Device Manager

Hardware management software by ELA Innovation

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1 PRESENTATION

Device Manager is a PC software developed by ELA Innovation. This tool enables users to assign our products, whether readers, programmers or tags. You may perform basic operations, such as programming our tags, reading information from our tags, etc., by using a graphical interface. You will find a precise description of all these features in the following sections.

This document provides several instructions for installing and using the **Device Manager** Software suite.

1.1 Required software configuration

- PC: Windows 10 Family or Professional editions

During the installation, it is crucial to retrieve the installation tool that is associated with your Windows configuration. To find more information about your processor type, we recommend you to refer to the Windows **General System Information** window.

From the **Control Panel**, select the **System and security** option, and then click on **System**:

For a 64-bit system version, you need to **retrieve and install the 64-bit version** of the installer on your computer:

⇨ Device_Manager_v1.0.2.exe

For a 32-bit system version, you need to **retrieve and install the 32 -bit version** of the installer on your computer:

⇨ Device_Manager_v1.0.2_32_bits.exe

1.2 Hardware & functions

The following section includes the necessary recommendations for you to perform some actions with our tags.

Programming of the Blue Puck, Blue Coin, Blue Slim product ranges

- Recommended NFC readers :
  - ACR122 (ACR1222U-A9): Advanced Card System Ltd.
  - uTrust 3700 F: Contactless Smart Card Reader

Bluetooth Low Energy Reading either in Advertising or in online-mode:

- Recommended external Bluetooth Low Energy (BLE) Readers / Dongle:
  - UD-400M : Broadcom
  - Aircable host xr4 : Aircable

- Laptop internal dongle
  - The only requirement is that the laptop internal dongle must be Bluetooth Low Energy compatible

1.3 Compatible hardware devices

This paragraph provides a complete list of ELA Innovation tags that are compatible with our software. You may also find this list in the "About" section of **Device Manager**. For any additional information concerning hardware devices, feel free to consult our website at https://elainnovation.com

Bluetooth tag range:

- Blue Puck ID
- Blue Puck T
- Blue Puck RHT
- Blue Puck MAG
- Blue Puck MOV
- Blue Puck ANG
- Blue Coin ID
- Blue Coin T
- Blue Coin MAG
- Blue Coin MOV
- Blue Coin ANG
- Blue Slim ID
- Blue Slim T
- Blue Slim MAG
- Blue Slim MOV
- Blue Slim ANG

2 INSTALLATION

The **Device Manager** installer allows you to install the entire software range on your Windows 10 equipped computer. You need an installer file such as:

Device_Manager_vX.Y.Z.exe

The version number includes values X, Y and Z. For more details about the several **Device Manager** versions, please refer to our Releases notes available in the appendix section of this document.

To start installing the software, just double click on the installation file and follow the process. We are going to guide you it in the following section.

2.1 Prerequisites and configuration

You need to enable Bluetooth on **Windows 10** in order to use Bluetooth functions through the **Device Manager** software. To check whether this feature is available, click on the Windows "**Start**" button and open the settings window.

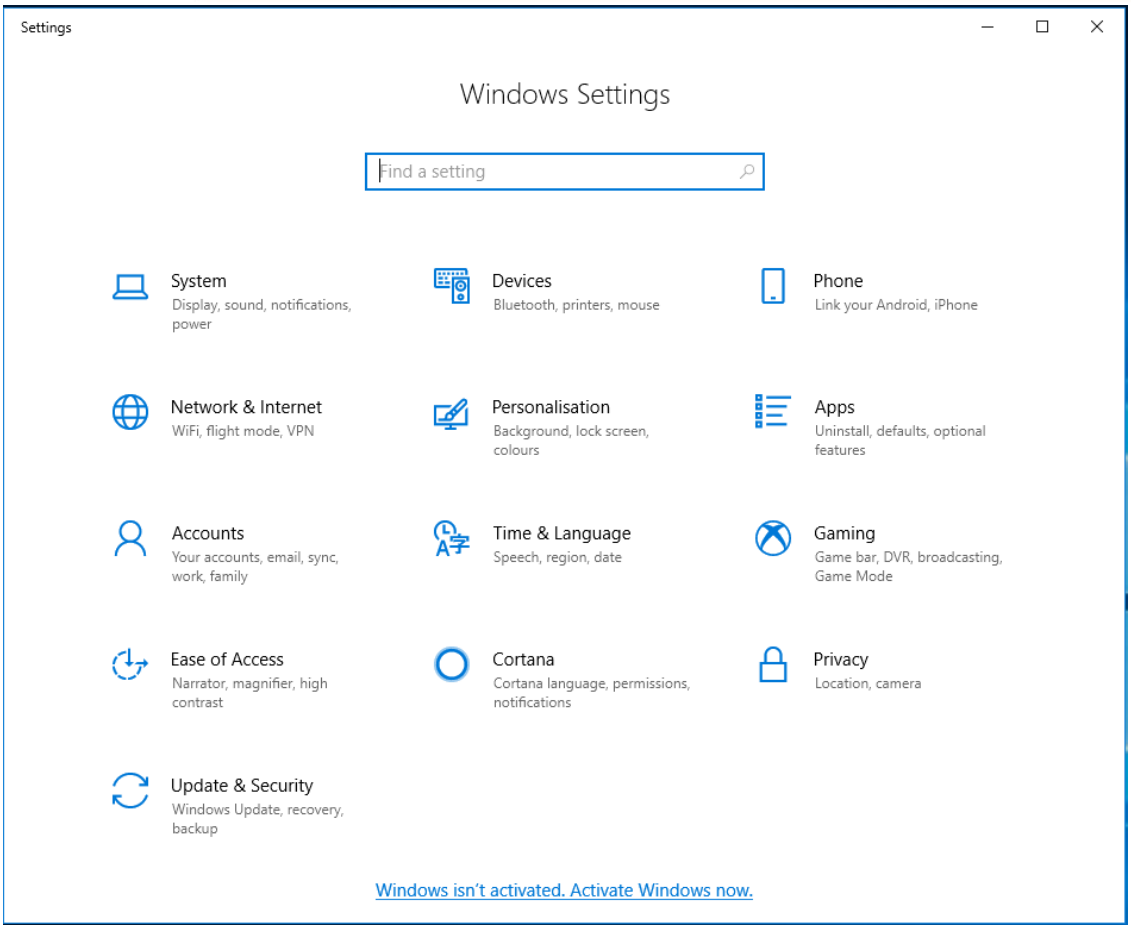


Figure 1 – Windows settings window

Click on the **Device** option.

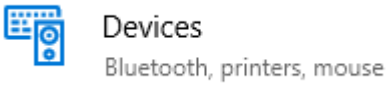


Figure 2 – Device option

In the navigation menu situated on the left, select the option "**Bluetooth and other devices**".

Activate the Bluetooth box in the main window if not already enabled.

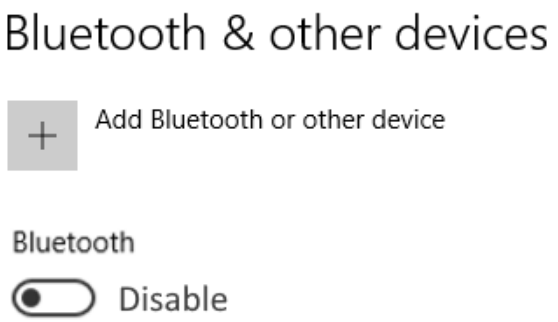


Figure 3 – Disabled Bluetooth option

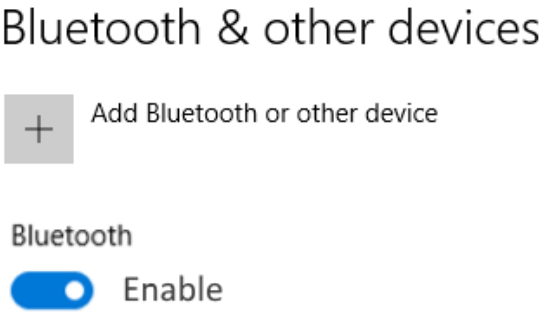


Figure 4 - Active Bluetooth option

If you have a laptop with an **internal dongle**, the Bluetooth option appears by default. Otherwise, you need to connect an **external Dongle** to access this feature.

If you are using a desktop computer, make sure to have an **external dongle available in order** to access this feature. Otherwise, the Bluetooth option will not be available from the main page.

2.2 First installation

Run the **Device_Manager_vX.Y.Z.exe** installation file that you have previously received from our support team or downloaded on our website. This process will show you how to install **Device_Manager_V1.0.2.exe.**

You may set up the **language of the installation wizard** when installing the software. **English and French** languages are available so far.

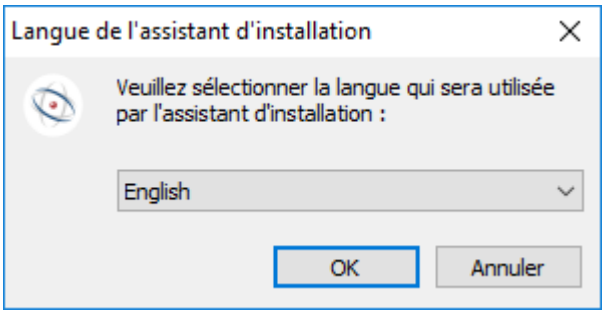


Figure 5 – Installation wizard language set up

Choose your language and press OK to confirm. This user guide includes screenshots of the French version of our software. If you are more comfortable with another language, we advise you to consult all **Device Manager**-related technical documentation, or to switch to the English user guide:

User_Guide_EN_Device_Manager_vX.Y.Z.pdf

The next step allows you to decide whether you want to display a shortcut icon on the desktop (and in the Windows taskbar). We recommend you to do so, in order to be able access the tool directly.

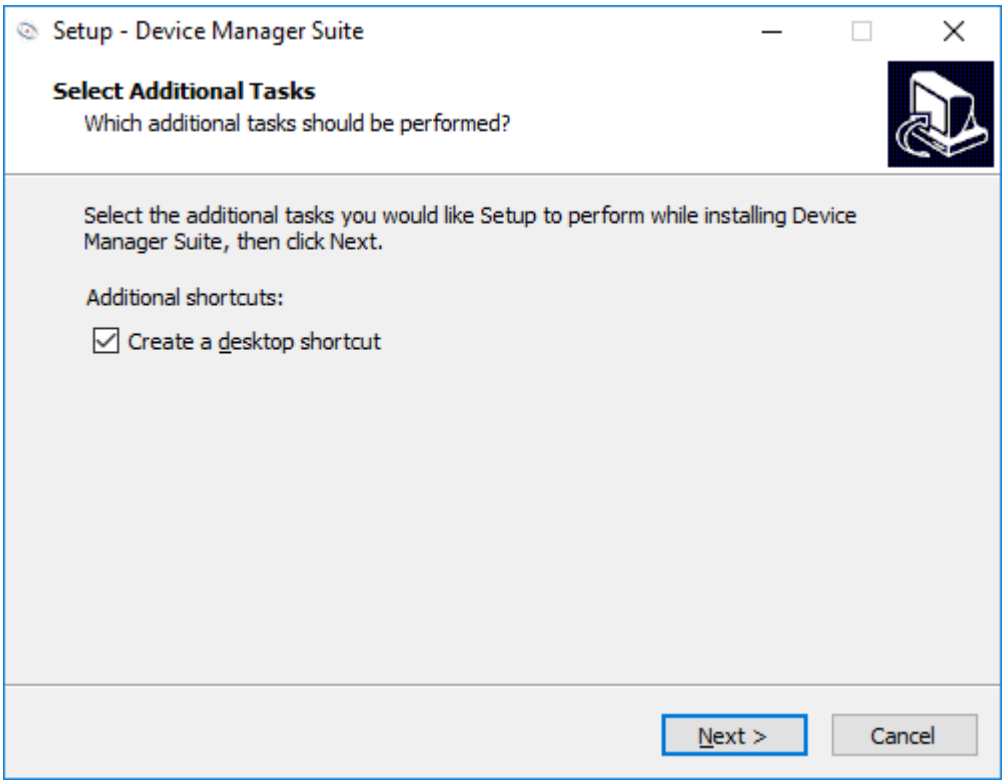


Figure 6 – Display a desktop icon

You may abort set up at any time and leave the wizard. If you choose to do so, click on "Cancel". You need to provide a confirmation. If you don´t, proceed to the next step to set up the software.

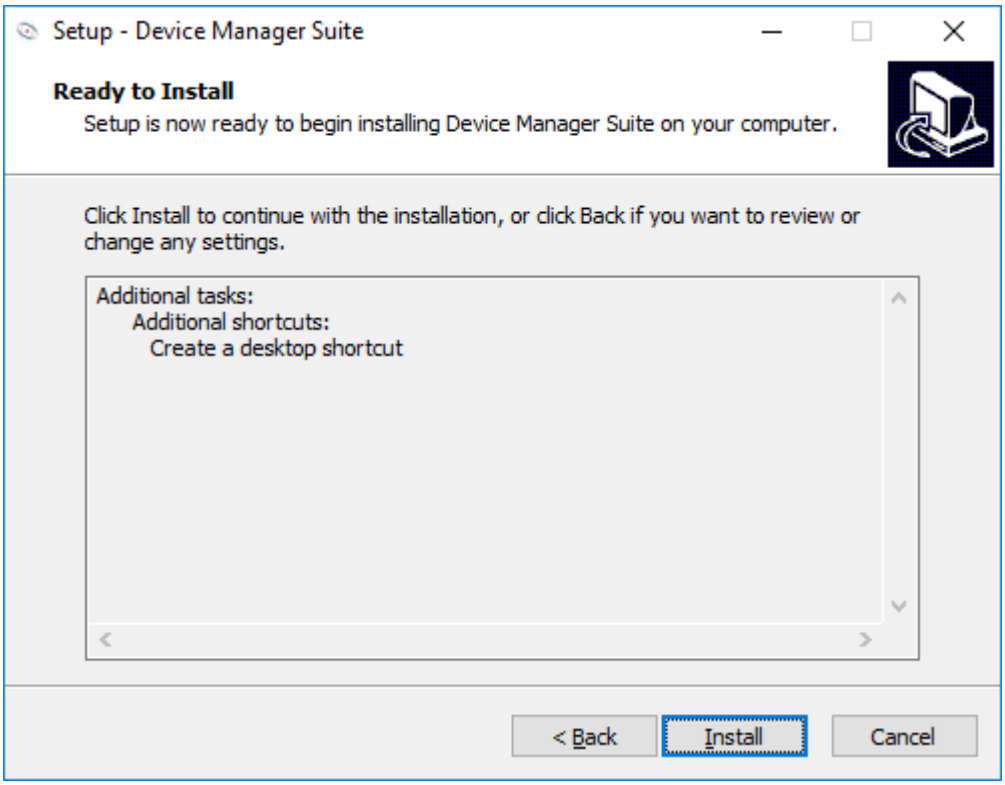


Figure 7 – Installation review

Once the software is ready for installation, a summary window provides you with an overview of the selected options. Click on "**Install**" to confirm.

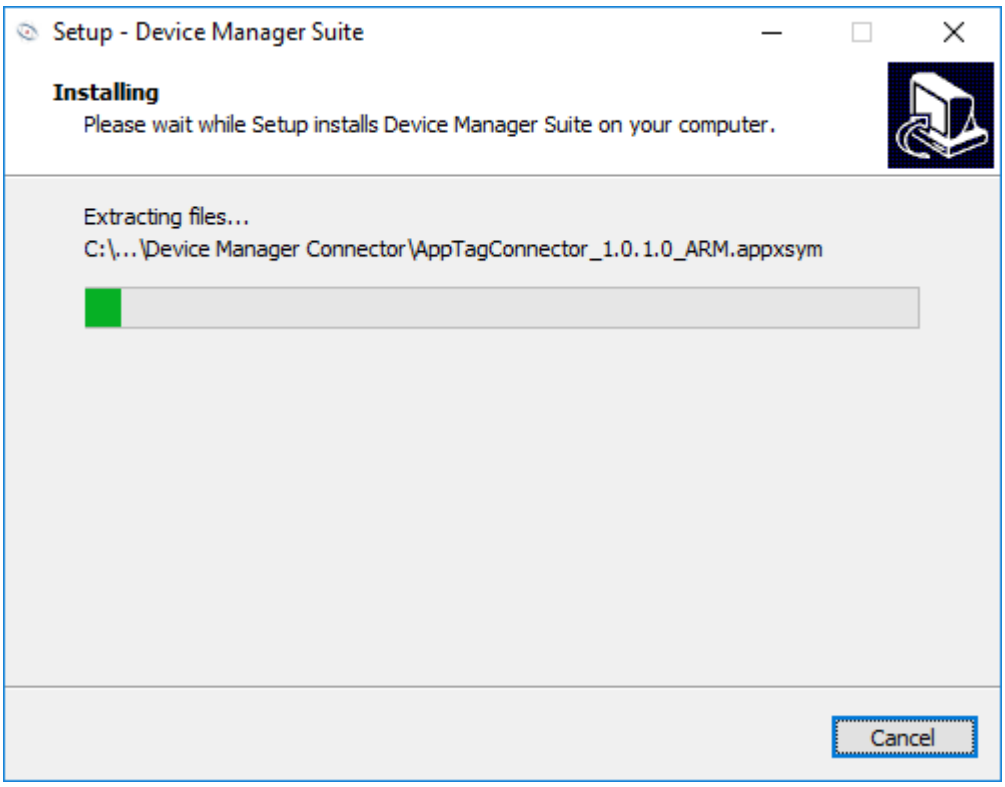


Figure 8 – Installation progress

The wizard automatically switches to the final window as soon as set up is complete.

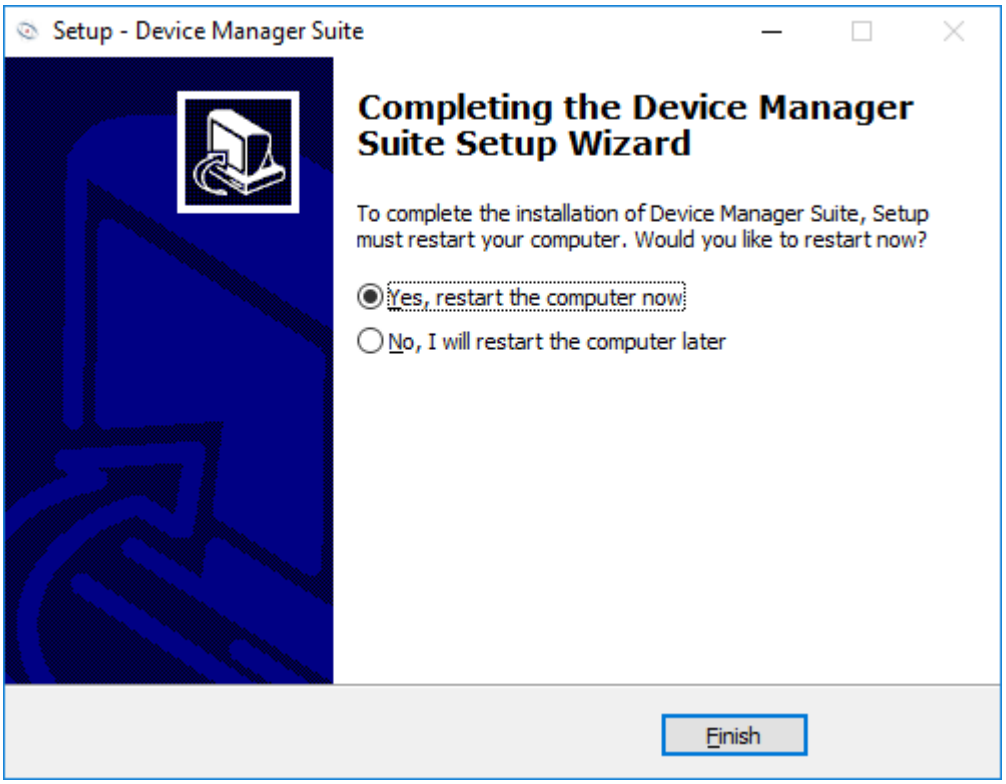


Figure 9 – Installation complete

The program then asks if you wish to reboot the computer. We strongly recommend you to do so in order to enable the different programs of the Device Manager software suite (e.g. the Device Manager-related service).

If you choose "No", some features (such as Bluetooth Advertising playback) will only be available at your next start.

2.3 Re-install software

In the event that you forgot to close one of the software applications, the installer suggests doing it for you.

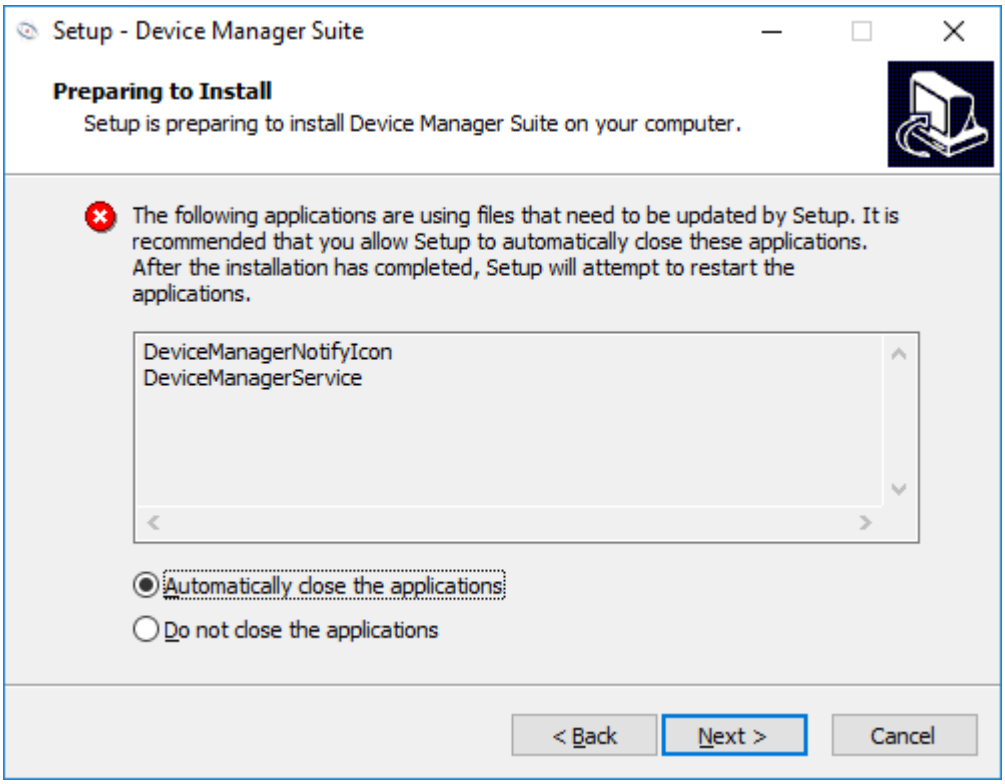


Figure 10 –Applications update

In such cases, you should tick the option "**Stop applications automatically**". This feature enables you to replace it with an up-to-date version of our software. If you choose "**Do not stop applications**", we are unable to guarantee a correct performance of the **Device Manager** software suite.

2.4 Installation file

Once the installation is complete, all essential links are available for you to use the **Device Manager** software suite. This section shows the tree structure of the different tool components, and explains how to install **Device Manager Connector** manually, so that you can connect directly to our Bluetooth tags.

Device Manager	25/06/2018 12:06	Dossier de fichiers	
Device Manager Connector	25/06/2018 12:06	Dossier de fichiers	
Device Manager Service	25/06/2018 12:06	Dossier de fichiers	
Documentations	25/06/2018 12:06	Dossier de fichiers	
Device Manager Suite	25/06/2018 12:06	Raccourci	2 Ko
unins000.dat	25/06/2018 12:06	Fichier DAT	47 Ko
unins000.exe	25/06/2018 11:58	Application	739 Ko

Figure 11 – Device Manager installation directory

This directory contains:

- **Device Manager**: Generic software to manage all ELA Innovation sensors

- **Device Manager Connector**: Software to manage the Bluetooth connected mode with the Blue ELA Innovation Tag range
- **Device Manager Service**: Device Manager application linked Windows service
- **Documentation**: directory containing all Device Manager related documents
- **Device Manager Suite shortcuts**: allowing you to run the application directly
- **unins000.exe**: in order to remove the software suite

2.5 Installing the Device Manager Connector

This section provides instructions for installing the **Device Manager Connector** manually. If you already have this application installed on your computer, we recommend you to remove it before getting started.
If you try to run the **Device Manager Connector** application directly from the **Device Manager** software without having installed it previously, a window pops up allowing you to search for the application directly within the Windows Store.

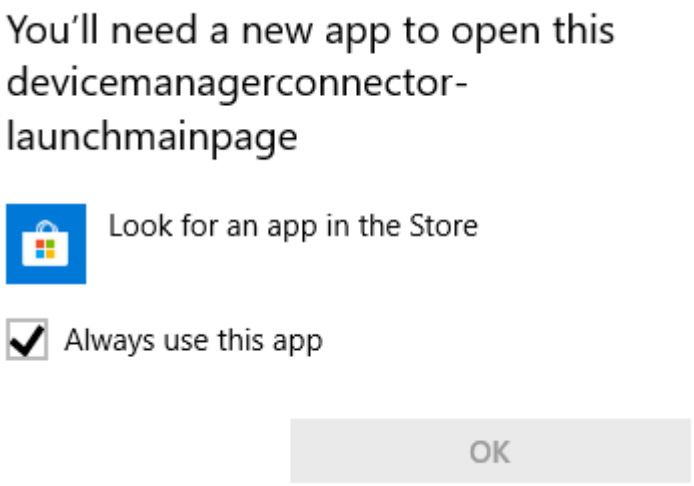


Figure 12 - Device Manager Connector search

Step 1: You need to allow Windows 10 to download a test version of the applications. To do so, use the Settings panel available from the Start menu.

Then, select the "**Update and security**" option.

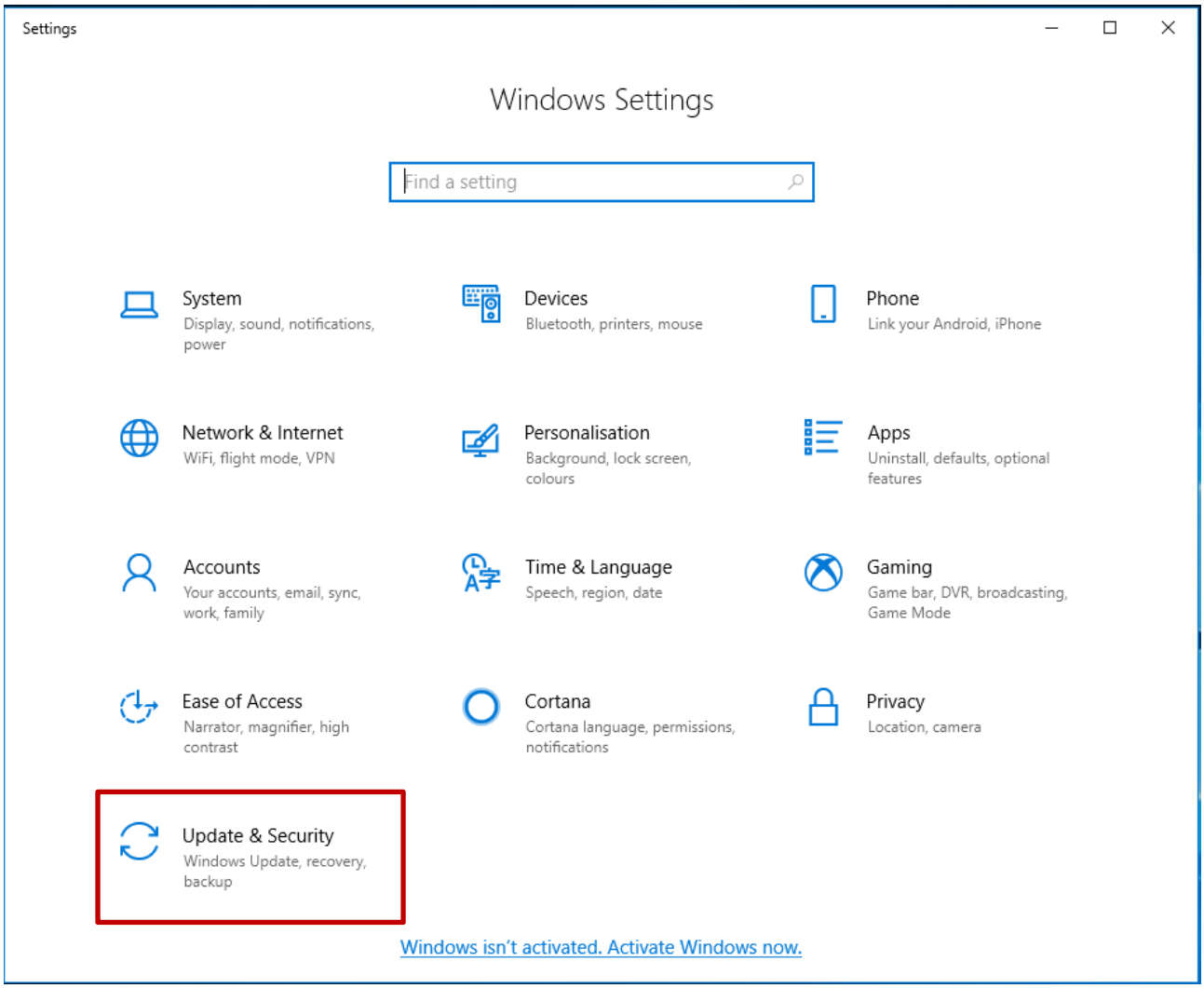


Figure 13 – Windows settings window

Select the "**Developers only**" option available in the left-hand menu.

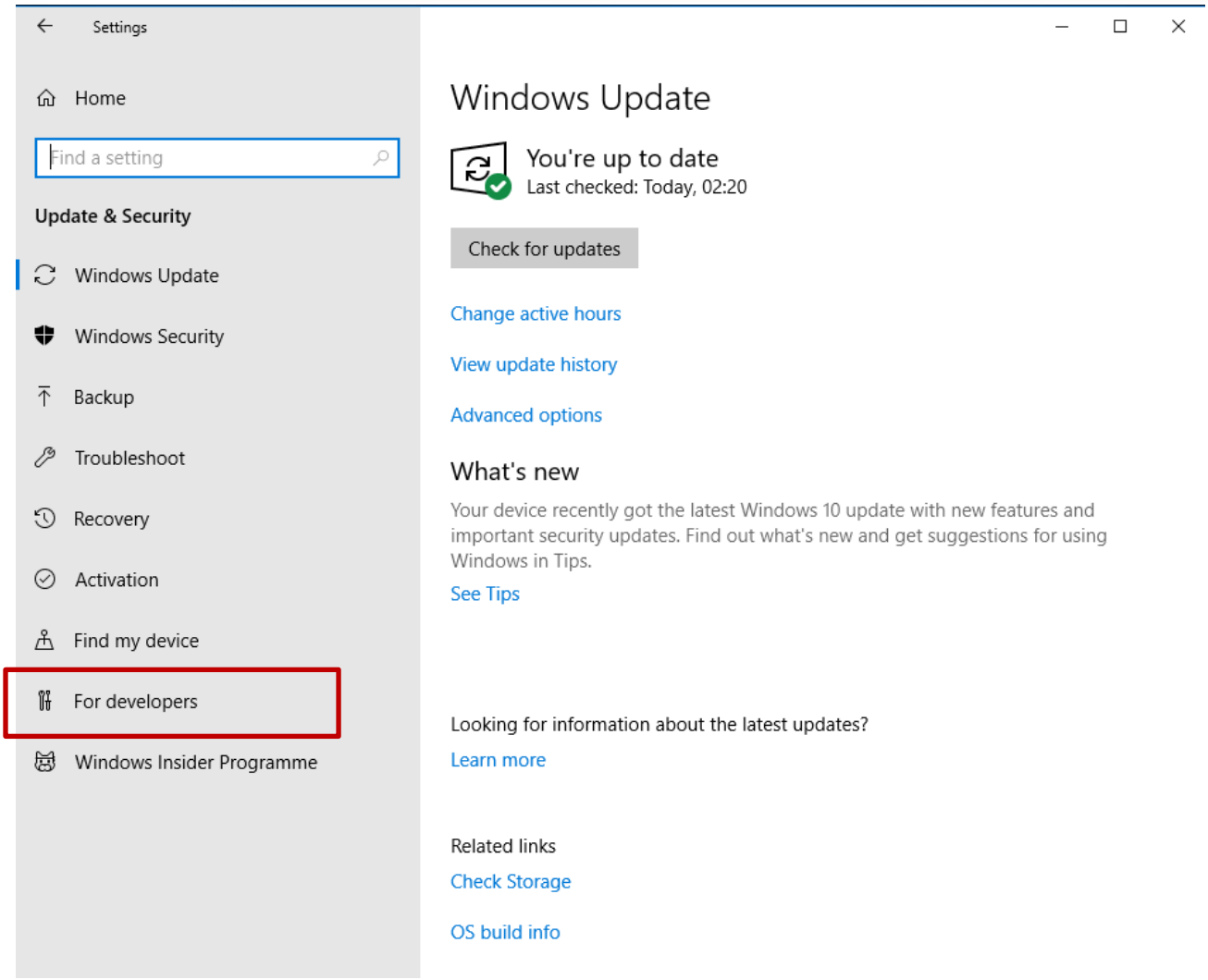


Figure 14 – Using the ¨Developers only¨ feature

Then, click on "**Download a test version of applications**".

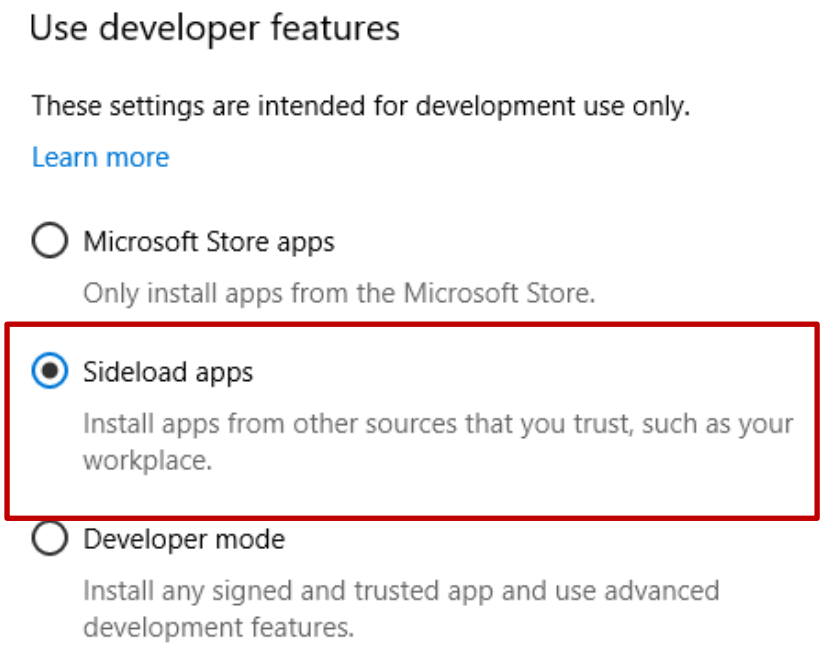


Figure 15 – Download a test version of applications

Step 2: Open the Device Manager application setup folder. The default folder is as follows:

C:\Program Files (x86)\Device Manager Suite

If you selected another folder when installing the software, select it from this location.

This file contains the below mentioned items:

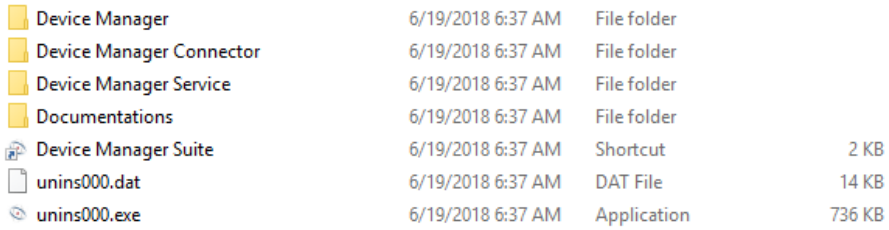


Figure 16 - Device Manager Suite Folder

To install the "**Device Manager Connector**" application, open the related "**Device Manager Connector**" folder in order to find the corresponding file package.

Third step: Install Certification Authority.

The certificate is called **AppTagConnector_x.x.x.x_x86_x64_arm.cer**, whilst the one of the example related to the below screenshot is **AppTagConnector_1.0.0.0_x86_x64_arm.cer**

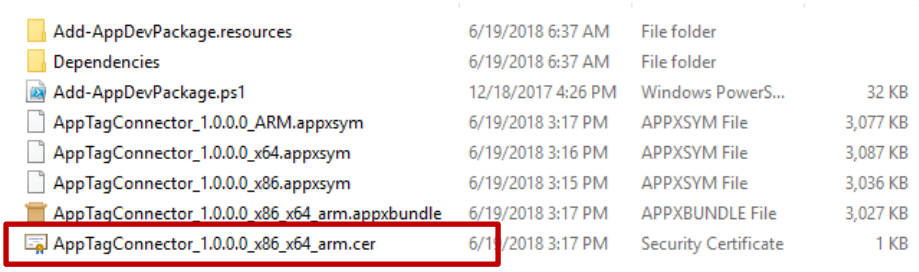


Figure 17 – Device Manager Connector directory

Double click on the **AppTagConnector_x.x.x.x.x.x_x86_x64_arm.cer** certificate. A new window pops up and allows you to view the information about this certificate, and to install it.

Then click on "**Install certificate**".

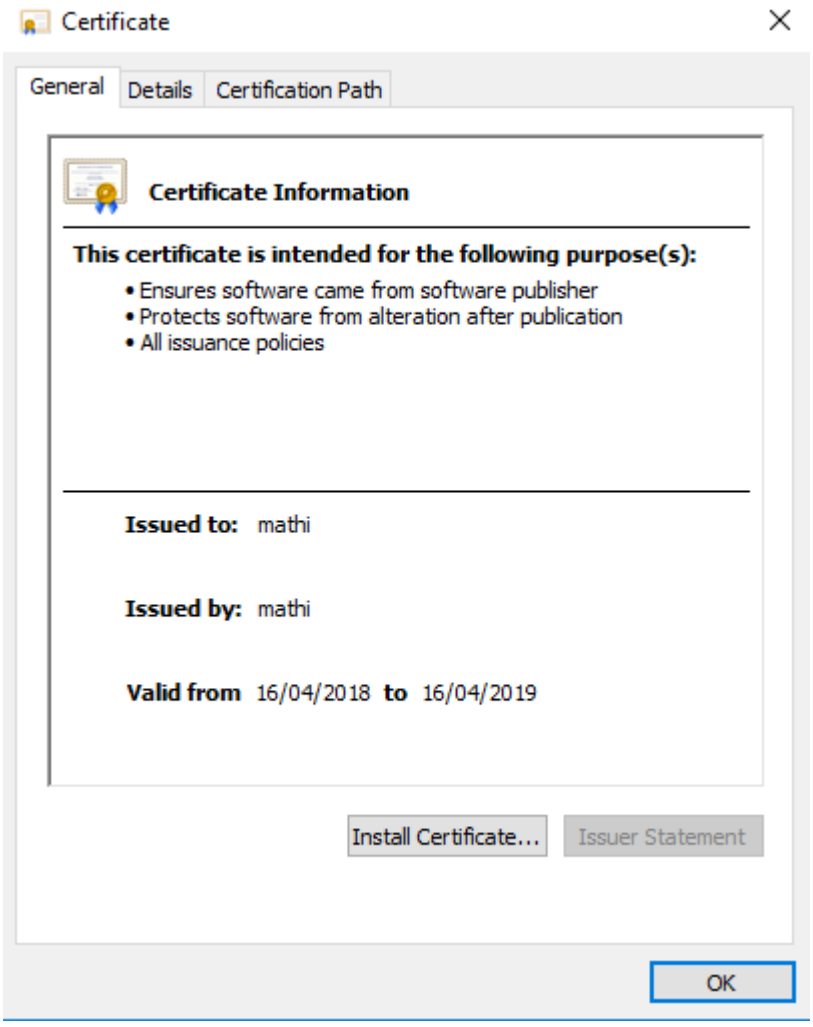


Figure 18 – Certificate window

Pressing this button starts the certificate import wizard. Please follow the below instructions step by step:

You first need to select the storage location for this certificate. We advise you to choose the following location: **Local computer**. This way, all users of this computer will have access to the application. In this case, you need to have administrator rights on this particular machine. If you don´t, select the Local User option to access it from your own session.

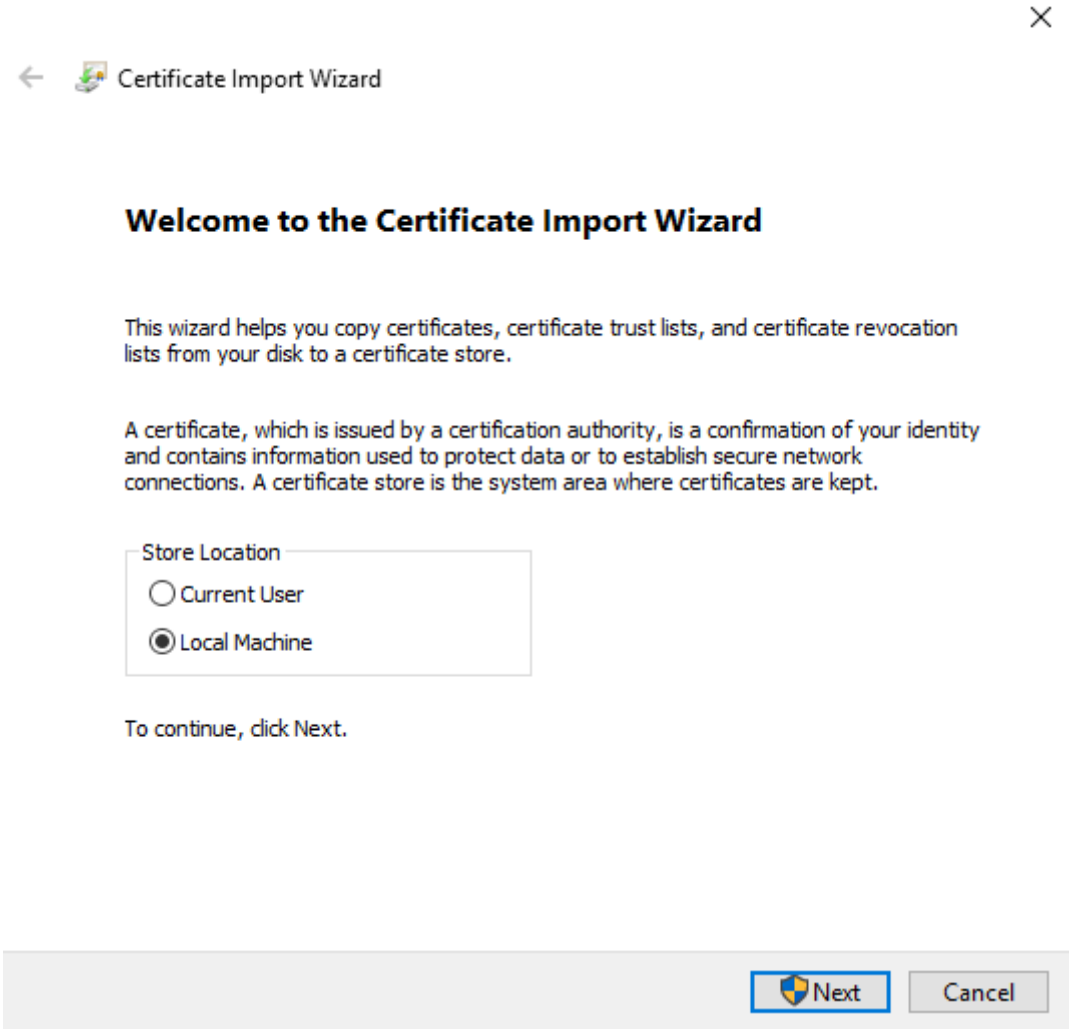


Figure 19 – First step

For the second step, we recommend you to allow your Windows operating system to choose the certificate storage location on your behalf. Check the option: "**Select the certificate storage location automatically according to certificate type**" and then click on "Next".

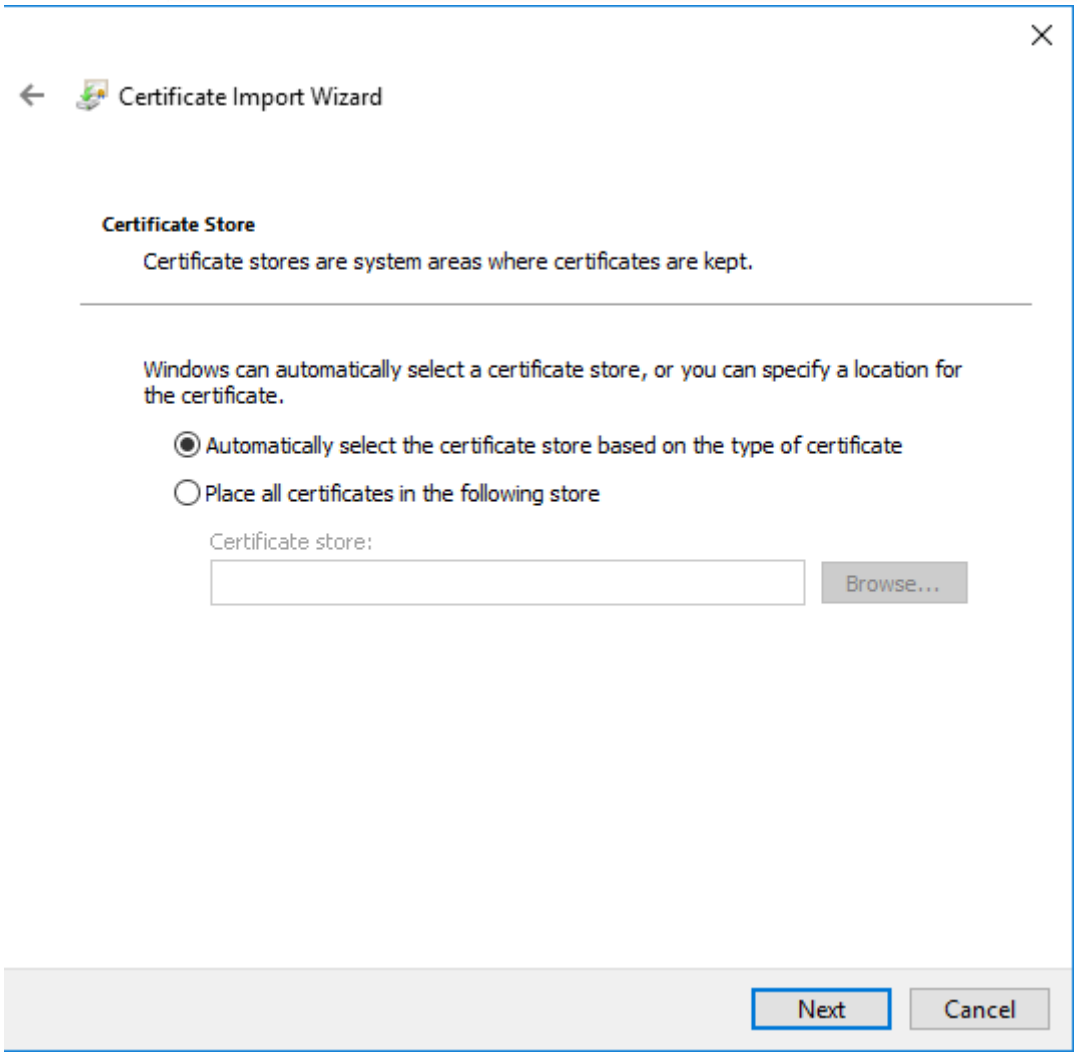


Figure 20 – Second step

You are reaching the last step, which summarizes your certificate importation. Just click on "**Finish**" to complete the installation.

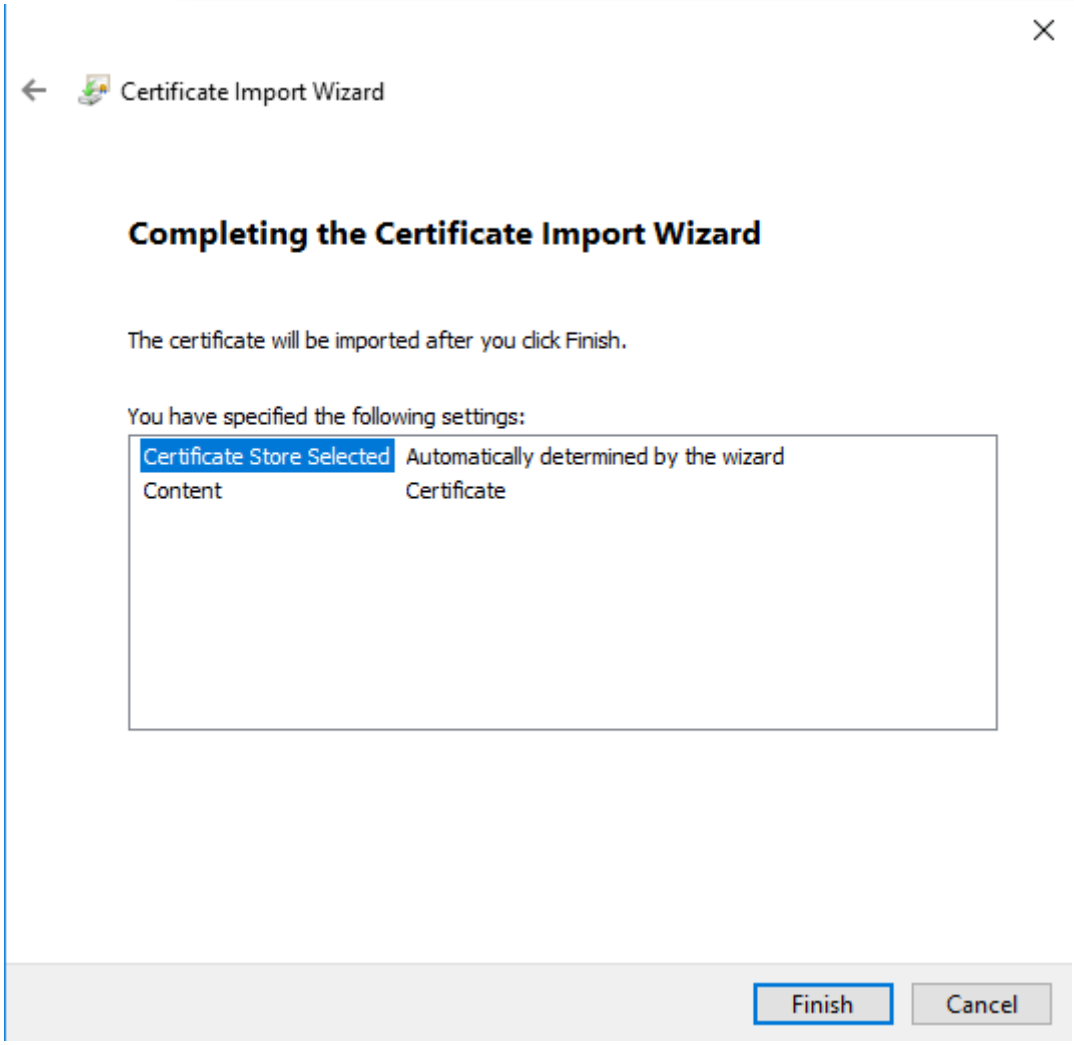


Figure 21 – Completed installation wizard

The import result appears in a separate window.

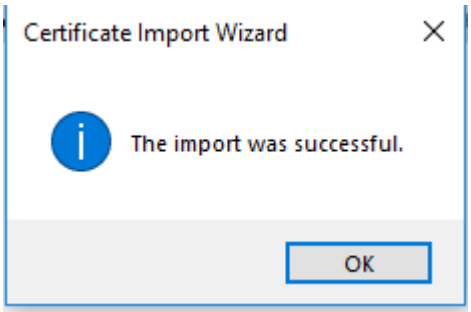


Figure 22 – Output window for certificate import

Fourth step: run the Power Shell Add-AppDevPackage.ps1 script.

In the **Device Manager Connector** installation folder, select the **Add-AppDevPackage.ps1 script**. Right-click to open a context menu. Then select "**Run with PowerShell**".

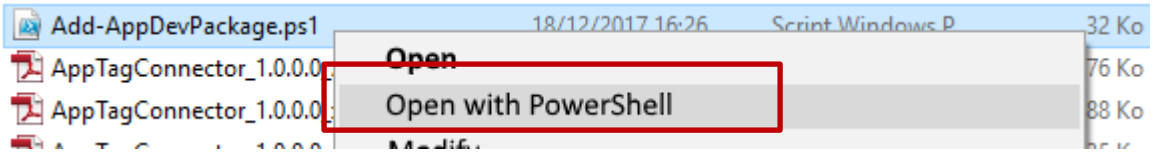


Figure 23 –Run script using PowerShell

Follow the instructions given in the control panel. The installer is asking for administrator rights if necessary. You need to provide the requested rights in order to install the program.

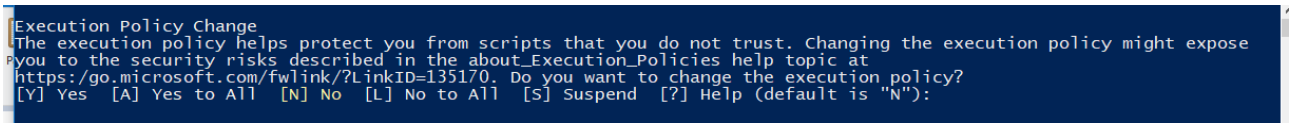
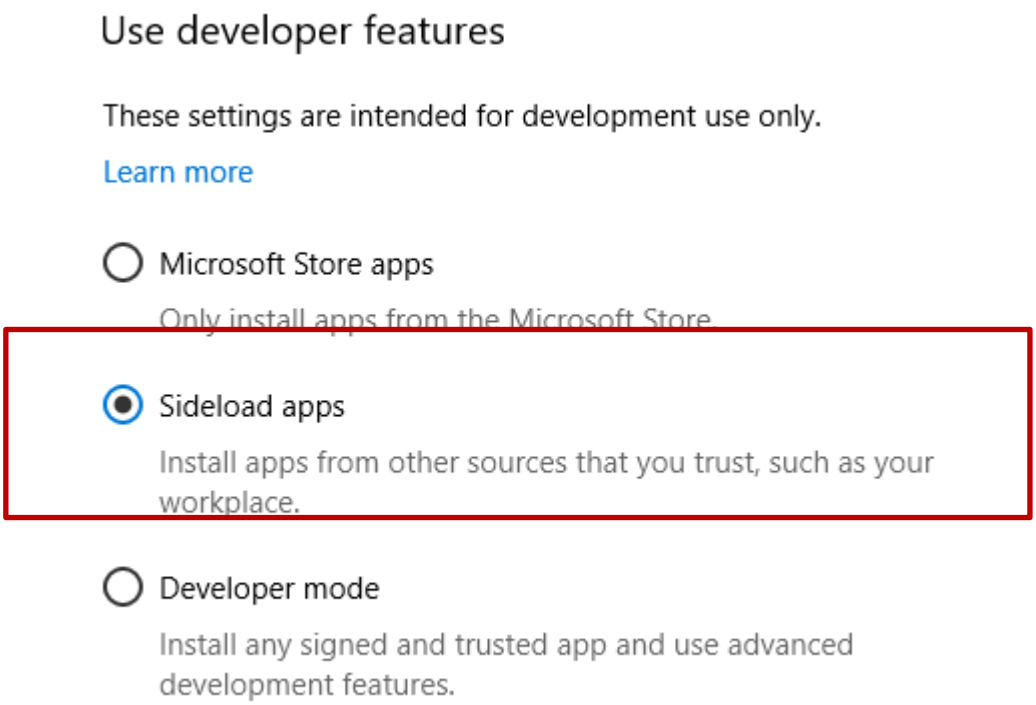


Figure 24 – Administrator rights authorization

At this level, you may open the developer settings window to readjust the user level depending on the development features. Make sure to enable the ¨**Download an application test version**¨ feature.



A new window pops up for you to perform the certificate installation further. To continue set-up, type "U" on your keyboard.

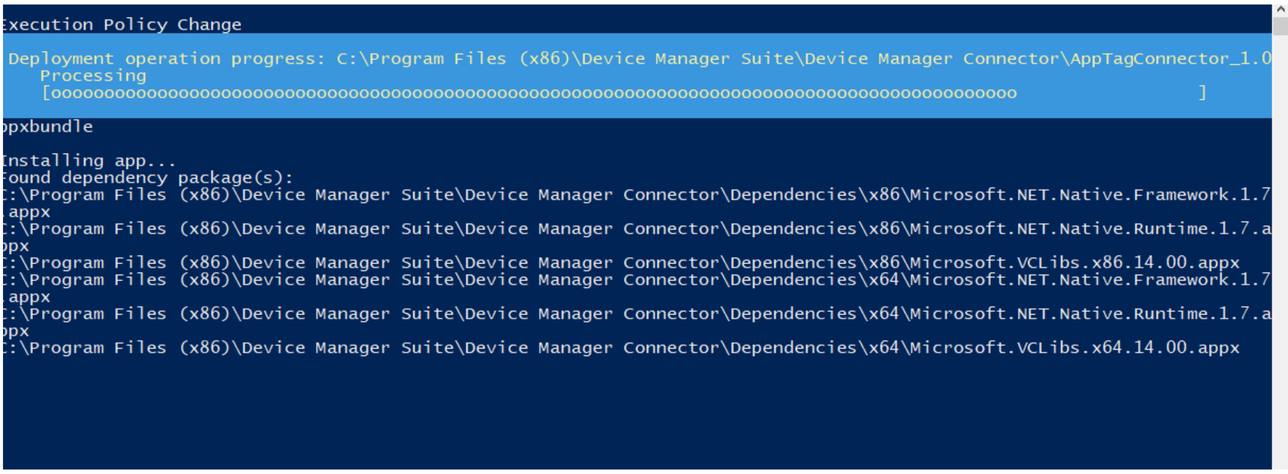


Figure 25 – Allow certificate installation

The control panel closes once the operation is complete.

Last step: Install Windows application

To install the application package, double click on the ***.appxbundle file.** In the below example, you should click on **AppTagConnector_1.0.0.0_x86_x64_arm.appxbundle.**

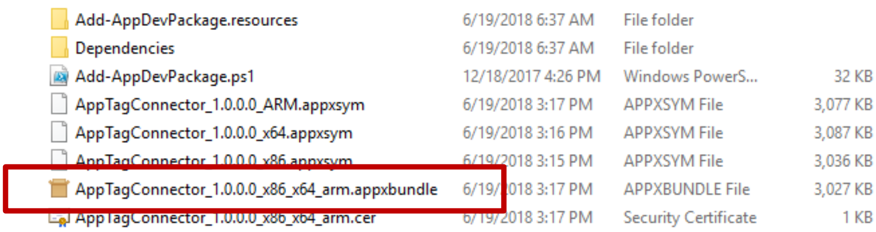


Figure 26 - Install package

The Windows package installation window starts, just click on "Install". A progress bar displays the current installation status. The application starts automatically as soon as set-up progress reaches 100%.

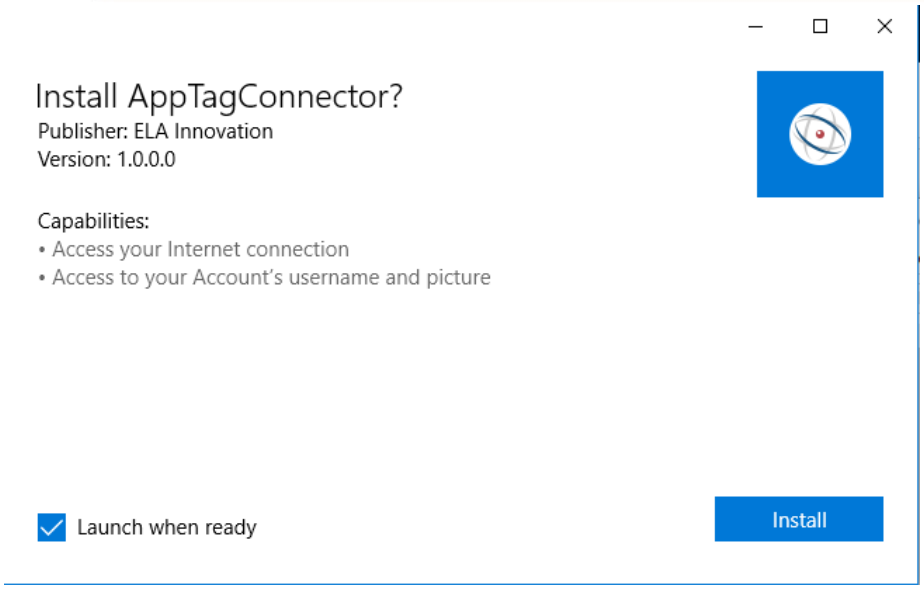


Figure 27 – Package set up

This application is part of the **Device Manager** software suite. You may access it directly from the main interface in order to connect to our Bluetooth Tags through the Bluetooth API. You will find more information about this topic in the coming sections.

3 FIRST START

You may run the application by using the shortcuts located on the desktop (if you checked this option when installing the software) or through the Windows Start menu.

You can now **start the application**.

At each start, a home screen with a progress indicator initializes the application, loading the configurations associated with your profile and connecting to the different communication layers needed to connect to our hardware.

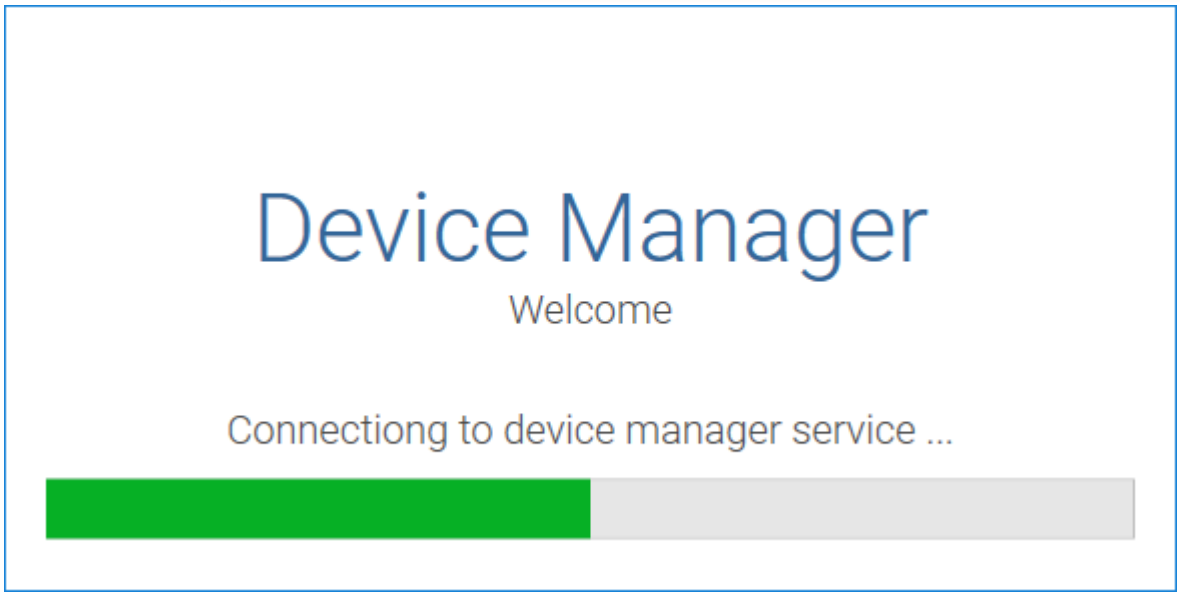


Figure 28 – Home screen

After completion of the initialization, the dashboard appears on the home screen. You will find some more information on this topic in the coming paragraph. If you close the application, a window appears to unload the application. This screen saves all your settings and deletes all communications you have established during your session.

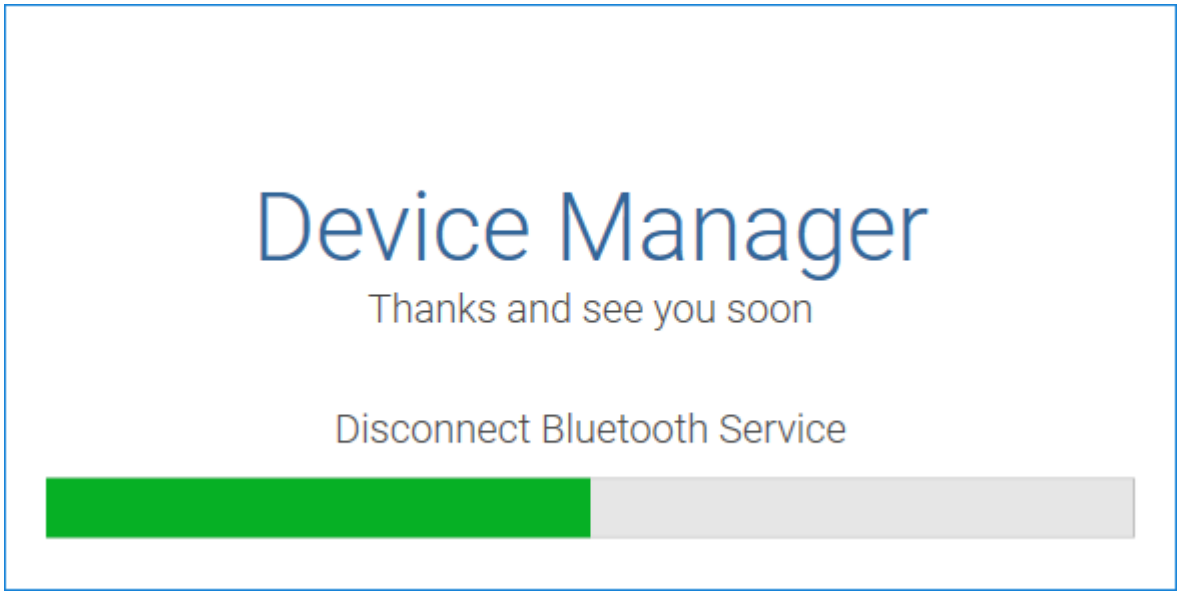


Figure 29 – Shut down screen

4 DASHBOARD

4.1 Description

Closing the Home screen triggers the opening of the **Dashboard** on your computer. This page consists in a hub from which you may start each of your tests.

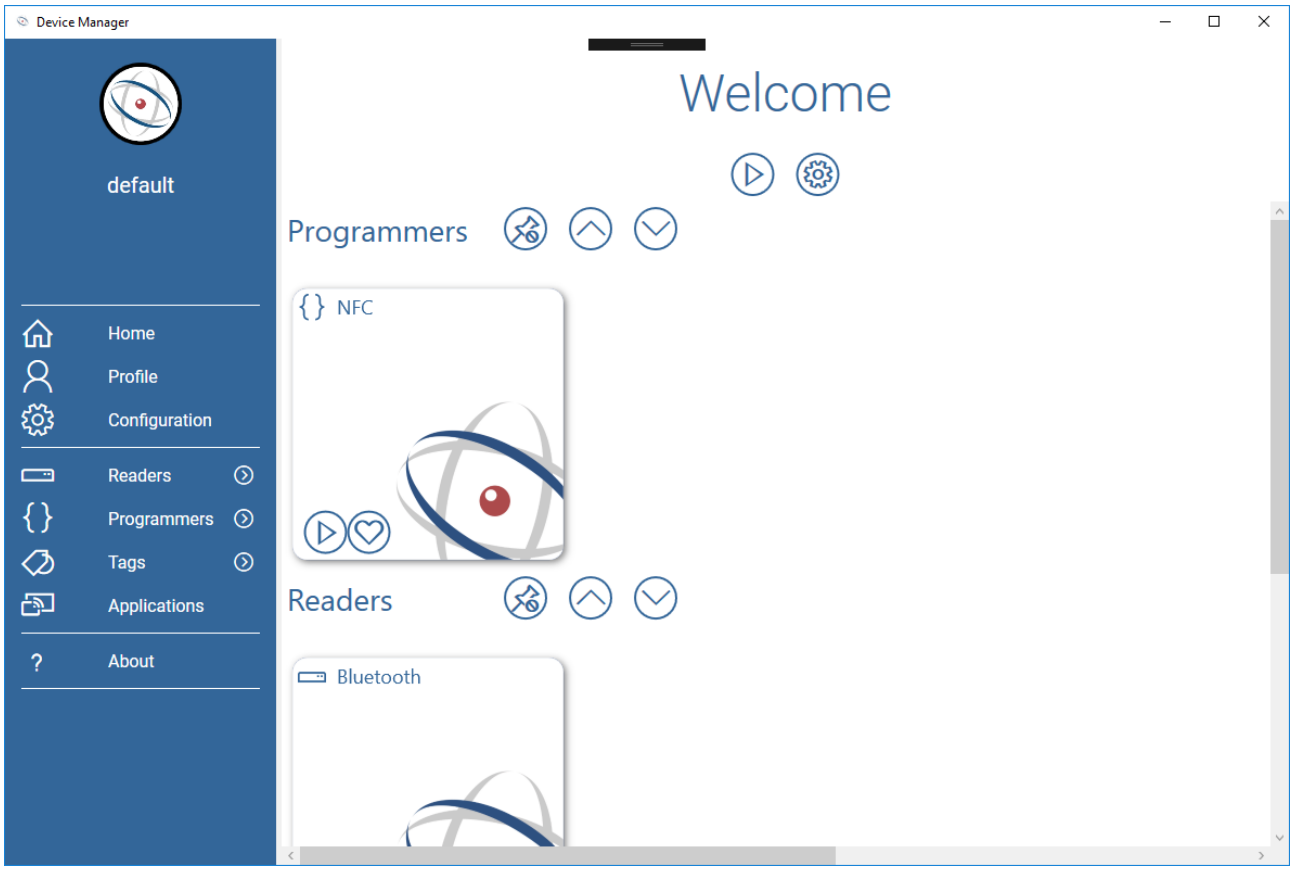


Figure 30 - Dashboard

The dashboard consists in two main areas:

- On the left: the navigation menu
- On the right: the navigation page

4.2 Menu

The navigation menu includes three distinct areas:

- The configuration part: Home, Profile and Configuration
- The functionality part: Readers, Programmers, Tags and Applications
- The information section: About us

Each item of this menu leads to a new page; you will find out more about such features in the following paragraphs.

Some menu items have a basic functionality, i.e. navigation. This applies to the following functions:

- **Home**: allows you to return to the dashboard
- **Profile**: enables to customize your user profile
- **Configuration**: Provides access to certain configuration set up of the **Device Manager** software Suite
- **About**: allows you to display software-related data

These menu items consist of an icon and a label.

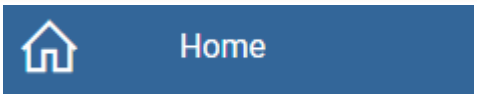


Figure 31 – Basic menu items

The remaining components enable to perform two functionalities. One concerns navigation (refresh the main page) while the other relates to sub-menu display. This applies to the following functions:

- **Readers**: to display the reader management page
- **Programmers**: to show the programmer management page
- **Tags** : to view the tag management page
- **Applications**: to manage applications

These items consist of an icon, a label and a button to exit the submenu.

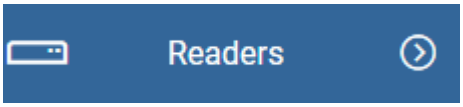


Figure 32 – Double menu element

For each feature, you need to press the arrow to exit the submenu. In the below example, level 2 menu appears as tag-specific.

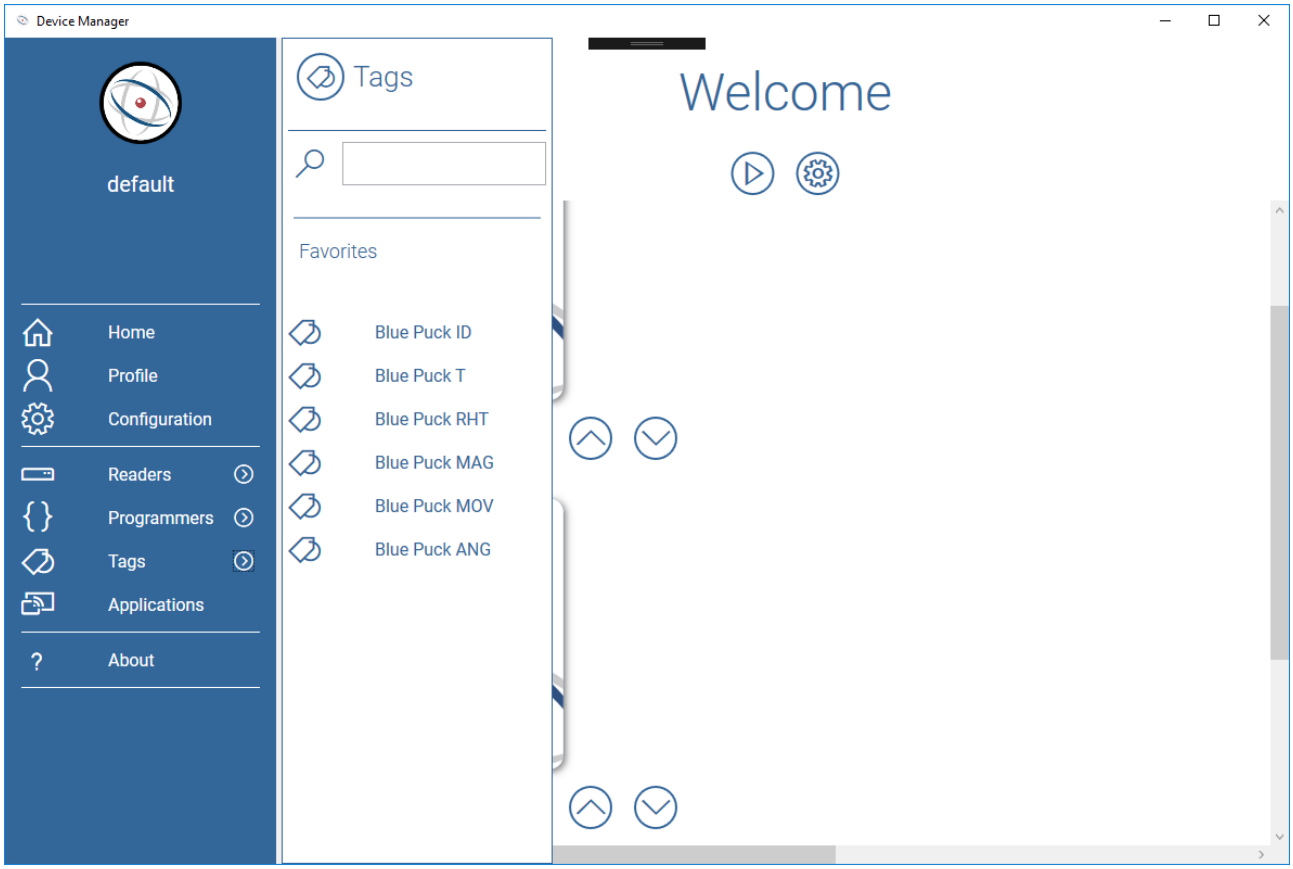


Figure 33 - Level 2 menu for tags only

In the below example, tag-associated level 2 menu is available. It allows you to see all hardware devices you added onto your favorites. From this menu on, you may click on the item of your choice to start an instantaneous test.
To hide the menu, simply click again on the arrow button you used to remove it, or just click outside of the menu window.

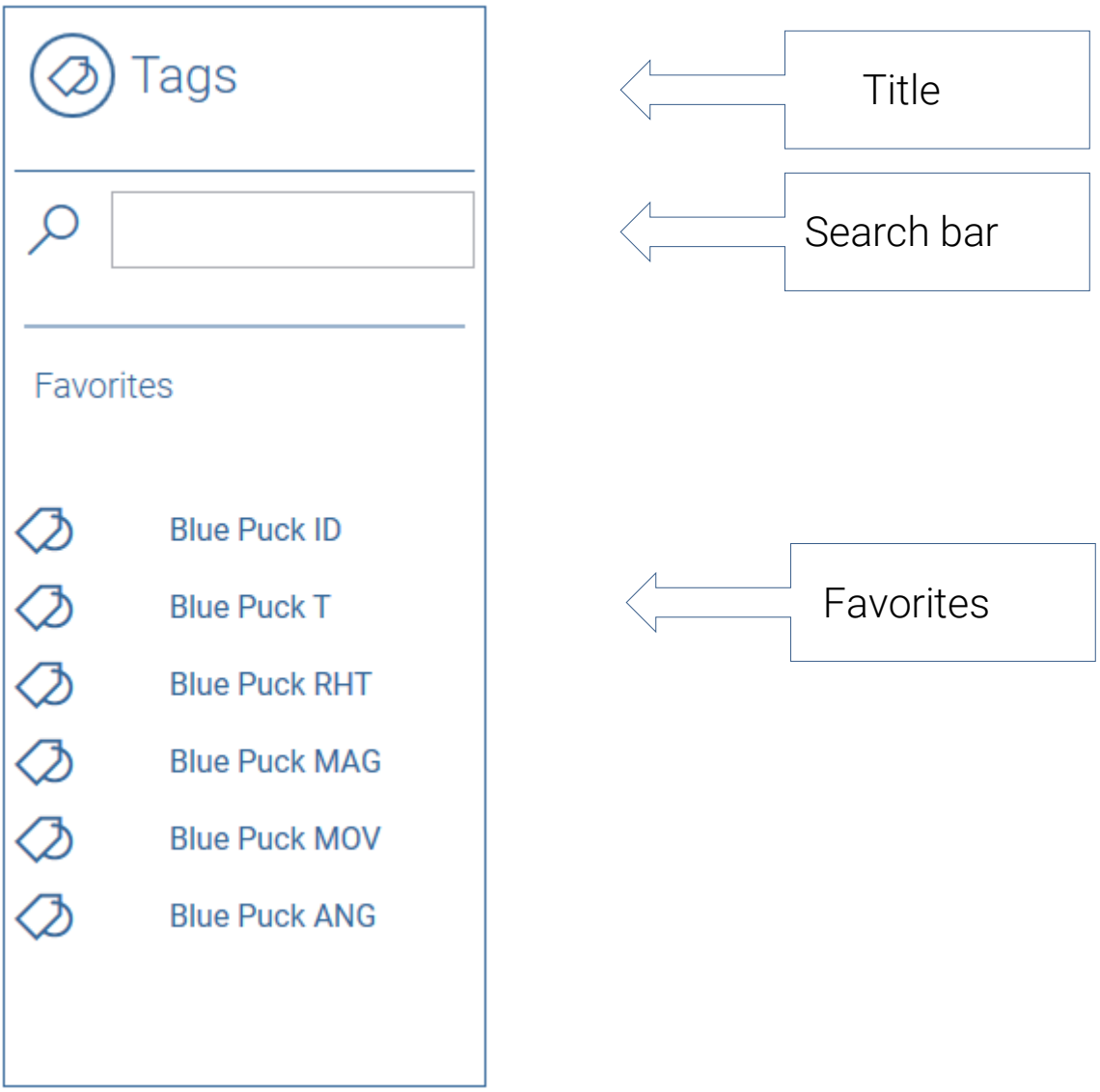


Figure 34 - level 2 tag menu

The quick search bar is case-sensitive (upper and lower case). It enables to search the re-entered character chain in items list displayed in the below menu.

For example, if you type a "T" based on the list displayed in figure 34, only « **Blue Puck T**¨ and ¨**Blue Puck RHT**¨ items appear in the menu.

4.3 Dashboard description

The main page displays the user current navigation. The dashboard is a hub from which you may start any software feature. Either to program our tags, or to read the information… all measurement or configuration functionalities start from the dashboard.

Let us focus on the dashboard lay out at first.

Figure 35 - Dashboard

Each feature is displayed by one or various component(s) disposed in line, to materialize the different types of available hardware. Features of the example of the figure 35 are as follows and gathers the following hardware devices:

- Programmers :
  - NFC
- Readers :
  - Bluetooth
- Tags :
  - Blue Puck ID
  - Blue Puck T
  - Blue Puck RHT
  - Blue Puck MAG
  - Blue Puck MOV
  - Blue Puck ANG

You may change the **dashboard** set up at your convenience for each functionality. Click on "**Up**" and "**Down**" to move the function banner up or down on the main page.

Figure 36 – Change the features lay out

Use the 3 buttons available on the figure 36 to perform the following actions:

- 1 : Unpin the feature line from the dashboard page
- 2 : Move the feature bar up in the overall dashboard layout
- 3 : Move the feature bar down in the overall dashboard layout

This way, you may optimize the **dashboard** to suit your needs. If you do not need some of the displayed features, feel free to "**unpin**" the functionality in order to remove it from the **dashboard**.

Likewise, if tags actions are one of your priorities do move the feature line and put it at the top of the interface.

You may come backwards anytime, or re-pin some functionalities to the dashboard from the configuration page of the application (please refer to **paragraph 6** ¨configuration¨ for further information).

It is up to you to model the dashboard, at your convenience and according to yours needs. You need **to save it** if you wish to keep the same lay out at your next login (paragraph 6 ¨configuration¨).

The below figure displays a new lay out of the dashboard compared to its initial design, tag-related features have been moved at the top.

Figure 37 – changing dashboard lay out

4.4 Quick start

You might run a **quick start any time** by pressing on "**Play**" on top of the page, or on any representative icon. Let us focus on the "**quick start**" button located at the top of the navigation page at first. It is located below the "**Welcome**" label.

Figure 38 – quick access

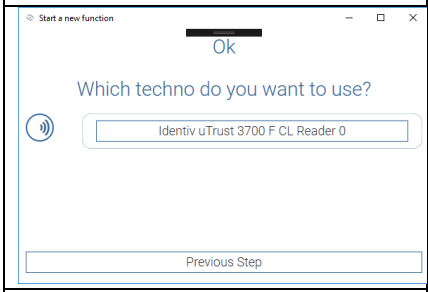
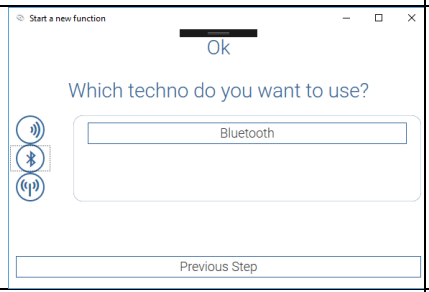
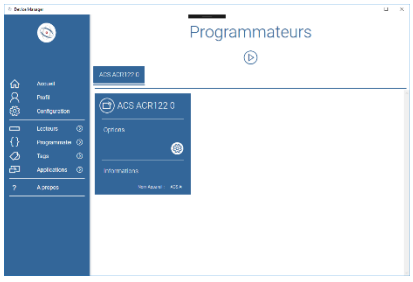
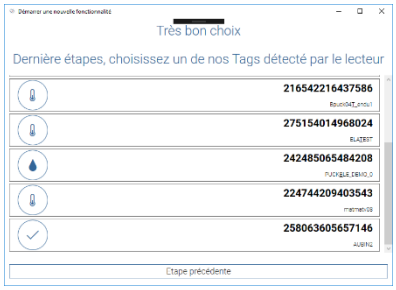
Following shortcuts appear at top of the navigation page:

- 1 : feature quick start
- 2 : settings quick access

Quick start enables you to launch a stepwise wizard in order to configure the hardware needed to access a measure. If you click on "**Play**", a new window pops up in the "**Device Manager**" interface and requires you to choose the next action to perform.

Figure 39 - Quick-start wizard

Use this first window of the wizard to choose set up according to the technology you want to use or the action you want to perform. Configure your measures on a stepwise basis.

Programmer	Reader	Tags
		
		
		

Follow the steps to reach controller pages of the different hardware devices.

You may also start a quick configuration by pressing on the "**Play**" button available on each icon.

Figure 40 - NFC Programmer function widget

Click on "**Play**" from this item; the software has already preselected the setup elements for you to instantiate an NFC reader straight away. Follow the same process with other technologies or hardware devices.

The stepwise wizard is also aimed at helping you to pre-configure your hardware in order to perform the actions of your choice.

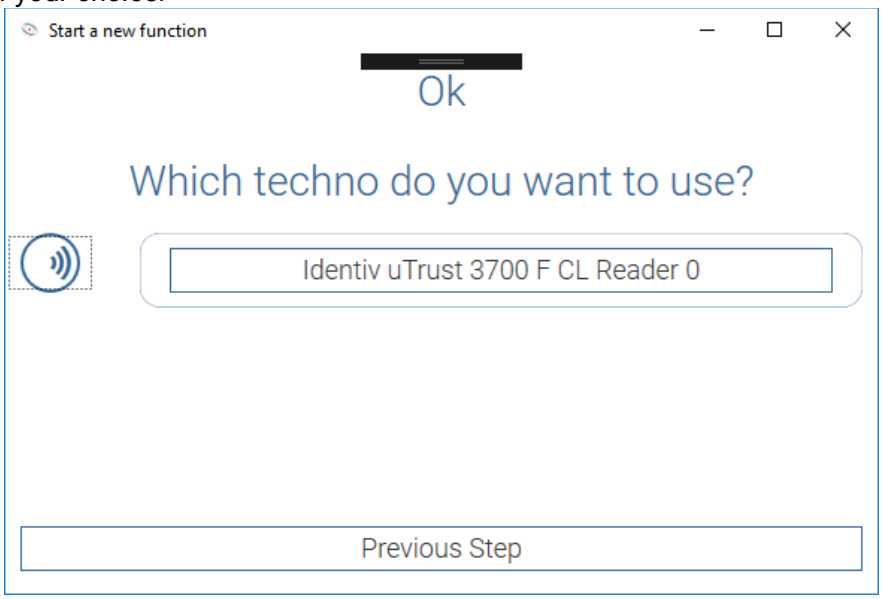


Figure 41 – NFC widget quick start results

5 PROFILE

The profile tab allows defining your user profile. The current page allows you a simple personalization. We have not yet implemented a user level in **Device Manager**, but we will certainly propose in future versions of the software.

At this point, you may provide some of your personal details. The only feature related to your profile is the environment transfers available from one instance of **Device Manager software** to another.

To your profile are associated your user preferences, your dashboard layout, etc.

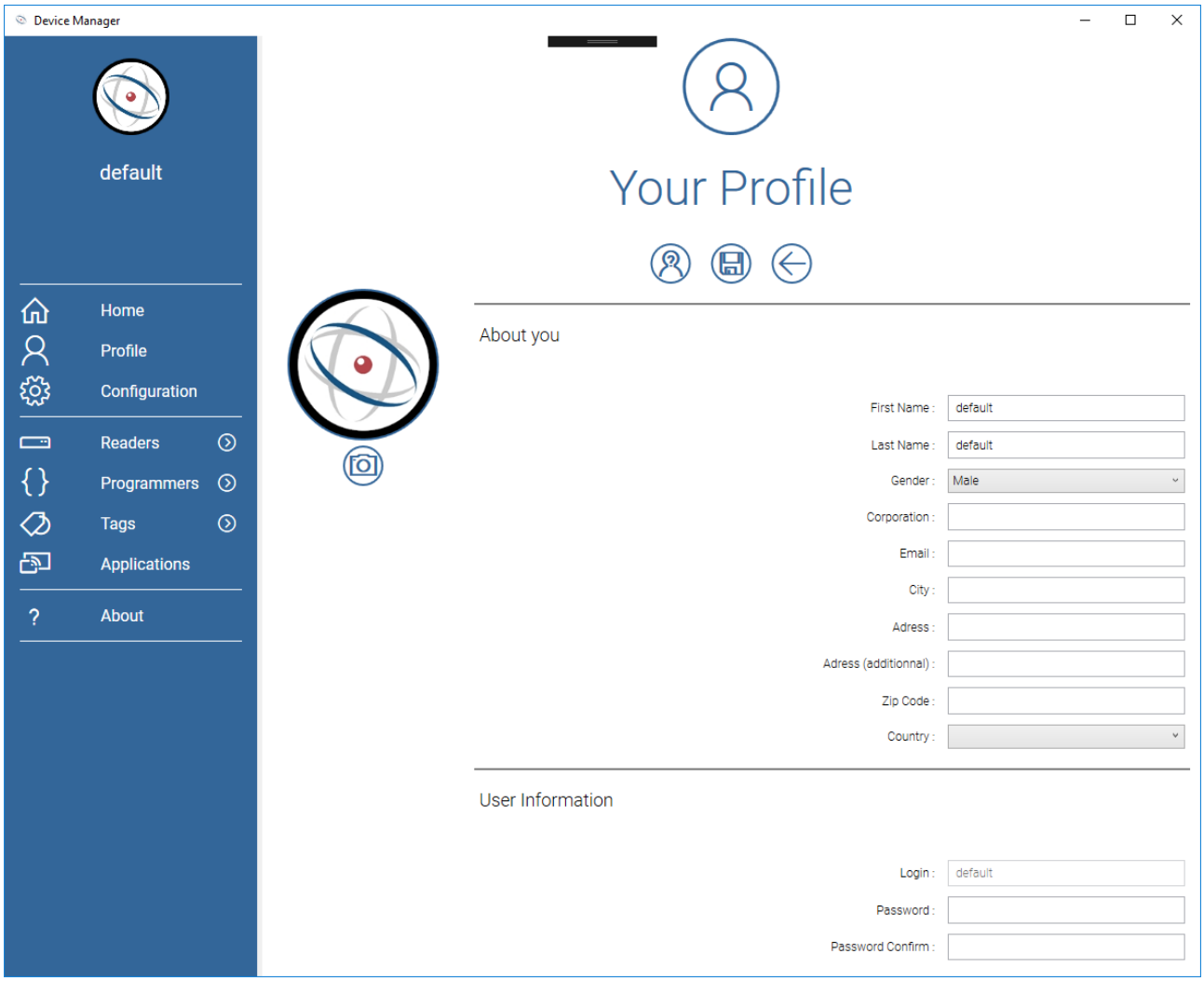


Figure 42 – User profile

Note: there is no need to set a password today; these fields are reserved for a future use.

Use the set of buttons available at the bottom of the page to access profile-related functionalities.

Figure 43 – Profile options

These buttons allow you to:

- 1 : switch to the login window
- 2 : save your parameters
- 3 : return on the previous page

Today, the login window does not allow you to login nor to access the software as an administrator.
Click on "**Back**" (1) to return to previous page.

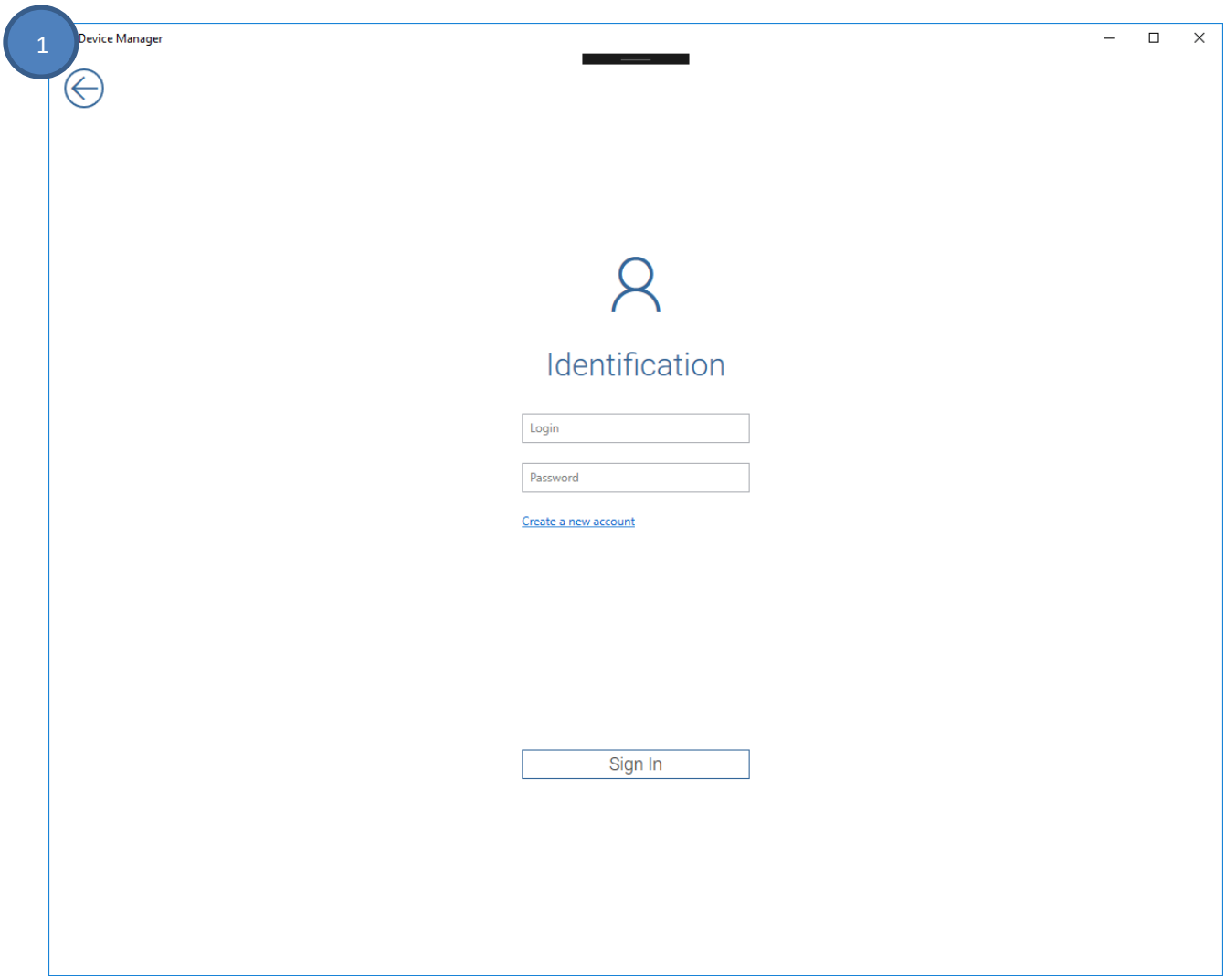


Figure 44 - Login window

You may associate a picture to your profile. Use the camera button to select an image file to associate it to your profile.

Figure 45 - Picture profile

6 SETTINGS

The configuration page contains all configuration items available to users. You will find various sections gathering a set of settings:

- **Dashboard settings**: link to the dashboard allowing you to redesign it from this page.
- **User preferences:** dataset related to the preferences of the user.
- **Device Manager Service**: configuration settings related to the Device Manager service connection.

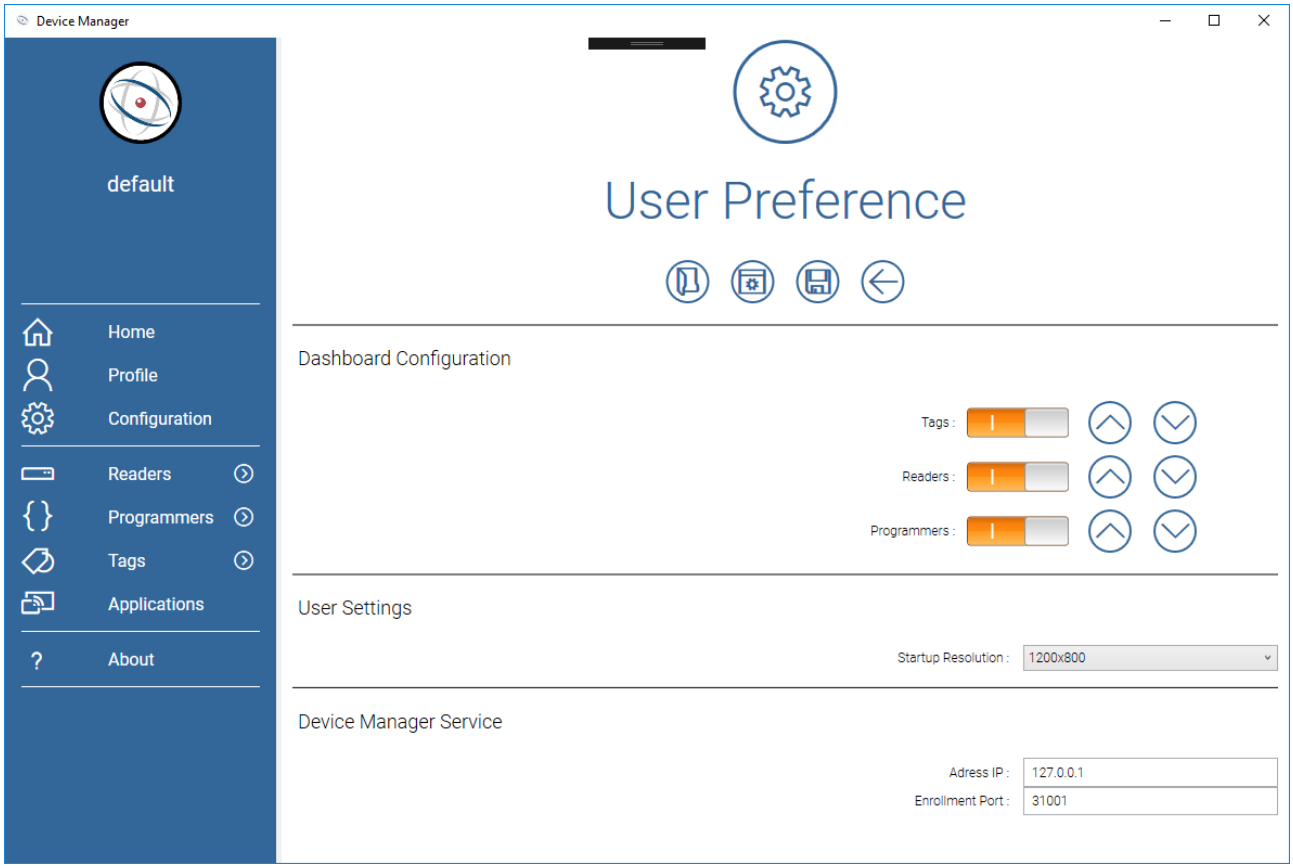


Figure 46 - Control panel

6.1 Controller

Let us consider first the three buttons that are located right below the title on the main page.

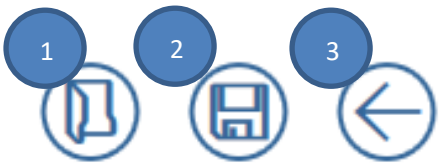


Figure 47 - Main actions available in the control panel

These functionalities allow you to perform the following actions:

- 1 : Open a **Device Manager** environment
- 2 : Save a **Device Manager** environment
- 3 : Return on the previous page

Opening an environment allows to transfer your preferences from a **Device Manager** instance to another.

Click on "**Open an environment**" to open a Windows file selection, and select a ***.dmenv** file.

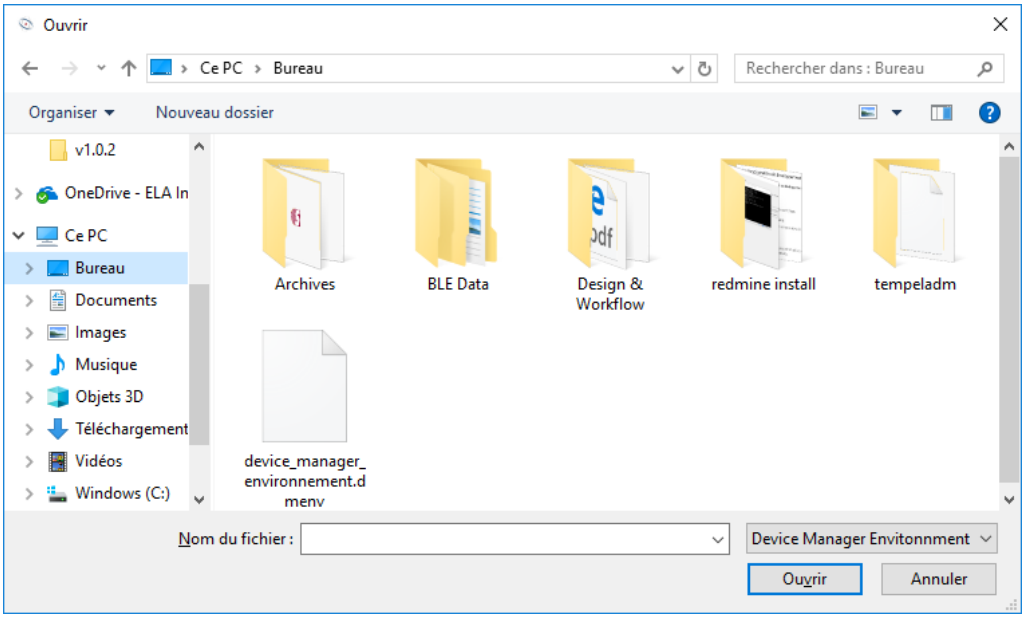


Figure 48 - Open an environment file

Open a***.dmenv** file allows you to load an existing **Device Manager** environment.

Likewise, if you wish to save a **Device Manager** environment, you just have to save the current environment by clicking on "**Save an environment**".

When choosing this option, a file selection window pops up for you to choose the directory where you wish to save the environment.

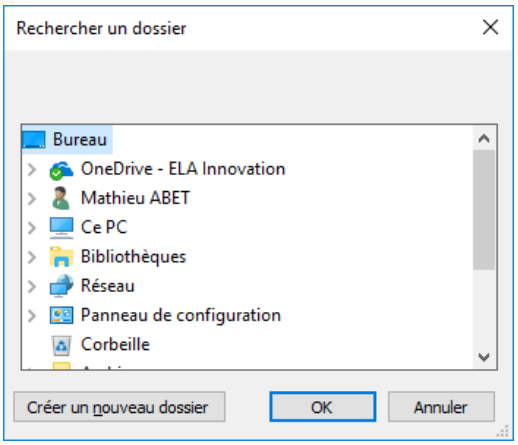


Figure 49 – Environment back-up

6.2 Dashboard configuration section

This section allows (re)configuring the dashboard display. Refer to the **paragraph 4** (Dashboard) for more information on the dashboard.

The layout of the various items situated on this page is directly echoing the visual of the dashboard (available on the home page from the left-hand menu)

Figure 50 - Dashboard controller

In the case of the above configuration, a similar layout is available on the dashboard.

Figure 51 - Dashboard

If you have unselected a feature line on the dashboard, the switch representing your feature automatically turns to OFF on the control panel. (Respectively OFF and ON on the below figure)

Figure 52 - OFF and ON status available for functionalities

This way, dashboard status with the Programmer and Reader function look like the following on the dashboard and control panel.

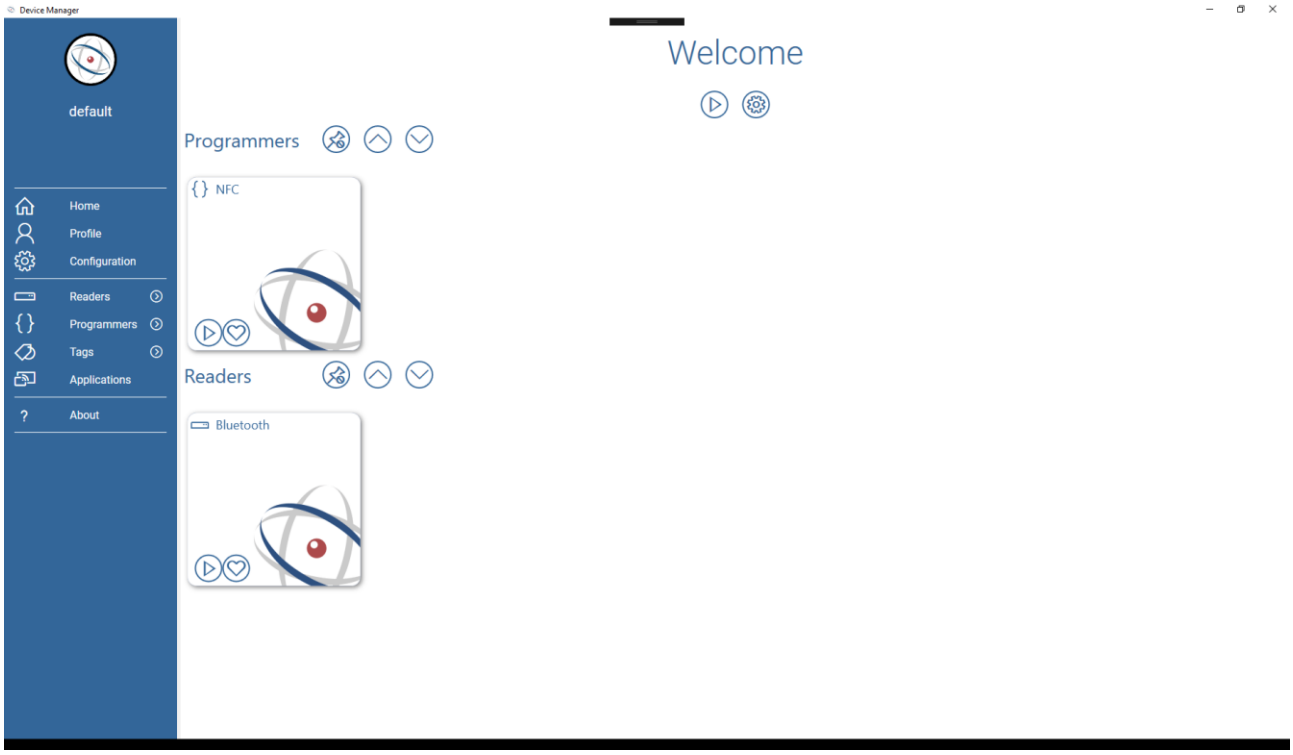


Figure 53 - Dashboard current status

Figure 54 - Linked dashboard configuration

Figure 55 – Description of the functionalities symbols

Symbols representing the different functionalities enable to perform the following actions:

- 1 : Make the function visible / invisible from the dashboard
- 2 : Move the feature line up on the current configuration and on the dashboard
- 3 : Move the feature line down on the current configuration and on the dashboard

6.3 User Preferences Section

You may define your navigation preferences from this section. Those belong to your profile and are effective at each start of a **Device Manager** session.

Figure 56 - User preferences section

Start resolution:

This setting allows you to choose your desired starting up resolution when launching the application. These does apply to the main window, but not to the home screen.

Select your value by using the combo box.

Figure 57 - Selection of a target resolution

This value will be effective at your next login.

6.4 Device Manager Service Section

This section provides a set of **Device Manager Service** related configurations. This applies to following settings:

- Service linked IP address
- Acceptance port for connecting to the service

We strongly recommend not to modify these settings unless you want to manage **Service Device Manager** from a remote location.

Figure 58 – Service configuration

7 LAY OUT AND CONTROLLER

This section includes a brief aside on page layout used to control hardware. These pages usually have the same layout for the following items:

- **Readers** : control panel of readers ELA Innovation and others
- **Programmers** : control panel of ELA programmers Innovation and others
- **Tags** : control panel of ELA tags Innovation and others
- **Applications** : panel of software applications related to the **Device Manager** software suite

7.1 Page lay out

A page always looks like this (example of the Tags panel):

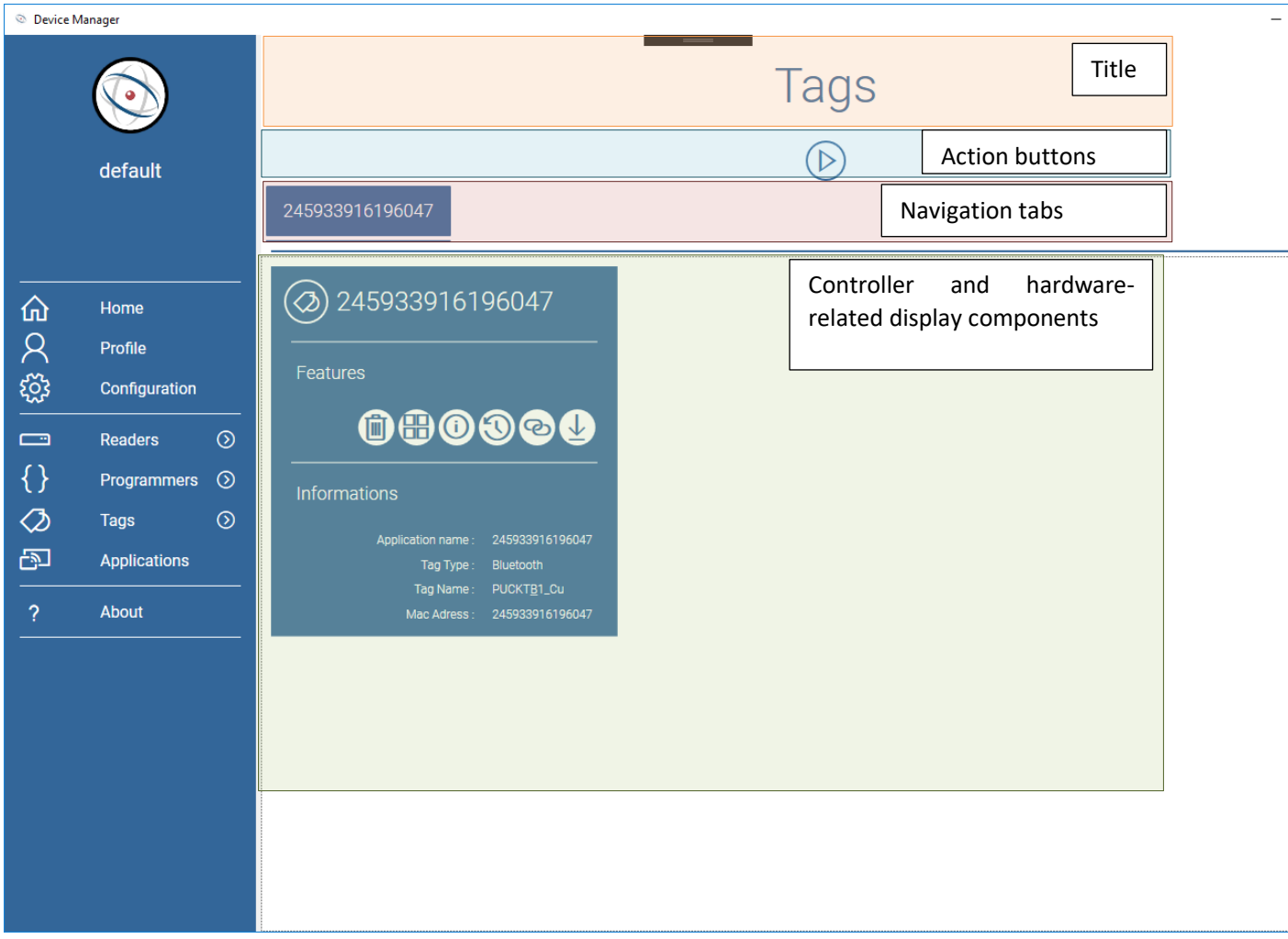


Figure 59 – Classical view of a controller page

As shown on the above figure, the principal interface consists of four different areas:

- Page title
- Page related action buttons

- Navigation tab (each tab represents an instance linked to a component). Some controller contain an "**All**" tab to visualize a set of hardware elements.
- The component controller and its associated visualization tools can be pinned to the page.

To get a better understanding of the role of the page linked to the hardware-related visualization items, let us consider the controller at first.

7.2 Controller description

Example of a controller (tags):

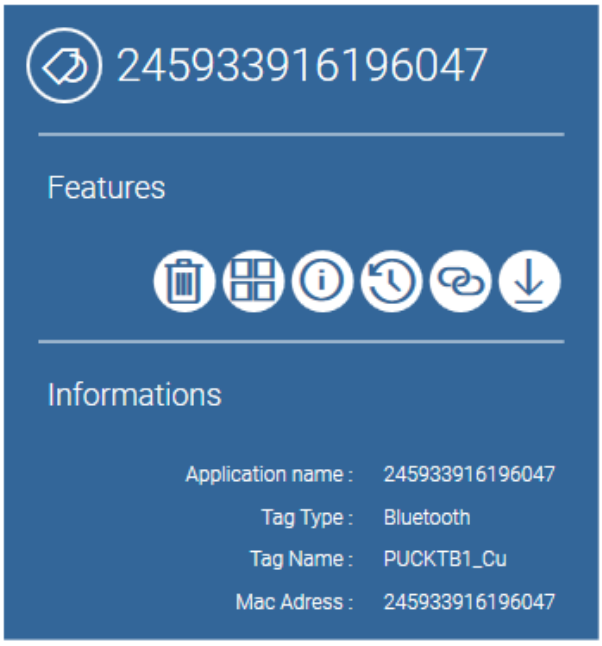
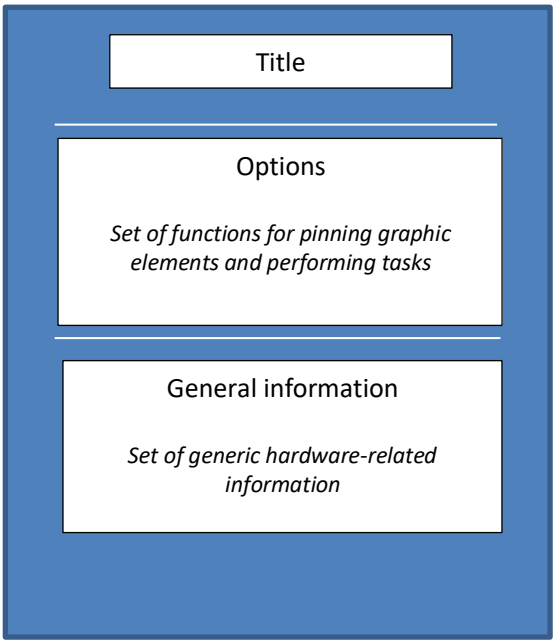


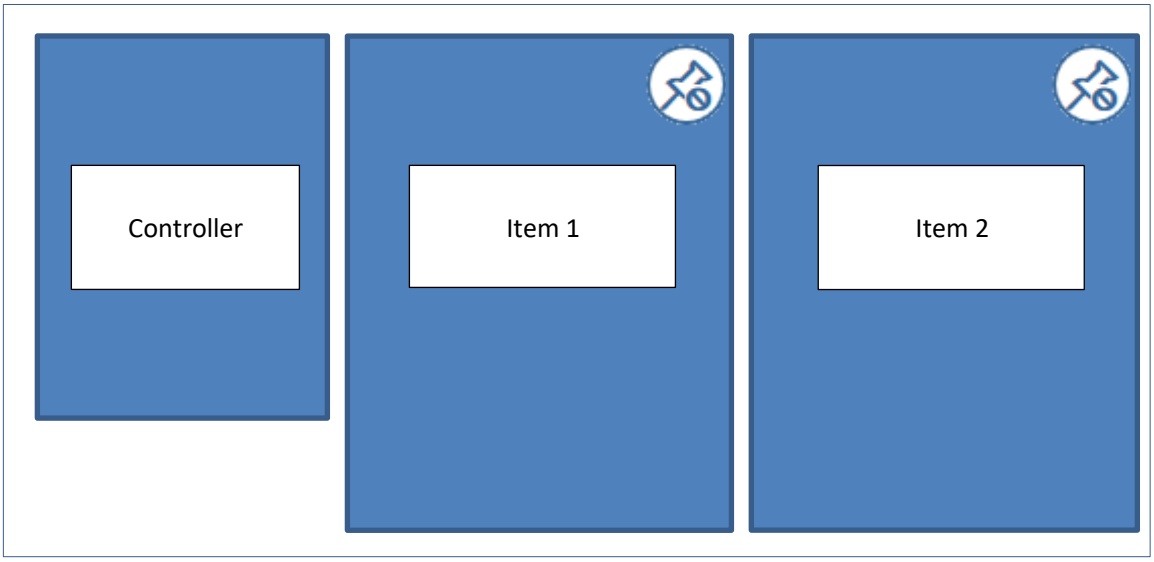
Figure 60 – Tags controller



Explanation diagram by area

7.3 Items

You may pin new graphical elements onto the main page by using the controller related options. Each visual element allows to perform a specific function (it depends on the hardware you are using) and you can pull them away at any time using the "**unpin**" button (looking like a pin) available on the upper right corner of all items.



Schema de disposition sur la page principal

Layout diagram on the main page

8 PROGRAMMERS

This paragraph provides the complete description of our programmer related features. For more information on the compatibles programmers, please refer to **paragraph 1** or feel free to consult our website at the following URL: https://elainnovation.com

8.1 Introduction

If you are not familiar with the initializing of a programmer so far, the programmer-associated page appears with no controller and a brief summary shows you the various actions you may perform from this point on.

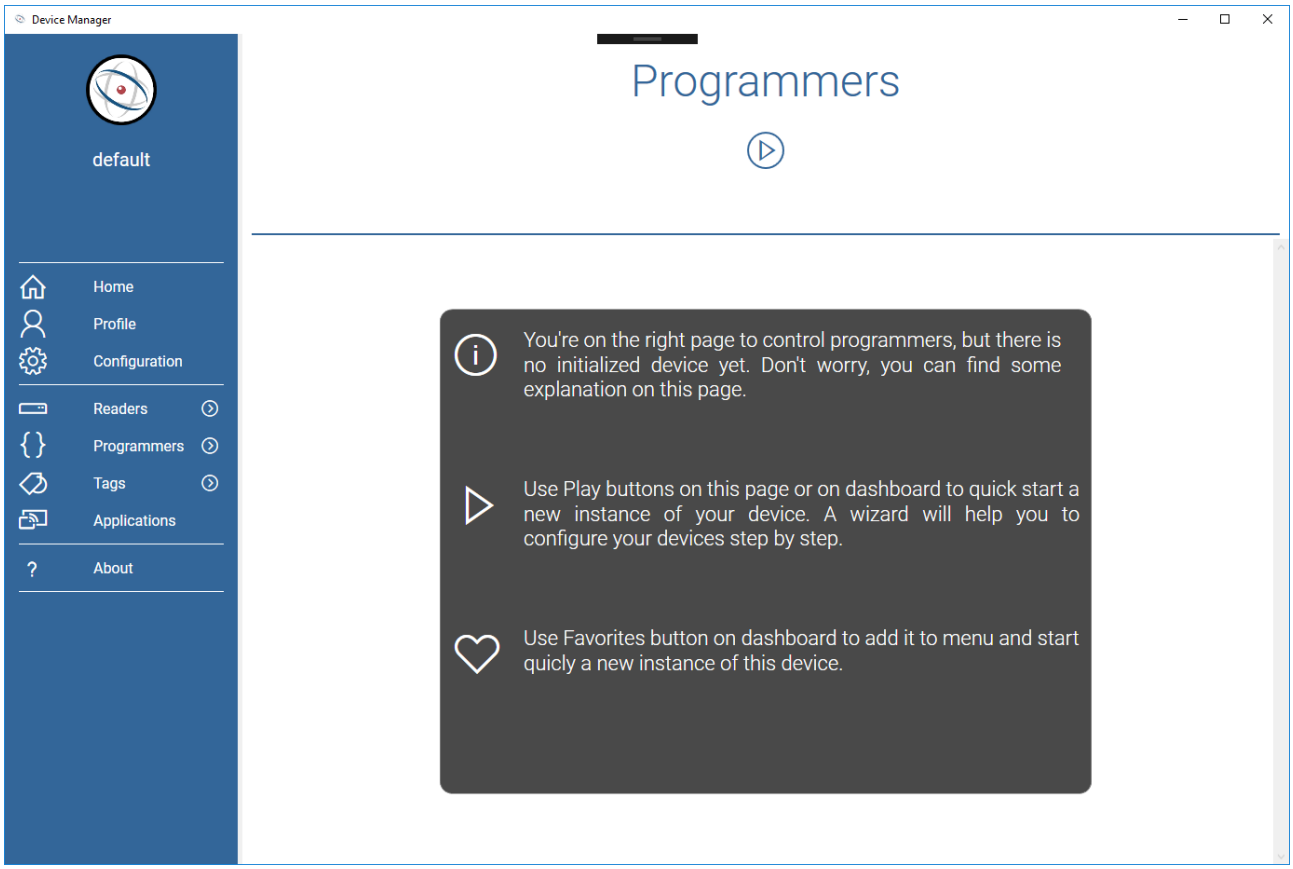


Figure 61 - Programmers panel

Two options exist from this page:

- Start an initialization by pressing on "**Play**" at the top of the screen
- Open the programmer level 2 related menu and start a new instance on an item that you have already added into your favorites.

You may also land on this page if you have set up, an initialization from the dashboard. If you do, a controller linked to a programmer will appear on this page.

8.2 Start a programmer instance

Click on « **Play** » at the top of the page. A new start up wizard pops up and looks like the dashboard.

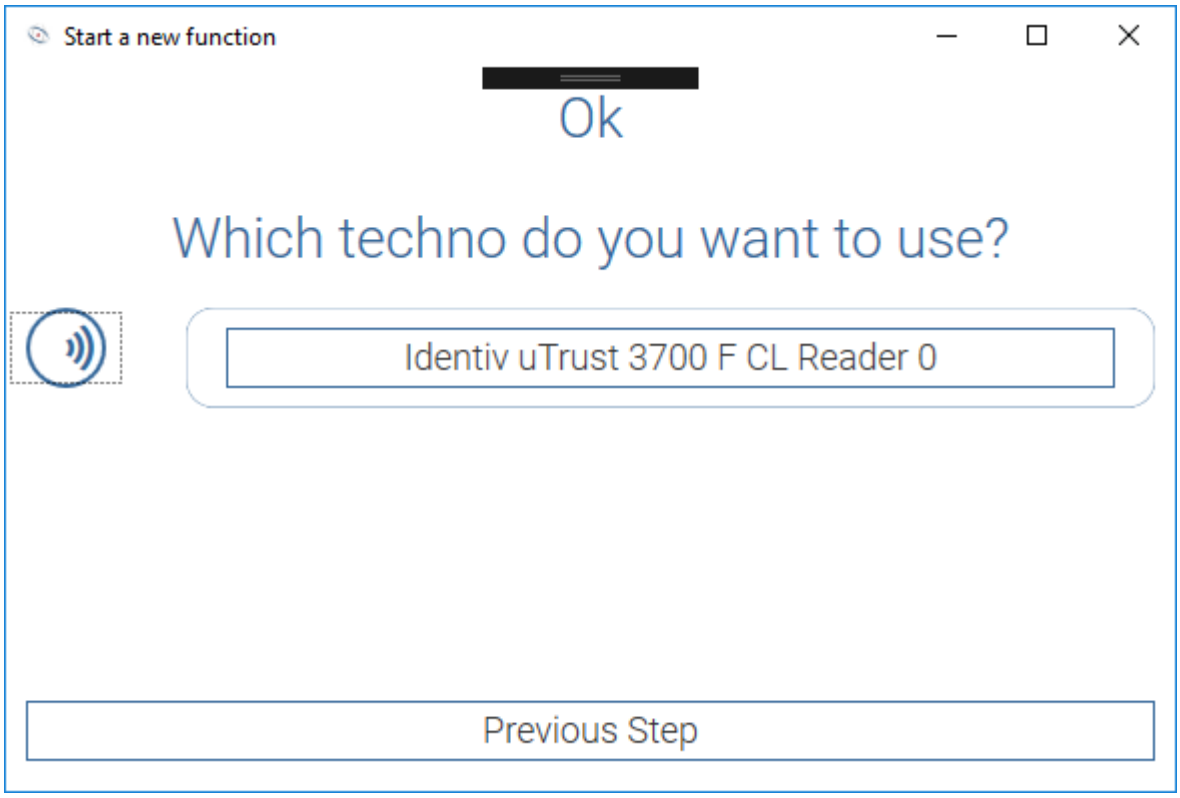


Figure 62 - Start a programmer instance

Choose a related technology within the list of available technologies and then click on the button to connect to a reader. The wizard runs an initialization and a controller is automatically pined on your current page.

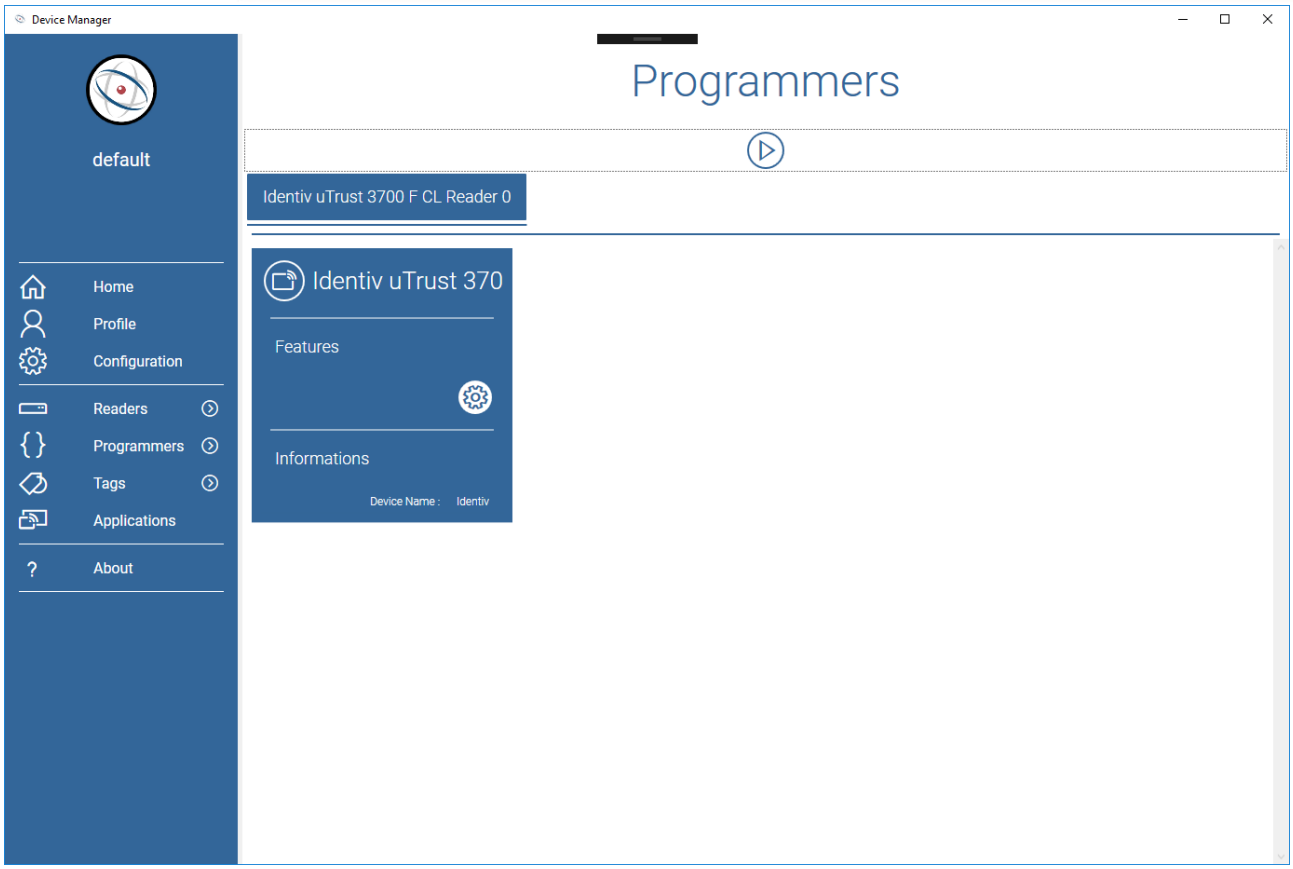


Figure 63 - Initialized programmer controller

8.3 Reading and writing NFC tags

8.3.1 Description

To launch a read and write controller, you need to choose the NFC technology with the help of a programmer assistant, and choose an associated reader from the available readers list. Once you have started the reader, click on "**configuration**" on the controller in order to display the tag configuration.

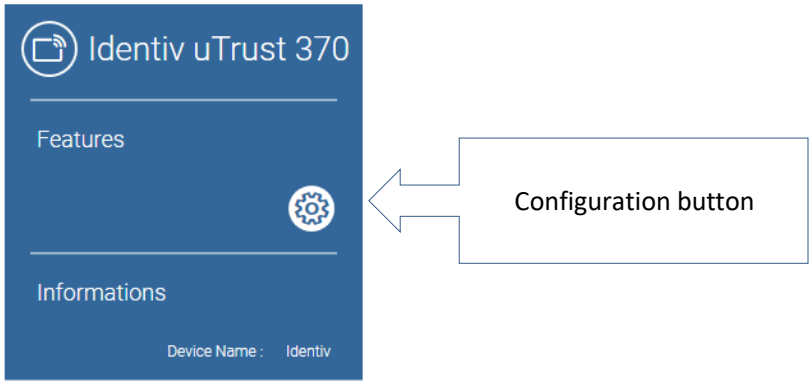


Figure 64 – NFC controller

Caution! You need to position the tag in the NFC field (most NFC readers include a light indicator that changes status and a warning sound to confirm whether a tag has been well placed inside the field)

If not, an error window and the following error message pop up: **12012** and an associated message: ¨The reader cannot read the TAG. Please place your object correctly on the reader¨.

The reading and writing window open and show your tags associated configuration fields. Please find below an example of a configuration window linked to a **v1.0.0 Identification** tag.

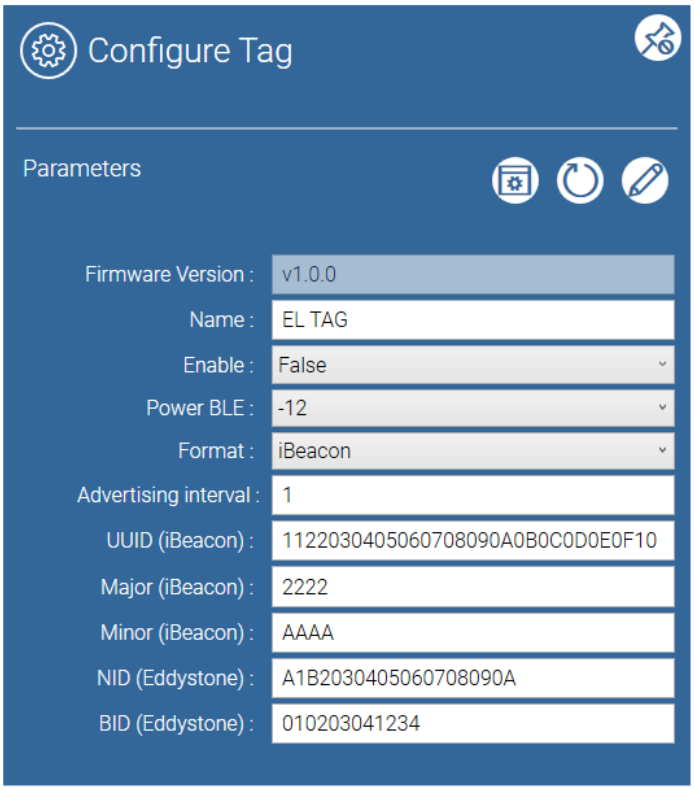


Figure 65 – NFC configuration window

Please check the attached spreadsheet for more information about TAGs and firmware versions. This controller contains three buttons allowing you to perform these actions.

Figure 66 – NFC controller actions

Here are the different actions you may perform:

- 1 : Recover factory settings
- 2 : Read the Tags ' current configuration
- 3 : Write the current configuration within the Tag

8.3.2 Factory settings

The button to display the factory settings allows you to refresh the item to display the updated firmware version. Provided several configurations have been associated to a firmware, a context menu opens below the button, so that you can select the target to associate to the item.

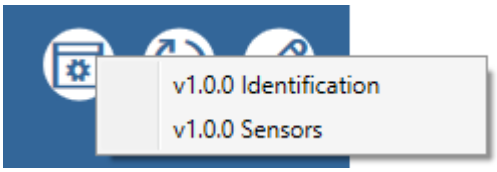


Figure 67 – Firmware related context menu

The above example shows a tag with two different targets. A configuration target is related to the identification, and another one concerns at the sensor part.

Warning: changing the configuration does not allow you to change the tag operation mode. To access and broadcast sensor data, you need a tag called "sensor". Changing the configuration does not allow you to change the dynamic function of the tag.

The **functions of the sensor are hardware related and depends on the associated firmware**, but not configuration related.

Once you have selected the configuration option, the items shown below are automatically refreshed with default values.

8.3.3 Tag reading

To read a TAG via the NFC, just place the TAG on the reader and to click on "Read" as represented by the pictogram in the below figure.

Figure 68 – NFC Tag reading

Once reading started, a circular progress bar shows the remaining time the application needs to read the data (figure 69).

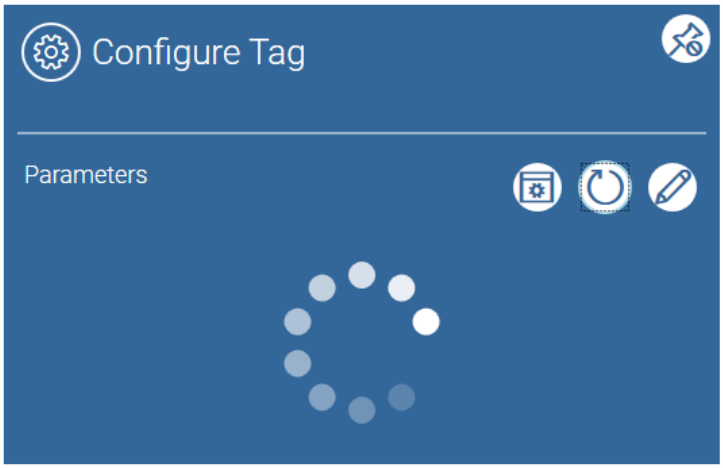


Figure 69 – Data reading status

The item automatically refreshes to include all tag related data.

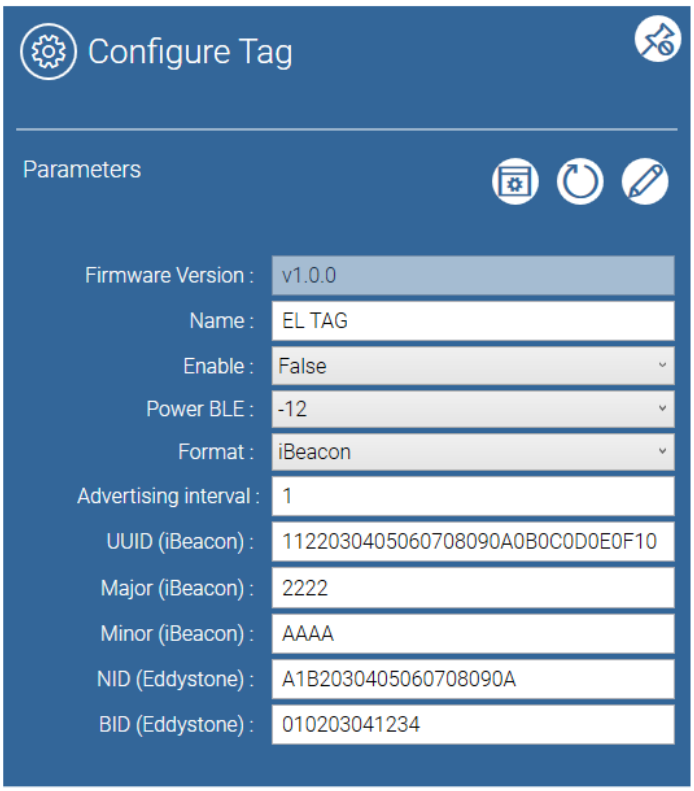


Figure 70 – Read and refreshed data

The information appears directly in the interface depending on the read tag. The different available fields appear no matter the firmware version. The above data presentation shows an identification sensor in version 1.0.0.
Check the user preferences in order to change settings. Once you have completed your changes, click on "**Write**" to write the settings inside of the tag.

8.3.4 Writing settings using NFC

It is important to have read the tag before modifying and writing the settings. **Please check the version compatibility** before writing. For example, a read and modified version of the firmware 1.0.0. has to be written in a 1.0.0 tag. If you write in a tag with a different version, we cannot guarantee a proper functioning of our software.

Figure 71 - ¨Write a tag¨ button

Provided one of the input parameters you have entered is invalid, a pop-up window appears to inform you about the mistake.

Figure 72 - Input parameters are invalid

Once the tag has been written, a pop up window notifies you that the information have well saved:

Figure 73 - Update configuration popup

If an error occurs whilst writing, an error pop up displays an error message. You may find the following error messages:

- **12014** : a communication error has occurred
- **12008** : reading/writing has been interrupted

8.3.5 Additional actions

You may unpin the component at any time by clicking on ¨**unpin**¨, in order to delete the item from the page.

Figure 74 – Unpin button

9 READERS

This paragraph includes the description of all our readers' related functionalities. For more details on these compatible readers, please check paragraph 1 or feel free to consult our website at https://elainnovation.com

9.1 Introduction

If you are not familiar with the initializing of a reader, the reader-associated page shows no controller and a slight summary provides the several options available from this point on.

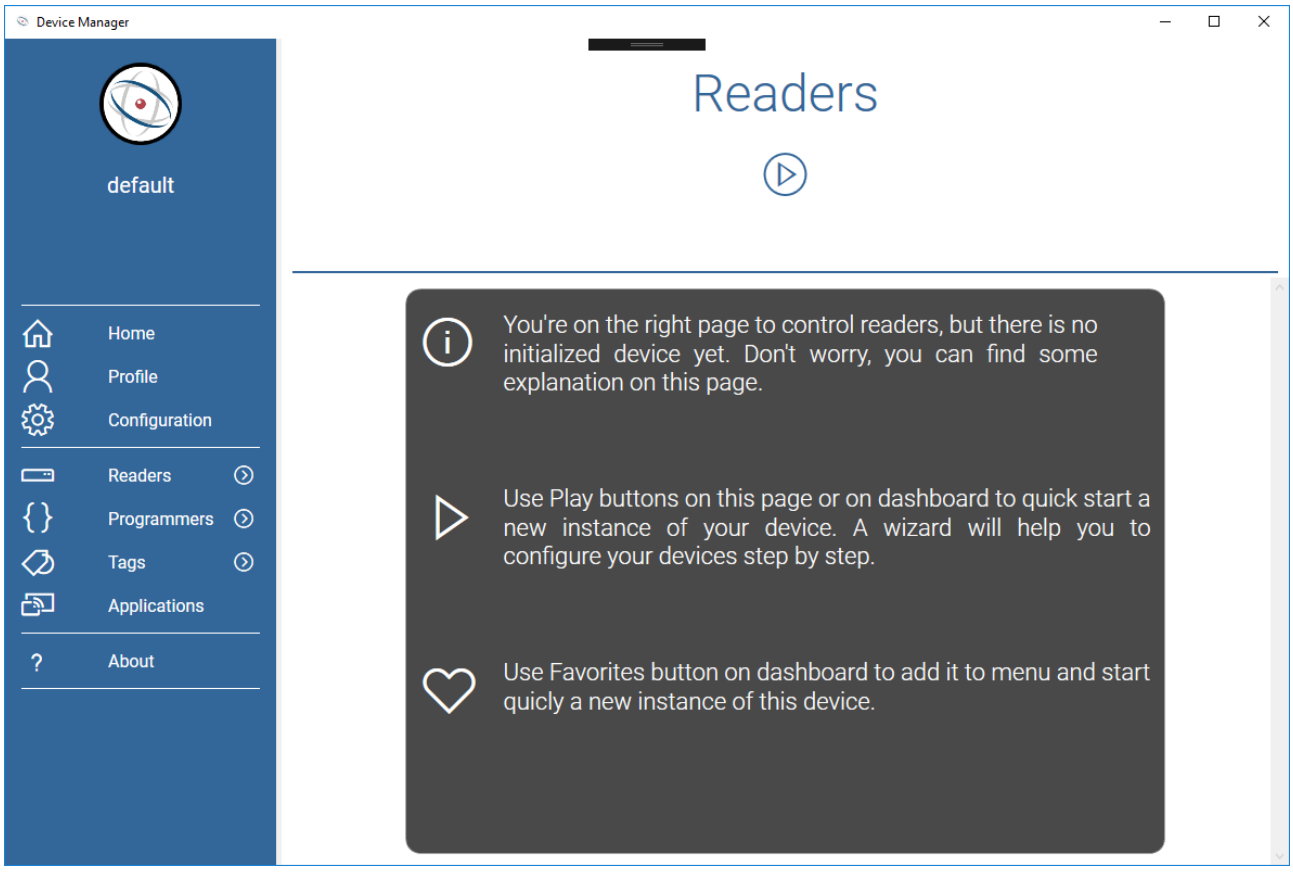


Figure 75 – Readers panel

From this page on, both of the following options are available:

- Start an initialization by clicking on "Play" at the top of the screen
- Open the reader related level 2 menu and start a new instance on an element that you have already added in your favorites.

You also may land on this page if you have chosen an initialization from the dashboard. If you do, a reader related controller appears on this page.

9.2 Start a reader instance

Click on « **Play** » at the top of the page. A new start up wizard similar to the one of the dashboard pops up.

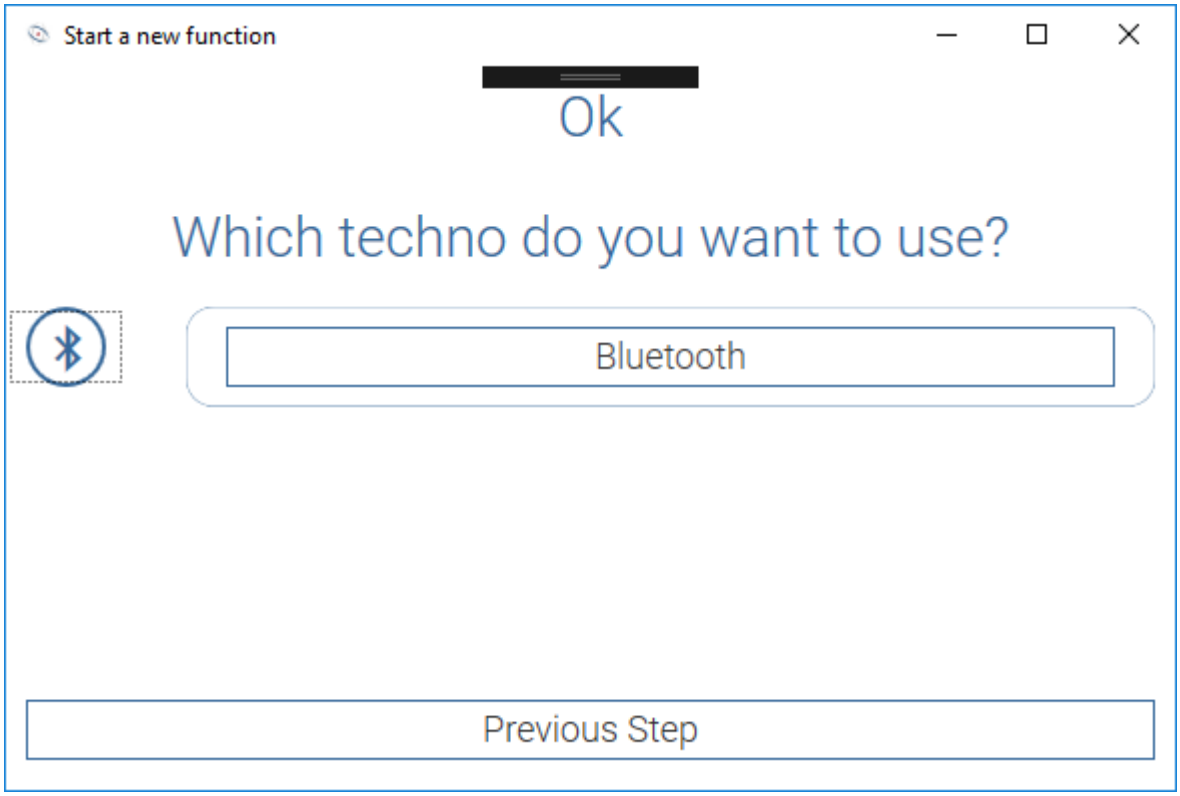


Figure 76 – Start a reader instance

Choose the desired technology from the list, and then click on the button to link it to a reader. The wizard runs an initialization and the controller is automatically pined onto your current page.

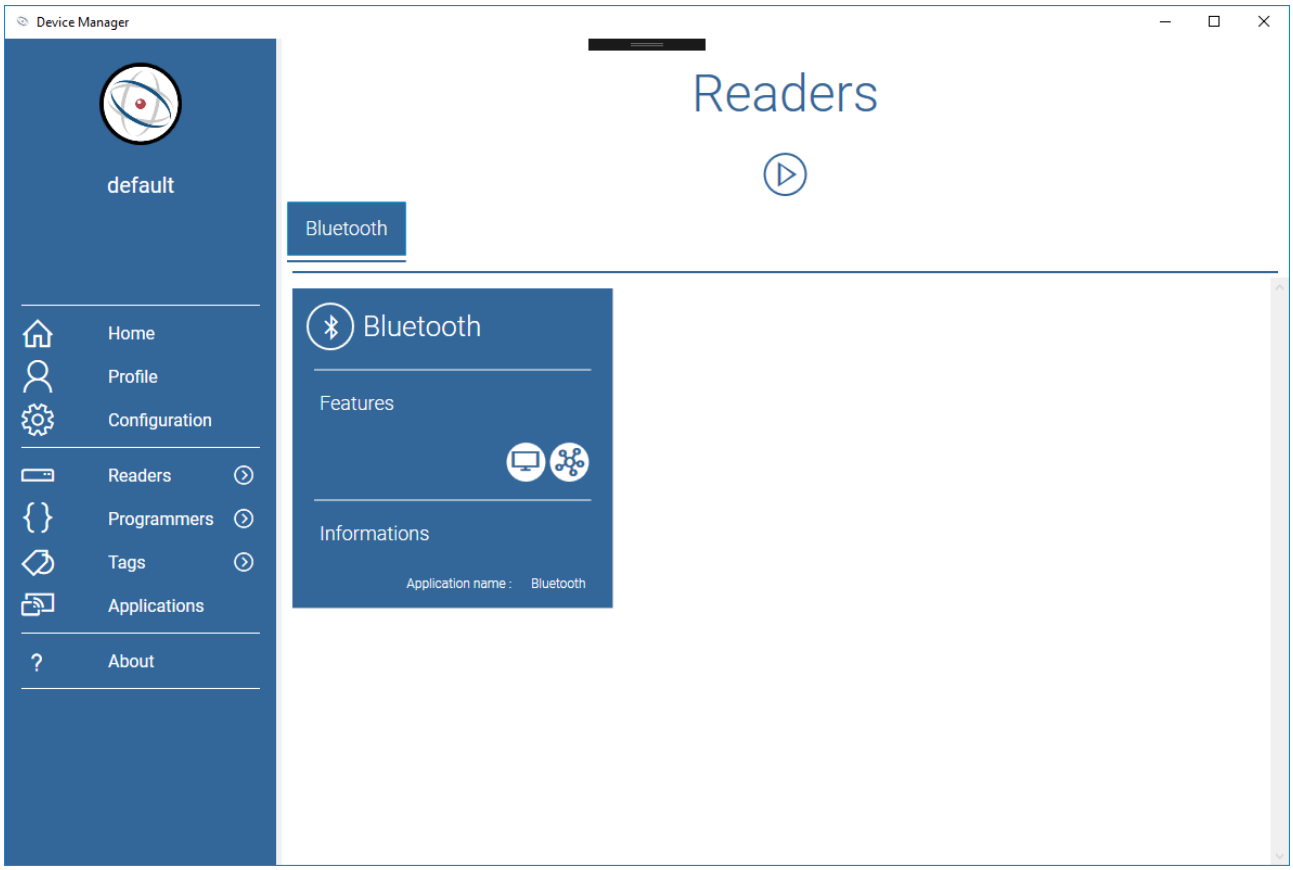


Figure 77 - Controller of initialized reader

9.3 Bluetooth readers

Bluetooth readers display all relevant Bluetooth Advertising information. It might be displayed as connected object scanners, or as consoles.
This paragraph provides all useful information about Bluetooth readers.

Figure 78 – Bluetooth related options

9.3.1 Console mode

The console mode allows to display the values (and interpret them within a line tab) received from the Advertising section directly inside of a console.

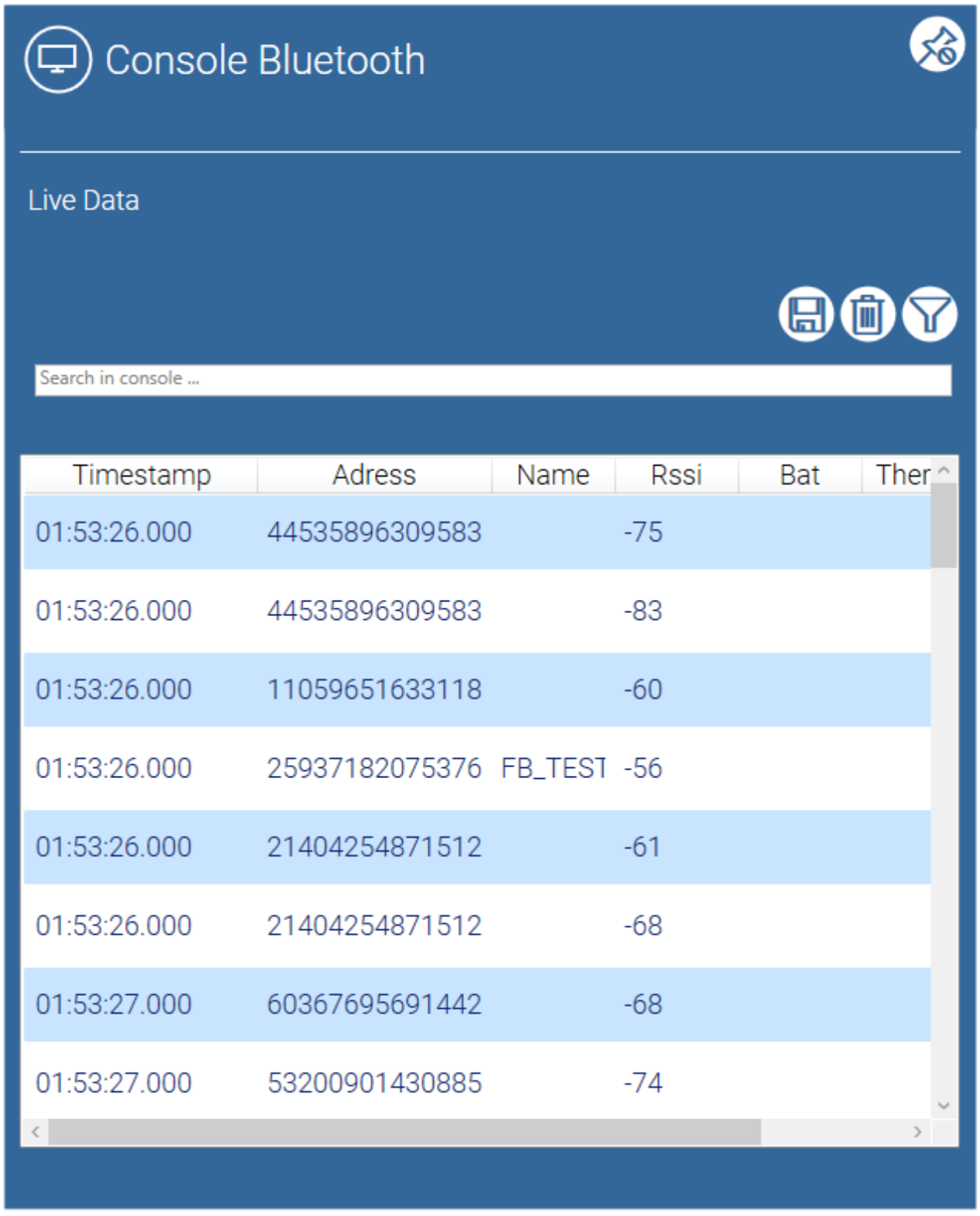


Figure 79 – Advertising display in console mode

Some additional tools are available to you for data search, such as:

- Search bar to search for passed Advertising data within the table lines.
- A CSV export of the current console
- A console reset to erase all current data
- A filter to choose which columns you wish to display in the console

These tools enable you to filter, search for and export values from the Bluetooth Advertising data.

9.3.1.1 Apply filters

Use the search bar to filter the items displayed in the console.

Figure 80 – Search bar

The search method enables you to search for your character string and to type it manually in all rows and columns displayed on the screen.

For example, if you enter the character string “56” in the console, the algorithm automatically searches for values in all fields (Transit time, address, RSSI) where the key word “56” appears, in order to display it within the console.

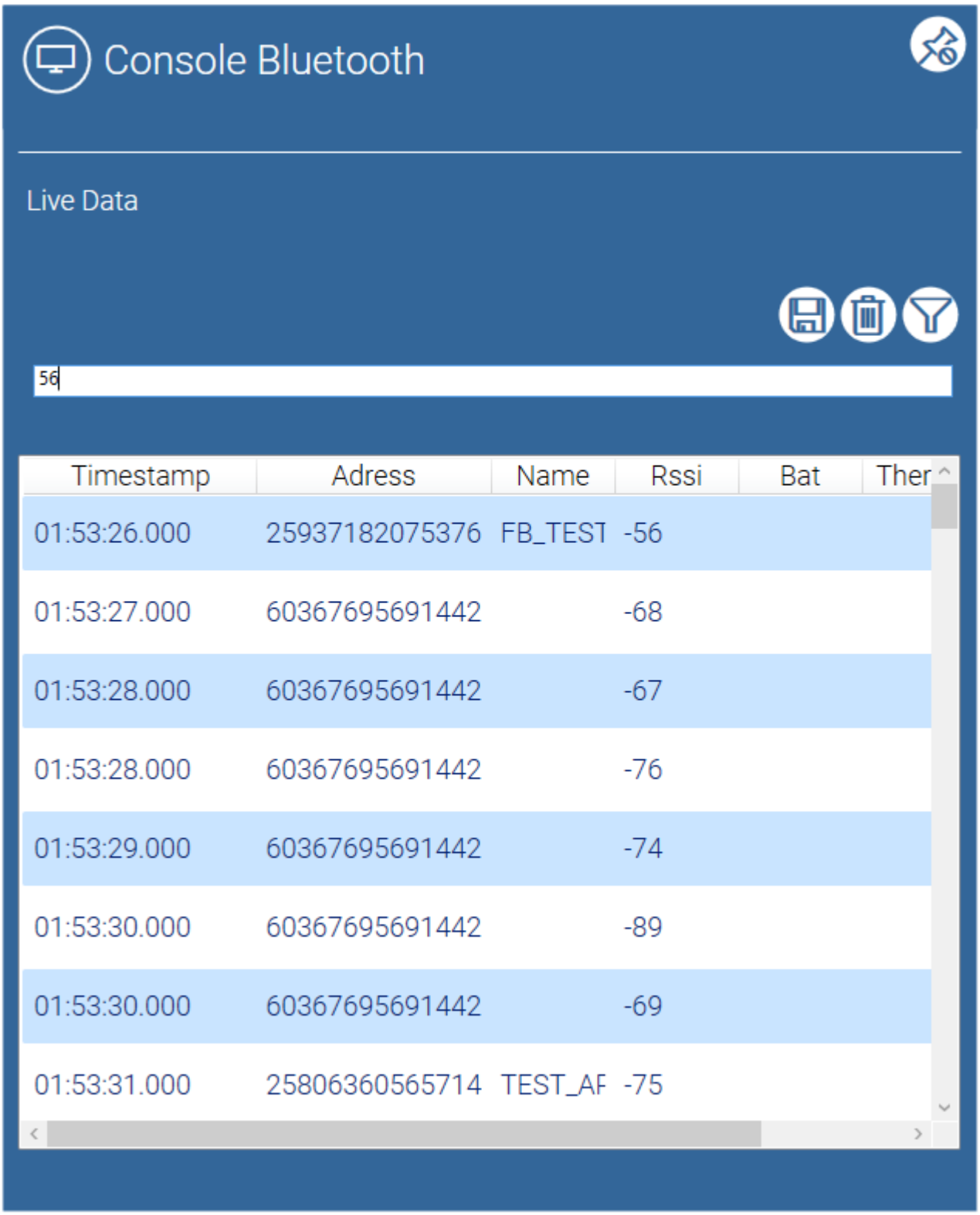


Figure 81 - **Search for the value "56"**

Once the search bar is active, the console stops refreshing (however, data is still being saved and will be displayed as soon as the search bar is empty again).

It is an integration choice that allows giving the user a fixed snapshot of data when entering a search parameter.

Note: if you are looking for a particular tag, we recommend you to filter by tag name (if provided at configuration) or by mac address (tag-specific).

The below example shows a search performed on the « **ELA_ID** » tag.

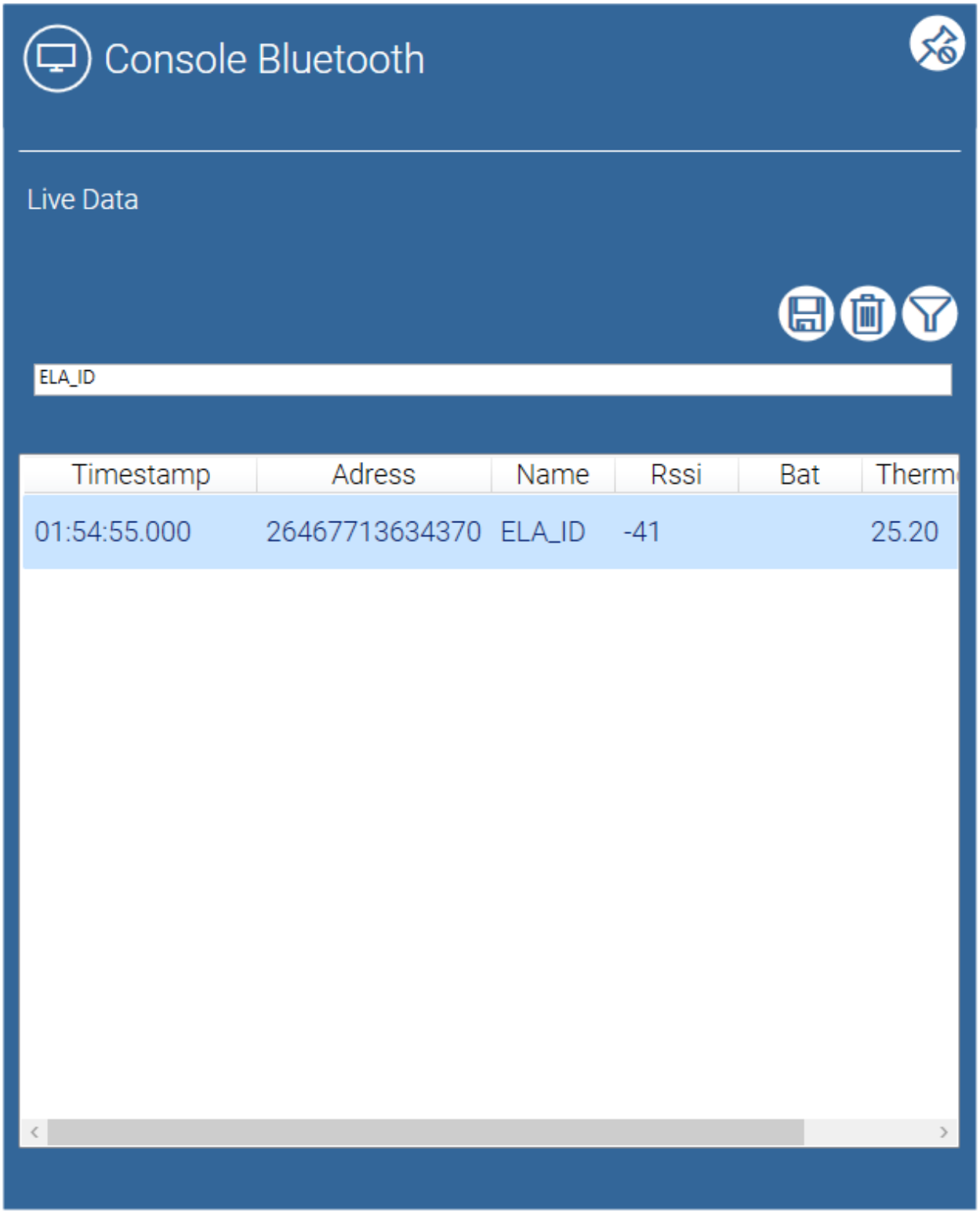


Figure 82 – Searching for ELA_ID Tag

9.3.1.2 Export to a .csv file

You may access CSV file export directly from the console options by clicking on the button looking like a floppy.

Figure 83 – csv export

Just click on the button and choose the export directory thanks to the Windows file window that appears on the screen. The export only applies to the **console´s current data**.

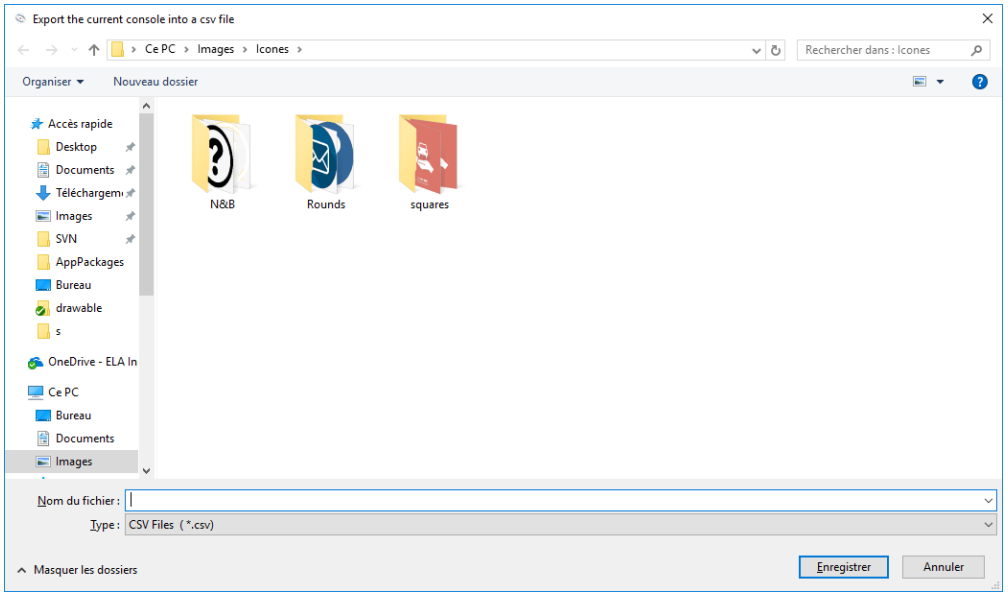


Figure 84 - CSV file export window

Once the export is complete, you can edit file content by using a text editing software such as NotePad, NotePad ++.

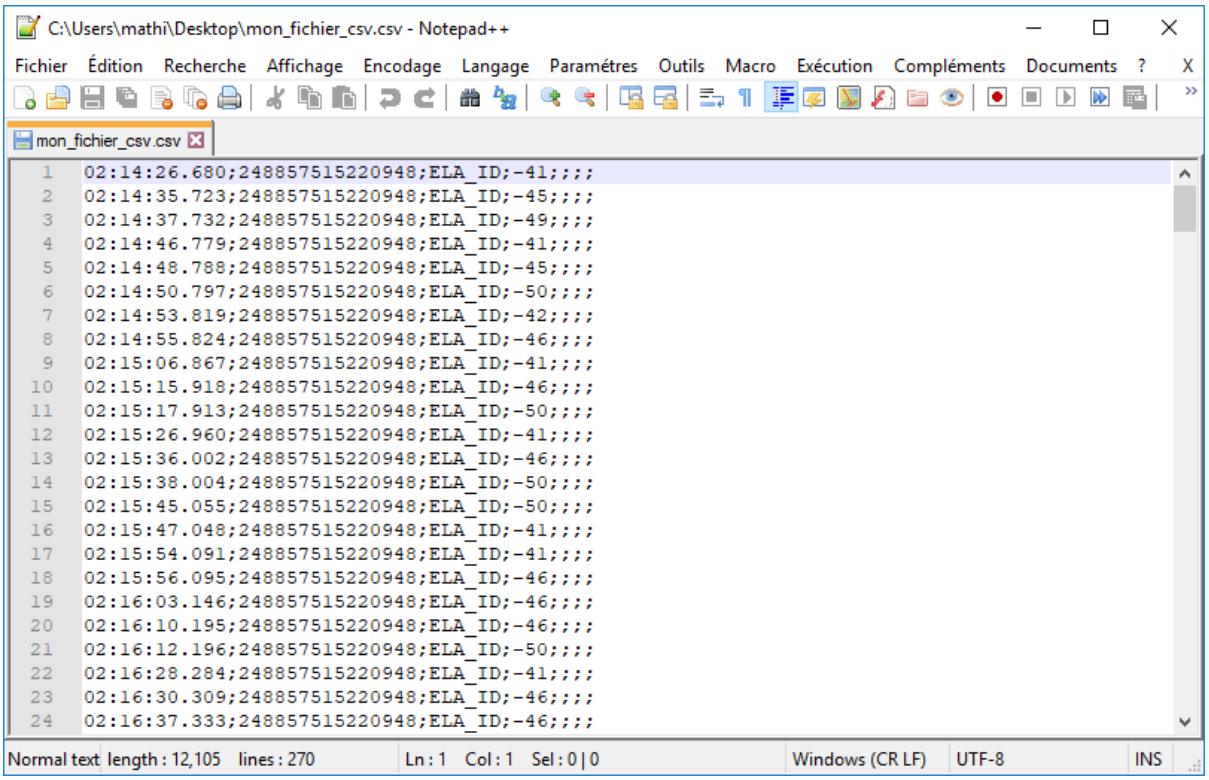


Figure 85 - Editing a CSV file with a text editing software

You may also use a spreadsheet software to open the file and access data. Use ¨; ¨ as decimal separator character of the file as well as the conversion tools of your spreadsheet to transform data rows into columns.

Example: in Excel, Data tab -> Convert

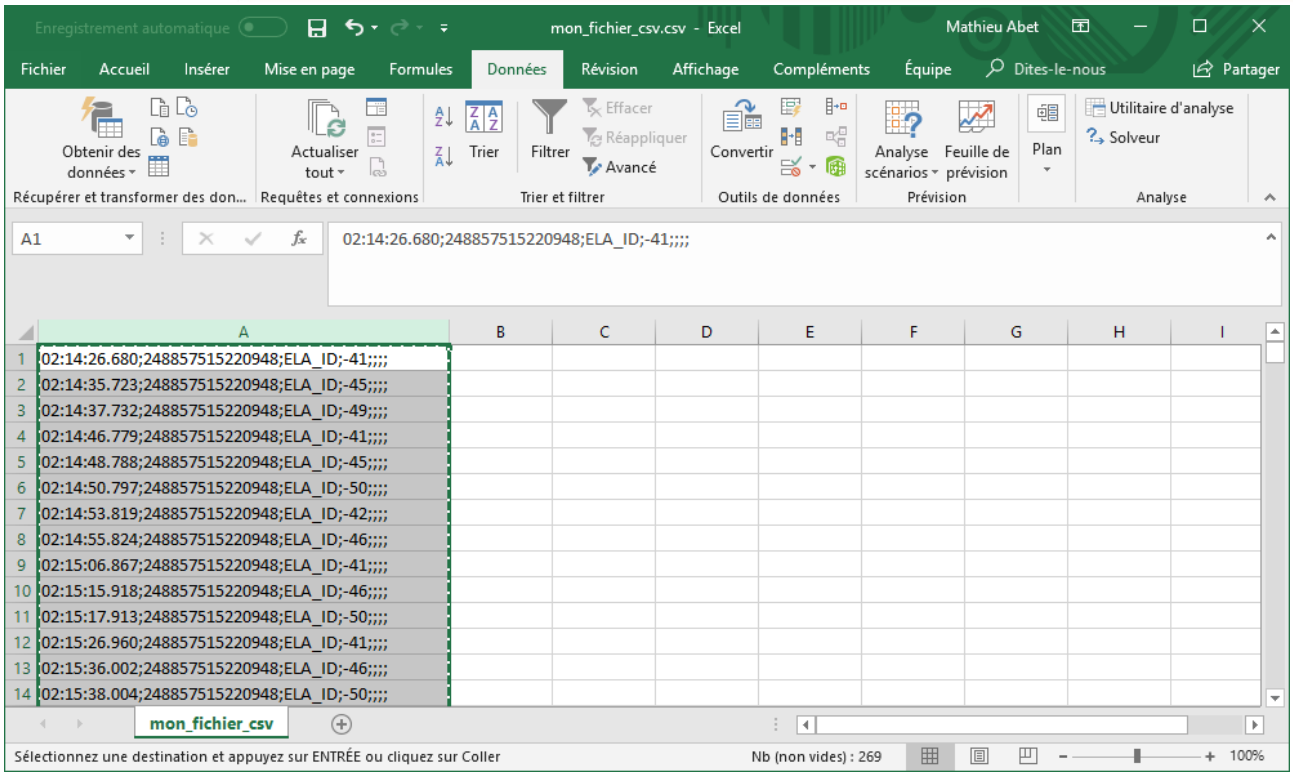


Figure 86 - CSV file in Excel

9.3.1.3 Clearing the console

The « Clear » button of the console allows erasing all data from the console at once.

Figure 87 - "Clear" button of the console

Beware, there is no warning message unlike in other features, as such data may be retrieved easily.

9.3.1.4 Filtering the console

Filtering the console allows you to hide or display some of the columns of the console.

Figure 88 - "Filter" button of the console

Clicking on this button triggers the opening of a context menu including a list of all available filters. You may access all columns and filter them through this menu.

The displayed columns appear within the menu as checked, unlike hidden columns that are unselected.

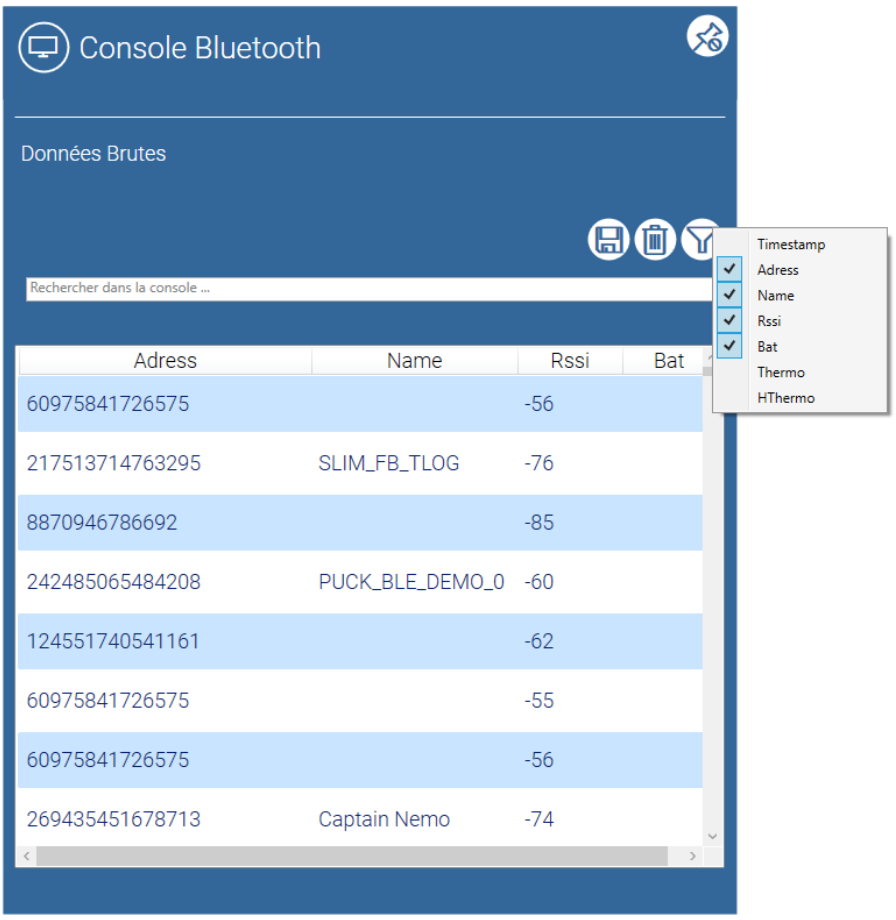


Figure 89 – context menu and column status

The filtering context menu does appear on the above figure. Please note that the displayed columns are checked within the menu:

- Address
- Name
- RSSI
- Battery

Non-checked columns do not appear:

- Transit time
- Thermo
- HThermo

9.3.2 Connected device scanner

The connected device scanner enables you to scan all connected devices available in Low Energy Bluetooth mode by using your Bluetooth dongle.

To access the connected objects scanner directly accessible via the Bluetooth reader controller, just click on "**Device**" on the controller.

Figure 90 – Connected device scanner

Click on the button to display a window showing all Low Energy Bluetooth devices that have been detected by the Dongle.

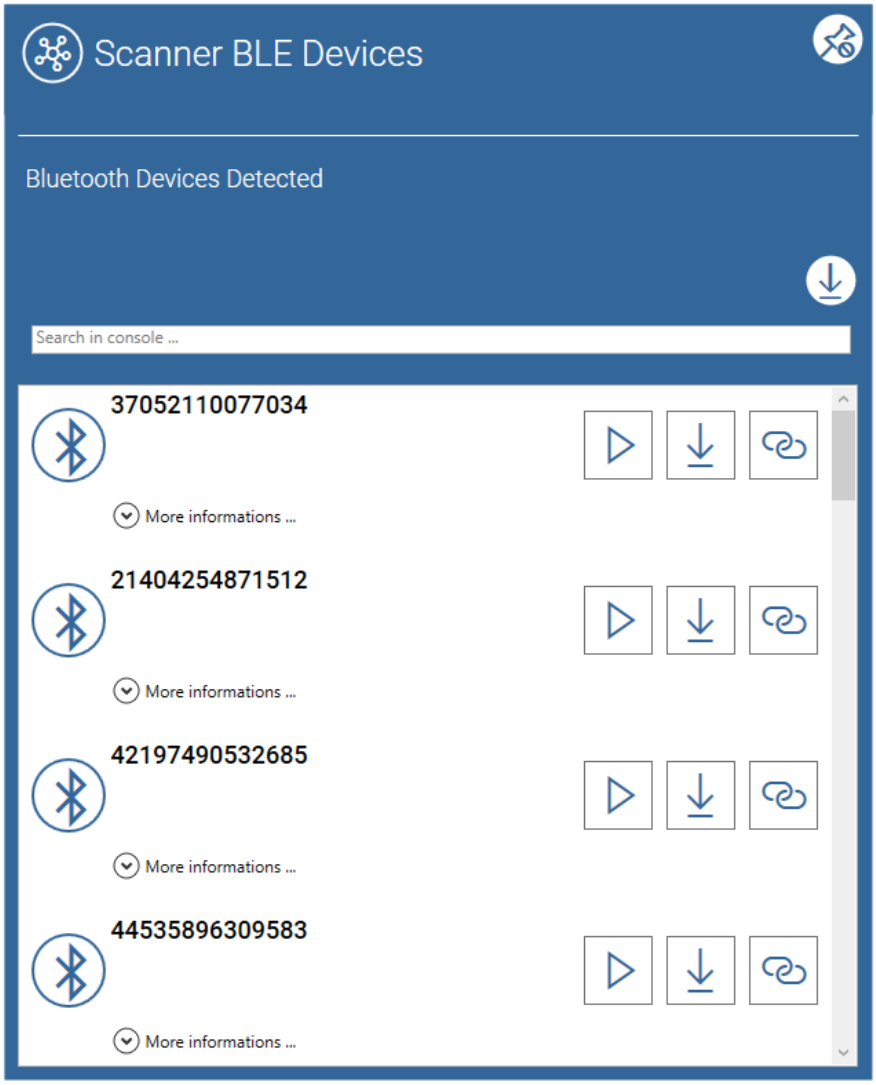


Figure 91 – opening the connected device scanner

This functionality looks like a list displaying various data in order to identify the devices found by the scanner. The main display contains the following information:

- A Bluetooth pictogram
- The Low Energy Bluetooth device Mac address
- The defined connected device name
- A « **More information** » button allowing to display additional information from the Low energy Bluetooth Advertising mode

Controller data:

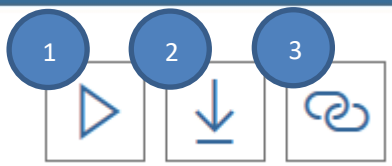


Figure 92 – IoT scanner controller

- 1 : A « **Play** » button to start
- 2 : A « **Download** » button to download all logger data saved within a ELA Innovation tag
- 3 : A « **Log in** » button to log in via the Low Energy Bluetooth connected mode

You may also download a set of logger data saved in the ELA Innovation tags using the "Download all" function located at the top of the IoT scanner.

Figure 93 – connected device controller scanner

9.3.2.1 Download all

The « **Download all** » function allows you to download a set of "data logger" file from ELA Innovation tags. To do so, you need to install the **Device Manager Connector** application at first. If you have not gone through this step yet, please refer to the paragraph 2 (**Device Manager Connector** installation).

Provided you have not installed the application so far, a window with a link to the Windows Store opens.

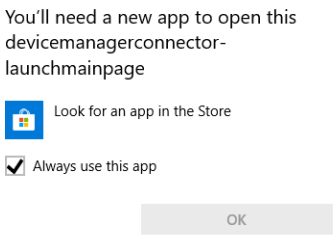


Figure 94 – connected mode functionalities on a non-installed application

After starting the application, a list appears showing a set of BLE devices the application will attempt to recover the Data logger data from.

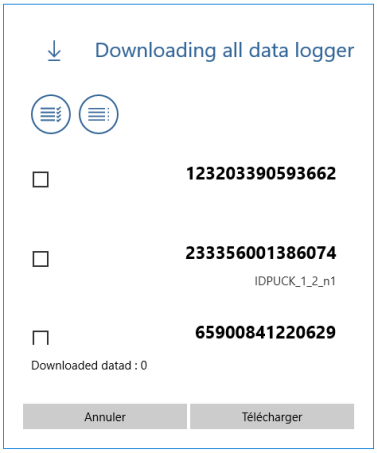


Figure 95 - data logger multiple download window

This window includes various tools for you to make your selection before starting the download. Two control buttons allow you to perform the following actions:

Figure 96 - "Download All" selection controller

- 1 : select all items of the list
- 2 : unselect all items of the list

Alternatively, to check or uncheck a single piece of data from the list by using the tick boxes.

Figure 97 – Select items to download

After making your selection, you may either start downloading by clicking on "**Download**", or cancel the operation by clicking on "**Cancel**".
Choosing "Download" triggers the opening of a Windows window asking you to choose a file to import.

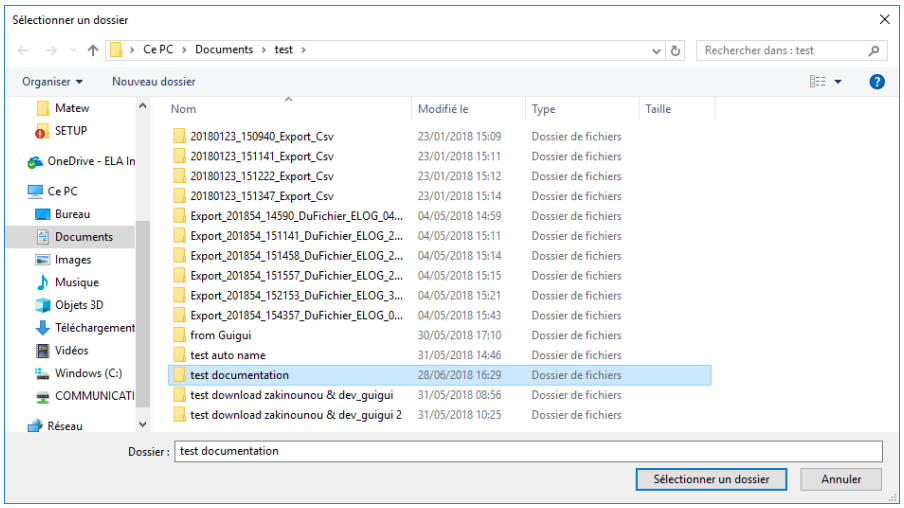


Figure 98 – Choosing a file before multiple data import

Create a new or select an existing file. Once done, click on "**Select a file**" in order to start the download.

The automatic download starts: just wait for until the end of the execution to r your set of files in the directory you have chosen previously.

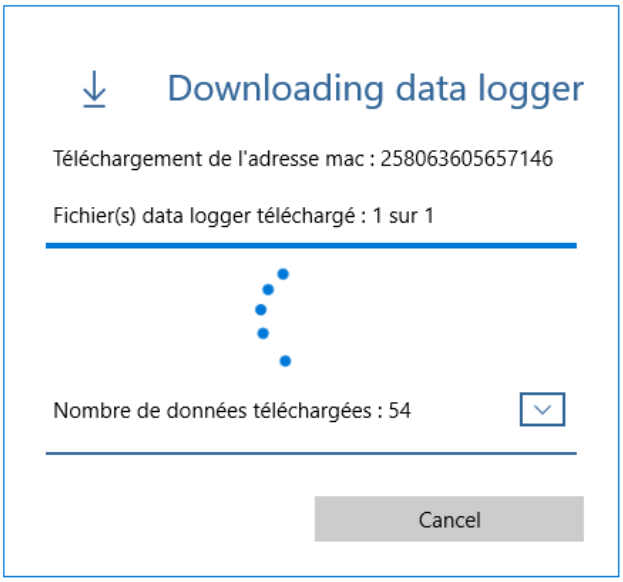


Figure 99 – Multiple download automatic wizard

To see the set of data in progress of download, click on the expansion button located next to the "**Amount of downloaded data**" label.

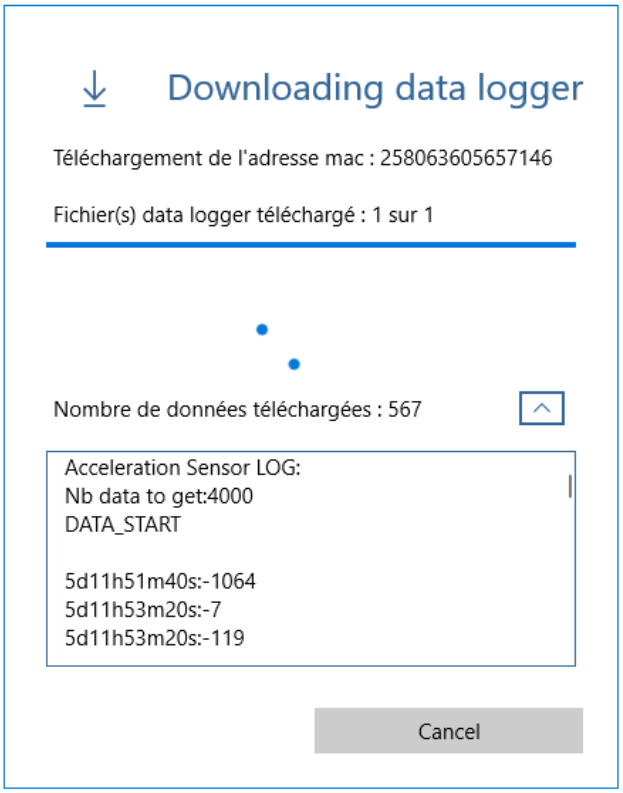


Figure 100 – opening the console

Your files are now available in the download directory you have previously selected.

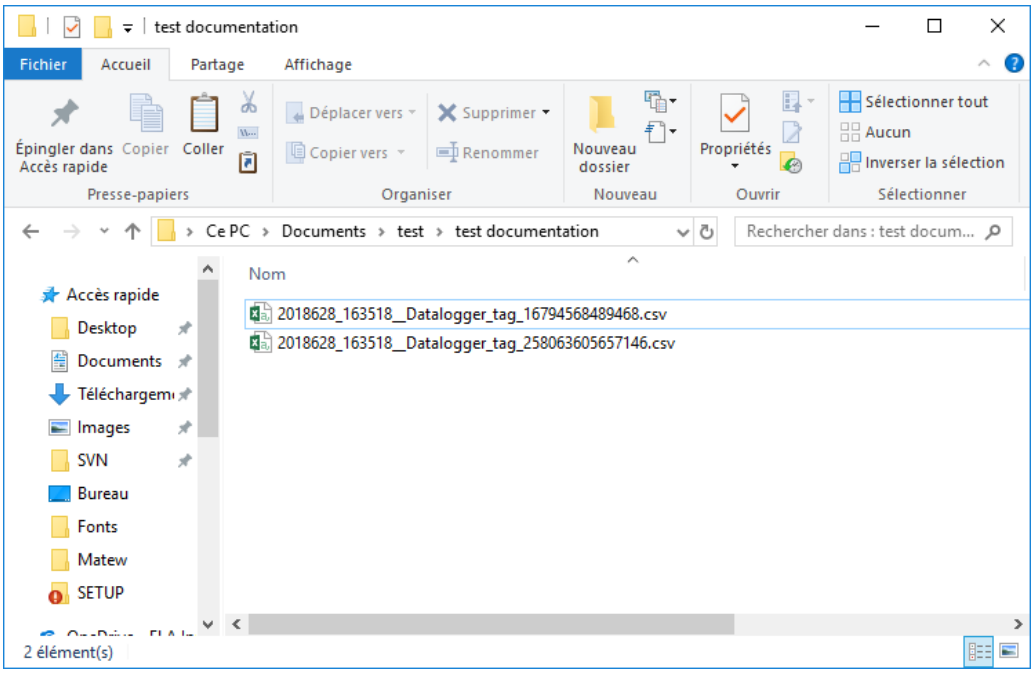


Figure 101 – Icon of a folder containing your multiple records

File naming is automatic and matches to the following format:

<Timestamping_backup>_Datalogger_tag_<Mac_Address>.csv

Registration files are CSV files which format is as follows:

TIMESTAMPING ; VALUE

Timestamp is encoded by days, hours, minutes, and seconds. It appears as a character string in the file, corresponding to:

- **d** : amount of days (incremented counter)
- **h** : amount of hours (incremented counter that automatically loops back to 24)
- **m** : amount of minutes (incremented counter that automatically loops back to 60)
- **s** : amount of seconds (incremented counter that automatically loops back to 60)

There is no header at file start; raw data is logged within two columns based on a set of measures matching the number of rows. (4.000 measures for the version v1.0.0. if the Blue Puck firmware). The separator parameter is **";"**.

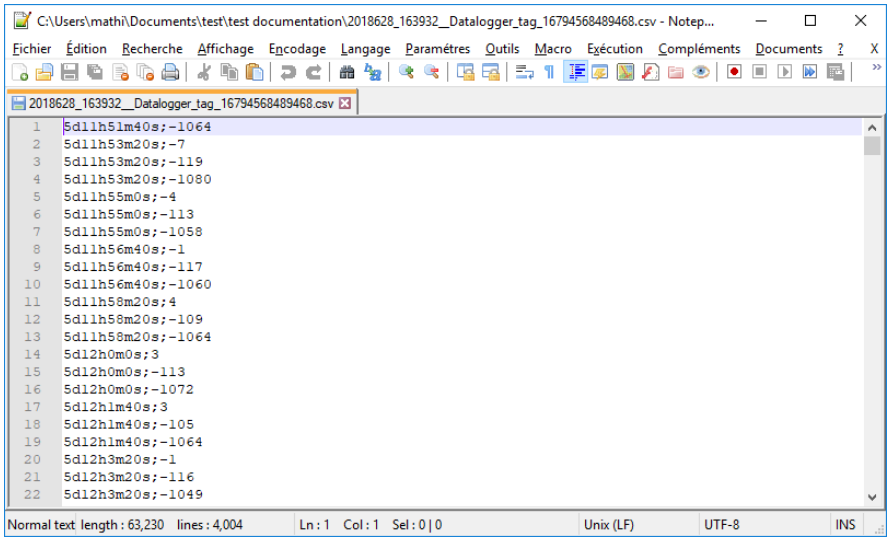


Figure 102 - NotePad++ extract from the CSV file

9.3.2.2 Start Bluetooth Tag

The « **Play** » button of the controller enables starting a new tag instance from the **Device Manager**. It allows you to start an advertising follow up of the tag broadcasted data whilst retrieving the tag mac address data and name.

Clicking on ¨**Play**¨ allows you switch to the ¨**Tags**¨ page, which features are further detailed in the following paragraph. Feel free to consult it any time to get a complete overview of each item.

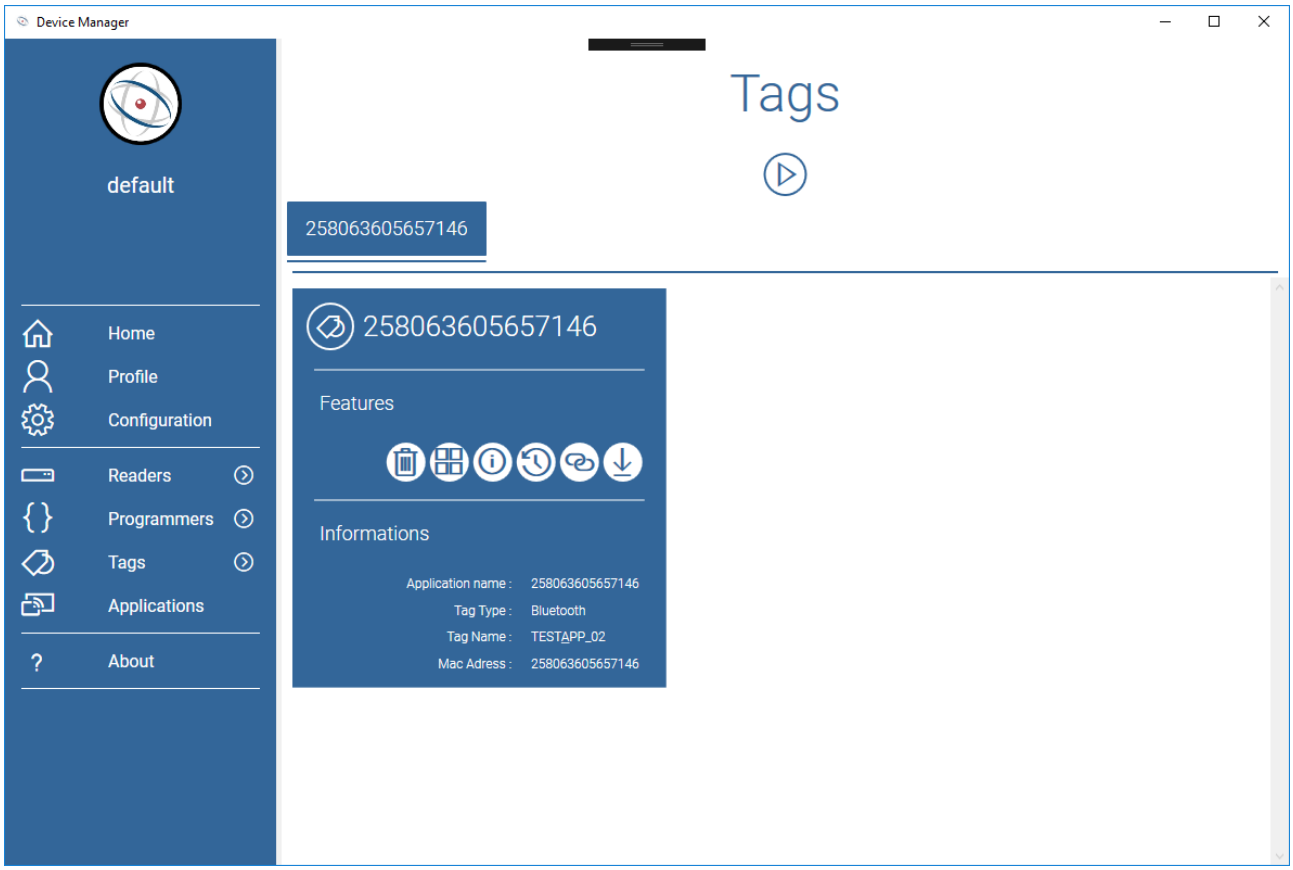


Figure 103 – Start a tag instance

9.3.2.3 Log in

The connection button allows you to access the log in module directly to log in to/log out from the tag.

Figure 104 – tag connection button

A new window opens and displays all connection related information.

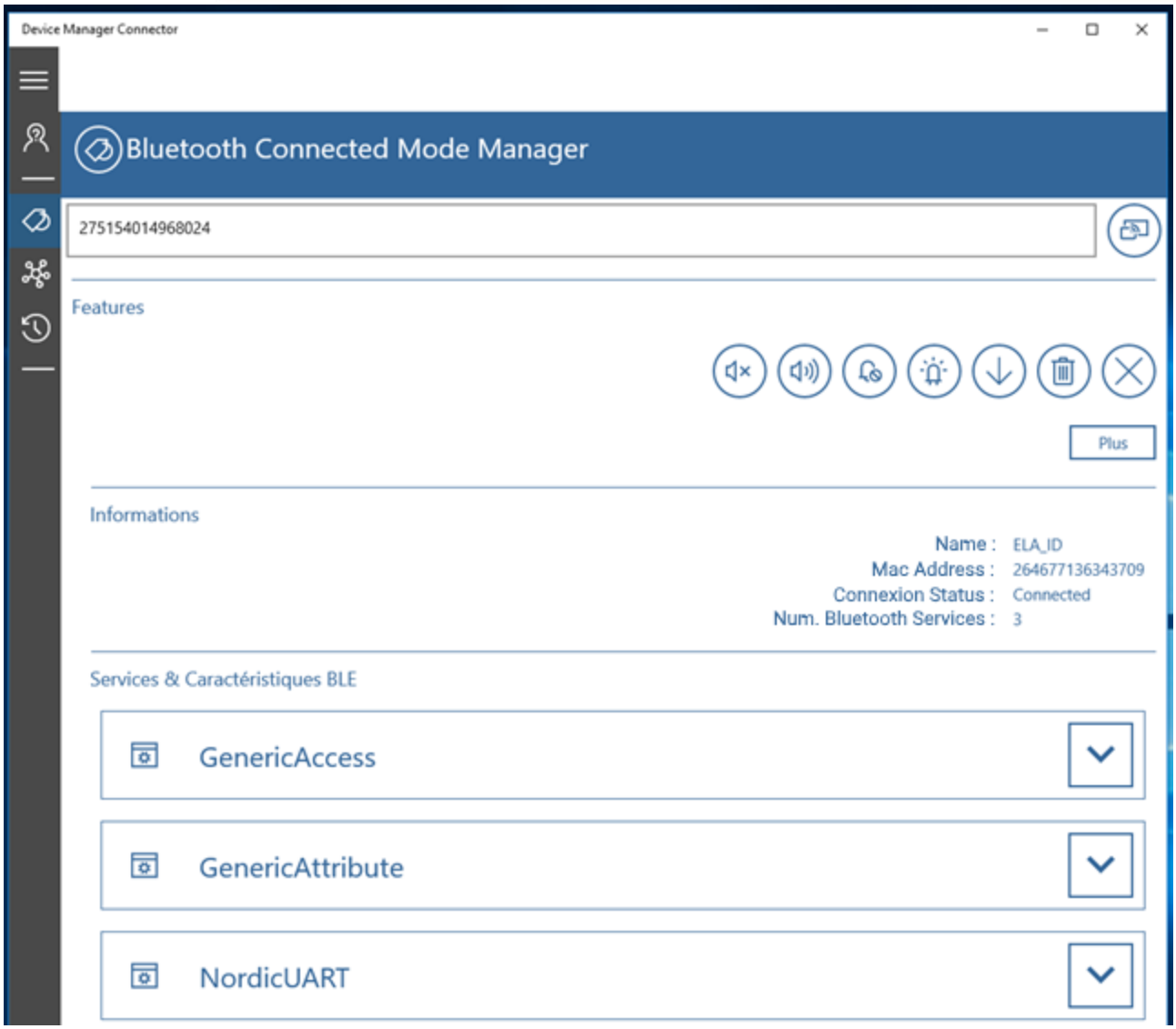


Figure 105 – Bluetooth online mode management

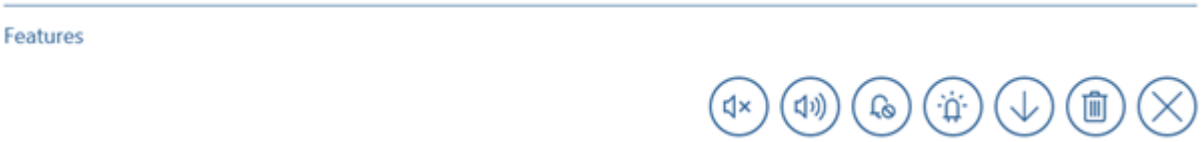
This window consists of four different areas:

Mac address tag connection bar

The connection tag bar comprises two items for you to connect or disconnect:

- The text zone enables providing the tag **mac address**
- The button located on its right next to it allows starting a connection.

Tag related options



Each button allows sending a command to the tag. There are several options listed in the order of appearance in the above figure (from left to right):

- Switch off the buzzer
- Switch on the buzzer
- Switch off the LED
- Switch on the LED
- Download the data logger data from the tag
- Erase the data logger data from the tag
- Disconnect from the tag

Once connected, just click on the button to perform the desired action.

Connected tag related information

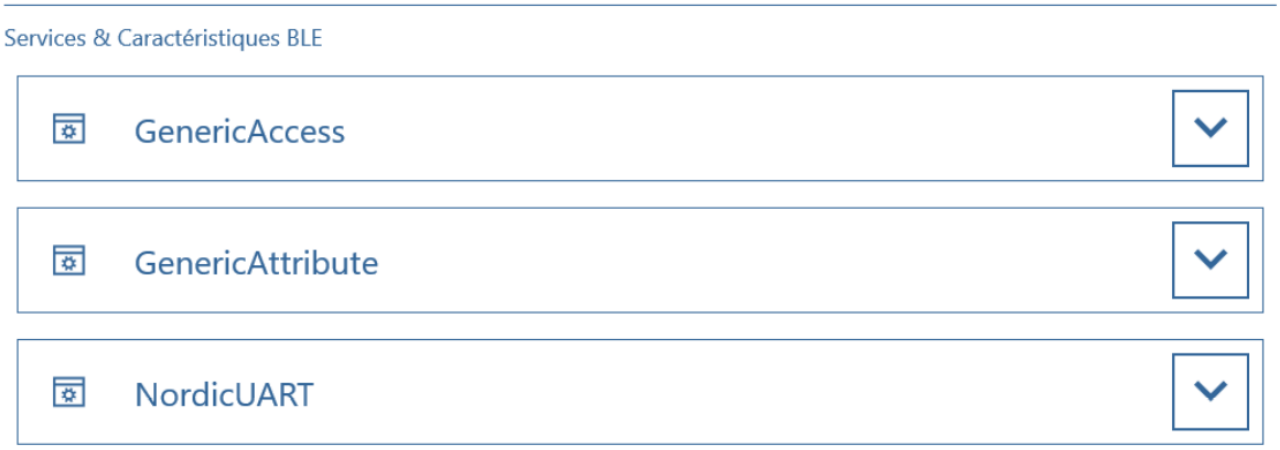
Display basic tag related information such as:

- Tag name
- Connected tag Mac address
- Connection status
- Detected amount of services: the amount of services detected are GATT services as defined by the Bluetooth consortium.

Service information & BLE specificities

Service information and specificities are the ones discovered at the time of tag connection. Click on the extension arrow in order to find out more on the services detected

This data is generic and GATT related.



10 TAGS

This paragraph includes a description of all our tag functionalities. For more details on the specificities, please refer to paragraph 1 or consult our website at https://elainnovation.com

10.1 Description

If have not initialized any tag yet, no controller appears on this page.

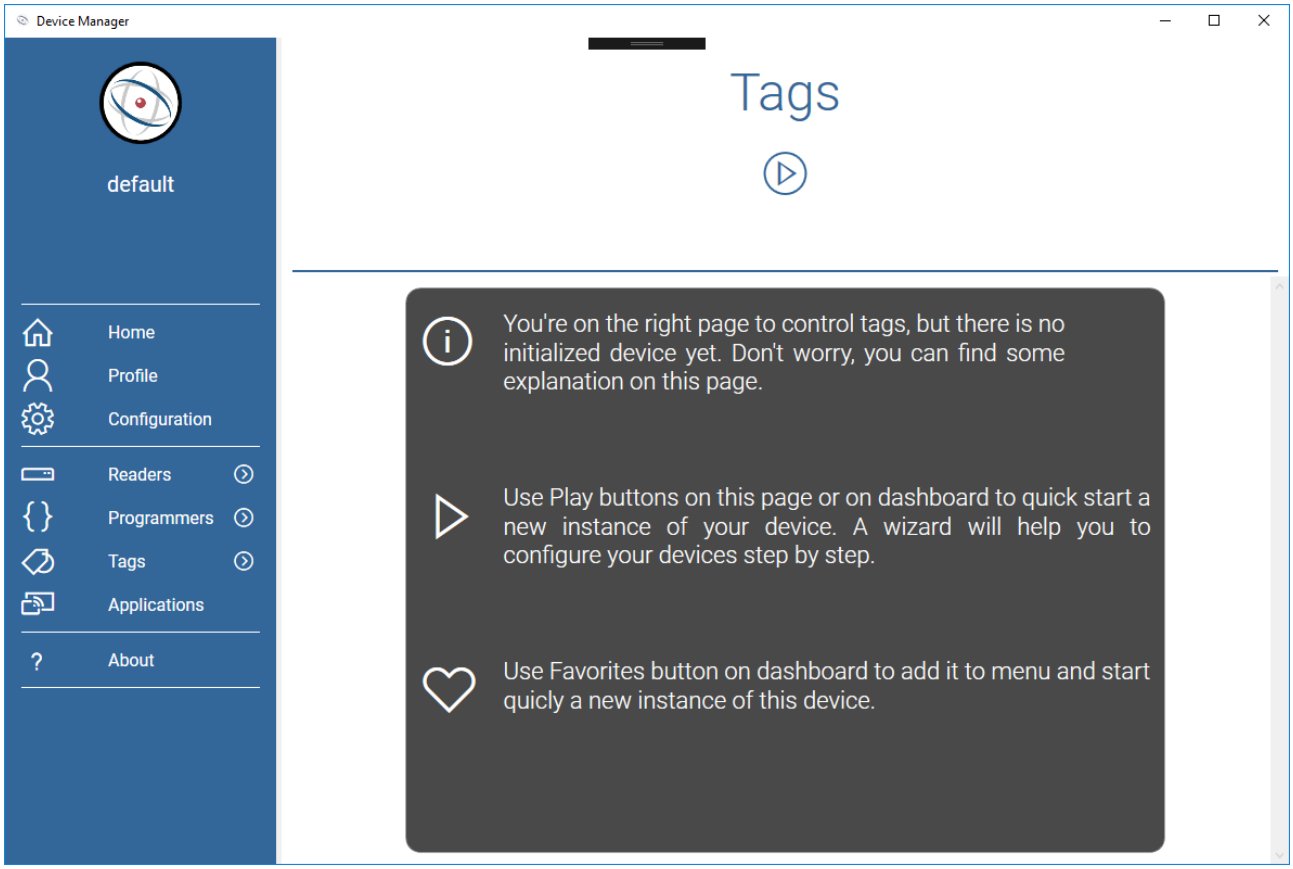


Figure 106 – Tag panels

Two options are available from this page:

- Start an initialization by clicking on « **Play** » at the top of the screen
- Open the reader associated level 2 menu and start a new instance on an item that you have previously saved in your favorites.

You may also land on this page provided you have chosen a dashboard initialization. If not, a controller linked to a reader appears on the page.

10.2 Start a Bluetooth tag instance

To start a tag instance, click on « **Play** » from the main page. A new window opens for you to select the technology of your choice.

Figure 107 – choosing technology to initialize a tag

After achieving this step, the software automatically runs a Low Energy Bluetooth scan for you to scan tags, and provides you a clear overview of the required items.

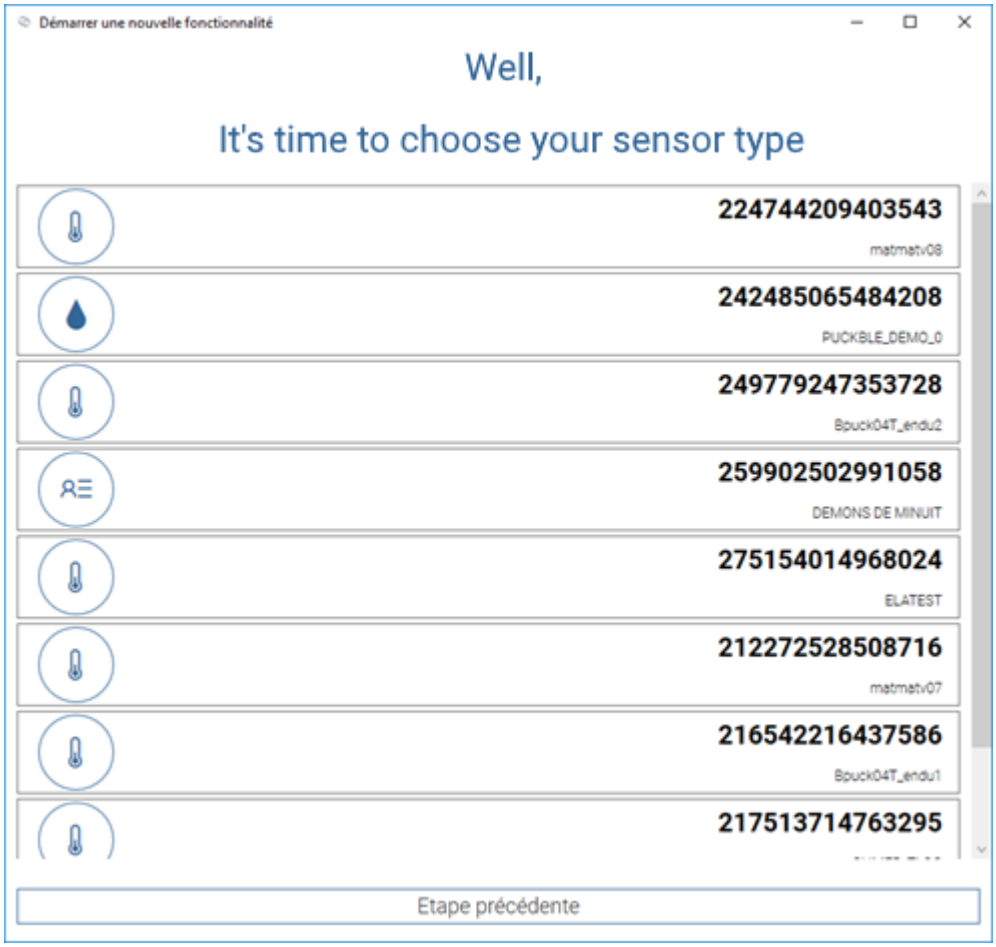


Figure 108 – Scan result in the BLE tag start wizard

Choose the desired tag and then click on the button to open a monitoring window from the tag page.

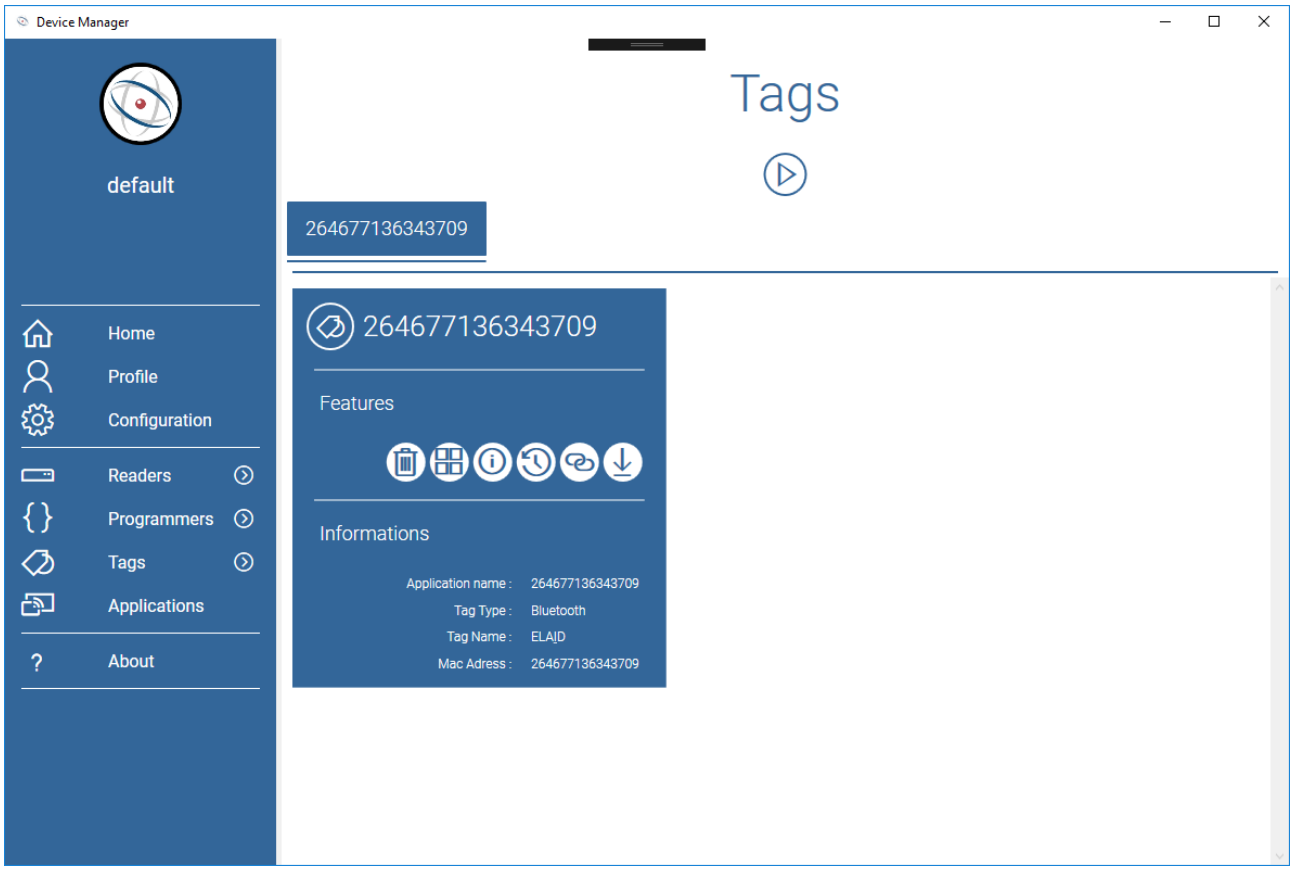


Figure 109 – Tag controller located on its related page

The tag controller includes a large panel of functionalities.

Figure 110 – Tag related functions

- 1 : Remove the tag from the tag monitoring page
- 2 : Pin the tag to the « **All** » view available as a tab on the tag page
- 3 : Display an advertising related basic information window
- 4 : Display a measurement history
- 5 : Start a tag connection

- 6 : Launch a data logger download

Let us detail each of these features in the following paragraphs.

10.2.1 Erase a tag from the monitoring page

Click on "**Delete**" to unpin the tag, its controller and other graphical elements from the tag page.

Figure 111 - ¨Delete¨ button

Clicking on "**Delete**" triggers the opening of a window in order for you to confirm. If you wish to continue, click on "**Yes**"; the tag disappears. Click on "**No**" if you wish to cancel.

10.2.2 Pin the tag to the ¨All¨ view

Click on the "**Pin all to the view**" to add a graphic element to the monitoring page.

Figure 112 - ¨Pin all to the view¨ button

If you have not clicked on this button yet, the present tab does not appear in the tag window.

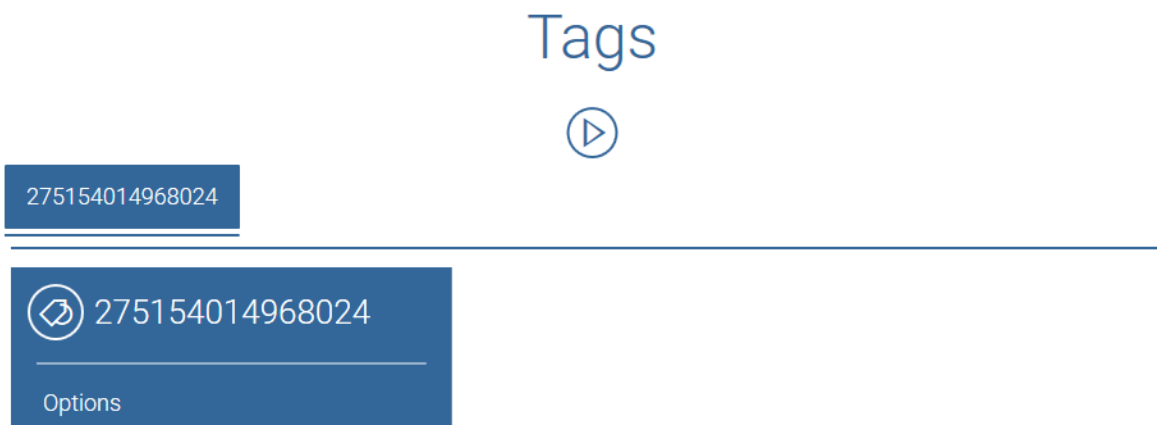


Figure 113 - ¨All¨ tab upper banner

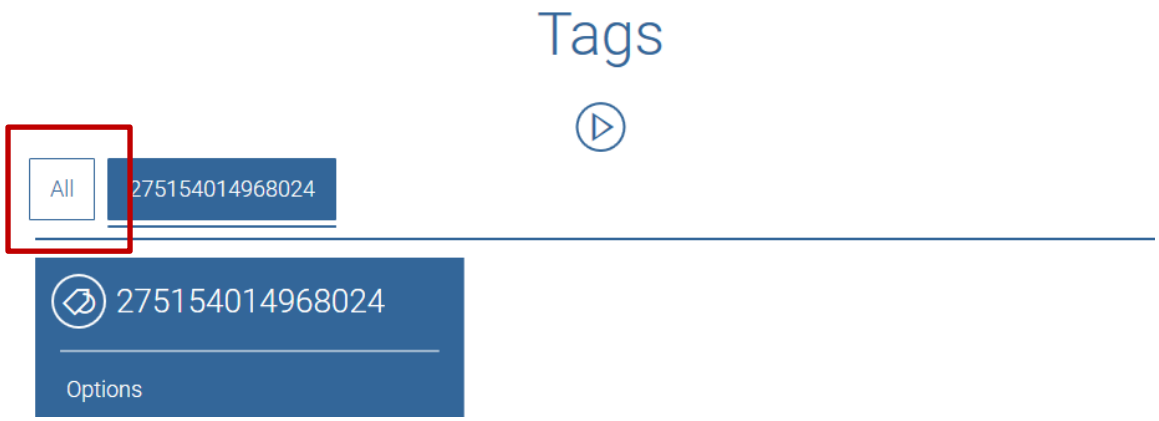


Figure 114 - "All" tab for advertising monitoring

The "All" tab allows you to pin every kind of sensor from the Low Energy Bluetooth Advertising at your convenience. In the following example, a tag providing the temperature has been pinned to the control panel.

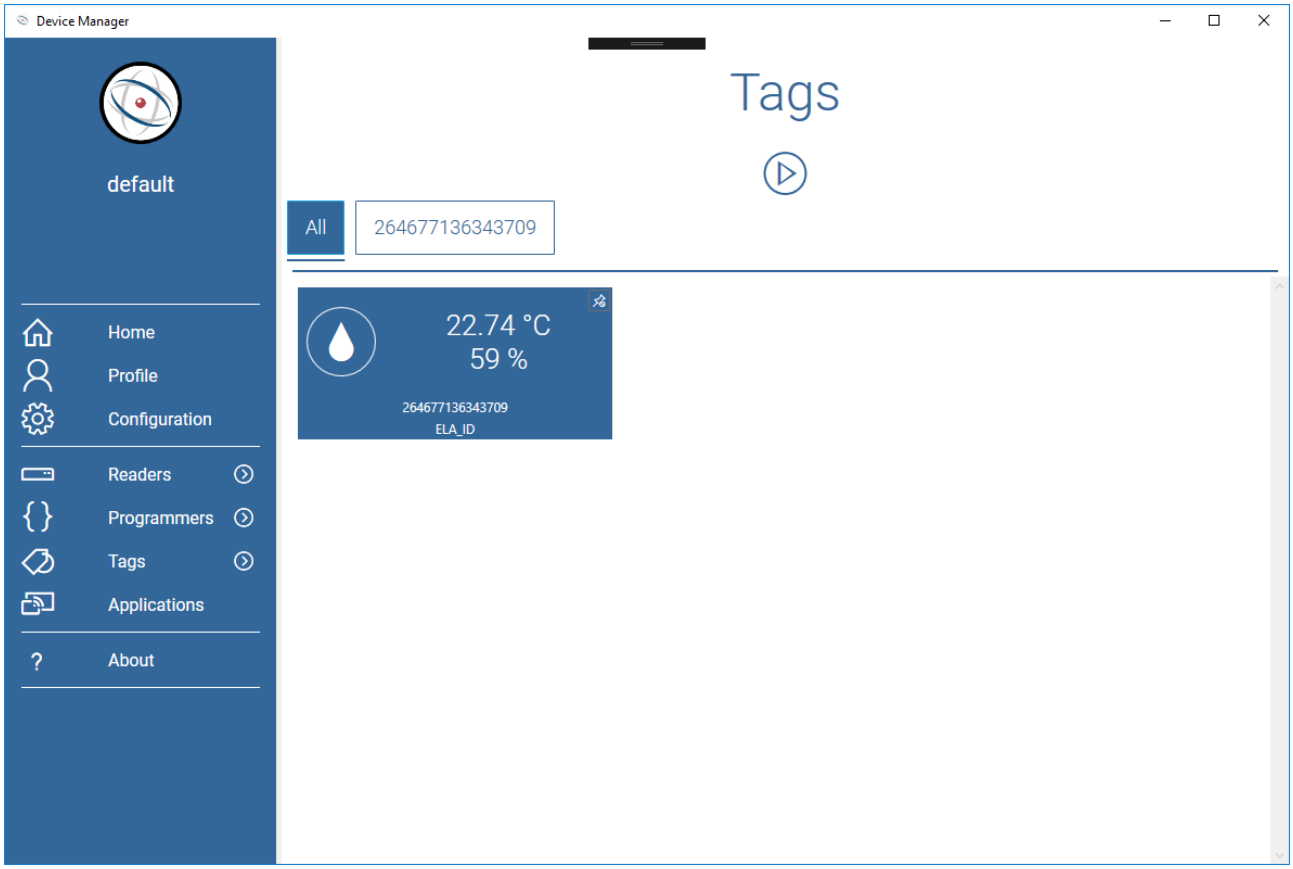


Figure 115 – Monitoring window with a pinned sensor

You may add as many of them as you wish. To do so, use the "**Pin to window**" button displayed on the tag controller.

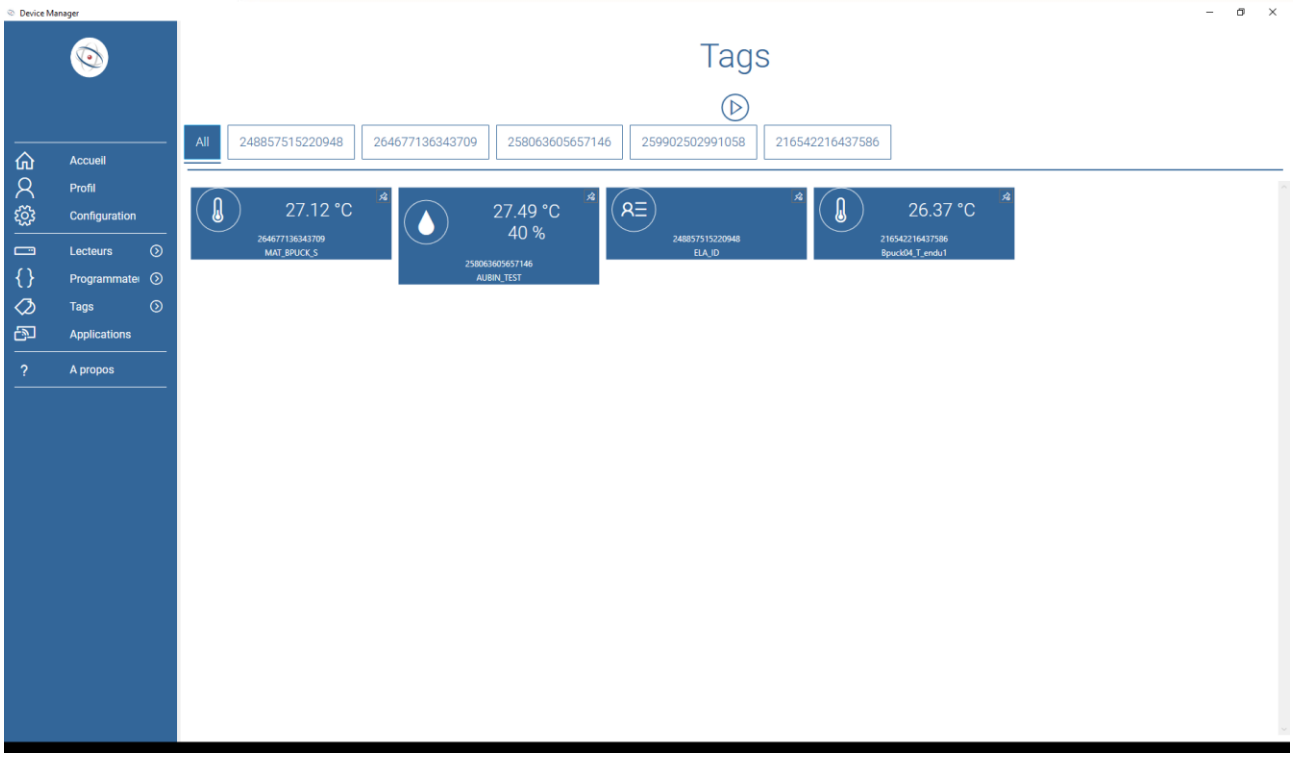


Figure 116 – Monitoring window with multiple sensors

All monitoring graphic elements are similar, regardless of the sensor they correspond to.

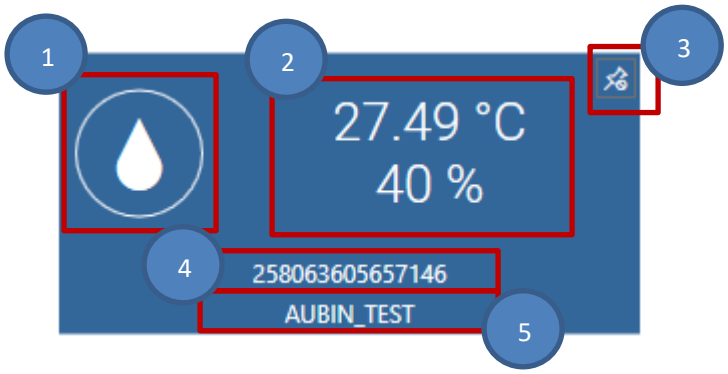
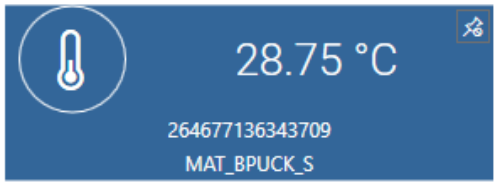


Figure 117 - Example of a Blue Puck RHT display

Following items appear on the screen:

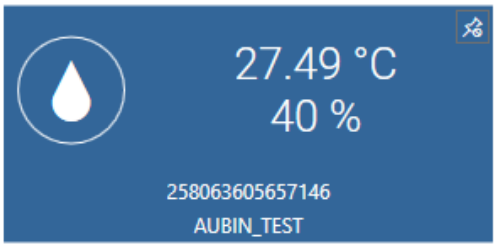
- 1 : icon to view the sensor type
- 2 : sensor measurement values from Bluetooth Advertising
- 3 : unpin item from the monitoring window
- 4 : tag's mac address
- 5 : tag name
-

Blue Puck T tag display:



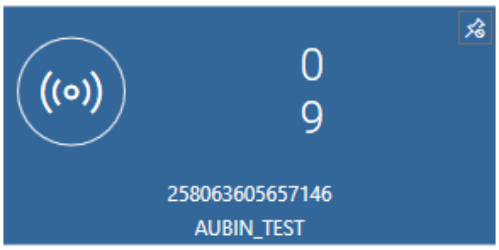
⇨ Temperature displayed in degrees °C

Blue Puck RHT tag display:



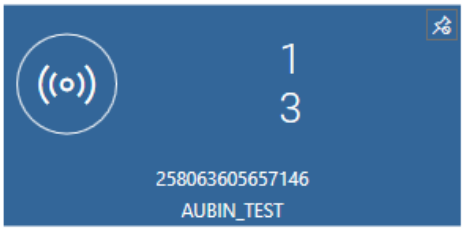
⇨ Temperature displayed in degrees °C
⇨ Humidity displayed in percent %

Blue Puck MAG tag display:



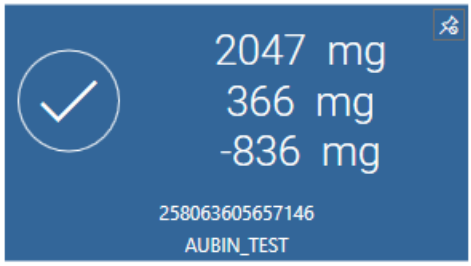
⇨ Status (0 or 1) displayed with no unit
⇨ Threshold overrange counter displayed with no unit

Blue Puck MOV tag display:



⇨ Status (0 or 1) displayed with no unit
⇨ Threshold overrange counter displayed with no unit

Blue Puck ANG tag display:



⇨ Acceleration value X displayed in mg
⇨ Acceleration value Y displayed in mg
⇨ Acceleration value Z displayed in mg

Note: There is no display difference between MAG and MOV sensors because both use the same Bluetooth service to broadcast data.

10.2.1 Information about Advertising

You may stop following up the measurement value any time by clicking on “unpin”. Click on “**Information**” to pin the button to the dashboard.

Figure 118 – Information component

The component you have just pinned provides you with the information from the latest Low Energy Bluetooth Advertising frame.

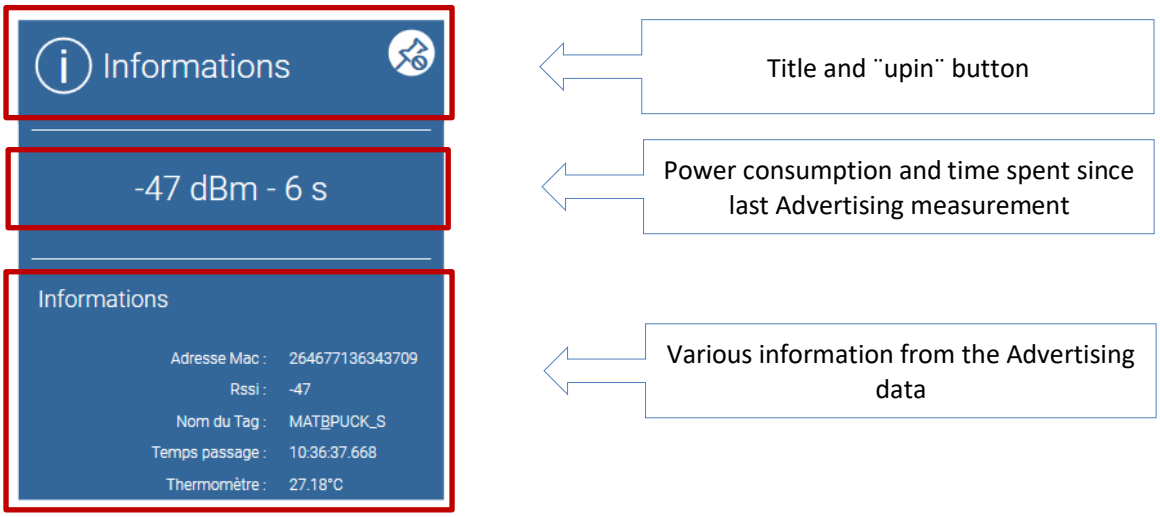


Figure 119 – Advertising basic information component

Bluetooth Advertising provides all data displayed in the information section. The basic information is the following:

- Tag mac address (unique identifier)
- RSSI power information in dBm
- Tag name: displayed only if it has previously been set up
- Transit time : timestamping of the Advertising data, time at which it was visible for the last time (in hours, minutes, seconds and milliseconds)

Whereas specific data exist for each sensor:

- Temperature : for Blue Puck T and Blue Puck RHT sensors
- Humidity : for Blue Puck RHT sensors
- Threshold crossing meter : for Blue Puck MAG and Blue Puck MOV sensors
- Detection level 1 or 0 for Blue Puck MAG and Blue Puck MOV devices
- Acceleration values : for Blue Puck ANG devices (in mg)
- Battery: displayed in percentage when the battery level exceeds a certain threshold

10.2.2 Measurement history

The measurement history allows you to visualize a set of N past measures in the form of a timeline. This way, you may focus on a specific value and have access to several basic functionalities.

Figure 120 – Measurement history

Click on the button to pin the controller to the window and refresh Low Energy Bluetooth based on the received Bluetooth Advertising data.

The controller includes the following various areas:

- Component title including the target value that triggered the component lock in the subtitle field.
- Current value displayed in the Advertising section (this area includes a button will for you to change the reference value depending on the automatically advertising detected values)
- The last of the last registrations (5 visible on the screen)
- A graph in the form of a histogram, showing the 10 latest values
- A set of statistical data displayed on the latest 10 measures on the screen

You may choose to unpin the component from the main page at any time by clicking on "**Unpin**".

If you choose to change the reference value from the contextual menu, the data set is automatically erased and refreshed based on the Advertising information.

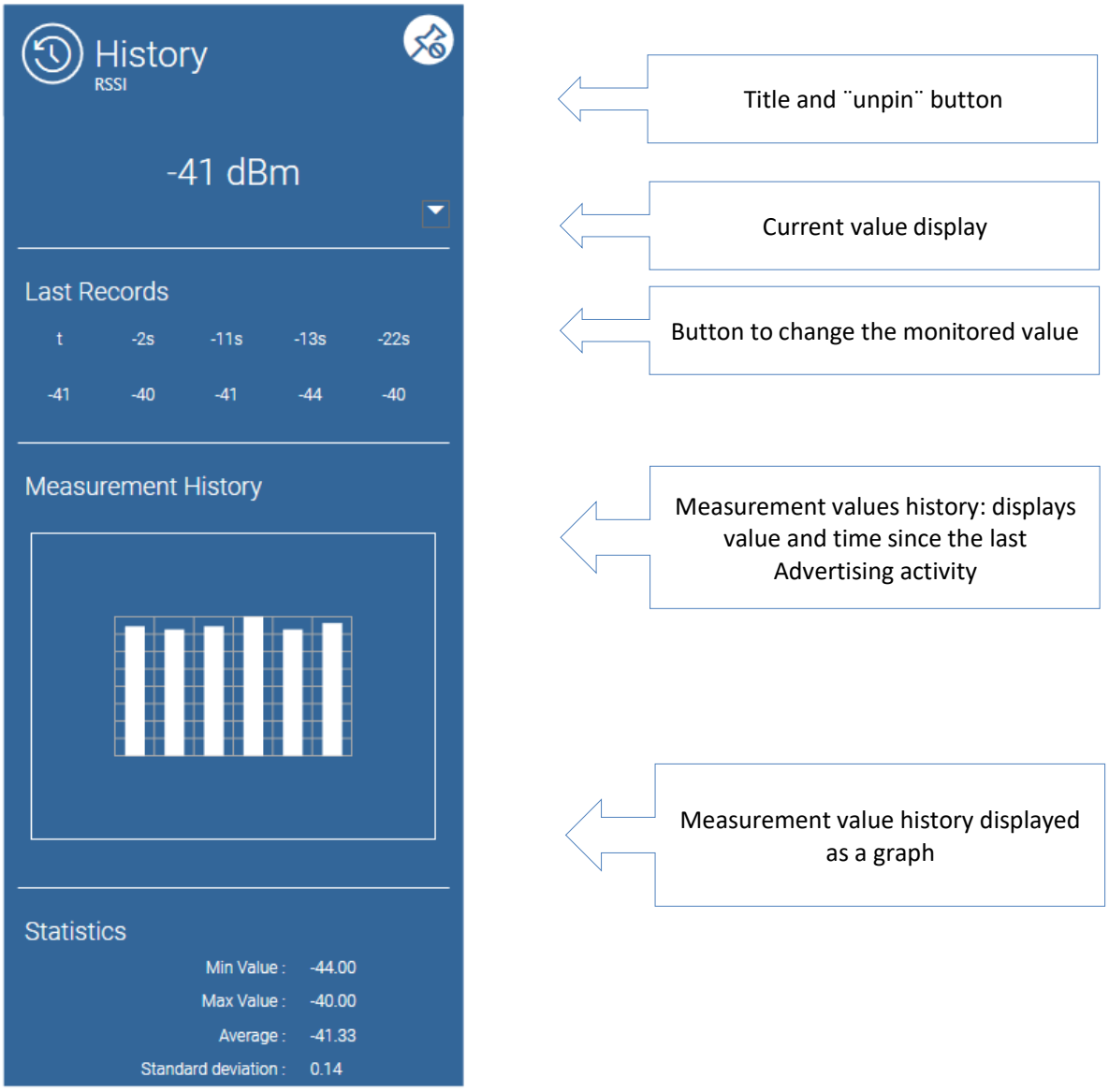


Figure 121 – Measurement history

10.2.3 Tag connection

The tag connection button allows you to use Bluetooth connected mode in order to connect directly to your device and perform operations by sending orders.

Figure 122 – Tag connection button

A new window opens and displays all connection related data.

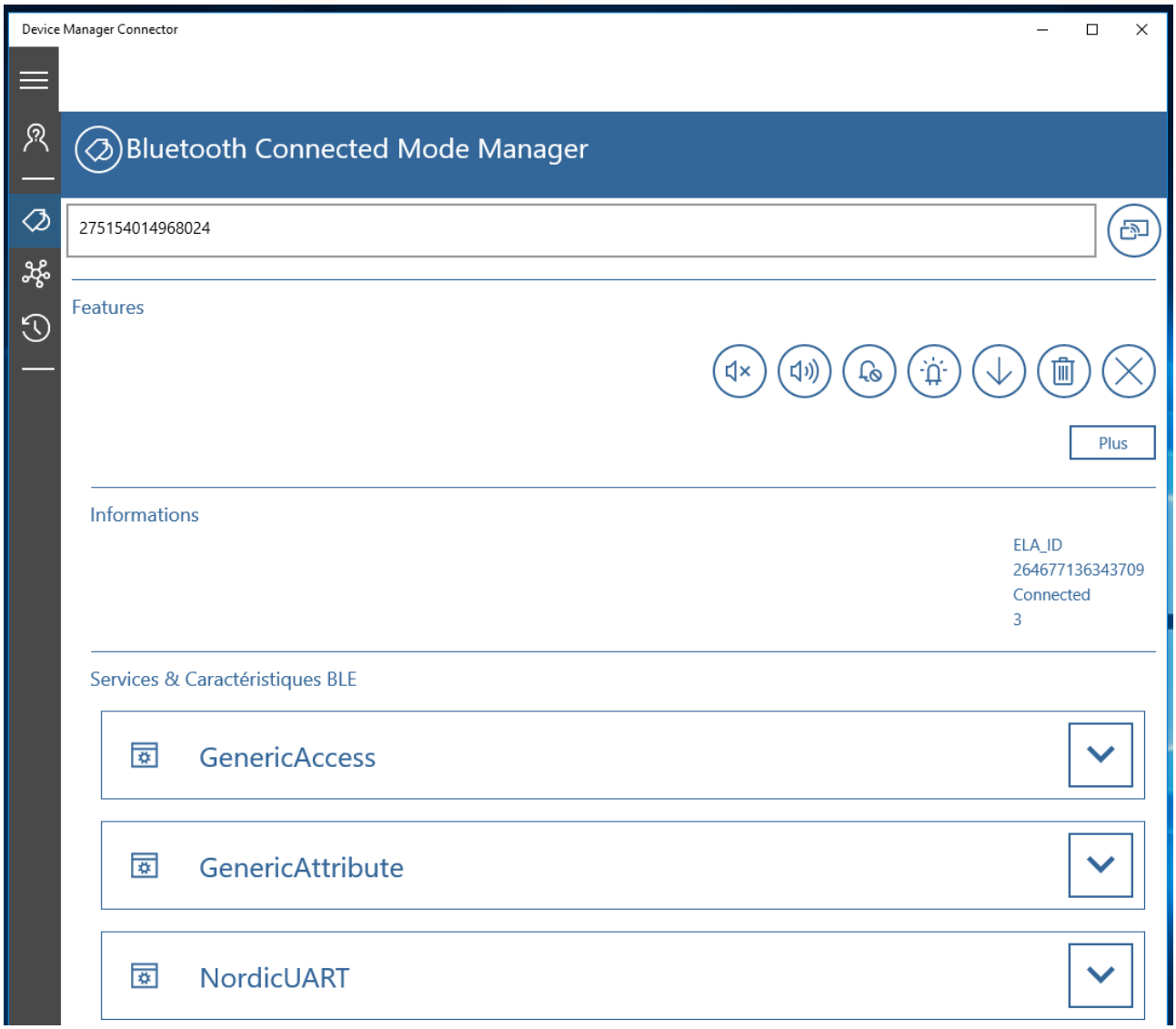


Figure 123 – Bluetooth connected mode management

This modal consists of four zones:

Mac address tag connection bar

The tag connection includes two items for you to connect or connect to the tag again:

- Use the text box to enter the tag mac address
- Click on the button located on the right to start a connection

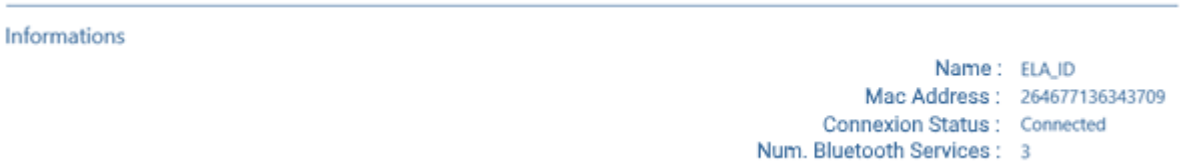
Tag-related options

Each button represents a possible tag command. Following options are available in the appearance order of the below figure (from left to right):

- Switch the buzzer off
- Switch the buzzer on
- Turn the LED off
- Turn the LED on
- Download data logger data from the tag
- Erase data logger data from the tag
- Disconnect from the tag

Once connected, just click on the button to perform the desired action.

Connected tag related information



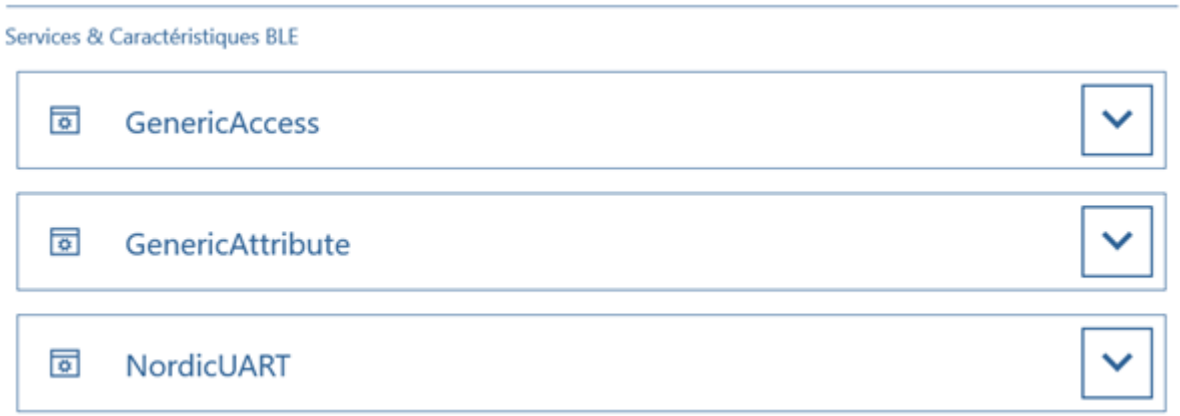
Displays primary tag related data:

- Tag name
- Connected tag mac address
- Connection status
- Detected service amount: the detected service amount refers to GATT services as defined by the Bluetooth consortium.

Service information & BLE specificities

The service and feature information rely on the data retrieved at tag connection. Click on the extension arrow to find out more about detected services.

This information is generic and GATT-related.



10.2.4 Data logger download

The data logger download button allows you to connect to the tag directly, and to retrieve the saved log related data within your tag.

Figure 124 – Download the data logger

Click on the button; a new window pops up allowing you to set up the destination path of your ***.csv** file.

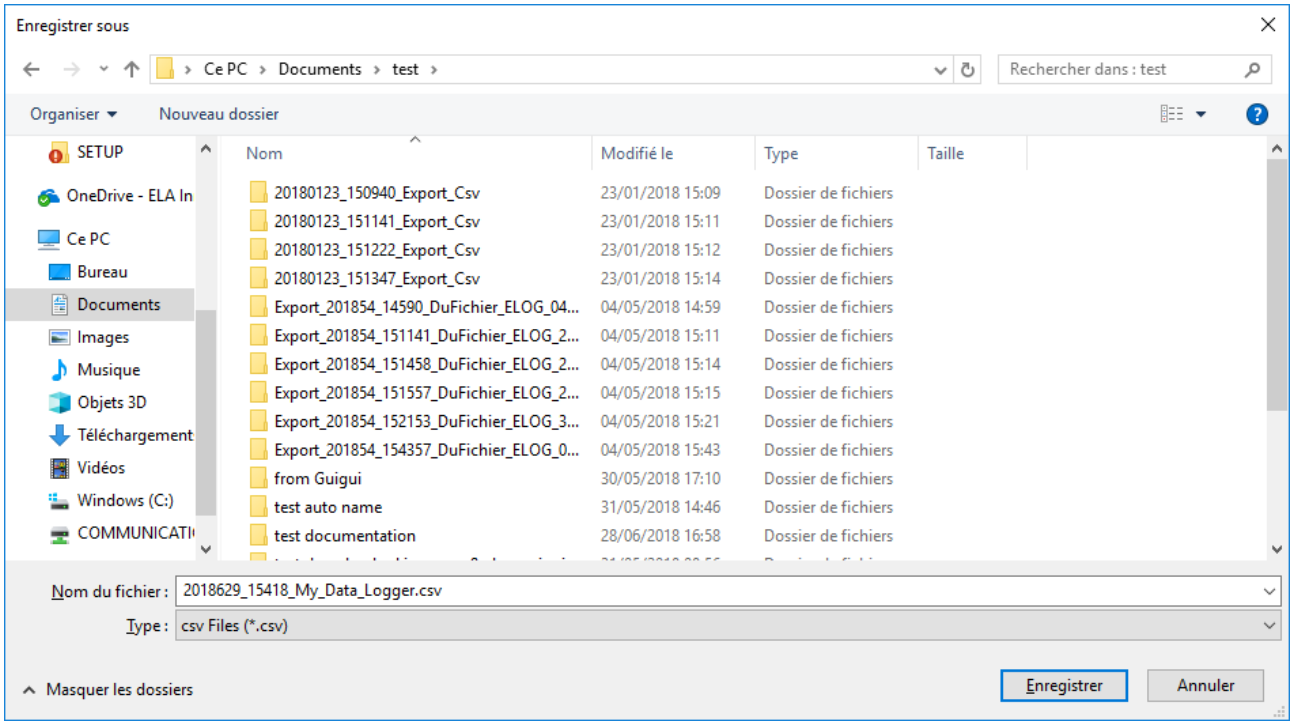


Figure 125 - data logger backup in csv format

A window opens with an already predefined file name. Its format is as follows:

<Timestamping_backup>_Datalogger_tag_<Mac_address>.csv

Backup files are csv files which format is as follows:

TIMESTAMPING ; VALUE

Timestamping is encoded by days, hours, minutes, and seconds. It appears as a character string in the file corresponding to:

- **d** : amount of days (incremented counter)

- **h** : amount of hours (incremented counter that automatically loops back to 24)
- **m** : amount of minutes (incremented counter that automatically loops back to 60)
- **s** : amount of seconds (incremented counter that automatically loops back to 60)

There is no header at file start; raw data is logged within two columns based on a set of measures matching the number of rows. (4.000 measures for the version v1.0.0. if the Blue Puck firmware). The separator parameter is ";".

Enter a file name and click on "**Save**" to start the download.

A download window opens and enables to retrieve tag data. You may open the console by clicking on "**Expand**" next to the "**downloaded data amount**" label. At this point, a console appears right below to display the download progress.

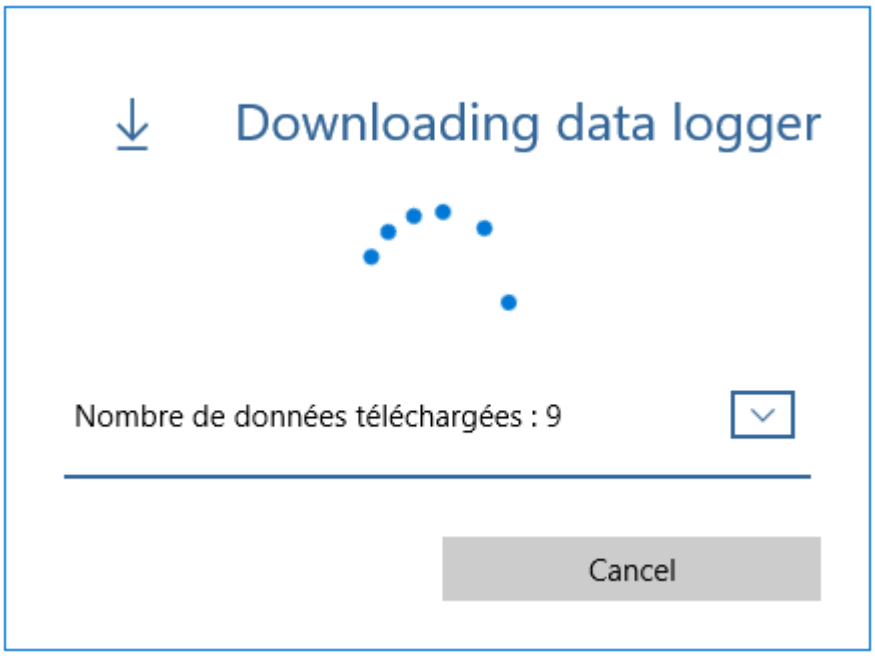


Figure 126 - Data logger download

11 APPLICATIONS

This section provides a description of all Device Manager application-related features. Please refer to the following paragraphs of this documentation for more information on specific features of each application.

11.1 Description

If you have not initialized any applications yet, no controller appears on the application-related page, and a little summary provides you with the available options from this point on.

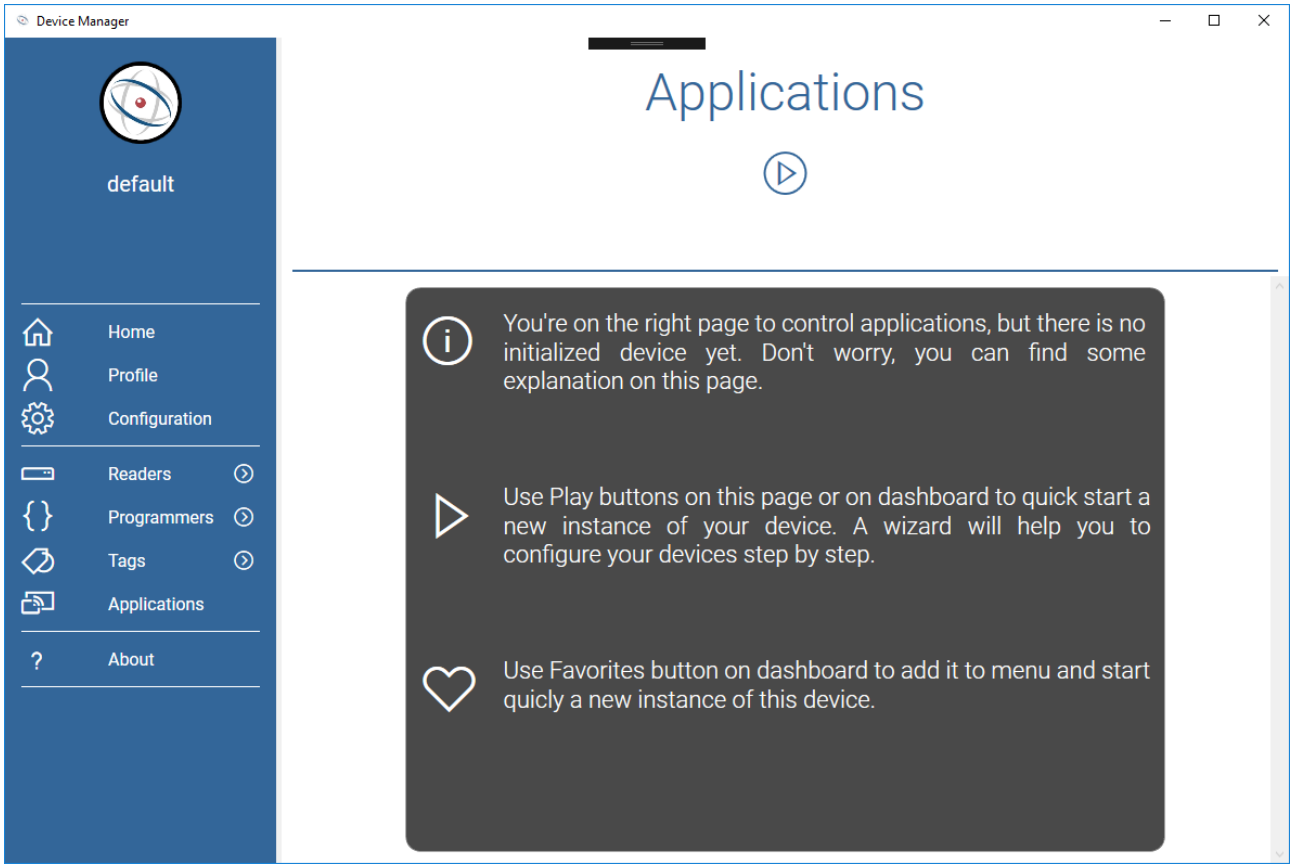


Figure 127 – Tag panel

From this page on, you may manage your applications 'lifecycle by yourself:

- Start initialization by pressing on "**Play**" at the top of the screen

Pressing on "Play" allows you to instantiate the application controllers page, so that you can link them to Device Manager applications. These applications consist in a kind of plugin that you may install or uninstall at your convenience.

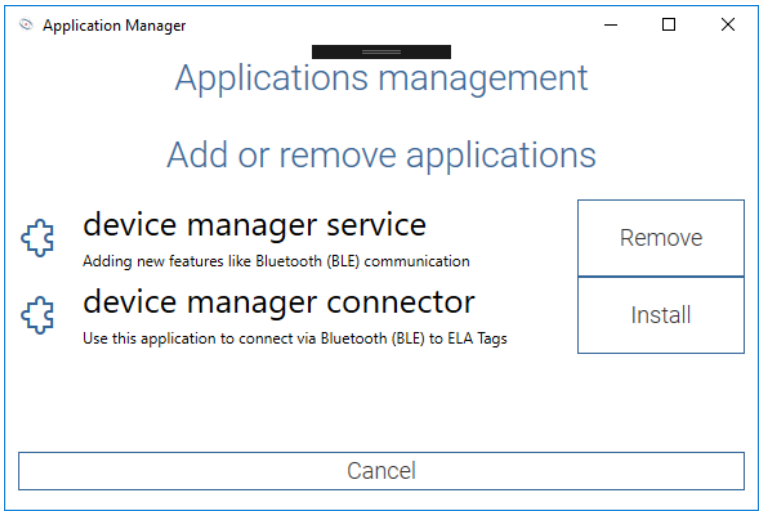


Figure 128 – Application management

This window allows application management. You have not installed it so far, you may do it now. Provided the application is already installed, you may uninstall it.

11.2Application Device Manager Service

The **Device Manager Service** section allows you to access the Bluetooth Advertising layer directly. Please refer to **paragraph 14** for further details on this application.

By default, this application is installed and you should not see any blank page, as shown in Figure 127. If necessary, refer to **paragraph 14** (**Device Manager Service**) for more information about Windows services.

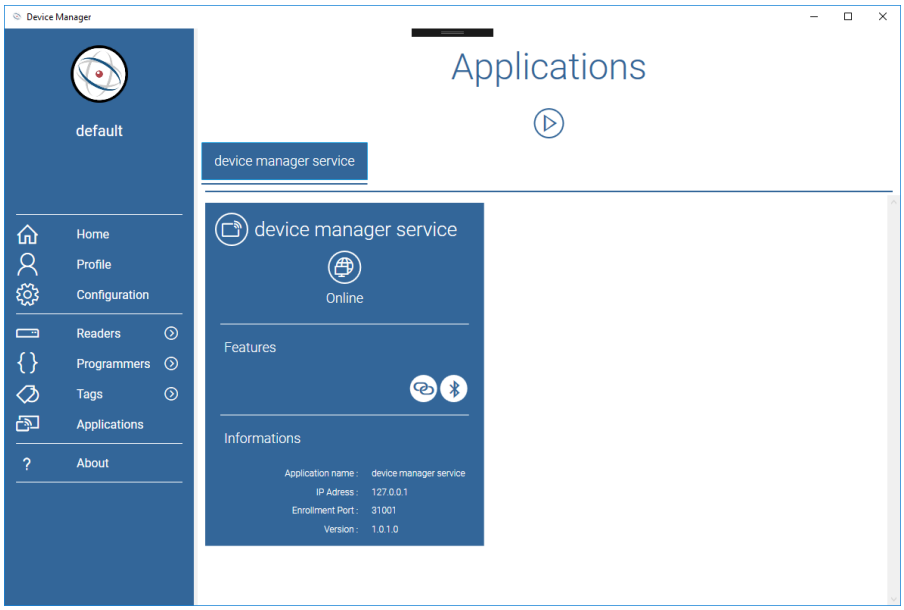


Figure 129 - Device Manager Service application

The **Device Manager Service** controller allows you to perform both following operations:

- Login / Logout to Device Manager Service
- Enable Bluetooth connection

Provided you do not have any Bluetooth visibility problems in the other tabs, there is no need to restart the Service manually. These features are available to help you restart service and enable Bluetooth layer.

11.2.1 Restart Device Manager service

We recommend you to restart **Device Manager Service** manually in case you do not see any Advertising information appearing in your components. The problem may appear as follows:

- No Bluetooth visibility in the readers

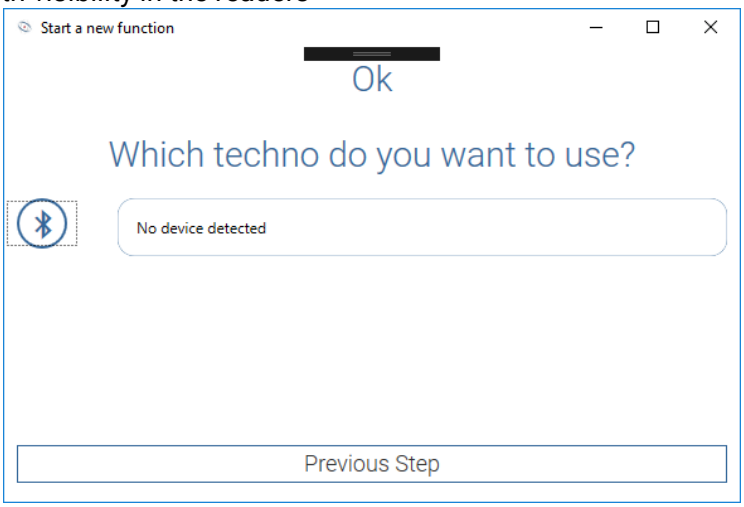


Figure 130 – Problem: BLE reader not recognized

- No data displayed in the IoT scanner

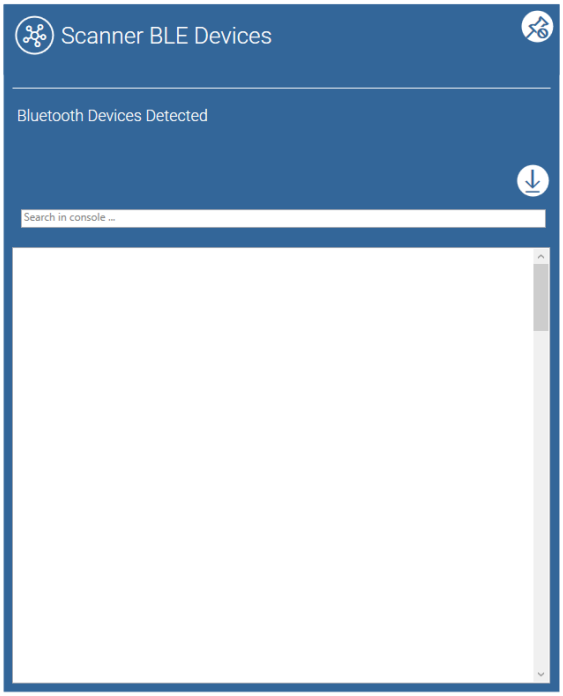


Figure 131 - Problem: absence of IoT in the reader

- No tags detected when scanning

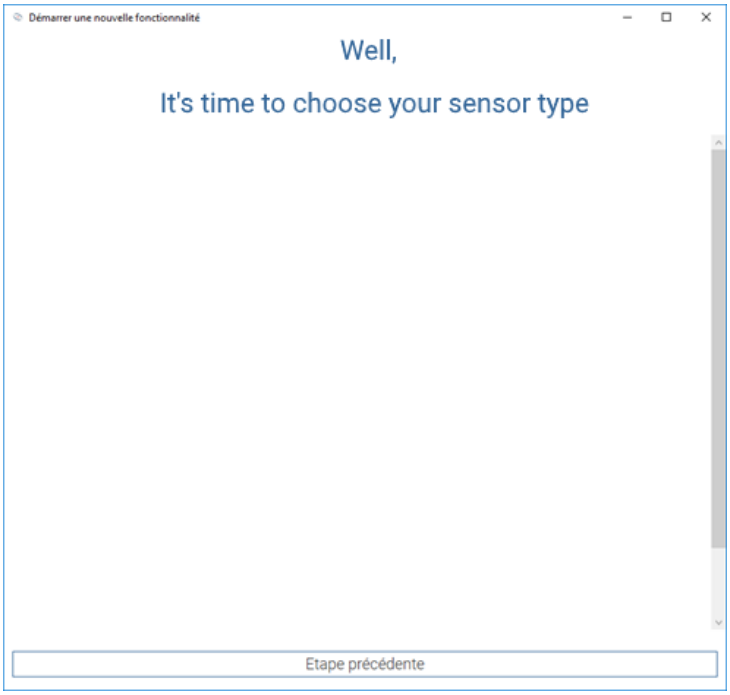
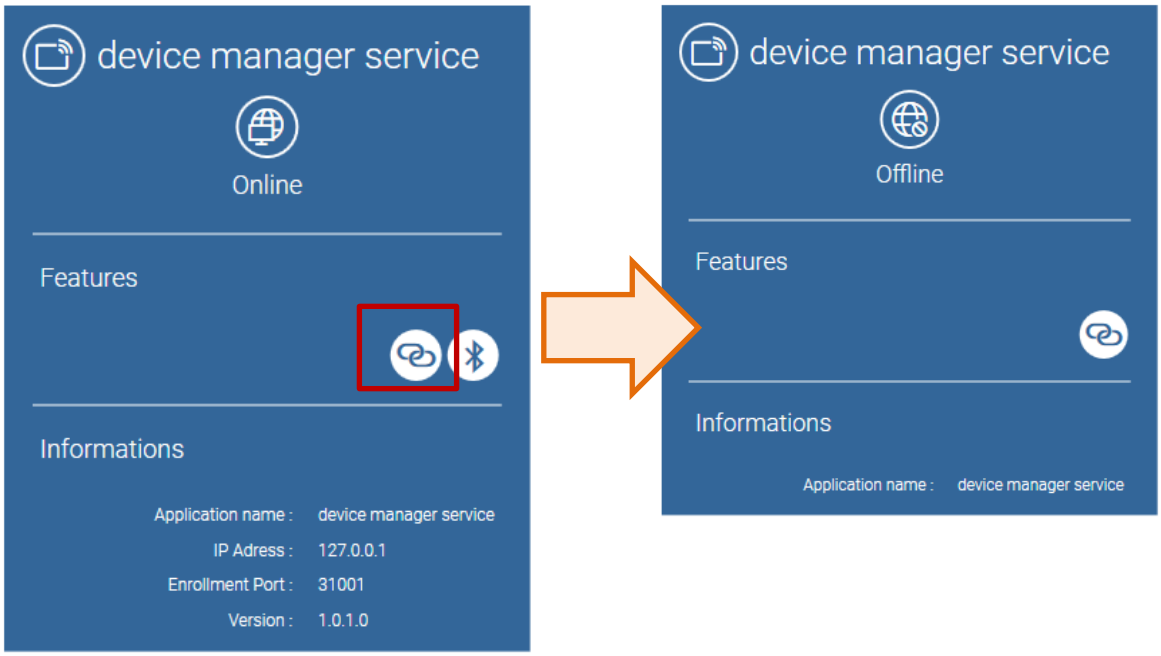


Figure 132 – Problem: no tags detected by BLE reader

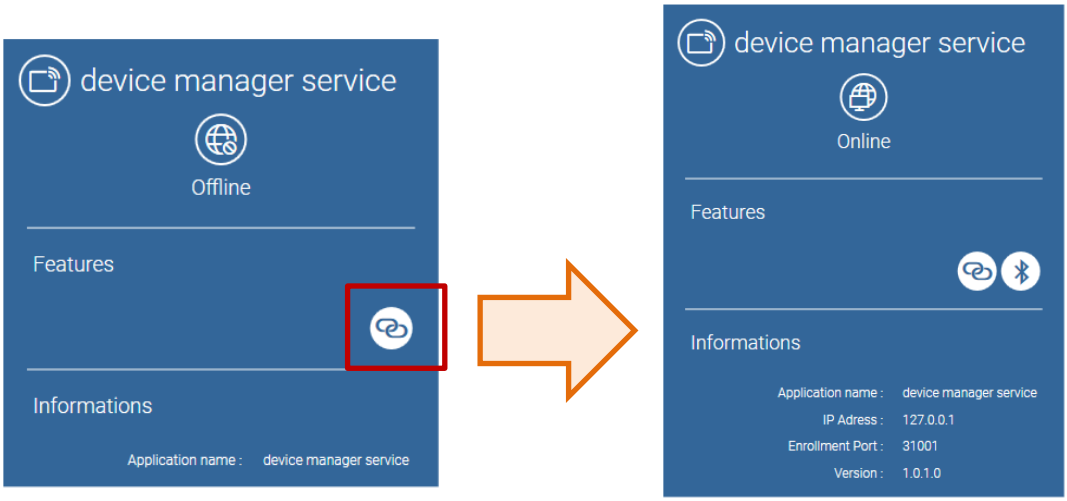
At this point, you may restart Bluetooth by following the process described below.

- Disconnect from the current service instance. Go to the Application page and the **Device Manager Service** tab. Click on disconnect



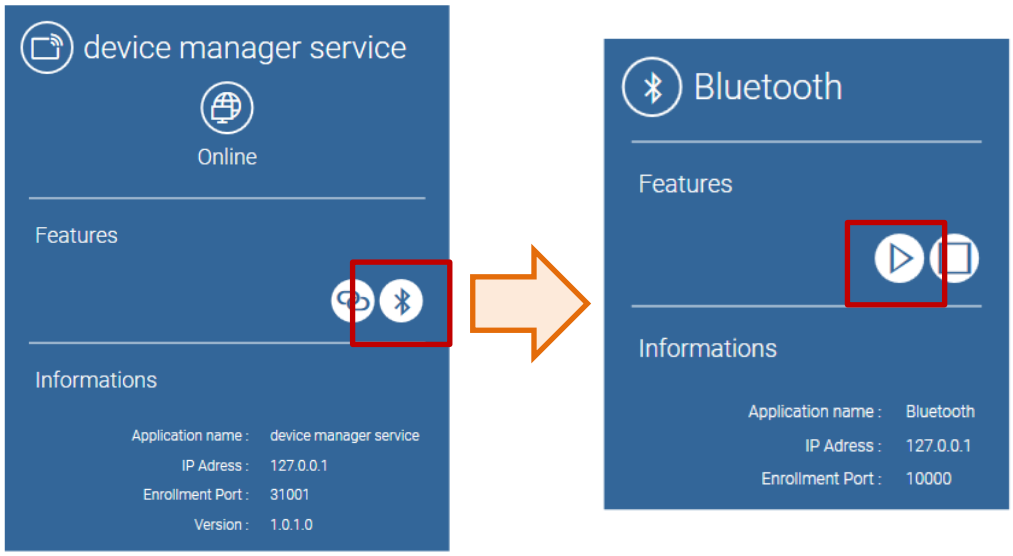
Switching status from "Online" to "Offline"

- Reconnect to the application by pressing again on login. If the operation is successful, the controller's information panel displays additional connection information.



Switching status from "Offline" to "Online"

- Launch the Bluetooth application by pressing on Bluetooth connection (the button looks like a Bluetooth logo) and trigger it by pressing on "Play".



Forcing Bluetooth start up

We remind you that all features start automatically at **Device Manager** Initialization. You need to perform such an operation only if Bluetooth provides no data despite your dongle be connected properly.

If you encounter any errors when logging in, make sure that you have correctly started the **Service Device Manager** (always use an automatic lanyard unless you have restricted access, or your access has been disabled).
Both following options enable to start the service:

- Use the **Notify icon Device Manager**
- Alternatively, use the **Windows Task Manager**

Refer to the service describing **Device Manager Service** features for additional information.

11.3Application Device Manager Connector

You may install the **Device Manager** Connector application management component through the **Device Manager** button located in the application tab. This option allows you to:

- Start the documentation
- Consult related documents (Quick start Guide)

Click on "**Play**" from the Application page and make your selection by using the application management wizard.

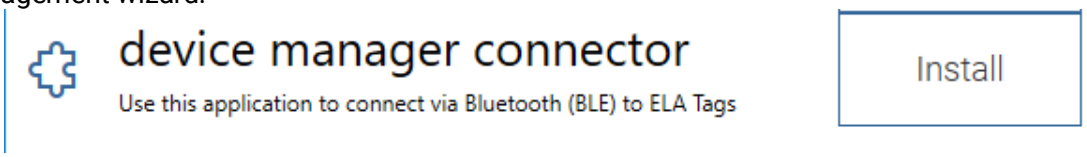


Figure 133 - Installing the Device Manager Connector controller

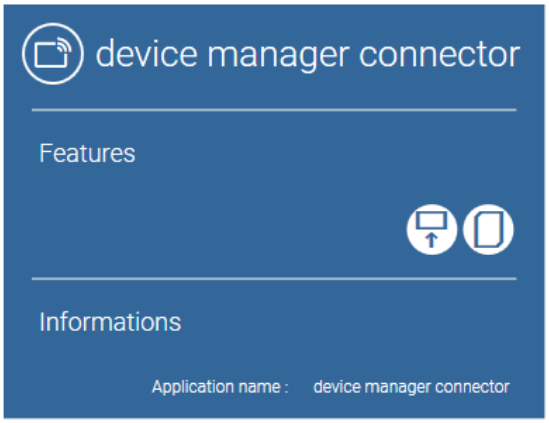


Figure 134 - Application Device Manager Connector controller

The controller allows you to access two simple functions (from left to right):

- Run the application (provided it has already been installed: see paragraph 2 for additional information)
- Open the related documentation

Please refer to the application's features section for more details about how to use the **Device Manager Connector** in Stand Alone mode.

Please refer to the readers and tags section for further information on how to use the **Device Manager Connector** in a Device Manager instance.

12 ABOUT

This paragraph includes a description of the information contained in the About page. This page provides details on the current instance of your software as well as its available features.

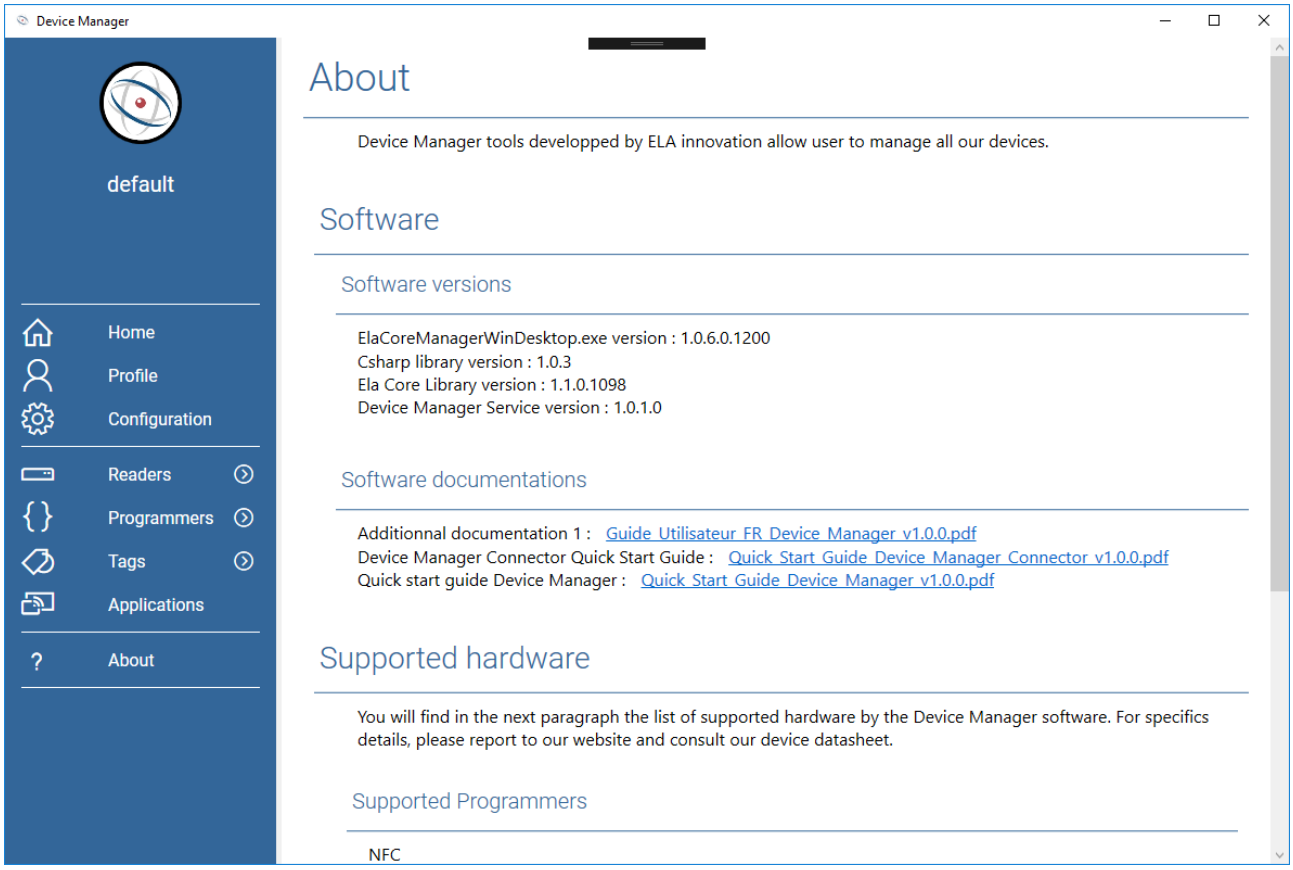


Figure 135 – About page

This page contains the following information:

- Software version related information
- Links to user documentation available for this software instance
- A matrix of supported hardware

Note: The links available in the Software Documentation section allow you to view the associated documentation directly in a web browser. These documents are also available in pdf format.

13 DEVICE MANAGER CONNECTOR

The **Device Manager Connector** application enables a transparent connection management through our Bluetooth tags when using **Device Manager.** However, you can also use it in Stand Alone mode on your Windows 10 PC or on your Surface tablet equipped with Windows 10.

To install it, please refer to the installation section of the **Device Manager** Software suite.

Use the Windows Quick Start menu to run the program. Click on the Windows button and browse or type ¨**Device Manager Connector**¨.

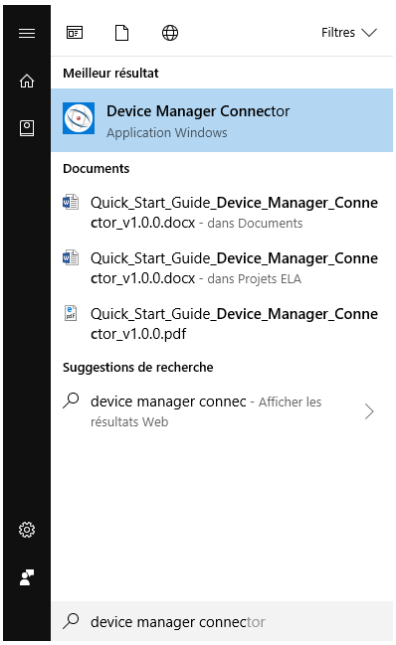


Figure 136 - Start Device Manager Connector

by using the application controller from the **Device Manager** (paragraph 11.2.1.2).

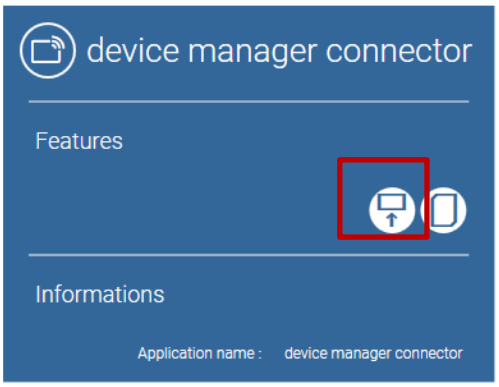


Figure 137 – Run the application

The application window opens, allowing you to access the different features available in the application.

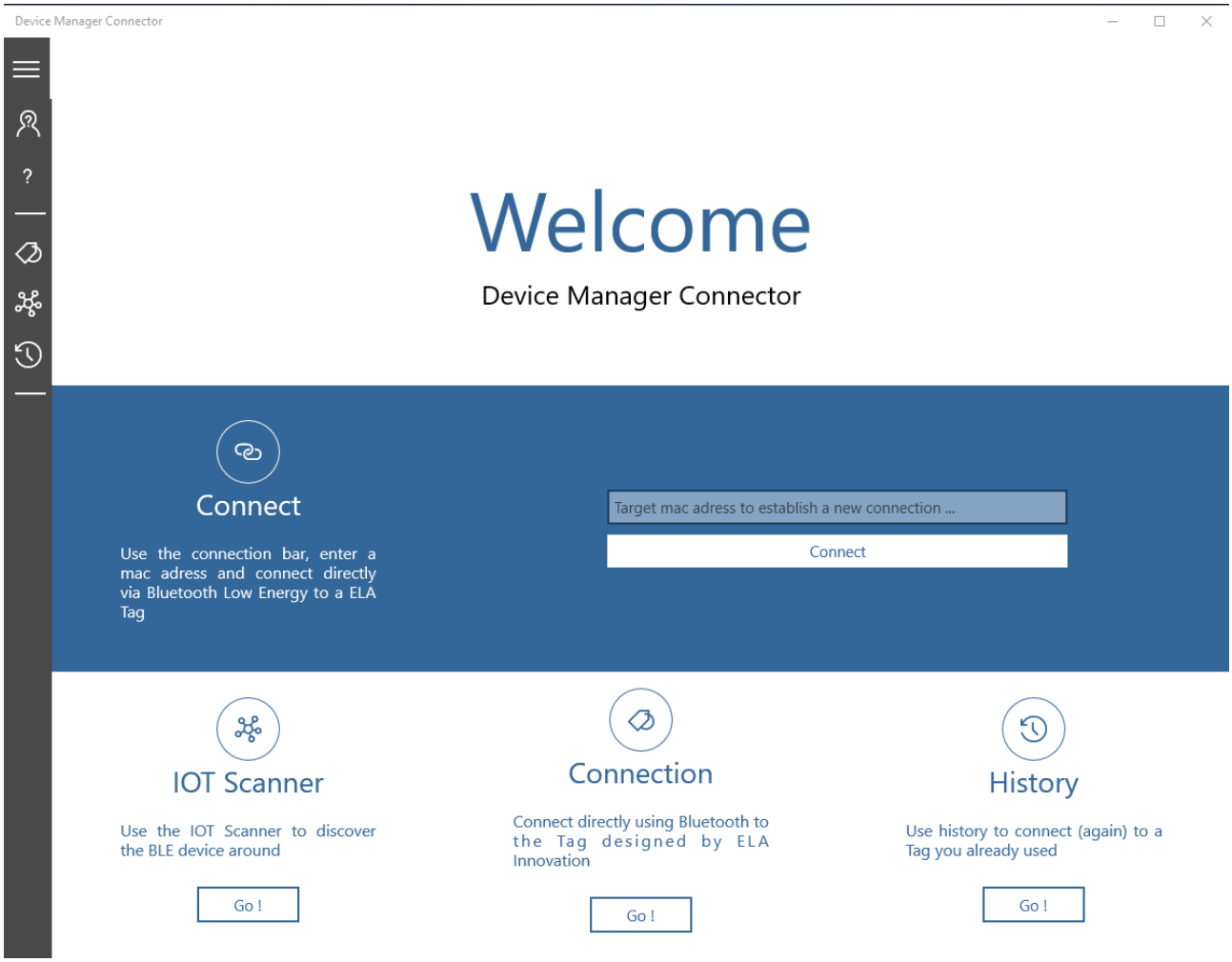


Figure 138 - Device Manager Connector application

It provides a direct connection to our tags as well as some additional features such as:

- **IoT Scanner:** allows Bluetooth scanning
- **gin:** to connect directly to the destination tag
- **History:** saves all tags you have accessed (on the software instance)

You may use this functionality:

- Either by clicking on the button available from the main page
- Or through the left-hand navigation menu

Figure 139 – Go to functionalities

Figure 140 – Go to functionalities

13.1.1 IoT scanner

The IoT scanner allows you to scan all visible connected objects through your Low Energy Bluetooth receiver, and to set up a connection based on this feature.

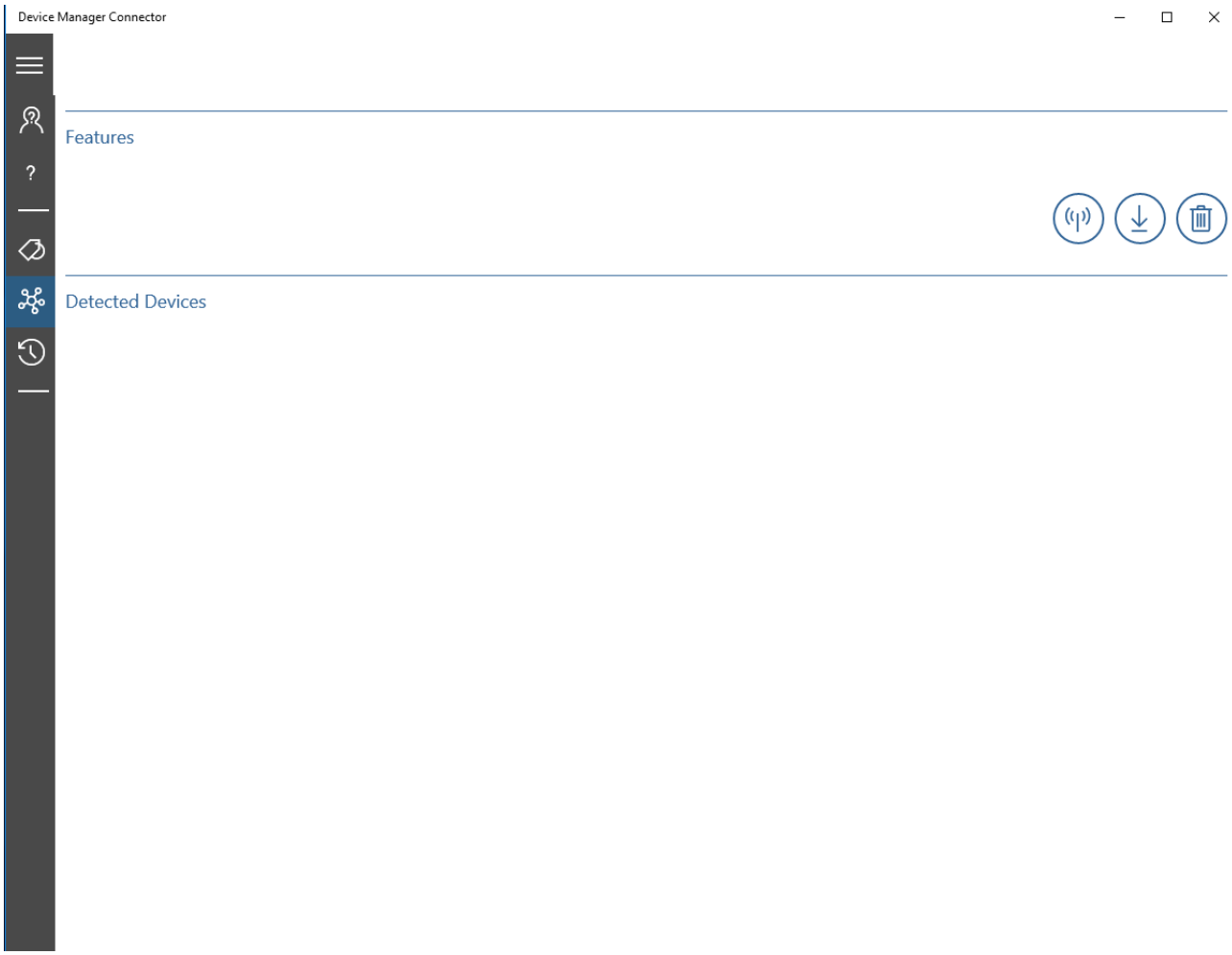


Figure 141 – IoT scanner page

Through the buttons available in the controller, you may:

1 2 3

Figure 142 – IoT scanner functionalities

- 1: start the IoT scanner (the button allows you to start the scan if it is inactive, or vice versa)
- 2: download a data logger set
- 3: Clear the console
- 4: Start scanning.

When starting the scan, connected objects appear as a list. Each item is displayed by:

- A pictogram representing the tag functionality
- Its associated mac address
- Its related name provided it has been previously defined

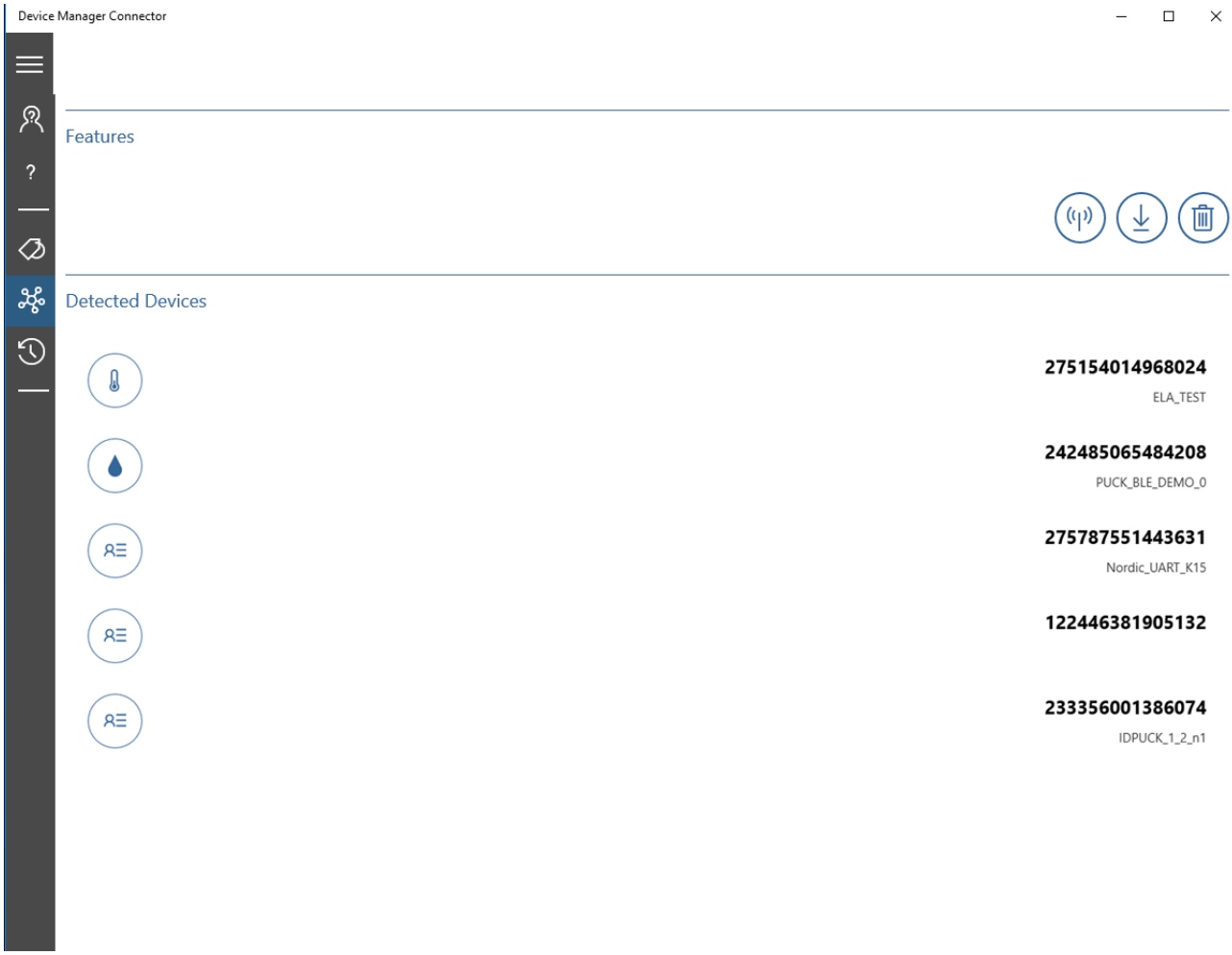


Figure 143 - scan IoT

Each item of the list is clickable and allows you to initiate a Bluetooth connection with the tag. At this point, the application automatically returns to the login page to allow you to access the associated functionalities.

To stop the scan, just click on "**Stop**" through the button available in the control bar.

You may trigger a multiple download of the data logger by using the "Download All" button available in the control panel. The software suggests a set of tags based on the list already available in the IoT scanner. It is essential **to perform a BLE scan** before pressing on "Download All". Otherwise, no information appears in the download window.

When clicking on "**Download All**", a list pops up with a set of BLE objects from which the application will try to retrieve Data logger related items.

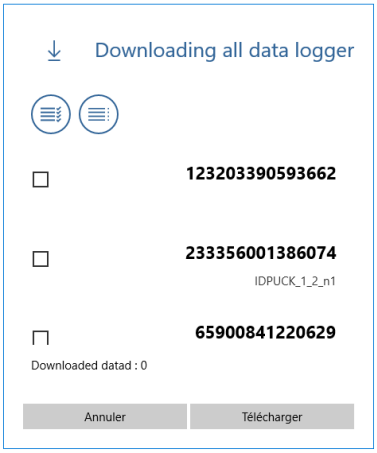


Figure 144 - multiple data logger download window

Several tools are available in this window, so that you can select the desired items before starting the download. Two control buttons allow you to:

Figure 145 - "Download all" selection controller

- 1: select all items in the list
- 2: deselect the items of the list.

You may check or uncheck each item of the list individually by using the check boxes.

Figure 146 – Selecting items to download

Once you have made your selection, click on "**Download**" to start downloading or cancel the operation by clicking on "**Cancel**".
If you choose to "**Download**", a Windows window pops up requesting you to choose a destination folder to initiate the import.

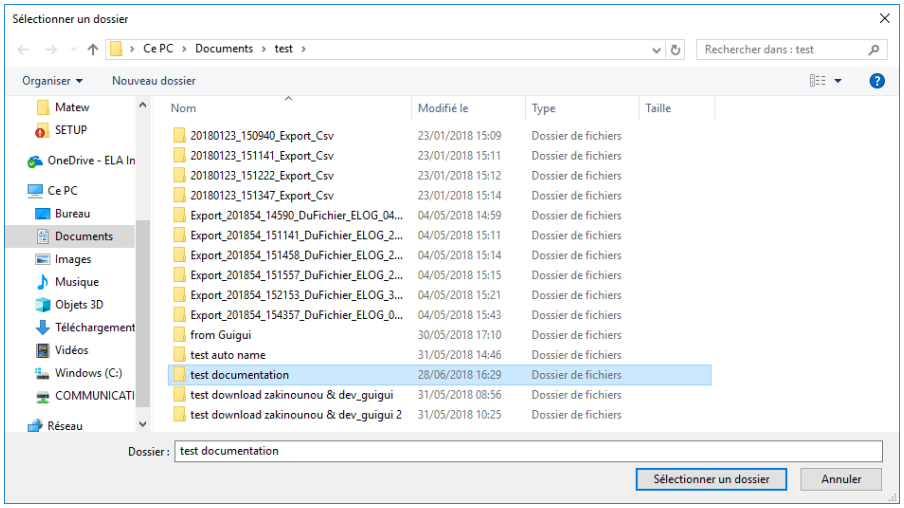


Figure 147 – Specifying a file before multiple before data import

Create a new folder or select an existing one. Once done, click on "**Select folder**" to start the download.

The automatic download starts and you need to wait until the end of the operation to retrieve all your files from the directory you have previously specified.

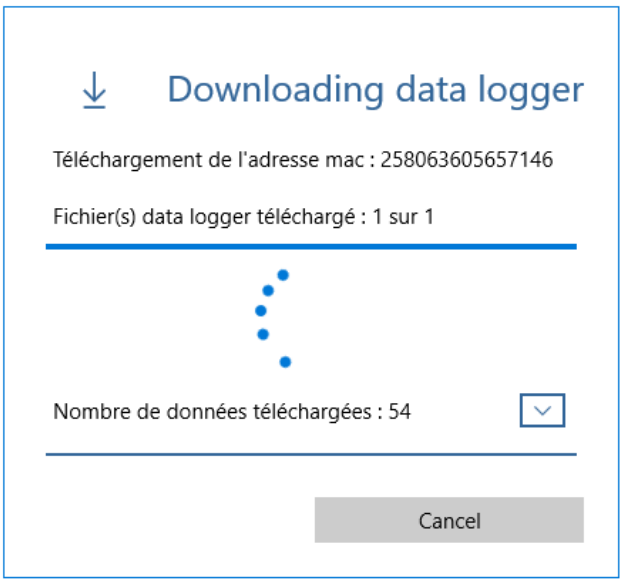


Figure 148 - Multiple automatic download wizard

You can view all data in progress of download by clicking on the expansion button located next to the "**Amount of downloaded data**" label.

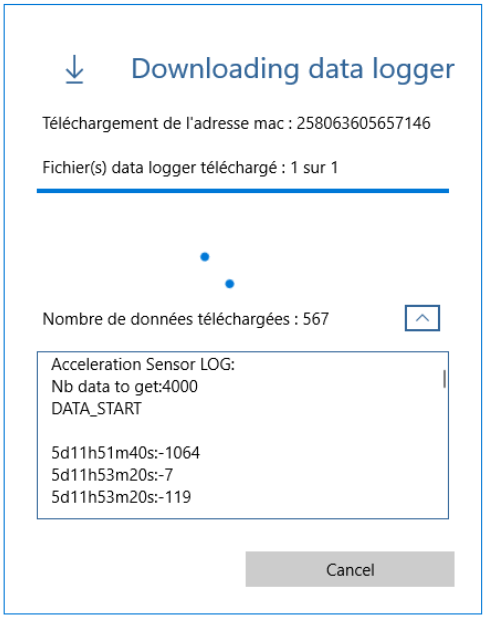


Figure 149 – opening the console

Your files are available in the download directory you have selected previously.

13.1.2 Connection

You can connect to a tag through the IoT scanner by clicking on the item of the table you wish to connect to. The software automatically returns to the login page, and connect to the tag.

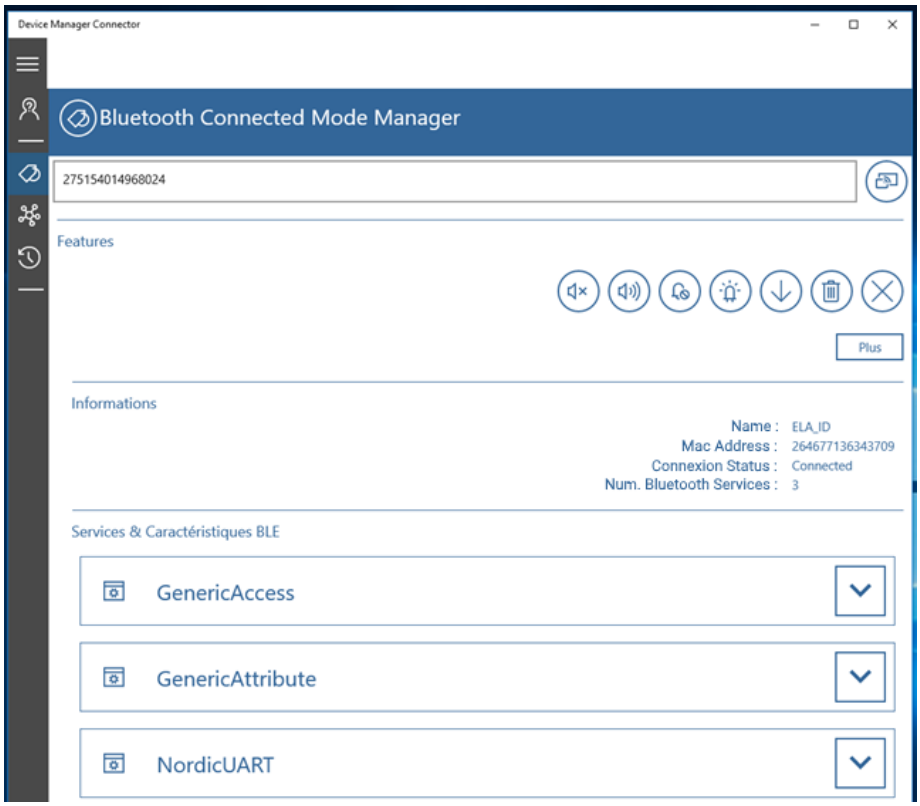


Figure 150 - Bluetooth online mode management

This window consists of four areas:

13.1.2.1 Tag connection bar through mac address

The tag connection bar includes two items for you to connect or to reconnect to the software:

- A text box allows to provide a tag´s mac address
- A right-hand button enables to initiate a connection

13.1.2.2 Tag-related settings

Each button represents a tag command. Following options are available in the order of appearance of the above figure (from the left to the right):

- Turn off the buzzer
- Turn on the buzzer
- Turn off the LED
- Turn on the LED
- Download data logger data from the tag
- Delete data logger data from the tag
- Disconnect from the tag

After logging in, just click once on the button to perform the action.

13.1.2.3 Connected tag-related information

Display of tag related primary data:

- Tag name
- Tag Mac address
- Connection status
- Detected service amount: the detected service amount refers to GATT services as defined by the Bluetooth consortium.

13.1.2.4 Service information & BLE specificities

The service and feature information rely on the data retrieved at tag connection. Click on the extension arrow to find out more about detected services.

This information is generic and GATT-related.

13.1.3 History

The history function allows you to view all previous connections established with a specific a tag (in the current instance of use). This way, you can reconnect to some tags just by clicking on the item in the list, to initialize a new connection.

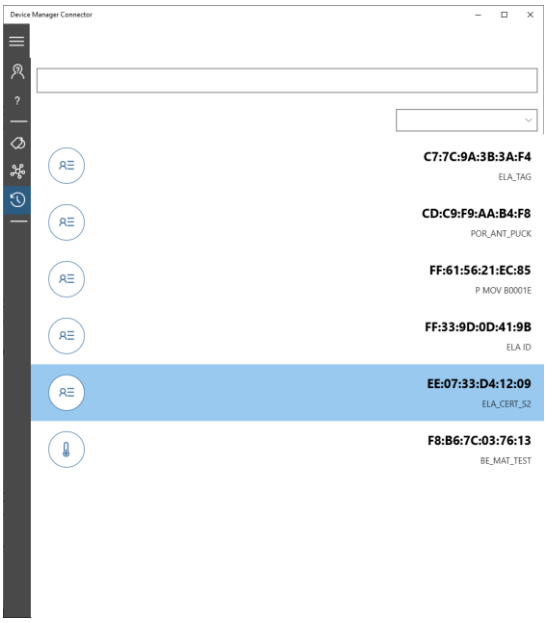


Figure 151 – Connection history

14 DEVICE MANAGER SERVICE

The **Device Manager service** tool establishes a link at Bluetooth Advertising level. All connection operations are automatically managed by the **Device Manager** application.

Its installation is automatically triggered by Windows at **Device Manager** installation provided you have selected following option at the end of the installation: "**Yes, I want to restart my computer**".

You may "**monitor**" and "**manage**" this service by means of additional tools, allowing you to stop, start or restart it.

Both following service management options are available:

- Via the **Notify icon Device** Manager
- Or by running the **Windows Task Manager**

14.1.1.1 Notify icon Device Manager

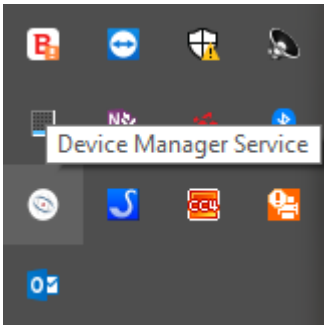


Figure 152 - Notification Device Manager

Right-click on the **Device Manager Service** icon and use the main menu to start or stop the service.

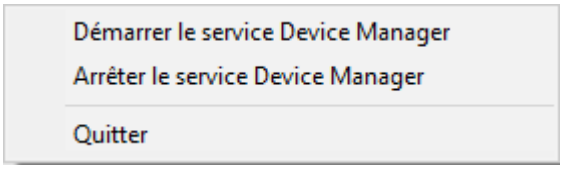


Figure 153 – Service management context menu

The context menu enables to manage the Service's operating cycle:

- Start Device Manager service: forces the service to start (if it has already started, this operation has no impact on the service life cycle)
- Stop Device Manager service: forces the service to stop (if it has already started this operation does not affect the service life cycle)
- Exit: closes the Notification Device Manager Service program

14.1.1.2 Windows task manager

You need to perform this operation manually by using the Windows Task Manager. You can access it by right clicking on the task bar and selecting it from the "**Task Manager**" menu. You may also use the following keyboard shortcut: **CTRL + ALT + Delete**.

If the program is in "**minimized**" mode, click on "**More details**" to expand the Task Manager.

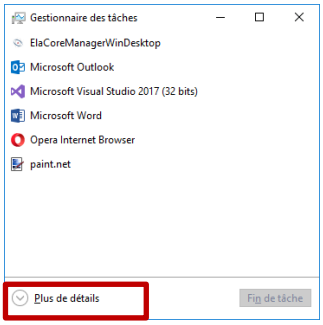


Figure 154 – Minimized task manager

Once the window has been "**expanded** ", select the Service tab.

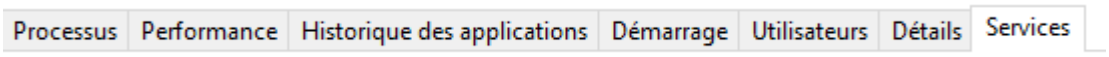


Figure 155 – Task manager Service tab

Then search for a Service named **DeviceManagerService**. Run it manually by right clicking to start (context menu figure 156).

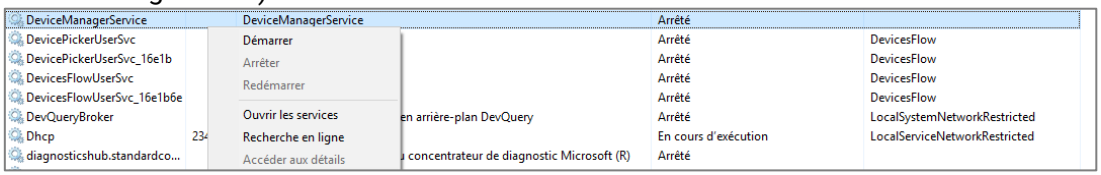


Figure 156 – Service management

You may also choose to stop the service by clicking on the "Stop" menu (only available when in use). However, Device Manager does not start the service automatically if it has been stopped. Device Manager does manage connections to the service automatically at start up, but does not manage the service lifecycle.

15 FILE SYSTEM

Device Manager operates on two folders to ensure its proper functioning:

- The installation folder defined at installer runtime
- The File System in which the application's input/output files (configuration file, log files) are being installed and generated.

To ensure a correct running of the application, we highly recommend you not to modify or delete the files located in these directories.

15.1 Installation directory

The software installation folder includes a set of folders, each of which represents an executable application-related link.

C:\Program Files (x86)\Device Manager Suite

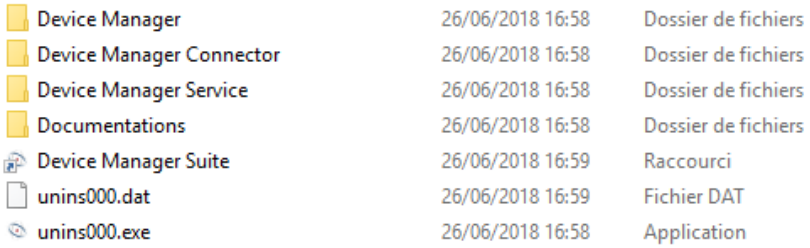


Figure 157 – Installation directory

15.2Application File System

Application file system is located at the root of the hard disk drive.

C:\ela

It contains application-related directories:

- **devicemanager**: for the Device Manager application
- **dmservice**: for the service tool of the application
- **elacore** : for the library function, allowing to interface all our sensors

Figure 158 - file system

16 DOCUMENTATION

Check our website https://elainnovation.com or search the application installation directory to find useful documents about the application.

C:\Program Files (x86)\Device Manager Suite\Documentations

Figure 159 - documentation folder in the installation directory

Following documents are available for this application:

Document	Information	Language
Quick_Start_Guide_Device_Manager_Connector_v1.0.0.pdf	Device Manager Connector Quick Start Guide	EN
Quick_Start_Guide_Device_Manager_v1.0.0.pdf	Device Manager Quick Start Guide	EN
Guide_Utilisateur_FR_Device_Manager_v1.0.0.pdf	Device Manager User Guide	FR

17 Q&A

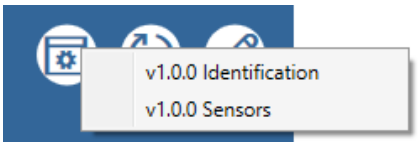
17.1 NFC

Question:

Does the button to display the factory settings allow me to change the tag operation mode in a dynamic way?

Answer:

No, it does not allow changing the sensor's initial operation in a dynamic way. The figure below simply deals with configuration parameters and not with the tag functionality itself.

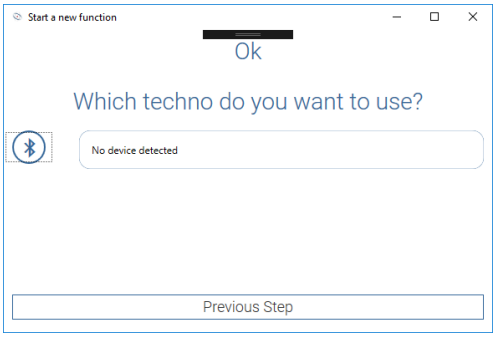


Caution: Warning: changing the configuration does not allow you to change tag functionalities. To collect sensor data, a tag called "sensor" is necessary to report this kind of information. **Changing the configuration does not allow dynamic change in any of the tag functionalities.**

Sensor features are hardware and firmware related, rather than configuration related.

Question:

I cannot see any reader in Device Manager when I start an NFC reader-programming instance. What should I do?



Answer:

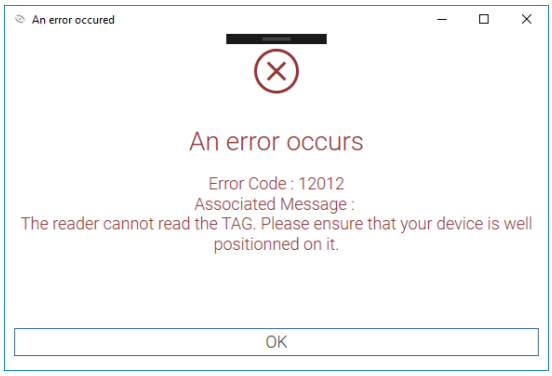
There might be several causes leading to this situation. Would you please ensure that:

- Your player is plugged into a PC USB port
- Check that the smart card library driver is installed correctly

If the problem remains despite all these recommendations, we advise you to contact ELA Innovation support team.

Question:

Error 12012 appears when starting an NFC scan. The reader cannot read the TAG. Please make sure that you have placed the object correctly on the reader.



Answer:

Make sure to position your tag correctly on the reader, and ensure that the indicator switched to a different status from the regular (tag-free) one.

Undetected Tag

Detected Tag

17.2Bluetooth

Question:

When I run an IoT scanner from the drives panel, no device appears.

Answer:

You may encounter an issue with our Bluetooth Advertising service. We recommend you to restart the service by following the process described in section 11.2.1 - restart the Device Manager Service.

If the problem persists, please restart the **Service Device Manager** as described in paragraph 14, and then follow the steps of paragraph 11.2.1.

18 APPENDICES

18.1Firmware and configuration settings

Settings	0.3	0.5	0.6	0.7	0.8	0.9 ID	0.9 Sensor	1.0.0 ID	1.0.0 Sensor
Name	X	X	X	X	X	X	X	X	X
Enable	X	X	X	X	X	X	X	X	X
Power	X	X	X	X	X	X	X	X	X
Format		X	X	X	X	X	X	X	X
Transmission interval	X	X	X	X	X	X	X	X	X
Log interval		X	X	X	X		X		X
Logger active							X		X
Acceleration threshold							X		X
UUID (iBeacon)		X	X	X	X	X		X	
Major (iBeacon)			X	X	X	X		X	
Minor (iBeacon)			X	X	X	X		X	
Major / Minor		X							
NID (Eddystone)			X	X	X	X		X	
BID (Eddystone)			X	X	X	X		X	