



MicroWorks
SOFTWARE SERVICES

SmartDongle™ API Version 3.3

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SmartDongle API V3.3

Microsoft Windows Support

Supported platforms using Microsoft's new User Mode Driver Framework

Support for both 32 bit and 64 bit platforms

- Vista SP1 (Requires Service Pack 1)
- Server 2008
- Server 2003 SP1 (Requires Service Pack 1)
- XP SP2 (Requires Service Pack 2)

[Link to the Latest SmartDongle UMDF Driver](#)

Legacy 32 bit platforms supported via Windows WDM drivers

Support for 32 bit platforms only

- Vista
- Server 2008
- Server 2003
- 2000
- ME
- 98

[Link to Legacy 32 bit signed driver](#)

Links to SmartDongle Example Code for the Following Languages

- [C, C++](#)
- [C#](#)
- [Visual Basic .NET](#)
- [Visual Basic 6](#)

Linux, Mac OS X, Solaris and FreeBSD Support

[Link to libusb Examples](#)

The SmartDongle Interface

Reading from SmartDongle User Memory

Given the correct keys, P1 and P2, the developer can read the SmartDongle user memory.

C Function

```
int SmartDongleRead(  
    unsigned __int64 P1,  
    unsigned __int64 P2,  
    unsigned int address,  
    unsigned char *buffer,  
    int size)
```

Parameters

P1 – 64 bit key “X”.

P2 – 64 bit key “Y”.

address – User memory address, byte addressable from 0 to 32431

buffer – Pointer to memory to receive SmartDongle memory data

size – Requested read size

Examples

[www.smartdongle.com/Source and Examples/Windows/C/README.html](http://www.smartdongle.com/Source%20and%20Examples/Windows/C/README.html)

Common Return Codes

USK_OK – Read was successful

USK_ERR_OPEN – Unable to find a SmartDongle on the host .

Possible problems

- A SmartDongle is not plugged into host USB port.
- The driver has not been installed.

USK_ERR_HOST_VALIDATE – The host application has failed a SmartDongle Challenge.

Possible problems

- Invalid user keys

USK_ERR_EEPROM_READ – Error reading from SmartDongle memory.

Possible problems

- Address and/or requested read size is out of SmartDongle range.
- Error reading encrypted keys from SmartDongle memory on a challenge/reply.

USK_ERR_USK_VALIDATE – SmartDongle has failed a challenge from the host application.

Possible problems

- Device is not an authentic Smartdongle.

C # Function

```
SmartDnglError SmartDongle.Read(  
    UInt64 P1,  
    UInt64 P2,  
    UInt16 address,  
    byte[] buffer,  
    int size)
```

Parameters

P1 – 64 bit key “X”.

P2 – 64 bit key “Y”.

address – User memory address, byte addressable from 0 to 32431

buffer – byte array to receive SmartDongle memory data

size – Requested read size

Examples

www.smartdongle.com/Source and Examples/Windows/C Sharp/README.html

Common Return Codes

SmartDnglError.UskOk – Read was successful

SmartDnglError.UskErrOpen – Unable to find a SmartDongle on the host .

Possible problems

- A SmartDongle is not plugged into host USB port.
- The driver has not been installed.

SmartDnglError.UskErrHostValidate – The host application has failed a SmartDongle Challenge.

Possible problems

- Invalid user keys

SmartDnglError.UskErrEepromRead – Error reading from SmartDongle memory.

Possible problems

- Address and/or requested read size is out of SmartDongle range.
- Error reading encrypted keys from SmartDongle memory on a challenge/reply.

SmartDnglError.UskErrUskValidate – SmartDongle has failed a challenge from the host application.

Possible problems

- Device is not an authentic Smartdongle.

Visual Basic .NET Function

```
Public Function Read( _  
    ByVal P1 As Int64, _  
    ByVal P2 As Int64, _  
    ByVal address As Int16, _  
    ByVal buffer() As Byte, _  
    ByVal size As Integer) As SmartDnglError
```

Parameters

P1 – 64 bit key “X”.

P2 – 64 bit key “Y”.

address – User memory address, byte addressable from 0 to 32431

buffer – byte array to receive SmartDongle memory data

size – Requested read size

Examples

www.smartdongle.com/Source and Examples/Windows/Visual Basic .NET/README.html

Common Return Codes

SmartDnglError.UskOk – Read was successful

SmartDnglError.UskErrOpen – Unable to find a SmartDongle on the host .

Possible problems

- A SmartDongle is not plugged into host USB port.
- The driver has not been installed.

SmartDnglError.UskErrHostValidate – The host application has failed a SmartDongle Challenge.

Possible problems

- Invalid user keys

SmartDnglError.UskErrEpromRead – Error reading from SmartDongle memory.

Possible problems

- Address and/or requested read size is out of SmartDongle range.
- Error reading encrypted keys from SmartDongle memory on a challenge/reply.

SmartDnglError.UskErrUskValidate – SmartDongle has failed a challenge from the host application.

Possible problems

- Device is not an authentic Smartdongle.

Writing to SmartDongle User Memory

Given the correct keys, P1 and P2, the developer can write to the SmartDongle user memory¹.

C Function

```
int SmartDongleWrite(  
    unsigned __int64 P1,  
    unsigned __int64 P2,  
    unsigned int address,  
    unsigned char *buffer,  
    int size);
```

Parameters

P1 – 64 bit key “X”.

P2 – 64 bit key “Y”.

address – User memory address, byte addressable from 0 to 32431

buffer – Pointer to memory of data to write to SmartDongle

size – Requested write size

Examples

www.smartdongle.com/Source and Examples/Windows/C/README.html

Common Return Codes

USK_OK – Read was successful

USK_ERR_OPEN – Unable to find a SmartDongle on the host .

Possible problems

- A SmartDongle is not plugged into host USB port.
- The driver has not been installed.

USK_ERR_HOST_VALIDATE – The host application has failed a SmartDongle Challenge.

Possible problems

- Invalid user keys

USK_ERR_EEPROM_WRITE – Error writing to SmartDongle memory.

Possible problems

- Address and/or requested write size is out of SmartDongle range.
- Error reading encrypted keys from SmartDongle memory on a challenge/reply.

USK_ERR_USK_VALIDATE – SmartDongle has failed a challenge from the host application.

Possible problems

- Device is not an authentic Smartdongle

¹ SmartDongle memory is a CAT25C256 with a write endurance of 1,000,000 cycles per page.

C # Function

```
public static SmartDnglError Write(  
    UInt64 P1,  
    UInt64 P2,  
    UInt16 address,  
    byte[] buffer,  
    int size)
```

Parameters

P1 – 64 bit key “X”.

P2 – 64 bit key “Y”.

address – User memory address, byte addressable from 0 to 32431

buffer – byte array of data to write to SmartDongle

size – Requested write size

Examples

www.smartdongle.com/Source and Examples/Windows/C Sharp/README.html

Common Return Codes

SmartDnglError.UskOk – Write was successful

SmartDnglError.UskErrOpen – Unable to find a SmartDongle on the host .

Possible problems

- A SmartDongle is not plugged into host USB port.
- The driver has not been installed.

SmartDnglError.UskErrHostValidate – The host application has failed a SmartDongle Challenge.

Possible problems

- Invalid user keys

SmartDnglError.UskErrEepromWrite – Error writing to SmartDongle memory.

Possible problems

- Address and/or requested read size is out of SmartDongle range.
- Error reading encrypted keys from SmartDongle memory on a challenge/reply.

SmartDnglError.UskErrUskValidate – SmartDongle has failed a challenge from the host application.

Possible problems

- Device is not an authentic Smartdongle.

Visual Basic .NET Function

```
Public Function Write( _  
    ByVal P1 As Int64, _  
    ByVal P2 As Int64, _  
    ByVal address As Int16, _  
    ByVal buffer() As Byte, _  
    ByVal size As Integer) As SmartDnglError
```

Parameters

P1 – 64 bit key “X”.

P2 – 64 bit key “Y”.

address – User memory address, byte addressable from 0 to 32431

buffer – byte array of data to write to SmartDongle.

size – Requested read size

Examples

www.smartdongle.com/Source and Examples/Windows/Visual Basic .NET/README.html

Common Return Codes

SmartDnglError.UskOk – Write was successful

SmartDnglError.UskErrOpen – Unable to find a SmartDongle on the host .

Possible problems

- A SmartDongle is not plugged into host USB port.
- The driver has not been installed.

SmartDnglError.UskErrHostValidate – The host application has failed a SmartDongle Challenge.

Possible problems

- Invalid user keys

SmartDnglError.UskErrEpromRead – Error reading from SmartDongle memory.

Possible problems

- Address and/or requested read size is out of SmartDongle range.
- Error reading encrypted keys from SmartDongle memory on a challenge/reply.

SmartDnglError.UskErrUskValidate – SmartDongle has failed a challenge from the host application.

Possible problems

- Device is not an authentic Smartdongle.