

LINOVISION

IOT-G65 LoRaWAN Gateway Quick Start Guide



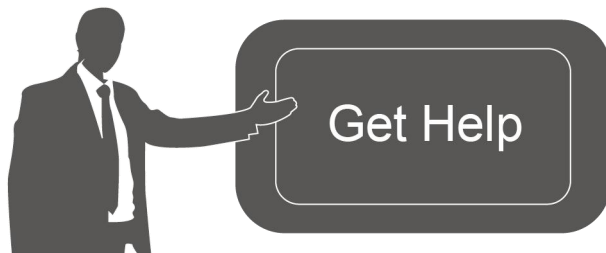
Welcome

Thank you for choosing IOT-G65 LoRaWAN Gateway.

This guide teaches you how to install the IOT-G65 and how to log in the web GUI to configure the device.

Declaration of Conformity

IOT-G65 is in conformity with the essential requirements and other relevant provisions of the CE, FCC, and RoHS.



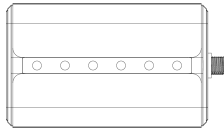
For assistance, please contact
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1. Packing List

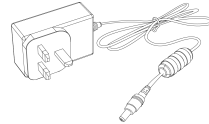
Before you begin to install the IOT-G65 LoRaWAN Gateway, please check the package contents to verify that you have received the items below.



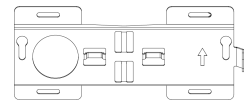
1 × IOT-G65



1 × Ethernet Cable



1 × DC Jack Power Adapter



1 × Mounting Bracket



Bracket Fixing Screws
& Grounding Screw



Wall Mounting Kits



1 × Warranty Card



1 × LoRa Antenna
(Optional)

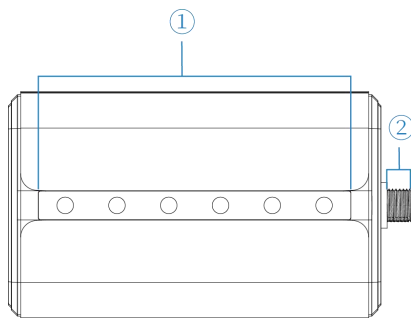


If any of the above items is missing or damaged, please contact sales representative.

2. Hardware Introduction

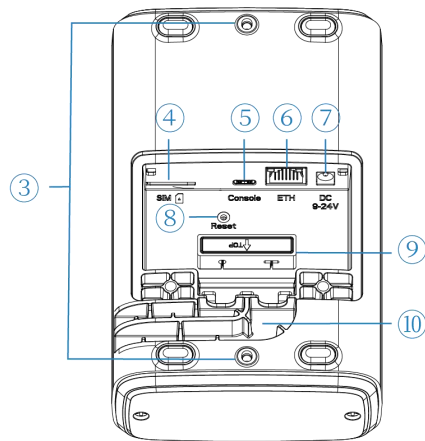
2.1 Overview

A. Front Panel



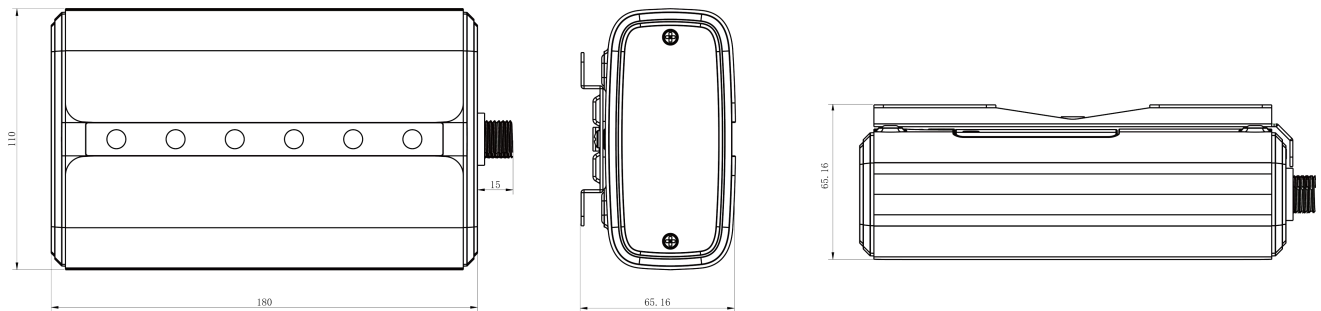
- ① LED Area
 - POWER: Power Indicator
 - STATUS: System Indicator
 - LoRa: LoRa Indicator
 - Wi-Fi: Wi-Fi Indicator
 - LTE: Cellular Indicator
 - ETH: Ethernet Port Indicator
- ② LoRa Antenna Connector
(only for external antenna version)

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

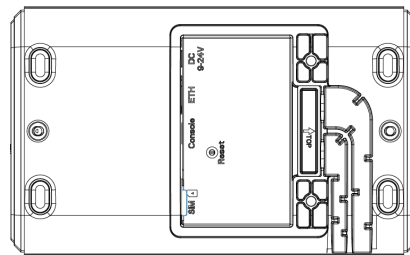
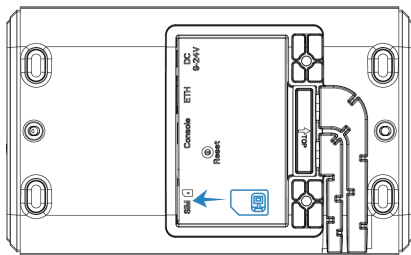


IOT-G65 does not support hot plugging, please turn off the power before you insert or take off cards.

A. Use screwdriver to Open the protective cover on the back panel of IOT-G65 via screwdriver.

B. Push Insert the SIM card into the device according to the direction the 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.

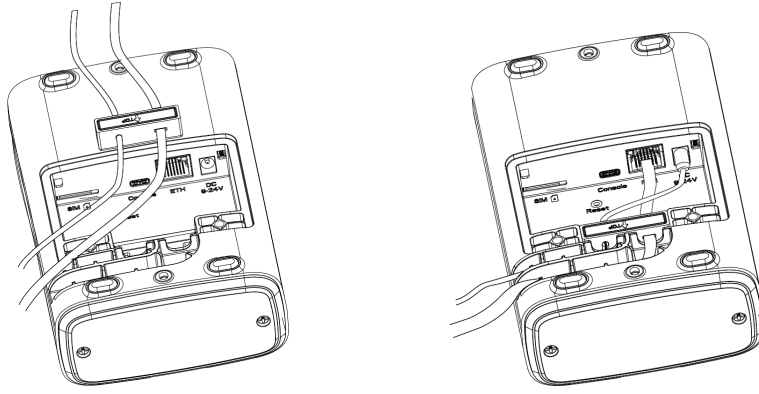


3.2 Ethernet Cable & Power Cable Installation

A. Connect the Ethernet cable and power cable to corresponding interfaces.

B. Pass two cables through the waterproof silicone and slid into the grooves.

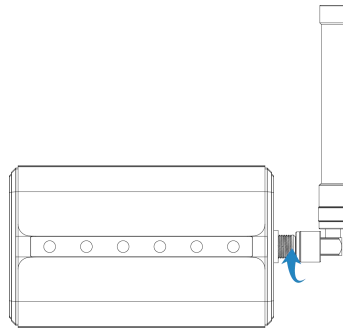
C. Screw the protective cover back to the device.



IOT-G65 also supports 802.3af standard PoE and can be powered by PoE switch or PoE adapter. When connecting, Ethernet cable of IOT-G65 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.



3.4 Gateway Mounting

The gateway can be mounted to a wall or a pole. Please complete all software configurations before installation.

3.4.1 Wall Mounting

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

1. Before you start, make sure that your SIM card has been inserted, your antennas have been attached and that all cables have been installed.

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

2. 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.

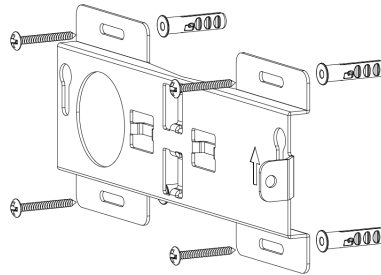
Note: The connecting lines of adjacent points are at right angles.

3. Drill four holes with a depth of 32 mm by using your drill with a 6 mm drill bit on the

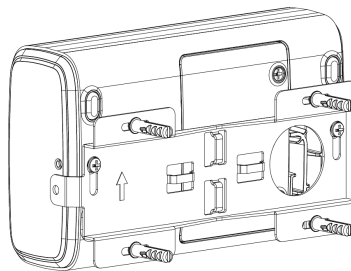
positions you marked previously on the wall.

4. Insert four wall plugs into the holes respectively.

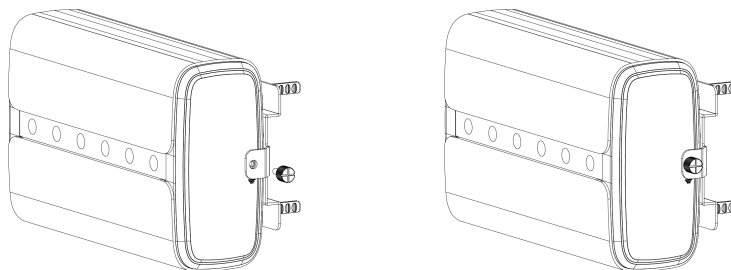
5. Mount the mounting bracket horizontally to the wall by fixing the wall mounting screws into the wall plugs.



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



7. Screw the grounding screw to fix IOT-G65 to the mounting bracket.



3.4.2 Pole Mounting

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

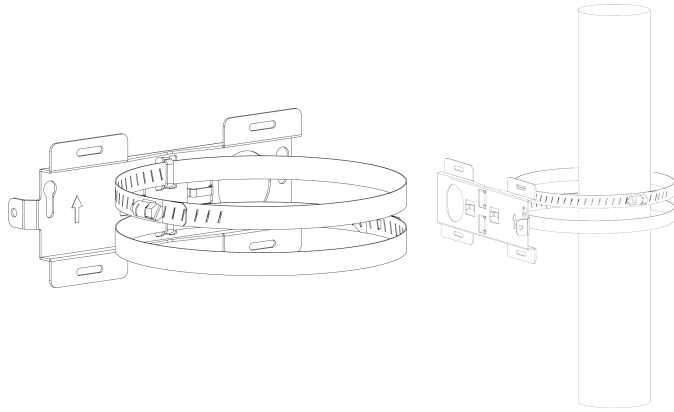
1. Before you start, make sure that your SIM card has been inserted, your antennas have been attached and that all cables have been installed.

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

2. Loosen the hose clamp by turning the locking mechanism counter-clockwise.

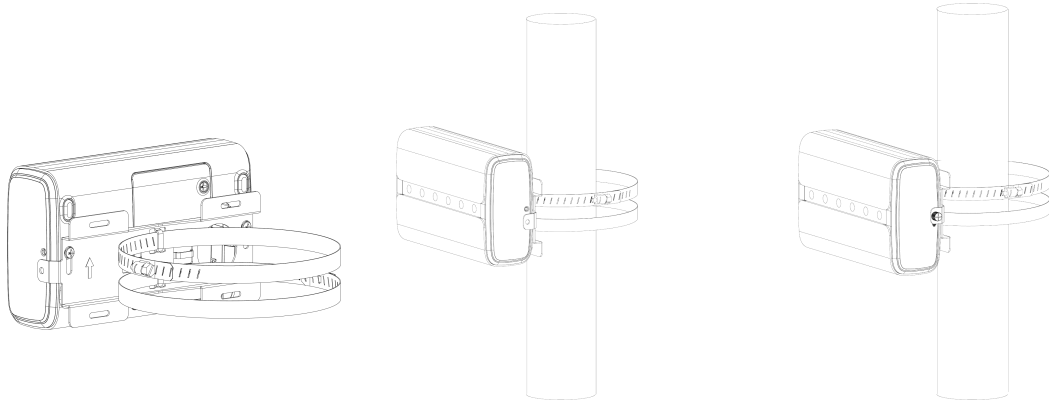
3. Straighten out the hose clamp and slide it through the rectangular rings in the mounting bracket, wrap the hose clamp around the pole.

4. Use a screwdriver to tighten the locking mechanism by turning it clockwise.



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

6. Screw the grounding screw to fix IOT-G65 to the mounting bracket.



4. Access the Web GUI of IOT-G65

IOT-G65 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**

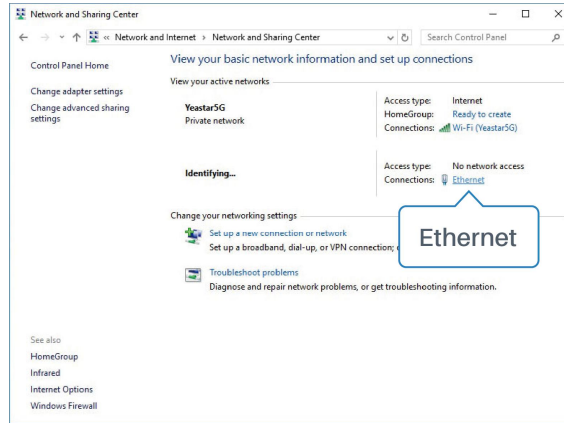
Username: **admin**

Password: **password**

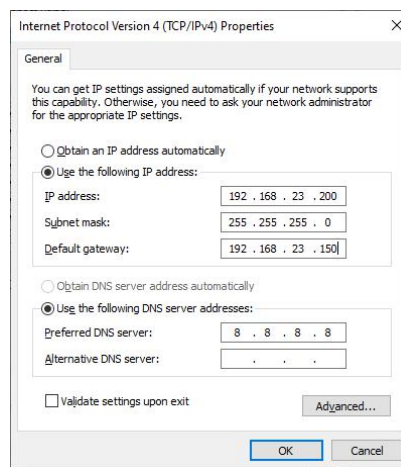
4.1 Web Access via Ethernet Port

Connect PC to IOT-G65 ETH port directly or through PoE adapter. 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).

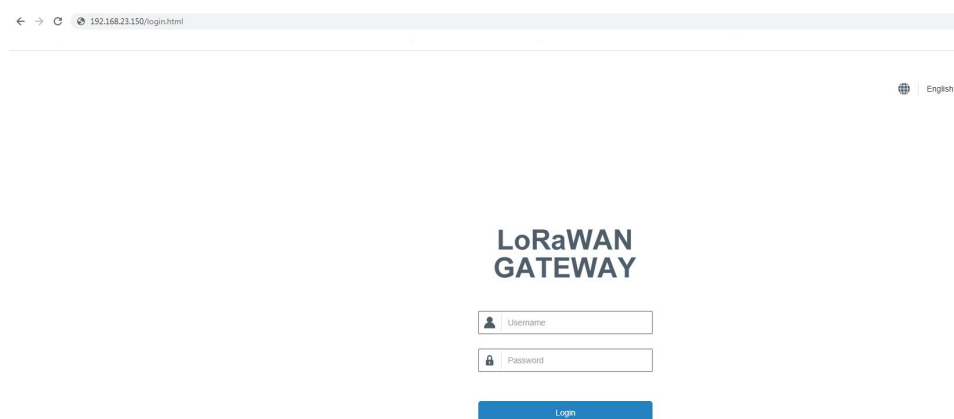


B. Go to “Properties” → “Internet Protocol Version 4(TCP/IPv4)” and select “Use the following IP address”, then assign a static IP manually within the same subnet of the gateway.



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

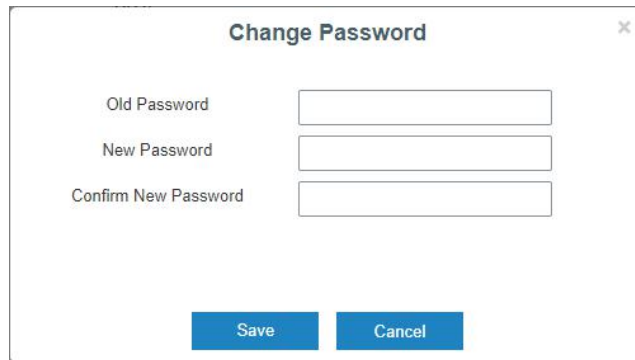
D. Enter the username and password, click “Login”.



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

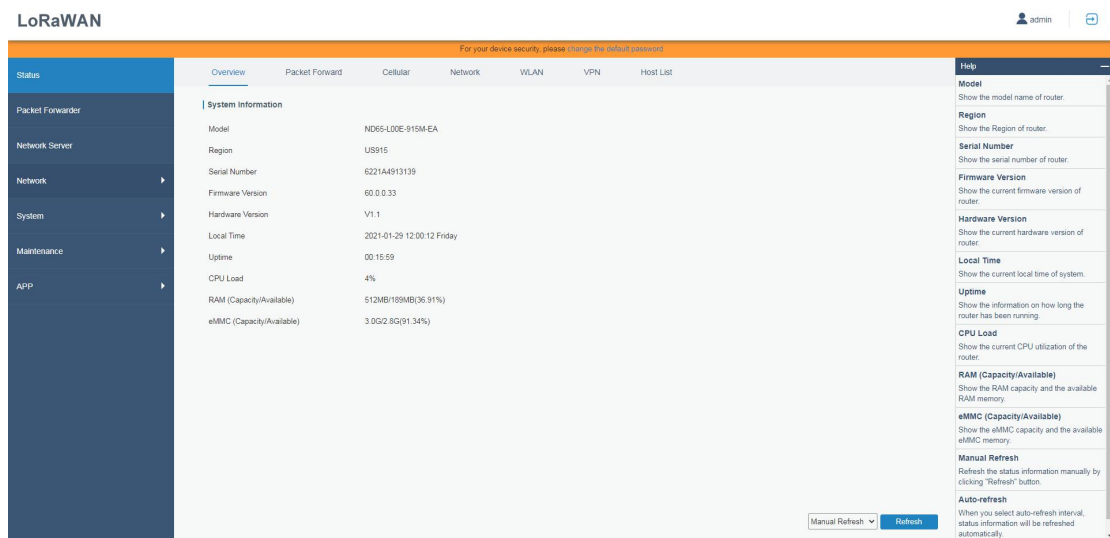
E. When you log in with the default username and password, you will be asked to change

password. It's suggested that you change the password for the sake of security. Click "Cancel" button if you want to modify it later.



A dialog box titled "Change Password" with a close button (X) in the top right corner. It contains three input fields: "Old Password", "New Password", and "Confirm New Password". At the bottom, there are two buttons: "Save" and "Cancel".

F. After you log in the Web GUI, you can view system information and perform configuration of the gateway.



The screenshot shows the LoRaWAN Web GUI interface. The top navigation bar includes "Status", "Overview", "Packet Forward", "Cellular", "Network", "WLAN", "VPN", and "Host List". The "System Information" section is active, displaying the following data:

Parameter	Value
Model	ND65-L00E-915M-EA
Region	US915
Serial Number	6221A4913139
Firmware Version	60.0.0.33
Hardware Version	V1.1
Local Time	2021-01-29 12:00:12 Friday
Uptime	00:15:59
CPU Load	4%
RAM (Capacity/Available)	512MB/189MB(36.91%)
eMMC (Capacity/Available)	3.05G/2.8G(91.34%)

On the right side, there is a "Help" section with expandable items for Model, Region, Serial Number, Firmware Version, Hardware Version, Local Time, Uptime, CPU Load, RAM (Capacity/Available), eMMC (Capacity/Available), Manual Refresh, and Auto-refresh. At the bottom right, there are "Manual Refresh" and "Refresh" buttons.

5. Connect IOT-G65 to the Network

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

5.1 Configure the WAN Connection

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

Port WLAN Cellular Loopback

— Port_1

Enable

Port

Connection Type

IP Address

Netmask

Gateway

MTU

Primary DNS Server

Secondary DNS Server

Enable NAT

Multiple IP Address

IP Address	Netmask	Operation
		<input type="button" value="+"/>

C. Connect Ethernet port of gateway to network 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.

Overview Packet Forward Cellular Network WLAN VPN Host List

| WAN

Port	Status	Type	IP Address	Netmask	Gateway	DNS	Duration
eth 0	up	Static	192.168.23.64	255.255.255.0	192.168.23.1	8.8.8.8	03h 12s

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	
F0DCAF	Auto	-68dBm	Auto	24:e1:24:f0:dc:af	No Encryption	2437MHz	Join Network
F0C422	Auto	-64dBm	Auto	24:e1:24:f0:c4:22	No Encryption	2437MHz	Join Network
F0DE8C	Auto	-66dBm	Auto	24:e1:24:f0:de:8c	No Encryption	2462MHz	Join Network

C. Type the correct key of Wi-Fi.

Port	WLAN	Cellular	Loopback
WLAN			
Enable	<input checked="" type="checkbox"/>		
Work Mode	Client		Scan
SSID	Gateway_F12738		
BSSID	24:e1:24:f0:2c:4b		
Encryption Mode	WPA-PSK/WPA2-PSK		
Cipher	AES		
Key		
IP Setting			
Protocol	DHCP Client		

E. 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:f1:27:38		
Interface Type		AP		
SSID		Gateway_F12738		
Channel		Auto		
Encryption Type		No Encryption		
Status		Up		
IP Address		192.168.1.1		
Netmask		255.255.255.0		
Connection Duration		0 days, 00:30:06		

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 configuration changes to take effect.

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

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 green light statically, it means SIM has dialed up successfully.


Overview	Packet Forward	Cellular	Network	WLAN
Modem				
Status		Ready		
Model		EC25		
Version		EC25ECGAR06A07M1G		
Signal Level		23asu (-67dBm)		
Register Status		Registered (Home network)		
IMEI		860425047368939		
IMSI		460019425301842		
ICCID		89860117838009934120		
ISP		CHN-UNICOM		
Network Type		LTE		
PLMN ID				
LAC		5922		
Cell ID		340db83		
Network				
Status		Connected		
IP Address		10.132.132.59		
Netmask		255.255.255.240		
Gateway		10.132.132.60		

6. Packet Forwarder Configuration

IOT-G65 has embedded multiple packet forwarders like TTN and Chirpstack. This section explains how to connect the gateway to third-party network servers



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

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

General Setting

Gateway EUI: 24E124FFF...

Gateway ID: 24E124FFF...

Frequency-Sync: Disabled

Multi-Destination

ID	Enable	Type	Server Address	Operation
0	Enabled		localhost	<input checked="" type="checkbox"/> <input type="checkbox"/>
1	Disabled	TTN	-	<input type="checkbox"/> <input checked="" type="checkbox"/>
2	Disabled	Semtech	router.cn.thethings.net work	<input type="checkbox"/> <input checked="" type="checkbox"/>

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

Note: When you select anyone of TTN or Chirpstack, other servers are not allow to enable.

Enable

Type: Semtech

Server Address: router.eu.thethings.network

Port Up: 1700

Port Down: 1700

Save

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

Note: for built-in antenna models, please select “2 × Built-in ANT”; for external antenna models, please select “Ext ANT(TX+RX)+ Built-in ANT(RX)”.

Antenna Type: 2 x Built-in ANT

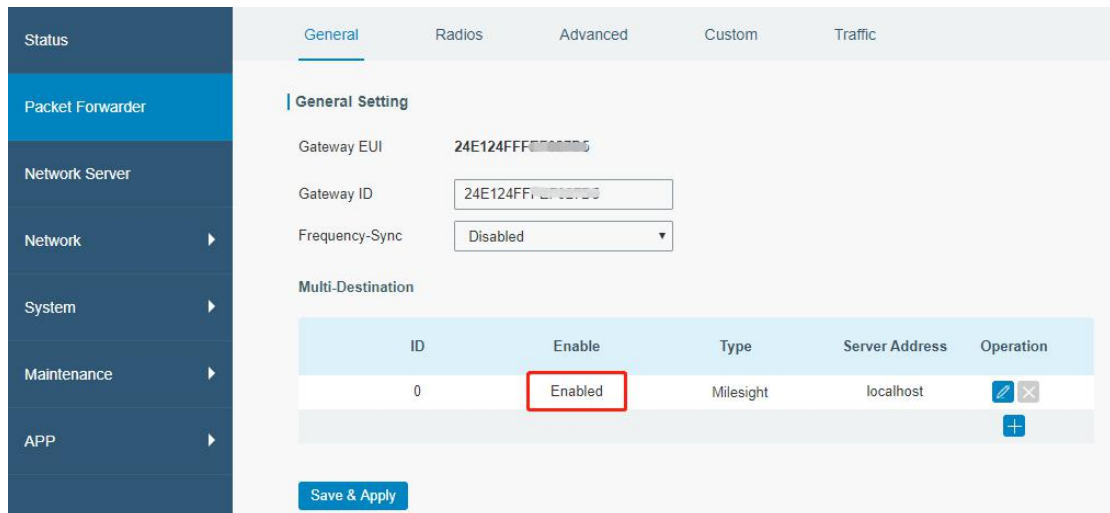
Radio Channel Setting

Supported Frequency: CN470

Name	Center Frequency/MHz
Radio 0	472.3
Radio 1	472.9

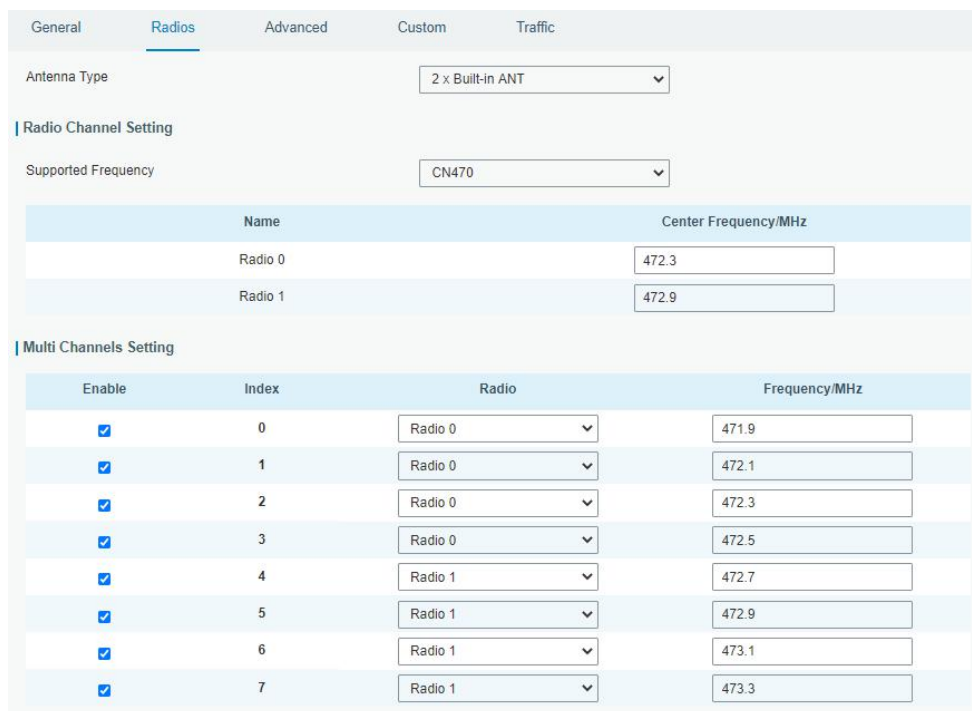
Multi Channels Setting

Enable	Index	Radio	Frequency/MHz
<input checked="" type="checkbox"/>	0	Radio 0	471.9
<input checked="" type="checkbox"/>	1	Radio 0	472.1
<input checked="" type="checkbox"/>	2	Radio 0	472.3
<input checked="" type="checkbox"/>	3	Radio 0	472.5
<input checked="" type="checkbox"/>	4	Radio 1	472.7
<input checked="" type="checkbox"/>	5	Radio 1	472.9
<input checked="" type="checkbox"/>	6	Radio 1	473.1
<input checked="" type="checkbox"/>	7	Radio 1	473.3

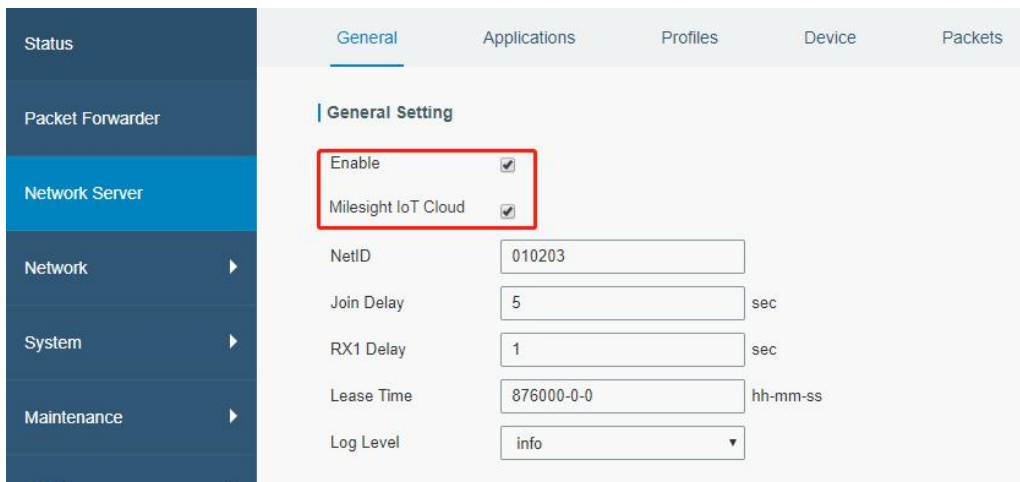


B. Go to “Packet Forwarder” → “Radio” page to select the antenna transmission type, center frequency and channels. The channels of the gateway and LoRaWAN nodes need to be the same.

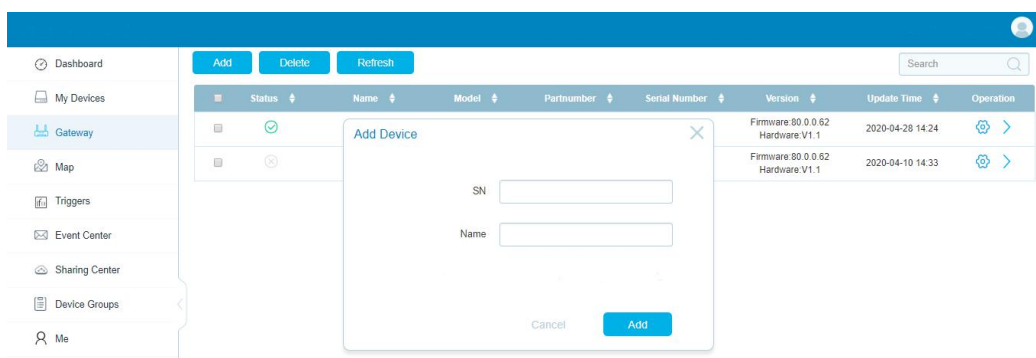
Note: For built-in antenna models, please select “2 × Built-in ANT”; for external antenna models, please select “Ext ANT(TX+RX)+ Built-in ANT(RX)”.



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



D. Go to "Gateway" page and click "Add" to add a gateway.

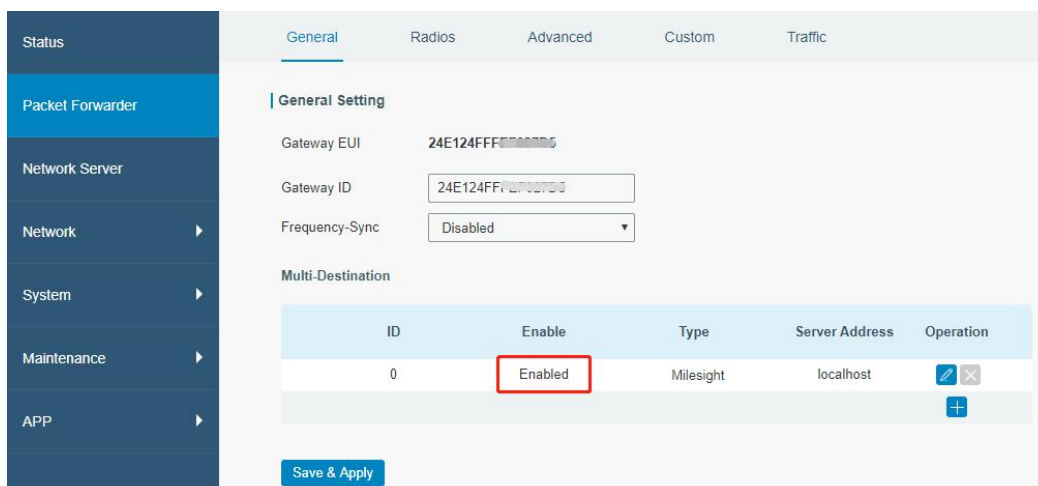


E. The gateway is online.



7.2 Connect IOT-G65 to Other Platform

A. Go to "Packet Forwarder" → "General" page to click "enable".



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

Note: for built-in antenna models, please select “2 × Built-in ANT”; for external antenna models, please select “Ext ANT(TX+RX)+ Built-in ANT(RX)”.

General **Radios** Advanced Custom Traffic

Antenna Type: 2 x Built-in ANT

Radio Channel Setting

Supported Frequency: CN470

Name	Center Frequency/MHz
Radio 0	472.3
Radio 1	472.9

Multi Channels Setting

Enable	Index	Radio	Frequency/MHz
<input checked="" type="checkbox"/>	0	Radio 0	471.9
<input checked="" type="checkbox"/>	1	Radio 0	472.1
<input checked="" type="checkbox"/>	2	Radio 0	472.3
<input checked="" type="checkbox"/>	3	Radio 0	472.5
<input checked="" type="checkbox"/>	4	Radio 1	472.7
<input checked="" type="checkbox"/>	5	Radio 1	472.9
<input checked="" type="checkbox"/>	6	Radio 1	473.1
<input checked="" type="checkbox"/>	7	Radio 1	473.3

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

Status

Packet Forwarder

Network Server

Network

System

Maintenance

General Applications Profiles Device Packets

General Setting

Enable

Milesight IoT Cloud

NetID: 010203

Join Delay: 5 sec

RX1 Delay: 1 sec

Lease Time: 876000-0-0 hh-mm-ss

Log Level: info

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

Status

Packet Forwarder

Network Server

Network

General Applications Profiles Device Packets

Applications

Name: cloud

Description: cloud

Payload Codec: None

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

Data Transmission

Type: MQTT

Status: HTTP, MQTT, HTTPS

General

Broker Address: []

Broker Port: []

Client ID: []

Connection Timeout/s: 30

Keep Alive Interval/s: 60

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

General Applications **Profiles** Device Packets

Device Profiles

Name: ClassA-OTAA

Max TXPower: 0

Join Type: OTAA






Class Type: Class A

Advanced:

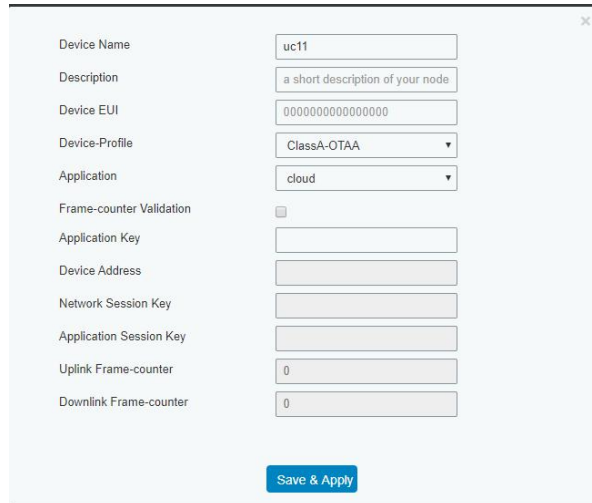
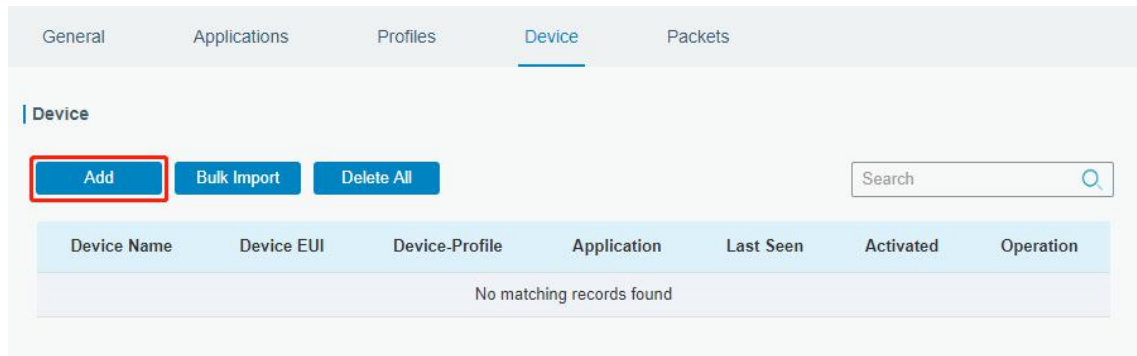
Save Cancel

General Applications **Profiles** Device Packets

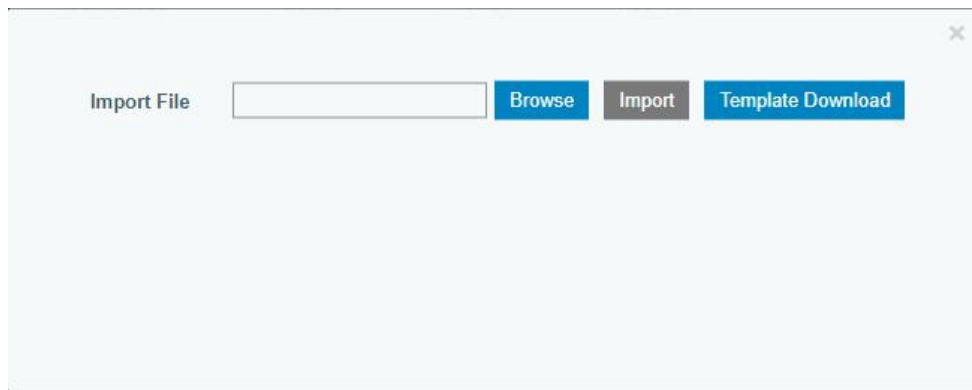
Device Profiles

Name	Max TXPower	Join Type	Class Type	Operation
ClassA-OTAA	0	OTAA	Class A	 
ClassC-OTAA	0	OTAA	Class C	 
				

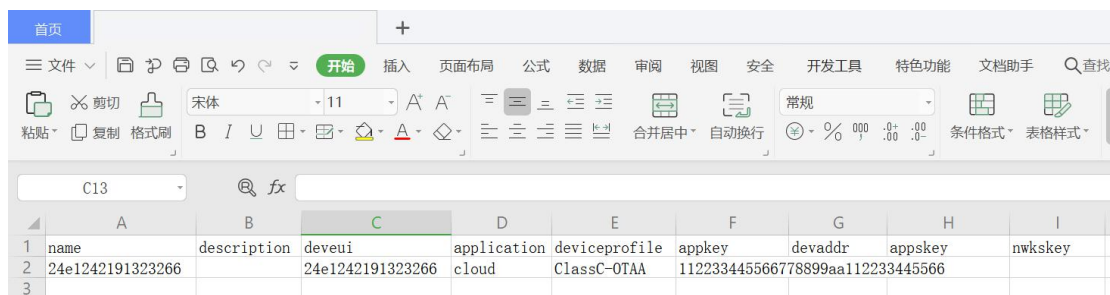
F. Go to “Device” page and click “Add” to add LoRaWAN node devices.



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



Click “Template Download” to download template file and add LoRaWAN device information to this file. Application and device profile should be the same as you created on web page.



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.

Send Data To Device

Device EUI	Type	Payload	Port	Confirmed
0000000000000000	ASCII			<input type="checkbox"/>

Send

Network Server

Clear

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.

Property	Value
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