



ultrys

User Manual





Acknowledgment

Welcome to the world of high security!

You have purchased ULTRYS software; it will allow you to configure SPECTRE readers, encode user cards and vehicle tags.

We would like to thank you for the confidence you place in us and we hope that this solution developed by STid will keep you satisfied.

We remain at your disposal for any further information about this programming tool and our cutting-edge solutions.

We look forward to seeing you for more information on our website www.stid-security.com.

The STid Team



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1. Information

PC requirements

- A PC with operating system: Windows 7 or 10 or Windows server 2012r2.
- USB communication port.
- 50 MB min of free disk space.

USB Key Content

- FTDI USB Driver for Windows 7, 8.x and 10.
- ULTRYS Version 3.x.x.

Hardware required

To configure the reader:

- USB cable provided with SLA and SMA to directly configure the reader via USB link.

Or

- STid UHF 866-915 MHZ encoder to encode UHF SCB/OCB configuration card:

Part number:

- ARC-Wx5-G/U04-5AA/1
 - STR-Wx5-E/U04-5AA/1 (v10 firmware version required*)
 - GAD-Wx5-E/U04-5AA/1 (v08 firmware version required*)
-
- UHF ISO card part number: CCTW630_AP (ISO card UHF – Broadband- Quanray QS-5AE 64K).

To encode user credentials and vehicle tags:

STid UHF 866-915 MHz encoder, part number:

- ARC-Wx5-G/U04-5AA/1
- STR-Wx5-E/U04-5AA/1 (v10 firmware version required*)
- GAD-Wx5-E/U04-5AA/1 (v08 firmware version required*)

*Identification on the back of the encoder.



Windows Installation

1. Insert the ULTRYS v2 USB stick on an USB port of your PC.
2. Wait for the automatic opening of the browser window.
3. Launch ULTRYS V2.x.x_setup.exe.
4. Follow the instructions on the screen.

Compatibility ULTRYS / Reader Range / User IDs

This ULTRYS version (3.x.x) allows you to configure SPECTRE, SPECTRE NANO, ATX and ATX4 readers.

To configure URx & GAT readers, please use ULTRYS v1.x.x.

	ULTRYS v1	ULTRYS 3.0
SPECTRE + SPECTRE ANTENNA	x	✓
SPECTRE + URD ANTENNA	x	✓
URx + URD ANTENNA	✓	x
URx + SPECTRE ANTENNA	✓	x
Credential encoding in secure mode	x	✓

Warning:

- To read credentials encoded with ULTRYS v1 on a SPECTRE reader: configure the EPC reading in Mode 1(standard) and do not use the EPC filter.
- Credentials encoded with ULTRYS v2 will not read on the Urx /GAT readers.

Compatibility ULTRYS / Firmware reader

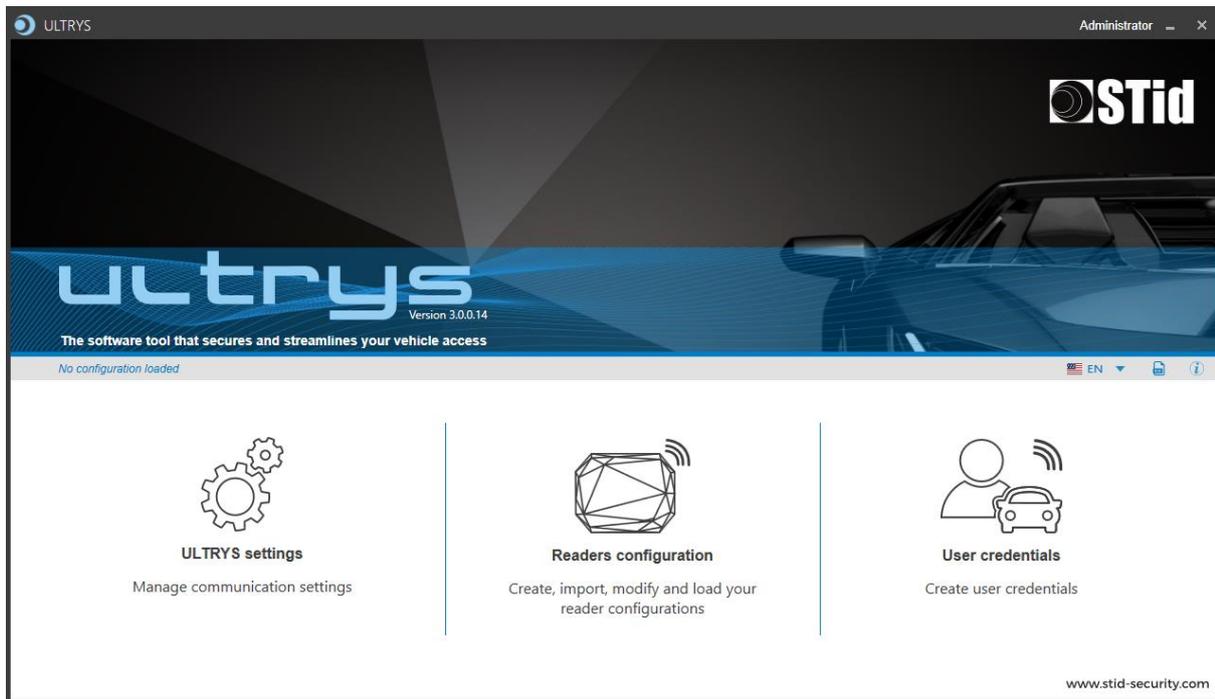
This ULTRYS version (3.x) allows you to configure SPECTRE, SPECTRE NANO, ATX and ATX4 readers according to the firmware version of the reader.

	ULTRYS v2.0	ULTRYS v2.1	ULTRYS v2.4	ULTRYS v3.0
Firmware v7	✓	✓	✓	✓
Firmware v9		✓	✓	✓
Firmware ≥ v10			✓	✓
Firmware ≥ v13				✓



Overview

It is possible to install the software on an unlimited number of workstations.



- ❖ The software is divided into three distinct parts:

- ULTRYS settings

- Readers configuration

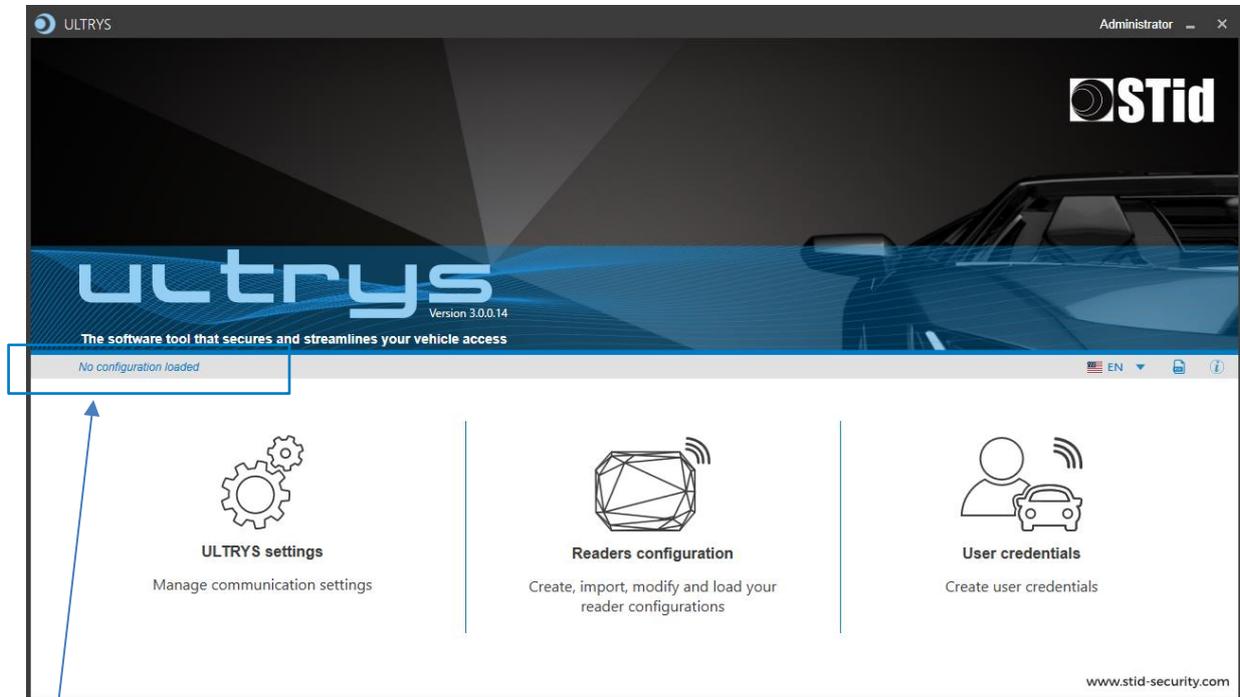
- User credentials

- ❖ On the Home page, you can select the language (English, Spanish, French) and click on the link for user manual.



Open

At the first opening no file is loaded by default.
ULTRYS is directly open on the home page.



This mention indicates the current configuration.

At the next opening, ULTRYS will automatically load the last loaded configuration file.

Two possible cases:

- The loaded file is the one to use
- The loaded file is not the one to use



2. Readers configurable

SLA-Rx1-A-U04-xx / SMA-Rx1-A-U04-xx SLA-Rx2-A-U04-5AB / SMA-Rx2-A-U04-5AB SLA-Rx3-A-U04-7AB/ SMA-Rx3-A-U04-7AB	SPECTRE READ ONLY
SLA-Wx3-A-U04-7OS / SMA-Wx3-A-U04-7OS	SPECTRE OSDP™

SNA-Rx1-A-BT4-xx SNA-Rx2-A-BT4-5AB SNA-Rx3-A-BT4-7AB	SPECTRE NANO READ ONLY
SNA-Wx3-A-BT4-7OS	SPECTRE NANO OSDP™

ATX-Rx1-A-U04-xx ATX-Rx2-A-U04-5AB ATX-Rx3-A-U04-7AB	SPECTRE ATX READ ONLY
ATX -Wx3-A-U04-7OS	SPECTRE ATX OSDP™

ATX4-Rx1-A-U04-xx ATX4-Rx2-A-U04-5AB ATX4-Rx3-A-U04-7AB	SPECTRE ATX 4 READ ONLY
ATX4 -Wx3-A-U04-7OS	SPECTRE ATX 4 OSDP™

SPECTRE

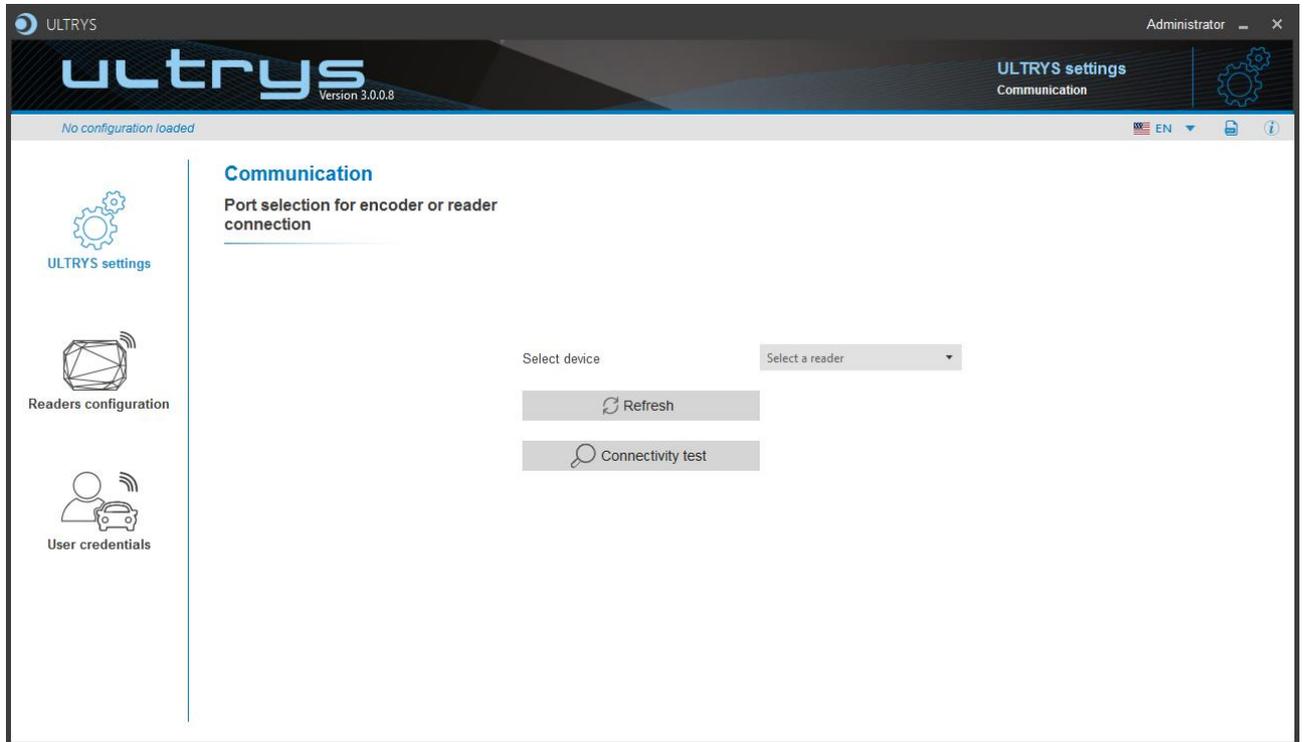


[SPECTRE READ ONLY](#) 

[SPECTRE OSDP™](#) 

3. Reader configuration SPECTRE READ ONLY

3-1 ULTRYS settings



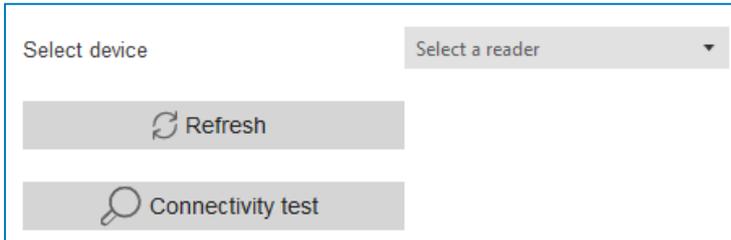
- Connect the SPECTRE reader to the PC using the provided USB cable to load the configuration via serial link directly onto the reader.



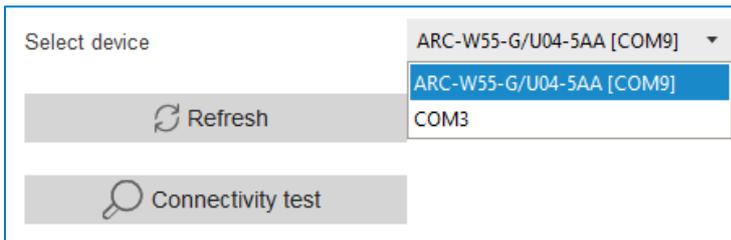
or

- Connect an UHF encoder to the PC to load the configuration onto UHF SCB configuration card.

To set the communication port

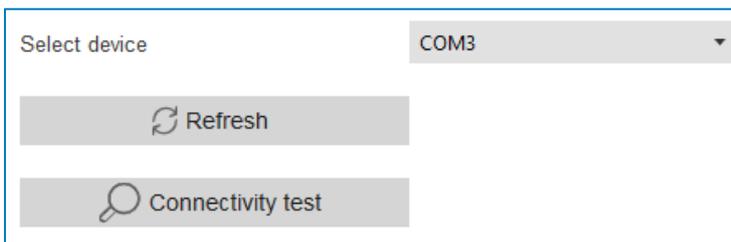


1- Click on 'Refresh' to detect all readers connected to the PC.

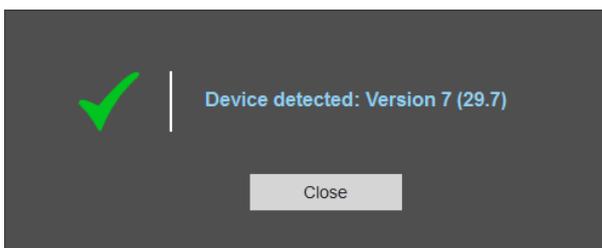


2- Open the dropdown list Select device

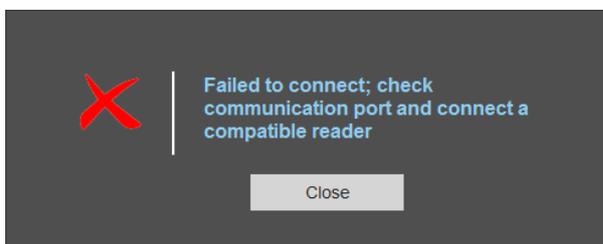
3- Readers whose firmware is ≥ 8 will appear in the drop-down list under their commercial reference. Select the communication port number for the encoder or reader or select the reader to use.



4- Run the connectivity test



Message OK (with indication of the firmware version).



Message: Failed

- Check the compatibility of the reader.
- Check the USB cable.
- Check the Baudrate reader: it must be fixed to 115200.

Note: during the connectivity test on a UHF encoder, a sound and light signal (orange) will be emitted for 1 second.

3-2 Create new configuration



The reader configuration is done in 9 steps. To move from one stage to another, you must click on "Next".

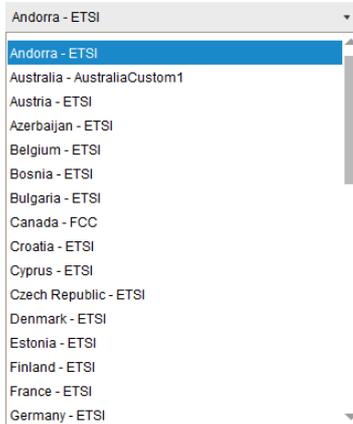
	UHF frequency band regulation
	Configuration protection loaded into the reader
	Reader configuration
	Antenna type selection
	Installation configuration
	Light indicator configuration
	Reading & communication parameters
	User Security Roles
	Configuration save and protect

Step 1- UHF frequency band regulation



1

The frequency bands depend on the installation location

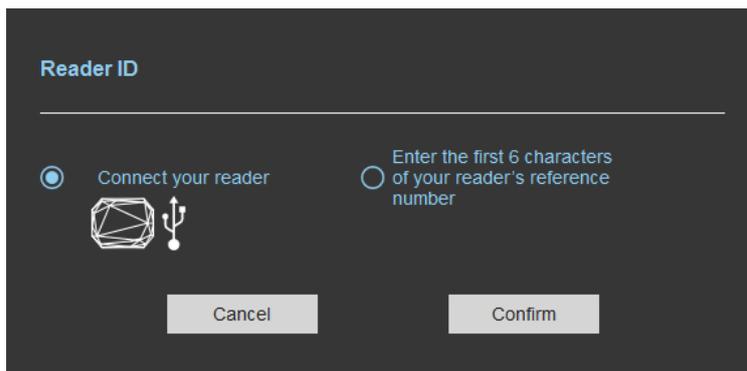


Type the first characters to display a country or select the country in which the installation will be done.

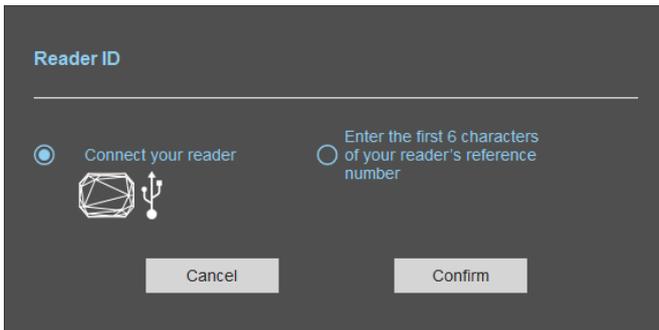
For a country which is not in the list, please contact STid: support@stid.com.

2

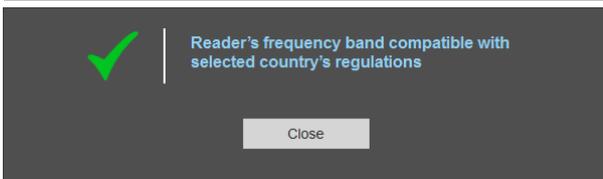
To approve the feasibility to install your reader in the selected country, you can check the compatibility.



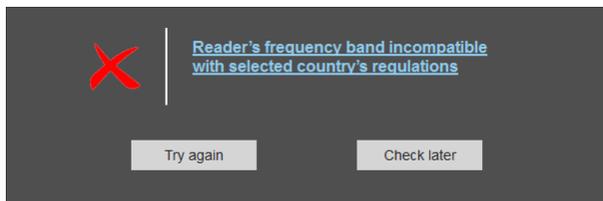
With USB reader connection



- 1- Connect the reader and set the communication COM port.
- 2- Select 'Connect your reader'
- 3- Please confirm

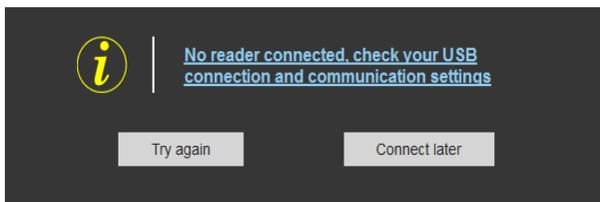


Message: OK



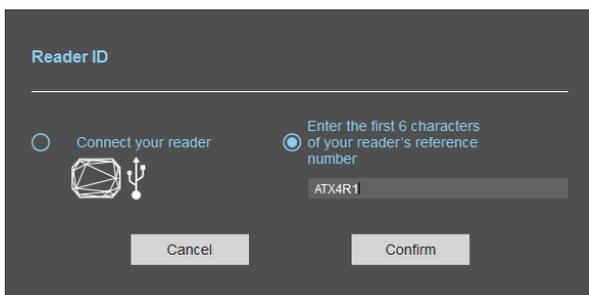
Message: NOK

The reader can't be installed in the selected country.



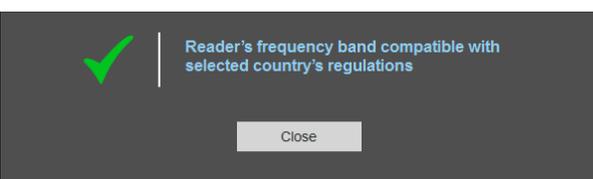
- Check the USB cable
- Check the communication with reader

With reader part number

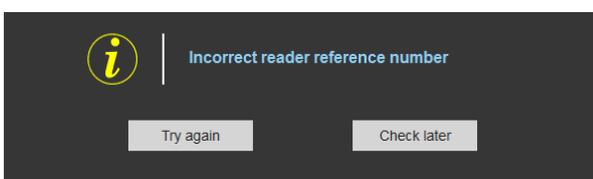


Enter the first 5 characters of the reader part number

Example: SLAR41, SLAR51, SMAR43...

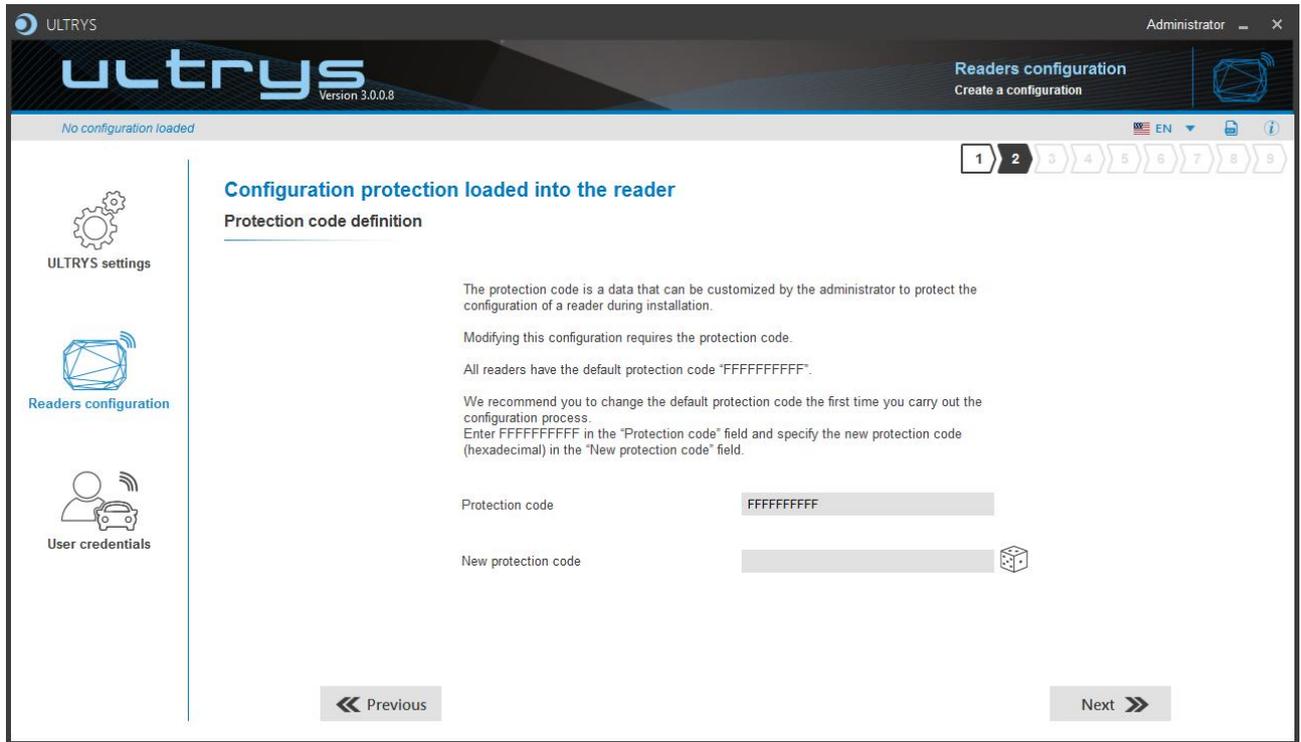


Message: OK



Message: the reference reader is not compatible with regulation selected.

Step 2- Configuration protection loaded into the reader



SPECTRE readers are initially supplied with a default configuration and a protection code to 0xFFFFFFFFF.

The size of this protection code is 5 bytes (10 hexadecimal characters).

After the initial setup and in order to reconfigure the reader, it will be necessary to present an UHF SCB card or a configuration file with the same 'protection code' as the reader.



Random protection code generator.

Caution

This protection code is important and should definitely be known by the administrator. It protects the configuration data and allows reader configuration updates.

If you lose this protection code, you won't be able to reconfigure the reader again and the reader must be reset at the factory.

To change the protection code, it will be necessary to know the current protection code.

Step 3- Reader configuration



1 Selecting the reader type

SPECTRE SLA-R4/5x-A/U04-xx readers can be configured in “Read only” mode from firmware version 7.

2 Selecting Firmware

You must select the firmware version that is compatible with your reader.

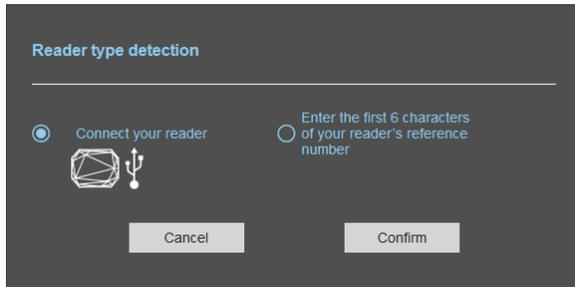
To do so, you can manually select the reader and firmware version, or you can use the function "Auto detection – Connect and check my reader configuration".

Compatibility between firmware readers and ULTRYS versions

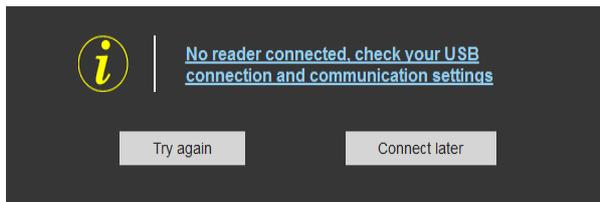
		ULTRYS softwares			
		ULTRYS V2.0	ULTRYS V2.1	ULTRYS V2.4	ULTRYS V3.x
Firmware versions	v 7	✓	✓	✓	✓
	v 9		✓	✓	✓
	v 10,11,12			✓	✓
	> v 13				✓

Close

With USB reader connection



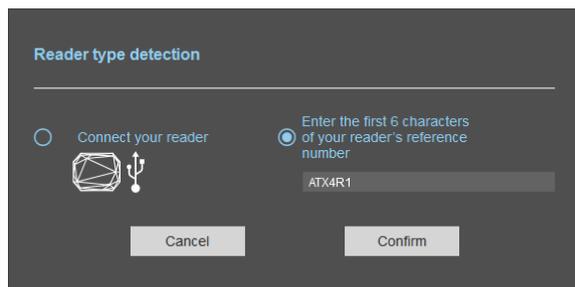
- 1- Connect the reader via USB cable provided. Configure the communication parameters.
- 2- Select the Connect your reader.
- 3- Click on Confirm.



Message : NOK

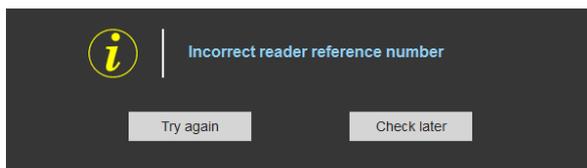
- Check the USB cable
- Check the communication with reader

With reader's number reference



Enter the first 6 characters of your reader's reference number.

Examples: SLAR41, SLAR51, SMAR41



Message: NOK

Check your reader's reference number.

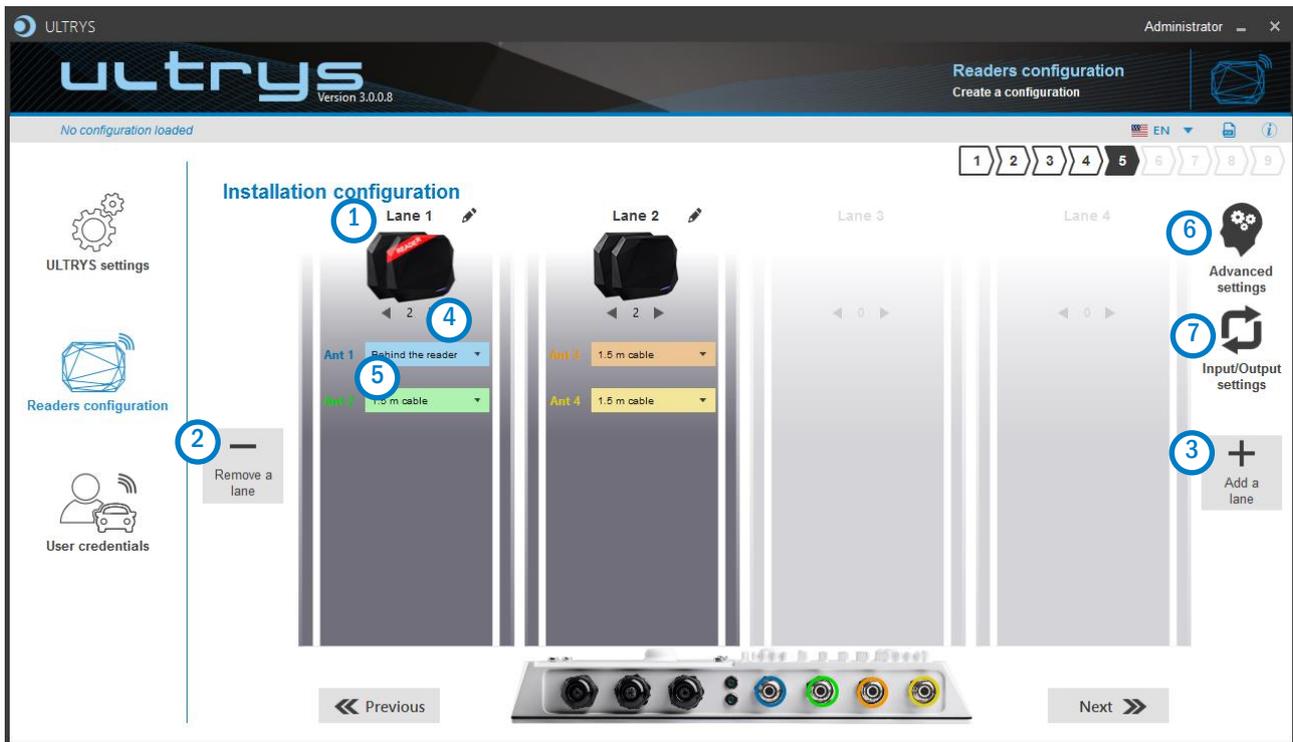
Step 4- Antenna type selection



The SPECTRE reader can be connected to new SPECTRE antennas (ANT-UHF2), or previous antennas (ANT_URD).

Select the type of antenna used in the installation and compatible with the reader selected.

Step 5- Installation configuration with SPECTRE Antenna



① Name the lane

Maximum 10 characters.

For example, Entry1.

②③ Add / Delete lane

Use 'Add /Delete lane' to configure the number of lanes you will use in your application.

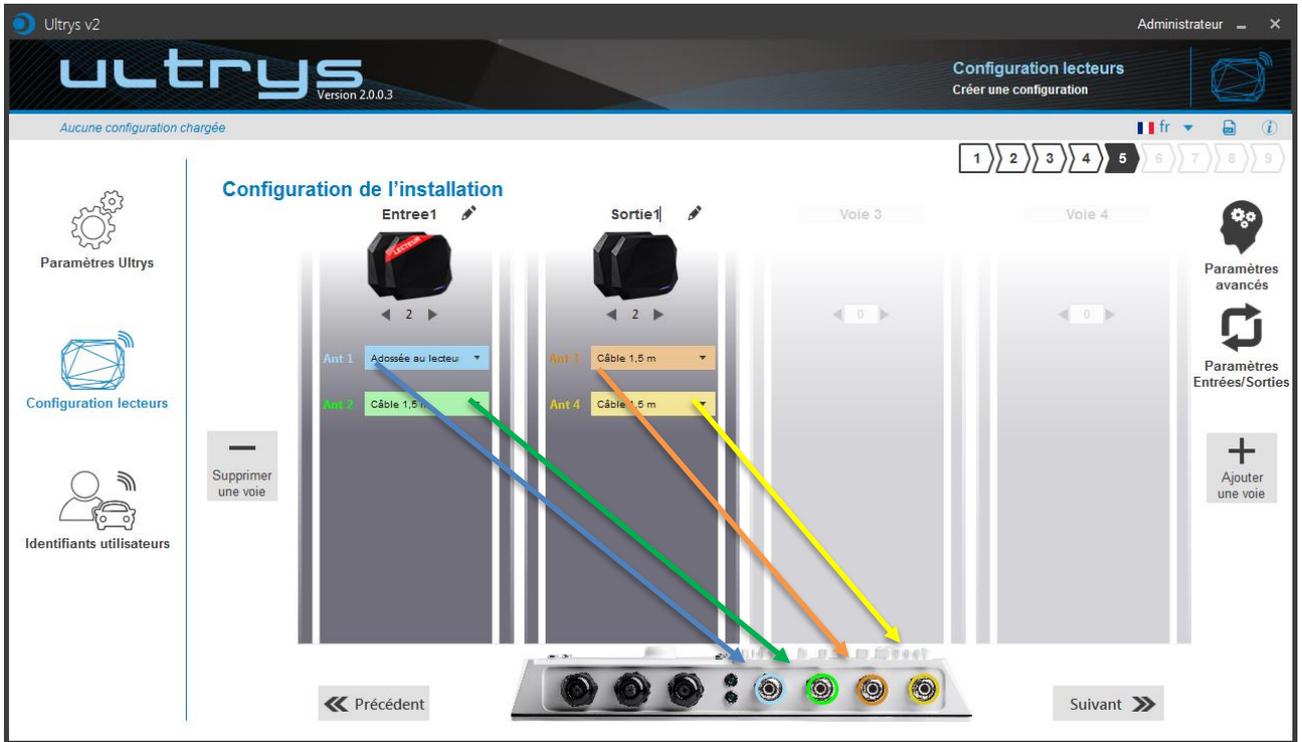
The default setting is one antenna on the first lane.

[For more information about the possible combination please refer to the document NA_SPECTRE.](#)

④ Add / Remove antenna on lane

Set the number of antennas on the corresponding lane.

When an antenna is added, the RF port to which the antenna has to be connected appears on the reader with corresponding color to help the installation.

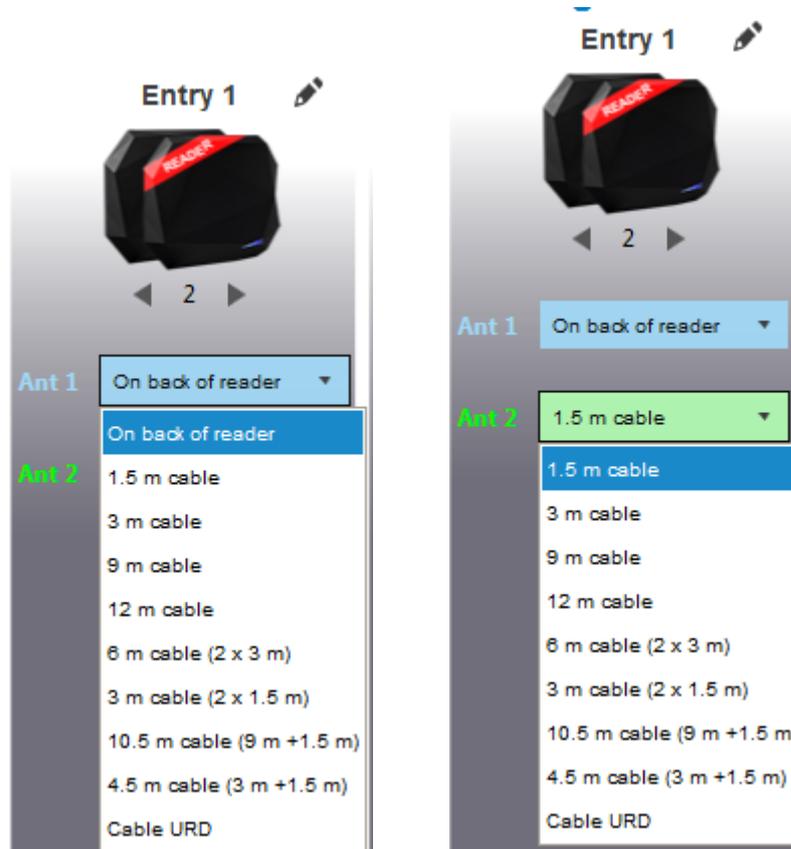


RF ports are assigned in order to add the antennas in the configuration wizard. When an antenna is removed from the configuration, the RF port connection for other antennas does not change.

Example: Ant 2 deleted from lane 1 and added to lane 2.



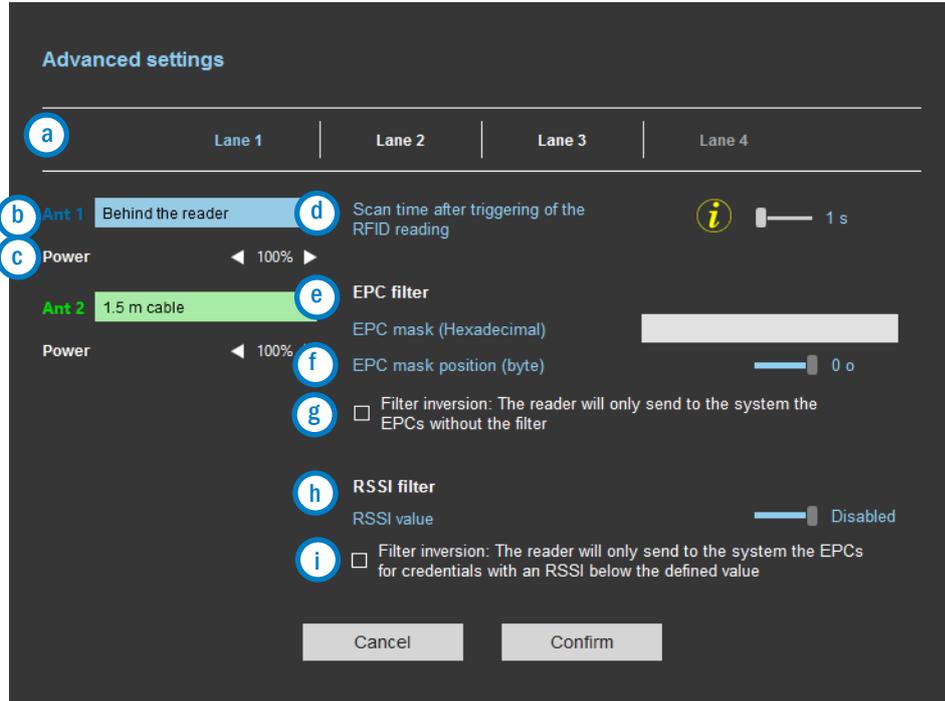
5 Select the cable length for each antenna



For each antenna, select the cable length you would like to use between antenna and reader.

Only the first Antenna of the lane 1 can be lean against the reader.

⑥ Advanced settings



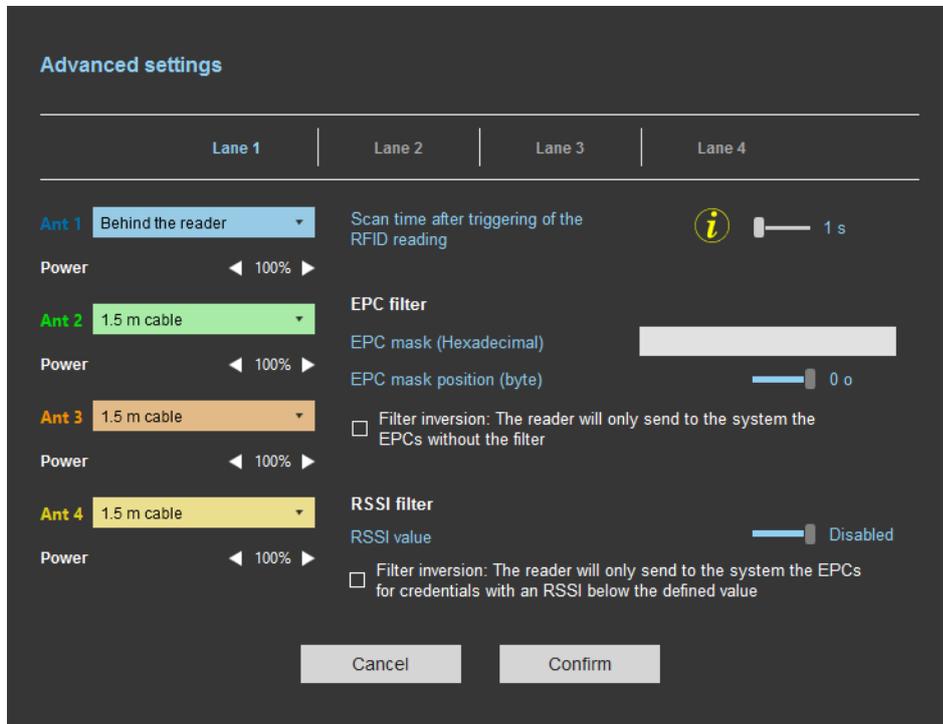
- a** Select the lane to configure. The lanes selected in installation setup are in white, unused lanes are grayed out. When a lane is selected in Advanced parameters it is written in blue.
- b** Select / Change the cable length between the antenna and the reader.
- c** Adjust the power of each antenna (from 10% to 100%) to adjust the reading distances.
- d** Adjust the timing for a scan (reading) by step of 1 second (max 30s). This setting is taking into account only if Input type selection is set to Activating all lanes or Activating the event lane.
- e** **The EPC filter is not available in Secure Mode.** Enter the value for EPC Mask, max 62 hexadecimal bytes.
- f** Adjust the value for offset EPC mask in bytes (0 to 65535). It depends on the EPC Mask length.
- g** Filter inversion not selected: only tags with an EPC value corresponding to the EPC mask value will be provided to the user.

Filter inversion selected: only tags with an EPC value different from the EPC mask value will be provided to the user.
- h** RSSI (Received Signal Strength Indication) is a measure of the power in reception of the tag response. The value returned by the reader is proportional to the amplitude of the reception signal.
Adjust the RSSI value (-110dBm to 0dBm). 0dBm deactivates the RSSI filter.
- i** Filter inversion not selected: only tags with an RSSI greater than or equal to the specified value will be provided to the user.
Filter inversion selected: only tags with an RSSI smaller or equal to the specified value will be provided to the user.
Ex: RSSI filter= -49dBm + Reversal not selected
A tag that will have a RSSI value of -20dBm will be sent back,
A tag that will have a RSSI value of -60dBm will not be sent back.

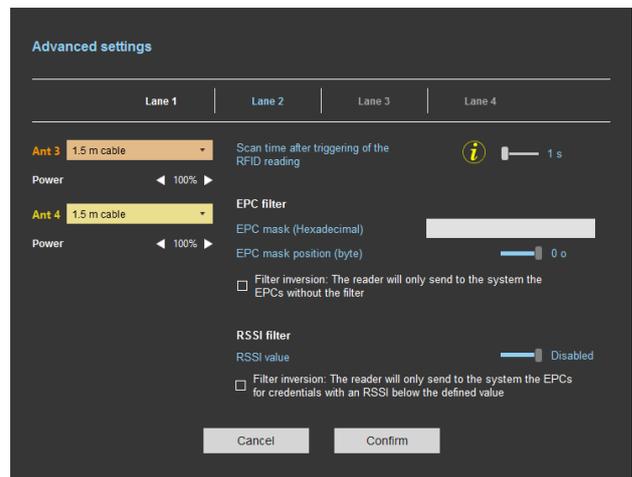
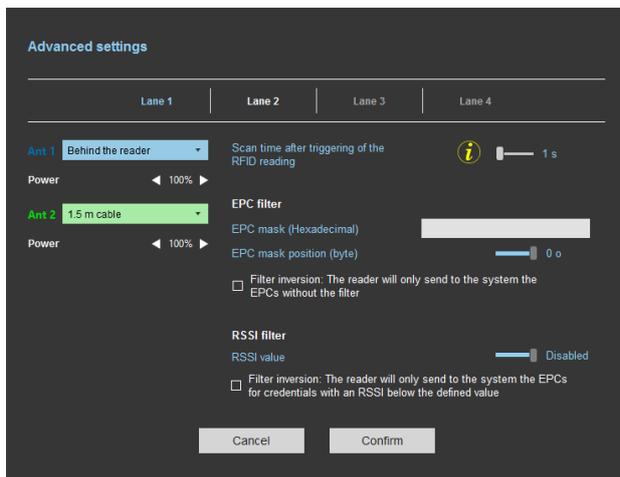
Scan time, EPC filter and RRSI filter settings are the same for antennas on the same lane.

The cable length and RF power antenna are set for each antenna.

Example 1: 4 antennas on lane 1.



Example 2: 2 antennas on lane 1 et 2 antennas on lane 2.



EPC Filter

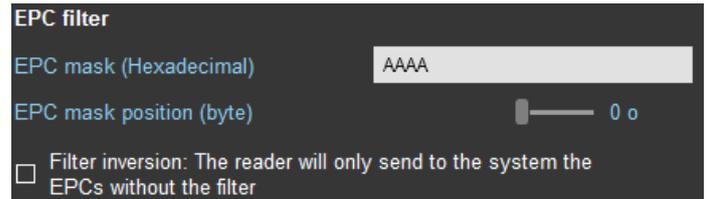
Examples:

Code EPC Tag 1: AAAAABCD000000000000000001
 Code EPC Tag 2: AA02ABCD000000000000000002
 Code EPC Tag 3: AA02ABCD000000000000000003
 Code EPC Tag 4: AA02FFFF000000000000000003

1- EPC mask = AA AA and Offset = 0

Tag 1: **AAAA**ABCD00000000000000000001
 Tag 2: AA02ABCD00000000000000000002
 Tag 3: AA02ABCD00000000000000000003
 Tag 4: AA02FFFF00000000000000000003

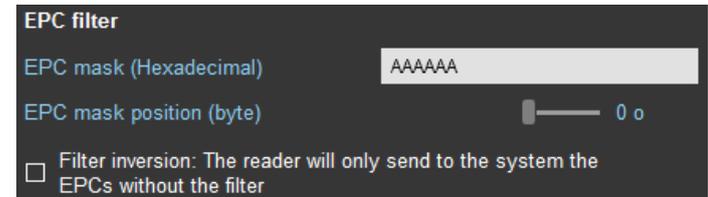
Only tag 1 is transmitted.



2- EPC mask = AA AA AA and Offset = 0

Tag 1: AAAAABCD00000000000000000001
 Tag 2: AA02ABCD00000000000000000002
 Tag 3: AA02ABCD00000000000000000003
 Tag 4: AA02FFFF00000000000000000003

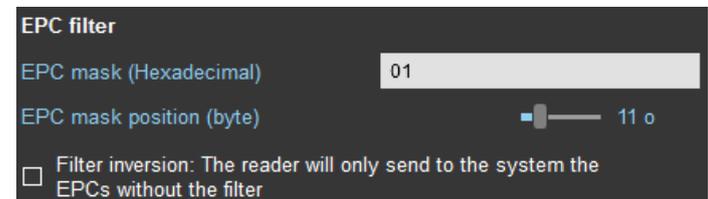
No tag is transmitted.



3- EPC mask = 01 and Offset = 11

Tag 1: **AA AA AB CD 00 00 00 00 00 00 00 01**
 Tag 2: AA 02 AB CD 00 00 00 00 00 00 00 02
 Tag 3: AA 02 AB CD 00 00 00 00 00 00 00 03
 Tag 4: AA 02 FF FF 00 00 00 00 00 00 00 03

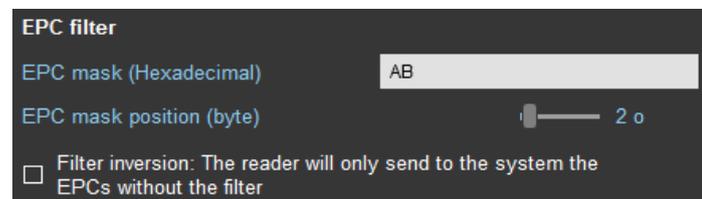
Offset is represented in blue; the filter is done on byte 12.
 Only tag 1 is transmitted.



4- EPC mask = AB and Offset = 2

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

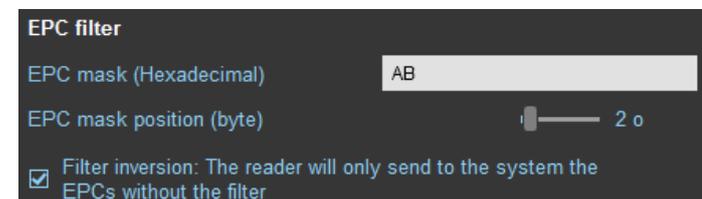
Tags 1, 2 and 3 are transmitted.



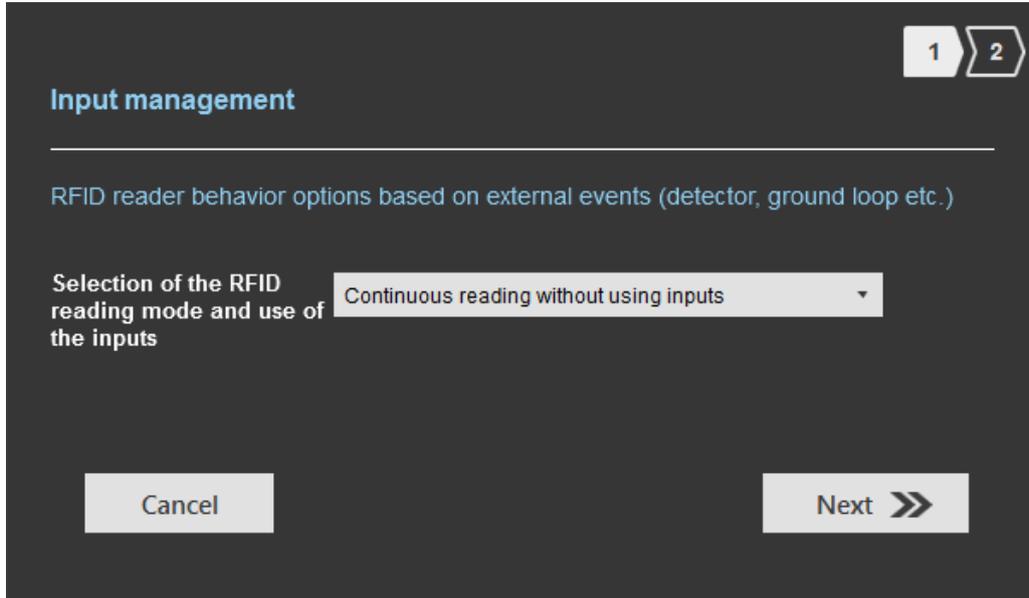
5- EPC mask = AB, Offset = 2 and Reversal

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

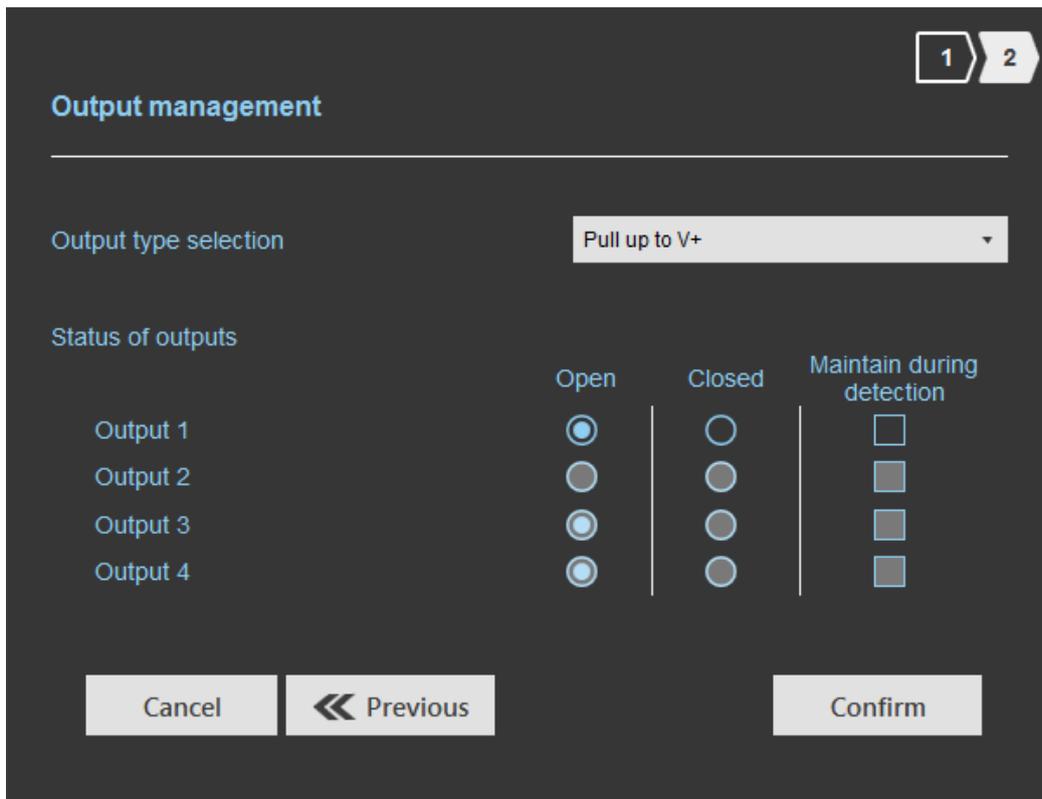
Tags 1, 2 and 3 are not transmitted. Only tag 4 is transmitted.



⑦ Input / output settings

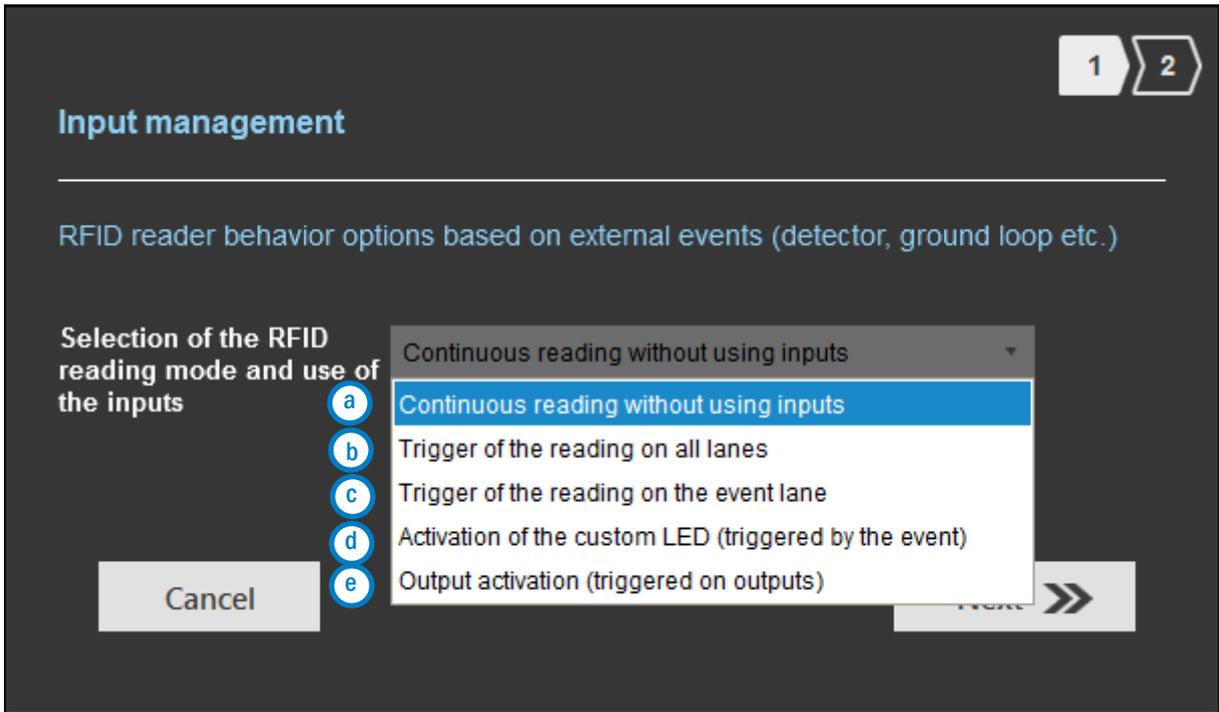


The configuration of the outputs depends on the reading mode chosen.

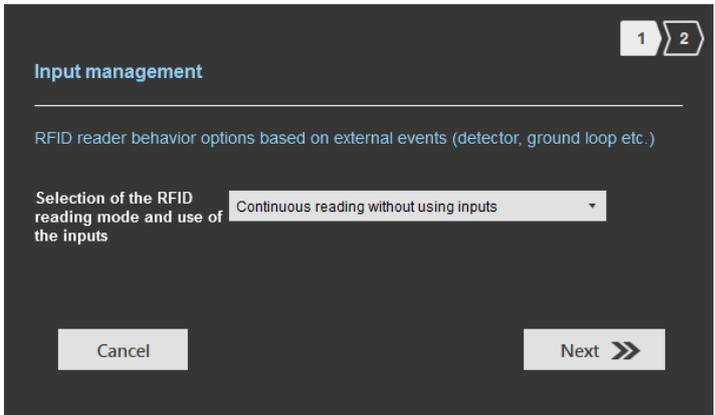


Both types of output are « Pull up to V+ » or « Open drain ».

Status of outputs: select for each output the default state 'Open' or 'Closed' and if the state is maintained during the detection process.

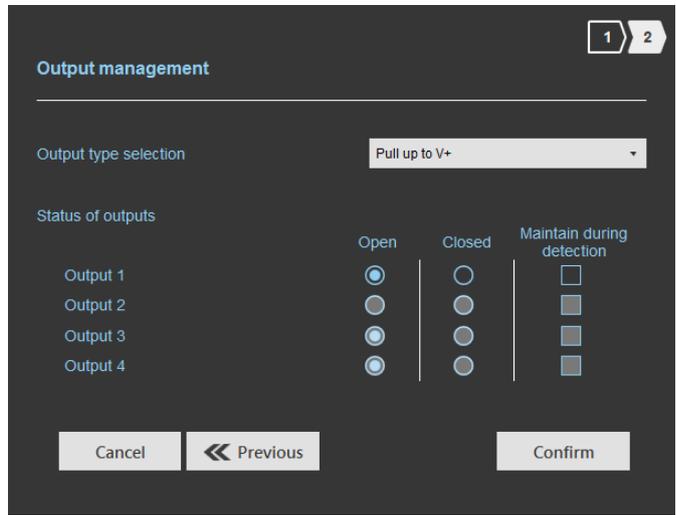


a Reading mode = Continuous reading without using inputs



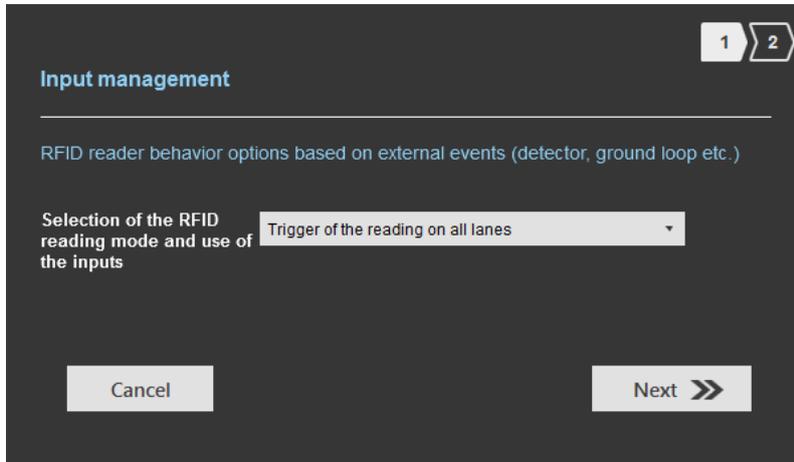
In this mode, the reader scan continuously.

There is no action on input activation.



Select the output type and default state for output.

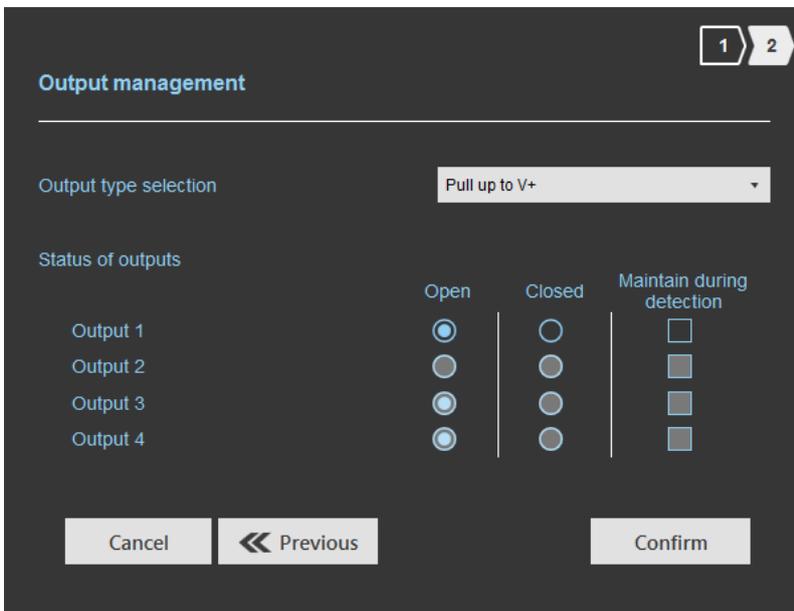
b Reading mode = Trigger of the reading on all lanes



If an Input is activated (In1, In2, In3 or In4), the reader scans on all lanes set.

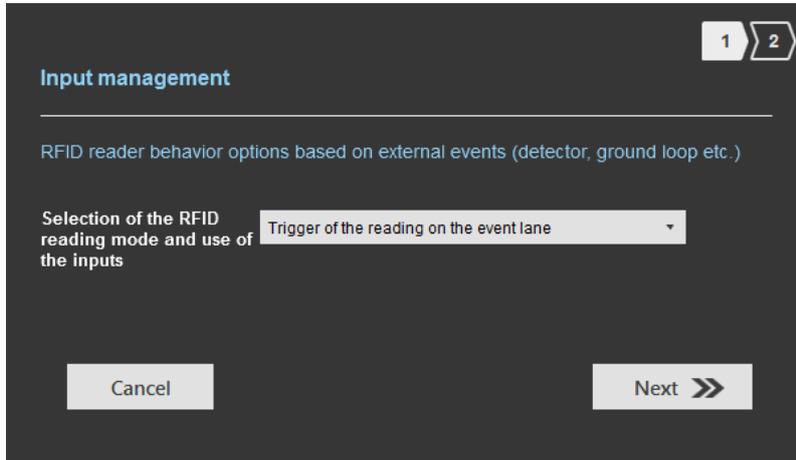


The duration of the reading is defined in 'Advanced settings'.



Select the output type and default state for output.

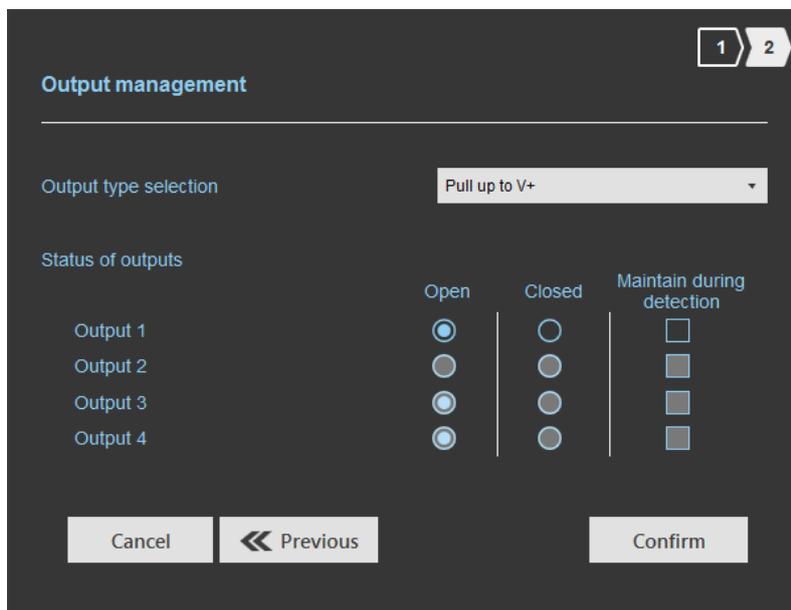
C Reading mode = Trigger of the reading on the event lane



If an Input is activated, the reader scans on the corresponding lane.

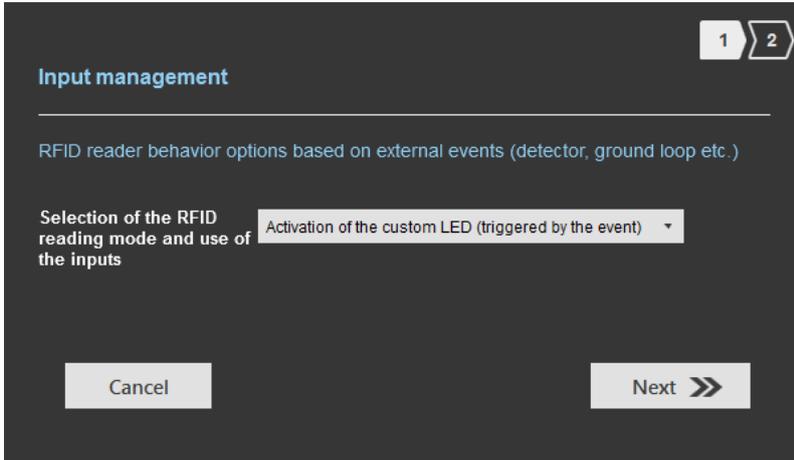


The reading duration is defined in 'Advanced settings'.



Select the output type and default state for output.

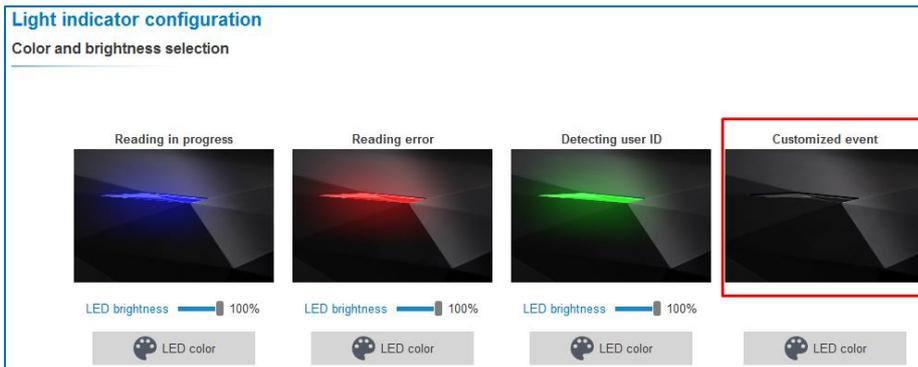
d Reading mode = Activation of the custom LED (triggered by the event)



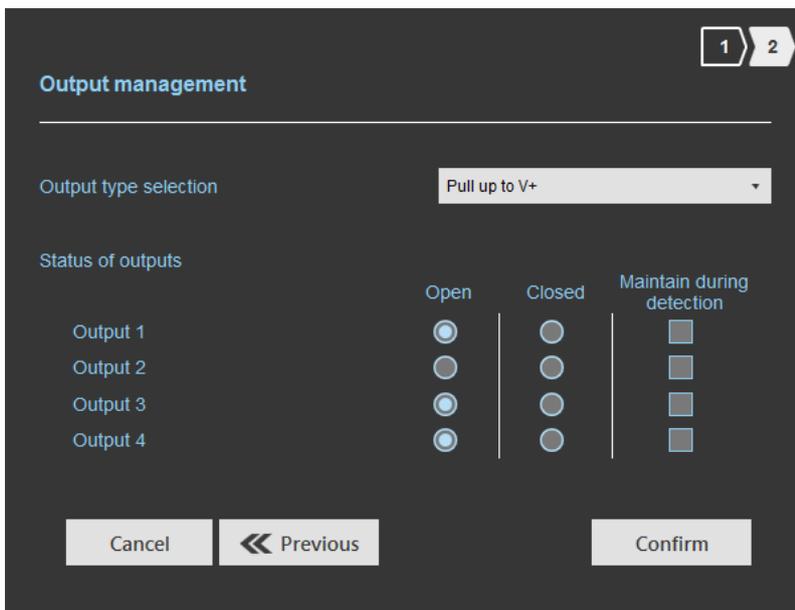
The LEDs are activated on 'Customized event' color during 1 second by Input.

Examples:

- On lane 1 there is one antenna, an action on Input1 activates the LED during 1 second.
- On lane 2 there are four antennas, an action on Input2 activates the LED on each antenna during 250 ms.



The LED 'Customized event' color is defined on step 6: Setting up light indicator.



Nothing to do.

e Reading mode = Output activation (triggered on outputs)

Input management

RFID reader behavior options based on external events (detector, ground loop etc.)

Selection of the RFID reading mode and use of the inputs: Output activation (triggered on outputs)

Buttons: Cancel, Next >>

An action on Input toggles the corresponding output regardless of RF function of the reader.

Output management

Output type selection: Pull up to V+

Status of outputs	Open	Closed	Maintain during detection
Output 1	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 2	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 3	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 4	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

Buttons: Cancel, << Previous, Confirm

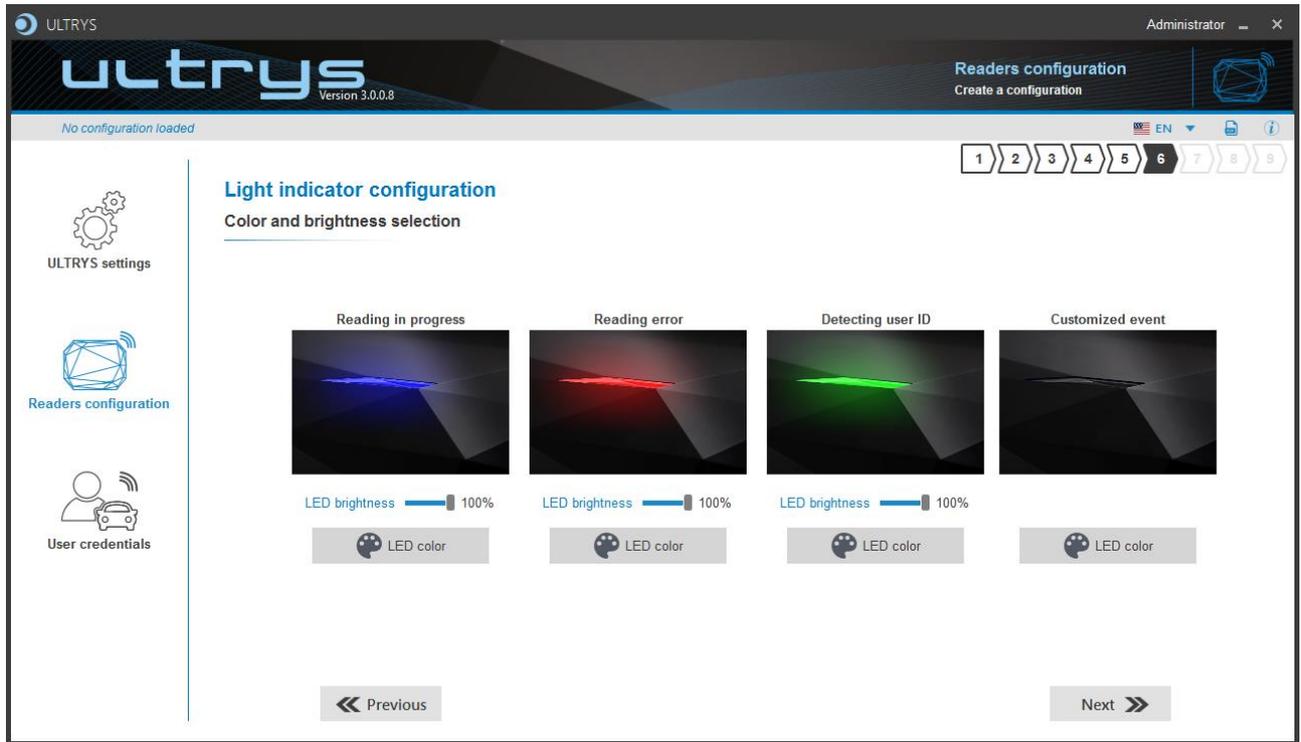
Select the output type and default state for output.

Summary table

Reading Mode	Input	Configurable Outputs states?	Maintain during detection available?	Output
a Continuous reading without using inputs	No action	Yes by lane	Yes by lane	<p>- If 'Continuing during detection process' not activated: the output state toggles at the ascent.</p> <p>- If 'Continuing during detection process' activated: the output state toggles to the RF detection and remains in this state as long as, at each scan is at least one detection.</p>
b Trigger of the reading on all lanes	An action on any input activates the reading on all configured lanes.	Yes by lane	Yes	<p>- If 'Continuing during detection process' not activated: the output state toggles at the ascent during the ascent time of the identifier (physically on the BUS + 200ms).</p> <p>- If 'Continuing during detection process' activated: the output state toggles to the RF detection and remains in this state as long as, at each scan is at least one detection.</p>
c Trigger of the reading on the event lane.	An action on Input x activate the scan on lane x.	Yes by lane	Yes	
d Activation of the custom LED (triggered by the event)	Custom LED lighting for all antennas / lane	No	No	In this mode the Outputs are not usable.
e Output activation (triggered on outputs)	An action on an Input toggles the corresponding output.	Yes	No	The output state is only linked to a user action on the input.

Note: as long as the action is detected on the input, the output remains toggled.

Step 6- Light indicator configuration



Reading in progress:

This LED lights when the RF is on.

After initializing reader sequence, this LED must be lit on the selected color.

Reading error:

This LED lights when the RF is bad, in this case the reader can't read the tag.

- Check the antenna connection
- Check the antenna cable

Detecting user ID:

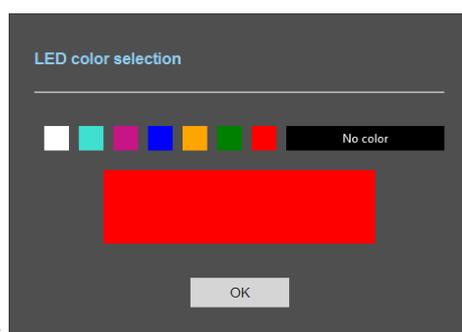
This LED lights when a tag is detected by the antenna.

Customized event*:

By default, there is no color.

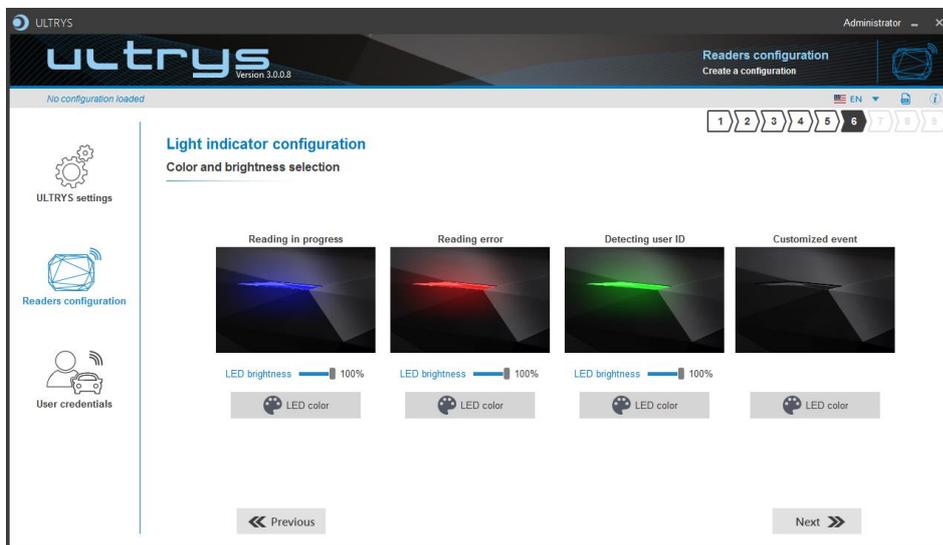
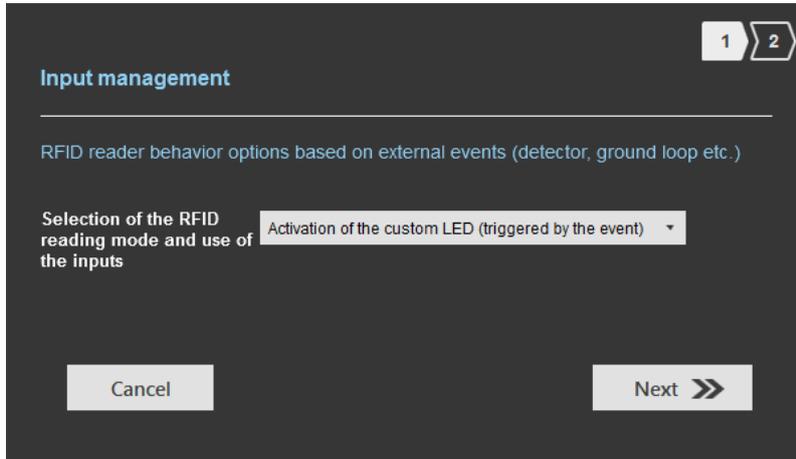
LED brightness:

The LED brightness can be adjusted by step of 10% (from 10% to 100%)



LED color:

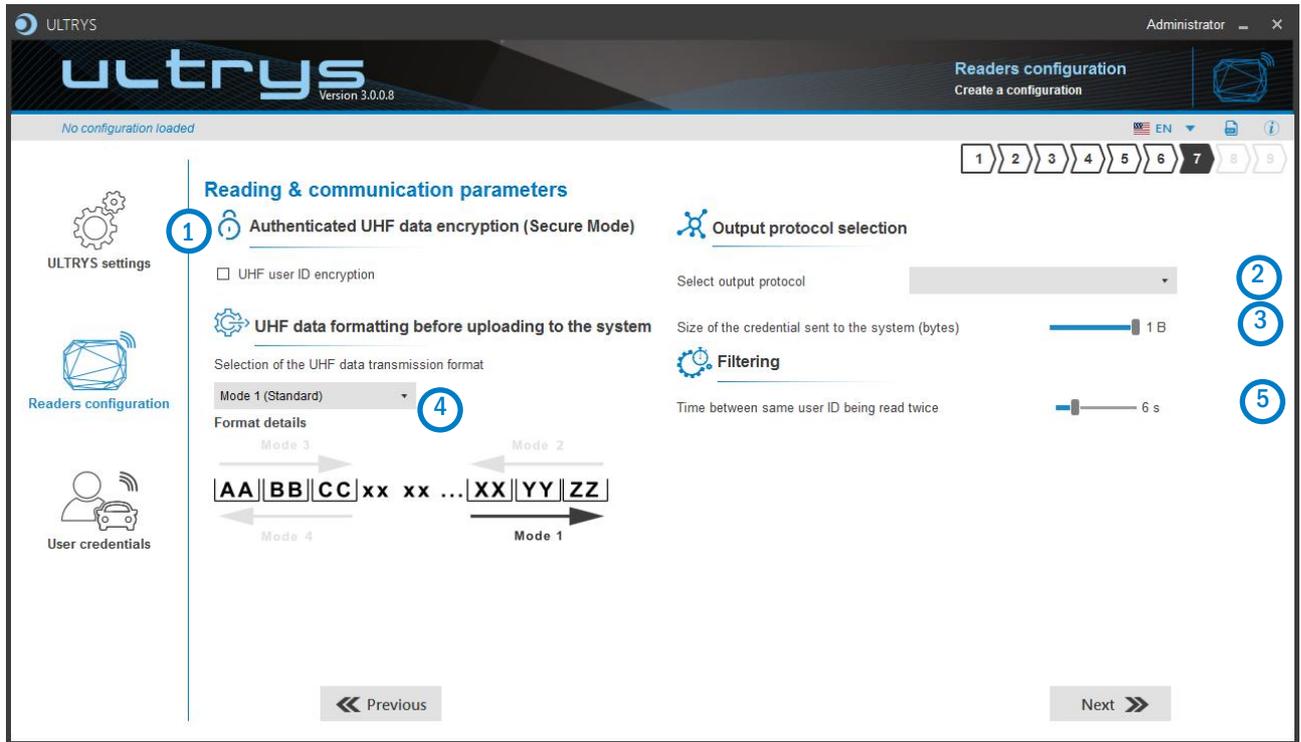
* The LED 'Customized event' only appears if 'Reading Mode' = Continuous reading + custom LED lighting.



Default display:



Step 7- Reading & communication parameters



The EPC can be encrypted and signed before being written in the tag.

The reader will decrypt and authenticate the EPC before sending it on its output media.

Only an EPC correctly decrypted and authenticated will produce an output data, otherwise the reader will remain mute.

Notes:

- Only UHF tags compatible with “FAST ID” feature and having at least 128 bits of EPC can be decrypted and authenticated by the SPECTRE Access reader. The chips compatible with secure encoding are: Monza X, Monza R6P, Monza 4D, this chip is present into
 - TLTA-W53M-943_S
 - TLTA-W75B-943_S
 - IronTag Aero
 - CCTW490_AN
- **The secure mode is not accessible if an EPC mask has been set in ‘Advanced settings’.**

Note: After setting an EPC security key, if you return to step 5 with the Previous button, and you set an EPC filter, then returning to step 7, the "EPC ID Security" checkmark is displayed. in gray, the key field is still accessible but not taken into account.

② The displays depend on the Ultrys version chosen in step 3.

Firmware =7.0

Firmware >=9.0

RS232 / RS485

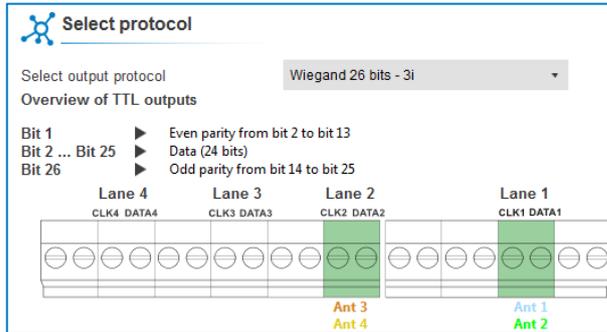
Serial frame:

1 byte	X bytes	1 byte	1 byte	1 byte	1 byte
<i>STX</i>	<i>Data*</i>	<i>LRC</i>	<i>CR</i>	<i>LF</i>	<i>ETX</i>

**Doubled if the ASCII option is activated.*

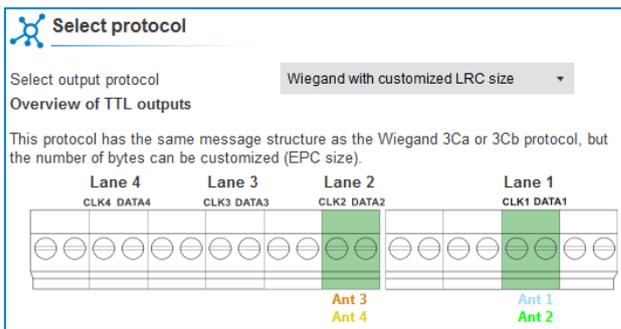
Data	Data sent in decimal or hexadecimal format.
Padding	Add on the frame leading zeros. If this option is not activated, the leading zero won't sent.
STX+ETX	Add STX (0x02) and ETX (0x03) in the frame.
CR	Carriage return (0x0D).
LF	Line feed (0x0A).
LRC	Checksum byte by XORing of all previously characters without the STX.
ASCII	If this option is activated, the Data will be sent in ASCII mode.

Wiegand 26 bits- 3i

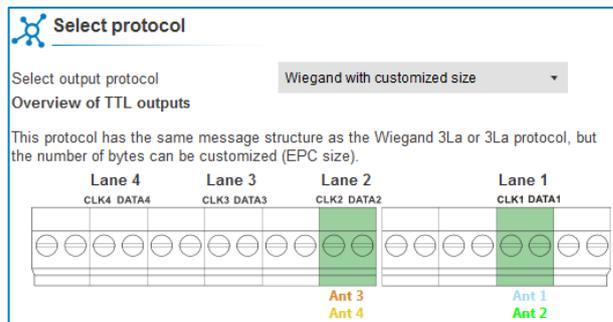


Note: the graphic indicating the lanes, depends on the configuration of the number of antennas/lanes.

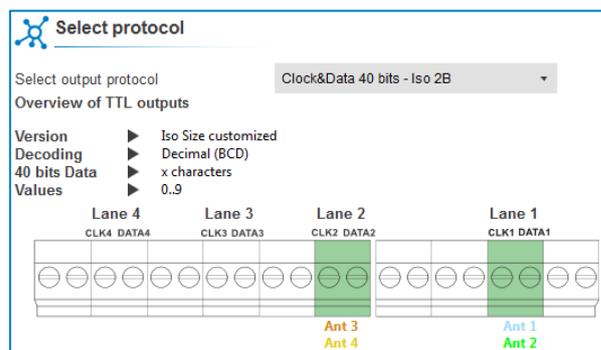
Wiegand with LRC customized size



Wiegand customized size



Decimal Clock&Data – Iso 2B



3 Size of the credential sent to the system (bytes) ▬ 1 B

Protocol	Size in plain mode	Size in secure mode
RS232 / RS485	1b up to 62b	1b up to 6b
Wiegand 26 bits	Fixed to 3b	Fixed to 3b
Wiegand with LRC custom size / Wiegand custom size	1b up to 16b	1b up to 6b
Decimal Clock&Data – Iso 2B	1b up to 7b	1b up to 6b

4
UHF data formatting before uploading to the system
 Selection of the UHF data transmission format
 Mode 1 (Standard) ▾
 Format details

- Mode 1 (Standard)
- Mode 2 (Standard reversed)
- Mode 3
- Mode 4

There are 4 UHF ID formatting modes:

Example: EPC data: AA BB CC DD EE xx xx ... VV WW XX YY ZZ with 'Size of the credential sent to the system' fixed to 4bytes.

- : ID feedback = WW XX YY ZZ
- : ID feedback = ZZ YY XX WW
- : ID feedback = AA BB CC DD
- : ID feedback = DD CC BB AA

5



Filtering

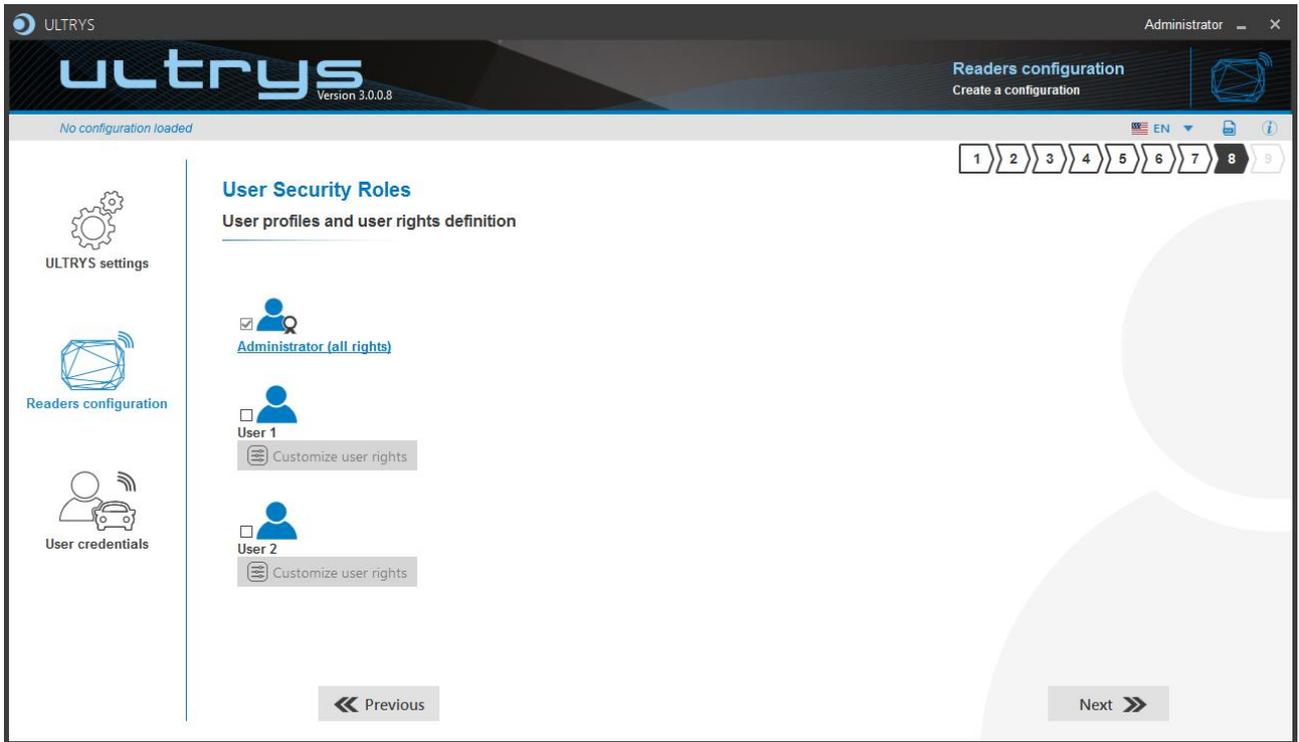
Time between same user ID being read twice

6 s

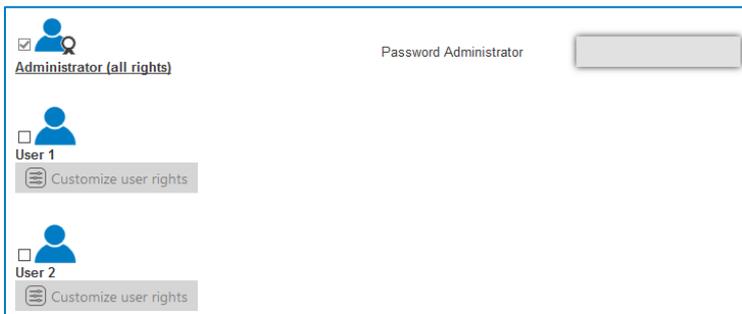
The reader emits the credential code present in the field only once during this time.

This time is adjustable from 0 to 30 seconds.

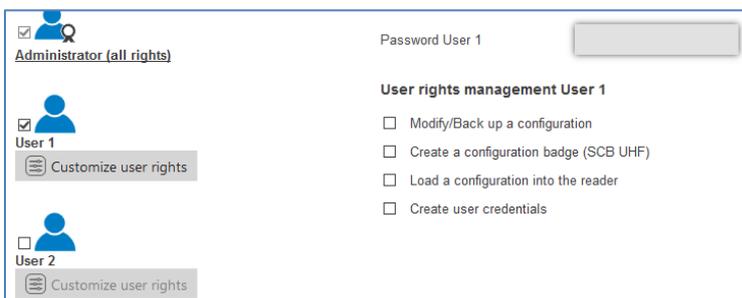
Step 8- User Security Roles



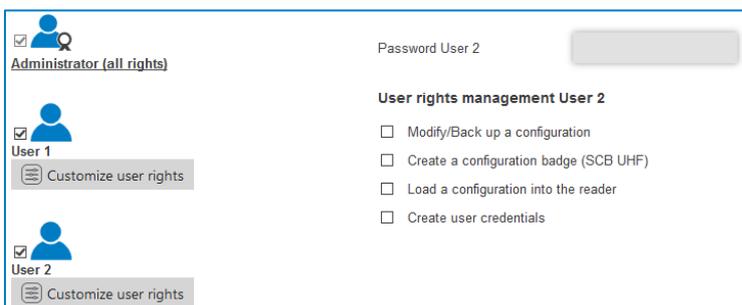
ULTRYS allows to manage three different profiles by configuration file.



Define an Administrator password to protect the configuration file.

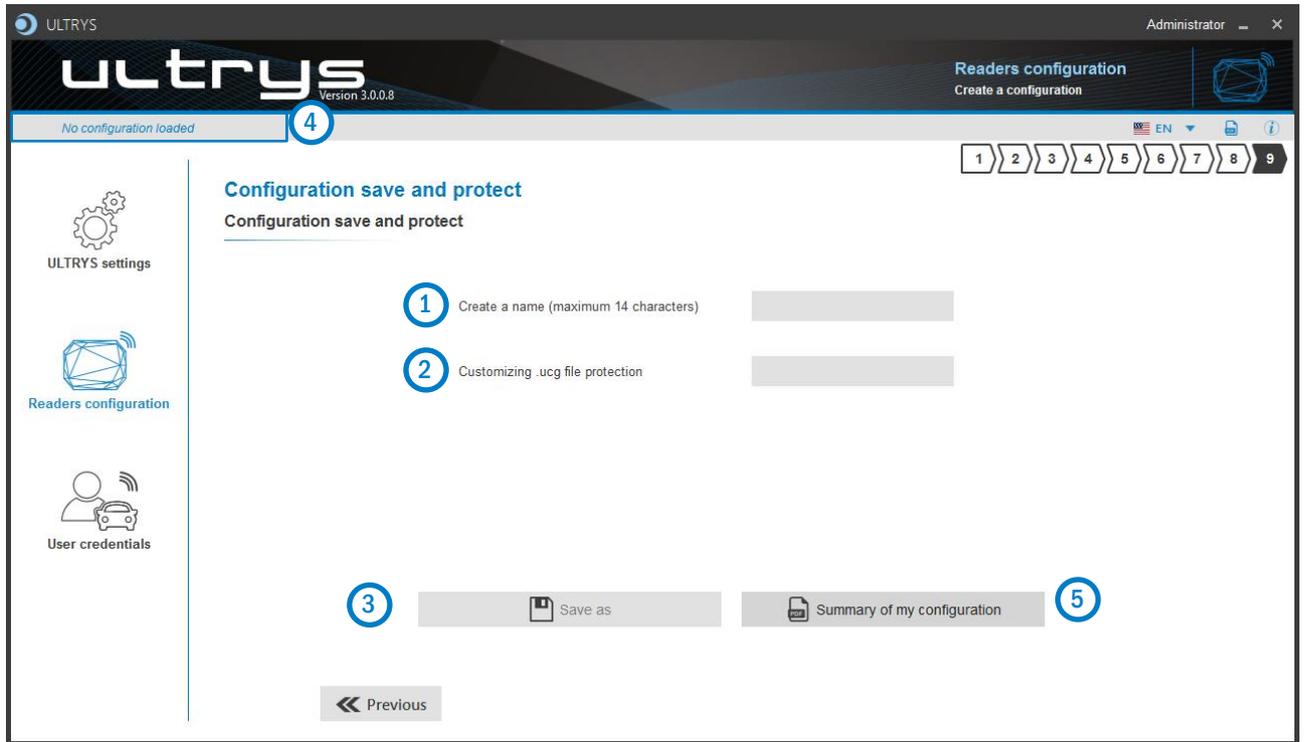


Define a User 1 password and select the corresponding rights.



Define a User 2 password and select the corresponding rights.

Step 9- Configuration save and protect



This step allows you to save the configuration file containing all the current configuration settings (keys, formats, reader...). You can select a location and password to protect the file.

- 1 Choose a name to easily find the configuration. (example: Parking IN).

Note: the name of the configuration must be contained in the file name.

- 2 To protect the configuration file, you can define a password. This password is different from Administrator password.
- 3 Select a directory and a file name to save.
- 4 The name and location of 'Configuration Loaded' indicates now the chosen name and location.



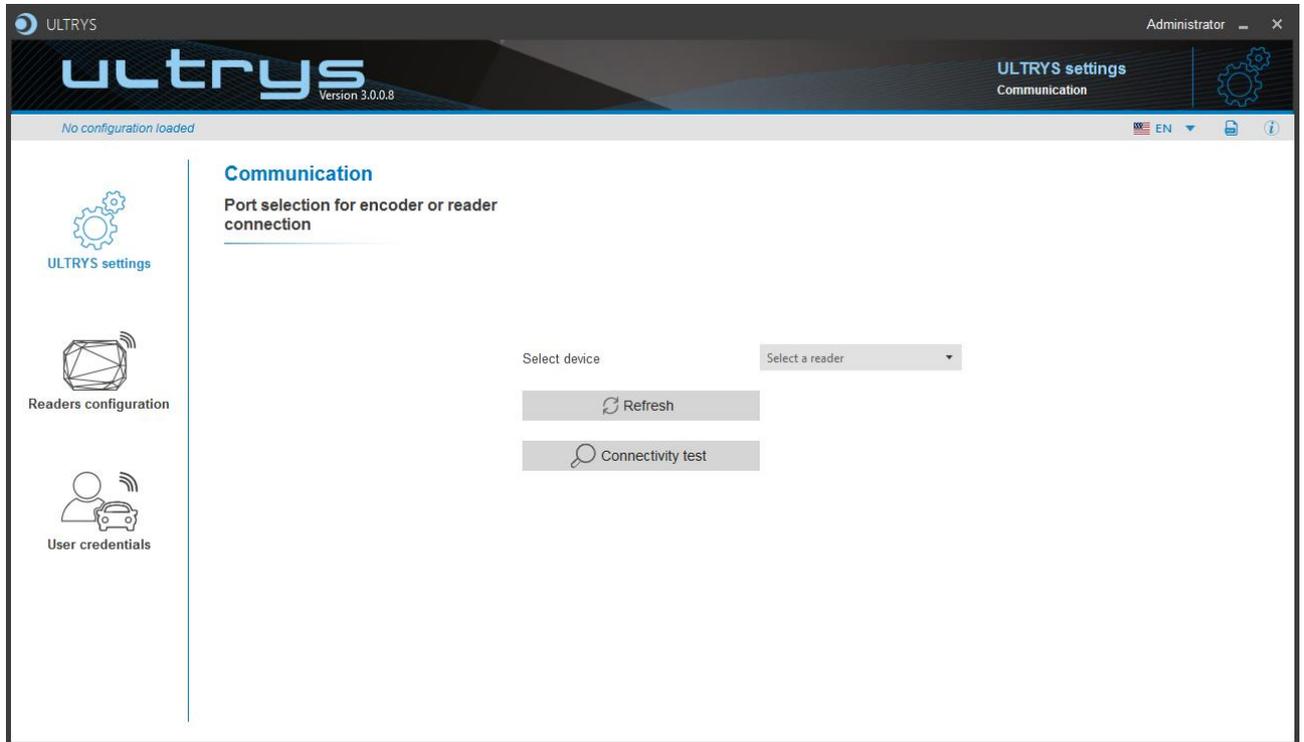
- 5 Get a summary of the configuration created.



Print: allows printing of configuration information on a network, local or virtual printer (PDF).

4. Reader configuration SPECTRE OSDP™

4-1 ULTRYS settings



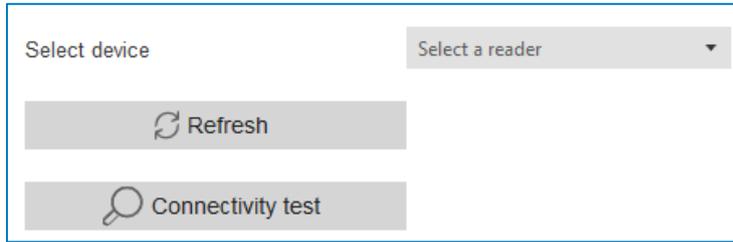
- Connect the SPECTRE reader to the PC using the provided USB cable to load the configuration via serial link directly onto the reader.



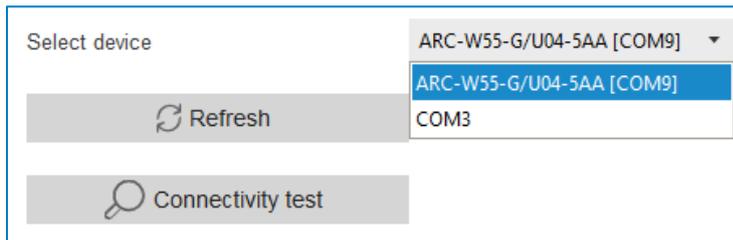
or

- Connect an UHF encoder to the PC to load the configuration onto UHF OCB configuration card.

To set the communication port

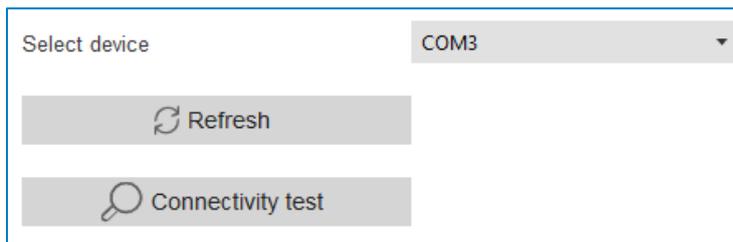


1- Click on 'Refresh' to detect all readers connected to the PC.

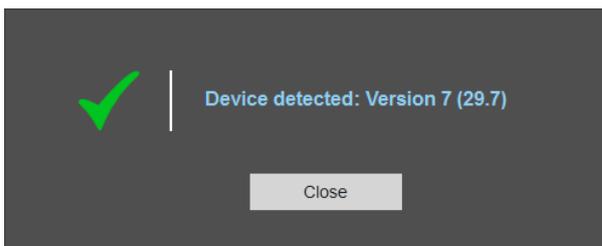


2- Open the dropdown list Select device

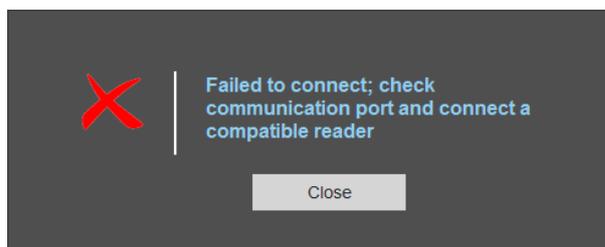
3- Readers whose firmware is ≥ 8 will appear in the drop-down list under their commercial reference. Select the communication port number for the encoder or reader or select the reader to use.



4- Run the connectivity test



Message OK (with indication of the firmware version).



Message: Failed

- Check the compatibility of the reader.
- Check the USB cable.
- Check the Baudrate reader: it must be fixed to 115200.

Note: during the connectivity test on a UHF encoder, a sound and light signal (orange) will be emitted for 1 second.

4-2 Create new configuration



The reader configuration is done in 8 steps. To move from one stage to another, you must click on “Next”.

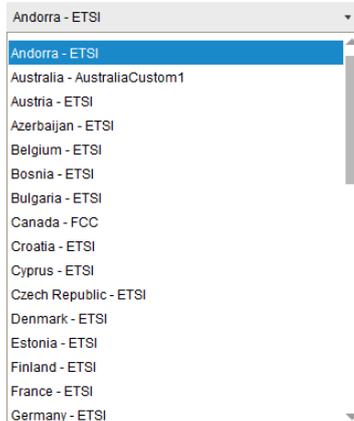
	UHF frequency band regulation
	Configuration protection loaded into the reader
	Reader configuration
Step 4 does not exist in the SPECTRE OSDP™ setup wizard	
	Installation configuration
	Light indicator configuration
	Reading & communication parameters
	User Security Roles
	Configuration save and protect

Step 1- UHF frequency band regulation



1

The frequency bands depend on the installation location

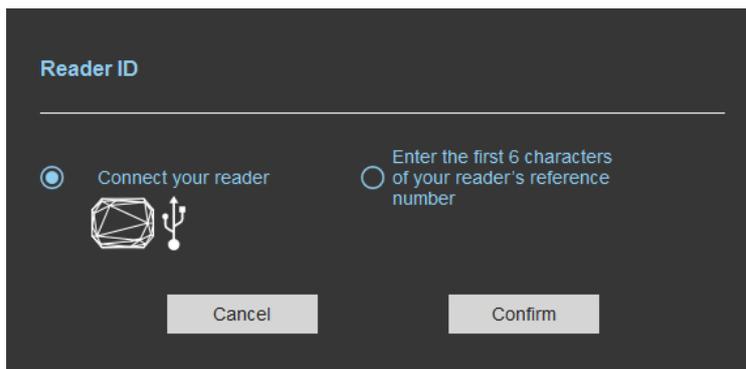


Type the first characters to display a country or select the country in which the installation will be done.

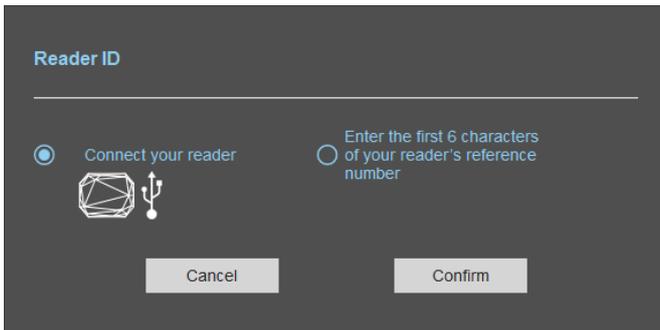
For a country which is not in the list, please contact STid: support@stid.com.

2

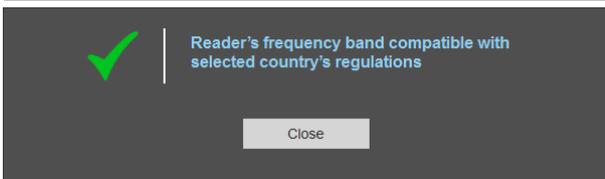
To approve the feasibility to install your reader in the selected country, you can check the compatibility.



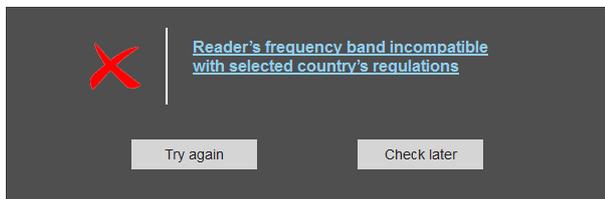
With USB reader connection



- 1- Connect the reader and set the communication COM port.
- 2- Select 'Connect your reader'
- 3- Please confirm

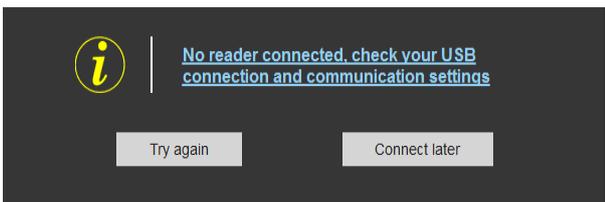


Message: OK



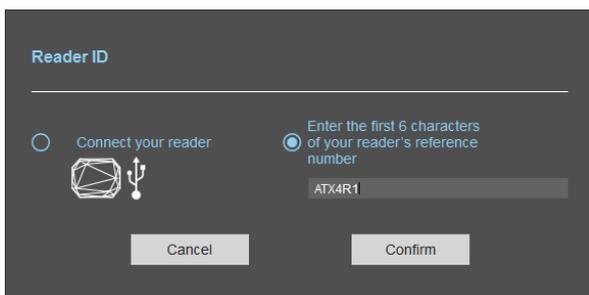
Message: NOK

The reader can't be installed in the selected country.



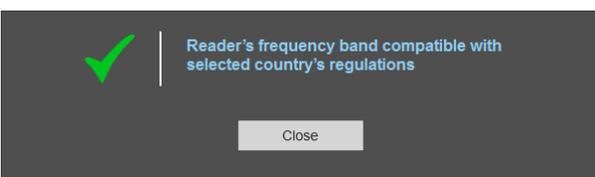
- Check the USB cable
- Check the communication with reader

With reader part number

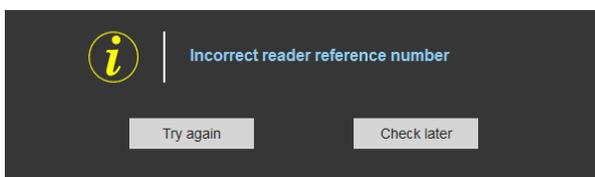


Enter the first 5 characters of the reader part number

Example: SLAW43, SLAW53, SMAW43, SMAW53...

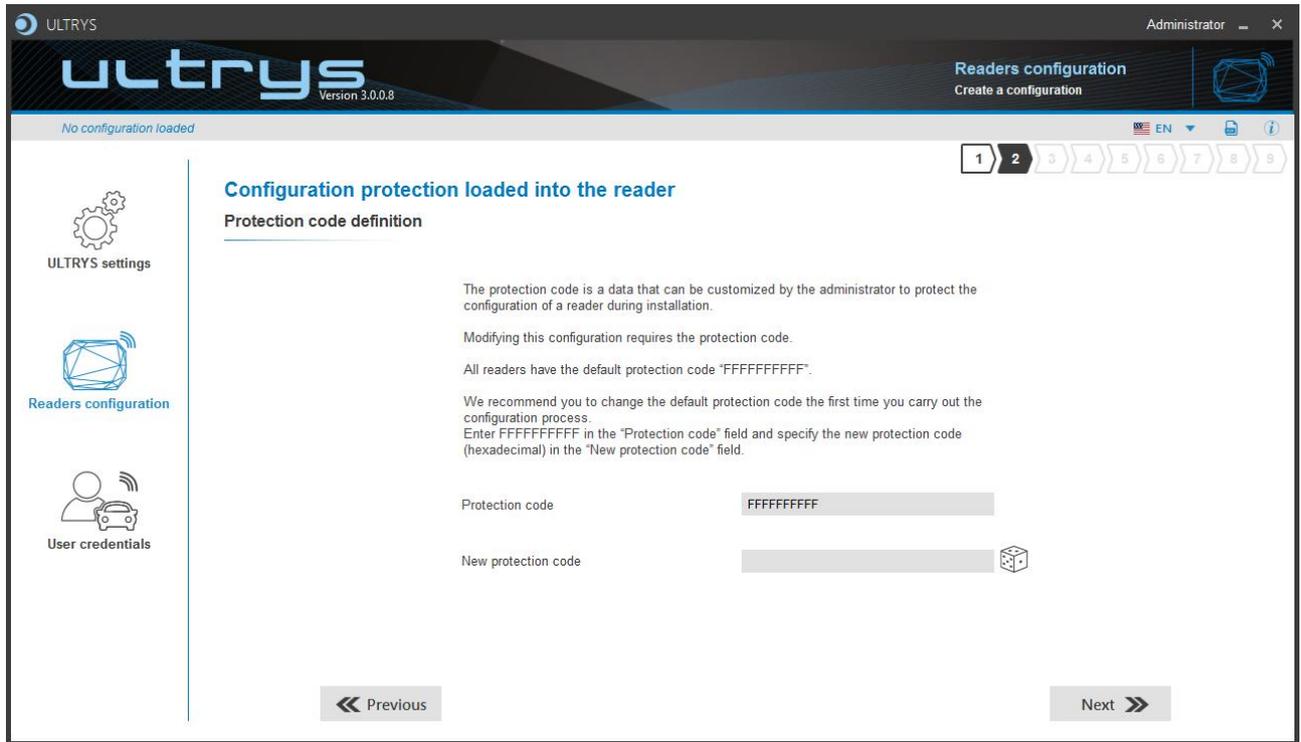


Message: OK



Message: the reference reader is not compatible with regulation selected.

Step 2- Configuration protection loaded into the reader



SPECTRE readers are initially supplied with a default configuration and a protection code to 0xFFFFFFFFF.

The size of this protection code is 5 bytes (10 hexadecimal characters).

After the initial setup and in order to reconfigure the reader, it will be necessary to present an UHF OCB card or a configuration file with the same 'protection code' as the reader.



Random protection code generator.

Caution

This protection code is important and should definitely be known by the administrator. It protects the configuration data and allows reader configuration updates.

If you lose this protection code, you won't be able to reconfigure the reader again and the reader must be reset at the factory.

To change the protection code, it will be necessary to know the current protection code.

Step 3- Reader configuration



1 Selecting the reader type

SPECTRE SLA-W43/53-A-U04-7OS readers can be configured in OSDP™ mode from firmware version 7.

2 Selecting Firmware

You must select the firmware version that is compatible with your reader.

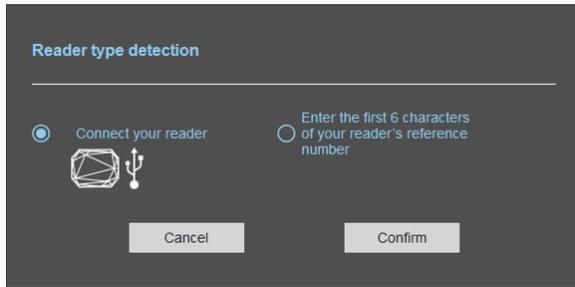
To do so, you can manually select the reader and firmware version, or you can use the function "Auto detection – Connect and check my reader configuration".

Compatibility between firmware readers and ULTRYS versions

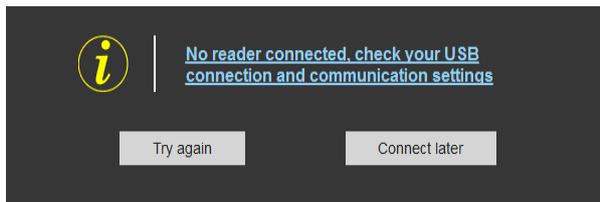
		ULTRYS softwares			
		ULTRYS V2.0	ULTRYS V2.1	ULTRYS V2.4	ULTRYS V3.x
Firmware versions	v 7	✓	✓	✓	✓
	v 9		✓	✓	✓
	v 10,11,12			✓	✓
	> v 13				✓

Close

With USB reader connection



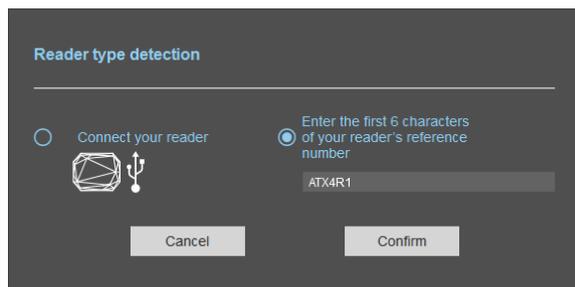
- 1- Connect the reader via USB cable provided. Configure the communication parameters.
- 2- Select the Connect your reader.
- 4- Click on Confirm.



Message: NOK

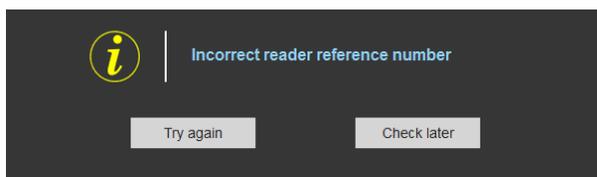
- Check the USB cable
- Check the communication with reader

With reader's number reference



Enter the first 6 characters of your reader's reference number

Examples: SLAW43, SLAW53



Message: NOK

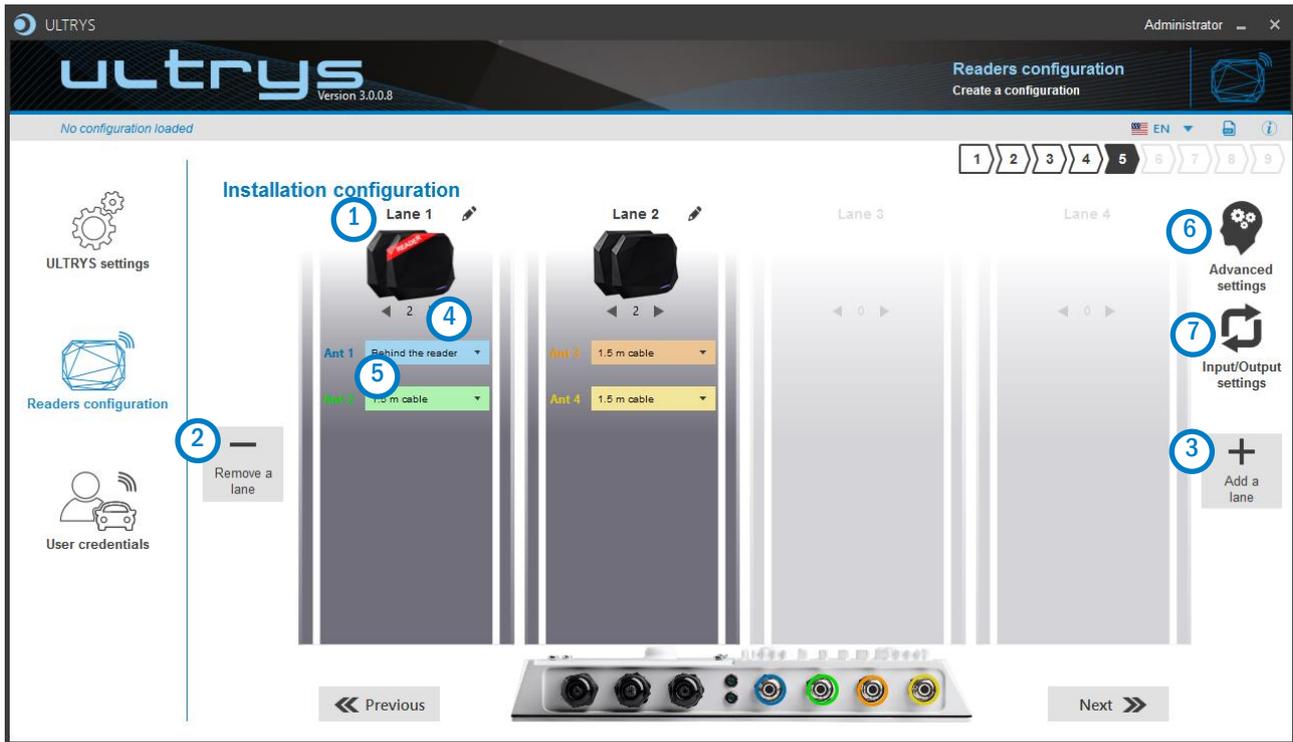
Check your reader's reference number

Step 4- Antenna type selection

The SPECTRE OSDP™ reader only works with the new SPECTER antennas (ANT-UHF2)

Step 4 does not exist in the SPECTER OSDP™ setup wizard.

Step 5- Installation configuration



① Name the lane

Maximum 10 characters.

For example, Entry1...

②③ Add / Delete lane

Use 'Add /Delete lane' to configure the number of lanes you will use in your application.

The default setting is one antenna on the first lane.

[For more information about the possible combination please refer to the document NA_SPECTRE.](#)

In OSDP™, the lane number corresponds to the "Reader Number":



Multi-lane OSDP management

To know on which lane does the credential detection "osdp_RAW response" come from or on which lane we have to send the "osdp_LED command", the system needs to manage the "Reader Number" byte expected by the OSDP V2.1.7 protocol.

Reader Number byte definition :

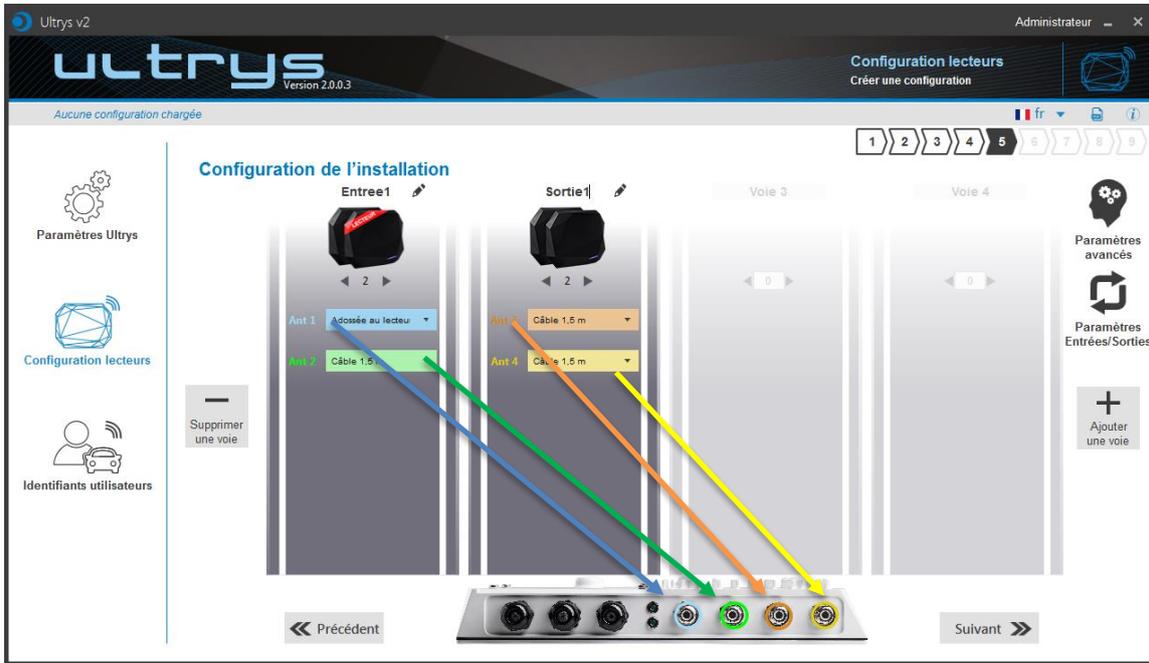
- Reader Number byte = 0 => "First Reader" (Lane 1)
- Reader Number byte = 1 => "Second Reader" (Lane 2)
- Reader Number byte = 2 => "Third Reader" (Lane 3)
- Reader Number byte = 3 => "Fourth Reader" (Lane 4)

Close

④ Add / Remove antenna on lane

Set the number of antennas on the corresponding lane.

When an antenna is added, the RF port to which the antenna has to be connected appears on the reader with corresponding color to help the installation.



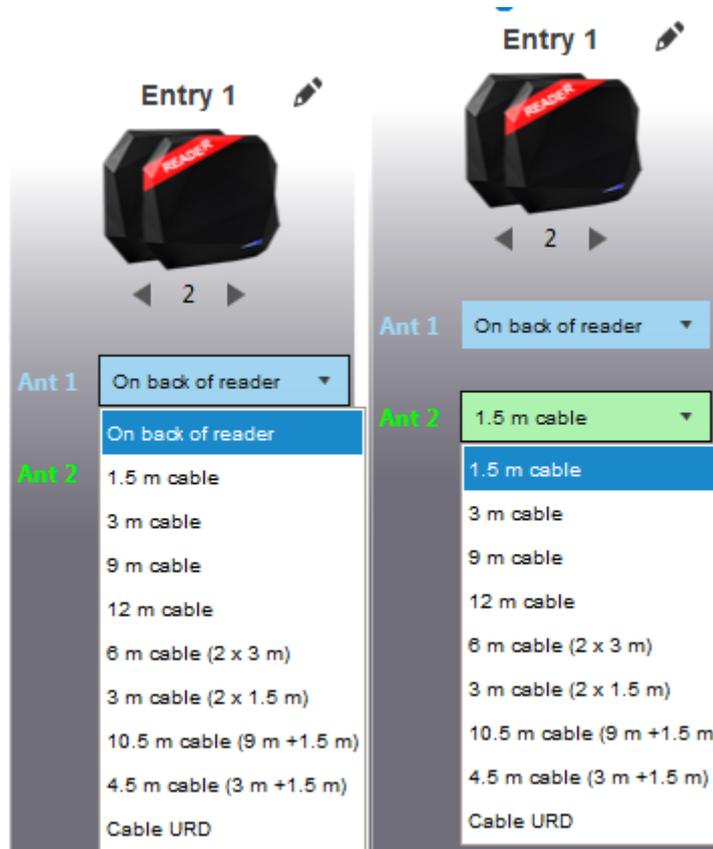
RF ports are assigned in order to add the antennas in the configuration wizard.

When an antenna is removed from the configuration, the RF port connection for other antennas does not change.

Example: Ant 2 deleted from lane 1 and added to lane 2.



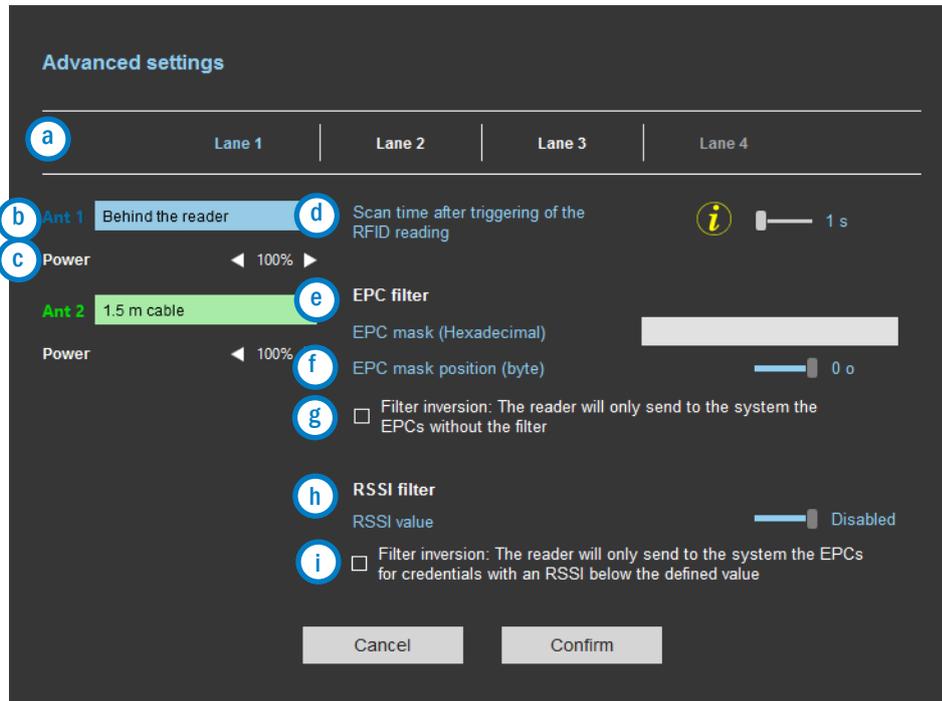
⑤ Select the cable length for each antenna



For each antenna, select the cable length you would like to use between antenna and reader.

Only the first Antenna of the lane 1 can be lean against the reader.

⑥ Advanced settings



- a** Select the lane to configure. The lanes selected in installation setup are in white, unused lanes are grayed out. When a lane is selected in Advanced parameters it is written in blue.
- b** Select / Change the cable length between the antenna and the reader.
- c** Adjust the power of each antenna (from 10% to 100%) to adjust the reading distances.
- d** Adjust the timing for a scan (reading) by step of 1 second (max 30s). This setting is taking into account only if Input type selection is set to Activating all lanes or Activating the event lane.
- e** **The EPC filter is not available in Secure Mode.** Enter the value for EPC Mask, max 62 hexadecimal bytes.
- f** Adjust the value for offset EPC mask in bytes (0 to 61). It depends on the EPC Mask length.
- g** Filter inversion not selected: only tags with an EPC value corresponding to the EPC mask value will be provided to the user.
Filter inversion selected: only tags with an EPC value different from the EPC mask value will be provided to the user.
- h** RSSI (Received Signal Strength Indication) is a measure of the power in reception of the tag response. The value returned by the reader is proportional to the amplitude of the reception signal
Adjust the RSSI value (-110dBm to 0dBm). 0dBm deactivates the RSSI filter.
- i** Filter inversion not selected: only tags with an RSSI greater than or equal to the specified value will be provided to the user.
Filter inversion selected: only tags with an RSSI smaller or equal to the specified value will be provided to the user.

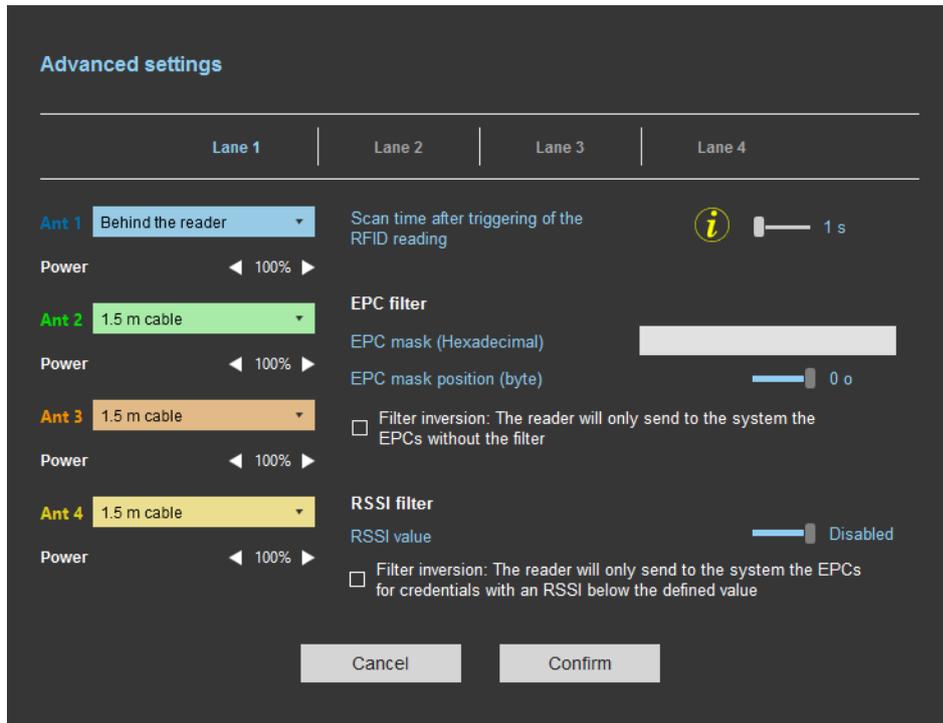
Ex: RSSI filter = -49f=dBm + Reversal not selected

A tag that will have a RSSI value of -20dBm will be sent back,

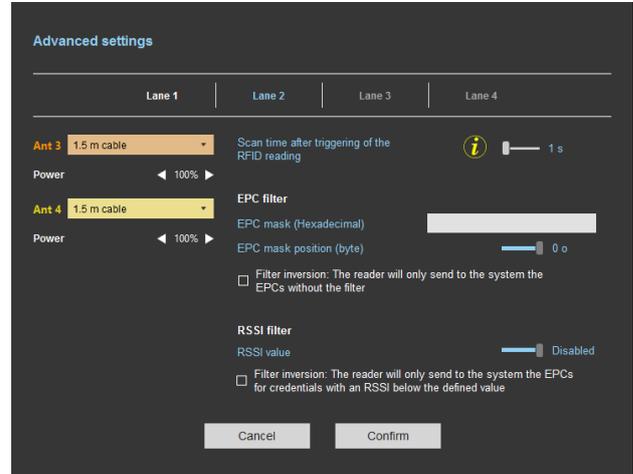
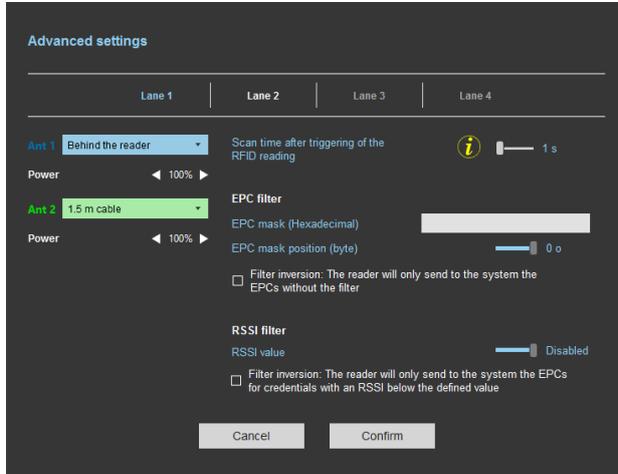
A tag that will have a RSSI value of -60dBm will not be sent back.

Scan time, EPC filter and RRSI filter settings are the same for antennas on the same lane. The cable length and RF power antenna are set for each antenna.

Example 1: 4 antennas on lane 1.



Example 2: 2 antennas on lane 1 et 2 antennas on lane 2.



EPC Filter

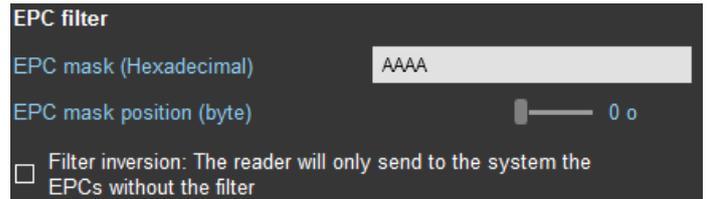
Examples:

Code EPC Tag 1: AAAAABCD000000000000000001
 Code EPC Tag 2: AA02ABCD000000000000000002
 Code EPC Tag 3: AA02ABCD000000000000000003
 Code EPC Tag 4: AA02FFFF000000000000000003

1- EPC mask = AA AA and Offset = 0

Tag 1: **AAAA**ABCD00000000000000000001
 Tag 2: AA02ABCD00000000000000000002
 Tag 3: AA02ABCD00000000000000000003
 Tag 4: AA02FFFF00000000000000000003

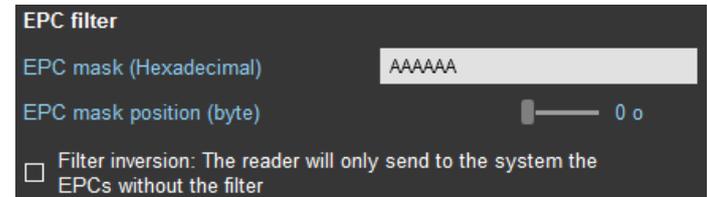
Only tag 1 is transmitted.



2- EPC mask = AA AA AA and Offset = 0

Tag 1: AAAAABCD00000000000000000001
 Tag 2: AA02ABCD00000000000000000002
 Tag 3: AA02ABCD00000000000000000003
 Tag 4: AA02FFFF00000000000000000003

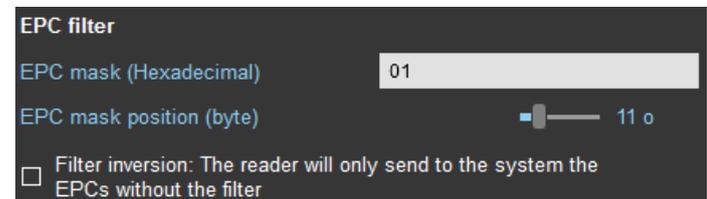
No tag is transmitted.



3- EPC mask = 01 and Offset = 11

Tag 1: **AA AA AB CD 00 00 00 00 00 00 00 01**
 Tag 2: AA 02 AB CD 00 00 00 00 00 00 00 02
 Tag 3: AA 02 AB CD 00 00 00 00 00 00 00 03
 Tag 4: AA 02 FF FF 00 00 00 00 00 00 00 03

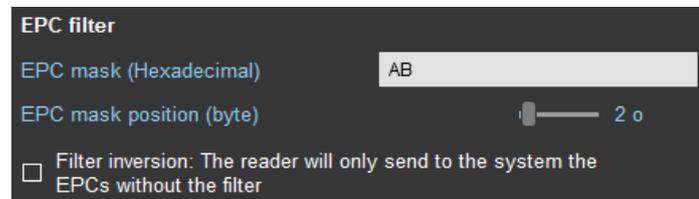
Offset is represented in blue; the filter is done on byte 12.
 Only tag 1 is transmitted.



4- EPC mask = AB and Offset = 2

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

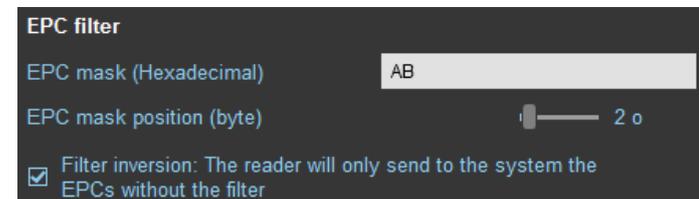
Tags 1, 2 and 3 are transmitted.



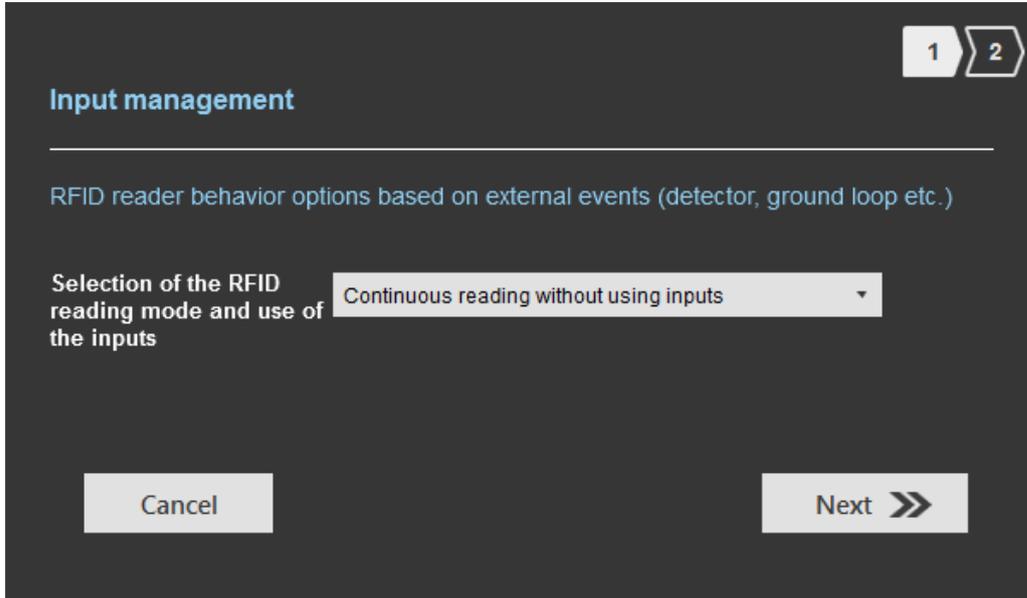
5- EPC mask = AB, Offset = 2 and Reversal

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

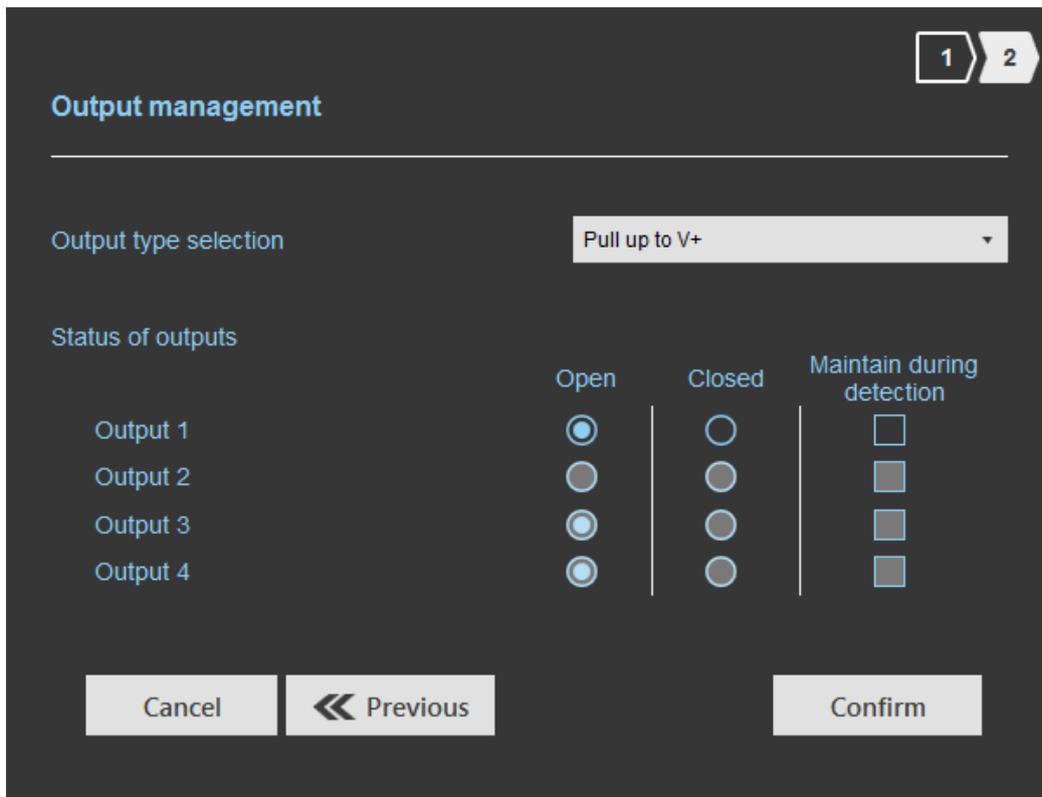
Tags 1, 2 and 3 are not transmitted. Only tag 4 is transmitted.



⑦ Input / output settings

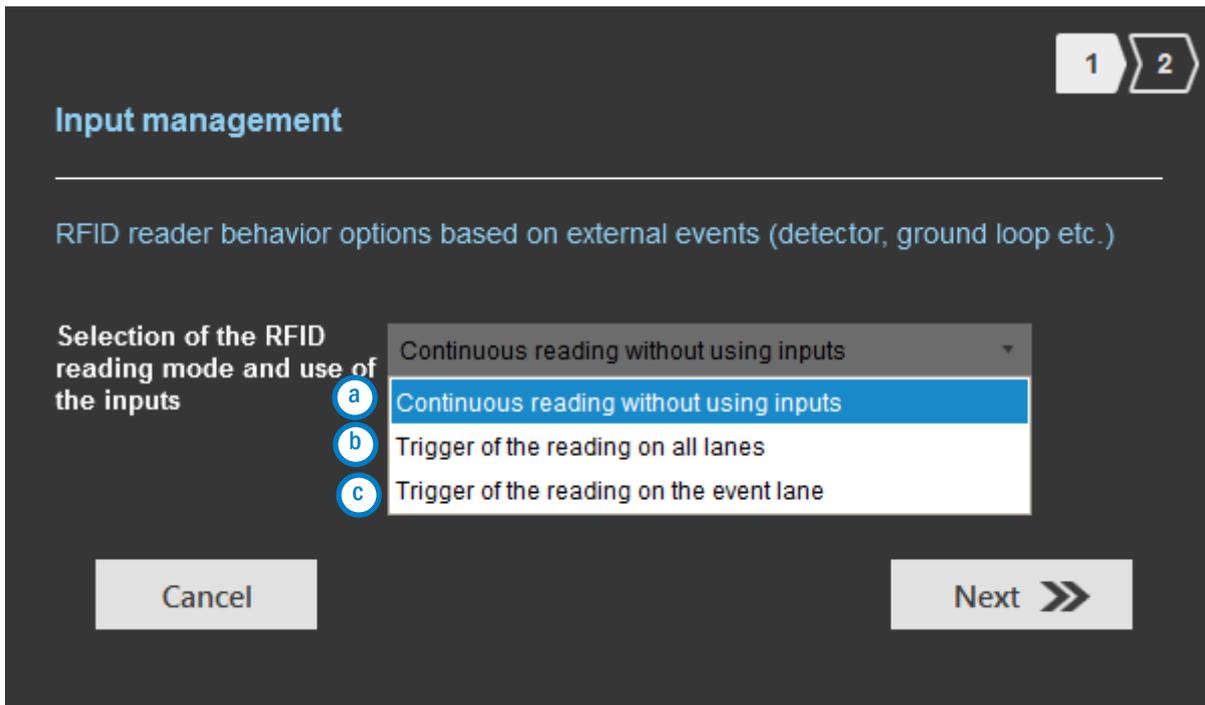


The configuration of the outputs depends on the reading mode chosen.

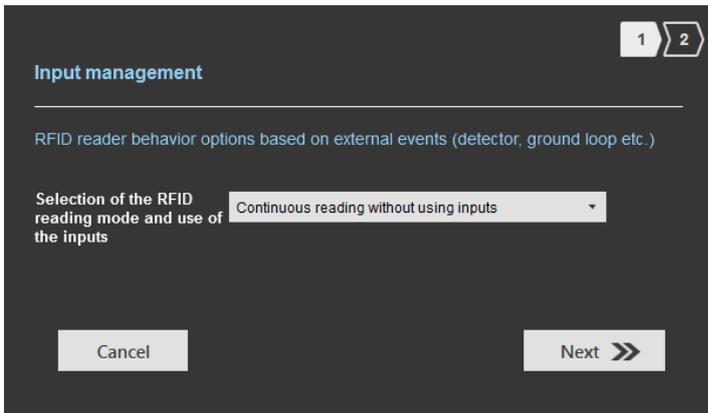


Both types of output are « Pull up to V+ » or « Open drain ».

Status of outputs: select for each output the default state 'Open' or 'Closed' and if the state is maintained during the detection process.

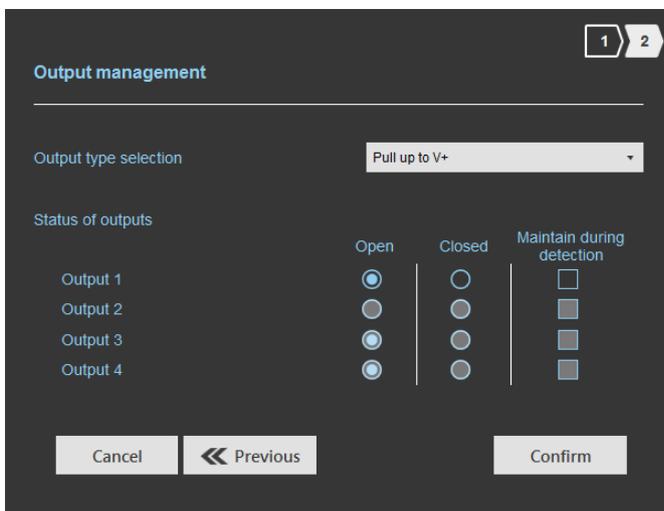


a Reading mode = Continuous reading without using inputs



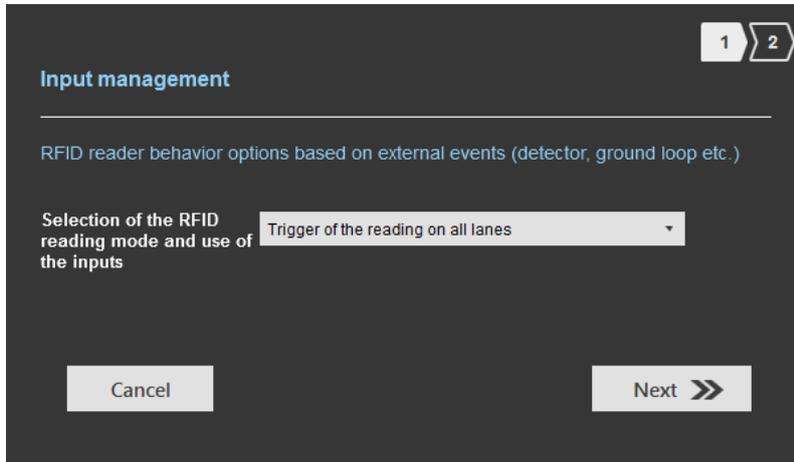
In this mode, the reader scan continuously.

There is no action on input activation.



Select the output type and default state for output.

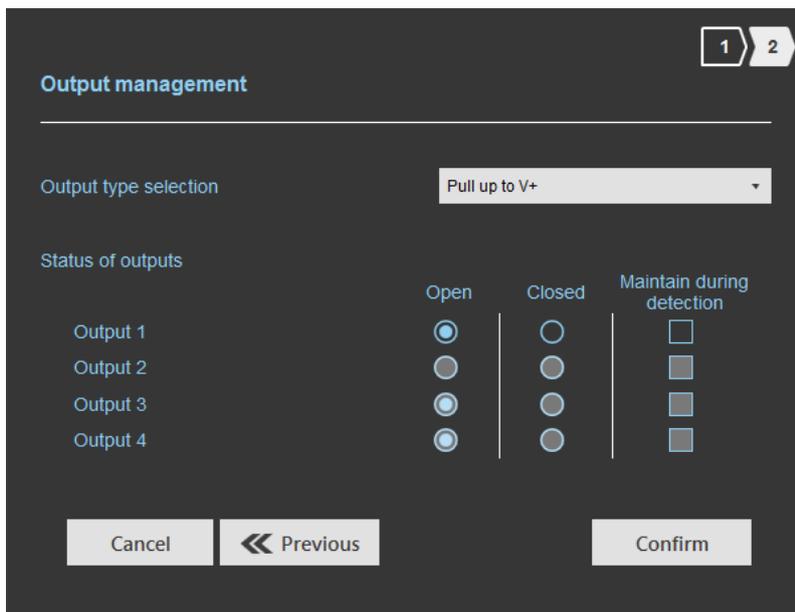
b Reading mode = Trigger of the reading on all lanes



If an Input is activated (In1, In2, In3 or In4), the reader scans on all lanes set.

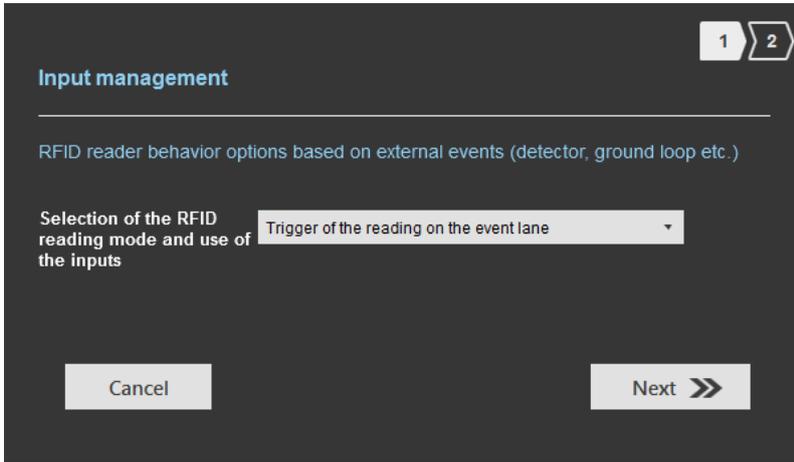


The duration of the reading is defined in 'Advanced settings'.



Select the output type and default state for output.

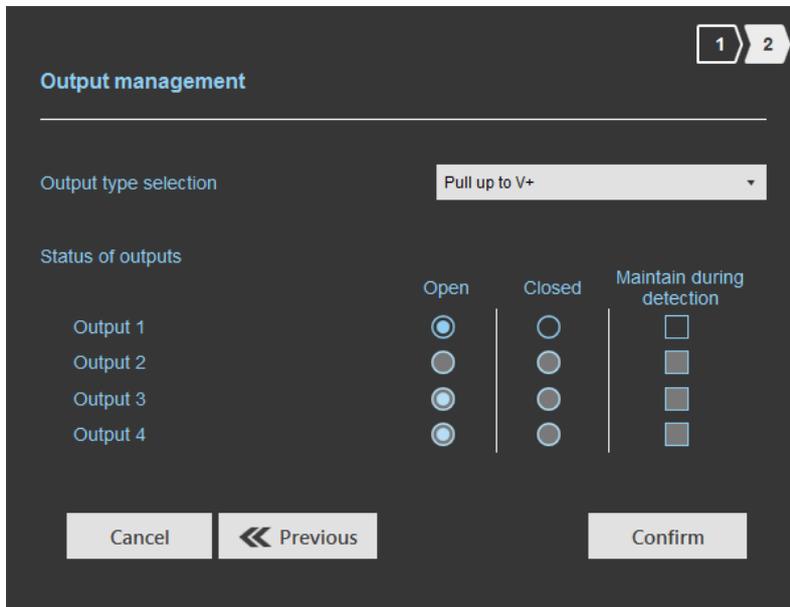
C Reading mode = Trigger of the reading on the event lane



If an Input is activated, the reader scans on the corresponding lane.



The reading duration is defined in 'Advanced settings'.



Select the output type and default state for output.

Summary table

Reading Mode	Input	Configurable Outputs states?	Output
a Continuous reading without using inputs	No action	Yes by lane	The output state toggles at the ascent
b Trigger of the reading on all lanes	An action on any input activates the reading on all configured lanes	Yes by lane	The output state toggles at the ascent during the ascent time of the identifier (physically on the BUS + 200ms)
c Trigger of the reading on the event lane	An action on Input x activates the scan on lane x	Yes by lane	

Step 6- Light indicator configuration

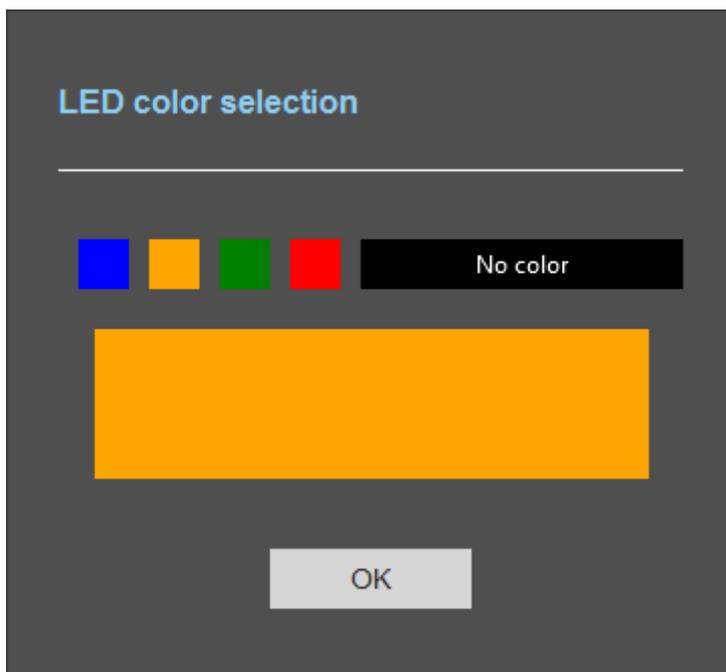


Detecting user ID:

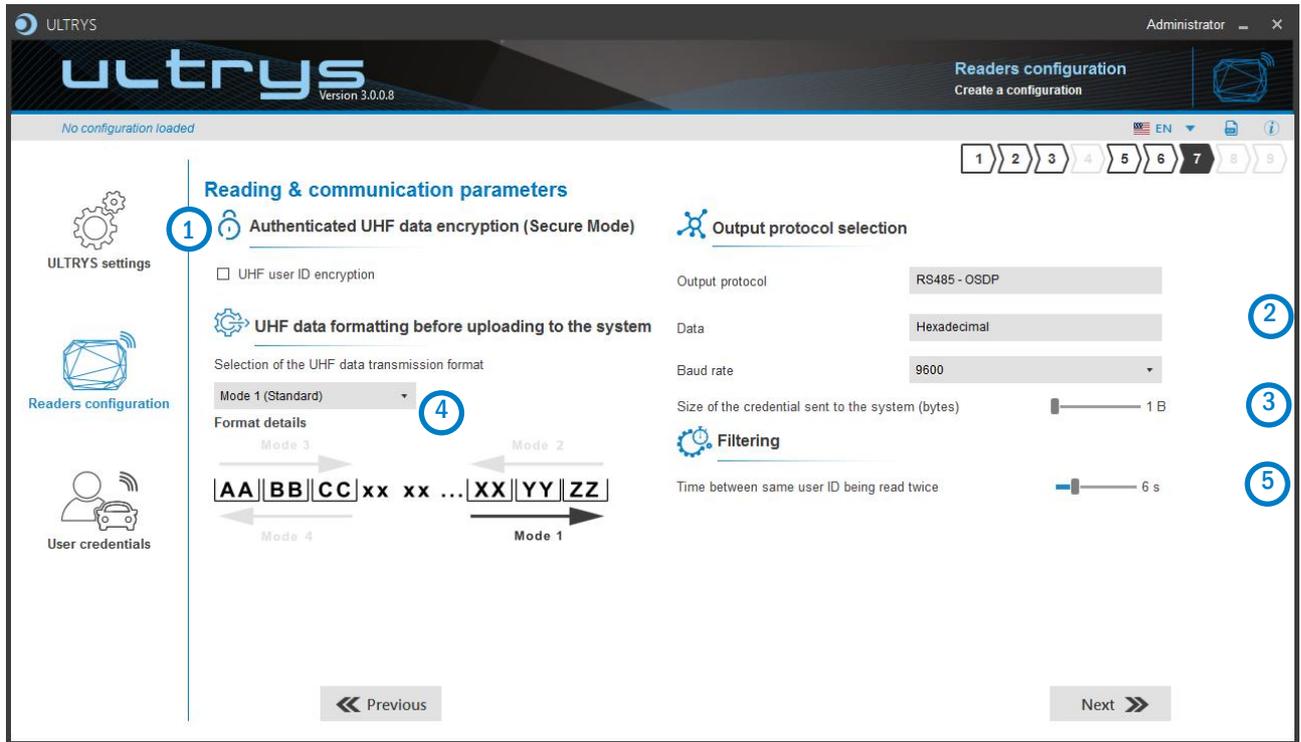
This LED lights when a tag is detected by the antenna.

Warning: An osdp_LED command cancels this color.

LED color:



Step 7- Reading & communication parameters



The EPC can be encrypted and signed before being written in the tag.

The reader will decrypt and authenticate the EPC before sending it on its output media.

Only an EPC correctly decrypted and authenticated will produce an output data, otherwise the reader will remain mute.

Notes:

- Only UHF tags compatible with “*FAST ID*” feature and having at least 128 bits of EPC can be decrypted and authenticated by the SPECTRE Access reader. The chips compatible with secure encoding are: Monza X, Monza R6P, Monza 4D, this chip is present into
 - TLTA-W53M-943_S
 - TLTA-W75B-943_S
 - IronTag Aero
 - CCTW490_AN
- **The secure mode is not accessible if an EPC mask has been set in ‘Advanced settings’.**

Note: After setting an EPC security key, if you return to step 5 with the Previous button, and you set an EPC filter, then returning to step 7, the "EPC ID Security" checkmark is displayed. in gray, the key field is still accessible but not taken into account.

2

Output protocol selection

Output protocol: RS485 - OSDP

Data: Hexadecimal

Baud rate: 9600

9600

9600

19200

38400

57600

115200

The only modifiable parameter is the baud rate.

3

Size of the credential sent to the system (bytes) 1 B

Protocol	Size in plain mode	Size in secure mode
RS485	1b up to 62b	1b up to 6b

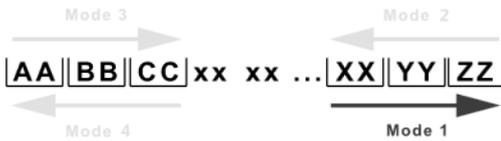
4

UHF data formatting before uploading to the system

Selection of the UHF data transmission format

Mode 1 (Standard)

Format details



- Mode 1 (Standard)
- Mode 2 (Standard reversed)
- Mode 3
- Mode 4

There are 4 UHF ID formatting modes:

Example: EPC data: AA BB CC DD EE xx xx ... VV WW XX YY ZZ with 'Size of the credential sent to the system' fixed to 4bytes.

- : ID feedback = WW XX YY ZZ
- : ID feedback = ZZ YY XX WW
- : ID feedback = AA BB CC DD
- : ID feedback = DD CC BB AA

5



Filtering

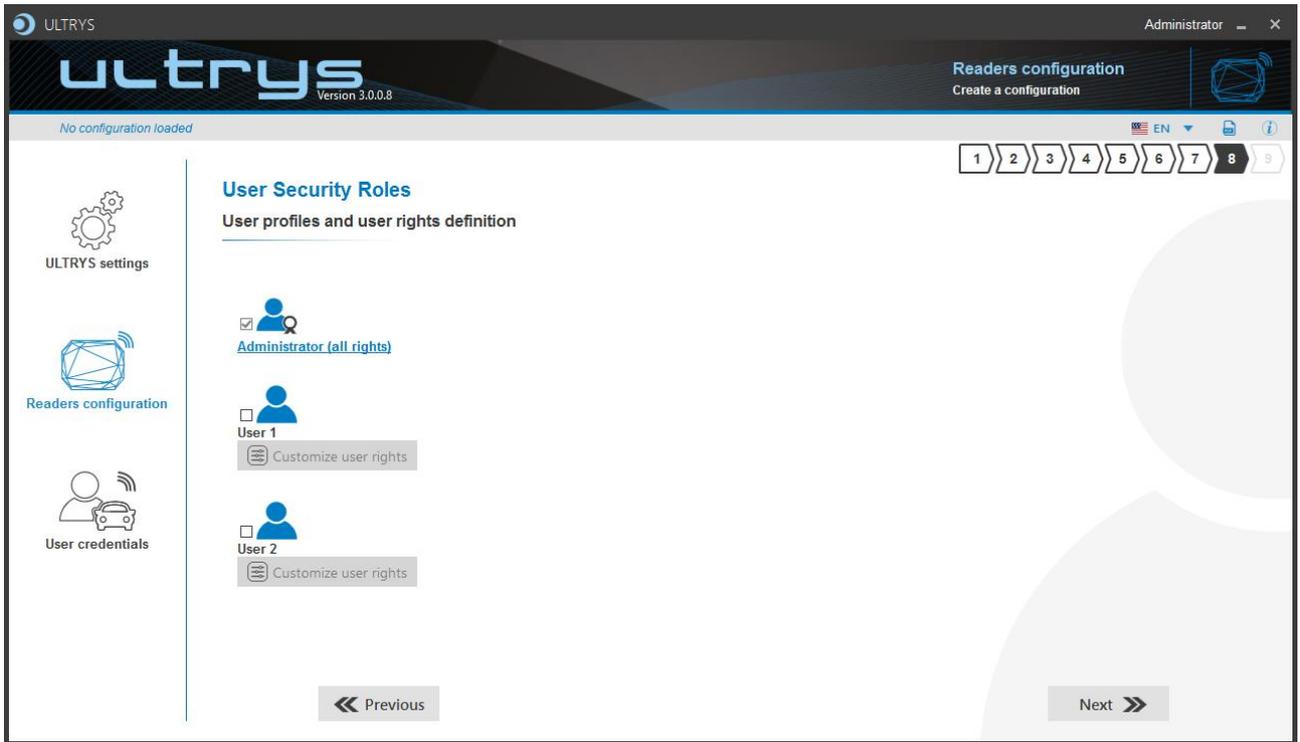
Time between same user ID being read twice

 6 s

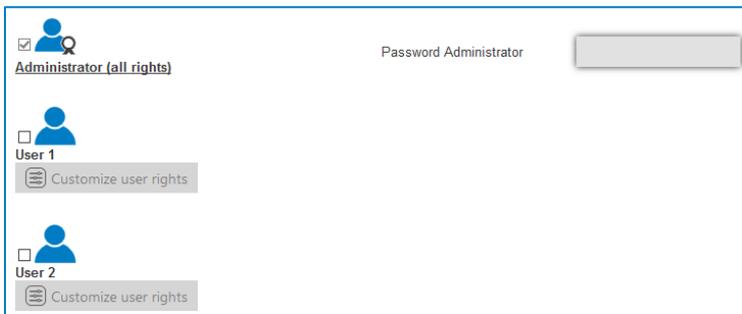
The reader emits the credential code present in the field only once during this time.

This time is adjustable from 0 to 30 seconds.

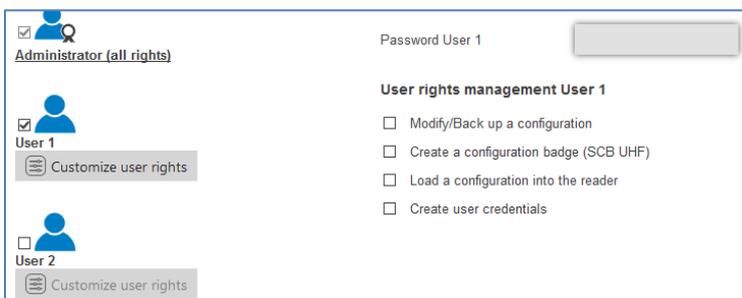
Step 8- User Security Roles



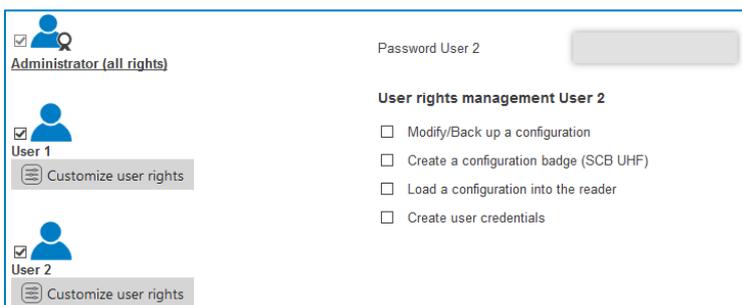
ULTRYS allows to manage three different profiles by configuration file.



Define an Administrator password to protect the configuration file.

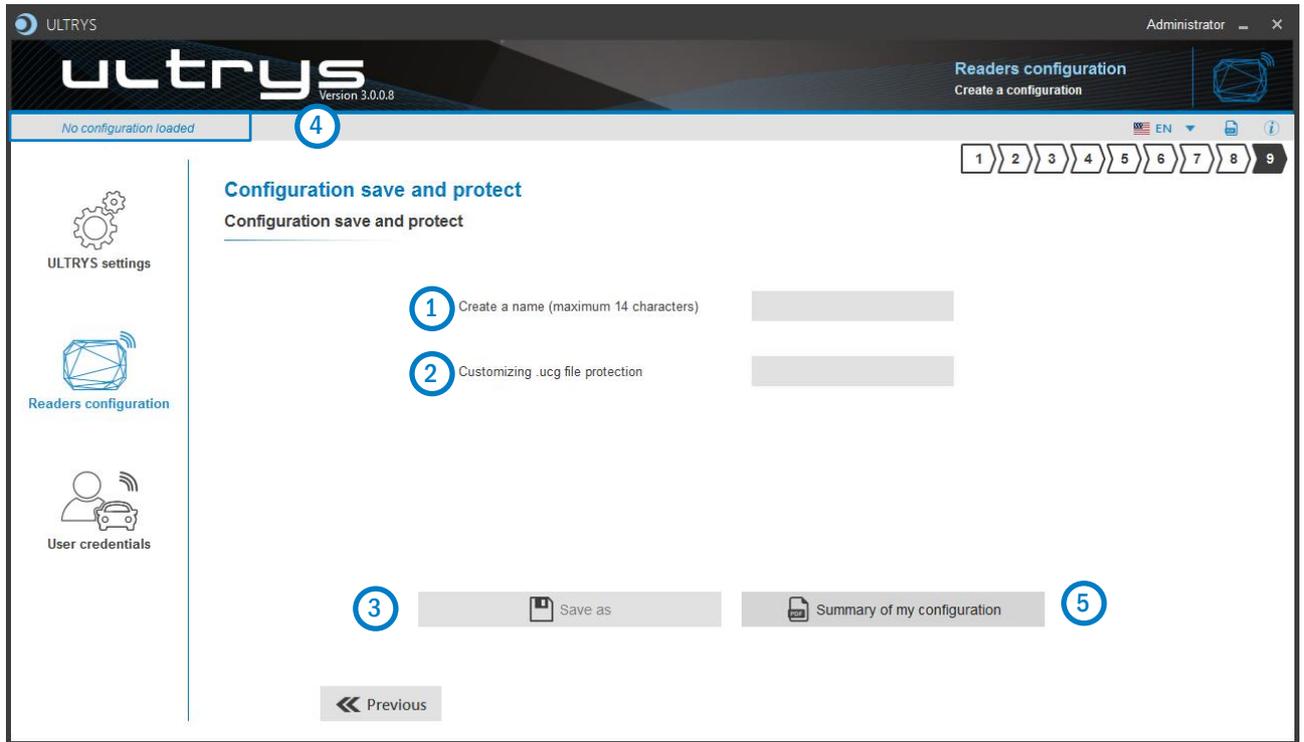


Define a User 1 password and select the corresponding rights.



Define a User 2 password and select the corresponding rights.

Step 9- Configuration save and protect



This step allows you to save the configuration file containing all the current configuration settings (keys, formats, reader...). You can select a location and password to protect the file.

- 1 Choose a name to easily find the configuration. (example: Parking IN).

Note: the name of the configuration must be contained in the file name.

- 2 To protect the configuration file, you can define a password. This password is different from Administrator password.
- 3 Select a directory and a file name to save.
- 4 The name and location of 'Configuration Loaded' indicates now the chosen name and location.



5 Get a summary of the configuration created.



Print: allows printing of configuration information on a network, local or virtual printer (PDF).

SPECTRE NANO



SPECTRE NANO READ ONLY

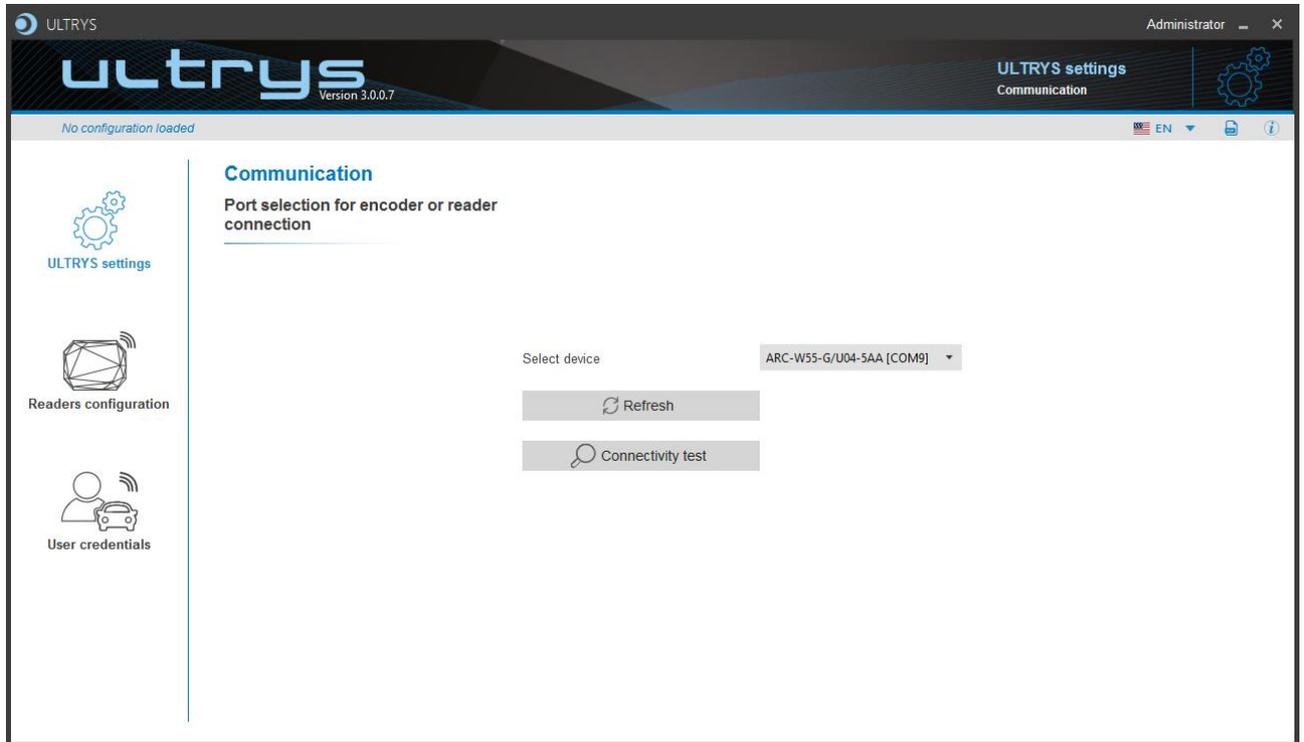


SPECTRE NANO OSDP™



5. Reader configuration SPECTRE NANO READ ONLY

5-1 ULTRYS settings



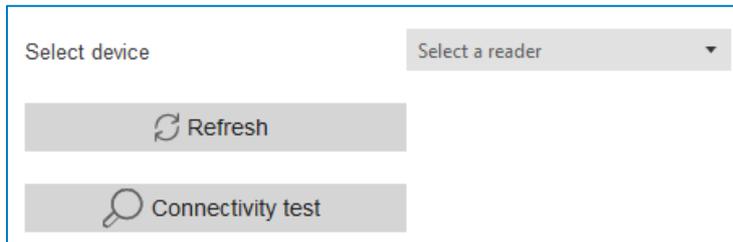
- Connect the SPECTRE NANO reader to the PC using the provided USB cable to load the configuration via serial link directly onto the reader.



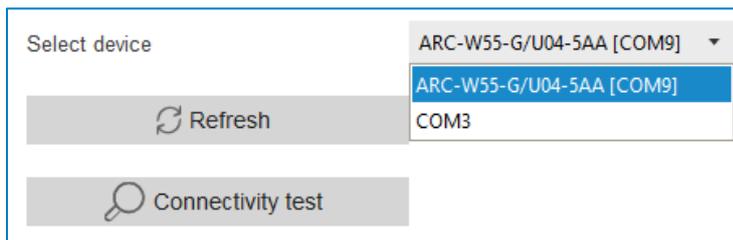
Or

- Connect an UHF encoder to the PC to load the configuration onto UHF SCB configuration card.

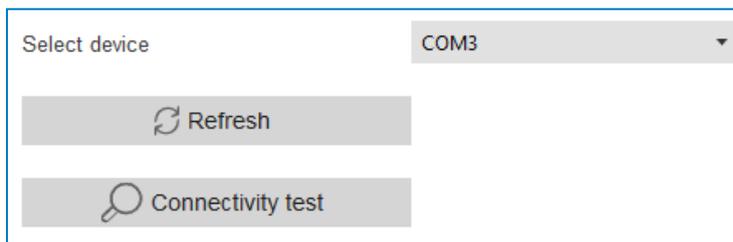
To set the communication port



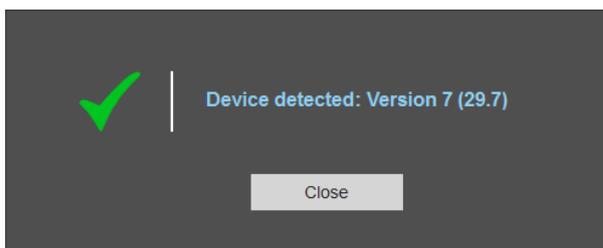
1- Click on 'Refresh' to detect all readers connected to the PC.



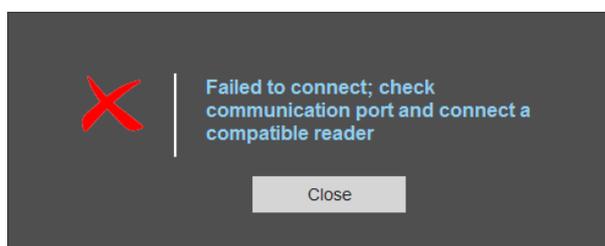
2- Open the dropdown list Select device
 3- Readers whose firmware is ≥ 8 will appear in the drop-down list under their commercial reference. Select the communication port number for the encoder or reader or select the reader to use.



4- Run the connectivity test



Message OK (with indication of the firmware version).



Message: Failed

- Check the compatibility of the reader.
- Check the USB cable.
- Check the Baudrate reader: it must be fixed to 115200.

Note: during the connectivity test on a UHF encoder, a sound and light signal (orange) will be emitted for 1 second.

5-2 Create new configuration



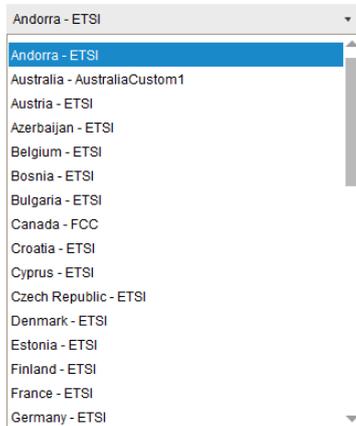
The reader configuration is done in 9 steps. To move from one stage to another, you must click on "Next".

	UHF frequency band regulation
	Configuration protection loaded into the reader
	Reader configuration
Step 4 does not exist in the SPECTER NANO configuration wizard	
	Installation configuration
	Light and sound indicator configuration
	Reading & communication parameters
	User Security Roles
	Configuration save and protect

Step 1- UHF frequency band regulation UHF



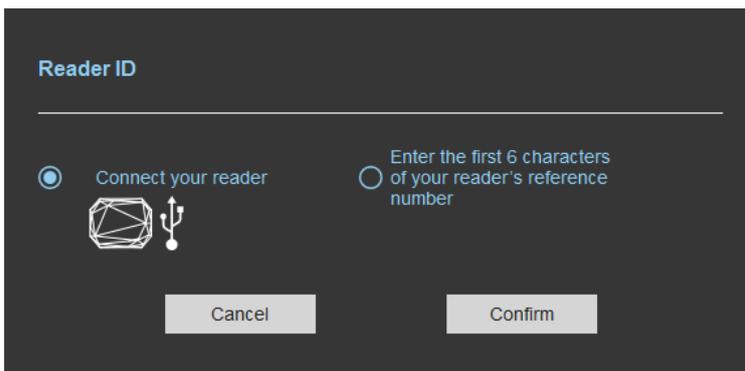
The frequency bands depend on the installation location



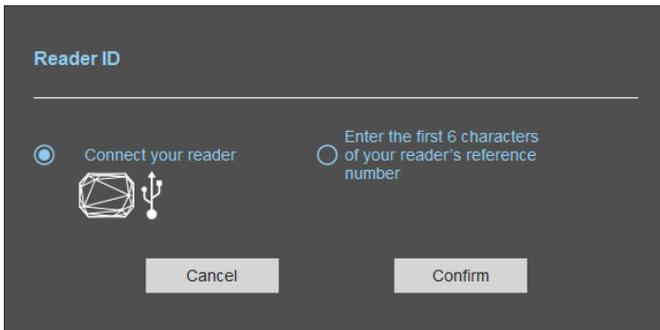
Type the first characters to display a country or select the country in which the installation will be done.

For a country which is not in the list, please contact STid: support@stid.com.

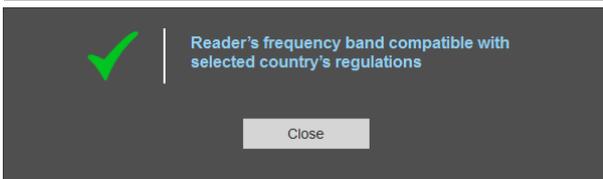
- To approve the feasibility to install your reader in the selected country, you can check the compatibility.



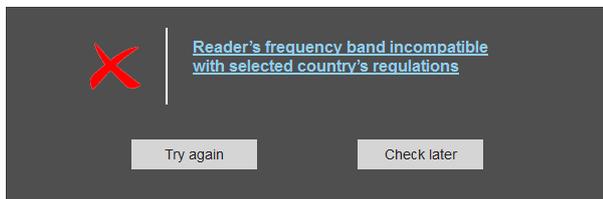
With USB reader connection



- 1- Connect the reader and set the communication COM port.
- 2- Select 'Connect your reader'
- 3- Please confirm

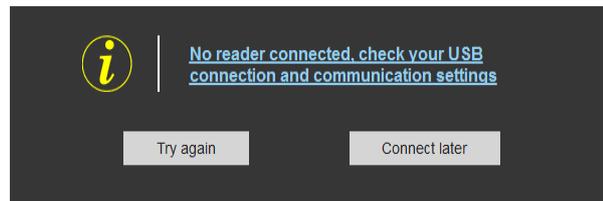


Message: OK



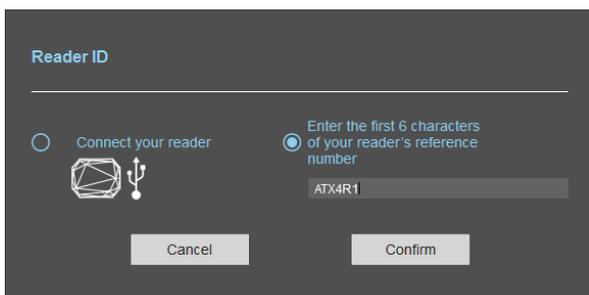
Message: NOK

The reader can't be installed in the selected country.



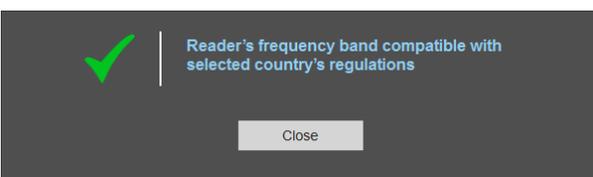
- Check the USB cable
- Check the communication with reader

With reader part number

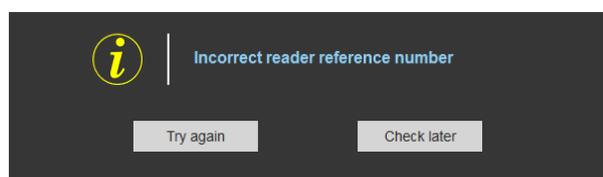


Enter the first 5 characters of the reader part number

Example: SNAR41, SNAR51, SNAR42...

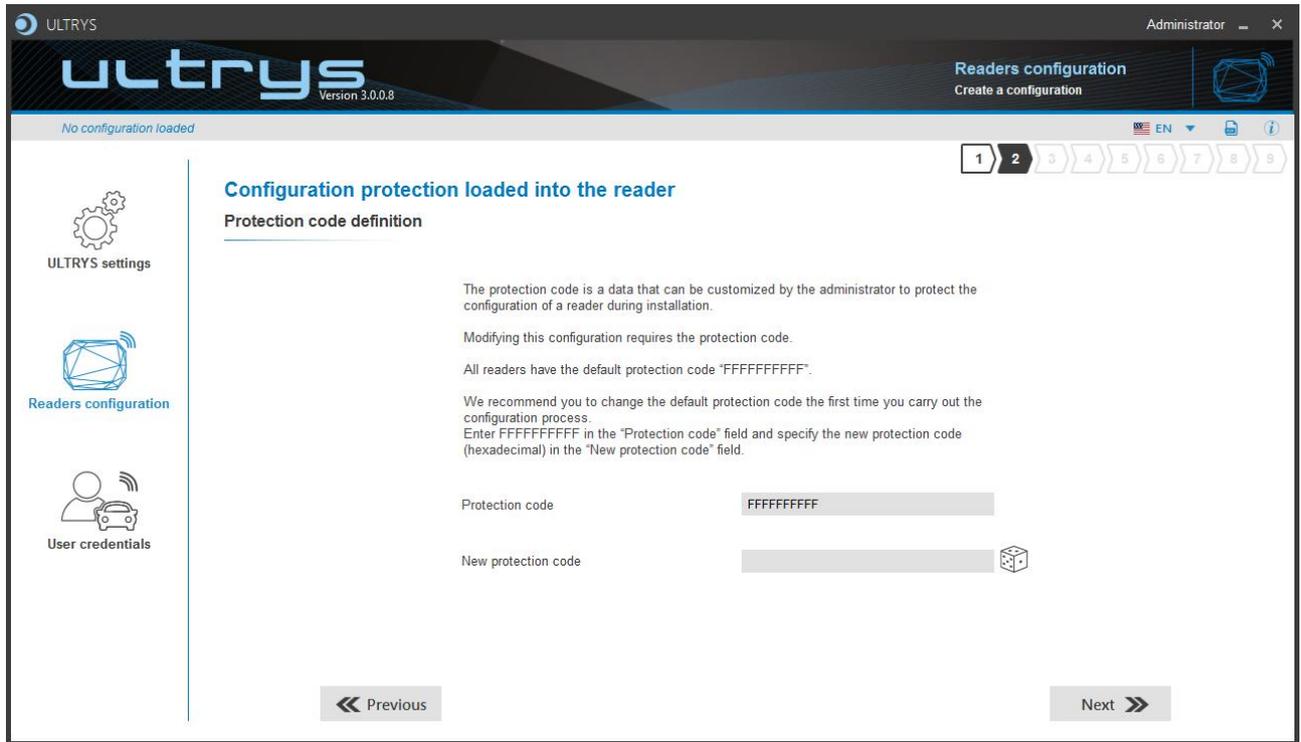


Message: OK



Message: the reference reader is not compatible with regulation selected.

Step 2- Configuration protection loaded into the reader



SPECTRE NANO readers are initially supplied with a default configuration and a protection code to 0xFFFFFFFF.

The size of this protection code is 5 bytes (10 hexadecimal characters).

After the initial setup and in order to reconfigure the reader, it will be necessary to present an UHF SCB card or a configuration file with the same 'protection code' as the reader.



Random protection code generator.

Caution

This protection code is important and should definitely be known by the administrator. It protects the configuration data and allows reader configuration updates.

If you lose this protection code, you won't be able to reconfigure the reader again and the reader must be reset at the factory.

To change the protection code, it will be necessary to know the current protection code.

Step 3- Reader configuration



1 Selecting the reader type

SPECTRE NANO SNA-R4/5x-A/U04-xx readers can be configured in “Read only” mode from firmware v13.

2 Selecting Firmware

You must select the firmware version that is compatible with your reader.

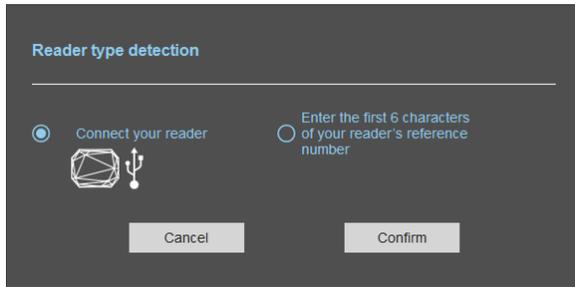
To do so, you can manually select the reader and firmware version, or you can use the function "Auto detection – Connect and check my reader configuration".

Compatibility between firmware readers and ULTRYS versions

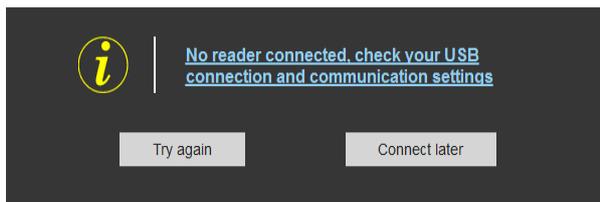
		ULTRYS softwares			
		ULTRYS V2.0	ULTRYS V2.1	ULTRYS V2.4	ULTRYS V3.x
Firmware versions	v 7	✓	✓	✓	✓
	v 9		✓	✓	✓
	v 10,11,12			✓	✓
	> v 13				✓

Close

With USB reader connection



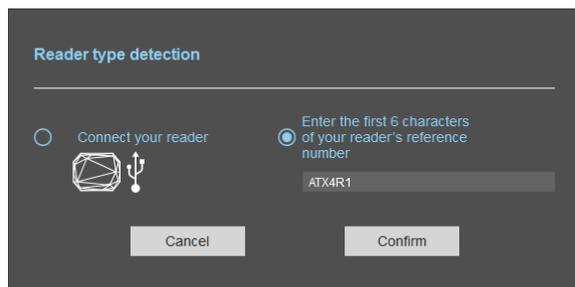
- 1- Connect the reader via USB cable provided. Configure the communication parameters.
- 2- Select the Connect your reader.
- 5- Click on Confirm.



Message: NOK

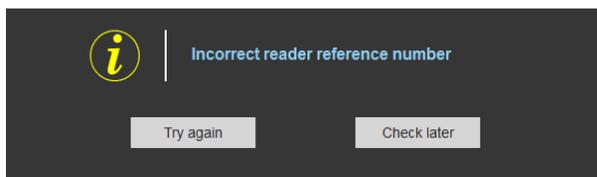
- Check the USB cable
- Check the communication with reader

With reader's number reference



Enter the first 6 characters of your reader's reference number

Examples: SNAR41, SNAR51,



Message: NOK

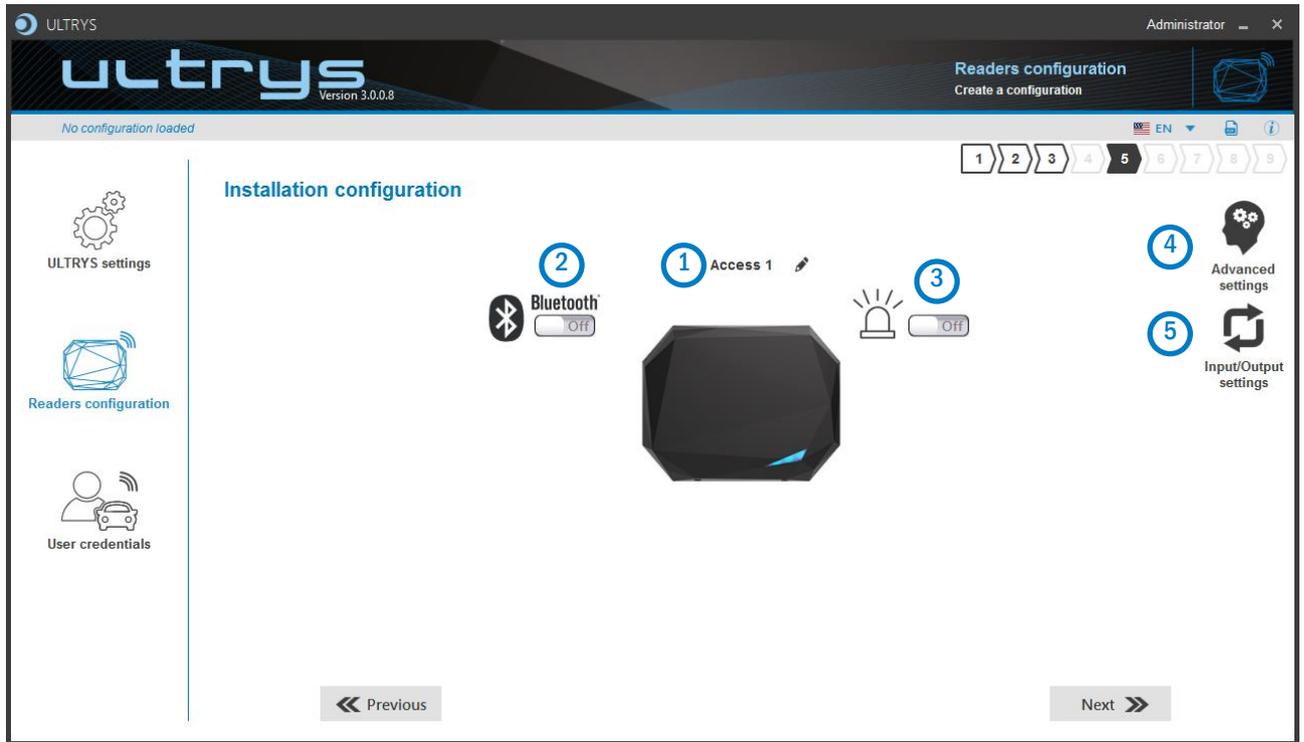
Check your reader's reference number.

Step 4- Antenna type selection

The SPECTER NANO reader works with an integrated antenna.

Step 4 does not exist in the SPECTER NANO configuration wizard.

Step 5- Installation configuration



① Name the lane

Maximum 10 characters.

For example, Entry1....

② Bluetooth® configuration

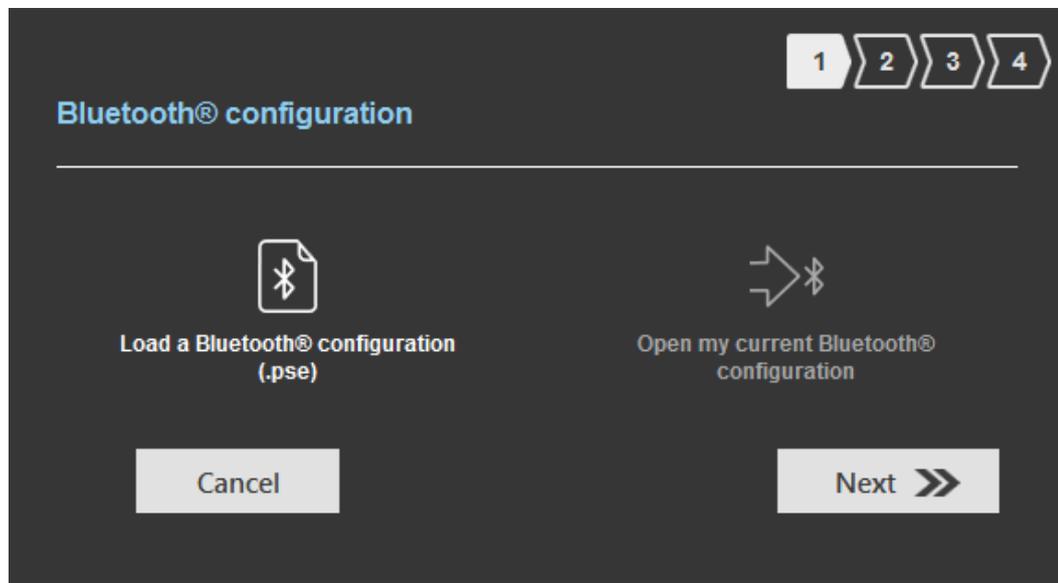


Reading of Bluetooth® identifiers disabled

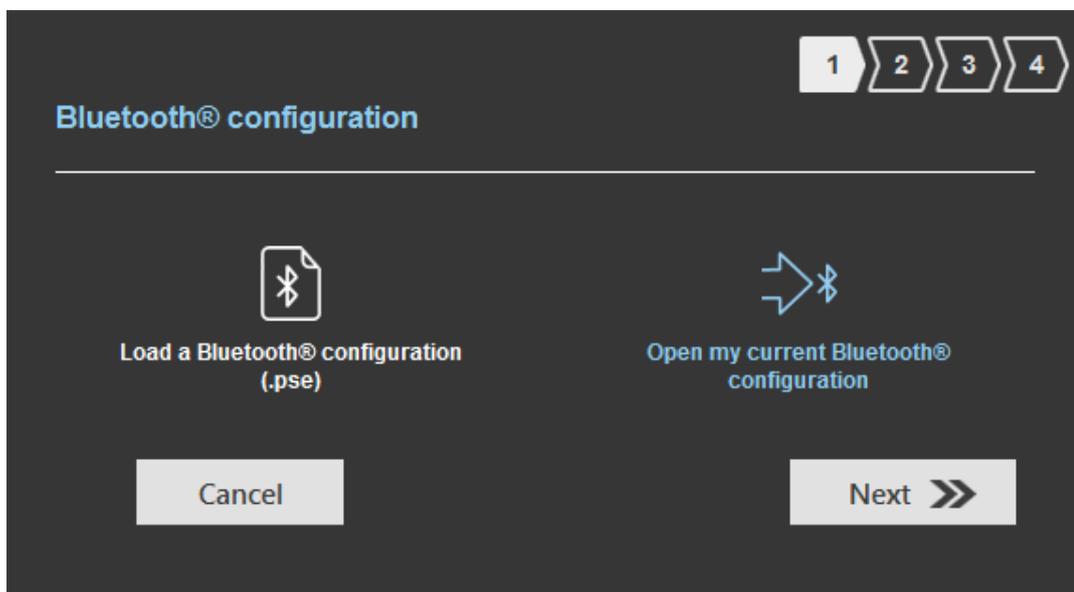
Reading of Bluetooth® identifiers enabled

There are two possible displays of Step 1, depending on whether a Bluetooth® configuration is already defined or not:

No existing configuration: The Step 1 screen is as follows



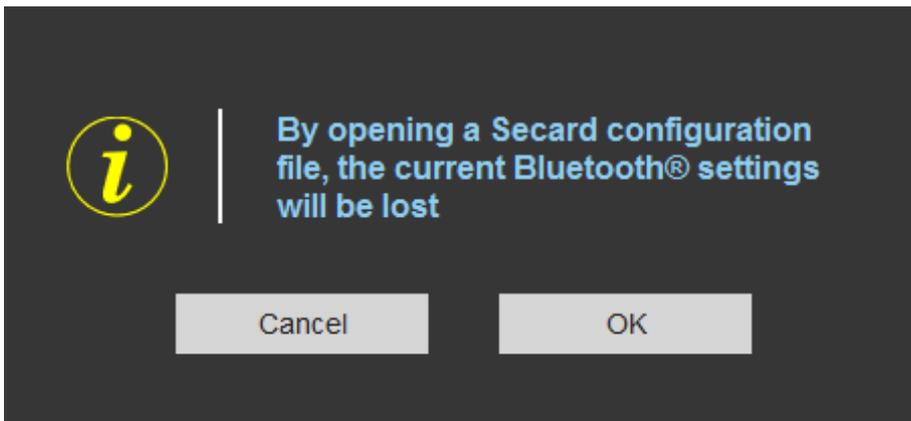
Existing configuration: The Step 1 screen is as follows:



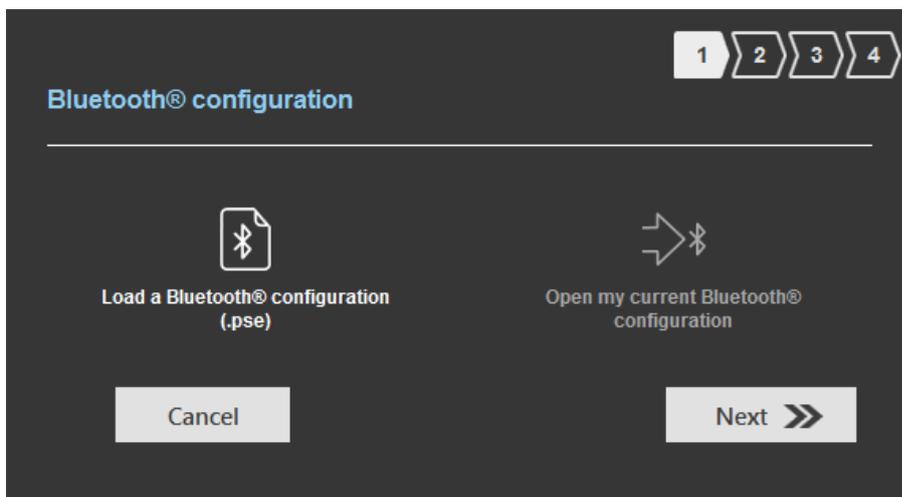
Bluetooth® configuration is done in 4 steps. To move from one Step to another you must click on "Next".

	Selecting the Bluetooth® configuration: - Load a Bluetooth® configuration - Open my current Bluetooth® configuration
	Name / Reading mode / Bluetooth® Reading mode / Security
	Identification mode / Reader options
	Virtual access card parameters

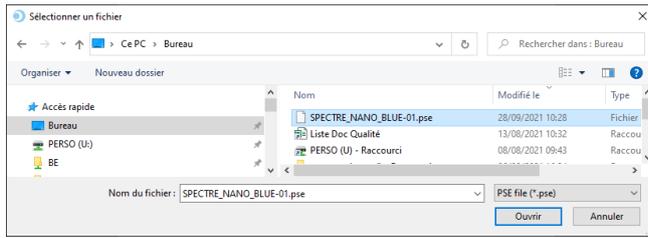
Step 1: Load a Bluetooth® configuration (.pse)



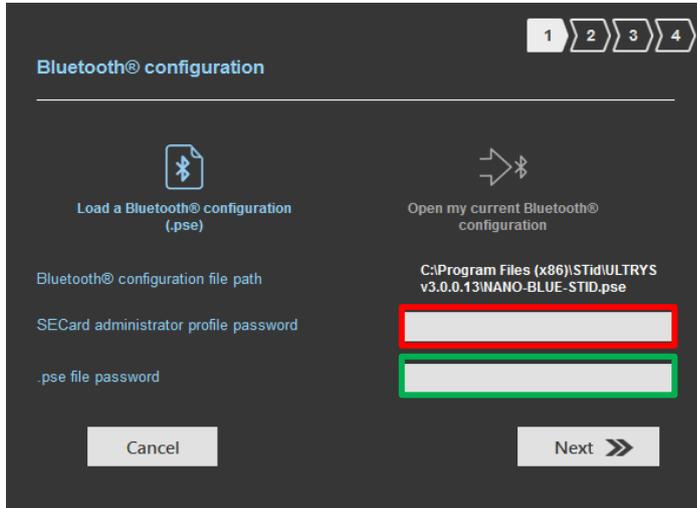
Warning: if a Bluetooth® configuration is already defined, loading a SECard (.pse) file will erase the current settings.



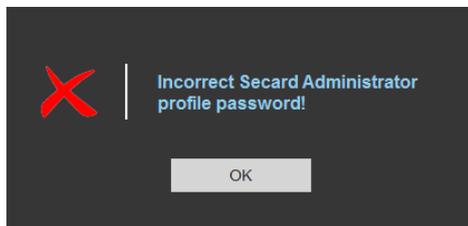
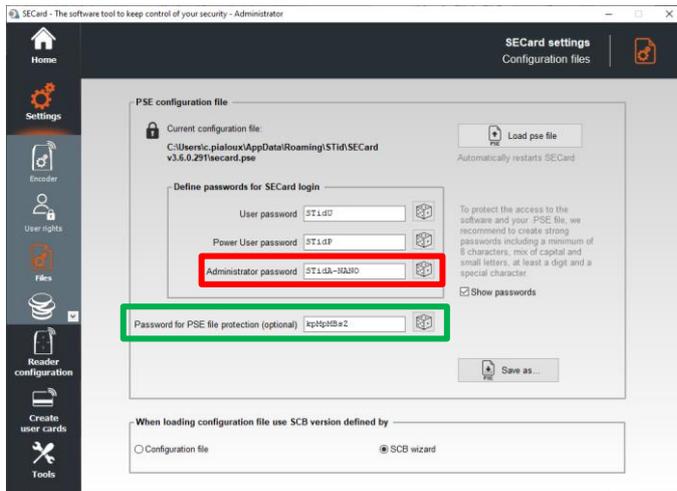
1- Click on 'Load a Bluetooth® configuration'



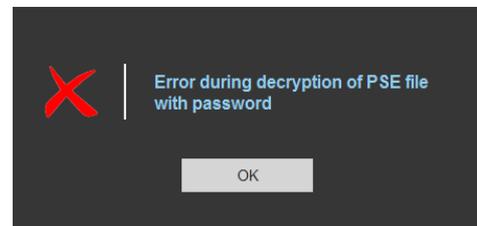
2- A window opens to select the desired configuration file.



3- Enter the passwords used when saving the SECard (.pse) file.



Check the entry of the administrator password



Check the password entry from the pse file

Step 2: Bluetooth® configuration

Some parameters are inherited from the .pse SECard configuration file and therefore cannot be changed.

Modifiable parameters

Non-modifiable inherited parameters

1 2 3 4

Bluetooth® configuration - Loaded from .pse

Name
Configuration name (14 characters max.)

Reading mode

UHF or Bluetooth®
 UHF then Bluetooth®
 Bluetooth® then UHF

Bluetooth® reading mode

Private ID
 Private ID else CSN
 CSN only

Site code

(Hexadecimal on 2 bytes)

Bluetooth® data format

Bluetooth® ID size 4 B

Offset 0 B

Reverse

Authenticated Bluetooth® data encryption

Bluetooth® ID encryption

Private key definition (16 bytes - Hex.)

Bluetooth® communication encryption - Key customization

One key (RW)
 Two keys (R and W)

Read key (Hexadecimal on 16 bytes)	Write key (Hexadecimal on 16 bytes)
Current <input type="text" value="D07C4BA98676F3065C310324790CCC82"/>	Current <input type="text" value="E2B0D9674678F297722045840A0D005A"/>
New <input type="text" value="D07C4BA98676F3065C310324790CCC82"/>	New <input type="text" value="E2B0D9674678F297722045840A0D005A"/>

Cancel
« Previous
Next »

1 2 3 4

Bluetooth® configuration - Loaded from .pse

a **Name**
 Configuration name (14 characters max.)

b **Reading mode**
 UHF or Bluetooth®
 UHF then Bluetooth®
 Bluetooth® then UHF

c **Bluetooth® reading mode** **d** **Site code** **e** **Bluetooth® data format**

Private ID (Hexadecimal on 2 bytes)
 Bluetooth® ID size 4 B
 Private ID else CSN
 Offset 0 B
 CSN only Reverse

f **Authenticated Bluetooth® data encryption**
 Bluetooth® ID encryption
 Private key definition (16 bytes - Hex.)

g **Bluetooth® communication encryption - Key customization**
 One key (RW) Two keys (R and W)
 Read key (Hexadecimal on 16 bytes) Write key (Hexadecimal on 16 bytes)
 Current
 Current
 New
 New



These parameters must be those used for encoding the Bluetooth® virtual badge.

a Name

Configuration name: enter the name of the configuration Mobile ID.

The name must be a maximum of 14 characters.

The configuration name "Conf Mobile ID" is reserved for the STid Mobile ID® configuration.

b Reading mode

UHF or
Bluetooth®

Reader configured to read UHF identifiers or Bluetooth® identifiers.
Feedback of all identifier.

UHF then
Bluetooth®

Reading the UHF identifier triggers reading of the Bluetooth® identifier.
The reader scans in UHF. As soon as a valid UHF identifier is detected (key, EPC filter, etc.), the reader checks (for a timeout of 6s by default) whether a Bluetooth® identifier has to be returned (valid VCard read).

Timeout adjustable at Step 7:

Timeout for second identification (UHF and Bluetooth® mode) 6 s

The reader returns the two identifiers one after the other.

If beyond the scan time no valid Bluetooth® identifier is read, the reader resumes UHF scan.

Bluetooth®
then UHF

Reading the Bluetooth® identifier triggers reading of the UHF identifier.
The reader scans in Bluetooth®. As soon as a valid VCard is detected (Site code, etc.), the reader checks (for a timeout of 6s by default) whether a UHF identifier has to be returned (key, EPC filter...).

Timeout adjustable at Step 7:

Timeout for second identification (UHF and Bluetooth® mode) 6 s

The reader returns the two identifiers one after the other.

If beyond the scan time no valid UHF identifier is read, the reader resumes Bluetooth® scan.

c Bluetooth® reading mode

STid Mobile ID® can store 3 types of cards:

	STid Mobile ID® A CCCESS	STid Mobile ID® P REMIUM
Identifier issued on download of application	A	
Manageable cards with custom programming		P
Full card customization		P
Card revocation function		P
Temporary visitor badge		P
Access user interaction	A	P
Enhanced user interaction	Upgradeable to Premium identification experience	P

- Private ID Reader configured for private code reading only.
- Private ID otherwise CSN Reader configured for private code reading.
If this is not found or if the security settings are incorrect, then the reader will read and return the CSN.
- CSN only Reader configured only to read CSN.

d Site Code

Number on two hexadecimal bytes designating the site code to use to create the VCard.

Site code 51BC is reserved for STid Mobile ID® configuration.

Note: this site code is unrelated to the 26-bit Wiegand protocol 'site code'.

e Bluetooth® data format

Bluetooth® ID size	Determines the length in bytes of the Bluetooth® identifier. Max 48 bytes. When Authenticated Bluetooth® data encryption is used, the max size cannot exceed 12 bytes.
Offset	Set an offset from the first byte for reading data.
Reverse	- checked: identifier read Least Significant Byte First (LSB First). - not checked: identifier read Most Significant Byte First (MSB First).

f Authenticated Bluetooth® data encryption

Private identifiers can be encrypted AND signed before being written to the badge.

The reader will decrypt and authenticate the private identifier thus protected, before sending it to its output media. Only a correctly decrypted and authenticated identifier will produce an exit code, otherwise the reader will remain silent.

The encryption-authentication uses the mode **MtE** (MAC Then Encrypt).

g Bluetooth® communication encryption – Key customization

One key (RW)	Use a key to read and write.
Two keys (R et W)	Use a key to read and a key to write.

Allows you to define the security keys used for Bluetooth® data.

The default keys are 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00.

Step 3: Bluetooth® configuration

1 2 3 4

Bluetooth® configuration

a Identification modes and communication ranges

Card

Hands-free

Bluetooth® communication activation by sensor / ground loop

Remote

TapTap

Remote button active

Remote 1 Remote 2

b Reader options

LED activation at Bluetooth® connection

Unlocking smartphone required by the reader

Cancel << Previous Next >>

a Identification modes and communication ranges

Card



Works by presenting the smartphone in front of the reader (like a badge).

- Contact: the smartphone must be in contact with the reader
- Up to 0.2m: smartphone must be in an area of 0.2m around the reader
- Up to 0.3m: smartphone must be in an area of 0.3m around the reader
- Up to 0.5m: smartphone must be in an area of 0.5m around the reader

Bluetooth® communication activation by sensor / ground loup



- Up to 1m: Smartphone must be in an area of 1m around the reader
- Up to 2m: Smartphone must be in an area of 2m around the reader
- Up to 3m: Smartphone must be in an area of 3m around the reader
- Up to 4m: Smartphone must be in an area of 4m around the reader
- Up to 5m: Smartphone must be in an area of 5m around the reader

TapTap



By tapping your smartphone twice in your pocket.

- Up to 3m
- Up to 5m
- Up to 10m
- Up to 15m

Hands-free



Works without any user action.

- Up to 3m
- Up to 5m
- Up to 10m

Remote



Works remotely. The phone becomes your remote control. You can display up to two buttons per virtual badge.

- Up to 5m
- Up to 10m
- Up to 15m
- Up to 20m

Remote control button active: If the "Remote" identification mode has been activated, allows you to associate the current configuration with the Remote 1 or Remote 2 button.
Possibility to use the fields to name the buttons.

b Reader options

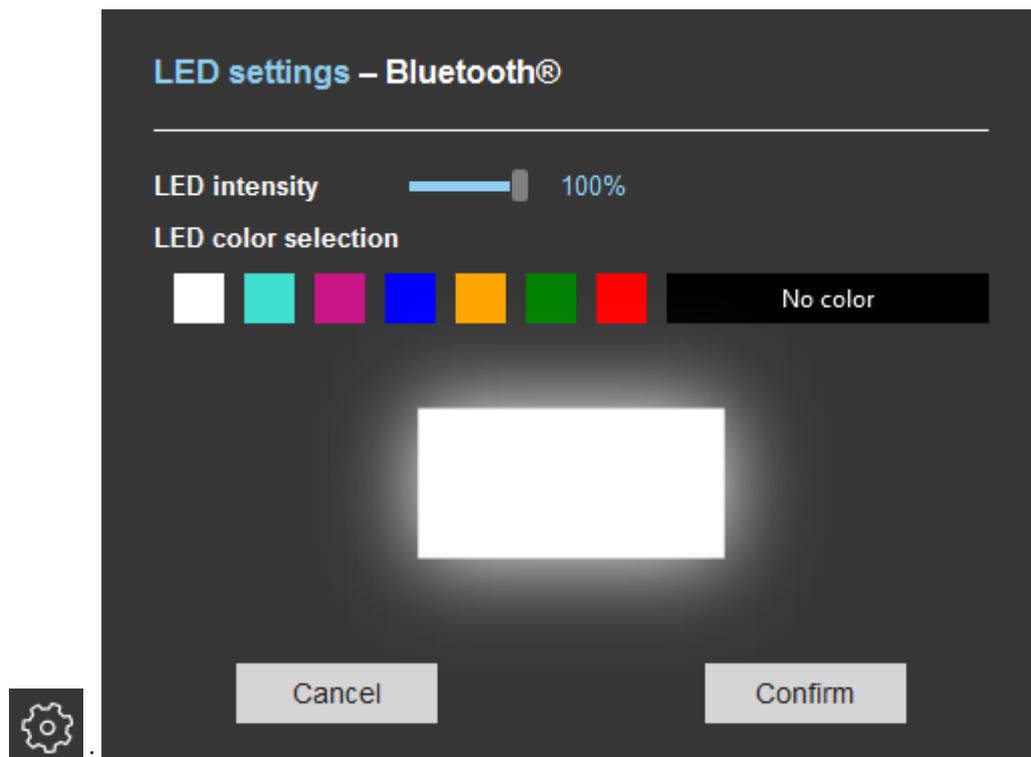
LED activation at Bluetooth® connection

Allows the reader to light up briefly when connecting with a smartphone.



The color can be selected by clicking on

This action, independent of the detection of the virtual card, informs the user that communication between the smartphone and the reader is in progress.

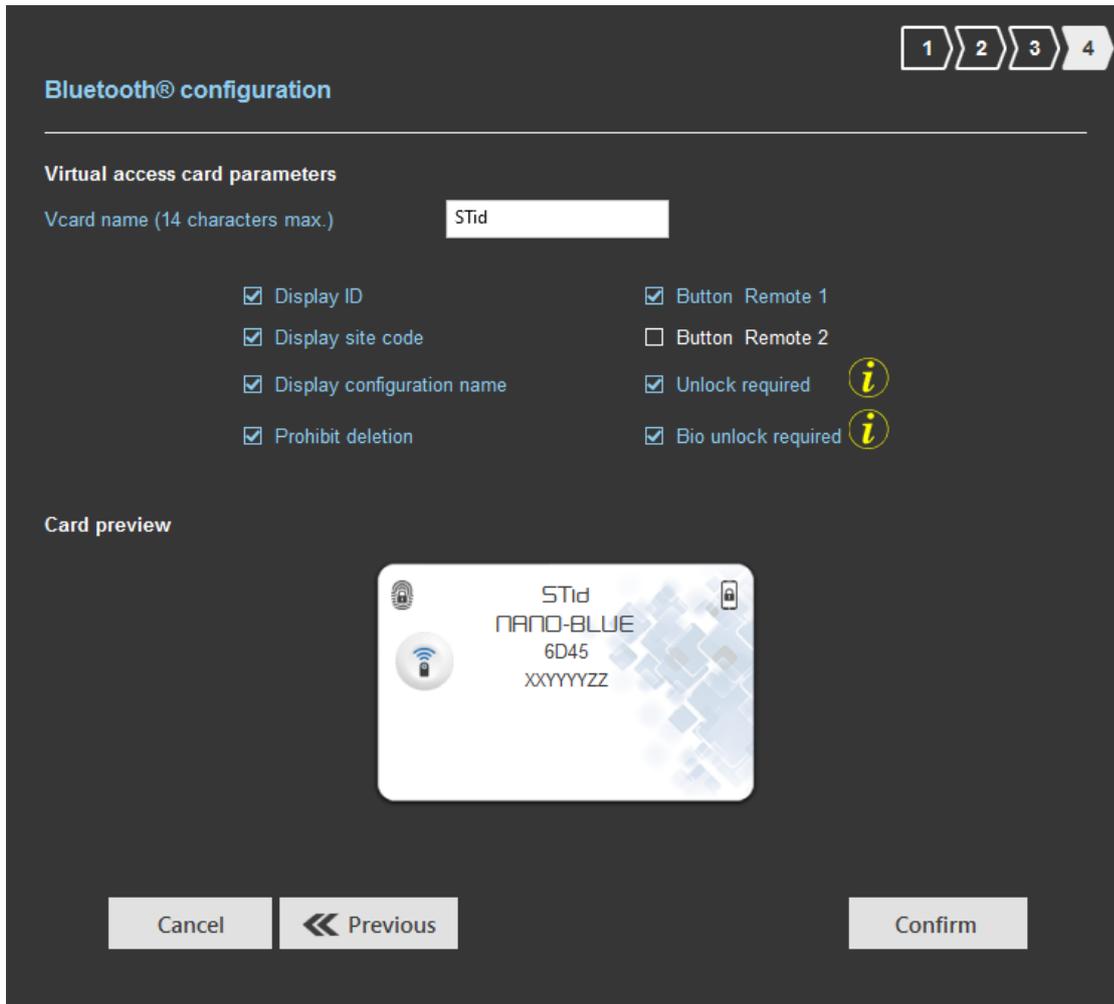


Unlocking smartphone required by the reader

If checked: the smartphone must be unlocked (with PIN code or other unlocking option depending on the smartphone) to authenticate with the reader.

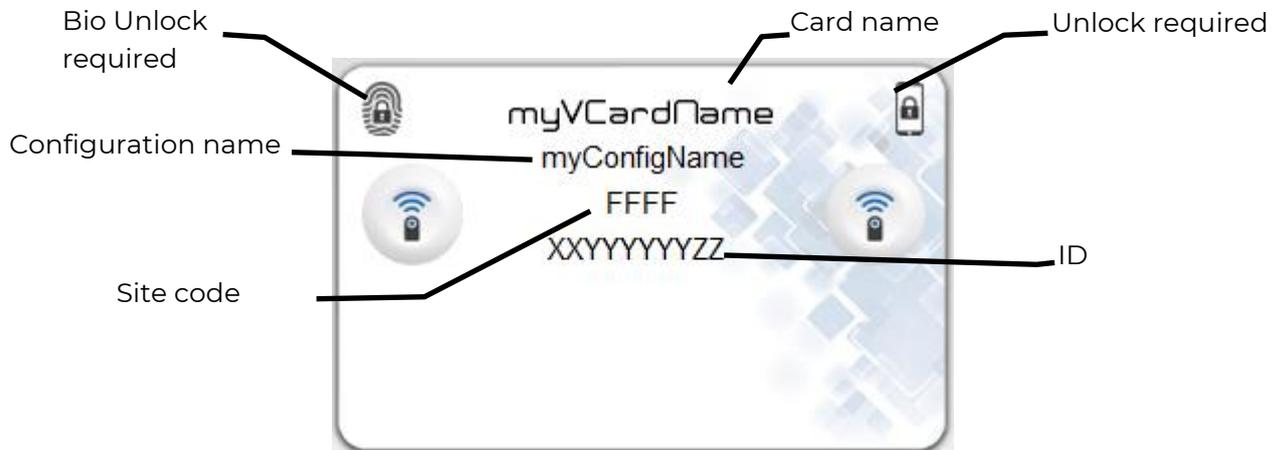
If unchecked: unlocking the smartphone is not required to authenticate with the reader.

Step 4: Bluetooth® configuration



Vcard name: Name that will appear on the virtual badge on the smartphone screen.

Note: choose a meaningful name allowing the user to quickly identify the virtual badge to use.



Prohibit Deletion: prohibit the deletion of the virtual access card by the user. Only the administrator, via SECard (Settings / Credits / Delete your virtual access card) can delete it.

Note: if the Bluetooth® configuration is configured on STid Mobile ID® CSN:

Step 2:

Bluetooth® configuration

1 2 3 4

Name
Configuration name (14 characters max.)

Reading mode

UHF or Bluetooth® UHF then Bluetooth® Bluetooth® then UHF

Bluetooth® reading mode **Site code** **Bluetooth® data format**

Private ID (Hexadecimal on 2 bytes) Reverse

Private ID else CSN

CSN only

Step 3: Remote mode is not accessible.

Bluetooth® configuration

1 2 3 4

Identification modes and communication ranges

Card Hands-free

Bluetooth® communication activation by sensor / ground loop Remote

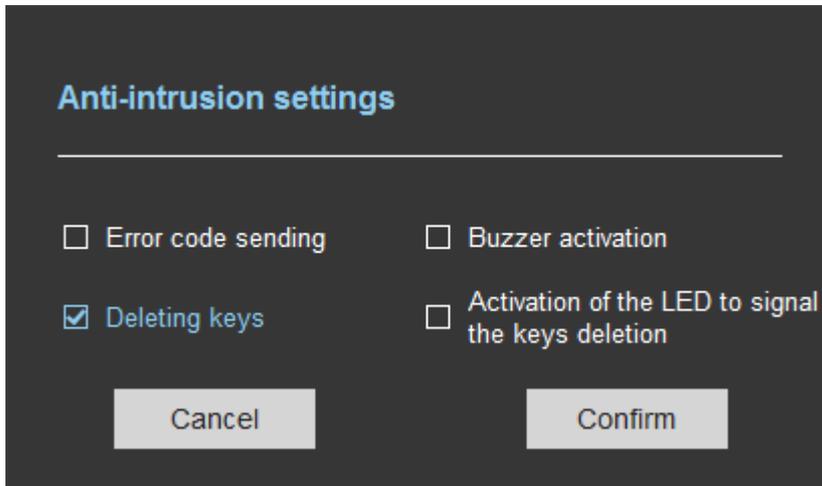
TapTap

Remote button active: Remote 1 Remote 2

Reader options

LED activation at Bluetooth® connection Unlocking smartphone required by the reader

③ Anti-intrusion settings



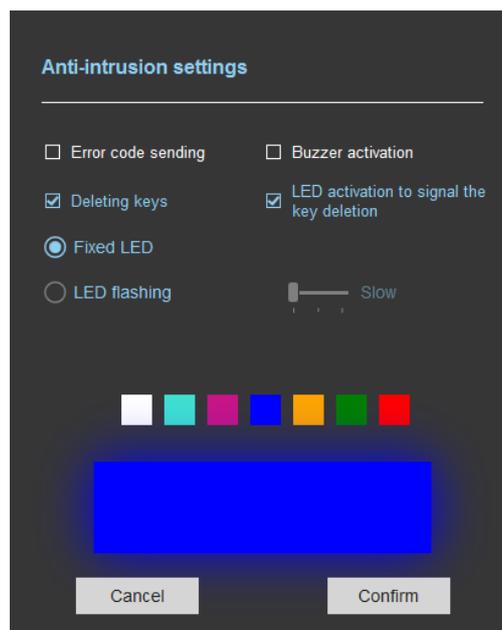
Error code sending Sending error code 0xAA every 2 seconds as long as the reader is "open".

Buzzer Activation Activation of the buzzer at the highest intensity as long as the reader is "open". The buzzer stops as soon as the cover is detected as being closed or when communication via the internal USB is established (for configuration for example) or if the reader is reconfigured by BLE or if the reader is restarted.

Deleting keys Key erasure upon detection of opening.

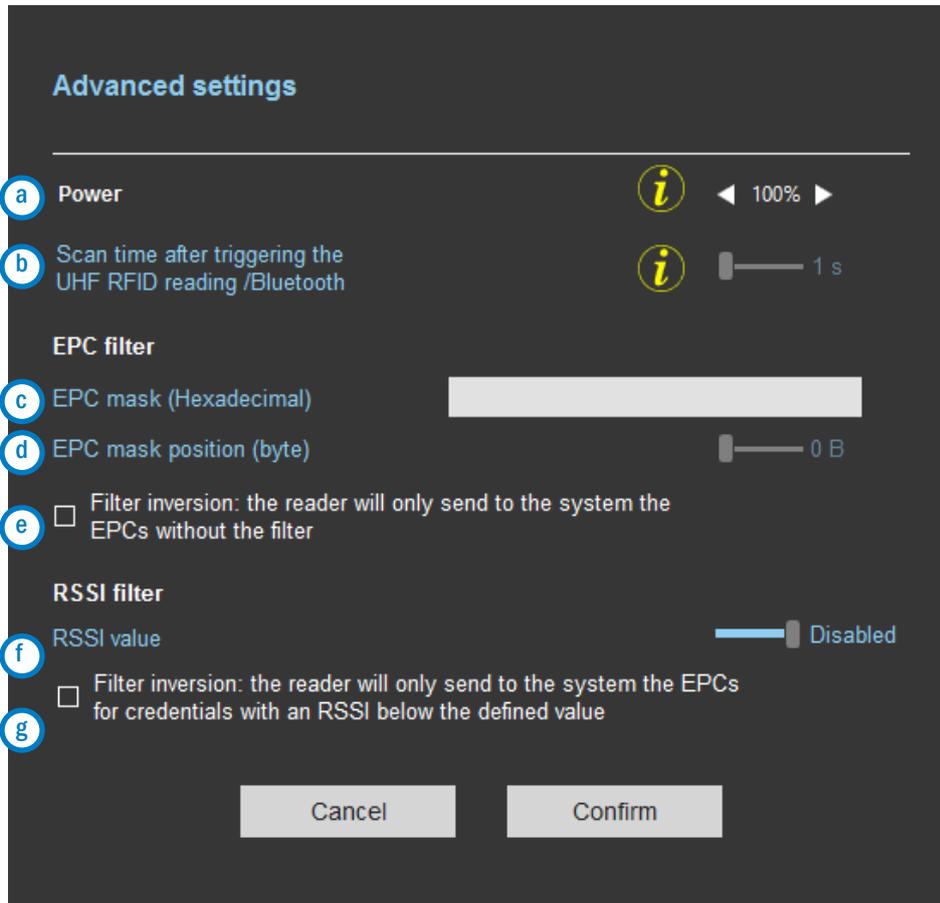
Activation of the LED to signal the key deletion Activation of the fixed or flashing LED depending on the setting below:

** Can only be activated if the Erase keys option has been activated*



The LED sequence is repeated as long as the reader is switched on and stops if communication via the internal USB is established (for configuration for example) or if the reader is reconfigured using the BLE or if the system is restarted.

4 Advanced settings



- a** Adjust the antenna power (10% to 100%) to adjust the reading distance.
- d** Adjust the reading time in steps of 1 second (max 30s). This parameter is taken into account only if in the Input type selection, the reading mode is set to "Triggering of reading on the event".
- c** **The EPC filter is not available in Secure Mode.**
Enter the value for EPC Mask, max 62 hexadecimal bytes.
- d** Adjust the value for offset EPC mask in bytes (0 to 61 bytes).
It depends on the EPC Mask length.
- e** Filter inversion not selected: only tags with an EPC value corresponding to the EPC mask value will be provided to the user.

Filter inversion selected: only tags with an EPC value different from the EPC mask value will be provided to the user.
- f** RSSI (Received Signal Strength Indication) is a measure of the power in reception of the tag response. The value returned by the reader is proportional to the amplitude of the reception signal.
Adjust the RSSI value (-110dBm to 0dBm). 0dBm deactivates the RSSI filter.
- g** Filter inversion not selected: only tags with an RSSI greater than or equal to the specified value will be provided to the user.
Filter inversion selected: only tags with an RSSI smaller or equal to the specified value will be provided to the user.
Ex: RSSI filter= -49dBm + Reversal not selected
A tag that will have a RSSI value of -20dBm will be sent back,
A tag that will have a RSSI value of -60dBm will not be sent back.

EPC Filter

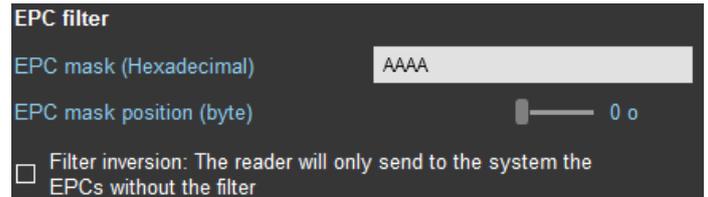
Examples:

Code EPC Tag 1: AAAAABCD000000000000000001
 Code EPC Tag 2: AA02ABCD000000000000000002
 Code EPC Tag 3: AA02ABCD000000000000000003
 Code EPC Tag 4: AA02FFFF000000000000000003

1- EPC mask = AA AA and Offset = 0

Tag 1: **AAAA**ABCD00000000000000000001
 Tag 2: AA02ABCD00000000000000000002
 Tag 3: AA02ABCD00000000000000000003
 Tag 4: AA02FFFF00000000000000000003

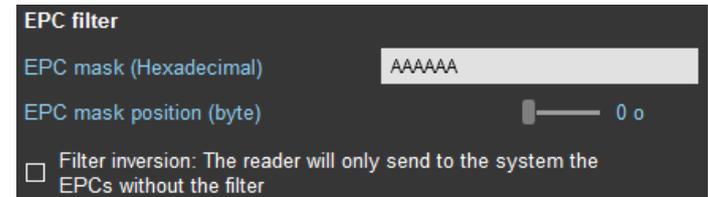
Only tag 1 is transmitted.



2- EPC mask = AA AA AA and Offset = 0

Tag 1: AAAAABCD00000000000000000001
 Tag 2: AA02ABCD00000000000000000002
 Tag 3: AA02ABCD00000000000000000003
 Tag 4: AA02FFFF00000000000000000003

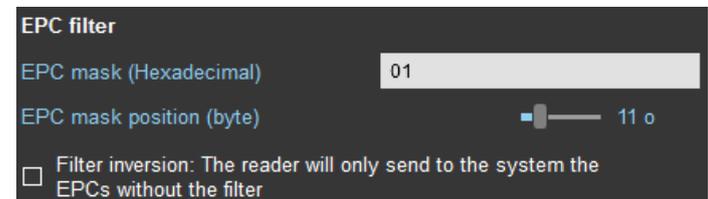
No tag is transmitted.



3- EPC mask = 01 and Offset = 11

Tag 1: **AA AA AB CD 00 00 00 00 00 00 00 01**
 Tag 2: AA 02 AB CD 00 00 00 00 00 00 00 02
 Tag 3: AA 02 AB CD 00 00 00 00 00 00 00 03
 Tag 4: AA 02 FF FF 00 00 00 00 00 00 00 03

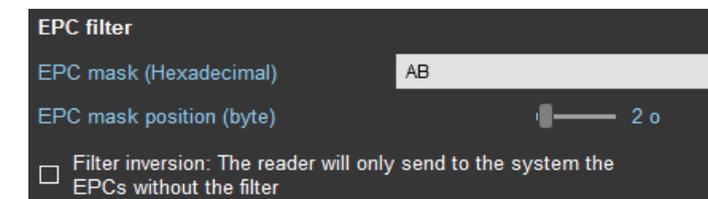
Offset is represented in blue; the filter is done on byte 12.
 Only tag 1 is transmitted.



4- EPC mask = AB and Offset = 2

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

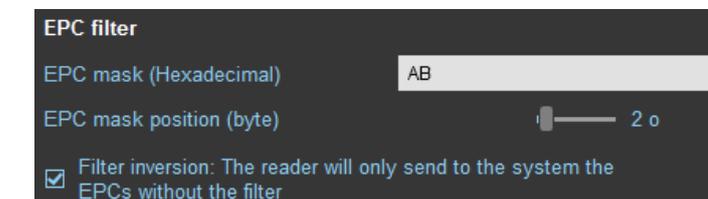
Tags 1, 2 and 3 are transmitted.



5- EPC mask = AB, Offset = 2 and Reversal

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

Tags 1, 2 and 3 are not transmitted. Only tag 4 is transmitted.

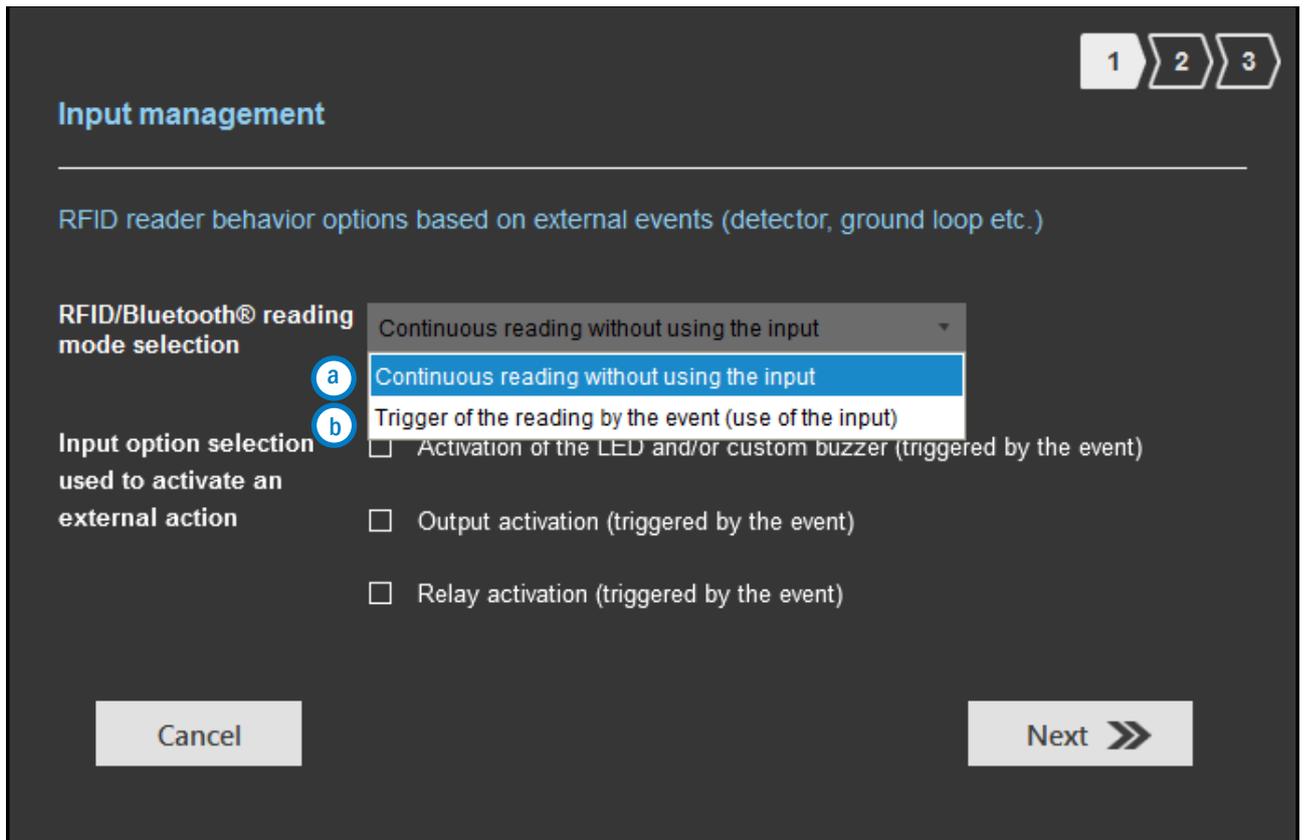


5 Input / output settings

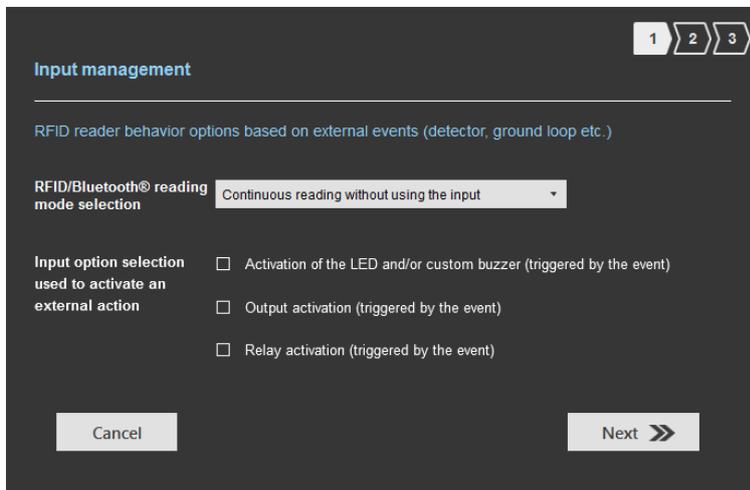
The configuration of the outputs depends on the reading mode chosen.

Both types of output are « Pull up to V+ » or « Open drain ».

Status of outputs: select for each output the default state 'Open' or 'Closed' and if the state is maintained during the detection process.

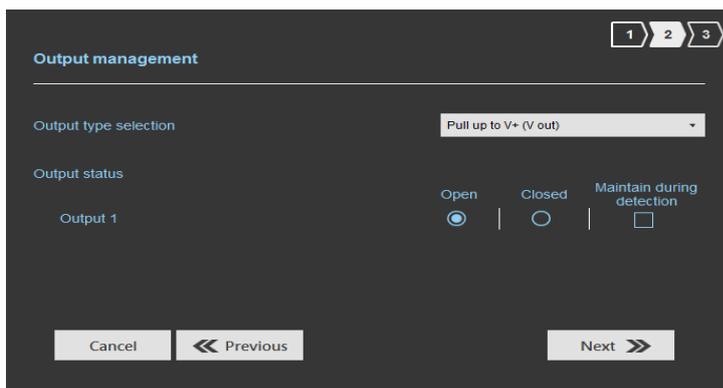


a Reading mode = Continuous reading without using input

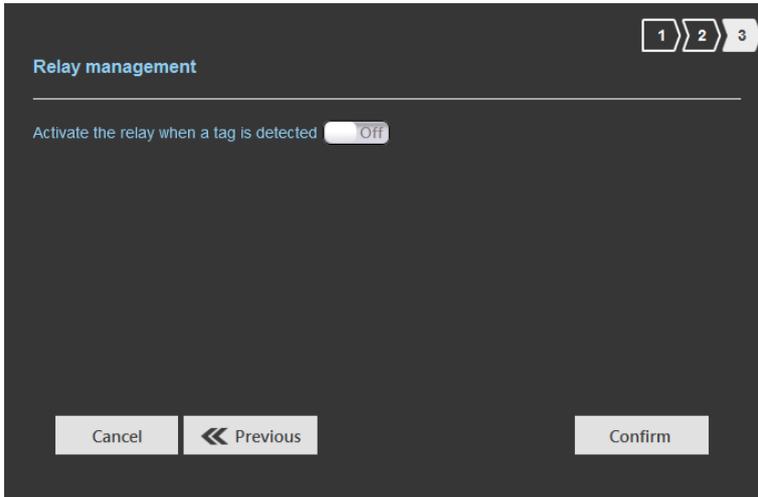


In this mode, the reader scan continuously.

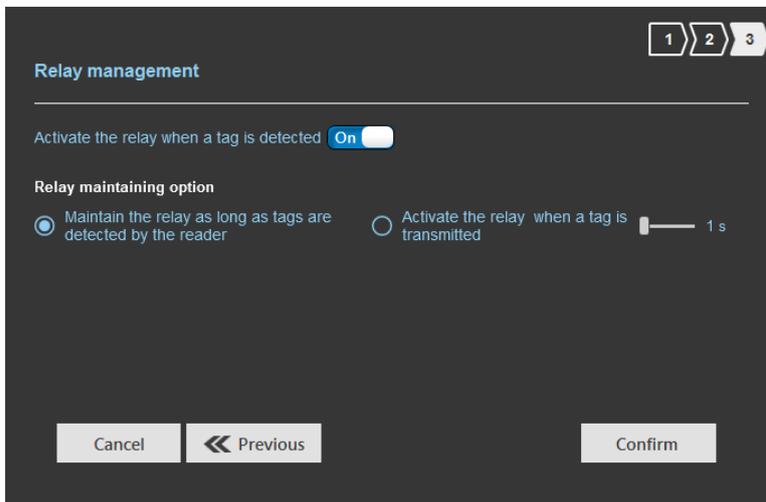
There is no action on input activation.



Select the output type and default state for output.



Activate the relay on detection 'OFF'.

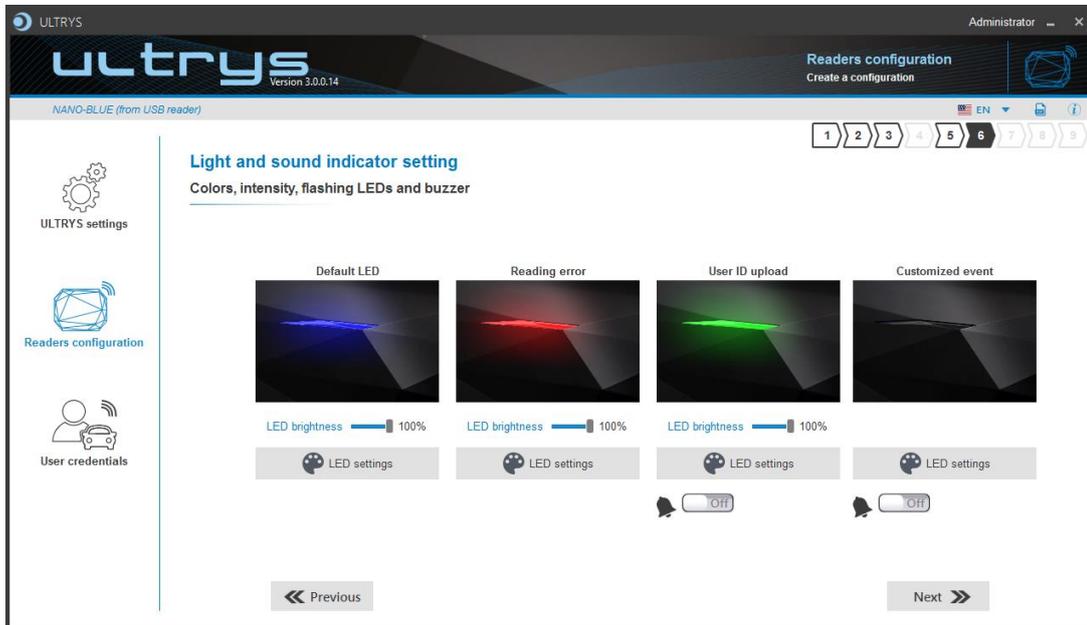


Activate the relay on detection 'ON': maintaining the relay as long as there is detection or for a fixed period of between 1s and 20s.

Options available in this reading mode:

Activation of the LED and/or buzzer (triggered by the event)

This option modifies the Step 6 of the main Wizard, with the addition of the setting of the LED and / or the buzzer "Custom event".



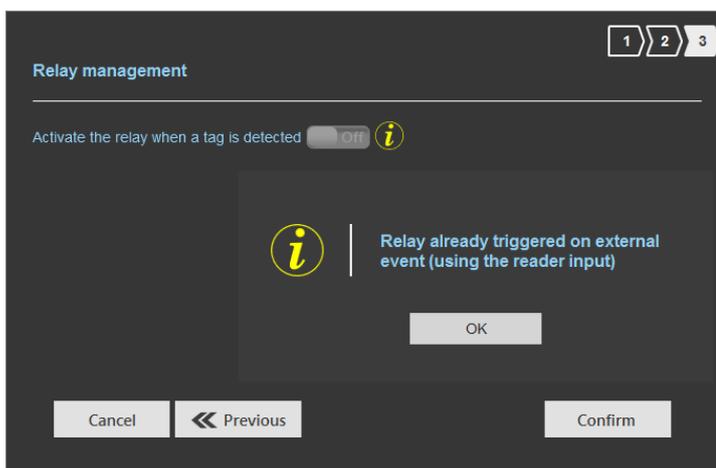
Output activation de la sortie (triggered by the event)

Possibility of activating the output when an event is detected on the input, independently of the reading of an identifier.

Relay activation (triggered by the event)

Possibility of activating the relay when an event is detected on the input, regardless of the reading of an identifier.

At Step 3: it is no longer possible to activate the relay on detection.



b Reading mode = Trigger of the reading by the event (use the input)

In this mode, if the input is activate, the reader on the lane.

Select the output type and default state for output.

Activate the relay on detection 'OFF'.

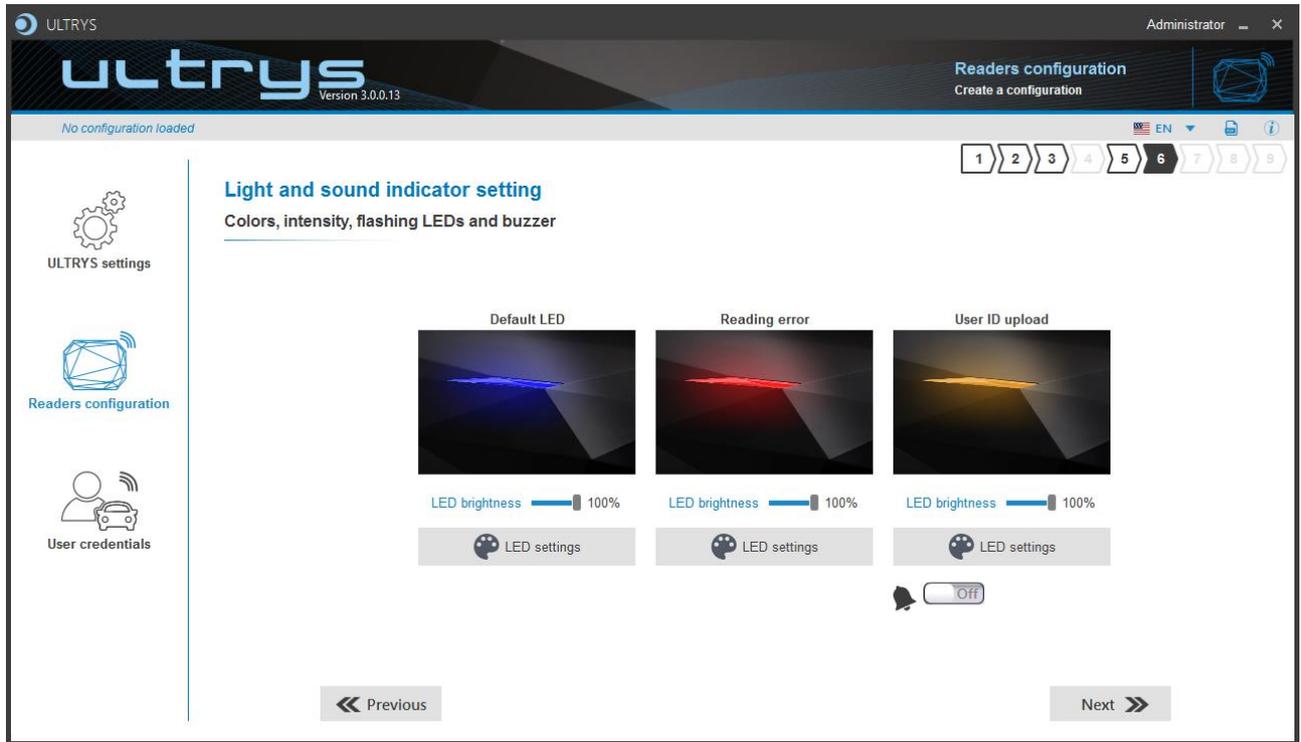
Activate the relay on detection 'ON': maintaining the relay as long as there is detection or for a fixed period of between 1s and 20s.

Summary table

Reading mode	Options	Input	Configurable Outputs states?	Maintain during detection available?	Output	Relay on detection
a Continuous reading without using inputs		No action	Yes	Yes	<p>- If 'Continuing during detection process' not activated: the output state toggles at the ascent</p> <p>- If 'Continuing during detection process' activated: the output state toggles to the RF detection and remains in this state as long as, at each scan is at least one detection</p>	Yes
a Continuous reading without using inputs	Activation of the LED and/or custom buzzer (triggered by the event)	An action on the input lights the LED and / or Buzzer according to the "Custom event" parameters	Yes	No		Yes
a Continuous reading without using inputs	Output activation (triggered by the event)	An action on the input activates the output	Yes	Yes	<p>- If 'Continuing during detection process' not activated: the output state toggles at the ascent</p>	Yes
a Continuous reading without using inputs	Relay activation (triggered by the event)	An action on the input activates the relay	Yes	Yes	<p>- If 'Continuing during detection process' activated: the output state toggles to the RF detection and remains in this state as long as, at each scan is at least one detection</p>	No
b Trigger of the reading by the event (use of the input)		An action on the input activates reading on the label	Yes	Yes	<p>- If 'Continuing during detection process' not activated: the output state toggles at the ascent</p> <p>- If 'Continuing during detection process' activated: the output state toggles to the RF detection and remains in this state as long as, at each scan is at least one detection</p>	Yes

Note: as long as the action is detected on the input, the output remains toggled.

Step 6- Light and sound indicator setting



Default LED:

After the reader initialization phase, the LED must be activated according to the color defined in the box.

The intensity of the LED is adjustable in 10% steps (from 10% to 100%).

Reading error:

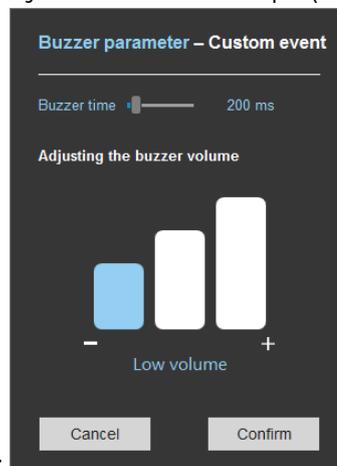
This LED lights when the RF is bad, in this case the reader can't read the tag.

The intensity of the LED is adjustable in 10% steps (from 10% to 100%).

User ID upload:

LED: Color indicating the detection of an identifier by the antenna.

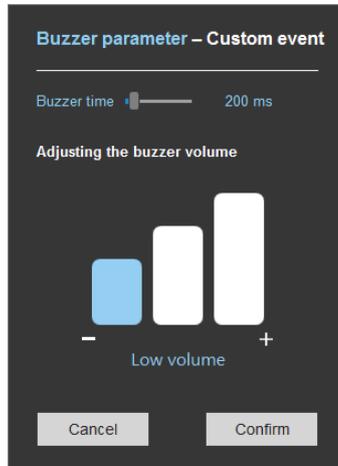
The intensity of the LED is adjustable in 10% steps (from 10% to 100%).



Buzzer: OFF or ON+option :

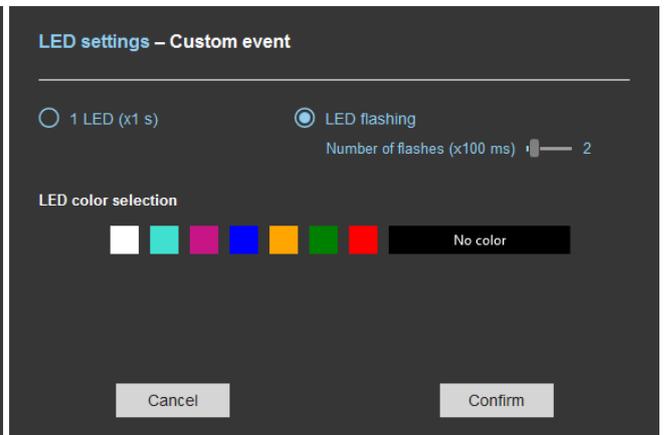
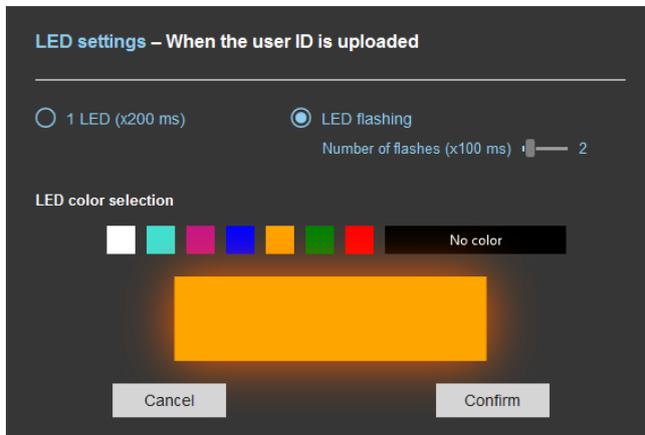
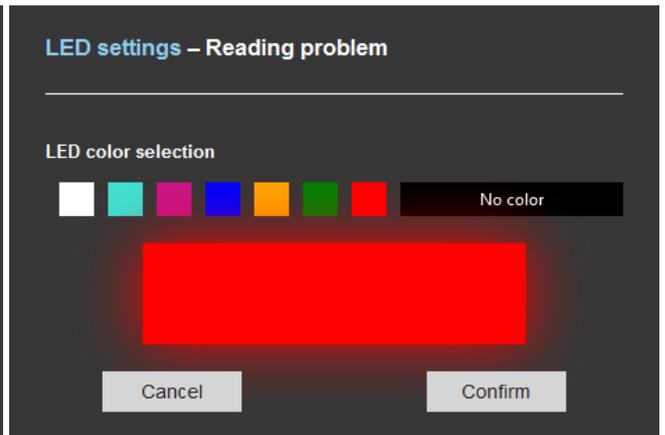
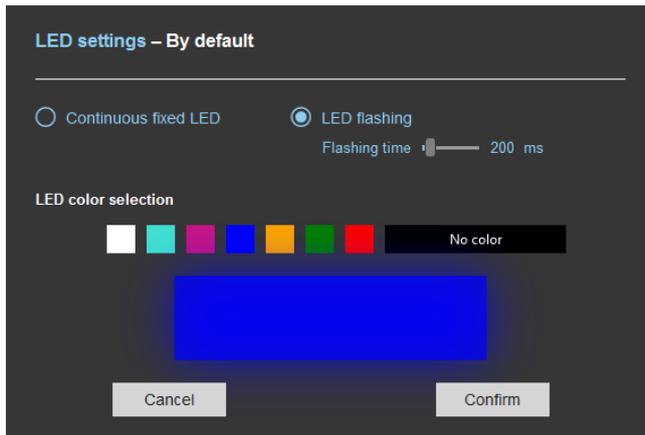
Customized event*:

LED lights if action on the input. Default set to no color / Buzzer OFF.
 LED: Color indicating the detection of an identifier by the antenna.

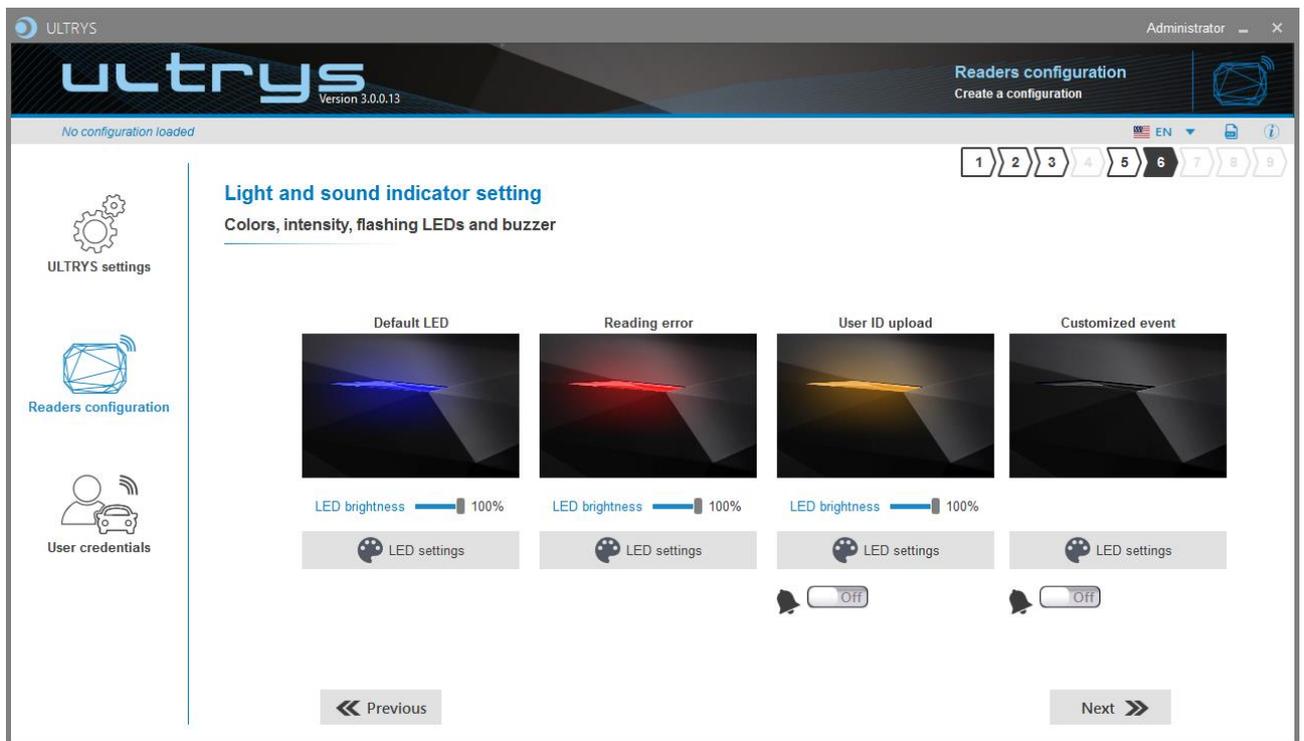
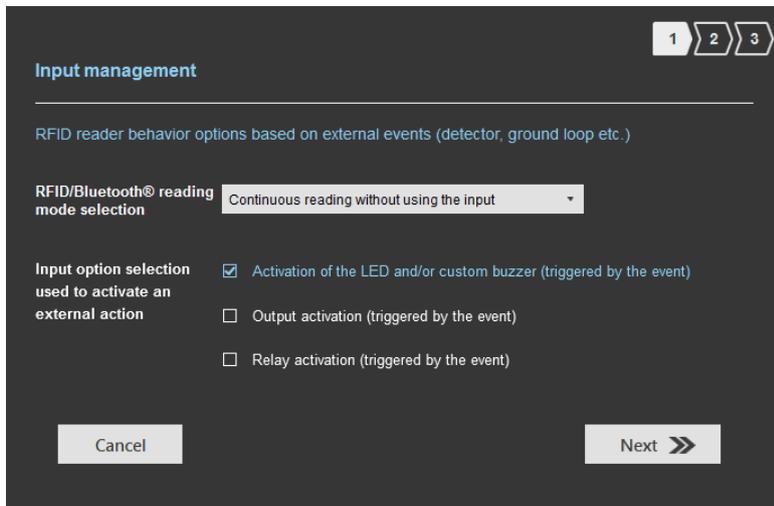


Buzzer: OFF or ON+options :

LED settings:



* The LED 'Customized event' only appears if 'Reading Mode' = Continuous reading + Activation de la LED personnalisée ».

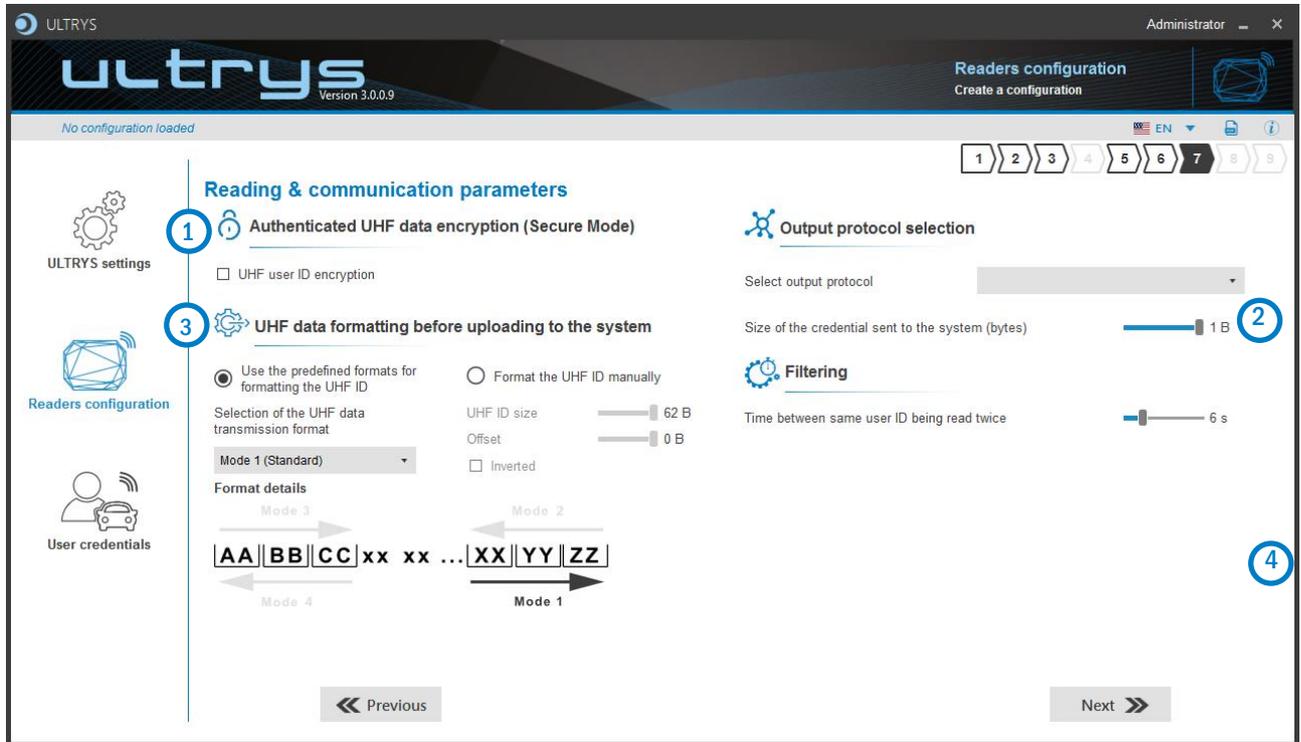


Display in other cases:

The screenshot shows the ULTRYS web interface for 'Readers configuration'. The page title is 'Light and sound indicator setting' with the subtitle 'Colors, intensity, flashing LEDs and buzzer'. The interface includes a sidebar with 'ULTRYS settings', 'Readers configuration', and 'User credentials'. The main content area features three columns for 'Default LED' (blue), 'Reading error' (red), and 'User ID upload' (yellow). Each column has a visual representation of the LED light, an 'LED brightness' slider set to 100%, and an 'LED settings' button. A 'buzzer' toggle is set to 'Off'. Navigation buttons for 'Previous' and 'Next' are at the bottom. The top navigation bar shows steps 1 through 9, with step 6 being the current page.

Step 7- Reading & communication parameters

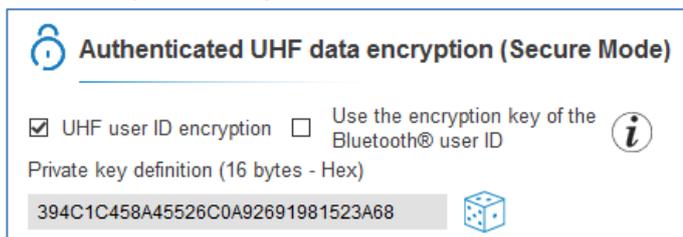
The parameters accessible in step 7 depend on the previously defined parameters and the selected protocol. The different modes will be discussed in the Application Note.



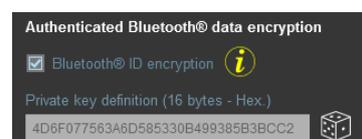
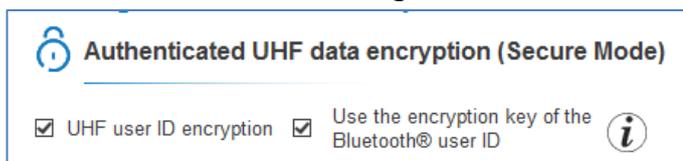
- ① The data can be encrypted and signed before being written in the tag. The reader will decrypt and authenticate the data before sending it on its output media. Only an identifier correctly decrypted and authenticated will produce an output data, otherwise the reader will remain mute.

If authenticated encryption is also used for the Bluetooth® identifier, it is possible to use:

- A different private key for EPC and for Bluetooth®



- An identical private key for the EPC and for Bluetooth® in this case, the value of the key is defined in the Bluetooth® configuration:



Notes:

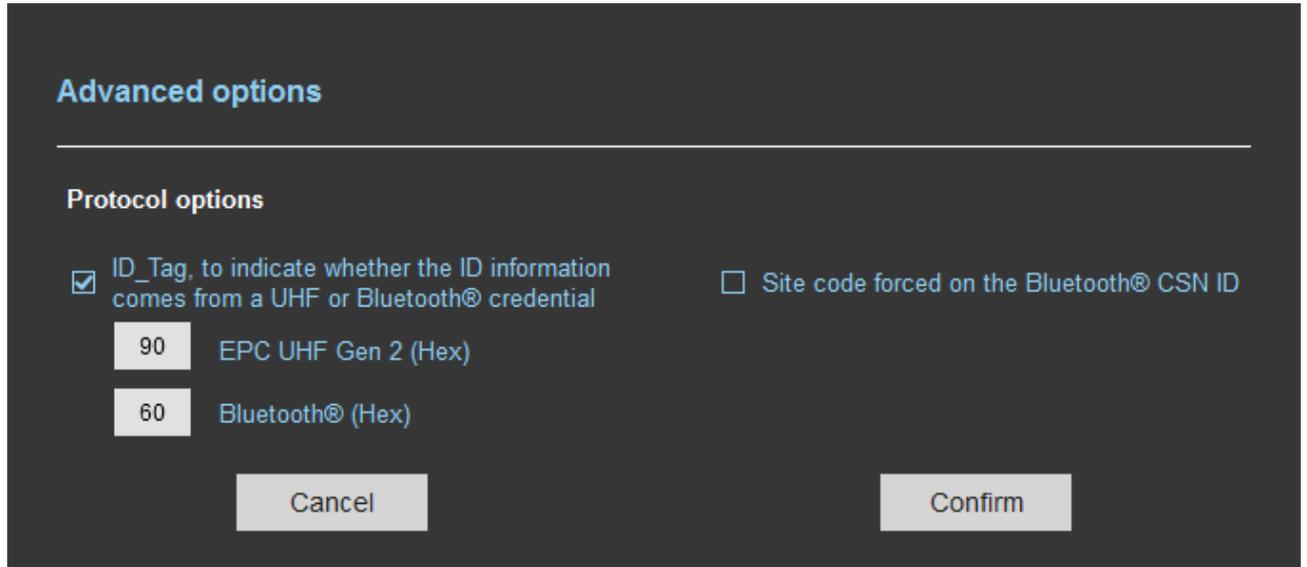
- Only UHF tags compatible with “FAST ID” feature and having at least 128 bits of EPC can be decrypted and authenticated by the SPECTRE Access reader.
The chips compatible with secure encoding are: Monza X, Monza R6P, Monza 4D, this chip is present into
 - TLTA-W53M-943_S
 - TLTA-W75B-943_S
 - IronTag Aero
 - CCTW490_AN
- **The secure mode is not accessible if an EPC mask has been set in ‘Advanced settings’.**
Note: After setting an EPC security key, if you return to step 5 with the Previous button, and you set an EPC filter, then returning to step 7, the "EPC ID Security" checkmark is displayed. in gray, the key field is still accessible but not taken into account

2 Output protocol selection

The advanced options in this part depend on whether or not a Bluetooth® configuration is activated and the protocol chosen:

Bluetooth® activation	Reading mode	Bluetooth® reading mode	Output protocol	Advanced options
	NA			NA
	<ul style="list-style-type: none"> <input checked="" type="radio"/> UHF or Bluetooth® <input type="radio"/> UHF then Bluetooth® <input type="radio"/> Bluetooth® then UHF 	<ul style="list-style-type: none"> <input checked="" type="radio"/> Private ID <input type="radio"/> Private ID else CSN <input type="radio"/> CSN only 	RS232 RS485	
	<ul style="list-style-type: none"> <input checked="" type="radio"/> UHF or Bluetooth® <input type="radio"/> UHF then Bluetooth® <input type="radio"/> Bluetooth® then UHF 	<ul style="list-style-type: none"> <input type="radio"/> Private ID <input checked="" type="radio"/> Private ID else CSN <input type="radio"/> CSN only 	RS232 RS485	
	<ul style="list-style-type: none"> <input checked="" type="radio"/> UHF or Bluetooth® <input type="radio"/> UHF then Bluetooth® <input type="radio"/> Bluetooth® then UHF 	<ul style="list-style-type: none"> <input type="radio"/> Private ID <input type="radio"/> Private ID else CSN <input checked="" type="radio"/> CSN only 	Other protocols	

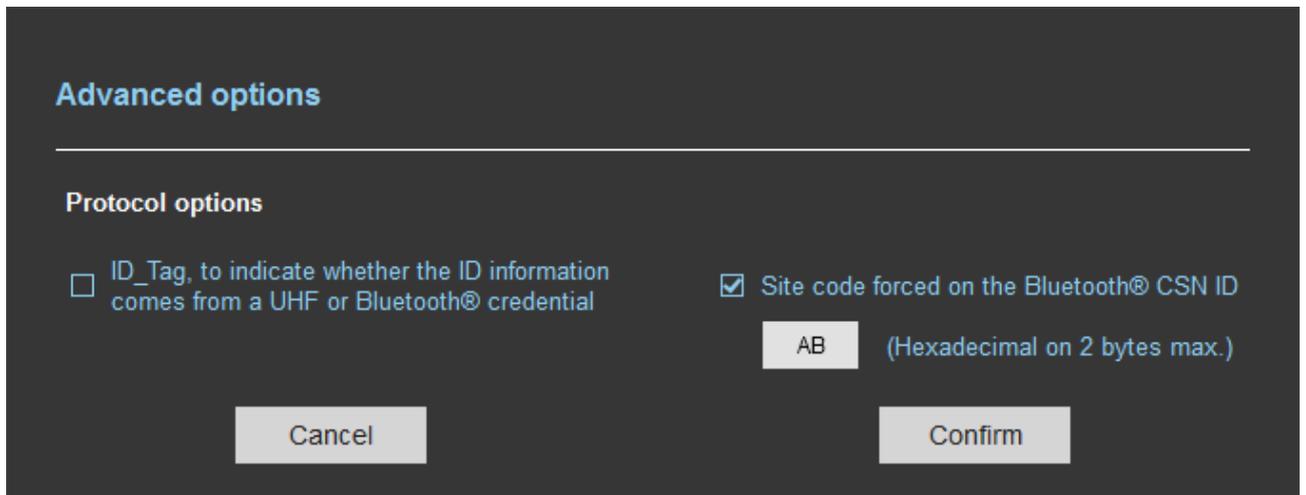
ID_Tag:



The ID-Tag values are editable.

1 byte	Lane number	ID-Tag	x bytes	1 byte	1 byte	1 byte	1 byte
STX	1 byte	0x90: UHF 0x60: BLE	Data*	LRC	CR	LF	ETX

Site code forced on the Bluetooth® CSN ID:



Force the value defined in the field to the value of the CSN.

The value of the code will be transmitted in high order on one or two bytes. The CSN can therefore be truncated depending on the size of the protocol used.

RS232 / RS485

Output protocol selection

Select output protocol: RS485

Data: Hexadecimal

Indicate the channel number upstream of the ID
 Padding CR LRC
 STX+ETX LF ASCII

Baud rate: 115200

Size of the credential sent to the system (bytes): 3 B

Advanced options

Serial frame:

<i>1 byte</i>	<i>Channel number</i>	<i>X bytes</i>	<i>1 byte</i>	<i>1 byte</i>	<i>1 byte</i>	<i>1 byte</i>
<i>STX</i>	<i>1 byte</i>	<i>Data*</i>	<i>LRC</i>	<i>CR</i>	<i>LF</i>	<i>ETX</i>

** Doubled if the ASCII is activated.*

Data	Data sent in decimal or hexadecimal format.	
Channel number	The SPECTRE NANO having only one channel, indicates 01h.	
Padding	Add on the frame leading zeros. If this option is not activated, the leading zero won't sent.	
STX+ETX	Add STX (0x02) and ETX (0x03) in the frame.	
CR	Carriage return (0x0D).	
LF	Line feed (0x0A).	
LRC	Checksum byte by XORing of all previously characters without the STX.	
ASCII	If this option is activated, the Data will be sent in ASCII mode.	
Baud Rate	9600, 19200, 38400, 57600 ou 115200 bauds	
Size of the credential sent to the system (bytes)	Size in plain mode	Size in secure mode
	1 to 62 bytes	1 to 6 bytes

Note: If the "ID size" of the Bluetooth® data is greater than "Size of the credential sent to the system":

Bluetooth® data format

Bluetooth® ID size: 7 b

Offset: 0 b

Inverted

+ Size of the credential sent to the system (bytes): 6 B

i

The size of the protocol data is smaller than the size of the Bluetooth® credential data. Data may be lost from the Bluetooth® credential

Cancel OK

i

When UHF identifier is encrypted, its maximum size cannot exceed 6 bytes

OK

Note:

3 Please note: the data formatting only applies to the uploading of data into the system, it is not taken into account for the encoding of identifiers.

1st case: UHF data formatting before uploading to the system without active Bluetooth® configuration:

- Mode 1 (Standard)
- Mode 2 (Standard reversed)
- Mode 3
- Mode 4

There are 4 UHF ID formatting modes:

Example: EPC data: AA BB CC DD EE xx xx ... VV WW XX YY ZZ with 'Size of the credential sent to the system' fixed to 4bytes.

- : ID feedback = WW XX YY ZZ
- : ID feedback = ZZ YY XX WW
- : ID feedback = AA BB CC DD
- : ID feedback = DD CC BB AA

UHF data formatting before uploading to the system

Use the predefined formats for formatting the UHF ID
 Format the UHF ID manually

Selection of the UHF data transmission format
 Mode 1 (Standard)

UHF ID size: 4 B
 Offset: 0 B
 Reverse

Possibility to define the reporting format according to the size of the identifier, the offset and the reading direction.

WARNING

UHF ID Size + Offset should not be larger than the EPC size of the tag used. Otherwise the ID will not be returned to the system.

Example 1:

ID encoded in the Tag:	AABBCCDDEEFF001122334455
Formatting:	UHF ID size: <input type="range" value="4"/> 4 B Offset: <input type="range" value="8"/> 8 B <input type="checkbox"/> Reverse
ID Formated:	22334455
Size of the credential sent to the system:	Size of the credential sent to the system (bytes) <input type="range" value="4"/> 4 B
Data sent to the system:	22334455

Example 2:

ID encoded in the Tag:	AABBCCDDEEFF001122334455
Formatting:	UHF ID size: <input type="range" value="4"/> 4 B Offset: <input type="range" value="0"/> 0 B <input checked="" type="checkbox"/> Reverse
ID Formated:	55443322
Size of the credential sent to the system:	Size of the credential sent to the system (bytes) <input type="range" value="4"/> 4 B
Data sent to the system:	55443322

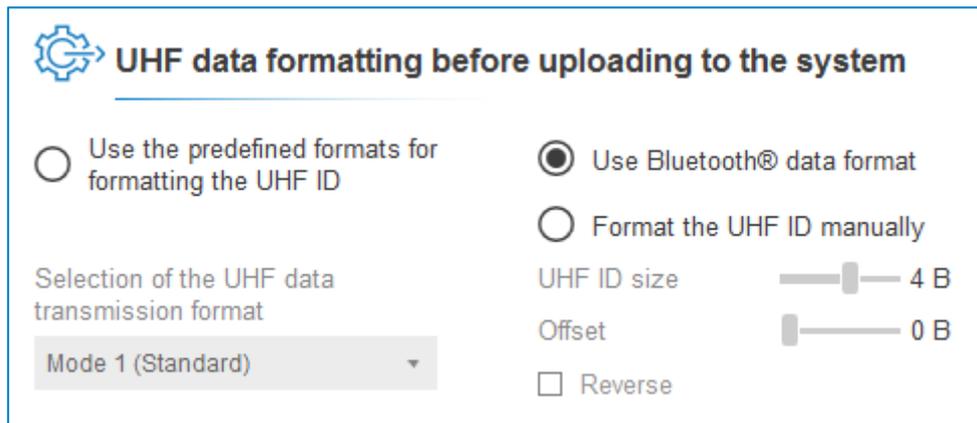
Example 3:

ID encoded in the Tag:	AABBCCDDEEFF001122334455
Formatting:	UHF ID size: <input type="range" value="4"/> 4 B Offset: <input type="range" value="0"/> 0 B <input type="checkbox"/> Reverse
ID Formated:	AABBCCDD
Size of the credential sent to the system:	Size of the credential sent to the system (bytes) <input type="range" value="4"/> 4 B
Data sent to the system:	AABBCCDD

Example 4:

ID encoded in the Tag:	AABBCCDDEEFF001122334455
Formatting:	UHF ID size: <input type="range" value="4"/> 4 B Offset: <input type="range" value="4"/> 4 B <input checked="" type="checkbox"/> Reverse
ID Formated:	DDCCBBAA
Size of the credential sent to the system:	Size of the credential sent to the system (bytes) <input type="range" value="4"/> 4 B
Data sent to the system:	DDCCBBAA

2nd case: UHF data formatting before uploading to the system with an active Bluetooth® configuration:



UHF data formatting before uploading to the system

Use the predefined formats for formatting the UHF ID

Use Bluetooth® data format

Format the UHF ID manually

Selection of the UHF data transmission format

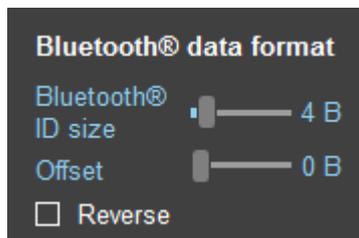
Mode 1 (Standard) ▼

UHF ID size 4 B

Offset 0 B

Reverse

Possibility to format the UHF ID manually (ditto case 1) or to use the Bluetooth® data format.



Bluetooth® data format

Bluetooth® ID size 4 B

Offset 0 B

Reverse

4 **Filtering**

Time between same user ID being read twice 6 s

The reader emits the credential code present in the field only once during this time. This time is adjustable from 0 to 30 seconds.

If the Reading Mode has been set to 'UHF then Bluetooth®' or 'Bluetooth® then UHF', the timeout setting appears:

Reading mode

UHF or Bluetooth®
 UHF then Bluetooth®
 Bluetooth® then UHF

Reading mode

UHF or Bluetooth®
 UHF then Bluetooth®
 Bluetooth® then UHF

Filtering

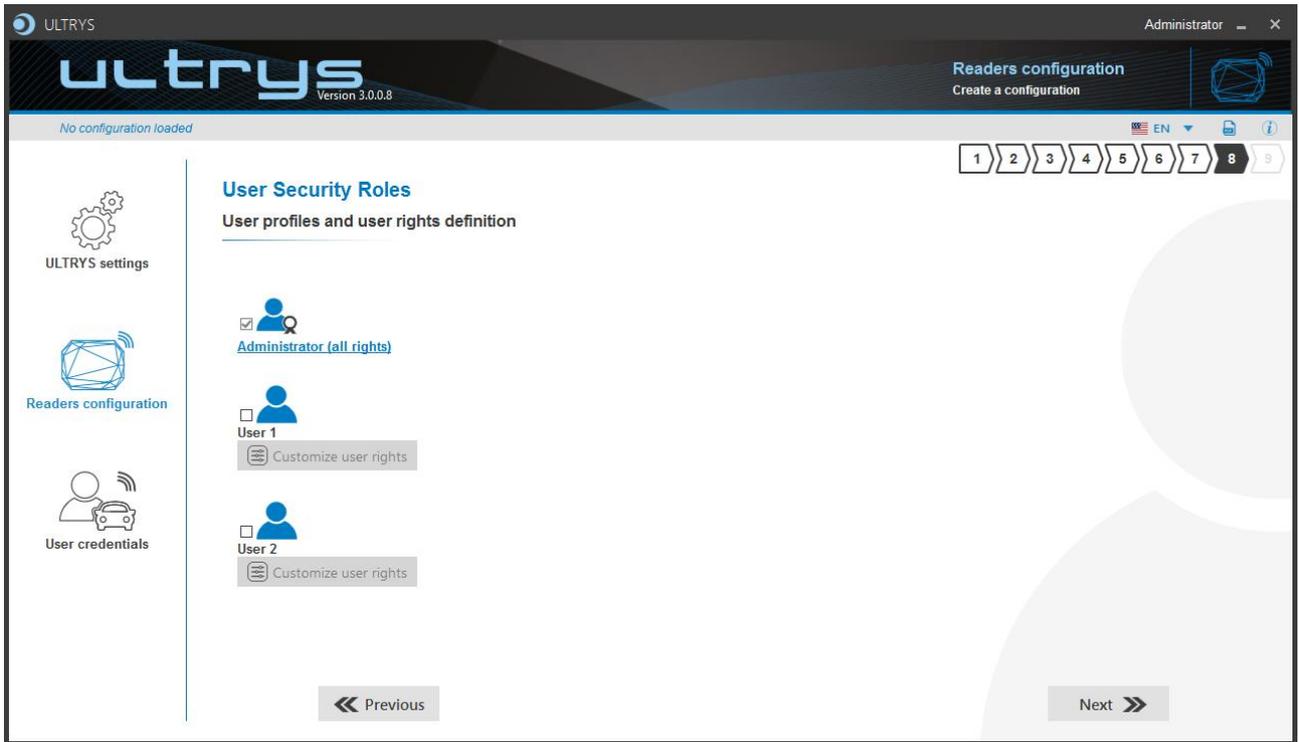
Time between same user ID being read twice 6 s

Timeout for second identification (UHF and Bluetooth® mode) 6 s

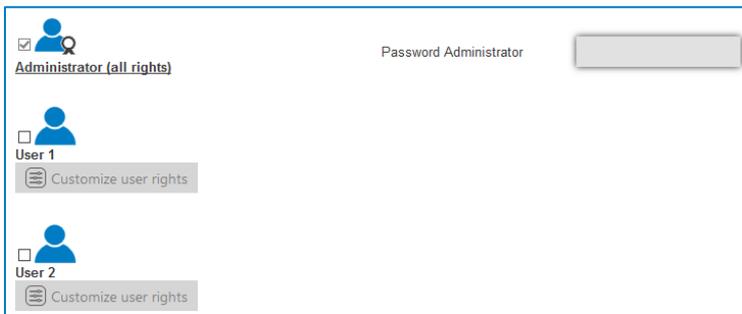
UHF then Bluetooth®: If beyond the Timeout no valid Bluetooth® identifier is read, the reader starts again in UHF scan.

Bluetooth® then UHF: If beyond the Timeout no valid UHF identifier is read, the reader starts again in Bluetooth® scan.

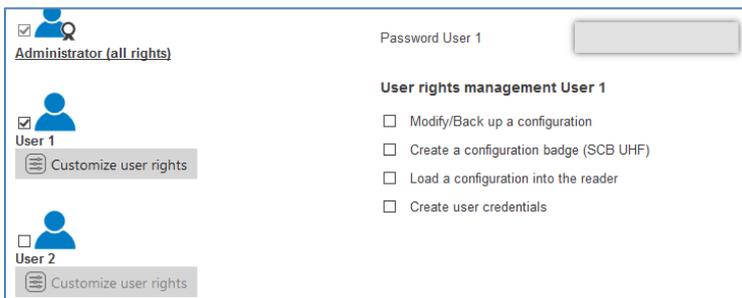
Step 8- User Security Roles



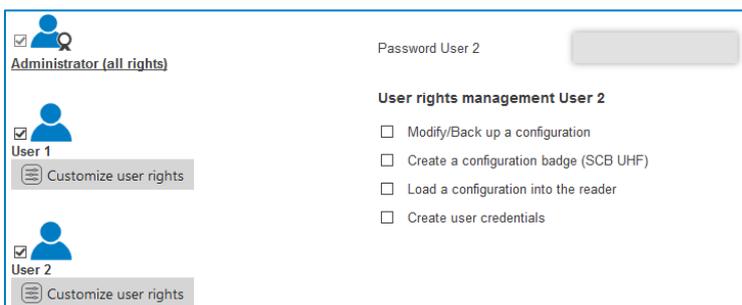
ULTRYS allows to manage three different profiles by configuration file.



Define an Administrator password to protect the configuration file.

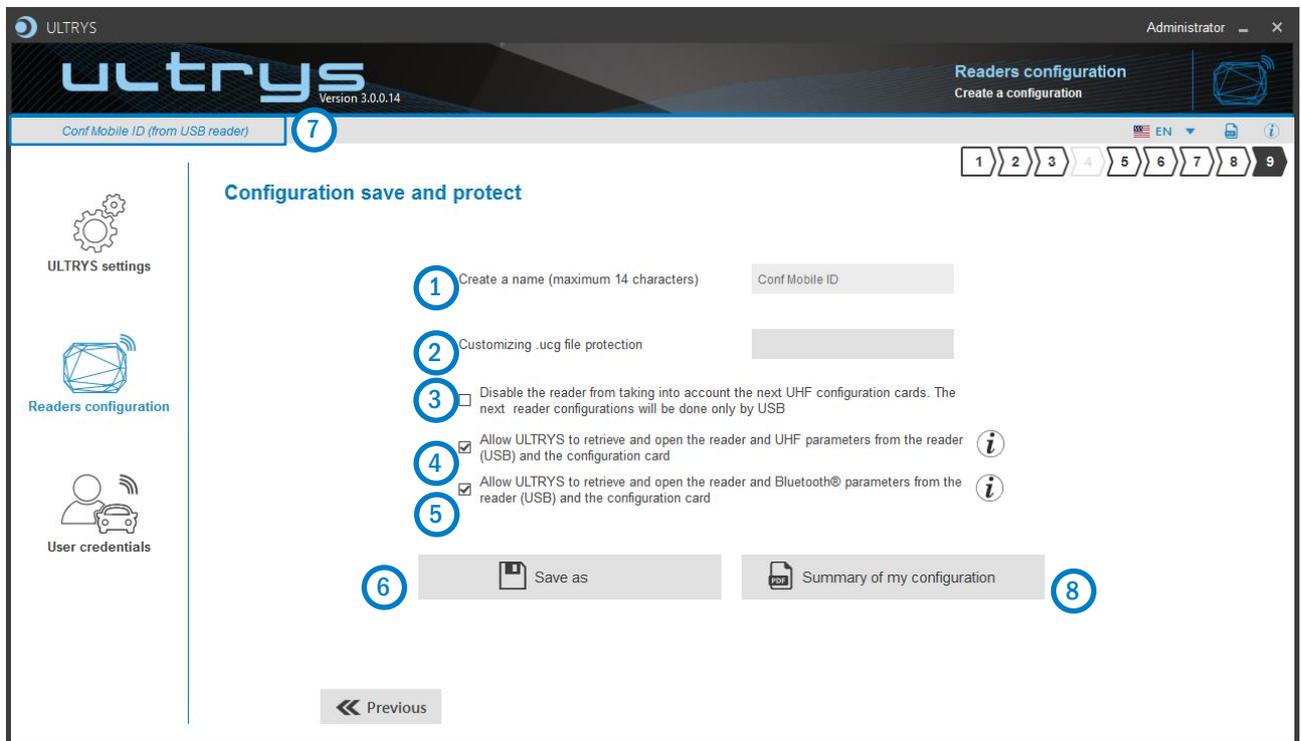


Define a User 1 password and select the corresponding rights.



Define a User 2 password and select the corresponding rights.

Step 9- Configuration save and protect



This step allows you to save the configuration file containing all the current configuration settings (keys, formats, reader...). You can select a location and password to protect the file.

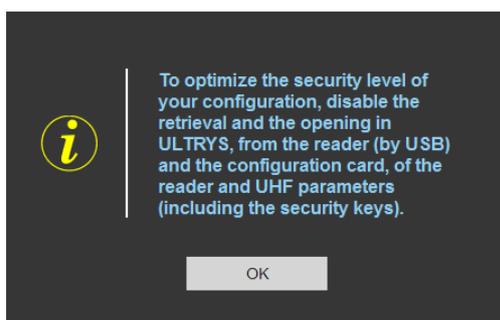
1 Choose a name to easily find the configuration. (example: Parking IN).

Note: the name of the configuration must be contained in the file name.

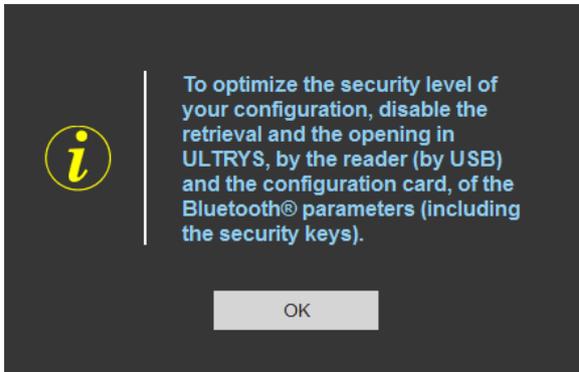
2 To protect the configuration file, you can define a password. This password is different from Administrator password.

3 If this option is enabled, the reader can only be configured again via the USB connection.

4 Authorize ULTRYS to retrieve and open the reader and UHF parameters from the reader and the configuration card. See 11-Open an existing configuration.



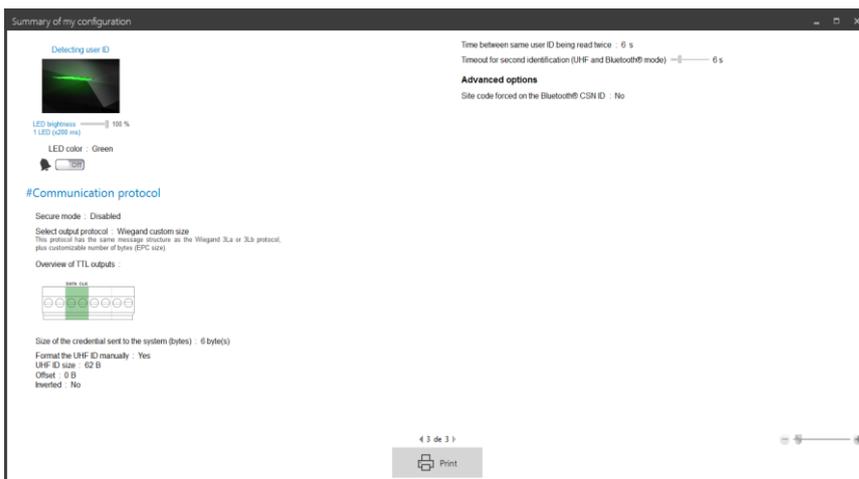
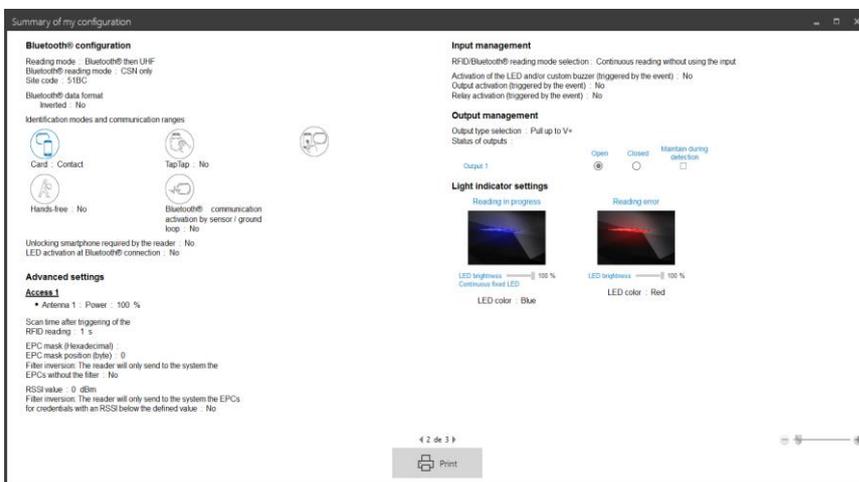
- 5 Authorize ULTRYS to retrieve and open the reader and Bluetooth® parameters from the reader and the configuration card. See 11-Open an existing configuration.



- 6 Select a directory and a file name to save
- 7 The name and location of 'Configuration Loaded' indicates now the chosen name and location.



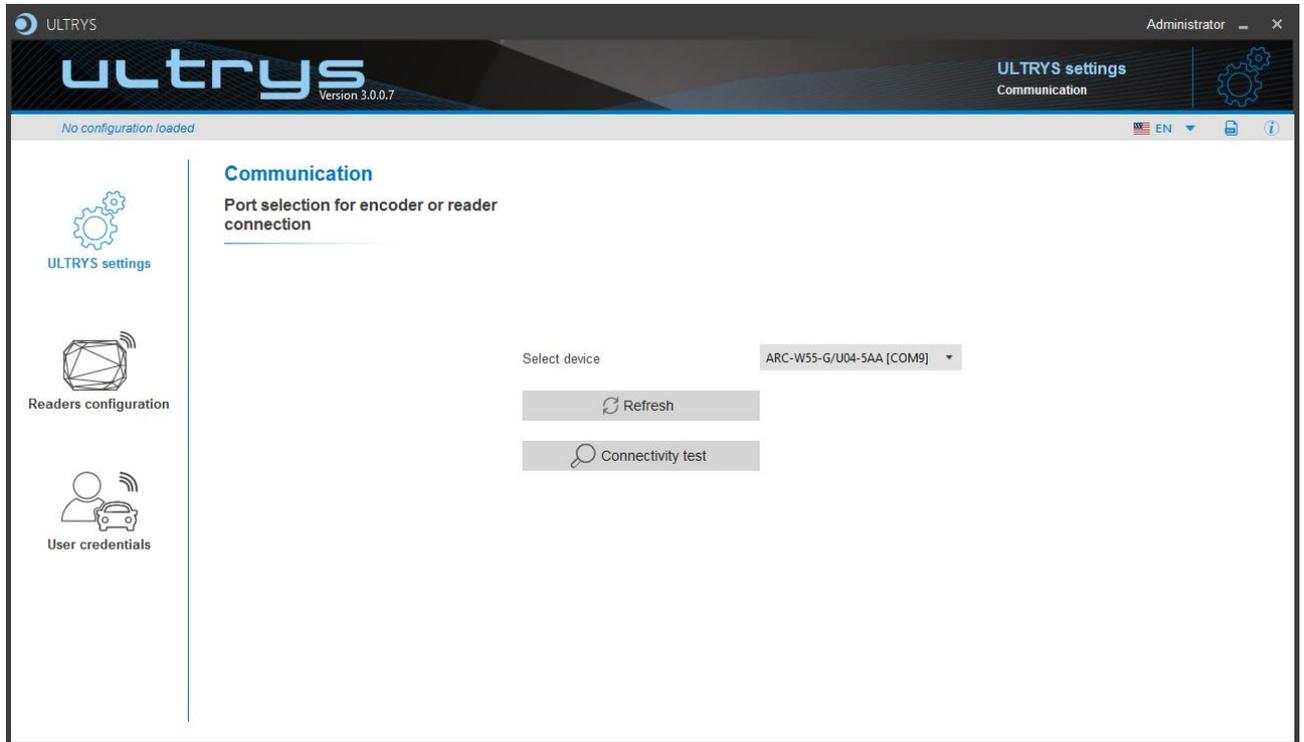
8 Get a summary of the configuration created.



Print: allows printing of configuration information on a network, local or virtual printer (PDF).

6. Reader configuration SPECTRE NANO OSDP™

6-1 ULTRYS settings



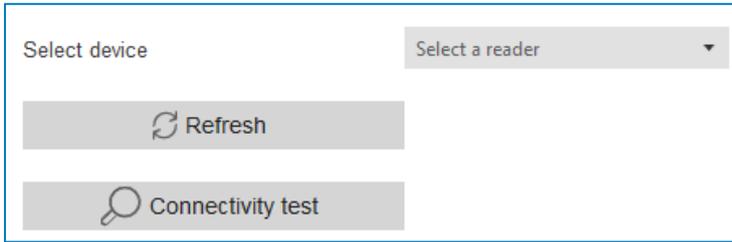
- Connect the SPECTRE NANO reader to the PC using the provided USB cable to load the configuration via serial link directly onto the reader.



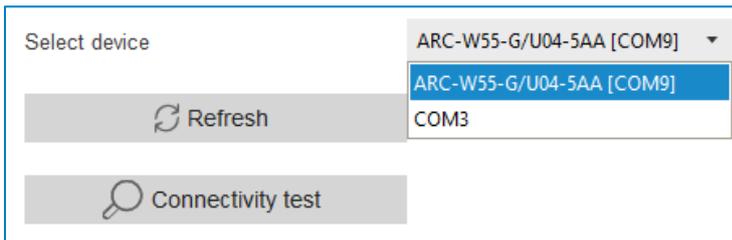
Or

- Connect an UHF encoder to the PC to load the configuration onto UHF OCB configuration card.

To set the communication port

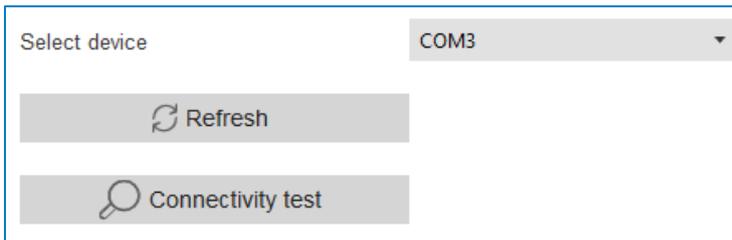


1- Click on 'Refresh' to detect all readers connected to the PC.

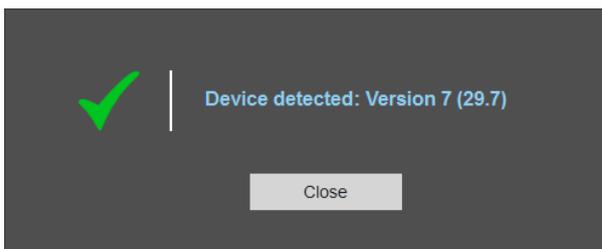


2- Open the dropdown list Select device

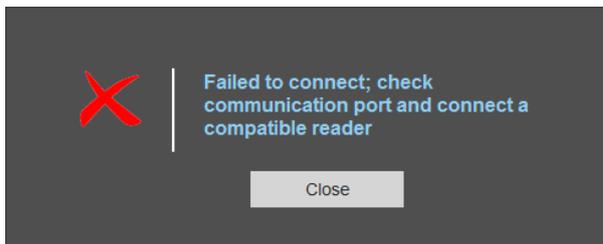
3- Readers whose firmware is ≥ 8 will appear in the drop-down list under their commercial reference. Select the communication port number for the encoder or reader or select the reader to use.



4- Run the connectivity test



Message OK (with indication of the firmware version).



Message: Failed

- Check the compatibility of the reader.
- Check the USB cable.
- Check the Baudrate reader: it must be fixed to 115200.

Note: during the connectivity test on a UHF encoder, a sound and light signal (orange) will be emitted for 1 second.

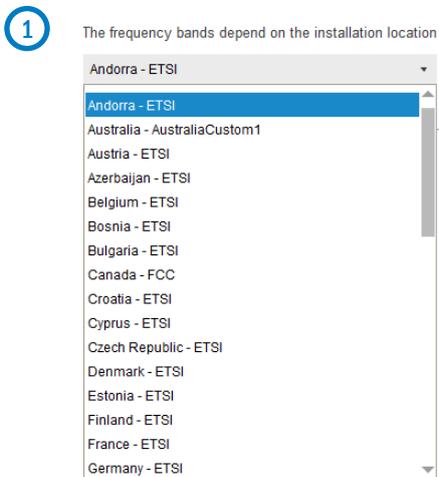
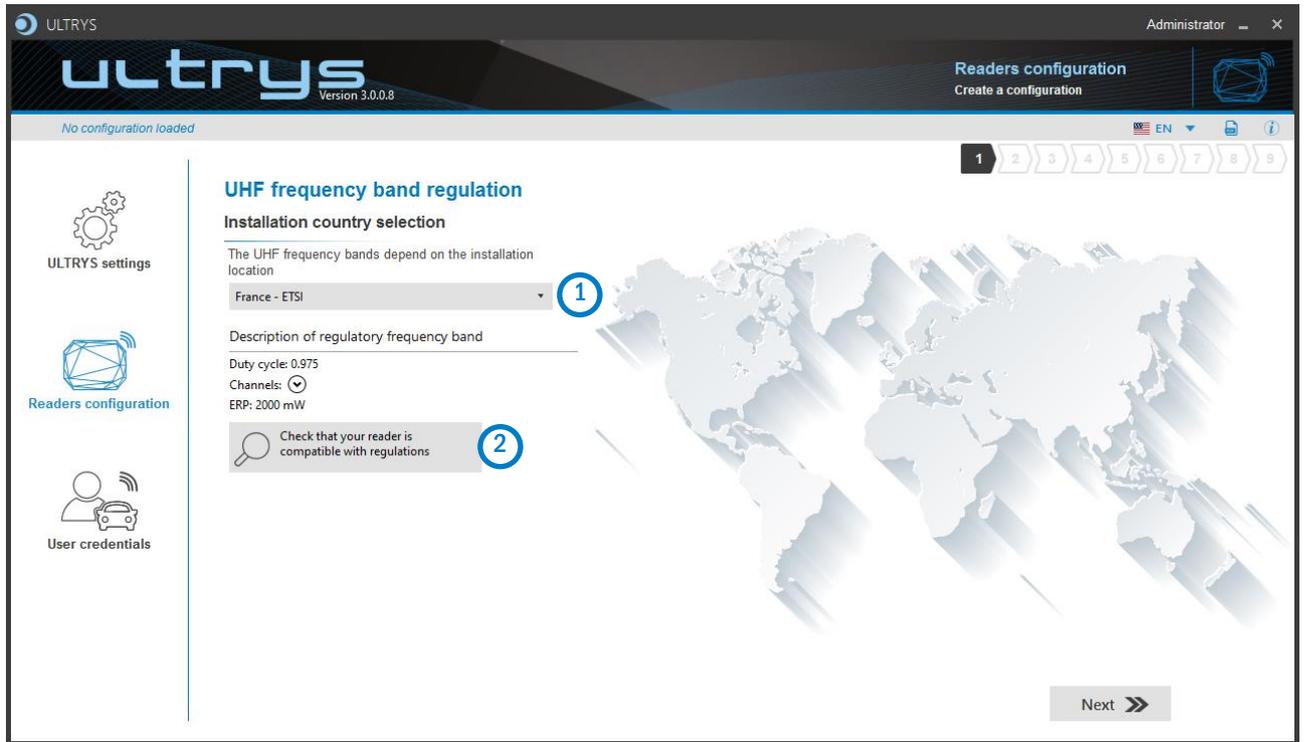
6-2 Create new configuration



The reader configuration is done in 8 steps. To move from one stage to another, you must click on “Next”.

	UHF frequency band regulation
	Configuration protection loaded into the reader
	Reader configuration
Step 4 does not exist in the SPECTRE NANO OSDP™ setup wizard	
	Installation configuration
	Light and sound indicator settings
	Reading & communication parameters
	User Security Roles
	Configuration save and protect

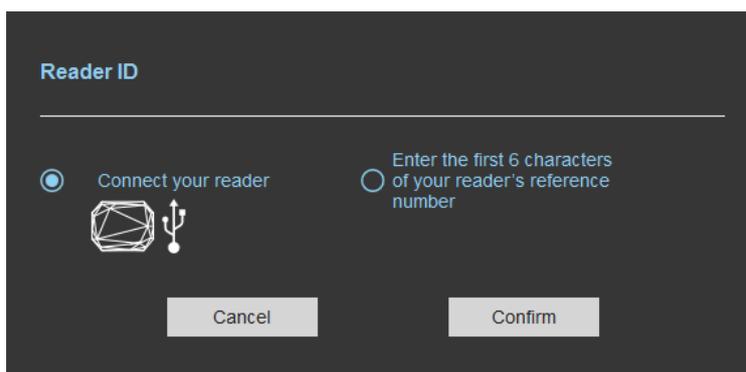
Step 1- UHF frequency band regulation



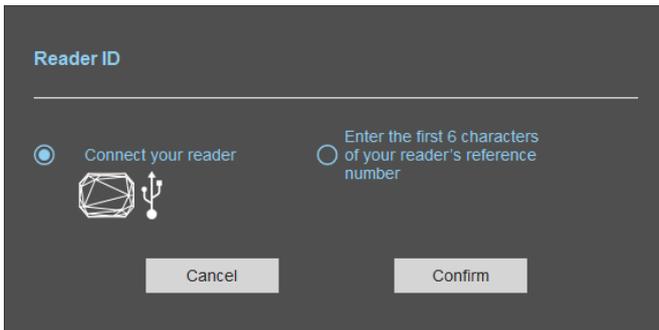
Type the first characters to display a country or select the country in which the installation will be done.

For a country which is not in the list, please contact STid: support@stid.com.

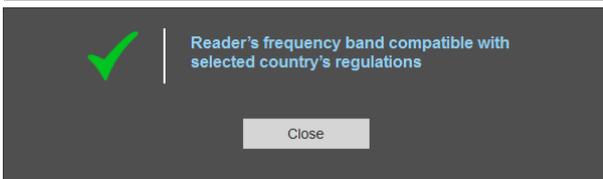
2 To approve the feasibility to install your reader in the selected country, you can check the compatibility.



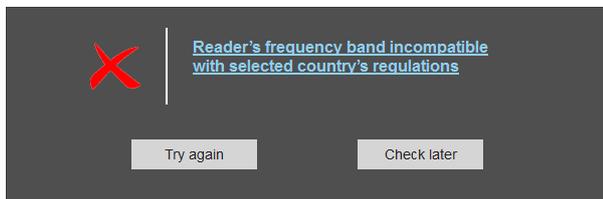
With USB reader connection



- 1- Connect the reader and set the communication COM port.
- 2- Select 'Connect your reader'
- 3- Please confirm

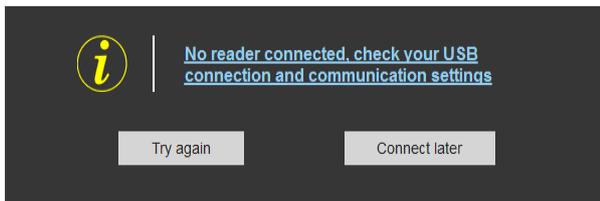


Message: OK



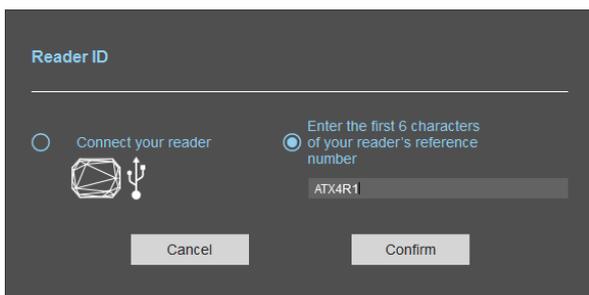
Message: NOK

The reader can't be installed in the selected country.



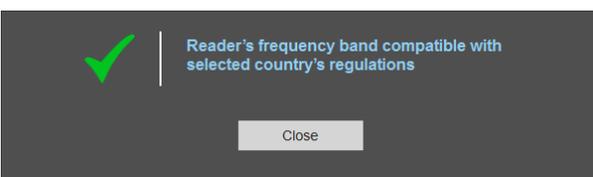
- Check the USB cable
- Check the communication with reader

With reader part number

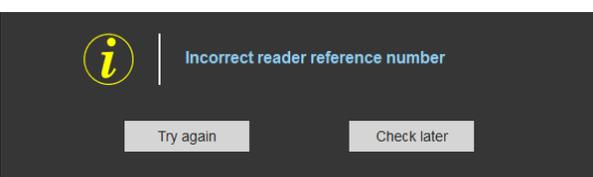


Enter the first 5 characters of the reader part number

Example: SNAW43, SNAW53.

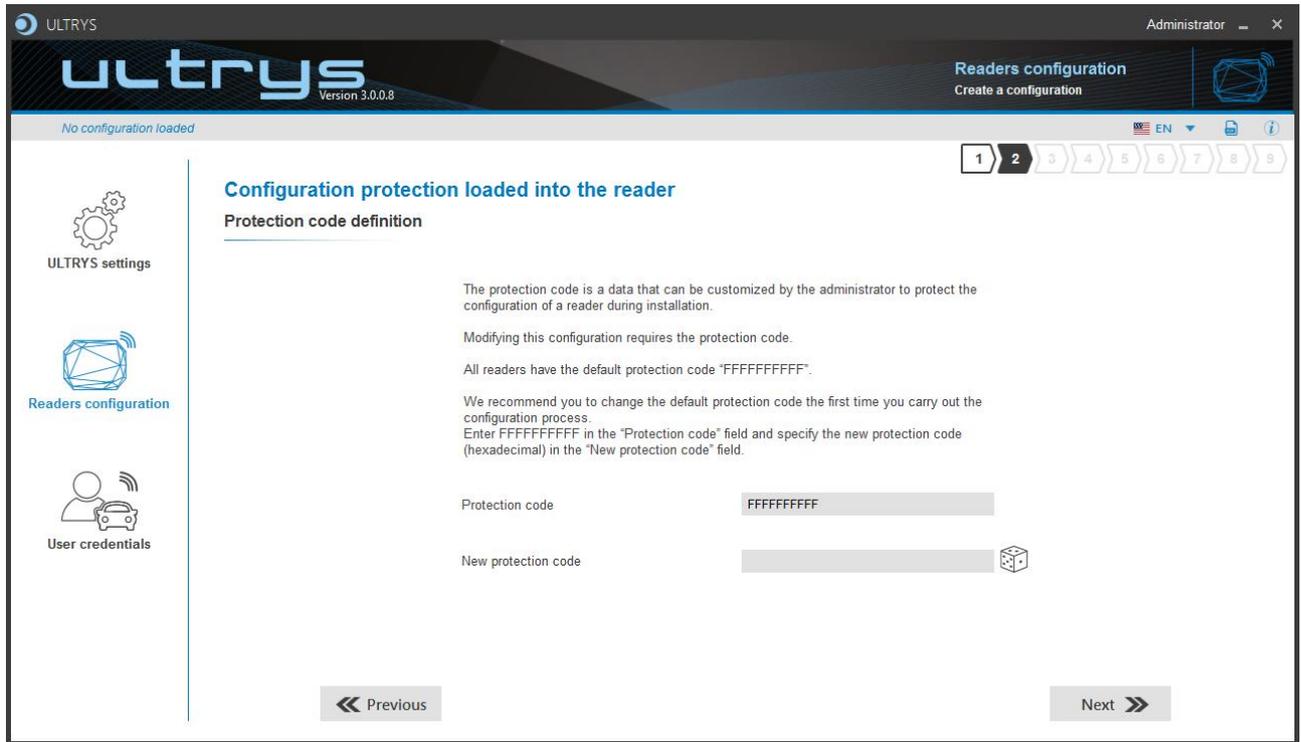


Message: OK



Message: the reference reader is not compatible with regulation selected.

Step 2- Configuration protection loaded into the reader



SPECTRE NANO readers are initially supplied with a default configuration and a protection code to 0xFFFFFFFF.

The size of this protection code is 5 bytes (10 hexadecimal characters).

After the initial setup and in order to reconfigure the reader, it will be necessary to present an UHF OCB card or a configuration file with the same 'protection code' as the reader.



Random protection code generator.

Caution

This protection code is important and should definitely be known by the administrator. It protects the configuration data and allows reader configuration updates.

If you lose this protection code, you won't be able to reconfigure the reader again and the reader must be reset at the factory.

To change the protection code, it will be necessary to know the current protection code.

Step 3- Reader configuration



1 Selecting the reader type

SPECTRE NANO SNA-Wx3-A/U04-7OS can be configured in OSDP™ mode from firmware version v13.

2 Selecting Firmware

You must select the firmware version that is compatible with your reader.

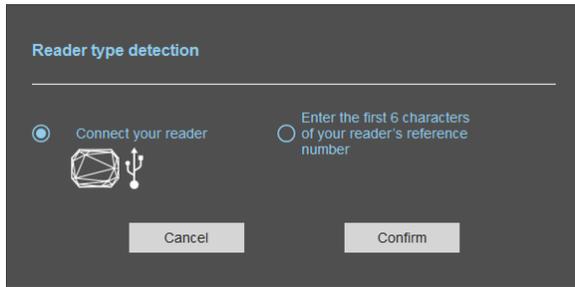
To do so, you can manually select the reader and firmware version, or you can use the function "Auto detection – Connect and check my reader configuration".

Compatibility between firmware readers and ULTRYS versions

Firmware versions	ULTRYS softwares			
	ULTRYS V2.0	ULTRYS V2.1	ULTRYS V2.4	ULTRYS V3.x
v 7	✓	✓	✓	✓
v 9		✓	✓	✓
v 10,11,12			✓	✓
> v 13				✓

Close

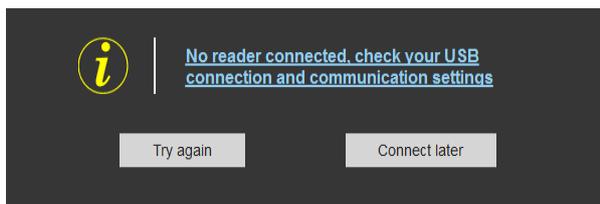
With USB reader connection



3- Connect the reader via USB cable provided.
Configure the communication parameters.

4- Select the Connect your reader.

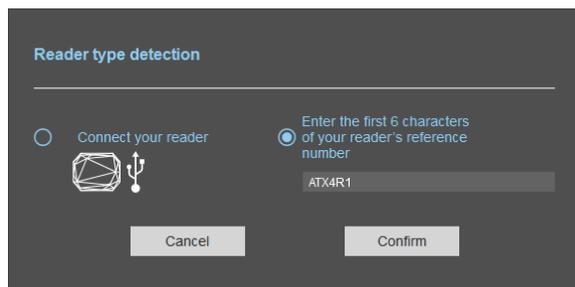
6- Click on Confirm.



Message: NOK

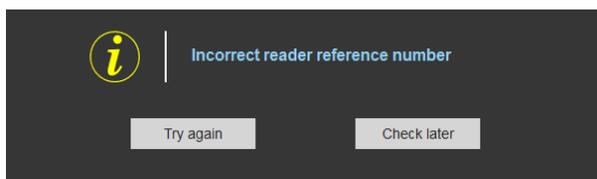
- Check the USB cable
- Check the communication with reader

With reader's number reference



Enter the first 6 characters of your reader's reference number

Examples: SNAW43, SNAW53



Message: NOK

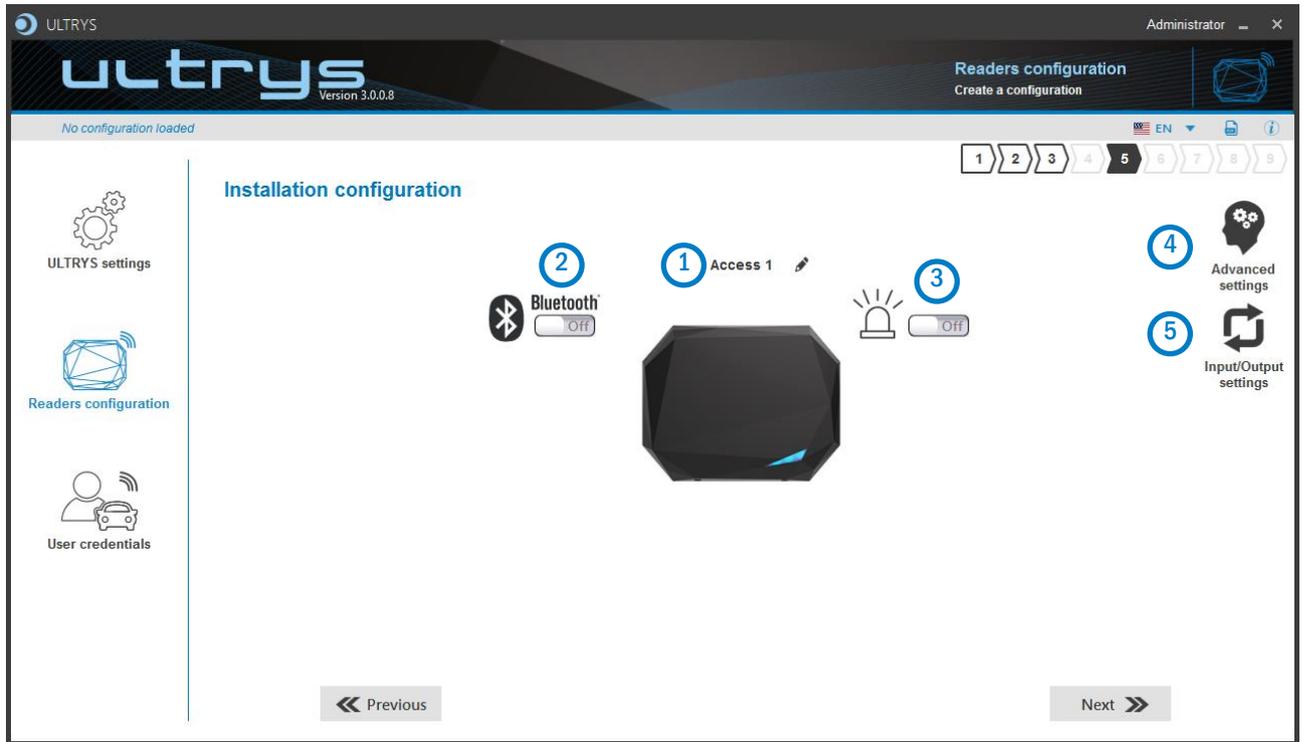
Check your reader's reference number

Step 4- Antenna selection

The SPECTER NANO reader works with an integrated antenna.

Step 4 does not exist in the SPECTER OSDP™ setup wizard.

Step 5- Installation configuration



① Name the lane

Maximum 10 characters.

For example, Entry1....

② Bluetooth® configuration

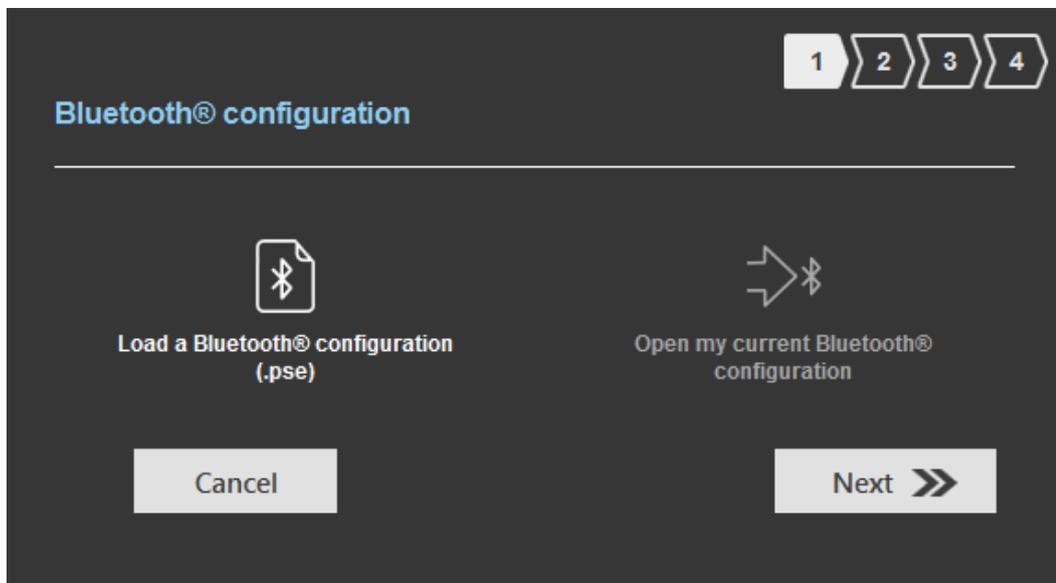


Reading of Bluetooth® identifiers disabled

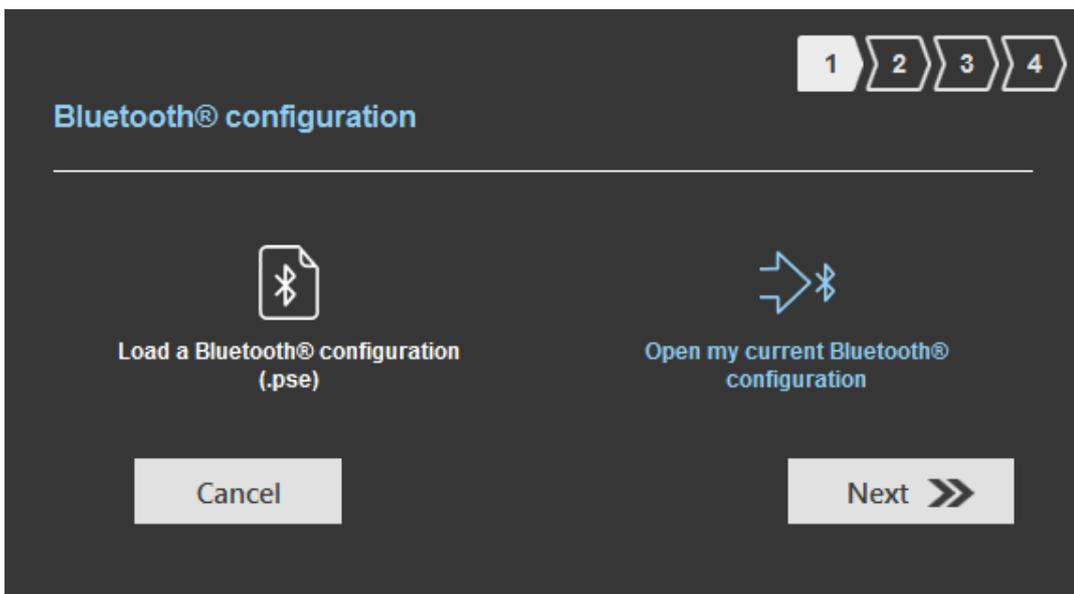
Reading of Bluetooth® identifiers enabled

There are two possible displays of Step 1, depending on whether a Bluetooth® configuration is already defined or not:

No existing configuration: The Step 1 screen is as follows



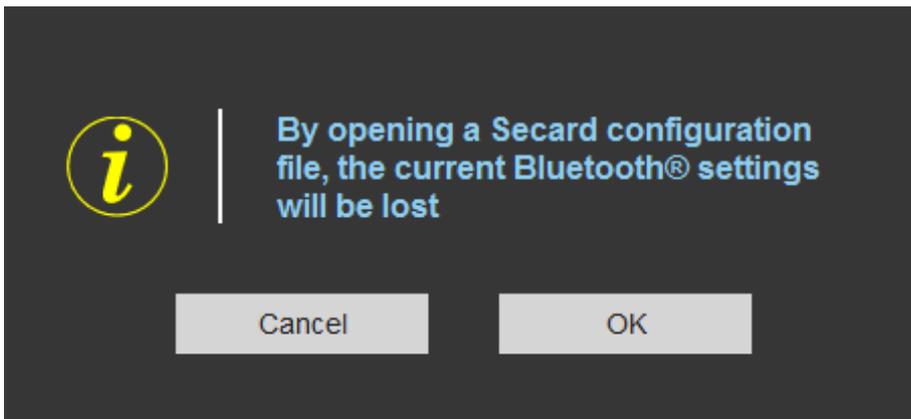
Existing configuration: The Step 1 screen is as follows:



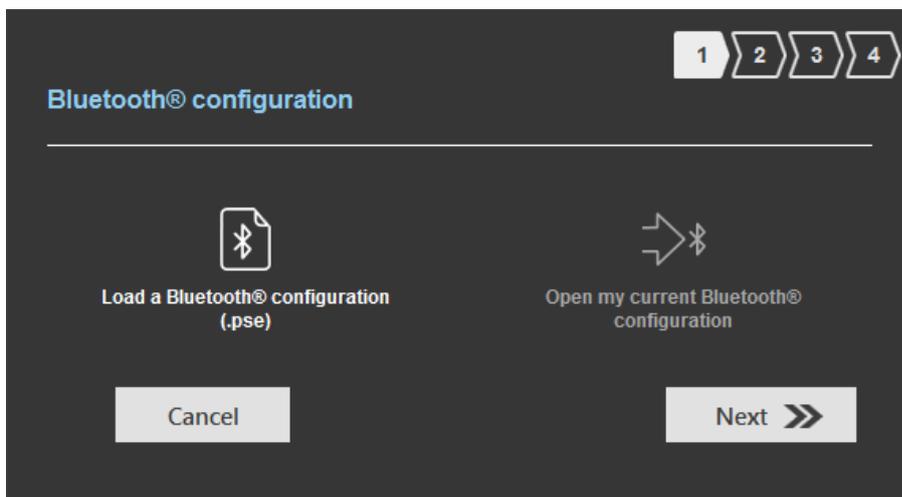
Bluetooth® configuration is done in 4 steps. To move from one Step to another you must click on "Next".

	Selecting the Bluetooth® configuration: - Load a Bluetooth® configuration - Open my current Bluetooth® configuration
	Name / Reading mode / Bluetooth® Reading mode / Security
	Identification mode / Reader options
	Virtual access card parameters

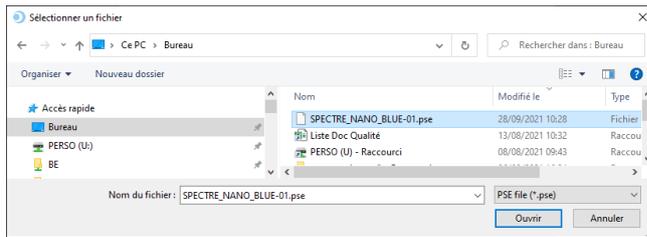
Step 1: Load a Bluetooth® configuration (.pse)



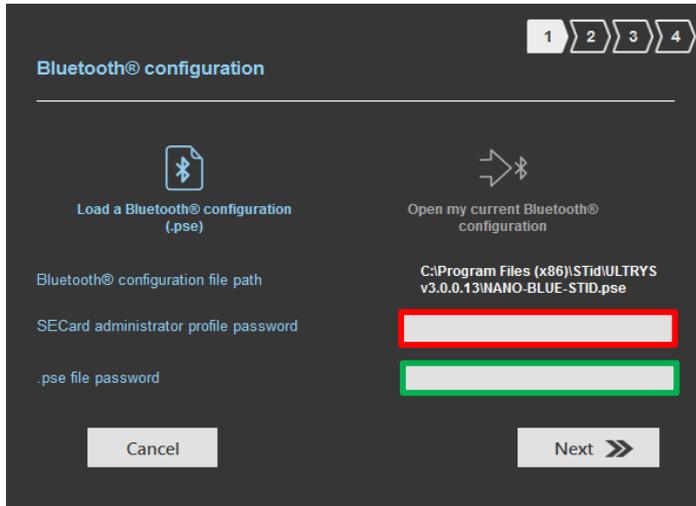
Warning: if a Bluetooth® configuration is already defined, loading a SECard (.pse) file will erase the current settings.



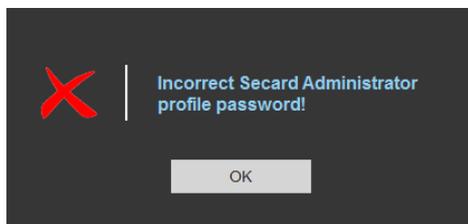
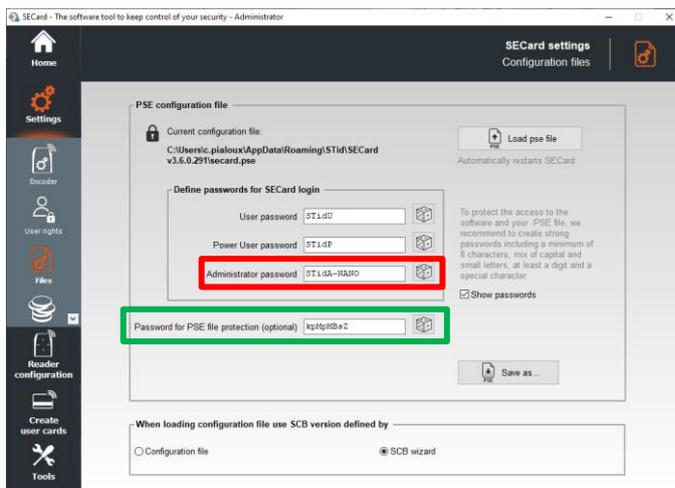
1- Click on 'Load a Bluetooth® configuration'



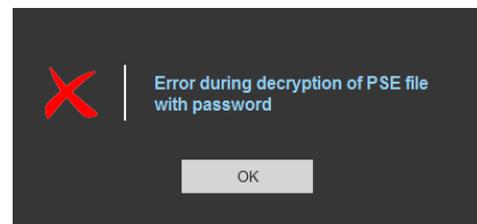
2- A window opens to select the desired configuration file.



3- Enter the passwords used when saving the SECard (.pse) file.



Check the entry of the administrator password



Check the password entry from the pse file

Step 2: Bluetooth® configuration

Some parameters are inherited from the .pse SECard configuration file and therefore cannot be changed.

Modifiable parameters

Non-modifiable inherited parameters

1 2 3 4

Bluetooth® configuration - Loaded from .pse

Name
Configuration name (14 characters max.)

Reading mode

UHF or Bluetooth®
 UHF then Bluetooth®
 Bluetooth® then UHF

Bluetooth® reading mode

Private ID
 Private ID else CSN
 CSN only

Site code

(Hexadecimal on 2 bytes)

Bluetooth® data format

Bluetooth® ID size 4 B

Offset 0 B

Reverse

Authenticated Bluetooth® data encryption

Bluetooth® ID encryption

Private key definition (16 bytes - Hex.)

Bluetooth® communication encryption - Key customization

One key (RW)
 Two keys (R and W)

Read key (Hexadecimal on 16 bytes)	Write key (Hexadecimal on 16 bytes)
Current <input type="text" value="D07C4BA98676F3065C310324790CCC82"/>	Current <input type="text" value="E2B0D9674678F297722045840A0D005A"/>
New <input type="text" value="D07C4BA98676F3065C310324790CCC82"/>	New <input type="text" value="E2B0D9674678F297722045840A0D005A"/>

Cancel
« Previous
Next »

1 2 3 4

Bluetooth® configuration - Loaded from .pse

a **Name**
Configuration name (14 characters max.)

b **Reading mode**
 UHF or Bluetooth®
 UHF then Bluetooth®
 Bluetooth® then UHF

c **Bluetooth® reading mode** **d** **Site code** **e** **Bluetooth® data format**

Private ID (Hexadecimal on 2 bytes)
 Bluetooth® ID size 4 B
 Private ID else CSN 0 B
 CSN only Reverse

f **Authenticated Bluetooth® data encryption**
 Bluetooth® ID encryption
 Private key definition (16 bytes - Hex.)

g **Bluetooth® communication encryption - Key customization**
 One key (RW) Two keys (R and W)
 Read key (Hexadecimal on 16 bytes) Write key (Hexadecimal on 16 bytes)
 Current Current
 New New



These parameters must be those used for encoding the Bluetooth® virtual badge.

a Name

Configuration name: enter the name of the configuration Mobile ID.

The name must be a maximum of 14 characters.

The configuration name "Conf Mobile ID" is reserved for the STid Mobile ID® configuration.

b Reading mode

UHF or
Bluetooth®

Reader configured to read UHF identifiers or Bluetooth® identifiers.
Feedback of all identifier.

UHF then
Bluetooth®

Reading the UHF identifier triggers reading of the Bluetooth® identifier.
The reader scans in UHF. As soon as a valid UHF identifier is detected (key, EPC filter, etc.), the reader checks (for a timeout of 6s by default) whether a Bluetooth® identifier has to be returned (valid VCard read).

Timeout adjustable at Step 7:

Timeout for second identification (UHF and Bluetooth® mode) 6 s

The reader returns the two identifiers one after the other.

If beyond the scan time no valid Bluetooth® identifier is read, the reader resumes UHF scan.

Bluetooth®
then UHF

Reading the Bluetooth® identifier triggers reading of the UHF identifier.
The reader scans in Bluetooth®. As soon as a valid VCard is detected (Site code, etc.), the reader checks (for a timeout of 6s by default) whether a UHF identifier has to be returned (key, EPC filter...).

Timeout adjustable at Step 7:

Timeout for second identification (UHF and Bluetooth® mode) 6 s

The reader returns the two identifiers one after the other.

If beyond the scan time no valid UHF identifier is read, the reader resumes Bluetooth® scan.

c Bluetooth® reading mode

	STid Mobile ID® A CCCESS	STid Mobile ID® P REMIUM
Identifier issued on download of application	A	
Manageable cards with custom programming		P
Full card customization		P
Card revocation function		P
Temporary visitor badge		P
Access user interaction	A	P
Enhanced user interaction	Upgradeable to Premium identification experience	P

STid Mobile ID® can store 3 types of cards:

- Private ID Reader configured for private code reading only.
- Private ID otherwise Reader configured for private code reading.
CSN If this is not found or if the security settings are incorrect, then the reader will read and return the CSN.
- CSN only Reader configured only to read CSN.

d Site Code

Number on two hexadecimal bytes designating the site code to use to create the VCard.

Site code 51BC is reserved for STid Mobile ID® configuration.

Note: this site code is unrelated to the 26-bit Wiegand protocol 'site code'

e Bluetooth® data format

- Bluetooth® ID size Determines the length in bytes of the Bluetooth® identifier.
Max 48 bytes.
When Authenticated Bluetooth® data encryption is used, the max size cannot exceed 12 bytes.
- Offset Set an offset from the first byte for reading data.
- Reverse - checked: identifier read Least Significant Byte First (LSB First).
- not checked: identifier read Most Significant Byte First (MSB First).

f Authenticated Bluetooth® data encryption

Private identifiers can be encrypted AND signed before being written to the badge.

The reader will decrypt and authenticate the private identifier thus protected, before sending it to its output media. Only a correctly decrypted and authenticated identifier will produce an exit code, otherwise the reader will remain silent.

The encryption-authentication uses the mode **MtE** (MAC Then Encrypt).

g Bluetooth® communication encryption – Key customization

- One key (RW) Use a key to read and write.
- Two keys (R et W) Use a key to read and a key to write.

Allows you to define the security keys used for Bluetooth® data.

The default keys are 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Step 3: Configuration Bluetooth®

1 2 3 4

Bluetooth® configuration

a Identification modes and communication ranges

Card

Hands-free

Bluetooth® communication activation by sensor / ground loop

Remote

TapTap

Remote button active

Remote 1 Remote 2

b Reader options

LED activation at Bluetooth® connection

Unlocking smartphone required by the reader

Cancel << Previous Next >>

a Identification modes and communication ranges

Card



Works by presenting the smartphone in front of the reader (like a badge).

- Contact: the smartphone must be in contact with the reader
- Up to 0.2m: smartphone must be in an area of 0.2m around the reader
- Up to 0.3m: smartphone must be in an area of 0.3m around the reader
- Up to 0.5m: smartphone must be in an area of 0.5m around the reader

Bluetooth® communication activation by sensor / ground loup



- Up to 1m: Smartphone must be in an area of 1m around the reader
- Up to 2m: Smartphone must be in an area of 2m around the reader
- Up to 3m: Smartphone must be in an area of 3m around the reader
- Up to 4m: Smartphone must be in an area of 4m around the reader
- Up to 5m: Smartphone must be in an area of 5m around the reader

TapTap



By tapping your smartphone twice in your pocket.

- Up to 3m
- Up to 5m
- Up to 10m
- Up to 15m

Hands-free



Works without any user action.

- Up to 3m
- Up to 5m
- Up to 10m

Remote



Works remotely. The phone becomes your remote control. You can display up to two buttons per virtual badge.

- Up to 5m
- Up to 10m
- Up to 15m
- Up to 20m

Remote control button active: If the "Remote" identification mode has been activated, allows you to associate the current configuration with the Remote 1 or Remote 2 button.
Possibility to use the fields to name the buttons.

b Reader options

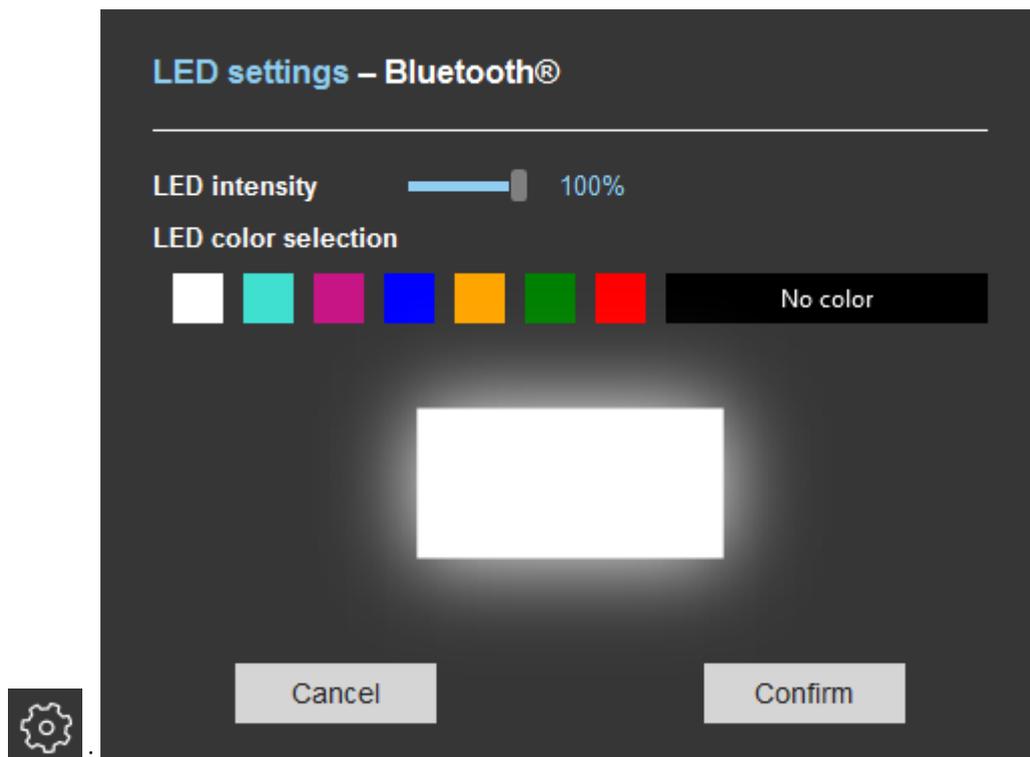
LED activation at Bluetooth® connection

Allows the reader to light up briefly when connecting with a smartphone.



The color can be selected by clicking on

This action, independent of the detection of the virtual card, informs the user that communication between the smartphone and the reader is in progress.



Unlocking smartphone required by the reader

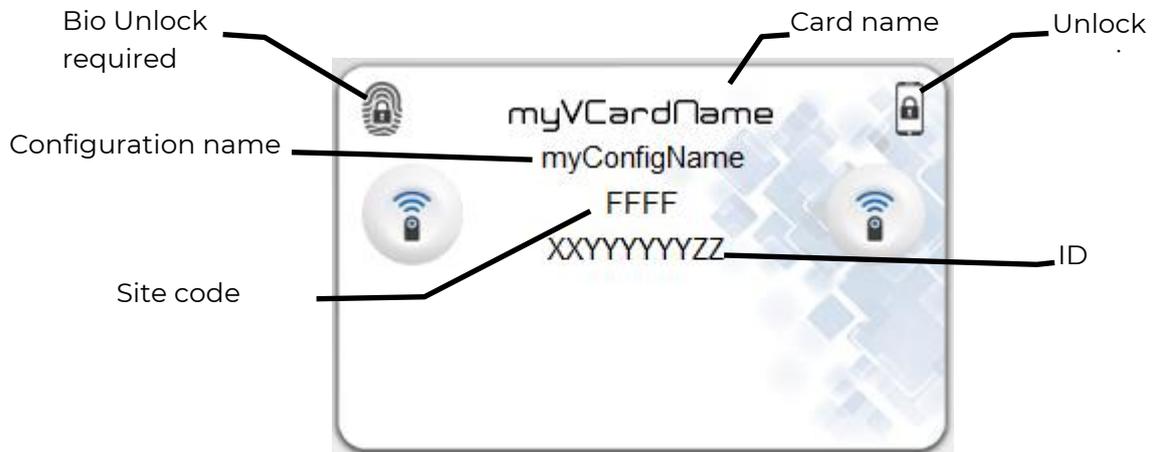
If checked: the smartphone must be unlocked (with PIN code or other unlocking option depending on the smartphone) to authenticate with the reader.

If unchecked: unlocking the smartphone is not required to authenticate with the reader.

Step 4: Bluetooth® configuration

Vcard name: Name that will appear on the virtual badge on the smartphone screen.

Note: choose a meaningful name allowing the user to quickly identify the virtual badge to use.



Prohibit Deletion: prohibit the deletion of the virtual access card by the user. Only the administrator, via SECard (Settings / Credits / Delete your virtual access card) can delete it.

Note: if the Bluetooth® configuration is configured on STid Mobile ID® CSN:

Step 2:

Bluetooth® configuration

1 2 3 4

Name
Configuration name (14 characters max.) Conf Mobile ID

Reading mode

UHF or Bluetooth® UHF then Bluetooth® Bluetooth® then UHF

Bluetooth® reading mode **Site code** **Bluetooth® data format**

Private ID 51BC (Hexadecimal on 2 bytes) Reverse

Private ID else CSN

CSN only

Cancel << Previous Next >>

Step 3: Remote mode is not accessible.

Bluetooth® configuration

1 2 3 4

Identification modes and communication ranges

Card Hands-free

Bluetooth® communication activation by sensor / ground loop Remote

TapTap

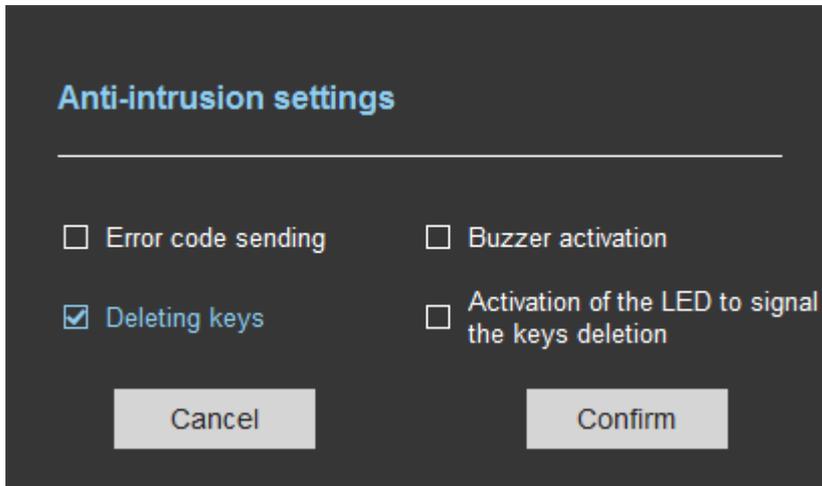
Remote button active: Remote 1 Remote 2

Reader options

LED activation at Bluetooth® connection Unlocking smartphone required by the reader

Cancel << Previous Next >>

③ Anti-intrusion settings



Error code sending

Sending error code 0xAA every 2 seconds as long as the reader is "open".

Buzzer Activation

Activation of the buzzer at the highest intensity as long as the reader is "open".
The buzzer stops as soon as the cover is detected as being closed or when communication via the internal USB is established (for configuration for example) or if the reader is reconfigured by BLE or if the reader is restarted.

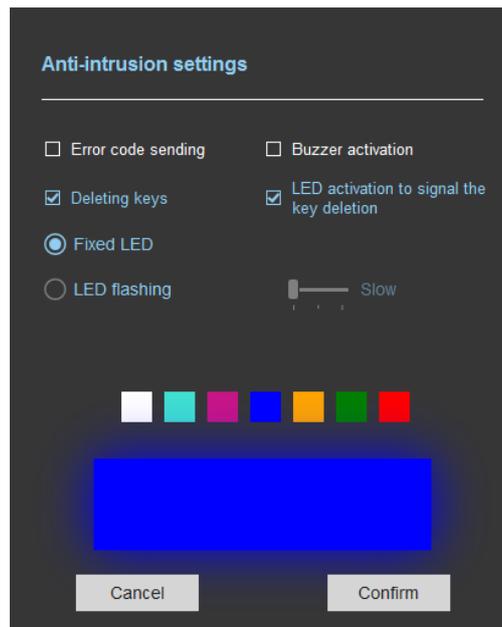
Deleting keys

Key erasure upon detection of opening.

Activation of the LED to signal the key deletion

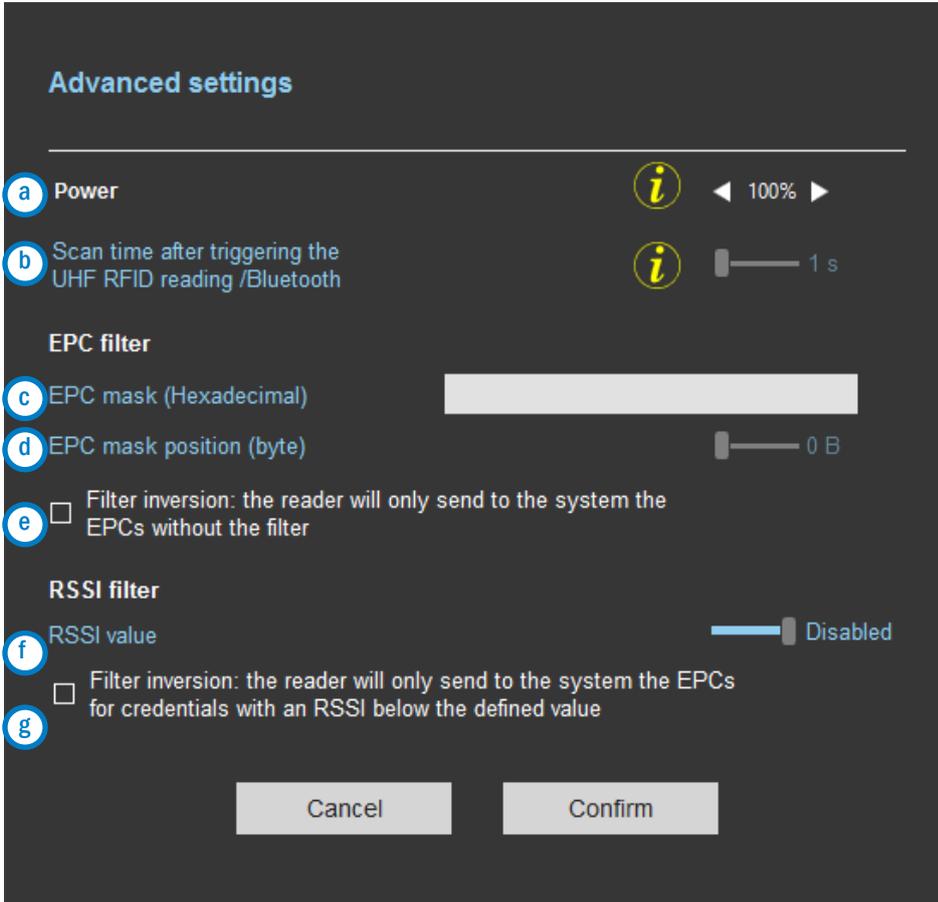
Activation of the fixed or flashing LED depending on the setting below:

** Can only be activated if the Erase keys option has been activated*



The LED sequence is repeated as long as the reader is switched on and stops if communication via the internal USB is established (for configuration for example) or if the reader is reconfigured using the BLE or if the system is restarted.

④ Advanced settings



- ③ Adjust the antenna power (10% to 100%) to adjust the reading distance.
- ④ Adjust the reading time in steps of 1 second (max 30s). This parameter is taken into account only if in the Input type selection, the reading mode is set to "Triggering of reading on the event".
- ⑤ **The EPC filter is not available in Secure Mode.**
Enter the value for EPC Mask, max 62 hexadecimal bytes.
- ⑥ Adjust the value for offset EPC mask in bytes (0 to 61 bytes).
It depends on the EPC Mask length.
- ⑦ Filter inversion not selected: only tags with an EPC value corresponding to the EPC mask value will be provided to the user.

Filter inversion selected: only tags with an EPC value different from the EPC mask value will be provided to the user.
- ⑧ RSSI (Received Signal Strength Indication) is a measure of the power in reception of the tag response. The value returned by the reader is proportional to the amplitude of the reception signal.
Adjust the RSSI value (-110dBm to 0dBm). 0dBm deactivates the RSSI filter.
- ⑨ Filter inversion not selected: only tags with an RSSI greater than or equal to the specified value will be provided to the user.
Filter inversion selected: only tags with an RSSI smaller or equal to the specified value will be provided to the user.
Ex: RSSI filter= -49dBm + Reversal not selected
A tag that will have a RSSI value of -20dBm will be sent back,
A tag that will have a RSSI value of -60dBm will not be sent back.

EPC Filter

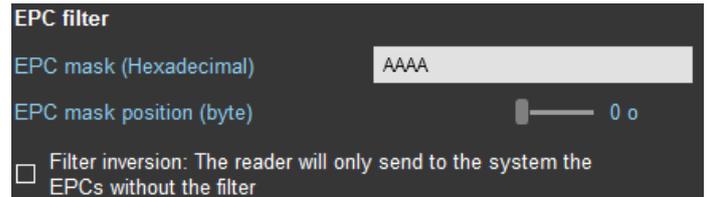
Examples:

Code EPC Tag 1: AAAAABCD0000000000000001
 Code EPC Tag 2: AA02ABCD0000000000000002
 Code EPC Tag 3: AA02ABCD0000000000000003
 Code EPC Tag 4: AA02FFFF0000000000000003

1- EPC mask = AA AA and Offset = 0

Tag 1: **AAAA**ABCD0000000000000001
 Tag 2: AA02ABCD0000000000000002
 Tag 3: AA02ABCD0000000000000003
 Tag 4: AA02FFFF0000000000000003

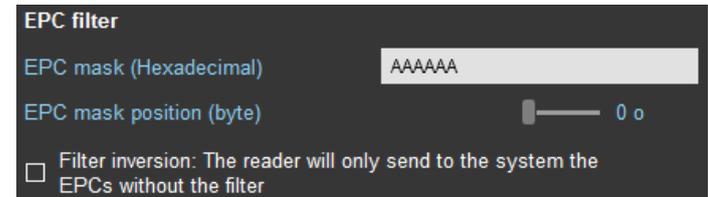
Only tag 1 is transmitted.



2- EPC mask = AA AA AA and Offset = 0

Tag 1: AAAAABCD0000000000000001
 Tag 2: AA02ABCD0000000000000002
 Tag 3: AA02ABCD0000000000000003
 Tag 4: AA02FFFF0000000000000003

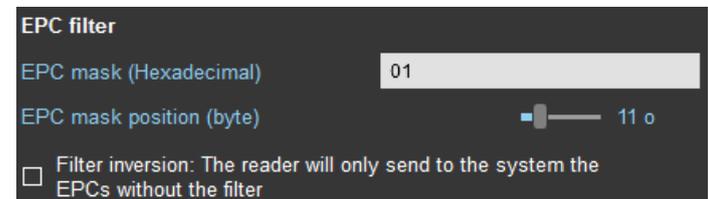
No tag is transmitted.



3- EPC mask = 01 and Offset = 11

Tag 1: **AA AA AB CD 00 00 00 00 00 00 00 01**
 Tag 2: AA 02 AB CD 00 00 00 00 00 00 00 02
 Tag 3: AA 02 AB CD 00 00 00 00 00 00 00 03
 Tag 4: AA 02 FF FF 00 00 00 00 00 00 00 03

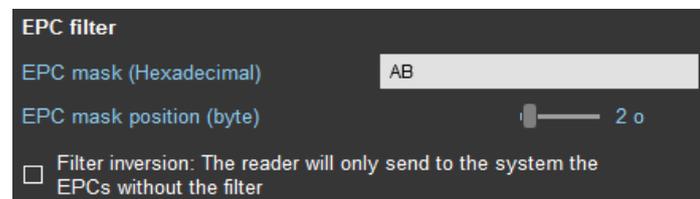
Offset is represented in blue; the filter is done on byte 12.
 Only tag 1 is transmitted.



4- EPC mask = AB and Offset = 2

Tag 1: **AA AA** **AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02** **AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02** **AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

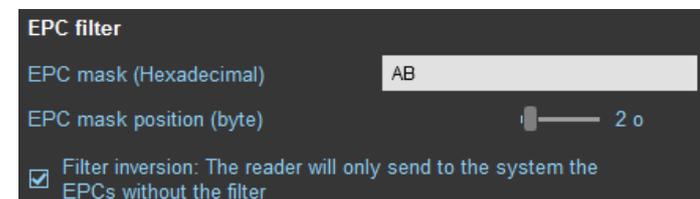
Tags 1, 2 and 3 are transmitted.



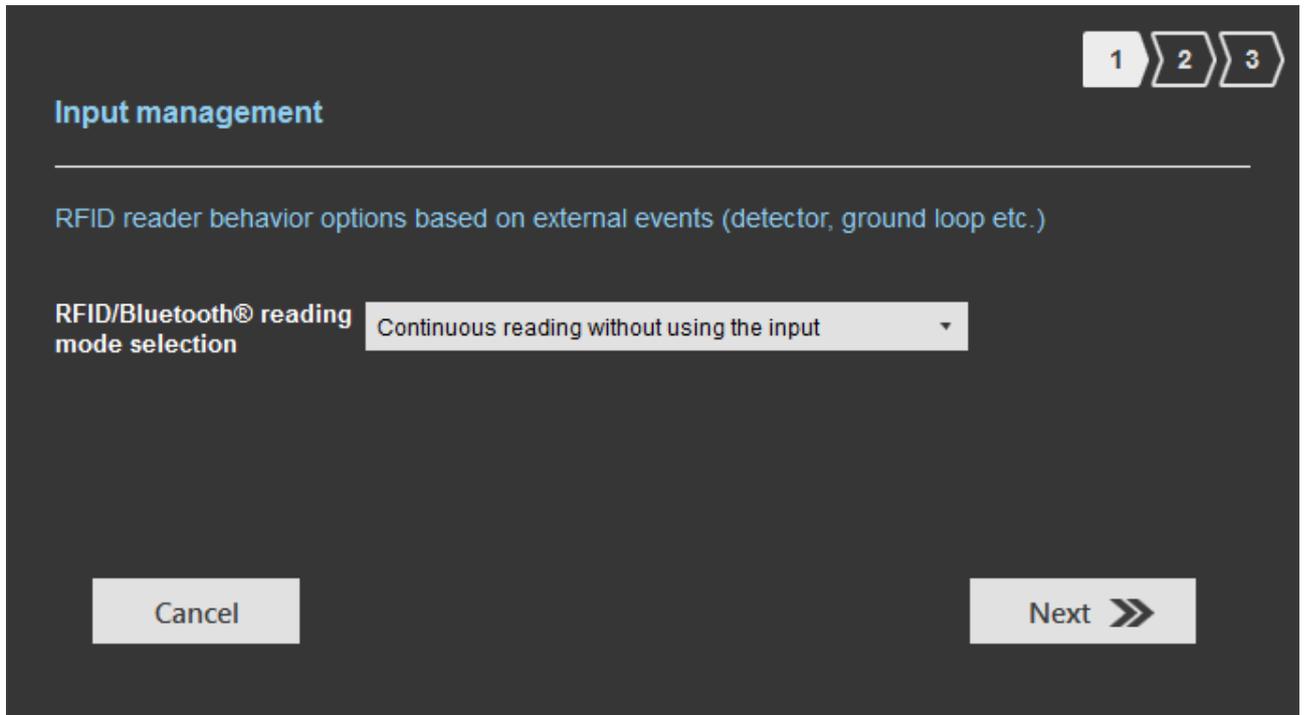
5- EPC mask = AB, Offset = 2 and Reversal

Tag 1: **AA AA** **AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02** **AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02** **AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

Tags 1, 2 and 3 are not transmitted. Only tag 4 is transmitted.



⑤ Input / output settings



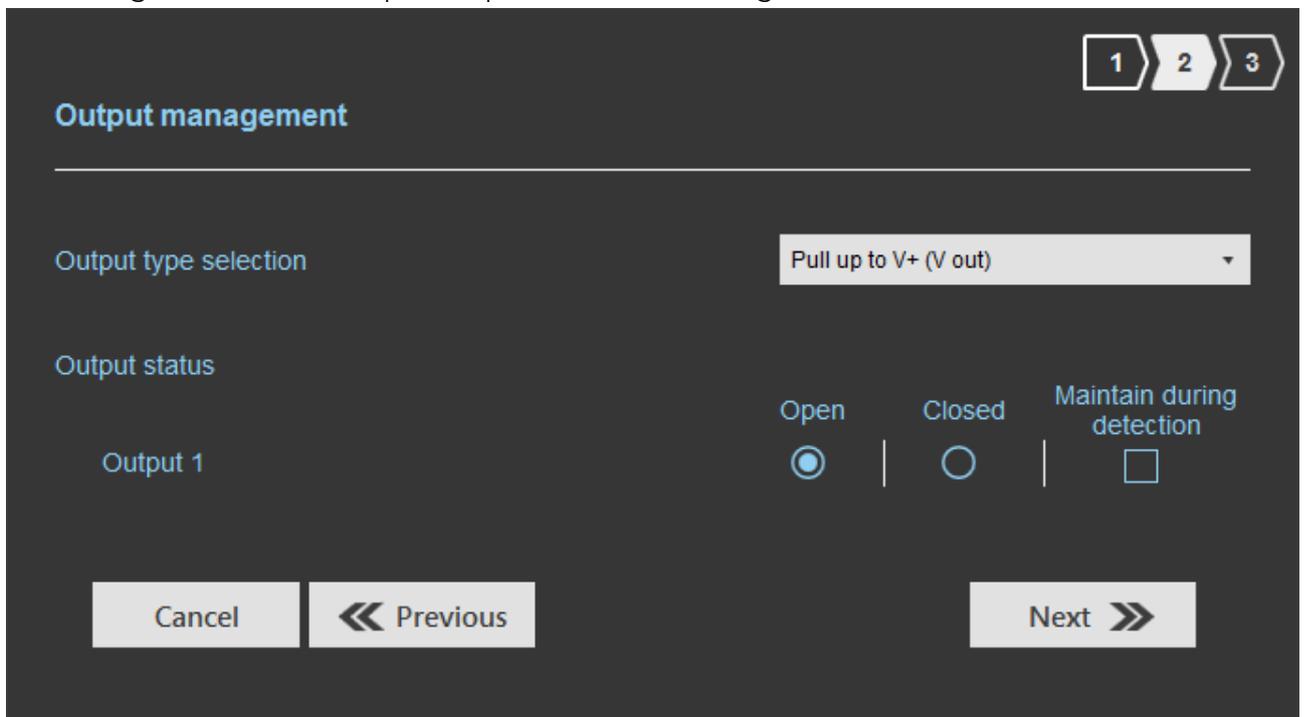
Input management

RFID reader behavior options based on external events (detector, ground loop etc.)

RFID/Bluetooth® reading mode selection: Continuous reading without using the input

Cancel Next >>

The configuration of the outputs depends on the reading mode chosen.



Output management

Output type selection: Pull up to V+ (V out)

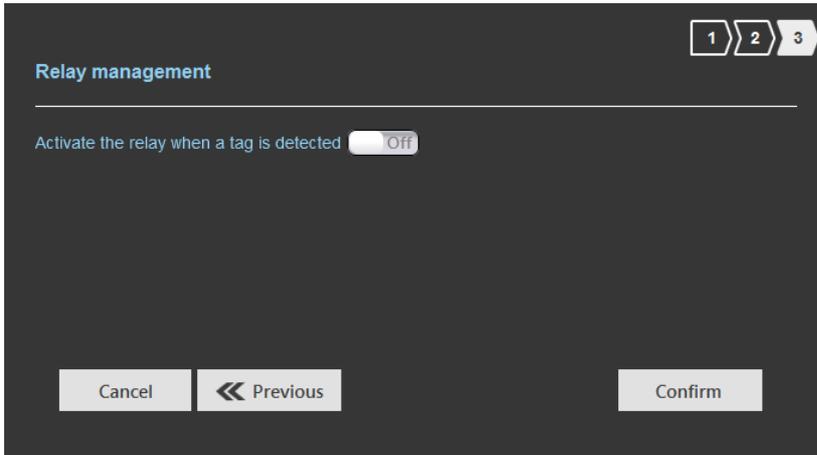
Output status:

Output 1: Open | Closed | Maintain during detection

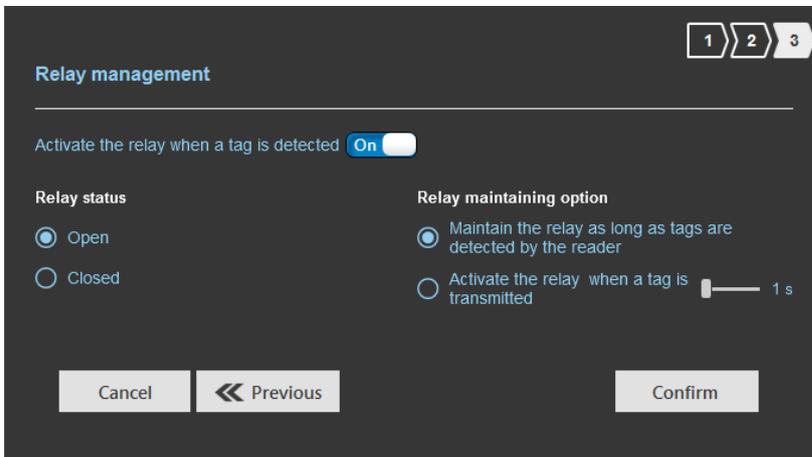
Cancel << Previous Next >>

Both types of output are « Pull up to V+ » or « Open drain ».

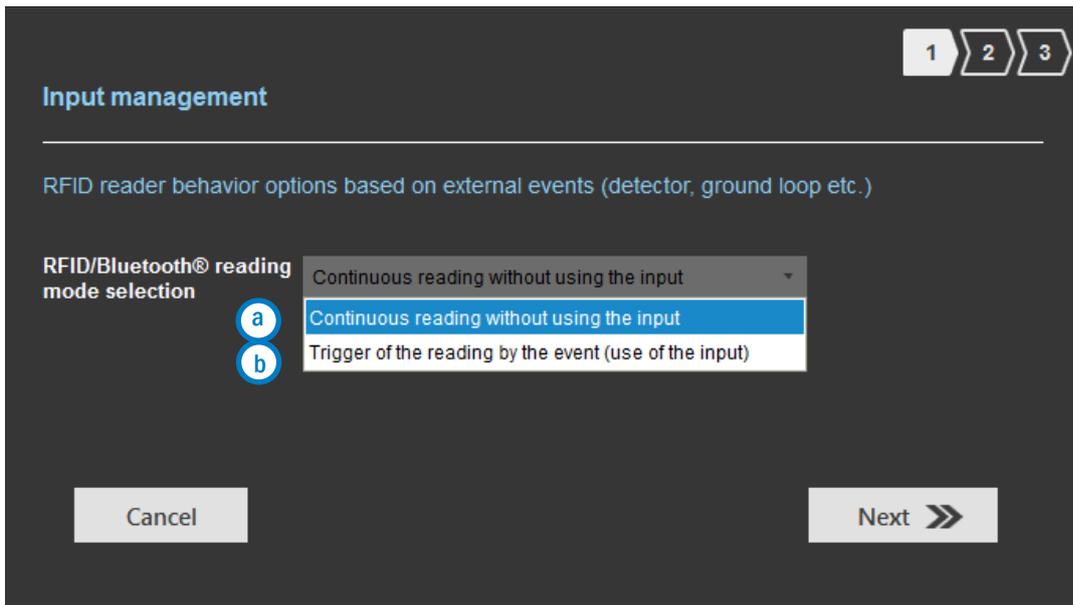
Status of outputs: select for each output the default state 'Open' or 'Closed' and if the state is maintained during the detection process.



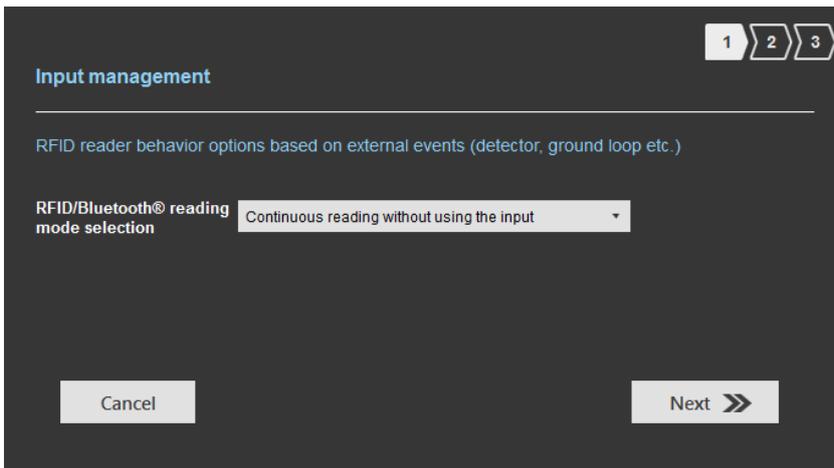
Activate the relay on detection 'OFF'.



Activate the relay on detection 'ON'.

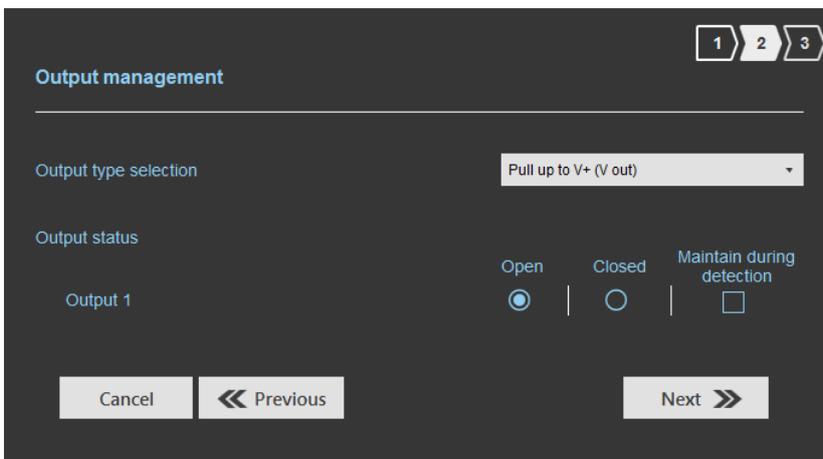


a Reading mode = Continuous reading without using input

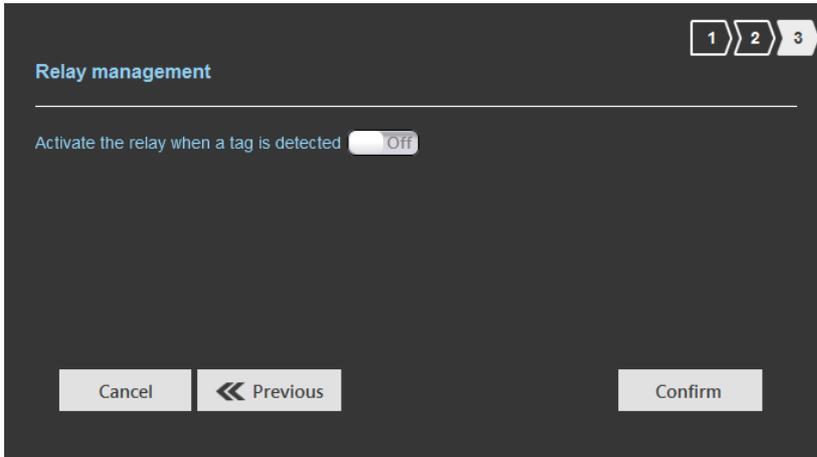


In this mode, the reader scan continuously.

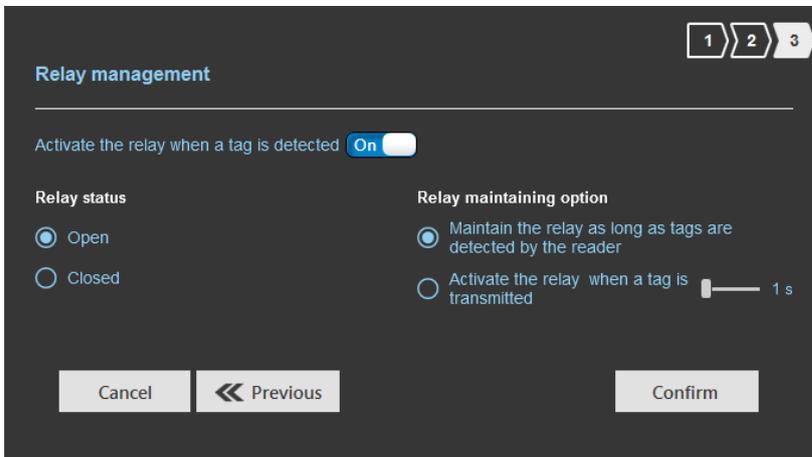
There is no action on input activation.



Select the output type and default state for output.

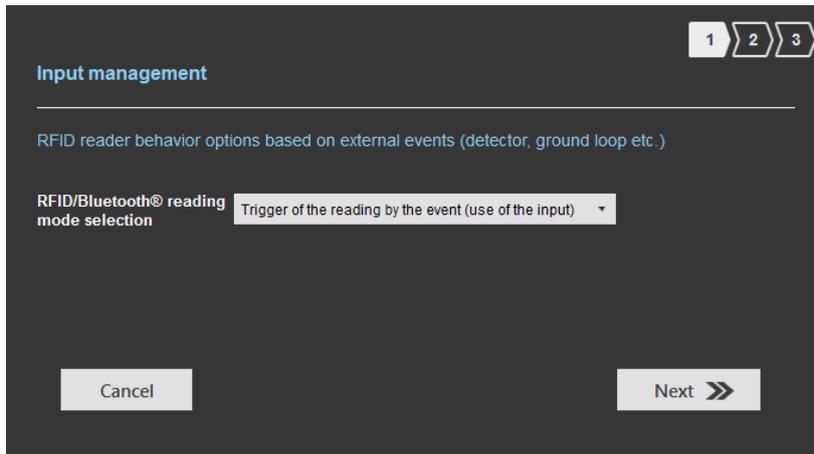


Activate the relay on detection 'OFF'.

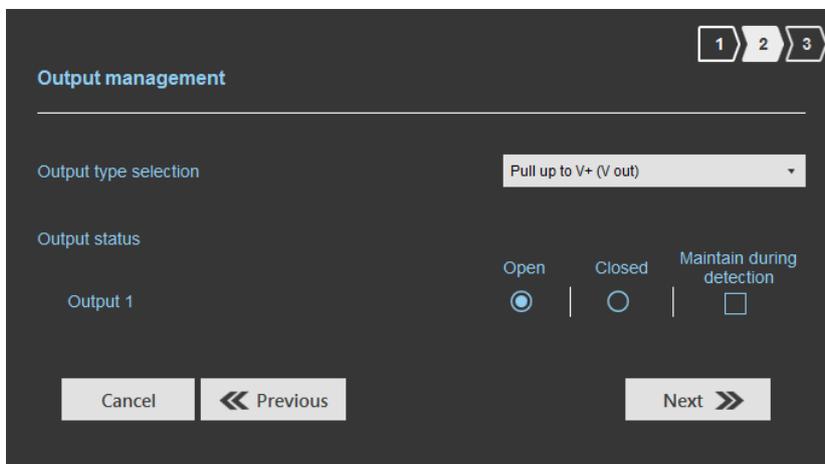


Activate the relay on detection 'ON'.

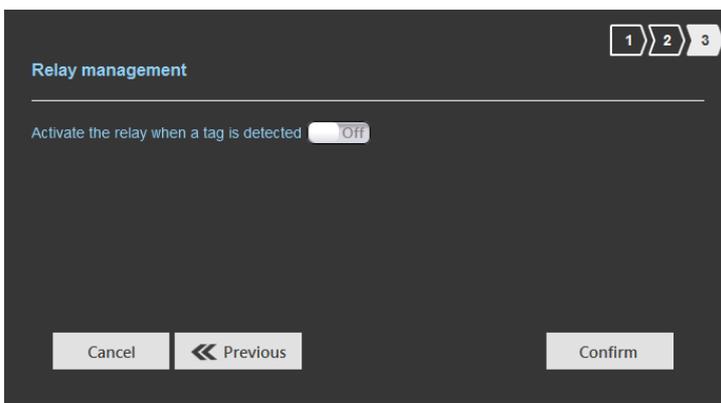
b Reading mode = Trigger of the reading by the event (use the input)



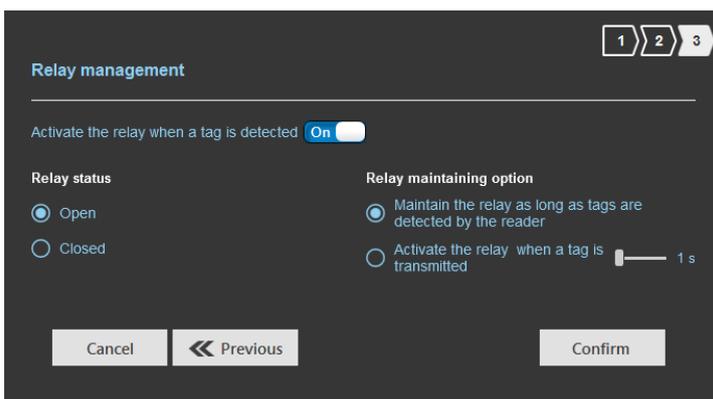
In this mode, if the input is activate, the reader on the lane.



Select the output type and default state for output.



Activate the relay on detection 'OFF'.



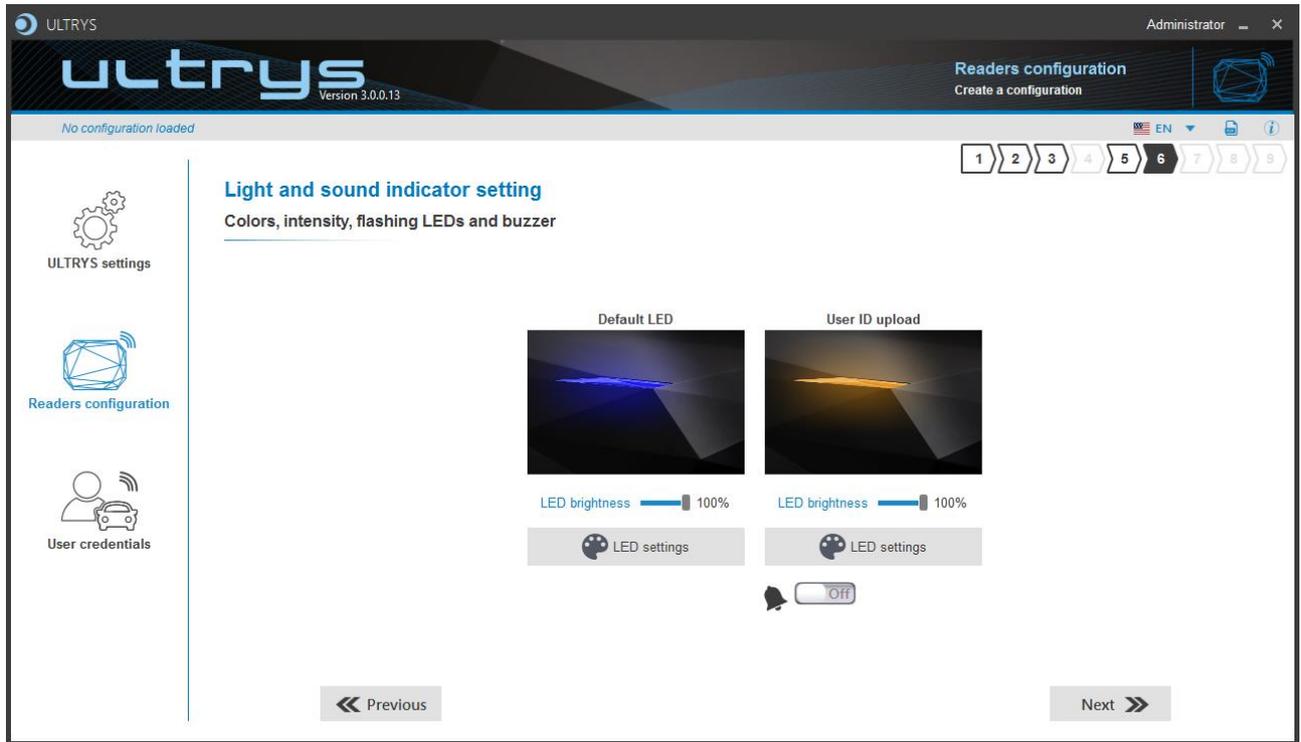
Activate the relay on detection 'ON'

Summary table

Reading mode	Input	Configurable Outputs states?	Maintain during detection available?	Output	Relay on detection
a Continuous reading without using inputs	No action	Yes	Yes	- If 'Continuing during detection process' not activated: the output state toggles at the ascent	Yes
b Trigger of the reading by the event (use of the input)	An action on the input activates reading on the label	Yes	Yes	- If 'Continuing during detection process' activated: the output state toggles to the RF detection and remains in this state as long as, at each scan is at least one detection	Yes

Note: as long as the action is detected on the input, the output remains toggled.

Step 6- Light and sound indicator setting



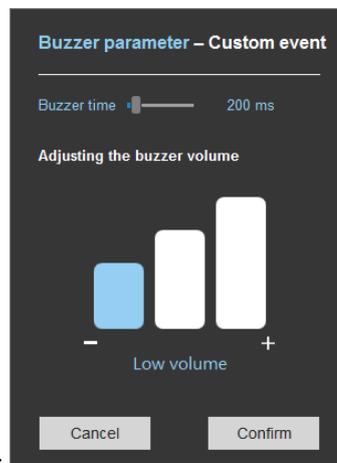
LED brightness: The intensity of the LED is adjustable in 10% steps (from 10% to 100%).

Default LED:

After the reader initialization phase, the LED must be activated according to the color defined in the box, as long as the reader does not receive a permanent OSDP_LED command.

User ID upload:

LED: Color indicating the detection of an identifier by the antenna, as long as the reader does not receive a permanent OSDP_LED command.



Buzzer: OFF or ON+option :

Buzzer: indicating the detection of an identifier by the antenna, as long as the reader does not receive a permanent OSDP_BUZ command.

LED settings:

LED settings – By default

Continuous fixed LED LED flashing

LED color selection

No color



LED settings – When the user ID is uploaded

1 LED (x200 ms) LED flashing

Number of flashes (x100 ms) 2

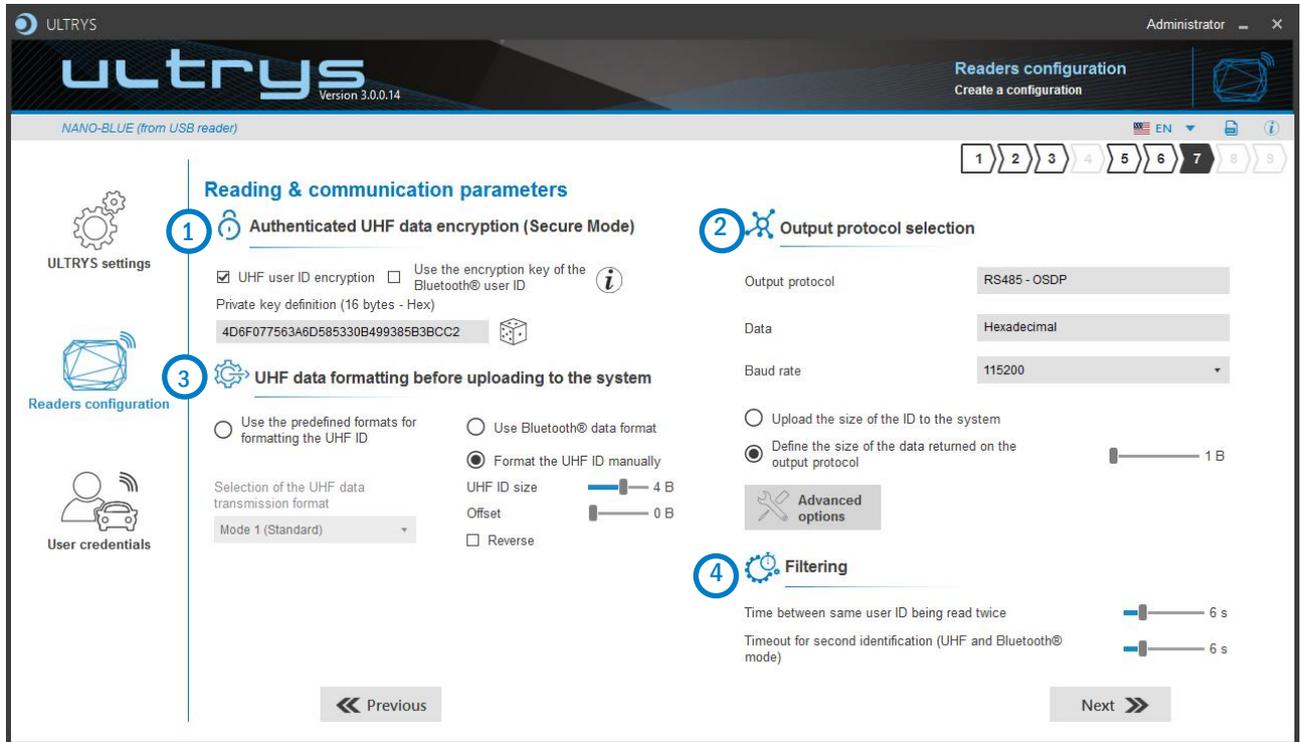
LED color selection

No color



Step 7- Reading & communication parameters

The parameters accessible in step 7 depend on the previously defined parameters and the selected protocol. The different modes will be discussed in the Application Note.



① The data can be encrypted and signed before being written in the tag. The reader will decrypt and authenticate the data before sending it on its output media. Only an identifier correctly decrypted and authenticated will produce an output data, otherwise the reader will remain mute.

If authenticated encryption is also used for the Bluetooth® identifier, it is possible to use:

- A different private key for EPC and for Bluetooth®

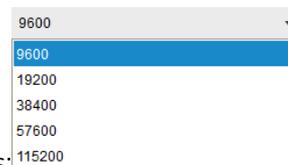
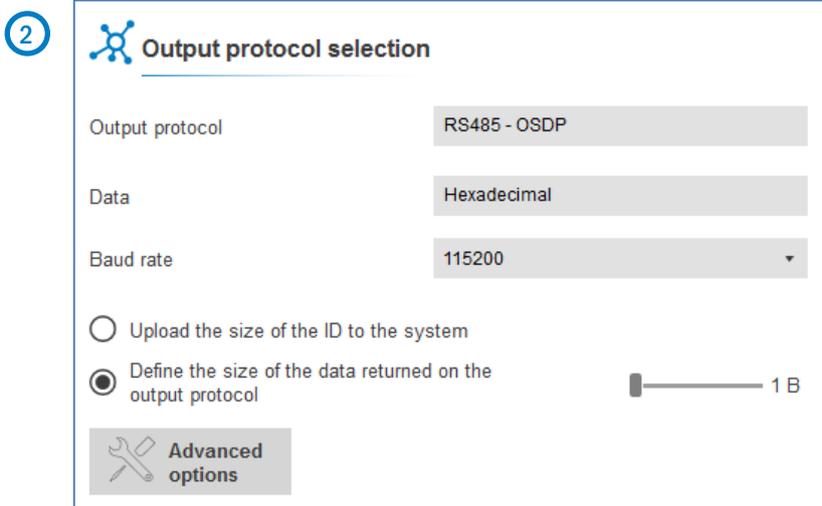


- An identical private key for the EPC and for Bluetooth® in this case, the value of the key is defined in the Bluetooth® configuration:

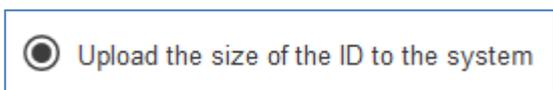


Notes:

- Only UHF tags compatible with “FAST ID” feature and having at least 128 bits of EPC can be decrypted and authenticated by the SPECTRE Access reader.
The chips compatible with secure encoding are: Monza X, Monza R6P, Monza 4D, this chip is present into
 - TLTA-W53M-943_S
 - TLTA-W75B-943_S
 - IronTag Aero
 - CCTW490_AN
- **The secure mode is not accessible if an EPC mask has been set in ‘Advanced settings’.**
Note: After setting an EPC security key, if you return to step 5 with the Previous button, and you set an EPC filter, then returning to step 7, the "EPC ID Security" checkmark is displayed. in gray, the key field is still accessible but not taken into account



The baudrate can be modified with the values:



: Returns all of the data read.(osdp_RAW)



Protocol	Size in plain mode	Size in secure mode
RS485	1 to 62 bytes	1 to 6 bytes

Advanced options:

The advanced options in this part depend on whether or not a Bluetooth® configuration is activated:

Bluetooth® activation	Reading mode	Bluetooth® reading mode	Advanced options
	NA		
	<ul style="list-style-type: none"> <input checked="" type="radio"/> UHF or Bluetooth® <input type="radio"/> UHF then Bluetooth® <input type="radio"/> Bluetooth® then UHF 	<ul style="list-style-type: none"> <input checked="" type="radio"/> Private ID <input type="radio"/> Private ID else CSN <input type="radio"/> CSN only 	
	<ul style="list-style-type: none"> <input checked="" type="radio"/> UHF or Bluetooth® <input type="radio"/> UHF then Bluetooth® <input type="radio"/> Bluetooth® then UHF 	<ul style="list-style-type: none"> <input type="radio"/> Private ID <input checked="" type="radio"/> Private ID else CSN <input type="radio"/> CSN only <ul style="list-style-type: none"> <input type="radio"/> Private ID <input checked="" type="radio"/> Private ID else CSN <input type="radio"/> CSN only 	

Advanced options

Protocol options

a ID_Tag, to indicate whether the ID information comes from a UHF or Bluetooth® credential

EPC UHF Gen 2 (Hex)

Bluetooth® (Hex)

b Data offset in bits 0 bits

Data left-justified Data right-justified

c

Backward compatibility option

Use the ACK instead of the Busy command

Use the old IEEE number (F51BC0)

d Enable Plain mode after secure channel authentication

e Modification of the RS485 address 0

f Site code forced on the Bluetooth® CSN ID (Hexadecimal on 2 bytes max.)

g **h**

- a** Value add in front of the data to indicate the technology read. Available only if a Bluetooth® configuration is active.
- b** Used to fix the first ID bit sent by the reader to the OSDP_RAW command (UID and Private ID). Adjustable from 0 to 255 bits.
Ex: if the offset is 6 and the data is 0x123456 (hexa), 0b0001 0010 0011 0100 0101 0110 (binary).
→The data with the offset will be 0b10 0011 0100 0101 0110 (binary), 0x023456 (hexa).
- c** Allows adding zero padding to the left or right (left justified or right justified).
- d** Disabled: after an osdp_keyset command with a key other than the default SCBKD key, it is mandatory to communicate in Secure Channel.

Enabled: After an osdp_keyset command with a key other than the default SCBKD key, it is possible to communicate in plain mode even after successful authentication.
- e** Allows the RS485 address to be defined, by OCB configuration without having to use the osdp_COMSET command.
- f** Allows to force a site code. The value of the code will be transmitted in high order on one or two bytes. The CSN can therefore be truncated depending on the size of the protocol used. Available only if a Bluetooth® configuration 'Private ID reading mode otherwise CSN' or 'CSN only' is active.
- g** Disabled: the response will be osdp_busy.
Enabled: the response will be osdp_ACK.
- h** Disabled: uses IEEE 0x2C17E0.
Enabled: uses IEEE 0xF51BC0.

Note: If the "ID size" of the Bluetooth® data is greater than "Size of the credential sent to the system":

Bluetooth® data format

Bluetooth® ID size: 7 b

Offset: 0 b

Inverted

+ Size of the credential sent to the system (bytes): 6 B

i The size of the protocol data is smaller than the size of the Bluetooth® credential data. Data may be lost from the Bluetooth® credential

Cancel OK

i When UHF identifier is encrypted, its maximum size cannot exceed 6 bytes

OK

Note:

3 Please note: the data formatting only applies to the uploading of data into the system, it is not taken into account for the encoding of identifiers.

1st case: UHF data formatting before uploading to the system without active Bluetooth® configuration:

- Mode 1 (Standard)
- Mode 2 (Standard reversed)
- Mode 3
- Mode 4

There are 4 UHF ID formatting modes:

Example: EPC data: AA BB CC DD EE xx xx ... VV WW XX YY ZZ with 'Size of the credential sent to the system' fixed to 4bytes.

- : ID feedback = WW XX YY ZZ
- : ID feedback = ZZ YY XX WW
- : ID feedback = AA BB CC DD
- : ID feedback = DD CC BB AA

UHF data formatting before uploading to the system

Use the predefined formats for formatting the UHF ID
 Format the UHF ID manually

Selection of the UHF data transmission format: Mode 1 (Standard)

UHF ID size: 4 B
 Offset: 0 B
 Reverse

Possibility to define the reporting format according to the size of the identifier, the offset and the reading direction.

WARNING

UHF ID Size + Offset should not be larger than the EPC size of the tag used. Otherwise the ID will not be returned to the system.

Example 1:

ID encoded in the Tag:	AABBCCDDEEFF001122334455
Formatting:	UHF ID size <input type="range" value="4"/> 4 B Offset <input type="range" value="8"/> 8 B <input type="checkbox"/> Reverse
ID Formated:	22334455
Size of the credential sent to the system:	<input checked="" type="radio"/> Define the size of the data returned on the output protocol <input type="range" value="4"/> 4 B
Data sent to the system:	22334455

Example 2:

ID encoded in the Tag:	AABBCCDDEEFF001122334455
Formatting:	UHF ID size <input type="range" value="4"/> 4 B Offset <input type="range" value="0"/> 0 B <input checked="" type="checkbox"/> Reverse
ID Formated:	55443322
Size of the credential sent to the system:	<input checked="" type="radio"/> Define the size of the data returned on the output protocol <input type="range" value="4"/> 4 B
Data sent to the system:	55443322

Example 3:

ID encoded in the Tag:	AABBCCDDEEFF001122334455
Formatting:	UHF ID size <input type="range" value="4"/> 4 B Offset <input type="range" value="0"/> 0 B <input type="checkbox"/> Reverse
ID Formated:	AABBCCDD
Size of the credential sent to the system:	<input checked="" type="radio"/> Define the size of the data returned on the output protocol <input type="range" value="4"/> 4 B
Data sent to the system:	AABBCCDD

Example 4:

ID encoded in the Tag:	AABBCCDDEEFF001122334455
Formatting:	UHF ID size <input type="range" value="4"/> 4 B Offset <input type="range" value="4"/> 4 B <input checked="" type="checkbox"/> Reverse
ID Formated:	DDCCBBAA
Size of the credential sent to the system:	<input checked="" type="radio"/> Define the size of the data returned on the output protocol <input type="range" value="4"/> 4 B
Data sent to the system:	DDCCBBAA

2nd case: UHF data formatting before uploading to the system with an active Bluetooth® configuration:

 **UHF data formatting before uploading to the system**

Use the predefined formats for formatting the UHF ID

Use Bluetooth® data format

Format the UHF ID manually

Selection of the UHF data transmission format

Mode 1 (Standard) ▼

UHF ID size 4 B

Offset 0 B

Reverse

Possibility to format the UHF ID manually (ditto case 1) or to use the Bluetooth® data format.

Bluetooth® data format

Bluetooth® ID size 4 B

Offset 0 B

Reverse

4

Filtering

Time between same user ID being read twice 6 s

The reader emits the credential code present in the field only once during this time.

This time is adjustable from 0 to 30 seconds.

If the Reading Mode has been set to 'UHF then Bluetooth®' or 'Bluetooth® then UHF', the timeout setting appears:

Reading mode

UHF or Bluetooth® UHF then Bluetooth® Bluetooth® then UHF

Reading mode

UHF or Bluetooth® UHF then Bluetooth® Bluetooth® then UHF

Filtering

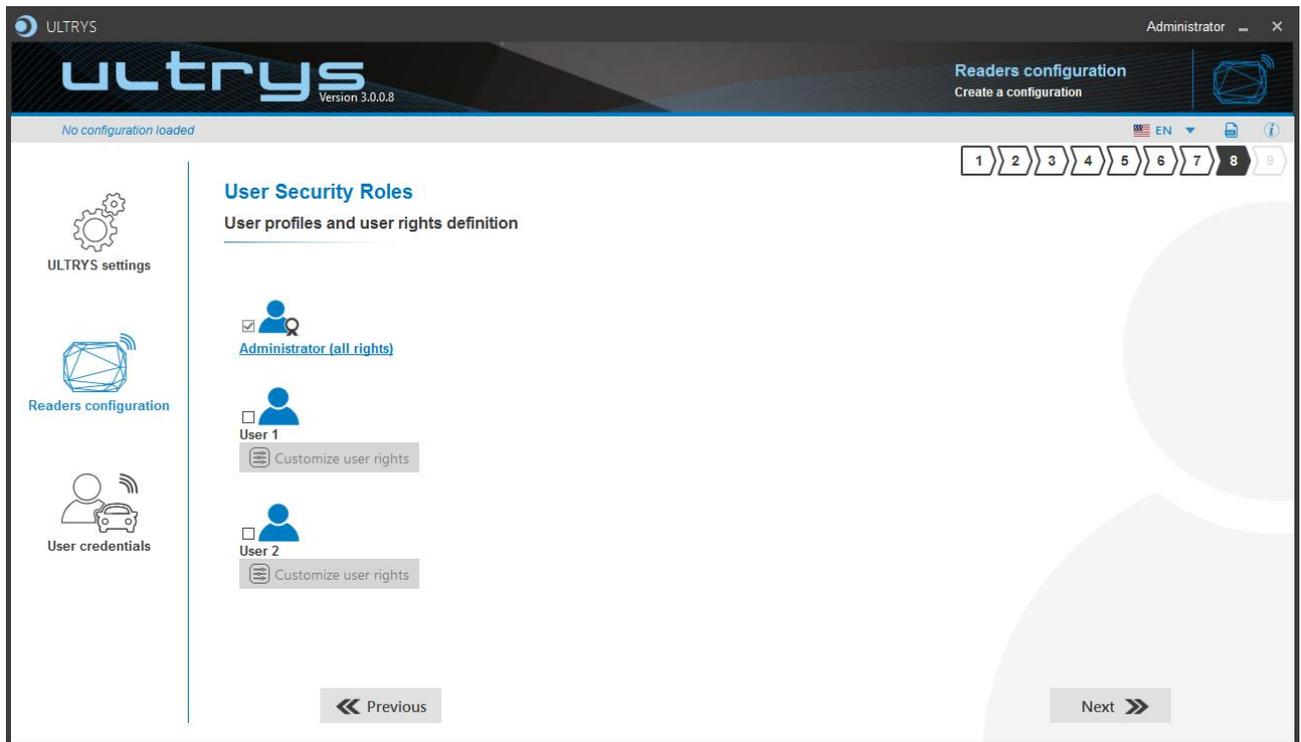
Time between same user ID being read twice 6 s

Timeout for second identification (UHF and Bluetooth® mode) 6 s

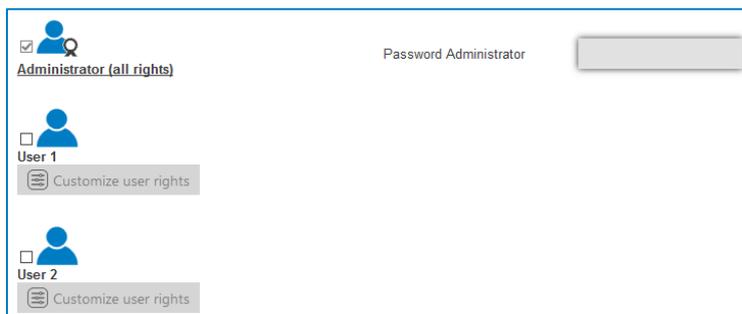
UHF then Bluetooth®: If beyond the Timeout no valid Bluetooth® identifier is read, the reader starts again in UHF scan.

Bluetooth® then UHF: If beyond the Timeout no valid UHF identifier is read, the reader starts again in Bluetooth® scan.

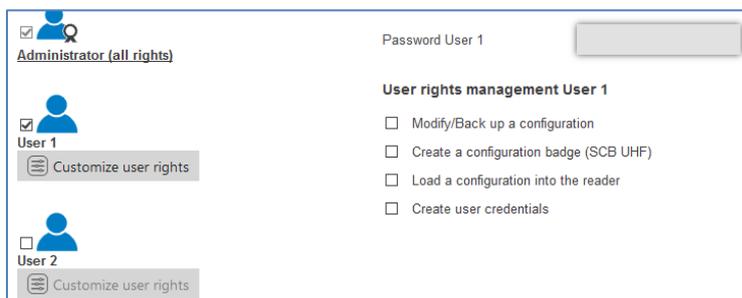
Step 8- User Security Roles



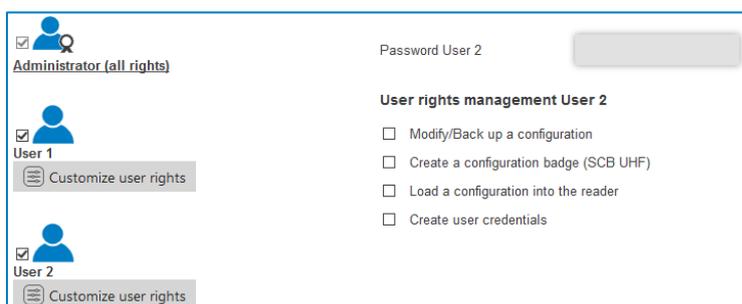
ULTRYS allows to manage three different profiles by configuration file.



Define an Administrator password to protect the configuration file.

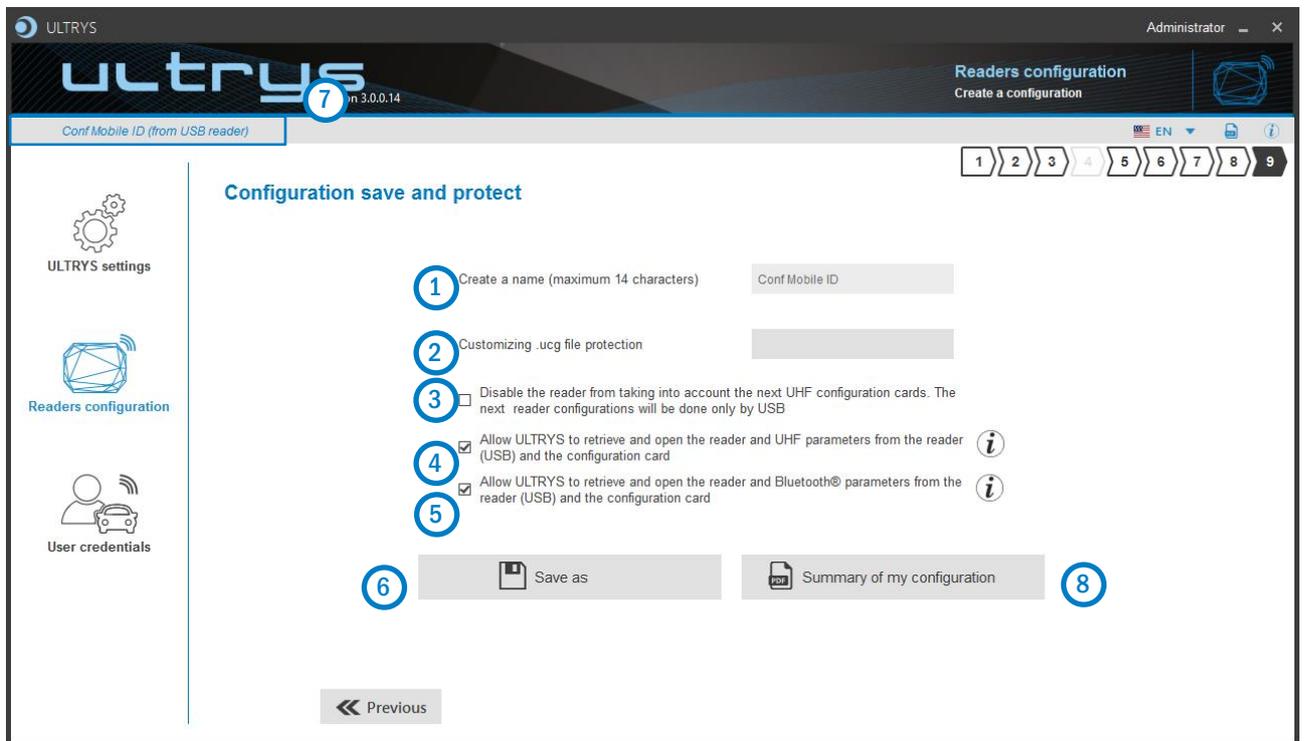


Define a User 1 password and select the corresponding rights.



Define a User 2 password and select the corresponding rights.

Step 9- Configuration save and protect



This step allows you to save the configuration file containing all the current configuration settings (keys, formats, reader...). You can select a location and password to protect the file.

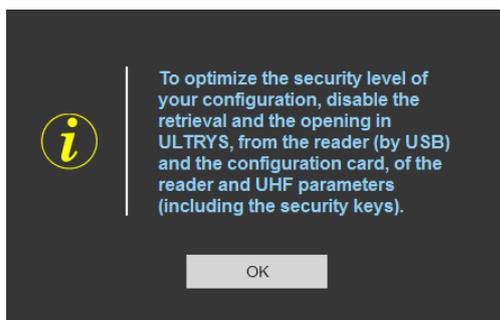
① Choose a name to easily find the configuration. (example: Parking IN).

Note: the name of the configuration must be contained in the file name.

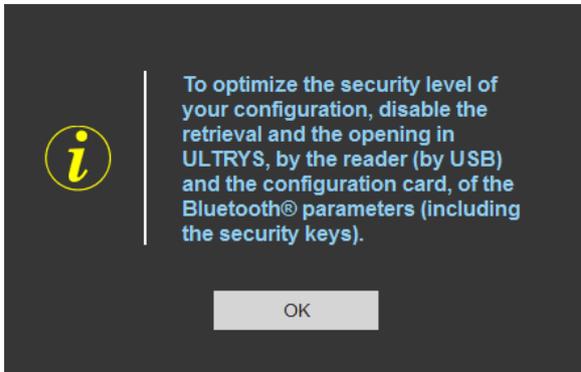
② To protect the configuration file, you can define a password. This password is different from Administrator password.

③ If this option is enabled, the reader can only be configured again via the USB connection.

④ Authorize ULTRYS to retrieve and open the reader and UHF parameters from the reader and the configuration card. See 11-Open an existing configuration.



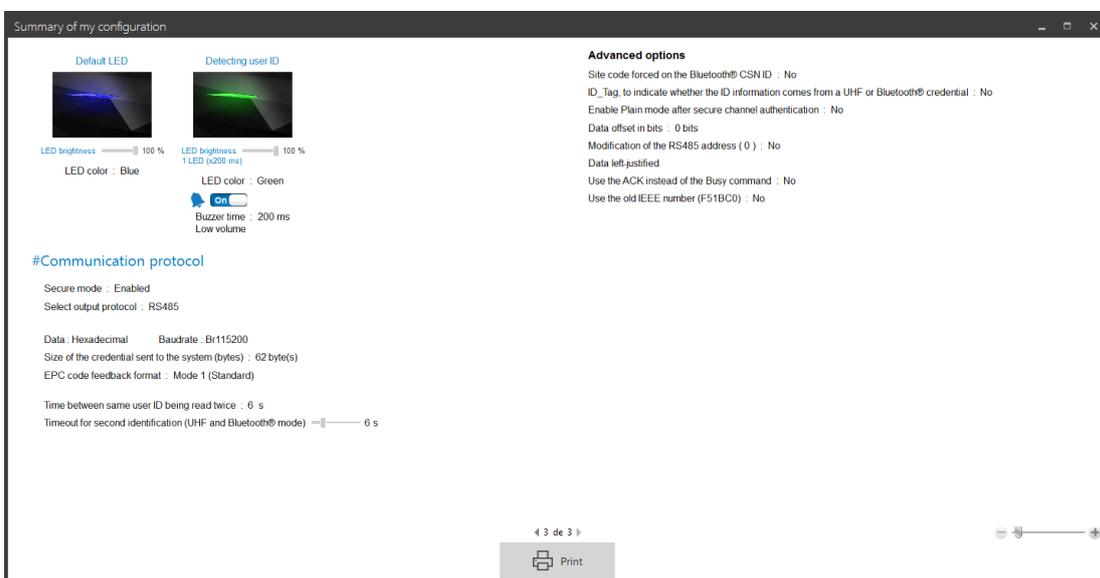
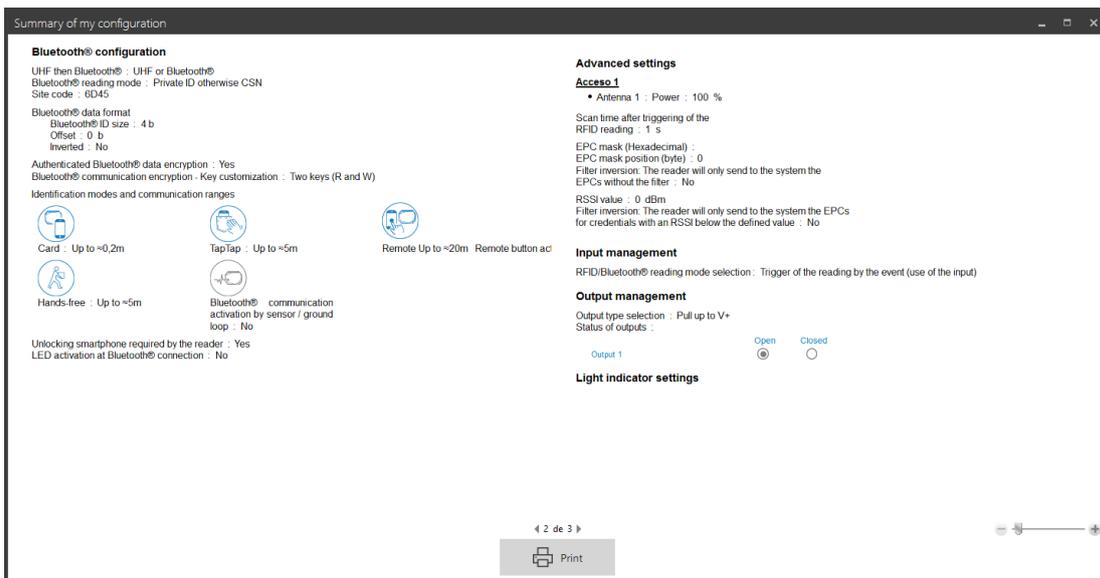
- 5 Authorize ULTRYS to retrieve and open the reader and Bluetooth® parameters from the reader and the configuration card. See 11-Open an existing configuration.



- 6 Select a directory and a file name to save
- 7 The name and location of 'Configuration Loaded' indicates now the chosen name and location.



8 Get a summary of the configuration created.



Print: allows printing of configuration information on a network, local or virtual printer (PDF).



SPECTRE



ATX

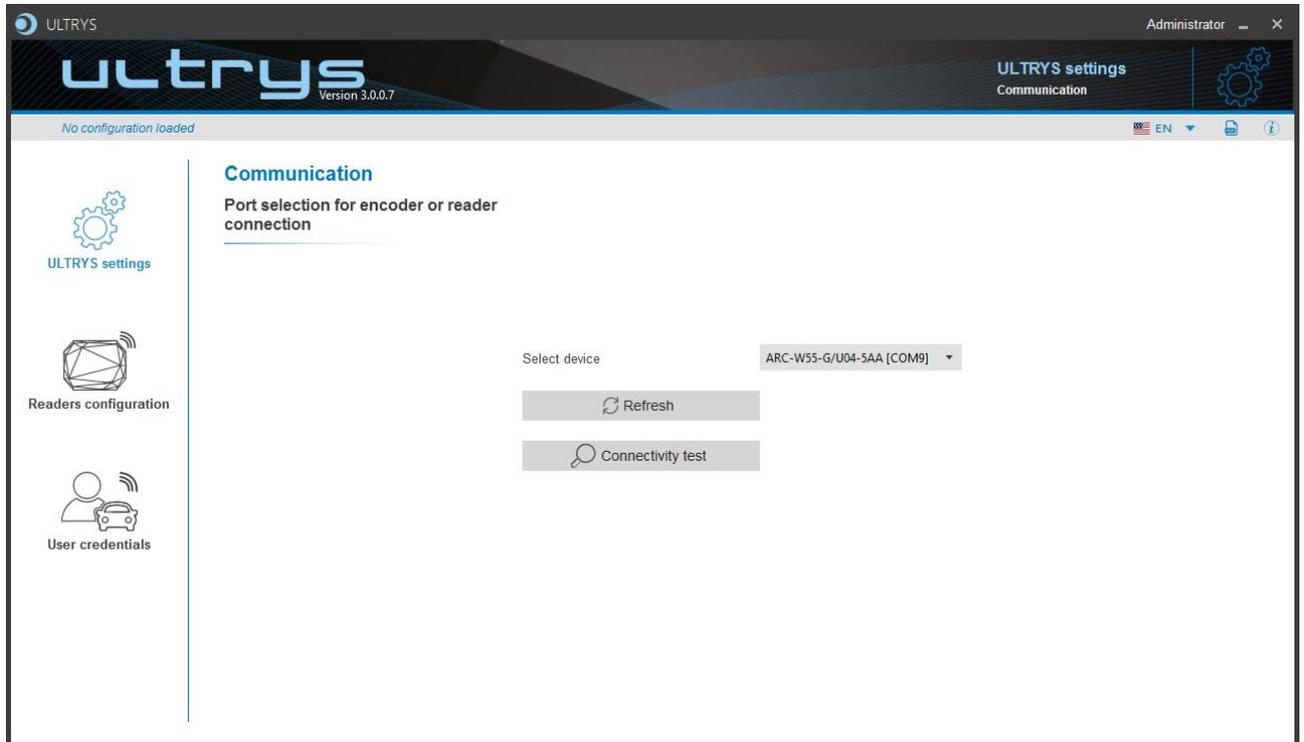


[ATX READ ONLY](#)

[ATX OSDP™](#)

7. Reader configuration SPECTRE ATX READ ONLY

7-1 ULTRYS settings



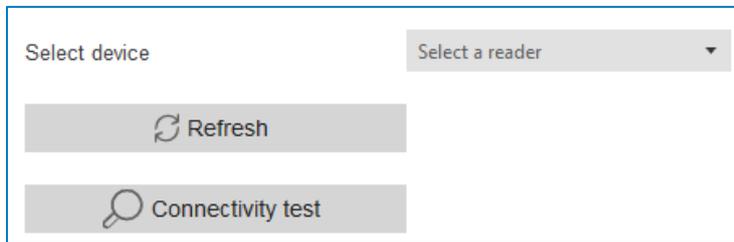
- Connect the SPECTRE ATX reader to the PC using the provided USB cable to load the configuration via serial link directly onto the reader.



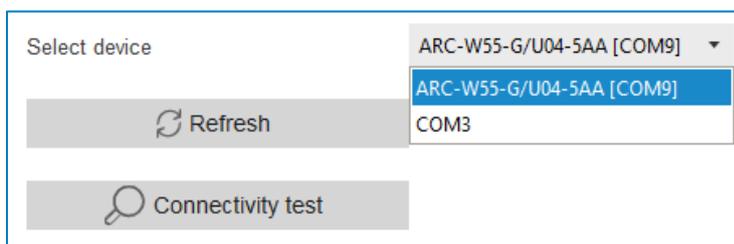
or

- Connect an UHF encoder to the PC to load the configuration onto UHF SCB configuration card.

To set the communication port

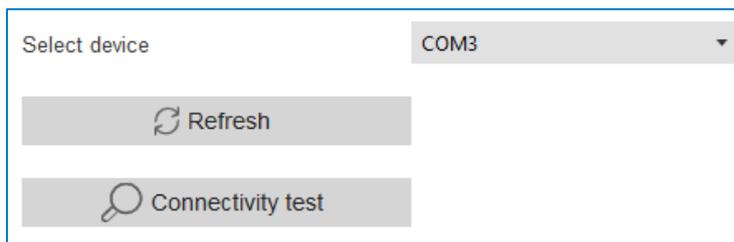


1- Click on 'Refresh' to detect all readers connected to the PC.

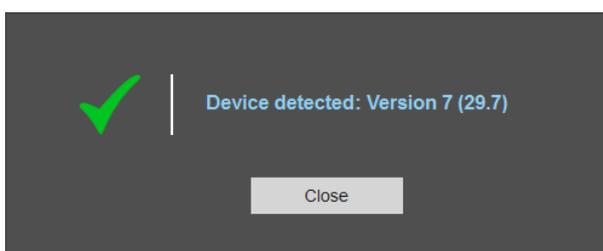


2- Open the dropdown list Select device

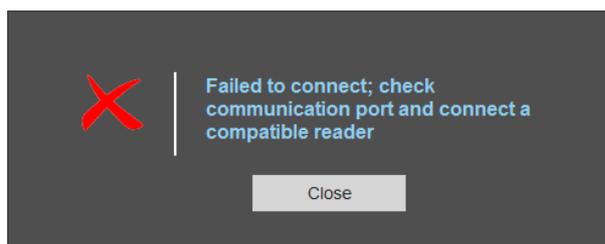
3- Readers whose firmware is ≥ 8 will appear in the drop-down list under their commercial reference. Select the communication port number for the encoder or reader or select the reader to use.



4- Run the connectivity test



Message OK (with indication of the firmware version).



Message: Failed

- Check the compatibility of the reader.
- Check the USB cable.
- Check the Baudrate reader: it must be fixed to 115200.

Note: during the connectivity test on a UHF encoder, a sound and light signal (orange) will be emitted for 1 second.

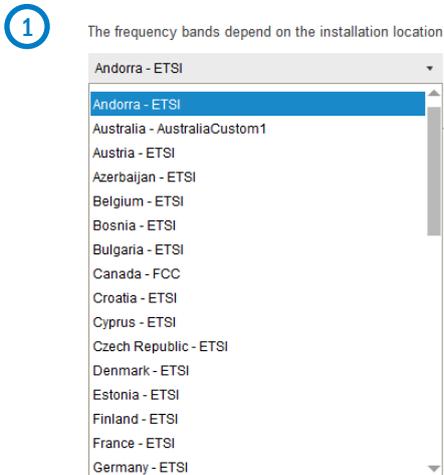
7-2 Create new configuration



The reader configuration is done in 7 steps. To move from one stage to another, you must click on "Next".

	UHF frequency band regulation
	Configuration protection loaded into the reader
	Reader configuration
Step 4 does not exist in the SPECTRE ATX READ ONLY setup wizard	
	Installation configuration
Step 6 does not exist in the SPECTRE ATX READ ONLY setup wizard	
	Reading & communication parameters
	User Security Roles
	Configuration save and protect

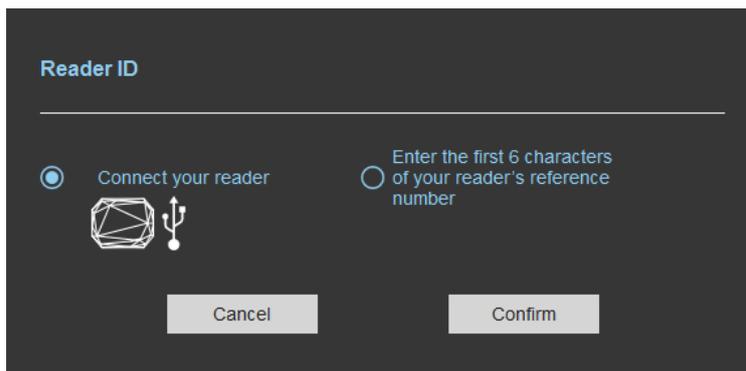
Step 1- UHF frequency band regulation



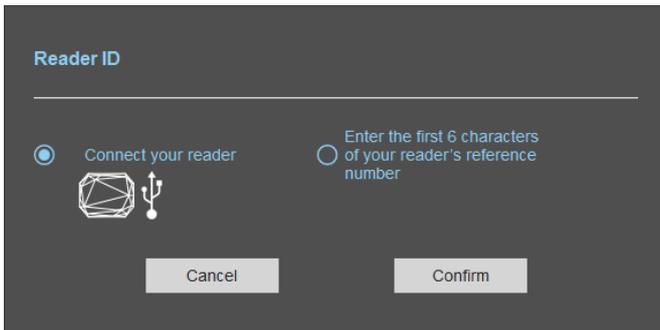
Type the first characters to display a country or select the country in which the installation will be done.

For a country which is not in the list, please contact STid: support@stid.com.

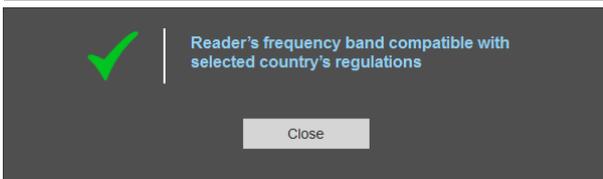
2 To approve the feasibility to install your reader in the selected country, you can check the compatibility.



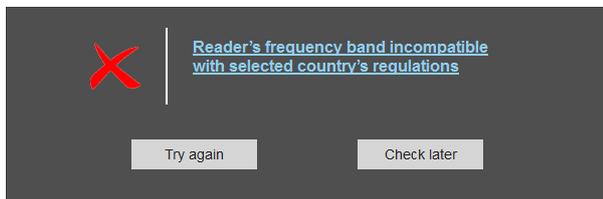
With USB reader connection



- 1- Connect the reader and set the communication COM port.
- 2- Select 'Connect your reader'
- 3- Please confirm

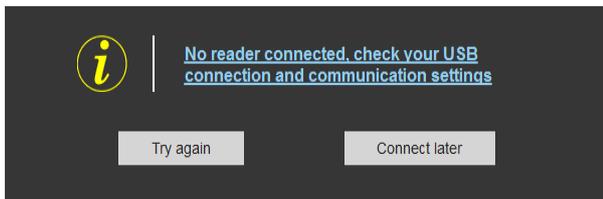


Message: OK



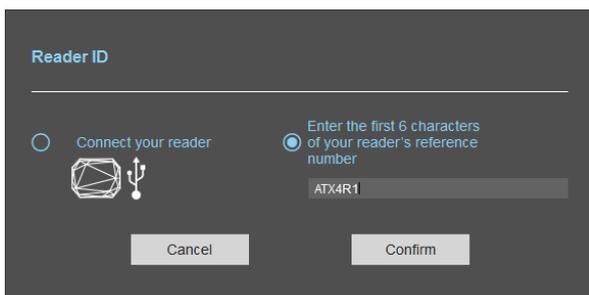
Message: NOK

The reader can't be installed in the selected country.



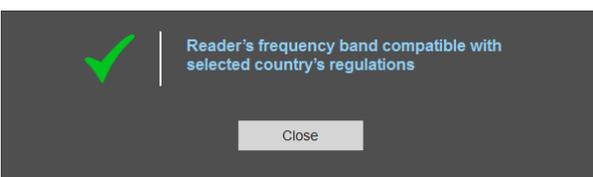
- Check the USB cable
- Check the communication with reader

With reader part number

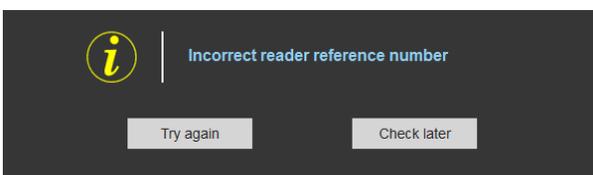


Enter the first 5 characters of the reader part number

Example: ATXR41, ATXR42, ATXR51.....

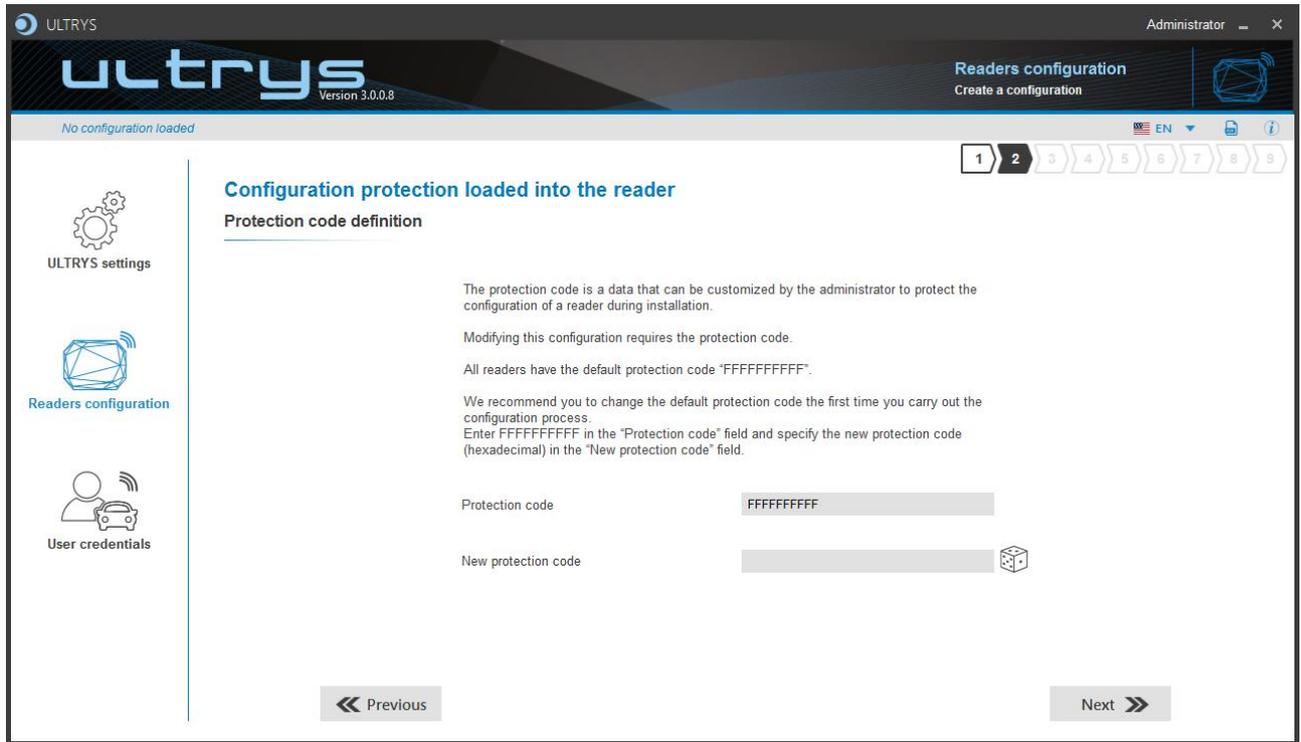


Message: OK



Message: the reference reader is not compatible with regulation selected.

Step 2- Configuration protection loaded into the reader



SPECTRE ATX readers, are initially supplied with a default configuration and a protection code to 0xFFFFFFFFF.

The size of this protection code is 5 bytes (10 hexadecimal characters).

After the initial setup and in order to reconfigure the reader, it will be necessary to present an UHF SCB card or a configuration file with the same 'protection code' as the reader.



Random protection code generator.

Caution

This protection code is important and should definitely be known by the administrator. It protects the configuration data and allows reader configuration updates.

If you lose this protection code, you won't be able to reconfigure the reader again and the reader must be reset at the factory.

To change the protection code, it will be necessary to know the current protection code.

Step 3- Reader configuration



1 Selecting the reader type

SPECTRE ATX readers can be configured in “Read only” mode from firmware version 10.

2 Selecting Firmware

You must select the firmware version that is compatible with your reader.

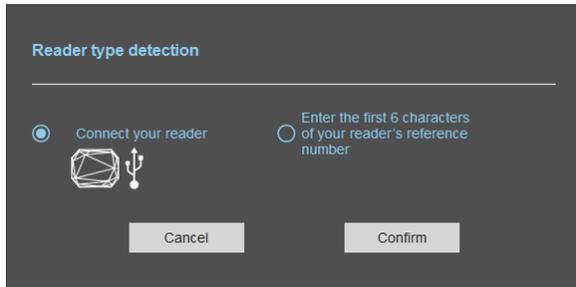
To do so, you can manually select the reader and firmware version, or you can use the function "Auto detection – Connect and check my reader configuration".

Compatibility between firmware readers and ULTRYS versions

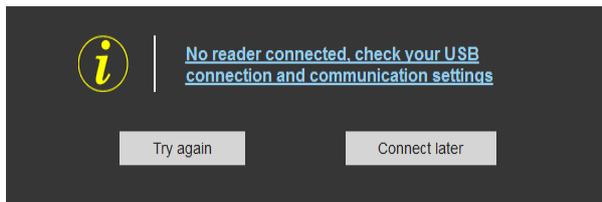
Firmware versions	ULTRYS softwares			
	ULTRYS V2.0	ULTRYS V2.1	ULTRYS V2.4	ULTRYS V3.x
v 7	✓	✓	✓	✓
v 9		✓	✓	✓
v 10,11,12			✓	✓
> v 13				✓

Close

With USB reader connection



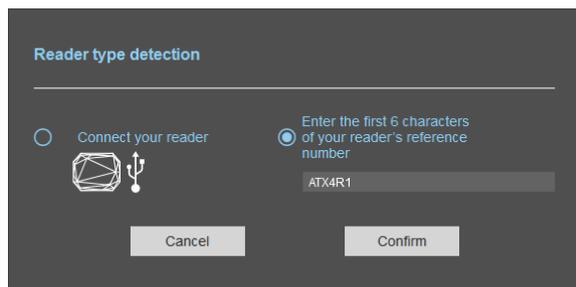
- 1- Connect the reader via USB cable provided. Configure the communication parameters.
- 2- Select the Connect your reader.
- 3- Click on Confirm.



Message : NOK

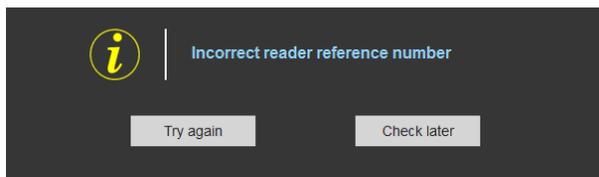
- Check the USB cable
- Check the communication with reader

With reader's number reference



Enter the first 6 characters of your reader's reference number

Examples: ATXR41, ATXR51, ATXR42



Message: NOK

Check your reader's reference number

Step 4- Antenna type selection

The SPECTRE ATX reader only works with antenna embeded(ANT_UHF2).

Step 4 does not exist in the SPECTRE ATX configuration wizard.

Step 5- Installation configuration

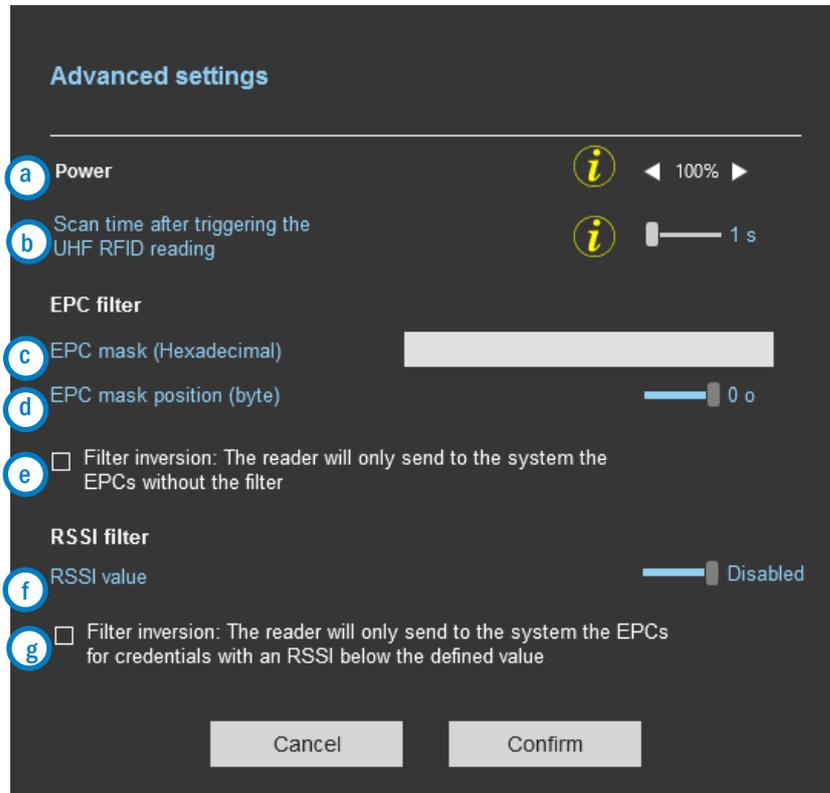


① Name the lane

Maximum 10 characters.

For example, Entry1.

② Advanced settings



- a Adjust the antenna power (10% to 100%) to adjust the reading distance. The power emitted depends on the type of regulation, limited to 1800mw ERP for ETSI and 1200mw ERP for FCC, New Zealand and Australia. No limitation for Morocco.
- b Adjust the timing for a scan (reading) by step of 1 second (max 30s). This setting is taking into account only if *Input type selection* is set to *Activating all lanes* or *Activating the event lane*.
- c **The EPC filter is not available in Secure Mode.** Enter the value for EPC Mask, max 62 hexadecimal bytes.
- d Adjust the value for offset EPC mask in bytes (0 to 62). It depends on the EPC Mask length.
- e Filter inversion not selected: only tags with an EPC value corresponding to the EPC mask value will be provided to the user.
Filter inversion selected: only tags with an EPC value different from the EPC mask value will be provided to the user.
- f RSSI (Received Signal Strength Indication) is a measure of the power in reception of the tag response. The value returned by the reader is proportional to the amplitude of the reception signal Adjust the RSSI value (-110dBm to 0dBm). 0dBm deactivates the RSSI filter.
- g Filter inversion not selected: only tags with an RSSI greater than or equal to the specified value will be provided to the user.
Filter inversion selected: only tags with an RSSI smaller or equal to the specified value will be provided to the user.

Ex: RSSI filter = -49f=dBm + Reversal not selected

A tag that will have a RSSI value of -20dBm will be sent back,

A tag that will have a RSSI value of -60dBm will not be sent back.

EPC Filter

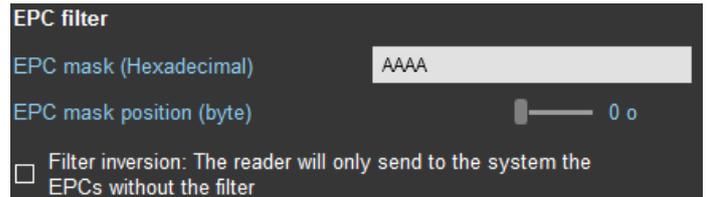
Examples:

Code EPC Tag 1: AAAAABCD000000000000000001
 Code EPC Tag 2: AA02ABCD000000000000000002
 Code EPC Tag 3: AA02ABCD000000000000000003
 Code EPC Tag 4: AA02FFFF000000000000000003

1- EPC mask = AA AA and Offset = 0

Tag 1: **AAAA**ABCD00000000000000000001
 Tag 2: AA02ABCD00000000000000000002
 Tag 3: AA02ABCD00000000000000000003
 Tag 4: AA02FFFF00000000000000000003

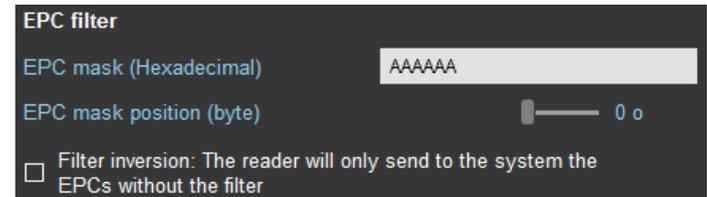
Only tag 1 is transmitted.



2- EPC mask = AA AA AA and Offset = 0

Tag 1: AAAAABCD00000000000000000001
 Tag 2: AA02ABCD00000000000000000002
 Tag 3: AA02ABCD00000000000000000003
 Tag 4: AA02FFFF00000000000000000003

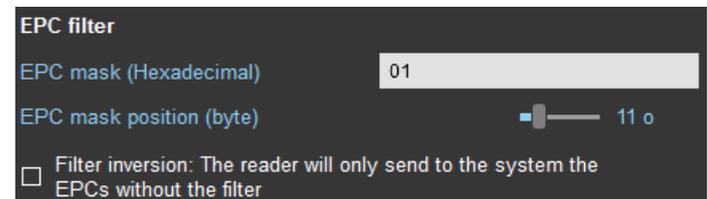
No tag is transmitted.



3- EPC mask = 01 and Offset = 11

Tag 1: **AA AA AB CD 00 00 00 00 00 00 00 01**
 Tag 2: AA 02 AB CD 00 00 00 00 00 00 00 02
 Tag 3: AA 02 AB CD 00 00 00 00 00 00 00 03
 Tag 4: AA 02 FF FF 00 00 00 00 00 00 00 03

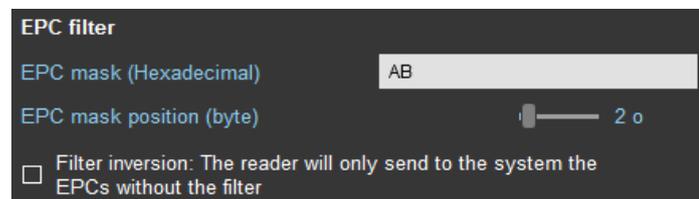
Offset is represented in blue; the filter is done on byte 12.
 Only tag 1 is transmitted.



4- EPC mask = AB and Offset = 2

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

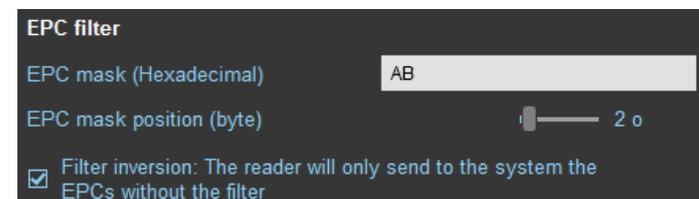
Tags 1, 2 and 3 are transmitted.



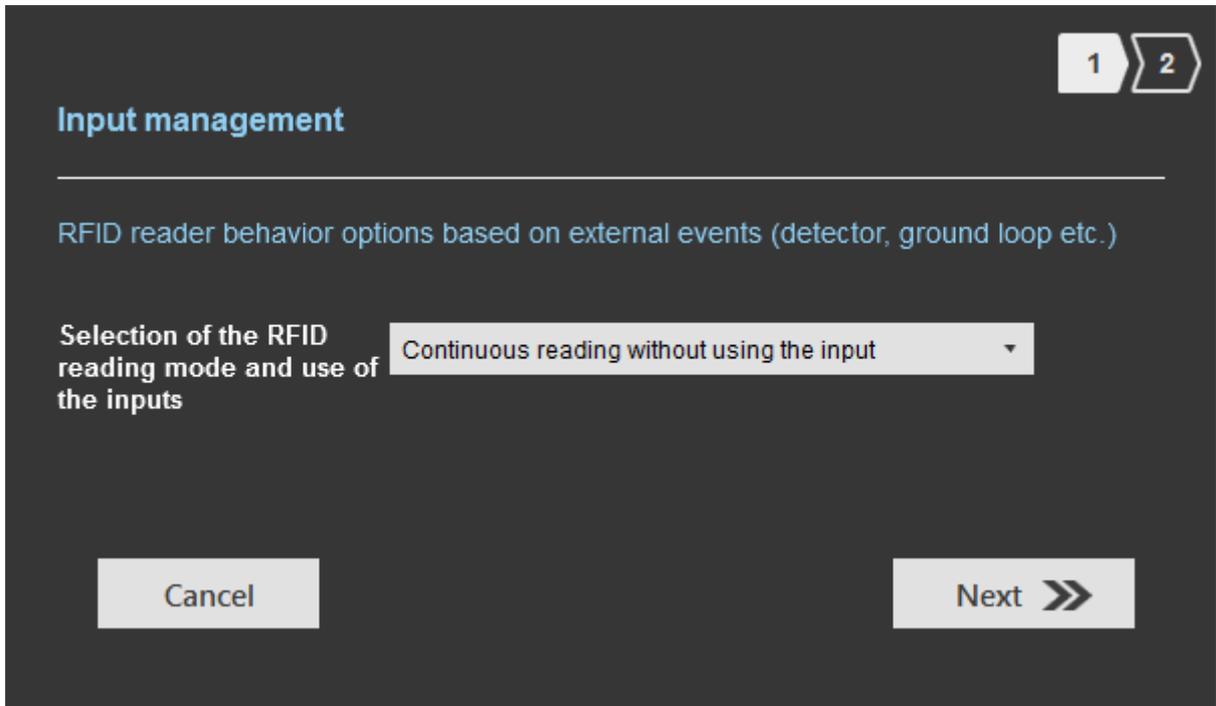
5- EPC mask = AB, Offset = 2 and Reversal

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

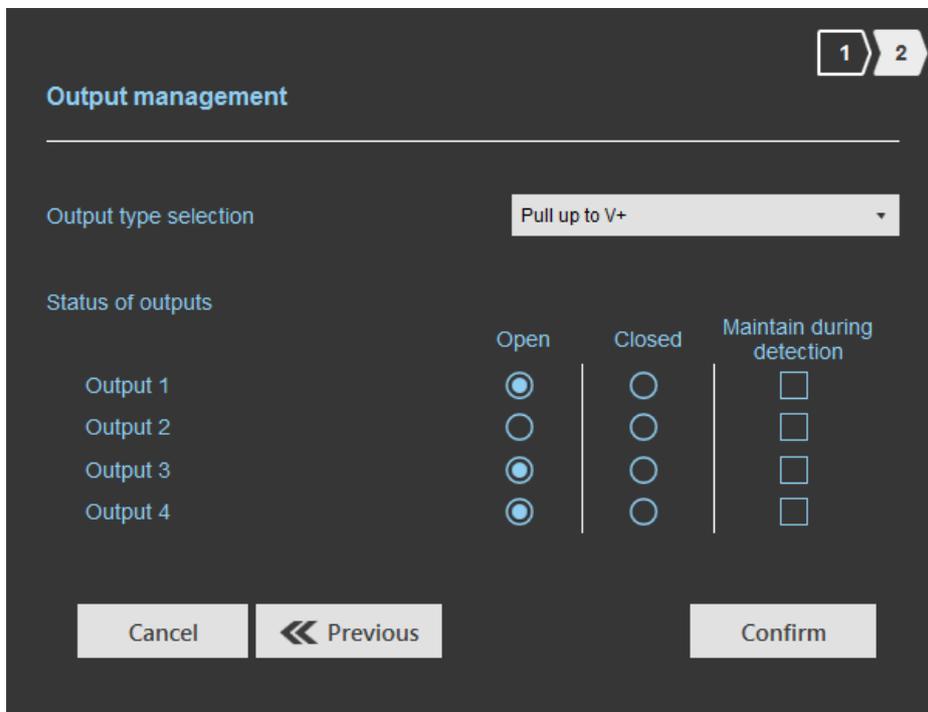
Tags 1, 2 and 3 are not transmitted. Only tag 4 is transmitted.



③ Input/output settings

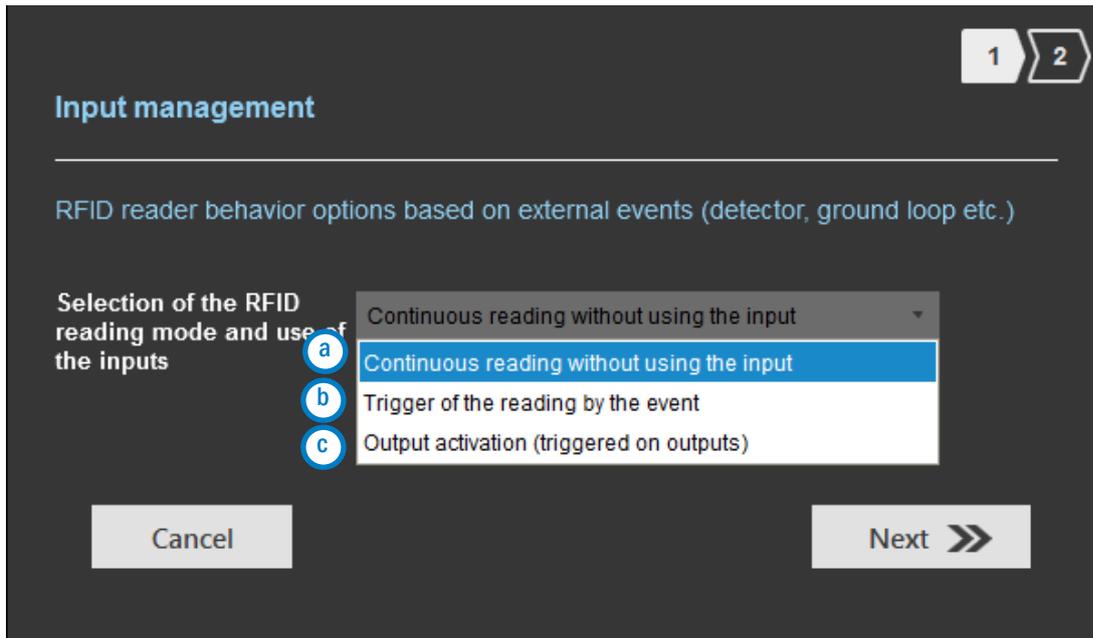


Select the reading mode, the output settings depend on this mode.

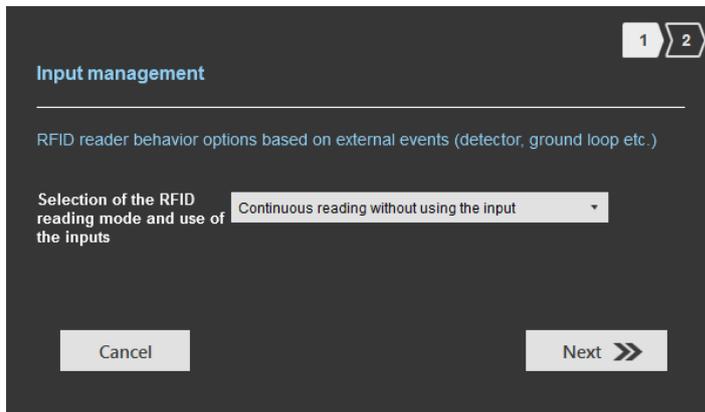


Both types of output are Pull up to V+ or Open drain.

Status of outputs: select for each output the default state 'Open' or 'Closed' and if the state is maintained during the detection process.

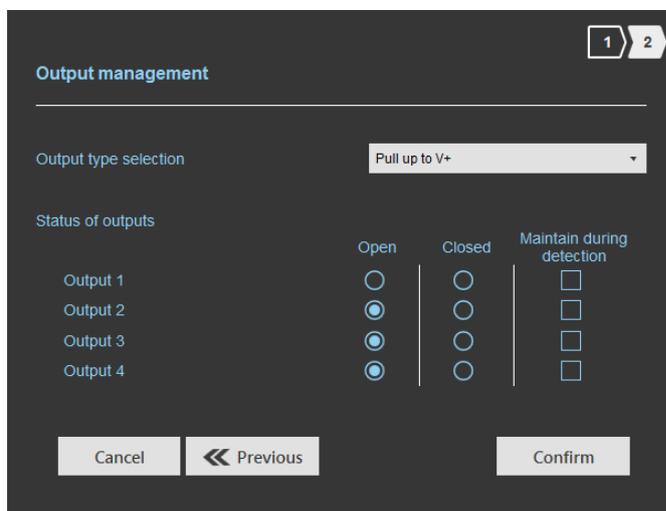


a Reading mode = Continuous reading without using input



In this mode, the reader scan continuously.

There is no action on input activation.



Select the output type and default state for output.

b Reading mode = Trigger of the reading by the event

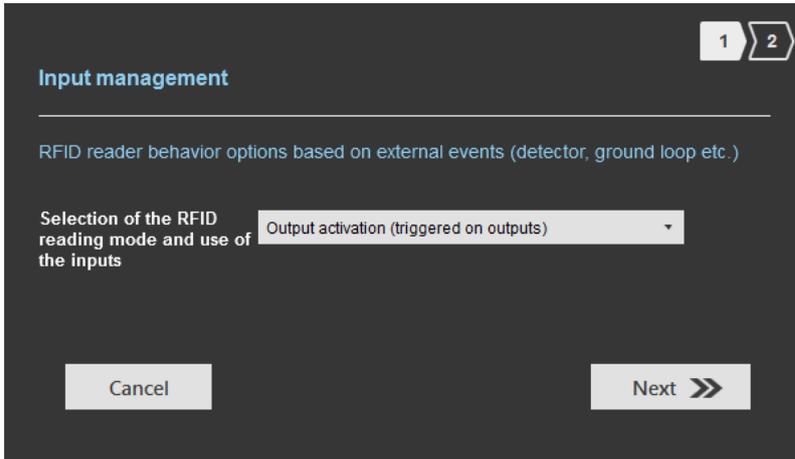
If Input is activated, the reader scans on the lane.

The reading duration is defined in 'Advanced settings'.

Output	Open	Closed	Maintain during detection
Output 1	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 2	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 3	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 4	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

Select the output type and default state for output.

C Reading mode = Output activation (triggered on outputs)



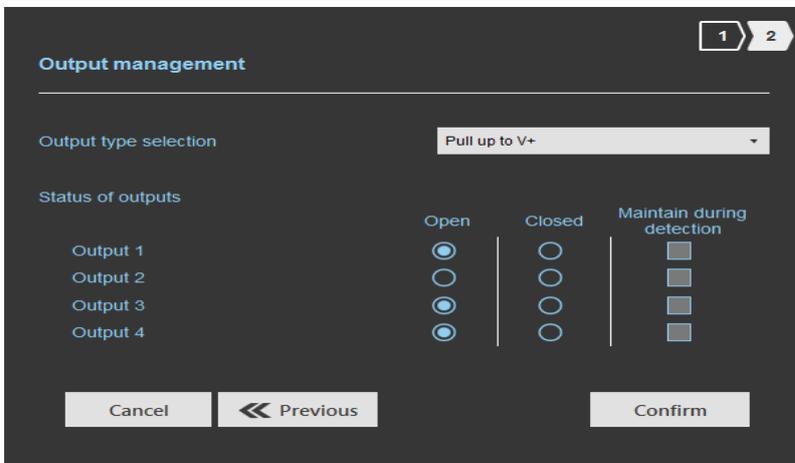
Input management

RFID reader behavior options based on external events (detector, ground loop etc.)

Selection of the RFID reading mode and use of the inputs: Output activation (triggered on outputs)

Buttons: Cancel, Next >>

An action on Input toggles the corresponding output regardless of RF function of the reader.



Output management

Output type selection: Pull up to V+

Status of outputs	Open	Closed	Maintain during detection
Output 1	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 2	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 3	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 4	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

Buttons: Cancel, << Previous, Confirm

Select the output type and default state for output.

Summary table

Reading Mode	Input	Configurable Outputs states?	Maintain during detection available?	Output
a Continuous reading without using inputs	No action	Yes by lane	Yes by lane	<ul style="list-style-type: none"> - If 'Continuing during detection process' not activated: the output state toggles at the ascent - If 'Continuing during detection process' activated: the output state toggles to the RF detection and remains in this state as long as, at each scan is at least one detection
b Trigger of the reading by the event	An action on the input activates the reading on the lane	Yes	Yes	<ul style="list-style-type: none"> - If 'Continuing during detection process' not activated: the output state toggles at the ascent during the ascent time of the identifier (physically on the BUS + 200ms) - If 'Continuing during detection process' activated: the output state toggles to the RF detection and remains in this state as long as, at each scan is at least one detection
c Output activation (triggered on outputs)	An action on an Input toggles the corresponding output	Yes	No	The output state is only linked to a user action on the input

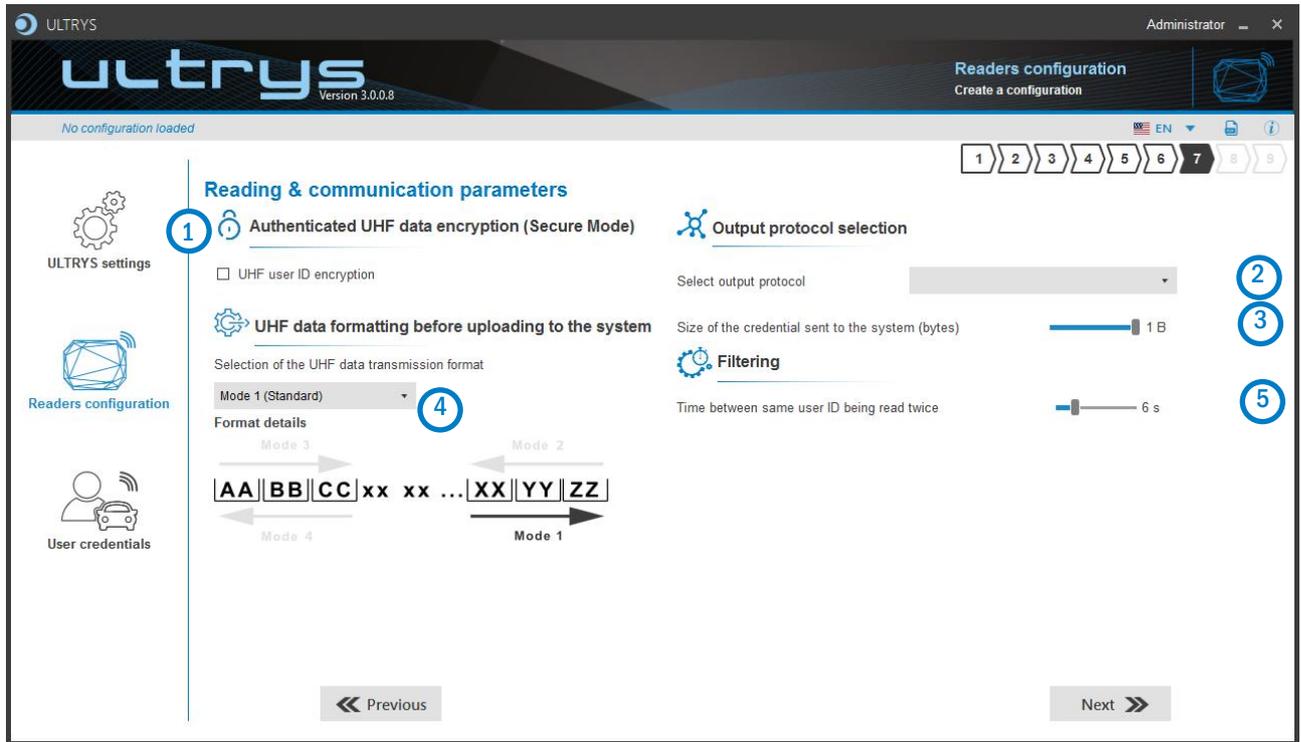
Note: as long as the action is detected on the input, the output remains toggled.

Step 6- Light indicator configuration

The SPECTRE ATX reader is not equipped with an LED card or a Buzzer.

Step 6 does not exist in the SPECTRE ATX setup wizard.

Step 7- Reading & communication parameters

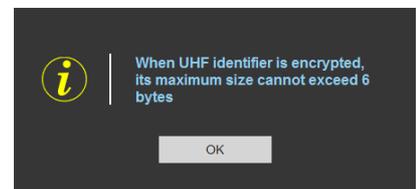


1 **Authenticated UHF data encryption (Secure Mode)**

UHF user ID encryption

Private key definition (16 bytes - Hex)

CA3DA50D284959F9DF605EFBAFBCBC4E



The EPC can be encrypted and signed before being written in the tag.

The reader will decrypt and authenticate the EPC before sending it on its output media.

Only an EPC correctly decrypted and authenticated will produce an output data, otherwise the reader will remain mute.

Notes:

- Only UHF tags compatible with “FAST ID” feature and having at least 128 bits of EPC can be decrypted and authenticated by the SPECTRE Access reader.
The chips compatible with secure encoding are: Monza X, Monza R6P, Monza 4D, this chip is present into
 - TLTA-W53M-943_S
 - TLTA-W75B-943_S
 - IronTag Aero
 - CCTW490_AN
- **The secure mode is not accessible if an EPC mask has been set in ‘Advanced settings’.**

Note: After setting an EPC security key, if you return to step 5 with the Previous button, and you set an EPC filter, then returning to step 7, the "EPC ID Security" checkmark is displayed. in gray, the key field is still accessible but not taken into account

2 **Output protocol selection**

Select output protocol RS232 ▼

- RS232
- RS485
- Wiegand 26 bits - 3i
- Wiegand with LRC custom size
- Wiegand custom size
- Clock&Data 40 bits - Iso 2B
- Wiegand 34 bits - 3Eb
- Wiegand 37 bits - 3V
- Wiegand 35 bits - 3W
- Clock&Data 32 bits - Iso 2H
- Wiegand 36 bits (32+4 LRC) - 3Ca
- Wiegand 44 bits (40+4 LRC) - 3Cb
- Wiegand 32 bits - 3La
- Wiegand 40 bits - 3Lb
- Clock&Data custom size

RS232 / RS485

Sélection du protocole

Sélectionner le protocole de sortie RS232 ▼

Données Hexadécimal ▼

Bourrage CR LRC

STX+ETX LF ASCII

Baud Rate 115200 ▼

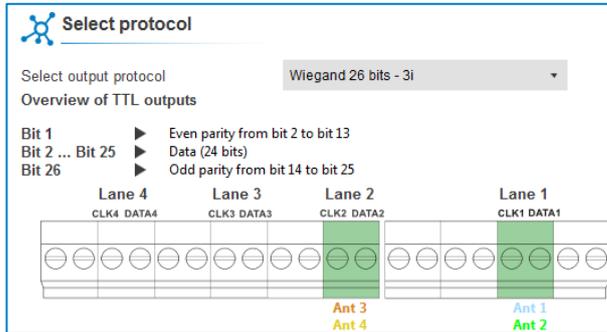
Serial frame :

1 byte	X bytes	1 byte	1 byte	1 byte	1 byte
<i>STX</i>	<i>Data*</i>	<i>LRC</i>	<i>CR</i>	<i>LF</i>	<i>ETX</i>

**Doubled if the ASCII option is activated.*

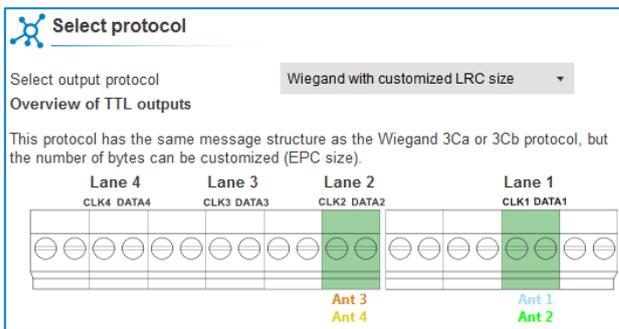
Data	Data sent in decimal or hexadecimal format.
Padding	Add on the frame leading zeros. If this option is not activated, the leading zero won't sent.
STX+ETX	Add STX (0x02) and ETX (0x03) in the frame.
CR	Carriage return (0x0D).
LF	Line feed (0x0A).
LRC	Checksum byte by XORing of all previously characters without the STX.
ASCII	If this option is activated, the Data will be sent in ASCII mode.

Wiegand 26 bits - 3i

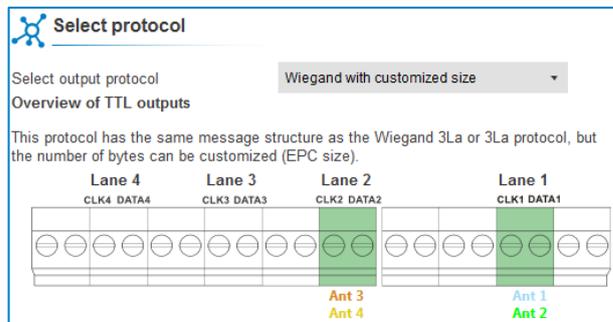


Note: the graphic indicating the lanes, depends on the configuration of the number of antennas/lanes.

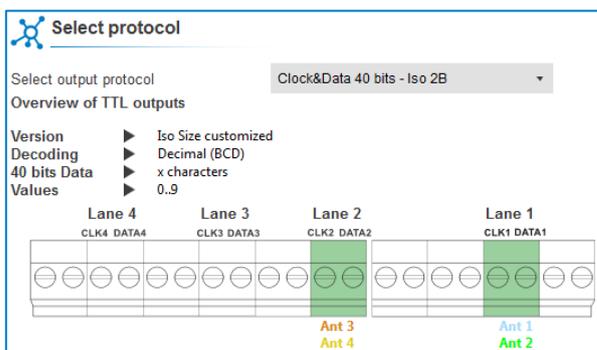
Wiegand with LRC customized size



Wiegand customized size



Decimal Clock&Data – Iso 2B



3 Size of the credential sent to the system (bytes)

Protocol	Size in plain mode	Size in secure mode
RS232 / RS485	1b up to 62b	1b up to 6b
Wiegand 26 bits	Fixed to 3b	Fixed to 3b
Wiegand with LRC custom size / Wiegand custom size	1b up to 16b	1b up to 6b
Decimal Clock&Data – Iso 2B	1b up to 7b	1b up to 6b

4 **UHF data formatting before uploading to the system**

Selection of the UHF data transmission format

Mode 1 (Standard) ▼

Format details

- Mode 1 (Standard)
- Mode 2 (Standard reversed)
- Mode 3
- Mode 4

There are 4 UHF ID formatting modes:

Example: EPC data: AA BB CC DD EE xx xx ... VV WW XX YY ZZ with 'Size of the credential sent to the system' fixed to 4bytes.

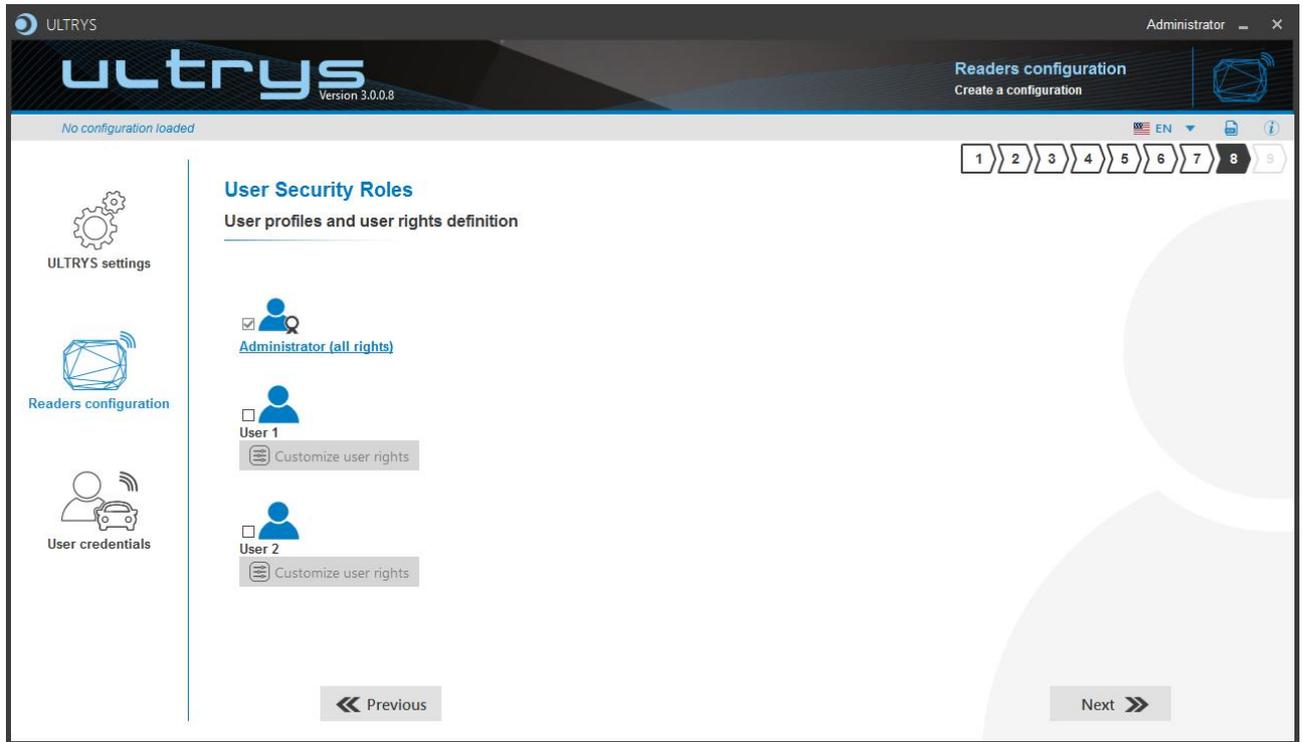
- : ID feedback = WW XX YY ZZ
- : ID feedback = ZZ YY XX WW
- : ID feedback = AA BB CC DD
- : ID feedback = DD CC BB AA

5

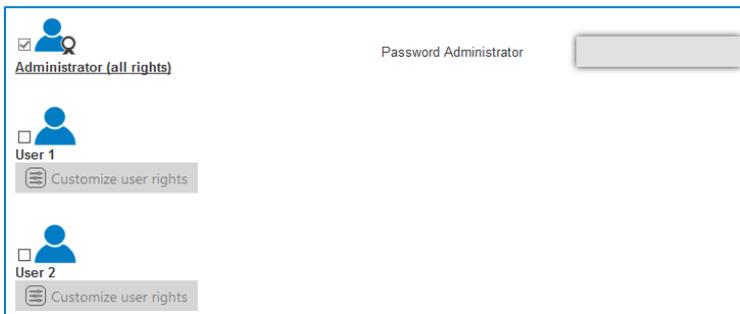
**Filtering**
Time between same user ID being read twice 6 s

The reader emits the credential code present in the field only once during this time.
This time is adjustable from 0 to 30 seconds.

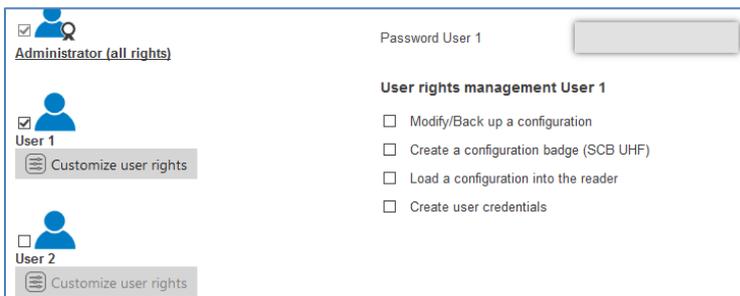
Step 8- User Security Roles



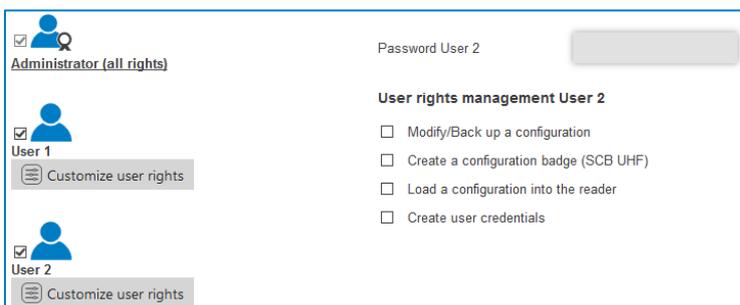
ULTRYS allows to manage three different profiles by configuration file.



Define an Administrator password to protect the configuration file.

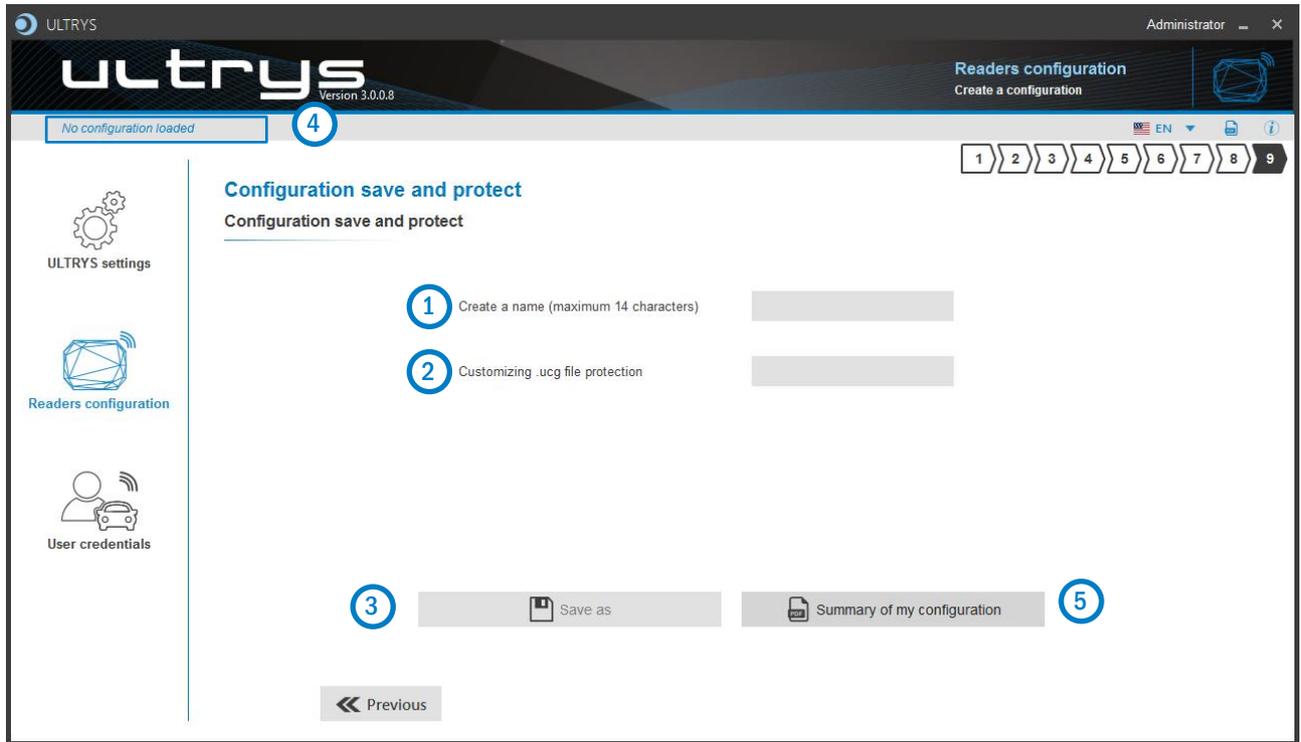


Define a User 1 password and select the corresponding rights.



Define a User 2 password and select the corresponding rights.

Step 9- Configuration save and protect



This step allows you to save the configuration file containing all the current configuration settings (keys, formats, reader...). You can select a location and password to protect the file.

- 1 Choose a name to easily find the configuration. (example: Parking IN).

Note: the name of the configuration must be contained in the file name.

- 2 To protect the configuration file, you can define a password. This password is different from Administrator password.
- 3 Select a directory and a file name to save.
- 4 The name and location of 'Configuration Loaded' indicates now the chosen name and location.



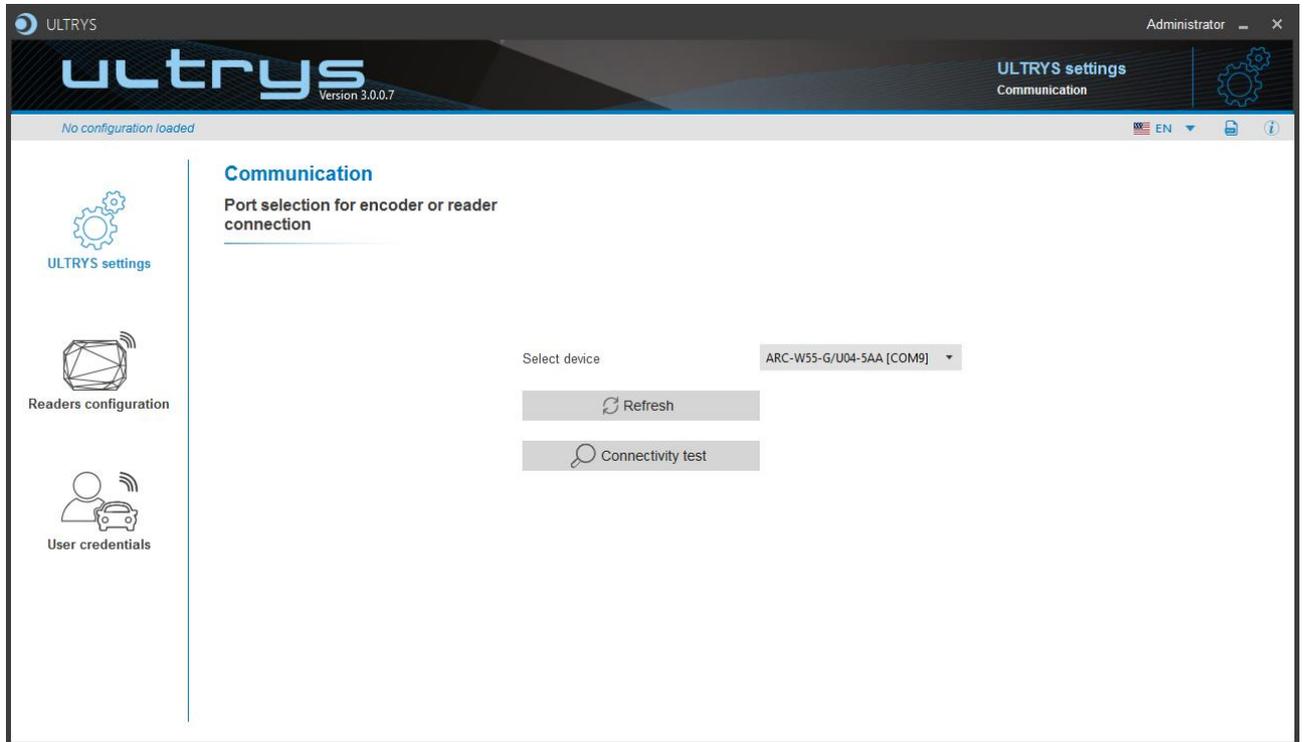
- 5 Get a summary of the configuration created.



Print: allows printing of configuration information on a network, local or virtual printer (PDF).

8. Reader configuration SPECTRE ATX OSDP™

8-1 ULTRYS settings



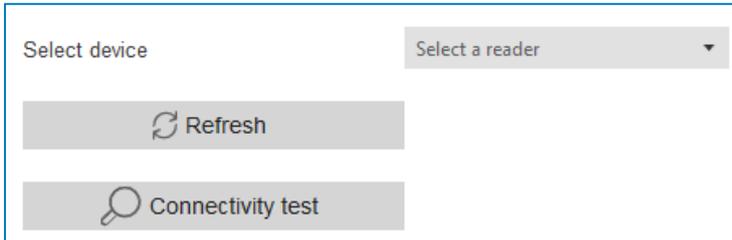
- Connect the SPECTRE ATX reader to the PC using the provided USB cable to load the configuration via serial link directly onto the reader.



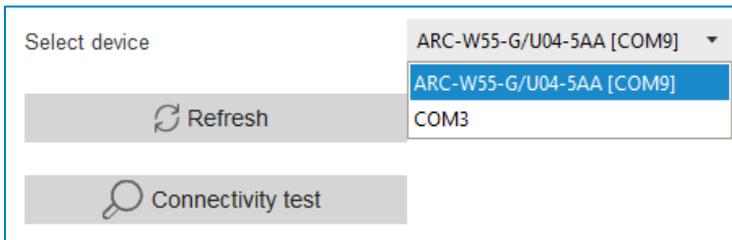
or

- Connect an UHF encoder to the PC to load the configuration onto UHF OCB configuration card.

To set the communication port



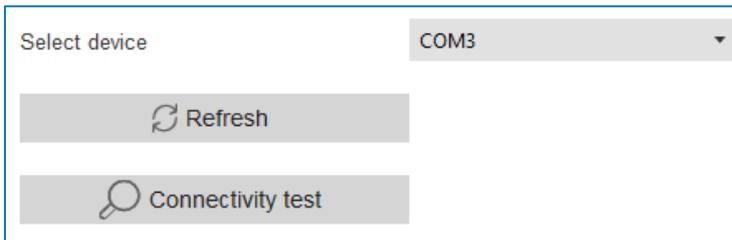
1- Click on 'Refresh' to detect all readers connected to the PC.



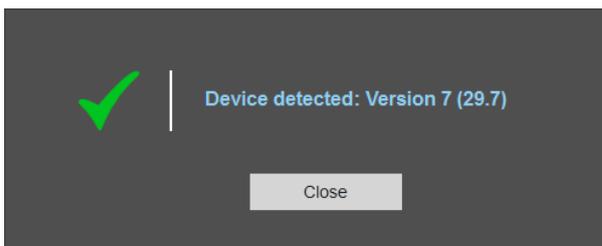
2- Open the dropdown list Select device.

3- Readers whose firmware is ≥ 8 will appear in the drop-down list under their commercial reference.

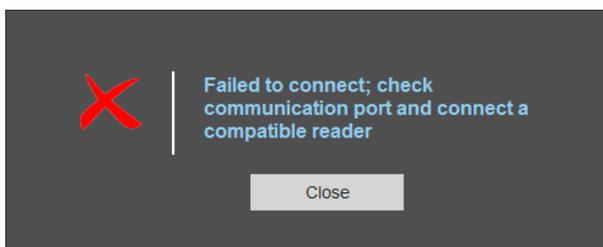
Select the communication port number for the encoder or reader or select the reader to use.



4- Run the connectivity test.



Message OK (with indication of the firmware version).



Message: Failed

- Check the compatibility of the reader.
- Check the USB cable.
- Check the Baudrate reader: it must be fixed to 115200.

Note: during the connectivity test on a UHF encoder, a sound and light signal (orange) will be emitted for 1 second.

8-2 Create new configuration



The reader configuration is done in 7 steps. To move from one stage to another, you must click on “Next”.

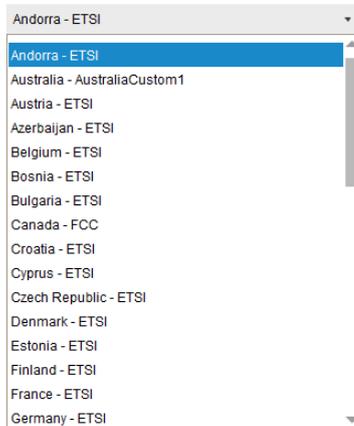
	UHF frequency band regulation
	Configuration protection loaded into the reader
	Reader configuration
Step 4 does not exist in the SPECTRE ATX OSDP™ configuration wizard	
	Installation configuration
Step 6 does not exist in the SPECTRE ATX OSDP™ configuration wizard	
	Reading & communication parameters
	User Security Roles
	Configuration save and protect

Step 1- UHF frequency band regulation



1

The frequency bands depend on the installation location

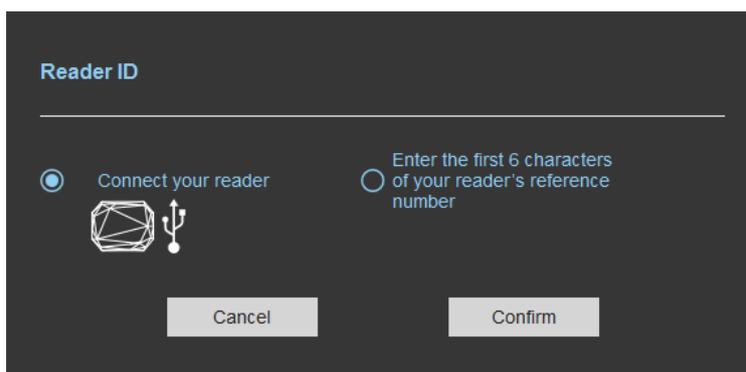


Type the first characters to display a country or select the country in which the installation will be done.

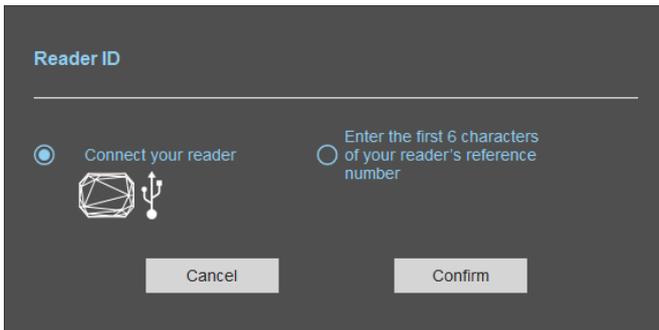
For a country which is not in the list, please contact STid: support@stid.com.

2

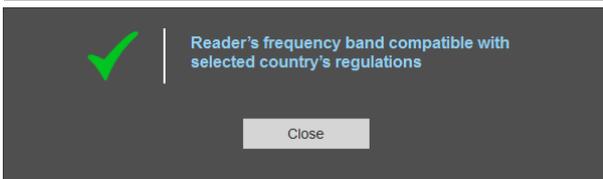
To approve the feasibility to install your reader in the selected country, you can check the compatibility.



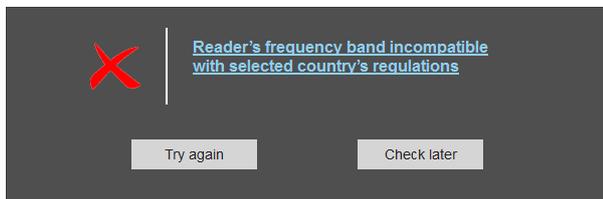
With USB reader connection



- 1- Connect the reader and set the communication COM port.
- 2- Select 'Connect your reader'
- 3- Please confirm

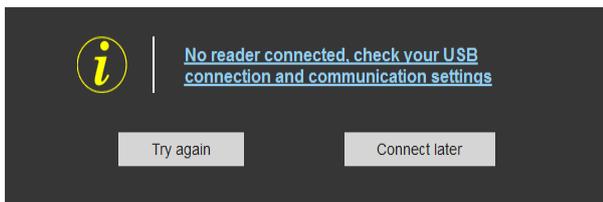


Message: OK



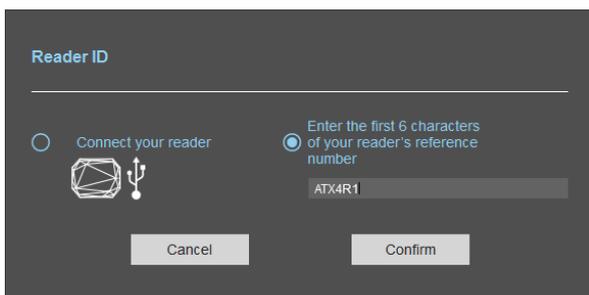
Message: NOK

The reader can't be installed in the selected country.



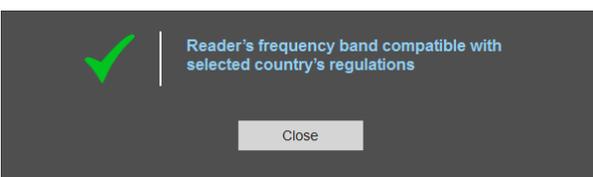
- Check the USB cable
- Check the communication with reader

With reader part number

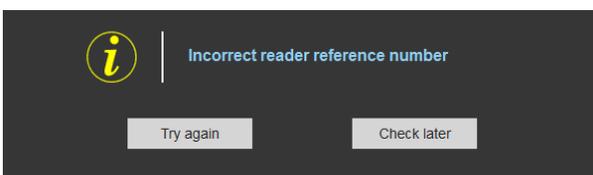


Enter the first 5 characters of the reader part number

Example: ATXW43, ATXW53.

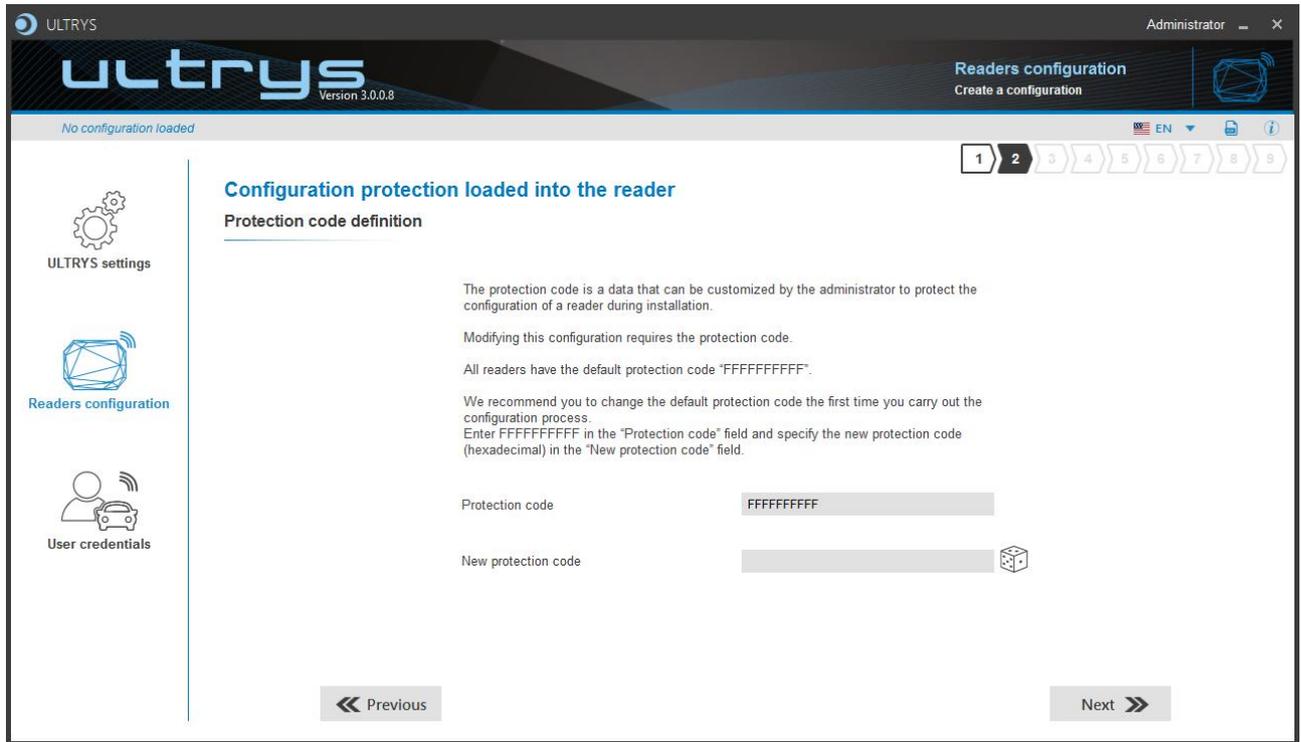


Message: OK



Message: the reference reader is not compatible with regulation selected.

Step 2- Configuration protection loaded into the reader



SPECTRE ATX readers are initially supplied with a default configuration and a protection code to 0xFFFFFFFF.

The size of this protection code is 5 bytes (10 hexadecimal characters).

After the initial setup and in order to reconfigure the reader, it will be necessary to present an UHF OCB card or a configuration file with the same 'protection code' as the reader.



Random protection code generator.

Caution

This protection code is important and should definitely be known by the administrator. It protects the configuration data and allows reader configuration updates.

If you lose this protection code, you won't be able to reconfigure the reader again and the reader must be reset at the factory.

To change the protection code, it will be necessary to know the current protection code.

Step 3- Reader configuration



1 Selecting the reader type

SPECTRE ATX readers can be configured in “Read only” mode from firmware 10.

2 Selecting Firmware

You must select the firmware version that is compatible with your reader.

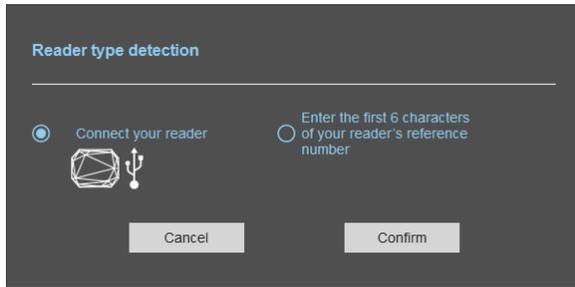
To do so, you can manually select the reader and firmware version, or you can use the function "Auto detection – Connect and check my reader configuration".

Compatibility between firmware readers and ULTRYS versions

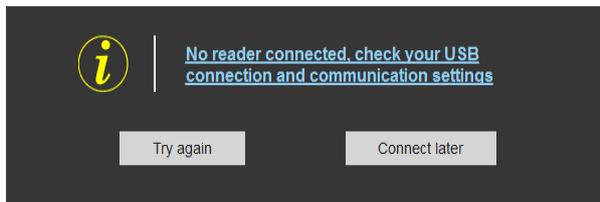
Firmware versions	ULTRYS softwares			
	ULTRYS V2.0	ULTRYS V2.1	ULTRYS V2.4	ULTRYS V3.x
v 7	✓	✓	✓	✓
v 9		✓	✓	✓
v 10,11,12			✓	✓
> v 13				✓

Close

With USB reader connection



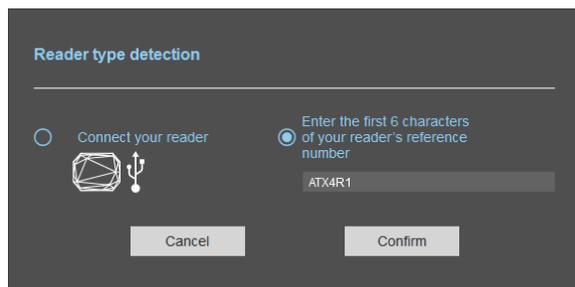
- 1- Connect the reader via USB cable provided. Configure the communication parameters.
- 2- Select the Connect your reader.
- 3- Click on Confirm.



Message : NOK

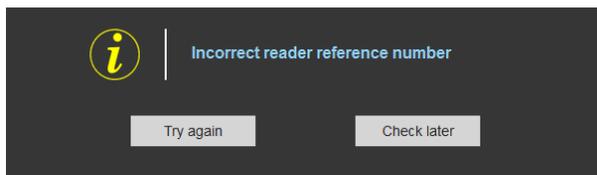
- Check the USB cable
- Check the communication with reader

With reader's number reference



Enter the first 6 characters of your reader's reference number

Examples: SLAR41, SLAR51, SMAR41



Message: NOK

Check your reader's reference number

Step 4- Antenna type selection

The SPECTRE ATX reader works with a built-in antenna.

Step 4 does not exist in the SPECTRE ATX setup wizard.

Step 5- Installation configuration

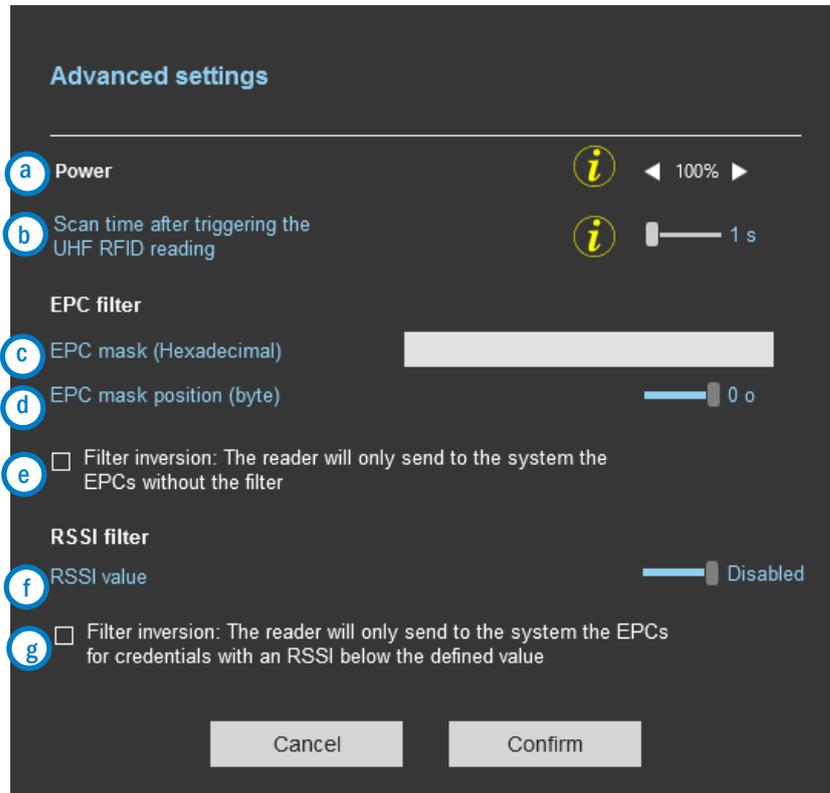


① Name the lane

Maximum 10 characters.

For example, Entry1.

② Advanced settings



- a** Adjust the antenna power (10% to 100%) to adjust the reading distance. The power emitted depends on the type of regulation, limited to 1800mw ERP for ETSI and 1200mw ERP for FCC, New Zealand and Australia. No limitation for Morocco.
- b** Adjust the timing for a scan (reading) by step of 1 second (max 30s). This setting is taking into account only if *Input type selection* is set to *Activating all lanes* or *Activating the event lane*.
- c** **The EPC filter is not available in Secure Mode.** Enter the value for EPC Mask, max 62 hexadecimal bytes.
- d** Adjust the value for offset EPC mask in bytes (0 to 62). It depends on the EPC Mask length.
- e** Filter inversion not selected: only tags with an EPC value corresponding to the EPC mask value will be provided to the user.
Filter inversion selected: only tags with an EPC value different from the EPC mask value will be provided to the user.
- f** RSSI (Received Signal Strength Indication) is a measure of the power in reception of the tag response. The value returned by the reader is proportional to the amplitude of the reception signal Adjust the RSSI value (-110dBm to 0dBm). 0dBm deactivates the RSSI filter.
- g** Filter inversion not selected: only tags with an RSSI greater than or equal to the specified value will be provided to the user.
Filter inversion selected: only tags with an RSSI smaller or equal to the specified value will be provided to the user.

Ex: RSSI filter = -49f=dBm + Reversal not selected

A tag that will have a RSSI value of -20dBm will be sent back,

A tag that will have a RSSI value of -60dBm will not be sent back.

EPC Filter

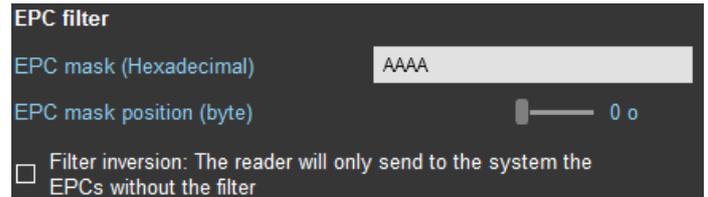
Examples:

Code EPC Tag 1: AAAAABCD0000000000000001
 Code EPC Tag 2: AA02ABCD0000000000000002
 Code EPC Tag 3: AA02ABCD0000000000000003
 Code EPC Tag 4: AA02FFFF0000000000000003

1- EPC mask = AA AA and Offset = 0

Tag 1: **AAAA**ABCD000000000000000001
 Tag 2: AA02ABCD000000000000000002
 Tag 3: AA02ABCD000000000000000003
 Tag 4: AA02FFFF000000000000000003

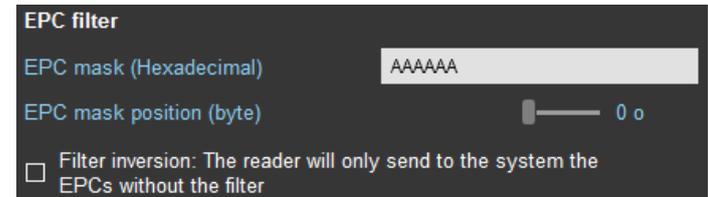
Only tag 1 is transmitted.



2- EPC mask = AA AA AA and Offset = 0

Tag 1: AAAAABCD000000000000000001
 Tag 2: AA02ABCD000000000000000002
 Tag 3: AA02ABCD000000000000000003
 Tag 4: AA02FFFF000000000000000003

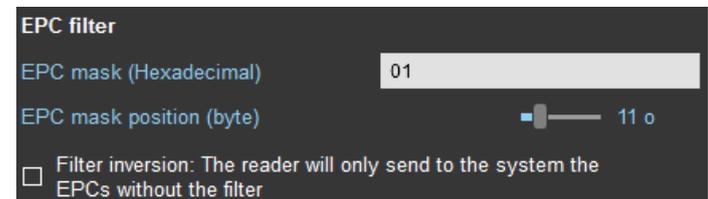
No tag is transmitted.



3- EPC mask = 01 and Offset = 11

Tag 1: **AA AA AB CD 00 00 00 00 00 00 00 01**
 Tag 2: AA 02 AB CD 00 00 00 00 00 00 00 02
 Tag 3: AA 02 AB CD 00 00 00 00 00 00 00 03
 Tag 4: AA 02 FF FF 00 00 00 00 00 00 00 03

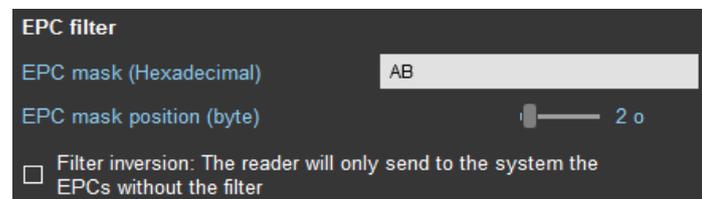
Offset is represented in blue; the filter is done on byte 12.
 Only tag 1 is transmitted.



4- EPC mask = AB and Offset = 2

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

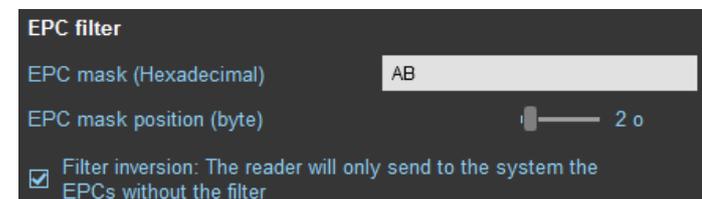
Tags 1, 2 and 3 are transmitted.



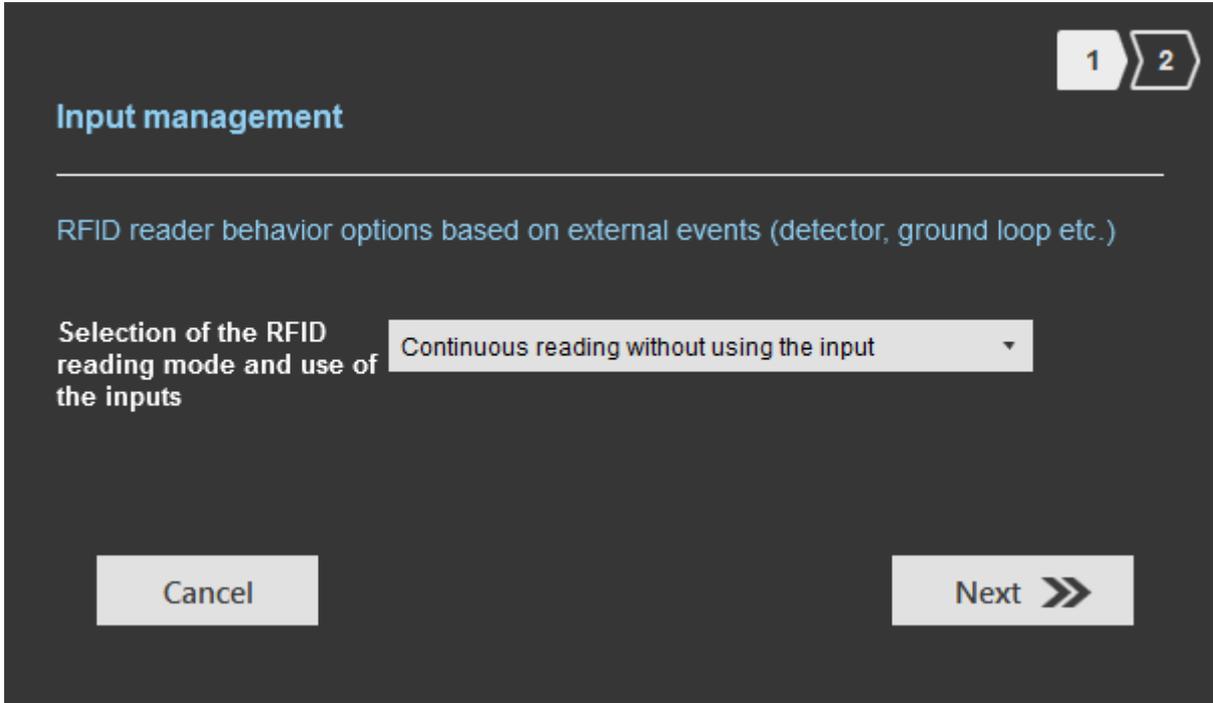
5- EPC mask = AB, Offset = 2 and Reversal

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

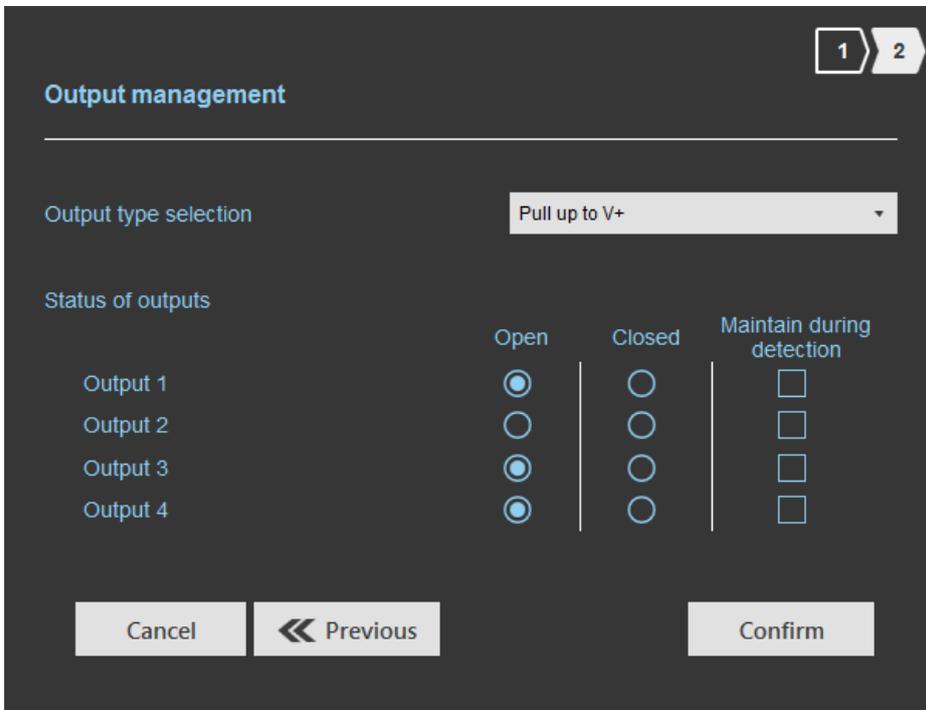
Tags 1, 2 and 3 are not transmitted. Only tag 4 is transmitted.



③ Input/output

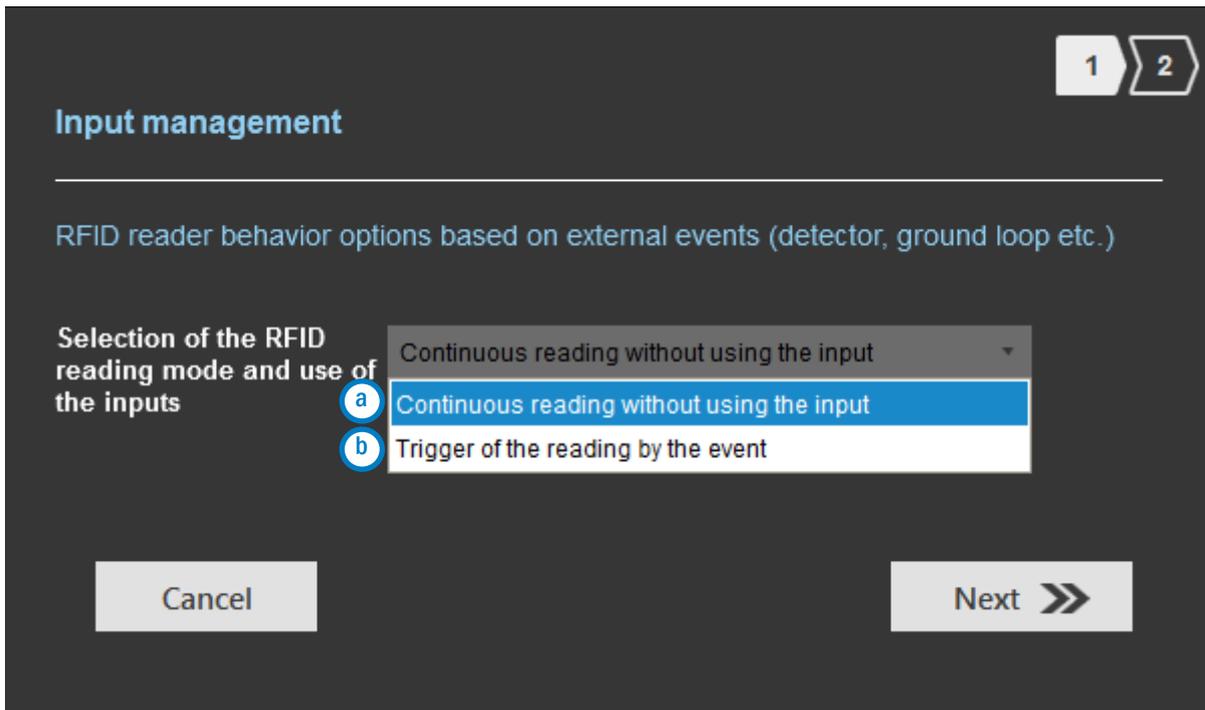


Select the reading mode, the output settings depend on this mode.

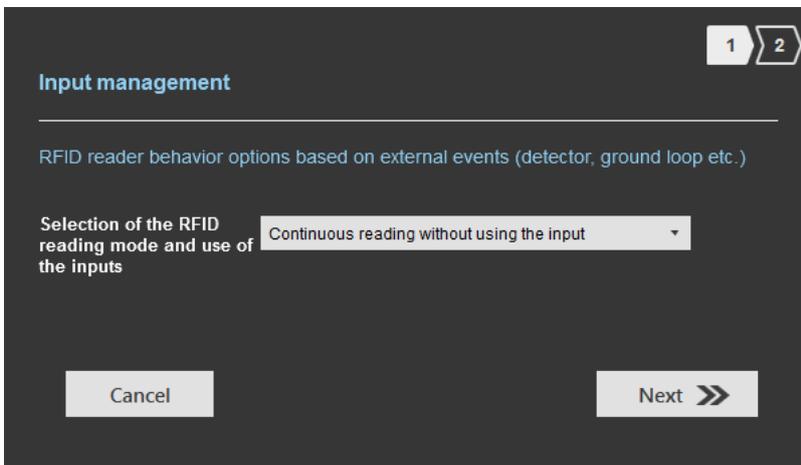


Both types of output are Pull up to V+ or Open drain.

Status of outputs: select for each output the default state 'Open' or 'Closed' and if the state is maintained during the detection process.

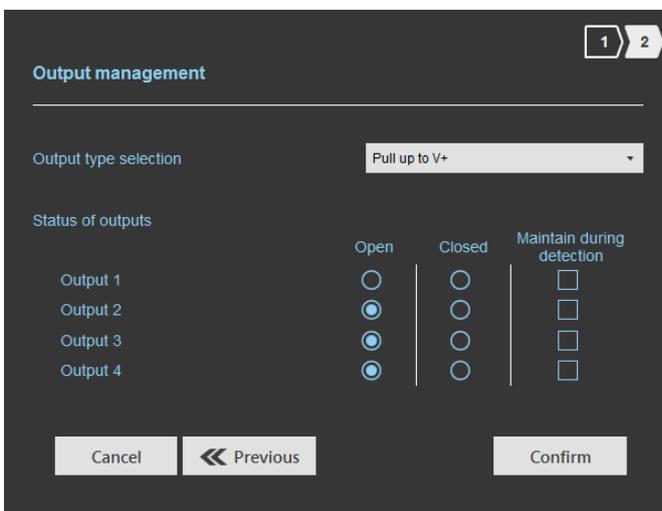


a Reading mode = Continuous reading without using input



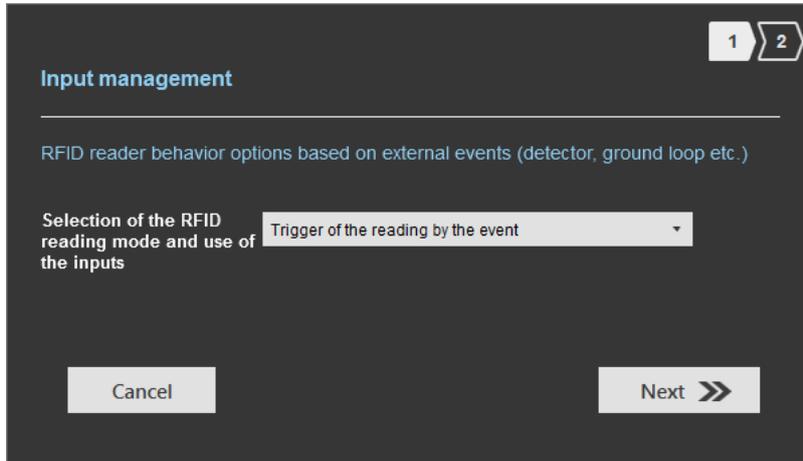
In this mode, the reader scan continuously.

There is no action on input activation.



Select the output type and default state for output.

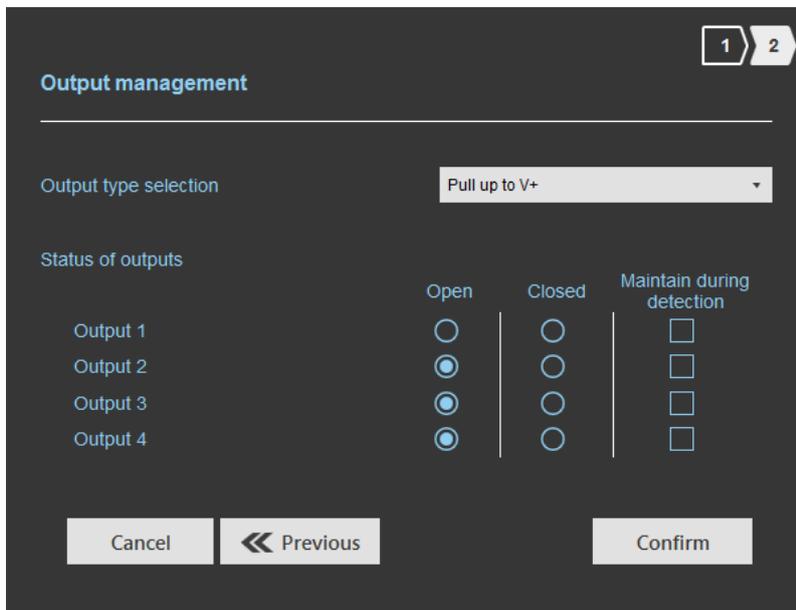
b Reading mode = Trigger of the reading by the event



If Input is activated, the reader scans on the lane.



The reading duration is defined in 'Advanced settings'.



Select the output type and default state for output.

Summary table

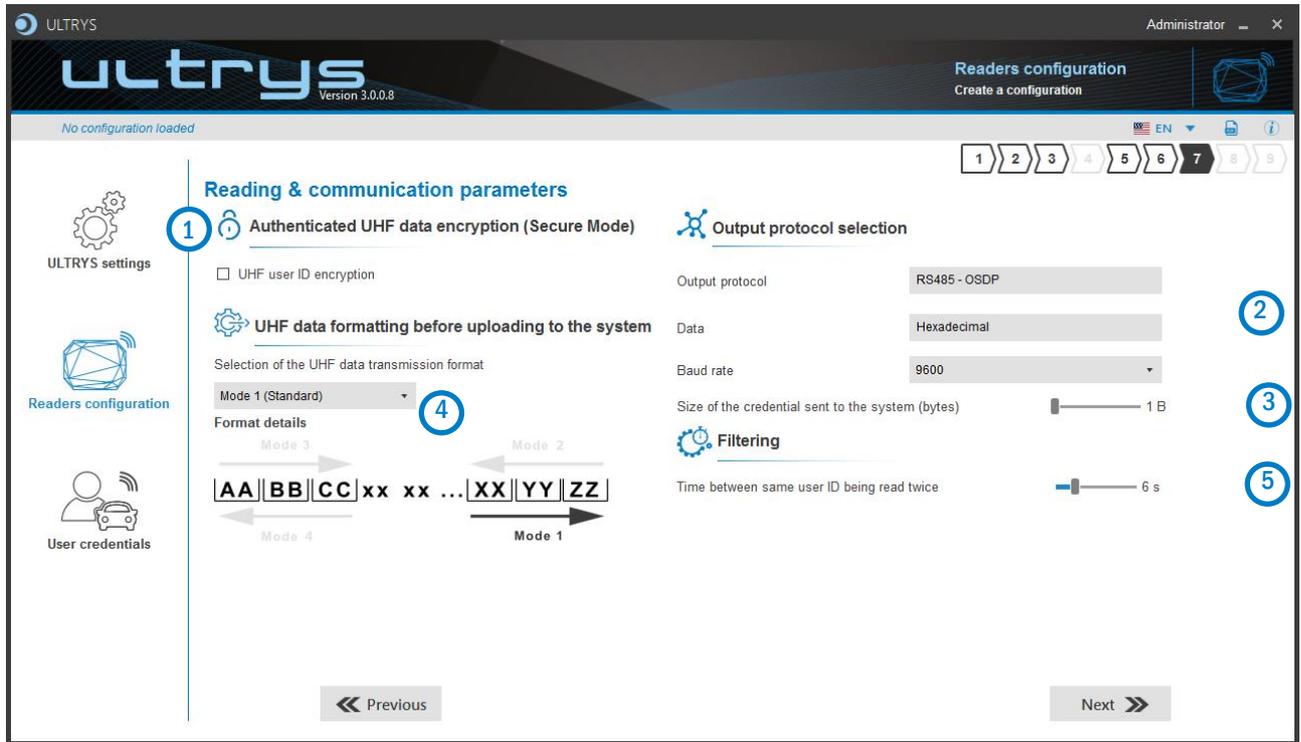
Reading Mode	Input	Configurable Outputs states?	Output
a Continuous reading without using inputs	No action	Yes	The output state toggles at the ascent
b Trigger of the reading by the event	An action on the input activates the reading on the lane	Yes	The output state toggles at the ascent during the ascent time of the identifier (physically on the BUS + 200ms)

Step 6- Light indicator configuration

The SPECTRE ATX reader is not equipped with an LED card or a Buzzer.

Step 6 does not exist in the SPECTRE ATX setup wizard.

Step 7- Reading & communication parameters

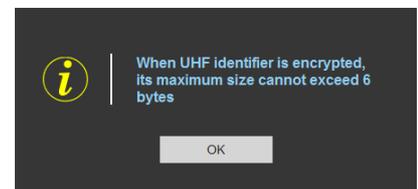


1 **Authenticated UHF data encryption (Secure Mode)**

UHF user ID encryption

Private key definition (16 bytes - Hex)

CA3DA50D284959F9DF605EFBAFBCBC4E



The EPC can be encrypted and signed before being written in the tag.

The reader will decrypt and authenticate the EPC before sending it on its output media.

Only an EPC correctly decrypted and authenticated will produce an output data, otherwise the reader will remain mute.

Notes:

- Only UHF tags compatible with “FAST ID” feature and having at least 128 bits of EPC can be decrypted and authenticated by the SPECTRE Access reader.

The chips compatible with secure encoding are: Monza X, Monza R6P, Monza 4D, this chip is present into

- TLTA-W53M-943_S
- TLTA-W75B-943_S
- IronTag 206
- CCTW490_AN

- **The secure mode is not accessible if an EPC mask has been set in ‘Advanced settings’.**

Note: After setting an EPC security key, if you return to step 5 with the Previous button, and you set an EPC filter, then returning to step 7, the "EPC ID Security" checkmark is displayed. in gray, the key field is still accessible but not taken into account.

2 **Output protocol selection**

Output protocol: RS485 - OSDP

Data: Hexadecimal

Baud rate: 9600

9600

9600

19200

38400

57600

115200

The only modifiable parameter is the baud rate.

3 **Size of the credential sent to the system (bytes)**

Protocol	Size in plain mode	Size in secure mode
RS485	1b up to 62b	1b up to 6b

4 **UHF data formatting before uploading to the system**

Selection of the UHF data transmission format

Mode 1 (Standard)

Format details

- Mode 1 (Standard)
- Mode 2 (Standard reversed)
- Mode 3
- Mode 4

There are 4 UHF ID formatting modes:

Example: EPC data: AA BB CC DD EE xx xx ... VV WW XX YY ZZ with 'Size of the credential sent to the system' fixed to 4bytes.

- : ID feedback = WW XX YY ZZ
- : ID feedback = ZZ YY XX WW
- : ID feedback = AA BB CC DD
- : ID feedback = DD CC BB AA

5



Filtering

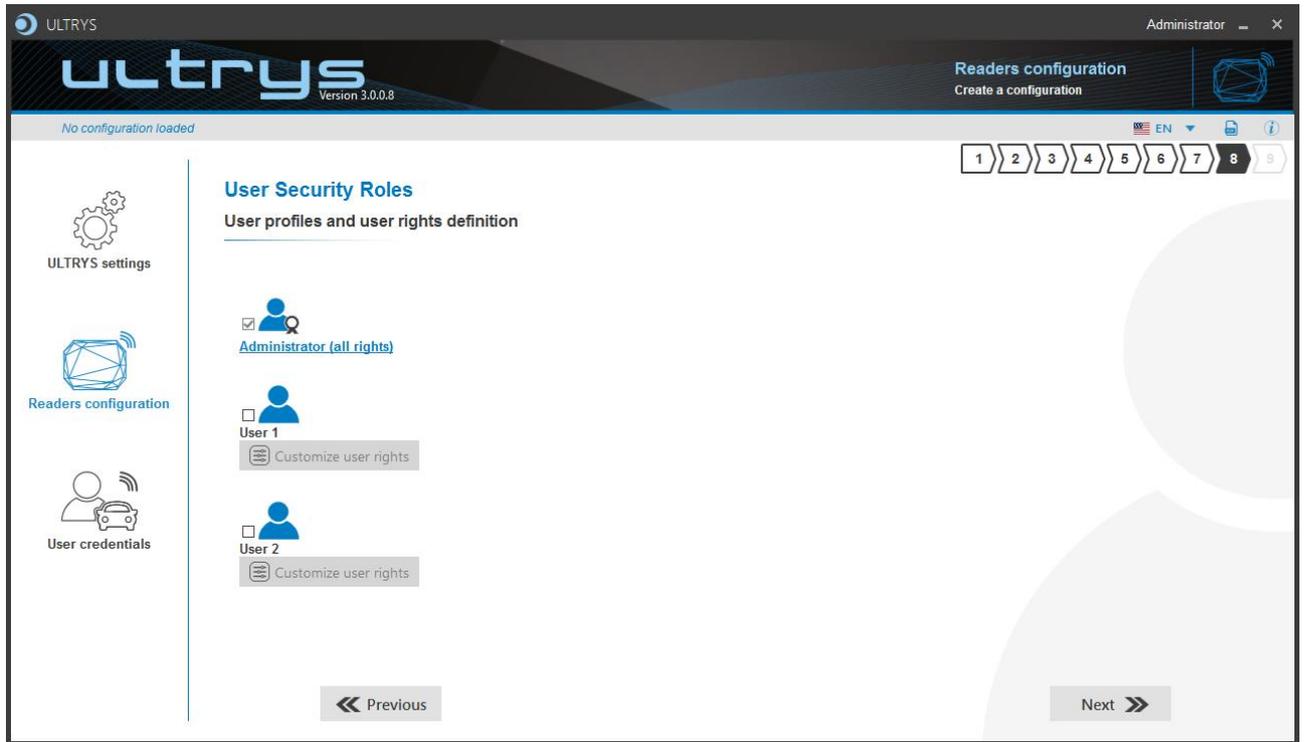
Time between same user ID being read twice

6 s

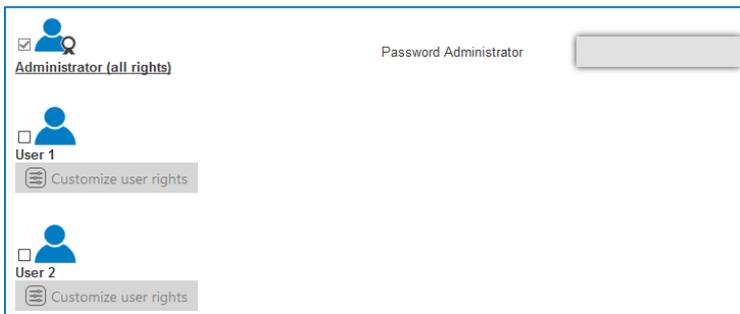
The reader emits the credential code present in the field only once during this time.

This time is adjustable from 0 to 30 seconds.

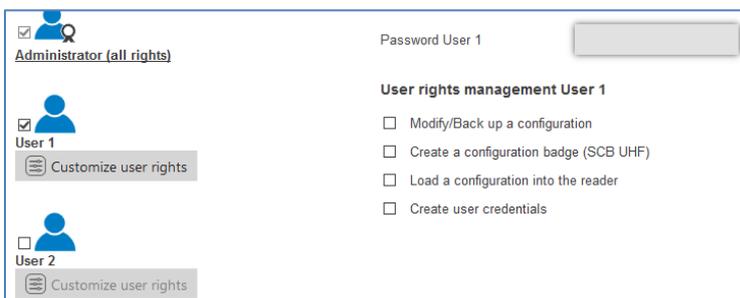
Step 8- User Security Roles



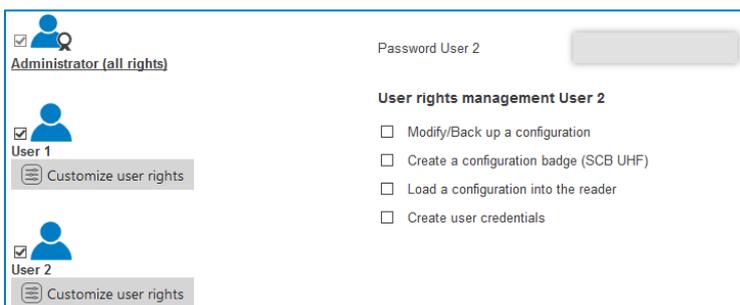
ULTRYS allows to manage three different profiles by configuration file.



Define an Administrator password to protect the configuration file.

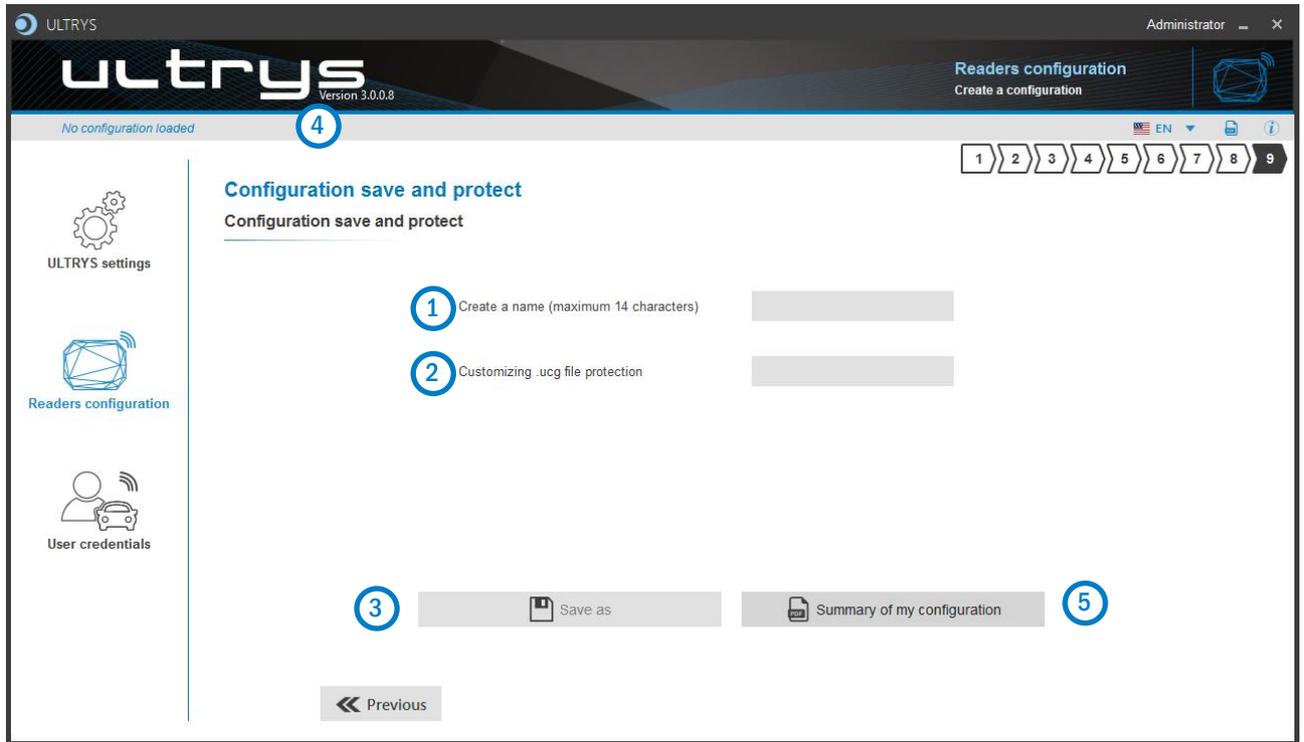


Define a User 1 password and select the corresponding rights.



Define a User 2 password and select the corresponding rights

Step 9- Configuration save and protect



This step allows you to save the configuration file containing all the current configuration settings (keys, formats, reader...). You can select a location and password to protect the file.

- 1 Choose a name to easily find the configuration. (example: Parking IN).

Note: the name of the configuration must be contained in the file name.

- 2 To protect the configuration file, you can define a password. This password is different from Administrator password.
- 3 Select a directory and a file name to save.
- 4 The name and location of 'Configuration Loaded' indicates now the chosen name and location.



5 Get a summary of the configuration created.



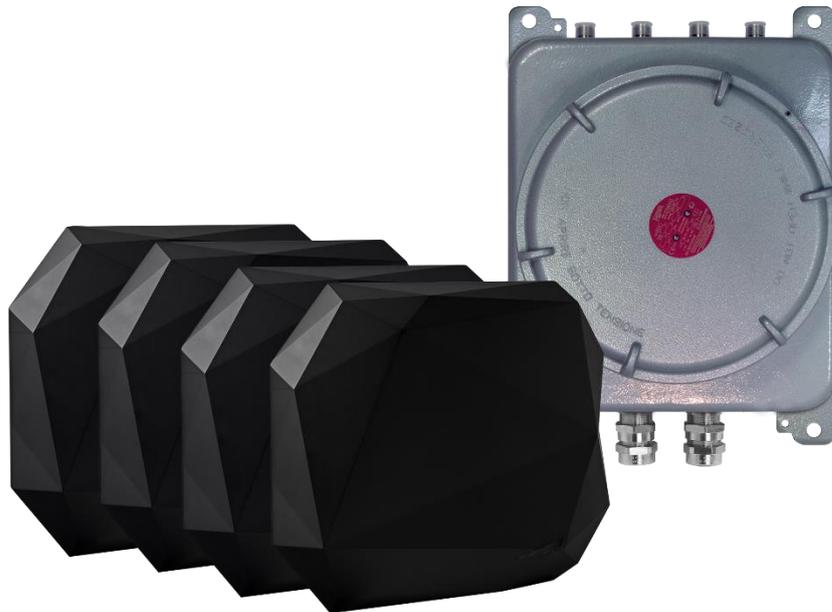
Print: allows printing of configuration information on a network, local or virtual printer (PDF)



SPECTRE



ATX

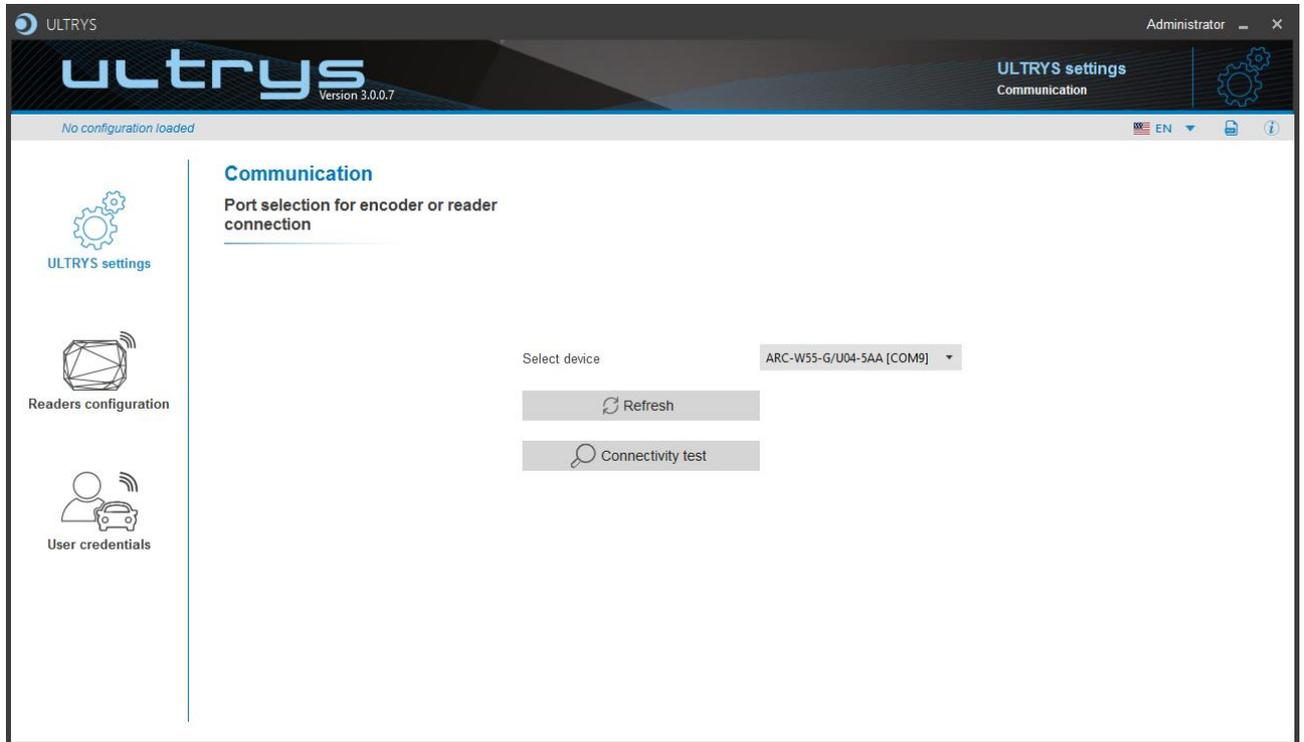


ATX 4 READ ONLY 

ATX 4 OSDP™ 

9. Reader configuration SPECTRE ATX4 READ ONLY

9.1 ULTRYS settings



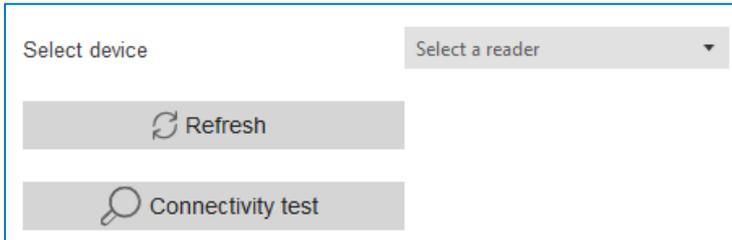
- Connect the SPECTRE ATX4 reader to the PC using the provided USB cable to load the configuration via serial link directly onto the reader.



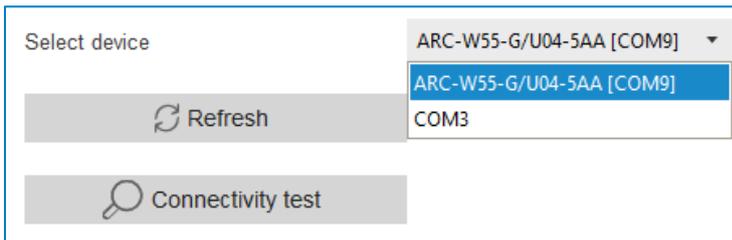
or

- Connect an UHF encoder to the PC to load the configuration onto UHF SCB configuration card.

To set the communication port



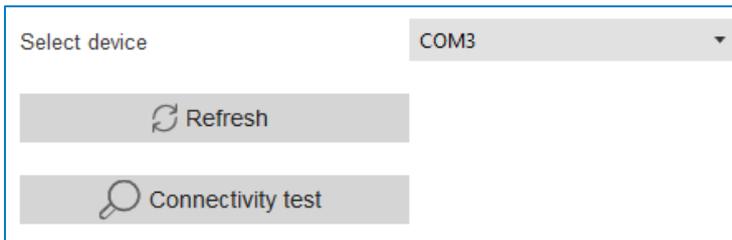
1- Click on 'Refresh' to detect all readers connected to the PC.



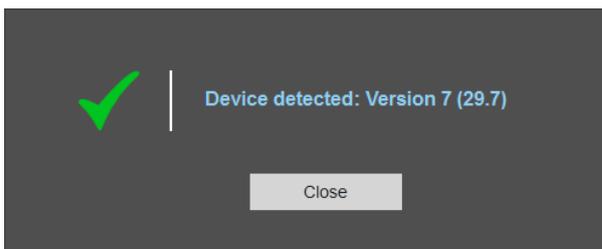
2- Open the dropdown list Select device

3- Readers whose firmware is ≥ 8 will appear in the drop-down list under their commercial reference.

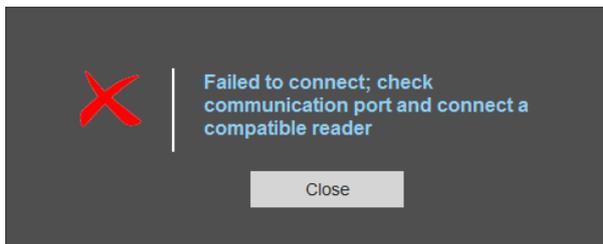
Select the communication port number for the encoder or reader or select the reader to use.



4- Run the connectivity test



Message OK (with indication of the firmware version).



Message: Failed

- Check the compatibility of the reader.
- Check the USB cable.
- Check the Baudrate reader: it must be fixed to 115200.

Note: during the connectivity test on a UHF encoder, a sound and light signal (orange) will be emitted for 1 second.

9.2 Create new configuration



The reader configuration is done in 7 steps. To move from one stage to another, you must click on "Next".

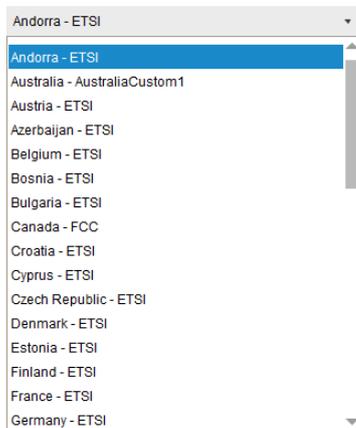
	UHF frequency band regulation
	Configuration protection loaded into the reader
	Reader configuration
Step 4 does not exist in the SPECTRE ATX4 READ ONLY setup wizard	
	Installation configuration
Step 6 does not exist in the SPECTRE ATX4 READ ONLY setup wizard	
	Reading & communication parameters
	User Security Roles
	Configuration save and protect

Step 1- UHF frequency band regulation



1

The frequency bands depend on the installation location

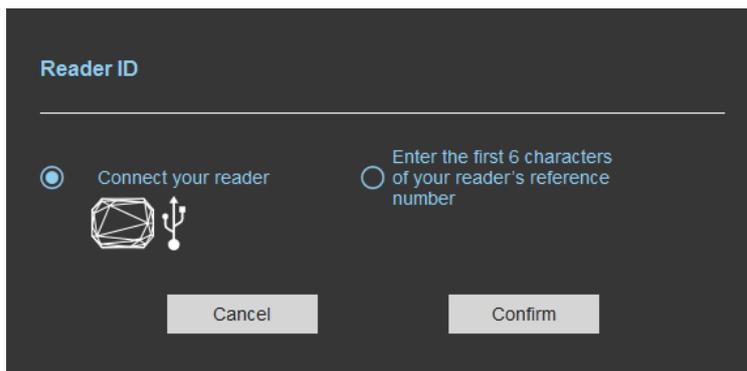


Type the first characters to display a country or select the country in which the installation will be done.

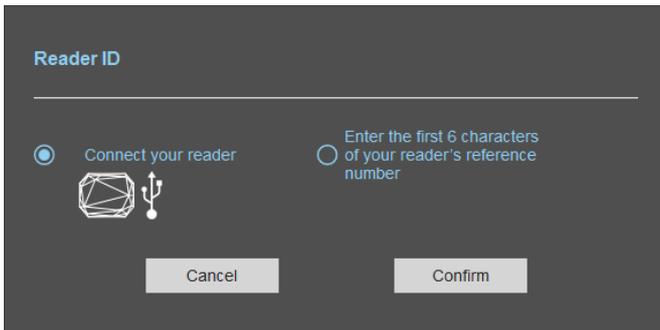
For a country which is not in the list, please contact STid: support@stid.com.

2

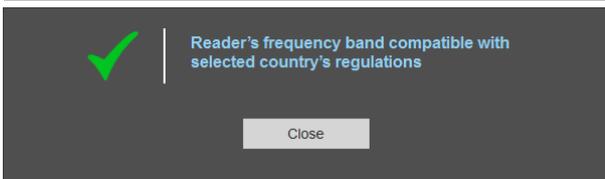
To approve the feasibility to install your reader in the selected country, you can check the compatibility.



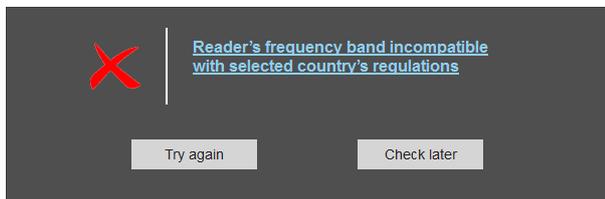
With USB reader connection



- 1- Connect the reader and set the communication COM port.
- 2- Select 'Connect your reader'
- 3- Please confirm

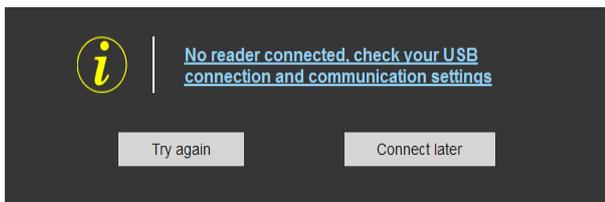


Message: OK



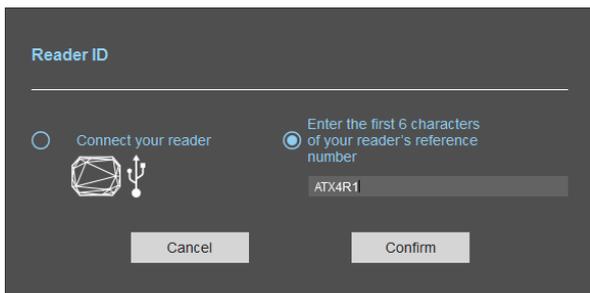
Message: NOK

The reader can't be installed in the selected country.



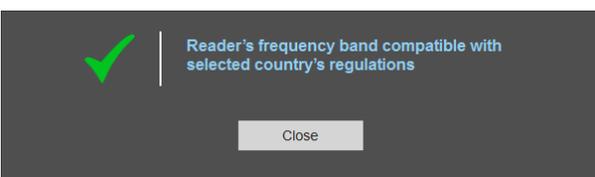
- Check the USB cable
- Check the communication with reader

With reader part number

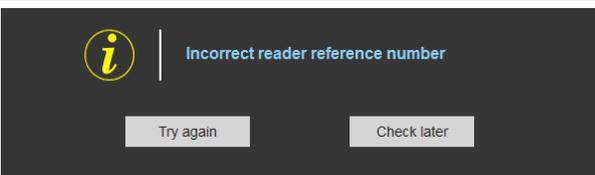


Enter the first 5 characters of the reader part number

Example: ATX4R41, ATX4R42, ATX4R51.....

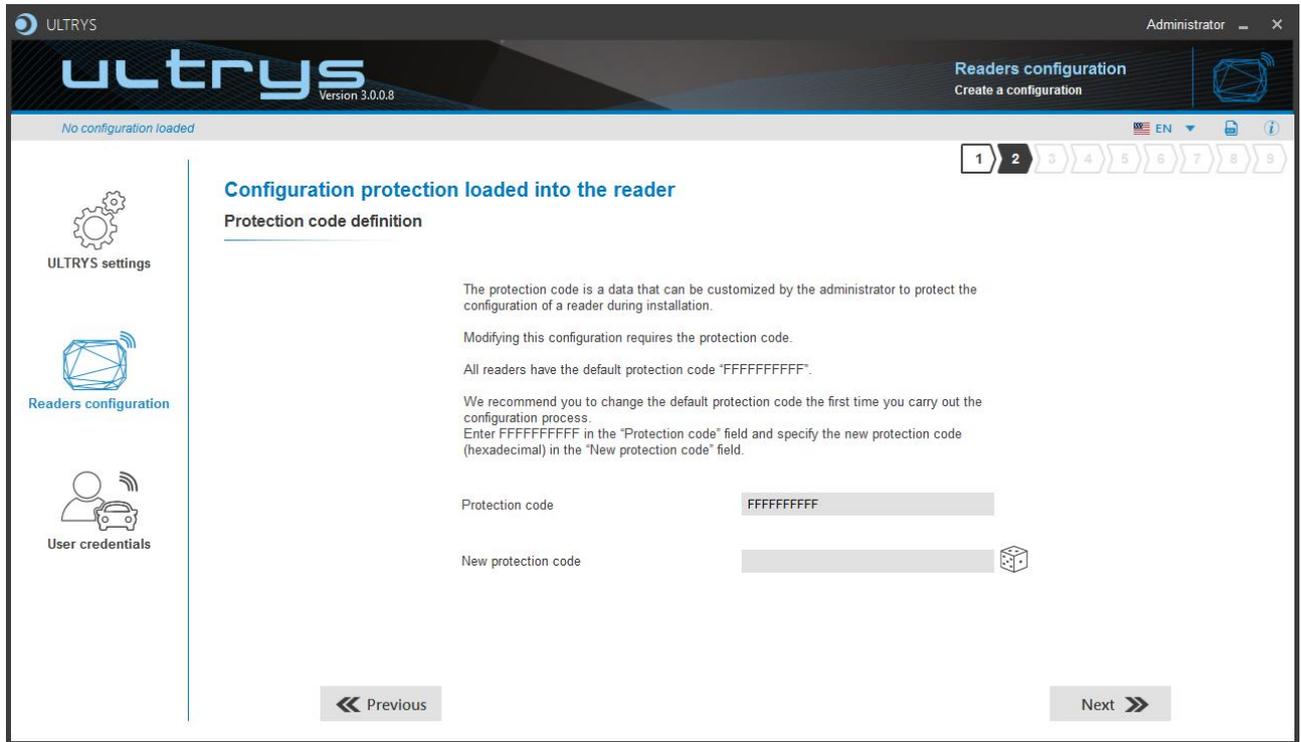


Message: OK



Message: the reference reader is not compatible with regulation selected.

Step 2- Configuration protection loaded into the reader



SPECTRE ATX4 readers, are initially supplied with a default configuration and a protection code to 0xFFFFFFFFFFFF.

The size of this protection code is 5 bytes (10 hexadecimal characters).

After the initial setup and in order to reconfigure the reader, it will be necessary to present an UHF SCB card or a configuration file with the same 'protection code' as the reader.



Random protection code generator.

Caution

This protection code is important and should definitely be known by the administrator. It protects the configuration data and allows reader configuration updates.

If you lose this protection code, you won't be able to reconfigure the reader again and the reader must be reset at the factory.

To change the protection code, it will be necessary to know the current protection code.

Step 3- Reader configuration



1 Selecting the reader type

SPECTRE ATX4 readers can be configured in “Read only” mode from firmware version 10.

2 Selecting Firmware

You must select the firmware version that is compatible with your reader.

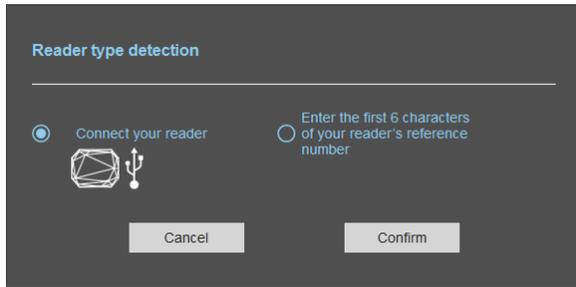
To do so, you can manually select the reader and firmware version, or you can use the function "Auto detection – Connect and check my reader configuration".

Compatibility between firmware readers and ULTRYS versions

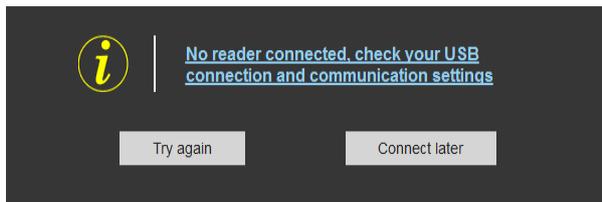
Firmware versions	ULTRYS softwares			
	ULTRYS V2.0	ULTRYS V2.1	ULTRYS V2.4	ULTRYS V3.x
v 7	✓	✓	✓	✓
v 9		✓	✓	✓
v 10,11,12			✓	✓
> v 13				✓

Close

With USB reader connection



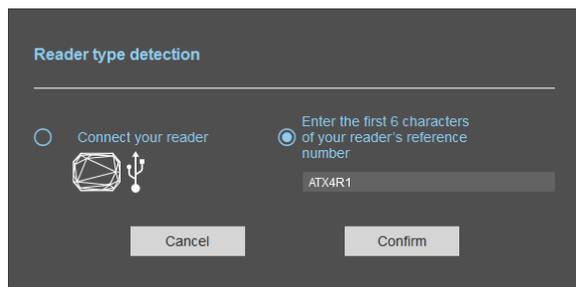
- 1- Connect the reader via USB cable provided. Configure the communication parameters.
- 2- Select the Connect your reader.
- 3- Click on Confirm.



Message : NOK

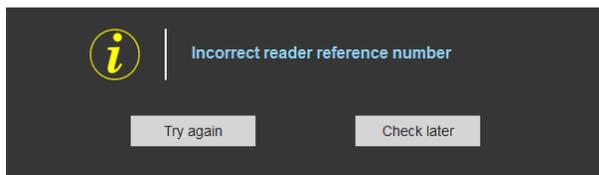
- Check the USB cable
- Check the communication with reader

With reader's number reference



Enter the first 6 characters of your reader's reference number

Examples: ATX4R41, ATX4R51, ATX4R42



Message: NOK

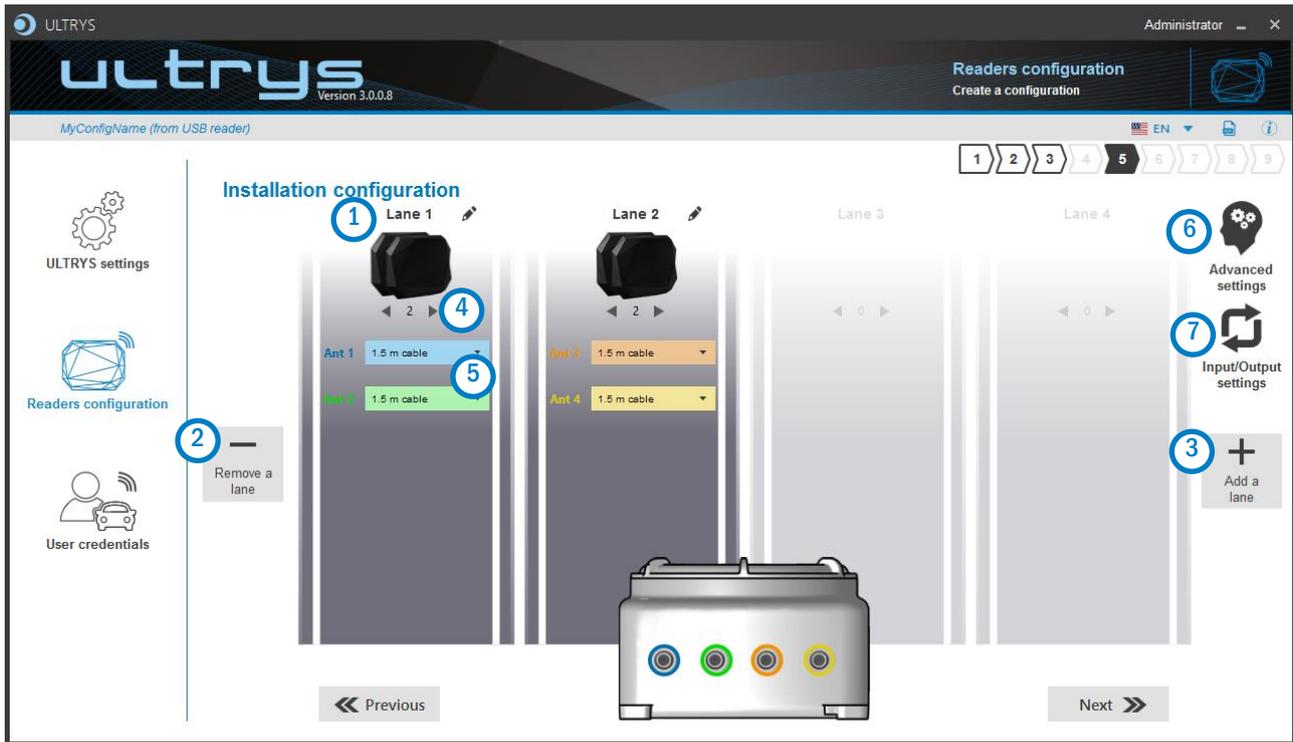
Check your reader's reference number

Step 4- Antenna type selection

The SPECTRE ATX reader only works with new antenna (ANT_UHF2).

Step 4 does not exist in the SPECTRE ATX configuration wizard.

Step 5- Installation configuration



① Name the lane

Maximum 10 characters.

For example, Entry1.

②③ Add / Delete lane

Use 'Add /Delete lane' to configure the number of lanes you will use in your application.

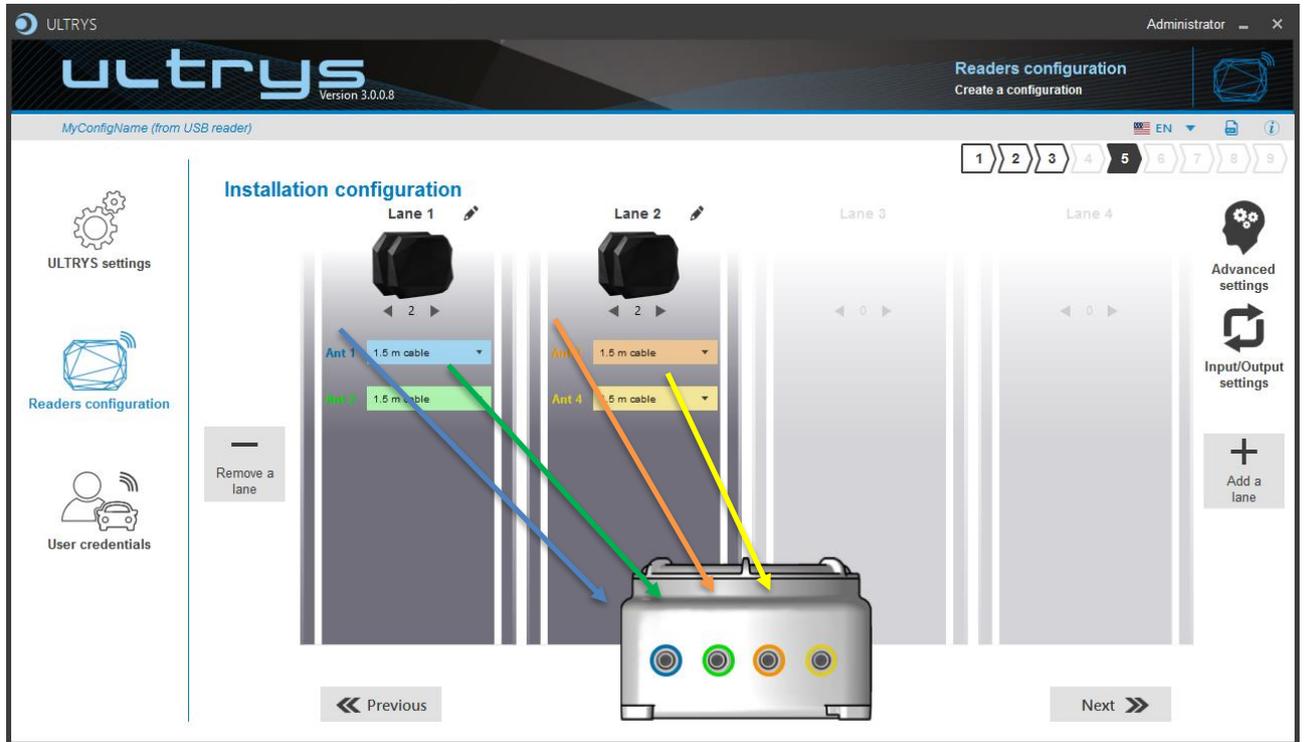
The default setting is one antenna on the first lane.

[For more information about the possible combination please refer to the document NA_SPECTRE.](#)

④ Add / Remove antenna on lane

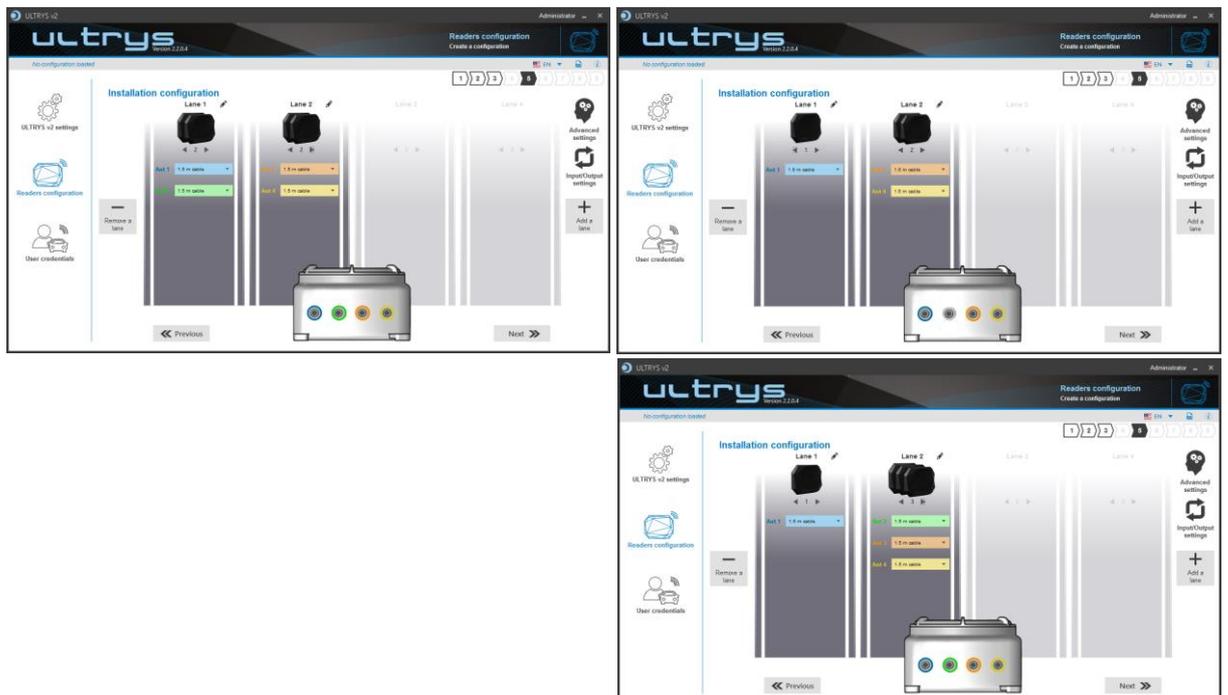
Set the number of antennas on the corresponding lane.

When an antenna is added, the RF port to which the antenna has to be connected appears on the reader with corresponding color to help the installation.

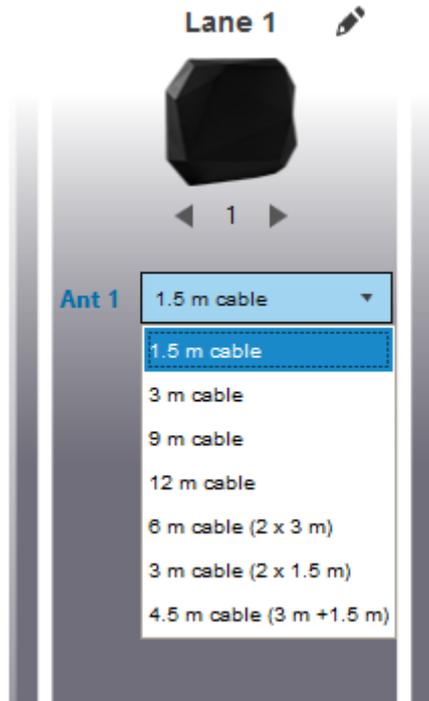


RF ports are assigned in order to add the antennas in the configuration wizard. When an antenna is removed from the configuration, the RF port connection for other antennas does not change.

Example: Ant 2 deleted from lane 1 and added to lane 2.

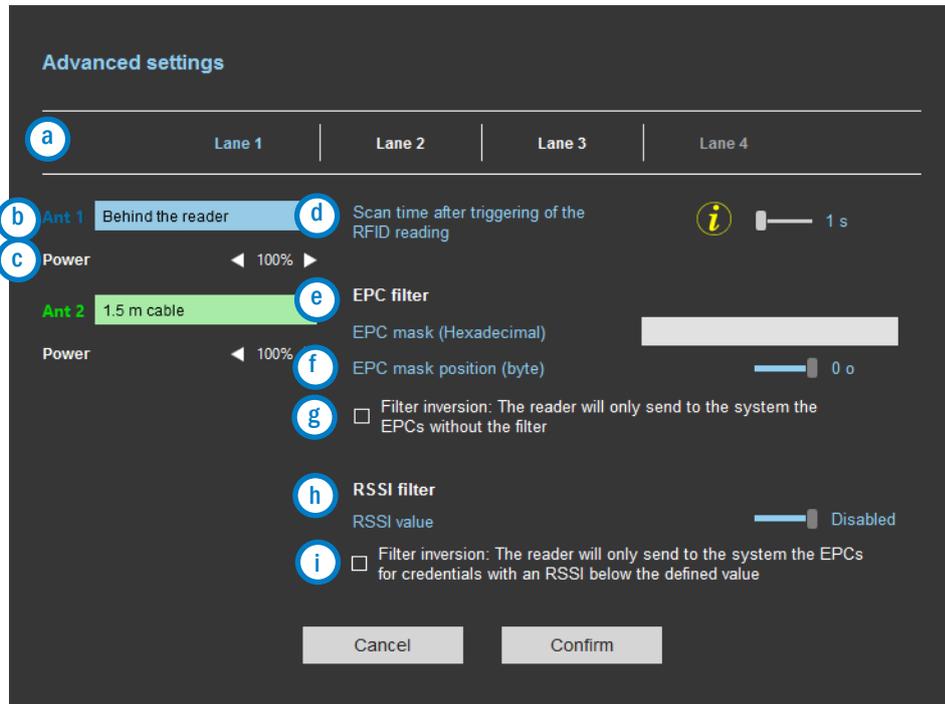


⑤ Select the cable length for each antenna



For each antenna, select the cable length you would like to use between antenna and reader.

6 Advanced settings



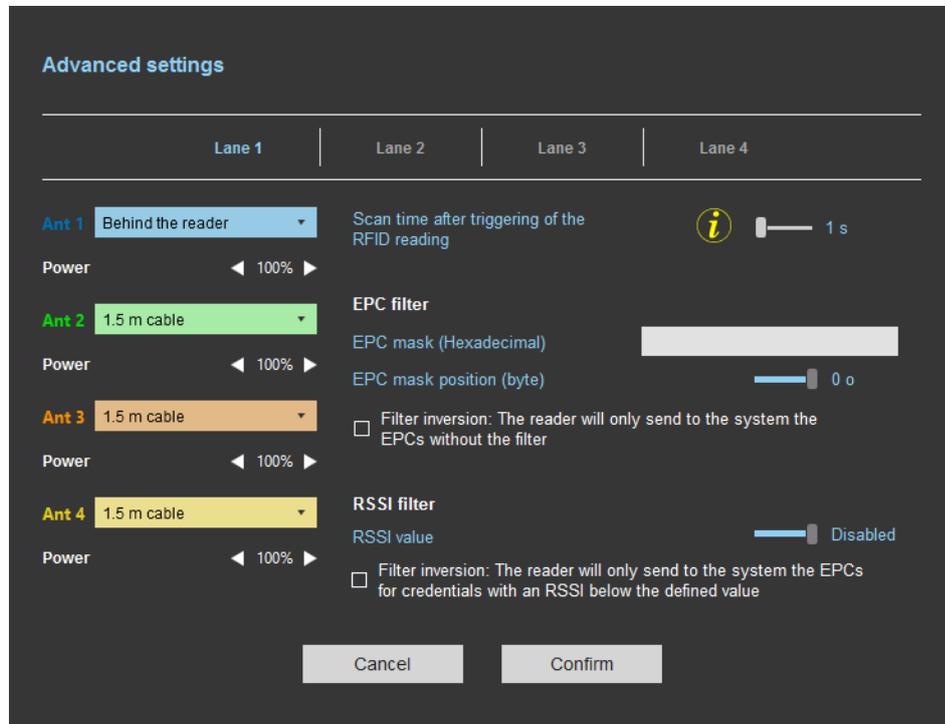
- a** Select the lane to configure. The lanes selected in installation setup are in white, unused lanes are grayed out. When a lane is selected in Advanced parameters it is written in blue.
- b** Select / Change the cable length between the antenna and the reader.
- c** Adjust the power of each antenna (from 10% to 100%) to adjust the reading distances.
- d** Adjust the timing for a scan (reading) by step of 1 second (max 30s). This setting is taking into account only if Input type selection is set to Activating all lanes or Activating the event lane.
- e** **The EPC filter is not available in Secure Mode.** Enter the value for EPC Mask, max 62 hexadecimal bytes.
- f** Adjust the value for offset EPC mask in bytes (0 to 65535). It depends on the EPC Mask length.
- g** Filter inversion not selected: only tags with an EPC value corresponding to the EPC mask value will be provided to the user.

Filter inversion selected: only tags with an EPC value different from the EPC mask value will be provided to the user.
- h** RSSI (Received Signal Strength Indication) is a measure of the power in reception of the tag response. The value returned by the reader is proportional to the amplitude of the reception signal.
Adjust the RSSI value (-110dBm to 0dBm). 0dBm deactivates the RSSI filter.
- i** Filter inversion not selected: only tags with an RSSI greater than or equal to the specified value will be provided to the user.
Filter inversion selected: only tags with an RSSI smaller or equal to the specified value will be provided to the user.
Ex: RSSI filter= -49dBm + Reversal not selected
A tag that will have a RSSI value of -20dBm will be sent back,
A tag that will have a RSSI value of -60dBm will not be sent back.

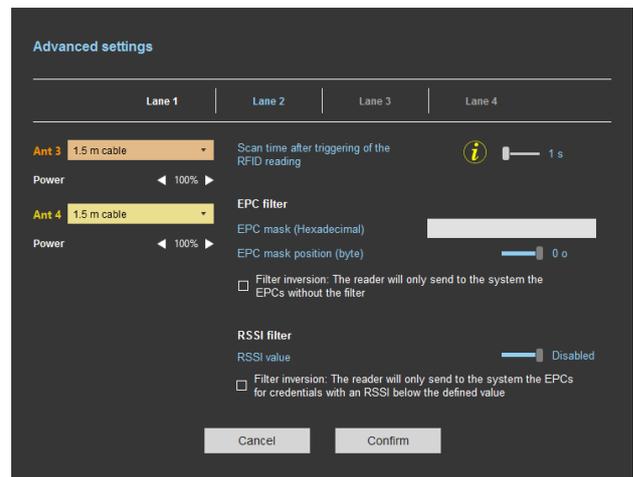
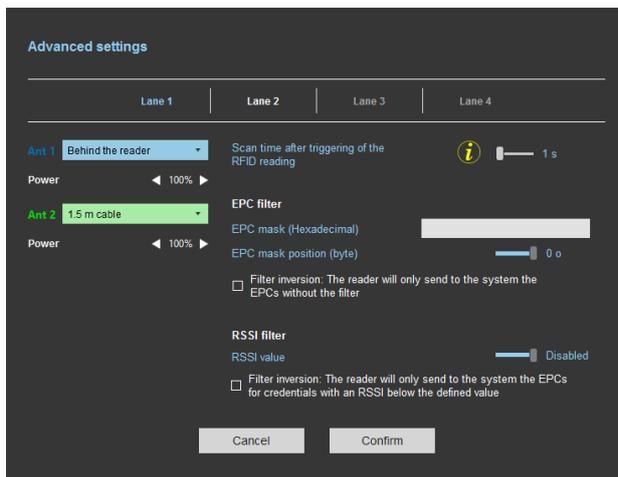
Scan time, EPC filter and RRSI filter settings are the same for antennas on the same lane.

The cable length and RF power antenna are set for each antenna.

Example 1: 4 antennas on lane 1.



Example 2: 2 antennas on lane 1 et 2 antennas on lane 2.



EPC Filter

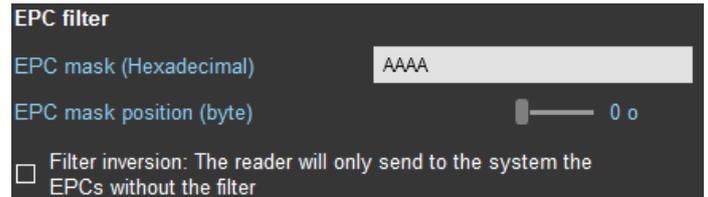
Examples:

Code EPC Tag 1: AAAAABCD000000000000000001
 Code EPC Tag 2: AA02ABCD000000000000000002
 Code EPC Tag 3: AA02ABCD000000000000000003
 Code EPC Tag 4: AA02FFFF000000000000000003

1- EPC mask = AA AA and Offset = 0

Tag 1: **AAAA**ABCD00000000000000000001
 Tag 2: AA02ABCD00000000000000000002
 Tag 3: AA02ABCD00000000000000000003
 Tag 4: AA02FFFF00000000000000000003

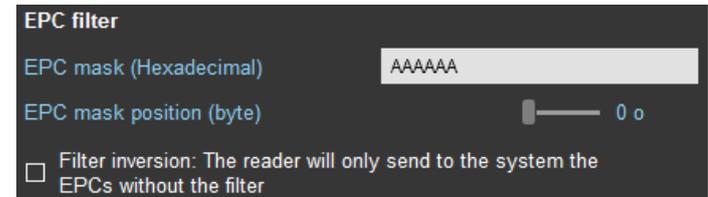
Only tag 1 is transmitted.



2- EPC mask = AA AA AA and Offset = 0

Tag 1: AAAAABCD00000000000000000001
 Tag 2: AA02ABCD00000000000000000002
 Tag 3: AA02ABCD00000000000000000003
 Tag 4: AA02FFFF00000000000000000003

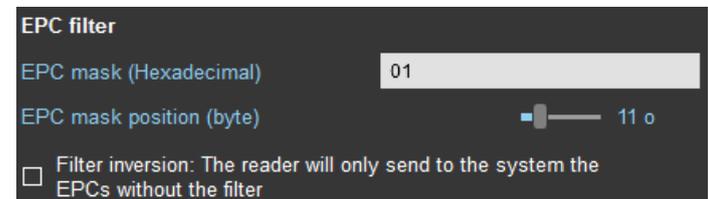
No tag is transmitted.



3- EPC mask = 01 and Offset = 11

Tag 1: **AA AA AB CD 00 00 00 00 00 00 00 01**
 Tag 2: AA 02 AB CD 00 00 00 00 00 00 00 02
 Tag 3: AA 02 AB CD 00 00 00 00 00 00 00 03
 Tag 4: AA 02 FF FF 00 00 00 00 00 00 00 03

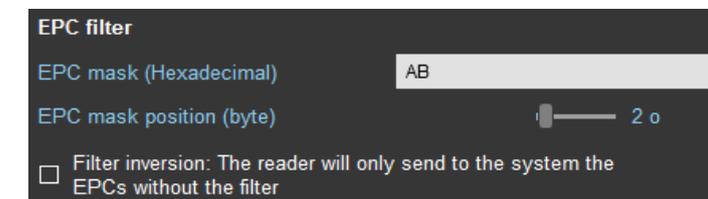
Offset is represented in blue; the filter is done on byte 12.
 Only tag 1 is transmitted.



4- EPC mask = AB and Offset = 2

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

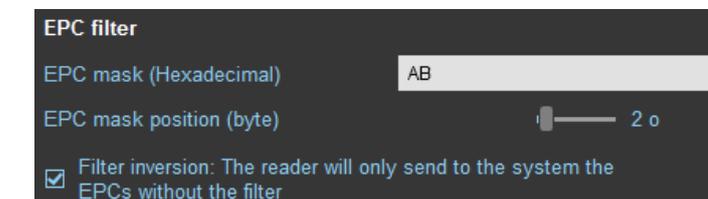
Tags 1, 2 and 3 are transmitted.



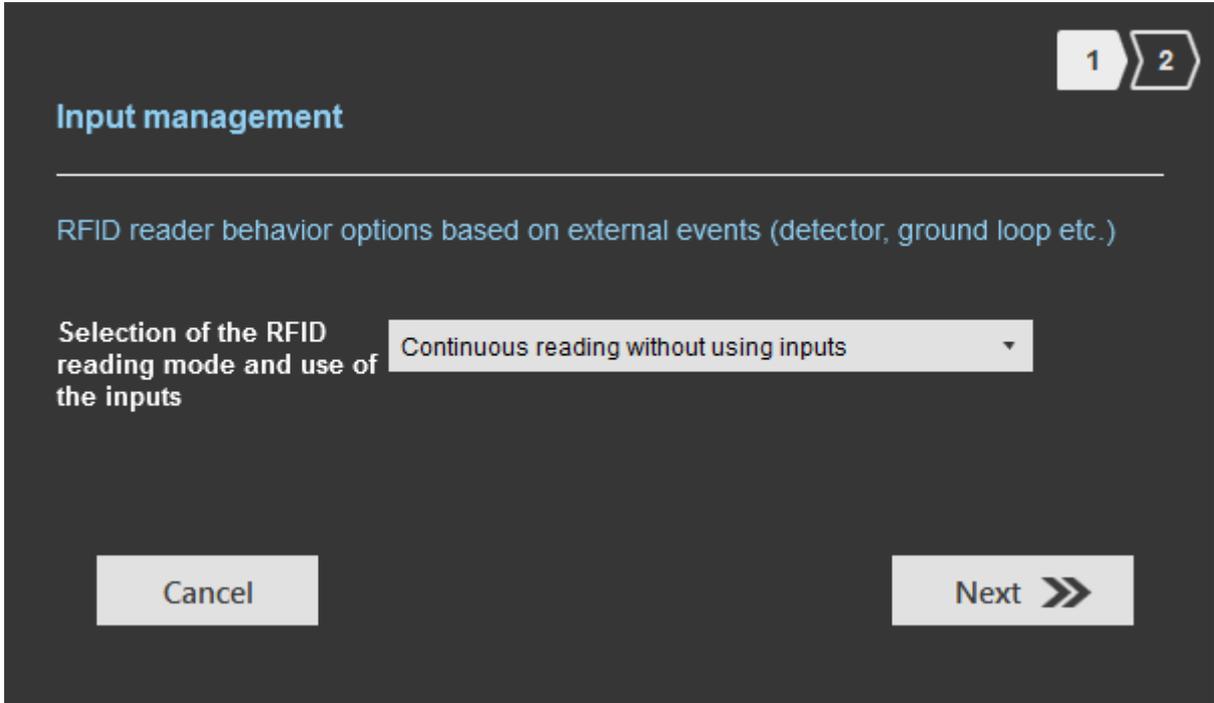
5- EPC mask = AB, Offset = 2 and Reversal

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

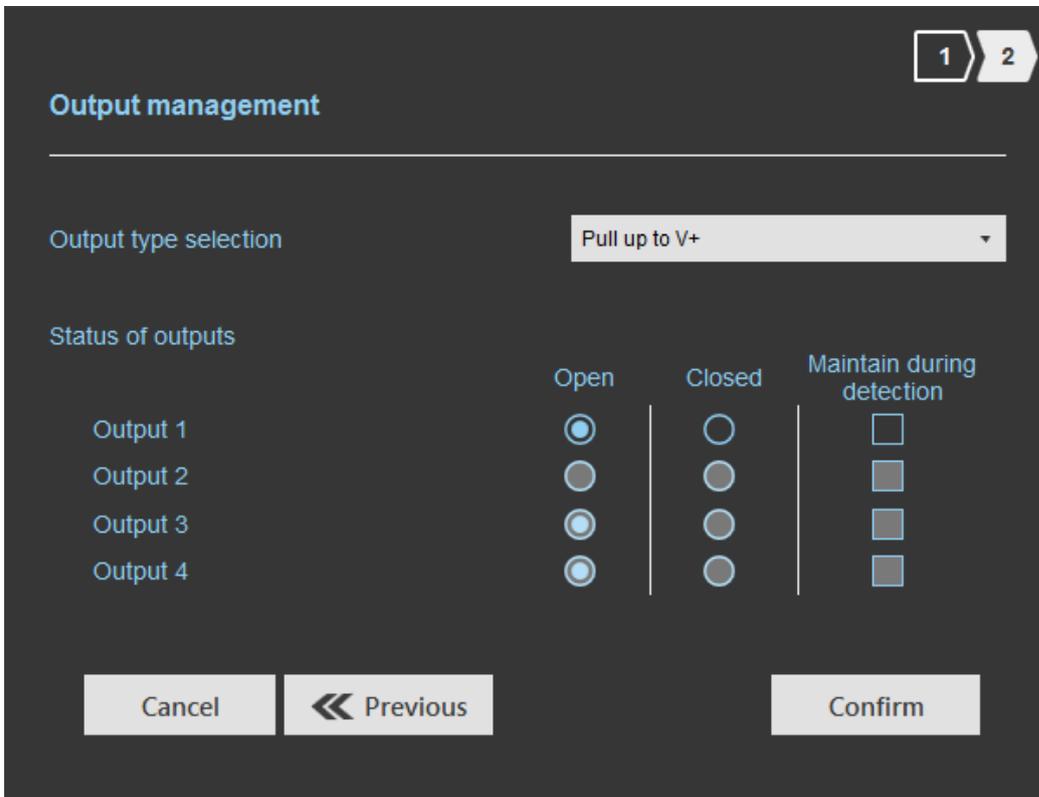
Tags 1, 2 and 3 are not transmitted. Only tag 4 is transmitted.



⑦ Input / output settings

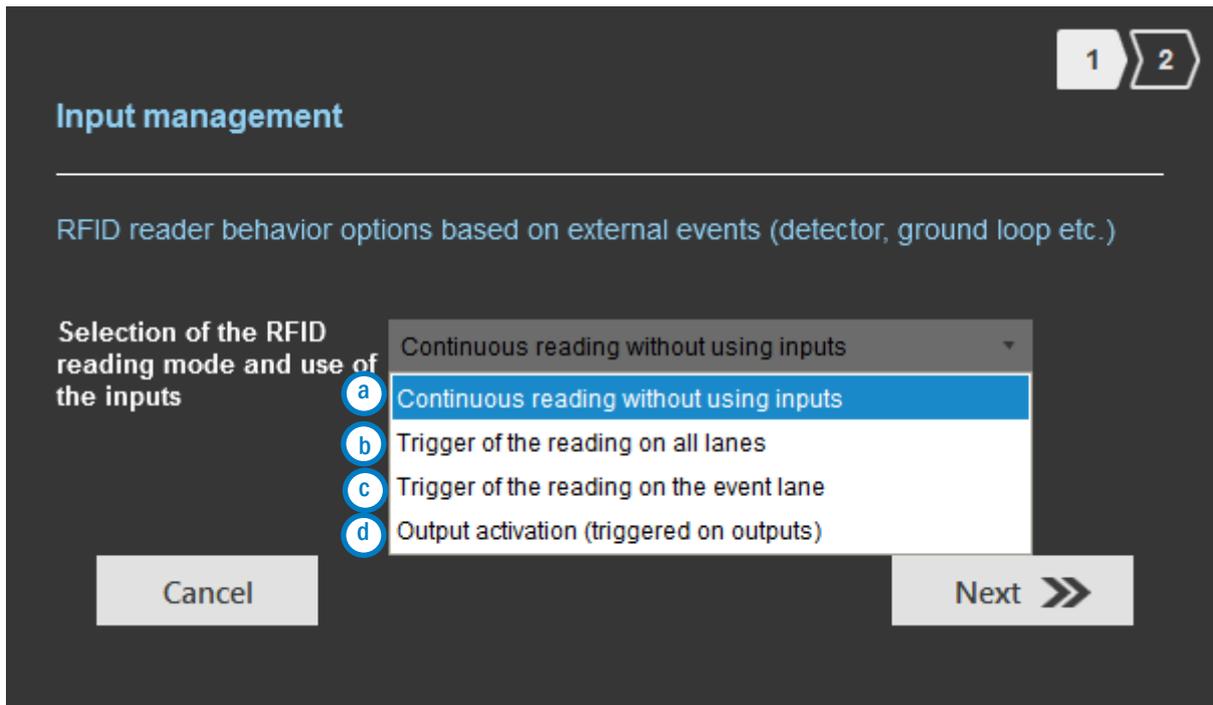


The configuration of the outputs depends on the reading mode chosen.

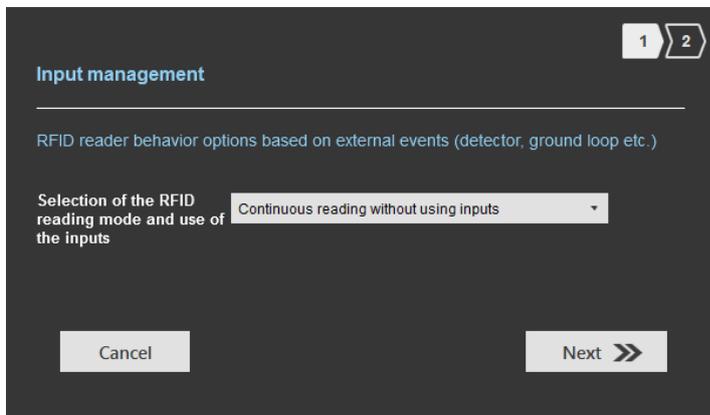


Both types of output are « Pull up to V+ » or « Open drain ».

Status of outputs: select for each output the default state 'Open' or 'Closed' and if the state is maintained during the detection process.

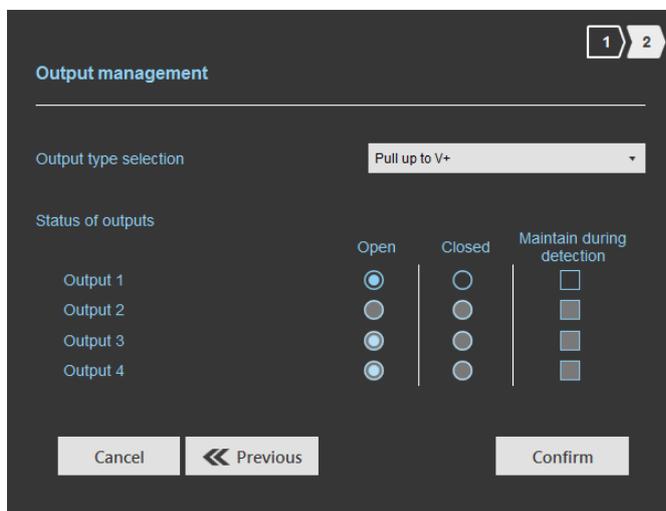


a Reading mode = Continuous reading without using inputs



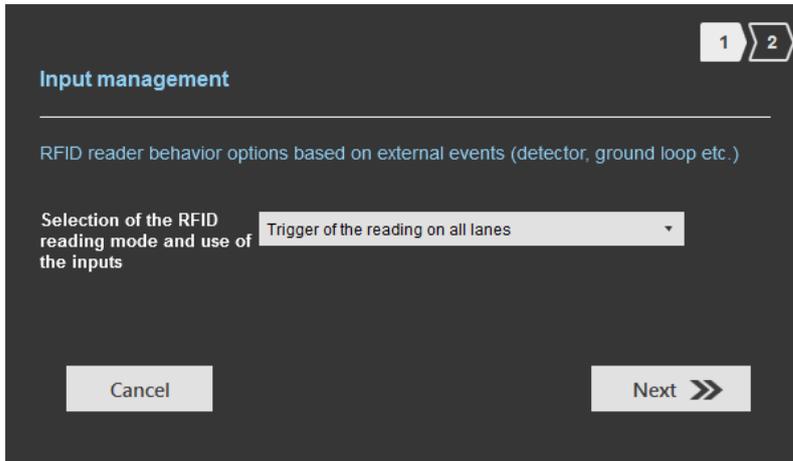
In this mode, the reader scan continuously.

There is no action on input activation.



Select the output type and default state for output.

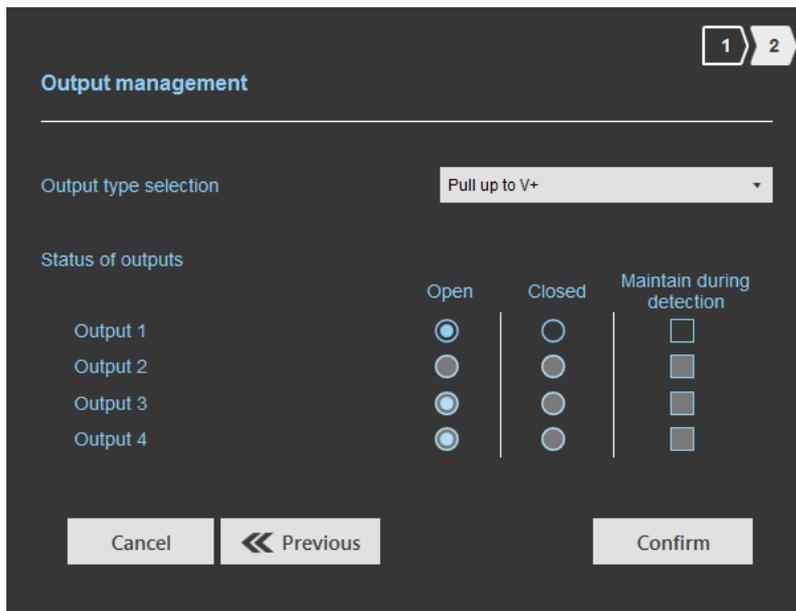
b Reading mode = Trigger of the reading on all lanes



If an Input is activated (In1, In2, In3 or In4), the reader scans on all lanes set.

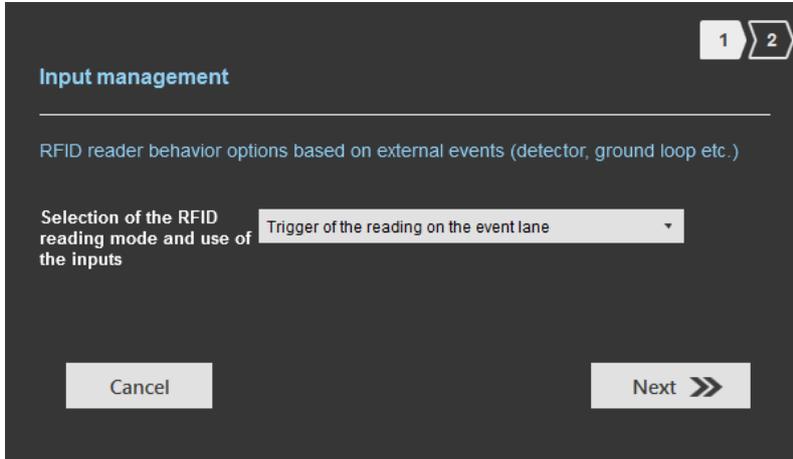


The duration of the reading is defined in 'Advanced settings'.



Select the output type and default state for output.

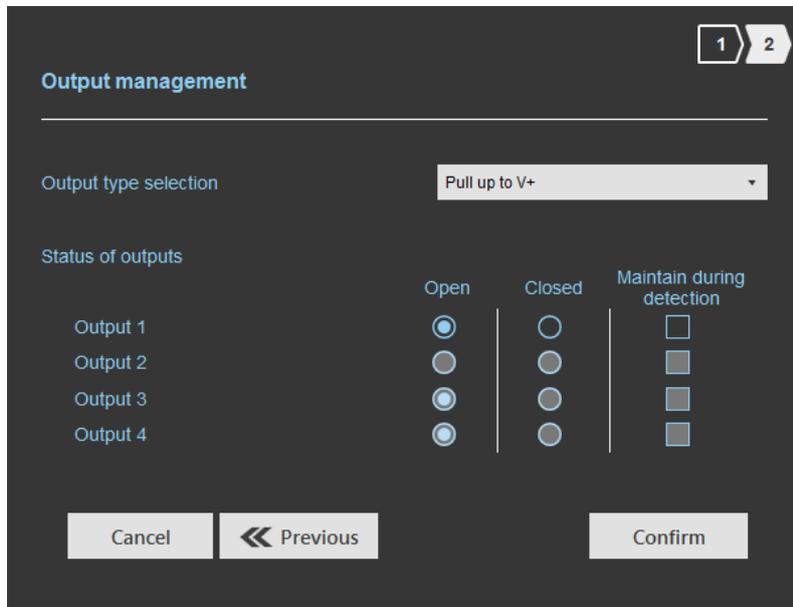
C Reading mode = Trigger of the reading on the event lane



If an Input is activated, the reader scans on the corresponding lane.



The reading duration is defined in 'Advanced settings'.



Select the output type and default state for output.

d Reading mode = Output activation (triggered on outputs)

An action on Input toggles the corresponding output regardless of RF function of the reader.

Output	Open	Closed	Maintain during detection
Output 1	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 2	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 3	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 4	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

Select the output type and default state for output.

Summary table

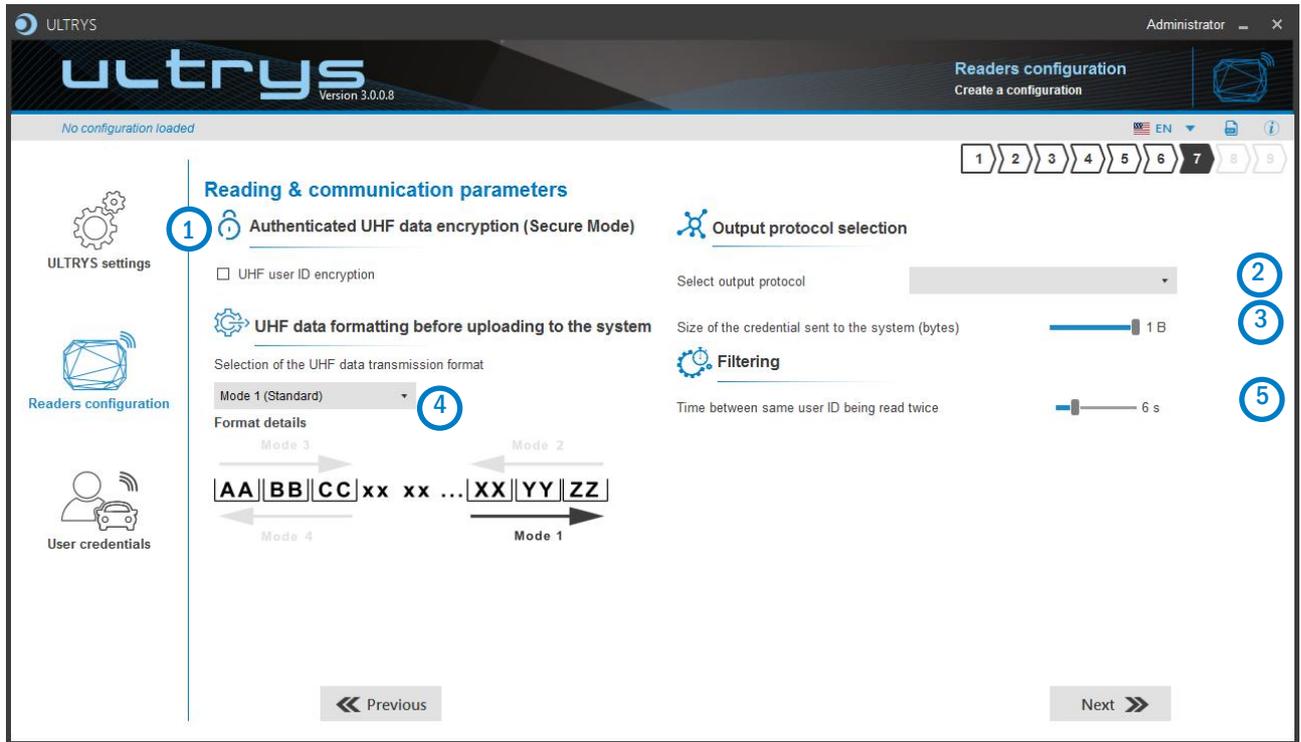
Reading Mode	Input	Configurable Outputs states?	Maintain during detection available?	Output
a Continuous reading without using inputs	No action	Yes by lane	Yes by lane	<ul style="list-style-type: none"> - If 'Continuing during detection process' not activated: the output state toggles at the ascent - If 'Continuing during detection process' activated: the output state toggles to the RF detection and remains in this state as long as, at each scan is at least one detection
b Trigger of the reading on all lanes	An action on any input activates the reading on all configured lanes	Yes by lane	Yes	<ul style="list-style-type: none"> - If 'Continuing during detection process' not activated: the output state toggles at the ascent during the ascent time of the identifier (physically on the BUS + 200ms) - If 'Continuing during detection process' activated: the output state toggles to the RF detection and remains in this state as long as, at each scan is at least one detection
c Trigger of the reading on the event lane	An action on Input x activate the scan on lane x	Yes by lane	Yes	<ul style="list-style-type: none"> - If 'Continuing during detection process' not activated: the output state toggles at the ascent during the ascent time of the identifier (physically on the BUS + 200ms) - If 'Continuing during detection process' activated: the output state toggles to the RF detection and remains in this state as long as, at each scan is at least one detection
d Output activation (triggered on outputs)	An action on an Input toggles the corresponding output	Yes	No	The output state is only linked to a user action on the input

Note: as long as the action is detected on the input, the output remains toggled.

Step 6- Light indicator configuration

Step 6 does not exist in the SPECTRE ATX4 configuration wizard.

Step 7- Reading & communication parameters

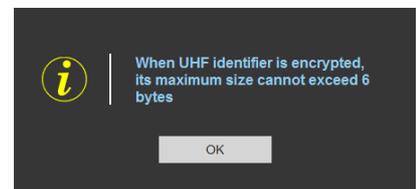


1 **Authenticated UHF data encryption (Secure Mode)**

UHF user ID encryption

Private key definition (16 bytes - Hex)

CA3DA50D284959F9DF605EFBAFBCBC4E



The EPC can be encrypted and signed before being written in the tag. The reader will decrypt and authenticate the EPC before sending it on its output media. Only an EPC correctly decrypted and authenticated will produce an output data, otherwise the reader will remain mute.

Notes:

- Only UHF tags compatible with “FAST ID” feature and having at least 128 bits of EPC can be decrypted and authenticated by the SPECTRE Access reader. The chips compatible with secure encoding are: Monza X, Monza R6P, Monza 4D, this chip is present into
 - TLTA-W53M-943_S
 - TLTA-W75B-943_S
 - IronTag 206
 - CCTW490_AN
- **The secure mode is not accessible if an EPC mask has been set in ‘Advanced settings’.**

Note: After setting an EPC security key, if you return to step 5 with the Previous button, and you set an EPC filter, then returning to step 7, the "EPC ID Security" checkmark is displayed. In gray, the key field is still accessible but not taken into account.

2

Output protocol selection

Select output protocol: RS232

- RS232
- RS485
- Wiegand 26 bits - 3i
- Wiegand with LRC custom size
- Wiegand custom size
- Clock&Data 40 bits - Iso 2B
- Wiegand 34 bits - 3Eb
- Wiegand 37 bits - 3V
- Wiegand 35 bits - 3W
- Clock&Data 32 bits - Iso 2H
- Wiegand 36 bits (32+4 LRC) - 3Ca
- Wiegand 44 bits (40+4 LRC) - 3Cb
- Wiegand 32 bits - 3La
- Wiegand 40 bits - 3Lb
- Clock&Data custom size

RS232 / RS485

Select protocol

Select output protocol: RS232

Data: Hexadecimal

Padding CR LRC

STX+ETX LF ASCII

Baud Rate: 115200

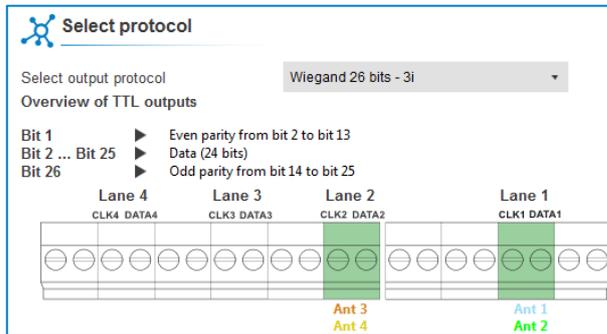
Serial frame:

1 byte	X bytes	1 byte	1 byte	1 byte	1 byte
<i>STX</i>	<i>Data*</i>	<i>LRC</i>	<i>CR</i>	<i>LF</i>	<i>ETX</i>

**Doubled if the ASCII option is activated.*

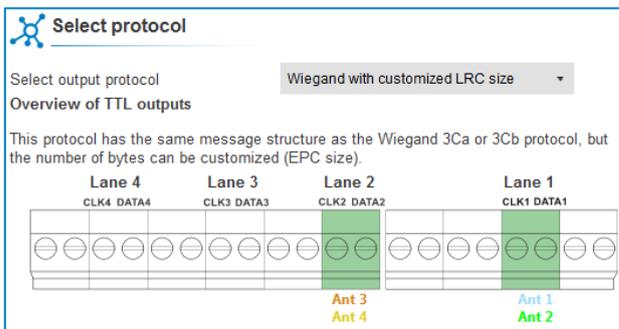
Data	Data sent in decimal or hexadecimal format.
Padding	Add on the frame leading zeros. If this option is not activated, the leading zero won't sent.
STX+ETX	Add STX (0x02) and ETX (0x03) in the frame.
CR	Carriage return (0x0D).
LF	Line feed (0x0A).
LRC	Checksum byte by XORing of all previously characters without the STX.
ASCII	If this option is activated, the Data will be sent in ASCII mode.

Wiegand 26 bits- 3i

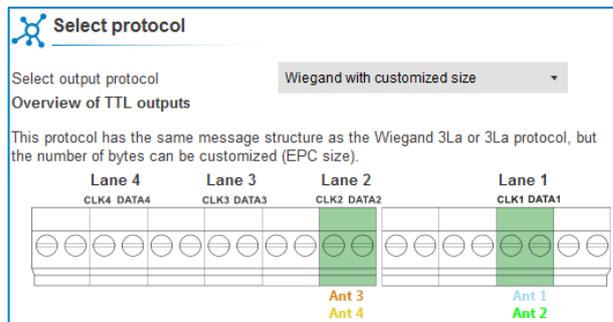


Note: the graphic indicating the lanes, depends on the configuration of the number of antennas/lanes.

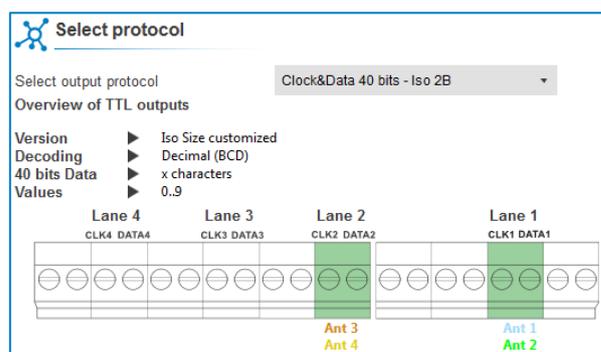
Wiegand with LRC customized size



Wiegand customized size



Decimal Clock&Data – Iso 2B



3 Size of the credential sent to the system (bytes)

Protocol	Size in plain mode	Size in secure mode
RS232 / RS485	1b up to 62b	1b up to 6b
Wiegand 26 bits	Fixed to 3b	Fixed to 3b
Wiegand with LRC custom size / Wiegand custom size	1b up to 16b	1b up to 6b
Decimal Clock&Data – Iso 2B	1b up to 7b	1b up to 6b

4 **UHF data formatting before uploading to the system**

Selection of the UHF data transmission format

Mode 1 (Standard) ▼

Format details

- Mode 1 (Standard)
- Mode 2 (Standard reversed)
- Mode 3
- Mode 4

There are 4 UHF ID formatting modes:

Example: EPC data: AA BB CC DD EE xx xx ... VV WW XX YY ZZ with 'Size of the credential sent to the system' fixed to 4bytes.

- : ID feedback = WW XX YY ZZ
- : ID feedback = ZZ YY XX WW
- : ID feedback = AA BB CC DD
- : ID feedback = DD CC BB AA

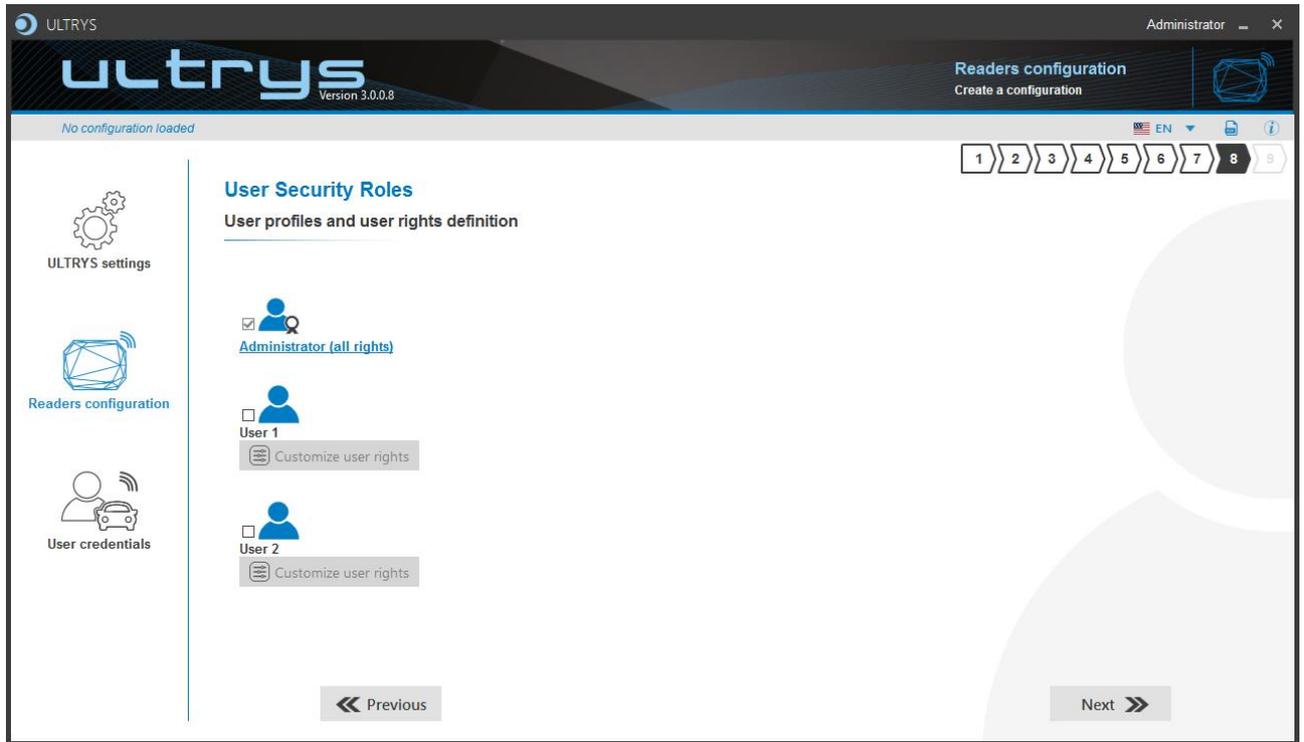
5

**Filtering**
Time between same user ID being read twice 6 s

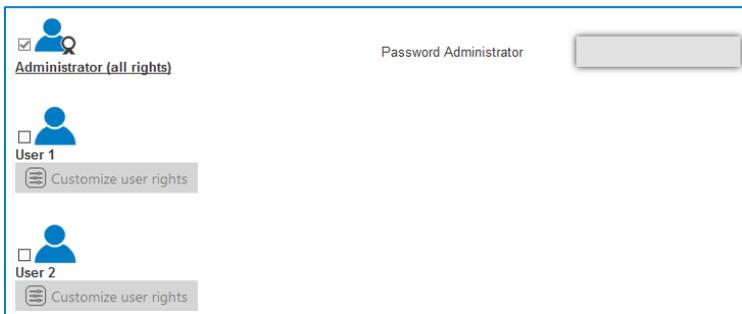
The reader emits the credential code present in the field only once during this time.

This time is adjustable from 0 to 30 seconds.

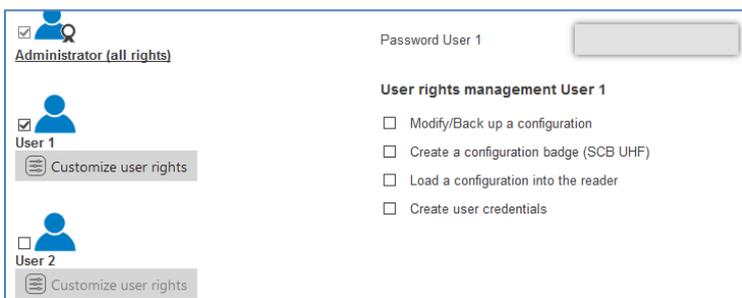
Step 8- User Security Roles



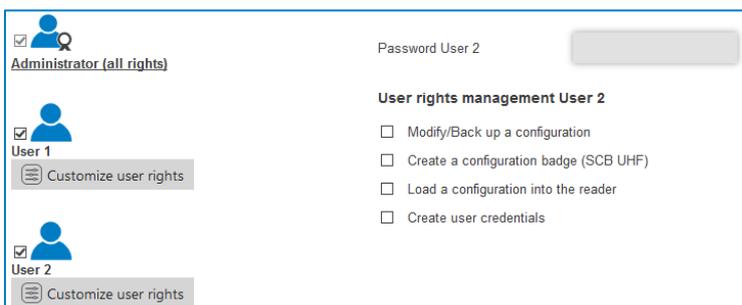
ULTRYS allows to manage three different profiles by configuration file.



Define an Administrator password to protect the configuration file.



Define a User 1 password and select the corresponding rights.



Define a User 2 password and select the corresponding rights.

Step 9- Configuration save and protect



This step allows you to save the configuration file containing all the current configuration settings (keys, formats, reader...). You can select a location and password to protect the file.

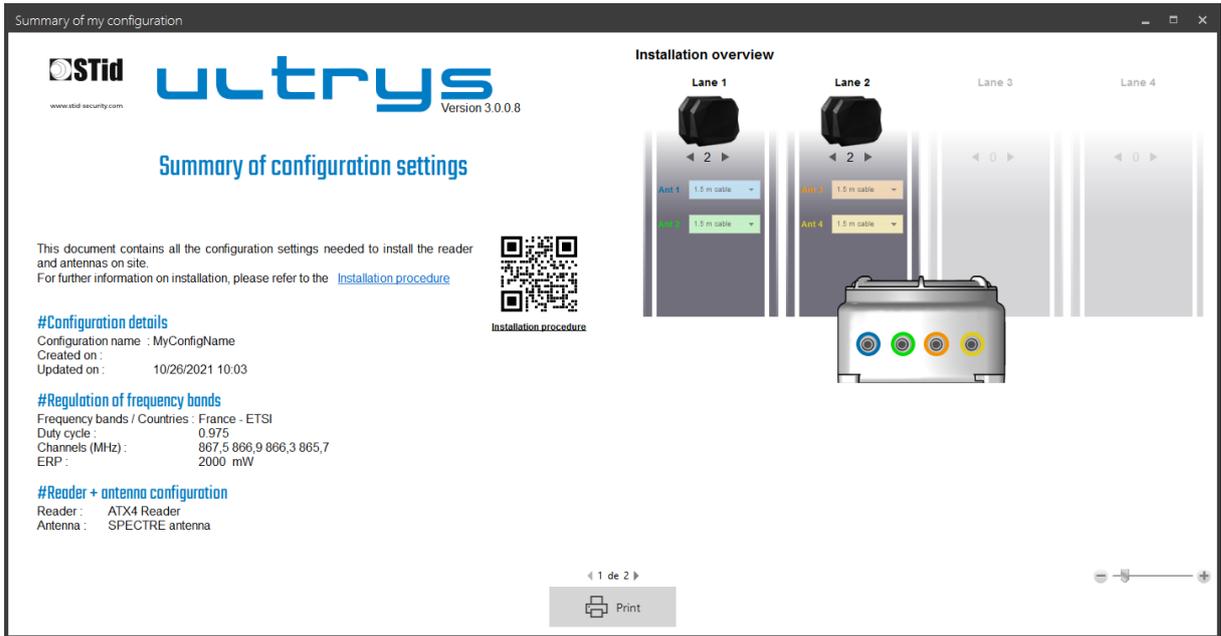
- 1 Choose a name to easily find the configuration. (example: Parking IN).

Note: the name of the configuration must be contained in the file name.

- 2 To protect the configuration file, you can define a password. This password is different from Administrator password.
- 3 Select a directory and a file name to save.
- 4 The name and location of 'Configuration Loaded' indicates now the chosen name and location.



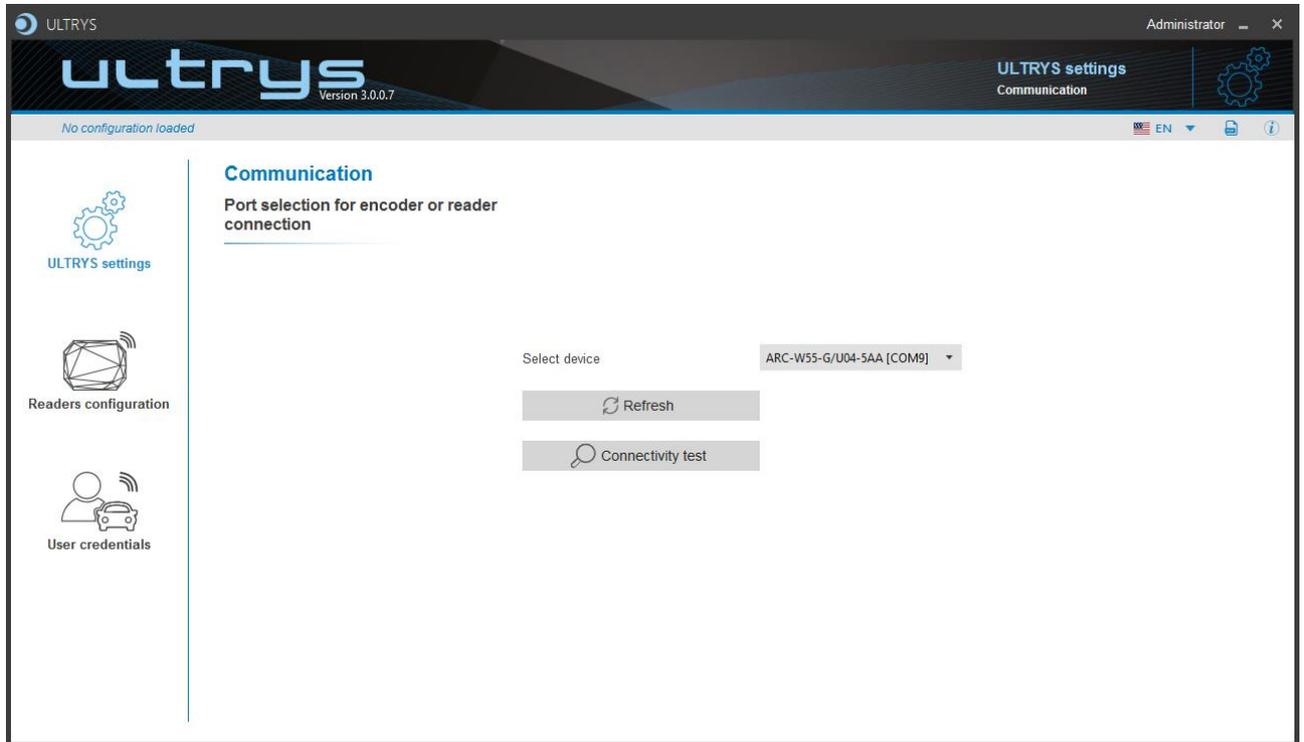
5 Get a summary of the configuration created



Print: allows printing of configuration information on a network, local or virtual printer (PDF).

10. Reader configuration SPECTRE ATX4 OSDP™

10-1 ULTRYS settings



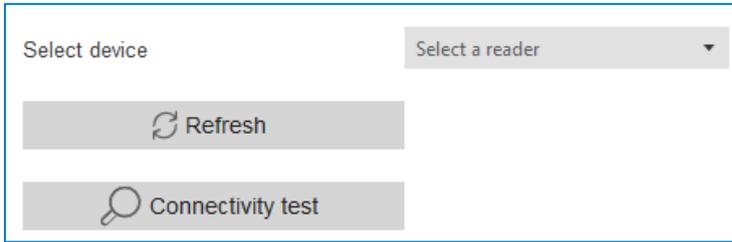
- Connect the SPECTRE ATX4 reader to the PC using the provided USB cable to load the configuration via serial link directly onto the reader.



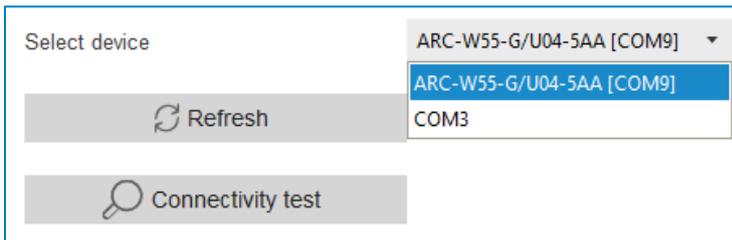
or

- Connect an UHF encoder to the PC to load the configuration onto UHF OCB configuration card.

To set the communication port

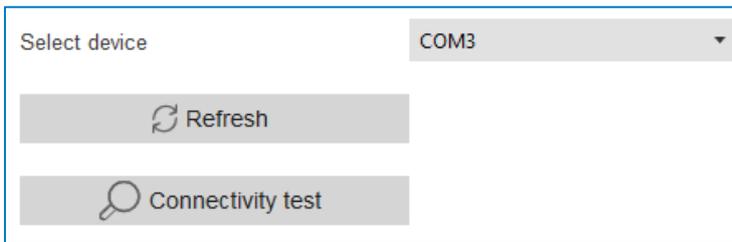


1- Click on 'Refresh' to detect all readers connected to the PC.

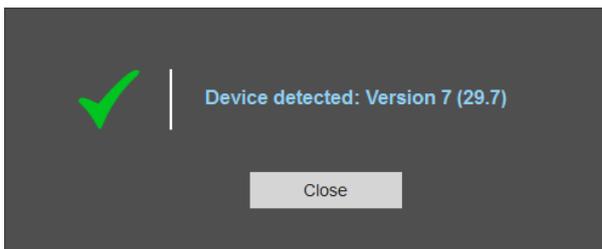


2- Open the dropdown list Select device

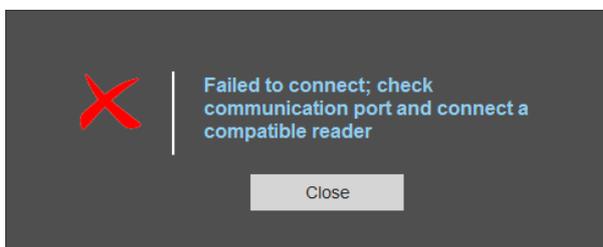
3- Readers whose firmware is ≥ 8 will appear in the drop-down list under their commercial reference. Select the communication port number for the encoder or reader or select the reader to use.



4- Run the connectivity test



Message OK (with indication of the firmware version).



Message: Failed

- Check the compatibility of the reader.
- Check the USB cable.
- Check the Baudrate reader: it must be fixed to 115200.

Note: during the connectivity test on a UHF encoder, a sound and light signal (orange) will be emitted for 1 second.

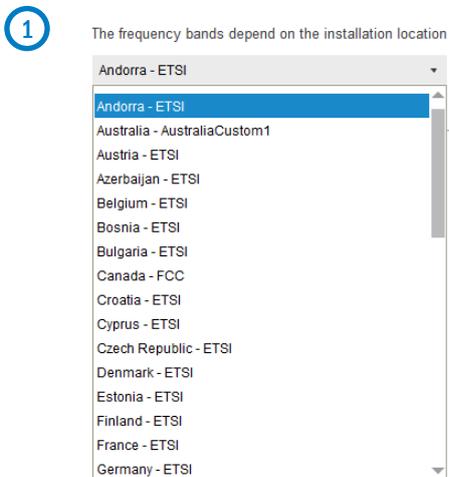
10-2 Create new configuration



The reader configuration is done in 7 steps. To move from one stage to another, you must click on “Next”.

	UHF frequency band regulation
	Configuration protection loaded into the reader
	Reader configuration
Step 4 does not exist in the SPECTRE ATX4 OSDP™ configuration wizard	
	Installation configuration
Step 6 does not exist in the SPECTRE ATX4 OSDP™ configuration wizard	
	Reading & communication parameters
	User Security Roles
	Configuration save and protect

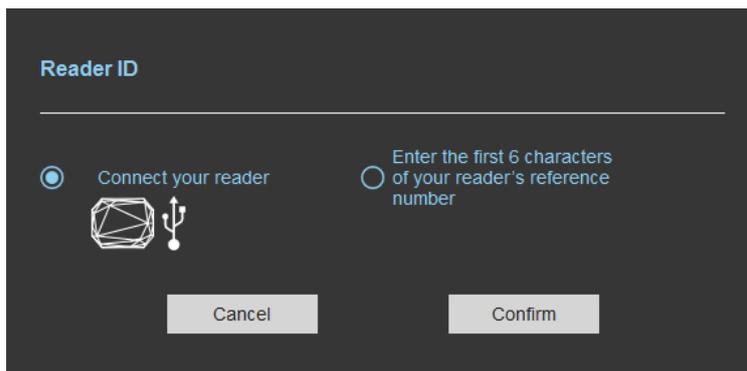
Step 1- UHF frequency band regulation



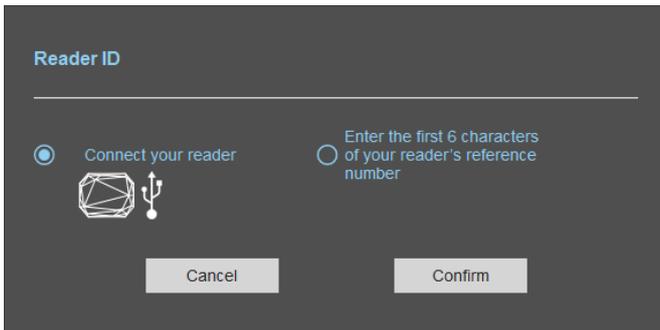
Type the first characters to display a country or select the country in which the installation will be done.

For a country which is not in the list, please contact STid: support@stid.com.

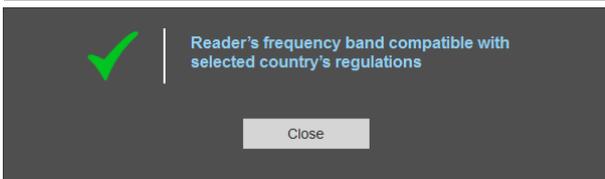
- 2 To approve the feasibility to install your reader in the selected country, you can check the compatibility.



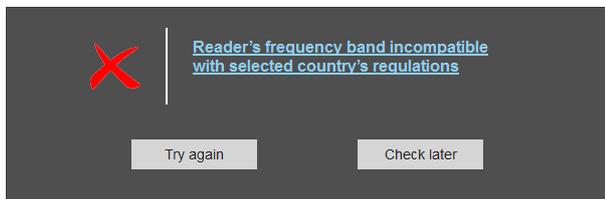
With USB reader connection



- 1- Connect the reader and set the communication COM port.
- 2- Select 'Connect your reader'
- 3- Please confirm

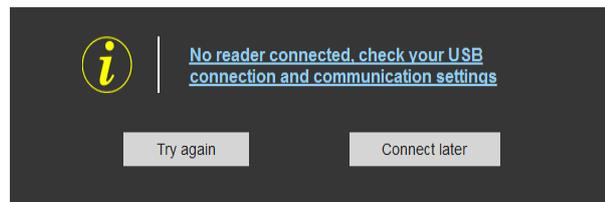


Message: OK



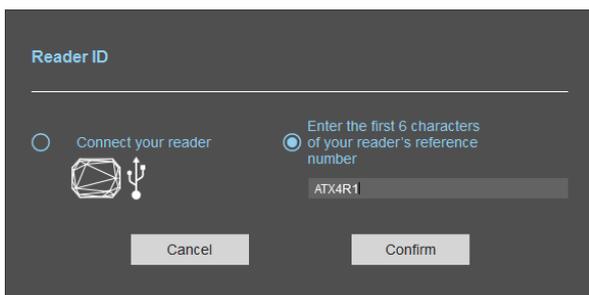
Message: NOK

The reader can't be installed in the selected country.



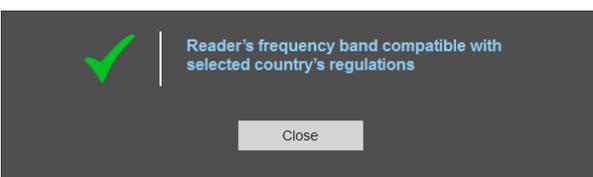
- Check the USB cable
- Check the communication with reader

With reader part number

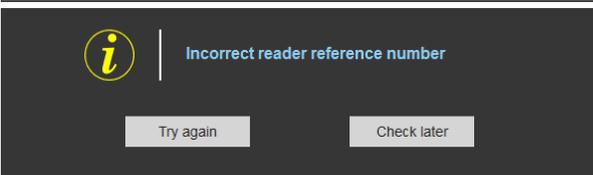


Enter the first 5 characters of the reader part number

Example: ATX4W43, ATX4W53

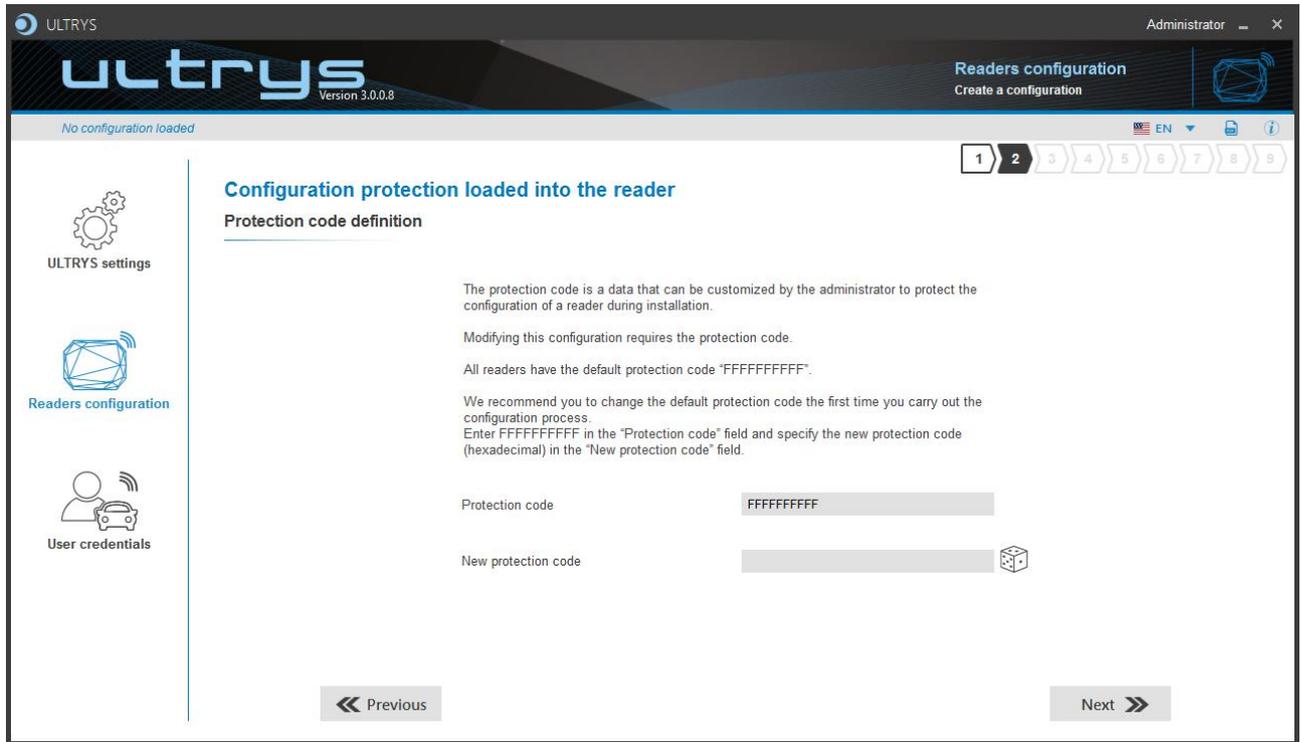


Message: OK



Message: the reference reader is not compatible with regulation selected.

Step 2- Configuration protection loaded into the reader



SPECTRE ATX4 readers are initially supplied with a default configuration and a protection code to 0xFFFFFFFFF.

The size of this protection code is 5 bytes (10 hexadecimal characters).

After the initial setup and in order to reconfigure the reader, it will be necessary to present an UHF OCB card or a configuration file with the same 'protection code' as the reader.



Random protection code generator.

Caution

This protection code is important and should definitely be known by the administrator. It protects the configuration data and allows reader configuration updates.

If you lose this protection code, you won't be able to reconfigure the reader again and the reader must be reset at the factory.

To change the protection code, it will be necessary to know the current protection code.

Step 3- Reader configuration



① Selecting the reader type

SPECTRE ATX4 readers can be configured in OSDP™ mode from firmware 10.

② Selecting Firmware

You must select the firmware version that is compatible with your reader.

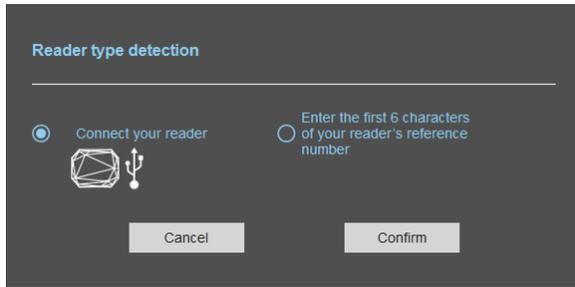
To do so, you can manually select the reader and firmware version, or you can use the function "Auto detection – Connect and check my reader configuration".

Compatibility between firmware readers and ULTRYS versions

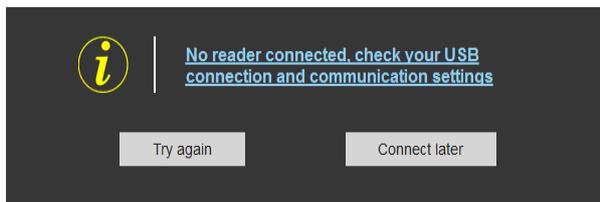
Firmware versions	ULTRYS softwares			
	ULTRYS V2.0	ULTRYS V2.1	ULTRYS V2.4	ULTRYS V3.x
v 7	✓	✓	✓	✓
v 9		✓	✓	✓
v 10,11,12			✓	✓
> v 13				✓

Close

With USB reader connection



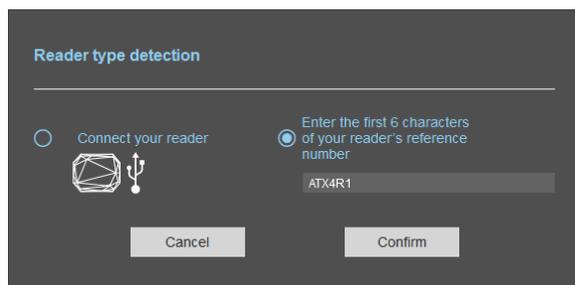
- 1- Connect the reader via USB cable provided. Configure the communication parameters.
- 2- Select the Connect your reader.
- 3- Click on Confirm.



Message : NOK

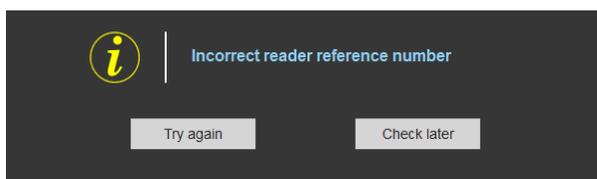
- Check the USB cable
- Check the communication with reader

With reader's number reference



Enter the first 6 characters of your reader's reference number

Examples: ATX4W43, ATX4W53



Message: NOK

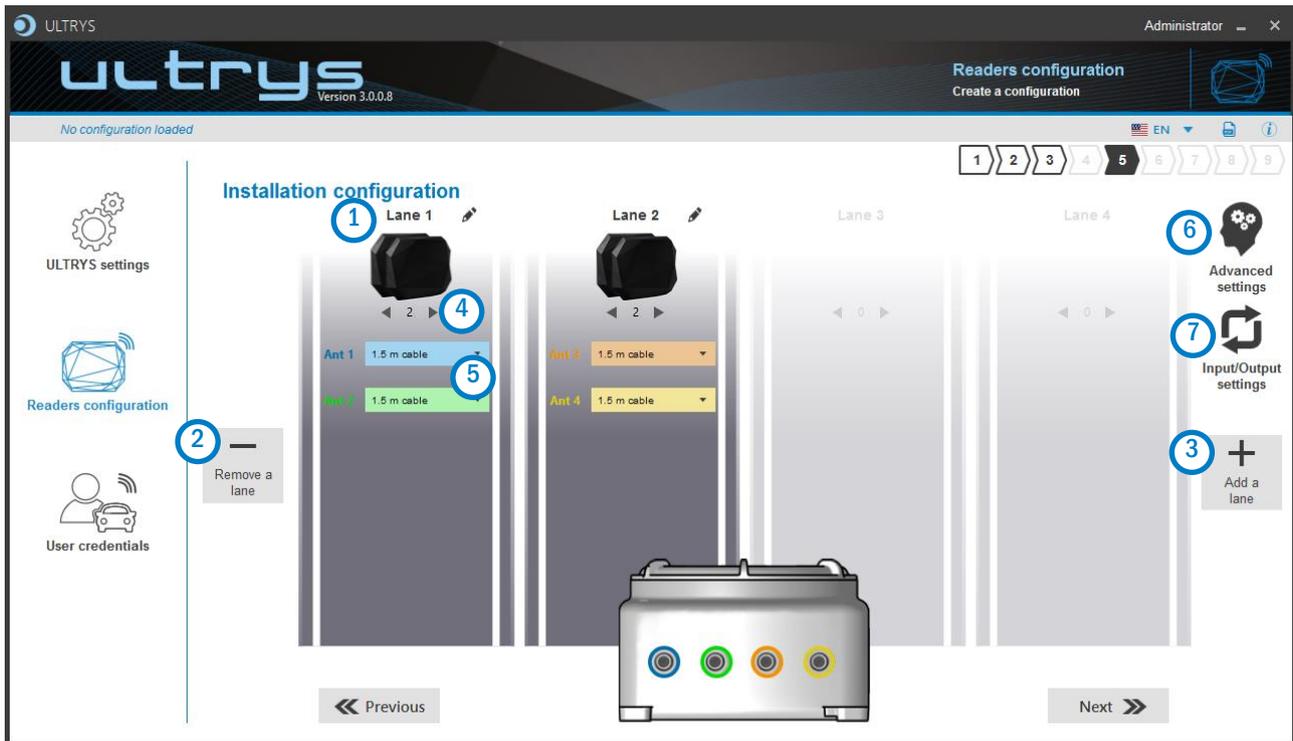
Check your reader's reference number

Step 4- Antenna type selection

The OSDP™ SPECTRE ATX4 reader only works with the new SPECTER antennas (ANT-UHF2)

Step 4 does not exist in the SPECTER OSDP™ setup wizard.

Step 5- Installation configuration



① Name the lane

Maximum 10 characters.

For example, Entry1...

②③ Add / Delete lane

Use 'Add /Delete lane' to configure the number of lanes you will use in your application.

The default setting is one antenna on the first lane.

[For more information about the possible combination please refer to the document NA_SPECTRE.](#)

In OSDP™, the lane number corresponds to the "Reader Number":



Multi-lane OSDP management

To know on which lane does the credential detection "osdp_RAW response" come from or on which lane we have to send the "osdp_LED command", the system needs to manage the "Reader Number" byte expected by the OSDP V2.1.7 protocol.

Reader Number byte definition :

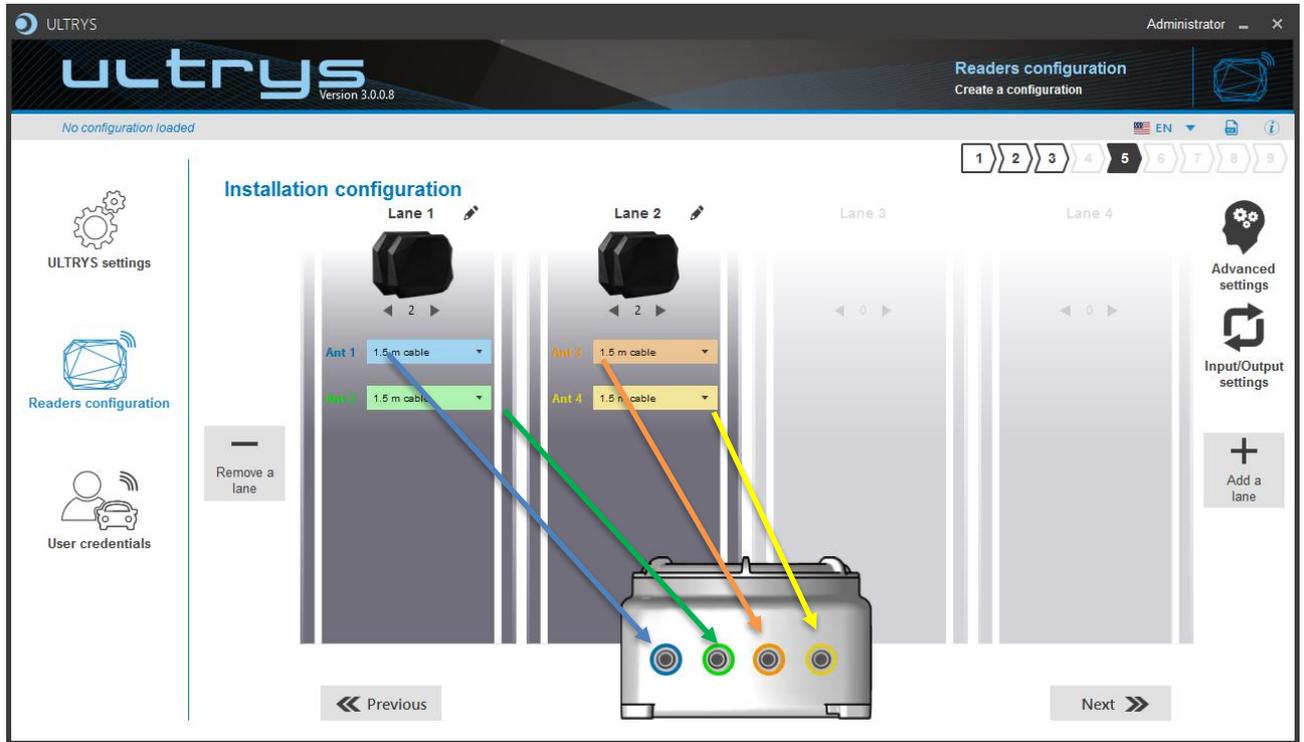
- Reader Number byte = 0 => "First Reader" (Lane 1)
- Reader Number byte = 1 => "Second Reader" (Lane 2)
- Reader Number byte = 2 => "Third Reader" (Lane 3)
- Reader Number byte = 3 => "Fourth Reader" (Lane 4)

Close

④ Add / Remove antenna on lane

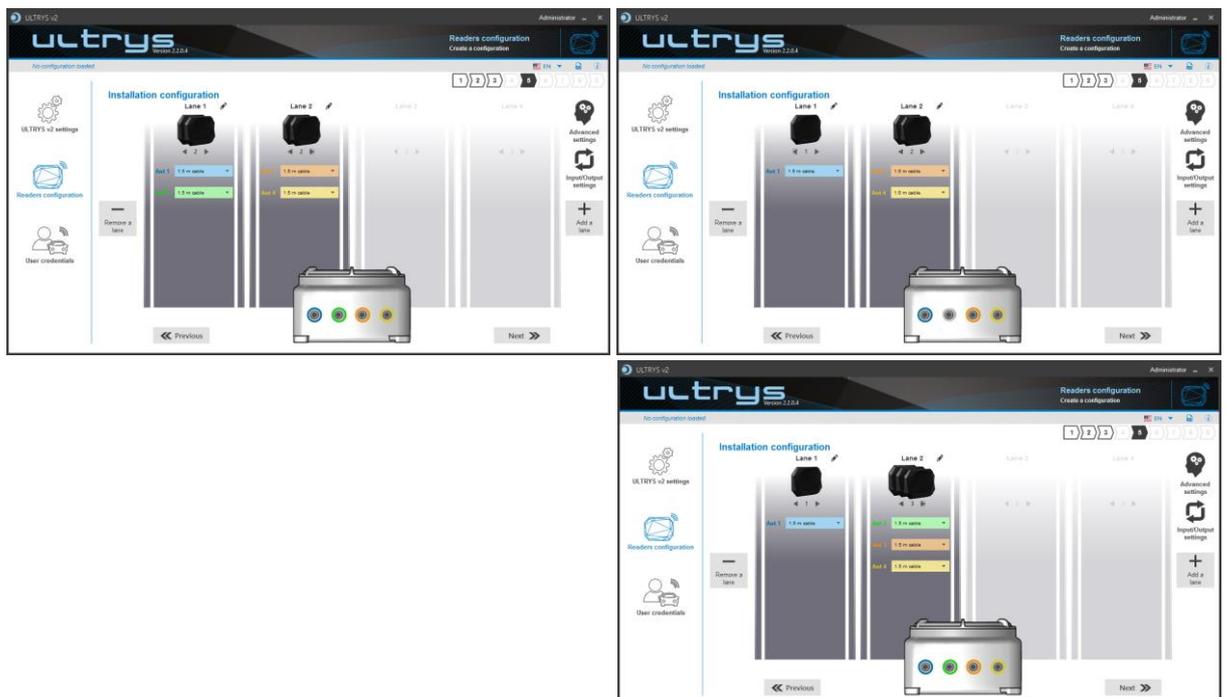
Set the number of antennas on the corresponding lane.

When an antenna is added, the RF port to which the antenna has to be connected appears on the reader with corresponding color to help the installation.

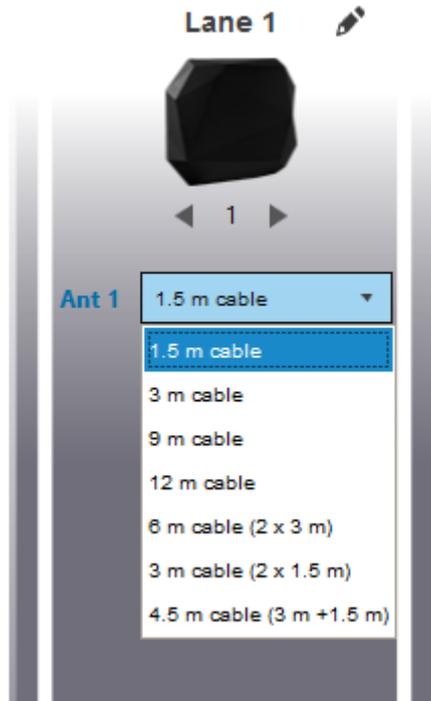


RF ports are assigned in order to add the antennas in the configuration wizard. When an antenna is removed from the configuration, the RF port connection for other antennas does not change.

Example: Ant 2 deleted from lane 1 and added to lane 2.

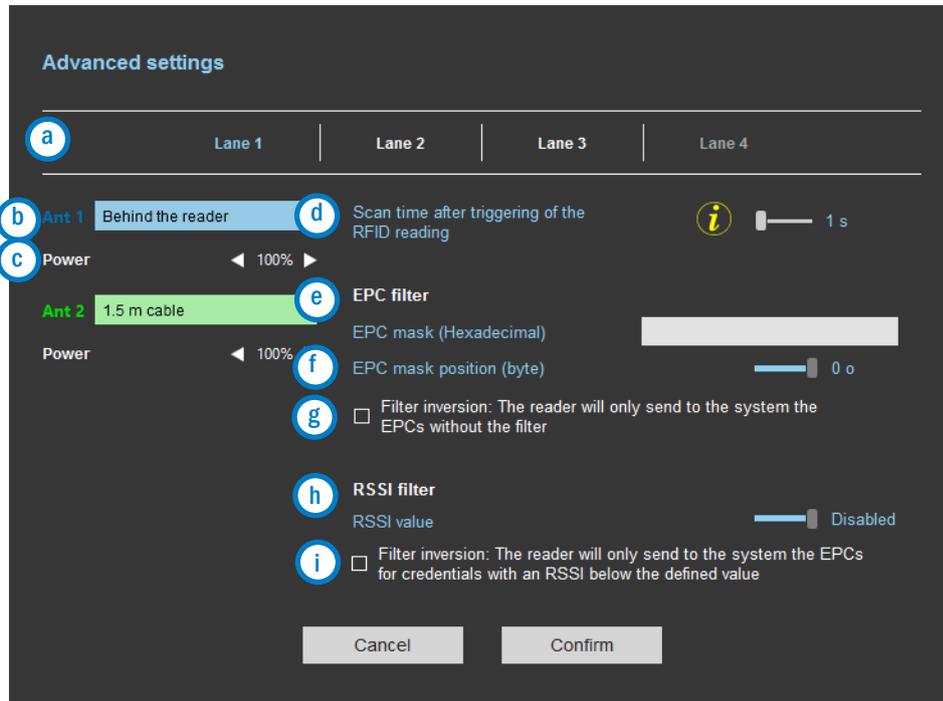


⑤ Select the cable length for each antenna



For each antenna, select the cable length you would like to use between antenna and reader.

⑥ Advanced settings



- a** Select the lane to configure. The lanes selected in installation setup are in white, unused lanes are grayed out. When a lane is selected in Advanced parameters it is written in blue.
- b** Select / Change the cable length between the antenna and the reader.
- c** Adjust the power of each antenna (from 10% to 100%) to adjust the reading distances.
- d** Adjust the timing for a scan (reading) by step of 1 second (max 30s). This setting is taking into account only if Input type selection is set to Activating all lanes or Activating the event lane.
- e** **The EPC filter is not available in Secure Mode.** Enter the value for EPC Mask, max 62 hexadecimal bytes.
- f** Adjust the value for offset EPC mask in bytes (0 to 61). It depends on the EPC Mask length.
- g** Filter inversion not selected: only tags with an EPC value corresponding to the EPC mask value will be provided to the user.
Filter inversion selected: only tags with an EPC value different from the EPC mask value will be provided to the user.
- h** RSSI (Received Signal Strength Indication) is a measure of the power in reception of the tag response. The value returned by the reader is proportional to the amplitude of the reception signal
Adjust the RSSI value (-110dBm to 0dBm). 0dBm deactivates the RSSI filter.
- i** Filter inversion not selected: only tags with an RSSI greater than or equal to the specified value will be provided to the user.
Filter inversion selected: only tags with an RSSI smaller or equal to the specified value will be provided to the user.

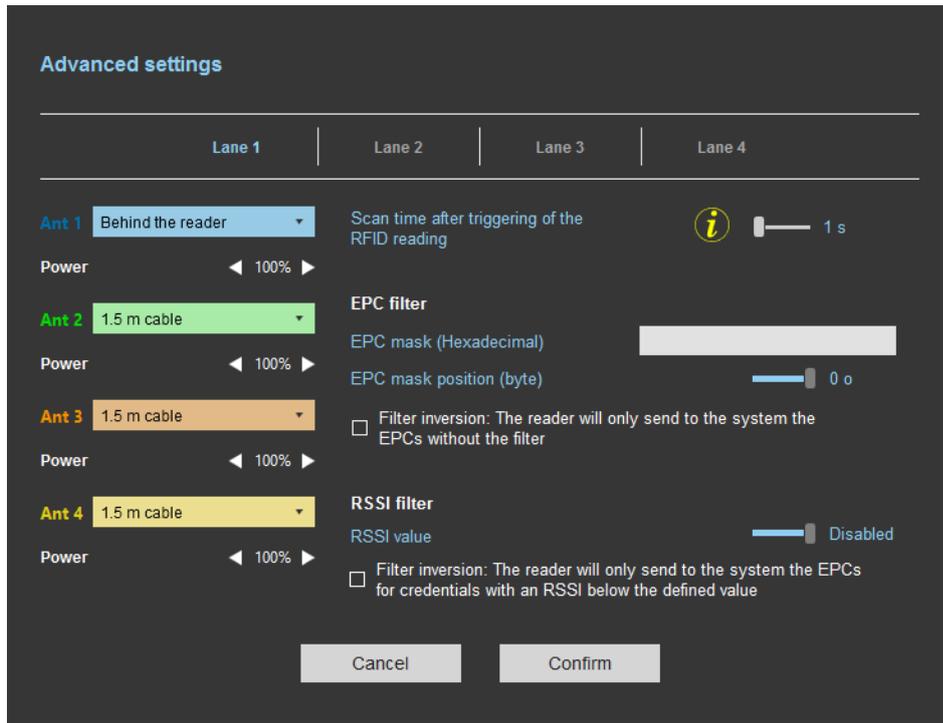
Ex: RSSI filter = -49f=dBm + Reversal not selected

A tag that will have a RSSI value of -20dBm will be sent back,

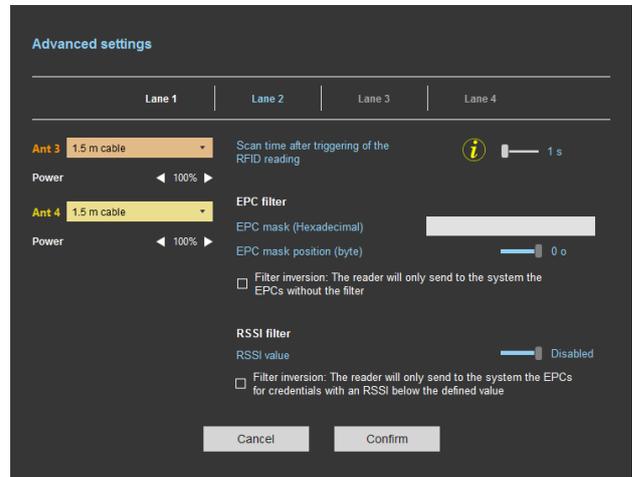
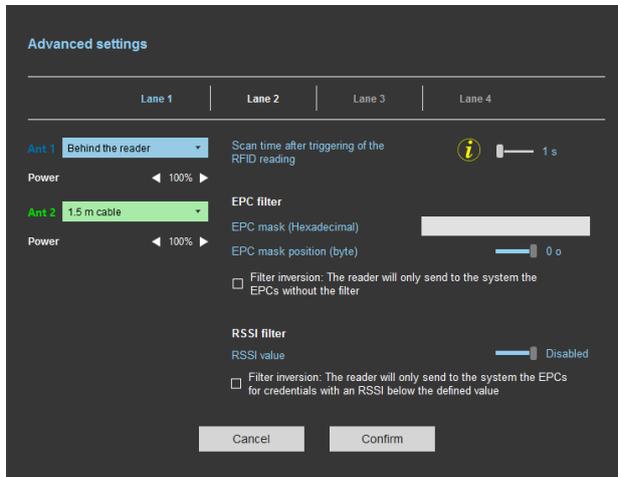
A tag that will have a RSSI value of -60dBm will not be sent back.

Scan time, EPC filter and RSSI filter settings are the same for antennas on the same lane. The cable length and RF power antenna are set for each antenna.

Example 1: 4 antennas on lane 1.



Example 2: 2 antennas on lane 1 et 2 antennas on lane 2.



EPC Filter

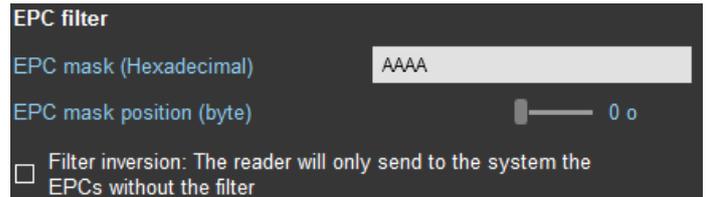
Examples:

Code EPC Tag 1: AAAAABCD0000000000000001
 Code EPC Tag 2: AA02ABCD0000000000000002
 Code EPC Tag 3: AA02ABCD0000000000000003
 Code EPC Tag 4: AA02FFFF0000000000000003

1- EPC mask = AA AA and Offset = 0

Tag 1: **AAAA**ABCD000000000000000001
 Tag 2: AA02ABCD000000000000000002
 Tag 3: AA02ABCD000000000000000003
 Tag 4: AA02FFFF000000000000000003

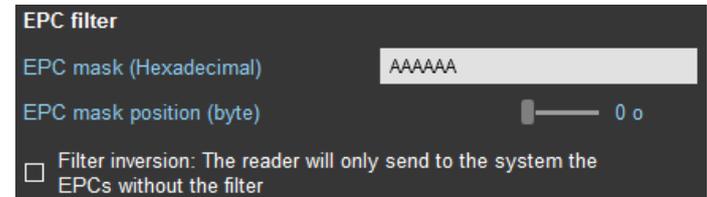
Only tag 1 is transmitted.



2- EPC mask = AA AA AA and Offset = 0

Tag 1: AAAAABCD000000000000000001
 Tag 2: AA02ABCD000000000000000002
 Tag 3: AA02ABCD000000000000000003
 Tag 4: AA02FFFF000000000000000003

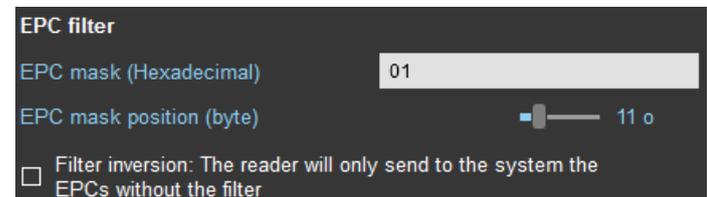
No tag is transmitted.



3- EPC mask = 01 and Offset = 11

Tag 1: **AA AA AB CD 00 00 00 00 00 00 00 01**
 Tag 2: AA 02 AB CD 00 00 00 00 00 00 00 02
 Tag 3: AA 02 AB CD 00 00 00 00 00 00 00 03
 Tag 4: AA 02 FF FF 00 00 00 00 00 00 00 03

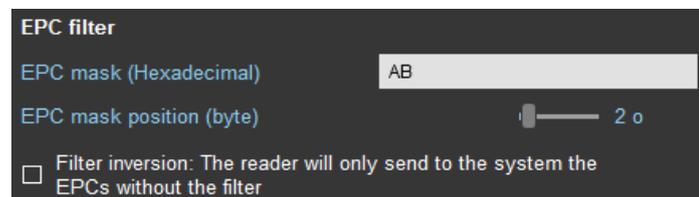
Offset is represented in blue; the filter is done on byte 12.
 Only tag 1 is transmitted.



4- EPC mask = AB and Offset = 2

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

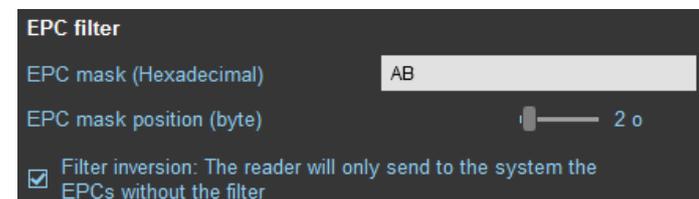
Tags 1, 2 and 3 are transmitted.



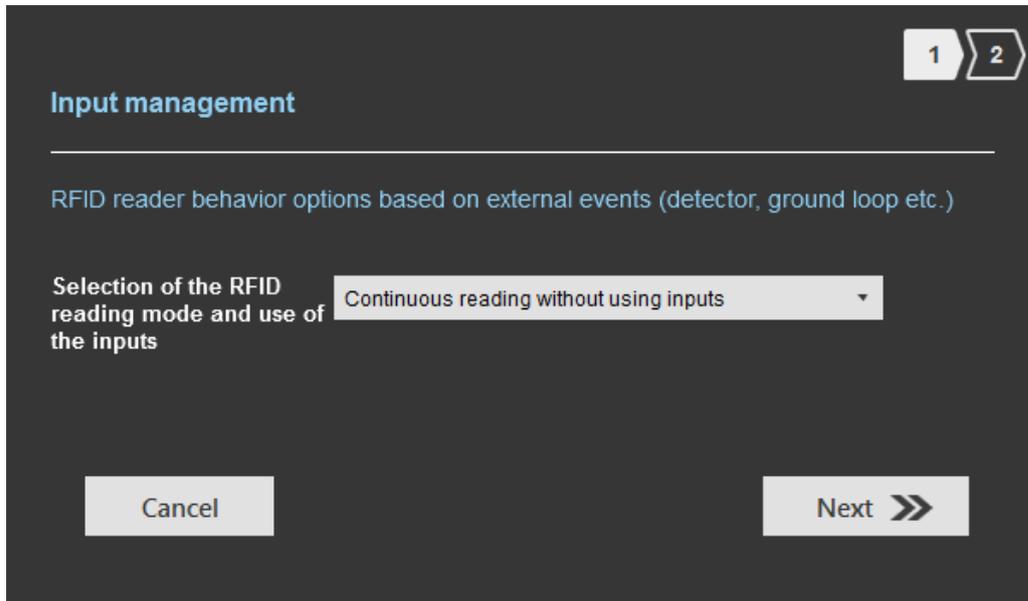
5- EPC mask = AB, Offset = 2 and Reversal

Tag 1: **AA AA AB** CD 00 00 00 00 00 00 00 01
 Tag 2: **AA 02 AB** CD 00 00 00 00 00 00 00 02
 Tag 3: **AA 02 AB** CD 00 00 00 00 00 00 00 03
 Tag 4: **AA 02** FF FF 00 00 00 00 00 00 00 03

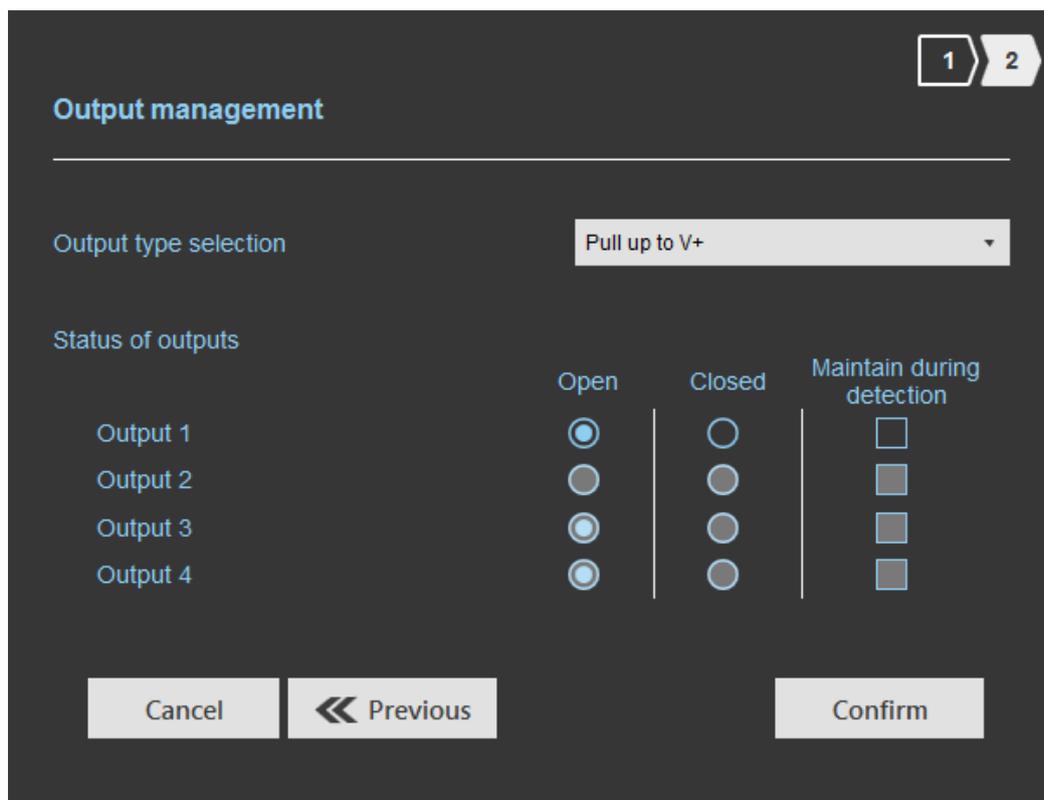
Tags 1, 2 and 3 are not transmitted. Only tag 4 is transmitted.



⑦ Input / output settings

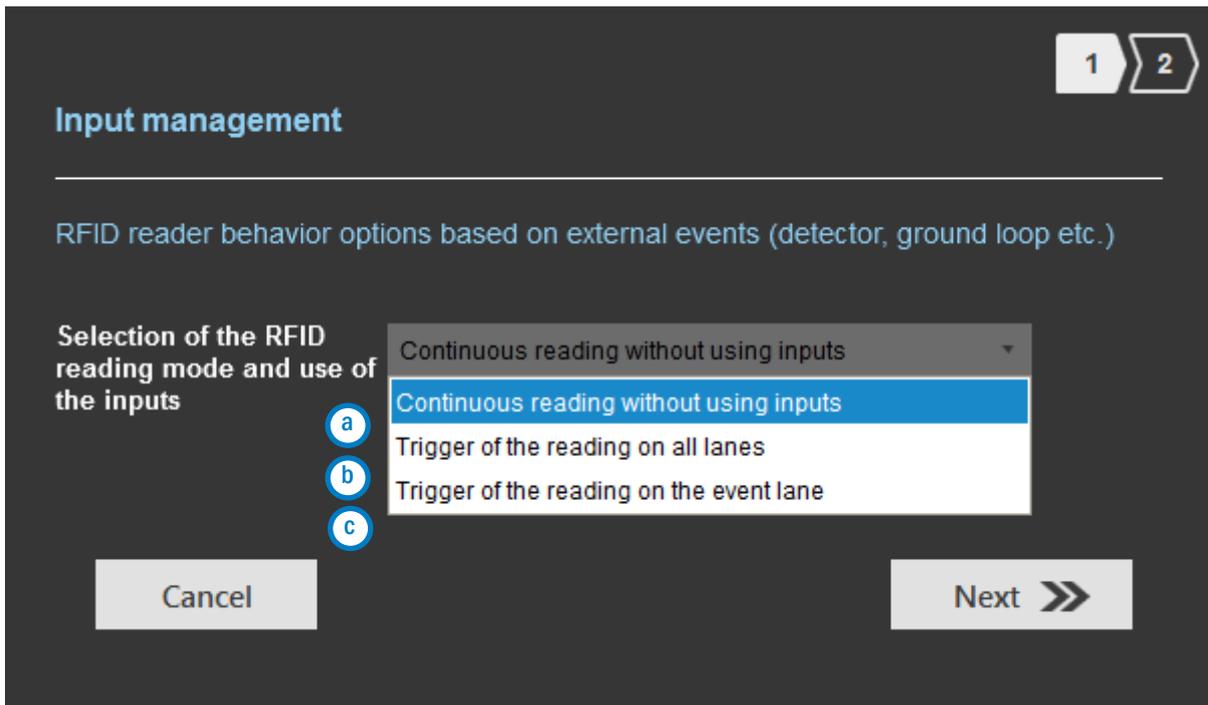


The configuration of the outputs depends on the reading mode chosen.

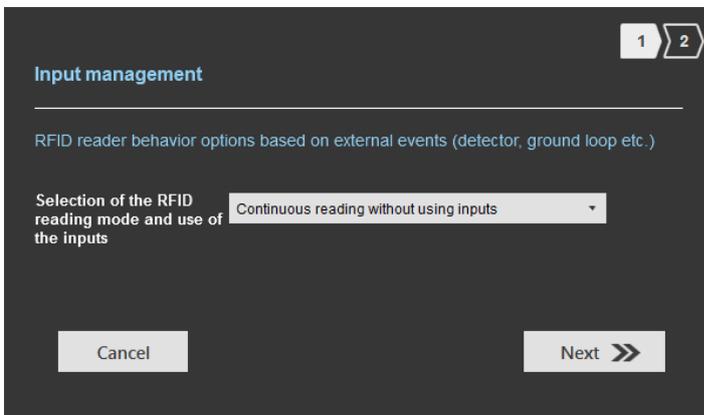


Both types of output are « Pull up to V+ » or « Open drain ».

Status of outputs: select for each output the default state 'Open' or 'Closed' and if the state is maintained during the detection process.

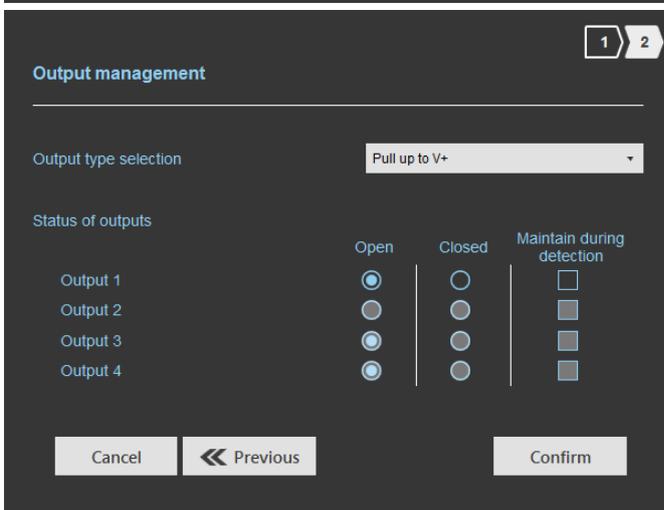


a Reading mode = Continuous reading without using inputs



In this mode, the reader scan continuously.

There is no action on input activation.



Select the output type and default state for output.

b Reading mode = Trigger of the reading on all lanes

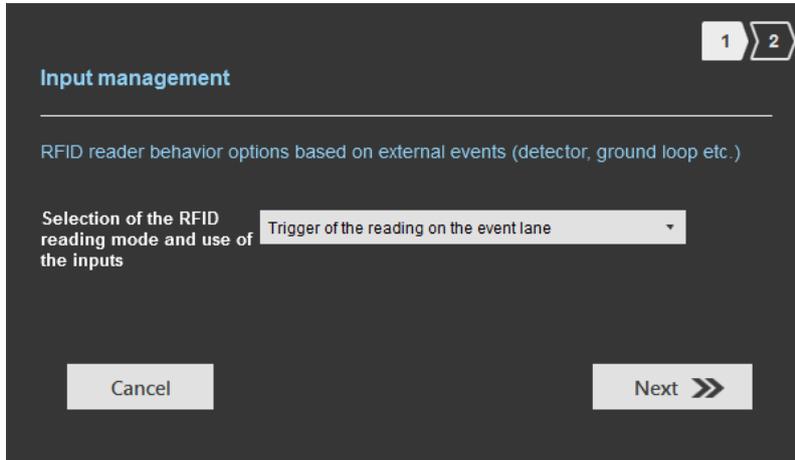
If an Input is activated (In1, In2, In3 or In4), the reader scans on all lanes set.

The duration of the reading is defined in 'Advanced settings'.

Status of outputs	Open	Closed	Maintain during detection
Output 1	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 2	<input type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 3	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>
Output 4	<input checked="" type="radio"/>	<input type="radio"/>	<input type="checkbox"/>

Select the output type and default state for output.

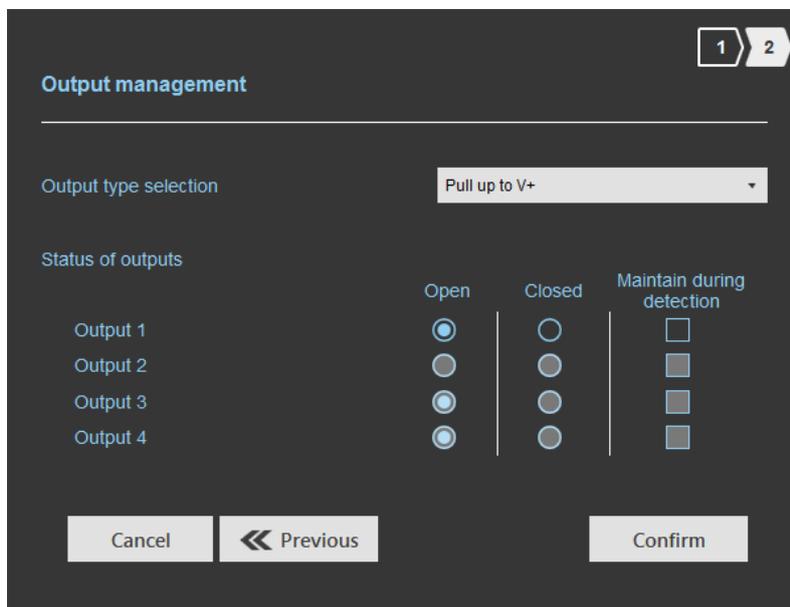
C Reading mode = Trigger of the reading on the event lane



If an Input is activated, the reader scans on the corresponding lane.



The reading duration is defined in 'Advanced settings'.



Select the output type and default state for output.

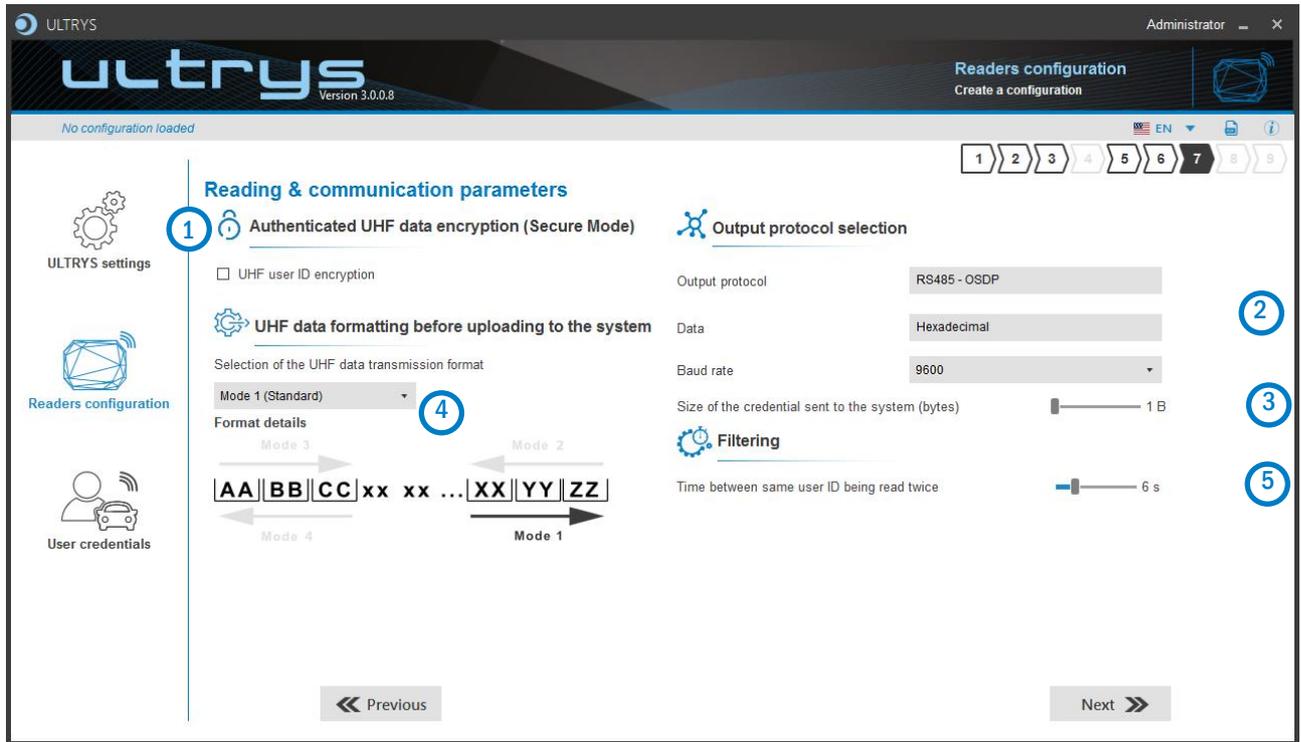
Summary table

Reading Mode	Input	Configurable Outputs states?	Output
a Continuous reading without using inputs	No action	Yes by lane	The output state toggles at the ascent
b Trigger of the reading on all lanes	An action on any input activates the reading on all configured lanes	Yes by lane	The output state toggles at the ascent during the ascent time of the identifier (physically on the BUS + 200ms)
c Trigger of the reading on the event lane	An action on Input x activates the scan on lane x	Yes by lane	

Step 6- Light indicator configuration

Step 6 does not exist in the SPECTRE ATX4 configuration wizard

Step 7- Reading & communication parameters

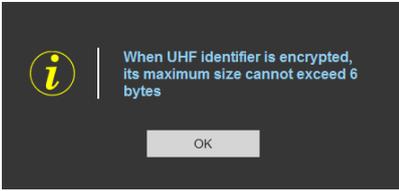


1 **Authenticated UHF data encryption (Secure Mode)**

UHF user ID encryption

Private key definition (16 bytes - Hex)

CA3DA50D284959F9DF605EFBAFBCBC4E



The EPC can be encrypted and signed before being written in the tag. The reader will decrypt and authenticate the EPC before sending it on its output media. Only an EPC correctly decrypted and authenticated will produce an output data, otherwise the reader will remain mute.

Notes:

- Only UHF tags compatible with “FAST ID” feature and having at least 128 bits of EPC can be decrypted and authenticated by the SPECTRE Access reader. The chips compatible with secure encoding are: Monza X, Monza R6P, Monza 4D, this chip is present into
 - TLTA-W53M-943_S
 - TLTA-W75B-943_S
 - IronTag 206
 - CCTW490_AN

- **The secure mode is not accessible if an EPC mask has been set in ‘Advanced settings’.**

Note: After setting an EPC security key, if you return to step 5 with the Previous button, and you set an EPC filter, then returning to step 7, the "EPC ID Security" checkmark is displayed. In gray, the key field is still accessible but not taken into account.

2 **Output protocol selection**

Output protocol: RS485 - OSDP

Data: Hexadecimal

Baud rate: 9600

The only modifiable parameter is the baud rate.

3 **Size of the credential sent to the system (bytes)**

Protocol	Size in plain mode	Size in secure mode
RS485	1b up to 62b	1b up to 6b

4 **UHF data formatting before uploading to the system**

Selection of the UHF data transmission format

Mode 1 (Standard)

Format details

- Mode 1 (Standard)
- Mode 2 (Standard reversed)
- Mode 3
- Mode 4

There are 4 UHF ID formatting modes: _____

Example: EPC data: AA BB CC DD EE xx xx ... VV WW XX YY ZZ with 'Size of the credential sent to the system' fixed to 4bytes.

- : ID feedback = WW XX YY ZZ
- : ID feedback = ZZ YY XX WW
- : ID feedback = AA BB CC DD
- : ID feedback = DD CC BB AA

5



Filtering

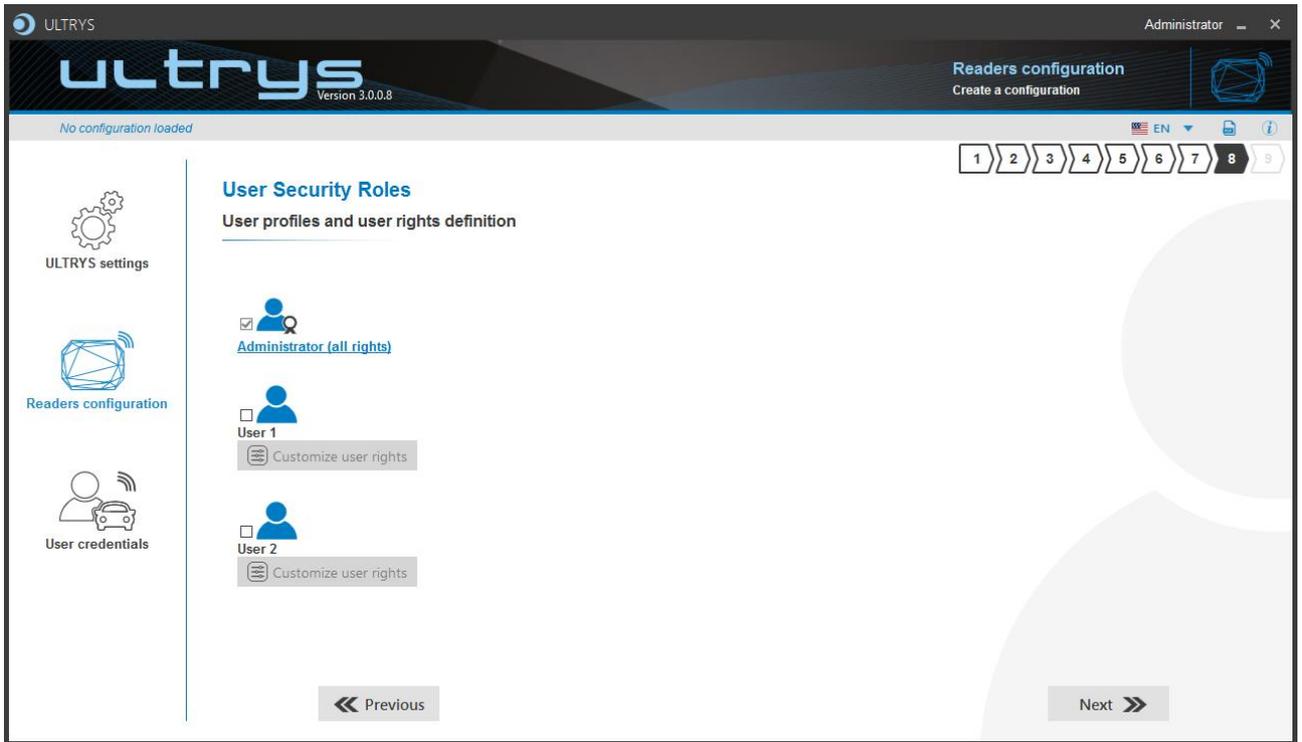
Time between same user ID being read twice

 6 s

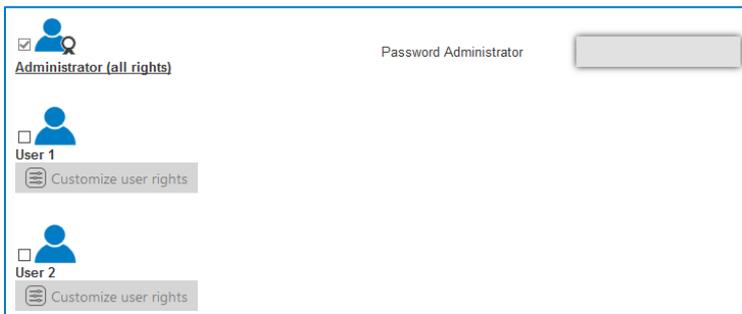
The reader emits the credential code present in the field only once during this time.

This time is adjustable from 0 to 30 seconds.

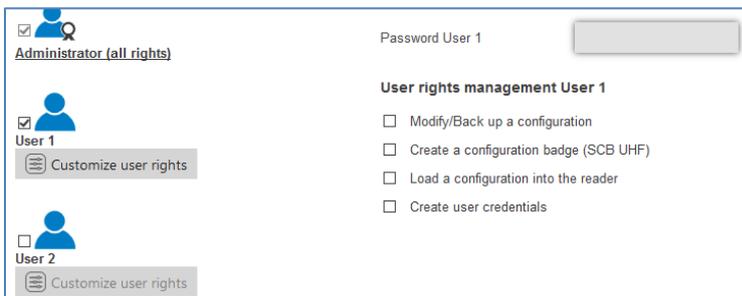
Step 8- User Security Roles



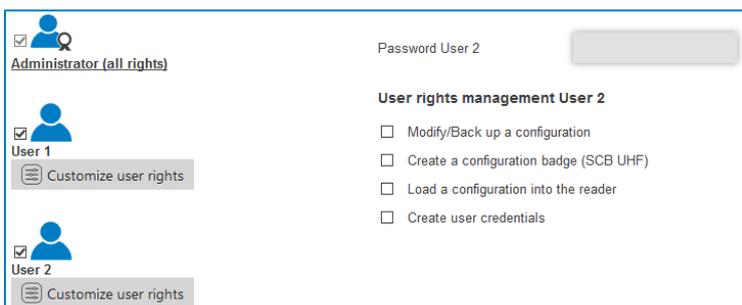
ULTRYS allows to manage three different profiles by configuration file.



Define an Administrator password to protect the configuration file.

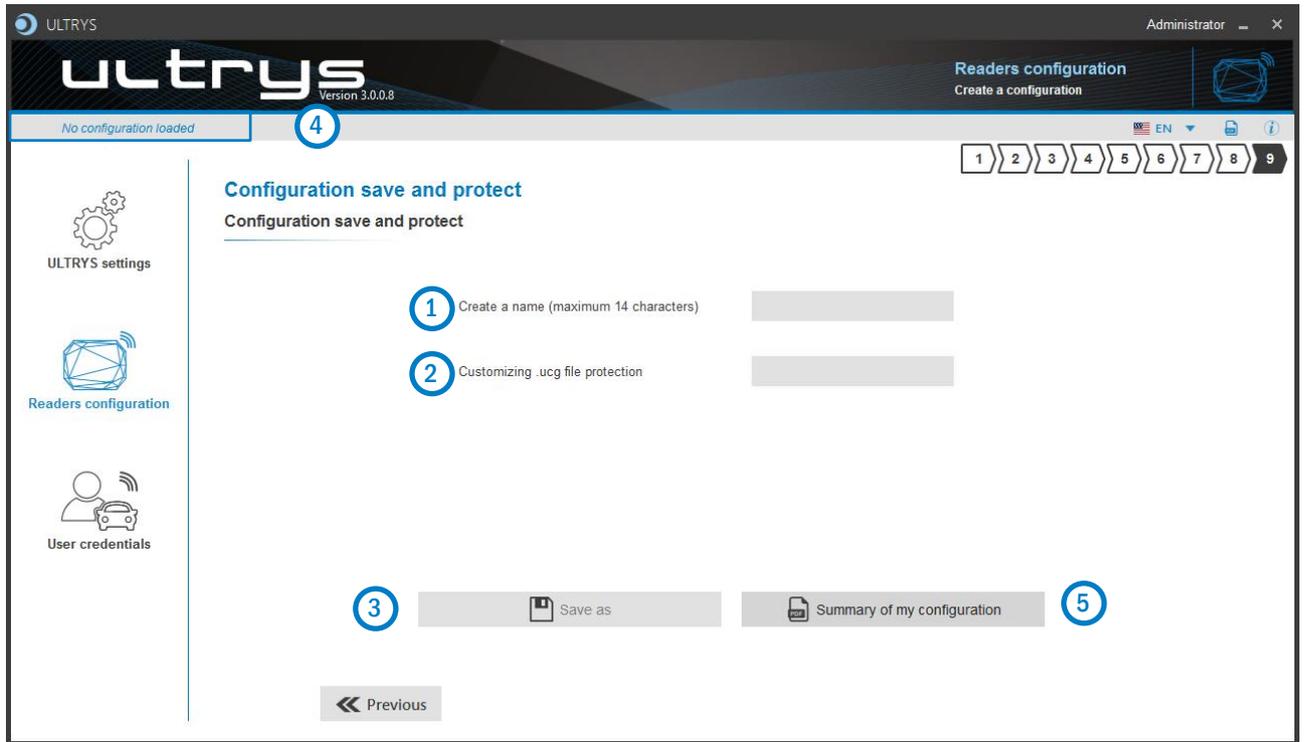


Define a User 1 password and select the corresponding rights.



Define a User 2 password and select the corresponding rights.

Step 9- Configuration save and protect



This step allows you to save the configuration file containing all the current configuration settings (keys, formats, reader...). You can select a location and password to protect the file.

- 1 Choose a name to easily find the configuration. (example: Parking IN).

Note: the name of the configuration must be contained in the file name.

- 2 To protect the configuration file, you can define a password. This password is different from Administrator password.
- 3 Select a directory and a file name to save.
- 4 The name and location of 'Configuration Loaded' indicates now the chosen name and location.



- 5 Get a summary of the configuration created.



Print: allows printing of configuration information on a network, local or virtual printer (PDF).

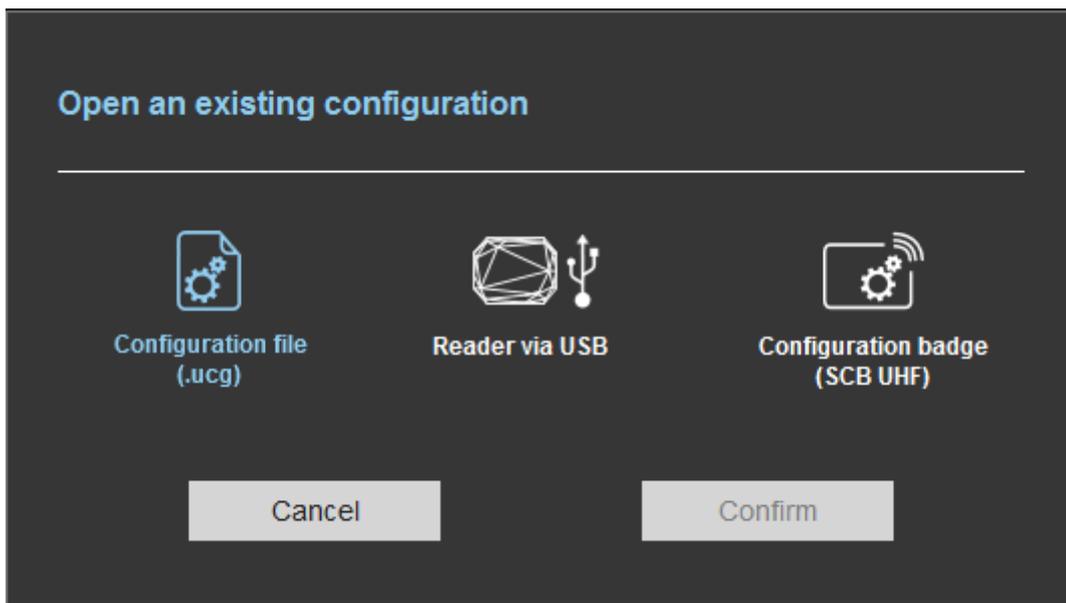


11. Open an existing configuration



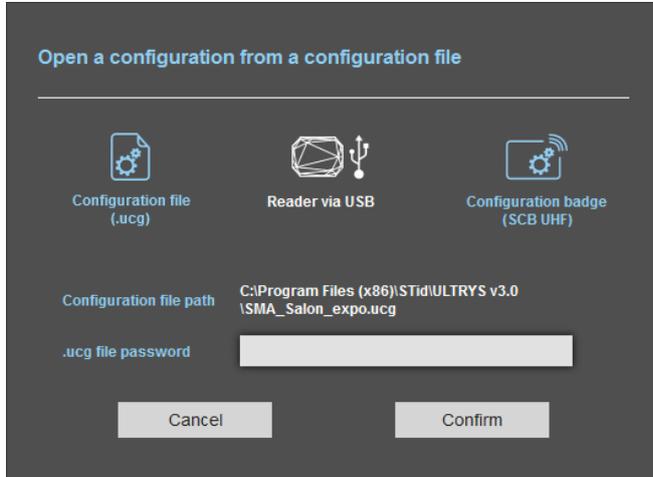
CAUTION: To open an SNA configuration, use ULTRYS v3.0.X minimum.

11.1 Configuration file

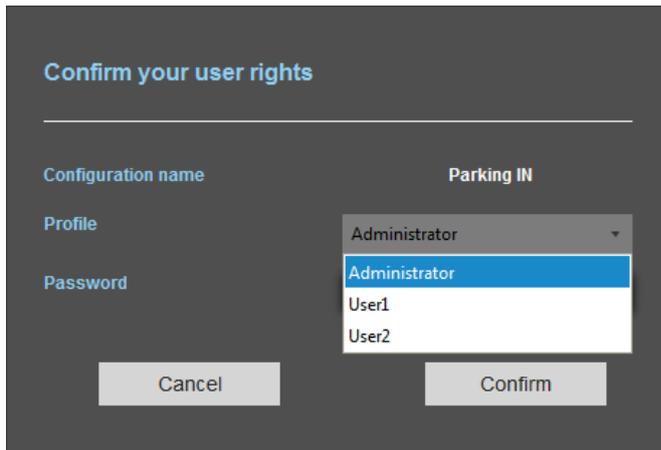




1- Select a configuration file .ucg on your PC or USB stick.



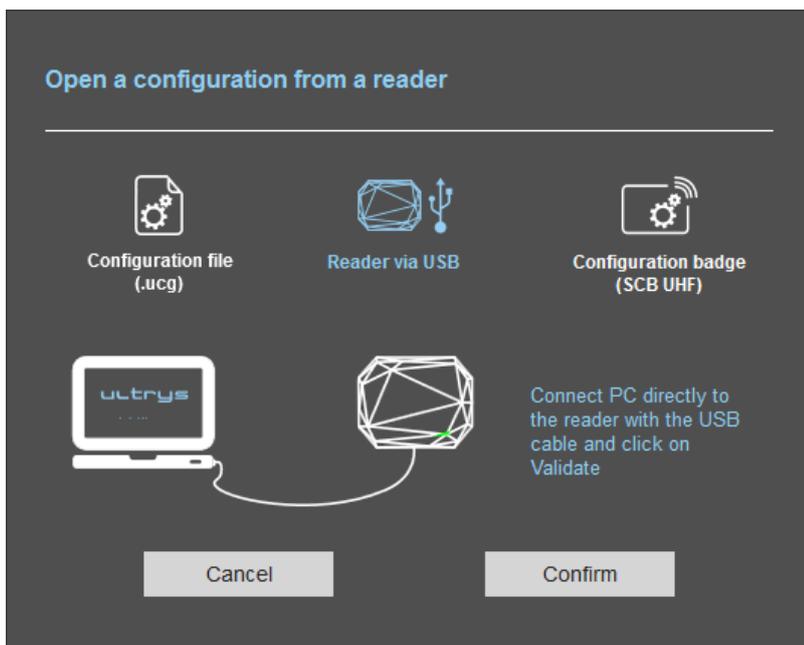
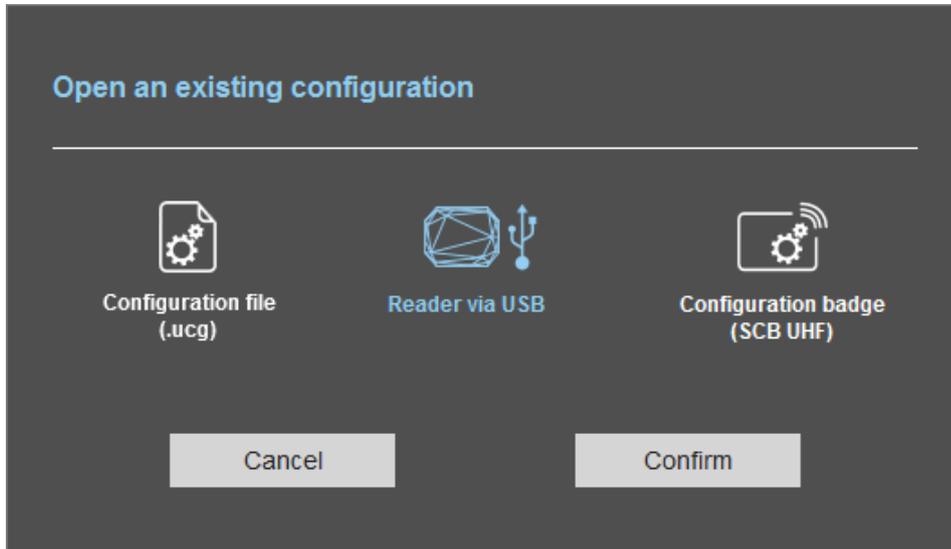
2- If the file has been protected for reading, enter the password and confirm.



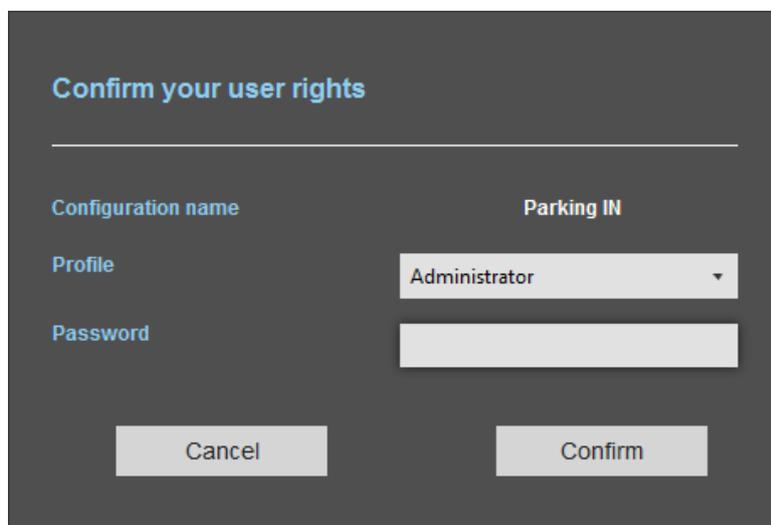
3- Select the profile to use and enter the corresponding password. Please confirm.



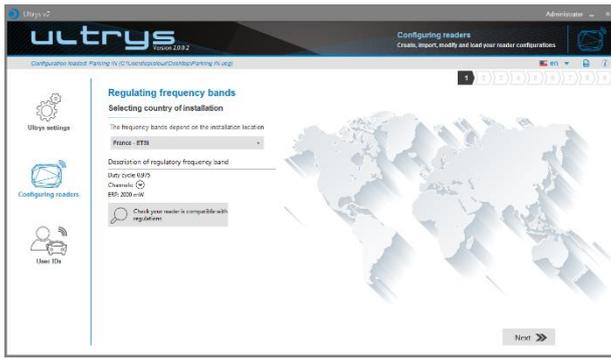
11.2 Reader via USB



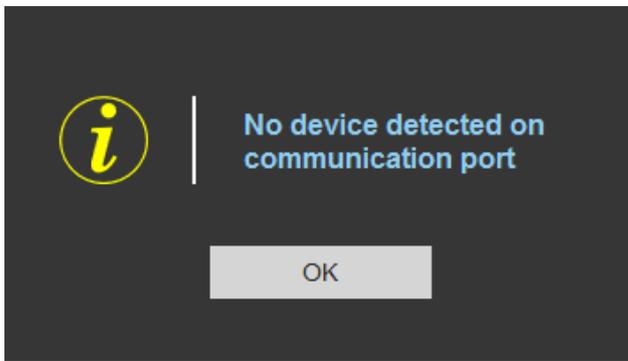
- 1- Connect the reader via USB cable provided.
- 2- Configure the communication parameters.
- 3- Please confirm.



- 4- Select the profile to use and the corresponding password. Please confirm.



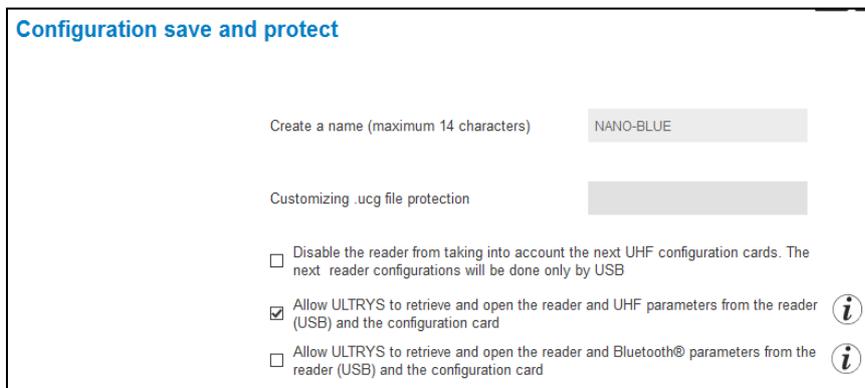
5- ULTRYS then displays the configuration wizard with all settings loaded from the reader.



Check connection and COM port settings.

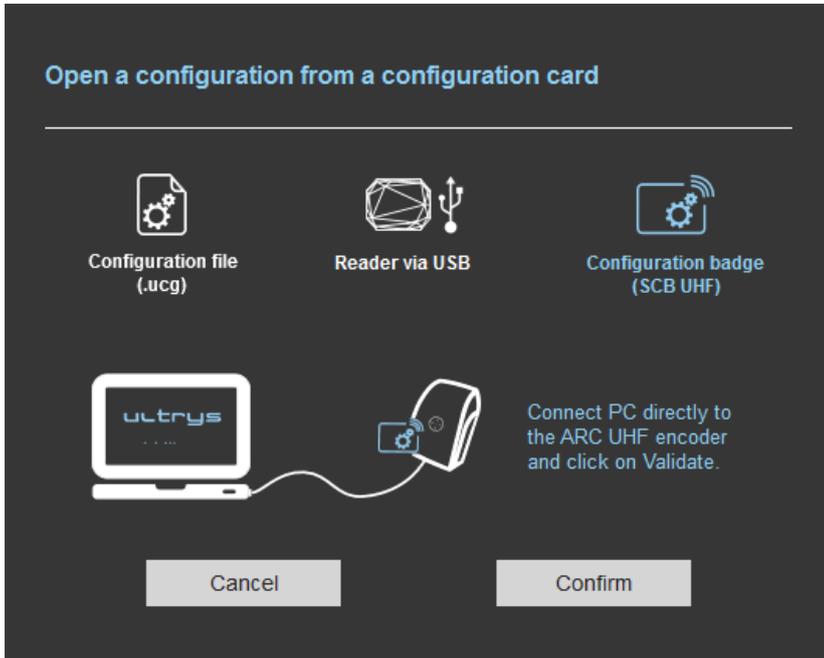
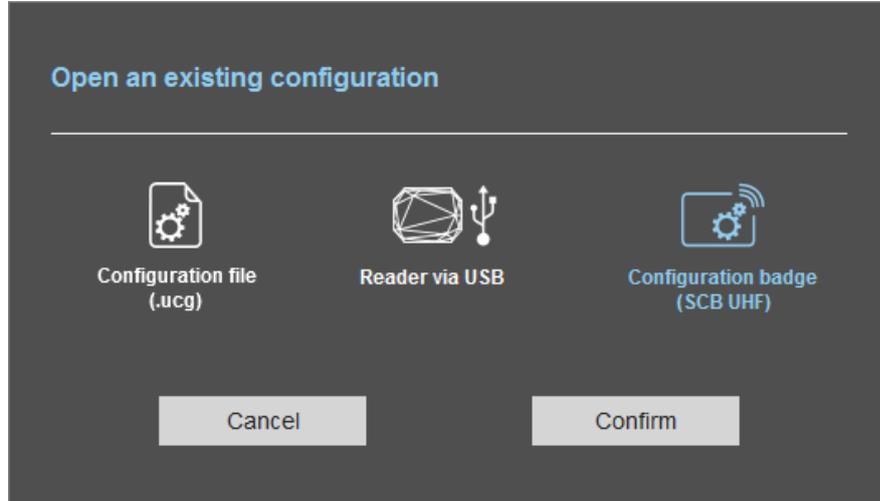
Note for an SNA configuration:

Depending on the permissions defined when creating the SNA reader configuration in step 9, the UHF and / or Bluetooth® settings will not be loaded

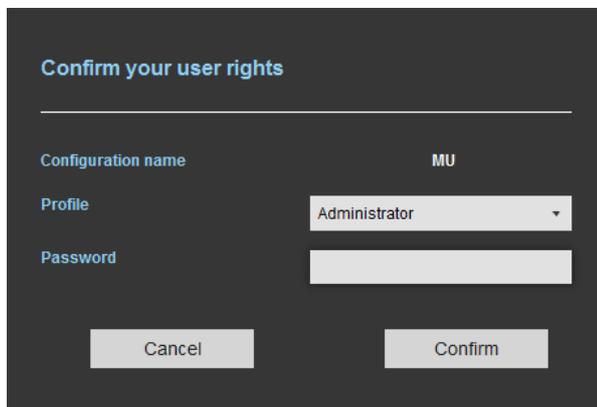




11.3 Configuration badge (SCB/OCB UHF)



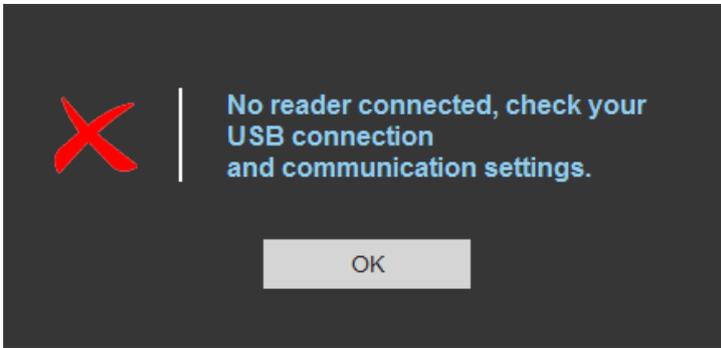
- 1- Connect an UHF encoder (ARC, STR or GAT Desk).
- 2- Configure the communication settings.
- 3- Present the SCB/OCB UHF to the encoder.
- 4- Please confirm.



- 5- Select the profile to use and the corresponding password. Please confirm.



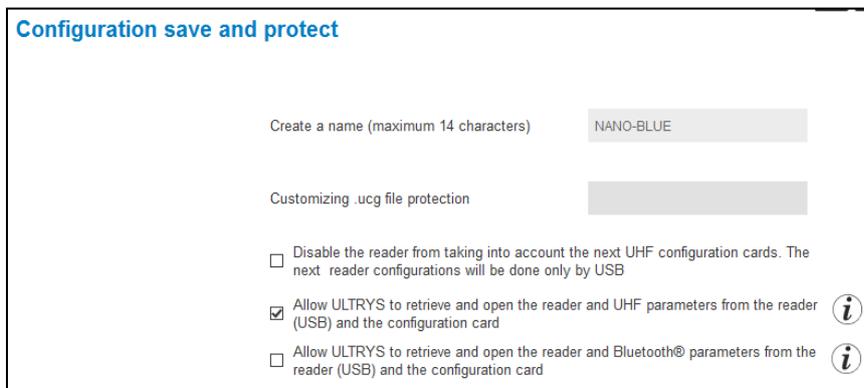
6- ULTRYS then displays the configuration wizard with all settings loaded from the SCB/OCB UHF.



Check connection and COM port settings.

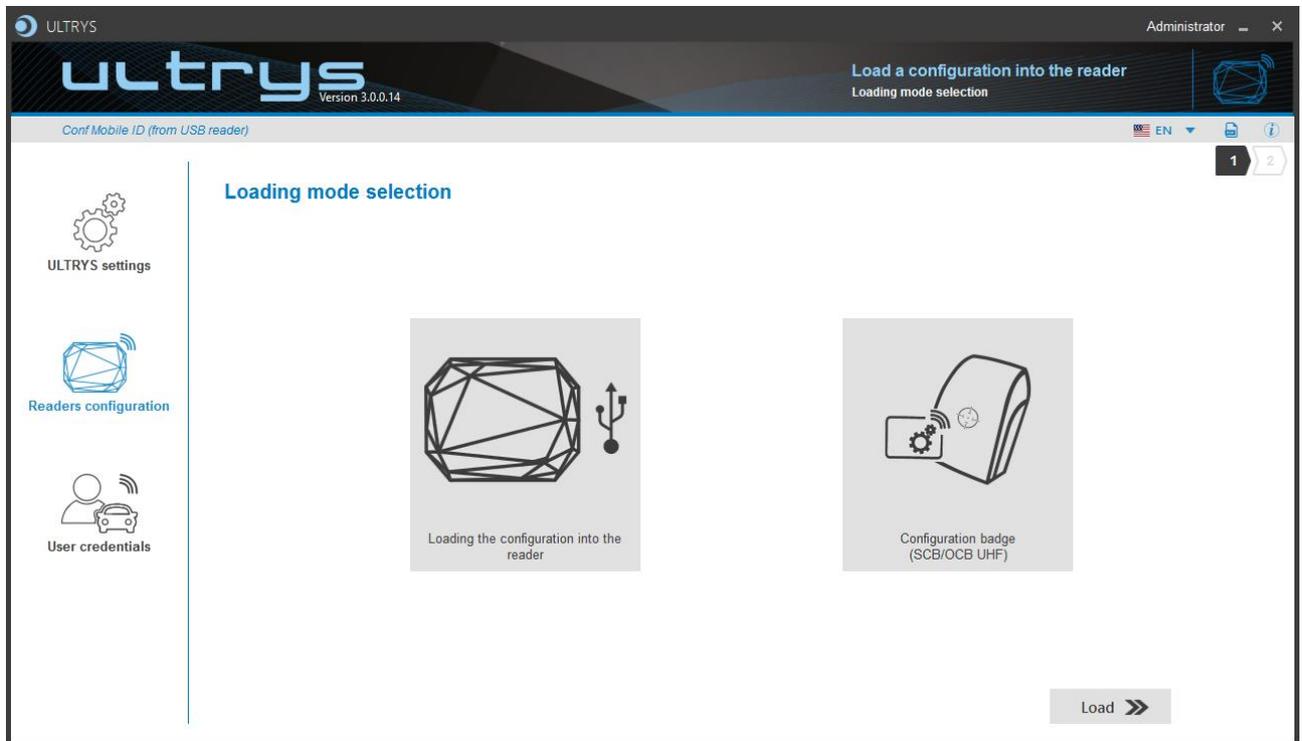
Note for an SNA configuration:

Depending on the permissions defined when creating the SNA reader configuration in step 9, the UHF and / or Bluetooth® settings will not be loaded

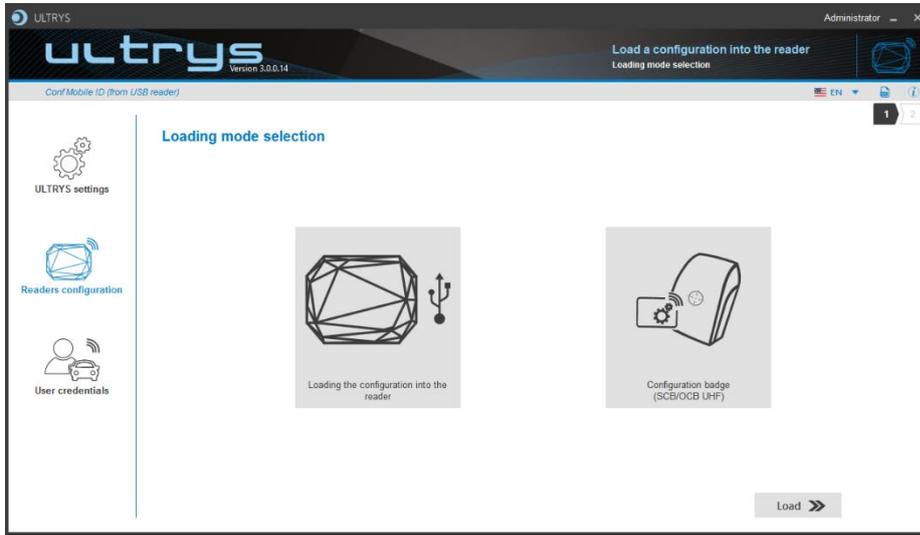




12. Load the configuration into the reader

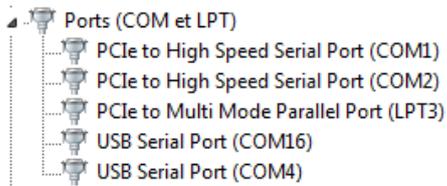


12.1 Loading the configuration into the reader

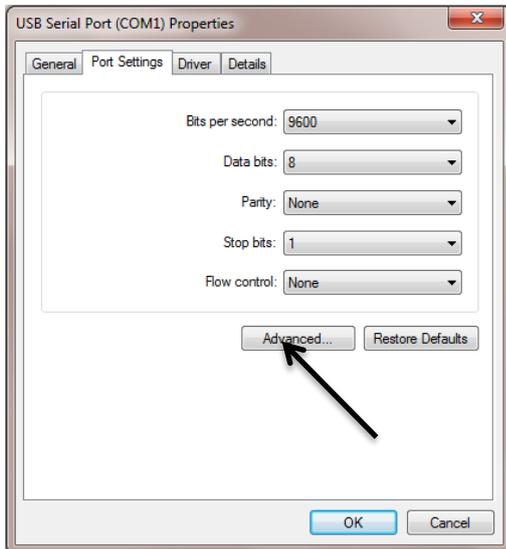


- 1- Connect a reader via USB cable.
- 2- Configure the communication settings.

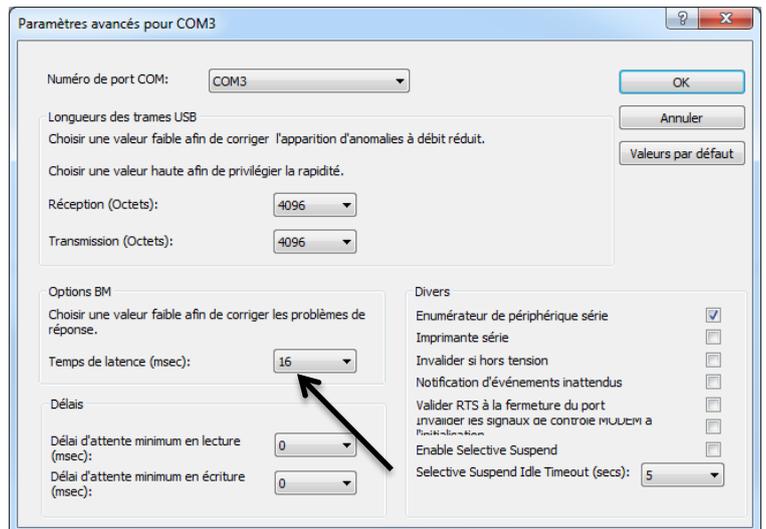
3- Configure the latency of com port to 1



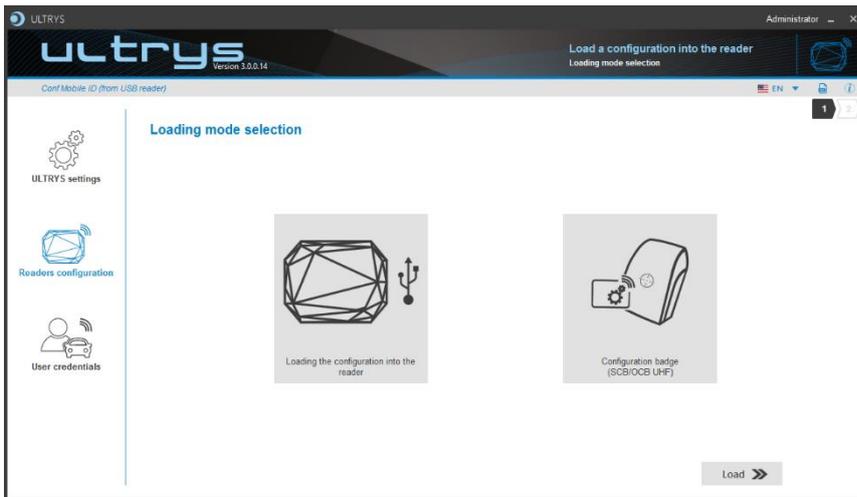
Double click on the good COM port number.



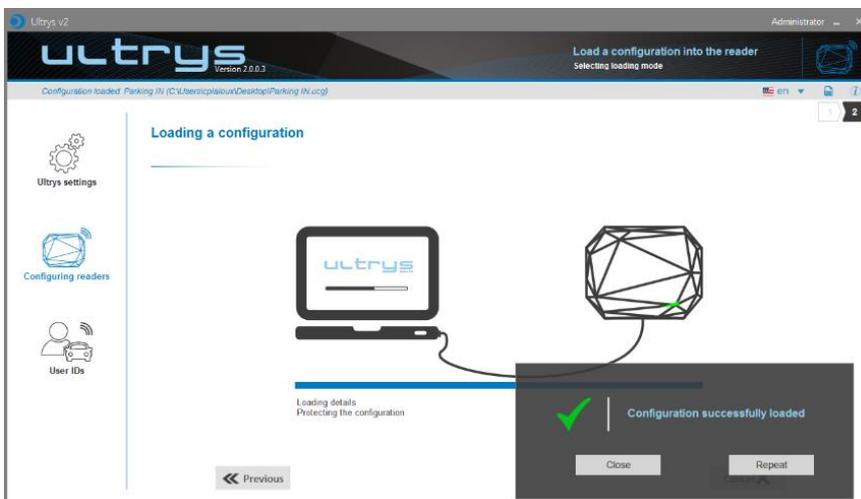
Open Advanced...



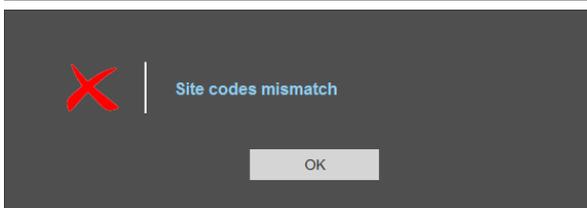
Put Latency on "16"



4- Load.



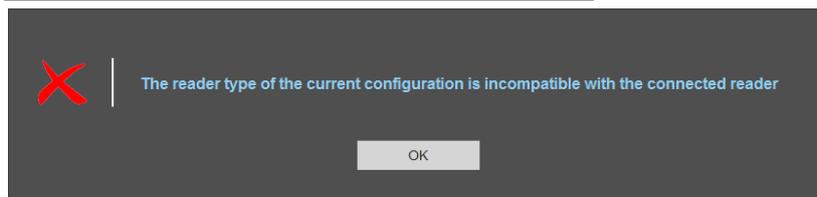
5- Close.
ULTRYS then displays the home page.



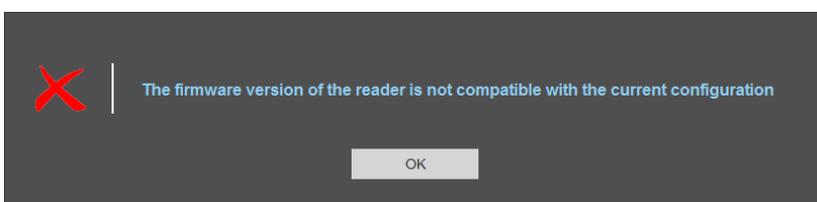
Error the site code of the SPECTRE reader is not the same in configuration file.



The selected RF regulation is not compatible with the reader.

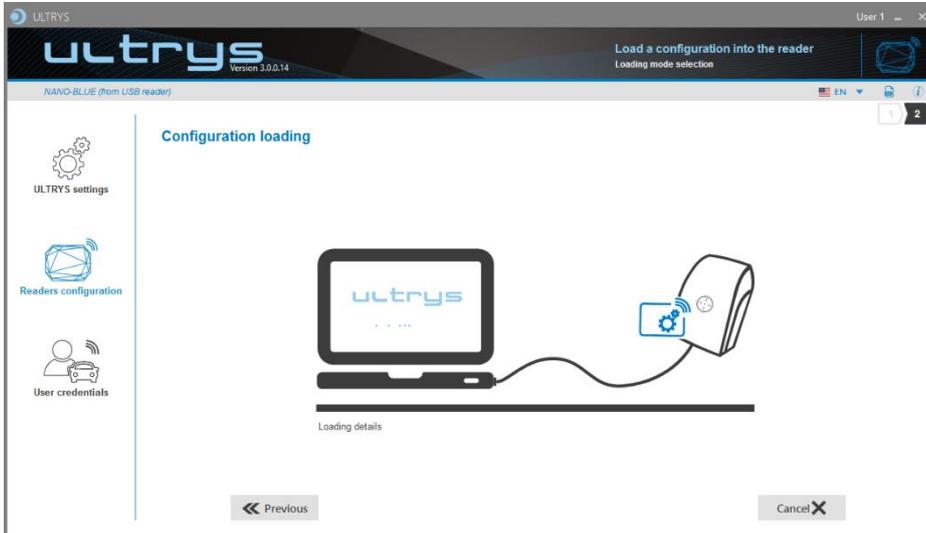


The reader type of the current configuration is not compatible with the connected reader. Change reader type in Step 3.

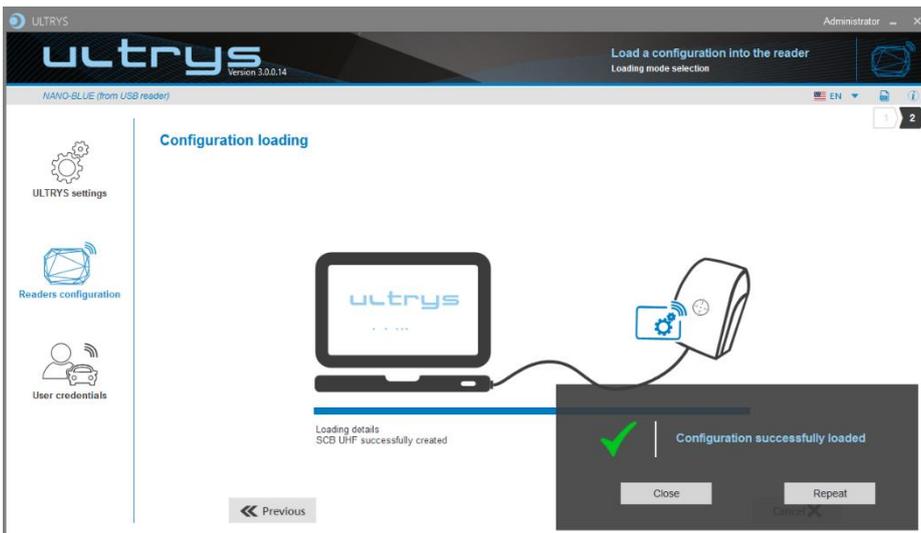


The firmware version of the reader is not compatible with the current configuration. Change firmware version in Step 3.

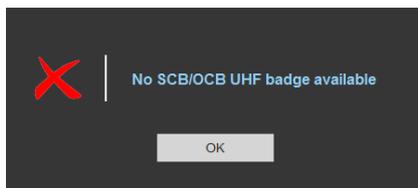
12.2 Configuration card (SCB/OCB UHF)



- 1- Connect an UHF encoder (STR, ARC UHF or GAT Desk).
- 2- Configure the communication settings.
- 3- Present a compatible SCB/OCB UHF card to the encoder.
- 4- Load



- 5-Close. ULTRYS then displays the home page.



The tag presented to the encoder is not compatible to create a SCB/OCB UHF or is not in RF Field.

Note:

The UHF encoder uses a blue light signal to indicate that the writing of the configuration is in progress. A green light and an audible signal, emitted for 1 second, indicates that the configuration has been written correctly. A red light and an audible signal, emitted for 1 second, indicates a writing error.

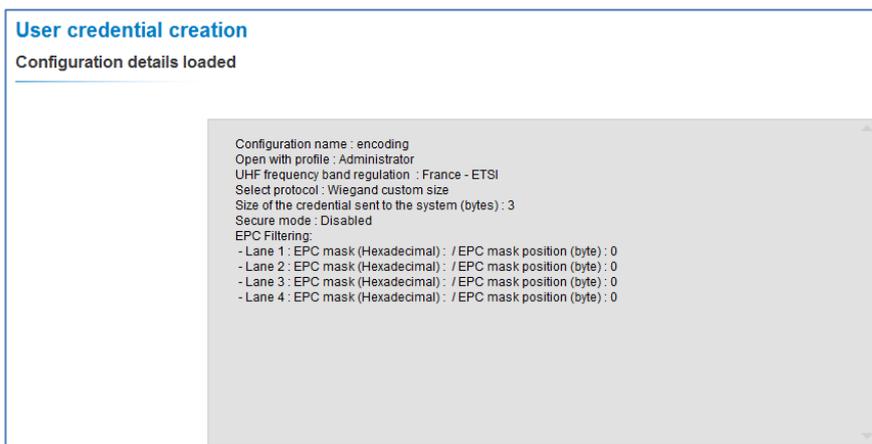
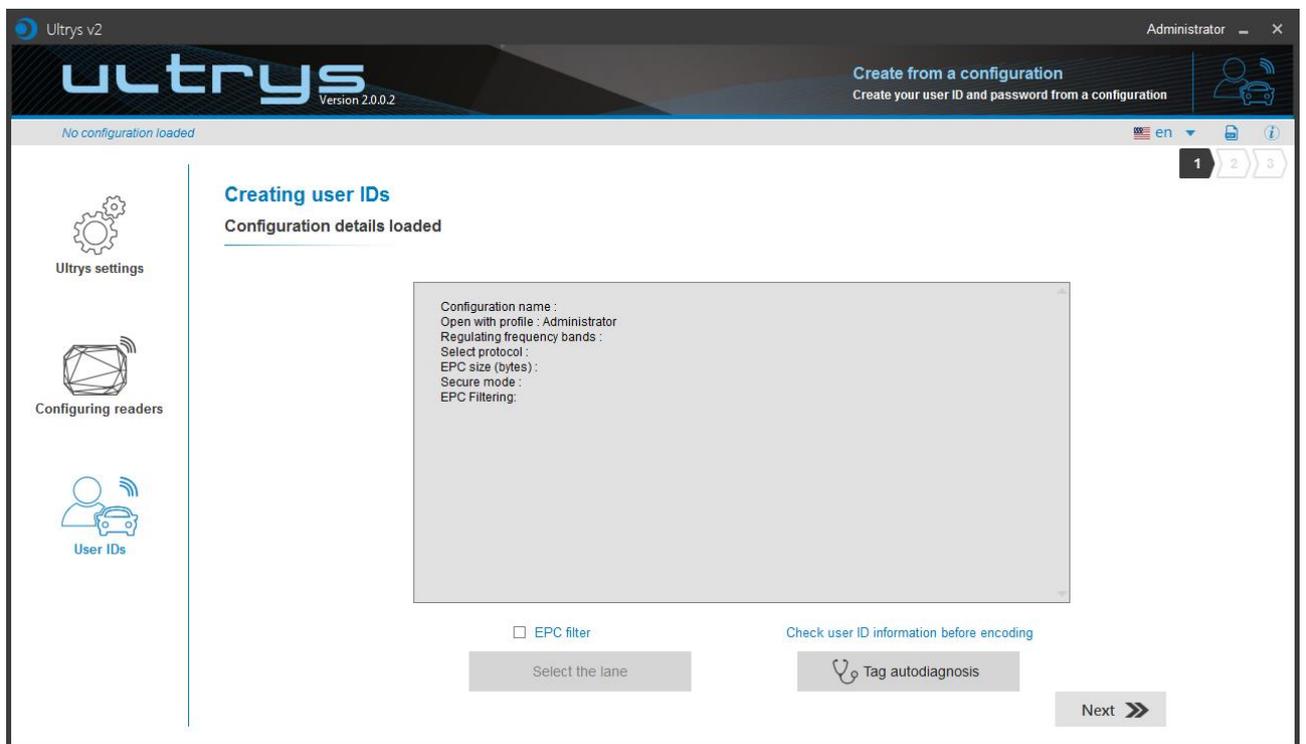


13. User credentials

The user credentials encoding is done in three steps. To move from one step to another, you must click on “Next”.

	Configuration details loaded
	User ID definition
	Encoding tags

Step 1- Configuration details loaded

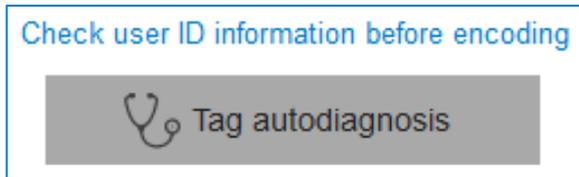


Check the configuration loaded is the correct one to use or open the configuration to use.



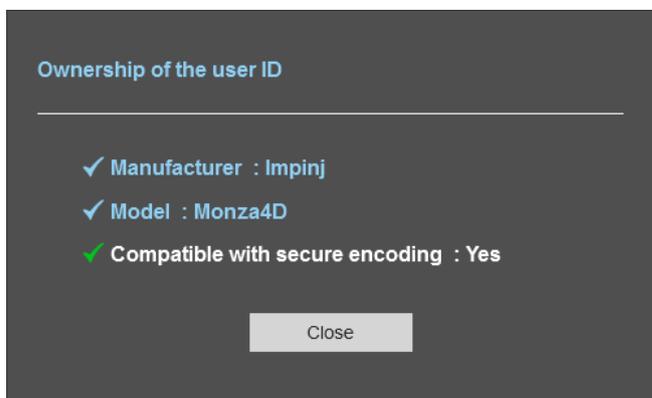
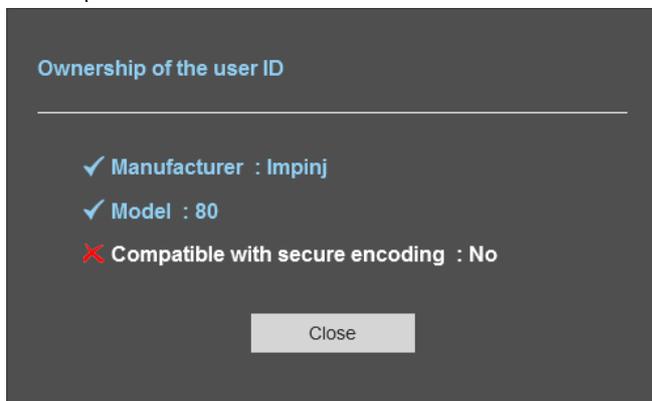
Caution: If the authenticated encryption of EPC data has been enabled in the configuration, make sure the tag is compatible with this option by performing the tag autodiagnosis.

If a non-compatible tag is still encoded in secure mode it will not be read by the Spectre reader.



It indicates the UHF chip type and if it is compatible with secure encoding.

Examples:



The chips compatible with secure encoding are: Monza X, Monza R6P, Monza 4D, those chips are present into the following credentials:

- TLTA-W75B-943_S (TeleTag V4-UHF FastID Programmable Removable Windshield tag-Broadband)
- TMSW94B3361 (IronTag 360-360 Flexible on-metal tag-Broadband-Impinj MonzaX2K-Black)
- CCTW490_AN (UHF EPC1 Gen2 Impinj Monza 4 programmable ISO Prox card)
- ETA-W75B-574BE10 (ETA v2 – Self destroying programmable adhesive label).

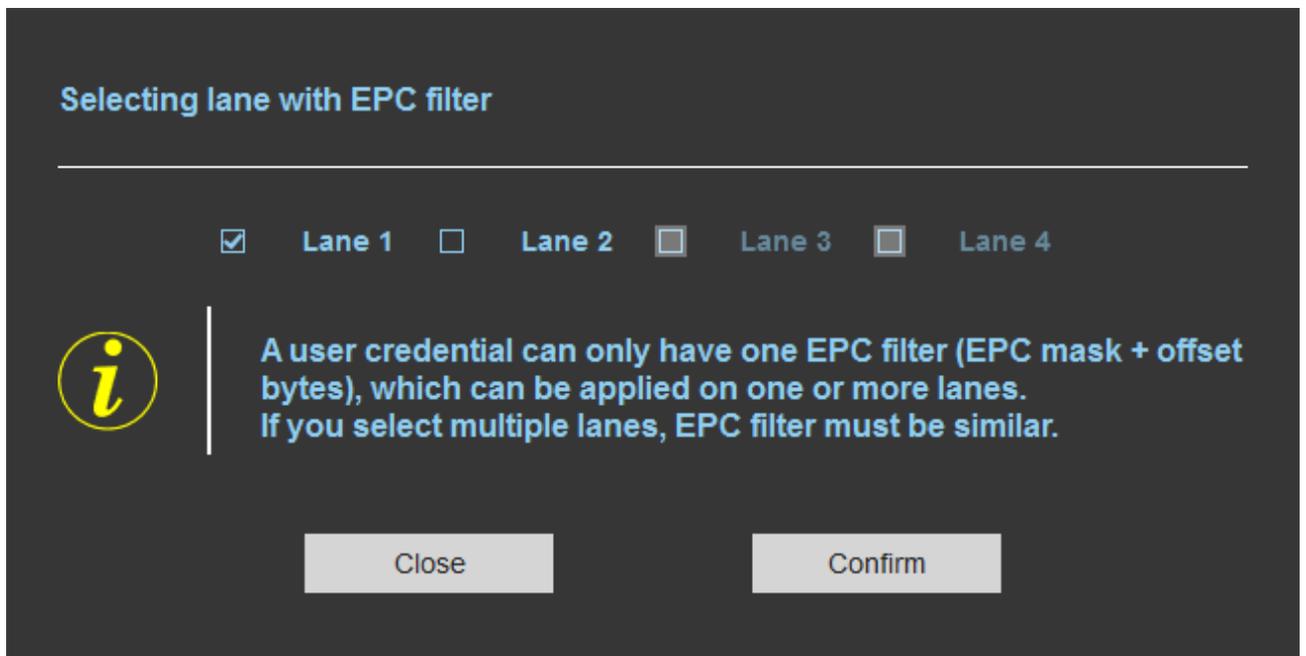
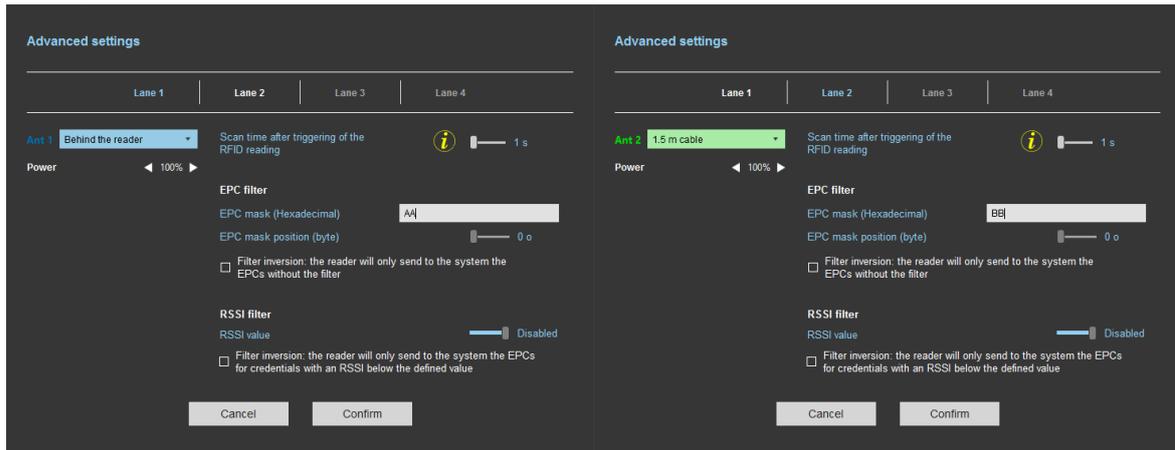


Filtre EPC

Sélectionner la voie

If an EPC filter has been set in the 'Advanced settings', select 'EPC Filter' and the corresponding lane to encode automatically the value of the EPC filter into the user credential.

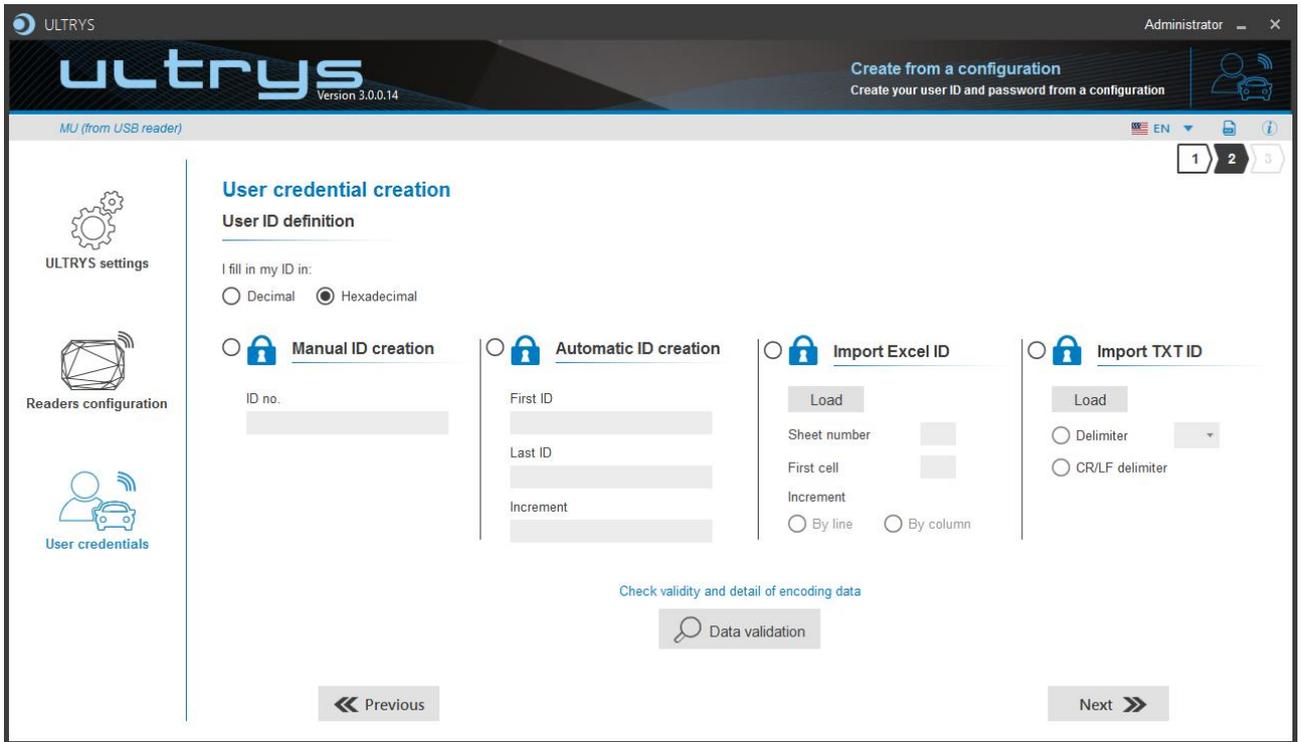
Example:



In this example, if the lane 1 is selected, the user credential will be encoded with the EPC filter AA.

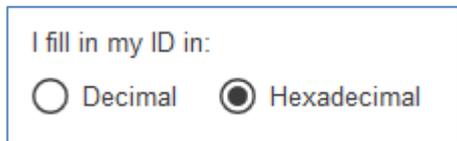


Step 2 – User ID definition

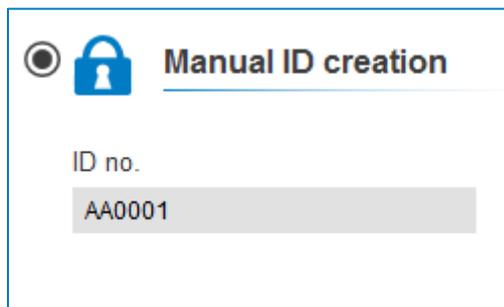


It is possible to enter the user IDs in four ways (described below).

Warning, credentials encoding depend on the reading EPC mode and EPC filter.



For Wiegand protocols only (except 3i), it is possible to enter the identifier in Decimal or Hexadecimal.



Enter directly the ID value in the field and click Next.

Use to encode a single tag or a specific value.



Automatic ID creation

First ID

Last ID

Increment

Fill in each corresponding field, the beginning, the end and the increment to generate the list of user IDs to encode.

Check validity and detail of encoding data

🔍 Validating data

Valid encoding data
256 total identifiers found, ranging from AA0001 to AA0100 (hex).

Close

Import Excel ID

Load

\\dc-stid\Support...Liste
Documentaire
Client.xlsx

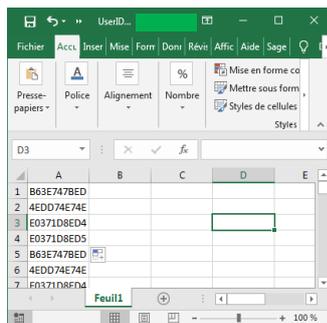
Sheet number

First cell

Increment

By line
 By column

This mode allows you to import lists in Excel format to be used for the user IDs programming.



Check validity and detail of encoding data

🔍 Validating data

Valid encoding data
37 total identifiers found, ranging from 1 to 37.

Close



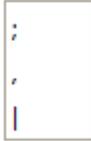
 **Import TXT ID**

Load

Delimiter ;

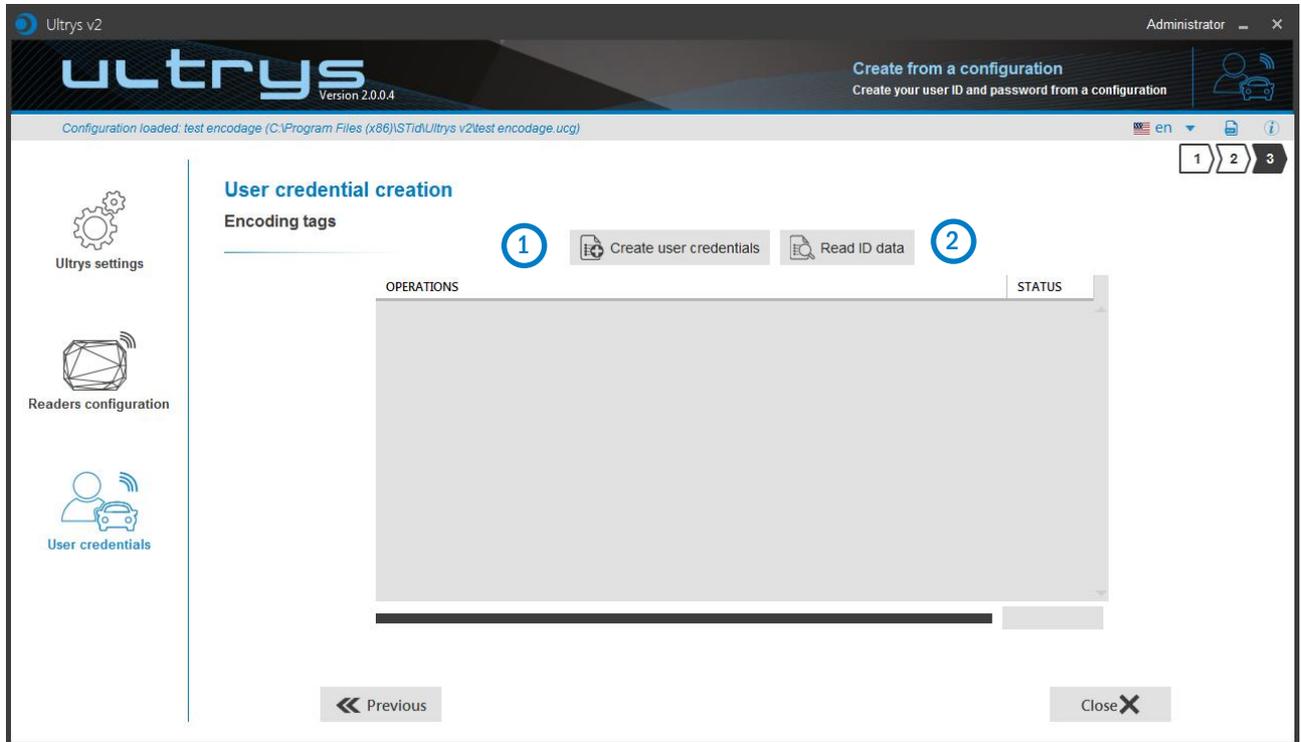
CR/LF delimiter

This mode allows you to import lists in Text format to be used for programming the user IDs.

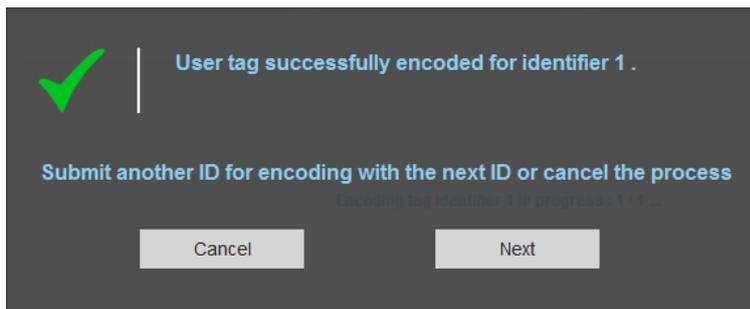
Select the correct Delimiter  or CR/LF.



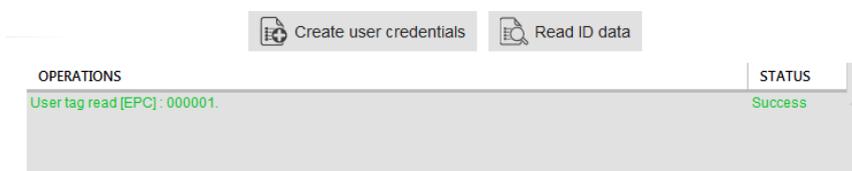
Step 3- Encoding tag



① Present the user credential which you would like to encode to the encoder and click on this button.



② The credential data reading is written on Operations windows.





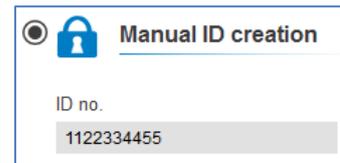
14. Annex 1: Using the EPC code feedback format and EPC filter

The feedback modes allow the full compatibility with existing credential.

To encode the credential, we would prefer standard mode (mode 1).

Using mode

Encoding the value 1122334455 on 5 bytes without EPC filter.



Settings	Value encoded by ULTRYS	Value ascended by the Reader
EPC size (bytes)  5 o EPC code feedback format Mode 1 (Standard) ▼	0000000000000001122334455	1122334455
EPC size (bytes)  5 o EPC code feedback format Mode 2 (Standard reversed) ▼	0000000000000001122334455	5544332211
EPC size (bytes)  5 o EPC code feedback format Mode 3 ▼	112233445500000000000000	1122334455
EPC size (bytes)  5 o EPC code feedback format Mode 4 ▼	112233445500000000000000	5544332211



Using EPC filter and modes

Encoding the value 1122334455 on 5 bytes with EPC filter 'AA'.

EPC filter

Select the lane

Selecting lane with EPC filter

Voie 1
 Voie 2
 Voie 3
 Voie 4

The channels selected do not all have the same EPC filter (EPC mask + offset byte). A user ID can only have one EPC filter, which can be applied on one or more channels.

Close

Confirm

Manual ID creation

ID no.

1122334455

Settings	Value encoded by ULTRYS	Value ascended by the Reader
<div style="background-color: #333; color: white; padding: 5px; margin-bottom: 5px;"> EPC mask AA Offset (byte) 0 </div>		
EPC size (bytes) 5 EPC code feedback format Mode 1 (Standard)	AA000000000000001122334455	1122334455
EPC size (bytes) 5 EPC code feedback format Mode 2 (Standard reversed)	AA000000000000001122334455	5544332211
EPC size (bytes) 5 EPC code feedback format Mode 3	AA2233445500000000000000	AA22334455
EPC size (bytes) 5 EPC code feedback format Mode 4	AA2233445500000000000000	55443322AA
<div style="background-color: #333; color: white; padding: 5px; margin-bottom: 5px;"> EPC mask AA Offset (byte) 7 </div>		
EPC size (bytes) 5 EPC code feedback format Mode 1 (Standard)	0000000000000000AA22334455	AA22334455
EPC size (bytes) 5 EPC code feedback format Mode 3	11223344550000AA00000000	1122334455



Using secure mode

Encoding the value 1122334455 on 5 bytes in secure mode.

●
🔒
Manual ID creation

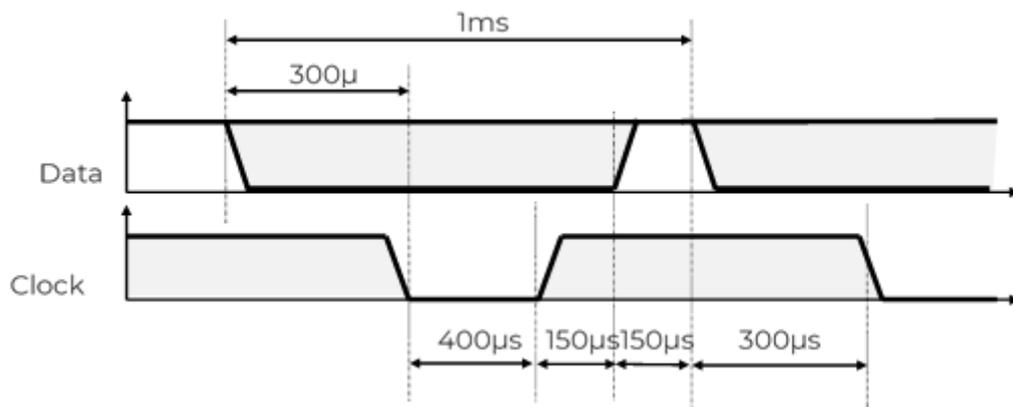
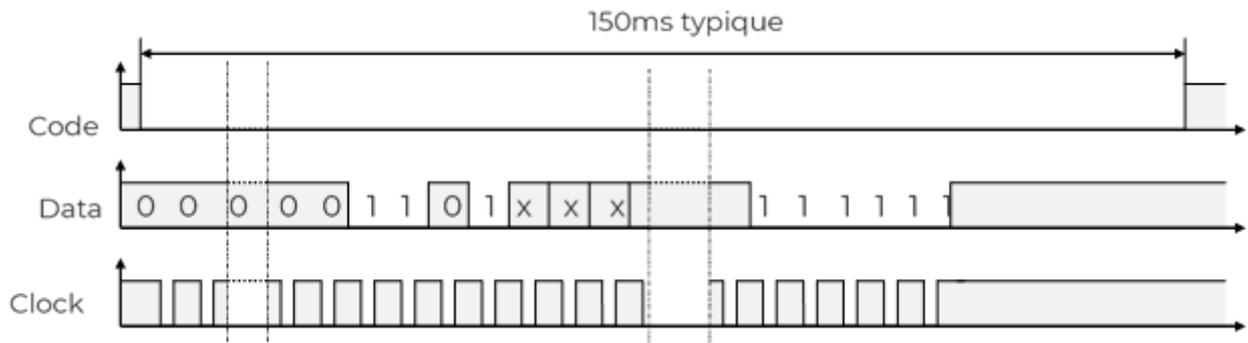
ID no.

1122334455

	Encoded value on 16 bytes encrypted.	Value ascended by the Reader
<input checked="" type="checkbox"/> User ID security (EPC) Private key definition (16 bytes) <div style="border: 1px solid gray; padding: 2px; width: 100%;">676AB9819CD0523B1D01BD448545A9E2</div> 	789C9B12C733B3657EF030CE17F250BE	1122334455

15. Annex 2: protocols

Protocols Clock & Data





Clock & Data 2B

VARIANT	Decoding	Data	Values
2B	Decimal (BCD)	13 characters	0 to 9

Reading an ID of 5 bytes (40 bit) and convert to decimal.

Message

16 leading zeros	Start Sentinel	Data	End Sentinel	LRC	1 trailing zero
-------------------------	-----------------------	-------------	---------------------	------------	------------------------

The frame consists of a first series of 16 synchronization zeros followed by 5-bit characters (4 bits, LSB first, plus 1 parity bit). It ends with 1 trailing zero without a clock.

The message consists of the following:

- Start Sentinel:** 1 character 1011b (0x0B) – parity bit 0. Transmission 1101 0
- Data:** According to the protocol: 13 or 10 decimal characters
- End Sentinel:** 1 character 1111b (0x0F) - parity bit 1. Transmission 1111 1
- LRC:** 1 control character, which is the « XOR » of all characters of all characters sent from "Start Sentinel" to "End Sentinel".
- Trailing zero:** The "Data" signal encodes a "0" until "Code" returns to its normal position.
During this time, there is no activity of the "Clock" signal.

Example

For a hexadecimal user code of "0x187E775A7F", the output code will be: "0105200966271".

Frame sent by reader will be:

000...	1101 0	0000 1	1000 0	0000 1	1010 1				0110 1	0100 0	1110 0	1000 0	1111 1	1111 1	0000
	B	0	1	0	5	2	009	6	6	2	7	1	F	F	
16 Zeros	S.S	Char.1	Char.2	Char.3	Char.4	Char....		Char.10	Char.11	Char.12	Char.13	E.S	LRC	Zero	



Clock & Data 2H

VARIANT	Decoding	Data	Values
2H	Decimal (BCD)	10 characters	0 to 9

The reader will read an identifier on 5 bytes (40 bits), truncate on 4 bytes (32 bits) and convert to decima.

Message

16 leading zeros	Start Sentinel	Data	End Sentinel	LRC	1 trailing zero
-------------------------	-----------------------	-------------	---------------------	------------	------------------------

The frame consists of a first series of 16 synchronization zeros followed by 5-bit characters (4 bits, LSB first, plus 1 parity bit). It ends with 1 trailing zero without a clock.

The message consists of the following:

- Start Sentinel:** 1 character 1011b (0x0B) – parity bit 0. Transmission 1101 0
- Data:** According to the protocol: 13 or 10 decimal characters
- End Sentinel:** 1character 1111b (0x0F) - parity bit 1. Transmission 1111 1
- LRC:** 1 control character, which is the « XOR » of all characters of all characters sent from "Start Sentinel" to "End Sentinel".
- Trailing zero:** The "Data" signal encodes a "0" until "Code" returns to its normal position.
During this time, there is no activity of the "Clock" signal.

Example

For a hexadecimal user code of "0x06432F1F ", the output code will be: "0105066271".

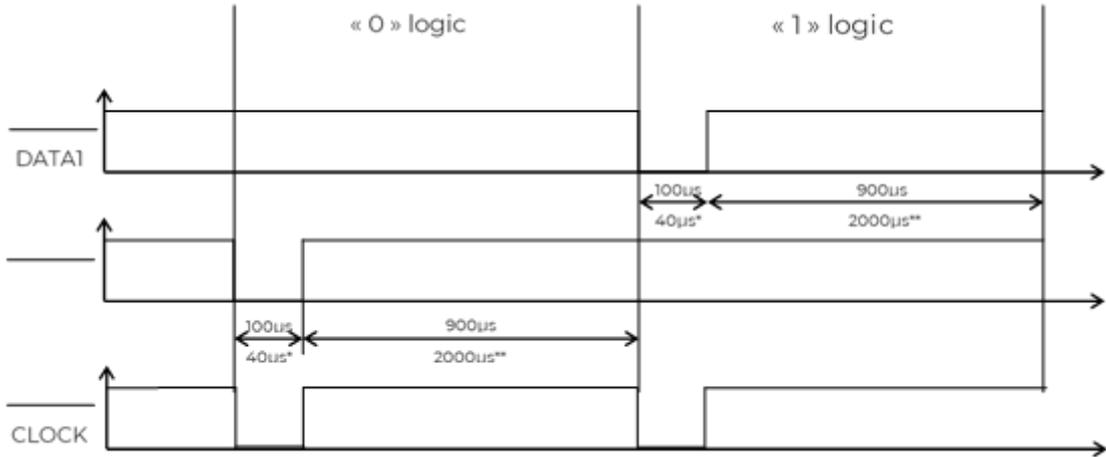
Frame sent by reader will be:

000...	1101 0	0000 1	1000 0	0000 1	1010 1	...	0110 1	0100 0	1110 0	1000 0	1111 1	0010 1	000...
	<i>B</i>	<i>0</i>	<i>1</i>	<i>0</i>	<i>5</i>	<i>0 6</i>	<i>6</i>	<i>2</i>	<i>7</i>	<i>1</i>	<i>F</i>	<i>4</i>	
<i>16 Zeros</i>	<i>S.S</i>	<i>Char.1</i>	<i>Char.2</i>	<i>Char.3</i>	<i>Char.4</i>	<i>Char...</i>	<i>Char.7</i>	<i>Char.8</i>	<i>Char.9</i>	<i>Char.10</i>	<i>E.S</i>	<i>LRC</i>	<i>Zero</i>



Protocoles Wiegand

Chronograms



* times for variants 3i, 3V

Wiegand 3i

Message

The frame consists of 26 bits as follows:

	Bit 1	Bit 2 ..Bit 25	Bit 26
Structure	1st parity	Data (24 bits)	2nd parity
Description	1 even parity bit calculated from bits 2 to 13 included	6 hexadecimal digits MSByte first	1 odd parity bit calculated from bits 14 to 25 included

Example

or the hexadecimal code "0x0FC350", the frame sent will be:

0	0000	1111	1100	0011	0101	0000	1
	0	F	C	3	5	0	
Parity	Digit 1	Digit 2	Digit 3	Digit 4	Digit 5	Digit 6	Parity

Note

The Wiegand 26 bits is generally expressed as Code Site + User Code in decimal.

	Byte 1	Byte 2 – Byte 3
Structure	Site Code	Card Code
Max Value	0xFF - 255 in decimal	0xFF FF - 65535 in decimal
Example	0x0F - 15 in decimal	0xC350 - 50000 in decimal



WIEGAND 3Ca

Message

The frame consists of 36 bits as follows:

	Bit 1...Bit 32	Bit 33...Bit36
Structure	Data (32 bits)	LRC
Description	8 hexadecimal digits MSByte first	Control character XOR between data sent

Example

For the hexadecimal code "0x001950C3", the frame sent will be:

0000	0000	0001	1001	0101	0000	1100	0011	0010
0	0	1	9	5	0	C	3	2
<i>Digit 1</i>	<i>Digit 2</i>	<i>Digit 3</i>	<i>Digit 4</i>	<i>Digit 5</i>	<i>Digit 6</i>	<i>Digit 7</i>	<i>Digit 8</i>	<i>LRC</i>

Note

In the case of 5 bytes identifier (40 bits), reader will truncate the MSB byte (8 bits) before decimal conversion.

WIEGAND 3Cb

Message

The frame consists of 40 bits as follows:

	Bit 1...Bit 40	Bit 41...Bit44
Structure	Data (40 bits)	LRC
Description	8 hexadecimal digits MSByte first	Control character XOR between data sent

Example

For the hexadecimal code "0x 01001950C3", the frame sent will be:

0000	0001	0000	0000	0001	1001	0101	0000	1100	0011	0011
0	1	0	0	1	9	5	0	C	3	3
<i>Digit 1</i>	<i>Digit 2</i>	<i>Digit 3</i>	<i>Digit 4</i>	<i>Digit 5</i>	<i>Digit 6</i>	<i>Digit 7</i>	<i>Digit.8</i>	<i>Digit 9</i>	<i>Digit 10</i>	<i>LRC</i>



WIEGAND 3La

Message

Wiegand 32 bits identical to Wiegand 3Ca without the LRC.

The frame consists of 32 bits as follows:

	Bit 1...Bit 32
Structure	Data (32 bits)
Description	8 hexadecimal digits MSByte first

Example

For the hexadecimal code "0x001950C3", the frame sent will be:

0000	0000	0001	1001	0101	0000	1100	0011
0	0	1	9	5	0	C	3
Digit 1	Digit 2	Digit 3	Digit 4	Digit 5	Digit 6	Digit 7	Digit 8

WIEGAND 3Lb

Message

Wiegand 40 bits identical to Wiegand 3Cb without the LRC.

The frame consists of 40 bits as follows:

	Bit 1...Bit 40
Structure	Data (40 bits)
Description	10 hexadecimal digits MSByte first

Example

For the hexadecimal code "0x 01001950C3", the frame sent will be:

0000	0001	0000	0000	0001	1001	0101	0000	1100	0011
0	1	0	0	1	9	5	0	C	3
Digit 1	Digit 2	Digit 3	Digit 4	Digit 5	Digit 6	Digit 7	Digit 8	Digit 9	Digit 10



Wiegand 3Eb

Message

The frame consists of 34 bits as follows:

	Bit 1	Bit 2 ...Bit 33	Bit 34
Structure	1st parity	Data (32 bits)	2nd parity
Description	1 even parity bit calculated from bits 2 to 17 included	8 hexadecimal digits MSByte first	1 odd parity bit calculated from bits 18 à 33 included

Example

For the hexadecimal code "0x 12347F02 ", the frame sent will be:

1	0001	0011	0001	0010	1001	1101	1101	0011	1
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>7</i>	<i>F</i>	<i>0</i>	<i>2</i>	
<i>Parity</i>	<i>Digit 1</i>	<i>Digit 2</i>	<i>Digit 3</i>	<i>Digit 4</i>	<i>Digit 5</i>	<i>Digit 6</i>	<i>Digit 7</i>	<i>Digit 8</i>	<i>Parity</i>

Wiegand 3W

The frame consists of 35 bits as follows:

	Bit 1-2	Bit 3 ...Bit 34	Bit 35
Structure	1st parity	Data (32 bits)	2nd parity
Description	2 parity bits	8 hexadecimal digits MSByte first	1 odd parity bit

Wiegand 3V

Message

The frame consists of 37 bits as follows:

	Bit 1	Bit 2 ...Bit 36	Bit 37
Structure	1st parity	Data (35 bits)	2nd parity
Description	1 even parity bit calculated from bits 2 to 19 included	8 hexadecimal digits MSByte first	1 odd parity bit calculated from bits 19 à 36 included

Example

For the hexadecimal code "0x 0F3129DD3B ", the frame sent will be:

1	111	0011	0001	0010	1001	1101	1101	0011	1011	0
	<i>7</i>	<i>3</i>	<i>1</i>	<i>2</i>	<i>9</i>	<i>D</i>	<i>D</i>	<i>3</i>	<i>B</i>	
<i>Parity</i>	<i>Digit 1</i>	<i>Digit 2</i>	<i>Digit 3</i>	<i>Digit 4</i>	<i>Digit 5</i>	<i>Digit 6</i>	<i>Digit 7</i>	<i>Digit 8</i>	<i>Digit 9</i>	<i>Parity</i>



16. REVISION

Date	Version	Description
04/03/2019	2.0	Creation.
15/11/2019	2.1	OSDP reader added
03/06/2020	2.2	Add SPECTRE ATX / ATX4 READ ONLY / OSDP TM
05/10/2021	3.0	Redesign of the document: one chapter per type of reader Addition of SPECTER NANO Read only and OSDP TM
04/03/2022	3.0.1	Bluetooth® activation by sensor new distance added b

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