

Semi-industrial LoRaWAN[®] Hotspot UG65

User 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 devices when installing.
- Check lightning and water protection when used outdoors.
- Do not connect or power the equipment using cables that have been damaged.

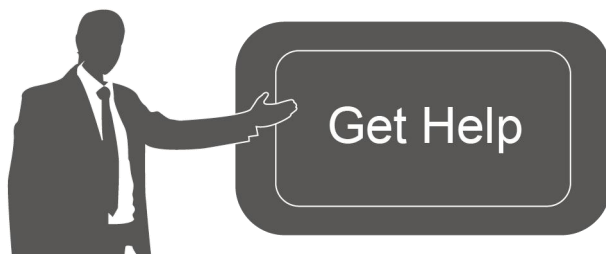
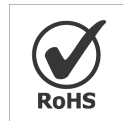
Related Documents

Document	Description
UG65 Datasheet	Datasheet for UG65 LoRaWAN® Hotspot.

The related documents are available on the Milesight website: <https://www.milesight-iot.com>

Declaration of Conformity

UG65 conforms 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

Revision History

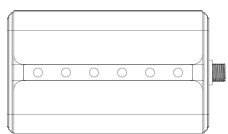
Date	Doc Version	Description
Oct. 12, 2021	V1.0	Initial version
Nov. 23, 2021	V1.1	QR Code Generate Update

Contents

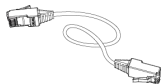
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1. Packing List

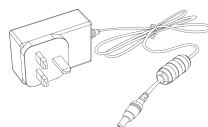
Before you begin to install the UG65 LoRaWAN® hotspot, please check the package contents to verify that you have received the items below.



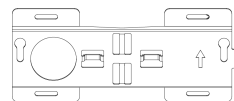
1 × UG65



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

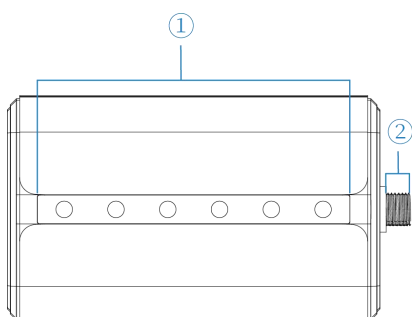


If any of the above items is missing or damaged, please contact your sales representative.

2. Hardware Introduction

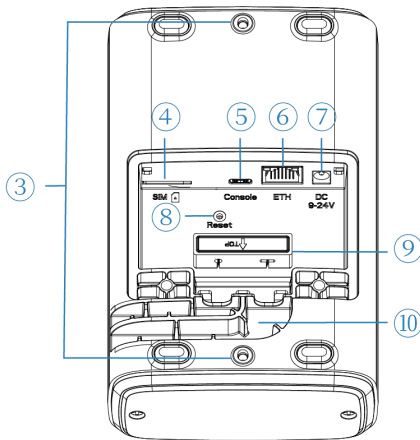
2.1 Overview

A. Front Panel



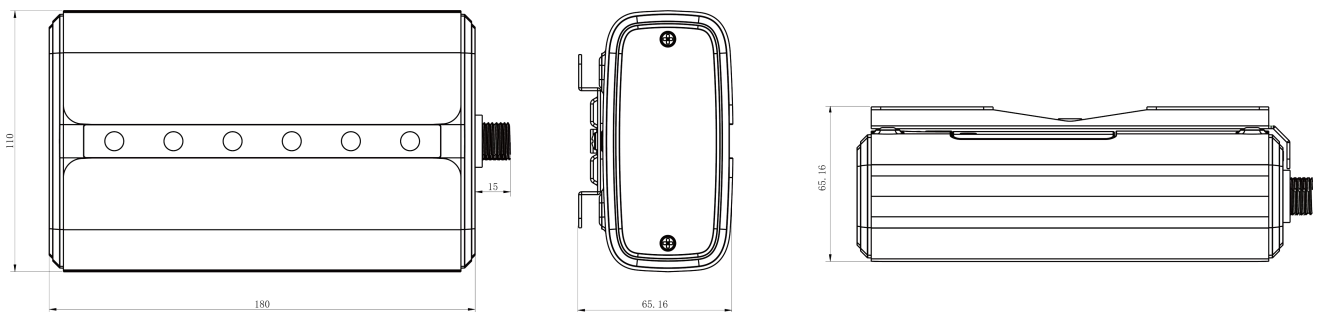
- ① LED Area
 - POWER: Power Indicator
 - STATUS: System Indicator
 - LoRa: LoRa Indicator
 - Wi-Fi: Wi-Fi Indicator
 - LTE: Cellular Indicator
 - ETH: Ethernet Port Indicator
- ② LoRa Antenna Connector

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 hotspot resets to factory default.

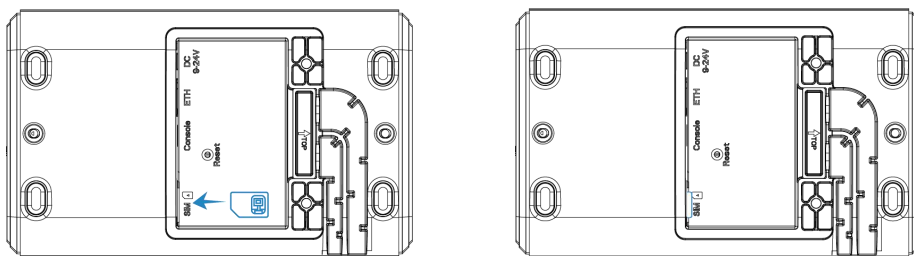
3. Hardware Installation

3.1 SIM Card Installation

- Use a screwdriver to open the protective cover on the back panel of UG65.
- Insert the SIM card into the device according to the direction icon on the device.

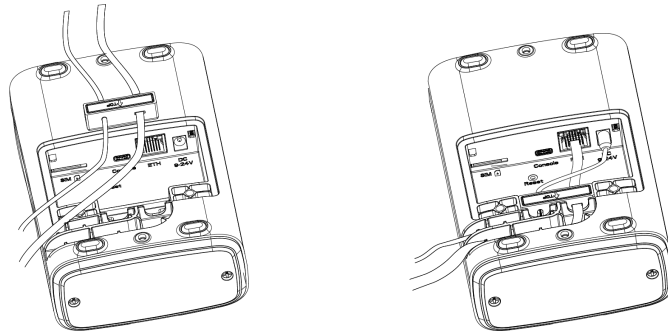
Note:

- Ensure the gateway is cellular version when purchase.
- 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 inserting or taking off cards.



3.2 Ethernet Cable & Power Cable Installation

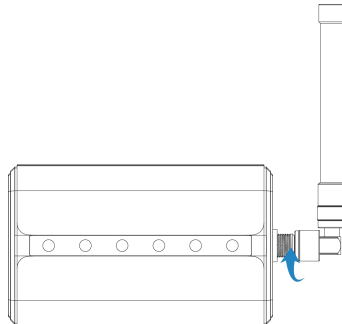
- Connect the Ethernet cable and power cable to corresponding interfaces.
- Pass two cables through the waterproof silicone and slide into the grooves.
- Screw the protective cover back to the device.



UG65 can also be powered by an 802.3af standard PoE injector or other PoE device. If both are connected, DC power is preferred.

3.3 Antenna Installation

The antenna should be installed vertically always on a site with a good signal. After installation, please select the corresponding installation type in web GUI.



Note: do not let the front panel of products faces to walls if using embedded LoRa antennas.

3.4 Hotspot 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.

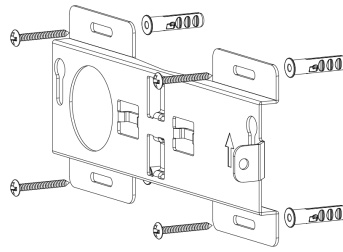
A. Align the mounting bracket horizontally to the desired position on the wall, use a marker pen to mark four mounting holes on the wall, and then remove the mounting bracket from the wall.

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

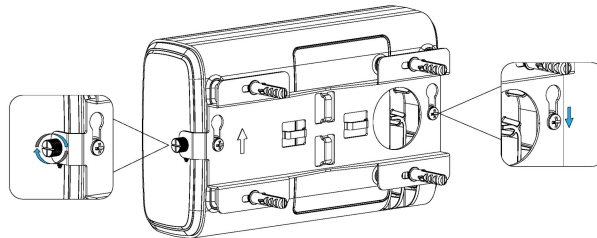
B. Drill four holes with a depth of 32 mm by using your drill with a 6 mm drill bit on the positions you marked previously on the wall.

C. Insert four wall plugs into the holes respectively.

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



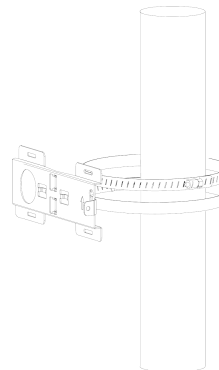
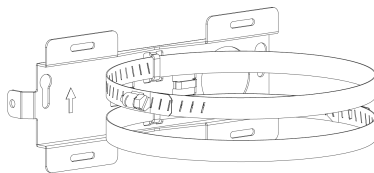
E. Screw the bracket fixing screws to the back panel of the device, then hang the device to the mounting bracket on the wall.



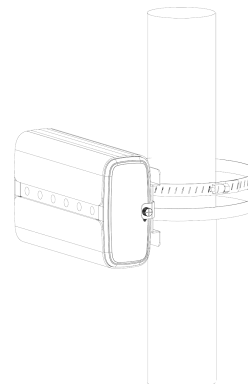
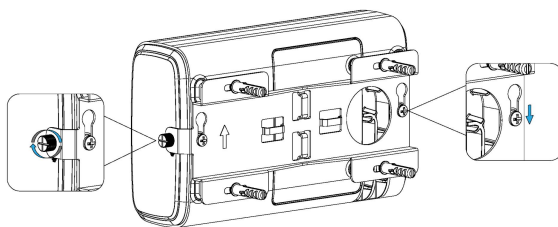
3.4.2 Pole Mounting

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

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



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



4. Login the Web GUI

UG65 provides a web-based configuration interface for management. If this is the first time you configure the hotspot, 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, enter the username and password, click “Login”.

 English



 Username

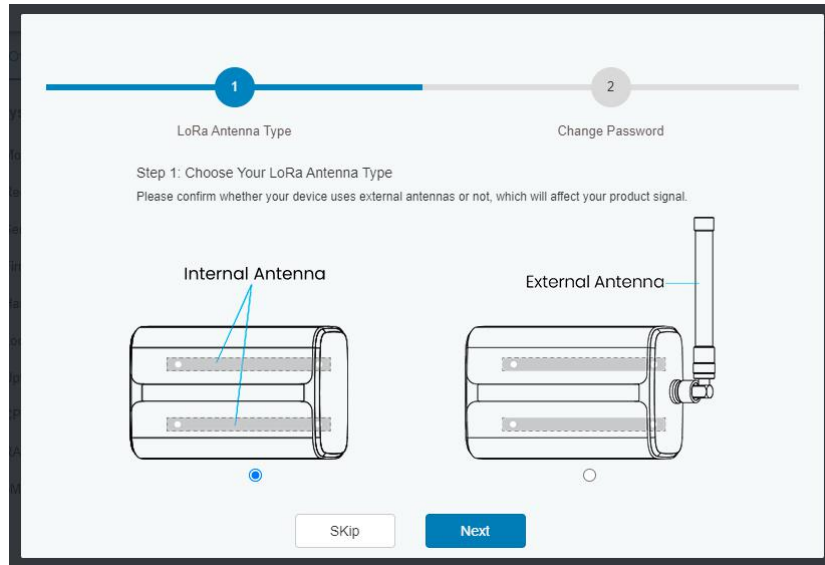
 Password

Login



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

C. After logging, select the correct antenna type according to your antenna installation and change the default password following the guide.



After the guide completed, you can view system information and perform more advanced settings.

Status	Overview	Cellular	Network	WLAN	VPN	Host List	Help
Packet Forwarder	System Information						Model
Network Server	Model		UG65-L00E-470M-H32				Show the model name of router.
Network	Region		CN470				Region
System	Serial Number		6221B2361571				Show the Region of router.
Maintenance	Firmware Version		60H.0.0.36-a2				Serial Number
APP	Hardware Version		V1.0				Show the serial number of router.
	Local Time		2021-10-20 10:45:40 Wednesday				Firmware Version
	Uptime		00:11:31				Show the current firmware version of router.
	CPU Load		4%				Hardware Version
	RAM (Capacity/Available)		2048MB/1103MB(53.86%)				Show the current hardware version of router.
	eMMC (Capacity/Available)		27.9Gi/23.5Gi(84.42%)				Local Time
							Show the current local time of system.
							Uptime
							Show the information on how long the router has been running.
							CPU Load



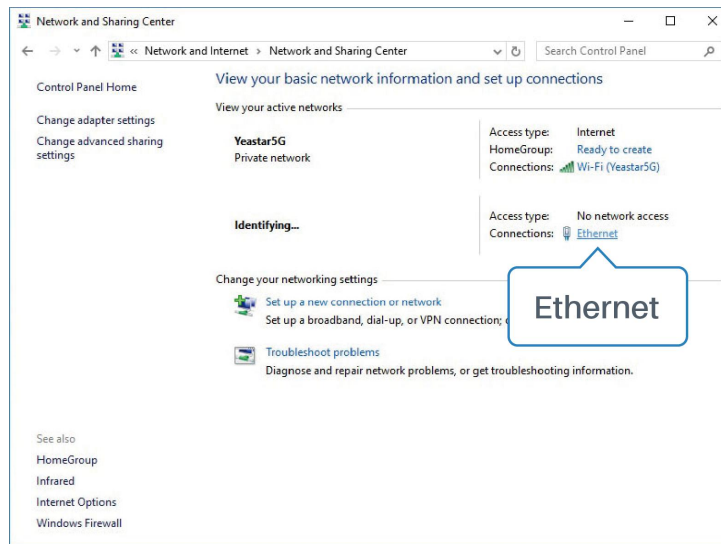
Disable WLAN feature or add password after you completed all hotspot settings!

Status	Port	WLAN	Loopback
Packet Forwarder	WLAN		
Network Server	Enable	<input checked="" type="checkbox"/>	
Network	Work Mode	AP	
Interface	SSID Broadcast	<input checked="" type="checkbox"/>	
Firewall	AP Isolation	<input type="checkbox"/>	
DHCP	Radio Type	802.11n(2.4GHz)	
DDNS	Channel	Auto	
Link Failover	SSID	Gateway_F1B4D0	
	BSSID	24:e1:24:f1:b4:d0	
	Encryption Mode	WPA2-PSK	
	Cipher	Auto	
	Key	

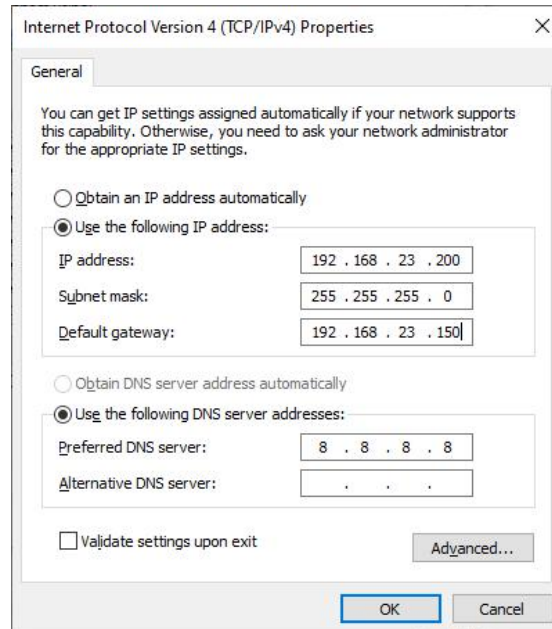
4.2 Wired Access

Connect PC to UG65 ETH port directly. 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 hotspot.



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, 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.

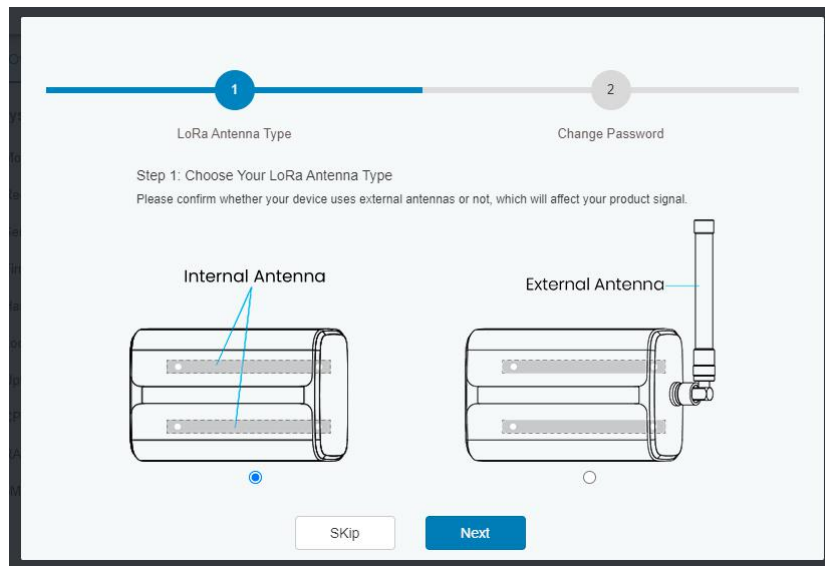


Username

Password

Login

D. After logging, select the correct antenna type according to your antenna installation and change the default password following the guide.



After the guide completed, you can view system information and perform more advanced settings.

For your device security, please change the default password

Status	Overview	Cellular	Network	WLAN	VPN	Host List	Help
Packet Forwarder	System Information						Model Show the model name of router.
Network Server	Model		UG65-L00E-470M-EA-H32				Region Show the Region of router.
Network	Region		CN470				Serial Number Show the serial number of router.
System	Serial Number		6819B4300645				Firmware Version Show the current firmware version of router.
Maintenance	Firmware Version		61.0.0.36				Hardware Version Show the current hardware version of router.
APP	Hardware Version		V1.3				Local Time Show the current local time of system.
	Local Time		2021-11-18 10:31:08 Thursday				Uptime Show the information on how long the router has been running.
	Uptime		13:10:05				CPU Load
	CPU Load		9%				
	RAM (Capacity/Available)		2048MB/629MB(30.71%)				
	eMMC (Capacity/Available)		27.9G/14.5G(52.03%)				

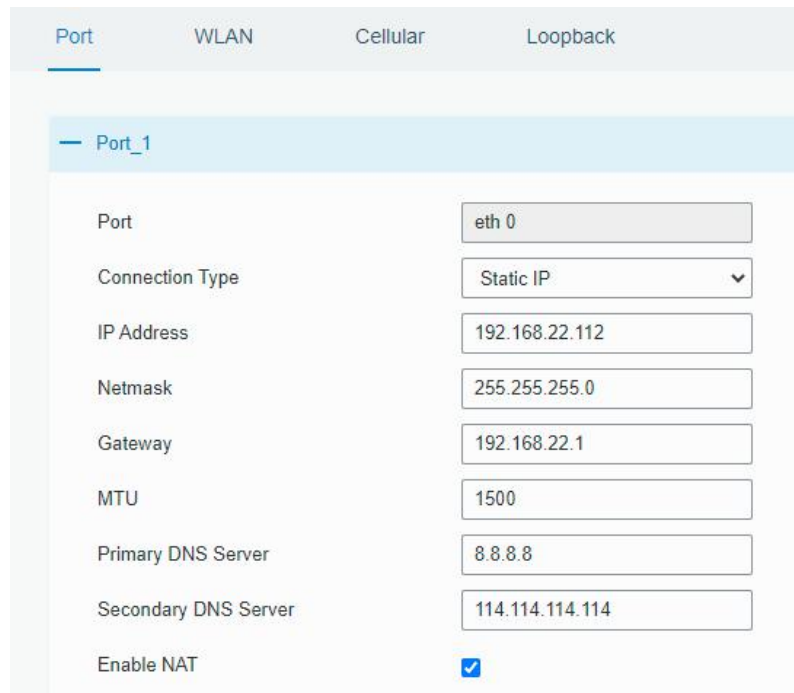
Manual Refresh Refresh

5. Network Connection

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

5.1 Configure the Ethernet Connection

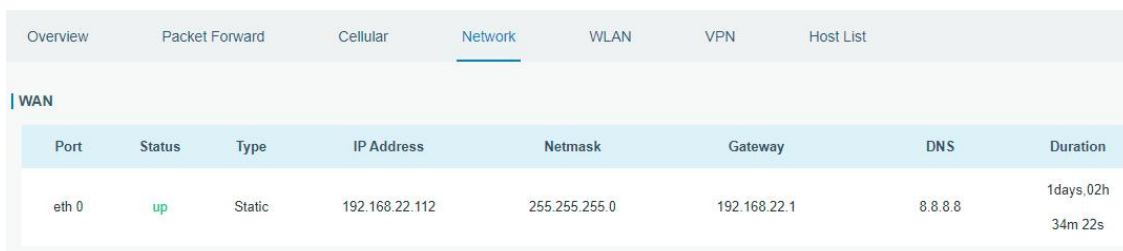
A. Go to “Network” → “Interface” → “Port” page to select the connection type and configure Ethernet port information, click “Save & Apply” for changes to take effect.



Port	WLAN	Cellular	Loopback
Port_1			
Port	eth 0		
Connection Type	Static IP		
IP Address	192.168.22.112		
Netmask	255.255.255.0		
Gateway	192.168.22.1		
MTU	1500		
Primary DNS Server	8.8.8.8		
Secondary DNS Server	114.114.114.114		
Enable NAT	<input checked="" type="checkbox"/>		

B. Connect Ethernet port of hotspot 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.



Overview	Packet Forward	Cellular	Network	WLAN	VPN	Host List	
WAN							
Port	Status	Type	IP Address	Netmask	Gateway	DNS	Duration
eth 0	up	Static	192.168.22.112	255.255.255.0	192.168.22.1	8.8.8.8	1day, 02h 34m 22s

5.2 Configure the Wi-Fi Connection

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

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

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

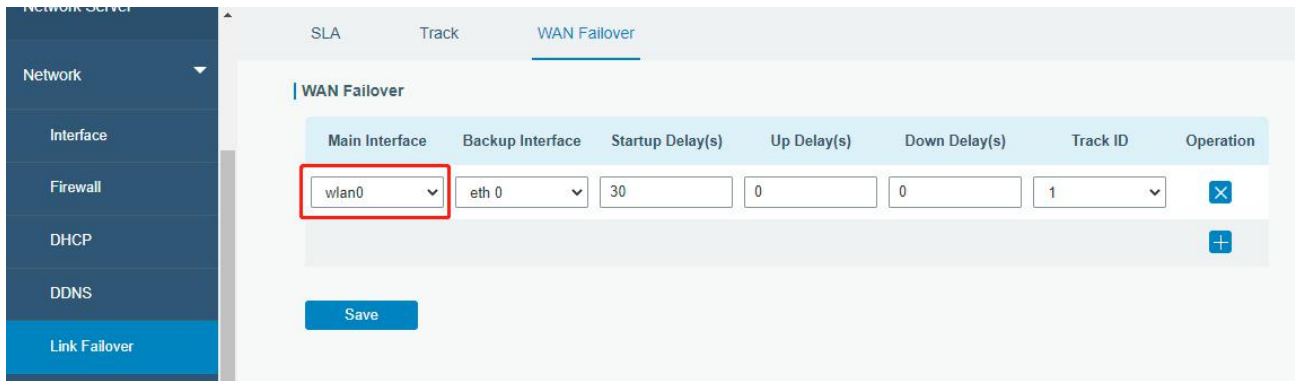
C. Type the key of Wi-Fi.

Port	WLAN	Cellular	Loopback
WLAN			
Enable	<input checked="" type="checkbox"/>		
Work Mode	Client		Scan
SSID	AAA		
BSSID	24:e1:24:f0:c4:13		
Encryption Mode	WPA-PSK/WPA2-PSK		
Cipher	AES		
Key		
IP Setting			
Protocol	DHCP Client		

D. Go to “Status” → “WLAN” to check Wi-Fi status. If it shows “Connected”, it means that the hotspot has connected to Wi-Fi successfully.

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

E. Go to “Network” → “Failover” → “WAN Failover” to switch the wlan0 as main interface, then gateway can use the Wi-Fi to access the Internet.



5.3 Configure the Cellular Connection

This feature only works when your gateway is cellular version.

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

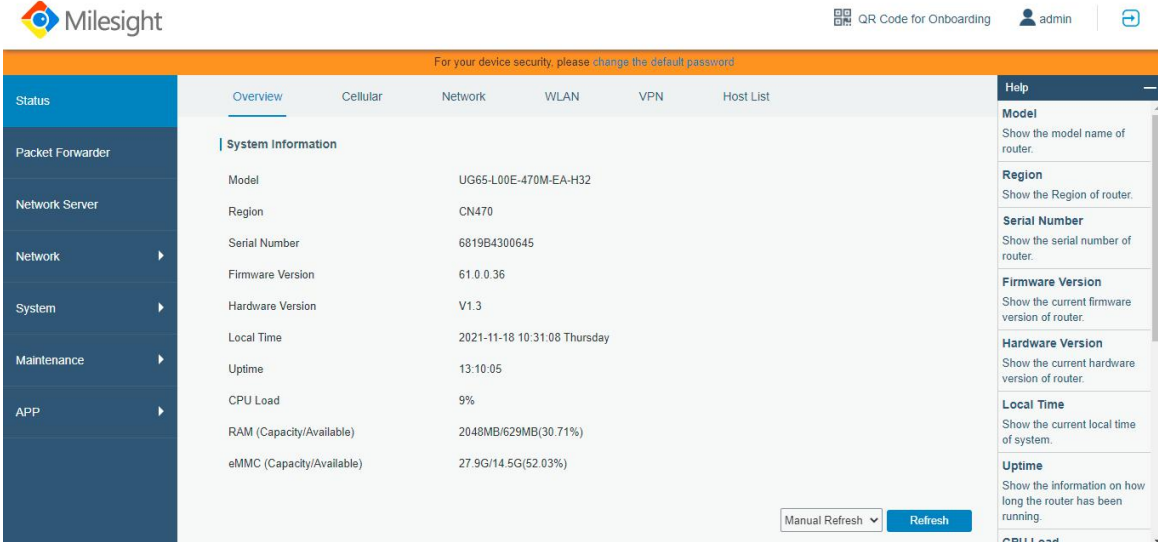
Port	WLAN	Cellular	Loopback
Cellular Setting			
Enable		<input checked="" type="checkbox"/>	
Network Type		Auto	
APN			
Username			
Password			
Access Number			
PIN Code			
Authentication Type		Auto	
Roaming		<input checked="" type="checkbox"/>	

- 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 the LTE indicator. If it keeps on 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. Helium Hotspot Setup

- A. Download Helium App from Google Play or Apple App Store and create a Helium Wallet.
- B. Log in the web GUI, click "QR Code for Onboarding" at the top right corner.



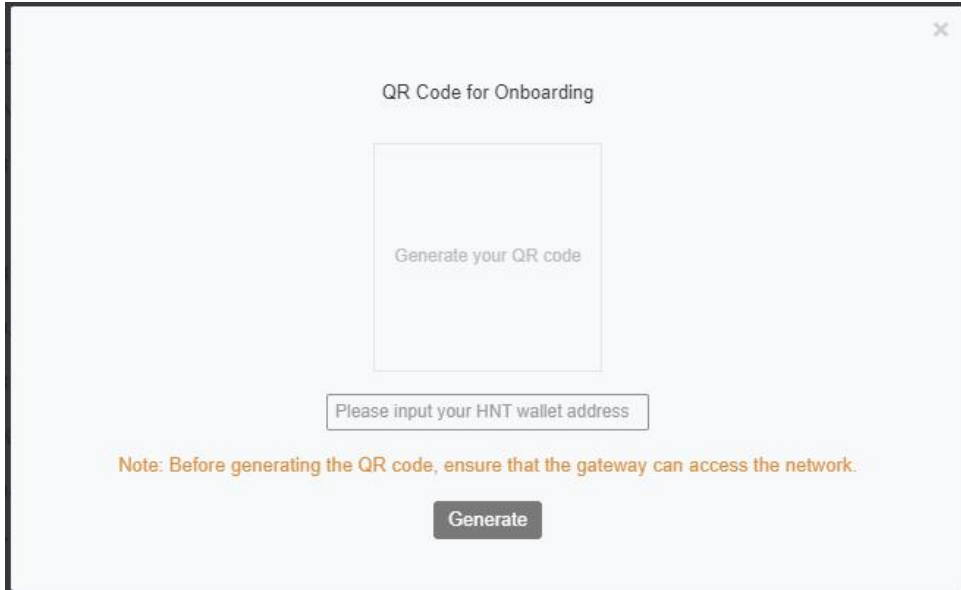
The screenshot shows the Milesight web GUI interface. At the top, there is a navigation bar with the Milesight logo, a QR code for onboarding, and a user profile for 'admin'. Below the navigation bar, a warning message reads: "For your device security, please change the default password". The main content area is divided into several sections: a left sidebar with menu items (Status, Packet Forwarder, Network Server, Network, System, Maintenance, APP), a central area with tabs (Overview, Cellular, Network, WLAN, VPN, Host List) and a "System Information" table, and a right sidebar with a "Help" section.

System Information	Value
Model	UG65-L00E-470M-EA-H32
Region	CN470
Serial Number	6819B4300645
Firmware Version	61.0.0.36
Hardware Version	V1.3
Local Time	2021-11-18 10:31:08 Thursday
Uptime	13:10:05
CPU Load	9%
RAM (Capacity/Available)	2048MB/629MB(30.71%)
eMMC (Capacity/Available)	27.9G/14.5G(52.03%)

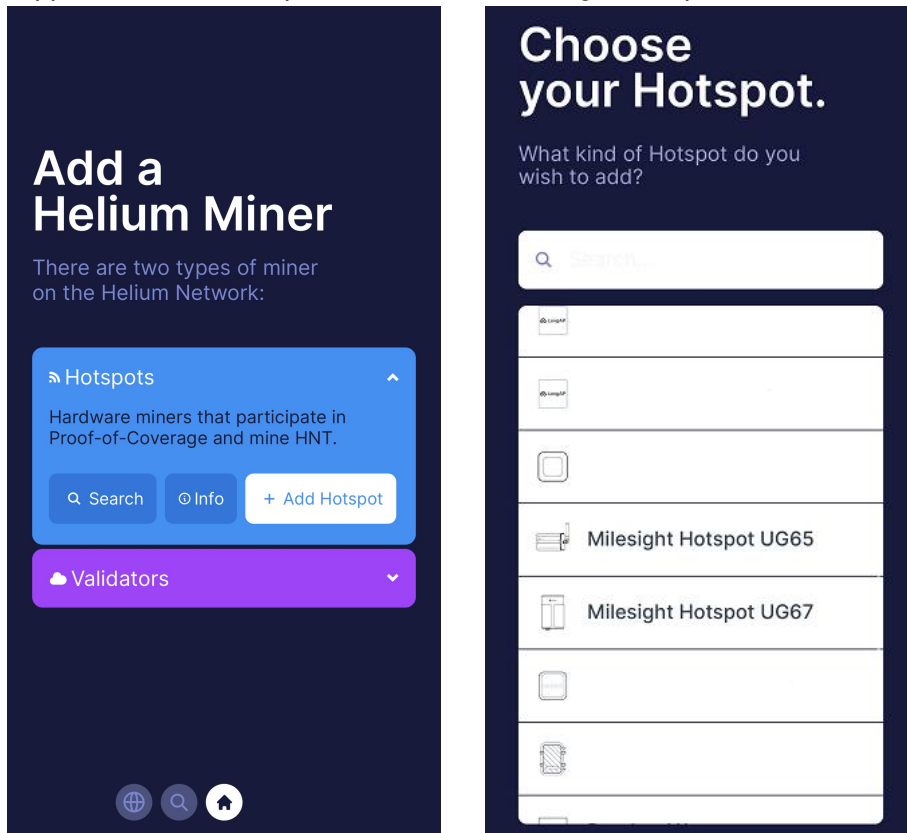
The Help sidebar on the right contains the following items:

- Model**: Show the model name of router.
- Region**: Show the Region of router.
- Serial Number**: Show the serial number of router.
- Firmware Version**: Show the current firmware version of router.
- Hardware Version**: Show the current hardware version of router.
- Local Time**: Show the current local time of system.
- Uptime**: Show the information on how long the router has been running.
- CPU Load**: (partially visible)

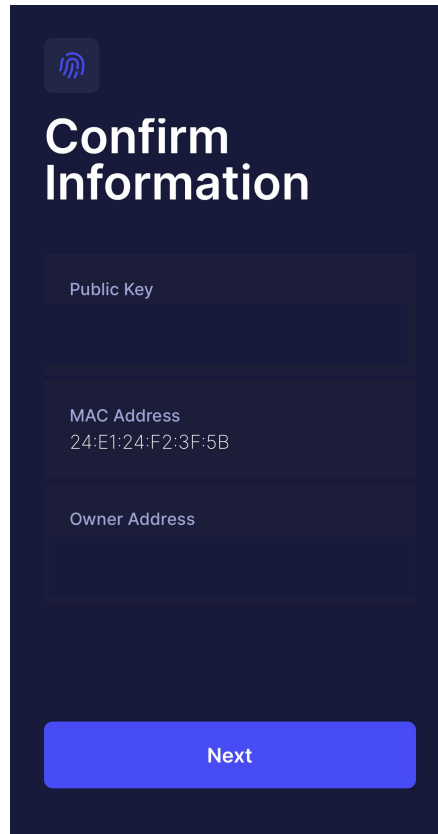
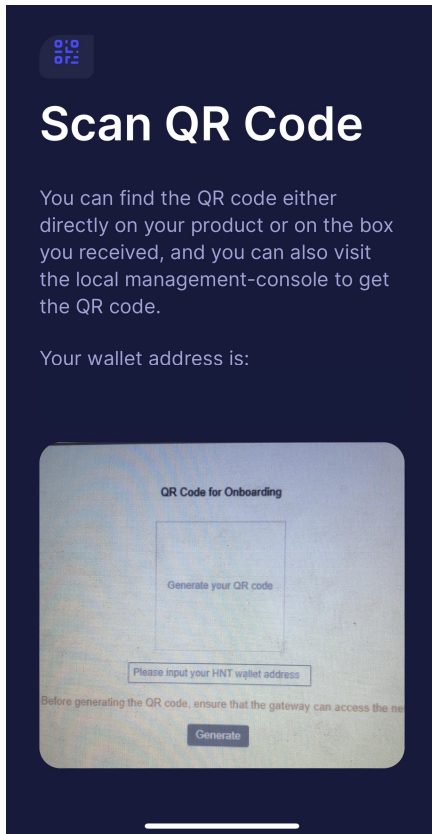
- C. Fill in the wallet address in hotspot web GUI and click "Generate" to generate the QR code.



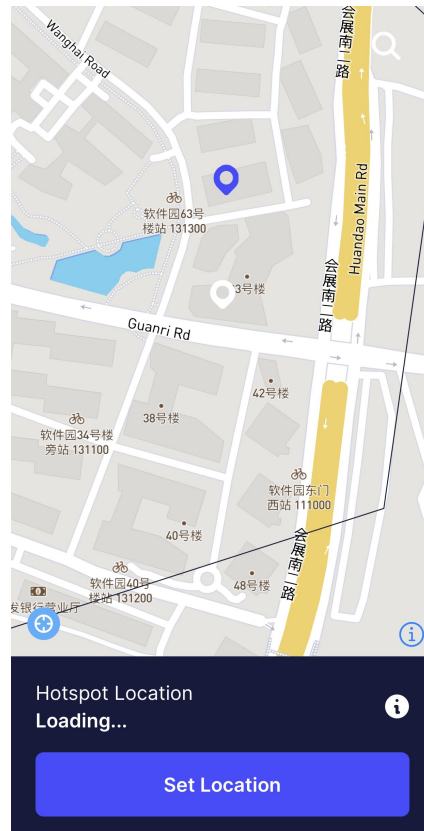
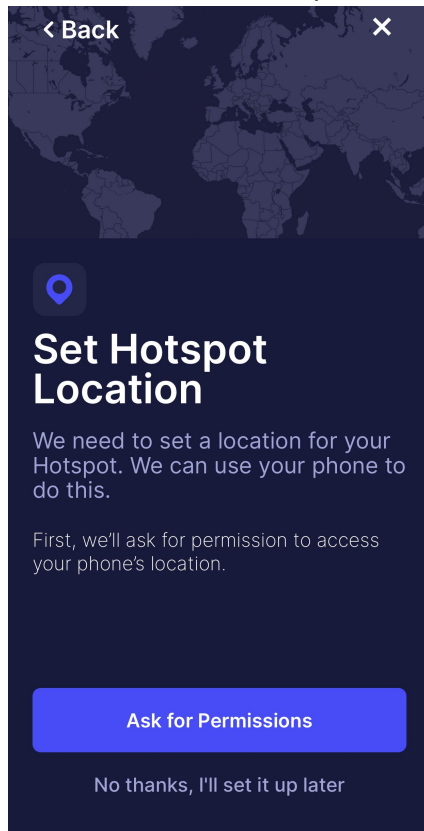
D. Open Helium App, click “+Add Hotspot” and choose “Milesight Hotspot UG65” from the list.



E. Scan the QR code on the hotspot login web GUI, then App will get the hotspot information. Click “Next”.



F. Click “Ask for Permissions” to set hotspot location, then click “Set Location”.



G. Set hotspot antenna gain and height according to your external antenna type, it's 1dBi by default. Click "Next" and "Register Hotspot". This registration requires \$10 and it's already paid by Milesight.

Antenna Setup
Submit antenna and height details for your Hotspot.

Milesight Hotspot UG65

TX / RX Gain 1.0 dBi

Height (meters) 0

Next

Location Fee
Your Location Fee (\$10) has been prepaid.

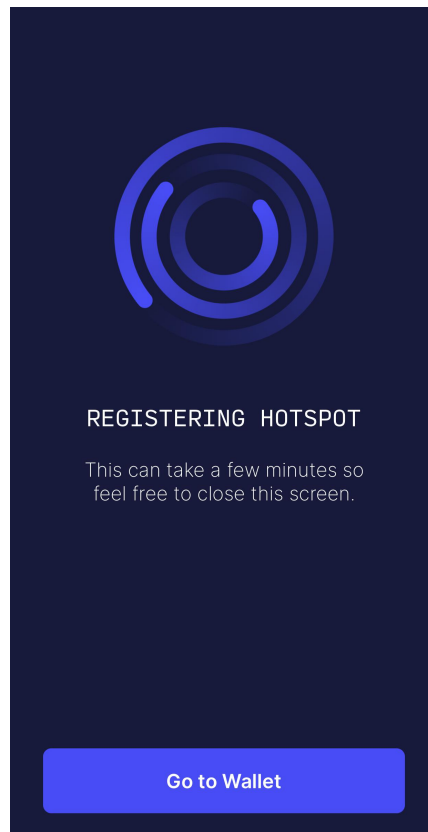
Confirm the location selected is correct and register your Hotspot.

Loading...

TX / RX Gain: 1 dBi
Height: 0 meters

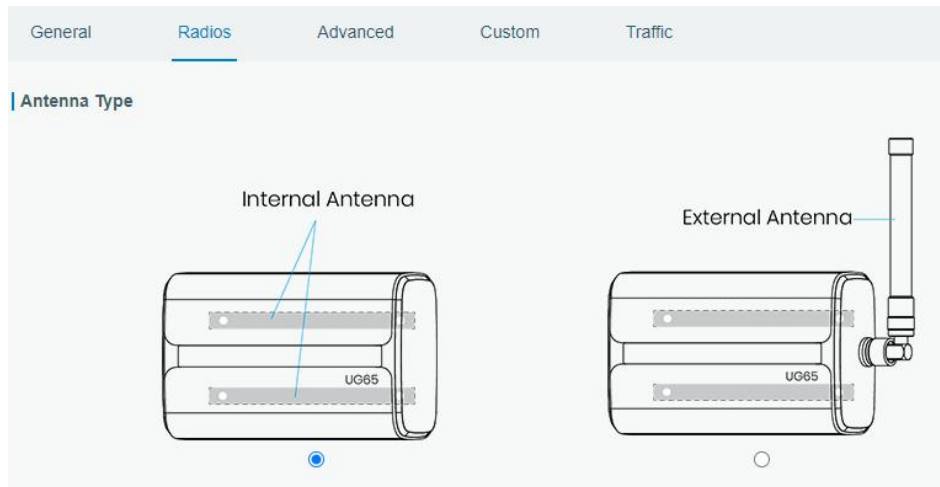
Register Hotspot

H. It will submit all hotspot information and add it to the Helium network.



7. Antenna and Frequency Configuration

A. Go to “Packet Forwarder” → “Radio” page to configure correct antenna type according to your antenna installation mode.



B. Center frequency and channels can also be configured here. Usually, the channels should be the same as LoRaWAN® nodes and network server.

Region:

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

Multi Channels Setting

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

[END]