

Application-Note

FEIG Firmware Update Tool

Console Application for Windows and Linux

Version 8.10.00 or higher

Note

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System requirements:

- Personal computer with x86-CPU with 1GHz
- Windows® Windows® Vista, Windows® 7, 8, 10 (32/64 Bit) or Linux x86
- Hard disk with at least 20MB free space
- Linux for ARM on Request

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2. If any provision in this agreement is declared to be void, or if for any reason is declared to be invalid or of no effect, the remaining provisions shall be in no manner affected thereby but shall remain in full force and effect. Both parties agree to replace the invalid provision with one which comes closest to its original intention.
3. This agreement is subject to the laws of the Federal Republic of Germany. Place of jurisdiction is Frankfurt a. M.

Please direct any questions pertaining to this agreement to:

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2 Safety Instructions / Warning - Read before start-up!

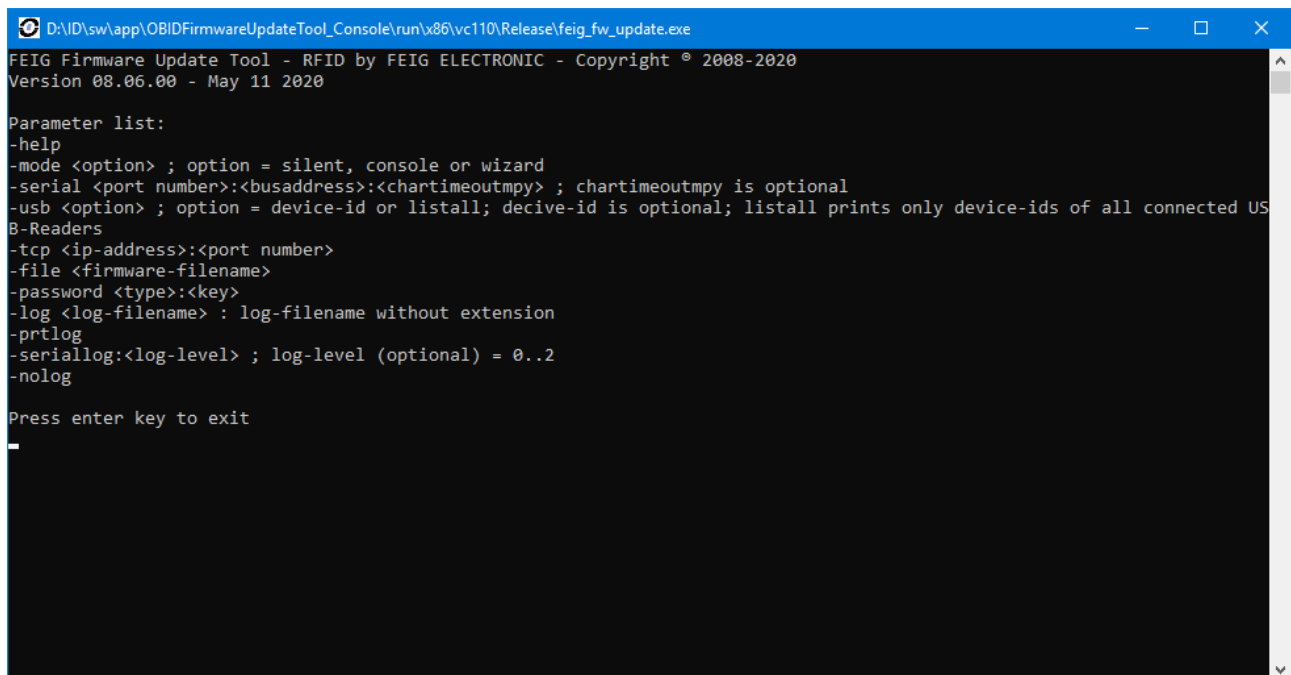
- ▶ The device may only be used for the intended purpose designed by for the manufacturer.
- ▶ The operation manual should be conveniently kept available at all times for each user.
- ▶ Unauthorized changes and the use of spare parts and additional devices which have not been sold or recommended by the manufacturer may cause fire, electric shocks or injuries. Such unauthorized measures shall exclude any liability by the manufacturer.
- ▶ The liability-prescriptions of the manufacturer in the issue valid at the time of purchase are valid for the device. The manufacturer shall not be held legally responsible for inaccuracies, errors, or omissions in the manual or automatically set parameters for a device or for an incorrect application of a device.
- ▶ Repairs may only be executed by the manufacturer.
- ▶ Installation, operation, and maintenance procedures should only be carried out by qualified personnel.
- ▶ Use of the device and its installation must be in accordance with national legal requirements and local electrical codes.
- When working on devices the valid safety regulations must be observed.

3 Introduction

The program tool **feig_fw_update** can be used to perform a firmware update by the IDENTIFICATION reader.

The console variant of the FEIG Firmware Update Tool is primary designed for the use as a slave program controlled by a master application. Nevertheless, it can also be used as a common application for updating of reader firmware.

This next generation of FEIG Firmware Update Tool supports a new firmware file type (*.obid.fw.xml) with meta-information to check if the reader matches all requirements shipped as metadata inside the firmware file. This increases the security for the update process. Secondly, the new file type can contain multiple firmware files, if a reader has more than one CPU. This allows a single invoke of the update tool for each reader.



```
D:\ID\sw\app\OBIDFirmwareUpdateTool_Console\run\x86\vc110\Release\feig_fw_update.exe
FEIG Firmware Update Tool - RFID by FEIG ELECTRONIC - Copyright © 2008-2020
Version 08.06.00 - May 11 2020

Parameter list:
-help
-mode <option> ; option = silent, console or wizard
-serial <port number>:<busaddress>:<chartimeoutmpy> ; chartimeoutmpy is optional
-usb <option> ; option = device-id or listall; decive-id is optional; listall prints only device-ids of all connected US
B-Readers
-tcp <ip-address>:<port number>
-file <firmware-filename>
-password <type>:<key>
-log <log-filename> : log-filename without extension
-prtlog
-seriallog:<log-level> ; log-level (optional) = 0..2
-nolog

Press enter key to exit
-
```


3.1 Supported Readers

The following readers are supported:

FEIG HF and UHF reader:

- ID ISC.M02
- ID ISC.M02.M8-B
- ID ISC.MR/PR/PRH101
- ID ISC.MR102
- ID ISC.LR1002
- ID ISC.LR2500-A
- ID ISC.LR2500-B
- ID ISC.MU02.02
- ID ISC.PRH102
- ID ISC.PRHD102
- ID ISC.PRH200
- ID ISC.MRU102
- ID SPAD.U (with internal ID MRU102)
- ID ISC.LRU1002 (also in 2017 improved hardware)
- ID ISC.LRU3000 / LRU3500
- ID MAX.U1002 (also in 2017 improved hardware)
- ID ISC.ANT.U500/270-GA and -DM (with internal ID ISC.LRU1002)
- ID ISC.LRU500i-PoE and -BD
- ID MAX.U500i
- ID HyWEAR compact
- ID HyWEAR compact sR
- ID HyWEAR compact xT
- ID ECCO Smart HF-BLE
- ID ECCO Smart 2D-HF-BLE

FEIG CPR reader:

- ID CPR.02
- ID CPR.M02
- ID CPR30.xx / ID CPR30+
- ID CPR40.xx
- ID CPR44.xx
- ID CPR46.xx
- ID CPR47.xx
- ID CPR50.xx
- ID CPR60.xx
- ID CPR74
- ID MAX50.xx

3.2 Discontinued Support

The support for Windows CE is discontinued.

The support of the following readers is discontinued. Please use an older version of the Update Tool.

3.2.1 Discontinued since v8.04.01

- ID ISC.MR200
- ID ISC.LR2000 / LRM2000
- ID ISC.MRU200 / MRU200i
- ID ISC.LRU1000
- ID ISC.LRU2000 / LRMU2000 / LRU2000i
- ID CPR.04
- ID CPR20.xx
- ID CPR52.xx
- myAXXESS standard
- myAXXESS onTop

3.3 Known Issues

The following known issues will be probably solved with one of the next software version.

Reader	ISSUE
-	-

3.4 Revision History

Revision	Date	Description
8.10.00	2022-04-08	Support for bootloader update and mandatory tool version for ID CPR30+ Mandatory tool version for PRH200 up from firmware version 01.07.00
8.09.00	2021-12-01	Final Support for ID CPR30+
8.08.03	2021-10-14	Support of ID CPR30+
8.08.02	2021-04-01	Support of ID ECCO Smart 2D-HF-BLE
8.08.00	2020-12-16	Support for update of Barcode firmware in HyWEAR compact xT Support of ID HyWEAR compact sR
8.07.00	2020-08-10	Support of ID ECCO Smart HF-BLE
8.06.00	2020-05-11	Support of ID HyWEAR compact xT Support of ID SPAD.U Support of ID CPR60 bugfix for LRU3000 in detect dialog
8.05.00	2019-11-21	Recommended version for ID HyWEAR compact
8.04.01	2019-08-06	Support for Wifi-Module Update in ID HyWEAR compact Removed support of old Reader types
8.02.00	2019-03-18	Support of ID HyWEAR compact
8.01.01	2019-01-14	Bugfix for XML document version 2
8.01.00	2018-12-17	Support for ID ISC.LRU500i-PoE and -BD and ID MAX.U500i
8.00.02	2018-05-07	Workaroud for ID ISC.MR102 with Firmware Version 2.09.00
8.00.00	2018-01-15	Support for XML document version 2.0 with additional metadata
7.09.01	2017-09-25	Increased Timeout for ID ISC.LRU1002/ID MAX.U1002
7.09.00	2017-09-07	Support of ID ISC.ANT.U500/270-GA and -DM

7.08.00	2017-01-13	Support of ID CPR.74 Support of ID ISC.LRU1002/ID MAX.U1002 with improved hardware
7.06.00	2015-06-02	Modifications for ACC v3.0.0 of ID ISC.LR2500-A: special firmware package to support update of partition 0. Please note the Product Change Note for this firmware version
7.05.00	2015-04-23	Modifications for ACC v3.0.0 of ID ISC.LRU3x00: special firmware package to support update of partition 0. Please note the Product Change Note for this firmware version
7.02	2014-07-25	Support of ID MAX.U1002 Support of WLAN-Module Update for ID ISC.PRH200 Support of Bootloader Update for ID ISC.PRH200 New parameter listall for -usb
7.01	2013-12-06	Support of OBID myAXXESS onTop, ID ISC.LRU1002 and ID ISC.PRH200
7.00.02	2013-06-05	Support for ID CPR47.xx
6.10.02	2012-12-17	Modification for ID ISC.LRU3000: Update process modified for new CONFIGfs partition
6.10	2012-07-10	Modification for ID ISC.LR1002: Update process changed for multiple banks Support of update over secured connection Support of ID CPR20.xx and ID CPR46.xx
6.09	2012-02-01	Support of ID ISC.LR1002
6.08	2011-12-06	new Parameter: -verify and -downgrade (not for all versions)
	2011-10-19	Modification for ID ISC.LRU3000/3500: Update process changed for ACC to support large partitions Support of ID ISC.MRU102-A / -USB / -PoE
6.07	2011-05-18	Modification for ID ISC.MRU200 First release of Linux x86 Console Version
6.06	2011-03-09	Support of ID ISC.MR102-PoE and ID ISC.LR2500-A
6.05	2011-01-31	Support of ID ISC.MR102-A / -B / -USB, ID ISC.LR2500-B, ID CPR30.xx and ID CPR52.xx
6.04	2010-09-02	Support of ID CPR.44.0x-4SCUSB-B
6.03	2010-06-23	Support of almost all OBID® Readers

		Improved update of FPGA controller, if firmware in reader is missing or wrong
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Please note:

- ***For the Update it is recommended to configure the Host Mode in the reader.***
- ***Before an update on the LAN interface is started, the Windows Firewall should be switched off temporary.***
- ***Update over WLAN is not recommended if another interface is available.***
- ***Do not interrupt the power supply until the update process has not been finished.***
- ***Avoid any converters like USB to RS232 or RS232 to TCP/IP if it is possible.***
- ***For RS232/485 the maximum baudrate should be 38400 baud.***
- ***It is not recommended to use an USB-Hub for an update over USB. It is strongly recommended to connect the reader directly with an USB port at the PC.***
- ***Do not interrupt the update application until the update process has not been finished.***
- ***If existing we recommend to use the TCP/IP interface.***
- ***After the successful installation of the new firmware the current version of the ISOStart demo program should be used to test the reader. The current ISOStart version can be downloaded from the download area of FEIG ELECTRONIC GmbH.***
- ***If the update was not successful and the old firmware has been already deleted please call the customer support of FEIG ELECTRONIC GmbH.***

4 Installation

4.1 32- and 64-Bit Windows Vista, 7, 8, 10

The program *feig_fw_update* depends on the following files:

<i>Library</i>	<i>Version Number</i>
Fecom.dll	3.4.1
Feusb.dll	6.0.2
Fetcp.dll	3.1.0
Feisc.dll	7.9.1
Fefu.dll	2.2.0

The installation is quite simple: copy all files into one directory.

4.2 32- and 64-Bit Linux

On 64-Bit Linux, the 32-Bit C-Runtime Environment must be installed.

The program **feig_fw_update** depends on the following files:

<i>Library</i>	<i>Version Number</i>	<i>Note</i>
libfecom.so.3.4.0	3.4.0	
libfeusb.so.6.0.2	6.0.2	
libfetcp.so.3.1.0	3.1.0	not for all versions
libfeisc.so.7.9.1	7.9.1	
libfegu.so.2.2.0	2.2.0	

Installation is quite simple:

Copy all so-files to the system directory `usr/lib` and create the necessary symbolic links in the steps listed below. For this you will need superuser privileges.

- 1) Change to the directory `usr/lib`:
`cd /usr/lib`
- 2) Create the symbolic links:
- 3) `ln -sf libfecom.so.3.4.0 libfecom.so.3`
- 4) `ln -sf libfecom.so.3 libfecom.so`
- 5) `ln -sf libfeusb.so.6.0.2 libfeusb.so.6`
- 6) `ln -sf libfeusb.so.6 libfeusb.so`
- 7) `ln -sf libfetcp.so.3.1.0 libfetcp.so.3`
- 8) `ln -sf libfetcp.so.3 libfetcp.so`
- 9) `ln -sf libfeisc.so.7.9.1 libfeisc.so.7`
- 10) `ln -sf libfeisc.so.7 libfeisc.so`
- 11) `ln -sf libfegu.so.2.2.0 libfegu.so.2`
- 12) `ln -sf libfegu.so.2 libfegu.so`
- 13) Invoke the program `ldconfig`
- 14) `ldconfig`

5 Parameter Description

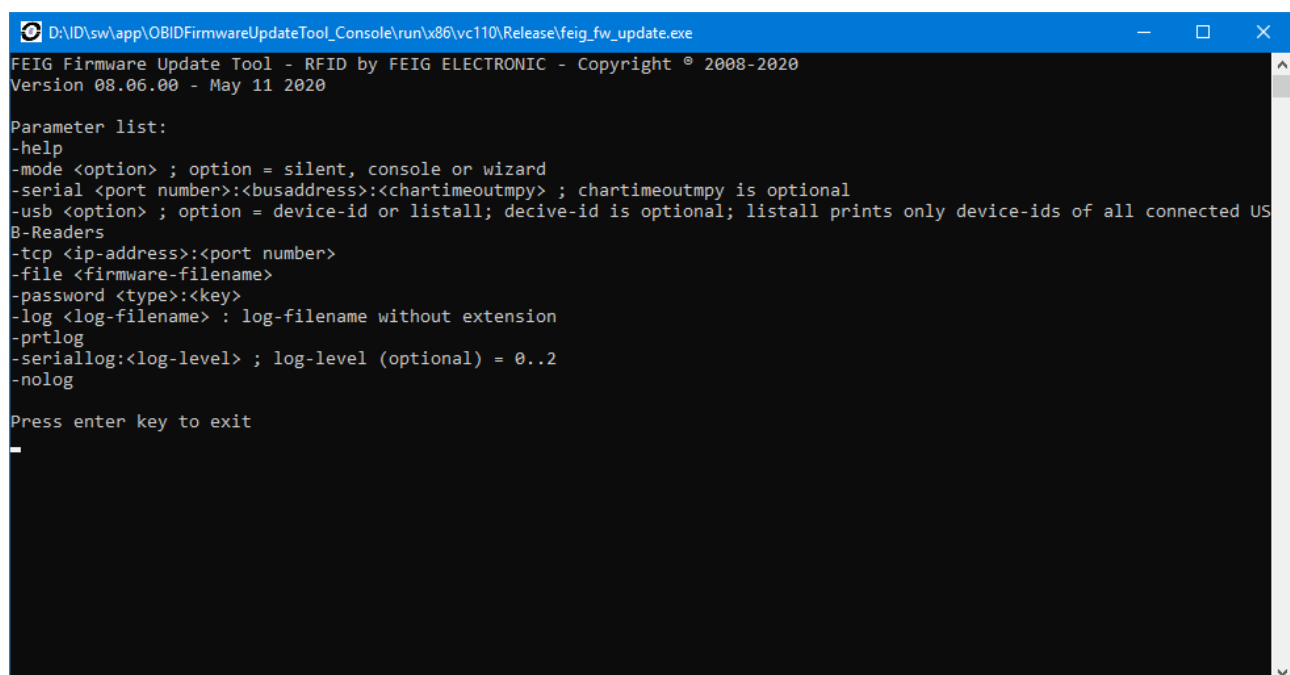
Important Note: Not all Parameters or all options of a parameter are available on every Operating System. Call –help to request the supported options.

5.1 -help

Lists all parameters in a console window.

Syntax: -help

Example: -help



```
D:\ID\sw\app\OBIDFirmwareUpdateTool_Console\run\x86\vc110\Release\feig_fw_update.exe
FEIG Firmware Update Tool - RFID by FEIG ELECTRONIC - Copyright © 2008-2020
Version 08.06.00 - May 11 2020

Parameter list:
-help
-mode <option> ; option = silent, console or wizard
-serial <port number>:<busaddress>:<chartimeoutmpy> ; chartimeoutmpy is optional
-usb <option> ; option = device-id or listall; decive-id is optional; listall prints only device-ids of all connected USB-Readers
-tcp <ip-address>:<port number>
-file <firmware-filename>
-password <type>:<key>
-log <log-filename> : log-filename without extension
-prtlog
-seriallog:<log-level> ; log-level (optional) = 0..2
-nolog

Press enter key to exit
-
```


5.2 -mode

This parameter controls the general operation mode.

Syntax: -mode <option> ; option = silent or console

OS: Windows CE and Linux supports only silent and console

Example: -mode console

Parameter	Description
silent	The update program runs in the background without any console.
console	Opens a console for user messages.
wizard	Opens the dialog based wizard for user controlled update process

5.3 -notify

This parameter prints messages on stdio (console window). It should be used for test purpose or, if a firmware update is started manually, by a service engineer.

If started from within a batch file, add a *pause* command at the end to stop closing the console window at once.

Syntax: -notify

OS: only for Windows CE

5.4 -serial

This parameter selects the serial port for communication with the reader. The port parameters like baudrate and frame is detected internally.

Syntax: -serial <port number:busaddress>

Example: -serial 1:0

Parameter	Description
port number	The number of the serial port
busaddress	The bus address of the reader

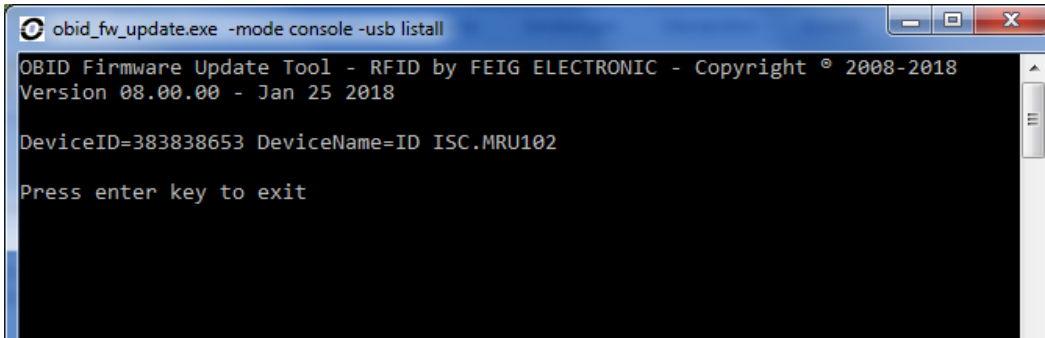
5.5 -usb

This parameter selects the USB-Reader for communication or lists all detected USB-Reader with the device-id.

Syntax: -usb <option> ; option = device-id or listall

OS: Windows and Linux

Example: -usb 196342307

Parameter	Description
device-id	<p>The serial number of the reader.</p> <p>The device-id is optional. If no device-id is used, the first detected OBID® reader at USB will be selected.</p>
listall	<p>Scan of USB and display of a list with all detected Readers and their device-ids.</p> <p>No update is performed.</p> 

5.6 -tcp

This parameter selects the TCP/IP port for communication with the reader.

Syntax: -tcp <ip-address:port number>

Example: -tcp 192.168.10.10:10001

Parameter	Description
ip-address	The ip-address of the reader.
port number	The number of the service port in the reader.

5.7 -dir

Parameter for directory with firmware files.

Syntax: -dir <path name>

OS: only supported with Windows CE

Example: -dir \programme\firmware-files

Parameter	Description
path name	Full path name. (only with Windows CE)

5.8 -file

Parameter for firmware file.

Syntax: -file <firmware-filename>

Example: -file c:\obid\ISC.LRU2000_-_010500_BE_EU_RFC.obid.fw.xml

Parameter	Description
firmware-filename	Directory and name of firmware file.

5.12 -log

The parameter for filename of a logfile. If whether –log nor –nolog is used, the application creates internally a logfile with update information. The auto created filename is build as:

FwUpdLogFile_<reader-name>_D<date>_T<time>_<port-type><port-parameter>.txt

The logfile is removed if the update process was successful

It is recommended to use individual filenames when multiple updates run simultaneously.

Syntax: -log <log-filename>

Example: -log MyLogFile

Parameter	Description
log-filename	The directory and name of a logfile containing update messages. The file extension <i>txt</i> is added internally.

5.13 -nolog

The parameter –nolog disables the creation of a logfile.

If –log and –nolog is used together, then –nolog is stronger.

This option should not be used together with silent operation, as in error cases no message informs the user about the failure.

5.14 -prtlog

The parameter `-prtlog` creates an additional logfile with all protocols. The size of this logfile is high and depends on the size of the firmware file. The auto created filename is built as:

FEISC_LogFile_<reader-name>_D<date>_T<time>_<port-type><port-parameter>.txt

The logfile is removed if the update process was successful

This logfile is normally not necessary and is only helpful in situations where updates will probably not be successful.

NOTE: It is recommended, not to use `-prtlog` when multiple updates run simultaneously.

5.15 -seriallog

The parameter `-seriallog` creates an additional logfile with information about the handling with the Windows API concerning the serial communication. The size of this logfile is very high and depends on the size of the firmware file.

This logfile is normally not necessary and is only helpful in situations where updates will probably not be successful.

Syntax: `-seriallog <log-level>`

OS: Not supported with Windows CE and Linux

Example: `-seriallog 0`

Parameter	Description
log-level	Controls the amount of data to be logged. The greater the log-level, the amount of logged data increases.

6 Return Codes

The following table lists all internal error codes which can be reflected by the application as a return code.

Return Code	Description
0	Update successful
-101	Block size in the access constant is incorrect
-102	Bit boundary in the access constant is incorrect
-103	Byte boundary in the access constant is incorrect
-104	Array boundary of a data container was exceeded
-105	Length of the data buffer is insufficient
-106	Unknown transfer parameter
-107	Transferred string is too long
-108	Transferred string contains an odd number of characters
-109	No data in the protocol
-110	No reader handle set
-111	No port handle set
-112	Unknown control byte
-113	Unknown memory ID
-114	Unknown poll mode
-115	No data in a table
-116	Unknown error code

-117	Unknown command
-118	No support for this parameter or function
-119	No more program memory available
-120	No reader found
-121	The transferred pointer is NULL
-122	Unknown reader type
-123	The Function doesn't support this reader type
-124	Unknown table constant
-125	Unknown language constant
-126	The table has the size 0
-127	The Sendbuffer is full
-128	Data are not equal
-129	File open error
-130	File save error
-131	Unknown transponder type
-132	Read file error
-133	Write file error
-134	Unknown EPC-Typ
-135	Function does not support the active communication driver
-136	Unknown address mode
-137	Reader object is already connected with a communication port

-138	Reader object is not connected with a communication port
-139	No module handle found
-140	The module list is empty
-141	Module not found in module list
-142	Runtime objects are different
-143	IDD of transponder is not an EPC
-144	Old library file (error code for Java/.NET-Libraries)
-145	Wrong reader type
-146	CRC error in file
-147	Configuration block must be read first
-148	Unsupported controller type
-149	Version conflict with one or more dependent libraries
-150	The namespace is not supported by the reader type
-151	Asynchronous task is still running
-152	TagHandler type could not be identified
-200	File is not a XML document
-201	File contains no element 'OBID'
-202	No sub-element found
-203	Element not in the document
-204	XML document not well-formed

-205	No content of element found
-206	No attribute found
-207	Invalid document version
-208	The Document is for another reader family
-209	Wrong file type
-210	Wrong controller type
-211	Wrong memory bank
-400	Checksum error in Firmware File
-401	Wrong controller type in Firmware File
-402	Unsupported controller type
-403	File corruption
-404	Received package length is too large
-405	Start of background update thread failed
-406	Missing parts of reader info
-407	The reader firmware meets not the update requirements
-408	The readers device info meets not the update requirements
-409	The readers RFC Silicon revision meets not the update requirements
-410	Error in activation of update process
-411	Error while upload of firmware file
-412	Error while delete of flash

-413	Error while flash of target
-414	Error while waiting for end of delete flash process
-415	Error while waiting for end of flash process
-416	Reset of target failed
-417	User canceled update process
-418	Selected port type is not supported
-419	Reconnect of target failed
-420	New enumeration of target failed
-421	Firmware file not found
-422	Missing parts in firmware file
-1030	Timeout in serial communication