



Milesight Devices & Thingsboard IoT Platform Integration



Version Change Log			
Version	Revision Date	Revision Details	Revised By
V1.0	20250107	Initial	Lockon
v1.1	20250108	Add TTN Platform integrate method	Lockon



1. Introduction

This document introduces a simple step-by-step guide to quickly integrate Milesight LoRaWAN devices with ThingsBoard IoT platform, enabling real-time display of LoRaWAN sensor data on the platform.

2. Requirements

- Milesight LoRaWAN Gateway: UG56/UG65/UG67
- ThingsBoard account

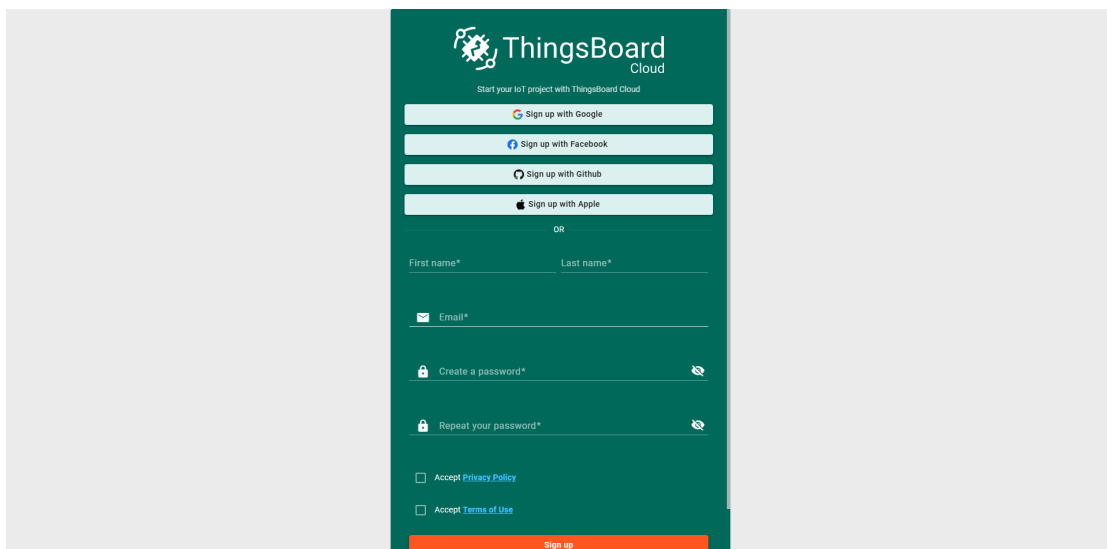
NOTE: ThingsBoard Cloud is used in this example, ThingsBoard on-premise deployment can also be used.

- Milesight LoRaWAN devices: take AM308 as example

3. Steps

3.1. Register a ThingsBoard Account

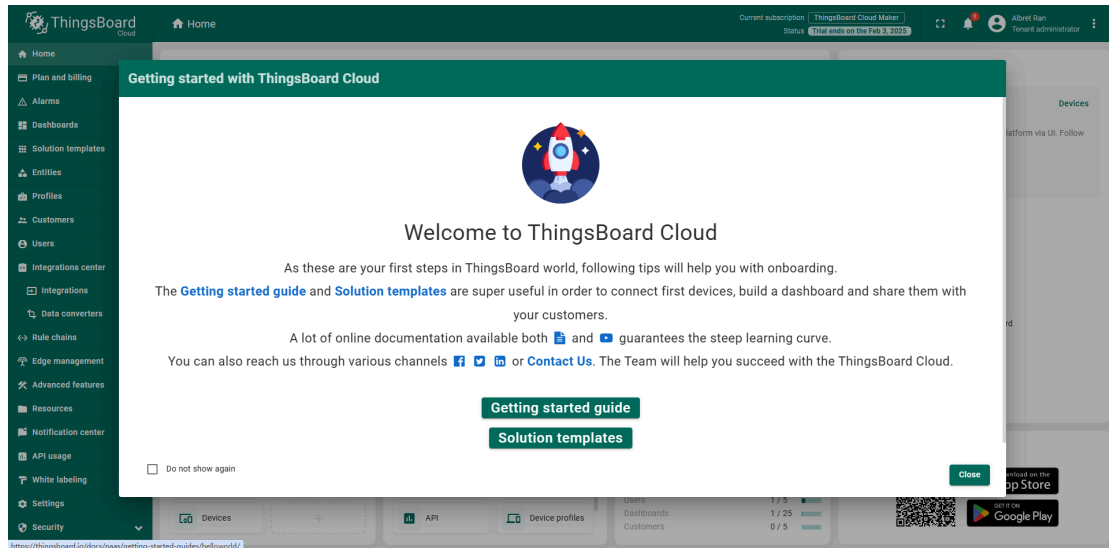
Visit <https://thingsboard.cloud/signup> and follow the instructions to register an account.

The image shows a screenshot of the ThingsBoard Cloud registration page. The page has a dark green header with the ThingsBoard Cloud logo and the text "Start your IoT project with ThingsBoard Cloud". Below the header, there are four social login buttons: "Sign up with Google", "Sign up with Facebook", "Sign up with Github", and "Sign up with Apple". Below these buttons is a "OR" separator. The main form area is white and contains several input fields: "First name*", "Last name*", "Email*", "Create a password*", and "Repeat your password*". There are also checkboxes for "Accept Privacy Policy" and "Accept Terms of Use". At the bottom of the form is a red "Sign up" button.

3.2. Log in to ThingsBoard

Visit <https://thingsboard.cloud/login>.



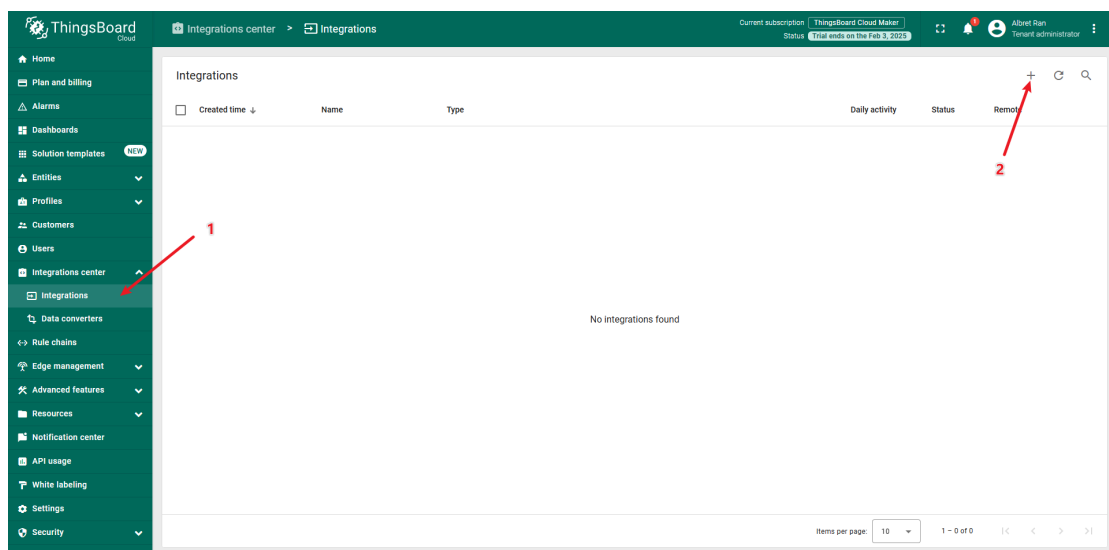


Next, choose one of the following methods for integration.

3.3. Integration via Gateway Embeded LNS (HTTP)

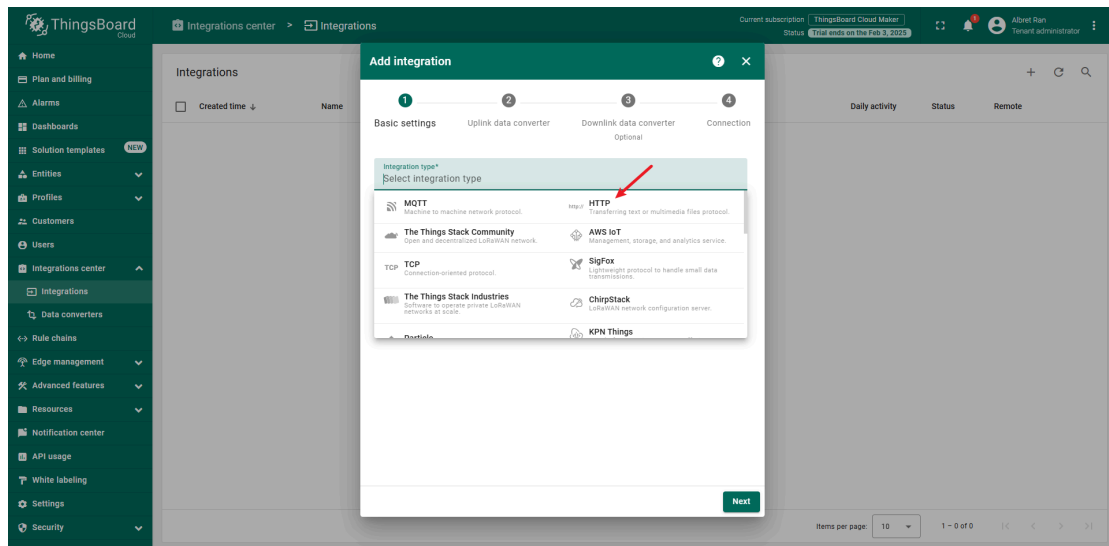
3.3.1. Create an HTTP Endpoint

Add an integration:

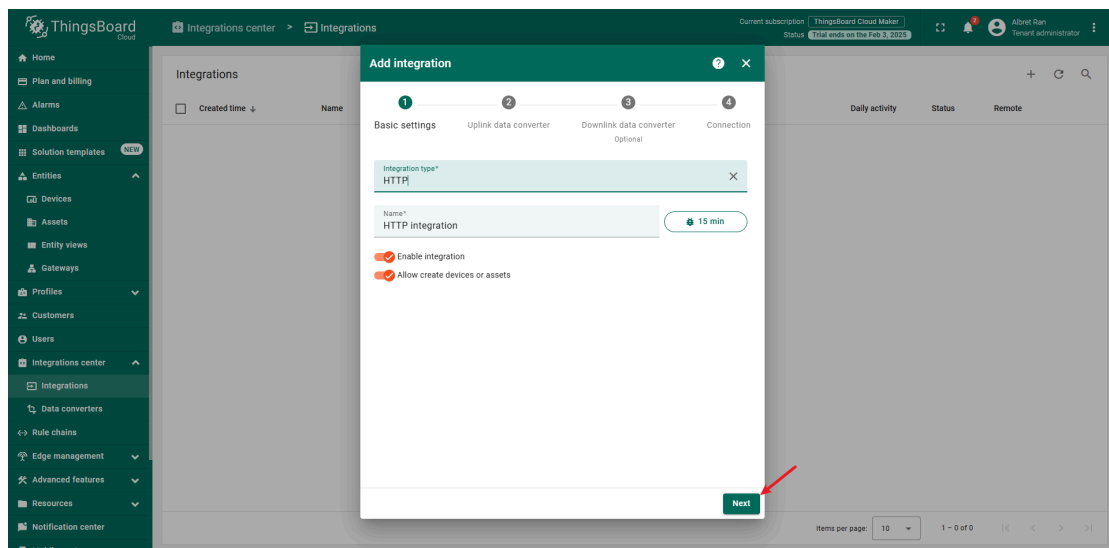


In the pop-up interface, select "HTTP":



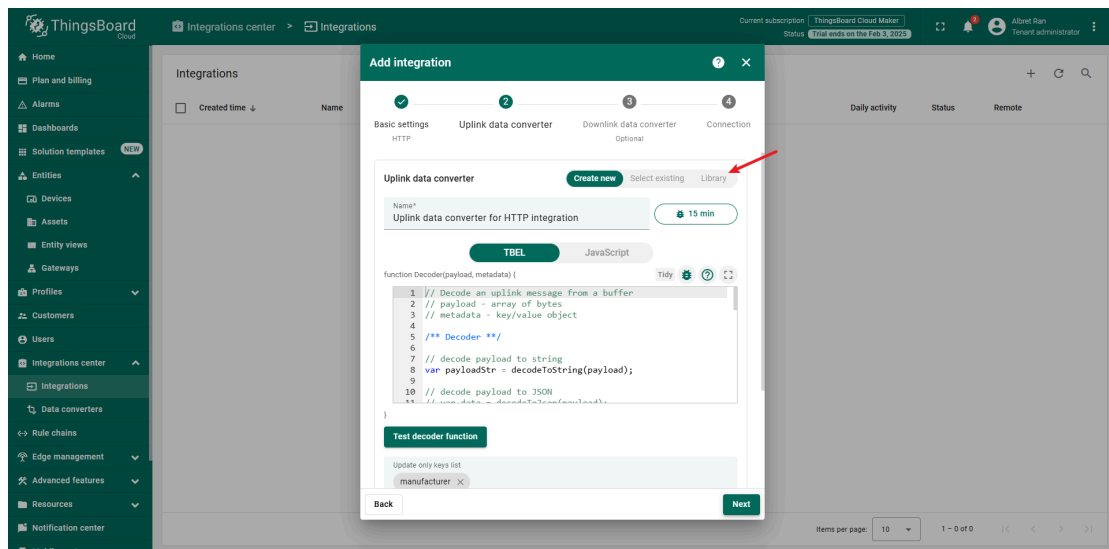


Click "Next":

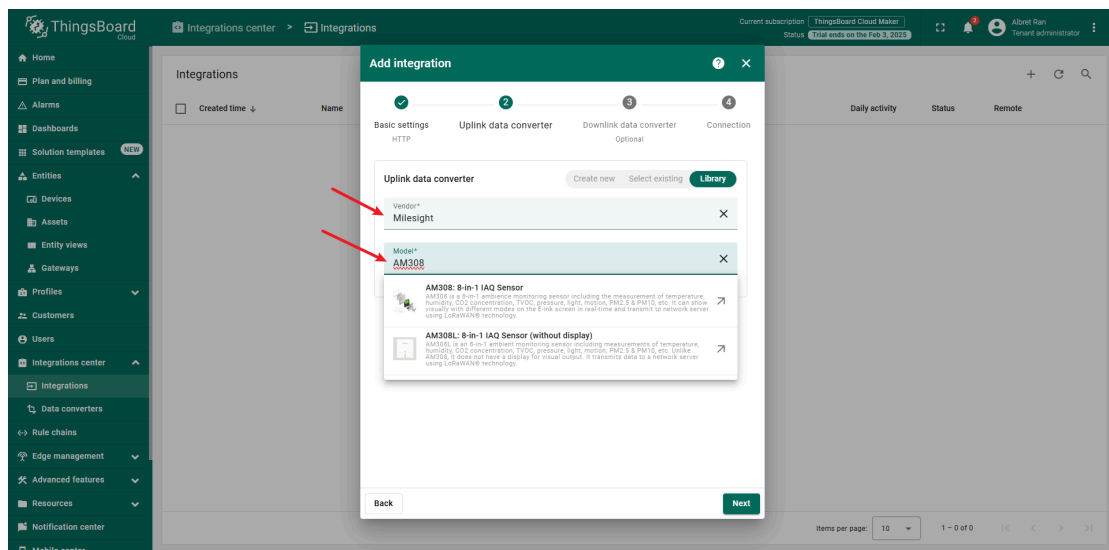


In the next interface, click "Library":



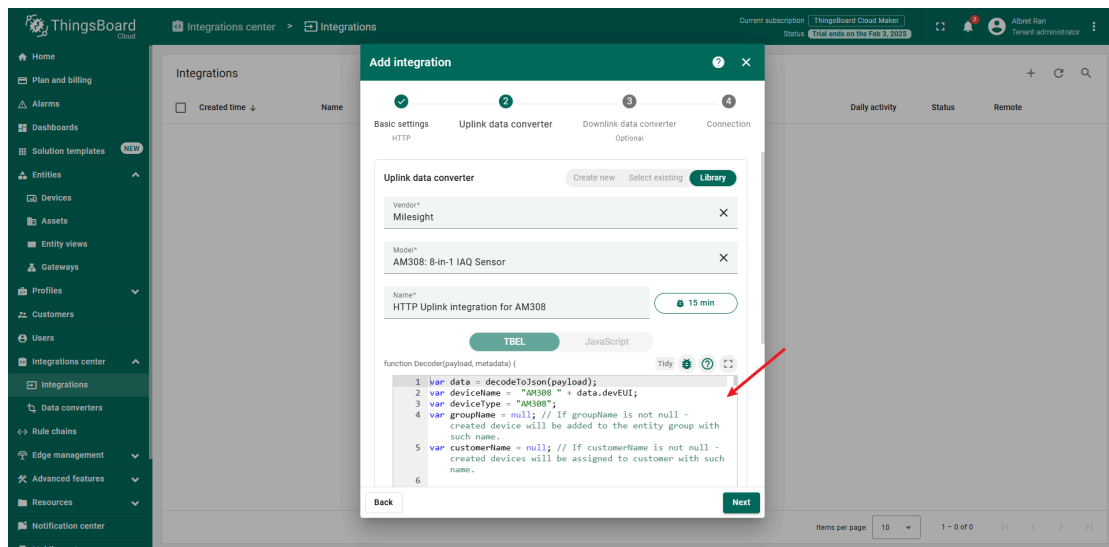


Enter "Milesight" in the Vendor field. The "Model" field will automatically display a dropdown list of all Milesight sensors. Select your sensor type. For this example, select "AM308: 8-in-1 IAQ Sensor":

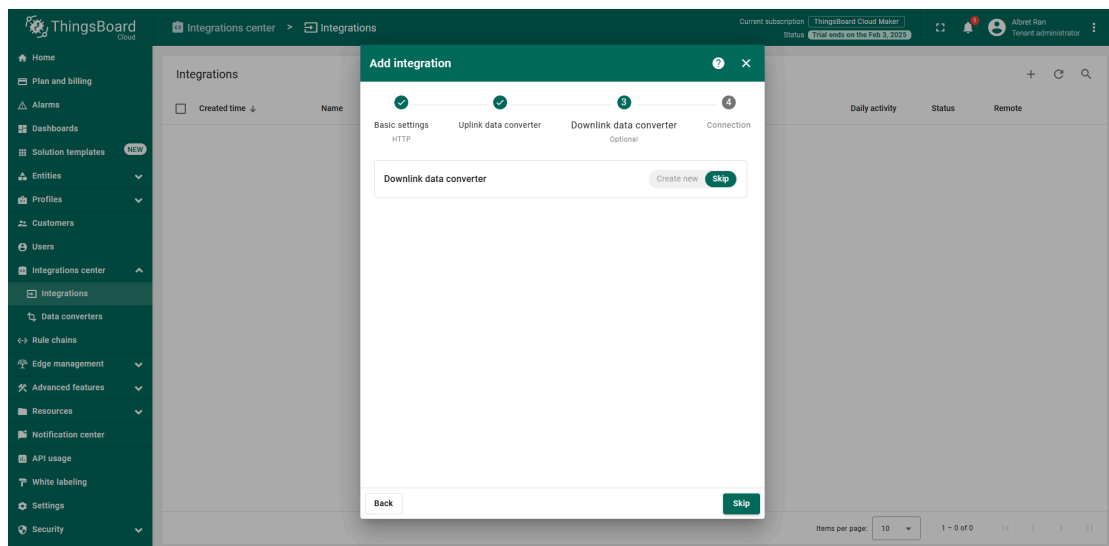


Once selected, the Decode script will be auto-populated:



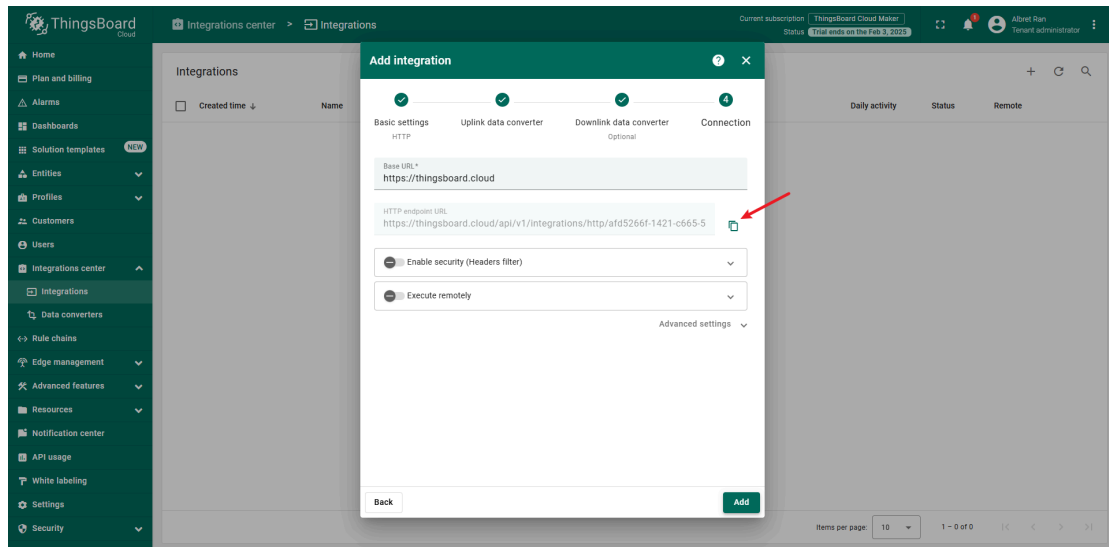


Click "Next" to create a new downlink converter or skip this step.

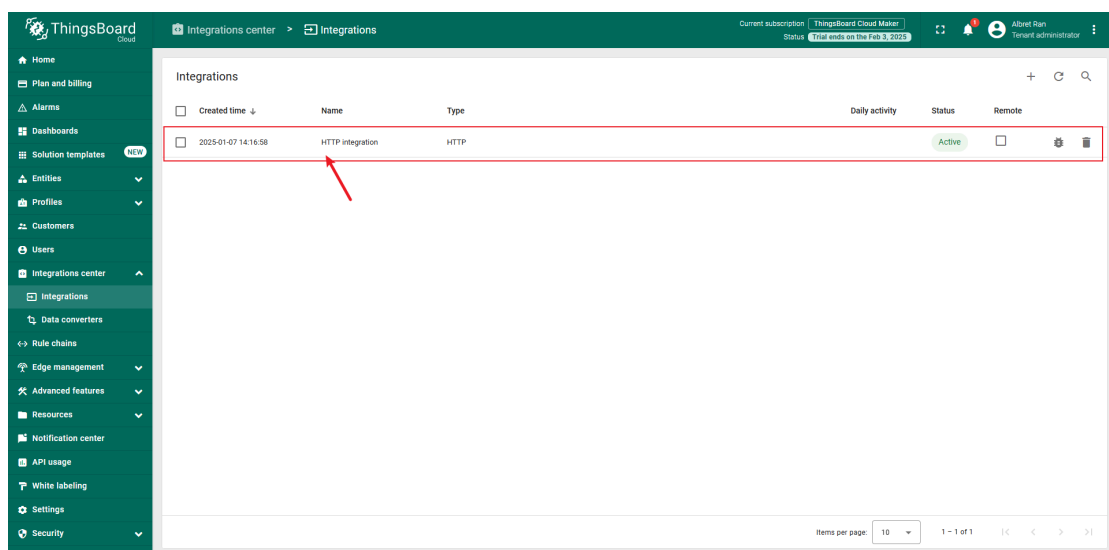
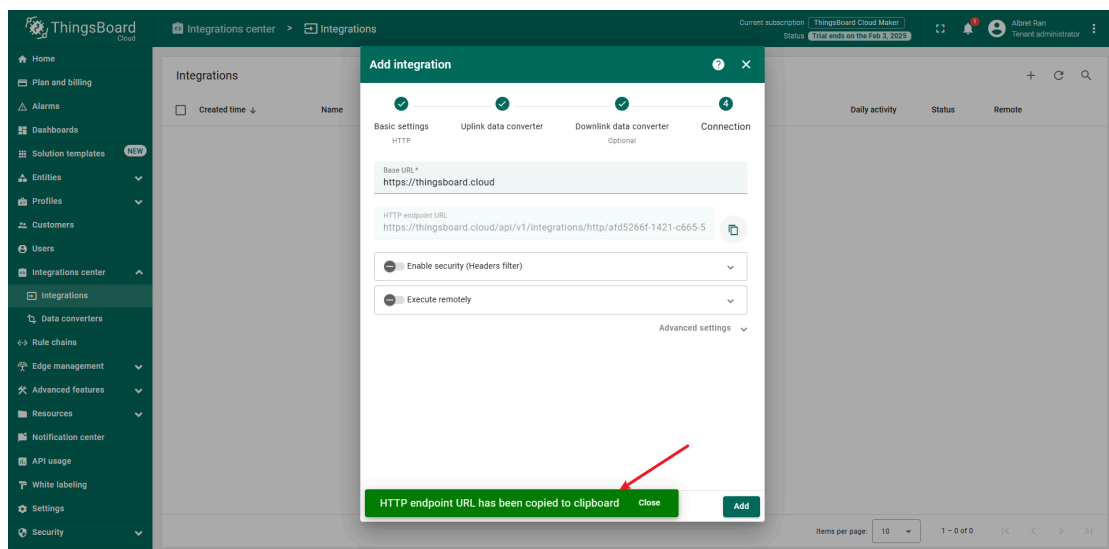


Copy the HTTP endpoint URL as it will be used later.



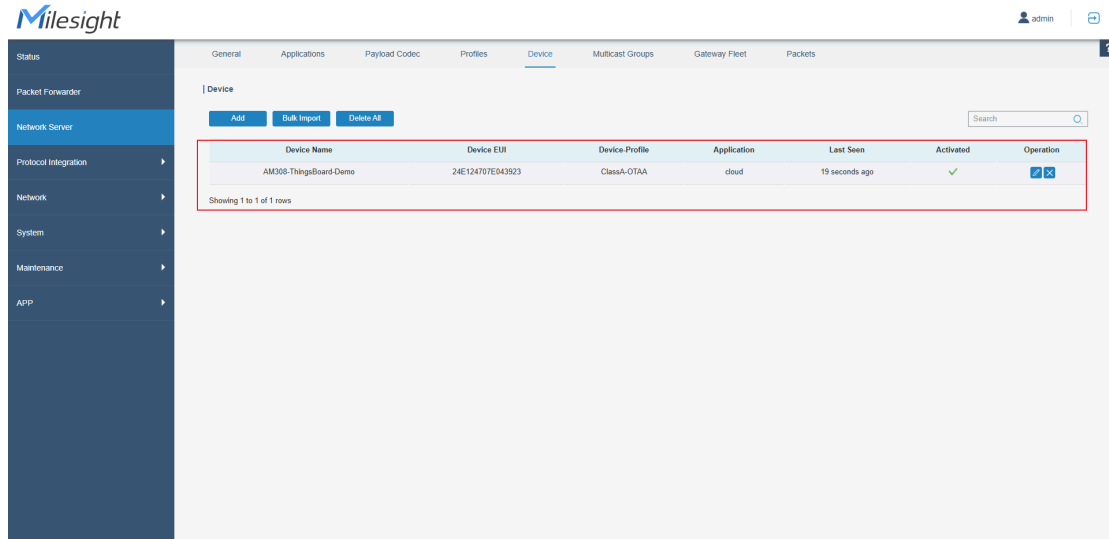


Click "Add" to complete the setup.

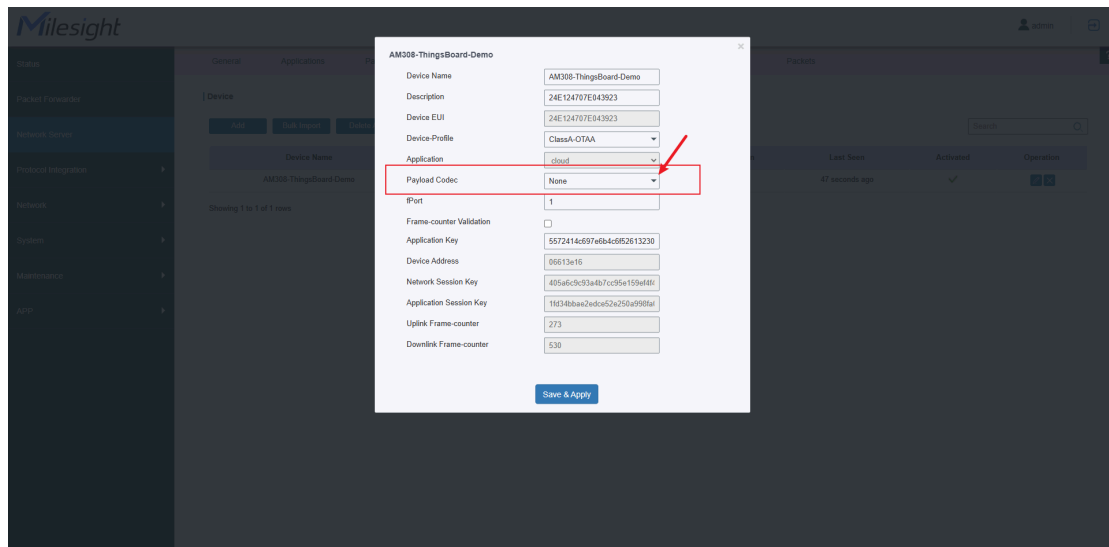


3.3.2. Add Sensors to the Gateway

Refer to article [How to Connect LoRaWAN Nodes to Milesight Gateway](#) to add sensors to gateway.



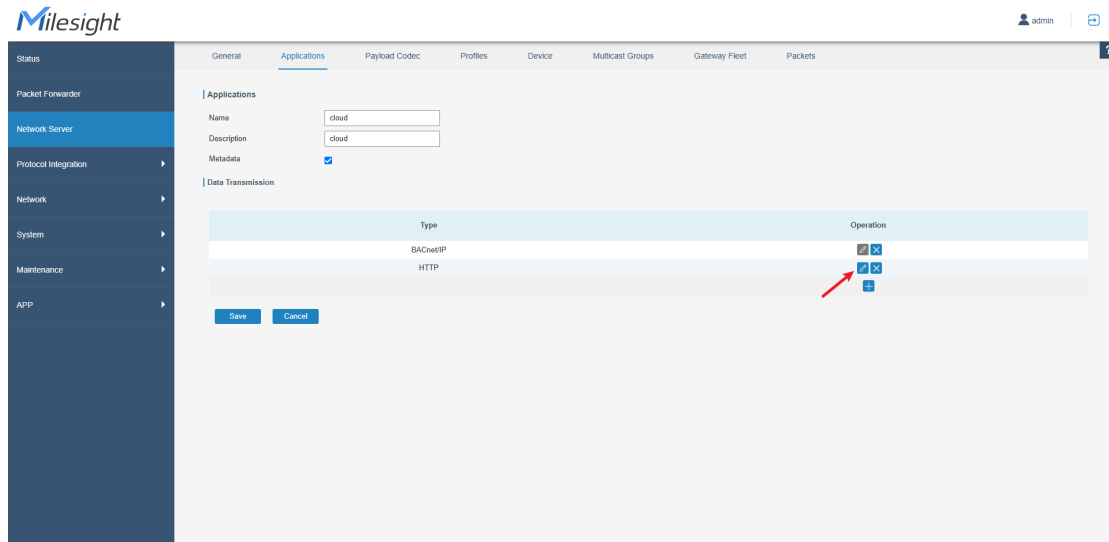
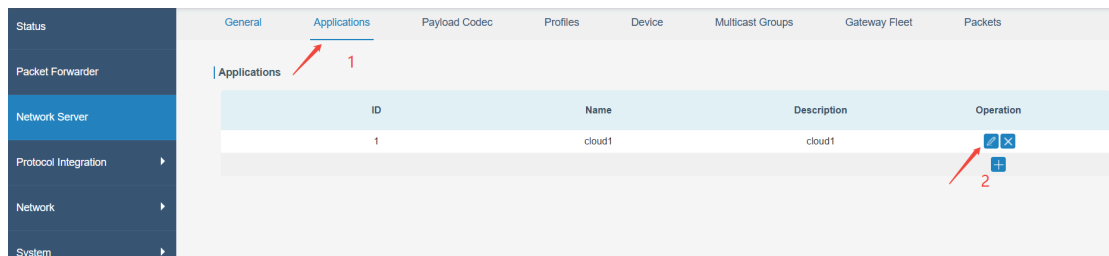
Note: Set "Payload Codec" to "None" since the decoding will be handled by ThingsBoard, not the gateway.



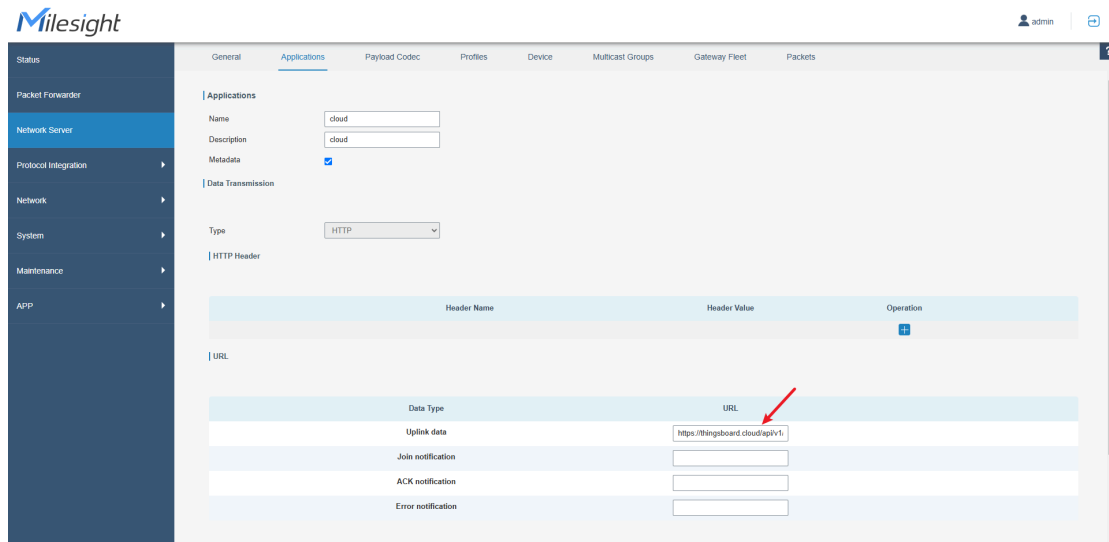
3.3.3. Add a HTTP Integration to Gateway

Go to **Application** page to add a HTTP integration:





Enter the HTTP address obtained in Step 3.3.1 into the "Uplink data" configuration field.



Click "Save" to complete the configuration.

3.3.4. Check Results

Click the integration:



The screenshot shows the ThingsBoard Cloud interface. On the left, the 'Integrations center' menu is visible. The main panel displays the 'HTTP integration' details. A red box highlights the 'Events' tab, which shows a list of events. A red arrow points to the 'HTTP integration' entry in the list. Another red arrow points to the 'Events' tab. A third red arrow points to the 'last 15 minutes' filter. The event log table shows the following data:

Event time	Server	Type	Message	Status	Error
2025-01-07 14:24:02.409	tb-ie-main-2	Uplink	...	OK	
2025-01-07 14:23:58.882	tb-ie-main-0	Uplink	...	OK	
2025-01-07 14:23:52.891	tb-ie-main-2	Uplink	...	OK	
2025-01-07 14:22:59.925	tb-ie-main-2	Uplink	...	OK	

You will see the AM308 device successfully transmitting data from UG65 to ThingsBoard.

The screenshot shows the ThingsBoard Cloud interface. On the left, the 'Devices' menu is visible. The main panel displays the 'AM308 24e124707e043923' device details. A red box highlights the 'Latest telemetry' tab, which shows a list of telemetry data. A red arrow points to the 'AM308 24e124707e043923' entry in the list. Another red arrow points to the 'Latest telemetry' tab. A third red arrow points to the 'battery' key in the telemetry table. The telemetry table shows the following data:

Last update time	Key	Value
2025-01-07 14:27:02	battery	100
2025-01-07 14:27:02	co2	722
2025-01-07 14:27:02	humidity	36.5
2025-01-07 14:27:02	light_level	3
2025-01-07 14:27:02	pir	idle
2025-01-07 14:27:02	pm10	50
2025-01-07 14:27:02	pm2_5	41
2025-01-07 14:27:02	pressure	1019.9
2025-01-07 14:27:02	temperature	24.3

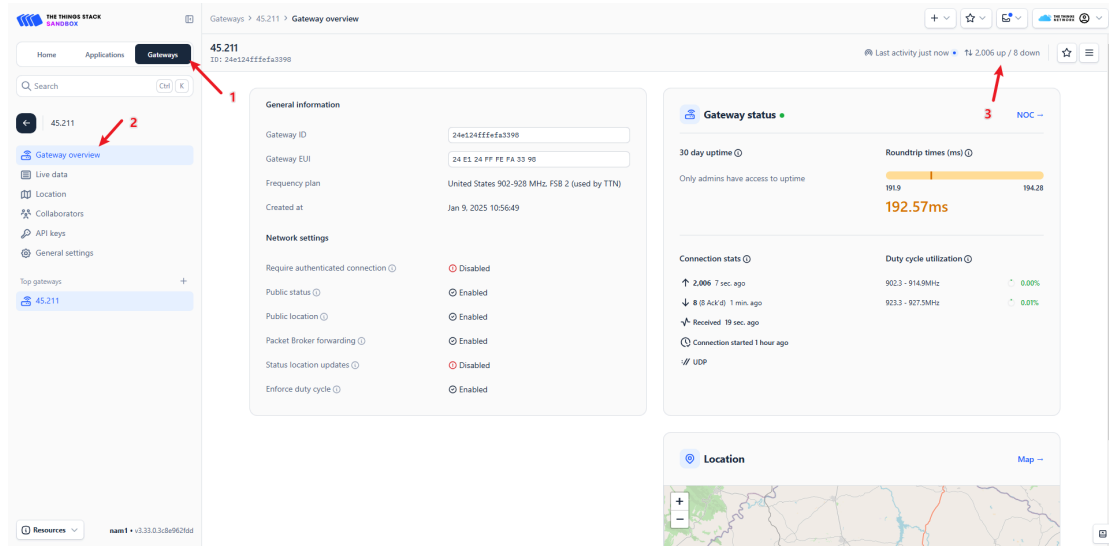
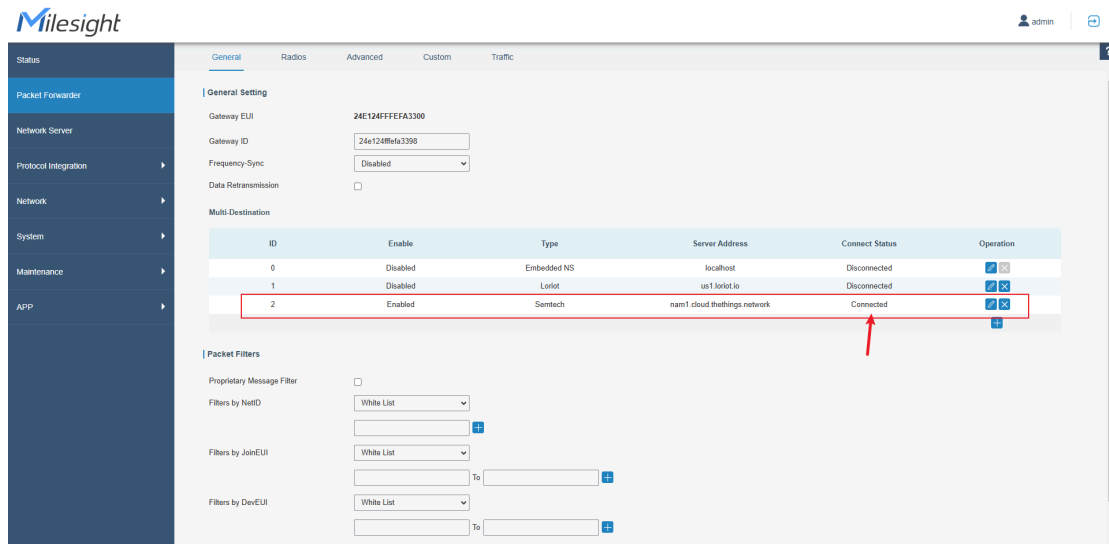
3.4. Integration via Third-Party LNS Platforms

Take The Things Stack as example to integrate Mulesight LoRaWAN devices to Thingsboard.

3.4.1. Connect the Gateway to The Things Stack

Refer article "[Mulesight Gateway - The Things Stack\(TTN\) Integration via Basic Station](#)" to connect gateway to The Things Stack and ensure the gateway is online.





3.4.2. Add Devices to The Things Stack

Refer article "[The Things Stack-Milesight LoRaWAN Device Integration](#)" to add the LoRaWAN devices to The Things Stack.

The result after adding is as follows:

The screenshot shows the 'Device overview' page for device 'am308' in The Things Stack. The left sidebar contains navigation links for 'Home', 'Applications', and 'Gateways'. The main content area has tabs for 'Device overview', 'Live data', 'Messaging', 'Location', 'Payload formatters', and 'Settings'. The 'Device overview' tab is active, showing 'End device info' and 'General information'. A red box highlights the 'Latest decoded payload' section, which displays a JSON object with sensor data.

```

{
  "battery": 100,
  "co2": 635,
  "humidity": 34.5,
  "light_level": 2,
  "pir": "idle",
  "pm10": 66,
  "pm2_5": 49,
  "pressure": 1022.3,
  "temperature": 23.9,
  "tvoc": 5
}

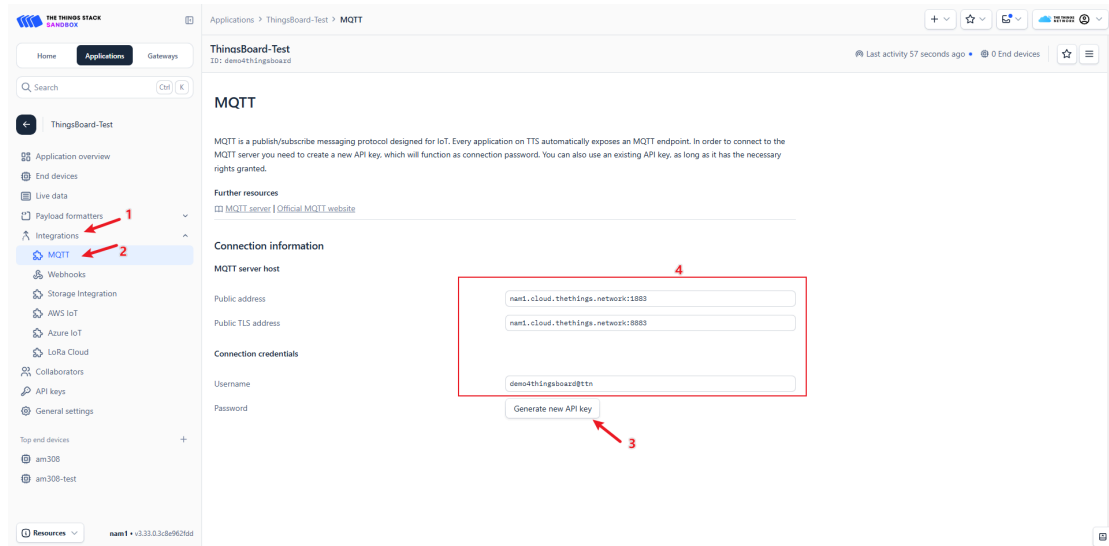
```

The screenshot shows the 'Live data' page for device 'am308' in The Things Stack. The left sidebar contains navigation links for 'Home', 'Applications', and 'Gateways'. The main content area has tabs for 'Device overview', 'Live data', 'Messaging', 'Location', 'Payload formatters', and 'Settings'. The 'Live data' tab is active, showing a list of data messages with their timestamps, types, and payloads.

TIME	TYPE	DATA PREVIEW
15:04:12	Schedule data downlink for transmi...	DevAddr: 26 BC A3 FC Rx1 Delay: 6
15:04:12	Forward uplink data message	DevAddr: 26 BC A3 FC Payload: { battery: 100, co2: 611, humidity: 34, light_level: 2, pir: "idle", pm10: 66, pm2_5: 49, pressure: 1022.3, temperature: 23.9, tvoc: ...
15:04:12	Successfully processed data message	DevAddr: 26 BC A3 FC
15:03:11	Schedule data downlink for transmi...	DevAddr: 26 BC A3 FC Rx1 Delay: 6
15:03:11	Forward uplink data message	DevAddr: 26 BC A3 FC Payload: { battery: 100, co2: 635, humidity: 34.5, light_level: 2, pir: "idle", pm10: 66, pm2_5: 49, pressure: 1022.3, temperature: 23.9, tvoc: ...
15:03:11	Successfully processed data message	DevAddr: 26 BC A3 FC
15:02:12	Schedule data downlink for transmi...	DevAddr: 26 BC A3 FC Rx1 Delay: 6
15:02:12	Forward uplink data message	DevAddr: 26 BC A3 FC Payload: { battery: 100, co2: 635, humidity: 34.5, light_level: 2, pir: "idle", pm10: 66, pm2_5: 49, pressure: 1022.3, temperature: 23.9, tvoc: ...
15:02:12	Successfully processed data message	DevAddr: 26 BC A3 FC
15:01:10	Schedule data downlink for transmi...	DevAddr: 26 BC A3 FC Rx1 Delay: 6
15:01:09	Forward uplink data message	DevAddr: 26 BC A3 FC Payload: { battery: 100, co2: 643, humidity: 34.5, light_level: 2, pir: "idle", pm10: 66, pm2_5: 49, pressure: 1022.2, temperature: 23.9, tvoc: ...
15:01:09	Successfully processed data message	DevAddr: 26 BC A3 FC
15:00:12	Schedule data downlink for transmi...	DevAddr: 26 BC A3 FC Rx1 Delay: 6
15:00:12	Forward uplink data message	DevAddr: 26 BC A3 FC Payload: { battery: 100, co2: 643, humidity: 34, light_level: 2, pir: "idle", pm10: 66, pm2_5: 49, pressure: 1022.2, temperature: 23.9, tvoc: ...
15:00:12	Successfully processed data message	DevAddr: 26 BC A3 FC
15:49:10	Schedule data downlink for transmi...	DevAddr: 26 BC A3 FC Rx1 Delay: 6
15:49:09	Forward uplink data message	DevAddr: 26 BC A3 FC Payload: { battery: 100, co2: 664, humidity: 34, light_level: 2, pir: "idle", pm10: 66, pm2_5: 49, pressure: 1022.3, temperature: 23.9, tvoc: ...
15:49:09	Successfully processed data message	DevAddr: 26 BC A3 FC

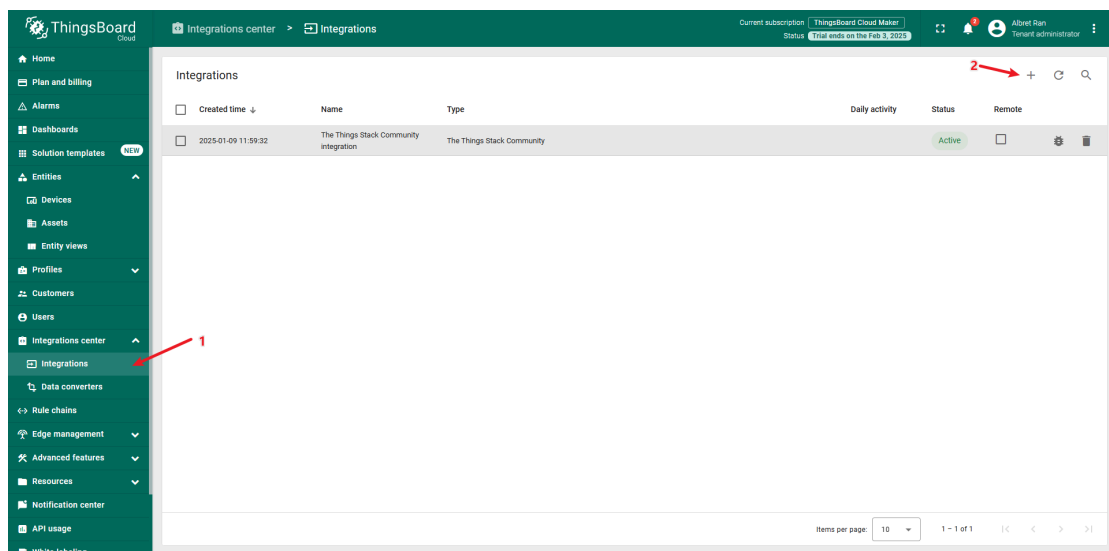
3.4.3. Get MQTT Server Information

Record the MQTT server information of The Things Stack and click "Generate new API key" to get the content of the key, which will be used in later steps.



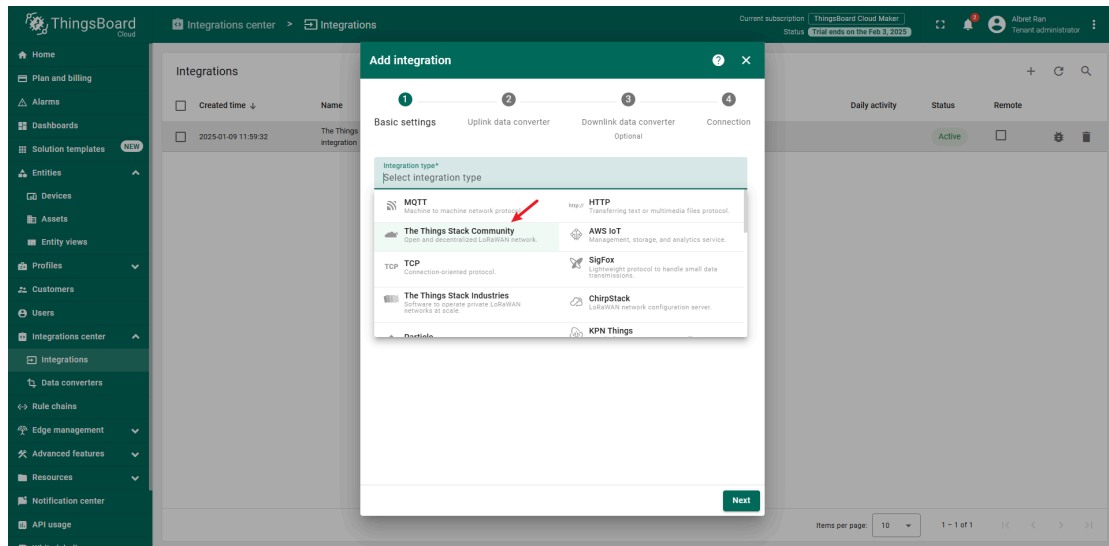
3.4.4. Create The Things Stack Community Integration

Add an integration:

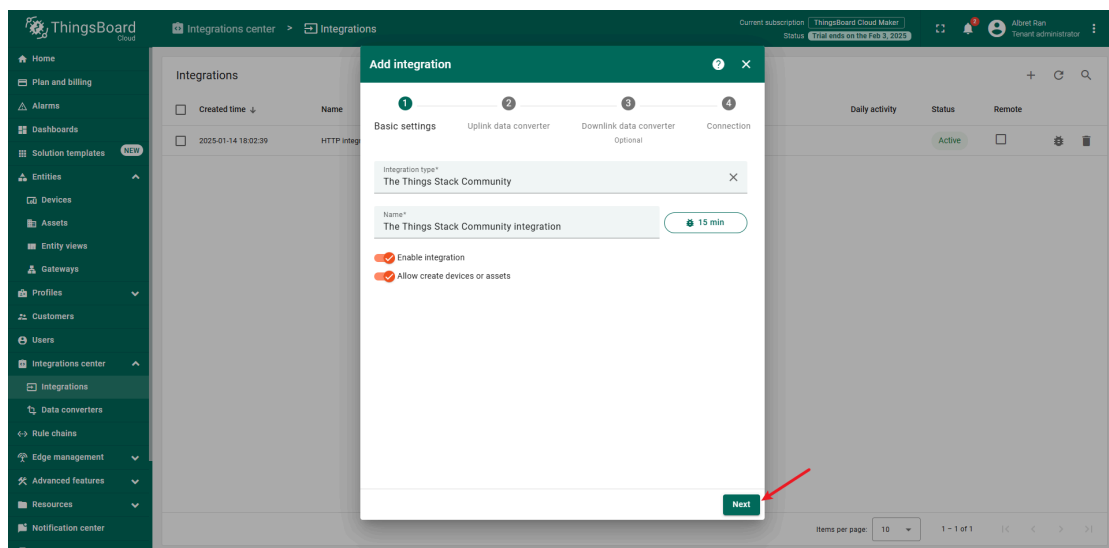


Select the option shown in the pop-up screen:



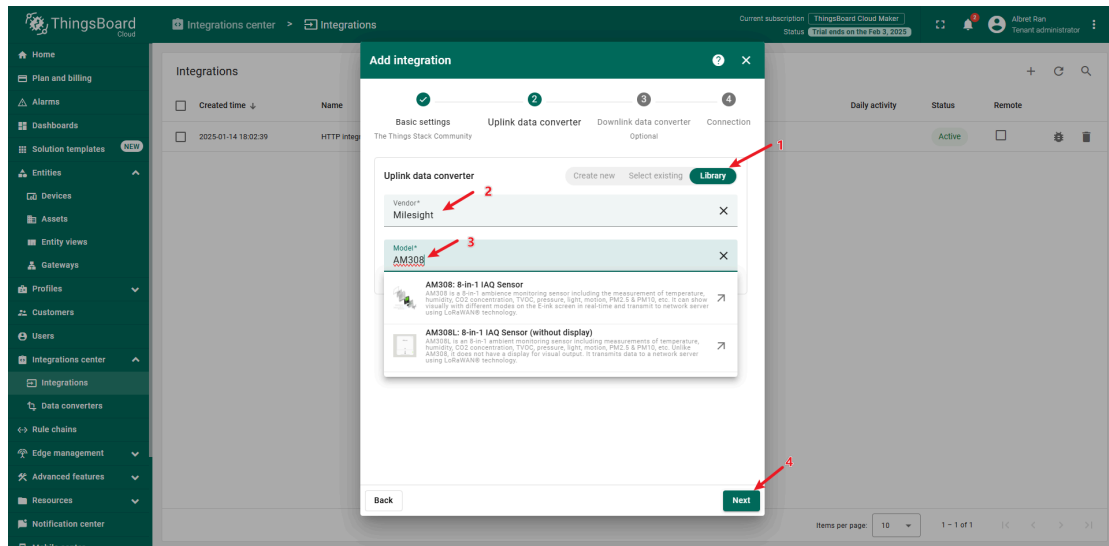


Click "Next":

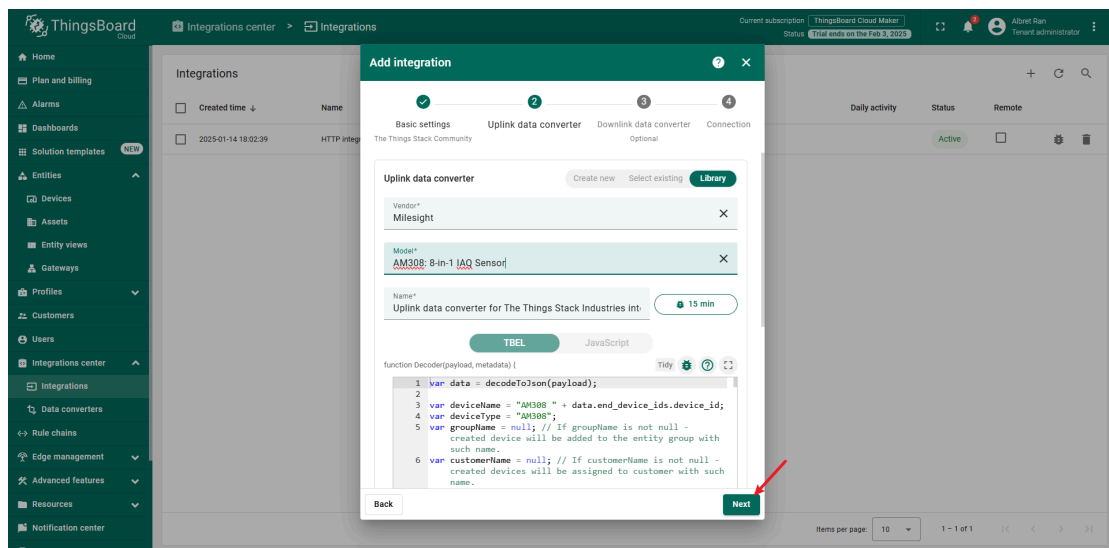


In the next interface, fill in "Milesight" for "Vendor", then fill in " AM308", and scroll down to select the corresponding device:



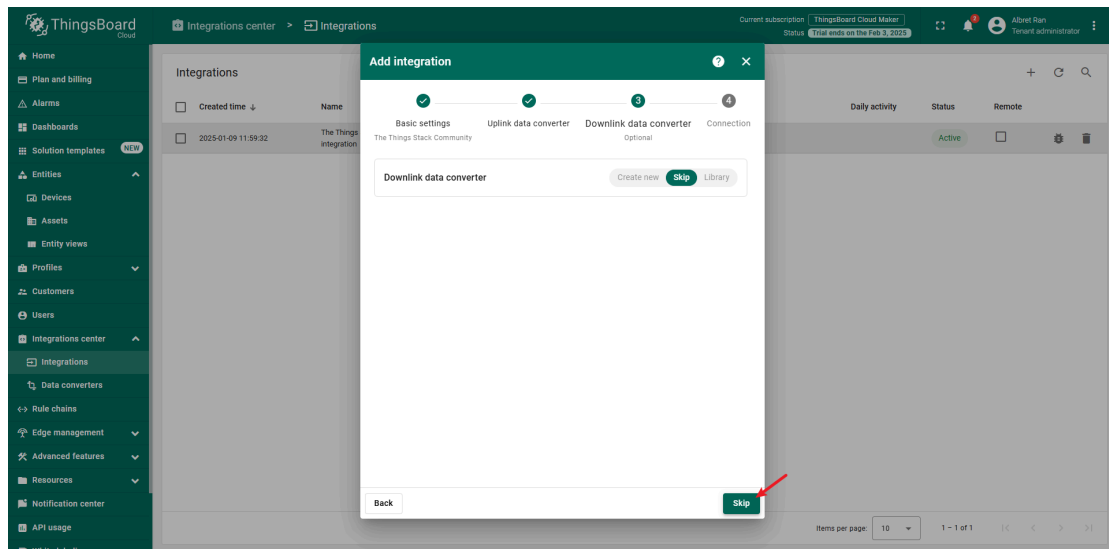


Once configured, click "Next":

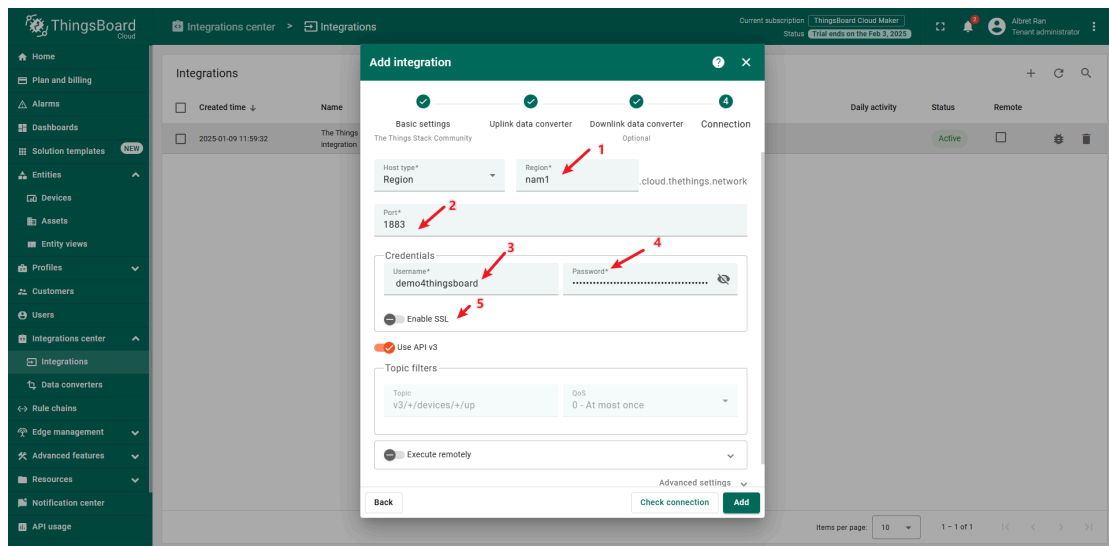


Click "Next" to create a new downlink converter or skip this step.

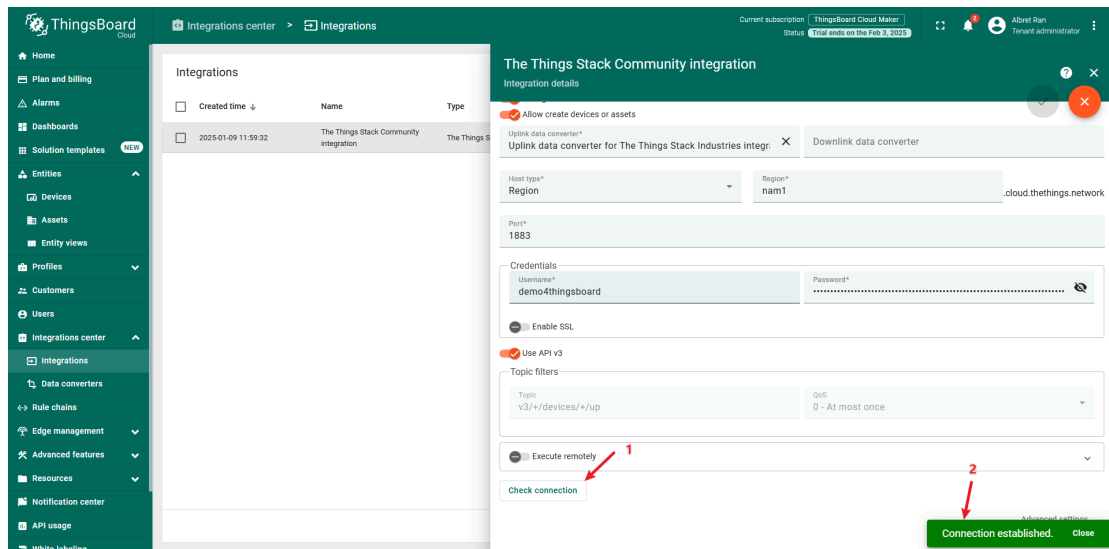




Just fill in the parameters as shown (all parameters here are taken from chapter 3.4.3):

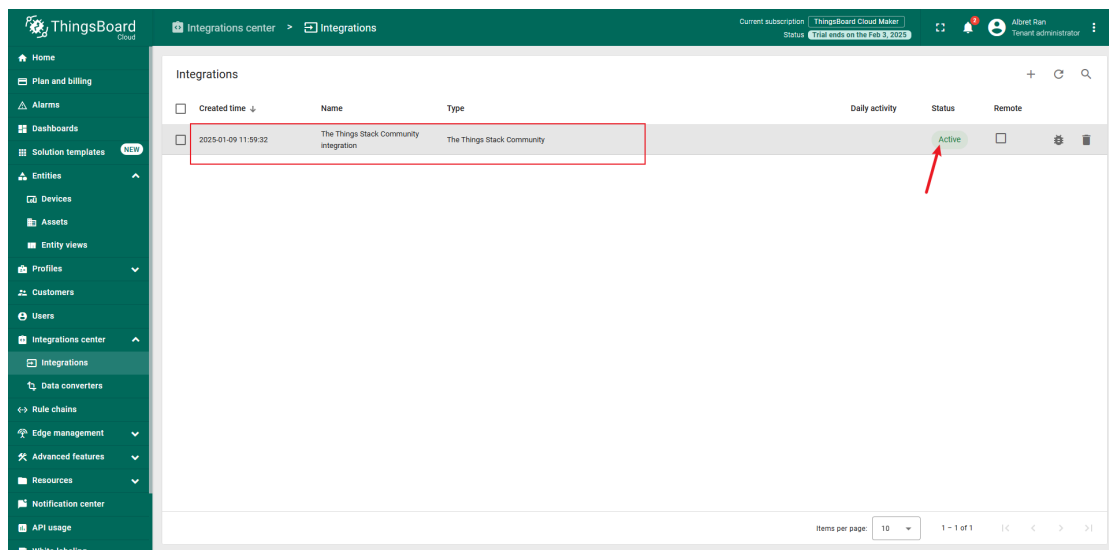


When the configuration is complete, click "Check connection":



3.4.5. Check Results

As shown in the figure, the ThingsBoard has successfully connected to The Things Stack, and the result is as follows:



And you can see real-time device data:

The Things Stack Community integration

Integration details

Event type: Debug

last 15 minutes

Event time	Server	Type	Message	Status	Error
2025-01-09 16:05:09.953	tb-ie-main-0	Uplink	...	OK	
2025-01-09 16:04:12.407	tb-ie-main-0	Uplink	...	OK	
2025-01-09 16:03:27.059	tb-ie-main-0	Uplink	...	OK	
2025-01-09 16:03:11.461	tb-ie-main-0	Uplink	...	OK	
2025-01-09 16:02:12.419	tb-ie-main-0	Uplink	...	OK	
2025-01-09 16:01:09.969	tb-ie-main-0	Uplink	...	OK	
2025-01-09 16:00:12.463	tb-ie-main-0	Uplink	...	OK	
2025-01-09 15:59:09.954	tb-ie-main-0	Uplink	...	OK	
2025-01-09 15:58:13.898	tb-ie-main-0	Uplink	...	OK	
2025-01-09 15:57:09.958	tb-ie-main-0	Uplink	...	OK	

And in **Devices** page, you can see the AM308 devices and see the real-time data:

Devices

Device Filter

include customer entities

Created time	Name	Device profile	Label	State	Customer name	Groups	Is gateway
2025-01-09 15:38:18	AM308 am308	AM308		Active			

AM308 am308

Device details

Latest telemetry

Telemetry

Last update time	Key	Value
2025-01-09 15:38:49	battery	100
2025-01-09 15:38:49	beep	no
2025-01-09 16:08:13	co2	573
2025-01-09 16:08:13	humidity	34.0
2025-01-09 16:08:13	light_level	2
2025-01-09 16:08:13	pir	idle
2025-01-09 16:08:13	pm10	66
2025-01-09 16:08:13	pm2.5	49
2025-01-09 16:08:13	pressure	1022.6

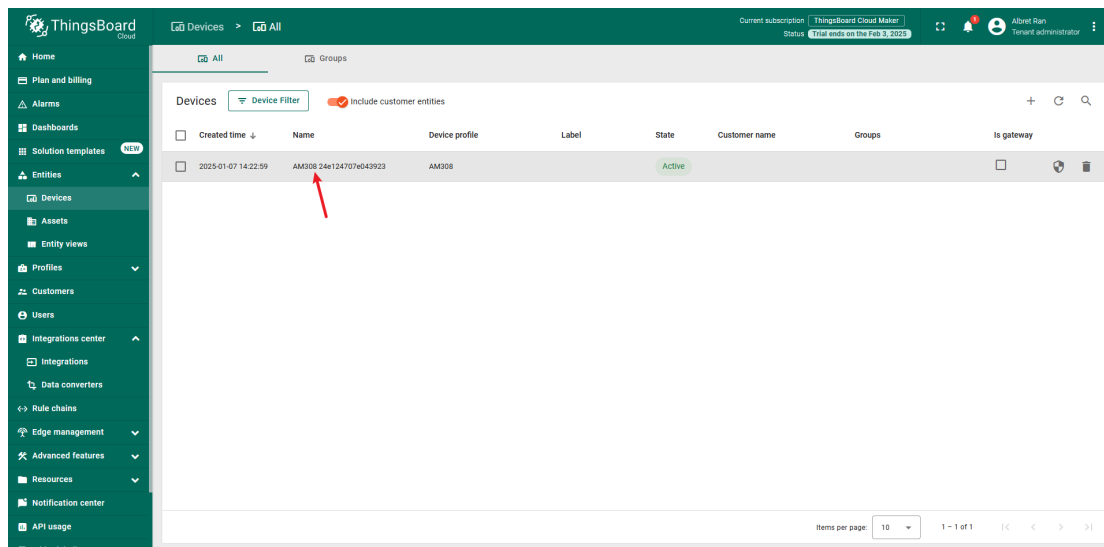
At this point, we have completed the interface between The Things Stack and the



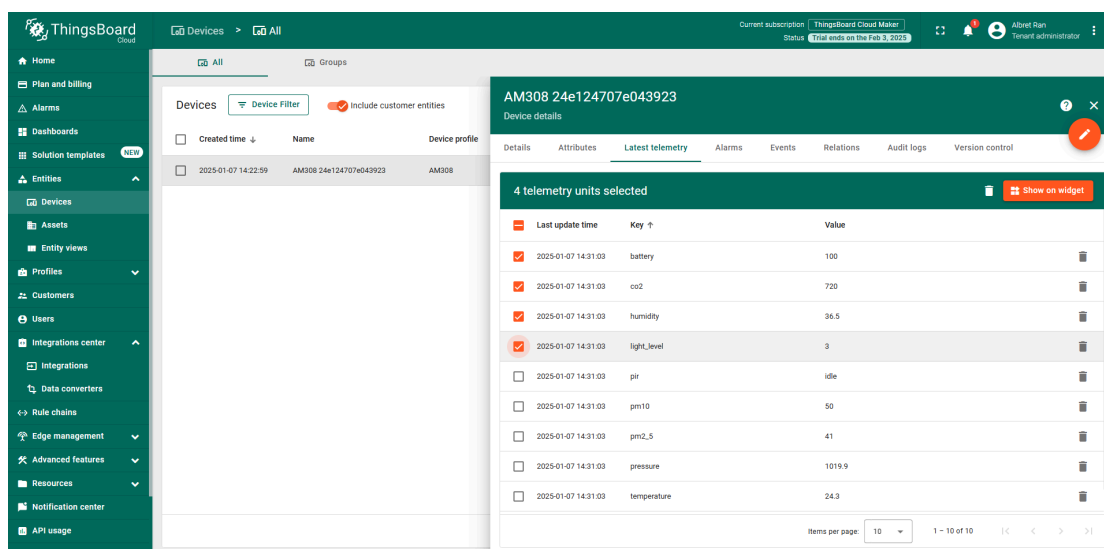
ThingsBoard platform, in which the data from the sensor AM308 is forwarded to The Things Stack through the UG65, and then forwarded to the ThingsBoard platform by The Things Stack. ThingsBoard can decode the data from AM308 in real time.

3.5. Create a Dashboard Example

Click on the AM308 column:

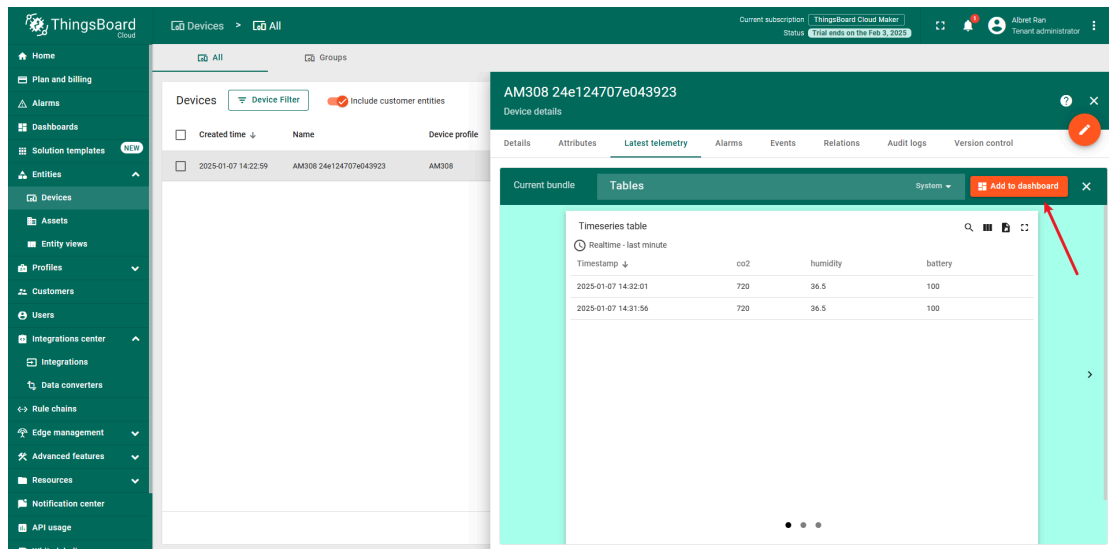


In the pop-up window, follow the configuration shown in the image and select the desired fields:

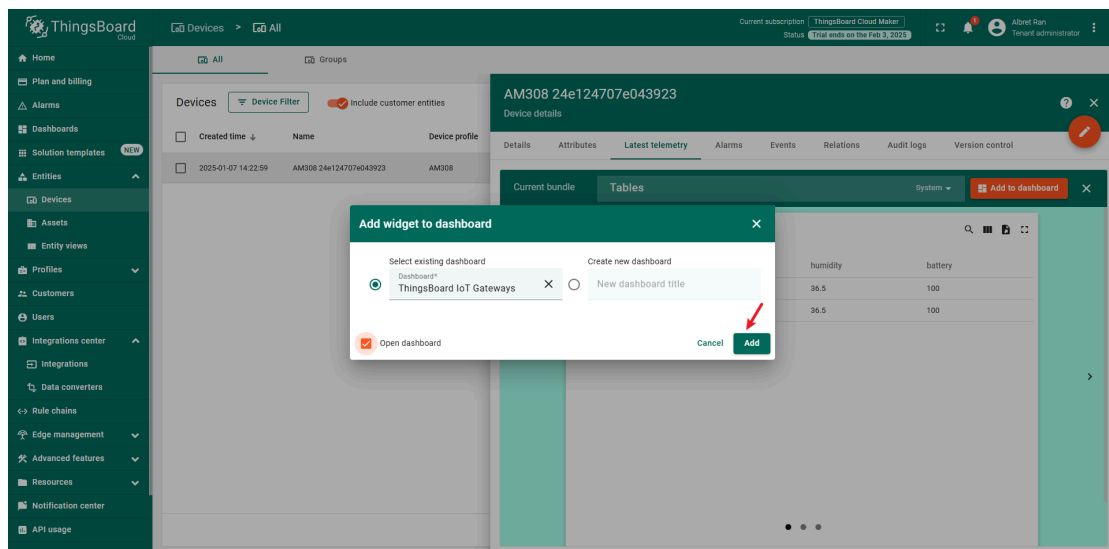


For this example, select battery, co2, humidity, and light_level. Click "Show on widget":





In the pop-up window, click "Add":



After a short wait, the Dashboard menu will display the newly created example:



ThingsBoard Cloud

Home

Plan and billing

Alarms

Dashboards

Solution templates NEW

Entities

- Devices
- Assets
- Entity views

Profiles

Customers

Users

Integrations center

- Integrations
- Data converters

Rule chains

Edge management

Advanced features

Resources

Notification center

API usage

White labelling

Dashboards > ThingsBoard IoT Gateways

Current subscription: ThingsBoard Cloud Maker
Status: Trial ends on the Feb 3, 2025

Abiret Rian
Tenant administrator

Gateway List

humidity
Last update: just now
37 °C

temperature
Last update: just now
24 °C

Timeseries table

Realtime - last minute

Timestamp ↓	co2	humidity	battery
2025-01-07 14:37:02	717	96.5	100
2025-01-07 14:36:58	717	96.5	100

Items per page: 10 1 ~ 2 of 2

History - last 5 minutes Edit mode

Powered by Thingsboard v3.8.1.9PAAS

-END-

