STid
Electronic Identification

SWEDGE

Designed in France
Made in France

www.stid.com

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.

Don’t hesitate to contact us on our web site www.stid.com for more information.

The STid team

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Informations

1. Required computer configuration

- Computer with Windows98ME, 2000/XP, VISTA or Windows 7 or 8 operating system
- USB or RS232 port
- 50 Mo of free memory on hard disk

2. CD contains

- USB FTDI driver for Windows 95ME, 2000/XP, VISTA and Windows 7.
- Swedge Version 1.3.x

3. Required hardware

- STid Desktop reader
  - ✓ USB
    - STR-R35-E/Ph5-5AB (13.56 MHz)
    - Or STR-R35-B/x03-5X (13.56 MHz)
    - Or STR-W15-A/E01-5G (125 kHz)
    - Or ARC-R35-G/PH5-5AB (13.56 MHz)
    - Or ARC-R35-L/Le2-5AB (13.56 MHz)
    - 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

4. Installation

Upon CD insertion and choose executable file: *SWedgeV13x_setup.exe*

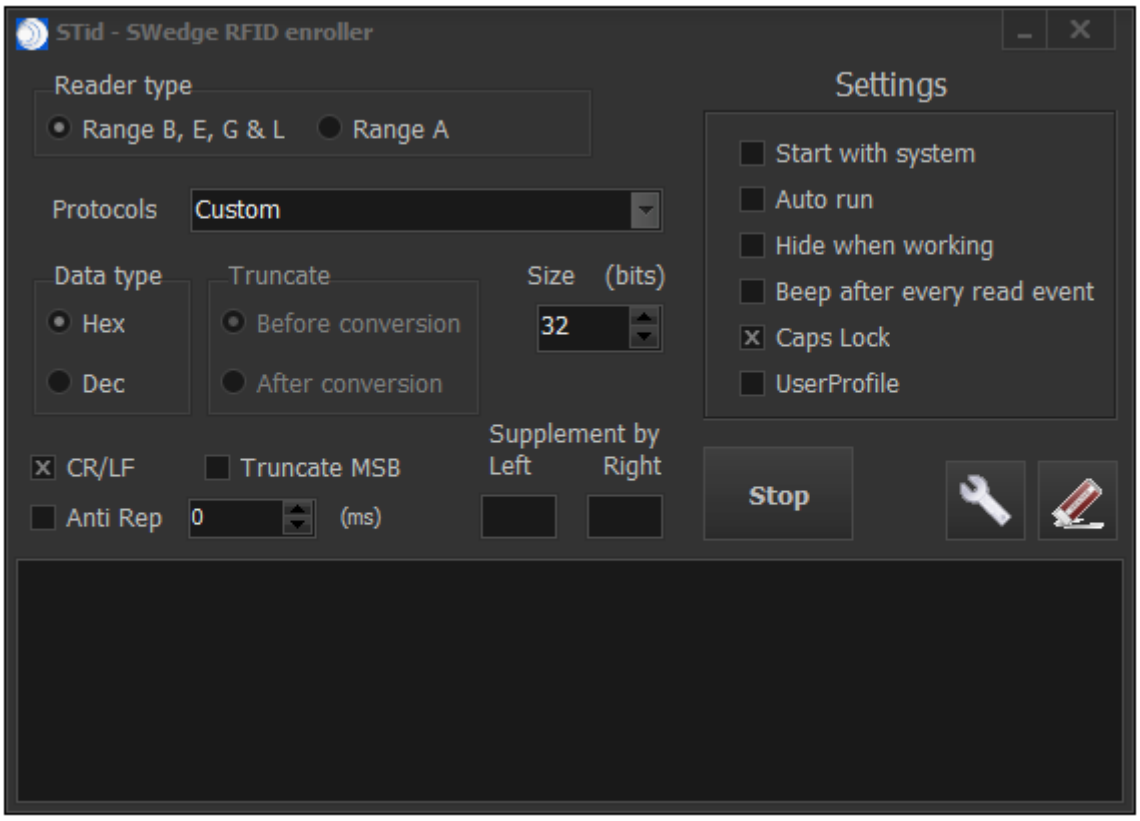
Connect the reader:

- 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 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 case of STR-R3x-B/x03-5X: the red LED will be lighted at the moment of switching on.

5. Starting software

Warning

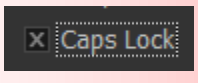
If you don't have administrator rights, you must execute SECard with "Run as administrator".



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

Caution

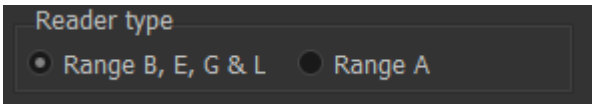
The Caps Lock key must be enabled.



OR

Settings

1. Choice of the reader type

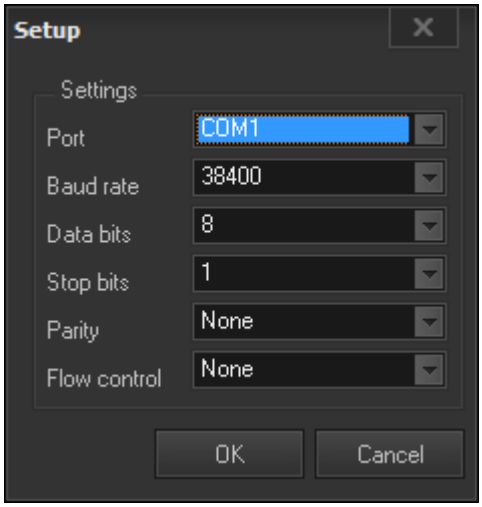


Range type B, E, G & L	Range A
STR-R35-E/Ph5-5AB	STR-W15-A/E01-5G
STR-R35-B/x03-5X	STR-W12-A/E01-5G
ARC-R35-G/PH5-5AB	
ARC-R35-L/Le2-5AB	
STR-W45-E/U04-5AA	
STR-W55-E/U04-5AA	
STR-R32-E/Ph5-5AB	
STR-R32-B/x03-5X	

2. 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 « ».



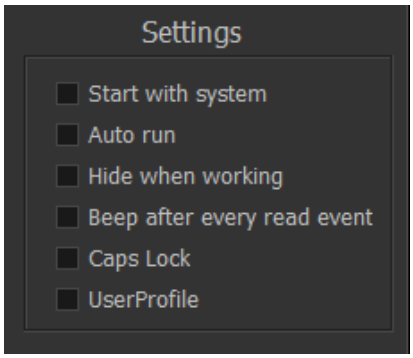
Default baudrate for readers:	
9600 bauds	**115 200 bauds**
STR-R35-E/Ph5-5AB	STR-W45-E/U04-5AA
STR-R35-B/x03-5X	STR-W55-E/U04-5AA
ARC-R35-G/PH5-5AB	
ARC-R35-L/Le2-5AB	
STR-W15-A/E01-5G	
STR-W12-A/E01-5G	
STR-R32-E/Ph5-5AB	
STR-R32-B/x03-5X	

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.

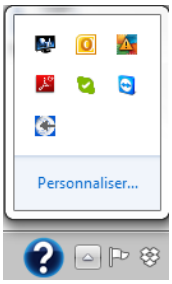
3. Settings parameters



Start with system Activate the opeming 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
```

Reader Configuration

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

1. 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.

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

Those are read/write reader; to work with swedge they must be configured.
We must send commands using an 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
- Sebd 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).

3. STR-W45-E/U04-5AA and STR-W55-E/U04-5AA

These are read/write reader; to work with Swedge they must be configured.
We must send commands using an HyperTerminal or using the application SESpro.

Operating procedure to read EPC:

- Open an Hyperterminal
- Connect the reader to configure
- Set the communication port:
  - Port COM number
  - Baudrate 115200 bds
  - Bits : 8
  - Stop bit: 1
  - Parity: none
- Send the commands below (hexadecimal value) :
  - **Command 1**

    <02><00><09><00><00><00><00><00><05><AA><55><00><01><00><E5><55>

    Answer 1

    <02><00><06><00><00><00><05><00><00><00><00><98><E6> + beep lecteur

  - **Command 2**

    <02><00><48><00><00><00><00><00><22><AA><55><00><40><00><1E><08><20><00><00><00><0
    0><00><00><00><00><00><00><00><00><00><00><00><00><00><00><00><00><00><00><00><00>
    <00><00><00><00><00><00><00><00><00><00><00><00><00><00><00><00><00><00><00><00><0
    0><00><00><00><00><00><00><00><00><00><00><00><00><00><00><00><B1><F8>

    Answer 2

    <02><00><06><00><00><00><22><00><00><00><00><F7><86>

  - **Command 3**

    <02><00><09><00><00><00><00><00><25><AA><55><00><01><01><C0><7C>

    Answer 3

    <02><00><06><00><00><00><25><00><00><00><00><90><52>

  - **Command 4**

    <02><00><0B><00><00><00><00><00><12><AA><55><00><03><62><01><0C><03><A7>

    Answer 4

    <02><00><06><00><00><00><12><00><00><00><00><FB><68>

  - **Command 5**

    <02><00><08><00><00><00><00><00><10><AA><55><00><00><15><CE>

    Answer 5

    <02><00><06><00><00><00><10><00><00><00><00><BF><EB> + beep lecteur

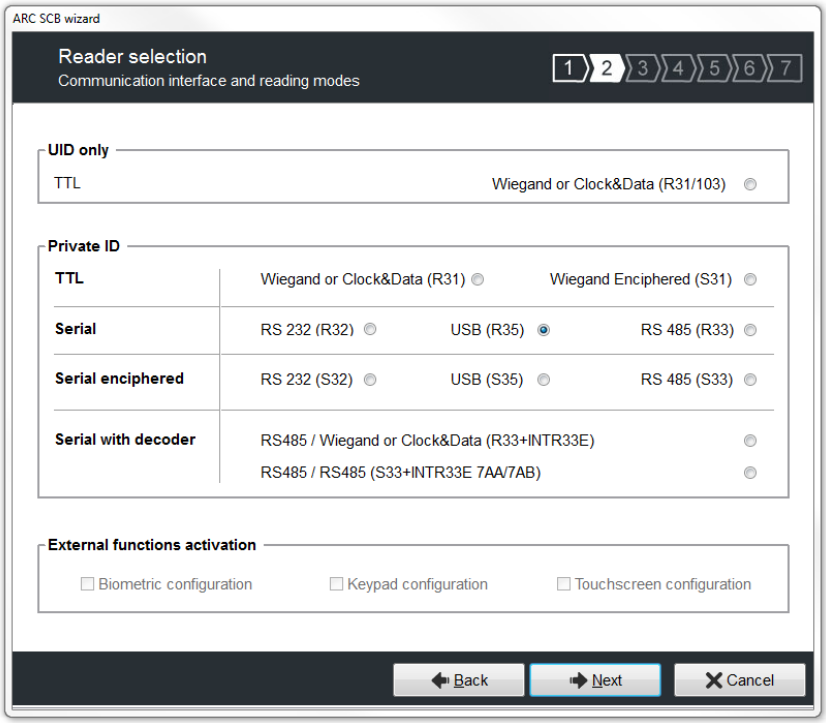
- Checking: present an EPC1 GEN2 card on the reader, it must read continuously (beeps).

The reader reads the chip serial number in hexadecimal and sends it to Swedge on a 96 bits frame (12 bytes).

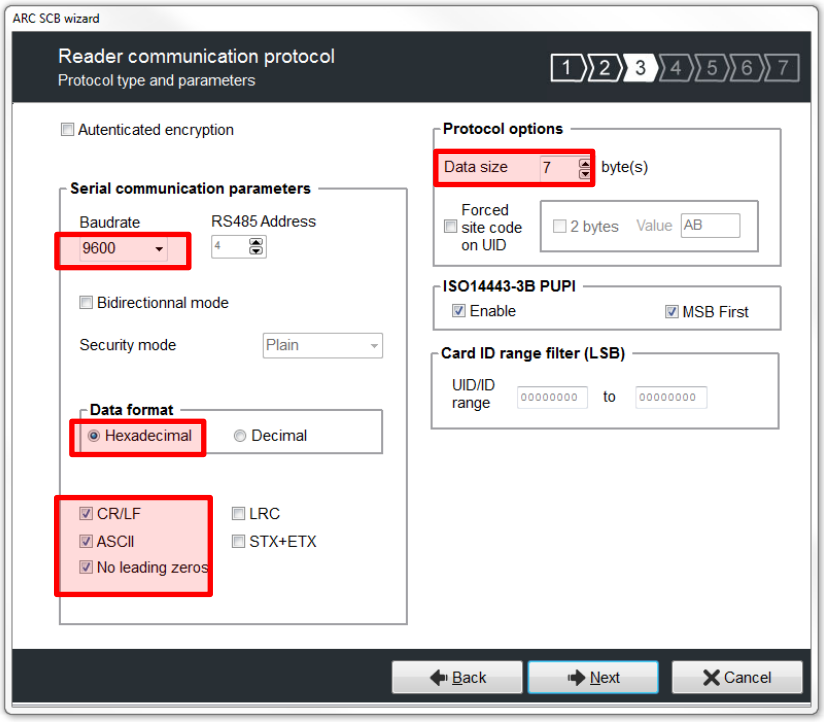
4. STR-R35-E/PH5-5AB and STR-R32-E/PH5-5AB and ARC-R35-G/PH5-5AB

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



- Serial settings

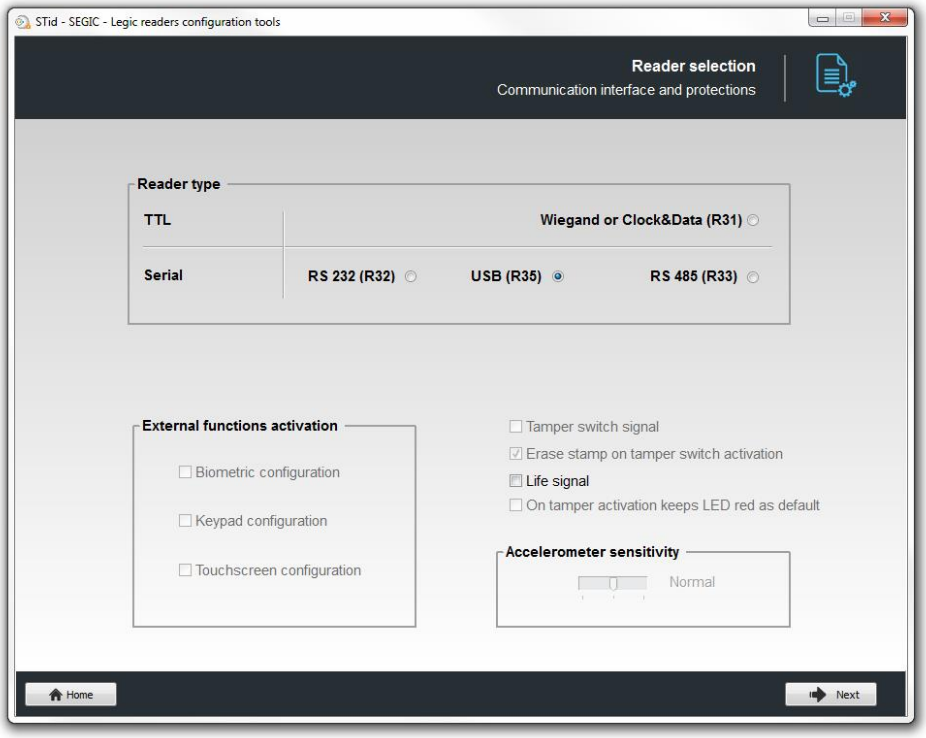


- Configuring chip data to read: either UID in this case select for all chips UID and MSB First, either Private ID.

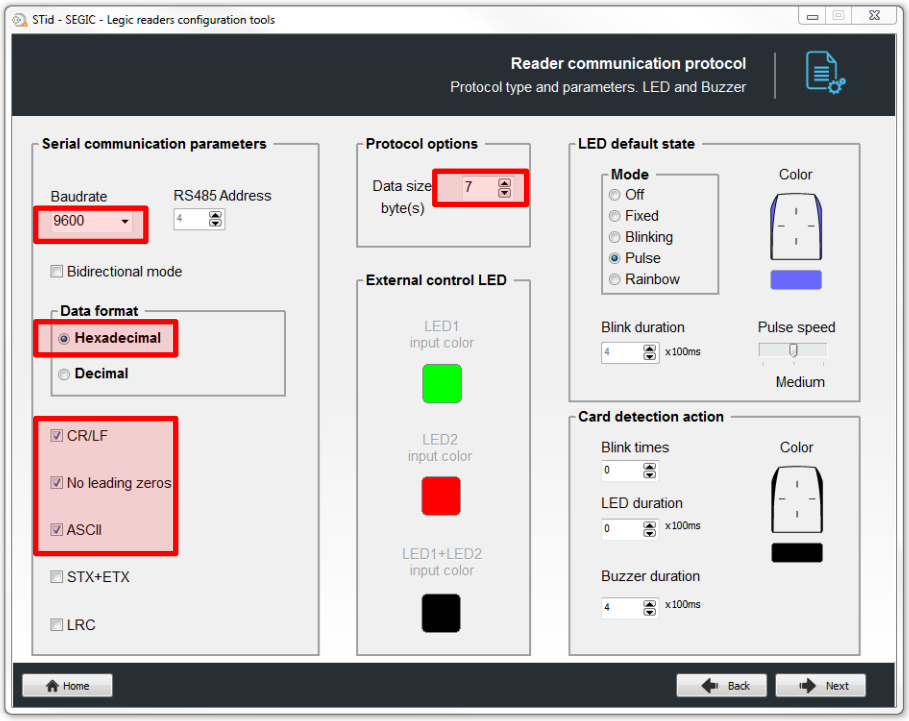
5. STR-R35-L/Le2-5AB

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:

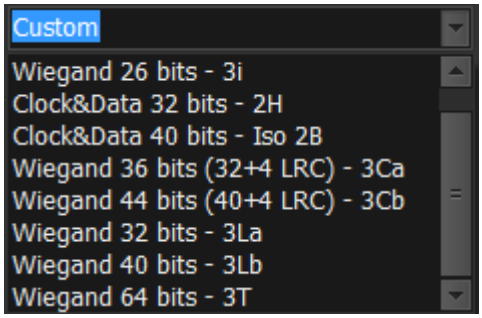
- Select the type of reader R35



- Reader communication protocol

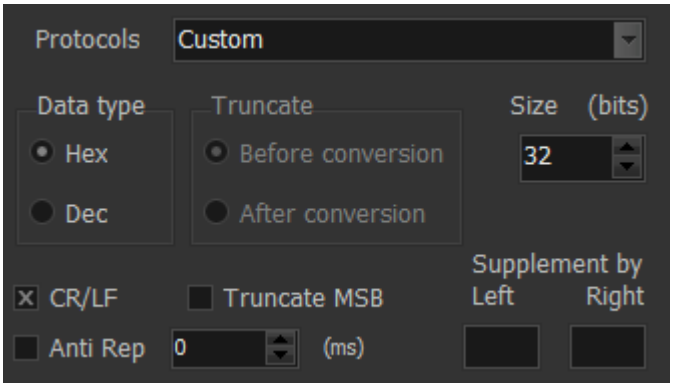


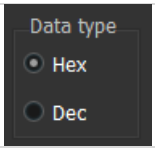
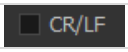
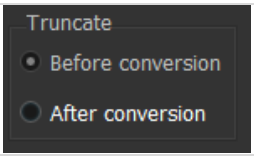
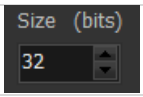
Format settings



Protocol Custom

All parameters are to be set.



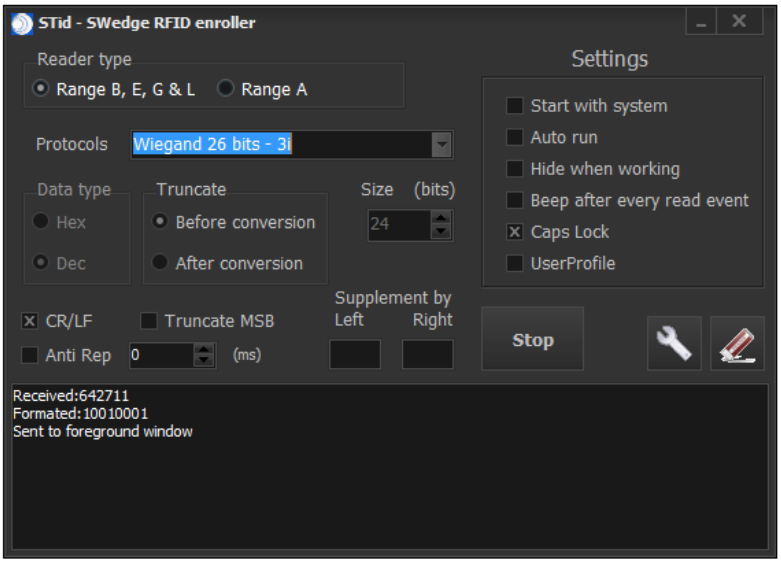
	Choose the data type decimal or hexadecimal.
	If activated, Swedge will do a return after each reading.
	If activated, Swedge not return the read code as it will be identical to the preceding and during the timing sets.
	Selects if the Swedge truncates the data before decimal conversion or after (only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

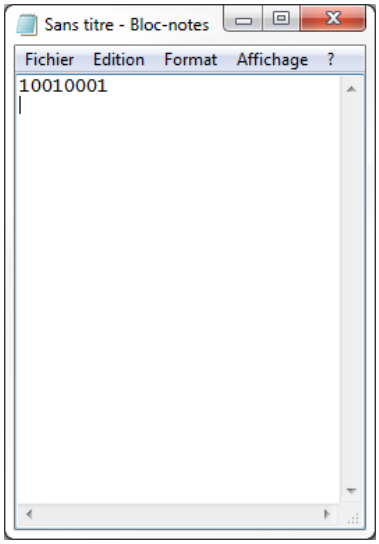
Predefined Protocol

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 100 et card code 10001



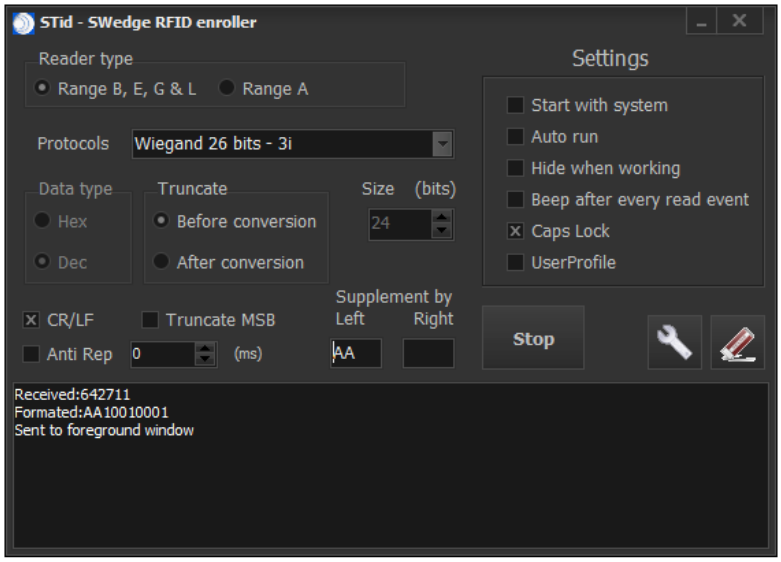


For Wiegand 3i, Clock&Data 2H and 2B, the field Truncate is configurable to the needs.

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

1. 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*

2. Wiegand protocols

Wiegand 3CA

Bit 1 ... Bit 36	Bit 37... Bit 40
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
3i	*Hexadecimal*	*6 characters*	*0 - F*

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

- 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*	*Initial version of the document*
07/09/2010	*1.1*	*Modification of the first page.*
11/10/2010	*1.2*	*Modification of the first page.*
17/10/2011	*1.3*	*STR-W45-E-U04-5AA reader added.*
03/04/2102	*1.4*	*Service mode added*
03/09/2012	*1.5*	*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*
24/01/2013	*1.6*	*Modification of the index of the executable 1.2.0 to 1.2.x*
04/07/2013	*1.7*	*Addition of "Truncate MSB"*
22/12/2014	*1.8*	*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.*
24/04/2015	*1.9*	*ARC-R35L/Le2-5AB added, In Settings User Profile added, Predefined protocols added, Supplement by added.*

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