LORA GATEWAY
PRODUCT MANUAL

SZ11LR-GW-2

HANGZHOU FELICIDAD TECHNOLOGY CO., LTD.

V3.0

INTRODUCTIONS

LoRa (Long Range) is a low-power wide-area network (LPWAN) technology that conforms to industry standard applications. LoRa enables long-range transmissions (more than 10 km in rural areas) with low power consumption.

SZ11LR-GW-2 Gateway is data transmission device using LoRa communication technology, connecting sensors to the Cloud and enabling real-time communication of data and analytics that can be utilized to enhance efficiency and productivity.

It enables data transparent and bidirectional transmission between multiple devices, and is suitable for industrial wireless measurement and control communication, wireless sensor data acquisition, Smart cities, smart industries, smart agriculture, smart homes, intelligent transportation, smart grids, oilfield testing, environmental testing and other fields.

Contents

1. Product Description

SZ11LR-GW-2 is an IOT wireless communication gateway, which uses the public network wireless network plus LoRa network to provide users with the function of eliminating the need of field wiring and wireless long-distance data transmission. The product has high-performance industrial 32-bit processor and industrial-grade wireless communication module, rich antenna interface:

1 Ethernet Wan Port;
1 AC220V input port;
1 LoRa antenna interface;
1 ZigBee antenna interface;
1 4G antenna interface;
1 GPS antenna interface;
1 Wi-Fi antenna interface.

It supports Wi-Fi as AP / Repeater / STA, can be connected to LoRa/ZigBee/Wi-Fi devices at the same time, which provides a perfect platform for IoT applications. It can be widely used in industries such as self-service terminal industry, smart grid, intelligent transportation, supply chain automation, industry automation, intelligent building, fire protection, environmental protection, smart medical treatment, smart lighting, smart agriculture and coal mines, oil and other occasions

1.1 Functions and Features

- Stable full Netcom speed connection, fully compatible with 2G, 3G, 4G networks;
- Wired and wireless backups to ensure stable data transmission;
- Support Wi-Fi，4G，Ethernet port, multi-network simultaneous online;
- Powerful Wi-Fi function, support AP, STA, Repeater multiple modes;
- Rich antenna interfaces;
- Multiple wireless extensions: Zigbee，4G，GPS，Wi-Fi;
- Multi-network intelligent backup, data storage resumes after network disconnection;
- With industrial high speed 4G wireless module, 32-bit high performance processor, enable the front-end acquisition information to be transmitted in real time and at a high speed;
- Reserved downstream wireless communication variety options: ZigBee, Bluetooth etc.;
- Industrial design metal case, the gateway works stably in variety industrial environment and strong interference.

1.2 Product specifications and network parameters

Specification Name	Specification Description	Remarks
Product model	SZ11LR-GW-2	
Network standard	4G	According to user needs optional support / not support, 4G for the whole network module
Interface	Antenna interface	4G Antenna interface： N-J Female head
		Wi-Fi Antenna interface：N-J Female head
		LoRA Antenna interface：N-J Female head
	Button	Support RESET button (restore factory settings)
	Ethernet interface	1 X WAN 10/100Mbps Adaptive Ethernet port
Power supply	Power supply range	AC110-277V Support POE (Power over ethernet)
Working power consumption	Working Average current	≤20W
Note: The power consumption of the communication is affected by the network signal strength and the module network standard.		
Others	Dimension	Length × width × height (mm) 225.3 × 225.3 × 79.3
	Working temperature	-40 ~ +80ºC
	Storage temperature	-40 ~ +85ºC

	Relative humidity	≤95%（No condensation）
4G	Working frequency	FDD LTE：B1/B3 TDD LTE：B38/B39/B40/B41 TDSCDMA： B34/B39 CDMA2000 1x/EVDO：BC0 GSM：900/1800MHz
	Transmission rate	LTE-FDD：Max 100Mbps(DL) Max 50Mbps(UL) LTE-TDD：Max 61Mbps(DL) Max 18Mbps(UL) SCDMA-TD：Max 4.2Mbps(DL) Max 2.2Mbps(UL) CDMA：Max 5.4Mbps(DL) Max 14.7Mbps(UL) GPRS：Max 85.6Kbps(DL) Max 85.6Kbps(UL)
	Transmit power	FDD LTE：23dbm±2db TDD LTE：23dbm±2db TDSCDMA: 24dbm +1/-3db GSM 900Mhz：33dbm±2dbm GSM 1800Mhz：30dbm±2dbm
	Receiving sensitivity	FDD B1: -97dBm(20M) FDD B3: -96dBm(20M) TDD B38: -94dBm(20M) TDD B39: -94dBm(20M)

		TDD B40: -94dBm(20M) TDD B41: -93.5dBm(20M) TDSCDMA B34: -110dbm TDSCDMA B39: -110dbm CDMA BC0: -108dbm GSM 900: -110dBm GSM 1800: -109dBm
WiFi	Standard and frequency band	Support IEEE802.11b/g/n standard
	Theoretical bandwidth	UP TO 300Mbps
	Transmit power	20dbm
System	CPU	32-bit
	FLASH	128M
	DDR2	128M

LoRa Network parameters						
CN470						
Channel selection	**Upstream channel**	**Upstream channel**	**RX1 Receiving window**	**RX2 Receiving window**	**Gateway's SX1257 center frequency**	**Offset of channel and center frequency**
1	0	470.3	500.3	Frequency 505.3M, SF12BW125	Center frequency 470.7M	-400000
	1	470.5	500.5			-200000
	2	470.7	500.7			0
	3	470.9	500.9			200000
	4	471.1	501.1		Center frequency 471.4M	-300000
	5	471.3	501.3			-100000
	6	471.5	501.5			100000
	7	471.7	501.7			300000
2	0	471.9	501.9	Frequency 505.3M, SF12BW125	Center frequency 472.3M	-400000
	1	472.1	502.1			-200000
	2	472.3	502.3			0
	3	472.5	502.5			200000
	4	472.7	502.7		Center frequency 473M	-300000
	5	472.9	502.9			-100000
	6	473.1	503.1			100000
	7	473.3	503.3			300000

3	0	473.5	503.5	Frequency 505.3M, SF12BW125	Center frequency 473.9M	-400000
	1	473.7	503.7			-200000
	2	473.9	503.9			0
	3	474.1	504.1			200000
	4	474.3	504.3		Center frequency 474.6M	-300000
	5	474.5	504.5			-100000
	6	474.7	504.7			100000
	7	474.9	504.9			300000
4	0	475.1	505.1	Frequency 505.3M, SF12BW125	Center frequency 475.5M	-400000
	1	475.3	505.3			-200000
	2	475.5	505.5			0
	3	475.7	505.7			200000
	4	475.9	505.9		Center frequency 476.2M	-300000
	5	476.1	506.1			-100000
	6	476.3	506.3			100000
	7	476.5	506.5			300000
5	0	476.7	506.7	Frequency 505.3M, SF12BW125	Center frequency 477.1M	-400000
	1	476.9	506.9			-200000
	2	477.1	507.1			0
	3	477.3	507.3			200000
	4	477.5	507.5		Center frequency 477.8M	-300000
	5	477.7	507.7			-100000
	6	477.9	507.9			100000
	7	478.1	508.1			300000

6	0	478.3	508.3	Frequency 505.3M, SF12BW125	Center frequency 478.7M	-400000
	1	478.5	508.5			-200000
	2	478.7	508.7			0
	3	478.9	508.9			200000
	4	479.1	509.1		Center frequency 479.4M	-300000
	5	479.3	509.3			-100000
	6	479.5	509.5			100000
	7	479.7	509.7			300000
7	0	479.9	500.3	Frequency 505.3M, SF12BW125	Center frequency 480.3M	-400000
	1	480.1	500.5			-200000
	2	480.3	500.7			0
	3	480.5	500.9			200000
	4	480.7	501.1		Center frequency 481M	-300000
	5	480.9	501.3			-100000
	6	481.1	501.5			100000
	7	481.3	501.7			300000
8	0	481.5	501.9	Frequency 505.3M, SF12BW125	Center frequency 481.9M	-400000
	1	481.7	502.1			-200000
	2	481.9	502.3			0
	3	482.1	502.5			200000
	4	482.3	502.7		Center frequency 482.6M	-300000
	5	482.5	502.9			-100000
	6	482.7	503.1			100000
	7	482.9	503.3			300000

9	0	483.1	503.5	Frequency 505.3M, SF12BW125	Center frequency 483.5M	-400000
	1	483.3	503.7			-200000
	2	483.5	503.9			0
	3	483.7	504.1			200000
	4	483.9	504.3		Center frequency 484.2M	-300000
	5	484.1	504.5			-100000
	6	484.3	504.7			100000
	7	484.5	504.9			300000
10	0	484.7	505.1	Frequency 505.3M, SF12BW125	Center frequency 485.1M	-400000
	1	484.9	505.3			-200000
	2	485.1	505.5			0
	3	485.3	505.7			200000
	4	485.5	505.9		Center frequency 485.8M	-300000
	5	485.7	506.1			-100000
	6	485.9	506.3			100000
	7	486.1	506.5			300000
11	0	486.3	506.7	Frequency 505.3M, SF12BW125	Center frequency 486.7M	-400000
	1	486.5	506.9			-200000
	2	486.7	507.1			0
	3	486.9	507.3			200000
	4	487.1	507.5		Center frequency 487.4M	-300000
	5	487.3	507.7			-100000
	6	487.5	507.9			100000
	7	487.7	508.1			300000

12	0	487.9	508.3	Frequency 505.3M, SF12BW125	Center frequency 488.3M	-400000
	1	488.1	508.5			-200000
	2	488.3	508.7			0
	3	488.5	508.9			200000
	4	488.7	509.1		Center frequency 489M	-300000
	5	488.9	509.3			-100000
	6	489.1	509.5			100000
	7	489.3	509.7			300000
EU868						
Channel selection	**Upstream channel**	**Upstream channel**	**RX1 Receiving window**	**RX2 Receiving window**	**Gateway's SX1257 center frequency**	**Offset of channel and center frequency**
1	0	867.1	867.1	frequency 869.525M SF12BW125	Center frequency 867.5M	-400000
	1	867.3	867.3			-200000
	2	867.5	867.5			0
	3	867.7	867.7			200000
	4	867.9	867.9		Center frequency 868.2M	-300000
	5	868.1	868.1			-100000
	6	868.3	868.3			100000
	7	868.5	868.5			300000
US915						
Channel selection	**Upstream channel**	**Upstream channel**	**RX1 Receiving window**	**RX2 Receiving window**	**Gateway's SX1257 center frequency**	**Offset of channel and center frequency**
1	0	902.3	923.3	frequency	Center frequency	-400000

	1	902.5	923.9	923.3M SF12BW500	902.5M	-200000
	2	902.7	924.5			0
	3	902.9	925.1			200000
	4	903.1	925.7		Center frequency 903.3M	-300000
	5	903.3	926.3			-100000
	6	903.5	926.9			100000
	7	903.7	927.5			300000
2	0	903.9	923.3	frequency 923.3M SF12BW500	Center frequency 904.1M	-400000
	1	904.1	923.9			-200000
	2	904.3	924.5			0
	3	904.5	925.1			200000
	4	904.7	925.7		Center frequency 904.9M	-300000
	5	904.9	926.3			-100000
	6	905.1	926.9			100000
	7	905.3	927.5			300000
3	0	905.5	923.3	frequency 923.3M SF12BW500	Center frequency 905.7M	90000
	1	905.7	923.9			106470.5882
	2	905.9	924.5			122941.1765
	3	906.1	925.1			139411.7647
	4	906.3	925.7		Center frequency 906.5M	155882.3529
	5	906.5	926.3			172352.9412
	6	906.7	926.9			188823.5294
	7	906.9	927.5			205294.1176

4	0	907.1	923.3	frequency 923.3M SF12BW500	Center frequency 907.3M	221764.7059
	1	907.3	923.9			238235.2941
	2	907.5	924.5			254705.8824
	3	907.7	925.1			271176.4706
	4	907.9	925.7		Center frequency 908.1M	287647.0588
	5	908.1	926.3			304117.6471
	6	908.3	926.9			320588.2353
	7	908.5	927.5			337058.8235
5	0	908.7	923.3	frequency 923.3M SF12BW500	Center frequency 908.9M	353529.4118
	1	908.9	923.9			370000
	2	909.1	924.5			386470.5882
	3	909.3	925.1			402941.1765
	4	909.5	925.7		Center frequency 909.7M	419411.7647
	5	909.7	926.3			435882.3529
	6	909.9	926.9			452352.9412
	7	910.1	927.5			468823.5294
6	0	910.3	923.3	frequency 923.3M SF12BW500	Center frequency 910.5M	485294.1176
	1	910.5	923.9			501764.7059
	2	910.7	924.5			518235.2941
	3	910.9	925.1			534705.8824
	4	911.1	925.7		Center frequency 911.3M	551176.4706
	5	911.3	926.3			567647.0588
	6	911.5	926.9			584117.6471

	7	911.7	927.5			600588.2353
7	0	911.9	923.3	frequency 923.3M SF12BW500	Center frequency 912.1M	617058.8235
	1	912.1	923.9			633529.4118
	2	912.3	924.5			650000
	3	912.5	925.1			666470.5882
	4	912.7	925.7		Center frequency 912.9M	682941.1765
	5	912.9	926.3			699411.7647
	6	913.1	926.9			715882.3529
	7	913.3	927.5			732352.9412
8	0	913.5	923.3	frequency 923.3M SF12BW500	Center frequency 913.7M	748823.5294
	1	913.7	923.9			765294.1176
	2	913.9	924.5			781764.7059
	3	914.1	925.1			798235.2941
	4	914.3	925.7		Center frequency 914.5M	814705.8824
	5	914.5	926.3			831176.4706
	6	914.7	926.9			847647.0588
	7	914.9	927.5			864117.6471
AS923						
Channel selection	**Upstream channel**	**Upstream channel**	**RX1 Receiving window**	**RX2 Receiving window**	**Gateway's SX1257 center frequency**	**Offset of channel and center frequency**
1	0	923.2	923.3	frequency 923.2M	Center frequency 823.6M	-400000
	1	923.4	923.2			-200000

	2	923.6	923.4	SF10BW125		0
	3	923.8	923.6			200000
	4	924	923.8		Center frequency 924.3M	-300000
	5	924.2	924			-100000
	6	924.4	924.2			100000
	7	924.6	924.4			300000

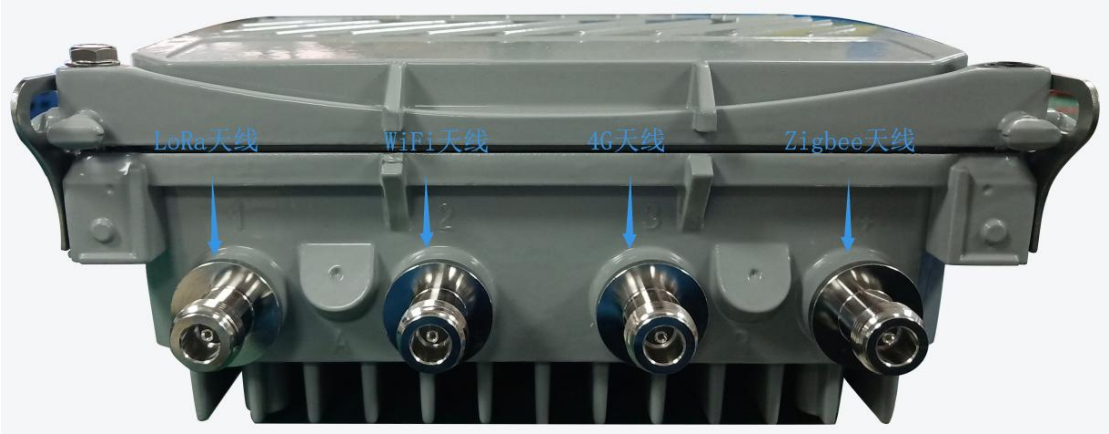
2. Product Appearance and Interface

2.1 Product Image

Dimensions: L225.3 x W225.3 x H79.3 mm

2.2 Interface

interface introduction:



3. Equipment Assembly

3.1 Parts Checklist

Please check the parts with checking list after unpacking. If there is anything missing or damaged, please contact with suppler immediately.

Name	Qty(pcs)
SZ11LR-GW-2 LoRA gateway	1
LoRa antenna	1
4G antenna	1
Wi-Fi antenna	1
ZigBee antenna	1
GPS antenna	1
AC220V input power cable (optional）	1
Waterproof network port (optional）	1
GPS antenna	1
Rear fixing plate	1
Bending plate	1
M8x30 Hexagon Screw（with flat pad, spring pad）	2
M6x15 Hexagon Screw (with flat pad, spring pad）	4
Hoop	2

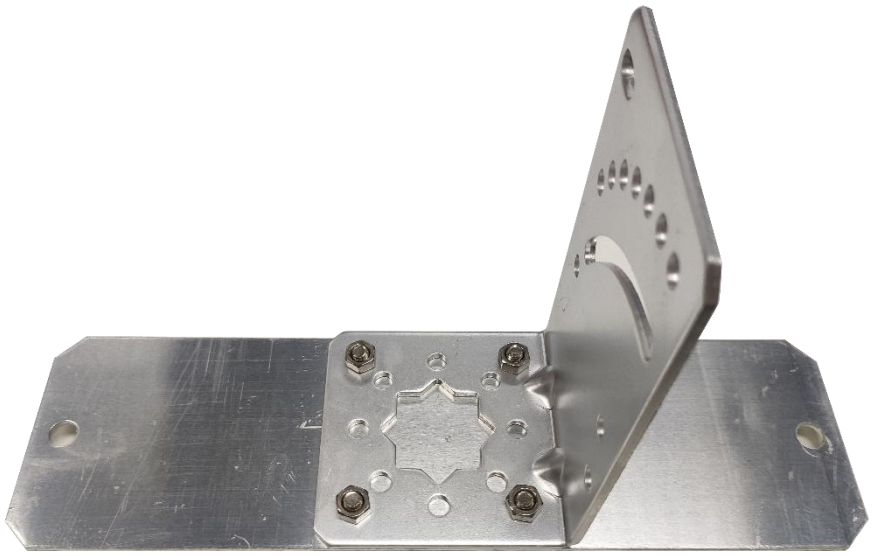
3.2 Communication Mode

The gateway device can select one of the following communication modes: 4G, network cable and optical fiber.

3.3 Installation of other accessories

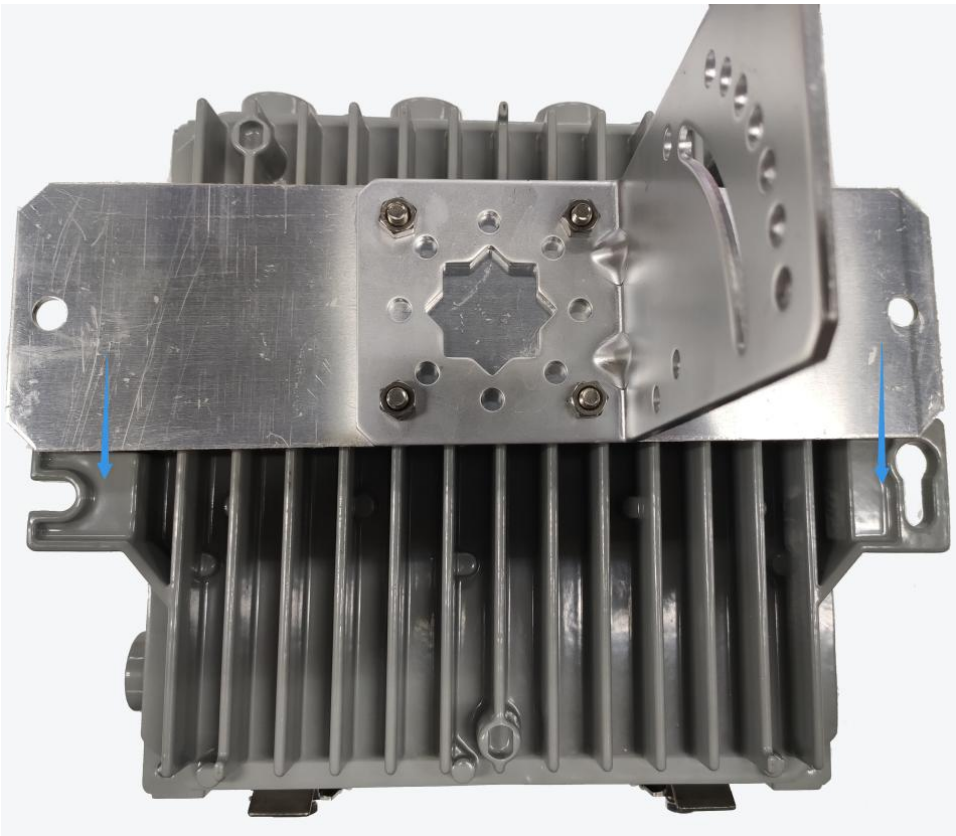
1) Bending plate and gateway fixing plate

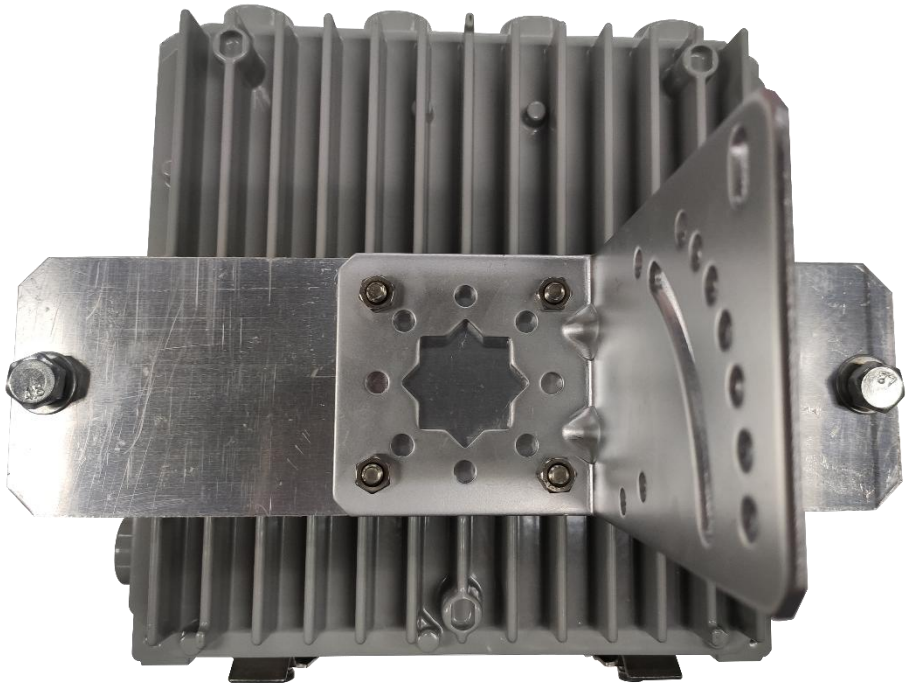
After insert SIM card, tighten the 4 screws on the top of gateway cover as shown. (Make sure the gateway top cover is tight for outdoor use.) Use 4 M6x15 Hexagon screws and nuts, fix the Rear Fixing Plate and Bent Plate.



2) Fix the plates to the gateway

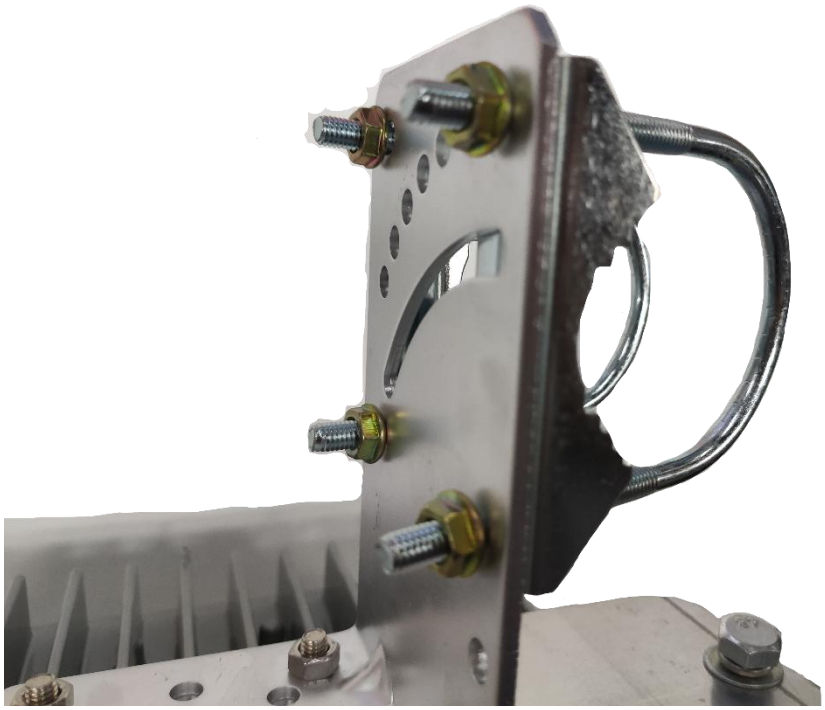
As shown in the figure below, the fixed plates to the gateway using M8x30 hex screws and nuts.





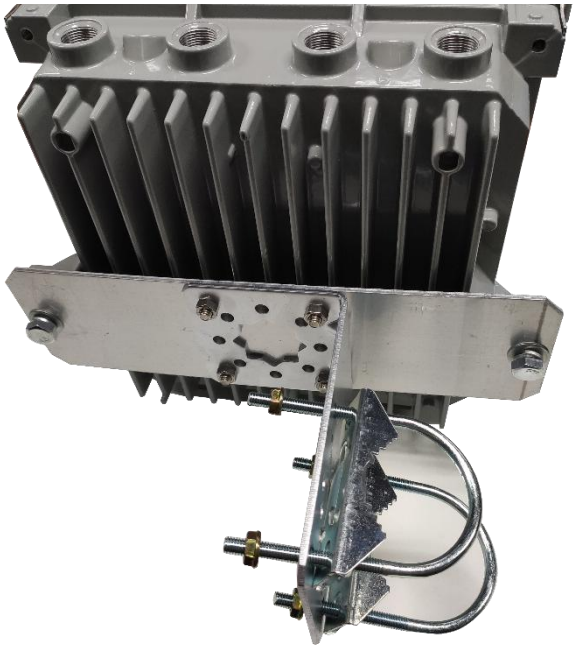
3) Hoop

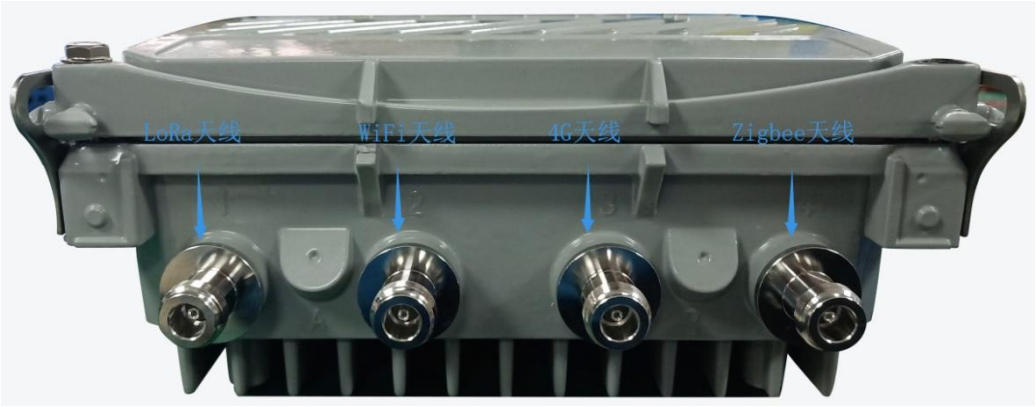
As shown, fixed the hoop to the bent plate using screws.



4) Install the antennas

Screw the antennas into the corresponding interface as shown below.





5) Power Code

As shown below:

1. Connect the AC input power cable (optional),
2. Plug in the waterproof connector.
3. Please use the 3-cores power cord with ground wire, and connect the grounding screw of the gateway to the fixed rod with a sperate wire. (The lightning proof grounding of the fixed rod is completed)

4. Device Use

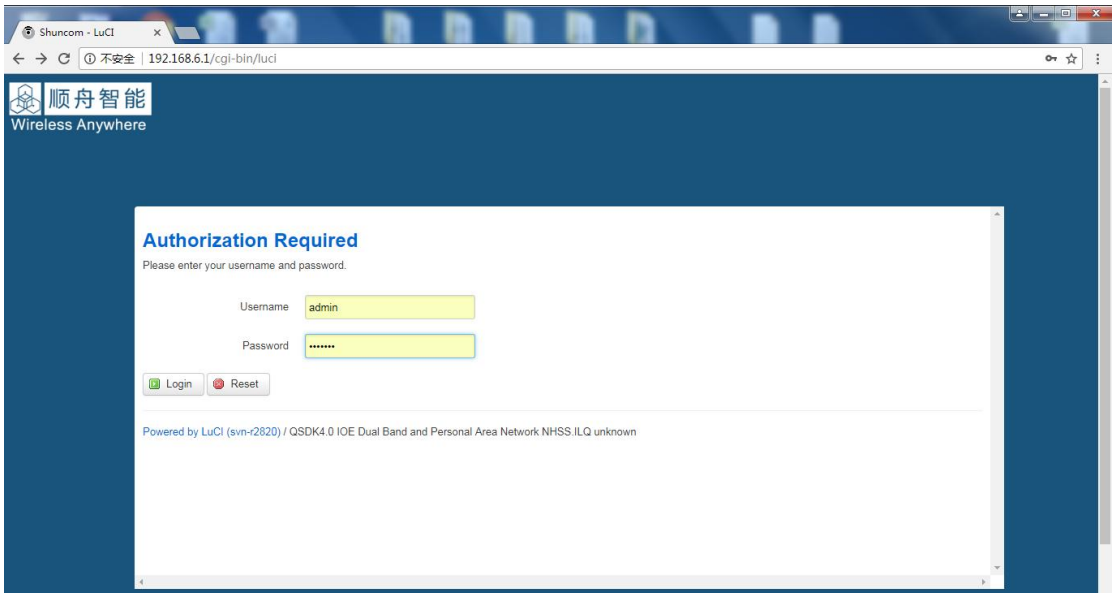
4.1 Power on the device

Power supply: AC110-277V or POE supply.

4.2 Login Web Management Page

Login to 192.168.6.1 on the browser and configure the gateway. The login password is shuncom.

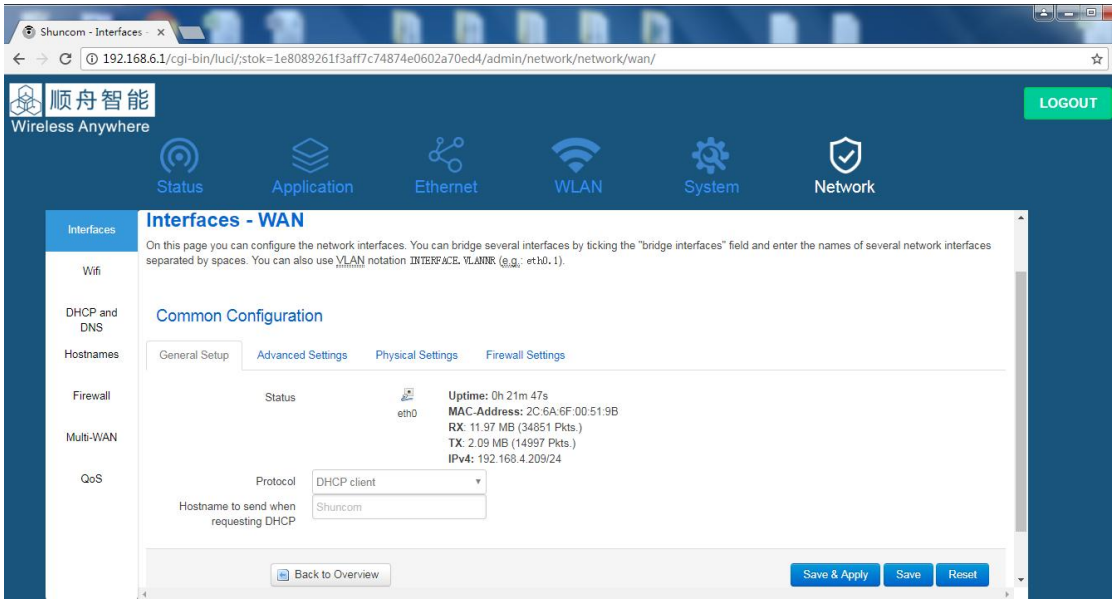
You can use computer to connect gateway configuration through the WIFI wireless. Device WIFI factory default AP mode, SSID is SHUNCOM - ******(asterisk is 3 bytes after MAC), the default password: shuncomgw.



4.3 Device Networking

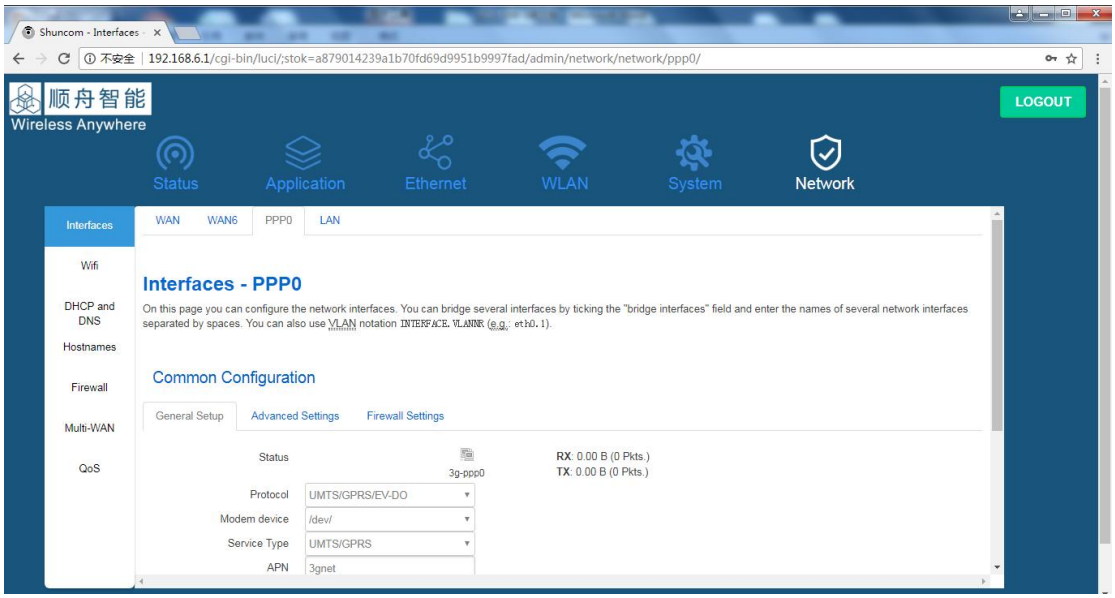
1. Use wire to access the internet, there are 2 options:
- WAN port
- Fiber optical port

After connection, you can check the status or make advanced settings in 'Network - Interface – WAN'.



2. 4G Internet access

The SIM card will be inserted correctly the gateway to achieve network connectivity. If failed to access the internet, check the parameters in "Network - Interface - PPPO", set the modem node to "/ dev / ttyUSB5".

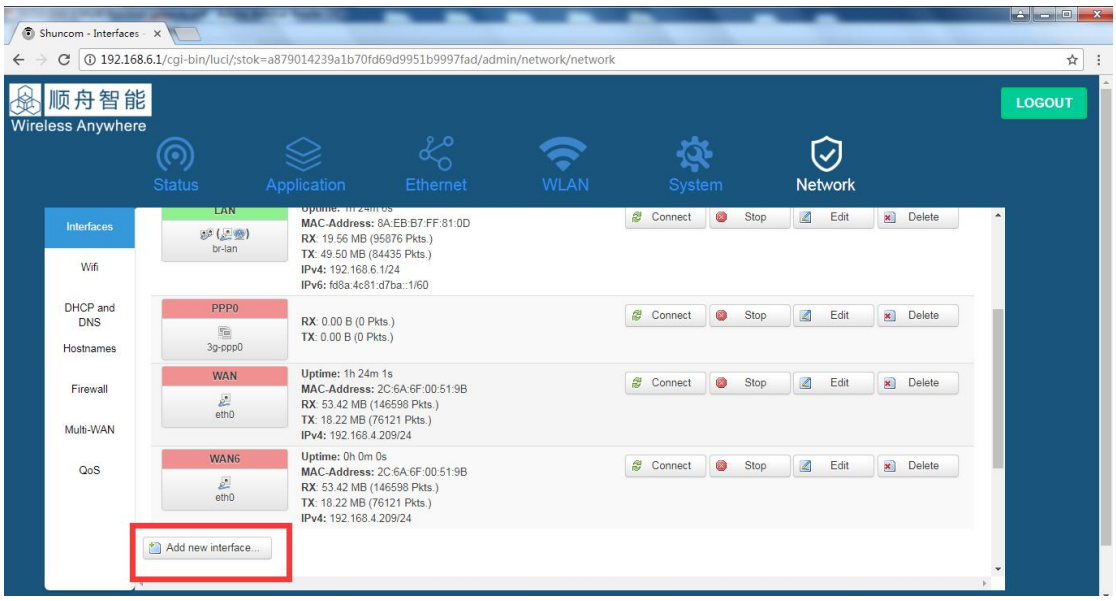


After connected, "network - Interface - PPPO" will start timing

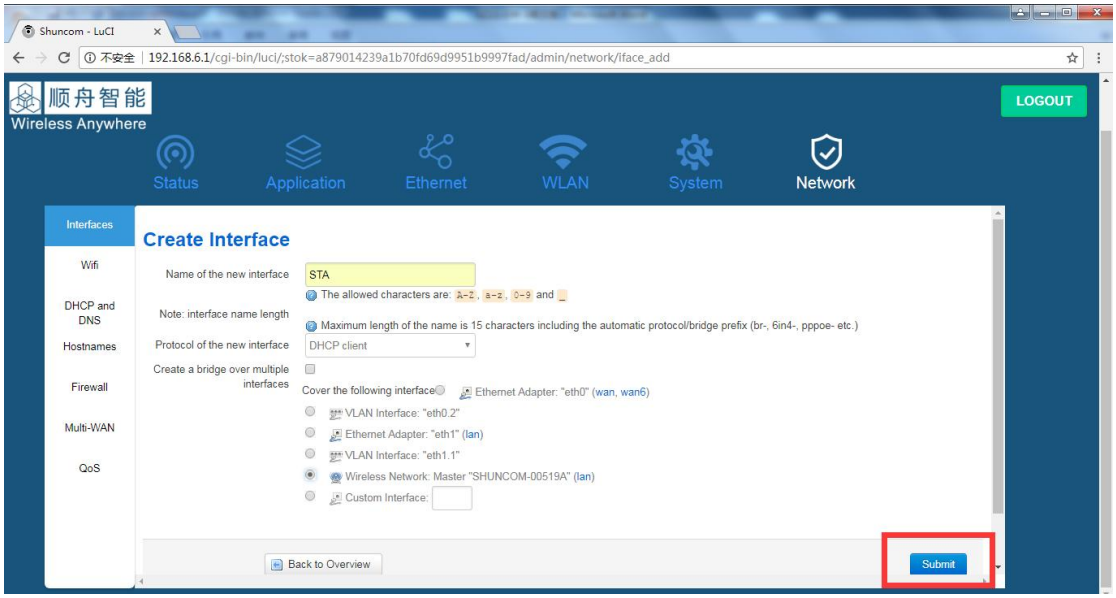
"running time", and statistics traffic. Can also check network connection status in "Network - Interface Overview" and "Status - Overview".

If you need to access the wireless access point on the site through the gateway's WIFI, need the gateway do STA to connect wireless router access the Internet. The specific settings are as follows

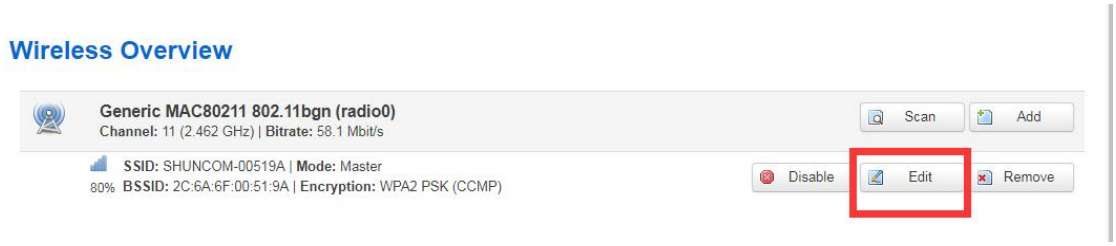
1) Add STA network interface in "Network - Interface" (if have, no need add)

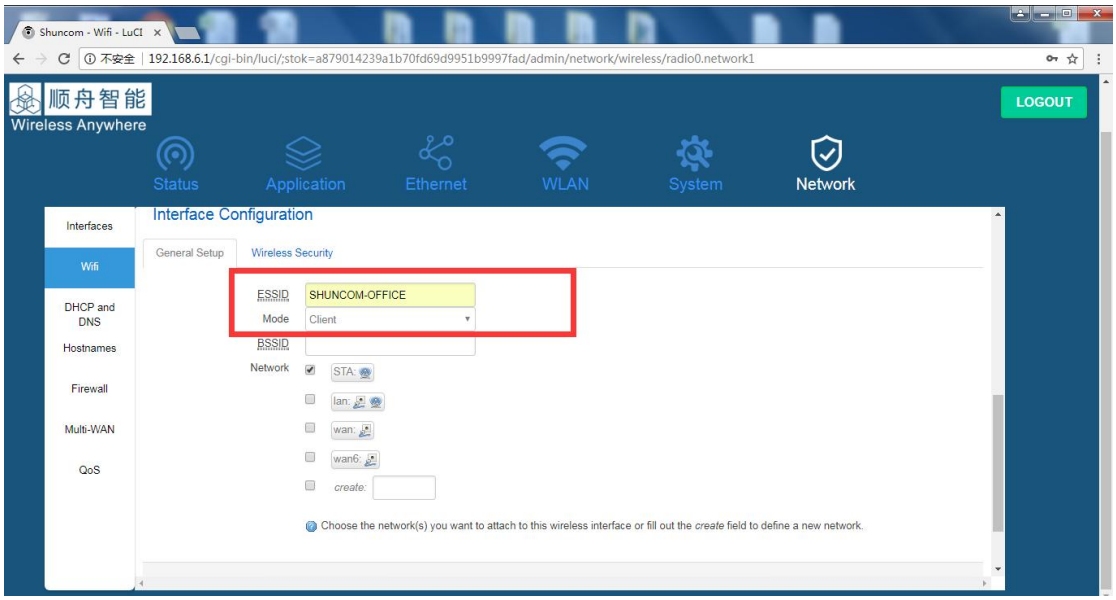


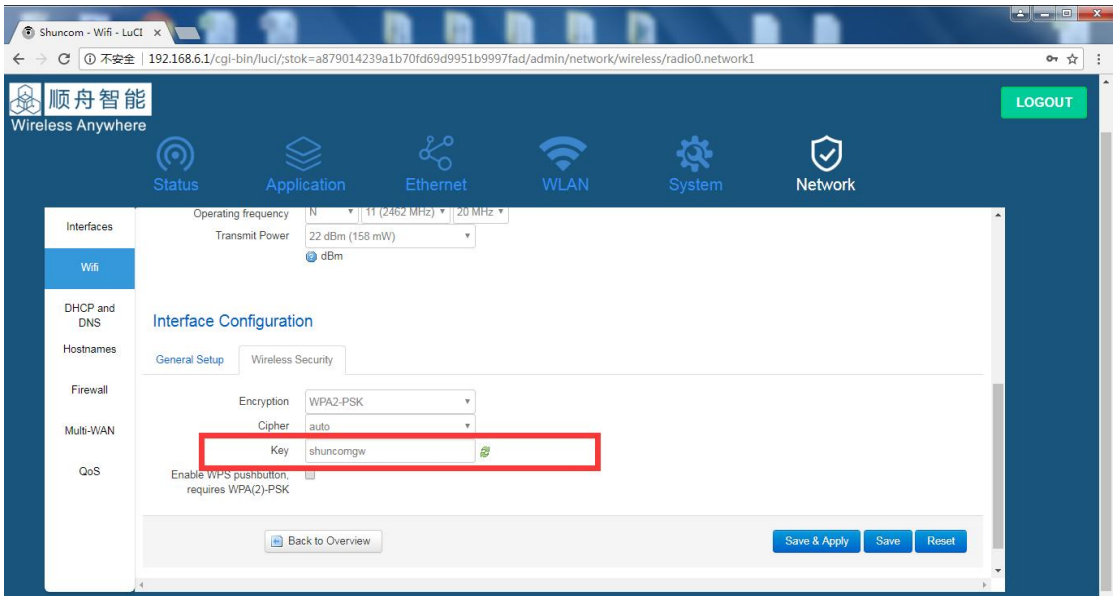
2) After setting the parameters, click Submit



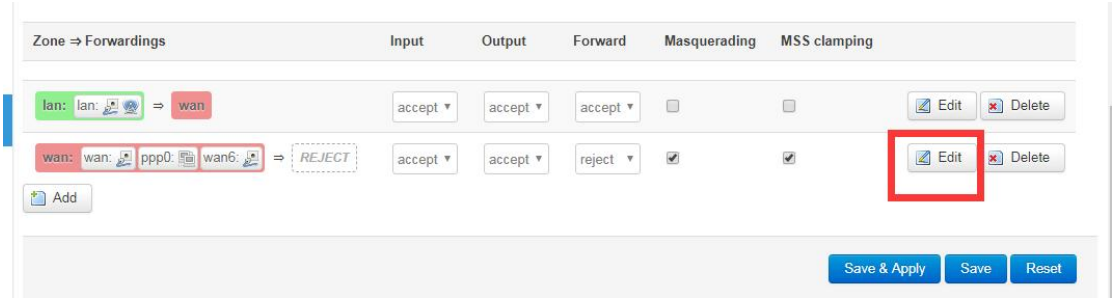
3) Then modify the "network - wireless" wireless parameters, fill SSID name, password

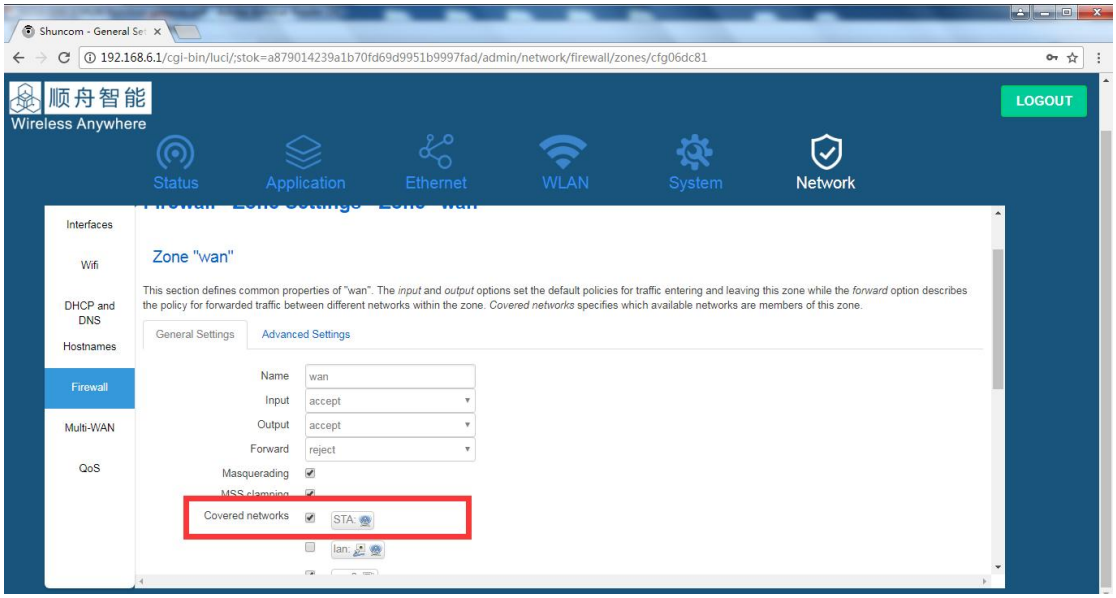


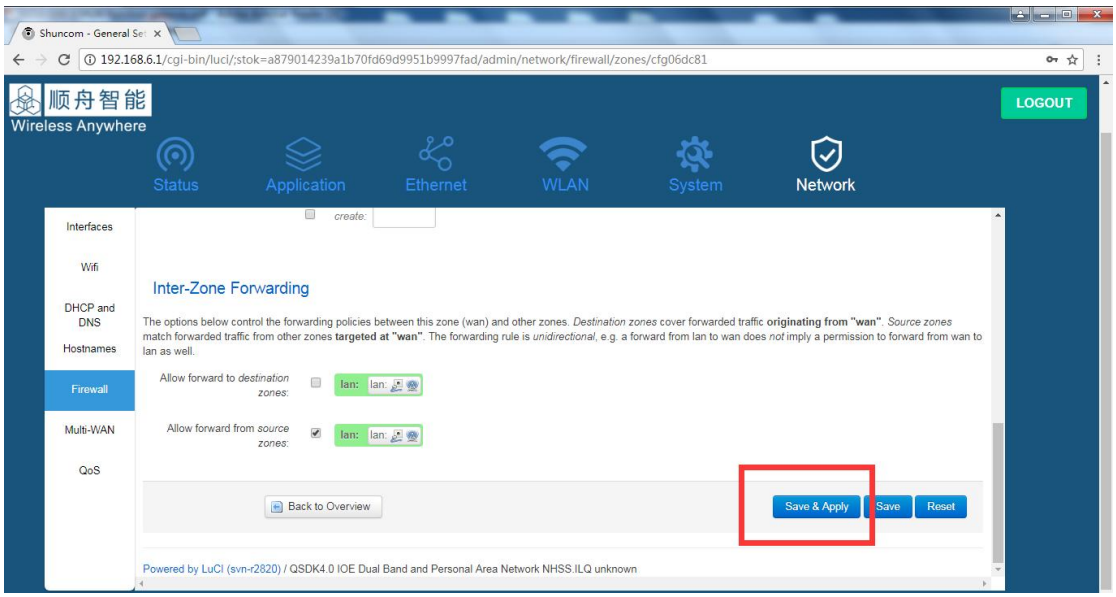




4) Finally, in the "Network - Firewall" add new interface to the group to achieve the internet.


Zone ⇒ Forwardings
Input
Output
Forward
Masquerading
MSS clamping
lan: lan: ⇒ wan
accept
accept
accept
Edit
Delete
wan: wan: ppp0: wan6: ⇒ REJECT
accept
accept
reject
Edit
Delete
Add
Save & Apply
Save
Reset


Shuncom - General Se
192.168.6.1/cgi-bin/luci/;stok=a879014239a1b70fd69d9951b9997fad/admin/network/firewall/zones/cfg06dc81
顺舟智能
Wireless Anywhere
LOGOUT
Status
Application
Ethernet
WLAN
System
Network
Interfaces
Wifi
DHCP and DNS
Hostnames
Firewall
Multi-WAN
QoS
Zone "wan"
This section defines common properties of "wan". The input and output options set the default policies for traffic entering and leaving this zone while the forward option describes the policy for forwarded traffic between different networks within the zone. Covered networks specifies which available networks are members of this zone.
General Settings
Advanced Settings
Name
wan
Input
accept
Output
accept
Forward
reject
Masquerading
MSS clamping
Covered networks
STA:
lan:


Shuncom - General Se
192.168.6.1/cgi-bin/luci/;stok=a879014239a1b70fd69d9951b9997fad/admin/network/firewall/zones/cfg06dc81
顺舟智能
Wireless Anywhere
LOGOUT
Status
Application
Ethernet
WLAN
System
Network
Interfaces
Wifi
DHCP and DNS
Hostnames
Firewall
Multi-WAN
QoS
create:
Inter-Zone Forwarding
The options below control the forwarding policies between this zone (wan) and other zones. Destination zones cover forwarded traffic originating from "wan". Source zones match forwarded traffic from other zones targeted at "wan". The forwarding rule is unidirectional, e.g. a forward from lan to wan does not imply a permission to forward from wan to lan as well.
Allow forward to destination zones:
lan: lan:
Allow forward from source zones:
lan: lan:
Back to Overview
Save & Apply
Save
Reset
Powered by LuCI (svn-r2820) / QSDK4.0 IOE Dual Band and Personal Area Network NHSS.ILQ unknown

5. Maintenance and Support

1. Please read this manual before use, If you have any questions, please contact the company's technical customer service 021-39333968-6251.
2. The device is not sealed, when in use to ensure that the device will not be wet or damaged.
3. Keep the equipment ventilated and dry, keep the equipment away from heat, dust and strong magnetic field.
4. Replacement of equipment accessories and SIM, have to power off operation.
5. Ensure the insulation of equipment and surrounding Touch objects around, can't let charged objects contact the equipment
6. Do not open or disassemble the device without permission, except under the guidance of our technicians.

For any after-sales service or technical supports, please contact our sales team or technical engineers.

HANGZHOU FELICIDAD TECHNOLOGY CO., LTD

TEL: +86-17816199679

EMAIL: *info@chinaleddriver.com*

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