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# **How to get the secondary LoRaWAN network server work in the Helium Hotspot Miner**

## Introduction:

This is multi-connection to different LoRaWAN network servers (LNS). It's an additional benefit for LoRaWAN solution providers that don't use Helium before, they can not only get the HNT rewards, but also can get the lora data through other LNS, such as TTN/TTI, ChirpStack. They could now increase their ROI (return on investment) from mining HNT and also provide service to their clients by other LNS without concerns.

Below instruction is for setting up the secondary LNS for reference.

### 1. Access the Hotspot miner's web interface and go to Network Server setting

The screenshot displays the web interface for a Hotspot miner. The top navigation bar is blue and contains the text 'Browan/MerryIoT'. On the left side, there is a vertical menu with the following items: 'MerryIoT\_V1\_yiot', 'System', 'Hotspot', 'Miner', 'Network Server' (highlighted in blue with a red arrow pointing to it), 'Administration', 'OTA Updates', and 'Logs'. The main content area is titled 'Secondary LoRaWAN Server' and contains the following configuration options:

- Enable:** A checkbox that is currently unchecked.
- Server Address:** A text input field.
- Port Up:** A text input field with '(1-65535)' to its right.
- Port Down:** A text input field with '(1-65535)' to its right.
- Connect Status:** A label with the text 'Not Connected' in red.

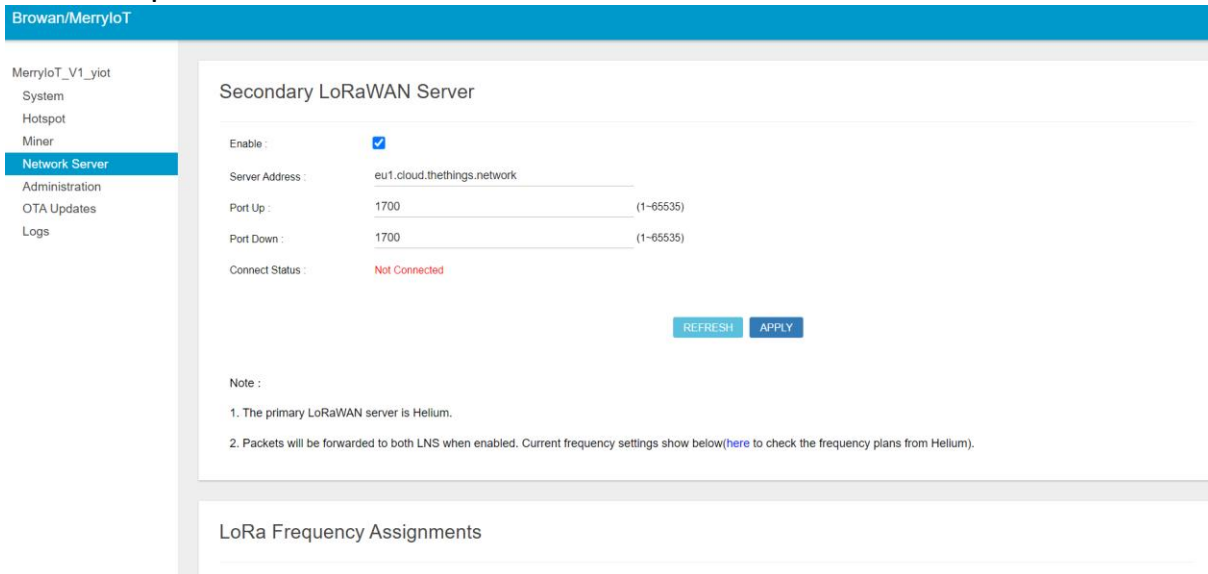
Below the configuration fields are two buttons: 'REFRESH' and 'APPLY'. At the bottom of the main content area, there is a 'Note:' section with two numbered points:

1. The primary LoRaWAN server is Helium.
2. Packets will be forwarded to both LNS when enabled. Current frequency settings show below([here](#) to check the frequency plans from Helium).

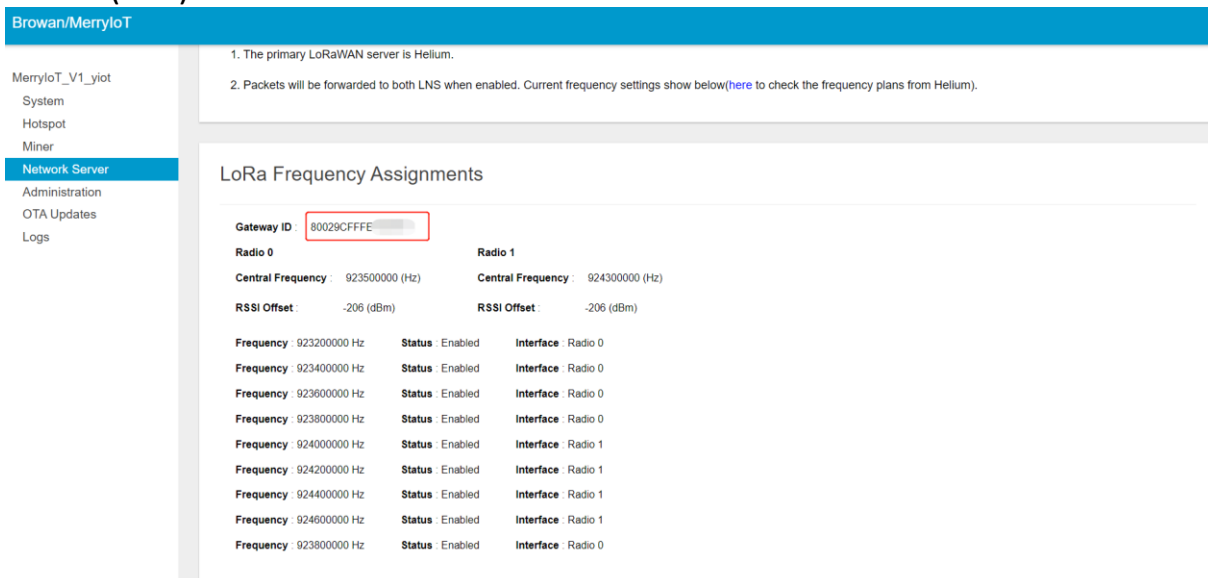
Below the note is a section titled 'LoRa Frequency Assignments' with a horizontal line underneath. At the very bottom of the page, there is a blue footer bar containing the text: 'About | FAQ | Disclaimer | Contact Us' and 'Copyright © 2020 Browan Communications Inc.'

2. Enable the Secondary LoRaWAN Server and input the relevant server configuration including server address, port up and port down, then apply the settings. Take TTN for instance.

- Server Address: eu1.cloud.thethings.network
- Port Up & Down: 1700



3. Scroll to the bottom of the page, you will find the Gateway ID which is used for registering the gateway on the LNS. Also, we leveraged the frequencies plan from Helium, so please make sure if the secondary LNS' frequencies plan is the same as Helium. Take below screenshot for instance, the hotspot is running AS923\_1 of Helium, it is mapping to TTN's AS923 (AS2).



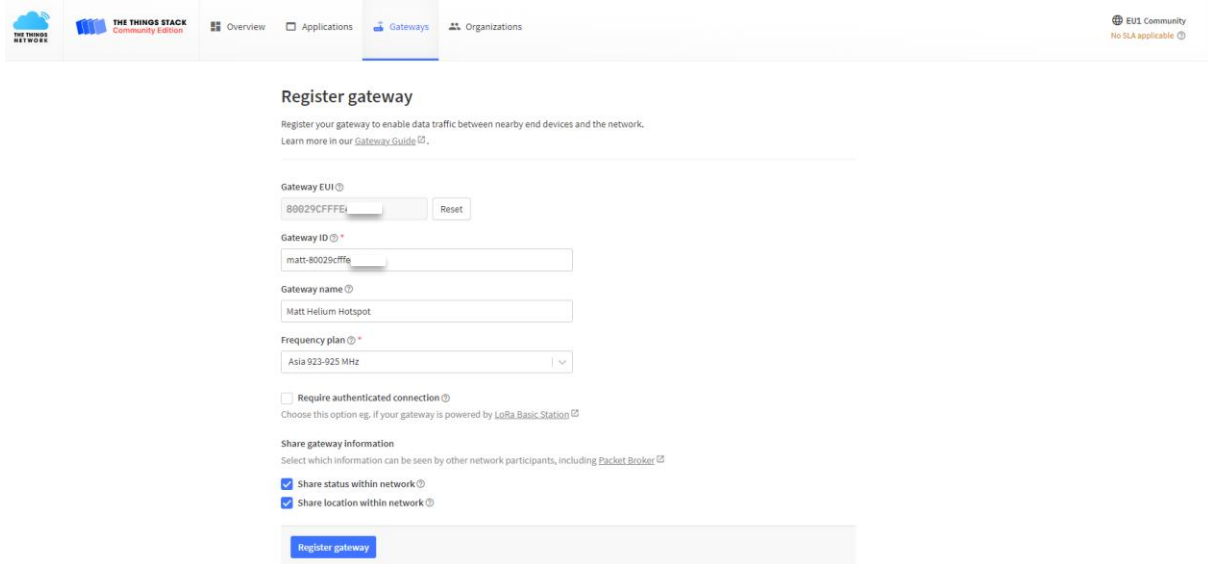
## 4. Register the hotspot miner to the TTN.

### 4.1 login The Things Stack [console](#), and go to gateways

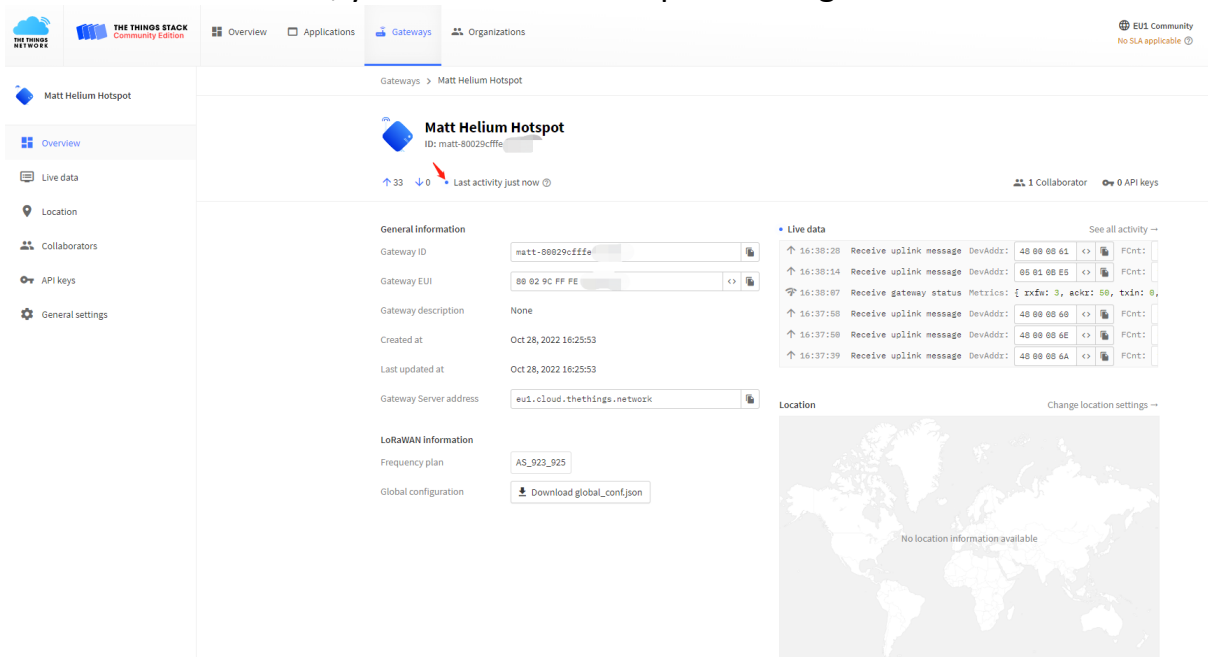
### 4.2 + Register gateway



### 4.3 Input the necessary information to Register the gateway



### 4.4 after few minutes, you will see the hotspot miner get online.



## 5. Return to the hotspot's web interface, you will see the Connect Status shows **Connected**

Browan/MerryloT

- MerryloT\_V1\_1iot
- System
- Hotspot
- Miner
- Network Server**
- Administration
- OTA Updates
- Logs

### Secondary LoRaWAN Server

Enable:

Server Address: eu1.cloud.thethings.network

Port Up: 1700 (1-65535)

Port Down: 1700 (1-65535)

Connect Status: **Connected**

REFRESH APPLY

Note:

- The primary LoRaWAN server is Helium.
- Packets will be forwarded to both LNS when enabled. Current frequency settings show below ([here](#) to check the frequency plans from Helium).

### LoRa Frequency Assignments

## 6. Using a node to verify the LoRaWAN networking

THE THINGS STACK Community Edition

Overview Applications Gateways Organizations

EU1 Community Fair use policy applies

matt\_g76s

Applications > matt\_g76s > Live data

Time	Entity ID	Type	Data preview
↑ 16:40:31	eu1-01000000000000000000000000000000	Forward uplink data message	DevAddr: 26 00 29 C8 Payload: 32 36 39 42 32 39 43 39
↑ 16:46:50	eu1-01000000000000000000000000000000	Forward uplink data message	DevAddr: 26 00 29 C8 Payload: 32 36 39 42 32 39 43 39
↓ 16:43:53	eu1-01000000000000000000000000000000	Failed to transmit downlink	Downlink transmission failed with result: UNKNOWN_ERROR
↑ 16:43:53	eu1-01000000000000000000000000000000	Forward uplink data message	DevAddr: 26 00 29 C8 Payload: 32 36 39 42 32 39 43 39
↓ 16:43:35	eu1-01000000000000000000000000000000	Failed to transmit downlink	Downlink transmission failed with result: UNKNOWN_ERROR
↑ 16:43:30	eu1-01000000000000000000000000000000	Forward uplink data message	DevAddr: 26 00 29 C8 Payload: 32 36 39 42 32 39 43 39
↑ 09:09:25	eu1-01000000000000000000000000000000	COM3-9600baud - Tera Term VT	
↑ 11:21:01	eu1-01000000000000000000000000000000	Radio Tx Done	
↑ 11:20:59	eu1-01000000000000000000000000000000	Radio Rx Done Len:0 RSSI:-51 SNR:0.5	
↑ 09:06:46	eu1-01000000000000000000000000000000		
↑ 09:06:44	eu1-01000000000000000000000000000000	st+dttx	
↑ 17:15:53	eu1-01000000000000000000000000000000	st+dttx	
↑ 17:15:51	eu1-01000000000000000000000000000000	st+dttx	
↑ 09:08:04	eu1-01000000000000000000000000000000	Radio Tx Done	
↑ 09:05:02	eu1-01000000000000000000000000000000		
↑ 09:13:04	eu1-01000000000000000000000000000000	st+dttx? SCDEVM1:260B29C0	
↑ 09:13:53	eu1-01000000000000000000000000000000		

Event details

```
7 {
8   "device_id": "eu1-01000000000000000000000000000000",
9   "application_ids": [
10    "application_id": "matt_g76s"
11  ],
12   "dev_eui": "0100000000000000",
13   "join_eui": "0100000000000000",
14   "dev_addr": "260B29C8"
15 },
16 {
17   "type": "type.googleapis.com/ttn.lorawan.v3.ApplicationOp",
18   "end_device_ids": {
19     "device_id": "eu1-01000000000000000000000000000000",
20     "application_id": "matt_g76s"
21   },
22   "dev_eui": "0100000000000000",
23   "join_eui": "0100000000000000",
24   "dev_addr": "260B29C8"
25 },
26 {
27   "correlation_ids": [
28     "as:up:01000000000000000000000000000000",
29     "as:down:01000000000000000000000000000000",
30     "gs:up:host:01000000000000000000000000000000",
31     "gs:up:link:01000000000000000000000000000000",
32     "ms:uplink:01000000000000000000000000000000",
33     "tnc:/ttn.lorawan.v3.GsNs/HandleUplink:01000000000000000000000000000000",
34     "tnc:/ttn.lorawan.v3.NsAs/HandleUplink:01000000000000000000000000000000"
35   ],
36   "received_at": "2022-10-28T08:48:31.811192222Z",
37   "uplink_message": {
38     "session_key_id": "AYQcIVtXNDRM9Vj5ayQm==",
39     "f_port": 1,
40     "f_cnt": 4,
41     "rx_metadata": {
42       "rx_payload": "NJYwQjI5Q2A=",
43       "rx_metadata": [
44         {
45           "gateway_id": {
46             "gateway_id": "matt-88029cffff",
47             "eui": "88029cffff"
48           },
49           "timestamp": "1165876811",
50           "rssi": -51,
51           "channel_index": -93,
52           "snr": 0.5,
53           "uplink_label": "C1MKIQu0vWf9Gc04Mdy0WnWz2ZNGUN10TxEjA",
54           "channel_index": 1,
55           "received_at": "2022-10-28T08:48:30.782181512Z"
56         }
57       ]
58     }
59   }
60 }
```

my hotspot

## 7. The hotspot miner is still able to mine the HNT

The screenshot displays the Helium network dashboard. The top section shows a map of the HNT network with green hexagonal hotspots. A central hotspot is highlighted with a white circle and yellow lines connecting to surrounding hotspots. The map shows various hotspots with numbers indicating their status or activity.

The left sidebar shows the user's profile for "Dizzy Ebony Chinchilla" and a list of nearby hotspots. The "Witnessed Beacon" section is highlighted with a red box, showing a beacon witnessed on "28 Oct 2022, 4:23pm".

The main content area shows the details for the "Matt Helium Hotspot" (ID: matt-80029cffe). The "Created at" and "Last updated at" fields are highlighted with red boxes, both showing "Oct 28, 2022 16:25:53".

The "Live data" section shows a list of uplink messages received by the gateway. The "Location" section shows a world map with the text "No location information available".

Time	Event	DevAddr	FCnt
17:14:14	Receive uplink message	85 01 08 E5	
17:14:07	Receive gateway status	ixin: 11, rxok: 8, rxfw: 8	
17:14:06	Receive uplink message	48 00 08 7E	
17:14:06	Receive uplink message	48 00 08 68	
17:14:06	Receive uplink message	48 00 08 7C	
17:13:59	Receive uplink message	85 01 08 3F	