

LIVE OBJECTS LORAWAN RANGE QUICK START



**Business
Services**

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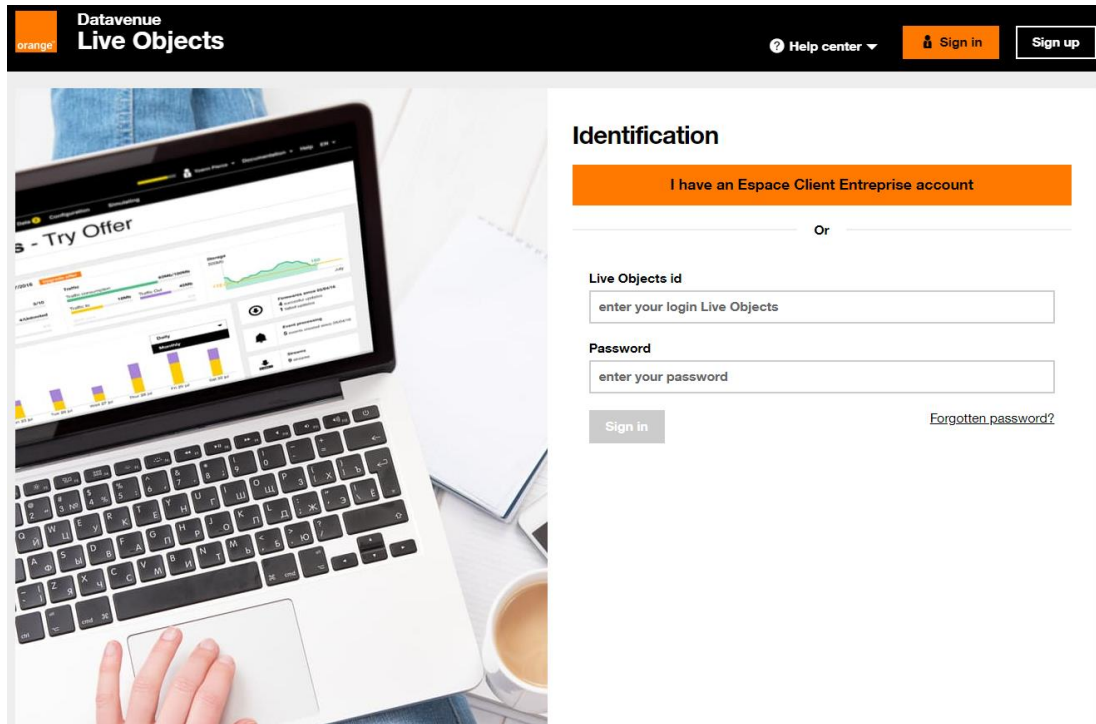
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1 LORAWAN PRIVATE NETWORK

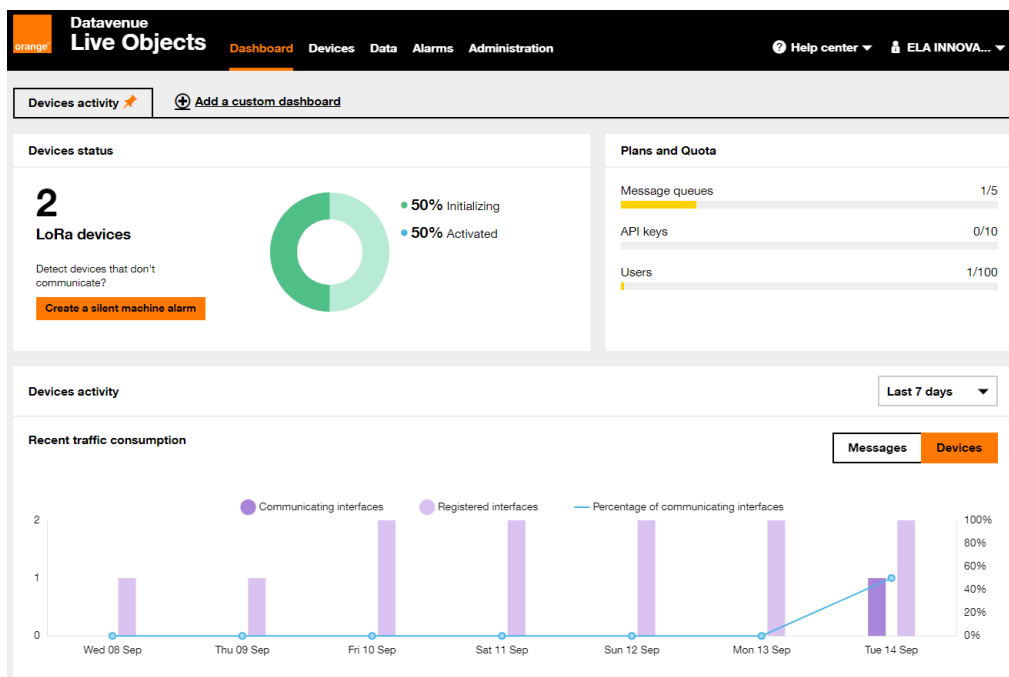
As an example, we will rely on the Live Objects network (<https://www.orange-business.com/fr/produits/live-objects>) to implement the connectivity of LoRaWAN tags to a public LoRaWAN network. To view and analyze your LoRaWAN tag data, you will need to create a Live Objects account.

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.



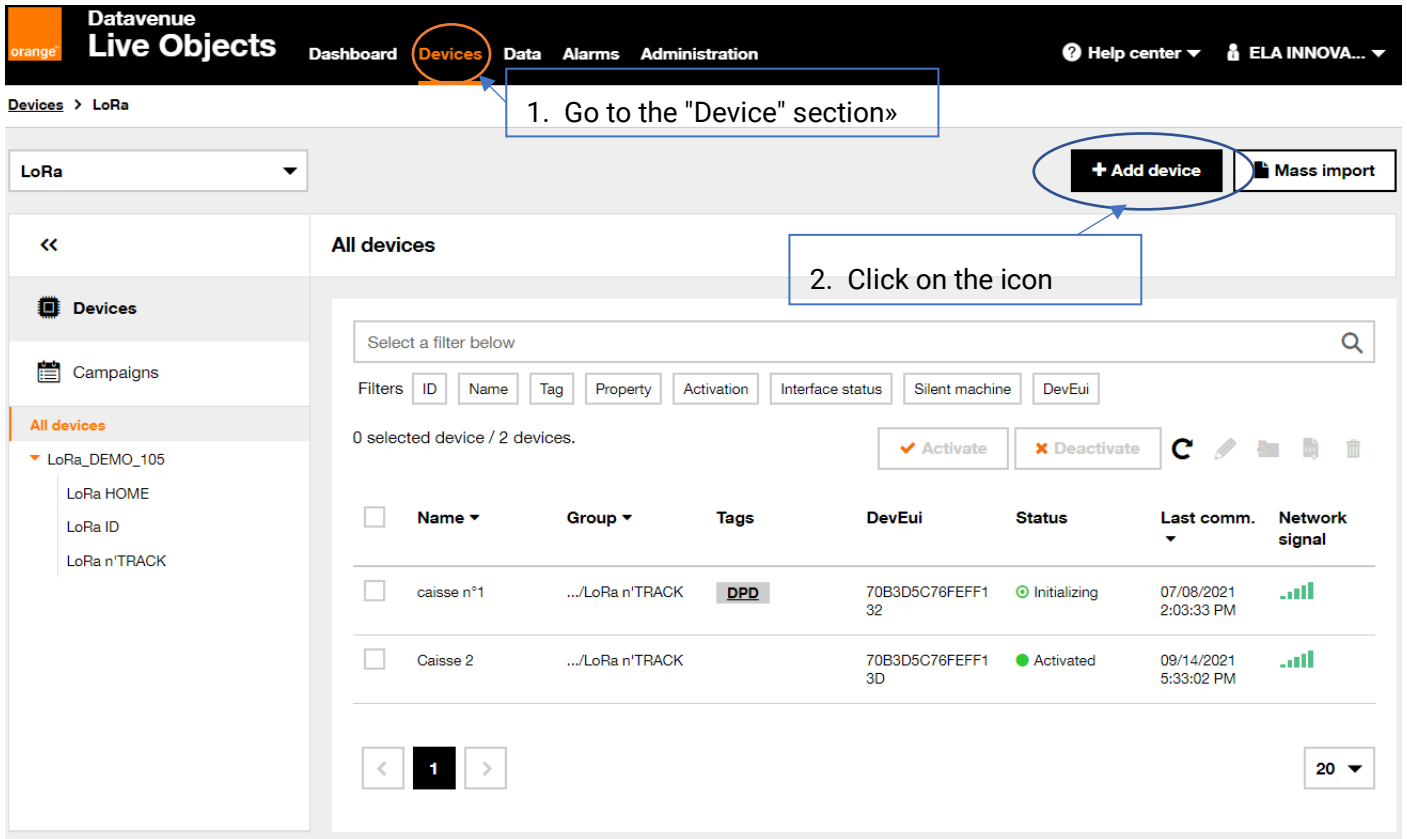
1.1. LORAWAN TAG SENSOR

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":



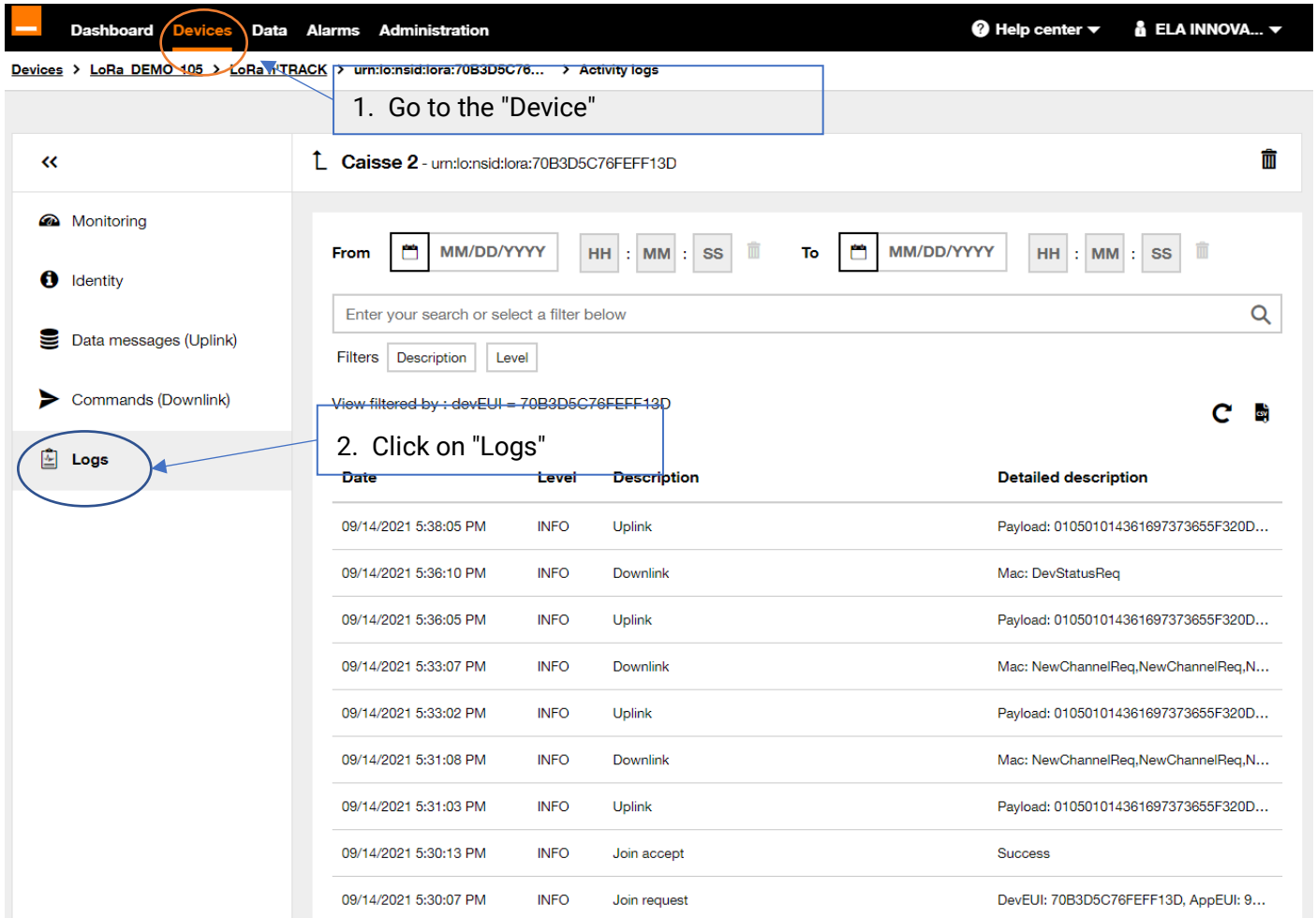
A new window appears to fill in the information of the LoRa tag:

- 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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- **DEVEUI:** Globally unique identifier of the device (64 bits).
- **APPEUI:** Globally unique identifier of the pairing server (64 bits).
- **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. Go to the "Device"

2. Click on "Logs"

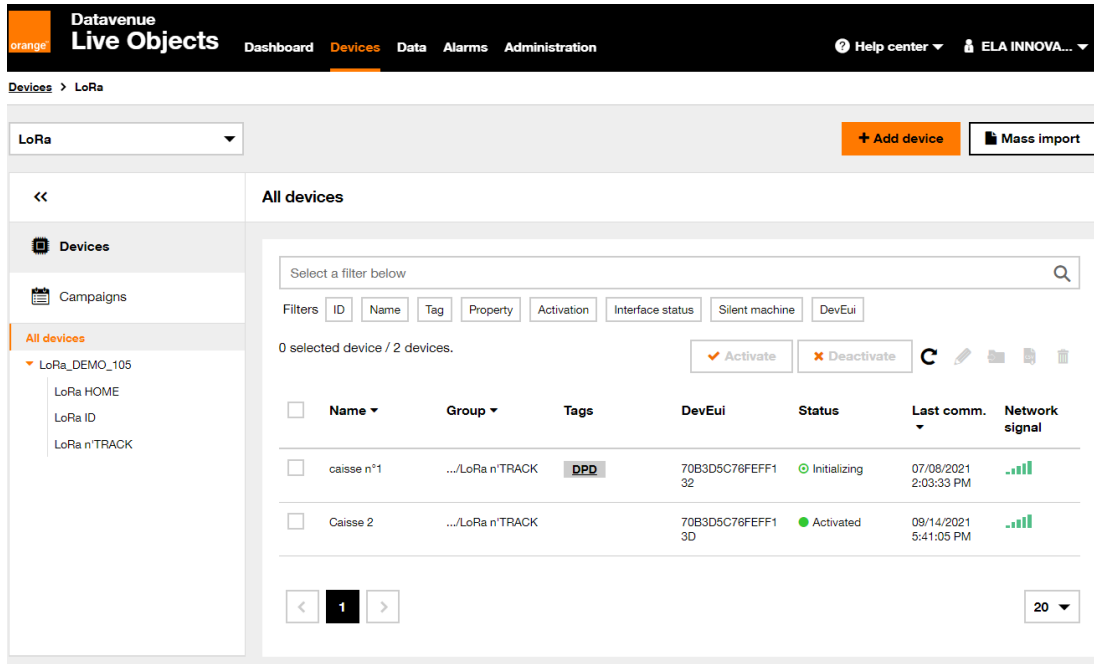
View filtered by: devEUI = 70B3D5C76FEFF13D

Date	Level	Description	Detailed description
09/14/2021 5:38:05 PM	INFO	Uplink	Payload: 010501014361697373655F320D...
09/14/2021 5:38:10 PM	INFO	Downlink	Mac: DevStatusReq
09/14/2021 5:38:05 PM	INFO	Uplink	Payload: 010501014361697373655F320D...
09/14/2021 5:33:07 PM	INFO	Downlink	Mac: NewChannelReq,NewChannelReq,N...
09/14/2021 5:33:02 PM	INFO	Uplink	Payload: 010501014361697373655F320D...
09/14/2021 5:31:08 PM	INFO	Downlink	Mac: NewChannelReq,NewChannelReq,N...
09/14/2021 5:31:03 PM	INFO	Uplink	Payload: 010501014361697373655F320D...
09/14/2021 5:30:13 PM	INFO	Join accept	Success
09/14/2021 5:30:07 PM	INFO	Join request	DevEUI: 70B3D5C76FEFF13D, AppEUI: 9...

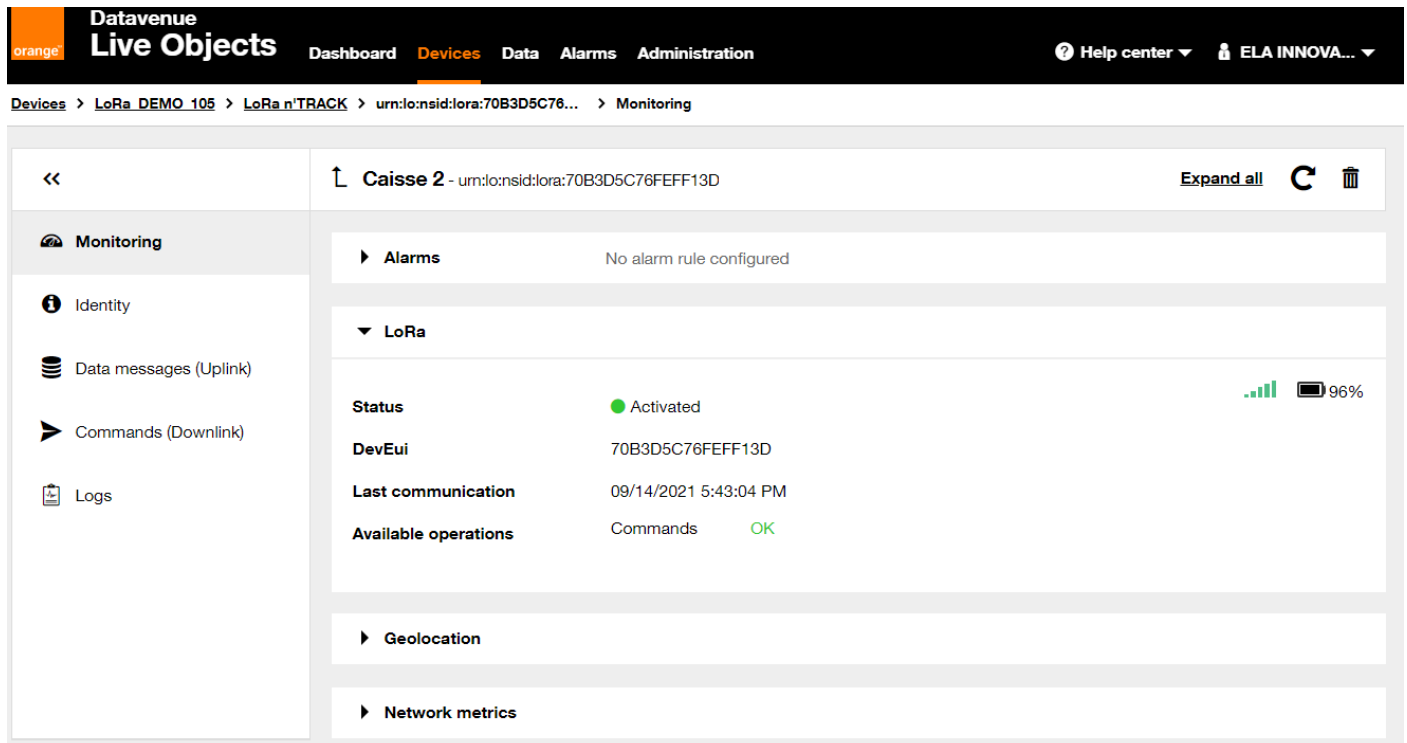
1.2. VISUALIZATION OF SENSOR DATA

On the Live Objects interface:

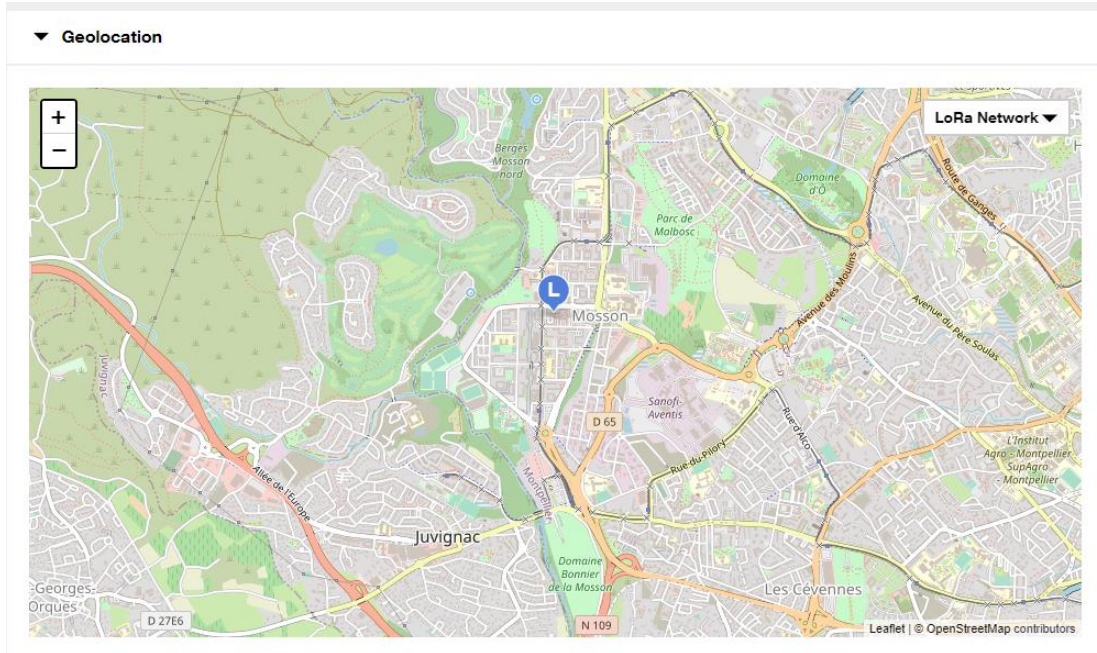
All the registered sensors will be present in the "Device" section.



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:



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


Dashboard
Devices
Data
Alarms
Administration
Help center
ELA INNOVA...

Devices > LoRa DEMO_105 > LoRa n°TRACK > urn:lo:nsid:lora:70B3D5C76... > Data messages (Uplink)

78a90080001f45				
07/06/2021 7:27:58 PM	0105010138544b30303133320daf0000a013220003248946d4076a77a422e6fa4002a000845	160	3	📶
07/06/2021 7:22:17 PM	0105010138544b30303133320db600009f13220003248726d40779051422e678b001e001d48	159	3	📶
07/06/2021 7:17:06 PM	0105010138544b30303133320db600009e13220003247b76d4078b218422e5c80ffe6009445	158	3	📶
07/06/2021 7:12:26 PM	0105010138544b30303133320db600009d13220003247ae6d40791b88422e5a6f0013005046	157	3	📶
07/06/2021 6:56:59 PM	0105010138544b30303133320dba00009a33220003246c16d40848790422ee0a4ffe704ec44	154	3	📶
07/06/2021 6:36:56 PM	0105010138544b30303133320dbc00009913220003246be6d408218bc422fa3faffea051344	153	3	📶
07/06/2021 6:28:40 PM	0105010138544b30303133320dbc00009713220003246b06d4097ce9442301daf000204cc46	151	3	📶
07/06/2021 6:22:18 PM	0105010138544b30303133320dbe00009613220003246ae6d4099340c423077800018051045	150	3	📶
07/06/2021 6:17:37 PM	0105010138544b30303133320dbe00009533220003246a16d4098034e4230bc8d008503b946	149	3	📶
07/06/2021 5:33:07 PM	0105010138544b30303133320d93000094032200032469e6d409b0aacc42332feb0043012e44	148	3	📶

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:

Date	Payload	Fcnt	Port	Signal réseau
16/11/2020 11:24:44	010501015441475f494435000d9200001031308b03522 00005400015480	1	3	

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 :

Datavenue Live Objects | Dashboard | **Devices** | Data | Alarms | Administration | Help center | ELA INNOVA...

Devices > LoRa DEMO 105 > LoRa nTRACK > urn:io:nsid:lora:70B3D5C76... > Commands (Downlink) > Register new command

Caisse 2 - urn:io:nsid:lora:70B3D5C76FEFF13D

Register new command * required field

LoRa

Port * 3

Payload in hexadecimal * 00010503020020

PENDING state max duration * 0 Days 0 Hours 48 Minutes ?

Acknowledgement level * None Network (Confirmed downlink) ?

Failure policy Retry 1 time(s) ?

Cancel Validate

- 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:

- 00010503020020 : Flashing (1Hz) of the LED during 0x0020 = 32 seconds.

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

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:

Audit message	
Message information	
Timestamp	2021-09-14T15:53:06.221Z
Created	2021-09-14T15:53:06.806Z
Type	LoRa Network
Message Type	UNCONFIRMED DATA UP
DevEUI	70B3D5C76FEFF13D
Payload	010501014361697373655F320DF2000018032200003200 046D40749E44422E79260054000945
DevAddr	1E7CE8D1
Port	3
Adr	True
Ack	True
Adr Ack Request	False
FCnt	10
Connectivity information	
Signal Level	-103
Rssi	-103
Gateway Cnt	3
Esp	-107.76

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