

Purpose of Application: CRYPTO-BOX[®] hardware and software diagnostic with MARX[®] Analyzer
Version: MARX Analyzer 1.12
Last Update: 4 March 2016
Target Operating Systems: Windows 10/8/7/Vista
Target Processor Platforms: Intel x86
Supported Programming Tools: none required
Applicable for Product: CRYPTO-BOX[®] SC / XS / Versa, CRYPTO-BOX Parallel, CRYPTO-BOX Serial

MARX[®] Analyzer: Troubleshooting for CRYPTO-BOX[®] Hardware and Software

MARX Analyzer helps you by providing extensive diagnostics of the operating system and processes. It analyzes which components and device drivers are installed and running for each CRYPTO-BOX model, tests the found CRYPTO-BOX and simplifies troubleshooting of MARX hardware and software products. A complete diagnostics report can be generated and sent to the vendor or directly to our technical support.



CRYPTO-BOX[®]

- Quick and easy protection of Windows and Linux applications with AutoCrypt
- Individual implementations with API for all common programming languages, incl. .NET
- The CRYPTO-BOX system can be customized according to individual requirements
- Multi-platform support: Windows, Linux, OS X, iOS and Android
- Unique and stable metal case, optional with customer-specific color and labeling
- Internal secure memory of 4-64 kB
- Network and remote update capability
- AES/Rijndael encryption on-chip
- RSA support on-chip (CRYPTO-BOX SC) or on driver level (CRYPTO-BOX XS/Versa)



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1. MARX[®] Analyzer - Overview

MARX Analyzer is a powerful tool that simplifies the process of troubleshooting for CRYPTO-BOX hardware and software components, providing intuitive and comprehensive diagnostics. Its clearly structured, tree-view based output allows to identify and resolve problems quickly.

MARX Analyzer performs a number of tasks: It runs extensive operating system diagnostics, detects Smarx OS libraries, components and device drivers, tests hardware and generates detailed reports, which can be submitted to our Technical Support.

2. Features

MARX Analyzer performs the following tasks:

- Detection of attached CRYPTO-BOX hardware.
- Analysis of installed MARX libraries, components and device drivers.
- Comprehensive network diagnostics: UDP broadcasting can be used for automated server search or server address can be specified directly.
- Identifying problems and providing instructions for resolution.
- Report generation. A report can be saved to a file or e-mailed right from the application.



MARX Analyzer supports all Windows operating systems from Windows XP and up. It is part of the Protection Kit (PPK) for the CRYPTO-BOX or can be [downloaded from our web page](#).

3. Using MARX[®] Analyzer

[Download](#) MARX Analyzer, unzip the archive and start the marxanalyzer.exe.

MARX Analyzer works like a Wizard guiding you step-by-step through the diagnostic process. Click the "Start Diagnostics" button on the upper right side to begin.

3.1. Standard or Extended Diagnostic (Hardware Profile required)

By default, MARX Analyzer will always try to detect if the CRYPTO-BOX is attached to the local USB port of the computer. It will also check LPT and COM ports for legacy CRYPTO-BOX devices.

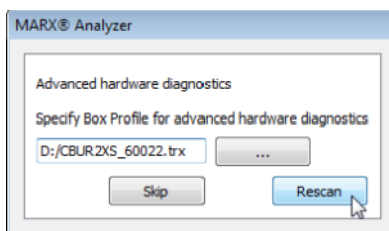
If a CRYPTO-BOX is found on the local computer, MARX Analyzer will ask for the hardware profile (TRX file for Smarx OS formatted CRYPTO-BOX or MRX file for MPI) to perform extended diagnostics and provide more detailed information on the CRYPTO-BOX.



The hardware profile is usually provided by MARX on a CDROM together with your first CRYPTO-BOX order. Never send this file to your end-users!

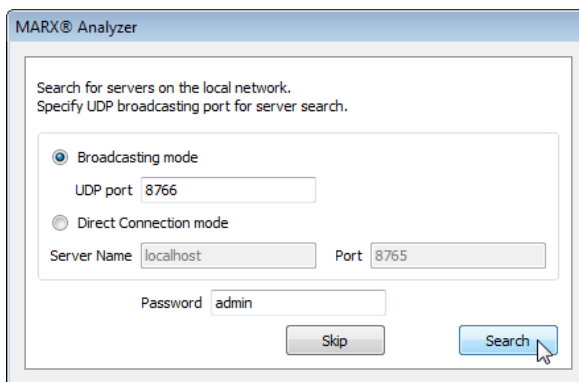
MARX Analyzer will not ask for the hardware profile if a CRYPTO-BOX with demo configuration (from the Evaluation Kit) is attached, or in network mode (see section 3.2).

Specify the location of the hardware profile by clicking the browse button "...", then click "Rescan" to continue. Or press "Skip" if you do not have the hardware profile.



3.2. Network Diagnostic

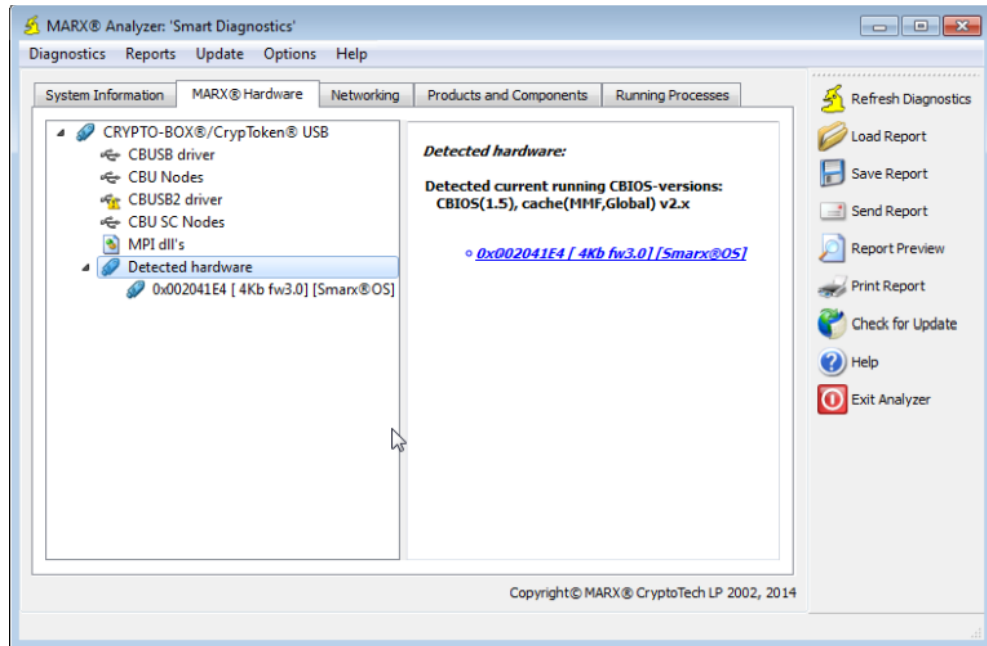
In case the CRYPTO-BOX is available via network, MARX Analyzer can locate the network server where the CRYPTO-BOX is attached. If your CRYPTO-BOX is attached to the local computer and does not work in network mode, click the "Skip" button to skip the network test. Otherwise, you can either try automatic search via UDP broadcasting (works only if the server is located in the same sub-network) or specify the server name or IP address manually. After that, click the "Search" button to continue.



For more information on the CBIOS Network Server configuration for the CRYPTO-BOX, please refer to the readme file included to the [server package](#), or to the [Smarx Compendium](#), chapter 5.

3.3. Diagnostics Results

The diagnostics process may take a while, after it you will see a screen similar to this:



On top of the window, you will see different tabs:

System Information

This tab provides more details about the computer MARX Analyzer is running on (CPU, chipset, network card, USB ports, etc.).

MARX Hardware

This tab shows information about installed CRYPTO-BOX drivers and detected CRYPTO-BOX units. If one (or more) CRYPTO-BOX was found, additional information about it will be shown when looking under the "Detected hardware" tree entry on the left side of the window.



A yellow exclamation mark on the CBUSB (for CRYPTO-BOX XS/Versa) or CBUSB2 driver (for CRYPTO-BOX SC) means that this driver is installed, but not active. So when you have a CRYPTO-BOX XS or Versa, it is normal that the CBUSB2 driver is not running.

Networking

This tab lists network servers found by MARX Analyzer (if network test was selected). Furthermore, it will show the settings of the server, and information about attached CRYPTO-BOX units and client applications.

Products and Components

This tab displays information about MARX components found on the computer (libraries and plugins). Missed components will be shown with an exclamation mark.



Not all components are necessary for every computer; it depends on the field of application. For instance, the data filtering driver is only required if the application uses data protection technology.

Running Processes

This tab shows all processes currently running on the computer which may have influence on the communication with the CRYPTO-BOX.

3.4. Report Generation

The diagnostic results found by MARX Analyzer during hardware and software analysis can be saved to a file and/or sent to our technical support team for further investigation in case of difficulties with the CRYPTO-BOX or one of its software components. There are several buttons on the right side of the window for this purpose:

Refresh Diagnostics

Starts the diagnostic process again with the same settings as specified before

Load Report

Allows you to load an existing MARX Analyzer report for review purposes.

Save Report

Saves the generated diagnostic report to a file (eg. for sending it to our Technical Support).

Send Report

Allows you to send the report as an e-mail to our Technical Support. When clicking on this button, MARX Analyzer will ask you for contact information first, then it launches the standard e-mail client installed on the computer, attaches the report to the body of the e-mail and enters the Technical Support e-mail address in the To: field.

Report Preview

Displays the information which will be included in the diagnostic report.

Print Report

Creates a hard copy of the report

4. Using MARX[®] Analyzer in Command Line Mode

MARX Analyzer supports an extended set of command line parameters, allowing specifying completely or partially required diagnostics mode from within a 3rd party applications. These parameters can help integrating diagnostics to own applications.

It is possible to specify desired diagnostics mode completely or partially to eliminate or simplify its selection by the end-user.

Parameter description:

```
MarxAnalyzer [<MDIAG file>] | [-H | -?] |  
             [-Scenario=<Customer | EndUser>]  
             [-Platform=<SmarxOS | MPI | CT | All>]  
             [-Hardware=<SmarxOSCBU | MPICBU | AnyUSB | CBN | CBS3 | CT | All >]  
             [-Mode=<Local | Network | All>]
```

where:

<MDIAG file>	Opens an existing MDIAG file (MARX Analyzer report) which was generated before
-H -?	Displays all available command line parameters
-Scenario	Runs MARX Analyzer either in extended “Customer” mode (it will ask for hardware profile submission) or in standard “EndUser” mode (hardware profile dialog will be skipped)
-Platform	Allows to specify directly the type of software/hardware detection: SmarxOS – checks for Smarx OS components only MPI – checks for MPI components only All – checks everything
-Hardware	Allows to specify directly the type of hardware to be analyzed: SmarxOSCBU – search for Smarx OS formatted CRYPTO-BOX (USB versions only) MPICBU – search for MPI formatted CRYPTO-BOX (USB versions only) AnyUSB – search for any attached MARX USB hardware CBN – search for CRYPTO-BOX Parallel (CRYPTO-BOX 560/Net and Versa) only CBS3 – search for CRYPTO-BOX Serial only All – search for all kind of CRYPTO-BOX hardware
-Mode	Diagnostic mode: Local – search for CRYPTO-BOX hardware connected to the local computer only Network – search for CRYPTO-BOX hardware connected somewhere in the network only All – check both local and network

All parameters are optional and can be submitted in any sequence. Upper/lowercase can be used. Launching MARX Analyzer with a complete set of diagnostics mode definition parameters (unambiguously identifying some diagnostics mode) will start this diagnostics mode immediately. In case of partial definition of diagnostics mode parameters the Mode Selection Wizard will initialize all corresponding radio buttons with choices made by submitted values and will open those screen where selection was not made by submitted command line parameters.

5. FAQ (frequently asked questions)

1. In the “MARX Hardware” tab, I get a yellow exclamation mark at the “CBUSB driver” and/or “CBUSB2 driver” entry. But I have installed the drivers with CBUSetup before!

A yellow exclamation mark on the CBUSB driver (used by the CRYPTO-BOX XS and Versa) and/or the CBUSB2 driver (used by the CRYPTO-BOX SC) is mostly caused by one of the following reasons:

- Troubleshooting ID=1054: The driver is installed, but not active. So when you have a CRYPTO-BOX XS or Versa attached, it is normal that the CBUSB2 driver is not running.
- Troubleshooting ID=1021: The driver is installed, but out of date. Please install the latest driver (e.g. by using our convenient driver setup CBUSetup.exe, which can be found on our [web page](#)).

2. In the “System Information” tab, I get a yellow exclamation mark at the “Microsoft VC Redistributables” entry!

This is only important if CBIOS4NET is used (for .NET based applications using our CBIOS4NET assemblies to communicate with the CRYPTO-BOX). Our CBIOS4NET assemblies contain unmanaged code and therefore require Microsoft VC Redistributable components to work properly. There are different components for different Visual Studio versions, not all may be required. The easiest way to install these Redistributables is using our CBIOS4NETSetup, which can be found on our [web page](#).

If you do not use CBIOS4NET, you can ignore this warning.

3. In the “MARX Hardware” tab, I get a yellow exclamation mark under the “Detected hardware” entry. And on the right side “Format: Unknown” is displayed for my CRYPTO-BOX!

There is something wrong with the attached CRYPTO-BOX. If you are an end-user, please contact the distributor of the software the CRYPTO-BOX was shipped with. If you are a MARX customer, please [contact us directly](#).

4. In the “MARX Hardware” tab, I get a red cross under the “Detected hardware” entry for my attached CRYPTO-BOX. And on the right side “CBIOS_GetBoxInfoAdv(1) - [1, CBUSB:CBU_NOT_FOUND] Type: CBU” is displayed!

The CRYPTO-BOX is attached, but cannot be opened. A reason may be that the application which accesses the CRYPTO-BOX has crashed, but CRYPTO-BOX related resources are still occupied. Removing the CRYPTO-BOX from the USB port and plugging it in again or restarting the computer will solve the problem.

CRYPTO-BOX® Data Sheet

	CRYPTO-BOX SC (CBU SC)	CRYPTO-BOX XS/Versa (CBU XS/Versa)
		
Controller chip	RISC Smart Card Processor with USB Interface	RISC Smart Card Processor with USB Interface
Chip certification	EAL4+	EAL4+
Supported operating systems	Windows, Linux, Mac OS X, iOS, Android	Windows, Linux, Mac OS X, iOS, Android
In hardware implemented algorithms	AES 128 Bit, RSA (up to 2048 Bit key length), others (for example: ECC) on request	AES 128 Bit in hardware, RSA up to 2048 Bit key length on driver level
Memory size (complete)	72KByte, ca. 32KByte free	4, 32 or 64 KByte
Internal memory read/write performance	ca. 80kByte/s	ca. 12kByte/s
Password (PIN/PUK)	up to 16 Byte length	
Case & LED	Designer metal housing, cast zinc, with LED display of operating status, eye for key ring/lanyard	
Connector	USB Type A	
Memory programming	minimum 100,000 write cycles	
Data retention time	minimum 10 years	
Conformity & Certifications	FCC, CE, RoHS, WEEE, USB logo	
Dimensions	14 x 7 x 32,5 mm / 0.55" x 0.28" 1.28"	14 x 7 x 32,5 mm / 0.55" x 0.28" 1.28"
Weight	7,5g	7,5g
Temperature	-10°C to +70°C / 14°F to 158°F	
Humidity	0% to 95% relative humidity	

CRYPTO-BOX Certifications



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Evaluation Kit

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