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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

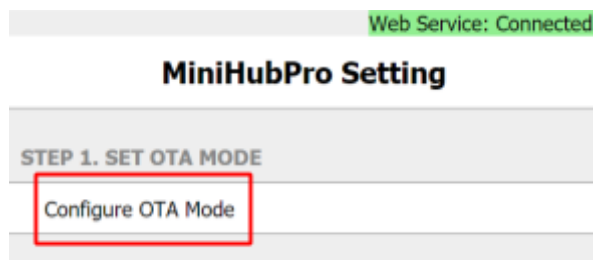
- 1.1 Power on the MiniHub Pro and connect to WiFi SSID. The SSID format should be MiniHubPro-XXXXXX. You can find the WiFi information from the device label.



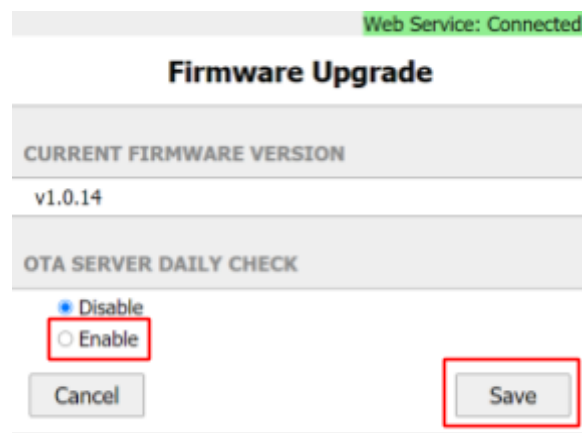
- 1.2 When connected to MiniHubPro-XXXXXX AP, it will open the setup page automatically. If the web page doesn't open automatically, please use Firefox or Chrome to open "**192.168.4.1**" manually.

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.

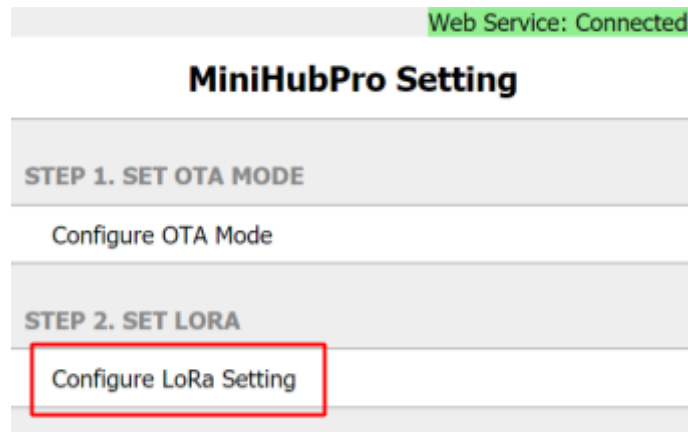


When everything is OK, the web will show the "Success!" message.

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:

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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.

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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:

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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.

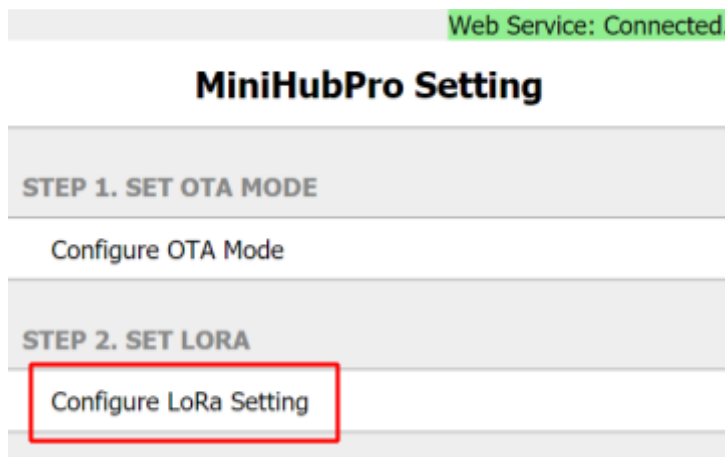
When everything is OK, the web will show the "Success!" message.

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

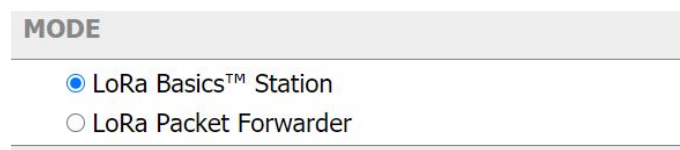
3.2 LoRa Basics™ Station Mode Configuration

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

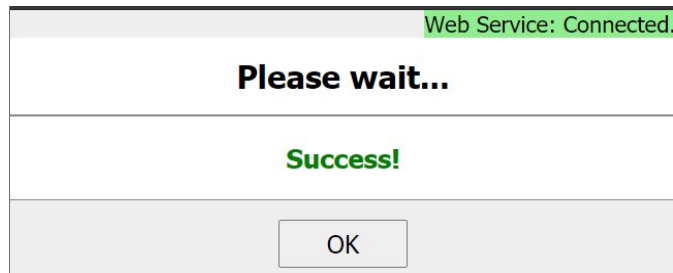
Install LNS Key [non-install]

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.



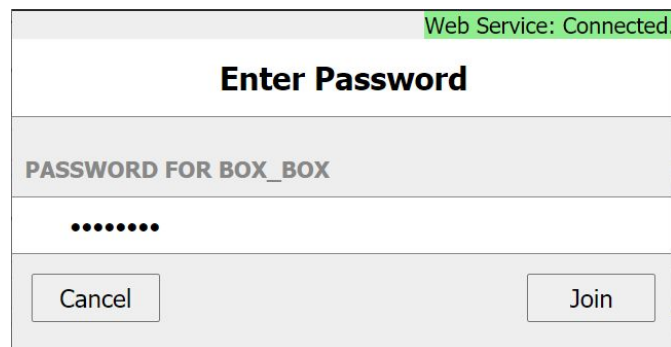
Click the "OK" button to redirect to the WiFi configuration page.

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.

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



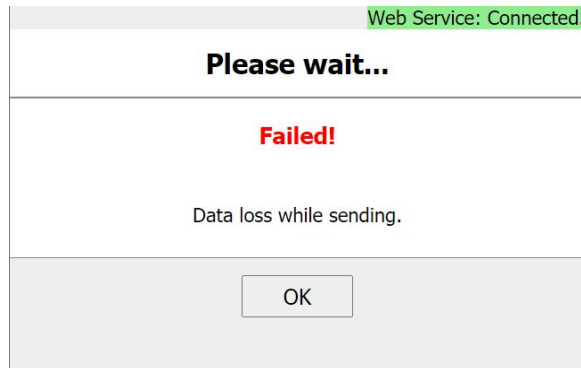
The screenshot shows a dialog box titled "Enter Password". At the top right, there is a green status bar that says "Web Service: Connected.". Below the title, the text "PASSWORD FOR BOX_BOX" is displayed. Underneath, there is a password input field containing seven dots. At the bottom of the dialog, there are two buttons: "Cancel" on the left and "Join" on the right.

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.

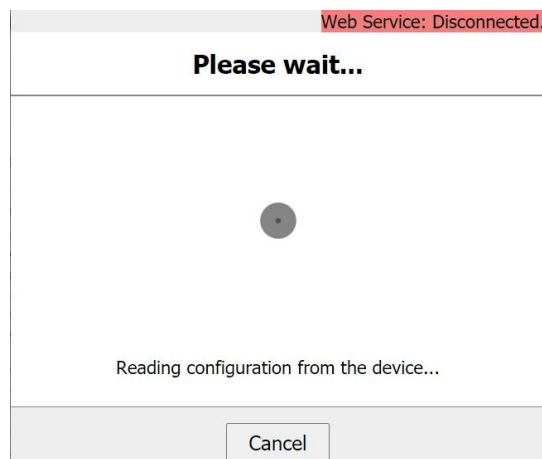
Troubleshooting

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



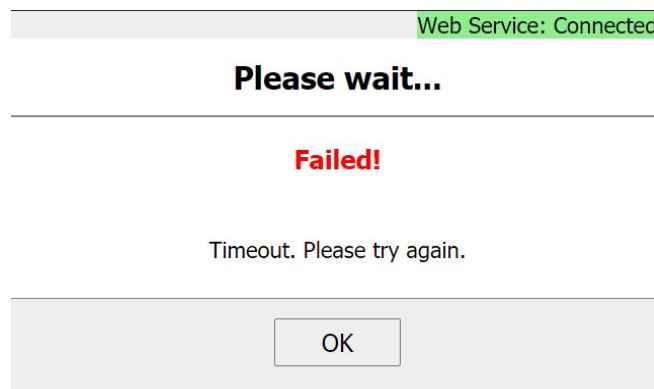
Solution:
Please reconfigure again.

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.

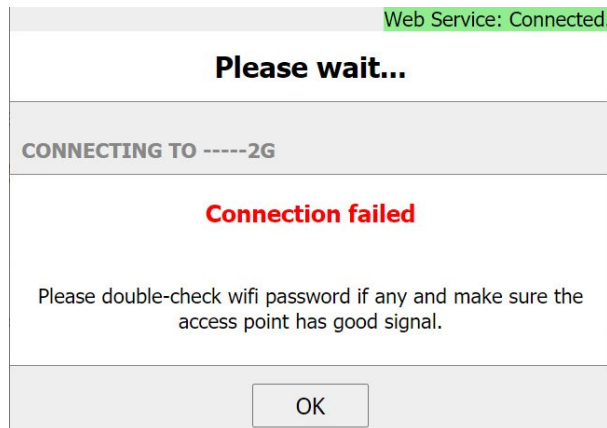
-
3. GUI always shows “Please wait” and the Web Service status is Connected.



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

00 00 80 02 9C 59 CA 58 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

000080029c59ca58


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

United States 915MHz

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.

ttn-router-us-west

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




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

