



SENSECAP Connect M2 Multi-Platform Gateway to The Things Network Instructions

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SENSECAP Connect M2 Multi-Platform Gateway to The Things Network

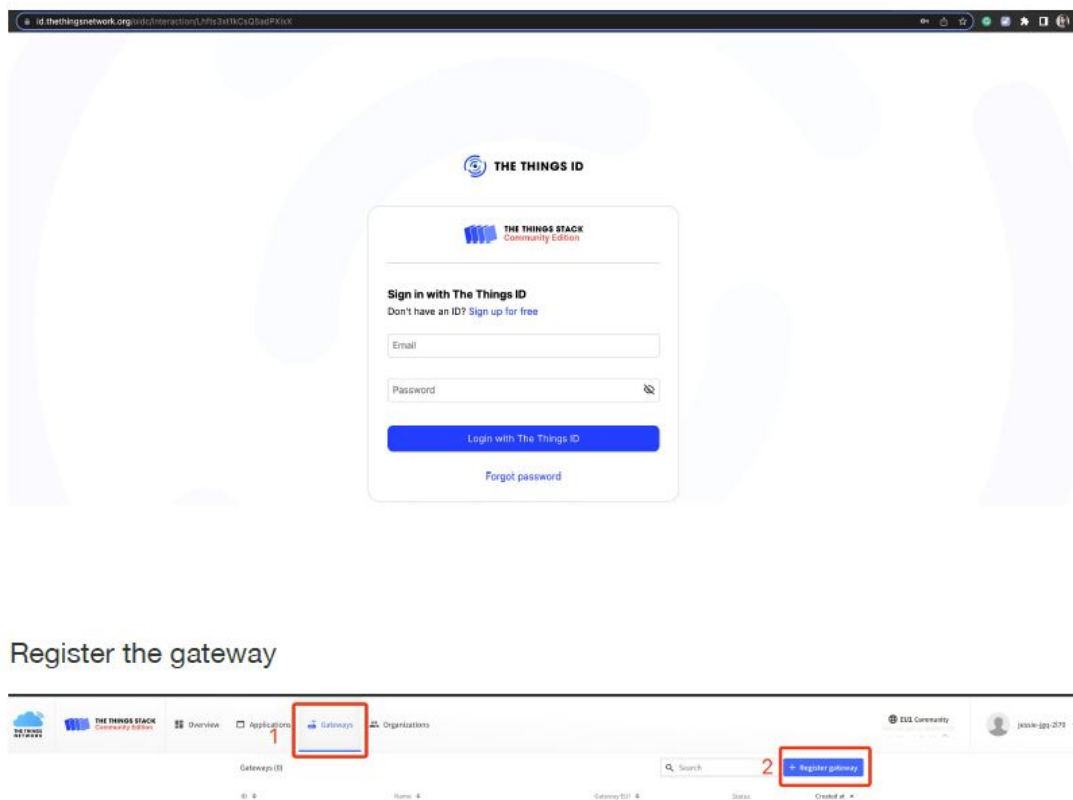


The main building blocks of the public community LoRaWAN® network are gateways. This tutorial will guide you connecting your M2 Multi-Platform Gateway to The Things Network.

Connecting via Packet Forwarders

TTN Configuration

Log into The Things Stack. If you don't have a TTN account, please register first.



Gateway EUI: Gateway EUI can be found on the device label or Local Console

Gateway ID: A unique identifier for your gateway(the ID must contain only lowercase letters, numbers, and dashes)

Gateway name: A name of your gateway

Frequency plan: Select the corresponding frequency according to your gateway version

The screenshot shows the 'Register gateway' page in the LoRaWAN UI. The page has a top navigation bar with 'THE THINGS STACK Community Edition', 'Overview', 'Applications', 'Gateways', and 'Organizations'. The 'Gateways' tab is active. The main content area is titled 'Register gateway' and includes a sub-header: 'Register your gateway to enable data traffic between nearby end devices and the network. Learn more in our [Gateway Guide](#).' Below this is a form with the following fields: 'Gateway EUI' (with a dropdown showing '2CF7F' and a 'Reset' button), 'Gateway ID' (with a dropdown showing 'eu1-2cf7f'), 'Gateway name' (with a text input showing 'M2 MP'), and 'Frequency plan' (with a dropdown showing 'Europe 863-870 MHz (SF12 for RX2)'). There is a checkbox for 'Require authenticated connection' which is currently unchecked. Below the checkbox is a note: 'Choose this option eg. if your gateway is powered by [LoRa Basic Station](#).' Underneath is a section titled 'Share gateway information' with the text 'Select which information can be seen by other network participants, including [Packet Broker](#).' There are two checkboxes: 'Share status within network' (checked) and 'Share location within network' (checked). At the bottom of the form is a blue button labeled 'Register gateway'.

You can check the Gateway in the overview after successful registration.

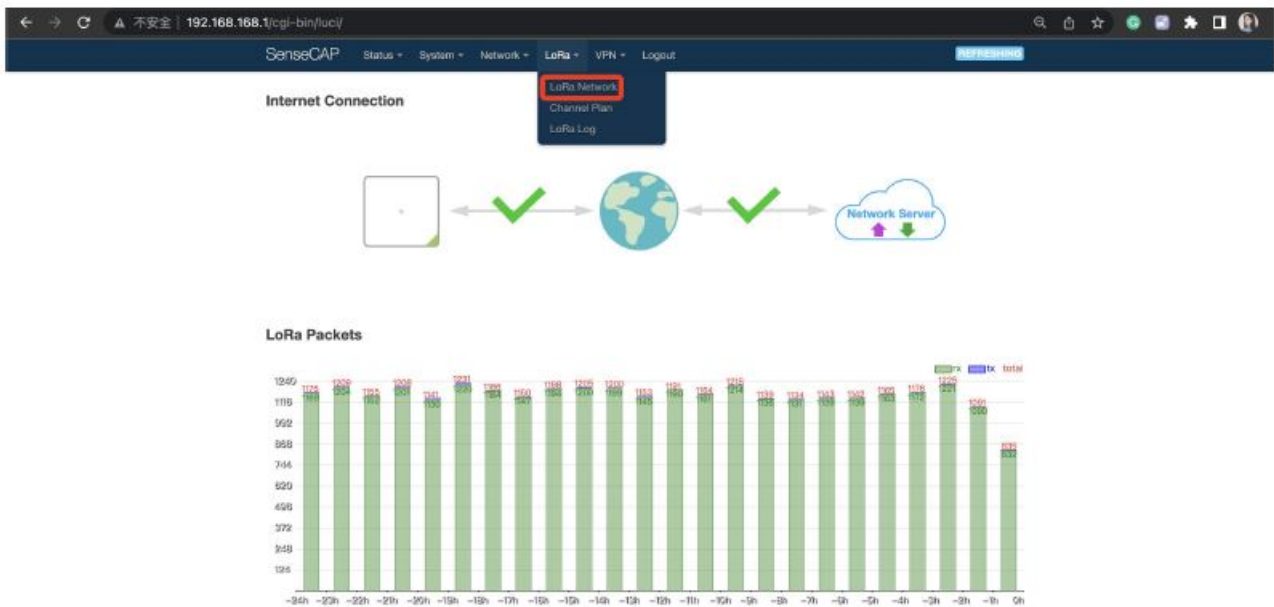
The screenshot shows the 'M2 MP' gateway overview page in the LoRaWAN UI. The page has a top navigation bar with 'THE THINGS STACK Community Edition', 'Overview', 'Applications', 'Gateways', and 'Organizations'. The 'Gateways' tab is active. The main content area is titled 'M2 MP' and includes a sub-header: 'ID: eu1-2cf7f'. Below this is a status indicator 'Disconnected' and a 'Live data' button. The page is divided into two main sections: 'General information' and 'Location'. The 'General information' section includes fields for 'Gateway ID' (eu1-2cf7f), 'Gateway EUI' (2CF7F1), 'Gateway description' (None), 'Created at' (Oct 8, 2022 11:33:37), 'Last updated at' (Oct 8, 2022 11:33:37), 'Gateway Server address' (eu1.cloud.thethings.network), 'LoRaWAN information' (Frequency plan: EU_863_870), and a 'Global configuration' button labeled 'Download global_config.json'. The 'Location' section includes a map and a note 'No location information available'. On the right side of the page, there is a 'Live data' section with a 'Create gateway' button and a 'See all activity' link. The bottom of the page has a 'Hide sidebar' button.

Gateway Configuration

Configure the gateway via the Web UI, please check the Quick Start to log into Local Console first.

Step 1: LoRa Network Settings

Navigate to LoRa > LoRa Network



Mode: Packet Forward

Packet Forwarder Settings:

Gateway EUI: It will automatically get the EUI of the connected gateway

Server Address: The link to The Things Network server(eg: For Europe is eu1.cloud.thethings.network)

Server Port(Up/Down): 1700

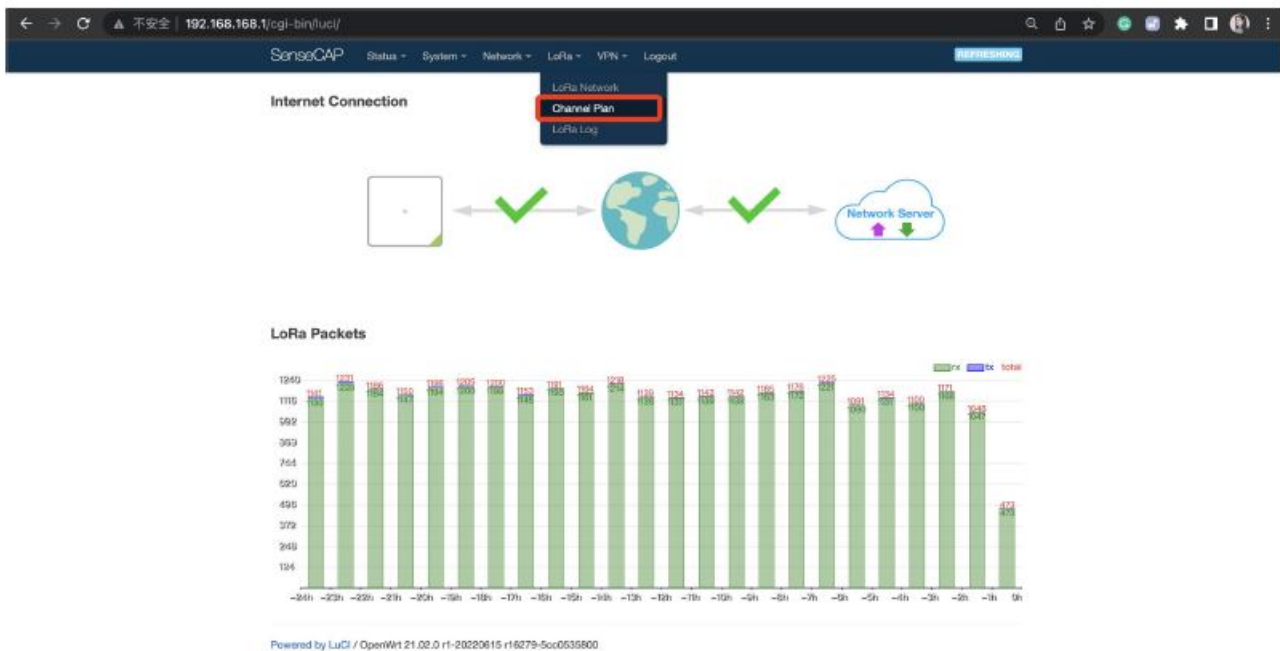
Other settings can be left as default, or can be changed to suit your requirements.

The screenshot shows the 'LoRaWAN Network Settings' page. The 'Gateway EUI' is set to '2CF7F'. The 'Mode' is set to 'Packet Forwarder'. The 'Packet Forwarder Settings' section is expanded, showing 'General Settings', 'Interval Settings', 'Beacon Settings', 'GPS Information', and 'Forward Rules'. The 'General Settings' tab is active, showing the 'Gateway EUI' as '2CF7F1', 'Server Address' as 'eu1.cloud.thethings.network', 'Server Port (Up)' as '1700', and 'Server Port (Down)' as '1700'. A 'Save & Apply' button is at the bottom right.

Click Save&Apply to apply your settings.

Step 2: Channel Plan Settings

Navigate to LoRa > Channel Plan



Select the Region and Frequency plan according to the actual choice.

The screenshot shows the 'Channel Plan' configuration page in the SenseCAP web interface. The page has a header with the same navigation bar as the previous screenshot. Below the header, there are two dropdown menus: 'Region' (set to 'EU863-870') and 'Frequency plan' (set to 'Europe 863-870 MHz (SF9 for R)'). Below these menus is a large grey button labeled 'Save & Apply'. The page is powered by LuCI / OpenWrt 21.02.0 r1-20220615 r16279-5cc0535800.

After setting, click Save&Apply

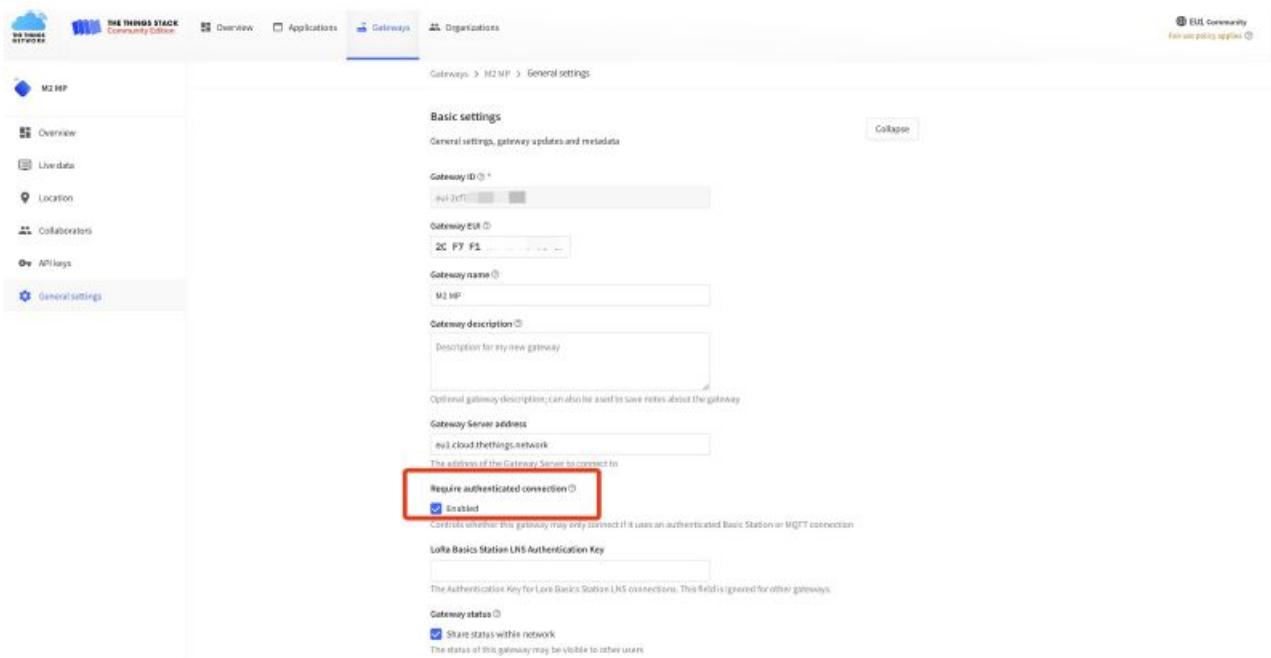
Connecting via Basic Station

TTN Configuration

Please refer to 1.1 for adding a gateway

Step 1: Enable Require authenticated connection

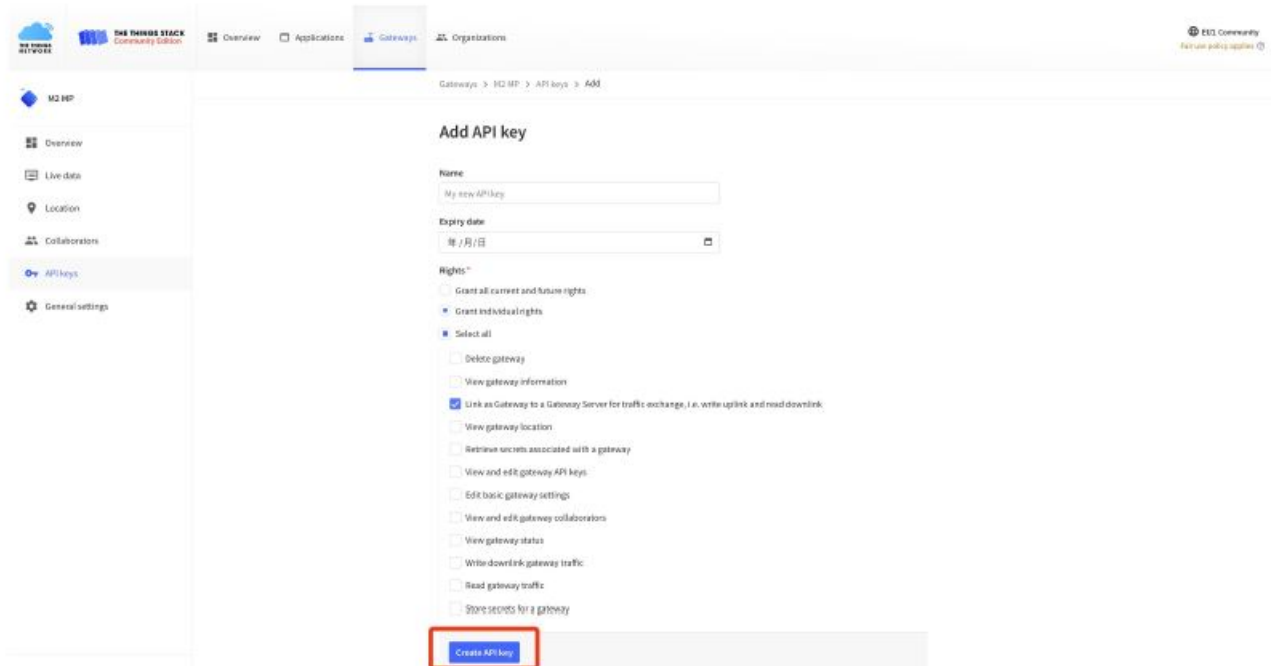
This will only allow a gateway to connect if it uses a TLS enabled Basic Station or MQTT connection. It will not allow connections from UDP packet forwarders.



Step 2: Create an API key
 Navigate to API keys, click Add API key



Choose Grant individual rights > Link as Gateway to a Gateway Server for traffic exchange, i.e. write uplink and read downlink



Gateway Configuration

Mode: Basics Station

Basic Station Settings:

Gateway EUI: It will automatically get the EUI of the connected gateway

Server: LNS Server

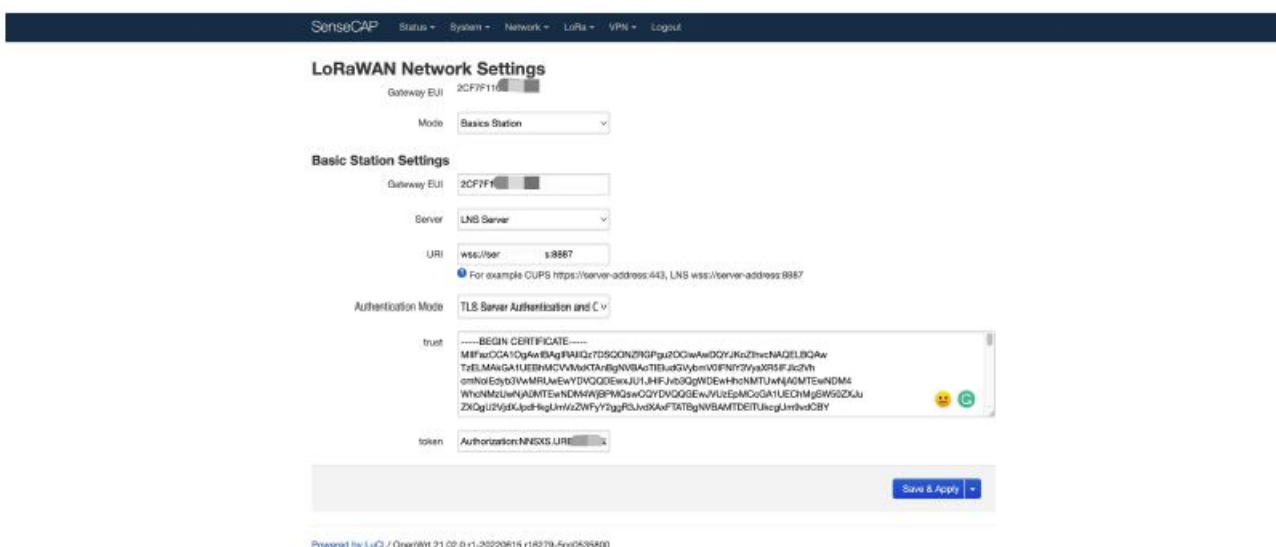
URL: The link to The Things Network server(eg: For Europe is eu1.cloud.thethings.network) Port:8887

Authentication Mode: TLS server authentication and Client token

trust: Select the certificate you need and download it, recommend Let's Encrypt ISRG Root X1 Trust

Copy the data content of the certificate file (the certificate can be opened in text form) token: Authorization:

Your_API_Key Other settings can be left as default, or can be changed to suit your requirements.



Check the Gateway Status

After the settings are completed, we can view the live data of your gateway.

You can see that your gateway is connected to TTN now.

The screenshot shows the TTN (The Things Network) web interface. The top navigation bar includes 'Overview', 'Applications', 'Gateways', and 'Organizations'. The 'Gateways' tab is selected, showing a list of gateways. The 'M2 MP' gateway is highlighted, and its 'Live data' is displayed. The data table shows various uplink messages and gateway status updates, including fields like 'DevAddr', 'Pkt', 'Port', 'Data rate', 'SNR', 'RSSI', and 'Version'.

Time	Type	Data preview
11:48:16	Receive uplink message	DevAddr: 27 00 00 00 Pkt: 2370 PPort: 3 Confirmed uplink Data rate: SF7BW125 SNR: 1.8 RSSI: -87
11:48:03	Receive uplink message	DevAddr: 40 40 41 00 Pkt: 40 40 41 11 Data rate: SF12BW125 SNR: 2.2 RSSI: -114
11:48:01	Receive uplink message	DevAddr: 01 54 5F 5F Pkt: 23724 PPort: 199 Data rate: SF12BW125 SNR: 6.8 RSSI: -89
11:47:56	Receive uplink message	DevAddr: 27 00 00 00 Pkt: 31 PPort: 3 Confirmed uplink Data rate: SF7BW125 SNR: -7.5 RSSI: -130
11:47:54	Receive uplink message	DevAddr: 48 00 00 00 Pkt: 78 PPort: 2 Confirmed uplink Data rate: SF12BW125 SNR: 9 RSSI: -11
11:47:53	Receive uplink message	DevAddr: 27 00 02 00 Pkt: 32021 PPort: 3 Data rate: SF7BW125 SNR: 12.5 RSSI: -93
11:47:47	Receive uplink message	DevAddr: 27 00 0F 90 Pkt: 4280 PPort: 3 Data rate: SF7BW125 SNR: 14 RSSI: -100
11:47:31	Receive uplink message	DevAddr: 27 00 02 71 Pkt: 2867 PPort: 3 Confirmed uplink Data rate: SF7BW125 SNR: 6.2 RSSI: -112
11:47:21	Receive uplink message	DevAddr: 48 00 00 A4 Pkt: 8396 PPort: 2 Confirmed uplink Data rate: SF7BW125 SNR: 13.8 RSSI: -89
11:47:19	Receive uplink message	DevAddr: 48 00 00 A0 Pkt: 2425 PPort: 3 Confirmed uplink Data rate: SF7BW125 SNR: -8 RSSI: -120
11:47:10	Receive uplink message	DevAddr: 27 00 05 37 Pkt: 4333 PPort: 3 Confirmed uplink Data rate: SF7BW125 SNR: 10.2 RSSI: -107
11:47:15	Receive gateway status	NetSize: { txair: 0, txair: 0, txair: 0, txair: 0, txair: 0, txair: 0 } Version: { ttn-le-gateway-server: "3.33.0-jobs-SMFP1007-1000x700" }
11:47:04	Receive uplink message	DevAddr: 26 00 00 27 Pkt: 2366 PPort: 2 Data rate: SF7BW125 SNR: 14 RSSI: -98
11:47:03	Receive uplink message	DevAddr: 27 00 0F 80 Pkt: 32777 PPort: 3 Data rate: SF7BW125 SNR: 14 RSSI: -95
11:46:55	Receive uplink message	DevAddr: 27 00 02 00 Pkt: 32020 PPort: 3 Data rate: SF7BW125 SNR: 15 RSSI: -93
11:46:49	Receive uplink message	DevAddr: 48 00 00 A3 Pkt: 37 PPort: 2 Confirmed uplink Data rate: SF12BW125 SNR: 7 RSSI: -87
11:46:45	Receive gateway status	NetSize: { txair: 0, txair: 0, txair: 0, txair: 0, txair: 0, txair: 0 } Version: { ttn-le-gateway-server: "3.33.0-jobs-SMFP1007-1000x700" }
11:46:44	Receive uplink message	DevAddr: 27 00 00 50 Pkt: 4824 PPort: 3 Confirmed uplink Data rate: SF7BW125 SNR: 4.2 RSSI: -112
11:46:39	Receive uplink message	DevAddr: 27 00 1A A2 Pkt: 3884 PPort: 3 Data rate: SF7BW125 SNR: 12 RSSI: -95

Documents / Resources



[SENSECAP Connect M2 Multi-Platform Gateway to The Things Network \[pdf\]](#) Instructions
Connect M2 Multi-Platform Gateway to The Things Network, M2 Multi-Platform Gateway, The T
hings Network

Manuals+,