







Designed in France Made in France www.stid.com



### Acknowledgment

Welcome to the world of high security!

You have purchased ULTRYS v2 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 <u>www.stid-security.com</u>.

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 2.x.x.

### **Hardware required**

To configure the reader:

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

0r

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

Part number:

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

- GAD-Wx5-E/U04-5AA/1 (v08 firmware version required \*)
- STR-Wx5-E/U04-5AA/1 (v10 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 (2.x.x) allows you to configure SPECTRE readers.

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

	ULTRYS v1	ULTRYS v2
SPECTRE + SPECTRE ANTENNA	х	$\checkmark$
SPECTRE + URD ANTENNA	x	✓
URx + URD ANTENNA	✓	x
URx + SPECTRE ANTENNA	✓	х
Credential encoding in secure mode	х	✓

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 v2 / Firmware reader**

This ULTRYS v2 version (2.1.x) allows you to configure SPECTRE Access and SPECTRE OSDP readers according to the firmware version of the reader.

	ULTRYS v2 V2.0.Access	ULTRYS v2 V2.1.Access	ULTRYS v2 V2.1.0SDP
SPECTRE firmware v7	√	х	х
SPECTRE firmware v8	√	√	✓



### 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



### 1st case: the loaded file is the one to use

Open the last configuration file used						
Configuration file path C:1Us Date last used	ers\cpialoux\Desktop\spectre\Ultrys\Parking IN.ucg 2/26/2019 9:14:03 AM					
The .ucg file is protected; enter th Click on Cancel to skip this file an	e password and click on OK. d continue to the home page					
Password						
Cancel	Confirm					
Open the last configuration file u	sed					
Configuration name	Parkino IN					
Configuration file path	C:\Users\cpialoux\Desktop\spectre\Ultrys\Parking IN.ucg					
Date last used	2/25/2019 11:58:10 AM					
The .ucg file requires Click on Cancel to sk Profile	a user ID and a password ip this file and continue to the home page					
	Administrator •					
Cancel	Confirm					
🕑 Ultrys v2	Administrator 🕳 X					
uctrus	- AIDT					
Venior 2002 The aotheam foot that secures and streamlines your vehicle access Confountion bades' Privag W. G.Meerkseleor/Deuklasigenser/Utry/Priving W.a	# <b>1</b> 0 + <b>2</b> ()					
Uttyre settings Manage communication, profile and user rights writing	Configuring readers Center: input, motify and isolg por mediar configurings.					
	www.stid-security.com					

1- Enter the password of the configuration file if there is one if not go to step 2.

- 2- Select the profile to use to open the file.
- 3- Enter the profile password if there is one.
- 4- Please confirm.

5- ULTRYS loads the file and opens the home page.

# 2nd case: the loaded file is not the one to use

Configuration file path	C:\Users\cpialo	ux\Desktop\spectre\Ultrys\Parking IN.uc	
Date last used		2/26/2019 9:14:03 AM	
The .ucg file is protected; enter the password and click on OK. Click on Cancel to skip this file and continue to the home page			
Password			
Cance		Confirm	

- 1- Cancel.
- 2- ULTRYS is open on the home page without any configuration loaded.





# 2. ULTRYS Settings

O Ultrys v2 Administrat						
uut	C C U S Version 2.0.3			Ultrys settings Communication		
No configuration loade	d			🎬 en 🔻 🖨 🕧		
کې Ultrys settings	Communication Port selection for encoder or reader connection					
		Select device	COM4 •			
Readers configuration		[] Re	fresh			
		⊖ Conne	ectivity test			
User credentials						

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 encode User IDs or load the configuration onto UHF SCB/OCB configuration card.



### To set the communication port

Select device		-
		h
i		11
Ω	Connectivi	tv test
Select device	COM3	•
Select device	COM3 COM3	•
Select device	COM3 COM3 SLA-R51-A	▼ A/U04-XX
Select device	COM3 COM3 SLA-R51-A	• 4/U04-XX

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

2- Open the dropdown list Select device

3- Readers whose firmware is  $\geq 8$  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.

COM4	•	4-	Run the connectivity test
h			
ty test			
ected: Version	ז ז (29.7)		Message OK (with indication of the firmware version).
ected: Versior	n 8 (7.11)		
onnect, pleas and connect a encoder. Close	e check t compatil	he ble	Message: Failed - Check the compatibility of the reader Check the USB cable Check the Baudrate reader: it must be fixed to 115200.
	COM4 h ty test cted: Version close c	COM4  COM4 COM4 COM4 COM4 COM4 COM4 COM4 COM4	COM4 4-   h -   ty test -   ected: Version 7 (29.7) -   Close -   ected: Version 8 (7.11)   Close

1-



# 3. Reader configuration



### 3.1 Readers configuration



This button allows to access to the settings of the loaded configuration settings.

### **3.2** Create new configuration

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





# 1 2 3 4 5 6 7 8 9

Configuration save and protect

### **Step 1- Frequency band regulation**

Oltrys v2		Administrator 🗕 🗙
uut	Version 2.0.0.4	Readers configuration Create a configuration
No configuration loade	d	■ en <b>v</b> 🔒 🛈
Ultrys settings Ultrys settings Readers configuration User credentials	Frequency band regulation Installation country selection The frequency bands depend on the installation location France - ETSI Description of regulatory frequency band Duty cycle: 0.975 Channels: ERP: 2000 mW Check your reader is compatible with regulations	
		Next ≫



Select the country in which the installation will be done.

For a country which is not in the list, please contact STid: <a href="mailto:support@stid.com">support@stid.com</a>.

2

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



Reader ID			
O Connec	t your reader	Enter the first 5 O of your reader's number	characters s reference
	Cancel	Cor	nfirm

#### With USB reader connection



#### With reader part number



 $\label{eq:Enter} \mbox{ Enter the first 5 characters of the reader part number }$ 

Example: SLAR4, SLAR5, SMAR4...



<ul> <li>✓  </li> </ul>	Reader's frequency I selected country's re Close	band compatible with gulations	
	Incorrect reader refe y again	rence number Check later	

Message: OK

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



### Step 2- Configuration protection loaded into the reader

🧿 Ultrys v2				Admin	
uut				Readers configuration Create a configuration	$\square$
No configuration loaded	(			🖉 en	• 🔒 🕧
1				1 2 3 4 5 6	$7)8}9$
65	Configuration protection	n loaded into the reader			
Ĩ	Site code definition				
Ultrys settings					
		The site code is a "Key" that can be customiz configuration of a drive during installation.	zed by the administrator to protect the		
		Modifying this configuration requires the site	code.		
		All readers have the default site code "FFFFF	FFFFF°.		
Readers configuration		We recommend you change the default site of process. Enter FFFFFFF in the "Site code" field and s "New site code" field.	code the first time you carry out the co specify the new site code (hexadecim	onfiguration al) in the	
		Site code	FFFFFFFFF		
User credentials					
		New site code	83A13C56A8		
	<b>«</b> Previous			Next ≫	

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

The size of this site 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/OCB card or a configuration file with the same 'site code' as the reader.



Random site code generator.

Caution

This site 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 site code, you won't be able to reconfigure the reader again and the reader must be reset at the factory.

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



# **Step 3- Reader selection**

ULTRYS v2				Administrator 🗕 🗙
uut	ICUS Version 2.1.0.15		Readers configuration Create, import, modify and load your	reader configurations
Configuration loaded: r	r (U:\2-Qualification\SLA SMA\Ultrys2.1.0.15	Nrr.ucg)		🛎 EN 🔻 🔓 🤃
کې ULTRYS v2 settings	Reader selection			3 4 2 5 6 7 8 8 9
Readers configuration		SPECTRE Access Reader	SPECTRE Reader OSDP	
		Select the ULTRYS v2 (i)	Select the ULTRYS v2	
User credentials		ULTRYS v2.0.x-Access xx *	ULTRYS v2.1.x-OSDP xx	
		Q	Check your firmware reader compatibility	
	<b>«</b> Previous			Next ≫

SPECTRE SLA-R4/5x-A/U04-xx and SLA-W33-A-U04-70S readers can be configured in Access or OSDP from firmware version 8.

You must select the version of the Wizard that is compatible with your reader. For this you can use the function "Check your firmware reader compatibility".







) Check your firmware reader compatibility

- 1- Connect the SPECTRE reader via USB cable provided. Configure the communication parameters.
- 2- Select the configuration you want to use (Access or OSDP), and the version in the drop menu.
- 3- Click on Check your firmware

✓	Reader firmware 8 compatible with the selected ULTRYS v2 version
×	Reader firmware 7 not compatible with the selected ULTRYS v2 version. Choose another version from the drop- down list
	Cancel



### **Step 4- Access - Antenna type selection**

🧿 Ultrys v2		Administrator 🗕 🗙
uLt	Version 2.0.4	Readers configuration Create, import, modify and load your reader configurations
Configuration loaded: te	est encodage (C:\Program Files (x86)\STid\Ultrys v2\test encodage.ucg)	🔤 en 🔻 🖨 🕧
کې کې Ultrys settings	Antenna type selection	
Readers configuration		
User credentials	SPECTRE antenna	URD antenna
	K Previous	Next ≫

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- Access - 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.



# 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.



Select the cable length for each antenna

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А





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

Advanced se	ettings			
a	Lane 1	Lane 2	Lane 3	Lane 4
bnt 1 Behind t	he reader	Scan time after tri RFID reading	ggering of the	<b>! !</b> 1
	(	EPC filter		
		EPC mask (Hexa	decimal)	
	(1	EPC mask positio	on (byte)	0
		Filter inversion EPCs without	n: The reader will only s the filter	send to the system the
	G	RSSI filter		
		RSSI value		0 dBr
		Filter inversion for credentials	n: The reader will only s with an RSSI below t	send to the system the EPCs he defined value
		CI	ose	

- a Select the lane to configure. The lanes selected in installation setup are blue. When a lane is selected in Advanced parameters it is written in white.
  - Select / Change the cable length between the antenna and the reader.
  - Adjust the power of each antenna (from 10% to 100%) to adjust the reading distances.
- 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.*
- The EPC filter is not available in Secure Mode.

Enter the value for EPC Mask, max 62 hexadecimal bytes.

- Adjust the value for offset EPC mask in bytes (0 to 65535). It depends on the EPC Mask length.
- 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.

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.

	Lane 1	Lane 2 Lane 3 Lane 4
Ant 1 Behind	the reader 🔹 🔹	Scan time after triggering of the RFID reading
Power	◀ 100% ►	
Ant 2 1.5 m c	able 🔹	EPC filter
Power	<b>100%</b>	EPC mask (Hexadecimal)
1 Ower	100%	EPC mask position (byte)
Ant 3 1.5 m c	able 🔹	Filter inversion: The reader will only send to the system the EPCs without the filter
Power	< 100% ►	
Ant 4 1.5 m c	able 🔹	RSSI filter
. —	4	RSSI value 0 d
Power	◀ 100% ▶	Filter inversion: The reader will only send to the system the EPCs for credentials with an RSSI below the defined value

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

Advanced settings		Advanced settings	
Lane 1	Lane 2 Lane 3 Lane 4	Lane 1 Lane 2 Lane 3 Lane 4	
Ant 1 Behind the reader  Power  100%  Ant 2 1.5 m cable	Scan time after triggering of the RFID reading  EPC filter	Ant 3 1.5 m cable   Scan time after triggering of the RFID reading  Power   Interpret 100%   EPC filter  EPC filter	
Power ◀ 100% ►	EPC mask (Hexadecimal) EPC mask position (byte) Filter inversion: The reader will only send to the system the EPCs without the filter	Power  Vector 100%  EPC mask (Hexadecimal) EPC mask position (byte) Filter inversion: The reader will only send to the system the EPCs without the filter	0
	RSSI filter RSSI value Pitter inversion: The reader will only send to the system the EPCs for credentials with an RSSI below the defined value Close	RSSI filter RSSI value 0 as Filter inversion: The reader will only send to the system the EPCs for credentials with an RSSI below the defined value Close	



#### **EPC filter**

#### Example:

1- EPC mask = AA AA and Offset = 0

Tag 1: AAAAABCD0000000000000000 Tag 2: AA02ABCD0000000000000000 Tag 3: AA02ABCD0000000000000000 Tag 4: AA02FFFF000000000000000000

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: AA02FFFF000000000000000000

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 00 1 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 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 00 3 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.

Offset (byte)	I	0 o
Reversal		
EPC mask	АААААА	
Offset (byte)	I	0 o
🗌 Reversal		
EPC mask	01	
Offset (byte)	-0	11 o
Reversal		

AAAA

EPC mask



EPC mask	AB	
Offset (byte)	·8	2 o
✓ Reversal		

# Input/ output settings

Input management	1 2
Reading mode selection	Continuous reading -
Managing custom events triggered by reader inputs	<ul> <li>No event</li> <li>Custom LED lighting</li> <li>Output customization</li> </ul>
Cancel	Next ≫

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

Output management			<sup>1</sup> // <sup>2</sup>
Output type selection	Pull up	to V+	•
Status of outputs	Open	Closed	Continuing during detection
Output 1	$\bigcirc$	0	
Output 2	$\bigcirc$	$\bigcirc$	
Output 3	$\bigcirc$	$\bigcirc$	
Output 4	٢		
K Previous	Cancel		Confirm

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)** 

b

#### Reading mode = Continuous reading + No event



In this mode, the reader scan continuously.

There is no action on input activation.

Select the output type and default state for output.

Reading mode = Continuous reading + Customized LED lighting



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

• 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.





Nothing to do.



### C Reading Mode = Continuous reading + Output customization

	1 2
Input management	
Reading mode selection	Continuous reading +
Managing custom events	O No event
triggered by reader inputs	Custom LED lighting     Output customization
Cancel	Next ≫
Output management	
Output type selection	Pull up to V+
Status of outputs	Continuing
	Open Closed during detection process
Output 1	
Output 2	
Output 3	
Output 4	Aucun ape
	Cancel Confirm
( revious	Contract

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

Select the output type and default state for output.



<u> Reading Mode = Activa</u>	<u>ite all lanes</u>		
Input management		1 2	If an Input is activated (In1, In2, In3 or In4), the reader scan
Reading mode selection	Triggering on all lanes	•	on all lanes set.
Cancel	Ne	ext ≫	
Advanced settings		The duration	on of the reading is defined in 'Advanced settings'.
Entry 1 Exit 1			
Ant 1 On back of reader •	Reading time - 5 s		
Power (Radio frequency) 🔌 100% 🕨	EPC mask AB		
		1 2	
Output management			Select the output type and default state for output.

Pull up to V+

Cancel

0000

٠

Continuing during detection

Confirm

**«**Previous



A	
C	e <u>Re</u>
C	Ir
E	R
S	
S	
	Adv: 

nced settings

ntry 1

Ant 1 On back of reade

wer (Radio frequency)

÷

< 100% >

#### Reading mode = Triggering on the lane with the event

Input manage	ment		1	2
Reading mode s	election	Triggering on the la	ne with the event	٠
	Cancel		Next እ	1

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

The reading duration is defined in 'Advanced settings'.

Output management			1 2
Output type selection	Pull u	p to V+	•
Status of outputs Output 1 Output 2 Output 3	Open © ©	Closed	Continuing during detection process
Output 4	Õ	Ŏ	Aucun ape
K Previous	Cancel		Confirm

Select the output type and default state for output.



### Summary table

	Reading Mode	Input	Configurable Outputs states?	Maintain during detection available?	Output
<b>a</b>	Continuous reading + No event	No action	Yes by lane	Yes by lane	<ul> <li>If 'Continuing during detection process' not activated: the output state toggles at the ascent.</li> <li>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.</li> </ul>
<b>b</b>	Continuous reading + Custom LED lighting	Custom LED lighting for all antennas / lane	No	No	In this mode the Outputs are not usable.
0	Continuous reading + Output customization	An action on an Input toggles the corresponding output.	Yes	No	The output state is only linked to a user action on the input.
<b>(</b>	Triggering on all lanes	An action on any input activates the reading on all configured lanes.	Yes by lane	Yes	<ul> <li>If 'Continuing during detection process' not activated: the output state toggles at the ascent during the ascent time of the</li> </ul>
e	Triggering on the lane with the event	An action on Input <i>x</i> activate the scan on lane <i>x</i> .	Yes by lane	Yes	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.

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



### Step 6- Access - Setting up light indicator



#### **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:





* Ine LED 'Customized event' only appears if 'Reading Mode' = Continuous reading + custom LED lightin
---





#### Default display:

Oltrys v2			Administrator 🕳 🗙
uut	CUS Version 20.0.4	Real	ders configuration e, import, modify and load your reader configurations
Configuration loaded: to	est encodage (C.VProgram Files (x86)\STidUltrys v2test encodage.ucg) Light indicator configuration Color and brightness selection		1 2 3 4 5 6 7 8 9
Readers configuration	LED brightness 100%	Reading error	Detecting user ID
	<b>«</b> Previous		Next 🔉



### **Step 7- Access - Communication protocol**

🜖 Ultrys v2		Administrator 🗕 🗙
uLt	Version 2.0.0.4	Readers configuration Create, import, modify and load your reader configurations
Configuration loaded: to	est encodage (C:Program Files (x86))STidUltrys v2test encodage.ucg) Communication protocol Authenticated encryption of EPC data (Secure mode)	En ▼  1)2)3)4)5)6 7 8 9 (1)203456 7 8 9 (1)203456 7 8 9
کی ک	User ID security (EPC) 1	EPC size (bytes) 5 o
Readers configuration	Select output protocol 2 Wiegand with customized size  This protocol has the same message structure as the Wiegand 3La or 3La protocol, but the number of bytes can be customized (EPC size). Overview of TTL outputs Voie 4 Voie 3 Voie 2 Voie 1	Format details Mode 3 Mode 2
User credentials	CLK1 DATA4 CLK3 DATA3 CLK3 DATA2 CLK1 DATA4	AA BB CC xx xx XX YY ZZ Mode 4 Mode 1 Mode 1
		Time between same user ID being 6 s
	<b>«</b> Previous	Next ≫

#### 1 Communication protocol



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'.

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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.

User ID security (EPC)

Private key definition (16 bytes)

C1111122245454455454564654654654



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

	ULTRYS v2.0.x-Access xx 🔹	U
Select protocol		Sélection du pr
Select output protocol	•	Sélectionner le protocole o
	RS232 RS485	
	Wiegand 26 bits - 3i	
	Wiegand with customized LRC size	
	Wiegand with customized size	
	CIUCKAD ata 40 bits - 150 2B	

#### JLTRYS v2.1.x-Access xx • otocole de sortie RS232 RS485 Wiegand 26 bits - 3i Wiegand avec LRC taille personnalisée Wiegand taille personnalisée 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 K Précédent Wiegand 40 bits - 3Lb Clock&Data taille personnalisée

#### RS232 / RS485

Select protocol		
Select output protocol		RS232 •
Data		Hexadecimal -
<ul><li>Padding</li><li>STX+ETX</li></ul>	CR	LRC ASCII
Baud Rate		115200 -

#### Serial frame:

1 byte	X bytes	1 byte	1 byte	1 byte	1 byte
STX	Data *	LRC	CR	LF	ΕΤΧ

\*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 zeros won't be 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 or 115200 bauds.



#### Wiegand 26 bits- 3i

Select protoco	bl		
Select output protocol Overview of TTL outputs		Wiegand 26 bits - 3i	
Bit 1 Bit 2 Bit 25 Bit 26	ven parity from bit ata (24 bits) dd parity from bit 1	2 to bit 13 14 to bit 25	
Lane 4	Lane 3	Lane 2	Lane 1
CLK4 DATA4	CLK3 DATA3	CLK2 DATA2	CLK1 DATA1
00000	0000		

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




A

3	EPC size (bytes)	<b>—</b> I—	3 o

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

EPC code feedback form	mat Mode 1 (Standard) -
	Mode 1 (Standard)
Format details	Mode 2 (Standard reversed)
Mode 3	Mode 3
	Mode 4

There are 4 modes to feedback the EPC.

Example: EPC data: AA BB CC DD EE xx xx ... VV WW XX YY ZZ with 'EPC size' fixed to 4bytes.



5	Filtering		
	Time between same user ID being read twice	-1	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.



## Clock&Data ISO2B protocol

### Chronograms



### **Clock details**



#### **Message structure**

Leading zeroes	Start Sentinel	Datas	End Sentinel	LRC	Trailing zeroes

### Message description

The frame is made of a first series of 16 zero followed by synchronization characters of 5 bits (4 bits, LSB first, plus 1 parity bit). It ends the frame with trailing zero without a clock. The message consists of the following:

Start Sentinel.1 character 1011b (0x0B) - parity bit 0. Transmission 1101 0Data:According to EPC size: 3 up to 17 decimal charactersEnd Sentinel: 1 character 1111b (0x0F) - parity bit 1. Transmission 1111 1LRC:1 control character, which is the « XOR » of all characters.

### Example Clock&data size 5 bytes:

For a hexadecimal user code of « 0x187E775A7F », the output code will be: « 0105200966271 ». The frame sent by reader will be:

000	1101 0	0000 1	1000 0	0000 1	1010 1				0110 1	01000	1110 0	1000 0	11111	1111 1	000
	В	0	1	0	5	2	0 09	6	6	2	7	1	F	F	
Zero	<i>S.S</i>	Char.1	Char.2	Char.3	Char.4	-	Char		Char.10	Char.11	Char.12	Char.13	E.S	LRC	Zero



## **Wiegand Protocols**

### Chronograms



### Wiegand 3i protocol

Variant	Decoding	24 bits data	Values
Зі	Hexadecimal	6 characters	0 to F

### Message structure

Bit 1	Bit 2 Bit 25	Bit 26
Even parity from bit 2 to bit 13	Data (24 bits)	Odd parity from bit 14 to bit 25

### Message description

The frame consists of 26 bits as follows:

First parity:	<i>1bit even parity of next 12 bit</i>
Data:	6 hexadecimal characters 'MSB first'
Last parity:	1bit odd parity of previous 12 bits

Example: for the hexadecimal code « *0x0FC350* », the frame sent will be:

0	0000	1111	1100	0011	0101	0000	1
	0	F	С	3	5	0	
Parity	Char.1	Char.2	Char.3	Char.4	Char.5	Char.6	Parity



### Wiegand 3CB protocol

Bit 1 Bit 40	Bit 41 Bit 44
Data « MSB first »	LRC

### Message description

The frame consists of 44 bits as follows:

Data:	10 hexadecimal characters « MSB first »
Data:	10 hexadecimal characters « MSB first »

LRC: 1 control char, all characters « XORed»

Example: for the hexadecimal code « *0x01001950C3* », the frame sent will be:

0000	0001	0000	0000	0001	1001	0101	0000	1100	0011	0011
0	1	0	0	1	9	5	0	С	3	3
Char.1	Char.2	Char.3	Char.4	Char.5	Char.6	Char. 7	Char.8	Char.9	Char.10	LRC

### Wiegand 3CA protocol

Bit 1 Bit 36	Bit 37 Bit 36
Data « MSB first »	LRC

#### Message description

The frame consists of 36 bits as follows:

Data:	8 hexadecimal characters «	MSB first » (32 bits)
-------	----------------------------	-----------------------

LRC: 1 control char, all characters « XORed »

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	С	3	2
Char.1	Char.2	Char.3	Char.4	Char.5	Char.6	Char.7	Char.8	LRC

### Wiegand 3LA protocol

Same as « Wiegand 3CA » WITHOUT LRC.

### Wiegand 3LB protocol

Same as « Wiegand 3CB » WITHOUT LRC.



### **Step 4- OSDP - Antenna type selection**

The OSDP SPECTRE reader only works with new SPECTRE antennas (ANT\_UHF2).

Step 4 does not exist in the OSDP Wizard.

## **Step 5- OSDP - 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 OSPD the lane number corresponds to the osdp Reader Number:





# 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.







## 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.

5



### Advanced settings

6

Advanced settir	ıgs	
<u>a</u>	Lane 1	Lane 2 Lane 3 Lane 4
bnt 1 Behind the re c wer	ader	Scan time after triggering of the
	(	EPC filter
		EPC mask (Hexadecimal)
		EPC mask position (byte) 0 o
	(	Filter inversion: The reader will only send to the system the EPCs without the filter
	G	RSSI filter
		RSSI value 0 dBm
		Filter inversion: The reader will only send to the system the EPCs for credentials with an RSSI below the defined value
		Close

- Select the lane to configure. The lanes selected in installation setup are blue. When a lane is selected in Advanced parameters it is written in white.
  - Select / Change the cable length between the antenna and the reader.
- Adjust the power of each antenna (from 10% to 100%) to adjust the reading distances.
- 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.

- Adjust the value for offset EPC mask in bytes (0 to 65535). It depends on the EPC Mask length.
- 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.

	Lane 1	Lane 2 Lane 3 Lane 4
Ant 1 Behind	the reader 🔹 🔻	Scan time after triggering of the
Power	◀ 100% ►	
Ant 2 1.5 m c	able 🔹	EPC filter
Power	100%	EPC mask (Hexadecimal)
Fower	10078	EPC mask position (byte)
Ant 3 1.5 m c	able 🔹	Filter inversion: The reader will only send to the system the EPCs without the filter
Power	◀ 100% ►	
Ant 4 15 mg	oblo	RSSI filter
Ant 4	able	RSSI value 0
Power	◀ 100% ►	Filter inversion: The reader will only send to the system the EPCs for credentials with an RSSI below the defined value

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





#### **EPC filter**

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#### Example:

1- EPC mask = AA AA and Offset = 0

Tag 1: AAAAABCD0000000000000000 Tag 2: AA02ABCD0000000000000000 Tag 3: AA02ABCD0000000000000000 Tag 4: AA02FFFF000000000000000000

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: 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 00 1 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 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 00 3 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.

Offset (bvte)	I	0 o
Reversal		
EPC mask	AAAAA	
Offset (byte)	I	0 o
Reversal		
EPC mask	01	
Offset (byte)	-1	11 o
Offset (byte)	-8	11 o
Offset (byte)	-8	11 o
Offset (byte)	-8	11 o

EPC mask AAAA



EPC mask	AB		
Offset (byte)	·8	2 o	
Reversal			



# Input/ output settings

Input management		1 2
Reading mode selection Cancel	Continuous reading	ng v Next ≫
Output management		1 2
Output type selection	Pull up to V+	•
Status of outputs	Open Clease	4
Output 1 Output 2 Output 3 Output 4	Open   Close     Image: Close   Image: Clo	
<b>Previo</b>	us Cancel	Confirm

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'.



Innut management	1 2	
		In this mode, the reader scan continuously.
Reading mode selection	Continuous reading 🔹	
Cancel	Next ≫	
Output	1 2	2
		Select the output type and default state for output.
Output type selection	Pull up to V+ 🔹	
Status of outputs	Open Closed	
Output 1 Output 2		
Output 3 Output 4		
Previous	Cancel Confirm	
2		Reading Mode = Activate all lanes
-	_	
Input management	1	If an Input is activated (In1, In2, In3 or In4), the read
		scans on all lanes set.
Reading mode selection	Triggering on all lanes 🔹	
Cancel	Next ≫	
Scan time after triggering of the RFID reading		The duration of the reading is defined in 'Advanced settings'
		Select the output type and default state for output.
Output management	1)2	2
Output type selection	Pull up to V+	
Status of outputs		
Output 1	Open Closed	
Output 2 Output 3		
Output 4	$\circ$ $ $ $\circ$ $ $	
<b>Revious</b>	Cancel Confirm	

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### Reading mode = Triggering on the lane with the event

Input management		1 2	lf an Ing corresp
Reading mode selection	Triggering on the lane	with the event	
Cancel		Next ≫	
Scan time after triggering of the RFID reading	(	]   1s	The dura settings
Output management		1) 2 Selec	t the outp
Output type selection	Pull up to V+		
Status of outputs			
Output 1	Open Closed		
Output 2			
Output 3			
Output 4			
<b>C</b> Previous	Cancel Co	nfirm	

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

elect the output type and default state for output.

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



# Summary table

	Reading Mode	Input	Configurable Outputs states?	Output
(3)	Continuous reading	No action	Yes by lane	The output state toggles at the ascent.
b	Triggering 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.
<b>e</b>	Triggering on the lane with the event	An action on Input <i>x</i> activate the scan on lane <i>x</i> .	Yes by lane	

O S D P



ULTRYS v2			Adm	inistrator 🕳 🗙
uLt	Version 2.1.0.15		Readers configuration Create, import, modify and load your reader configurations	
Configuration loaded: te	est encod (U:\2-Qualification\SLA SMA\Ultrys2.1.0.15\test encod.ucg)		🕮 EN	• 🖨 (Ì)
کې ULTRYS v2 settings	Light indicator configuration Color selection			7 8 9
		Detecting user ID		
Readers configuration				
User credentials		ED color		
	K Previous		Next ≫	

### **Detecting user ID:**

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

Warning: An osdp\_LED command cancels this color.

### LED color:

LED co	olor selection		
		No color	-
	ОК		



## **Etape 7- Access- Communication protocol**

ULTRYS v2				Administrator 🗕 🗙
uLt			Readers configur Create, import, modify	ration and load your reader configurations
Configuration loaded: te	est encod (U:12-Qualification\SLA SMA\Ultrys2	1.0.15\test encod.ucg)		🔤 EN 🔻 🖨 🕧
کې کې ULTRYS v2 settings	Communication protocol Authenticated encryption ✓ User ID security (EPC) Private key definition (16 bytes)	n of EPC data (Secure mode)	User ID settings (E BPC size (bytes)	1 2 3 4 5 6 7 8 9 EPC) Mode 1 (Standard)
Readers configuration	Select protocol       Output protocol       Data       Baud rate	RS485 - OSDP Hexadecimal 9600 •	Format details Mode 3 AA BB CC xx Mode 4	Mode 2 XX XX YY ZZ Mode 1
User credentials	K Previous		Time between same user ID bei read twice	ng 6 s Next »
1 Communica Authenti	tion protocol cated encryption of EPC dat	a (Secure mode)		

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'.

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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.

User ID security (EPC)

Private key definition (16 bytes)

C06A8B4BC4554F0D5E043D456D137109

Private key definition (16 bytes)

C1111122245454455454564654654654



(2)	Select protocol					
Ŭ	Output protocol	RS485 - OSDP				
	Data	Hevadecimal				
	Data	Hexadecimal				
	Baud rate	9600	•			
			9600		•	
			9600 19200			
			38400 57600			
	The only modifiable parame	eter is the baud rate	115200			
3	EPC size (bytes)			3.0	]	
	21 0 0120 (0)(00)		,			
	Protocol			Size in	plain mode	Size in secure mode
	K5485			10 up t	0 620	10 up to 60
	Format details Mode 3	Mode 1 (Standard) Mode 2 (Standard r Mode 3	eversed)	There	are 4 modes to	feedback the EPC.
	Format details	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4	eversed)	There	are 4 modes to	feedback the EPC.
	Format details	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4	eversed)	There	are 4 modes to	feedback the EPC.
	Format details Mode 3 Example: EPC data: AA BB C	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4	eversed) II = = : WW XX YY ZZ v	There	are 4 modes to xed to 4bytes.	feedback the EPC.
	Format details Mode 3 Example: EPC data: AA BB C	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4 C DD EE xx xx VV V	eversed) # = = : WW XX YY ZZ v	There	are 4 modes to xed to 4bytes.	feedback the EPC.
	Format details Mode 3 Example: EPC data: AA BB C XX YY ZZ Mode 1	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4 C DD EE xx xx VV V Z : EPC feedback	eversed) NW XX YY ZZ v = WW XX YY Z	There with 'EPC size' fi	are 4 modes to xed to 4bytes.	feedback the EPC.
	Format details Mode 3 Example: EPC data: AA BB C Mode 1 Mode 2	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4 C DD EE xx xx VV V Z : EPC feedback	eversed) NW XX YY ZZ v = WW XX YY Z	There with 'EPC size' fi	are 4 modes to xed to 4bytes.	feedback the EPC.
	Format details Mode 3 Example: EPC data: AA BB C Mode 1 Mode 2 XX YY ZZ	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4 C DD EE xx xx VV V C : EPC feedback : EPC feedback =	eversed) NW XX YY ZZ v = WW XX YY Z	There with 'EPC size' fi	are 4 modes to xed to 4bytes.	feedback the EPC.
	Format details Mode 3 Example: EPC data: AA BB C Mode 1 Mode 2 XX YY ZZ Mode 2 XX YY ZZ	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4 C DD EE xx xx VV V C : EPC feedback : EPC feedback =	eversed) NW XX YY ZZ v = WW XX YY Z = ZZ YY XX WW	There with 'EPC size' fi	are 4 modes to xed to 4bytes.	feedback the EPC.
	Format details Mode 3 Example: EPC data: AA BB C Mode 1 Mode 2 XX YY ZZ Mode 3 AA BB CC	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4 C DD EE xx xx VV V C DD EE xx xx VV V C EPC feedback : EPC feedback =	eversed) NW XX YY ZZ v = WW XX YY Z = ZZ YY XX WW	There vith 'EPC size' fi	are 4 modes to xed to 4bytes.	feedback the EPC.
	Format details Mode 3 Example: EPC data: AA BB CC Mode 1 Mode 2 XX YY ZZ Mode 3 AA BB CC	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4 C DD EE xx xx VV V C DD EE xx xx VV V C : EPC feedback : EPC feedback = : EPC feedback =	eversed) WW XX YY ZZ v = WW XX YY Z = ZZ YY XX WW = AA BB CC D	There with 'EPC size' fi	are 4 modes to xed to 4bytes.	feedback the EPC.
	Format details Mode 3 Example: EPC data: AA BB CC Mode 1 Mode 2 XX YY ZZ Mode 3 AA BB CC	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4 C DD EE xx xx VV V C DD EE xx xx VV V C EPC feedback : EPC feedback = : EPC feedback =	eversed) WW XX YY ZZ v = WW XX YY Z = ZZ YY XX WW = AA BB CC DI	There with 'EPC size' fi	are 4 modes to xed to 4bytes.	feedback the EPC.
	Format details Mode 3 Example: EPC data: AA BB C Mode 1 Mode 2 XX YY ZZ Mode 3 AA BB C AA BB C Mode 4	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4 C DD EE xx xx VV V C DD EE xx xx VV V C DD EE xx xx VV V C EPC feedback = C EPC feedback = C EPC feedback =	eversed) WW XX YY ZZ v = WW XX YY Z = ZZ YY XX WW = AA BB CC DI = DD CC BB A	There with 'EPC size' fi	are 4 modes to xed to 4bytes.	feedback the EPC.
	Format details Mode 3 Example: EPC data: AA BB C Mode 1 Mode 2 XX YY ZZ Mode 3 AA BB C AA BB C Mode 4	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4 C DD EE xx xx VV V C DD EE xx xx VV V C EPC feedback = C EPC feedback = C EPC feedback =	eversed) WW XX YY ZZ v = WW XX YY Z = ZZ YY XX WW = AA BB CC DI = DD CC BB A	There with 'EPC size' fi	are 4 modes to xed to 4bytes.	feedback the EPC.
	Format details Mode 3 Example: EPC data: AA BB C Mode 1 Mode 2 XX YY ZZ Mode 3 AA BB C AA BB C Mode 4	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4 C DD EE xx xx VV V C EPC feedback = C EPC feedback = C EPC feedback =	eversed) WW XX YY ZZ v = WW XX YY Z = ZZ YY XX WW = AA BB CC DI = DD CC BB A	There rith 'EPC size' fi Z	are 4 modes to xed to 4bytes. mits the creder	feedback the EPC.
5	Format details Mode 3 Example: EPC data: AA BB C Mode 1 Mode 2 XX YY ZZ Mode 3 AA BB C AA BB C Mode 4	Mode 1 (Standard) Mode 2 (Standard r Mode 3 Mode 4 C DD EE xx xx VV V C : EPC feedback : EPC feedback = : EPC feedback = : EPC feedback =	eversed) WW XX YY ZZ v = WW XX YY Z = ZZ YY XX WW = AA BB CC DI = DD CC BB A	There rith 'EPC size' fi Z D A The reader e once during	are 4 modes to xed to 4bytes. mits the creden this time.	feedback the EPC.

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# **Step 8- User management**

Oltrys v2		Administrator 🗕 🗙
uut	CUS Version 2.0.0.4	Readers configuration Create a configuration
No configuration loaded	d	🔤 en 🔻 🖨 🕧
کې Ultrys settings	User management User profiles and user rights definition	
Readers configuration	Administrator (all rights)	
User credentials	User 2 (a) Customize user rights	
	<b>«</b> Previous	Next ≫

ULTRYS v2 allows to manage three different profiles by configuration file.

		-
Administrator (all rights)	Password Administrator	Define an Administrator password to protect the configuration file.
User 1 (E) Customize user rights		
User 2		
Administrator (all rights)	Password User 1	Define a User 1 password and select the
	User rights management User 1	corresponding rights.
	Modify/Back up a configuration	
User 1	Create a configuration badge (SCB UHE)	
Customize user rights	Load a configuration into the reader	
	Create user credentials	
Customize user rights		
Administrator (all rights)	Password User 2	Define a User 2 password and select the
	User rights management User 2	corresponding rights
	Modify/Back up a configuration	
User 1	Create a configuration badge (SCB UHF)	
Customize user rights	Load a configuration into the reader	
	Create user credentials	
User 2		
Customize user rights		



### **Step 9- Configuration save and protect**

Oltrys v2				Administrato	r _ ×
uut				Readers configuration Create a configuration	
No configuration loade	d	_4			
کې Ultrys settings	Configuration save and pr Configuration save and protect	otect			8 9
		1 Creat	e a name (maximum 14 cters)		
Readers configuration		2 Custo	mizing .ucg file protection		
		3	Save as		
User credentials					
		5	Summary of my configuration		
	K Previous				

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.

Select a file		×
🚱 🗢 🗮 Burea	u <b>&gt;</b>	✓ 4y Rechercher dans : Bureau
Nom du fichier :	Parking Entrance.ucg	•
Type :	Ultrys Configuration File (*.ucg)	▼
Parcourir les doss	ies	Enregistrer Annuler

4 The name and location of 'Configuration Loaded' indicates now the chosen name and location.

If you choose a file name that does not contain the name of the configuration, ULTRYS does not take into account the specified name or directory. It saves the file with the configuration name on the Desktop.



### 5 Get a summary of the configuration created

Summary of my configuration				9 ×
Summary of configuration settings	0.02	Lane 1 • Anterna 1 : Power (Radio Inequancy) : 100 % Reading time: 1 s EPC mask : Offset (byle): 0 Reversal : False Reversal : False	EPC size (bytes) : 3 byte(s) EPC code Neetback format : Mode 1 (Standard) Time between same user ID being read twice : 5 s	
This document contains all the configuration settings needed to install the reader and antennas or site. For further information oninstaliation, please refer to the <u>Quick Quick</u> and <u>Installation manual</u> . <b>#Configuration atentis</b> Configuration atentis. Configuration atentis. Configuration atentis. Configuration atentis. Configuration atentis. Configuration atentis. Configuration atentis. Configuration atentis. Displayed on: <u>222:2019</u> 10:00 <b>#Regulation of frequency bands</b> Prequency bands / Counties. Finance. FTSI Duty cycle. <u>0075</u> Charmie Mrtz; <u>8075</u> 5007		Managing inputs Selecting reading mode: Continuous reading Managing LED for customization : Nove Salecting reading the : Park up to V* Salecting the : P		
#Reader - antenno configuration       Reader - Spectre Reader Access       Arterna: - Spectre antenna       Installation overview       Lare s       Lare s       Lare s	Lane 4	Reading data LED layters = 10 % LED layters = 10 %		
Advanced settings		#Communication protocol         Sec:a range           Sec:a range         Sec:a range           Bit 1         Even paraly from bit 2 to bit 13           Bit 2         Data (24 bit 2)           Bit 3         To bit 2 to bit 3           Bit 4         Data (24 bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Overview of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 2)           Device of The Cody (24 paraly from bit 4 to bit 3)           Device of The Cody (24 paraly from bit 4 to bit 3)           Devit 4 paraly (24 paraly from bit 4 paraly (24 paraly (2		
Ø		<1 de 1 >		- 9

Print: allows to save this configuration information in a PDF file.

Summary of my cor	figuration and a second s		×
🕒 🗢 🔳 Burea	u 🕨	✓ ✓ Rechercher dans : Bureau	٩
Nom du fichier :	Parking IN.pdf		•
Type :	PDF Document (*.pdf)		•
💌 Parcourir les doss	iers	Enregistrer Annu	ler "#



# **3.3** Open an existing configuration



# 3.3.1 Configuration file

Open an existing configuration							
Configuration file (.ucg)	Reader via USB	Configuration badge (SCB UHF)					
Cancel		Confirm					



- 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.



## 3.3.2 Reader via USB



- 4- Connect the SPECTRE reader via USB cable provided.
- 5- Configure the communication parameters.
- 6- Please confirm.

Confirm	n your user rights		7- Sele Please
Configura	ition name	Parking IN	
Profile		Administrator	•
Password			
	Cancel	Confirm	
		Configurin Crass. legen	Admericanatio - X g readers modify and load your reader configurations
Conjunction reased in	Regulating frequency bands     Selecting country of installation     De legancy bands expert of the installation     Tester: TBI     Destriction of regulatory frequency band     Der spectra of regulatory frequency band		
Configuring readers	EP. 200 mV		XA
			Next ≫

7- Select the profile to use and the corresponding password. Please confirm.

8- ULTRYS v2 then displays the configuration wizard with all settings loaded from the reader.



# 3.3.3 Configuration badge (SCB/OCB UHF)

Open an existing configuration				
Configuration file (.ucg)	Reader via USB	Configuration badge (SCB UHF)		
Cancel		Confirm		

- 1- Connect an UHF encoder (STR or GAT Desk).
- 2- Configure the communication settings.
- 3- Present the SCB/OCB UHF to the encoder.
- 4- Please confirm.

Confi	rm your user rights		5- Se Please
Configu	ration name	Parking IN	
Profile		Administrator 🔹	
Passwo			
	Cancel	Confirm	
Otrys v2	THE K CONSTRUCTOR MARK	Configuring readers Craik, import, mostly and vair your re	Administrator » × autor configurations © en • P ?
Ultrys settings	Regulating frequency bands Selecting country of installation The frequency bands depend on the instalation leaded frames = #181	and the second	
Configuring readers	Description of regulatory frequency band Durp code 697 Cheanals () 867-2000 = W	- A Charles	A.
User IDs	Sol registers	N.V.	
			Next 🔉

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.



# **3.4** Load the configuration into the reader





# **3.4.1** Loading the configuration into the reader



Connect a SPECTRE reader viaJSB cable.Configure the communication

Configure the communicative tettings.

### 3- Configure the latency of com port to 1



USB Serial Port (COM1) Properties		
	Paramètres avancés pour COM3	N X
General Fort Seturings Driver Details		
	Numéro de port COM: COM3 🗸	ОК
Bits per second: 9600	Longueurs des trames USB	Annuler
Data bits: 8	Choisir une valeur faible afin de corriger l'apparition d'anomalies à débit réduit.	Valeurs par défaut
Parity: None	Choisir une valeur haute afin de privilégier la rapidité.	
	Réception (Octets): 4096 🔻	
Stop bits: 1	Transmission (Octets):	
Flow control: None		
	Options BM Divers	
Advanced Restore Defaults	Choisir une valeur faible afin de corriger les problèmes de rénonse. Enumérateur de périphérique série	e 🔽
	Imprimante série	
	Temps de latence (msec): 16   Invalider si hors tension Notification d'événements inatten	due 🔲
	Délais Valider RTS à la fermeture du port	t 🔲
``	Invalider les signaux de controle r	
	Delai d'attente minimum en lecture 0 Enable Selective Suspend	
	Délai d'attente minimum en écriture 0 Selective Suspend Idle Timeout (s	ecs): 5 🔻
OK Cancel	(iisc).	

Open Advanced...









# 3.4.2 Configuration card (SCB/OCB UHF)





The tag presented to the encoder is not compatible to create a SCB/OCB UHF.



# 4. User credentials

The user credentials encoding is done in three steps. To move from one step to another, you must click on "Next".

1 2 3 <u>Step1</u>	Configuration details loaded
1 2 3 <u>Step2</u>	User ID definition
1 2 3 Step3	Encoding tags

# **Step 1- Configuration details loaded**

Oltrys v2				Administrator 🗕 🗙
uut			Create from Create your use	a configuration r ID and password from a configuration
No configuration loaded				🔤 en 🔻 🖨 🕧
Ultrys settings Configuring readers	Creating user IDs Configuration details loaded	nfiguration name : en with profile : Administrator gulating frequency bands : lect protocol : C size (bytes) : cure mode : C Filtering:		1 2 3
∟ెం_్ర User IDs		EPC filter Select the lane	Check user ID information	before encoding gnosis Next 🄉
Creating user IDs Configuration details	loaded Configuration name : Parking IN Open with profile : Administrator Regulating frequency bands : Fran Selete protocol : Wiegand 26 bits - EPC size (bytes) : 3 Secure mode : Disabled EPC Filtering: - Lane 1 : EPC mask : / Offset (byt - Lane 2 : EPC mask : / Offset (byt - Lane 3 : EPC mask : / Offset (byt - Lane 4 : EPC mask : / Offset (byt	ce - ETSI 3i le): 0 le): 0 le): 0 le): 0 le): 0		Check the configuration loaded is the correct one to use or open the configuration to use.
			4	



**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:

Ownership of the user ID
<ul> <li>✓ Manufacturer : Impinj</li> <li>✓ Model : 80</li> <li>✗ Compatible with secure encoding : No</li> </ul>
Close
Ownership of the user ID
<ul> <li>✓ Manufacturer : Impinj</li> <li>✓ Model : Monza4D</li> <li>✓ Compatible with secure encoding : Yes</li> </ul>
Close

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)



EPC filter
Select the lane

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: Advanced settings Advanced settings Lane 1 Lane 2 • Ant 3 1.5 m cable Ant 1 On back of reader ◀ 100% ► Power < 100% **>** Power EPC mask AA EPC mask BB 1.5 m cable Ant 4 1.5 m cable < 100% **> 4** 100% Po Power Close Close



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**

🧿 Ultrys v2				Administrator 🚊 🗙
uut			Create from a cor Create your user ID and	nfiguration d password from a configuration
Configuration loaded: F	Parking IN (CAUsers)cpialoux/Desktop/Parking IN User credential creation User ID definition	N Ucg)		≝ en ▼ 🔒 (ℓ) 1 2 3
کیک Ultrys settings	C 🔒 Manual ID creation	Automatic ID creation	O 👔 Import Excel IDs	On Import TXT IDs
Readers configuration	ID no.	First ID Last ID Increment	Load Sheet number First cell Increment	CR/LF delimiter
User credentials		Check validity an d O Data	d detail of encoding ata	
	<b>«</b> Previous			Next ≫

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.

ID size is constrained by the protocol defined in the menu « *Config* ». If the data is it is not respected in the input fields, then the software will complete with « 0 » (by default MSB).

Creating manual IDs	Enter directly the ID value in the field and click Next.
ID no. AA0001	Use to encode a single tag or a specific value.
Creating automatic IDs	Fill in each corresponding field, the beginning, the end and the increment to generate the list of user IDs to encode.
First ID 0000001 Last ID	
0001000 Increment 1	Check validity and detail of encoding data         Image: Check validity and data         Image: Check validity and data



🖲 🔂 Imp	orting Excel IDs	
Load	C:\Users\ \Desktop \UserIDs.xlsx	This mode allows you to import lists in Excel format to be used for the user IDs programming
Sheet numb	er 1	
First cell	A1	
Increment		
By line		m – – ×
	Fichier Accc Inser Mise Forr Dom Ré	I Affic I Aide I Sage Q ↓ The Mise enforme co Whether sous form Styles Syles A to the source of
	A         B         C           1         B63F478ED         2         4E0074E74E           2         4E0074E74E         3         3           3         E037108E04         4         6037108E04           4         E037108E04         6         4           6         4E0074E74E         -         -           7         E037108E04         Feell         -           6         4E0074E74E         -         -           7         E037108E04         Feell         -	D E Valid encoding data 37 total identifiers found, ranging from 1 to 37.



This mode allows you to import lists in Text format to be used for programming the user IDs.





# **Step 3- Encoding tags**

🧿 Ultrys v2		Administrator 🗕 🗙
uut	Version 2.0.0.4	Create from a configuration Create your user ID and password from a configuration
Configuration loaded:	est encodage (C.\Program Files (x86)\STid\Ultrys v2\test encodage.ucg)	🕮 en 🔻 🔒 🕧
۲ ۷ Ultrys settings	User credential creation Encoding tags Create user credentials	1)2)3
Readers configuration	OPERATIONS	STATUS
User credentials		
	K Previous	Close 🗙

1 Present the user credential which you would like to encode to the encoder and click on this button.

User tag successfully encoded for identifier 1 .			
Submit another ID for	r encoding with the nex	t ID or cancel the pr	rocess
Cance		Next	
2 The credential data r	eading is written on Ope	erations windows.	
	Create user credentials	Read ID data	
OPERATIONS			STATUS
User tag read [EPC] : 000001.			Success



## 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).

1- Encoding the value 1122334455 on 5 bytes without EPC filter.



ID no. 1122334455

Settings				Value encoded by ULTRYS v2	Value ascended by the SPECTRE
EPC size (bytes)	•	5 o		00000000000001122334455	1122334455
EPC code feedback format	Mode 1 (Standard)		•		
EPC size (bytes)	·I	5 o		00000000000001122334455	5544332211
EPC code feedback format	Mode 2 (Standard reversed)	)	•		
EPC size (bytes)	•0	5 o		112233445500000000000000000000000000000000	1122334455
EPC code feedback format	Mode 3		•		
EPC size (bytes)	·I	5 o		112233445500000000000000000000000000000000	5544332211
EPC code feedback format	Mode 4		•		



2- Encoding the valu	e 1122334455 on 5 bytes with EPC filter 'AA'.	Annual ID creation
	Selecting lane with EPC filter	ID no.
EPC filter		1122334455
Select the lane	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	

Settings			Value encoded by ULTRYS v2	Value ascended by the SPECTRE
EPC mask AA				
Offset (byte) 0 o				
EPC size (bytes)	·	5 o	AA0000000000001122334455	1122334455
EPC code feedback format	Mode 1 (Standard)	•		
EPC size (bytes)	•	5 o	AA000000000001122334455	5544332211
EPC code feedback format	Mode 2 (Standard reversed)	•		
EPC size (bytes)	•	5 o	AA2233445500000000000000000	AA22334455
EPC code feedback format	Mode 3	•		
EPC size (bytes)	•	5 o	AA2233445500000000000000000	55443322AA
EPC code feedback format	Mode 4	•		
EPC mask AA				
			000000000000000000000000000000000000000	AA2233 <i>11</i> 55
EPC size (bytes)	·0	5 o	000000000000000000000000000000000000000	AA22334433
EPC code feedback format	Mode 1 (Standard)	•		
EPC size (bytes)	·I	5 o	11223344550000AA00000000	1122334455
EPC code feedback format	Mode 3	•		

### 3- Encoding the value 1122334455 on 5 bytes in secure mode



ID no. 1122334455

	Encoded value on 16 bytes encrypted.	Value ascended by the SPECTRE
☑ User ID security (EPC)	789C9B12C733B3657EF030CE17F250BE	1122334455
Private key definition (16 bytes)		
676AB9819CD0523B1D01BD448545A9E2		


## **REVISION**

Date	Version	Description
04/03/2019	2.0	Creation.
15/11/2019	2.1	OSDP reader added

## info@stid.com www.stid-security.com

Headquarters / EMEA 13850 Gréasque, France Tel.: +33 (0)4 42 12 60 60

PARIS-IDF Office 92290 Châtenay-Malabry, France Tel: +33 (0)1 43 50 11 43 **STid UK Ltd. LONDON** Hayes UB11 1FW, UK Tel: +44 (0) 192 621 7884

**STid UK Ltd.** Gallows Hill, Warwick CV34 6UW, UK Tel.: +44 (0) 192 621 7884 NORTH AMERICA Office New York, NY 10005, USA Tel.: +1 310 803 2114

LATINO AMERICA Office Cuauhtémoc 06600 CDMX, México Tel.: +521 (55) 5256 4706 AUSTRALIA / APAC Office Ultimo, Sydney NSW 2007, Australia Tel.: +61 (0)2 9274 8853

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