CodeMeter Administrator Guide

Version 5.10 - October 2013

Wibu-Systems is member of:

PCMCIA since1993

USB Implementers Forum since 1997

SD Card Association since 2007

Bitkom, German Association of Information Technology, Telecommunications, and New Media since 2003

VDMA, German Engineering Federation since 2008

OPC Foundation since 2012

and also a member of the developers programs of Autodesk, Apple, HP, IBM, Intel and Microsoft.

Microsoft Gold Certified Partner

Microsoft Embedded Partner

Strategic Software Partner Industrial and Medical

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CodeMeter User Help 5.10, 16.10.2013.

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E-mail:	support@wibu.com

CodeMeter WebAdmin uses jQuery functions.

2 Manual

The following parts of this *CodeMeter*® Developer Guide on installing and using many of the *CodeMeter*® tools are also of interest for the administrator and thus part of a separate section.

2.1 First important Information

First connection of *CmDongle*

Connect your *CmDongle* with a free USB interface of your PC. The light diode of the *CmDongle* alternatively flashes red and green for 1-2 seconds. Your PC shows that a new USB device has been found. *CmDongles* with additional Flash memory, e.g. *CmStick/M*, are able to permanently hold any data on this drive. Alternatively to the mass storage device status, *CmDongles* can also display as HID (Human Interface Device) without a drive status (for more details see here 81).

> *CmDongles* without Flash memory represent virtual drives, i.e. data you save on it will get lost once you disconnect the *CmDongle*!

By default, *CodeMeter*® Runtime Server is installed as service (Windows) or as deamon (Linux, Mac) and thus automatically starts on system startup. The behavior at system startup is optimized by using default values and prevents eventually occurring process access conflicts. In the case of problems, please contact Wibu-Systems Support.
If *CodeMeter*® Runtime Server should not be active, it can be manually started or stopped 10. The following table shows you start options for different operating systems

Operating System	Menu Control	Name
Windows	[Start | All Programs | CodeMeter | CodeMeter Control Center]	`CodeMeter.exe`
Mac OS	[Programs | CodeMeter | CodeMeter Control Center	`CodeMeterMacX`
Linux	[Applications | System | CodeMeter Control Center] or [Applications | Accessories | CodeMeter Control Center]	`CodeMeterLin`
Sun Solaris	[/opt/CodeMeter/CodeMeterCC]	`CodeMeterSun`

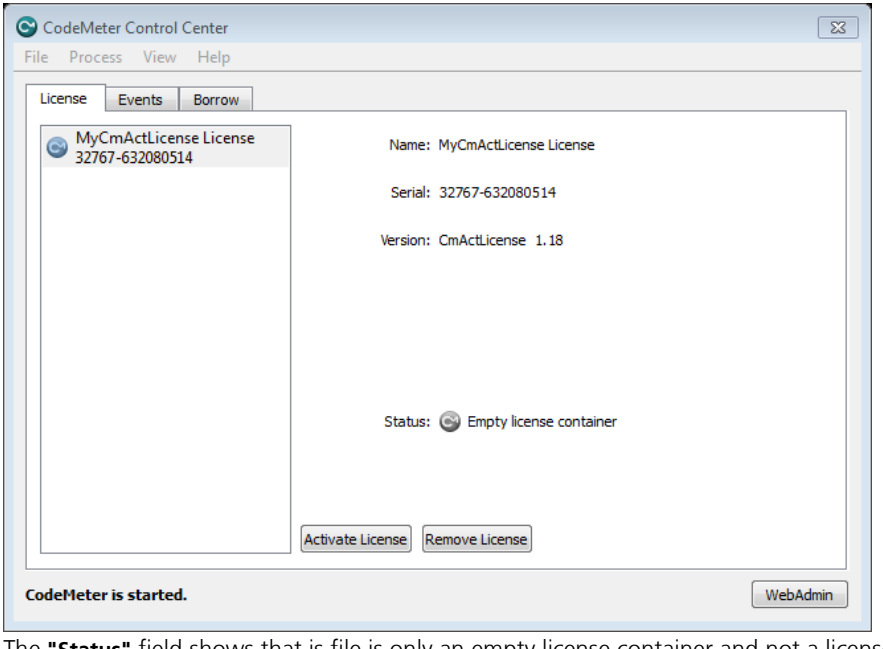
Activating *CmActLicense* licenses

CmActLicense the software- and activation-based *CodeMeter*® variant requires no hardware token. Rather *CmActLicense* licenses are bound to hardware properties of the PC on which they are accessed.

> Please make sure you activate a *CmActLicense* license only on the PC for which you want to use the license.

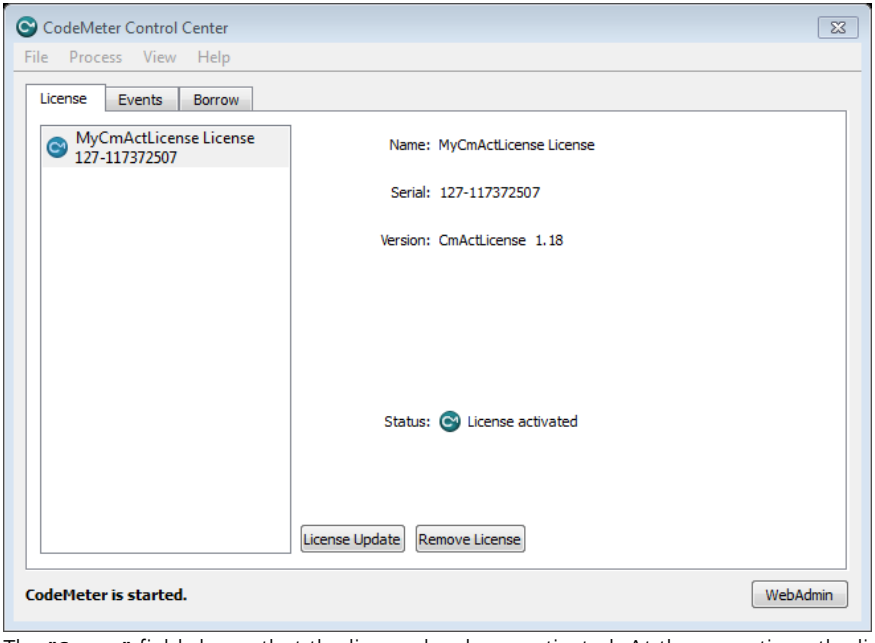
Before you are able to activate *CmActLicense* licenses for your PC you require a separate file you obtain from your software vendor. This licenses information file corresponds to an empty license container. It serves to collect hardware properties of your PC as a kind of 'finger print' for the subsequent activation. Please proceed as follows:

1. Drag & drop the `*.wbb` file, e.g. `MyCmActLicense.wbb`, you received from your software vendor onto *CodeMeter Control Center.*



The **"Status"** field shows that is file is only an empty license container and not a license. At the same time, the *CodeMeter*® symbol changes to red.

2. Click the **"Activate License"** button to create a license request file (see here 26) and to send it to your software vendor.
   Subsequently, your software vendor will send you a license update file.
3. Drag&drop the `*.wbb` file, e.g. `MyCmActLicense.wbb`, you received from your software vendor onto *CodeMeter Control Center*.



The **"Status"** field shows that the license has been activated. At the same time, the license has a serial number, and the *CodeMeter*® symbol has switched to activated status.

CodeMeter FAQ

A comprehensive FAQ area on *CodeMeter*® and on other additional products, you will find at our CodeMeter support page.
Please take a first look at the information on the *CodeMeter*® support page before you contact our support team. In most cases, you will find quick answers to your questions and problems.

Support

You have several options to contact us:

E-Mail	Writes us an e-Mail at support@wibu.com Please describe your problem in detail and add the file `CmDust-Result.log` created with *CmDust* 71..
Telephone	Contact our *CodeMeter*® Hotline at +49-721-93172-15. We are available in Germany (local Baden-Wuerttemberg non-holiday) workdays (Monday through Friday) from 8 a.m. to 5 p.m.. Wibu Systems USA support is available Monday through Friday from 8 a.m. to 5 p.m. PST by phone at 800-6-GO-WIBU (425-775-6900) or by e-mail (support@wibu.us) In China contact our Shanghai office per phone +86 (0) 21-55661790 or by e-mail (info@wibu.com.cn).

2.2 Safety Instructions

The hardware of WIBU-SYSTEMS AG serves to protect and license digital products and has been developed, manufactured and inspected in accordance with state-of-the-art technology and recognized technical safety rules and regulations.
For further information on hardware certificates see the respective documents to be downloaded at the website of Wibu-Systems (http://www.wibu.com/en/certificates.html).
Before you use the hardware please observe the following safety instructions:

- If you follow the instructions regarding safety as described in this manual, the hardware will, in the normal case, neither cause personal injury nor damage to machinery and equipment. Connect the hardware only to matching intended interfaces. The use for other purposes, opening or own repair of the hardware may lead to damages of the product and its suroundings.Modifying the hardware affects the product safety. Caution: risk of injury!
- The hardware may warm up during operation - which is a normal operational parameter.
- Keep the hardware away from humidity and avoid strong vibration, dust, heat, and direct sunlight, in order to prevent operational interference
- Depending on the used operating system the detection of the hardware device may take some seconds. Before disconnecting the hardware the user should wait several seconds to avoid loss of data during data saving.
- This product is not a toy, keep away from children!.

Non-compliance with the safety instructions result in a loss of warranty.

2.3 CodeMeter Control Center

CodeMeter Control Center serves to locally configure *CodeMeter License Server*. Software-sided, *CodeMeter License Server* as the runtime environment is at the heart of *CodeMeter*®. It allows the access to *CmContainer*. In doing so, *CmContainer* can be locally connected or are available on a network. By default, *CodeMeter License Server* is installed as service or deamon (Linux, Mac) and automatically starts when the system starts.

When the service has been started, other programs are available to access licenses stored in *CmContainer* and use protected data areas in a *CmContainer*.

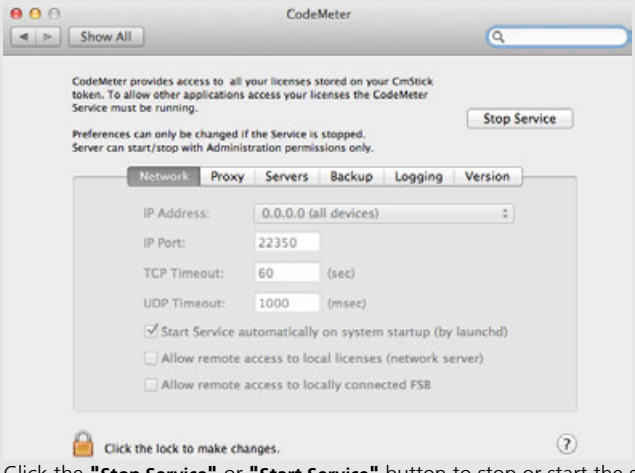
Operating System	Menu Control
Windows	[Start - All Programs - CodeMeter - CodeMeter Control Center]
Mac OS	[Programs - CodeMeter - CodeMeter Control Center
Linux	[Applications - System - CodeMeter Control Center] or [Applications - Accessories - CodeMeter Control Center]
Sun Solaris	[/opt/CodeMeter/CodeMeterCC]

CodeMeter License Server starts only one-time on each PC!

Start and Stop *CodeMeter*®-service or daemon

The following table shows you for different operating systems how start or stop the *CodeMeter*® service or daemon.

Operating system	Description
Windows	**1.** Navigate via **"Windows | Control Panel | Administrative Tools | Services"** to *CodeMeter* Runtime Server. **2.** Right mouse-click and **'Start'** or '**Stop**' the service. Alternatively, use the **"**Action 15 **"** menu of *CodeMeter Control Center*.
Mac OS	**1.** Navigate via **"System preferences | Other"** to the *CodeMeter*® icon.  **2.** Click the *CodeMeter*® Icon. The CodeMeter dialog displays

Operating system	Description
	 **3.** Click the **"Stop Service"** or **"Start Service"** button to stop or start the service.

Linux	**1.** Call the following script with '`sudo`' root privileges to stop the service:
	`etc/init.de/ codemeter stop`
	2. Call the following script with '`sudo`' root privileges to start the service:
	`etc/init.de/ codemeter start`

Sun Solaris	**1.** Call the following command as '`root`' to stop the service:
	`%> svcadm disable codemeter`
	2. Call the following command as '`root`' to start the service:
	`%> svcadm enable codemeter`
	3. Call the following command as 'root' to disable the service until next boot:
	`%> svcadm disable -t codemeter`

CodeMeter License Server uses TCP/IP network protocol for communication and the default port `22350`. Make sure your firewall does not block this port. Please make sure that the used IP-Port `22350` is available for *CodeMeter®* .

2.3.1 Structure and Navigation

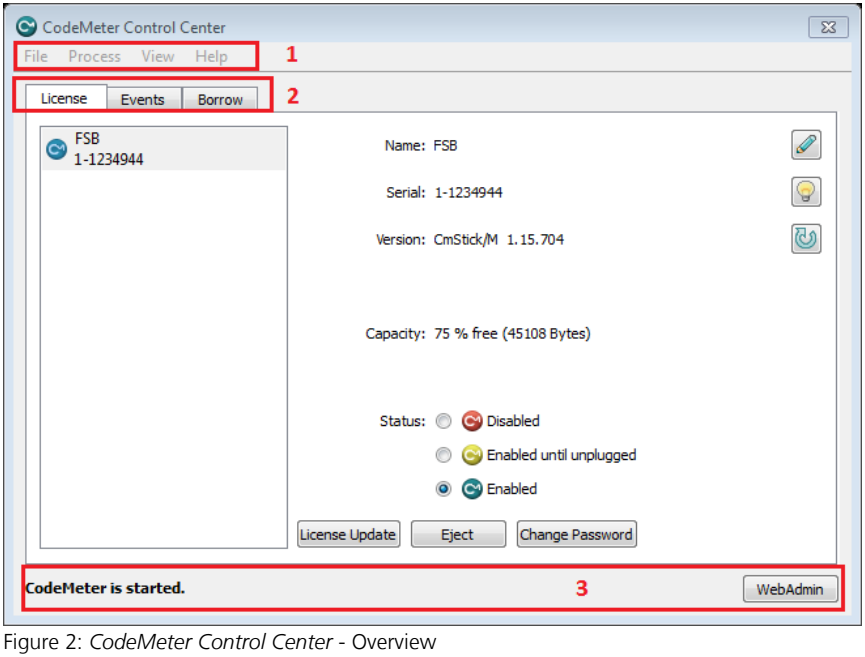


Figure 2: *CodeMeter Control Center* - Overview

The *CodeMeter Control Center* user interface is divided in three separate areas:

- menu bar[13] (**1**)
- Tab areas (**2**)
- *Status and Open CodeMeter WebAdmin*[23] (**3**).

Starting *CodeMeter Control Center*

You access and start *CodeMeter Control Center* in several ways:

Open

- Double-click on the *CodeMeter*® or symbols in the info area of the Windows task bar
- Right mouse-click on the *CodeMeter*® or symbol there, and subsequently select the **"Show"** menu item. The *CodeMeter Control Center* secondary menu (right mouse-click on the *CodeMeter* symbol) provides the additional menu items:

Item	Description
WebAdmin	Starts *CodeMeter WebAdmin* in the default Internet browser.
Eject all CmDongle(s)	Option to safely disconnect *CmDongles*.
Disable CmDongle	Prompt to insert the Cm*Dongle* Password.
Help	Opens the *CodeMeter*® help.
About	Shows general information on *CodeMeter*® components.
Quit	Exits but not shuts down the service *CodeMeter License Server*.

- Navigation by the **"Start | All Programs | CodeMeter Control Center"** system menu.

In the info area of the Windows task bar, different colors of the *CodeMeter*® symbols represent different status conditions of connected *CmContainer.*

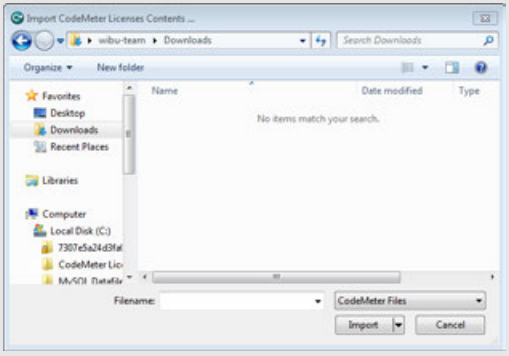
Color	Status
Grey	No *CmContainer* is connected, or *CodeMeter License Server* is not started.
Green	An activated *CmContainer* is connected.
Blue double	Several *CmContainer* are connected and activated until disconnected..
Yellow	A *CmDongle* is connected and activated until it is disconnected.
Red	A deactivated *CmContainer* is connected.

Figure 3: *CodeMeter*® Symbols Windows Task Bar

2.3.2 Menu Bar

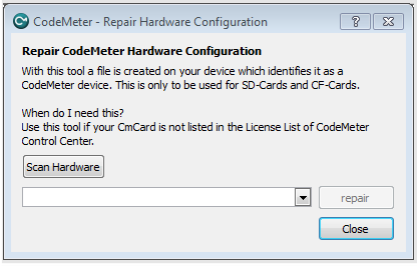
File Menu

Element	Description
Import license	In order to import license contents using *CodeMeter Control Center*, proceed as follows: **1.** Select the **"File | Import License..."** item. **2.** Select in the following **"Import CodeMeter License Contents ..."** dialog the *CodeMeter*® files of the types `*.WibuCmRaU`; `*.wbb`; `*.wbc` and read in license data by clicking on the **"Import** button.

Element	Description
	 Figure 4: *CodeMeter Control Center* - Import Licenses Alternatively, you can also directly import the license file using the Windows Explorer. Simply drag & drop the file in the **License** tab area of *CodeMeter Control Center*.
WebAdmin	Opens *CodeMeter WebAdmin* in the default Internet browser. Alternatively, press the key combination `<CTRL>+W`.
Logging	Saves all *CodeMeter*® events to a log file. Alternatively, press the key combination `<CTRL>+L`. When you activate the logging, this also affects the logging display in *CodeMeter WebAdmin* on the **"Diagnosis | Logfile"** page. On Windows operating systems this log file is stored to the directory `%\Programm Files%\CodeMeter\Logs`. This log file is especially important for trouble shooting.
Preferences	Opens *CodeMeter WebAdmin* and is defaulted on the page where you are able to apply network settings.
Exit	Exits *CodeMeter Control Center*. Alternatively, press the key combination `<CTRL>+Q`. The service*CodeMeter License Server* however is not shut down.

Processes Menu

Element	Description
Eject all CmDongles	Ejects all connected *CmDongles* in one go. Alternatively, press the key combination `<CTRL>+ALT+Q`.
Defragment License Memories	Defragments the license memory of the selected *CmContainer*. Alternatively, press the key combination `<STRG>+ALT+D`.
Update Time Certificates	Updates the time certificates in the selected *CmContainer*. All time stamps are

Element	Description
	refreshed.
Start CodeMeter Service 	Starts the service *CodeMeter License Server*.  Use this menu item if *CodeMeter License Server* has been stopped before, for example, when you made changes on the network settings in *CodeMeter WebAdmin* which require the restart of the service.  When you have administrator privileges under Windows you can also manage the *CodeMeter License Server* service by setting the desktop management (System Settings | Management | Services).
Repair Hardware Configuration 	Repairs the hardware configuration of the *CmDongle* form factors SD Card and CF Cards. This tool is required if the *CmCard* hardware is not listed in the license list of *CodeMeter Control Center*. 
Stop CodeMeter Service 	Stops the service *CodeMeter License Server*.

View Menu

Element	Description
Hide Window	Minimizes and hides the *CodeMeter Control Center* window back into the info area of the Windows task bar. Alternatively, press the key combination <CTRL+M>.
Refresh	Refreshes the display of all connected *CmContainer*. Alternatively, press the key <F5>.
Zoom in	Enlarges the display in the **Events** tab area. Alternatively, press the key combination <CTRL>++.
Zoom out	Scales down the display in the **Events** tab area. Alternatively, press the key combination <CTRL>+-.
Copy Event Content	Copies the event actions in the **Events** tab area to the clipboard. Alternatively, press the key combination <CTRL>+C.
Clear Event Content 	Deletes the event actions in the **Events** tab area. Alternatively, press the key combination <ALT>+C.
Show all connected CmContainer 	Shows all connected *CmContainer* including details in the **Events** tab area. Alternatively, press the key combination <ALT>+S.
List all open Handles 	Shows all open handles in the **Events** tab area. Handles work as references for the developer for further programming.

Element	Description
Show all available License Entries 	Shows all *CmContainer* license entries in the **Events** tab area. Alternatively, press the key combination <ALT>+E.
Borrow visible	Toggles between a visible and not visible **Borrowing** tab area.

Help Menu

Element	Description
Help	Opens the *CodeMeter*® online help. Here you access the help files on *CodeMeter License Server* and *CodeMeter Control Center*.
Register CmDongle	Opens the secure website https://my.codemeter.com to register *CmDongles*.
About	Informs on the started *CodeMeter Control Center* version.

2.3.3 License Tab

The **"License"** Tab shows you information on connected *CmContainer* and provides some options to configure connected *CmContainer*. Moreover, you are able to update licenses located in your *CmContainer* using the *CmFAS Assistant* 24.

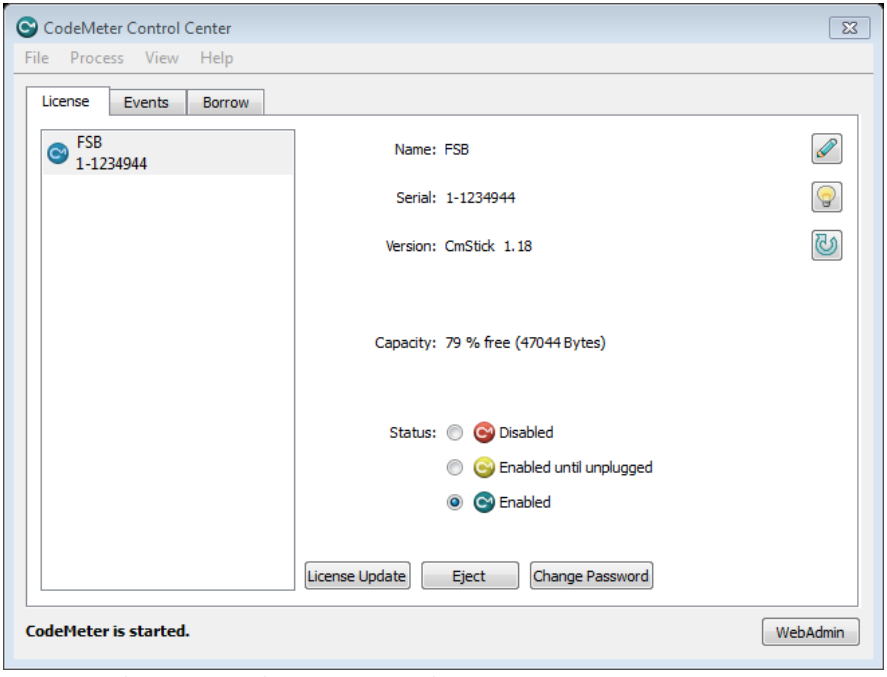
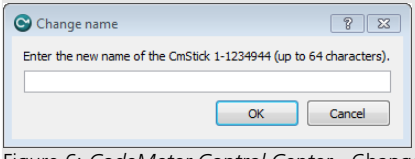


Figure 5: *CodeMeter Control Center* License Tab

Element	Description
Name 	Changes and displays the name of the selected *CmContainer*. In the subsequent dialog you can edit the name.  Figure 6: *CodeMeter Control Center* - Change Name of *CmContainer*
	Flashes the LEDs of the selected *CmStick*. This eases the identification of a *CmStick,* if several *CmSticks* are connected.
	Updates the firmware of the selected *CmDongles*. This guarantees the correct execution of essential functions, and solves eventually occurring problems.  When you execute a firmware update, you require an Internet connection. Then *CodeMeter Control Center* automatically connects to the Firmware Update Server of Wibu-Systems. You are prompted to enter your *CmDongle* Password in order to confirm

<table>
<tr><th>Element</th><th>Description</th></tr>
<tr><td></td><td>this action.

The update may take a couple of minutes. You must not remove the CmDongle before this process is finished. Otherwise, irreparable damage of the CodeMeter® SmartCard Chip may occur.</td></tr>
<tr><td>Capacity</td><td>Informs on the capacity of the CodeMeter® SmartCard Chip of a selected CmDongle. The capacity is displayed in percent format, and by number of absolute bytes.

Please note that this value tells nothings about the memory allocation of an eventual flash memory of a CmDongle.</td></tr>
<tr><td>Status</td><td>The status group informs on the activation status of the selected CmDongle.
<table>
<tr><th>Color</th><th>Status</th></tr>
<tr><td></td><td>The connected CmContainer is disabled. No licensed application can use license information in the CmContainer.</td></tr>
<tr><td></td><td>The CmDongle is enabled as long as it is connected. If the CmDongle is removed from the PC, automatically the licensed access by applications is deactivated.</td></tr>
<tr><td></td><td>The CmContainer is fully enabled. In the case of a CmDongle, the licensed access of applications is still featured even if the CmDongle is removed.</td></tr>
</table>
Wibu-Systems recommends the activation status "Enabled until plugged out".
This ensures that even when a CmDongle is lost, unauthorized access to the licenses and personal data in the CmDongle is not possible.

Changing Activation Status
In order to change the activation status, please proceed as follows:
1. Select the radio button of the desired status option.
2. Enter the CmDongle Password in the following dialog.
 

Figure 7: CodeMeter Control Center - Enter Password
3. Click the "OK" button to confirm the status change.</td></tr>
</table>

Element	Description
License Update	Click this button to request new, or update existing licenses for selected *CmContainer*. The *CodeMeter Field Activation Service* (CmFAS) Assistant 23 opens.  Figure 8: *CodeMeter Control Center - CmFAS Assistant*
Eject	Click this button to disconnect the selected *CmDongle*. The *CmDongle* logs off from the operating system, and can be safely removed from the PC.
Change Password	Click this button to change the password of the selected *CmDongle*. In the following **"Change Password"** dialog please complete the respective fields.  Figure 9: *CodeMeter Control Center* - Change Password **1.** Enter in the **"Old Password"** field the currently used *CmDongle* password. **2.** Enter in the **"New Password"** field the new desired *CmDongle* password. **3.** Re-enter in the **"Retype Password"** field the new desired *CmDongle* password. If you forgot the *CmDongle* password, you have the option to set a new *CmDongle* password by using the *CmDongle* Master Password. **4.** Click the **"OK"** button to confirm your input. **5.** Activate the **"Input Master Password"** option and specify your *CmDongle* Mas-

Element	Description
	ter Password in the **"Old Password"** field.  A Master Password you have received when you registered at the website my.codemeter.com. In order to register, use the **"Help | Register CmDongle"** menu item. A registration bears several advantages and serves to provide security when using *CodeMeter®*. Only when you are registered loosing the own password can be remedied by requesting a Master Password.

2.3.4 Events Tab

This tab displays information at start and at runtime of *CodeMeter License Server* and comprises the following items:

- number of connected *CmContainer*
- number of *CmContainer* entries
- number of found license container at the Firm Item level
- accesses to *CodeMeter License Server*

You configure the display of the event list using the **"View | ...** 15 **"** menu item.
You log the content for the event view using the **"File | Logfile** 14 **"** menu item.

2.3.5 Borrowing Tab

This tab informs on borrowable licenses as a feature of *CodeMeter®* license borrowing. Then licenses can also be used when the access to license information does not require to be connected to the license server.
You can toggle the view of this tab using the "**View | Borrow visible**" menu item.

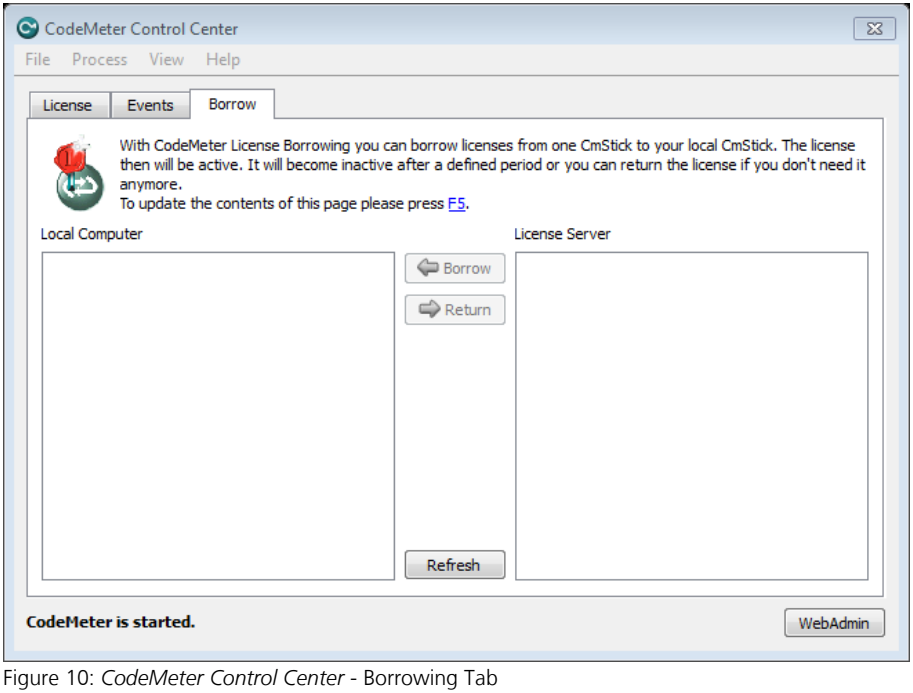


Figure 10: *CodeMeter Control Center* - Borrowing Tab

License Server

On the right, you see all licenses available for the 'License Borrowing' feature. The licenses are ordered by existing license server, Firm Items, and Product Items. The displayed licenses either are borrowable or inactive.

You can borrow only active licenses. You recognize active licenses by the colored symbol and the activated **"Borrow"** button.

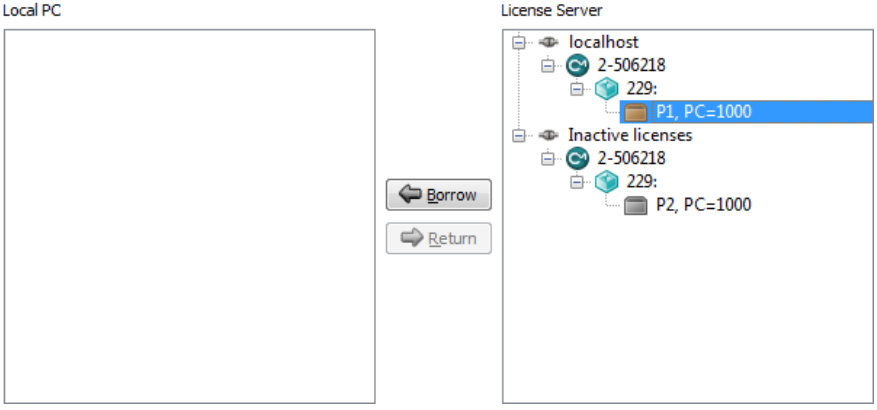


Figure 11: *CodeMeter Control Center* - Borrow Licenses

1. Click on the **"Borrow"** button to borrow licenses from the license server for the local PC.

Local PC

On the left, all licenses borrowed for the local use on a PC from a license server are displayed.
These licenses are deactivated according to the defined borrowing period. However, you also have the option to return borrowed licenses before the borrowing period expires.

1. Click on the **"Return"** button to return borrowed licenses, and make them available again for the license server.

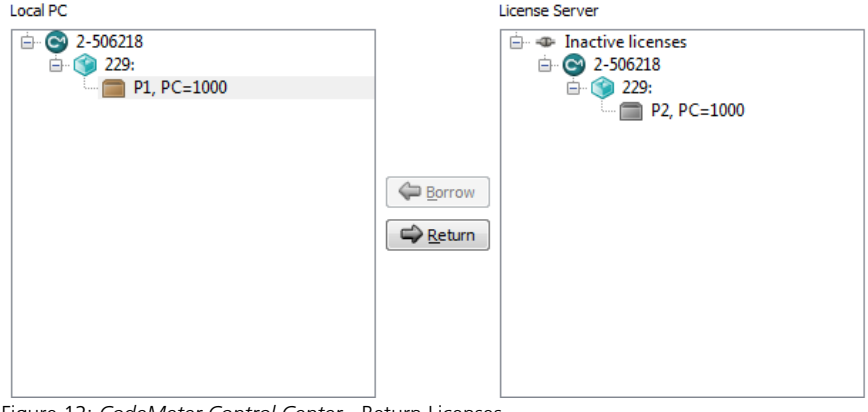


Figure 12: *CodeMeter Control Center* - Return Licenses

For refreshing the display of the tab press the key <F5> or the **"Refresh"** button.

2.3.6 Status and Starting CodeMeter WebAdmin

Status

This area displays information on the *CodeMeter License Server* status, i.e. if this service is started or not. If you want to change the status, use the **"Process | Stop CodeMeter Service"** or **"Process | Start CodeMeter Service"** menu items.

WebAdmin

Click this button to open *CodeMeter WebAdmin*. Alternatively, you can use the **"File | WebAdmin"** menu item.

2.4 Importing and Updating Licenses

The *CmFAS Assistant* 24 supports you in importing and updating license files for your *CmContainer*. Using various dialogs you manually create license requests, import license updates, and, optionally, create receipts for these operations the end-user then sends to the software vendor. Using license files also allows the activation of licenses on a PC which has no direct Internet access. The figure below illustrates this process.

Please note that importing license updates files (`*.WibuCmRaU`) is currently not supported for a *CmContainer* in operation.
Before a license update, please save your work and close all other running *CodeMeter*© protected applications which access licenses on the target *CmContainer*.

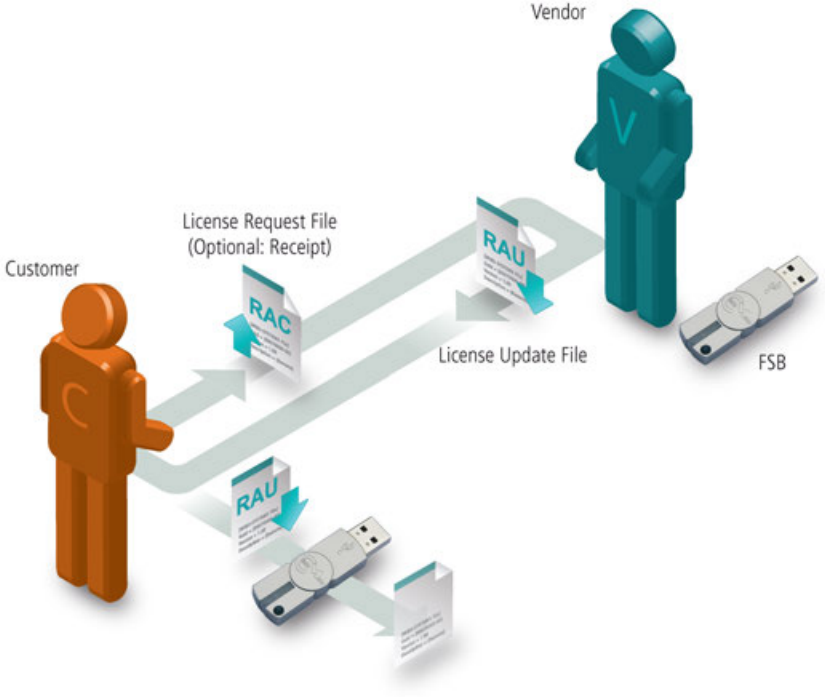


Figure 13: *CmFAS* - File-based Remote Update

2.4.1 The CmFAS Assistant in CodeMeter Control Center

> Please note that importing license updates files (`*.WibuCmRaU`) is currently not supported for a *CmContainer* in operation.
> Before a license update, please save your work and close all other running *CodeMeter*© protected applications which access licenses on the target *CmContainer*.

1. Open *CodeMeter Control Center*. If several *CmContainer* are connected to the computer, select the desired *CmContainer*.
2. Click on the **"Update License"** button.

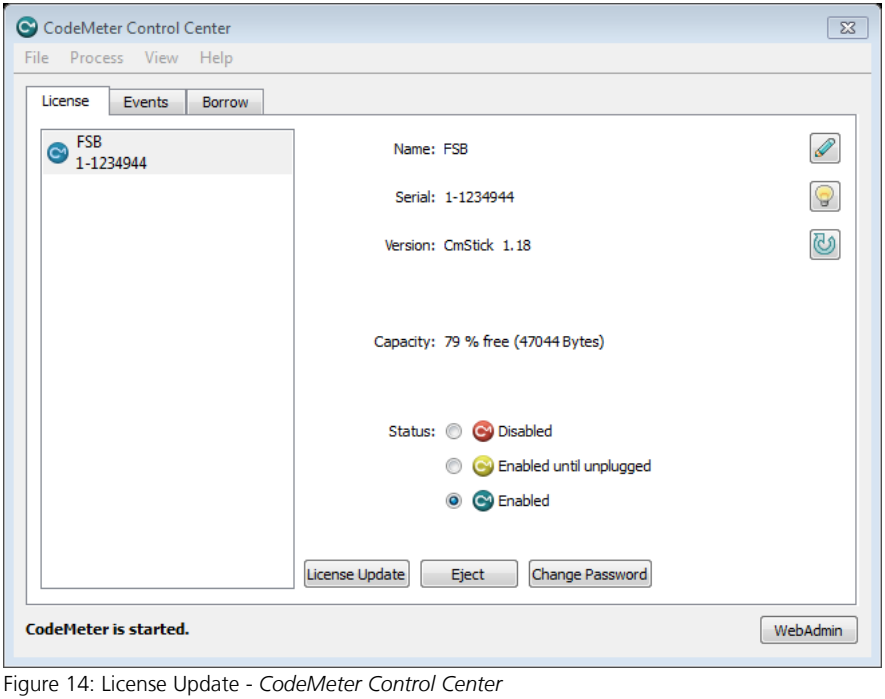


Figure 14: License Update - *CodeMeter Control Center*

The *CodeMeter Field Activation* (CmFAS) Assistant opens with a welcome dialog.

Figure 15: *CmFAS Assistant*

3. Click the **"Next"** button.

2.4.1.1 Create License Request File

The starting dialog prompts you to proceed. There you select from creating a license request, import a license update you received from the software vendor, or, optionally, create a receipt after an update to send it to the software vendor. After your selection click the **"Next"** button.

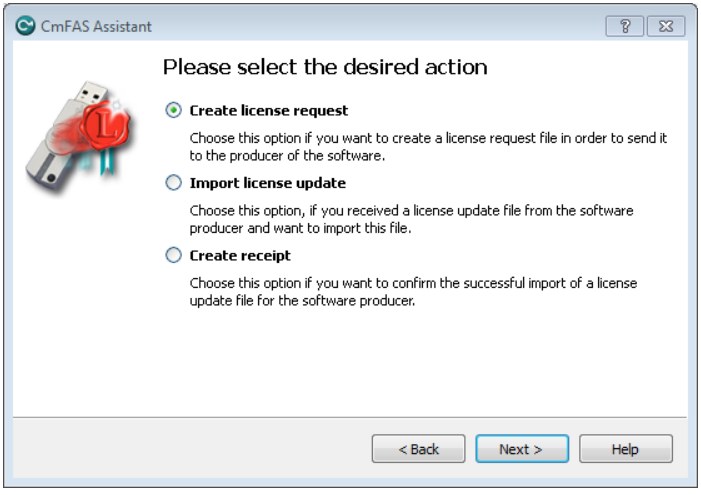


Figure 16: *CmFAS* - Create License Request

2.4.1.11 Extend Existing License

On creating a license request, you select whether you want to extend an existing license, or add a license of a new vendor. After your selection click the **"Next"** button.

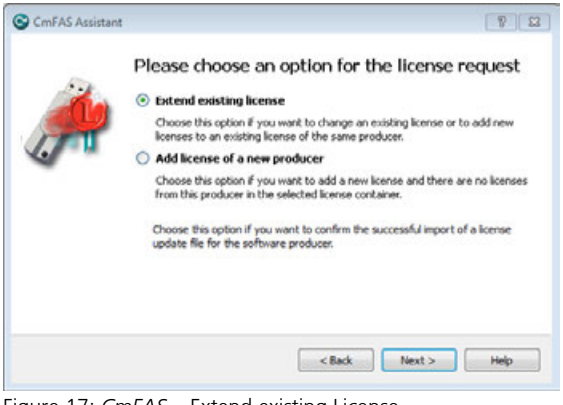


Figure 17: *CmFAS* – Extend existing License

When you extend an existing license, select the software vendor (producer) for which you want to create a license request. After your selection click the **"Next"** button.

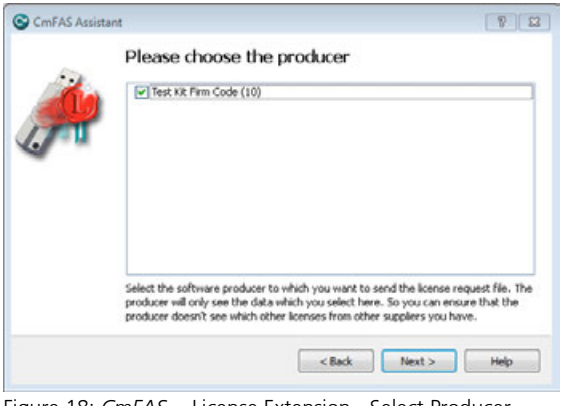


Figure 18: *CmFAS* - License Extension - Select Producer

The next dialog allows you to save the license request file to a desired location. Then click the **"Commit"** button to create the file. This file you then can send by e-mail to the software vendor.

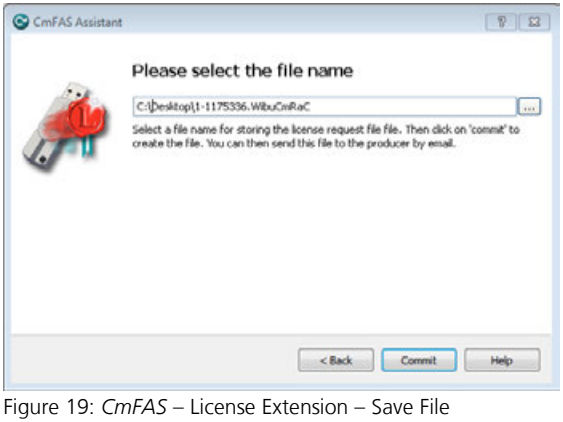


Figure 19: *CmFAS* – License Extension – Save File

Finally, a dialog displays which confirms the successful creation of the license request file. Click the **"Finish"** button to close the dialog.

2.4.1.12 Add a License of a new Producer

On creating a license request you can decide to extend an existing license, or to add a license of a new producer. Select **"Add license of a new producer"** and click the **"Next"** button.

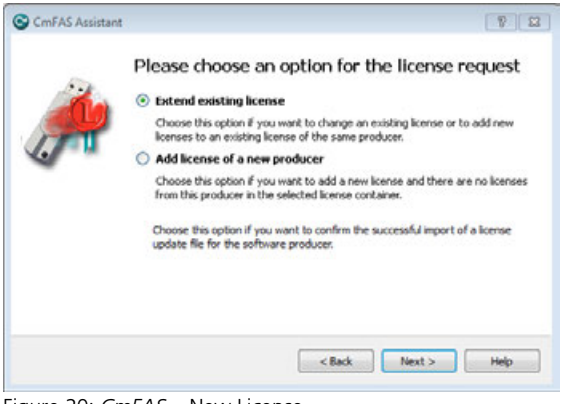


Figure 20: *CmFAS* – New License

In the next dialog, specify the Firm Code you received by the software vendor, and click the **"Next"** button.

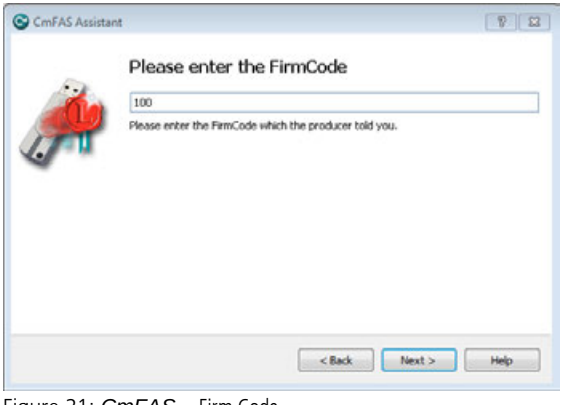


Figure 21: *CmFAS* – Firm Code

The next dialog allows you to save the license request file to a desired location. Then click the **"Commit"** button to create the file. This file you then can send by e-mail to the software vendor.

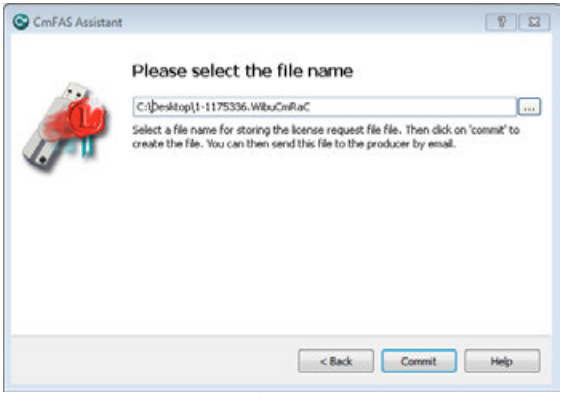


Figure 22: *CmFAS* - Save File

In both case, either when extending or adding a license you receive a confirmation the license request file has been successfully created. Click on the **"Finish"** button to complete this process.

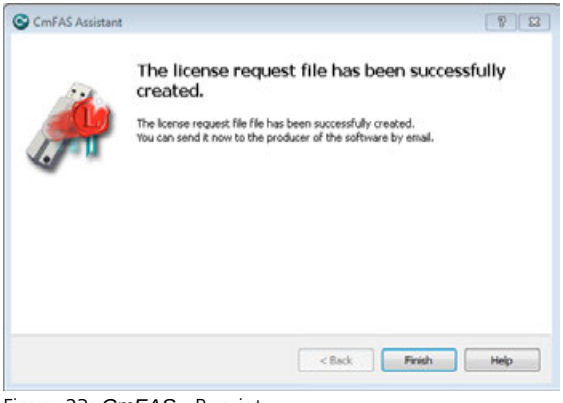


Figure 23: *CmFAS* - Receipt

2.4.1.2 Import License Update

> ⚠ Please note that importing license updates files (`*.WibuCmRaU`) is currently not supported for a *CmContainer* in operation.
> Before a license update, please save your work and close all other running *CodeMeter*© protected applications which access licenses on the target *CmContainer*.

In order to import a license update, in the start dialog select the respective option, then click the **"Next"** button.

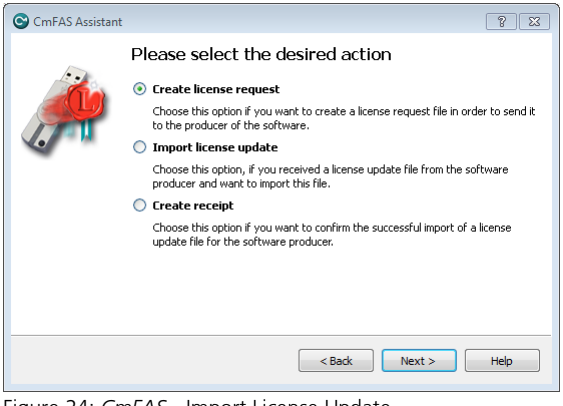


Figure 24: *CmFAS* - Import License Update

In the next dialog, select the file name you used when saving the license update file you received. Then click the **"Commit"** button to import the license update file.

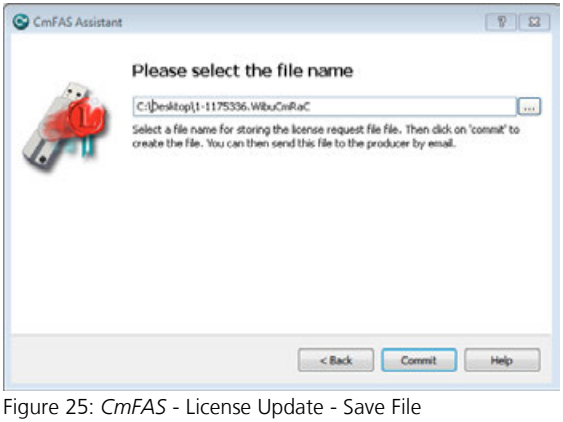


Figure 25: *CmFAS* - License Update - Save File

The following dialog confirms the successful import. Optionally, you can send a receipt to the software vendor. This option you also have in the start menu. Click the **"Finish"** button.

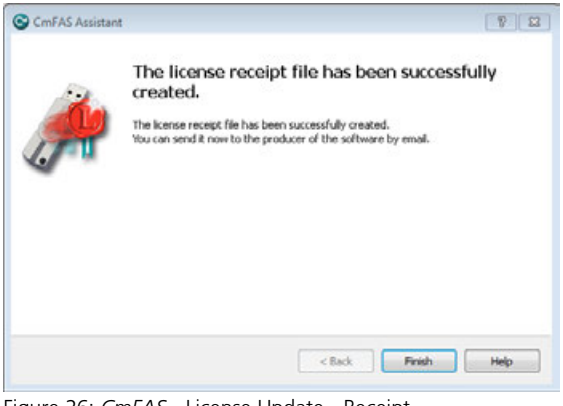


Figure 26: *CmFAS* - License Update - Receipt

2.4.1.3 Create Receipt

In the start menu, select the option **"Create Receipt"**, then click the **"Next"** button.

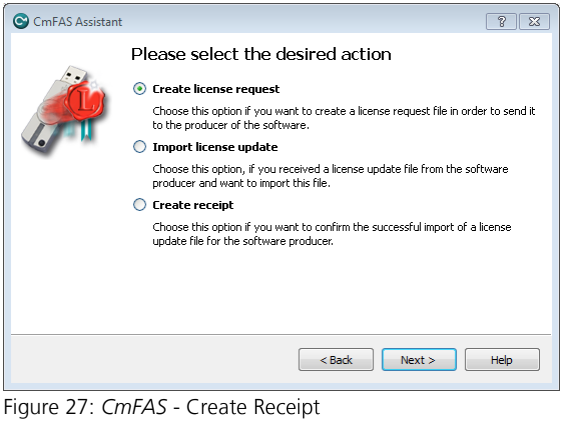


Figure 27: *CmFAS* - Create Receipt

In the next dialog, select the software-vendor you want to send the receipt to, then click the **"Next"** button.

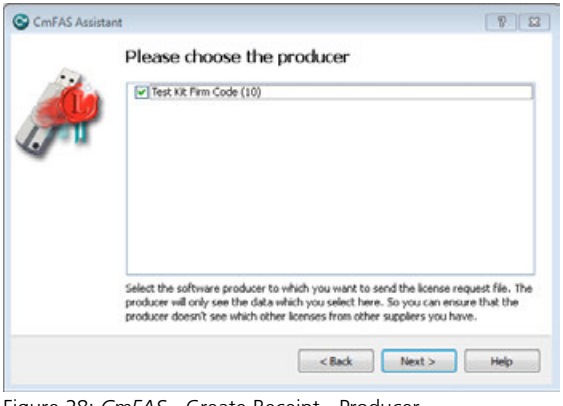


Figure 28: *CmFAS* - Create Receipt - Producer

Save the receipt file using the **"Commit"** button and send it to the software vendor.

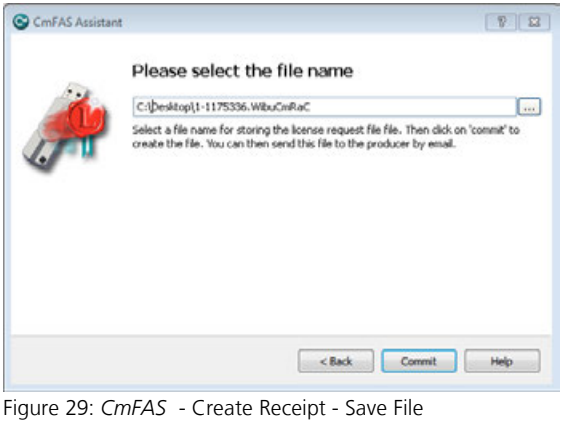


Figure 29: *CmFAS* - Create Receipt - Save File

The successful creation of the receipt file is confirmed in the next dialog. Click on the **"Finish"** button to complete this process.

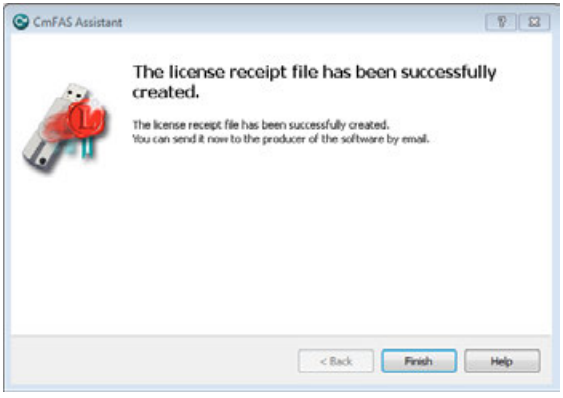


Figure 30: *CmFAS* - Create Receipt - Receipt

2.5 CodeMeter WebAdmin

With *CodeMeter WebAdmin* you obtain information on connected *CmContainer* and available licenses stored in them. In addition, you configure the service *CodeMeter License Server*. In detail, *CodeMeter WebAdmin* provides many configuration and analysis options in the following areas:

- **status information** 37 : host, *CmContainer*
- **configuration** 41: use as network server, proxy settings, access protection, remote access, time server, backup
- **display**: display of all existing licenses locally 53 and on the network 58 , view of license conditions, session information
- **management**: management of network licenses by manual allocation of licenses
- **diagnosis**: logging
- **backup**.

The following list briefly describes terms which recur on single pages in *CodeMeter WebAdmin*.

Term	Description
Access Mode	see: Status
Activation Time	Informs on the activation time of a license, i.e. the start time of a valid license.
Borrow Licenses	Informs on existing borrowed licenses, the borrowing period, and a unique security identifier (SID) when used on a network.
Currently Borrows Licenses	Number of the currently borrowed licenses.
Expiration Time	Informs on the expiration date of a license, i.e. when the license expires.
Extended Protected Data	Additional entry field for binary data for the licensor.
Feature Map	Informs on licenses which the licensor delivers with different functionalities and modules, or in different versions. These are mapped by Feature Maps describing a special functional scope. The value specified here informs on the valid functionality or the activated modu-

Term	Description
	le/version.
Firm Code	Number which identifies the separate license container of a licensor.
Hidden Data	Additional entry field for binary data for the licensor.
Implicit Firm Item (IFI)	The license container holding licenses the user is able to use only with his/her *CmDongle* Password. This license container is identified by the number of "0".
License Quantity	Informs on the total number of licenses available for a license.
Linger Time	Informs on the time how long the license lingers after the license is re-allocated after the protected application is closed.
Maintenance Period	Informs on the period in which a protected version of the software has to be released to represent a licensed version. The start and the end of the period displays.
n/a	Informs that no related entry exists for this license (not available).
Product Code	Number which identifies the license entry, i.e. a product, of a licensor.
Protected Data	Additional entry field for binary data for the licensor.
Secret Data	Additional entry field for binary data for the licensor.
Status	Informs on how the number of started instances of a protected software relates to the allocation of licenses. User Limit: here each started instance allocates a license. Shared: here several started instances of the same application on the same PC allocate only a single license. Exclusive: here a protected application runs only once on a PC. No User Limit: here any number of started instances of the protected application can be started on the network without allocating additional licenses..
Unit Counter	Informs on licenses which are billed by use (pay-per-use, pay-per-print, etc.). This is implemented by counters which are decremented on use of a product. The value specified here informs on remaining units for the use of a license.
Usage Period	Informs on the usage period of a license. The value specified here informs on the use of a licenses in days. The value can also be bound to a starting time for the validity of a license.
User Data	Additional entry field for binary data for the licensee.

Table 2: *CodeMeter WebAdmin* - Terms in License Display

1. Check if the used Internet browser is not set to "offline mode".
2. Check the JavaScript support of your Internet browser.

   JavaScript must be activated for effective using *CodeMeter WebAdmin*.
3. Type in the URLs: `http://localhost:22350` or `http://127.0.0.1:22350` directly in the address field of your Internet browser.

2.5.1 Basics

TCP/IP based

Communication between *CodeMeter WebAdmin* and connected *CmContainer* is browser-based and uses network components. Thus the installation of the network protocol TCP/IP is required, and access must be granted to the `localhost(127.0.0.1)`.


However, an actual connection to the Internet is not established.

Firewall Settings

Please also note that the settings of your firewall do not block communication.


CodeMeter License Server uses a specific IP port (defaulted on 22350) to communicate with your PC and the network. This network port is registered at IANA (Internet Assigned Numbers Authority) and uniquely assigned for *CodeMeter*® communication.

Make sure that your firewall is not blocking this port. Enable the used IP port 22350 and make sure it is accessible by *CodeMeter*®, i.e. share the communication for this IP port.

Communication Mode

By editing registry or server entries you are also able to define which communication mode *CodeMeter License Server* uses.
The following table shows you where for which operating system you find the profiling to set the communication mode.

Operating system	Registry / Server Entry
Windows	`HKLM/SOFTWARE/WIBU-SYSTEMS/CodeMeter/Server/CurrentVersion`
Mac OS	`/Library/Preferences/com.wibu.CodeMeter.Server.ini`
Linux	`/etc/wibu/CodeMeter/Server.ini`
Solaris	`/etc/opt/CodeMeter/Server.ini`

The parameter **ApiCommunicationMode**. is available for setting the mode. The following properties are available:

CodeMeter®-Version	Properties
smaller than 4.40	'1' TCP/IP (Default) '2' Shared Memory
starting with 4.40	'1' Platform-specific (Default) Platform-specific defaults: • Windows: IPv6, IPv4; Shared Memory • Linux/Mac:IPv6, IPv4 • WinCE: IPv4, Shared Memory '2' Shared Memory '4' IPv4 '8' IPv6 Single modi may be combined.


Wibu-Systems recommends to use the relevant default settings, if no justified reasons suggest otherwise.

2.5.2 Starting CodeMeter WebAdmin

CodeMeter WebAdmin is a web-based tool to be displayed with each standard Internet browser. The following table shows existing start options.

Operating System	Start
Windows	• via *CodeMeter*® symbol in the task bar (right mouse-click) and selection of 'WebAdmin' item. • via the 'WebAdmin' option in *CodeMeter Control Center* • directly in your Internet browser when typing in the URLs: **http://localhost:22350** or **http://127.0.0.1:22350**.
Mac OS / Linux	• via *CodeMeter*® in the task bar (right mouse-click) and selection of 'WebAdmin' item. • via the 'WebAdmin' option in *CodeMeter Control Center* • directly in your Internet browser when typing in the URLs: **http://localhost:22350** or **http://127.0.0.1:22350**.

If *CodeMeter WebAdmin* should not start, try the following:

1. Check if the used Internet browser is not set to "offline mode".
2. Check the JavaScript support of your Internet browser.

   JavaScript must be activated for effective using *CodeMeter WebAdmin*.
3. Type in the URLs: `http://localhost:22350` or `http://127.0.0.1:22350` directly in the address field of your Internet browser.

2.5.3 Status Infomation

Here you obtain first information on connected *CmContainer:*

- general information
- information on CmContainer

2.5.3.1 General Information

The **"Home"** page displays general status information on your PC, *CodeMeter License Server* and *CodeMeter WebAdmin*.

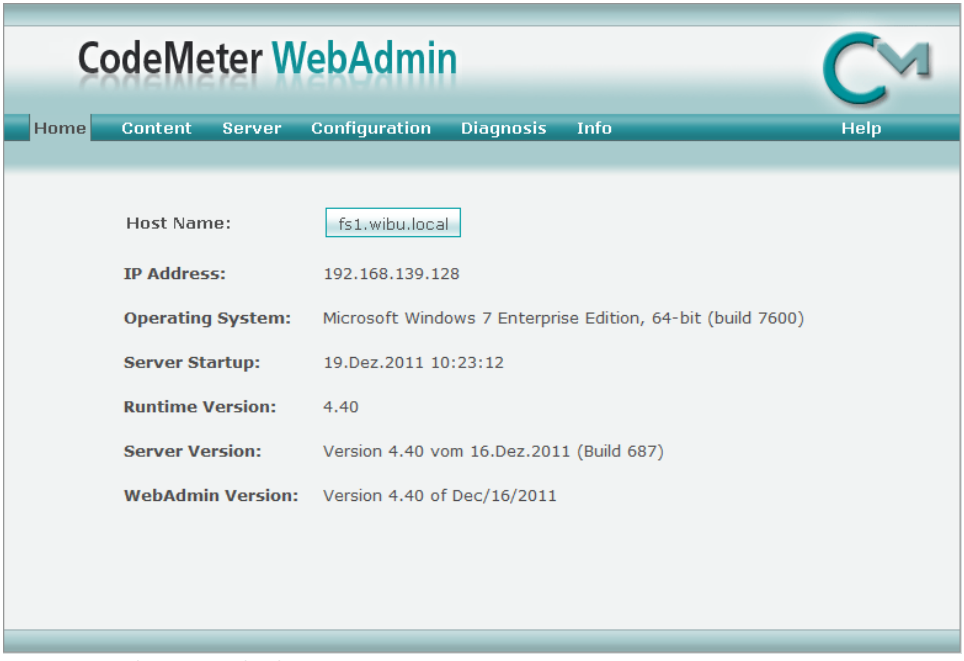
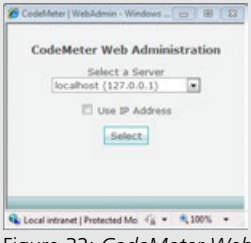


Figure 31: *CodeMeter WebAdmin* – "Home"

Element	Description
Host Name	The **"Host Name"** button shows the name of the actual PC on which the service *CodeMeter License Server* is started. A search request using the port `22350` is sent to the network. For changing the host, please proceed as follows: **1.** Click the **"DNS-Name"** button of the host. The "CodeMeter Web Administration" dialog opens.  Figure 32: *CodeMeter WebAdmin* – "Home | Host Name" **2.** Use the **"Select a Server"** dropdown control to select another PC on which *CodeMeter*® is also

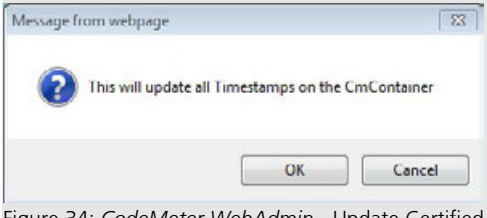
Element	Description
	started and the service *CodeMeter License Server* runs. **3.** Activate the **Use IP Address** option to use the network address of the found PC. **4.** Click the **"Select"** button to use the selected PC.
IP Address	Shows information on the network address in use.
Operating System	Shows information on the operating system in use.
Server Start Time	Shows information on the start time of the server.
Runtime Version	Shows information on the *CodeMeter*® runtime in use.
Server Version	Shows information on the *CodeMeter*® version on the server.
WebAdmin Version	Shows information on the *CodeMeter WebAdmin* version in use.

2.5.3.2 Information on CmContainer

The **"Content | CmContainer"** page displays information on selected *CmContainer*.

Figure 33: *CodeMeter WebAdmin* – "Content | *CmContainer*"

Element	Description
CmContainer	Select the **CmContainer** on which the information is to be displayed. If several *CmContainer* are connected, select the desired *CmContainer* using the drop-down control.
Name	Shows the **Name** of the selected *CmContainer*. If you want to change the name of your *CmContainer*, use *CodeMeter Control Center*.
CmContainer Type	Shows the **Type** of the selected *CmContainer*.
First Device	Shows the drive information of the selected *CmDongle*. The drive size is only displayed in the case of *CmDongles* with Flash memory.
Status	Shows the current activation status of the selected *CmContainer*. The following status settings are displayed: • **Disabled**: The connected *CmContainer* is deactivated and not usable by any

Element	Description
	application. • **Enabled until Unplugged**: The *CmDongle* is activated as long as it is connected and supplied by electrical energy. After removed from the PC the *CmDongle* is automatically deactivated. • **Enabled**: The *CmContainer* is fully activated. If a *CmDongles* is removed, the license access is still possible after plugout. You change the activation status of a *CmContainer* using *CodeMeter Control Center* 13. Wibu-Systems recommends the activation status **"Enabled until Unplugged"** when using *CmDongles*. This ensures that even when a *CmDongles* is lost, unauthorized access to the licenses and personal data in the *CmDongle* is lost, unauthorized access to the licenses and personal data is not possible.
System Time (PC)	Shows the **System Time** (local time on the PC) when the service *CodeMeter License Server* has started.
System Time (CmContainer)	Shows the saved **System Time** (internal time) of the *CmContainer*. These two system times may differ due to the pending synchronization process.
Certified Time (CmContainer)	Shows the Certified Time saved in the *CmContainer*. In order to update the Certified Time of your *CmContainer* using a *CodeMeter*® Time Server, click the **"Update"** button. This action is confirmed by a dialog.  Figure 34: *CodeMeter WebAdmin* - Update Certified Time
Free Memory	Shows the **Free Memory** of the SmartCard chips of a *CmDongle*, i.e. how much space is available for the programming of additional license entries.
Defragment	Click the **"Defragment"** button to defragment the memory of the *CmDongle* chip.

2.5.4 Configuration

Here you configure settings for network server status, proxy, access control, remote access, time server and backup.

2.5.4.1 Network

In order to set up *CodeMeter*® in a network environment use the **"Configuration | Network"** page.

Figure 35: *CodeMeter WebAdmin* – "Configuration | Network"

Element	Description
Server Search List	Use a **Server Search List** to define access to and order of *CodeMeter*® network LAN and WAN (Wide Area Network) servers. You edit the server search list by using the respective **"add"**, **"remove"** buttons. You can also change the order by using the **"up"** and **"down"** buttons. You save the changes you made by using the **"Apply"** button. You set back the settings of the server search list using the **"Default"** button. Alternatively, you are also able to set the Server Search List using the configuration files `CodeMeter.ini` or `Server.ini`. The tabel below shows you where to find the respective files.

Operating System	Configuration File
Windows	`%Program Files%\CodeMeter\Runtime\bin\CodeMeter.ini`
Mac OS	`\Library\Preferences\com.wibu.CodeMeter.Server.ini`
Linux	`\etc\wibu\CodeMeter/Server.ini`
Solaris	`\etc\opt\CodeMeter\Server.ini`

	In the separate section `[ServerSearchList]` define the server as the exampe below shows:
	`[ServerSearchList]`
	
	`[ServerSearchList\Server1]`
	`Address=184.45.89.5`
	
	`[ServerSearchList\Server2]`
	`Address=185.55.78.6`
	When you define network settings, in some cases, this requires the restart of the *CodeMeter*® service. However, you do not have to eject or deactivate the *CmContainer*. After you specified the settings you are able to stop and then restart the *CodeMeter*® service in *CodeMeter Control Center* 15. For non-Windows operating systems see here 10.
	In order to check for a successful connection, on the **"Home"** page click the **"Host Name"** button and look for the successful appending of the PC as server. The check works also by opening *CodeMeter Control Center* on the clients and the server and looking for the communication status in the respective "Events" tabs.
	If a connection is still not established specify on the client PCs the server IP address.
	Using in a local area network (LAN):
	By specifying the PC names or IP addresses you define that the client requests exactly address the defined *CodeMeter*® network server. This increases the performance on the network.
	If the *CodeMeter*® network server is located in another subnet, you should always specify the IP address in the server search list in order to preclude UDP broadcast problems.
	By default, *CodeMeter License Server* binds to the first network adapter found.
	Using in a wide area network (WAN):
	Specify the IP address(es) for client requests to the defined *CodeMeter License Server* in the WAN.
	When specifying the IP address(es) please note that you are required to prefix a `"https:\\"` needed for the secured communication with a reverse proxy in the WAN.

UDP Waiting Time	Specify the **UDP Waiting Time** in order to define the period in which a UDP request for existing *CodeMeter License Server* on the network has to reply. By default, this value is 1000 milliseconds. Changing this time allows to customize the performance of the service. However, when no urgent need exists, you should keep that default.

2.5.4.2 Server

In order to set up *CodeMeter*® in a network and/or a wide area network (WAN) use the **"Configuration | Server"** page.

Figure 36: *CodeMeter WebAdmin* – "Configuration | Server"

Element	Description
Bind Adresse	Select the **Network Address** to which the service *CodeMeter License Server* is to be bound. Primarily, this is required when the PC has several network cards (virtual adapter) and is to act as a network server providing its licenses on the network.
Run Network Server	Activate the **Run Network Server** option to use the PC as *CodeMeter*® network server. Then this PC provides its *CodeMeter*® licenses on the network using the service *CodeMeter License Server*.
Network Port	Specify a **Network Port**. By default, the port 22350 is used for the *CodeMeter*® communication. This network port is registered at IANA (Internet Assigned Numbers Authority) and uniquely assigned for the *CodeMeter*® communication. You are able to customize this port value. However, make sure that all *CodeMeter License Server* use this port when a *CodeMeter*® protected application is to be used on the network.
Run CmWAN Server	Activate the **Run CmWAN Server** option to use the PC in a wide area network (WAN) and allow license accesses.
CmWAN Port	Specify a **CmWAN Port**. By default, the port 22351 is used for the *CodeMeter*®

	communication via WAN. You are able to customize this value. In this case, make sure that: • all *CodeMeter License Servers* use this port, if *CodeMeter®* protected applications access licenses via WAN. • the configured reverse proxy has the same port setting.

You save the changes you made by using the "**Apply**" button. You set back the settings of the server search list using the "**Default**" button..

When you define server settings, in some cases, this requires the restart of the *CodeMeter®* service. However, you do not have to eject or deactivate the *CmContainer*. After you specified the settings you are able to stop and then restart the *CodeMeter®* service in *CodeMeter Control Center* 15. For non-Windows operating systems see here 10.

2.5.4.3 Proxy Settings

On the **"Configuration | Proxy"** page you define settings when using a proxy server.

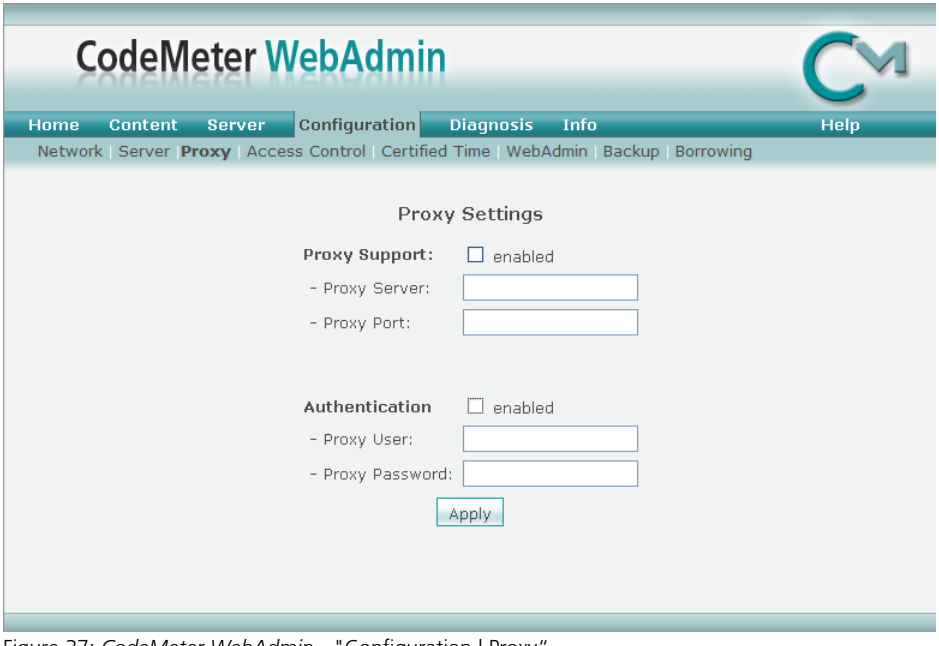


Figure 37: *CodeMeter WebAdmin* - "Configuration | Proxy"

Element	Description
Proxy Support	Activate this option for the support of a proxy server. When you use a proxy **Server**, specify here the IP address or the DNS name, and the **Port** number of the proxy server.

Element	Description
	You require a proxy server when you apply Certified Time updates, or acquired product via an online shop.
Authentication	Activate this option for a required proxy server authentication. Specify the proxy **user** and **password** for the proxy server.

If the selection of several *CodeMeter®* client PCs in *CodeMeter WebAdmin* is not possible, then try the following remedial action:

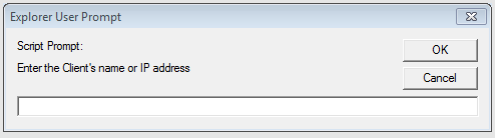
1. Exclude the related *CodeMeter License Server* from proxy use.
2. Type in the IP addresses or DNS name of those *CodeMeter®* client-PCs into the proxy exception list of the Internet Explorer: `[Tools-Internet Options.. | Connections | Lan Settings | Advanced |Exceptions]`

2.5.4.4 Access Control

On the **"Configuration | Access Control"** page you define settings managing the client access to *CodeMeter License Server*.

Figure 38: *CodeMeter WebAdmin* - "Configuration | Access Control"

Element	Description
Clients	Shows a list of all client PCs which have the privilege to use *CodeMeter License Server*, i.e. to allocate a license.

Element	Description
	When this list is empty, each *CodeMeter*® client on the network is able to use *CodeMeter License Server*. This is the default setting. To add a new client to the client list, please proceed as follows: **1.** Click the **"add"** button. A prompt dialog displays.  **2.** Specify the PC name or the IP address of the client in the dialog. **3.** Click the **"OK"** button. The PC is now added to the client list. To remove a client from the list, please proceed as follows: **1.** Click the **"remove"** button. The PC is now removed from the client list
Access FSB	When you own a *CodeMeter*® Firm Security Box (FSB), this option activates the sharing of the FSB on the network. Then the FSB is able to be used by several users, for example, to program *CmContainer* or automatically protect applications. This option makes sense only for *CodeMeter*® licensee with an individual *CodeMeter*® Firm Code. Click the **"Apply"** button to save the changes you have made. By a previous click on the **"Default"** button you save the default settings. Then the client list is empty, and the FSB is not available on the network. When you define access settings, in some cases, this requires the restart of the *CodeMeter*® service. However, you do not have to eject or deactivate the *CmContainer*. After you specified the settings you are able to stop and then restart the *CodeMeter*® service in *CodeMeter Control Center* 15. For non-Windows operating systems see here 10.

Additional access control of client list via whitelist and Blacklist

Alternatively, you also have the option to create a white or blacklist for the access of clients. This so-called profiling you conduct for different operating systems at the following locations:

Operating System	Profile Creation
Windows	Registry entry in `HKLM/SOFTWARE/WIBU-SYSTEMS/CodeMeter/Server/CurrentVersion`
Mac OS	`/Library/Preferences/com.wibu.CodeMeter.Server.ini`
Linux	`/etc/wibu/CodeMeter/Server.ini.`
Solaris	`/etc/opt/CodeMeter/Server.ini`

The generation of the profile for *CodeMeter License Server* comprises the following versions

(`CodeMeter.exe`, `CodeMeterMacX`, `CodeMeterLin`, `CodeMeterSun`),

When you edit the `*.ini` files in the case of Mac OS, Linux and Sun, you must stop the service *CodeMeter License Server* before. Otherwise, changes you have been made do not apply.

Parameter	Description
Client<index>=<Subnetz>[,<serial>[,FC[,PC]]]] (Whitelist)	**Whitelist**: These parameters hold the IP addresses of client PCs on the network which have the privilege to access the local *CodeMeter License Server*. When the IP address of a client is not on this list, the access is denied. If no whitelist exists, no other restrictions apply. The specification of subnets is possible. The syntax is as follows: `Client<index>=<Subnetz>[,<serial>[,FC[,PC]]]` The serial number has to follow the pattern `MaskByte-Serial Number` (e.g. `1-1179681`). Example: Client1=192.168.0.0/24,1-123456,10,13 this addresses all computer ranging from 192.168.0.0 to192.168.0.255 (Class C). Usually are also /8 (Class A) and /16 (Class B). The serial number, FC, and PC are optional.  This whitelist corresponds to the client list in *CodeMeter WebAdmin*.
Client<index>=<Subnetz>[,<serial>[,FC[,PC]]]] [SZ, optional]	**Blacklist**: These parameters hold the IP addresses of client PCs on the network which have no privilege to access the local *CodeMeter License Server*. When an IP address of a client is on this list, the access is denied. If no blacklist exists, no other restrictions apply. The syntax is as follows: `Client<index>=<Subnetz>[,<serial>[,FC[,PC]]]` The serial number has to follow the pattern `MaskByte-Serial Number` (e.g. `1-1179681`). Example: Client1=192.168.0.0/24,1-123456,10,13 this addresses all computer ranging from 192.168.0.0 to192.168.0.255 (Class C). Usually are also /8 (Class A) and /16 (Class B). The serial number, FC, and PC are optional.

2.5.4.5 Certified Time

On the **"Configuration | Certified Time"** page you define settings for the *CodeMeter*® Time Server.

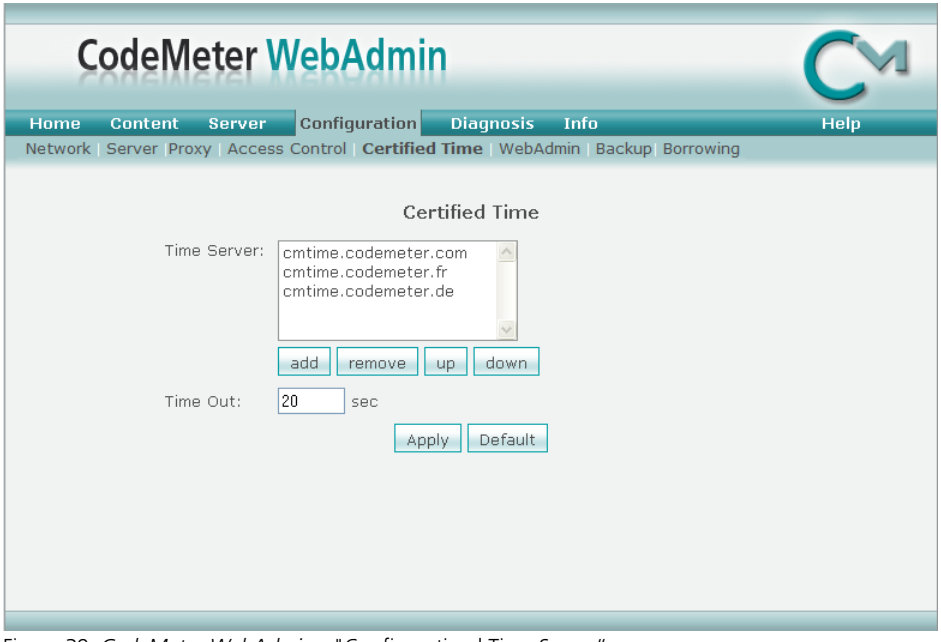


Figure 39: *CodeMeter WebAdmin* - "Configuration | Time Server"

Element	Description
Time Server	Shows a list of Wibu-Systems *CodeMeter*® Time Server allowing for an update of the Certified Time. Time Server are specified either as Internet address or IP address. You edit the Time Server list by using the **"add"** or **"remove"** buttons. You change the order of the list by using the **"up"** and **"down"** buttons.
Time Out	Defines the maximum response period for the *CodeMeter*® Time Server. Click the **"Apply"** button to save the changes you have made. By a previous click on the **"Default"** button you save the default settings.

2.5.4.6 WebAdmin

On the **"Configuration | WebAdmin"** page you define settings to manage the remote access to *CodeMeter WebAdmin* and to customize the user interface language.

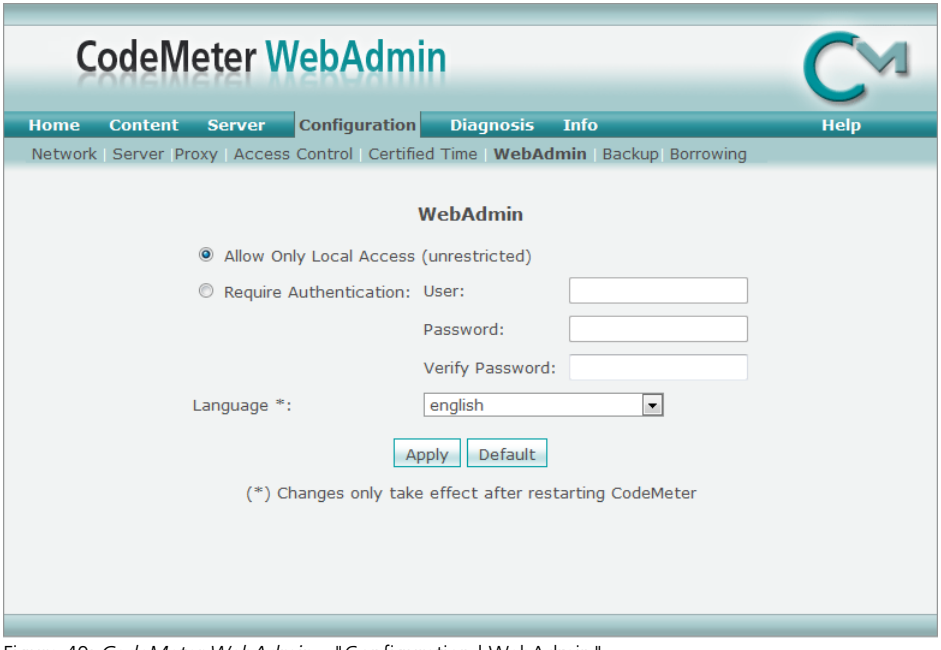


Figure 40: *CodeMeter WebAdmin* - "Configuration | WebAdmin"

Element	Description
Allow Only Local Access (unrestricted)	Activate this option to allow unrestricted local access to *CodeMeter WebAdmin*.
Require Authentication	Activate this option to enable remote write-access to *CodeMeter WebAdmin*. This allows a client to access the server via HTTP. This requires an authentication. Please complete the necessary authentication data in the fields **User**, **Password** and **Verify Password**.
Language	Customize the user interface language of *CodeMeter WebAdmin* using this dropdown control. You can select from the following languages: German, English, French, Italian, Japanese and Chinese. Click the **"Apply"** button to save the changes you have made. By a previous click on the **"Default"** button you save the default settings. Remote read access is featured and English set as default language. Setting the remote access, in some cases, requires the restart of the *CodeMeter*® service. However, you do not have to eject or deactivate the *CmContainer*. After you specified the settings you are able to stop and then restart the *CodeMeter*® service in *CodeMeter Control Center*

Element	Description
	15. For non-Windows operating systems see here 10.

2.5.4.7 Backup

On the **"Configuration | Backup"** page you define settings for the location and intervals of *CmDongle* data backups.

Figure 41: *CodeMeter WebAdmin* - "Configuration | Backup"

Element	Description
Backup Path	Specify in the **Backup Path** field the location where the backup file of the *CmDongle* is to be saved. The default location for backup files depends on the operating system in use.
Backup Interval	Specify in the **Backup Interval** field the recurring time period for automatic backups. By default, automatically a data backup is executed every 24 hours. However, you are also able to create a backup for the *CmDongle* at any time.

Element	Description
Certified Time	Activate this option when a **Certified Time** update has to take place before a backup is executed. Click the **"Apply"** button to save the changes you have made. By a previous click on the **"Default"** button you save the default settings.

2.5.4.8 Borrowing

On the **"Configuration | Borrowing"** page you define entry-specific settings of a borrowed license. These settings overwrite the original programmed settings of the borrowed license.

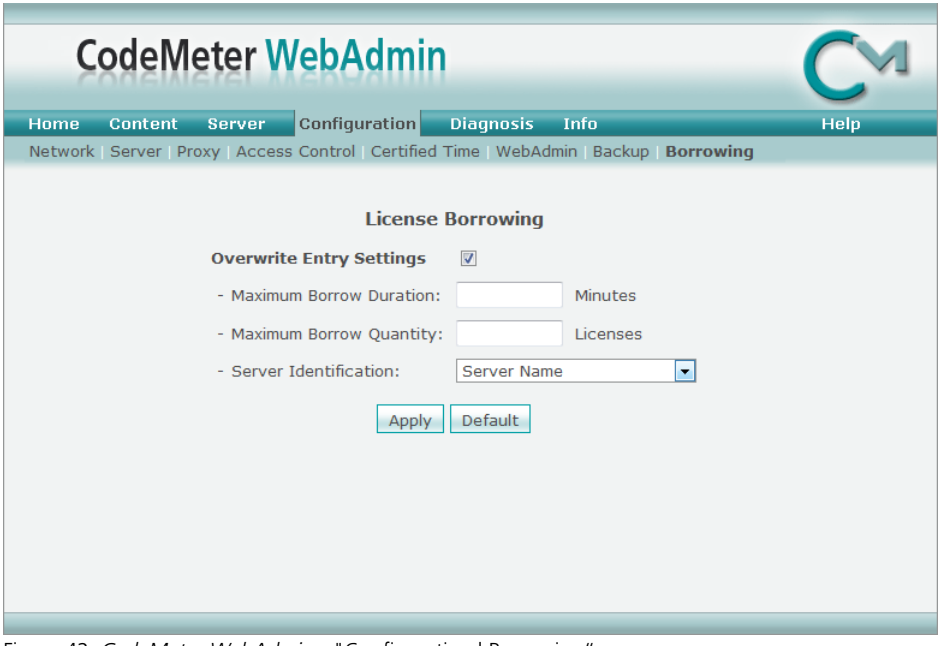


Figure 42: *CodeMeter WebAdmin* - "Configuration | Borrowing"

For setting the borrowing parameter, please proceed as follows:

1. Activate the option **"Overwrite Entry Settings"** to allow overwriting the original license condition of the borrowed license.
2. Specify in the **"Maximum Borrow Duration"** field the maximum time in minutes how long the license is to be borrowable.
3. Specify in the **"Maximum Borrow Quantity"** field the maximum number of borrowed licenses to be borrowed.
4. Select in the **"Server Identifizierung"** field how to identify the server either as Server Name or IP Address.
5. Click the **"Apply"** button to save the changes you have made. By a previous click on the **"Default"**

button you save the default settings.

2.5.5 License Display

CodeMeter WebAdmin displays information on local[53] and network licenses[58].

2.5.5.1 Local Licenses

The **"Content | Licenses"** page displays you all local licenses saved in a selected *CmContainer* or in all connected *CmContainer*.
Use the **CmContainer** dropdown control to select the desired or all *CmContainer*.

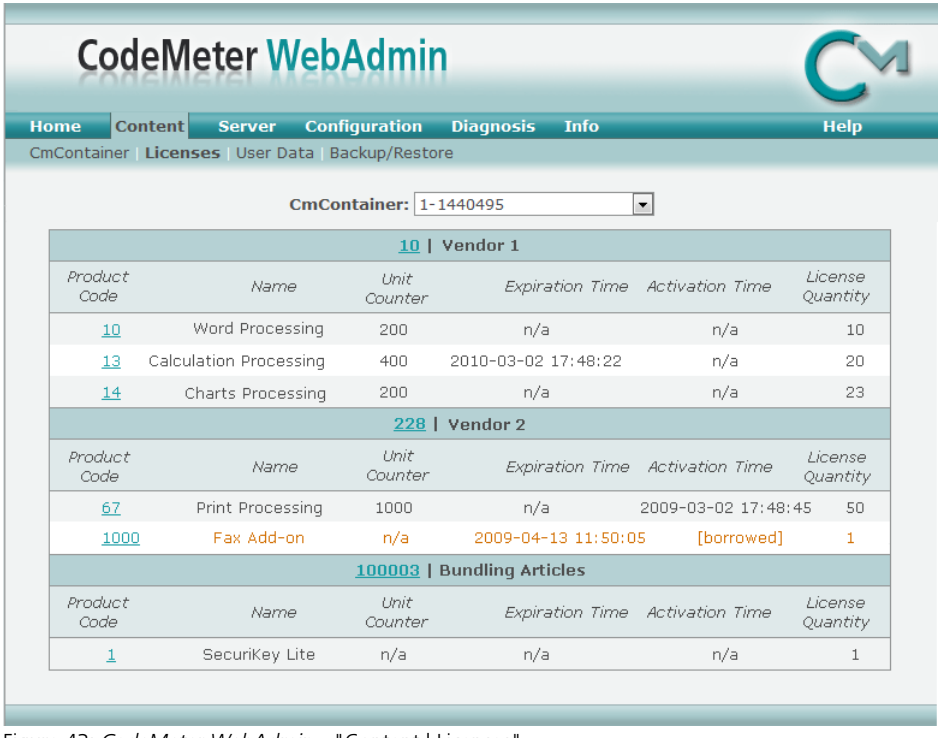


Figure 43: *CodeMeter WebAdmin* - "Content | Licenses"

The display of local licenses is ordered by different licensors. A licensor is uniquely identified by number value, the Firm Code, and a name. For example, in the figure above this is the Firm Code "10" of "Vendor 1".
All related products, i.e. the licenses, are listed below the single licensor holding the respective Product Code, defined by a unique number value.

If the Test Firm Code is used, the following message text displays.
CodeMeter Evaluation License - not for commercial use!

In the figure above, this is, first, the product "Print Processing" with the Product Code of 67, and, second, the product "Fax Add-on" with a Product Code of 1000 which is borrowed as a local license up to the end of the borrowing period. In addition, you obtain further information[34] on existing Unit Counter, Expiration Time, Activation Time, and License Quantity.
Click on the highlighted Firm Code[54] entry for the display of more detailed information on the license conditions of products by a specific vendor.
Click on the highlighted Product Code[55] ,entry for the display of more detailed information on the license conditions of products by a specific vendor.

2.5.5.11 Licensor Information (ISV)

In the following figure you see all licenses provided by the licensor Vendor 1. Additional information[34] comprise Product Code, CmContainer serial number, Name, Unit Counter, Activation Time, Expiration Time, License Quantity, and Feature Map.

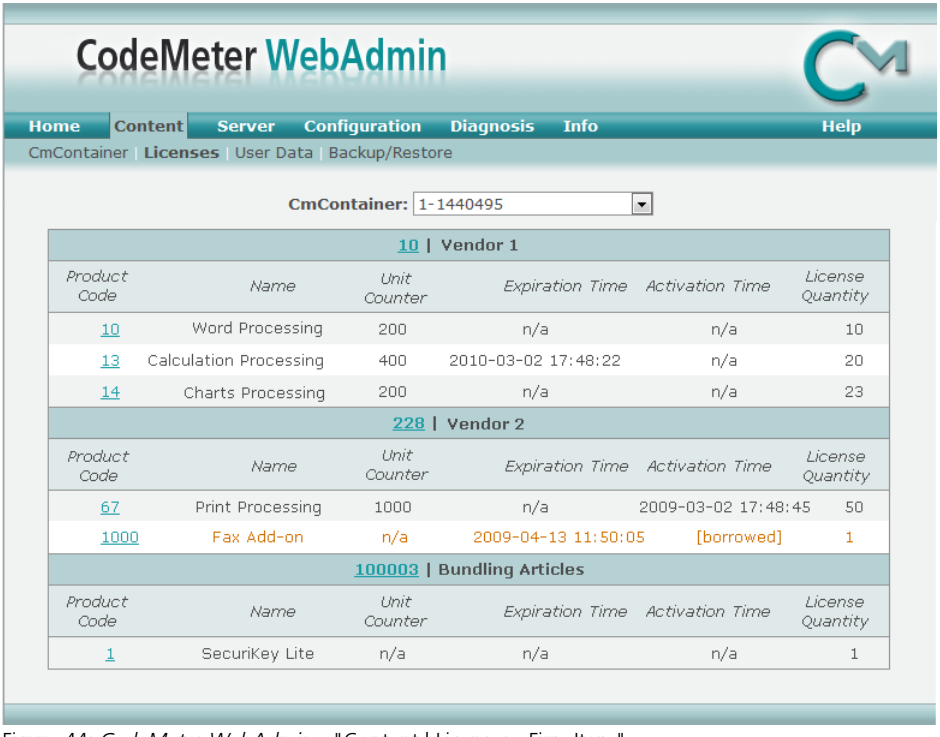
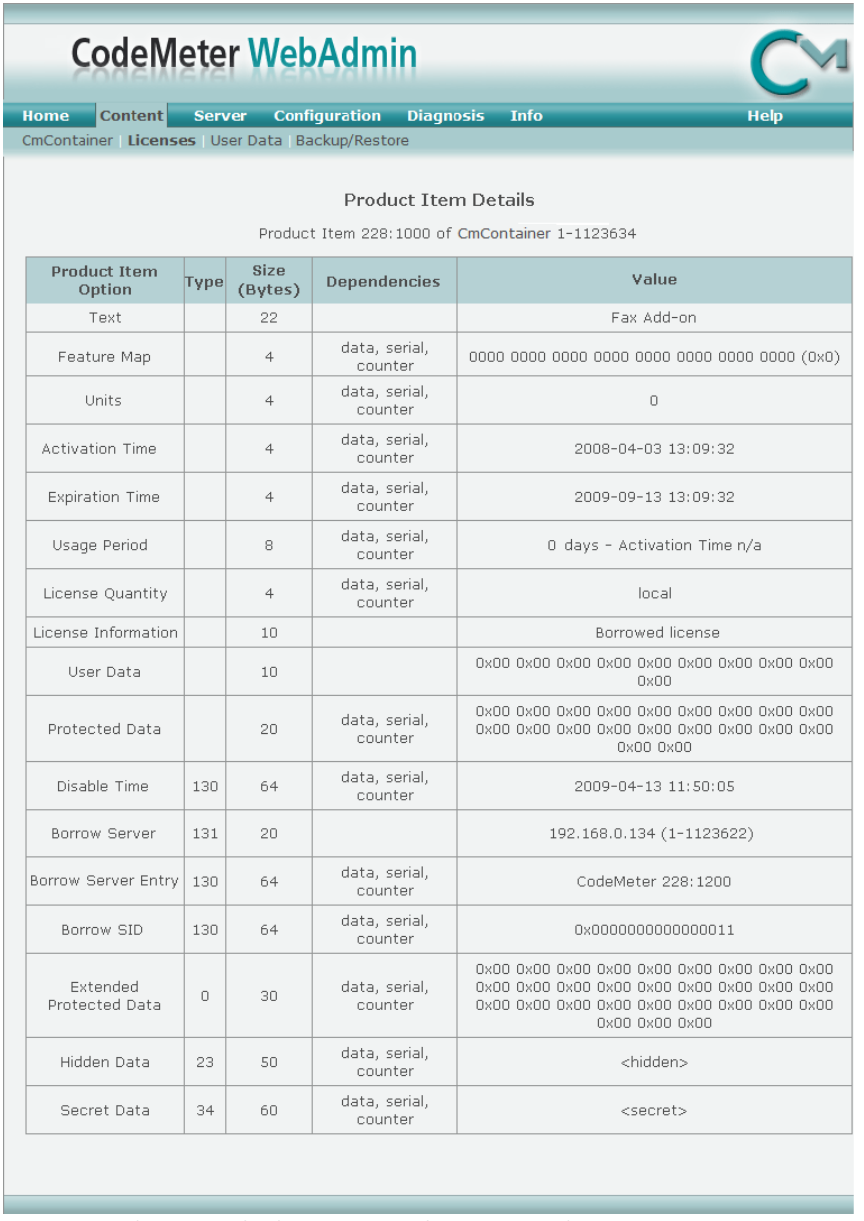


Figure 44: *CodeMeter WebAdmin* - "Content | Licenses - Firm Item"

2.5.5.12 Product Information

In the following figure you see all license information on the product with a Product Code "13" of the licensor at the Firm Item level with a Firm Code "10".



CodeMeter WebAdmin

Home | Content | Server | Configuration | Diagnosis | Info | Help

CmContainer | Licenses | User Data | Backup/Restore

Product Item Details

Product Item 228:1000 of CmContainer 1-1123634

Product Item Option	Type	Size (Bytes)	Dependencies	Value
Text		22		Fax Add-on
Feature Map		4	data, serial, counter	0000 0000 0000 0000 0000 0000 0000 0000 (0x0)
Units		4	data, serial, counter	0
Activation Time		4	data, serial, counter	2008-04-03 13:09:32
Expiration Time		4	data, serial, counter	2009-09-13 13:09:32
Usage Period		8	data, serial, counter	0 days - Activation Time n/a
License Quantity		4	data, serial, counter	local
License Information		10		Borrowed license
User Data		10		0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00
Protected Data		20	data, serial, counter	0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00
Disable Time	130	64	data, serial, counter	2009-04-13 11:50:05
Borrow Server	131	20		192.168.0.134 (1-1123622)
Borrow Server Entry	130	64	data, serial, counter	CodeMeter 228:1200
Borrow SID	130	64	data, serial, counter	0x0000000000000011
Extended Protected Data	0	30	data, serial, counter	0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00
Hidden Data	23	50	data, serial, counter	<hidden>
Secret Data	34	60	data, serial, counter	<secret>

Figure 45: *CodeMeter WebAdmin* - "Content | Licenses - Product Item"

Element	Description
Product Item Options	In the first column you see the Product Item Options.These are license properties set by the licensor. For illustrative reason the figure lists all options. When listed in other cases, not all of these options 34 are always displayed. In the figure above you see that the license has been borrowed for the local use.
Type	If the license properties represent data fields, the column informs in which area of the *CmContainer* these fields are located.
Size (Bytes)	The column the number of bytes a listed license property allocates.
Dependencies	The column informs whether a licensor has set dependencies for the programming sequence of the *CmContainer*.
Values	The final column displays the stored value of the single license property.

The license properties as displayed in the figure above are not always set. The display of your license may differ.

2.5.5.2 User Data

The **"Content | User Data"** page shows you detailed information on products (licenses) the owner of the *CmDongle* Password. This license container is identified by a number value of "0".
Use the **CmContainer** dropdown control to select the desired *CmDongle* in order to see "your" licenses. Navigation and entry structures are analog to the display of local licenses 60 .

Figure 46: *CodeMeter WebAdmin* - "Content | User data"

2.5.6 License Display on the Network

The **"Server | ..."** pages show you information on existing network licenses and their current allocation.

Network licenses on a *CmContainer* are addressable by other PCs only, if *CodeMeter License Server* has been started as network server.

The display of network licenses is divided in two categories:

- ordered by licensor and licenses (cluster).
- ordered by users of licenses (user).

2.5.6.1 Cluster - Licenses summarized

The **"Server | Cluster"** page shows all existing network licenses and their allocation ordered by licensors and related licenses.

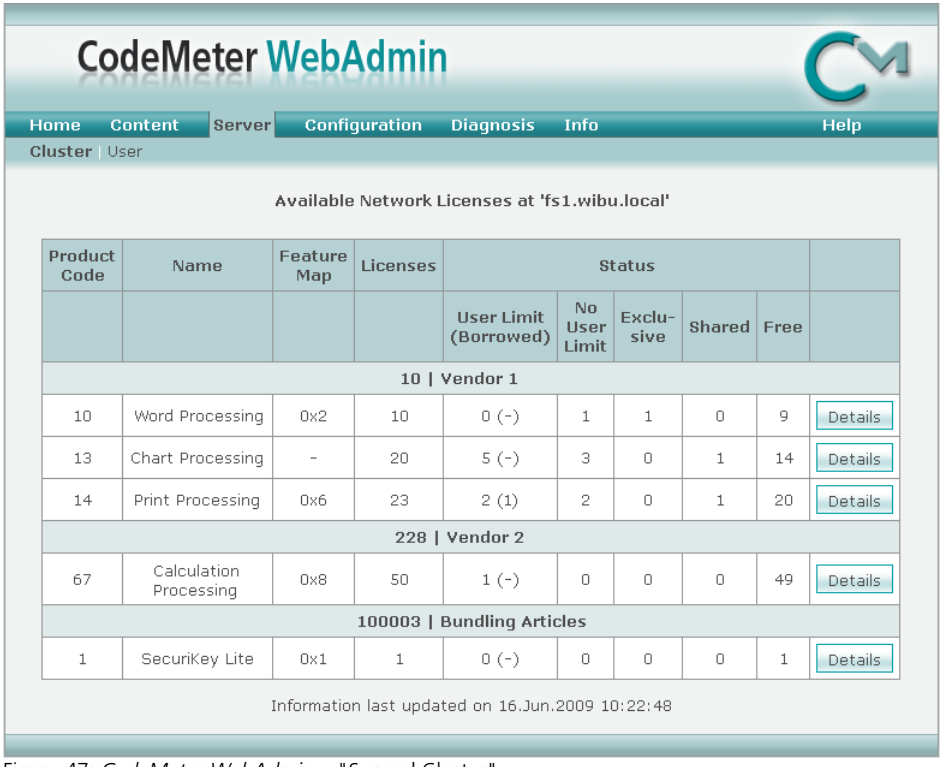


Figure 47: *CodeMeter WebAdmin* – "Server | Cluster"

Besides the describing information on **Product Code**, **Name**, and **Feature Map**, the column **Licenses** shows the respective total number of available network licenses.

Shared and Free Licenses

In addition, the **Status** group structures the licenses according to access modes (**User Limit**, **No User Limit**, **Exclusive**, **Shared**) and shows available **free** licenses[34].

Borrowed Licenses

Moreover, the **Status** group also shows you whether and if so which licenses in what quantity are locally borrowed from the license server.
In the figure above you see that of the total of 20 licenses of Vendor 1 for "Chart Processing" 14 licenses are free and available. Altogether 9 instances of the application access licenses but only 6 are counted since 3 accesses are of access status **No User Limit** allocating no additional licenses.

Click on the "Details[60] " button to obtain detailed information on the license allocation.

2.5.6.11 Session Details

The following figure shows you detailed information on the license allocation.

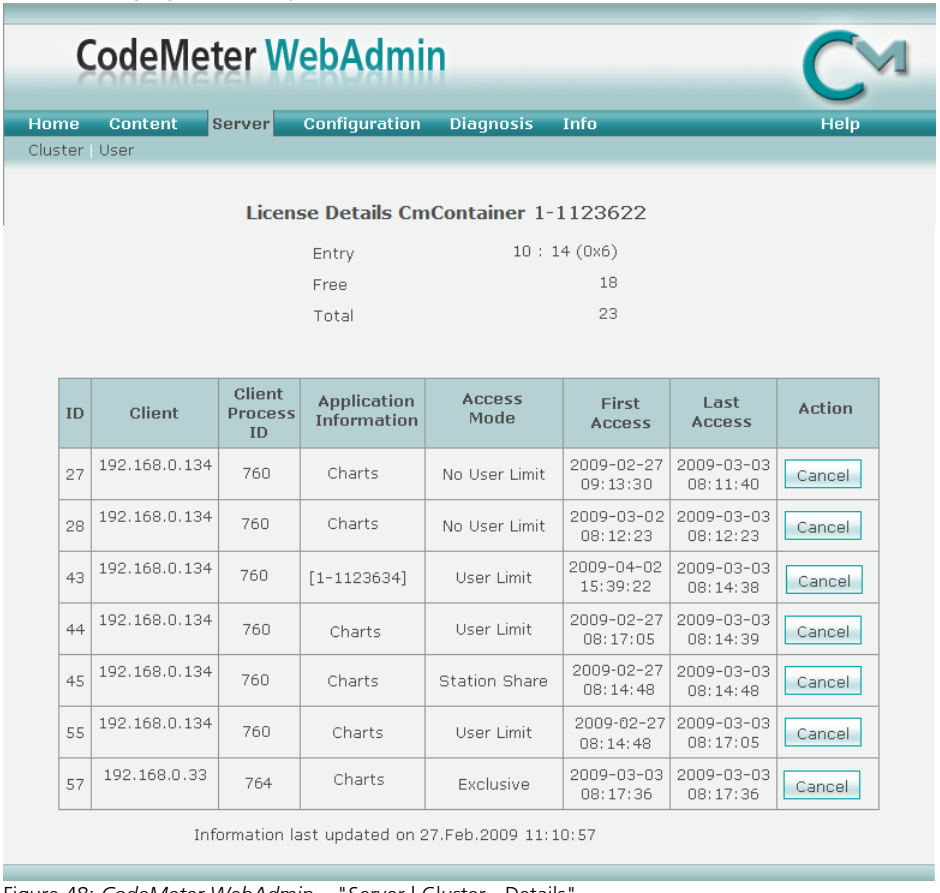


Figure 48: *CodeMeter WebAdmin* – "Server | Cluster - Details"

For example, in the figure above you see:

- the licenses for the application derive from the licensor with the Firm Code 10 and describe the product with the Product Code 14 as a module (`0x6` as Feature Map).
- the licenses are stored in the *CmContainer* with the mask and serial number `1-1123634`.
- in total 2 clients, identified by **ID**, **Client** (`192.168.0.134` and `192.168.0.33`) and **Client Process ID** columns, access the application "Chart Processing".
- 5 licenses of the 23 available licenses in total are allocated, 18 licenses are free.

- Client `192.168.0.33` exclusively allocates 1 license, client `192.168.0.134` uses the application in 6 instances but allocates only 4 licenses due to the **Access Mode** column.
- Client `192.168.0.134` has borrowed a license on the *CmContainer* [`1-1123634`] valid until April 12th, 2009.
- Client `192.168.0.33` for the first time accessed the application (**First** and **Last Access** columns are of same date).
- Client `192.168.0.134`, according to the **First Access** column, previously accessed the application.

Cancel

Clicking the **"Cancel"** button of the **Action** column allows you to deallocate single accessed licenses.

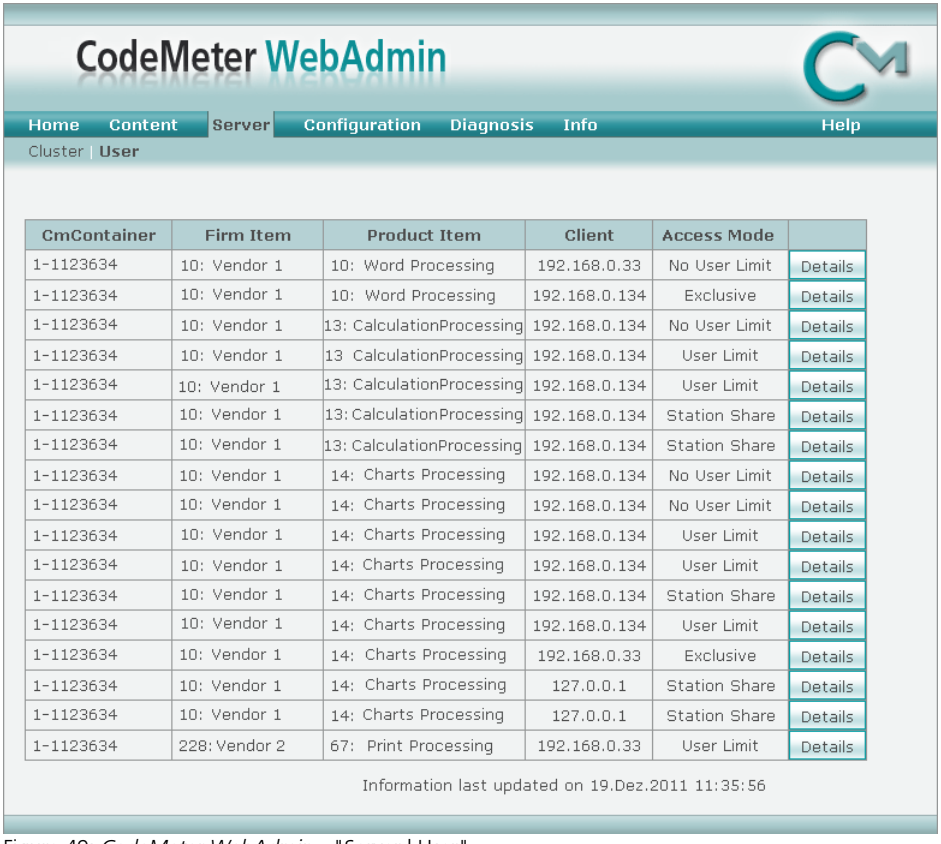

You cannot deallocate and reallocate borrowed licenses before they have been returned.

For example, this is necessary when all licenses are allocated but an additional instance of the application needs to be started.


After deleting of an access the license is deallocated and available again. The client of the application receives a respective error message.

2.5.6.2 Current User

The **"Server | User"** page shows you all existing network licenses ordered by users actually logged on (**clients**).



CmContainer	Firm Item	Product Item	Client	Access Mode	
1-1123634	10: Vendor 1	10: Word Processing	192.168.0.33	No User Limit	Details
1-1123634	10: Vendor 1	10: Word Processing	192.168.0.134	Exclusive	Details
1-1123634	10: Vendor 1	13: CalculationProcessing	192.168.0.134	No User Limit	Details
1-1123634	10: Vendor 1	13 CalculationProcessing	192.168.0.134	User Limit	Details
1-1123634	10: Vendor 1	13: CalculationProcessing	192.168.0.134	User Limit	Details
1-1123634	10: Vendor 1	13: CalculationProcessing	192.168.0.134	Station Share	Details
1-1123634	10: Vendor 1	13: CalculationProcessing	192.168.0.134	Station Share	Details
1-1123634	10: Vendor 1	14: Charts Processing	192.168.0.134	No User Limit	Details
1-1123634	10: Vendor 1	14: Charts Processing	192.168.0.134	No User Limit	Details
1-1123634	10: Vendor 1	14: Charts Processing	192.168.0.134	User Limit	Details
1-1123634	10: Vendor 1	14: Charts Processing	192.168.0.134	User Limit	Details
1-1123634	10: Vendor 1	14: Charts Processing	192.168.0.134	Station Share	Details
1-1123634	10: Vendor 1	14: Charts Processing	192.168.0.134	User Limit	Details
1-1123634	10: Vendor 1	14: Charts Processing	192.168.0.33	Exclusive	Details
1-1123634	10: Vendor 1	14: Charts Processing	127.0.0.1	Station Share	Details
1-1123634	10: Vendor 1	14: Charts Processing	127.0.0.1	Station Share	Details
1-1123634	228: Vendor 2	67: Print Processing	192.168.0.33	User Limit	Details

Figure 49: *CodeMeter WebAdmin* - "Server | User"

Here you obtain all describing information 34 on the **CmContainer**, licensor (**Firm Item**), license (**Product Item**), and **Access Mode**.

Session Details

Click on the **"Details"** button to obtain detailed information on the allocation of the license.

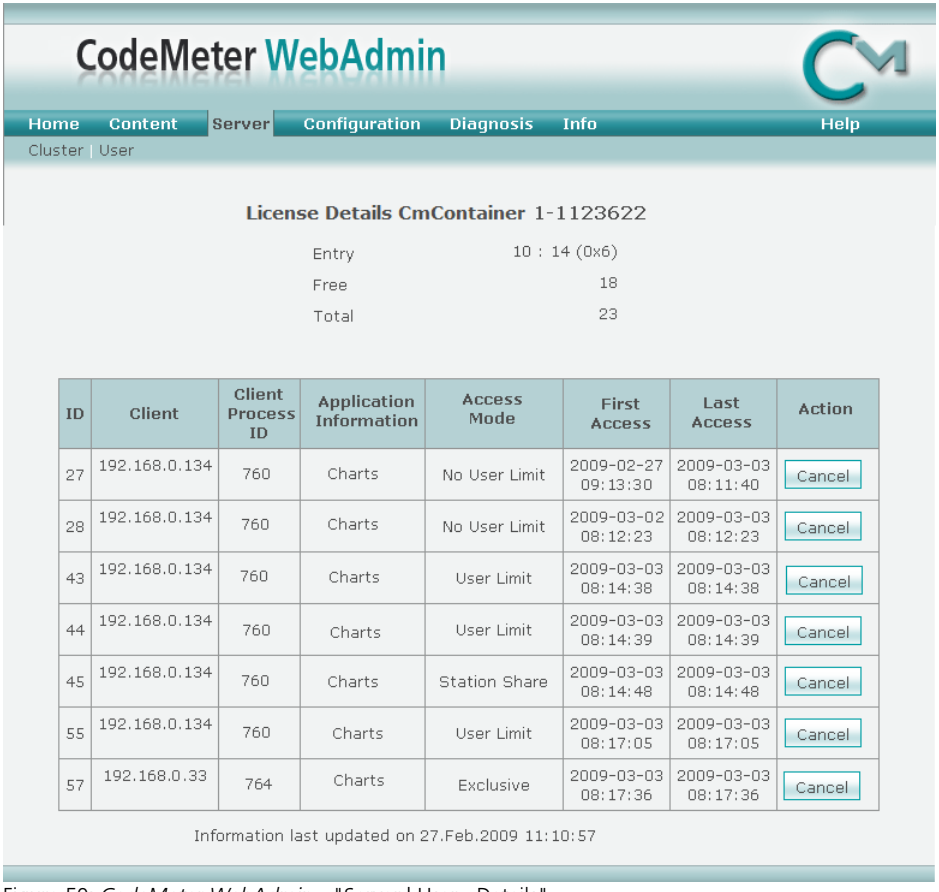


Figure 50: *CodeMeter WebAdmin* - "Server | User - Details"

Click the **"Details** [60] **"** button to obtain detailed information on the allocation of the license.

2.5.6.3 License Tracking

The **"Server | License Tracking"** page allows you to track who, when, from where, how often uses server licenses of *CodeMeter*-protected applications.

For Windows operating systems you find the profiling entries stored in the registry, for other operating systems entries are set in the file `server.ini`. The following table shows you the respective locations.

Operating system	Registry / Server.ini Entry
Windows	`HKLM/SOFTWARE/WIBU-SYSTEMS/CodeMeter/Server/CurrentVersion`
Mac OS	`/Library/Preferences/com.wibu.CodeMeter.Server.ini`
Linux	`/etc/wibu/CodeMeter/Server.ini`
Solaris	`/etc/opt/CodeMeter/Server.ini`

There exist two relevant profiling entries for *License Tracking*.

Entry	Property	Value
`LogLicenseTracking`	`[DWord]`	`[0;1]` Default value is is `0` and Logging for License Tracking is disabled.
`LogLicenseTrackingPath`	`[SZ]`	`<path>` Default path on Windows operating systems is `%ProgramData%\CodeMeter\LicenseTracking.` For other operating systems the default path has the same value of the general profiling entry `LogPath`.

Please note that changed settings will take effect only after restarting *CodeMeter License Server*.

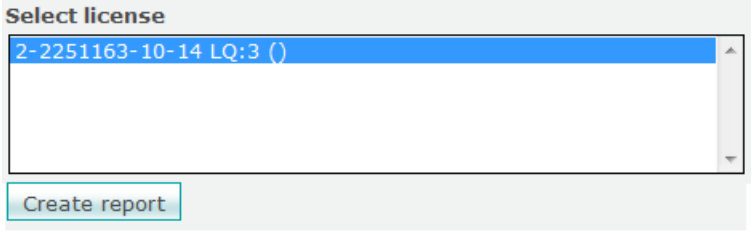
On the basis of selectable log files and licenses, accesses are displayed graphically and in detail. The created report may serve to use information on license requests and denials for saving license costs and create forecasts or prognoses.

Using a separate navigation the number and origin of allocated, rejected or released licenses can be tracked according to specified view modes (month, day, hour). Clicking on the displayed bars shows more details on the use of licenses.

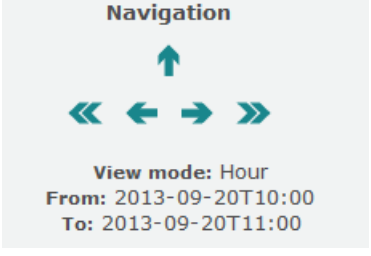
For using license tracking, please proceed as follows:

1. Select the log file using the field "**Select logging period**".

   Click the "**Reload**" button to update the logging period entries.
2. Select the license to be tracked using the field "**Select license**".

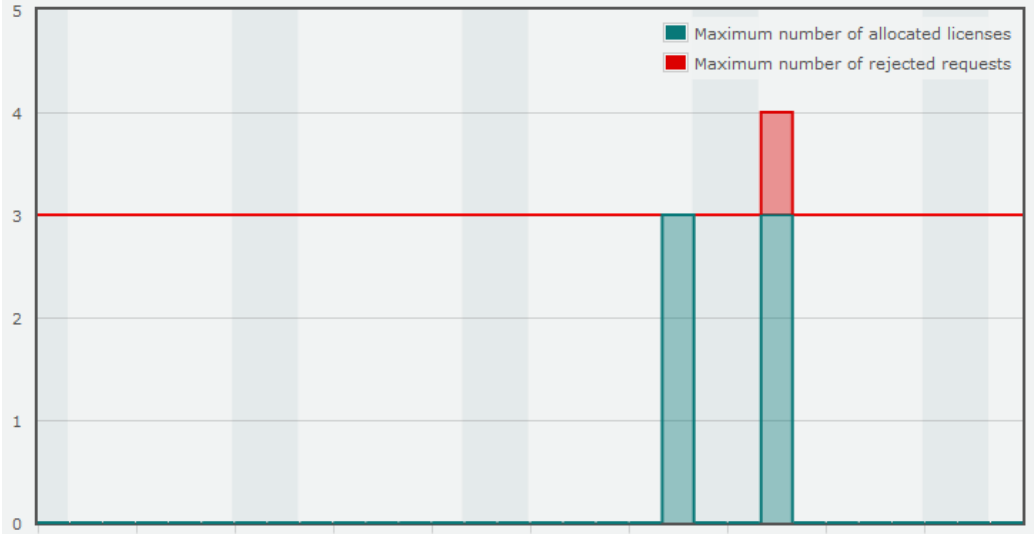


3. Click the button "**Create report**".
The separate area **Navigation**:



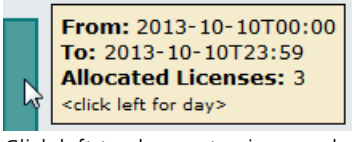
- informs on the view mode (Month, Day, Hour),
- shows the tracked period (From - To),
- allows to browse back and forward in time periods and switch back to the previous view mode.

Below the selection area a **bar chart** displays showing the maximum number of allocated licenses and rejected requests over time.



The default is set to the view mode month.

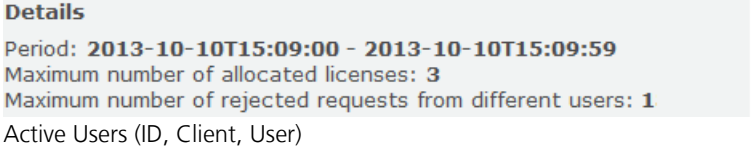
4. Move over a colored bar to open an over-layered dialog for information display.



5. Click left to change to view mode **Day**.
   For switching back to the view mode **Month** you may use the arrow symbol in the **Navigation** area.
6. Move over a bar again tom switch to the view mode **Hour**.

7. Move over a bar again and left click to open the separate **Details** area.

Detailed information and separate tables for single bars list details on **Active Users**, **Rejected Requests** and **All Events**.



Active Users (ID, Client, User)

Active Users

ID	Client	User
57	10.49.12.17	wv
58	10.49.12.17	wv
59	10.49.12.17	wv
60	10.49.12.17	wv
61	10.49.12.17	wv
62	10.49.12.17	wv
63	10.49.12.17	wv
64	10.49.12.17	wv
65	10.49.12.17	wv
66	10.49.12.17	wv
67	10.49.12.17	wv
68	10.49.12.17	wv

Rejected Requests (Second, Event Type, Client, User)

Rejected Requests

Second	Event Type	Client	User
26	**Denial**	10.49.12.17	wv
28	**Denial**	10.49.12.17	wv
30	**Denial**	10.49.12.17	wv
34	**Denial**	10.49.12.17	wv
36	**Denial**	10.49.12.17	wv

All Events (Second, Event Type, ID, Client, User)

All Events

Second	Event Type	ID	Client	User
3	Denial		10.49.12.17	wv
5	Access	60	10.49.12.17	wv
5	Release	58		
5	Release	59		
7	Access	61	10.49.12.17	wv
7	Access	62	10.49.12.17	wv
11	Release	60		
13	Access	63	10.49.12.17	wv
13	Denial		10.49.12.17	wv
13	Release	62		
16	Access	64	10.49.12.17	wv
16	Access	65	10.49.12.17	wv
20	Release	63		
22	Access	66	10.49.12.17	wv
22	Release	64		
22	Release	65		
24	Access	67	10.49.12.17	wv
24	Access	68	10.49.12.17	wv
24	EOF			

The detail view uses the following elements:

Element	Description
ID	uniquely discerns requesting / accessing processes.
Client	identifies the IP address of the requesting / accessing machine.
User	identifies the user requesting / accessing the license.
Second	informs on the second time value.
Event Type	**Denial** describes that a user requested a license but did not get one because no more licenses could be allocated. It will not show license requests of licenses that do not exist on this server.
	Access describes that a license on a server is allocated to a user.
	Release describes that a user has released a formerly accessed license on a server.

2.5.7 Diagnosis

Logfile

The **"Diagnosis | Logfile"** page allows you to log all processes related to the *CodeMeter License Server* service. This provides information which supports you in detecting eventually occurring errors.

CodeMeter WebAdmin displays a protocol only if you previously activated[14] this function in *CodeMeter Control Center*.
There you find further information on how to save the log file.

Figure 51: *CodeMeter WebAdmin* - "Diagnosis | Logfile"

2.5.8 Backup/Restore

The **"Content | Backup/Restore"** page allows you to save personal data located in your *CmDongle*, and restore them in the *CmDongle*.

Note, that the backup and restore mechanism only comprise the user data in the *CmDongle* but no license information of other licensors. Backup and restore exclusively relates to the license container with the Firm Code "0".
In order to restore licenses which do not locate in the personal area (Firm Item levels unequal to Firm Code "0"), please contact Wibu Support.

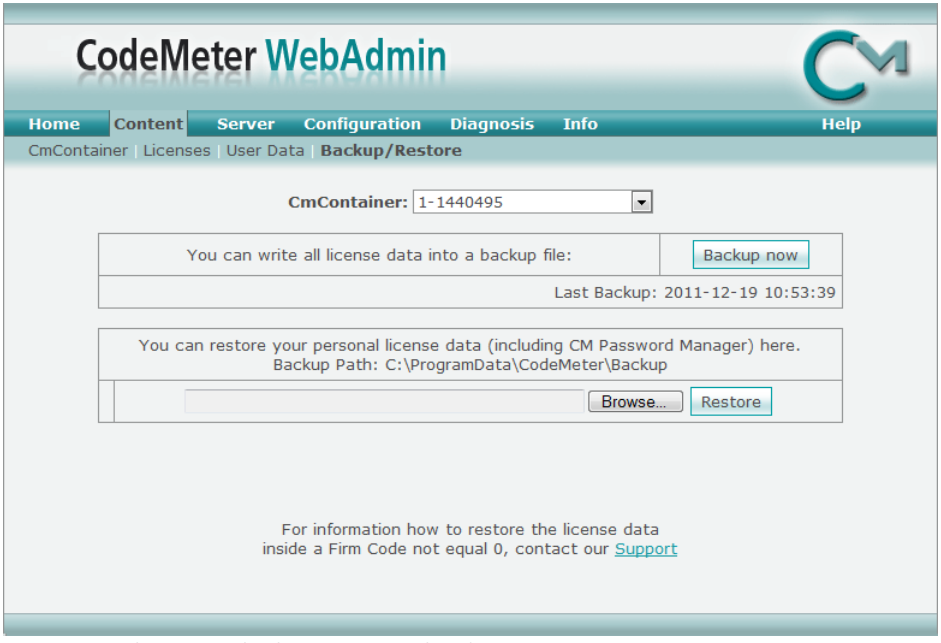
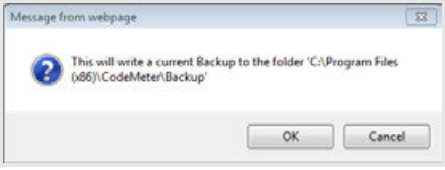
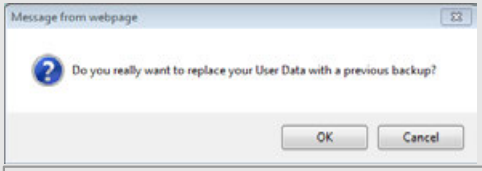


Figure 52: *CodeMeter WebAdmin* - "Content | Backup/Restore"

Element	Description
CmDongle	Click the **CmDongle** dropdown control to select the desired *CmDongle* for which the backup or restore is to apply.
Backup now	**1.** Click the **"Backup now"** button to apply an instant backup of your personal *CmDongle* data (user data). In addition, the time of the **Last Backup** is displayed. **2.** Confirm the following dialog to create the backup file. 
Browse / Restore	**1.** Click the **"Browse"** button to select the backup copy which is to be restored. The location of the backup file displays. **2.** Click the **"Restore"** button to start the restoring process. **3.** Confirm the following dialog and click the **"OK"** button.



If you import a backup into the *CmDongle*, all changes after the backup was created are lost.

4. Enter the Password of the *CmDongle* in which the backup file is to be imported.

You are also able to import the saved data into another *CmDongle*. Please note, however, that the second *CmDongle* must have the same password !

2.5.9 Info

The **"Info"** page displays an overview of products and important Wibu-Systems addresses.

2.5.10 Help

The **"Help"** page can be reached from each page, and provides context-sensitive help on *CodeMeter WebAdmin*.

2.6 CmDust

At times, it may necessary to receive help by our support when using *CodeMeter*®. In order to ease identification of troubles, the program *CmDust* (**C**ode**M**eter En**du**ser **S**upport **T**ool) for the commandline has been developed.

No secret information is transferred to Wibu-Systems. You are able to check the information saved in plain text.

CmDust on Windows

You open *CmDust* using the **"Start | All Programs | CodeMeter | Tools"** menu item. The result of the program execution is written to the text file `CmDust-Result.log` and saved to the user directory which automatically opens when starting *CmDust*.

Alternatively, you are able to use the commandline application cmu 74 to create a log file.
For analyses this file can be sent to Wibu-Systems.

CmDust on Mac OS

For Mac OS you create the *CmDust* file using the *cmu* 73 commandline program. Calling *cmu* is stored in the search path.

To create a *CmDust* log, please proceed as follows:

1. Open *cmu* commandline
2. Type in the following command
   `cmu --cmdust`
   Using the option `--file` allows to add a name and a saving location.
   By default, the file is written to the directory from which you accessed *cmu*.
3. Send this file for analyzing to Wibu-Systems.

CmDust on Linux, Sun

For the operating systems Linux and Sun you create the *CmDust* file using the *cmu* 73 commandline program. Calling *cmu* is stored in the search path.

1. Open *cmu* commandline
2. Type in the following command
   `cmu --cmdust`
   Using the option `--file` allows to add a name and a saving location.
   By default, the file is written to the directory from which you accessed *cmu*.
3. Send this file for analyzing to Wibu-Systems.

CmDust reads out the following settings:

- Information on the operating system: version, installed service packs, language settings.
- CodeMeter relevant registry entries: installation path, settings of *CodeMeter License Server* and *CodeMeter WebAdmin*, backup and HTTP settings.
- AddOns: information on all *CodeMeter*® AddOns.
- Information on CodeMeter® and CmContainer: software and hardware version and all entries of connected *CmContainer*.

```
================================================================================
***************************** General Information
******************************
================================================================================
CmDust Version 4.40 Build 660 of 2011-11-10
Copyright (C) 2005-2011 by WIBU-SYSTEMS AG. All rights reserved.
```

```
CmDustLog created at 2011-11-17 15:24:40 (UTC)
CmDust was started from: C:\Program Files\CodeMeter\Runtime\bin
Current User has administrator rights
================================================================================
===
**************************** System Information
*****************************
================================================================================
===
OS: Microsoft Windows 7 Business Edition, 32-bit Service Pack 1 (build 7601)
Computer Name:    FS2.wibu.local
Found IP address: 10.49.12.16 | 192.168.243.1 | 192.168.204.1 | 127.0.0.1
Not running inside Virtual Environment.

Language Settings:
  Machine:      English
  Current User: English

DataExecutionProtection state:
  OPTIN (Only Windows system components and services have DEP applied.)
Current User has administrator rights

Overview of available drives:
  C:\ = Fix Drive  (304336 MB)
  D:\ = CDROM
  E:\ = Removable Drive Bus=Usb;WIBU -  CodeMeter-StickM (7832 MB), contains
codemtr.io
  ================================================================================
=====
********************** Relevant registry entries
*****************************
================================================================================
===
[HKEY_LOCAL_MACHINE\SOFTWARE\WIBU-SYSTEMS\CodeMeter] <All>
RuntimeVersion <All> = "4.40.660.500"
```

2.7 CMU - CodeMeter Universal Support Tool

You have also the option to alternatively execute some *CodeMeter Control Center* functions by the commandline based *CodeMeter Universal Support Tool* (*cmu*).

cmu supports you in:

- listing of *CmContainer* contents
- creating a simple test environment for *CmContainer*
- executing a certified time update, and creating and import of license request and update files (Remote

Context and Update files, `*.WibuRaC`; `*.WibuRaU`)

Call *cmu* in the directory `%\Program Files%\CodeMeter\Runtime\bin` using the command `cmu[32].exe`.

Alternatively, on Windows call *cmu* by the system menu item **"Start | All Programs | CodeMeter | Tools | CodeMeter Command Prompt"**.

For the operating systems Mac OS, Linux and Sun this command is provided by the usual search path parameter.

The following list shows all existing *cmu* commands.

Command	Description
/h or **--help**	shows this help in the commandline window.
/v or **--version**	shows the versions of all available *CodeMeter*® components.
/l or**--list**	lists all connected *CmContainer* by way of their serial numbers.
/x or **--list-content**	lists the contents of all connected *CmContainer*.
/k or **--list-server**	lists all available network license server.
/n or **–-list-network**	list the complete network license information.
/c <FI> or **--context <FI>**	creates a license request for an *license update via CmFAS* 26 creates a license request for an license update via Firm Item <FI>. Using option **--file** specifies the output file. If no option is set the standard output is used (stdout).
/i or **--import**	imports a license update file received via CmFAS 30 for the available *CodeMeter*® license. Using option **--file** specifies the file name. The update can cover a *CmDongle* or a *CmActLicense* license file.
/d or **--firmware-update**	starts the firmware update of a *CmContainer*.
/u or **--time-update**	starts the update of the Certified Time in each connected *CmContainer*.
/e <s> or **--enable <s>**	allows the activation or deactivation of the selected *CmContainer*. Specifying the *CodeMeter*® password is required. The required new Enabling status is specified by the parameter **<s>**. Parameter values cover 1 (disable), 2 (temporary enable), 3 (enable)..
/t <no> or **--test<no>**	starts some simple tests for each connected *CmContainer*. The number of tests is specified by parameter <no>. It is required that the *CmContainer* must be (temporarily) enabled.
/vv or **--cmdust**	creates a *CmDust* report. This report is useful and required when requesting support. Wibu-Systems recommends to create a *CmDust* report before contacting the support. Using the option **--file** writes the result into a text file.
--borrow	allows the borrowing of licenses from a license server to the local PC. You have to specify the Firm Code and the Product Code of the license using the options **--firmcode** and **--productcode**. As an additional option you may specify the Feature Map using the option **--featuremap**. Moreover, you have to specify the serial number of the client *CmContainer* and the server name using the options **--serial** and **--server**.

Command	Description
--return	returns the borrowed license to the license server. You have to specify the Firm Code and the Product Code of the license using the options **--firmcode** and **--productcode** and the serial number of the client *CmContainer* and the server name using the options **--serial** and **--server**.
--borrowlist	lists the borrowed licenses for the client and the server.
--enabling	lists the enabling stati of all connected *CmContainer*. Combined with the command **-x** you can also display additional enabling information of the *CmContainer* content.
--create-io	is used in combination with the option **--file** and makes sense only when using the hardware form factors *CmCard/SD* or *CmCard/CF*. A new **codemtr.io** file is created. Please call this command only if the **codemtr.io** file is deleted.
--detect-proxy	detects the proxy settings of the system. When options are omitted the standard output is used (stdout). The option **--write** saves the settings using the *CodeMeter*® profiling.
--delete-cmact-license	deletes a *CmActLicense* license you specify using the command **--serial**. Once you delete a *CmActLicense* license it cannot be restored..

The following list shows all existing *cmu* options:

Options	Description
/f <file> or **--file <file>**	Additional option which writes the command result into a file **<file>**. This option is used in combination with the commands **--context**, **--import**, **--cmdust**.
/s <serial> or **--serial <serial>**	Additional option which defines that a command is valid only for a *CmContainer* specified by its serial number <serial>, e.g. "1-10234242".
/p <pwd> or **--password <pwd>**	Additional option in combination with the commands **--enable** and **--firmware-update**. This option defines the required *CodeMeter* Password for this command.
--firmcode <fc>	Additional option in combination with the commands **--borrow** or **--return** specifying the Firm Code of the borrowed license.
--productcode <pc>	Additional option in combination with the commands **--borrow** or **--return** specifying the Product Code of the borrowed license.
--featuremap <fm>	Additional option in combination with the commands **--borrow** or **--return** specifying the Feature Map of the borrowed license.
--server <servername>	Additional option to borrow a license from another server. Is used in combination with command **--borrow**.
--write	Additional option used in combination with the command **--detect-proxy** which saves the setting using the *CodeMeter*® profiling. These settings are written only if no proxy has been previously set in the profiling. For overwriting the settings use the option **--force**.
--force	Additional option used in combination with the command **--detect-proxy** which overwrites already existing proxy settings in the *CodeMeter*®profiling.
--show-config-disk	Shows the current settings of removable/fixed drives or of the type of the defined Master Boot Record (MBR).

<table>
<tr><th>Options</th><th>Description</th></tr>
<tr><td></td><td>This option concerns the behavior of virtual flash memory partitions. Use only for CmStick and CmStick/M.</td></tr>
<tr><td><code>--set-config-disk <parameter></code></td><td>Allows to define a special behavior of virtual flash memory partitions, e.g. drive settings, boot code or activations (CmDongle only).
  Please note that replugging of the CmDongle is required.
<table><tr><th>Description</th><th>Parameter</th></tr><tr><td>Drive settings</td><td>RemovableDisk,LocalDisk</td></tr><tr><td>Boot Code</td><td>Int18Boot,ZeroBoot,LoopBoot,SwapBoot,VbrBoot</td></tr><tr><td>Activation</td><td>ActivePartition,InactivePartition</td></tr><tr><td>FAT</td><td></td></tr><tr><td>USB-Communication Device Class</td><td>HidCommunication; MsdCommunication</td></tr></table></td></tr>
<tr><td><code>--check-cm-integrity</code></td><td>Allows to check the CodeMeter® signature.</td></tr>
</table>

Application examples

Action	Parameter
Displaying *cmu* options	`Cmu[32].exe -h`
Creating a *CodeMeter®* Remote Activation Context file (here:`1-1040870.WibuCmRaC`) for the Firm Code 10 (Firm Item level)	`Cmu[32].exe -c10 -f1-140870.WibuCmRaC`
Importing a *CodeMeter®* Remote Activation Update file (here:`1-1040870.WibuCmRaU`) --> reprograms the connected *CmContainer*	`Cmu[32].exe -i -f1-1040870.WibuCmRaU`
Showing the versions of current *CodeMeter®* components.	`cmu32 --version`
Listing all available *CodeMeter* network license server and if existing all related licenses.	`cmu32 --list-server --list-content`
Starting 100 simple tests. The tests are executed only for the *CmContainer* specified by the serial number of `1-233232`.	`cmu32 --test 100 --serial 1-233232`
Changing the enabling status to "temporarily enabled" for the *CmContainer* `1-2345` by using the *CodeMeter®* password "SECRET".	`cmu32 --enable2 --serial 1-2345 --password SECRET`

2.8 CodeMeter License Tracking

Starting with Version 4.50 *CodeMeter®* introduces license tracking allowing for the evaluation of licensing data based on structured logfiles. With it the actual use of licenses are recorded.
However, Wibu-Systems does not offer a separate application for license tracking but suggests that software vendors who want to evaluate how their licenses are used refer to tools by third parties able to aggregate information from real-time requests or logfiles.

Currently, the logfile content is saved locally but for future version its is planned that contents may also be retrieved using HTTP access and calls (real-time history).


If the logfiles need to be read from other systems, you must share the folder where the logfiles are stored as read-only in your local area network.

The following sections briefly:

- show how to configure License Tracking 77
- introduce definitons and value ranges used in the logfile 78
- describe single logfile entry types 79

2.8.1 Requirements

Using the *CodeMeter*® feature License Tracking requires at least *CodeMeter License Server* Version 4.50.

2.8.2 Configuration

The logfile history needs to be enabled with *CodeMeter License Server*. This has to be done by activating it directly in the *CodeMeter*® profiling environment.

2.8.2.1 Profiling

For Windows operating systems you find the profiling entries stored in the registry, for other operating systems entries are set in the file `server.ini`. The following table shows you the respective locations.

Operating system	Registry / Server.ini Entry
Windows	`HKLM/SOFTWARE/WIBU-SYSTEMS/CodeMeter/Server/CurrentVersion`
Mac OS	`/Library/Preferences/com.wibu.CodeMeter.Server.ini`
Linux	`/etc/wibu/CodeMeter/Server.ini`
Solaris	`/etc/opt/CodeMeter/Server.ini`

There exist two relevant profiling entries for *License Tracking*.

Entry	Property	Value
`LogLicenseTracking`	`[DWord]`	`[0;1]`  Default value is is `0` and Logging for License Tracking is disabled.
`LogLicen-seTrackingPath`	`[SZ]`	`<path>`  Default path on Windows operating systems is `%ProgramData%\CodeMeter\LicenseTracking.` For other operating systems the default path has the same value of the general profiling entry `LogPath`.


Please note that changed settings will take effect only after restarting *CodeMeter License Server*.

Logfile Rotation
Currently, there is no logfile rotation implemented.


Currently, each time *CodeMeter License Server* is started, a new logfile with a timestamp is created and completed by respective licensing data.

2.8.3 Logfile Format

The following logic applies to the format of the logfile.

1. Each line in the logfile can be handled separately. There exist separate lines for different entry types 79.
2. Each line that does not match to the described formats has to be ignored.
   This will allow us to enhance the output in future versions without causing trouble in working solutions.


It is also recommended to do a parsing of the different arguments of a line and simply to ignore arguments that are not known.
This allows us to enhance the output in future versions without causing trouble in working solutions.

2.8.3.1 Definitions and Value Ranges

For the logfile and single entry types the following definitions and value ranges are used:

Definition	Value Range
access id	string  The <access id> is given by the server and extends the <license id> by an index describing the slot, i.e. <license id>-<slot id>.
application id	[0..4294967295]
application text	string
borrow id	string  The <borrow id> is derived as <mask>-<serial number>-<firm code>-<enabling block index>. All values refer to the borrowing client.
enabling block index	[0..31]
expiration time	["never"|UTC Timestamp]
feature map	[0..4294967295]
firm code	[0..4294967295]
license id	string  The <license id> is automatically derived as <mask>-<serial number>-<firm code>-<product item reference>, e.g. "2-1500002-100532-18". The <license id> is a unique identifier for a license entry.

license quantity	[0..4294967295]
mask	[0..65535]
product code	[0..4294967295]
product item reference	[0..4294967295]
product item text	string
serial	[0..4294967295]
server	string
slot id	[0..4294967295]
timestamp	UTC Timestamp UTC Timestamp sample: "2012-12-24T08:32:59".

Since the strings may contain quotation marks (") but may also be bracketed expressions, any quotation marks that are part of the string are quoted by a backslash (\). For example, the application text *The best of "John Doe."* will be issued as

```
...AppText: "The best of \"John Doe.\""
```

2.8.4 Entry Types

The *CodeMeter*® license tracking logfile knows the following listed entry types.

2.8.4.1 List of Licenses Entry

Entry type	List of Licenses entry
Description	A list of License entries is preceded by a List of Licenses entry. This indicates that in the following lines all existing licenses of this server are listed. A previously retrieved list of License entries becomes invalid.
Writing time	The List of Licenses entry is written immediately before the list of License entries is written.
Syntax	`<timestamp> ListOfLicenses`

2.8.4.2 License Entry

Entry type	License entry
Description	The License entry describes an existing license.
Writing time	All License entries are written to the logfile: • on startup of *CodeMeter License Server* • each time when an entry is changed, e.g. by plugin / plugout or remote programming. In the cases mentioned above, all License entries of the current server are written preceded by a List of Licenses 79 entry.
Syntax	`<timestamp> License Server:"<server>", LicenseId:<license id>, SN:<mask>-<serial>, FC:<firm code>, PC:<product code>, FM:<feature map>, ET:<expiration time>, LQ:<license quantity>, PT:"<product item text>"`

Before all License entries are re-written on changing entries all allocated licenses are released by a Release entry. Immediately after issuing the License entries the previously released licenses are again allocated by an Access entry.
This is necessary because `license id`s can change on re-programming or on plugout and the subsequent rebooking. Moreover, the `access id` may change by automatic rebooking after plugout.

Licenses with a License Quantity value of `0` (license for local use use) are not listed.
The Expiration Time contains the minimum of the Product Item Option Expiration Time and the value of an activated Product Item Option Usage Period. If neither an Expiration Time is set nor a Usage Period exists or is activated the value is "`never`".

2.8.4.3 Access Entry

Entry type	Access entry
Description	An Access entry describes that a license on a server is allocated to a user.
Writing time	The Access entry is written at the moment a license is accessed.
Syntax	`<timestamp> Access Server:"<server>", LicenseId:<license id>, AccessId:<access id>, Client:"<computer name>", User:"<user name>", AppId:<application id>, AppText:"<application text>"`

The application id and application text are derived from `CMCREDENTIAL` structure using `mulUserDefinedId` and `mszUserDefinedText`.

2.8.4.4 Release Entry

Entry type	Release entry
Description	A Release entry describes that a user has released a formerly accessed license on a server.
Writing time	The Release entry is written at the moment a license is released.
Syntax	`<timestamp> Release Server:"<server>", AccessId:<access id>`

2.8.4.5 Borrow Access Entry

Entry type	Borrow Access entry
Description	A Borrow Access entry describes that a user has borrowed a license from a server.
Writing time	The Borrow Access entry is written at the moment a license is borrowed. In addition, the Borrow Access entry is written when *CodeMeter License Server* is started and there already exist borrowed licenses.
Syntax	`<timestamp> Borrow Server:"<server>", LicenseId:<license id>, BorrowId:<borrow id>, Client:"<computer name>", User:"<user name>", Expires:<expiration time>, BorrowSn:< mask>-<serial>`

2.8.4.6 Borrow Return Entry

Entry type	Borrow Return entry
Description	A Borrow Return entry describes that either a user has returned a borrowed license on a server or the borrow duration has expired and the license was returned automatically.
Writing time	The Borrow Return entry is written at the moment a license is returned.
Syntax	`<timestamp> Return Server:"<server>", BorrowId:<borrow id>`

2.8.4.7 Denial Entry

Entry type	Denial entry
Description	A Denial entry describes that a user requested a license but did not get one because no more licenses could be allocated. It will not show license requests of licenses that do not exist on this server.
Writing time	The Denial entry is written at the moment a license access has failed.
Syntax	`<timestamp> Denial Server:"<server>", LicenseId:<license id>, Client:"<computer name>", User:"<user name>", AppId:<application id>, AppText:"<application text>"`

A Denial entry is only logged if error 212 (`CMERROR_NO_MORE_LICENSES`) occurs.

2.8.4.8 Administrative Entry

Entry type	Administrative entry
Description	An Administrative entry describes some event on the *CodeMeter License Server*.
Writing time	The Administrative entry is written at the moment the described event occurred.
Syntax	`<timestamp> Admin Server:"<server>" CodeMeter_started` `<timestamp> Admin Server:"<server>" CodeMeter_stopped`

If *CodeMeter License Server* is stopped, all Access entries are automatically canceled. Only Borrow Access entries remain valid and will be restored on next start of *CodeMeter License Server*. Usually, the Release entries are automatically added to the log, but in some circumstances this is not possible, e.g. killing *CodeMeter License Server*.

2.9 HID Support

Starting with Version 5.0 *CodeMeter*® supports devices that conform to the USB's Human Interface Device (HID) class specification.

The installation of a special USB host driver is not required since the communication via the USB HID class is standardized and the operating systems provide respective classes. Currently, the operating systems Windows, Mac OS, and Linux are supported.

Alternatively to the Mass Storage Device status, thus *CmDongles* can display as HID without a drive status.

HID is currently available for all *CmDongles*, 1001-02-xxx (without FlashDisk).

Requirements

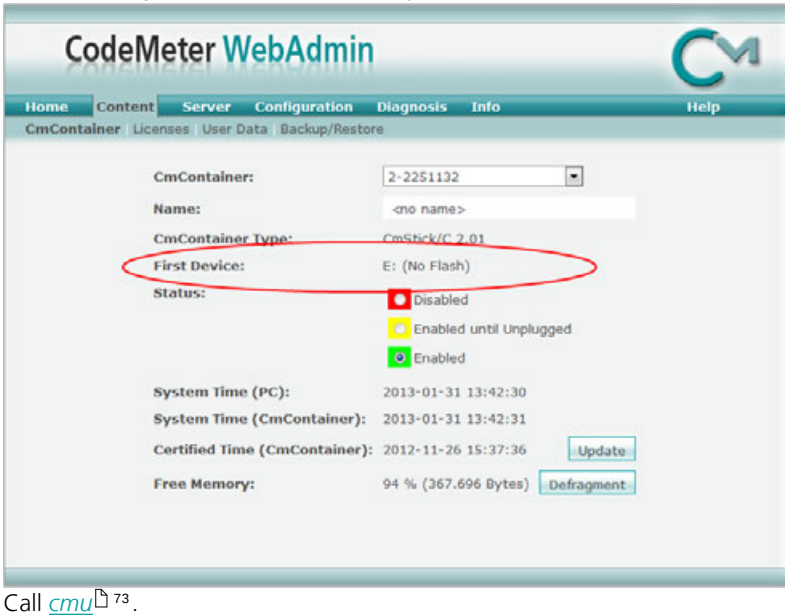
- *CmContainer* with the ID "2-xxxxxxx" (Samsung chips)
- Minimum *CodeMeter*® Firmware 2.02
- Minimum *CodeMeter*® Runtime 5.0

The USB communication standard can be switched any time from Mass Storage Device (MSD) to Human Interface Device (HID) or vice versa.

2.9.1 Set from Mass Storage to HID

To switch the USB communication standard from Mass Storage Device (MSD) to Human Interface Device (HID), please proceed as follows:

1. View the status in *CodeMeter WebAdmin* on page "**Content | CmContainer**".
   A drive is assigned and no flash memory is available.



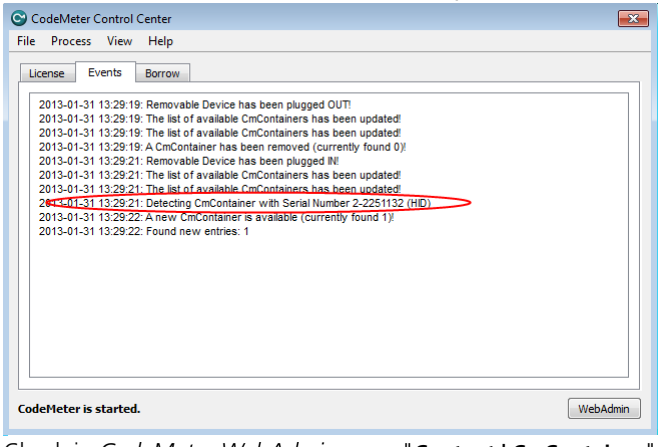
2. Call *cmu* 73.
   For Windows OS call *cmu* call *cmu* by the system menu item **"Start | All Programs | CodeMeter | Tools | CodeMeter Command Prompt"**. For the operating systems Mac OS, Linux and Sun this command is provided by the usual search path parameter.
3. Enter the following commandline:

```
cmu32 /s [Box mask-Serial number] --set-config-disk HidCommunication
```

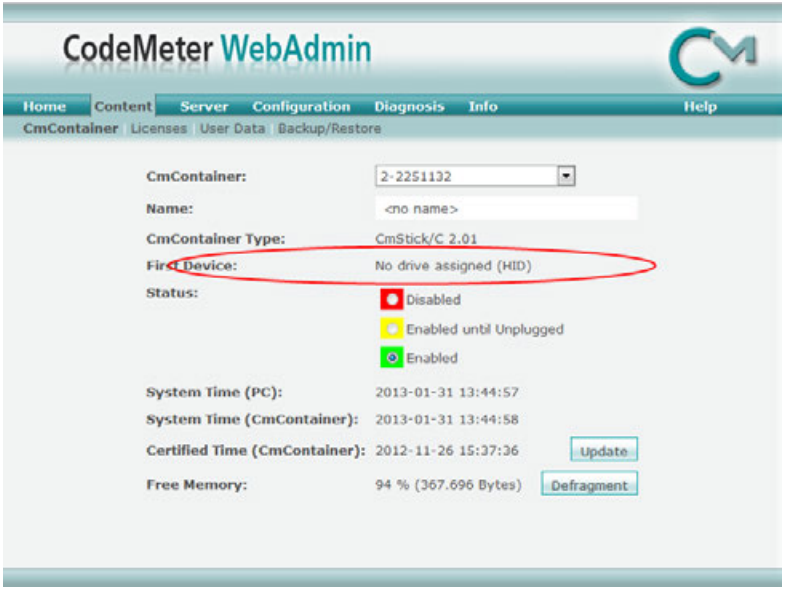
The current status displays in the following commandline output:

```
cmu32 - CodeMeter Universal Support Tool.
Version 5.00 of 2013-Jan-30 (Build 1039) for Win32
Copyright (C) 2007-2013 by WIBU-SYSTEMS AG. All rights reserved.

- CmStick/C with Serial Number 2-2251132 and version 2.01
  Version:            2.01
  Flash Size:         no real flash available
  Virtual Drive:      E:
  Configuration:      LocalDisk with ActivePartition
  File System:        FAT32
  Communication:      Mass Storage Device
  Boot-Code:          Int18 Boot Code
  Mdfa:               0x539

  Please replug your CmDongle to apply the changes.
```

4. Unplug and replug the *CmDongle*.
5. View logging in *CodeMeter Control Center* tab "**Events**".
   The information for the switch to HID displays.



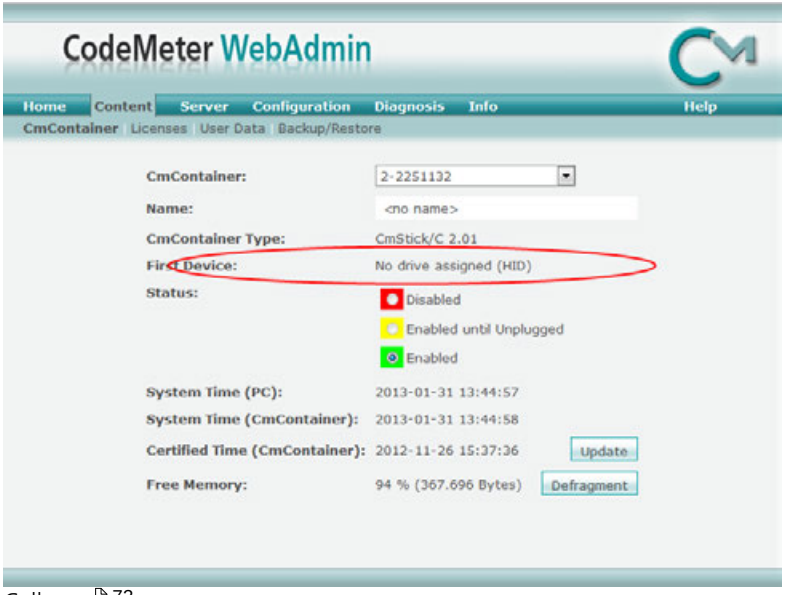
5. Check in *CodeMeter WebAdmin* page "**Content | CmContainer**".
   No drive is assigned.



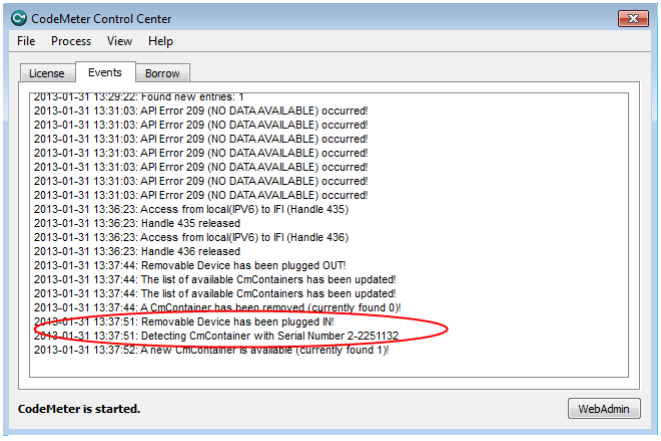
2.9.2 Set from HID to Mass Storage

To switch the USB communication standard from Human Interface Device (HID) to Mass Storage Device (MSD), please proceed as follows:

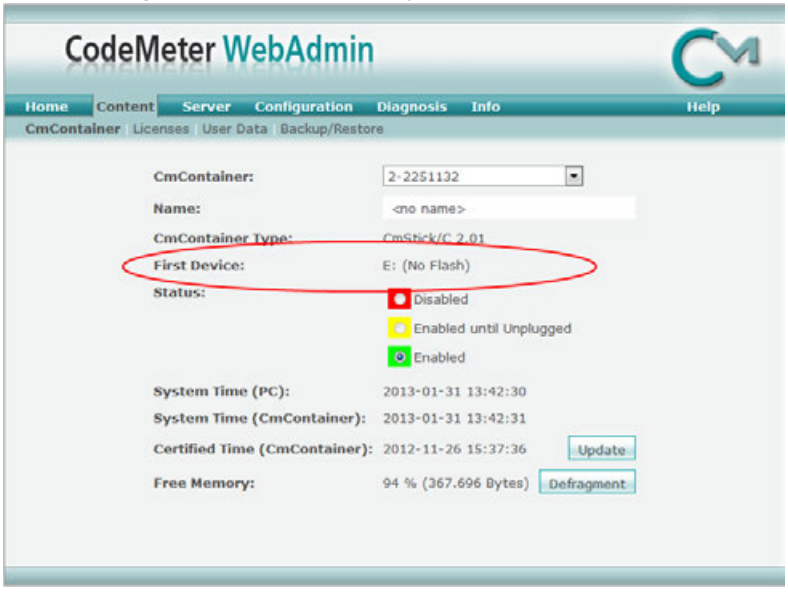
1. View the status in *CodeMeter WebAdmin* on page "**Content | CmContainer**".
   A drive is not assigned.



2. Call *cmu* 73
   For Windows OS call *cmu* call *cmu* by the system menu item **"Start | All Programs | CodeMeter | Tools | CodeMeter Command Prompt"**. For the operating systems Mac OS, Linux and Sun this command is provided by the usual search path parameter.
3. Enter the following commandline:
   ```
   C:\Users\fs>cmu32 /s [Box mask-Serial number] --set-config-disk MsdCommunicat
   ```
   The current status displays in the following commandline output:
   ```
   cmu32 - CodeMeter Universal Support Tool.
   Version 5.00 of 2013-Jan-30 (Build 1039) for Win32
   Copyright (C) 2007-2013 by WIBU-SYSTEMS AG. All rights reserved.

   - CmStick/C with Serial Number 2-2251132 and version 2.01
     Version:            2.01
     Flash Size:         no real flash available
     Virtual Drive:      No drive assigned (HID)
     Communication:      Human Interface Device (HID)

     Please replug your CmDongle to apply the changes.
   ```
4. Unplug and replug the *CmDongle*.
5. View logging in *CodeMeter Control Center* tab "**Events**".
   The information for the switch to MSD displays.



5. Check in *CodeMeter WebAdmin* page "**Content | CmContainer**".
A drive is assigned and no flash memory available.



3 Glossary

Term	Description
AxProtector	Automatic protection of applications using *AxProtector* as secure basic protection without changing the source code including runtime checks, effective anti-debug mechanisms, modification of resources, and locking of *CmContainer* if crack attempts are detected. Available for different project types and as a commandline version.
CmActLicense	Completely software-based variant of the protection and licensing technology *CodeMeter*®. Licenses are bound to an individual computer.
CmBoxPgm	Commandline tool to create, edit, and delete licenses and their components (Firm Item, Product Item, and Product Item Options) in *CmContainer*. You can also apply scripts and batch files for mass production and test automation. Programming is simultaneously applied in one passe to several *CmContainer*.
CmContainer	Summarizing notion for describing the license carriers of both *CodeMeter*® variants. *CmDongle* in the case of the hardware-based licensing system and *CmActLicense* n the case of the software-based licensing system.
CmDongle	Hardware-based variant of the protection and licensing technology *CodeMeter*®. Available in many form factors for a variety of interfaces.
CmDust	The *CodeMeter*® Enduser Support Tool logs important system and *CodeMeter*® settings and helps Wibu-Systems Support to find remedies for eventually occurring errors.
CmFAS	*see CodeMeter Field Activation Service*
cmu	Commandline alternative to perform many *CodeMeter Control Center* functions (*CodeMeter Universal Support Tool*).
CodeMeter API Guide	Graphical tool to generate source code fragments. You create and test API functions with all related parameters and necessary structures for the programming language of your choice. Currently, the programming languages C, C++, C#, CB6, VB.NET, Delphi, and Java are supported.
CodeMeter Field Activation Service	see *File-based Remote Programming*
CodeMeter Control Center	*CodeMeter Control Center* provides the protected software to access the *CodeMeter*® runtime environment. It displays information on connected *CmContainer*, and presents options to configure connected *CmContainer*. Moreover, an assistant creates license request files and imports license update files (*CmFAS Assistant*).
CodeMeter License Central	Ticket-based system for creating, managing, and delivering licenses for software and digital content. Available in a *Desktop* and an *Internet* Edition.
CodeMeter License Editor	Graphical tool allowing you to create, edit or delete licenses and their components (Firm Item, Product Item, and Product Item Options) in *CmDongles*. Next to programming of locally connected *CmCongles* also file-based remote programming (*CodeMeter Field Activation Service*, CmFAS) is supported. Suitable for testing license strategies.
CodeMeter License Server	Runtime environment (`CodeMeter.exe`) for the protection and licensing technology *CodeMeter*®.
CodeMeter Start Center	Start screen tool to access and open most of the *CodeMeter*® applications and tools.
CodeMeter WebAdmin	Graphical *CodeMeter*® tool displaying information on connected *CmContainer* and related license entries in a browser. In addition, configuration and analyzing options for the *CodeMeter*® runtime environment (*CodeMeter License Server*) are provided.

Term	Description
CodeMeter®	Wibu-Systems' technology for protecting and licensing of software and digital content.
File-based Remote Programming	Remote updating a *CmContainer* requires some information on the *CmContainer* to be reprogrammed. This information is safely stored and transferred in a context file, i.e. `*.WibuRaC` file (license request file). Based on this license request file use the *CodeMeter®* programming tools to create an update file (`*.WibuRaU`) (license update). Subsequently, this file is safely transferred into the *CmContainer*. In addition, on creating the *.WibuRaU file automatically also a `*.WibuRaM` file is created which maps the *CmContainer* content at the time the licenses have been updated. An CmFAS *Assistant* in *CodeMeter Control Center* supports the licensee when updating licenses.
Enabling	Procedure to directly activate or deactivate the complete but also single Firm Item levels and license entries of the *CmContainer* by using an access code.
Firm Code	The Firm Code presents a unique number each licensor receives from Wibu-Systems. It ensures that each licensor is individually identified when protecting and licensing software or digital content.
Firm Item	Logical and hierarchical item level in the *CmContainer*. The Firm Item level holds entries which are unique for each licensor and includes the individual Firm Code.
Firm Key	Secret key which influences almost all encryption and decryption processes of licenses, their authentication, and the creation, editing and deleting of license entries at the level of Product Items. The Firm Key is initially shipped with the Firm Security Box.
Firm Security Box	Master *CmDongle* which allows to program other *CmContainer*. The FSB is unique for each licensor.
FSB	see Firm Security Box
HIP	*High Level Programming API* see *Programming API*
IFI	see Implicit Firm Item
Implicit Firm Item	The Implicit Firm Item level in the *CmContainer* features the same characteristic as usual Firm Items). It simply has some distinct features. While all other level are characterized by the existence of an exclusive Firm Code which is unique for each licensor, the Implicit Firm Item level has the Firm Code of 0. This implies that each owner of the *CmContainer* has licensor privileges for the Implicit Firm Item level including write access.
IxProtector	Individual advanced protection technology applied for software and digital content. 'Real' source code fragments are encrypted and decrypted by interfaces (*Software Protection API*, WUPI) and security mechanisms. Suited to implement modular software protection.
Core API	Powerful interface to communicate with *CmContainer* at runtime of *CodeMeter License Server*. All other APIs and protection mechanisms (*AxProtector*, *IxProtector*, *Software Protection API* WUPI) base on *Core API* functions. Thus using this interface complements existing protection options (encryption and decryption of data, personalization, reading additional data).
License Activation	see File-based Remote Programming
License Update File (`*.WibuCmRaU`)	The update file for a *CmContainer* valid only for a single unique *CmContainer* can be imported only once.
License Request File (`*.WibuCmRaC`)	The context file of a *CmContainer* mirroring the as-is status of license entries serves as basis for license updating in the process of file-based (remote) programming.
SmartBind	Binding scheme used in *CmActLicense* licensing system optimizes assuring the validity of *CmActLicense* licenses, if hardware properties of the PC change to which the licenses are

Term	Description
	bound.
PIO	see Product Item Options
Product Code	The Product Code represents a number free to choose and identifies the products to be protected and licensed.
Product Item Options (PIO)	License entries at the Product Item level. They hold the Product Code also further options defining the actual characteristics of a license, such as, how many licenses may be simultaneously used in a network, how long a license is valid, which functions are accessible and billed, etc. Moreover, several other data fields are available holding additional binary information and differ in their access privileges. These optional characteristics are combinable in a variety of ways, and constitute the basis for the mapping of any imaginable license strategy.
Product Item	Logical hierarchical entry level in a *CmContainer* below the Firm Item level. At the Product Item level you find the single license entries, i.e. the Product Codes and further Product Item Options.
Programming API	This class-oriented interface allows you to access any object or process required to program or organize license entries in a *CmContainer*, and features extended customizing for the integration of *CodeMeter* into own applications. The *Programming API* is available for many programming languages
Software Protection API	Interface which decrypts segments protected by *IxProtector* at runtime available as WUPI (WIBU *Universal Protection Interface*). It is lean, comprises only a few but essential functions, and is standardized and applicable for a variety of programming languages.
Wibu Universal Protection Interface	see *Software Protection API*
WUPI	see *Wibu Universal Protection Interface*

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