



SWEDGE

User manual





Acknowledgment

Welcome in the world of the identification!

You have just purchased SWEDGE software.

We thank you for your trust and hope that this solution developed by STid will be to your entire satisfaction.

We remain at your disposal for any question.

Do not hesitate to contact us on our web site www.stid.com for more information.

The STid team



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1. Informations

Required computer configuration

- Computer with Windows 7, 8 or 10 operating system
- USB or RS232 port
- 50 Mo of free memory on hard disk

USB Key Content

- USB FTDI driver for Windows 7, 8 or 10.
- Swedge Version 1.4.x

Required hardware

- STid Desktop reader
 - ✓ USB
 - STR-R35-E/Ph5-5AB (13.56 MHz)
 - Or STR-R35-B/x03-5X (13.56 MHz)

 - Or ARC-R35-G/PH5-5AB (13.56 MHz)
 - Or ARCS-R35-G/PH5-5AB (13.56 MHz)
 - Or ARC-R35-L/Le2-5AB (13.56 MHz)

 - Or ARCS-R35-G/BT1-5AB (13.56 MHz & Bluetooth)

 - Or STR-W15-A/E01-5G (125 kHz)

 - Or STR-W45-E/U04-5AA (UHF)(ETSI)
 - Or STR-W55-E/U04-5AA (UHF)(FCC)
 - ✓ RS232
 - STR-R32-E/Ph5-5AB (13.56 MHz)
 - Or STR-R32-B/x03-5X (13.56 MHz)
 - Or STR-W12-A/E01-5G (125 kHz)
- USB or RS232+ power supply
- SWEDGE software





Installation

Insert the SWEDGE USB Key on an USB port of your PC.

Wait for the automatic opening of the browser window.

Launch *SWedgeV14x_setup.exe*.

Follow the instructions on the screen.

Connect the reader:

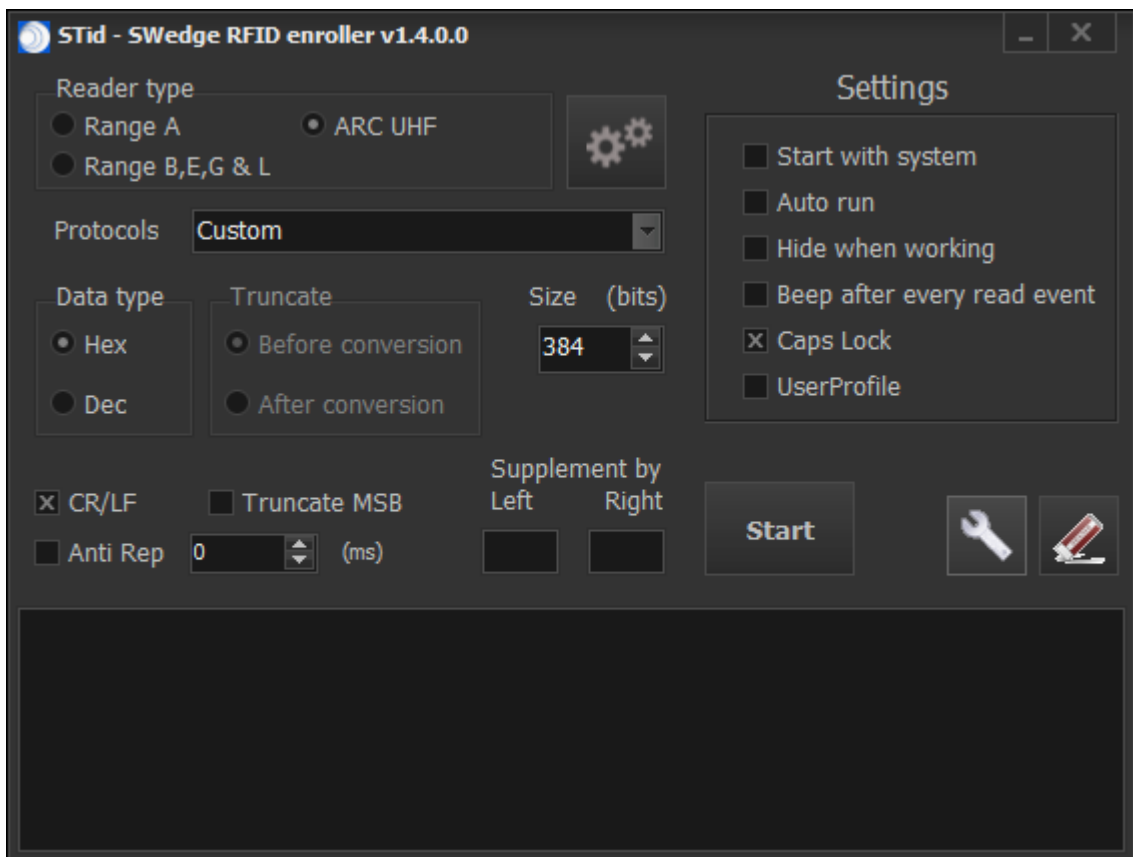
- In case of STR-W1x-A/E01-5G: the green LED will be lighted at the moment of switching on.
- In case of STR-R3x-E/PH5-5AB: the orange LED will be lighted and the buzzer activated at the moment of switching on.
- In case of ARC-R35-G/PH5-5AB: the white LED will be lighted and the buzzer activated at the moment of switching on.
- In case of ARCS-R35-G/PH5-5AB: the white LED will be lighted and the buzzer activated at the moment of switching on.
- In case of ARCS-R35-G/BT1-5AB: the white LED will be lighted and the buzzer activated at the moment of switching on.
- In case of ARC-R35-L/Le2-5AB: the white LED will be lighted and the buzzer activated at the moment of switching on.
- In case of STR-W45-E/U04-5AA and STR-W55-E/U04-5AA: the orange LED will be lighted at the moment of switching on.
- In the case of the ARC-W55-G/U04-5AA, ARC-W45-G/U04-5AA enrollers/encoders: their white LED will light up and their buzzer will sound for 2 seconds as soon as they are switched on. Make sure there are no tags nearby while connecting and setting up this reader.



Starting software

Warning

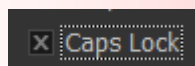
If you do not have administrator rights, you must execute SWEDGE with "Run as administrator".



SWEDGE allows keyboard emulation when a tag is presented to the reader and a formatting of it according the parameters of the software.

Caution

The Caps Lock key must be enabled.



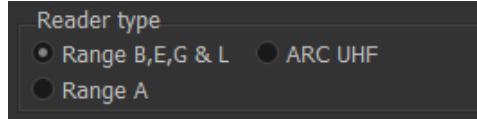
OR






2. Settings

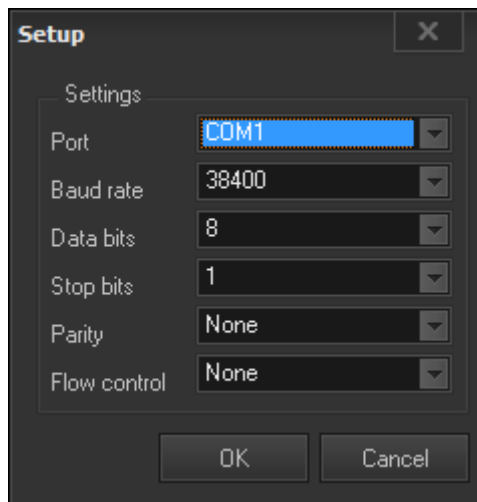
Choice of the reader type



Gamme A	Gamme type B, E, G & L	
STR-W15-A/E01-5G	STR-R35-E/Ph5-5AB	ARC-R35-G/PH5-5AB
STR-W12-A/E01-5G	STR-R35-B/x03-5X	ARC-R35-L/Le2-5AB
	STR-W45-E/U04-5AA	ARCS-R35-G/PH5-5AB
	STR-W55-E/U04-5AA	ARCS-R35-G/BT1-5AB
	STR-R32-E/Ph5-5AB	
	STR-R32-B/x03-5X	
ARC UHF		
ARC-W55-G/U04-5AA		
ARC-W45-G/U04-5AA		

Serial port setting

The communication between the software and the reader is done through a serial port (USB or RS232). To do the configuration, please press this button «  ».



Default baudrate for readers:	
9600 bauds	115 200 bauds
STR-R35-E/Ph5-5AB	STR-W45-E/U04-5AA
STR-R35-B/x03-5X	STR-W55-E/U04-5AA
ARC-R35-G/PH5-5AB	ARC-W55-G/U04-5AA
ARC-R35-L/Le2-5AB	ARC-W45-G/U04-5AA
ARCS-R35-G/PH5-5AB	
ARCS-R35-G/BT1-5AB	
STR-W15-A/E01-5G	
STR-W12-A/E01-5G	
STR-R32-E/Ph5-5AB	
STR-R32-B/x03-5X	

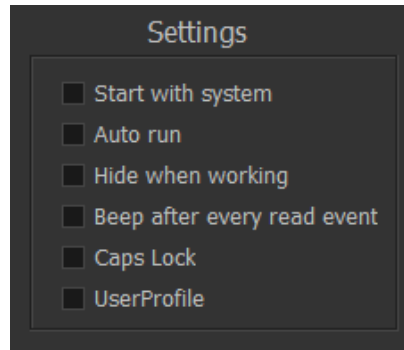
Caution

It is important to install the USB driver provided with the software in the CD.

You can download new driver on <http://www.ftdichip.com/Drivers/VCP.htm>.



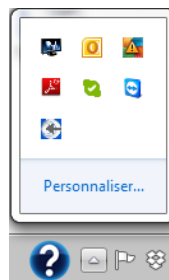
Settings parameters



Start with system Activate the opening of the application at system startup.

Auto run Automatic execution of the application at opening the software with the parameters saved in the ini file.

Hide when working By checking this box the application will be hidden in the taskbar.



Beep after every read event Activate beep after each identifier reading.

Caps Lock Activate caps locks.

UserProfile Unchecked box:
The settings file Swedge.ini is saved in the directory containing the executable, by default: C:\Program Files (x86)\STid\SWedge v1.3.x. File content:

```
[SWEDGE]
UserProfile=0
ComPort=COM10
ComBaudrate=115200
ReaderType=0
HexDec=0
Truncate=0
Size=32
CRLF=0
MSB=0
AntiRep=0
AntiRepTimeout=0
AutoStart=0
AutoRun=0
HideWhenWorking=0
Beep=0
CapsLock=0
EditAddCharLeft=0
EditAddCharRight=
Protocol=0
```



Checked box:

Warning: SWEDGE must be run in administrator mode to activate this option.

The settings file Swedge.ini is save in the user:

C:\Users\username\STid\Swedge\Swedge.ini. File content:

```
[SWEDGE]
ComPort=COM10
ComBaudrate=115200
ReaderType=0
HexDec=0
Truncate=0
Size=32
CRLF=0
MSB=0
AntiRep=0
AntiRepTimeout=0
AutoStart=0
AutoRun=0
HideWhenWorking=0
Beep=0
CapsLock=0
EditAddCharLeft=0
EditAddCharRight=
Protocol=0
```



3. Reader Configuration

If the reader was not purchased in a kit SWEDGE, it is necessary to configure it to work with the software.

STR-R35-B/x03-5X and STR-R32-B/x03-5X

These readers require no special configuration before use with SWEDGE. The reader reads the chip serial number in hexadecimal and sends it to SWEDGE on UID tag format.

STR-W15-A/E01-5G and STR-W12-A/E01-5G

The factory default parameters of these readers are read/write. To work with SWEDGE, they must be set to standalone. To do this, commands must be sent using a HyperTerminal.

Operating procedure:

- Open an Hyperterminal
- Connect the reader to configure
- Set the communication port:
 - Port COM number
 - Baudrate 9600 bds
 - Bits: 8
 - Stop Bit 1
 - Parity: none
- Send the three commands (hexadecimal value):
 - `\02\20\04\00\00\24\03` reader answer: `\02\20\00\00\20\03`
 - `\02\2E\01\00\00\2F\03` reader answer: `\02\2E\00\00\2E\03`
 - `\02\22\01\00\00\23\03` reader answer: none
- Checking: present a 125 KHz card on the reader, it must read continuously (beeps).

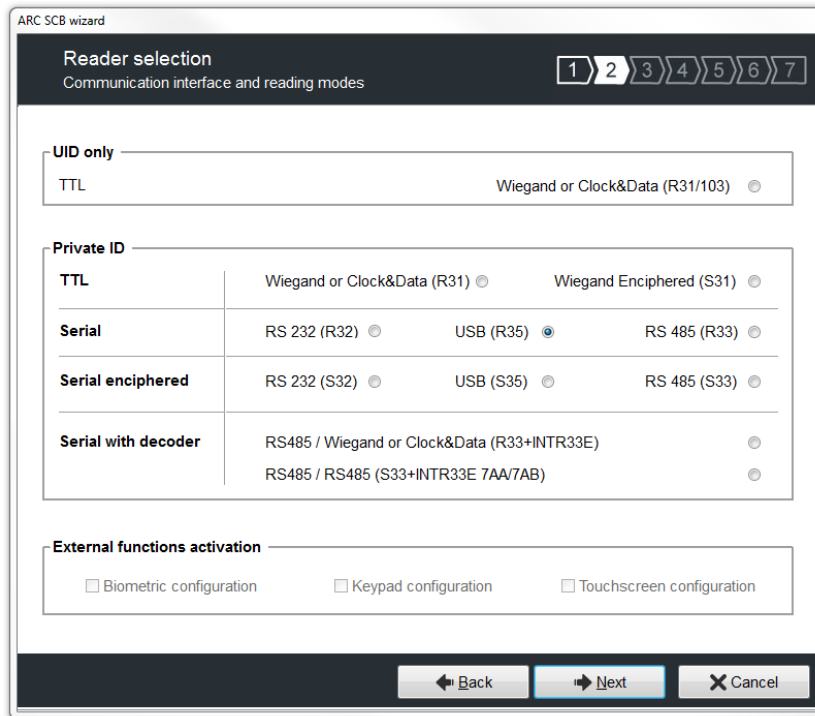
The reader reads the chip serial number (EM410x default chip) in hexadecimal and sends it to SWEDGE on a 40 bits frame (5 bytes).



STR-R35-E/PH5-5AB, STR-R32-E/PH5-5AB, ARC-R35-G/PH5-5AB, ARCS-R35-G/PH5-5AB et ARCS-R35-G/BT1-5AB

These readers are configurable with configuration card create with SECard.
Below are the parameters to select in SECard to configure the reader for operation with SWEDGE:

- Select the type of reader R32 or R35



ARC SCB wizard

Reader selection
Communication interface and reading modes

1 2 3 4 5 6 7

UID only

TTL Wiegand or Clock&Data (R31/103)

Private ID

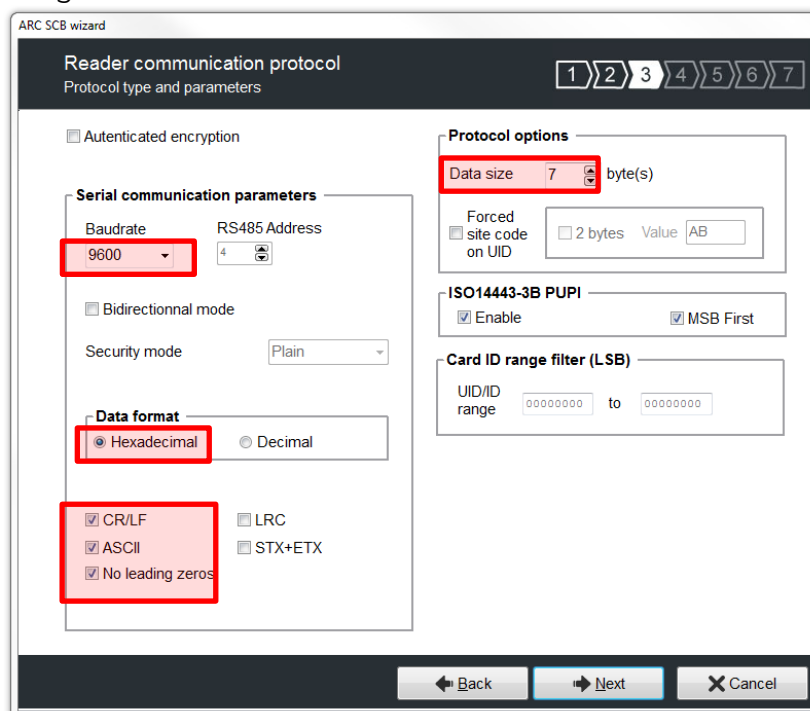
TTL	Wiegand or Clock&Data (R31) <input type="radio"/>	Wiegand Enciphered (S31) <input type="radio"/>	
Serial	RS 232 (R32) <input type="radio"/>	USB (R35) <input checked="" type="radio"/>	RS 485 (R33) <input type="radio"/>
Serial enciphered	RS 232 (S32) <input type="radio"/>	USB (S35) <input type="radio"/>	RS 485 (S33) <input type="radio"/>
Serial with decoder	RS485 / Wiegand or Clock&Data (R33+INTR33E) <input type="radio"/>		
	RS485 / RS485 (S33+INTR33E 7AA/7AB) <input type="radio"/>		

External functions activation

Biometric configuration Keypad configuration Touchscreen configuration

Back Next Cancel

- Serial settings



ARC SCB wizard

Reader communication protocol
Protocol type and parameters

1 2 3 4 5 6 7

Autenticated encryption

Serial communication parameters

Baudrate: 9600 RS485 Address: 4

Bidirectionnal mode

Security mode: Plain

Data format

Hexadecimal Decimal

CR/LF LRC
 ASCII STX+ETX
 No leading zeros

Protocol options

Data size: 7 byte(s)

Forced site code on UID 2 bytes Value: AB

ISO14443-3B PUPI

Enable MSB First

Card ID range filter (LSB)

UID/ID range: 00000000 to 00000000

Back Next Cancel



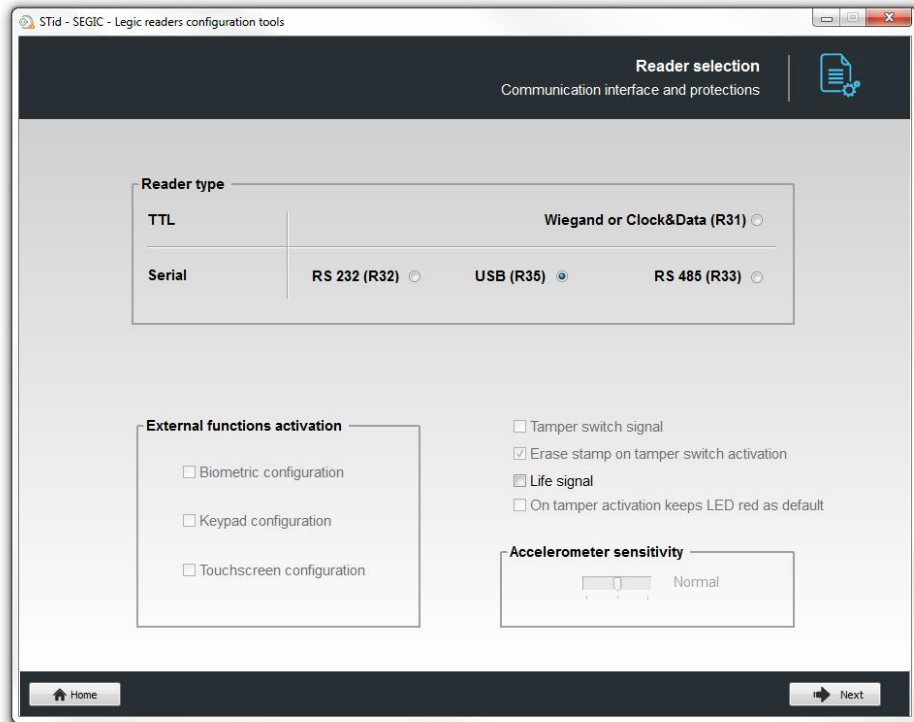
- Configuring chip data to read: either UID in this case select for all chips UID and MSB First, either Private ID.

ARC-R35-L/Le2-5AB

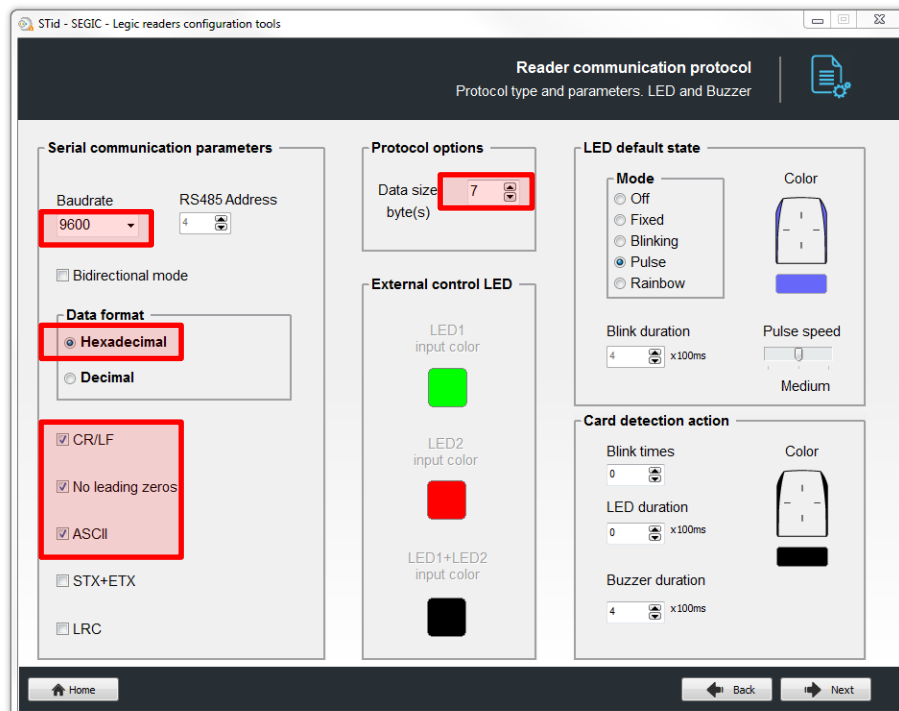
These readers are configurable by serial link with SEGiC.

Below are the parameters to select in SEGIC to configure the reader for operation with SWEDGE:

- Select the type of reader R35



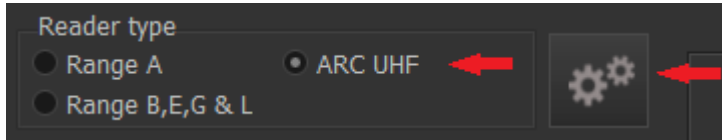
- Reader communication protocol



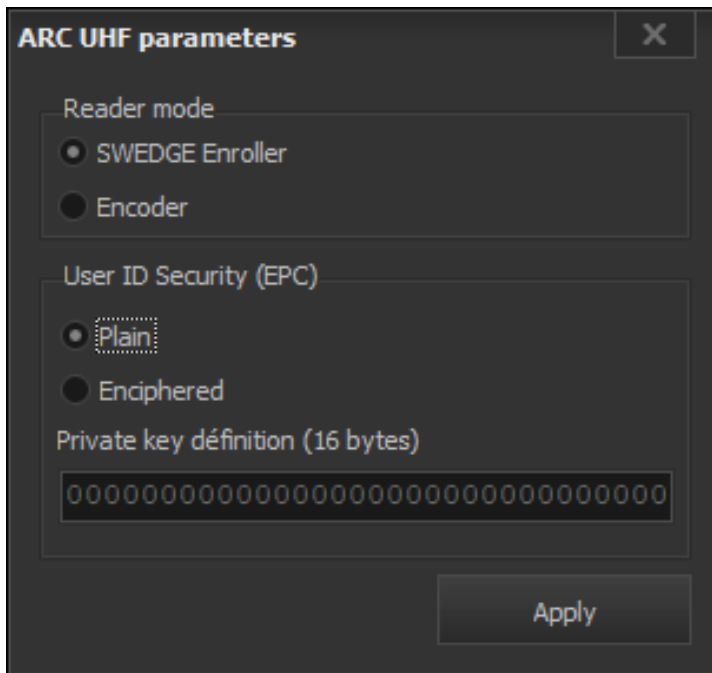


ARC-W55-G/U04-5AA et ARC-W45-G/U04-5AA

These readers are configurable in SWEDGE by selecting the Reader Type: ARC UHF then clicking on the ARC UHF Parameters button.



Make sure there are no tags near the reader during the setup phase.



SWEDGE Enroller mode is the main mode of use with SWEDGE software.

The " Encoder " mode allows to switch the reader to write mode for use with STid's SESPRO and ULTRYS v2 softwares.

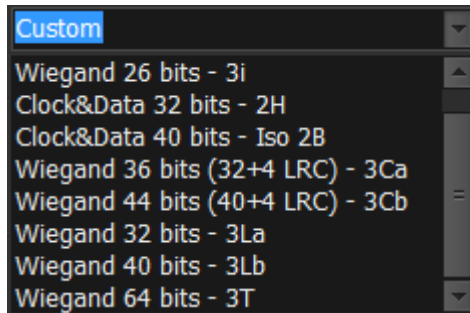
SWEDGE offers the ability to upload secure tag IDs (EPCs), which have been encoded with ULTRYS v2 and encrypted with a 16-byte private key.

To enable SWEDGE to read and display these encrypted tags, simply select the "Enciphered" option, and fill in the 16-byte private key.

The "Apply" button allows to apply the defined parameters to the reader (choice of "SWEDGE enroller" or encoder mode and choice of EPC the secure mode).

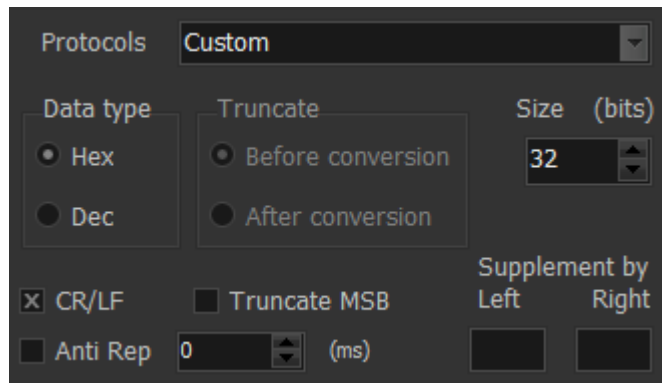


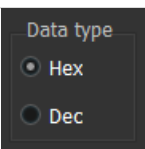
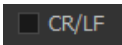

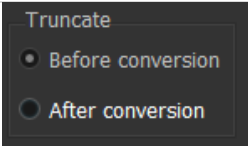
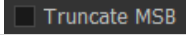
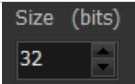
4. Format settings



Protocol Custom

All parameters are to be set.



	<p>Choose the data type decimal or hexadecimal.</p>
	<p>If activated, SWEDGE will do a return after each reading.</p>
	<p>If activated, SWEDGE not return the read code as it will be identical to the preceding and during the timing sets.</p>
	<p>Selects if the SWEDGE truncates the data before decimal conversion or after (only available if the data type selected is DEC).</p>
	<p>If activated, SWEDGE truncates MSB first instead LSB.</p>
	<p>Size of the ID. In bits or in digits according the configuration.</p>

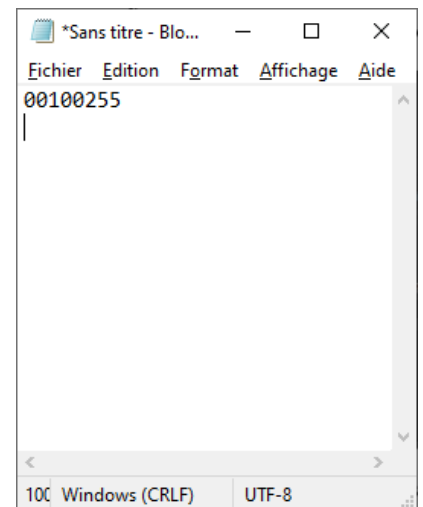
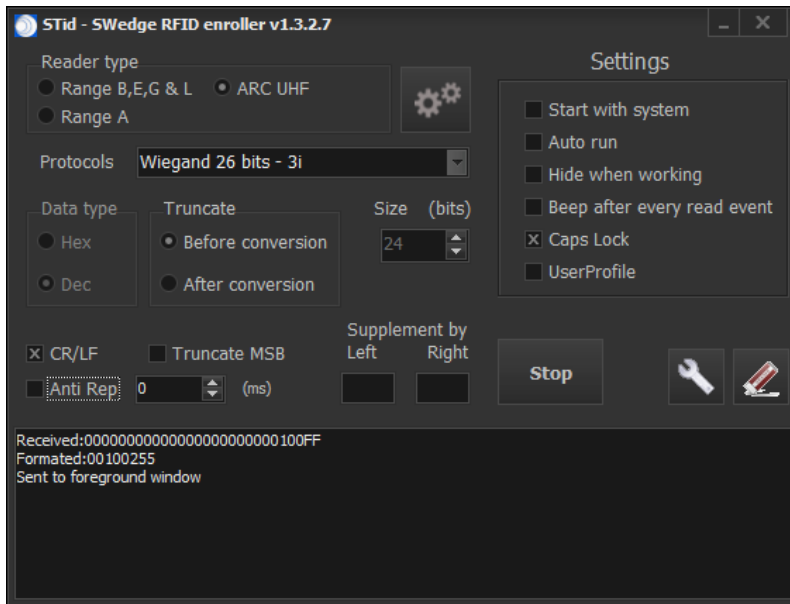


Predefined Protocol

The setting for the most common protocols has been predefined.

26-bits Wiegand – 3i: Site code and card code are displayed in decimal and concatenated into the text field.

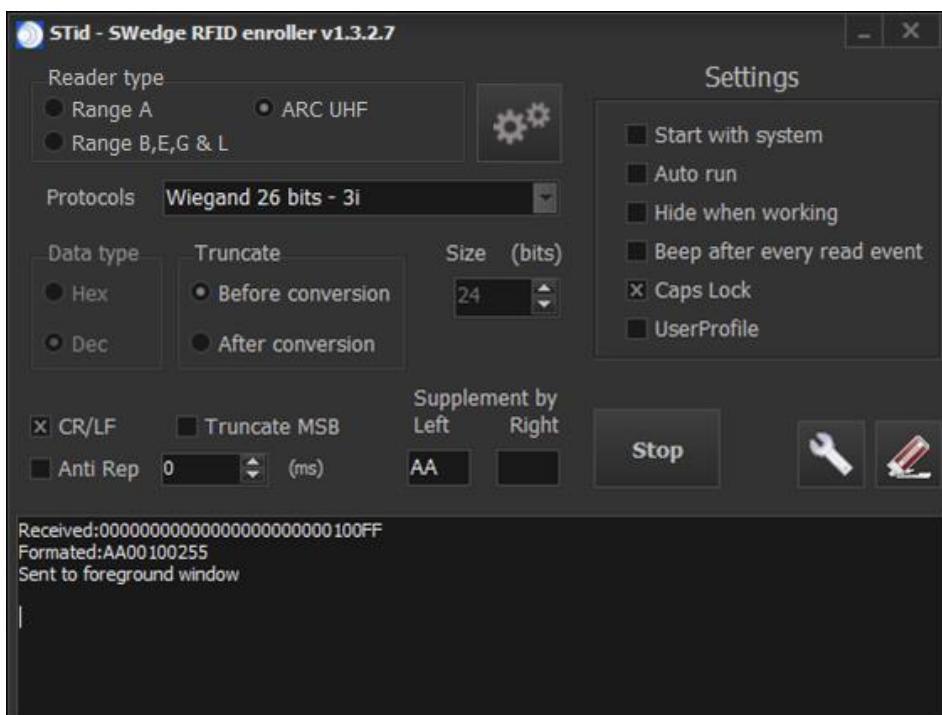
Example: Card encoded with site code 001 et card code 255



For Wiegand 3i, Clock&Data 2H and 2B, the field Truncate is configurable to the needs.

Supplement by Left or Right

Used to force character(s) before or after the data to read.
Previous example with forced AA before:





APPENDIX: Communication protocol

ISO2 Clock&Data protocols

ISO 2B

Variant	Format	Frame on 112 bits	Values
2B	Decimal (BCD)	13 characters	0 - 9

Reading tag on 5 bytes (40 bits) and decimal conversion.

Example:

For a hexadecimal ID “0x187E775A7F”, number will be “0105200966271”.

The frame sent by the 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	000...
	B	0	1	0	5	2 0 09 6	6	2	7	1	F	F	
Zeros	S.S	Car.1	Car.2	Car.3	Car.4	Car....	Car.10	Car.11	Car.12	Car.13	E.S	LRC	Zeros

ISO 2H

Variant	Format	Frame on 97 bits	Values
2H	Decimal (BCD)	10 characters	0 - 9

Reading tag on 4 bytes (32 bits) and decimal conversion.

Example:

For a hexadecimal ID “0x06432F1F”, number will be: “0105066271”.

The frame sent by the 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...
	B	0	1	0	5	0 6	6	2	7	1	F	4	
Zeros	S.S	Car.1	Car.2	Car.3	Car.4	Car....	Car.7	Car.8	Car.9	Car.10	E.S	LRC	Zeros



Wiegand protocols

Wiegand 3CA

Bit 1 ... Bit 32	Bit 33... Bit 36
Data "MSB first"	LRC

- **Data:** 8 hexadecimal characters "MSByte first" (32 bits)
- **LRC:** 1 control character (XOR of all digits)

For a hexadecimal ID "0x001950C3", the frame sent by the reader will be:

0000	0000	0001	1001	0101	0000	1100	0011	0010
0	0	1	9	5	0	C	3	2
Car.1	Car.2	Car.3	Car.4	Car.5	Car.6	Car.7	Car.8	LRC

Wiegand 3CB

Bit 1 ... Bit 40	Bit 41... Bit 44
Data "MSB first"	LRC

- **Data:** 10 hexadecimal characters "MSByte first" (40 bits)
- **LRC:** 1 control character (XOR of all digits)

For a hexadecimal ID "0x01001950C3", the frame sent by the reader will be:

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



Wiegand 3LA

As "Wiegand 3CA" without LRC.

Wiegand 3LB

As "Wiegand 3CA" without LRC.

Wiegand 3i

Variant	Format	Data 24 bits	Values
<i>3i</i>	<i>Hexadecimal</i>	<i>6 characters</i>	<i>0 - F</i>

Bit 1	Bit 2 ... Bit 25	Bit 26
<i>Even parity bit 2 ... bit 13</i>	<i>Data (24 bits)</i>	<i>Odd parity bit 14 ... bit 25</i>

- **Even parity:** 1 bit of even parity on the 12 following bits
- **Data:** 6 hexadecimal characters "MSByte first"
- **Odd parity:** 1 bit of odd parity on the 12 previous bits

For a hexadecimal ID "0x0FC350":

The frame sent by the reader will be:

0	0000	1111	1100	0011	0101	0000	1
	0	F	C	3	5	0	
Parity	Car.1	Car.2	Car.3	Car.4	Car.5	Car.6	Parity

The data formatted is: 01550000.



History revisions

Date	Version	Description
09/08/2010	1.0	<i>Initial version of the document</i>
07/09/2010	1.1	<i>Modification of the first page.</i>
11/10/2010	1.2	<i>Modification of the first page.</i>
17/10/2011	1.3	<i>STR-W45-E-U04-5AA reader added.</i>
03/04/2102	1.4	<i>Service mode added</i>
03/09/2012	1.5	<i>Addition of setings (Start with system, Auto run, Hide when working, Beep after every read event) Addition of reader references STR-R3x-B/x03-5X and STR-W55-E/U04-5AA</i>
24/01/2013	1.6	<i>Modification of the index of the executable 1.2.0 to 1.2.x</i>
04/07/2013	1.7	<i>Addition of "Truncate MSB"</i>
22/12/2014	1.8	<i>ARC-R35G/PH5-5AB added, Caps Lock in Settings added, Timing on antirepresentation Defaut Configuration changed 7bytes instead 5 bytes for STR R35 E & ARC R35 G.</i>
24/04/2015	1.9	<i>ARC-R35L/Le2-5AB added, In Settings User Profile added, Predefined protocols added, Supplement by added.</i>
15/10/2018	1.10	<i>ARCS-R35G/PH5-5AB & ARCS-R35G/BTI-5AB added, USB key instead of CD ROM</i>
26/102020	1.11	<i>ARC-W55-G/U04-5AA, ARC-W45-G/U04-5AA added</i>