Semi-Industrial LoRaWAN® Gateway UG65

Quick Start Guide

Milesight IoT

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-iot.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
Tel: 86-592-5085280
Fax: 86-592-5023065

FCC Statement:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator& your body. This transmitter must not be co-located or operating in
conjunction with any other antenna or transmitter.

ISED RSS Warning:
This device complies with Innovation, Science and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:
(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

ISED RF exposure statement:
This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator& your body. This transmitter must not be co-located or operating in conjunction with any other antenna or

transmitter.

Le rayonnement de la classe b repecte ISED fixaient un environnement non contrôlés.Installation et mise en œuvre de ce matériel devrait avec échangeur distance minimale entre 20 cm ton corps.Lanceurs ou ne peuvent pas coexister cette antenne ou capteurs avec d'autres.

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

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 × Ethernet Cable

1 × DC Jack Power Adapter

1 × Mounting Bracket

Bracket Fixing Screws

Wall Mounting Kits

1 × Warranty Card

1 × Quick Start Guide

1 × LoRa Antenna

(External antenna

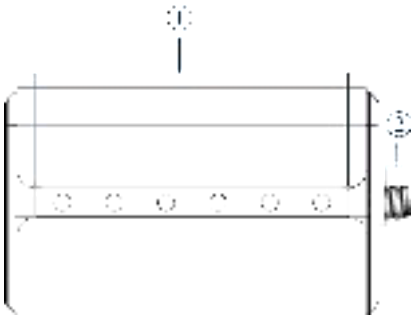
version included)

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

2. Hardware Introduction

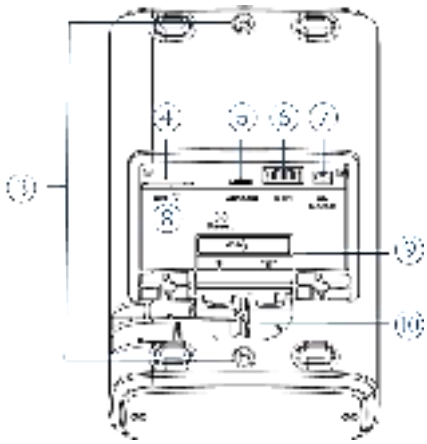
2.1 Overview

A. Front Panel



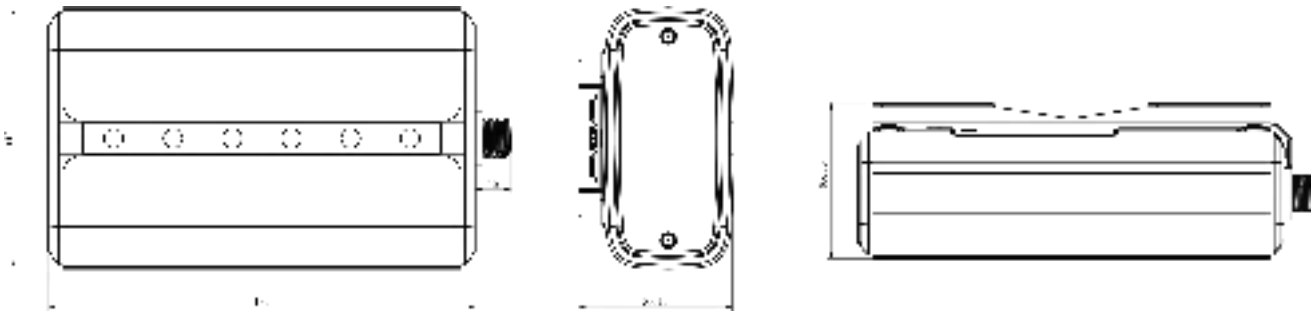
① LED Area
POWER: Power Indicator
STATUS: System Indicator
LoRa: LoRa Indicator
Wi-Fi: Wi-Fi Indicator
LTE: Cellular Indicator
ETH: Ethernet Port Indicator
② LoRa Antenna Connector
(only for external antenna version)

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	LoRa 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

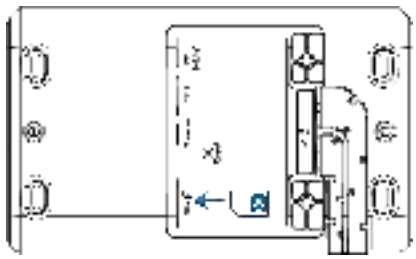
Function	Description	
	STATUS LED	Action
Reset	Static Blue	Press and hold the reset button for more than 5 seconds.
	Static Blue → Rapidly Blinking	Release the button and wait.
	Off → Static Blue	The gateway resets to factory default.

3. Hardware Installation

3.1 SIM Card Installation

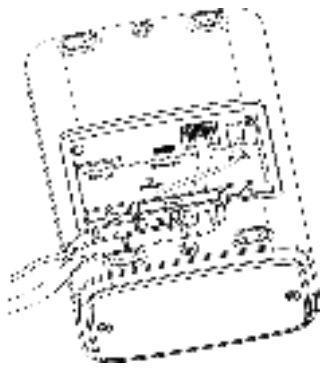
A. Use screwdriver to open the protective cover on the back panel of UG65.
B. Insert the SIM card into the device according to the direction icon on the device.
Note:

- If you need to take out the SIM card, press into the SIM card and it will pop up automatically.
- UG65 does not support hot plugging (also called hot swapping). please turn off the power before you insert or take off cards.



3.2 Ethernet Cable & Power Cable Installation

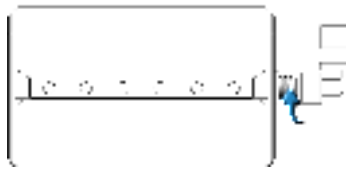
A. Connect the Ethernet cable and power cable to corresponding interfaces.
B. Pass two cables through the waterproof silicone and slid into the grooves.
C. Screw the protective cover back to the device.



UG6x can also be powered by 802.3af standard PoE injector or other PoE devices. If both connected, DC power is preferred.
Note: When connecting, Ethernet cable of UG65 device side should be installed first, otherwise, PoE devices or gateway may be damaged.

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 using embedded LoRa antennas.

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.

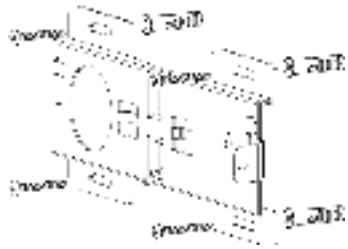
3.4.1 Wall Mounting

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

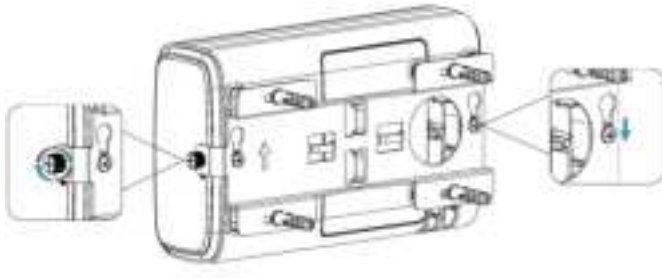
1. Align the mounting bracket horizontally to the desired position on the wall, use a marker pen to mark four mounting holes on the wall, and then remove the mounting bracket from the wall.

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.



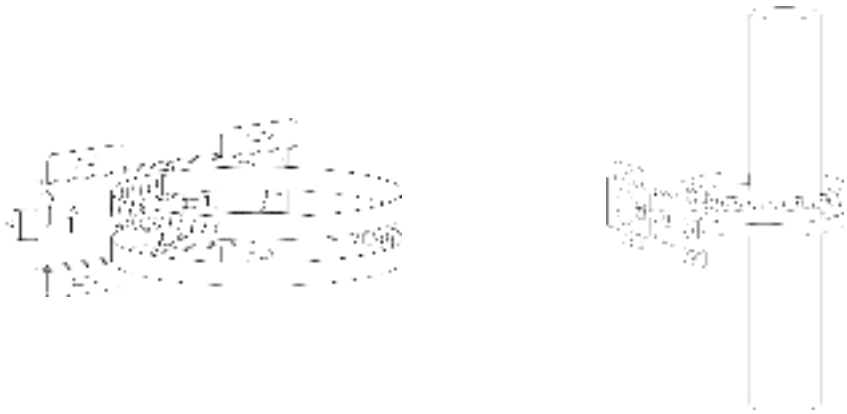
5. Screw the bracket fixing screws to the back panel of device, then hang the device to the mounting bracket on the wall.



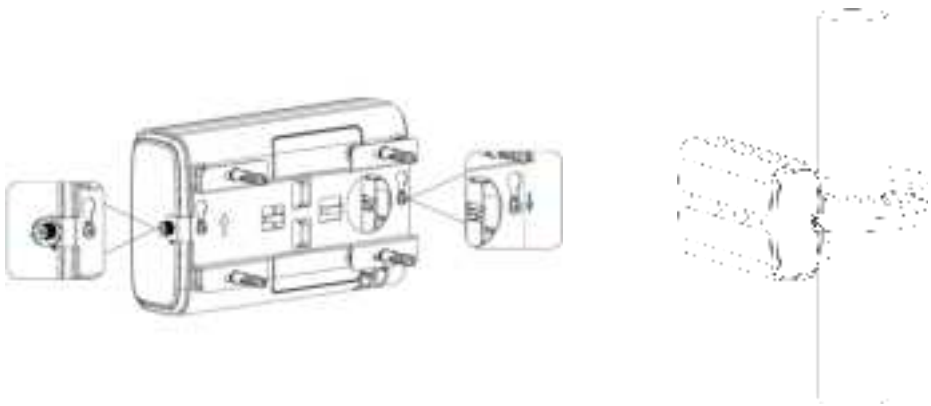
3.4.2 Pole Mounting

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:
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 UG65 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).

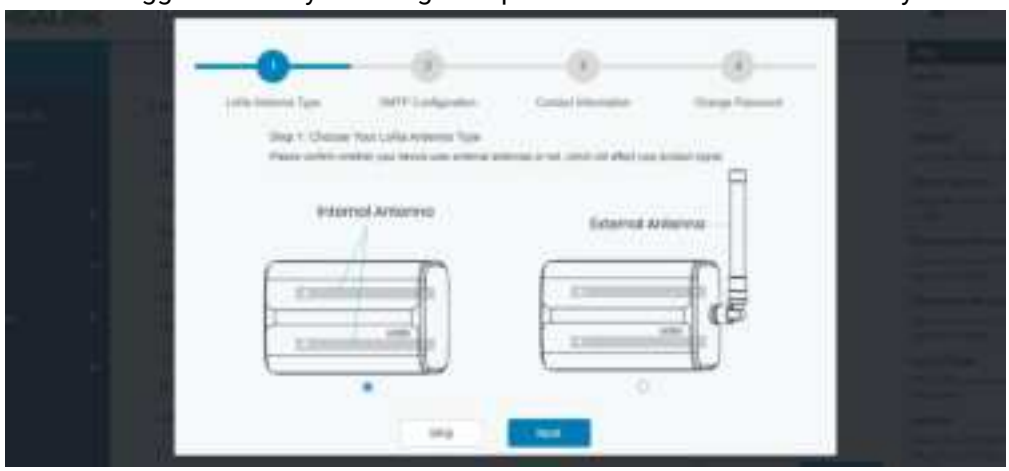
B. Go to “Properties” → “Internet Protocol Version 4(TCP/IPv4) ”and select “Use the following IP address”, then assign a static IP manually within the same subnet of the gateway.

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.

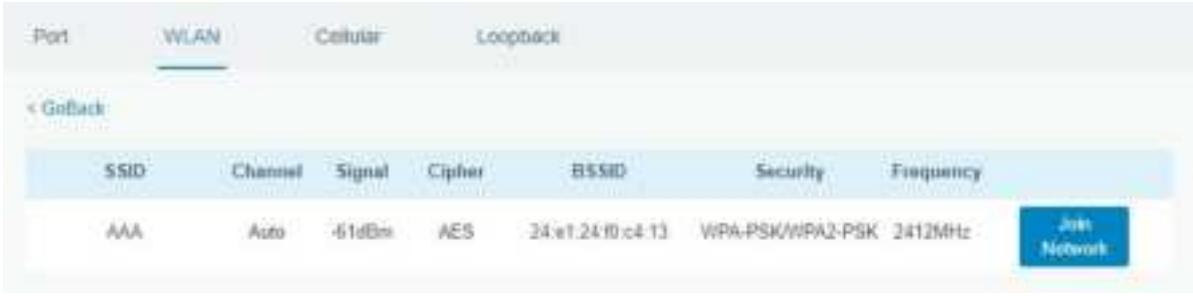
C. Connect Ethernet port of gateway to devices like router or modem.

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

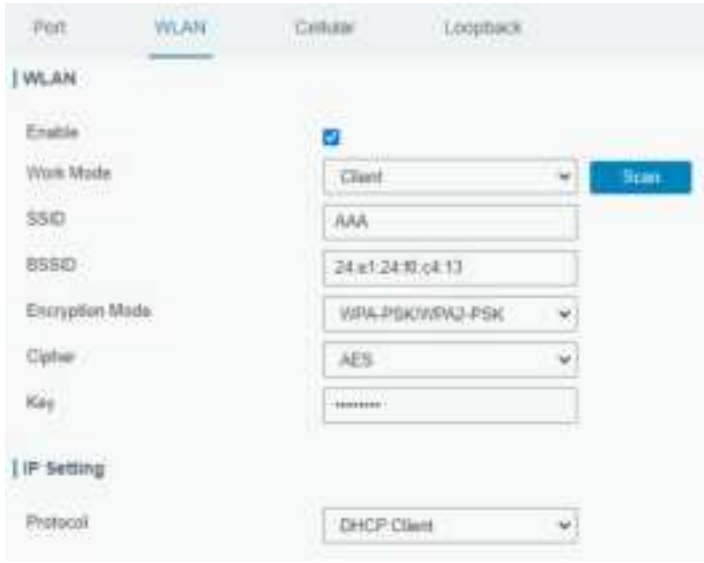
5.2 Configure the Wi-Fi Connection

A. Go to “Network” → “Interface” → “WLAN” and select “Client” mode.

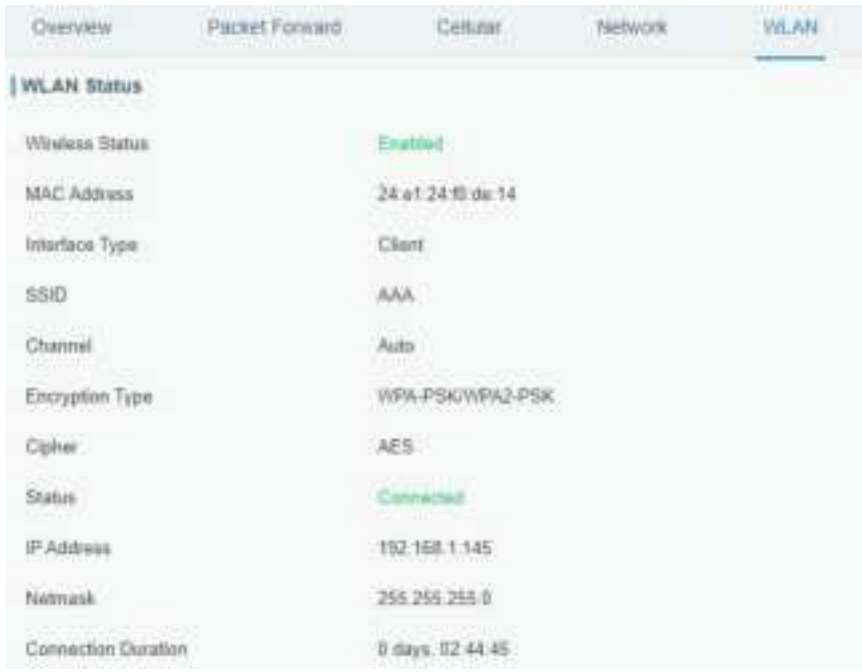
B. Click “Scan” to search for Wi-Fi access point. Select the available one and click “Join Network”.



C. Type the key of Wi-Fi.



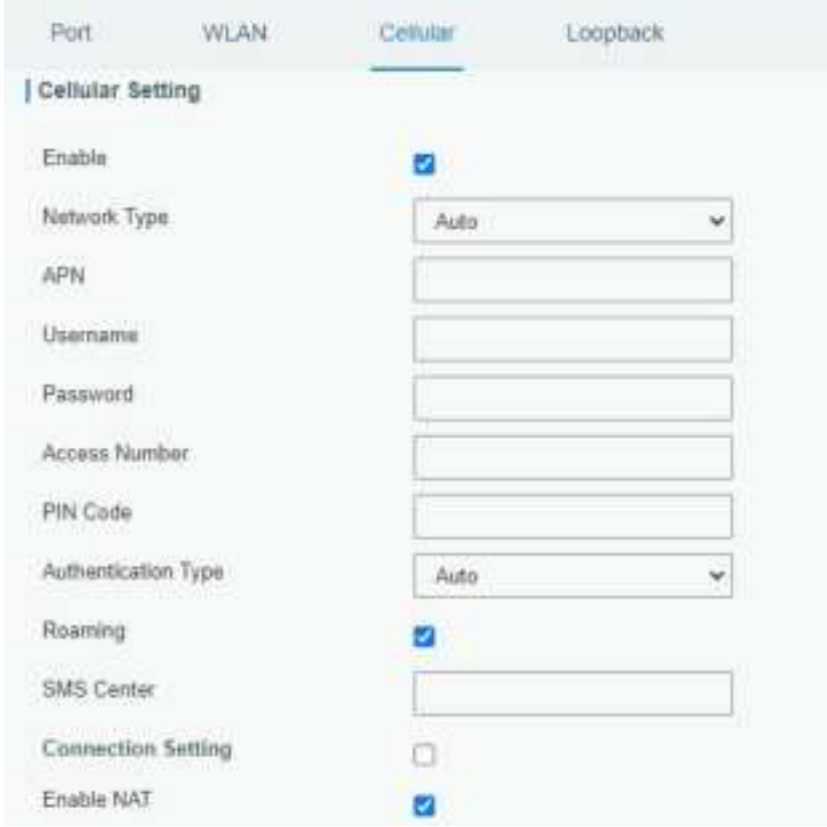
D. Go to “Status”→”WLAN” to check Wi-Fi status. If it shows “Connected”, it means gateway connects to Wi-Fi successfully.



5.3 Configure the Cellular Connection

A. Go to “Network” → “Interface” → “Cellular” → “Cellular Setting” page to enable cellular settings.

B. Choose relevant network type and fill in SIM card information like APN or PIN code.
C. Click “Save” and “Apply” for changes to take effect.



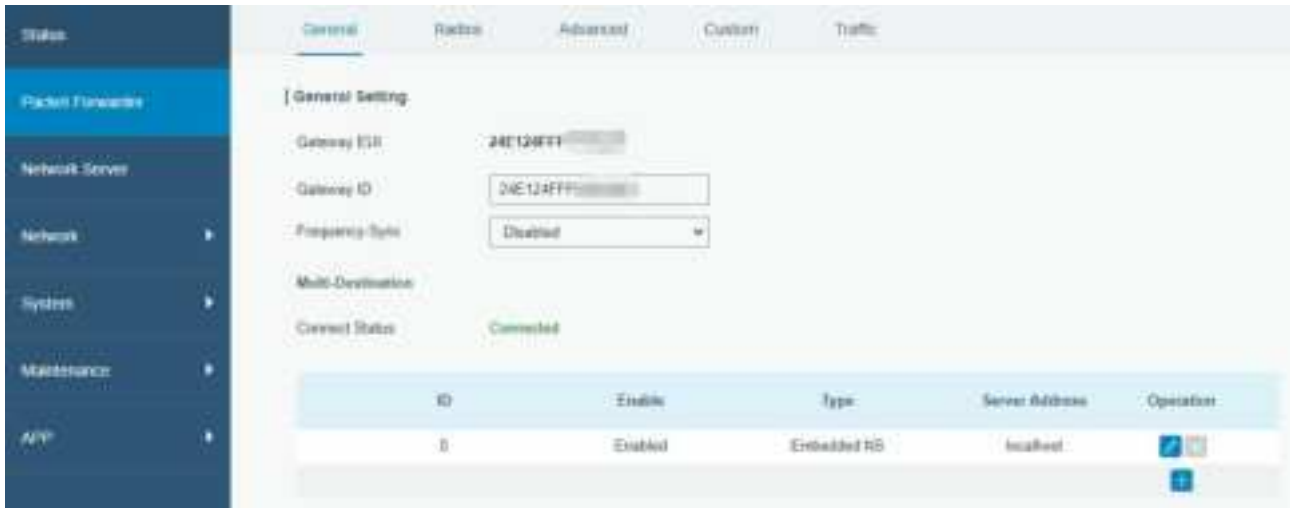
D. Go to “Status” → “Cellular” page to view the status of the cellular connection. If it shows “Connected”, it means the SIM has dialed up successfully. On the other hand, you can check the status of LTE indicator. If it keeps on light statically, it means SIM has dialed up successfully.

6. Packet Forwarder Configuration

UG65 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.

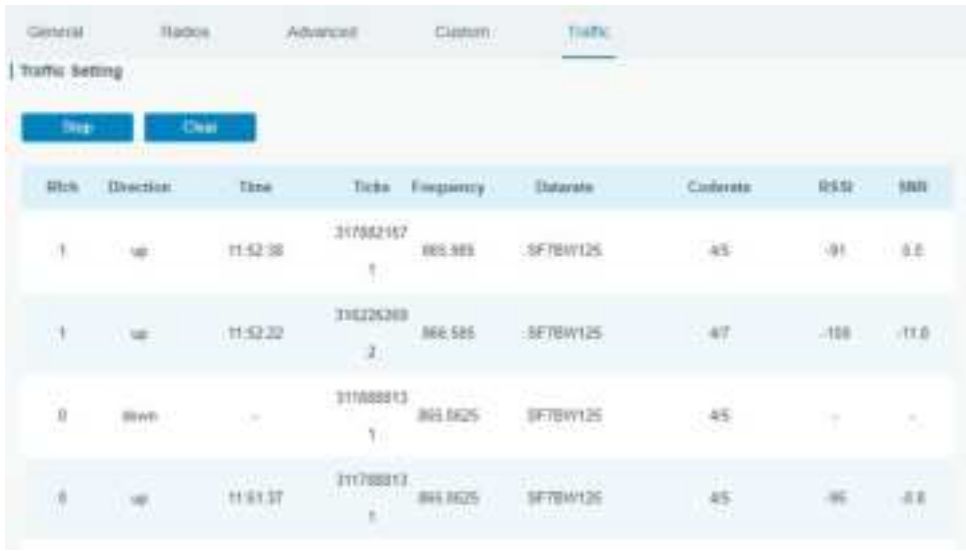


B. Fill in the server information and enable this server.

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.

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 UG65.



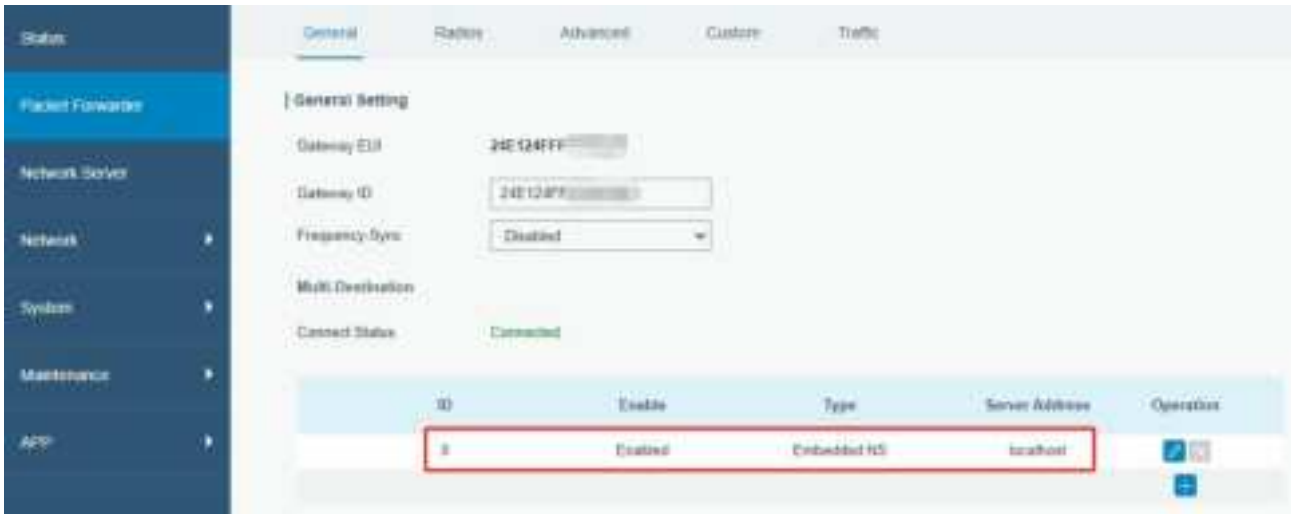
7. Network Server Configuration

UG65 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.

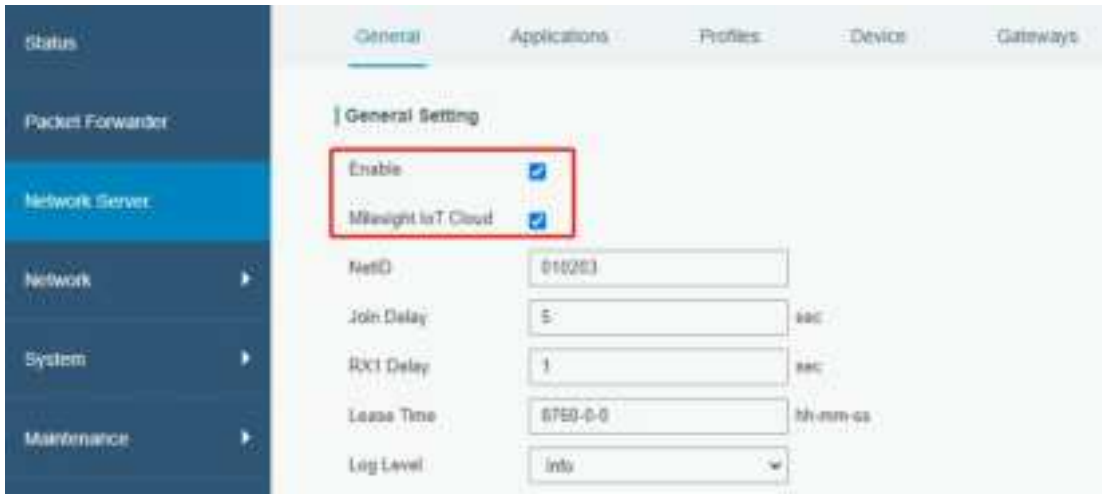
7.1 Connect UG65 to Milesight IoT Cloud

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

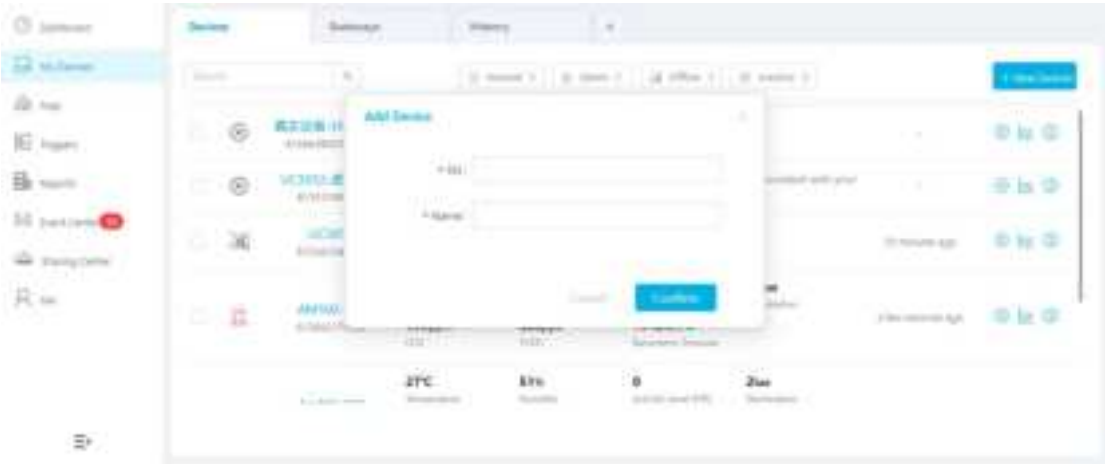


B. Go to "Packet Forwarder" → "Radio" page to select the antenna type, center frequency and channels. The channels of the gateway and nodes need to be the same.

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



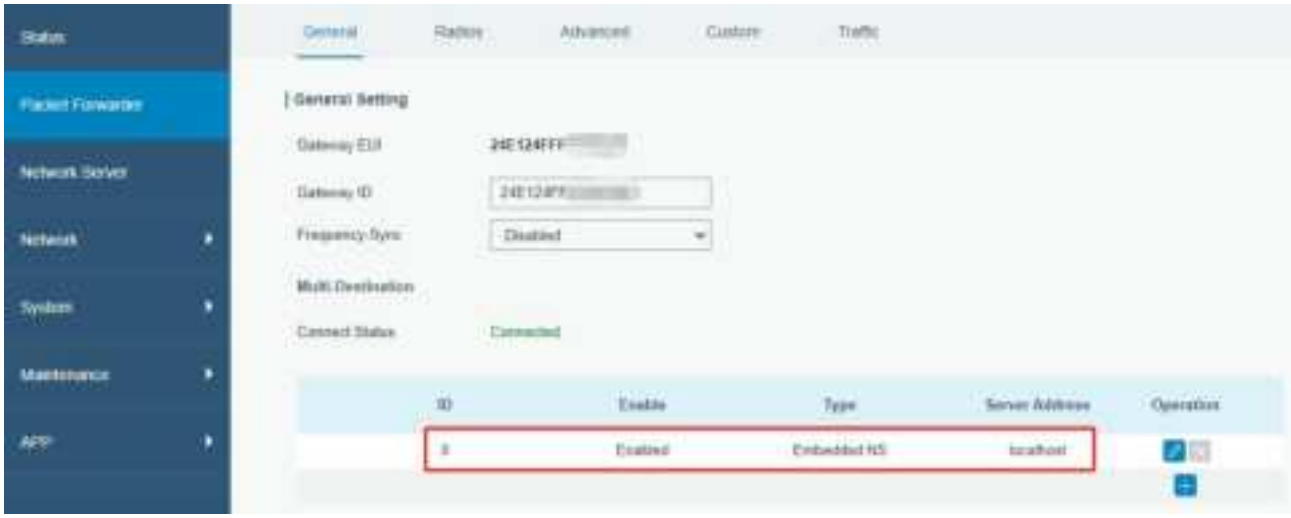
D. Log in the Milesight IoT Cloud. Then go to “My Devices” page and click “+New Devices” to add gateway to Milesight IoT Cloud via SN. Gateway will be added under “Gateways” menu.



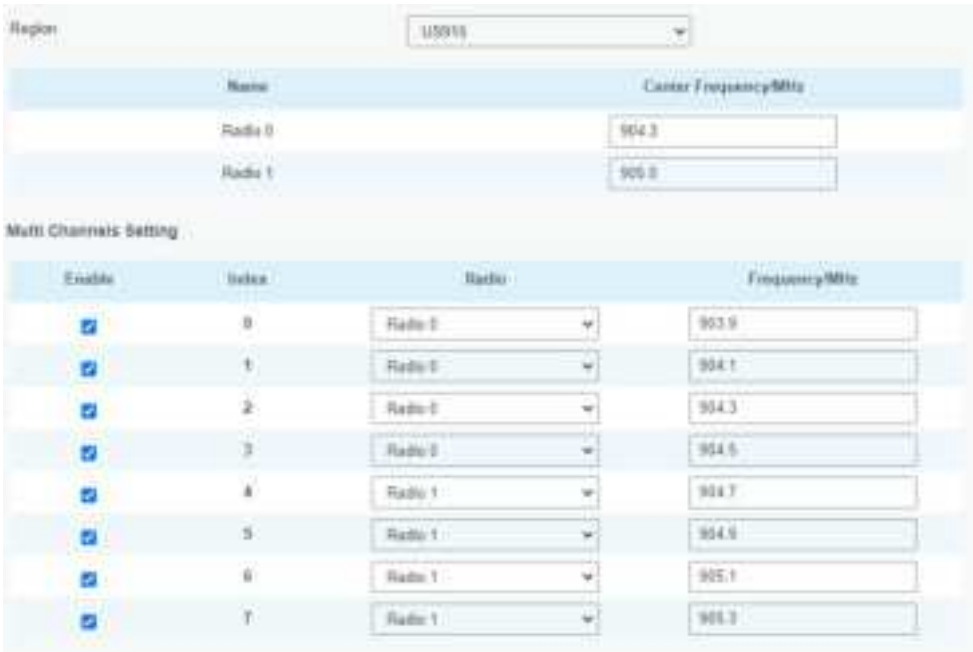
E. The gateway is online on Milesight IoT Cloud.

7.2 Connect UG65 to MQTT/HTTP Server

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

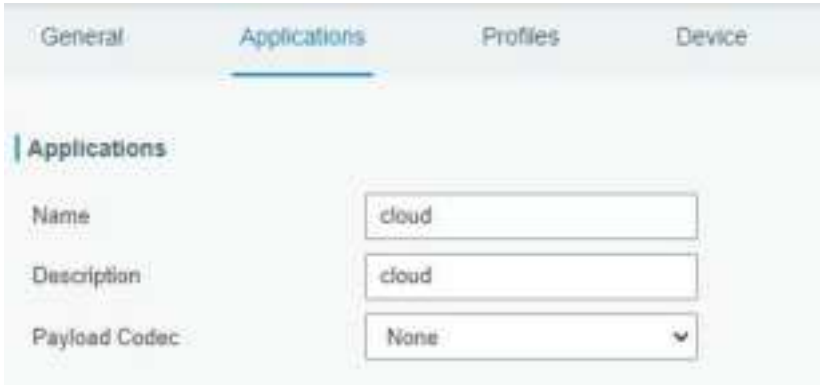


B. Go to “Packet Forwarder” → “Radio” page to select the antenna type, center frequency and channels. The channels of the gateway and nodes need to be the same.

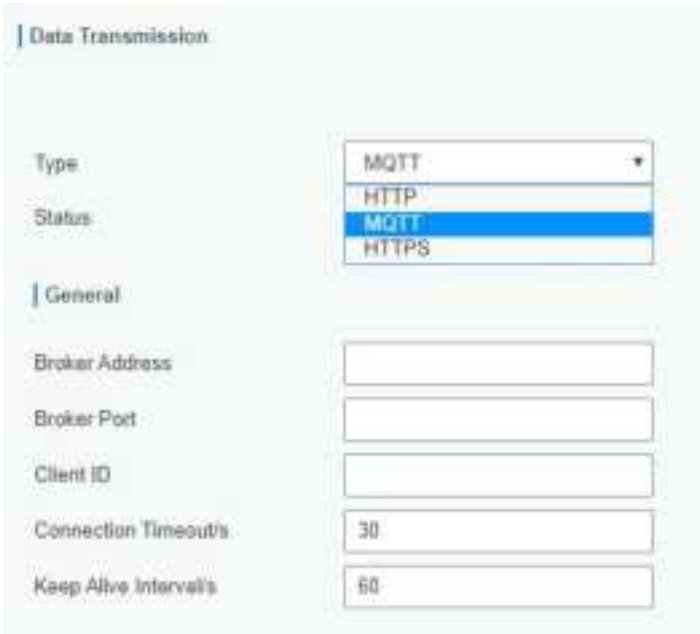


C. Go to “Network Server” → “General” page to enable the network server mode.

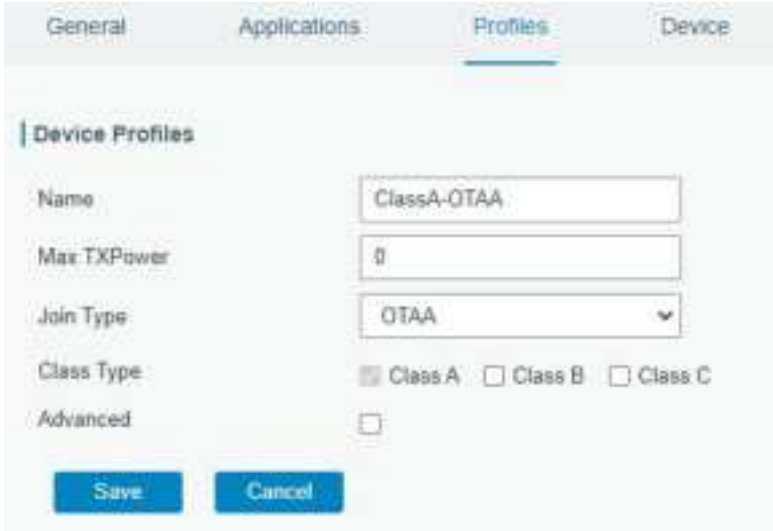
D. Go to “Network Server”→”Application” to add a new application.



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



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



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

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

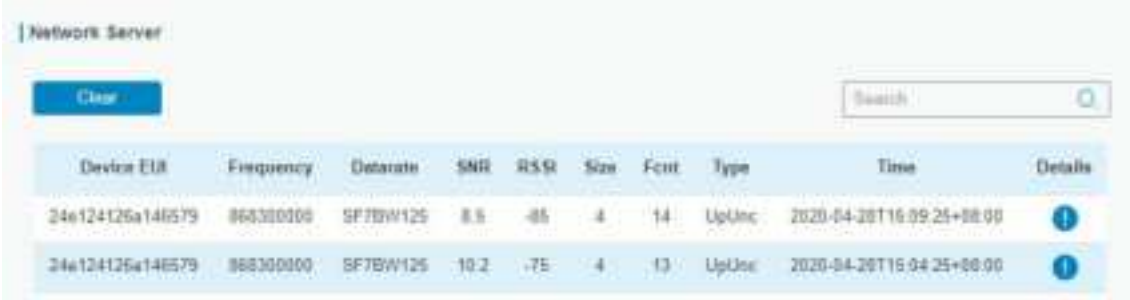
Click “Template Download” to download template file and add device information to this file. Application

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

name	description	deveui	application	deviceprofile	appkey	devaddr	appskey	nwkskey
24e124219323266		24e124219323266	cloud	ClassC-OTAA	11223344556677889 9aa1122334455 66			

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.



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

[END]