



Mini LoRaWAN[®] Gateway

UG63

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 device using cables that have been damaged.

Related Documents

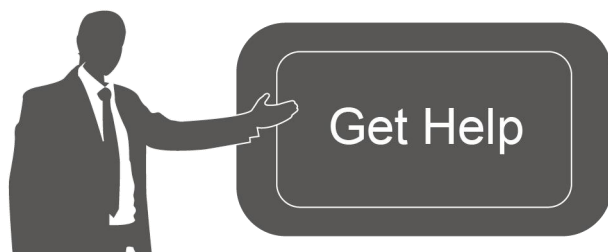
This Quick Start Guide only explains the installation of Milesight UG63 LoRaWAN® Gateway. For more functionality and advanced settings, please refer to the relevant documents as below.

Document	Description
UG63 Datasheet	Datasheet for UG63 LoRaWAN® Gateway.
UG63 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

UG63 is in conformity with the essential requirements and other relevant provisions of the CE, FCC, and RoHS.



For assistance, please contact
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Revision History

Date	Doc Version	Description
March 9, 2022	V1.0	Initial version

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1. Packing List

Before you begin to install the UG63 LoRaWAN® Gateway, please check the package contents to verify that you have received the items below.



1 × UG63



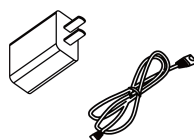
2 × Wall Mounting Kits



1 × Warranty Card



1 × Quick Start Guide



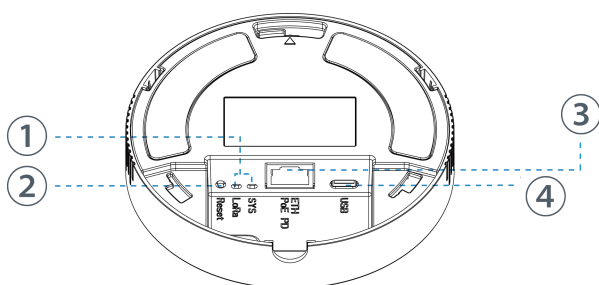
1 × Type-C Cable &
Power Adapter (Optional)

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

2. Hardware Introduction

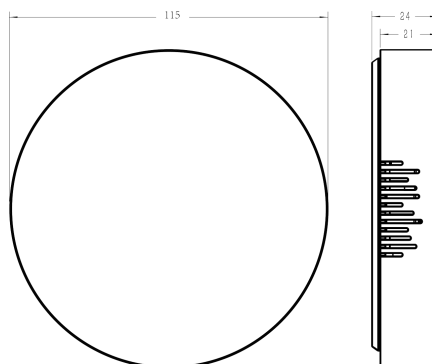
2.1 Overview

You can check below interfaces after taking off the mounting plate on the back of the device.



- ① LED Area
SYS: System Indicator
LoRa: LoRa Indicator
- ② Reset Button
- ③ Ethernet Port (PoE PD) & Indicator
- ④ Type-C Console Port

2.2 Dimensions (mm)



2.3 LED Indicators

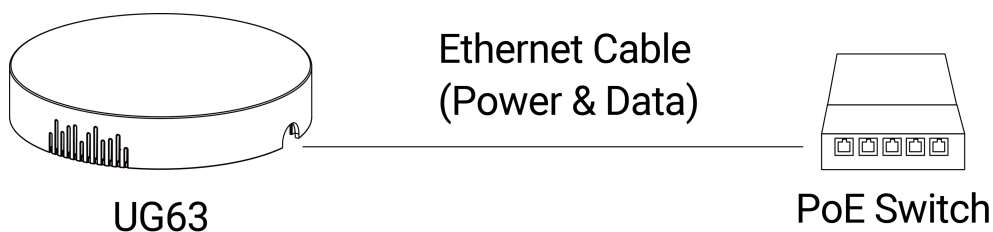
LED	Indication	Status	Description
SYS	System Status	Off	The system is starting up
		Green Light	The system is running properly
		Red Light	The system goes wrong
LoRa	LoRa Status	Off	Packet Forwarder mode is running off
		Green Light	Packet Forwarder mode is running well
Ethernet Port	Link Indicator (Yellow)	Off	Disconnected or connect failure
		On	Connected
		Blinking	Transmitting data
	Rate Indicator (Green)	Off	100 Mbps mode
		On	Other mode

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.

3. Power Supply

UG63 can be powered by 802.3af standard PoE or type-C port (5 VDC). If both connected, PoE power is preferred.



Note: When connecting, Ethernet cable of UG63 device side should be installed first, otherwise, PoE devices or gateway may be damaged.

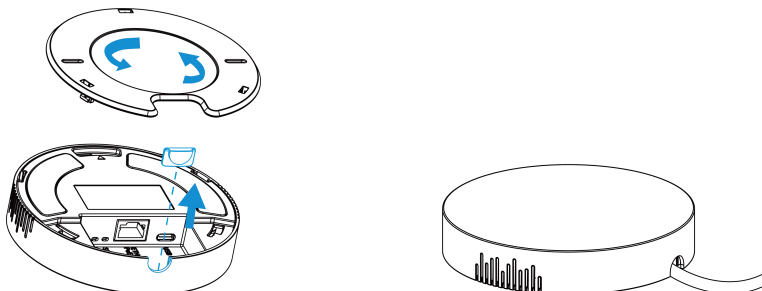
4. Installation

UG63 supports multiple installation methods like desktop, wall mounting, ceiling mounting, etc. Before you start, make sure that all cables have been installed and configurations are completed.

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

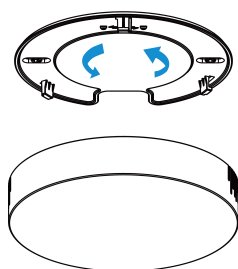
4.1 Desktop

Take off the baffle and mounting plate on the back of the device, then you can place the device on the desktop.

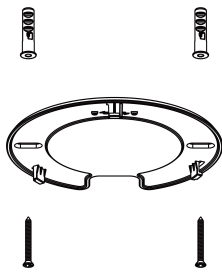


4.2 Wall/Ceiling Mounting

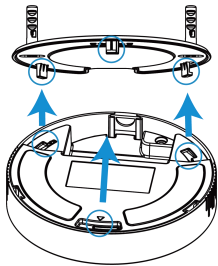
A. Take off the mounting plate on the back of the device.



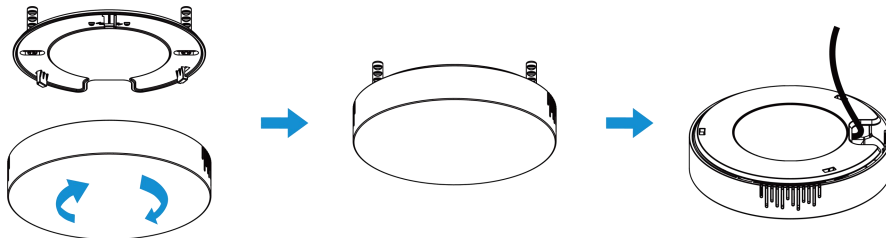
B. Align the mounting plate horizontally to the desired position on the wall or ceiling to mark two mounting holes, drill two holes as these marks, insert wall plugs into the holes respectively.



C. Fix the mounting plate to the wall plugs with screws.



D. Turn the device clockwise to lock it to the mounting plate.



5. Login the Web GUI

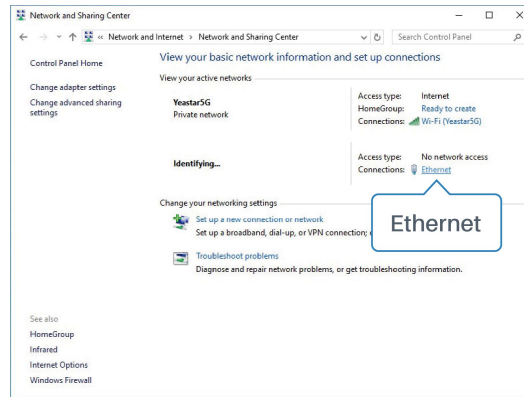
UG63 provides web-based configuration interface for management. If this is the first time you configure the gateway, please use the default settings below:

Username: **admin**

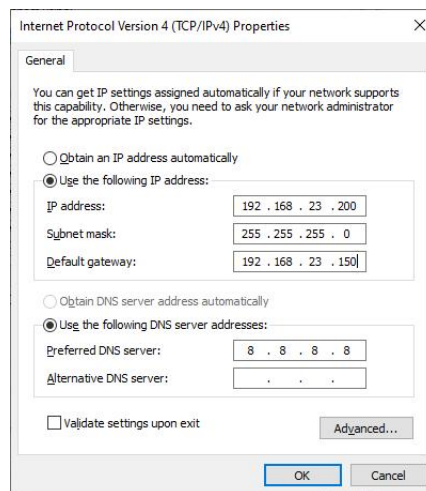
Password: **password**

Connect PC to UG63 ETH port through PoE injector or PoE switch. 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).

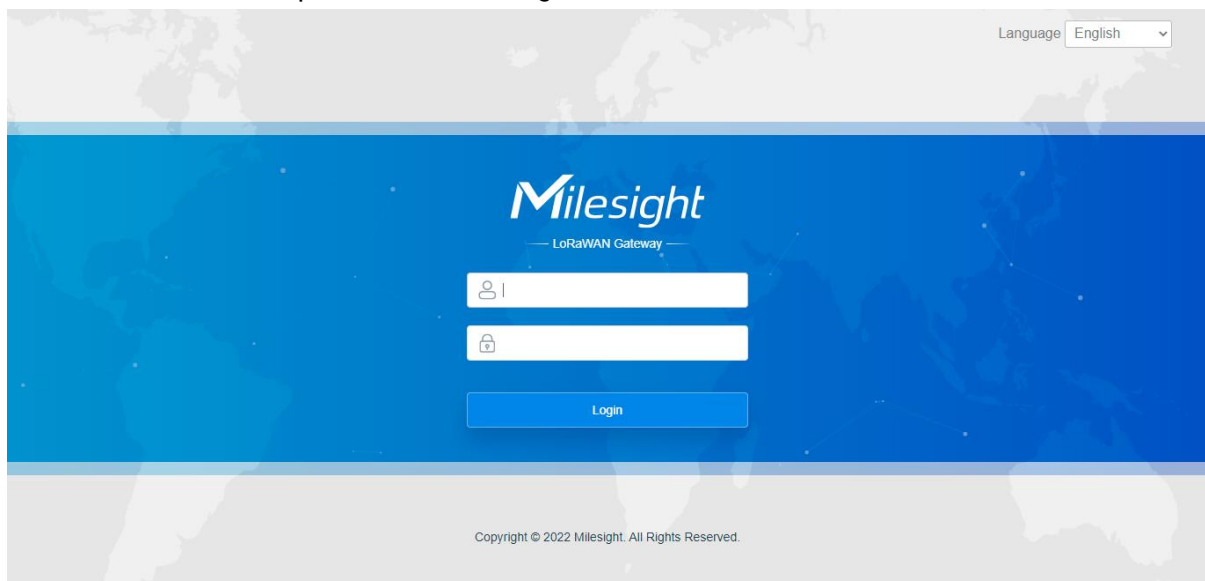


B. Go to “Properties” → “Internet Protocol Version 4 (TCP/IPv4)” and select “Use the following IP address”, then assign a static IP manually within the same subnet of the gateway.



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

The screenshot shows the Milesight web GUI interface. At the top, there is a navigation bar with the Milesight logo on the left and a user profile 'admin' on the right. Below the navigation bar, a warning message reads: "For your device security, please change the default password". The main content area is divided into a left sidebar with menu items: Status, Packet Forwarder, Network Server, Network, System, and Maintenance. The main panel displays "System Information" under the "Overview" tab. The information is presented in a table:

System Information	
Model	UG63-915M
Region	US915
Serial Number	6816B4319580
Firmware Version	63.0.0.1-a4
Hardware Version	V1.0
Local Time	2022-03-10 16:56:23 Thursday
Uptime	20:05:21
CPU Load	86%
RAM (Capacity/Available)	256MB/23MB(8.98%)
eMMC (Capacity/Available)	1.5G/1.3G(89.35%)

At the bottom right of the main panel, there are "Manual Refresh" and "Refresh" buttons. On the far right, a "Help" sidebar is visible, listing various system parameters and their descriptions.

6. Network Connection

A. Go to "Network" → "Interface" → "Port" page to select the connection type and configure Ethernet port information, click "Save & Apply" for changes to take effect. UG63 supports Static IP, DHCP and PPPoE modes. If you use static IP, ensure the "Gateway" IP address is the same as your modem/router Ethernet port address.

The screenshot shows the Milesight web GUI interface for configuring a port. The left sidebar is expanded to show "Interface" selected. The main panel displays "Port" configuration for "Port_1". The configuration fields are as follows:

Field	Value
Port	eth 0
Connection Type	Static IP
IP Address	192.168.45.161
Netmask	255.255.255.0
Gateway	192.168.45.1
MTU	1500
Primary DNS Server	8.8.8.8
Secondary DNS Server	114.114.114.114

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


C. Log in the web GUI via the newly assigned IP address and go to "Status" → "Network" to check Ethernet port status.




Status	Overview	Network	VPN	Routing				
Packet Forwarder	WAN							
Network Server	Port	Status	Type	IP Address	Netmask	Gateway	DNS	Duration
Network	eth 0	up	Static	192.168.45.161	255.255.255.0	192.168.45.1	8.8.8.8	16h 52m 05s

7. Packet Forwarder Configuration

UG63 has pre-installed multiple packet forwarders including Semtech UDP Packet Forwarder, Chirpstack-Generic MQTT broker, LoRa Basic Station, etc. This section explains how to connect the gateway to network servers.

 **Make sure the gateway connects to the network as shown in [Section 6](#).**

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

Status	General	Radios	Advanced	Custom	Traffic	
Packet Forwarder	General Setting					
Network Server	Gateway EUI	24E124 [redacted]				
Network	Gateway ID	24E124 [redacted]				
System	Frequency-Sync	Disabled				
Maintenance	Multi-Destination					
	ID	Enable	Type	Server Address	Connect Status	Operation
	0	Enabled	Embedded NS	localhost	Disconnected	 
						

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

Enable	<input checked="" type="checkbox"/>
Type	Semtech
Server Address	eu1.cloud.thethings.network
Port Up	1700
Port Down	1700
<input type="button" value="Save"/>	

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

Region US915

Name	Center Frequency/MHz
Radio 0	904.3
Radio 1	905.0

Multi Channels Setting

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

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 UG63.

General Radios Advanced Custom **Traffic**

Traffic Setting

Stop
Clear

Rfch	Direction	Time	Ticks	Frequency	Datarate	Coderate	RSSI	SNR
1	up	11:52:38	317882157 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	865.0625	SF7BW125	4/5	-	-
0	up	11:51:37	311788813 1	865.0625	SF7BW125	4/5	-95	-0.8

8. Connect UG63 to Milesight IoT Cloud

UG63 can connect to Milesight IoT Cloud to manage Milesight product's data. Due to the limitation of memory, it's suggested to bind not more than 20 devices.

A. Ensure the gateway has access to the Internet and is able to ping the domain of Milesight IoT Cloud.

The screenshot shows the 'IP Ping' test results in the Milesight IoT Cloud interface. The host is 'cloud.milesight-iot.com'. The test shows four successful pings with the following details:



```

PING cloud.milesight-iot.com (54.192.18.40): 56 data bytes
64 bytes from 54.192.18.40: seq=0 ttl=241 time=35.763 ms
64 bytes from 54.192.18.40: seq=1 ttl=241 time=29.067 ms
64 bytes from 54.192.18.40: seq=2 ttl=241 time=29.509 ms
64 bytes from 54.192.18.40: seq=3 ttl=241 time=29.261 ms

--- cloud.milesight-iot.com ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 29.067/30.900/35.763 ms
  
```

B. Go to "Packet Forwarder" → "General" page to enable the embedded network server.

The screenshot shows the 'General Setting' page for the Packet Forwarder. The 'Multi-Destination' table is highlighted with a red box, showing the following configuration:

ID	Enable	Type	Server Address	Connect Status	Operation
0	Enabled	Embedded NS	localhost	Connected	 

C. Go to "Packet Forwarder" → "Radio" page to select the center frequency and channels. The channels of the gateway and nodes need to be the same.

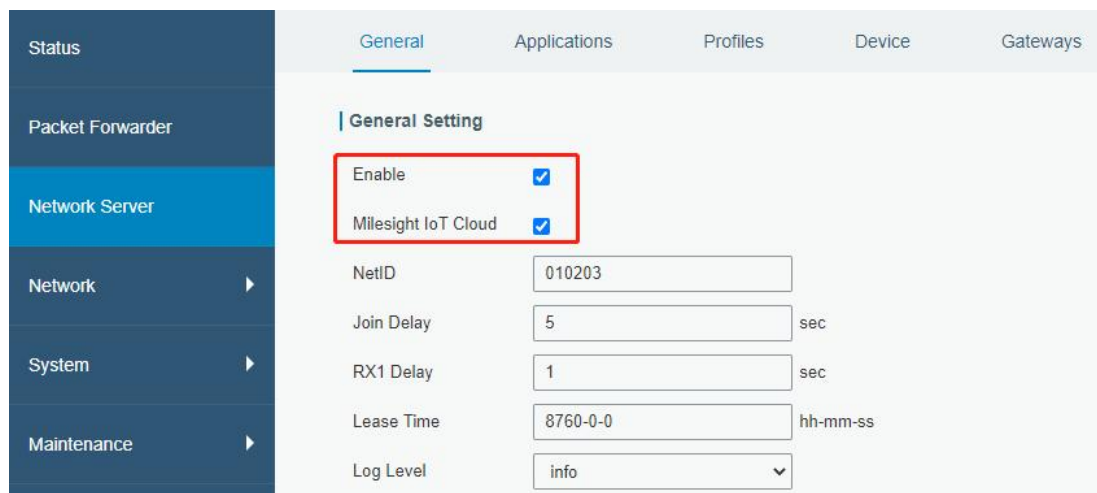
The screenshot shows the 'Radio' and 'Multi Channels Setting' pages. The 'Region' is set to 'US915'. The 'Radio' table shows the following configuration:

Name	Center Frequency/MHz
Radio 0	904.3
Radio 1	905.0

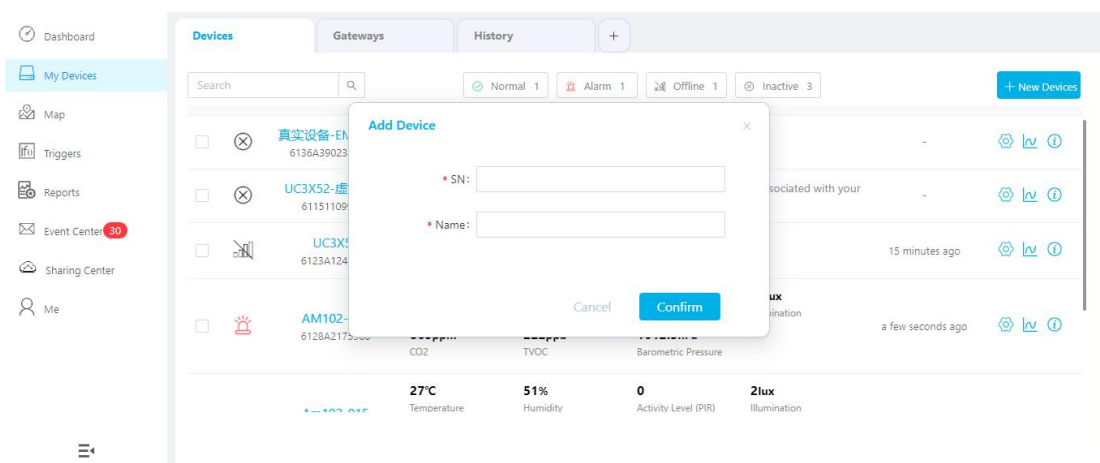
The 'Multi Channels Setting' table shows the following configuration:

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

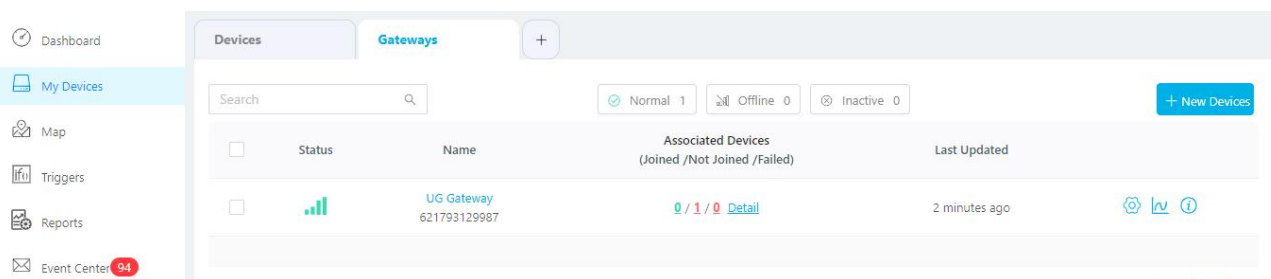
D. Go to “Network Server” → “General” page to enable the network server and “Milesight IoT Cloud” mode.



E. 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 item.



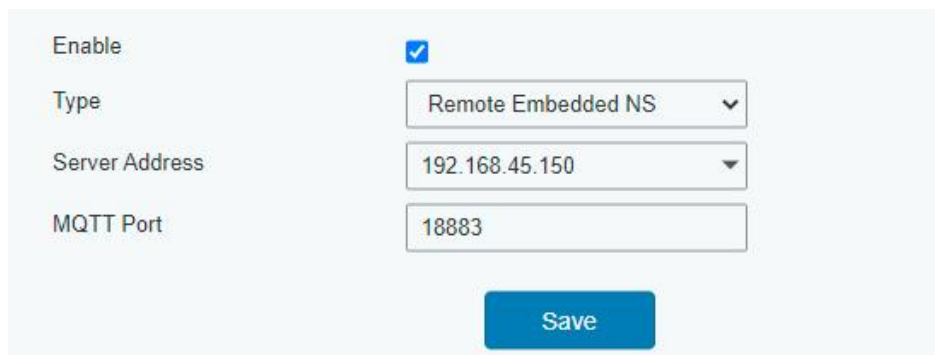
F. The gateway is online on Milesight IoT Cloud. After that you can add node devices to cloud directly.



9. Connect UG63 to UG65/UG67

Milesight UG6x LoRaWAN® gateway can set up multi-gateway architecture, which can make different gateway failover each other and extend signal coverage, while make one node device roams in multiple gateways. One UG65/UG67 gateway can be used as network server and other UG6x series gateways can be used as packet forwarder and transmit all data to the main gateway.

A. Go to “Packet Forwarder” → “General” page to enable the “Remote Embedded NS” and fill in the main gateway IP address which can reach.



Enable

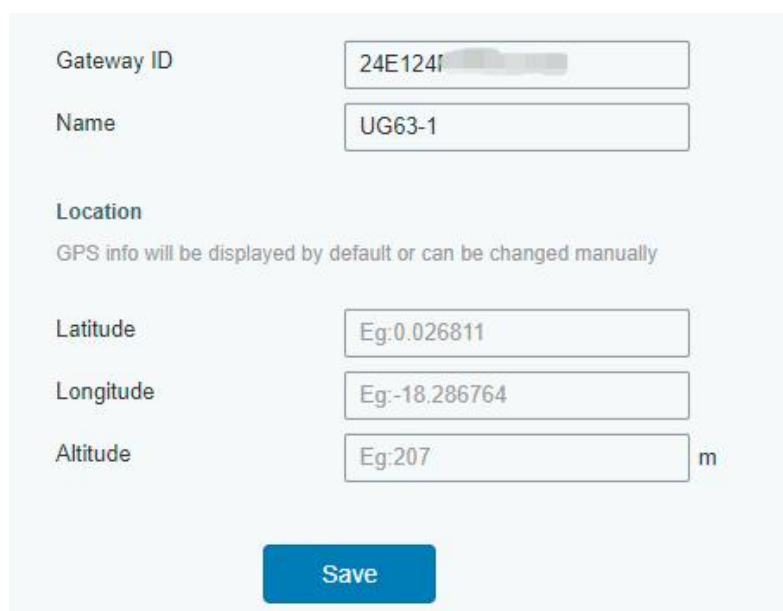
Type Remote Embedded NS

Server Address 192.168.45.150

MQTT Port 18883

Save

B. Go to “Network Server” → “Gateway Fleet” page of UG65/UG67 to add the gateway ID of UG63 gateway and define a name, then save the settings.



Gateway ID 24E124f...

Name UG63-1

Location
GPS info will be displayed by default or can be changed manually

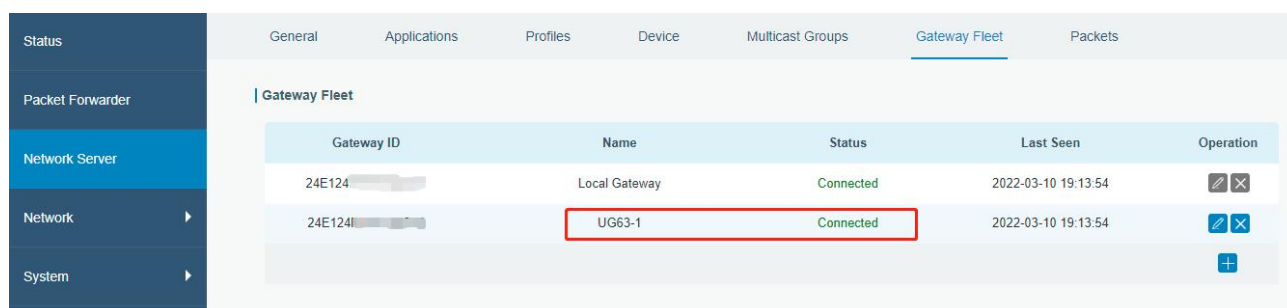
Latitude Eg:0.026811






Longitude Eg:-18.286764

Altitude Eg:207 m

Save

C. After connected, the UG63 can transfer node data to UG65/UG67 and you can check the data details on “Network Server” → “Packets” page of UG65/UG67.



Gateway ID	Name	Status	Last Seen	Operation
24E124f...	Local Gateway	Connected	2022-03-10 19:13:54	 
24E124f...	UG63-1	Connected	2022-03-10 19:13:54	 
				

[END]