1 General Function

1.1 Get library version

Function Description:

To get the library version.

Function Call:

INT RFID_GetAPIVersionString (out string strVersion);

Parameter:

strVersion: Get the library version.

Return code:

Please refer to section 9.1.

1.2 Connect to RFID reader

Function Description:

To create a connection with the reader before control it.

Function Call:

INT RFID_OpenReader (byte COMPort)

Parameter:

COMPort: The reader’s COM port number (1 – 255)

Return code:

Please refer to section 9.1.

1.3 Close Reader

Function Description:

To finish controlling the reader.

Function Call:

INT RFID_CloseReader (byte COMPort);

Parameter:
COMPort: The reader's COM port number (1 – 255)

Return code:
Please refer to chapter 9.1.

1.4 Select Card type

Function Description:
This API change the reader working type with different card type and this should be called before read the card.

Function Call:
INT RFID_WorkingType (byte Type);

Parameter:

Type:
0 : ISO15693
1 : ISO14443_TypeA
2 : ISO14443_TypeB
3 : WT_SR176_SRIX4K

Return code:
Please refer to section 9.1

1.5 Get Reader Information

Function Description:
Get the reader's serial number and firmware version.

Function Call:
INT RFID_FWversion (out string FirmwareVer);

Parameter:

FirmwareVer: Get reader’s firmware version

Return code:
Please refer to section 9.1

1.6 Antenna Control

Function Description:
Enable/Disable antenna to save power.

Function Call:
INT RFID_AntennaControl (byte Select);

Parameter:
Select: 1 : Open the antenna
0 : Close the antenna

Return code:
Please refer to section 9.1

2 ISO-15693

2.1 Inventory

Function Description:
Set the card to StayQuiet mode and return the card ID.

Function Call:
INT RFID_ISO15693Inventory(string Flag , string Afi,out string Uid);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.

Afi: Application Family Identifier parameter, please refer to

Uid: The point of the buffer which to receive the tag ID.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.2 Set StayQuiet Mode

Function Description:
Set the card to StayQuiet mode.

Function Call:
INT RFID_ISO15693StayQuiet(string Flag, string Uid);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.

Uid: The point of the buffer which contain the tag ID.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.3 Set Select Mode

Function Description:
Set the card to Select mode.

Function Call:
INT RFID_ISO15693Select(string Flag, string Uid);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.

Uid: The point of the buffer which contain the tag ID.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.4 Set Ready Mode

Function Description:
Set the card to Ready mode for StayQuiet or Select mode.

Function Call:
INT RFID_ISO15693Reset2Ready(string Flag, string Uid);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.

Uid: The point of the buffer which contain the tag ID.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.5 Read The Block Data form ISO15693 Tag

Function Description:
Read the block data from the specific ISO15693 tag.

Function Call:
INT RFID_ISO15693Read(string Flag, string Uid, string BlockStart, string BlockCount, out string Data);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.

Uid: The point of the buffer which contains the tag ID.

BlockStart: The first block which you want to read(ex : 0, 1, 2…).

BlockCount: The number of blocks which you want to read.

Data: The point of the buffer which receive the block data.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.6 Write The Block Data to ISO15693 Tag

Function Description:
Write the block data to the specific ISO15693 tag.

Function Call:
INT RFID_ISO15693Write(string Flag, string Uid, string Block, string Data);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.

Uid: The point of the buffer which contains the tag ID.

Block: The block which you want to write(ex : 0, 1, 2…).

Data: The point of the buffer which contains the data.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.7 ISO15693 Lock Block

Function Description:
Lock the block on ISO15693 tag.

Function Call:
INT RFID_ISO15693LockBlock(string Flag, string Uid, byte Block);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.

Uid: The point of the buffer which contains the tag ID.

Block: The block which you want to write(ex : 0, 1, 2…).

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.8 Write AFI to ISO15693 Tag

Function Description:
Write AFI to the specific ISO15693 tag.

Function Call:
INT RFID_ISO15693WriteAfi(string Flag, string Uid, byte AfiValue);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.
Uid: The point of the buffer which contains the tag ID.

AfiValue: The value of AFI and about this value please refer to ISO15693 document.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.9 ISO15693 Lock AFI

Function Description:
Lock the AFI on ISO15693 tag.

Function Call:
INT RFID_ISO15693LockAfi(string Flag, string Uid);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.

Uid: The point of the buffer which contains the tag ID.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.10 Write DSFID to ISO15693 Tag

Function Description:
Write DSFID to the specific ISO15693 tag.

Function Call:
INT RFID_ISO15693WriteDsfid(string Flag, string Uid, byte DsfidValue);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.

Uid: The point of the buffer which contains the tag ID.

DsfidValue: The value of DSFID and about this value please refer to ISO15693 document.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.11 ISO15693 Lock DSFID

Function Description:
Lock the DSFID on ISO15693 tag.

Function Call:
INT RFID_ISO15693LockDsfid(string Flag, string Uid);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.

Uid: The point of the buffer which contains the tag ID.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.12 ISO15693 Get Plus Block Number

Function Description:
Get ISO 1593 Tag Plus Block Number.

Function Call:
INT RFID_GetPlusBlockNum(out string Num)

Parameter:
Num : The Plus Block Number.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.13 Read The Block Data form ISO15693 Tag

Function Description:
Read the block data from the specific ISO15693 tag.

Function Call:
INT RFID_ISO15693Read_byte (string Flag, string Uid, string BlockStart, string BlockCount, out byte Data);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.

Uid: The point of the buffer which contains the tag ID.

BlockStart: The first block which you want to read(ex : 0, 1, 2…).

BlockCount: The number of blocks which you want to read.

Data: The point of the buffer which receive the block data.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

2.14 Write The Block Data to ISO15693 Tag

Function Description:
Write the block data to the specific ISO15693 tag.

Function Call:
INT RFID_ISO15693Write_byte(string Flag, string Uid, string Block, byte Data);

Parameter:
Flag: Set any flags that must be set in the *Tag Flags*.

Uid: The point of the buffer which contains the tag ID.

Block: The block which you want to write(ex : 0, 1, 2…).

Data: The point of the buffer which contains the data.

Return code:
Please refer to section 9.1

Flag:
Please refer to section 9.2

3 ISO-14443A

3.1 Write Default Key

Function Description:

Write the default key to reader.

Function Call:

INT RFID_WriteDefaultKey(byte DefaultKeyIndx, string DefaultKey);

Parameter:

DefaultKeyIndx: The default key index in the reader
(0x00: Key1 , 0x01: Key2)

DefaultKey: The point of the buffer which contain key.

Return code:

Please refer to section 9.1

3.2 ISO-14443A Open Card

Function Description:

Lock the ISO-14443A tag and get the tag ID. After select card type, user should call this API before control the ISO-14443A tag.

Function Call:

INT RFID_OpenCard(out string Uid, out string Ctype);

Parameter:

Uid: Receive the tag ID.

Ctype: Return the card type
0400 : Mifare Classic 1k
0200 : Mifare Classic 4k
0400 : Mifare Classic Mini
4403 : Mifare DESfire 4k

Return code:
Please refer to section 9.1

3.3 ISO-14443A Close Card

Function Description:
Unlock the ISO-14443A tag. After control the ISO-14443A tag, user should call this API to unlock the tag.

Function Call:
INT32 RFID_CloseCard();

Parameter:

Return code:
Please refer to section 9.1

3.4 ISO-14443A Read Block Data

Function Description:
Read the single block data.

Function Call:
INT RFID_ReadMifareOneBlock(byte KeyType, byte DefaultKey, byte DefaultKeyIndx, string Block, string Key, out string Data);

Parameter:
KeyType: The private key type.

CARD_KEY_A	(0x00)
CARD_KEY_B	(0x01)

DefaultKey: Use the default password in the reader.

TURN_ON	(0x01)
TURN_OFF	(0x00)

DefaultKeyIndx: The index of the default key which in the reader.
(0x00: Key1 , 0x01: Key2)

Block: The block which you want to read (Ex : 0, 1, 2…).

Key: The user defines key value.

Data: Receive the data.

Return code:
Please refer to section 9.1

3.5 ISO-14443A Write Block Data

Function Description:
Write data to the single block.

Function Call:
INT RFID_WriteMifareOneBlock(byte KeyType, byte DefaultKey, byte DefaultKeyIndx, string Block, string Key, string Data)

Parameter:
KeyType: The private key type.
CARD_KEY_A (0x00)
CARD_KEY_B (0x01)

DefaultKey: Use the default password in the reader.
TURN_ON (0x01)
TURN_OFF (0x00)

DefaultKeyIndx: The index of the default key which in the reader.
(0x00: Key1 , 0x01: Key2)

Block : The Block which you want to Write (Ex: 0, 1, 2…).

Key: The user defines key value.

Data: Data which you want to write

Return code:
Please refer to section 9.1

3.6 ISO-14443A UltraLight Read Block Data

Function Description:
Read the single block data.

Function Call:
RFID_ReadUltraLightBlock(string Block, out string Data)

Parameter:

Block: The block which you want to read (Ex : 0, 1, 2…).

Data: Receive the data.

Return code:
Please refer to section 9.1

3.7 ISO-14443A UltraLight Write Block Data

Function Description:
Write data to the single block.

Function Call:
RFID_WriteUltraLightBlock(string Block, string Data)

Parameter:
Block : The Block which you want to Write (Ex: 0, 1, 2…).

Data: Data which you want to write
Return code:
Please refer to section 9.1

4 ISO-14443B

4.1 ISO-14443B Get UID

Function Description:

get the 14443B tag ID

Function Call:

RFID_14443BSelect(string Ctype,out string IDNum)

Parameter:

Ctype : Select Card Type

01 : 14443B
02 : SR176
03 : SRIX4K

IDNum : Receive the tag ID.

Return code:

Please refer to section 9.1

4.2 ISO-14443B SRIX4K Get Chip ID

Function Description:

Get SRIX4K Chip ID.

Function Call:

RFID_SRIX4KChipID(out string ChipID)

Parameter:

ChipID: Receive the Chip ID

Return code:

Please refer to section 9.1

4.3 ISO-14443B SRIX4K Read Block Data

Function Description:

Read the single block data.

Function Call:

RFID_SRIX4KReadBlock(string Block, out string Data)

Parameter:

Block : The Block which you want to Read(Ex: 0, 1, 2…).

Data: Receive the data.

Return code:

Please refer to section 9.1

4.4 ISO-14443B SRIX4K Write Block Data

Function Description:

Write data to the single block.

Function Call:

RFID_SRIX4KWriteBlock (string Block, string Data)

Parameter:

Block : The Block which you want to Write (Ex: 0, 1, 2…).

Data: Data which you want to write

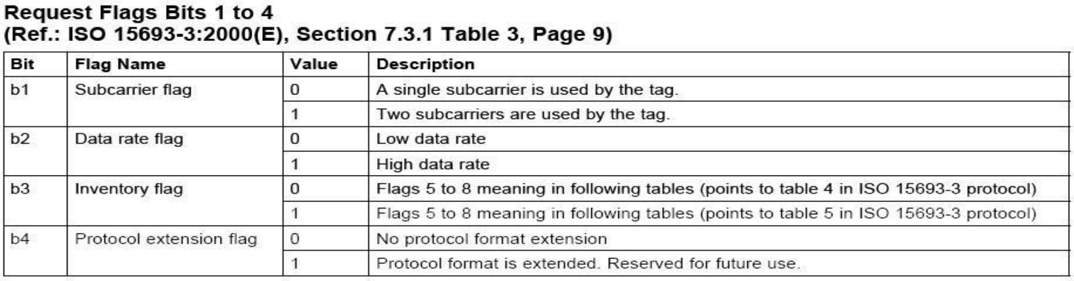
Return code:

Please refer to section 9.1

9.1 Error Code

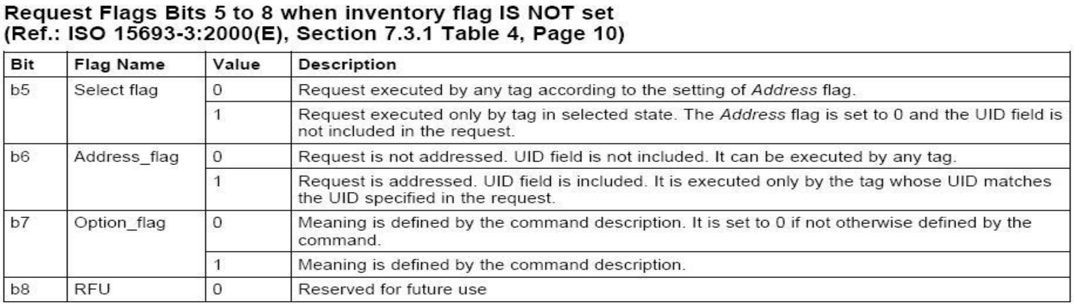
Value	Description
0x00	**Successful completion of request**
0x01	**error**
0x02	**Open Com Port Fail**
0x03	**Com Port Not Open**
0x04	**Send Data Fail**
0x05	**Receive Data fail**
0x06	**parameter** Error
0x07	**Key Error**
0x08	**WriteMifareOneBlock not reply success value (maybe Write success)**
0x09	Firmware Version Returned Error

9.2 Flag



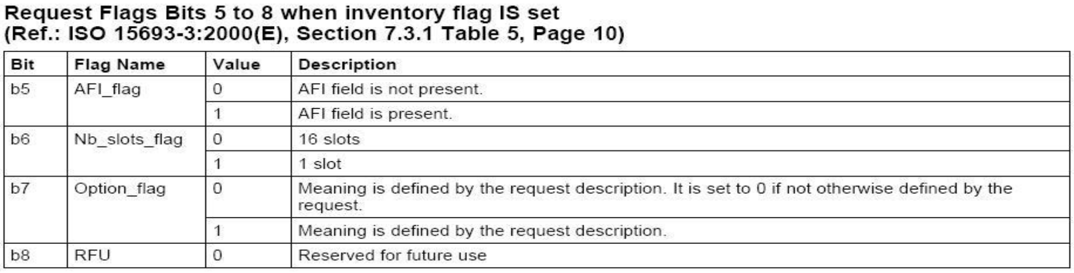
Request Flags Bits 1 to 4
(Ref.: ISO 15693-3:2000(E), Section 7.3.1 Table 3, Page 9)

Bit	Flag Name	Value	Description
b1	Subcarrier flag	0	A single subcarrier is used by the tag.
		1	Two subcarriers are used by the tag.
b2	Data rate flag	0	Low data rate
		1	High data rate
b3	Inventory flag	0	Flags 5 to 8 meaning in following tables (points to table 4 in ISO 15693-3 protocol)
		1	Flags 5 to 8 meaning in following tables (points to table 5 in ISO 15693-3 protocol)
b4	Protocol extension flag	0	No protocol format extension
		1	Protocol format is extended. Reserved for future use.



Request Flags Bits 5 to 8 when inventory flag IS NOT set
(Ref.: ISO 15693-3:2000(E), Section 7.3.1 Table 4, Page 10)

Bit	Flag Name	Value	Description
b5	Select flag	0	Request executed by any tag according to the setting of *Address* flag.
		1	Request executed only by tag in selected state. The *Address* flag is set to 0 and the UID field is not included in the request.
b6	Address_flag	0	Request is not addressed. UID field is not included. It can be executed by any tag.
		1	Request is addressed. UID field is included. It is executed only by the tag whose UID matches the UID specified in the request.
b7	Option_flag	0	Meaning is defined by the command description. It is set to 0 if not otherwise defined by the command.
		1	Meaning is defined by the command description.
b8	RFU	0	Reserved for future use



Request Flags Bits 5 to 8 when inventory flag IS set
(Ref.: ISO 15693-3:2000(E), Section 7.3.1 Table 5, Page 10)

Bit	Flag Name	Value	Description
b5	AFI_flag	0	AFI field is not present.
		1	AFI field is present.
b6	Nb_slots_flag	0	16 slots
		1	1 slot
b7	Option_flag	0	Meaning is defined by the request description. It is set to 0 if not otherwise defined by the request.
		1	Meaning is defined by the request description.
b8	RFU	0	Reserved for future use