

OMNIKEY AG

SCard2WBP Component

Documentation

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Contents

HOWTO: start using 2WBP cards

Description

Note

For more information about the parameters, use MSDN.

First of all you have to call the function `SCardEstablishContext` to establish the resource manager context

```
LONG SCardEstablishContext(  
    IN  DWORD dwScope,  
    IN  LPCVOID pvReserved1,  
    IN  LPCVOID pvReserved2,  
    OUT LPSCARDCONTEXT phContext  
);
```

If these function returns `SCARD_S_SUCCESS`, the context has been successfully created. Now you are able to list all installed readers. To do this you need `SCardListReaders`.

```
LONG SCardListReaders(  
    IN SCARDCONTEXT hContext,  
    IN LPCTSTR mszGroups,  
    OUT LPTSTR mszReaders,  
    IN OUT LPDWORD pcchReaders  
);
```

After you have listed the readers you have to select one of them. You can do that through a dialog or in your application.

Then you are able to connect to the card with `SCardConnect`.

```
LONG SCardConnect(  
    IN SCARDCONTEXT hContext,  
    IN LPCTSTR szReader,  
    IN DWORD dwShareMode,  
    IN DWORD dwPreferredProtocols,  
    OUT LPSCARDHANDLE phCard,  
    OUT LPDWORD pdwActiveProtocol  
);
```

dwPreferredProtocols has to be `SCARD_PROTOCOL_T0` cause of our implementation

After you finished this function successfully you are connected to the card. Now you can read the data, change the PIN or anything else.

If you finished working with the card you should close the connection.

```
LONG SCardDisconnect(  
    IN SCARDHANDLE hCard,  
    IN DWORD dwDisposition  
);
```

Read data from 2WBCards:

```
OKERR ENTRY SCard2WBPReadData(  
    IN SCARDHANDLE ulHandleSmartCard,  
    IN ULONG ulBytesToRead,  
    OUT LPBYTE pbData,  
    IN ULONG ulAddress,
```

```
);
```

ulHandleSmartCard has to contain the cardhandle you got from SCardConnect.

ulBytesToRead sets how many bytes will be read from card.

ulAddress define the start offset where the function starts to read, and **pbData** is a pointer to an array (bytearray) and contains the read memory from the card if function was successful.

The following functions are available in the SCard2WBP module:

- ***SCard2WBPReadData***
- ***SCard2WBPReadProtectionMemory***
- ***SCard2WBPWriteData***
- ***SCard2WBPCompareAndProtect***
- ***SCard2WBPPresentPIN***
- ***SCard2WBPChangePIN***
- ***SCard2WBPIsPinPresented***

SCard2WBP - General Overview

Description

The abbreviation SCard2WBP is used here to refer to the following smart cards from Siemens which are supported by this shared library:

- SLE 4432
- SLE 4442 (with PIN security logic)

For a full understanding of the operation and functions of these cards, please refer to the Siemens technical manual:

- Siemens IC's for Chip cards, SLE 4432 / SLE 4442
- Intelligent 256 Byte EEPROM, Data Sheet 01.94

The SCard2WBP module provides access to the services of the SLE 4432/4442 card. The function calls deal with the communications with the SLE 4432/4442 and passing of the parameters.

You can use SLE4432 / SLE 4442 cards with following readers:

- Cardman 2010
- Cardman 2011
- Cardman 2020
- Cardman 4000
- Cardman 6020

The following functions are available in the SCard2WBP module:

- ***SCard2WBPReadData***
- ***SCard2WBPReadProtectionMemory***
- ***SCard2WBPWriteData***
- ***SCard2WBPCompareAndProtect***
- ***SCard2WBPPresentPIN***
- ***SCard2WBPChangePIN***
- ***SCard2WBPisPinPresented***

Function SCard2WBPCChangePIN

Prototype

```
OKERR ENTRY SCard2WBPCChangePIN
(
    IN SCARDHANDLE ulHandleSmartCard,
    IN ULONG ulOldPINLen,
    IN LPBYTE pbOldPIN,
    IN ULONG ulNewPINLen,
    IN LPBYTE pbNewPIN
)
```

Description

This function changes the PIN of the card. The length of the old (current) and the new PIN must be three bytes.

Note: In this API the 'Programmable Security Code' (PSC) will be called PIN.

Parameters

The following parameters need to be provided:

Parameter	Type	Description
ulHandleSmartCard	in	Handle of the smart card (get from SCardConnect)
ulOldPINLen	in	Length of old PIN (must be 3)
pbOldPIN	in	Pointer to the old PIN
ulNewPINLen	in	Length of new PIN (must be 3)
pbNewPIN	in	Pointer to the new PIN

Return Values

This function returns the following:

Value	Description
OK Standard Error Codes	see header file ok.h

See also

SCard2WBPPresentPIN

Function SCard2WBPCmpareAndProtect

Prototype

```
OKERR ENTRY SCard2WBPCmpareAndProtect
(
    IN SCARDHANDLE ulHandleSmartCard,
    IN BYTE bData,
    IN ULONG ulAddress
)
```

Description

This function corresponds to the 'Write Protection Memory' operation (see manual). The execution of this command contains a comparison of the entered data byte *bData* with the assigned byte in the EEPROM (assigned by *ulAddress*). In case of identity the protection bit is written, this makes the data information unchangeable. If the data comparison results in data differences writing of the protection bit will be suppressed.

Note: Only the first 32 byte (0...31) of the Main Memory are protectable.

Parameters

The following parameters need to be provided:

Parameter	Type	Description
ulHandleSmartCard	in	Handle of the smart card (get from SCardConnect)
bData	in	Byte to be matched
ulAddress	in	Memory address (0...31)

Return Values

This function returns the following:

Value	Description
OK Standard Error Codes	see header file ok.h

See also

SCard2WBPRReadProtectionMemory

Function SCard2WBPIsPinPresented

Prototype

```
OKERR ENTRY SCard2WBPIsPinPresented
(
    IN SCARDHANDLE ulHandleSmartCard,
    OUT LPBOOL pfPinPresented
)
```

Description

This function checks and returns if PIN is already presented.

Parameters

The following parameters need to be provided:

Parameter	Type	Description
ulHandleSmartCard	in	Handle of the smart card (get from SCardConnect)
pfPinPresented	out	TRUE if PIN is already presented, FALSE if PIN is not presented

Return Values

This function returns the following:

Value	Description
OK Standard Error Codes	see header file ok.h

See also

SCard2WBPPresentPIN

Function SCard2WBPPresentPIN

Prototype

```
OKERR ENTRY SCard2WBPPresentPIN
(
    IN SCARDHANDLE ulHandleSmartCard,
    IN ULONG ulPINLen,
    IN LPBYTE pbPIN
)
```

Description

This function sends the PIN *pbPin* to the card, then there are called some cardcommands which checks the PIN. If the PIN is right you get OKERR_OK else you get OKERR_PW_WRONG. (SCARD2W only).

Note: The SLE 4442 requires a correct verification of the 'Programmable Security Code' (PSC) stored in the Security Memory for altering data if desired.

Note: In this API the PSC will be called PIN.

Parameters

The following parameters need to be provided:

Parameter	Type	Description
ulHandleSmartCard	in	Handle of smart card (get from SCardConnect)
ulPINLen	in	Length of the PIN (must be 3)
pbPIN	in	Pointer to the PIN

Return Values

This function returns the following:

Value	Description
OK Standard Error Codes	see header file ok.h
OKERR_OK	PIN ok
OKERR_PW_WRONG	PIN wrong

See also

SCard2WBPPChangePIN

Function SCard2WBPReadData

Prototype

OKERR ENTRY SCard2WBPReadData

```
(  
    IN SCARDHANDLE ulHandleSmartCard,  
    IN ULONG ulBytesToRead,  
    OUT LPBYTE pbData,  
    IN ULONG ulAddress  
)
```

Description

This function corresponds to the 'Read Main Memory' operation (see manual) and reads one or multiple bytes from the card.

The function reads out the content of the main memory (with LSB first) starting at the given address (*ulAddress*=0...255). The read access to the main memory is always possible.

Parameters

The following parameters need to be provided:

Parameter	Type	Description
<i>ulHandleSmartCard</i>	in	Handle of the smart card (get from SCardConnect)
<i>ulBytesToRead</i>	in	Length of the data buffer.
<i>pbData</i>	out	Pointer to the data buffer.
<i>ulAddress</i>	in	Start offset for the read operation (0..255)

Return Values

This function returns the following:

Value	Description
OK Standard Error Codes	see header file ok.h

See also

SCard2WBPWriteData

Function SCard2WBReadProtectionMemory

Prototype

```
OKERR ENTRY SCard2WBReadProtectionMemory
(
    IN SCARDHANDLE ulHandleSmartCard,
    IN ULONG ulDataLen,
    OUT LPBYTE pbData
)
```

Description

This function corresponds to the 'Read Protection Memory' operation (see manual) and reads the protection bits of the first 32 bytes.

Note: The length of *ulDataLen* must be four byte.

Parameters

The following parameters need to be provided:

Parameter	Type	Description
ulHandleSmartCard	in	Handle of the smart card (get from SCardConnect)
ulDataLen	in	Length of the data buffer (must be 4)
pbData	out	Pointer to the data buffer.

Return Values

This function returns the following:

Value	Description
OK Standard Error Codes	see header file ok.h

See also

SCard2WBCompareAndProtect

Function SCard2WBPWriteData

Prototype

OKERR ENTRY SCard2WBPWriteData

```
(  
    IN SCARDHANDLE ulHandleSmartCard,  
    IN ULONG ulDataLen,  
    IN LPBYTE pbData,  
    IN ULONG ulAddress  
)
```

Description

This function corresponds to the 'Update Main Memory' operation (see manual) and writes one or multiple bytes to the card.

The function writes the data in the main memory starting at the given address (*ulAddress* = 0...255).

Note: The SLE 4442 requires a correct presentation of the PIN (function **SCard2WBPPresentPIN** must have been called) for altering main memory data if desired.

Parameters

The following parameters need to be provided:

Parameter	Type	Description
ulHandleSmartCard	in	Handle of the smart card (get from SCardConnect)
ulDataLen	in	Length of the data buffer
pbData	in	Pointer to the data buffer
ulAddress	in	Start offset for the write operation (0..255)

Return Values

This function returns the following:

Value	Description
OK Standard Error Codes	see header file ok.h

See also

SCard2WBPPReadData
SCard2WBPPresentPIN