LIVE OBJECTS LORAWAN RANGE QUICK START

TABLE OF CONTENT

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1   LORAWAN PRIVATE NETWORK

As an example, we will rely on the Live Objects network (https://www.orange-business.com/fr/produits/live-objects) to implement the connectivity of LoRaWAN tags to a public LoRaWAN network. To view and analyze your LoRaWAN tag data, you will need to create a Live Objects account.

The Orange LoRa offer is reserved to companies in France, to subscribe even for the free offer, you will be asked for documents to finalize the registration.
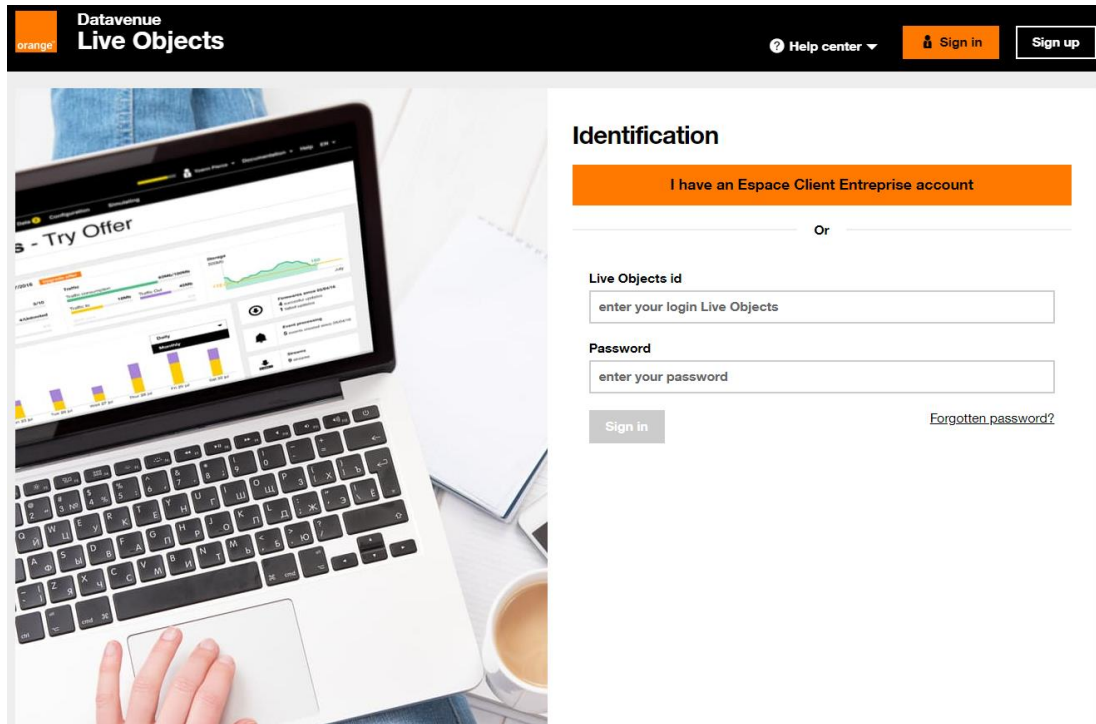

1.1. LORAWAN TAG SENSOR

When accessing your Live Objects account, you will be taken to the dashboard:
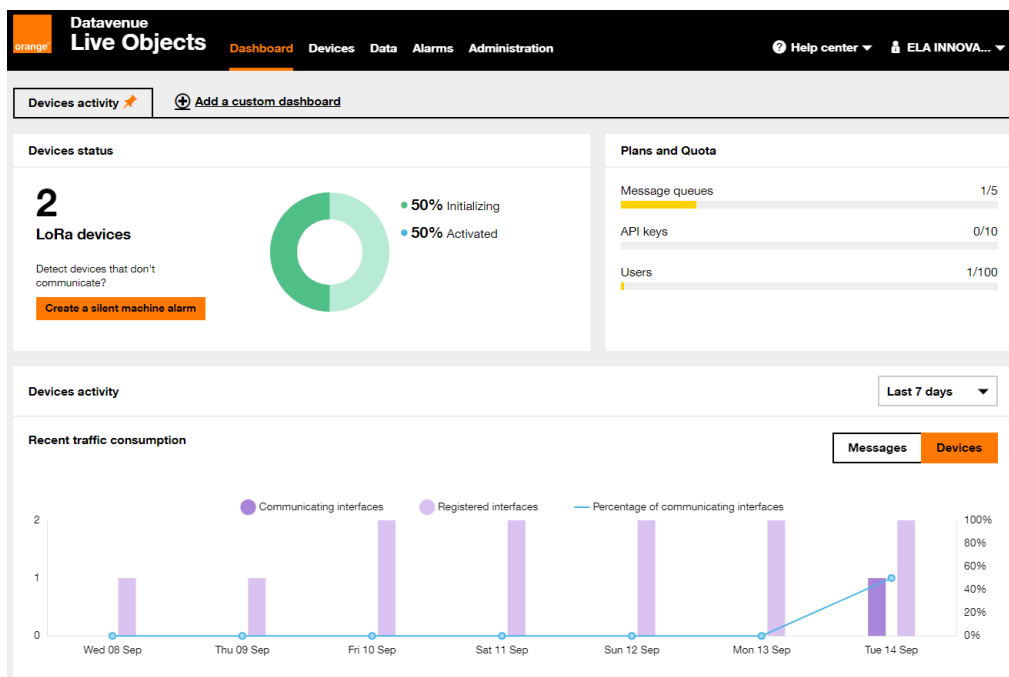
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First, you will have to create an "equipment" (your LoRaWAN tag). To do this, go to the "Device" section and click on "add a device":
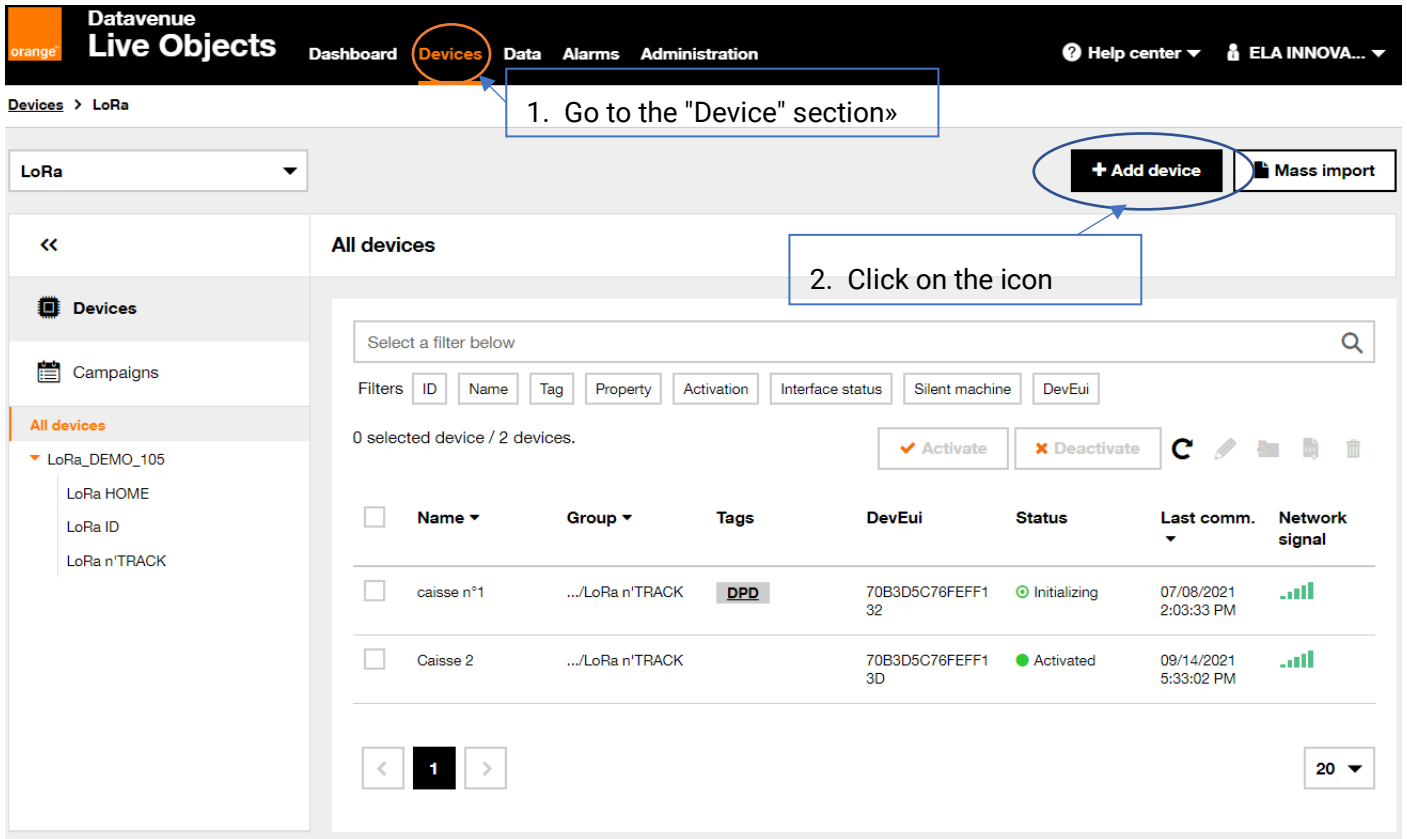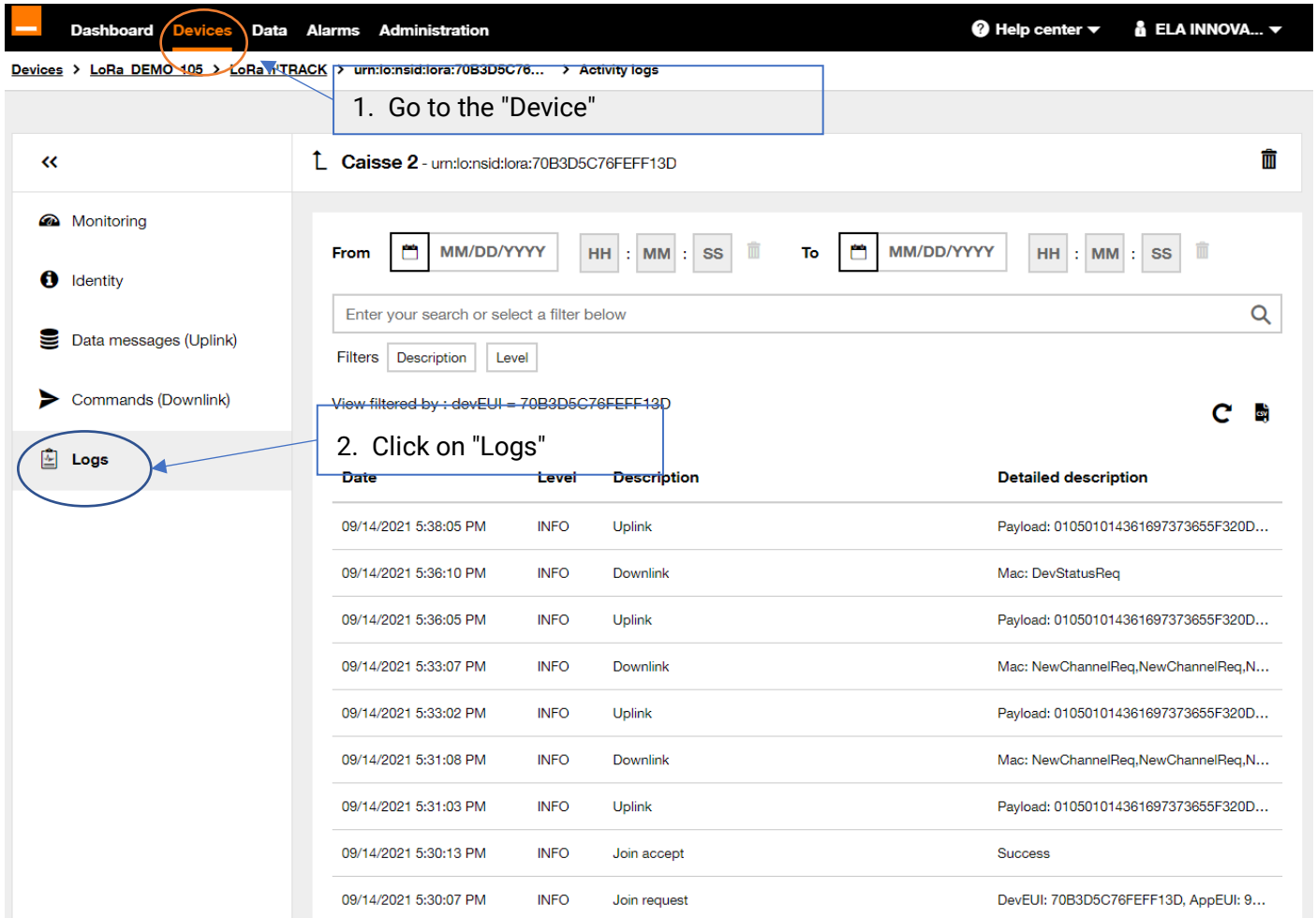

A new window appears to fill in the information of the LoRa tag:

- Fill in the relevant fields.
- Choose a generic "Profile" according to the class of your object. If you want to transmit in Europe in class A, you can select for example: DIGITAL_MATTER_EU868_ClassA .
- Take the three identifiers to register the tag on the Live Objects network:

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- o **DEVEUI:** Globally unique identifier of the device (64 bits).
- o **APPEUI:** Globally unique identifier of the pairing server (64 bits).
- o **APPKEY:** 128-bit encryption key for pairing between the device and the application server.

After registering your LoRaWAN tag, there will be a pairing sequence (Join Request/Accept) with your tag. This sequence is visible in the "Data" section of the "Logs":
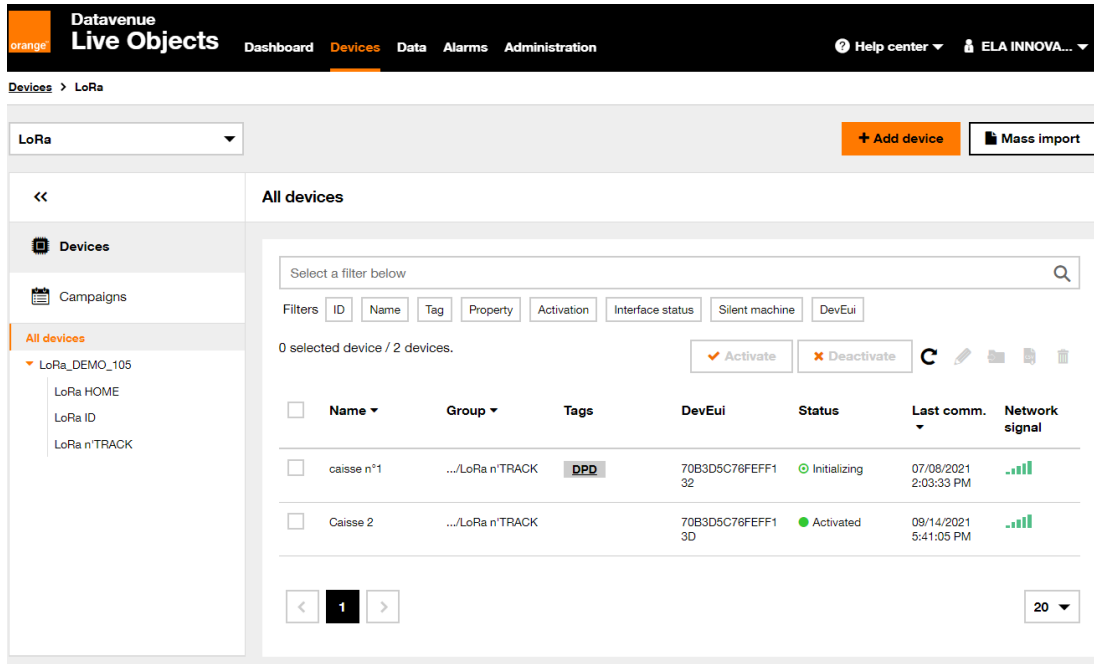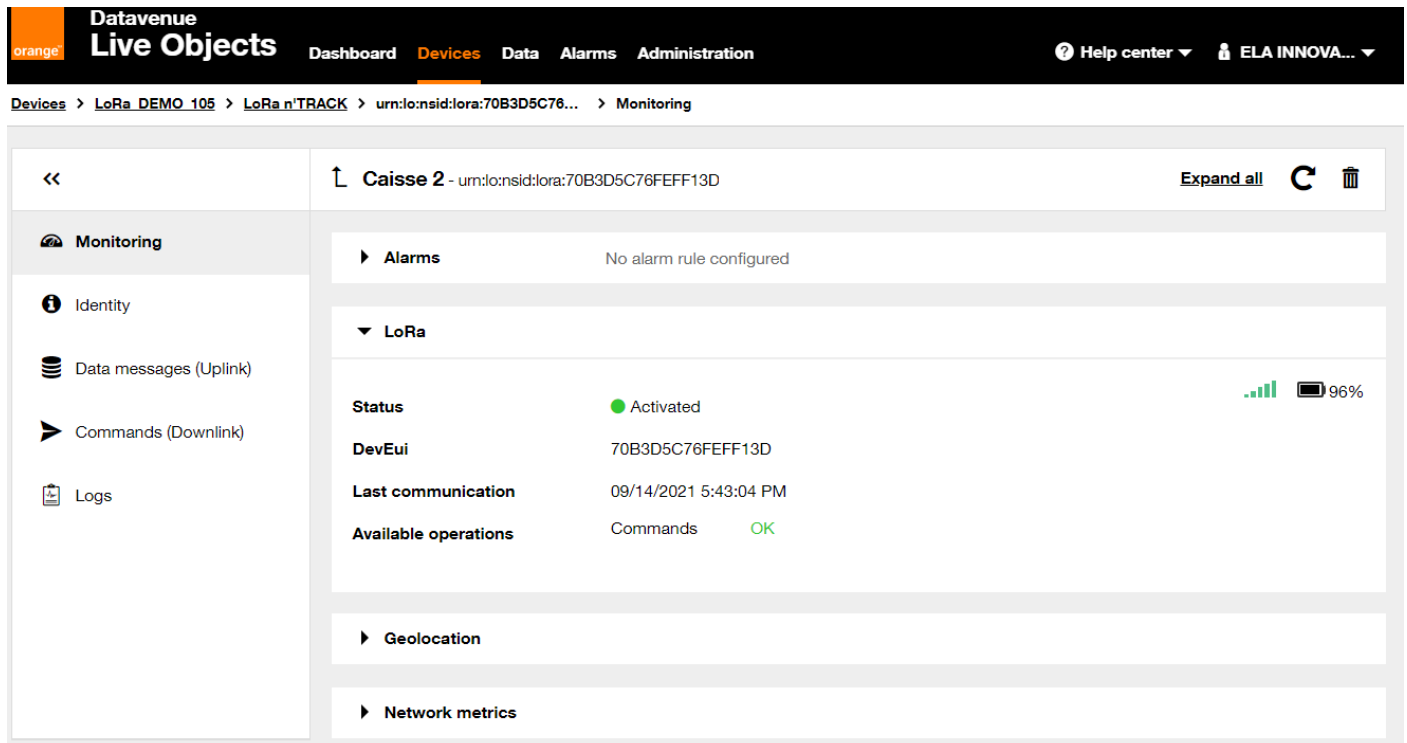

1.2. VISUALIZATION OF SENSOR DATA

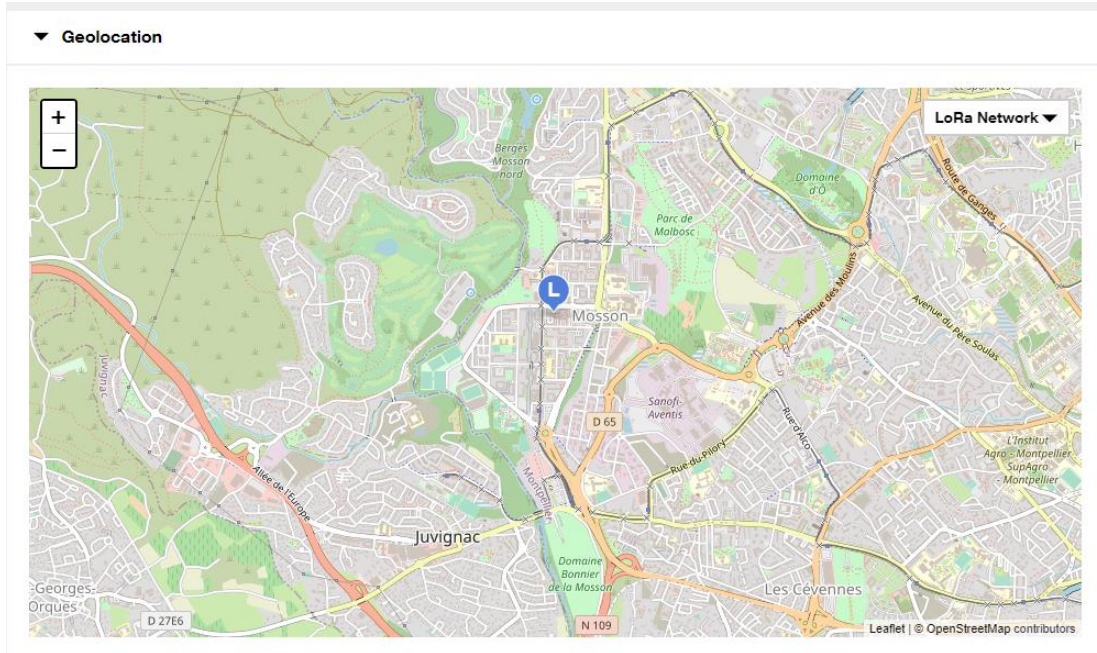On the Live Objects interface:

All the registered sensors will be present in the "Device" section.

By clicking on your LoRaWAN equipment, you can access the status of the equipment. You can follow the activity and status of the LoRaWAN equipment (battery, signal level, location etc...):

It's possible to get a positioning of your equipment in the section "geolocation". The LoRa network of the LiveObject give an approximate position of your tag:

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- Click on Uplink to view the frames received by the LoRaWAN network

The data transmissions from the sensors to the server are the Uplink flows and the information transmitted from the server to the sensor are the Downlink flows.

Example of a UPLINK frame content on a LoRa HOME tag:

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Date	Payload	Fcnt	Port	Signal réseau
16/11/2020 11:24:44	010501015441475f494435000d9200000103 1308b03522 00005400015480	1	3	.ıll

Details :

LEN.	TYPE	VALUE
4	0x01050101	Header Ela
8	0x5441475f49443500	Name of the tag ASCII format: TAG_ID5
2	0x0D92	Power 0x0D92 = 3474mV
3	0x000001	319 transmitted frame by the tag
1	0x03	Periodic frame Standard mode, number of sensors = 3
1	0x13	RHT sensor code
3	0x08B035	Temperature : 0x08B0=2224 * 0,01°C = **22,24°C**
		Humidity : 0x35= 53% RH
1	0x22	MAG sensor code
2	0x0000	Event counter (15MSB) = 0 magnetic field detection
		Current state (LSB)= 1 magnet detected
1	0x54	LUX sensor code
4	0x00015480	Brightness : 0xF760= 87168 * 0.01 lux = 871.68 lux

1.3. DOWNLINK COMMAND

The bidirectionality is a characteristic of the LoRaWAN protocol, it is then possible to transfer data to devices.

To access the Downlink command, go to the "Devices" section, click on your tag and then on "Downlink".

- Sélectionnez l'icône « Ajouter une commande », puis remplir la nouvelle commande désirée :

- Select "Port" number 3
- "Confirmed downlink": it is possible to ask for a confirmation of reception of the Downlink during the next Uplink.

Example for an LED activation command:

- 0001050302<mark>0020</mark> : Flashing (1Hz) of the LED during <mark>0x0020</mark> = <mark>32 seconds</mark>.

Upon receipt of this command, the TAG will activate the LED for the period specified in the field <mark>*CmdData*</mark>.

If you have selected the confirmation of the Downlink command, it is possible to view this confirmation in the "Park" section, select "Log" to display the events related to your LoRa tag.

- Click on the "Uplink" frame to verify that the "Downlink" command has been taken into account.

Note: Even if the "Acknowledge" option is not selected on your tag, confirming the Downlink command will force the "Acknowledge" to "true" on the next Uplink: