Outdoor LoRaWAN® Gateway

UG67

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

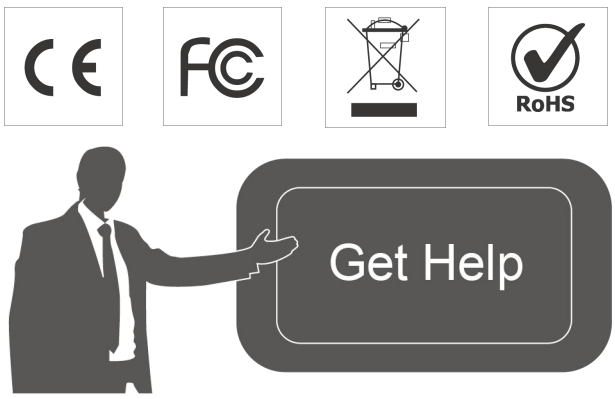
This Quick Start Guide only explains the installation of Milesight UG67 LoRaWAN® Gateway. For more functionality and advanced settings, please refer to the relevant documents as below.

Document	Description
UG67 Datasheet	Datasheet for UG67 LoRaWAN® Gateway.
UG67 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-iot.com

Declaration of Conformity

UG67 is in conformity with the essential requirements and other relevant provisions of the CE, FCC, and RoHS.



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Revision History

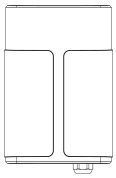
Date	Doc Version	Description
October 30, 2020	V1.0	Initial version
May 6, 2021	V1.1	Delete optional mark of LoRa antennas, add DC pinouts
July 29, 2021	V1.2	Add antenna accessories and installation method
Oct. 31, 2022	V1.3	1. Delete Ethernet cable 2. Web GUI pictures update
March 6, 2023	V1.4	1. Add short mounting backboard installation 2. Update antenna installation method, delete embedded antenna description
June 7, 2024	V1.5	1. Add cable gland plug accessory 2. Add default WLAN password
April 1, 2025	V1.6	1. Remove wired access method 2. Update Wi-Fi connection and network server steps 3. Dust covers and cable gland are installed to gateway by default 4. Update gateway installation steps 5. Add weather protection and lightning protection

Contents

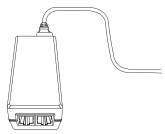
1. Packing List 5
2. Hardware Introduction 5
2.1 Overview 5
2.2 DC Power Connector 6
2.3 LED Indicators 6
2.4 Reset Button 7
2.5 Dimensions (mm) 7
3. Hardware Installation 7
3.1 SIM Card Installation (Cellular Version Only) 7
3.2 Cable Installation 8
3.3 Power Supply 9
3.4 Gateway Installation 9
3.4.1 Wall Mounting 9
3.4.2 Pole Mounting 10
3.5 Antenna Installation 12
3.6 Weather Protection 13
3.7 Lightning Protection 14
4. Login the Web GUI 15
5. Network Connection 16
5.1 Configure the Ethernet Connection 16
5.2 Configure the Cellular Connection (Cellular Version Only) 17
5.3 Configure the Wi-Fi Connection 18
6.Packet Forwarder Configuration 21
7.Network Server Configuration 22
7.1 Connect to Milesight IoT Cloud 22
7.2 Add End Devices 24
7.3 Connect to MQTT/HTTP Server 27

1. Packing List

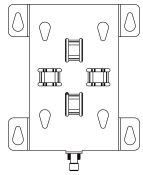
Before you begin to install the UG67 LoRaWAN® Gateway, please check the package contents to verify that you have received the items below.



1 × UG67



1 × PoE Injector

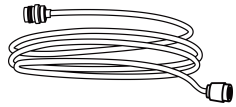


1 × Mounting Bracket

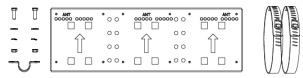
4 × Wall Mounting Kits

2 × LoRaWAN® Antennas (60 cm)

1 × M12 DC Power Cable (30cm)



1 × Antenna Coaxial Cable (1m)



1 × Short Mounting Backboard Kit

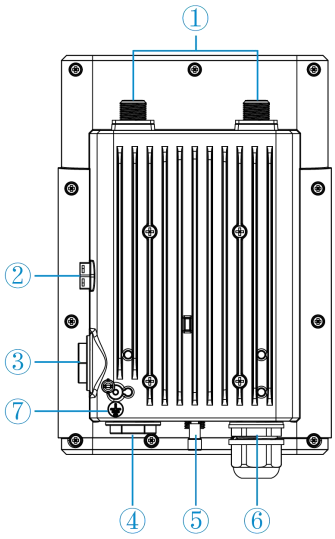
1 × Warranty Card

1 × Quick Start Guide

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

2. Hardware Introduction

2.1 Overview



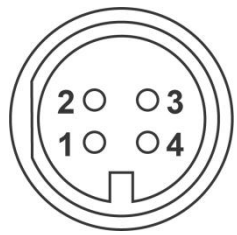
① LoRaWAN® Antenna Connectors
② Vent Plug
③ SIM Slot
④ LED Area & Type-C Port & Reset Button
SYS: System Indicator
LoRa: LoRa Indicator
LTE: Cellular Indicator
⑤ DC Power Connector (Solar Connector)
⑥ Ethernet Port (PoE)
⑦ Grounding Stud

Assembly Part (Already Mounted)	Torque
 LED/Interface Cover (Clear)	0.7 N.m
 SIM Dust Cover (Black)	0.7 N.m
 Cable Gland	1.1 N.m

2.2 DC Power Connector

UG67 supports 6-12 V or solar supply via M12 connector.

Pin	Cable Color	Description
1	Black	GND
2	White	Reserved
3	Yellow	Reserved
4	Red	+12V



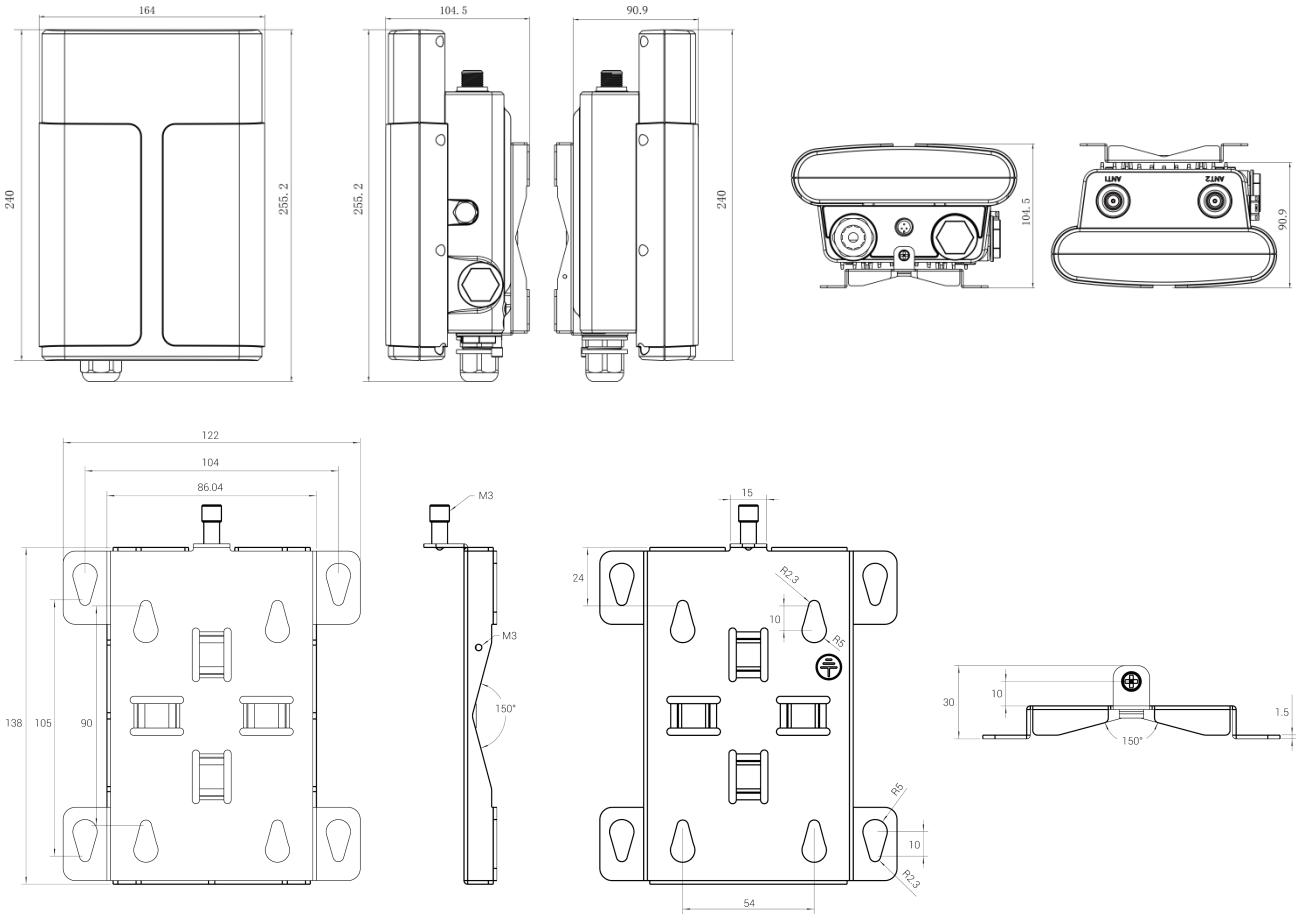
2.3 LED Indicators

LED	Indication	Status	Description
SYS	System Status	Green Light	Static: the system is running properly
		Red Light	The system goes wrong
LoRa	Packet Forwarder Status	Off	Packet Forwarder mode is running off
		Green Light	Packet Forwarder mode is running well
LTE	Cellular Status	Off	SIM card is registering or fails to register (or there are no SIM cards inserted)
		Green 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

2.4 Reset Button

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

2.5 Dimensions (mm)



3. Hardware Installation

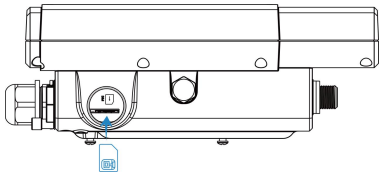
3.1 SIM Card Installation (Cellular Version Only)

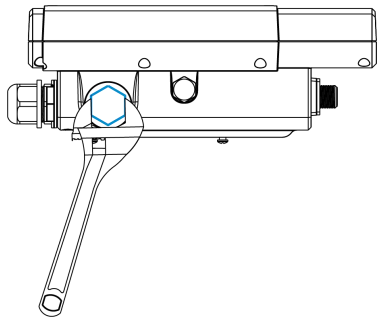
Before inserting, ensure this gateway supports cellular feature which the PN includes “-Lxxxx” on the label.

1. Loose the SIM dust cover from the gateway with the wrench.

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. Tighten the SIM dust cover with wrench to prevent water into the device.

Note: Ensure the tightening torque is not more than 1.6 N.m.





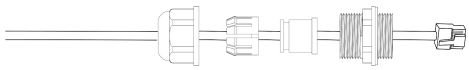
3.2 Cable Installation

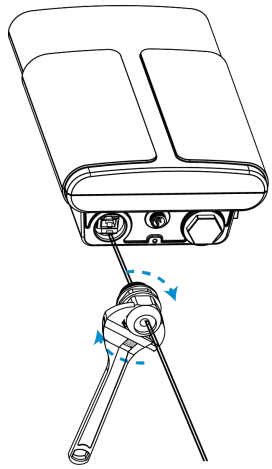
Ethernet Cable

When this gateway is powered by PoE or provided the network by the Ethernet Port, please install the Ethernet cable.

1. Loose the cable gland from the gateway with the wrench.
2. Separate the cable gland and remove the plug inside it.
3. Pass the Ethernet cable through the cable gland and rotate the cable gland to gateway, then tighten the cable gland with wrench to prevent water into the device.

Note: Ensure the tightening torque is not more than 1.6 N.m.

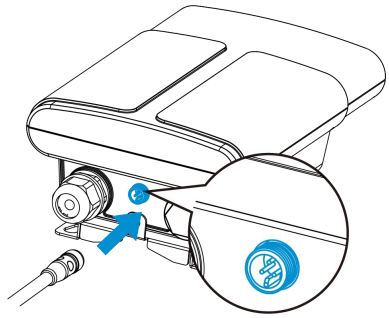




Power Cable

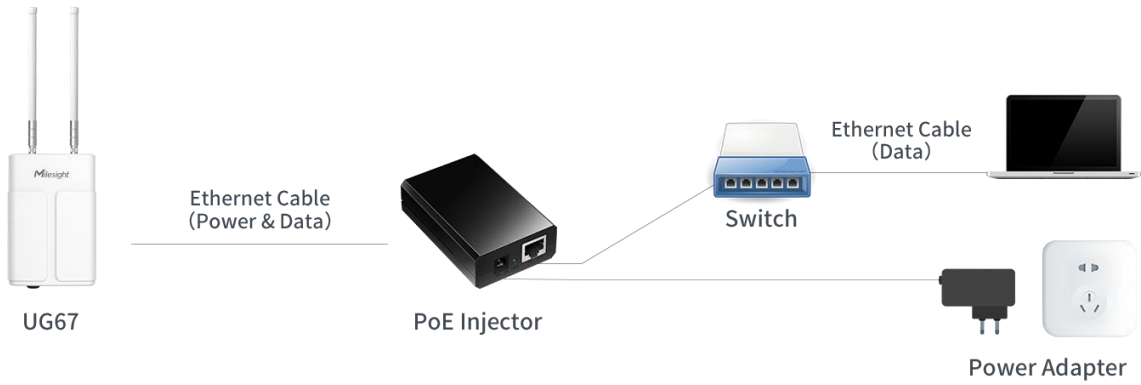
When this gateway is powered by solar or DC 6-12V, please install the power cable.

1. Remove the protective cap of power connector, rotate the DC power cable into the power connector.
2. Tighten the power cable to the power connector by hand.



3.3 Power Supply

UG67 can be powered by 802.3af standard PoE or 6-12VDC. Please follow the picture to provide power supply via PoE injector:



3.4 Gateway Installation

UG67 can be mounted to a wall or a pole. Before you start, make sure that your SIM card has been inserted and all cables have been installed.

Note: Do not connect device to power supply or other devices when installing.

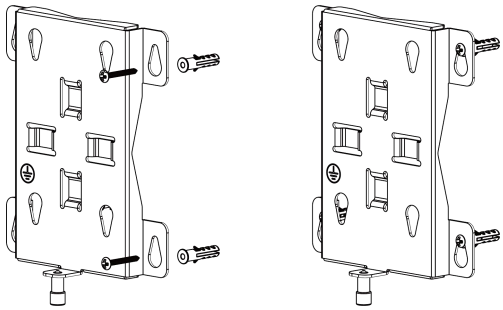
3.4.1 Wall Mounting

Preparation: mounting bracket (with a screw), wall plugs, wall mounting screws and other required tools.

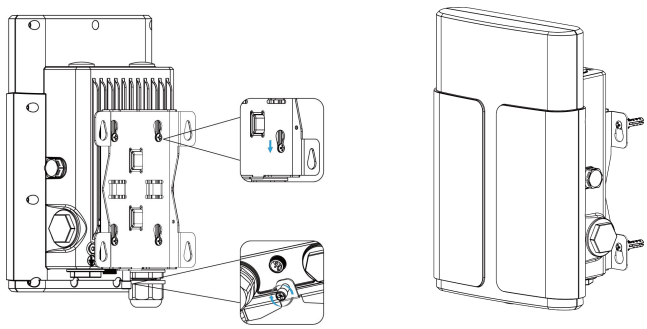
1. Align the mounting bracket horizontally to the desired position on the wall, use a marker pen to mark four mounting holes on the wall, and then remove the mounting bracket from the wall.

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

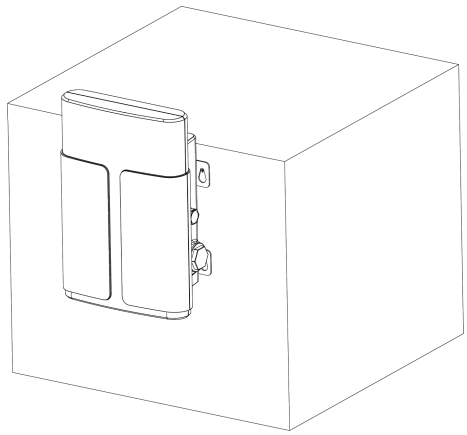
2. Drill four holes with a depth of 32 mm by using your drill with a 6 mm drill bit on the positions you marked previously on the wall.
3. Insert four wall plugs into the holes respectively.
4. Mount the mounting bracket horizontally to the wall by fixing the wall mounting screws into the wall plugs.



5. Hang the device to the mounting bracket via bracket mounting screws on the back of device, then screw the bracket screw to the bottom of the device.



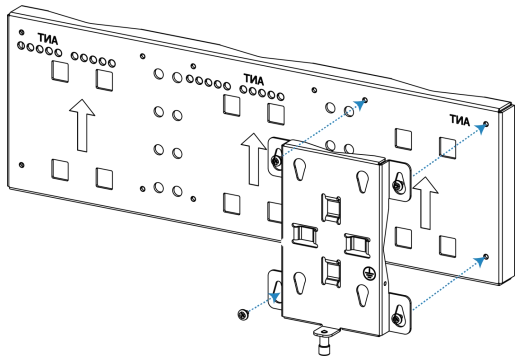
Note: It is suggested to install the gateway at the top of the wall to ensure there are not walls around the antennas to affect the signal. If there are still walls nearby, please keep the antennas at least 35cm away from them.



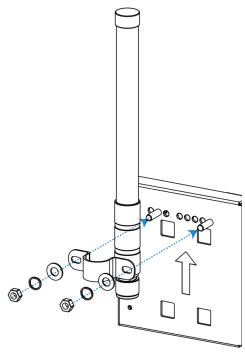
3.4.2 Pole Mounting

Preparation: mounting bracket (with a screw), short mounting backboard kit and other required tools.

1. Fix the mounting bracket to short mounting backboard with 4 Phillips screws.



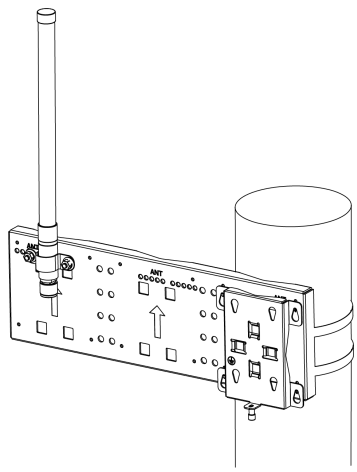
2. Pass one antenna through the U-strap and attach the U-strap clamp to the short mounting backboard with 2 screws at back of the board. Then screw flat washers, spring washers and nuts onto the front of the board.



3. Slide hose clamps through the rectangular rings in the mounting bracket and short mounting backboard, then wrap them around the pole. After that use a screwdriver to tighten the locking mechanism by turning it clockwise.

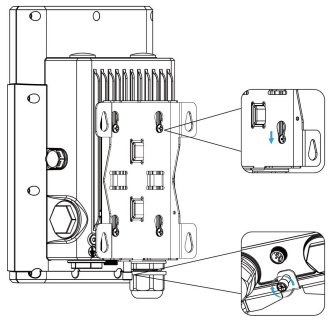
Note:

1) The default hose clamps suit for the pole with a diameter from 67mm to 127 mm.
2) To make sure good signals of antennas, it is suggested to install the mounting bracket with gateway to the top of the metal pole.

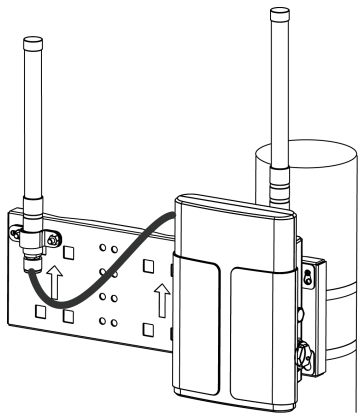


4. Hang the gateway on to the mounting bracket via bracket mounting screws on the back of gateway,

then screw the bracket screw to the bottom of the gateway.



5. Fix one antenna to the ANT2 connector of gateway directly, then connect the remaining antenna on the short mounting backboard to the gateway with the coaxial cable.



3.5 Antenna Installation

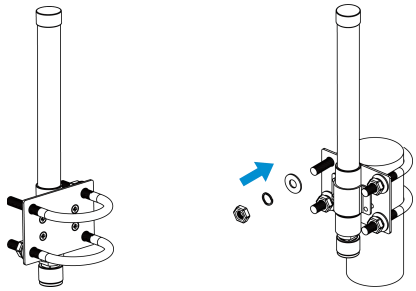
The gateway supports to install antennas by following methods.

Short Mounting Backboard Mounting

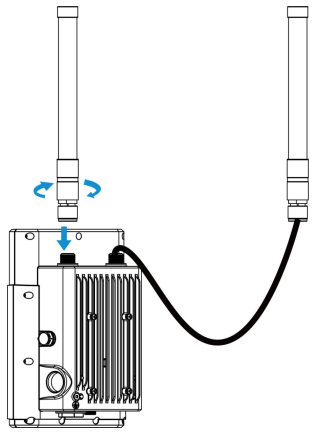
Refer to Pole Mounting Chapter.

U-Bolt Clamp Mounting

1. Rotate one antenna into the ANT2 antenna connector directly.
2. Fix the other antenna to a pole directly or via U-bolt clamp kit: pass the 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.



3. Connect the antenna on the pole to the ANT1 connector of gateway with a coaxial cable.



Note:

1) Both antennas can also be installed before gateway installation.
2) The antennas should be installed vertically always on a site with a good signal.
3) It is suggested to keep two antennas at least 35cm to avoid interference.
4) Do not install antenna to gateway directly if there is strong wind on the scene. Please to add the antenna coaxial cables between the antennas and the gateway.

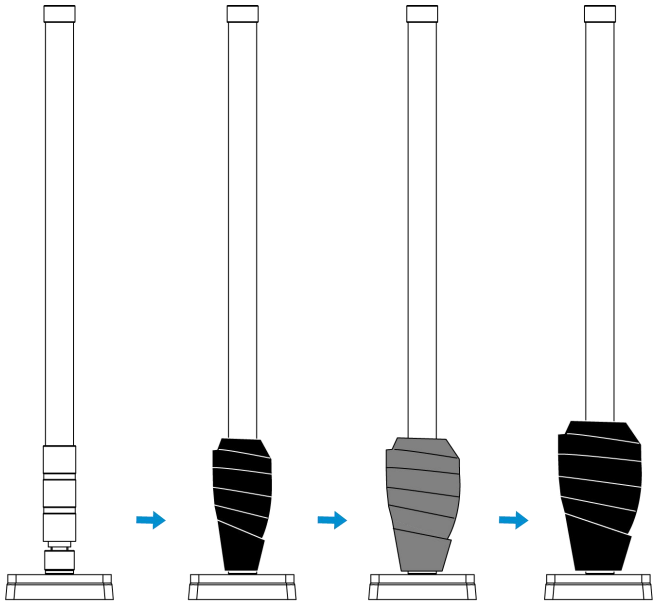
3.6 Weather Protection

To protect the gateway from outdoor bad weather, it is necessary to cover all cable connectors and antenna connectors with tapes.

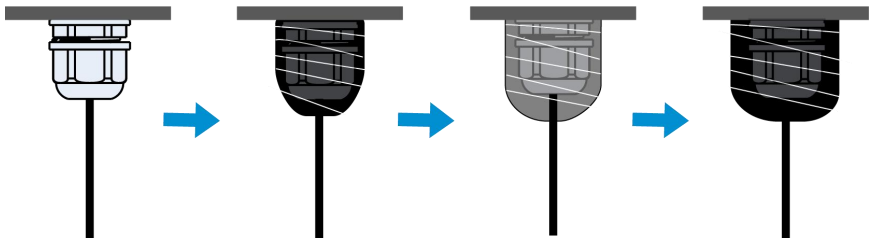
1. Ensure the antennas and cables are installed tightly, then clean the surfaces of connectors.
2. Wrap a layer of electrical insulation tape tightly around the connectors and overlap the previous wrap by 50%.
3. Wrap a layer of 3M waterproof tape tightly around the connectors and overlap the previous wrap by 50%. Note that the tapes should be stretched to double their length when using.
4. Wrap a layer of electrical insulation tape with natural uncoiling force around the connectors and overlap the previous wrap by 50%, ensure them to cover the head and tail of the connectors.

Antenna Connector:

Note: Install the lightning arresters to the connectors before wrapping tapes if required.



Cable Connector:

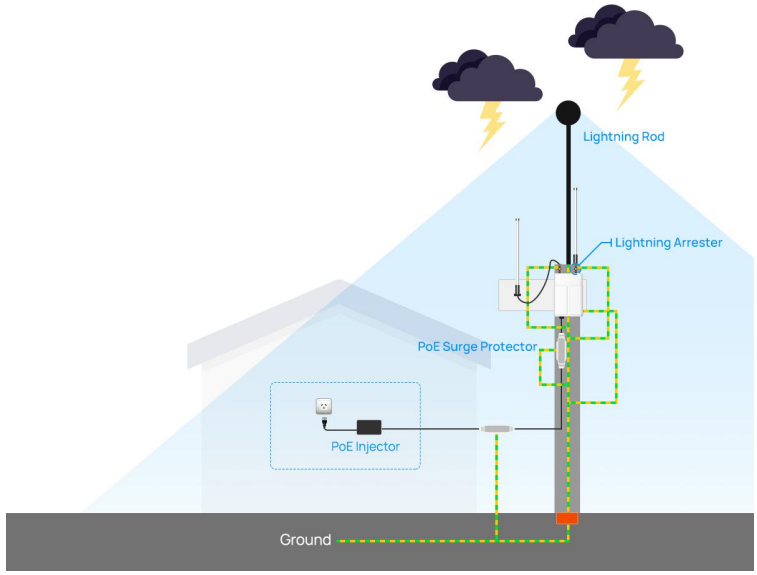


3.7 Lightning Protection

Take lighting protection measures, including but not limited to:

- Connect the gateway to the earth ground.
- Add lightning arresters on the antenna connectors.
- Add PoE surge protectors between gateway and the PoE injector/switch as required.
- Ensure the gateway with antennas is positioned lower than the highest point of the building and within the protection range of the lighting rod.
- If there is not lightning rod around, ensure the location of the gateway is not in the influence area of the lightning, or fix a lightning rod above the antennas.
- The cross-setcional area of the earthing wire should be more than 10 AWG.

Lightning Protection Example:



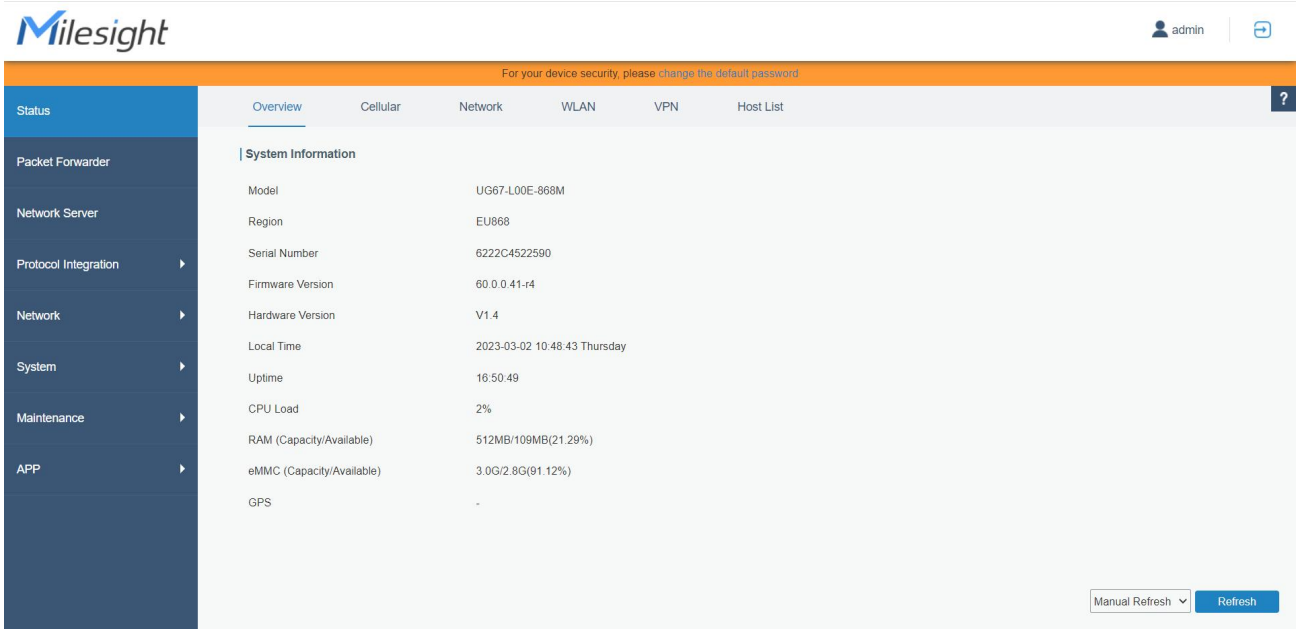
4. Login the Web GUI

UG67 provides a 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, enter the 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, you can view system information and perform configuration of the gateway. It's suggested that you change the password for the sake of security.

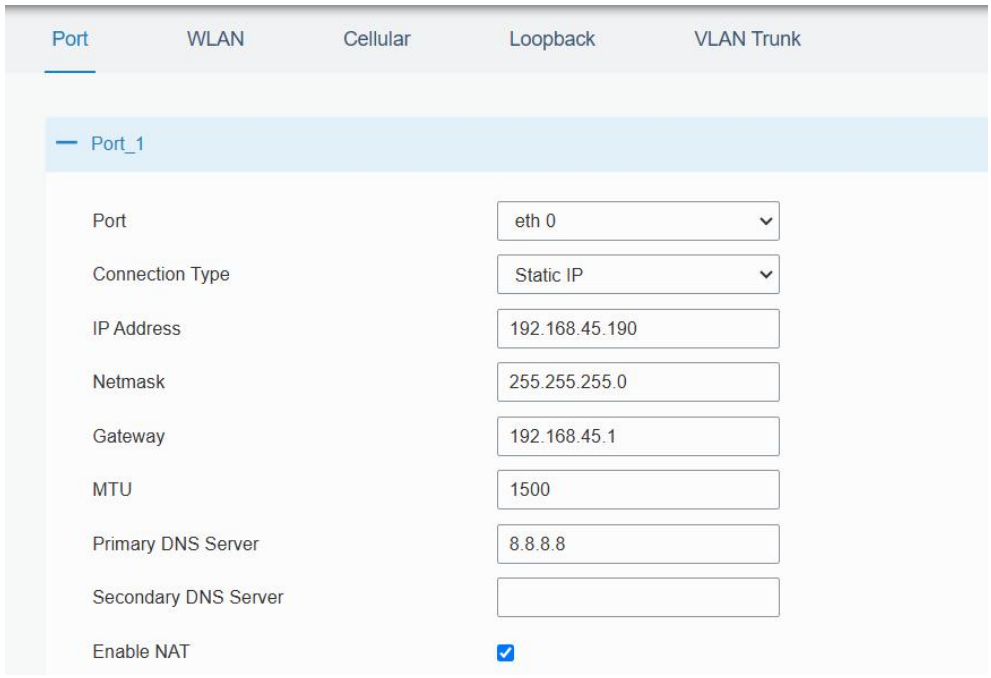


5. Network Connection

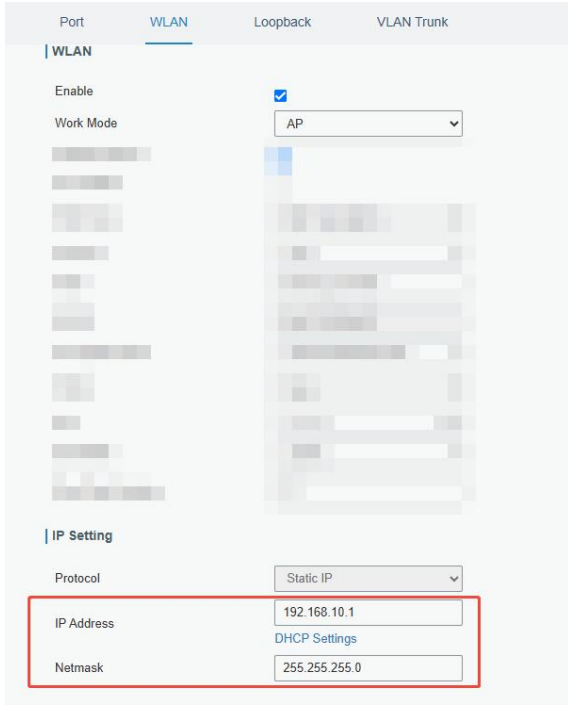
This section explains how to connect the gateway to network via WAN connection, Wi-Fi or cellular.

5.1 Configure the Ethernet Connection

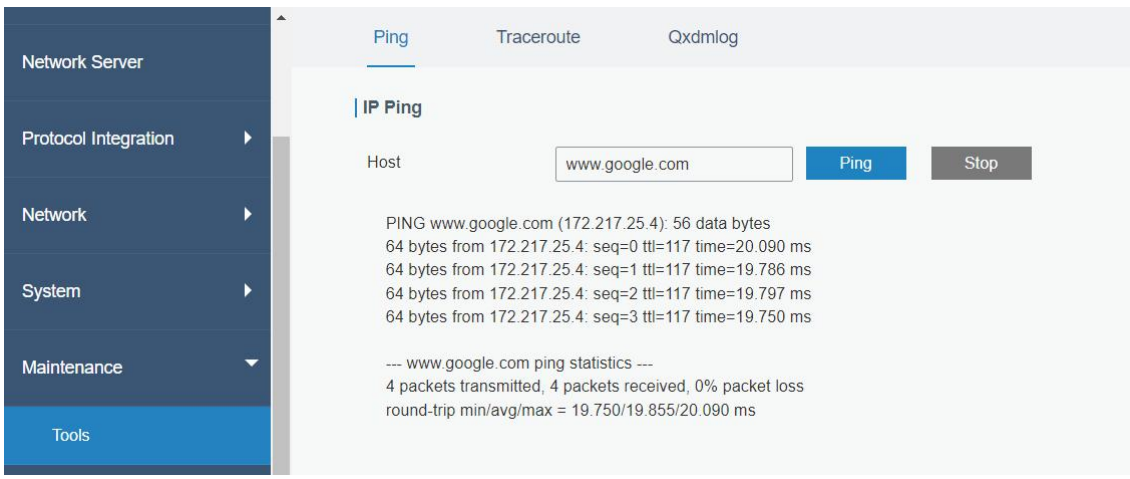
1. Go to **Network > Interface > Port** page to select the connection type and configure Ethernet port information, click "Save & Apply" for changes to take effect.



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

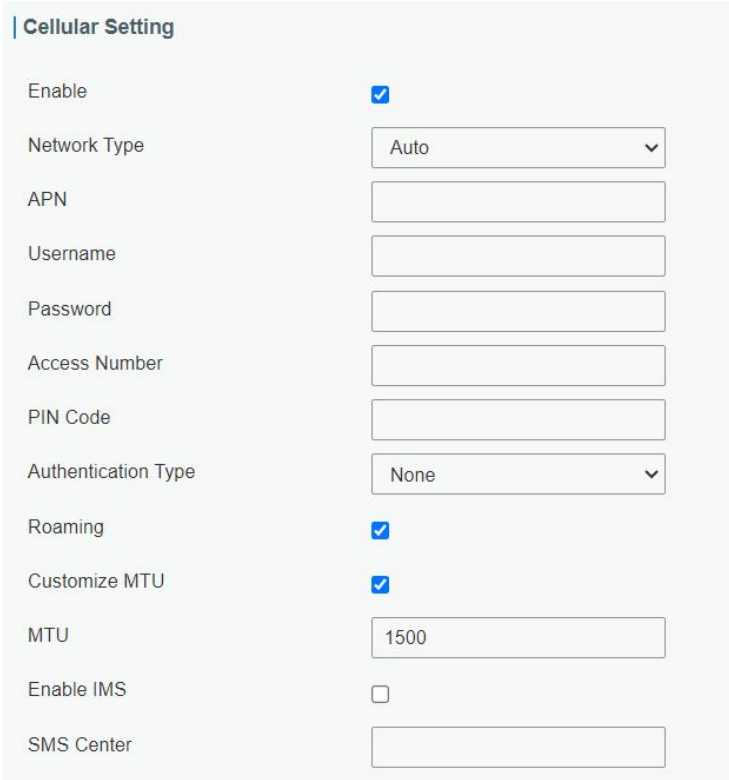


2. Connect Ethernet port of gateway to devices like router or modem.
3. Go to **Maintenance > Tools > Ping** to check network connectivity.



5.2 Configure the Cellular Connection (Cellular Version Only)

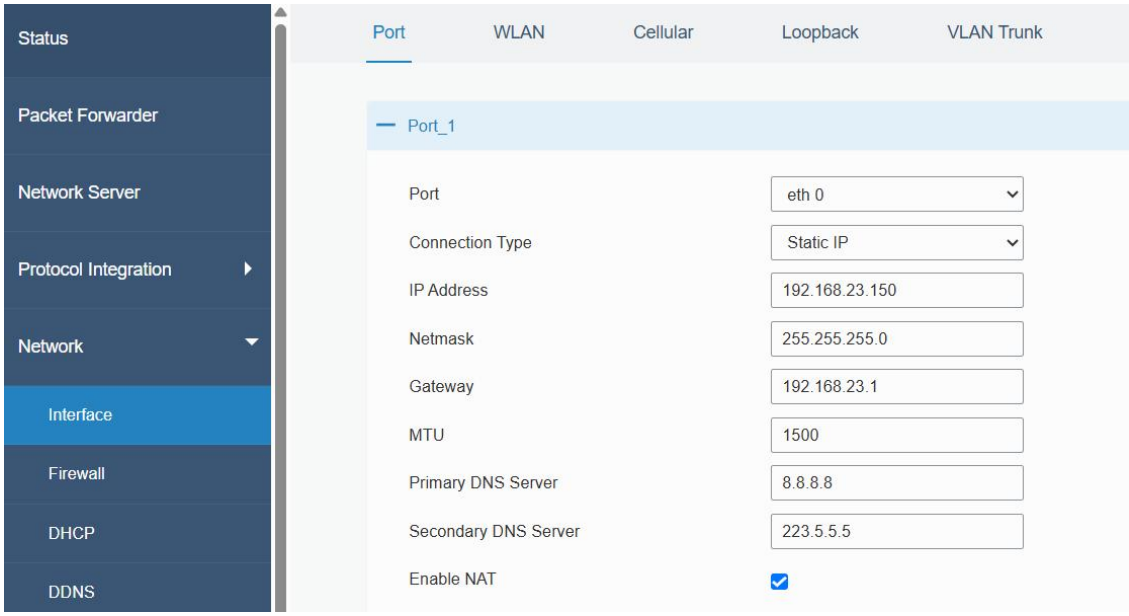
1. Go to **Network > Interface > Cellular > Cellular Setting** page to enable cellular settings and configure the necessary cellular info of the SIM card, then click “Save” and “Apply” for changes to take effect.



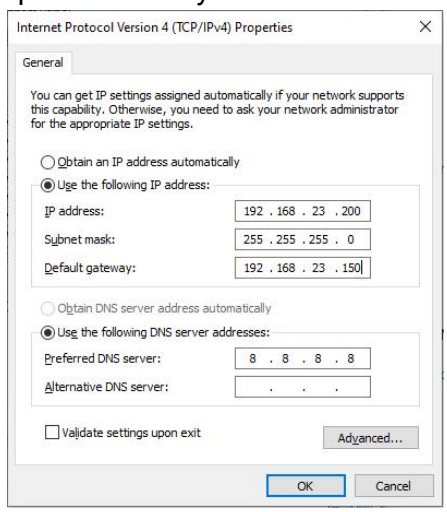
2. Go to **Status > Cellular** page to view the status of the cellular connection. If it shows “Connected”, it means the SIM has dialed up successfully. On the other hand, you can check the status of LTE indicator. If it keeps on light statically, it means SIM has dialed up successfully.

5.3 Configure the Wi-Fi Connection

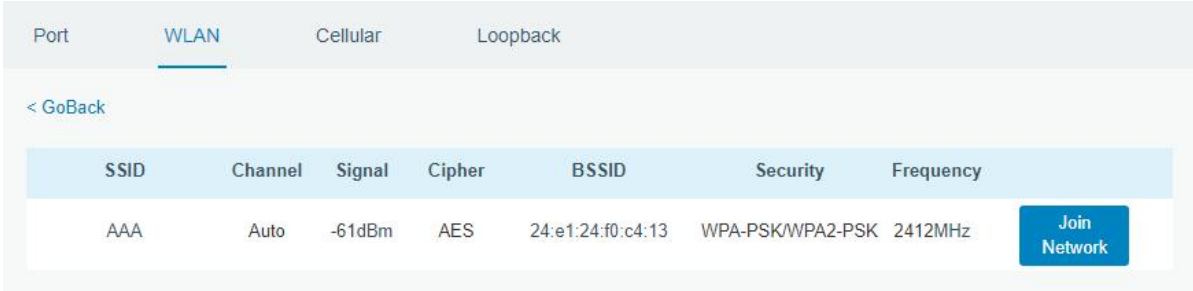
1. Go to **Network > Interface > Port** page to select connection type as **Static IP** and configure an IP address for the Ethernet WAN port.



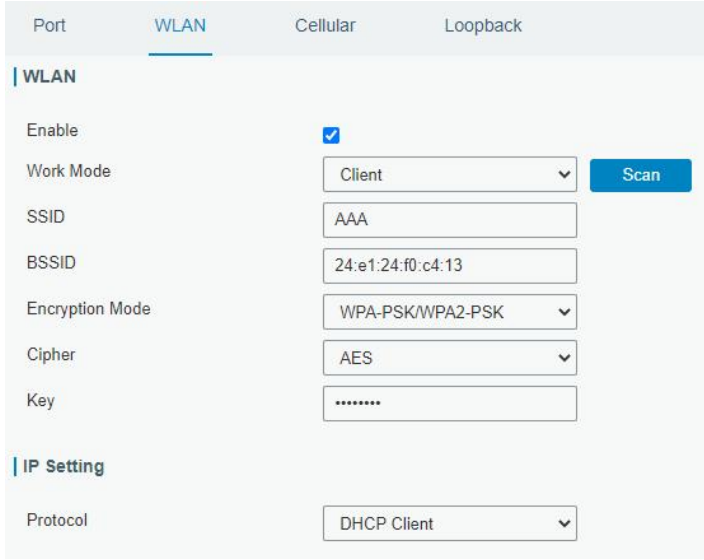
2. Connect PC to UG67 ETH port directly or through PoE injector.
3. Assign the IP address to computer manually. Take Windows 10 system as an example:



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.

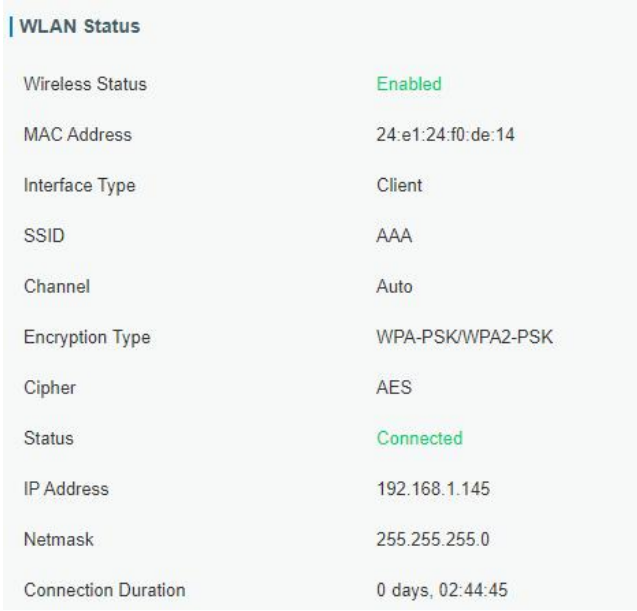


6. Select one access point and click **Join Network**, then type the password of the access point.

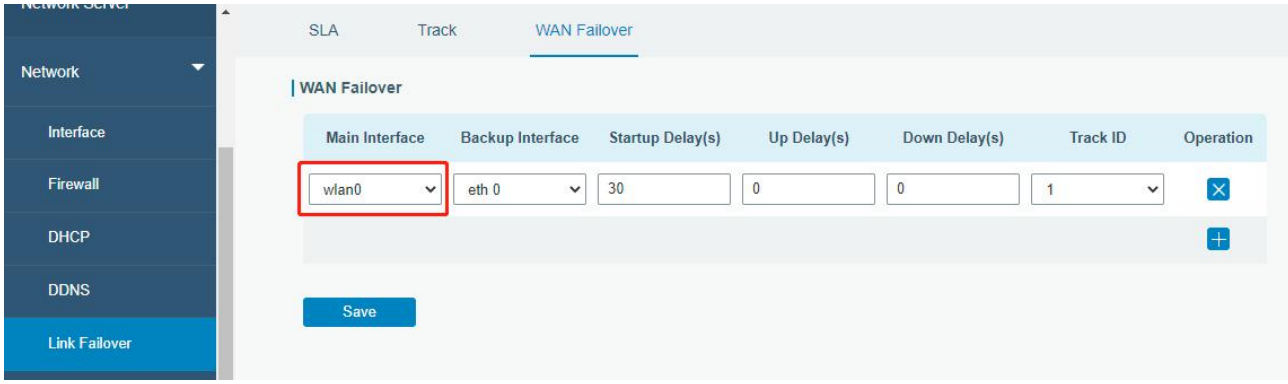


Click **Save** and **Apply** buttons after all configurations are done.

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.

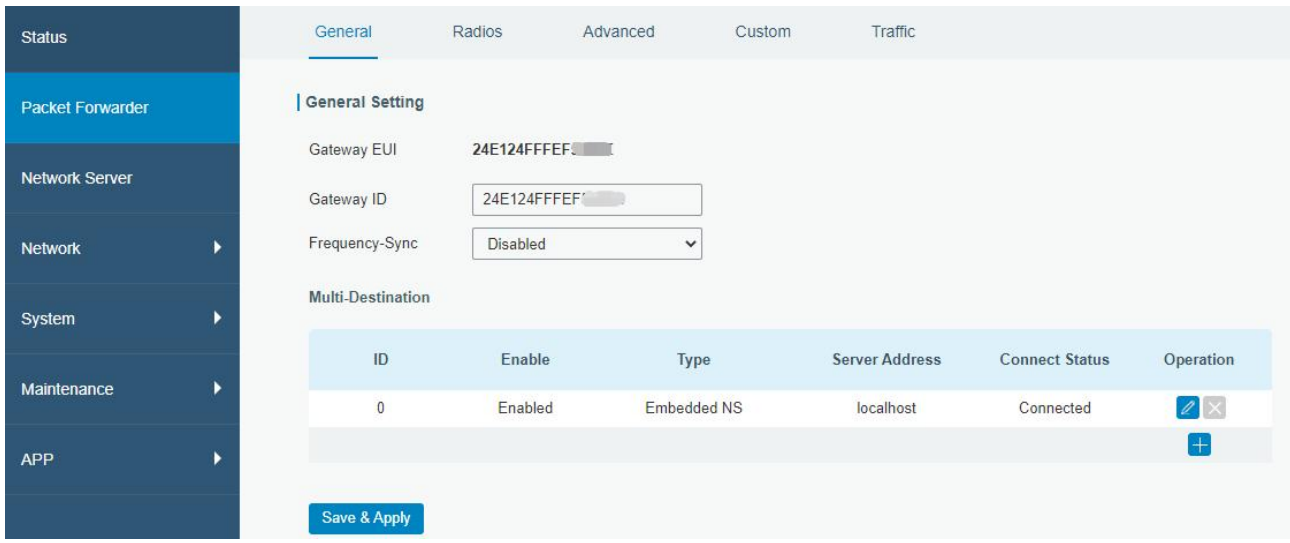


6.Packet Forwarder Configuration

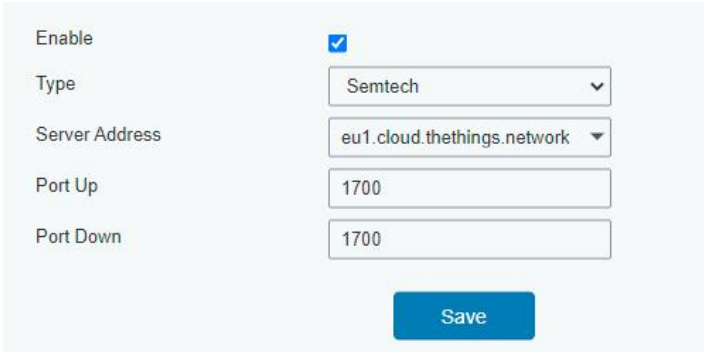
UG67 has installed multiple packet forwarders including Semtech, Chirpstack, etc. This section explains how to connect the gateway to network servers.

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

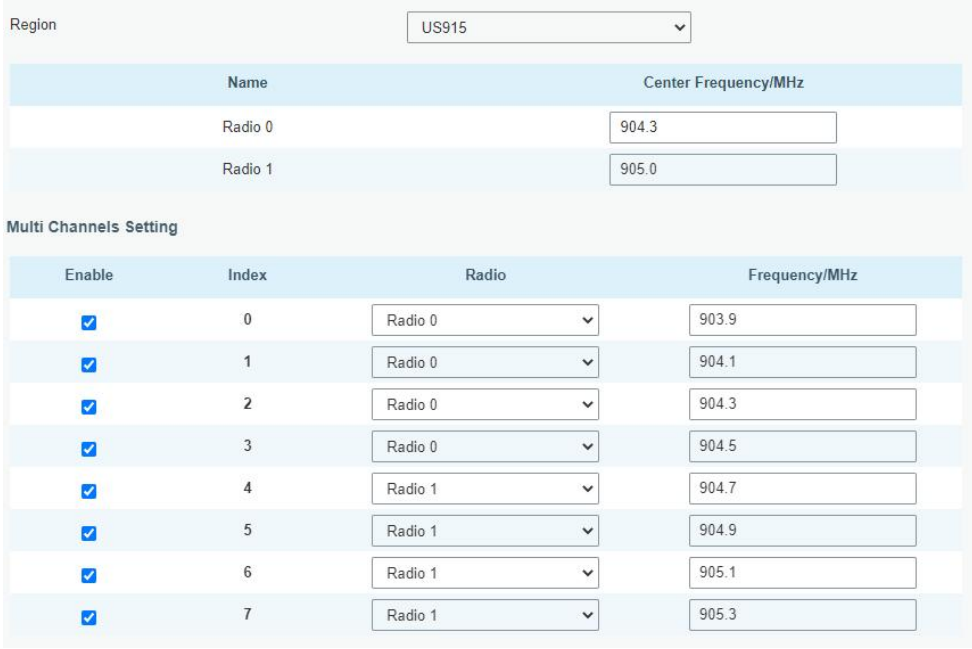
1. Go to **Packet Forwarder > General** page and click to add a network server.



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.

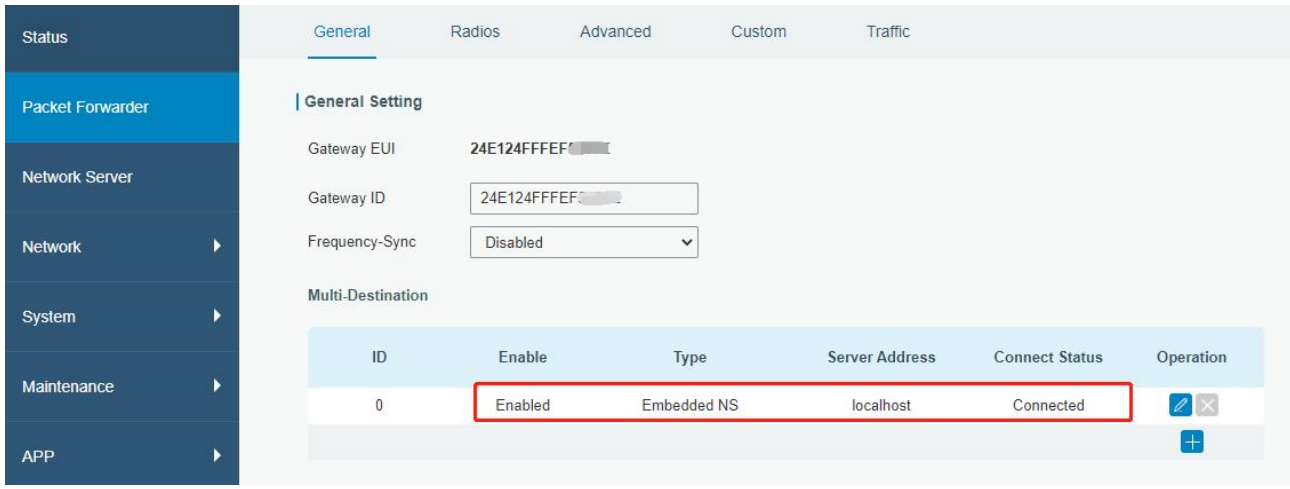
7.Network Server Configuration

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.

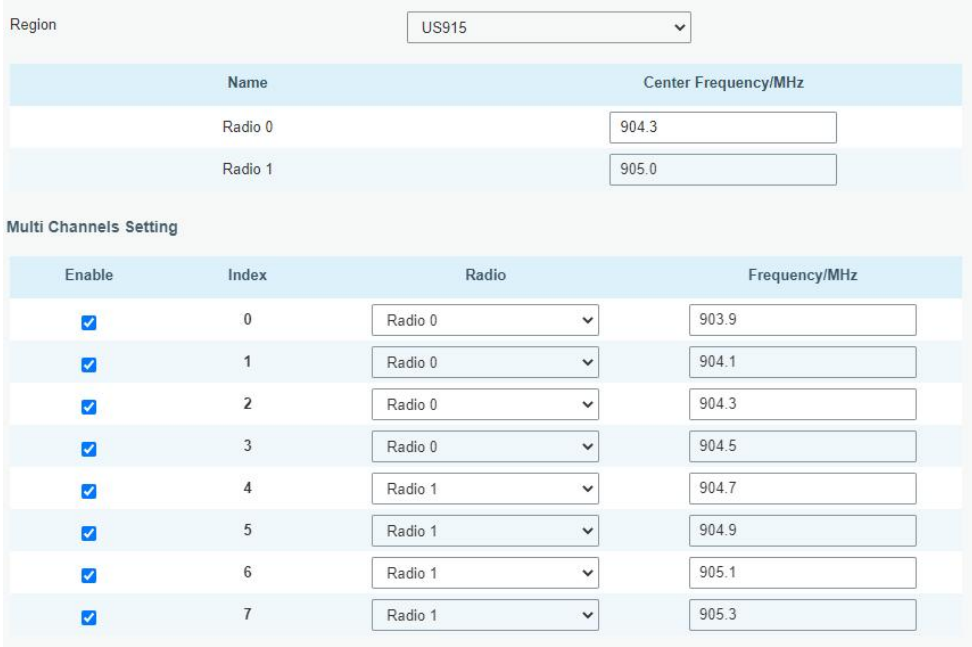
Make sure the gateway connects to the network as shown in Section 5.

7.1 Connect to Milesight IoT Cloud

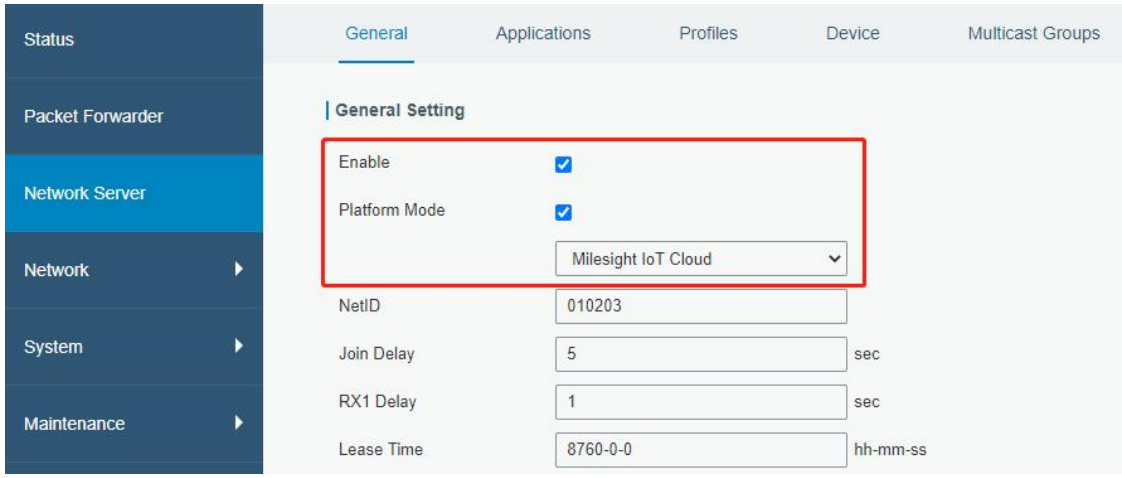
1. Go to **Packet Forwarder > General** page to enable the embedded network server.



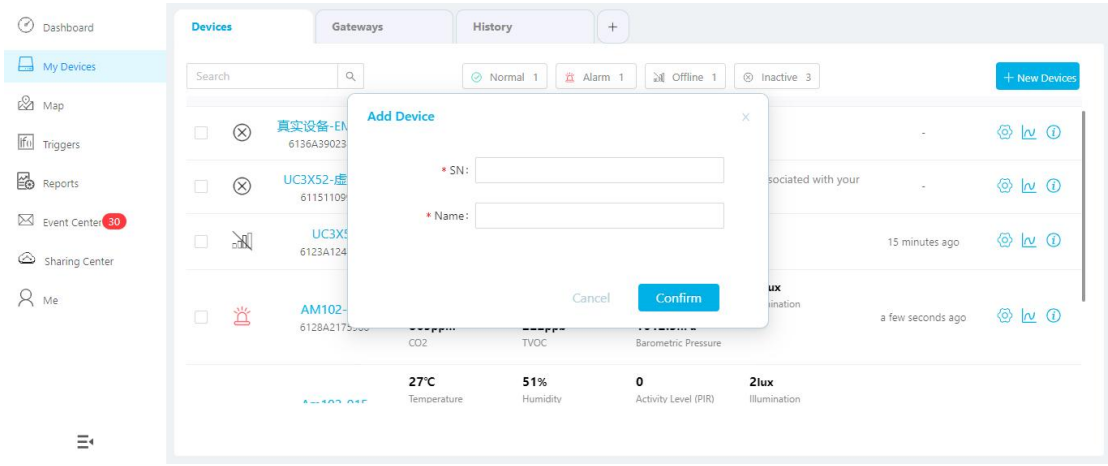
2. Go to **Packet Forwarder > Radio** page to select center frequency and channels. The channels of the gateway and the end devices need to be the same.



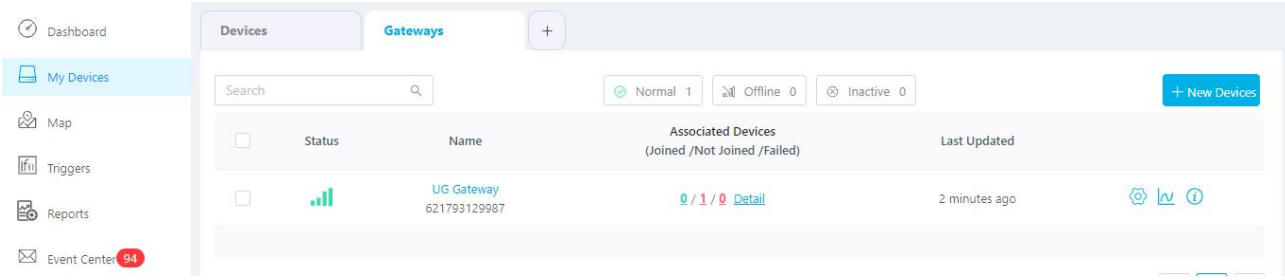
3. Go to **Network Server > General** page to enable the network server and "Milesight IoT Cloud" mode.
Note: after this mode is enabled, the other settings of network server will be not allowed to edit.



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.

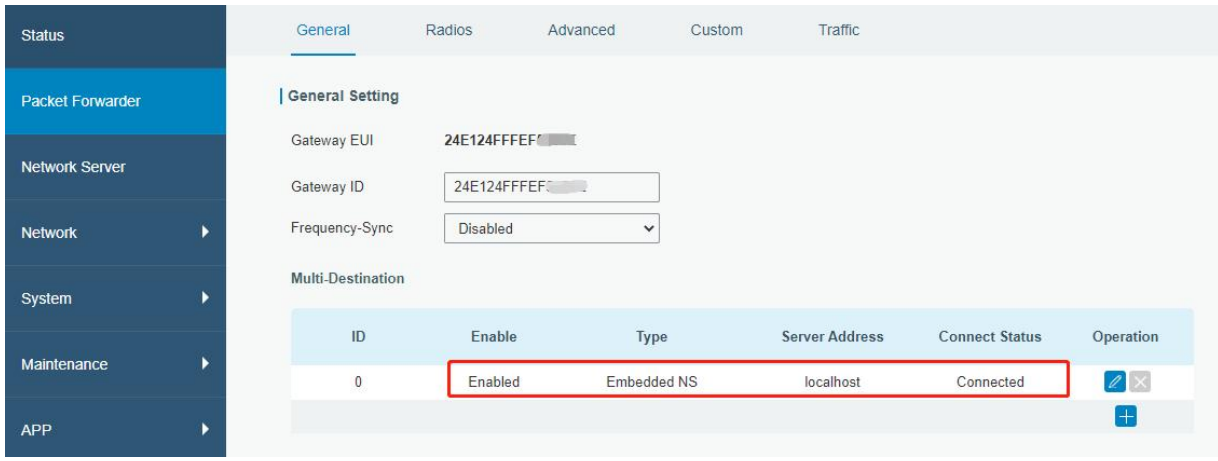


5. The gateway is online on Milesight IoT Cloud.

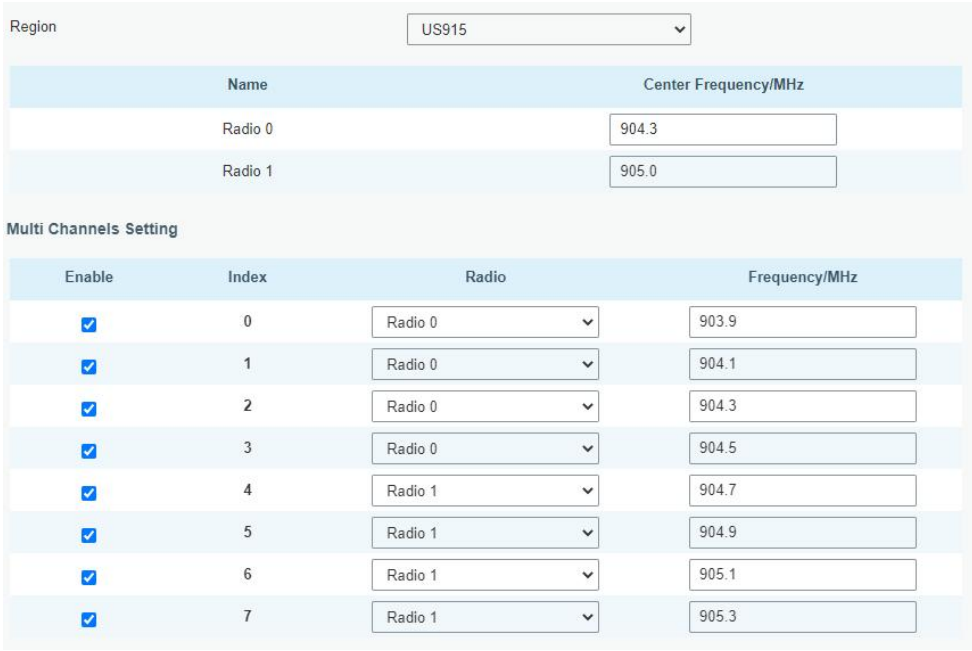


7.2 Add End Devices

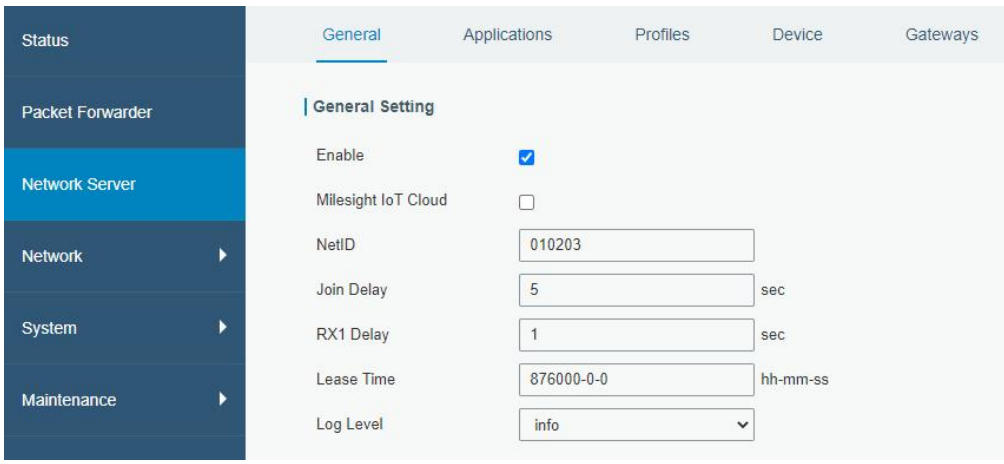
1. Go to **Packet Forwarder > General** page to enable the embedded network server.



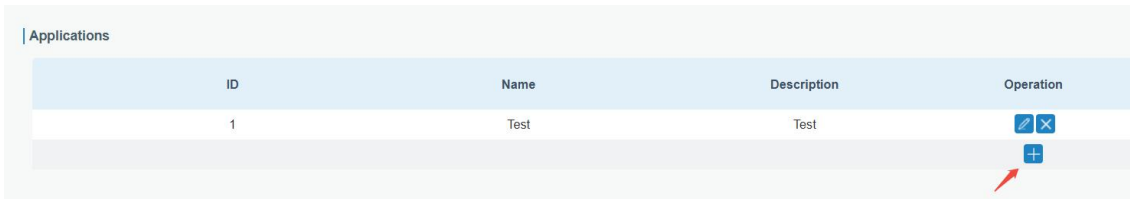
2. Go to **Packet Forwarder > Radio** page to select the center frequency and channels. The channels of the gateway and the end devices need to be the same.

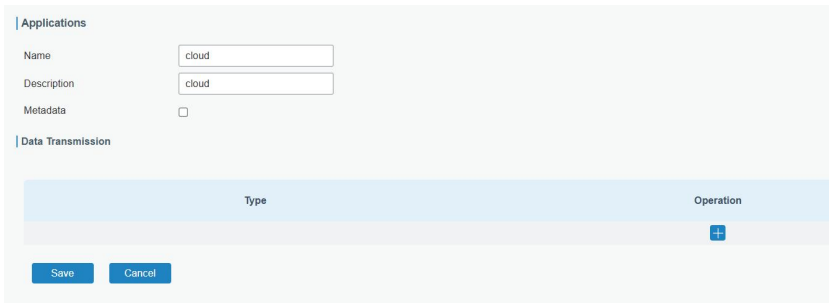


3. Go to **Network Server > General** page to enable the network server mode.

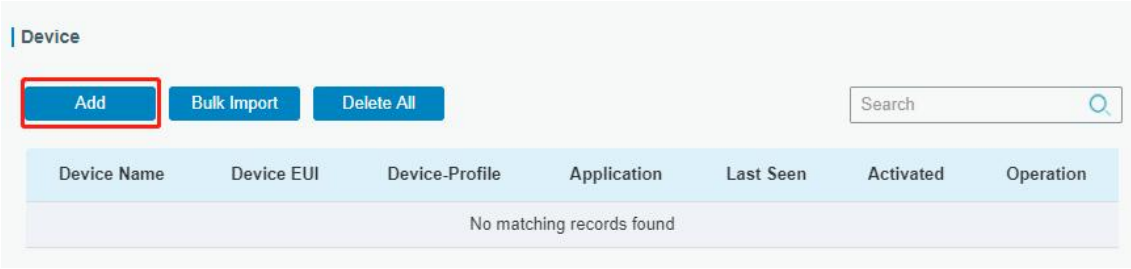


4. Go to **Network Server > Application** to add a new application.



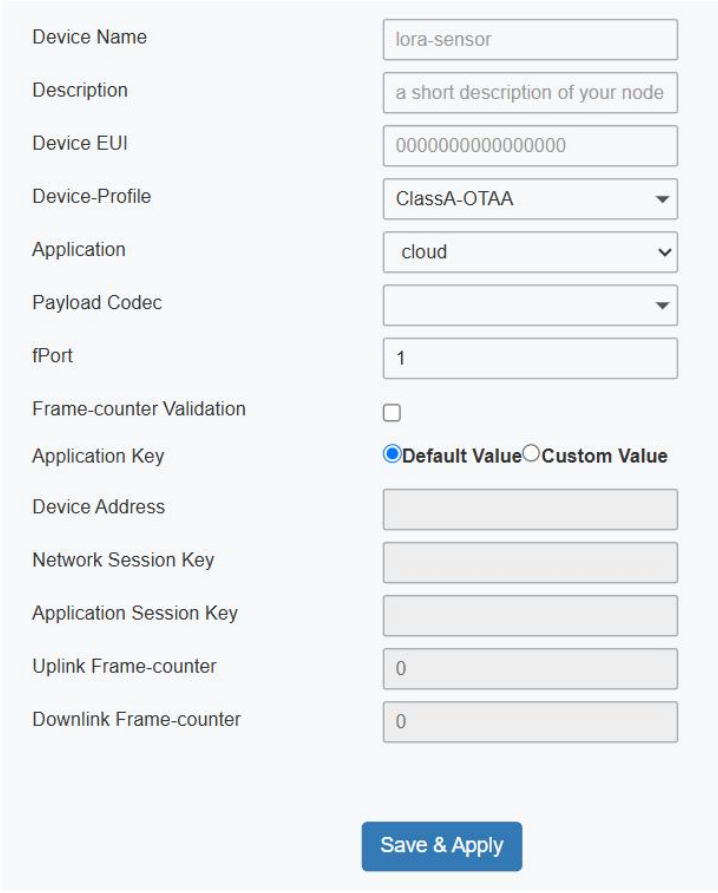


5. Go to **Network Server > Device** page and click **Add** to add a LoRaWAN® end device. You can also click **Bulk Import** to use template to add bulk devices at once.

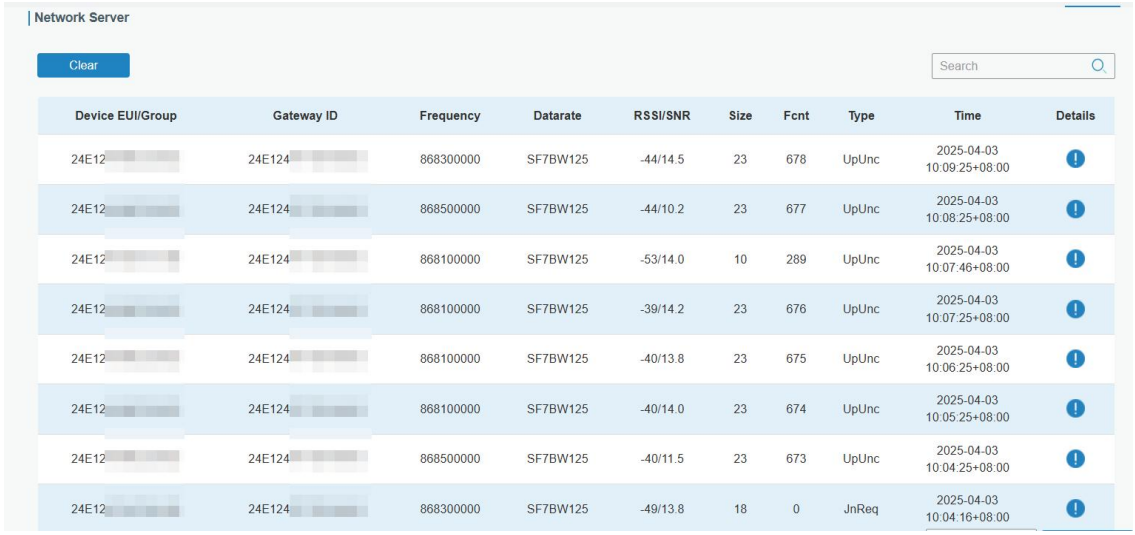


6. Fill in the information of the end device and click **Save&Apply**. The information can be found on the end device's configuration page or from manufacturer's manuals. Here are the default settings of Milesight end devices:

- 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.

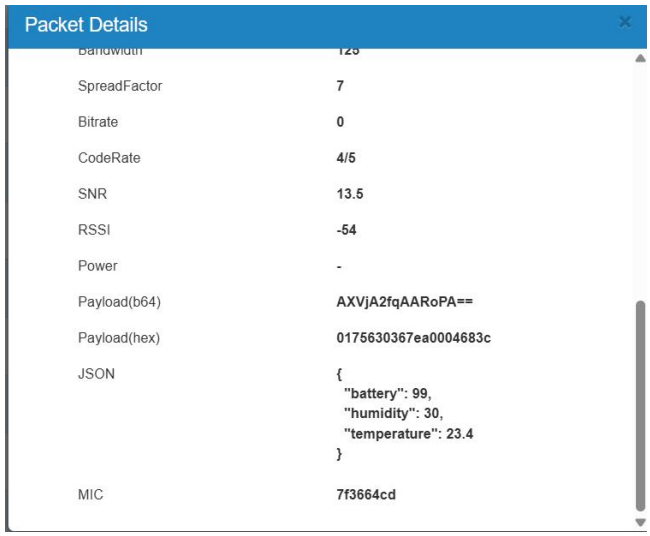


7. Go to **Network Server > Packets** page to check the packets from LoRaWAN® end devices. The type starts from "Up" means uplinks and "Dn" means downlinks.



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

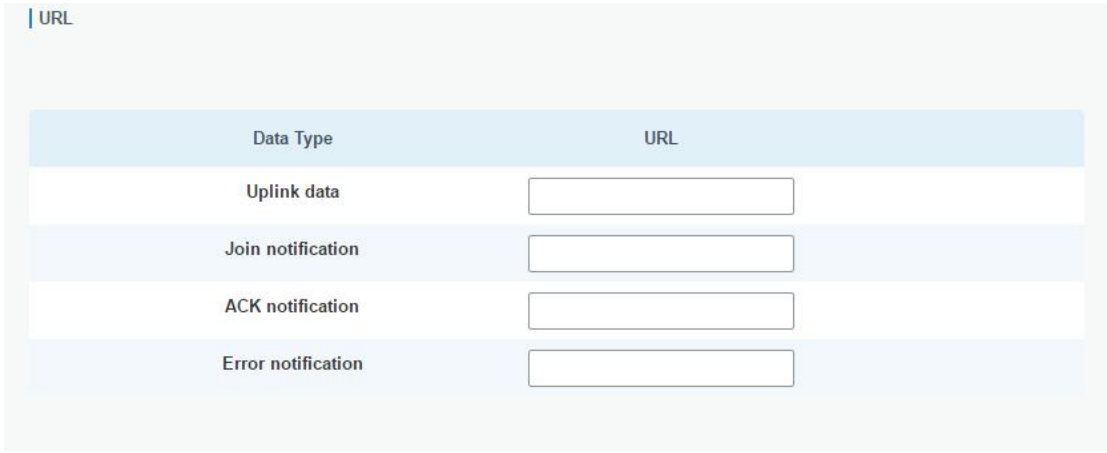
The gateway supports choosing the data transport protocol to send the data of device within this application to third-party servers. One application supports to add a MQTT transmission or a HTTP (HTTPS) transmission at most.

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

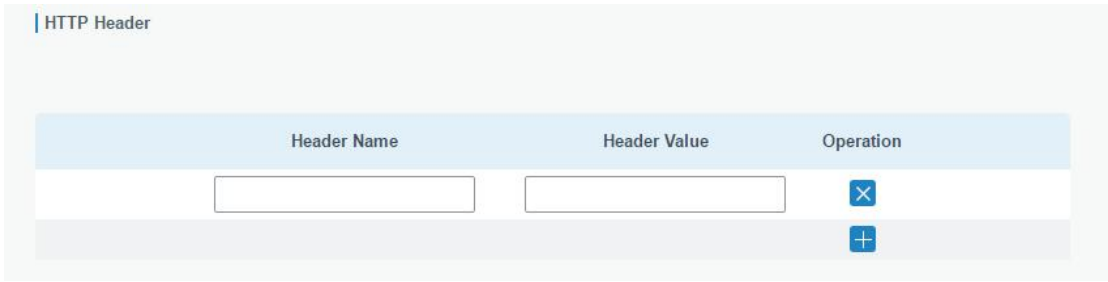
HTTP or HTTPS:

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.



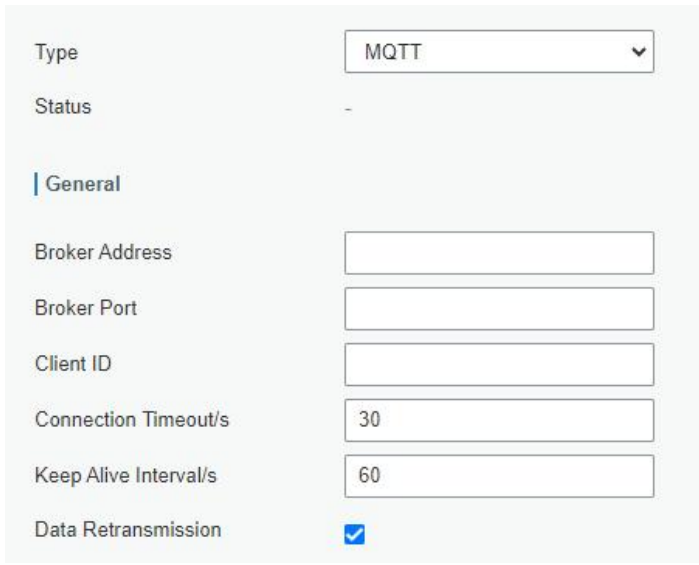
Enter the header name and header value if there is user credentials when accessing the HTTP(s) server.



MQTT：

Step 1: select the transmission protocol as MQTT.

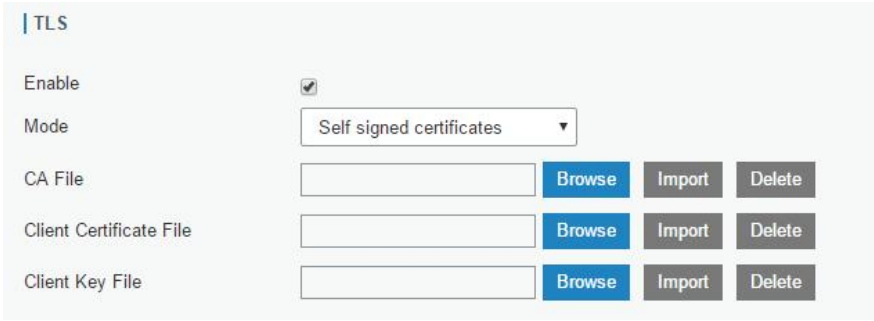
Step 2: Fill in MQTT broker general settings.



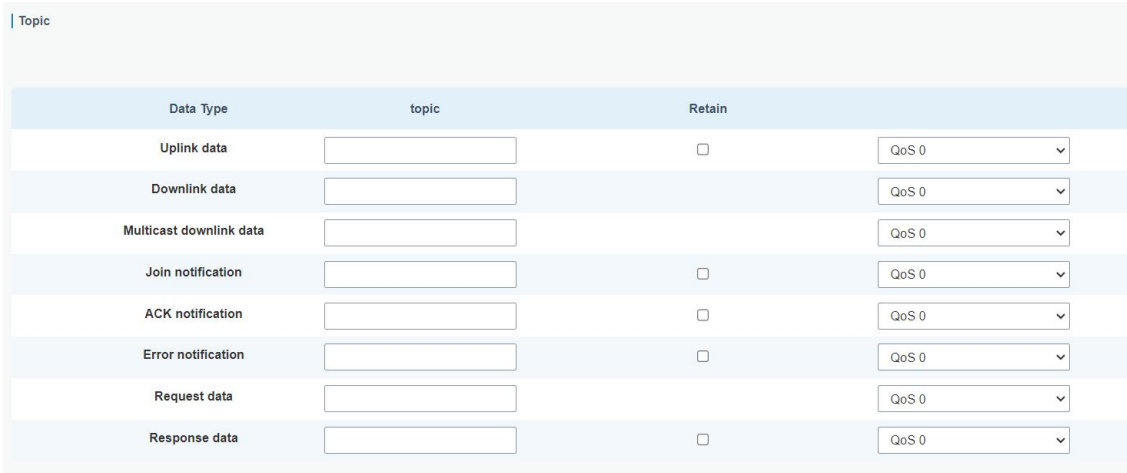
Step 3: Select the authentication method required by the server.

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]