



KEYnote 18

THE WIBU MAGAZINE

Mixing made simple – switching a snap

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Dear customers and partners,



“20 years of WIBU-SYSTEMS” means 20 years of “Perfection in Software Protection.” I’m intentionally starting this column with our company slogan again. We can only keep and strengthen our top position by offering you significant benefits when using our solutions. Therefore we are now investing and increasing our development team - hoping for an improved economy and growth for your business.

Our goal is to increase our market-share worldwide to 25% in the next years. The technological leadership for the protection and licensing of digital products is our main focus—we want to keep this special position. So we will diversify our niche market and switch to solutions for mobile phones, embedded systems and industrial PCs, netbooks, notebooks, desktop PCs, and servers, as well as SaaS and cloud computing. For some of these areas we offer solutions today; others will be developed or researched.

“Mixing made simple - switching a snap” is the title of this issue of KEYnote magazine. You can learn how to use WibuKey and CodeMeter simultaneously, and how you can migrate from other solutions to CodeMeter. The CodeMeterAct Binding Extension allows you to bind your licenses to any dongles.

With the Connector, you can integrate CodeMeter License Central efficiently and easily in your ERP system and with the Gateway you can collect licenses directly from your protected application. Read more about the perfect integration in your processes, and the easy handling by your customers.

Interesting news and features, as well as a case study complete this issue. I’m looking forward to your questions. It would be great if you participate in our online survey: in doing so you have the chance to win either a Sony PS3 Slim, or an iPod touch 32 GB with custom laser engraving.

With best regards from Karlsruhe,

Oliver Winzenried
Oliver Winzenried

20 years of WIBU-SYSTEMS

Every two years, employees from Karlsruhe (Germany), Europe and China, as well as our distributors, get together at WIPS, our WIBU-SYSTEMS International Partner Summit, to learn more about our latest products and technologies.

Apart from learning, getting to know each other personally, swapping experiences, and just having a good time together helps improve teamwork. This year's WIPS coincided with the 20th anniversary of WIBU-SYSTEMS. One of the highlights was the evening event in the ZKM museum, Karlsruhe's center for art and media technology.

A guided tour of the exhibition YOU_ser 2.0 opened the evening. An especially interesting exhibit was the "Love Letter," on loan from Bletchley Park, the historical home of code cracking during WWII, where the Enigma machine was cracked. This was a perfect fit for WIBU-SYSTEMS, because our UK distributor's office is located in the historical buildings of Bletchley Park.



Oliver Winzenried, Margret Mergen and Marcellus Buchheit at the anniversary celebration of WIBU-SYSTEMS at ZKM

Miss Schierl, responsible for ZKM public relations, welcomed our group, as did also some friends and companies from iRegion Karlsruhe.



Marcellus Buchheit and Oliver Winzenried

Oliver Winzenried gave a review of the last 20 years and outlined new goals. A very special pleasure was the fact that Margret Mergen,

first mayor and economic major of the city of Karlsruhe, welcomed the guests and discussed the importance of innovative medium-sized companies for our region. Prof. Dr. Jörn Müller-Quade, European Institute for System Security EISS from the Karlsruhe Institute of Technology KIT, closed the evening with his vivid presentation about obfuscation and integral security approaches.

The party lasted till late in the night. The evening was perfected with music by the Chilena Trio and food by gourmet chef Bernd Wernder of Schloss Eberstein restaurant. Inspiring discussions from this evening resulted in new solutions with additional benefits for our customers and partners.



Some employees of WIBU-SYSTEMS and distributors at a trip to Burrweiler, Pfalz



CodeMeter License Central – Connector

CodeMeter License Central allows you to create, manage and deliver licenses. In this article, we discuss the creation of licenses, particularly using automatic creation by integration into an ERP/CRM system, or an online shop.

Separation of sales and delivery

When using CodeMeter License Central, we separate the sales process of a license from its creation. On selling a license, CodeMeter License Central creates a ticket. In other systems this ticket might be known as serial number, voucher, coupon, or entitlement number. This ticket is a code, valid only once, that allows

for the collecting of the license at a later time. As with a voucher, once the ticket has been accepted it becomes invalid and cannot be used for a second time.

In most cases when selling a license, it is not known in which dongle, or to which PC the license will be transferred. Here the advantage

of separating sales and collection is more apparent, since the ticket is not tied to a specific PC or dongle.

Further advantages are:

- Easy integration of the ticket generator into existing ERP/CRM systems and online shops

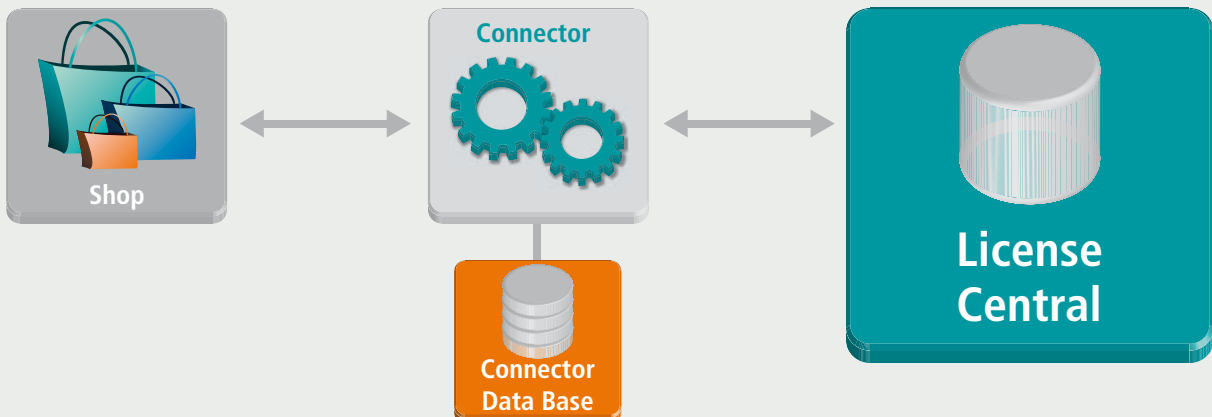


Figure: Individual adaption of a Connector

- Easy delivery of a ticket whether by invoice (printed or e-mailed). It is also possible to resell a ticket. This option allows integration of resellers and distribution partners into the licensing process.

SOAP (web-based) interface

For creating a ticket we provide you two options. In the Desktop Edition you can generate tickets with a web interface using your browser. In the Enterprise Edition you can also automatically generate tickets using a SOAP interface. Use this interface when integrating into your online shop.

Most of the online shops; whether operated by asknet, cleverbridge, Digital River Element 5 or share-it!, provide interfaces to web-based license generators. The SOAP interface provided in CodeMeter License Central and the web-based license generator of the online shop form two plugs which almost match.

However, depending on the shop, the interface of the license generator may vary. With an adapter (we call a "Connector") we are able to integrate those two interfaces.

More than an adaptor

A Connector is, however, not merely an adapter which maps data formats; it also intervenes in the process as an active component. That is, it saves additional information to separate tables that is delivered by the online shop but not required for the ticket generation in CodeMeter License Central. The Connector then is able to read data from those tables, and use it for the

creation of the ticket. Or, it can execute the ticket delivery via e-mail.

For the popular online shops above, basic Connectors (pure data mapping tools) are already provided in PHP.

Digital River – e-Commerce Solution: element 5 | share-it!

The license generator interface of the Digital River e-Commerce solutions element 5 and share-it! are identical. Go to your Control Panel and configure a new delivery type. Select "element 5 delivers: License key" and as option "Key generator via a URL." Specify the URL as the address of the Connector for your CodeMeter License Central location (e.g. <http://lc.codemeter.com/10000/connectors/doElement5Order.php>). Use "ISO 8859-1" as a key generator version. It is that easy to integrate CodeMeter License Central into your element 5 or share-it! online shop.

After the successful order, i.e. payment has been received, the online shop calls the CodeMeter License Central connector. The Connector maps element5:PURCHASE_ID to CustomerID and element5:EMAIL to Comment. You can customize this mapping, or save additional data in separate tables. CodeMeter License Central generates a ticket, or, in a strict sense, a URL for collecting the license that already holds this ticket, and returns it to the online shop.

Consequently, the online shop delivers this ticket as a license key, and the customer collects the license by clicking on the delivered URL. The

Figure: Digital River – element 5 | share-it!

Standard Connectors available for:

- asknet Inc.**
Russ Building
235 Montgomery St, Suite 1025
San Francisco, CA 94104, USA
Tel.: +1 415-352-2610
info@asknet.com
www.asknet.com



- cleverbridge Inc.**
53 West Jackson Blvd.
Suite 1135
Chicago, IL, 60604, USA
Tel.: +1 312-922-8693
sales@cleverbridge.com
www.cleverbridge.com



Connector name
doCbOrder.php

Mapping

Online Shop	CodeMeter License Central
items	Item ID
quantity	Quantity
customerNo	Order ID
CustomerID	Customer ID
email	Comment

- Digital River**
Corporate Headquarters, U.S.
9625 West 76th Street
Eden Prairie, MN 55344, USA
www.digitalriver.com



Connector name
doElement5Order.php

Mapping

Online Shop	CodeMeter License Central
PRODUCT_ID	Item ID
QUANTITY	Quantity
PURCHASE_ID_RUNNING_NO	Order ID
PURCHASE_ID	Customer ID
EMAIL	Comment

license is transferred into the chosen CmStick or into the PC.

cleverbridge

A customizable Connector is also provided for the cleverbridge shop. Go to the Commerce As-

sistant. Select the menu item "Key Generators" and add a new Web Key Generator. You are free to choose any name. Specify the address of your CodeMeter License Central Connector as a path (e.g. <http://lc.codemeter.com/10000/connectors/doCbOrder.php>). Set the interface

to "Type1", the character conversion to "Unicode (UTF-8)", and XML Scheme to "Version 2.100".

Now you are able to use this key generator for your products. Open the desired product and choose "Delivery Details." Configure the Delivery Type to "cleverbridge delivers key inline." For the Web Key Generator, specify the key generator you just created. Set the Key Result Type to "Auto."

After a successful payment, the online shop calls the Connector. It maps CB:CustomerID to CustomerID and CB:email to Comment and returns the ticket in the form of an URL for collecting the license. The online shop displays this URL, and additionally sends it as part of an e-mail to the buyer.

asknet

Integration into an asknet shop is provided by asknet on an individual basis. Contact WIBU-SYSTEMS for more information.

ERP/CRM integration

While most online shops provide easy to configure web-based interfaces, integration into an ERP/CRM system is much more customizable. However, the principle integration process is the same. The ERP/CRM system calls a Connector which in turn processes the data, serves the SOAP interface from CodeMeter License Central, and returns the ticket to the ERP/CRM system.

In addition to having the ERP/CRM system starting the Connector, you also have the option of developing an individual Connector that periodically reads data from the ERP/CRM system, or imports exported data. This scenario is quite common. And it can be used if the ERP/CRM support team does not wish, or is not able to customize processes. A disadvantage of this solution is that the ticket data is not available in the ERP/CRM system.

In case of support incidents, you have to search for information from two different systems: the ERP/CRM system and CodeMeter License Central. The advantage of the solution, however, is an easy straight-forward implementation; a periodical automatic export of the data from the ERP/CRM system has been possible in all projects so far. We can support you in individual integration with our consulting and professional services team from design to implementation.

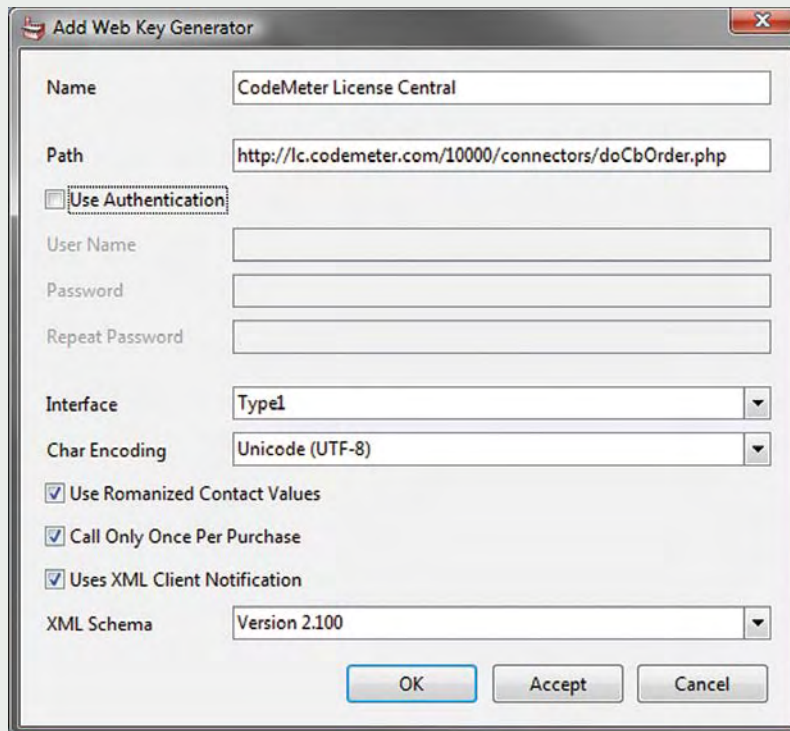


Figure: cleverbridge Commerce Assistant: key generator

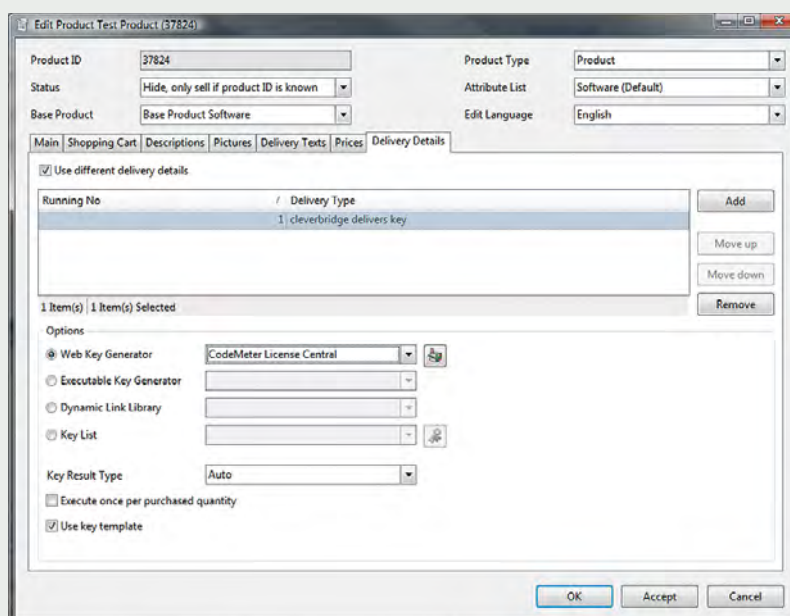


Figure: Configuring the cleverbridge Commerce Assistant



CodeMeter License Central – Gateway

In the previous article, we showed you how to automatically create a ticket with CodeMeter License Central from your online shop or ERP/CRM system. This article deals with automatic collection of the license from your software.

Adaptation with the Connector

First, we need to take a step backward. Our standard connectors deliver the tickets together with a URL, so the customers can easily call the URL and collect the license using any Internet browser.

When using automatic integration with your software, we do not need a complete URL. All that is needed is the blank ticket. CodeMeter License Central is actually delivering the exact ticket, but the Connector converts it into a complete URL. Simply comment the creation

of the URL in the Connector, and it will deliver the blank ticket.

Why do you need a Gateway?

When completing a sale, CodeMeter License Central Enterprise Edition lets you decide wheth-

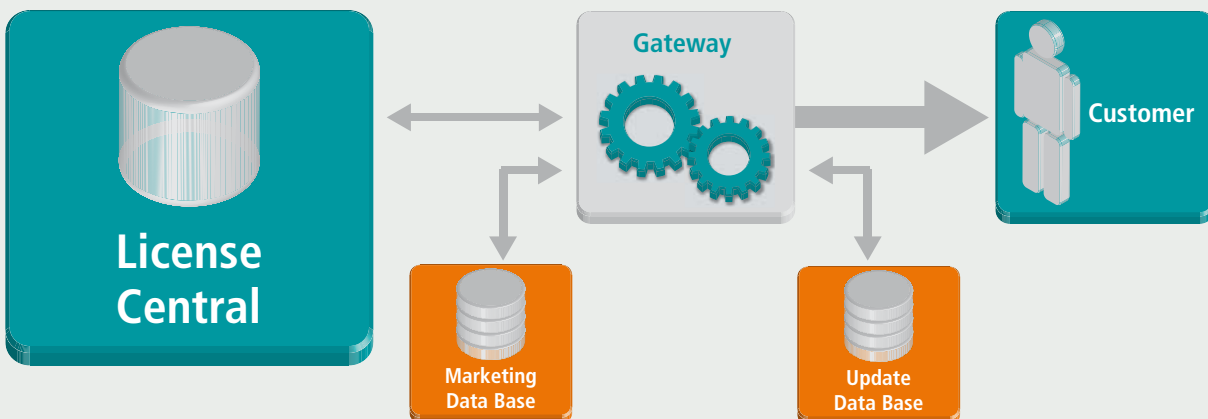


Figure: Getting a license with a Gateway

er your customer should use our web interface or our SOAP Gateway to collect the ticket.

In most cases, CodeMeter License Central will not be available from the Internet directly. But for security reasons, it is available from an internal network. That's why a direct access from outside via SOAP (from the software installed on the customer's side) is not possible.

You need a special kind of software, which is located in the DMZ (demilitarized zone) and replies to inquiries from outside and forwards them to CodeMeter License Central. We call this kind of software a Gateway.

Personalized additional information

Like a Connector, the Gateway can do more than just forward inquiries. The Gateway allows you to link advertising messages to license information, and then deliver it "piggy-back" to the customer for up-selling, cross-selling, or other marketing campaigns.

You can also deliver software updates via the Gateway, because the Gateway can access the license information of the corresponding customer and filter individual offers or updates.

Collecting the license via an update file

Whether collecting the license via a browser or Gateway, the basic principle is the same. A remote context file is created by using the desired CodeMeterStick, or, when using CodeMeterAct, the bound license in a PC.

Together with the ticket, the remote context file is sent to CodeMeter License Central, which in

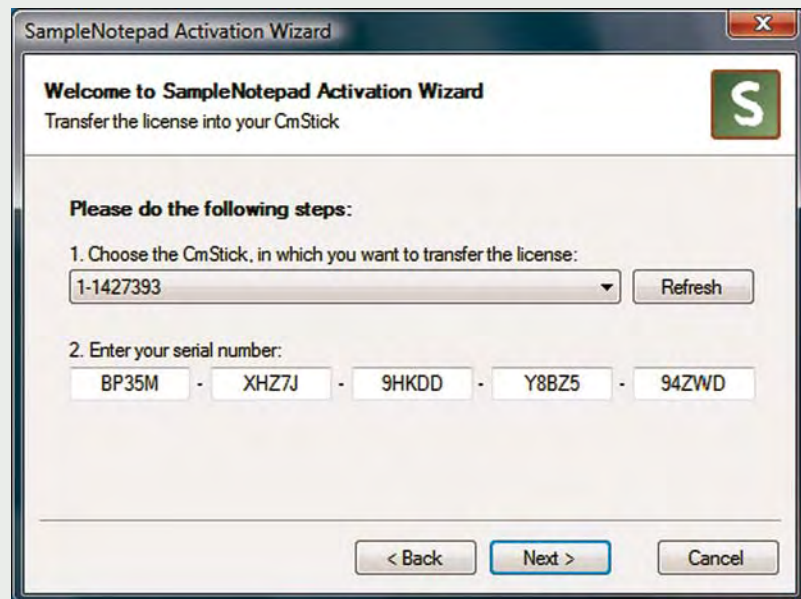


Figure: Activation example

turn checks whether the ticket is valid (does the ticket exist, and does it remain uncollected), creates the appropriate remote update file for this CodeMeterStick or PC, and then transmits this file as a reply. The update file is then copied into the CodeMeterStick or onto the PC.

If you use the web interface, an ActiveX Plug-in or Java Applet creates the remote update file, and copies it on the customer's side. Optionally the customer can create the remote update file manually, and upload it to the web interface. This is especially appropriate, if the PC to which the license has been bound, or to which the CodeMeterStick is attached, does not have any access to the Internet. In this case, neither the ActiveX nor the Java Applet is necessary.

In fact, the CodeMeter Runtime does not even need to be installed.

The Standard Gateway

Using a Gateway, you can create the remote context file by yourself, send it together with the ticket to CodeMeter License Central, and copy the remote update file to your system.

For convenience the Enterprise Edition provides you with a Standard Gateway. It is available at: <http://{0}/gateways/getAllLicenses.php> (replace the {0} with your IP address and with the name of your CodeMeter License Central). This Gateway is alternatively accessed by HTTP/POST or by HTTP/GET and collects all open licenses coupled to the corresponding ticket.

The same mechanism is used on the Internet when you send a form to a server. The only difference is that the Gateway doesn't reply as an HTML site, but with a remote update file.

Calling the Gateway

There are class libraries available in many programming languages that are used to send a http request.

In C#, VB.NET and other .NET languages use the `HttpWebRequest` class, found in `System.Net`. In Delphi use the `TIdHTTP` Components from the `Indy-clients`. In a native implementation without class libraries, send the request with the windows API function "send" and readout the response with "recv".

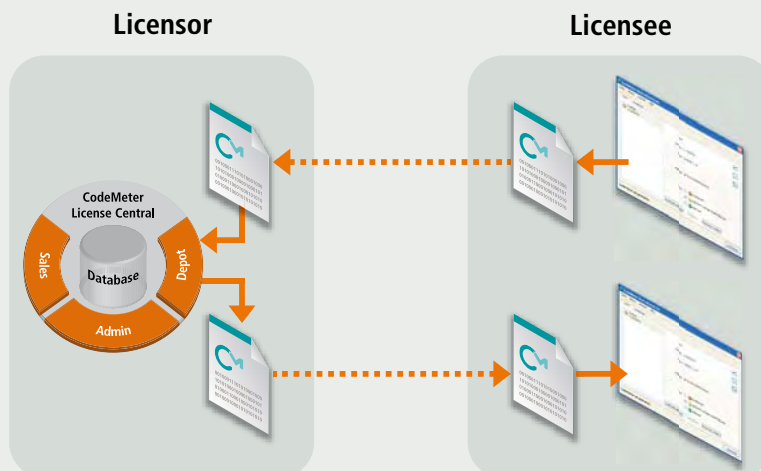


Figure: Getting a license via file exchange

To use an HTTP/POST request, create a TStringlist, which contains the parameters you are sending. The string has the following format: "ticketidentification={0} &firmcode={1}&context={2}." Replace {0} with the ticket, {1} with your Firm Code and {2} with the remote context file.

If you use the TIdHTTP components with Delphi, do not separate the single parameters with an ampersand (&), but write each of them into a single row in the Stringlist. Send this string with the method "POST" to the Gateway's URL.

If the Gateway was successful in creating a remote update file, it replies with the status "HTTP/1.1 200 OK" and the remote update file as an "application/octet-stream." In the case of an error, the Gateway responds with an error status (depending on the error) and an error message in the format of "text/plain."

Remote context and update file

Use the function CmGetRemoteContextBuffer and CmSetRemoteUpdateBuffer from the CodeMeter Core API to create and deliver the remote update file. These functions are available with version 4.0. The "...Buffer" function both stores and references the remote update file in memory. Thus it is no longer necessary to store the files on your hard drive.

Where to generate the request?

As described above, collecting licenses via a Gateway is pretty simple. But where is the ideal place to generate a request? Within your protected application? Within your error handling-DLL, which is called up from the protected application? Maybe you want to use an additional application to activate it? Depending on your scenario, one of these three solutions is the proper way.

Experience has shown that providing an additional application for activation has proven to be the most flexible solution. If a customer already owns a basic version of the software and wants to activate another module, you can start the application for activation from your protected software (CreateProcess or System.Diagnostics.Process.Start)

If the customer doesn't have a license yet, you can start the application for activation from your error-handling DLL. Where you use the standard UserMessageDll provided by WIBU-SYSTEMS, insert the name of your application for activation in the UserMsgXx.ini as "BuyUrl". By changing the values for the "BuyNowbutton" and also the "BuyText" you can customize the name on the button and the tooltip.

Even if your customer wants to activate a network license, the application for activation is the ideal solution. The customer only needs the CodeMeter Runtime and your application for activation on the server.

CodeMeterAct

If you are using CodeMeterAct you can specify different parameters in a license information file, which results in a "fingerprint" of the computer on which the file resides. To create the remote context file this license information file is necessary; it has to be registered by the CodeMeter executable. Even in this scenario, using an application for activation alternative is the ideal solution.

First, make sure that an appropriate CodeMeter-Act license is located on the target PC. Then read out the Firm Code and the CodeMeterAct-ID for

all existing licenses. With CodeMeterAct-ID you can distinguish different schemes on how to create the fingerprint from among the available parameters. If the appropriate license is already located on the computer, use it to create the remote context file. If no appropriate license is available, then provide for registration using your license information file.

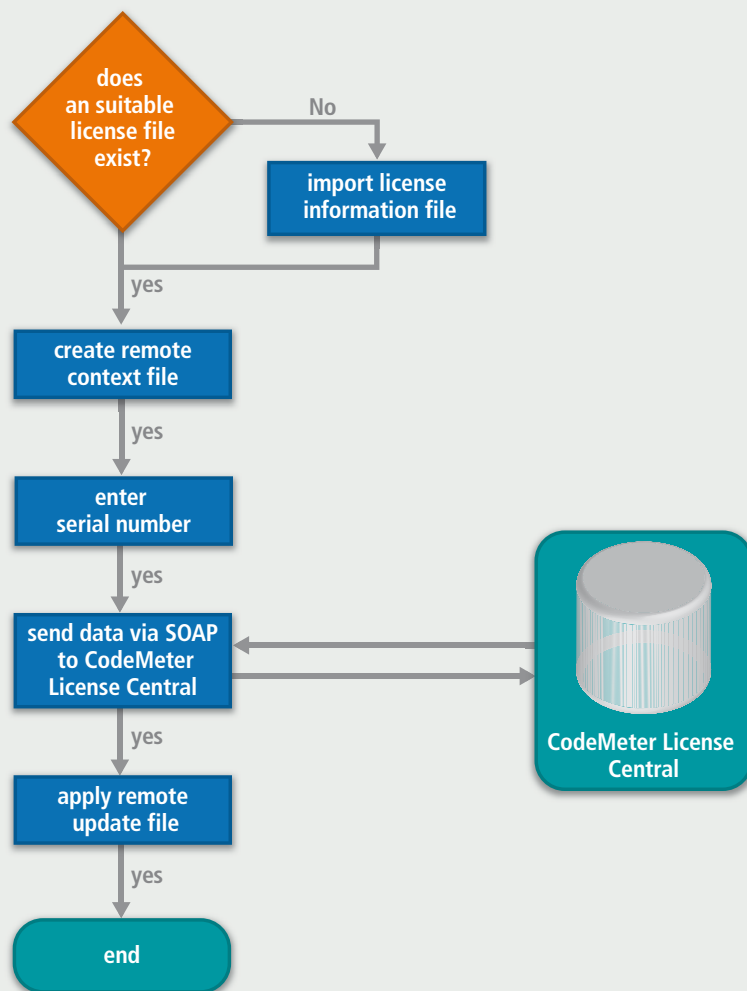


Figure: License file collection flowchart

AxProtector for WibuKey, CodeMeter & CodeMeterAct

At first glance, it appears that you might have a difficult challenge in determining which of the three copy protection systems from WIBU-SYSTEMS best fits your current security or license management requirements.

In principle, no matter which you choose, you cannot make a mistake. WibuKey, CodeMeter and CodeMeterAct now integrate like one homogenous system because of AxProtector, IxProtector and WUPI. You can protect an application using these tools, and then determine individually for each customer if the protection will come, for example, from a WibuBox for a LPT port, a CmStick for a USB port, a CmCard for the SD-Card interface, or a CodeMeterAct license file. You have lots of options that accommodate many different form factors and operating systems.

Always the right choice

In general, CodeMeter offers the most flexibility and highest level of security - because it utilizes the latest standards like AES (Advanced Encryption Standard) and ECC (Elliptical Curve Cryptography). Also, CodeMeter will remain relevant well into the future because the firmware can be updated to accommodate new I/O standards or new operating systems as they are

developed. For newcomers to copy protection or license management issues, CodeMeter is always the best choice.

CodeMeterAct offers the same flexibility as CodeMeter, but it is based on a license file that is bound to the hardware characteristics of a particular PC. Alternatively, it is also possible to bind the license to soft configuration characteristics like an IP address. CodeMeterAct is perfect for price-sensitive software sold in large quantities, and also for license management in enterprises with a "no-dongle" hardware policy. Because a dongle is not necessary, the license can be used immediately after purchasing the software via electronic distribution. Another example: a demo version can be activated and converted to a purchased version during a trial period.

Compared to CodeMeter, WibuKey is characterized by offering diversity, especially on older interfaces like LPT and RS-232 and it is easily integrated on many legacy operating systems.

The serial version is especially useful where it is necessary to send ASCII code across many different operating systems.

Smooth migration

Have you been using WibuKey for many years? If so, you might ask yourself, "Is it necessary for me to switch to CodeMeter?" The plain answer is: You can... but you don't have to. We recommend that you switch in the following cases:

- You have many different applications or modules that you want to license separately (license number, expiration date, etc.)
- You want to give your customers the ability to borrow licenses: For example, from a network server to a laptop
- You need a virtual real time clock for time sensitive licenses
- You want to sell and activate your licenses online.
- You want your existing customers to continue working with WibuKey, but have your new customers receive a CmStick or a CodeMeterAct license file. In most cases, you can integrate CodeMeter or CodeMeterAct in your software without exchanging all the dongles already in the field. No other solution offers a more cost-effective or easier migration.

Automatic protection

When using the AxProtector tool, the simultaneous integration of WibuKey, CodeMeter, and CodeMeterAct is quite easy. AxProtector is available for Windows 32/64-bit applications, .NET assemblies, Java applications, and Mac OS X applications. You simply choose which of the three copy protection systems (or combinations) you want to use during the encryption process. Then AxProtector protects your software automatically; you don't even have to implement a source code query.

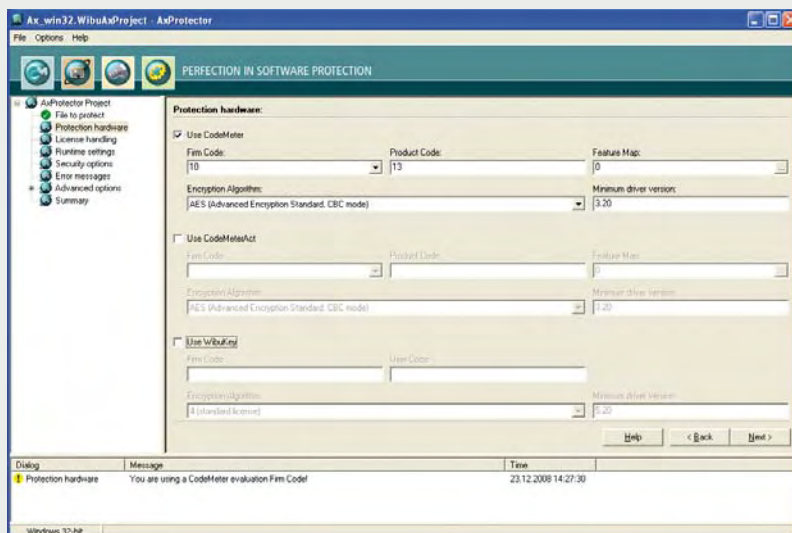


Figure: AxProtector protection hardware options

For security reasons the encryption for all three systems is different, so you must use different Firm Codes. Our “best practices” suggest that you should use the same ProductCodes for the same product if you want to deliver it with CodeMeter as well as with CodeMeterAct. This isn’t a requirement, but it simplifies the administration of your products. And if you want to also use WibuKey, we recommend that you use an unique allocation of CodeMeter Product Codes and WibuKey User Codes.

AxProtector manages the different encryption schemes for each copy protection system. It provides decryption sequences for each selected option within the protected application. At runtime the suitable sequence will be chosen and it will be used for the decryption of the rest of the application. This process provides the highest level of performance at runtime, yet still provides you with flexibility in choosing the copy protection method sent to your end user.

Individual integration

If you have different program modules in one application and you want to activate them individually, then use WUPI and IxProtector. WUPI stands for Wibu Universal Protection Interface and offers you a unique interface for WibuKey, CodeMeter and CodeMeterAct.

To easily check for a valid license, implement WibuCheckLicense (or Wupi.CheckLicense for .NET environments). A numerical value represents a parameter equal to a module number. With IxProtector (integrated in AxProtector), you determine the parameters for application encryption, such as, which copy protection system, which FirmCode, or which ProductCode is hidden behind which module number. One module number can encompass different options, thus it is optionally a WibuKey license, a CodeMeter license, or a CodeMeterAct license.

Next, IxProtector automatically implements cryptographic calls with the selected options in your application. So you have three important advantages: Beyond easily checking for licenses, IxProtector provides you with the ability to modularly encrypt EXE files. While AxProtector always encrypts the complete code, using IxProtector you determine separately which code segments will be encrypted and with which module number. All this is done for you when using a .NET assembly because the protected applications do the encryption of the single methods automatically before their first call. For native applications, you will call WupiDecryptCode so there is a guarantee that the corresponding code

Access	WIBU-SYSTEMS form factors
USB 1.1 / 2.0	CmStick, CmStick/M, WibuBox/U (+), WibuBox/RU (+)
Intern USB	CmStick/I with 2x5 multipoint connector 2,54 mm
LPT	WibuBox/P+, /RP+
COM	WibuBox/ST
SD Card	CmCard/SD
µSD Card	CmCard/µSD
CF Card	CmCard/CF
ASIC	(Access type) WIBU 3507-06, WIBU 1501, 1510
PC Card	CmCard, WibuBox/M+
Express Card	CmCard/E
File	CodeMeterAct license file (optional linked on: fixed disk, BIOS, CPU, MAC-address, or other parameters)

will be encrypted for execution. WupiEncryptCode then allows you to perform an encryption. This ensures that the protected application is never completely decrypted in memory.

Of course you can use IxProtector for a single module when you want to use only dynamic code encryption and decryption. In addition to IxProtector, we recommend the use of AxProtector. Therefore IxProtector is integrated in AxProtector. This means in one single step you get the benefits of using both the automatic and individual protection with your application.

Core API


For standard cases using AxProtector, IxProtector, and WUPI for your integration is the best choice. Should you have additional requirements you can use the classic Core API for CodeMeter or the WibuKey API. Utilizing the API is helpful in the following situations:

- You want to read data from a CmStick/ CodeMeterAct license file (for example, you want to extract the licensee name out of the Customer License Information).
- You want to directly integrate the update function of a license, using a Remote Programming file, within your software.

Here is how to do this: Use WupiCheckLicense and ask for the right license. If you indicate “0” as a module number at WupiCheckLicense, then you will receive the license that is taken by the AxProtector. Next use WupiQueryInfo to find out what type of copy protection system is used for the indicated license. Now you can get a handle on the license with the WupiGetHandle and cast it on a WibuKey handle or a CodeMeter handle, depending on the copy protection system in use. By the way, CodeMeter and CodeMeterAct use

the same Core API. Now you can work normally with the handle – just like you would do by yourself with CmAccess2 or WkbOpen2.

CodeMeter as an umbrella?

To misquote Gandalf the Grey, “One Key to rule them all.” Now the power of CodeMeterAct is revealed. You can bind a CodeMeterAct license file to a WibuKey dongle instead of a PC. This would allow you to continue to use your old WibuKeys and still gain the complete functionality of CodeMeter. This is good news for those who might be using one of our competitor’s products; because if CodeMeterAct can bind to a WibuKey, it can bind to any dongle. This means that you could upgrade from a competitor’s solution to CodeMeter without losing your previous dongle investment. Read more about this possibility in the next article. 

Benefits of IxProtector:

- IxProtector relieves you of the task of creating the security relevant implementation. The easy-to-use CheckLicense function is now a secure cryptographic call.
- You can implement WibuKey, CodeMeter and CodeMeterAct simultaneously without doing so explicitly.
- Subsequently, you can make a WibuKey-protected application work with CodeMeter and CodeMeterAct – even after compiling your application. You just have to encrypt your application again with the corresponding options.

CodeMeter Binding Extension

You may already have a huge installed base of dongles (WibuBoxes or dongles from our competitors) and now you are thinking of switching to CodeMeter. But you are not sure about the financial commitment or logistic effort needed to make the switch. We have the perfect solution: CodeMeterAct and the New binding extension.

In most cases, the CodeMeterAct license file is bound to the characteristics of a particular PC. Beginning with CodeMeter version 4.10 you can replace the default binding scheme with one of your own design. You simply write an extension to the CodeMeter runtime (a CodeMeterAct Binding Extension) and deliver it along with your software. So you now have the option of integrating any dongle into CodeMeterAct. You can even define what you want to use. You may only want to simply read out a serial number, or maybe you want to implement a cryptographic query. In any case, your extension delivers a unique value. This value is used to bind your license instead of PC characteristics.

Creation of the binding extension

A CodeMeter binding extension is a plug-in (a DLL in Windows), which implements a defined interface. Next to the four base functions `CmPluginInit()`, `CmPluginGetFunctionality()`, `CmPluginDelInit()` and `CmPluginGetLastErrorCode()`, the plug-in also contains the function `CmPluginGetBindingValue()`.

In this function you return 64 hex characters plus a terminating 0 as a string, which is used as the fingerprint. So the calculation of this value is all up to you. Depending on the functionality of the dongle in use, we recommend that you use encryption, a signature, or at least create a simple hash.

Is a hacker able to replace this plug-in?

Creating a plug-in is a very common task for a programmer. So, why can't a hacker create a dummy plug-in, which always sends this same value, in order to bypass the protection? Simple: it's not possible because the plug-in is signed by your FSB. The CodeMeter Runtime loads only "successfully signed" plug-ins. The signature contains your Firm Code and a symbolic name for the plug-in. The fact that only you have the

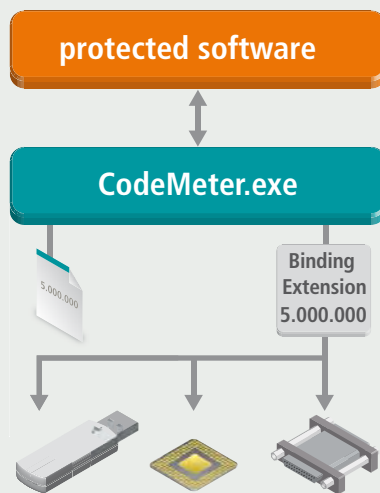


Figure: Binding Extension

FSB with your Firm Code makes you the only person able to create unique signatures.

When creating the license file, you enter your Firm Code and the symbolic name of the plug-in. The symbolic name is specified instead of the binding scheme. The plug-in filename has to follow the syntax [Firm Code]-[symbolic name].dll. If that is not the case, the "signatures" tool automatically changes the name of the plug-in. Only when the Firm Code and the symbolic name of the plug-in match the entries in the license file, will the license file get used along with the plug-in.

When to call what?

During the activation of a corresponding license and while checking the validity of such a license, your plug-in gets called by the CodeMeter.exe. When your plug-in is first called, the functions `CmPluginInit` and `CmPluginGetFunctionality` are also called. You can initialize global variables in the `CmPluginInit`. Note: the plug-in remains loaded until you quit `codemeter.exe`, even if all

corresponding licenses have been removed. When a corresponding license is activated, this means a remote context file has been created from the license information file, the function `CmGetBindingValue` is called. If you cannot create the fingerprint (e.g. no dongle is plugged in), the response should be either an error, or the calculated value.

The function `CmGetBindingValue` is also called while loading the corresponding license. When the corresponding licenses are available, your plug-in is loaded when the CodeMeter runtime is started. You can also initiate the check of your fingerprint from within your application. Just call the function `CmRevalidateBox` out of the CodeMeter-API. This call-up function triggers `CmGetBindingValue` for the licenses in use. If the license is still valid, allocated licenses stay allocated after the call up. If the license is invalid, all allocated licenses in this license file are automatically released. On the next access, your software shows the error: 106 (invalid handle).

If an active license becomes invalid (because the corresponding dongle was not plugged in or available during the last check), the license in the CodeMeter Control Center is displayed with a broken symbol and a "repair" button comes up. By clicking this button the customer can initiate the repair process (`CmGetBindingValue`). Of course you can do this from within the application by using our API (`CmRevalidateBox`). When closing `codemeter.exe`, `CmPluginDelInit` is called up.

Only dongles?

While this routine provides for a smooth migration from a competitor's dongle to CodeMeter, it can also be used to bind a license to any specified hardware component. For example: your own serial number chip, a TPM chip, a DSP chip on a soundcard or any special hardware device. 

License Borrowing

Previously, an end-user (licensee) needing a temporary license was forced to go begging on bended knee to the software developer (licensor) for special consideration. This resulted in both an unhappy customer and extra help desk costs. Today, with the license borrowing features built into CodeMeter, the end-user can reallocate existing CodeMeter licenses and CodeMeterAct licenses at any time.

At times, an employee of a company holding a valid software license will urgently need to use the software at a location without Internet access (a construction site, for example). But the software license is located back in the office. Now, how to get a valid license without bothering the software provider's help desk, or compromising the software protection?

The improved license borrowing features, available in CodeMeter version 4.10, allow the licensor to determine if, when and how many valid licenses can be allocated or lent to the licensee with a single mouse-click. For example, the licensor might configure a license in this manner: Ten licenses total; three of them must stay on the server and seven are lendable. To realize this, the licensor must create the lending parameters and prepare the appropriate entries on the server side with corresponding entries on the client for the different copy protection systems. In our example,

seven CmSticks could be prepared for lending. At the start, each of these CmSticks would contain a valid license entry that can only be activated via the enabling process.

License lending and expiration times

Now suppose that one license is required at another location for a set period of time. Because the licensor had previously enabled license lending with this customer, he/she is able to create a temporary license with one click on a button in CodeMeter Control Center. Depending on the time period, the former inactive entry in the standby CmStick is now activated and the server notes that one license has been lent out for a set period of time. At the end of this set period, the license will be returned automatically to the server, and added to the pool of available licenses. The borrowed license is now useless. If the borrowed license is returned before the set time period expires, the license is added back to the pool

immediately. This means that a license borrowed by an employee for the weekend will be returned to the pool on Monday morning automatically, even if the employee is late for work.

CodeMeter and CodeMeterAct

CodeMeter and CodeMeterAct play nicely with each other. License borrowing can take place within both systems, or across both systems, on either the server side or the client side. For example, the main licenses may reside on a server inside a CodeMeterAct license file; but lending takes place on CmSticks. Such CmSticks could be used on any computer without any additional preparation. Of course the opposite scenario is also possible; main licenses protected with a CmStick and borrowed licenses going to a CmAct license file.

Different license options

The licenses and the licenses options needn't agree with these of the borrow server entry. It is even possible to lend another Firm Code or Product Code; this is a must for implementing overall copy protection compatibility. The borrow server license as CodeMeterAct license has for example the Firm Code 5010000 with the Product Code 16, while the lending borrow client license in a CmStick contains the Firm Code 111000 with Product Code 4821. All Firm Codes in use need the corresponding FSB entry when programming. If you are borrowing a license, you activate the entry without access to the FSB of the so far inactive entry. A reprogramming of the content didn't happen.

Binding to a Server ID

The licenses of a Borrow Client entry can be bound to a ID of a Borrow Server entry. As result this lending is only possible from this Borrow Server entry: Even with different license options for different customers the licensor has the security that licenses can be used only as intended.

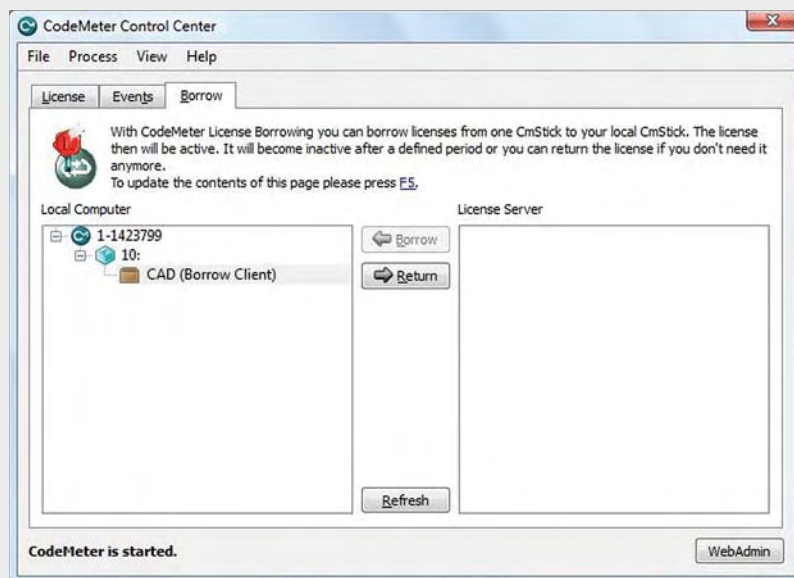
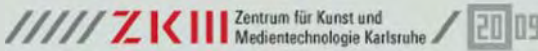


Figure: CodeMeter Control Center

Short News

CE/UL/REACH/RoHS/Dual Use

There is a series of regulations for export and for labeling the WibuBoxes and CmSticks. We summarized it on a leaflet.



WIBU-SYSTEMS: committed to education

Well trained employees are the most vital asset in a company. WIBU-SYSTEMS shows its commitment to education by:



- Providing internships for students in both schools and universities.
- Offering professional education in different occupational areas.
- Supporting a foundation for gifted computer science students at the Karlsruhe Institute for Technology, KIT.
- Actively supporting several local associations: American German Business Club Karlsruhe, Verein Karlsruher Software Ingenieure, Cyberforum, Förderverein FZI and Mobile Region Karlsruhe.
- Supporting worthy community outreach groups, like the church sponsored "Liebe Frau" in Karlsruhe.
- And finally, we are a bronze sponsor of the new exhibition IMAGINING MEDIA@ZKM, starting on October 9th, 2009.

Engagement for adding value and retaining value as a company Philosophy

Medium-sized companies like WIBU-SYSTEMS AG and the ZKM | Center for Art and Media Technology have one thing in common: they have a worldwide vision. Medium-sized, local companies carry the economy and support regional culture. That is why ZKM feels a kinship to the innovative creativity of this company and the IT sector in general. With two companies like WIBU-SYSTEMS and ZKM acting as beacons, the city of Karlsruhe and the whole region has a forward-thinking mentality, which will help provide prosperity for decades to come. Our responsibility at ZKM is to build up relationships between the business community and the fine arts and to support the kind of development that produces social value on a super scale. As one of the most innovative institutions in its field, which is always eager to experiment, the ZKM – already possessing very good reputation, even beyond Baden-Württemberg – is an interesting partner for such cooperation.



Barbara Schierl, ZKM

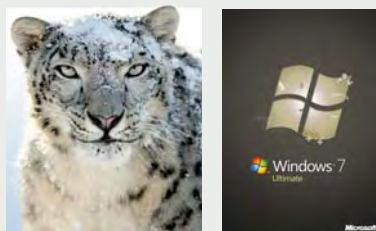
VitaBIT

VitaBIT is a European initiative providing secure mobile information technology for medium-sized businesses. WIBU-SYSTEMS, as the coordinator, contributes CodeMeter technology for security. Particularly, the CmCard/SD and µSD-Card versions can be implemented in mobile phones. The goal of VitaBIT is to increase the mobility of nursing employees by combining mobile and cross platform services in outpatient care. This should make practitioners more flexible and should raise nursing quality considerably by promptly and securely supplying contextsensitive knowledge right in the home.



Mac OS X – Snow Leopard

The latest versions of CodeMeter (4.10) and WibuKey (6.0) support both Windows 7 and Mac OS X 10.6. For example, AxProtector version 6.50 contains many new features. Get latest version at www.wibu.com



CODiE Award 2009 Winner

CodeMeter was awarded a CODiE for its outstanding technology in the field of software protection and license management. This prestigious award was presented to WIBU-SYSTEMS during the 25th annual SIIA presentation ceremony that took place in San Francisco on May 5th, 2009. The Software & Information Industry Association

(SIIA) is the principal trade association for the software and digital content industry providing intellectual property protection information to leading companies that are setting the pace for the digital age.



CodeMeter: Token and dongle

By incorporating an OEM version of charismathics' CSSI-Middleware, CodeMeter becomes the first worldwide product combining the security functions of both a token and a dongle in one single hardware package. You can store up to 16 X.509 certificates in a CodeMeter Stick along with the typical Firm/Product Code entries. A complete implementation of Microsoft's Crypto API, PKCS#11 and Apple's TokenD allows the use of popular PKI-applications, like Outlook, The charismathics Smart Security Interface Middleware, CSSI, will be available beginning November 2009.



Propellerhead chooses CodeMeter

Propellerhead Software a leader in providing software applications for the music industry, selected WIBU-SYSTEMS' CodeMeter technology as the best solution available for protecting their new software application Record from reverse engineering, tampering and piracy. Record is a complete recording studio for Mac and PC. Propellerhead designed a classy red anodized aluminium case to surround the CodeMeter electronics creating the first ever OEM version of a CodeMeter stick. Propellerhead calls this new OEM version an "Ignition Key".





Customer story: LVD

“LVD offers a full range of integrated products for sheet metal working worldwide. Our people and products provide customers with an intelligent solution for higher productivity and faster growth. With our commitment to keep this promise we started our cooperation with WIBU-SYSTEMS in 1996. Back then, we introduced the first Windows-based press brake control software Cadman CNC to the market.”

Why did you choose WIBU-SYSTEMS?

“We benchmarked products of other providers against the solutions of WIBU-SYSTEMS. We made the decision to select WIBU-SYSTEMS solutions because we cooperate with various technology partners. WibuKey allows us to integrate all security mechanisms in a single solution. This ensures that all of our partners profit from the increase in security.

Another very important aspect was that WibuKey represents the only security solution not hacked so far. All other software protection solutions available we found had been hacked with “workarounds” that could be found on the Internet.”

What about implementation?

“During implementation we learned how easy it is to integrate this complex technology. In the case of smaller applications, AxProtector enabled straightforward and integrated protection. This saves a lot of development time – time we are able to devote to our products! More complex projects were accomplished using the API, and all of our requirements were easily met.

We also protected these bigger projects with AxProtector. Now we have an optimal situation: a secure and protected software bundle exactly matching our license model.”

What were our experiences?

“After more than 10 years of experience with WIBU-SYSTEMS, we still are enthused by the extreme reliability and the easy handling of this technology.

For one, we had to replace less than 0.1% of the WibuBoxes resulting in high levels of



Integrated Solutions for Sheet Metalworking

acceptance and satisfaction on the part of our customers. Moreover, we have considerably less management efforts.

The option byto remotely updated WibuB boxes transferring new licenses to customers was already an important decision criterion back then. Our customers really appreciate this. Ultimately, this guarantees that we are able to react to customer requests within the shortest time possible. The ability to create “floating” licenses in a client-server installation was also key and the fact that each box may remotely configured as a server dongle at the same time all influenced our decision in favor of WIBU-SYSTEMS. As far as we know, this feature is not provided by any other company.

In a nutshell, with WIBU-SYSTEMS we found a reliable partner, and the product WibuKey has supported us admirably in coping with the ongoing technological evolution. Congratulations to WIBU-SYSTEMS on your 20th anniversary! 🎉

Matthew Fowles
Group Marketing Manager, LVD

20 Years
 MEDIA ACCESS
 PERFECTION IN SOFTWARE PROTECTION
 DOCUMENT

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Good luck and thank you in advance.



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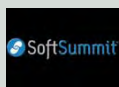
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