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MiniHub Pro

GUI Configuration Guide

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Release History

Date	Version	Author	Comment
2020/09/08	1.1	Joey Jason	<ul style="list-style-type: none"> ● Draft release.
2020/12/08	1.2	Joey Jason Crux Demy	<ul style="list-style-type: none"> ● Update some screenshots. ● Add chapter "2. Enable Browan's OTA Server Daily Checking". ● Add the LED behavior table. ● Browan 1st release, DOC # BQW_02_0026.001

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

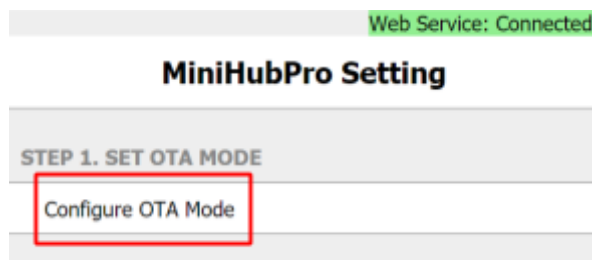
Add SSID manually

CHOOSE A NETWORK:

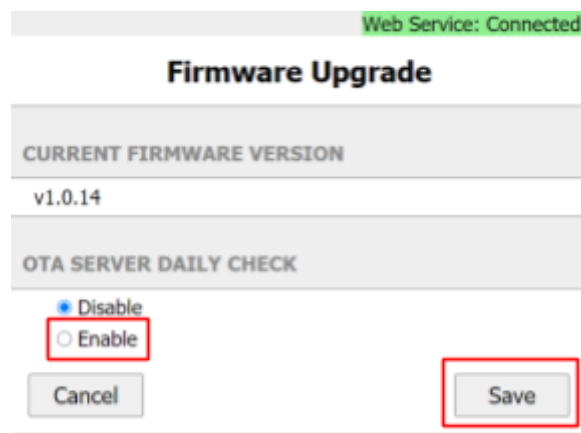
crux	 
AP-F3CE17	
AP-F3CE32	
BROWAN_MIS_2.4G	 
Alex-2.4G	 
BROWAN_MIS	 
-andrlin	 

2. Enable Browan's OTA Server Daily Checking

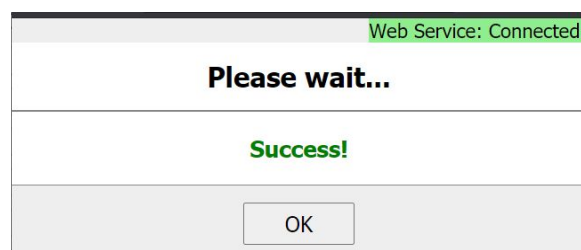
2.1 Click the "Configure OTA Mode" to open the setting page.



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



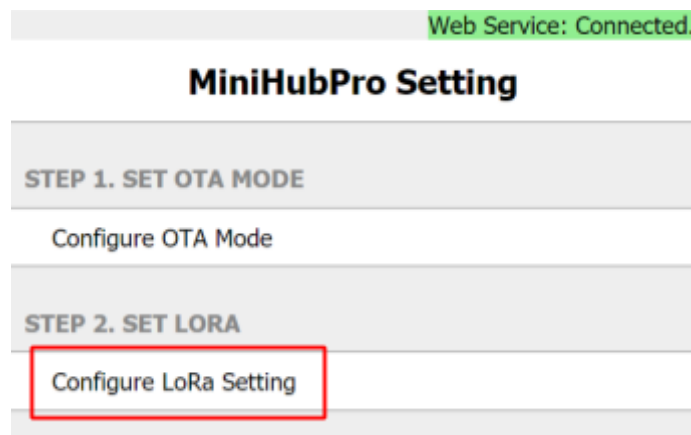
When everything is OK, the web will show the "Success!" message.



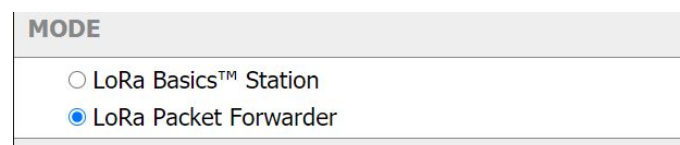
3. LoRa Configuration

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:	<input type="text" value="router.us.thethings.network"/>
Server Uplink Port (1~65535):	<input type="text" value="1700"/>
Server Downlink Port (1~65535):	<input type="text" value="1700"/>
Keep Alive Interval (seconds):	<input type="text" value="10"/>
Statistics Display Interval (seconds):	<input type="text" value="30"/>
Push Timeout (milliseconds):	<input type="text" value="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):

Radio 1 Settings

Central Frequency (Hz):

Channel Assignment

Enable Channel 0

Radio Interface: radio 0 radio 1

Center Frequency Offset (Hz):

Enable Channel 1

Radio Interface: radio 0 radio 1

Center Frequency Offset (Hz):

Enable Channel 2

Radio Interface: radio 0 radio 1

Center Frequency Offset (Hz):

Enable Channel 3

Radio Interface: radio 0 radio 1

Center Frequency Offset (Hz):



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.

Enable LBT
RSSI Target (dBm):

Frequency (Hz): 903900000
Scan Time: 128 us 5000 us

Frequency (Hz): 904100000
Scan Time: 128 us 5000 us

Frequency (Hz): 904300000
Scan Time: 128 us 5000 us

Frequency (Hz): 904500000
Scan Time: 128 us 5000 us

Frequency (Hz): 904700000
Scan Time: 128 us 5000 us

Frequency (Hz): 904900000
Scan Time: 128 us 5000 us

Frequency (Hz): 905100000
Scan Time: 128 us 5000 us

Frequency (Hz): 905300000
Scan Time: 128 us 5000 us

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

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

Web Service: Connected.

Please wait...

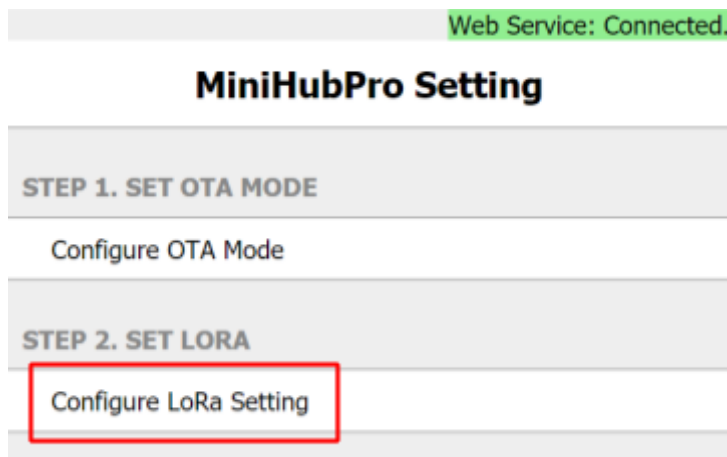
Success!

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

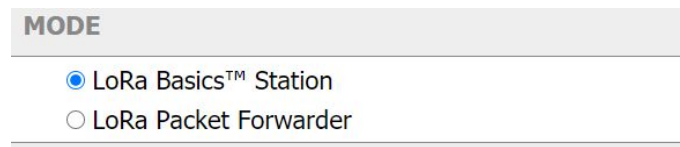
3.2 LoRa Basics™ Station Mode Configuration

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".



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

LORA BASICS™ STATION

Gateway EUI: 80029CFFFE59CA58

Enable CUPS

CUPS

Type: Boot Regular

CUPS URI:

Install CUPS Trust [installed]
 No file chosen

Install CUPS CRT [installed]
 No file chosen

Install CUPS Key [installed]
 No file chosen

LNS

LNS URI:

Install LNS Trust [non-install]
 No file chosen

Install LNS CRT [non-install]
 No file chosen

Install LNS Key [non-install]
 No file chosen

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:

Install CUPS Trust [installed]

No file chosen

Install CUPS CRT [installed]

No file chosen

Install CUPS Key [installed]

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:

Install LNS Trust [non-install]

LE_DST_ROOT_CA_X3.pem

Install LNS CRT [non-install]

No file chosen

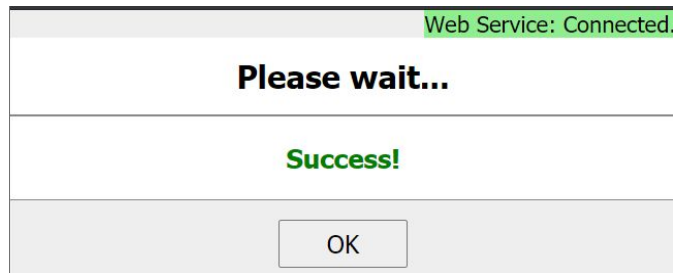
Install LNS Key [non-install]

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.

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	 

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

Web Service: Connected.

Enter Password

PASSWORD FOR BOX_BOX

.....



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.

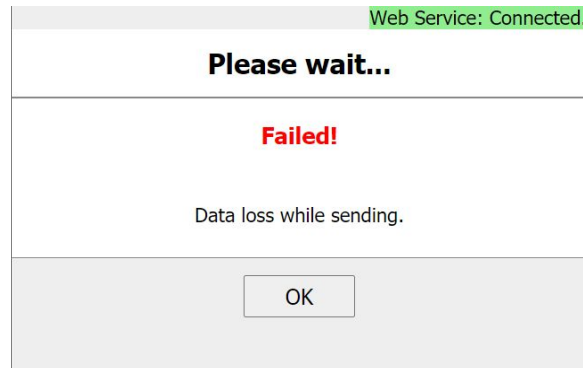
OK

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.

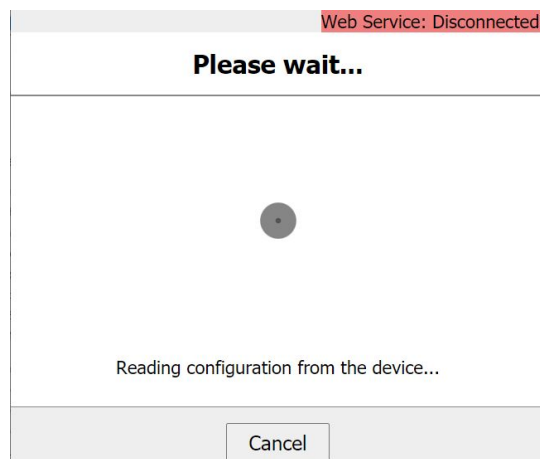
Troubleshooting

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



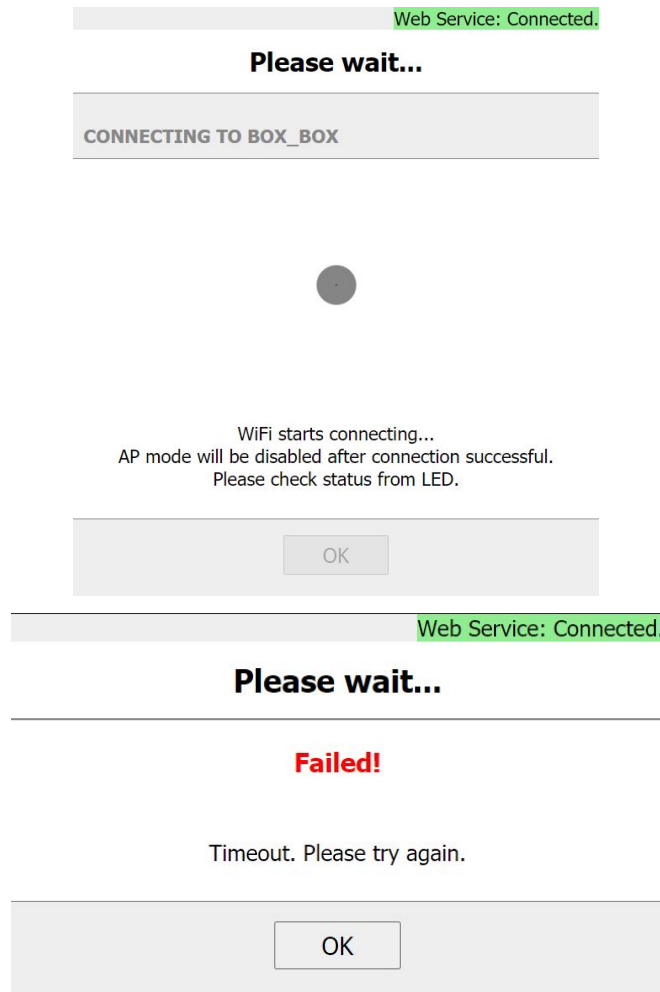
Solution:
Please reconfigure again.

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



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.

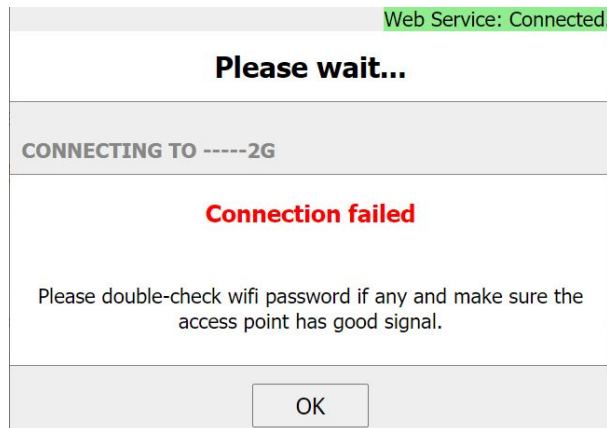
3. GUI always shows “Please wait” and the Web Service status is Connected.



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

REGISTER GATEWAY

Packet Forwarder Gateway ID

Gateway EUI
The EUI of the gateway as read from the LoRa module

 8 bytes


I'm using the legacy packet forwarder
Select this if you are using the legacy [Semtech packet forwarder](#).

Description
A human-readable description of the gateway

Frequency Plan
The [frequency plan](#) this gateway will use

Router
The router this gateway will connect to. To reduce latency, pick a router that is in a region which is close to the location of the gateway.

Location
The exact location of your gateway. This will be used if your gateway cannot determine its location by itself. Set a location by clicking on the map.




lat 0.00000000
lng 0.00000000

Antenna Placement
The placement of the gateway antenna

 indoor outdoor

Cancel Register Gateway

A-2 MiniHub Pro connected to the TTN server.


Gateways >  eui-000080029c59ca58

Overview Traffic Settings

GATEWAY OVERVIEW ⚙ settings

Gateway ID eui-000080029c59ca58


Description 000080029c59ca58

Owner  joey_ho [Transfer ownership](#)

Status connected

Frequency Plan United States 915MHz

Router ttn-router-us-west

Gateway Key 

Last Seen 25 seconds ago

Received Messages 16503

Transmitted Messages 13586

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

B-1 Gateway Console



Add gateway

General settings

Owner

Gateway ID **Basic Station Gateway EUI**

Gateway EUI

Gateway Name

Gateway description

Optional gateway description; can also be used to save notes about the gateway

Gateway Server address

The address of the Gateway Server to connect to

Gateway status Public
The status of this gateway may be publicly displayed

Attributes
Attributes can be used to set arbitrary information about the entity, to be used by scripts, or simply for your own organization

LoRaWAN options

Frequency plan

The frequency plan used by the end device

B-2 MiniHub Pro connected to the TTI server.

THE THINGS STACK Cloud Hosted Overview Applications Gateways Organizations Jason

Gateways > 80029C59CA58

80029C59CA58

80029C59CA58

Last seen 28 seconds ago ↑ 3 ↓ 0 1 Collaborator 1 API key Created 5 hours ago

General information

Gateway ID: 80029c59ca58

Gateway EUI: 80029CFFFE59CA58

Gateway description: 80029C59CA58

Created at: Sep 7, 2020 16:53:12

Last updated at: Sep 7, 2020 17:20:52

Gateway Server address: browan.eu1.cloud.thethings.industries

LoRaWAN information

Frequency plan: US_902_928_FSB_2

Live data

See all activity →

- 22:08:41 Drop uplink message
- 22:08:41 Forward uplink message
- 22:08:41 Receive uplink message
- 22:07:06 Forward uplink message
- 22:07:06 Drop uplink message

Location

Change location settings →

