



Integrate Milesight Gateways and Devices into the TagoIO Platform



Version Change Log			
Version	Revision Date	Revision Details	Revised By
V1.0	20250518	Initial	Lockon



Preface

TagoIO is an end-to-end Internet of Things (IoT) cloud platform designed for the rapid deployment and management of IoT solutions. It supports the entire process including device connectivity, data collection, visualization, and user access management. A key feature of the platform is its “low-code” development approach, which combines drag-and-drop dashboards with customizable scripting, enabling both technical and non-technical users to quickly build IoT applications.

This document mainly describes how to connect the UG65 gateway to the TagoIO platform and view real-time data from a sensor connected to the gateway on the TagoIO platform. The sensor used in this example is the AM319 device.

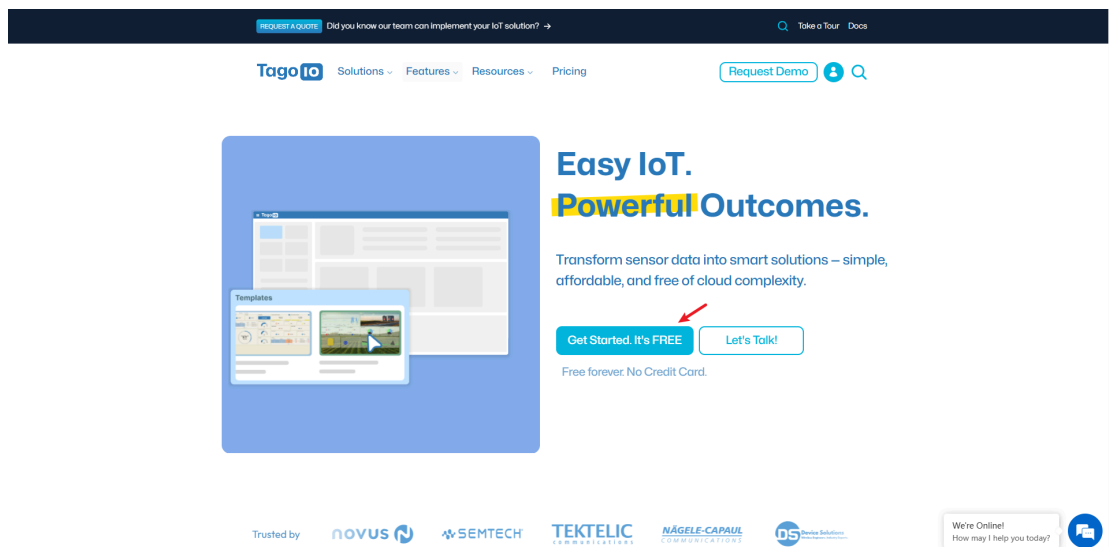
Note: The AM319 device is used solely for demonstration purposes and does not imply that other sensors are unsupported. Readers should refer to the steps in this document according to their actual situation.

1. Prerequisites

- **Gateway model:** UG65 (UG56, UG67, UG63 are also supported)
- **Sensor model:** AM319
- **The gateway is connected to the internet**

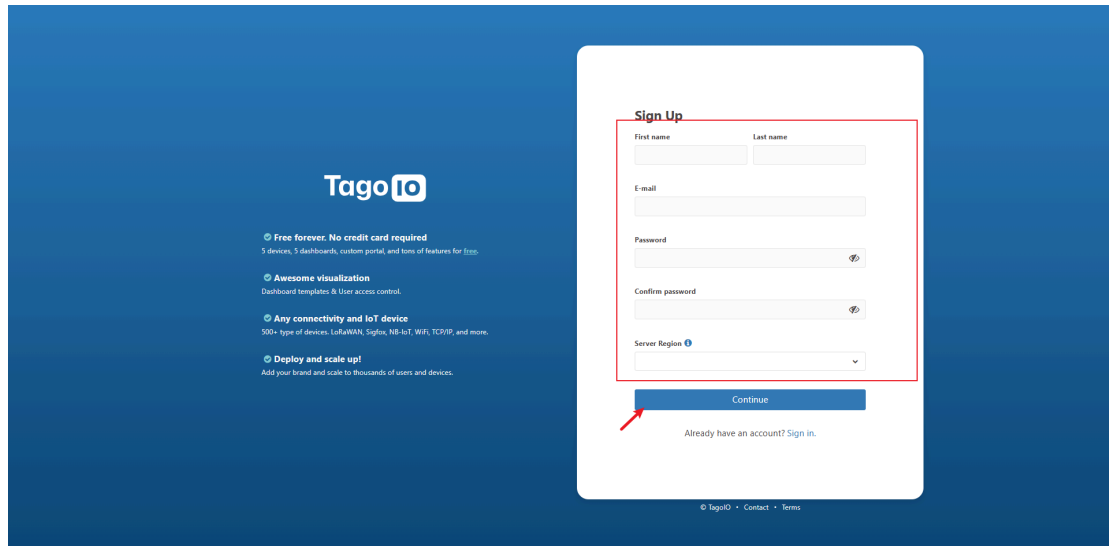
2. Register an Account

Visit [IoT Cloud Platform | TagoIO](#) and click the “**Get Started. It's FREE**” button:



Fill in the information as prompted in the pop-up interface:





The image shows the TagoIO Sign Up page. On the left, there is a blue background with the TagoIO logo and four bullet points: 'Free forever. No credit card required', 'Awesome visualization', 'Any connectivity and IoT device', and 'Deploy and scale up!'. On the right, there is a white sign-up form with a red border. The form has fields for 'First name', 'Last name', 'E-mail', 'Password', 'Confirm password', and 'Server Region'. A red arrow points to the 'Continue' button at the bottom of the form. Below the button, it says 'Already have an account? Sign in.' and at the very bottom, there are links for '© TagoIO', 'Contact', and 'Terms'.

TagoIO

- Free forever. No credit card required
5 devices, 5 dashboards, custom portal, and tons of features for free.
- Awesome visualization
Dashboard templates & User access control.
- Any connectivity and IoT device
500+ type of devices. LoRaWAN, Sigfox, NB-IoT, WiFi, TCP/IP, and more.
- Deploy and scale up!
Add your brand and scale to thousands of users and devices.

Sign Up

First name Last name

E-mail

Password

Confirm password

Server Region

Continue

Already have an account? Sign in.

© TagoIO • Contact • Terms

For **Server Region**, select **"United States East 1"**.

After registration, click the activation link sent to your registered email to activate your account.

3. First Login

Visit [Admin](#) enter your credentials, and follow the steps to create a Profile:



The image shows the TagoIO Sign In page. It has a blue background with the TagoIO logo at the top. Below the logo, there is a white sign-in form. The form has fields for 'E-mail' (with the example 'jackon.wen@mlsight.com') and 'Password'. There is a 'Forgot your password?' link next to the password field. Below the fields is a 'Continue' button. At the bottom of the form, it says 'New here? Sign up.' and there is a dropdown menu for 'United States East 1'. At the very bottom, there are links for '© TagoIO', 'Contact', and 'Terms'.

TagoIO

Sign In

E-mail
jackon.wen@mlsight.com

Password
Forgot your password?

Continue

New here? Sign up.

United States East 1

© TagoIO • Contact • Terms

TagoIO | Settings

Back Account Billing

MY PROFILES

Milesight

+ Add new Profile

TEAM PROFILES

Profile Team Tokens More

Milesight

Usage Statistics

- Data Input
- Data Records
- SMS
- Push Notifications
- File Storage
- Data Output
- Analysis
- E-mail
- Run Users
- TagoCores

Usage History

Visualize usage for each of the services

Data Input

Data Output

Analysis

Want to see detailed usage history?
Upgrade to the Starter or Scale plan to see the usage history for all your profiles' services.

Upgrade your Plan

Profile Summary

lockon.wen@tagoio.com

Audit log

Billing

Dictionaries

Hard Limits

Integrations

Profile & Teams

Secrets

Support

Sign out

Edit allocation

Resources	Amount allocated
Data Input	1,000,000 transactions/mo
Data Output	3,000,000 transactions/mo
Analysis	3,000 minutes/mo
Data Storage	800,000 registers
SMS	10 SMS/mo
E-mail	100 E-mails/mo
Run Users	10 users
Push Notification	100 notifications/mo
File Storage	200
Custom Domain	Disabled

Save

TagoIO | Settings

Back Account Billing

MY PROFILES

Milesight

+ Add new Profile

TEAM PROFILES

Profile Team Tokens More

Milesight

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Upgrade your Plan

Add Profile

Name

Milesight

Allocate all free resources to this profile

Cancel

Create my Profile

Profile Summary

Estimated cost for this profile \$0.00

Edit allocation

Resources	Amount allocated
Data Input	1,000,000 transactions/mo
Data Output	3,000,000 transactions/mo
Analysis	3,000 minutes/mo
Data Storage	800,000 registers
SMS	10 SMS/mo
E-mail	100 E-mails/mo
Run Users	10 users
Push Notification	100 notifications/mo
File Storage	200
Custom Domain	Disabled

Save

TagoIO | Settings

Back Account Billing

MY PROFILES

Milesight

+ Add new Profile

TEAM PROFILES

Profile Team Tokens More

Milesight

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- Run Users
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Usage History

Visualize usage for each of the services

Data Input

Data Output

Analysis

Want to see detailed usage history?
Upgrade to the Starter or Scale plan to see the usage history for all your profiles' services.

Upgrade your Plan

Profile Summary

Estimated cost for this profile \$0.00

Edit allocation

Resources	Amount allocated
Data Input	1,000,000 transactions/mo
Data Output	3,000,000 transactions/mo
Analysis	3,000 minutes/mo
Data Storage	800,000 registers
SMS	10 SMS/mo
E-mail	100 E-mails/mo
Run Users	10 users
Push Notification	100 notifications/mo
File Storage	200
Custom Domain	Disabled

Save

Once done, your personal Profile named "Milesight" will be created.
Under "Resources," you can view the resource limits of your current Account Plan.

You may upgrade your plan as needed to fit your project requirements.

4. Create a Device

Visit [Admin](#), and under your “Milesight” profile:

The screenshot shows the TagoIO Milesight dashboard. A red arrow points to the 'Milesight' dropdown menu in the top left corner. The dashboard is divided into several sections: a left sidebar with navigation icons, a top header with the Milesight logo and navigation links, and a main content area. The main content area includes a 'Profile Summary' section with a table of metrics, a 'Usage Statistics' section with progress bars, and a 'Usage History' section with line charts. A 'Want to see detailed usage history?' pop-up is visible in the center of the Usage History section.

Profile Summary	
Devices	1
Analysis	1
Policies	1
Dictionary	0
Connectors	0
TagoRun	66c5af792ab0c0009a26...
Custom Domain	Configure
Admin/API version	v7.61.4 / v8.23.31

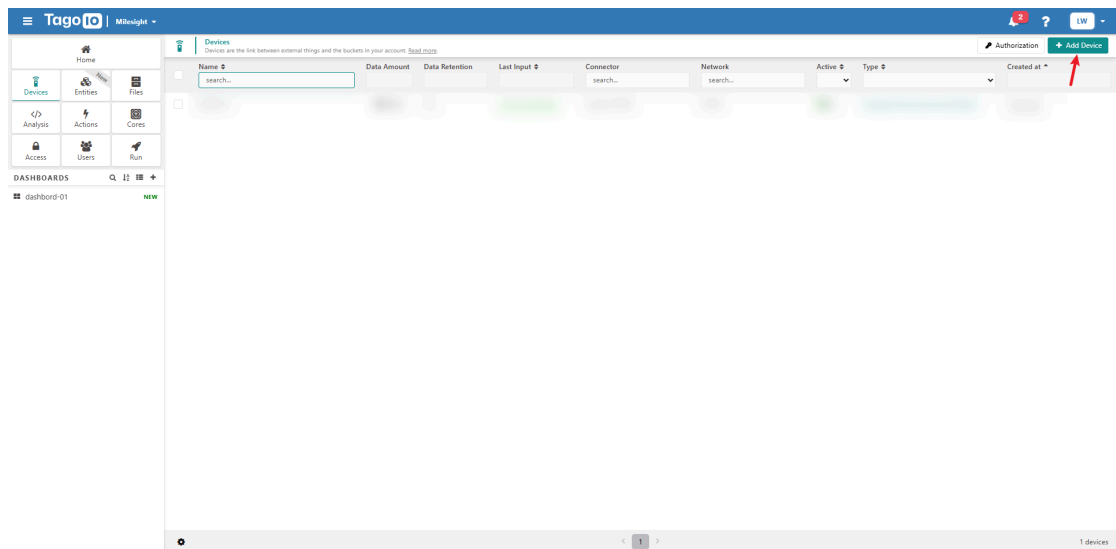
Usage Statistics	
Data Input	1
Data Records	0
SMS	2
Push Notifications	1
File Storage	0

Follow the steps shown below:

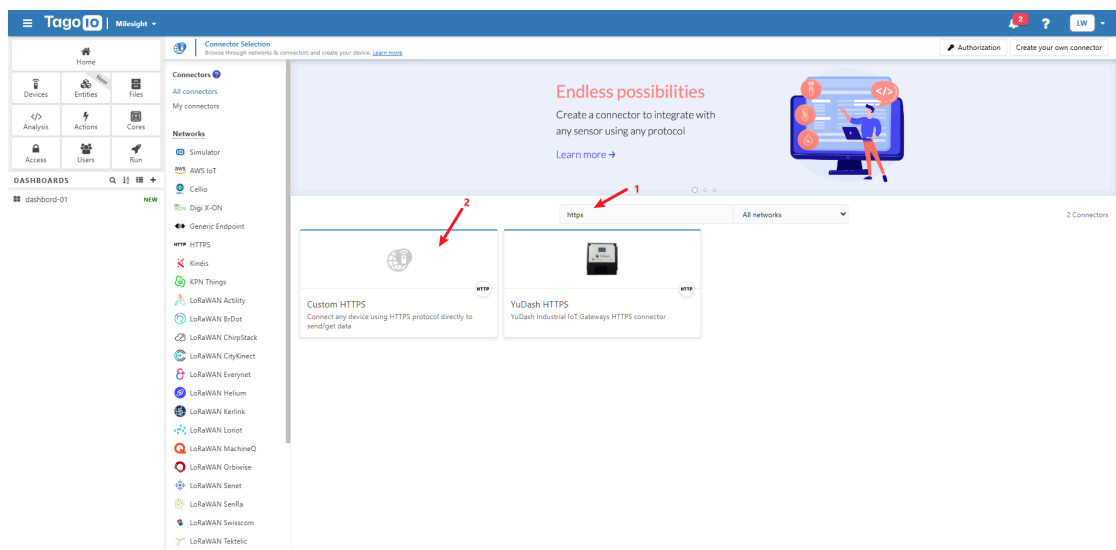
This screenshot is identical to the one above, showing the TagoIO Milesight dashboard. A red arrow points to the 'Milesight' dropdown menu in the top left corner. The dashboard is divided into several sections: a left sidebar with navigation icons, a top header with the Milesight logo and navigation links, and a main content area. The main content area includes a 'Profile Summary' section with a table of metrics, a 'Usage Statistics' section with progress bars, and a 'Usage History' section with line charts. A 'Want to see detailed usage history?' pop-up is visible in the center of the Usage History section.

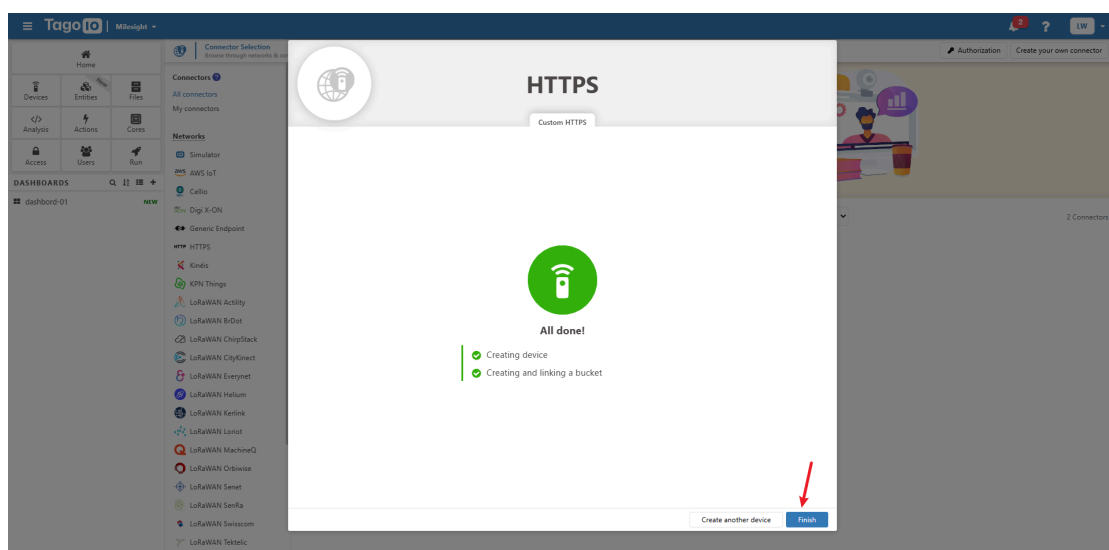
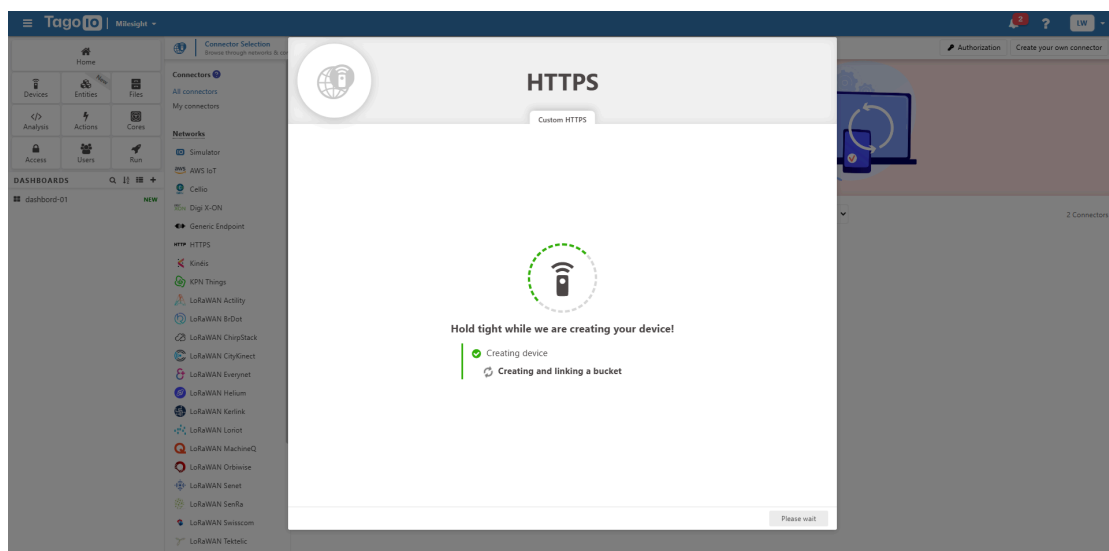
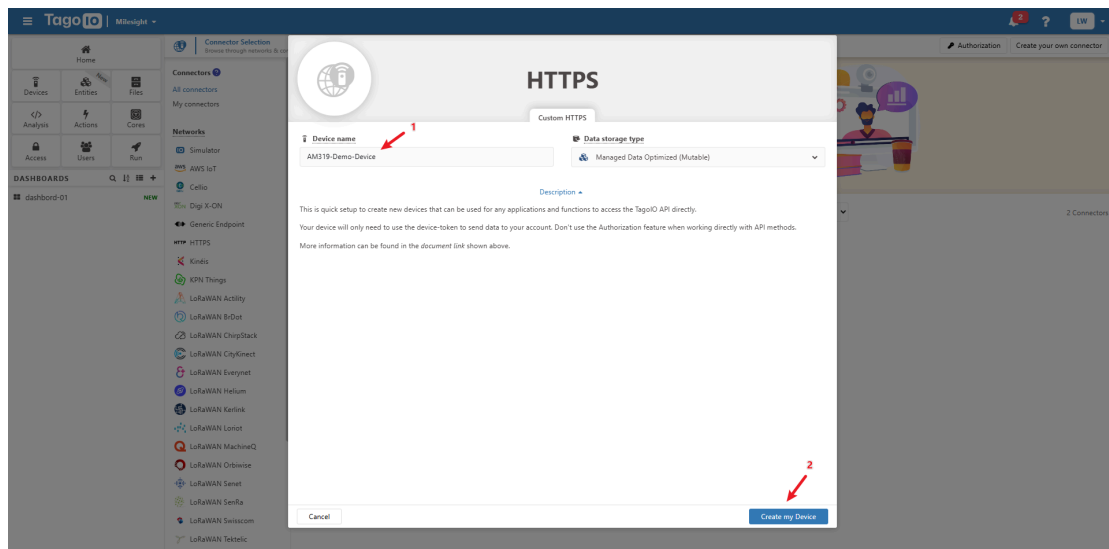
Profile Summary	
Devices	1
Analysis	1
Policies	1
Dictionary	0
Connectors	0
TagoRun	66c5af792ab0c0009a26...
Custom Domain	Configure
Admin/API version	v7.61.4 / v8.23.31

Usage Statistics	
Data Input	1
Data Records	0
SMS	2
Push Notifications	1
File Storage	0



In the search bar, type **"https"**:

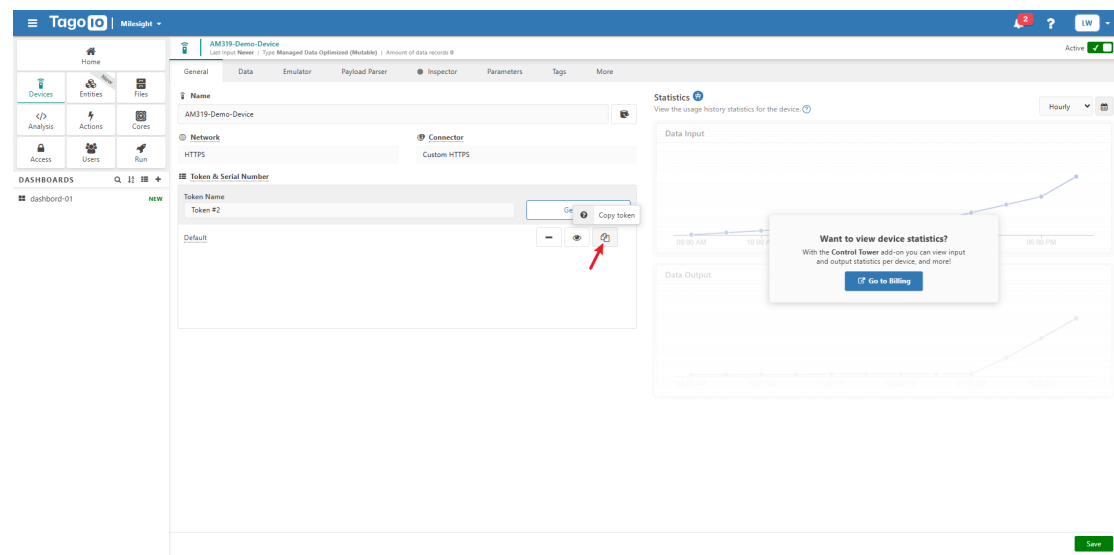




Then proceed as shown, and copy the **token** for this device, it will be needed



later:



The token is typically in the format shown below.
The one used in this demo is:

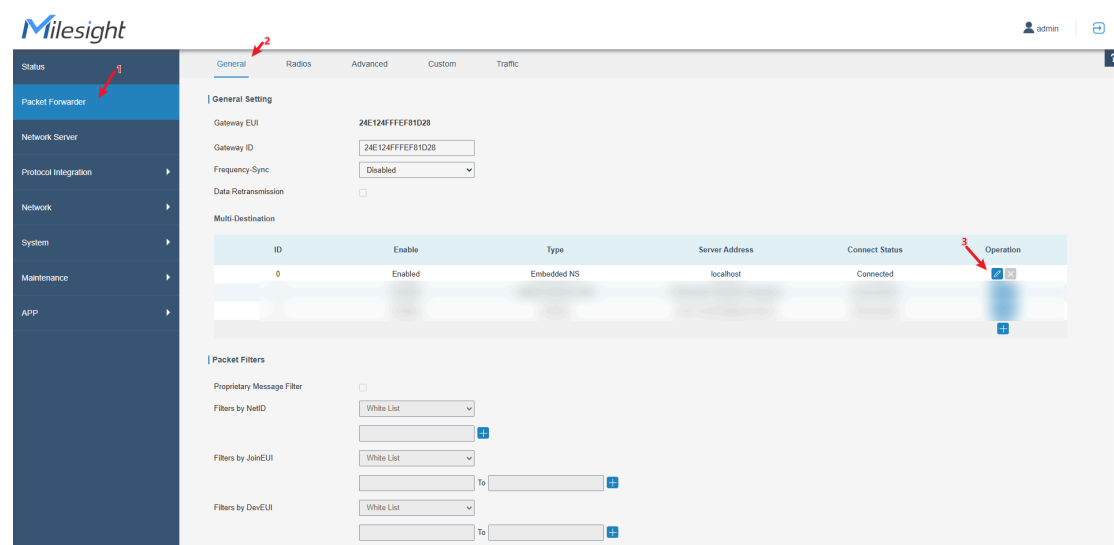
2040aa18-b7a9-4179-94cf-a12ca6c6bed4

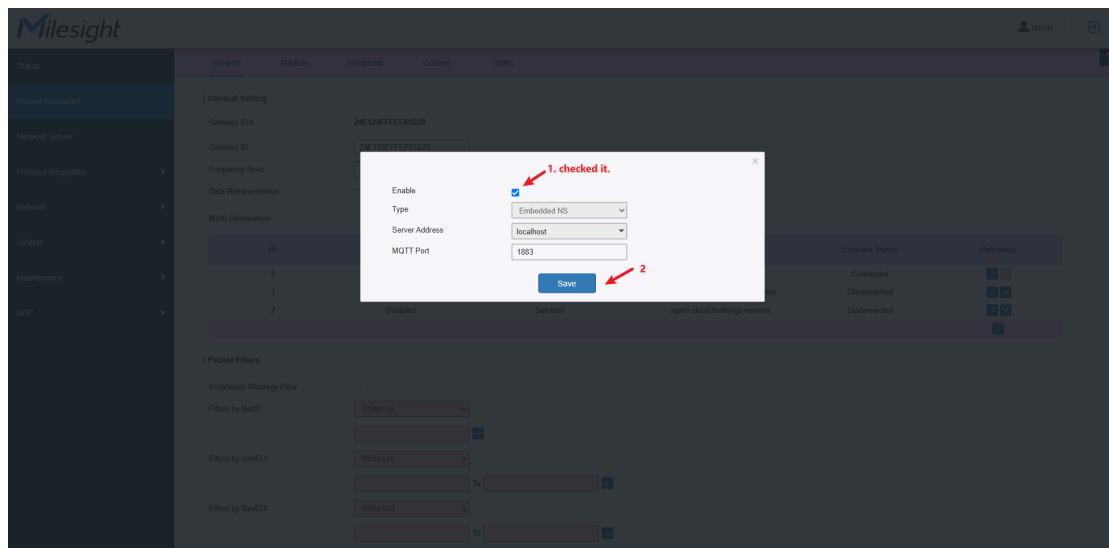
The device creation is now complete.
Next, we will configure the gateway and sensor.

5. Gateway Configuration

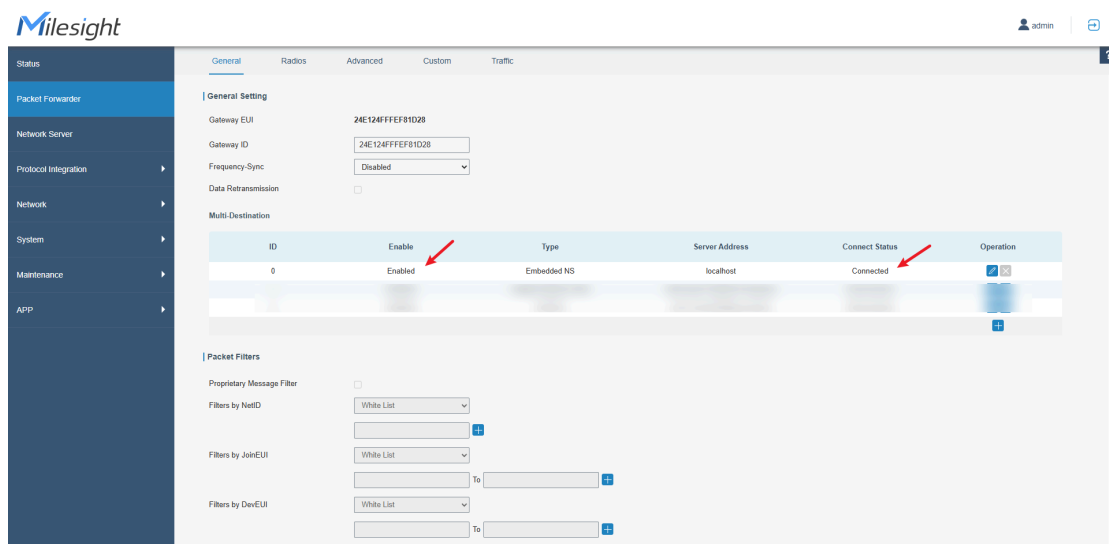
5.1. Enable Embedded NS

First, log in to your gateway management interface (refer to [How to Login Web GUI of Milsight Gateway](#)), then follow the steps shown below. (Skip this step if it's already enabled):





As shown, if **Embedded NS** is **Enabled** and **Connected**, it means it has been successfully activated:



5.2. Add Sensor

Refer to [How to Connect LoRaWAN Nodes to Milesight Gateway](#) for detailed steps. After completion, it should look like this:



Milesight

admin

General Applications Payload Codec Profiles **Device** Multicast Groups Gateway Fleet Packets

Device

Add Bulk Import Delete All

Search

Device Name	Device EUI	Device Profile	Payload Codec	Application	Last Seen	Activated	Operation
AM319-LoRa	24E1247100371756	ClassC-OTAA		cloud	35 seconds ago	✓	

Showing 1 to 1 of 1 rows

5.3. Create Decode Script

By default, the decoded data from the gateway is not recognized by TagoIO, so we need to modify the decode script. Follow the steps below (based on [How to Use Payload Codec on Milesight Gateway](#)):

Milesight

admin

General Applications **Payload Codec** Profiles Device Multicast Groups Gateway Fleet Packets

Note: Ensure that the Internet access is available.

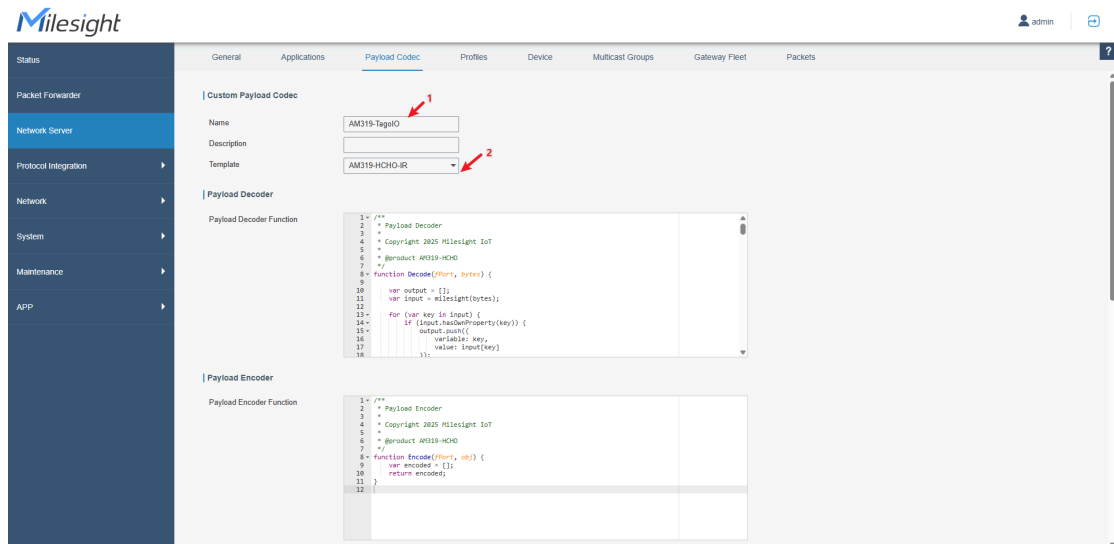
Name	Payload Decoder Function	Payload Encoder Function	Object Mapping Function	Details
AM102	✓	✓	✓	
AM102L	✓	✓	✓	
AM103	✓	✓	✓	
AM103L	✓	✓	✓	
AM104	✓	✓	✓	
AM107	✓	✓	✓	
AM307	✓	✓	✓	
AM307L	✓	✓	✓	
AM308	✓	✓	✓	
AM308L	✓	✓	✓	

Showing 1 to 10 of 106 rows 10 rows per page

Custom Payload Codec

Name	Description	Payload Decoder Function	Payload Encoder Function	Object Mapping Function	Operation

Showing 1 to 2 of 2 rows



Replace the **Decode()** function with the following code:

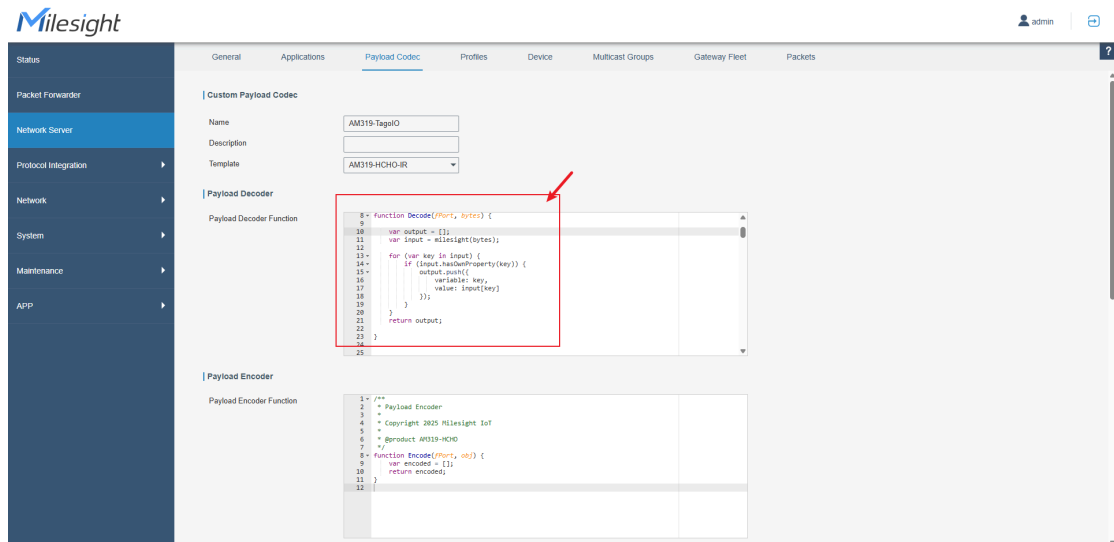
```
function Decode(fPort, bytes) {

    var output = [];
    var input = milesight(bytes);

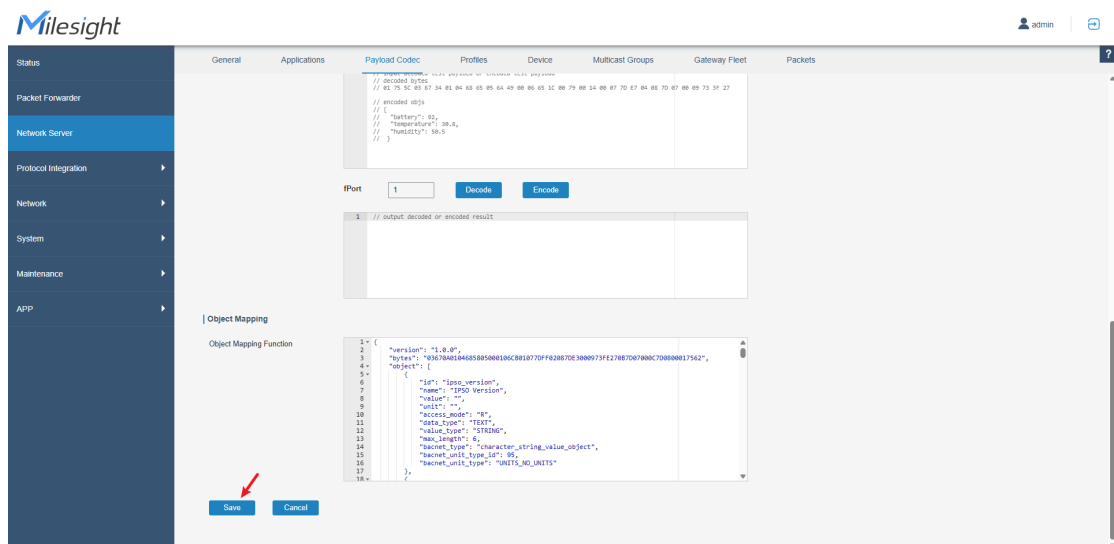
    for (var key in input) {
        if (input.hasOwnProperty(key)) {
            output.push({
                variable: key,
                value: input[key]
            });
        }
    }
    return output;
}
```

The final result should look like this:





Click "Save" to save:



Next, link the device to the decode script, as shown below:

Milesight



Status Packet Forwarder Network Server Protocol Integration Network System Maintenance App

General Applications Payload Codec Profiles Device Multicast Groups Gateway Fleet Packets

Device

Add Bulk Import Delete All

Search

Device Name	Device EUI	Device-Profile	Payload Codec	Application	Last Seen	Activated	Operation
AM319-LoRa	24E124710D371756	ClassC-OTAA	AM319-TagoIO	cloud	6 seconds ago	✓	 

Showing 1 to 1 of 1 rows

Milesight

AM319-LoRa

Device Name: AM319-LoRa

Description: 24E124710D371756

Device EUI: 24E124710D371756

Device-Profile: ClassC-OTAA

Application: cloud

Payload Codec: AM319-TagoIO

Port: None

Frame-counter Validation: AM319-TagoIO

Application Key: Default

Device Address: AM319-HCHO

Network Session Key: 7f6a52b4ef7c7a10344d01463

Application Session Key: 2281d052525a317de422a3636

Uplink Frame-counter: 264

Downlink Frame-counter: 12

Save & Apply

The result should be:

Milesight



Status Packet Forwarder Network Server Protocol Integration Network System Maintenance App

General Applications Payload Codec Profiles Device Multicast Groups Gateway Fleet Packets

Device

Add Bulk Import Delete All

Search

Device Name	Device EUI	Device-Profile	Payload Codec	Application	Last Seen	Activated	Operation
AM319-LoRa	24E124710D371756	ClassC-OTAA	AM319-TagoIO	cloud	6 seconds ago	✓	 

Showing 1 to 1 of 1 rows

5.4. Check Data Output

After configuring, check whether the sensor data is correctly parsed, as shown below:

The screenshot shows the Milesight web interface. The left sidebar has a menu with 'Network Server' highlighted. The main content area is under the 'Device' tab. A table lists the device details:

Device Name	Device EUI	Device Profile	Payload Codec	Application	Last Seen	Activated	Operation
AM319-LoRa	24E124710D371756	ClassC-OTAA	AM319-TagLoI	cloud	6 seconds ago	✓	ⓘ ✕

A red arrow points to the 'Packets' tab in the top navigation bar.

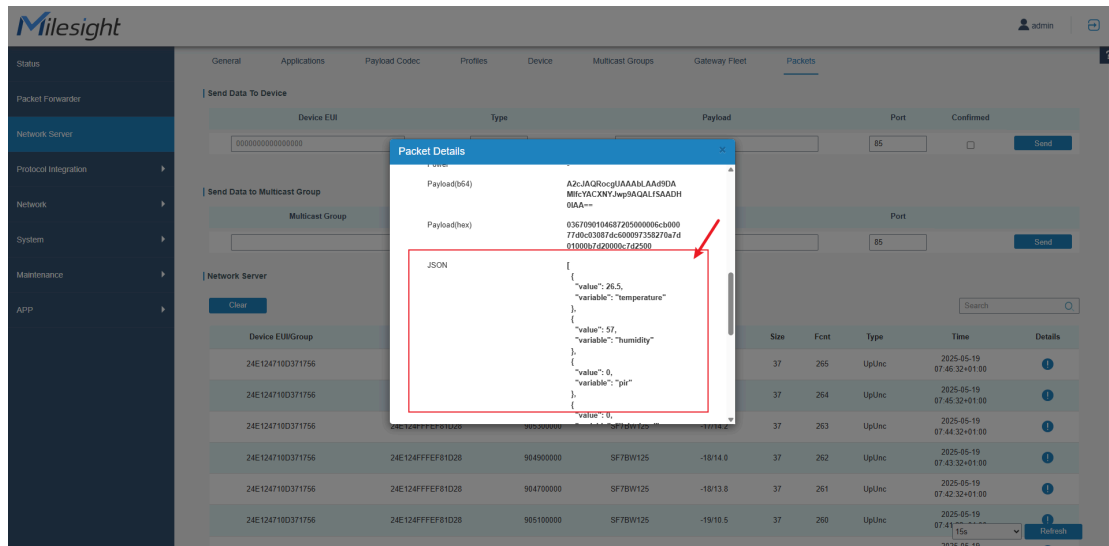
The screenshot shows the Milesight web interface with the 'Packets' tab selected. The main content area has three sections:

- Send Data To Device:** A form with fields for Device EUI, Type (ASCII), Payload, Port (85), and a Send button.
- Send Data to Multicast Group:** A form with fields for Multicast Group, Type (ASCII), Payload, Port (85), and a Send button.
- Network Server:** A table showing network server data. A red arrow points to the 'Details' column.

Device EUI/Group	Gateway ID	Frequency	Datarate	RSSI/SNR	Size	Fcnt	Type	Time	Details
24E124710D371756	24E124FFFFE81028	905300000	SF7BW125	-10/14.5	37	265	UpUnc	2025-05-19 07:46:32+01:00	ⓘ
24E124710D371756	24E124FFFFE81028	904300000	SF7BW125	-19/10.0	37	264	UpUnc	2025-05-19 07:45:32+01:00	ⓘ
24E124710D371756	24E124FFFFE81028	905300000	SF7BW125	-17/14.2	37	263	UpUnc	2025-05-19 07:44:32+01:00	ⓘ
24E124710D371756	24E124FFFFE81028	904900000	SF7BW125	-10/14.0	37	262	UpUnc	2025-05-19 07:43:32+01:00	ⓘ
24E124710D371756	24E124FFFFE81028	904700000	SF7BW125	-10/13.8	37	261	UpUnc	2025-05-19 07:42:32+01:00	ⓘ
24E124710D371756	24E124FFFFE81028	905100000	SF7BW125	-19/10.5	37	260	UpUnc	2025-05-19 07:41:32+01:00	ⓘ

Verify whether the JSON output matches the expected format.

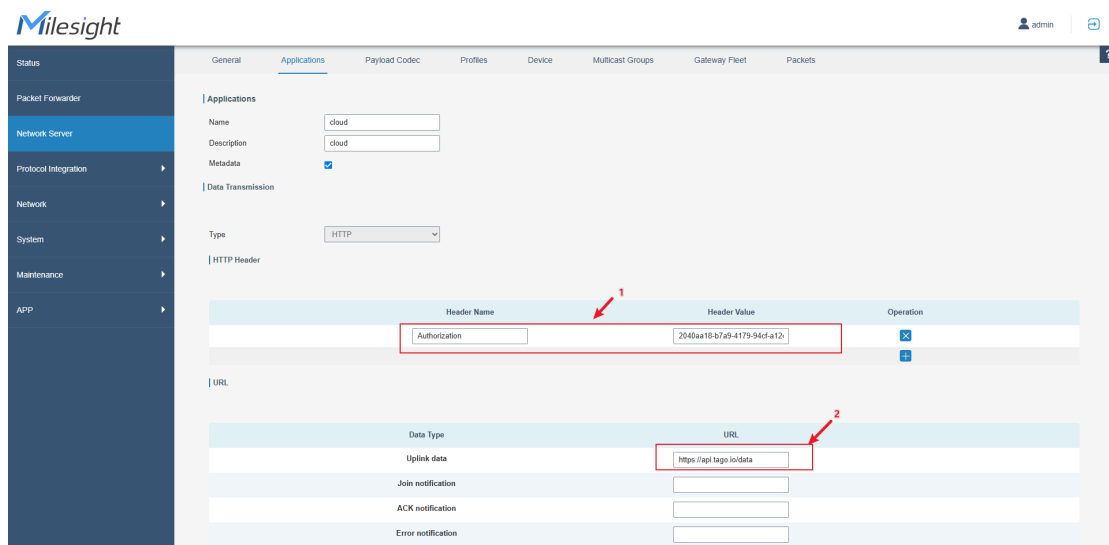
If it is empty or in another format, the previous steps may have been misconfigured, please double-check:



5.5. Configure HTTP Parameters

Refer to [How to Connect Milesight LoRaWAN Gateway to HTTP\(s\) Server?](#) for this section.

Once done, the configuration screen should look like this:



Note:

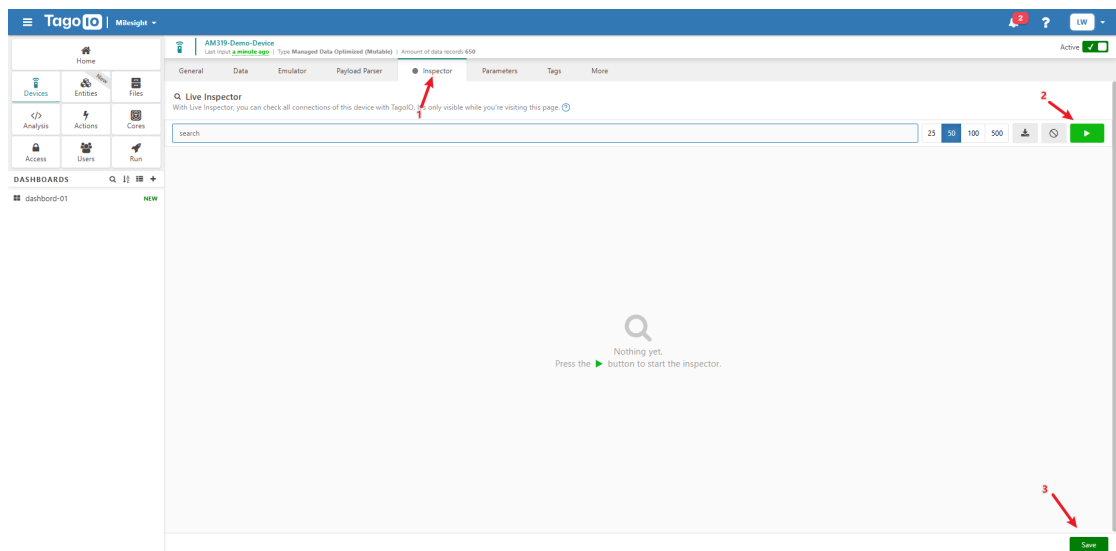
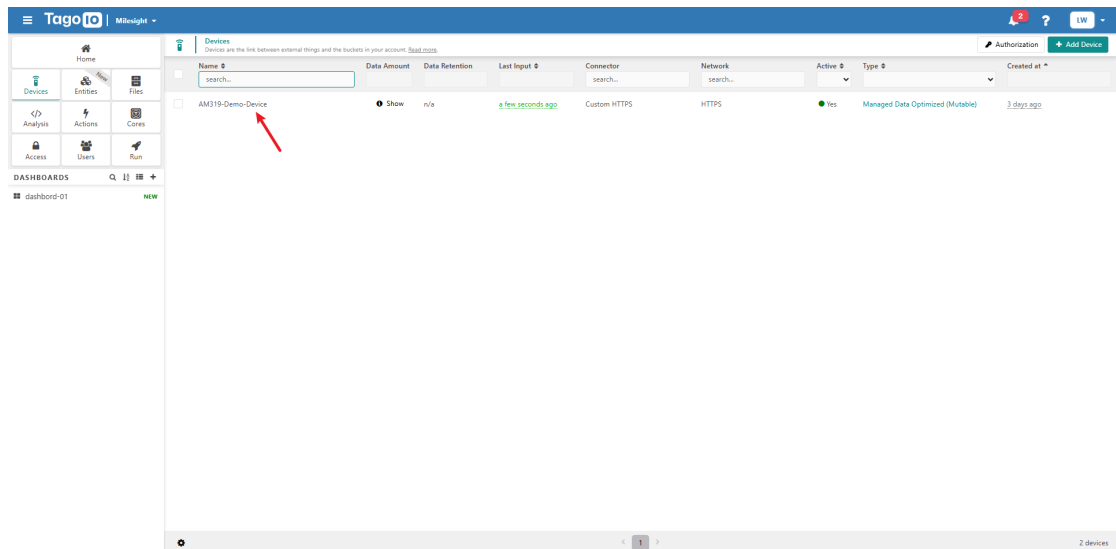
- The **Uplink data** URL should be <https://api.tago.io/data> , do not enter it incorrectly.
- The **Authorization** value is the token obtained in Step 4.

At this point, the configuration of the gateway and sensor is complete. Next, return to the TagoIO platform to observe data reporting from the device.

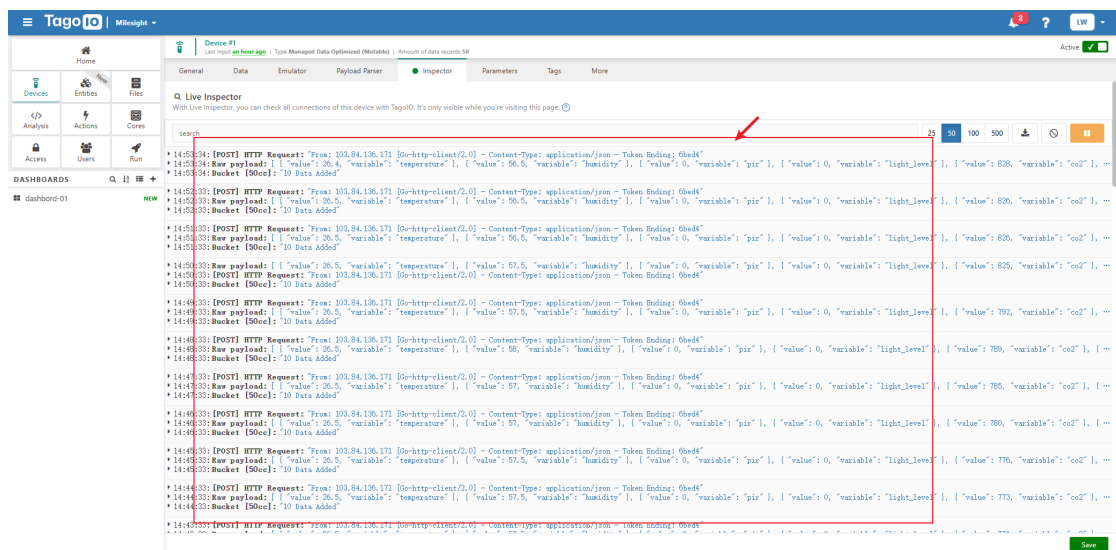
6. Observe Device Data

Follow the steps shown below:





After a short wait, you should see the following information:

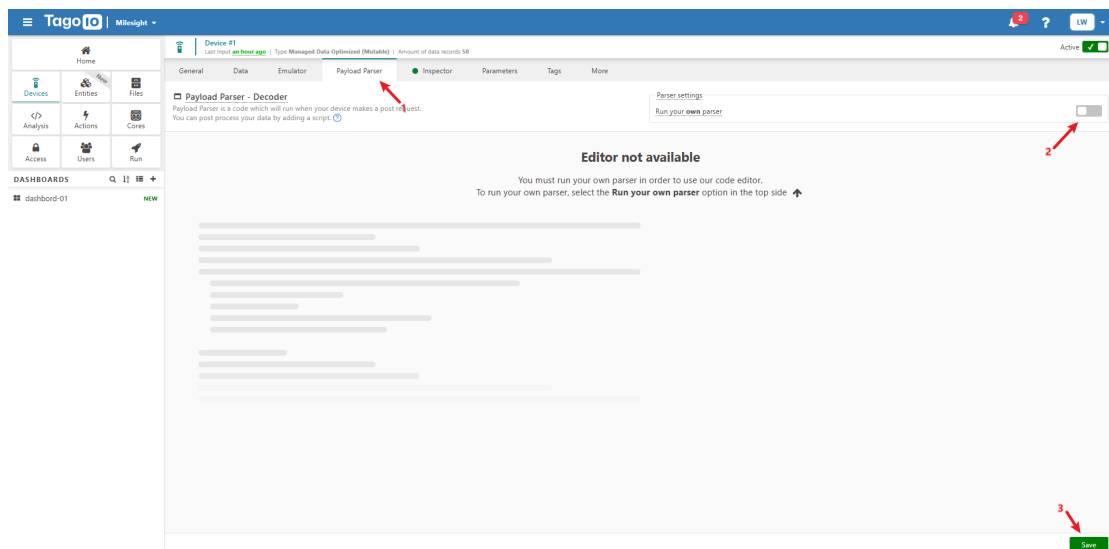


Variables Data

ID	Variable	Value	Group	Time
6d7ae	pm10	29 (number)	0a7d6aa0004a601f126da286	a few seconds ago
6d7a9	pm2_5	28 (number)	0a7d6aa0004a601f126da286	a few seconds ago
6d7a8	hcho	0.01 (number)	0a7d6aa0004a601f126da286	a few seconds ago
6d7a7	pressure	1007.2 (number)	0a7d6aa0004a601f126da286	a few seconds ago
6d7a6	tvoc	1.95 (number)	0a7d6aa0004a601f126da286	a few seconds ago
6d7a5	co2	840 (number)	0a7d6aa0004a601f126da286	a few seconds ago
6d7a4	light_level	0 (number)	0a7d6aa0004a601f126da286	a few seconds ago
6d7a3	pir	0 (number)	0a7d6aa0004a601f126da286	a few seconds ago
6d7a2	humidity	57 (number)	0a7d6aa0004a601f126da286	a few seconds ago
6d7a1	temperature	26.4 (number)	0a7d6aa0004a601f126da286	a few seconds ago
d5e56	pm10	28 (number)	c4e1d1a0004ed5f5e5a286	a minute ago
d5e55	pm2_5	28 (number)	c4e1d1a0004ed5f5e5a286	a minute ago
d5e54	hcho	0.02 (number)	c4e1d1a0004ed5f5e5a286	a minute ago
d5e53	pressure	1007.2 (number)	c4e1d1a0004ed5f5e5a286	a minute ago
d5e52	tvoc	1.95 (number)	c4e1d1a0004ed5f5e5a286	a minute ago
d5e51	co2	841 (number)	c4e1d1a0004ed5f5e5a286	a minute ago
d5e50	light_level	0 (number)	c4e1d1a0004ed5f5e5a286	a minute ago

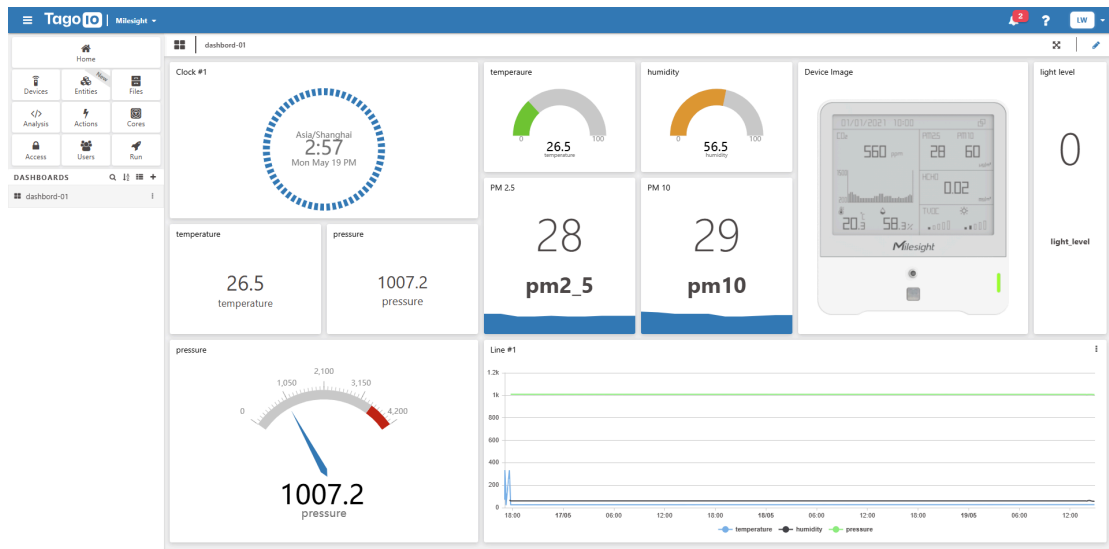
This indicates that the TagoIO platform has successfully received the data.

Additionally, since the sensor is decoded at the gateway level, the built-in **Payload Parser** in TagoIO must be **disabled**, as shown:



7. Create a Sample Dashboard





-END-

