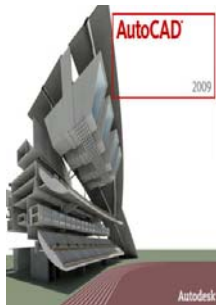


## Protecting AutoCAD projects **CRYPTO-BOX® and AutoCAD**



<b>Described Version:</b>	AutoCAD 2007
<b>Also applicable for:</b>	AutoCAD 2006 and up
<b>Target platforms:</b>	Windows Vista/XP/2000, Linux, MacOS
<b>MARX hardware:</b>	CRYPTO-BOX USB



### **Quick and efficient hardware based software protection!**

MARX provides AutoCAD developers with a robust and reliable way to integrate protection to their software and intellectual property. With the CRYPTO-BOX USB state-of-the-art hardware system, the SmarxOS API, and further MARX solutions and technologies, AutoCAD applications will be protected against piracy and unauthorized usage in the most efficient way.

### **The CRYPTO-BOX:**

- On-board encryption of data with Rijndael algorithm
- Encrypted EEPROM with 4 kByte of on-board memory (up to 72 kByte available on request)
- Reliable communication and CRYPTO-BOX identification
- and many more.



**Download the latest Application Notes:**  
[www.cryptotech.com/AN](http://www.cryptotech.com/AN)

## 1. Introduction: AutoCAD brief overview

AutoCAD is a suite of computer-aided design (CAD) software products for 2- and 3-dimensional design, drafting and drawing, developed and sold by Autodesk, Inc. Its latest version is AutoCAD 2008.

AutoCAD 2008 includes a full set of 2D and 3D tools for solid modeling, sophisticated drafting tasks, presentations creation, workflow modeling, and publishing. AutoCAD's native file format, DWG, as well as Autodesk's DWF (Design Web Format) and to a lesser extent, its interchange file format, DXF, have become de facto standards for interchange of 2D CAD data. In 2006, Autodesk estimated the number of active DWG files to be in excess of one billion.

AutoCAD is used to create conceptual designs, technical drawings, and documentation in many industries. Designers, architects, engineers, land planners, contractors, facility managers, and educational institutions and students are examples of customers who currently use AutoCAD.

The AutoCAD foundation technology supports other Autodesk industry-targeted applications, as well as hundreds of third-party applications. It fits into any design solution that requires a general, customizable drafting and design tool.

AutoCAD software provides a flexible development platform for specialized design and drafting applications. Its open architecture enables to customize AutoCAD to suit customer unique purposes. Examples include Autodesk's industry-specific design software and thousands of add-on applications from members of the Autodesk Developer Network.

## 2. Customizing AutoCAD environment with external APIs

AutoCAD supports a number of application programming interfaces (APIs) for customization and automation. These include ObjectARX, ActiveX, and .NET and support for such programming languages as AutoLISP, Visual LISP, Visual C + +, C#, VB, VBA, Delphi, Java, and others.

The ObjectARX programming environment is a C + + class library which provides object-oriented C + +, C# and VB .NET application programming interfaces for developers to use, customize, and extend AutoCAD software and AutoCAD-based products like Autodesk Architectural Desktop, AutoCAD Mechanical, AutoCAD Electrical, Autodesk Land Desktop, or third-party AutoCAD-based applications. ObjectARX libraries provide a versatile set of tools for application developers to take advantage of the open architecture of AutoCAD software and provide direct access to the AutoCAD database structures, graphics system, and native command definition.

Using the ActiveX (COM Automation) interface in AutoCAD software, you can build applications with a variety of programming technologies, including Microsoft Visual C + +, Microsoft Visual Basic for Applications (VBA), Microsoft Visual Basic (VB), Delphi, and Java. The combination of the powerful ActiveX Automation object model in AutoCAD and Microsoft Visual Basic for Applications (VBA) presents a compelling framework for customizing the AutoCAD software program. With ActiveX Controls and other applications that host VBA (such as Microsoft Office), there's no limit to the objects developer can work with when developing custom solutions for AutoCAD software.

AutoCAD also presents the full power of ObjectARX in their new .NET interface. Developer can gain direct access to AutoCAD database structures, native command definition, and more using any .NET supporting language including C#, VB, C + +, and many others.

### 3. Using CRYPTO-BOX USB with AutoCAD-based projects

The SmarxOS API enables application developers to implement product specific and highly efficient protection strategy of any complexity. Smart support for demo and full-operating versions of the program, online features activation, remote update scenarios, etc. can be integrated.



For more details please read SmarxOS Protection Kit Compendium, chapter 8.

MARX provides a wide range of methods for easy integration of CRYPTO-BOX USB support to AutoCAD-related products. The full set of SmarxOS API features including Network License Management and Remote Update are directly available for AutoCAD developers in form of:

- C/C++ static libraries
- Dynamically linked libraries
- ActiveX objects
- .NET managed classes
- Available wrappers for such widely used programming languages as Delphi, Java, or Visual Basic.

MARX supports all major platforms. So the same code can be used for protecting AutoCAD software on Windows, Linux, or Mac OS X systems.

### 4. Using MARX Data Filtering for DWF encryption

MARX Data Filtering technology provides a secure and reliable way to protect/license drawings in DWF format. Design Web Format (DWF) is an open, secure file format developed by Autodesk for the efficient distribution and communication of rich design data to anyone who needs to view, review, or print design files. Because DWF files are highly compressed, they are smaller and faster to transmit than design files, without the overhead associated with complex CAD drawings (or the management of external links and dependencies). With DWF functionality, publishers of design data can limit the specific design data and plot styles to only what they want recipients to see and can publish multi-sheet drawing sets from multiple AutoCAD drawings in a single DWF file. They can also publish 3D models from most Autodesk design applications.

Secured DWF Viewer included to SmarxOS PPK is a GUI application, demonstrating SmarxOS DP API/Data Filter usage for previewing of encrypted Autodesk DWF files from within C/C++ application. It utilizes Autodesk Design Review ActiveX available for free as a part of Autodesk Design Review Tool.

Secured DWF Viewer allows to encrypt any DWF drawing (sample is included to the package). Encrypted DWF file can be accessed only through the MARX Data Filter by the Secured DWF Viewer or customer's application based on its code knowing the encryption key value.

For additional security the encryption key is stored in MARX hardware, so encrypted DWF file can't be viewed without valid CRYPTO-BOX being attached to the computer.

## Securing the digital world The CRYPTO-BOX® is ideal for

- Software Protection
- License Management
- Remote Updates
- Web Security
- Secure Online Identification
- Access Control (online business)
- Content Protection (DRM)

### CRYPTO-BOX Evaluation Kit

[www.cryptotech.com/eval](http://www.cryptotech.com/eval)  
+49(0)8403 / 9295-19



### CRYPTO-BOX Datasheet

	CRYPTO-BOX 2	CRYPTO-BOX 2000
Controller chip	8/16 bit RISC Smart Card Processor Atmel AT90SC series with USB interface	8 Bit micro controller with USB interface
Chip certifications	EAL4+ / ISO 7816	WHQL (Microsoft)
Firmware	Proprietary MARX	Proprietary MARX
Supported operating systems	Windows Vista/XP/2000, Linux, MacOS X (in preparation)	Windows Vista/XP/2000, Linux, MacOS X
In hardware integrated algorithm	AES 128 bit, RSA up to 2048 bit key length, others (i.e. ECC) on request	AES 128 bit in hardware, RSA up to 2048 bit key length (on driver level)
Memory size	72Kbytes, minimum 32KBytes free	4, 32 or 64 KBytes
Reading / writing rate internal memory	Read: ca. 80Kbytes/s Write: ca. 30Kbytes/s	Read/write: ca. 1.3KBytes/s
Password (PIN/PUK)	Up to 16 bytes sequence	
Case & LED	Metal Designer Case, LED displays the operating mode, eye for key ring/lanyard	
Connector	USB Type A	
Memory programming	Typically more than 1 million cycles; 100 000 guaranteed	
Data durability	10 years	
Conformity & certifications	FCC, CE, RWTUEV, RoHS, USB Logo	
Dimensions	0.51" x 0.28" x 1.38" (13 x 7 x 35 mm)	0.51" x 0.32" x 1.38" (13 x 8 x 35 mm)
Weight	0.282 oz (8.0g)	0.326 oz (9.2g)
Temperature range	+32°F to +140°F (0°C to +60°C)	
Air humidity	0% to 95% relative humidity	

#### CRYPTO-BOX certifications



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#### MARX Software Security GmbH

Vohburger Strasse 68  
D-85104 Wackerstein  
Phone: +49 (0) 8403 / 9295-0  
Fax: +49 (0) 8403 / 1500  
contact-de@cryptotech.com

#### MARX CryptoTech LP

4485 Tench Road #310  
Suwanee, GA 30024 U.S.A.  
Phone: (+1) 770 904 0369  
Fax: (+1) 770 904 3893  
info@cryptotech.com

[www.cryptotech.com](http://www.cryptotech.com)

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