| Document Number | BQW_02_0026.001 |
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# MiniHub Pro

# GUI Configuration Guide

# Index

# Release History

| Date | Version | Author | Comment |
|---|---|---|---|
| 2020/09/08 | 1.1 | Joey<br>Jason | ● Draft release. |
| 2020/12/08 | 1.2 | Joey<br>Jason<br>Crux<br>Demy | ● Update some screenshots.<br>● Add chapter "2. Enable Browan's OTA Server Daily Checking".<br>● Add the LED behavior table.<br>● Browan 1st release, DOC # BQW_02_0026.001 |
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**BROWAN**

# About this Document

MiniHub Pro supports either Semtech UDP packet forwarder and LoRa Basics™ Station. This starting guide will show you how to configure the MiniHub Pro.

# 1. WiFi Connect to MiniHub Pro

1.1 Power on the MiniHub Pro and connect to WiFi SSID. The SSID format should be MiniHubPro-XXXXXX. You can find the WiFi information from the device label.

1.2   When connected to MiniHubPro-XXXXXX AP, it will open the setup page automatically. If the web page doesn't open automatically, please use Firefox or Chrome to open **"192.168.4.1"** manually.

Web Service: Connected.

**MiniHubPro Setting**

STEP 1. SET OTA MODE

Configure OTA Mode

STEP 2. SET LORA

Configure LoRa Setting

STEP 3. SET NETWORK

Add SSID manually

CHOOSE A NETWORK:

| crux | 🔒 🛜 |
| AP-F3CE17 | 🛜 |
| AP-F3CE32 | 🛜 |
| BROWAN_MIS_2.4G | 🔒 🛜 |
| Alex-2.4G | 🔒 🛜 |
| BROWAN_MIS | 🔒 🛜 |
| -andrlin | 🔒 🛜 |

# 2. Enable Browan's OTA Server Daily Checking

2.1  Click the "Configure OTA Mode" to open the setting page.
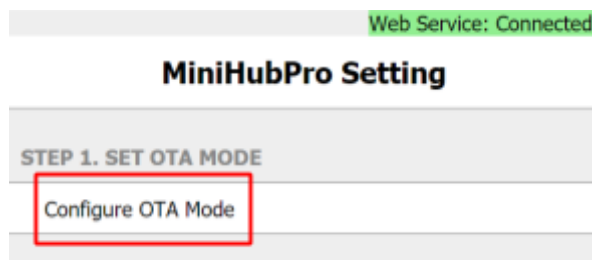


2.2  The default setting is disabled. Please switch to "Enable" and click the "Save" button.
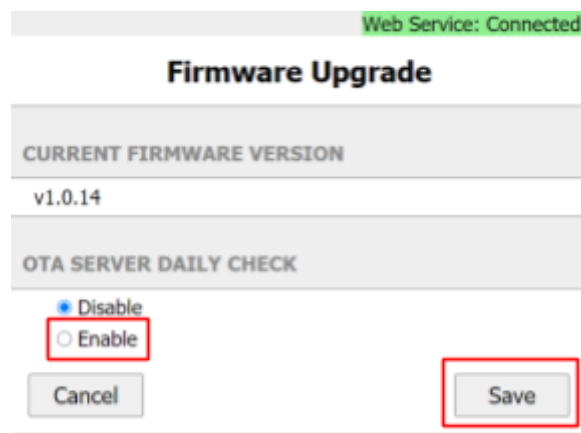


When everything is OK, the web will show the "Success!" message.

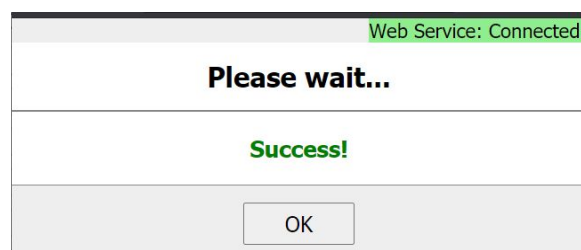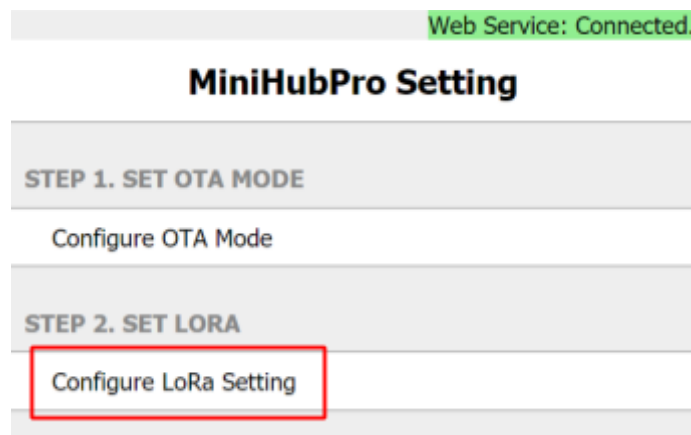# 3. LoRa Configuration

## 3.1 Packet Forwarder Mode Configuration

3.1.1   Click the "Configure LoRa Setting" to open the setting page.



3.1.2   On the "Configure LoRa Setting" page, please select
**"LoRa Packet Forwarder"**.
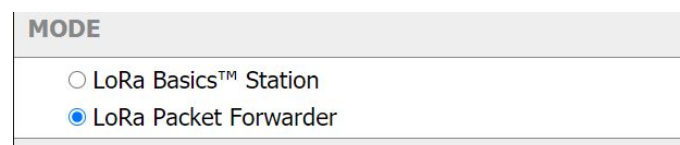


3.1.3   LoRa Packet Forwarder Mode

Here you can set up the "Gateway Info" / "Frequency" / "LBT Settings". We
use the "The Things Network" public server in this guide.

REF:
*https://www.thethingsnetwork.org/docs/gateways/packet-forwarder/semtech-udp.html#router-configuration*

## 3.1.4 Gateway Info

You could set up the LNS address and the uplink/downlink port here.

**Gateway Info**

Gateway ID: 000080029C59CA58
Server Address:

router.us.thethings.network

Server Uplink Port (1~65535):

1700

Server Downlink Port (1~65535):

1700

Keep Alive Interval (seconds):

10

Statistics Display Interval (seconds):

30

Push Timeout (milliseconds):

100

Please use the "Gateway ID" info to register the gateway on the TheThingNetwork server.

REF: *https://www.thethingsnetwork.org/docs/gateways/registration.html*

## 3.1.5 Frequency

The RX frequency is calculated with the radio central frequency and the offset value. Each channel could be enabled/disabled individually.  And please do not make the offset value to be over the range.

**Radio 0 Settings**

Central Frequency (Hz):

904300000

**Radio 1 Settings**

Central Frequency (Hz):

905000000

**Channel Assignment**

☑ Enable Channel 0
Radio Interface:     ⦿ radio 0    ○ radio 1
Center Frequency Offset (Hz):

-400000

☑ Enable Channel 1
Radio Interface:     ⦿ radio 0    ○ radio 1
Center Frequency Offset (Hz):

-200000

☑ Enable Channel 2
Radio Interface:     ⦿ radio 0    ○ radio 1
Center Frequency Offset (Hz):

0

☑ Enable Channel 3
Radio Interface:     ⦿ radio 0    ○ radio 1
Center Frequency Offset (Hz):

200000

☑ Enable Channel 4
Radio Interface:　○ radio 0　● radio 1
Center Frequency Offset (Hz):

-300000

☑ Enable Channel 5
Radio Interface:　○ radio 0　● radio 1
Center Frequency Offset (Hz):

-100000

☑ Enable Channel 6
Radio Interface:　○ radio 0　● radio 1
Center Frequency Offset (Hz):

100000

☑ Enable Channel 7
Radio Interface:　○ radio 0　● radio 1
Center Frequency Offset (Hz):

300000

☑ Enable Lora Standard Channel
Radio Interface:　● radio 0　○ radio 1
Center Frequency Offset (Hz):

300000

Channel Bandwidth (Hz):
○ 250K　● 500K
Channel Spread Factor:
○ SF7　● SF8　○ SF9　○ SF10

You could find the TTN Frequency Plan here:

REF:
*https://www.thethingsnetwork.org/docs/lorawan/frequency-plans.html#us902-928*

### 3.1.6 LBT Setting

For some regions(e.q. JP), the gateway must enable the LBT function. And the LBT channels were calculated from the RX frequency.



### 3.1.7 Please click the "Save" button to save these configurations.



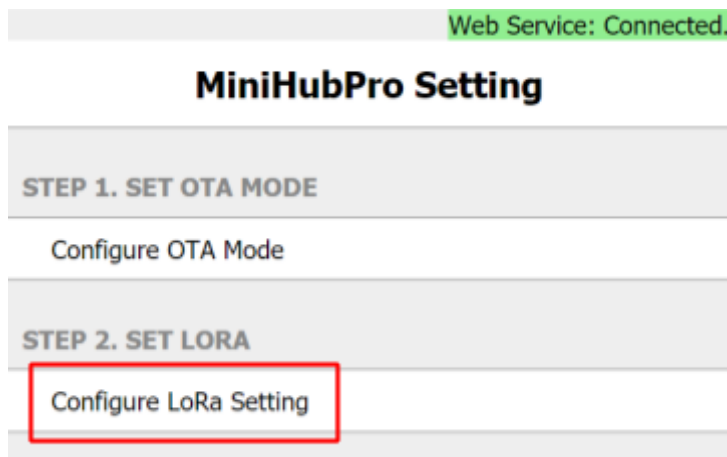When everything is OK, the web will show the "Success!" message.



**Click the "OK" button to redirect to the WiFi configuration page.**

# 3.2 LoRa Basics™ Station Mode Configuration

LoRa Basics™ Station supports CUPS mode and LNS mode.

3.2.1    Click the "Configure LoRa Setting" to open the setting page.



3.2.2    On the "Configure LoRa Setting" page, please select
**"LoRa Basics™ Station"**.

**BROWAN**
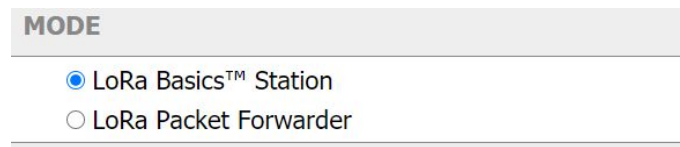
3.2.3   Please use the "Gateway EUI" info to register the gateway on the network server.

### 3.2.4 CUPS Mode

Under the CUPS mode, you could choose the "Boot" or "Regular" type. Here you can input the CUPS URI and upload the credentials. Gateway uses the uri and credentials(if needed) to communicate with CUPS.

☑ Enable CUPS

**CUPS**

Type:  ⦿ Boot   ○ Regular
CUPS URI:

https://s2.sm.tc:7007

☑ Install CUPS Trust [installed]
Choose File  No file chosen
☑ Install CUPS CRT [installed]
Choose File  No file chosen
☑ Install CUPS Key [installed]
Choose File  No file chosen

### 3.2.5 LNS Mode

Under the LNS mode, the basic station could communicate with LNS directly. Here you can input the LNS URI and upload the credentials. Gateway uses the uri and credentials(if needed) to communicate with LNS.

Please make sure the CUPS URI field is emptied and all of the CUPS credential checkboxes are unchecked before saving the configurations.

**LNS**

LNS URI:

wss://browan.eu1.cloud.thethings.industries:8887

☑ Install LNS Trust [non-install]
Choose File  LE_DST_ROOT_CA_X3.pem
☐ Install LNS CRT [non-install]
Choose File  No file chosen
☑ Install LNS Key [non-install]
Choose File  tc_80029C59CA58.key

### 3.2.6    Please click the "Save" button to save these configurations.

When everything is OK, the web will show the "Success!" message.
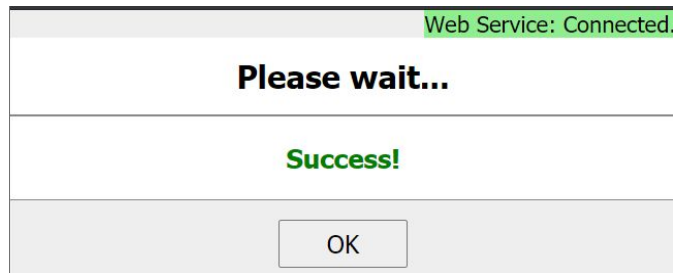
**Click the "OK" button to redirect to the WiFi configuration page.**

# 4. MiniHub Pro WiFi Configuration

4.1 Choose one of the WiFi APs which you prefer to connect to the internet. You also can add SSID manually by yourself on this page.

Choose one of the WiFi APs.



Input the SSID password if needed. And click the "Join" button.

Web Service: Connected.

## Please wait...

CONNECTING TO BOX_BOX

WiFi starts connecting...
AP mode will be disabled after connection successful.
Please check status from LED.

OK

AP mode will be disabled after connection successful, so please check the status from LED behavior as below.

| Colors | Blink Pattern | Description |
|--------|---------------|-------------|
| Orange | Blinking 1 sec | Waiting for configuration. |
| Orange | Blinking 1/4 sec | WiFi station is connecting to the root AP. |
| Green | Blinking 1/4 sec | WiFi station connected, establishing the connection to CUPS & LNS. |
| Green | Solid | WiFi station connected, ready to receive LoRa. |

# Troubleshooting

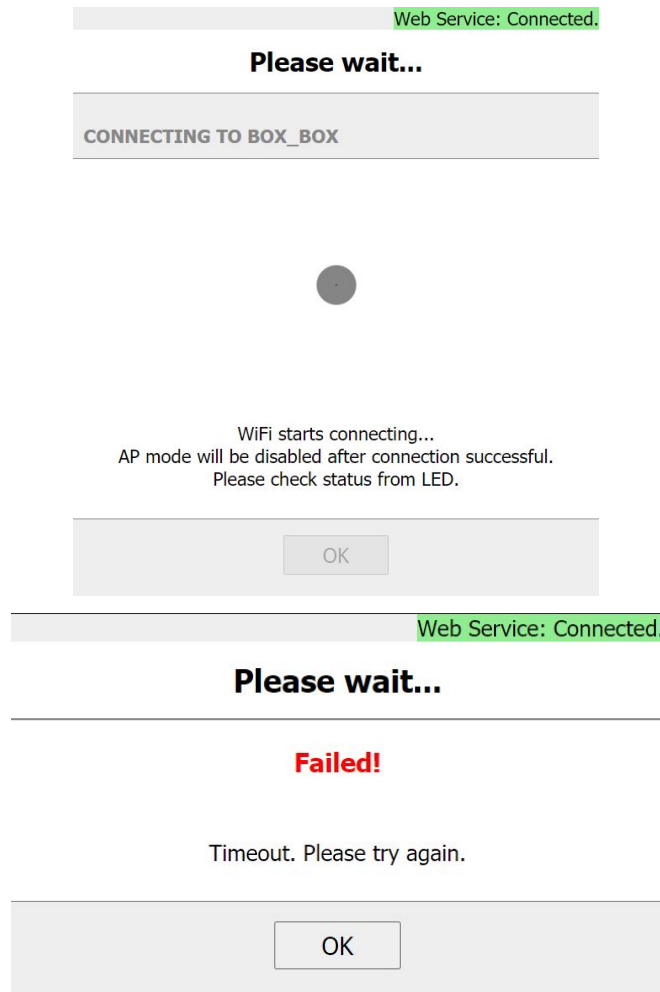1. Data Loss while sending the configuration to the MiniHub Pro.

Web Service: Connected.
**Please wait...**

**Failed!**

Data loss while sending.

OK
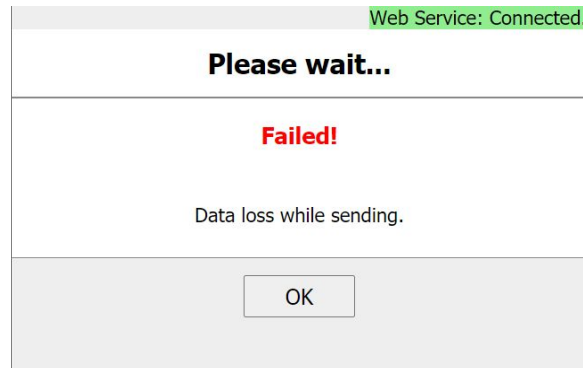
Solution:
Please reconfigure again.

2. GUI always shows "Please wait" and the Web Service status is Disconnected.

Web Service: Disconnected.
**Please wait...**

Reading configuration from the device...

Cancel
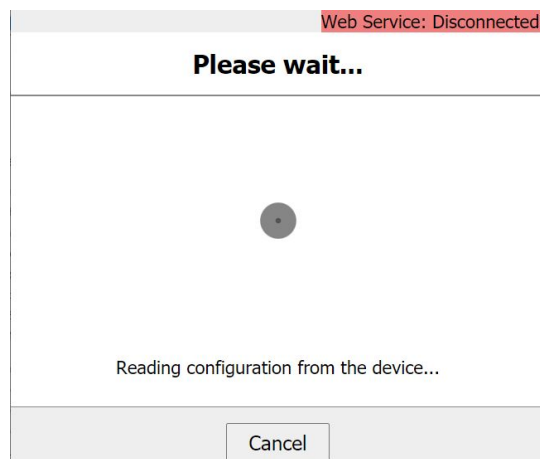
Solution:
Please check the WiFi connection first.
If the WiFi is connected but still could not get the response, suggest to power off/on and reconfigure the MiniHub Pro again.

3. GUI always shows "Please wait" and the Web Service status is Connected.

Web Service: Connected.

**Please wait...**

CONNECTING TO BOX_BOX

WiFi starts connecting...
AP mode will be disabled after connection successful.
Please check status from LED.

OK

Web Service: Connected.

**Please wait...**

**Failed!**

Timeout. Please try again.

OK

Solution:

If the WiFi is connected but still could not get the response, suggest to power off/on and reconfigure the MiniHub Pro again.

4. WiFi connection failed.
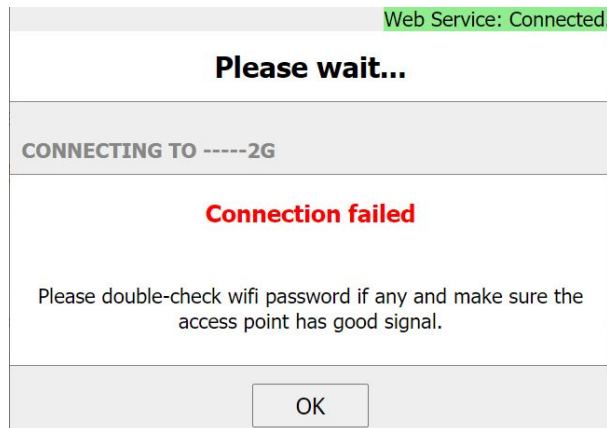


Solution:

Please check if the AP Password is correct or not. And reconfigure again.

5. MiniHub Pro is WiFi Station mode and you want to reconfigure it.

Solution:

Hold the "RESET" button for over 5 seconds. MiniHub Pro will restore to default. You could reconfigure it again.

# Appendix

### A. Register Gateway(**Packet Forwarder**) on TheThingNetwork Public Network.

### A-1　Gateway Console

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A-2　MiniHub Pro connected to the TTN server.

## B. Register Gateway(**Basic Station**) on The Things Industries Network.

### B-1   Gateway Console

No.15-1, Zhonghua Rd., Hsinchu Industrial Park,
Hukou, Hsinchu, Taiwan, R.O.C. 30352
Tel: +886-3-6006899
Fax: +886-3-5972970

## B-2　MiniHub Pro connected to the TTI server.