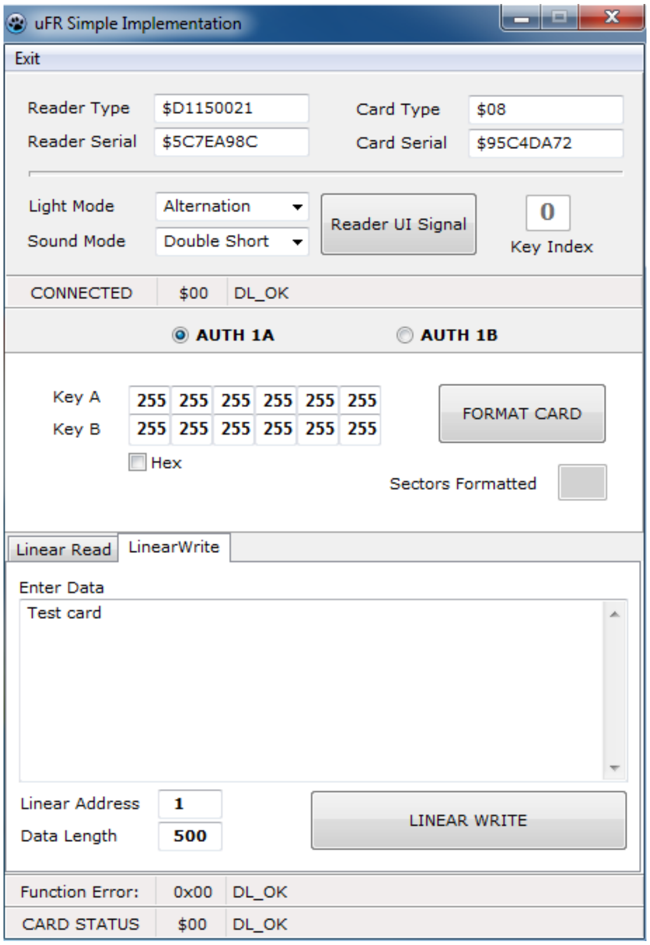
# uFR Simple implementation instruction



Reader Type $D1150021

Reader Serial $5C7EA98C

Card Type $08

Card Serial $95C4DA72

Light Mode Alternation

Sound Mode Double Short

Key Index 0

CONNECTED $00 DL_OK

● AUTH 1A ○ AUTH 1B

| | | | | | | |
|---|---|---|---|---|---|---|
| Key A | 255 | 255 | 255 | 255 | 255 | 255 |
| Key B | 255 | 255 | 255 | 255 | 255 | 255 |

□ Hex

Sectors Formatted

Enter Data

Test card

Linear Address 1

Data Length 500

Function Error: 0x00 DL_OK

CARD STATUS $00 DL_OK

## General functions for working with the reader

**ReaderOpen:** Opens a port of connected reader. In the case of multi-thread applications, developers must be careful to synchronize access to reader's resources to avoid unforeseen situations.

**GetReaderType**: Returns the device type identifier. On IS21 readers this value is 0xD1150021.

**GetReaderSerialNumber:** Returns the device serial number.

**GetCardId:** This function returns the type identifier and card serial number placed into the reader.

**ReaderClose:** Closes reader's port. This enables access to the reader from other processes.

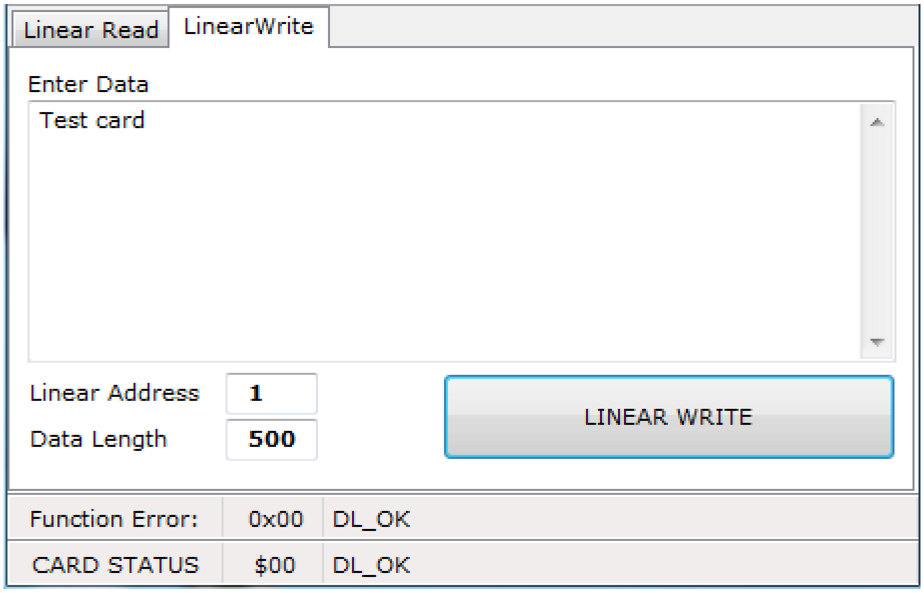
**ReaderUISignal:** The function is used to control the reader light and sound signal. There are four modes of light signals and five sound modes:

- ucLightSignalMode Defines the light signals mode. It can have values from 0 to 4. A value of 0 indicates light signals inactivity.
- ucBeepSignalMode Defines the sound signals mode. It can have values from 0 to 5. A value of 0 indicates sound signals inactivity.

# General functions for working with cards

## *Function that emulates the linear address space*

- **LinearWrite**



Enter Data

Test card

Linear Address 1

Data Length 500

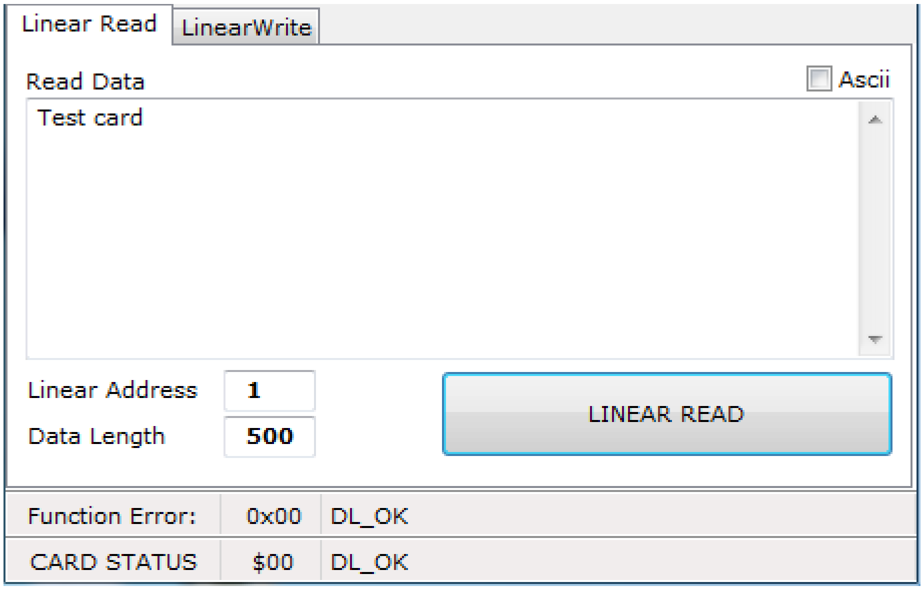
Function Error: 0x00 DL_OK

CARD STATUS $00 DL_OK

This function is used for writing data to the card using the emulation of linear address space. The method for proving authenticity is determined by the suffix in the functions names:

- *aucData* - Pointer to the sequence of bytes containing data for writing on the card
- *usLinearAddress* - Linear address of the card where the data writing is intend
- *usDataLength* - Number of bytes for the entry. In aucData a minimum usDataLength bytes must be allocated before calling the function
- *lpusBytesWritten*- Pointer to a "unsigned short" type variable, where the number of successfully read bytes from the card is written. If the entry is a successfully completed this data is equal to the usDataLength parameter. If there was an error in writing some of the blocks, the function returns the number of successfully written bytes over this parameter.
- *ucAuthKey* - This parameter defines whether to perform authentication with A key or key B. It can have two values, namely: AUTHENT1A (0x60) or AUTHENT1B (0x61).
- *ucReaderKeyIndex*- The default method of authentication (when the functions without a suffix is used) performs the authenticity proving by using the selected key index from the reader. In the linear address mode, this applies to all sectors that are written.

## ➢ LinearRead



Read Data □ Ascii

Test card

Linear Address 1

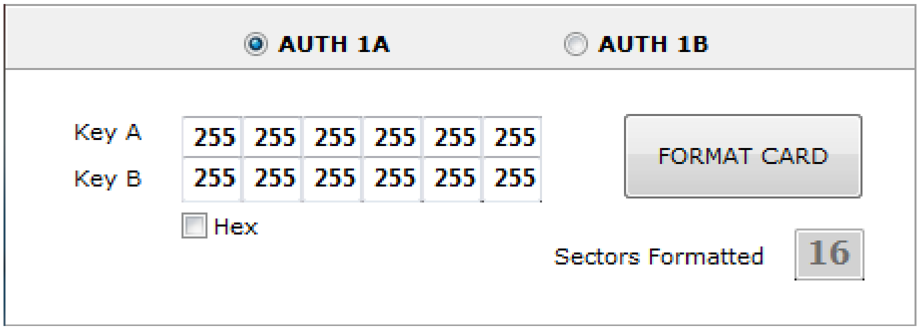
Data Length 500

| | | |
|---|---|---|
| Function Error: | 0x00 | DL_OK |
| CARD STATUS | $00 | DL_OK |

These functions are used for card data reading by using the linear address space emulation.

- *aucData* - Pointer to the sequence of bytes where read data will be stored.
- *usLinearAddress*- Linear address on the card from which the data want to read
- *usDataLength*- Number of bytes for reading. For aucData a minimum usDataLength bytes must be allocated before calling the function
- *lpusBytesReturned* - Pointer to "unsigned short" type variable, where the number of successfully read bytes from the card is written. If the reading is fully managed this data is equal to the usDataLength parameter. If there is an error reading some of the blocks, the function returns all successfully read data in the aucData before the errors occurrence and the number of successfully read bytes is returned via this parameter
- *ucAuthMode* - This parameter defines whether to perform authentication with key A or key B. It can have two values, namely: AUTHENT1A (0x60) or AUTHENT1B (0x61).
- ucReaderKeyIndex - The default method of authentication (when the functions without a suffix is used) performs the authenticity proving by using the selected key index from the reader. In the linear address mode, this applies to all sectors that are read.

## LinearFormatCard



● AUTH 1A ○ AUTH 1B

Key A 255 255 255 255 255 255

Key B 255 255 255 255 255 255

□ Hex

Sectors Formatted 16

This function is used for formatting a card by rewriting all of cards data with default byte data [32 (dec), 20(hex)].

- *ucReaderKeyIndex* - The default method of authentication (when the functions without a suffix is used) performs the authenticity proving by using the selected key index from the reader. In the linear address mode, this applies to all sectors that are written.