

User Guide

LoRaWAN

Walrus-OD Gateway



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1. Preview

Walrus-OD LoRaWAN gateway integrates a high-performance high-reliability ARM cortex A53, 1 or 2*SX1301 LoRa core processor, an LTE module, a GPS module, a Wi-Fi module, a temperature monitor, RTC, and a power management unit. Would have an internal battery for backup which could support over 5 hours duration without external power. Rather than logging into the gateway and doing operations with commands in the Linux environment, a web-based utility is built in which help customers use the device much easier.

There are 4 antenna ports, an external power input port, an RJ45 port, and a USB debug port for the device.

ANT1: LoRa antenna.

ANT2: Back up.

ANT3: GPS antenna.

ANT4: Wi-Fi Antenna.

ANT5: LTE Antenna.

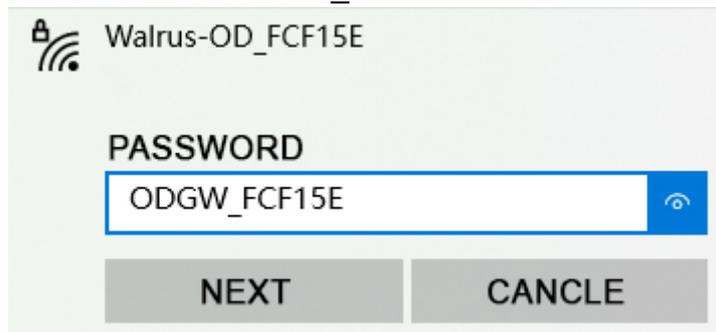
Power: External power supply input port, DC12 to 28V.

RJ45: RJ45 port, Ethernet and PoE power injector.

USB: USB port for debugging.

2. Gateway Management

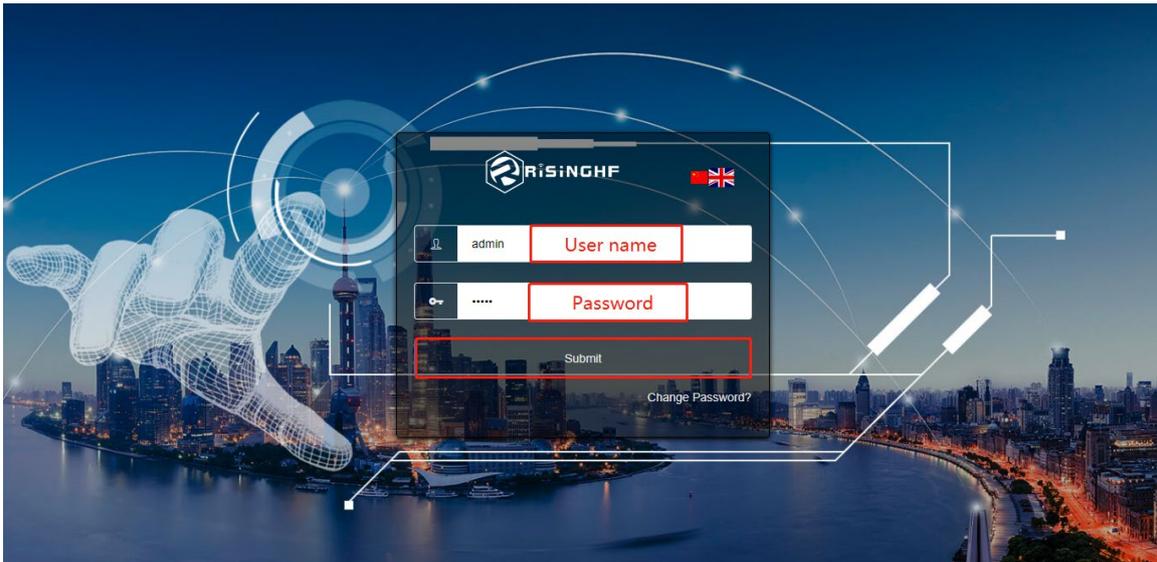
Connect Gateway's Wi-Fi. The gateway's name which likes "Walrus-OD_xxxxxx", then fills in the password, the default format is "ODGW_xxxxxx".



3. Gateway Configure

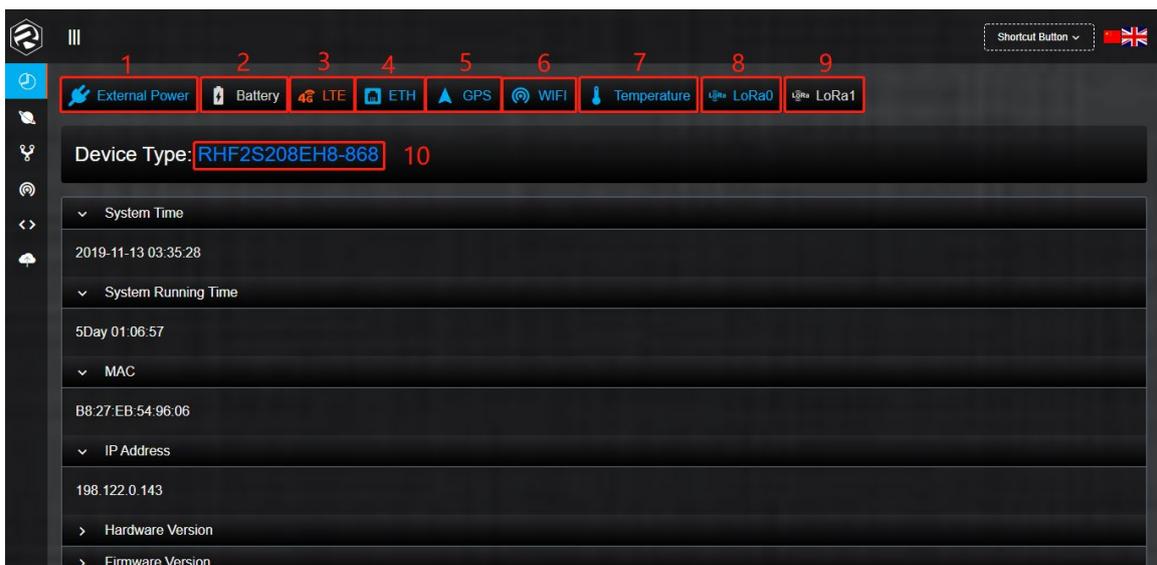
3.1. Gateway Login

- Open the browser on your computer and fill the IP 192.168.8.1 (default).
- Enter the username and password.
Username: admin
Password: admin



3.2. Device Info

🕒 Device Info



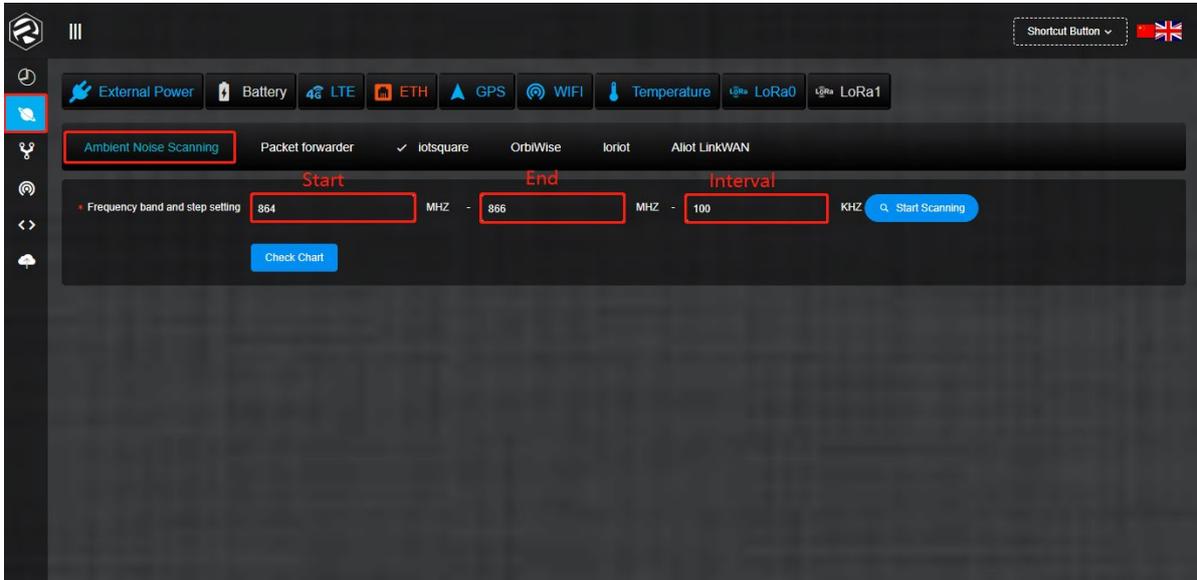
- External Power Status
- Backup Battery Status
- 4G / LTE Status
- Ethernet Status
- GPS Status
- Temperature Status
- LoRa0 Status

Note: The color shows blue is working normally, and the red is not working but has the function, the white means the gateway doesn't have the function.

3.3.LoRaWAN Config

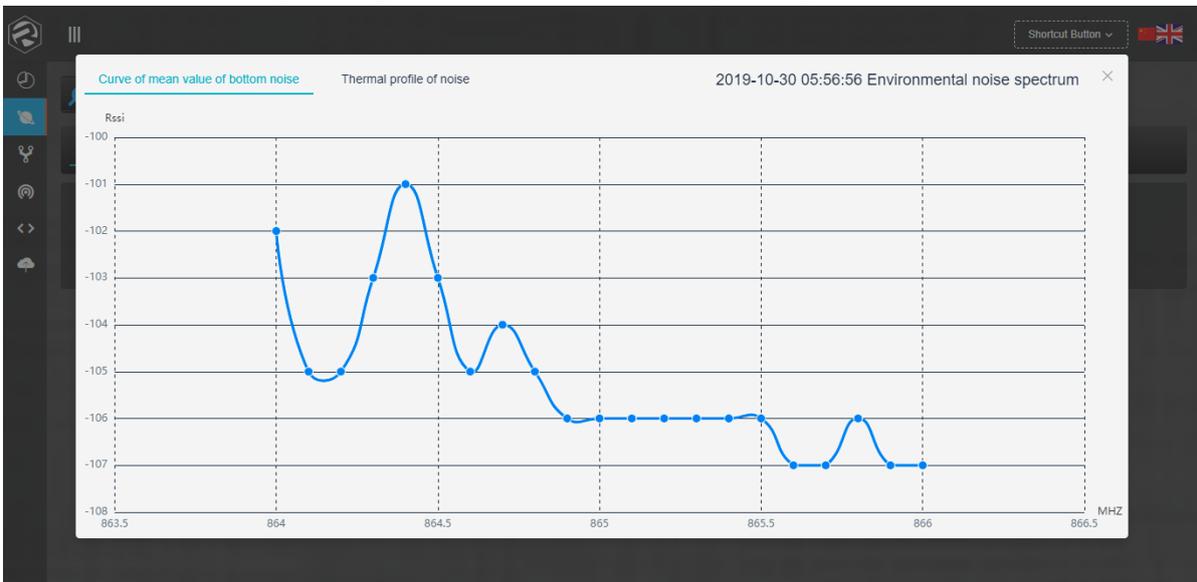


3.3.1. Ambient Noise Scanning



Enter band start frequency, end frequency, and step width. In this example, the test frequency is 868MHz, so the frequency band setting is from 867 MHz to 869 MHz, and the step setting is 100KHZ.

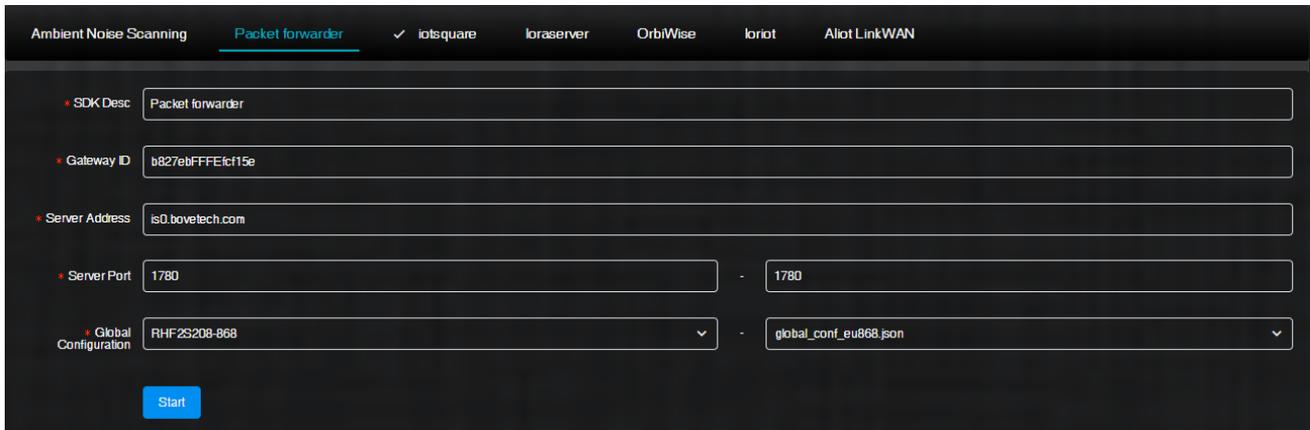
Click the Start Scanning to begin the ambient noise scanning



Note: The ambient noise can't be over -95dBm, normally -100dBm is the worst condition. For example if the value is -107dBm which is a good condition. If the result shows an ambient noise over -95dBm, you must change the installation place. Or the communication distance will be greatly reduced. So if the result is like this picture the gateway location is acceptable.

3.3.2. Packet Forwarder

Standard LoRaWAN packet forwarder



The screenshot shows a configuration interface for a Packet Forwarder. At the top, there are tabs for 'Ambient Noise Scanning', 'Packet forwarder' (selected), 'lotsquare', 'loraserver', 'OrbiWise', 'loriot', and 'Aliot LinkWAN'. Below the tabs, there are several input fields: 'SDK Desc' with the value 'Packet forwarder', 'Gateway ID' with 'b827ebFFFFfc1f15e', 'Server Address' with 'is0.bovetech.com', 'Server Port' with '1780' (both uplink and downlink), and 'Global Configuration' with 'RHF2S208-868' and 'global_conf_eu868.json'. A blue 'Start' button is at the bottom.

SDK Desc: SDK description

Gateway ID: gateway ID

Server Address: network server address

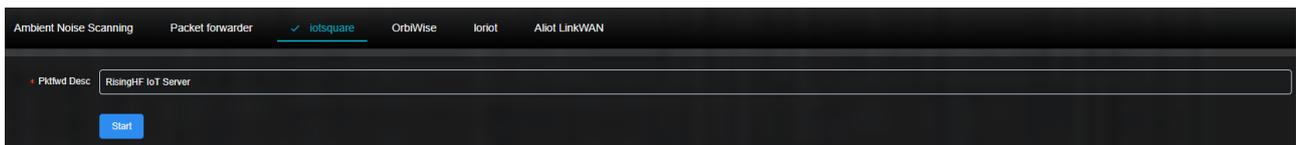
Server Port: server port

Global Configuration: gateway type (frequency) and frequency plan selection

Note: use Bove Alpaca-E platform, the server address is “is0.bovetech.com”, the port is 1780 (downlink and uplink are same)

3.3.3. Other Network Server

Instead of standard packet forward, Walrus-OD Gateway also supports different network servers: lotsquare, OrbiWise, loriot, Alit LinkWAN.



The screenshot shows a configuration interface for the 'lotsquare' network server. At the top, there are tabs for 'Ambient Noise Scanning', 'Packet forwarder', 'lotsquare' (selected), 'OrbiWise', 'loriot', and 'Aliot LinkWAN'. Below the tabs, there is one input field: 'PKtFwd Desc' with the value 'RisingHF IoT Server'. A blue 'Start' button is at the bottom.

3.4. Server Config

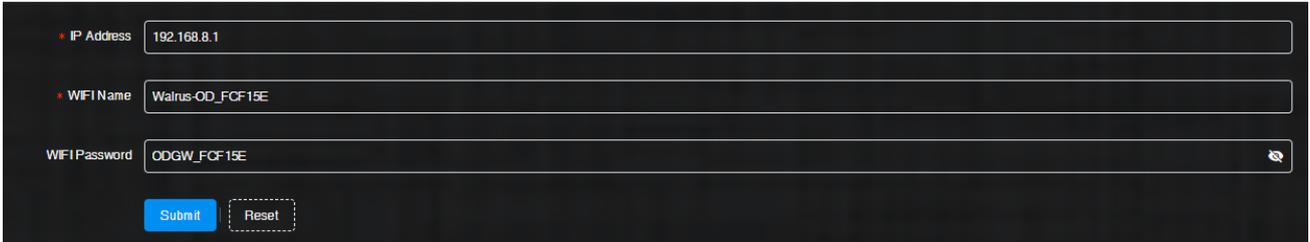
Server Config

- 1) lotsquare Bridge is a program that integrates device management and LoRaWAN data forwarding. The system starts the program by default and connects to the BOVE lotsquare server.
- 2) When the device does not launch the lotsquare SDK, the program is only used to manage the device; when the device starts the lotsquare SDK, the program can be used to manage the device and forward LoRaWAN data.
- 3) If users do not want to use the device management functions provided by the company's servers, and want to provide LoRaWAN services to the company's servers, you can close the lotsquare Bridge and connect to the server using the standard Packet forwarder.

3.5. WIFI Config



3.5.1. WIFI Config



IP Address: 192.168.8.1
 WIFI Name: Walrus-OD_FCF15E
 WIFI Password: ODGW_FCF15E

Buttons: Submit, Reset

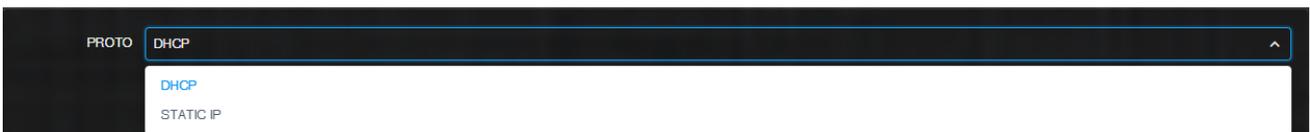
IP Address: gateway management address

WIFI Name: gateway wifi name

WIFI Password: gateway wifi password

Note: the parameters can be changed.

3.5.2. IP Config



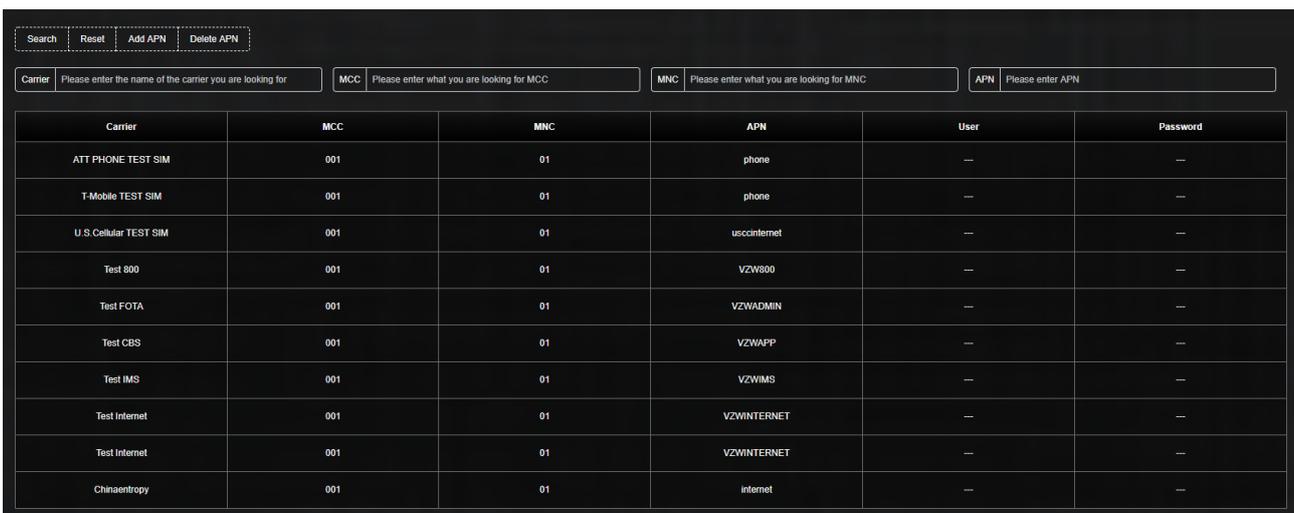
PROTO: DHCP (selected)

Options: DHCP, STATIC IP

The default network protocol is DHCP.

3.5.3. APN Config

Walrus-OD gateway has many built-in APN settings. In case of customer's APN is not included, gateway supports add APN operation.



Buttons: Search, Reset, Add APN, Delete APN

Search fields: Carrier, MCC, MNC, APN

Carrier	MCC	MNC	APN	User	Password
ATT PHONE TEST SIM	001	01	phone	—	—
T-Mobile TEST SIM	001	01	phone	—	—
U.S Cellular TEST SIM	001	01	usccinternet	—	—
Test 800	001	01	VZW800	—	—
Test FOTA	001	01	VZWADMIN	—	—
Test CBS	001	01	VZWAPP	—	—
Test IMS	001	01	VZWIMS	—	—
Test Internet	001	01	VZWINTERNET	—	—
Test Internet	001	01	VZWINTERNET	—	—
Chinaentropy	001	01	internet	—	—

Add APN

* Carrier

* MCC

* MNC

* APN

User

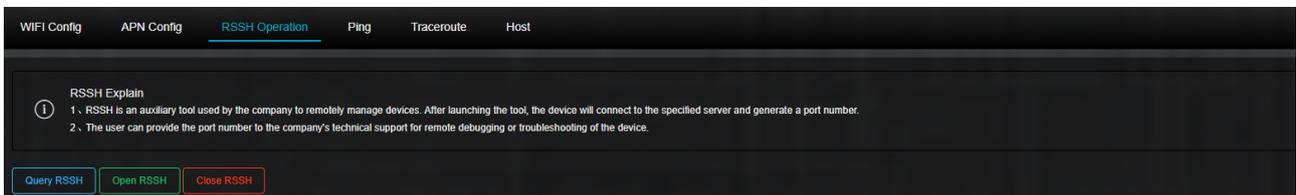
Password

Confirm Add

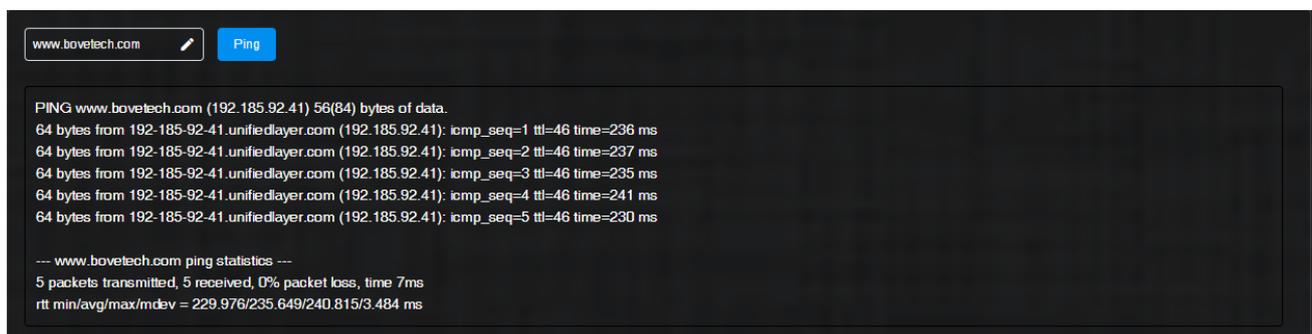
Note: Add APN needs to confirm the information on the picture with the operator.

3.5.4. RSSH Operation

- 1) RSSH is an auxiliary tool used by the company to remotely manage devices. After launching the tool, the device will connect to the specified server and generate a port number.
- 2) The user can provide the port number to the company's technical support for remote debugging or troubleshooting of the device.



3.5.5. Ping / Traceroute / Host

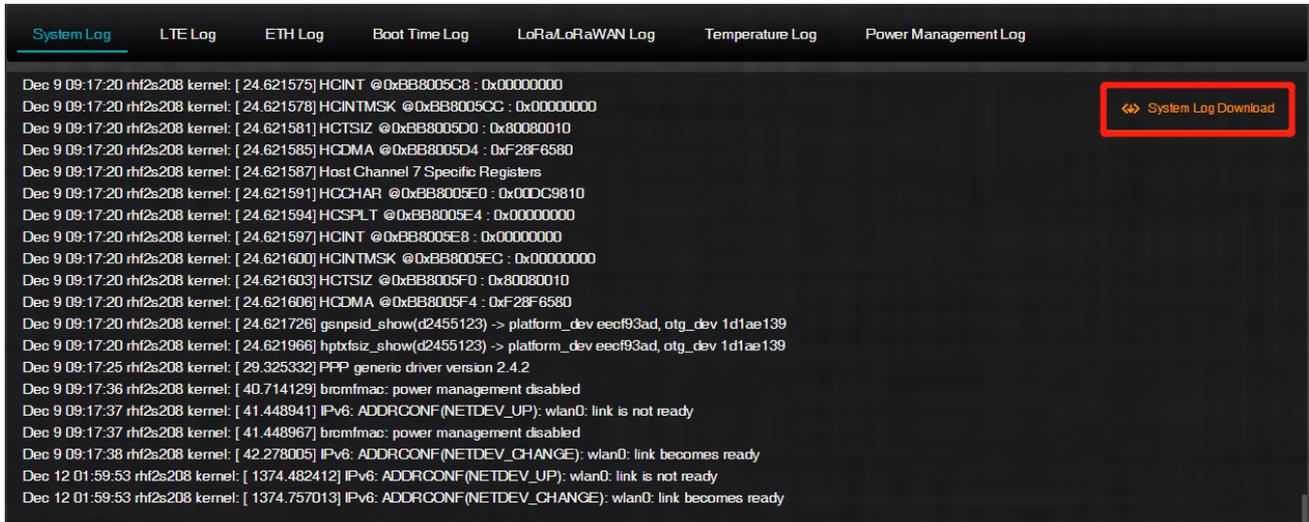


Using network tools to check the network status.

3.6. Download Log

<> Download Log

All the logs can be checked and downloaded here.



The screenshot shows a log viewer interface with a dark background. At the top, there are several tabs: 'System Log' (selected), 'LTE Log', 'ETH Log', 'Boot Time Log', 'LoRa/LoRaWAN Log', 'Temperature Log', and 'Power Management Log'. Below the tabs, a list of system logs is displayed, including timestamps and kernel messages. A red rectangular box highlights a button labeled 'System Log Download' in the top right corner of the log list area.

4. REVISION

V1.1.1 2024/8/27

+Update address

V1.1.0 2022/12/12

+Update the document format, change wifi configure pictures

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