

# KEYnote 30

THE WIBU - MAGAZINE

## CodeMeter 6 is in the air

### Highlights

- Universal Firm Code
- Borrowing and Transferring Licenses
- Nested Product Items

**WIBU**  
SYSTEMS

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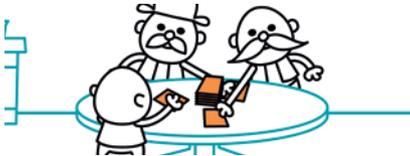
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## Dear Clients and Partners,



You have all come across certain terms in the titles of lectures or agendas of conferences: security by design, security or privacy by default and so on. But what do they actually mean, and how can we achieve them? The ideal is security and privacy by default, that is, all devices fulfilling our security and privacy needs out of the box. Security and privacy by design are crucial preconditions for this, because the right design is needed for truly meaningful default security. Windows 10 is one example of privacy by design, but not by default, because it still needs its users to make many manual changes to achieve real privacy. Security might not be high on the agenda for every user, but it is indispensable for many other scenarios – think of intensive care (pacemakers), critical infrastructure systems, or the potential risks for chemical plants.

Security is a sine qua non for Industrie 4.0 and the Internet of Things. At the same time, it is becoming increasingly important to protect the data of users (privacy) or secure data in manufacturing. Rights management is needed that is powerful enough to handle the rights of many different parties simultaneously, but separately. CodeMeter is the answer: We are helping developers and manufacturers build security and data protection right into their systems. For this purpose, we are working with BITKOM, VDMA, the OPC Foundation, and the Industrial Internet Consortium, and are actively investing in R&D in Europe, the United States, and China.

Read this KEYnote to learn more about how we keep CodeMeter reliably available over the long term, the use of Raspberry Pi, licenses in the cloud, SAP Best Practices, and lots of innovations concerning our newest invention, the Universal Firm Code.

I am looking forward to meeting you at one of your upcoming conferences and expos. For now, I wish you and your loved ones a peaceful and relaxing holiday season.

Yours,

Oliver Winzenried

CEO



## Sell and License Your Software via SAP

Originally founded in 1972, SAP has steadily been expanding and intensifying its presence in the world market. Countless global enterprises now use SAP's technology to manage their processes. The full integration of CodeMeter License Central with SAP makes it possible to manage software retailing and license creation via SAP.

### Simple and Lean Integration

CodeMeter License Central was designed with lean and straightforward integration in mind. This was made possible by committing to a simple paradigm: To never record or store the same data twice. The customer's master data is only recorded in SAP, and details about licenses are only stored in CodeMeter License Central. Only reference data like a customer ID is recorded by CodeMeter License Central and the ticket stored in the equipment in SAP.

Extensive SOAP interfaces are used to access CodeMeter License Central data in real-time and integrate and consolidate them in SAP reports. Complex and often defective data synchronization is a thing of the past.

### Best Practice Tips from the Experts at INFORMATICS

Wibu-Systems began operating in the SAP world with its cooperation with INFORMATICS Holding from Linz, Austria in 2015. INFORMATICS has a track record of 16 years of success as SAP consulting and development specialists. As a certified SAP partner, INFORMATICS offers invaluable

expertise across modules and is committed to quality, innovation, and reliability.

Working with Wibu-Systems, INFORMATICS has defined an interface class framework for SAP, which uses customizable process components for a simple and quick integration with CodeMeter License Central.

In the prototype implementation, a production order made in SAP opens a connection with CodeMeter License Central in the background. A ticket is created that is stored in the equipment in SAP. When activating or deactivating the relevant license, CodeMeter License Central sends information about the used CmContainer back to SAP, where it is again stored in the equipment. With the procedural know-how of INFORMATICS, the processes in SAP can be tailored and customized to match any given usage scenario.

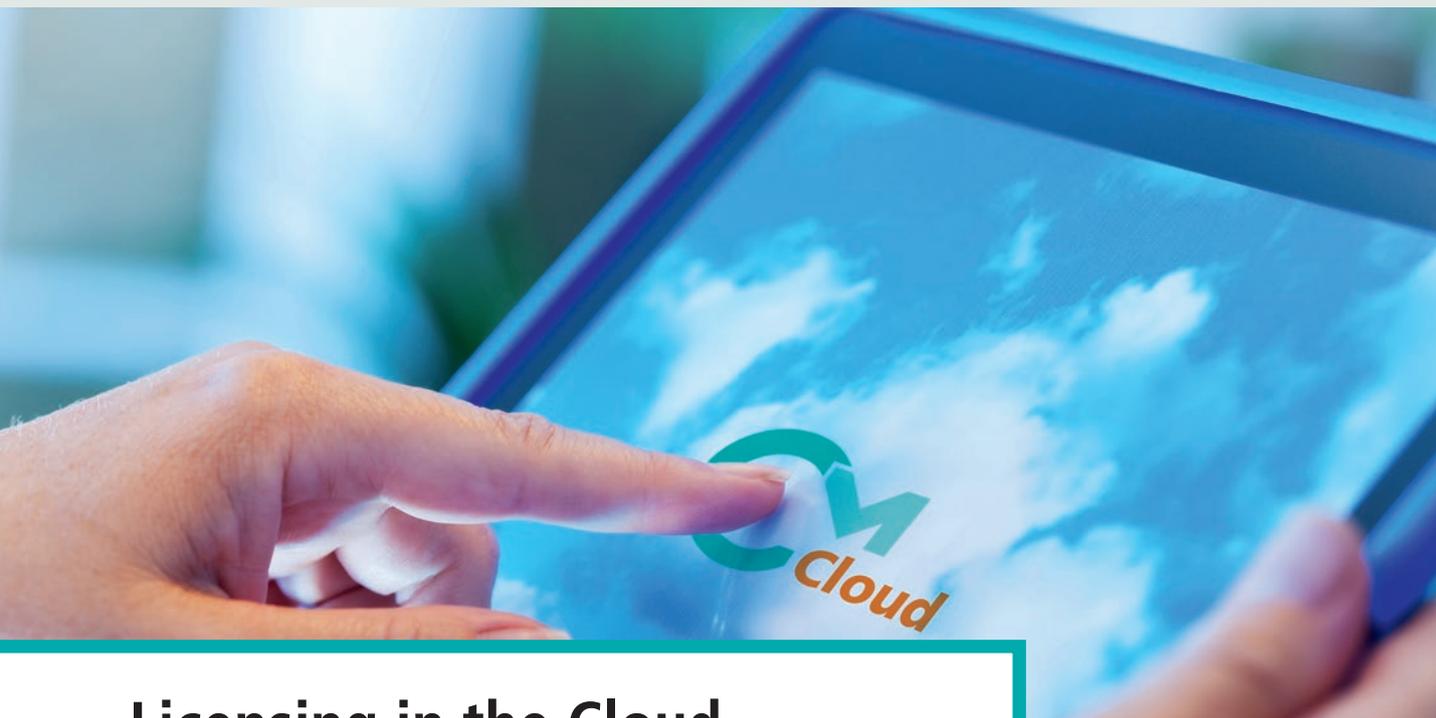
### Licensing Portal and SAP

If a licensing portal is employed to allow users to activate their licenses, the user's data can be sent from the portal to the SAP recipient.

ISVs now have the option to enable their distribution partners, local stores, or re-sellers to sell their software, while staying in control by receiving the licensing information directly from the user.

So how does the portal work? Wherever and however the users acquired their tickets, they can use them to register via the license portal. Depending on the chosen usage scenario, this can be optional or mandatory for the users. After the users have been registered successfully, the users have the opportunity to access the portal for a list of their licenses, where they can activate and deactivate them as required.

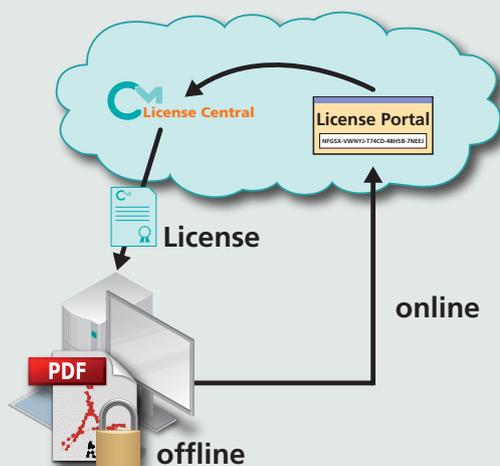
Upon registration, the users' data is sent to SAP. The allocation to existing customers or a new entry in SAP normally requires highly customized processes that depend on the vendors' specific needs. 



## Licensing in the Cloud

With CodeMeter License Central, Wibu-Systems offers a cloud solution for creating licenses right in the cloud. CmWAN gives you the option of operating a cloud-based license server for your users. Read the article to see how three cloud projects made effective use of CodeMeter License Central and CmWAN.

### Documents Online and Offline



The first project uses CodeMeter to protect sensitive digital documents. The documents in question are available as online versions in the cloud and as PDF files on the users' local PCs. Depending on the type of license, the users can access only a defined part of the documents.

Local PDFs are protected against duplication by means of SmartShelter | PDF. Any user who needs a license is given a ticket by the document's publisher with which he can activate the license locally. This can be done either via a license portal or by a local activation assistant.

The online version is stored on a cloud server. The users authenticate themselves with the server for access to the documents allowed by their licenses in CodeMeter License Central. For this purpose, Wibu-Systems Professional Services Team implemented a gateway with which the server reads the license of the users in CodeMeter License Central.

The essence of the solution is the link that is created between the user's account on the cloud-based server and the customer's ID in CodeMeter License Central. This allows the licenses of authorized users to be used simultaneously on their offline PCs and in the cloud.

### Licenses Residing in the Cloud

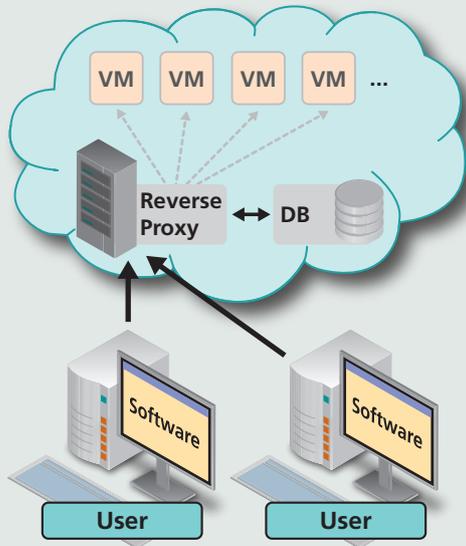
The second project involves software installed on the end users' local PCs. The license is kept by the software vendor in the cloud. This gives users the flexibility to use the software on any PC of their choosing.

For this project, the CmWAN Server and a reverse proxy were used to take over identification and authentication of users. Each user is allocated a specific virtual machine with a CmWAN server. These virtual machines are running at a server farm and are created at the touch of a button.

When the protected software is installed, the reverse proxy is entered in the server search list of the local client. The user name and password are also recorded and stored. When the license is accessed, the local CodeMeter Runtime automatically looks for licenses registered with the user name and password on the cloud server.

The reverse proxy contains details about which users are allocated to which CmWAN servers. After successful identification and authentication, the connection to the

allocated CmWAN server is reversed. From the point of view of the local application, the licenses are then used as if they were held on a CodeMeter license server in the local network.



“The server farm serves several hundred users at the same time. We have already put champagne on ice for when we hit our 1000th user.”, Philip Berndroth, in charge for implementation at CNC KELLER GmbH, explains. “This degree of automation in our solution means that creating a new user is a matter of minutes.”

### Online Licenses in an Offline Cache

The third case has the protected software running on a local Windows PC, with a license stored in the cloud. The license can still be used when the connection to that server is lost.

This project relies on CodeMeter License Central located in the cloud. The license for the user is usable for a defined period of time and is periodically updated by the software in a background process. The solution accepts the limited use of the license on a second or third PC.

The user is given a ticket when installing the software on the local PC. With the ticket stored on the PC, the software starts the usual activation process. Instead of activating the license in full, an additional module on CodeMeter License Central creates and activates a new temporary license. That license is valid for eight hours, but can be returned at an earlier point.

After four hours, the client might begin to extend the license. A normal activation process is again started for this purpose. The additional module on the server tests whether the request comes from the same CmContainer - that is, from the same PC. In that case, an update is created and activated in the background. The license is extended for another eight hours.

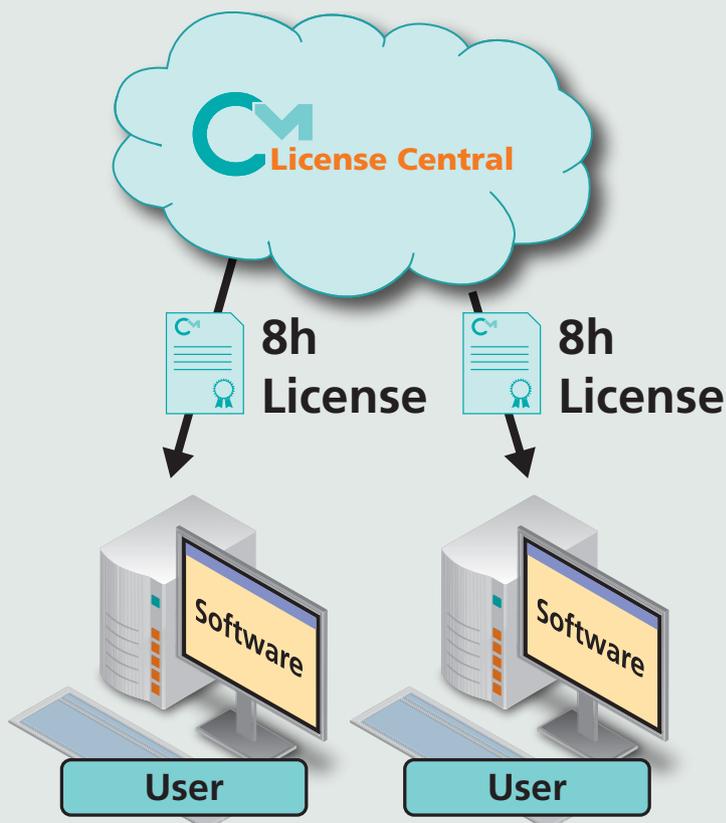
When the application is closed, the license is automatically returned, which tells the additional module that the license can be cleared for another temporary period on another PC.

If that same license is activated on another PC while the original eight hour period is not yet over, the additional module will decide whether this is allowed. If it is, a new temporary license is created and activated on the new PC. When the first client then tries to extend the license period, the license is withdrawn, as it is already in use on the second PC. The original user will receive an error message, and the application will close.

In this specific case, the additional module is set to be very tolerant and allow up to three activated PCs at any point in time. Only if the license has been used on three separate PCs in the last eight hours without being returned will the user receive an error message.

The chosen parameters of eight hours for a temporary license and four hours until automatic extension can be adjusted flexibly. Similarly, the automatic return of the license upon closing the software is optional. The solution would also allow licenses for multiple days that employees can use in complete offline scenarios.

If you would like to explore the possibility to include CmWAN in your offering, please contact your local sales representative. Details are available on the back page of the magazine.





## Universal Firm Code

The all-new Universal Firm Code provides the groundwork for the secure transfer of licenses without any involvement of the original software vendor. The licenses for Universal Firm Codes are created by way of certificates, which use a completely new process. It paves the way for transferring licenses between CmDongles and CmActLicenses or, soon, CmCloud.

### Need for Transfer

The thinking behind the introduction of Universal Firm Codes was to provide an answer to the oft-voiced wish of software vendors for a simpler way to transfer or lend and borrow licenses. Up to now, the permanent transfer of a license was impossible without direct contact between the user and the software vendor. There is already a certain solution for temporary transfers that works without this contact, although it needs considerable preparation on both sides, which has to be done all over again whenever anything changes in the license. In the end, this process may result impractical and too costly in terms of implementation and support.

Before we take a look at the new ways to transfer licenses, it helps to consider the mechanisms and the differences of current Firm Codes.

### One Firm Code per Developer

A Firm Code is the top entry level in a CmContainer, either a CmDongle (hardware) or a CmActLicense (software-based license). The Firm Code is allocated to a specific ISV who

has the exclusive right to change anything at the lower levels. This allocation is guaranteed by the Firm Code that each software vendor is assigned by Wibu-Systems.

Up to now, the Firm Codes >100,000 were available for hardware and >5,000,000 for software-based activation. The new Universal Firm Codes use the >6,000,000 range and can be programmed for both CmDongles and CmActLicenses. As soon as the CmCloud is fully available, the licenses can be managed just as easily from there.

### No Compromise on Security

One of the reasons behind the old strict distinction between Firm Codes for hardware and software concerns security. The secure environment of CodeMeter hardware represents a safer vessel for licenses and cryptographic keys than software solutions. By its very nature, anything working on a computer can be reproduced and extracted, even if it requires massive efforts. That is why software vendors are still allowed to define exactly which CmContainers are allowed with the new Universal Firm Codes. They can also determine whether and where licenses

can be transferred. This is done by the CmActId that is split into defined areas for CmDongles (1\*\*\*), CmActLicenses (2\*\*\*), and CmCloudContainers (3\*\*\*). With these settings, the licenses on the CmDongle can be kept at the old level of security.

Software vendors can choose in which environments their licenses and keys are available. This also enables them to set different levels of protection for different applications. While licenses for expensive premium products might be limited to CmDongles, leaner demo versions can be operated with software trial licenses that can simply be downloaded from the Internet.

### Certificates for Secure Transfers

We are taking a completely new path for creating licenses. Licenses are produced as certificates under the X.509 standard. All keys are stored with asymmetric encryption so that only the CmContainer for which the license was created can decrypt them again. The queries and certificates are transmitted in the established fashion via context and update files (\*.WibuCmRac / \*.WibuCmRaU).

The features of licenses with the new Universal Firm Code cover everything that software vendors can already do today: A license can be given a set expiry date, a flexible usage period, or a maintenance interval; it can contain additional data, or it can come with a usage counter. All of this and much more is possible today and will continue to be possible with the Universal Firm Code. There is now also the opportunity to nest product items in each other (see the article on page 10).

### Local Multiple Licenses

One change affects the way multiple licenses are handled. Universal Firm Codes allow a set of licenses to be flagged as "local use only". For instance, four licenses can be created that are only available for local use (e.g. reflecting the number of copies of an application that can be run concurrently). This ends the old convention of treating a license number of 0 as a local license.

To prevent general hacks for software-based licenses, CmActLicenses use an additional key for encrypting different licenses (different product codes). This key (the Product Item Secret Key - PISK) is calculated by the Firm Security Box (FSB) when the license is

created. The same principle now also works in hardware scenarios to maintain the high level of security of CmDongles even in mixed use with CmActLicenses. There is also the option for software vendors to change the Firm Key in their FSB to stop Wibu-Systems from creating licenses with the same key; this option is now also available for CmActLicenses.

### Requirements

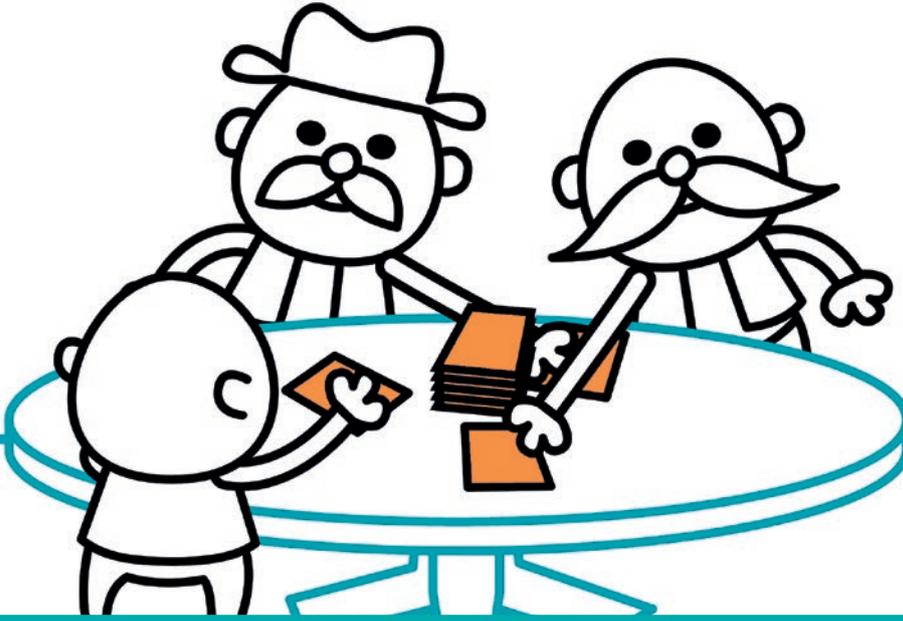
The new method of license creation via certificates needs substantial changes in the CodeMeter License Server and in all other components. Using Universal Firm Codes therefore needs CodeMeter 6.0 or later. The new technique is also the reason why Universal Firm Codes are only supported by the new generation of CmDongles with 3-xxxxxxx serial numbers. Previous models simply lack the space in the firmware to store the new processes. Beginning with firmware version 2.06, CmDongles 3-xxxxxxx can handle Universal Firm Codes. The firmware update will be rolled out in Q1/2016 alongside CodeMeter 6.10.

CodeMeter 6.10 will, of course, work just as well with the old CmActLicense (>5,000,000), just as CmDongle 3-xxxxxxx can contain both

the new Universal Firm Code and the old Firm Codes (>100,000). Everything remains downward compatible. The multiple variants of AxProtector used to protect your software can also handle multiple Firm Codes and the latest release is ready for working with the new Universal Firm Codes. 

Available from January 2015 for CmActLicenses and from April 2016 for CmDongles. If you would like to upgrade to the new Universal Firm Code, please contact your local sales representative. Details are available on the back page of the magazine.

Product Item Option	CmDongles (> 100,000)	CmActLicenses (> 5,000,000)	Universal Licenses (> 6,000,000)
Text	✓	✓	✓
License Quantity	✓	✓	✓
Activation Time	✓	✓	✓
Expiration Time	✓	✓	✓
Usage Period	✓	✓	✓
Unit Counter	✓	✓	✓
Feature Map	✓	✓	✓
Maintenance Period	>= Firmware 1.18	>= Firmware 1.18	✓
Linger Time	>= Runtime 4.40	>= Runtime 4.40	✓
Minimum Runtime Version	>= Runtime 5.20	>= Runtime 5.20	✓
User Data	✓	✓	✓
Protected Data	✓	✓	✓
Extended Protected Data	✓	✓	✓
License Information	✓	✓	✓
Hidden Data	✓	✓	✓
Secret Data	✓	✓	✓
Module Items			✓



## Borrowing and Transferring Licenses

License servers in the user's network have become increasingly popular options in the recent past. As a software developer, you leave it up to the user to use, manage, and monitor the licenses. All you need is a simple process for delivering them: The licenses are activated on the license server and immediately ready for use by the devices connected to the network.

But there are instances in which a single-user license for a local computer or a local dongle would be the better option. The software might have to be used on a construction site, and the user does not have a VPN to access the license server. A mobile license is also a great choice if the user wants to take a project back home and continue working from his home office.

### The Foundation Solution: CodeMeter License Transfer

Wouldn't it be great if the user could handle the changing and transferring of the license on their own? CodeMeter License Transfer is the perfect solution for this challenge:

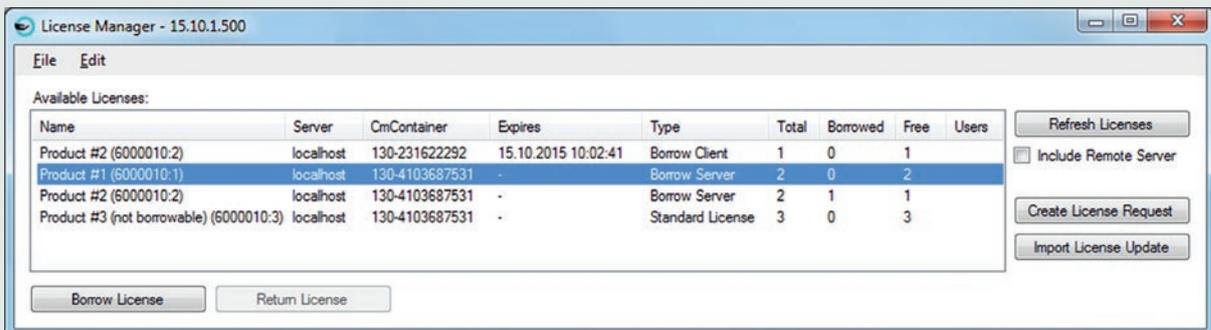
CodeMeter License Transfer allows far more than simply borrowing licenses. It combines the permanent end-to-end transfer of licenses with traditional borrowing via network servers. Permanent license transfers make easy work of activating licenses in machines or devices not yet connected to the Internet of Things. All it needs is a service technician and a CmDongle to get the license to the device.

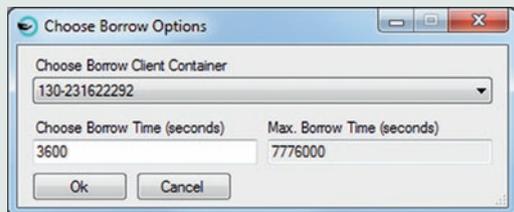
### Borrowing in the Network

Nothing is easier than borrowing via a network server with CodeMeter License Transfer. The user selects the license and simply clicks the "Borrow" button that you have built into your

application or license manager. To get you off to a quick start, Wibu-Systems offers you a license manager source code (available in C#) that you can adjust in looks and functionality to fit your needs.

The license for borrowing is fully configured by you. You define whether a license can be borrowed, and you choose for how long it can be borrowed. You can also decide which CmContainer can be used for the borrowed license. Your choices could state that the lending license server needs to use a CmDongle, while the borrowing client only receives a software CmActLicense.





CmActLicenses allow you to define custom binding concepts between server and client. You can, for instance, set separate rules for use on virtual machines, define in which CmContainer the license can be active, and into which CmContainer the license can be lent. The combinations are free for you to mix and match to your needs.

During the borrowing procedure, the license is transferred from the license server to the client. It retains the identical properties it had on the server. A defined borrowing period is set at any interval between one second and the maximum chosen by you as the developer, and the license can only be used on one local PC. After the borrowing period has ended, the borrowed license is again available for use from the license server.

Returning the licenses early or extending the borrowing period is possible at any point.

When the employee does not have access to the network, the administrator can also lend the license in offline form. The employee sends in a license request with a fingerprint of the computer in question or the CmDongle of the client. The administrator uses this file for the borrowing process. The resulting license update is returned to the employee, who activates it on the client, with a receipt produced in the next step. If no receipt is produced, this step is repeated automatically in the background when the license is borrowed again.

Should you have chosen the licensing model "Unlimited licenses for one year" as the vendor working with Wibu-Systems, you can license as many clients as you need. These do not have

to be registered or activated beforehand. You can move the licenses end-to-end, and the CmContainer is activated automatically.

The licensing model "Licenses per CmContainer" only allows borrowing with an activated CmContainer. This needs an activation with your Firm Code to prepare the CmContainer for a client. You can do this during the online registration via CodeMeter License Central. The "Unlimited licenses for one year" also gives you the option of requiring a pre-activated CmContainer.

If you would like to upgrade to an unlimited license please contact your local sales representative. You find the details on the back page of the magazine.

Licenses can be changed on the license server even while they are away with the borrower. The licenses remain active after the changes, while the changes only come into effect for the client when the license is borrowed again at a later point. For the current borrowing period, the user continues using the old license offline on the client.

### Moving Licenses

In addition to allowing licenses to be borrowed, licenses can also be moved permanently with CodeMeter License Transfer. This has already been an online option with CodeMeter License Central, but it required either a standing connection to CodeMeter License Central or forced offline users to move three separate files (request file with fingerprint, license update, receipt).

With CodeMeter License Transfer, the end-to-end moving of licenses is now also possible offline. One of your employees can take a license to your user on a CmDongle and activate the user's machine without any data or files having to be sent to CodeMeter License Central. This does, however, affect the accuracy of the statistics in CodeMeter License Central.

When moving licenses, you can move  $n$  of  $m$  licenses. You can also preset the transfer limit to define whether the moved license can be moved again. Its return to the original CmContainer can also be configured by you as the vendor.

### The Security of CodeMeter License Transfer

CodeMeter License Transfer employs state-of-the-art technology to protect vendors from the illicit duplication of their licenses. A license consists of one original part made by the developer and one changed part created by the transfer. This concept makes it impossible for an attacker to expand the scope of a license.

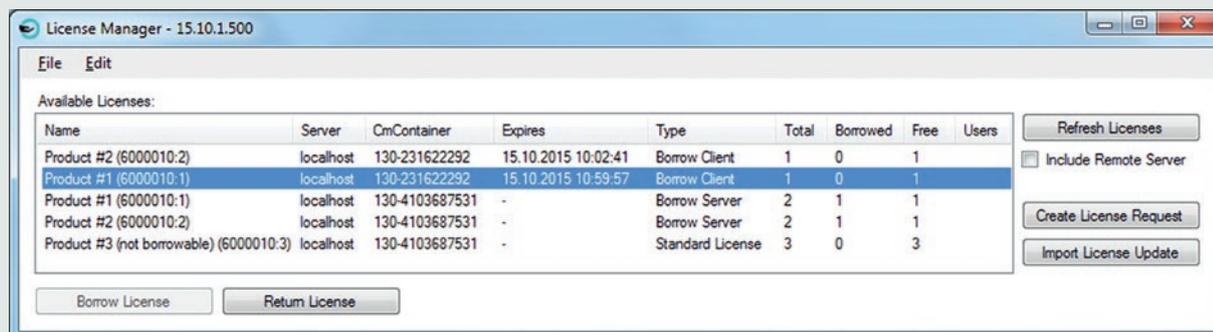
This security is achieved by means of certificates. One important point is that the certificate and the key needed for a transfer cannot be moved to the destination. The transfer limit for borrowing licenses is set to one on principle. For moving licenses, the limit can be customized: You choose how far the key is allowed to move. The principle should be: "As far as necessary, as near as possible."

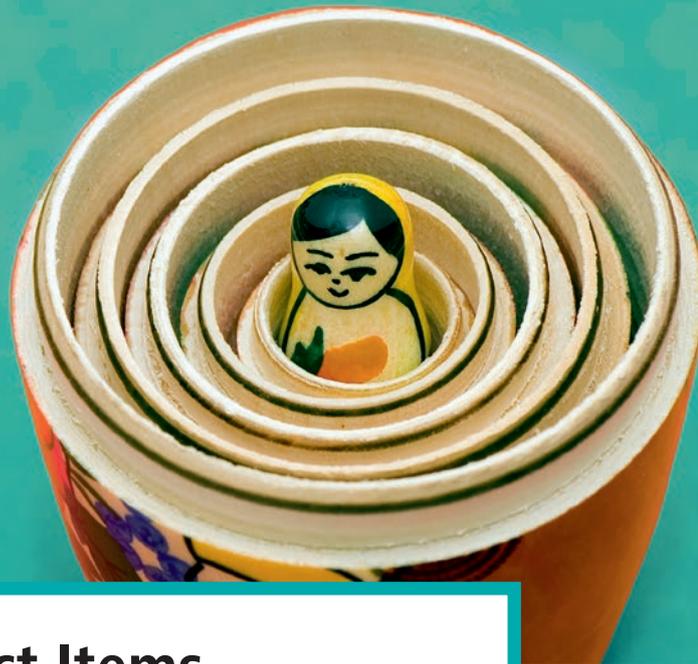
The highest level of security can be achieved when the CmContainer is assigned to a dongle as the point-of-departure, or when you store it in your own cloud.

### Modular Licenses

Modular licenses built on a basis of Module Items (Nested Product Items – see next page) can be moved or borrowed effortlessly. All modules are simply transferred in one go whenever the license is moved. If the modules have specific properties, these are also duplicated explicitly.

If you wish to give your users the option to select specific modules for transfer, the modules simply need to be defined as separate product items. 





## Nested Product Items

Many challenges, one solution: Nested Product Items facilitate license configuration, prevent inconsistencies with licensing modular software, and guarantee the simple and smooth transfer of licenses. The ability to nest licenses and bequeath properties down the line answers the needs of many a product manager and avoids some headaches for developers grappling with licensing models.

### Avoiding Redundant Information

When one looks at licenses that software vendors prepare for CmContainers, one often finds certain entries again and again in multiple licenses. The annual license for a software suite includes licenses for the various applications contained in it, but all of them have the same expiry date. Modular software with multiple license entries (Product Items) include defined maintenance periods in every license. If any of these settings needs to be changed, all of the licenses need to be reprogrammed one by one – an unnecessary effort that just invites errors and mistakes.

This case, and other scenarios that we will look at later on, all benefit from Nested Product Items: The nested licenses enable software developers to set the same configuration only once, but have it available wherever they need it.

### Nesting Licenses

A license entry, the so-called Product Item, can come with several options: From time limits such as a defined expiry date or a

defined usage period, or limited license counters or a countdown for the number of uses, to different data types, software vendors have a whole battery of settings at their disposal to model their license terms to their needs.

With Nested Product Items, licenses that use a Universal Firm Code now have the option of attaching one license entry to another. The attached nested item is called a Module Item. Such Module Items can use all the settings and options of a Product Item, without any restrictions. A Product Item can contain one, multiple, or no Module Items. Vertically, the nesting has only one level: A nested Module Item cannot have other Module Items nested within it.

### Bequeathing Options

The unique feature of this nesting is that all Module Items inherit the properties of their parent Product Item. If a specific setting is made for a license in a Module Item that was already set differently in the parent Product Item, the new setting overrides the

inherited setting. This is a case of traditional inheritance in software development.

Consider a concrete scenario: A trial version for an office suite. The applications in it (word processing, spreadsheet, contact database) are available for testing over a 30-day period. The license setup could be: one Product Item “Demo Pack” with a defined usage period of 30 days, with three nested Module Items for the three applications. If the user starts the spreadsheet application, the usage period kept in the parent Product Item springs into action. The start date then applies for all Module Items.

### Separate License Allocation

Just like the usage period is defined in only one place in this case, the license counter can also be managed from one place. The available licenses are defined depending on the allowed access type. If our trial license is a single-user license, the Product Item defines a license counter of 1. If the software package has a user limit (requiring one license per running application), only one

**CodeMeter WebAdmin**

Home Content Server Configuration Diagnosis Info Help

CmContainer Licenses User Data Backup/Restore

CmContainer: 130-110937288

6000010 | Sample Company

Product Code	Name	Unit Counter	Expiration Time	Activation Time	License Quantity
1	Sample Notepad (Floating Network License)	n/a	n/a	n/a	10
- 1000	- Module Change Font	- n/a	- n/a	- n/a	- n/a
- 1001	- Module Hexview	- n/a	- n/a	- n/a	- n/a
- 2001	- Module Import Filter #1	- n/a	- n/a	- n/a	- n/a
- 3001	- Module Export Filter #1	- n/a	- n/a	- n/a	- n/a
2	Sample Converter (Single User License)	n/a	n/a	n/a	1 (local)
- 2001	- Module Import Filter #1	- n/a	- n/a	- n/a	- n/a
- 2002	- Module Import Filter #2	- n/a	- n/a	- n/a	- n/a
- 3001	- Module Export Filter #1	- n/a	- n/a	- n/a	- n/a
3	Sample Printer (Trial Version)	n/a	2016-01-18 16:21:16	n/a	1 (local)
- 3002	- Module Export Filter #2	- n/a	- n/a	- n/a	- n/a

application can be run at any one time in that case; no free license is available when the user tries to start another application. If the applications are encrypted for station share use (meaning that one license covers all access by one workstation), then the user can have all three applications running in parallel.

### Usable without Change

Protected applications normally do not have to be changed anymore. If a software developer decides to use several Product Items for his modular software, he can simply reorganize the license entries. For accessing the license in the software, it does not matter whether the right license is stored in a Product Item or a Module Item. When the application accesses the license, via AxProtector or an API, it will get the effective license, that is, the Module Item and its inherited properties. That also goes for cryptography: Whether the key is included in the parent Product Item or in a Module Item has no effect on its use. In both cases, the same entry parameters will return the same results.

### Restricted

When working with modular software, care needs to be taken that all license access uses the same Nested Product Item. That is why the Module Items can be configured to allow their use only when the same process has already used the parent Product Item.

Consider another real-life case: A game developer launches a truck simulation and a tram simulator. Both games come with optional support for multi-screen sessions. Technically speaking, this would use only one module (one .dll) that is protected by one set of license parameters. When a user buys the multi-screen option for the truck simulation, he should only be able to use it there and be limited to a single screen when playing the tram simulation. Making this possible needs a lot of careful manual effort on part of the developer: The license needs to include an additional ID to define which parent product is covered by it. The entire CmContainer has to be read and analyzed when it is used. All of this now becomes much easier: The license for multi-screen support can simply be included as a Module Item in the truck simulation license and configured to become active only when the parent Product Item – the truck simulation license – is also active.

### Inseparable

A Product Item and its Module Items form an inseparable unit. If any such Product Item is activated in CodeMeter License Central, it shows exactly one entry for the product, and it can only be retrieved as one complete item. On a technical level, the Product Item is programmed and protected by means of a certificate. A Nested Product Item with one Product Item and allocated Module Items are similarly programmed by way of exactly one

certificate. By turning Nested Product Items into inseparable units in this manner, they even save space during transfer or, if they can be shared, storing them in the CmContainer.

When modular software, formed by one Product Item and several Module Items, is borrowed, only the Product Item needs to be borrowed – the Module Items piggy-back along. Should, for example, the license count be split as part of a license transfer, the split applies only to the Product Item. When the license is transferred, all module items are included 1:1. The license entries that belong together always stay together, and the transferred license will work as expected at its destination, because it carries all other necessary licenses along.

This gives product managers as the master of the licenses another practical and straightforward way of handling all licensing scenarios.



# Lasting Availability – Not a Matter of Choice



Since 2003, CmSticks have been available to protect and license your software. One great advantage of CodeMeter is that you do not have to change how it is integrated in your software. Software protected by CodeMeter that was bought in 2003 will function just as well with a CmStick bought in 2015. Even form factors that were invented much later, like the CmStick with flash memory (CmStick/M) or CmCards supporting SD, microSD, CF, and CFast standards can be used without any changes required on your part. The only action needed is to update the CodeMeter Runtime.

Let's look behind the scenes to learn how this degree of reliability and availability has been achieved.

## Smart Card Chips

Every CmStick and every CmCard comes with a smart card chip that includes Wibu-Systems firmware for its CodeMeter functionality. In addition to the firmware, the smart card chip is the place to store your keys with state-of-the-art security.

The evolution of smart card chips is mainly powered by the consumer market, which is used to short product lifecycles. Later models are not always compatible in this world.

## Wibu-Systems Is Thinking Ahead For You

For us, it is important that software developers like you have permanent and reliable access to compatible CmSticks. We have long-term framework agreements in place to guarantee that our chosen smart card chip is available for the longest viable period. Even then, any smart card chip has an end of life. That is why we are always looking ahead and keeping an eye out for promising successors.

## How Can I See Which Smart Card Chip Is Used?

You can see the version of the smart card

chip by checking the box mask of CmDongle's serial number. Current CmDongles have serial numbers starting with a "3-". This stands for the third generation of the dongle, which uses a smart card chip produced by Infineon Technologies from Germany. All CmSticks without flash memory were already switched to the current smart card chip, while their flash-equipped peers are set to follow in 2016.

## Do I Need a New CodeMeter Runtime?

Technical progress means that the hardware used for CmDongles is not always available in fully compatible versions. In these rare cases, an update to a current version might be required.

Standard features might change as we develop and improve compatibility with modern PCs. Wibu-Systems will make sure that the new standard features can be used on all runtime versions that were released within the last two years.

One such change is the transition from a Mass Storage Device (a CmStick with a drive letter) to a Human Interface Device (a CmStick without drive letter).

## Supporting New Functions

The firmware of CmDongles can be updated

with updates from Wibu-Systems. Secure signatures are in place to make sure that no fake or tampered firmware will find its way onto a CmDongle.

Updates also allow us to roll out new functions to CmDongles that are already being used in the field. Technical limitations might mean that some new functions cannot be retrofitted to all older generations of CmDongles.

## Availability? – Of Course

Even though individual components might only be produced for a short period of time, our CmDongle is a product that you will be able to buy in compatible versions for many years to come. We are dedicated to keeping the CodeMeter API backward compatible at every turn, so that you do not need to change anything in your software. We will keep innovating to make sure that new CmDongles can be used with new interfaces coming into the market, while staying compatible with the trusted old connectors. Existing functions will remain available in future models.

We can say with confidence: "Of course a compatible version of our products will stay available for the long run. All you need is to update the CodeMeter Runtime – and often, not even that." 



# Software Protection Package for Raspberry Pi

Wibu-Systems introduces an evaluation kit for Raspberry Pi that showcases the easy implementation of software protection and the last steps of a secure boot procedure.

## Security for Raspberry Pi

Making it easier for people to take their first steps with software protection on embedded systems – that is the thinking behind Wibu-Systems’ demonstration kit for Raspberry Pi that gives the user a simple and straightforward introduction to security technology. A full-feature package is also available for operational use on Raspberry Pi.

Wibu-Systems offers a Raspberry Pi starter kit that allows a developer of embedded software to protect, license, and secure their software against tampering for this lean computer system. For a running start in the field of software protection and licensing, the starter kit comes jam-packed with CodeMeter technology: This includes the encryption tool ExProtector, the certificate tool CmCaTool, a prepared Raspbian Linux operating system, secure ELF loader, the preloaded protection hardware CmDongle, and all relevant documentation.

The CodeMeter technology is encrypted and uses the tool “ExProtector” to sign the embedded software built for the Raspbian Linux on ARM architecture. The software protected in this manner is automatically tested and decrypted when the Raspberry Pi is started by the operating system’s ELF loader. The procedure is transparent for the user, and the software vendor can rest assured that his software can neither be copied nor changed.

With the CmCaTool, ISVs can produce the certificates they need to protect against

tampering. It represents an adapted form of X.509 certificates that takes over the cryptographic part. The contents were limited to the bare bones needed for the application. The end product is a very lean format that does not compromise on the well-known security of standard X.509 certificates. The solution is ready for integration into any existing CA infrastructure.

## Secure Boot

Combined with secure boot procedures that can also be installed by means of CodeMeter technology, this creates a system completely protected against copying and tampering. The tools included in the package can be used to protect applications. With a few adjustments to the bootloader and the operating system, the boot processes can also be shielded and a complete secure boot algorithm introduced.

## In Brief

Wibu-Systems’ CodeMeter is an “out of the box” solution for security and licensing that is ready for integration into the Raspberry Pi. It allows developers to concentrate on what they do best and provides a complete security solution into their hardware. A model implementation for Raspberry Pi (new and old version) is ready for testing and evaluation. It can be used as the basis for integrating complete secure boot mechanisms. 



No additional hardware necessary: The operating system boots directly from the CmDongle

# News in Brief

## CmStick/C and CmAsic for greater temperature ranges



The heart of the CmDongle is a smart card chip made by Infineon, whose newest version is certified for a temperature range from

-40° to +105°C. The CmAsic in the VQFN32 Package is available now, to be followed by the CmStick/C Basic in Q1/2016.

## Subjecting the CmStick/MI, /MC to WHQL testing



The new CmStick/M has passed the exacting tests of the Microsoft WHQL test suite as submission 1745415 with flying colors – guaranteeing top compatibility when used with your clients.

## CodeMeter µEmbedded



CodeMeter µEmbedded was designed for microcontrollers working with limited resources. A first implementation will use the Infineon XMC4000 controllers with full integration in the DAVE development environment.

## Launch of the Infineon Security Partner Network



Wibu-Systems joins FhG AISEC, IKV (Taiwan), and Inside Japan as the very first members of Infineon’s ISPN, whose mission is to produce security technology to power the Internet of Things.

## Windows 10

### Microsoft Partner

Gold OEM

As GOLD OEM partners of Microsoft, we have the opportunity to pretrial the newest releases of Windows operating systems. Windows 10 support is included out of the box.

## London Technology Week 2015

Wibu-Systems was in London to showcase exclusive new technologies like Blurry Box cryptography and our roadmap to attendees from the U.K. and continental Europe.

## “Markt und Technik” Manager of the Year



Wibu-Systems founder and CEO Oliver Winzenried was chosen as Manager of the Year by the readers of Markt & Technik magazine. Andreas Knoll celebrated his enterprising work - A great honor for Oliver Winzenried as winner joining the likes of Dr. Ploss of Infineon and Rahman

Jamal of National Instruments.

## Winner of the consumer satisfaction survey



Our customer satisfaction survey has again revealed many opportunities for improvement and great feedback – encouraging us to continue to enhance our products and services. We thank all participants, including Mr. Christensen of Metrohm as the happy winner of our Amazon voucher.

## Anapur AG: IT meets Industry

Security is elementary in the process industry. Oliver Winzenried joined Professor Wegener of Siemens, Dr. Speth of Bayer Technologies, and Dr. Ouzounis of ENISA for a podium discussion on “Cybersecurity and Industry 4.0”.

## Wind River Forum China

As a Platinum partner of Wind River, Wibu-Systems had the opportunity to explain the CodeMeter technology embedded in VxWorks Security Profile to attendees in Beijing.



Wind River Partner Program  
PLATINUM

## End-to-End Strategies in Israel



CodeMeter technology was presented by Günther Fischer to an interested audience at the ScaleLL event in Tel Aviv.

## Wibu-Systems joins the Industrial Internet Consortium (IIC) in the United States

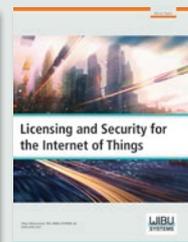


[www.iiconsortium.org](http://www.iiconsortium.org)

As member of the IIC, we can apply our security competences and contribute to developments in the United States and in Europe. Daniela Previtali was selected as co-chair for the Marketing Working Group.

## New Whitepaper

Have you been following our whitepapers? At <http://www.wibu.com/wp> you can find two new issues for your reading pleasure: “CmDongle with Flash Storage” and “Licensing and Security for the Internet of Things”.



## Success Story Belsim



### The Challenge

All industrial measurements are inaccurate and uncertain. As a consequence, a company never has rigorous information about its processes. What's more, the real numbers about process performance may very well remain hidden in measurement noise. Belsim develops Data Validation & Reconciliation software that automatically corrects measurements in industrial processes. The VALI-suite is the result of many years of R&D and it represents the centerpiece of Belsim's intellectual property. This led Belsim's search for a robust yet flexible solution for software protection and license management.

### The solution

"When we decided to develop VALI's newest version in Microsoft .NET, it was clear that we also needed a partner to support the solution's license management and to protect it against software piracy." Belsim analyzed proposals from three suppliers. CodeMeter from Wibu-Systems – including AxProtector - proved to be the most suitable solution. "The high level of protection in the .NET environment made the difference", says Christophe Pirnay.

### The results

"We ran tests and tried to hack into our own software, using debugging tools among other things. All attempts failed. Thanks to Wibu-Systems, we don't have to worry about license management or protection and we can continue to fully focus on further development of our core business", says Christophe.



### The Company

Belsim is a spin-off company of Université de Liège in Belgium. Today, VALI Suite is the leading solution in the worldwide market for DVR software. Belsim's solutions are based on advanced data validation and reconciliation technology for enhanced data quality. It is a model-based approach using raw process data, statistical methods, process knowledge and thermodynamic constraints, providing error free, reliable data. Belsim delivers

solutions based on software and consulting for energy management, production management, performance management and process optimization. Belsim's engineers travel around the world to implement the solution, not only in Europe, but also in the Middle-East, the US and Africa. 

### Christophe Pirnay Development Manager at Belsim

"We focus on the development and implementation of our DVR software. Thanks to Wibu-Systems, we don't have to worry about license management and protection."



### Wibu-Systems Workshops

Wibu-Systems offers you the opportunity to participate in one of the special seminars about:

- Software Monetization, Back office integration
- Licensing of software, with hardware or software-based keys (SmartBind)
- Code protection against illegal use & reverse engineering
- Solutions for embedded software in systems or cloud applications

Access the latest training schedule by scanning the QR Code or visit:



[www.wibu.com/tr](http://www.wibu.com/tr)

Training location	Date	Time
Green Village, Nieuwegein (NL)	1 Dec 2015	11.00-15.00
Bletchley park, Milton Keynes (UK)	3 Dec 2015	11.00-15.00

**Contact your local sales representative for details about the workshops and/or upgrading your test kit or current solution to Universal Firm Code with secure offline license transfer and borrowing.**

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