

**Purpose of Application:** Using the CrypToken with the Minidriver interface from Microsoft

**Version:** cv act sc/interface 5.0.1 (Win32/64), CrypToken Kit 1.50 or higher

**Last Update:** 21 October 2013 by [Steffen Kaetsch](#)

**Target Operating Systems:** Windows 8/7/Vista (32 & 64 bit), XP

**Target Processor Platforms:** Intel x86

**Applicable for Product:** CrypToken® MX2048 JCOP

## Using the CrypToken with Minidriver

Minidriver is a new interface designed by Microsoft for accessing smart cards and tokens. It provides a consistent interface to the Microsoft Smart Card Base Cryptographic Service Provider (CSP) or Crypto Next Generation (CNG) Key Storage Provider (KSP) and to the Smart Card Management Interface.

More details on Minidriver can be found in the specification from Microsoft:

[www.microsoft.com/whdc/device/input/smartcard/sc-minidriver.mspx](http://www.microsoft.com/whdc/device/input/smartcard/sc-minidriver.mspx)

## CrypToken®



- Runs on all operating systems with CCID support without separate driver
- Multiple keys and certificates can be stored in one token
- Certified smart card chip meets highest security standards according to Common Criteria
- Multi-platform support: Windows, Linux, Mac OS X
- Existing JavaCard or MULTOS applications for smart cards run without modification
- Ability to load customer-specific applications and algorithms
- Solid metal casing



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## 1. Installation

### 1.1 Cv act sc/interface Installation under Windows 7/Vista/XP

Install the cv act sc/interface to add the minidriver to the system. To start installation open the folder:

**\cv\_act\_sc\_interface**

There are several subfolders which contain different versions of the setup:

- \installation\_admin** - Administrator Installation (for 32bit Windows versions)
- \installation\_admin\_x64** - Administrator Installation (for 64bit Windows versions)
- \installation\_user** - User Installation (for 32bit Windows versions)
- \installation\_user\_x64** - User Installation (for 64bit Windows versions)

The Administrator Installation is intended for system administrators. It installs an extended Administration Tool (cv act sc/interface Manager, see chapter 2) which enables full key and certificates management. It supports key generation, import and export of certificates, as well as certificate requests. Furthermore you can create profiles on the smart card/token, change the smart card/token PIN, and unlock a smart card/token.

The User Installation is intended for installation at the end-user side. It installs an User Tool which provides typical functions required by end-users, such as changes to the User PIN or export of certificates.

A detailed description of both components can be found in the cv act sc/interface manual:

**\cv\_act\_sc\_interface\cv\_act\_sc\_interface\_EN.pdf**

Select the appropriate subfolder and start the installation double-clicking the setup.exe file. On the Welcome screen, click "Next", then confirm the License Agreement.

At the next screen the desired program features can be selected (see Fig. 1.1). To install the Minidriver on your computer, please select the item "Smart Card Minidriver (Device Driver Setup)".

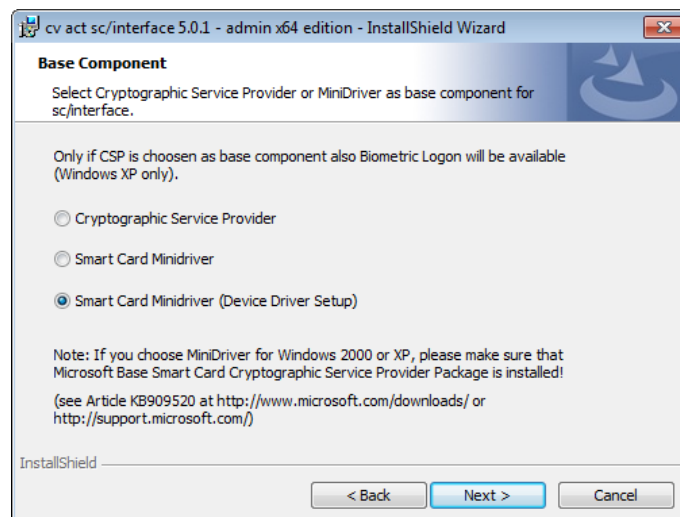


Fig. 1.1: cv-act sc/interface - Minidriver installation

Click "Next" to continue. After the installation was completed successfully, click the "Finish" button.

## 1.2 Installing Minidriver with software distribution

To install the Minidriver with a software distribution, select the "Smart Card Minidriver" option during cv-act installation (Fig. 1.1 above).



To install the Minidriver under Windows XP or with software distribution, you have to make sure to install the Microsoft Base Smart Card Cryptographic Service Provider Package x86 (KB909520).

You will find the Article KB909520 under:

<http://www.microsoft.com/downloads> or <http://support.microsoft.com>

## 1.3 CrypToken driver installation

Attach the CrypToken to a USB port. Windows will notify a new device and opens the "Found New Hardware Wizard" (see Fig. 1.2). You can click on the balloon icon in the lower right corner to get more details. If your computer is connected to the Internet, Windows 7/Vista will automatically obtain the driver from Windows Update.

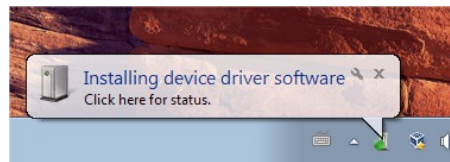


Fig. 1.2: CrypToken Driver Installation

Under Windows XP, you will be asked if Windows should connect to Windows Update and search for the driver (see Fig. 1.3). Select the "Yes, this time only" radio button and click next. If you have no internet connection, or you want to install the driver manually, put the "CrypToken Kit" CD in your CDROM drive and let Windows browse for drivers at the location of your CDROM drive (for instance E:). You may also download the latest CrypToken drivers at [www.cryptoken.com](http://www.cryptoken.com) ⇒ Support ⇒ Download Area.

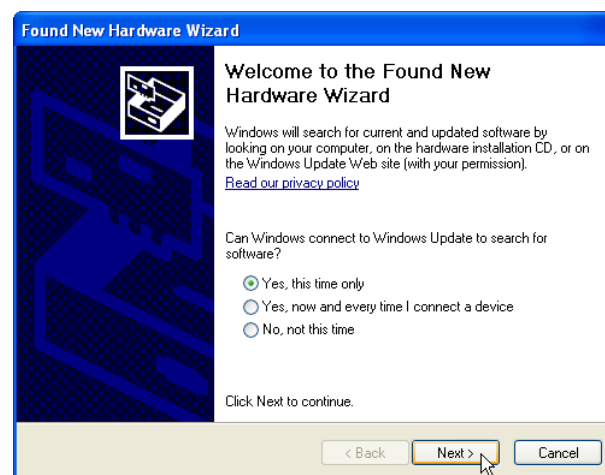


Fig. 1.3: CrypToken Driver Installation under Windows XP

Windows will notify you when driver installation was finished successfully (see Fig. 1.4).

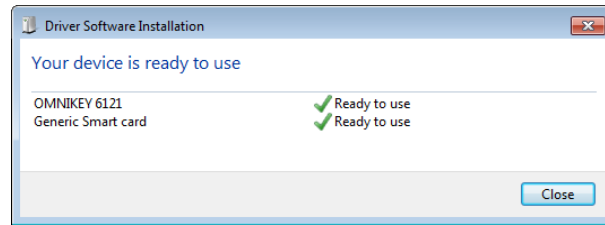


Fig. 1.4: Finishing CryptToken Driver Installation



If Windows 7/Vista tells you that the "Generic Smart card" driver cannot be found, then you most probably did not install the Minidriver yet. Please refer to chapter 1.1 for Minidriver installation.

## 2. Initializing the CryptToken

The CryptToken needs to be initialized prior to use it for storing certificates and keys. To do so, the Administrator Installation of the cv act sc/interface must be processed first (see chapter 1.1). Then attach the CryptToken to the USB port and start the cv act sc interface Manager under:

### Start - Programs - cv cryptovision - cv act sc interface Manager

The following information will be displayed:

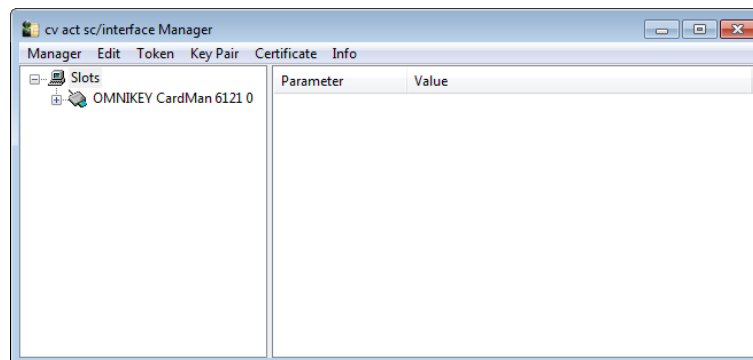


Fig. 2.1: cv-act sc/interface Manager: uninitialized CryptToken

Select the menu point "Manager" and "Create Token Profile". A new window will appear (see Fig. 2.2: Initializing the CryptToken). Choose "PKCS#15 profile" as profile type, select an SO PIN and User PIN for the attached CryptToken and confirm them. Check the "Challenge Response PIN" field and select a PIN (must be exactly 48 hexadecimal digits). Finally check the "Minidriver compatible" field and click "OK".

Wait until the sc/interface Manager has finished the initialization. The CryptToken is now operable.



As alternative to the initialization of the CryptToken with cv act sc/interface Manager, the CryptToken can be preconfigured by MARX during the production process. Please contact us for more details.

The Card PIN is defined to consist of 10.

- ✓ The SO-PIN has to consist of at least 6.
- ✓ The SO-PIN shall not exceed 10.
- ✓ The SO-PIN was correctly verified.
- ✓ The user PIN has to consist of at least 4.
- ✓ The user PIN shall not exceed 10.
- ✓ The user PIN was correctly verified.

The serial number shall have not more than 16 and at least one alpha-numeric digits.

- ✓ The challenge response PIN must have exactly 48 hexadecimal digits.

Fig. 2.2: Initializing the CrypToken



You can change User PIN and SO PIN of the CrypToken later, if required. Choose the menu point "Token" and "Change User PIN" resp. "Change SO PIN" to do so. If you entered the wrong User PIN 3 times, the CrypToken will be blocked. Choose "Unlock User PIN" from "Token" menu in that case to unlock the PIN (SO PIN is required for this operation). If wrong SO PIN was entered 3 times, the token is blocked completely!

For a more detailed description of the cv act sc/interface Manager please refer to the cv act sc/interface manual:

`\cv_act_sc_interface\cv_act_sc_interface_EN.pdf`

## 3. Using the CrypToken with Minidriver

### 3.1 Using the CrypToken with Minidriver Microsoft ILM/CLM

The card minidriver is designed for use with Microsoft Identity Lifecycle Management (ILM) / Certificate Lifecycle Management (CLM) and other applications supporting it.

Further information about using Microsoft ILM / CLM with smart cards and tokens is available under:

<http://technet.microsoft.com/en-us/library/cc720598.aspx>

### 3.2 CMCK Certification

The Card Minidriver Certification Kit performs functional, stress, performance, and reliability testing on a smart card minidriver. This kit calls the Microsoft BaseCSP and the Microsoft Smart Card Key Storage Provider and accesses the card minidriver methods directly to test the correctness of operation of the card minidriver and the associated card. The kit also uses the Smart Card Resource Manager to access the card directly.

The 32 and 64 bit versions of the minidriver as component of the cv act sc/interface, passed all CMCK tests successfully. For the tests under Windows XP (32 and 64 bit version) the version 6.0.6001.17031 of the test

## Application Note ANCT19

# Minidriver

suite was used. For Windows Vista (32 and 64 bit version) CMCK version 6.1.7000.0 served as the basis of the test.

Further information on this topic is available under:

[http://msdn.microsoft.com/en-us/library/dd327365\(en-us\).aspx](http://msdn.microsoft.com/en-us/library/dd327365(en-us).aspx)

## CrypToken MX 2048 JCOP: Data Sheet

Supported Standards	PKSC#11, Microsoft CSP, Minidriver
Operation System	JCOP
Smart Card Chip	SmartMX/JCOP41
Smart Card Chip Certifications	EAL 4+, EMV, ISO 7816, JavaCard 2.4.1, Global Platform
Controller Chip	Atmel/Omnikey
Controller Chip Certifications	WHQL, USB CCID, PC/SC, HBCI, EMV2000
Memory (total)	80 KByte
Ability to Load Customer Specific Applications	yes
Tamper-Proof Hardware	yes
Secure Against External Interception	yes
Operating Systems Supported	Windows, Linux, Mac OS X
Data Retention Time	minimum 10 years
Write Cycles	>500.000
Default Middleware Configuration	SafeSign
Available w/o Middleware	Yes
Electrical Certificates	FCC, CE, RWTÜV
Dimensions	15 x 8 x 36 mm
Weight	9.5g
Temperature	0°C to +60°C / 32°F to 140°F
Humidity	0% to 95% relative humidity

### CrypToken Certifications



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### CrypToken Developer's Kit

[www.cryptoken.com/cryptoken-kit](http://www.cryptoken.com/cryptoken-kit)

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