

SECURITY LICENSING PERFECTION IN PROTECTION

CODESYS applications protected and licensed



How to protect and license your CODESYS applications

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To access the on-demand replay of this masterclass, please visit <u>www.wibu.com/wibu-systems-webinars/2021/your-codesys-applications-protected-and-licensed/access.html</u>







Monetization



- Human misconduct and sabotage
- Introducing malware
- Social engineering and phishing
- Infection with malware via the Internet/Intranet
- Technical mishaps and force majeure
- (D)DoS attacks
- Compromising extranet and cloud components
- Break-ins via remote maintenance accesses
- Internet-connected control components
- Compromised smartphones in the production environment ...





IEC 62443 standard (International Electrotechnical Commission, Geneva)

- A family of standards focused on the security of "Industrial Automation and Control Systems" (IACS) that covers all the necessary topics, from protection to technical configurations and compliance
- Structured in four levels:
 - General principles
 - Security requirements for operators and service providers (also connected to ISO 27000)
 - Security requirements for automated systems (production and process automation)
 - Security requirements for automated components (product development processes)
- Guidelines published by VDMA: Guide IEC 62443 for mechanical and plant engineering [Link]



- Software-based features of devices
 - Features-on-demand
 - Pay-per-Use
 - Subscription plans
- Services and (predictive) maintenance
- Monetization of device or customer specific control parameters / output values
- Cloud connected functionalities



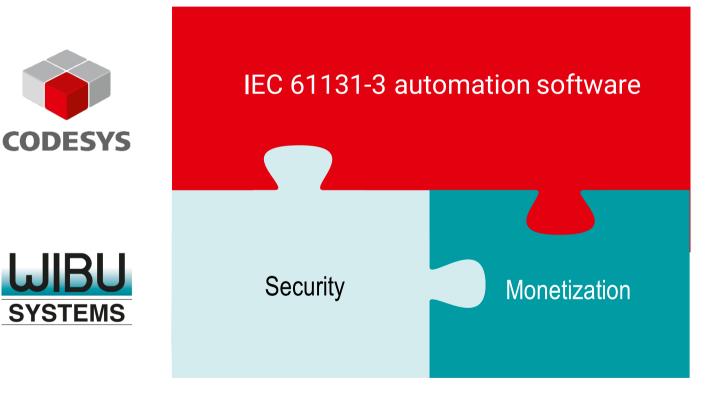


Solution





- CodeMeter technology integrated with CODESYS V3.51 and higher
- Project protection
- Application protection
- CodeMeter library included for customer specific implementations
- Access authentication and monetization available

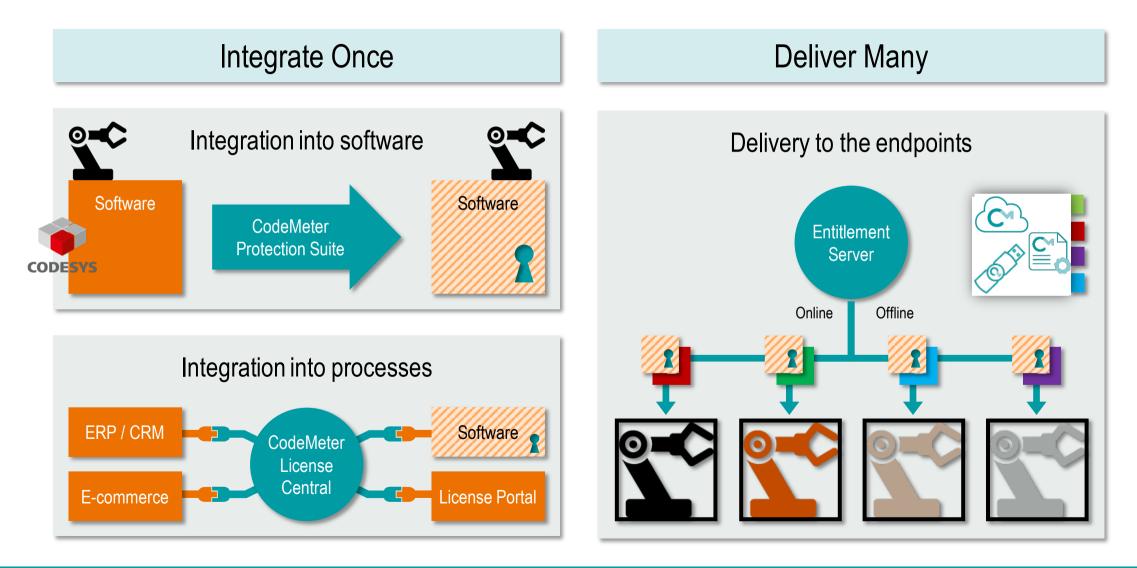




CodeMeter[®]

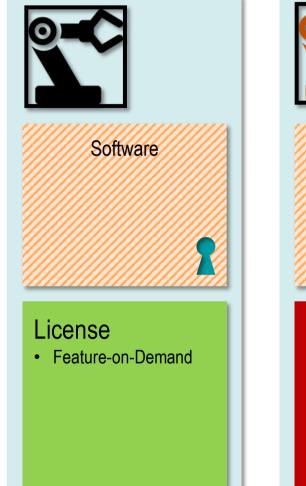
Protection & Licensing Technical Background







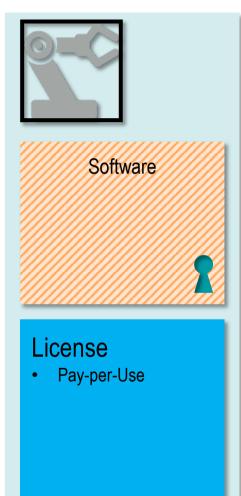
...Integrate Once – Deliver Many (Examples)











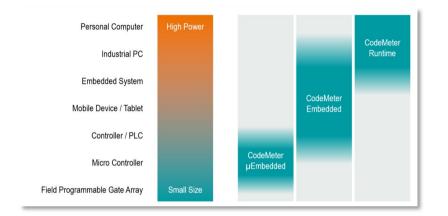


CodeMeter Protection Suite

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CodeMeter: One Technology Fits All



Supported Platforms



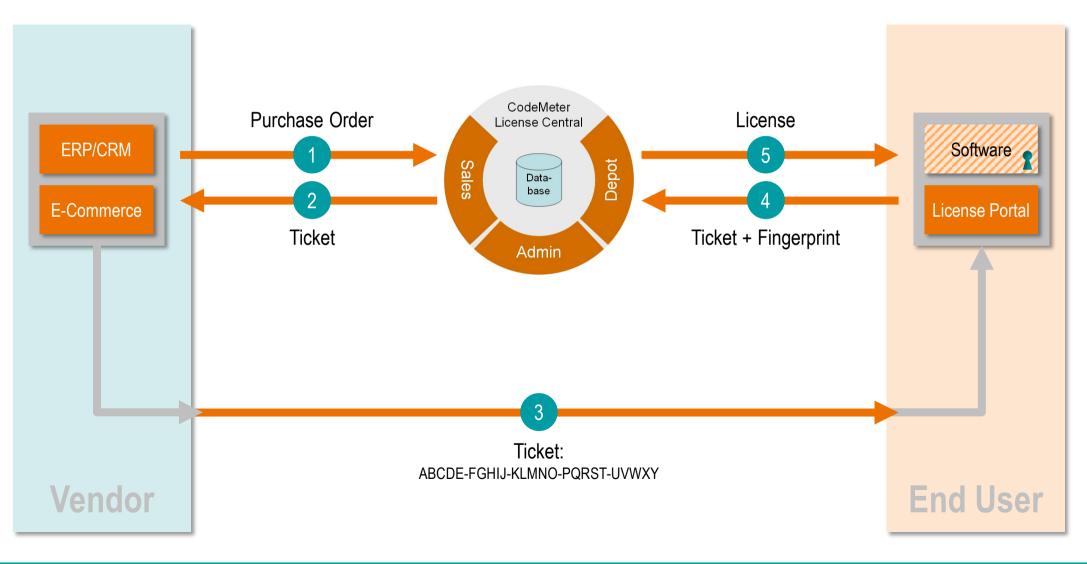


Entitlement Management Integration in backoffice systems





CodeMeter License Central – Licenses across the Product Lifecycle





Thank you very much!

B f ∰ in ♥ ♥

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SECURITY and MONETIZATION How to benefit from CodeMeter® Technology in CODESYS

Wibu Webinars 25/08/2021 Roland Wagner, Head of Product Marketing CODESYS Group



Security and monetization in automation



CodeMeter[®] technology in CODESYS

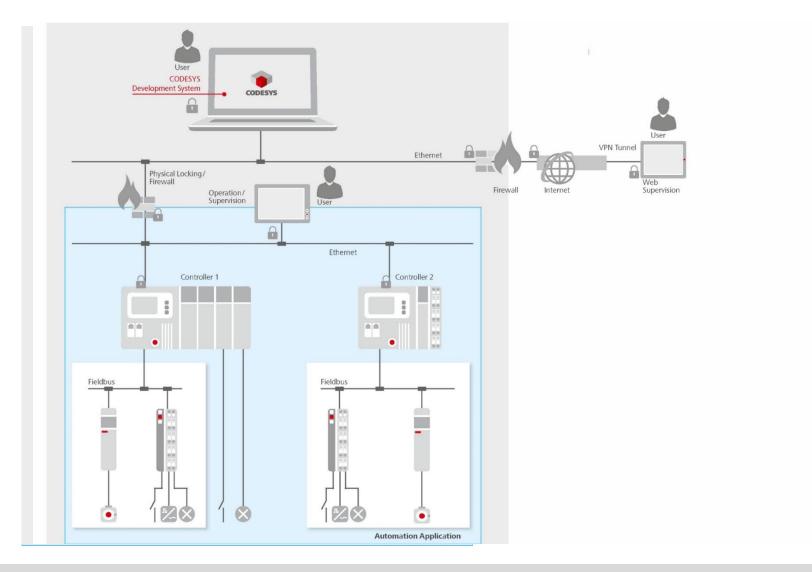


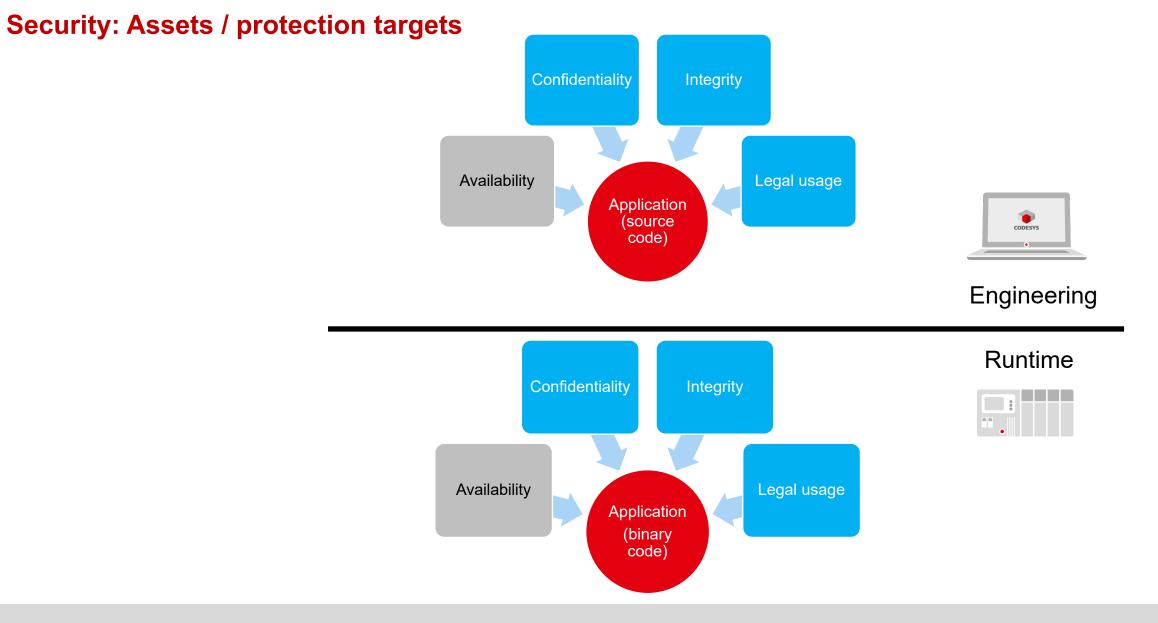




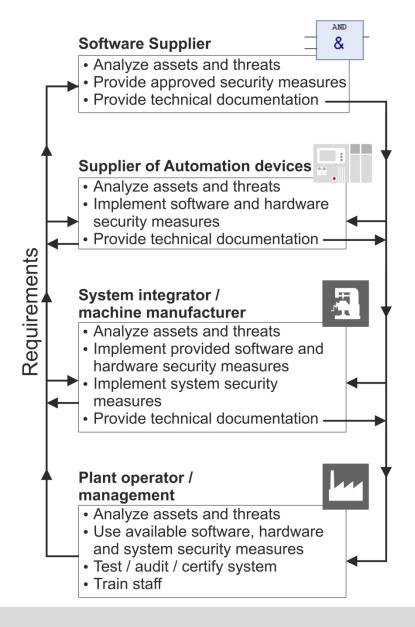
Outlook and conclusion

From control cabinets to Industry 4.0



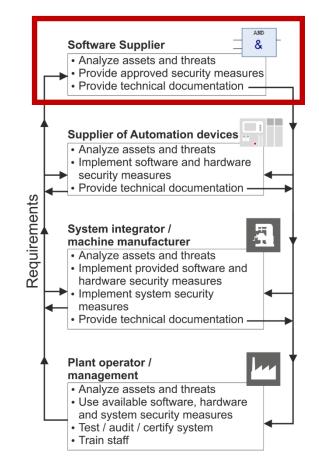


Security: Responsibilities



Security: Measures in CODESYS

- Native possibilities
 - Whitepaper "Security" at <u>https://www.codesys.com/fileadmin/data/custom ers/security/CODESYS-Security-Whitepaper.pdf</u>
- Use CodeMeter[®] technology seamlessly integrated



Monetization: Your know-how / intellectual property is worth it

Independent from open source activities

Possible assets:

- Generic software algorithms available as libraries
- Special software services / functions only necessary in special use cases
- Special corporate competence / know-how (Intellectual Property)
- Realization of Pay-per-use models
- Realization of Software-as-a-Service (SaaS) products directly within the PLC application



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CodeMeter[®] technology in CODESYS







Outlook and conclusion

Integration

- In the IDE (CODESYS Development System)
 - → Protection of source code
 - → License management
- In the runtime system (CODESYS Control) of
 - devices from CODESYS customers
 - native SoftPLCs
 - ➔ Protection of application code
 - → License management



Integration

- Container used for storing unique access code
 - CODESYS Key (→ USB dongle)
 - CmActContainer (
 Software container) firmly connected to the specific device
 - Universal Firm Code (UFC) container (so far for latest SoftPLC CODESYS Control for ARM Linux SL only)
- Comparison of software and hardware container <u>https://www.codesys.com/the-system/licensing.html</u>









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Outlook and conclusion

Use case: Protection of source code know-how

- Encryption of source code
 - Open CODESYS project file only with previously registered dongle plugged into the workstation PC

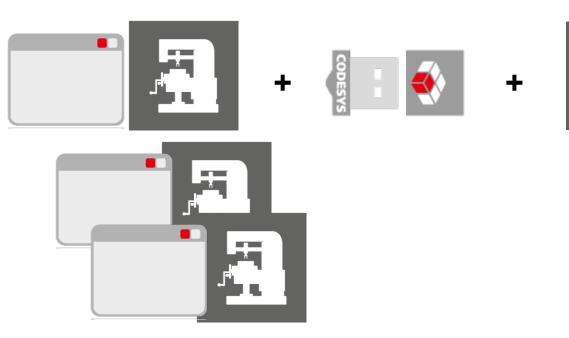
Recommendation: Use more than 1 dongle! → Backup in case of damage/loss

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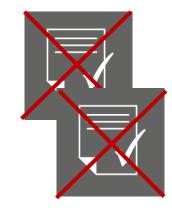
How to benefit

Use case: Protection against unauthorized application usage

- Binding of a discrete application to authorized dongle(s)
 - ➔ Application download and execution: only possible with authorized dongle plugged in
 - ➔ No unauthorized copies of applications possible
- Additionally: Signing of applications
 - Protection of application integrity









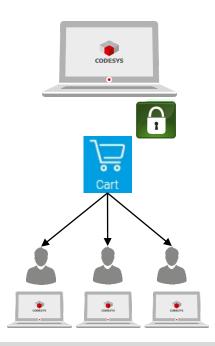






Use case: Authorization / monetization of libraries

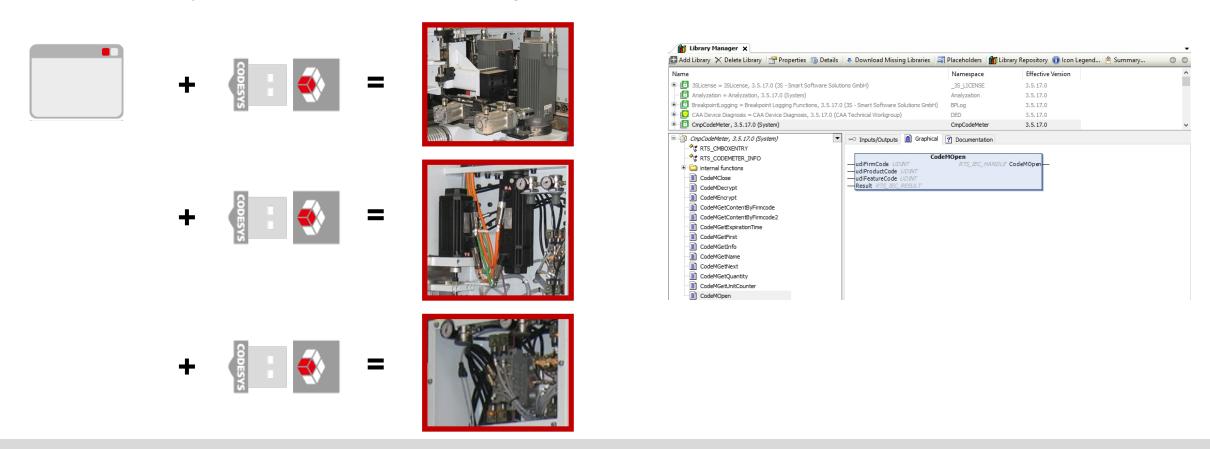
- Licensing option for CODESYS libraries
 - Sale of licenses via the CODESYS Store (via CODESYS Firm code) with CODESYS Activation URL / mail
 - Purchase of licenses via own Firm code requires CodeMeter® Toolkit and self-provided Activation URL / mail



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Use case: Authorization / monetization of functions / services

- Library for accessing license information
 - → Dongle with additional functionality, e.g. to calibrate a machine
 - → Resell library functions to 3rd parties, e.g. via the CODESYS Store



Use case: Protect concrete parameters/data in the source code

- Interface for encryption/decryption of concrete source code in a project
 - → Source data protected against unauthorized access
 - → Decryption by means of license / product code

CmpCodeMeter, 3.5.17.0 (System)	- Inputs/Out	outs 🗿 Graphical 🕐	Documentation	
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CodeMGetContentByFirmcode2	Scope	Name	Туре	Comment
CodeMGetExpirationTime	Return	CodeMEncrypt	RTS_IEC_RESULT	Error code (see CmpErrors2 Interfaces Library) or ERR_OK if succeeded
	Input	hCodeMeter	RTS_IEC_HANDLE	Handle to the CodeMeter license container retrieved by CodeMOpen().
CodeMGetNext		udiEncryptionCode	UDINT	Encryption code
CodeMGetQuantity		pbyData	POINTER TO BYTE	Pointer to plain text data to encrypt
		nDataLen	XWORD	Length of data to encrypt
CodeMOpen	Inout	ulCRC	UDINT	Returns CRC of the encrypted data

Use case: Easy licensing of product options from software vendor

- Licensing directly in the IDE See https://youtu.be/-5t4kN1Gn9Y
- Licensing via special website http://license.codesys.com
- Cloud-based licensing for bulk operation within the CODESYS Automation Server

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Security and monetization in automation



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How to benefit



Outlook and conclusion

Future use cases (Roadmap)

- Pay-per-use monetization with license counter
 Extension of the library possibilities (SP18)
- Network licenses for SoftPLCs add-ons (e.g. for fieldbus, visualization, OPC UA)
- Network licenses for workstation add-ons (e.g. Static Analysis, Profiler, UML, Git)
- Cloud licenses
 - SoftContainer on virtual machines respectively Server with dongles
 - Network licenses
- Scalable licenses (e.g. depending on IEC 61131-3 code size, number of tasks)
- Encryption of SoftPLCs via AxProtector
 - → Execution depending CodeMeter[®] runtime
 - ➔ Guaranteed integrity of SoftPLCs

CodeMeter® in **CODESYS**

- Proven technology at your fingertips
- Flexible application in different common use cases
- Easy handling due to
 - seamless integration
 - pre-programmed licenses
- One platform for different targets and functions

➔ Added value for the security and monetization of your know-how



Thank you for your attention!

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