



## Automation of the Protection Process

Described Version:	Smarx OS 2.21.7.110
Also Applicable For:	Smarx OS 2.x
Target Platforms:	Windows Vista 32/64, XP, 2000, Linux, Mac OS
MARX Hardware:	CRYPTO-BOX® USB

### Reach Maximum Security and Flexibility!

The high quality software you develop and market creates value for your customers. So it should generate the profits you deserve. That means protecting your programs effectively. Smarx OS Application Framework is a complete package for software vendors and distributors which automates your software and data protection scenarios.

- **Protect your software using automatic protection or implementation with API**
- **Define the necessary partitions and DataObjects for implementation with API into source code**
- **Configure (format) the CRYPTO-BOX according to the protection scenario chosen**
- **Remotely update the content of the CRYPTO-BOX distributed to the end user**
- **Manage end user profiles seamlessly**



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## 1. Introduction

Hardware-based protection assumes that your protected applications and/or data files will require a corresponding hardware (CRYPTO-BOX) to be attached to the computer (or another computer within the network) in order for them to function normally. The protected software will check for the CRYPTO-BOX presence. If the CRYPTO-BOX is not found, the program can switch to a demo mode or even refuse to work (depending on your protection strategy). If the CRYPTO-BOX is attached, the program will communicate with it, performing more detailed verification of various license related data:

- Serial number
- Access codes
- Hardware-based encryption
- Internal memory

The SmarxOS Professional Protection Kit provides you with a comprehensive set of protection techniques and options based on the CRYPTO-BOX USB. Usage of these techniques depends on the purposes and strategy you're going to use to protect your applications and data.

## 2. Using SmarxOS Application Framework

The SmarxOS Application Framework makes protection of your valuable digital assets (software, related data and/or documents) very convenient:

- The SAME approach is used for adding protection to ALL kinds of your digital assets
- All projects (automatic protection, protection with API, document protection) are stored in one database – **License Management Database for end-user administration (LM/db)**
- One application – **CRYPTO-BOX Format** - is used to prepare (format) a CRYPTO-BOX to work with a particular project
- Even concurrent usage of different projects on one CRYPTO-BOX is possible
- A particular software or document need to be protected only one time, but CRYPTO-BOX formatting can be performed many times for every end-user (Protect once, deliver many)
- All projects support remote updating of Data Objects with licensing information stored in the
- CRYPTO-BOX memory via **Remote Update Management System**

**SmarxOS Application Framework is based on a project oriented concept.** This means that if you have a software product or a set of data files to be protected for some group of end-users, then you need to create a proper project. All projects are stored in the internal License Management Database (LM/db). The License Management Database allows you to open existing projects at any time to format a new CRYPTO-BOX, perform remote updates or even change project settings.

Additional options like end-user profile management, end-user specific formatting and remote update history can be helpful for your own licensing strategy. Starting from SxAF v2.30 management of different product editions and remote update plans become possible. A flexible licensing pricing strategy can be supported – various product editions, various update plans can be provided.

### 2.1 Automatic protection

Automatic protection provides a fast, efficient and simple solution. You do not need to be a developer, spending time on understanding CRYPTO-BOX internals and incorporating proper code to your program.

You do not need to have the source code at all. AutoCrypt Manager will do it for you as easy and quickly as 1-2-3! It will compress and encrypt your application, then wrap it with a protective layer, preventing it from working unless a valid CRYPTO-BOX is attached. Many additional features and customizations are available.

## 2.2 Protection with API

The implementation into the source code by using the API is targeted at professional developers. With the API you can implement a product specific and highly efficient protection strategy. You can integrate smart support for demo and full-operating versions of the program, online features activation, remote update scenarios, etc.

## 2.3 CRYPTO-BOX formatting

CRYPTO-BOX Format as part of Smarx OS Application Framework provides CRYPTO-BOX formatting for projects stored in the License Management Database (LM/db).

# 3. Using command-line SmarxOS Tools

If you want to integrate application protection and CRYPTO-BOX formatting with your own administration/ distribution strategy, or automate protection process, command-line tools **AC\_Tool** (for protecting applications) and **SmrxProg** (for configuring CRYPTO-BOX modules) can be used. **AC\_Tool** and **SmrxProg** are console applications that are controlled via command line switches. For that reason, they can be called up by other applications or scripts.

For some reasons software companies may wish to delegate software protection or/and hardware configuration to some departments (distributors) but without providing them with License Management Database. In this case or if organizing software protection as a batch process (automation) SmarxOS Application Framework provides **"Export Project Data"** functionality to export project data to a XML script file for further usage within command-line tools.

## 3.1 AC\_Tool – command-line version of AutoCrypt

For customers who want to control the application protection via command line switches (e.g. for integrating with existing solutions for end user administration) MARX provides a command line version of AutoCrypt, AC\_Tool.exe. This tool can be also used for automation purposes.

AC\_Tool is used in combination with SmrxProg, which performs further CRYPTO-BOX programming.

### Parameter description:

*AC\_Tool.exe* <TRX file> <XML file>

where:

<TRX file> - TRX file distributed with your customer specific CRYPTO-BOX

(cbu\_demo.trx for demo)

<XML file> - XML file with application protection settings and CRYPTO-BOX configuration,

also used by SmrxProg for further CRYPTO-BOX programming

(see AC\_Test.xml as example)

### Short explanation on how to use AC\_Tool:

- Take a XML file that was generated in SmarxOS Application Framework. Or use a text editor to customize XML data (AC\_Test.xml, AC\_Local.xml or AC\_Network.xml may be used as prototypes)
- Place the TRX file distributed by MARX, the XML file created in the previous step and the AC\_Tool.exe file into the same directory.
- Run the following command from the console: AC\_Tool.exe <TRX file> <XML file>
- Results will be displayed on the console and output to the AC\_TOOL.LOG file.

### 3.2 SmrxProg – command-line version of CBFormat

SmrxProg is a command line utility for CRYPTO-BOX formatting (programming). It is not only a successor for CRYPTO-BOX Format to control CRYPTO-BOX formatting through command line switches: It can also be useful for customer specific scenarios. It provides:

32. reprogramming of CRYPTO-BOX encryption keys (Private/Session AES Key/IV);
33. creating partitions in CRYPTO-BOX memory (supports partition numbers from 101 to 65535);
34. programming Data Objects and network licenses to particular partitions.

#### Parameter description:

*SmrxProg.exe* <TRX file> <INI file> or *SmrxProg.exe* <TRX file> <XML file>

where:

<TRX file> - TRX file distributed with your customer specific CRYPTO-BOX  
(cbu\_demo.trx for demo)

<INI-file> - INI file with CRYPTO-BOX configuration (see Test.ini as example)

<XML file> - XML file with CRYPTO-BOX configuration and applications protection data, also used  
by AC\_Tool for automatic software protection  
(see AC\_Test.xml as example)

#### Short explanation of how to use SmrxProg:

- Use any text editor to create an INI file containing values you wish to reprogram in your hardware. Or take a XML file that was created for automatic software protection and further CRYPTO-BOX programming (Test.ini or AC\_Test.xml may be used as prototypes).
- Place the TRX file distributed by MARX, the INI (XML) file obtained on the previous step, and SmrxProg.exe into the same directory.
- Run the following command from the console: *SmrxProg.exe* <TRX file> <INI file> or *SmrxProg.exe* <TRX file> <XML file>
- Results will be displayed on the console, and directed to the SMRXPROG.LOG file.

## Appendix

### Appendix A – Distributors

#### USA

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### Appendix B - CryptToken Certifications and MARX Memberships



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