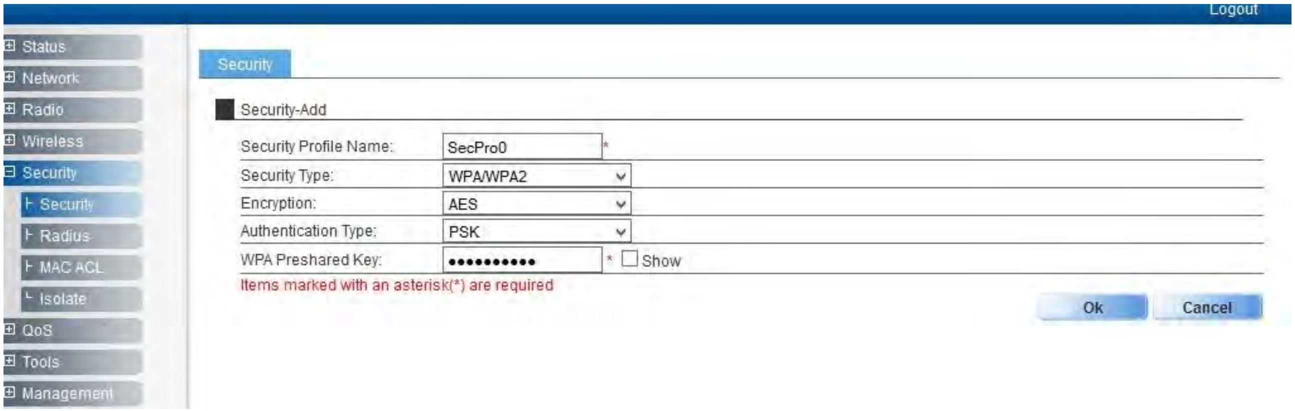
1.10 Configure security parameters for AP



Security

Profiles Name	Security Type	Operation

PSK

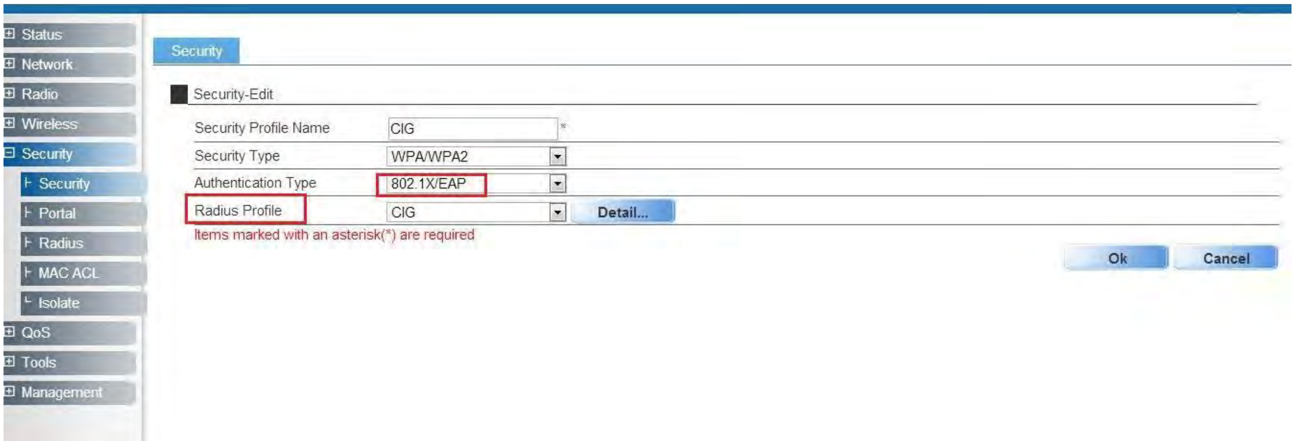


Security-Add

Security Profile Name:	SecPro0 *
Security Type:	WPA/WPA2
Encryption:	AES
Authentication Type:	PSK
WPA Preshared Key:	•••••••••• * □ Show

Items marked with an asterisk(*) are required

802.1x Authentication

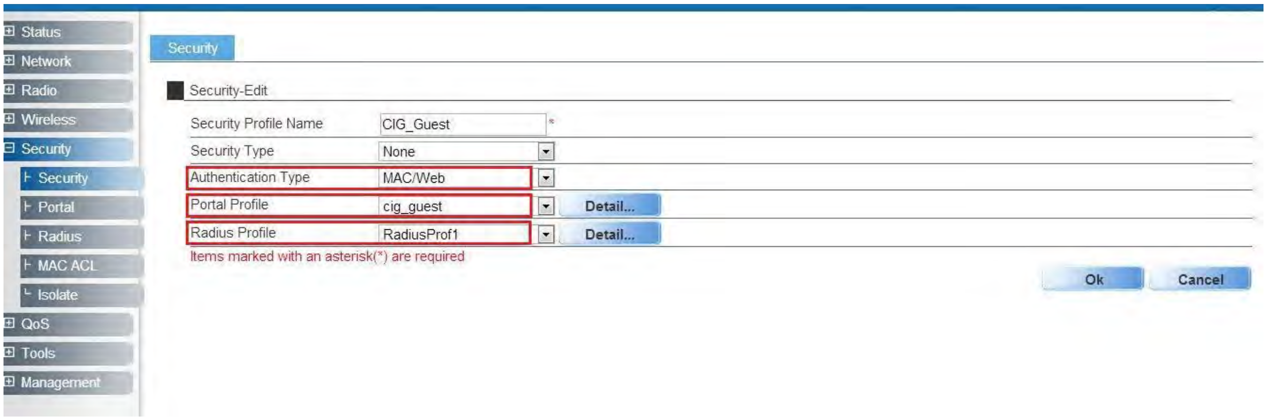


Security-Edit

Security Profile Name	CIG *
Security Type	WPA/WPA2
Authentication Type	802.1X/EAP
Radius Profile	CIG

Items marked with an asterisk(*) are required

Web Authentication



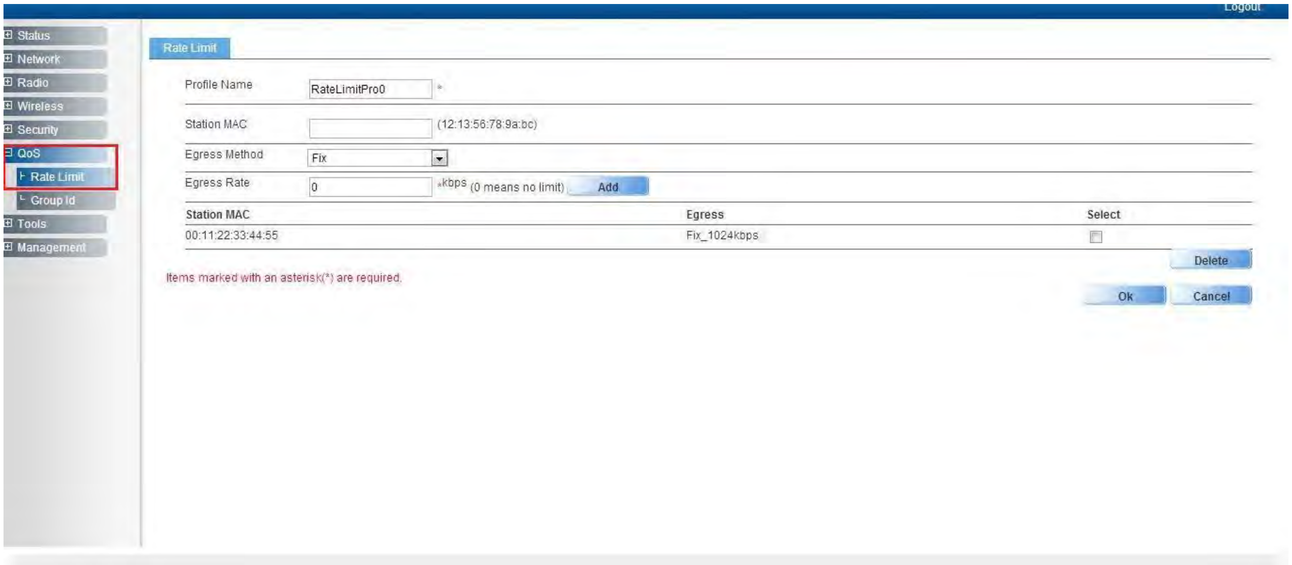
Security-Edit

Security Profile Name	CIG_Guest *
Security Type	None
Authentication Type	MAC/Web
Portal Profile	cig_guest
Radius Profile	RadiusProf1

Items marked with an asterisk(*) are required

1.11 Configure Rate limit rule (Optional)

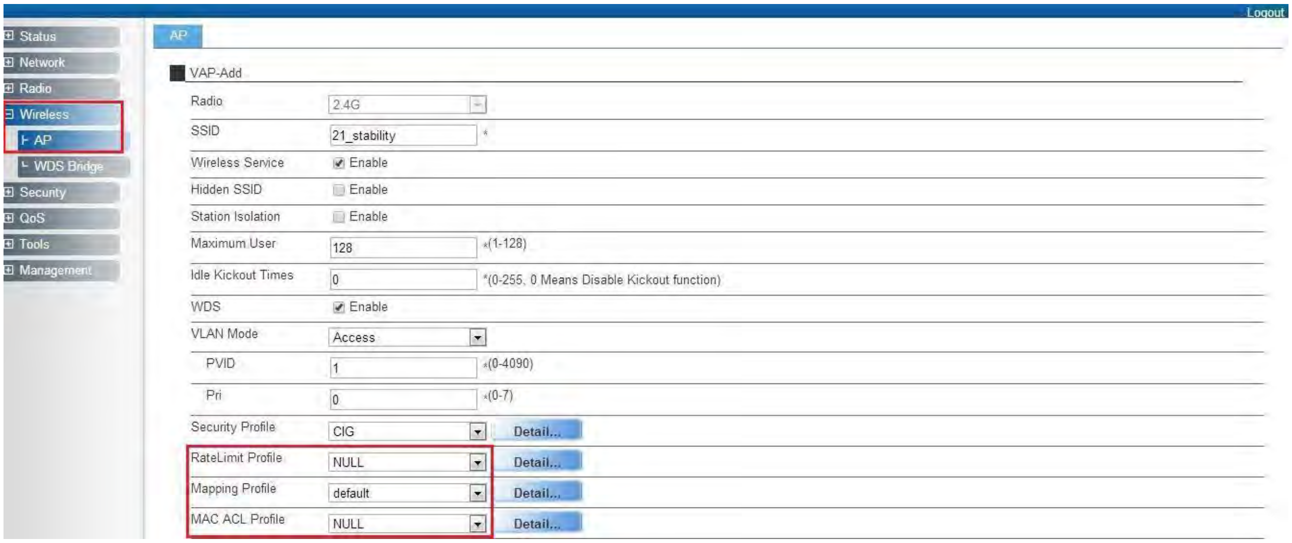
🕮***Notes: Rate Limit profile will be cited in the AP configuration.***



Profile Name	RateLimitPro0 *
Station MAC	(12:13:56:78:9a:bc)
Egress Method	Fix
Egress Rate	0 *kbps (0 means no limit)

Station MAC	Egress	Select
00:11:22:33:44:55	Fix_1024kbps	□

Items marked with an asterisk(*) are required.



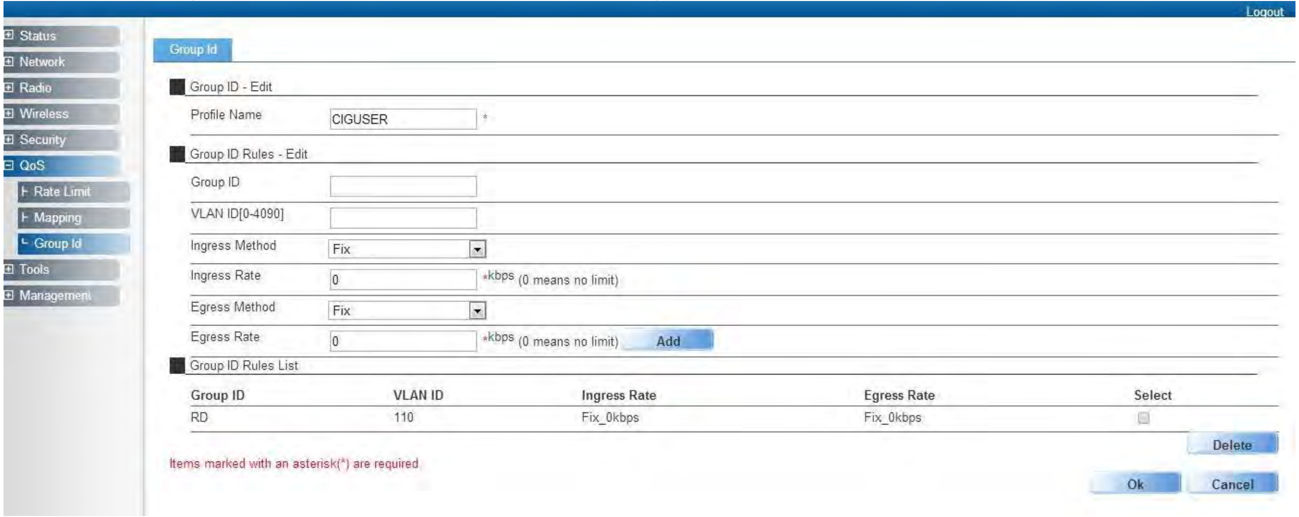
VAP-Add

Radio	2.4G	
SSID	21_stability	*
Wireless Service	☑ Enable	
Hidden SSID	□ Enable	
Station Isolation	□ Enable	
Maximum User	128	*(1-128)
Idle Kickout Times	0	*(0-255, 0 Means Disable Kickout function)
WDS	☑ Enable	
VLAN Mode	Access	
PVID	1	*(0-4090)
Pri	0	*(0-7)
Security Profile	CIG	Detail...
RateLimit Profile	NULL	Detail...
Mapping Profile	default	Detail...
MAC ACL Profile	NULL	Detail...

1.12 Configure Group ID (Optional)

🕮Notes: Group profile is used for 802.1x/Web authentication. Group is classified by Filter-ID attribute in radius access accept message. The Group is bound with the role of the user. Different group has different VLAN and rate limit configuration. When a station sends the username and password to the Radius server for authentication, the server can respond with a Filter-ID (optional) to the AP. After AP gets the Filter-ID attribute, AP will search the Filter-ID in the Group profiles. If the Filter-ID can be matched in one profile, the traffic VLAN and rate limit will be applied to the station.

The Group profile is cited in the Radius server profile.



Group ID - Edit

Profile Name	CIGUSER	*

Group ID Rules - Edit

Group ID		
VLAN ID[0-4090]		
Ingress Method	Fix	
Ingress Rate	0	*kbps (0 means no limit)
Egress Method	Fix	
Egress Rate	0	*kbps (0 means no limit) Add

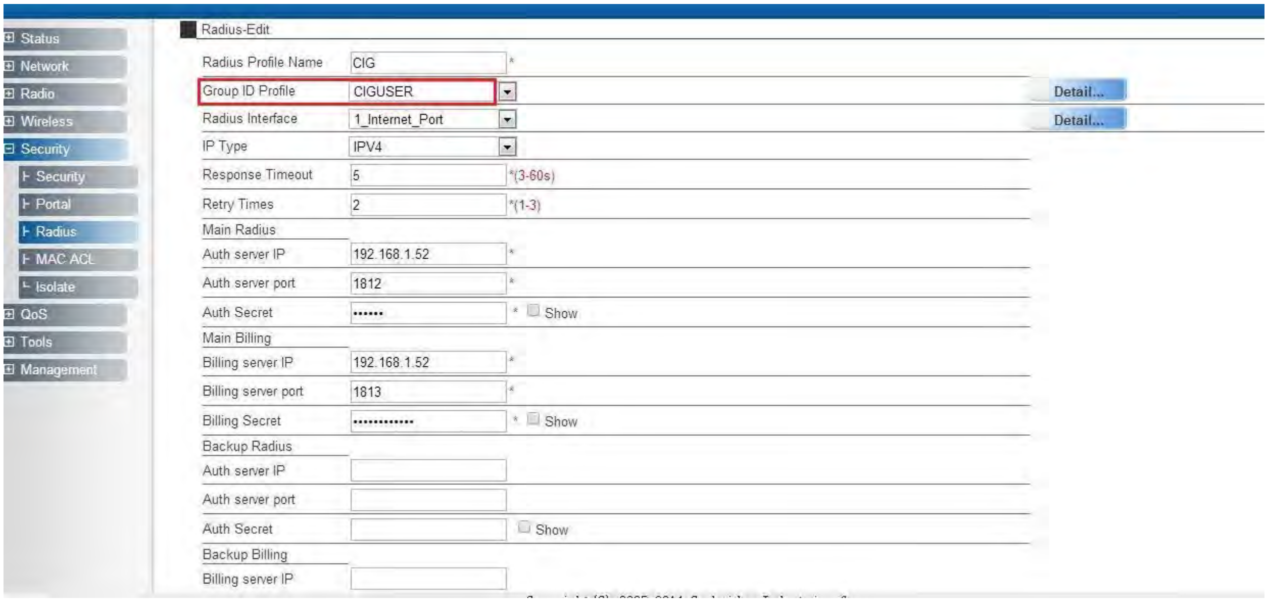
Group ID Rules List

Group ID	VLAN ID	Ingress Rate	Egress Rate	Select
RD	110	Fix_0kbps	Fix_0kbps	□

Delete

Items marked with an asterisk(*) are required

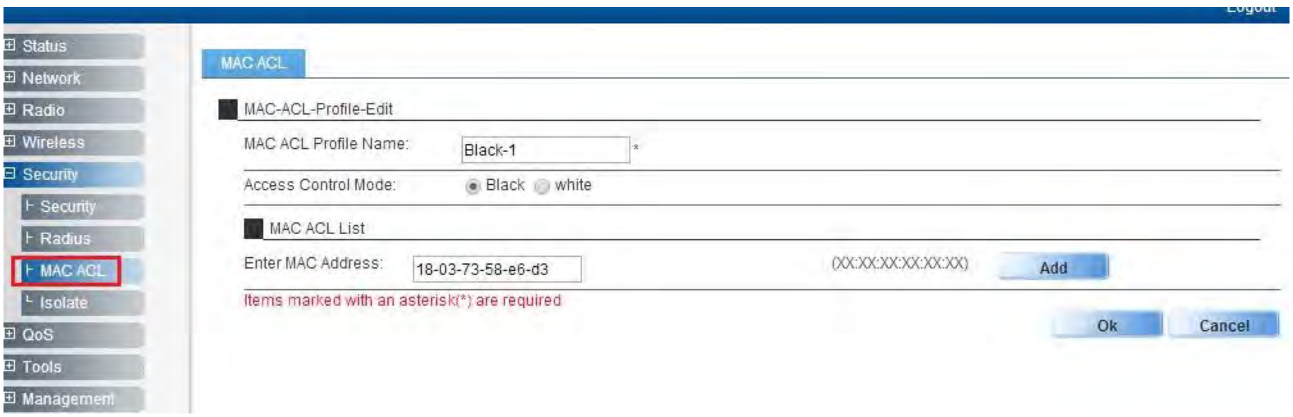
Ok Cancel



Radius-Edit

Radius Profile Name	CIG	*
Group ID Profile	CIGUSER	
Radius Interface	1_Internet_Port	
IP Type	IPV4	
Response Timeout	5	*(3-60s)
Retry Times	2	*(1-3)
Main Radius		
Auth server IP	192.168.1.52	*
Auth server port	1812	*
Auth Secret	••••••	* □ Show
Main Billing		
Billing server IP	192.168.1.52	*
Billing server port	1813	*
Billing Secret	••••••••••••	* □ Show
Backup Radius		
Auth server IP		
Auth server port		
Auth Secret		□ Show
Backup Billing		
Billing server IP		

1.13 Configure MAC ACL rule (Optional)



MAC-ACL-Profile-Edit

MAC ACL Profile Name: Black-1 *

Access Control Mode: ● Black ○ white

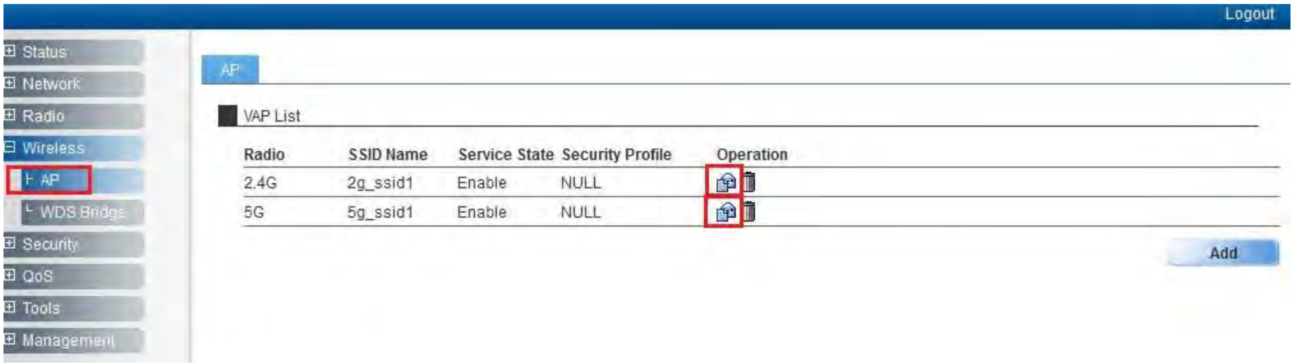
MAC ACL List

Enter MAC Address: 18-03-73-58-e6-d3 (XX:XX:XX:XX:XX:XX) Add

Items marked with an asterisk(*) are required

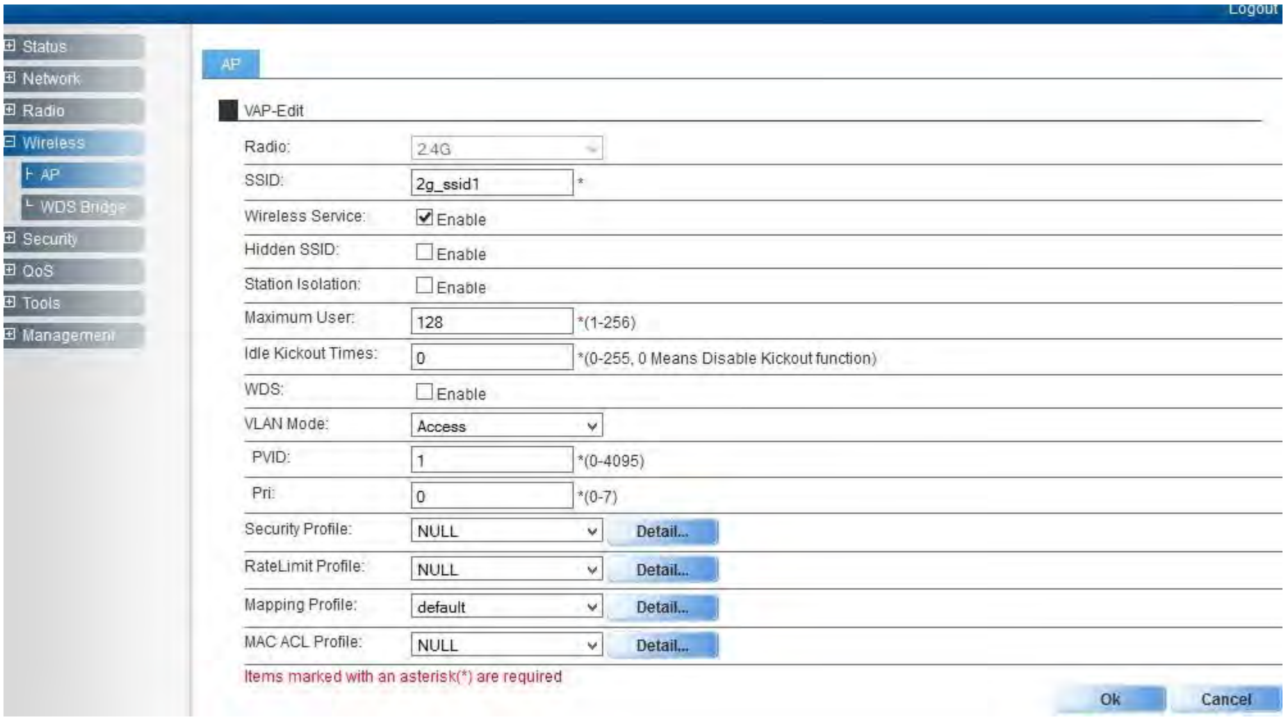
Ok Cancel

1.14 Configure SSID



VAP List

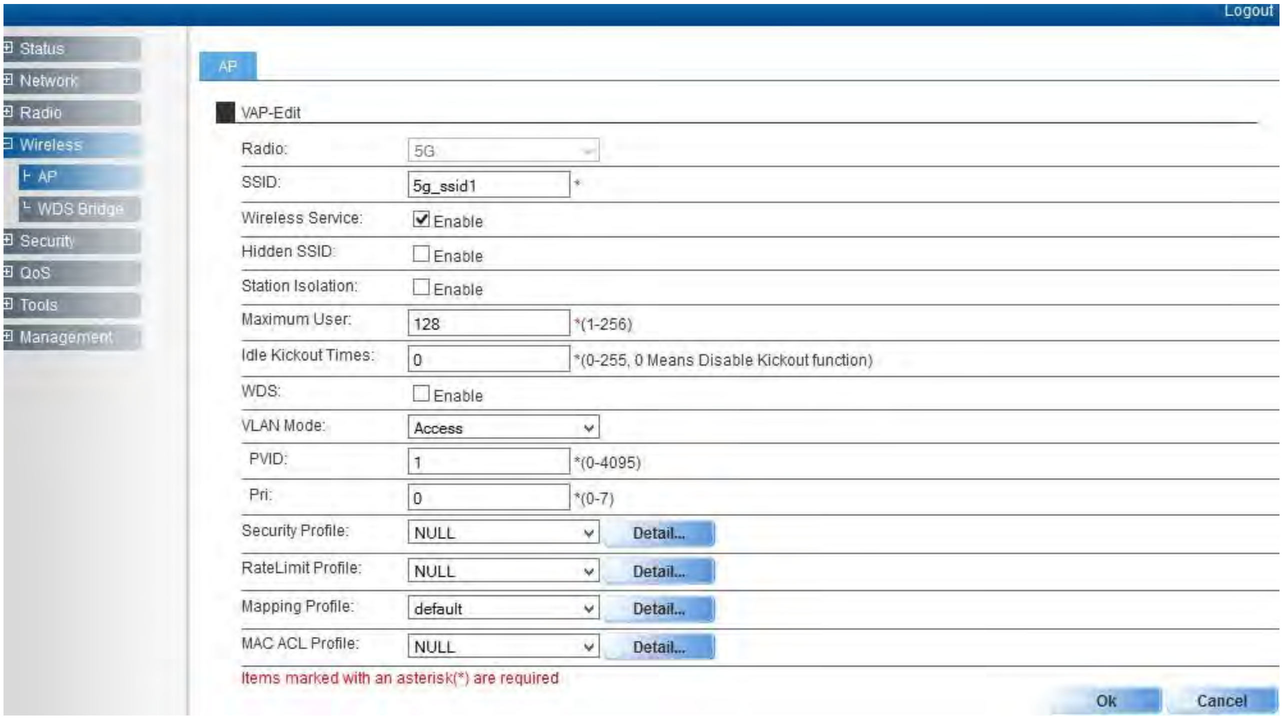
Radio	SSID Name	Service State	Security Profile	Operation
2.4G	2g_ssid1	Enable	NULL	
5G	5g_ssid1	Enable	NULL	



VAP-Edit

Radio:	2.4G	
SSID:	2g_ssid1	*
Wireless Service:	☑ Enable	
Hidden SSID:	□ Enable	
Station Isolation:	□ Enable	
Maximum User:	128	*(1-256)
Idle Kickout Times:	0	*(0-255, 0 Means Disable Kickout function)
WDS:	□ Enable	
VLAN Mode:	Access	
PVID:	1	*(0-4095)
Pri:	0	*(0-7)
Security Profile:	NULL	Detail...
RateLimit Profile:	NULL	Detail...
Mapping Profile:	default	Detail...
MAC ACL Profile:	NULL	Detail...

Items marked with an asterisk(*) are required



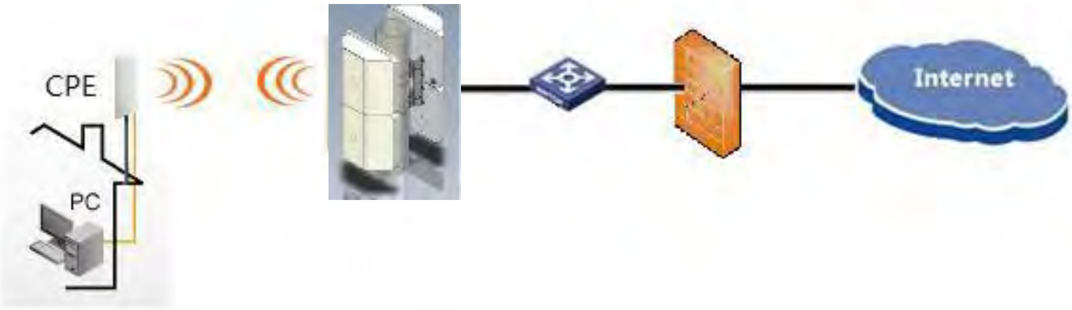
VAP-Edit

Radio:	5G	
SSID:	5g_ssid1	*
Wireless Service:	☑ Enable	
Hidden SSID:	□ Enable	
Station Isolation:	□ Enable	
Maximum User:	128	*(1-256)
Idle Kickout Times:	0	*(0-255, 0 Means Disable Kickout function)
WDS:	□ Enable	
VLAN Mode:	Access	
PVID:	1	*(0-4095)
Pri:	0	*(0-7)
Security Profile:	NULL	Detail...
RateLimit Profile:	NULL	Detail...
Mapping Profile:	default	Detail...
MAC ACL Profile:	NULL	Detail...

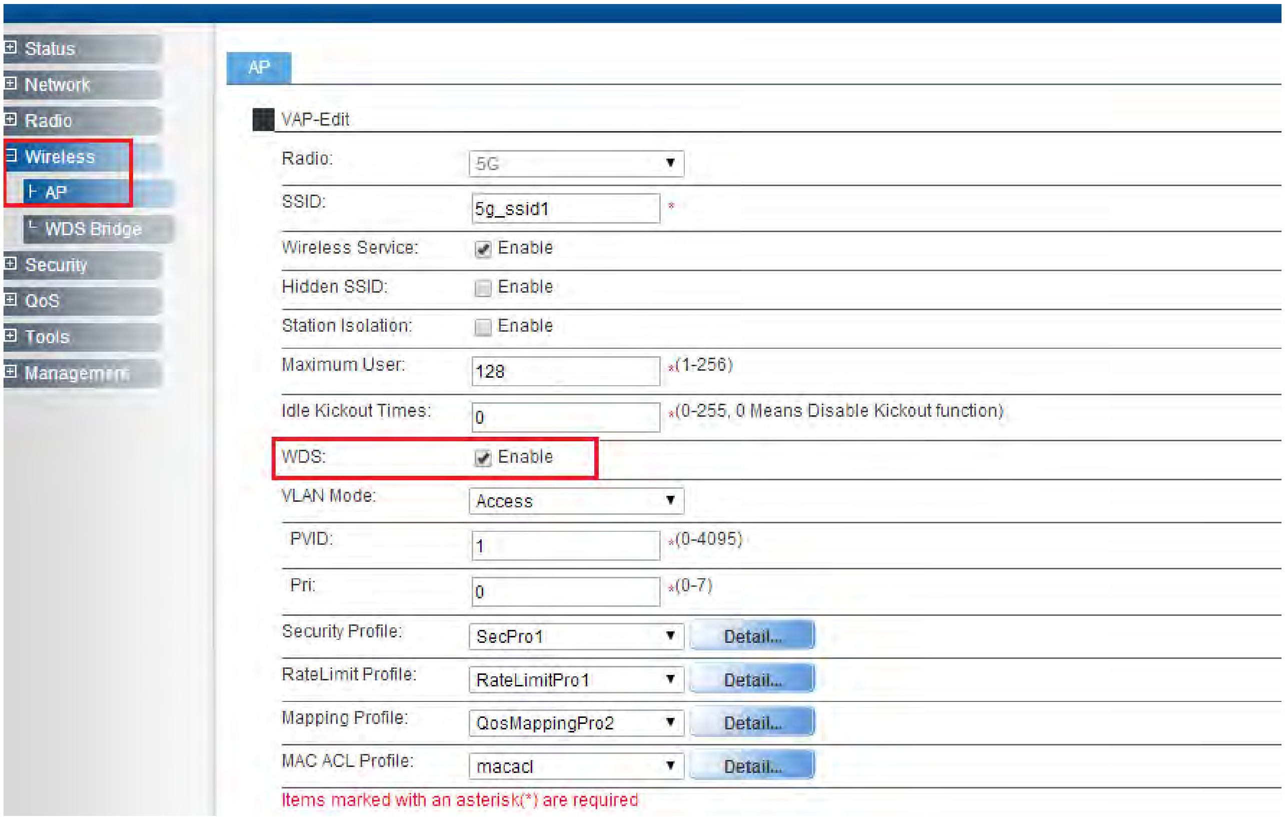
Items marked with an asterisk(*) are required

📖Notes: You may apply the relevant Security, Rate Limit, Mapping or MAC ACL profiles which you configured here. After the above setting, wireless stations can connect to the relevant SSID of AP and get IP address from DHCP server of firewall to visit Internet.

2 AP WDS Network Topology



2.1 Enable WDS function



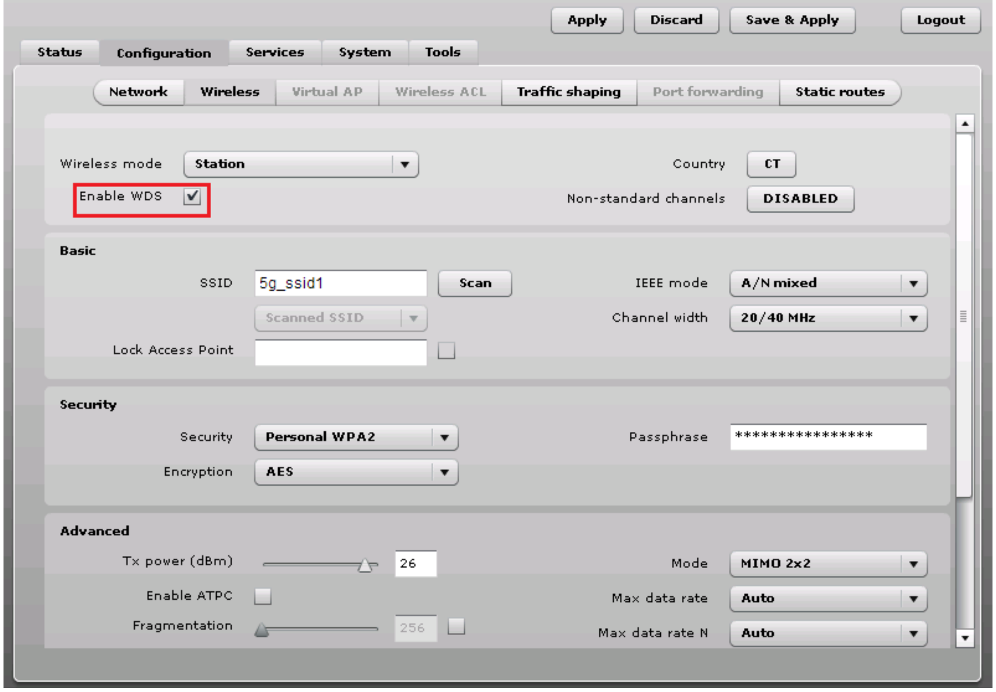
VAP-Edit

Radio:	5G	
SSID:	5g_ssid1	*
Wireless Service:	☑ Enable	
Hidden SSID:	□ Enable	
Station Isolation:	□ Enable	
Maximum User:	128	*(1-256)
Idle Kickout Times:	0	*(0-255, 0 Means Disable Kickout function)
WDS:	☑ Enable	
VLAN Mode:	Access	
PVID:	1	*(0-4095)
Pri:	0	*(0-7)
Security Profile:	SecPro1	Detail...
RateLimit Profile:	RateLimitPro1	Detail...
Mapping Profile:	QosMappingPro2	Detail...
MAC ACL Profile:	macacl	Detail...

Items marked with an asterisk(*) are required

Note: Enable WDS function when you configure SSID.

2.2 Configure CPE WDS



Wireless mode: Station
Enable WDS ☑
Country: CT
Non-standard channels: DISABLED

Basic

SSID: 5g_ssid1
Scanned SSID
IEEE mode: A/N mixed
Channel width: 20/40 MHz
Lock Access Point □

Security

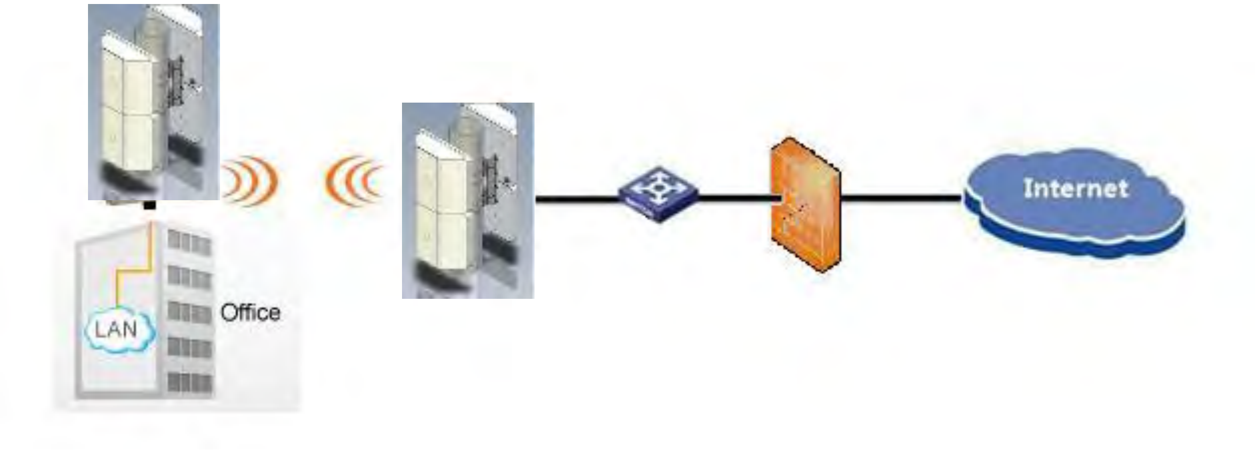
Security: Personal WPA2
Encryption: AES
Passphrase: ****************

Advanced

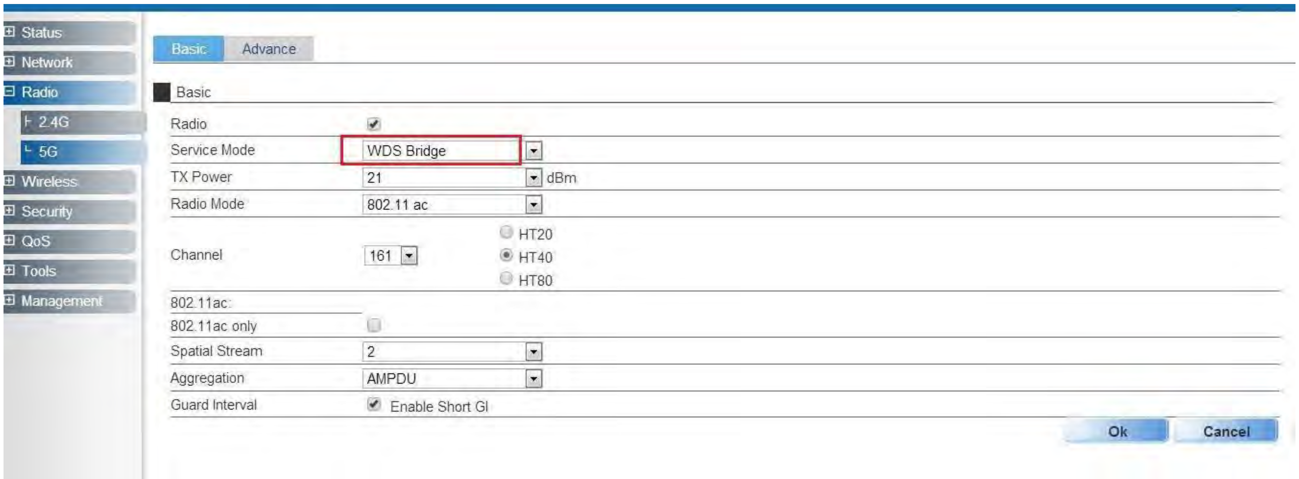
Tx power (dBm): 26
Enable ATPC □
Fragmentation: 256 □
Mode: MIMO 2x2
Max data rate: Auto
Max data rate N: Auto

📖*Note: Enable WDS function too when you configure CPE to connect to AP.*

3 NAWDS Network Topology



3.1 Configure WDS bridge mode

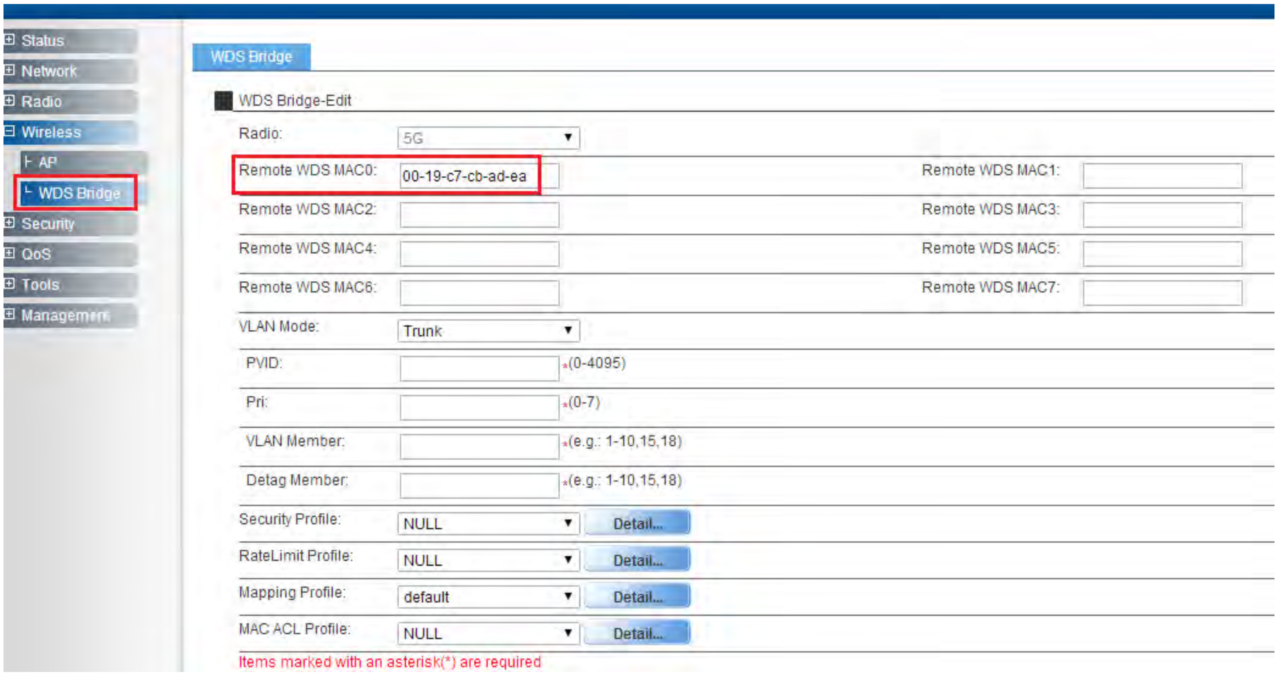


Basic

Radio	☑
Service Mode	WDS Bridge
TX Power	21 dBm
Radio Mode	802.11 ac
Channel	161 ○ HT20 ● HT40 ○ HT80
802.11ac:	
802.11ac only	□
Spatial Stream	2
Aggregation	AMPDU
Guard Interval	☑ Enable Short GI

🕮Note: Please select a specified Channel (for example 161) here.

3.2 Input remote AP MAC



WDS Bridge-Edit

Radio: 5G

Remote WDS MAC0: 00-19-c7-cb-ad-ea

Remote WDS MAC1:

Remote WDS MAC2:

Remote WDS MAC3:

Remote WDS MAC4:

Remote WDS MAC5:

Remote WDS MAC6:

Remote WDS MAC7:

VLAN Mode: Trunk

PVID: *(0-4095)

Pri: *(0-7)

VLAN Member: *(e.g.: 1-10,15,18)

Detag Member: *(e.g.: 1-10,15,18)

Security Profile: NULL

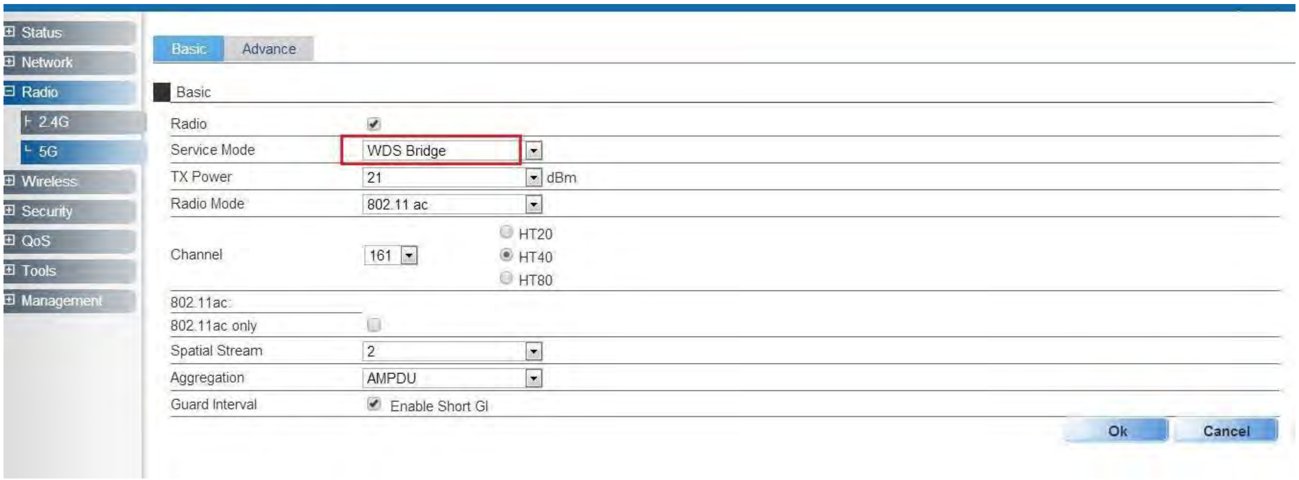
RateLimit Profile: NULL

Mapping Profile: default

MAC ACL Profile: NULL

Items marked with an asterisk(*) are required

3.3 The configuration in remote AP



Basic

Radio ☑

Service Mode: WDS Bridge

TX Power: 21 dBm

Radio Mode: 802.11 ac

Channel: 161 ○ HT20 ● HT40 ○ HT80

802.11ac:

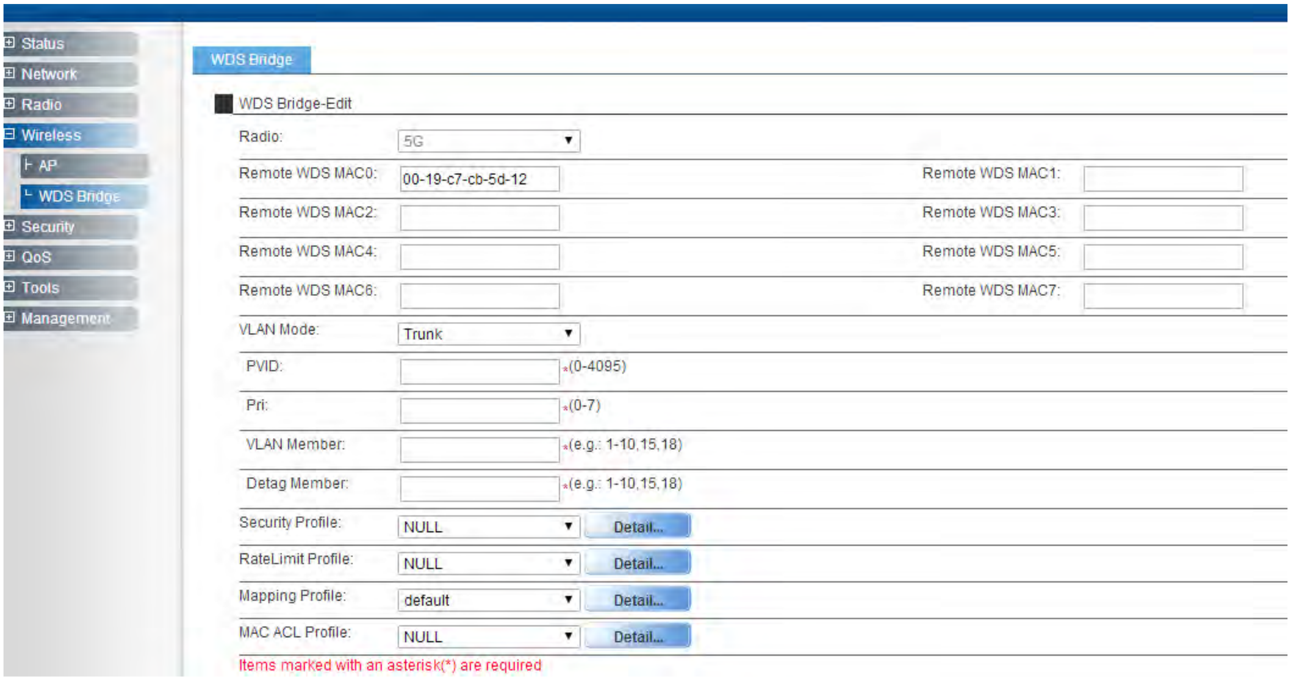
802.11ac only □

Spatial Stream: 2

Aggregation: AMPDU

Guard Interval: ☑ Enable Short GI

🕮Note: Please select the same Channel as the Channel of AP which you want to connect via WDS.



WDS Bridge-Edit

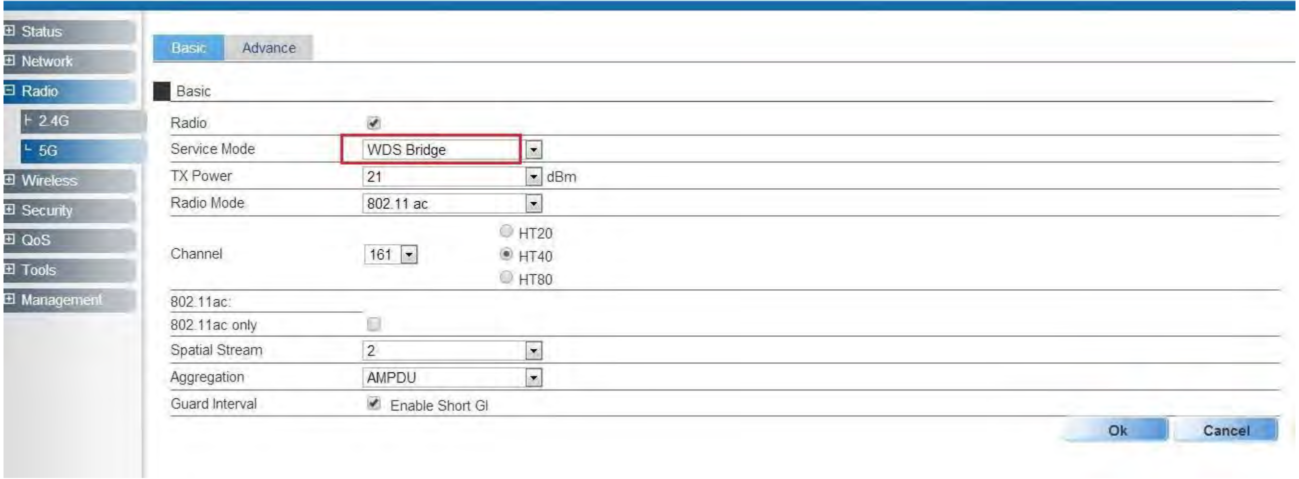
Radio:	5G		
Remote WDS MAC0:	00-19-c7-cb-5d-12	Remote WDS MAC1:	
Remote WDS MAC2:		Remote WDS MAC3:	
Remote WDS MAC4:		Remote WDS MAC5:	
Remote WDS MAC6:		Remote WDS MAC7:	
VLAN Mode:	Trunk		
PVID:	*(0-4095)		
Pri:	*(0-7)		
VLAN Member:	*(e.g.: 1-10,15,18)		
Detag Member:	*(e.g.: 1-10,15,18)		
Security Profile:	NULL		
RateLimit Profile:	NULL		
Mapping Profile:	default		
MAC ACL Profile:	NULL		

Items marked with an asterisk(*) are required

Note: Please input the MAC address of AP which you want to connect via WDS.

3.4 NAWDS Auto Find

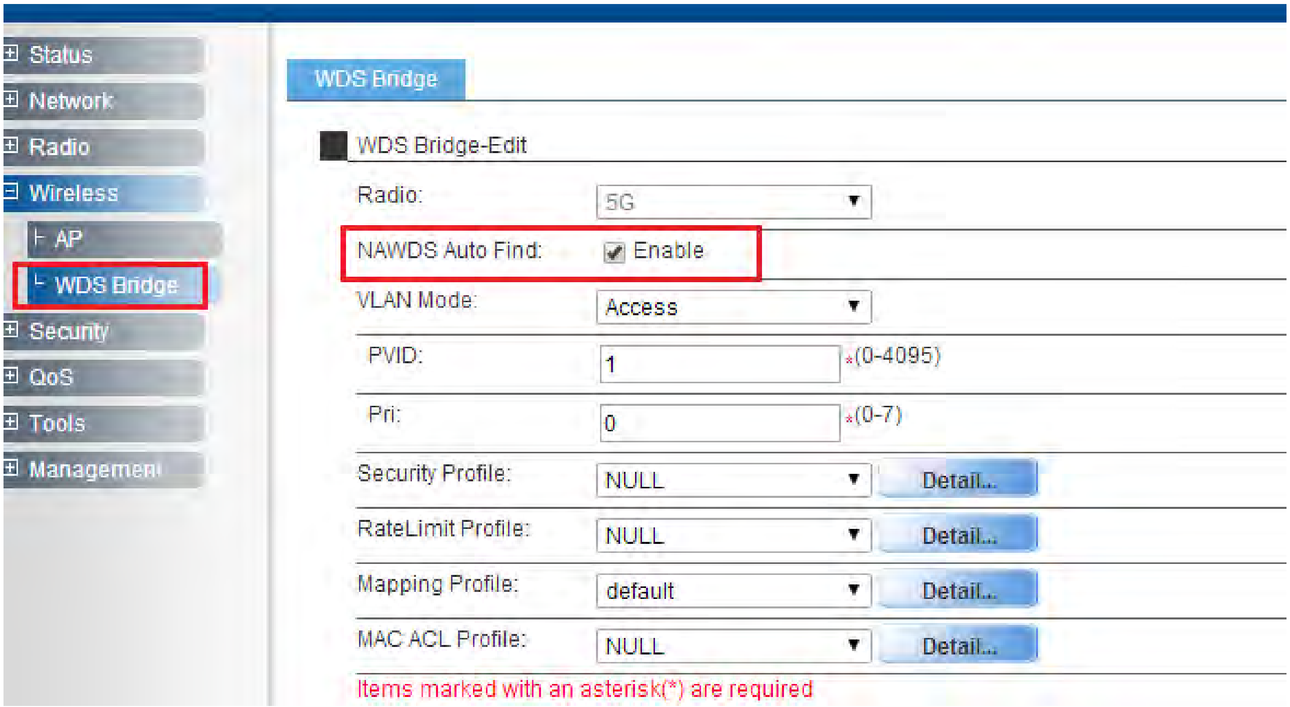
UniCAP AP also supports “NAWDS Auto Find” function, after you configure master AP, you may enable “NAWDS Auto Find” function in slave AP.



Basic

Radio	☑	
Service Mode	WDS Bridge	
TX Power	21	dBm
Radio Mode	802.11 ac	
Channel	161	○ HT20 ● HT40 ○ HT80
802.11ac:		
802.11ac only	□	
Spatial Stream	2	
Aggregation	AMPDU	
Guard Interval	☑ Enable Short GI	

Note: Please select the same Channel as the Channel of AP which you want to connect via WDS.



WDS Bridge-Edit

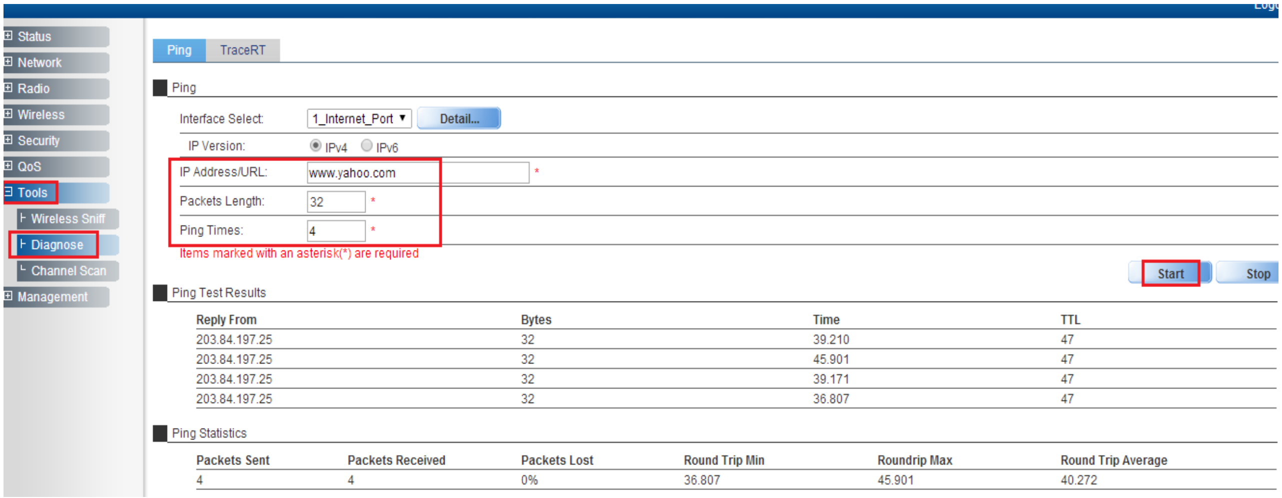
Radio:	5G
NAWDS Auto Find:	☑ Enable
VLAN Mode:	Access
PVID:	1 *(0-4095)
Pri:	0 *(0-7)
Security Profile:	NULL
RateLimit Profile:	NULL
Mapping Profile:	default
MAC ACL Profile:	NULL

Items marked with an asterisk(*) are required

🕮Note: After you enable "NAWDS Auto Find" function, the AP will connect to the master AP via WDS automatically.

4 Troubleshooting

4.1 Ping Diagnose



Ping

Interface Select: 1_Internet_Port

IP Version: ● IPv4 ○ IPv6

IP Address/URL: www.yahoo.com *

Packets Length: 32 *

Ping Times: 4 *

Items marked with an asterisk(*) are required

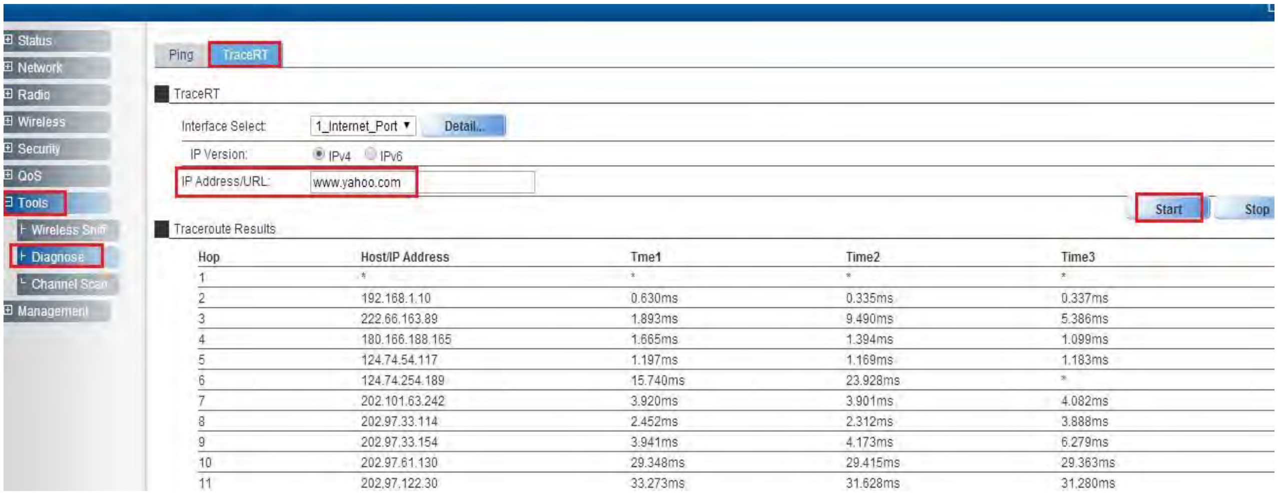
Ping Test Results

Reply From	Bytes	Time	TTL
203.84.197.25	32	39.210	47
203.84.197.25	32	45.901	47
203.84.197.25	32	39.171	47
203.84.197.25	32	36.807	47

Ping Statistics

Packets Sent	Packets Received	Packets Lost	Round Trip Min	Roundrip Max	Round Trip Average
4	4	0%	36.807	45.901	40.272

4.2 TraceRT Diagnose



TraceRT

Interface Select: 1_Internet_Port

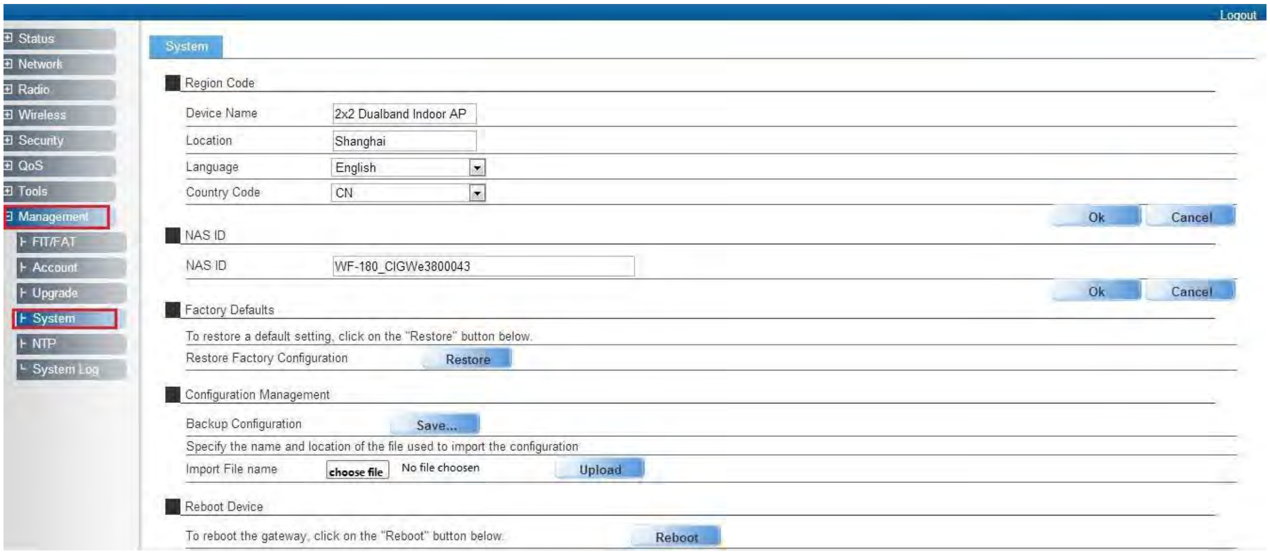
IP Version: ● IPv4 ○ IPv6

IP Address/URL: www.yahoo.com

Traceroute Results

Hop	Host/IP Address	Tme1	Time2	Time3
1	*	*	*	*
2	192.168.1.10	0.630ms	0.335ms	0.337ms
3	222.66.163.89	1.893ms	9.490ms	5.386ms
4	180.166.188.165	1.665ms	1.394ms	1.099ms
5	124.74.54.117	1.197ms	1.169ms	1.183ms
6	124.74.254.189	15.740ms	23.928ms	*
7	202.101.63.242	3.920ms	3.901ms	4.082ms
8	202.97.33.114	2.452ms	2.312ms	3.888ms
9	202.97.33.154	3.941ms	4.173ms	6.279ms
10	202.97.61.130	29.348ms	29.415ms	29.363ms
11	202.97.122.30	33.273ms	31.628ms	31.280ms

4.3 How to backup/restore setting



Region Code

Device Name: 2x2 Dualband Indoor AP
Location: Shanghai
Language: English
Country Code: CN

NAS ID

NAS ID: WF-180_CIGWe3800043

Factory Defaults

To restore a default setting, click on the "Restore" button below.
Restore Factory Configuration

Configuration Management

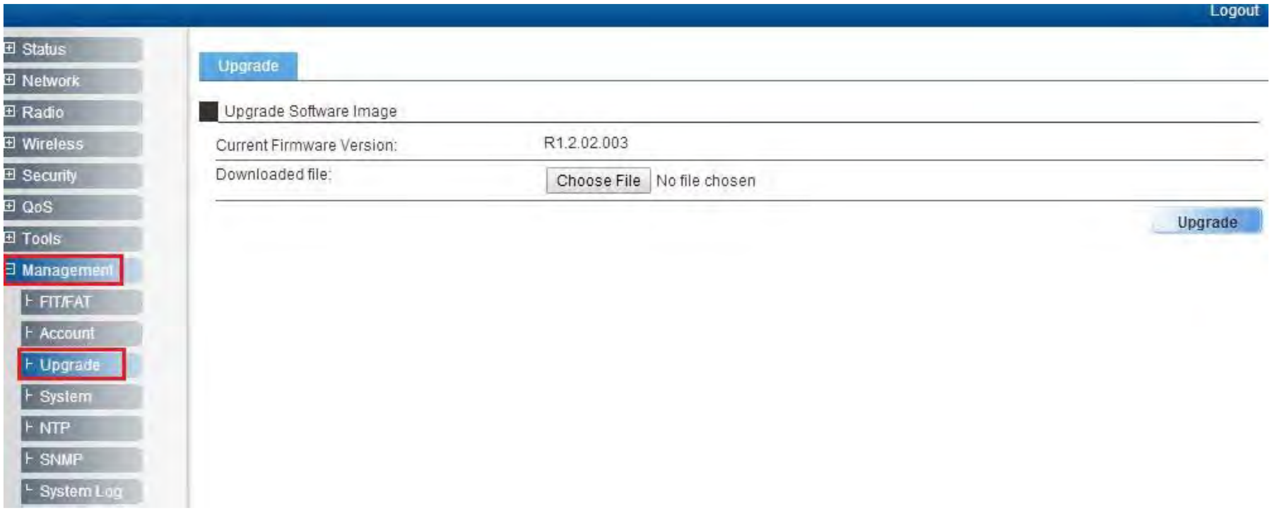
Backup Configuration
Specify the name and location of the file used to import the configuration
Import File name: No file choosen

Reboot Device

To reboot the gateway, click on the "Reboot" button below.

🕮Notes: Press “Save” button to save current setting. Press “Upload” button to load saved setting.
ॐ

4.4 How to upgrade AP

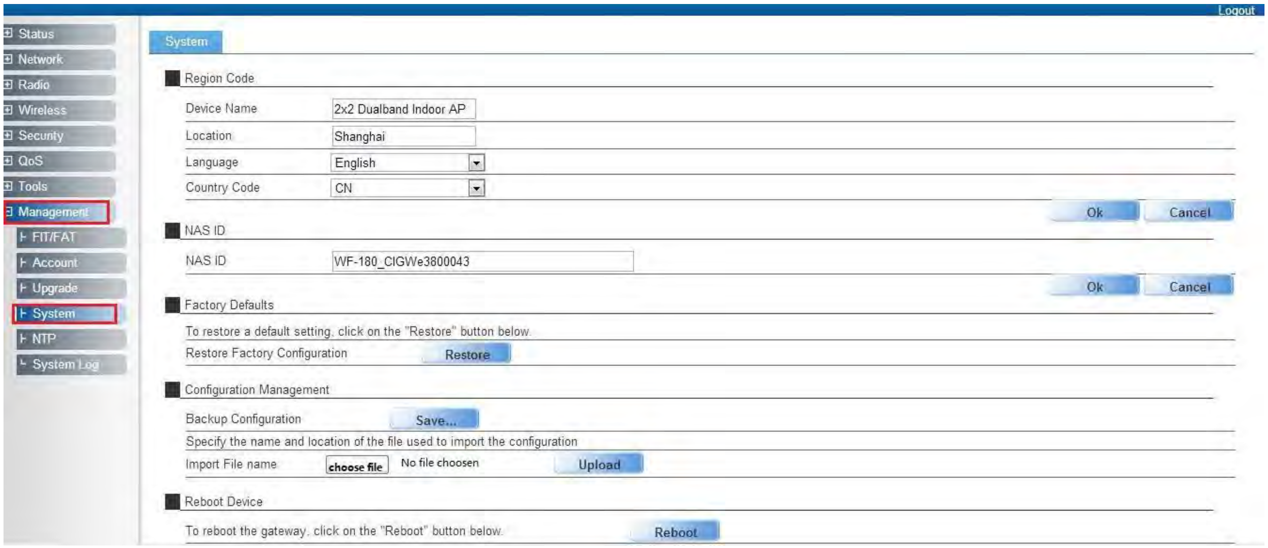


Upgrade Software Image

Current Firmware Version: R1.2.02.003
Downloaded file: No file chosen

🕮Notes: Press "Choose File" button to select firmware file, then press "Upgrade" button to upgrade AP.

4.5 How to reset AP to default setting



Region Code

Device Name: 2x2 Dualband Indoor AP
Location: Shanghai
Language: English
Country Code: CN

NAS ID

NAS ID: WF-180_CIGWe3800043

Factory Defaults

To restore a default setting, click on the "Restore" button below
Restore Factory Configuration

Configuration Management

Backup Configuration
Specify the name and location of the file used to import the configuration
Import File name: No file choosen

Reboot Device

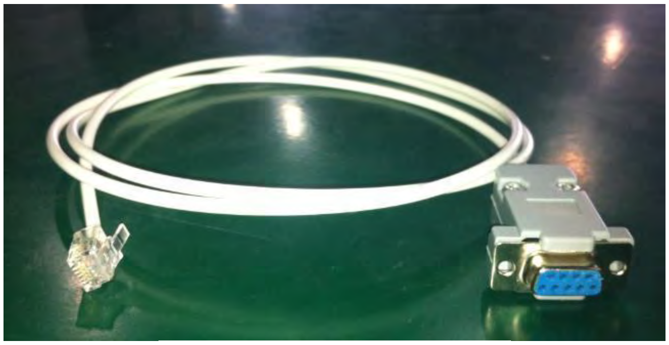
To reboot the gateway, click on the "Reboot" button below.

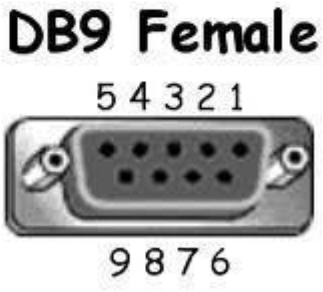
🕮Notes: If you can't visit AP web page, please press the "Reset" button of AP and hold for more than 5 seconds, the AP will reset to default setting automatically. Or you can do it by the Web GUI.

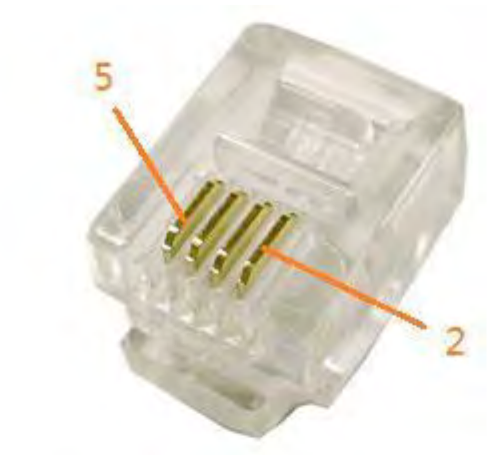
4.6 How to check AP Setting by console

Serial cable definition

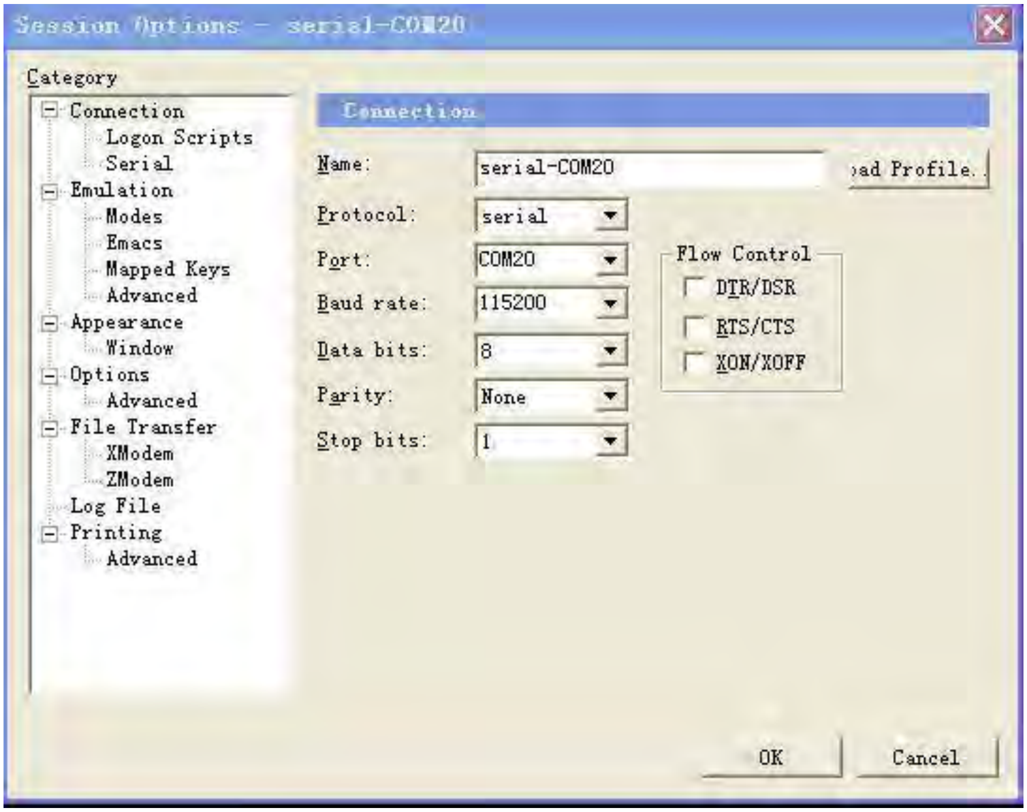
🕮Notes: For the serial cable, one side is a standard DB-9 female serial port and the other side is a RJ11 connector. For the RJ11 connector PIN sequence you can use below picture as a reference.







RJ11 PIN	DB-9 hole
2	3
3	5
4	5
5	2



Session Options - serial-COM20

Connection

Name: serial-COM20

Protocol: serial

Port: COM20

Baud rate: 115200

Data bits: 8

Parity: None

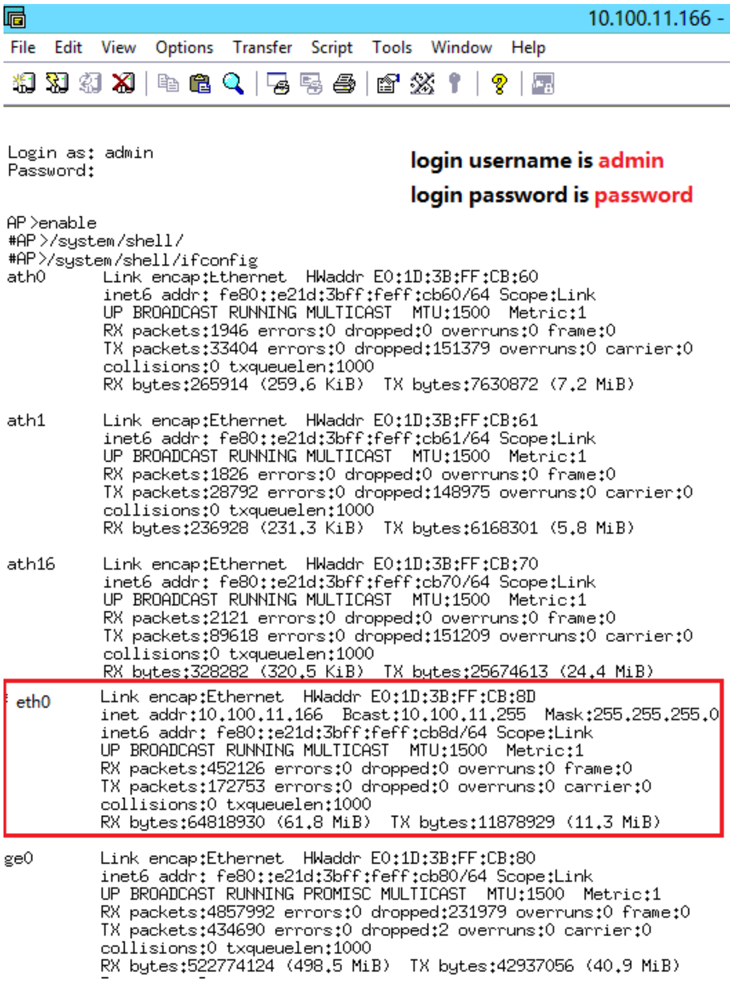
Stop bits: 1

Flow Control

□ DTR/DSR

□ RTS/CTS

□ XON/XOFF



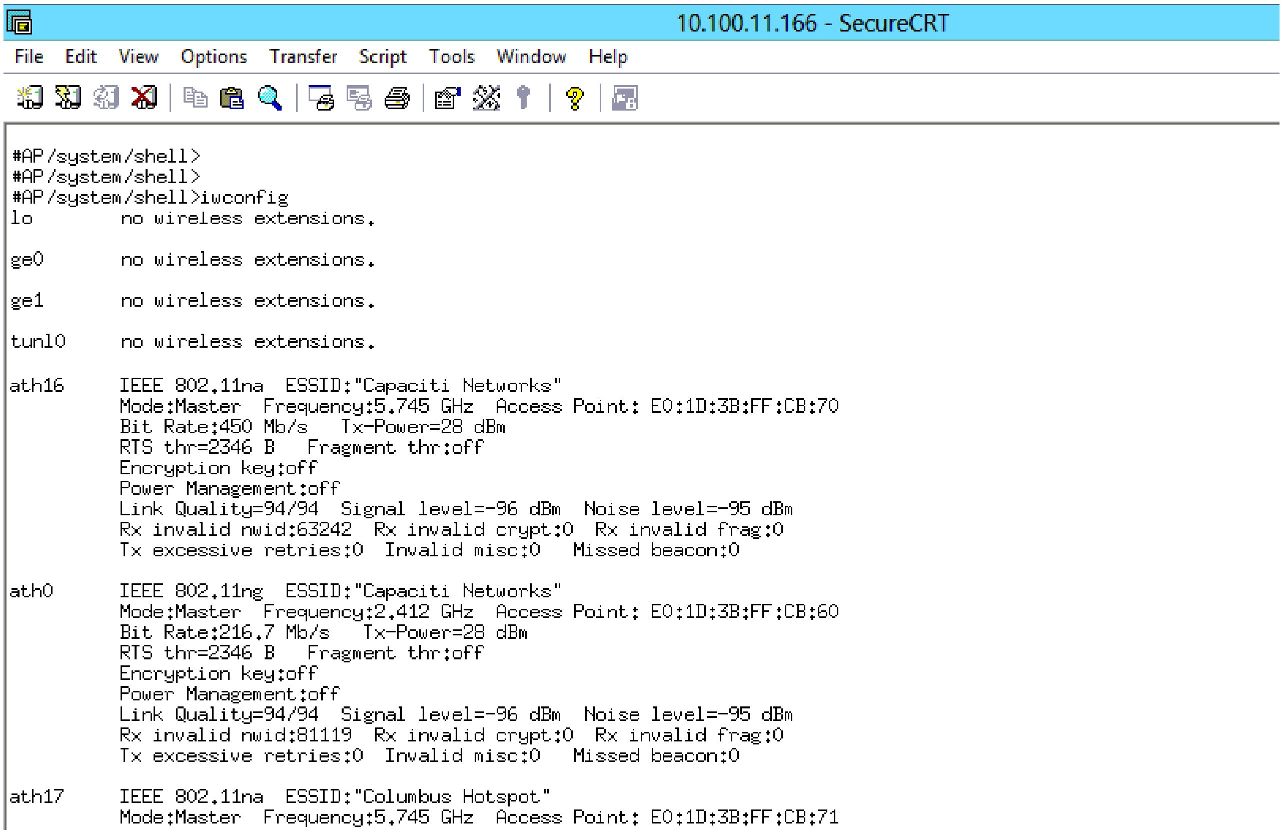
```
Login as: admin
Password:
```

login username is admin

login password is password

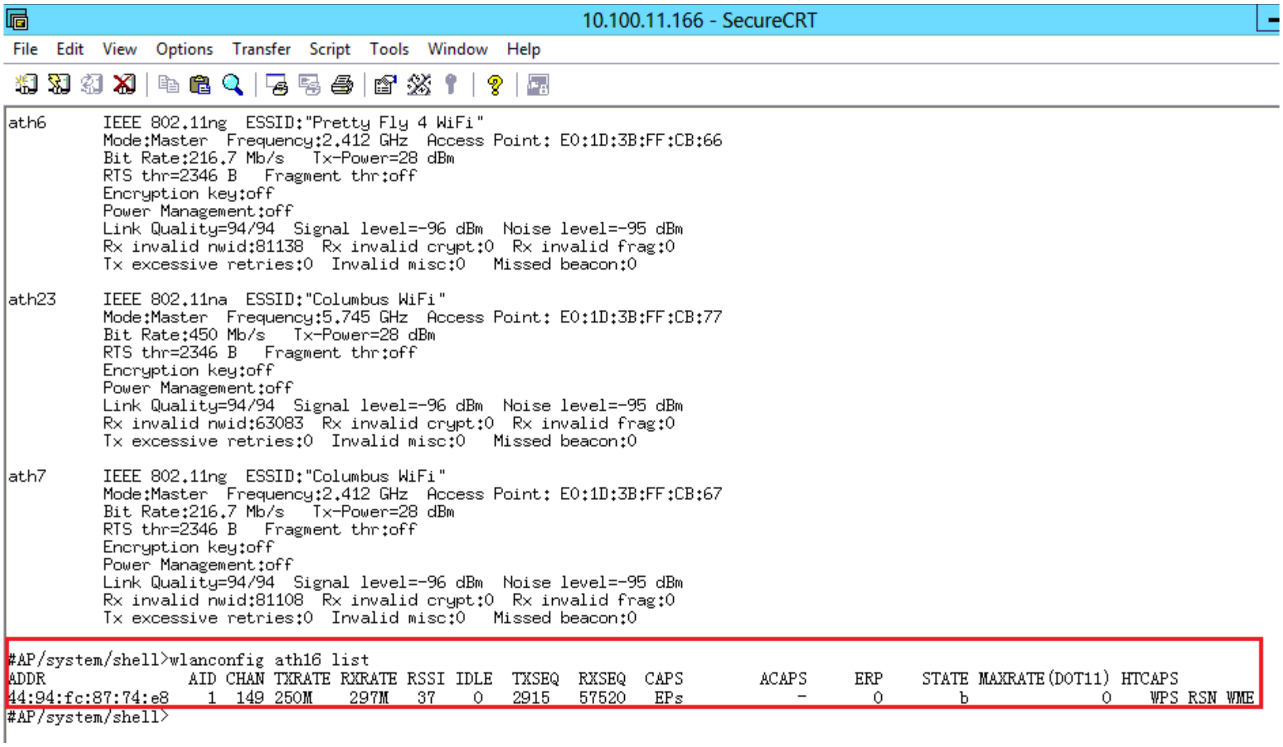
```
AP >enable
#AP >/system/shell/
#AP >/system/shell/ifconfig
ath0      Link encap:Ethernet  HWaddr E0:1D:3B:FF:CB:60
          inet6 addr: fe80::e21d:3bff:feff:cb60/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:1946 errors:0 dropped:0 overruns:0 frame:0
          TX packets:33404 errors:0 dropped:151379 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:265914 (259.6 KiB)  TX bytes:7630872 (7.2 MiB)

ath1      Link encap:Ethernet  HWaddr E0:1D:3B:FF:CB:61
          inet6 addr: fe80::e21d:3bff:feff:cb61/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:1826 errors:0 dropped:0 overruns:0 frame:0
          TX packets:28792 errors:0 dropped:148975 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:236928 (231.3 KiB)  TX bytes:6168301 (5.8 MiB)

ath16     Link encap:Ethernet  HWaddr E0:1D:3B:FF:CB:70
          inet6 addr: fe80::e21d:3bff:feff:cb70/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:2121 errors:0 dropped:0 overruns:0 frame:0
          TX packets:89618 errors:0 dropped:151209 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:328282 (320.5 KiB)  TX bytes:25674613 (24.4 MiB)
 eth0     Link encap:Ethernet  HWaddr E0:1D:3B:FF:CB:8D
          inet addr:10.100.11.166  Bcast:10.100.11.255  Mask:255.255.255.0
          inet6 addr: fe80::e21d:3bff:feff:cb8d/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:452126 errors:0 dropped:0 overruns:0 frame:0
          TX packets:172753 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:64818930 (61.8 MiB)  TX bytes:11878929 (11.3 MiB)

ge0       Link encap:Ethernet  HWaddr E0:1D:3B:FF:CB:80
          inet6 addr: fe80::e21d:3bff:feff:cb80/64 Scope:Link
          UP BROADCAST RUNNING PROMISC MULTICAST  MTU:1500  Metric:1
          RX packets:4857992 errors:0 dropped:231979 overruns:0 frame:0
          TX packets:434690 errors:0 dropped:2 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:522774124 (498.5 MiB)  TX bytes:42937056 (40.9 MiB)
```

🕮Note: Input "enable" first and "ifconfig" command in "system/shell" folder to check AP IP address.



```
#AP/system/shell>
#AP/system/shell>
#AP/system/shell>iwconfig
lo        no wireless extensions.

ge0       no wireless extensions.

ge1       no wireless extensions.

tunl0     no wireless extensions.

ath16     IEEE 802.11na  ESSID:"Capaciti Networks"
          Mode:Master  Frequency:5.745 GHz  Access Point: E0:1D:3B:FF:CB:70
          Bit Rate:450 Mb/s   Tx-Power=28 dBm
          RTS thr=2346 B   Fragment thr:off
          Encryption key:off
          Power Management:off
          Link Quality=94/94  Signal level=-96 dBm  Noise level=-95 dBm
          Rx invalid nwid:63242  Rx invalid crypt:0  Rx invalid frag:0
          Tx excessive retries:0  Invalid misc:0   Missed beacon:0

ath0      IEEE 802.11ng  ESSID:"Capaciti Networks"
          Mode:Master  Frequency:2.412 GHz  Access Point: E0:1D:3B:FF:CB:60
          Bit Rate:216.7 Mb/s   Tx-Power=28 dBm
          RTS thr=2346 B   Fragment thr:off
          Encryption key:off
          Power Management:off
          Link Quality=94/94  Signal level=-96 dBm  Noise level=-95 dBm
          Rx invalid nwid:81119  Rx invalid crypt:0  Rx invalid frag:0
          Tx excessive retries:0  Invalid misc:0   Missed beacon:0

ath17     IEEE 802.11na  ESSID:"Columbus Hotspot"
          Mode:Master  Frequency:5.745 GHz  Access Point: E0:1D:3B:FF:CB:71
```

🕮Note: Input "iwconfig" command in "system/shell" folder to check AP WiFi setting.


10.100.11.166 - SecureCRT
File Edit View Options Transfer Script Tools Window Help

```
ath6      IEEE 802.11ng  ESSID:"Pretty Fly 4 WiFi"
          Mode:Master  Frequency:2.412 GHz  Access Point: E0:1D:3B:FF:CB:66
          Bit Rate:216.7 Mb/s   Tx-Power=28 dBm
          RTS thr=2346 B   Fragment thr:off
          Encryption key:off
          Power Management:off
          Link Quality=94/94  Signal level=-96 dBm  Noise level=-95 dBm
          Rx invalid nwid:81138  Rx invalid crypt:0  Rx invalid frag:0
          Tx excessive retries:0  Invalid misc:0   Missed beacon:0

ath23     IEEE 802.11na  ESSID:"Columbus WiFi"
          Mode:Master  Frequency:5.745 GHz  Access Point: E0:1D:3B:FF:CB:77
          Bit Rate:450 Mb/s   Tx-Power=28 dBm
          RTS thr=2346 B   Fragment thr:off
          Encryption key:off
          Power Management:off
          Link Quality=94/94  Signal level=-96 dBm  Noise level=-95 dBm
          Rx invalid nwid:63083  Rx invalid crypt:0  Rx invalid frag:0
          Tx excessive retries:0  Invalid misc:0   Missed beacon:0

ath7      IEEE 802.11ng  ESSID:"Columbus WiFi"
          Mode:Master  Frequency:2.412 GHz  Access Point: E0:1D:3B:FF:CB:67
          Bit Rate:216.7 Mb/s   Tx-Power=28 dBm
          RTS thr=2346 B   Fragment thr:off
          Encryption key:off
          Power Management:off
          Link Quality=94/94  Signal level=-96 dBm  Noise level=-95 dBm
          Rx invalid nwid:81108  Rx invalid crypt:0  Rx invalid frag:0
          Tx excessive retries:0  Invalid misc:0   Missed beacon:0

#AP/system/shell>wlanconfig ath16 list
ADDR               AID CHAN TXRATE RXRATE RSSI IDLE  TXSEQ  RXSEQ  CAPS        ACAPS     ERP    STATE MAXRATE(DOT11) HTCAPS
44:94:fc:87:74:e8    1  149 250M    297M   37    0   2915   57520   EPs            -       0        b              0     WPS RSN WME
#AP/system/shell>
```

🕮*Note: Input "wlanconfig athx list" command to check if there is any WiFi station connects to AP. In the command, "athx" means the different SSID, if you want to check if there is any WiFi station connects to AP SSID, please input the relevant athx of the SSID.*

5 FCC Statement

Federal Communication Commission Interference Statement

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

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

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

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

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 47 cm between the radiator & your body.