



KEYnote 48

THE WIBU - MAGAZINE

The Revolution of AI: Advances, Security, and the Impact of New Regulations

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Dear Clients and Partners,

The IT security landscape remains tense, with increasing cyberattacks and the need to manage failures and errors in increasingly complex systems and software components, such as the CrowdStrike outage. Thankfully, Wibu-Systems and the CmCloud and CodeMeter License Central services we operate for our customers were not affected by such incidents.

For the European market, the CE marking, which is required for all commercial devices, will also need to comply with the requirements of the EU Cyber Resilience Act. CE approval procedures are becoming more demanding, service obligations are extending, and organizational, technical, and legal measures are becoming more comprehensive. In addition, reporting obligations and actions related to IT security vulnerabilities are now necessary.

With Wibu-Systems, you can rely on a partner that keeps its products up to date and supports you in meeting or exceeding the above requirements. For over 35 years, we have been offering compatible solutions for this purpose. However, innovations and evolving IT security demands, such as post-quantum cryptography and authenticated APIs, necessitate new, incompatible expansions. As always, you can count on us to guide you through the integration process.

With CodeMeter, we provide you with a “total solution” that delivers protection, licensing, and security. It supports a wide range of processor platforms, operating systems, hardware target platforms, and software, hardware, or cloud-based license containers. Additionally, it enables you to address all of your business scenarios and seamlessly integrate into your business processes.



In this issue of our KEYnote Magazine, you will find fascinating articles about the operation of our CmCloud servers in different regions, new possibilities with CmEmbedded, country- and time zone-specific licenses, new features in CodeMeter License Portal, the upcoming License Reporting feature, the protection of AI applications and learning models with AxProtector, and the ability to customize AxProtector-protected applications. Additionally, you will learn about our new subsidiary, WIBU-SYSTEMS Korea Ltd., which enables us to supply and support the Korean high-tech market locally. Feel free to reach out to us if you have any further questions.

I wish you a successful year-end business season and look forward to providing real economic value to you and your users with our solutions. Visit us at one of the fall events or at our headquarters!

Yours,
Oliver Winzenried
CEO and Founder



Country-Specific Licenses

In an increasingly globalized world where digital goods are distributed across national borders, not only do opportunities grow, but so do the challenges for software manufacturers. International trade offers tremendous growth potential, but how can markets with different pricing structures be protected from abuse? This is where CodeMeter's new licensing option comes into play: country-specific licenses.

Regional Price Disparities

A common issue in international software distribution is the price disparity between different countries. After analyzing the market and setting regional prices, you may face the question: How do I prevent licenses from low-cost regions from being used in high-price markets? Simply relying on contractual agreements is often not enough. To provide technical protection for your distribution markets, CodeMeter has been offering the option to bind licenses to specific countries since version 8.10.

Country List ISO-3166-1

With the new licensing option, you can precisely specify the countries where a license should be valid. This is based on the ISO-3166-1 country list, currently consisting of 244 countries. This restriction is encrypted and embedded directly into the license, for example, via the command-line tool CmBoxPgm or the High-Level Programming API (HIP). When the license is used, CodeMeter matches the operating system's country settings with the permissions stored in the license. If there is a violation, such as attempting to use the license in an unauthorized country, an error message will appear. However, the user will not be informed of which

countries are allowed – only that the license cannot be used in the current country. In CodeMeter applications like WebAdmin or cmu, it will simply indicate that there is a country-specific restriction, without revealing which countries are permitted.

Export Restrictions

In addition to price differentiation, country-specific licenses also provide a way to enforce legal regulations and embargo restrictions. If exports to certain countries are prohibited, you can embed a list of excluded countries in the license. If a user activates the license in one of these countries or in an undetectable location, access will be denied at runtime.

While an administrator could theoretically change the country settings of the operating system, this is not a foolproof protection mechanism. If it is later discovered that the software was used in a restricted country, it suggests intentional misconduct. This either gives you a strong negotiating position with customers who have violated geographical distribution agreements or demonstrates that you have taken all necessary measures to comply with export restrictions.

Supplementary Measures

Country-specific licenses are an essential part of enforcing export restrictions through technical means. In KEYnote 43 (Spring 2022), we reported on the option to commission geoblocking for CodeMeter License Central instances hosted by Wibu-Systems. When combined with measures in your e-commerce system and additional checks within your software, you can effectively prevent licenses from being used unlawfully in prohibited regions.

Moreover, it is possible to integrate checks directly within the application itself. The feasibility of these checks depends heavily on the specific application and its technical environment, such as the ability to perform online validations. Our Professional Services team is available to assist you in designing and implementing such solutions.

With country-specific licenses, CodeMeter offers an effective and flexible solution to meet the challenges of international software distribution while ensuring compliance with legal requirements. 



AI: Advances, Security, and New Regulations

Artificial Intelligence (AI) has evolved into a key technology in recent years, profoundly influencing both everyday life and the business world. Companies are increasingly relying on Machine Learning (ML) to analyze vast amounts of data, automate processes, and develop highly personalized services. Python has established itself as the preferred programming language in this context. With its simplicity and access to a wide range of specialized libraries such as TensorFlow, PyTorch, and Scikit-learn, Python provides a strong foundation for developing complex AI algorithms. However, these technological advancements also bring new challenges, particularly in the areas of security and intellectual property protection.

Python as the Engine of AI Development

Thanks to its clear and structured syntax, extensive library support, and ease of use, Python has become the dominant programming language for developing AI and ML models. The growing importance of data in the modern economy demands powerful tools for data processing, and Python delivers precisely that. Especially when combined with libraries that support mathematical operations and data manipulation, Python is an indispensable resource for the AI community. However, beyond software development, hardware also plays a crucial role.

With the integration of GPUs (Graphics Processing Units), originally designed for graphics processing, Python programmers can train AI models more efficiently. GPUs are particularly well-suited for parallel computations,

which are common in ML models. This capability enables a massive acceleration of the training process, which is especially critical for large datasets and complex models. Simultaneously, specialized hardware solutions such as TPUs (Tensor Processing Units) and FPGAs (Field-Programmable Gate Arrays) are gaining importance. They are designed to maximize the performance of AI systems by reducing computation time and lowering energy consumption.

Protecting Intellectual Property: Encryption and Obfuscation as Key Strategies

With the increasing adoption of AI across various industries and applications, the protection of intellectual property is becoming increasingly important. Companies investing in the development of AI algorithms and models must ensure that their proprietary assets are

safeguarded against unauthorized access. This concern extends not only to the algorithms themselves but also to the implementation of these algorithms in Python or C++ and the sensitive training data used to create the models.

A central issue in protecting intellectual property in AI development is the fact that source code and trained models are typically easily accessible. For instance, Python scripts are written in plain text, making them easy to view and analyze. This poses a significant risk for companies that aim to maintain their competitive edge through proprietary AI models.

This is where **AxProtector Python** comes into play, a product specifically designed to protect Python code and AI models. With **AxProtector Python**, companies can encrypt and sign their Python code, ensuring that it can only

be executed by authorized users. This not only protects against unauthorized access but also ensures the integrity of the Python code. **AxProtector Python's** File Encryption Mode also allows for the secure encryption of AI models.

In native environments where AI applications are developed in languages such as C++ and others, or models are transformed into native code using LLVM, **AxProtector Compile Time Protection (CTP)** offers a comprehensive solution for obfuscation, alongside encryption and signing. This technique intentionally alters the code to make it nearly unreadable to humans while preserving the functionality of the program. This makes it difficult for attackers to analyze or manipulate the code, providing an essential shield against reverse engineering. Just like **AxProtector Python**, **AxProtector CTP** offers protection techniques that ensure code and models are only used by authorized users, and any changes to the code are immediately detected.

Licensing and Monetization: AI as a Protected Economic Asset

The question of how companies can monetize their AI models is becoming increasingly important. Businesses that invest significant resources into developing AI models must ensure that they protect their investments and retain control over the use of their technologies. This is especially relevant when AI models are not sold as open products but are provided to customers as licensed solutions.

AxProtector Python enables companies to not only protect their AI models but also to license them strategically. The File Encryption Mode allows companies to strictly bind access to AI models to **CodeMeter** licenses. This means that both the code and the data can only be used by authorized users, significantly enhancing the protection of intellectual property. This type of licensing allows companies to use their AI models as a recurring revenue stream, with customers potentially purchasing regular licenses to access and use the models.

In a similar way, **AxProtector CTP** offers a solution for native AI applications. By binding the native code to a license, it ensures that only authorized users can utilize the models. Additionally, obfuscation makes it significantly more difficult to analyze the code, even in the event of unauthorized access.

These licensing models open up new monetization opportunities for companies offering their AI models both as finished products and



as services. By implementing such security measures, companies can ensure that their models are used only as intended and prevent unauthorized use.

The Role of Encryption and Signing in Regulatory Compliance

The growing importance of AI across various sectors is leading to increased regulation. Frameworks such as the EU AI Act and the Cyber Resilience Act (CRA) require companies to ensure that their AI systems are not only efficient but also secure. In particular, high-risk AI systems must meet strict security requirements to protect against unauthorized access and manipulation.

Products like **AxProtector Python** and **AxProtector CTP** assist companies in complying with these regulatory demands. **AxProtector Python** secures AI models and Python scripts through encryption and ensures their integrity with digital signatures. **AxProtector CTP** provides similar protection mechanisms for native applications and models transformed via LLVM. Both solutions help meet the requirements of the Cyber Resilience Act, particularly in the areas of confidentiality, integrity, and availability (CRA Annex 1, Section 1.3 b, c, and d), as well as the provisions of the EU AI Act.

Protection Against Attacks: Encryption and Signing as Security Strategies

AI models and applications are increasingly targeted by cyberattacks such as model theft and model poisoning. Model theft involves unauthorized attempts to copy or use the model, while model poisoning aims to alter the model's behavior by manipulating its parameters.

Encryption serves as a defense against these attacks by restricting access to the model only

to authorized users, thereby preventing unauthorized usage. Licensing through encryption keys ensures that models are used only within the intended framework.

Additionally, digital signing guarantees the integrity of the model. Any modification to the model would invalidate the signature, signaling potential tampering and thus enhancing protection against model poisoning, ensuring the correctness of the model's parameters.

With **AxProtector Python** and **AxProtector CTP**, companies can protect their AI applications through comprehensive and powerful protection technologies. These solutions help prevent model theft and defend against model poisoning by ensuring the integrity and confidentiality of the models.

Conclusion: The Path to a Secure AI Future

The development and proliferation of AI create new opportunities but also introduce new risks, particularly concerning security and the protection of intellectual property. Encryption, obfuscation, and targeted licensing offer effective strategies to safeguard AI models against unauthorized access and manipulation.

Products like **AxProtector Python** and **AxProtector CTP** provide companies with comprehensive tools to protect their applications and AI models. These solutions not only ensure security but also enable the strategic monetization of AI applications while meeting regulatory requirements. By deploying such technologies, companies are better protected against attacks and can ensure that their products thrive in an increasingly regulated and competitive world. 

CodeMeter License Portal 24.09

CodeMeter License Portal offers you, as a software vendor, the ability to create and manage licenses for customers and resellers. As a white-label solution, you can customize the Portal to match your corporate design and workflows. This allows you to easily manage CmCloudContainers, assign tickets and licenses to users, administer subscriptions, and manage resellers. Here are some highlights of version 24.09.

Inviting Users

CodeMeter License Portal uses the email address for the unique identification of a user. This approach simplifies the process for users, sparing them from having to search for an unused username. Additionally, users are less likely to forget an email address like *john.doe@company.com* compared to a cryptic username such as "john32178". Most use cases for CodeMeter License Portal are in a B2B context, allowing administrators to quickly identify if a user doesn't belong simply by looking at the email address.

However, this approach introduces two limitations: First, the same person cannot have two accounts, such as one for administrative purposes and another for daily use. Second, the same person cannot exist twice within the hierarchy, such as under two different resellers. If two resellers supply the same customer, they can each create a customer with the same name, but only one can create a user with the same email address.

The first limitation primarily occurs in test environments when a person wants to simulate the views of multiple participants. In real environments, administrators are usually not involved in day-to-day operations and do not require a second account. Additionally, it is possible to use "plus" addressing to create multiple email addresses for the same person, such as *john.doe+lpadmin@company.com*. This type of email addressing is typically enabled by default but can be disabled by the mail server administrator.

For the second use case, we are providing a comprehensive solution in version 24.09. An administrator of a group (organizational unit) can invite a user who already exists in CodeMeter License Portal but is linked to a different part of the hierarchy to join their group. The invited user will receive an email notification and a notification within CodeMeter License Portal. If they accept the invitation, they will become a member of the new group from that point onward.

The inviting administrator of the new group defines the permissions that the user will have within their group. The rule still applies that the administrator can only assign rights that they themselves possess. The permissions are set during the invitation process but can be modified afterward. It's important to note that an invited user who is an administrator in Group A does not automatically become an administrator in Group B after being invited. Permissions are defined separately at the group level and are only inherited by subgroups.

Primary and Secondary Groups

An invitation creates a secondary relationship with a group. The group in which the user was originally created is and remains their primary group. If a user was created without being assigned to a group, they can still be invited to join a group, but in that case, they do not have a primary group. This situation occurs with self-registered users or users created by one of the top-level administrators.

In principle, the permissions in primary and secondary groups are identical. The exception is the deletion of the user themselves. An administrator of a secondary group can remove the user from the group, but the user will continue to exist in CodeMeter License Portal. However, an administrator of the primary group can delete the user entirely. Once deleted, the user no longer exists in the Portal. Licenses that were activated for the user at the time of deletion remain activated and can still be used in the corresponding CmContainer. These licenses can be reassigned by a top-level administrator (isvadmin).

A User Who Isn't a User

When you hear the word "user," you automatically think of a person. However, there are use cases where users are actually machines or devices. In CodeMeter License Portal, we refer to these users as technical users. Typical use cases include:

License Server

A license server is operated within a network. A customer's administrator installs the server and activates the desired licenses on it. Users within the local network or VPN can dynamically access these licenses. Typically, this setup is used for floating network licenses, where a number of users share a smaller number of licenses. Although less common, it is also possible to use named user licenses on a license server. In this case, the same user can access the license from different devices.

Build Systems

Another use case for technical users is build systems. These run on dedicated machines or in virtual and containerized environments in the cloud. The license is used by the software in an automated process where no person is logged into the machine. In the case of virtual and containerized environments, the machines often exist only for a short period of time.

Technical Devices

Technical devices, such as controllers, are another example of licenses that are not directly used by a person. Unlike build systems, the licenses in these devices are typically offline and permanently installed on a device.

For all these use cases, technical users can be created in CodeMeter License Portal, and licenses can be assigned to them.

Licenses in the Cloud: 3 Use Cases

CmCloudContainers offer the option to make licenses available in the cloud for a user or a group of users. The user does not have a locally connected CmDongle or a CmActLicense bound to their device; instead, they connect to a CmCloudContainer in the cloud. This connection can be made directly from their system or through a license server within the network. As a software vendor, you decide whether to provide your customers with CmCloudContainers and to what extent.

These three use cases are supported by CodeMeter License Portal:

Personal CmContainer for an Individual

When a user activates a license, they have the option to choose a CmCloudContainer. If the user does not yet have a CmCloudContainer, one will be automatically created in the background. This results in a **Personal CmCloudContainer**, which the user can utilize on up to three devices simultaneously. The user can always connect the container to the current device through the "My CmContainer" page in the Portal, and they can also reset the credential file, rendering all existing connections invalid. This use case is typically employed when licenses are personally assigned. By using the "Named User" license option, you can enforce the binding to a specific user from the software vendor's perspective.

Container for a Group

In contrast to a Personal CmCloudContainer, an **Enterprise CmCloudContainer** can be used by up to 500 people or devices simultaneously. An administrator of a group creates such a CmCloudContainer and activates the licenses within it.

All members of the group can see this CmCloudContainer on their "My CmContainer" page and can connect it to their device. Any new member of the group instantly gains access to this container and the licenses contained within it.

If an administrator removes a user from the group, the user's access to the container in the Portal is automatically revoked. To disconnect any existing connections with the former user's device, an administrator can reset the credential file. Ideally, the protected software or an activation wizard will automatically re-establish the connection for the remaining users in the background.

Container for Technical Users

Just like an individual, a technical user can have a CmCloudContainer. This is primarily used for cases like a license server or a build system. Similar to a group's container, an administrator creates the CmCloudContainer and activates the licenses. This container is also an **Enterprise CmCloudContainer**.

Typically, the administrator downloads the credential file and imports it onto the target device, as these devices usually do not have a graphical interface from which the administrator can directly access the Portal.

Improved UI/UX

We are continuously working on improving the graphical interface of CodeMeter License Portal and would like to take this opportunity to thank our customers and their users for the abundant feedback. Here are some of the changes you'll find in version 24.09:

- **Sortable and Filterable Tables:** All tables can now be sorted and filtered. A global search feature allows administrators to find groups, users, tickets, and containers within their area. A tree view enables quick navigation between different groups.
- **User Notifications:** Users now receive notifications, currently including group invitations and maintenance announcements. Additional notifications, such as license expirations, can be implemented on a case-by-case basis.
- **Revised Container Display:** The display of used containers has been revamped for both users and administrators, making it easier to manage and monitor container usage.

Are you interested in testing the current CodeMeter License Portal? Feel free to contact our sales team at sales@wibu.com to assess your individual needs and arrange a personalized presentation. We look forward to assisting you! 



CodeMeter License Reporting: Insights into License Usage Behavior

In an increasingly digital and data-driven world, it is essential for ISVs to understand the usage behavior of their end customers. These insights are key to optimizing products, business processes, and even business models. With our new product, CodeMeter License Reporting, Wibu-Systems offers a powerful solution for analyzing, evaluating, and visualizing license usage data.

Why License Analytics Are So Important

For ISVs, analyzing and understanding license usage presents a significant opportunity. Only by knowing how and when their products are being used can targeted improvements be made.

CodeMeter License Reporting collects and processes usage data, providing valuable insights that help ISVs make informed decisions. The data not only sheds light on customer usage behavior but also helps identify trends and patterns. This data enables ISVs to adjust their products accordingly and drive innovations that meet the actual needs of their customers.

Additionally, comprehensive data analysis opens up new business models, such as pay-per-use licensing, where customers pay based on actual usage.

Key Metrics at a Glance

To provide ISVs with a comprehensive overview of license usage, CodeMeter License Reporting offers various metrics and reports:

- **License usage by maximum simultaneous licenses:** Track how many licenses are being used simultaneously to optimize capacity utilization.

- **License usage by usage time:** Analyze when and for how long licenses are used to identify usage patterns.
- **Failed license accesses by reason:** Identify the causes of failed access attempts, such as under-licensing, to address issues quickly.
- **License usage by product and product feature:** Gain detailed insights into the usage of individual products and features.
- **License usage by customer:** Monitor usage at the customer level to better understand individual needs.
- **License usage by location:** Analyze usage by geographical location to detect regional trends.
- **License usage by container type:** Examine the usage of different license container types to improve efficiency.
- **Fully filterable by time, customer, and/or product:** Customize reports flexibly to meet your specific requirements.

Reporting Dashboards: Simplifying Complex Data Visualization

To present the vast amount of collected data in a clear and structured manner, we rely on intuitive reporting dashboards. These provide

a concise overview of key information and enable quick and efficient access to analytical results. The dashboards are interactive and can be customized to suit the individual needs and specific questions of the user.

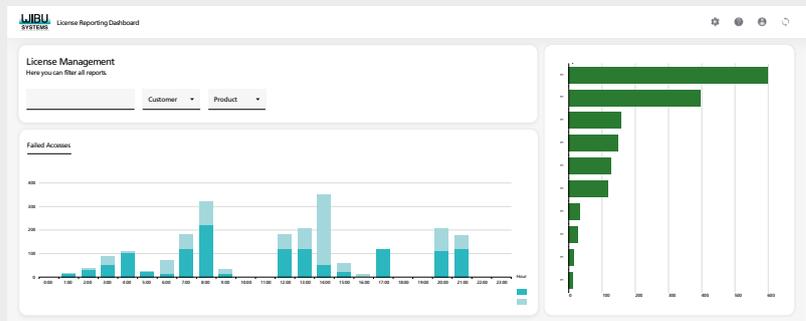
First Versions Available Soon

The initial versions of CodeMeter License Reporting will be available soon. These early releases provide a solid foundation for analyzing license usage and allow ISVs to gain valuable insights to improve their products and business processes.

Conclusion: The Future of License Analytics

With CodeMeter License Reporting, we are creating a new dimension in license usage evaluation. ISVs gain a powerful tool to better understand customer behavior, refine products, and optimize business processes. The ability to implement new business models, such as pay-per-use licensing, opens up entirely new opportunities.

Prepare to elevate your business strategy to the next level, driven by data – with CodeMeter License Reporting. 



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Event Handling in Protected Applications

CodeMeter Protection Suite enables simple encryption of applications, but what happens if a license is missing? With the CPSEvents interface, error messages can be customized, and additional functions like license selection or error handling can be integrated.

Thanks to the various AxProtector tools within CodeMeter Protection Suite, encrypting an application is quick and easy; even beginners can do it in just a few minutes. Technically, everything runs smoothly as long as the required license for your application is available. The application starts as usual, perhaps with a slight delay, but the user doesn't notice any difference. But what happens if the license is not available?

In that case, a CodeMeter error message will appear. However, this message often differs from the usual application error messages, which may cause confusion for users. Clarity and a consistent appearance are crucial to ensure that CodeMeter is recognized as an integral part of the delivered software.

For many years, Wibu-Systems has offered the UserMessage interface for all versions of AxProtector. This allows error messages to be displayed in different languages by simply modifying .ini files. A custom background graphic can also be added, ensuring that the error message visually fits the design of your application.

As an alternative to the standard UserMessage library, which is limited to displaying on Windows, there is the option to create your own DLL. This enables you to integrate additional functionalities, such as displaying all available licenses on the network for user selection or assigning licenses to the same CmContainer for applications with multiple components.

CPSEvents in AxProtector NC

The new generation of AxProtector tools, marked with "NC" for "Native Core," uses a similar but modernized mechanism. In this case, CodeMeter Protection Suite Runtime (CPSRT) handles license verification and decryption within a tamper-resistant environment. This enables protection for scripting languages and also provides optimized management of multiple concurrently running protected applications.

In CPSRT, all error handling is centrally managed. If an error occurs, CPSRT calls the corresponding CPSEvents library via the CPSEvents interface. Here again, you have two options:

Complete Package

Wibu-Systems provides a ready-made CPSEvents library that displays graphical dialogs across platforms. These dialogs are rendered as HTML pages using a minimal browser (Webview). On Linux, the libraries libgtk-3 and libwebkit2gtk-4 must be installed on the system to enjoy this functionality.

AxProtector configuration

```
Options:
  TrapGeneration: true
  RuntimeCheck:
    Enabled: true
    LockLicense: true
    DebuggerCheck: true
    ExternalToolCheck: true
    AllowedIgnores: 3
  CpsEvents:
    CopyDefault: true
    GuiConfig: ../guiconfig.yaml
Licenses:
  Name: 0-1
  Type: CodeMeter
  FirmCode: 6000010
  ProductCode: 201000
```

Graphical Customization

In the YAML configuration file for encrypting the application, you specify a path to a separate YAML configuration file for dialog customization. In this file, you can modify the appearance by specifying your own CSS definition file and adjust all texts through definitions. Additionally, you can replace the logo with your own, essentially making all the changes necessary to ensure that the dialog looks exactly as your customers are accustomed to from your applications.

Secure Delivery

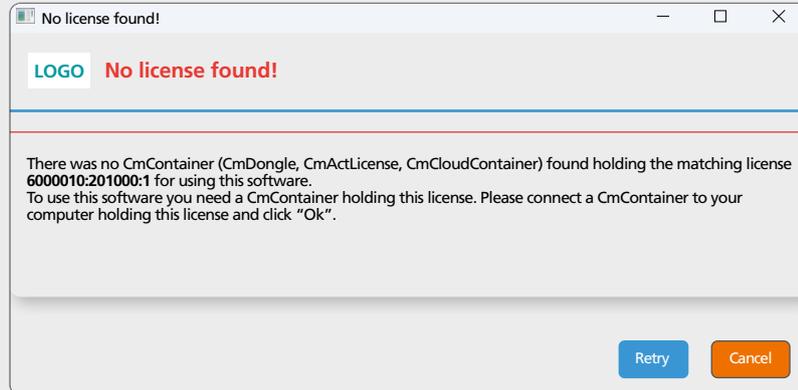
At the time of encryption, the standard CPSEvents library is placed alongside your encrypted application, with a filename that includes your Firm Code at the end. This ensures that CPSEvents libraries are uniquely associated with each software vendor and do not interfere with each other during runtime.

The configuration you create is embedded into the protected application, making it tamper-proof. During runtime, CPSRT loads the corresponding CPSEvents library and transmits these configuration settings.

Custom Solution

As a second option, you can, similar to the previous `UserMessage` library, create your own CPSEvents library. The interface is openly documented, allowing you to integrate custom functionalities for error handling or license management. You implement this library on all the platforms you support, and you can execute your own code during error handling or before license allocation.

Using the function `CpsGetLicenseAccess-Filter`, you receive a list of licenses relevant to the current request. AxProtector manages access via so-called `LicenseLists`, which can



Custom error dialog box when a valid license is not found.

contain multiple licenses. Your library receives this list, enabling you to influence the license selection. For example, you can ensure that a specific DLL uses the same CmContainer as the loading application by storing the serial number and setting the filter accordingly. CPSRT evaluates these filters and attempts to allocate the license according to your specifications.

Events

After each successful license allocation, the `CpsOnEvent` function informs you of the event `LicenseAccessed` and provides detailed information about the allocated license. You can use this information for further license queries, such as using it as a filter parameter for additional `LicenseLists`, as described above. You can even deny access to a license if certain criteria are not met.

Other event types in the `CpsOnEvent` function include `LicensingError`, `Tampering-Detected`, and `AccessFilterError`. For instance, in the case of a licensing error, you can display a dialog allowing the user to retry the license request.

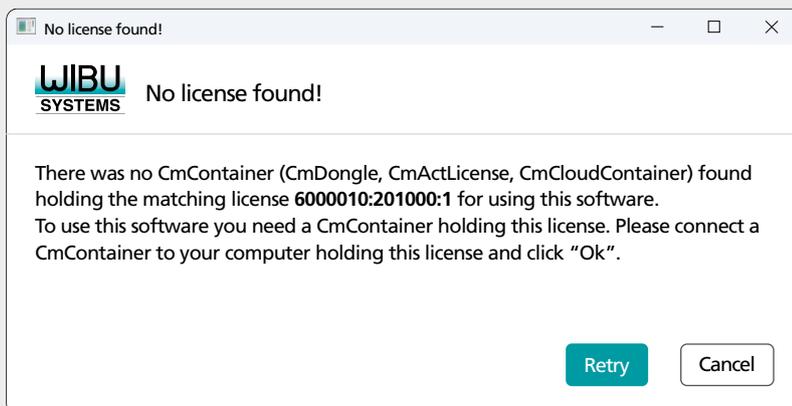
For applications without user interaction, you can write a CPSEvents library that automatically attempts to allocate a license again after a specific waiting period or sends alternative system responses. Alternatively, you can implement a callback and use the dialogs in your programming language.

Secure Data Transfer

Even with a custom-made CPSEvents library, application-specific data can be embedded and passed to the CPSEvents library at runtime. During the encryption process, you specify a file as `UserData`. This data is stored as a binary blob within the encrypted application and is then passed to the CPSEvents library at runtime. This allows you to include application-specific data when using a CPSEvents library.

The integrity protection of AxProtector NC prevents tampering and the replacement of the CPSEvents library. If this protection is disabled in certain cases, it can be selectively activated just for the CPSEvents library.

With the new mechanisms in AxProtector NC and the CPSEvents interface, CodeMeter Protection Suite offers a flexible and secure way to seamlessly integrate error and license management into your application. You retain full control over the design and functionality of error messages while ensuring that license management works smoothly. 



Standard error dialog box when a valid license is not found.

Do you know which use cases can be realized with CodeMeter Embedded?

CodeMeter Embedded is more than just a compact version of CodeMeter Runtime. CodeMeter Embedded runs anywhere, from servers to personal computers, all the way down to small controllers and sensors. It supports various operating systems and can even run directly on microcontrollers. This flexibility, enabled by integrating CodeMeter Embedded directly into the protected program, allows for a highly versatile range of applications in various scenarios.

Did you know, for example, that CodeMeter Embedded is included in a program protected by AxProtector? When native apps, such as for Windows or Linux, are encrypted, CodeMeter Embedded is statically integrated into the protected application. This makes it possible to access licenses on a dongle even without having CodeMeter Runtime installed.

CodeMeter LAN

Challenge: In a production facility with many decentralized sensors, dongles and ASICs are not feasible, and the devices have too few characteristics for a strong CmActLicense binding (software license container). The protection requirements are high, and the network has no Internet connection.

Solution: A CodeMeter Runtime Server with a CodeMeter Dongle (CmDongle) in the network that supplies licenses to the embedded devices. The LAN function in CmEmbedded acts like a local dongle, creating an internal cloud solution within a closed network.

License Container Compatibility

Challenge: A production line manufactures devices with software that needs to be protected and licensed. The production line itself is offline, unable to retrieve licenses from CodeMeter License Central. The device has no LAN interface.

Solution: The manufacturing of the device and the creation of the license are carried out separately. An SD card or a CmDongle can be added in the final production step or during installation. CodeMeter Runtime can create CmActLicenses that can be read by Code-

Meter Embedded, and, of course, the reverse process also works. Additionally, CmDongles can be programmed by CmRuntime and used with CmEmbedded.

CmReady

Challenge: Software on an industrial-grade SD card. A quick repair is needed by swapping the memory card into a replacement device. Highly integrated devices like controllers, sensors, or cameras often only have a single microSD slot. If that slot is already occupied by the configuration file's memory card or the operating system, there is no room for a dongle. How do you quickly and easily transfer the license file, which is bound to the defective hardware, to the replacement device? Additionally, an online connection for licensing the replacement part is generally not possible due to security concerns.

Solution: An SD card with the CmReady feature. This industrial SD card comes with security-optimized firmware that holds the CmActLicense file. By swapping the memory card, the entire device configuration, as well as a secure CmActLicense container, are transferred to the replacement device. The license container is bound to the CmReady card. CmReady cards are based on industrial memory cards with robust flash memory, extended temperature ranges, and a wide variety of different memory capacities. CmReady is the result of a collaboration in which memory card manufacturers enhance their standard products with the ability to securely store CodeMeter licenses. This provides users with the advantage of having a single medium for both the license and the software, allowing the memory card to be used as portably as a dongle.



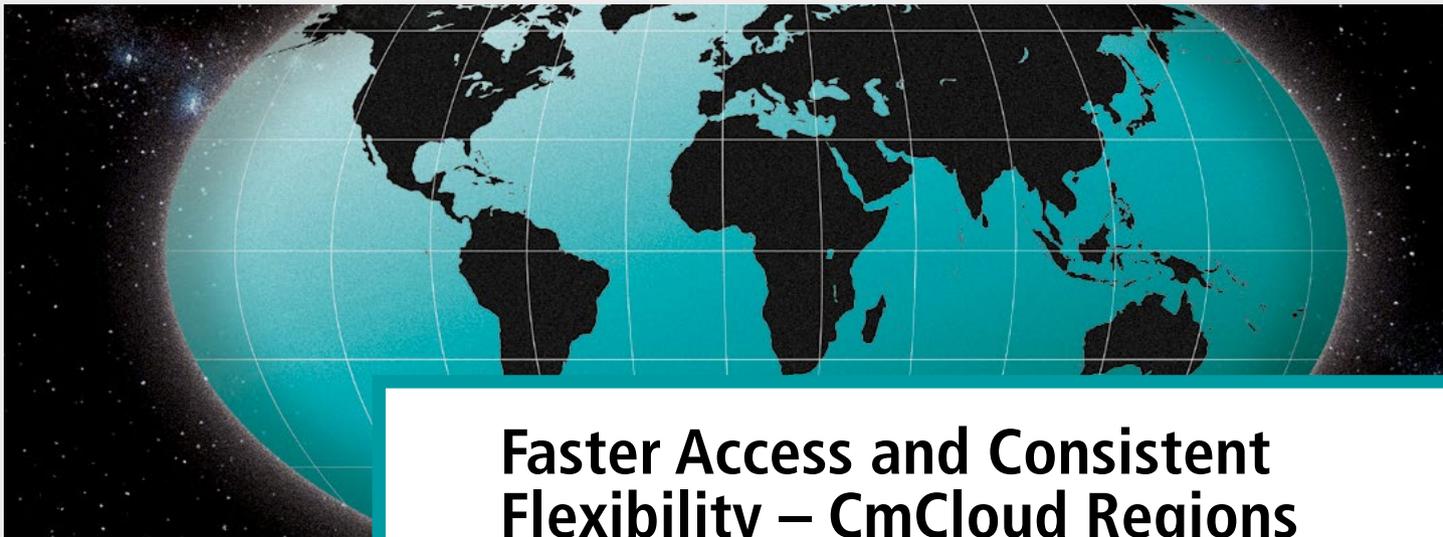
Cloud

CodeMeter Embedded can handle the same container types as its larger counterpart, CodeMeter Runtime – dongles, ASICs, and software-based CmActLicenses. Even cloud licenses can be used via a proxy, without exposing devices directly to the risks of the public Internet. A CodeMeter Runtime Server is configured as a LAN gateway, acting as an edge device between the secure shop floor and the cloud. The firewall isolates the networks, ensuring that the embedded devices have no external connections and communicate only with the edge server.

With CodeMeter Embedded 3.0, the capabilities of our technology have been expanded with CmReady. Additionally, compatibility of CmActLicenses between Runtime and CmEmbedded has been newly added.

These are just a few of the possibilities that can be realized with CodeMeter Embedded. Do you have additional use cases or ideas? We look forward to collaborating with you to bring them to life.





Faster Access and Consistent Flexibility – CmCloud Regions

Since 2020, we have been offering the option to store licenses not only in CmDongles and CmActLicenses but also device-independent in the cloud. CmCloudContainers are bound to a user rather than a device and can therefore be accessed globally on the go.

During license operations of your software, communication – both locally and in the cloud – occurs with the corresponding CmContainer, which has been designed to be massively scalable, fully redundant, and highly secure. Up until now, CmCloud has only been operated in a data center in Frankfurt, Germany. This can lead to increased latency for international customers due to the distance, which may negatively impact the user experience. For example, the latency between Tokyo, Japan and Frankfurt can exceed 235 ms, and with repeated operations this value can mount up. Optimizing the server locations could help improve performance and increase customer satisfaction.

To provide your customers with a better user experience while maintaining the flexibility of CmCloudContainers, we have been offering the option to choose the location of the CmCloudContainers themselves since April 2024. This allows the CmCloudContainers for European customers to remain in Frankfurt, while Asian customers can access their CmCloudContainers in Tokyo. You don't need to make any changes to your software, and access times will automatically decrease.

Currently, we offer EU – Frankfurt and Asia – Tokyo regions. Other regions can follow in short order based on demand. For example, two new instances could be created in North America, if needed, and it would even be possible to provide a dedicated instance for a specific

company in a requested geographic region. A UFC, Universal Firm Code (>6,000,000) is required for the use of CmCloudContainers.

Excited and want to try out the new CmCloud regions or CmCloud in general? Contact our sales team at sales@wibu.com to get a customized solution tailored to your needs.

With CodeMeter License Central, you have the freedom to define the type of CmContainer in which the license can be activated for each Product Item. Each CmCloud region represents its own CmContainer type. The CmActID for CmCloudContainers is a 4-character code that begins with a 3. Here is an overview of the current regions and their corresponding CmActIDs:

- EU – Frankfurt: 3000
- Asia – Tokyo: 3100

Let's look at an example:

You want to distribute a basic license, such as for the SampleNotePad program. In this case, it doesn't matter to you where the program is activated. You create the Product Item in CodeMeter License Central and add the following entries as CmContainer types: CmActLicense SmartBind, CmDongle, CmCloud EU (CmActID 3000), and CmCloud Asia (CmActID 3100).

When a customer receives a CmCloudContainer, you should ensure that it has been created in the customer's region. This guarantees that your customers experience the lowest possible latency when using the licenses. You can

create the CmCloudContainer in the CmCloud dashboard, using the CmCloud REST API, or easily through CodeMeter License Portal, which is constantly being enhanced and updated to make things even easier for you and your customers.

In future versions of our CodeMeter License Portal, end users will be able to create CmCloudContainers themselves. The appropriate region will be automatically selected based on their geographical location. This will reduce administrative effort on your part and ensure that the licensing of your software remains user-friendly and the protection measures do not negatively impact the user experience. Of course, you will always have complete control over this process.

After creating a license for the SampleNotePad program, it can be activated in all available CmCloud regions (along with CmActLicenses and CmDongles in this particular example, of course). Your customers activate the license in their CmCloudContainer, which is located in CmCloud in their region. The license operations in your software are thus as performant as possible, ensuring a satisfactory user experience for your customers.

As you can see, with the new optimized CmCloud regions, we offer you and your customers the freedom to easily enhance your software's performance without the need to ship hardware or compromise the security of your software. 

Wibu-Systems Expands Global Footprint with New Office in South Korea

After opening our first international office in the Seattle area in 2001, followed by our subsidiary in Shanghai, China in 2003, it was only in 2018 that we did the same in Tokyo, Japan. This year, we chose again the Far East for our new international office in Seoul, Korea.

Strategic Location for Enhanced Services

With strong ties to the Western world and its values, an economy driven by high-tech and telecommunications industries, and a dynamic market, South Korea was one of our top candidates. Highly ranked on the Ease of Doing Business Index, South Korea also enjoys a growing national income per capita and a highly educated workforce – all perfect reasons for investing in this country. From our new office, we will be able to serve a diverse range of industries that rely on Wibu-Systems' cutting edge solutions, including manufacturing, automotive, medical technology, and the burgeoning IT sector.

Inauguration Ceremony

The official opening took place during our CEO Oliver Winzenried's visit to South Korea and China, where he joined the German delegation led by Vice-Chancellor Robert Habeck, who also serves as Federal Minister for Economic Affairs and Climate Action in the cabinet of Chancellor Olaf Scholz. The primary purpose of Mr. Habeck's visit was to strengthen trade relationships, address economic security, and discuss climate initiatives. Mr. Winzenried had the chance to network with other leaders of German enterprises and attend press meetings, offering him a broader and deeper view of the political strategies in foreign relations. The inauguration ceremony of WIBU-SYSTEMS

Korea Ltd. was held in Seoul, with Oliver Winzenried and the newly appointed Jung-Jae Kim, our new Business Partner, in the presence of Dr. Martin Henkelmann, current CEO and President of AHK, the Korean-German Chamber of Commerce and Industry.

The Initial Goals

The new office will enable us to offer more direct and timely support to our customers in South Korea. It also provides a hub for closer collaboration with local partners, facilitating the development of customized solutions that meet specific regional needs. This local presence will help in addressing the unique challenges faced by businesses in the Asia-Pacific market, ensuring they receive the highest level of service and support.

The Next Moves

Even though South Korea is facilitating foreign investments, setting up a new office requires full attention to several details, from selecting team members to training new staff and establishing our market presence. Mr. Kim currently oversees sales, support, and marketing within the region. With a Bachelor of Science in Computer Science from the Illinois Institute of Technology in Chicago and over 20 years of experience in digital transformation and business development roles at Kyndryl, Siemens Korea, TATA Consultancy Services, and Gartner, Mr. Kim is well-equipped to help customers succeed

by implementing secure protection and licensing mechanisms, thereby enhancing their software monetization strategies.

It Does not Stop in Korea

At a time when history books are being rewritten, building bridges between different cultures is of the utmost importance. By fostering the best of different worlds, society can advance with great strides into the future with a positive mindset. Besides Korea, you can expect additional bold moves from Wibu-Systems aimed at spearheading innovation while maximizing revenues. While we won't disclose the exact time or locations, we continue to believe in the rising power of the East, whether in Europe or Eurasia. 



News in Brief

CodeMeter Technology Supports Compliance with the Cyber Resilience Act (CRA)

The Cyber Resilience Act (CRA) will soon introduce new security requirements for digital products, such as ensuring data integrity and rapid remediation of vulnerabilities. Wibu-Systems' CodeMeter technology helps software publishers and intelligent device manufacturers meet these standards through encryption, obfuscation, integrity checks, and anti-debugging measures. CodeMeter also facilitates compliance with licensing requirements, protecting data, and managing software distribution securely.



CodeMeter Certificate Vault earns the AWS IoT Greengrass Certification

CodeMeter Certificate Vault's AWS IoT Greengrass certification positions our PKCS#11 compliant token provider as a strategic choice for AWS customers prioritizing security, facilitating adherence to data protection regulations, and compliance requirements. This badge of honor acts as a marker of trust and reliability, assuring seamless integration and streamlined deployment processes for IoT solutions on AWS IoT Greengrass.



Protection and Monetization of 3D-printed Spare Parts

Exploring the economic potential of 3D printing and future developments in IP protection and licensing, applicable across multiple sectors, 3D printing offers rapid, cost-efficient spare parts production, with customization and reduced storage needs. Challenges include standardizing processes and ensuring quality. Wibu-Systems' CodeMeter technology provides secure IP protection and licensing, facilitating stream-

lined manufacturing and on-site printing. Download the new white paper!



Artificial Intelligence: Protection and Licensing

AI technologies have transitioned from labs to real-world applications, necessitating protection from AI, protection with AI, and the protection of AI itself. Solutions like CodeMeter offer flexible protection for AI models, with integrated licensing solutions for various use cases. Research projects like SMILE4KMU focus on developing secure, innovative protection and licensing solutions for machine learning, especially for small and medium-sized businesses. Read this new primer to learn more.



Mobile Licensing with Industry-Grade Storage Devices

For all SD card manufacturers: As we navigate the digital era, security becomes non-negotiable. CmReady is a certification program designed for industry-grade storage device manufacturers to enhance their existing products with IP protection and software licensing capabilities. Leveraging card security features, CodeMeter binds the software-based license container to the hardware medium, transforming the mass storage card into a portable secure element. This is a business opportunity you cannot miss!



AxProtector CTP wins the 2024 German Innovation Awards

Earlier this year, AxProtector Compile Time Protection (CTP) was awarded the prestigious 2024 German Innovation Award for Excellence in B2B. This innovative solution integrates obfuscation during the compile process, offering robust defense against reverse engineering while ensuring crossplatform compatibility for Windows, Linux, and macOS. Combining flexible licensing options and advanced IP protection, AxProtector CTP sets a new standard in secure software deployment, underscoring its impact on industry security.



INNO DAYS 2025

The 2024 event was a blast! If you missed the roundtable that we streamed live, you can relive the enlightening discussions from Dr. Munkelt, Managing Director of MVTec Software; Dr. Schaad, Professor of IT Security at the University of Applied Sciences in Offenburg; Uwe Schnepf, Head of Product Management Industrial IoT at Hilscher; and our very own CEO, Mr. Winzenried. Dates for the 2025 edition are already set – mark your calendar for July 2 and 3. Preregistrations are open!

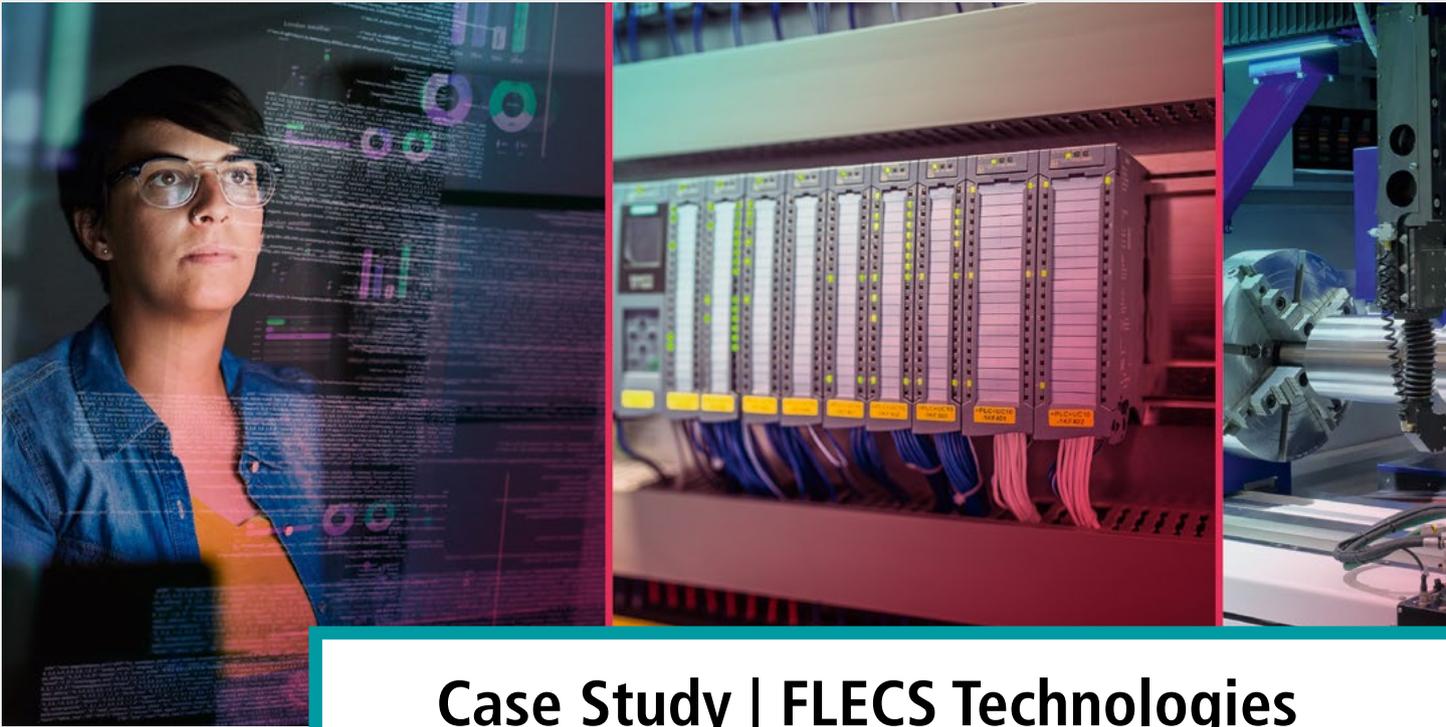


WIBU BLOG

One idea at the right time
can change everything.

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Case Study | FLECS Technologies

“Make or Buy” is a question that decision-makers in all industries face daily. This applies equally to software protection and licensing as well as the implementation of an app store or marketplace. With the combination of the marketplace technology from FLECS and the CodeMeter software protection and licensing system from Wibu-Systems, the decision for “Buy” becomes even easier than before.

The Challenge

The integration of software protection and licensing, such as CodeMeter technology, into one’s own application can be carried out simply and effectively with APIs and tools. For software developers, this is a routine task. Launching one’s own app store or marketplace for one’s own and third-party applications is also quick and easy to implement with the help of ready-made solutions like the FLECS Marketplace.



When considering the combination of both solutions, questions arise about workflows for different user groups, security requirements, licensing models, and integration interfaces. How is the protection of one’s own application ensured? But most importantly, how does one enable third-party providers to easily integrate licensing? How is the software distributed to the user? How is the license activated for the end device? How is a secure binding to the device ensured?

The Solution

By combining the CodeMeter technology from Wibu-Systems with the marketplace technology from FLECS, all these questions are answered with standard procedures. With Wibu-Systems’ patented CodeMeter SmartBind technology, the license is securely bound to the target device. The necessary background service, CodeMeter, is available as a free app in the FLECS Marketplace.

For the integration of CodeMeter, CodeMeter Protection Suite provides a simple tool that encrypts both one’s own and third-party applica-

tions. Through an interface from the store, a license for the software purchased by the user is automatically generated in CodeMeter License Central. Via Software Activation Wizard, also available as a free app in the marketplace, the user can easily transfer the license to the desired target device.

The Result

Through the successful integration of CodeMeter into the FLECS Marketplace as part of an Open Industry 4.0 Alliance project, a comprehensive protection and licensing solution is available as a standard in the marketplace. Software manufacturers and publishers can easily bring their applications to the marketplace without having to worry about software protection, licensing, and the associated processes.

Users can deploy and manage licenses from different manufacturers through the same standard application, using a process they are already familiar with. 



Samuel Greising, Managing Director & COO, FLECS Technologies

“For FLECS, Wibu-Systems is an ideal partner when it comes to software licensing and protection, as many industrial companies already rely on products around CodeMeter today. The combination of both platforms offers outstanding benefits for app providers, but also very high convenience for our common users.”

Join Wibu-Systems at the following events:



SPS
12-14 November 2024
Nuremberg, Germany
Hall 6, Booth 428



Formnext
19-22 November 2024
Frankfurt, Germany
Hall 12, Booth B01C



embedded world
11-13 March 2025
Nuremberg, Germany



HANNOVER MESSE
31 March – 4 April 2025
Hanover, Germany



Automate 2025
12-15 May 2025
Detroit, Michigan, USA



automatica
24-27 June 2025
Munich, Germany



INNO DAYS
2-3 July 2025
Karlsruhe, Germany



Roadshow
7 October 2025
Berlin, Germany



Roadshow
8 October 2025
Munich, Germany

Wibu-Systems' INNO DAYS 2025

The premier event for digital strategists aiming to steer their business with a clear, future-focused vision. Attendees will benefit from high-level networking with industry peers, insights from leading experts, and exclusive entertainment. Wibu-Systems' key staff, along with solution partners, clients, and renowned speakers, will lead the discussions. While IP protection and monetization technologies remain central, the event will foster broader engagement on critical industry trends. Stay updated and start pre-registering. The future begins now.



www.wibu.com/inno-days.html

Wibu-Systems' German Roadshow

We're bringing the full CodeMeter experience directly to you! Join us in Berlin on October 7, 2025, or Munich on October 8, 2025, for a full day of immersive learning. This focused event combines theory and practice, offering the latest trends and best practices in software protection, licensing, and security. You'll have the chance to engage in expert-led, hands-on sessions, participate in live demos, and address your specific questions and needs in tailored discussions. Don't miss this opportunity to expand your network and expertise. Pre-register now to secure your spot!



www.wibu.com/roadshow.html

Wibu-Systems' Masterclasses

Our monthly, fully immersive masterclasses offer exclusive content tailored for all skill levels – whether you're a beginner, intermediate, or advanced user of CodeMeter technology. The 2024/2025 season brings a dynamic mini-series featuring deep dives into CodeMeter License Central, the intersection of Cybersecurity Resilience Act and CodeMeter, the latest advancements in CodeMeter License Portal, and new features like CmCloud Borrowing and CodeMeter License Reporting. Stay tuned for upcoming announcements on our website or via our newsletter, and be ready to register for the sessions that best suit your needs.



www.wibu.com/wibu-systems-webinars.html

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