Wireless IOT Controller
R207
User Manual

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1. Introduction

R207 is a smart IoT gateway. R207 can communicate with Netvox LoRa network and act as a gateway in LoRa network. It can automatically add the LoRa device into the network and is adopted CSMA/CA mechanism and AES128 encryption method to improve security.
R207 is the control center of Netvox LoRa Private. It can work with Netvox M2 APP to monitor the information of the device easily.

Netvox LoRa private frequency is as follows:

500.1 MHz_China Region	China
920.1 MHz_Asia Region	Asia (including Japan, Singapore, Southeast Asia, and other regions)
868.0 MHz_EU Region	Europe
915.1 MHz_AU/US Region	America/ Australia

LoRa Wireless Technology:

LoRa is a wireless communication technology dedicated to long-distance low-power consumption. Its spread-spectrum modulation method greatly increases the communication distance compared with other communication methods and can be widely used in long-distance low-rate IoT wireless communication fields in various occasions. Such as automatic meter reading, building automation equipment, wireless security systems, industrial monitoring and control. It has the characteristics of small size, low power consumption, long transmission distance and strong anti-interference ability.

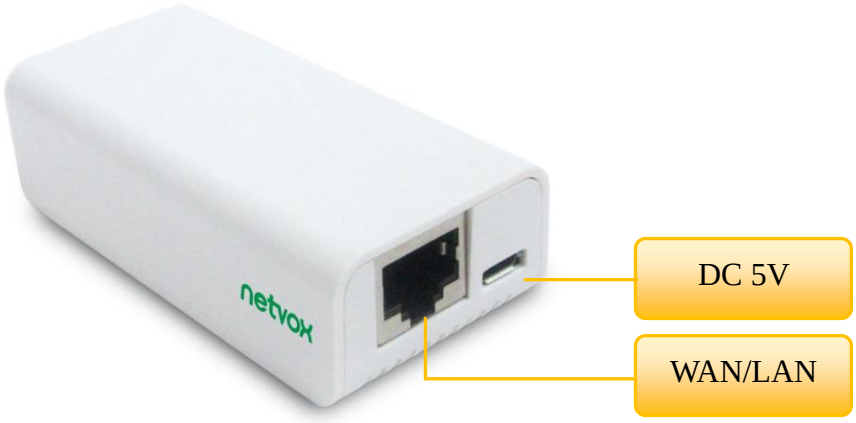
2. Product Appearance

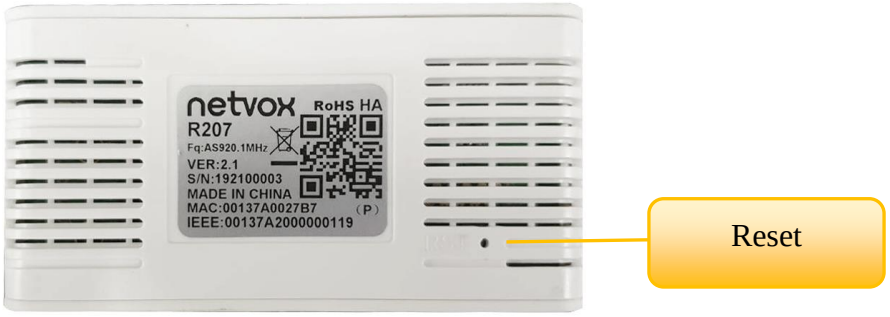
3. Main Characteristics

- The LoRa communication distance is up to 10km (depend on specific environment)
- Support Netvox LoRa Private
- Support Netvox Cloud
- Support M2 APP

4. Installation and Preparation

4.1 R207 Appearance





4.2 WAN/LAN Connection

The network source connects to the RJ-45 port (WAN/LAN). The network source supports static IP and DHCP client. If user needs an external IP Camera, please connect it to another router on the same network segment

4.3 Power on

Plug in the 5V/1.5A transformer to boot

4.4 Reboot

In the power-on state, press the reset button at the bottom to restart R207

*If press the button for more than five seconds, it will restore to the factory setting.

4.5 Indicator

Cloud indicator:

Keep On: Connected to the cloud

Flash: Not connected to the cloud

4.6 Restore to Factory Setting

In the power-on state, press and hold the reset button for 5 seconds and release to restore the factory setting.

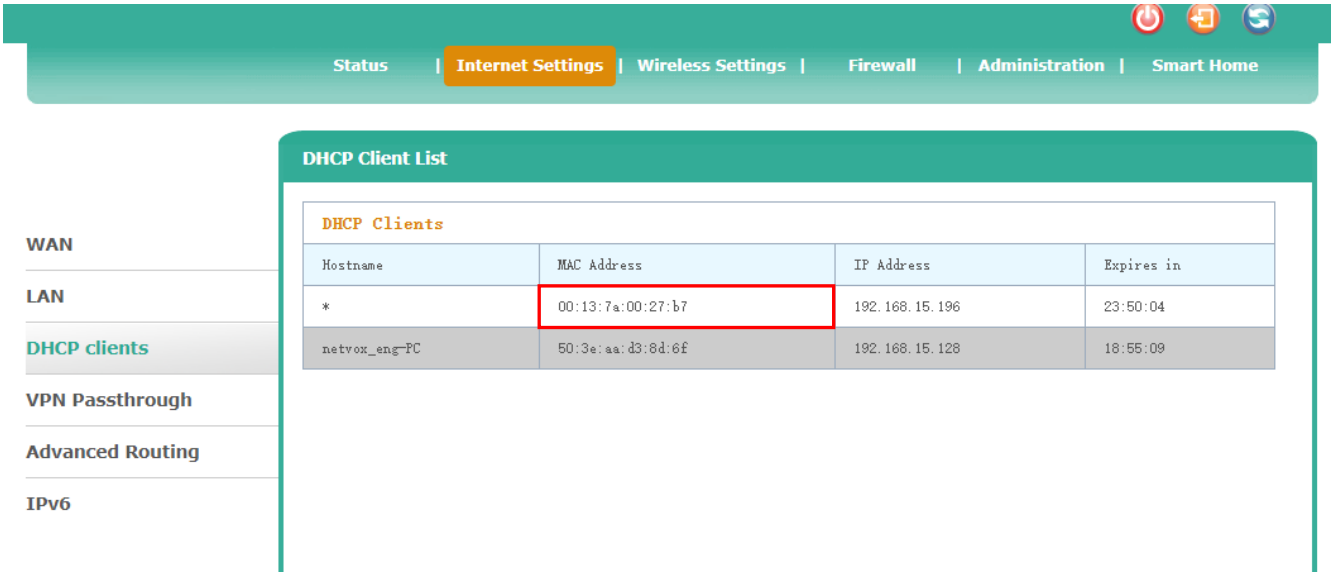
5. Set up R207

5.1 Connect to the device

Please connect the network source to the RJ-45 (WAN/LAN) jack of R207 and connect to the power supply. The router of the network source needs to enable DHCP to view the DHCP List.

5.2 Inquire R207 IP Address

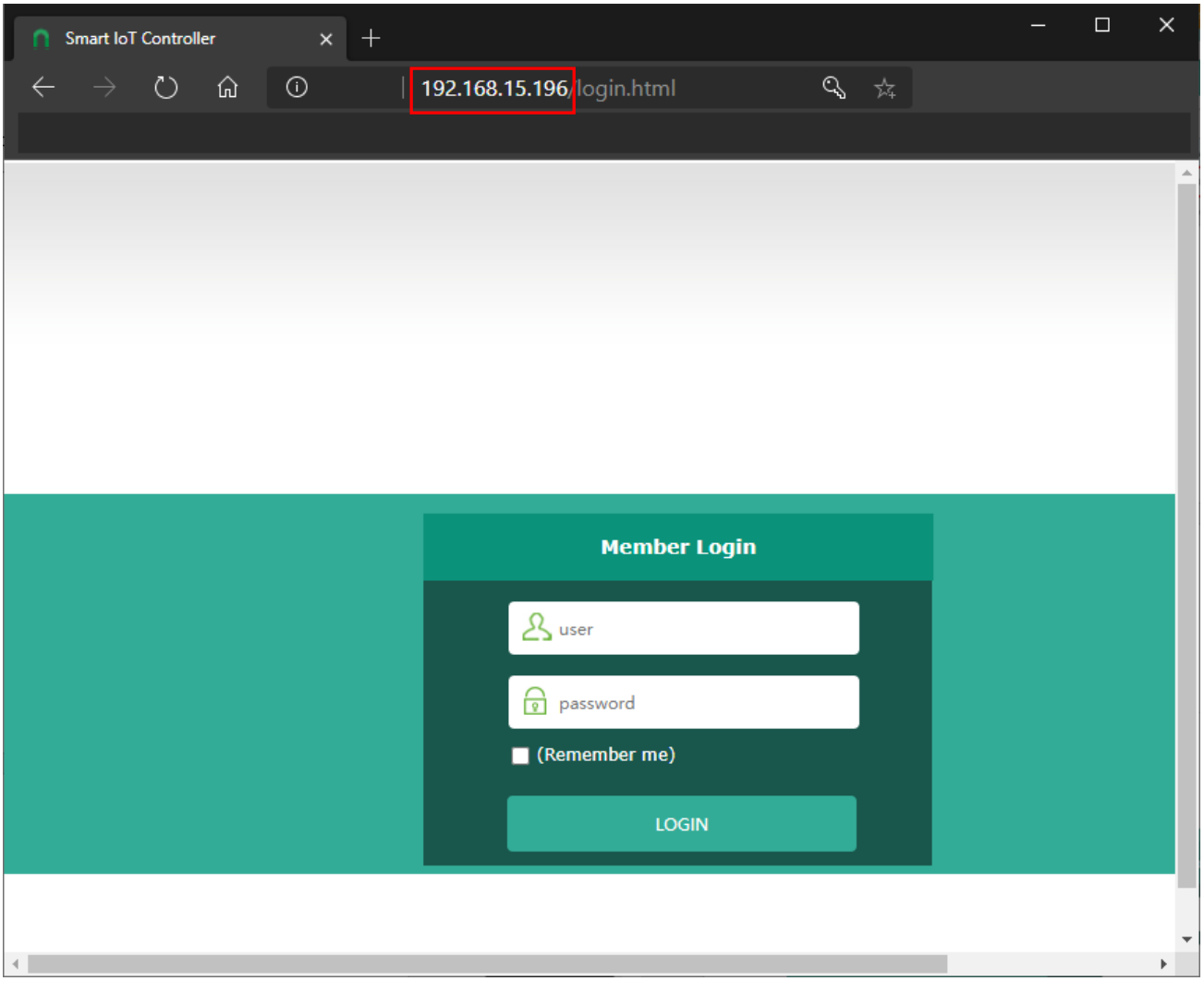
Open a web browser, log in to the router setting interface of the network source, and find the DHCP List to see the R207 IP address and MAC Address. According to the IP address of R207 in the list, user can log in to the R207 setting interface.



*The above network source setting screen is Netvox R206. The location of the DHCP client of routers from other manufacturers may be different.

5.3 Login R207 management interface

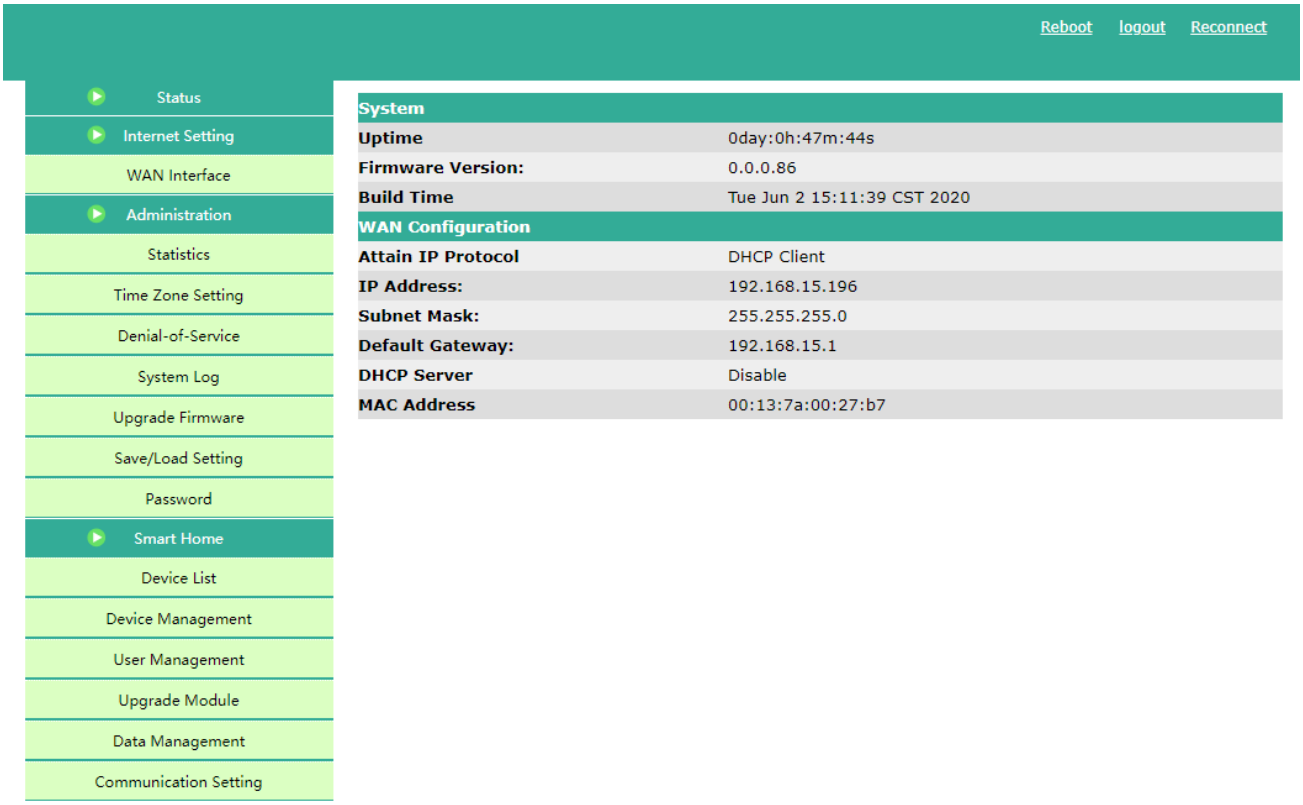
Please fill in R207 IP address in the URL bar. (the above example is 192.168.15.196)



Default username and password (Applicable to versions after 0.0.0.83 (inclusive))

The Administrator's Username: operator **Password:** the last six digits of IEEE

The Customer's Username: admin **Password:** the last six digits of IEEE



*It is recommended to change the password immediately after logging in for the first time to improve network security

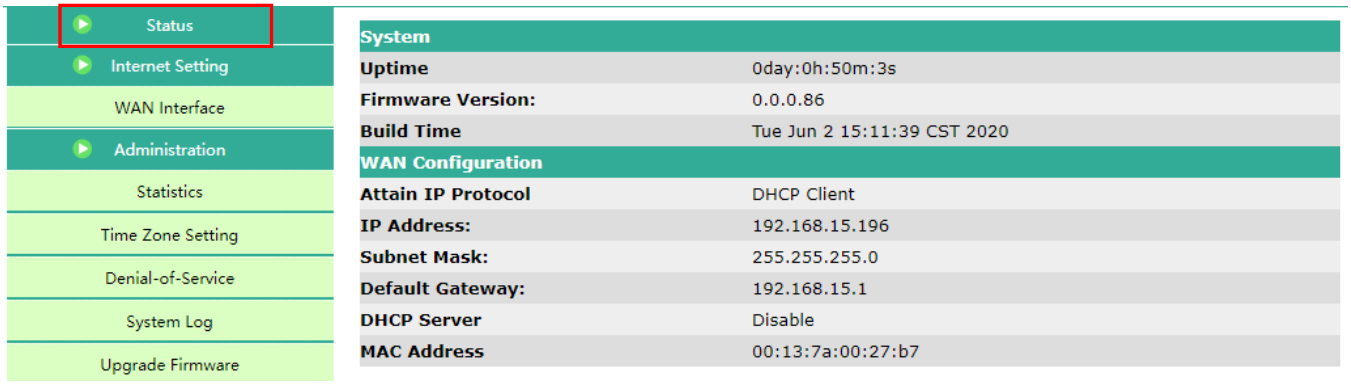
*Before version 0.0.0.83, the administrator's username and password are operator, the customer's username and password are admin.

*If user wants to log in to the R207 page, the computer must be in the same network segment as the network source to access. (the wired network of the source end or Wi Fi can be connected)

6. Gateway Function Description

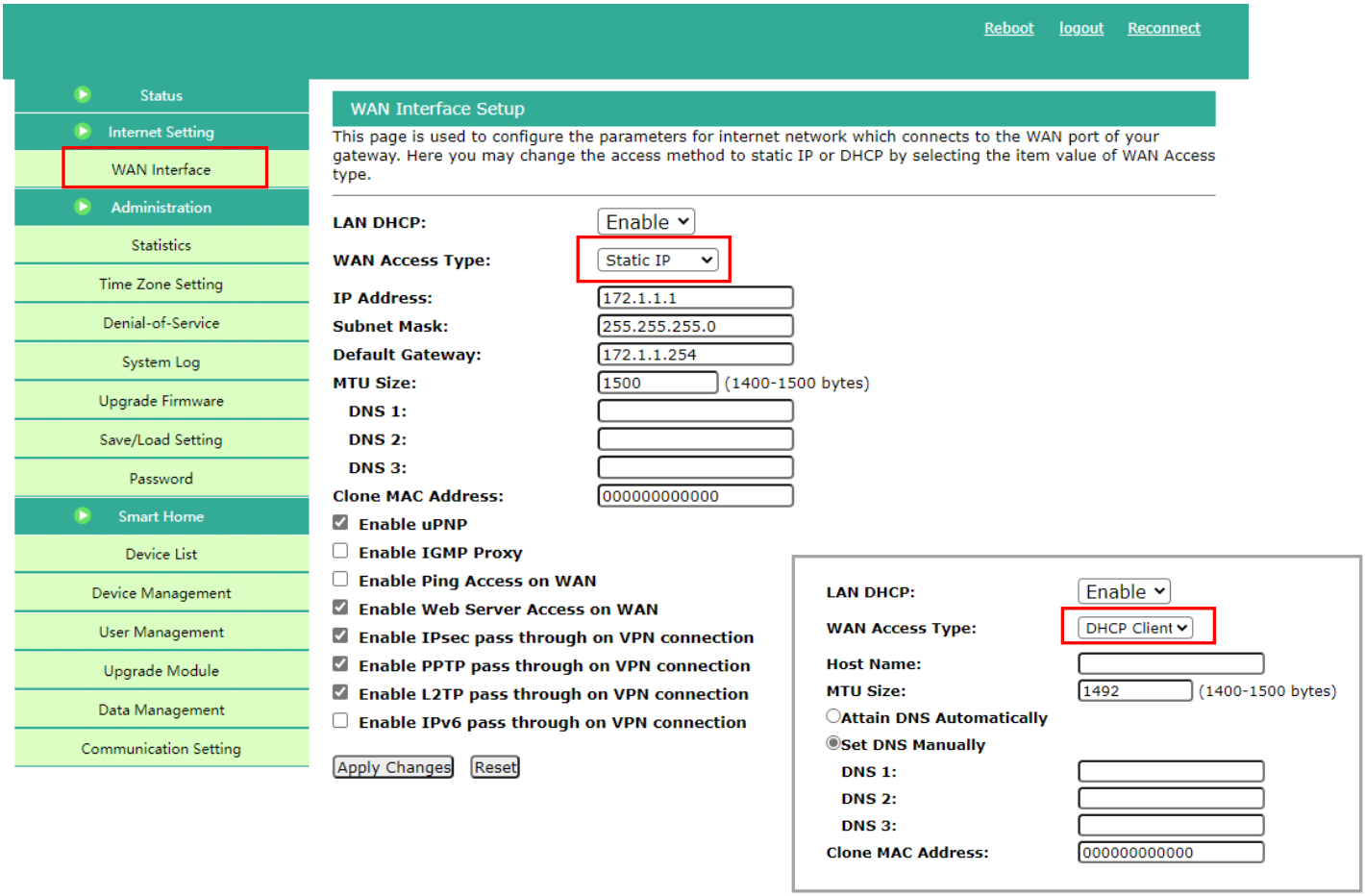
6.1 Status

Click [Status] in the left list to view system information and network information



6.2 Internet Settings

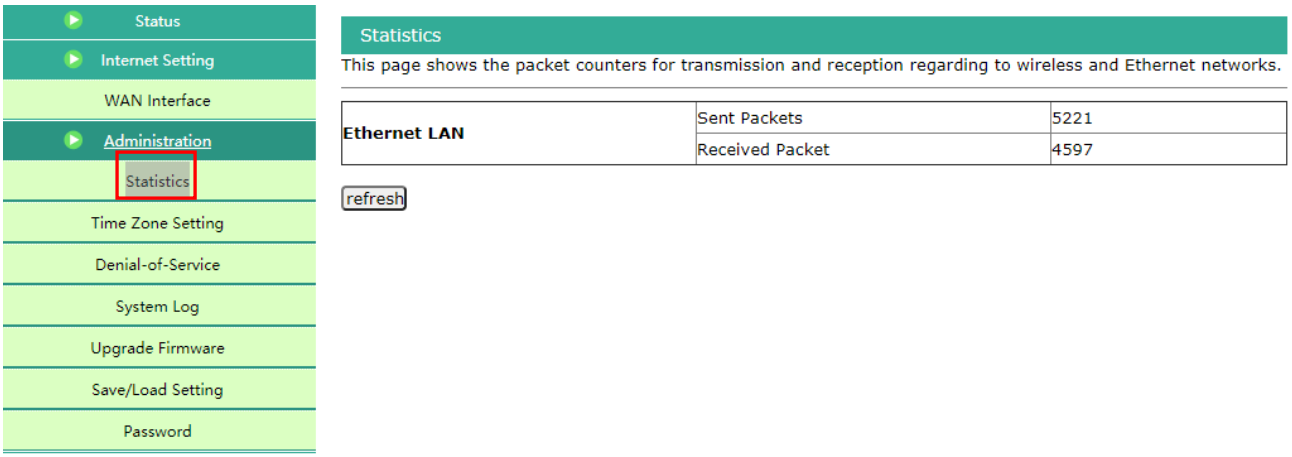
Click [WAN Interface] in the left list, and user can modify the network information, such as WAN Access Type, etc.



6.3 Administration

6.3.1 Statistics

This page shows the packet counters for transmission and reception regarding to wireless and Ethernet networks.



6.3.2 Time Zone Setting

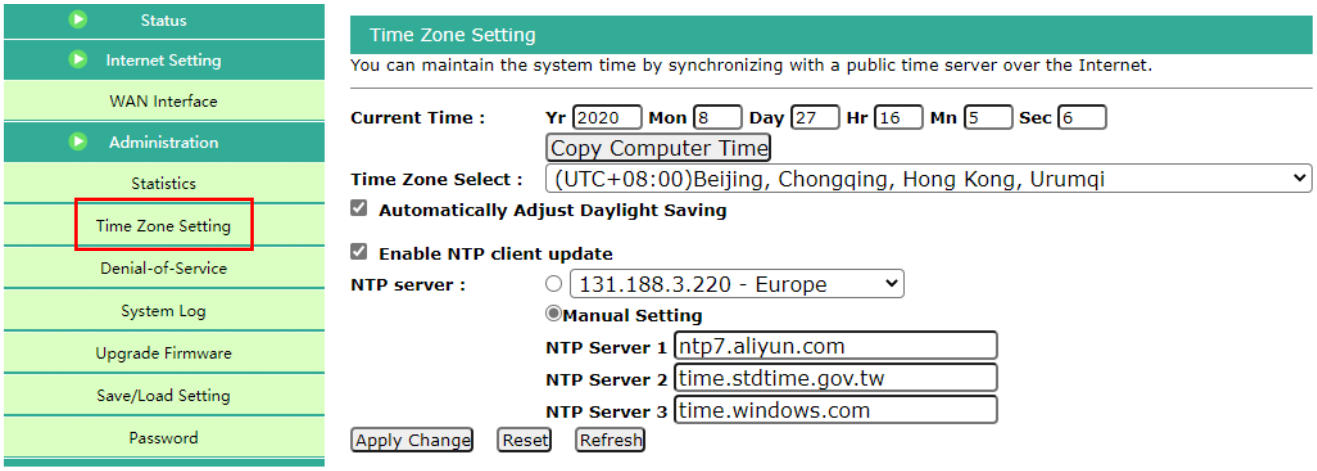
You can maintain the system time by synchronizing with a public time server over the Internet.

The default NTP Server such as the following:

NTP Server1：ntp7.aliyun.com

NTP Server2：time.stdtime.gov.tw

NTP Server3：time.windows.com



*Please make sure that the gateway time is consistent with the computer system time; otherwise, it will cause the timestamp verification failed when the gateway connects to the cloud and be unable to connect to the cloud.

6.3.3 Denial-of-Service

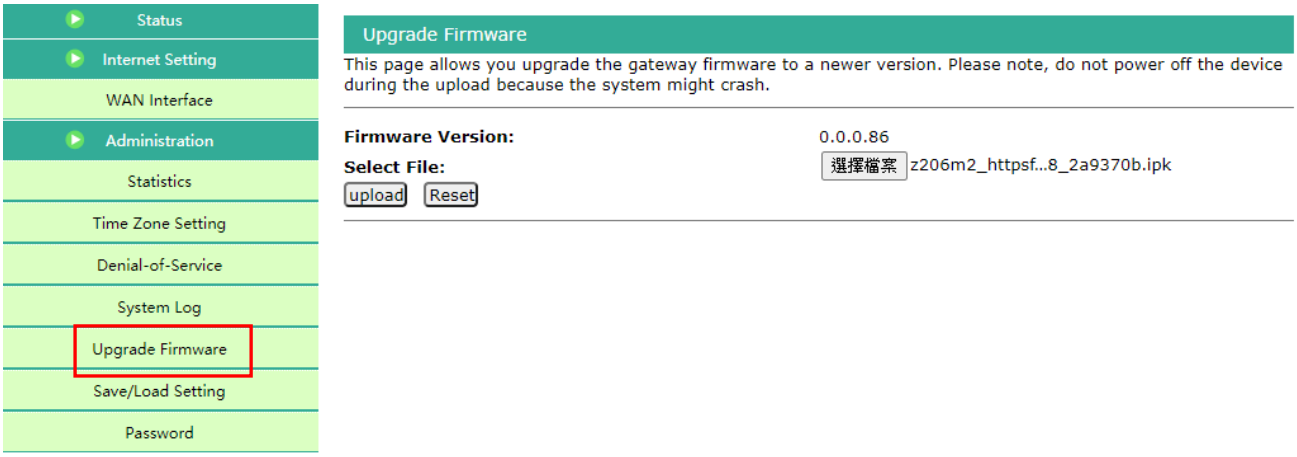
R207 do not support this function.

6.3.4 System Log

R207 do not support this function.

6.3.5 Upgrade Firmware

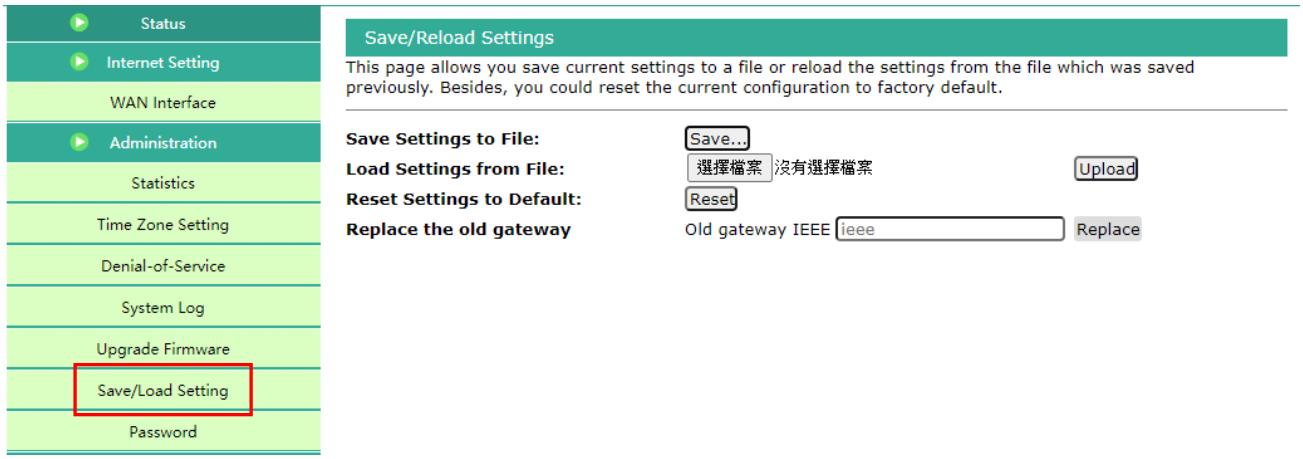
This page allows you upgrade the gateway firmware to a newer version. Please note, do not power off the device during the upload because the system might crash.



*Do not turn off the power during the firmware update

6.3.6 Save/Load Setting

This page allows you save current settings to a file or reload the settings from the file which was saved previously. Besides, you could reset the current configuration to factory default.



*The saved device configuration file is ".dat".

6.3.7 Password

The login account and password of the administrator and customer can be changed.

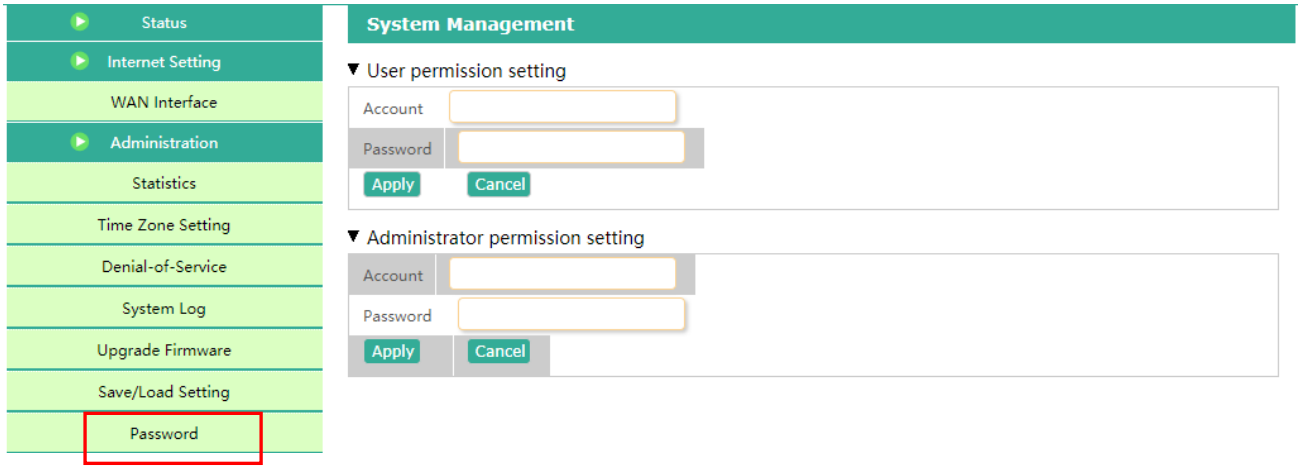
The password must be greater than or equal to 6 digits.

It cannot be the same as the account and cannot be 123456.

Default username and password (Applicable to versions after 0.0.0.83 (inclusive))

The administrator's username: operator; Password: the last six digits of IEEE

The customer's username: admin; Password: the last six digits of IEEE



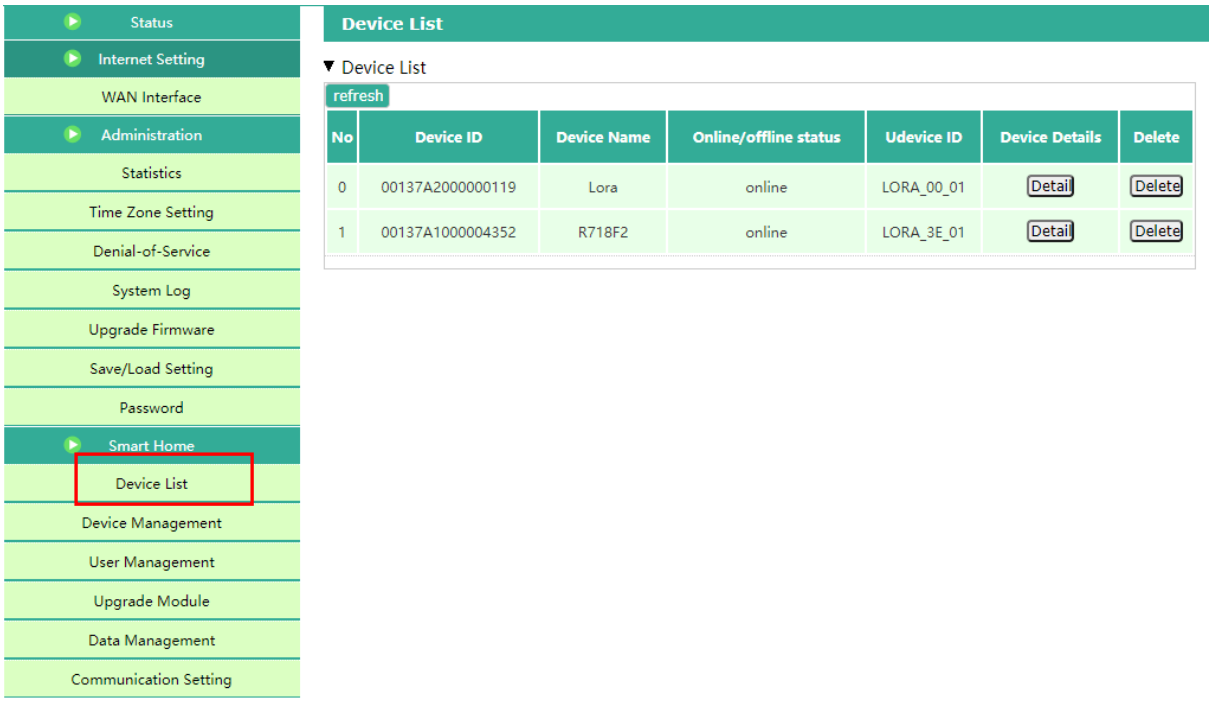
*When user forgets the password, please press and hold the reset button of R207 hardware for 5 seconds and release it to restore the factory setting.

6.4 Smart Home

6.4.1 Device List

Click [Device List] to view current device information, including Device ID (IEEE), Device name, online/offline status, etc.

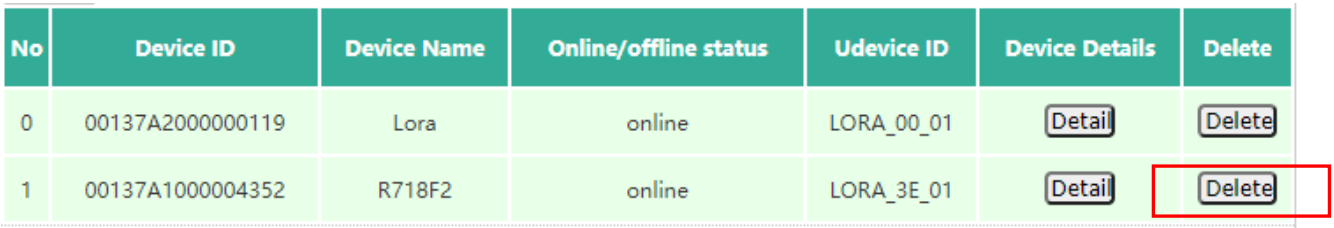
* When using for the first time, please power on the end device one by one and refresh the device list to see if all items appear on the list



Click [Detail] to view the detail device information.

No	Device ID	Device Name	Online/offline status	Udevice ID	Device Details	Delete
0	00137A2000000119	Lora	online	LORA_00_01	Detail	Delete
1	00137A1000004352	R718F2	online	LORA_3E_01	Detail	Delete

Click [Delete] to delete the device.



No	Device ID	Device Name	Online/offline status	Udevice ID	Device Details	Delete
0	00137A2000000119	Lora	online	LORA_00_01	Detail	Delete
1	00137A1000004352	R718F2	online	LORA_3E_01	Detail	Delete

6.4.2 Device Management

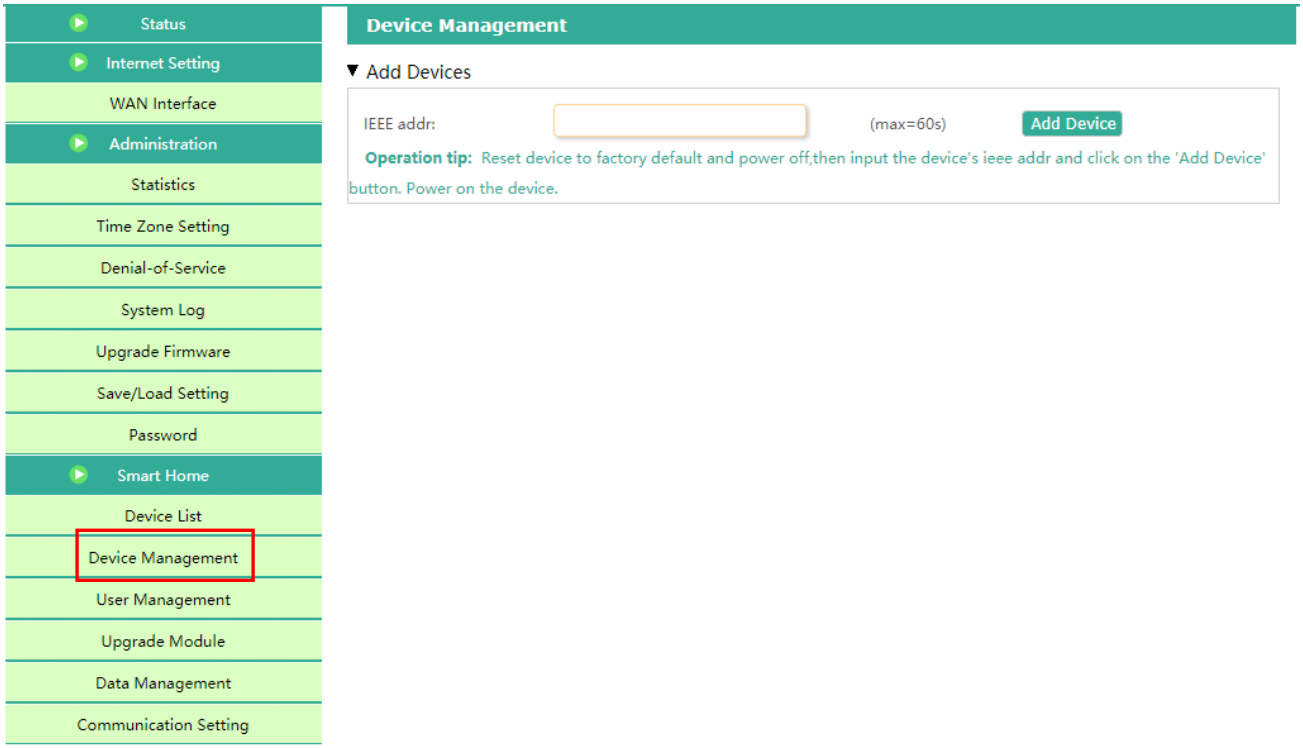
Click [Device Management] and “Add Devices” will appear.

Please enter the IEEE (DevEUI) of the device that will be added.

After filling, click [Add Device], and the network will start. Each time that can join in the network is 60 seconds, and the user can refresh the device list to view whether the device has joined in the network.

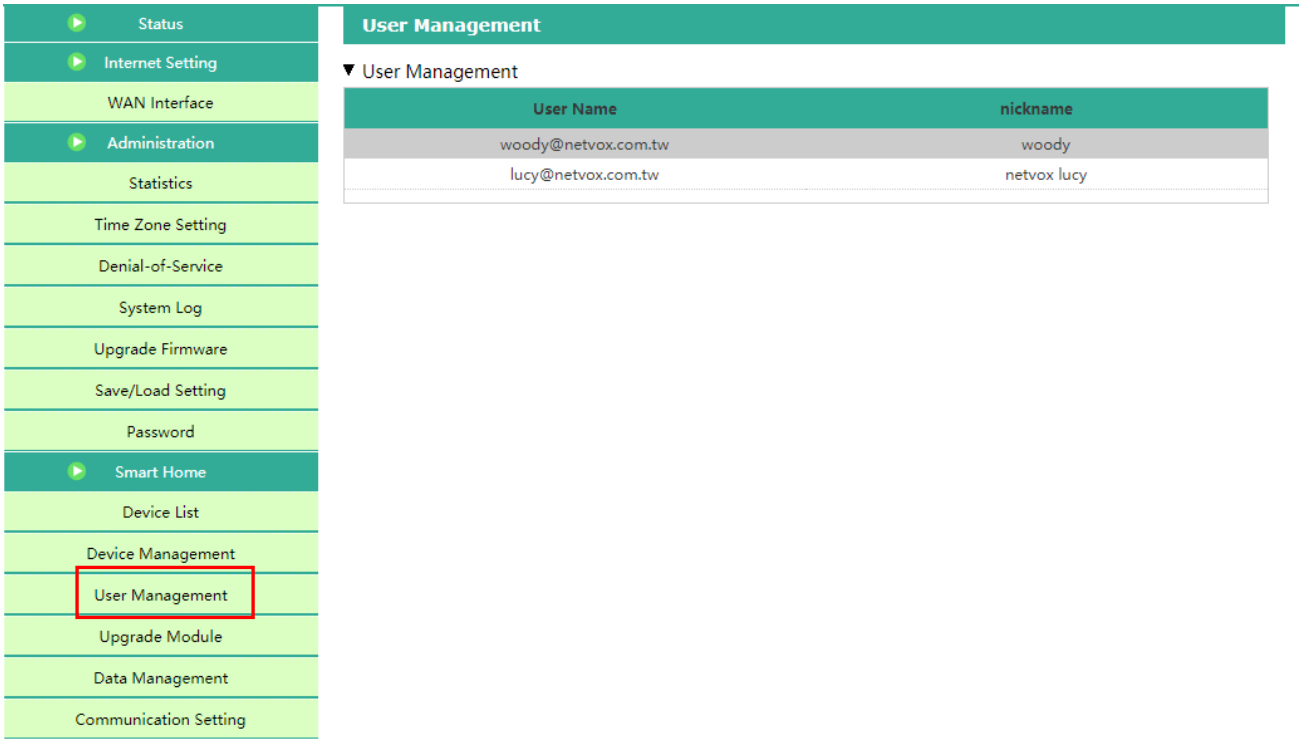
*Operation tip:

Reset device to factory default and power off, then input the device's IEEE Add. and click on the 'Add Device' button. Power on the device.



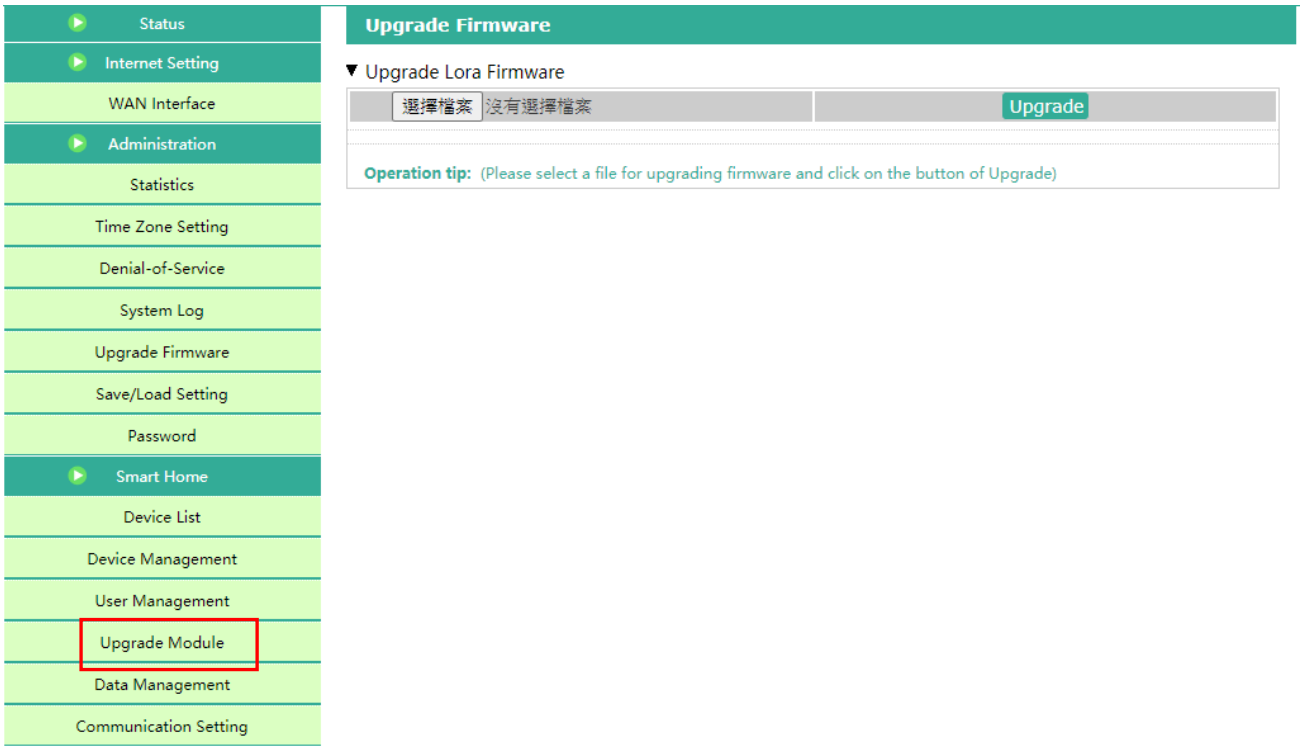
6.4.3 User Management

Display the list of users



6.4.4 Upgrade Module

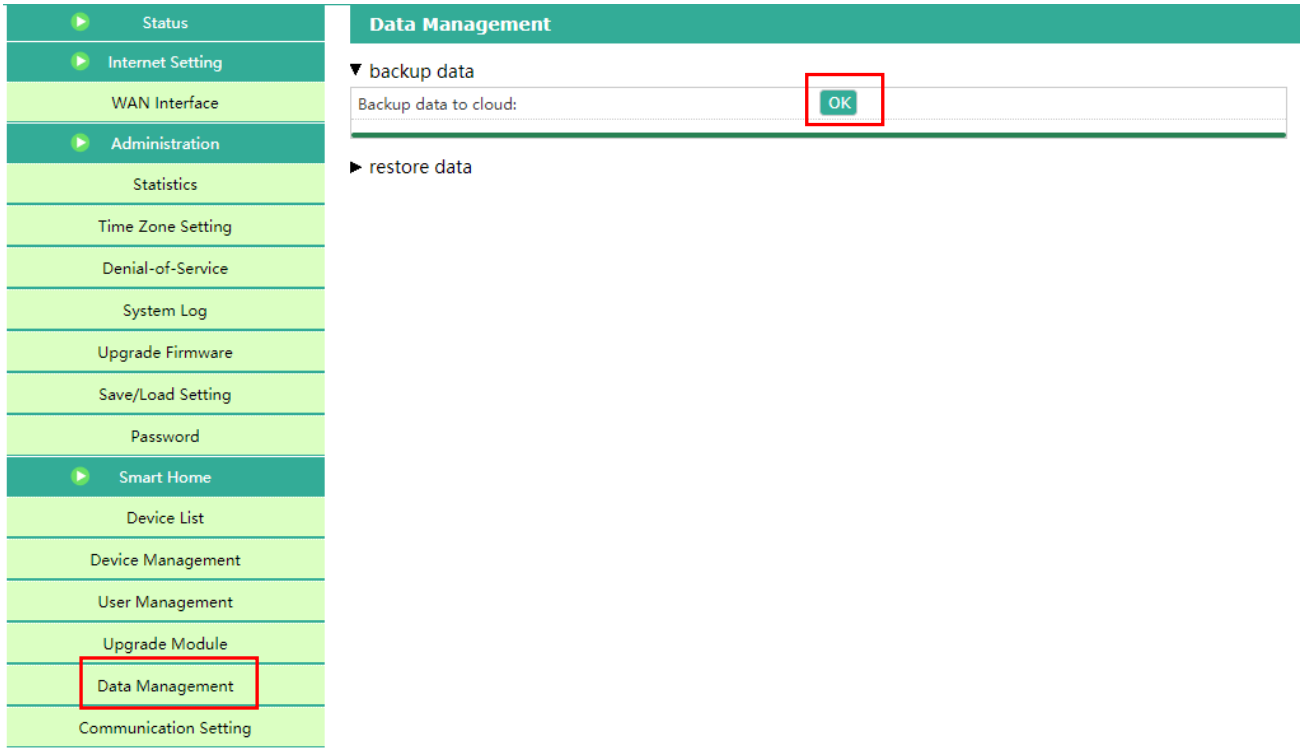
Please select a file for upgrading LoRa Module firmware and click on the button of Upgrade

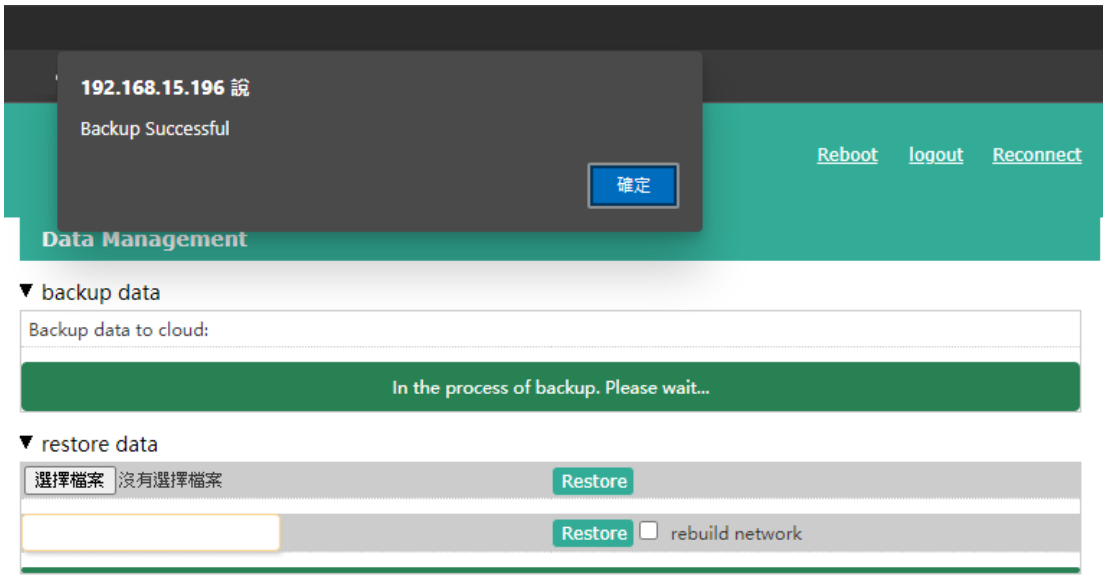


*Do not turn off the power when updating the LoRa Module firmware.

6.4.5 Data Management

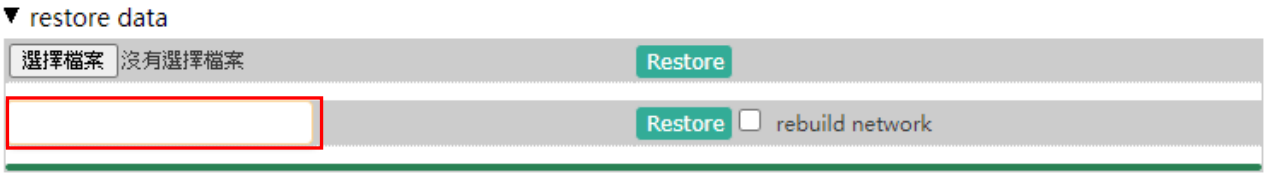
Click “OK” under [backup data] to back up user data and can back up to the cloud.

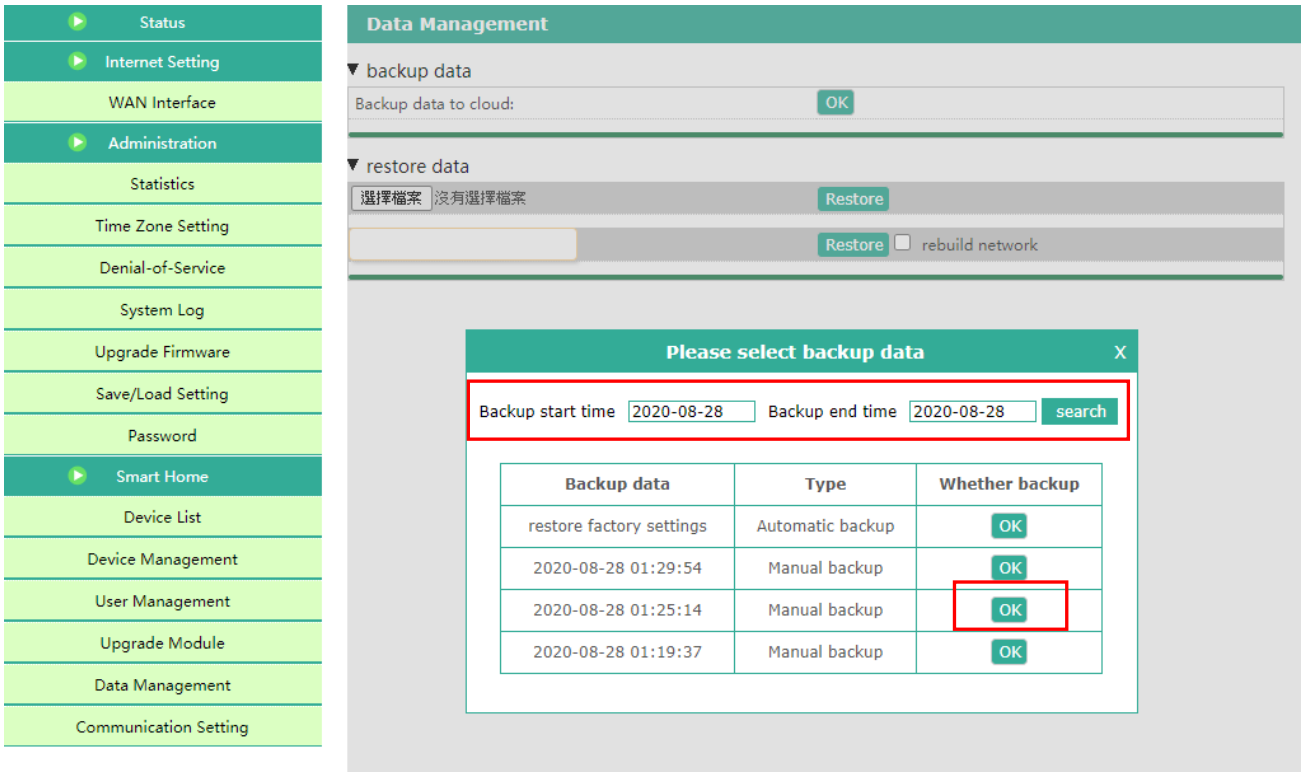




In [restore data], user can restore the backup data. Click the blank box of [Cloud Restore] and select the data during the backup period that want to query, and then click the "Search" button. All the backup data during this period will be listed. Then, click the one you want to restore, it will load the cloud backup data.

*This method is also suitable for data restoration operations when the gateway is abnormally replaced by a new gateway.





6.4.6 Communication Setting

▼ Amend Secret Key

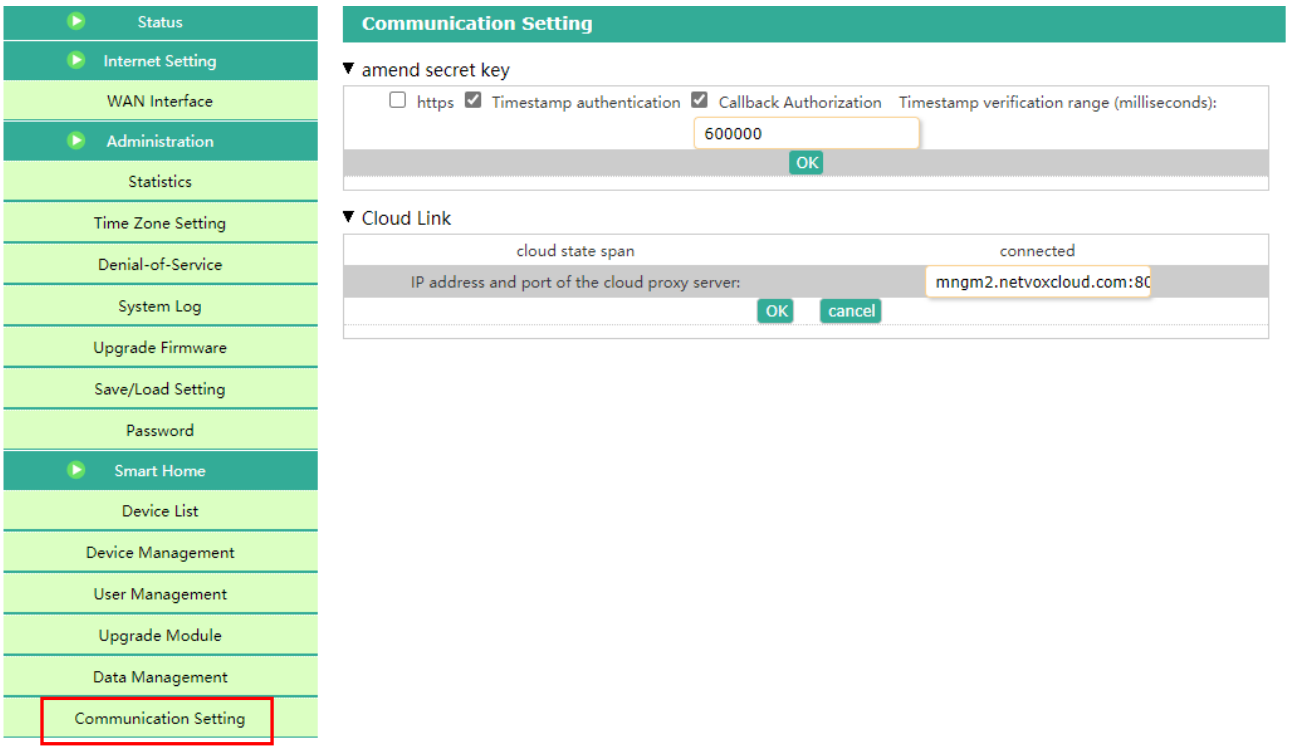
□ Https: Https transfer protocol

□ Timestamp authentication:

The timestamp verification is enabled according to the factory setting and can communicate normally within about 10 minutes (600000ms). When the gateway time and the computer time are incorrectly deviant by 10 minutes, it will appear timestamp verification time-out.

□ Callback Authorization:

Permission verification is enabled according to factory default, and user does not need to modify this content.



▼ Cloud Link

Cloud state span: cloud connection state

IP address and port of the cloud proxy server: **mngm2.netvoxcloud.com:80 (for overseas)**

* Modifying to another URL may cause the gateway failing to connect to the cloud.

* If the network is normal and the cloud URL is entered correctly, but it still fails to connect to the cloud, please check whether the [Time Zone Setting] is consistent with the computer system time.

6.4.7 System Settings

Enable https and timestamp, set cloud proxy server or MQTT

A. https

Enable/ Disable https

B. Timestamp authentication

The factory setting defaults that “Timestamp authentication” is selected. If the gateway time is incorrectly deviated by 10 minutes from the local time, the timestamp authentication will be timeout.

The factory setting defaults that timestamp authentication is 10 minutes. Namely, only if the time lag between the gateway time and the local time is within plus and minus 10 minutes, the communication can be normal.

C. Callback Authorization

The factory setting defaults that “Callback Authorization” is selected. Therefore, users do not need to modify it.

D. Cloud Connection

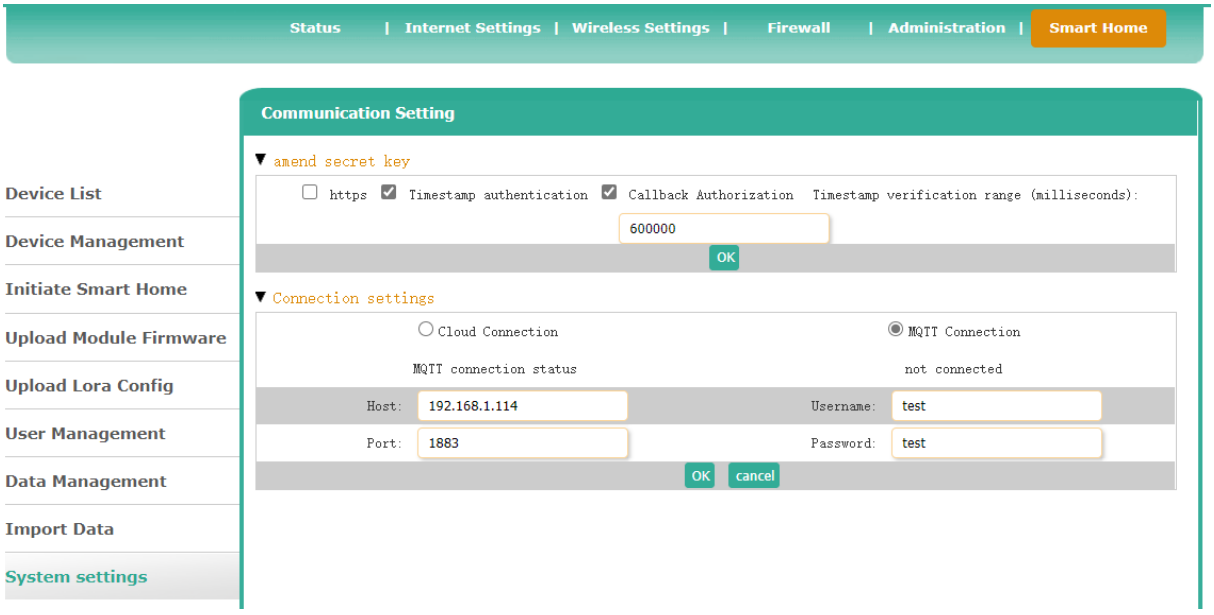
Default Cloud Address: mngm2.netvoxcloud.com:80

* Modifying to other URLs may cause the gateway to fail to connect to the cloud.

E. MQTT Connection

Please enter MQTT Host IP, Port, Username, and Password.

Note: MQTT messages are encrypted. The user needs to be authorized the GW REST API before using. For the related matters, please contact the sales executive.



7. Important Maintenance Instructions

Kindly pay attention to the following in order to achieve the best maintenance of the product:

- Keep the device dry. Rain, moisture, or any liquid might contain minerals and thus corrode electronic circuits. If the device gets wet, please dry it completely.
- Do not use or store the device in dusty or dirty environment. It might damage its detachable parts and electronic components.
- Do not store the device under excessive heat condition. High temperature can shorten the life of electronic devices, destroy batteries, and deform or melt some plastic parts.
- Do not store the device in places that are too cold. Otherwise, when the temperature rises to normal temperature, moisture will form inside, which will destroy the board.
- Do not throw, knock or shake the device. Rough handling of equipment can destroy internal circuit boards and delicate structures.
- Do not clean the device with strong chemicals, detergents or strong detergents.
- Do not apply the device with paint. Smudges might block in the device and affect the operation.
- Do not throw the battery into the fire, or the battery will explode. Damaged batteries may also explode.

All of the above applies to your device, battery and accessories. If any device is not working properly, please take it to the nearest authorized service facility for repair.