Semi-industrial LoRaWAN® Gateway

UG65

Quick Start Guide

Safety Precautions

Milesight will not shoulder responsibility for any loss or damage resulting from not following the instructions of this operating guide.

- The device must not be modeled in any way.
- Do not place the device close to objects with naked flames.
- Do not place the device where the temperature is below/above the operating range.
- Do not power on the device or connect it to other electrical device when installing.
- Check lightning and water protection when used outdoors.
- Do not connect or power the equipment using cables that have been damaged.

Related Documents

This Quick Start Guide only explains the installation of Milesight UG65 LoRaWAN® Gateway. For more functionality and advanced settings, please refer to the relevant documents as below.

Document	Description
UG65 Datasheet	Datasheet for UG65 LoRaWAN® Gateway.
UG65 User Guide	Users can refer to the guide for instruction on how to log in the web GUI, and how to configure all the settings.

The related documents are available on Milesight website: https://www.milesight.com

Declaration of Conformity

UG65 is in conformity with the essential requirements and other relevant provisions of the CE, FCC, and RoHS.

For assistance, please contact
Milesight technical support:
Email: iot.support@milesight.com
Support Portal: support.milesight-iot.com
Tel: 86-592-5085280
Fax: 86-592-5023065
Address: Building C09, Software Park III, Xiamen 361024, China

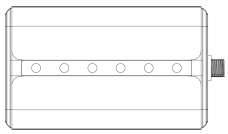
Revision History

Date	Doc Version	Description
Aug. 31, 2020	V1.0	Initial version
Nov. 24, 2020	V2.0	Layout replace
May 6, 2021	V2.1	Layout replace
Oct. 31, 2022	V 2.2	1. Delete Ethernet cable 2. Web GUI pictures update
June 7, 2024	V 2.3	Add default WLAN connection password
April 11, 2025	V 2.4	1. Remove wired access method 2. Update Wi-Fi connection and network server steps

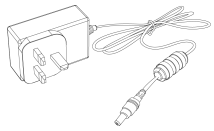
Contents

1. Packing List

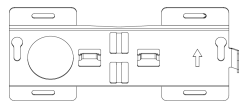
Before you begin to install the UG65 LoRaWAN® Gateway, please check the package contents to verify that you have received the items below.



1 × UG65



1 × DC Jack Power Adapter



1 × Mounting Bracket

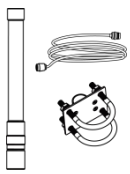
2 x Bracket Fixing Screws

4 × Wall Mounting Kits

1 × LoRaWAN® Antenna (18cm)

1 × Quick Start Guide

1 × Warranty Card



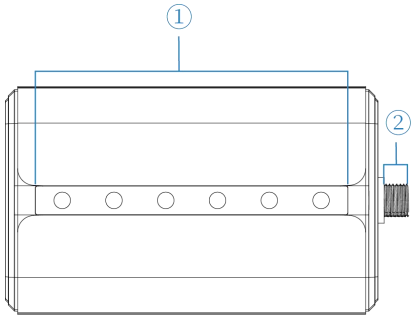
1 × 60 cm LoRaWAN® Fiber-Glass N-N Antenna Kit (Optional)

If any of the above items is missing or damaged, please contact your sales representative.

2. Hardware Introduction

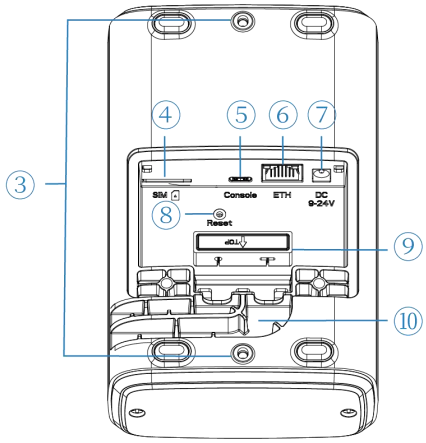
2.1 Overview

A. Front Panel



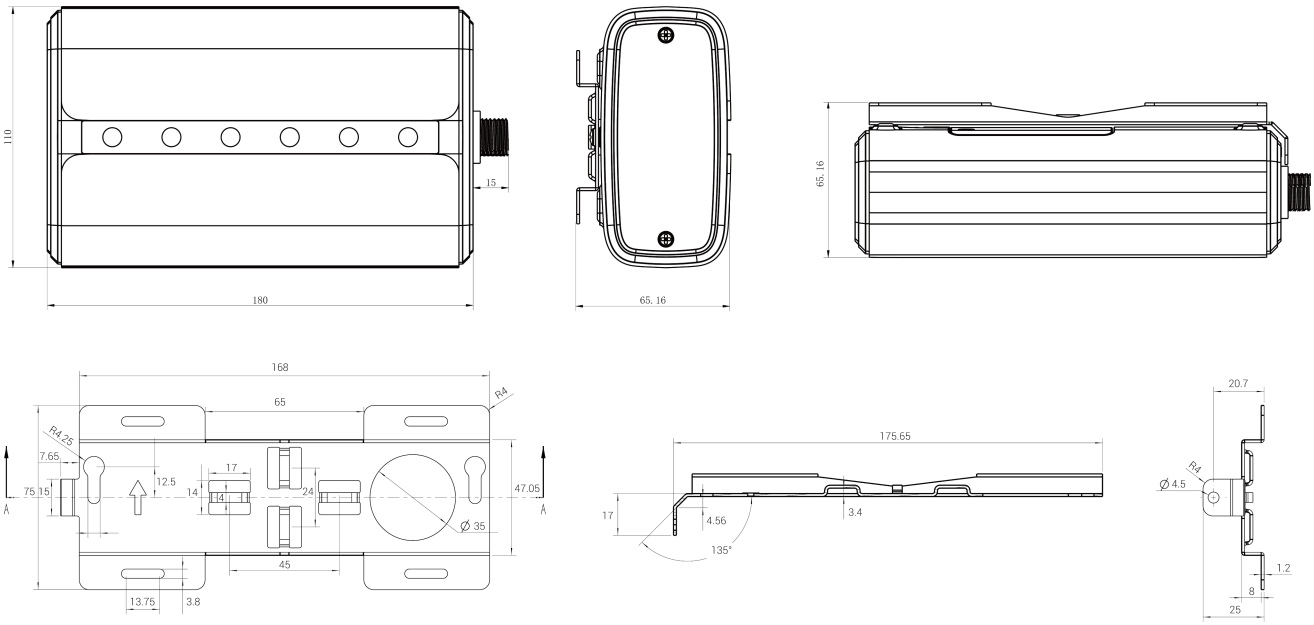
① LED Area
POWER: Power Indicator
STATUS: System Indicator
LoRa: LoRa Indicator
Wi-Fi: Wi-Fi Indicator
LTE: Cellular Indicator
ETH: Ethernet Port Indicator
② LoRaWAN® Antenna Connector (only for external antenna version)

B. Rear Panel



③ Bracket Mounting Screws
④ SIM Slot
⑤ Type-C Port
⑥ Ethernet Port (PoE)
⑦ Power Connector
⑧ Reset Button
⑨ Waterproof Silicone
⑩ Cable Groove

2.2 Dimensions (mm)



2.3 LED Indicators

LED	Indication	Status	Description
POWER	Power Status	Off	The power is switched off
		On	The power is switched on
STATUS	System Status	Blue Light	Static: the system is running properly
		Red Light	The system goes wrong
LoRa	Packet Forwarder Status	Off	Packet Forwarder mode is running off
		Blue Light	Packet Forwarder mode is running well
Wi-Fi	Wi-Fi Status	Off	Wi-Fi is disabled
		Blue Light	Wi-Fi is enabled

LTE	Cellular Status	Off	SIM card is registering or fails to register (or there are no SIM cards inserted)
		Blue Light	Blinking slowly: SIM card has been registered and is ready for dial-up
			Blinking rapidly: SIM card has been registered and is dialing up now
			Static: SIM card has been registered and dialed up successfully
ETH	Ethernet Port Status	Off	Disconnected
		Blue Light	Static: Connected

2.4 Reset Button

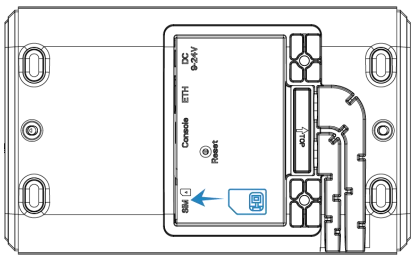
Function	Description	
	STATUS LED	Action
Reset	Static Blue	Press and hold the reset button for more than 5 seconds.
	Static Blue → Rapidly Blinking	Release the button and wait.
	Off → Static Blue	The gateway resets to factory default.

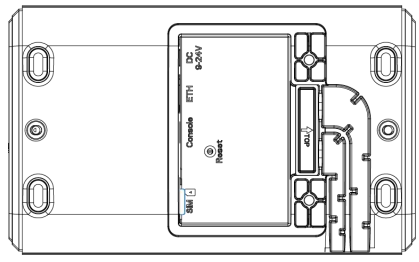
3. Hardware Installation

3.1 SIM Card Installation (Cellular Version Only)

Before inserting, ensure this gateway supports cellular feature which the PN includes "-Lxxxx" on the label.

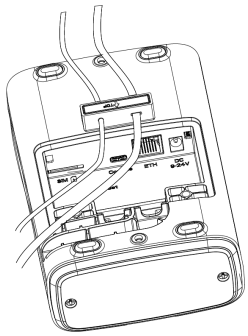
1. Use screwdriver to open the protective cover on the back panel of UG65.
2. Insert the SIM card into the device according to the direction icon on the device. If you need to take out the SIM card, press into the SIM card and it will pop up automatically.

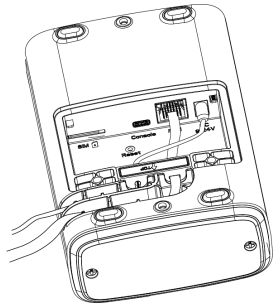




3.2 Ethernet Cable & Power Cable Installation

1. Connect the Ethernet cable and power cable to corresponding interfaces.
2. Pass two cables through the waterproof silicone and slid into the grooves.
3. Screw the protective cover back to the device.



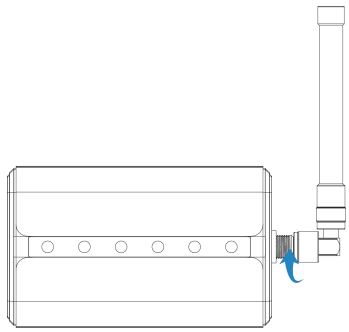


UG65 can also be powered by an 802.3af standard PoE injector or other PoE devices. If both are connected, DC power is preferred.

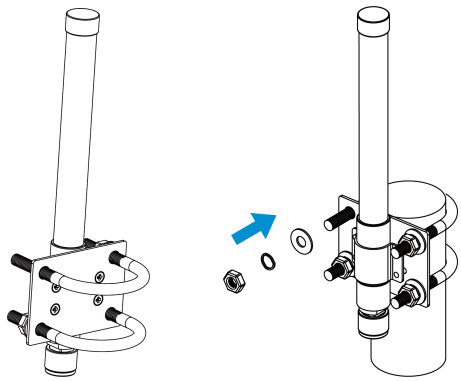
3.3 Antenna Installation

For external antenna version, rotate the antenna into the antenna connector accordingly. The external antenna should be installed vertically always on a site with a good signal.

Note: Please do not let the front panel of products faces to walls if you select embedded antenna mode.



If you use 60 cm antenna kit, fix the LoRaWAN® antenna to a pole via antenna clamp kit: pass the LoRaWAN® antenna through the antenna clamp and fix it with 4 screws, then wrap the U-bolt around a pole and fix the clamp with nuts and other accessories. After installation, connect the antenna to gateway antenna connector via the coaxial cable.



3.4 Gateway Installation

UG65 can be mounted to a wall or a pole. Before you start, make sure that your SIM card has been inserted, your antennas have been attached and all cables have been installed.

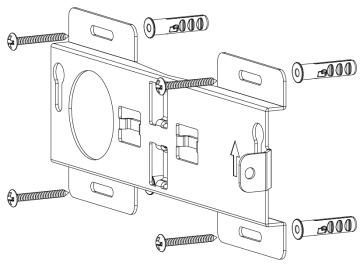
3.4.1 Wall Mounting

Preparation: mounting bracket, bracket fixing screws, wall plugs, wall mounting screws and other required tools.

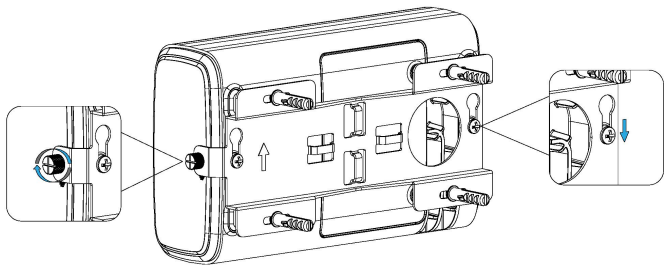
1. Align the mounting bracket horizontally to the desired position on the wall, use a marker pen to mark four mounting holes on the wall, and then remove the mounting bracket from the wall.

Note: The connecting lines of adjacent points are at right angles.

2. Drill four holes with a depth of 32 mm by using your drill with a 6 mm drill bit on the positions you marked previously on the wall.
3. Insert four wall plugs into the holes respectively.
4. Mount the mounting bracket horizontally to the wall by fixing the wall mounting screws into the wall plugs.



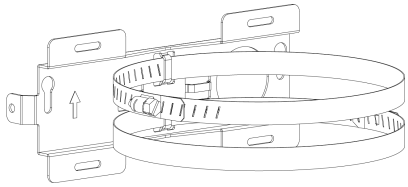
5. Screw the bracket fixing screws to the back panel of device, then hang the device to the mounting bracket on the wall.

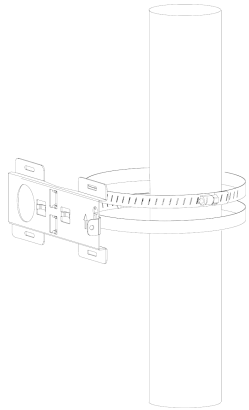


3.4.2 Pole Mounting

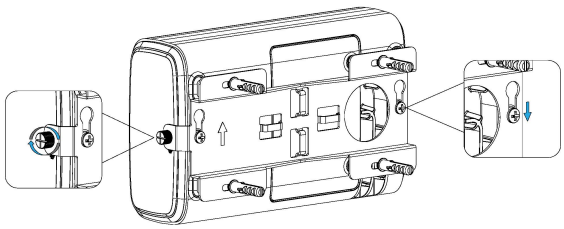
Preparation: mounting bracket, bracket fixing screws, hose clamp and other required tools.

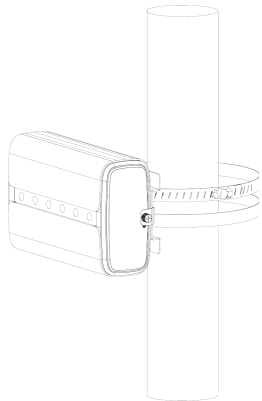
1. Loosen the hose clamp by turning the locking mechanism counter-clockwise.
2. Straighten out the hose clamp and slide it through the rectangular rings in the mounting bracket, wrap the hose clamp around the pole.
3. Use a screwdriver to tighten the locking mechanism by turning it clockwise.





4. Screw the bracket fixing screws to the back panel of device, then hang the device to the mounting bracket on the pole.





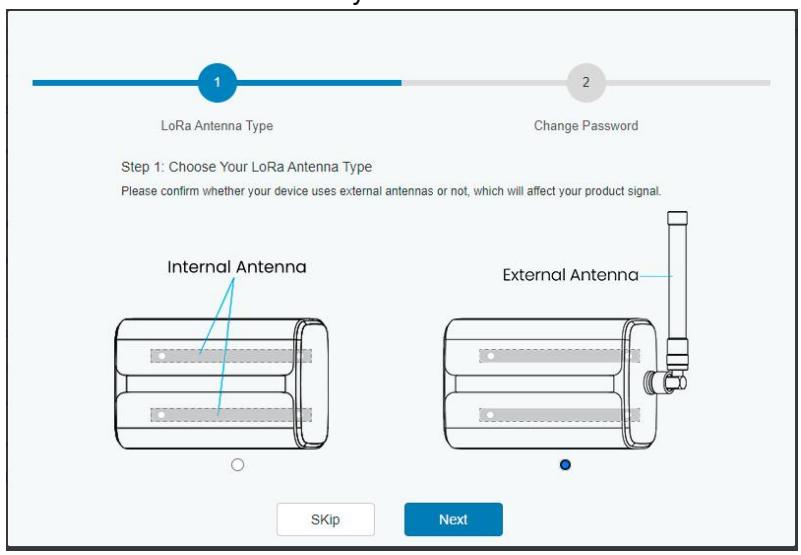
4. Login the Web GUI

UG65 provides web-based configuration interface for management. If this is the first time you configure the gateway, please use the default settings below:
Username: **admin**
Password: **password**

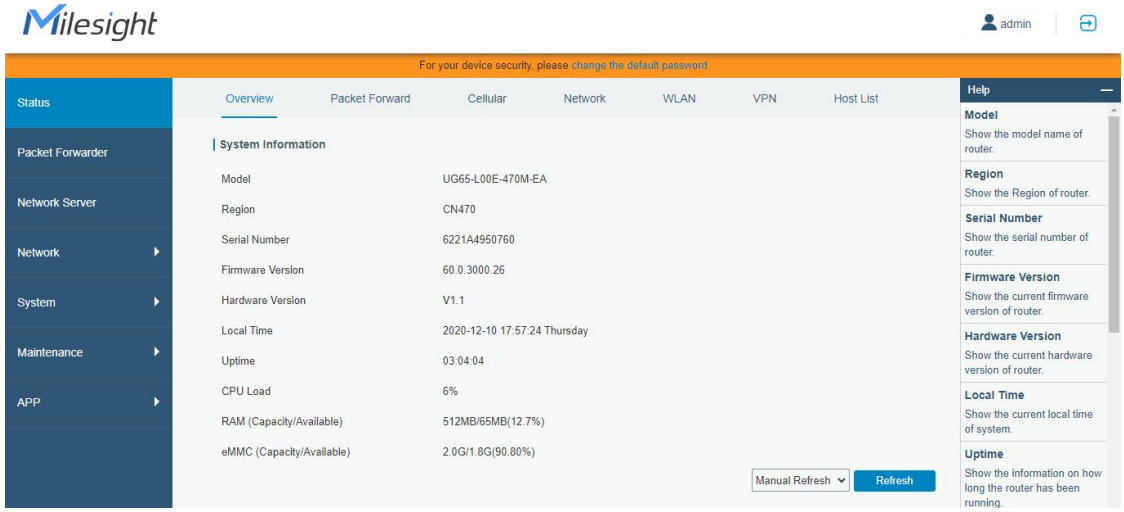
1. Enable Wireless Network Connection on your computer and search for access point "**Gateway_******" and type default password "**iotpassword**" to connect it.
2. Open a Web browser on your PC (Chrome is recommended) and type in the IP address **192.168.1.1** to access the web GUI, then enter the default username and password, click "Login".

If you enter the username or password incorrectly more than 5 times, the login page will be locked for 10 minutes.

3. After logging the web GUI, follow the guide to complete the basic configurations. It's suggested that you change the password for the sake of security.



4. You can view system information and perform configuration of the gateway.

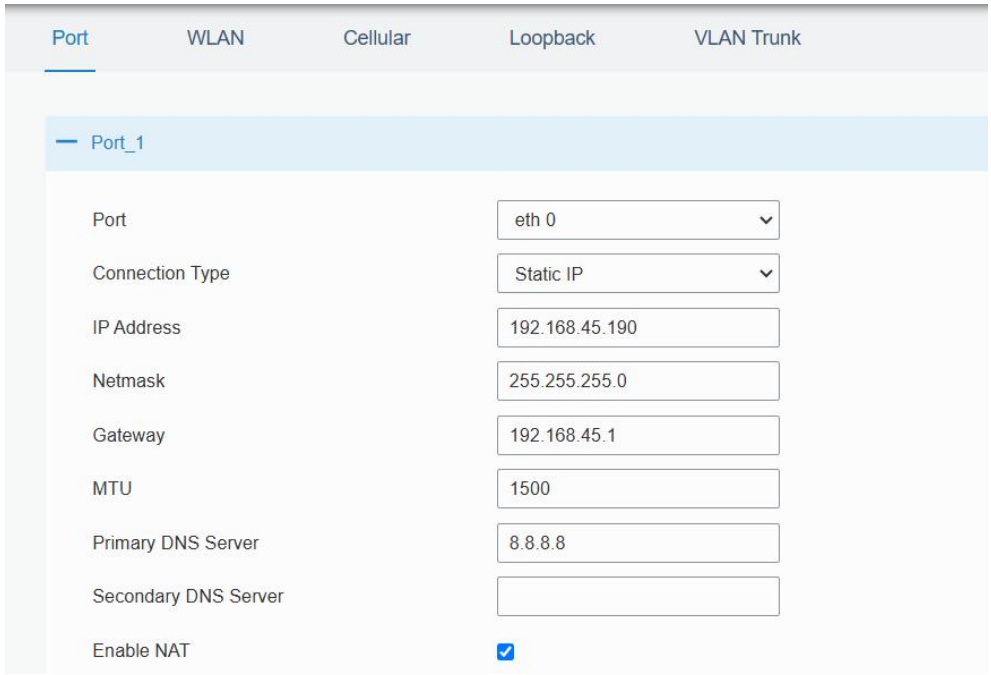


5. Network Connection

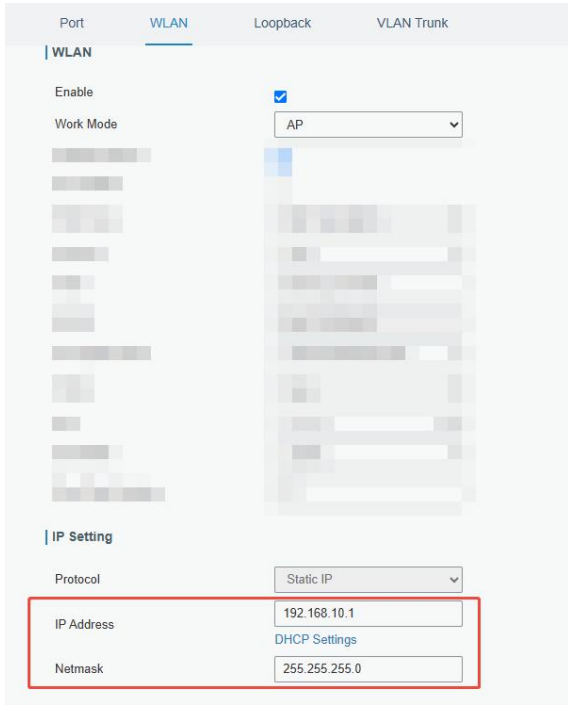
This section explains how to connect the gateway to network via WAN connection, Wi-Fi or cellular.

5.1 Configure the Ethernet Connection

1. Go to **Network > Interface > Port** page to select the connection type and configure Ethernet port information, click "Save & Apply" for changes to take effect.

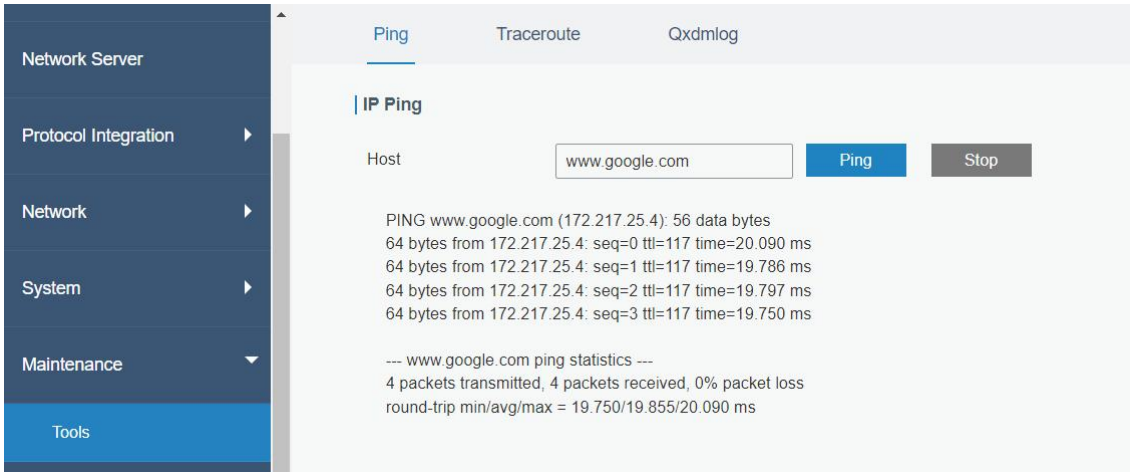


Note: If there is IP conflict when changing the IP address of Ethernet port, please change the subnet of WLAN first.



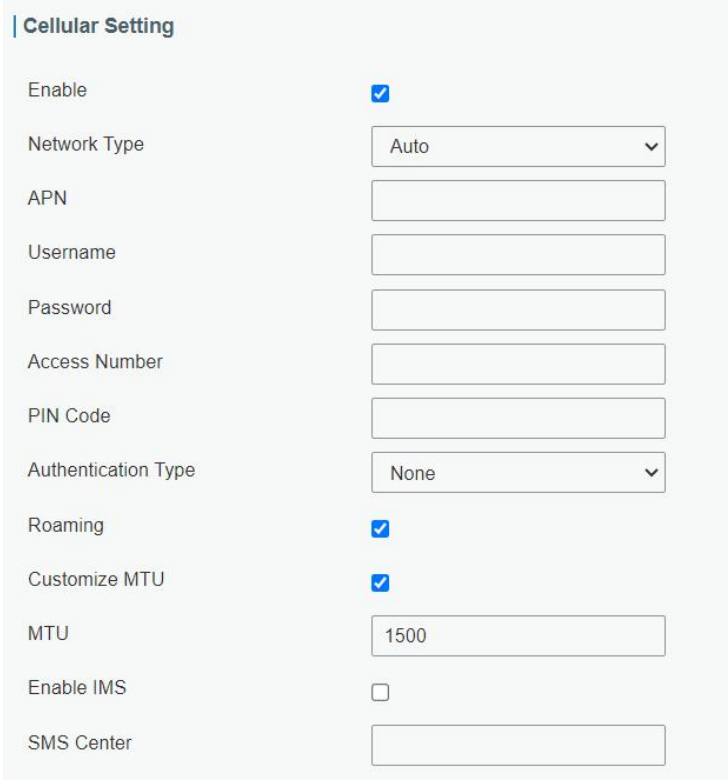
2. Connect Ethernet port of gateway to devices like router or modem.

3. Go to **Maintenance > Tools > Ping** to check network connectivity.



5.2 Configure the Cellular Connection (Cellular Version Only)

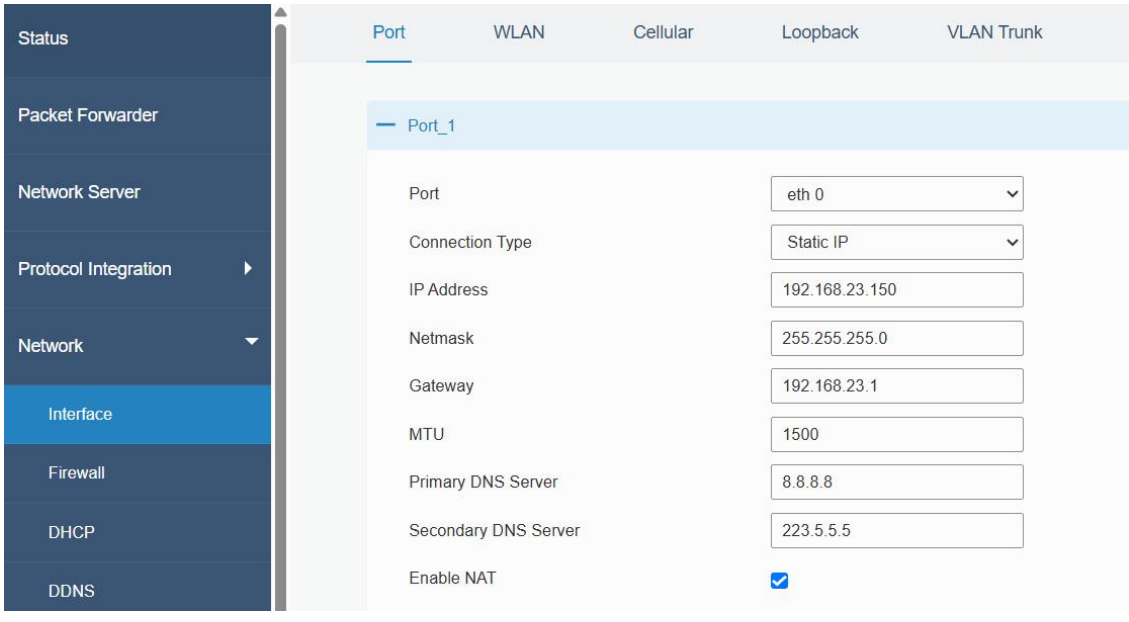
1. Go to **Network > Interface > Cellular > Cellular Setting** page to enable cellular settings and configure the necessary cellular info of the SIM card, then click “Save” and “Apply” for changes to take effect.



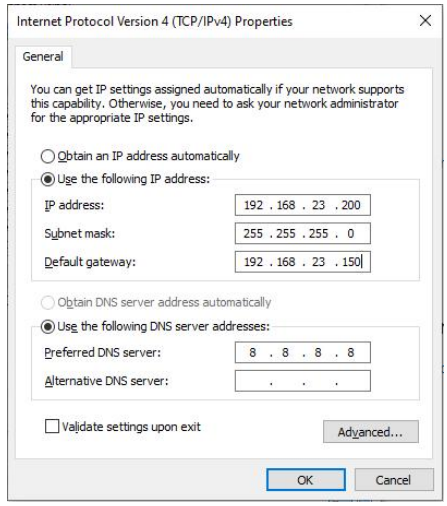
2. Go to **Status > Cellular** page to view the status of the cellular connection. If it shows “Connected”, it means the SIM has dialed up successfully. On the other hand, you can check the status of LTE indicator. If it keeps on light statically, it means SIM has dialed up successfully.

5.3 Configure the Wi-Fi Connection

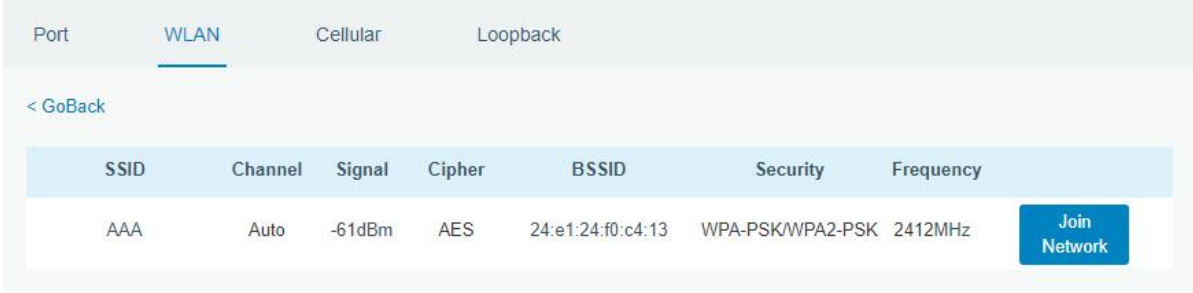
1. Go to **Network > Interface > Port** page to select connection type as **Static IP** and configure an IP address for the Ethernet WAN port.



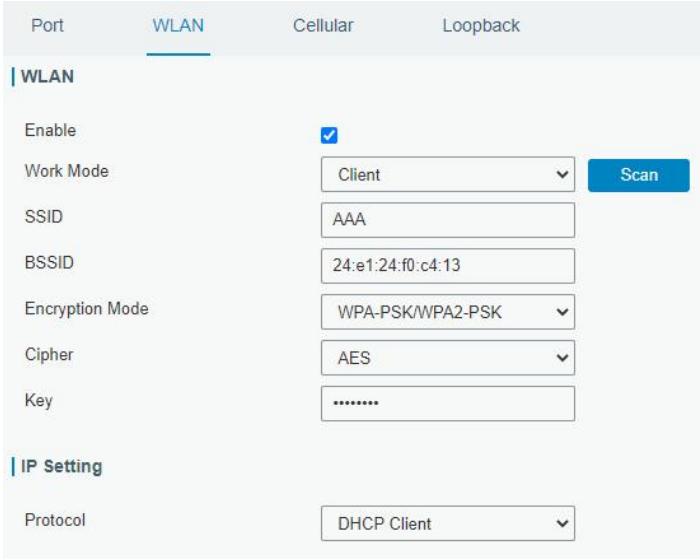
2. Connect PC to UG65 ETH port directly or through PoE injector.
3. Assign the IP address to computer manually. Take Windows 10 system as an example:



4. Open a Web browser and type in the IP address of the Ethernet port to access the web GUI.
5. Go to **Network > Interface > WLAN** and click **Scan** to search for WiFi access point.

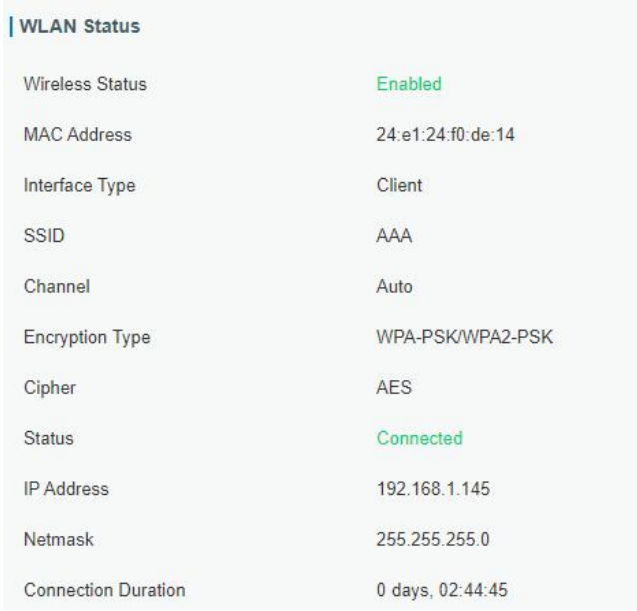


6. Select one access point and click **Join Network**, then type the password of the access point.

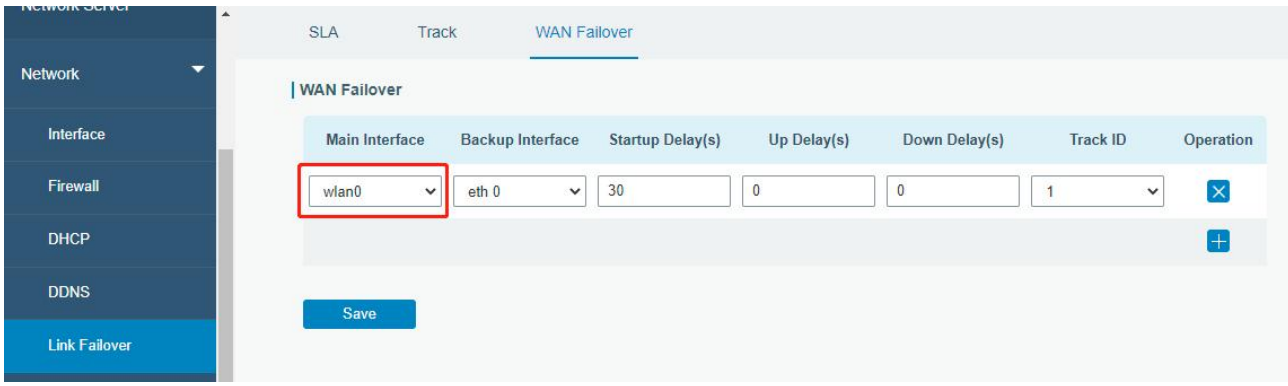


Click **Save** and **Apply** buttons after all configurations are done.

7. Go to **Status > WLAN** to check the connection status of the client. If it shows “Connected”, it means gateway connects to Wi-Fi successfully.



8. Go to **Network > Failover > WAN Failover** to switch the wlan0 as main interface, then gateway can use the Wi-Fi to access the network.

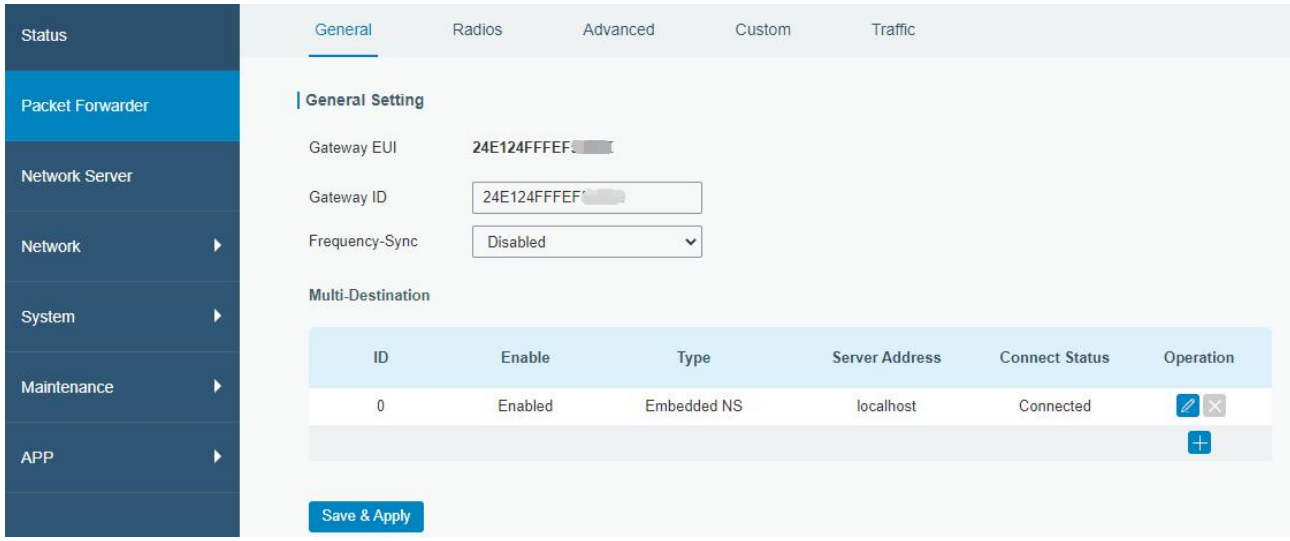


6.Packet Forwarder Configuration

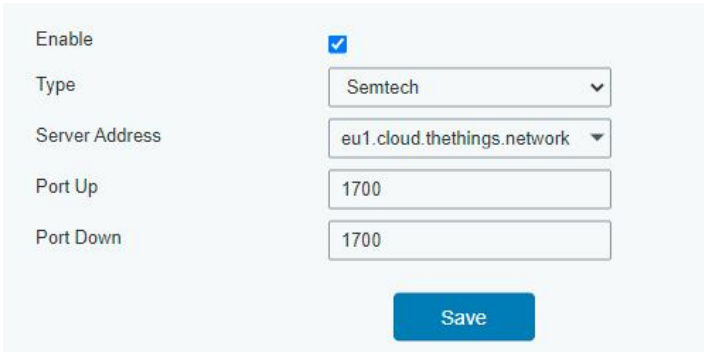
UG65 has installed multiple packet forwarders including Semtech, Chirpstack, etc. This section explains how to connect the gateway to network servers.

Make sure the gateway connects to the network as shown in Section 5.

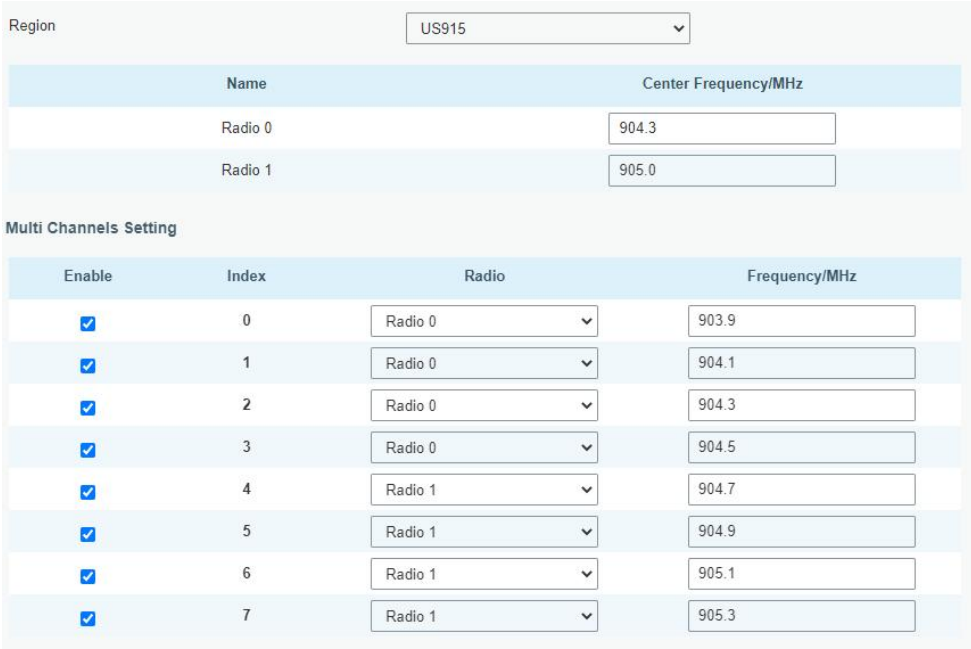
1. Go to **Packet Forwarder > General** page and click to add a network server.



2. Fill in the server information and enable this server.



3. Go to **Packet Forwarder > Radio** page to configure the center frequency and channels. The channels of the gateway and network server need to be the same.



4. Add the gateway on network server page. For more details about the network server connection please refer to Milesight IoT Support portal.

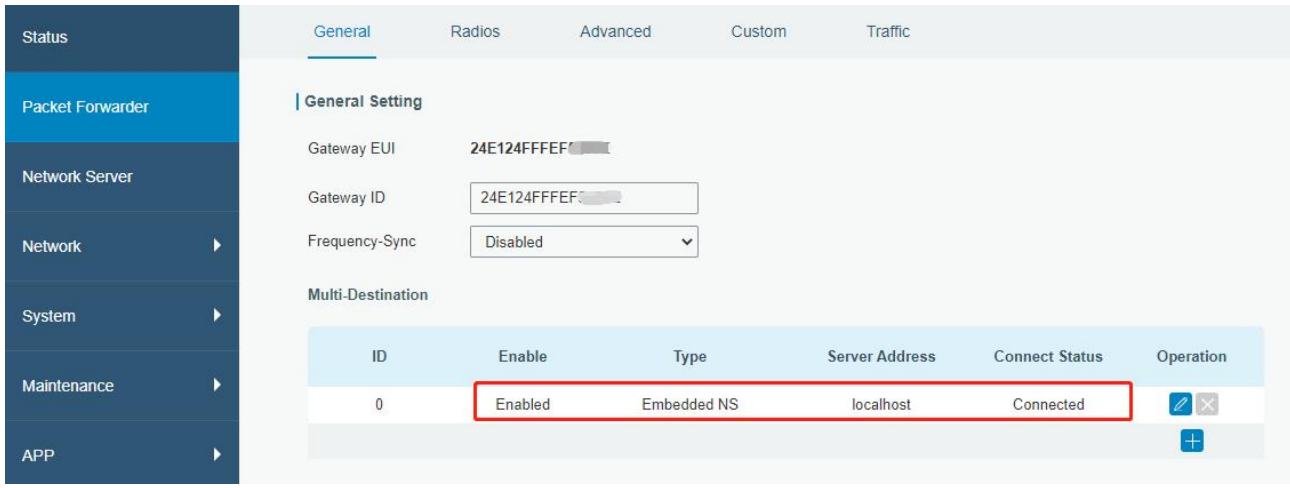
7.Network Server Configuration

The gateway can work as a LoRaWAN® network server to receive and analyze the data of LoRaWAN® end devices, and then achieve the flexible integration with different systems.

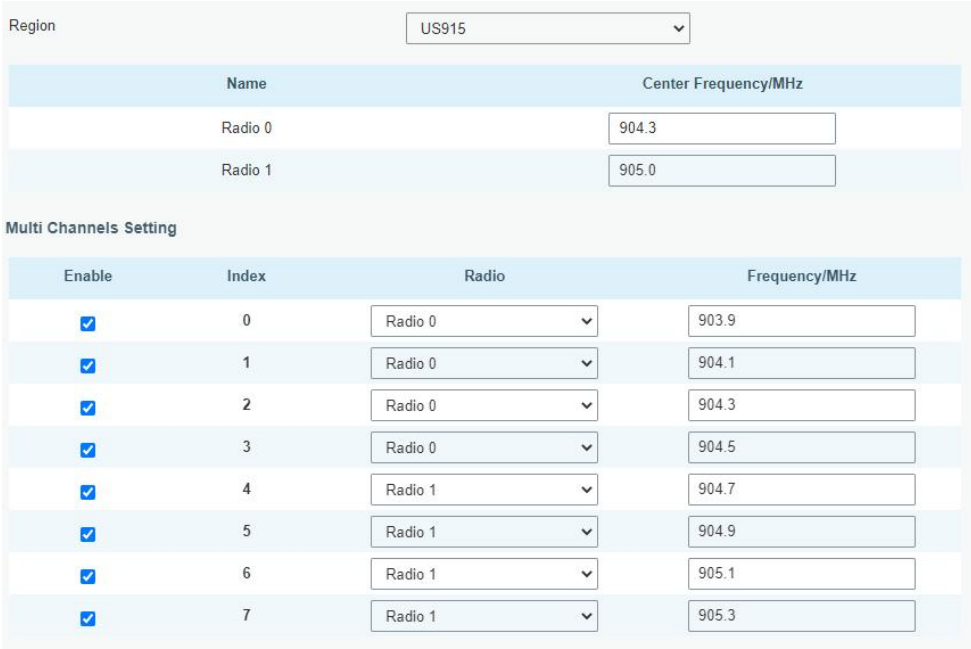
Make sure the gateway connects to the network as shown in Section 5.

7.1 Connect to Milesight IoT Cloud

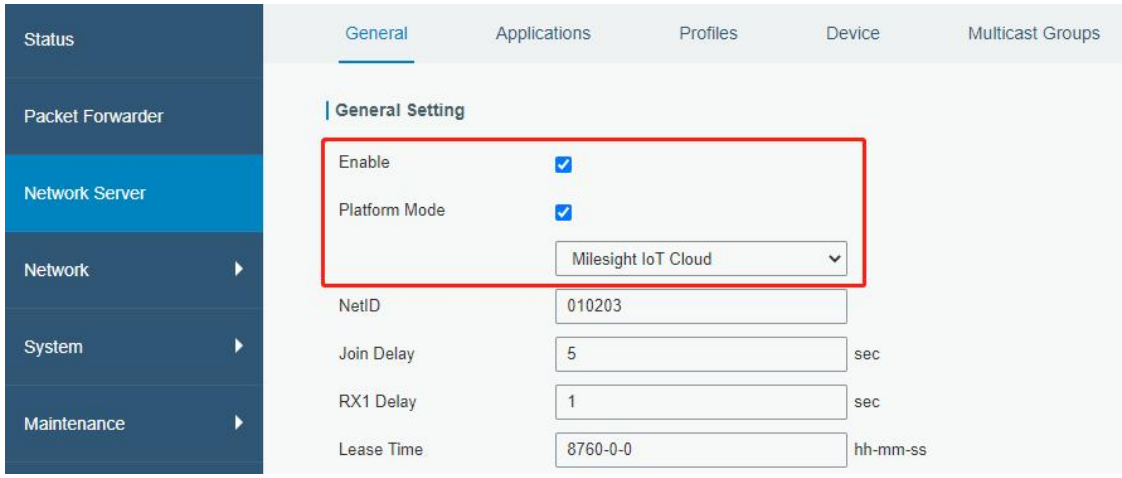
1. Go to **Packet Forwarder > General** page to enable the embedded network server.



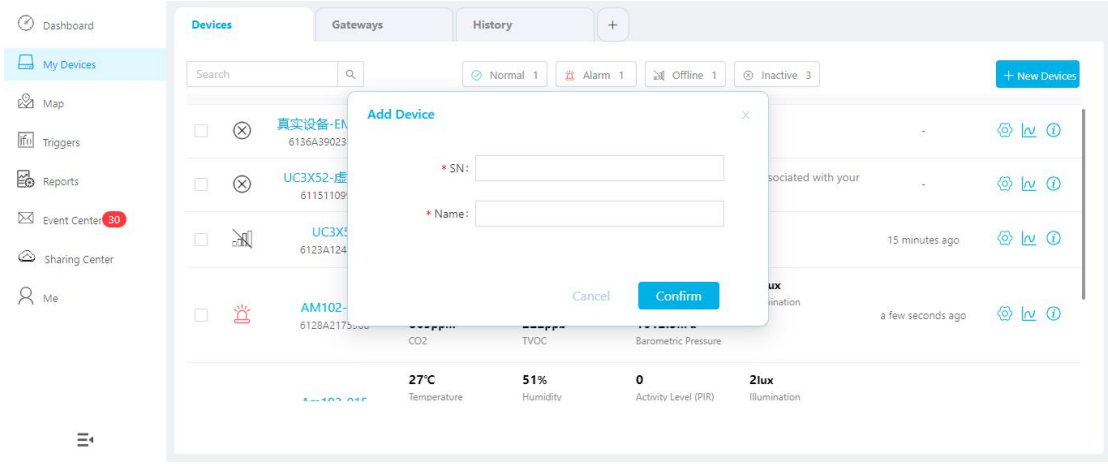
2. Go to **Packet Forwarder > Radio** page to select center frequency and channels. The channels of the gateway and the end devices need to be the same.



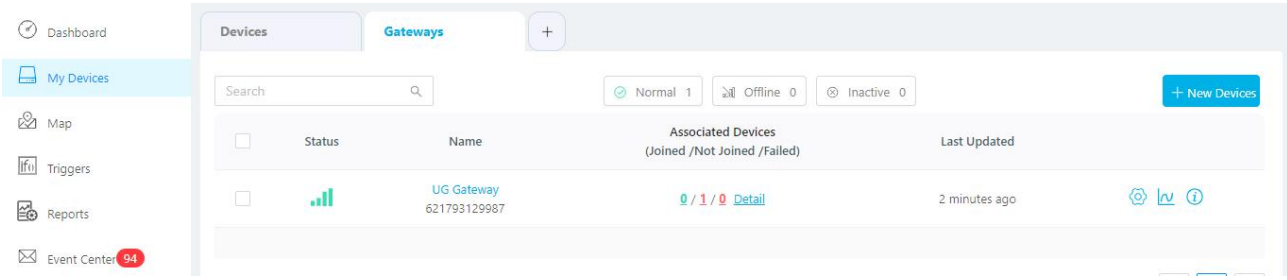
3. Go to **Network Server > General** page to enable the network server and "Milesight IoT Cloud" mode.
Note: after this mode is enabled, the other settings of network server will be not allowed to edit.



4. Log in the Milesight IoT Cloud. Then go to **My Devices** page and click "+New Devices" to add gateway to Milesight IoT Cloud via SN. Gateway will be added under "Gateways" menu.

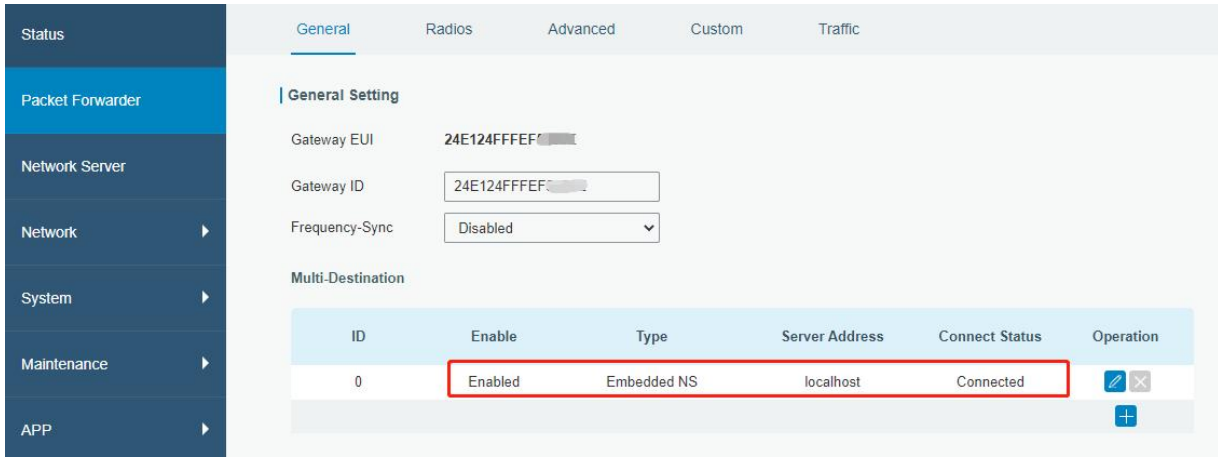


5. The gateway is online on Milesight IoT Cloud.

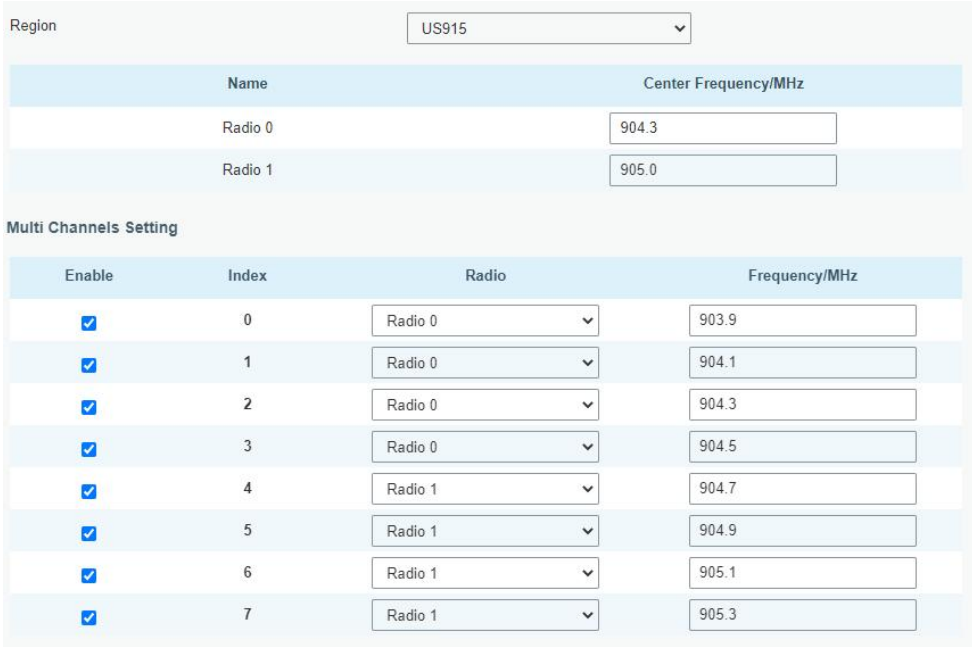


7.2 Add End Devices

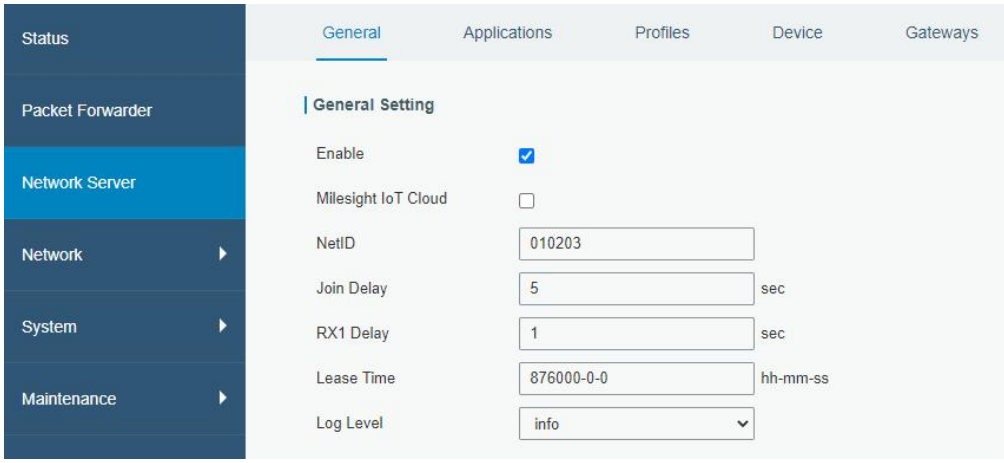
1. Go to **Packet Forwarder > General** page to enable the embedded network server.



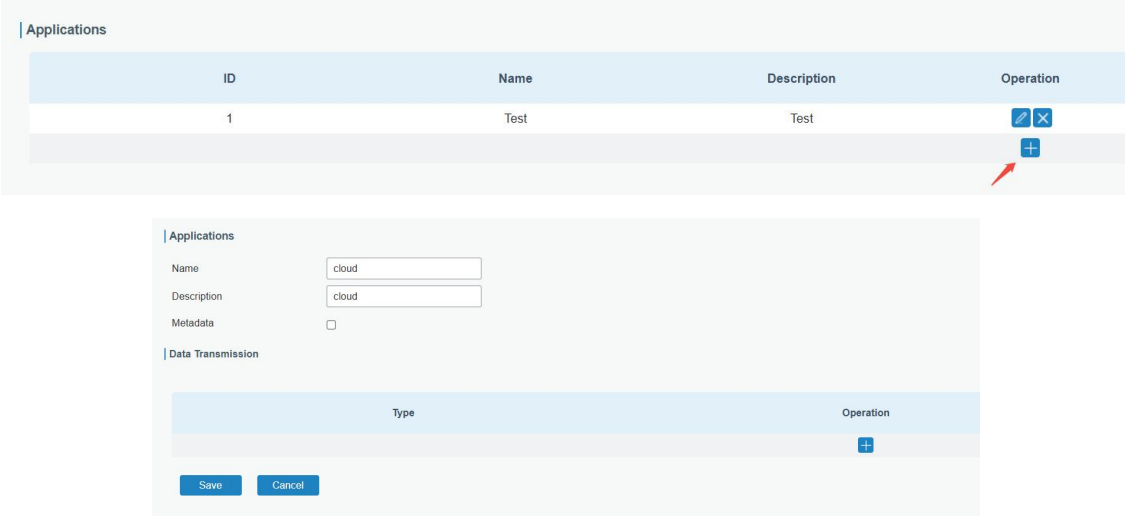
2. Go to **Packet Forwarder > Radio** page to select the center frequency and channels. The channels of the gateway and the end devices need to be the same.



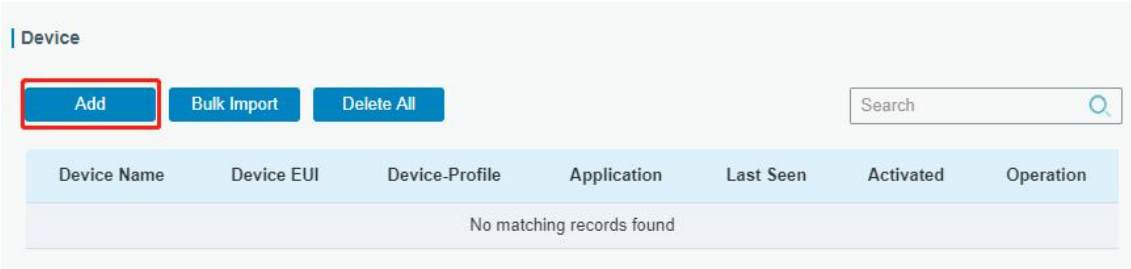
3. Go to **Network Server > General** page to enable the network server mode.



4. Go to **Network Server > Application** to add a new application.

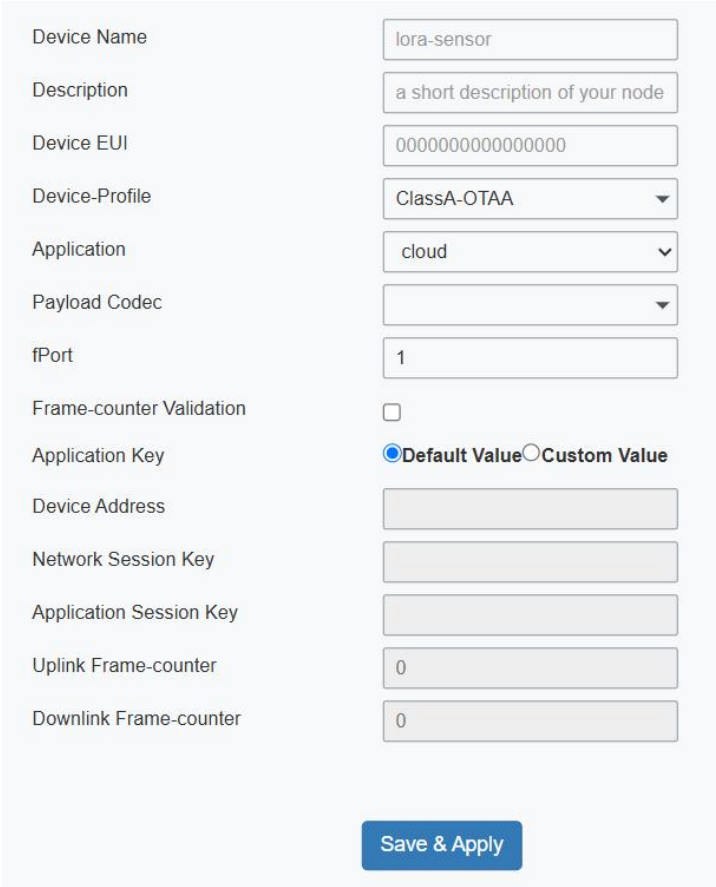


5. Go to **Network Server > Device** page and click **Add** to add a LoRaWAN® end device. You can also click **Bulk Import** to use template to add bulk devices at once.

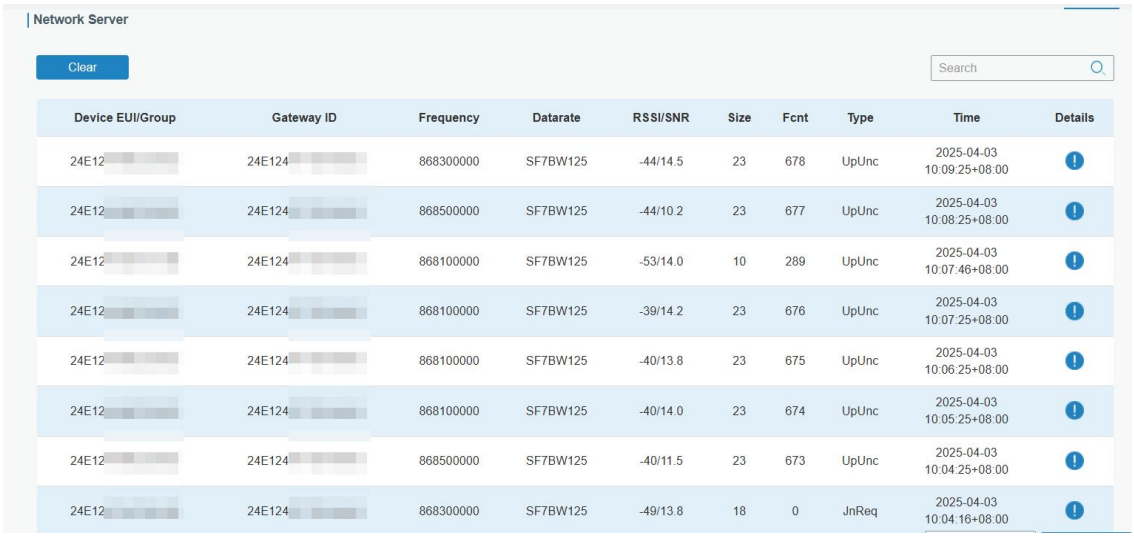


6. Fill in the information of the end device and click **Save&Apply**. The information can be found on the end device's configuration page or from manufacturer's manuals. Here are the default settings of Milesight end devices:

- Device EUI: this can be found on the device.
- Device-Profile: OTAA type files
- Payload Codec: select the model
- fPort: 85
- Application Key: select Default Value. If you use random keys, please select Custom Value.

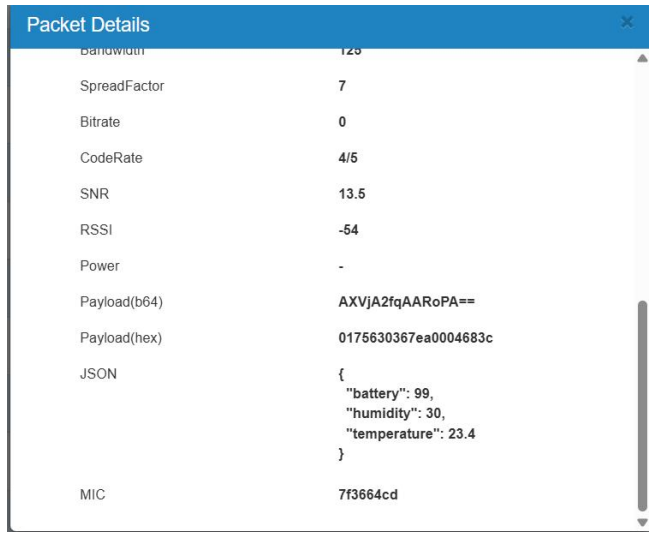


7. Go to **Network Server > Packets** page to check the packets from LoRaWAN® end devices. The type starts from "Up" means uplinks and "Dn" means downlinks.



Device EUI/Group	Gateway ID	Frequency	Datarate	RSSI/SNR	Size	Fcnt	Type	Time	Details
24E12	24E124	868300000	SF7BW125	-44/14.5	23	678	UpUnc	2025-04-03 10:09:25+08:00	
24E12	24E124	868500000	SF7BW125	-44/10.2	23	677	UpUnc	2025-04-03 10:08:25+08:00	
24E12	24E124	868100000	SF7BW125	-53/14.0	10	289	UpUnc	2025-04-03 10:07:46+08:00	
24E12	24E124	868100000	SF7BW125	-39/14.2	23	676	UpUnc	2025-04-03 10:07:25+08:00	
24E12	24E124	868100000	SF7BW125	-40/13.8	23	675	UpUnc	2025-04-03 10:06:25+08:00	
24E12	24E124	868100000	SF7BW125	-40/14.0	23	674	UpUnc	2025-04-03 10:05:25+08:00	
24E12	24E124	868500000	SF7BW125	-40/11.5	23	673	UpUnc	2025-04-03 10:04:25+08:00	
24E12	24E124	868300000	SF7BW125	-49/13.8	18	0	JnReq	2025-04-03 10:04:16+08:00	

Click **Details** to check the properties and payload contents of packets.



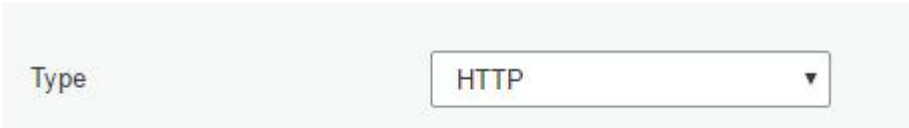
7.3 Connect to MQTT/HTTP Server

The gateway supports choosing the data transport protocol to send the data of device within this application to third-party servers. One application supports to add a MQTT transmission or a HTTP (HTTPS) transmission at most.

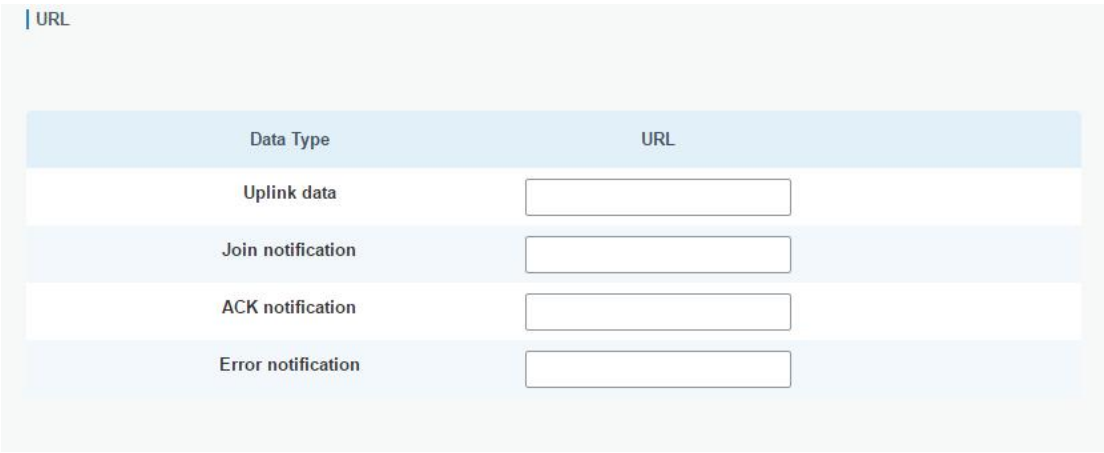
1. Go to **Network Server > Application** to select the application to edit.
2. Click  to add a data transmission type.

HTTP or HTTPS:

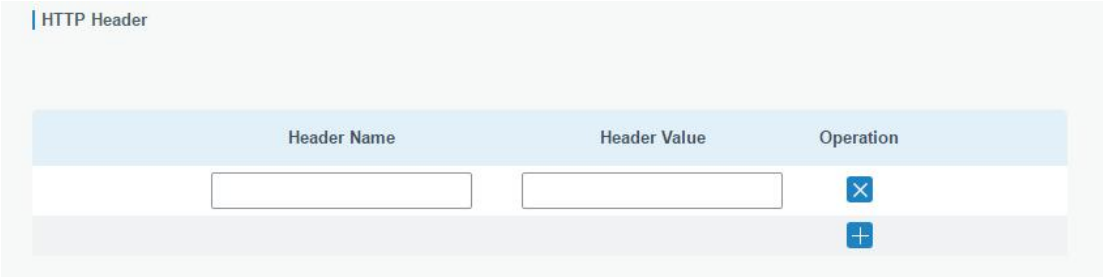
Step 1: select HTTP or HTTPS as transmission protocol.



Step 2: Enter the destination URL. Different types of data can be sent to different URLs.



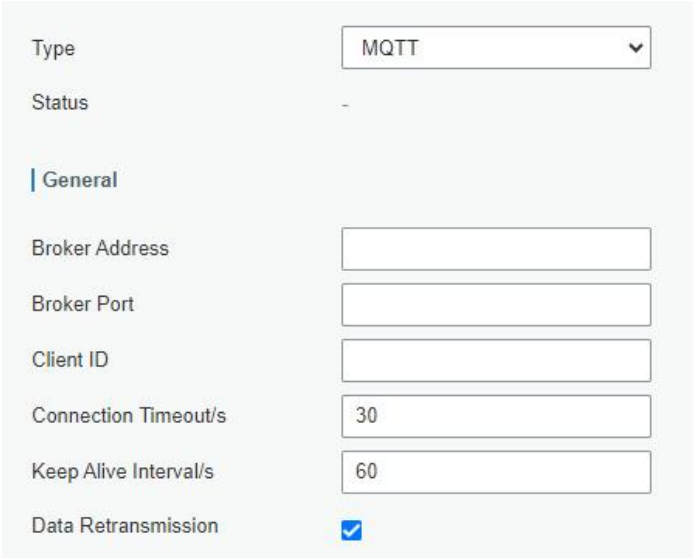
Enter the header name and header value if there is user credentials when accessing the HTTP(s) server.



MQTT：

Step 1: select the transmission protocol as MQTT.

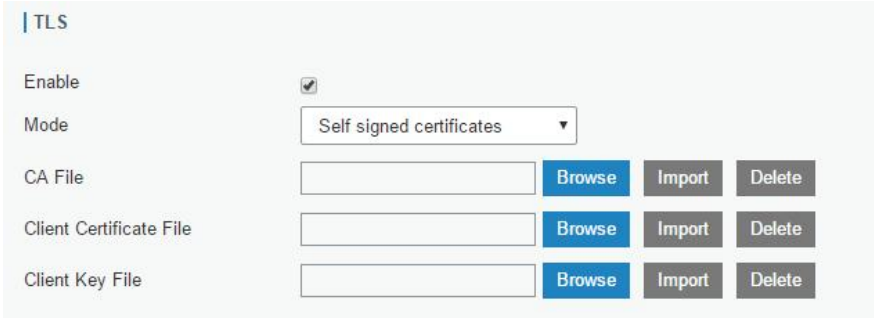
Step 2: Fill in MQTT broker general settings.



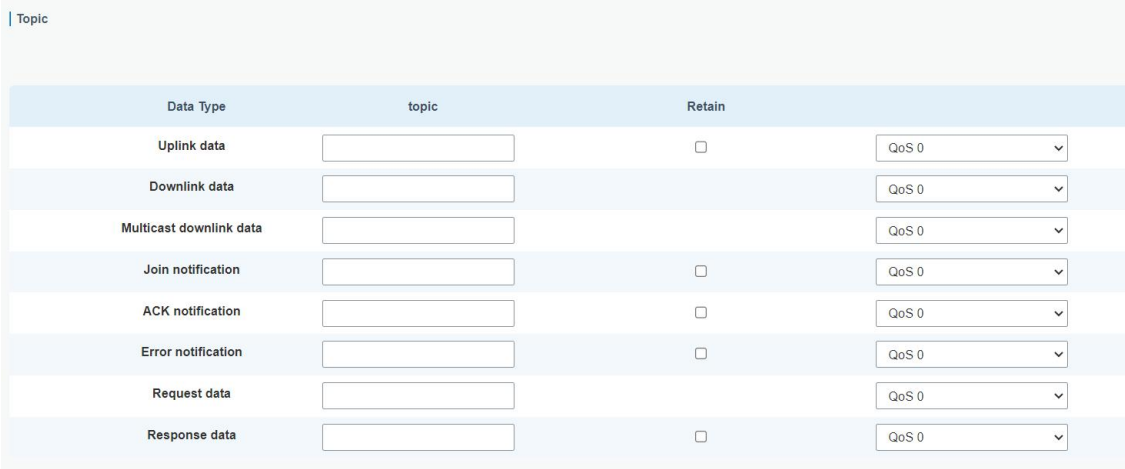
Step 3: Select the authentication method required by the server.

If you select user credentials for authentication, you need to enter the username and password for authentication.

If certificate is necessary for verification, please select mode and import CA certificate, client certificate and client key file for authentication.



Step 4: Enter the topics to receive data or send downlinks, and choose the QoS.



[END]