EDITAG INDUSTRIES

Training for the logistics solution

Pick-to –Light / Put-to-Light mOOnTAG®

Summary

- **The solution**
  - DPD mOOnTAG®
  - Architecture
  - Mission

- **Lokeos**
  - Connection
  - The different models
    - Users
    - Logs
    - Equipments
    - Locations
    - mOOnTAG
    - Monitor
    - Configuration
    - Supervision
    - Events
    - Tests

- **(Re)configuration**
  - Initialization
    - Configure DPDs for an area
    - Check the configuration
  - Installation
    - Install the DPDs on the supports in the area
  - Use
    - How the DPDs work
    - Process a mission
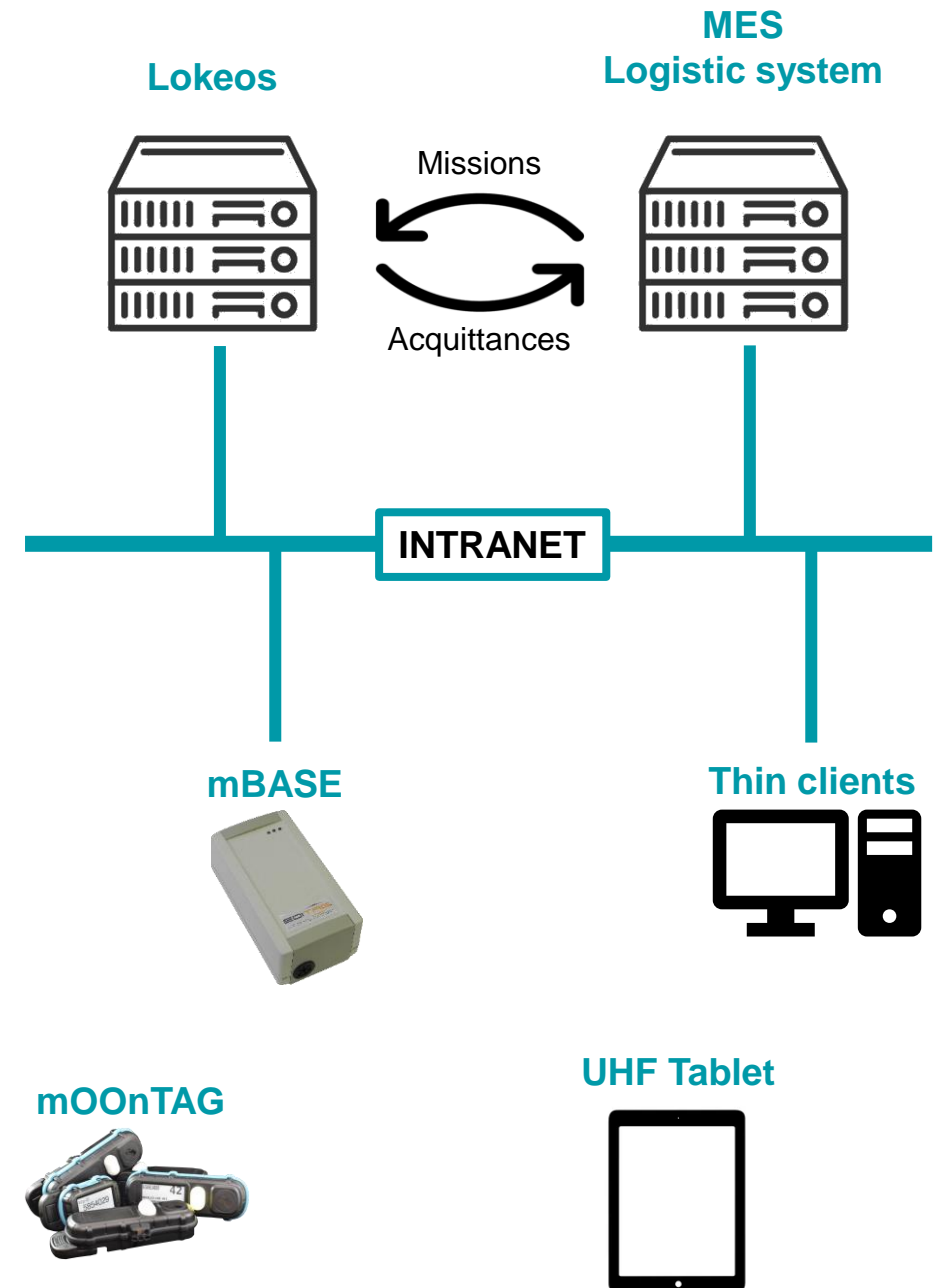   - Problem solving
  - FCC notice

The Solution
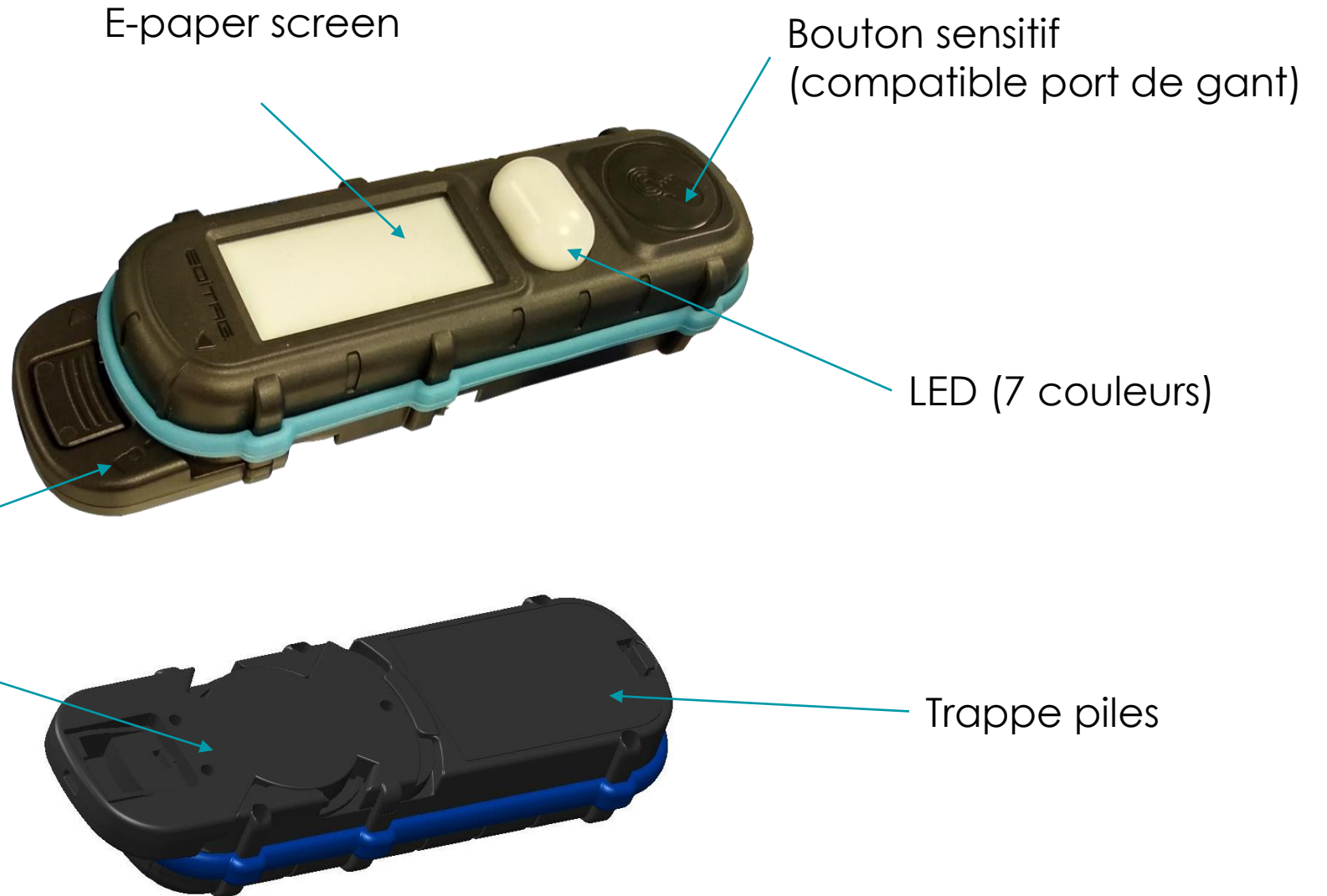
- **DPD mOOnTAG®**
- **Architecture**
- **Mission**

1.The solution - Architecture

- **Physical equipments**
  - mOOnTAG® SENSORs and IDs
  - mBASEs
  - IOBox
  - Thin clients

- **Software :**
  - Lokeos P2L + licence
  - UHF Tablet + DPD Encoder application (.apk)

- **External systems**
  - An MES PTL client for mission creation

Lokeos

**MES
Logistic system**

Missions

Acquittances

INTRANET

mBASE

Thin clients

mOOnTAG

UHF Tablet

1.The solution - DPD or mOOnTAG®

E-paper screen

Bouton sensitif
(compatible port de gant)

DPD or mOOnTAG®
=
mOOnTAG® SENSOR (active RFID)
+
mOOnTAG® ID (passive RFID)

LED (7 couleurs)
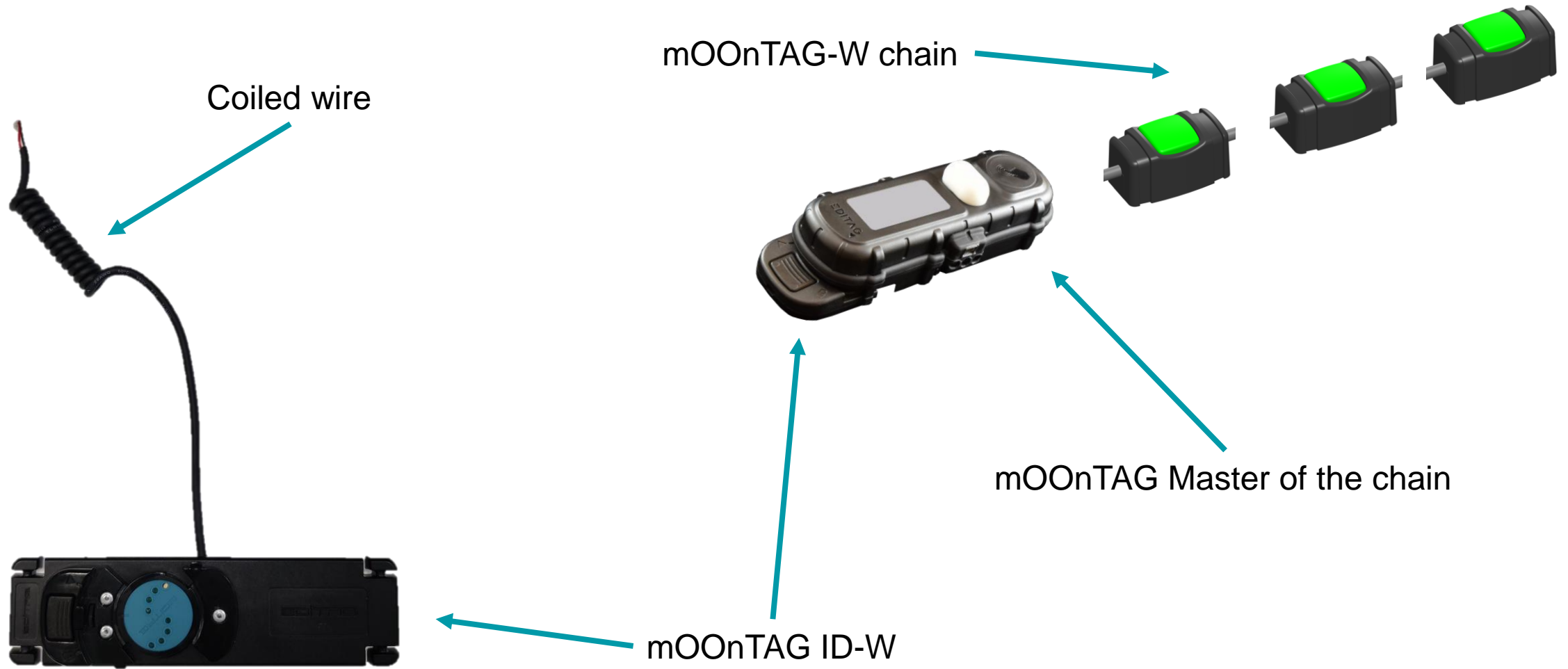
ID

Trappe piles

+ support polyvalent

1.The solution - DPD or mOOnTAG®

⚠️ When changing batteries, remove the old ones and wait 20sec before inserting the new ones into the sensor.
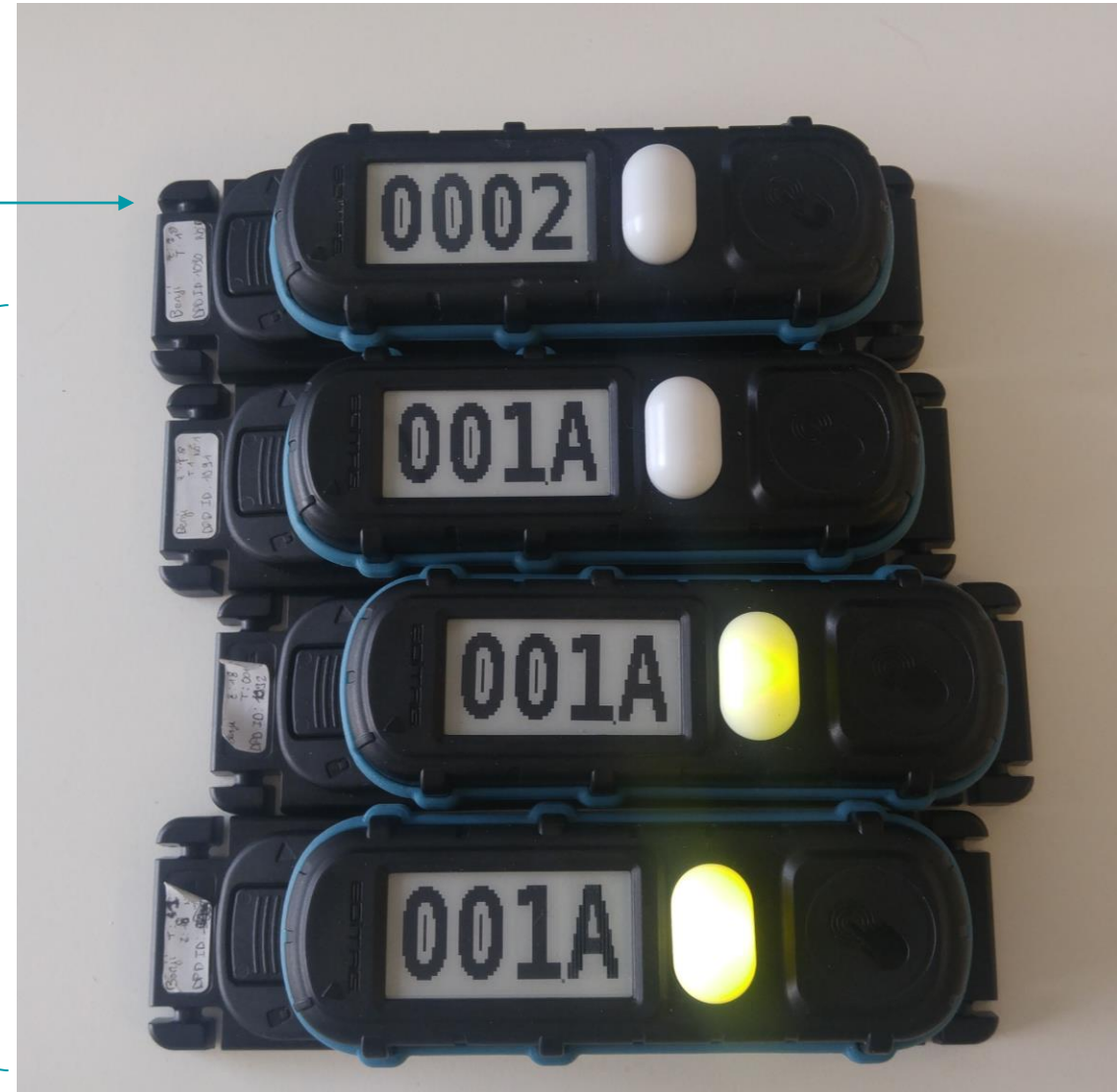
1.The solution – mOOnTAG W

Coiled wire

mOOnTAG-W chain

mOOnTAG Master of the chain

mOOnTAG ID-W

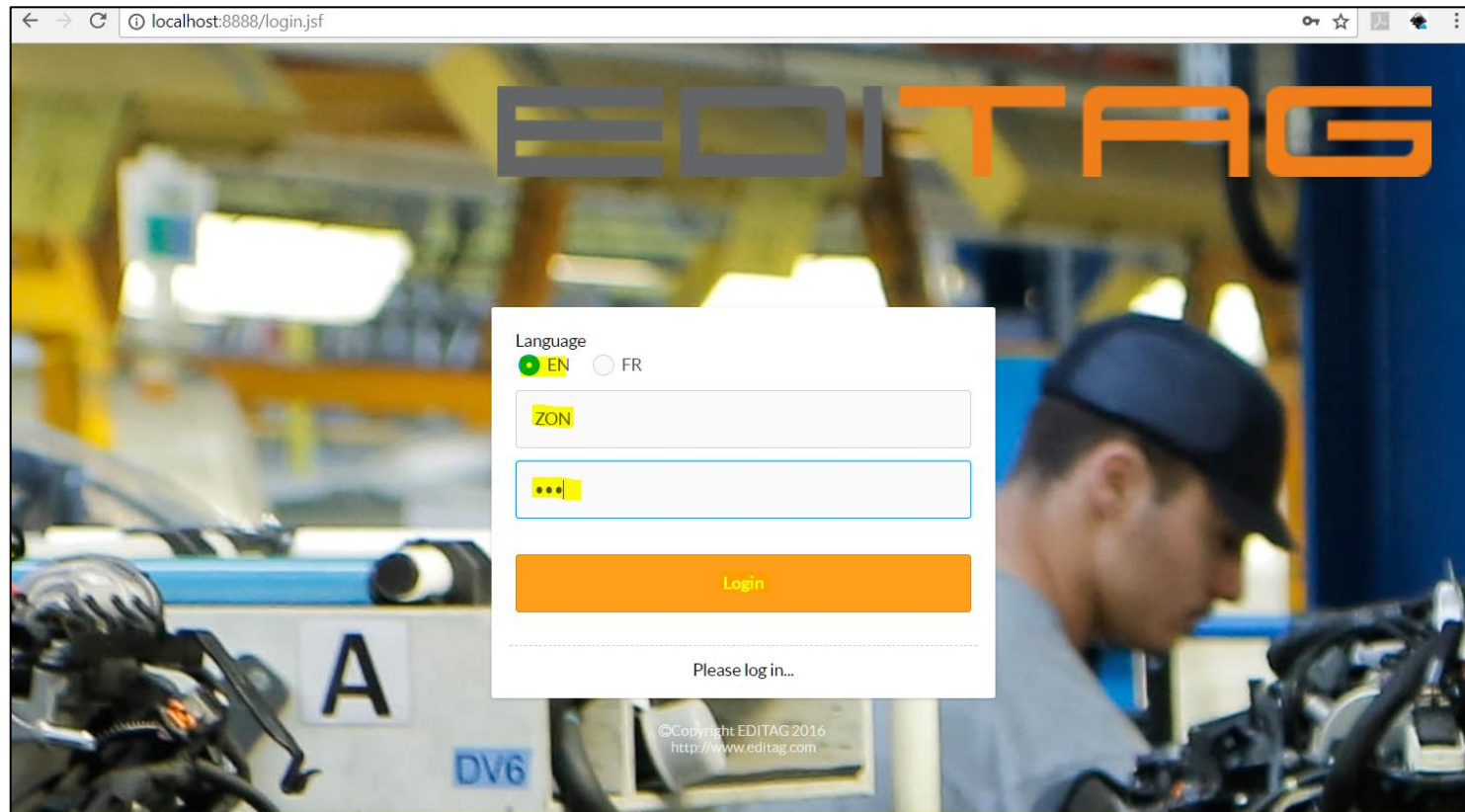# 1.The solution - Mission

DPDT

DPDs

Lokeos

- **Connection**
- **The different models**
  - Users
  - Logs
  - Equipments
  - Locations
  - mOOnTAG
  - Monitor
  - Configuration
  - Supervision
  - Events
  - Tests

2.Lokeos

Connection

- From a web browser (Chrome or Firefox), open the page Lokeos: http[s]://<server adress>

- Select language

- Enter your user account and password :

2.Lokeos > modules

Delete an item

Edit an item

Add an item

2.Lokeos > modules

« User » module

Depending on the user's rights, the pages have the following functions:

- Creation
- Modification
- Suppression
- Reset password

Rights are defined by the profile type

- SUPERVISOR
- ADMIN
- MONITOR
- WRITER
- READER

2.Lokeos > modules

« User » module

- All fields are editable
- A user assigned to a zone must be located in the zone
- Assigning an IP address allows you to automate the connection

2.Lokeos > modules

« Logs » module

- Allows you to view the activities of Lokeos.
- Options :
    - Number of lines displayed (100 by default)
    - Text filtering on 2 values
- Actions
    - Downloading the current log file
    - Downloading the complete log directory

Example of logs

- Line 157756: 2020/07/17 06:46:24:470 CEST [INFO] SimpleLog - -5 - INFO com.editag.tbox.application.pick2light.web- **Received MQTT PAHO** message on topic MU/FABRICATION/PICKTOLIGHT/IOT: }10000   4948202007170646244610MSG___SISI_____IOT__HPO0101CHG_ETATIOT__HPO--NBTR0005--DPD_27081---BFI--DPD_2703-1--BFI--DPD_2707--1-BFI--DPD_2702---1BFI--DPD_2700***4***--

2.Lokeos > modules

« Logs » module

- Usage
  - View the active log of Lokeos
  - Allows you to download all logs for transmission to the support team
  - Please note that the syntax and content of the log files are likely to change with the versions

- Important keywords in the filters
  - « opened » checks the opening of the link with the mBASEs
  - « DPD_ » checks the sending/receiving of frames with the MES PickToLight
  - « backup » checks the synchronisation status with the backup mBASE
  - « ERROR » to see the errors
  - « simple|full command » trace les demandes l'allumage
  - « <zone>_<n° DPD> » traces the actions on a given DPD

2.Lokeos > modules

« Equipments » module

2.Lokeos > modules

« Equipments » module

Leader/Backup link

mBASE/location link

Turn on/off mBASE

mBASE Configuration

Create equipment

Type: EES INDUS MBase (rfid_receiver)

Details

Name	
Location	Select location
Warning inhibited	
Equipment address on bus (max 255)	0
Element identifier	000000
TCP port of serial bus	1470
Receiver alive monitoring timer (mins)	5

Super equipment	EES Indus (ees-indus-xxxx)
Is active	✓
Fréquence du signal de vie (min)	2
Reference to driver	com.editag.tbox.driver.reader.moontag_indus
En ligne	
IP address of serial bus	192.168.1.0
Comments	

Configuration

Wip Function	
Parent receiver	Select master receiver

Backup of master	Select master receiver

LoRa configuration

Change LORA frequency area	
Change equipment address on bus	

Change sending power	

Save   Cancel

« Equipments » module

Radio frequency area	Possible areas of supervision
0 (or 4)	4, 8, 12, 24, …, 240, 252
1	1, 5, 9, 13, 25, …, 241, 254
2	2, 6, 10, 14, 26, …, 242, 254
3	3, 7, 11, 15, 27, …, 243, 255
16	16, 28, …, 244
17	17, 29, …, 245
18	18, 30, …, 246
19	19,31, …, 247
20	20,32, …, 248
21	21,33, …, 249
22	22,34, …, 250
23	23,35, …, 251

2.Lokeos > modules

« Locations » module

- SITE
  - Radio area
    - Picking area
      - Section
        - DPDs

Static

Dynamic

I T

2.Lokeos > modules

« Locations » module

- Each element has a right-click parameter:

- ▪ Displays the buttons created in the system according to their hierarchy (zone / section)
- ▪ An active button is associated with a mOOnTAG® sensor
- ▪ The pop-up menu allows you to configure the location and assign a plan for supervision
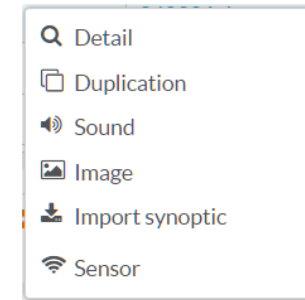
- **Correct selection**

Nom	Identifiant unique	Type d'emplacement	Capteurs	Code pièce	Designation
☐ Site	330105	Site			
☐ Zone Radio 1	330105.100	Zone			
☐ MVD	330105.1	Zone			
☐ Section 1	1001	Tronçon			
☑ MVD_0100	1001.100000	DPD	200501171		
☐ MVD_0101	1001.101001	DPD	200501192		
☐ MVD_0102	1001.102002	DPD	200501159		
☐ MVD_0103	1001.103003	DPD	200501173		
☐ MVD_0104	1001.104004	DPD	200501263		

- **Incorrect selection**

  Ability to delete important items

Nom	Identifiant unique	Type d'emplacement	Capteurs	Code pièce	Designation
☐ Site	330105	Site			
☑ Zone Radio 1	330105.100	Zone			
☑ MVD	330105.1	Zone			
☑ Section 1	1001	Tronçon			
☑ MVD_0100	1001.100000	DPD	200501171		
☐ MVD_0101	1001.101001	DPD	200501192		
☐ MVD_0102	1001.102002	DPD	200501159		
☐ MVD_0103	1001.103003	DPD	200501173		

2.Lokeos > modules

« Locations » module

The mOOnTAG-W in sub location of the mOOnTAG Master of the chain

Activity 1

Check mBASE sychro

2.Lokeos > modules

« mOOnTAG » module

- This page allows you to check the status of connected and disconnected mOOnTAG® Sensors
- In the last column, it gives the reference to the DPD with which it is connected
- The sensor details are available through the contextual menu (right click or dbl-click), important info:
  - Battery level
  - RSSI

	Serial number ^	Last contact date & time	Monitored object	Name	Battery voltage (V)	Firmware version
☐	174000045	10/5/20 3:03:14 PM	KCP_0301 (1003.301001)	P2L 0A5F07AD	3.45	3153
☐	193601238	10/5/20 3:03:46 PM	KCP_0315 (1003.315015)	P2L 0B8A1ED6	3.5	3153
☐	193601256	10/5/20 3:00:31 PM	KCP_0103 (1001.103003)	P2L 0B8A1EE8	3.6	3153
☐	193601259	10/5/20 3:04:31 PM	KCP_0603 (1006.603003)	P2L 0B8A1EEB	3.51	3153
☐	200500235	10/5/20 3:03:32 PM	KCP_0310 (1003.310010)	P2L 0BF3640B	3.6	3153
☐	200500238	10/5/20 2:58:38 PM	KCP_0306 (1003.306006)	P2L 0BF3640E	3.53	3153
☐	200500248	10/5/20 3:02:47 PM	KCP_0215 (1002.215015)	P2L 0BF36418	3.54	3153
☐	200500251	10/5/20 3:02:22 PM	KCP_0202 (1002.202002)	P2L 0BF3641B	3.51	3153

2.Lokeos > modules

« Monitor » module

- Allows the tracking of P2L missions in the sections of the different zones
- If a mission is in progress, allows you to send or force a mission for a DPD (click on the section then on the DPD)

2.Lokeos > modules

« Monitor » module

- When the user is located, it does not propose the list of areas to be selected, but automatically selects the user's area.
- When an area is selected, it displays only the sections within it.
- When an area is paused, the information is displayed.
- Each mission is virtually identified by its colour and date of creation
- When a mission is in progress for a section, the button changes to the colour of the mission (or grey for multi-coloured missions).
- When a mission is active, clicking on the section button will display the status of all its DPDs. Status of a mission:
  - In progress
  - Finished (the DPDT must be discharged)
  - Close (all DPDs have been acquitted)
- Each DPD is represented by a button that takes on the colour of the mission, or dark blue when it is switched off / acknowledged
- Clicking on a DPO allows you to display the details and to access the buttons for returning or forcing the acknowledgement

2.Lokeos > modules

« Monitor » module

1) Select area

2) Select section

3) Select DPD

4-A) Re-push the mission to the DPD (if the DPD didn't turn ON)

4-B) Force acknowledgement (If Lokeos didn't receive the acknowledgement)

2.Lokeos > modules

« Configuration » module

2.Lokeos > modules

« Configuration » module

mBASE status

- Display the Leader/Backup mBASE informations

- Performing an mBASE switchover

2.Lokeos > modules

« Configuration » module

Actions on the mBASEs

Switch mBASE to backup ✕

🚫 This operation is risky, please be sure that the area is not under production

[Yes] [No]

DETAILS ✕

Zone	LDB
Identifiant	330105.2
Nombre de DPD	45

Identifiant de la mBASE maître	10222	Identifiant de mBASE de secours	10220
Nom	mBASE10222	Nom	mBASE 10220
Zone de fréquence LORA	2	Zone de fréquence LORA	2
Dernier contact	03/11/20 16:30	Dernier contact	03/11/20 16:23
mBASE de secours synchronisée avec l'active	⊘ Oui	mBASE de secours synchronisée avec l'active	⊘ Oui

[ⓘ **Vérifier mBASE**]   [**Annuler**]

ⓘ OK

Activity 2

Search for the battery level of a DPD

2.Lokeos > modules

« Supervision » module

- This page monitors the technical status of the Lokeos system:
  - Connecting and disconnecting SENSORS with DPDs
  - mBASEs offline
  - Offline DPDs
  - Unknown DPDs
  - Test status
  - Etc...

Priority	Event date & time	Event types	Name	Identifier	Acknowl	Is active
			No result			

(1 of 1) « < > » 10

Acknowledged events

Event date & time	Event types	Name	Identifier	Comments	Acknowledging user
11/22/17 3:24:02 PM	Sensor 173800021 associated	PCI_1325	1003.1325025		
11/22/17 3:23:34 PM	Sensor 173800021 disconnected	PCI_1336	1003.1336036		
11/22/17 3:21:06 PM	Sensor 173800021 associated	PCI_1336	1003.1336036		
11/22/17 3:19:24 PM	Sensor 0020510 associated	PCI_1319	1003.1319019		
11/22/17 3:18:46 PM	Sensor 173800021 disconnected	PCI_1319	1003.1319019		
11/22/17 3:18:40 PM	Sensor 173800230 associated	PCI_1322	1003.1322022		
11/22/17 3:18:18 PM	Sensor 174200013 associated	PCI_1314	1003.1314014		
11/22/17 3:18:12 PM	Sensor 173800230 disconnected	PCI_1336	1003.1336036		
11/22/17 3:18:00 PM	Sensor 173800021 associated	PCI_1319	1003.1319019		
11/22/17 3:18:00 PM	Sensor 0020510 disconnection forced	PCI_1319	1003.1319019		

(6 of 60) « < 1 2 3 4 5 6 7 8 9 10 > » 10

2.Lokeos > modules

« Supervision » module

- Alarms (red)
  - mBASE in error or automatically switched to backup one
  - mBASE offline
  - Unknown DPD adressed by the MES

- Alerts (yellow)
  - Low battery tag
  - Offline tag (do not respond to query messages)

- Acknowledged message (white)

2.Lokeos > modules

« Supervision » module

Events

2.Lokeos > modules

« Supervision » module

Alerts notifications

⇄	👤	⚙	↩	9/23/20 10:15 AM

Running events	🔔 71	⚠ 52	**Acknowledge all**

Priority ⌄	Event date & time ⇅	Event types ⇅	Name ⇅	Identifier ⇅	Acknowl ⇅	Is active ⇅
🔔	*9/23/20 10:11:41 AM*	*Offline receiver*	*mBASE M 10082 Zones 3*	*ees-p2l-vl.mbase_m_10082_zones_3*	—	—
🔔	9/22/20 8:23:33 AM	DPD MV2_4009 unknown	MV2	340001.3	—	—
🔔	9/22/20 6:55:17 AM	DPD MV2_1007 unknown	MV2	340001.3	—	—
🔔	9/22/20 6:55:12 AM	DPD MV2_1007 unknown	MV2	340001.3	—	—
🔔	9/21/20 9:50:04 AM	DPD MV2_8011 unknown	MV2	340001.3	—	—
🔔	9/18/20 2:21:38 PM	DPD PPI_2012 unknown	PPI	340001.2	—	—
🔔	9/18/20 2:15:55 PM	DPD PPI_2012 unknown	PPI	340001.2	—	—
🔔	9/18/20 7:16:04 AM	DPD MV2_6004 unknown	MV2	340001.3	—	—
🔔	9/18/20 7:14:39 AM	DPD MV2_6004 unknown	MV2	340001.3	—	—
🔔	9/18/20 7:14:39 AM	DPD MV2_6004 unknown	MV2	340001.3	—	—

(1 of 13)   «   ‹   **1**   2   3   4   5   6   7   8   9   10   ›   »   10 ⌄

Acknowledged events

Event date & time ⌄	Event types ⇅	Name ⇅	Identifier ⇅	Comments ⇅	Acknowledging user ⇅
9/23/20 10:15:56 AM	Sensor 191501386 associated	MV2_1009	3001.1009009		
9/23/20 10:15:34 AM	Sensor 191501386 disconnected	MV2_1009	3001.1009009		

2.Lokeos > modules

« Supervision » module

Notifications

2.Lokeos > modules

« Supervision » module

Notifications

Criticité ⌄	Date et heure événement ⌄	Types d'événements ⌄	Nom ⌄	Identifiant ⌄	Acquitté ⌄	Actif ⌄
🔔	28/06/21 12:43:32	Récepteur hors ligne	mBASE M09 KEHLO07	ees-p2l-ke.mbase_m09_kehlo07	–	–
⚠	28/06/21 11:34:55	Tag hors ligne	HCD_5013	9005.5013013	–	–
⚠	28/06/21 11:34:05	Batterie faible	HCD_6009	9006.6009009	–	–
⚠	28/06/21 11:33:44	Batterie faible	HCD_5017	9005.5017017	–	–
⚠	28/06/21 11:33:07	Batterie faible	HCD_5027	9005.5027027	–	–
⚠	28/06/21 11:29:37	Batterie faible	HCD_1009	9001.1009009	–	–
⚠	28/06/21 09:39:19	Batterie faible	HCD_6005	9006.6005005	–	–

(1 of 1) « < 1 > »   10 ⌄

Evénements acquittés

Date et heure événement ⌄	Types d'événements ⌄	Nom ⌄	Identifiant ⌄	Commentaires ⌄	Utilisateur ayant acquitté ⌄
28/06/21 12:44:32	Le DPD 183900807 à un identifiant dupliqué ou invalide	PCI_3017	3003.3017017		
28/06/21 12:44:32	Le DPD 182000260 à un identifiant dupliqué ou invalide	PCI_3071	3003.3071017		
28/06/21 12:44:32	Le DPD 204901187 à un identifiant	PCI_4021	3001.4021021		

2.Lokeos > modules

« Events » module

Activity 3

What is the last event in the supervision ?

How many red alarms are active ?

What is the type of alarm for a low battery level ?

2.Lokeos > modules

« Tests » module

- Allows you to run ignition tests for:
  - one DPD
  - one Section
  - A series of Sections
  - Launch a test scenario

- Also allows:
  - Reset DPDs
  - Questionning DPDs

- Possible actions:

2.Lokeos > modules

« Test » module

Section test

- Reset - Clearing

- Test 1 – Ignition test:
  - Sends the different colours and effects to the DPD. Displays a number from 01 to 15
  - Requires DPDT Acknowledgement

- Test2 – Ack test
  - Displays a mission for each section. Waits for an ACK from each DPD (Automatic if delay >= 0)
  - Manual ACK (delay = -1)

- Test 3 – Mixed test
  - Displays a mission on the first section
  - Switch to the next section at each aknowledgement

- AreYouThere? – DPDs status

Options:

- Restart the test in a loop
- Change the frequency of iterations (or check delay)

2.Lokeos > modules

« Test » module

Unitary test

- Colors:
  - R: Red
  - B: Blue
  - V: Green
  - P: Pink
  - C : Cyan
  - O : Yellow/Orange
  - W: White
  - * : Clear

- Effects:
  - CR: Rapid flashing
  - CL: Slow flashing
  - FI: Permanent
  - ** : Effacer

- Dispaly:
  - * : Empty
  - -
  - Numbers 1 to 9

1) Enter the area name

2) Enter the DPD name

3) Enter the color, lightning effet and the display

4) Launch the test

(Re)configuration

- **Initialization**
- **Encoding**
- **DPD status**
- **Configuration checking**
  - Configure DPDs for an area
- **Installation**
  - Install the DPDs on the supports in the area
- **Use**
  - How the DPDs work
  - Process a mission
  - Problem solving

3.(Re)configuration

Initialization

- Phases of initialisation of a zone

1. Configure the DPDs IDs of the area with the Android tablet and its encoding application (next slides)
   - Each DPD ID must have a unique identification on the site
   - Encoding convention:
     – Patner ID = site code
     – Zone number: frome 0 to 15
     – Section number: from 0 to 253
     – DPD number: 4 digits - must be unique in the area, serves as an identifier for the MES
     – Order number: 3 digits - 001 to 253 (000 being for DPDT), must be unique in the section, defines the ignition priority in the section

2. Checking configuration with Lokeos (next slides)
   - Connect a mOOnTAG SENSOR to each ID
   - Check display to validate DPD synchronization
   - Check the synchronization of DPDs in Lokeos with the Monitor, Sensors or Locations module
   - Run a series of ignition tests on sections of the zone to check ignition
   - Run a series of picking tests from the customer's MES on sections of the zone

3.(Re)configuration - Encoding

Click on « select »
-> radio detection **1**

Select the DPD **2**

3.(Re)configuration - Encoding

Encoding
in progress

Successfull
encoding

Encoding error
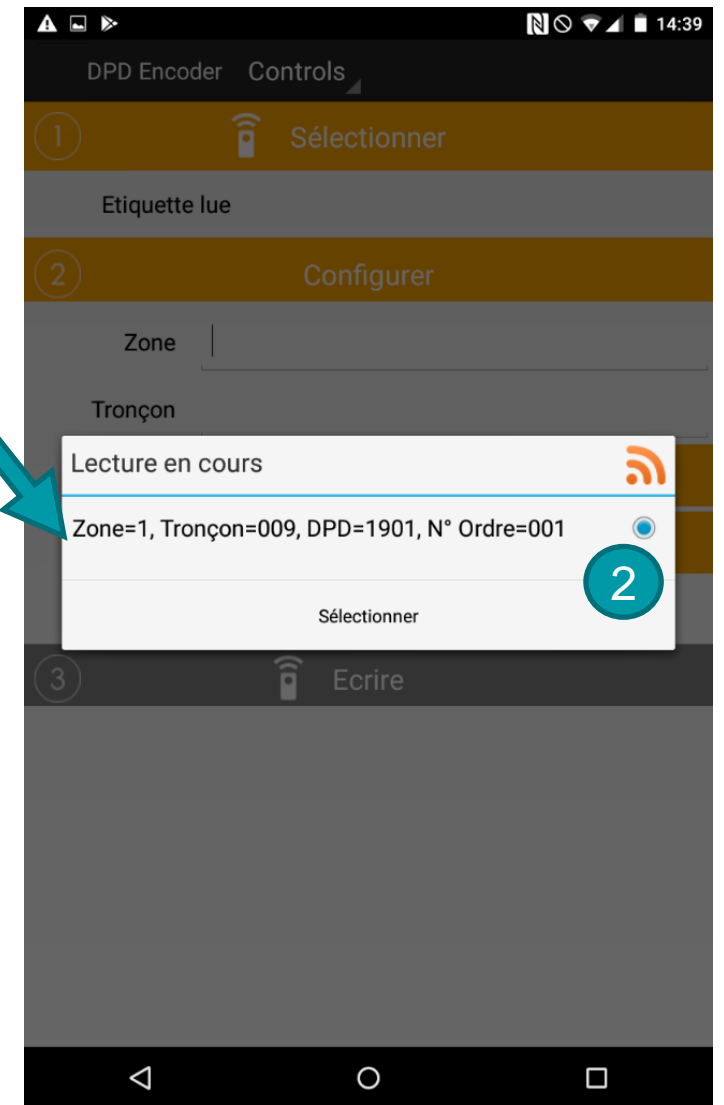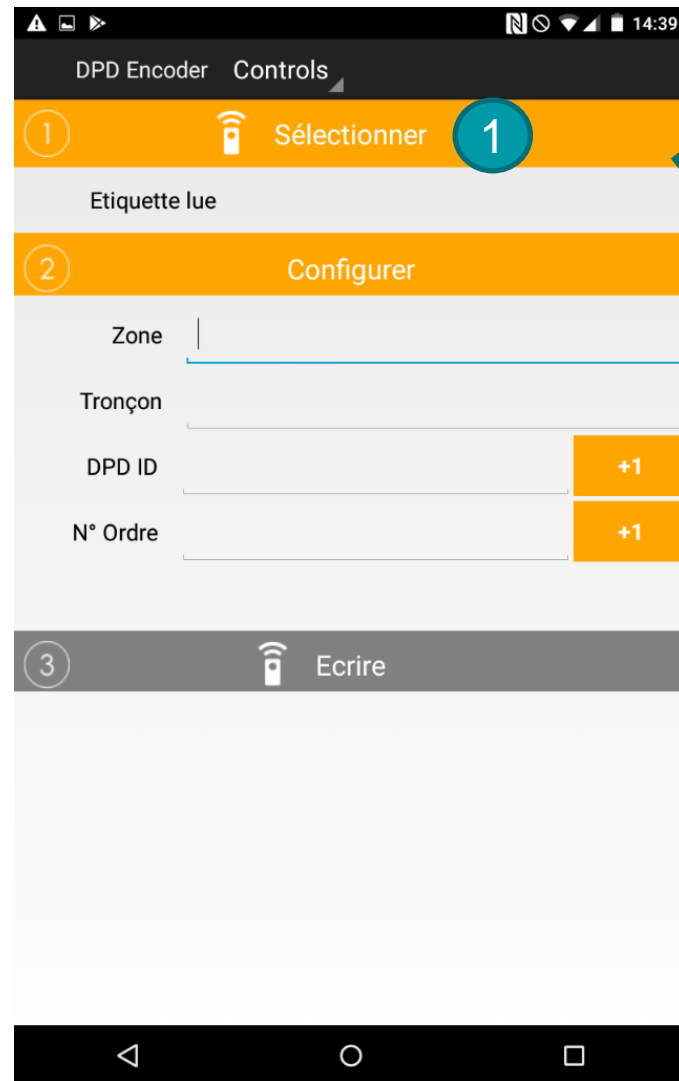
③

Zone: 0 - 254
Section: 0 – 254
DPD: 0 - 9999
Order: 0 - 254

4) Click "write" to send the parameters
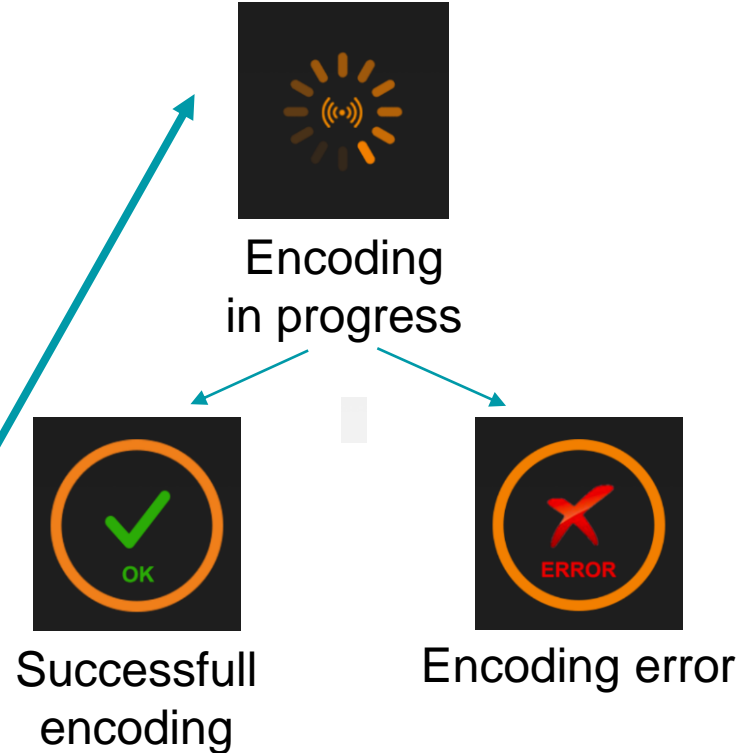
The data must respect the encoding convention:
DPD ID = Section number + order number

Note : pay attention to Site Code / Partner ID

3.(Re)configuration - Encoding

Each of the encoding parameters will define a unique identifier used in the reference: the URN

mTAG type

Supervision area (from 0 to 254)

DPD number = DPD ID (4 digits)

Urn:eac:id:ealn:340003.2010.1090090

Partner ID (6 digits)

Section number (from 0 to 254)

Order number (from 0 to 254)

section   rack   position
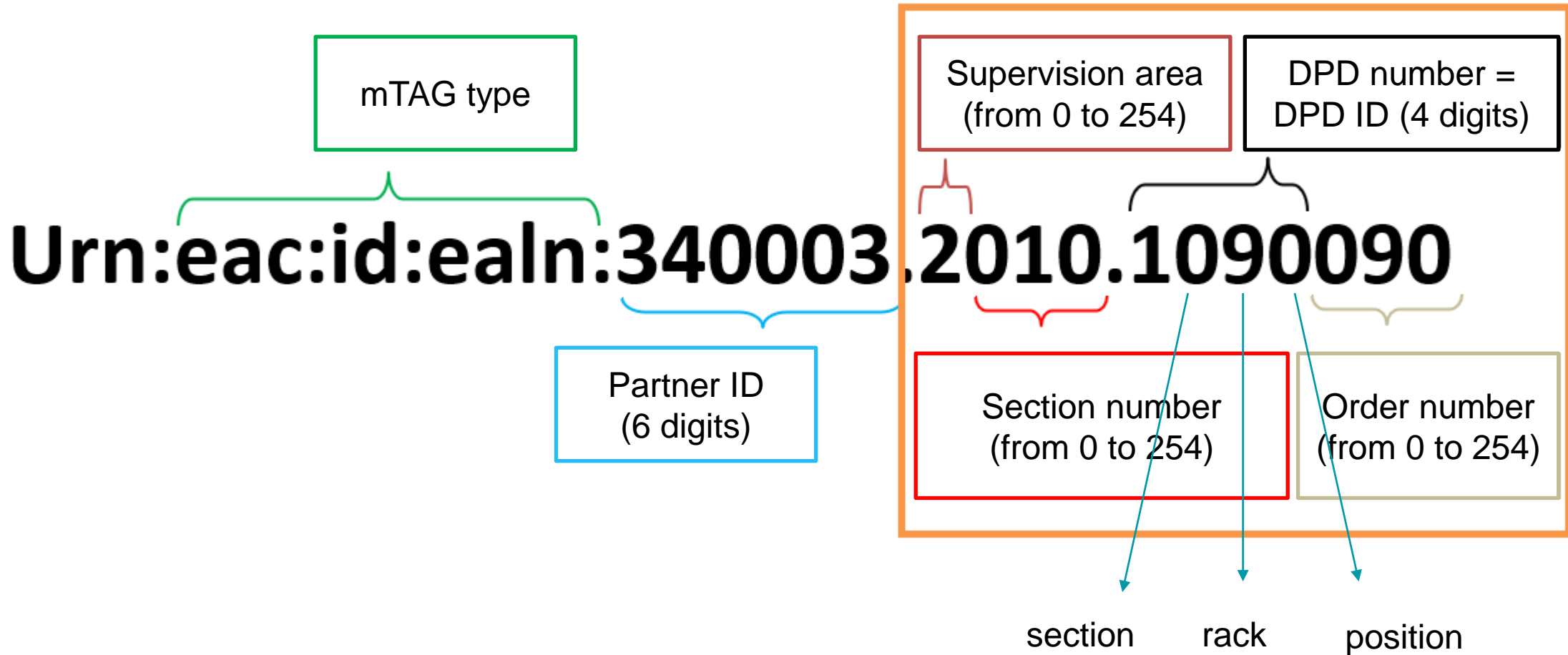
3.(Re)configuration - Encoding

position / order number	Role (or function)
0	The ID will give the clipped SENSOR the function of DPDT within its section. A section requires at least one DPDT to exist. There can be only one DPDT maximum per Section.
1 -> 253	The ID will give the clipped SENSOR the DPD function. A section can contain a maximum of 253 DPDs. A section cannot contain the same DPD twice.
254	The ID will give the clipped SENSOR the function of DPD Andon within its section. There can only be a maximum of one DPD Andon per Section.

3.(Re)configuration

mOOnTAG-W

Encoding:

− The encoding method is the same as for the standard mOOnTAG PTL and is done on the mOOnTAG ID-W

Hardware installation:

− Wire the mOOnTAG-W to each other and to the Master mOOnTAG of the chain

− Be sure to observe the connection direction of the mOOnTAG-W

− Close the black cover of each mOOnTAG-W

− Fix the mOOnTAG-W :
  › Zip tie
  › Double-sided scotch tape
  › Elastic

− Clip on the sensor of the Master mOOnTAG

− Possible mix between mOOnTAG-W and mOOnTAG Pick-to-Light standard chains on a same section
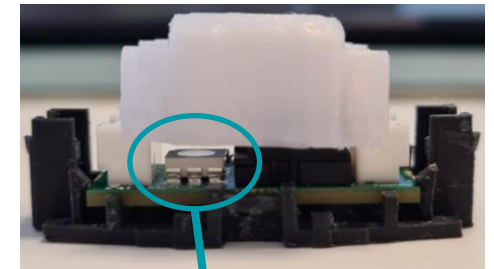
LED towards the Master mOOnTAG

3.(Re)configuration

DPD status

mOOnTAG SENSOR unclipped.
Le SENSOR diplays :
- EDITAG
- serial number (hexadecimal)
- the firmware version installed on the S and U PCB
- a barcode encrypting the hexadecimal serial number of the sensor

mOOnTAG SENSOR clipped, searching for synchronisation.
The sensor displays:
- EDITAG
- serial number (hexadecimal)
- the firmware version installed on the S and U PCB
- Encoding parameters

mOOnTAG SENSOR clipped and synchronised to a mBASE.

Sending and receiving information frames.

Clip

3.(Re)configuration

DPD status

Displayins the encoding parameters

-Frequncy area: 16

-Section: 16

-Order number: 6

-ID number: 1606

The mOOnTAG SENSOR is clipped to an ID encoded in position Andon (254).

An ANDON Alert is in progress

 Low battery symbol

3.(Re)configuration

Configuration checking

Lokeos allows you to check that the system is correctly configured in the following ways:

- « Sensors » module – if there are inconsistencies
  - Unclipped a DPD: the associated sensor must be free
    - If not, disconnect the associated DPD in the locations page
  - Reconnect a DPD: the connected sensor must be associated
    - If not, check the PDP encoding and repeat the operation in range of the mBASE

- Unit and section tests - checking the activity of the section's DPDs
  - Start a test 3 on the continuous section and reconnect the DPDs that do not follow the missions

- « Supervision » module – errors detection
  - Reconnect the DPD in case of an alert:
    - "DPD unknown"

Activity 4

Encod an ID

3.(Re)configuration

Frequent actions

- Usage
  - Send missions
  - Problems solving

- Add DPD or section
  - Encode the Section number and Area number in the ID with the UHF Tablet
  - Clip the sensor to the ID on its backing plate
  - Check the status of the DPD in Lokeos: the sensor is well connected to the DPD

- Removing a DPD from a Section
  - Unclipp the sensor from the ID
  - Dismantle the ID
  - Check the status of the DPD in Lokeos: the sensor is no longer linked to the DPD

3.(Re)configuration

Good practices

Replace the sensors/batteries of the mOOnTAG marked as low battery:
- Can be extinguished during production
- May be subject to electronic interference during production

Do not leave the DPDs in "connecting..." status as this consumes energy:
- Disconnect mBASE
- Remove a DPD from production and leave it clipped

Do not perform maintenance/troubleshooting during production:
- Mixed/Ack Test
- mBASE Switch

Note: changes of DPDs are allowed during production

3.(Re)configuration - Maintenance

- Monitoring
  - Monitoring of missions with the « Monitor » module
  - Check the status of the sensors
  - Statistics on the « Dashboard » module

- Level 1 or 2 maintenance
  - Supervision of alerts
  - The type of alerts created by the system

- Level 3 maintenance
  - « Logs » module
  - Downloading and viewing logs
  - Important research

- Update
  - Firmware
  - Software

FCC notice

FCC Part 15 compliance statement

- 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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Licence-Exempt Radio Apparatus (ISED)
- This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
- 1. This device may not cause interference.
- 2. This device must accept any interference, including interference that may cause undesired operation of the device.

Appareils radio exempts de licence (ISDE)
- L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
- 1. L'appareil ne doit pas produire de brouillage;
- 2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Changes or modifications not expressly approved by EDITAG could void the user's authority to operate the equipment.

End of presentation