

CAMBRIDGE

CIG

INDUSTRIES (GROUP) CO LTD.

# WF-630R1 AP User Manual

Version 2

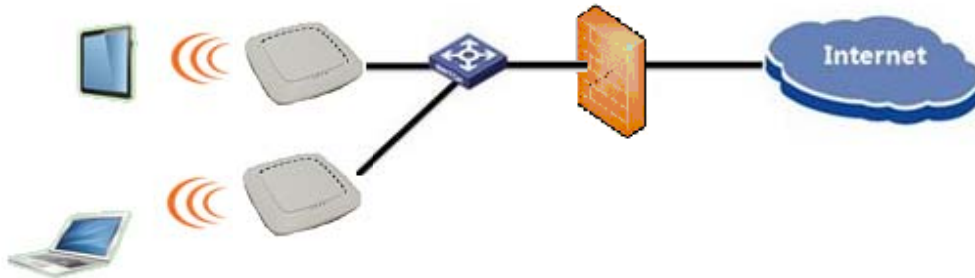
# TABLE OF CONTENTS

|      |                                                            |           |
|------|------------------------------------------------------------|-----------|
| 1    | AP Network Topology .....                                  | 3         |
| 1.1  | Connect PoE Adapter to AP .....                            | 3         |
| 1.2  | Configure PC IP address.....                               | 4         |
| 1.3  | Visit AP Web page.....                                     | 5         |
| 1.4  | Configure IP address for AP .....                          | 5         |
| 1.5  | Connect AP to Switch.....                                  | 6         |
| 1.6  | Configure location, Language and Country code for AP ..... | 6         |
| 1.7  | Configure detailed WiFi parameters for AP .....            | 7         |
| 1.8  | Configure Radius parameters for AP .....                   | 7         |
| 1.9  | Configure Portal parameters for AP .....                   | 8         |
| 1.10 | Configure security parameters for AP .....                 | 9         |
| 1.11 | Configure Rate limit rule (Optional).....                  | 11        |
| 1.12 | Configure Group ID (Optional) .....                        | 13        |
| 1.13 | Configure MAC ACL rule (Optional).....                     | 14        |
| 1.14 | Configure SSID.....                                        | 15        |
| 2    | AP WDS Network Topology .....                              | 17        |
| 2.1  | Enable WDS function .....                                  | 17        |
| 2.2  | Configure CPE WDS .....                                    | 18        |
| 3    | NAWDS Network Topology.....                                | 19        |
| 3.1  | Configure WDS bridge mode .....                            | 19        |
| 3.2  | Input remote AP MAC .....                                  | 20        |
| 3.3  | The configuration in remote AP .....                       | 20        |
| 3.4  | NAWDS Auto Find.....                                       | 22        |
| 4    | Station Network Topology .....                             | 23        |
| 4.1  | Configure Station mode.....                                | 23        |
| 4.2  | Station Access to AP .....                                 | 24        |
| 4.3  | Station Status .....                                       | 25        |
| 5    | Troubleshooting .....                                      | 25        |
| 5.1  | Ping Diagnose .....                                        | 25        |
| 5.2  | TraceRT Diagnose .....                                     | 26        |
| 5.3  | How to backup/restore setting.....                         | 26        |
| 5.4  | How to upgrade AP .....                                    | 27        |
| 5.5  | How to reset AP to default setting.....                    | 27        |
| 5.6  | How to check AP Setting by console .....                   | 错误！未定义书签。 |

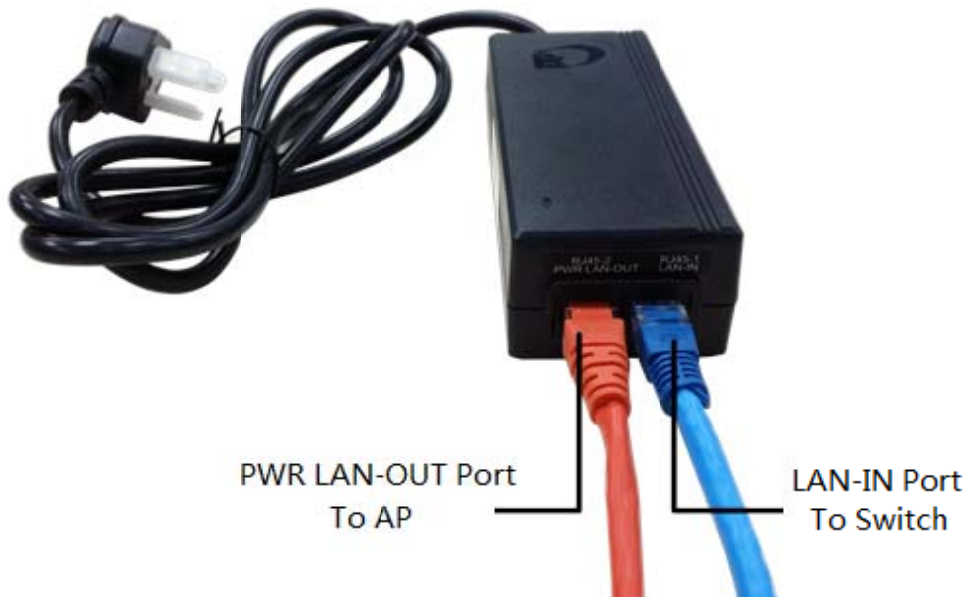
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# 1 AP Network Topology



## 1.1 Connect PoE Adapter to AP



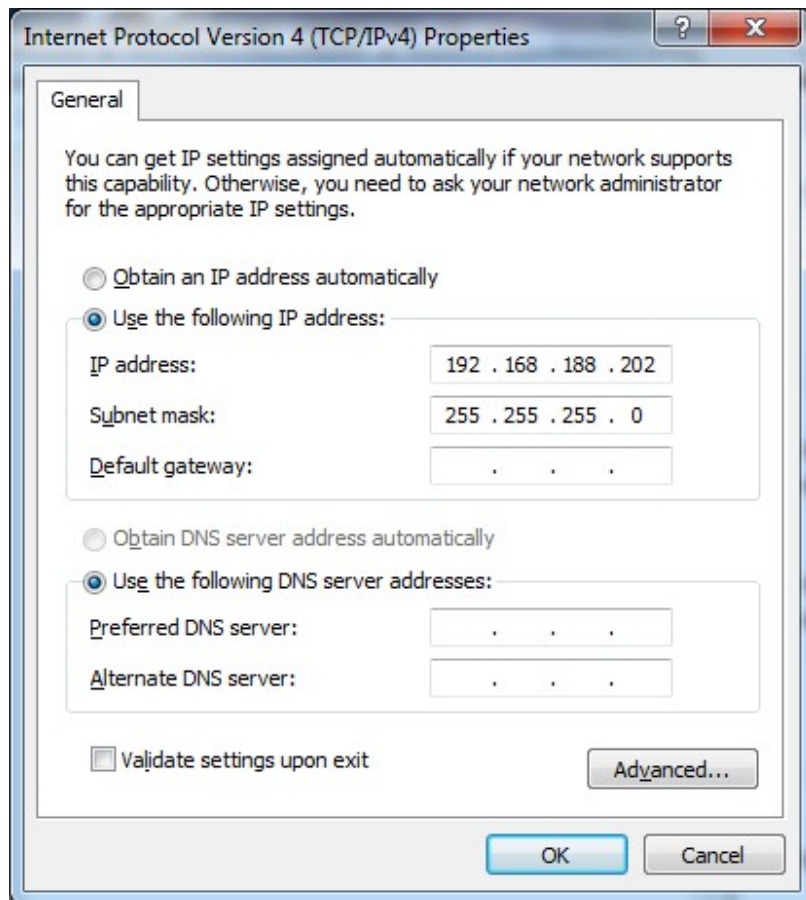
***Notes: Please connect the Ethernet Port labeled “PWR LAN-OUT” on PoE Adapter to “ETH1” port of AP and the Ethernet Port labeled “LAN-IN” on PoE Adapter to your PC or Switch.***

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## 1.2 Configure PC IP address



***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).

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## 1.3 Visit AP Web page

The screenshot shows a web browser window with the address bar displaying "192.168.188.251". The page header features the CIG logo and a "Logout" link. A left sidebar contains navigation tabs: Status, Network, Radio, Wireless, Security, QoS, Tools, and Management. The main content area is divided into two sections: "Overview" and "IP Interface".

**Overview**

|                  |                                      |
|------------------|--------------------------------------|
| Device Name      | 2x2 Dualband Indoor AP               |
| Location         | Shanghai                             |
| Device Model     | WF-180                               |
| Device SN        | CIGWe3800043                         |
| Hardware Version | 80010101                             |
| Software Version | R2.0.03.012                          |
| Working Mode     | FAT AP                               |
| PoE Type         | Standard                             |
| CPU Utilization  | 1.0%                                 |
| Up Time          | 4 Day 23 Hours 36 Minutes 56 Seconds |

**IP Interface**

| Interface Name  | VLAN ID | IPv4 Address | State |
|-----------------|---------|--------------|-------|
| 1_Internet_Port | 110     | 10.5.1.21    | UP    |
| 1_portal_if     | 4091    | 192.168.91.1 | UP    |

**Radio**

|                |          |           |
|----------------|----------|-----------|
| Type           | 2.4G     | 5G        |
| Raido          | Enable   | Enable    |
| Radio Mode     | 802.11 n | 802.11 ac |
| Service Mode   | AP       | AP        |
| Bandwidth Mode | 20M      | 40M       |
| Channel        | 1(Auto)  | 161       |
| Transmit Power | 20       | 24        |

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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 Web interface of AP.

## 1.4 Configure IP address for AP

The screenshot shows the "IP Interface" section of the CIG WF-180 AP web interface. The left sidebar has the "IP Interface" tab selected and highlighted with a red box. The main content area displays a table with the following data:

| Interface Name  | VLAN ID | IP ver | Mode | Operation                                                                             |
|-----------------|---------|--------|------|---------------------------------------------------------------------------------------|
| 1_Internet_Port | 1       | IPv4   | IPvE |  |

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## 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

**Notes:** The country code is US and can't be modified.

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## 1.7 Configure detailed WiFi parameters for AP

The screenshot shows the CIG configuration interface. On the left sidebar, the 'Radio' menu is expanded, and '2.4G' is selected. The main panel displays the 'Basic' tab for the 2.4G configuration. The settings are as follows:

| Parameter      | Value                                               |
|----------------|-----------------------------------------------------|
| Radio          | <input checked="" type="checkbox"/>                 |
| Service Mode   | AP                                                  |
| TX Power       | 21 dBm                                              |
| Radio Mode     | 802.11n                                             |
| Channel        | Auto                                                |
| 802.11n only   | <input type="checkbox"/>                            |
| TX Beamforming | <input checked="" type="checkbox"/>                 |
| Spatial Stream | 2                                                   |
| Aggregation    | AMPDU                                               |
| Guard Interval | <input checked="" type="checkbox"/> Enable Short GI |

Buttons: Ok, Cancel

The screenshot shows the CIG configuration interface. On the left sidebar, the 'Radio' menu is expanded, and '5G' is selected. The main panel displays the 'Basic' tab for the 5G configuration. The settings are as follows:

| Parameter      | Value                                               |
|----------------|-----------------------------------------------------|
| Radio          | <input checked="" type="checkbox"/>                 |
| Service Mode   | AP                                                  |
| TX Power       | 21 dBm                                              |
| Radio Mode     | 802.11ac                                            |
| Channel        | 161                                                 |
| 802.11ac only  | <input type="checkbox"/>                            |
| Spatial Stream | 2                                                   |
| Aggregation    | AMPDU                                               |
| Guard Interval | <input checked="" type="checkbox"/> Enable Short GI |

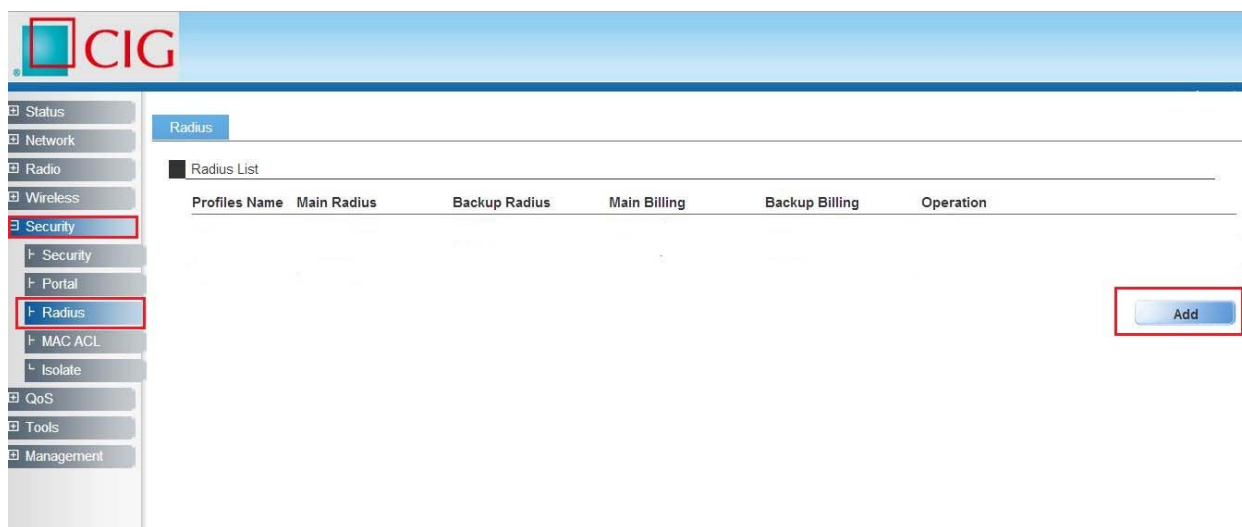
Buttons: Ok, Cancel

## 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.

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|                     |                 |          |           |
|---------------------|-----------------|----------|-----------|
| 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.

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**CIG**

- Status
- Network
- Radio
- Wireless
- Security**
  - Security
  - Portal**
  - Radius
  - MAC ACL
  - Isolate
- QoS
- Tools
- Management

**Portal**

Portal List

| Profiles Name                      | Server URL | UAM secret | Operation |
|------------------------------------|------------|------------|-----------|
| <input type="button" value="Add"/> |            |            |           |

**CIG**

- Status
- Network
- Radio
- Wireless
- Security**
  - Security
  - Portal**
  - Radius
  - MAC ACL
  - Isolate
- QoS
- Tools
- Management

**Portal**

Portal Profile Name:  \*

Server URL:  \*

UAM secret:

☒ Wall garden

Custom domain/IP:  (domain/IP)

| Domain/IP                                     | Operation |
|-----------------------------------------------|-----------|
| Items marked with an asterisk(*) are required |           |

## 1.10 Configure security parameters for AP

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## PSK

The screenshot shows the CIG web interface with the 'Security-Add' form. The left sidebar has a 'Security' menu item highlighted with a red box. The main content area is titled 'Security' and contains the following form fields:

- Security Profile Name:  \*
- Security Type:  ▼
- Encryption:  ▼
- Authentication Type:  ▼
- WPA Preshared Key:  \* ☐ Show

Below the form, a red note states: "Items marked with an asterisk(\*) are required". At the bottom right, there are 'Ok' and 'Cancel' buttons. The 'Add' button from the previous screenshot is also visible in the top right corner.

## 802.1x Authentication

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**CIG**

Status  
Network  
Radio  
Wireless  
Security  
  Security  
  Portal  
  Radius  
  MAC ACL  
  Isolate  
QoS  
Tools  
Management

Security

Security-Edit

Security Profile Name: CIG \*

Security Type: WPA/WPA2

Authentication Type: 802.1X/EAP

Radius Profile: CIG [Detail...](#)

Items marked with an asterisk(\*) are required

Ok Cancel

## Web Authentication

**CIG**

Status  
Network  
Radio  
Wireless  
Security  
  Security  
  Portal  
  Radius  
  MAC ACL  
  Isolate  
QoS  
Tools  
Management

Security

Security-Edit

Security Profile Name: CIG\_Guest \*

Security Type: None

Authentication Type: MAC/Web

Portal Profile: cig\_guest [Detail...](#)

Radius Profile: RadiusProf1 [Detail...](#)

Items marked with an asterisk(\*) are required

Ok Cancel

## 1.11 Configure Rate limit rule (Optional)

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

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Logout

- Status
- Network
- Radio
- Wireless
- Security
- QoS**
- Rate Limit**
- Group Id
- Tools
- Management

Rate Limit

Profile Name  \*

Station MAC  (12:13:56:78:9a:bc)

Egress Method Fix

Egress Rate  kbps (0 means no limit) Add

| Station MAC       | Egress       | Select                   |
|-------------------|--------------|--------------------------|
| 00:11:22:33:44:55 | Fix_1024kbps | <input type="checkbox"/> |

Delete
Ok
Cancel

Items marked with an asterisk(\*) are required.

Logout

- Status
- Network
- Radio
- Wireless**
- AP**
- WDS Bridge
- Security
- QoS
- Tools
- Management

AP

VAP-Add

Radio 2.4G

SSID  \*

Wireless Service ☒ Enable

Hidden SSID ☐ Enable

Station Isolation ☐ Enable

Maximum User  \*(1-128)

Idle Kickout Times  \*(0-255, 0 Means Disable Kickout function)

WDS ☒ Enable

VLAN Mode Access

PVID  \*(0-4090)

Pri  \*(0-7)

Security Profile CIG Detail...

RateLimit Profile NULL Detail...

Mapping Profile default Detail...

MAC ACL Profile NULL Detail...

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## 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.

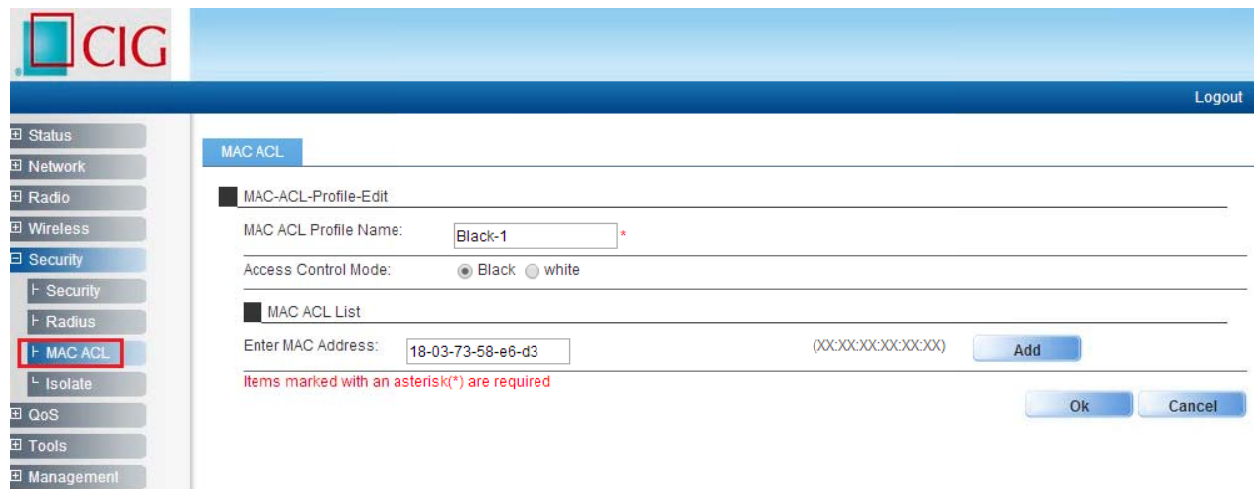
The screenshot shows the CIG Group ID configuration page. The left sidebar contains a navigation menu with options: Status, Network, Radio, Wireless, Security, QoS, Rate Limit, Mapping, Group Id (selected), Tools, and Management. The main content area is titled 'Group Id' and includes a 'Group ID - Edit' section with a 'Profile Name' field set to 'CIGUSER'. Below this is a 'Group ID Rules - Edit' section with fields for 'Group ID', 'VLAN ID[0-4090]', 'Ingress Method' (set to 'Fix'), 'Ingress Rate' (set to '0' with a note '\*kbps (0 means no limit)'), 'Egress Method' (set to 'Fix'), and 'Egress Rate' (set to '0' with a note '\*kbps (0 means no limit)'). An 'Add' button is next to the Egress Rate field. Below the edit section is a 'Group ID Rules List' table with columns: Group ID, VLAN ID, Ingress Rate, Egress Rate, and Select. The table contains one entry: RD, 110, Fix\_0kbps, Fix\_0kbps, and a checkbox. A 'Delete' button is to the right of the table. At the bottom, there are 'Ok' and 'Cancel' buttons. A red note at the bottom left states: 'Items marked with an asterisk(\*) are required.'

The screenshot shows the CIG Radius-Edit page. The left sidebar contains a navigation menu with options: Status, Network, Radio, Wireless, Security, QoS, Tools, and Management. The main content area is titled 'Radius-Edit' and includes a 'Radius Profile Name' field set to 'CIG'. Below this is a 'Group ID Profile' dropdown menu set to 'CIGUSER', with a 'Detail...' button to its right. The 'Radius Interface' is set to '1\_Internet\_Port' with a 'Detail...' button. The 'IP Type' is set to 'IPv4'. The 'Response Timeout' is set to '5' with a note '\* (3-60s)'. The 'Retry Times' is set to '2' with a note '\* (1-3)'. The 'Main Radius' section includes 'Auth server IP' (192.168.1.52), 'Auth server port' (1812), and 'Auth Secret' (masked with dots, with a 'Show' button). The 'Main Billing' section includes 'Billing server IP' (192.168.1.52), 'Billing server port' (1813), and 'Billing Secret' (masked with dots, with a 'Show' button). The 'Backup Radius' section includes 'Auth server IP', 'Auth server port', and 'Auth Secret' (masked with dots, with a 'Show' button). The 'Backup Billing' section includes 'Billing server IP'.

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## 1.13 Configure MAC ACL rule (Optional)



The screenshot shows the CIG (Cisco Intelligent Gateway) web interface for configuring MAC ACL rules. The interface has a blue header with the CIG logo and a 'Logout' link. A left sidebar contains a tree view of configuration categories: Status, Network, Radio, Wireless, Security, MAC ACL (highlighted with a red box), Isolate, QoS, Tools, and Management. The main content area is titled 'MAC ACL' and contains two sections: 'MAC-ACL-Profile-Edit' and 'MAC ACL List'. In the 'MAC-ACL-Profile-Edit' section, the 'MAC ACL Profile Name' is set to 'Black-1' with a red asterisk indicating it is required. The 'Access Control Mode' is set to 'Black' with a radio button. In the 'MAC ACL List' section, the 'Enter MAC Address' field contains '18-03-73-58-e6-d3' with a red asterisk, and a placeholder '(XX:XX:XX:XX:XX:XX)' is shown. An 'Add' button is next to the field. A red note at the bottom of the list section states 'Items marked with an asterisk(\*) are required'. At the bottom right of the main content area are 'Ok' and 'Cancel' buttons.

CIG

Logout

MAC ACL

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

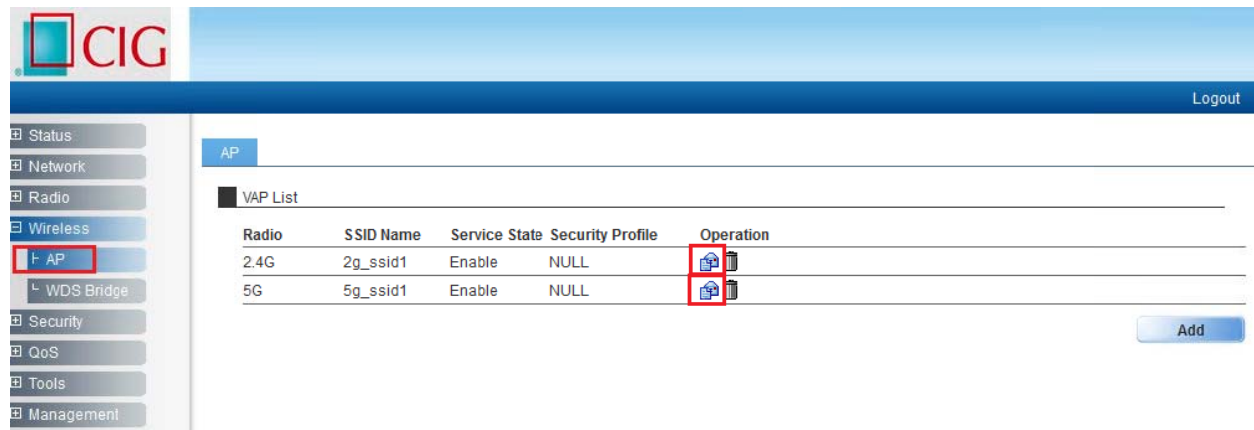
Items marked with an asterisk(\*) are required

Ok Cancel

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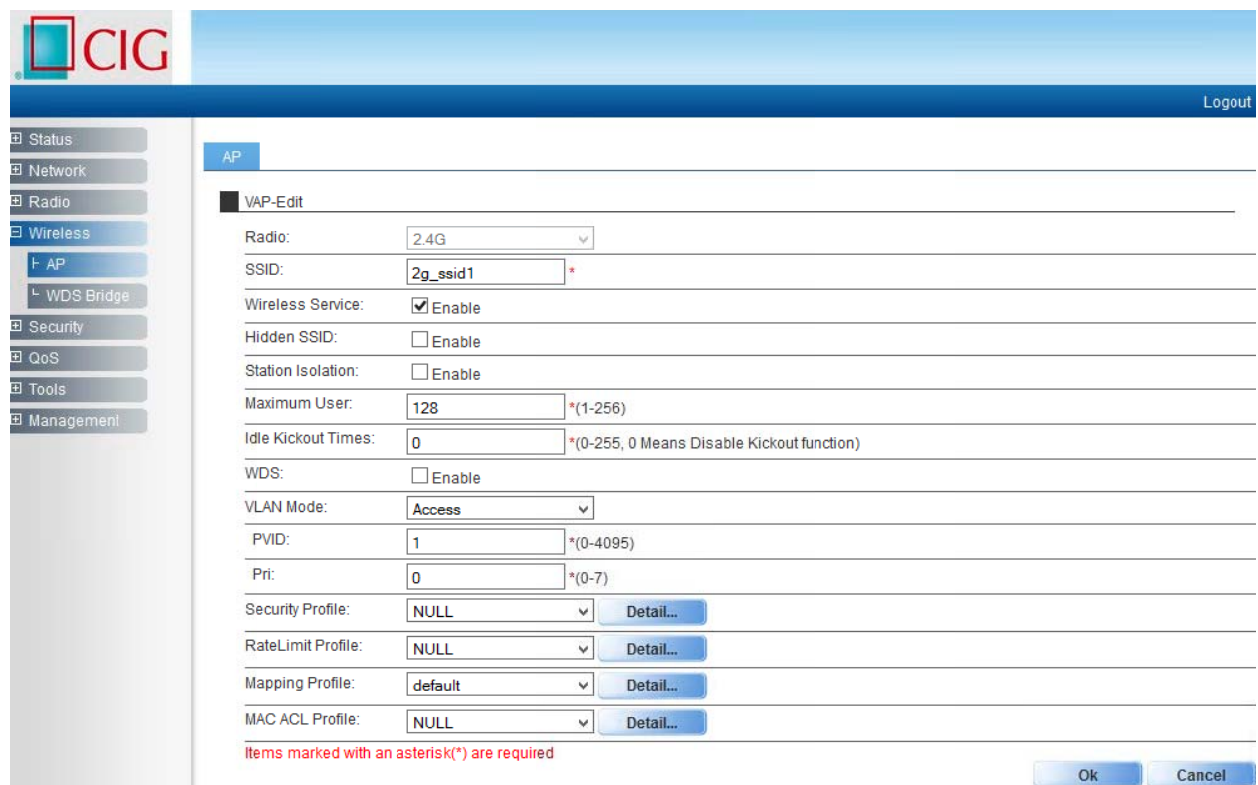
## 1.14 Configure SSID



The screenshot shows the CIG web interface for configuring an AP. The left sidebar contains a tree view with 'AP' selected. The main content area displays the 'VAP List' table. The table has five columns: Radio, SSID Name, Service State, Security Profile, and Operation. There are two rows of data: one for 2.4G and one for 5G, both with SSID '2g\_ssid1' and '5g\_ssid1' respectively, both enabled, and both with a NULL security profile. The 'Operation' column contains icons for editing and deleting. A red box highlights the 'AP' menu item and the 'Operation' column. A red box also highlights the 'Add' button at the bottom right of the table.

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

[Add](#)



The screenshot shows the CIG web interface for configuring an AP. The left sidebar contains a tree view with 'AP' selected. The main content area displays the 'VAP-Edit' form. The form has various fields for configuring the AP, including Radio, SSID, Wireless Service, Hidden SSID, Station Isolation, Maximum User, Idle Kickout Times, WDS, VLAN Mode, PVID, Pri, Security Profile, RateLimit Profile, Mapping Profile, and MAC ACL Profile. The 'SSID' field is marked with an asterisk, indicating it is required. The 'Security Profile' field has a 'Detail...' button. The 'RateLimit Profile' field has a 'Detail...' button. The 'Mapping Profile' field has a 'Detail...' button. The 'MAC ACL Profile' field has a 'Detail...' button. A red box highlights the 'AP' menu item. A red box also highlights the 'SSID' field. A red box also highlights the 'Security Profile' field. A red box also highlights the 'RateLimit Profile' field. A red box also highlights the 'Mapping Profile' field. A red box also highlights the 'MAC ACL Profile' field. A red box also highlights the 'Detail...' buttons. A red box also highlights the 'Ok' and 'Cancel' buttons at the bottom right of the form.

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

[Ok](#) [Cancel](#)

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Logout

- Status
- Network
- Radio
- Wireless
  - AP
  - WDS Bridge
- Security
- QoS
- Tools
- Management

AP

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

Ok
Cancel

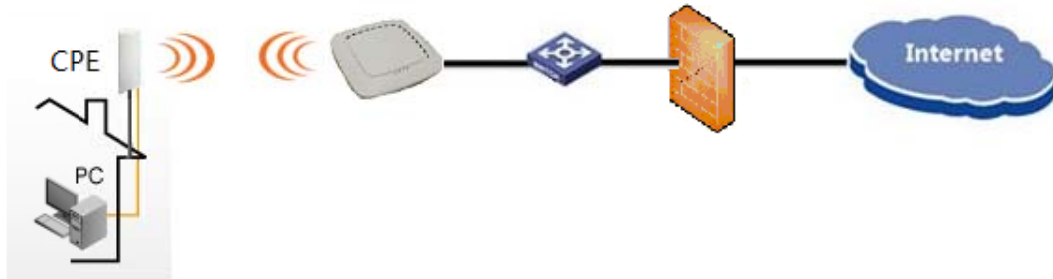
***Notes: You may apply the relevant Security, Rate Limit, Mapping or MAC ACL profiles which you configured here. After the above setting, wireless stations can connect to the relevant SSID of AP and get IP address from DHCP server of firewall to visit Internet.***

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## 2 AP WDS Network Topology



## 2.1 Enable WDS function

Status

Network

Radio

Wireless

AP

WDS Bridge

Security

QoS

Tools

Management

AP

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:

macad

Detail...

Items marked with an asterisk(\*) are required

** Note:** Enable WDS function when you configure SSID.

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## 2.2 Configure CPE WDS

The screenshot shows the CPE configuration interface with the following settings:

- Wireless mode:** Station
- Country:** CT
- Non-standard channels:** DISABLED
- Basic:**
  - SSID:** 5g\_ssid1
  - Scan:** Button
  - Scanned SSID:** Dropdown menu
  - Lock Access Point:** ☐
  - IEEE mode:** A/N mixed
  - Channel width:** 20/40 MHz
- 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

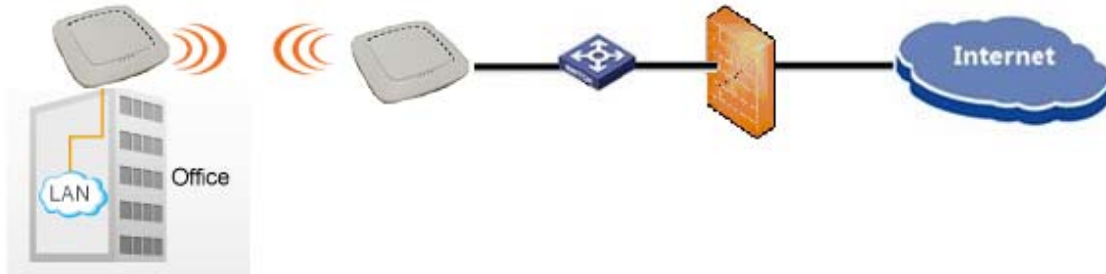
The 'Enable WDS' checkbox is highlighted with a red box.

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

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### 3 NAWDSNetwork Topology



#### 3.1 Configure WDS bridge mode

The image shows the CIG (Cisco Integrated Gateway) configuration interface. The 'Radio' tab is selected, and the 'Basic' sub-tab is active. The 'Service Mode' is set to 'WDS Bridge', which is highlighted with a red box. Other settings include 'TX Power' at 21 dBm, 'Radio Mode' set to '802.11 ac', and 'Channel' set to 161. The '802.11ac' section shows '802.11ac only' is unchecked, 'Spatial Stream' is 2, 'Aggregation' is AMPDU, and 'Guard Interval' is 'Enable Short GI'.

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

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### 3.2 Input remote AP MAC

**WDS Bridge**

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 Detail...

RateLimit Profile: NULL Detail...

Mapping Profile: default Detail...

MAC ACL Profile: NULL Detail...

Items marked with an asterisk(\*) are required

### 3.3 The configuration in remote AP

**Basic** Advance

Basic

Radio ☒

Service Mode: WDS Bridge

TX Power: 21 dBm

Radio Mode: 802.11ac

Channel: 161

HT20 ☐ HT40 ☒ HT80 ☐

802.11ac:

802.11ac only: ☐

Spatial Stream: 2

Aggregation: AMPDU

Guard Interval: ☒ Enable Short GI

Ok Cancel

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

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- Status
- Network
- Radio
- Wireless
  - AP
  - WDS Bridge
- Security
- QoS
- Tools
- Management

WDS Bridge

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 Detail...

RateLimit Profile: NULL Detail...

Mapping Profile: default Detail...

MAC ACL Profile: NULL Detail...

Items marked with an asterisk(\*) are required

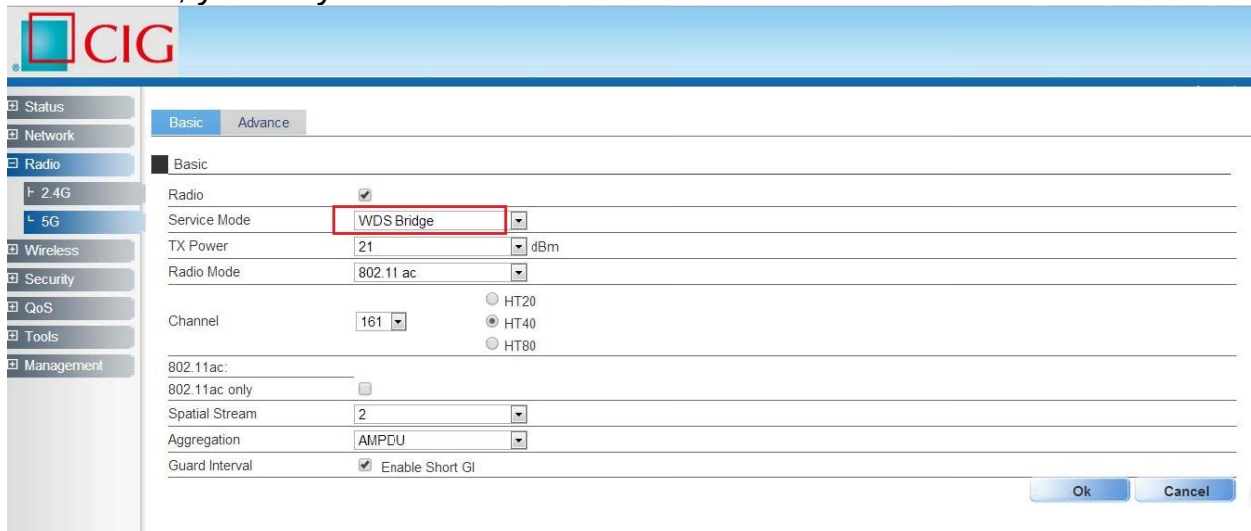
**Note:** Please input the MAC address of AP which you want to connect via WDS.

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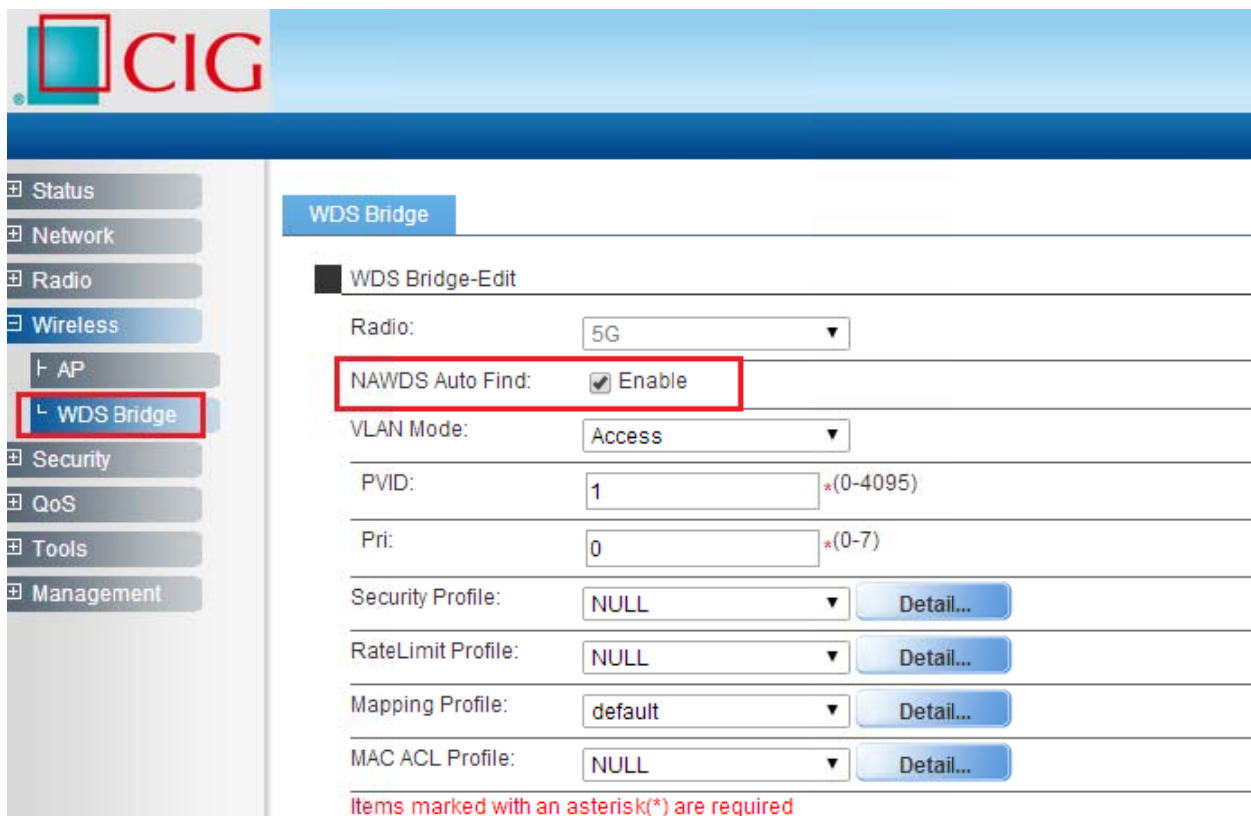
### 3.4 NAWDS Auto Find

WF-630R1 also supports “NAWDS Auto Find” function, after you configure master AP, you may enable “NAWDS Auto Find” function in slave AP.



The screenshot shows the CIG web interface with the 'Basic' tab selected. The 'Service Mode' dropdown menu is set to 'WDS Bridge' and is highlighted with a red box. Other configuration options visible include TX Power (21 dBm), Radio Mode (802.11ac), Channel (161), and HT mode (HT40 selected). The 'Enable Short GI' checkbox is checked.

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



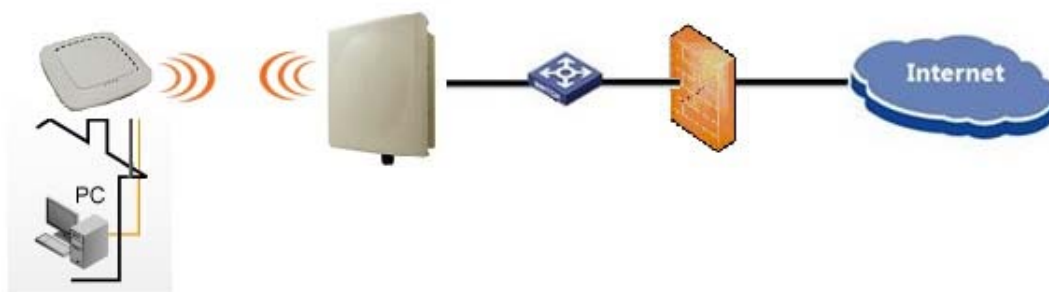
The screenshot shows the CIG web interface with the 'WDS Bridge' tab selected. The 'NAWDS Auto Find' checkbox is checked and highlighted with a red box. Other configuration options visible include Radio (5G), VLAN Mode (Access), PVID (1), and Pri (0). Security Profile, RateLimit Profile, Mapping Profile, and MAC ACL Profile are all set to NULL. A note at the bottom states: 'Items marked with an asterisk(\*) are required'.

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**Notes:** After you enable “NAWDS Auto Find” function, the AP will connect to the master AP via WDS automatically.

## 4 Station Network Topology



**Notes:** WF-630R1 supports station mode. WF-630R1 access to the AP by Wi-Fi, and provide the Ethernet access to the client by the LAN port.

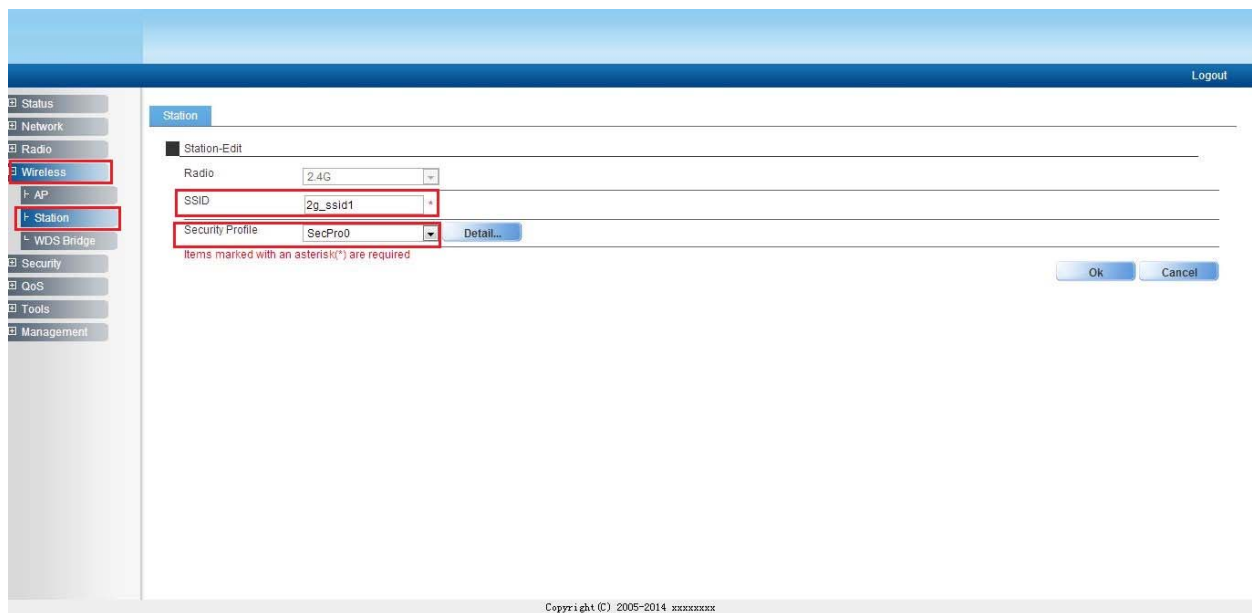
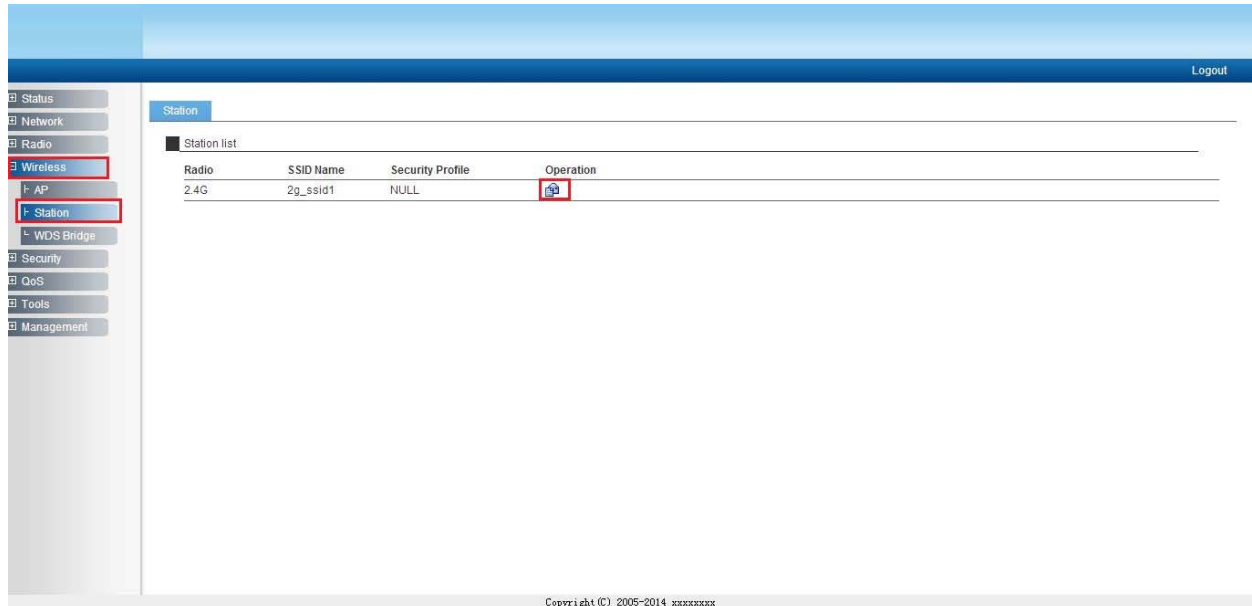
### 4.1 Configure Station mode

The screenshot shows the configuration interface for the WF-630R1 device. The left sidebar contains a menu with options: Status, Network, Radio, 2.4G, 5G, Wireless, Security, QoS, Tools, and Management. The 'Radio' option is selected and highlighted with a red box. The main area displays the 'Basic' tab of the configuration settings. The 'Service Mode' dropdown menu is set to 'Station' and is also highlighted with a red box. Other settings visible include 'TX Power' set to 21 dBm, 'Radio Mode' set to 802.11 n, and 'Channel' set to Auto. The 'HT20' and 'HT40' radio modes are also visible. The 'Ok' and 'Cancel' buttons are at the bottom right of the configuration area. The footer of the interface reads 'Copyright (C) 2005-2014 xxxxxxxx'.

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## 4.2 Station Access to AP



**Notes:** Need to configure the SSID manually. If want to use the security method, need to configure the “security profile” firstly and then cite it here.

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## 4.3 Station Status

Copyright (C) 2005-2014 xxxxxxxx

**Notes:** After WF-630R1 access to a AP successfully, can check the station status on the Web GUI, for example, the SSID and BSSID.

## 5 Troubleshooting

### 5.1 Ping Diagnose

| 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  |

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

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## 5.2 TraceRT Diagnose

**CIG**

Tools

TraceRT

Interface Select: 1\_Internet\_Port

IP Version: IPv4

IP Address/URL: www.yahoo.com

Start

Traceroute Results

| Hop | Host/IP Address | Time1    | 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 |

## 5.3 How to backup/restore setting

**CIG**

System

Region Code

Device Name: 2x2 Dualband Indoor AP

Location: Shanghai

Language: English

Country Code: US

NAS ID

NAS ID: WF-180\_CIGWe3800043

Factory Defaults

Restore Factory Configuration: Restore

Configuration Management

Backup Configuration: Save...

Import File name: choose file

Reboot Device

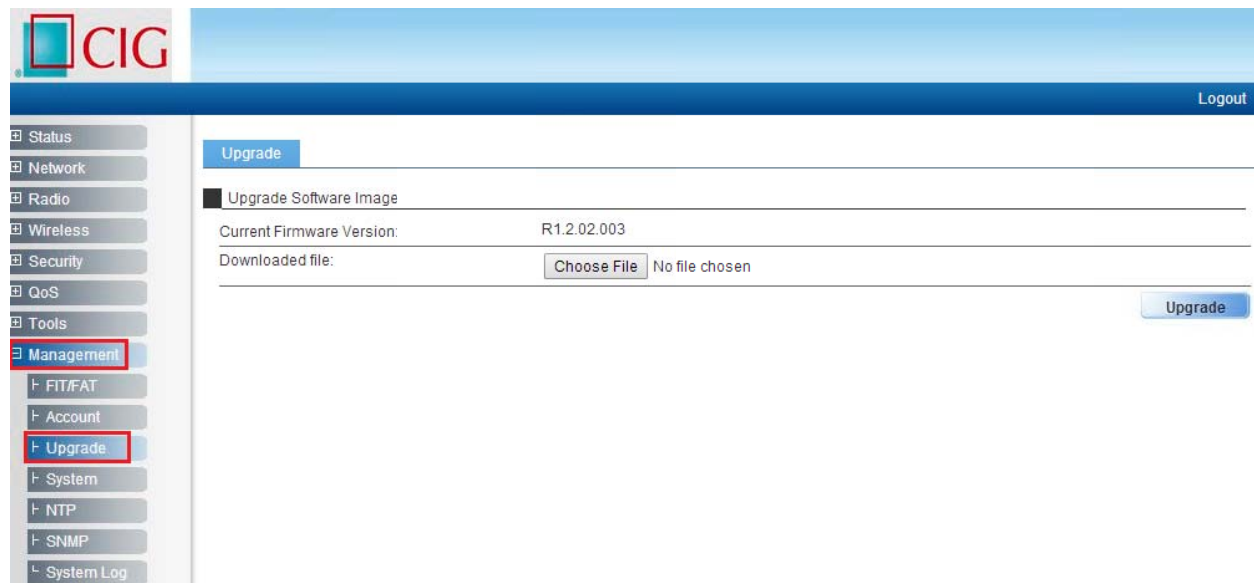
Reboot

**Notes:** Press "Save" button to save current setting. Press "Upload" button to load saved setting.

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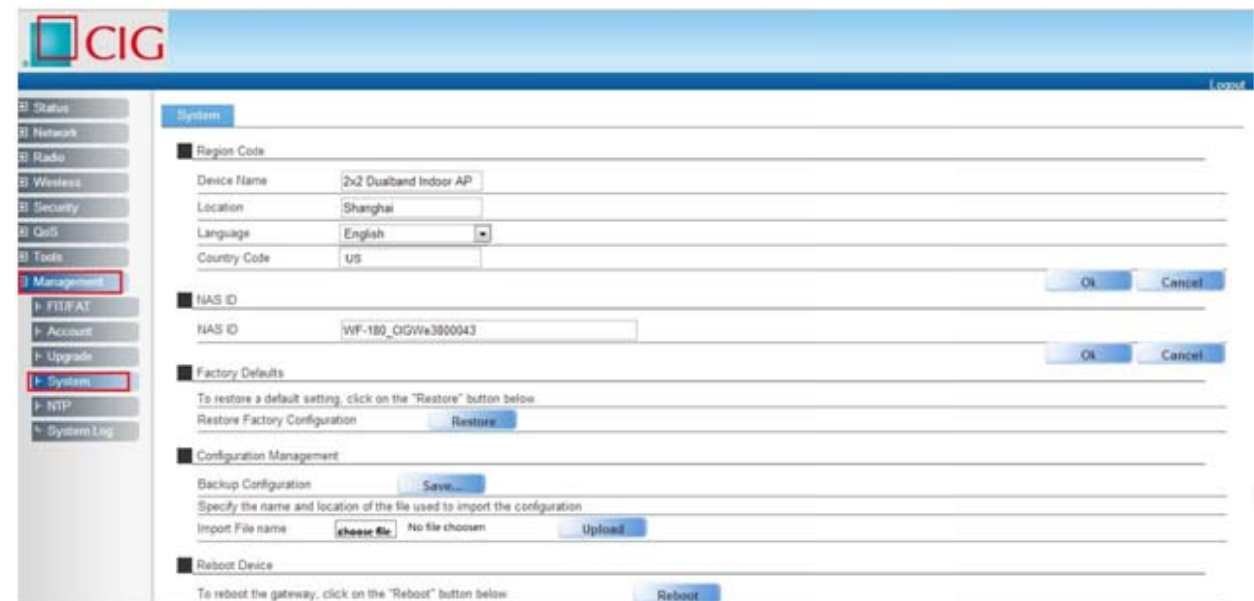
## 5.4 How to upgrade AP



The screenshot shows the CIG web interface. On the left, a sidebar contains a menu with 'Management' and 'Upgrade' highlighted. The main content area is titled 'Upgrade' and contains a section 'Upgrade Software Image'. This section displays the 'Current Firmware Version' as 'R1.2.02.003' and a 'Downloaded file' field with a 'Choose File' button and the text 'No file chosen'. An 'Upgrade' button is located at the bottom right of the main content area.

**Notes:** Press “Choose File” button to select firmware file, then press “Upgrade” button to upgrade AP.

## 5.5 How to reset AP to default setting



The screenshot shows the CIG web interface with the 'System' configuration page. The left sidebar has 'System' highlighted. The main content area contains several sections: 'Region Code' with fields for Device Name (2x2 Dualband Indoor AP), Location (Shanghai), Language (English), and Country Code (US); 'NAS ID' with a field for NAS ID (WF-180\_CIGWe3900043); 'Factory Defaults' with a 'Restore Factory Configuration' button; 'Configuration Management' with a 'Backup Configuration' button and an 'Import File name' field; and 'Reboot Device' with a 'Reboot' button. There are 'Ok' and 'Cancel' buttons for the Region Code and NAS ID sections.

**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.

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### **Federal Communications Commission (FCC) 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 generate, 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.

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.

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.

### **RF exposure warning**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 66 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter.

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