

Advantech AE Technical Share Document

| | | | |
|------------------------|--|-------------------|--------------|
| Date | 2021/08/12 | SR# | 1-3775490501 |
| Category | <input type="checkbox"/> FAQ <input checked="" type="checkbox"/> SOP | Related OS | N/A |
| Abstract | How to connect WISE-4610 with WISE-6610? | | |
| Keyword | WISE, LoRaWAN | | |
| Related Product | WISE-4610 series, WISE-6610 | | |

■ Problem Description:

This document shows that how to connect WISE-4610 with WISE-6610, and receive data result.



Figure 1. Topology of this scenario.

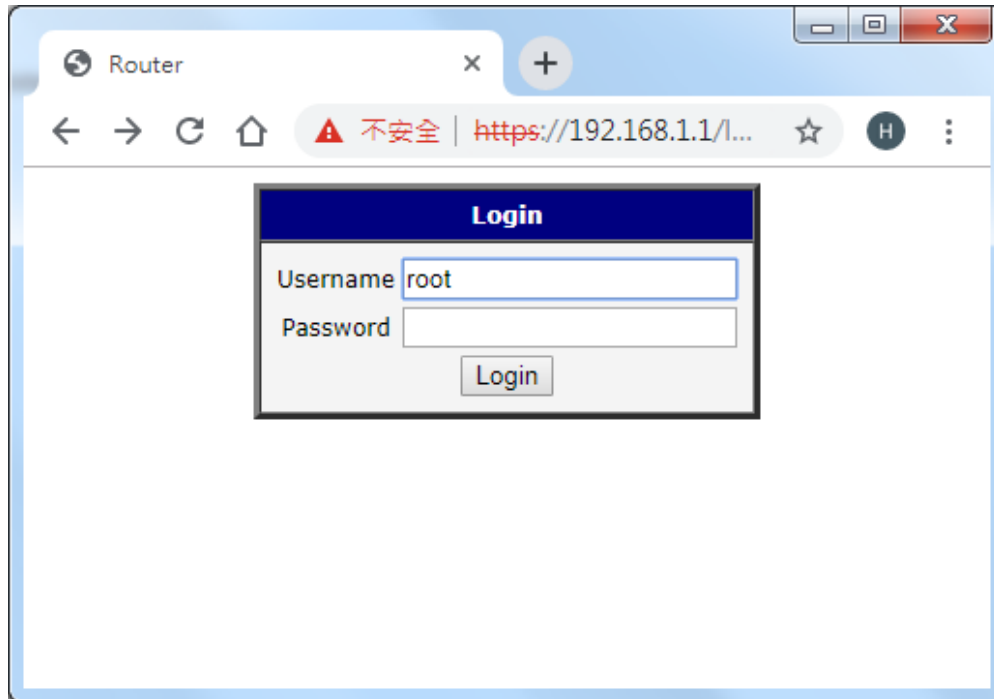
■ Brief Solution - Step by Step:

Step 1. Enter the WISE-6610 gateway.

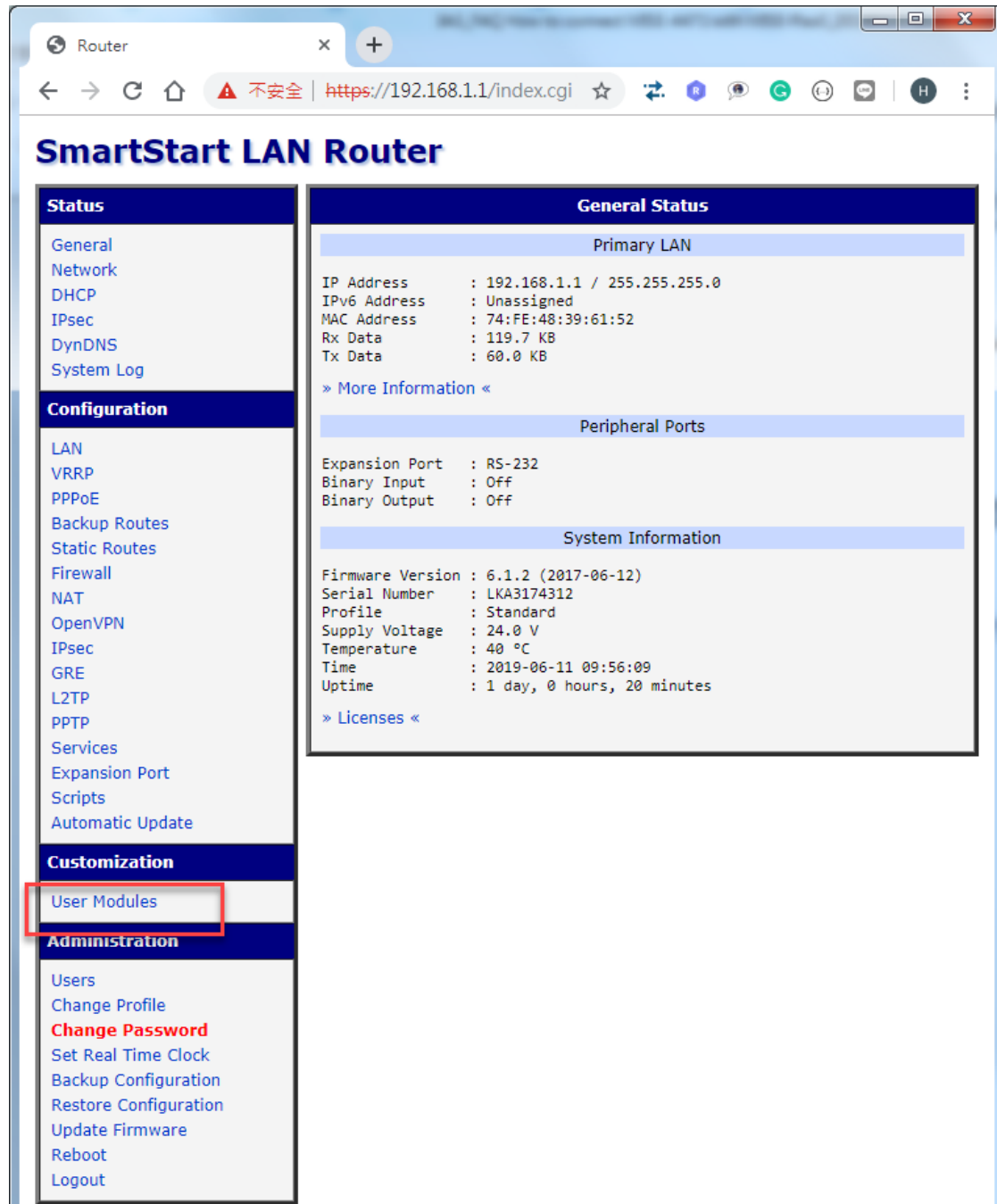
Default IP:192.168.1.1

Account: root

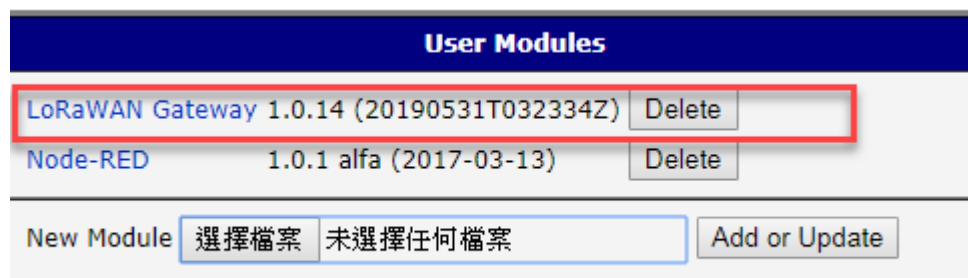
Password: root



Step 2. Go to “user mode”.



Step 3. If you need to upgrade the “LoRaWAN Gateway” function, **DELETE** first, then upload new file.



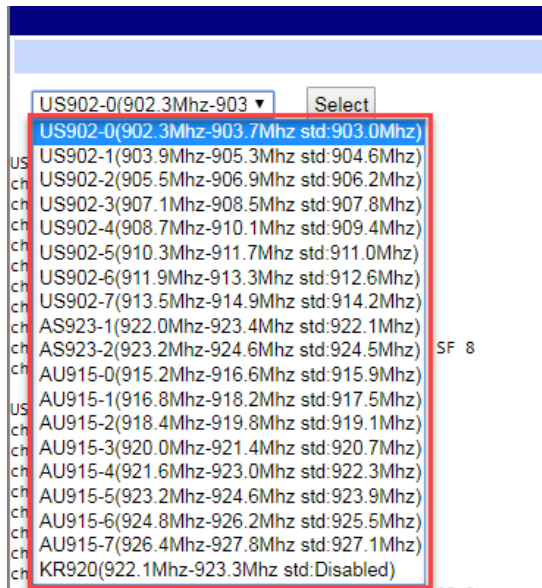
Step 4. Click “LoRaWAN Gateway” to enter the setting page.

Make sure all of these parameters are matching with the “RF module” setting on WISE-4610-Sxxx.

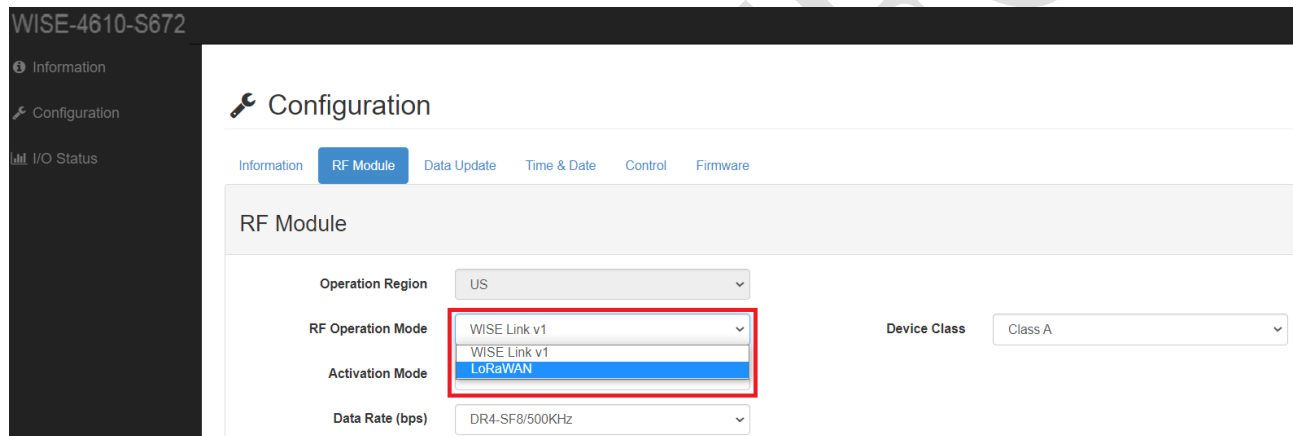
| LoRaWAN Gateway Settings | | | | | |
|---|------------------|---------------|-----------------|----------------|-------------|
| LoRaWAN Radio Setting | | | | | |
| Model Name | WISE-6610-N100-A | | | | |
| Radio Enable | On | | | | |
| Radio 0 Main Frequency(KHz) | 902700 | | | | |
| Radio 1 Main Frequency(KHz) | 903400 | | | | |
| Channel 00 | Enable | Radio Select | Offset(KHz) | | |
| Channel 01 | On | Radio 0 | -400 | | |
| Channel 02 | On | Radio 0 | -200 | | |
| Channel 03 | On | Radio 0 | 0 | | |
| Channel 04 | On | Radio 1 | 200 | | |
| Channel 05 | On | Radio 1 | -300 | | |
| Channel 06 | On | Radio 1 | -100 | | |
| Channel 07 | On | Radio 1 | 100 | | |
| Channel STD | Enable | Radio Select | Bandwidth | SF | Offset(KHz) |
| Channel FSK | On | Radio 0 | 500KHz | 8 | 300 |
| | Enable | Radio Select | Bandwidth | Datarate (bps) | Offset(KHz) |
| | Off | Radio 0 | 125KHz | 50000 | 0 |
| <input type="button" value="Quick Setup"/> Quick setting LoRaWAN Radio. | | | | | |
| LoRaWAN Gateway Setting | | | | | |
| LoRaWAN Gateway Identifier | AA555A0000000000 | | | | |
| Network server | IP address | Upstream Port | Downstream Port | | |
| Backup server | 127.0.0.1 | 1680 | 1680 | | |
| Backup Enable | Off | | | | |
| Backup Database Interval | 5 | | | | |
| <input type="button" value="Save"/> | | | | | |

Or click on “quick setup” for default setting.

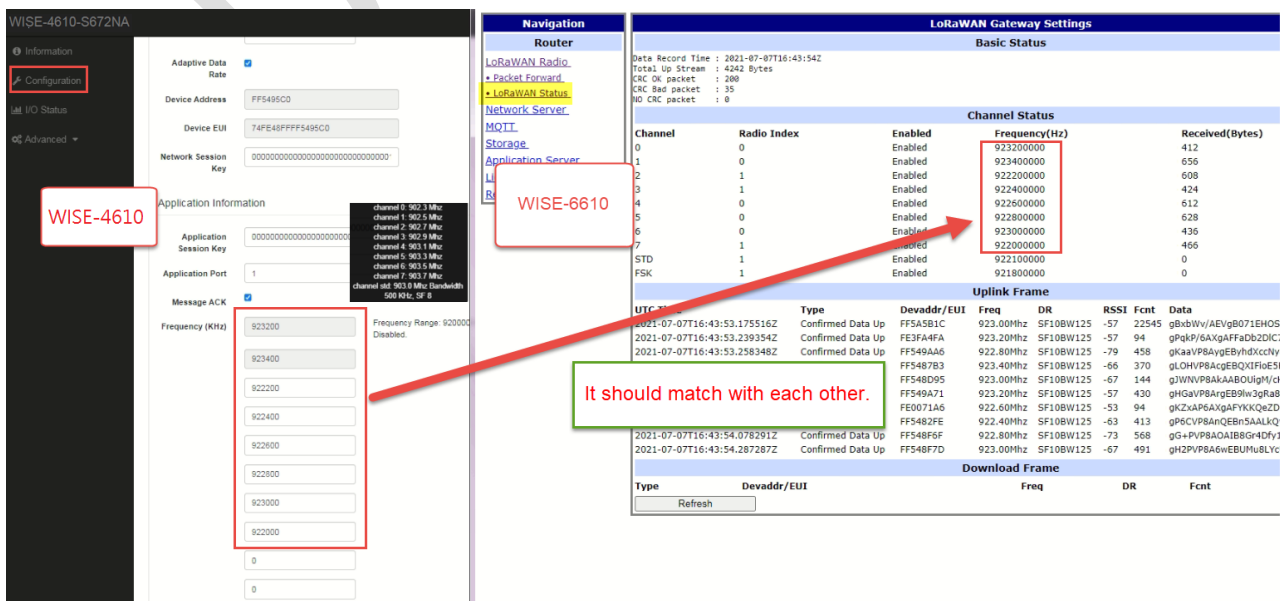
| | | |
|---|------------------|-------|
| Channel STD | On | Radio |
| Channel FSK | Off | Radio |
| <input type="button" value="Quick Setup"/> Quick setting LoRaWAN Radio. | | |
| LoRaWAN Gateway Identifier | AA555A0000000000 | |



Step 5. Go to “Configuration” of WISE-4610 in WISE-Studio. Select RF Operation Mode as “LoRaWAN”, and Reboot WISE-4610.



Step 6. Setup the LoRa frequency in WISE-6610, do the the “LoRaWAN Status” and copy-paste the frequency into the “RF” setting page of the WISE-4610.



Step 7. A new tab will pop-up after click on “network server” > “enable” > “network server (http)”.

Account: root

Password: root

| Navigation | |
|------------|--|
| Router | |
| 1 | LoRaWAN Radio |
| 2 | Network Server |
| 3 | Network Server(http) |
| | Network Server(https) |
| | Upload Database |
| | Download Database |
| | Factory Reset Database |
| | MQTT |
| | Application Server |
| | Licenses |
| | Return to Router |

| LoRaWAN Network Server Enable | |
|-------------------------------------|---|
| On | Enable LoRaWAN network server. |
| LoRaWAN Server Listen Port | |
| 1680 | The LoRa network server listen port number (1 - 65535). |
| LoRaWAN Network Server HTTP Port | |
| 8080 | The LoRaWAN network server HTTP port number (1 - 65535). |
| LoRaWAN Network Server HTTPS Port | |
| 8443 | The LoRaWAN network server HTTPS port number (1 - 65535). |
| LoRaWAN Web Username | |
| root | The user name for the LoRaWAN network server. |
| LoRaWAN Web Password | |
| root | The password for the LoRaWAN network server. |
| Auto ADR Count | |
| 50 | The count used to Auto ADR function. |
| LoRaWAN Network Server HTTPS Enable | |
| Off | Enable HTTPS service. |
| <input type="button" value="Save"/> | |

登入

http://192.168.1.1:8080

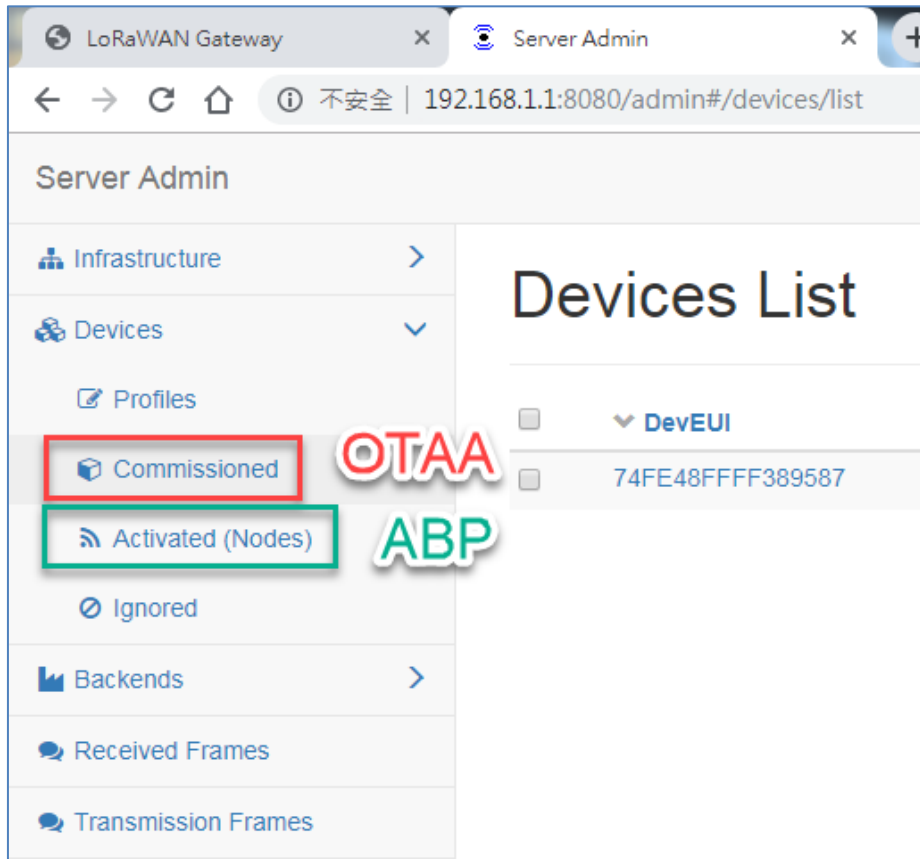
你與這個網站之間的連線不是私人連線

使用者名稱

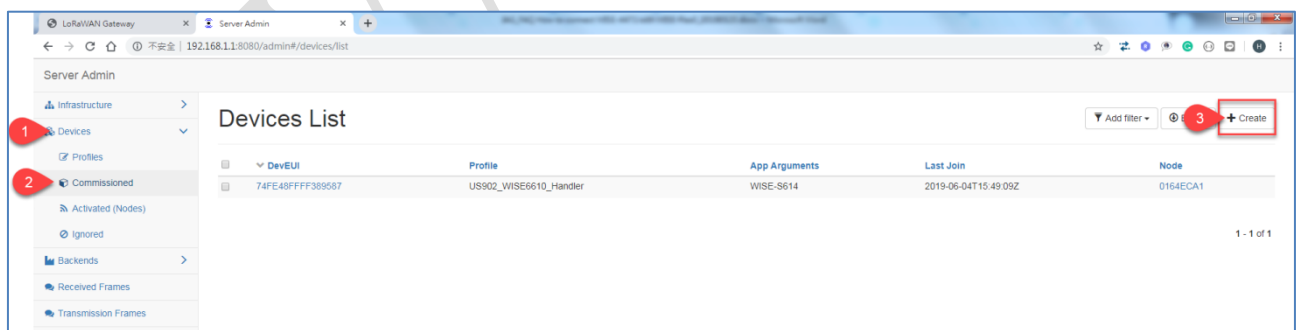
密碼

Step 8. Create an end node device.

- If select “**commissioned**”, which means the node will use **OTAA** mode for connecting with a gateway.
- If select “**active nodes**”, which means the node will use **ABP** mode for connecting with a gateway.



Click on “create” in devices.



Server Admin

- Infrastructure
 - Gateways
 - Networks
 - Multicast Channels
 - Events
- Devices
 - Profiles
 - Commissioned
 - Activated (Nodes)** ABP
 - Ignored
- Backends
- Received Frames
- Transmission Frames

Create new node

General

A DevAddr * FF38958D

B Profile * US902_WISE6610_Handler

C App Arguments WISE-S672

D NwkSKey * 00000000000000000000000000000011

E AppSKey * 00000000000000000000000000000011

FCnt Up

FCnt Down * 0

F

A. DevAddr: the device address of an end node.

- Copy-pate from WISE-4610 "RF module" tab.

WISE-4610-S672

- Information
- Configuration**
- I/O Status

Information **RF Module** Data Update

Positioning Firmware

RF Module

Operation Region US

RF Operation Mode LoRaWAN

Activation Mode ABP

Device Address FF38958D

B. Profile: select the model name of the WISE-6610 which used for Network Server role.

- In this demo, a US version is used to connect with WISE-4610NA version.

| Navigation | |
|-------------------------------|--|
| Router | |
| LoRaWAN Radio | |

| | |
|-------------------|------------------|
| Model Name | WISE-6610-N100-A |
|-------------------|------------------|

C. App Arguments: the I/O board of the end node.

- In this demo, the name: “**WISE-S672**” is used to connect with WISE-4610.

ONLY ALL BIG capital letter of name for “**WISE-S672**”.

DO NOT fill **WISE-4610-S672**, **WISE-4610**, **WISE-672** and **not with small capital**.

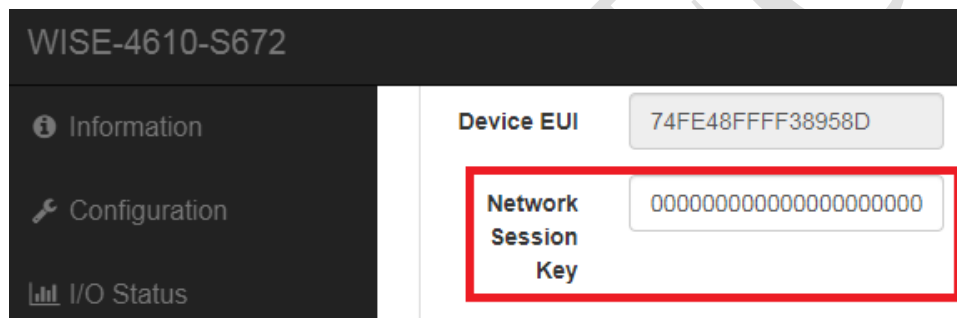
(※For example, please fill in “**WISE-S617**” as App Arguments if using

WISE-4610-S617TNA as node here.)



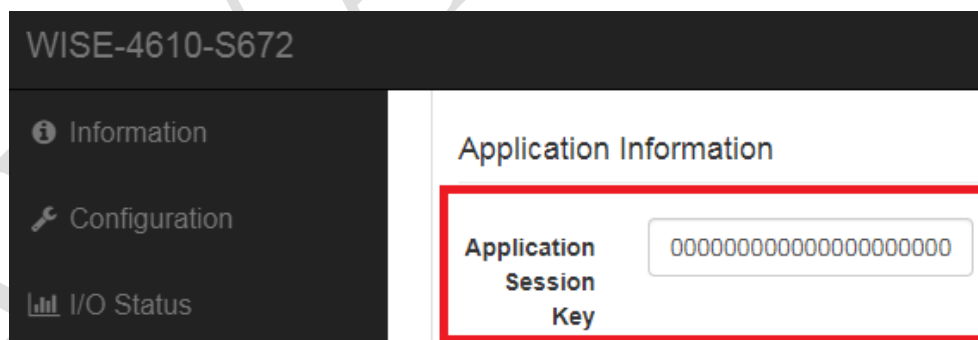
D. NwkSKey: the network service key address of an end node.

- Copy-pate from WISE-4610 “RF module” tab.



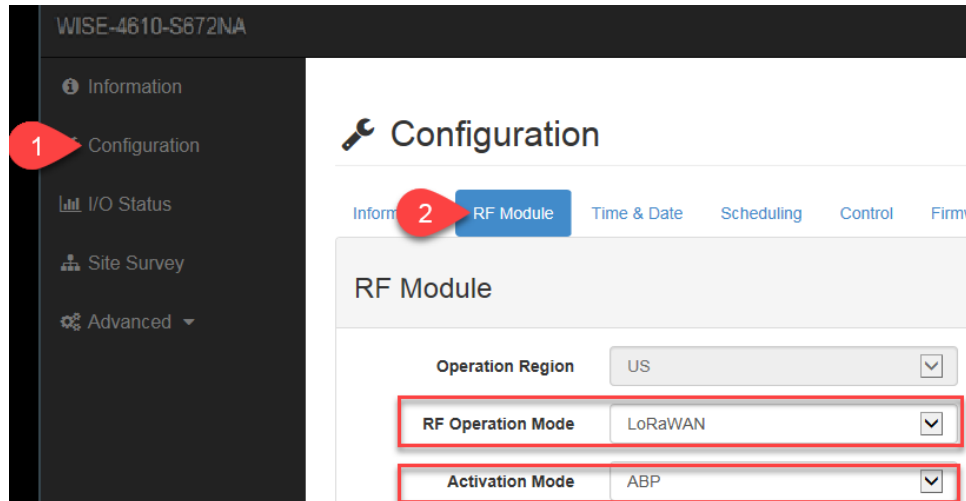
E. AppSKey: the application service key of an end node.

- Copy-pate from WISE-4610 “RF module” tab.

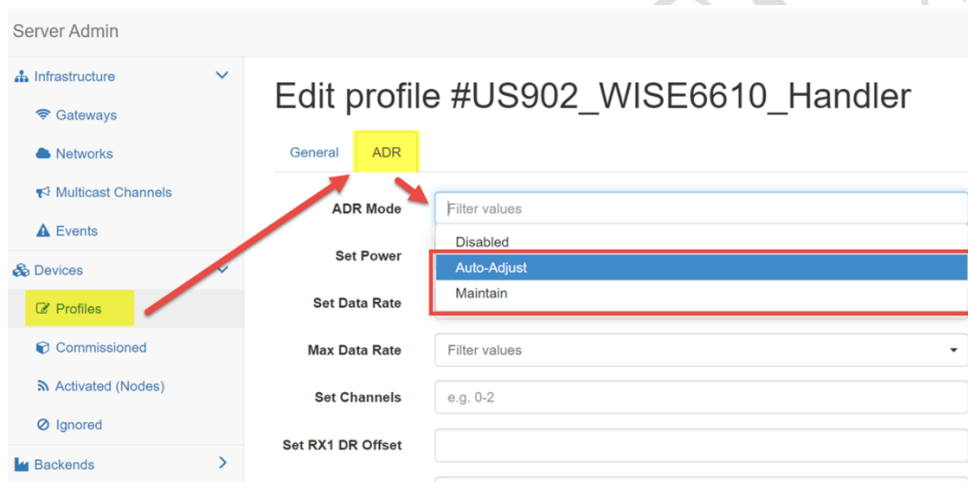


F. Click on “save” to finish the setting.

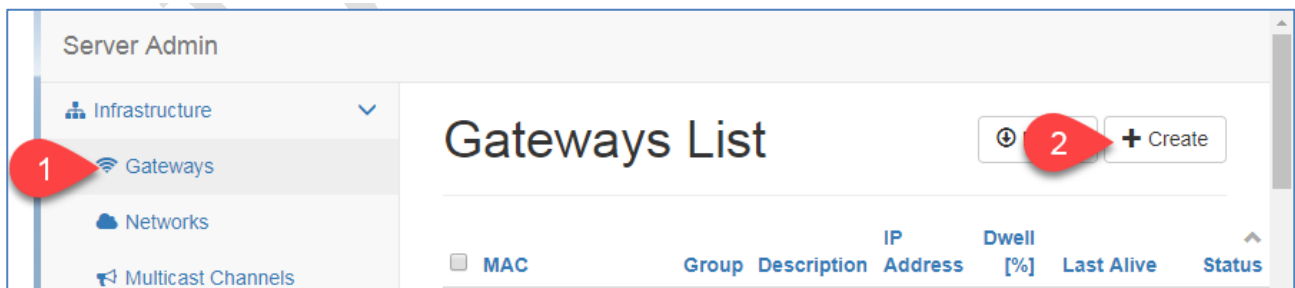
Step 9. Select “LoRaWAN” for RF operation mode setting on WISE-4610.



Step 10. Enable “profile ADR” as “auto-adjust”.



Step 11. Create a “network server” gateway. Copy-paste the MAC address from “LoRaWAN radio” > “LoRaWAN Gateway Identifier”.



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Router
[LoRaWAN Radio](#)
[Packet Forward](#)
[LoRaWAN Status](#)
[Network Server](#)
[MQTT](#)
[Application Server](#)
[Licenses](#)
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Model Name

Radio Enable

Radio 0 Main Frequency(KHz)

Radio 1 Main Frequency(KHz)

Channel 00

Channel 01

Channel 02

Channel 03

Channel 04

Channel 05

Channel 06

Channel 07

Channel STD

Channel FSK

Quick setting LoRaWAN Radio.

LoRaWAN Gateway Identifier

IP address

Network server

Backup server

Backup Enable

Backup Database Interval

Create new gateway

General

MAC *

Group

TX Chain *

Antenna Gain (dBi)

Description

Location *

Altitude

Location *

Google

This page can't load Google Maps correctly.

Do you own this website?

Map data ©2019 Google, INEGI, ORION-ME | Terms of Use

Step 12. Enable "time sync" for WISE-4610 RTC adjusting with WISE-6610 system time

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Router
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[Storage](#)
[Application Server](#)
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[Status](#)
[Modbus Mapping Table](#)
[Payload Engine](#)
[Licenses](#)
[Return to Router](#)

Modbus TCP Server

Enable the Modbus TCP Server.

Modbus TCP Server Port

The modbus TCP server port number (1 - 65535).

Modbus Timeout

The modbus TCP Timeout number (2 - 30).

Time Sync

Enable time sync for WISE-4610 and WISE-2410 series

RESTful Server Setting

Connection results:

1. Click “application server” > “status”. Here shows the end nodes if packets are received by gateway from an end node.

Navigation

- Router
- LoRaWAN Radio
- Network Server
- MQTT
- Application Server
- Settings
- Status
- Modbus Mapping Table
- Payload Engine
- Licenses
- Return to Router

LoRaWAN Gateway Settings

Application Server Status

MQTT Status : Connected
Node number : 2

Advantech LoRaWAN Node

| Index | DevAddr | Description | Model | Received | Fcnt | Rssi | Action |
|-------|----------|-------------|--------------|----------------------|------|------|---------------|
| 1 | 0164ECA1 | | WISE4610-614 | 2019-06-04T15:52:58Z | 44 | -28 | Delete Detail |
| 2 | FF389587 | | WISE4610-614 | 2019-06-04T16:15:20Z | 205 | -31 | Delete Detail |

Refresh Clear log

the nodes which successfully send data to GW.

2. The gateway will help to pre-parsing the data payload if the “app arguments” input correctly.

LoRaWAN Gateway Settings

Node Detail Data

DevAddr: FF389587

Sensor PowerSrc Battery Level

Device 1 0

Sensor Signal Logic Status Pulse Output Continue State Absolute Pulse Output Incremental Pulse Output

Digital Output 0 0 0 0

Sensor Counter Value Signal Logic Status Start Counter Status Get/Clean Counter Overflow Status Get/Clean L2H Latch Status Get/Clean H2L Latch Status

Digital input 0 0 1 1 0 0 0

Digital input 1 0 0 1 0 0 0

Sensor Range Value Event MaxVal MinVal Low Alarm Status High Alarm Status

Analog input 0 0x0143 32767 0 32768 32767 0 0

Analog input 1 0x0143 32767 0 32768 32767 0 0

Analog Input Average 0x0103 0 0 0 0 0 0 0

Index 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Coli Status port 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Coli Value port 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Index 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Coli Status port 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Coli Value port 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Index 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Reg Status port 1 17 17 0 17 17 0 0 0 0 0 0 0 0 0 0

Reg Value port 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Index 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Reg Status port 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Reg Value port 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Return

3. Received frames page shows the received results. The “FCnt” shows the frame sequence. If this sequence is in-continuously, means some of the packets were lost, did not received.

LoRaWAN Gateway

Server Admin

192.168.1.1:8080/admin#/rxframes/list

Server Admin

- Infrastructure
- Devices
- Backends
- Received Frames
- Transmission Frames

Received Frames

| Received | Application | DevAddr | MAC | U/L RSSI | U/L SNR | FCnt | Confirm |
|----------------------|------------------|----------|------------------|----------|---------|------|---------|
| 2019-06-11T11:32:06Z | WISE6610_Handler | FF19D12F | AA555A0000000000 | -69 | 9 | 211 | Yes |
| 2019-06-11T11:32:04Z | WISE6610_Handler | FF19D12F | AA555A0000000000 | -67 | 6.5 | 210 | Yes |
| 2019-06-11T11:31:53Z | WISE6610_Handler | FF19D12F | AA555A0000000000 | -65 | 5.2 | 209 | Yes |
| 2019-06-11T11:30:38Z | WISE6610_Handler | FF19D12F | AA555A0000000000 | -71 | 7.2 | 204 | Yes |
| 2019-06-11T11:29:40Z | WISE6610_Handler | FF19D12F | AA555A0000000000 | -71 | 8.8 | 200 | Yes |