

Pico Next Gateway User Guide





Revision History

Revision	Date	Description
.001	Aug. 19, 2021	Browan first release
.002	Feb. 15, 2022	Add Regulatory and change LED function
.003	Apr. 28, 2022	Add WiFi Station configuration
.004	Aug. 5, 2022	Add Packet Forwarder Whitelist Filter, OpenVPN Client configuration, and Professional Installation instructions



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Regulatory

Federal Communication Commission Statement (FCC, U.S.)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in an installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Radiation Exposure Statement

This device complies with RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This device must operate with a minimum distance of 20 cm between the radiator and user body.

FCC Caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment



IC WARNING

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Radiation Exposure Statement:

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme Canada limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à distance minimum de 20cm entre le radiateur et votre corp.



Professional Installation Instructions

1. Installation personal

This product is designed for specific applications and needs to be installed by a qualified person who has RF and related rules knowledge. The general user shall not attempt to install or change the settings.

2. Installation location

The product shall be installed at a location where the radiating antenna can be kept 20 cm from nearby persons in normal operation conditions to meet regulatory RF exposure requirements.

3. External antenna

Use only the antennas that have been approved by the applicant. Non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power, which may lead to the violation of FCC/IC limits and is prohibited.

4. Installation procedure

Please refer to user's manual for details.

5. Warning

Please carefully select the installation position and make sure that the final output power does not exceed the limits set forth in relevant rules. Violation of the rules could lead to serious federal penalties.



Instructions d'installation professionnelle

1. Installation

Ce produit est destiné à un usage spécifique et doit être installé par un personnel qualifié maîtrisant les radiofréquences et les règles s'y rapportant. L'installation et les réglages ne doivent pas être modifiés par l'utilisateur final.

2. Emplacement d'installation

En usage normal, afin de respecter les exigences réglementaires concernant l'exposition aux radiofréquences, ce produit doit être installé de façon à respecter une distance de 20 cm entre l'antenne émettrice et les personnes.

3. Antenne externe.

Utiliser uniquement les antennes approuvées par le fabricant. L'utilisation d'autres antennes peut conduire à un niveau de rayonnement essentiel ou non essentiel dépassant les niveaux limites définis par FCC/IC, ce qui est interdit.

4. Procédure d'installation

Consulter le manuel d'utilisation.

5. Avertissement

Choisir avec soin la position d'installation et s'assurer que la puissance de sortie ne dépasse pas les limites en vigueur. La violation de cette règle peut conduire à de sérieuses pénalités fédérales.

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1 Product Overview

1.1 Product Features

The Pico Next Gateway is a LoRa gateway with GPS, using numerous ways of connection: ethernet, LTE, and Wi-Fi. Depending upon the SKU, some functions might not be available. Pico Next is specifically designed for wide-area IoT applications. Applications include, but are not limited to, home security, automatic meter-reading, monitoring fault-indicators, and monitoring streetlights. This gateway is very suitable for small businesses or private area uses like at parking lots, exhibition centers, and campuses.

1.2 LED Functions

LED Functions	Constant	Flashing	Off
Power	Power On	Booting /OTA	OFF
Internet	Internet Available	Checking Internet	RFU
Service	LNS Connected	RFU	LNS Not Connected
LoRa	LoRa Working	Initializing	LoRa Not Working

1.3 Reset Button

Reboot:

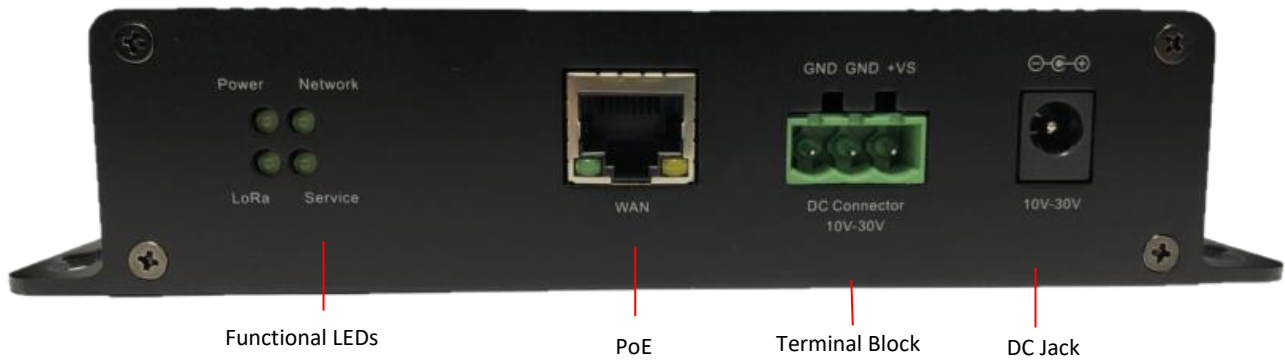
By pressing and holding the RESET Button, the Power LED will start flashing. The “reboot” procedure will be triggered when the RESET Button is released while the Power LED light is flashing.

Restore to Default:

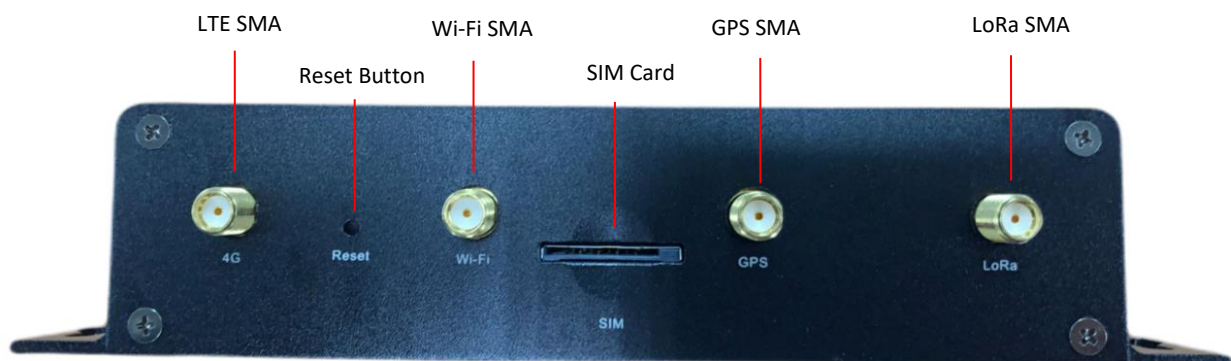
By pressing and holding the RESET Button, the Power LED will start flashing. The “restore to default” procedure will be triggered when the RESET Button released after the Power LED light becomes constant.

1.4 I/O Ports

Front Panel



Back Panel -



1.5 Accessories

Different SKUS would provide accessories pertaining to that country or SKU, such as the adapter plug model and GPS antenna. LTE and Wireless antennas are interchangeable; they have the same specifications.

Please note that the GPS antenna needs to be purchased separately.

Adapter



LoRa Antenna



LTE and Wi-Fi Antenna



GPS Antenna *



2 Installation

2.1 Power up

Power up Pico Next through the following ways.

2.2 DC Adapter

Connect the power adapter provided to the DC jack In. Pico Next will automatically turn on after powering up.

2.3 Terminal Block

Connect a power supply to Pico Next with a 3-pin pluggable male terminal block.

2.4 Ethernet

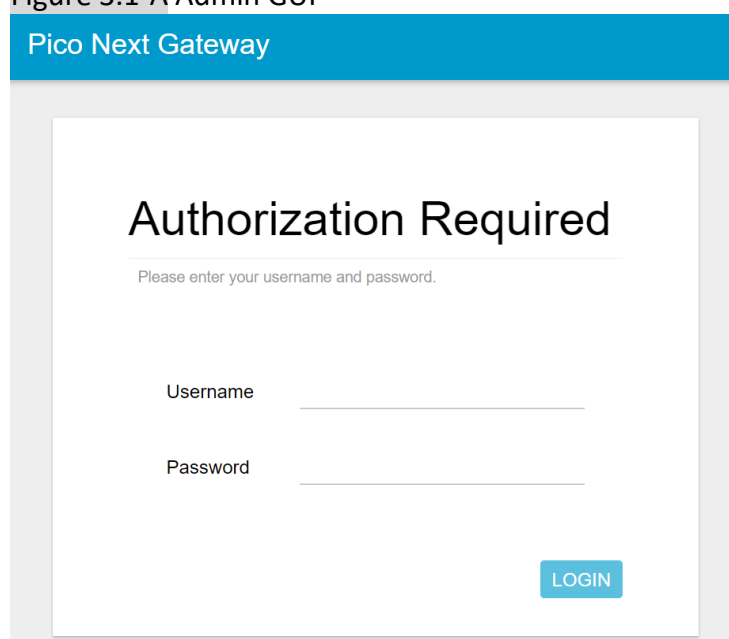
Connect a RJ45 Ethernet cable to Power-over-Ethernet In (WAN port). Connect the other end of the ethernet cable to a passive PoE that ensures a power of 12V / 1.5A DC. Provide power to the passive PoE.

3 GUI Access

3.1 Open Admin GUI

Default mode of Pico Next Gateway is DHCP. Once Pico Next is turned on through plugging in the DC adapter, it will automatically link to available servers. Pico Next's IP address can be found from the DHCP server. Access Pico Next WebUI via the DHCP IP on Chrome. The default username is **"admin"** and the password can be found on the back label.

Figure 3.1-A Admin GUI



Pico Next Gateway

Authorization Required

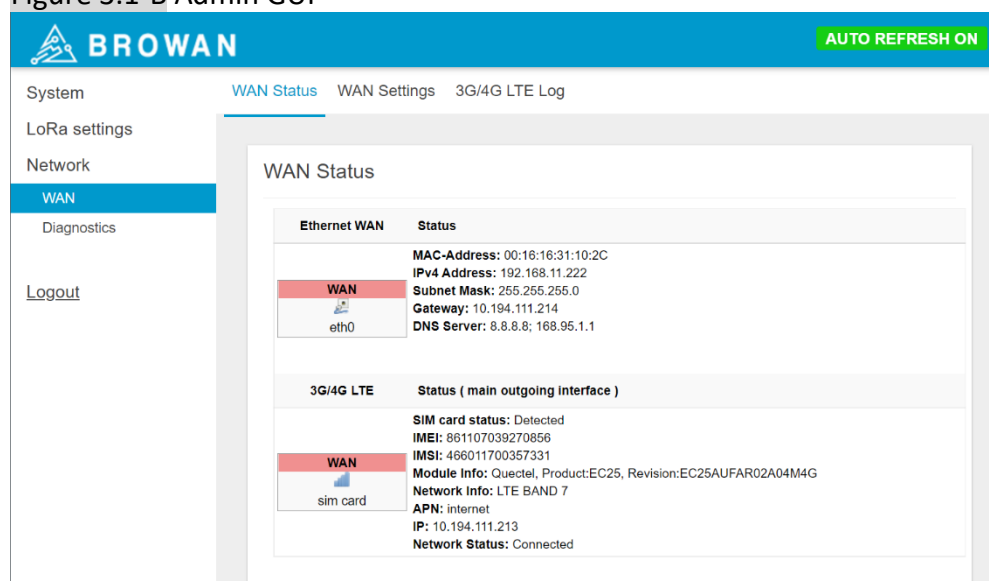
Please enter your username and password.

Username

Password

LOGIN

Figure 3.1-B Admin GUI



BROWAN AUTO REFRESH ON

System WAN Status WAN Settings 3G/4G LTE Log

LoRa settings

Network

WAN

Diagnostics

[Logout](#)

WAN Status

Ethernet WAN	Status
	MAC-Address: 00:16:16:31:10:2C
	IPv4 Address: 192.168.11.222
WAN	Subnet Mask: 255.255.255.0
	Gateway: 10.194.111.214
	DNS Server: 8.8.8.8; 168.95.1.1

3G/4G LTE	Status (main outgoing interface)
	SIM card status: Detected
	IMEI: 861107039270856
WAN	IMSI: 466011700357331
	Module Info: Quectel, Product:EC25, Revision:EC25AUFAR02A04M4G
	Network Info: LTE BAND 7
	APN: internet
	IP: 10.194.111.213
	Network Status: Connected

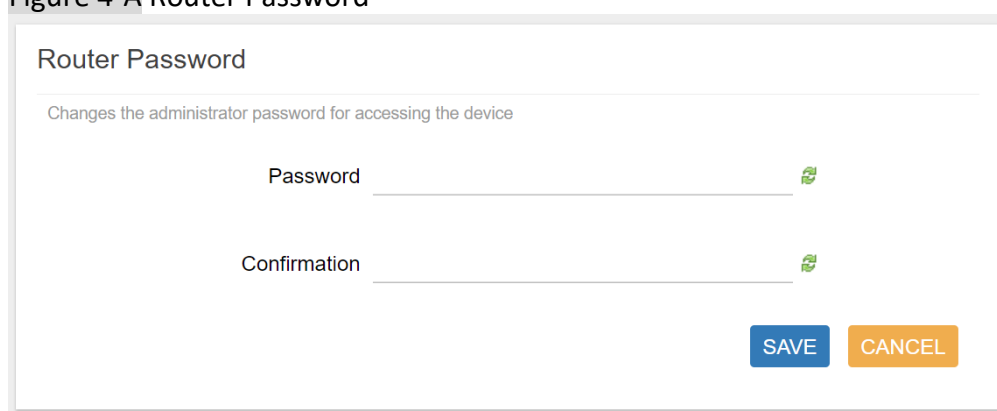
3.2 System

The System menu consists of the following categories: **Administration**, **Restore** and **System Firmware**. An introduction of each category will be distinctly stated in individual paragraphs.

4 Administration

Pico Next login password can be configured on this page.

Figure 4-A Router Password



Router Password

Changes the administrator password for accessing the device

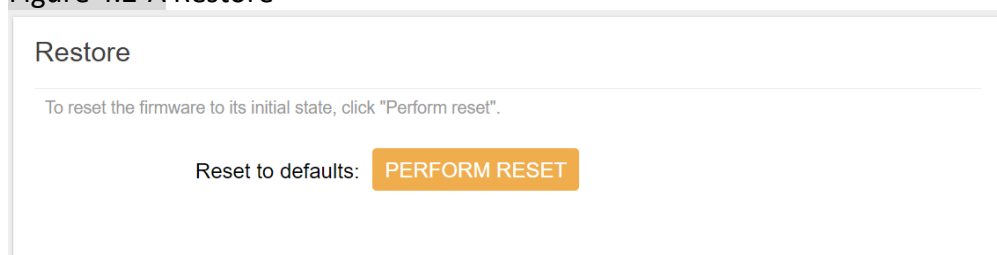
Password

Confirmation

4.1 Restore

Restore the **Password Credential**, **LoRa Setting** and **Network Setting** to the default configurations.

Figure 4.2-A Restore



Restore

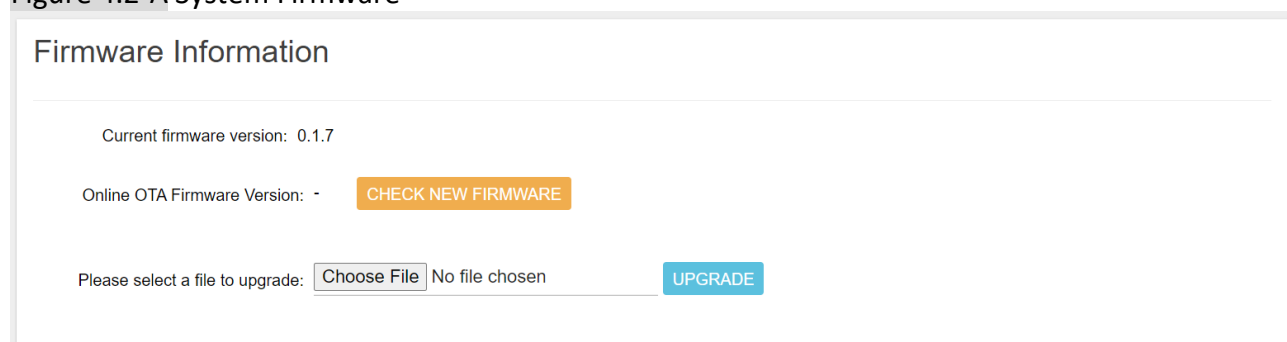
To reset the firmware to its initial state, click "Perform reset".

Reset to defaults:

4.2 System Firmware

Here the current firmware version can be found. Click the "Choose File" button to upload the newest system firmware. Click the "UPGRADE" button to upgrade the system firmware.

Figure 4.2-A System Firmware



The screenshot shows a web interface titled "Firmware Information". It displays the "Current firmware version: 0.1.7". Below this, it shows "Online OTA Firmware Version: -" with an orange button labeled "CHECK NEW FIRMWARE". At the bottom, there is a section for uploading a file, with the text "Please select a file to upgrade:" followed by a "Choose File" button, the text "No file chosen", and a blue "UPGRADE" button.

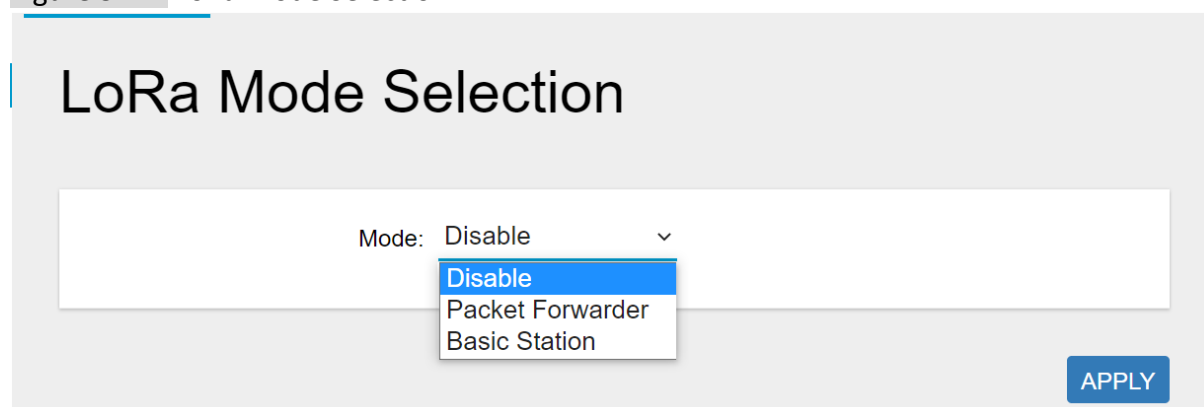
5 LoRa Settings

The LoRa menu consists of the following categories: **Mode Selection**, **Channel Scan** and **Log**. An introduction of each category will be distinctly stated in individual paragraphs.

5.1 Mode Selection

By default, the LoRa Mode is disabled. Configure the "**Packet Forwarder**" or "**Basic Station**" by using the dropdown list.

Figure 5.1-A LoRa Mode Selection



The screenshot shows a web interface titled "LoRa Mode Selection". It features a dropdown menu labeled "Mode: Disable" with a downward arrow. The dropdown is open, showing three options: "Disable" (highlighted in blue), "Packet Forwarder", and "Basic Station". A blue "APPLY" button is located at the bottom right of the interface.

5.1.1 Packet Forwarder

Choose the "**Packet Forwarder**" option and click the "**APPLY**" button to Enable the Packet Forwarder mode. After applying the setting, the "Packet Forwarder" field can be found on the left menu.

Figure 5.1.1-A LoRa Mode Selection - Packet Forwarder

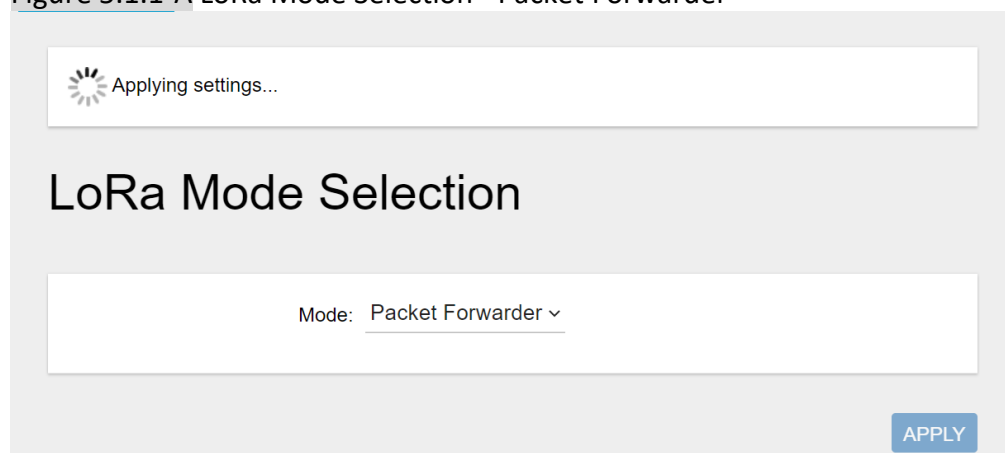
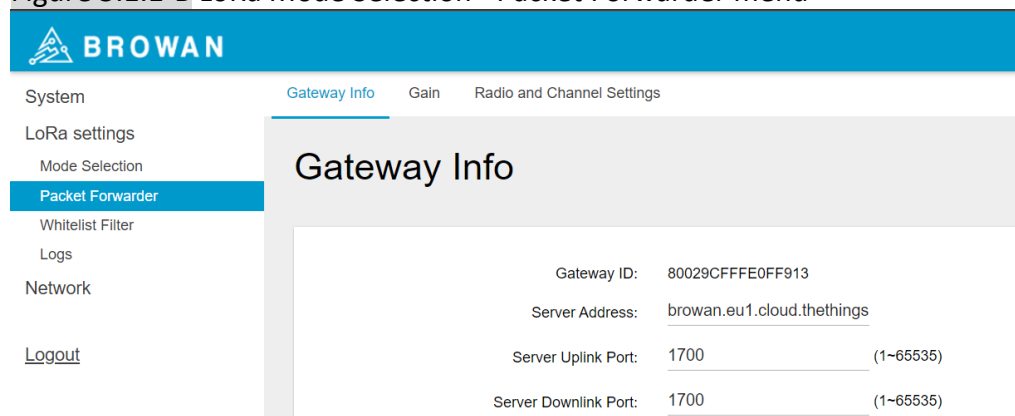


Figure 5.1.1-B LoRa Mode Selection - Packet Forwarder menu



5.1.1.1 Gateway Info

This page is to set up the LoRa configuration including **Gateway ID**, **Server Address**, **Server Uplink Port**, **Server Downlink Port**, **Keep-Alive Interval**, **Statistics Display Interval**, and **Push Timeout**.

Figure 5.1.1.1-A Gateway Info

Gateway Info

Gateway ID:	1c497bffffb5e56
Server Address:	browan.eu1.cloud.thethings
Server Uplink Port:	1700 (1~65535)
Server Downlink Port:	1700 (1~65535)
Keep Alive Interval:	10 (seconds)
Statistics display Interval:	30 (seconds)
Push Timeout:	100 (milliseconds)

5.1.1.2 Antenna Gain

This page is to set up the **antenna gain** of Lora.

Figure 5.1.1.2-A Antenna Gain

Antenna Gain:	0 (0 ~ 15)
---------------	------------

APPLY

5.1.1.3 Radio and Channel Settings

This page is to configure the radio 0 and radio 1 configurations of Lora, including **Central Frequency**, **Channel Status**, and **Center frequency offset**.

Figure 5.1.1.3-A Radio and Channel Settings

Radio Settings

Here you can modify Central frequency of Radio 0 or Radio 1 to change channel frequencies.

Radio 0	Radio 1
Central Frequency: 867400000 (Hz)	Central Frequency: 868200000 (Hz)
RSSI Offset: -167 (dBm)	RSSI Offset: -167 (dBm)

Channel Assignment

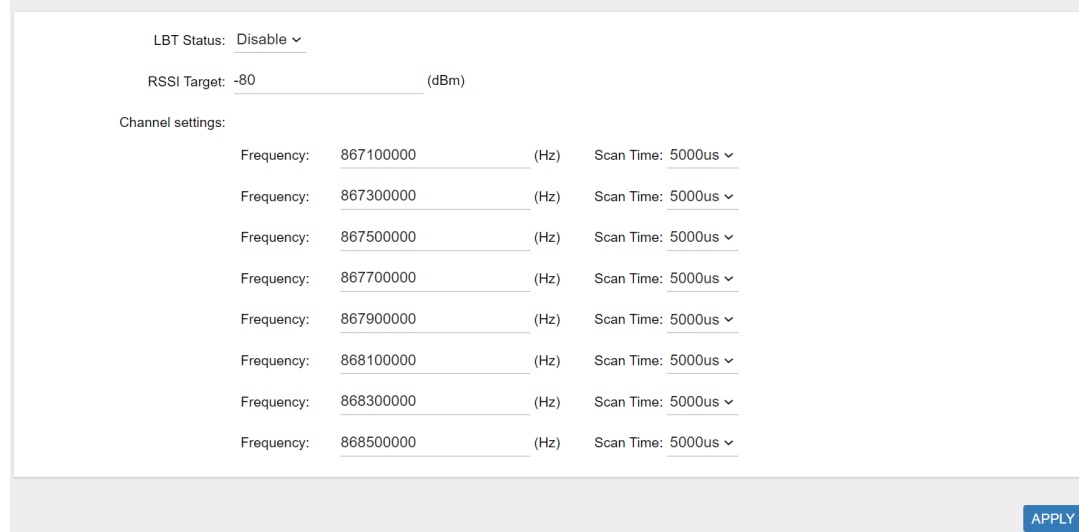
CH 0 Status: Enable	Radio Interface: 0	CenterFreqOffset: -300000 (-400000~+400000)	
CH 1 Status: Enable	Radio Interface: 0	CenterFreqOffset: -100000 (-400000~+400000)	
CH 2 Status: Enable	Radio Interface: 0	CenterFreqOffset: 100000 (-400000~+400000)	
CH 3 Status: Enable	Radio Interface: 0	CenterFreqOffset: 300000 (-400000~+400000)	
CH 4 Status: Enable	Radio Interface: 1	CenterFreqOffset: -300000 (-400000~+400000)	
CH 5 Status: Enable	Radio Interface: 1	CenterFreqOffset: -100000 (-400000~+400000)	
CH 6 Status: Enable	Radio Interface: 1	CenterFreqOffset: 100000 (-400000~+400000)	
CH 7 Status: Enable	Radio Interface: 1	CenterFreqOffset: 300000 (-400000~+400000)	
CH 8 Status: Enable	Radio Interface: 1	CenterFreqOffset: 100000 (-375000~+375000)	Channel Bandwidth: 250K

APPLY

5.1.1.4 LBT Settings

For some regions (i.e. Japan), the Listen Before Talk (LBT) function is a must. This page is to set up the LBT configuration of Lora, including **LBT Status**, **RSSI Target**, **Channel settings**.

Figure 5.1.1.4-A LBT Settings
LBT Settings



LBT Status: Disable ▾

RSSI Target: -80 (dBm)

Channel settings:

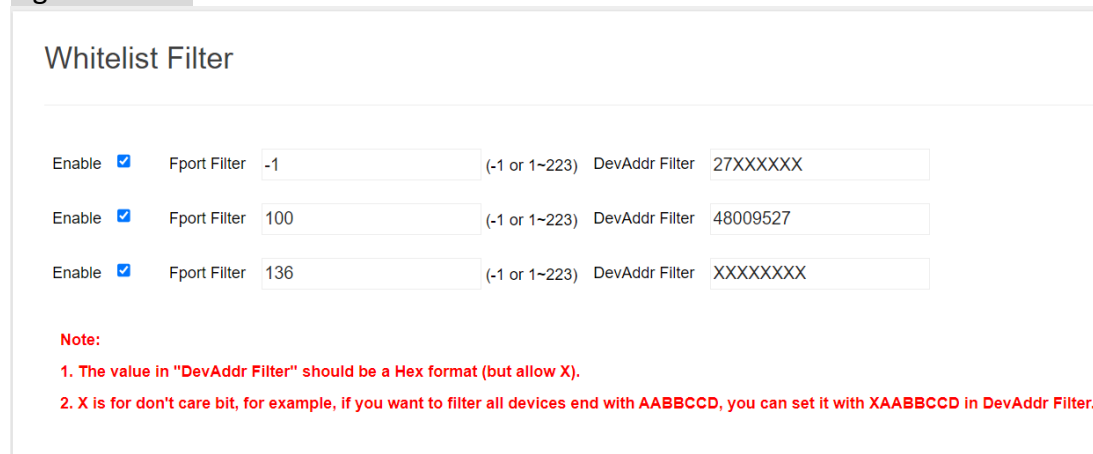
Frequency:	867100000	(Hz)	Scan Time: 5000us ▾
Frequency:	867300000	(Hz)	Scan Time: 5000us ▾
Frequency:	867500000	(Hz)	Scan Time: 5000us ▾
Frequency:	867700000	(Hz)	Scan Time: 5000us ▾
Frequency:	867900000	(Hz)	Scan Time: 5000us ▾
Frequency:	868100000	(Hz)	Scan Time: 5000us ▾
Frequency:	868300000	(Hz)	Scan Time: 5000us ▾
Frequency:	868500000	(Hz)	Scan Time: 5000us ▾

APPLY

5.1.2 Whitelist Filter

To reduce unnecessary data traffic, this page is to configure the whitelist filter for Packet Forwarder, including **Fport Filter** and **DevAddr Filter**.

Figure 5.1.2-A Whitelist Filter



Whitelist Filter

Enable ☒	Fport Filter	-1	(-1 or 1~223)	DevAddr Filter	27XXXXXX
Enable ☒	Fport Filter	100	(-1 or 1~223)	DevAddr Filter	48009527
Enable ☒	Fport Filter	136	(-1 or 1~223)	DevAddr Filter	XXXXXXXX

Note:

1. The value in "DevAddr Filter" should be a Hex format (but allow X).
2. X is for don't care bit, for example, if you want to filter all devices end with AABBCCD, you can set it with XAABBCCD in DevAddr Filter.

5.1.3 Basic Station

Choose the "**Basic Station**" option and click the "**APPLY**" button to Enable the Basic Station mode. After applying the setting, the "Basic Station" field can be found on the left menu.

Figure 5.1.3-A LoRa Mode Selection - Basic Station

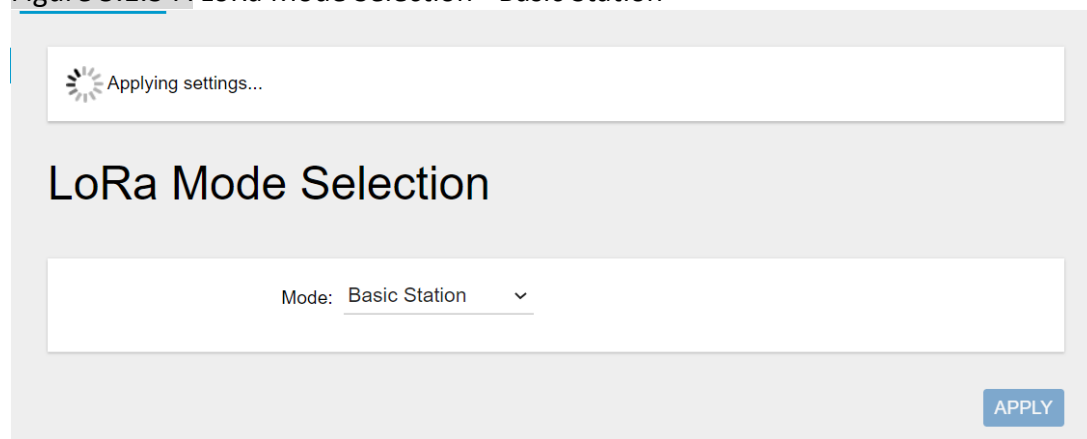
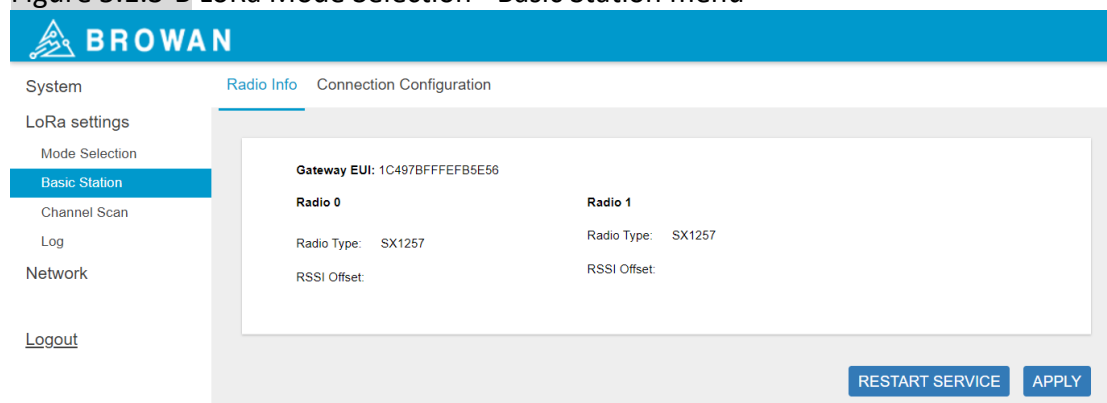


Figure 5.1.3-B LoRa Mode Selection - Basic Station menu

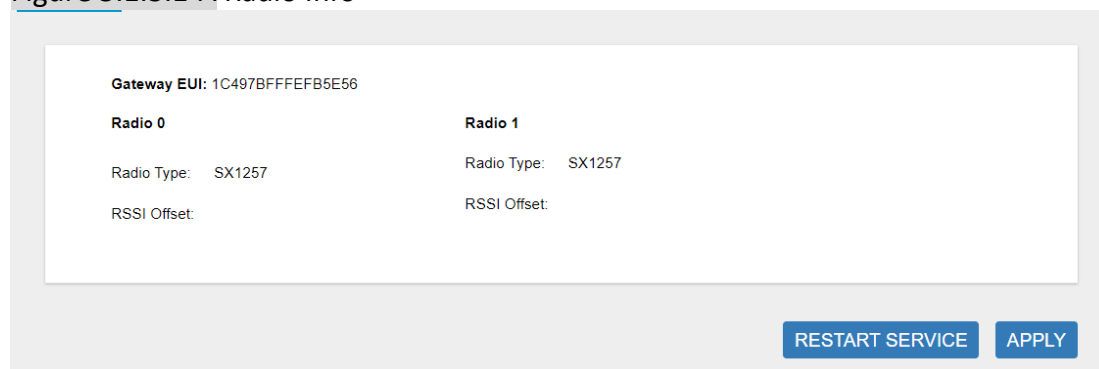


Radio 0		Radio 1	
Radio Type:	SX1257	Radio Type:	SX1257
RSSI Offset:		RSSI Offset:	

5.1.3.1 Radio Info

This page is to show the **Gateway EUI** information.

Figure 5.1.3.1-A Radio Info



The screenshot shows a web interface for configuring radio information. It features a white content area with a light gray border. At the top left, it displays 'Gateway EUI: 1C497BFFFEFB5E56'. Below this, there are two columns for 'Radio 0' and 'Radio 1'. Each column has labels for 'Radio Type' and 'RSSI Offset', with 'SX1257' entered for the radio type in both. At the bottom right of the interface, there are two blue buttons: 'RESTART SERVICE' and 'APPLY'.

Gateway EUI: 1C497BFFFEFB5E56	
Radio 0	Radio 1
Radio Type: SX1257	Radio Type: SX1257
RSSI Offset:	RSSI Offset:

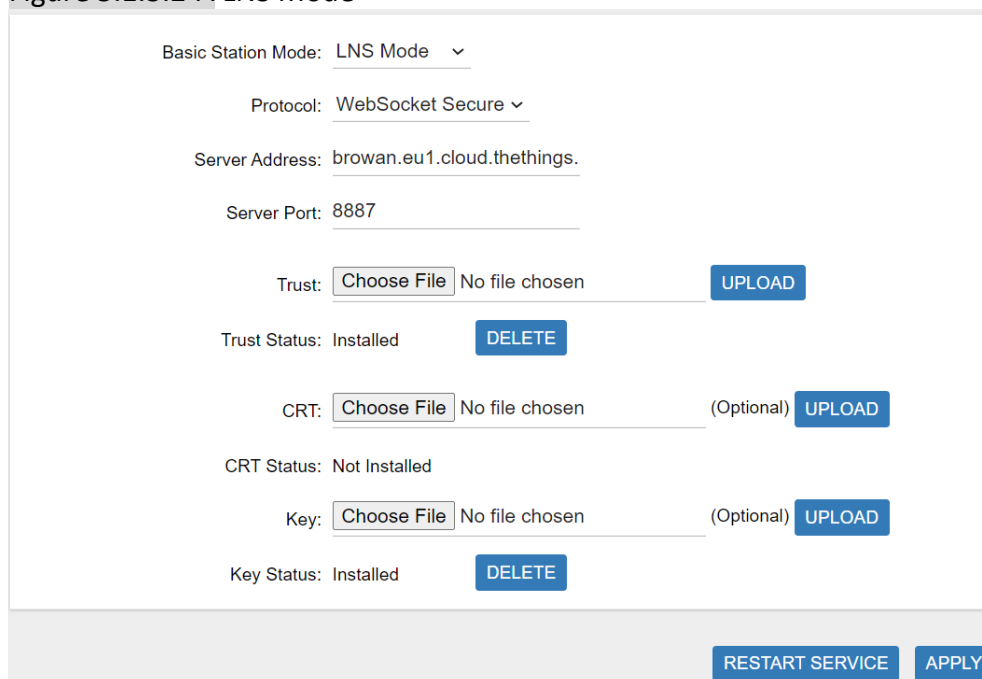
RESTART SERVICE APPLY

5.1.3.2 Connection Configuration

This page is to set up the basic station configuration, including **Basic Station Mode, Protocol, Server Address, Server Port** and **Credentials**.

- LNS Mode

Configure the LNS Mode settings and click the "APPLY" button.

Figure 5.1.3.2-A LNS Mode

Basic Station Mode: LNS Mode ▾

Protocol: WebSocket Secure ▾

Server Address: browan.eu1.cloud.thethings.

Server Port: 8887

Trust: No file chosen

Trust Status: Installed

CRT: No file chosen (Optional)

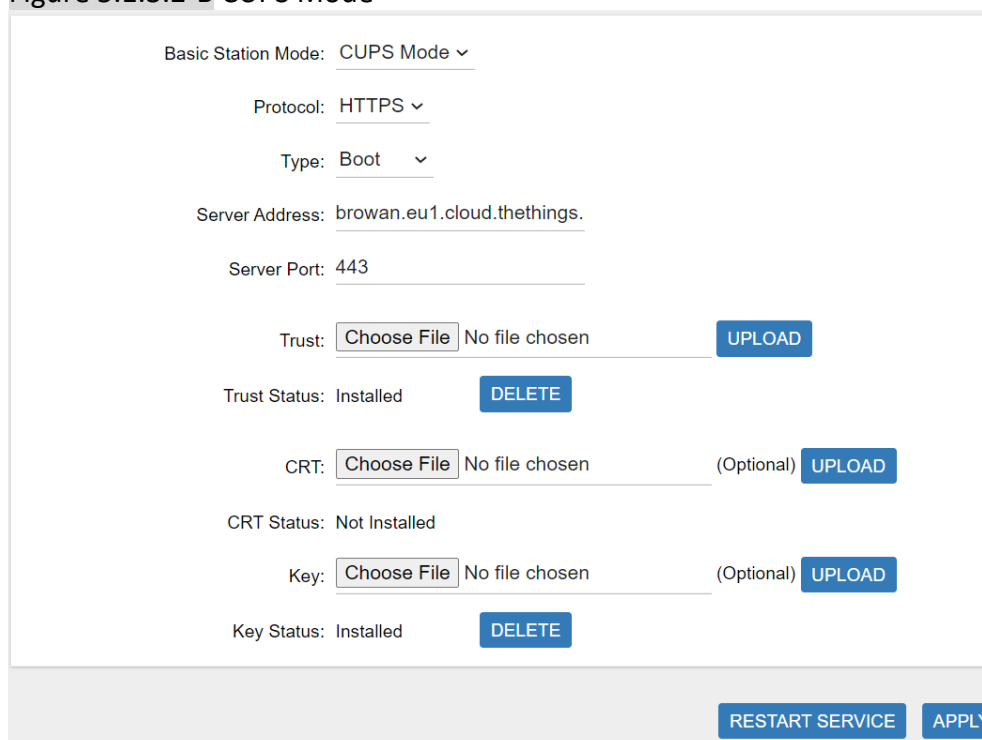
CRT Status: Not Installed

Key: No file chosen (Optional)

Key Status: Installed

- CUPS Mode

Configure the CUPS Mode settings and click the "APPLY" button.

Figure 5.1.3.2-B CUPS Mode

Basic Station Mode: CUPS Mode ▾

Protocol: HTTPS ▾

Type: Boot ▾

Server Address: browan.eu1.cloud.thethings.

Server Port: 443

Trust: No file chosen

Trust Status: Installed

CRT: No file chosen (Optional)

CRT Status: Not Installed

Key: No file chosen (Optional)

Key Status: Installed

5.2 Channel Scan

Click the "SCAN" button to scan the RF signal. Then click the "EXPORT" button to export the scan result.

Figure 5.2-A Channel RSSI Scan

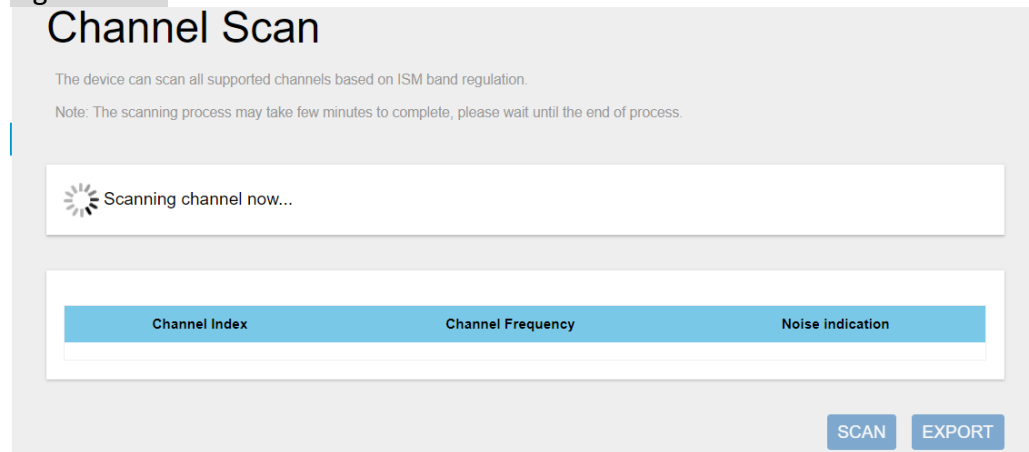
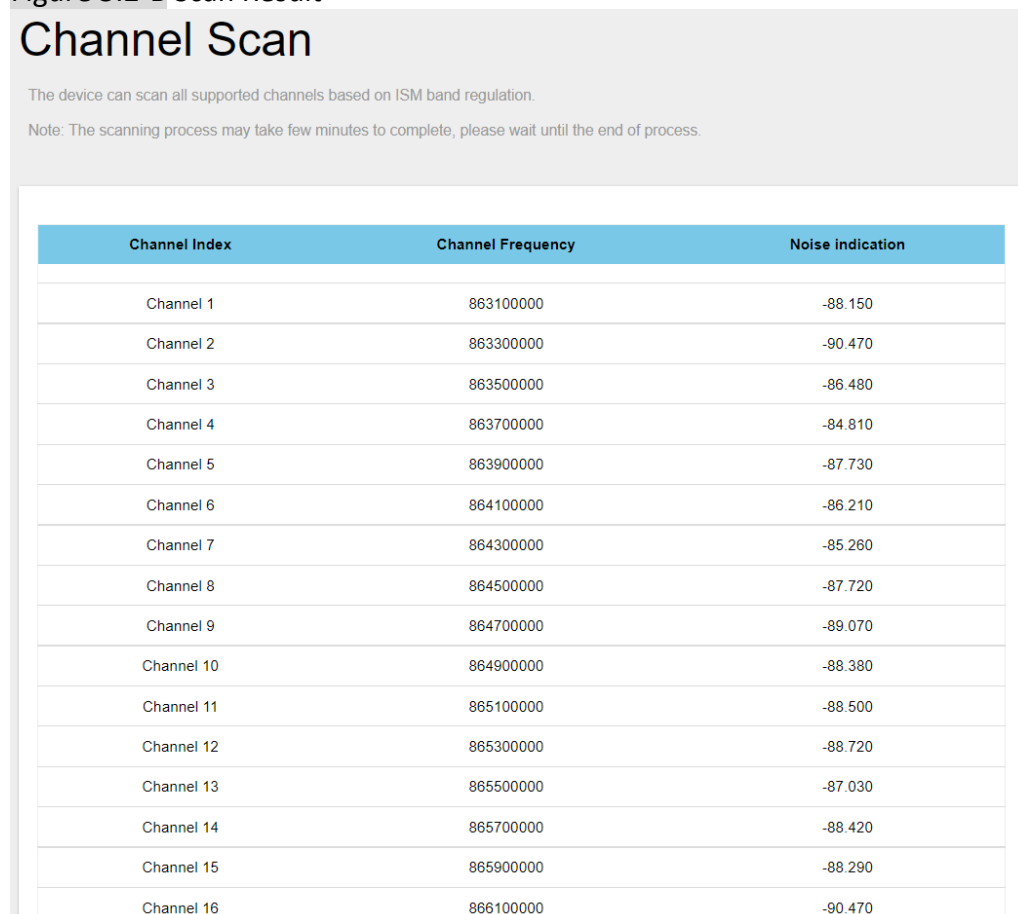


Figure 5.2-B Scan Result



5.3 Log

The LoRa logs will be shown on this page, showing recent LoRa logs with a maximum limit of 500 lines.

Figure 5.3-A Logs

LoRa Logs

```

2021-07-08 08:29:31.591 [TCE:VERB] Connected to MUXS.
2021-07-08 08:29:31.775 [RAL:INFO] Lora gateway library version: Version: 5.0.1;
2021-07-08 08:29:31.830 [RAL:VERB] Connecting to device: /dev/spidev1.0
2021-07-08 08:29:31.830 [RAL:DEBU] SX130x txlut table (0 entries)
2021-07-08 08:29:31.830 [RAL:VERB] SX1301 rxrfchain 0: enable=1 freq=867.5MHz rssi_offset=-166.000000 type=2 tx_enabl
2021-07-08 08:29:31.831 [RAL:VERB] SX1301 rxrfchain 1: enable=1 freq=868.5MHz rssi_offset=-166.000000 type=2 tx_enabl
2021-07-08 08:29:31.831 [RAL:VERB] SX1301 ifchain 0: enable=1 rf_chain=1 freq=-400000 bandwidth=0 datarate=0 sync_wc
2021-07-08 08:29:31.831 [RAL:VERB] SX1301 ifchain 1: enable=1 rf_chain=1 freq=-200000 bandwidth=0 datarate=0 sync_wc
2021-07-08 08:29:31.832 [RAL:VERB] SX1301 ifchain 2: enable=1 rf_chain=1 freq=0 bandwidth=0 datarate=0 sync_word=0/6
2021-07-08 08:29:31.832 [RAL:VERB] SX1301 ifchain 3: enable=1 rf_chain=0 freq=-400000 bandwidth=0 datarate=0 sync_wc
2021-07-08 08:29:31.832 [RAL:VERB] SX1301 ifchain 4: enable=1 rf_chain=0 freq=-200000 bandwidth=0 datarate=0 sync_wc
2021-07-08 08:29:31.832 [RAL:VERB] SX1301 ifchain 5: enable=1 rf_chain=0 freq=0 bandwidth=0 datarate=0 sync_word=0/6
2021-07-08 08:29:31.833 [RAL:VERB] SX1301 ifchain 6: enable=1 rf_chain=0 freq=200000 bandwidth=0 datarate=0 sync_wor
2021-07-08 08:29:31.833 [RAL:VERB] SX1301 ifchain 7: enable=1 rf_chain=0 freq=400000 bandwidth=0 datarate=0 sync_wor
2021-07-08 08:29:31.833 [RAL:VERB] SX1301 ifchain 8: enable=1 rf_chain=1 freq=-200000 bandwidth=2 datarate=2 sync_wc

```

REFRESH

6 Network

The Network menu consists of the following categories: **WAN** and **Diagnostics**. Introduction and input procedures for each category are described in the following paragraphs.

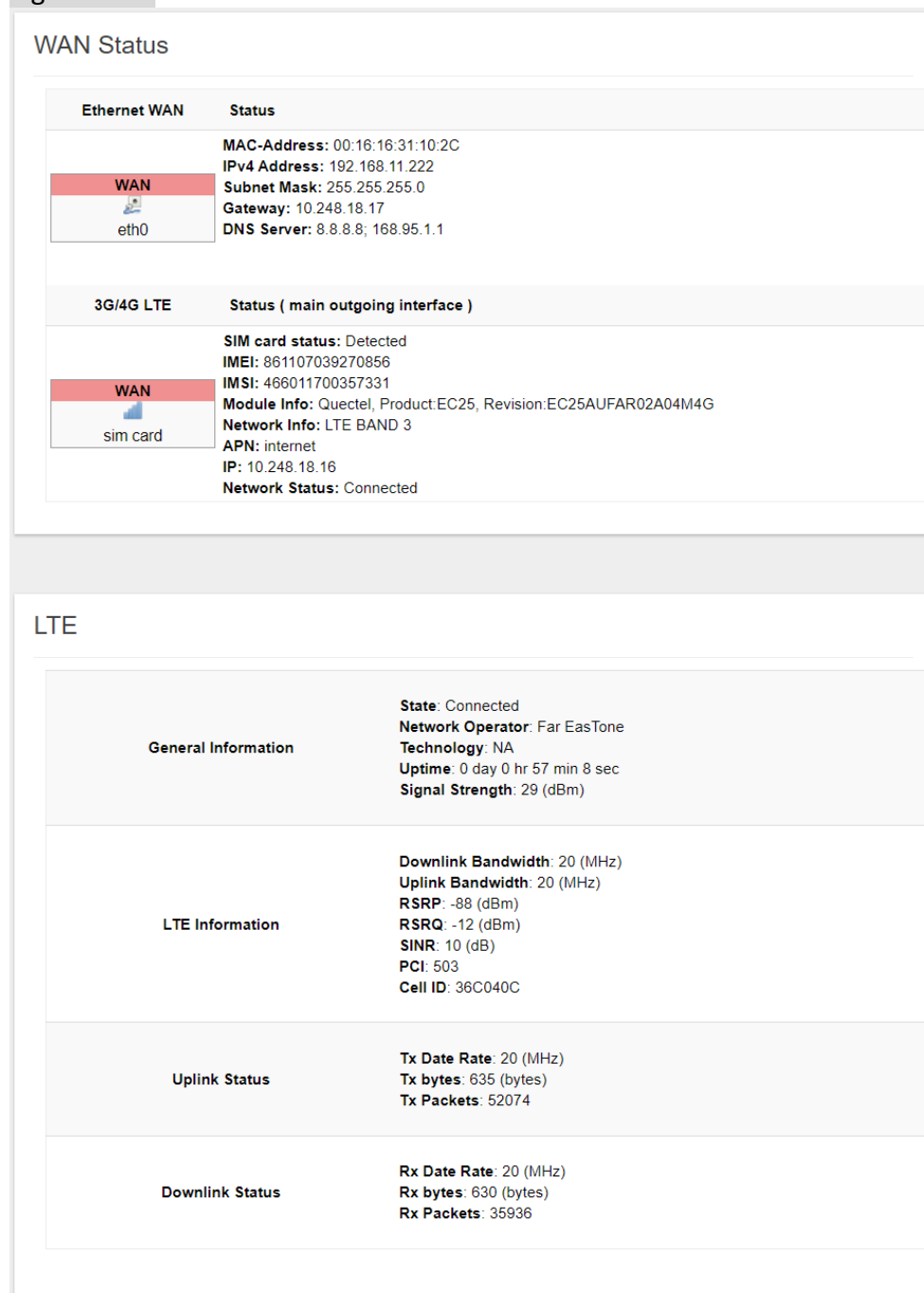
6.1 WAN

The purpose of this category is to view current WAN settings. This category is further divided into three sectors: **WAN Status**, **Wan Settings** and **3G/4G LTE Log**. These individual options are lodged and labeled above the main content.

6.1.1 WAN Status

The current network status will be shown on this page.

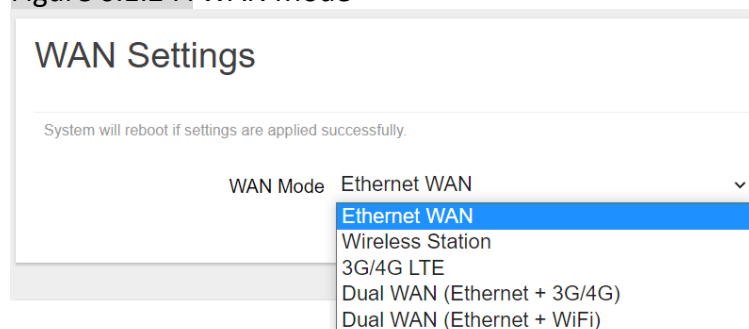
Figure 6.1.1 WAN Status



6.1.2 WAN Settings

Pico Next supports 5 WAN Modes: **Ethernet WAN**, **3G/4G LTE**, **WiFi Station**, **Dual WAN (Ethernet+3G/4G)** and **Dual WAN(Ethernet+WiFi)**.

Figure 6.1.2-A WAN Mode



WAN Settings

System will reboot if settings are applied successfully.

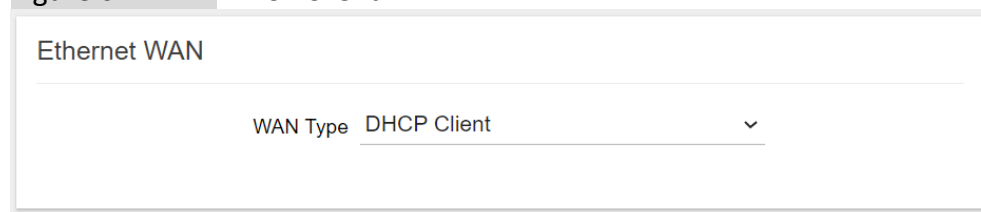
WAN Mode Ethernet WAN

- Ethernet WAN
- Wireless Station
- 3G/4G LTE
- Dual WAN (Ethernet + 3G/4G)
- Dual WAN (Ethernet + WiFi)

6.1.2.1 Ethernet WAN

- DHCP Client

Figure 6.1.2.1-A DHCP Client

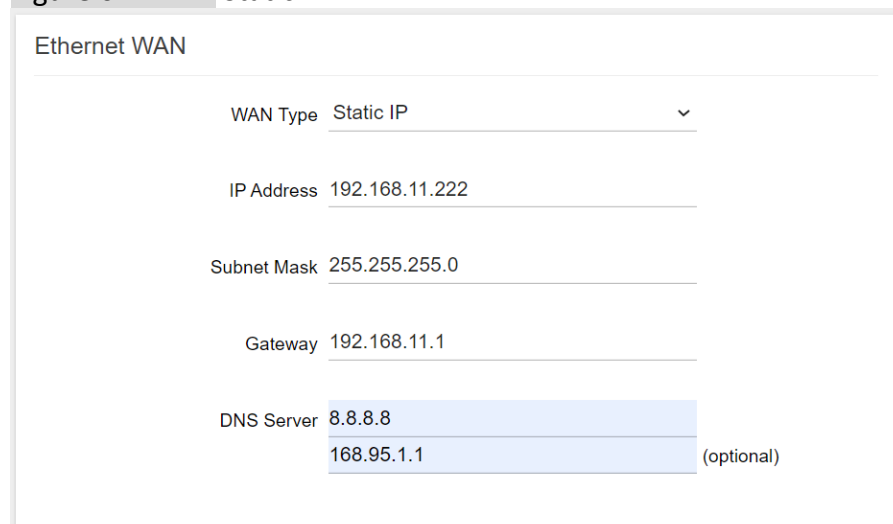


Ethernet WAN

WAN Type DHCP Client

- Static IP

Figure 6.1.2.1-B Static IP



Ethernet WAN

WAN Type Static IP

IP Address 192.168.11.222

Subnet Mask 255.255.255.0

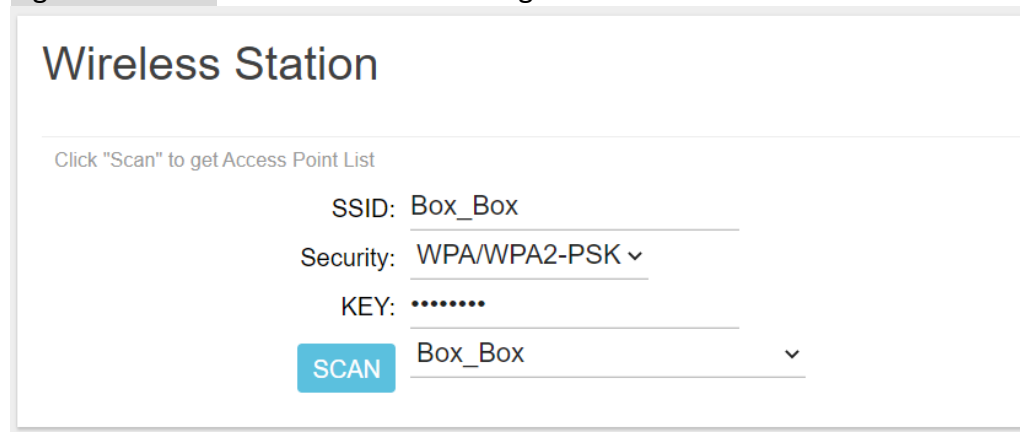
Gateway 192.168.11.1

DNS Server 8.8.8.8
168.95.1.1 (optional)

6.1.2.2 Wireless Station

Configure “WiFi Access Point” information.

Figure 6.1.2.2-A Wireless Station Settings



Wireless Station

Click "Scan" to get Access Point List

SSID:

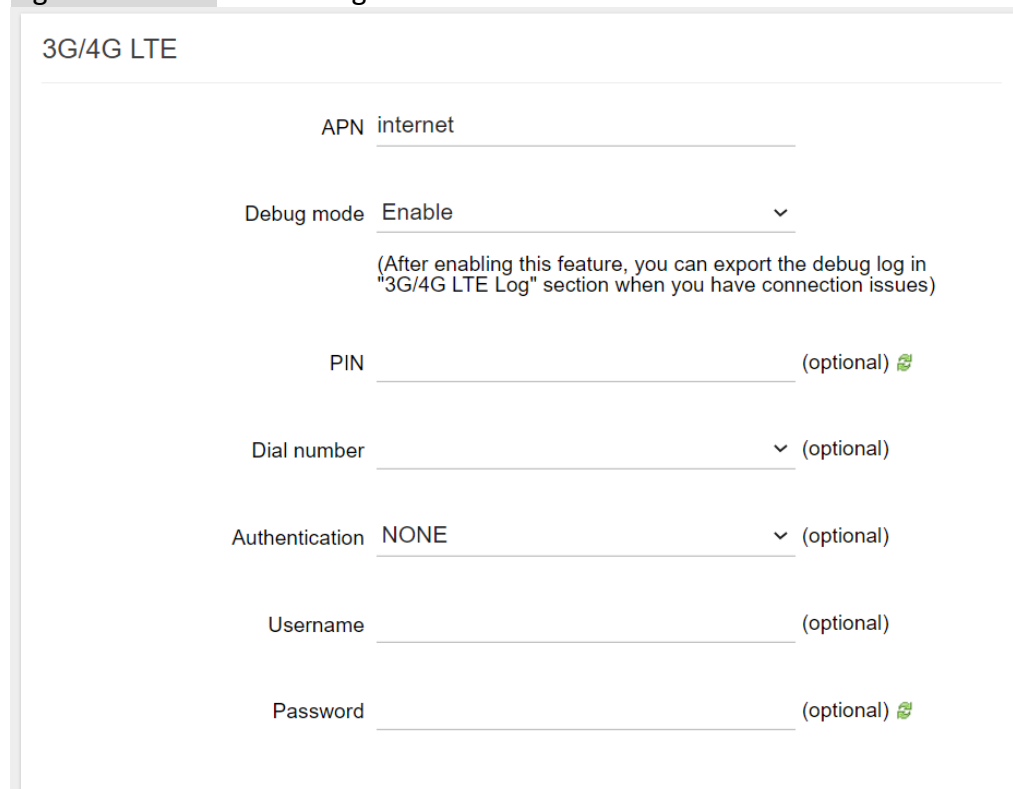
Security:

KEY:

6.1.2.3 3G/4G LTE

Configure “APN” information according to mobile service provider requirements.

Figure 6.1.2.3-A LTE Settings



3G/4G LTE

APN

Debug mode

(After enabling this feature, you can export the debug log in "3G/4G LTE Log" section when you have connection issues)

PIN (optional)

Dial number (optional)

Authentication (optional)

Username (optional)

Password (optional)

6.1.2.4 Dual WAN (Ethernet+3G/4G)

Configure the Ethernet Setting and LTE Setting at the same time. If the Dual WAN mode is selected, the primary interface needs to be specified by default. Pico Next Gateway will automatically set the other workable interface to be the backhaul.

Figure 6.1.2.4-A Network Primary

WAN Settings

System will reboot if settings are applied successfully.

WAN Mode Dual WAN (Ethernet + 3G/4G) ▼

Network priority 3G/4G LTE ▼ (Specify which WAN is Primary, the other one will be backup)

Figure 6.1.2.4-B Ethernet and LTE Configuration

Ethernet WAN

WAN Type DHCP Client ▼

3G/4G LTE

APN internet

Debug mode Enable ▼
(After enabling this feature, you can export the debug log in "3G/4G LTE Log" section when you have connection issues)

PIN _____ (optional) 

Dial number _____ ▼ (optional)

Authentication NONE ▼ (optional)

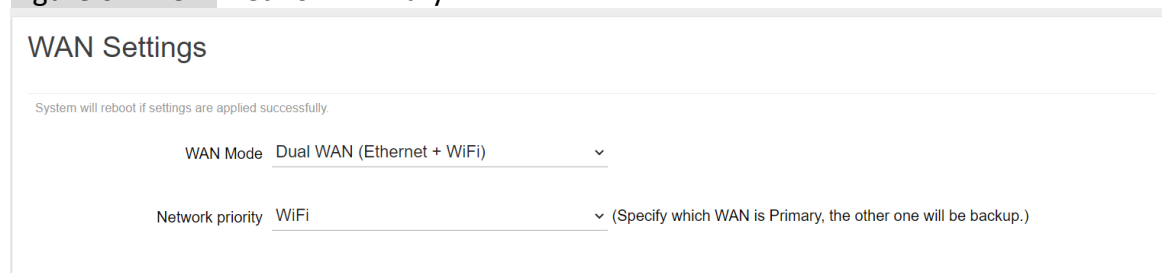
Username _____ (optional)

Password _____ (optional) 

6.1.2.5 Dual WAN (Ethernet+WiFi)

Configure the Ethernet Setting and WiFi Station Setting at the same time. If the Dual WAN mode is selected, the primary interface needs to be specified by default. Pico Next Gateway will automatically set the other workable interface to be the backhaul.

Figure 6.1.2.5-A Network Primary



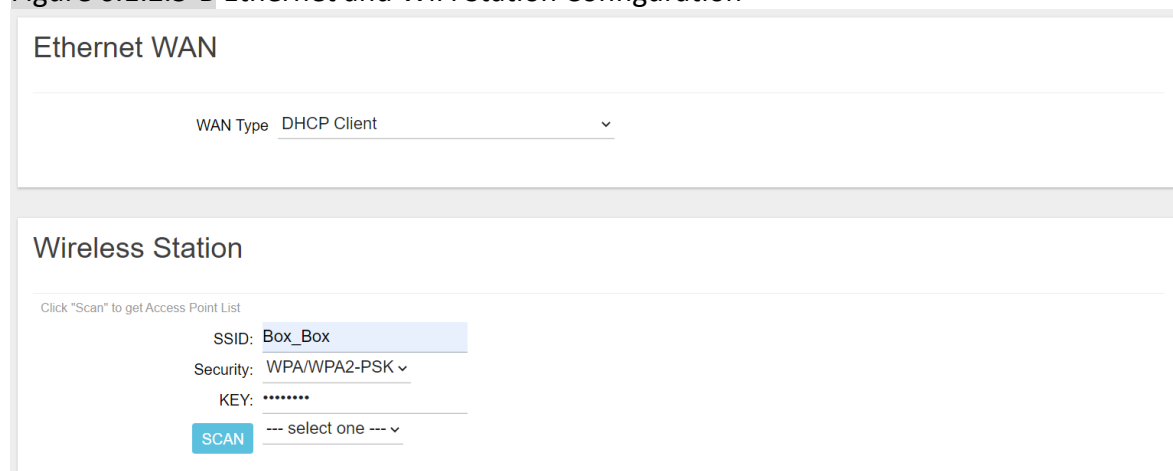
WAN Settings

System will reboot if settings are applied successfully.

WAN Mode Dual WAN (Ethernet + WiFi) ▾

Network priority WiFi ▾ (Specify which WAN is Primary, the other one will be backup.)

Figure 6.1.2.5-B Ethernet and WiFi Station Configuration



Ethernet WAN

WAN Type DHCP Client ▾

Wireless Station

Click "Scan" to get Access Point List

SSID: Box_Box

Security: WPA/WPA2-PSK ▾

KEY: *****

SCAN --- select one --- ▾

6.1.3 3G/4G LTE Log

If LTE Debug Mode is enabled, the LTE connection logs will be shown on this page. Click the "EXPORT" button to export the log.

Figure 6.1.3-A 3G/4G LTE Log

3G/4G LTE Log

```
[2021-07-09 17:48:33] 0 day 1 hr 2 min 3 sec
[2021-07-09 17:48:44] 0 day 1 hr 2 min 14 sec
[2021-07-09 17:49:58] ServingCell: +QENG: "servingcell","NOCONN","LTE","FDD",466,01,36C040C,503,1550,
[2021-07-09 17:50:07] LTE AT port no response this moment! Please wait for next retry!
[2021-07-09 17:50:08] LTE continuesly connect for: 0 day 1 hr 3 min 38 sec
[2021-07-09 17:54:50] ServingCell: +QENG: "servingcell","NOCONN","LTE","FDD",466,01,36C040C,503,1550,
[2021-07-09 17:54:57] LTE AT port no response this moment! Please wait for next retry!
[2021-07-09 17:54:58] LTE continuesly connect for: 0 day 1 hr 8 min 28 sec
[2021-07-09 17:58:58] 0 day 1 hr 12 min 28 sec
[2021-07-09 17:59:36] ServingCell: +QENG: "servingcell","NOCONN","LTE","FDD",466,01,36C040C,503,1550,
[2021-07-09 17:59:43] RSSI: 29,99
[2021-07-09 17:59:44] LTE continuesly connect for: 0 day 1 hr 13 min 14 sec
[2021-07-09 18:04:27] ServingCell: +QENG: "servingcell","NOCONN","LTE","FDD",466,01,36C040C,503,1550,
[2021-07-09 18:04:33] LTE AT port no response this moment! Please wait for next retry!
[2021-07-09 18:04:34] LTE continuesly connect for: 0 day 1 hr 18 min 4 sec
```

[EXPORT](#) [REFRESH](#)

6.2 VPN

The VPN menu consists of the following categories: **VPN Settings** and **VPN Log**. An introduction for each category and input procedures are described in the following paragraphs.

6.2.1 VPN Settings

This page is to configure OpenVPN Client settings, including **Import a config file** or **Customize a config file**.

Figure 6.2.1-A Import a config file

OpenVPN Client Settings

Here you can import a config file or manually config a VPN setting file.

Service State	Enable	▼
Config Type	Import a config file	▼
Import config file:	Choose File No file chosen	UPLOAD
Config Status	Installed	DELETE

Note: Due to dual WAN mode is running, gateway info pushed from VPN server will be ignored

Figure 6.2.1-B Customize a config file

VPN SettingsVPN Log

OpenVPN Client Settings

Here you can import a config file or manually config a VPN setting file.

Service State	Enable	▼
Config Type	Customize a config file	▼
Interface Type	TUN	▼
Protocol	UDP	▼
Server Hostname/IP	172.16.99.111	
Server Port	1194	
Encryption Cipher	AES-128-CBC	▼
Minimum TLS Version	Default	▼
Certificate and Keys	CONFIGURE	
Other settings (Optional, max 1024 characters)	<pre>remote-cert-tls server data-ciphers AES-128-CBC route 10.99.1.0 255.255.255.0 route-metric 50 comp-lzo verb 3 allow-compression yes</pre>	

Note: Due to dual WAN mode is running, gateway info pushed from VPN server will be ignored

6.2.2 VPN Log

The VPN connection log will be shown on this page.

Figure 6.2.2-A VPN Log

VPN Settings VPN Log

```
2022-07-05 10:59:21 Incoming Data Channel: Cipher 'AES-128-CBC' initialized with 128 bit key
2022-07-05 10:59:21 Incoming Data Channel: Using 160 bit message hash 'SHA1' for HMAC authentication
2022-07-05 10:59:21 net_route_v4_best_gw query: dst 0.0.0.0
2022-07-05 10:59:21 net_route_v4_best_gw result: via 192.168.11.244 dev eth0
2022-07-05 10:59:21 ROUTE_GATEWAY 192.168.11.244/255.255.255.0 IFACE=eth0 HWADDR=00:16:16:2b:aa:ac
2022-07-05 10:59:21 TUN/TAP device tun0 opened
2022-07-05 10:59:21 net_iface_mtu_set: mtu 1500 for tun0
2022-07-05 10:59:21 net_iface_up: set tun0 up
2022-07-05 10:59:21 net_addr_ptp_v4_add: 10.99.1.6 peer 10.99.1.5 dev tun0
2022-07-05 10:59:21 net_route_v4_add: 10.99.1.0/24 via 10.99.1.5 dev [NULL] table 0 metric 50
2022-07-05 10:59:21 GID set to nogroup
2022-07-05 10:59:21 UID set to nobody
2022-07-05 10:59:21 WARNING: this configuration may cache passwords in memory -- use the auth-nocache option to prevent this
2022-07-05 10:59:21 Initialization Sequence Completed
```

4

6.3 Diagnostics

Input a specific URL in the text field. Click the “PING” button to ping the URL specific

Figure 6.3-A Network Utilities

Network Utilities

Note :

If the ping test is fail, please check your network setting.

- Ethernet: Please make sure your backhaul network is available.

www.browan.com

PING

Collecting data

```
PING www.browan.com (44.241.247.162): 56 data bytes
64 bytes from 44.241.247.162: seq=0 ttl=219 time=197.869 ms
64 bytes from 44.241.247.162: seq=1 ttl=225 time=154.677 ms
64 bytes from 44.241.247.162: seq=2 ttl=219 time=189.352 ms
64 bytes from 44.241.247.162: seq=3 ttl=225 time=154.293 ms
64 bytes from 44.241.247.162: seq=4 ttl=219 time=187.985 ms

--- www.browan.com ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 154.293/176.835/197.869 ms
```