



UG87 LoRaWAN Gateway

Quick Start Guide



Welcome

Thank you for choosing Ursalink UG87 LoRaWAN Gateway.

This guide teaches you how to install the UG87 and how to log in the web GUI to configure the device. Once you complete the installation, refer to the Ursalink UG87 User Guide for instructions on how to perform configurations on the device.

Related Documents

This Quick Start Guide only explains the installation of Ursalink UG87 LoRaWAN Gateway. For more functionality and advanced settings, please refer to the relevant documents as below.

Document	Description
Ursalink UG87 Datasheet	Datasheet for the Ursalink UG87 LoRaWAN Gateway.
Ursalink UG87 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 Ursalink website: <http://www.ursalink.com>.

Declaration of Conformity

UG87 is in conformity with the essential requirements and other relevant provisions of the CE, FCC, and RoHS.

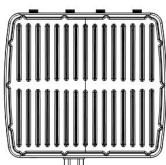


For assistance, please contact
Ursalink technical support:
Email: support@ursalink.com
Tel: 86-592-5023060
Fax: 86-592-5023065

1. Packing List

Before you begin to install the UG87 LoRaWAN Gateway, please check the package contents to verify that you have received the items below.

1.1 Package Contents



1 × UG87



1 × Cellular Antenna



1 × LoRa Antenna

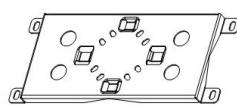


1 × GPS Antenna

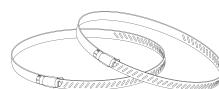
(2 × LoRa Antennas for
16-channel model)



1 × WiFi Antenna
(WiFi Version Only)



1 × Wall Mounting Kit



2 × Pole Mounting Kit



Screws



1 × Warranty Card



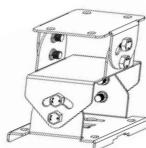
1 × Ethernet Cable(Optional)



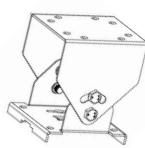
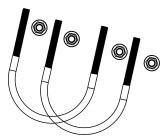
1 × Power cable

(AC/ DC Version Only)

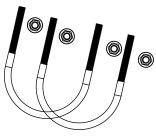
Optional Installation Accessories



+



+



1 × Pole Mount A + 2 × U-Bolt

1 × Pole Mount B + 2 × U-Bolt

Screws

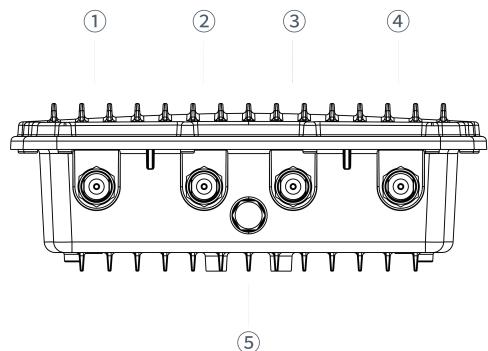


If any of the above items is missing or damaged, please contact your Ursalink sales representative.

2. Hardware Introduction

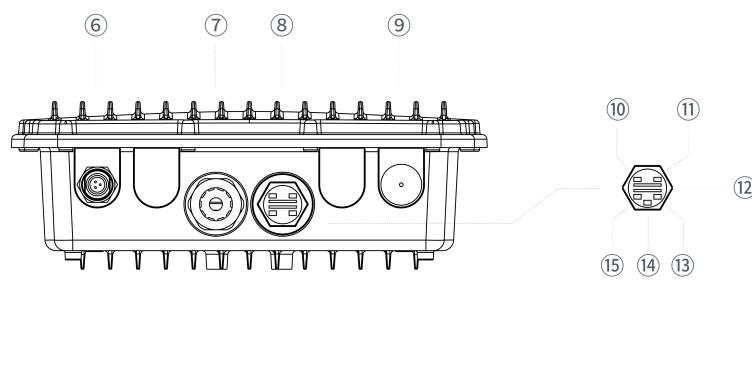
2.1 Overview

A. Front Panel



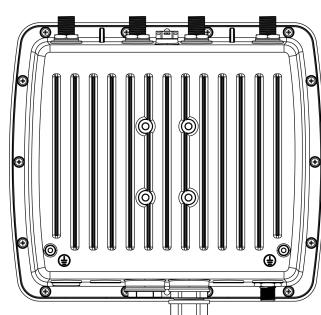
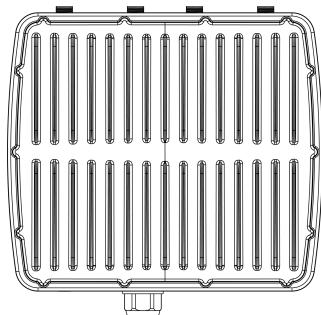
- ① LoRa2 Antenna (only for 16-channel model)
- ② GPS Antenna
- ③ LTE Antenna
- ④ LoRa1 Antenna
- ⑤ Vent Plug

B. Rear Panel

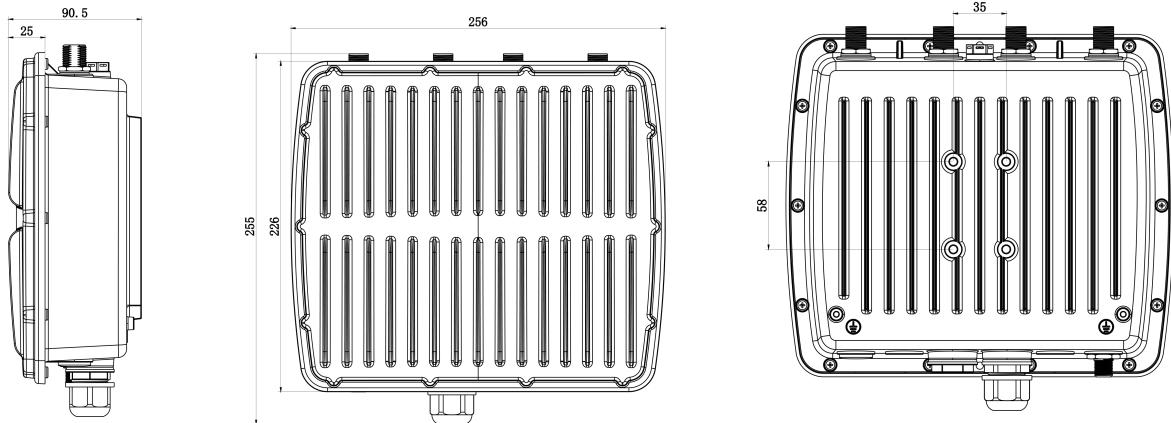


- ⑥ Power Connector
- ⑦ Ethernet Port (PoE)
- ⑧ LED&SIM Area
- ⑨ WLAN Antenna
- ⑩ PWR: Power Indicator
- ⑪ SYS: System Indicator
- ⑫ SIM Card Slot
- ⑬ L2: Cellular Indicator
- ⑭ RST: Reset Button
- ⑮ L1: LoRa Indicator

C. Top & Bottom View



2.2 Dimensions (mm)



2.3 LED Indicators

LED	Indication	Status	Description
PWR	Power Status	On	The power is switched on
		Off	The power is switched off
SYS	System Status	Green Light	Static: Start-up
			Blinking slowly: the system is running properly
		Off	The system goes wrong
L1	LoRa Status	Green Light	Package Forwarder mode is running well.
		Off	Package Forwarder mode is running off.
L2	SIM Card Status	Off	SIM1 or SIM2 is registering or fails to register (or there are no SIM cards inserted)
		Green Light	Static: SIM1 or SIM2 has been registered and dialed up successfully

2.4 Reset Button

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

2.5 Ethernet Port Indicator

Indicator	Status	Description
Link Indicator (Orange)	On	Connected
	Blinking	Transmitting data
	Off	Disconnected
Rate Indicator (Green)	On	1000 Mbps mode
	Off	100 Mbps mode

3. Hardware Installation

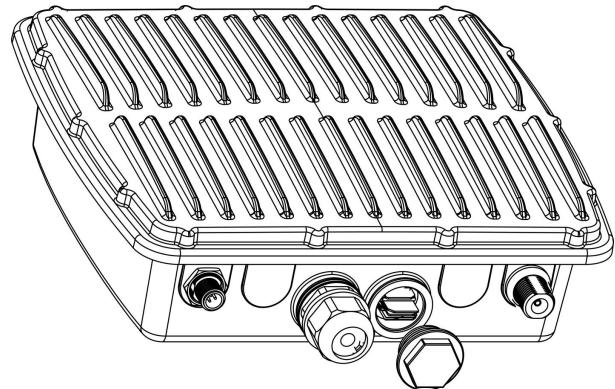
Environmental Requirements

- Power Input: PoE (IEEE 802.3af standard) (Option: 100-240 VAC/9-48VDC)
- Power Consumption: Typical 4.9 W, Max 6.5 W (8 channels)
Typical 6 W, Max 8.2 W (16 channels)
- Ingress Protection: IP67
- Operating Temperature: -40°C to 70°C (-40°F -158°F)
- Relative Humidity: 0% to 95% (non-condensing) at 25°C/77°F

3.1 SIM Card Installation

Remove the cover of the SIM card slot with a wrench and insert the sim card.

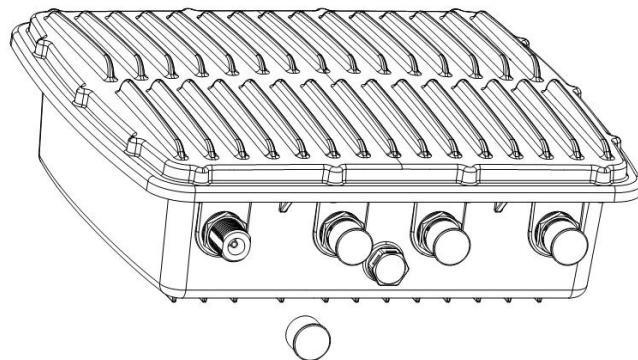
Note: Check the triangle icon of the sim card slot.



3.2 Antenna Installation

3.2.1 Remove the protective caps

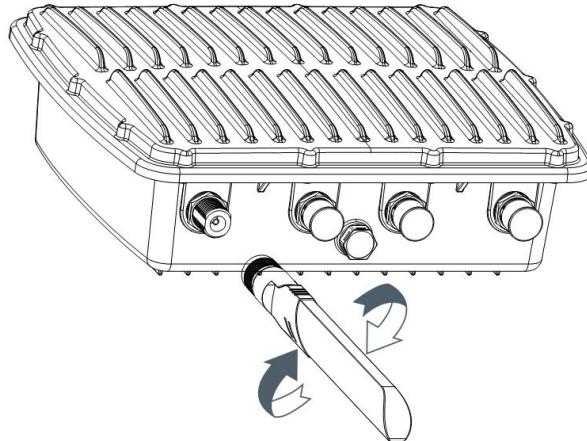
Remove the protective caps from the antenna connectors. Take cellular connector as an example.



3.2.2 Connect the antenna

Connect the antenna to the corresponding antenna connector by holding on the metal part of the antenna and rotating it clockwise.

Note: Each antenna is labeled as cellular, GPS, WLAN or LoRa.

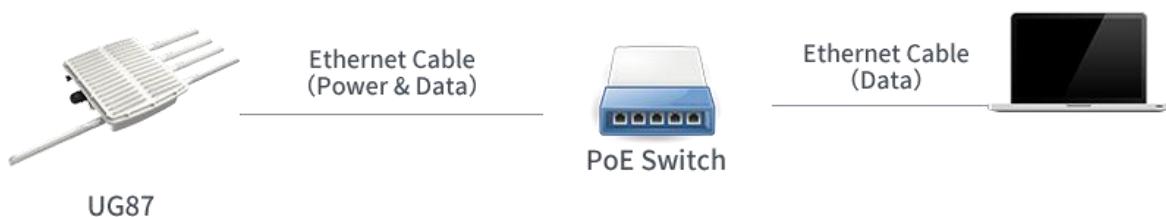


3.3 Power Connection

3.3.1 PoE Power Supply

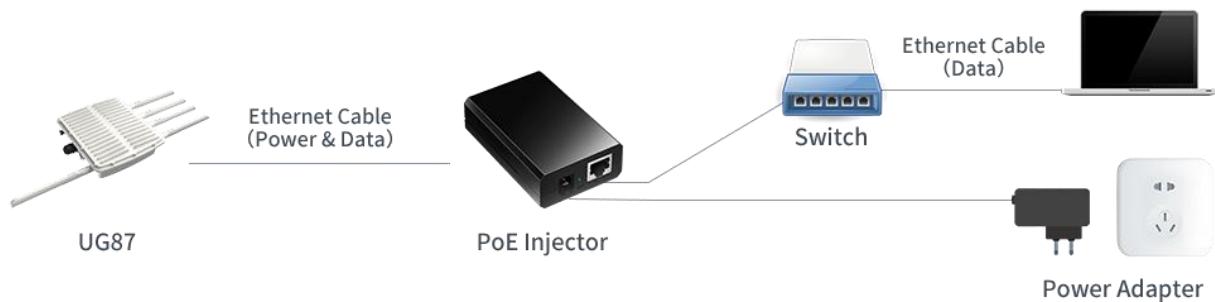
3.3.1.1 Connect UG87 to PoE Switch

Connect UG87 Ethernet port to a PoE switch via Ethernet cable. PoE switch must meet IEEE 802.3 af standard.



3.3.1.2 Connect UG87 to PoE Injector

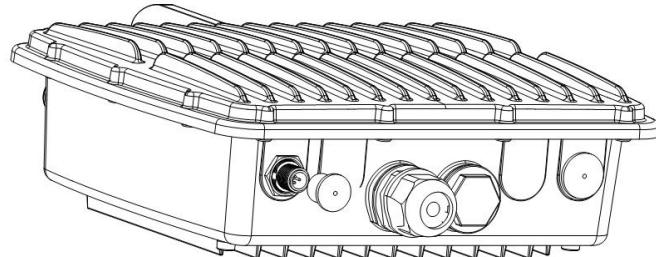
Connect UG87 Ethernet port to a PoE injector via Ethernet cable. PoE injector must meet IEEE 802.3 af standard.



3.3.2 AC/DC Power Supply (Optional)

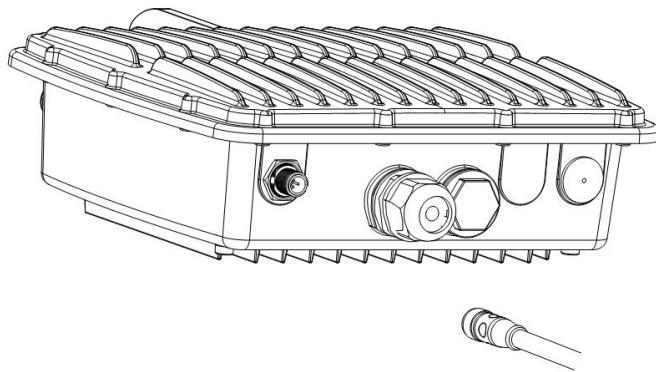
3.3.2.1 Remove the protective caps

Locate the power port marked POWER on the left side of the enclosure and remove the protective cap to find the connection pins.

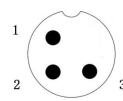


3.3.2.2 Connect the power cable

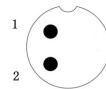
Connect a power supply cable to the power port, and rotate it clockwise.



Type	PIN	Color	Description
VAC	1	Brown	L (VIN+)
	2	Black	GND
	3	Blue	N (VIN-)



Type	PIN	Color	Description
VDC	1	Brown	V+
	2	Black	GND



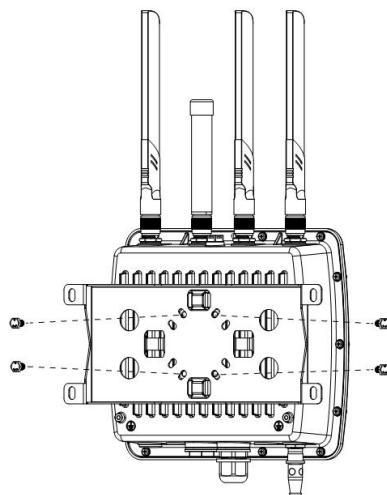
3.4 Mount Gateway

The gateway can be mounted to a wall or a pole.

3.4.1 Wall Mounting

Make sure you have mounting bracket, bracket mounting screws, 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 disconnected from your enclosure.
2. Mount the enclosure to the mounting bracket with the bracket mounting screws.

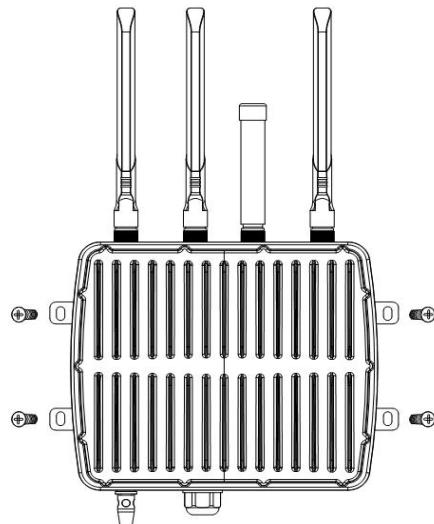


3. Align the mounting bracket horizontally to the desired position on the wall, use a marker pen to mark four mounting holes on the wall, and then remove the mounting bracket from the wall.

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

4. Drill the 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.
5. Insert four wall plugs into the holes respectively.
6. Mount the mounting bracket horizontally to the wall by fixing the wall mounting screws into the wall plugs.

Note: Place the power port on the button when installing.

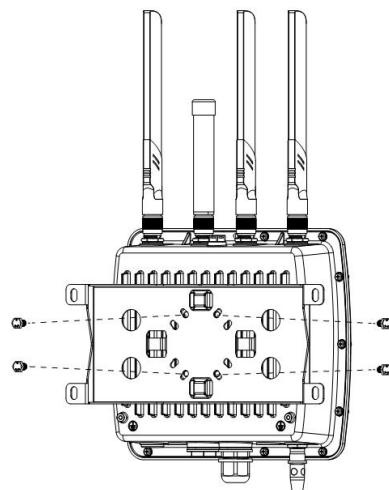


7. Reconnect the cables.

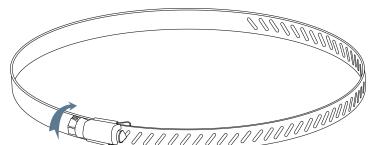
3.4.2 Pole Mounting (Hose clamp)

Make sure you have mounting bracket, bracket mounting 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 disconnected from your enclosure.
2. Mount the enclosure to the mounting bracket with the bracket mounting screws.

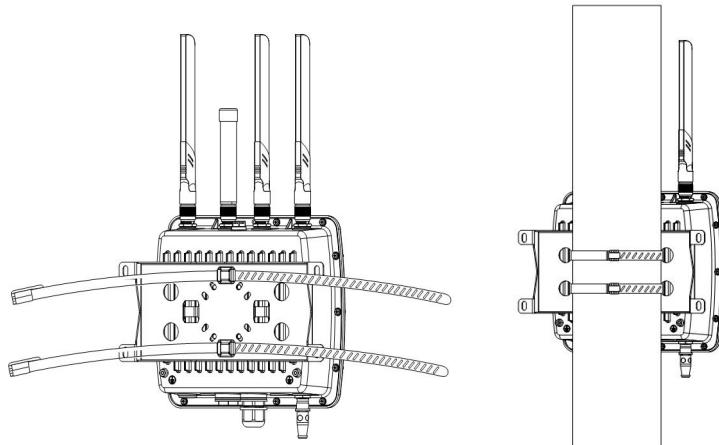


3. Loosen the hose clamp by turning the locking mechanism counter-clockwise.



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

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



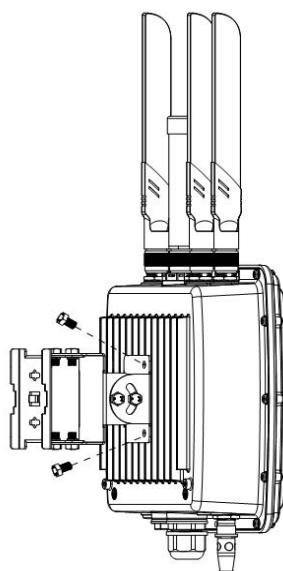
6. Reconnect the cables.

3.4.3 Pole Mounting (U-bolt)

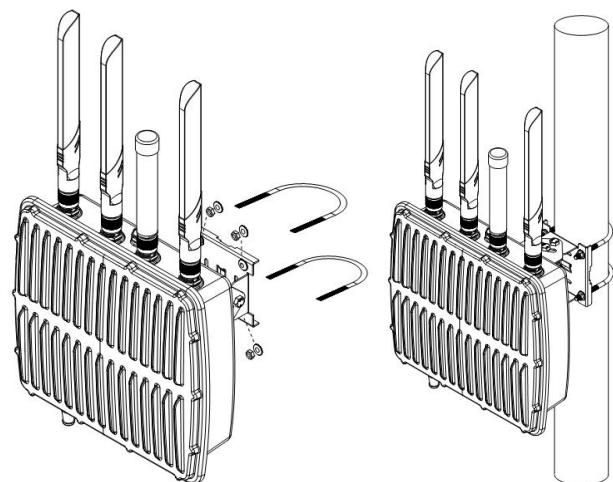
Note: Pole mounting (U-bolt) is optional.

Make sure you have mounting bracket, bracket mounting screws, hose clamp and other required tools.

1. Before you start, make sure your SIM card has been inserted, your antennas have been attached and that all cables have been disconnected from your enclosure.
2. Mount the enclosure to the mounting bracket with the bracket mounting screws.



3. Wrap the U-bolt around the pole and mount the bracket with the mounting screws.

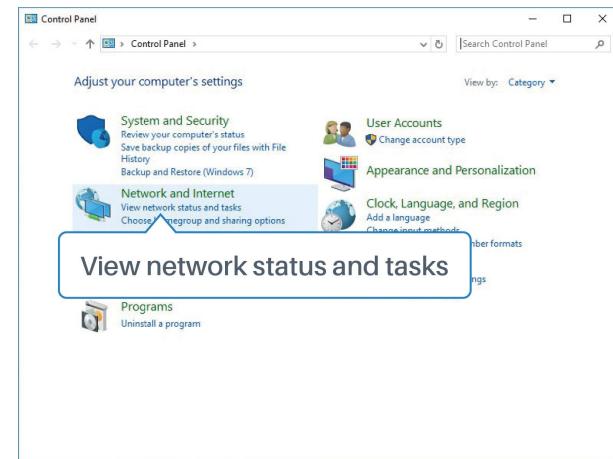
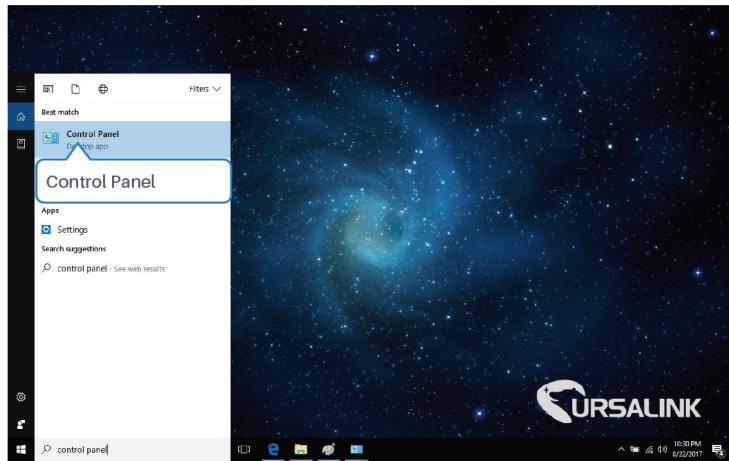


4. Reconnect the cables.

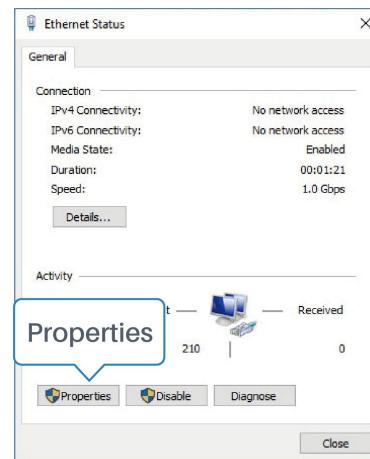
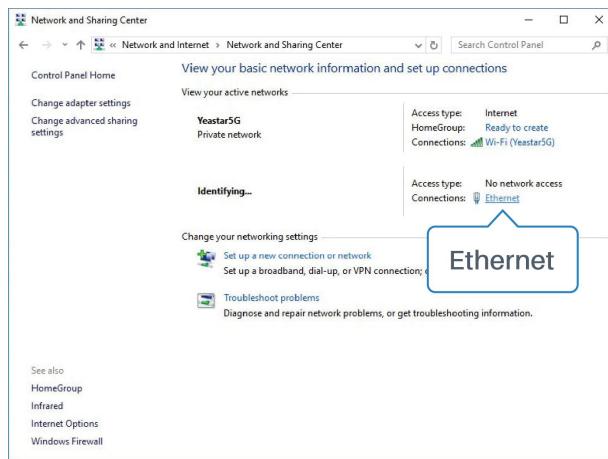
Getting Started

4. PC Configuration for UG87 Web GUI

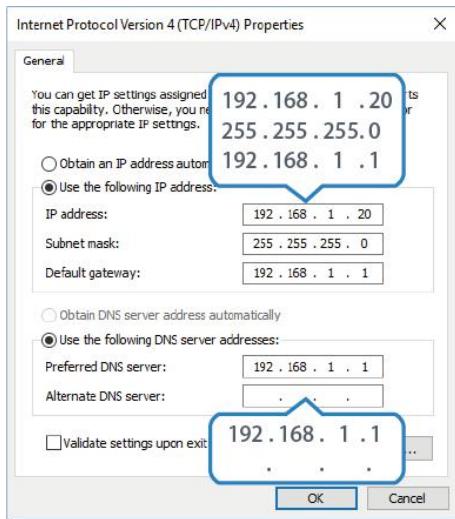
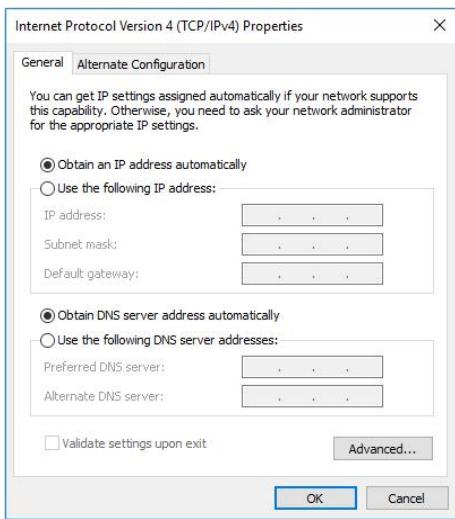
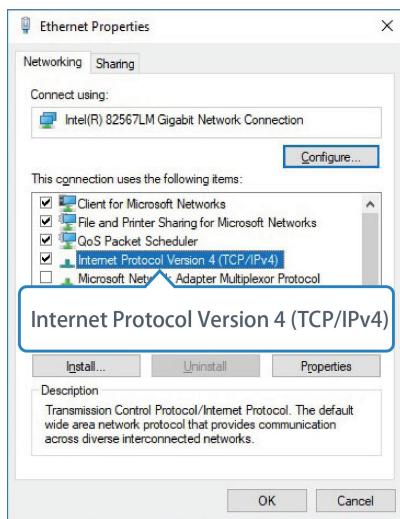
PC can obtain an IP address, or you can configure a static IP address manually. The following steps are based on Windows 10 operating system for your reference.



- ① Click "Search Box" to search "Control Panel" on the Windows 10 taskbar.
- ② Click "Control Panel" to open it, and then click "View network status and tasks".



- ③ Click "Ethernet" (May have different names).
- ④ Click "Properties".



⑤ Double Click “Internet Protocol Version 4 (TCP/IPv4)” to configure IP address and DNS server.

⑥ Method 1: click “Obtain an IP address automatically”;

Method 2: click “Use the following IP address” to assign a static IP manually within the same subnet of the gateway.

(Note: Remember to click “OK” to finish configuration.)

5. Access to UG87 Web GUI for Cellular Connection

This chapter explains how to log in UG87 Web GUI, and connect the gateway to cellular network.

Ursalink UG87 provides web-based configuration interface for management. If this is the first time you configure the gateway, please use the default settings below:

IP Address: **192.168.1.1**

Username: **admin**

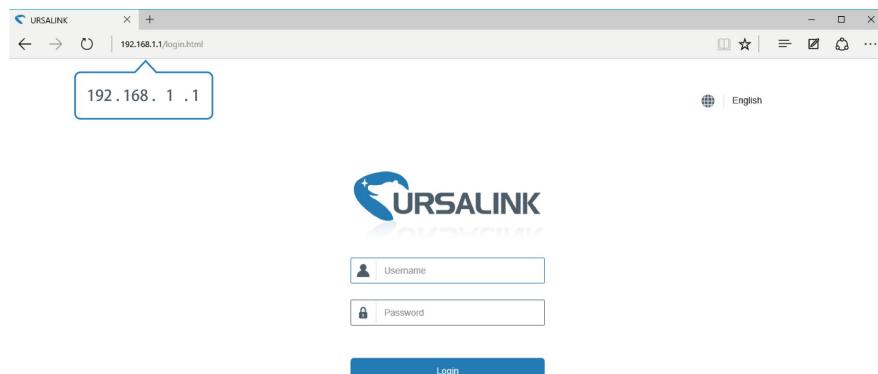
Password: **password**

5.1 Log in the Gateway



Make sure your PC is connected to the same network as shown in [Section 4](#).

- A. Start a Web browser on your PC (Chrome and IE are recommended), type in the IP address, and press Enter on your keyboard.
- B. Enter the username and password, click “Login”.

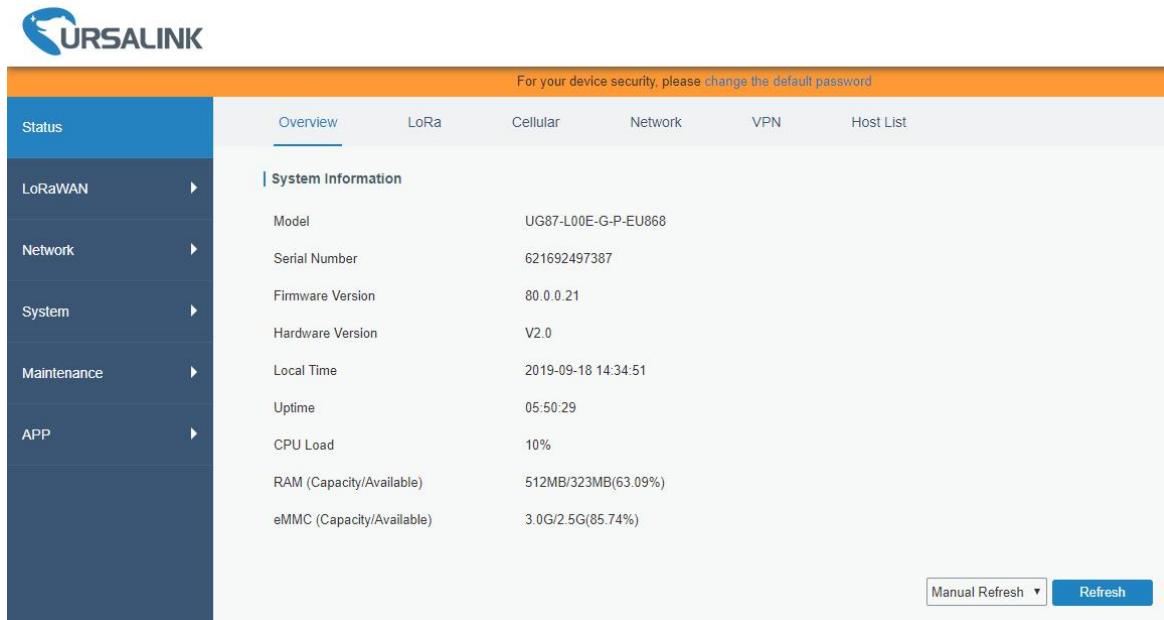


If you enter the username or password incorrectly more than 5 times, the login page will be locked for 10 minutes.

- C. When you log in with the default username and password, you will be asked to modify the password. It's suggested that you change the password for the sake of security. Click “Cancel” button if you want to modify it later.

Change Password	
Old Password	<input type="text"/>
New Password	<input type="text"/>
Confirm New Password	<input type="text"/>
<input type="button" value="Save"/>	<input type="button" value="Cancel"/>

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



The screenshot shows the Ursalink UG87 Web GUI. The top navigation bar has tabs for Overview, LoRa, Cellular, Network, VPN, and Host List. The Overview tab is selected. A banner at the top right says "For your device security, please change the default password". The left sidebar has sections for Status, LoRaWAN, Network, System, Maintenance, APP, and a general dropdown. The main content area is titled "System Information" and lists various device details:

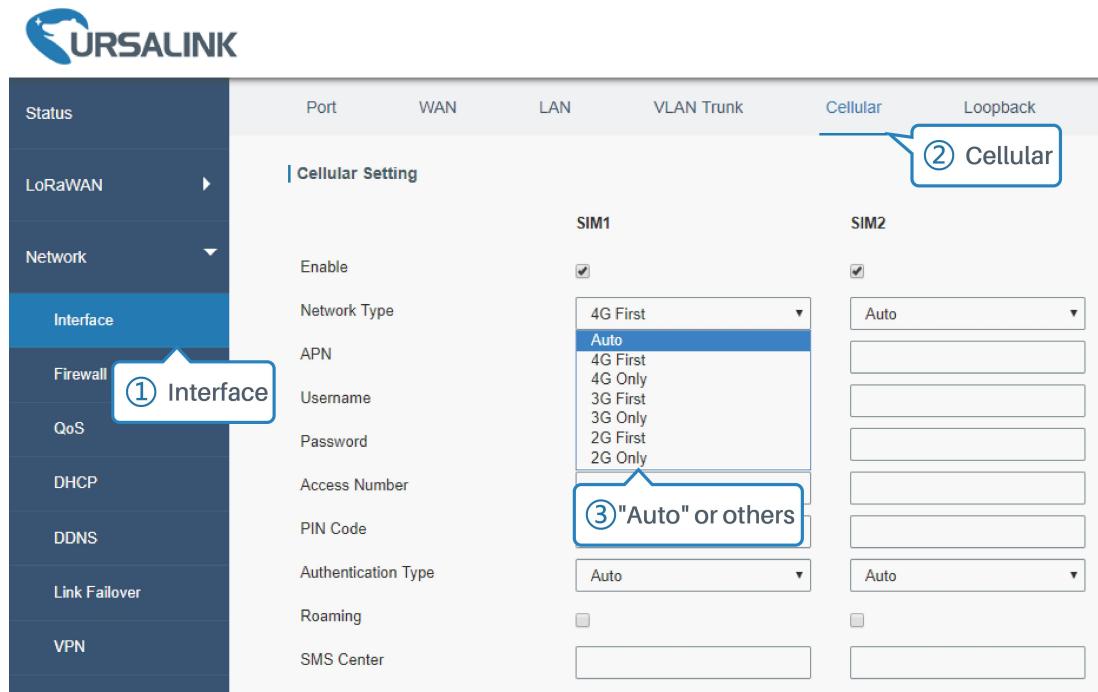
Model	UG87-L00E-G-P-EU868
Serial Number	621692497387
Firmware Version	80.0.0.21
Hardware Version	V2.0
Local Time	2019-09-18 14:34:51
Uptime	05:50:29
CPU Load	10%
RAM (Capacity/Available)	512MB/323MB(63.09%)
eMMC (Capacity/Available)	3.0G/2.5G(85.74%)

At the bottom right are buttons for "Manual Refresh" and "Refresh".

5.2 Configure the Cellular Connection

Take inserting SIM card into SIM1 slot as an example; please refer to the following detailed operations.

- A. Click “Network” → “Interface” → “Cellular” → “Cellular Setting” to configure the cellular info.
- B. Enable SIM1.
- C. Choose relevant network type. “Auto”, “4G First”, “4G Only”, “3G First”, “3G Only”, “2G First” and “2G Only” are optional.
- D. Click “Save” and “Apply” for configuration to take effect.

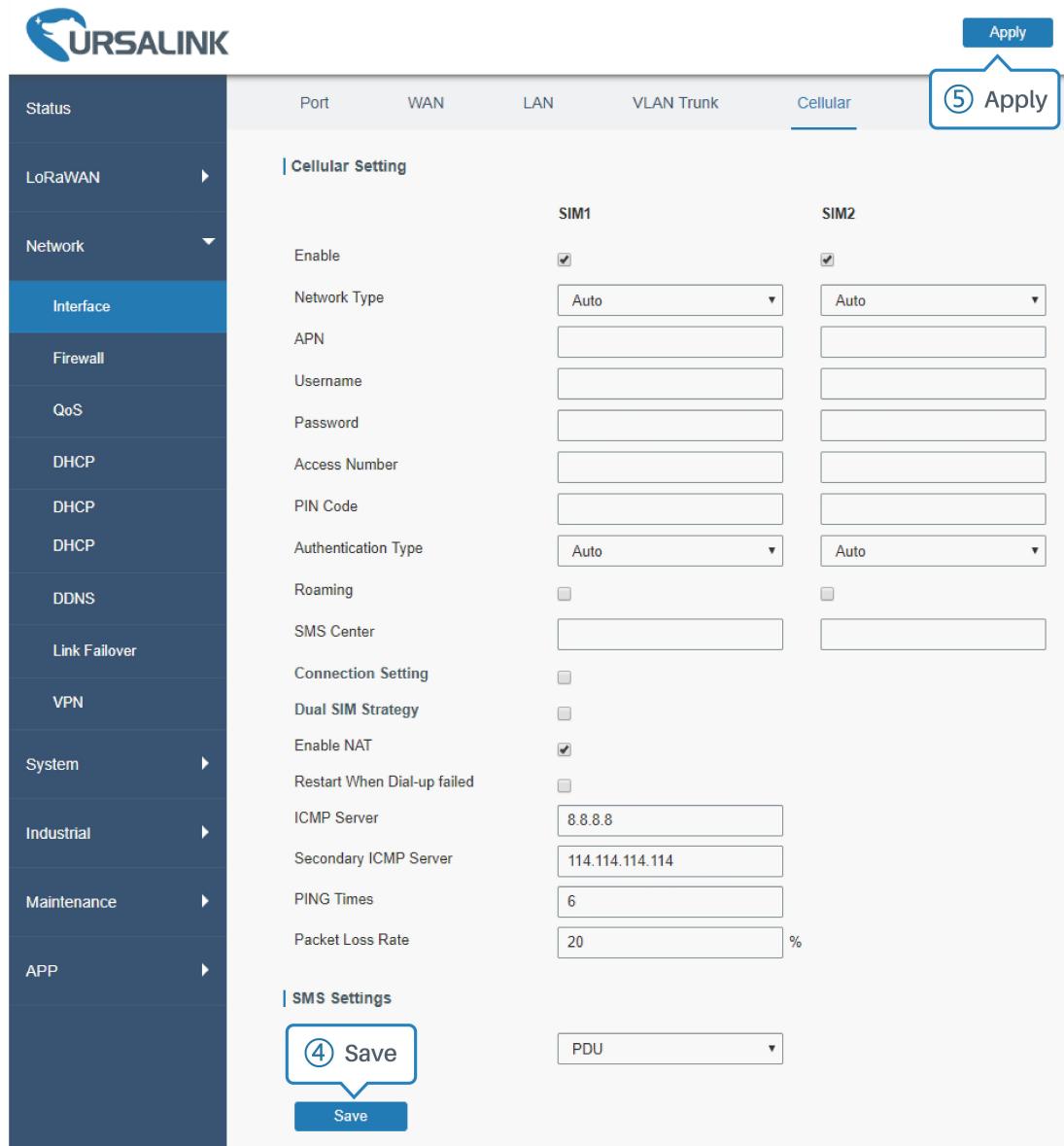


The screenshot shows the Ursalink UG87 Web GUI. The left sidebar has sections for Status, LoRaWAN, Network, **Interface**, Firewall, QoS, DHCP, DDNS, Link Failover, and VPN. The **Interface** section is selected. The main content area is titled "Cellular Setting" and shows settings for SIM1 and SIM2:

	SIM1	SIM2
Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Network Type	4G First	Auto
APN	Auto	
Username		
Password		
Access Number		
PIN Code		
Authentication Type	Auto	Auto
Roaming	<input type="checkbox"/>	<input type="checkbox"/>
SMS Center		

Annotations highlight specific fields:

- ① "Interface" in the sidebar.
- ② "Cellular" in the "Cellular Setting" title.
- ③ "Auto" or others in the Network Type dropdown for SIM1.



Status		Port	WAN	LAN	VLAN Trunk	Cellular
LoRaWAN		Cellular Setting				
Network		SIM1			SIM2	
Interface		Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Firewall		Network Type	Auto	Auto		
QoS		APN				
DHCP		Username				
DHCP		Password				
DHCP		Access Number				
DHCP		PIN Code				
DHCP		Authentication Type	Auto	Auto		
DDNS		Roaming	<input type="checkbox"/>	<input type="checkbox"/>		
Link Failover		SMS Center				
VPN		Connection Setting	<input type="checkbox"/>	<input type="checkbox"/>		
System		Dual SIM Strategy	<input type="checkbox"/>	<input type="checkbox"/>		
Industrial		Enable NAT	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Industrial		Restart When Dial-up failed	<input type="checkbox"/>	<input type="checkbox"/>		
Maintenance		ICMP Server	8.8.8.8			
Maintenance		Secondary ICMP Server	114.114.114.114			
APP		PING Times	6			
APP		Packet Loss Rate	20	%		
SMS Settings				PDU		
		(4) Save	Save			

If you select “Auto”, the gateway will obtain ISP information from SIM card to set APN, Username, and Password automatically. This option will take effect when the SIM card is issued from a well-known ISP.

If you select “4G First” or “4G Only”, you can click “Save” to complete the configuration directly.

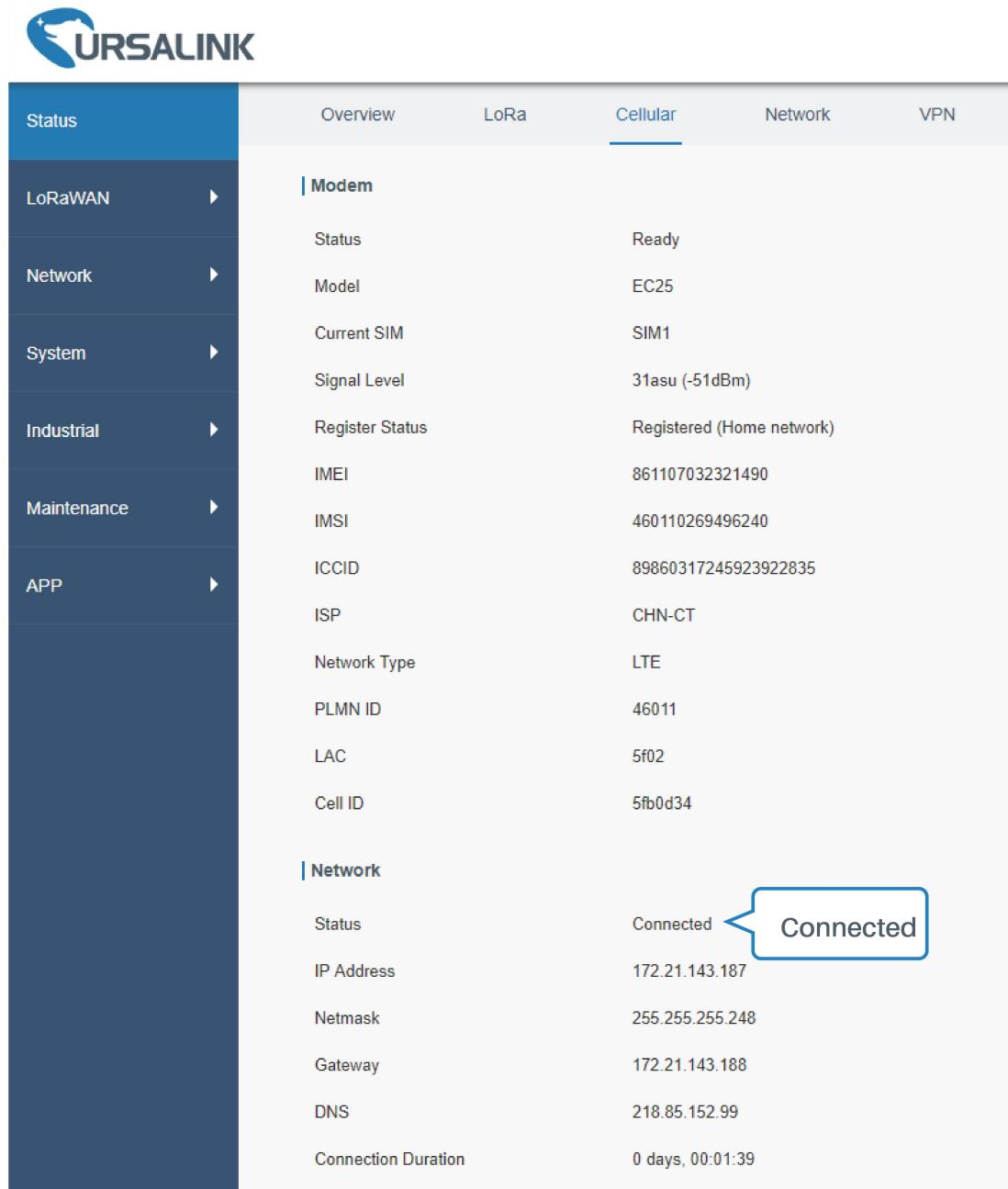
If you select “3G First”, “3G Only”, “2G First” or “2G Only”, you should manually configure APN, Username, Password, and Access Number.

UG87 have two cellular interfaces, named SIM1 & SIM2. Only one cellular interface is active at one time. If both cellular interfaces are enabled, SIM1 interface takes precedence by default.

5.3 Check the Cellular Connection Status

5.3.1 Check the Cellular Connection Status by Web GUI of Gateway

Click “Status” → “Cellular” to view the status of the cellular connection. If it shows “Connected”, it means SIM1 has dialed up successfully.



Status	Overview	LoRa	Cellular	Network	VPN																										
LoRaWAN																															
Network																															
System																															
Industrial																															
Maintenance																															
APP																															
Modem <table> <tr> <td>Status</td><td>Ready</td></tr> <tr> <td>Model</td><td>EC25</td></tr> <tr> <td>Current SIM</td><td>SIM1</td></tr> <tr> <td>Signal Level</td><td>31asu (-51dBm)</td></tr> <tr> <td>Register Status</td><td>Registered (Home network)</td></tr> <tr> <td>IMEI</td><td>861107032321490</td></tr> <tr> <td>IMSI</td><td>460110269496240</td></tr> <tr> <td>ICCID</td><td>89860317245923922835</td></tr> <tr> <td>ISP</td><td>CHN-CT</td></tr> <tr> <td>Network Type</td><td>LTE</td></tr> <tr> <td>PLMN ID</td><td>46011</td></tr> <tr> <td>LAC</td><td>5f02</td></tr> <tr> <td>Cell ID</td><td>5fb0d34</td></tr> </table>						Status	Ready	Model	EC25	Current SIM	SIM1	Signal Level	31asu (-51dBm)	Register Status	Registered (Home network)	IMEI	861107032321490	IMSI	460110269496240	ICCID	89860317245923922835	ISP	CHN-CT	Network Type	LTE	PLMN ID	46011	LAC	5f02	Cell ID	5fb0d34
Status	Ready																														
Model	EC25																														
Current SIM	SIM1																														
Signal Level	31asu (-51dBm)																														
Register Status	Registered (Home network)																														
IMEI	861107032321490																														
IMSI	460110269496240																														
ICCID	89860317245923922835																														
ISP	CHN-CT																														
Network Type	LTE																														
PLMN ID	46011																														
LAC	5f02																														
Cell ID	5fb0d34																														
Network <table> <tr> <td>Status</td><td>Connected</td></tr> <tr> <td>IP Address</td><td>172.21.143.187</td></tr> <tr> <td>Netmask</td><td>255.255.255.248</td></tr> <tr> <td>Gateway</td><td>172.21.143.188</td></tr> <tr> <td>DNS</td><td>218.85.152.99</td></tr> <tr> <td>Connection Duration</td><td>0 days, 00:01:39</td></tr> </table>						Status	Connected	IP Address	172.21.143.187	Netmask	255.255.255.248	Gateway	172.21.143.188	DNS	218.85.152.99	Connection Duration	0 days, 00:01:39														
Status	Connected																														
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Gateway	172.21.143.188																														
DNS	218.85.152.99																														
Connection Duration	0 days, 00:01:39																														

5.3.2 Check the Cellular Connection Status by Hardware

On the other hand, you can check the status of SIM1 indicator. If it keeps on green light statically, it means SIM1 has dialed up successfully.

5.4 Check if Network Works Properly by Browser on PC

Open your preferred browser on PC, then type any available web address into address bar and see if it is able to visit Internet via UG87.

6. Packet Forwarder Testing

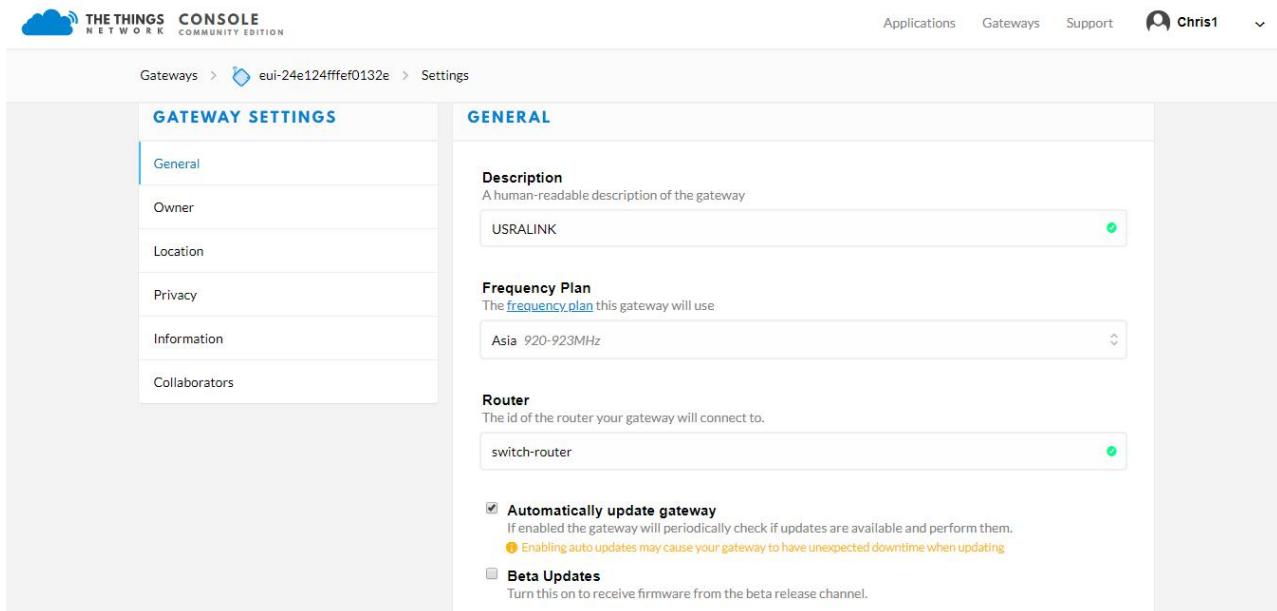
6.1 Node Parameters

Channel Plan	AS923
Frequency	923.4MHZ, 923.2MHZ
Join Type	OTAA
Device EUI	60C5A8FFFFE0003F9
Application EUI	70B3D57ED0007AC2
App Key	328F2A3F5BA8D0B236459CF06D0512B5

6.2 Configure The Things Network

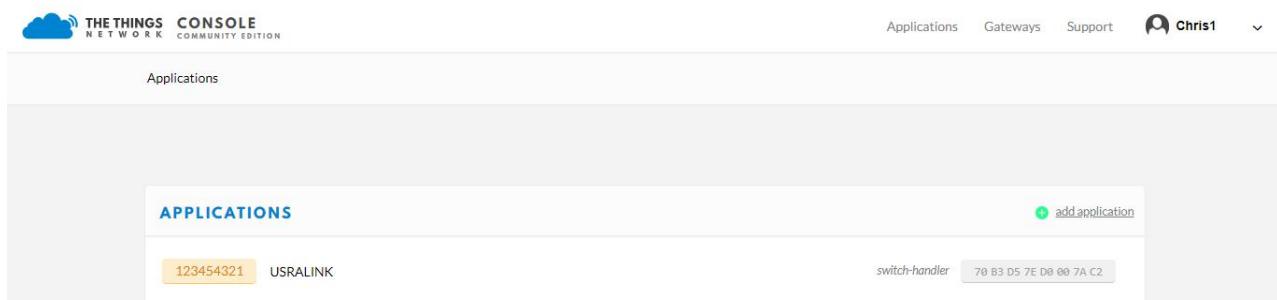
A. Gateway Configuration

Gateway EUI	24E124FFFEF0132E
Frequency Plan	Asia 920-923MHz
Server ID	Switch-router (ttn.opennetworkinfrastructure.org)

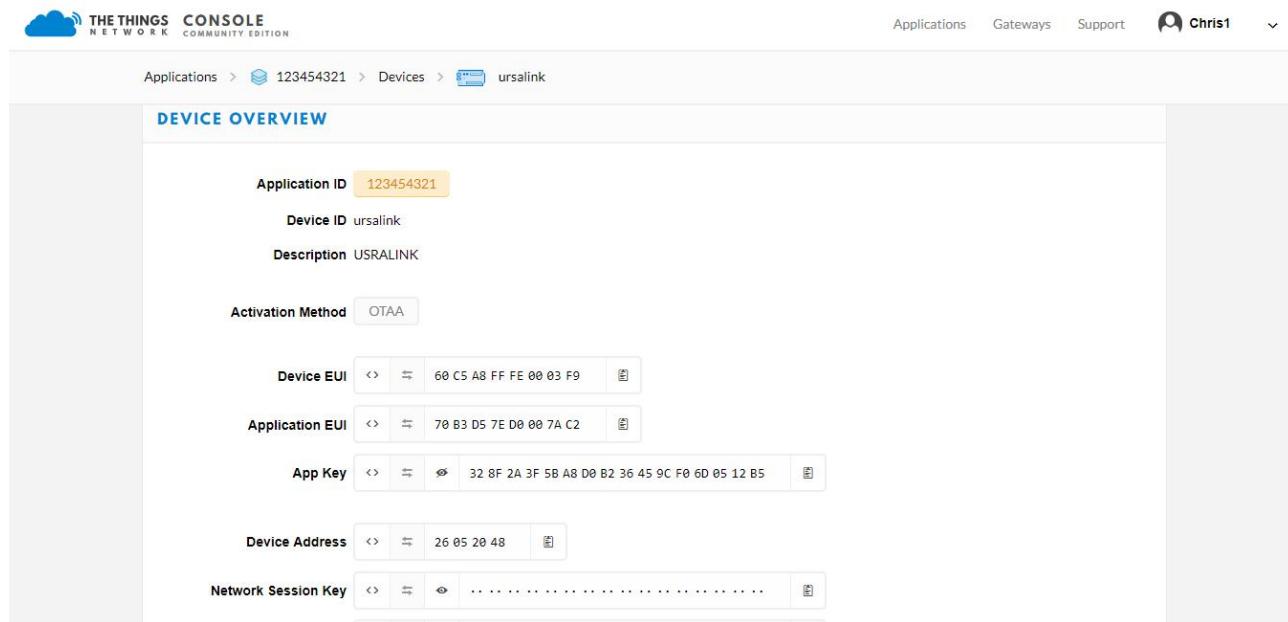


The screenshot shows the 'Gateways' section of the The Things Network Console. A specific gateway, identified by its EUI (24E124FFFEF0132E), is selected and its 'Settings' are being viewed. The left sidebar lists 'GATEWAY SETTINGS' with sections for General, Owner, Location, Privacy, Information, and Collaborators. The main panel, titled 'GENERAL', contains fields for 'Description' (set to 'USRALINK'), 'Frequency Plan' (set to 'Asia 920-923MHz'), 'Router' (set to 'switch-router'), and two checkboxes: 'Automatically update gateway' (checked) and 'Beta Updates' (unchecked). The 'Automatically update gateway' checkbox includes a note about potential downtime during updates.

B. Applications Configuration



The screenshot shows the 'Applications' section of the The Things Network Console. It displays a single application entry for 'USRALINK' with the identifier '123454321'. The application is associated with a 'switch-handler' and has a MAC address listed as '70 B3 D5 7E D0 00 7A C2'. There is also a button labeled 'add application'.



DEVICE OVERVIEW

Application ID: 123454321

Device ID: ursalink

Description: USRALINK

Activation Method: OTAA

Device EUI: 60 C5 A8 FF FE 00 03 F9

Application EUI: 70 B3 D5 7E D0 00 7A C2

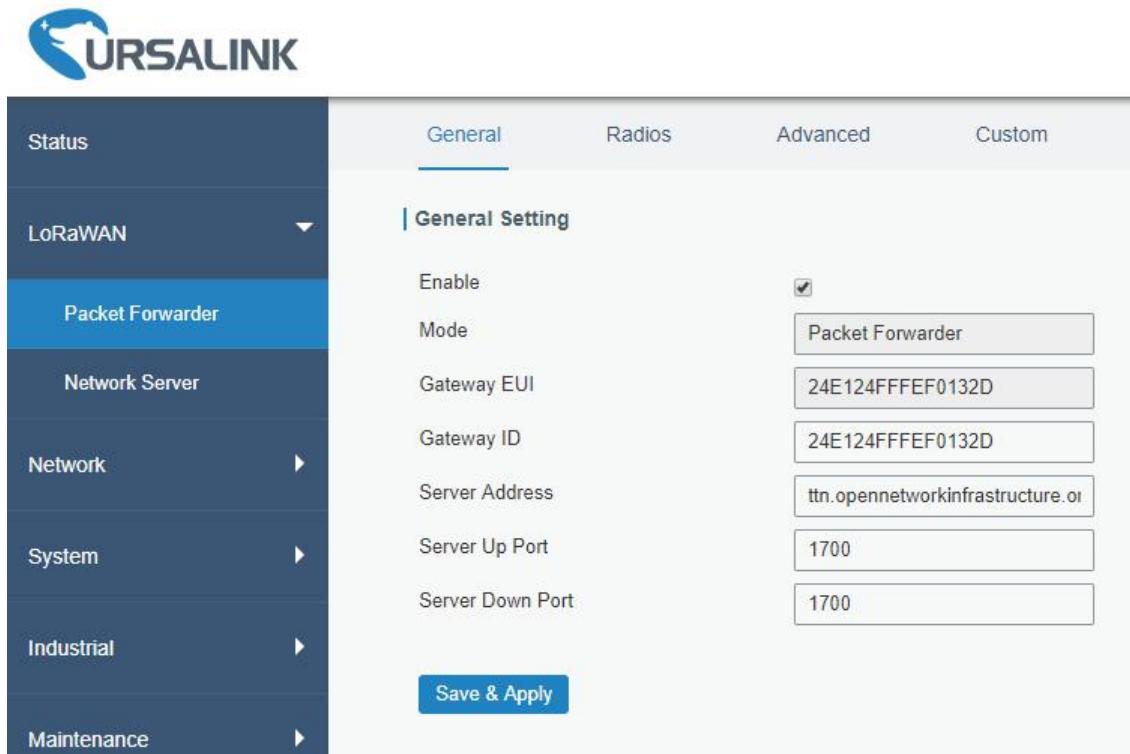
App Key: 32 8F 2A 3F 5B A8 D0 B2 36 45 9C F0 6D 05 12 B5

Device Address: 26 05 20 48

Network Session Key: ...

6.3 Packet Forwarder Configuration

- A. Click “LoRaWAN” → “Packet Forwarder” → “General” to configure the general setting.



General

General Setting

Enable	<input checked="" type="checkbox"/>
Mode	Packet Forwarder
Gateway EUI	24E124FFFFE0132D
Gateway ID	24E124FFFFE0132D
Server Address	ttn.opennetworkinfrastructure.or
Server Up Port	1700
Server Down Port	1700

Save & Apply

- B. Click “Radios” to configure the center frequency and channels.

General **Radios** Advanced Custom Traffic

| Radio Channel Setting

Supported Frequency	AS923
Name	Center Frequency/MHz
Radio 0	923.6
Radio 1	922.6

| Multi Channels Setting

Enable	Index	Radio	Frequency/MHz
<input checked="" type="checkbox"/>	0	Radio 0	923.2
<input checked="" type="checkbox"/>	1	Radio 0	923.4
<input checked="" type="checkbox"/>	2	Radio 0	923.6
<input checked="" type="checkbox"/>	3	Radio 1	922.2
<input checked="" type="checkbox"/>	4	Radio 1	922.4
<input checked="" type="checkbox"/>	5	Radio 1	922.6
<input checked="" type="checkbox"/>	6	Radio 1	922.8
<input checked="" type="checkbox"/>	7	Radio 1	923.0

C. Click “Traffic” to view the data communication of UG87

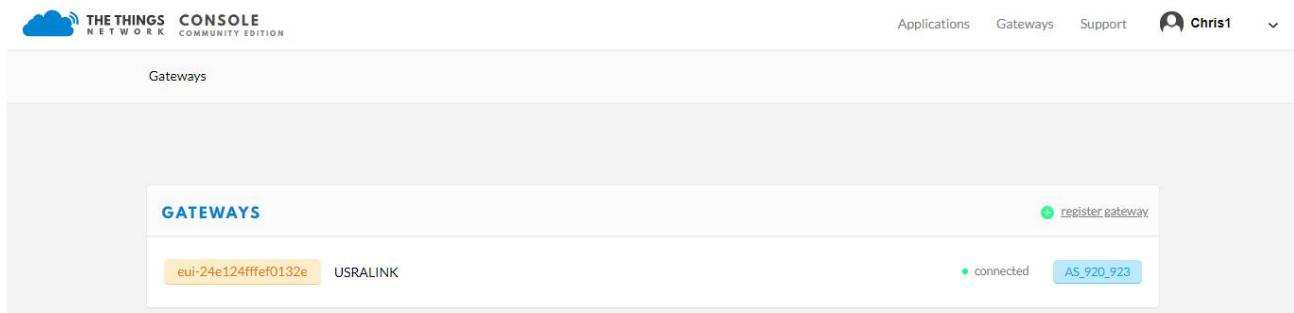
General Radios Advanced Custom **Traffic**

| Traffic Setting

Stop	Clear							
Rfch	Direction	Time	Ticks	Frequency	Datarate	Coderate	RSSI	SNR
1	up	-	2422567628	922.6	SF7BW125	4/7	-86	-11.5
1	up	-	2027425380	923.0	SF7BW125	4/6	-87	-10.8
1	up	-	1906152459	922.2	SF7BW125	OFF	-89	-11.8
0	up	-	1896642603	923.6	SF7BW125	4/6	-89	-12.0
0	up	-	1833066556	923.8	SF7BW250	4/5	-86	-12.0
0	up	-	1793222443	923.4	SF7BW125	4/8	-85	-11.2
0	up	-	1768923067	923.2	SF7BW125	4/5	-89	-11.8
1	up	-	1736475188	922.8	SF8BW125	4/8	-86	-14.0
1	up	-	1504937860	923.0	SF7BW125	4/5	-87	-11.5
~	~	~	1001000000	922.0	SF7BW125	4/6	-88	-11.8

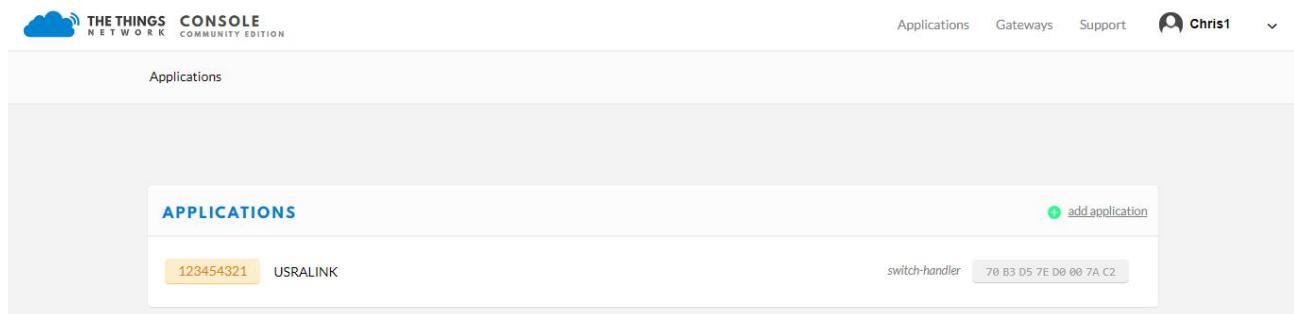
6.4 Check Data Transmission on The Things Network

A. Click “Gateways”, you can check the Gateways status.

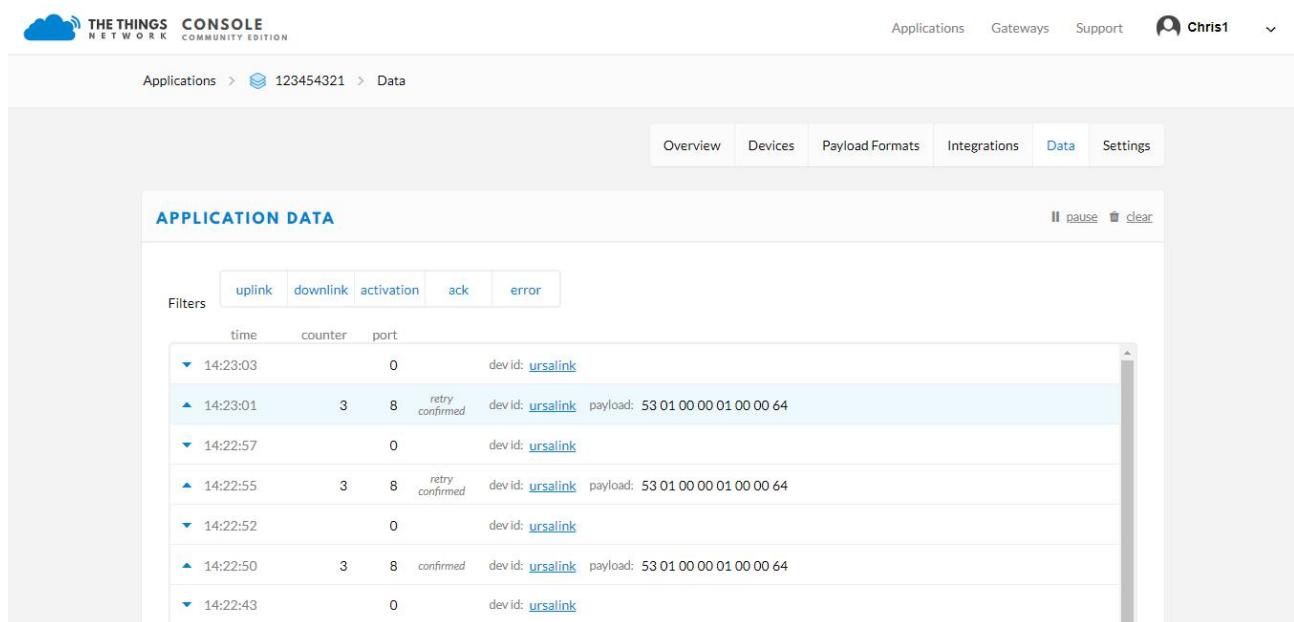


The screenshot shows the 'Gateways' section of the The Things Network Console. A single gateway is listed with the identifier 'eui-24e124ffffef0132e' and the name 'USRALINK'. The status is 'connected' with the ID 'A5_920_923'.

B. Click "Applications" and select the Applications, then go to "Data", you can find the data from the Node.



The screenshot shows the 'Applications' section of the The Things Network Console. A single application is listed with the identifier '123454321' and the name 'USRALINK'. The switch-handler is listed as '70 B3 D5 7E D0 00 7A C2'.



The screenshot shows the 'APPLICATION DATA' section for application '123454321'. The table lists data entries with columns for time, counter, port, and dev id. The data shows several entries for 'dev id: ursalink' with various payload hex values.

time	counter	port	dev id:	payload:
14:23:03	0		ursalink	
14:23:01	3	8	ursalink	53 01 00 00 01 00 00 64
14:22:57	0		ursalink	
14:22:55	3	8	ursalink	53 01 00 00 01 00 00 64
14:22:52	0		ursalink	
14:22:50	3	8	confirmed	53 01 00 00 01 00 00 64
14:22:43	0		ursalink	

7. Network Server Testing

Note that only gateway with activated built-in Network Server supports this function.

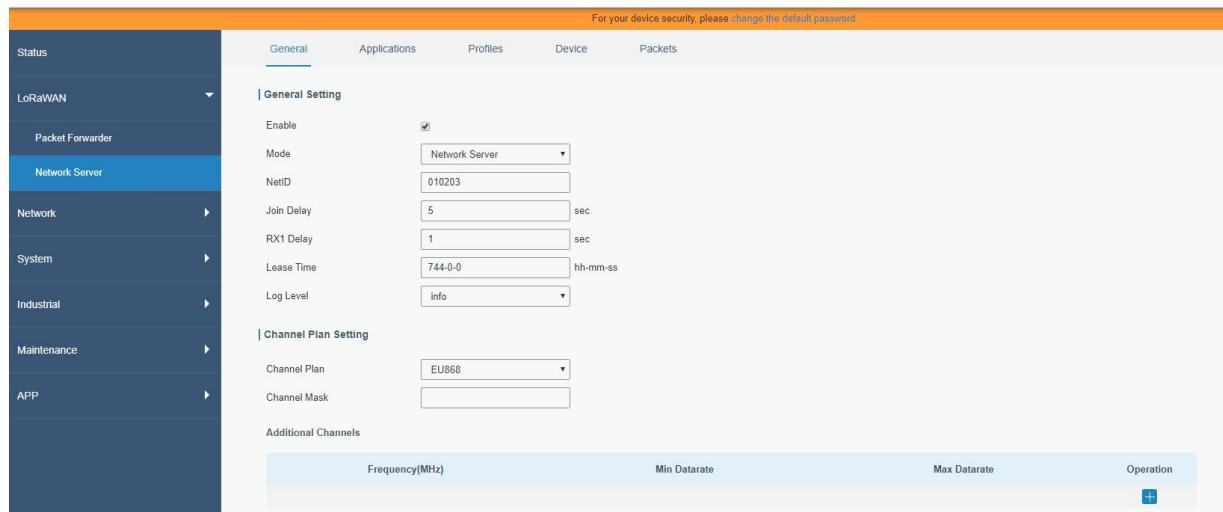
7.1 Node Parameters

Channel Plan	AS923
Frequency	923.4MHZ, 923.2MHZ
Join Type	OTAA
Device EUI	60C5A8FFE0003F9
Application EUI	70B3D57ED0007AC2
App Key	1A98A25536993A882154B81551F18A76

7.2 Network Server Configuration

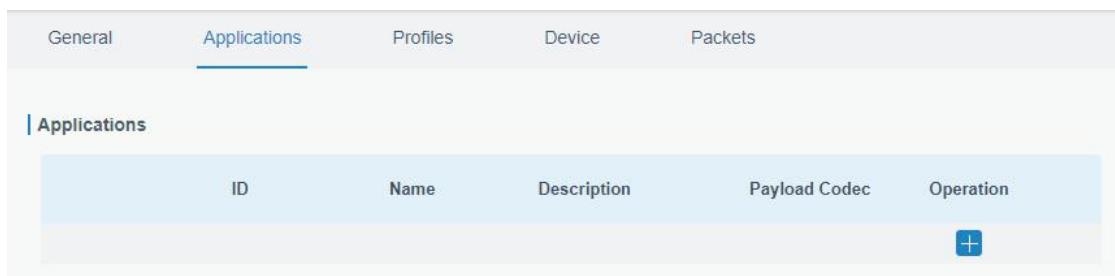
A. Click “LoRaWAN” → “Network Server” → “General” to configure the general setting.

Note that the channel plan of the nodes and network server need to be the same.



The screenshot shows the LoRaWAN configuration interface. On the left, there is a sidebar with the following navigation options: Status, LoRaWAN (selected), Packet Forwarder, Network Server (highlighted in blue), Network, System, Industrial, Maintenance, and APP. The main panel has tabs at the top: General (selected), Applications, Profiles, Device, and Packets. The General tab contains two sections: General Setting and Channel Plan Setting. In General Setting, the 'Enable' checkbox is checked, 'Mode' is set to 'Network Server', 'NetID' is '010203', 'Join Delay' is '5 sec', 'RX1 Delay' is '1 sec', 'Lease Time' is '744-0-0 hh-mm-ss', and 'Log Level' is 'info'. In Channel Plan Setting, 'Channel Plan' is set to 'EU868'. Below these sections is a table for 'Additional Channels' with columns: Frequency(MHz), Min Datarate, Max Datarate, and Operation. A '+' button is located at the bottom right of this table.

B. Add a new Application.



The screenshot shows the Applications configuration interface. The top navigation bar has tabs: General, Applications (selected), Profiles, Device, and Packets. The Applications tab contains a table with columns: ID, Name, Description, Payload Codec, and Operation. A '+' button is located at the bottom right of the table.

General	Applications	Profiles	Device	Packets						
Applications <table border="1"> <tr> <td>Name</td> <td>Smoke-Sensor-APP</td> </tr> <tr> <td>Description</td> <td>Smoke Sensor</td> </tr> <tr> <td>Payload Codec</td> <td>None</td> </tr> </table>					Name	Smoke-Sensor-APP	Description	Smoke Sensor	Payload Codec	None
Name	Smoke-Sensor-APP									
Description	Smoke Sensor									
Payload Codec	None									

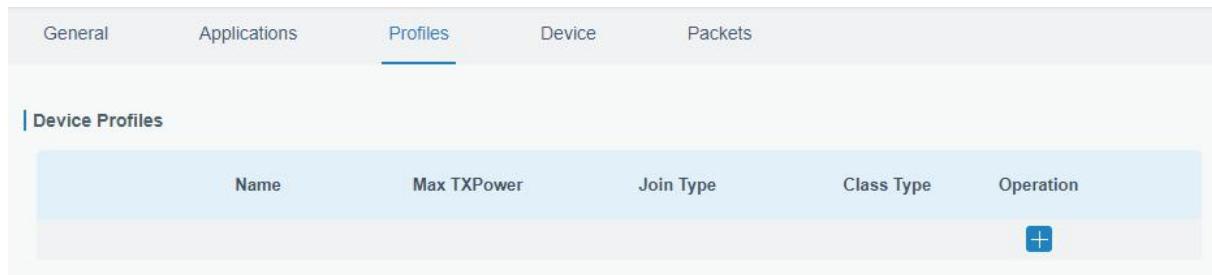
Add data transmission information (HTTP/HTTPS/MQTT).

Data Transmission	
Type	Operation
	+

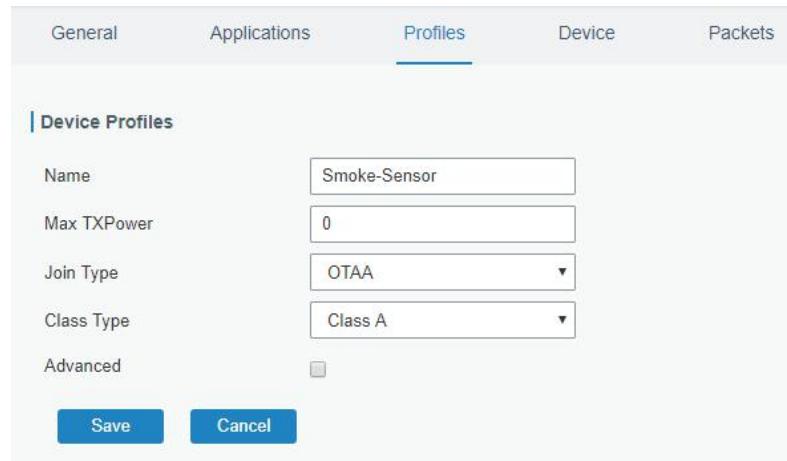
General	Applications	Profiles	Device	Packets								
Applications <table border="1"> <tr> <td>Name</td> <td>Smoke Sensor APP</td> </tr> <tr> <td>Description</td> <td>Smoke Sensor</td> </tr> <tr> <td>Payload Codec</td> <td>None</td> </tr> </table>					Name	Smoke Sensor APP	Description	Smoke Sensor	Payload Codec	None		
Name	Smoke Sensor APP											
Description	Smoke Sensor											
Payload Codec	None											
Data Transmission <table border="1"> <tr> <td>Type</td> <td> MQTT HTTP MQTT HTTPS </td> </tr> <tr> <td colspan="2"> General <table border="1"> <tr> <td>Broker Address</td> <td></td> </tr> <tr> <td>Broker Port</td> <td></td> </tr> </table> </td> </tr> </table>					Type	MQTT HTTP MQTT HTTPS	General <table border="1"> <tr> <td>Broker Address</td> <td></td> </tr> <tr> <td>Broker Port</td> <td></td> </tr> </table>		Broker Address		Broker Port	
Type	MQTT HTTP MQTT HTTPS											
General <table border="1"> <tr> <td>Broker Address</td> <td></td> </tr> <tr> <td>Broker Port</td> <td></td> </tr> </table>		Broker Address		Broker Port								
Broker Address												
Broker Port												

General	Applications	Profiles	Device	Packets														
Applications																		
<table border="1"> <thead> <tr> <th>ID</th><th>Name</th><th>Description</th><th>Payload Codec</th><th>Operation</th></tr> </thead> <tbody> <tr> <td>8</td><td>Smoke-Sensor-APP</td><td>Smoke Sensor</td><td>None</td><td> </td></tr> <tr> <td></td><td></td><td></td><td></td><td style="text-align: center;">+</td></tr> </tbody> </table>				ID	Name	Description	Payload Codec	Operation	8	Smoke-Sensor-APP	Smoke Sensor	None	 					+
ID	Name	Description	Payload Codec	Operation														
8	Smoke-Sensor-APP	Smoke Sensor	None	 														
				+														

C. Add Profiles for the device

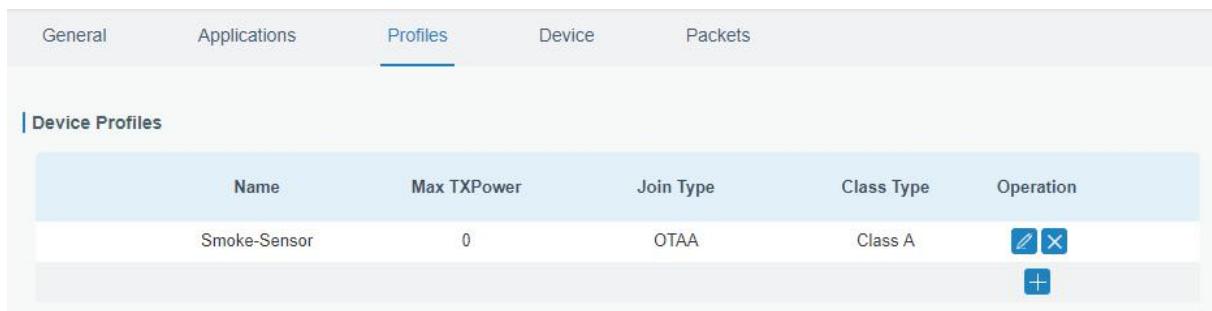


The screenshot shows the 'Profiles' tab selected in a navigation bar. Below it is a table titled 'Device Profiles' with columns: Name, Max TXPower, Join Type, Class Type, and Operation. A blue '+' button is located at the bottom right of the table.



This is a modal dialog for creating a new device profile. It has fields for Name (Smoke-Sensor), Max TXPower (0), Join Type (OTAA), and Class Type (Class A). There is also an 'Advanced' section with a collapsed icon. At the bottom are 'Save' and 'Cancel' buttons.

Name	Max TXPower	Join Type	Class Type	Operation
Smoke-Sensor	0	OTAA	Class A	



The screenshot shows the 'Profiles' tab selected again. The 'Device Profiles' table now contains one row for 'Smoke-Sensor'. The 'Operation' column for this row includes edit and delete icons (pencil and X) and a blue '+' button.

Name	Max TXPower	Join Type	Class Type	Operation
Smoke-Sensor	0	OTAA	Class A	

D. Add device

General	Applications	Profiles	Device	Packets																								
 Device General <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Device Name</td> <td>Somke-Sensor</td> </tr> <tr> <td>Description</td> <td>Somke Sensor</td> </tr> <tr> <td>Device EUI</td> <td>60C5A8FFFE0003F9</td> </tr> <tr> <td>Device-Profile</td> <td>Smoke-Sensor ▾</td> </tr> <tr> <td>Application</td> <td>▼</td> </tr> <tr> <td>Frame-counter Validation</td> <td><input checked="" type="checkbox"/></td> </tr> </table> Activate Device(OTAA) <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Application Key</td> <td>1A98A25536993A882154B815!</td> </tr> <tr> <td>Device Address</td> <td> </td> </tr> <tr> <td>Network Session Key</td> <td> </td> </tr> <tr> <td>Application Session Key</td> <td> </td> </tr> <tr> <td>Uplink Frame-counter</td> <td>0</td> </tr> <tr> <td>Downlink Frame-counter</td> <td>0</td> </tr> </table> <div style="text-align: center; margin-top: 10px;"> <input style="margin-right: 10px; border-radius: 5px; padding: 2px 10px; border: 1px solid #0072BD; color: #0072BD; font-weight: bold; font-size: 10px; width: 50px; height: 20px;" type="button" value="Save"/> <input style="border-radius: 5px; padding: 2px 10px; border: 1px solid #0072BD; color: #0072BD; font-weight: bold; font-size: 10px; width: 50px; height: 20px;" type="button" value="Cancel"/> </div>					Device Name	Somke-Sensor	Description	Somke Sensor	Device EUI	60C5A8FFFE0003F9	Device-Profile	Smoke-Sensor ▾	Application	▼	Frame-counter Validation	<input checked="" type="checkbox"/>	Application Key	1A98A25536993A882154B815!	Device Address		Network Session Key		Application Session Key		Uplink Frame-counter	0	Downlink Frame-counter	0
Device Name	Somke-Sensor																											
Description	Somke Sensor																											
Device EUI	60C5A8FFFE0003F9																											
Device-Profile	Smoke-Sensor ▾																											
Application	▼																											
Frame-counter Validation	<input checked="" type="checkbox"/>																											
Application Key	1A98A25536993A882154B815!																											
Device Address																												
Network Session Key																												
Application Session Key																												
Uplink Frame-counter	0																											
Downlink Frame-counter	0																											

General	Applications	Profiles	Device	Packets																					
 Device <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Device Name</th> <th style="width: 15%;">Device EUI</th> <th style="width: 15%;">Device-Profile</th> <th style="width: 15%;">Application</th> <th style="width: 15%;">Last Seen</th> <th style="width: 15%;">Actived</th> <th style="width: 15%;">Operation</th> </tr> </thead> <tbody> <tr> <td>Somke-Sensor</td> <td>60c5a8fffe0003f9</td> <td>Smoke-Sensor</td> <td>Smoke-Sensor-APP</td> <td>-</td> <td>---</td> <td> </td> </tr> <tr> <td colspan="6"></td> <td></td> </tr> </tbody> </table>					Device Name	Device EUI	Device-Profile	Application	Last Seen	Actived	Operation	Somke-Sensor	60c5a8fffe0003f9	Smoke-Sensor	Smoke-Sensor-APP	-	---								
Device Name	Device EUI	Device-Profile	Application	Last Seen	Actived	Operation																			
Somke-Sensor	60c5a8fffe0003f9	Smoke-Sensor	Smoke-Sensor-APP	-	---																				

7.3 Package Forwarder Configuration

Click “LoRaWAN” → “Packet Forwarder” → “Radios” to configure the center frequency and channels

Note that node frequency needs to be included in the channels frequency.

7.4 Check the Packets

Click “LoRaWAN” → “Network Server” → “Packets” to check the packets from the node on network server.

Device EUI	Frequency	Datarate	SNR	RSSI	Size	Fcnt	Type	Time	Details
1114611693255998	868500000	SF10BW125	6.2	-112	11	62	UpUnc	2019-09-16T21:31:17+08:00	
1114611693255998	868300000	SF10BW125	8.8	-108	11	61	UpUnc	2019-09-16T21:30:17+08:00	
1114611693255998	868300000	SF10BW125	9.2	-103	11	60	UpUnc	2019-09-16T21:29:17+08:00	
1114611693255998	868100000	SF10BW125	8.8	-113	11	59	UpUnc	2019-09-16T21:28:17+08:00	
1114611693255998	868100000	SF10BW125	12.2	-100	11	58	UpUnc	2019-09-16T21:27:17+08:00	
1114611693255998	868300000	SF10BW125	9.0	-104	11	57	UpUnc	2019-09-16T21:26:17+08:00	
1114611693255998	868100000	SF10BW125	10.8	-106	11	56	UpUnc	2019-09-16T21:25:17+08:00	
1114611693255998	868500000	SF10BW125	8.2	-109	11	55	UpUnc	2019-09-16T21:24:17+08:00	

[END]