

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.



For assistance, please contact
Milesight technical support:
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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

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1. Packing List

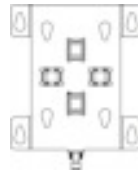
Before you begin to install the UG67 LoRaWAN® Gateway, please check the package contents to verify that you have received the items below.



1 × UG67



1 × PoE Injector



1 × Mounting Bracket



Wall Mounting Kits



1 × Cable Gland



1 × SIM Dust Cover



2 × Hose Clamps



1 × DC Power Cable



1 × Warranty Card



1 × Quick Start Guide



2 × LoRa Antennas



1 × Antenna Coaxial
Cable (1m)



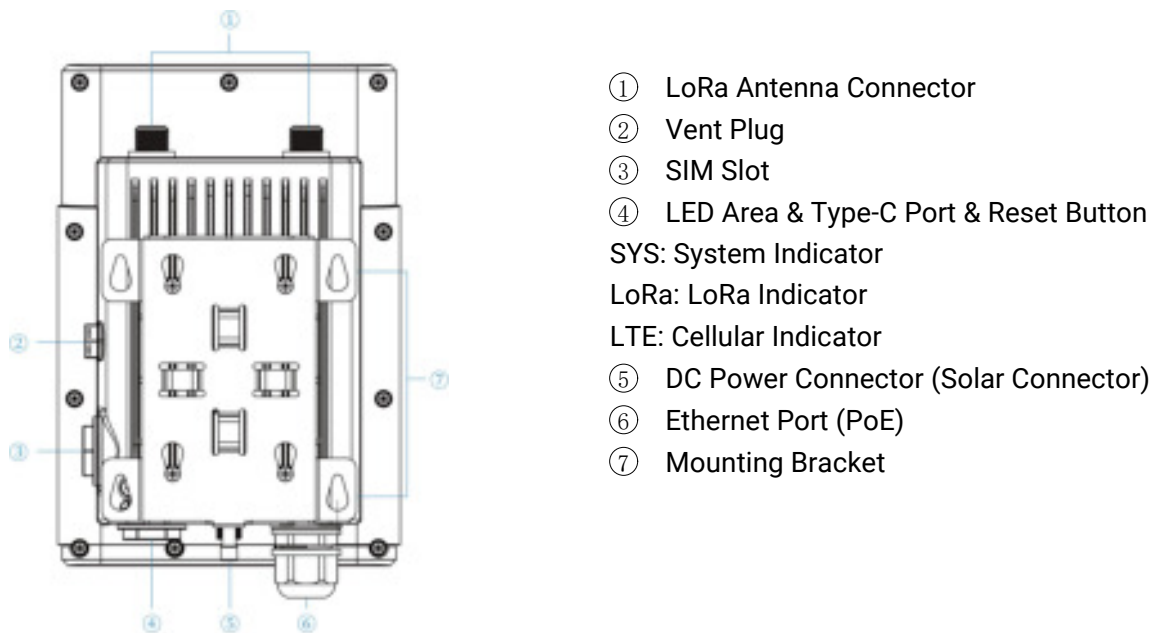
1 × Antenna Clamp Kit



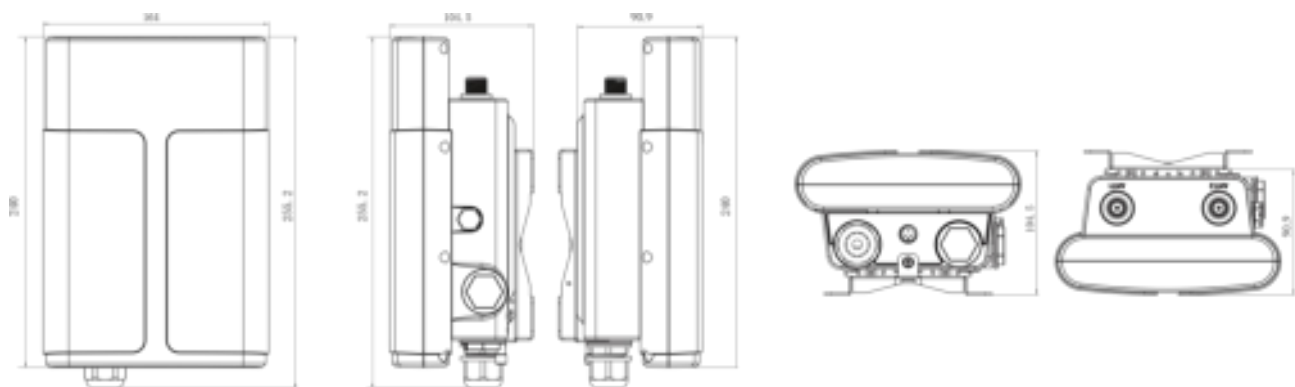
If any of the above items is missing or damaged, please contact your sales representative.

2. Hardware Introduction

2.1 Overview



2.2 Dimensions (mm)



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	LoRa 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 DC Power Connector

UG67 supports 12 VDC or solar supply via M12 connector.

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



3. Hardware Installation

3.1 SIM Card Installation

A. 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.

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

Note: UG67 does not support hot plugging (also called hot swapping). please turn off the power before you insert or take off cards.

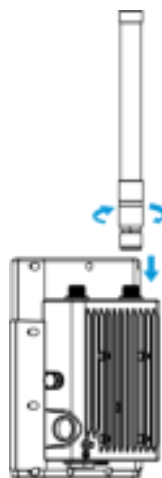


3.2 Antenna Installation

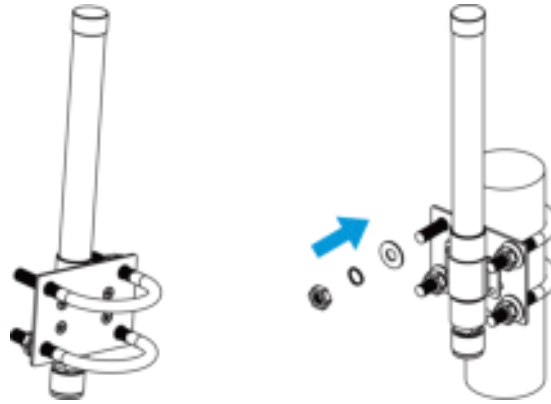
UG67 supports multiple LoRa antenna types. After installation, please select the corresponding installation type in web GUI.

Internal Antenna Mode: keep gateway positive outwards to ensure good signal.

Signal Antenna Mode: the external antenna must be installed on ANT1 connector.

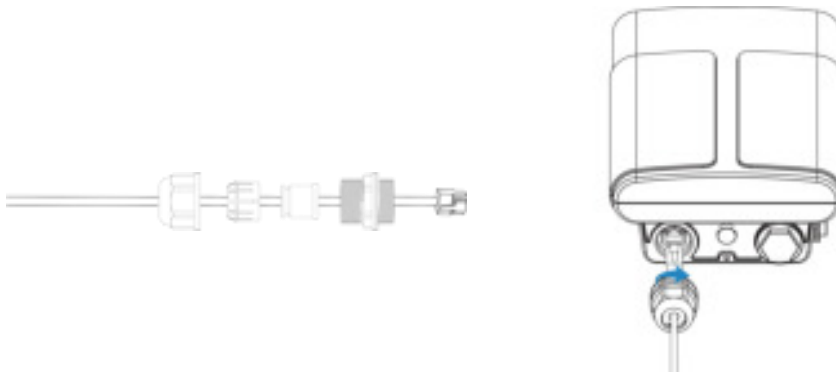


Double Antenna Mode: it's suggested to add coaxial cable between one of antenna connectors (ANT1 is recommended) and LoRa antenna to ensure better performance. After installation, the LoRa antenna can be fixed to a pole via antenna clamp kit. Pass this LoRa antenna through the antenna clamp and fix it with 4 screws, then wrap the U-bolt around a pole and fix the clamp with nuts and other accessories.



3.3 Ethernet Cable & Power Cable Installation

Pass the Ethernet cable through the cable gland and rotate the cable gland to gateway, then tighten the cable gland with wrench.

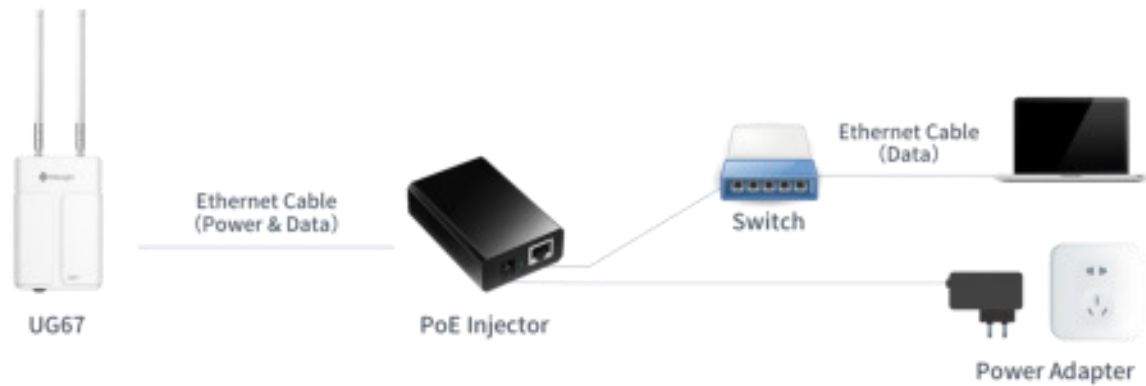


For DC or solar power supply, remove the protective cap of power connector and rotate the DC power cable into the power connector.



3.4 Power Supply

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



3.5 Gateway Installation

UG67 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.

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

3.5.1 Wall Mounting

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

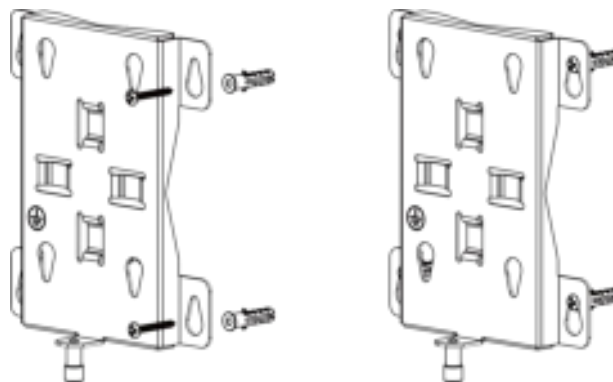
A. Align the mounting bracket horizontally to the desired position on the wall, use a marker pen to mark four mounting holes on the wall, and then remove the mounting bracket from the wall.

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

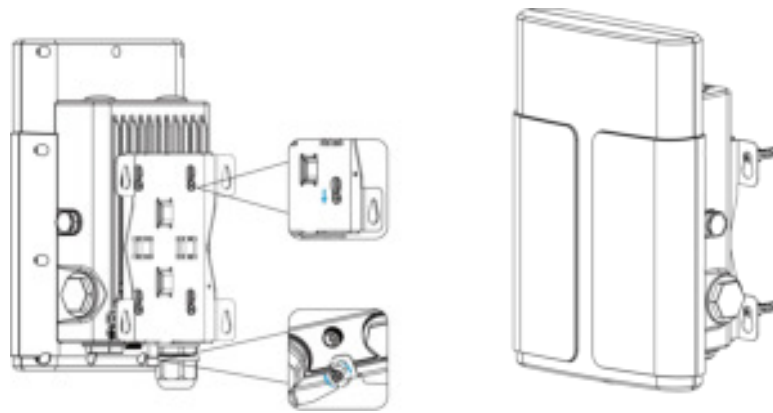
B. Drill four holes with a depth of 32 mm by using your drill with a 6 mm drill bit on the positions you marked previously on the wall.

C. Insert four wall plugs into the holes respectively.

D. Mount the mounting bracket horizontally to the wall by fixing the wall mounting screws into the wall plugs.



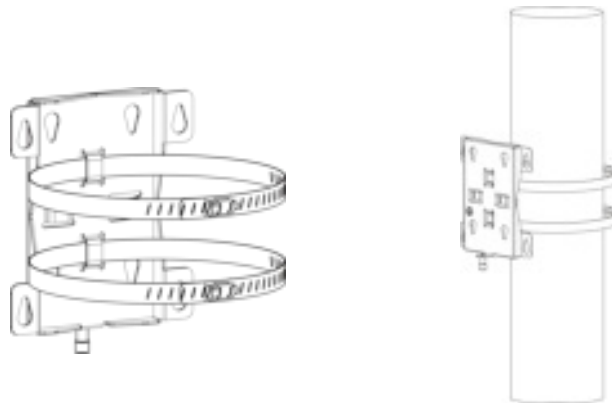
E. Hang the device to the mounting bracket via bracket mounting screws on the back of device, then screw the bracket screw to the bottom of the device.



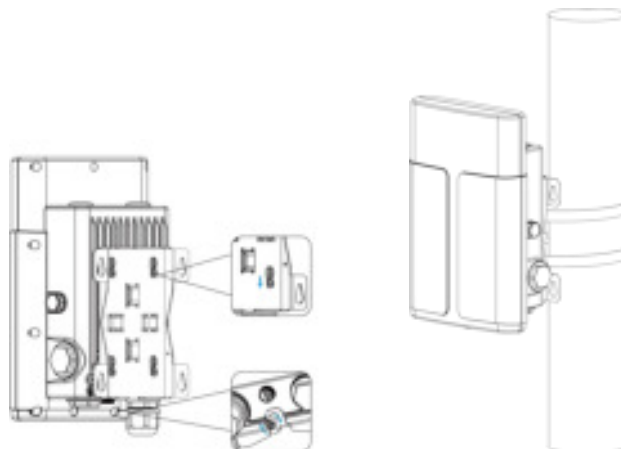
3.5.2 Pole Mounting

Preparation: mounting bracket (with a screw), hose clamp and other required tools.

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



- D. 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.



4. Login the Web GUI

UG67 provides web-based configuration interface for management. If this is the first time you configure the gateway, please use the default settings below:

ETH IP Address: **192.168.23.150**

Wi-Fi IP Address: **192.168.1.1**

Wi-Fi SSID: **Gateway_*******

Username: **admin**

Password: **password**

4.1 Wireless Access

A. Enable Wireless Network Connection on your computer and search for access point “Gateway_*****” to connect it.

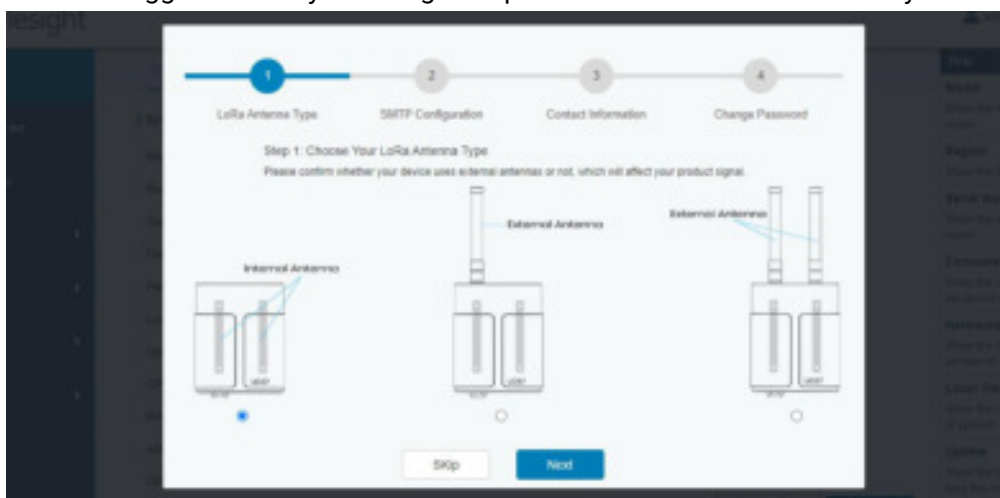
B. Open a Web browser on your PC (Chrome is recommended) and type in the IP address 192.168.1.1 to access the web GUI.

C. 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.

D. After logging the web GUI, follow the guide to complete the basic configurations. You can also skip the instructions. It's suggested that you change the password for the sake of security.



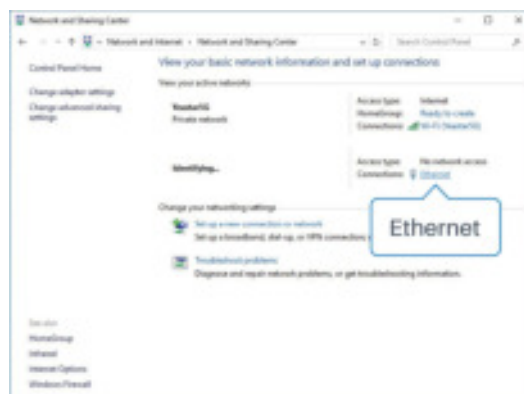
E. You can view system information and perform configuration of the gateway.



4.2 Wired Access

Connect PC to UG67 ETH port through PoE injector. The following steps are based on Windows 10 operating system for your reference.

A. Go to "Control Panel" → "Network and Internet" → "Network and Sharing Center", then click "Ethernet" (May have different names).



B. Go to "Properties" → "Internet Protocol Version 4(TCP/IPv4)" and select "Use the following IP address", then assign a static IP manually within the same subnet of the gateway.

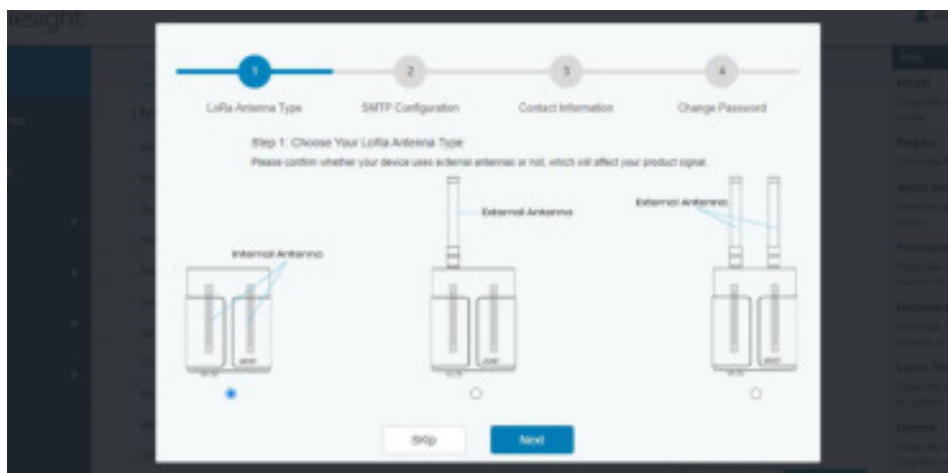


- C. Open a Web browser on your PC (Chrome is recommended) and type in the IP address 192.168.23.150 to access the web GUI.
- D. Enter the username and password, click "Login".

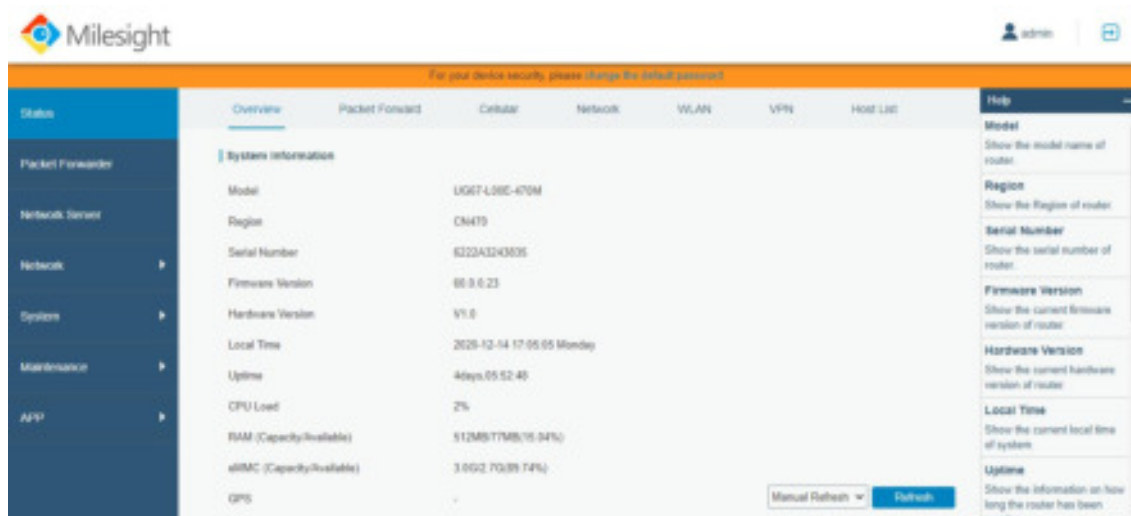


⚠ If you enter the username or password incorrectly more than 5 times, the login page will be locked for 10 minutes.

- E. After logging the web GUI, follow the guide to complete the basic configurations. You can also skip the instructions. It's suggested that you change the password for the sake of security.



- F. After guide complete, 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

- A. Go to “Network”→ “Interface” → “Port” page to select the connection type and configure Ethernet port information.
- B. Click “Save & Apply” for changes to take effect.

Port_1

Port

eth 0

Connection Type

Static IP

IP Address

192.168.22.112

Netmask

255.255.255.0

Gateway

192.168.22.1

MTU

1500

Primary DNS Server

8.8.8.8

Secondary DNS Server

114.114.114.114

Enable NAT

☒

Multiple IP Address

IP Address	Netmask	Operation
		<div>+</div>

- C. Connect Ethernet port of gateway to devices like router or modem.
- D. Log in the web GUI via the newly assigned Ethernet port IP address and check network connection.

Overview	Packet Forward	Cellular	Network	WLAN	VPN	Host List	
WAN							
Port	Status	Type	IP Address	Netmask	Gateway	DNS	Duration
eth 0	up	Static	192.168.22.112	255.255.255.0	192.168.22.1	8.8.8.8	1days,82h 34m 22s

5.2 Configure the Wi-Fi Connection

- A. Go to “Network” → “Interface” → “WLAN” and select “Client” mode.
- B. Click “Scan” to search for Wi-Fi access point. Select the available one and click “Join Network”.

Port

WLAN

Cellular

Loopback

< GoBack

SSID	Channel	Signal	Cipher	BSSID	Security	Frequency	
AAA	Auto	-61dBm	AES	24:e1:24:f0:c4:13	WPA-PSK/WPA2-PSK	2412MHz	<div>Join Network</div>

C. Type the key of Wi-Fi.

PortWLANCellularLoopback

WLAN

Enable☒

Work Mode

Client

SSID

AAA

BSSID

24:e1:24:f0:c4:13

Encryption Mode

WPA-PSK/WPA2-PSK

Cipher

AES

Key

IP Setting

Protocol

DHCP Client

Scan

D. Go to “Status”→“WLAN” to check Wi-Fi status. If it shows “Connected”, it means gateway connects to Wi-Fi successfully.

Overview	Packet Forward	Cellular	Network	WLAN
WLAN Status				
Wireless Status	Enabled			
MAC Address	24:e1:24:f0:de:14			
Interface Type	Client			
SSID	AAA			
Channel	Auto			
Encryption Type	WPA-PSK/WPA2-PSK			
Cipher	AES			
Status	Connected			
IP Address	192.168.1.145			
Netmask	255.255.255.0			
Connection Duration	0 days, 02:44:45			

5.3 Configure the Cellular Connection

- Go to “Network” → “Interface” → “Cellular” → “Cellular Setting” page to enable cellular settings.
- Choose relevant network type and fill in SIM card information like APN or PIN code.
- Click “Save” and “Apply” for changes to take effect.

Port	WLAN	Cellular	Loopback
Cellular Setting			
Enable		<input checked="" type="checkbox"/>	
Network Type		Auto	
APN			
Username			
Password			
Access Number			
PIN Code			
Authentication Type		Auto	
Roaming		<input checked="" type="checkbox"/>	
SMS Center			
Connection Setting		<input type="checkbox"/>	
Enable NAT		<input checked="" type="checkbox"/>	


- 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.

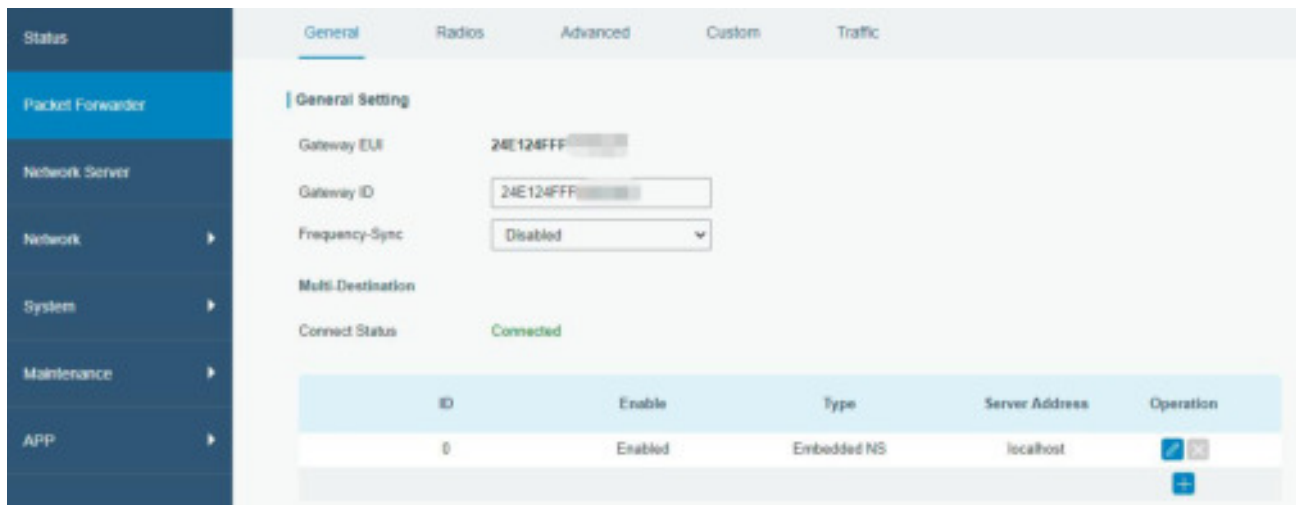
Overview	Packet Forward	Cellular	Network	WLAN
Modems				
Status		Ready		
Model		EC25		
Version		EC25EC0AR09A07W10		
Signal Level		23ass (-57dBm)		
Register Status		Registered (Home network)		
IMEI		868425047388938		
IMSI		460019425331842		
ICCID		89868117838809934120		
ISP		CHINA UNICOM		
Network Type		LTE		
PLMN ID				
LAC		5622		
Cell ID		349888		
Network				
Status		Connected		
IP Address		10.132.132.58		
Netmask		255.255.255.248		
Gateway		10.132.132.65		

6. Packet Forwarder Configuration

UG67 has installed multiple packet forwarders including Semtech, Chirpstack-Generic MQTT broker, 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](#).

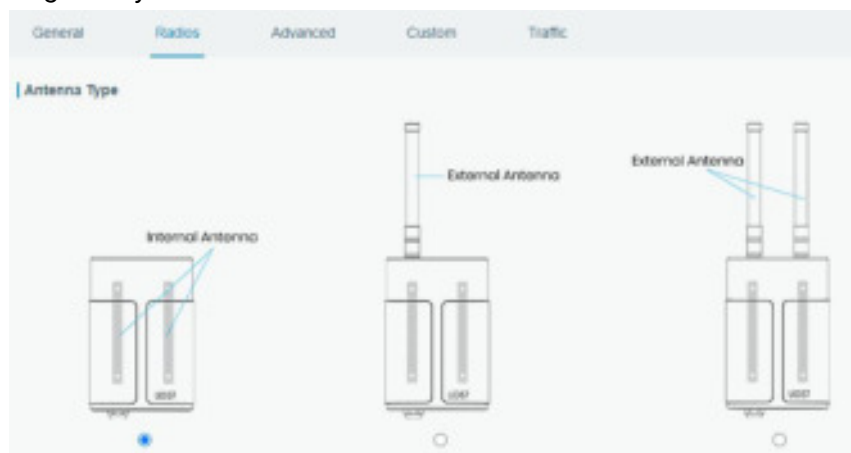
A. Go to “Packet Forwarder” → “General” page and click  to add a network server.



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

☒ Enable
 Type: Semtech
 Server Address: eu1.cloud.thethings.network
 Port Up: 1700
 Port Down: 1700

C. Go to “Packet Forwarder” → “Radio” page to configure antenna type, center frequency and channels. The channels of the gateway and network server need to be the same.



Region USS15

Name	Center Frequency/MHz
Radio 0	<input type="text" value="904.3"/>
Radio 1	<input type="text" value="905.0"/>

Multi Channels Setting

Enable	Index	Radio	Frequency/MHz
<input checked="" type="checkbox"/>	0	Radio 0	<input type="text" value="903.9"/>
<input checked="" type="checkbox"/>	1	Radio 0	<input type="text" value="904.1"/>
<input checked="" type="checkbox"/>	2	Radio 0	<input type="text" value="904.3"/>
<input checked="" type="checkbox"/>	3	Radio 0	<input type="text" value="904.5"/>
<input checked="" type="checkbox"/>	4	Radio 1	<input type="text" value="904.7"/>
<input checked="" type="checkbox"/>	5	Radio 1	<input type="text" value="904.9"/>
<input checked="" type="checkbox"/>	6	Radio 1	<input type="text" value="905.1"/>
<input checked="" type="checkbox"/>	7	Radio 1	<input type="text" value="905.3"/>

D. Add the gateway on network server page. For more details about the network server connection please refer to [Milesight IoT Support portal](#).

E. Go to “Traffic” page to view the data communication of UG67.

General Radios Advanced Custom Traffic								
Traffic Setting								
Stop Clear								
Rfch	Direction	Time	Ticks	Frequency	Datarate	Coderate	RSSI	SNR
1	up	11:52:38	317002157 1	865.985	SF7BW125	4/5	-91	5.0
1	up	11:52:22	316226269 2	866.585	SF7BW125	4/7	-108	-11.8
0	down	-	311888813 1	866.0625	SF7BW125	4/5	-	-
0	up	11:51:37	311788813 1	866.0625	SF7BW125	4/5	-95	-0.8

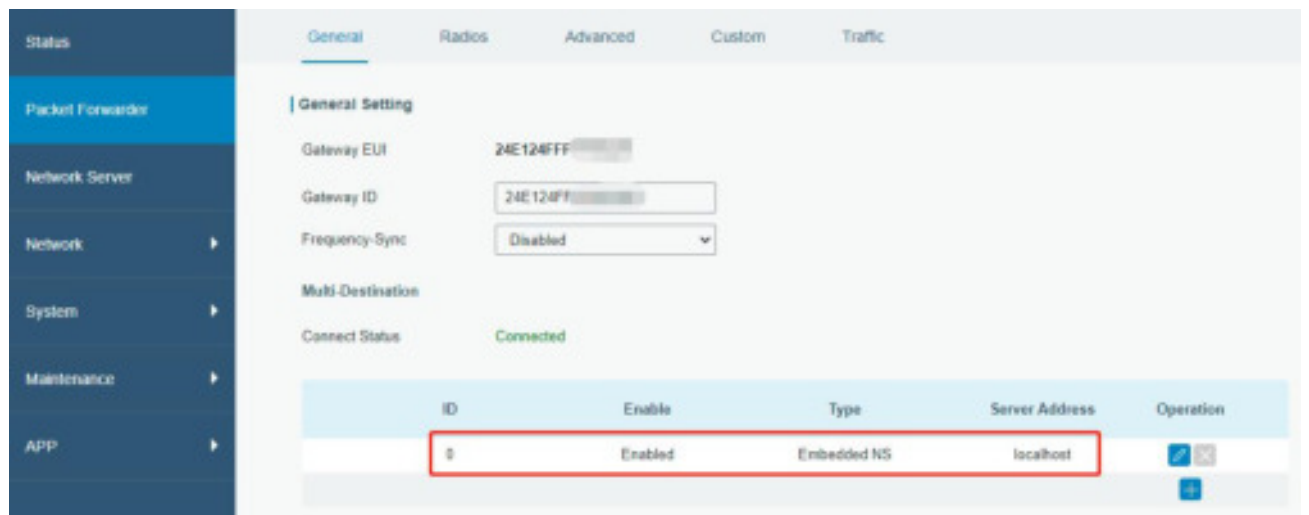
7. Network Server Configuration



UG67 can work as network server and transmit data to Milesight IoT Cloud or other platform via MQTT/HTTP/HTTPS.

 **Make sure the gateway connects to the network as shown in [Section 5](#).**

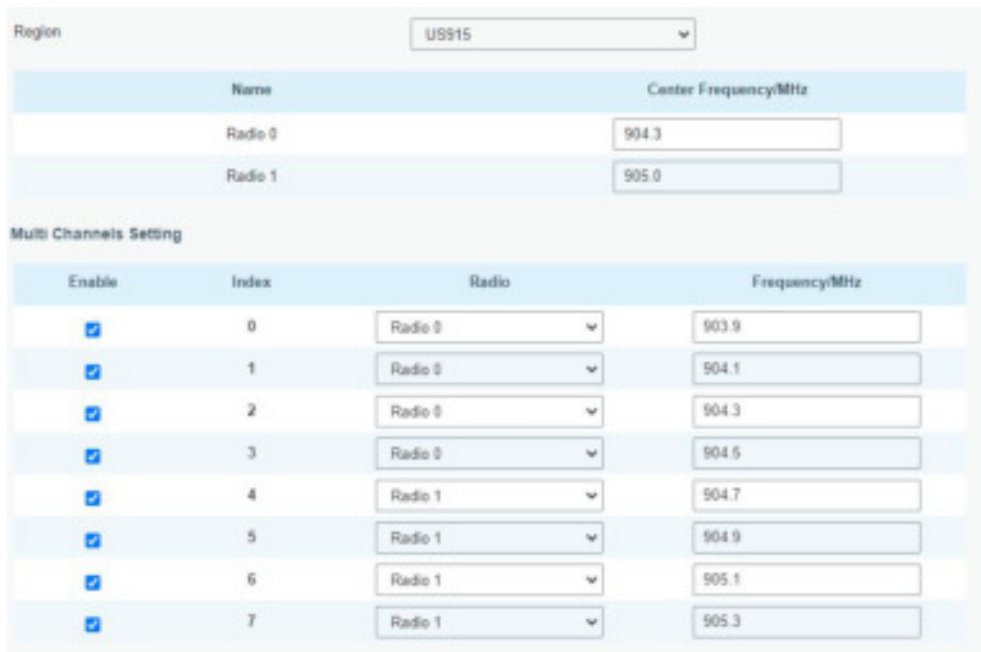
7.1 Connect UG67 to Milesight IoT Cloud

A. Go to “Packet Forwarder” → “General” page to enable the embedded network server.



ID	Enable	Type	Server Address	Operation
0	Enabled	Embedded NS	localhost	 

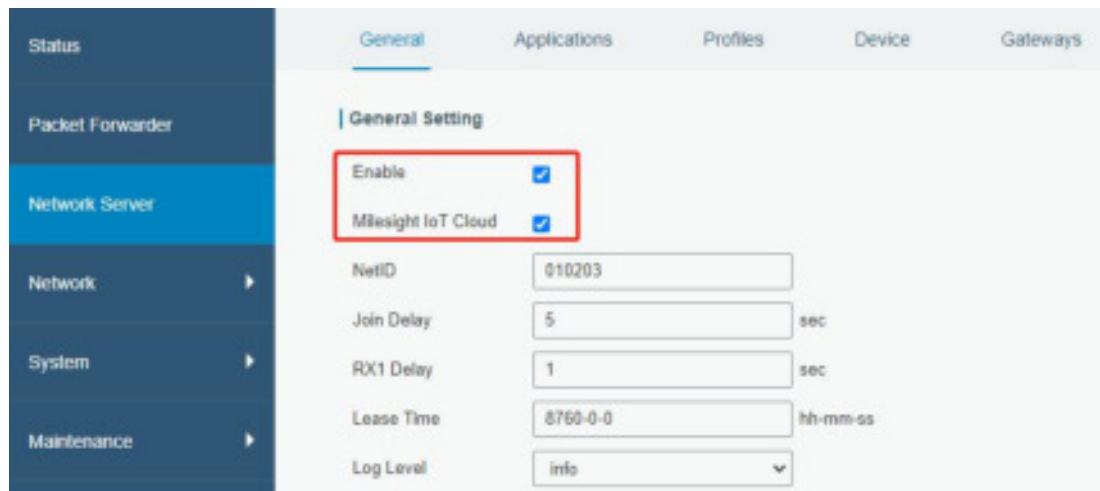
B. Go to “Packet Forwarder” → “Radio” page to select the antenna type, center frequency and channels. The channels of the gateway and nodes need to be the same.



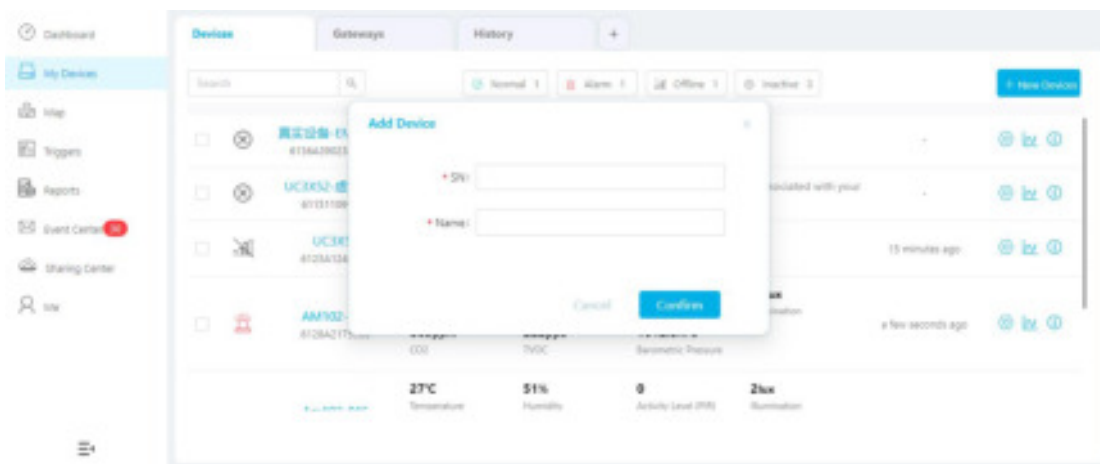
Name	Center Frequency/MHz
Radio 0	904.3
Radio 1	905.0

Enable	Index	Radio	Frequency/MHz
<input checked="" type="checkbox"/>	0	Radio 0	903.9
<input checked="" type="checkbox"/>	1	Radio 0	904.1
<input checked="" type="checkbox"/>	2	Radio 0	904.3
<input checked="" type="checkbox"/>	3	Radio 0	904.5
<input checked="" type="checkbox"/>	4	Radio 1	904.7
<input checked="" type="checkbox"/>	5	Radio 1	904.9
<input checked="" type="checkbox"/>	6	Radio 1	905.1
<input checked="" type="checkbox"/>	7	Radio 1	905.3

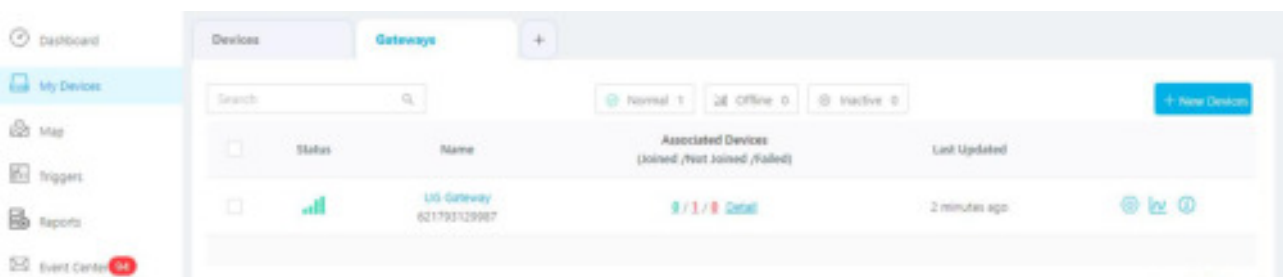
C. Go to “Network Server” → “General” page to enable the network server and “Milesight IoT Cloud” mode.



D. 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.

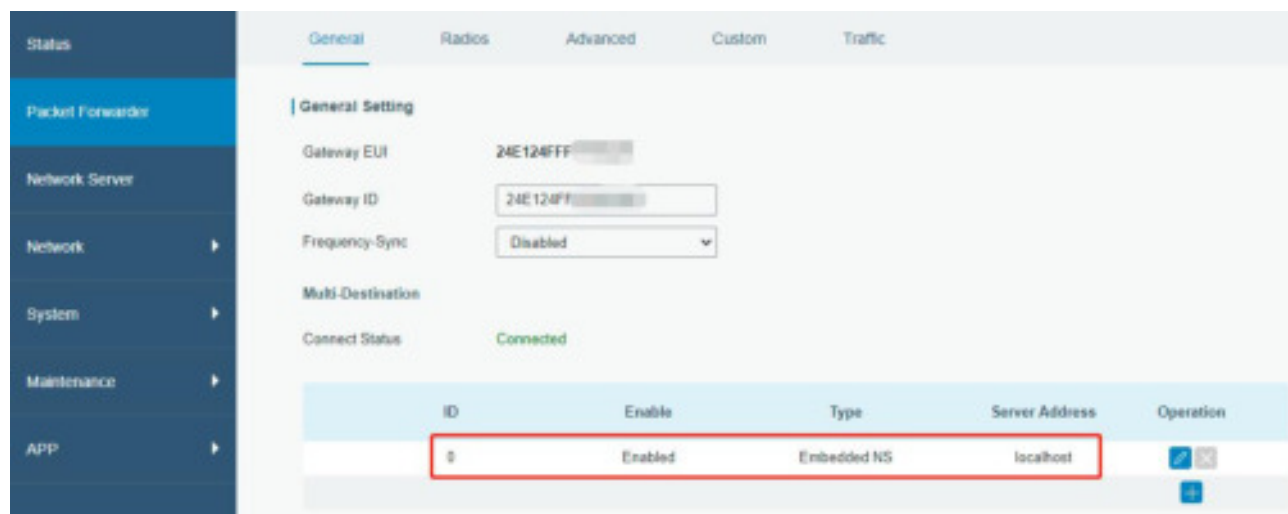


E. The gateway is online on Milesight IoT Cloud.





7.2 Connect UG67 to MQTT/HTTP Server

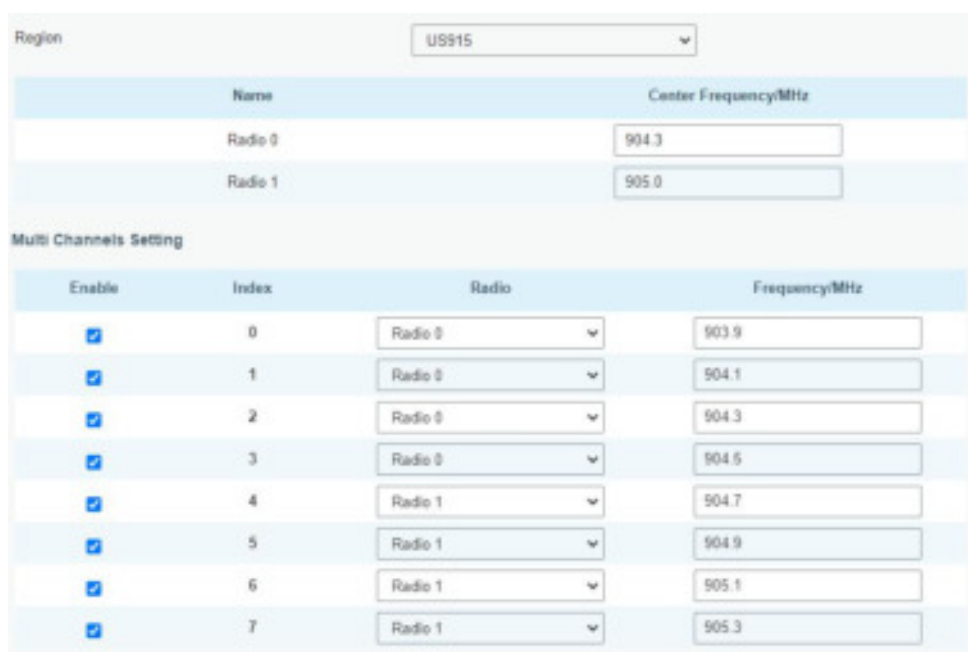
A. Go to “Packet Forwarder” → “General” page to enable the embedded network server.



The screenshot shows the 'General Setting' page for the 'Packet Forwarder' configuration. The 'Connect Status' is 'Connected'. A table at the bottom shows the configuration for the embedded network server.

ID	Enable	Type	Server Address	Operation
0	Enabled	Embedded NS	localhost	 

B. Go to “Packet Forwarder” → “Radio” page to select the antenna type, center frequency and channels. The channels of the gateway and nodes need to be the same.



The screenshot shows the 'Radio' configuration page. The 'Region' is set to 'US915'. Below, there are two tables for radio configuration.

Name	Center Frequency/MHz
Radio 0	904.3
Radio 1	905.0

Enable	Index	Radio	Frequency/MHz
<input checked="" type="checkbox"/>	0	Radio 0	903.9
<input checked="" type="checkbox"/>	1	Radio 0	904.1
<input checked="" type="checkbox"/>	2	Radio 0	904.3
<input checked="" type="checkbox"/>	3	Radio 0	904.5
<input checked="" type="checkbox"/>	4	Radio 1	904.7
<input checked="" type="checkbox"/>	5	Radio 1	904.9
<input checked="" type="checkbox"/>	6	Radio 1	905.1
<input checked="" type="checkbox"/>	7	Radio 1	905.3

C. Go to “Network Server” → “General” page to enable the network server mode.

The screenshot shows the 'General Setting' page for the 'Network Server'. The left sidebar has a menu with 'Status', 'Packet Forwarder', 'Network Server' (highlighted), 'Network', 'System', and 'Maintenance'. The main content area has tabs for 'General', 'Applications', 'Profiles', 'Device', and 'Gateways'. Under the 'General' tab, there is a 'General Setting' section with the following fields:

- Enable: ☒
- Milesight IoT Cloud: ☐
- NetID:
- Join Delay: sec
- RX1 Delay: sec
- Lease Time: hh-mm-ss
- Log Level:

D. Go to "Network Server"→"Application" to add a new application.

The screenshot shows the 'Applications' page. The left sidebar is the same as the previous screenshot. The main content area has tabs for 'General', 'Applications' (highlighted), 'Profiles', and 'Device'. Under the 'Applications' tab, there is an 'Applications' section with the following fields:

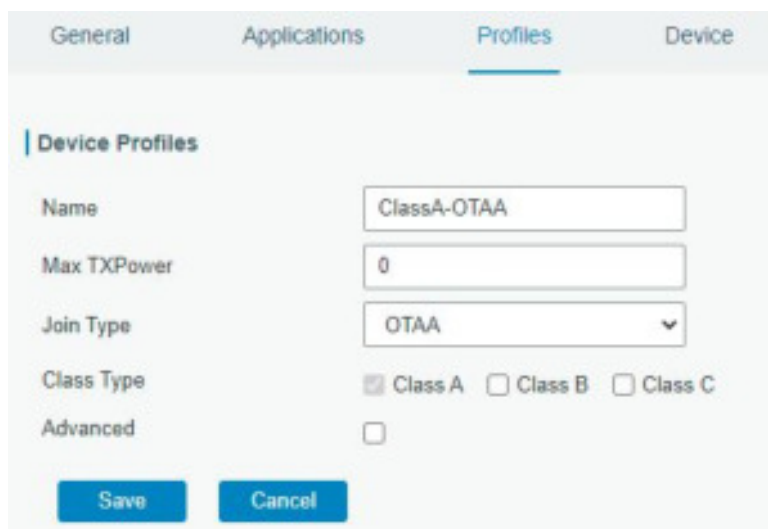
- Name:
- Description:
- Payload Codec:

After saving the application, you can select HTTP, HTTPS or MQTT protocol and fill in correspond server information to send data to another server.

The screenshot shows the 'Data Transmission' page. The left sidebar is the same as the previous screenshots. The main content area has a 'Data Transmission' section with the following fields:

- Type: (dropdown menu with options: HTTP, MQTT, HTTPS)
- Status:
- General section:
 - Broker Address:
 - Broker Port:
 - Client ID:
 - Connection Timeout/s:
 - Keep Alive Interval/s:

E. Go to "Profiles" page to add a new profile for the device.



General Applications **Profiles** Device

Device Profiles

Name

Max TXPower

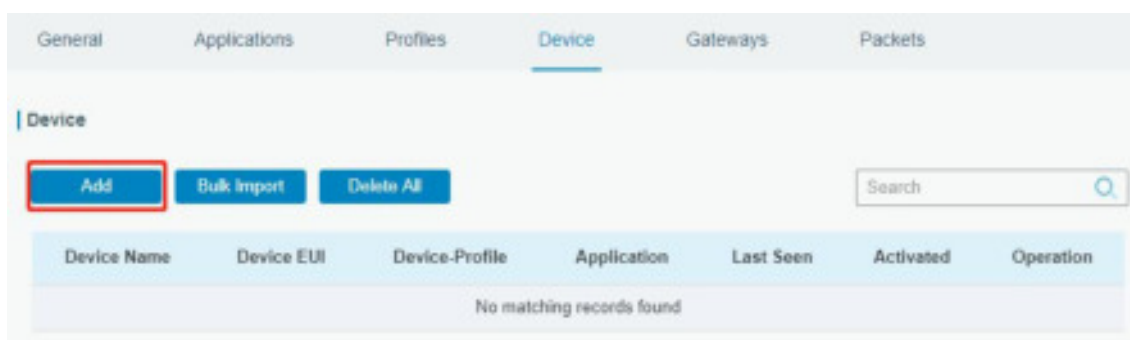
Join Type

Class Type ☒ Class A ☐ Class B ☐ Class C

Advanced ☐

Save **Cancel**

F. Go to “Device” page and click “Add” to add LoRaWAN® node devices.



General Applications Profiles **Device** Gateways Packets

Device

Add **Bulk Import** **Delete All**

Device Name	Device EUI	Device-Profile	Application	Last Seen	Activated	Operation
No matching records found						



Device Name

Description

Device EUI

Device-Profile

Application

Frame-counter Validation ☐

Application Key

Device Address

Network Session Key

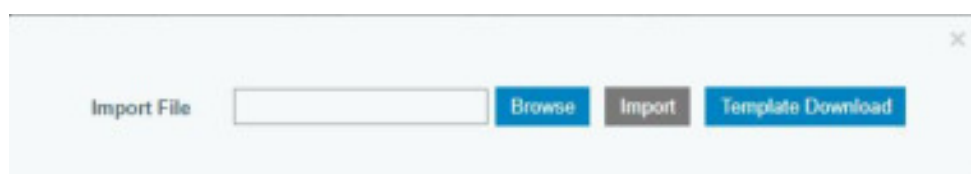
Application Session Key

Uplink Frame-counter

Downlink Frame-counter

Save & Apply

You can also click “Bulk Import” if you want to add many nodes all at once.



Import File

Browse **Import** **Template Download**

Click “Template Download” to download template file and add device information to this file. Application

and device profile should be the same as you created on web page.

	A	B	C	D	E	F	G	H	I
1	name	description	deviceid	application	deviceprofile	apikey	devaddr	appkey	rxkey
2	24e1242191323296		24e1242191323296	cloud	ClassC-OTAA	112233445566778899aa112233445566			
3									
4									
5									

Import this file to add bulks of devices.

F. Go to “Packets” page to check the packets from LoRaWAN® node devices. The type starts from “Up” means uplinks and “Dn” means downlinks.

Network Server										
<button>Clear</button>		<input type="text" value="Search"/>								
Device EUI	Frequency	Datarate	SNR	RSSI	Size	Fcnt	Type	Time	Details	
24e124126a146579	868300000	SF7BW125	8.5	-85	4	14	UpUnc	2020-04-28T15:09:25+08:00	!	
24e124126a146579	868300000	SF7BW125	10.2	-75	4	13	UpUnc	2020-04-28T15:04:25+08:00	!	

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

Packets Details		✕	
Fcnt	14		
Port	85		
Modulation	LORA		
Bandwidth	125		
SpreadFactor	7		
Bitrate	0		
CodeRate	4/5		
SNR	8.5		
RSSI	-85		
Power	-		
Payload(b64)	A3cYAA==		
Payload(hex)	03771800		
MIC	f5acdeb2		

[END]