
PB01 -- LoRaWAN Push Button User Manual

last modified by Xiaoling

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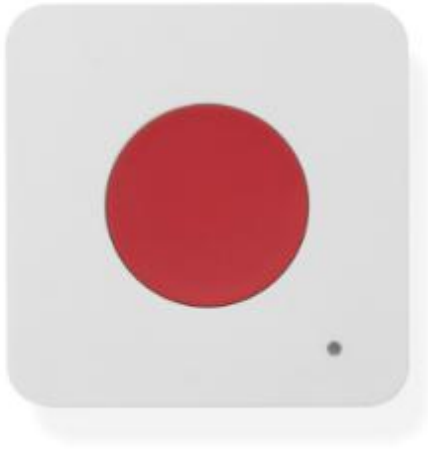


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1. Introduction

1.1 What is PB01 LoRaWAN Push Button

PB01 LoRaWAN Push Button is a LoRaWAN wireless device with one **push button**. Once user push the button, PB01 will transfer the signal to IoT server via Long Range LoRaWAN wireless protocol. PB01 also senses the **environment temperature & humidity** and will also uplink these data to IoT Server.

PB01 supports **2 x AAA batteries** and works for a long time up to several years*. User can replace the batteries easily after they are finished.

PB01 has a built-in speaker, it can pronouns different sound when press button and get reply from server. The speaker can by disable if user want it.

PB01 is fully compatible with LoRaWAN v1.0.3 protocol, it can work with standard LoRaWAN gateway.

*Battery life depends how often to send data, please see [battery analyzer](#).

1.2 Features

- Wall Attachable.
- LoRaWAN v1.0.3 Class A protocol.
- 1 x push button. Different Color available.
- Built-in Temperature & Humidity sensor
- Built-in speaker
- Frequency Bands: CN470/EU433/KR920/US915/EU868/AS923/AU915
- AT Commands to change parameters
- Remote configure parameters via LoRaWAN Downlink
- Firmware upgradable via program port
- Support 2 x AAA LR03 batteries.
- IP Rating: IP52

1.3 Specification

Built-in Temperature Sensor:

- Resolution: 0.01 °C
 - Accuracy Tolerance: Typ ± 0.2 °C
 - Long Term Drift: < 0.03 °C/yr
-

- Operating Range: -10 ~ 50 °C or -40 ~ 60 °C (depends on battery type, see [FAQ](#))

Built-in Humidity Sensor:

- Resolution: 0.01 %RH
- Accuracy Tolerance: Typ ± 1.8 %RH
- Long Term Drift: < 0.2% RH/yr
- Operating Range: 0 ~ 99.0 %RH(no Dew)

1.4 Power Consumption

PB01 : Idle: 5uA, Transmit: max 110mA

1.5 Storage & Operation Temperature

-10 ~ 50 °C or -40 ~ 60 °C (depends on battery type, see [FAQ](#))

1.6 Applications

- Smart Buildings & Home Automation
- Logistics and Supply Chain Management
- Smart Metering
- Smart Agriculture
- Smart Cities
- Smart Factory

2. Operation Mode

2.1 How it work?

Each PB01 is shipped with a worldwide unique set of LoRaWAN OTAA keys. To use PB01 in a LoRaWAN network, user needs to input the OTAA keys in LoRaWAN network server. After this, if PB01 is under this LoRaWAN network coverage, PB01 can join the LoRaWAN network and start to transmit sensor data. The default period for each uplink is **20 minutes**.

2.2 How to Activate PB01?

1. **Open enclosure from below position.**



2. Insert 2 x AAA LR03 batteries and the node is activated.

3. Under the above conditions, users can also reactivate the node by long pressing the ACT button.

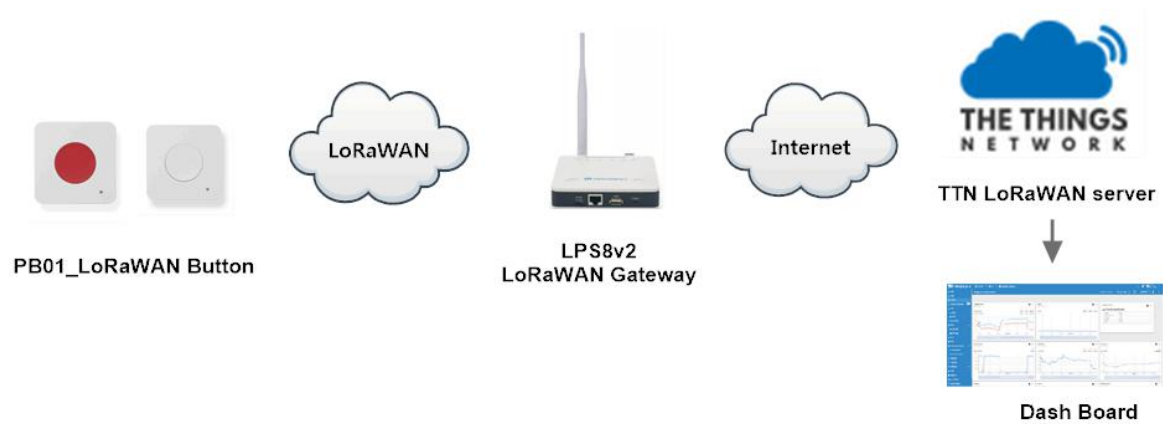


User can check [LED Status](#) to know the working state of PB01.

2.3 Example to join LoRaWAN network

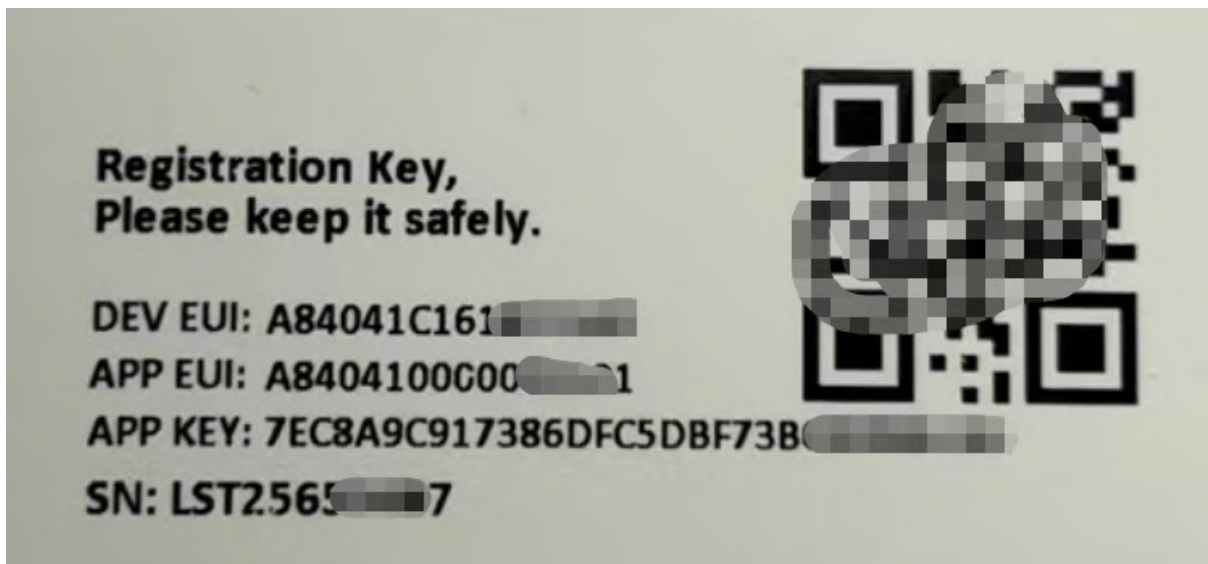
This section shows an example for how to join the [TheThingsNetwork](#) LoRaWAN IoT server. Usages with other LoRaWAN IoT servers are of similar procedure.

Assume the LPS8v2 is already set to connect to [TTN V3 network](#). We need to add the PB01 device in TTN V3 portal.



Step 1: Create a device in TTN V3 with the OTAA keys from PB01.

Each PB01 is shipped with a sticker with the default DEV EUI as below:





Enter these keys in the LoRaWAN Server portal. Below is TTN V3 screen shot:

Create application.

choose to create the device manually.

Add JoinEUI(AppEUI), DevEUI, AppKey.

User Manual for LoRaWAN /NB -IoT End Nodes - PB01 -- LoRaWAN Push Button User Manual



OverviewApplicationsGatewaysOrganizations

EUI Sandbox
No support plan

Create application

Within applications, you can register and manage end devices and their network data. After setting up your device fleet, use one of our many integration options to pass relevant data to your external services.
Learn more in our guide on [Adding Applications](#).

Application ID *

my-new-application

Application name



My new application

Description

Description for my new application

Optional application description; can also be used to save notes about the application

Create application




OverviewApplicationsGatewaysOrganizations

EUI Sandbox
Fair use policy applies

zero

Applications > zero

 **zero**
ID: zero

Last activity 3 minutes ago

23 End devices2 Collaborators0 API keys

General information

Application IDzero

Created atAug 21, 2023 17:03:32

Last updated atAug 21, 2023 17:03:32

Live data

See all activity →

14:18:20eui-fa2345...Forward uplink data message

14:15:36eui-003586...Forward uplink data message

14:12:26eui-a84041...Forward uplink data message

14:18:26eui-a84041...Forward uplink data message

14:18:17eui-fa2345...Forward uplink data message

14:08:26eui-a84041...Forward uplink data message

End devices (23)

SearchImport end devicesRegister end device

ID	Name	DevEUI	JoinEUI	Last activity
eui-fa23455555555555	PB01	FA 23 45 55 55 55 55 51	FF AA 23 45 42 42 41 11	3 min. ago
eui-003586ec8db99ea	RS485LB	00 35 86 EC 8D 89 9E 01	F1 B8 FB D9 FC 68 F1 00	7 days ago
eui-a840414a818519ae	CPL01 New firmware	A8 40 41 4A 81 85 19 AE	A8 40 41 00 00 00 01 01	9 min. ago
eui-70b3d57ed0066ff4		70 83 05 7E 00 06 6F F4	00 25 9C 00 00 81 00 00	yesterday

Step 2: Use ACT button to activate PB01 and it will auto join to the TTN V3 network. After join success, it will start to upload sensor data to TTN V3 and user can see in the panel.

The screenshot shows the TTN V3 console interface for the application PB01. The top navigation bar includes links for Overview, Applications, Gateways, and Organizations. The main content area shows the application details for PB01 (ID: eu1-fa23455555555555). Below this, there are tabs for Overview, Live data, Messaging, Location, Payload formatters, and General settings. The Live data tab is selected, showing a list of messages. The data preview table below the messages shows the following data:

Time	Type	Data preview
14:29:31	Schedule data downlink for transmissi...	DevAddr: 26 08 FB E3 Rx1 Delay: 5
14:29:31	Forward uplink data message	DevAddr: 26 08 FB E3 Payload: { Alzaz: "FALSE", BatV: 3.366, Hum_SHT41: 67.6, Sound_ACK: "OPEN", Sound_key: "OPEN", TempC_SHT41: 26.8 } PPort: 2 Data rate: SF12BW125 SNR: 9.2 RSSI
14:29:31	Successfully processed data message	DevAddr: 26 08 FB E3
14:29:26	Forward join-accept message	DevAddr: 26 08 FB E3 JoinEUI: FF AA 23 45 42 42 42 11 DevEUI: FA 23 45 55 55 55 55 51
14:29:24	Successfully processed join-request	DevAddr: 26 08 B1 92 JoinEUI: FF AA 23 45 42 42 42 11 DevEUI: FA 23 45 55 55 55 55 51
14:29:23	Accept join-request	DevAddr: 26 08 FB E3 JoinEUI: FF AA 23 45 42 42 42 11 DevEUI: FA 23 45 55 55 55 55 51
14:18:20	Schedule data downlink for transmissi...	DevAddr: 26 08 B1 92 Rx1 Delay: 5

2.4 Uplink Payload

Uplink payloads include two types: Valid Sensor Value and other status / control command.

- Valid Sensor Value: Use FPORT=2
- Other control command: Use FPORT other than 2.

2.4.1 Uplink FPORT=5, Device Status

Users can get the Device Status uplink through the downlink command:

Downlink: 0x2601

Uplink the device configures with FPORT=5.

Size(bytes)	1	2	1	1	2
Value	Sensor Model	Firmware Version	Frequency Band	Sub-band	BAT

The screenshot shows the 'The Things Stack' interface for device 'PB01'. The 'Live data' tab is active, displaying a list of messages. A red box highlights a message at 15:20:40: 'Forward uplink data message' with DevAddr: 26 08 74 11 and Payload: { BAT: 3.294, FIRMWARE_VERSION: '1.0.0', FREQUENCY_BAND: 'EU868', SENSOR_MODEL: 'PB01-L', SUB_BAND: 'NULL' }. The payload is shown in hexadecimal as 35 01 00 01 FF 0C 0E. The FPort is 5. The message also includes Data rate: SF7BW125, SNR: 13.8, and RSSI: -.

Example Payload (FPort=5): 35 01 00 01 FF 0C DE

Sensor Model: For PB01, this value is 0x35.

Firmware Version: 0x0100, Means: v1.0.0 version.

Frequency Band:

*0x01: EU868

*0x02: US915

*0x03: IN865

*0x04: AU915

*0x05: KZ865

*0x06: RU864

*0x07: AS923

*0x08: AS923-1

*0x09: AS923-2

*0x0a: AS923-3

Sub-Band: value 0x00 ~ 0x08(only for CN470, AU915,US915. Others are 0x00)

BAT: shows the battery voltage for PB01.

Ex1: 0x0C DE = 3294mV

2.4.2 Uplink FPORT=2, Real time sensor value

PB01 will send this uplink after Device Status uplink once join LoRaWAN network successfully. And it will periodically send this uplink. Default interval is 20 minutes and [can be changed](#).

Uplink uses FPORT=2 and every 20 minutes send one uplink by default.

Size(bytes)	2	1	1	2	2
Value	Battery	Sound_ACK	Alarm	Temperature	Humidity
		&Sound_key			

Example in TTN.

Example Payload (FPort=2): **0C EA 03 01 01 11 02 A8**

Battery:

Check the battery voltage.

- Ex1: $0x0CEA = 3306mV$
- Ex2: $0x0D08 = 3336mV$

Sound_ACK & Sound_key:

Key sound and ACK sound are enabled by default.

- Example1: 0x03
Sound_ACK: $(03 \gg 1) \& 0x01 = 1$, OPEN.
Sound_key: $03 \& 0x01 = 1$, OPEN.
- Example2: 0x01
Sound_ACK: $(01 \gg 1) \& 0x01 = 0$, CLOSE.
Sound_key: $01 \& 0x01 = 1$, OPEN.

Alarm:

Key alarm.

- Ex1: $0x01 \& 0x01 = 1$, TRUE.
- Ex2: $0x00 \& 0x01 = 0$, FALSE.

Temperature:

- Example1: $0x0111/10 = 27.3^{\circ}C$
- Example2: $(0xFF0D - 65536)/10 = -24.3^{\circ}C$

If payload is: FF0D : $(FF0D \& 8000 == 1)$, temp = $(FF0D - 65536)/100 = -24.3^{\circ}C$

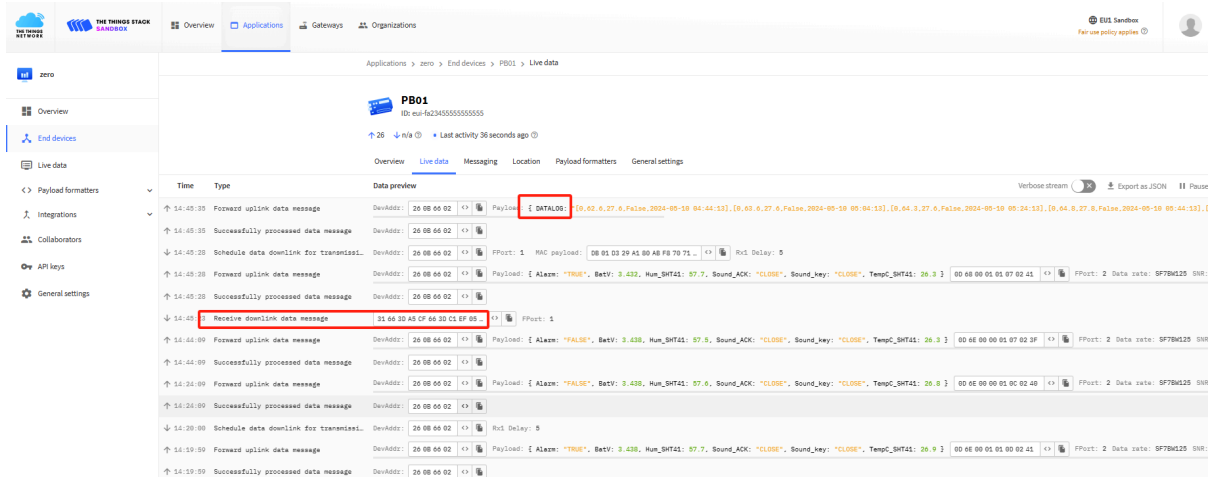
(FF0D & 8000: Judge whether the highest bit is 1, when the highest bit is 1, it is negative)

Humidity:

- Humidity: $0x02A8/10 = 68.0\%$

2.4.3 Uplink FPORT=3, Datalog sensor value

PB01 stores sensor value and user can retrieve these history value via downlink command. The Datalog sensor value are sent via FPORT=3.



- Each data entry is 11 bytes, to save airtime and battery, PB01 will send max bytes according to the current DR and Frequency bands.

For example, in US915 band, the max payload for different DR is:

1. **DR0**: max is 11 bytes so one entry of data
2. **DR1**: max is 53 bytes so devices will upload 4 entries of data (total 44 bytes)
3. **DR2**: total payload includes 11 entries of data
4. **DR3**: total payload includes 22 entries of data.

Notice: PB01 will save 178 set of history data, If device doesn't have any data in the polling time. Device will uplink 11 bytes of 0.

See more info about the [Datalog feature](#).

2.4.4 Decoder in TTN V3

In LoRaWAN protocol, the uplink payload is HEX format, user need to add a payload formatter/decoder in LoRaWAN Server to get human friendly string.

In TTN , add formatter as below:

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The screenshot shows the 'Payload formatters' configuration page for device PB01. The breadcrumb trail is: Applications > zero > End devices > PB01 > Payload formatters > Uplink. The left sidebar contains navigation links: zero, Overview, End devices, Live data, Payload formatters, Integrations, Collaborators, API keys, and General settings. The main content area has tabs for Overview, Live data, Messaging, Location, Payload formatters (selected), and General settings. Below the tabs, there are 'Uplink' and 'Downlink' sections. The 'Uplink' section is expanded, showing a 'Setup' area with a 'Formatter type' dropdown set to 'Custom Javascript formatter'. Below this is a text area for 'Formatter code' containing a JavaScript function. To the right of the code area is a 'Test' section with input fields for 'Byte payload' and 'Decoded test payload', and a 'Complete uplink data' section. At the bottom right of the code area is a link: 'Learn more about payload formatters'. At the bottom of the page is a 'Save changes' button. Red arrows highlight the 'Custom Javascript formatter' dropdown and the 'Save changes' button.

Applications > zero > End devices > PB01 > Payload formatters > Uplink

PB01
ID: eu1-fa2345555555555

↑ 18 ↓ n/a Ⓞ Last activity 12 minutes ago Ⓞ

Overview Live data Messaging Location **Payload formatters** General settings

Uplink Downlink

Setup

Formatter type*
Custom Javascript formatter

Formatter code*

```
1 function datalog(i,bytes){
2   var aa= parseFloat(((bytes[0]<<24>>16 | bytes[1]<<16)/10).toFixed(1));
3   var bb= parseFloat(((bytes[2]<<24>>16 | bytes[3]<<16)/10).toFixed(1));
4   var cc= parseFloat(((bytes[4]<<24>>16 | bytes[5]<<16)/10).toFixed(1));
5   var dd= (bytes[6]<<1) ? "True":"False";
6   var ee= getMyDate((bytes[7]<<24 | bytes[8]<<16 | bytes[9]<<8 | bytes[10]<<1).toString);
7   var string= ['aa'+',','bb'+',','cc'+',','dd'+',','ee'+']+'+';
8
9   return string;
10 }
11
12 function getrf(c_num){
13   if(parseInt(c_num) < 10)
14     c_num = '0' + c_num;
15
16   return c_num;
17 }
18
19 function getMyDate(str){
20   var c_Date;
21   if(str > 9999999999)
22     c_Date = new Date(parseInt(str));
23   else
24     c_Date = new Date(parseInt(str) * 1000);
25 }
```

Test

Byte payload

Decoded test payload

Complete uplink data

[Learn more about payload formatters](#)

Save changes

Please check the decoder from this link: <https://github.com/dragino/dragino-end-node-decoder>

2.5 Show data on Datacake

Datacake IoT platform provides a human friendly interface to show the sensor data in charts, once we have sensor data in TTN V3, we can use Datacake to connect to TTN V3 and see the data in Datacake. Below are the steps:

Step 1: Be sure that your device is programmed and properly connected to the LoRaWAN network.

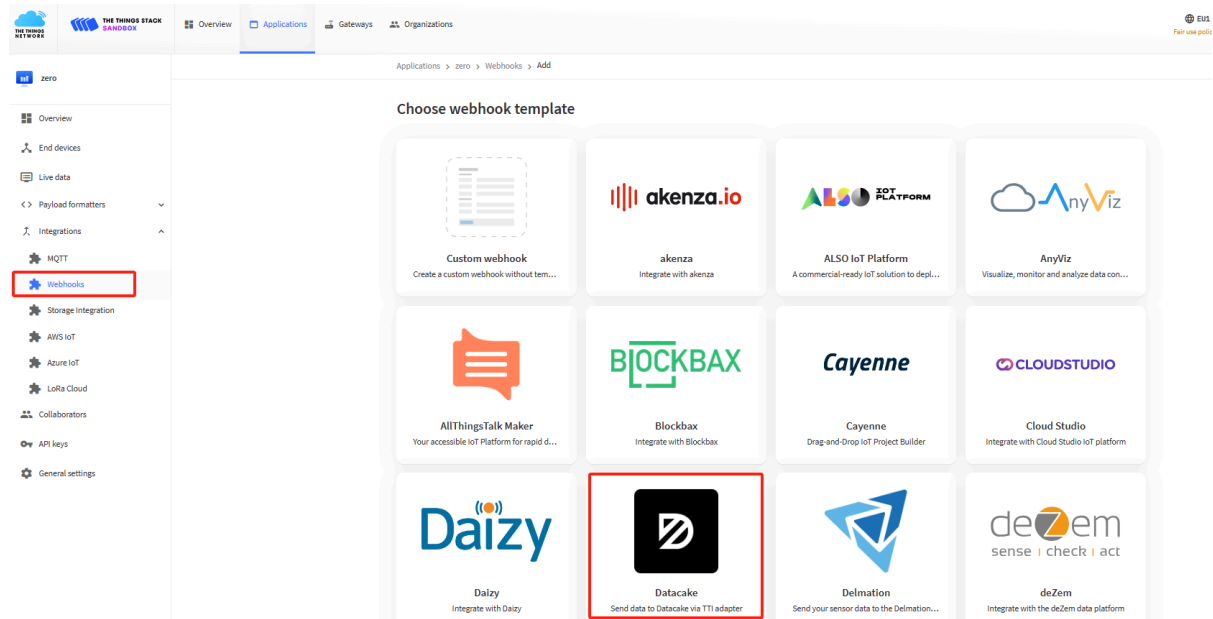
Step 2: Configure your Application to forward data to Datacake you will need to add integration. Go to TTN V3 Console --> Applications --> Integrations --> Add Integrations.

1. Add Datacake:

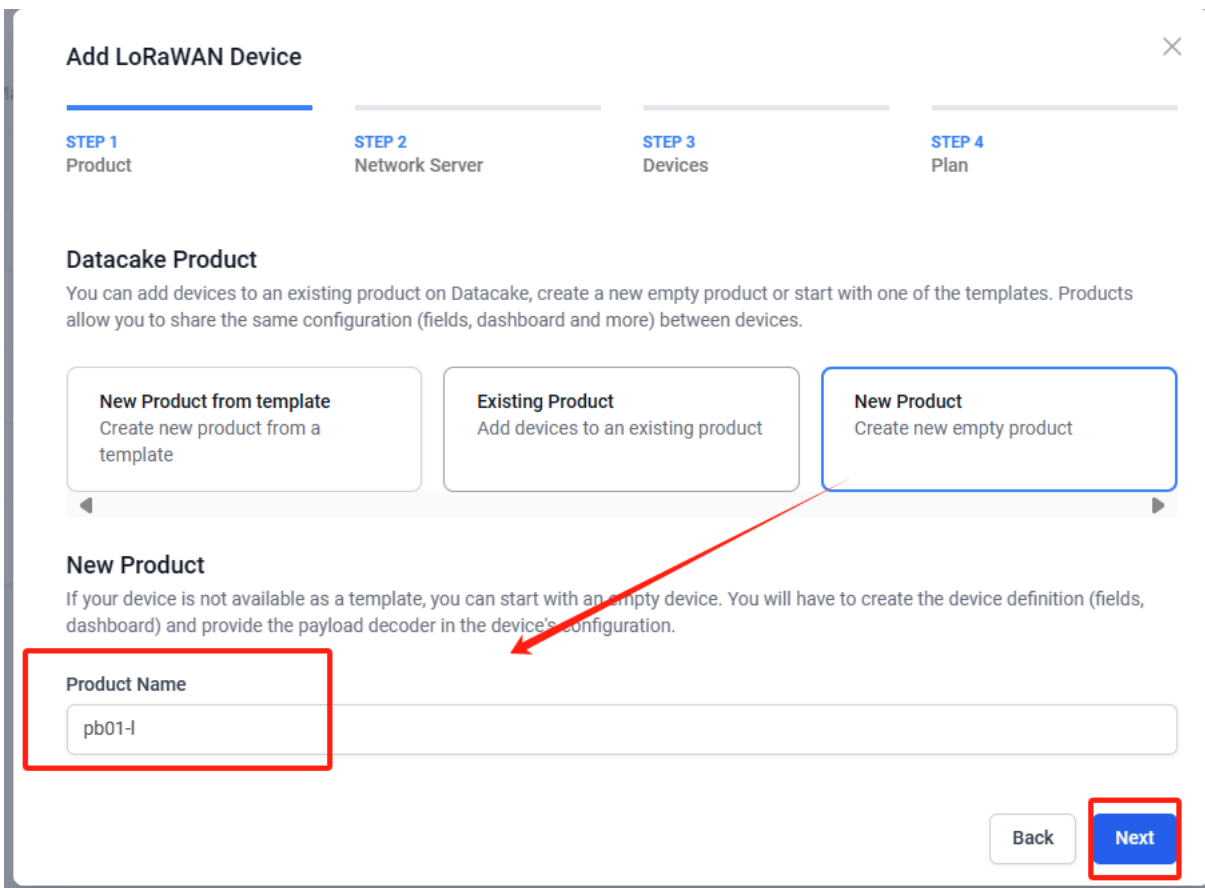
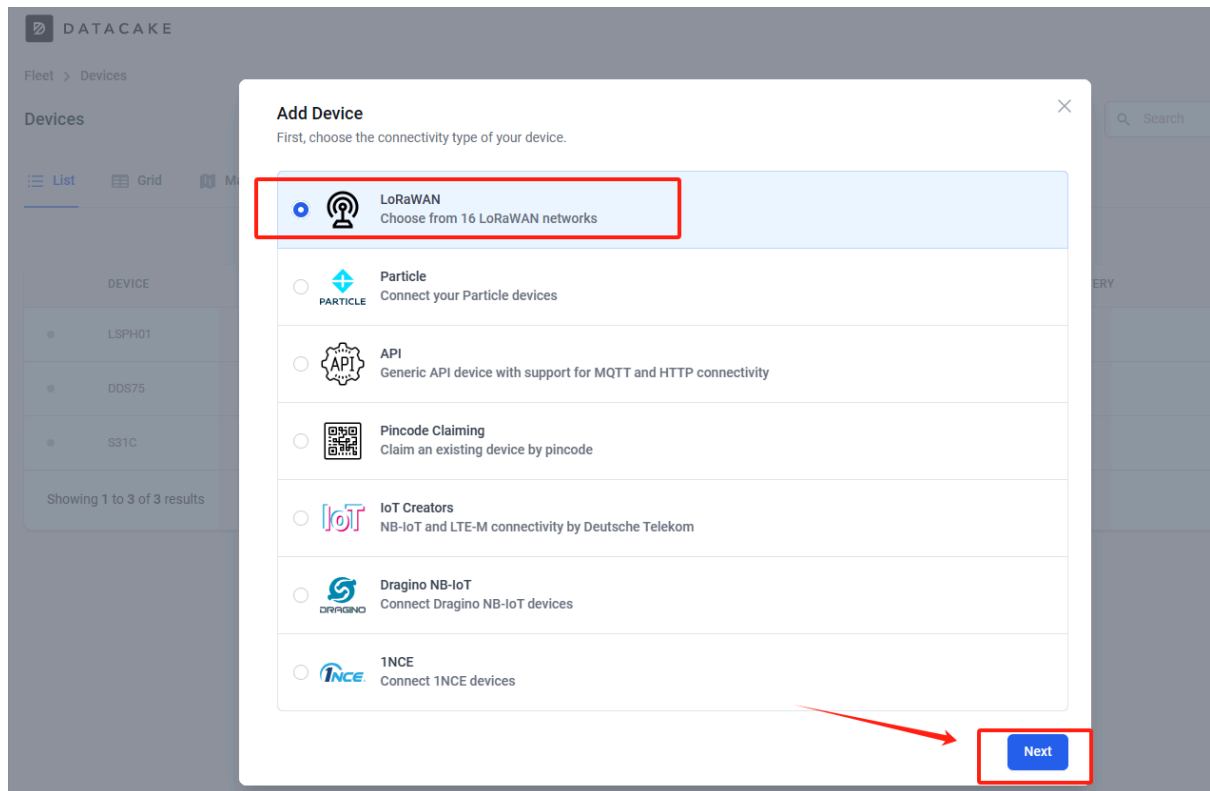
2. Select default key as Access Key:

3. In Datacake console (<https://datacake.co/>) , add PB01:

Please refer to the figure below.



Log in to DATACAKE, copy the API under the account.



Add LoRaWAN Device



STEP 1
Product







STEP 2
Network Server

STEP 3
Devices

STEP 4
Plan

Network Server

Please choose the LoRaWAN Network Server that your devices are connected to.

<input type="radio"/>		Datacake LNS AUTOMATIC SETUP Start and scale easily with a managed LNS	Uplinks	Downlinks
<input checked="" type="radio"/>		The Things Stack V3 TTN V3 / Things Industries	Uplinks	Downlinks
<input type="radio"/>		Helium Use your own console	Uplinks	Downlinks
<input type="radio"/>		LORIoT	Uplinks	Downlinks
<input type="radio"/>		ChirpStack	Uplinks	Downlinks
<input type="radio"/>		Actility	Uplinks	Downlinks
Showing 1 to 5 of 15 results			Previous	Next

[Back](#)[Next](#)

Add LoRaWAN Device

STEP 1
Product

STEP 2
Network Server

STEP 3
Devices

STEP 4
Plan



Add Devices

ManualImport from The Things Stack

Please provide one or multiple LoRaWAN device EUIs along with the corresponding names they should have on Datacake.

Alternatively, you can choose to upload a CSV file that contains the DevEUI, device Name, location, and a set of tags. For more information on how to format the file, please refer to [our documentation](#).

📎 Drag and drop a .csv file here or click to choose one

DEVEUI	NAME	LOCATION	TAGS
 FA 23 45 55 55 55 51 8 bytes	 PB01	Location	Add tag

+ Add another device

BackNext

Payload Decoder

Product-wide setting

When your devices sends data, the payload will be passed to the payload decoder, alongside the event's name. The payload decoder then transforms it to measurements.

```
1 * function dataInt(i, bytes){
2   var aa= parseInt(((bytes[0-i]<<24>>16 | bytes[1-i]/10).toFixed(1));
3   var bb= parseInt(((bytes[2-i]<<24>>16 | bytes[3-i]/10).toFixed(1));
4   var cc= parseInt(((bytes[4-i]<<24>>16 | bytes[5-i]/10).toFixed(1));
5   var dd= (bytes[6-i]&0x01) ? "True":"False";
6   var ee= getMyDate(bytes[7-i]<<24 | bytes[8-i]<<16 | bytes[9-i]<<8 | bytes[10-i]).toString(10));
7   var string="["+aa+"," +bb+"," +cc+"," +dd+"," +ee+"]";
8
9   return string;
10 }
11
12 * function getzf(c_num){
13   if(parseInt(c_num) < 10)
14     c_num = '0' + c_num;
15   return c_num;
16 }
17
18 * function getMyDate(str){
19   var c_Date;
20   if(str > 9999999999)
21     c_Date = new Date(parseInt(str));
22   else
23     c_Date = new Date(parseInt(str) * 1000);
24
25   var c_Year = c_Date.getFullYear();
26   c_Month = c_Date.getMonth()+1;
27   c_Day = c_Date.getDate();
28   c_Hour = c_Date.getHours();
29   c_Min = c_Date.getMinutes();
30   c_Sec = c_Date.getSeconds();
31   var c_Time = c_Year + '-' + getzf(c_Month) + '-' + getzf(c_Day) + ' ' + getzf(c_Hour) + ':' + getzf(c_Min) + ':' + getzf(c_Sec);
32   return c_Time;
33 }
34
35 }
```

Visual widgets please read the [DATAKAKE documentation](#).

2.6 Datalog Feature

When user want to retrieve sensor value, he can send a poll command from the IoT platform to ask sensor to send value in the required time slot.

2.6.1 Unix TimeStamp

Unix TimeStamp shows the sampling time of uplink payload. format base on

Size (bytes)	4	1
DeviceTimeAns Payload	32-bit unsigned integer : Seconds since epoch*	8bits unsigned integer: fractional-second in $\frac{1}{2}^8$ second steps

Figure 10 : DeviceTimeAns payload format

User can get this time from link: <https://www.epochconverter.com/> :

For example: if the Unix Timestamp we got is hex 0x60137afd, we can convert it to Decimal: 1611889405. and then convert to the time: 2021 – Jan -- 29 Friday 03:03:25 (GMT)

The screenshot shows two web interfaces. On the left, the EpochConverter website displays the current Unix epoch time as 1611889418. Below this, it shows a conversion of the timestamp 1611889090 to a human-readable date: GMT: 2021年1月29日 Friday 02:58:10. On the right, the Code Beautify website's 'Decimal to Hex' converter is shown. It takes the decimal number 1611889405 and converts it to the hexadecimal representation 60137afd. Red arrows indicate the flow of information: from the EpochConverter timestamp to the Code Beautify decimal input, and from the Code Beautify hex output back to the EpochConverter interface.

2.6.2 Poll sensor value

User can poll sensor value based on timestamps from the server. Below is the downlink command.

Timestamp start and Timestamp end use Unix TimeStamp format as mentioned above. Devices will reply with all data log during this time period, use the uplink interval.

For example, downlink command `31 5FC5F350 5FC6 0160 05*`

Is to check 2020/12/1 07:40:00 to 2020/12/1 08:40:00's data

Uplink Interval =5s, means PB01 will send one packet every 5s. range 5~255s.

2.6.3 Datalog Uplink payload

See [Uplink FPORT=3, Datalog sensor value](#)

2.7 Button

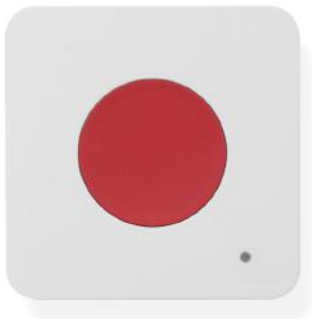
- ACT button

Long press this button PB01 will reset and join network again.



- Alarm button

Press the button PB01 will immediately uplink data, and alarm is "TRUE".



2.8 LED Indicator

The PB01 has a triple color LED which for easy showing different stage.

Hold the ACT green light to rest, then the green flashing node restarts, the blue flashing once upon request for network access, and the green constant light for 5 seconds after successful network access

In a normal working state:

- When the node is restarted, hold the ACT **GREEN** lights up , then the **GREEN** flashing node restarts. The **BLUE** flashing once upon request for network access, and the **GREEN** constant light for 5 seconds after successful network access.
- During OTAA Join:
 - **For each Join Request uplink:** the **GREEN LED** will blink once.
 - **Once Join Successful:** the **GREEN LED** will be solid on for 5 seconds.
- After joined, for each uplink, the **BLUE LED** or **GREEN LED** will blink once.
- Press the alarm button, The **RED** flashes until the node receives the ACK from the platform and the **BLUE** light stays 5s.

2.9 Buzzer

The PB01 has **button sound** and **ACK sound** and users can turn on or off both sounds by using [AT+SOUND](#).

- **Button sound** is the music produced by the node after the alarm button is pressed.

Users can use [AT+OPTION](#) to set different button sounds.

- **ACK sound** is the notification tone that the node receives ACK.

3. Configure PB01 via AT command or LoRaWAN downlink

Users can configure PB01 via AT Command or LoRaWAN Downlink.

- AT Command Connection: See [FAQ](#).
- LoRaWAN Downlink instruction for different platforms: [IoT LoRaWAN Server](#)

There are two kinds of commands to configure PB01, they are:

- **General Commands:**

These commands are to configure:

- General system settings like: uplink interval.
-

- LoRaWAN protocol & radio-related commands.

They are the same for all Dragino Devices which supports DLWS-005 LoRaWAN Stack(Note**). These commands can be found on the wiki: [End Device Downlink Command](#)

- **Commands special design for PB01**

These commands are only valid for PB01, as below:

3.1 Downlink Command Set

Command Example	Function	Response	Downlink
AT+TDC=?		1200000 OK	Default 1200000(ms)
	View current TDC time		
AT+TDC=300000	Set TDC time	OK	0X0100012C: 01: fixed command 00012C: 0X00012C= 300(seconds)
ATZ	Reset node		0x04FF
AT+FDR	Restore factory settings		0X04FE
AT+CFM=?	View the current confirmation mode status	0,7,0 OK	Default 0,7,0
AT+CFM=1,7,1	Confirmed uplink mode, the maximum number of retries is seven, and uplink fcmt increase by 1 for each retry	OK	05010701 05: fixed command 01:confirmed uplink 07: retry 7 times 01: fcmt count plus 1
AT+NJM=?	Check the current network connection method	1 OK	Default 1
AT+NJM=0	Change the network connection method to ABP	Attention:Take effect after ATZ OK	0X2000: ABP 0x2001: OTAA 20: fixed command
AT+RPL=?	View current RPL settings	0 OK	Default 0
AT+RPL=1	set RPL=1	OK	0x2101: 21: fixed command 01: for details, check wiki
AT+ADR=?	View current ADR status	1 OK	Default 0
AT+ADR=0	Set the ADR state to off	OK	0x2200: close 0x2201: open 22: fixed command
AT+DR=?	View the current DR settings	OK	
AT+DR=1	set DR to 1 It takes effect only when ADR=0	OK	0X22000101: 00: ADR=0 01: DR=1 01: TXP=1 22: fixed command
AT+TXP=?	View the current TXP	OK	

AT+TXP=1	set TXP to 1 It takes effect only when ADR=0	OK	0X22000101: 00: ADR=0 01: DR=1 01: TXP=1 22: fixed command
AT+RJTDC=10	Set RJTDC time interval	OK	0X26000A: 26: fixed command 000A: 0X000A=10(min) for details, check wiki
	Retrieve stored data for a specified period of time		0X3161DE7C7061DE8A800A: 31: fixed command 61DE7C70:0X61DE7C70=2022/1/12 15:0 61DE8A80:0X61DE8A80=2022/1/12 16:0 0A: 0X0A=10(second) View details 2.6.2
AT+DDETECT=?	View the current DDETECT setting status and time	1,1440,2880 OK	Default 1,1440,2880(min)
AT+DDETECT= 1,1440,2880	Set DDETECT setting status and time (When the node does not receive the downlink packet within the set time, it will re-enter the network)	OK	0X320005A0: close 0X320105A0: open 32: fixed command 05A0: 0X05A0=1440(min)

3.2 Set Password

Feature: Set device password, max 9 digits.

AT Command: AT+PASSWORD

Command Example	Function	Response
AT+PASSWORD=?	Show password	123456 OK
AT+PASSWORD=999999	Set password	OK

Downlink Command:

No downlink command for this feature.

3.3 Set button sound and ACK sound

Feature: Turn on/off button sound and ACK alarm.

AT Command: AT+SOUND

Command Example	Function	Response
AT+SOUND=?	Get the current status of button sound and ACK sound	1,1 OK
AT+SOUND=0,1	Turn off the button sound and turn on ACK sound	OK

Downlink Command: 0xA1

Format: Command Code (0xA1) followed by 2 bytes mode value.

The first byte after 0XA1 sets the button sound, and the second byte after 0XA1 sets the ACK sound. (**0: off, 1: on**)

- Example:** Downlink Payload: A10001 // Set AT+SOUND=0,1 Turn off the button sound and turn on ACK sound.

3.4 Set buzzer music type(0~4)

Feature: Set different alarm key response sounds. There are five different types of button music.

AT Command: AT+OPTION

Command Example	Function	Response
AT+OPTION=?	Get the buzzer music type	3 OK
AT+OPTION=1	Set the buzzer music to type 1	OK

Downlink Command: 0xA3

Format: Command Code (0xA3) followed by 1 byte mode value.

- **Example:** Downlink Payload: A300 // Set AT+OPTION=0 Set the buzzer music to type 0.

3.5 Set Valid Push Time

Feature: Set the holding time for pressing the alarm button to avoid miscontact. Values range from **0 ~1000ms**.

AT Command: AT+STIME

Command Example	Function	Response
AT+STIME=?	Get the button sound time	0 OK
AT+STIME=1000	Set the button sound time to 1000ms	OK

Downlink Command: 0xA2

Format: Command Code (0xA2) followed by 2 bytes mode value.

- **Example:** Downlink Payload: A203E8 // Set AT+STIME=1000

Explain: Hold the alarm button for 10 seconds before the node will send the alarm packet.

4. Battery & How to replace

4.1 Battery Type and replace

PB01 uses 2 x AAA LR03(1.5v) batteries. If the batteries running low (shows 2.1v in the platform). Users can buy generic AAA battery and replace it.

Note:

1. The PB01 doesn't have any screw, users can use nail to open it by the middle.
-



2. Make sure the direction is correct when install the AAA batteries.

4.2 Power Consumption Analyze

Dragino battery powered product are all runs in Low Power mode. We have an update battery calculator which base on the measurement of the real device. User can use this calculator to check the battery life and calculate the battery life if want to use different transmit interval.

Instruction to use as below:

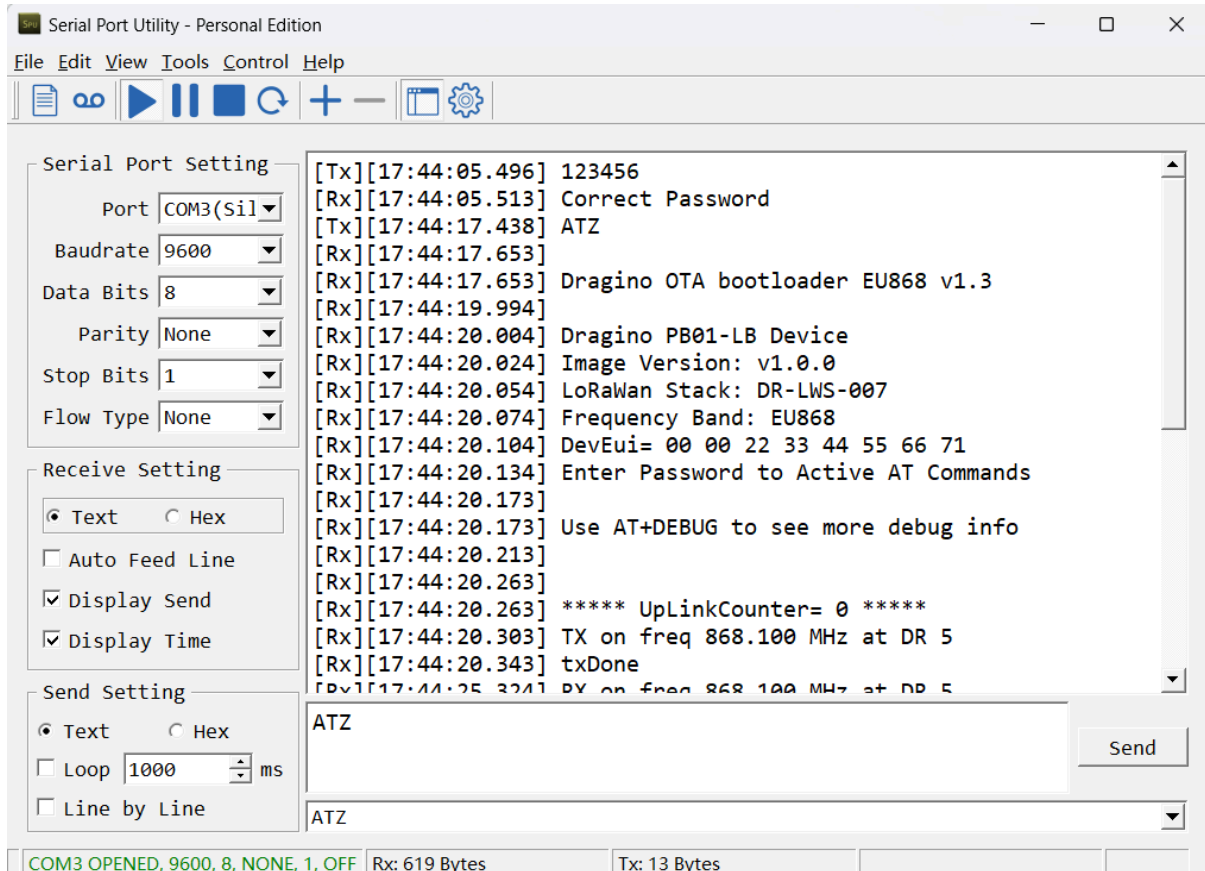
Step 1: Downlink the up-to-date DRAGINO_Battery_Life_Prediction_Table.xlsx from:

[battery calculator](#)

Step 2: Open it and choose

- Product Model
- Uplink Interval
- Working Mode

And the Life expectation in difference case will be shown on the right.



6.2 AT Command and Downlink

Sending ATZ will reboot the node

Sending AT+FDR will restore the node to factory settings

Get the node's AT command setting by sending AT+CFG

Example:

AT+DEUI=FA 23 45 55 55 55 55 51

AT+APPEUI=FF AA 23 45 42 42 41 11

AT+APPKEY=AC D7 35 81 63 3C B6 05 F5 69 44 99 C1 12 BA 95

AT+DADDR=FFFFFFFF

AT+APPSKEY=FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

AT+NWKSKEY=FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

AT+ADR=1

AT+TXP=7

AT+DR=5

AT+DCS=0

AT+PNM=1

AT+RX2FQ=869525000

AT+RX2DR=0

AT+RX1DL=5000

AT+RX2DL=6000

AT+JN1DL=5000

AT+JN2DL=6000

AT+NJM=1

AT+NWKID=00 00 00 13

AT+FCU=61

AT+FCD=11

AT+CLASS=A

AT+NJS=1

AT+RECVB=0:

AT+RECV=

AT+VER=EU868 v1.0.0

AT+CFM=0,7,0

AT+SNR=0

AT+RSSI=0

AT+TDC=1200000

AT+PORT=2

AT+PWORD=123456

AT+CHS=0

AT+RX1WTO=24

AT+RX2WTO=6

AT+DECRYPT=0

AT+RJTDC=20

AT+RPL=0

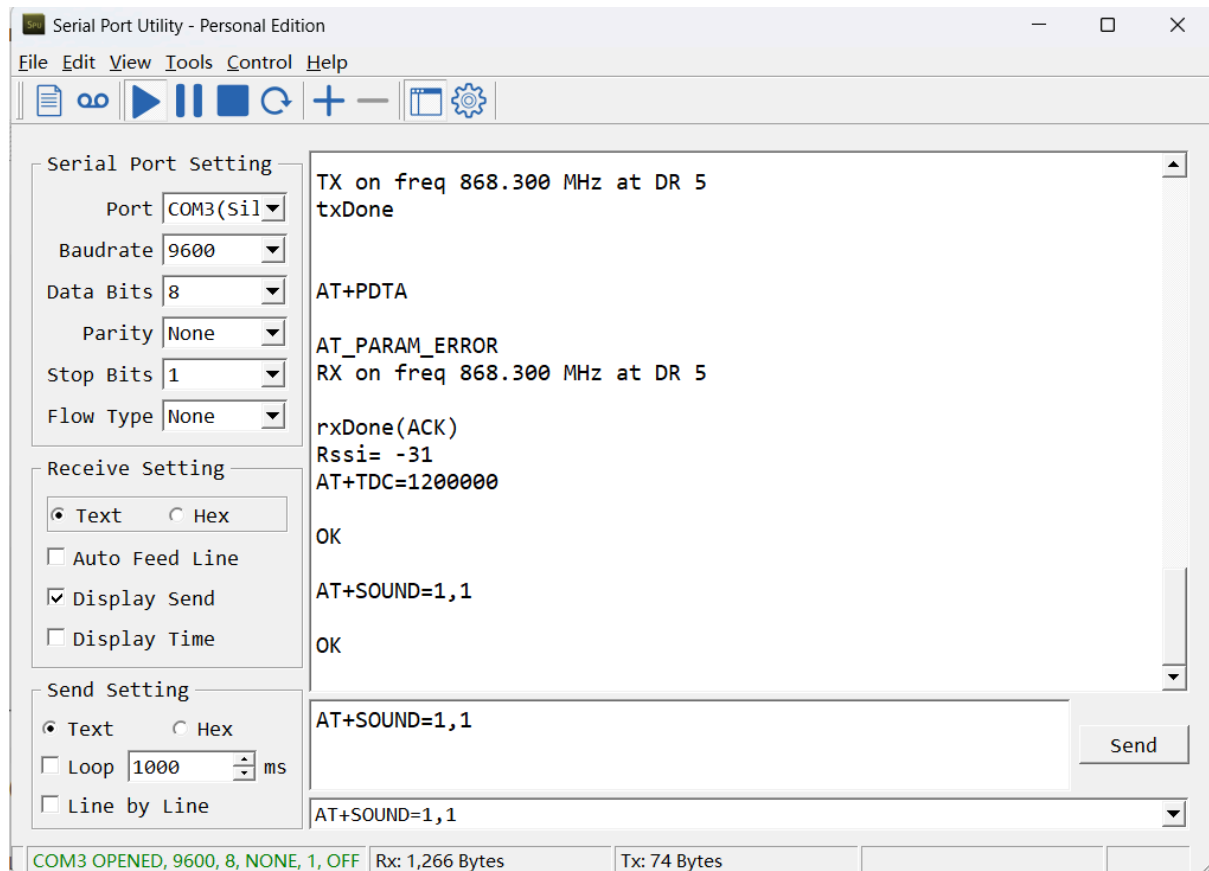
AT+TIMESTAMP=systime= 2024/5/11 01:10:58 (1715389858)

AT+LEAPSEC=18

```

AT+SYNCMOD=1
AT+SYNCTDC=10
AT+SLEEP=0
AT+ATDC=1
AT+UUID=003C0C53013259E0
AT+DDETECT=1,1440,2880
AT+SETMAXNBTRANS=1,0
AT+DISFCNTCHECK=0
AT+DISMACANS=0
AT+PNACKMD=0
AT+SOUND=0,0
AT+STIME=0
AT+OPTION=3
    
```

Example:



6.3 How to upgrade the firmware?

PB01 requires a program converter to upload images to PB01, which is used to upload image to PB01 for:

- Support new features
- For bug fix
- Change LoRaWAN bands.

PB01 internal program is divided into bootloader and work program, shipping is included bootloader, the user can choose to directly update the work program.

If the bootloader is erased for some reason, users will need to download the boot program and the work program.

6.3.1 Update firmware (Assume device have bootloader)

Step 1: Connect UART as per FAQ 6.1

Step 2: Update follow [Instruction for update via DraginoSensorManagerUtility.exe](#).

6.3.2 Update firmware (Assume device doesn't have bootloader)

Download both the boot program and the worker program . After update , device will have bootloader so can use above 6.3.1 method to update woke program.

Step 1: Install [TremoProgrammer](#) first.

Step 2: Hardware Connection

Connect PC and PB01 via USB-TTL adapter .

Note: To download firmware in this way, you need to pull the boot pin(Program Converter D- pin) high to enter the burn mode. After burning, disconnect the boot pin of the node and the 3V3 pin of the USB-TTL adapter, and reset the node to exit the burning mode.

Connection:

- USB-TTL GND <--> Program Converter GND pin
- USB-TTL RXD <--> Program Converter D+ pin
- USB-TTL TXD <--> Program Converter A11 pin
- USB-TTL 3V3 <--> Program Converter D- pin

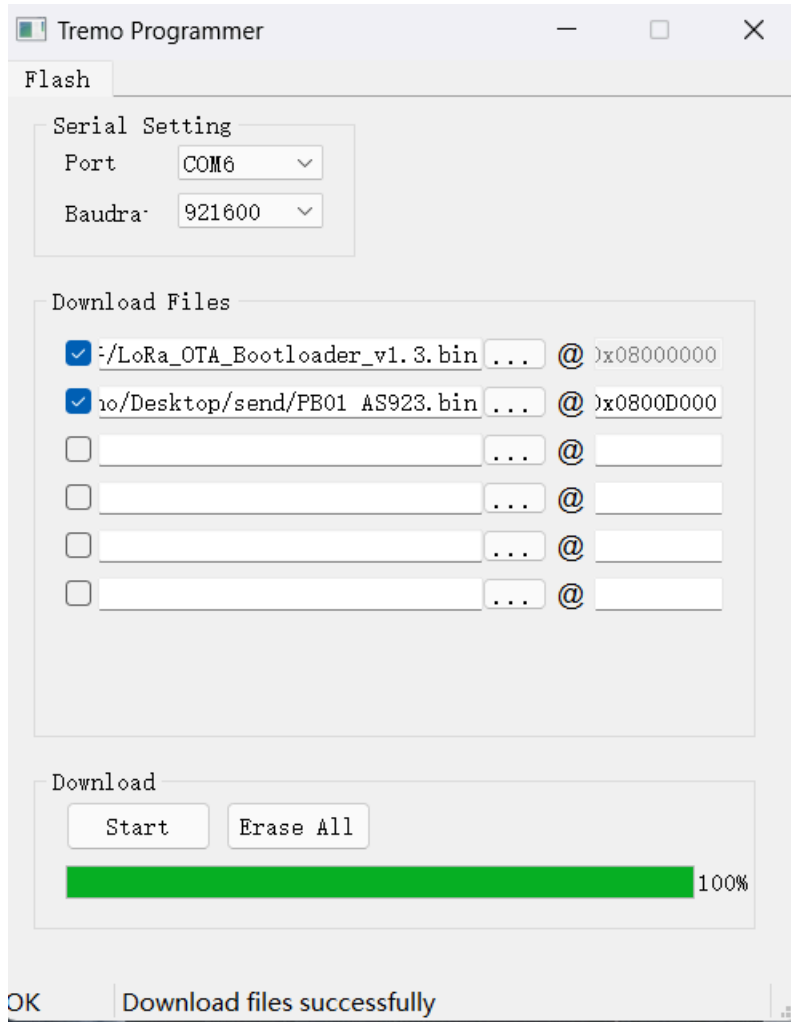
Step 3: Select the device port to be connected, baud rate and bin file to be downloaded.



Users need to reset the node to start downloading the program.

1. Reinstall the battery to reset the node
2. Hold down the ACT button to reset the node (see [2.7](#)).

When this interface appears, it indicates that the download has been completed.



Finally, Disconnect Program Converter D- pin, reset the node again , and the node exits burning mode.

6.4 How to change the LoRa Frequency Bands/Region?

User can follow the introduction for [how to upgrade image](#). When download the images, choose the required image file for download.

6.5 Why i see different working temperature for the device?

The working temperature range of device depends on the battery user choose.

- Normal AAA Battery can support -10 ~ 50°C working range.
- Special AAA battery can support -40 ~ 60 °C working range. For example: [Energizer L92](#)

7. Order Info

7.1 Main Device

Part Number: [PB01-LW-XX](#) (white button) / [PB01-LR-XX](#)(Red Button)

XX : The default frequency band

- **AS923**: LoRaWAN AS923 band
- **AU915**: LoRaWAN AU915 band
- **EU433**: LoRaWAN EU433 band
- **EU868**: LoRaWAN EU868 band
- **KR920**: LoRaWAN KR920 band
- **US915**: LoRaWAN US915 band
- **IN865**: LoRaWAN IN865 band
- **CN470**: LoRaWAN CN470 band

7. Packing Info

Package Includes:

- PB01 LoRaWAN Push Button x 1

8. Support

- Support is provided Monday to Friday, from 09:00 to 18:00 GMT+8. Due to different timezones we cannot offer live support. However, your questions will be answered as soon as possible in the before-mentioned schedule.
- Provide as much information as possible regarding your enquiry (product models, accurately describe your problem and steps to replicate it etc) and send a mail to support@dragino.com.

9. Reference material

- [Datasheet, photos, decoder, firmware](#)

10. FCC Warning

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules.Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference;
- (2) this device must accept any interference received,including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the

Instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for uncontrolled environment .This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

▲ 14:03:47	1	2	payload: CB0B0B 64 02 72 06 0B 06 7F FF
<div>Ext: 0x06, ADC Sensor and cable connects ok. The most left bit stands for Cable Connnection: 0: Connects ok. 1: Cable doesn't connect</div> <div>Voltage Value : 0x0B06 = 2.822v</div>			
▲ 11:36:51	0	2	payload: CBD80B 68 02 D7 86 FF FF 7F FF

Applications > lgt92test > Webhooks > Add > Datacake

Add custom webhook

Template information



Datacake

Send data to Datacake via TTI adapter

[About Datacake](#) | [Documentation](#)

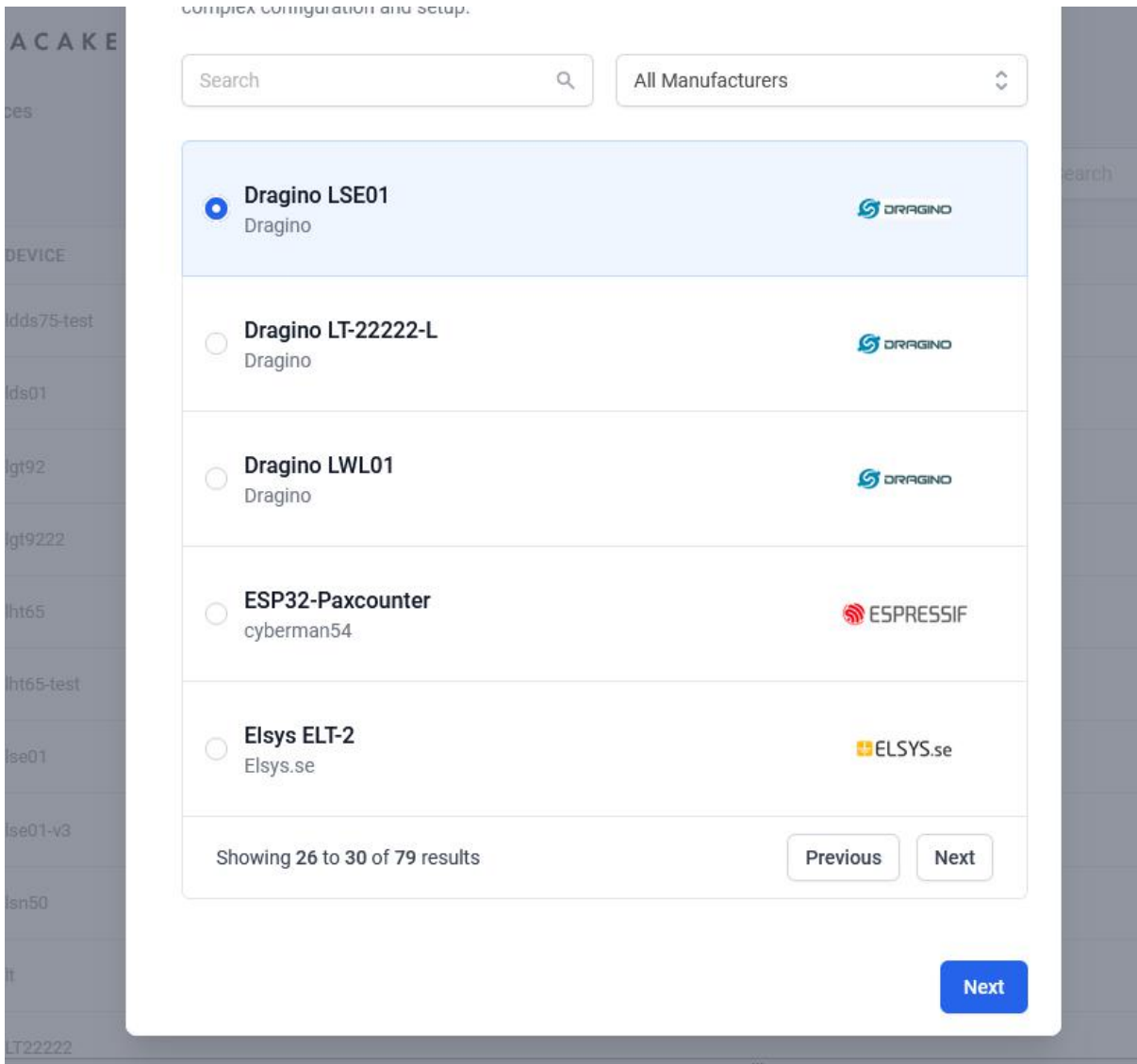
Template settings

Webhook ID *

Token *

Datacake API Token

Create datacake webhook



Size (bytes)	4	1
DeviceTimeAns Payload	32-bit unsigned integer : Seconds since epoch*	8bits unsigned integer: fractional-second in $\frac{1}{2}^8$ second steps

Figure 10 : DeviceTimeAns payload format

EpochConverter

Epoch & Unix Timestamp Conversion Tool

The current Unix epoch time is **1611889418**

Convert epoch to human-readable date and vice versa

Supports Unix timestamps in seconds, milliseconds, microseconds and nanoseconds.
Assuming that this timestamp is in **seconds**:
GMT: 2021-10-29 Friday 02:58:10
Your time zone: 2021-10-29 Friday 10:58:10 GMT+08:00
Relative: 3 minutes ago

Mon	Day	Yr	Hr	Min	Sec	GMT	Human date & time
10	29	2021	10	58	10	GMT+08:00	2021-10-29 Friday 10:58:10 GMT+08:00

Code Beautify

JSON Formatter

- All Numbers Converter
- Numbers to Words Converter
- Decimal to Binary Converter
- Decimal to Hex Converter**
- Decimal to Octal Converter
- Binary to Decimal Converter
- Binary to Hex Converter
- Binary to Octal Converter
- Binary to Text Converter
- Text to Binary Converter
- Hex to Decimal Converter
- Hex to Binary Converter
- Hex to Octal Converter
- Octal to Decimal Converter

Decimal to Hex

Enter the Decimal number to decode

☒ Auto

The number in hex (base 16) representation: **60137afd**

09:57:27 102 2 payload: 7F FF 08 98 01 46 41 60 06 5F 97 7F FF 08 8E 01 4B 41 60 06 60 09 7F FF 08 85 01 4E 41 60 06 66 7F FF 08 75 01 51 41 60 06

Uplink

Payload

7F FF 08 98 01 46 41 60 06 5F 97 7F FF 08 8E 01 4B 41 60 06 60 09 7F FF 08 85 01 4E 41 60 06 66 7F FF 08 75 01 51 41 60 06

Fields

no fields

Metadata

```
{
  "time": "2021-01-20T01:57:27.690185935Z",
  "frequency": 904.5,
  "modulation": "LORA",
  "data_rate": "SF7BW125",
  "coding_rate": "4/5",
  "gateways": [
    {
      "gtw_id": "eui-a840411cfe60415c",
      "timestamp": 3270993355,
      "time": "2021-01-20T01:57:27.544057Z",
      "channel": 3,
      "rssi": -55,
      "snr": 10
    }
  ]
}
```

Applications > lht111 > End devices > eui-a84041ffff1234dd



eui-a84041ffff1234dd

ID: eui-a84041ffff1234dd

↑ 156 ↓ 156 • Last activity 13 days ago ⓘ

Overview Live data **Messaging** Location Payload formatters General settings

Uplink **Downlink**

Schedule downlink

Insert Mode

- ☒ Replace downlink queue
☐ Push to downlink queue (append)

FPort *

1

Payload type

- ☒ Bytes ☐ JSON

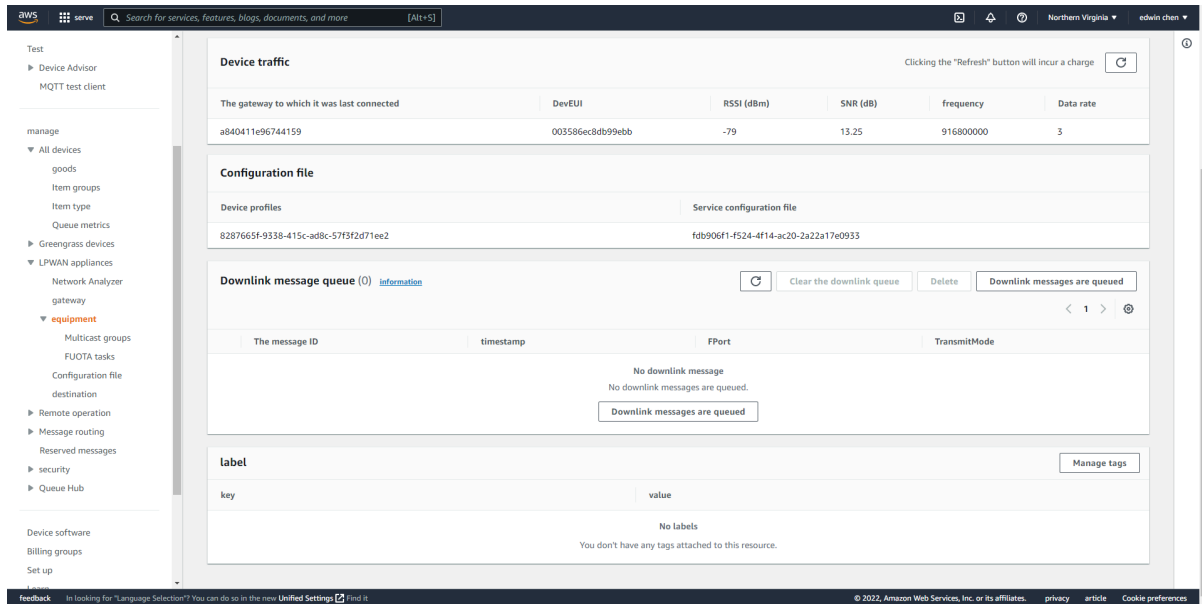
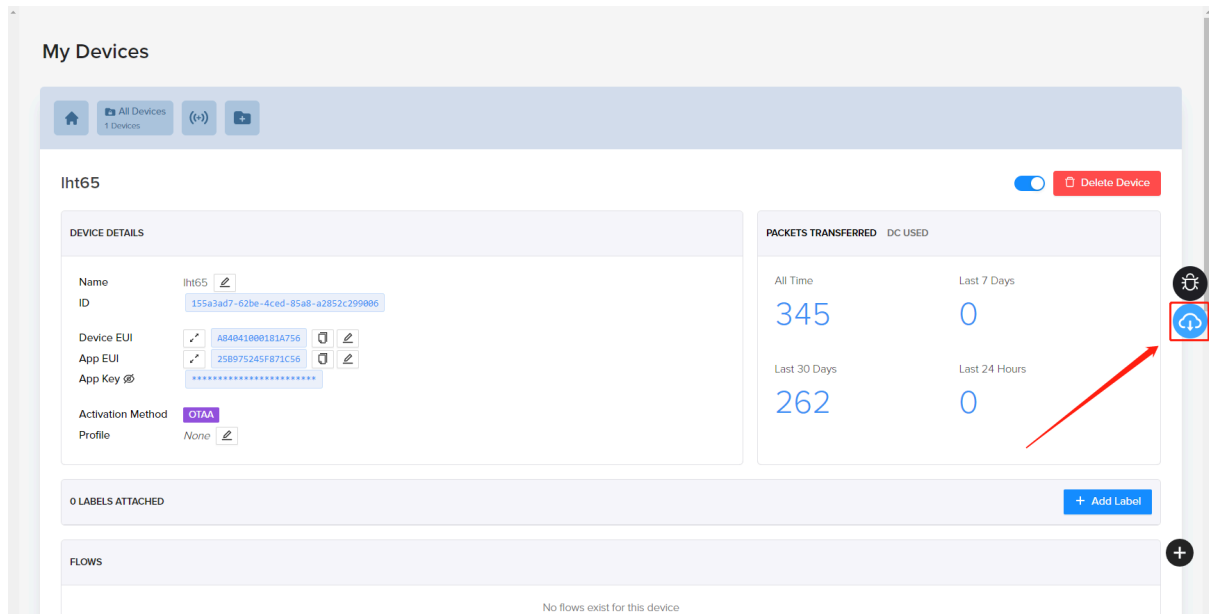
Payload

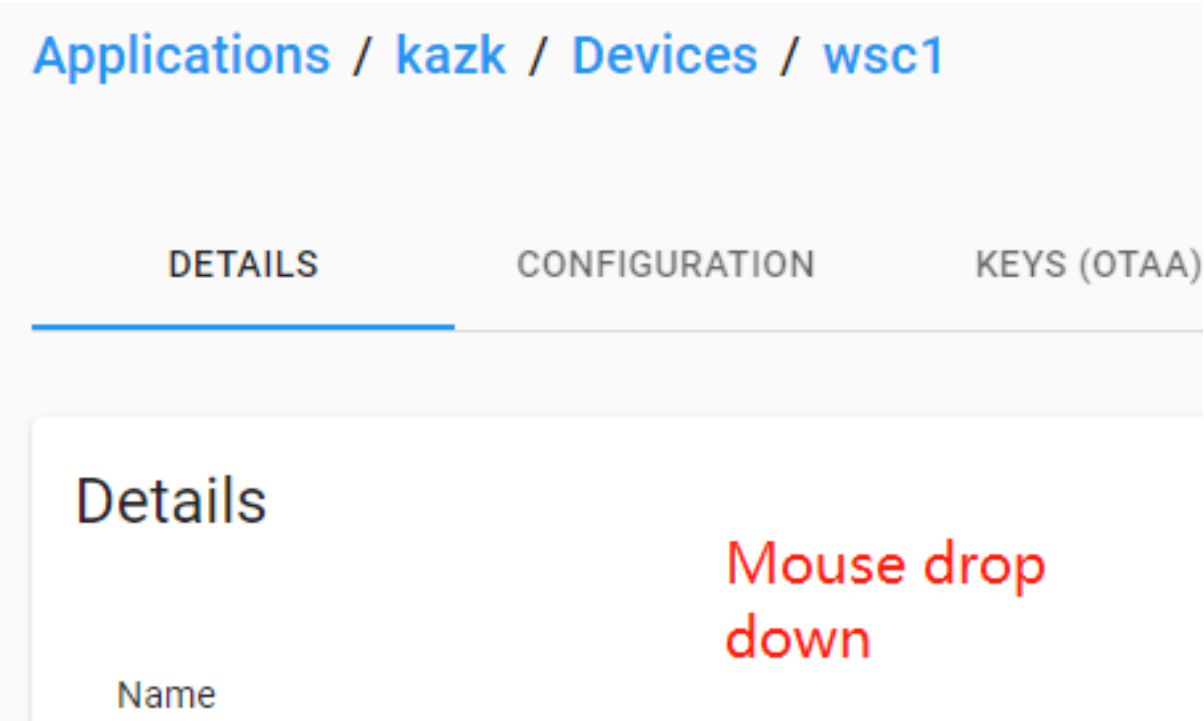
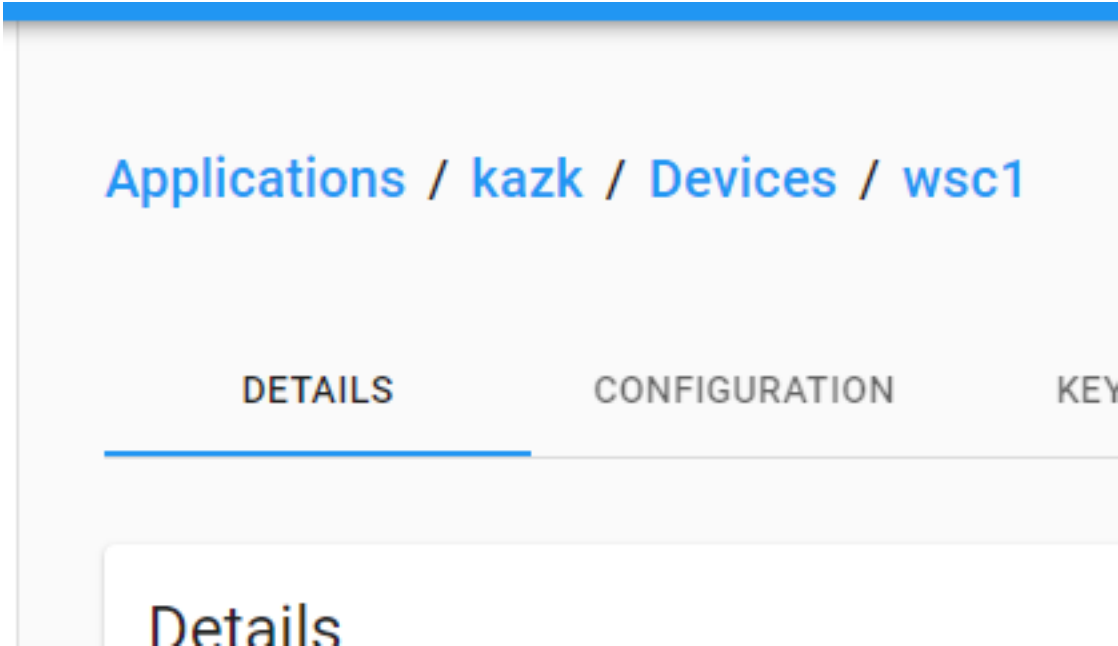
The desired payload bytes of the downlink message

☐ Confirmed downlink

Schedule downlink

User Manual for LoRaWAN /NB -IoT End Nodes - PB01 -- LoRaWAN Push Button User Manual





▼

Enqueue downlink payload

Port *

Please note that the fPort value must be > 0

☐ Confirmed downlink

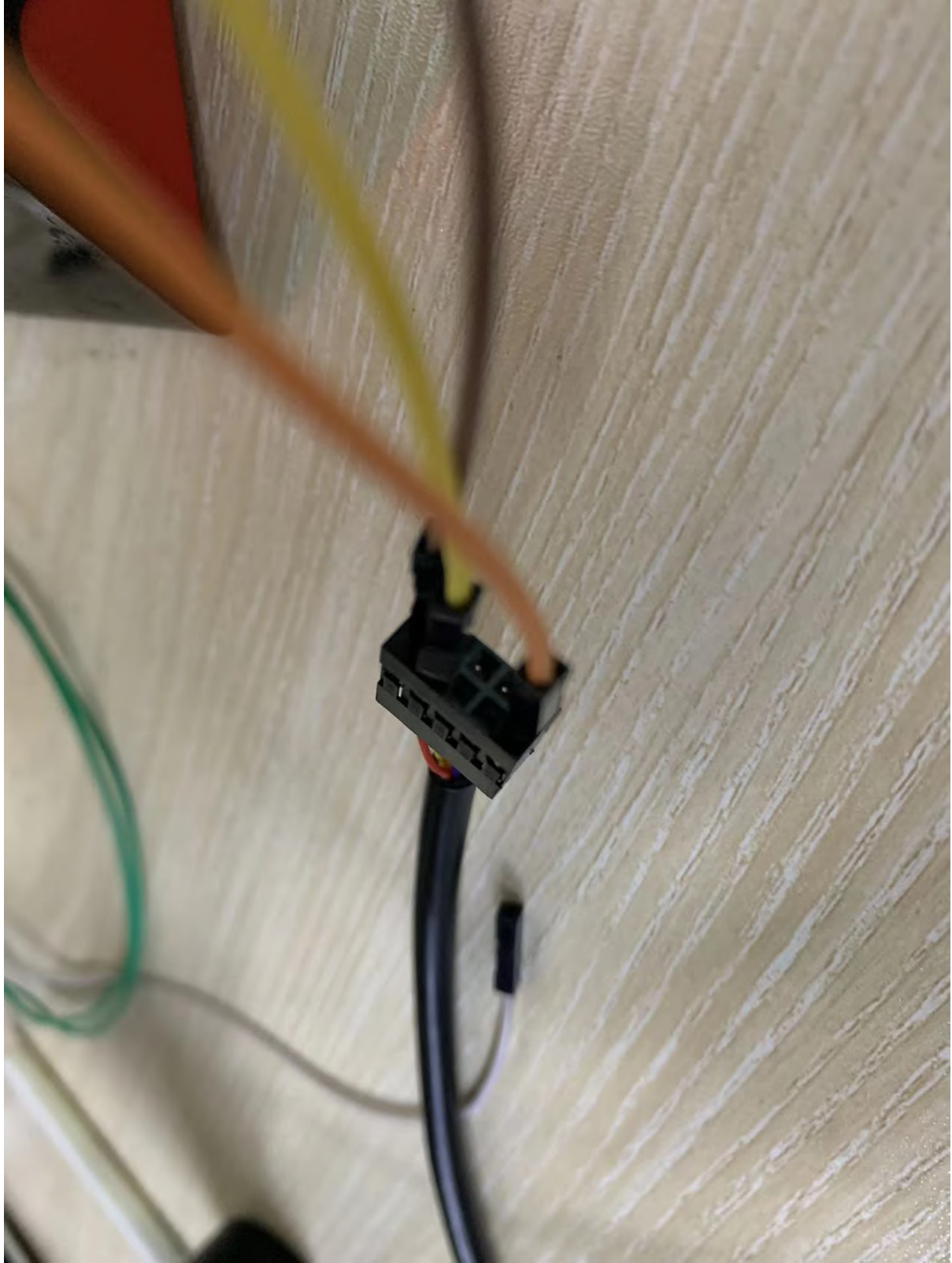
BASE64 ENCODED

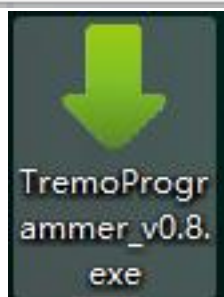
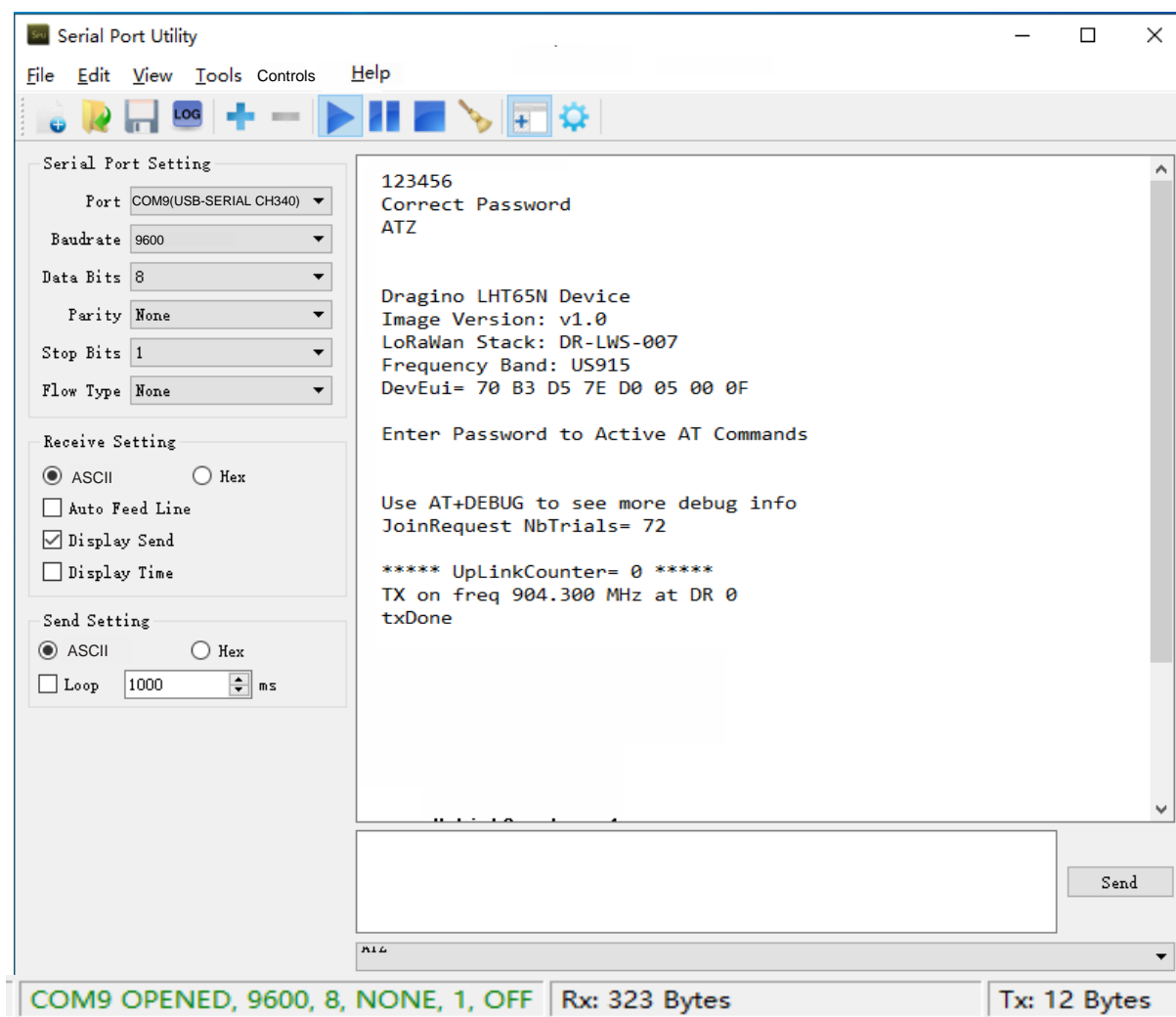
JSON OBJECT

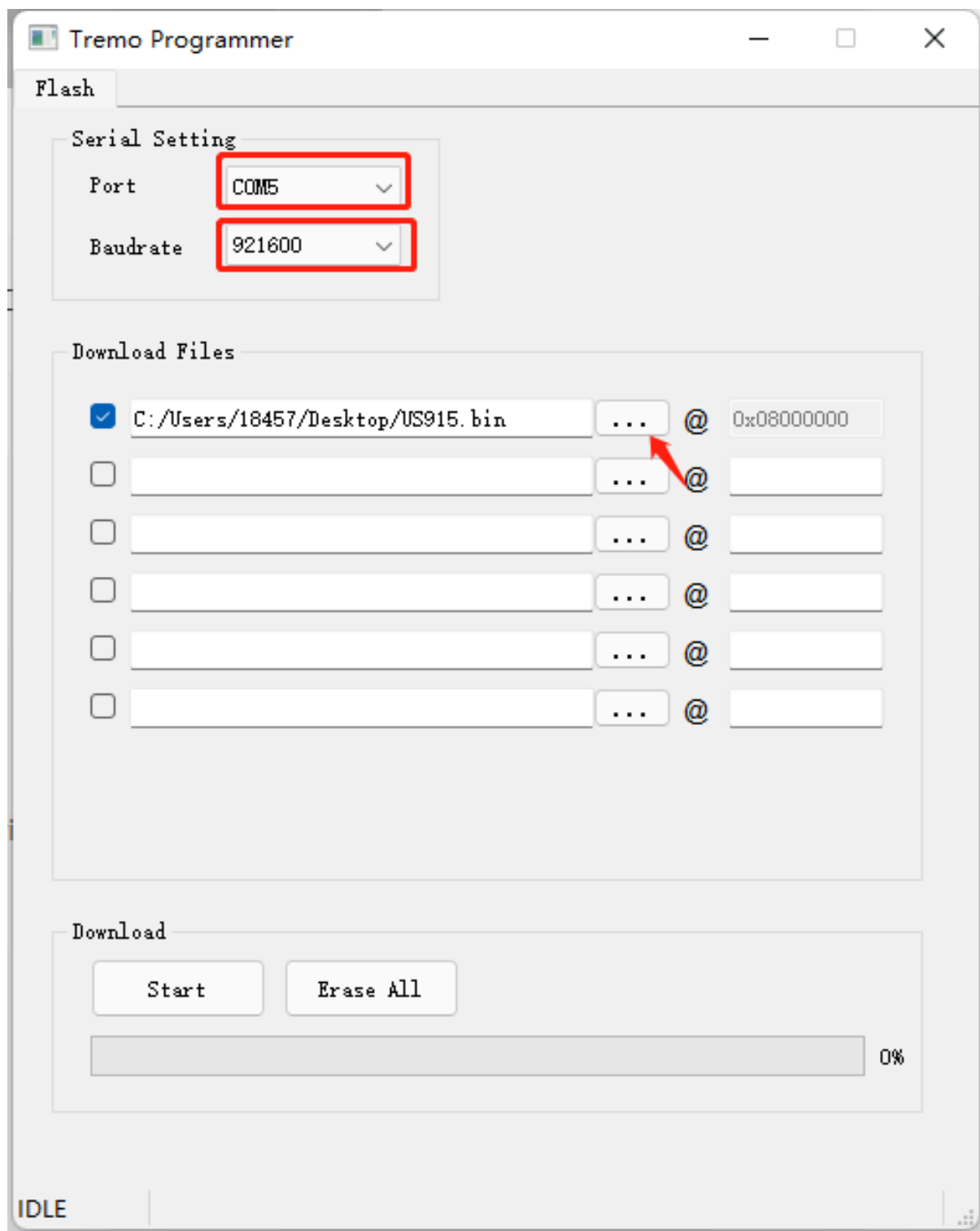
Base64 encoded string *

ENQUEUE PAYLOAD









The Things Stack Community Edition

Overview Applications Gateways Organizations

LHT52_TEST

Overview

End devices

Live data

Payload formatters

Integrations

MQTT

Webhooks

Storage Integration

AWS IoT

Azure IoT Hub

LoRa Cloud

Collaborators

API keys

General settings

Applications > LHT52_TEST > Webhooks > Add > Custom webhook

Add custom webhook

Template information

Datacake
Send data to Datacake via TTI adapter
[About Datacake](#) | [Documentation](#)

Template settings

Webhook ID *
lht52testu01

Token *
..... Paste the API here

Datacake API Token

Create datacake webhook

DATA CAKE

Fleet > Devices

Devices


Search Columns + Add Device


DEVICE	LOCATION
LDS02WAB65N-LU	


Showing 1 to 1 of 1 results


50 per page Previous Next


Add Device



LoRaWAN


PARTICLE


API


D Zero


D Zero LTE


PINCODE

STEP 1
Product

STEP 2
Network Server

STEP 3
Devices

STEP 4
Plan

Datacake Product

You can add devices to an existing product on Datacake, create a new empty product or start with one of the templates. Products allow you to share the same configuration (fields, dashboard and more) between devices.

New Product from template
Create new product from a template

Existing Product
Add devices to an existing product

New Product
Create new empty product

New Product

If your device is not available as a template, you can start with an empty device. You will have to create the device definition (fields, dashboard) and provide the payload decoder in the device's configuration.

Product Name

Next

Add Device



LoRaWAN



PARTICLE



API



D Zero



D Zero LTE








PINCODE

STEP 1
ProductSTEP 2
Network ServerSTEP 3
DevicesSTEP 4
Plan

Network Server

Please choose the LoRaWAN Network Server that your devices are connected to.

<input checked="" type="radio"/>		The Things Stack V3 TTN V3 / Things Industries	Uplinks	Downlinks
<input type="radio"/>		The Things Network V2 The old Things Network	Uplinks	Downlinks
<input type="radio"/>		Helium	Uplinks	Downlinks
<input type="radio"/>		LORIoT	Uplinks	Downlinks
<input type="radio"/>		Kerlink Wanesy	Uplinks	


Showing 1 to 5 of 8 results


[Previous](#) [Next](#)


Back


Next


Add Device



LoRaWAN


PARTICLE


API


D Zero


D Zero LTE


PINCODE

STEP 1
Product

STEP 2
Network Server

STEP 3
Devices



STEP 4
Plan

Add Devices

Enter one or more LoRaWAN Device EUIs and the names they will have on Datacake.

New: You can now upload a CSV file with either one column (just the device's DevEUI) or two columns (DevEUI and Name), which will populate the form below.

 Drag and drop a .csv file here or click to choose one

DEVEUI	NAME
 25 32 12 45 65 26 12 30 8 bytes	 LHT52
+ Add another device	

[Back](#)[Next](#)

kaziko lu
459550896@qq.com

+ Add Dashboard

Devices

Reports

Gateways

Members

Rules

Workspace

Integrations

White Label

Billing

DATA CAKE

Fleet > Devices

Devices

DEVICE

LOCATION

LD952WAB5IN-LU

LHT52

Showing 1 to 2 of 2 results

50 per page

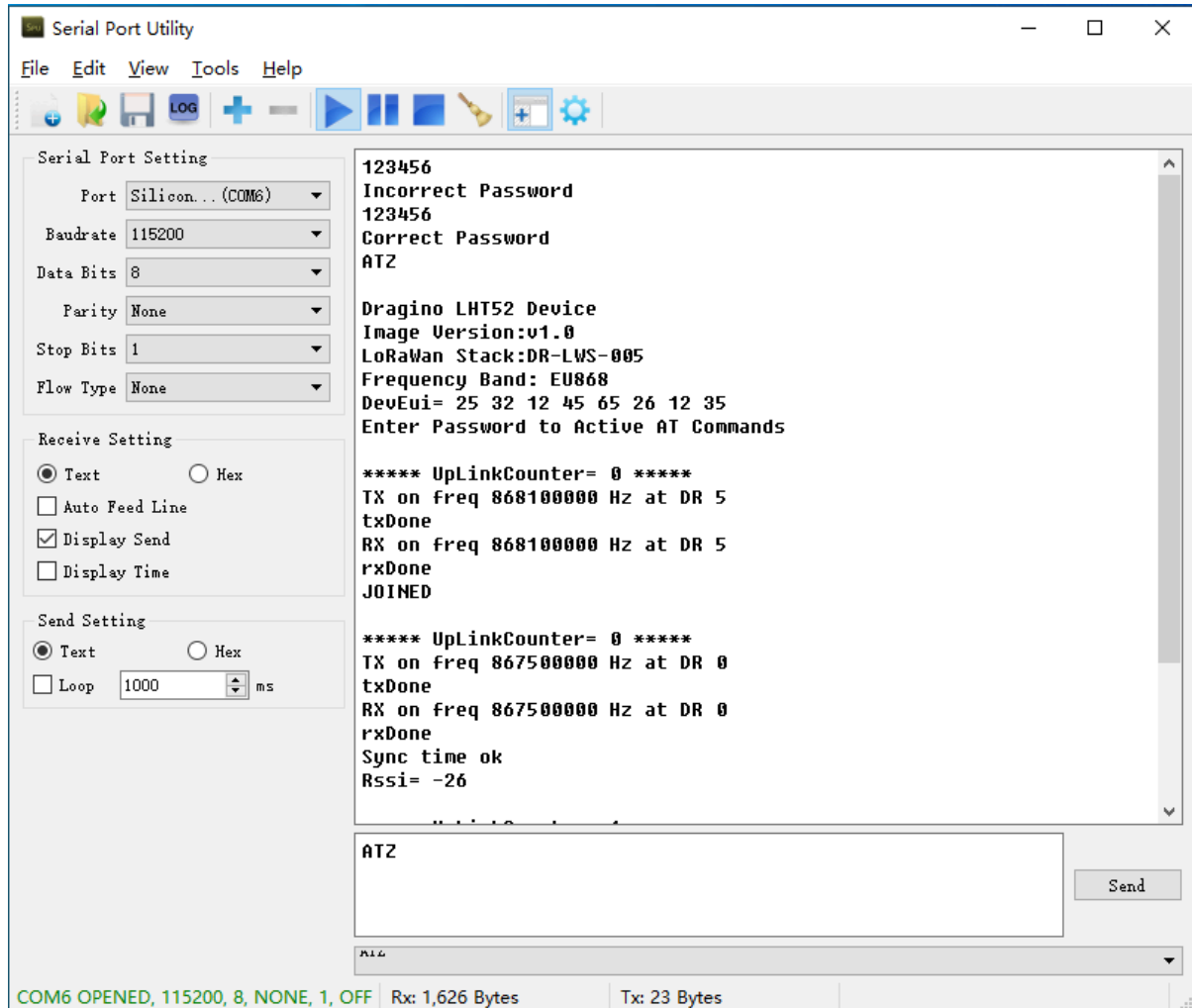
Previous

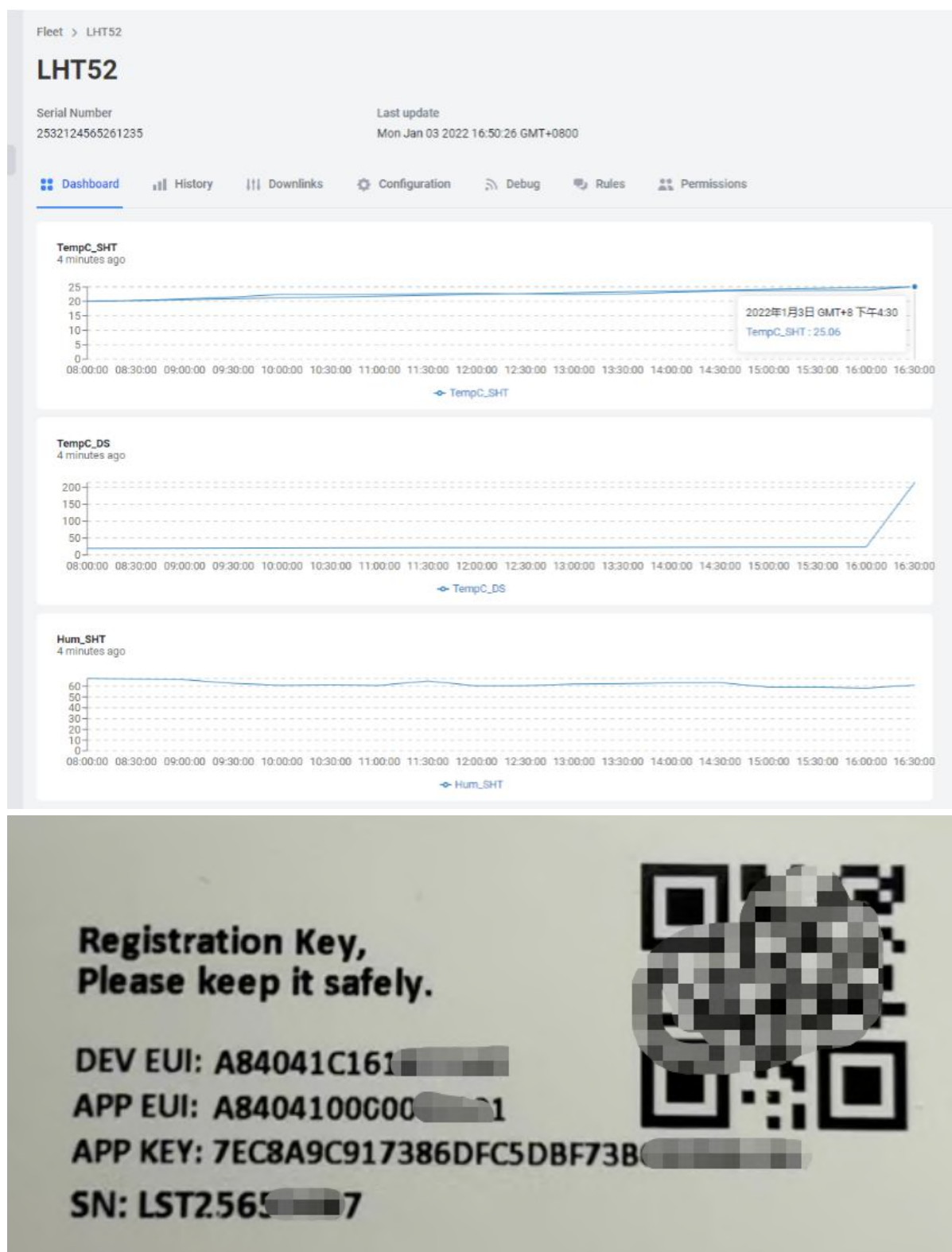
Next

Search

Columns

+ Add Device





User Manual for LoRaWAN /NB -IoT End Nodes - PB01 -- LoRaWAN Push Button User Manual

The screenshot shows the 'zero' application page in the LoRaWAN dashboard. The left sidebar contains navigation links: Overview, End devices, Live data, Payload formatters, Integrations, Collaborators, API keys, and General settings. The main content area displays the application's general information, a live data feed, and a table of end devices. A red box highlights the '+ Register end device' button in the top right corner of the end devices section.

ID	Name	DevEUI	JoinEUI	Last activity
eu1-fa23455555555555	PB01	FA 23 45 55 55 55 55	FF AA 23 45 42 42 41 11	3 min. ago
eu1-003586ecd899ea	RS485LB	00 35 86 EC 8D 89 9E 01	F1 B8 FB D9 FC 68 F1 00	7 days ago
eu1-a840414a818519ae	CPL01新関件	A8 40 41 44 81 85 19 AE	A8 40 41 00 00 00 01 01	9 min. ago
eu1-70b3d57ed0066ff4		70 83 05 7E D0 06 6F F4	00 25 0C 00 00 01 00 00	yesterday

The screenshot shows the 'Register end device' form. The 'End device type' section has two options: 'Select the end device in the LoRaWAN Device Repository' and 'Enter end device specifics manually'. The second option is selected and highlighted with a red box. Below this, there are dropdown menus for 'Frequency plan' (Europe 863-870 MHz (SF12 for RX2)), 'LoRaWAN version' (LoRaWAN Specification 1.0.3), and 'Regional Parameters version' (RP001 Regional Parameters 1.0.3 revision A). The 'Provisioning information' section shows the 'JoinEUI' field with a red box around the input area and a 'Confirm' button.

Register end device

Does your end device have a LoRaWAN® Device Identification QR Code? Scan it to speed up onboarding.

[Scan end device QR code](#) [Device registration help](#)

End device type

Input method

☐ Select the end device in the LoRaWAN Device Repository

☒ Enter end device specifics manually

Frequency plan [ⓘ] *

Europe 863-870 MHz (SF12 for RX2)

LoRaWAN version [ⓘ] *

LoRaWAN Specification 1.0.3

Regional Parameters version [ⓘ] *

RP001 Regional Parameters 1.0.3 revision A

[Show advanced activation, LoRaWAN class and cluster settings](#)

Provisioning information

JoinEUI [ⓘ] *

00 00 00 00 00 00 00 00 Confirm

To continue, please enter the JoinEUI of the end device so we can determine onboarding options

User Manual for LoRaWAN /NB -IoT End Nodes - PB01 -- LoRaWAN Push Button User Manual

zero

Overview

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API keys

General settings

Select the end device in the LoRaWAN Device Repository

Enter end device specifics manually

Frequency plan [?] Europe 863-870 MHz (SF12 for RX2)

LoRaWAN version [?] LoRaWAN Specification 1.0.3

Regional Parameters version [?] RP001 Regional Parameters 1.0.3 revision A

Show advanced activation, LoRaWAN class and cluster settings

Provisioning information

JoinEUI [?] 00 00 00 00 00 00 00 00

Reset

This end device can be registered on the network

DevEUI [?]

Generate

 9/50 used

AppKey [?]

Generate

End device ID [?] my-new-device

This value is automatically prefilled using the DevEUI

After registration

View registered end device

Register another end device of this type

Register end device

THE THINGS STACK

Overview

Applications

Gateways

Organizations

EUI Sandbox

paopao

Applications > zero > End devices > PB01 > Live data

PB01

ID: eu1-fa23455555555555

105 n/a Last activity 1 minute ago

Overview Live data Messaging Location Payload formatters General settings

Time	Type	Data preview	Verbose stream	Export as JSON	Pause	Clear
14:29:33	Schedule data downlink for transmissi...	DevAddr: 26 08 FB E3 Rx Delay: 5				
14:29:33	Forward uplink data message	DevAddr: 26 08 FB E3 Payload: { Alarm: "FALSE", BatV: 3.366, Hum_SHT41: 67.5, Sound_ACK: "OPEN", Sound_key: "OPEN", Tempc_SHT41: 26.8 } 00 26 03 00 01 0C 02 A3 FPort: 2 Data rate: SF12BW125 SNR: 9.2 RSSI:				
14:29:33	Successfully processed data message	DevAddr: 26 08 FB E3				
14:29:29	Forward join-accept message	DevAddr: 26 08 FB E3 JoinEUI: FF AA 23 45 42 42 42 11 DevEUI: FA 23 45 55 55 55 55 51				
14:29:24	Successfully processed join-request	DevAddr: 26 08 01 92 JoinEUI: FF AA 23 45 42 42 42 11 DevEUI: FA 23 45 55 55 55 55 51				
14:29:23	Accept join-request	DevAddr: 26 08 FB E3 JoinEUI: FF AA 23 45 42 42 42 11 DevEUI: FA 23 45 55 55 55 55 51				
14:28:20	Schedule data downlink for transmissi...	DevAddr: 26 08 01 92 Rx Delay: 5				

THE THINGS STACK

Overview

Applications

Gateways

Organizations

EUI Sandbox

paopao

Applications > zero > End devices > PB01 > Live data

PB01

ID: eu1-fa23455555555555

2 n/a Last activity 4 minutes ago

Overview Live data Messaging Location Payload formatters General settings

Time	Type	Data preview	Verbose stream	Export as JSON	Pause	Clear
14:35:03	Schedule data downlink for transmissi...	DevAddr: 26 08 FB E3 Rx Delay: 5				
14:35:03	Forward uplink data message	DevAddr: 26 08 FB E3 Payload: { BAT: 3.33, FIRMWARE_VERSION: "10.0.0", FREQUENCY_BAND: "EU868", SENSOR_MODEL: "PB01-L", SUB_BAND: "NULL" } 35 0A 00 05 FF 00 02 FPort: 0 Data rate: SF7BW125 SNR: 13.0 RSSI:				
14:35:03	Successfully processed data message	DevAddr: 26 08 FB E3				
14:34:57	Schedule data downlink for transmissi...	DevAddr: 26 08 FB E3 FPort: 1 MAC payload: 80 90 Rx Delay: 5				
14:34:57	Forward uplink data message	DevAddr: 26 08 FB E3 Payload: { Alarm: "TRUE", BatV: 3.342, Hum_SHT41: 65.7, Sound_ACK: "OPEN", Sound_key: "OPEN", Tempc_SHT41: 26.5 } 00 0E 03 01 01 09 02 91 FPort: 2 Data rate: SF8BW125 SNR: 16 RSSI:				
14:34:57	Successfully processed data message	DevAddr: 26 08 FB E3				
14:34:52	Receive downlink data message	26 01 FPort: 1				
14:29:31	Schedule data downlink for transmissi...	DevAddr: 26 08 FB E3 Rx Delay: 5				

User Manual for LoRaWAN /NB -IoT End Nodes - PB01 -- LoRaWAN Push Button User Manual

Applications > zero > End devices > PB01 > Live data

PB01
ID: eu1-fa23455555555555

Overview Live data Messaging Location Payload formatters General settings

Time Type Data preview

14:45:52 Forward uplink data message DevAddr: 26 08 FB E3 Payload: { BAT: 3.246, FIRMWARE_VERSION: '1.0.0', FREQUENCY_BAND: 'EU868', SENSOR_MODEL: 'PB01-L', SUB_BAND: 'NULL' } 35 0A 00 01 FF 0C AE FPort: 5 Data rate: SF7BW125 SNR: 10.2 RSSI: -

14:45:52 Successfully processed data message DevAddr: 26 08 FB E3

14:45:46 Schedule data downlink for transmissi... DevAddr: 26 08 FB E3 FPort: 1 MAC payload: 0C 98 Rx1 Delay: 6

14:45:46 Forward uplink data message DevAddr: 26 08 FB E3 Payload: { Alarm: 'TRUE', BatV: 3.250, Hum_SHT41: 69.1, Sound_ACK: 'OPEN', Sound_key: 'OPEN', Temp_SHT41: 26.3 } 0C 8A 03 01 01 07 02 83 FPort: 2 Data rate: SF7BW125 SNR: 13.8 RSSI: -

14:45:46 Successfully processed data message DevAddr: 26 08 FB E3

14:45:43 Console: Stream reconnected The stream connection has been re-established

14:45:39 Receive downlink data message 26 01 FPort: 1

14:45:35 Console: Stream connection closed The connection was closed

35 0A 00 01 FF 0C AE

35 0A 00 01 FF 0C AE

35 0A 00 01 FF 0C AE

Applications > zero > End devices > PB01 > Live data

PB01
ID: eu1-fa23455555555555

Overview Live data Messaging Location Payload formatters General settings

Time Type Data preview

09:19:17 Forward uplink data message DevAddr: 26 08 81 92 Payload: { Alarm: 'FALSE', BatV: 3.348, Hum_SHT41: 66.4, Sound_ACK: 'OPEN', Sound_key: 'OPEN', Temp_SHT41: 26.6 } 00 14 03 01 00 FF 02 98 FPort: 2 Data rate: SF7BW125 SNR: 14 RSSI: -

14:10:17 Successfully processed data message DevAddr: 26 08 81 92

13:48:09 Schedule data downlink for transmissi... DevAddr: 26 08 81 92 Rx1 Delay: 6

13:48:09 Forward uplink data message DevAddr: 26 08 81 92 Payload: { Alarm: 'FALSE', BatV: 3.474, Hum_SHT41: 72.5, Sound_ACK: 'OPEN', Sound_key: 'OPEN', Temp_SHT41: 26.3 } 80 92 03 00 00 FD 02 D6 FPort: 2 Data rate: SF7BW125 SNR: 13.5 RSSI: -

13:48:09 Successfully processed data message DevAddr: 26 08 81 92

13:48:00 Schedule data downlink for transmissi... DevAddr: 26 08 81 92 Rx1 Delay: 6

13:48:00 Forward uplink data message DevAddr: 26 08 81 92 Payload: { Alarm: 'FALSE', BatV: 3.474, Hum_SHT41: 71.6, Sound_ACK: 'OPEN', Sound_key: 'OPEN', Temp_SHT41: 26.6 } 80 92 03 00 01 00 02 DC FPort: 2 Data rate: SF7BW125 SNR: 11.6 RSSI: -

13:48:00 Successfully processed data message DevAddr: 26 08 81 92

08:59:47 Schedule data downlink for transmissi... DevAddr: 26 08 81 92 Rx1 Delay: 6

08:59:47 Forward uplink data message DevAddr: 26 08 81 92 Payload: { Alarm: 'FALSE', BatV: 3.474, Hum_SHT41: 71.6, Sound_ACK: 'OPEN', Sound_key: 'OPEN', Temp_SHT41: 26.6 } 80 92 03 00 01 00 02 DC FPort: 2 Data rate: SF7BW125 SNR: 11.6 RSSI: -

08:59:47 Successfully processed data message DevAddr: 26 08 81 92

08:39:48 Schedule data downlink for transmissi... DevAddr: 26 08 81 92 Rx1 Delay: 6

08:39:47 Forward uplink data message DevAddr: 26 08 81 92

Applications > zero > End devices > PB01 > Live data

PB01
ID: eu1-fa23455555555555

Overview Live data Messaging Location Payload formatters General settings

Time Type Data preview

15:20:40 Schedule data downlink for transmissi... DevAddr: 26 08 74 11 Rx1 Delay: 6

15:20:40 Forward uplink data message DevAddr: 26 08 74 11 Payload: { BAT: 3.294, FIRMWARE_VERSION: '1.0.0', FREQUENCY_BAND: 'EU868', SENSOR_MODEL: 'PB01-L', SUB_BAND: 'NULL' } 35 01 00 01 FF 0C DE FPort: 5 Data rate: SF7BW125 SNR: 13.8 RSSI: -

15:20:40 Successfully processed data message DevAddr: 26 08 74 11

15:20:34 Schedule data downlink for transmissi... DevAddr: 26 08 74 11 FPort: 1 MAC payload: 1A DC Rx1 Delay: 6

15:20:34 Forward uplink data message DevAddr: 26 08 74 11 Payload: { Alarm: 'TRUE', BatV: 3.306, Hum_SHT41: 68, Sound_ACK: 'OPEN', Sound_key: 'OPEN', Temp_SHT41: 27.3 } 0C 8A 03 01 01 11 02 A8 FPort: 2 Data rate: SF7BW125 SNR: 11.6 RSSI: -

15:20:34 Successfully processed data message DevAddr: 26 08 74 11

15:20:29 Receive downlink data message 26 01 FPort: 1

15:20:18 Schedule data downlink for transmissi... DevAddr: 26 08 74 11 Rx1 Delay: 6

User Manual for LoRaWAN /NB -IoT End Nodes - PB01 -- LoRaWAN Push Button User Manual

35 01 00 01 FF 0C DE

Applications > zero > End devices > PB01 > Payload formatters > Uplink

PB01
ID: eu1-fa23455555555555

Overview Live data Messaging Location **Payload formatters** General settings

Uplink Downlink

Setup

Formatter type*
Custom Javascript formatter

Formatter code*

```
1 function datalog(1,bytes){
2   var aa= parseFloat(((bytes[0]<<24>>16 | bytes[1]<<20>>16 | bytes[2]<<16>>16 | bytes[3]<<12>>16 | bytes[4]<<8>>16 | bytes[5]<<4>>16 | bytes[6]<<0>>16)/10).toFixed(1));
3   var bb= parseFloat(((bytes[7]<<24>>16 | bytes[8]<<20>>16 | bytes[9]<<16>>16 | bytes[10]<<12>>16 | bytes[11]<<8>>16 | bytes[12]<<4>>16 | bytes[13]<<0>>16)/10).toFixed(1));
4   var cc= parseFloat(((bytes[14]<<24>>16 | bytes[15]<<20>>16 | bytes[16]<<16>>16 | bytes[17]<<12>>16 | bytes[18]<<8>>16 | bytes[19]<<4>>16 | bytes[20]<<0>>16)/10).toFixed(1));
5   var dd= (bytes[21]<<24>>16 | bytes[22]<<20>>16 | bytes[23]<<16>>16 | bytes[24]<<12>>16 | bytes[25]<<8>>16 | bytes[26]<<4>>16 | bytes[27]<<0>>16) ? "True":"False";
6   var ee= getHyDate((bytes[28]<<24>>16 | bytes[29]<<20>>16 | bytes[30]<<16>>16 | bytes[31]<<12>>16 | bytes[32]<<8>>16 | bytes[33]<<4>>16 | bytes[34]<<0>>16).toString());
7   var string= ['aa'+','+bb+',','cc+',','dd+',','ee+',','a','];
8   return string;
9 }
10
11
12 function getzf(c_num){
13   if(parseInt(c_num) < 10)
14     | c_num = '0' + c_num;
15   return c_num;
16 }
17
18 function getHyDate(str){
19   var c_Date;
20   if(str > 9999999999)
21     | c_Date = new Date(parseInt(str));
22   else
23     | c_Date = new Date(parseInt(str) * 1000);
24 }
```

Test

Byte payload FPort
1 Test decoder

Decoded test payload

Complete uplink data

Learn more about payload formatters

Save changes

Applications > zero > End devices > PB01 > Payload formatters > Uplink

PB01
ID: eu1-fa23455555555555

Overview Live data Messaging Location **Payload formatters** General settings

Uplink Downlink

Setup

Formatter type*
Custom Javascript formatter

Formatter code*

```
1 function datalog(1,bytes){
2   var aa= parseFloat(((bytes[0]<<24>>16 | bytes[1]<<20>>16 | bytes[2]<<16>>16 | bytes[3]<<12>>16 | bytes[4]<<8>>16 | bytes[5]<<4>>16 | bytes[6]<<0>>16)/10).toFixed(1));
3   var bb= parseFloat(((bytes[7]<<24>>16 | bytes[8]<<20>>16 | bytes[9]<<16>>16 | bytes[10]<<12>>16 | bytes[11]<<8>>16 | bytes[12]<<4>>16 | bytes[13]<<0>>16)/10).toFixed(1));
4   var cc= parseFloat(((bytes[14]<<24>>16 | bytes[15]<<20>>16 | bytes[16]<<16>>16 | bytes[17]<<12>>16 | bytes[18]<<8>>16 | bytes[19]<<4>>16 | bytes[20]<<0>>16)/10).toFixed(1));
5   var dd= (bytes[21]<<24>>16 | bytes[22]<<20>>16 | bytes[23]<<16>>16 | bytes[24]<<12>>16 | bytes[25]<<8>>16 | bytes[26]<<4>>16 | bytes[27]<<0>>16) ? "True":"False";
6   var ee= getHyDate((bytes[28]<<24>>16 | bytes[29]<<20>>16 | bytes[30]<<16>>16 | bytes[31]<<12>>16 | bytes[32]<<8>>16 | bytes[33]<<4>>16 | bytes[34]<<0>>16).toString());
7   var string= ['aa'+','+bb+',','cc+',','dd+',','ee+',','a','];
8   return string;
9 }
10
11
12 function getzf(c_num){
13   if(parseInt(c_num) < 10)
14     | c_num = '0' + c_num;
15   return c_num;
16 }
17
18 function getHyDate(str){
19   var c_Date;
20   if(str > 9999999999)
21     | c_Date = new Date(parseInt(str));
22   else
23     | c_Date = new Date(parseInt(str) * 1000);
24 }
```

Test

Byte payload
1

Decoded test payload

Complete uplink data

Learn more about payload formatters

Save changes

User Manual for LoRaWAN /NB -IoT End Nodes - PB01 -- LoRaWAN Push Button User Manual

Applications > zero > End devices > PB01 > Payload formatters > Uplink

PB01
ID: eu1-fa23455555555555

18 n/a Last activity 12 minutes ago

Overview Live data Messaging Location **Payload formatters** General settings

Uplink Downlink

Setup

Formatter type*
Custom Javascript formatter

Formatter code*

```
1 function datalog(1,bytes){
2   var aa= parseFloat((((bytes[0+i]<<24>>16 | bytes[1+i])/10).toFixed(1)));
3   var bb= parseFloat((((bytes[2+i]<<24>>16 | bytes[3+i])/10).toFixed(1)));
4   var cc= parseFloat((((bytes[4+i]<<24>>16 | bytes[5+i])/10).toFixed(1)));
5   var dd= (bytes[6+i]&0x01) ? "True":"False";
6   var ee= getMyDate((bytes[7+i]<<24 | bytes[8+i]<<16 | bytes[9+i]<<8 | bytes[10+i]).toString
7   var string='['+aa+', '+bb+', '+cc+', '+dd+', '+ee+', ' '];
8
9   return string;
10 }
11
12 function getrfic_num(){
13   if(parseInt(c_num) < 10)
14     c_num = '0' + c_num;
15   return c_num;
16 }
17
18 function getMyDate(str){
19   var c_Date;
20   if(str > 9999999999)
21     c_Date = new Date(parseInt(str));
22   else
23     c_Date = new Date(parseInt(str) * 1000);
24 }
25
```

Test

Byte payload

Decoded test payload

Complete uplink data

Learn more about payload formatters

Save changes

Applications > zero > End devices > PB01 > Live data

PB01
ID: eu1-fa23455555555555

28 n/a Last activity 36 seconds ago

Overview Live data Messaging Location Payload formatters General settings

Time Type Data preview

14:40:30	Forward uplink data message	DevAddr: 28 08 66 02 <+> <-> Payload: [0.02, 6.27, 6, False, 2024-05-18 04:44:13], [0.03, 6.27, 6, False, 2024-05-18 00:04:13], [0.04, 3.27, 6, False, 2024-05-18 00:04:13], [0.04, 3.27, 6, False, 2024-05-18 00:44:13], [
14:40:35	Successfully processed data message	DevAddr: 28 08 66 02 <+> <-> Payload: [0.02, 6.27, 6, False, 2024-05-18 04:44:13], [0.03, 6.27, 6, False, 2024-05-18 00:04:13], [0.04, 3.27, 6, False, 2024-05-18 00:04:13], [0.04, 3.27, 6, False, 2024-05-18 00:44:13], [
14:40:38	Schedule data downlink for transmit...	DevAddr: 28 08 66 02 <+> <-> FPort: 1 MAC payload: 08 01 03 10 A5 80 A8 F8 70 71 <-> RxD Delay: 0
14:40:38	Forward uplink data message	DevAddr: 28 08 66 02 <+> <-> Payload: [Alarm: "TRUE", BatV: 3.432, Hum_BHT41: 87.7, Sound_ACK: "CLOSE", Sound_key: "CLOSE", TempC_BHT41: 26.3] 00 00 00 01 01 07 02 41 <-> FPort: 2 Data rate: SF7BW125 SR
14:40:38	Successfully processed data message	DevAddr: 28 08 66 02 <+> <-> Payload: [Alarm: "TRUE", BatV: 3.432, Hum_BHT41: 87.7, Sound_ACK: "CLOSE", Sound_key: "CLOSE", TempC_BHT41: 26.3] 00 00 00 01 01 07 02 41 <-> FPort: 2 Data rate: SF7BW125 SR
14:40:38	Receive downlink data message	28 08 3D A8 CF A8 3D C1 87 08 <-> <-> FPort: 1
14:40:39	Forward uplink data message	DevAddr: 28 08 66 02 <+> <-> Payload: [Alarm: "FALSE", BatV: 3.438, Hum_BHT41: 87.5, Sound_ACK: "CLOSE", Sound_key: "CLOSE", TempC_BHT41: 26.3] 00 00 00 01 01 07 02 3F <-> FPort: 2 Data rate: SF7BW125 SR
14:40:39	Successfully processed data message	DevAddr: 28 08 66 02 <+> <-> Payload: [Alarm: "FALSE", BatV: 3.438, Hum_BHT41: 87.5, Sound_ACK: "CLOSE", Sound_key: "CLOSE", TempC_BHT41: 26.3] 00 00 00 01 01 07 02 3F <-> FPort: 2 Data rate: SF7BW125 SR
14:40:39	Schedule data downlink for transmit...	DevAddr: 28 08 66 02 <+> <-> RxD Delay: 0
14:40:39	Forward uplink data message	DevAddr: 28 08 66 02 <+> <-> Payload: [Alarm: "TRUE", BatV: 3.438, Hum_BHT41: 87.7, Sound_ACK: "CLOSE", Sound_key: "CLOSE", TempC_BHT41: 26.9] 00 00 00 01 01 07 02 41 <-> FPort: 2 Data rate: SF7BW125 SR
14:40:39	Successfully processed data message	DevAddr: 28 08 66 02 <+> <-> Payload: [Alarm: "TRUE", BatV: 3.438, Hum_BHT41: 87.7, Sound_ACK: "CLOSE", Sound_key: "CLOSE", TempC_BHT41: 26.9] 00 00 00 01 01 07 02 41 <-> FPort: 2 Data rate: SF7BW125 SR

User Manual for LoRaWAN /NB -IoT End Nodes - PB01 -- LoRaWAN Push Button User Manual

The image shows two screenshots from the Things Stack dashboard. The top screenshot displays the 'Webhooks' section under the 'Applications' tab. A red box highlights the 'Webhooks' option in the left sidebar. The main area shows a grid of webhook templates, with 'Datacake' highlighted by a red box. The bottom screenshot shows the 'Account Settings' page, specifically the 'API Token' tab, which is also highlighted by a red box. It displays a warning about the API token's access and a field to copy the generated token.

Things Stack Dashboard - Webhooks Section

Left Sidebar (Red Box):

- Overview
- End devices
- Live data
- Payload formatters
- Integrations
- Webhooks**
- Storage integration
- AWS IoT
- Azure IoT
- LoRa Cloud
- Collaborators
- API keys
- General settings

Main Content (Choose webhook template):

- Custom webhook
- akenza
- ALSO IoT Platform
- AnyViz
- AllThingsTalk Maker
- Blockbox
- Cayenne
- CLOUDSTUDIO
- Datacake**
- Delmation
- deZem

Things Stack Dashboard - Account Settings - API Token

Left Sidebar (Red Box):

- Q paopao
- Add Dashboard
- Devices
- Gateways
- Reports
- Members
- Rules
- Workspace
- Integrations
- White Label
- Billing
- Account Settings**
- Add-Ons
- Support
- Documentation
- Changelog
- Status
- Logout

Main Content (API Token):

Warning

Please note that your API token gives access to your whole account, so treat it with caution!

Datacake offers both a RESTful API for simple tasks as well as a feature-rich GraphQL API. For both, you need an API token.

API token: [Redacted] **Copy**

The screenshot displays two parts of the Things Network interface. The top part shows the 'Setup webhook for Datacake' page, and the bottom part shows the 'Datacake' dashboard.

Setup webhook for Datacake

Send data to Datacake via TTI adapter
[About Datacake](#) | [Help](#)

Webhook ID *
 pb01-l

Token *
 [Redacted Token] [Eye icon]

Datacake API Token

[Create Datacake webhook](#)

Note: A red arrow points to the Token field with the text "Paste the API here".

DATA CAKE

Fleet > Devices

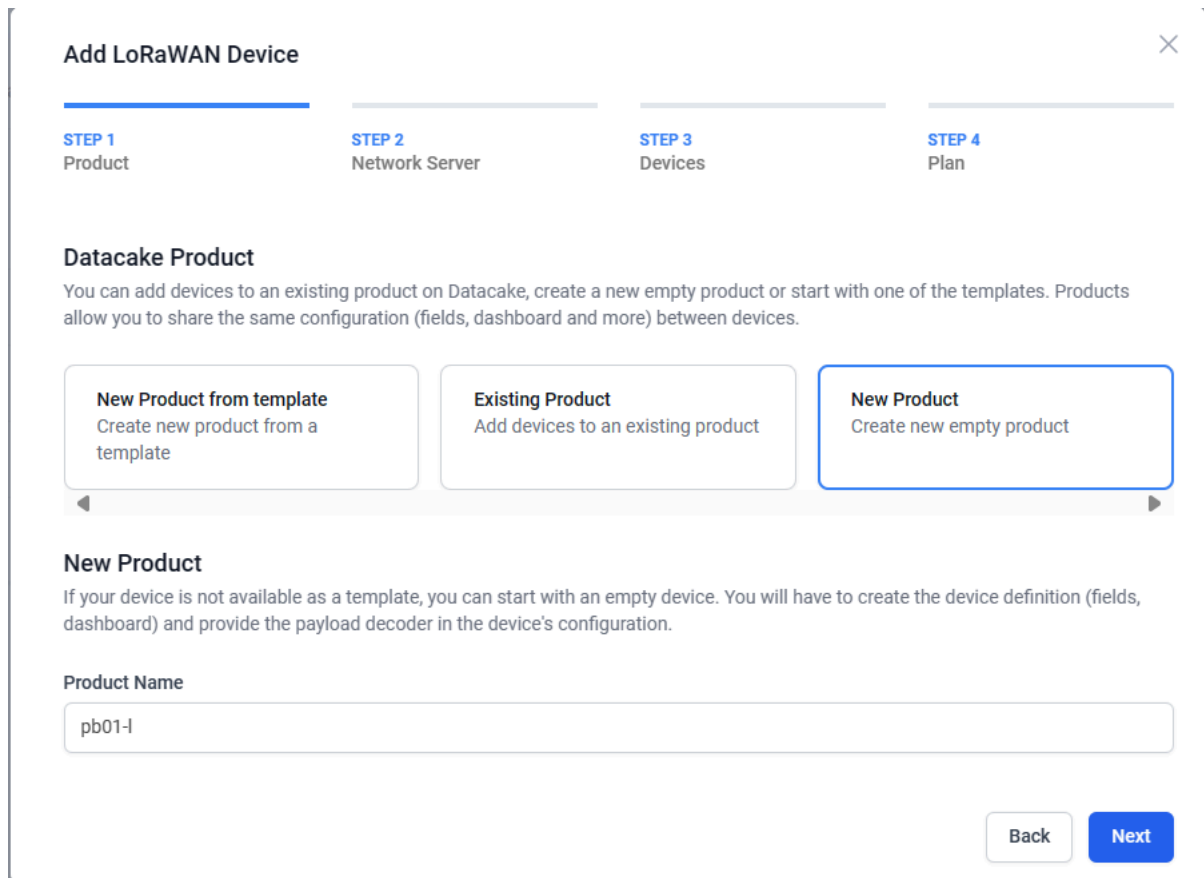
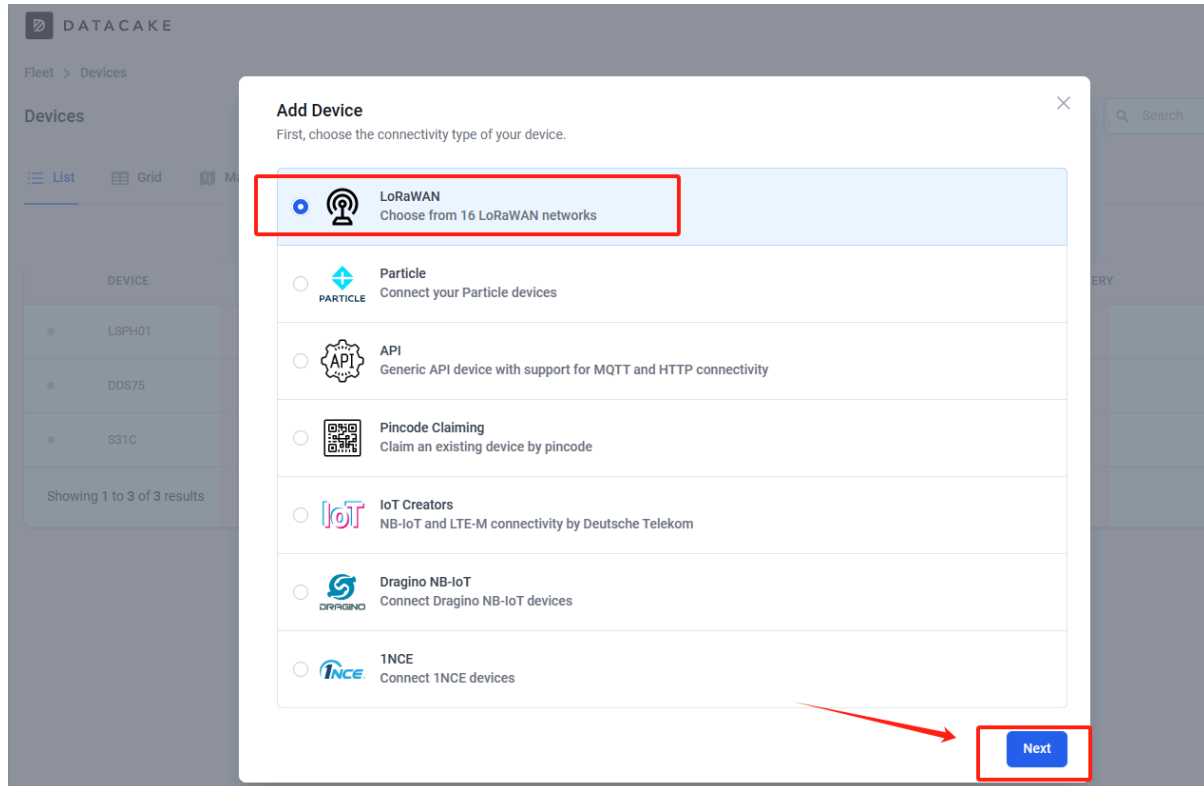
Devices

Search [] Columns [v] [+ Add Device](#)

List Grid Map

DEVICE	PRIMARY	SECONDARY	DEVICE SIGNAL	DEVICE BATTERY	Actions
LSPH01	N/A	N/A	N/A	N/A	[Eye icon] [Info icon] [Refresh icon]
DDS75	N/A	N/A	N/A	N/A	[Eye icon] [Info icon] [Refresh icon]

Note: A red arrow points to the '+ Add Device' button.



Add LoRaWAN Device

STEP 1
Product

STEP 2
Network Server

STEP 3
Devices

STEP 4
Plan

Datacake Product

You can add devices to an existing product on Datacake, create a new empty product or start with one of the templates. Products allow you to share the same configuration (fields, dashboard and more) between devices.

New Product from template
Create new product from a template

Existing Product
Add devices to an existing product

New Product
Create new empty product

New Product

If your device is not available as a template, you can start with an empty device. You will have to create the device definition (fields, dashboard) and provide the payload decoder in the device's configuration.

Product Name

pb01-l

Back

Next

Add LoRaWAN Device



STEP 1
Product







STEP 2
Network Server

STEP 3
Devices

STEP 4
Plan

Network Server

Please choose the LoRaWAN Network Server that your devices are connected to.

<input type="radio"/>		Datacake LNS AUTOMATIC SETUP Start and scale easily with a managed LNS	Uplinks	Downlinks
<input checked="" type="radio"/>		The Things Stack V3 TTN V3 / Things Industries	Uplinks	Downlinks
<input type="radio"/>		Helium Use your own console	Uplinks	Downlinks
<input type="radio"/>		LORIoT	Uplinks	Downlinks
<input type="radio"/>		ChirpStack	Uplinks	Downlinks
<input type="radio"/>		Actility	Uplinks	Downlinks
Showing 1 to 5 of 15 results			Previous	Next

Back

Next

Add LoRaWAN Device

STEP 1
Product

STEP 2
Network Server

STEP 3
Devices

STEP 4
Plan

Add Devices



Manual

Import from The Things Stack

Please provide one or multiple LoRaWAN device EUIs along with the corresponding names they should have on Datacake.

Alternatively, you can choose to upload a CSV file that contains the DevEUI, device Name, location, and a set of tags. For more information on how to format the file, please refer to [our documentation](#).

📎 Drag and drop a .csv file here or click to choose one

DEVEUI	NAME	LOCATION	TAGS
 FA 23 45 55 55 55 51 8 bytes	 PB01	Location	Add tag

+ Add another device

Back

Next

Payload Decoder

Product-wide setting

When your devices sends data, the payload will be passed to the payload decoder, alongside the event's name. The payload decoder then transforms it to measurements.

```
1 function Decoder(payload, port) {  
2   /*  
3   return [  
4     {  
5       field: "TEST",  
6       value: 123  
7     }  
8   ];  
9 }  
10 }
```

Payload

Port

Try Decoder

User Manual for LoRaWAN /NB -IoT End Nodes - PB01 -- LoRaWAN Push Button User Manual

DATA CAKE

Fleet > PB01

PB01

Serial Number

FA2345555555551

Last update

Never

Dashboard

History

Downlinks

Configuration

Debug

Rules

Permissions

General Configuration

Device name

PB01

Icon

No icon selected

You can override the default product icon for this device

Location description

Optional

Payload Decoder

Product-wide setting

When your devices sends data, the payload will be passed to the payload decoder, alongside the event's name. The payload decoder then transforms it to measurements.

```
1 function detailLog(i,bytes){
2   var aa= parseFloat((((bytes[0+i]<<24>>16 | bytes[1+i])/10).toFixed(1)));
3   var bb= parseFloat((((bytes[2+i]<<24>>16 | bytes[3+i])/10).toFixed(1)));
4   var cc= parseFloat((((bytes[4+i]<<24>>16 | bytes[5+i])/10).toFixed(1)));
5   var dd= (bytes[6+i]&0x01) ? "True":"False";
6   var ee= getMyDate((bytes[7+i]<<24 | bytes[8+i]<<16 | bytes[9+i]<<8 | bytes[10+i]).toString(10));
7   var string=['aa','bb','cc','dd','ee'].join(' ');
8   return string;
9 }
10
11
12 function getzf(c_num){
13   if(parseInt(c_num) < 10)
14     c_num = '0' + c_num;
15   return c_num;
16 }
17
18
19 function getMyDate(str){
20   var c_Date;
21   if(str > 9999999999)
22     c_Date = new Date(parseInt(str));
23   else
24     c_Date = new Date(parseInt(str) * 1000);
25   var c_Year = c_Date.getFullYear();
26   c_Month = c_Date.getMonth()+1;
27   c_Day = c_Date.getDate();
28   c_Hour = c_Date.getHours();
29   c_Min = c_Date.getMinutes();
30   c_Sec = c_Date.getSeconds();
31   var c_Time = c_Year + '-' + getzf(c_Month) + '-' + getzf(c_Day) + ' ' + getzf(c_Hour) + ':' + getzf(c_Min) + ':' + getzf(c_Sec);
32   return c_Time;
33 }
34
35
36 }
```

DATA CAKE

Fleet > PB01

PB01

Serial Number

FA2345555555551

Last update

Never

Dashboard

History

Downlinks

Configuration

Debug

Rules

Permissions

Debug Log

Time	Title	Details
15:38:22	Recorded measurements from payload decoder	Decoder returned: {"Alarm": "TRUE", "BatV": 3.488, "Hum_SHT41": 57.2, "S... Log: null Recorded measurements: {"ALARM": "...
15:38:22	Recorded measurements from payload decoder	Decoder returned: {"Alarm": "TRUE", "BatV": 3.488, "Hum_SHT41": 57.2, "S... Log: null Recorded measurements: {"ALARM": "...
15:38:22	Recorded measurements from payload decoder	Decoder returned: {"Alarm": "TRUE", "BatV": 3.488, "Hum_SHT41": 57.2, "S... Log: null Recorded measurements: {"ALARM": "...
15:38:22	Received webhook data from tti	{"end_device_ids":{"device_id":"eui-fa23455555555555"},"...



PB01
ID: eui-fa23455555555555

↑ 9 ↓ n/a ⌚ Last activity 3 minutes ago ⌚

Overview **Live data** Messaging Location Payload formatters General settings

Time	Type	Data preview	Verbose stream	Export as JSON	Pause	Clear
↓ 15:47:24	Schedule data downlink for transmissi...	DevAddr: 26 08 00 EC <> Rx1 Delay: 5				
↑ 15:47:24	Forward uplink data message	DevAddr: 26 08 00 EC <> Payload: { Alarm: "TRUE", BatV: 3.488, Hum_SHT41: 61.2, Sound_ACK: "CLOSE", Sound_key: "CLOSE", TempC_SHT41: 26.6 }				
↑ 15:47:24	Successfully processed data message	DevAddr: 26 08 00 EC <>				
↓ 15:43:05	Schedule data downlink for transmissi...	DevAddr: 26 08 00 EC <> Rx1 Delay: 5				
↑ 15:43:05	Forward uplink data message	DevAddr: 26 08 00 EC <> Payload: { Alarm: "TRUE", BatV: 3.488, Hum_SHT41: 67.7, Sound_ACK: "CLOSE", Sound_key: "CLOSE", TempC_SHT41: 26.2 }				
↑ 15:43:05	Successfully processed data message	DevAddr: 26 08 00 EC <>				
↓ 15:39:51	Schedule data downlink for transmissi...	DevAddr: 26 08 00 EC <> Rx1 Delay: 5				
↑ 15:39:51	Forward uplink data message	DevAddr: 26 08 00 EC <> Payload: { Alarm: "FALSE", BatV: 3.488, Hum_SHT41: 67.4, Sound_ACK: "CLOSE", Sound_key: "CLOSE", TempC_SHT41: 26.2 }				
↑ 15:39:51	Successfully processed data message	DevAddr: 26 08 00 EC <>				

