



zenon
by COPA-DATA

zenon Analyzer manual Basics

v.3.40



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1 Welcome to zenon Analyzer help

PROJECT SUPPORT

You can receive support for any real project you may have from our Support Team, who you can contact via email at support@copadata.com.

LICENSES AND MODULES

If you find that you need other modules or licenses, our staff will be happy to help you. Email sales@copadata.com.

2 Basics

Here you can find information on installation and updates, new versions, technical basics and licensing.

3 Upgrade information

Note when switching from a version prior to version 3.40:

CONVERSION OF REPORT TEMPLATES

In version 3.40, report templates (*zams_rep* files) that have been created with the versions 2.00 to 3.30 can be created. These are converted and saved as version 3.40 files.

RDL TEMPLATES

With version 3.40, RDL templates can contain individual footers. Headers and footers now also contain information about size and position. The RDL templates are automatically converted when importing from version 3.30 or earlier.

4 Database structure

The database structure has been amended to version 8.

Note the following during conversion:

- ▶ 3rd party database connector: Creation of a new one is recommended.

5 Reports and report elements

5.1 New report templates for Gantt

There are two new report templates available for Gantt reports:

- ▶ **Gantt Chart with Equipment Group Selection:** Analyzes lots, shifts and variables - specified through meanings, from AML, CEL or archive - and displays the results as a Gantt chart and as a table. In doing so, only the equipment groups selected in the report are taken into account, not any subgroups.
- ▶ **Gantt Chart with Range Classification and Equipment Group Selection:** Analyzes lots, shifts and variables and displays the result as a Gantt chart and in table form. Variables are specified through meanings from AML, CEL or archive. Numerical values are assigned from classes derived from **REMA-STATENAMES**. In doing so, only the equipment groups selected in the report are taken into account, not any subgroups.

As part of the implementation, SQL elements have been modified and renamed:

Previously	New
LineAnalysis_GetGanttBaseData	LineAnalysis340_GetGanttBaseData
LineAnalysis_GetGanttData	LineAnalysis340_GetGanttData
LineAnalysis_GetGanttRangeData	LineAnalysis340_GetGanttRangeData

5.2 Number of report templates and maximum height

The number of possible report templates in a report has been increased from 20 to 50.

At the same time, the maximum report height has been increased from 10000 mm to 100000 mm.

5.3 Calculated fields: Use as a Y-axis

Calculated fields are now supported in all diagrams that are suitable for them.

The following must be the case for this:

- ▶ The diagram must be an aggregation diagram, trend diagram, scatter plot or Pareto diagram (partial support)
- ▶ A numerical field type must be selected

Currently-supported diagrams and report templates for calculated fields:

Theme	Report template	Supported diagram types
Alarm and Event Analysis	Alarm Aggregation	▶ Aggregation chart
	Top N Alarms	▶ Aggregation chart
	Top N Events	▶ Aggregation chart
Custom Formula Analysis	Custom Formula Aggregated Trend	▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Custom Formula Aggregation	▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Custom Formula Trend	▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
Extended Historian Analysis	Historian Aggregated Trend per Equipment Group	▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Historian Aggregated Trend with Equipment Group and Variable Selection	▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Historian Aggregation per Equipment	▶ Aggregation chart

Theme	Report template	Supported diagram types
	Group	<ul style="list-style-type: none"> ▶ <u>Pareto</u> diagram
	Historian Trend with Equipment Group and Variable Selection	<ul style="list-style-type: none"> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Cost Aggregation per Equipment Group	<ul style="list-style-type: none"> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Cost Aggregation with Equipment Group and Variable Selection	<ul style="list-style-type: none"> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Relative Historian Aggregated Trend with Equipment Group and Variable Selection	<ul style="list-style-type: none"> ▶ <u>Trend chart</u>
	Relative Historian Aggregation per Equipment Group	<ul style="list-style-type: none"> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Relative Historian Aggregation with Equipment Group and Variable Selection	<ul style="list-style-type: none"> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Historian Trend per Equipment Group	<ul style="list-style-type: none"> ▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Historian Trend with Equipment Group and Variable Selection	<ul style="list-style-type: none"> ▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
Historian Analysis	Historian Aggregated Trend	<ul style="list-style-type: none"> ▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Historian Aggregation	<ul style="list-style-type: none"> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Historian Distribution	<ul style="list-style-type: none"> ▶ Distribution chart
	Historian Trend	<ul style="list-style-type: none"> ▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram

Theme	Report template	Supported diagram types
ISO 50001	Load Duration Curve for Equipment Groups	► Load duration curve
	Load Duration Curve with Variable Selection	► Load duration curve
Production Analysis Line Based	Comprehensive Line Productivity Lot History (with lot tracking)	► <u>Trend chart</u>
	Line Productivity Indicators Lot History (with lot tracking)	► Aggregation chart Note on indicator table: A key word is needed for the column with calculated fields.
	Line Productivity Indicators Analysis (with lot tracking)	► Aggregation chart Note on indicator table: A key word is needed for the column with calculated fields.
	Line Productivity Indicators Analysis (without lot tracking)	Note on indicator table: A key word is needed for the column with calculated fields.
Production Analysis Machine Based	Comprehensive Productivity Analysis	► <u>Pareto</u> diagram
	Comprehensive Productivity Lot History	► <u>Trend chart</u>
	Losses Analysis	► <u>Pareto</u> diagram
	Productivity Indicators Analysis	► Aggregation chart Note on indicator table: A key word is needed for the column with calculated fields.

Theme	Report template	Supported diagram types
	Productivity Indicators Lot History	<ul style="list-style-type: none"> ▶ <u>Trend chart</u>
OEE Analysis	OEE Indicator	<ul style="list-style-type: none"> ▶ <u>Trend chart</u> ▶ Aggregation chart <p>Note on indicator table: A key word is needed for the column with calculated fields.</p>
	OEE Indicator Lot History	<ul style="list-style-type: none"> ▶ <u>Trend chart</u>
Predictive Analytics	Aggregated Prediction Trend per Variable	<ul style="list-style-type: none"> ▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Aggregated Prediction Trend per Equipment Group	<ul style="list-style-type: none"> ▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Prediction Aggregation per Equipment Group	<ul style="list-style-type: none"> ▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Prediction Aggregation per Variable	<ul style="list-style-type: none"> ▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Cost Prediction Aggregation per Equipment Group	<ul style="list-style-type: none"> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Cost Prediction Aggregation per Variable	<ul style="list-style-type: none"> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Relative Prediction Aggregation per Equipment Group	<ul style="list-style-type: none"> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Relative Prediction Aggregation per Variable	<ul style="list-style-type: none"> ▶ Aggregation chart ▶ <u>Pareto</u> diagram

Theme	Report template	Supported diagram types
	Prediction Scatter Plot	▶ Scatter Plot
	Prediction Scatter Plot with Reference Curve	▶ Scatter Plot
	Prediction Model Trainings History	▶ <u>Trend chart</u>
	Prediction Trend per Variable	▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
	Prediction Trend per Equipment Group	▶ <u>Trend chart</u> ▶ Aggregation chart ▶ <u>Pareto</u> diagram
Statistical Analysis	Process Capability Trend	▶ <u>Trend chart</u>
	Process Capability Trend based on raw data	▶ <u>Trend chart</u>
Target Actual Analysis	Target Actual Aggregated Trend (absolute)	▶ <u>Trend chart</u> ▶ Aggregation chart
	Target Actual Aggregated Trend (relative)	▶ <u>Trend chart</u> ▶ Aggregation chart
	Scatter plot	▶ Scatter Plot
	Scatter Plot with Reference Curve	▶ Scatter Plot
Wind Power Plant Analysis	Wind Rose	▶ Polar chart



5.4 XY trend variables: Multiple selection for Y-axis

The **XY-trend based on variables** report template now allows multiple selection for the Y-axis.

5.5 Time filter increased to 10

Up to 10 time filters per report template can now be configured. Previously a maximum of 5 were permitted.

6 Technical basics

The zenon Analyzer:

1. acquires data
2. compresses data
3. manages meta data such as equipment structure
4. manages templates
5. manages access rights and authorizations
6. calculates evaluations
7. distributes evaluations to Clients

⚠Attention

Variable names must not contain two or more consecutive spaces. If several consecutive spaces are included, this can lead to a Javascript error when called up in the Report Launcher (**Error 500**).

GENERAL REQUIREMENTS

zenon Analyzer needs for:

- ▶ the creation and management of reports:
 - ▶ An SQL Server 2016 database and
 - ▶ the SQL Server 2016 reporting services
- ▶ the display of reports: Browser

A good knowledge of SQL and MS Report Builder 3.0 is required in order for you to create your own reports.

For details on the technical requirements, see the **technology** (on page 19)/**framework conditions** (on page 25) section.

DATA PREPARATION

The data preparation (on page 200) is done in several levels. With this data from different sources and formats can be evaluated universally and maintained easily.

DATA STRUCTURES

The data origin either from static project data or from dynamic user data. For details see chapter Data structure.

DATA COLLECTION

The zenon Analyzer accesses data non-invasively via connectors. Source systems need not be reconfigured. The existing infrastructure is embedded in the reporting of the zenon Analyzer independent of the manufacturers. For systems other than zenon 6.x, only a connector container is installed. This installation does not interfere in the Runtime system and does not interrupt the process.

7 Technology

In this section you learn about the technically needed requirements for

- ▶ Server
- ▶ Client
- ▶ Data Sources
- ▶ Development station

and the supported standards for

- ▶ Interfaces

SERVER

SQL SERVER 2016 DATABASE

In the database there are the meta data and possibly also user data saved in SQL. For the query, stored procedures (Level 2 (on page 202)) are executed. They again revert to **user defined functions** for data acquisition and data abstraction. If needed, they load the connector stub which requests the

user data from the target system online. In addition there are the **user defined functions** which provide auxiliary functions for the evaluation.

SQL SERVER 2016 REPORTING SERVICES

The reporting services run as web application and as web server provide the Clients with all reports for displaying in the web browser. In addition, the parameters for the data source, reports, etc. are set using the **Report Launcher** web front end.

The path to **Report Launcher** is: **http://[computer name]/Reports_zs3**.

REPORTING LICENSE SERVICE (ZRSLICSRV)

The reporting license service checks the CodeMeter dongle and the license (on page 146) available at the Server and forwards the licensing information to all involved components. It also has the list of all Client leases.

DATA SOURCE

CONNECTOR CONTAINER

On all computers which can server as data source, the connector container together with its different connectors must be installed and started. The TCP port of the connector container must be reachable from outside.

DEVELOPMENT STATION

ANALYZER EXPORT WIZARD

The Analyzer Export Wizard is integrated in the zenon Editor and is used to import the metadata to the SQL Server 2016 database. The wizard offers full support for zenon 7.xx. Older versions of the zenon Editor are not supported.

INTERFACES

zenon Analyzer supports the following interfaces:

- ▶ zenon Runtime 5.50, 6.x, 7.x
- ▶ SQL

7.1 Client

There must be a web browser on the client to display and configure reports.



Information

zenon Analyzer was designed and tested for the following browsers:

- ▶ Microsoft Internet Explorer from version 10
- ▶ Chrome
- ▶ Firefox

Note:

- ▶ Compatibility view must be deactivated for Internet Explorer.
- ▶ Zoom is only available for the Chrome browser.

DOUBLE CLICK IN THE TREE STRUCTURE FOR EQUIPMENT MODEL DEPENDENT ON BROWSER

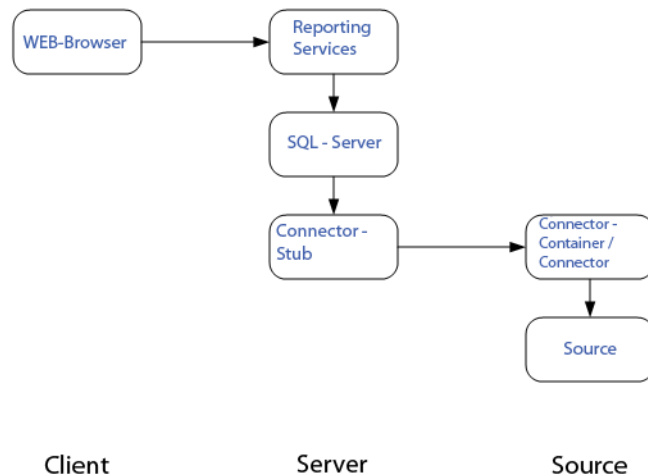
Different browsers react differently to a double click on a node in the tree structure:

- ▶ Internet Explorer:
The opposite of the currently visible stats of the node that has been clicked on is passed on to the lower objects and transferred to the nodes.
For example: The checkbox of the node is not ticked. Double clicking ticks the checkboxes of the node and all its sub-items.
- ▶ Chrome and Firefox:
The current status does not change and is passed on to the lower objects.
For example: The checkbox of the node is not ticked. Double clicking does not tick the checkboxes of the node and all its sub-items.

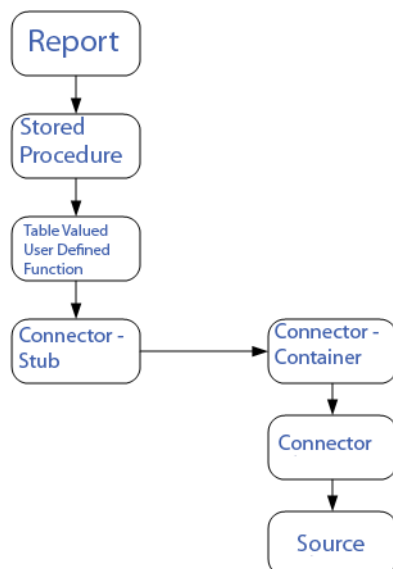
8 Architecture

The zenon Analyzer links data from different, heterogeneous sources to valid reports in real time. The reports react dynamically to data base changes.

COMMUNICATION FROM PROCESS POINT OF VIEW



COMMUNICATION FROM DATA POINT OF VIEW



STRUCTURE OF ZENON ANALYZER

The zenon Analyzer consists of:

- ▶ Data Sources
- ▶ Connectors to the data sources
- ▶ Container for connectors and data harmonization

- ▶ Data filing
- ▶ Report Builder with filter and calculations
- ▶ zenon Analyzer Management Studio for creating and administering reports
- ▶ Web Server
- ▶ User interface at the Client for calling up and managing reports at the Client

PROCEDURE

Reports are configured and published by administrators or users.

Reports can also be created by administrators with Microsoft Report Builder 3.0. Prerequisite is a wide knowledge in SQL. For information about MS Report Builder refer to the corresponding help of the Microsoft Report Builder. End-users call up reports via the interface of their Client.

Data required for the report is collected via connectors and harmonized before use. With this, reports are also meaningful for different sources, time zones, etc.

9 Time formats

Three time formats are used:

- ▶ Local time: is used in reports
- ▶ UTC: is used in abstracted historical and current values and in database tables
- ▶ Unix time: is used in SQL tables

LOCAL TIME

Queries in the report and the display of results is done in local time.

UTC

Abstracted historical and current values are stated in UTC. For the display in the reports it is converted to local time.

UTC means Coordinated Universal Time. The time unit is second. UTC is the uniform basis for the international time determination and is made available to the public via time senders and other time services. Dependent on the time zone certain time periods must be added or subtracted to or from UTC. This time period can vary one hour because of the day light saving time.

Examples:

Country	Local time
Alaska	<i>UTC -9</i>
Australia, Queensland	<i>UTC +10</i>
Bulgaria	<i>UTC +2</i>
United Kingdom	<i>UTC</i>
Korea	<i>UTC +9</i>
Central Europe (CET)	<i>UTC +1</i>
Central Europe (CET) Daylight Saving Time	<i>UTC +2</i>
Saudi Arabia	<i>UTC +3</i>
USA East coast	<i>UTC -5</i>
United Arabic Emirates	<i>UTC +4</i>

CONSEQUENCES TO THE CONFIGURATION

Engineered date and time mean different date and time depending on the execution location of the Runtime.

For example: In the Editor you engineer in the PFS for the execution of a function in time zone **UTC +1** the local time *14:00 o' clock*. After transferring the files to a Runtime in time zone **UTC +10**, the function is carried out at *23:00 o' clock*. Unix time

In the SQL databases Unix time is used, e.g.:

- ▶ evacuated archives
- ▶ exported archives
- ▶ exported alarms
- ▶ exported CEL

PROCEDURE

- ▶ Query in reports are displayed in local time.
- ▶ The hand over from report to the table valued user defined functions is done in UTC.
- ▶ Query to SQL are converted to Unix time.
- ▶ Results are converted to UTC and displayed in the report as local time.

CHANGE STANDARD TIME/DAY LIGHT SAVING TIME

The switch from standard time to daylight saving time and vice versa can lead to anomalies with intervals at the time of switching. These arise as a result of the functions provided by the .NET Framework, `DateTime.ToLocalTime` and `DateTime.ToUniversalTime`.

INTERVALS

Compression	DSTstart	DSTend
Minutes	<ul style="list-style-type: none"> Interval in local time: DSTstart – 1 minute, DSTstart + 1 hour) Interval in UTC: 1 minute 	<ul style="list-style-type: none"> Interval in local time: DSTend – 1 minute, DSTend Interval in UTC: 1 hour and 1 minute
Hour	Interval (DSTstart , DSTstart+1) is not present.	<ul style="list-style-type: none"> Interval in local time: DSTend – 2, DSTend – 1 Interval in UTC: 2 hours

Key:

- ▶ **DSTstart**: Time of the switch from standard time to daylight-saving time in local time. This means: The clocks are moved forward by 1 hour at the time of **DSTstart**.
- ▶ **DSTend**: Time of the switch from standard time to daylight-saving time in local time. This means: The hours are put back by 1 hour at the time of **DSTend**.

The `zrsGetCompressionIntervalsCarpetPlot` UDF is used for the calculations.

10 Prerequisites

The following prerequisites are applicable for work with the zenon Analyzer:

ANALYZER SERVER HARDWARE AND SOFTWARE

HARDWARE

Analyzer Server:

Parameters	Recommended	Minimum
CPU	Quad-Core Server CPU (maximum 24 cores/4 sockets)	Quad-core
RAM	Up to 128 GB	12 GB

Parameters	Recommended	Minimum
Free memory	200 GB	10 GB

Engineering computer:

Parameters	Recommended	Minimum
CPU	Dual Core	Pentium IV
RAM	4 GB	1 GB
Free memory	200GB	2 GB
Monitor (pixels)	1920 x 1080	1024 x 768

SOFTWARE**Analyzer Server:**

A 64-bit operating system is required for the database server. The following are supported:

- ▶ Windows Server 2012
- ▶ Windows Server 2012 R2
- ▶ Windows Server 2016
- ▶ Windows Server 2019
- ▶ Windows 8.1 64-Bit
- ▶ Windows 8.1 Pro 64-Bit
- ▶ Windows 8.1 Enterprise 64-Bit
- ▶ Windows 8 64-Bit
- ▶ Windows 8 Pro 64-Bit
- ▶ Windows 8 Enterprise 64-Bit
- ▶ Windows 10 Home 64-Bit
- ▶ Windows 10 Professional 64-Bit
- ▶ Windows 10 Enterprise 64-Bit

Note: An installed IIS service (on page 38) is required for the installation of the server.

Engineering computer:

The following are supported for ZAMS, the manual data editor, metadata editor and migration tool:

- ▶ Windows Server 2012 R2
- ▶ Windows Server 2012

- ▶ Windows Server 2016
- ▶ Windows 8.1 32-Bit and 64-Bit
- ▶ Windows 8.1 Enterprise 32-Bit and 64-Bit
- ▶ Windows 8 32-Bit and 64-Bit
- ▶ Windows 8 Pro 32-Bit and 64-Bit
- ▶ Windows 8 Enterprise 32-Bit and 64-Bit
- ▶ Windows 10 Home 32-Bit and 64-Bit
- ▶ Windows 10 Professional 32-Bit and 64-Bit
- ▶ Windows 10 Enterprise 32-Bit and 64-Bit

Web browser:

- ▶ Internet Explorer 11 (normal view only)
- ▶ Internet Explorer 10 (normal view only)
- ▶ Chrome
- ▶ Firefox

Note: Zoom in the report is only possible with Chrome.

Recommended HMI/SCADA system:

- ▶ zenon 8.20

.NET Framework 4.6.2:

- ▶ .NET Framework 4.6.2 has to be already run capable on the target computer in order to end the installation successfully.

CONNECTORS

The following is applicable for the SCADA Runtime connector:

- ▶ Timeout: is independent of the report timeout.
Default: 5 minutes (can be configured)
- ▶ Variables: Only variables that are listed in metadata are requested
- ▶ String variable: maximum of 4000 characters

The performance of a connector depends on the:

- ▶ Performance of the Analyzer server
- ▶ Performance of the Runtime server
- ▶ Load of the Runtime servers (connector runs with low priority)

- ▶ Network performance and network load

PROJECTS AND FILTERS

Reports can generally be created throughout several projects.

Attention

Only archive data with variables from its own project can be evaluated.

This means: For example, in an integration project, if a variable from a subproject is archived in an archive, then zenon Analyzer cannot access this variable.

SCHEDULES

- ▶ **Calendar days in months** are limited to 1 - 28 (corresponds to February in non-leap years)
- ▶ The "*Month end*" event is not available

ANALYZER EXPORT WIZARD

The Analyzer Export Wizard works, depending on the version, with different zenon Analyzer versions and different zenon versions. For details, read the **Analyzer wizard compatibility** chapter.



Information

Do not use zenon color palettes for dynamic limit values for zenon projects whose data is to be exported for zenon Analyzer. Limit values cannot be dynamically amended in zenon Analyzer. Information from color palettes can therefore not be evaluated. This can lead to illegible graphics.

11 Connection to IP address and port

zenon Analyzer licensing and connector container are tied to IP addresses and ports. The following is applicable for the binding:

- ▶ Port: Always relates to server and clients.
- ▶ IP address: Always relates to the server. Client addresses can differ from this. The server address and client address are only identical if both are on the same computer.

LICENSING

All zenon Analyzer modules use the stipulated ports and IP addresses for licensing. These can be amended in the **Startup Tool** in the **Listening Ports** tab using the **Services/Analyzer License Service** option. If a network adapter is set, the adapter name is resolved for the IP address.

In doing so, the following applies:

- ▶ The port setting is always applied.
- ▶ The set IP address is applied if a connection to the license server is established on the same computer. This is applicable if the application in question is running on the Analyzer server. This is always the case for connector stub, Report Launcher, CRIs and SPs. The Analyzer server is considered to be the same computer as the client if the given server name is one of these names:
 - ▶ localhost
 - ▶ 127.0.0.1
 - ▶ Name of the computer
 - ▶ Fully-qualified name of the computer (with domains)

CONNECTOR CONTAINER

The connector container opens the listening socket via the established port and the established IP address. These can be amended in the **Startup Tool** in the **Listening Ports** tab using the **Services/Analyzer Connector Service** option. The IP address is always derived from the computer name.

If the connector is only to listen for the loopback adapter (127.0.0.1), the IP address can be set in the **Startup Tool**. This IP address must then also be entered as the server name in the metadata table **PROJECT**.

12 pyZAN library for the use of Python

pyZAN is a Python module that enables access to zenon Analyzer metadata from Python directly. Usage data from running Runtime projects can be read, filtered or analyzed using the metadata information that is read off. This also enables very complex queries, for example for the calculation of prediction models.

REQUIREMENT

pyZAN needs:

- ▶ An installed and licensed zenon Analyzer.
This must not be executed on the same system as the Python environment.
- ▶ A metadata database with the relevant data.
- ▶ Access to Runtime data, evacuated archives or third-party databases.
- ▶ Running connector.

OPERATION

The **pyZAN** module can be downloaded via the **CopaData** Python Package from the official www.pypi.org (<https://www.pypi.org>) page.

You can find tutorials for the use of **pyZAN** on GitHub.

13 Installation and updates

The installation of zenon Analyzer consists of several components:

- ▶ Analyzer Server:
Central SQL server.
- ▶ zenon Analyzer Management Studio:
Tool for the administration of zenon Analyzer and to create reports. It must be installed on the engineering computer:
- ▶ Editors

⚠ Attention

Ensure that you have the appropriate licenses (on page 146).

Note: For each user, up to three different devices at the same time per license are permitted.

You can find the hardware and software requirements in the Prerequisites (on page 25) chapter.

NOTES

Note the following before installation:

Theme	Description
User authorizations:	Windows administrator rights are required for installation of the zenon Analyzer. Ensure that, after installation, there is at least one user who can log

Theme	Description
	<p>onto zenon Analyzer.</p> <p>Attention: Every user who carries out an installation is automatically created as the first user for zenon Analyzer. After installation, only this user can log on to zenon Analyzer and add further users. For example: User 1 is the local administrator and carries out the installation. zenon Analyzer is used by User 2 however. User 1 must create User 2 in ZAMS after installation.</p>
IIS:	Before installation, the IIS service (on page 38) must be installed on the operating system.
ISOs and restart:	<p>The content of ISO images must be copied to a local hard drive before installation and the setup must be started from here.</p> <p>The inclusion of an ISO image and the installation of the zenon Analyzer by the mounted driver cannot be completed successfully if a restart is required during installation.</p>
Licensing:	Licensing is carried out using the License Manager . This can be started from ZAMS or from the operating system (on page 66) directly.
.NET Framework 4.6.2:	.NET Framework 4.6.2 has to be already run capable on the target computer in order to end the installation successfully. Otherwise, an error notification from the zenon Analyzer setup will show up and the installation process will be canceled.
Remote installation:	<p>The installation medium must be on the local computer. Network drives may not be available punctually for a reboot during installation.</p> <p>For remote installations and virtual installations, copy the content of the installation medium to a temporary folder on the computer and start the setup.</p>
Server:	The Analyzer Server and the Domain Controller must not be installed on the same computer.
Service Grid	Some components need, in order to connect to zenon Runtime, a connection to the Service Grid. You configure this in the Service Node Configuration Tool .
SQL Server Management Studio:	<p>If the SQL Server Management Studio (SSMS) is to be available, it must be installed manually.</p> <p>You can find the setup on the installation medium in the following path: <code>\AdditionalSoftware\SSMS\SSMS-Setup-ENU.exe</code>.</p>
Wizards	Several wizards are available for zenon Analyzer. This works with different zenon Analyzer versions and zenon versions. For details, read

Theme	Description
	the Analyzer wizard compatibility chapter.

PERFORMING THE INSTALLATION

To install zenon Analyzer components:

1. Ensure that the components required for installation are already installed on the system.
 - ▶ General: .NET Framework 4.6.2
 - ▶ Server: IIS service (on page 38)
2. Connect the installation medium to the computer or copy its contents to a local folder. If Autorun does not automatically start the setup, use the file named **start.exe**.
3. Select the desired language from the drop-down list
4. Accept the license conditions.
5. Click on the **Next** button.
6. Accept the data protection agreement.
7. Click on the **Next** button.
8. Select the desired components

Note: A **Service Hub** for the Service Grid must also be installed for the installation of the Analyzer Server. This is regardless of whether there is already a **Service Hub** in the system. The Analyzer Server uses the **Service Hub** to establish the connection to zenon. In an additional dialog, you are requested to issue a user name and password for access to the **Service Hub**.

Attention: Note the password in a safe place. It cannot be displayed or recovered later.

9. Click on the **Next** button.

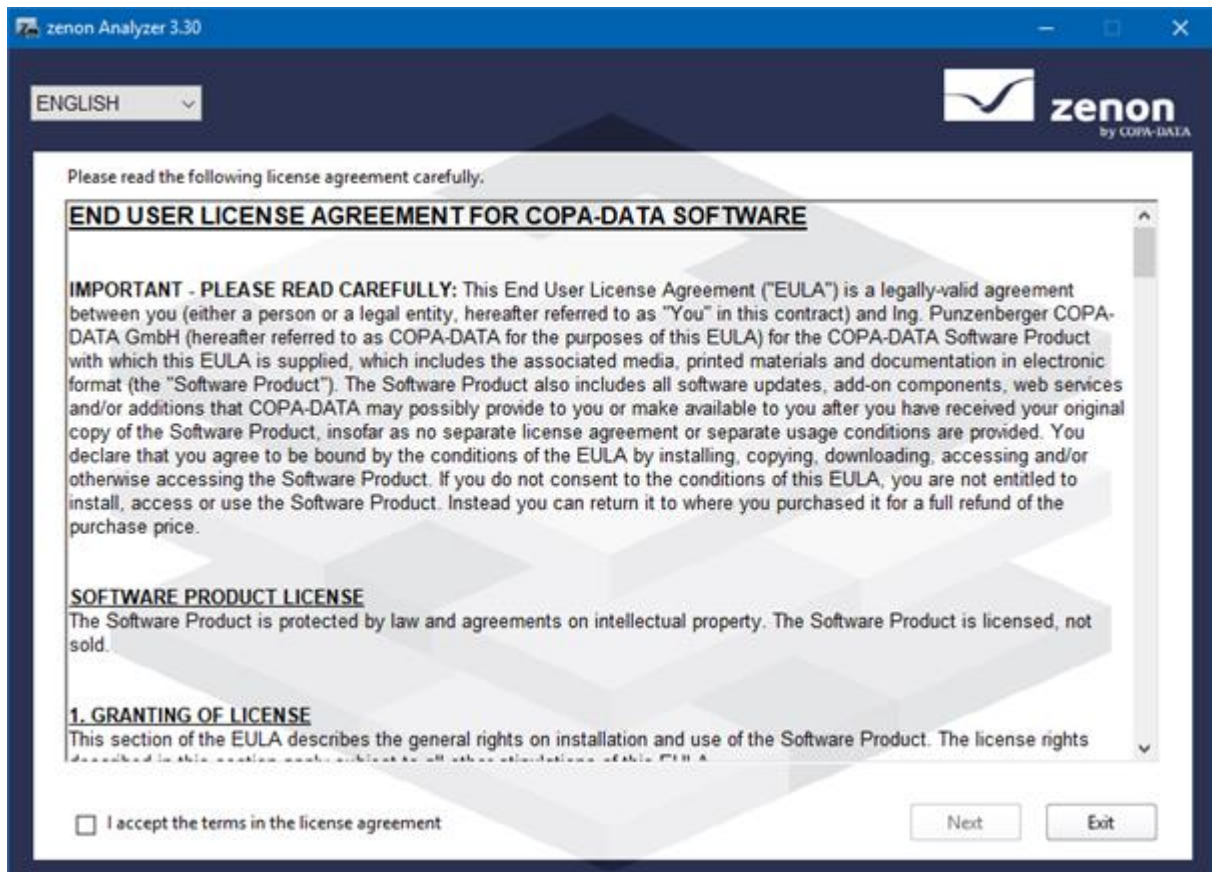
The installation or the update will start.
10. Follow the instructions given to you by the installation wizard.
11. After successful installation, configure the connections to the **Service Hub** in the Service Grid.

NOTES ON UPDATE

When switching version, the version of the assemblies contained in the database is checked before the update of the structure. If the version to be installed is more recent, the SQL elements contained are updated.

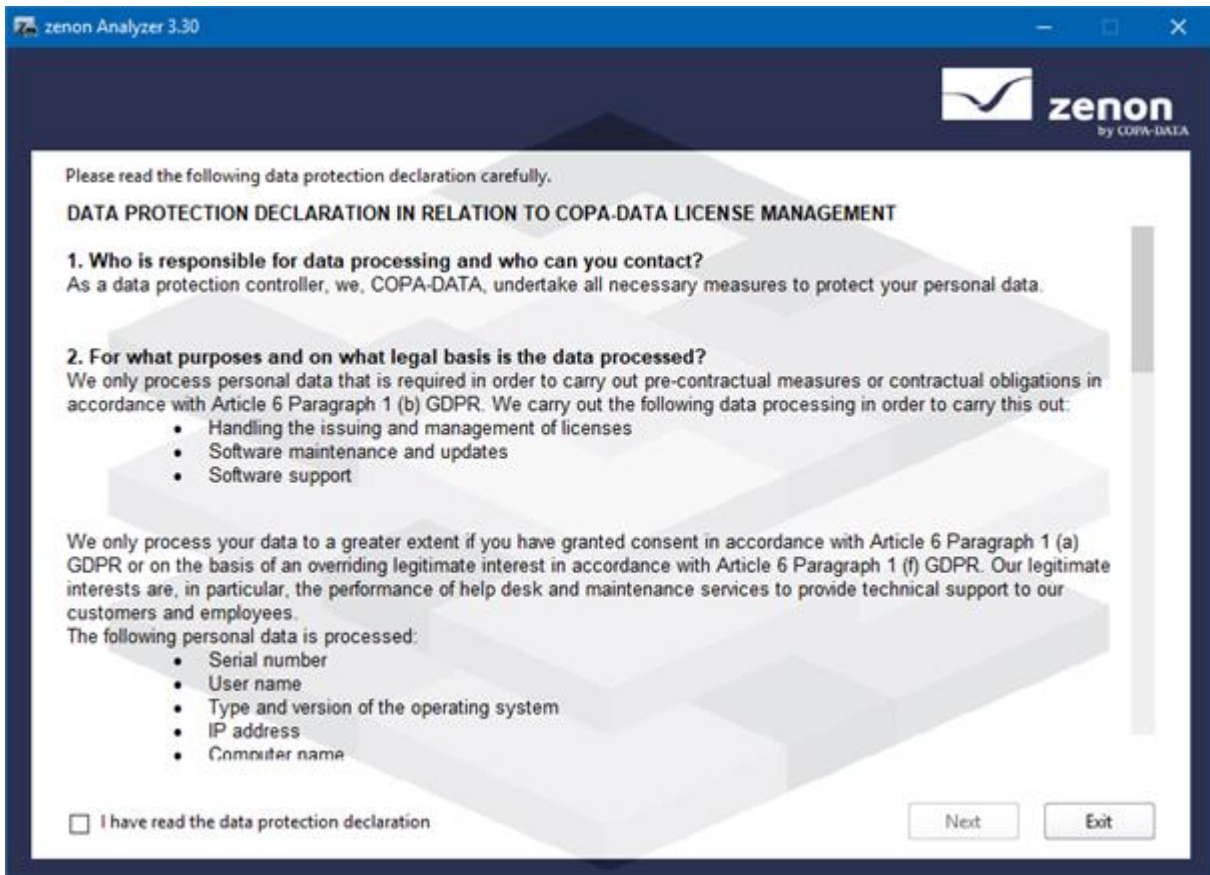
INSTALLATION ASSISTANT

START WINDOW



Option	Description
Language drop-down list	Selection of the language for the installation. The following are available: <ul style="list-style-type: none"> ▶ German ▶ English ▶ French ▶ Italian ▶ Spanish
License agreement	License agreement with conditions of use for zenon Analyzer. For installation, the requirements must be accepted by ticking the I accept the conditions of the license agreement checkbox.
Next	Switches to the next step of the installation. Only active if the license agreements have been accepted.

DATA PROTECTION DECLARATION



Please read the following data protection declaration carefully.

DATA PROTECTION DECLARATION IN RELATION TO COPA-DATA LICENSE MANAGEMENT

1. Who is responsible for data processing and who can you contact?
As a data protection controller, we, COPA-DATA, undertake all necessary measures to protect your personal data.

2. For what purposes and on what legal basis is the data processed?
We only process personal data that is required in order to carry out pre-contractual measures or contractual obligations in accordance with Article 6 Paragraph 1 (b) GDPR. We carry out the following data processing in order to carry this out:

- Handling the issuing and management of licenses
- Software maintenance and updates
- Software support

We only process your data to a greater extent if you have granted consent in accordance with Article 6 Paragraph 1 (a) GDPR or on the basis of an overriding legitimate interest in accordance with Article 6 Paragraph 1 (f) GDPR. Our legitimate interests are, in particular, the performance of help desk and maintenance services to provide technical support to our customers and employees.

The following personal data is processed:

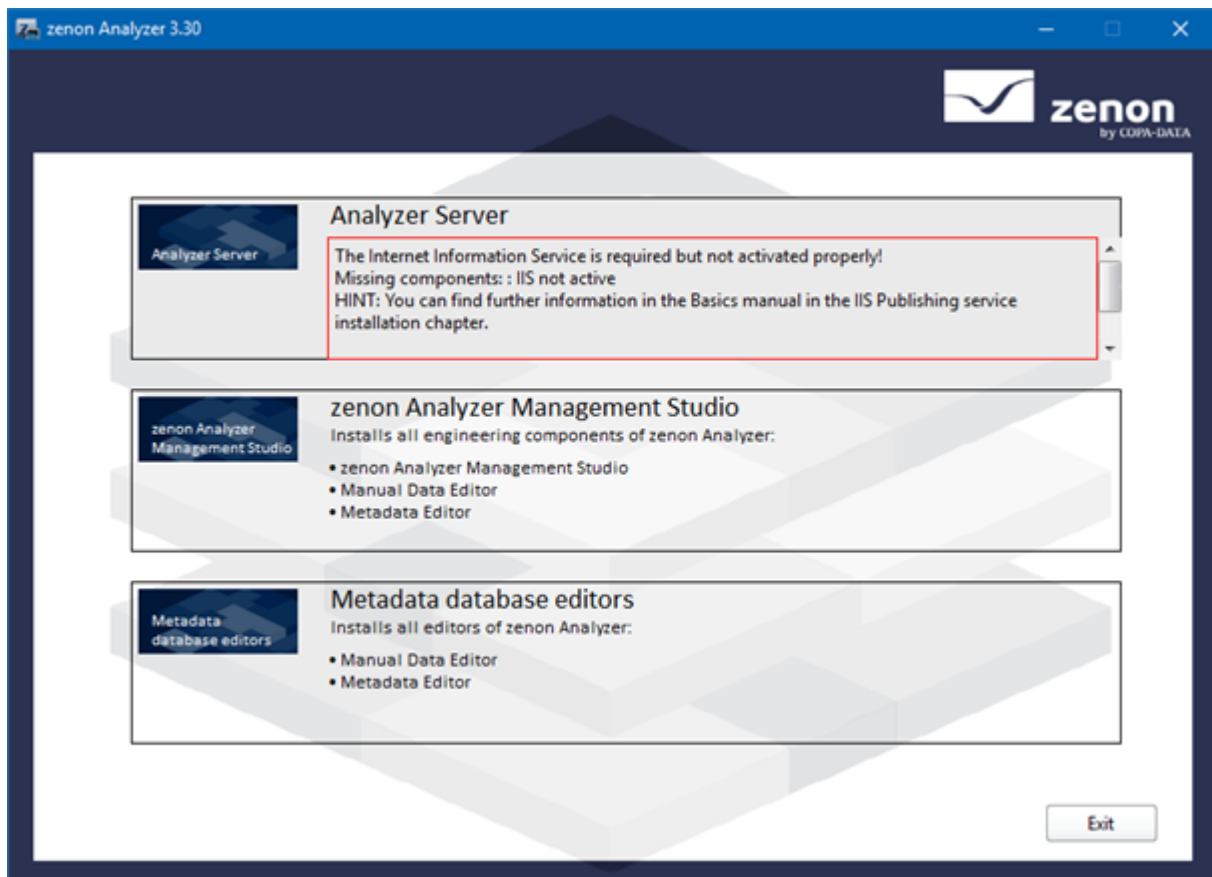
- Serial number
- User name
- Type and version of the operating system
- IP address
- Computer name

☐ I have read the data protection declaration

Next Exit

Option	Description
Data protection declaration	Data protection declaration for the use of zenon Analyzer. For installation, the data protection must be accepted by ticking the I have read the data protection declaration checkbox.
I have read the data protection declaration	Checkbox to confirm that the data protection declaration has been read and accepted.
Next	Switches to the next step of the installation. Only active if the data protection declaration have been accepted.

COMPONENT SELECTION

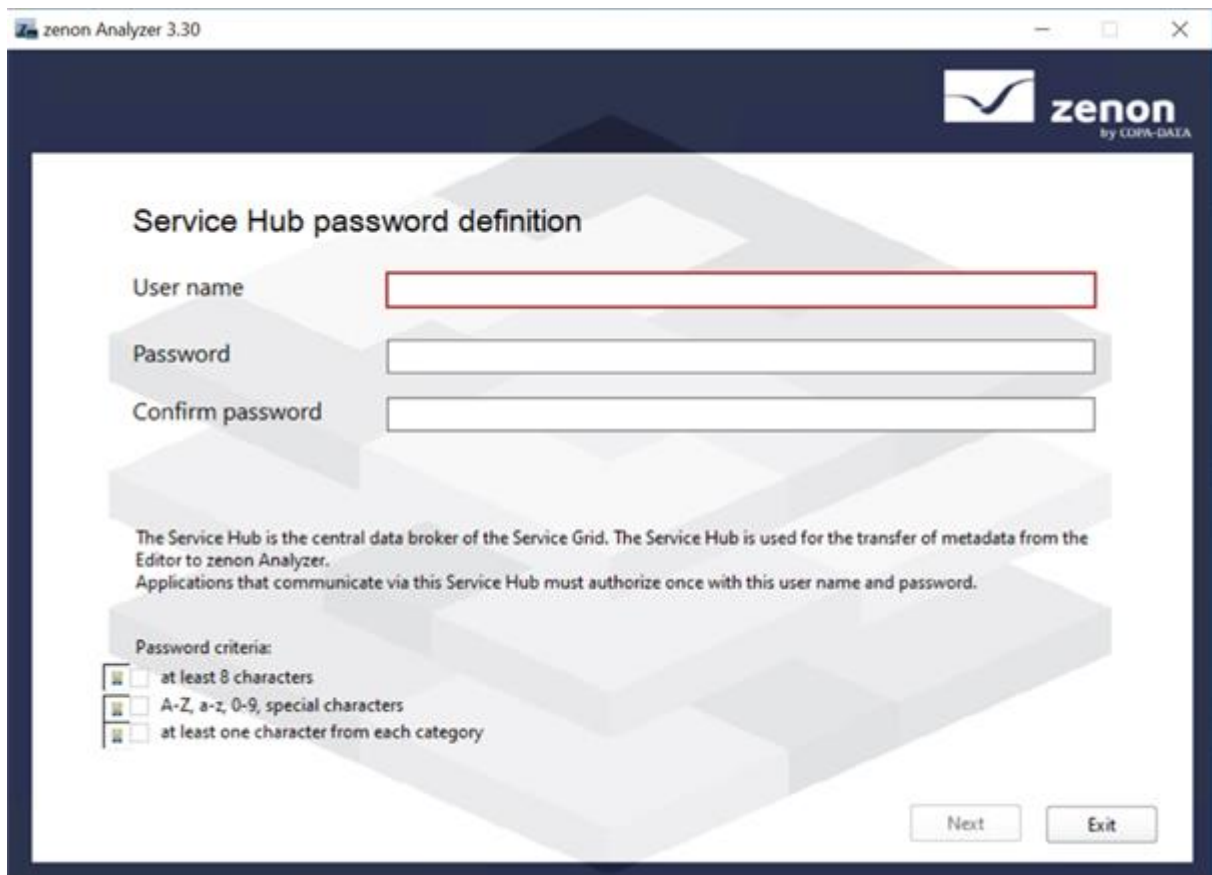


Option	Description
Component selection	<p>Selection of the components to be installed by clicking on the product.</p> <ul style="list-style-type: none"> ▶ Analyzer Server: Central SQL Server. Requirement: 64-bit operating system and installed IIS service. ▶ zenon Analyzer Management Studio: Tool to create and administer sever connections and reports. Pre-requisite: 32-bit or 64-bit operating system. ▶ Metadata database editors: Editors for editing the metadata database. <p>Note: If a component cannot be installed, this is shown by an error message.</p>
Next	Starts the installation.

Option	Description
	Only active if components are selected for installation.

ENTRY OF ACCESS DATA FOR HUB CONTROLLER

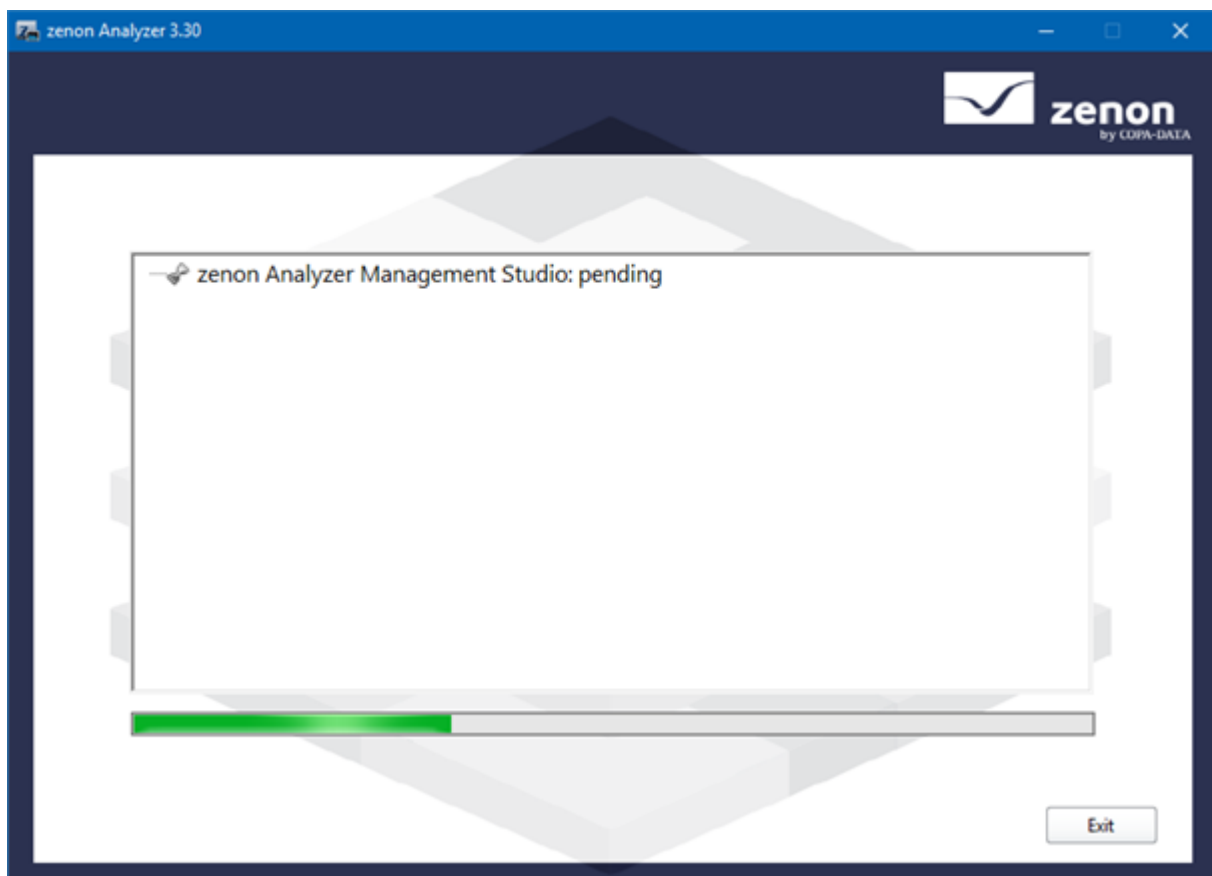
A **Service Hub** for the Service Grid must also be installed for the installation of the Analyzer Server. You issue the user name and password for access here.






Option	Description
User name	User name with which service nodes such as Analyzer Server sign into the Service Hub .
Password	<p>Issue a password for signing in.</p> <p>Criteria:</p> <ul style="list-style-type: none"> ▶ At least 8 characters ▶ At least 1 character of each category <p>Categories:</p> <ul style="list-style-type: none"> ▶ A-Z

Option	Description
	<ul style="list-style-type: none"> ▶ a-z ▶ 0-9 ▶ Special characters <p>Attention: Note the password in a safe place. It cannot be displayed or recovered later.</p>
Confirm password	Confirm the selected password by reentering it.

INSTALLATION PROGRESS

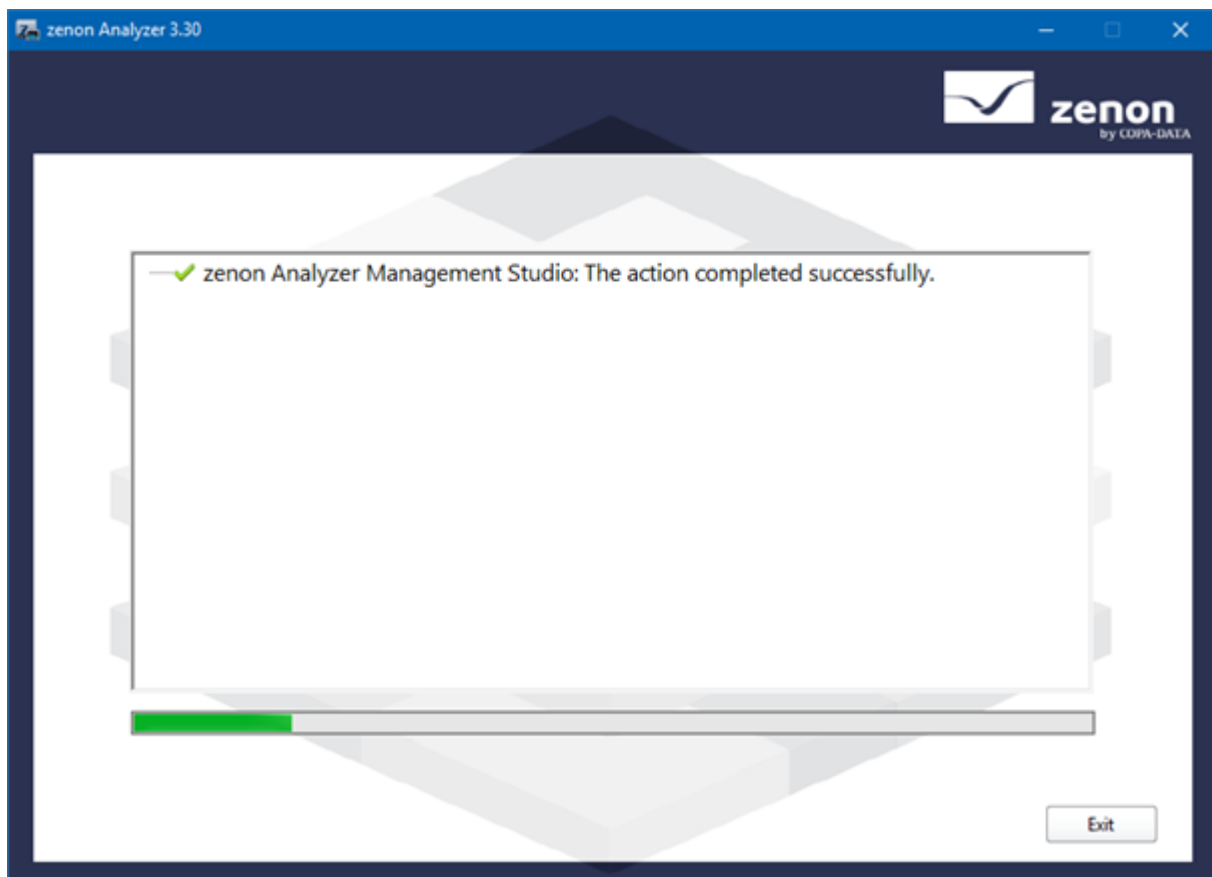


The course of installation is shown in its own window with symbols:

Symbol	Meaning
	Not yet installed
	Is currently being installed
	Installation OK

Symbol	Meaning
✗	Installation failed

After successful installation of all desired components, end the installation wizard by clicking on the **Exit** button.



INSTALLATION ON THE CLIENT

Only a current browser is needed on the client. The language that is set in the browser determines the language for the Report Launcher. The language for zenon Analyzer Management Studio is specified in the ZAMS options.

14 IIS Publishing service for Windows and Windows Server 2012

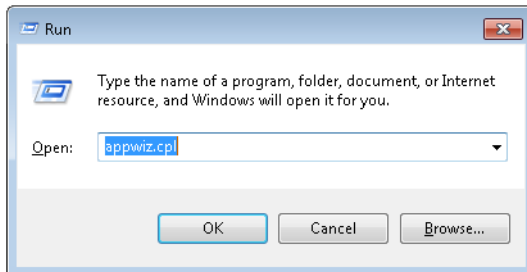
The IIS publishing service must be installed before the installation of zenon Analyzer on the system. The details of the process are different for different operating systems.

WINDOWS 8 AND 8.1

To activate the IIS publishing service:

1. Press the **Windows key + R** keyboard shortcut.

The dialog to enter a command for the command processing is opened.




















































2. Enter *appwiz.cpl* in the input field.

Click on **OK**.

A new control panel window to configure programs and **Windows features** is opened.

3. In this window, click on **Turn Windows features on or off**.

The window to select features of the operating system is opened.

- ☒  Internet Information Services
 - ☐  FTP Server
 - ☒  Web Management Tools
 - ☒  IIS 6 Management Compatibility
 - ☒  IIS 6 Management Console
 - ☐  IIS 6 Scripting Tools
 - ☐  IIS 6 WMI Compatibility
 - ☒  IIS Metabase and IIS 6 configuration compatibility
 - ☒  IIS Management Console
 - ☐  IIS Management Scripts and Tools
 - ☐  IIS Management Service
 - ☒  World Wide Web Services
 - ☒  Application Development Features
 - ☒  .NET Extensibility 3.5
 - ☒  .NET Extensibility 4.5
 - ☐  Application Initialization
 - ☐  ASP
 - ☒  ASP.NET 3.5
 - ☒  ASP.NET 4.5
 - ☐  CGI
 - ☒  ISAPI Extensions
 - ☒  ISAPI Filters
 - ☐  Server-Side Includes
 - ☒  WebSocket Protocol
 - ☒  Common HTTP Features
 - ☒  Default Document
 - ☒  Directory Browsing
 - ☒  HTTP Errors
 - ☐  HTTP Redirection
 - ☒  Static Content
 - ☐  WebDAV Publishing
 - ☒  Health and Diagnostics
 - ☐  Custom Logging
 - ☒  HTTP Logging
 - ☐  Logging Tools
 - ☐  ODBC Logging
 - ☐  Request Monitor
 - ☐  Tracing
 - ☐  Performance Features
 - ☒  Security
 - ☐  Basic Authentication
 - ☐  Centralized SSL Certificate Support
 - ☐  Client Certificate Mapping Authentication
 - ☐  Digest Authentication
 - ☐  IIS Client Certificate Mapping Authentication
 - ☐  IP Security
 - ☒  Request Filtering
 - ☐  URL Authorization
 - ☒  Windows Authentication

4. Expand the **Internet information services** in this node.
5. Activate all **World Wide Web Services** there.
6. Expand the **General HTTP features** node.
7. Activate **Static content**. Expand the **Application features** node.
8. Activate **ASP.NET 4.5**
9. Expand the **Web administration tools** node.
10. There, activate the **IIS administration console**.
11. Expand the **Security** node.
12. Activate **Windows authentication**.
13. Click on **OK**.

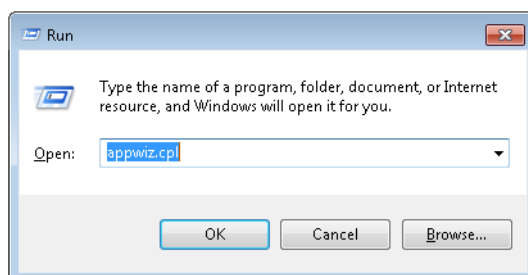
Note: The **WebSocket** protocol must also be activated.

WINDOWS 10

To activate the IIS publishing service:

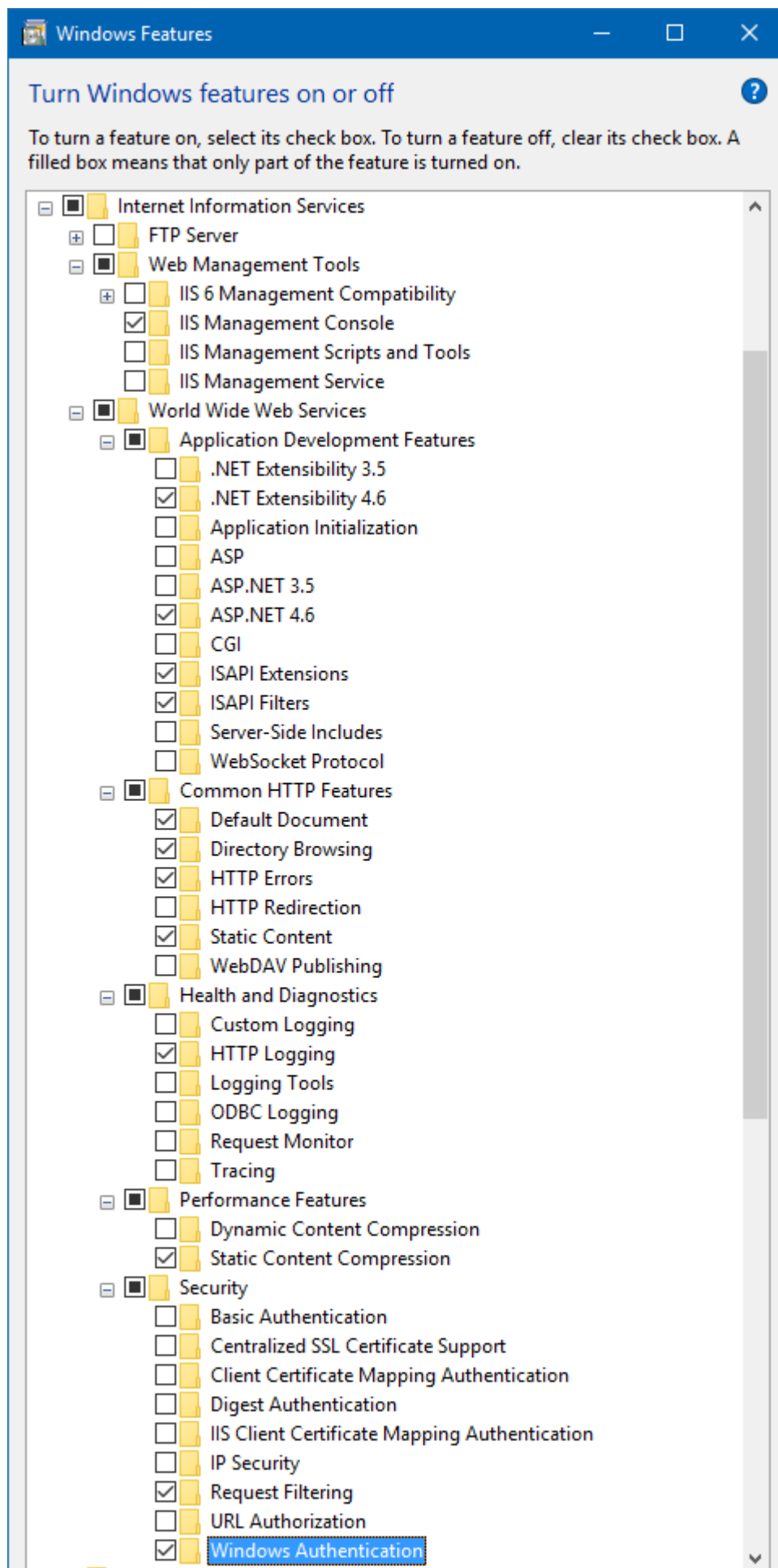
1. Press the **Windows key + R** keyboard shortcut.

The dialog to enter a command for the command processing is opened.



2. Enter *appwiz.cpl* in the input field.
Click on **OK**.
A new control panel window to configure programs and **Windows features** is opened.
3. In this window, click on **Turn Windows features on or off**.

The window to select features of the operating system is opened.



4. Expand the **Internet information services** in this node.
5. Activate all **World Wide Web Services** there.
6. Expand the **General HTTP features** node.
7. Activate the **static content**.
8. Expand the **Application development features** node.
9. Activate **ASP.NET 4.6**
10. Expand the **Web administration tools** node.
11. There, activate the **IIS administration console**.
12. Expand the **Security** node.
13. Activate **Windows authentication**.
14. Click on **OK**.

Note: The *WebSocket* protocol must also be activated.

WINDOWS SERVER 2012 (R2)

Follow the instructions from Microsoft: <https://technet.microsoft.com/en-us/library/hh831475.aspx>
(<https://technet.microsoft.com/en-us/library/hh831475.aspx>)

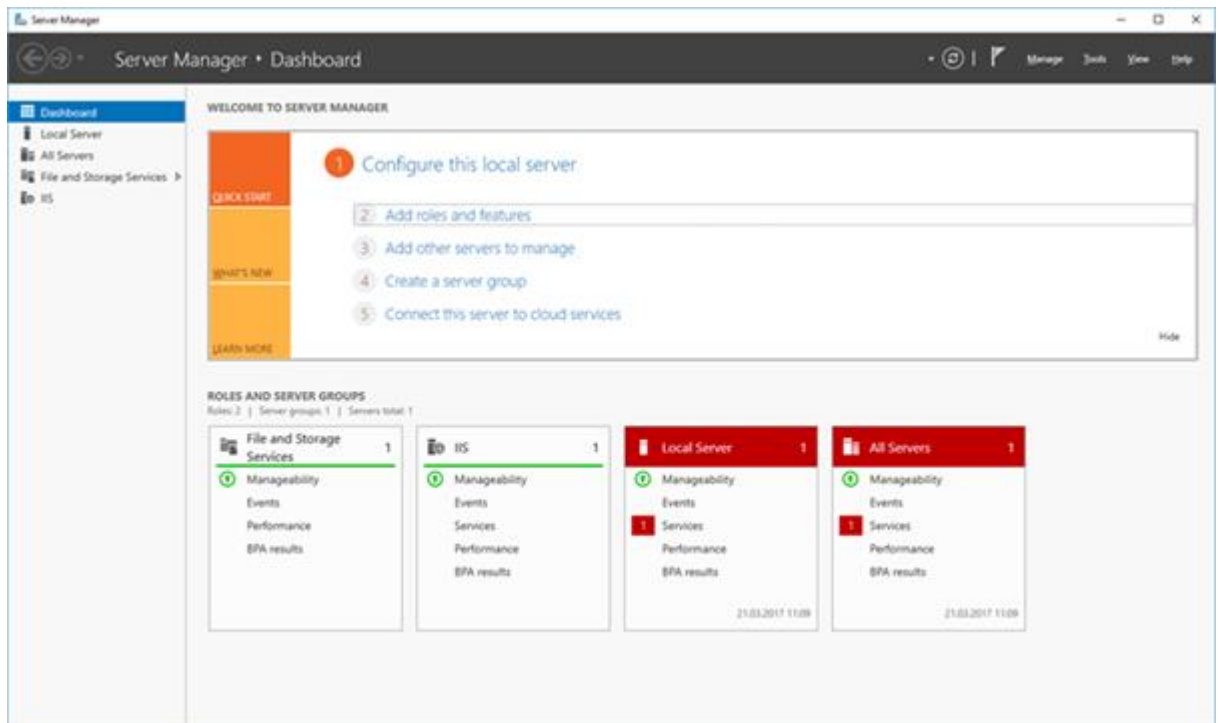
1. Open the **Assistant to add roles and features** wizard.
2. Go to the **server roles**.
3. Activate the **Webserver (IIS)**.
4. Expand the **General HTTP features** node.
5. Activate the **static content**.
6. Expand the **Security** node.
7. Activate **Windows authentication**.
8. Expand the **Application development** node.
9. Activate:
 - ▶ **.NET expandability 4.5**
 - ▶ **ASP.NET 4.5**
 - ▶ **ISAPI extension**
 - ▶ **ISAPI filter**
 - ▶ **WebSocket protocol**

14.1 IIS 10 for Windows Server 2016

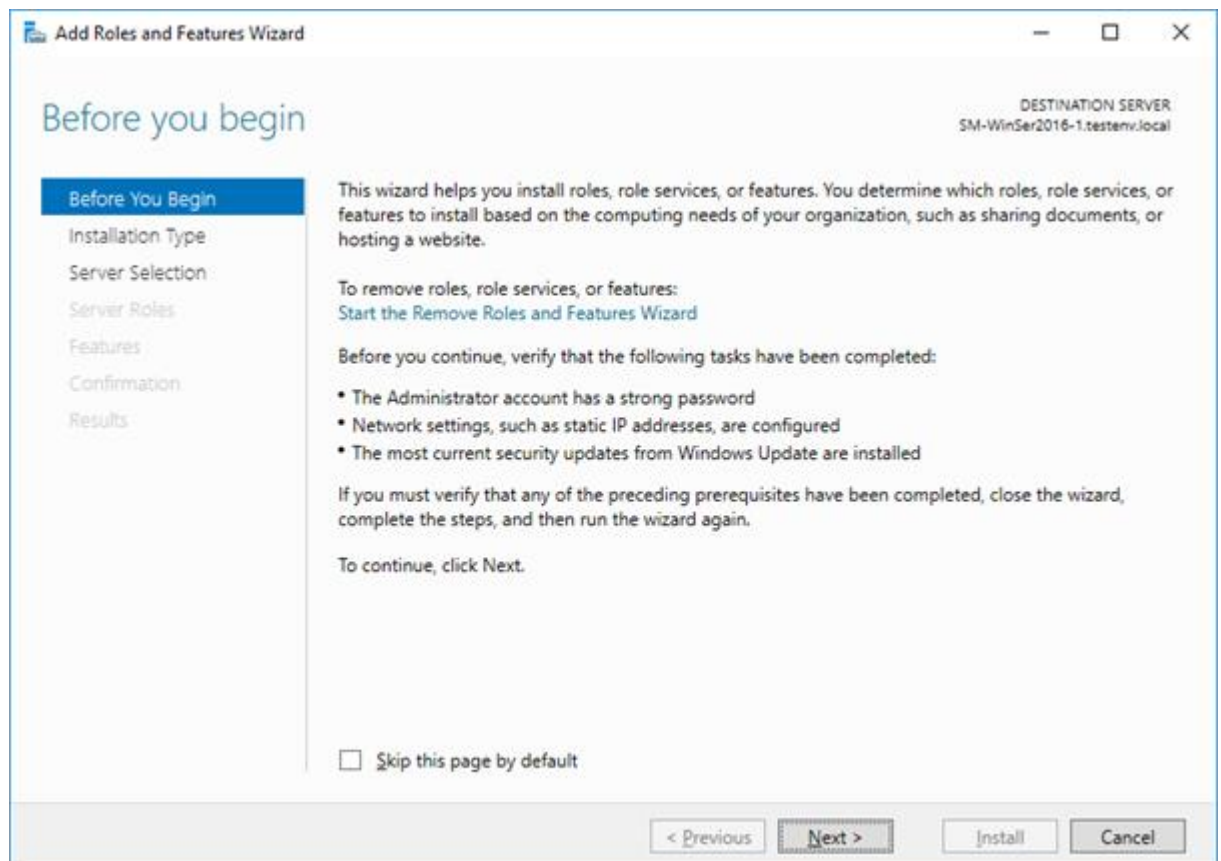
For the basic installation of features for Windows Server 2016, please use the corresponding Microsoft documentation. This description only contains the settings required for zenon Analyzer.

To use zenon Analyzer with **IIS 10.0** on **Windows Server 2016**:

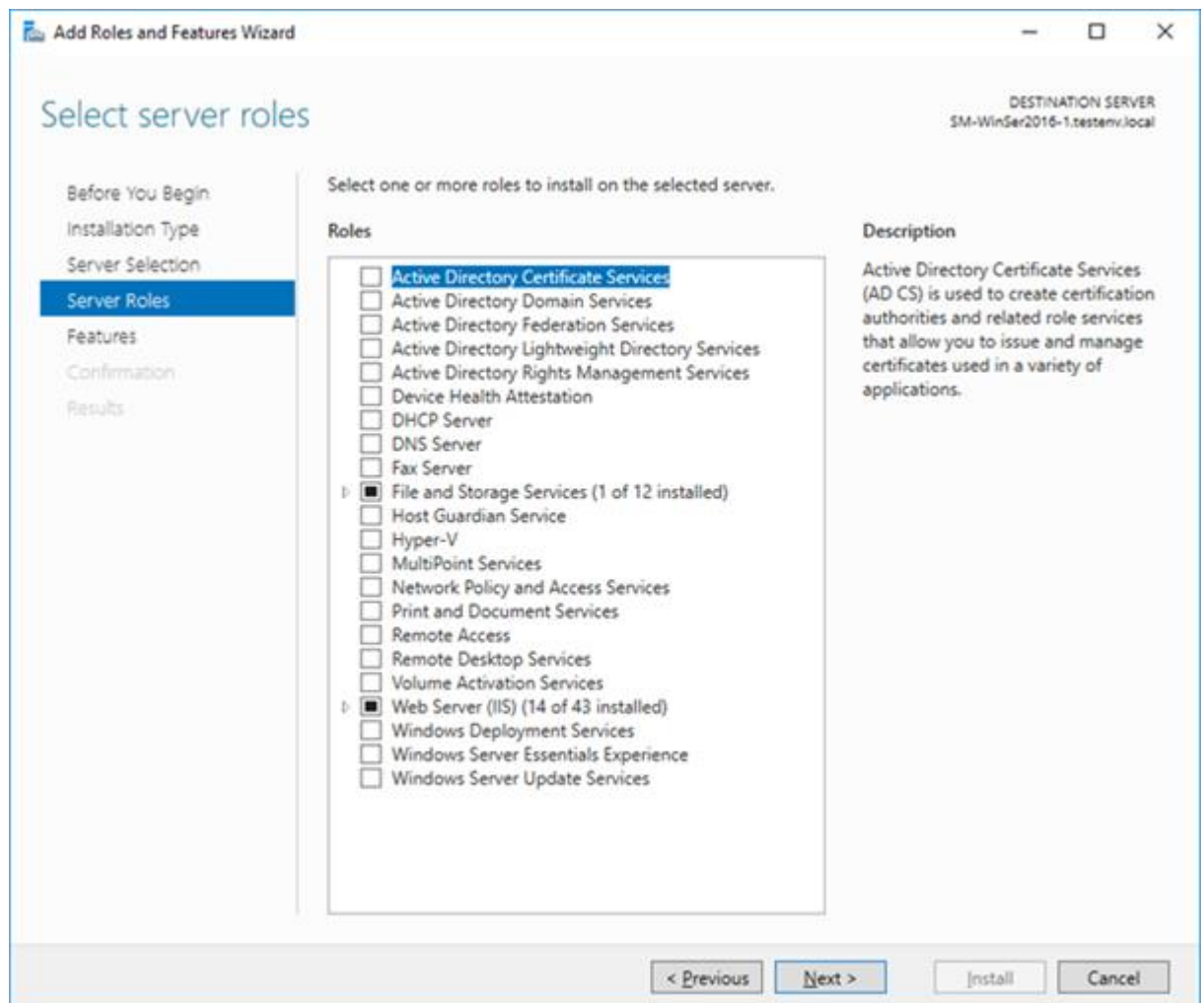
1. Open the **Server Manager**:



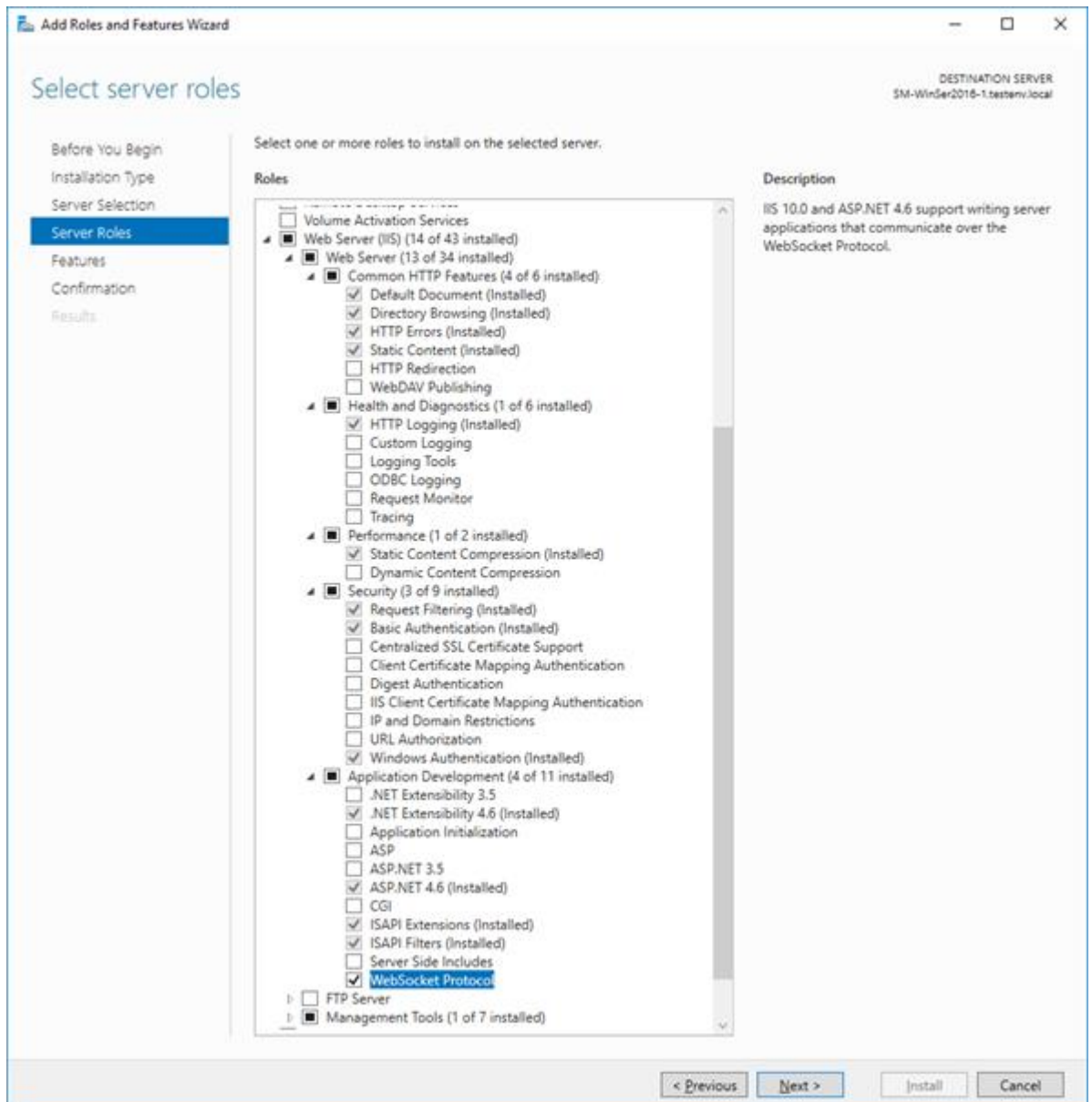
2. Open the wizard to add roles and features.



3. Go to **Server Roles**.



4. Activate **Web Server (IIS)** and ensure that the following properties have been configured correctly:



5. Expand the **Common HTTP-Features** node.
6. Activate the **Static Content** option:
7. Expand the **Security** node.
8. Activate the **Windows-Authentication** option:
9. Expand the **Application Development** node.
10. Activate:
 - ▶ **.NET Extensibility 4.6**
 - ▶ **ASP.NET 4.6**

- ▶ **ISAPI Extensions**
- ▶ **ISAPI Filters**
- ▶ **WebSocket Protocol**

11. Finish your configuration.

⚠Attention

The following settings prevent zenon Analyzer working correctly:

- ▶ **A ban on unknown file suffixes:**
File suffixes for zenon Analyzer, ZAMS and Report Launcher must be approved. (setting via IIS Management Console.)
The following are needed: **.gif; .axd; .aspx; .css.**
- ▶ **Level of trust:**
Medium or fewer.
With too few rights, the Report Launcher cannot be started.
(setting via command line **appcmd.**)

15 Establish zenon Editor connection to zenon Analyzer Service Node

To use data from zenon in zenon Analyzer, a connection from both zenon Analyzer and zenon Editor to the **Service Hub** in the Service Grid must be established.

You use the **Service Node Configuration Tool (SNCT)** to establish a connection to the **Service Hub**. The **Service Node** to be configured gets the required credentials in the form of a **Certificate Bundle** from it. Before starting **Service Node Configuration Tool**, you must confirm that you trust the installed certificate.

CERTIFICATE

The SNCT requires a certificate for the secure connection to the **Hub Controller**. If this is not available, an error message is displayed when establishing a connection. The error message can be accepted and the connection can still be established.

Recommendation: Install a trustworthy certificate as early as possible.

INSTALL CERTIFICATE FROM THE HUB CONTROLLER

In order to install the certificate:

1. Log in to the **Hub Controller**.
You can find details on configuration in the **Service Grid** manual in the **Hub Controller** section.
2. Download the CA certificate by clicking on **Download certificate** in the **Certificate** tab.
3. Install the certificate in the Windows Certificate Store **Trusted Root Certification Authorities**.
4. Start **Service Node Configuration Tool**.

START SERVICE NODE CONFIGURATION TOOL

To start the Service Node Configuration Tool:

1. Open Windows **Start**.
2. Search for **SNCT**.
3. Open the provided desktop app.

Alternative:

1. Open the zenon **Startup Tool**.
2. Click on the **Tools** button.
The **Start external application** dialog is opened.
3. In the **Available applications (current folder)** section, select the **Service Node Configuration Tool** entry.
4. Click on **Start**.

The **Service Node Configuration Tool** is opened.

Note: The Services Nodes that are available for configuration also depend on the product that is activated in the **Startup Tool**. For example, if the zenon web client is active, the products zenon Editor and zenon Runtime are not offered.

CONFIGURE SERVICE NODES

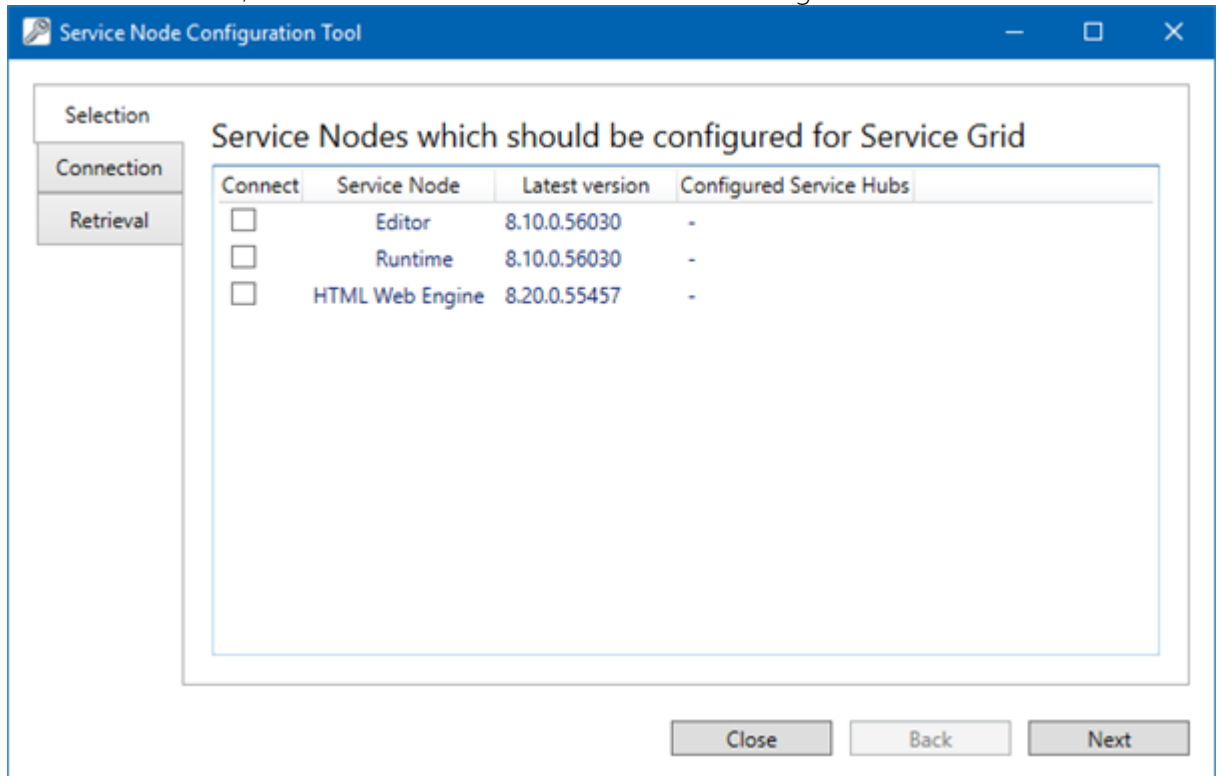
You use the **Service Node Configuration Tool** to configure the connections of the **Service Nodes** via the tabs:

- ▶ **Selection:** Selection of the **Service Nodes** that are to be connected to the **Service Hub**.
- ▶ **Connection:** Entry of the connection parameters to the **Service Hub**.
- ▶ **Retrieval:** Check of the connection and configuration of the **Service Nodes**.

These can only be edited in order. In order to be possible to switch to the next step, the current tab must be configured correctly. Errors are highlighted with a red frame the next time there is an attempt to switch further.

To configure the connection from a **Service Node** to the **Service Hub**:

1. In the **Selection** tab, select the **Service Nodes** that are to be configured.



2. Click on **Next**.

The **Connection** tab is opened.

3. Enter the address under which the hub controller can be contacted.

4. If the default port is not used:

- a) Activate the **Custom** option.
- b) Enter the port to be used.

5. Enter a user name and password.

6. Optional: Enter an alias.

This makes it easier for the user to find information during operation.

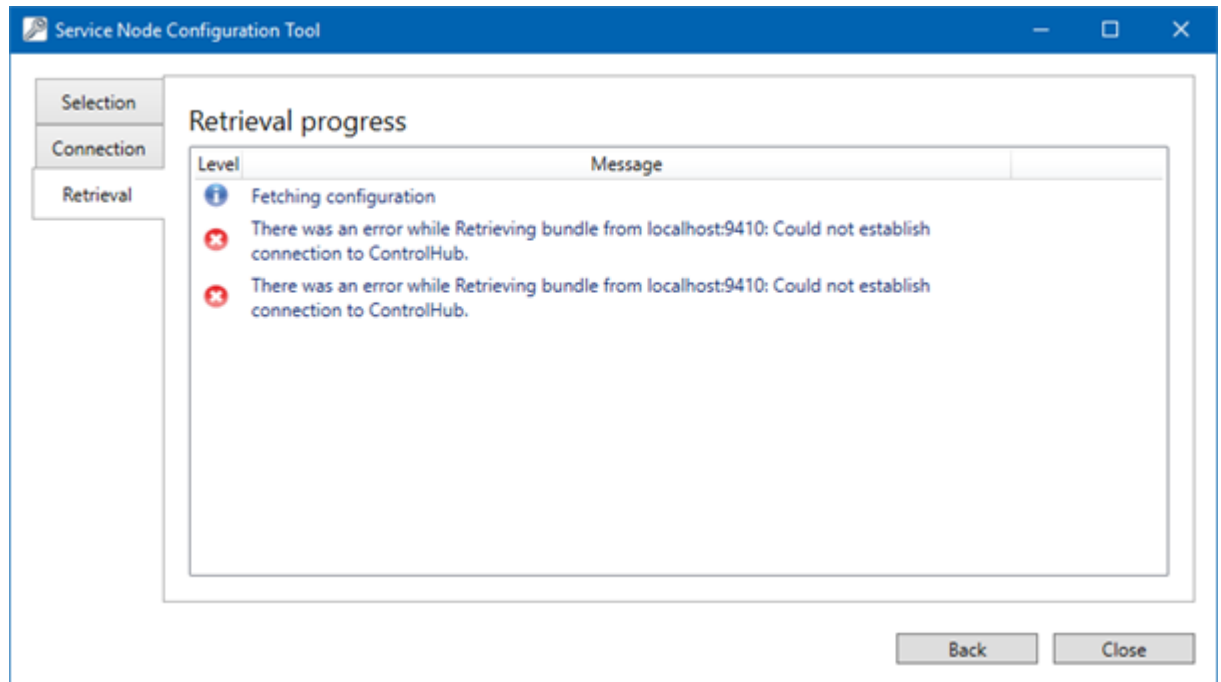
7. Click on **Execute**.

The connection data entered is validated.

The **Retrieval** tab is opened.

A connection to the Hub Controller is established and the credentials for the previously-selected **Service Nodes** are queried from the **Hub Controller**. These **Service Nodes** are then configured with their respective credentials.

The individual steps are displayed in the form of log messages. These inform you of successful execution, as well as problems with the establishment of a connection to the **Hub Controller**, the data query or the configuration of the **Service Nodes**.



8. Close the dialog by clicking on **Close**.

CONFIGURATION IN THE ZENON EDITOR

Configure the **Service Hub** in the zenon Editor.

This configuration has no influence on the data transfer from the zenon Runtime to the Service Grid. Runtime data is transferred using the Service Grid Runtime Add-in.

To configure the connection to the zenon Editor.

1. Highlight the project in the zenon Editor
2. Go to the **Network** node in the properties.
3. Go to the **Service Grid** area.
4. In the **Service Hub** property, select the desired type of connection to the **Service Hub** from the drop-down list:
 - ▶ *<No service hub selected>*: No connection to a service hub is established. Existing connections are separated in the zenon Editor.
 - ▶ *<Apply from the global project>*: The service hub configured in the global project is used.
 - ▶ *<configured service hubs>*: List of all available connections.
5. Close zenon Editor.

Attention: zenon Analyzer and **Hub Controller** must have a valid license.

ADDITIONAL INFORMATION

You can find further information in:

- ▶ **Service Grid** manual, **Service Node** sections:
Configuration of the connection of **Service Nodes** to the service hub in the Service Grid with the **Service Node Configuration Tool**.
- ▶ **ZAMS - zenon Analyzer Management Studio** manual:
 - ▶ **Settings in zenon Editor for Service Grid** section:
Configuration of the connection from zenon Editor to the Service Grid.
 - ▶ **Analyzer Service Node Interface** section:
Configuration of the Analyzer Server interface to the **Service Hub** in the Service Grid.

16 Licensing

In order to be able to use COPA-DATA products, they must be licensed. A product runs in demo mode (on page 138) until it has been licensed.

COPA-DATA products:

- ▶ zenon Editor with zenon Logic Workbench as a module
- ▶ zenon Runtime:
Runtime for Demo licenses:
 - ▶ 43200 minutes (30 days) on hardware computers
 - ▶ 1440 minutes (1 Tag) for virtual machines
- ▶ zenon Logic Workbench and Runtime
- ▶ Process Gateway and OPC DA Server
- ▶ zenon Web Server and Web Client
- ▶ HTML Web Engine
- ▶ zenon Analyzer
- ▶ Hub Controller
- ▶ Service Grid API
- ▶ Identity Service

The license is checked when the program starts. The product is started with the licensed modules. If no valid license is found when the program is started, a dialog notifies you of this. It is possible to

choose to cancel starting up the product or to start the product in demo mode. The product cannot be started for the demo mode if there is also no license for demo mode. In addition, the **License Manager** can also be opened to assign the product a valid license.



Information

The mechanism for licensing described in this document is used for different products. Screenshots are not created for each individual product in the process. It can therefore be possible that the display of a screenshot is different from the description for your product.

VALIDITY

The information on licensing is applicable for:

- ▶ zenon products: as of version 8.00
- ▶ zenon Analyzer: as of version 3.20

Products from previous versions are licensed using a different method. You can find information on this in the documentation of these products.

USER DATA

When licensing COPA-DATA products, user data is obtained, saved and processed. You can find details in relation to this in the **Data Protection** (on page 59) chapter.

17 Licensing products - overview

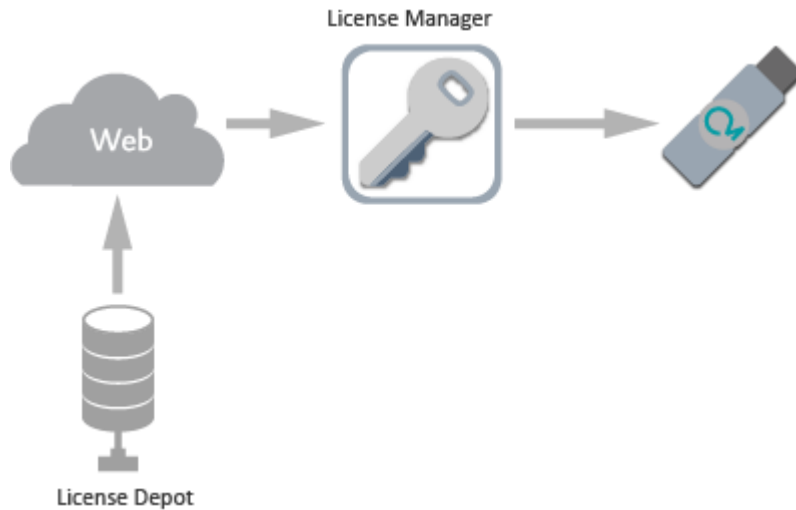
The license is issued in the form of a license certificate and tamper-proof digital information.

If a license is issued, it is stored in the "license depot". This is a database in which the license waits to be collected. The license must be saved on your system in order you to be able to use the license as a user. A dongle (on page 60) is used as a save location. This dongle is also called a license container. This is transferred from the license depot to the dongle when a license is activated.

Use the **License Manager** to activate the license. You can thus activate, deactivate and administer licenses and assign products. Alternatively, you can also activate licenses automatically (*silent*) using the command line tool (on page 124).

ONLINE ACTIVATION

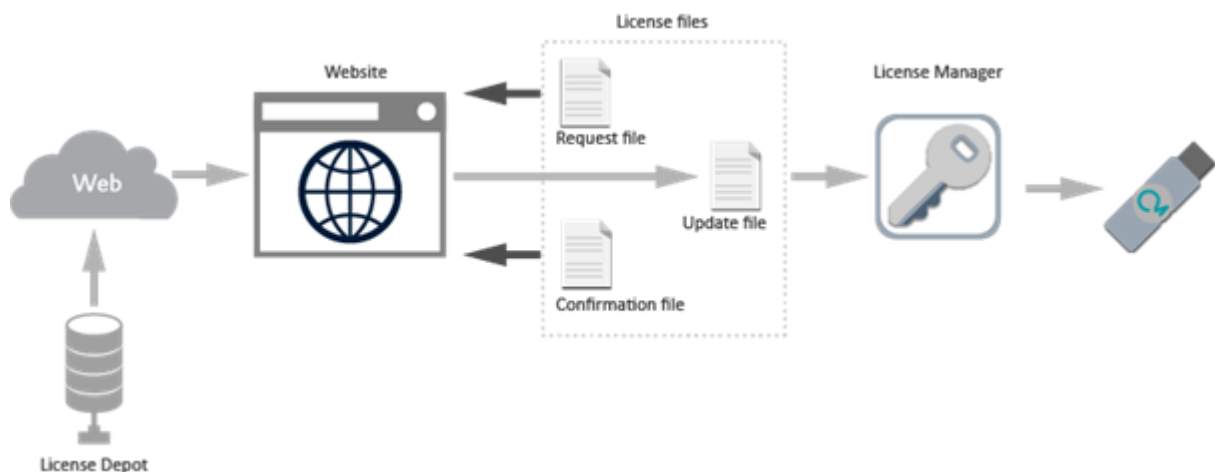
During online activation, licenses are activated directly without further applications or data carriers. There must be an online connection to the Internet available to do this.



For details, see the **Online activation** (on page 70) chapter.

OFFLINE ACTIVATION

With offline activation, the substitution of digital license information must be manual. In doing so, three files are transferred between the license depot and the dongle. Here too, some form of access to the Internet is necessary.



For details, see the **Offline activation** (on page 93) chapter.

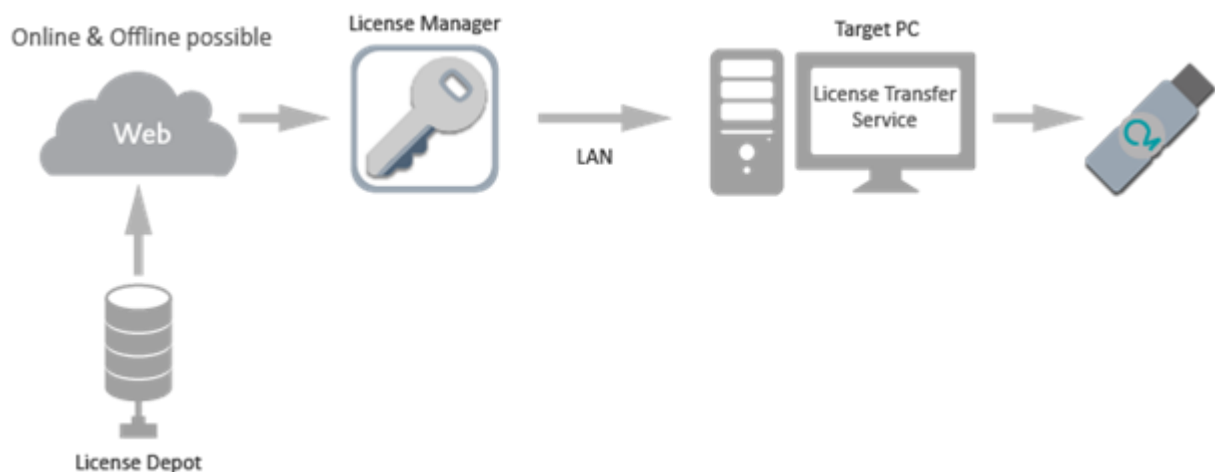
ASSIGN LICENSES TO PRODUCTS

In order for a license to be able to be used, it is not sufficient for it to be saved in the dongle. It must also be assigned to the products from which they are used. There are often several licenses on a

computer, including demo licenses too. For details, see the **Assign licenses to products** (on page 78) chapter.

REMOTE LICENSING

With remote licensing, all processes that support license administration are not carried out on the local computer but on another computer in the local network (LAN). This is primarily useful if the computer to be licensed does not have an Internet connection. The computer can then be used with the **License Manager** as a proxy computer (intermediary computer).



For details see the **Remote Licensing** (on page 119) chapter.

TRANSFER/RELOCATE LICENSES

Licenses can be transferred to other computers or dongles. Even if a virtual machine is transferred from one host system to another, the license must also be transferred so that it does not become invalid. Transfer or relocate means: The first step is that the license is returned to the issuer's license depot. In the second stage, it is picked up and activated by the new system. For details, see the chapter **Transfer/relocate licenses** (on page 113).

LICENSING PREVIEW PROGRAMS

The following time-limited licenses are available for zenon preview programs. They have a fixed expiry date.

If a preview version is installed, it needs an internet connection. The licensing will fail if this is not present.

In this case, the time stamp can be updated manually.

To do this:

1. Open the command line.
2. Enter: `%programfiles(x86)%\CodeMeter\Runtime\bin\cmu32.exe --time-update`

The time stamp is updated and the license is valid.

STATUS VARIABLES

License information can be retrieved using status variables and displayed in the Runtime:

Variable	Description
[System information] License protection present (local/global)	<p>Shows whether the product is licensed:</p> <ul style="list-style-type: none"> ▶ 0: No valid license. ▶ 1: Valid license. <p>The variable initially has the status 1. The variable is set to 0 in the event of a loss of the license. As soon as there is a license available, the variable is set to 1 again.</p> <p>Note in relation to global variables: Other network participants can set the value of the variable to 1 (license present) although the license continues to be lacking from the triggering computer. With global variables, the falling flank must therefore be evaluated.</p> <p>Note on updating to Version 7.60: Up to Version 7.60, the variable [System information] Dongle Status is used. As of Version 8.00, this must be replaced by [System information] License protection present.</p> <p>If files are created in a Version 8.00 or higher Runtime for use in 7.60 or lower, the variable [System information] License protection present (local) is automatically replaced by [System information] Dongle Status.</p>
[System information] Remaining time until license expires	<p>This shows in the Runtime how long the current license is still valid.</p> <p>The display is in hours for:</p> <ul style="list-style-type: none"> ▶ Demo license ▶ License with expiration date ▶ Borrowed license with expiration date ▶ No valid license found: If no valid alternative license is found, the

Variable	Description
	<p>variable [System information] License protection present will be set to 0 and the remaining time will be displayed with this variable 0.</p> <p>In all other cases, the value 4294967295 will be displayed.</p> <p>Note: The information displayed always relates to the currently valid license. If you change to a different license, for example, due to a network failure, the remaining period of validity will also change.</p>

18 Data protection

Information on collection, saving and processing of user data by COPA-DATA products.

PROCESSING OF USER DATA

When licensing via the **License Manager** by means of dialog or command line, user data is also recorded, saved and processed. This data is to restore lost or damaged licenses. The data is saved and processed at Ing. Punzenberger COPA-DATA GmbH.

DATA COLLECTED

The following is collected:

- ▶ Operating system: Type and version
- ▶ IP addresses: All IP addresses present on the computer
- ▶ Fully Qualified Host Name: Unique computer name and complete domain address
- ▶ User name and domain
- ▶ Serial number

This data is recorded for the computer on which licensing is executed. If the licensing is executed remotely, this data is also collected for the target computer.

You can find detailed information about data processing and data protection online at:
<https://www.copadata.com/privacy> (<https://www.copadata.com/privacy>).

TIME POINTS OF DATA COLLECTION

The data is collected when:

- ▶ Activating licenses
- ▶ Updating licenses
- ▶ Transferring/relocating licenses

DEACTIVATION

The recording of this data can be deactivated in the **License Manager** dialog in the **Settings** tab. Licenses can continue to be obtained and administered. Support and technical support for licensing is however not possible due to missing data.

If the recording is deactivated, COPA-DATA can no longer offer the following services:

- ▶ Automatic application of licenses to remote computers.
- ▶ Tracing of the computer on which the license was activated and by whom.
No support can thus be offered when searching for the license in the event of a loss of a license. Lost licenses can also not be replaced as part of customer care.

Data that has been collected up to the point of deactivation remains saved.

19 Dongle types

For licensing, only **CodeMeter** dongles from **Wibu Systems** are used. Dongles are the save location for licenses. They are therefore also called a license container. There are two basic types of dongles available: Hardware dongles and software dongles. All licenses can be saved as both dongle types, and also transferred (on page 113) from one type to another.

Dongle types:

- ▶ Hardware dongles:
The license information is incorporated into special hardware - a security chip.

Advantages:

- ▶ The license can be easily transferred from one computer to another by reinserting the dongle.
- ▶ Different physical forms are available, for example USB sticks, SD cards etc.

Disadvantages:

- ▶ When using a virtual machine, the license must be transferred from a host system into the Virtual Machine using the network (on page 181).

- ▶ Dongles can be stolen or lost.
- ▶ Software dongles - computer-based license protection:
In doing so, a software dongle is created on the computer directly. The software dongle is based on the computer hardware. If the hardware changes too much, the license becomes invalid (on page 164).

Advantage:

- ▶ The dongle cannot be lost or stolen.

Disadvantages:

- ▶ The license can become invalid if the hardware configuration is changed.
- ▶ The license must be returned before it can be transferred to another computer.

Both dongle types act the same in practice. All mechanisms can be used for both types. There are only limitations for software dongles in a virtual machine (on page 63).

20 Licensing in a few steps

In order for you to be able to operate zenon licensed, only a few steps are necessary, in most cases. There are two possibilities for having a license sent to you:

1. You receive a pre-programmed hardware dongle.
2. You get a license certificate for a computer-based software dongle or a license certificate and an empty hardware dongle.

With both variants, you can very easily get a licensed product.

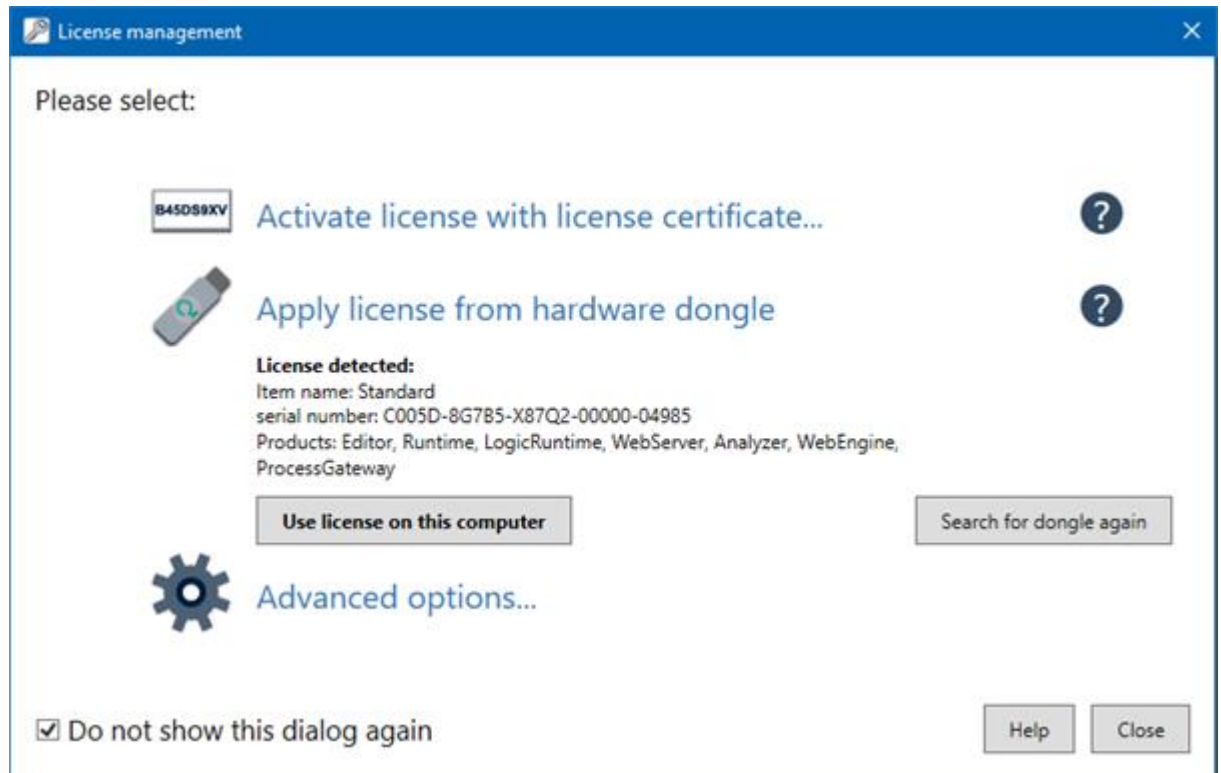
PRE-PROGRAMMED HARDWARE DONGLE

To use a pre-programmed hardware dongle:

1. Insert the hardware dongle into the computer and wait until Windows has detected the dongle.
2. Start the **License Manager** via **Windows -> License Manager**.

3. In the start dialog of the **License Manager**, select the **Apply license from hardware dongle** option.

The license detected is shown in the dialog.



4. Click on the **Use License on this Computer** button.
5. End the **License Manager**.

You can now start the licensed products.

You can find more detailed information on the procedure and limitations in the **Licensing** (on page 54) manual in the **Apply license from hardware dongle** (on page 72) chapter.

LICENSE CERTIFICATE FOR COMPUTER-BASED LICENSE

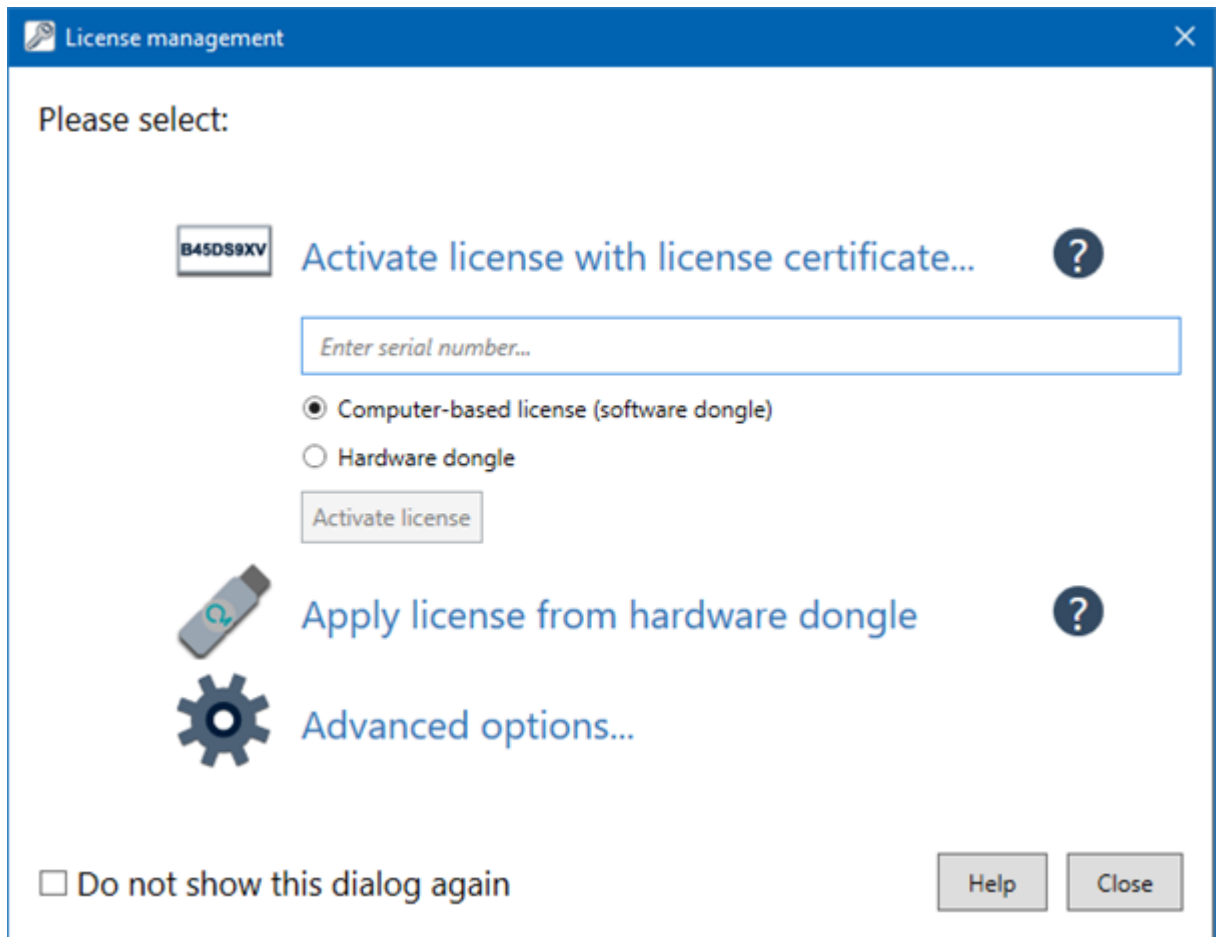
Info

Activation of a license with a virtual machine: Note the information in the **Virtual Machines** (on page 63) chapter of the zenon help for **Licensing** (on page 54).

To use a computer-based license:

1. Start the **License Manager** via **Windows -> License Manager**.

2. In the start dialog of the **License Manager**, select the **Activate license with license certificate** option.



3. Enter the serial number into the input field for the serial number.
4. Select **Computer-based license (software dongle)**.
5. Click on the **Activate license** button.
The license is transferred online via the Internet into the dongle you have selected.
6. Close the **License Manager**.

You can now start the licensed products.

You can find detailed information on the procedure, limitations and alternative procedures in the **Licensing** (on page 54) manual in the **Activate license** (on page 88) chapter and the following chapters.

21 Virtual machines

The licensing of a virtual machine is subject to special requirements and properties:

- ▶ Hardware dongles cannot be connected directly. The license must be transferred to the virtual environment.

The following procedures can be used for this:

- ▶ The dongle is connected to a physical computer and activated there as a network (on page 181). In the virtual environment, the network dongle is entered into the server search list (on page 182) and is thus available.
- ▶ The dongle is transferred to the virtual environment via a **USB to Ethernet box** (dongle server). In doing so, a local USB port is emulated in the virtual environment. The *CodeMeter Runtime* considers the dongle to be directly connected. Such boxes are commercially available.
Recommendation: SEH dongle server
(<https://www.seh-technology.com/products/usb-dongle-servers.html>).
- ▶ The dongle is routed to the virtual environment via the virtualization software. VM-ware and Virtual Box support such mechanisms. In doing so, a local USB port is emulated in the virtual environment. The *CodeMeter Runtime* considers the dongle to be directly connected.

Note: This procedure is not recommended by *Wibu Systems*.

- ▶ With software dongles, there are some limitations for use in virtual environments:

- ▶ Licenses are not unlocked by default for virtual environments. However, you can apply for unlocking from the license issuer.

Caution: Licenses that have already been activated cannot be converted. These must first be returned to the license issuer (on page 113). Only then can the license issuer convert the license. You can then activate the license in a virtual environment.

- ▶ Demo licenses only have a very limited running time in virtual environments.
- ▶ The license will be invalidated (on page 164) when moving a virtual machine to another host system.

You should therefore return the license to the license issuer (on page 113) before relocating the license. The virtual machine can only be moved after this. You can then activate (on page 88) the license again. When being used in a data center, a virtual machine can also automatically be assigned to different hosts. In this case, you need a **Software-Dongle VM DataCenter**.

- ▶ When changing the parameters of a virtual machine, such as the number of CPU cores, RAM or the MAC addresses, the license will become invalid (on page 164). It is thus recommended that you use network licensing for virtual machines. You can find information about this in the Network Dongles (on page 181) chapter.
If this is not possible, return the license to the license issuer (on page 113) before changing the parameters. Only after this can the parameters of the virtual machine be changed. If necessary, the **Software-Dongle Virtual Machine** must be renewed. See also License invalidation with software dongles and virtual machines (on page 164). You can then activate (on page 88) the license again.

DIFFERENT TYPES OF SOFTWARE DONGLE

Depending on the type of operating system, different software dongle types are installed by the **License Manager**:

- ▶ **Software-Dongle Standard**: For use on physical computers.
- ▶ **Software-Dongle Virtual Machine**: For use with a virtual machine.
Can be used on a physical computer; not vice versa.
- ▶ **Software-Dongle VM DataCenter**: For use with a virtual machine in a public data center such as Microsoft Azure or Amazon Web Services (AWS), as well as in private data centers.
Can also be used on a physical computer, but not vice versa.

Note: If a virtual machine is converted into a physical computer, you then have both dongles on one system. Both are equivalent and both can be used.

Attention

If a physical computer is converted to a virtual machine, the **Software-Dongle Standard** dongle type can no longer be used. All licenses contained therein are thus no longer available. You must return the licenses beforehand. See the following chapter: Transfer/relocate license (on page 113)

CONVERSION TO VIRTUAL MACHINE

If you use software dongles and want to convert a physical computer into a virtual machine, then:

1. Return all activated licenses (on page 113).
2. Apply to COPA-DATA for a conversion of the license to a license for a virtual machine.
If you operate the virtual machine in a data center such as Microsoft Azure or Amazon Web Services (AWS), or in a private data center, apply for a license for VM DataCenter
Caution: Standard licenses cannot be activated on a virtual machine. You can see whether a license is suitable for a virtual machine from the license certificate.
3. Convert the operating system into a virtual machine.
4. Activate (on page 88) the license again

CONVERSION OF A VIRTUAL MACHINE INTO A PHYSICAL COMPUTER

If you use software dongles and want to convert a virtual machine into a physical computer, then:

1. Return all activated licenses (on page 113).
2. Convert the operating system into a physical computer.
3. Activate (on page 88) the license again

RELOCATION OF VIRTUAL MACHINES TO ANOTHER HOST SYSTEM

Licenses for software dongles become invalid if the hardware changes. Therefore return (on page 113) all licenses that are saved in software licenses before relocation.

22 License Manager

Licenses are administered in their own application, the **License Manager**.

You start these using:

- ▶ **Windows Start menu -> COPA-DATA -> License Manager.**
- ▶ **Startup Tool:** Click on the **Tools** button, select the **License Manager** entry in the **Available applications** area and click on **Start**.
- ▶ Via the **Open License Management** button in most **About** dialogs in zenon products.
- ▶ Also in ZAMS directly for zenon Analyzer.

FUNCTIONALITY

You can license the following in the **License Manager**:

- ▶ **Activate** (on page 88) locally or remotely (on page 120):
Activate licenses for a local computer or a remote computer and assign them to certain COPA-DATA products.
- ▶ **Activate online** (on page 91) and **offline** (on page 93):
You can activate licenses directly only or offline using a license request file.
- ▶ **Assign products** (on page 78) locally or remotely:
Determine which products are to use which licenses and in which order.
- ▶ **Carry out mass activation:**
Use a collective file to activate many licenses.
- ▶ **Borrow** (on page 105):
You can lend licenses to other users for up to 90 days. Service technicians can, for example, take licenses for use at customers' premises.
- ▶ **Return** (on page 113)/relocate:
You can return licenses and activate it again on another computer. This is how you transfer licenses to other computers or prevent license invalidation in the event of changes to hardware for software licenses or host systems for a virtual machine.

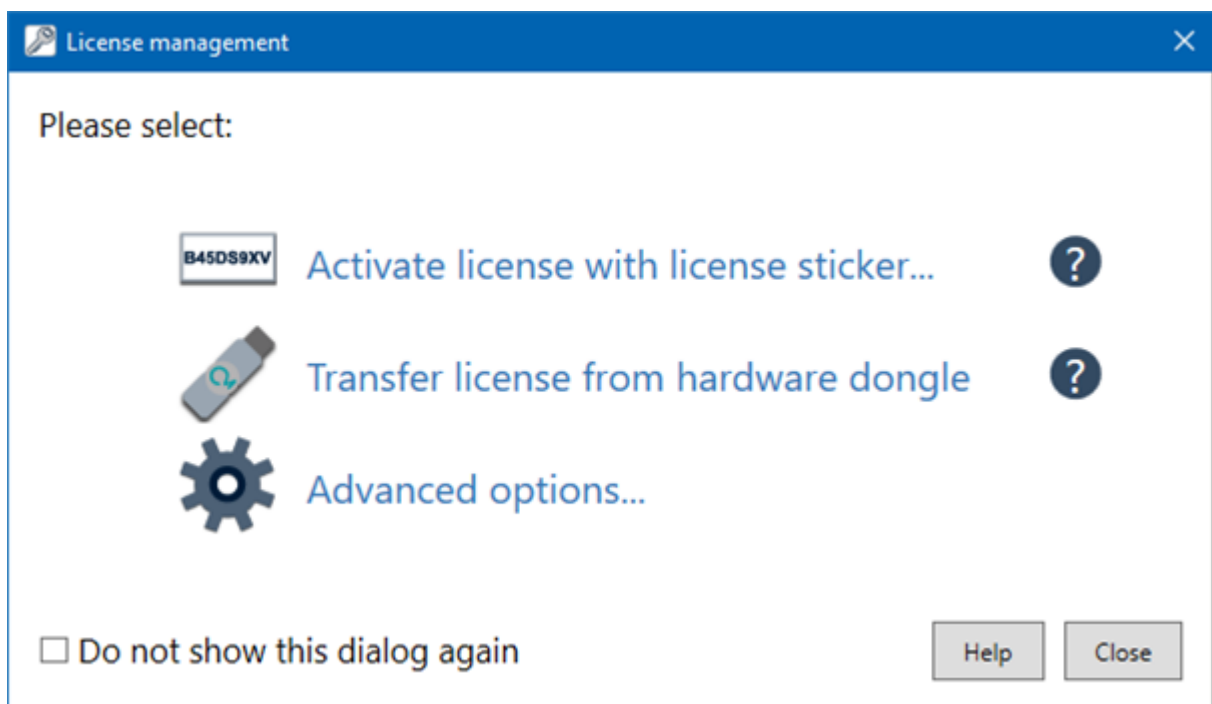
Note:

- ▶ You can also activate, update and distribute licenses *silently* using the command line (on page 124).

- ▶ All changes in the **License Manager** are immediately applied and executed.
- ▶ For remote licensing and license borrowing, the appropriate options must be enabled in the **Startup Tool**.
This can be done under **Application -> Options** in the **General** tab.

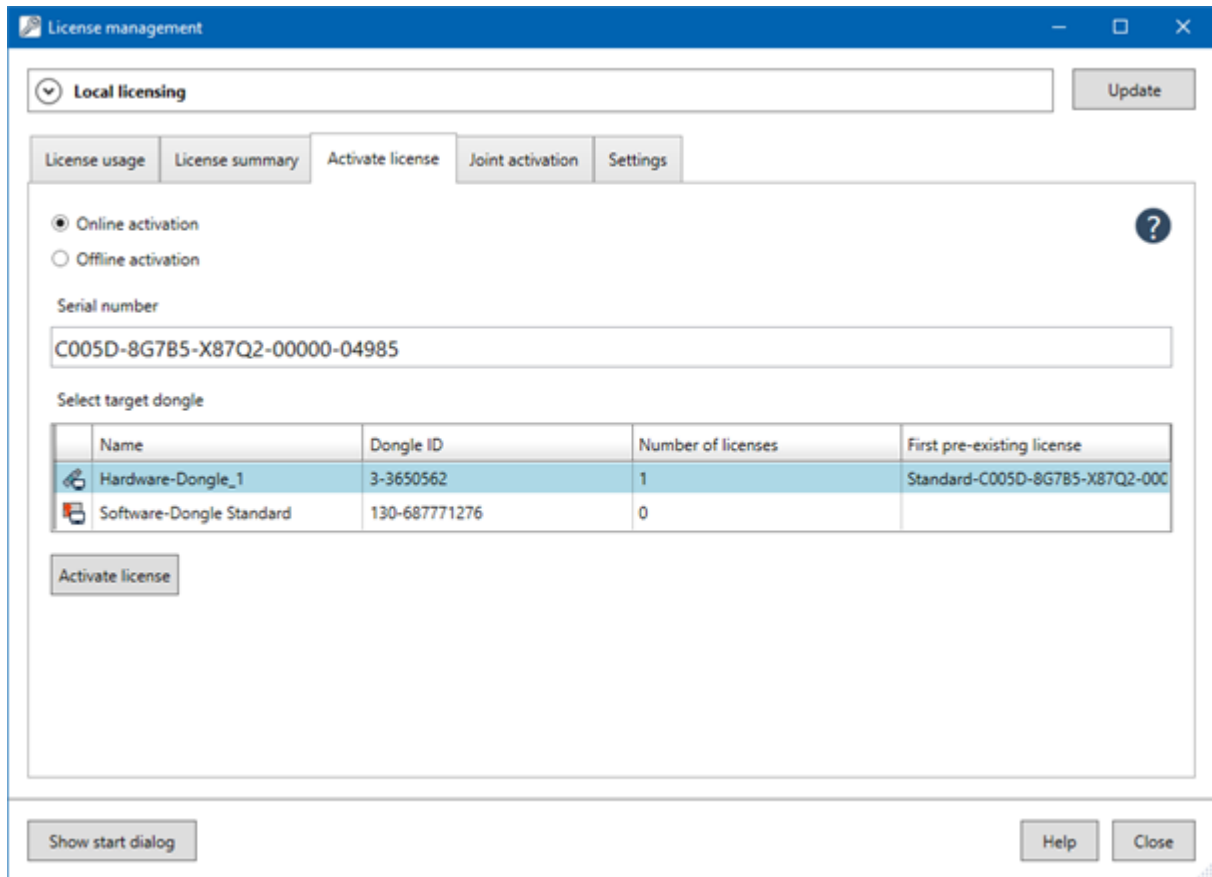
START DIALOG

The **License Manager** starts with a start dialog (on page 68) by default. This provides simple, interactive configuration possibilities. The **question mark** symbol shows brief help for the respective entry.



LICENSE MANAGEMENT DIALOG

There is a comprehensive application (on page 77) with several tabs available for individual settings.



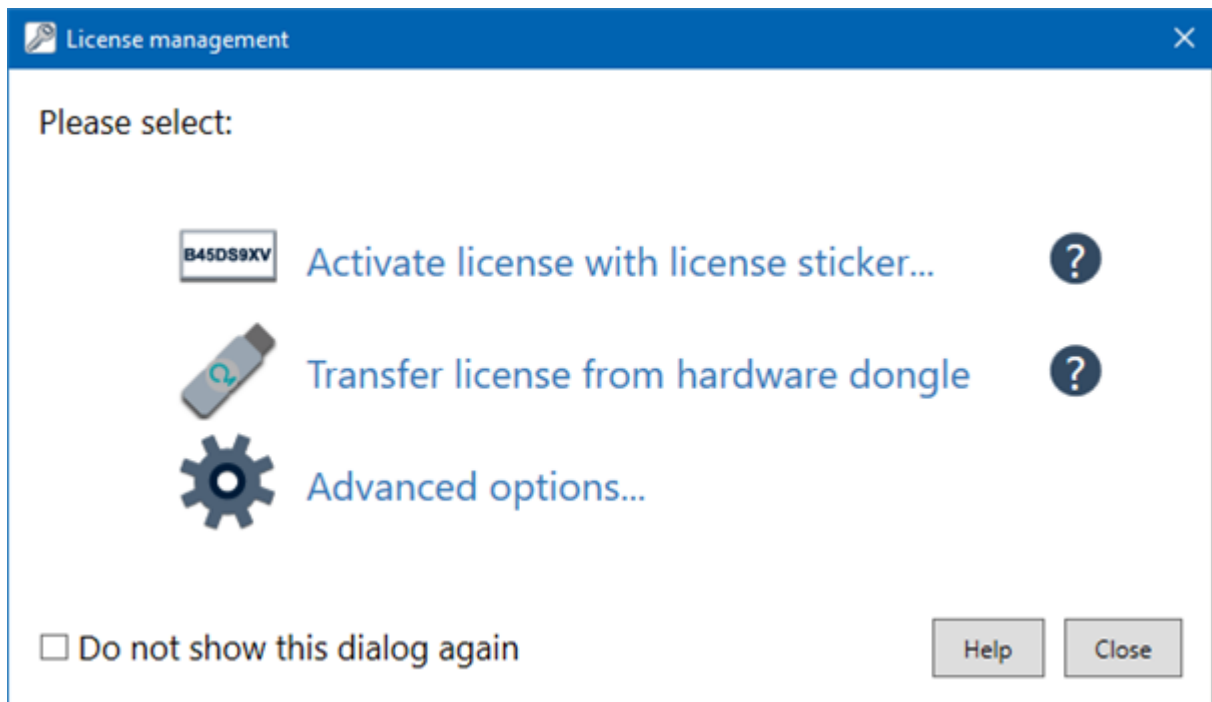
22.1 Start dialog

The **License Manager** starts with a start dialog. This can be deactivated using the **Do not show this dialog again** option. General reactivation is carried out using the **Settings** (on page 109) tab.

The two most important actions are available in the start view:

- ▶ Activation of a license (on page 70)

- ▶ Transfer of a license (on page 72) from a hardware dongle



Option	Description
Activate license with license certificate	Allows the online activation of a license (on page 70) with the serial number from the license certificate.
Apply license from hardware dongle	Allows the transfer of a license (on page 72) for all products of the license from a hardware dongle.
Advanced options	Opens further options for the administration (on page 76) of licenses.
Do not display this dialog	<ul style="list-style-type: none"> ▶ Active: The next time the License Manager is opened, the dialog is hidden and the view is opened with all tabs.

CLOSE DIALOG

Option	Description
Help	Opens online help.
Close	Clicking on the button closes the dialog.

22.1.1 Activate the license in the start dialog

Use this preferred option if you want to activate a license on a local dongle online.

You can choose whether the license is transferred to a software dongle or - if present - hardware dongle. You can read details on available dongles in the dongle types (on page 60) chapter.

During online activation, licenses are activated directly without further applications or data carriers. There must be an online connection to the Internet available to do this.

Hint

Use the Remote Licensing (on page 119) if you have a direct Internet connection

If you use a proxy server for your Internet connection, ensure you have the correct proxy settings (on page 112).

To activate a license with a license certificate:

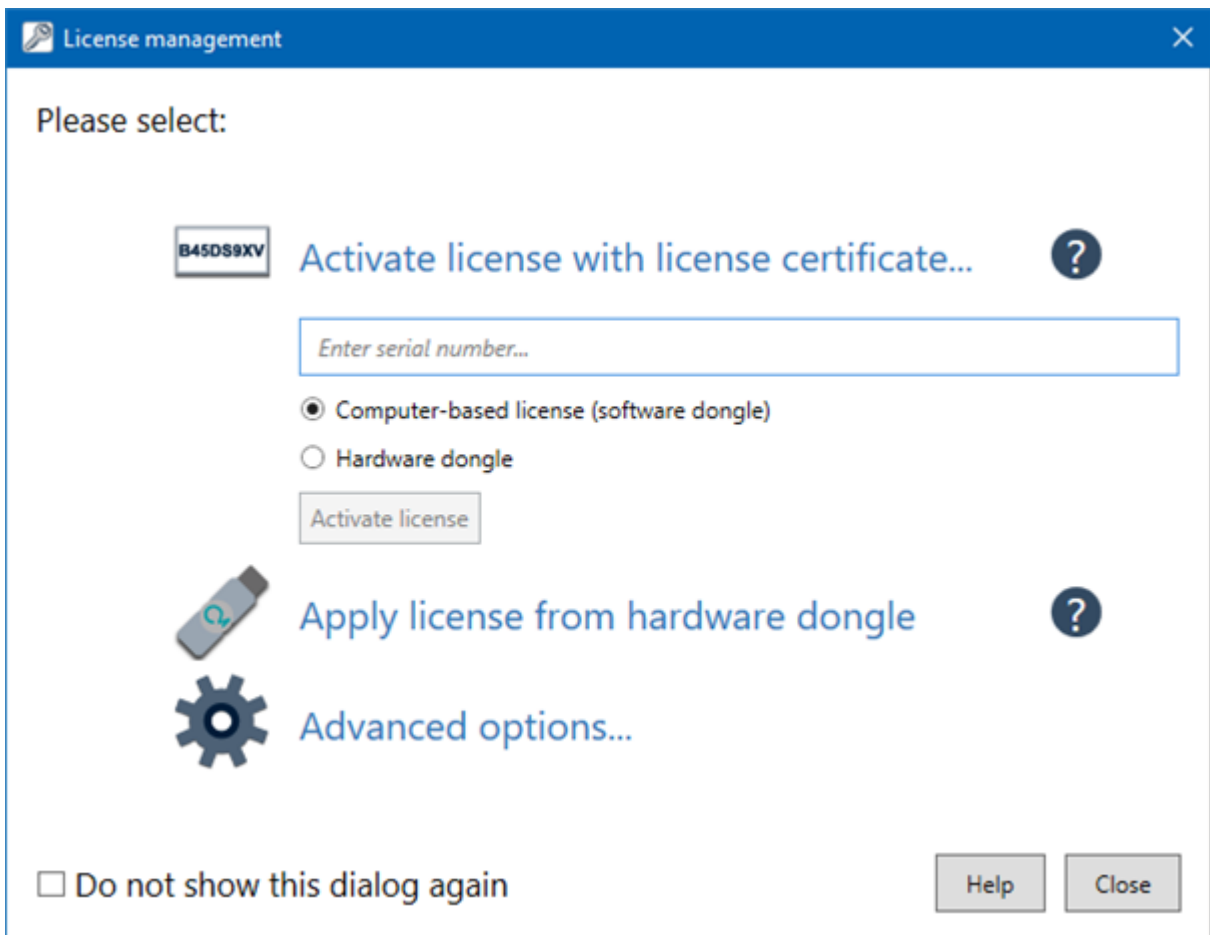
1. Start the **License Manager**.
If the start dialog is not displayed, click on the **Show start dialog** button.
2. Click on **Activate license with license certificate**.
3. Enter the serial number from your license certificate into the field.
4. Select the desired dongle (on page 60).
 - ▶ Computer-based license (software dongle)
 - ▶ Hardware dongle. If you have not yet plugged your hardware dongle in yet, insert it now and click on the **Reload** button.

Note: The license cannot be activated automatically if there are several hardware or software dongles. The **License Manager** automatically forwards you to the **Activate License** (on page 89) tab.



5. Click on **Activate License**.

The license is transferred to the dongle and saved in a tamper-proof form there. If you have set the **Apply activated licenses immediately** in the **Settings (on page 109)** tab, the license is entered for all products at the first place in the **License.ini** file. This INI file contains information on the sequence in which the licenses are used. You can amend the order in the **License Application** (on page 78) tab.

ACTIVATE LICENSE WITH LICENSE CERTIFICATE DIALOG





Please select:


 **Activate license with license certificate...** 

☒ Computer-based license (software dongle)

☐ Hardware dongle

Activate license

 **Apply license from hardware dongle** 

 **Advanced options...**

☐ Do not show this dialog again

Help **Close**

Option	Description
Activate license with license certificate	Clicking opens the further input options.
Serial number	Input field for the serial number that is to be activated.
Computer-based license (software dongle)	Selection of a software dongles for a computer-based license.
Hardware dongle	Selection of a CodeMeter hardware dongle. The dongle must be inserted
Activate license	Clicking on the button activates the license online. Only available if a valid serial number has been entered and a valid dongle has been selected.

CLOSE DIALOG

Option	Description
Help	Opens online help.
Close	Clicking on the button closes the dialog.

22.1.2 Apply license from hardware dongle

In order for a license to be able to be used, it is not sufficient for it to be saved in the dongle. It must also be assigned to the products from which they are used. There are often several licenses on a computer, including demo licenses too.

With this option, you enter a hardware dongle license for all products that are included in the license, at the first place in the **License.ini** file:

1. Insert the dongle into the computer.
2. Click on **Apply license from hardware dongle** in the start dialog.
The license detected is displayed.
3. Click on the **Use License on this Computer** button.
The license is applied.

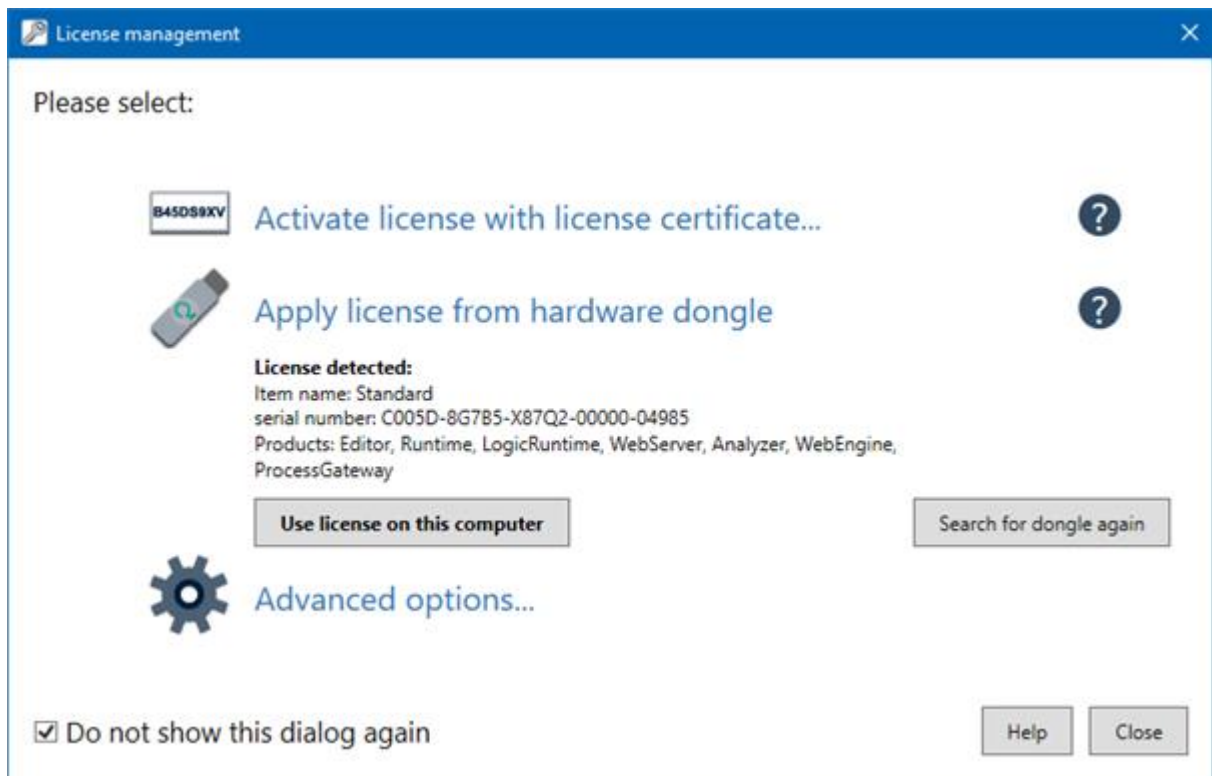
If several licenses are saved on a dongle, a corresponding message is shown in the start dialog. In this case:

- ▶ Insert a dongle with just one license and click on **Refresh**.
Or
- ▶ Click on **License Management**. The License usage (on page 78) tab is opened. There, with several licenses on a hardware dongle, you can also specify which product uses a license, and in which sequence.

Hint

You can set the license order (on page 78) at any time in the License usage tab

APPLY LICENSE FROM HARDWARE DONGLE DIALOG

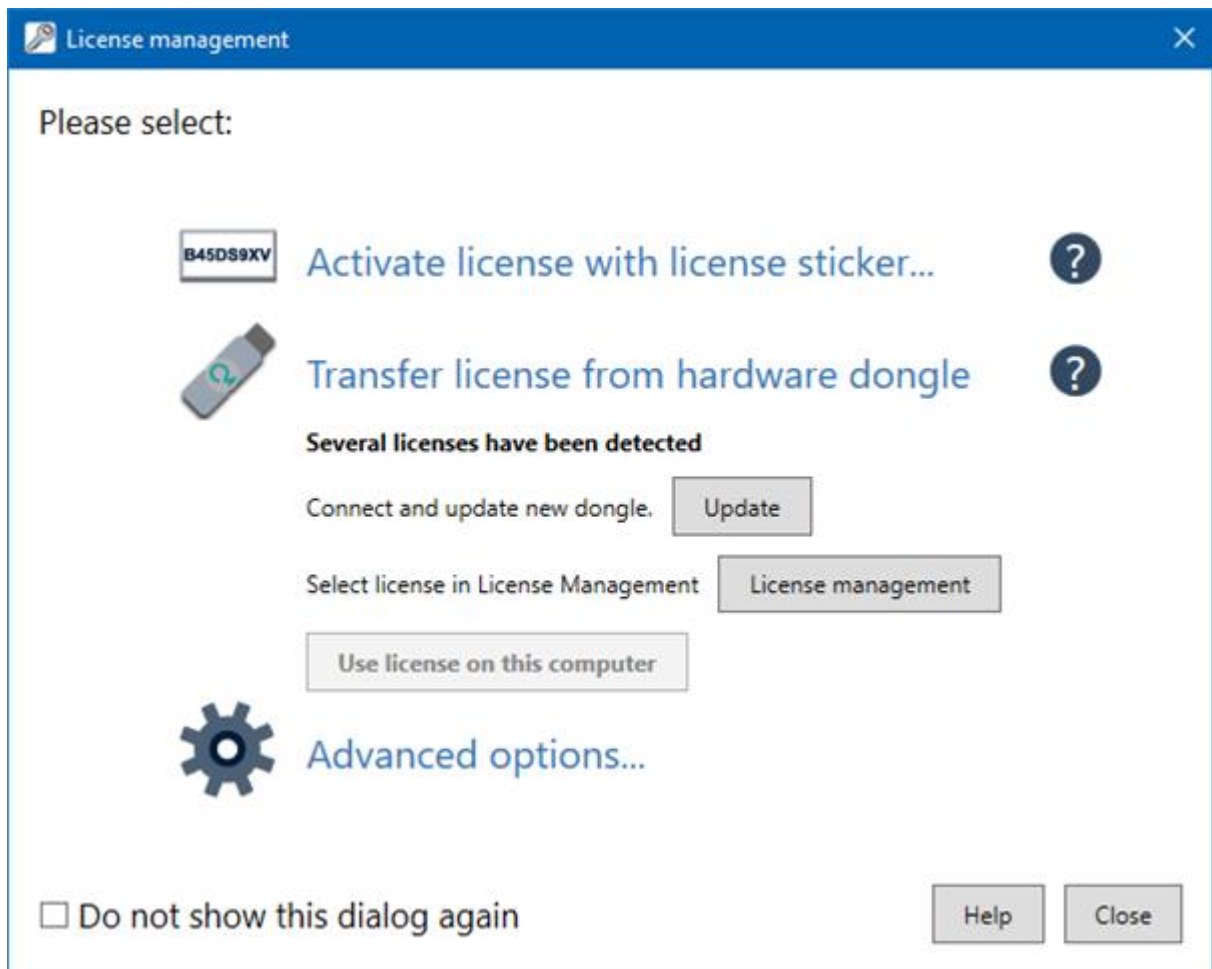


Option	Description
Apply license from hardware dongle	Clicking opens the further input options and shows the license found. If no license is found, you can start an update by clicking on Search for dongle again again.
Use license on this computer	Clicking on the button accepts the license for the computer.
Search for dongle again	Searches for dongle and updates the information displayed.

CLOSE DIALOG

Option	Description
Help	Opens online help.
Close	Clicking on the button closes the dialog.

DIALOG FOR SEVERAL LICENSES ON A DONGLE



Option	Description
Apply license from hardware dongle	Clicking opens the further input options and shows the license found.
Several licenses have been detected	<p>Several licenses were found. Select the desired procedure:</p> <ul style="list-style-type: none"> ▶ Connect new dongle and refresh: Insert a new dongle with only one license and click on Refresh. ▶ Select license in License Management: Click on License Manager and select the desired license there.
Reload	Reads the dongle again.
License Manager	Opens the License usage (on page 78) tab.

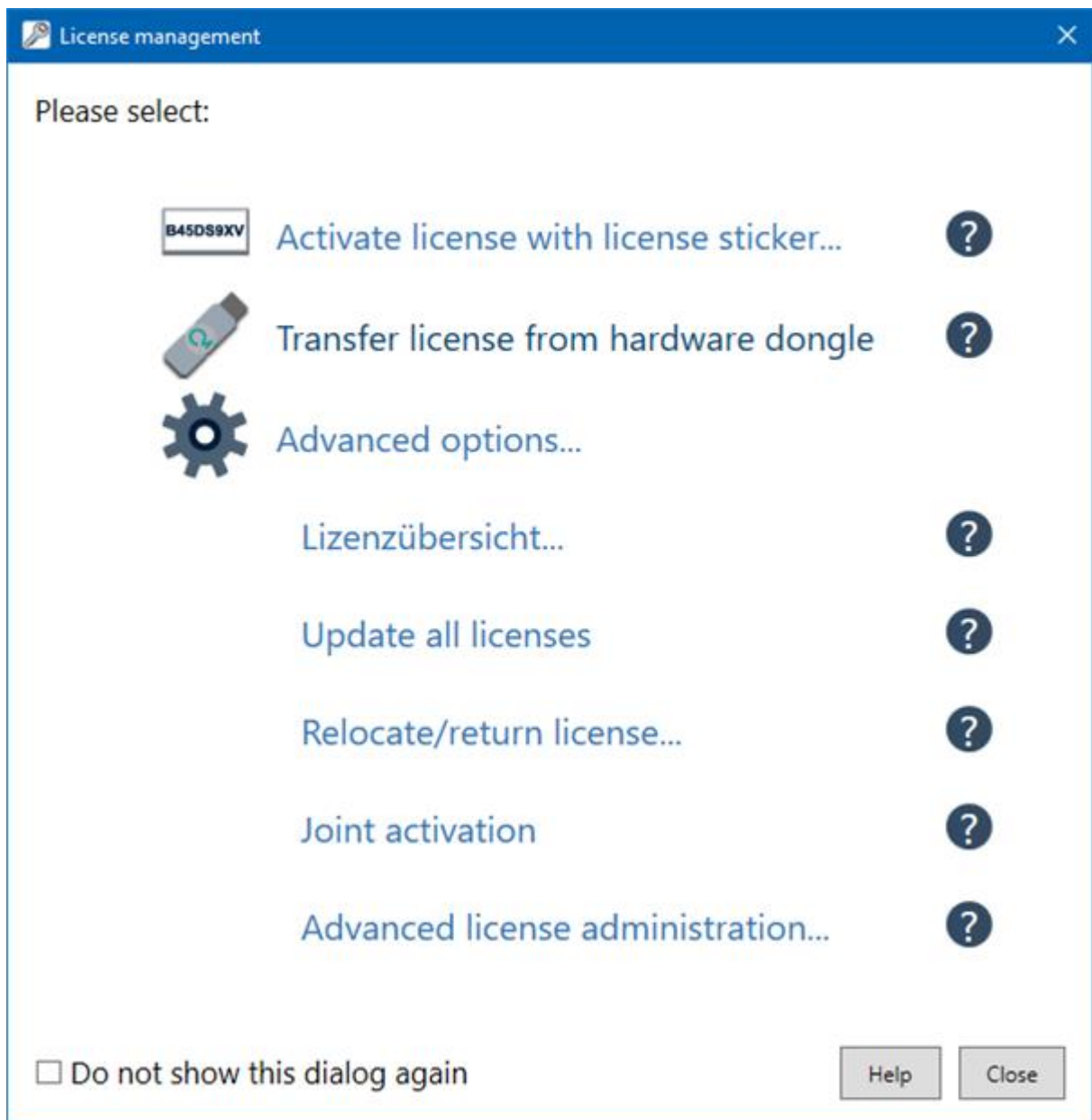
Option	Description
Use license on this computer	Clicking on the button accepts the license for the computer.

CLOSE DIALOG

Option	Description
Help	Opens online help.
Close	Clicking on the button closes the dialog.

22.1.3 Enhanced view

The enhanced view offers you additional actions for licensing.



Option	Description
Activate license with license certificate	Allows the activation of a license (on page 70) with the serial number from the license certificate.
Apply license from hardware dongle	Allows the transfer of a license (on page 72) for all products of the license from a hardware dongle.
Advanced options	Opens further options for the administration (on

Option	Description
	page 76) of licenses.
License overview	Opens the dialog with the License Overview (on page 85) tab. All activated licenses are displayed here. These can also be updated or returned here.
Update all licenses	Starts the update for all licenses. If errors occur, they are displayed in this dialog.
Relocate/return license	Starts the online return (on page 114) for a license. A request for confirmation is made before it is returned. If there are several licenses to return, there is an automatic switch in the dialog to the License Overview (on page 85) tab. A license must be returned if they are to be used on a different computer or if the computer's hardware will be changed significantly. For details, see the Transfer/relocate license (on page 113) chapter.
Mass activation	Opens the dialog with the Mass Activation tab. Licenses from a list can be activated here.
Advanced license administration	Opens the dialog with the License usage (on page 78) tab.
Do not show this dialog again	Active: The next time the License Manager is opened, the dialog is hidden and the view is opened with all tabs.

CLOSE DIALOG

Option	Description
Help	Opens online help.
Close	Clicking on the button closes the dialog.

22.2 Main application

Licensing tasks are administered using the tabs:

- ▶ **License usage** (on page 78): Display and assignment of licenses to products and order for use.
- ▶ **License summary** (on page 85): Display of all activated licenses and actions for updating and returning licenses.
- ▶ **Activate license** (on page 89): Options for online and offline activation of licenses.
- ▶ **Mass activation** (on page 98): Possibility to activate licenses from a list.
Must be activated via the **Settings** tab.
Default: *Hidden*
- ▶ **License borrowing** (on page 101): Allows to lend licenses to another dongle for up to 90 days.
- ▶ **Settings** (on page 109): Configuration of the settings.

22.2.1 License usage

In order for a license to be able to be used, it is not sufficient for it to be saved in the dongle. It must also be assigned to the products from which they are used. There are often several licenses on a computer, including demo licenses too.

You assign your licenses to the individual products in this tab. Furthermore, with several licenses, you can specify the sequence in which they are used. If a connection to a license is lost, an attempt is made to use another valid license. The sequence of the licenses defines the sequence of the license search. You can find details in relation to this in the **Redundant License Protection** (on page 161) chapter.

Attention

The display always relates to the computer that is set in the header for **Local licensing / remote licensing**. It can therefore be a local view or a remote view.

With remote view, all licenses that the remote computer sees are displayed. With network licenses in particular, this can be a completely different view because the network licenses are found with CodeMeter mechanisms. See in relation to this the **Set up server search lists for network dongles** (on page 182) chapter.

Note: If the **Apply activated licenses immediately** option has been activated in the **Advanced** tab, the licenses are automatically assigned in first place for all applicable products the first time they are activated.

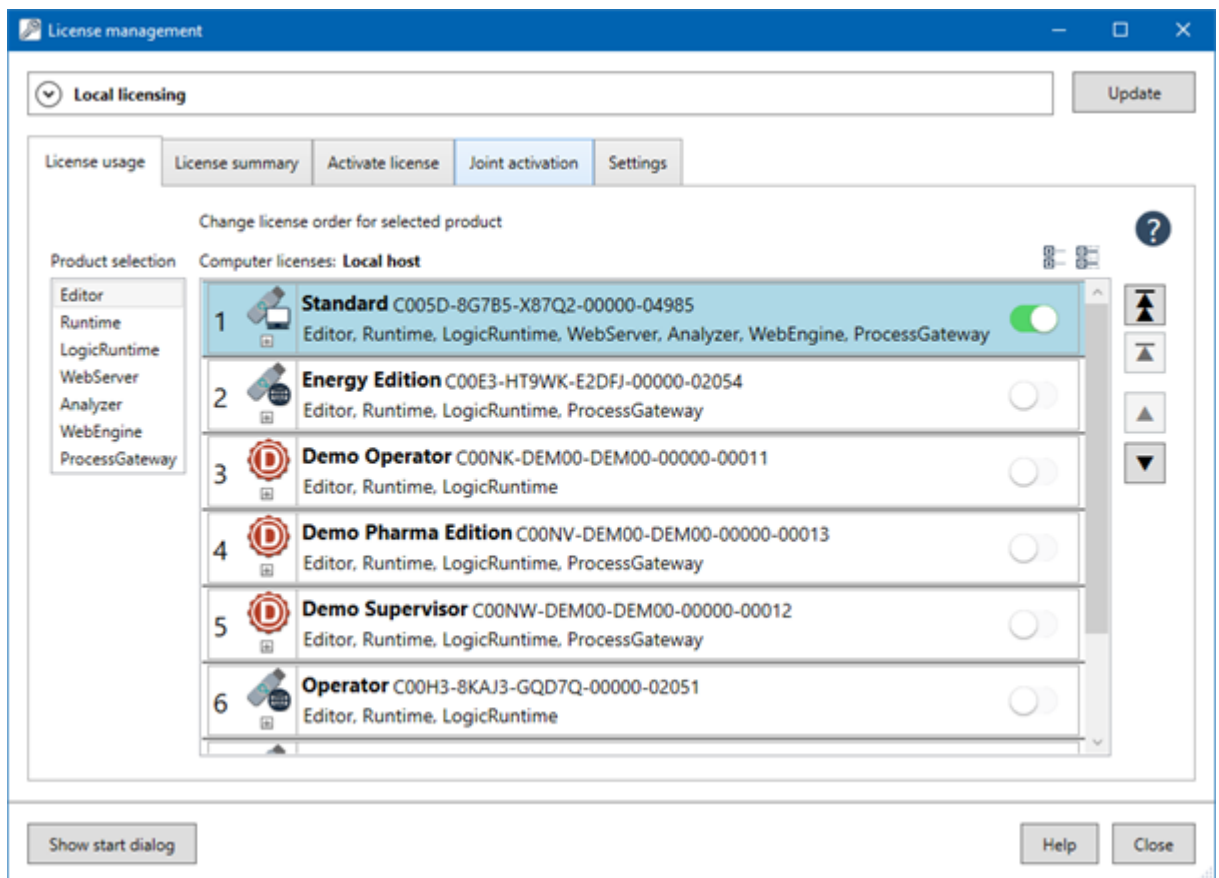
Hint

To assign a license to all products at the first place, click on the button with the two arrows and the horizontal line: **Enter selected license for all products at the first location**.

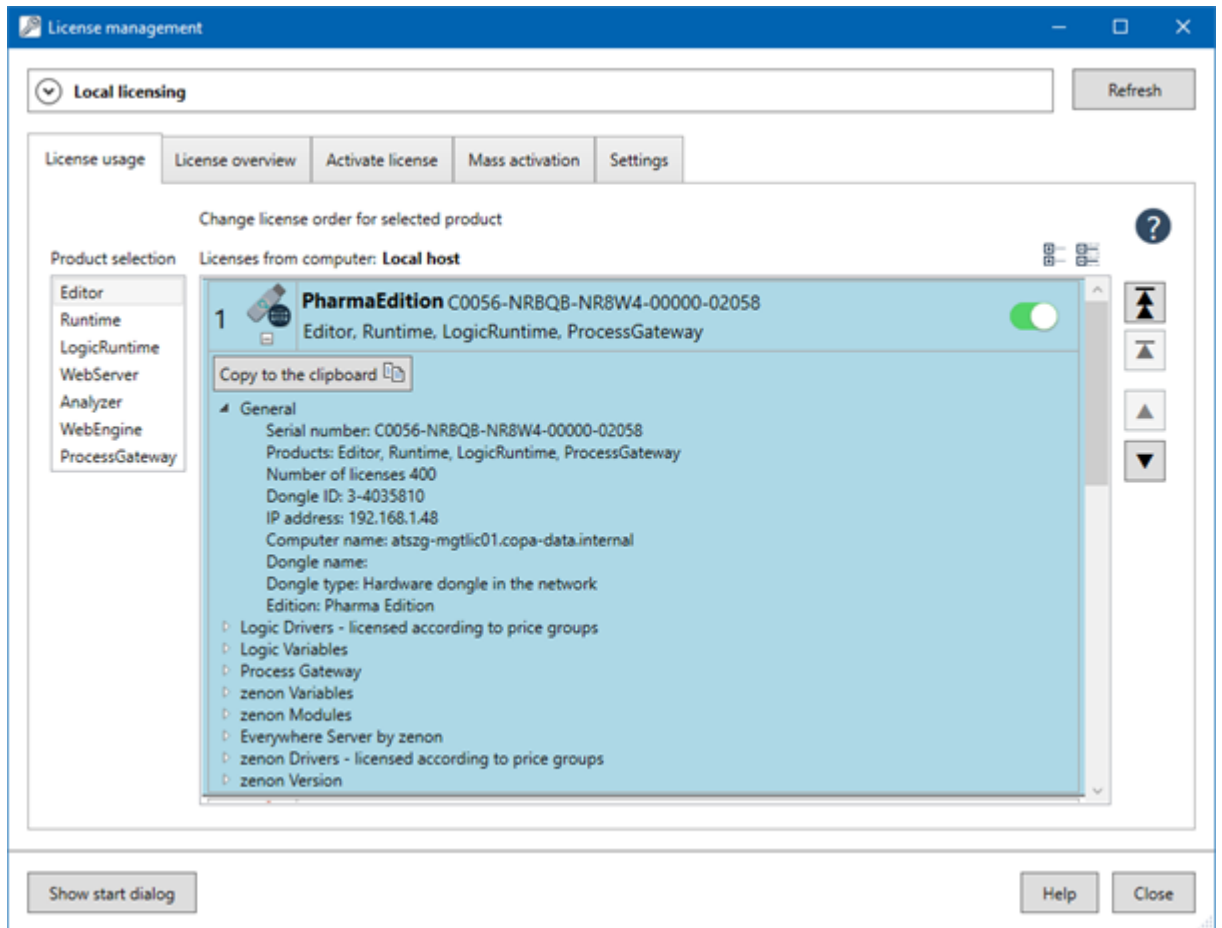
ASSIGN LICENSES

To enter licenses manually for a product or to change the order:

1. Start the **License Manager**.
2. If the start dialog is shown, then click on the **Advanced Options** button and then on **Advanced License Administration**.
3. Switch to to the **License usage** tab.
All products for which there is a license are shown.

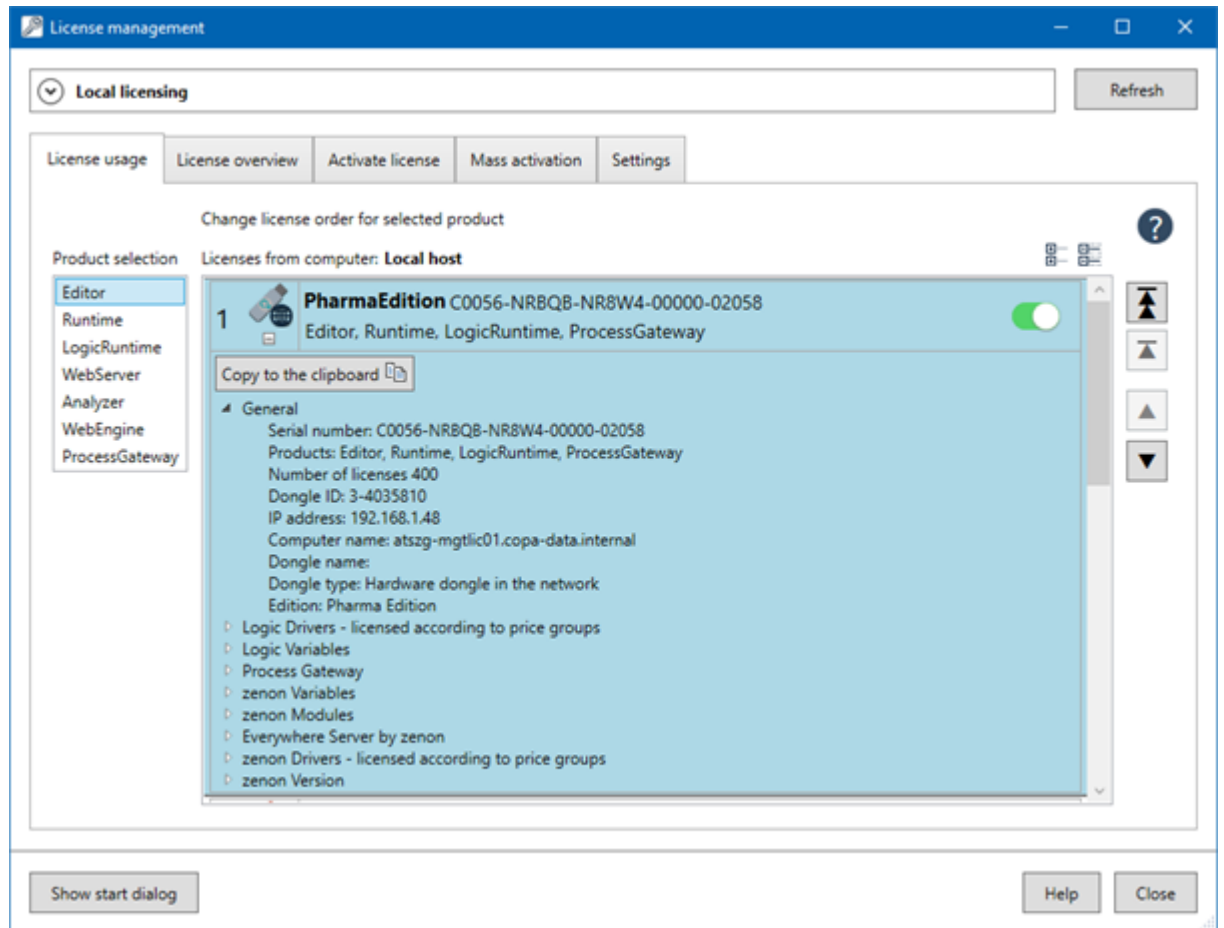


4. Select the product to which a license is to be assigned.

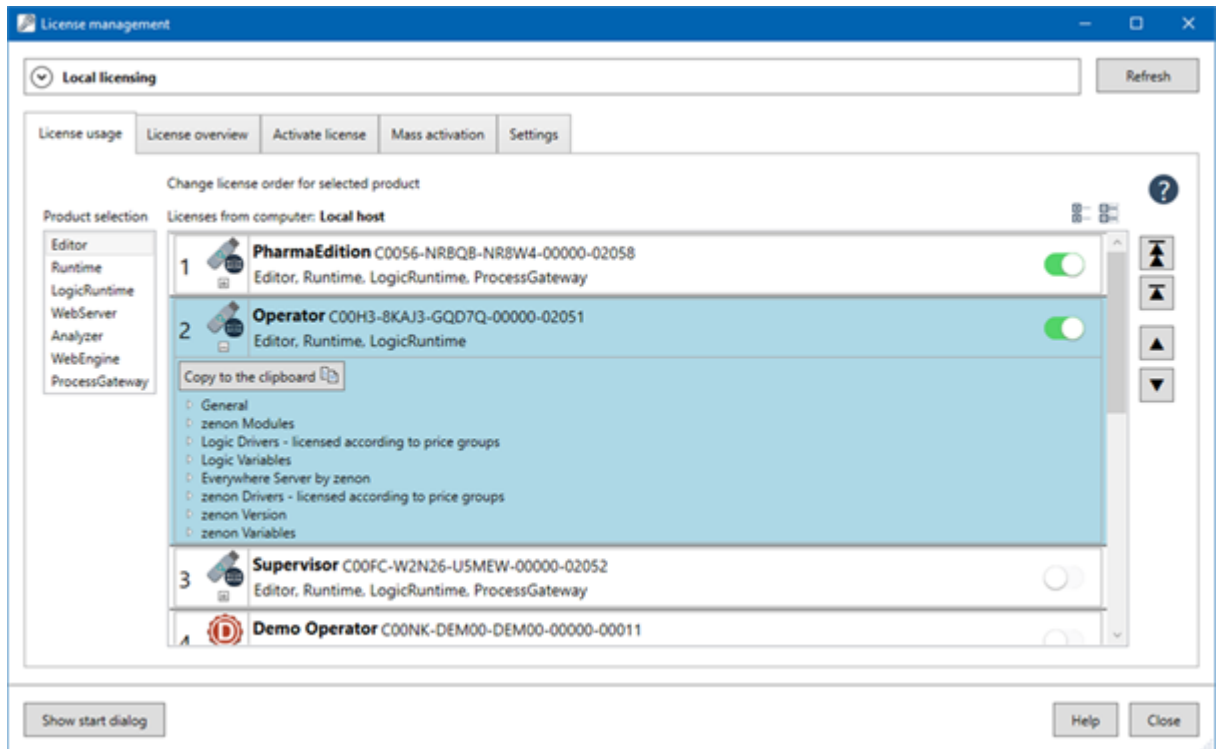


5. Click on the button at the far right in the list for the desired license. The button is colored green.

The license is assigned to the product and entered into **License.ini**.



6. If several licenses are assigned to a product, they can be sorted. Click on the up or down arrow keys to set the order of the licenses. The sorting can also be carried out by dragging & dropping. The sorting is applied immediately in **License.ini**.

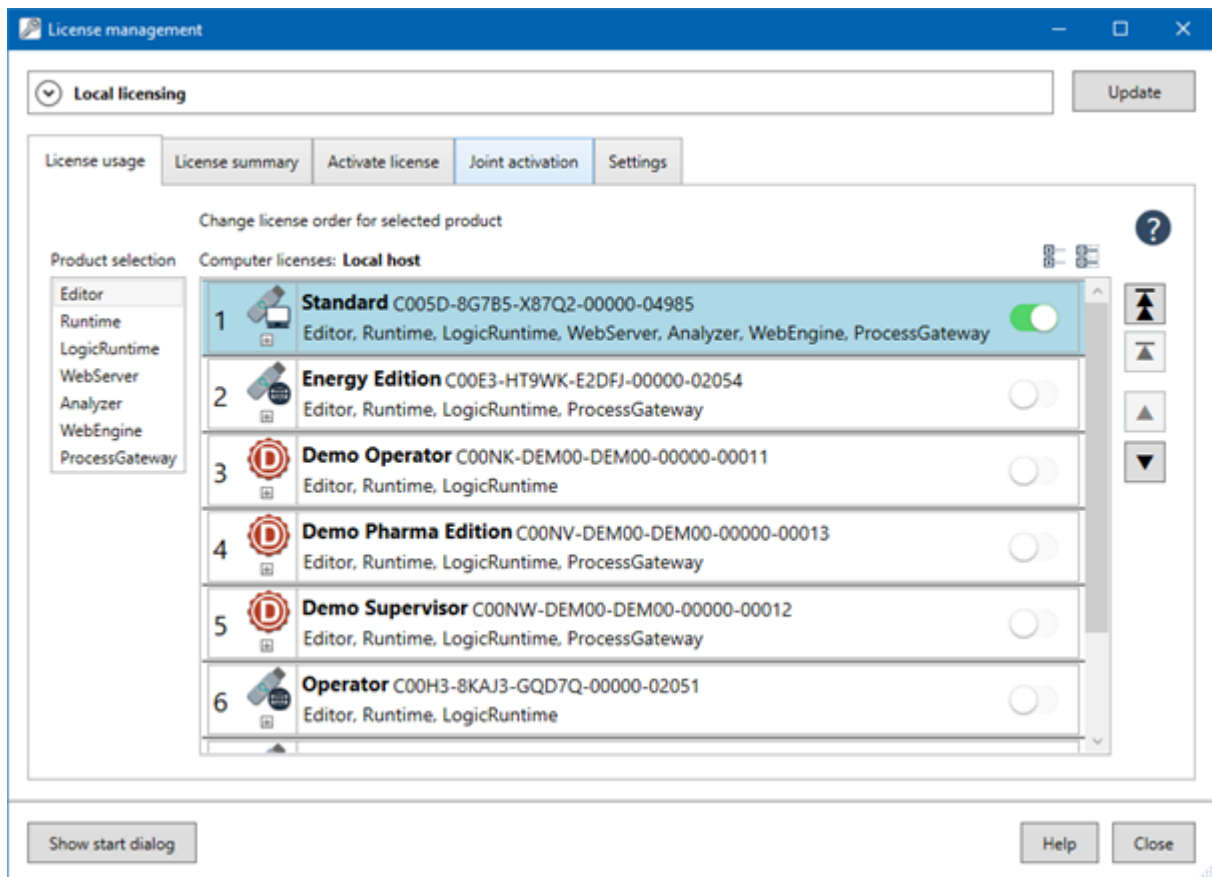


⚠ Attention

Licenses are sometimes administered by the system in the **License.ini** file. Manual changes to this file can lead to the licenses becoming unusable and thus being lost. Only carry out any necessary changes for your licenses using the **License Manager**.

Errors in **License.ini** are shown by corresponding error messages.

TAB OPTIONS



Option	Description
Product selection	<p>List of available licensed products.</p> <p>Clicking on a product shows the available licenses for the product in the Licenses list.</p>
Licenses	<p>List of licenses that are available for the selected product on the selected computer.</p> <p>Clicking on the plus sign shows detailed information for the respective license.</p> <p>Clicking on the Copy to Clipboard button copies all information about the selected licenses to the clipboard.</p> <p>The status of a licenses is displayed and amended by means of a switch:</p> <ul style="list-style-type: none"> ▶ Green symbol: This license is in the License.ini and and was also found on the dongle. Clicking removed the license from License.ini.

Option	Description
	<ul style="list-style-type: none"> ▶ White symbol: This license was found on a dongle but has not been entered into License.ini. Clicking enters the license into License.ini. ▶ Red exclamation mark plus green symbol: This license is in License.ini but was not found on the dongle. This can have several causes, how the dongle was removed, dongle cannot be found in the network etc. <p>Changes are entered into License.ini immediately.</p>
Symbols to display details	Two symbols above the list make it possible to show and hide detailed information for all licenses. The left symbol shows details; the right symbol hides details.
Arrow symbols	<p>Arrow symbols next to the list sort the licenses.</p> <ul style="list-style-type: none"> ▶ Horizontal line + double arrow pointing upwards: The license is sorted up to the top and entered at the first place for all products in License.ini. ▶ Horizontal line + arrow pointing upwards: The license is sorted up to the top and entered at the first place for the selected product in License.ini. ▶ Arrow upwards: The license is moved one step up. ▶ Arrow downwards: The license is moved one step down. <p>The order can also be amended with the mouse by means of dragging & dropping.</p>

DIALOG OPTIONS

Option	Description
Local licensing / remote licensing	Clicking on the arrow in the header opens the options to establish a connection (on page 120) to a remote computer or select the local computer.
Show start dialog	Opens the start dialog for standard licensing tasks.
Help	Opens online help.

Option	Description
Close	Clicking on the button closes the dialog.

22.2.1.1 Test licenses

Because the first appropriate license is always used for the license query, you can use demo licenses purposefully for testing. To do this, create the desired demo license to be used as the first license to be used in the **License Manager** in the **License Manager** (on page 78) tab. The duration of a demo license is always shown in the license manager under **Details** of the license. Once this duration has expired, this license starts in demo mode with a 10 minute duration.

22.2.2 License overview

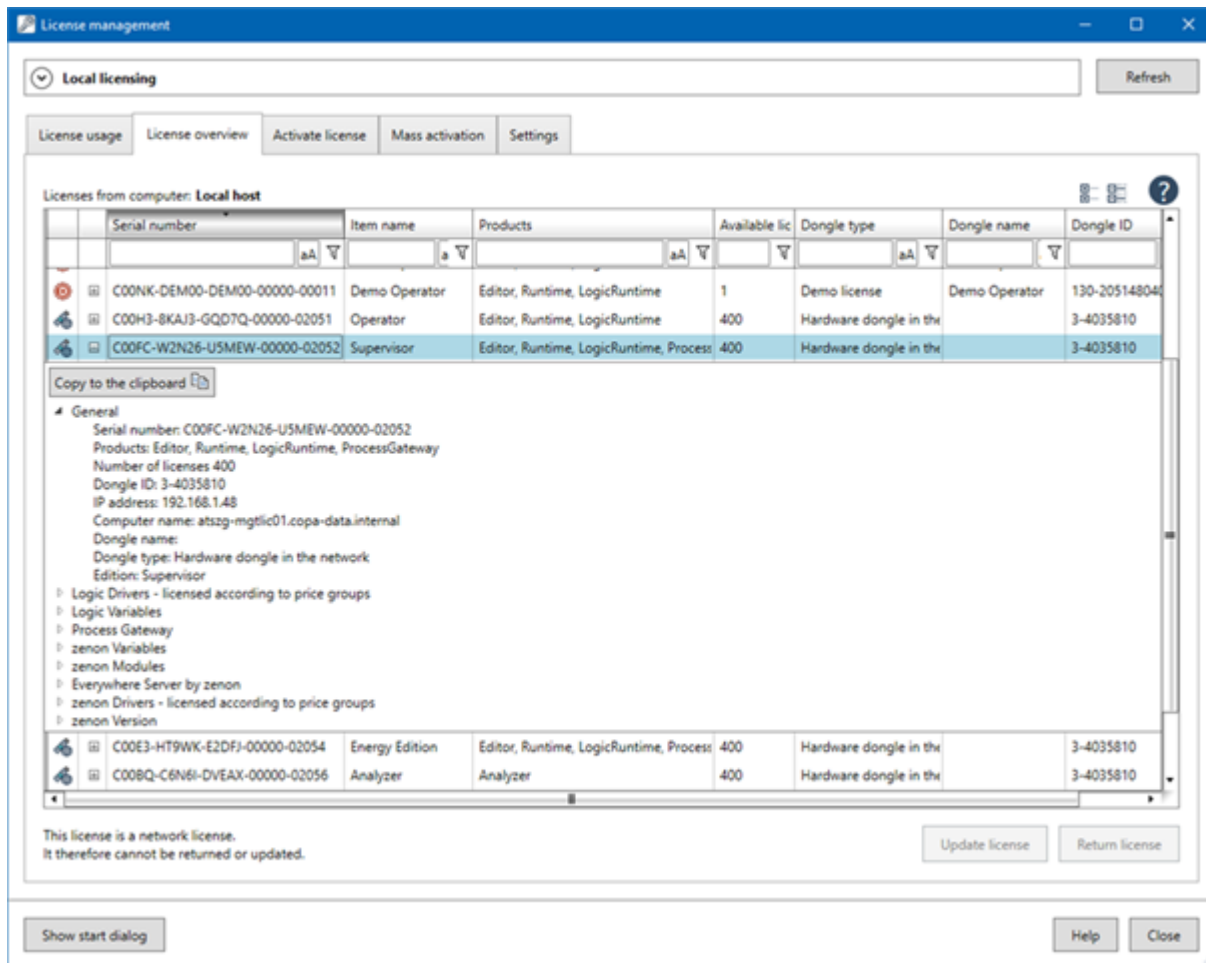
You can do the following in this tab:

- ▶ Show details of all licenses that can be accessed from your computer.
This is both local licenses as well as licenses that have been saved on a network dongle (on page 181).
If you need the current version to order the license expansion, you can find all information here.
- ▶ Update licenses (on page 117).
- ▶ Return licenses (on page 113).

Attention

The display always relates to the computer that is set in the header for **Local licensing / remote licensing**. It can therefore be a local view or a remote view.

With remote view, all licenses that the remote computer sees are displayed. With network licenses in particular, this can be a completely different view because the network licenses are found with CodeMeter mechanisms. See in relation to this the **Set up server search lists for network dongles** (on page 182) chapter.



Option	Description
License list	<p>Lists all available licenses. The following information is available for each license:</p> <ul style="list-style-type: none"> ▶ Symbol: Shows which type of dongle* it is. ▶ Serial number ▶ Item name ▶ licensed products ▶ Available licenses: Shows how many licenses are present and not loaned. The information does not state how many licenses are currently occupied by a product or are free. This information can only be obtained via CodeMeter WebAdmin (on page 179). ▶ Loaned licenses ▶ End of validity of loan license ▶ Loan dongle ID

Option	Description
	<ul style="list-style-type: none"> ▶ Dongle type* ▶ Dongle ID ▶ Dongle name The name can be amended using the CodeMeter Control Center (on page 176). ▶ Computer name <p>The following additional columns are available for licenses that it concerns:</p> <ul style="list-style-type: none"> ▶ Loaned licenses ▶ End of validity ▶ End of usage period <p>The list can be sorted and filtered.</p>
Details	<p>Click on the + to open the display of the details.</p> <ul style="list-style-type: none"> ▶ General information on the dongle and addresses, as well as edition ▶ Modules ▶ Number of variables ▶ Version <p>Symbols:</p> <ul style="list-style-type: none"> ▶ + button: expands all details of all licenses ▶ - button: collapses all details of all licenses
Update license	<p>Clicking on the button establishes a connection to the license depot online, searches for an update and applies this if present.</p> <p>Not available for demo licenses and licenses in the network.</p>
Return license	<p>Returns selected license online (on page 113).</p>

***Dongle types:**

- ▶ Local hardware dongle
- ▶ Local software dongle
- ▶ Network hardware dongle
- ▶ Network software dongle
- ▶ Demo licenses (always software dongle)

Color code:

- ▶ Licenses are colored red if:
 - ▶ The end of validity has been exceeded
 - ▶ The usage period has been exceeded
 - ▶ The loan duration has been exceeded
- ▶ Demo licenses are colored in orange if they have exceeded the maximum usage duration or the maximum number of starts has been exceeded for one of the products contained.

DIALOG OPTIONS

Option	Description
Local licensing / remote licensing	Clicking on the arrow in the header opens the options to establish a connection (on page 120) to a remote computer or select the local computer.
Show start dialog	Opens the start dialog for standard licensing tasks.
Help	Opens online help.
Close	Clicking on the button closes the dialog.

22.2.3 Activate license

If a license is issued, it is stored in the "license depot". This is a database in which the license waits to be collected. The license must be saved on your system in order you to be able to use the license as a user. A dongle (on page 60) is used as a save location. This dongle is also called a license container. This is transferred from the license depot to the dongle when a license is activated.

There are the following possibilities for this transfer:

- ▶ Online activation via start dialog (on page 70):
Preferred method. In doing so, a connection from your computer to the license depot is established via the Internet and the license is transferred to the dongle.
- ▶ Online activation via **Activate License** tab (on page 91):
This online method must be used if you have connected several software or hardware dongles.
Note: You can also use this method if the computer to be licensed is not connected to the Internet directly. Remote licensing (on page 119) is available to you for this.
- ▶ Online mass activation (on page 98):
Use this method if you want to activate several computers at once.

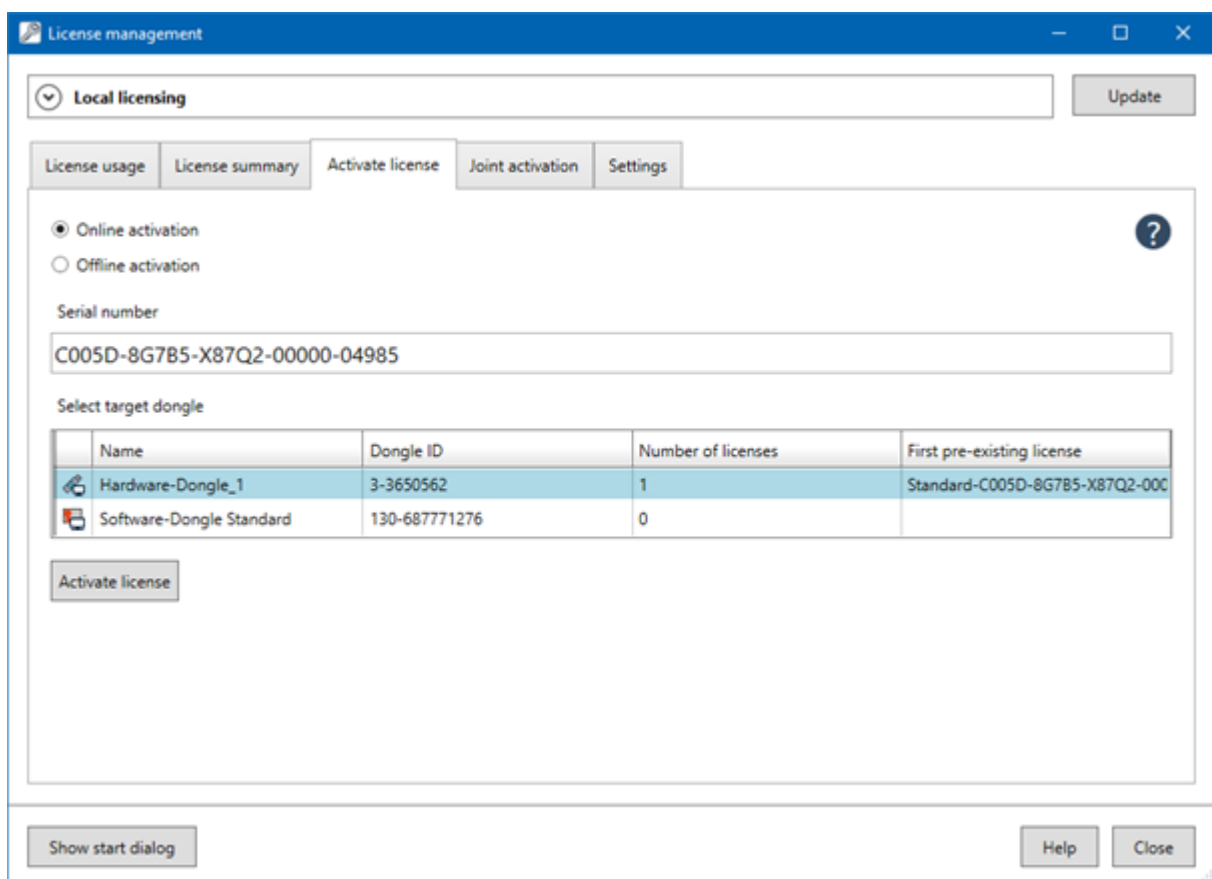
- ▶ Activation via command line tool (on page 124):
Use this possibility if you want to activate licenses online in an automated manner via third-party applications. The command line tool allows both individual activation as well as joint activation and supports local and remote activation.
- ▶ Offline activation (on page 93):
Manual method. This method is used if there is a direct Internet connection. In doing so, the complete handling of the transfer must be carried out with the help of a web browser.

If you receive a pre-programmed dongle, the license was already transferred to the dongle and activated. You only need to assign this license to the respective products for use. For details, read the **Apply license from the hardware dongle** (on page 72) chapter.

22.2.3.1 Activate licenses via License tab

Activate a license in this tab.

You can find the detailed procedure of how a license is activated from the Online activation (on page 91) and Offline activation (on page 93) chapters.



License management



Local licensing [Update]

License usage | License summary | **Activate license** | Joint activation | Settings

☒ Online activation ?
☐ Offline activation

Serial number
 C005D-8G7B5-X87Q2-00000-04985

Select target dongle

	Name	Dongle ID	Number of licenses	First pre-existing license
	Hardware-Dongle_1	3-3650562	1	Standard-C005D-8G7B5-X87Q2-00C
	Software-Dongle Standard	130-687771276	0	

[Activate license]

[Show start dialog] [Help] [Close]

Option	Description
Local licensing	Selection of whether licensing is local or on a remote

Option	Description
	computer.
Online activation (on page 91)	Select <i>online</i> activation type. The license is activated online. You need an Internet connection for this.
Offline activation (on page 93)	Select <i>offline</i> activation type. Activation is carried out by means of file exchange.
Serial number	Enter the serial number that is to be activated.
Select target dongle	<p>List of available dongles. Clicking on a dongle selects it as a target for the license.</p> <p>The list shows:</p> <ul style="list-style-type: none"> ▶ Name: Dongle name. ▶ Identification: Number of the dongle. ▶ Number of licenses: Number of the licenses that have already been activated on this dongle. ▶ First existing license: Serial number of the license that has been activated first on the dongle. <p>The list can be sorted. To sort, click on the head of the desired column. Another click inverts the sorting.</p> <p>Note: Only locally-available dongles are displayed.</p>
Activate license	<p>Clicking on the button activates the license.</p> <p>Only available for online activation and only if a valid serial number has been entered and a dongle has been selected.</p>
Create license request file	<p>Clicking on the button creates a file with which the activation of the license can be requested.</p> <p>Only available for offline activation and only if a valid serial number has been entered and a dongle has been selected.</p>
Import license update file	Clicking on the button opens the dialog to select a file for the offline activation of a license.

Option	Description
	Only available for offline activation .
Create license confirmation file	<p>Clicking on the button creates a file with which the activation of the license can be confirmed.</p> <p>Only available for offline activation and only if a valid serial number has been entered and a dongle has been selected.</p>

DIALOG OPTIONS

Option	Description
Local licensing / remote licensing	Clicking on the arrow in the header opens the options to establish a connection (on page 120) to a remote computer or select the local computer.
Show start dialog	Opens the start dialog for standard licensing tasks.
Help	Opens online help.
Close	Clicking on the button closes the dialog.

22.2.3.1.1 Online activation

You can choose whether the license is transferred to a software dongle or - if present - hardware dongle. You can read details on available dongles in the dongle types (on page 60) chapter. During online activation, licenses are activated directly without further applications or data carriers. There must be an online connection to the Internet available to do this.

Hint

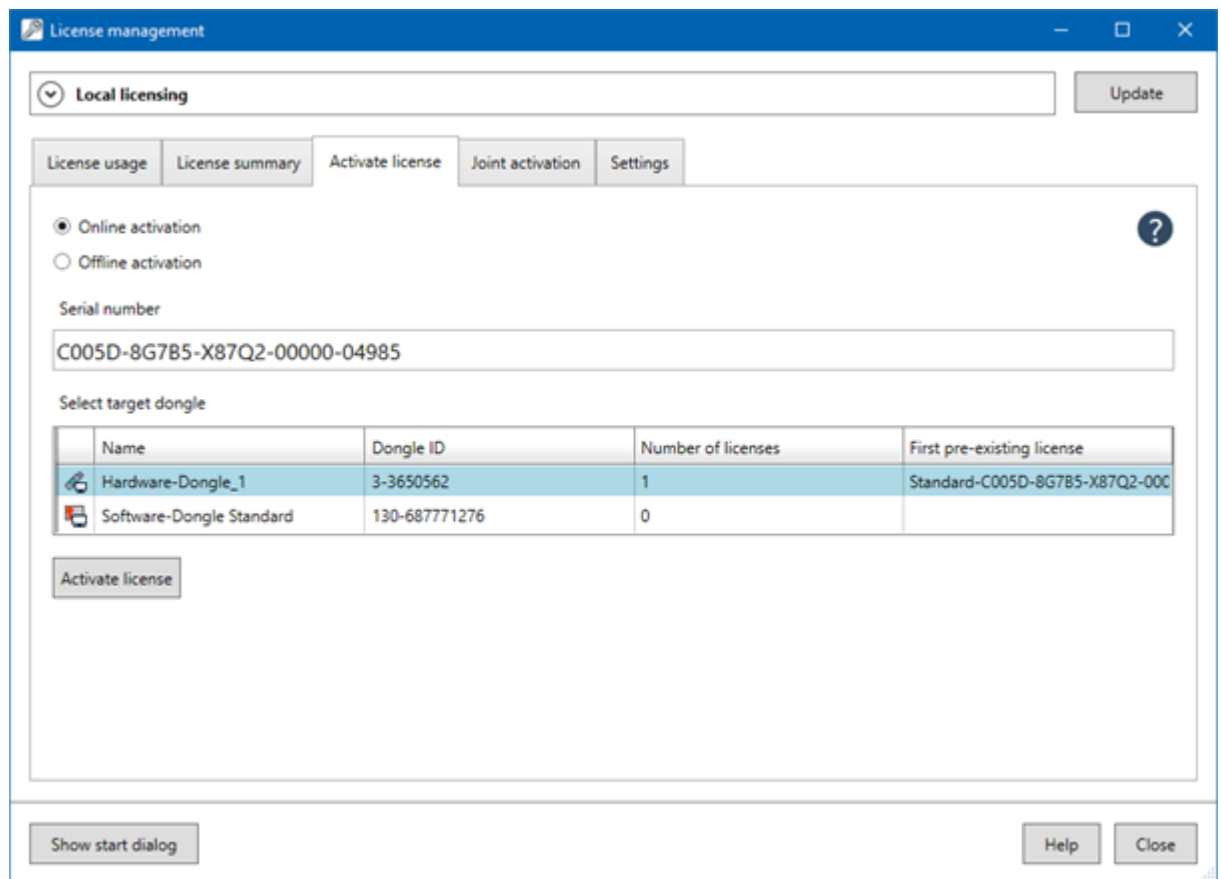
Use the Remote Licensing (on page 119) if you have a direct Internet connection

If you use a proxy server for your Internet connection, ensure you have the correct proxy settings (on page 112).

To activate a license online:

1. Start the **License Manager**.
2. If the start dialog is shown, then click on the **Advanced Options** button and then on **Advanced License Administration**.

- Switch to the **Activate License** tab.



- Decide whether licensing is local or on a remote computer.
 - ▶ *Local*: Leave the setting as *Local Licensing*.
 - ▶ *Remote*: Establish a connection (on page 120) to the remote computer on which the license is to be used. For details see the **Remote Licensing** (on page 119) chapter.
- Activate the **Online activation** radio button.
- Enter the serial number that is to be activated into the **Serial number** option. You can find the serial number on the license certificate.
- Select the dongle on which the license is to be stored in the **Select target dongle** option. If you have not yet connected your hardware dongle, insert it now and click on the **Reload** button on the top right corner.
- Click on the **Activate license** button.

The license is transferred to the dongle and saved in a tamper-proof form there. If you have set the **Apply activated licenses immediately** in the **Settings (on page 109)** tab, the license is entered for all products at the first place in the **License.ini** file. This INI file contains information on the sequence in which the licenses are used. You can amend the order in the **License Application** (on page 78) tab.

22.2.3.1.2 Offline activation

With offline activation, the license must be transferred from the license depot to the dongle manually. This method is only recommended as the last option if online (on page 70) or remote licensing (on page 119) cannot be carried out. With hardware dongles, it is easier under certain circumstances to connect the hardware dongle to a computer with an Internet connection and to activate it online there.

An Internet connection is also necessary for offline licensing. The access computer can be freely defined however.

Offline activation requires a multi-step procedure:

1. Create license request file
2. Transfer license request file on a computer with Internet access.
This can be carried out with the help of any desired storage medium such as USB sticks, removable media or similar.
3. Upload license request file to the licensing web site and get the license update file from there.
4. Transfer the license update file to the computer to be licensed.
5. Import the license update file by double-clicking on the file and create a license confirmation file.
6. Transfer the license confirmation file to a computer with Internet access.
7. Upload the license confirmation file to the licensing web site.

The process is thus concluded.

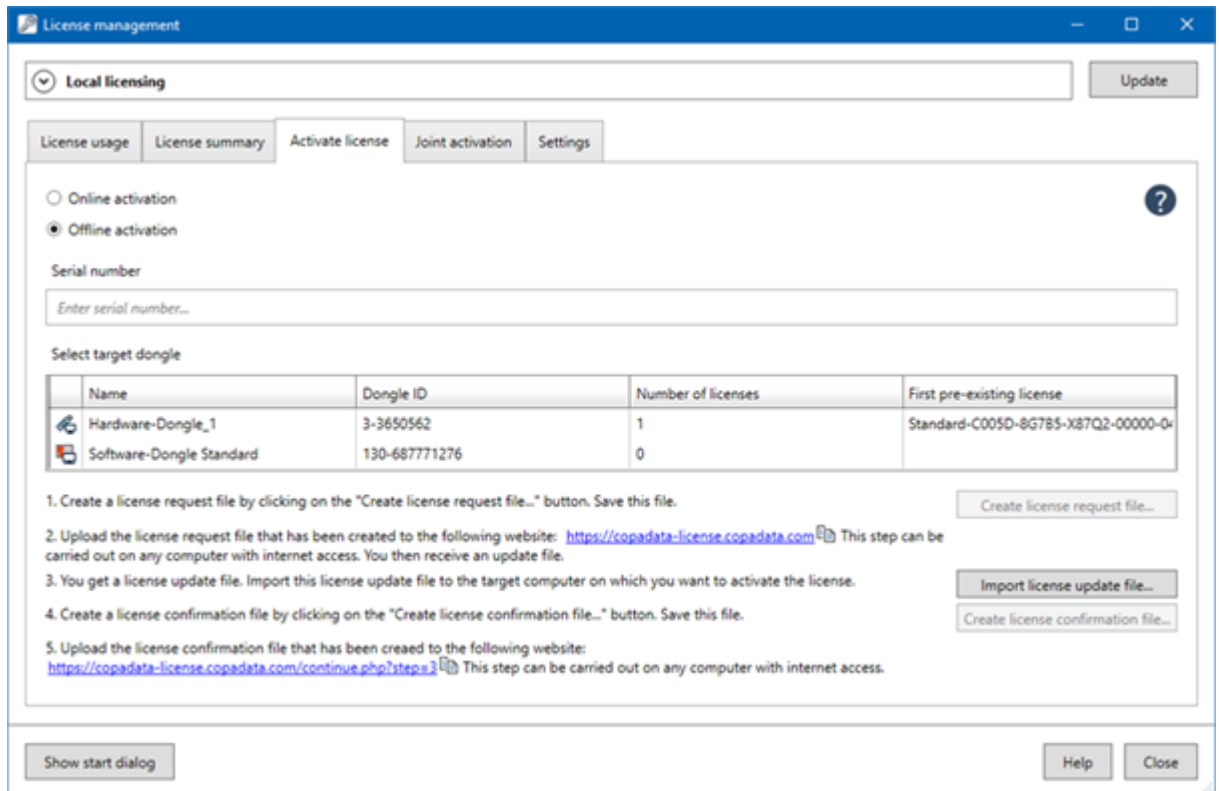
You can choose whether the license is transferred to a software dongle or - if present - hardware dongle. You can read details on available dongles in the dongle types (on page 60) chapter.

THE PROCESS IN DETAIL

To activate a license online:

1. Start the **License Manager**.
2. If the start dialog is shown, then click on the **Advanced Options** button and then on **Advanced License Administration**.

- Go to the **Activate License** tab



The screenshot shows the 'License management' window with the 'Activate license' tab selected. The 'Local licensing' dropdown is open, and the 'Offline activation' radio button is selected. A 'Serial number' input field is present with the placeholder text 'Enter serial number...'. Below this is a 'Select target dongle' section containing a table with two rows: 'Hardware-Dongle_1' and 'Software-Dongle Standard'. The table has columns for Name, Dongle ID, Number of licenses, and First pre-existing license. Below the table are five numbered steps for the activation process, each with a corresponding button: 'Create license request file...', 'Import license update file...', and 'Create license confirmation file...'. The 'Show start dialog', 'Help', and 'Close' buttons are at the bottom.

Name	Dongle ID	Number of licenses	First pre-existing license
Hardware-Dongle_1	3-3650562	1	Standard-C005D-8G7B5-X87Q2-00000-04
Software-Dongle Standard	130-687771276	0	

- Decide whether licensing is local or on a remote computer.
 - Local*: Leave the setting as *Local Licensing*.
 - Remote*: Establish a connection (on page 120) to the remote computer on which the license is to be used. For details see the **Remote Licensing** (on page 119) chapter.
- Activate the **Offline activation** radio button.
- Enter the serial number that is to be activated into the **Serial number** option. You can find the serial number on the license certificate.
- Select the dongle on which the license is to be stored in the **Select target dongle** option. If you have not yet connected your hardware dongle, insert it now and click on the **Reload** button on the top right corner.
- Click on the **Create license request file** button.
The button is only active if the serial number is valid and a target dongle has been selected.
The dialog to save the file is opened.
- Save the file.
 - Default name: (the serial number)
 - Default file suffix: **LicReq**.

If the dongle is removed between selecting the dongle and saving the file, or it is no longer found, the saving is canceled with an error message. The user must then provide the dongle again or select a new dongle before the file can be saved.

10. Transfer the license request file, by means of a USB stick or another offline transport media, to a computer with Internet access.
11. Start a web browser on it.
12. Open the website <https://copadata-license.copadata.com/> (<https://copadata-license.copadata.com/>).
13. Click on the **Search** button and select the license request file.
14. Click on the **Upload Request File** button.
If the request can be successfully processed, the web site switches to the second page, **Download Update**.
15. Click on the **Download Update** button. You get a license update file. Depending on the browser and browser setting, the file is saved as a download folder:
 - ▶ Default name: (the serial number)
 - ▶ Default file suffix: **LicUpd**.
16. Transfer the license update file back to the initial computer by means of a USB stick or another offline means of transport.
17. Ensure that the dongle to be licensed is connected.
18. Double-click on the license update file.

The **License Manager** is opened automatically. The license is transferred to the dongle and saved in a tamper-proof form there. If you have set the **Apply activated licenses immediately** in the **Settings (on page 109)** tab, the license is entered for all products at the first place in the **License.ini** file. This INI file contains information on the sequence in which the licenses are used. You can amend the order in the **License Application** (on page 78) tab. With remote licensing, a connection to the remote system is also established after double-clicking on the license update file.

Requirement: The **user data collection** option in the **Settings** tab is not deactivated.

Alternative procedure:

- a) Open the **License Manager** and select the **Activate license** tab.
- b) If necessary, establish a connection to the remote system on which the dongle to be licensed is located.
- c) Activate the **Offline activation** radio button.
- d) Click on the **Import License Activation File** button.
- e) Select the license update file and click on **Open**.

The license is transferred to the dongle and saved in a tamper-proof form there. If you have set the **Apply activated licenses immediately** in the **Settings (on page 109)** tab,

the license is entered for all products at the first place in the **License.ini** file. This INI file contains information on the sequence in which the licenses are used. You can amend the order in the **License Application** (on page 78) tab.

In order for the license depot to know that the license has been successfully transferred to the dongle, a license confirmation file must be created and sent to the license issuer. The file is created automatically as soon as online activation has been carried out successfully. The dialog to save the file opens automatically.

19. Save the license confirmation file:

- ▶ Default name: (the serial number)
- ▶ Default file suffix: **LicConf**.

If you want to carry out confirmation later, you can create the license confirmation file at any desired subsequent point in time. For details, see the **Create license confirmation file** (on page 96) chapter.

20. Transfer the license confirmation file by means of a USB stick or another offline transport media to a computer with Internet access.
21. Start a web browser on it.
22. Open the website <https://copadata-license.copadata.com/continue.php?step=3> (<https://copadata-license.copadata.com/continue.php?step=3>).
23. Click on the **Search** button and select the license confirmation file.
24. Click on the **Upload Confirmation File** button.

The file is uploaded to the web site and the offline activation mechanism is thus concluded.

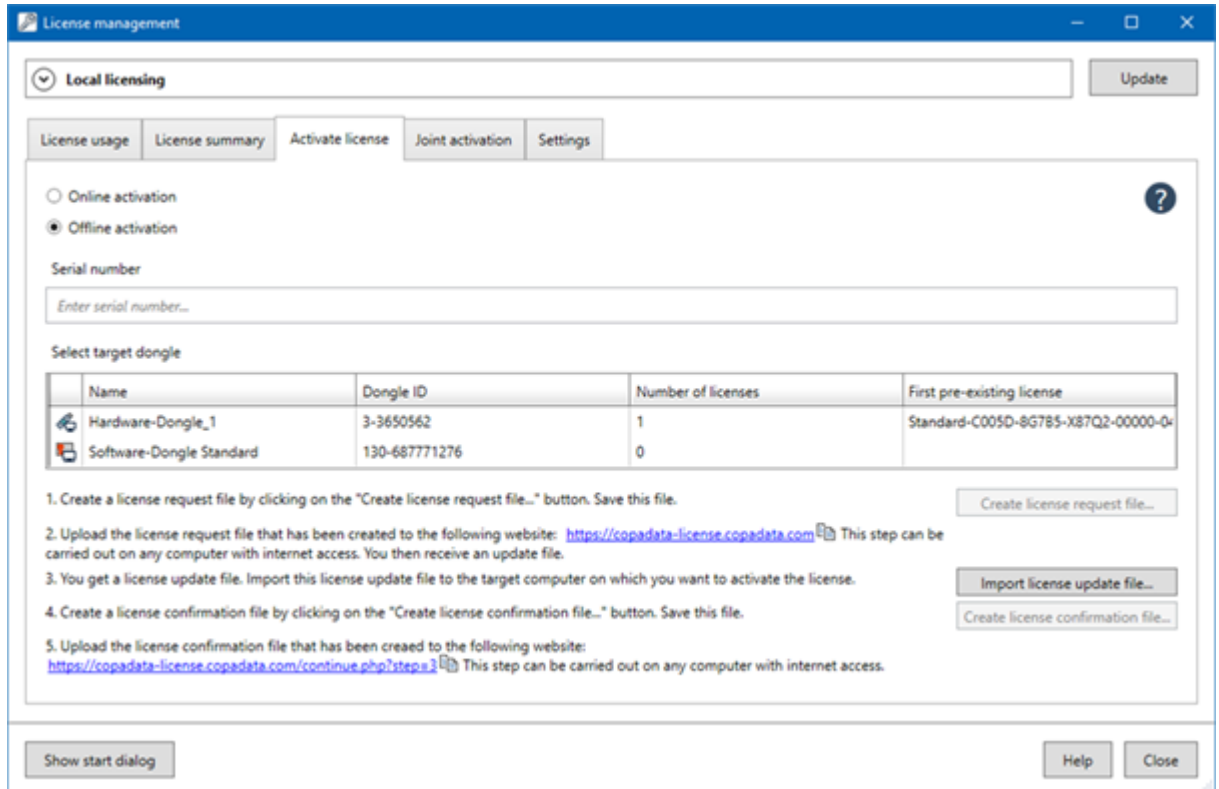
22.2.3.1.3 Create license confirmation file

In order for the license depot to know that the license has been successfully transferred to the dongle, a license confirmation file must be created and sent to the license issuer.

To create a file at any desired point in time:

1. Start the **License Manager**.
2. If the start dialog is shown, then click on the **Advanced Options** button and then on **Advanced License Administration**.

- Go to the **Activate License** tab



The screenshot shows the 'License management' window with the 'Activate license' tab selected. The 'Local licensing' section is active, and the 'Offline activation' radio button is selected. A table lists two target dongles: 'Hardware-Dongle_1' and 'Software-Dongle Standard'. Below the table, there are five numbered steps for the offline activation process, each with a corresponding button to create or import a file.

Name	Dongle ID	Number of licenses	First pre-existing license
Hardware-Dongle_1	3-3650562	1	Standard-C005D-8G7B5-X87Q2-00000-04
Software-Dongle Standard	130-687771276	0	

- Create a license request file by clicking on the "Create license request file..." button. Save this file.
- Upload the license request file that has been created to the following website: <https://copadata-license.copadata.com>. This step can be carried out on any computer with internet access.
- You get a license update file. Import this license update file to the target computer on which you want to activate the license.
- Create a license confirmation file by clicking on the "Create license confirmation file..." button. Save this file.
- Upload the license confirmation file that has been created to the following website: <https://copadata-license.copadata.com/continue.php?step=3>. This step can be carried out on any computer with internet access.

- Decide whether licensing is local or on a remote computer.
 - Local*: Leave the setting as *Local Licensing*.
 - Remote*: Establish a connection (on page 120) to the remote computer on which the license is to be used. For details see the **Remote Licensing** (on page 119) chapter.
- Activate the **Offline activation** radio button.
- Enter the serial number for which you want to create a license confirmation file.
- Select the dongle on which this license is saved.
- Click on the **Create License Confirmation File** button.
The dialog to save the file is opened.
- Save the license confirmation file:
 - Default name: (the serial number)
 - Default file suffix: **LicConf**.
- Transfer the license confirmation file by means of a USB stick or another offline transport media to a computer with Internet access.
- Start a web browser on it.
- Open the website <https://copadata-license.copadata.com/continue.php?step=3> (<https://copadata-license.copadata.com/continue.php?step=3>).

13. Click on the **Search** button and select the license confirmation file.

14. Click on the **Upload Confirmation File** button.

The file is uploaded to the web site and the offline activation mechanism is thus concluded.

22.2.4 Mass activation

If you order several licenses, you also get a collective file (*.LicSN) in addition to the license certificate. You can use this file to administer the licenses centrally and to activate them from a central point. Remote licensing (on page 119) is available for this.

You can activate the licenses from collective file either with **License Manager** in the Mass Activation tab or use the **LicenseManagerAutomation.exe** command line tool (on page 124) in an automated manner. Mixed use is also possible.

The collective file is a CSV file that can be edited with any desired text editor or a table calculation.

- ▶ Column separator: Semicolon (;) or tab (\t)

Column structure:

Column	Identification	Description
1	Serial number	The unique serial number of each license.
2	Item name	Contains the article names of the license. Is for information only and has no functional effect.
3	Target computer	Indication of the target computer: <ul style="list-style-type: none"> ▶ If not yet licensed: Computer name onto which the license is to be transferred. The following can be used: IPv4 address, IPv6 address or computer name. ▶ If already licensed: Computer name onto which the license has been transferred.
4	User name	Windows user name from which the license has been activated. Only used for information.
5	Activated	Display of the status of the activation. <ul style="list-style-type: none"> ▶ <i>True</i>: activated ▶ <i>False or empty</i>: not activated <p>With <i>True</i>, this license is no longer taken into account when</p>

Column	Identification	Description
		processing using the command line.
6	Error text	If an error occurred during activation, the error is logged here.

The original file is only filled with the first two columns.

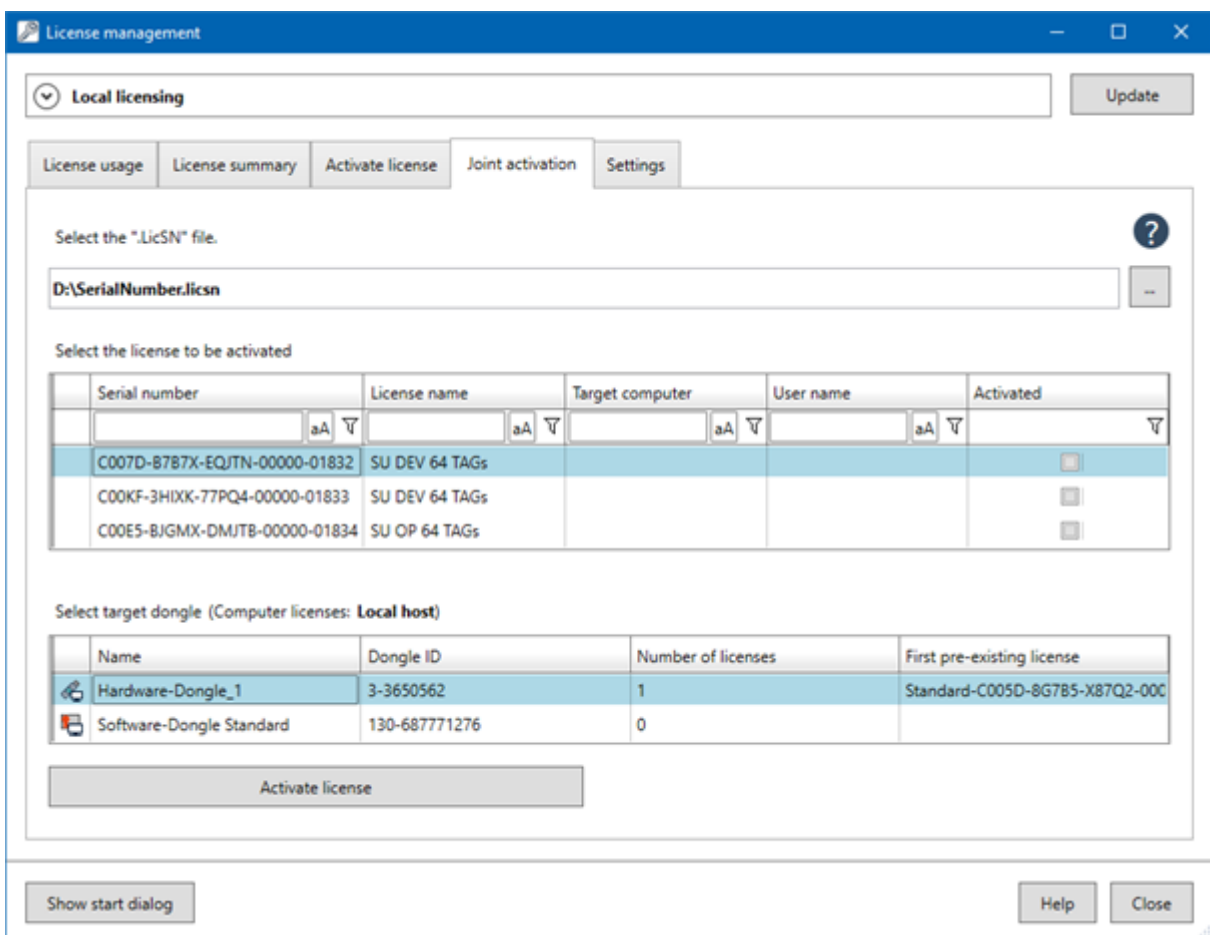
To use a file for the mass activation using the **License Manager** or the command line:

- ▶ Enter the target computer into column 3 for each license.

Example:

- ▶ Original line of the collective file: *C005L-XQP49-Z42Q8-00000-02985;zenon SU RT 64 TAGs;*
- ▶ Add this line: *C005L-XQP49-Z42Q8-00000-02985;zenon SU RT 64 TAGs;MyPcToLicense*

MASS ACTIVATION IN THE LICENSE MANAGER



The screenshot shows the 'License management' window with the 'Local licensing' tab selected. The interface includes a file selection field for the '.LicSN' file, a table for selecting licenses to be activated, and a table for selecting target dongles. The 'Activate license' button is visible at the bottom.

Select the ".LicSN" file.

D:\SerialNumber.licsn

Select the license to be activated

Serial number	License name	Target computer	User name	Activated
C007D-B7B7X-EQJTN-00000-01832	SU DEV 64 TAGs			<input type="checkbox"/>
C00KF-3HIXX-77PQ4-00000-01833	SU DEV 64 TAGs			<input type="checkbox"/>
C00E5-BJGMX-DMJTB-00000-01834	SU OP 64 TAGs			<input type="checkbox"/>

Select target dongle (Computer licenses: Local host)

Name	Dongle ID	Number of licenses	First pre-existing license
Hardware-Dongle_1	3-3650562	1	Standard-C005D-8G7B5-X87Q2-00C
Software-Dongle Standard	130-687771276	0	

Activate license

Show start dialog Help Close

Note: This tab is hidden by default. To display it, activate the **Show tab for additional licensing options** property in the **Settings** tab.

TO ACTIVATE A LICENSE

To activate a license:

1. Save the mass license file with the ***.LicSN** suffix on your computer.
2. Enter the target computer into the file.
3. Open the **License Manager**.
4. If the start dialog is shown, then click on the **Advanced Options** button and then on **Advanced License Administration**.
5. Switch to the **Mass Activation** (on page 98) tab

If this is not shown:

- a) Switch to to the **Settings** tab.
 - b) Activate the **Show tab for additional licensing options** checkbox.
6. Select the collective file with the licenses in the **Select the .LicSN file** option.
To do this, click on the ... button. The file has the file extension ***.LicSN**.

All available licenses available in the file are shown in the **Select the license to be updated** list.

You can filter (on page 122) and sort the licenses contained in the file according to serial number, license name, target computer, user name and activation status.
Incorrect serial numbers are highlighted by a symbol.

7. Select the desired license.
If a target computer has been entered, a connection to this target computer is established.
If an already-activated license has been selected, the **Activate license** button is changed to **Update license**.
8. In the **Select target dongle** option, select the dongle on the remote computer on which the license is to be transferred.
9. Click on **Activate license** or **Update license**.

The license is activated on the selected target dongle and the text file is filled with the licensing data.

MASS ACTIVATION TAB

Option	Description
Select the .LicSN file.	Selection of the file with the license numbers. The file has the file extension .LicSN . The licenses contained in the file are shown in the Select the license to be updated option.
Select the license to be updated	Display and selection of existing licenses. The display can

Option	Description
	<p>be filtered and sorted.</p> <ul style="list-style-type: none"> ▶ Filter: Enter the filter term into the filter line. ▶ Sort: Click on the column title. The entries are shown in sorted order. Another click inverts the display. <p>Selection by clicking on a license.</p>
Select target dongle	Selection of the dongle with which the license is to be linked.
Activate license Update license	Activates the selected license on the selected dongle, or updates the license if it has already been activated.

DIALOG OPTIONS

Option	Description
Local licensing / remote licensing	Clicking on the arrow in the header opens the options to establish a connection (on page 120) to a remote computer or select the local computer.
Show start dialog	Opens the start dialog for standard licensing tasks.
Help	Opens online help.
Close	Clicking on the button closes the dialog.

22.2.5 License borrowing

Licenses can be borrowed remotely and locally. A service technician can thus, for example, take a certain license for external use and return it later.



Information

Ensure that the settings are correct in the **Startup Tool** for the source computer and the target computer.

Settings under **Application -> Options** in the **General** tab:

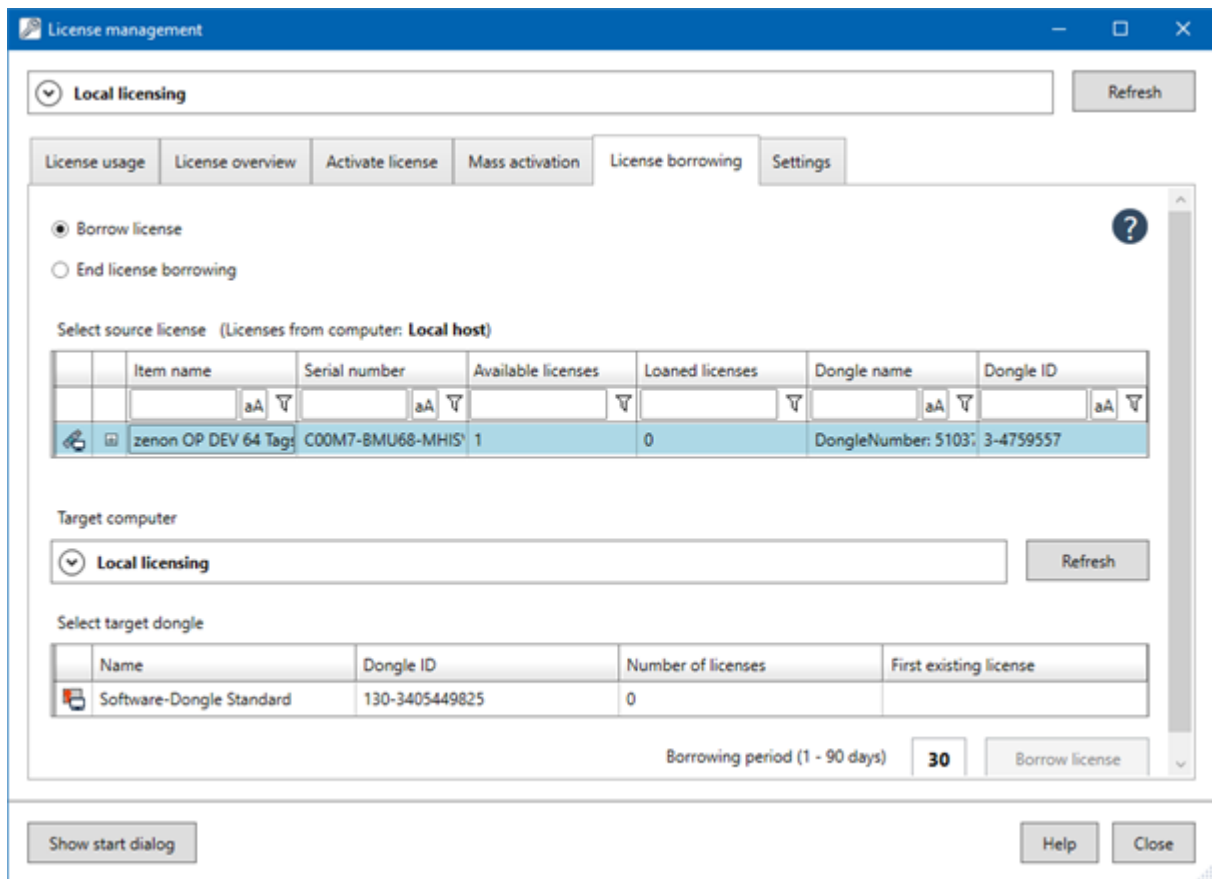
- ▶ The **Enable license borrowing** option must be activated for license loan.
- ▶ The **Enable remote licensing** option must be activated for remote licensing.

RULES FOR LICENSE BORROWING

The following is applicable for license loan:

- ▶ **Expiration date:**
Each loaned license has an expiry date. If this is reached, the license is automatically returned to the loaning source dongle.
In this case, there is a search for further valid licenses for the target computer. If no other valid license is found, each product that has been licensed with the loan license is closed.
- ▶ **Loan duration:**
The maximum loan duration is 90 days.
The license is automatically returned after this.
- ▶ A license can be returned manually before the expiry date is reached.
- ▶ **Automatic assignment:**
If the **Apply activated licenses immediately** option is activated, the license is automatically entered at the first place on the target computer for all licensed products.
- ▶ **Demo licenses:**
Demo licenses can be neither loaned nor returned.
- ▶ **License overview:**
The respective current loan details are displayed in the license details in license use, license overview and license loan:
Loaned licenses, end of validity of the loaned license, ID of the loan dongle. These are only visible if a line contains at least one value.
- ▶ **Availability:**
A loan is only possible for hardware dongles and software dongles, not for virtual machines.
- ▶ **Loan forwarding limit:**
A borrowed license cannot be loaned further.
The license must first be returned before being loaned again to another user.

LICENSE BORROWING/LICENSE RETURN DIALOG



Note: This tab is hidden by default. To display it, activate the **Show tab for additional licensing options** property in the **Settings** tab.

BORROW/RETURN

Option	Description
Borrow license	<i>Active:</i> The options of the dialog are configured for the borrowing (on page 105) of a license.
End license borrowing	<i>Active:</i> The options of the dialog are configured for the return (on page 107) of a license.

Further options depend on the selection of whether a license is borrowed or returned:

The **source licenses** option shows licenses that can be returned or used for borrowing. The **Target dongle** shows all dongles to which a license can be forwarded for borrowing. For the return, no dongle can be selected, because a return can only ever be to the original dongle. A connection to this must be established if required.

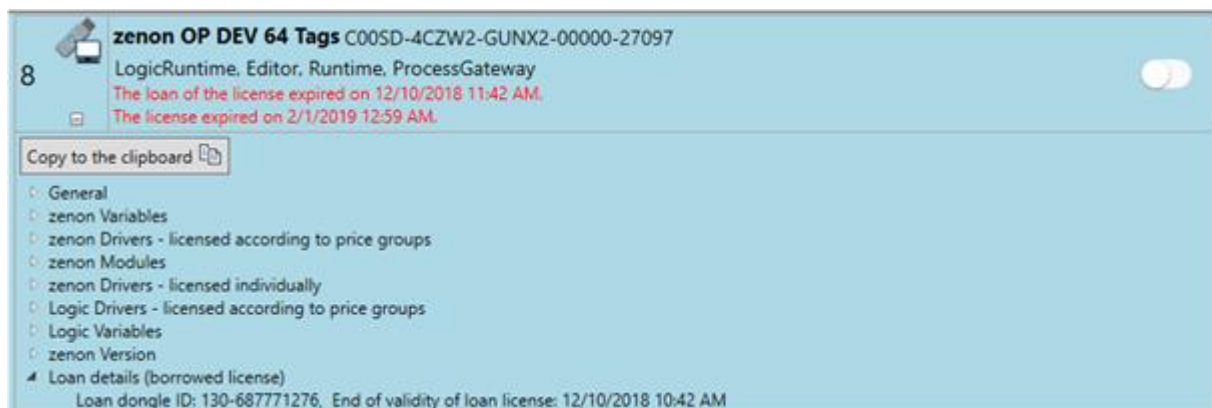
DIALOG OPTIONS

Option	Description
Local licensing / remote licensing	Clicking on the arrow in the header opens the options to establish a connection (on page 120) to a remote computer or select the local computer.
Show start dialog	Opens the start dialog for standard licensing tasks.
Help	Opens online help.
Close	Clicking on the button closes the dialog.

STATUS DISPLAY

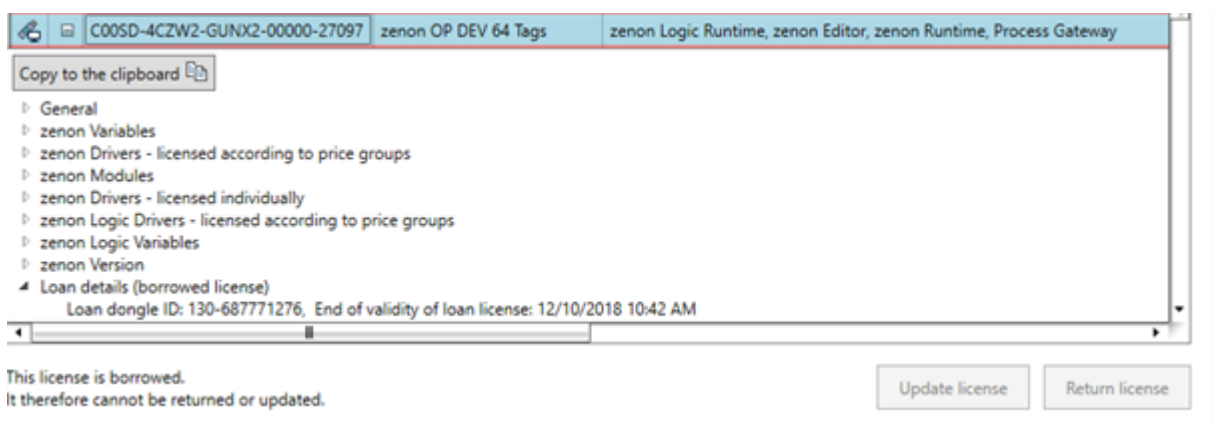
The status of borrowed licenses is displayed in the license details.

Borrowed license:



- ▶ ID of the loaning source dongle
- ▶ Expiry date of the loan

Loaned license:



- ▶ ID of the borrowing target dongle
- ▶ Expiry date of the loan
- ▶ Date of the loan

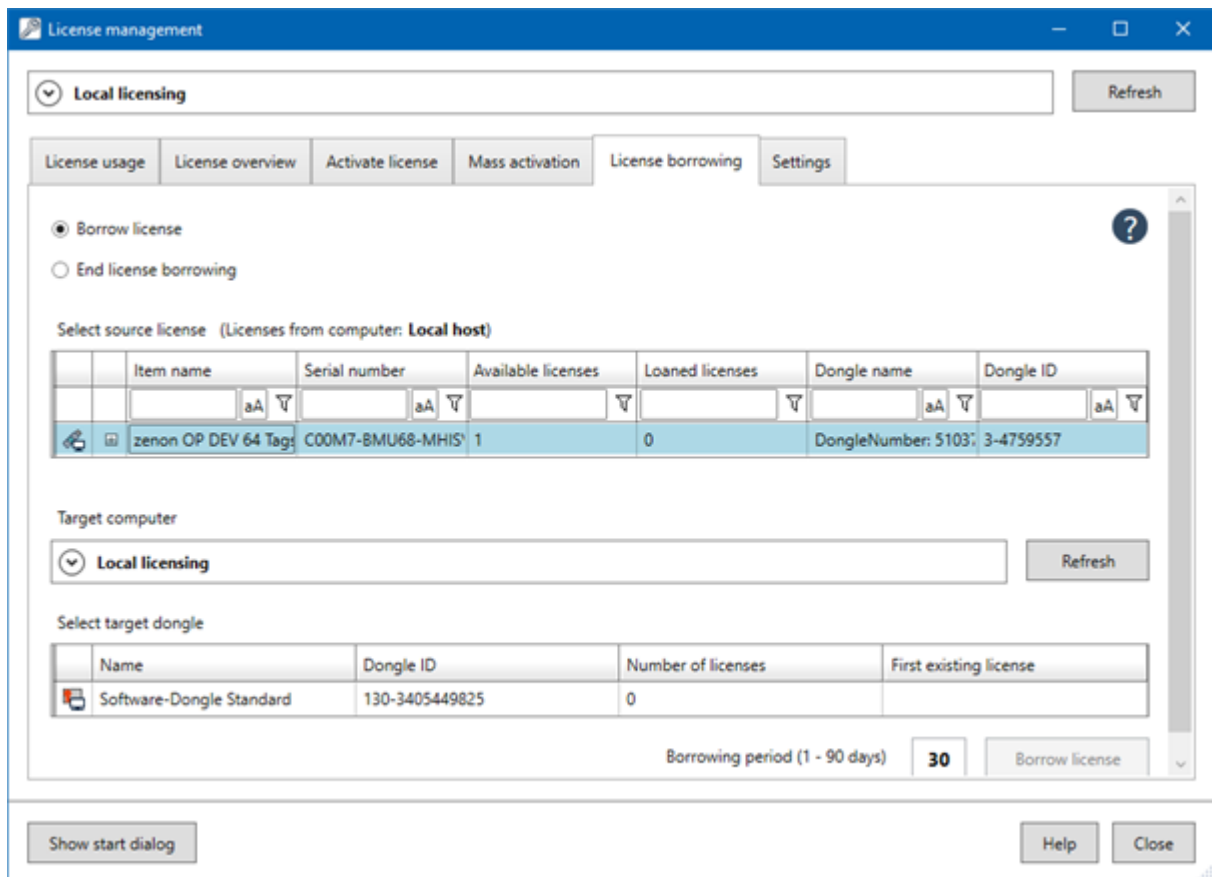
22.2.5.1 Borrow license

To borrow a license:

1. Select the type of connection for the computer from which the license has been borrowed: Local or remote.
Configure the remote connection if necessary.
2. Activate the **Borrow License** option.
3. Select the license that is to be loaned in the **Select source license** option.
4. Select the connection type for the computer that is receiving the license: Local or remote.
Configure the remote connection if necessary.
5. Select the dongle on which the license is saved in the **Select target dongle** option.
6. Enter the desired loan duration in the **Loan duration** option.
A license can be borrowed for a maximum of 90 days. If it is not returned within this time period, the license is automatically returned on expiry of 90 days.
7. Click on the **Borrow License** button.

The license is moved from the source dongle to the target dongle. A message shows whether it was successful or if there were errors.

BORROW LICENSE DIALOG



License management

Local licensing Refresh

License usage License overview Activate license Mass activation License borrowing Settings

☒ Borrow license
☐ End license borrowing

Select source license (Licenses from computer: Local host)

Item name	Serial number	Available licenses	Loaned licenses	Dongle name	Dongle ID
zenon OP DEV 64 Tags	C00M7-BMU68-MHIS	1	0	DongleNumber: 5103	3-4759557

Target computer

Local licensing Refresh

Select target dongle

Name	Dongle ID	Number of licenses	First existing license
Software-Dongle Standard	130-3405449825	0	

Borrowing period (1 - 90 days) 30 Borrow license

Show start dialog Help Close

Option	Description
Borrow license	Active: The options of the dialog are configured for the borrowing (on page 105) of a license.
End license borrowing	Active: The options of the dialog are configured for the return (on page 107) of a license.
Select source license	Selection of the license that is to be borrowed.
Target computer	Configuration of the computer onto which the license is to be transferred. Default: Local licensing
Select target dongle	Selection of the dongle to which the license is to be transferred.
Loan duration	Entry of the loan duration. <ul style="list-style-type: none"> ▶ Minimum: 1 day ▶ Maximum 90 days

Option	Description
	Default: <i>30 days</i>
Borrow license	Clicking on the button transfers the selected license to the target dongle and removes it from the source dongle.

22.2.5.2 Return license

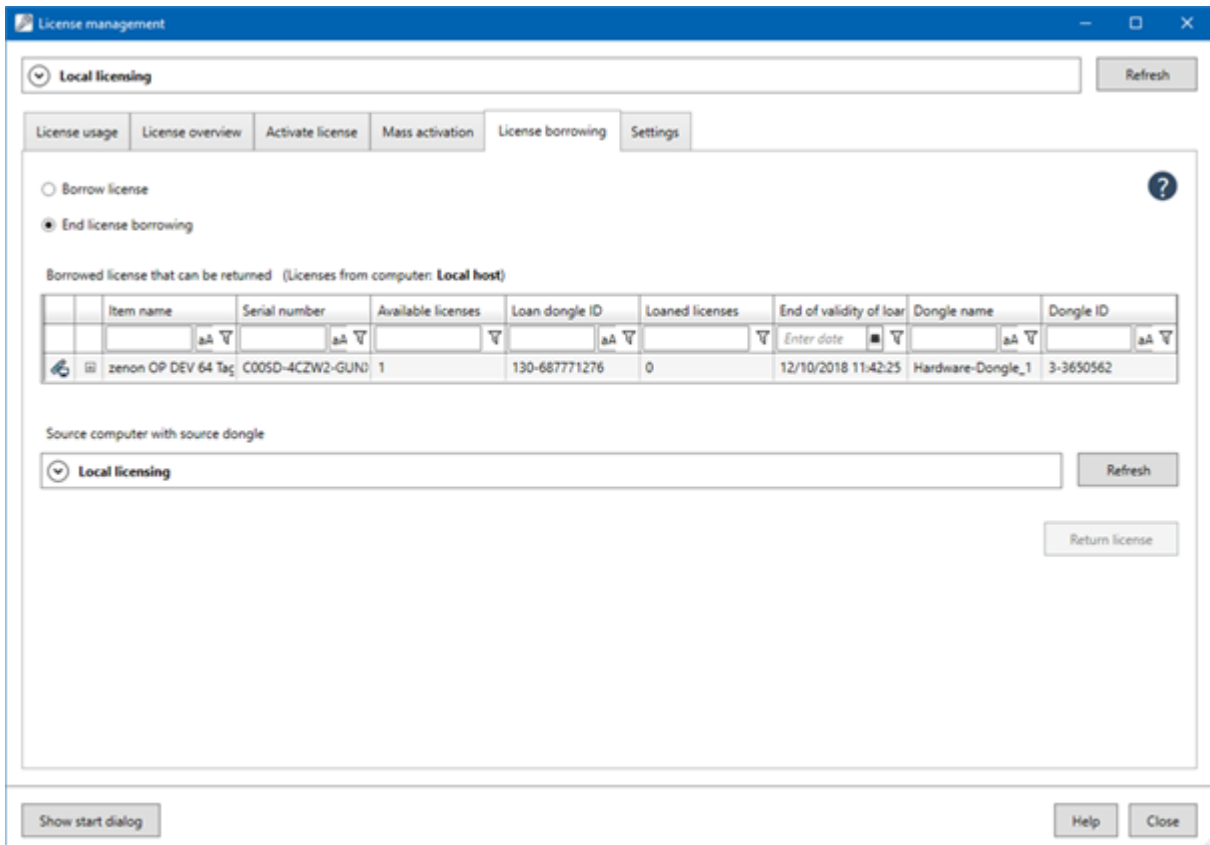
A license can be returned manually before the expiry date is reached. Expired licenses are automatically returned to the source dongle.

To return a license:

1. Select the connection type for the computer that is returning the license: Local or remote. Configure the remote connection if necessary.
2. Activate the **End license borrowing** option.
3. Select the license that is to be returned in the **Borrowed licenses that can be returned** option.
4. Select the connection type for the computer to which the license is to be returned: Local or remote. Configure the remote connection if necessary.
5. Click on the **Return License** button.

The license is moved back to the source computer. A message shows whether it was successful or if there were errors.

RETURN LICENSE DIALOG



License management

Local licensing Refresh

License usage License overview Activate license Mass activation License borrowing Settings

☐ Borrow license

☒ End license borrowing

Borrowed license that can be returned (Licenses from computer: Local host)

Item name	Serial number	Available licenses	Loan dongle ID	Loaned licenses	End of validity of loan	Dongle name	Dongle ID
zenon OP DEV 64 Tag	C00SD-4CZW2-GUN	1	130-687771276	0	12/10/2018 11:42:25	Hardware-Dongle_1	3-3650562

Source computer with source dongle

Local licensing Refresh

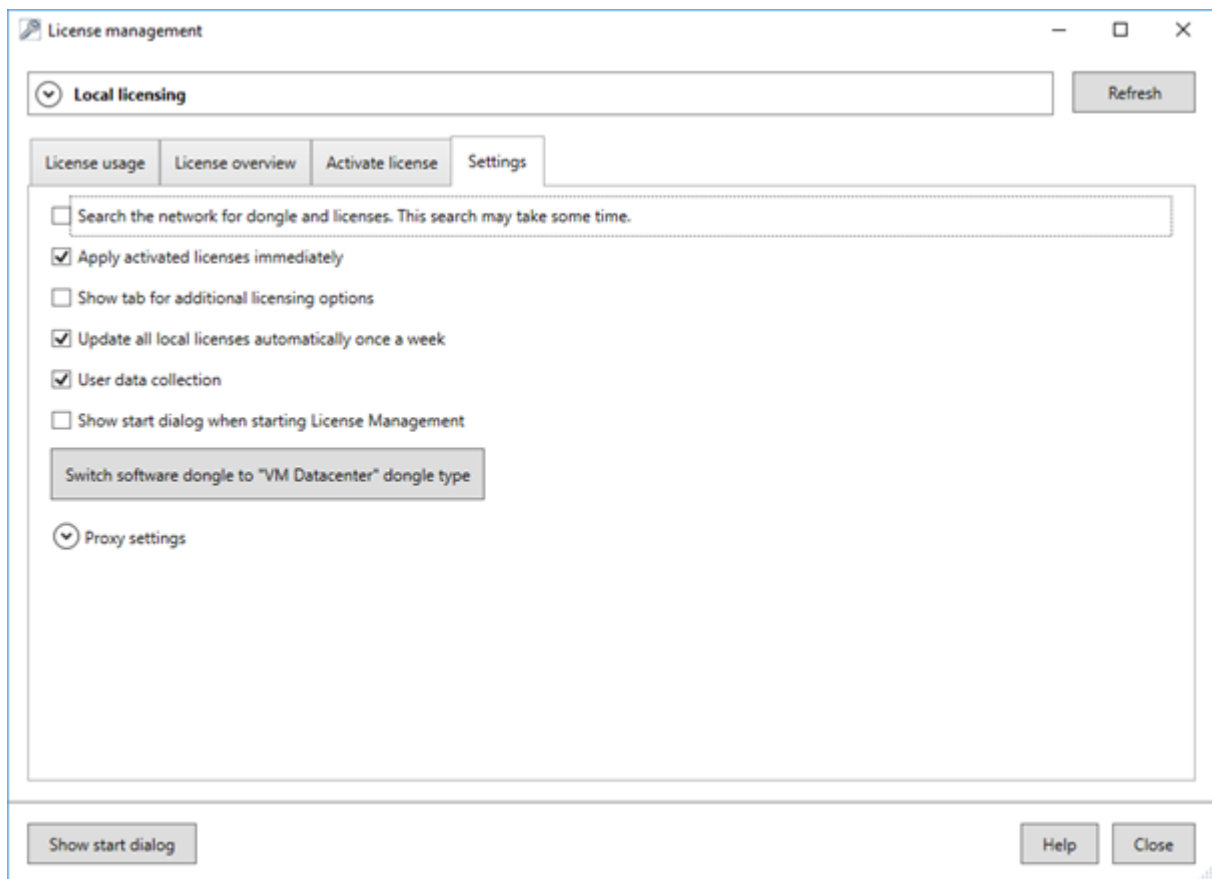
Return license

Show start dialog Help Close

Option	Description
Borrow license	<i>Active:</i> The options of the dialog are configured for the borrowing (on page 105) of a license.
End license borrowing	<i>Active:</i> The options of the dialog are configured for the return (on page 107) of a license.
Borrowed license that can be returned	Selection of the license that is to be returned.
Source computer with source dongle	Configuration of the connection to the source computer from which the license has been loaned. Default: Local licensing
Return license	Clicking on the button transfers the selected license to the source dongle and removes it from the target dongle.

22.2.6 Settings

Settings for license management are configured in this tab.



Option	Description
Search the network for dongles and licenses.	<p>Settings for the search for licenses:</p> <ul style="list-style-type: none"> ▶ <i>Active</i>: Dongles and licenses are also searched for in the network. This search can take a long time. ▶ <i>Inactive</i>: A search is only carried out on the local network. <p>Default: <i>inactive</i></p> <p>Setting is applied immediately. To show new dongles and licenses, the respective list must be updated.</p> <p>Note: This setting only has an effect on the License Manager. zenon applications always resort to the network if it cannot find the license locally.</p>
Apply activated licenses	Setting if the activated license is written to License.ini :

Option	Description
immediately	<ul style="list-style-type: none"> ▶ <i>Active</i>: The license is immediately written at the first place in License.ini and assigned to all licensed products by clicking on Activate license. ▶ <i>Inactive</i>: The license is only written by means of assignment to the License usage (on page 78) tab in License.ini. <p>Default: <i>active</i></p>
Show tab for additional licensing options	<p>Controls the Mass Activation (on page 98) and License borrowing (on page 101) display tabs:</p> <ul style="list-style-type: none"> ▶ <i>Active</i>: Tabs are displayed. ▶ <i>Inactive</i>: Tabs are hidden. <p>Default: <i>inactive</i></p>
Update all local licenses automatically once a week	<p>Update licenses automatically.</p> <ul style="list-style-type: none"> ▶ <i>Active</i>: All local licenses are automatically checked for updates once a week ▶ <i>Inactive</i>: Licenses are not checked. The check must be carried out manually. <p>Default: <i>active</i></p> <p>Additional information: See Apply amended licenses (on page 117) chapter.</p>
User data collection	<p>Settings to record user data:</p> <ul style="list-style-type: none"> ▶ <i>Active</i>: User data is collected. The following, among others, is collected: Operating system, user name, computer name, IP addresses and domains. For details, see the Data Protection (on page 59) chapter. Note: When activating the checkbox, a dialog with the data protection declaration is opened. This must be confirmed by clicking on Accept. The data protection declaration is thus made known and binding. If the dialog is canceled, recording of user data cannot be carried out. ▶ <i>Inactive</i>: No user data is recorded. <p>Default: <i>active</i></p>

Option	Description
	Attention: If this option is deactivated, lost licenses can no longer be restored or replaced.
Show start dialog when starting License Management	<p>Activation of the wizard for licensing tasks:</p> <ul style="list-style-type: none"> ▶ <i>Active:</i> Before opening, the start dialog that leads you through the typical licenses processes is shown. ▶ <i>Inactive:</i> The application is opened directly. <p>Default: <i>active</i></p>
Switch software dongle to "VM DataCenter" dongle type.	<p>Changes the type (on page 168) of the software dongle used from Virtual Machine to VM DataCenter.</p> <p>Only available if License Manager is running in a virtual machine.</p>
Switch software dongle to "Virtual Machine" dongle type	<p>Changes the type (on page 168) of the software dongle used from VM DataCenter to Virtual Machine.</p> <p>Only available if the License Manager is running in a virtual machine.</p>
Proxy settings	<p>Opens or closes the area to configure a proxy computer. For details see chapter: Configure proxy (on page 112)</p>
Detect proxy configuration automatically	<ul style="list-style-type: none"> ▶ <i>Active:</i> The proxy is automatically detected using the system settings.
Manual proxy configuration	<ul style="list-style-type: none"> ▶ <i>Active:</i> The proxy is configured manually. <p>The following must be entered for the configuration:</p> <ul style="list-style-type: none"> ▶ Proxy: URL of the proxy. ▶ Port: Port to be used. Minimum: 1 Maximum: 65535 Default: 80 ▶ User: User name for proxy access. Is not validated. ▶ Password: Password for proxy access. Is saved in encrypted form and not validated.
Save proxy configuration	<p>Saves the manual proxy configuration.</p>

DIALOG OPTIONS

Option	Description
Local licensing / remote licensing	Clicking on the arrow in the header opens the options to establish a connection (on page 120) to a remote computer or select the local computer.
Show start dialog	Opens the start dialog for standard licensing tasks.
Help	Opens online help.
Close	Clicking on the button closes the dialog.

22.2.6.1 Configure proxy

Access to the Internet is required for online activation, license return and license updating. No direct access is thus possible in some corporate networks. The connection must be established via a proxy server. If your system administrator has stored the data for the proxy server correctly in the operating system, no further settings are required. Otherwise the proxy server must be configured manually:

1. Open the **Settings** tab in the **License Manager**.
2. Click on **Proxy Settings**
3. Activate the radio button for **Manual Proxy Configuration**.
4. Enter the URL for the proxy.
5. Enter the port number.
6. Enter the user name.
Attention: It is not validated.
7. Enter the password.
It is entered in encrypted form.
Caution: The password is not validated.
8. Click on **Save Proxy**.

With a manual configuration, the **License Manager** also saves the proxy setting set by the system. These are used as a fallback if no connection can be established with the proxy settings configured manually. This is relevant, for example, if the **License Manager** is used for the user in this context but a proxy is configured, but this setting is not available in the system context.

ONLINE ACTIVATION

If the configured proxy can no longer be reached by online activation, the dialog for configuration is shown. Error messages are also shown. Changes to the settings are automatically saved the next time the connection is established.

22.2.7 Transfer/relocate license

Transferring a license is necessary, for example, if:

- ▶ The license is to be used on another computer or in another virtual machine
- ▶ The hardware of a computer with a software dongle changes
- ▶ The operating system of a computer with a software dongle is replaced
- ▶ The hard drive of a computer designated as the **C** drive is to be replaced with a software dongle
- ▶ The host computer for a virtual machine switches or its hardware is changed
- ▶ You want to combine several licenses on a hardware dongle
- ▶ You want to convert a physical computer into a virtual machine

Whether a license can continue to be used when a computer is physically rebuilt depends on which components and how many components are changed. A change of the computer name or a replacement of a hard drive (except drive **C**) generally does not constitute a problem.

The transfer of licenses works the same for hardware dongles and software dongles.
To transfer a license from one computer (dongle) to another computer (dongle):

1. Return (on page 113) the license from the previous dongle.
2. Activate (on page 88) the license again on the new dongle.



Information

Licenses cannot be transferred directly between a physical computer and a virtual machine. The license must be amended to the respective condition. In this case, contact your COPA-DATA sales partner. Also see the **Virtual Machines** (on page 63) chapter.

22.2.7.1 Return license

Licenses can be returned. This is necessary, for example, even if a license is to be used on another computer. See also the **Transfer/relocate license** (on page 113) chapter.

Notes on returning licenses:

- ▶ Only local licenses can be returned.
- ▶ Licenses with a defined usage period and demo licenses cannot be returned.
- ▶ Loaned licenses or licenses that have been loaned out in full or in part cannot be returned. You must first end the loan.

Licenses can be returned in two ways:

- ▶ Return license online (on page 114) (preferred method)
- ▶ Return license offline (on page 115)

22.2.7.1.1 Return license online

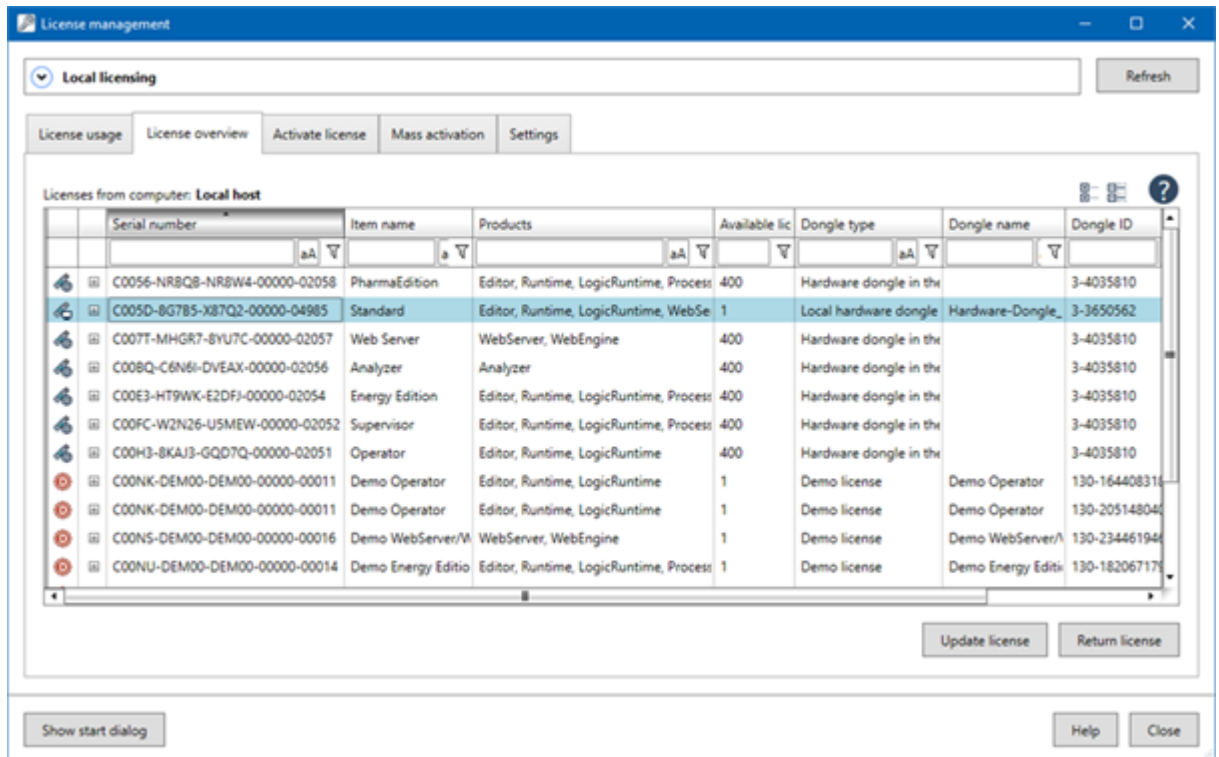
To return a license online:

1. Start the **License Manager**
2. In the start dialog, click on the **Advanced Options** button and then on the **Relocate/Return License** button.
 - ▶ If there is only one returnable license locally on your computer, it is returned online. Confirm the corresponding request to do this.
 - ▶ If there are several returnable licenses locally on your computer, you are automatically forwarded to the **License Overview** tab. Continue with the **process for several licenses**, step 3.

Process for several licenses:

1. Start the **License Manager**
2. If the start dialog is shown, then click on the **Advanced Options** button and then on **Advanced License Administration**.
3. Switch to the **License Overview** tab.

4. Select the desired license from the list.



5. Click on **Return License**.

The license is returned online.

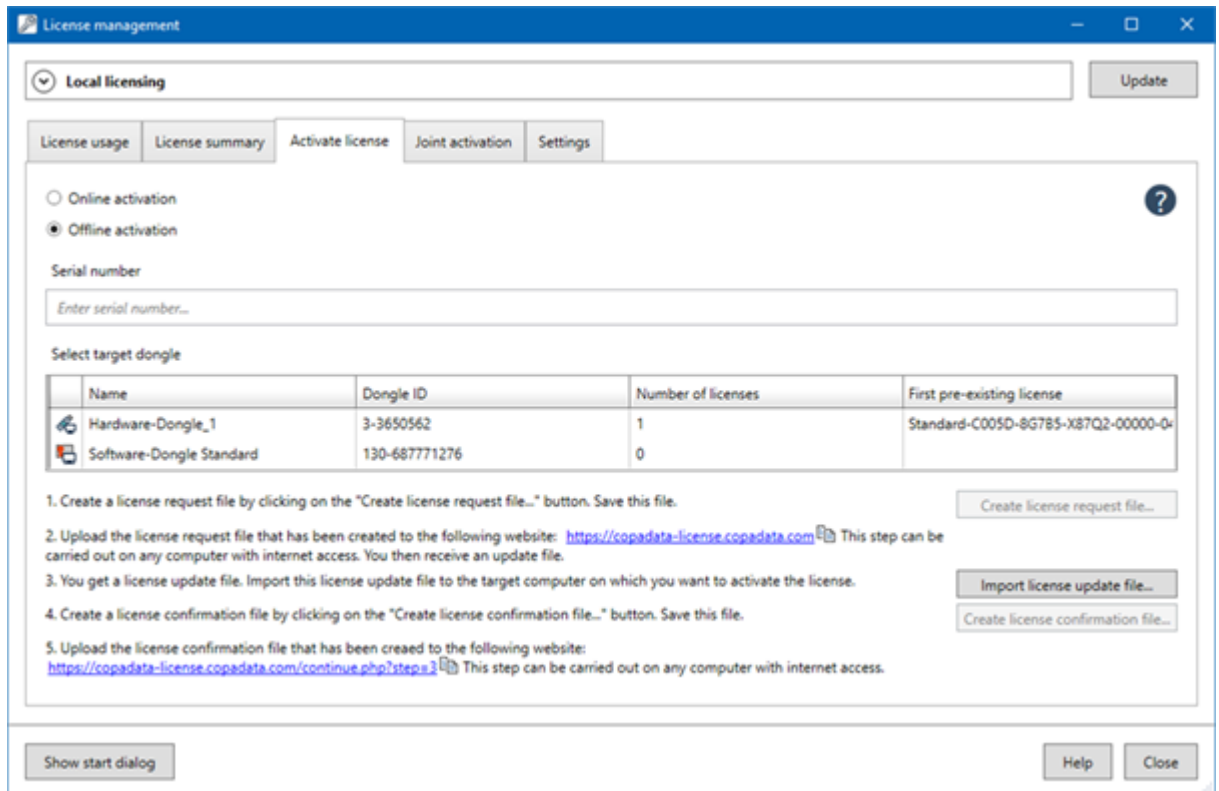
22.2.7.1.2 Return license offline

Offline return has not yet been integrated into the **License Manager**. However it works in the same way as offline activation. Difference: Another return link must be entered into the web browser!

Procedure:

1. Start the **License Manager**

- Switch to the **Activate license** tab.
If the start dialog is shown, click on **Advanced Options** and then on **Advanced License Administration**. Then switch to the **Activate License** tab.



- Select the **Offline activation** option.
- Enter the serial number of the license that you want to return.
- Select the dongle on which the license is saved.
- Create a license request file. To do this, click on the **Create license request file** button.
A file with the suffix ***.LicReq** is created.
- Attention:** Use the link that is prescribed in the **License Manager**!
Instead, open this link in a web browser:
<https://copadata-license.copadata.com/return.php>
(<https://copadata-license.copadata.com/return.php>)
- Upload the renamed license request file ***.LicReq** to the website.
You get a license update file with the file ending ***.LicUpd** as a response.
- In the **License Manager**, click on the **Import license update file** button and apply the file generated by the website.

Important: In order for the license to actually be accepted as returned by the license depot, you must create the confirmation file and transfer it to the website.
To do this:

- a) Click on the **Create license confirmation file** button.
A file with the suffix ***.LicConf** is created.
10. Open this link in a web browser:
<https://copadata-license.copadata.com/continue.php?step=3>
(<https://copadata-license.copadata.com/continue.php?step=3>)
11. Upload the license confirmation file ***.LicConf** to the website:

The process is thus concluded.

22.2.8 Apply/update amended license

All license information is saved in the dongle. If you order an update or an upgrade, the license in the dongle must be updated.

Changes to the license can be required by:

- ▶ Product upgrade or amended module extension
- ▶ Expiry date or period of usage amended
- ▶ New version or change to the service agreement
- ▶ Quantity of licenses amended

The following is applicable for updates and upgrades:

- ▶ These are always booked to an existing serial number.
You receive a license certificate with the serial number concerned.
- ▶ The change to a license is stored and must be transferred to the dongle. If several license updates are stored in the license depot, they are always transferred in one process.
- ▶ If you have never activated the license, the update is applied the first time it is activated.
You do not need to carry out any more steps.
- ▶ If the license has already been activated, you must apply the update.
There are two possibilities:
 - ▶ Update license online (on page 117) - the preferred method
 - ▶ Update license offline (on page 119)

22.2.8.1 Update licenses online

Licenses can be updated manually or automatically. Except for demo licenses and licenses in the network.

AUTOMATIC UPDATE

All licenses are checked for updates in a 7-day cycle by default. The cycle time can be changed in the **Settings [SETTINGS]** of **License.ini**. The automatic update can be deactivated in the **License Manager** in the **Settings** tab using the **Update all local licenses automatically once a week** option.

Automatic updates are carried out using the license transfer service. No automatic updates are carried out if the Windows service has not been started.

UPDATE LICENSE MANUALLY

There are three ways you can update a license manually

- ▶ Update all licenses using the **start dialog** (on page 68).
- ▶ Update a license using the **License Overview** (on page 85) tab.
- ▶ Update all licenses using the **LicenseManagerAutomation.exe** (on page 124) command line application.

UPDATE VIA THE START DIALOG

1. Start the **License Manager**.
The **Show start dialog when starting License Management** option must be activated. The start dialog then opens when the application is started. Otherwise click on the **Show start dialog** button.
The licensing assistant is shown.
2. Click on **Advanced options**.
3. Click on **Update all licenses**.
4. The process of updating is started.
If a license cannot be updated or there is no update available, a corresponding message is given.

UPDATE VIA THE LICENSE OVERVIEW TAB

1. Open the **License Overview** (on page 85) tab in the **License Manager**.
2. Select the license that is to be updated.
If a license cannot be updated by the user, the **Update license** button is not unlocked.
3. Click on the **Update license** button.
The license is updated online.
If there is no update available, a corresponding message is shown.

UPDATE VIA COMMAND LINE

To update licenses automatically via a third-party application, use the **LicenseManagerAutomation.exe** (on page 124) command line program.

Command: **LicenseManagerAutomation.exe -a UpdateAll**

22.2.8.2 Update licenses offline

To apply offline updates for licenses, use offline activation (on page 93) as with the initial activation. There is no functional difference between activation and update.

Attention

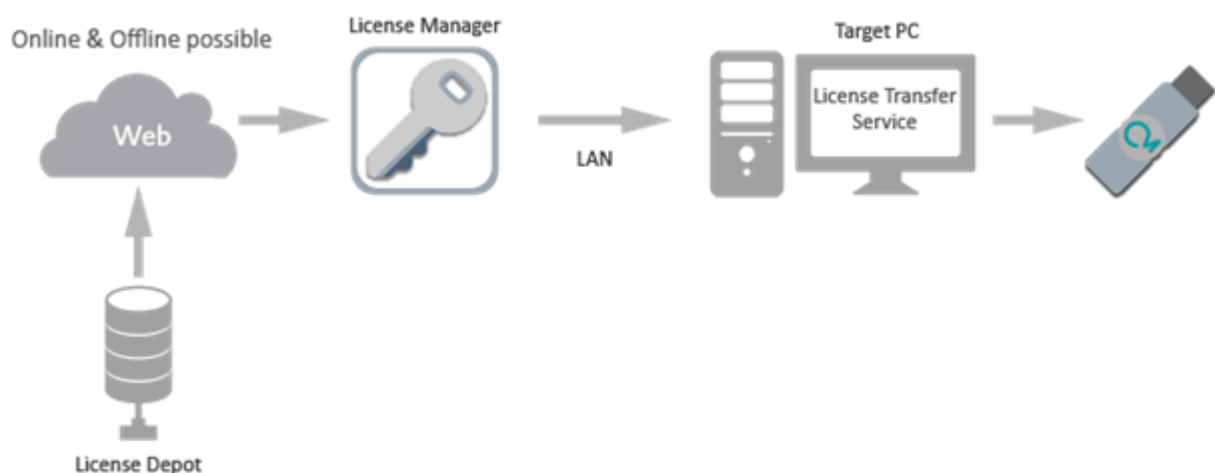
The update can only be applied to the same dongle on which the original license has been activated. You must therefore ensure that you select the correct dongle.

22.2.9 Remote licensing

With remote licensing, all processes that support license administration are not carried out on the local computer but on another computer in the local network (LAN).

There are two applications for remote licenses:

- ▶ The computer to be licensed is not on site directly.
- ▶ The computer to be licensed is not directly connected to the Internet. In this case, you can use a second computer as a proxy computer (intermediate computer). In order for you to nevertheless use the benefits of online activation, return and update, the steps do not need to be executed manually.



Remote licensing works both in the **License Manager** as well as in the command line tool. The **zenLicTransfer** (on page 122) service always works as a counterpoint. This service always accesses the data available locally on the remote computer.

Attention! Remote licensing has nothing to do with the **CodeMeter** network licensing. The **CodeMeter** mechanisms are based on **CodeMeter Runtime** and serve to assign or unlock the license from a product.

zenon remote licensing serves to activate, deactivate and administer licenses remotely.

Because both systems must fulfill different tasks and use different transport layers, it is quite possible that a dongle is detected by one of the two system about not the other.

Remote functions offered:

- ▶ Activate licenses (online and offline)
- ▶ Activate licenses with mass activation
- ▶ Assign licenses to products
- ▶ Return licenses
- ▶ Borrow/lend license



Information

For remote licensing, ensure the correct settings in the **Startup Tool** for the source computer and the target computer.

Settings under **Application -> Options** in the **General** tab:

- ▶ For remote licensing activate the **Enable remote licensing** option.

22.2.9.1 Licensing local or remote

You can activate licenses locally or remotely - on remote computers - and assign products. Licensing is local by default.

Requirements for remote activation:

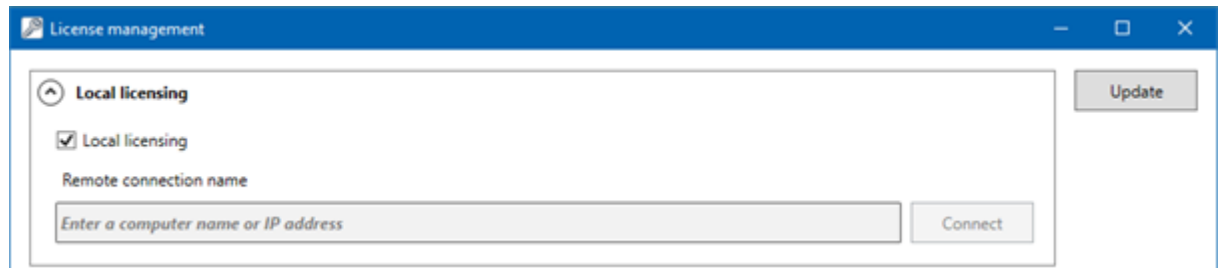
- ▶ The remote computer can be contacted in the network.
- ▶ The **zenLicTransfer** (on page 122) license service is active and contactable on the remote computer.

REMOTE LICENSING

To switch the licensing to remote:

1. Click, in the header of the **License Manager**, on the arrow next to **Local Licensing**.

The area for this option is opened.



2. Deactivate the **Local Licensing** checkbox.

The area is renamed to **Remote Licensing**.

The area to enter a connection name is unlocked.

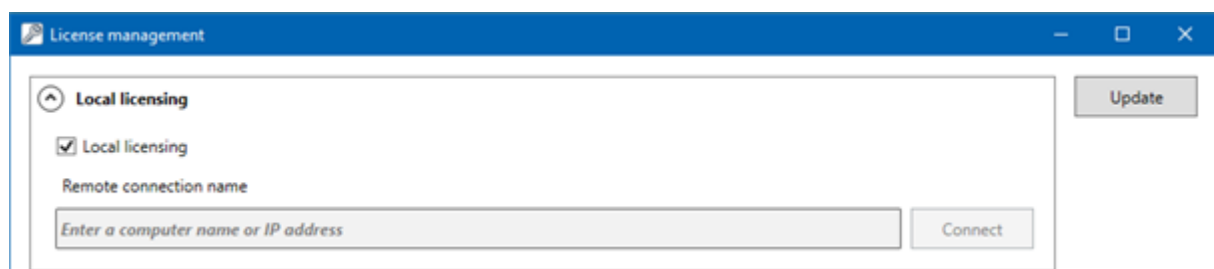
3. Enter the name or the IP address of the remote computer.
4. Click on **Connect**.

The connection is created. All further actions in the **License Manager** are executed on the remote computer.

Hint

You can also use remote licensing to activate licenses online on computers that do not have an Internet connection. In doing so, the **License Manager** takes on the function of a proxy (intermediary computers).

DIALOG SETTINGS



Option	Description
Local licensing/remote licensing [computer] (on page 120)	<p>Selection of whether licensing is carried out locally or on a remote computer.</p> <p>Displays which type of licensing has been selected. With remote licensing, the computer name or the IP address of the remote computer is displayed.</p> <p>License and dongle data is reloaded during switching.</p>
Local licensing	Activates and deactivates local licensing:

Option	Description
	<ul style="list-style-type: none"> ▶ <i>Active</i>: Licensing is local. ▶ <i>Inactive</i>: Licensing is carried out remotely on the computer stipulated for remote connections. <p>Default: <i>active</i></p>
Remote connection name	<p>Entry of the connection data for the remote computer: Computer name or IP address. IPv4 or IPv6 addresses can be entered.</p> <p>Only available if Local licensing is inactive.</p>
Connect	Establishes a connection to the remote computer.
Refresh	Reloads license and dongle data from the local or remote computer.

22.2.9.2 zenLicTransfer Service

For the transfer of license information to a remote computer, the **License Manager** uses the **License Transfer Service** service (**zenLicTransfer**). This is automatically started with the operating system. The service opens a TCP server port and accepts connections from the **License Manager**. Communication is encrypted with AES and limited to a simultaneous connection.

The service communicates via the 50784 port by default. This port can be amended via the **Startup Tool** in the **Listening ports** tab. Changes to the port must be carried out locally and remotely.

This service also carries out automatic updating (on page 117) of licenses.

22.2.10 Filter and sort lists

Lists can be shown filtered and sorted.

FILTER LISTS

Options for filters.

Option	Description
Input field	Entry of the character sequence that is to be filtered for.
aA	Switches between:

Option	Description
	<ul style="list-style-type: none"> ▶ <i>Capitalization is not taken into account</i> ▶ <i>Capitalization is taken into account</i> <p>Default: <i>Capitalization is not taken into account</i></p>
Symbol filter	<p>Clicking on the filter symbol opens a list to select a filter criterion.</p> <p>Default: <i>Contains</i></p>

FILTER CRITERIA

The following are available as criteria for filter expressions:

Criterion	Description
<i>Remove filter</i>	Removes all filter criteria. All lines are displayed again.
<i>Contains</i>	All entries that contain this character sequence are displayed. (Default setting.)
<i>Does not contain</i>	All entries that do not contain this character sequence are displayed.
<i>is empty</i>	All empty cells are displayed.
<i>is not empty</i>	All entries that contain at least one character are displayed. Spaces are also considered characters.

SORT LISTS

To sort a list:

1. Click in the header of the column according to which sorting is to take place.
2. Click again to change the sorting.

Three sorting processes are gone through in sequence:

- ▶ *Ascending*: The list is sorted from 0 - 9 and from a - z.
Display with arrow pointing upwards.
- ▶ *Descending*: The list is sorted from 9 - 0 and from z - a
Display by the arrow upwards.
- ▶ *Unsorted*: The list is displayed in the original status, i.e. as it was created.

23 Licensing via command line - automation

The **LicenseManagerAutomation.exe** command line tool makes it possible to activate and administer licenses in the command line interface in an automated way with a batch file and in large quantities online or offline. Mass activations are thus also possible in the network.

The following functions are available:

- ▶ Activate single license (on page 130)
- ▶ Mass activation using a collective file (on page 132)
- ▶ Update all licenses of a computer (on page 134)
- ▶ Enter license at the first position in License.ini (on page 135)

All functionalities are available both locally as well as on a remote PC. Remote PC: Located in the network with License Manager installed and running service **zenLicTransfer**.

CALL

- ▶ Call: **LicenseManagerAutomation.exe**
- ▶ Path: **%ProgramFiles(x86)%\Common Files\COPA-DATA\STARTUP**
- ▶ Syntax: **LicenseManagerAutomation.exe [Aktion] [Serial number] [Dongle-Typ] [Option]**
- ▶ Prefix for arguments:
 - ▶ Argument short form: **- (-a)**
 - ▶ Argument long form: **-- (--action)**
- ▶ Arguments:
 - ▶ Upper/lower case is ignored.
 - ▶ Sequence is as desired.
- ▶ Values: Upper-case/lower case is taken into account, if not otherwise stated.
- ▶ Example of long form: **LicenseManagerAutomation.exe --action ActivateOnline --SerialNumber C00WU-Z5SVK-UCGC2-00000-01633 --DongleType Hard --WriteIni**
- ▶ Example of short form: **LicenseManagerAutomation.exe -a ActivateOnline -sn C00WU-Z5SVK-UCGC2-00000-01633 -dt Hard -wi**

ERROR MESSAGE

When an argument is entered incorrectly, a corresponding error is issued and a LOG entry is written. In addition, help to enter the arguments is called up.

Color coding of the display:

- ▶ *Red*: Error
- ▶ *Green*: Success message
- ▶ *White*: Help

Return values:

- ▶ *0*: Success.
The license has been successfully activated.
- ▶ *-1*: Invalid arguments.
Incorrect arguments have been given.
- ▶ *-2*: Error:
for example: No connection to the license depot, or target computer cannot be contacted.

ARGUMENTS

Argument for short description / Argument for long form	Values
-a --action	<p>Command for the application. Is supplemented with one of these values:</p> <ul style="list-style-type: none"> ▶ ActivateOnline: Carry out online activation. ▶ ActivateOnlineFile: Online activation for licenses from one file. Requires -f with the file path specified. ▶ ActivateOffline: Carry out offline activation. Requires -fu with the file path specified. ▶ CreateRequestFile: Creates a license request file for offline activation. ▶ WriteIniTop: Enters the serial number for each product at the first position in the License.ini. Used with --SerialNumber or --AllValid. ▶ UpdateAll: Carries out an update for all licenses. <p>Example: -a ActivateOnline</p> <p>Note: Entry of the argument without a value shows help for arguments and values.</p>

Argument for short description / Argument for long form	Values
-sn --SerialNumber	<p>Transfer of the serial number. Required for actions:</p> <ul style="list-style-type: none"> ▶ ActivateOnline ▶ CreateRequestFile ▶ WriteIniTop
--AllValid	<p>Activates all valid serial numbers that have been found on the computer and puts them in the first place of the valid licenses. If more than one valid license is found, the following sequence applies:</p> <ul style="list-style-type: none"> ▶ Hardware dongles before software dongles ▶ More recent product versions before older ones <p>Is required for action:</p> <ul style="list-style-type: none"> ▶ WriteIniTop <p>Attention: Demo licenses are ignored.</p>
-dt --DongleType	<p>Type of dongle:</p> <ul style="list-style-type: none"> ▶ <i>Hard</i>: Hardware dongle ▶ <i>SoftStd</i>: Computer-based Software-Dongle Standard ▶ <i>SoftVM</i>: Computer-based Software-Dongle VirtualMachine ▶ <i>SoftVMDataCenter</i>: Computer-based Software-Dongle VM DataCenter ▶ <i>Soft</i>: The dongle - standard or virtual machine - is selected dynamically. The Software-Dongle VirtualMachine is selected on a virtual machine; the Software-Dongle Standard is selected on a physical machine. If <i>DATA_CENTER_LICENSE</i> is set for the dongle, the Software-Dongle VM DataCenter dongle type is selected for a virtual machine. <p>Required for the ActivateOnlineFile and CreateRequestFile (optional) actions.</p>

Argument for short description / Argument for long form	Values
	Note: Only -dt or -di can be used.
-di --DongleIdentification	<p>ID of the dongle.</p> <p>Each dongle has a unique ID. E.g.: 3-3440001 for a hardware dongle or 130-636662578 for a software dongle.</p> <p>Required for the ActivateOnlineFile and CreateRequestFile (optional) actions.</p> <p>Note: Only -dt or -di can be used.</p>
-wi --WriteIni	<p>Activated license is written to License.ini.</p> <p>Optional argument for the ActivateOnline, ActivateOnlineFile and ActivateOffline actions.</p> <p>Note: This argument must always be stated too.</p>
-r --Remote	<p>Host name or IP address of the remote system. If not stated: <i>Localhost</i></p> <p>Optional argument for the ActivateOnline, ActivateOnlineFile, ActivateOffline, CreateRequestFile and WriteIniTop actions.</p>
-f --File	<p>File path of liqSN- file. The complete path must be entered.</p> <p>Is needed for the ActivateOnlineFile action.</p>
-fr --FileNameRequest	<p>Path in which the license request file *.LicReq is stored.</p> <p>Optional argument for the CreateRequestFile action.</p> <p>Default: Current folder with file name [serial number].LicReq e.g.: ...\\License\\C00WU-Z5SVK-UCGC2-00000-01633.LicReq</p>
-fu --FileNameUpdate	<p>Path to license update file *.LicUpd, that is activated. This file will be issued by the licenser and must be downloaded by the user.</p> <p>Is required for the ActivateOffline action.</p>
-fc	Path in which the license request file *.LicConf is stored.

Argument for short description / Argument for long form	Values
--FileNameConfirmation	<p>Is required for the ActivateOffline action.</p> <p>Default: Current folder with file name [serial number].LicConf e. example: ...\License\C00WU-Z5SVK-UCGC2-00000-01633.LicConf</p> <p>Attention: The license also functions without this step. If however the license confirmation file is not uploaded, from the point of view of the web depot, the license is still not completely licensed. It cannot be returned and reassigned again later.</p>

EXAMPLES

Examples of calls:

- ▶ Activate license online for the first hardware dongle found:
 - ▶ **LicenseManagerAutomation.exe --action ActivateOnline --SerialNumber C00WU-Z5SVK-UCGC2-00000-01633 --DongleType Hard**
 - ▶ **LicenseManagerAutomation.exe -a ActivateOnline -sn C00WU-Z5SVK-UCGC2-00000-01633 -dt Hard**
- ▶ Activate license for the dongle with the ID 3-3440011:
 - ▶ **LicenseManagerAutomation.exe -a ActivateOnline -sn C00WU-Z5SVK-UCGC2-00000-01633 -di 3-3440011**
- ▶ Activate license for the dongle with the ID 3-3440011 and write in the first position of **License.ini**:
 - ▶ **LicenseManagerAutomation.exe --action ActivateOnline --SerialNumber C00WU-Z5SVK-UCGC2-00000-01633 --DongleIdentification 3-3440011 --WriteIni**
- ▶ Write license C00WU-Z5SVK-UCGC2-00000-01633 at the first position of **License.ini**:
 - ▶ **LicenseManagerAutomation.exe -a WriteIniTop -sn C00WU-Z5SVK-UCGC2-00000-01633**
- ▶ Activate all found licenses and write to the top in the **License.ini**:
 - ▶ **LicenseManagerAutomation.exe -a WriteIniTop --AllValid**
- ▶ Update all licenses listed in **License.ini**:
 - ▶ **LicenseManagerAutomation.exe --action UpdateAll**
- ▶ Activate license online for the first hardware dongle found on the remote system 129.0.0.1:

- ▶ **LicenseManagerAutomation.exe -a ActivateOnline -sn C00WU-Z5SVK-UCGC2-00000-01633 -dt Hard -r 129.0.0.1**
- ▶ Activate all licenses from a license file for the first dongle found on a remote system that is stated in the file:
 - ▶ **LicenseManagerAutomation.exe --action ActivateOnlineFile --File C:\Users\Public\Desktop\SerialNumber.LicSN --DongleType Hard**
- ▶ Creates a licensing request file for offline licensing on a dongle for serial number **C00WU-Z5SVK-UCGC2-00000-01633** on the remote system **127.0.0.1**.
 - ▶ **LicenseManagerAutomation.exe -a CreateRequestFile --SerialNumber C00WU-Z5SVK-UCGC2-00000-01633 --FileNameRequest C:\Users\Public\Desktop\SerialNumber.LicReq --DongleType Hard --Remote 127.0.0.1**
- ▶ Activates the license from the specified file on the remote system **127.0.0.1** and writes the confirmation in a new file.
 - ▶ **LicenseManagerAutomation.exe -a ActivateOffline --FileNameUpdate C:\Users\Public\Desktop\SerialNumber.LicUpd --FileNameConfirmation C:\Users\Public\Desktop\SerialNumber.LicConf --WriteIni --Remote 127.0.0.1**

You can get further examples after calling **LicenseManagerAutomation.exe** without further values or arguments.

PROCESSING OF USER DATA

When licensing via the **License Manager** by means of dialog or command line, user data is also recorded, saved and processed. This data is to restore lost or damaged licenses. The data is saved and processed at Ing. Punzenberger COPA-DATA GmbH.

DATA COLLECTED

The following is collected:

- ▶ Operating system: Type and version
- ▶ IP addresses: All IP addresses present on the computer
- ▶ Fully Qualified Host Name: Unique computer name and complete domain address
- ▶ User name and domain
- ▶ Serial number

This data is recorded for the computer on which licensing is executed. If the licensing is executed remotely, this data is also collected for the target computer.

You can find detailed information about data processing and data protection online at: <https://www.copadata.com/privacy> (<https://www.copadata.com/privacy>).

TIME POINTS OF DATA COLLECTION

The data is collected when:

- ▶ Activating licenses
- ▶ Updating licenses
- ▶ Transferring/relocating licenses

DEACTIVATION

The recording of this data can be deactivated in the **License Manager** dialog in the **Settings** tab. Licenses can continue to be obtained and administered. Support and technical support for licensing is however not possible due to missing data.

If the recording is deactivated, COPA-DATA can no longer offer the following services:

- ▶ Automatic application of licenses to remote computers.
- ▶ Tracing of the computer on which the license was activated and by whom.
No support can thus be offered when searching for the license in the event of a loss of a license. Lost licenses can also not be replaced as part of customer care.

Data that has been collected up to the point of deactivation remains saved.

23.1 Activate single license

The **ActivateOnline** value activates a license online, either locally or remotely.

The following can be stated as a target dongle:

- ▶ Fixed dongle using dongle ID
- ▶ Hardware dongle
- ▶ Software dongle for:
 - ▶ Real existing computer
 - ▶ Virtual Machine

Attention

Always state the `--WriteIni` or `-wi` argument so that the license is also entered into the first position in the **License.ini** file.

This functionality has many possibilities for combination. See list with all arguments in the overview (on page 124). The most important examples are stated here. You can find further examples if you call up **LicenseManagerAutomation.exe** without further arguments.

CALL

Local call for hardware dongle:

- ▶ Short form: **LicenseManagerAutomation.exe -a ActivateOnline -sn C00WU-Z5SVK-UCGC2-00000-01633 -dt Hard -wi**
- ▶ Long form: **LicenseManagerAutomation.exe --action ActivateOnline --SerialNumber C00WU-Z5SVK-UCGC2-00000-01633 --DongleType Hard --WriteIni**

Remote call for hardware dongle:

- ▶ Short form: **LicenseManagerAutomation.exe -a ActivateOnline -sn C00WU-Z5SVK-UCGC2-00000-01633 -dt Hard -r 127.0.0.1 -wi**
- ▶ Long form: **LicenseManagerAutomation.exe --action ActivateOnline --SerialNumber C00WU-Z5SVK-UCGC2-00000-01633 --DongleType Hard --Remote 127.0.0.1 --WriteIni**

Note: Instead of the IPv4 address, you can also state an IPv6 address or the computer name of the target computer.

Local call for software dongle:

- ▶ Short form: **LicenseManagerAutomation.exe -a ActivateOnline -sn C00WU-Z5SVK-UCGC2-00000-01633 -dt Soft -wi**
- ▶ Long form: **LicenseManagerAutomation.exe --action ActivateOnline --SerialNumber C00WU-Z5SVK-UCGC2-00000-01633 --DongleType Soft --WriteIni**

Remote call for software dongle:

- ▶ Short form: **LicenseManagerAutomation.exe -a ActivateOnline -sn C00WU-Z5SVK-UCGC2-00000-01633 -dt Soft -r 127.0.0.1 -wi**
- ▶ Long form: **LicenseManagerAutomation.exe --action ActivateOnline --SerialNumber C00WU-Z5SVK-UCGC2-00000-01633 --DongleType Hard --Remote 127.0.0.1 --WriteIni**

Note: Instead of the IPv4 address, you can also state an IPv6 address or the computer name of the target computer.

MESSAGES

Return values:

- ▶ 0: Success.
The license has been successfully activated.
- ▶ -1: Invalid arguments.
Incorrect arguments have been given.
- ▶ -2: Error:
for example: No connection to the license depot, or target computer cannot be contacted.

23.2 Mass activation using a collective file

The **ActivateOnlineFile** value activates all licenses that are stated in the collective file online.

The following can be stated as a target dongle:

- ▶ fixed dongle using dongle ID
- ▶ Hardware dongle
- ▶ Software dongle for:
 - ▶ Real existing computer
 - ▶ Virtual Machine

If you order several licenses, you also get a collective file (*.LicSN) in addition to the license certificate. You can use this file to administer the licenses centrally and to activate them from a central point.

The collective file is a CSV file that can be edited with any desired text editor or a table calculation.

- ▶ Column separator: Semicolon (;) or tab (\t)

Column structure:

Column	Identification	Description
1	Serial number	The unique serial number of each license.
2	Item name	Contains the article names of the license. Is for information only and has no functional effect.
3	Target computer	Indication of the target computer: <ul style="list-style-type: none"> ▶ If not yet licensed: Computer name onto which the license is to be transferred. The following can be used: IPv4 address, IPv6 address or computer name. ▶ If already licensed: Computer name onto which the license has been transferred.
4	User name	Windows user name from which the license has been activated. Only used for information.
5	Activated	Display of the status of the activation. <ul style="list-style-type: none"> ▶ <i>True</i>: activated ▶ <i>False</i> or <i>empty</i>: not activated With <i>True</i> , this license is no longer taken into account when

Column	Identification	Description
		processing using the command line.
6	Error text	If an error occurred during activation, the error is logged here.

The original file is only filled with the first two columns.

To use a file for the mass activation using the **License Manager** or the command line:

- ▶ Enter the target computer into column 3 for each license.

Example:

- ▶ Original line of the collective file: *C005L-XQP49-Z42Q8-00000-02985;zenon SU RT 64 TAGs;*
- ▶ Add this line: *C005L-XQP49-Z42Q8-00000-02985;zenon SU RT 64 TAGs;MyPCtoLicense*

Attention

Ensure that you have entered a target computer in the 3rd column in each line of the collective file.

PROCEDURE

Process for licensing:

- ▶ Entries from the file are read in line by line and activated consecutively online.
- ▶ The serial number and the computer name or the IP address are read from the file.
- ▶ The target dongle type is taken from the argument of the command line.
- ▶ If a license has been activated successfully, the **LicSN** file is updated.
- ▶ If an error occurred, the reason for the error is written in the 6 column of the file.
- ▶ In the event of problems connecting to the licensing server, the complete process is canceled. With all other errors, an attempt is made to activate the next license.

Message after each serial number:

- ▶ *Red:* Error
- ▶ *Green:* Success message

Attention

Always state the *--WriteIni* or *-wi* argument so that the license is also entered into the first position in the **License.ini** file.

Note: With this type of activation, the **-r (--Remote)** parameter does not need to be stated. The remote computer must be entered into the third column of the collective file.

CALL

Call for hardware dongle:

- ▶ Short form: `LicenseManagerAutomation.exe -a ActivateOnlineFile -f C:\Users\Public\Desktop\SerialNumber.LicSN -dt Hard -wi`
- ▶ Long form: `LicenseManagerAutomation.exe --action ActivateOnlineFile --File C:\Users\Public\Desktop\SerialNumber.LicSN --DongleType Hard --WriteIni`

Call for software dongle:

- ▶ Short form: `LicenseManagerAutomation.exe -a ActivateOnlineFile -f C:\Users\Public\Desktop\SerialNumber.LicSN -dt Soft-wi`
- ▶ Long form: `LicenseManagerAutomation.exe --action ActivateOnlineFile --File C:\Users\Public\Desktop\SerialNumber.LicSN --DongleType Soft--WriteIni`

MESSAGES

Return values:

- ▶ 0: Success message.
 - ▶ 0: No license has been activated.
 - ▶ 1-n: n Licenses have been successfully activated.
- ▶ -1: Invalid arguments.
Incorrect arguments have been given.
- ▶ -2: Error;
for example: No connection to the license depot, or target computer cannot be contacted.

23.3 Update all licenses of a computer

The **UpdateAll** value updates all local licenses that are entered in the **License.ini** file. Network licenses and demo licenses are not taken into account.

This function cannot be executed remotely.

CALL

Short form:

`LicenseManagerAutomation.exe -a UpdateAll`

Long form:

LicenseManagerAutomation.exe --action UpdateAll

MESSAGES

Return values:

- ▶ 0: Success. No license has been updated.
- ▶ 1-n: success: n licenses updated.
- ▶ -1: Error:
for example: No connection to the license depot, or target computer cannot be contacted.

23.4 Enter license at the first position in License.ini

The **WriteIniTop** argument carries the given serial number for all products that are included with the license, at the first position in the **License.ini** file at the first position for the respective product.

Example: The **Editor**, **Runtime** and **Process Gateway** products are included with the license. The licenses are entered at the first position for all three products with the command.

CALL

Example for call:

- ▶ Short form: **LicenseManagerAutomation.exe -a WriteIniTop -sn C00WU-Z5SVK-UCGC2-00000-01633**
- ▶ Long form: **LicenseManagerAutomation.exe --action WriteIniTop --SerialNumber C00WU-Z5SVK-UCGC2-00000-01633**

PROCEDURE

The following is applicable for licensing via the command line:

- ▶ The serial number is validated in the first step.
- ▶ The license is then searched for locally and in the network.
Note: If a demo license number is entered, only a local search is carried out.

Only if the license is found is it entered into the **License.ini** file.

MESSAGES

Return values:

- ▶ 0: Success.
License has been successfully entered.
- ▶ -1: Invalid arguments.
Incorrect arguments have been given.
- ▶ -2: Error:
for example: No connection to the license depot, or target computer cannot be contacted.

24 LicenseTypes

There are licenses available for different uses for COPA-DATA products. Each product is also supplied with a demo license. You can find details on products, editions and licenses in the COPA-DATA price list valid for your version.

Licenses can be used with a:

- ▶ *Hardware dongle*: Freely transferable license on a hardware USB dongle.
- ▶ *Software dongle Standard*: Computer-based license on a software dongle.
This is a file in the computer.
- ▶ *Software dongle Virtual Machine*: Computer-based license for use in virtual machines.
This is a file in a virtual machine.

Licenses can be:

- ▶ Available locally or in the network.
- ▶ Given a fixed date of expiry.
- ▶ Configured for a certain period of usage.
- ▶ Configured for a certain time quota.
- ▶ Returned and thus transferred to a different system.

Attention: Licenses with a specific period of usage cannot be returned.

24.1 Licenses and number of licenses/network licenses

The licensing takes into account single licenses, license quantities and network licenses.

A license includes one or more products. For example, an editor and a Runtime are included in the **development environment** license. Each product is administered individually by the licensing. The license version (modules, number of TAGs etc.) is the same for all products in a license. This information is saved for the license and not with the product.

Example: If the license has over 2000 TAGs, 2000 TAGs can be used both in the Editor as well as in Runtime.

The license products do not need to be used on the same computer. They can also be divided. For example, if the editor runs on Computer A, runtime runs on Computer B.

NUMBER OF LICENSES / NETWORK LICENSES

A number of licenses is also stated for each license.

Default: 1

With a number of licenses greater than 1, the products can be used more than once accordingly. If the license has 3 licenses, then e.g. 3 Editors and 3 Runtimes can be started. Because only one editor and/or one runtime can run, the **CodeMeter** runtime must be set up as a network server (on page 181) with a number of licenses greater than 1. So that products can be licensed on additional computers.

HTML WEB ENGINE

With the HTML web engine, the number of instances is licensed, such as 5 instances for example. If such a license is in a bundle with a number of licenses greater than 1, then the instances multiply accordingly.

Example: 3 licenses, each with 5 instances results in 15 HTML web engine instances that can be started.

24.2 End of validity - Period of use - Time quota

Licenses can be limited by:

- ▶ End of validity
- ▶ Time period for use
- ▶ Time quota

END OF VALIDITY

For licenses, a fixed end of validity (=date of expiry) can be saved as a date + time.

The end of validity is programmed into the dongle and can only be validated by means of a license update. The end of validity is a property of the license and thus influences all of the products in the license.

TIME PERIOD FOR USE

A usage time period can be saved for licenses.

The usage time period defines how long the licenses can be used from the first time it is started, for example 30 days from the first time it is started. The usage period is a property of the license and thus

influences all of the products in the license. The first product that is started starts the duration of the time period. This date is saved in the dongle and can only be validated by means of a license update.

TIME QUOTA

If a time quota has been issued for a license, the duration is calculated in minutes. The remaining time is saved in the dongle in a forgery-proof manner.

In doing so, the following applies:

- ▶ Each minute started is deducted from the time quota.
- ▶ The usage time also continues after a dongle is removed and is updated later.
- ▶ Reconnect (on page 161): If, during an automatic switch between licenses, a valid license without time quota is used as a substitute license, the counting of the time is paused until a dongle with a time quota is active again.

Note: Demo licenses for the zenon Runtime are licenses with a time quota.

24.3 Demo licenses and Demo mode

Each installation contains:

- ▶ Demo licenses: Allows you to test a product for a certain time period.
Demo licenses follow the rules for licenses with a time quota (on page 137).
- ▶ Demo mode: Allows you to start a product and use it for a certain period of time. It is closed again afterwards.
Runtime Editor: 10 Minutes
Runtime: 30 minutes

Each installation contains at least one demo license. This has a pre-defined duration or number of permitted starts. If these are used up, the product can continue to be used in demo mode, but it is ended after running for 10 minutes however. You can find out the usage period that is available in the **License Manager** in the **License usage** tab in the details of the license.

COPA-DATA products:

- ▶ zenon Editor with zenon Logic Workbench as a module
- ▶ zenon Runtime:
Runtime for Demo licenses:
 - ▶ 43200 minutes (30 days) on hardware computers
 - ▶ 1440 minutes (1 Tag) for virtual machines
- ▶ zenon Logic Workbench and Runtime
- ▶ Process Gateway and OPC DA Server

- ▶ zenon Web Server and Web Client
- ▶ HTML Web Engine
- ▶ zenon Analyzer
- ▶ Hub Controller
- ▶ Service Grid API
- ▶ Identity Service

Demo licenses have their own software dongles. These cannot be used for other licenses. The last existing demo license cannot be deactivated using the **License Manager**.

The remaining duration and the number of the starts that are still possible for demo licenses and demo mode are shown in the start screen and in the version and license information.

MISSING DEMO LICENSE

If no demo license is available on your computer, then:

1. Open the **License Manager**.
2. Open the **License usage** tab.
3. Select the desired demo license.
4. Select the desired product.
5. Click on the button at the far right of the list.
The button turns green in color and the license is now being used.

Note: If there is also no demo license available in **License Manager**, contact your COPA-DATA sales partner.

Hint

You can use demo licenses to test products and editions. To do this, place the demo license at the first location of the license list in the **License Manager**. This license is used the next time the product is started.

24.4 Education & Training

Licenses for education & training mode are issued especially for training purposes.

They allow a maximum of 90 minutes duration; the program is then ended automatically. There is 90 minutes of running time available again after a restart.

25 Version checking and service period / service agreement

From version 8.00, the product version is saved in the license. The product is only started if the product version of the license and the product version of the product match each other. Otherwise a corresponding error message is shown.

If there is a valid service agreement (SLA/SUS/CDDN), the a service period is saved in the license. All versions that have been unlocked during this service period are covered by the license.

The check is carried out for all products in this sequence:

1. Service period present and valid for the product.
 - ▶ Yes: Product starts.
 - ▶ No: Next step for checking.
2. Product version in license correspond to the product version.
 - ▶ Yes: Product starts.
 - ▶ No: The license is invalid. Product does not start.

Example:

The license has a service period of 1/1/2018 - 31/12/2020. All versions that have been unlocked by COPA-DATA within this time period run with this license. All other versions (earlier or later) cannot be started.

26 Product-specific themes

This chapter contains details about COPA-DATA products:

26.1 Variables: Selecting the appropriate license size

Licenses for zenon Editor and Runtime are always issued for a certain number of TAGs (variables). A TAG corresponds to an external variable, regardless of data type. Internal variables are not counted as a TAG. TAGs are only used for licensing. For determining the license size, the total sum of TAGs from the following drivers are used: All PLCs and bus drivers.

The following are not counted: Internal process variables (**internal driver** for internal use without time stamp) as well as process variables from the **system driver**, **math driver** and **simulator driver**.

For determining the license size, consider the total number of TAGs (= variables) of the following drivers:

- ▶ PLC drivers and bus drivers.

- ▶ **Internal driver** with complete support for all time stamps (internal and external) and complete status display.

You can find further information in relation to this in the driver documentation for the **internal driver** in the **Licensing and display in Runtime** chapter.

Variables of the following drivers do not count:

- ▶ Internal drivers without support for the internal time stamp and limited display of the status bits.

You can find further information in relation to this in the driver documentation for the **internal driver** in the **Licensing and display in Runtime** chapter.

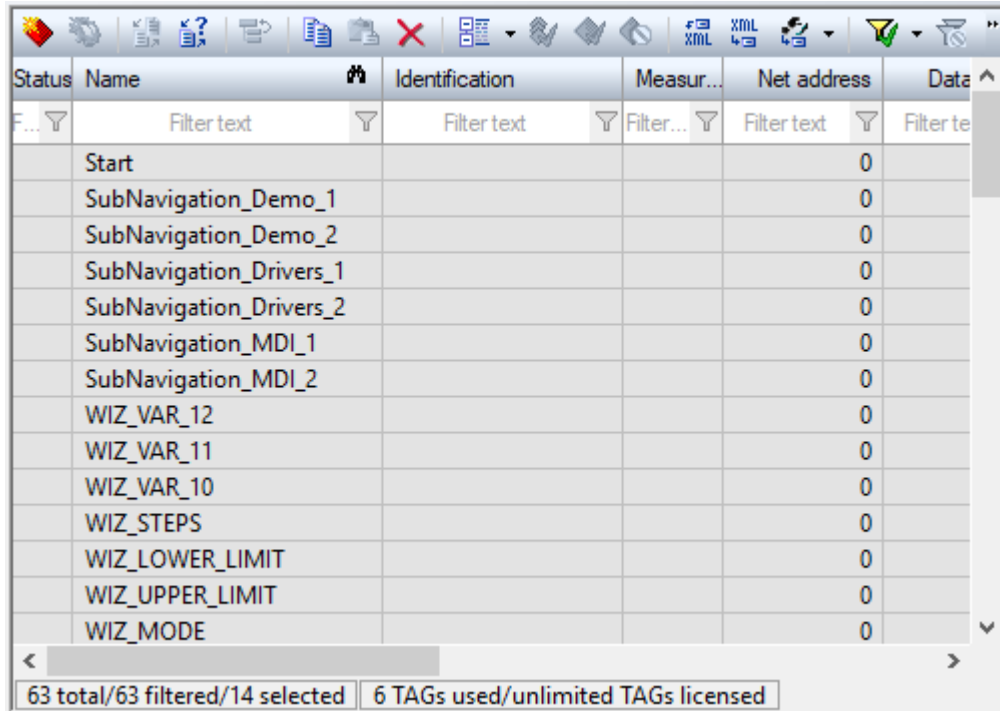
- ▶ **System driver**
- ▶ **Mathematics driver**
- ▶ **Simulation driver**
- ▶ **Alternative Data Point driver**

You can license TAGs for the Editor and the Runtime in the following gradation:

- ▶ 64 TAGs
- ▶ 128 TAGs
- ▶ 256 TAGs
- ▶ 512 TAGs
- ▶ 1,024 TAGs
- ▶ 2,048 TAGs
- ▶ 4,096 TAGs
- ▶ 8,192 TAGs
- ▶ 16,384 TAGs
- ▶ 65536 TAGs
- ▶ unlimited

DISPLAY IN ZENON

In the status line of the detail view of the variables the following information can be found:



Status	Name	Identification	Measur...	Net address	Data
	Start			0	
	SubNavigation_Demo_1			0	
	SubNavigation_Demo_2			0	
	SubNavigation_Drivers_1			0	
	SubNavigation_Drivers_2			0	
	SubNavigation_MDI_1			0	
	SubNavigation_MDI_2			0	
	WIZ_VAR_12			0	
	WIZ_VAR_11			0	
	WIZ_VAR_10			0	
	WIZ_STEPS			0	
	WIZ_LOWER_LIMIT			0	
	WIZ_UPPER_LIMIT			0	
	WIZ_MODE			0	

63 total/63 filtered/14 selected 6 TAGs used/unlimited TAGs licensed

How many variables:

- ▶ are present in the project
- ▶ are shown in filtered form
- ▶ are selected
- ▶ are used in the project
- ▶ are licensed

26.2 Client License

You can use client licenses if:

- ▶ the start project is a standalone project or a client project
- ▶ the start project uses a maximum of 64 TAGs that require licensing, if it is not a client project
- ▶ all sub-projects are client projects

26.3 Licensing drivers

Drivers must be licensed for use in Runtime. There are different models with individual licensing, price groups and free drivers for this. The license models can be mixed. In this case, the licensing is

supplemented. If no driver has been licensed, only the licensed drivers can be used in the Runtime. All drivers can always be used in the Editor.

Note: Drivers do not need a license for use in the Runtime simulation (**Process Recorder** module).

LICENSE MODELS

The following license models are available for drivers:

License model	Description	Example
Individual drivers	Certain drivers have dedicated licenses. Only these drivers that require a license are available in the Runtime.	The IEC850 driver is licensed. Only the IEC850 driver can be used in the Runtime, as well as all license-free drivers, such as internal drivers.
Single price groups	<p>Drivers are licensed by means of price groups. The following are available:</p> <ul style="list-style-type: none"> ▶ Price group A ▶ Price group B ▶ Price group C ▶ Price group R <p>Each group contains certain drivers. You can see the drivers that are contained from the price list valid for your product version.</p> <p>The licensed number of drivers from each group can be used. Several groups can be licensed at the same time.</p>	<p>3 drivers from the A group and 2 drivers from the R group are licensed. 5 drivers from these two groups can be used in the Runtime. This is also applicable in addition to drivers that have been licensed individually.</p>
Price group ABC	A certain number of drivers in the groups A , B or C are licensed. In doing so, drivers in group R are not included.	3 drivers from the price groups ABC are licensed. Three drivers can thus be used in Runtime, regardless of which group (except R). This is also applicable in addition to drivers that have been licensed individually.
Price group ABCR	A certain number of desired	5 drivers from the price

License model	Description	Example
	drivers from the groups A, B, C or R are licensed. Any desired driver from these groups can be used in Runtime, as long as the overall number is not exceeded. Excepted from this are the drivers for SICAM 230 .	groups ABCR are licensed. Five desired drivers can be used in Runtime. This is also applicable in addition to drivers that have been licensed individually or through a group.
Free drivers	Some drivers are license free. These can be used at any time. They are also not deducted from the licensed quantity with price group licenses.	No drivers have been licensed. The internal driver can be used in Runtime however.
Customer-specific driver	If the customer develops their own driver on the basis of the driver kit, it does not need to be licensed.	No drivers have been licensed. However, all self-developed drivers and the internal driver can be used in Runtime.
SICAM 230 driver. (Price group K)	Do not fall under the zenon driver license models and must be licensed individually. These drivers are not licensed by means of price groups.	

Example

Five drivers of price group **ABCR** are licensed, three drivers of price group **R** and the **IEC850** driver. First the **IEC850** driver is checked, then the **R** price group, then the **ABCR** price group.

Result: Nine drivers can be used in Runtime:

- ▶ **IEC850** Driver.
Even if it is part of the **R** group.
- ▶ 3 drivers of **R** group.
In addition to the **IEC850** driver.
- ▶ 5 further drivers.
In addition to the 3 drivers of the **R** group and the **IEC850** driver.

CHECK IN RUNTIME

In Runtime, all projects including subprojects are checked to ensure that the drivers used are licensed. If a driver is not licensed, an error message is issued and an entry is written to the LOG file. The Runtime is closed. A driver is not licensed if none of the models available has a valid license

Procedure for checking:

1. First a check is carried out to see if it is a license-free driver.
It is accepted if that is the case. It is no longer taken into account for individual licensing, group licensing or price group licensing.
2. The individual licensing is checked if it is not a license-free driver.
The driver is accepted if it is included here. It is no longer taken into account for group licensing or price group licensing.
3. If the driver is not included in the individual licensing, the group licensing is checked.
The driver is accepted if it is included here. It is no longer taken into account for price group licensing.
4. If the driver is not included in group licensing, the price group licensing is checked.
If there is still a license available for a driver, it is accepted.
5. It is not evaluated as licensed if the driver is not contained in any model.

Note: SICAM 230 drivers must always be licensed individually. They are checked separately and no longer covered by the other zenon license models.

You can however check which drivers are licensed:

- ▶ In the **License Manager**
- ▶ In the Editor in the License information (on page 148).
- ▶ In Runtime using the **Show license information** function

BEHAVIOR WITH SUBLICENSING

If it is established in Runtime that non-licensed drivers are being used, a corresponding error message is given. The message states that at least 1 driver has not been licensed. Runtime is ended afterwards.

This is how you amend the licensing:

1. Open the **License Manager**.
2. Check in the License usage (on page 78) tab:
 - ▶ Which license is currently being used for Runtime.
 - ▶ How many and which drivers have been licensed.
3. Check which drivers are used in the project configuration.
4. License the missing drivers.

5. Restart Runtime.
6. The driver licenses are checked and Runtime starts with successful checking.

26.4 zenon Analyzer licensing

The components of zenon Analyzer must have a valid license. The servers and clients must be licensed for the same version.

The license data is entered via the **License Manager**. This dialog (on page 66) is also used for other COPA-DATA products.

Note: Ensure that you have sufficient licensing to provide all users with a fixed license and possibly provide additional users with licenses.

LIMITATIONS

There are the following restrictions without a valid license:

- ▶ No external access via the default access site is possible.
- ▶ There is no connector functionality
- ▶ Report templates and reports cannot be used.
- ▶ ZAMS, Data Editors and the Prediction Model Manager can be started without a license, but do not allow connection to the Analyzer Server.

Without connection it is only possible:

- ▶ To configure the application
- ▶ Opening the version information
- ▶ Opening the help
- ▶ Opening the **License Manager** (ZAMS only)

Note: If a license is lost during ongoing operation, all reports that are open in ZAMS are closed. You are able to save them before they are closed.

LICENSING IN WORKGROUPS

For licensing for computers that are not in domains, but in Windows workgroups, note the procedure in the Licensing in workgroups (on page 147) chapter.

NUMBER OF DEVICES PER USER

From version 3.40, up to three different devices at the same time are permitted for each user. Each user can occupy up to three devices with their user name. Further devices are declined.

If a device is inactive for a period of time, the license allocation also expires. This license that has become free can be assigned to a new device.

Waiting periods:

- ▶ ZAMS, Prediction Model Manager, Manual Data Editor and Metadata Editor: 30 seconds
- ▶ Report Launcher: 15 minutes

26.4.1 Licensing in workgroups

Licensing for zenon Analyzer in Windows workgroups is different from the licensing for domains.

REQUIREMENTS

For licensing within workgroups, the zenon Analyzer License Service must work in Workgroup mode. To do this, the following requirements must be fulfilled:

- ▶ The computer that acts as the Analyzer Server must be a member of the workgroup.
- ▶ All users of the workgroup must also be present on the Analyzer Server.
- ▶ The license service on the Analyzer Server must run in the user context of a user of the workgroup. Other computers in the workgroup are thus recognized as members of the group. The local account must not be a local system account. It is nevertheless set up as a system account during installation.

CHANGING LICENSE SERVICE USER CONTEXT

This is how you change the user context for the license service:

1. Open the administration of the local services.
2. Go to the **zrsLicSrv** service.
3. Stop the service.
4. Click on **Properties** in the context menu of the service.
The dialog with the properties of the service is opened.
5. Open the **Log in** tab.
6. Activate the **This account** radio button.
7. Enter the user name, password and password confirmation for the desired user.
8. Close the dialog by clicking on **OK**.
9. Start the service.

Attention

The same user who is used for **zenLicSrv** must be present on all other computers on which an Analyzer application is used for all groups in the workgroup (ZAMS, metadata editor, manual data editor, Prediction Model Manager).

Otherwise the license server will not be found because the identification of the computer always fails.

Administrator rights are not mandatory on these computers.

If, on a computer that is relevant for the **zenLicSrv**, a user is switched, you must restart the **zenLicSrv**!

27 Display version and license information

You can see the version and license that you are currently using and which modules are included in this in the license information for the respective product.

27.1 zenon Editor:

To display license information in the Editor:

1. Open the menu **Help**.
2. Click on **About...**

The license information dialog is opened.

LICENSE INFORMATION DIALOG

License information - zenon Energy Edition Editor [X]

Version
Version 8.00 SP0 Build44702 64Bit

Edition
zenon Energy Edition

Serial number
C00E3-HT9WK-E2DFJ-00000-02054

Detail information

Licensed product versions: 8.00, 8.10

Number of TAGs: Unlimited
Licenses for drivers of all price groups: Unlimited

Licensed modules:
Load flow calculation
State Estimator
Message Control
Recipe Group Manager
Process Recorder
3D Integration
Extended Trend
Historian
Historian and Extended Trend - Starter Edition
Reporting: Report Generator and Report Viewer
SAP Interface
SQL export

Open license administration... Close

Option	Description
Version	Editor version number.
Edition	Edition used.
Serial number	License serial number.
Expiration time (optional)	Shows, with a time-limited license, information about the expiry date.
Detail information	Information on licensed: <ul style="list-style-type: none"> ▶ Version ▶ Variables ▶ Modules and their their expansion

Option	Description
Open License Administration	Opens the License Manager . Licenses can be activated, returned and managed with this tool. The serial number is needed for this.
Close	Closes the dialog.

27.2 zenon Runtime

To display license information in Runtime:

1. Configure the function **Show license information**.
2. Execute this in Runtime.

The license information dialog is opened.

LICENSE INFORMATION DIALOG

License information - zenon Energy Edition Runtime X

Version
Version 8.00 SP0 Build44702 64Bit

Edition
zenon Energy Edition

Serial number
C00E3-HT9WK-E2DFJ-00000-02054

Detail information

Licensed product versions: 8.00, 8.10

Number of TAGs: Unlimited
Licenses for drivers of all price groups: Unlimited

Licensed modules:
Load flow calculation
State Estimator
Message Control
Recipe Group Manager
Process Recorder
3D Integration
Extended Trend
Historian
Historian and Extended Trend - Starter Edition
Reporting: Report Generator and Report Viewer
SAP Interface
SQL export

Close

Option	Description
Version	Version number of Runtime.
Edition	Edition used.
Serial number	License serial number.
Expiration time (optional)	Shows, with a time-limited license, information about the expiry date.
Detail information	Information on licensed: <ul style="list-style-type: none"> ▶ Version ▶ Variables ▶ Modules and their their expansion

Option	Description
Close	Closes the dialog.

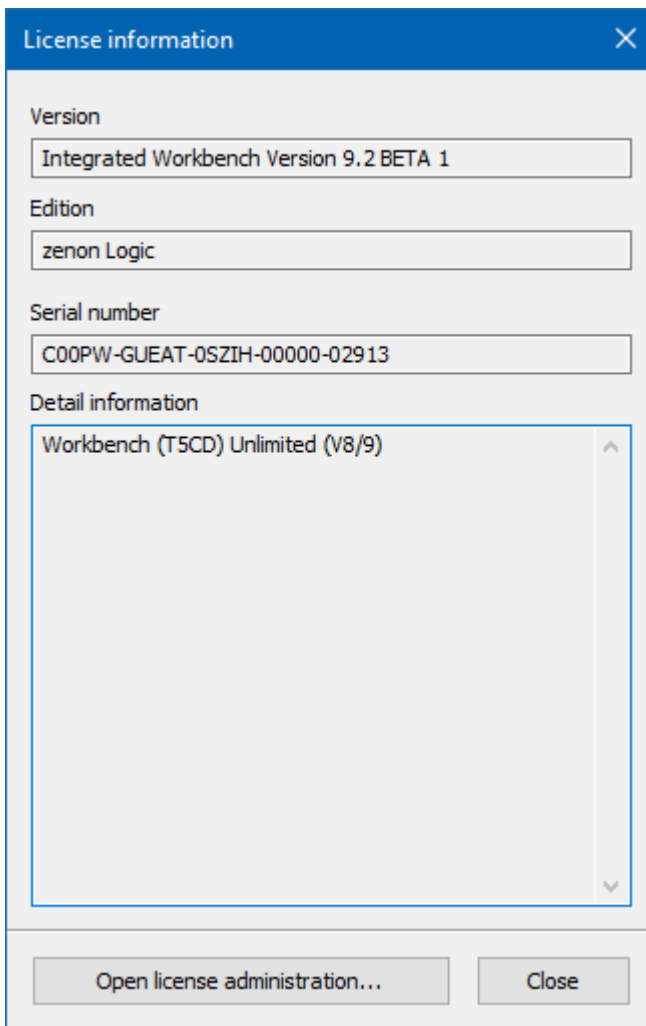
27.3 zenon Logic Workbench

To display license information in zenon Logic Workbench:

1. Open the menu **Help**.
2. Click on **About...**

The license information dialog is opened.

LICENSE INFORMATION DIALOG



The image shows a screenshot of the 'License information' dialog box. The dialog has a blue title bar with the text 'License information' and a close button (X). The main content area is white and contains the following information:

- Version:** Integrated Workbench Version 9.2 BETA 1
- Edition:** zenon Logic
- Serial number:** C00PW-GUEAT-0SZIH-00000-02913
- Detail information:** Workbench (T5CD) Unlimited (V8/9)

At the bottom of the dialog, there are two buttons: 'Open license administration...' and 'Close'.

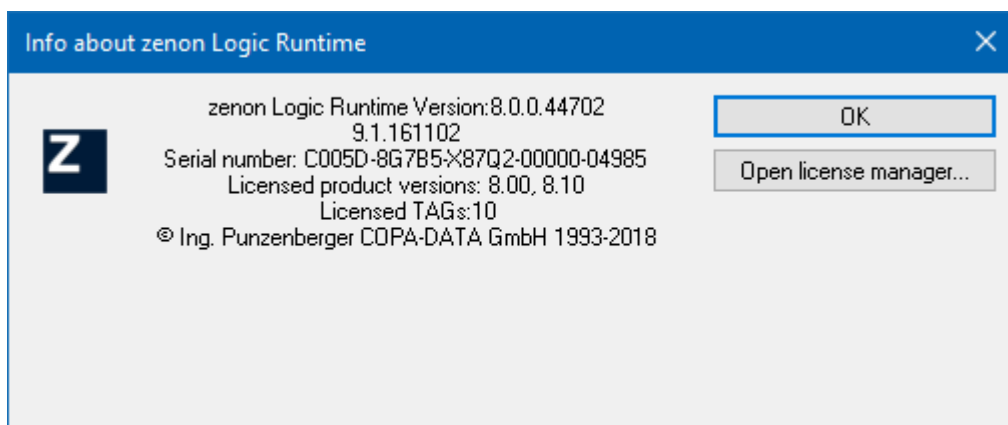
Parameters/buttons	Description
Version	Version number of the integrated workbench.
Edition	Edition used.
Serial number	License serial number.
Detail information	Shows details on the license.
Open license administration	Opens the License Manager . Licenses can be activated, returned and managed with this tool. The serial number is needed for this.
Close	Closes the dialog.

27.4 zenon Logic Runtime

To view the license information:

1. With Runtime running, double-click on the symbol for zenon Logic in the system tray.
The dialog with status information is opened.
2. In the top left corner, click on the zenon Logic logo.
3. In the drop-down list, select **About zenon Logic Runtime....**
The dialog with the license information is opened.

LICENSE INFORMATION DIALOG



The dialog shows information about the license currently being used.

Option	Description
OK	Closes the dialog.
Open license administration...	Opens the License Manager . Licenses can be activated, returned and managed with this tool. The serial number is needed for this.

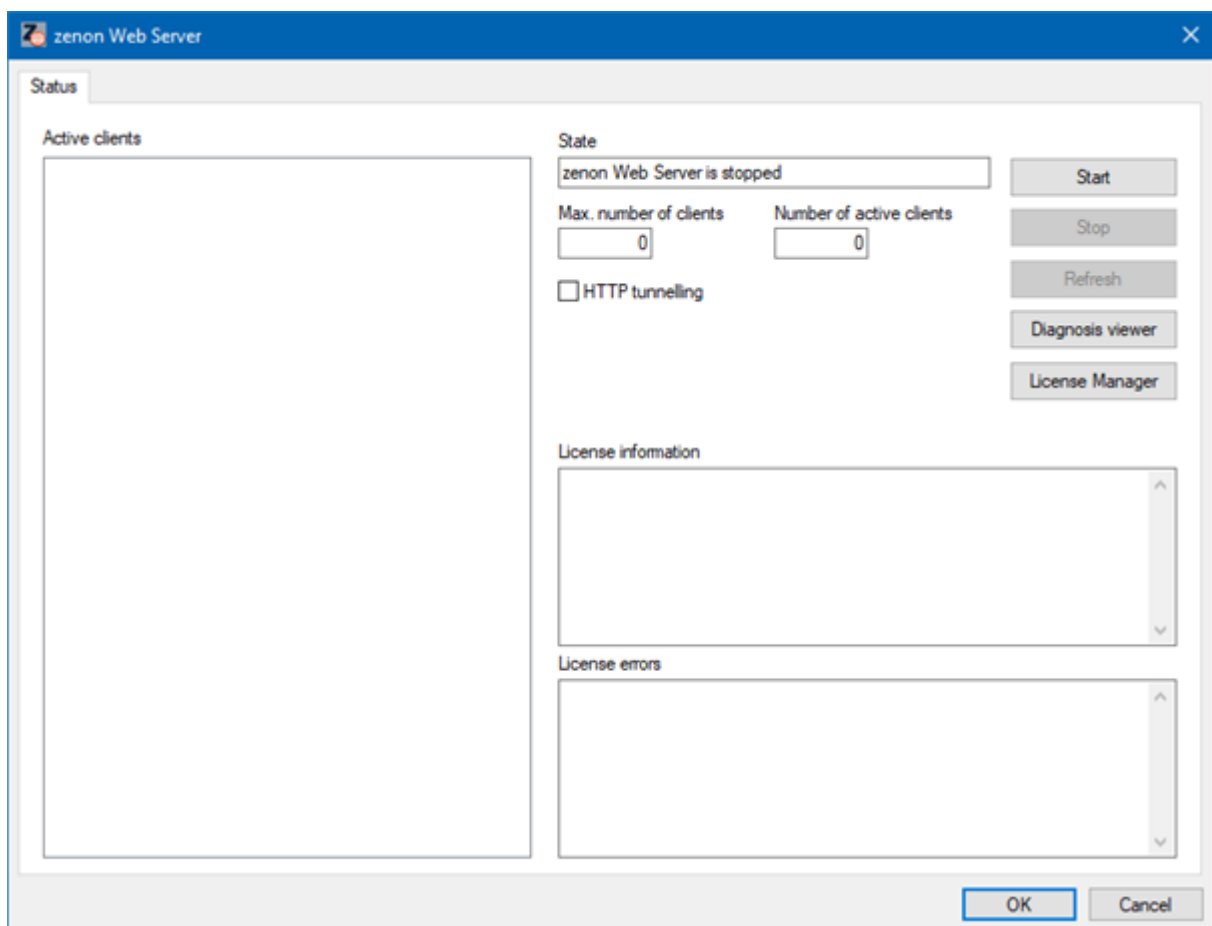
27.5 zenon Web Server

To view license information:

1. Open the **Control Panel** or the **Start Menu**.
2. Click on **zenon Web Server**.

The dialog for configuration and licensing is opened.

ZENON WEB SERVER DIALOG



Option	Description
Active Clients	List of the currently-connected zenon web clients.
State:	<p>Displays version and status of the Web Server:</p> <p>Possible versions:</p> <ul style="list-style-type: none"> ▶ zenon Web Server ▶ zenon Web Server Pro ▶ zenon Web Server Pro Light <p>Possible status messages:</p> <ul style="list-style-type: none"> ▶ <i>running</i>: Web Server is running with valid license ▶ <i>stopped</i>: Web Server has been stopped ▶ Demo mode: Web Server is running in demo mode without license ▶ <i>not installed</i>: Web Server not registered as a service or installation error
Max. number of clients:	<p>Maximum number of clients that are permitted to connect to the Web Server. The number is defined by the license. Two clients are licensed for 30 minutes in demo mode.</p> <p>Default:0</p>
Number of active clients:	Displays the number of clients currently connected.
HTTP tunnelling	<p><i>Active</i>: HTTP tunneling is activated.</p> <p>Not available in the Web Server Pro Light version.</p> <p>Note: Can only be changed if the Web Server has the status <i>stopped</i>. Cannot be switched during operation.</p> <p>Default: <i>inactive</i></p>
Start	Starts the Web Server
Stop	Stops the Web Server
Refresh	Refreshes the display.
Diagnosis Viewer	Opens the Diagnosis Viewer to evaluate error messages.

Option	Description
License Manager	Opens the License Manager . Licenses can be activated, returned and managed with this tool. The serial number is needed for this.
License information	Shows information about the license currently being used. <ul style="list-style-type: none">▶ If used: demo license / education & training license▶ Licensed product versions▶ Serial number▶ Expiry time / duration of use
License errors	Shows information about errors for the licenses found.
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

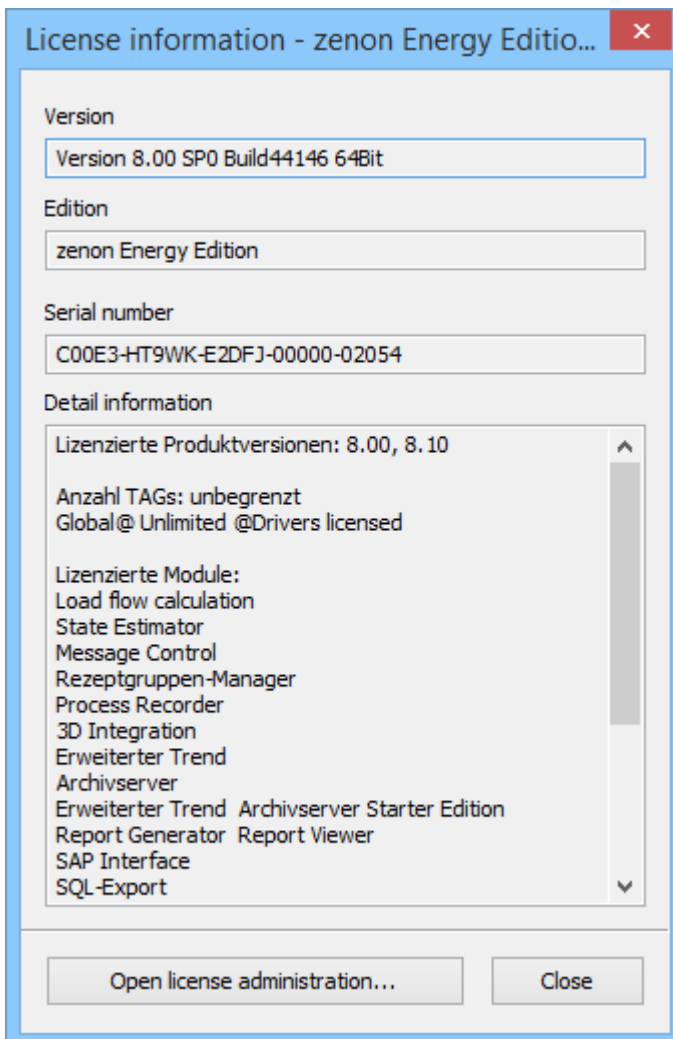
27.6 HTML Web Engine

To display license information in the HTML web engine:

1. Open the menu **Help**.
2. Click on **About...** .

The license information dialog is opened.

LICENSE INFORMATION DIALOG



License information - zenon Energy Editio...

Version
Version 8.00 SP0 Build44146 64Bit

Edition
zenon Energy Edition

Serial number
C00E3-HT9WK-E2DFJ-00000-02054

Detail information

Lizenzierte Produktversionen: 8.00, 8.10

Anzahl TAGs: unbegrenzt
Global@ Unlimited @Drivers licensed

Lizenzierte Module:
Load flow calculation
State Estimator
Message Control
Rezeptgruppen-Manager
Process Recorder
3D Integration
Erweiterter Trend
Archivserver
Erweiterter Trend Archivserver Starter Edition
Report Generator Report Viewer
SAP Interface
SQL-Export

Open license administration... Close

Option	Description
Version	Editor version number.
Edition	Edition used.
Serial number	License serial number.
Detail information	Information on licensed: <ul style="list-style-type: none"> ▶ Version ▶ Variables ▶ Modules and their their expansion
Open license manager	Opens the License Manager . Licenses can be activated, returned and managed with this tool. The serial number is needed for this.

Option	Description
Close	Closes the dialog.

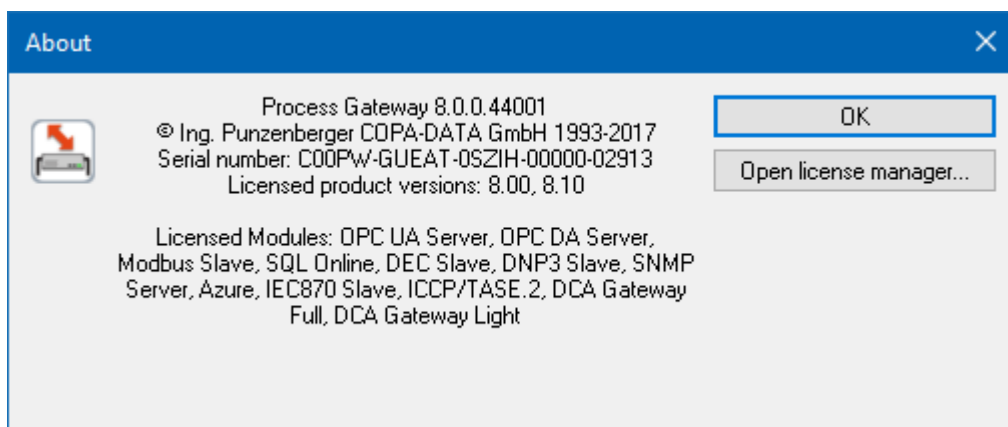
27.7 Process Gateway

To view license information in the **Process Gateway**:

1. Open the **Process Gateway**.
2. Click the **About** button .

The **About** dialog is opened.

DIALOG ABOUT



Option	Description
License information	Information on licensed modules including serial number.
OK	Closes the dialog.
Open license manager	Opens the License Manager . Licenses can be activated, returned and managed with this tool. The serial number is needed for this.

If the **Process Gateway** is opened without an existing module configuration, a model must be selected first. After selecting a module, the corresponding start dialog for the **Process Gateway** is opened. In doing so, the **Settings** button is inactive until the **Process Gateway** is licensed.

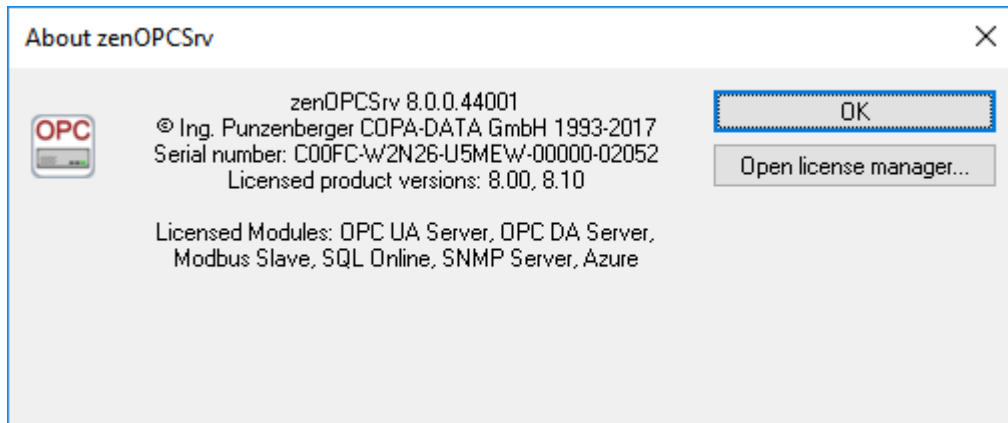
27.8 OPC DA Server

To display license information in the Process Gateway:

1. Open the OPC DA server.
2. Click **About**.

The **About** dialog is opened.

DIALOG ABOUT



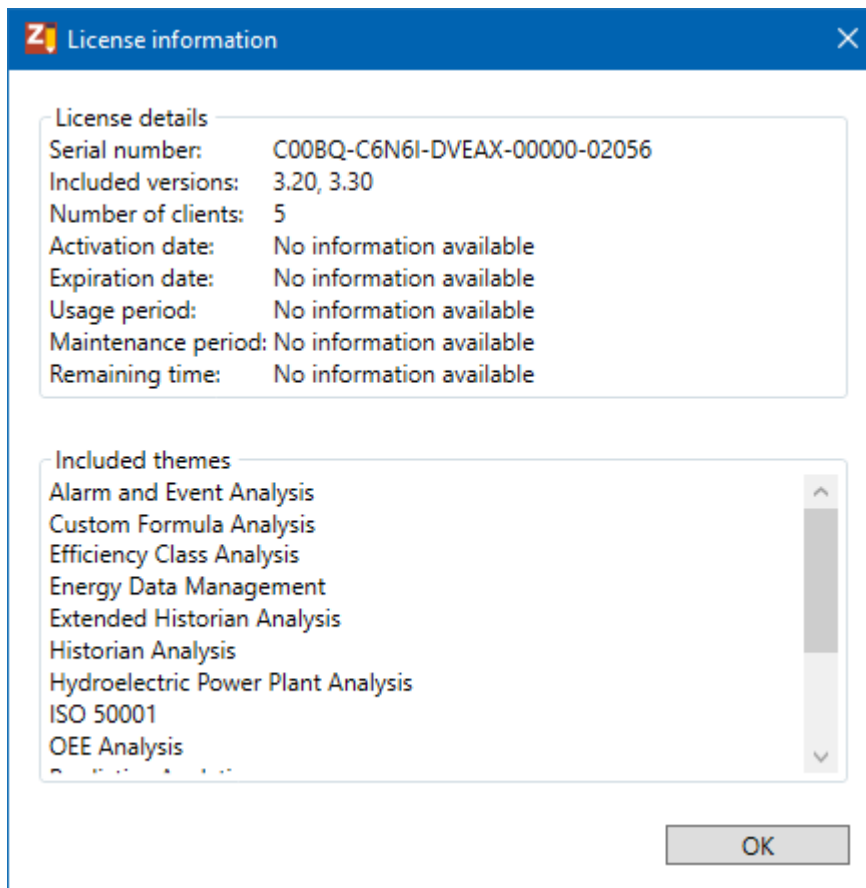
Option	Description
License information	Information on licensed modules including serial number.
OK	Closes the dialog.
Open license manager	Opens the License Manager . Licenses can be activated, returned and managed with this tool. The serial number is needed for this.

27.9 zenon Analyzer

To display the license used by the Analyzer server:

1. Select, in the **Analyzer server** ribbon, the **Show license** command

The dialog with the license information is opened.



Option	Description
Licensing details	Shows the details of the actual license. Above all: <ul style="list-style-type: none"> ▶ Serial number ▶ licensed versions ▶ Licensed clients ▶ Validity and expiration data
Included themes	Display of the report themes, included in this license.
OK	Closes the window.

For details on licensing, see also the **Licensing** (on page 146) chapter.

28 Redundant license protection

In some equipment, constant availability is essential. It must be ensured that the license protection can always be achieved. For such applications, a license search list can be created (on page 78) in the **License Manager**.

This search list is taken into account both when starting as well as during ongoing operation. All products always attempt to assign the next license in the list. Demo licenses are not taken into account at the time. If a license expires during ongoing operation, the next license is automatically used as a substitute license, if it complies with the rules.

RULES FOR THE RECONNECT

The following is applicable during a reconnect:

- ▶ The sequence of the query corresponds to the sequence in **License.ini**. This is established via the **License Manager** in the **License usage** (on page 78) tab.
- ▶ A maximum of 10 licenses are queried.
- ▶ In runtime, demo licenses are not taken into account as substitute licenses. They are skipped.
- ▶ A substitute license must be valid for the product version used and must be at least the same license version as the original license. It can also have a higher license version, for example more TAGs, more modules, etc. However, it is always only the versions available in the original license that are provided.
- ▶ The edition must be the same in both licenses.
- ▶ Examples:
 - ▶ Example 1: The license used the first time Runtime is started is an operator license. The substitute license is a supervisor license. The substitute license cannot be used because the edition is not the same.
 - ▶ Example 2: The license used when Runtime is started for the first time has 2000 TAGs, the Historian, Extended Trend modules and two drivers licensed. The substitute license has 4000 TAGs, in addition the Message Control module and three drivers are licensed. The substitute license is used. The increased TAG number, the new modules and drivers cannot be used however.

BEHAVIOR ON RESTARTING

On restarting, the license search list in *License.ini* is also taken into account. The difference to the reconnect:

- ▶ No comparison with the first license is made
- ▶ The complete version of the license is taken into account

- ▶ Demo licenses are taken into account.
Attention: This may result in unwanted behavior.
If you have, for example, entered a demo license as a second license, the behavior is different when restarting and reconnecting:
 - ▶ With a reconnect, the demo license is skipped and the third license is used.
 - ▶ The demo license is started when restarting.

29 Defective hard drive - replace hard drive - reinstall operating system

This chapter describes the procedure if a software dongle is used and the hard drive is replaced or the operating system is reinstalled.

Note: With hardware dongles, the license must be transferred again when the operating system is reinstalled. For details, see the Apply license from the hardware dongle (on page 72) chapter.

SOFTWARE DONGLE: PLANNED HARD DRIVE REPLACEMENT - REINSTALL OPERATING SYSTEM

If you want to replace the hard drive with the operating system (generally the **C** drive) or reinstall the operating system:

1. Return the license punctually.
2. Replace the hard drive and/or reinstall the operating system.
3. Activate the licenses again.

You can find details in chapter **Transfer/relocate license** (on page 113).

SOFTWARE DONGLE: UNPLANNED HARD DRIVE REPLACEMENT

If the hard drive designated as the **C** drive is defective, the license can no longer be returned to the license depot. The license is thus lost. This is also applicable if the operating system has been reinstalled without the license having been returned beforehand. In general, the same serial number can be used again for reactivation.

Attention


No components other than the hard drive can be replaced. A replacement license must be issued if other components are changed.

To restore a license when a hard drive is replaced:


1. Set up the computer again and reinstall zenon.
2. Start the **License Manager**.
3. Switch to the **Activate license** tab in the advanced view.
4. Select the option **Offline activation**.
5. Enter the serial number that was used for the last activation.
6. Click on the **Create license request file** button.
7. Open the web browser.
8. Do not under any circumstances open the web address that is shown in the dialog!
Instead, you must open this web address:
<https://copadata-license.copadata.com/restore.php>
(**<https://copadata-license.copadata.com/restore.php>**)

HOME

English

 **COPADATA**
don't just read

zenon - restore license on the same computer



Conditions for restoring a license
If a software dongle can no longer be used due to a license breach, you can restore the license(s) on the same computer. Please note that the original dongle thus becomes **locked**. All licenses on this dongle are invalidated as a result.
By continuing, you confirm that the corresponding dongle no longer exists and that you are no longer using the original license(s).

Upload request

Download update

Upload confirmation

First step: Upload request

1. Start the zenon License Management.
2. Switch to the **Activate license** tab there.
3. Activate the **Offline activation** option.
4. Enter, in the **Serial Number** input field, the serial number for the license that you want to restore.
5. Select the corresponding dongle in the **Select target dongle** option.
6. Create a license request file (*.LicReq).
To do this, click on the **Create license request file...** button.
7. Upload the license request file thus created (*.LicReq) on this website.
Click on the **Browse...** button and select the file.
8. Click on the **Upload Request and Continue** button.

Select your license request file (*.LicReq)

Browse...

Upload request and continue

Attention: There is an error message if the host computer is not recognized as identical to the original activation computer. A substitute license (on page 164) must be requested in this case.

9. Upload the license request file **<SN>.LicRec**.
10. Download the update file **<SN>.LicUpd**.
11. Transfer the update file to the **License Manager**.
12. Upload the **<SN>.LicConf** confirmation file.

Your license is ready to use again.

30 License invalidation with software dongles

Licenses for software dongles are computer-based. They can only be used on the originally-licensed computers. They are invalid if they are used on other computers.

Whether a license can continue to be used when a computer is physically rebuilt depends on which components and how many components are changed. A change of the computer name or a replacement of a hard drive (except drive **C**) generally does not constitute a problem.



Information

Licenses can be returned and reactivated. It is thus possible to transfer a license to another computer or to another virtual machine without invalidating the license.

TYPES OF SOFTWARE DONGLES

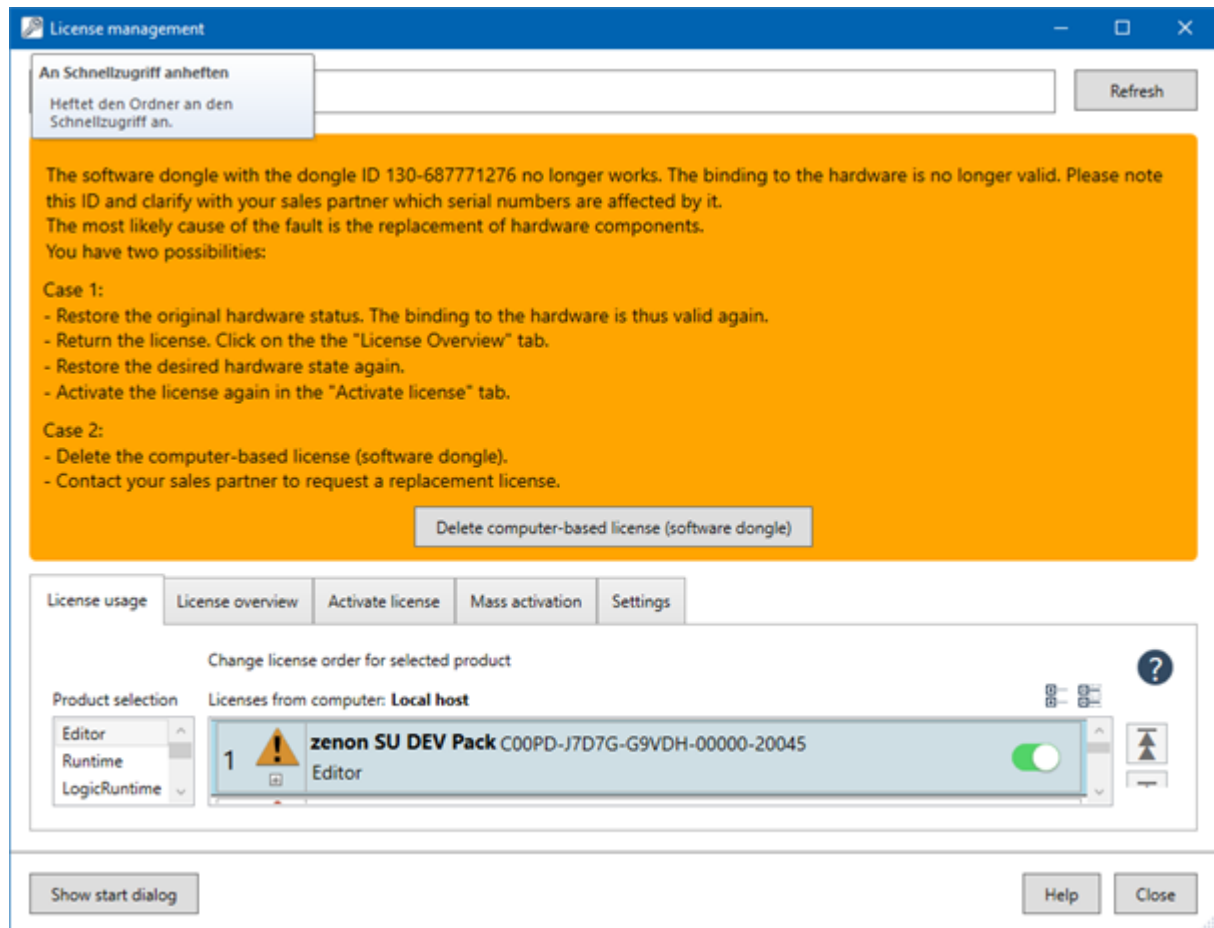
Software dongles are available in the following types. They are different in the way that they are used and in triggers for license invalidation.

Dongle type	Functionality	License invalidation
Software-Dongle Standard: (computer-based license)	<ul style="list-style-type: none"> ▶ License is only valid on the computer on which it was activated. ▶ License can only be used on a physical computer, but not in a virtual machine. 	The license is invalidated as a result of the following events: <ul style="list-style-type: none"> ▶ The hardware of the computer is changed. ▶ The operating system is reinstalled. For details in relation to this, read the Defective hard drive - replace hard drive - reinstall operating system (on page

Dongle type	Functionality	License invalidation
		162) chapter.
Software-Dongle VirtualMachine: (computer-based license for virtual machine)	<ul style="list-style-type: none"> ▶ License is only valid on the host computer on which the virtual machine was activated. ▶ License can be used in a virtual machine and on a physical computer. 	The license is invalidated as a result of the following events: <ul style="list-style-type: none"> ▶ The virtual machine is transferred to another host computer. ▶ The hardware of the host computer is changed. ▶ The parameters of the virtual machine have been changed too much. For example: Number of CPUs or MAC addresses of the network adapter.
Software-Dongle VM DataCenter: (license for virtual machine in data center)	<ul style="list-style-type: none"> ▶ License can be used in a virtual machine in a public data center such as Microsoft Azure or Amazon Web Services (AWS), as well as in private data centers. ▶ The virtual machine can be moved to different host systems within the data center. 	The license is invalidated as a result of the following events: <ul style="list-style-type: none"> ▶ The virtual machine is copied.

LICENSE INVALIDATION

If a license becomes invalid, a corresponding message is shown in the **License Manager**. Depending on the cause of the license invalidation, the license can either be restored or must be replaced with a new license.



Attention: Always note the serial numbers in question if a license is invalidated! If the serial numbers can no longer be established, the **Dongle-ID** must be given. You must therefore always note the **Dongle-ID** shown in the error message. Only then can the license issuer find out which dongles have been activated on the dongle. No other information can be read from invalidated software dongles.

RESTORING AND SUBSTITUTE LICENSES

If a software dongle becomes invalid, the licenses contained on it can be restored or re-requested under certain conditions.

- ▶ Restoring of the original status.
The software dongle becomes valid again as a result. The license can then be transferred with the regular procedure (on page 113).
- ▶ Restoring is no longer possible. Requesting a replacement license.

RESTORE LICENSE

A license can be restored if the physical status of the host can be reset back to the initial status.

1. Restore the computer's original hardware status. For example, by transferring the virtual machine back to the original host system.
The time of the zenon installation is decisive for the original status. The software dongle is bound to the hardware during installation.
2. The license is valid again.
3. Return the license.
4. Transfer the virtual machine or change the computer's hardware.
5. Activate the license again.

REQUEST SUBSTITUTE LICENSE:

A substitute license can be issued in the following cases:

- ▶ A license has been invalidated and cannot be restored.
- ▶ A license had been irretrievably lost due to a defective hard drive. Also see chapter: Defective hard drive - replace hard drive - reinstall operating system (on page 162)

The previous dongle is locked when the substitute license is issued. It can no longer be used. All licenses that were saved on the dongle thus become invalid. The lost serial numbers are required for the creation of substitute licenses. If these cannot be established, they can be found out via the **Dongle-ID**.

1. Delete the invalidated license
2. Contact your sales partner.
3. Request a new license.
4. Activate the new license.

Attention

Virtual machine in data center:

In a public data center such as Microsoft Azure or Amazon Web Services (AWS), as well as in private data centers, automated switching of the host system can trigger license invalidation on a virtual machine. In this case, request a license that is suitable for data centers from the license issuer.

31 Switch between virtual machine and Virtual Machine DataCenter

A virtual machine can either be operated with the **Software-Dongle VirtualMachine** dongle type or with the **Software-Dongle VM DataCenter** dongle type. The **Software-Dongle VirtualMachine** dongle type is generally used. If the virtual machine is operated in a public data center such as Microsoft Azure or Amazon Web Services (AWS), or in a private data center, it is expressly recommended that the **Software-Dongle VM DataCenter** dongle type is used. Otherwise the software dongle would be invalidated (on page 164) each time the host system is switched. The switch cannot generally be influenced by the user. Unlocking of this dongle type must be applied for from the license issuer.

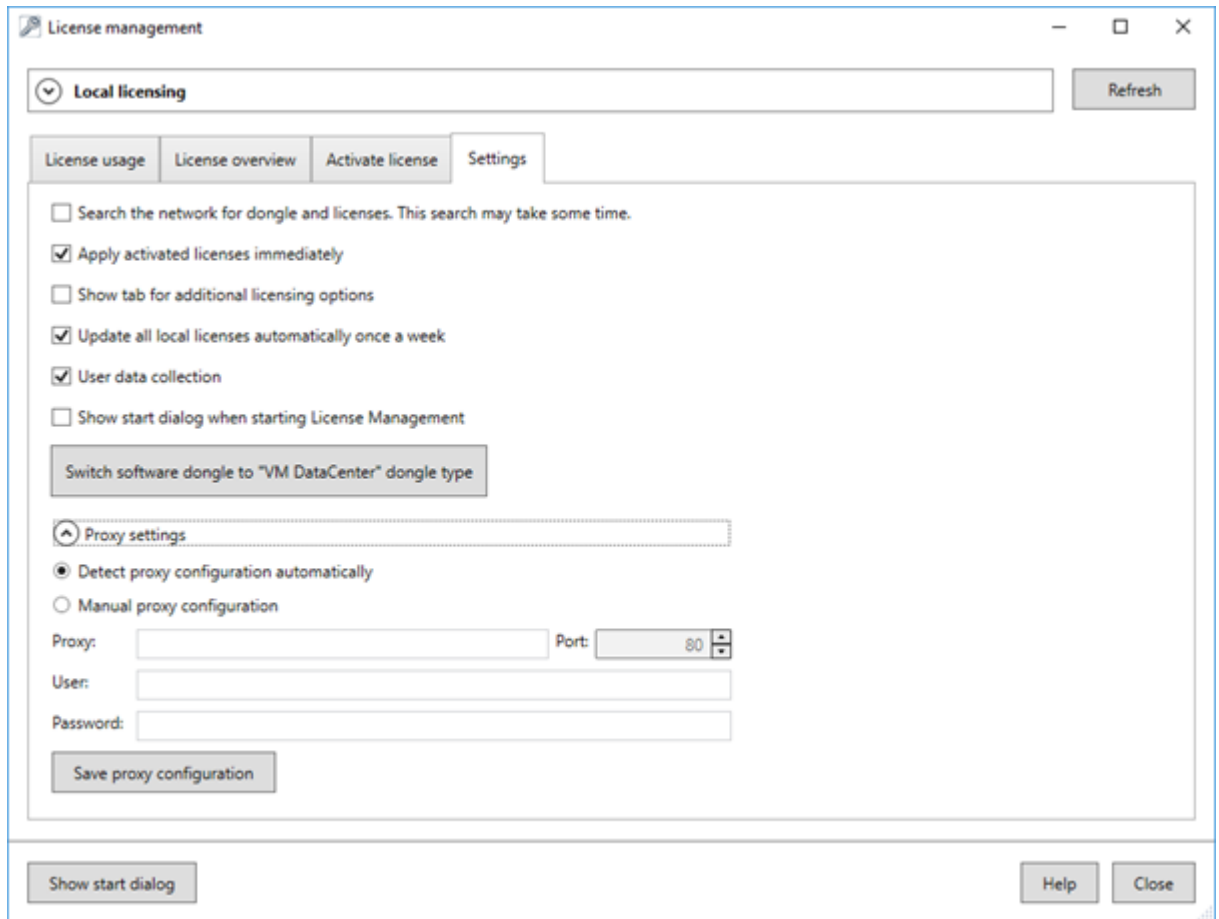
The switch is manual by switching in the **License Manager** or automatic by applying a corresponding license.

MANUAL SWITCH OF VIRTUAL MACHINE TO VIRTUAL MACHINE DATACENTER

Manual switch via **License Manager**:

1. Start the **License Manager** in the virtual machine.
2. Return licenses if there are any on the dongle.
3. Open the **Settings** tab.

4. Click on the **Switch software dongle to "VM DataCenter" dongle type**.



Note: This button is only displayed for licensing in a virtual machine.

5. Confirm this when requested to do so.

The existing **Software-Dongle VirtualMachine** is deleted and a **Software-Dongle VM DataCenter** is created.

The button changes its function to **Switch software dongle to "Virtual Machine" dongle type**.

6. Activate the required licenses on the new dongle.

To change a dongle to **Software-Dongle VirtualMachine**, carry out the steps again and click on **Switch software dongle to "Virtual Machine" dongle type**.

THE DONGLE IS SWITCHED AUTOMATICALLY WHEN A LICENSE IS ACTIVATED ONLINE.

The dongle **Software-Dongle VirtualMachine** and **Software-Dongle VM DataCenter** can also be switched automatically during online activation.

This happens if:

- ▶ The target dongle is empty and
- ▶ a corresponding license is activated on it

An error message is shown if there are already licenses present.

Note:

- ▶ If a license that is unlocked for **Software-Dongle VM DataCenter** is activated on a **Software-Dongle VirtualMachine**, the license loses its property of being able to be deployed in a data center regardless of hardware.
- ▶ If the dongle type is automatically switched during the licensing procedure but the licensing process fails, the dongle type is not reset.

EXAMPLE

A license for **Software-Dongle VM DataCenter** is activated online on a **Software-Dongle VirtualMachine** dongle. The dongle does not yet contain a license. It is automatically switched to a **Software-Dongle VM DataCenter**.

32 License query during operation

The license for the product being used is regularly checked during ongoing operation. If there is no license, an attempt is made to establish the connection again. If that does not succeed, the computer and the license are checked for further suitable licenses. The remaining validity can also be displayed in the Runtime.

DISPLAY OF THE REMAINING VALIDITY IN THE RUNTIME

To show in the Runtime how long the license is still valid:

1. Create a system driver variable **[system information] remaining time until license expiration**.
2. Evaluate the display in the Runtime.

This variable shows in the Runtime how long the current license is still valid.

The display is in hours for:

- ▶ Demo license
- ▶ License with expiration date
- ▶ Borrowed license with expiration date

- ▶ No valid license found:
If no valid alternative license is found, the variable **[System information] License protection present** will be set to 0 and the remaining time will be displayed with this variable 0.

In all other cases, the value 4294967295 will be displayed.

Note: The information displayed always relates to the currently valid license. If you change to a different license, for example, due to a network failure, the remaining period of validity will also change.

RULES FOR THE RECONNECT

The following is applicable during a reconnect:

- ▶ The sequence of the query corresponds to the sequence in **License.ini**. This is established via the **License Manager** in the **License usage** (on page 78) tab.
- ▶ A maximum of 10 licenses are queried.
- ▶ In runtime, demo licenses are not taken into account as substitute licenses. They are skipped.
- ▶ A substitute license must be valid for the product version used and must be at least the same license version as the original license. It can also have a higher license version, for example more TAGs, more modules, etc. However, it is always only the versions available in the original license that are provided.
- ▶ The edition must be the same in both licenses.
- ▶ Examples:
 - ▶ Example 1: The license used the first time Runtime is started is an operator license. The substitute license is a supervisor license. The substitute license cannot be used because the edition is not the same.
 - ▶ Example 2: The license used when Runtime is started for the first time has 2000 TAGs, the Historian, Extended Trend modules and two drivers licensed. The substitute license has 4000 TAGs, in addition the Message Control module and three drivers are licensed. The substitute license is used. The increased TAG number, the new modules and drivers cannot be used however.

LICENSE LOSS WITHOUT SUBSTITUTE LICENSE

If no valid license is found when running, the products act as follows:

- ▶ zenon Runtime: Runtime continues.
Entries are written to the CEL. The presence of license protection can be locally monitored and in the network using the system driver variable **available license protection**.
Attention: For time-limited licenses, Runtime will be terminated with an error message at the end of the license. Runtime will continue to operate until the error message is confirmed by clicking on **OK**. However it is no longer operable.

- ▶ zenon Web Server: The zenon web server continues to run. Corresponding information is shown in the zenon web server dialog.
- ▶ zenon Editor: Then the Editor is closed.
- ▶ HTML Web Engine: (continues to be executed)
- ▶ zenon Logic, Process Gateway and OPC DA Server: All products continue to be executed. The loss of a license is shown in the **About...** dialog.
- ▶ zenon Analyzer ZAMS: Is closed.
- ▶ zenon Analyzer Report Launcher: New reports cannot be opened. Opened reports cannot be updated.

The following applies to products: If no license is available, the product cannot be restarted. The products run up to the next restart at most. Demo mode can continue to be used.

POSSIBLE REASONS FOR LOSS OF LICENSE

If your product reports a loss of license, there can be a number of reasons for this. The most frequent causes of a loss of license are:

- ▶ The network connection to the license server is no longer available.
- ▶ The hardware dongle was removed.
- ▶ The license has expired.
- ▶ The time quota for the product is exhausted.

33 Computer defect with software dongle: Use 30-day demo license

If a hardware problem occurs with a computer, such as a defective main board for example, then licenses are usually affected by this for software dongles.

Either the soft dongle with the license breaks or it is no longer available.

In this case, you can use a demo license (on page 138) until the license is replaced.

- ▶ zenon Runtime: Service life is calculated in minutes. All Runtime demo licenses have over 43,200 minutes (30 days) Runtime. Exception: Demo licenses for a virtual machine. This is limited to 1,440 minutes (1 day).
- ▶ zenon Editor: Usage will be limited to the number of activations. There are 30 activations available:

34 Particular features with client-server operation

When licensing of modules in the client-server operation, the following particular features are applicable:

Module	Description
Historian	<p>The following cases are distinguished:</p> <ul style="list-style-type: none"> ▶ Server and client licensed: Archives can be opened and edited at the client. ▶ Server licensed and client not licensed: Archives can be opened but not edited at the client. ▶ Historian not licensed and started as standalone: The <i>archive revision</i> screen can be opened but the individual archives cannot be edited however.
Automatic Line Coloring	The client gets the license from the server and does not need its own license. If the server does not have a license of its own, the client cannot use the module.
Batch Control	The client gets the license from the server and does not need its own license. If the server does not have a license of its own, the client cannot use the module.
Load Management	The client gets the license from the server and does not need its own license. If the server does not have a license of its own, the client cannot use the module.
Message Control	The client gets the license from the server and does not need its own license. If the server does not have a license of its own, the client cannot use the module.
Everywhere Server by zenon	Everywhere Server gets the license of the Runtime. The Everywhere Server can not be used, If the Runtime does not have a corresponding license. This can lead to Runtime running but the Everywhere Server not being able to be started due to missing licenses.

35 Serial number

Each product must be licensed by means of a serial number.

The serial number is created according to certain rules. It consists of 5 groups each with 5 characters

and contains a checksum. The last 10 places contain a continuous number and make the serial numbers easily distinguishable from one another.

Example: *C00GF-2SQ5T-QWERT-00000-00035*

The serial number can only contain certain alphanumeric characters:

- ▶ Permitted characters:
 - ▶ Only Arabic figures: 0-9
 - ▶ Only letters from the Latin alphabet.
 - ▶ A-N
 - ▶ P-Z
- ▶ Non-permitted characters:
 - ▶ Letter O, so that there is no confusion with the character 0.
 - ▶ Special characters

36 License.ini file

The information on licensing is stored in the **License.ini** file. However, actions for licensing are always executed via the **License Manager**.

Path to the **License.ini**: *%programdata%\COPA-DATA\System*

Hint: You can also call up the path with the **%CD_System%** environment variable.

Attention

Never edit the **License.ini** file manually!
Changes to this file can lead to correctly-licensed products no longer being able to be used. Always carry out actions in relation to licensing through the **License Manager**.

37 CodeMeter requirements

Hardware and software from **CodeMeter** is used for licensing.
To do this, the following requirements must be met:

General:

- ▶ The **CodeMeter** Runtime version must be 6.60 or higher and running on the computer.

Hardware dongle:

The hardware dongle must have firmware (series) 3.10 or higher. The serial number of this dongle must be greater than 3-3440000.

Dongles from series 1, 2 and lower than 3.10 are not supported.

- ▶ **CodeMeter** There are various forms of dongles, such as internal and external USB sticks, as well as SD, PCMCIA and CFast cards. All forms have the same security chip inside and can be used.
- ▶ The **CodeMeter** hardware dongle must be available at a USB port on the local computer or as a server on a network computer.
- ▶ For virtual machines (VMs) (on page 63), Wibu Systems recommend not accessing the dongle by means of USB port in the VM. Instead, operate the dongle as a Wibu server in the host system and access it using the network.

Network:

- ▶ With license queries of network dongles, the **CodeMeter** service must be activated as a network server (on page 181).

Recommendation: Enter the server on the client system into the server search list (on page 182).

Note: When starting **License Manager**, the **CodeMeter** runtime is always checked for the correct version. In the event of an error, a corresponding message is displayed and the licensing is canceled. In this case, install the current **CodeMeter** Runtime.

38 CodeMeter Software

The dongles used by COPA-DATA dongles for licensing are based on **CodeMeter** hardware and software. Licenses are administered using the **License Manager**. The **CodeMeter Webadmin** provides additional functions for administrations. These are not generally needed in regular operation.

You can find detailed help on the use of **CodeMeter** in the help integrated into **CodeMeter**. You call this up using:

- ▶ Control center: In the **Help** menu, click on the **Help** entry.
- ▶ WebAdmin: Click on the question mark in the second line of the menu.
The **CodeMeter** help is opened context-sensitively.

Note: Descriptions of the **CodeMeter WebAdmin** relate to the respective version 6.60. This manual covers the most important applications for zenon users.

REQUIREMENTS

In order for the licensing via **CodeMeter** to work, the following requirements must be met:

General:

- ▶ The **CodeMeter** Runtime version must be 6.60 or higher and running on the computer.

Hardware dongle:

The hardware dongle must have firmware (series) 3.10 or higher. The serial number of this dongle must be greater than 3-3440000.

Dongles from series 1, 2 and lower than 3.10 are not supported.

- ▶ **CodeMeter** There are various forms of dongles, such as internal and external USB sticks, as well as SD, PCMCIA and CFast cards. All forms have the same security chip inside and can be used.
- ▶ The **CodeMeter** hardware dongle must be available at a USB port on the local computer or as a server on a network computer.
- ▶ For virtual machines (VMs) (on page 63), Wibu Systems recommend not accessing the dongle by means of USB port in the VM. Instead, operate the dongle as a Wibu server in the host system and access it using the network.

Network:

- ▶ With license queries of network dongles, the **CodeMeter** service must be activated as a network server (on page 181).

Recommendation: Enter the server on the client system into the server search list (on page 182).

ATTENTION

If the CodeMeter dongle is removed during ongoing operation, zenon closes and is opened in demo mode until a valid license is detected again.

38.1 Control Center

You start the **CodeMeter Control Center** using: **Windows -> CodeMeter -> CodeMeter Control Center**.

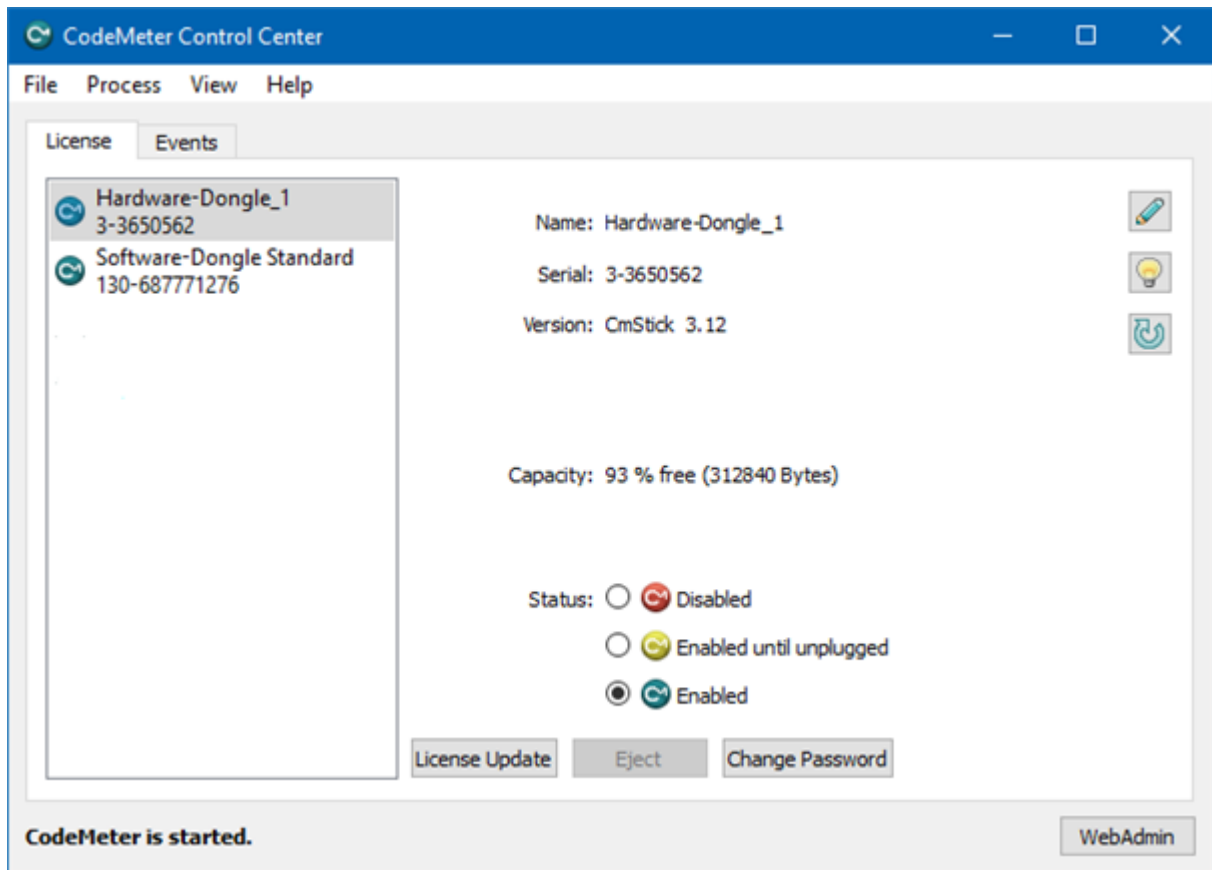
The **CodeMeter** Control Center is opened with 2 tabs:

- ▶ **License:** Contains information about the dongles found and allows actions with dongles and licenses.

- **Events:** Displays the number of sticks connected, the license entries, the firm items found and all access to the **CodeMeter** Runtime server. To log the entries on a permanent basis, activate the **Logging** entry in the **File** menu.

38.1.1 License tab

Dongles and licenses are displayed and configured in this tab.



Option	Description
License	Lists all active CodeMeter dongles.
Name:	Individual name of the selected dongle. With hardware dongles, the name can be changed using the button with the pen (to the right of it).
Serial Number:	Serial number of the selected dongle.
Version:	Firmware version of the selected dongle. Recommendation: Always use the most recent firmware. To update the firmware: Click on the arrow button. The online update via a Wibu server is started.

Option	Description
Capacity:	Display of free memory in percentage and bytes on the dongle.
Symbols:	<p>Three symbols allow actions with the dongle:</p> <ul style="list-style-type: none"> ▶ Pen: Rename the name of the dongle. ▶ Lamp: Let the selected stick flash. ▶ Arrow: Update the firmware of the selected stick.
Status	<p>Display and possible change of the status for a dongle.</p> <p><u>Hardware dongle:</u> Selection of the status of the selected CodeMeter dongle using radio buttons.</p> <ul style="list-style-type: none"> ▶ Deactivated: The dongle connected is deactivated and cannot be used by any application. ▶ Activates when connected: The stick is activated as long as it is connected. It is automatically deactivated after removal from the PC. ▶ Activated: The stick is fully activated and remains activated after it is removed. Recommended status: Ensures that unauthorized persons do not have access to licenses and personal data (such as CmPasswordManager) if the stick is lost. <p>Changes must be confirmed using the dongle password.</p> <p><u>Software dongle:</u></p> <ul style="list-style-type: none"> ▶ Display of the license status.
License updating	<p>Starts the assistant to add, amend and delete licenses.</p> <p>Note: Is not available for COPA-DATA products. Licenses are administered using the License Manager.</p>
Eject	<p>Allows the stick to be ejected. Only available for hardware dongles.</p>
Change password	<p>Allows the password to be changed. Only available for hardware dongles.</p>
Delete license	Deletes selected license.

Option	Description
	<p>Only available for software dongles.</p> <p>Caution: This option must not be executed under any circumstances, because restoring of licenses that are saved on the dongle is not possible.</p> <p>The following is applicable for demo mode with software dongles: These can no longer be applied after deletion.</p>
CodeMeter has been started/stopped	<p>Information on whether the CodeMeter service is running. Can be changed in the Action menu.</p> <p>Attention: The service cannot be stopped or restarted using the Control Center, because the zenon license transfer service depends on the CodeMeter service. Closing the service is only possible using the services.msc application of the operating system.</p>
WebAdmin	<p>Starts the web browser with the administration user interface for dongles. Port 22350 must be open for this. For details, see the WebAdmin (on page 179) chapter.</p>

38.2 WebAdmin

The **CodeMeter WebAdmin** is for the configuration and administration of dongles in the network.

To start the **CodeMeter WebAdmin**:

1. Open the **CodeMeter Control Center**.
2. Click on the **WebAdmin** button.

The **CodeMeter WebAdmin** is opened in the web browser.

Alternatively, use the following link: <http://localhost:22350/index.html>
(<http://localhost:22350/index.html>)

Detailed information on the individual settings can be found in the **CodeMeter WebAdmin** help pages. You can get to this using the question mark (?) symbol in WebAdmin. The most important options and instructions are also in this document.

Attention

CodeMeter WebAdmin uses port 22350 by default.

Note:

- ▶ If a firewall other than that integrated into the Windows operating system is used, this port must be enabled.

- ▶ If the port is changed, the WebAdmin surface cannot be started, because the port is part of the address
for example: B: `http://localhost:22350/configuration/extra.html`
If you have changed the port and no longer know which port it is, you can look it up in the registry. To do this, open Regedit.exe and go to the following node:
HKEY_LOCAL_MACHINE\SOFTWARE\WIBU-SYSTEMS\CodeMeter\Server\CurrentVersion. You can find the current port number in the **NetworkPort** entry. Enter the port used there into the browser address line instead of 22350.
Then amend the port in WebAdmin via **Settings-> Advanced-> Extras** .

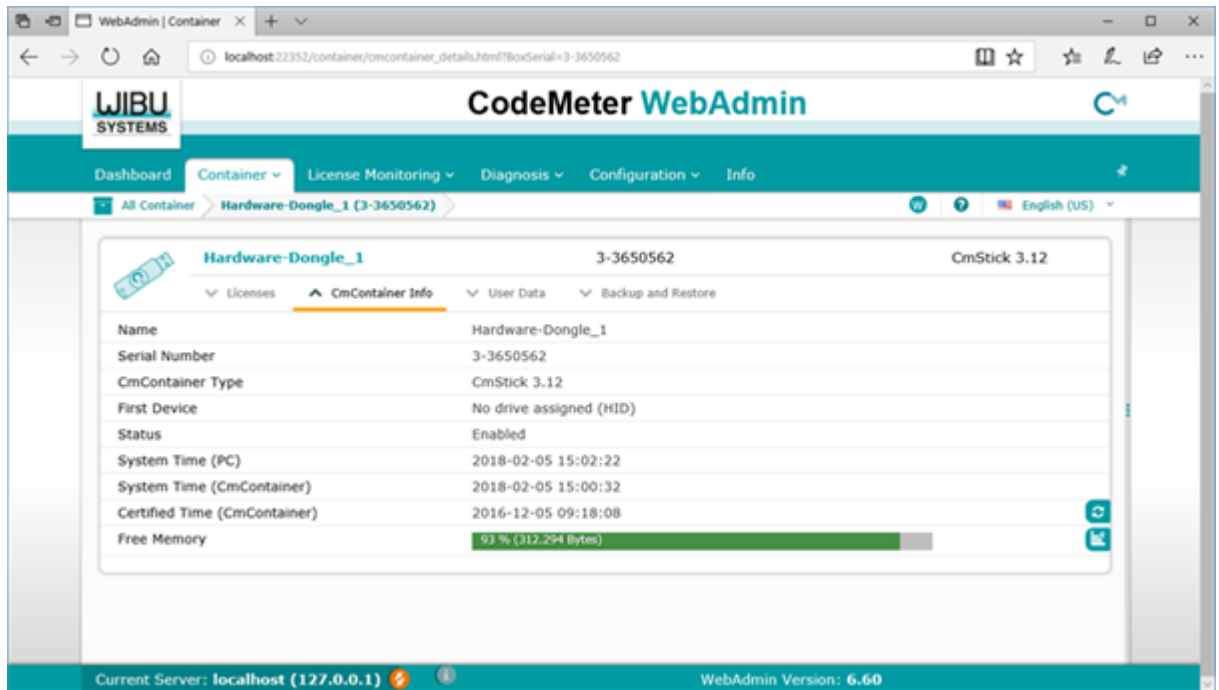
38.3 Update certified time

You can update the certified time saved in the dongle via the **CodeMeter** time server. You need access to the Internet for this.

To update the time:

1. Start the **CodeMeter WebAdmin**.
2. Check your network settings:
 - a) Are the proxy settings correct in **CodeMeter Webadmin**?
 - b) Is your access data up-to-date?
3. Navigate to the **Container** menu.
4. Select the desired dongle.

5. Click on **CMContainer info**



6. Select the **Time Certificate (CM Container)** entry.
7. Click on the symbol to update:
8. You are notified that this will update all sticks.
9. Click on **OK**.

You receive information on the update carried out.

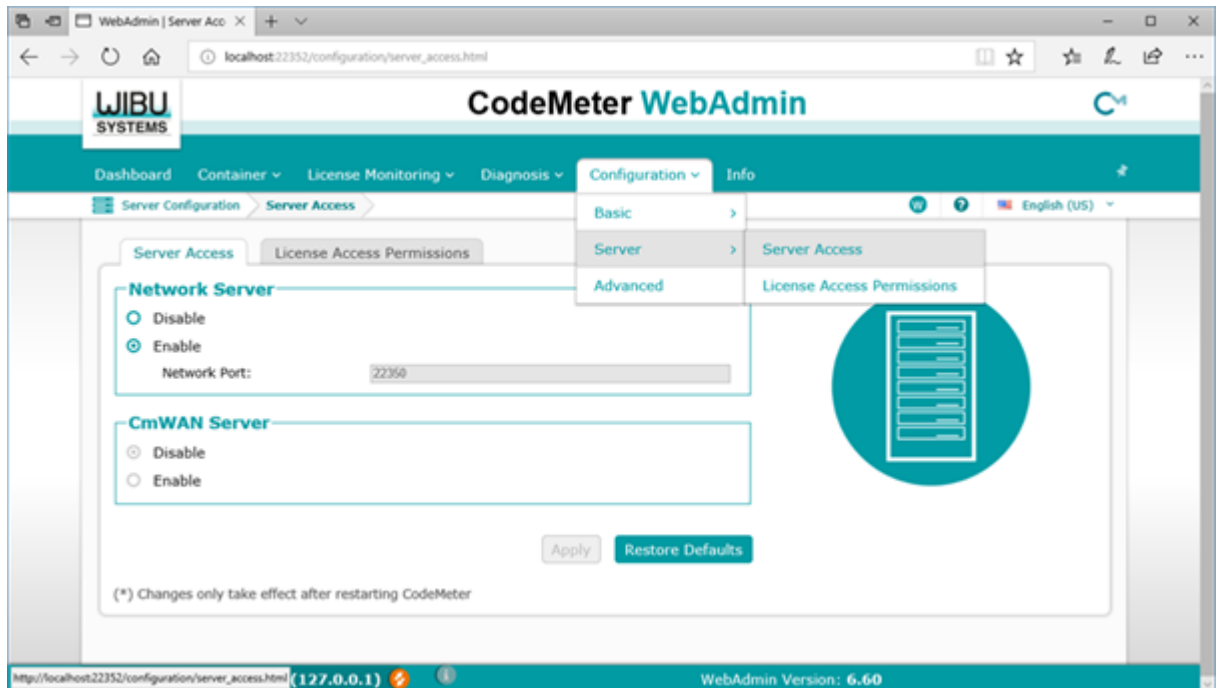
Hint: In the event of an error message (on page 193), you primarily check your access data for the proxy server.

38.4 Network dongles

Each license can be used in the network. In order for **CodeMeter** dongles to be able to be reached in the network, the **CodeMeter Runtime** service must be started as a network server.

To do this:

1. Open **CodeMeter WebAdmin**: http://localhost:22350/configuration/server_access.html (http://localhost:22350/configuration/server_access.html).
You can also start **WebAdmin** via the CodeMeter Control Center (on page 176).



2. Go to the **Settings -> Basic -> Server Access** page and set the *activate* network server option.
3. Click on the **Accept** button.

The **CodeMeter** Runtime service is restarted.

All locally-connected hardware and software dongles are thus available via the network. Demo licenses on demo dongles are an exception. These can always only be used locally.

38.4.1 Set up server search list for network dongles

Dongles in the network are found using mechanisms in **CodeMeter Runtime**. This is independent from zenon and can only be influenced by **CodeMeter**. If a dongle is not found by **CodeMeter** it is also not found by zenon products.



Information

The **CodeMeter** mechanism is not to be mistaken with the mechanism of the **License Manager**.

This establishes a direct connection via the zenon license transfer. This connection is fundamentally different to the CodeMeter connection.

The CodeMeter mechanism always looks for dongles locally first. If the license being searched for is not found, a search in the network is carried out. In doing so, a broadcast is used as standard.

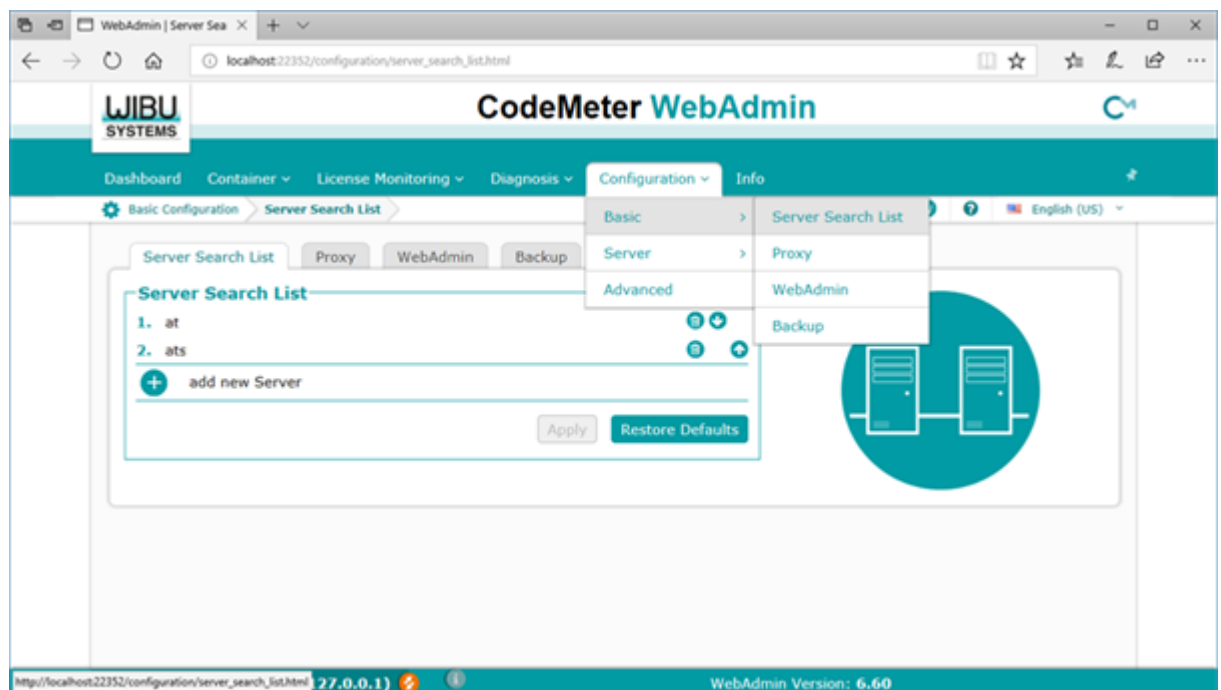
Broadcasts have the following disadvantages:

- ▶ All computers in the network are always searched for.
As a result, it is possible, especially with large networks or many dongles in the network, that there are long response times.
- ▶ Dongles that do not have the license being searched for are queried.
As a result, the network and **CodeMeter Runtime** are subjected to unnecessary load.
- ▶ Broadcasts only work in the local subset.
If the dongle is in another subnet, the dongle is not found.

Recommendation: Enter the dongles into the server search list. You thus avoid the described limitations.

To enter a CodeMeter server into the server search list:

1. Start the **CodeMeter WebAdmin**: http://localhost:22350/configuration/server_search_list.html (http://localhost:22350/configuration/server_search_list.html).
You can also start **WebAdmin** via the CodeMeter Control Center (on page 176).
2. Go to **Settings -> Basic -> Server search list**.



3. Add the server by clicking on the plus sign.
4. With several servers: Position the server with the arrow symbols in the desired sequence of the query.
5. Apply the settings by clicking on the **Apply** button.

38.4.2 Check whether a dongle is found in the network

The finding of dongles in the network is carried out using **CodeMeter Runtime** mechanism. The check is therefore best carried out using the **CodeMeter** mechanisms:

1. Start the **CodeMeter WebAdmin**: <http://localhost:22350/index.html> (<http://localhost:22350/index.html>).
You can also start **WebAdmin** via the CodeMeter Control Center (on page 176).
2. At the lower edge, you can see the **Current server: localhost (127.0.0.1)** entry.
Click on the button



A dialog with all **CodeMeter** network servers found is opened.

3. Select the desired server to control where the dongle being searched for is found.
Attention: They are connected to the **CodeMeter** server remotely. All displayed information comes from the remote computer.

If the server being searched for is not on the list, then check it:

- ▶ Is the **CodeMeter** Runtime activated as a network server (on page 181)?
- ▶ Is the server entered into the server search list (on page 182)?
Was the TCP/IP port of CodeMeter runtime changed?
The standard port is 22350 and should not be changed. If you have changed the port and no longer know which port it is, you can look it up in the registry. To do this, open Regedit.exe and go to the following node:
HKEY_LOCAL_MACHINE\SOFTWARE\WIBU-SYSTEMS\CodeMeter\Server\CurrentVersion. You can find the current port number in the **NetworkPort** entry. It is best to reset the port number to the default of 22350.
The port must be the same on all **CodeMeter** computers.
- ▶ Is the **CodeMeter** runtime blocked by a firewall?
Check the firewall settings both on the server and on the client.

38.5 Configure CodeMeter dongle as an HID or drive

The dongle is integrated into the system as an HID (Human Interface Device) device by default. This configuration is recommended. The dongle can also be configured as a local mass-storage device or removable media.

Requirements:

- ▶ **CodeMeter** Container with the identification "2-xxxxxxx" or "3-xxxxxxx".
- ▶ At least **CodeMeter** firmware 2.02.

- ▶ **CodeMeter** Runtime 6.60 or higher. Should the version of **CodeMeter** that you have installed be older, you can download the current **CodeMeter** Runtime from Wibu Systems (www.wibu.com (<http://www.wibu.com/support-downloads.html>)).

CONFIGURATIONS

CodeMeter Sticks can be configured as:

Device	Description	Limitations
HID (Human Interface Device)	<p>Dongle is signed into the HID on the system.</p> <p>The dongle is thus not shown in the list of available drives and is not allocated a drive letter.</p> <p>Default for sticks without memory.</p> <p>Special USB host drivers are not required.</p>	Only available for CodeMeter dongles without memory.
Local mass-storage device (Mass Storage Device - MSD)	The dongle is displayed and managed as a fixed local drive with its own drive letter.	<p>Can lead to:</p> <ul style="list-style-type: none"> ▶ The operating system reporting too little memory for the dongle ▶ the icon for the Windows Recycle Bin no longer being displayed ▶ the dongle not being found in a virtual machine
Removable media	<p>The dongle is displayed and managed as removable media with its own drive letter.</p> <p>The dongle must have flash memory.</p>	<p>With configuration as removable media:</p> <ul style="list-style-type: none"> ▶ The booting of the computer can be prevented for with computers that can boot from a USB drive ▶ The dongle appears as a drive in the task bar and can be removed (ejected) at any time

PROCESS OF RECONFIGURING DONGLE

Status dongle	Target	Procedure
HID	Local mass-storage device	<ul style="list-style-type: none"> ► Configuration as mass-storage device. ► Configuration as local harddisk
HID	Removable media	<ul style="list-style-type: none"> ► Configuration as mass-storage device. Is automatically configured as removable media.
Local mass-storage device	Removable media	<ul style="list-style-type: none"> ► Configuration as removable media
Removable media	Local mass-storage device	<ul style="list-style-type: none"> ► Configuration as local harddisk
Local mass-storage device	HID	<ul style="list-style-type: none"> ► Configuration as HID
Removable media	HID	<ul style="list-style-type: none"> ► Configuration as HID

SYNTAX AND COMMANDS FOR DONGLE CONFIGURATION

There are commands and parameters for the configuration of dongles in the **CodeMeter Command Prompt**.

Syntax: `cmu32 /s <serial> --[command parameter]`

- `cmu32`: Call.
- `/s (/s)`: Entry of the serial number of the dongle that is to be applicable for the action.
- `--[Command parameters]`: Entry of command and possibly parameters.

Commands

Command	Meaning
<code>cmu32 /s <serial> --show-config-disk</code>	Show configuration for stick with certain serial number.
<code>cmu32 /s <serial> --set-config-disk</code>	Configure stick with certain serial number.
<code>cmu32 /h</code>	Shows the help for further commands and parameters.

Parameter:

Parameter	Meaning
<code>HidCommunication</code>	Configuration as HID.

Parameter	Meaning
	Only possible if no flash memory is present.
<code>MsdCommunication</code>	Configuration as mass-storage device. Dongles with this configuration can be configured as a local mass-storage device or removable media.
<code>RemovableDisk</code>	Configuration as removable media Requires <code>MsdCommunication</code> . Not directly possible from HID status.
<code>LocalDisk</code>	Configuration as local harddisk Requires <code>MsdCommunication</code> . Not directly possible from HID status.

Examples:

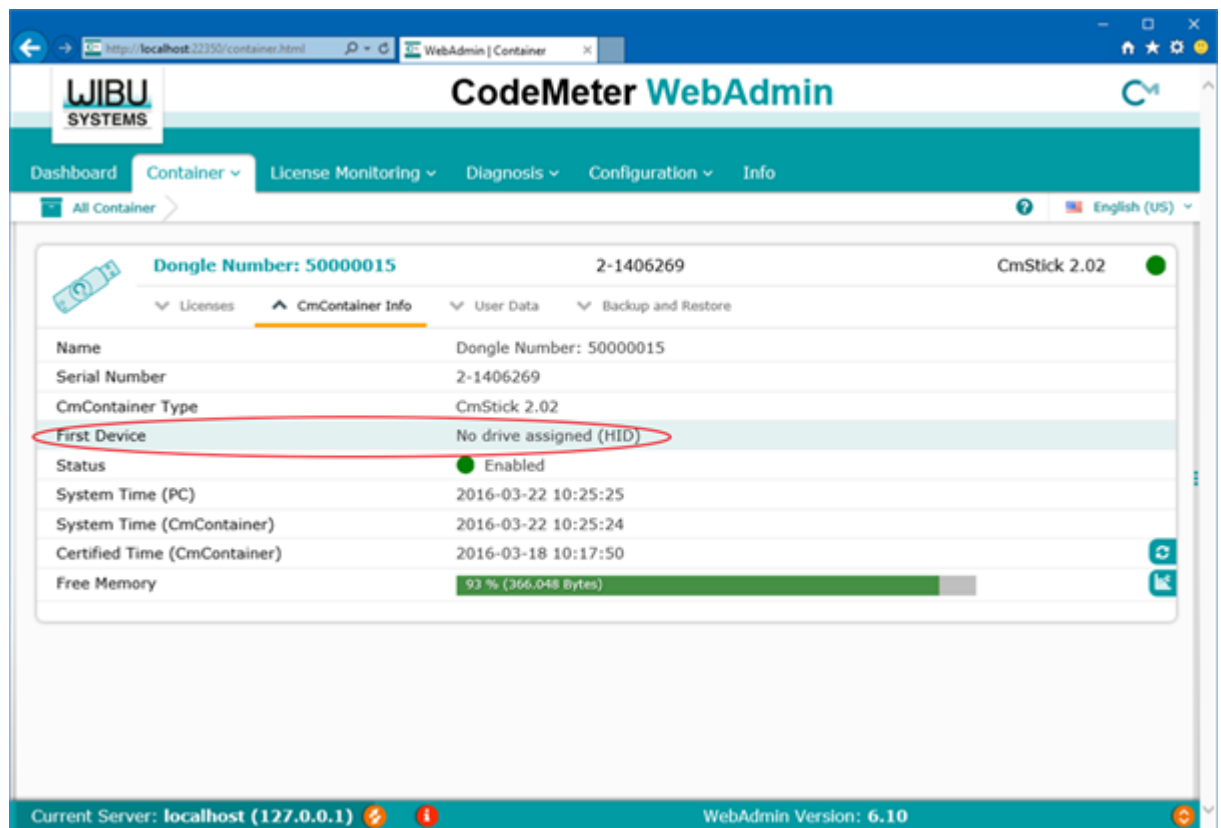
- ▶ Show configuration: `cmu32 /s3-1234567 --show-config-disk`
- ▶ Configure stick as HID: `cmu32 /s3-1234567 --set-config-disk HidCommunication`

38.5.1 Configure dongle as an local mass-storage device

To address the dongle in the USB communication as a fixed local mass-storage device (Mass Storage Device):

1. Check the status of the dongle via **CodeMeter Command Prompt**, **CodeMeter WebAdmin** or the file browser of the operating system.

No drive (HID) is assigned or removable media is displayed.



2. Call up the **CodeMeter Command Prompt cmu**: **Start -> Program Files -> CodeMeter -> Tools -> CodeMeter Command Prompt**.

If the dongle is currently configured as HID, then:

- ▶ Enter the following at the command prompt that has been started: `cmu32 /s <serial> --set-config-disk MsdCommunication`
The dongle is configured as mass storage.
- ▶ Remove the dongle and insert it again.
- ▶ Enter the following at the command prompt: `cmu32 /s <serial> --set-config-disk LocalDisk`
The dongle is configured as fixed local mass storage.

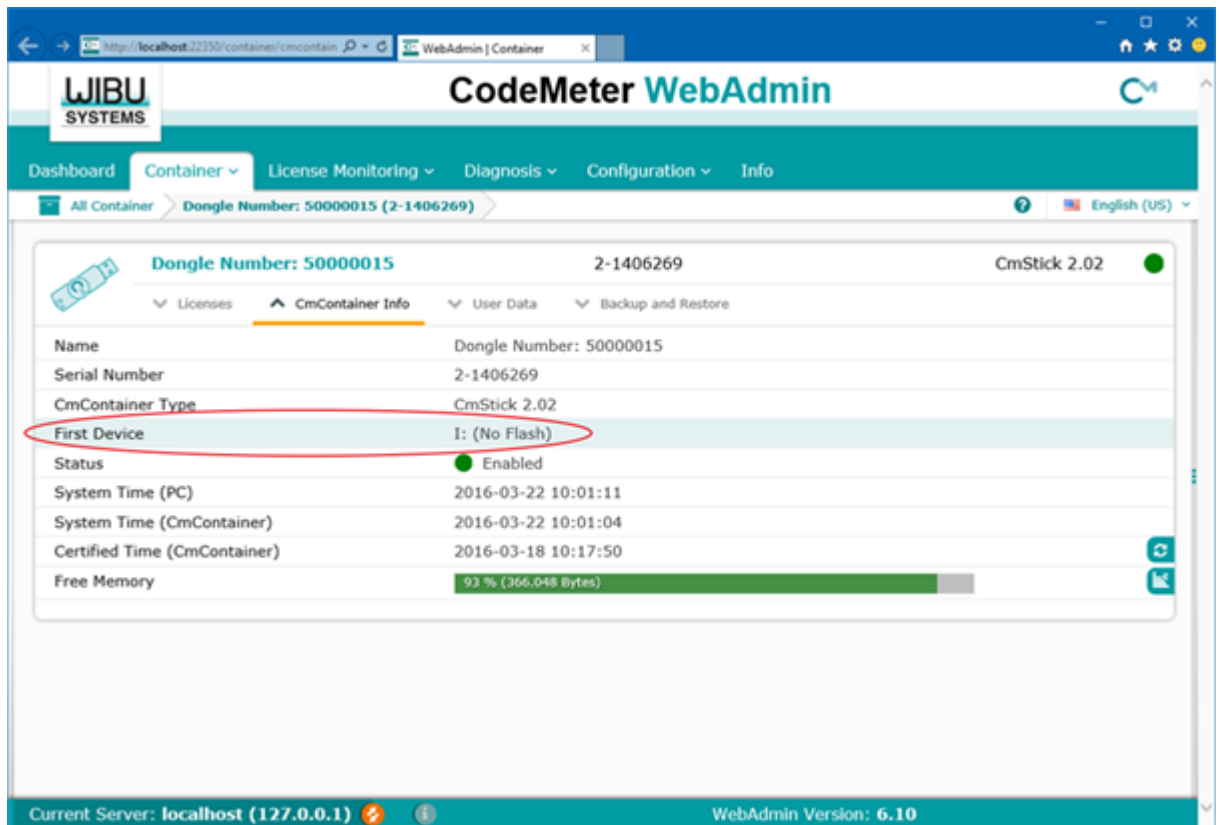
If the dongle is currently configured as removable media, then:

- ▶ Enter the following at the command prompt: `cmu32 /s <serial> --set-config-disk LocalDisk`
The dongle is configured as fixed local mass storage.

Note: For `<serial>`, enter the serial number of the stick.

3. Remove the dongle from the computer.
4. Reconnect the dongle to the computer.

In the **CodeMeter Command Prompt** and in the **CodeMeter WebAdmin**, the dongle is now displayed as mass storage, in the file browser of the operating system with the drive letter.

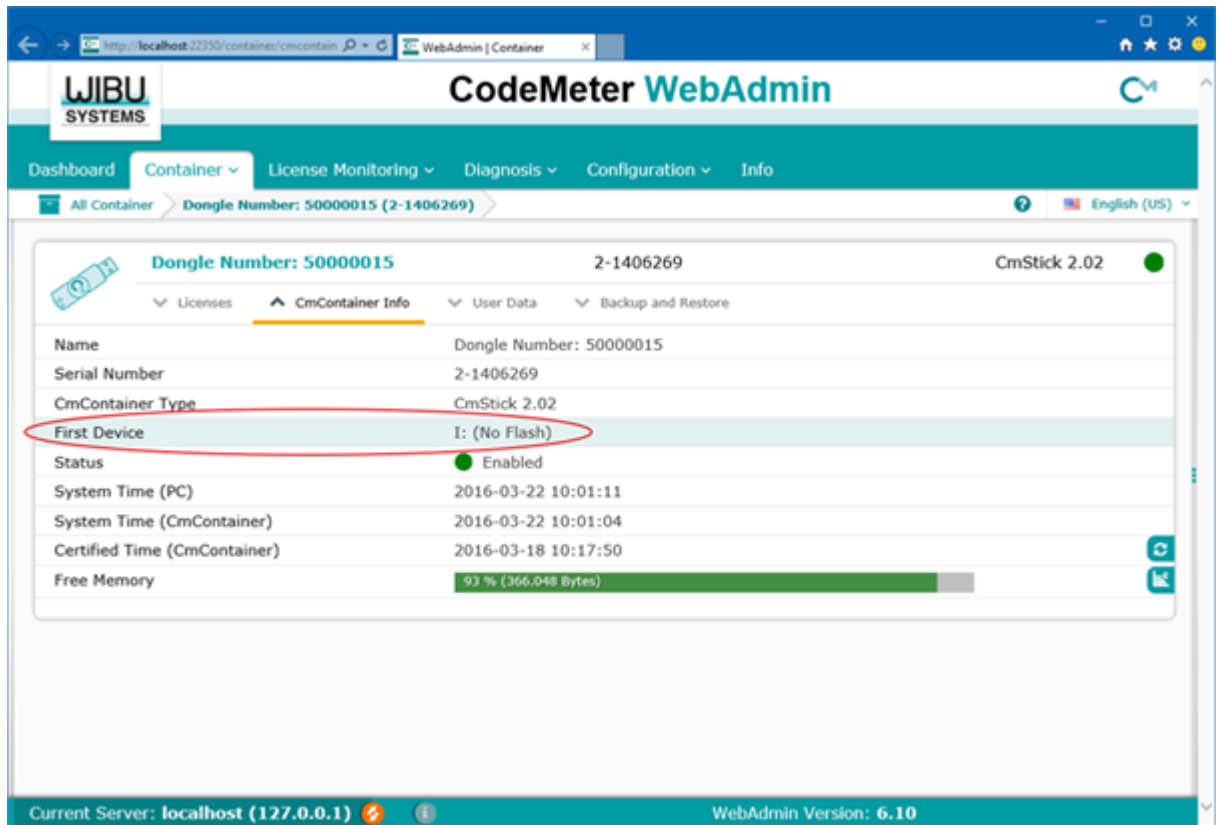


38.5.2 Configuring the dongle as HID

To address the dongle in the USB communication (Human Interface Device):

1. Check the status of the dongle via **CodeMeter Command Prompt**, **CodeMeter WebAdmin** or the file browser of the operating system.

2. Local mass storage or removable media is assigned, each with a drive letter.



3. Call up the **CodeMeter Command Prompt cmu: Start -> Program Files -> CodeMeter -> Tools -> CodeMeter Command Prompt.**

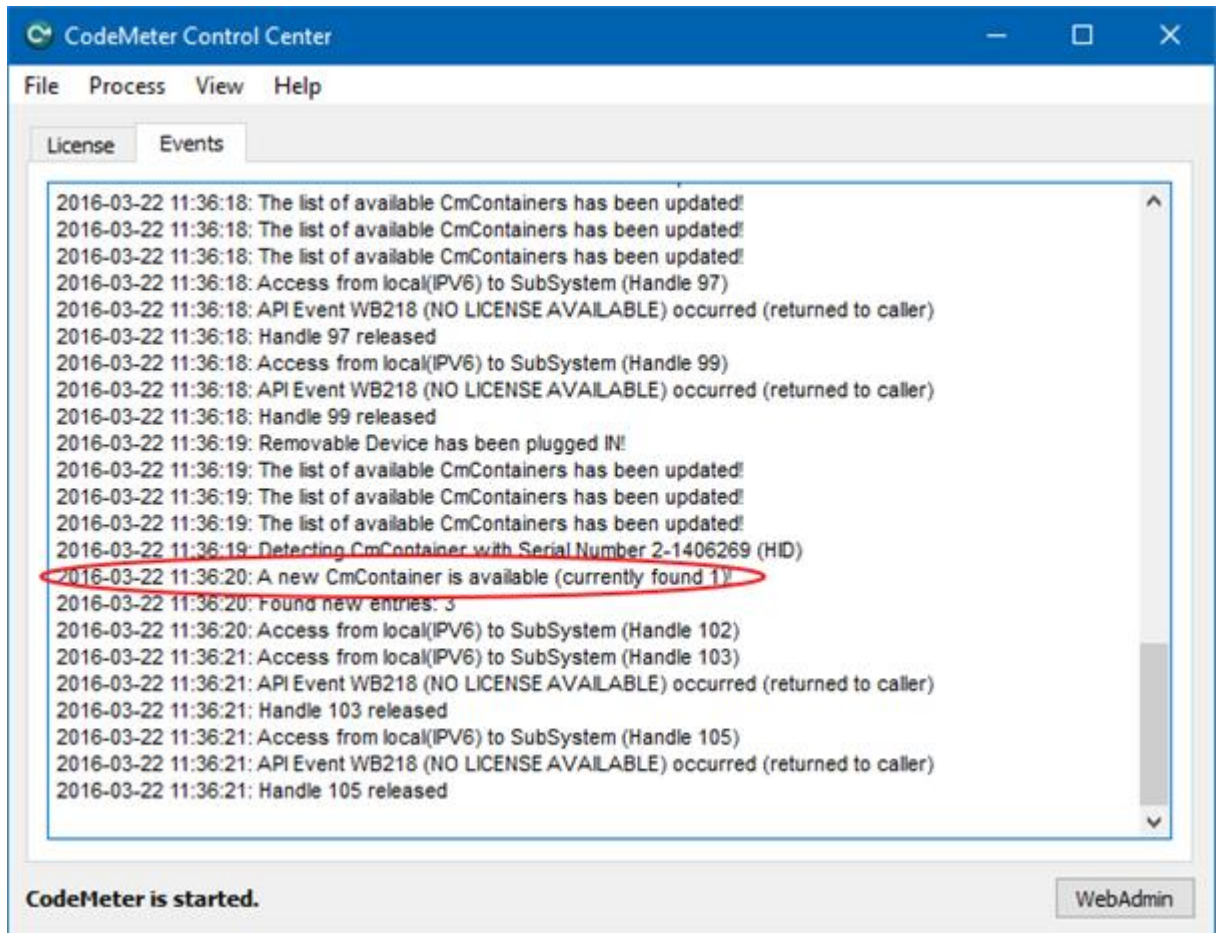
Enter the following at the command prompt that has been started: `cmu32 /s <serial> --set-config-disk HidCommunication`

The dongle is configured as HID.

Note: For `<serial>`, enter the serial number of the stick.

4. Remove the dongle from the computer.
5. Reconnect the dongle to the computer.

6. In the **CodeMeter Command Prompt** and in the **CodeMeter Control Center**, the dongle is now displayed as an HID without drive letter. It is no longer displayed in the file browser of the operating system.

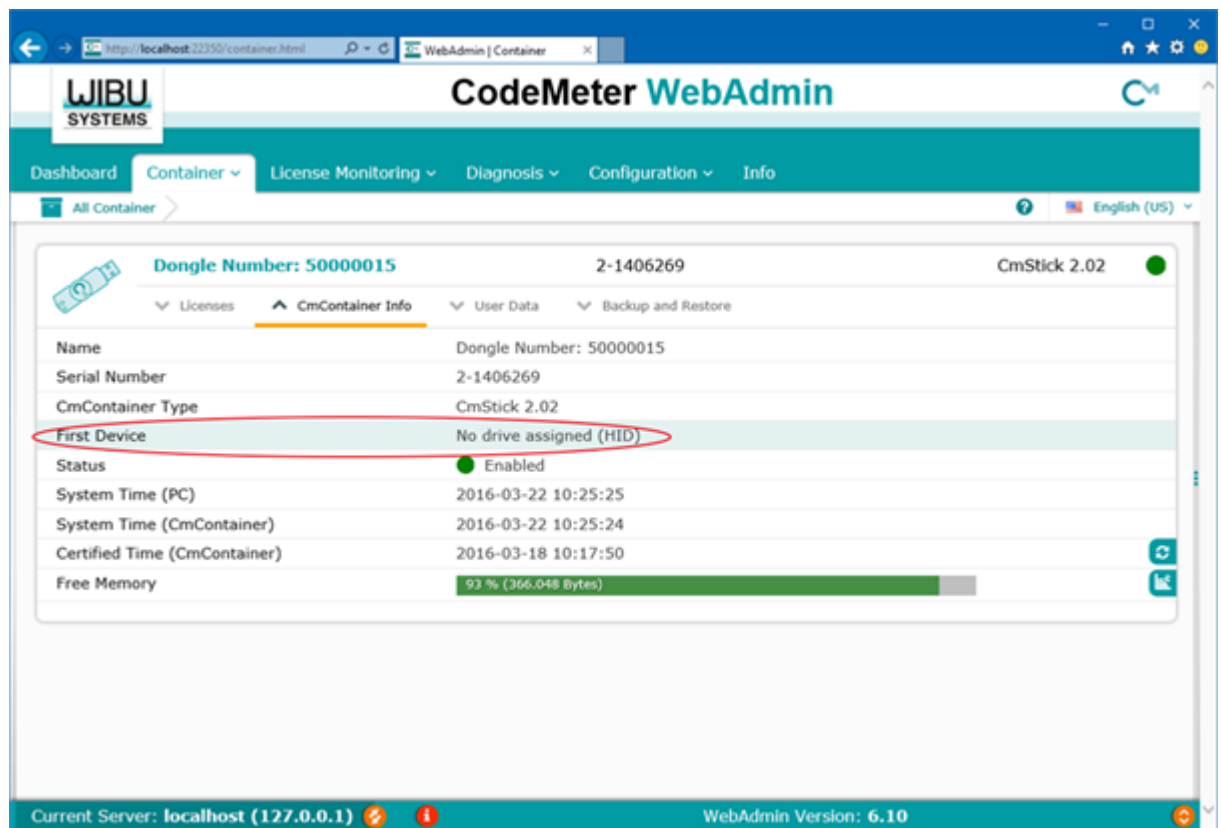


38.5.3 Configuring the dongle as removable media

To address the dongle in the USB communication as removable media:

1. Check the status of the dongle via **CodeMeter Command Prompt**, **CodeMeter WebAdmin** or the file browser of the operating system.

No drive (HID) is assigned or local mass storage with a fixed drive letter.



2. Call up the CodeMeter command line interface **cmu: Start -> Program Files -> CodeMeter -> Tools -> CodeMeter Command Prompt**.

If the dongle is currently configured as HID, then:

- ▶ Enter the following at the command prompt that has been started: `cmu32 /s <serial> --set-config-disk MsdCommunication`
The dongle is configured as mass storage in removable media form.

If the dongle is currently configured as local mass storage, then:

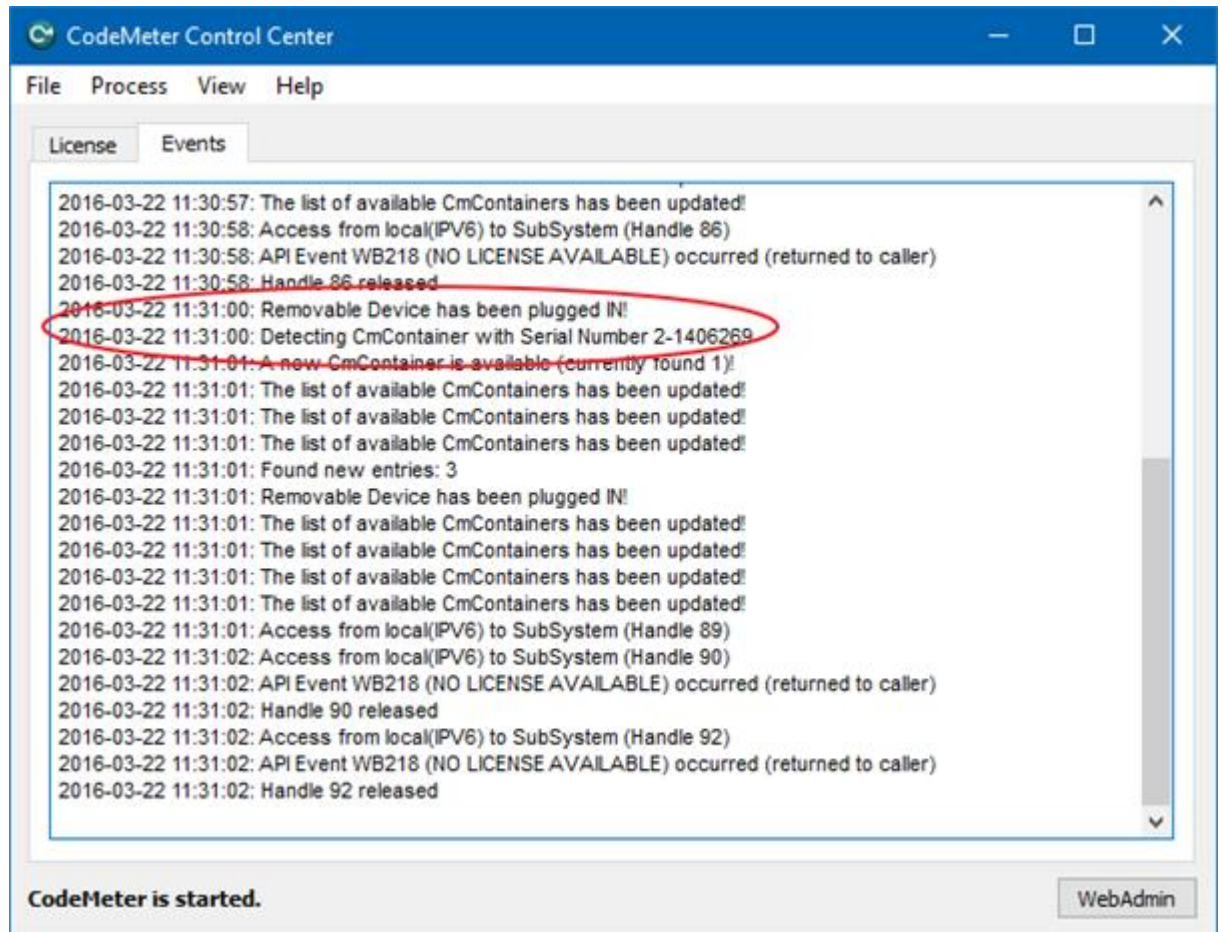
- ▶ Enter the following at the command prompt: `cmu32 /s <serial> --set-config-disk MsdCommunication`
The dongle is configured as removable media.

Note: For `<serial>`, enter the serial number of the stick.

3. Remove the dongle from the computer.
4. Reconnect the dongle to the computer.

In the **CodeMeter Command Prompt** and in the **CodeMeter Control Center**, the dongle is now displayed as removable media, in the file browser of the operating system with the drive

letter.



38.6 Troubleshooting

Error	Solution
zenon only runs in demo mode.	<p>Check using CodeMeter and/or License Manager:</p> <ul style="list-style-type: none"> ▶ Is the dongle connected and contactable via CodeMeter mechanisms (on page 184)? ▶ Is the license entered at the first position for the respective product? ▶ Has the license expired? ▶ Is the software dongle broken? ▶ Is the license assigned to another product on another computer? (http://localhost:22350/license_monitoring/sessions.html) (http://localhost:22350/license_monitoring/sessions.html)

Error	Solution
	html)
Dongle is not found.	<ul style="list-style-type: none"> ▶ Check the network settings. ▶ If the stick is in another domain, add it to the server search list (on page 182). ▶ Increase the UDP response time. ▶ If it is a virtual machine, then configure the stick as removable media (on page 184). Attention: Configuration as removable media can - depending on the computer configuration - also lead to a computer no longer booting. ▶ Configure the stick as HID (on page 187).
Error 410 (with SD cards)	The connection to the SD card is unstable. Use an external card reader.
Certified time cannot be updated.	<p>Please check:</p> <ul style="list-style-type: none"> ▶ Proxy settings, especially access data and Password ▶ List of time server under Settings -> time server for example: cmtime.codemeter.com, cmtime.codemeter.de, cmtime.codemeter.fr, cmtime.codemeter.us
<p>Error message when updating the license when applying a WibuCmRaU file:</p> <p>Error at updating the CmSticks x-xxxxxxx: This update can no longer be installed. The content of the CmStick has a newer version, error229.</p>	The update for this license has already been written to the dongle. The dongle is up-to-date.
<p>Windows operating system shows the message:</p> <p>Low Memory</p>	<p>The dongle is identified as local memory. In some cases, this can lead to the operating system giving the message "Insufficient memory".</p> <p>This message can be ignored.</p> <p>Alternatively, the dongle can also be configured as HID (on page 189). It thus no longer appears in the Windows drive list.</p>
Windows operating system no longer	This may happen if the dongle is identified as a fixed local

Error	Solution
shows symbol for the Recycle Bin.	network. Alternatively, the dongle can also be configured as HID (on page 189). It thus no longer appears in the Windows drive list.

39 Configuration file zenAnalyzer.ini

Settings for zenon Analyzer are amended in the **zenAnalyzer.ini** configuration file. This documentation contains information for system administrators who want to edit the INI files directly.

You can find the INI file in the following path: %cd_system%.

It is only present if the Analyzer Server is installed. If there is only Report Launcher or ZAMS on the system, there is also no **zenAnalyzer.ini**.



Information

Settings should primarily be made using the user interface of zenon Analyzer. Changes to the INI files are reserved for experienced users.

zenAnalyzer.ini contains the following sections:

Section:	Description
[NETZ] (on page 196)	Settings for connection security.
[USER_LEVELS_3] (on page 197)	Information on users and user authorisations.
[DEDICATED_USERS_3] (on page 198)	Configuration of dedicated users.
[CONNECTION_ZA2] (on page 198)	Information for connections to version ZA2 databases.
[CONNECTION_ZAX] (on page 199)	Information for connections to version ZA3 databases and higher.
[DEBUG] (on page 200)	Activation of debugging.

The sequence of the sections and the entries in the sections can vary.

FORMAT IN WHICH THE INI FILES ARE SAVED

Due to the system, only ANSI and Unicode are supported for reading the INI files.

Attention

UTF-8 format is not supported!

You should therefore always save your INI files as a text file in ANSI or Unicode format.

40 Connection security, performance and timeout [NETZ]

Settings for connection security, performance and timeout

CONNECTION SECURITY

Settings for connection security must only be set using ZAMS. To do this, use the **Configure connection security** dialog.

Attention

Manual changes to these entries in **zenAnalyzer.ini** can lead to no connection to the Analyzer Server, license server or report server being possible any more.

PERFORMANCE AND TIMEOUT

Entry	Description
[NETZ]	Section for connection security, performance and timeout. Entries for connection security cannot be changed here. There is thus also no user documentation available for this.
FILL_AML_CEL_VARIABLE_FILTER=	Setting for performance: Control of how the connector stub on the zenon Analyzer handles an empty variable filter when calling up a zrsQueryAlarm or zrsQueryEvent function. This setting influences the performance of the connector.

Entry	Description
	<p>Settings for handling empty filters from zrsQuery:</p> <ul style="list-style-type: none"> ▶ 0: The filter remains empty. The fetching of the alarm list is quick. However, it is possible that many alarms that are not needed are checked. This can lead to more time being needed. ▶ 1: The filter is filled with all exported variables of the project. The fetching of the list may take longer. The Runtime may possible be blocked during this time. However only information about reusable alarms is fetched. <p>Default:1</p> <p>This setting has an effect from zenon Analyzer version 3.00. The behavior of versions prior to version 3.00 corresponds to the 1 entry.</p> <p>Recommendation: If nearly all variables of the project are exported, then set the value to 0. If a smaller proportion of the variables of the project are exported, set the value to 1. The default settings generally do not need to be changed.</p>
RUNTIME_CONNECTOR_TIMEOUT_MSEC=	<p>Setting for timeout:</p> <p>Connection timeout of the connector clients in milliseconds. Is read by the Connector Stub before each connector function call. Changes are immediately applied by saving zenAnalyzer.ini.</p> <p>Default:300000 (5 minutes)</p>

41 User [USER_LEVELS_3]

Settings for user authorizations.

These settings must only be set via ZAMS. To do this, use the **Analyzer applications access rights** dialog.

Attention

Manual changes to these entries in **zenAnalyzer.ini** may lead to the connection to Analyzer Server no longer being possible.

These entries are written by the license server if it receives a corresponding command. The entries are read when the license server starts. Manual changes to the INI file are only taken into account if the license server service **zrsLicSrv** is restarted.

42 Dedicated users [DEDICATED_USERS_3]

Settings for dedicated users with a fixed license.

You change these settings in ZAMS using the **Users with fixed license** dialog.

These entries are written by the license server if it receives a corresponding command. The entries are read when the license server starts. Manual changes to the INI file are only taken into account if the license server service **zrsLicSrv** is restarted.

43 Connection to ZA2 [CONNECTION_ZA2]

Entries for the Connector Stubs connection to a Connector Container. These entries cannot be created with a tool. They must therefore be changed manually in the INI file if necessary.

The entries are read if the first Connector function after the SQL Server start that needs a connection with a Connector Container is executed. If these entries are amended, it must be ensured that the Connector Stub uses the new entries. To do this, the SQL-Server instance that is used for **Analyzer 2.xx** must be restarted.

Entry	Description
[CONNECTION_ZA2]	<p>Configuration of the database connection of the Connector Stub components that the connection to the Connector Container establishes.</p> <p>These settings only relate to the connection to an Analyzer Server instance ZA2. Connections to other instances are configured by means of the settings in Connection to ZA3 and higher [CONNECTION_ZAX] (on page 199).</p>
USER=	<p>User name for the connection.</p> <p>Default: <i>ReportingUser</i></p>
PW=	<p>Password for the connection.</p> <p>The password can be entered as open or encrypted.</p> <p>Note: Entry of an encrypted password is not possible via the INI file.</p>

Entry	Description
	Default: <i>Copa-Data</i>
SQLINSTANCE=	Denotes the SQL server instance to which the connection is to be made. Default: <i>Localhost\ZA2</i>

44 Connection to ZA3 and higher [CONNECTION_ZAX]

Entries for the Connector Stubs connection to a Connector Container. These entries cannot be created with a tool. They must therefore be changed manually in the INI file if necessary.

The entries are read if the first Connector function after the SQL Server start that needs a connection with a Connector Container is executed. If these entries are amended, it must be ensured that the Connector Stub uses the new entries. To do this, the SQL-Server instance that is used for **Analyzer 3.xx** (or higher) must be restarted.

Entry	Description
[CONNECTION_ZAX]	Configuration of the database connection of the Connector Stub components that the connection to the Connector Container establishes. These settings only concern the connection to an Analyzer Server instance ZA3 or higher. Connections to instances of version 2.xx are configured using the settings in Connection to ZA2 [CONNECTION_ZA2] (on page 198).
USER=	User name for the connection. Default: <i>ReportingUser</i>
PW=	Password for the connection. The password can be entered as open or encrypted. Note: Entry of an encrypted password is not possible via the INI file. Default: <i>Copa-Data</i>
SQLINSTANCE=	Denotes the SQL server instance to which the connection is to be made.

Entry	Description
	Default: <i>Localhost\ZA3</i>

45 Troubleshooting [DEBUG]

Settings for debugging.

These settings can only be changed manually in the INI file.

Parameters	Description
[DEBUG]	Settings for the writing of enhanced LOG entries.
EXTENDEDLOG=	<p>Switches the writing of enhanced log entries off or on:</p> <ul style="list-style-type: none"> ▶ 0: off ▶ 1: on <p>At the time at which the first log entry is to be written, write protection is still activated. To ensure that the first entry is also written, the license server service zrsLicSrv must be restarted.</p> <p>Default: 0</p>

46 Data preparation

The data preparation is done in several levels. With this data from different sources and formats can be evaluated universally and maintained easily.

- ▶ Level 1: Data abstraction (on page 201)
On the lowest level the data abstraction or data unification is done. It makes sure that the source data are always available in the same format and in the same type for the actual evaluation algorithm.
- ▶ Level 2: Compression and calculation (on page 202)
A level above the actual compression and calculation is done to create the data which should then be displayed in the report. This level is already independent of the data origin and therefore universal.
- ▶ Level 3: Report (on page 203)
The output data of the second level are then displayed graphically in the report as third level.

The display in the report in turn is independent of the algorithms necessary for the calculation on the second level. This means that no calculation and no compression is carried out in the report, which exceed the mere display (e.g. formatting of local times or similar).

47 Level 1: Data abstraction

At data abstraction there are two different categories of data:

1. Engineering data

They normally remain the same during the Runtime and are called meta data there. The metadata is abstracted or harmonized by the import wizard during import into the database. Regardless of their origin they are available in the format in which they are defined in chapter data structure.

2. Runtime data

The actual Runtime data are those data which are generally used as the base for all evaluations. They are called user data there.

Runtime data is tapped via connectors. COPA-DATA provides a Runtime connector and SQL connector with zenon Analyzer. Individual additions can be integrated into the connectors by agreement with COPA-DATA.

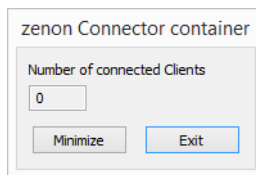
CONNECTOR CONTAINER

The connector container is an application (EXE) which runs at the source system and which loads and executes the connector plug-ins (DLLs). The connector container is a normal user process (no service) which is normally started together with the application which should deliver the data. The connector container opens a TCP port and waits for query requests from the connector stub whereon it loads the requested connector plug-in and invokes the fitting access function for the request. The return data is then sent to the connector stub. Several queries from different TCP connections can be executed in parallel if the source system supports this.

In normal operation the connector container is displayed as icon in the task tray and does not have an own main window. Additional status information can be displayed via a status dialog.

You can read more in the manual for report developers in the Connectors chapter.

DIALOG



Option	Description
Number of connected Clients	Displays the number of clients connected.
Minimize	Minimizes the dialog into the info area of the task bar.
Exit	Closes the connector container.

RESTART

If the connector container has been closed, it can be restarted by:

- ▶ Restarting the computer.
- ▶ Manual start.
 - ▶ From Windows 8: **Task-Manager -> Tab -> Autostart -> Connector-Container -> Open file path-> Double-click on zrsConnector.exe.**
 - ▶ Other operating systems: **Open file path-> Double-click on zrsConnector.exe.**
32-bit path: *%Program Files (x86)%\Common Files\COPA-DATA\Connectors*

48 Level 2: Compression and calculation

All sorts of compression and calculation of the user data prepared in level 1 (on page 201) is carried out in the **Stored Procedures**. If necessary, filter criteria are handed over to them via parameters.

The **stored procedures** are independent of the format of the user data and of the visual display of the result. They contain only the calculation algorithms and the filter methods with regards to the meta data.

So far as it is technical feasible, they are also independent of specific presumptions concerning the meta data; i.e. independent of specific variable names. If this is not possible, the allocation to these fixed meta data parts is implemented as an obvious block at the beginning of the **stored procedures** in order to separate project-specific and universal evaluation part.

49 Level 3: Report

The result data generated in level 2 (on page 202) are formatted graphically in an SQL Server 2016 Reporting Services report. There is no calculation in the report itself. Also a direct access to database tables is never done but only to the **stored procedures** from level 2 (on page 202). With this the reports are:

- ▶ completely independent of the database structure
- ▶ universal and
- ▶ interchangeable

50 Metadata Synchronizer

The **Metadata Synchronizer** sends metadata from zenon to a zenon Analyzer metadata database.

Requirements: zenon Analyzer 3.30 or higher and zenon 8.10 or higher.

In contrast to the **Analyzer Export Wizard**, the **Metadata Synchronizer** is implemented in zenon and zenon Analyzer directly. This results in many benefits, most of all:

- ▶ The transfer runs much more quickly.
- ▶ Increased stability and tolerance of errors.
- ▶ Version independence starting from zenon 8.10 and zenon Analyzer 3.30.

DATA TRANSFER

The **Metadata Synchronizer** transfers from zenon to zenon Analyzer:

- ▶ Alarm/event classes and alarm groups
- ▶ Users
- ▶ Equipment models
- ▶ Network:
If the **Network** property is active, engineering for **Server 1** and **Server 2**.
- ▶ Projects
- ▶ Project contents:
 - ▶ Variables
 - ▶ Archives
 - ▶ Shifts
 - ▶ Status texts

- ▶ Efficiency class models
- ▶ Sankey models
- ▶ Waterfall models

The following is applicable for the target during transfer:

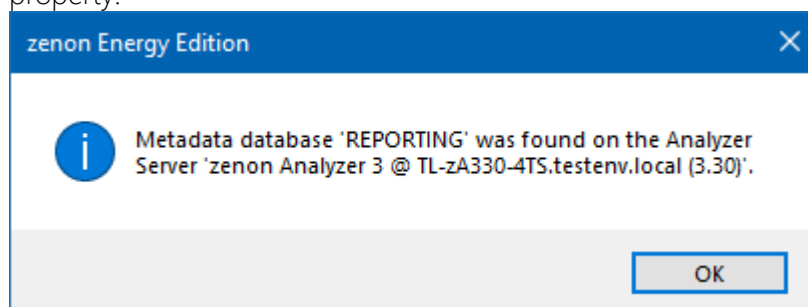
- ▶ Objects that no longer exist are deleted.
Exception: Projects
During deletion, insofar as possible, all dependent objects are also deleted.
- ▶ Existing objects are updated.
- ▶ New objects are added.

Note: Objects that have been created by **ZAMS** or the **Metadata Editor** are not changed.

51 Configuration

To transfer data for zenon Analyzer in the Service Grid:

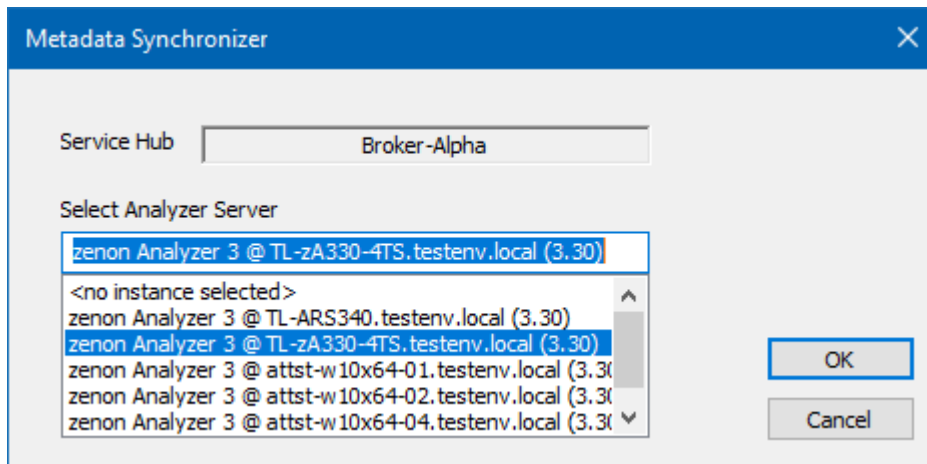
1. Ensure that a valid connection has been selected in the zenon Editor for the **Service Hub** project property in the **Network/Service Grid** node.
2. Navigate to the **Metadata Synchronizer** node in the project properties.
3. Select a **Analyzer Server**.
click on the ... button to open the dialog to select an Analyzer server (on page 205).
4. To do this, select a **Metadata database**.
Click on the ... button to open the dialog to select and configure a database (on page 206).
5. Optional: Test the configuration by clicking on the ... button in the **Test connection** property.



The **Metadata Synchronizer** can now be executed in the zenon Editor.

51.1 Analyzer Server selection dialog

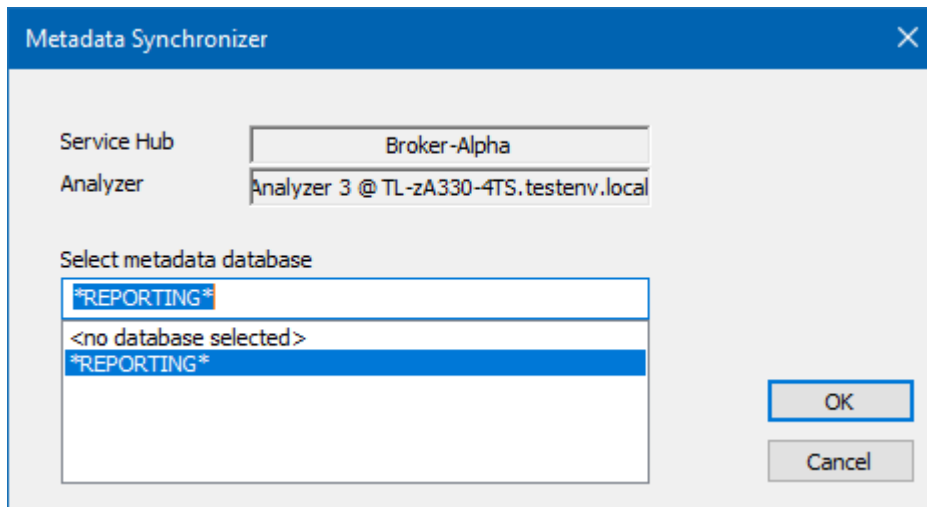
You select the Analyzer server in the service hub with this dialog.



Option	Description
Service Hub	Display of the service hub configured in the Service Hub property.
Select Analyzer server	<p>Direct entry of the Analyzer servers or selection from a drop-down list:</p> <ul style="list-style-type: none"> ▶ Selection of an Analyzer server: Applies selected instance. ▶ <i><No Analyzer server selected></i>: Removes the configured Analyzer server. ▶ <i><Apply from the global project></i>: Applies the configuration selected in the global project. <p>Note: In order for an Analyzer server to be able to be selected, a valid connection to the Service Hub must be configured. This is established with the Service Node Configuration Tool.</p>
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

51.2 Database selection dialog

You select the metadata database with this dialog.



Option	Description
Service Hub	Display of the service hub configured in the Service Hub property.
Analyzer Server	Display of the analyzer server configured in the Analyzer Server property.
Select metadata database	<p>Direct entry of the metadata database or selection from drop-down list:</p> <ul style="list-style-type: none"> ▶ Selection of a metadata database: Applies selected metadata database. ▶ <i><No database selected></i>: Removes the configured database. ▶ <i><Apply from the global project></i>: Applies the configuration selected in the global project. <p>Note: In order for a metadata database to be selected, a valid connection to the Service Hub and to the Analyzer Server must be configured.</p>
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

52 Execution

The **Metadata Synchronizer** can be executed and stopped.

To transfer metadata to a database:

1. Go to the **Extras** menu in the zenon Editor.
2. Select the **Execute Metadata Synchronizer** entry.

The **Metadata Synchronizer** is started. Metadata is collated and transferred to the configured database.

The actions and the result are displayed in the output window.

To stop the **Metadata Synchronizer**:

1. Go to the **Extras** menu in the zenon Editor.
2. Select the **Stop Metadata Synchronizer** entry.

The **Metadata Synchronizer** is stopped.

SYNCHRONIZATION RULES

VISUAL NAME

Behavior when synchronizing the Metadata Editor and the **Metadata Synchronizer**:

1. A variable does not exist in the Metadata database:
 - ▶ **Visual name** in the zenon Editor is empty: The variable name is entered as the **Visual name** in the Metadata database.
 - ▶ **Visual name** in the zenon Editor is configured: The **Visual name** in the zenon Editor is entered as the **Visual name** in the Metadata database.
2. A variable already exists in the Metadata database and the visual name corresponds with the variable name:
 - ▶ **Visual name** in the zenon Editor is empty: The variable name is entered as the **Visual name** in the Metadata database.
 - ▶ **Visual name** in the zenon Editor is configured: The **Visual name** in the zenon Editor is entered as the **Visual name** in the Metadata database.
3. A variable already exists in the Metadata database and the visual name does not correspond with the variable name:
 - ▶ **Visual name** in the zenon Editor is empty: The visual name in the Metadata database remains unchanged.

- ▶ **Visual name** in the zenon Editor is configured: The **Visual name** in the zenon Editor is entered as the Visual name in the Metadata database. Visual names changed in the Metadata Editor are overwritten.

The name in the zenon Editor is always used as the visual name for projects. When updating renamed projects (if the **Visual name** property remains empty), the zenon Analyzer overwrites none of the changes made with the **Metadata Editor**.

DESCRIPTIONS

If descriptions for objects applied from the **Metadata Synchronizer** from zenon are empty, the descriptions present in the database remain unchanged.

This applies for:

- ▶ Equipment groups
- ▶ Alarm/Event class
- ▶ Alarm/event groups
- ▶ Users
- ▶ Projects
- ▶ Archives
- ▶ Variables (**Identification** is used)

NORMALISATION

Data for efficiency classes must be normalised for use in the zenon Analyzer. Data from the zenon Editor are never normalised. Normalisation can only be configured in the Metadata Editor.

During synchronization, the **Metadata Synchronizer** checks whether the efficiency class model already exists in the Metadata database:

- ▶ efficiency class model is not present: no normalisation is present. This must be configured in the Metadata Editor.
- ▶ Efficiency class model is present: The normalisation present in the Metadata database remains unchanged.

SANKEY DIAGRAMS AND WATERFALL MODELS

Sankey diagrams and waterfall models are validated after checking the variables and before sending the data.

In doing so, the following applies:

- ▶ Connections in Sankey diagrams may only use variables that are contained in project, archive, variable and compression during synchronization.

- ▶ Waterfall models may only use variables that are contained in project and variable, but not archives during synchronization. For waterfall charts, it is sufficient if the variable is contained in any archive.

VARIABLES

All variables are checked before synchronization to see if they have to be synchronized. A variable is only synchronized if it meets at least one of these conditions:

- ▶ The variable has an assigned reaction matrix:
In addition to the default entry, this reaction matrix contains at least one other entry that generates the alarms (AML) or events (CEL).
- ▶ The variable does not have an assigned reaction matrix:
It has at least one activated limit value that generates an alarm (AML) or an event (CEL).
- ▶ The variable is contained in at least one archive.

53 Validation of the configuration

In order to avoid invalid configurations, the settings in the zenon Editor and in zenon Analyzer are validated automatically.

In order to avoid errors in advance, ensure you use permitted characters when naming objects. for example, certain characters are not permitted in many objects: ; --,

VALIDATION

Entries from zenon are largely validated before transfer. Errors are corrected. If correction is not possible, the respective object is excluded from synchronization. Warnings are displayed in the respective output window - zenon Editor or **Service Node Status** - for each validation error.

This applies for:

- ▶ Alarm/Event classes
- ▶ Alarm/event groups
- ▶ Equipment Groups
- ▶ Archives
- ▶ Users
- ▶ Efficiency class model
- ▶ Projects
- ▶ Rema (State)

- ▶ Sankey diagrams
- ▶ Shift models
- ▶ Variables
- ▶ Waterfall models

REQUIREMENTS

Display in the respective output window requires the following versions:

- ▶ zenon Editor: 8:20 AM
- ▶ **Service Node Status:** 3:30 AM
- ▶ Diagnosis Viewer: zenon 8.10 and/or zenon Analyzer 3.30

EXAMPLES

During validation, the consequences for validation errors depend on the objects.

The same name, for example:

- ▶ Archives with the same name: A character sequence is added to the names in order to ensure that the name only occurs once.
- ▶ Variables or equipment groups with the same name: These are precluded by the synchronization.

54 License information in relation to open-source software

COPA-DATA products use the following open-source software.

Note: This information is only available in English.

55 zenon Open Source licences for several features

- ▶ The SNMP driver (SNMPNG32.exe) uses OpenSSL and NetSNMP.
- ▶ The DNP3 driver, the IEC 60870 driver, the OPC UA driver, the Message Control and the Web Server Client are using the OpenSSL 1.1.1 Long Term Support with the Open SSL License.
- ▶ The LicenseManager uses the JSON and the zlib Library.

- ▶ The OPC UA Process Gateway (AccessOPCUA.dll) and the OPC UA driver (OPCUA32.exe) use OpenSSL.
- ▶ The Message Control uses MIMEMail and OpenSSL (zenon32.dll).
- ▶ The HTML Web Engine –Web Application uses ANTLRv3, Bootstrap, jQuery UI, jQuery, Json.NET, NLog, Owin, jQuery.SVG, WebGrease.
- ▶ The HTML Web Engine – Deployment Tool uses Extended WPF Toolkit, Newtonsoft.Json, NLog, WPF Application Framework (WAF).
- ▶ The HTML Web Engine – Compiler uses Newtonsoft.Json, NLog.Windows.Forms, NLog.
- ▶ The JavaScript library jQuery 3.3.1 uses the MIT License.
- ▶ The Everywhere Essentials QR Code Generator Wizard uses QrCode.Net.
- ▶ The Message Control VoiceOverIP Extension (MsgCtrlVoip.dll) uses libSRTP, Speex, PortAudio, Alaw/Ulaw Converter, GSM Codec 06.10 and iLBC Codec.
- ▶ The 3D Configuration Tool uses DWF Toolkit License, the MIT License (MIT), the SharpDX - Alexandre Mutel License.
- ▶ The 3D Integration uses the zlib Library.
- ▶ The 3D Integration uses the Intel® Threading Building Blocks (Intel® TBB) (Version 2018, 0, 2017, 0919) under the Apache 2.0 License.
- ▶ The 3D Integration uses the liblzma under the XZ Utils License 5.2.2.
- ▶ The GIS-Control uses the Gmap-Control with the MIT License (MIT).
- ▶ The System.Data.SQLite and the System Window Interactivity WPF are using the Microsoft Public License (MS-PL).
- ▶ As framework for .NET the Newtonsoft.Json 11.0.2 software uses the MIT License (MIT).
- ▶ The NLog.Extensions.Logging 1.0.1 uses the BSD 2-Clause "Simplified" License.
- ▶ The NLog 4.4.0 uses the NLog / License.
- ▶ The NLog 4.5.3 uses the BSD 3-Clause "New" or "Revised" License.
- ▶ The NLog.Web.AspNetCore 4.5.3 software, which contains targets and layout-renderers specific to ASP.NET (Core), MVC and IIS, uses the BSD 3-Clause "New" or "Revised" License.
- ▶ The Predictive Analytics and the Analyzer Management Studio use Math.Net Numerics 4.4.0 with the MIT/X11 License.
- ▶ The Add-In Framework uses the SharpDevelop 5.1.0 with the MIT License, the Mono.AddIns 1.3 with the MIT License, the Mono.Cecil 0.9.6.4 with the MIT/X11 License, the WPF Application Framework (WAF) 3.2.0 with the Microsoft Public License (MS-PL).
- ▶ The zenon Analyzer Management Studio uses the Castel.Core 4.2.1 with Apache License.
- ▶ The *.ini-file handling is using a ini-parser with the MIT License (MIT).
- ▶ The Drag&Drop functionality is using package with the BSD 3-Clause License.

- ▶ The Toggle Switch Control Library is using the Microsoft Public License (MsPL).
- ▶ Process Gateway uses cpprestsdk (cpprestsdk.v120.winxp.msvcstl.dyn.rt-dyn 2.9.1; cpprestsdk.v120.winphonesl.msvcstl.dyn.rt-dyn 2.9.1; cpprestsdk.v120.windesktop.msvcstl.dyn.rt-dyn 2.9.1; cpprestsdk.v120.winphone.msvcstl.dyn.rt-dyn 2.9.1; cpprestsdk.v120.winapp.msvcstl.dyn.rt-dyn 2.9.1; cpprestsdk.v140.winapp.msvcstl.dyn.rt-dyn 2.9.1; cpprestsdk.v140.windesktop.msvcstl.dyn.rt-dyn 2.9.1; cpprestsdk 2.9.1.1) with the MIT License.
- ▶ For the creation and execution of platform independent software components the .NET Core 2.1 Software uses the MIT License (MIT).
- ▶ The @aspnet/signalr 1.0.0 software uses the Apache License, Version 2.0.
- ▶ The IdentityModel2 3.0.0 software, a A.NET standard helper library for claims-based identity, OAuth 2.0 and OpenID connect, uses the Apache License 2.0.
- ▶ The popper.js 1.14.3 software, a library used to position poppers in web applications, uses the MIT License (MIT).
- ▶ The bootstrap 4.1.0 software, a toolkit for developing with HTML, CSS and JS, uses the MIT License (MIT).
- ▶ The @types/cryptojs 3.1.29 software, which contains type definitions for CcryptoJS 3.1.2, uses the MIT License (MIT).
- ▶ The OPC Foundation UA ANSI C Stack 1.03.341 software, which is used as Ansi C Stack of the OPC Foundation, uses the Reciprocal Community License (RCL).
- ▶ The OpenSSL 1.10h software, which is a toolkit for Transport Layer Security (TLS) and Secure Sockets Layer (SSL) protocols, uses the Open SSL License and the SSLeay License.
- ▶ The Chromium Embedded Framework (CEF), which is a framework for embedding Chromium-based browsers in other applications, uses the Chromium Embedded Framework (CEF) License.
- ▶ The zenon Analyzer and the zenon Supervisor uses the mosquitto 1.4.12 MQTT Broker with the Eclipse Public License - v 1.0.
- ▶ The zenon Supervisor uses the phao MQTT C client 1.2.1 with the Eclipse Public License - v 1.0
- ▶ The Web Server - Client Modul uses System.Configuration.ConfigurationManager 4.4.1 with the MIT License (MIT).
- ▶ The Command Line Parser 2.3 uses the MIT License (MIT).
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.Primitives 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.Options 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.Logging.Abstractions 2.1.1 with the Apache License 2.0.

- ▶ The Web Server - Client Modul uses Microsoft.Extensions.Logging 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.Hosting.Abstractions 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.FileSystemGlobbing 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.FileProviders.Physical 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.FileProviders.Abstractions 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.DependencyInjection.Abstractions 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.Configuration.Json 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.Configuration.FileExtensions 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.Configuration.Binder 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.Configuration.Abstractions 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.Configuration 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.Caching.Memory 2.1.2 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.Extensions.Caching.Abstractions 2.1.2 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.AspNetCore.Http.Features 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.AspNetCore.Http.Abstractions 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.AspNetCore.Hosting.Server.Abstractions 2.1.1 with the Apache License 2.0.
- ▶ The Web Server - Client Modul uses Microsoft.AspNetCore.Hosting.Abstractions 2.1.1 with the Apache License 2.0.
- ▶ The zenon screens and frames use Microsoft.AspNetCore.All 2.1.5 with the Apache License 2.0 (Copyright (c) .NET Foundation and Contributors)

- ▶ The Mono.Posix.NETStandard 1.0.0, which is a component that is used to figure out, if an application is running as Administrator under linux, uses the MIT and BSD License (for Mono distribution).
- ▶ The zenon Supervisor uses the libzip 1.5.1 library with the 3-clause BSD license.
- ▶ The zenon Supervisor uses the Angular 7.1.3 User Interface Framework with the MIT License (Copyright (c) 2010-2019 Google LLC. <http://angular.io/license>).
- ▶ The zenon Supervisor uses the Angular Material 7.3.1 Component Framework for Angular with the MIT License (Copyright (c) 2019 Google LLC).
- ▶ The zenon Data Hub uses the curl 7.64.0.0 Software and License.
- ▶ The zenon Data Hub uses the Mosquitto 1.5.7 and the Mosquitto 1.5.8 software which are dual licensed under the Eclipse Distribution License 1.0 and the Eclipse Public License 1.0.
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55.17 GSM Codec 06.10

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55.19 IdentityModel2 3.0.0

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55.21 ini Parser

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55.24 jQuery 3.3.1

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55.32 Mono.AddIns 1.3

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55.49 popper.js 1.14.3

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55.56 Toggle Switch Control Library

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zlib.h -- interface of the 'zlib' general purpose compression library version 1.2.11, January 15th, 2017

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Version 1.1

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- ▶ The zenon Logic Workbench uses the following libraries:
 - ▶ CxImage Library (on page 358)
 - ▶ Gong-wpf-dragdrop Library (on page 359)
 - ▶ Jasper Library (on page 359)
 - ▶ JPEG Library (on page 360)
 - ▶ Libpng Library (on page 368)
 - ▶ Math.NET Numerics Library (on page 370)
 - ▶ MNG Library (on page 370)
 - ▶ PCap Library (on page 371)

- ▶ SQLite Library (on page 372)
- ▶ Tiff Library (on page 372)
- ▶ Tinyxml Library (on page 373)
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57.4 JPEG Library

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DOCUMENTATION ROADMAP

This file contains the following sections:

Section	Description
OVERVIEW	General description of JPEG and the IJG software.
LEGAL ISSUES	Copyright, lack of warranty, terms of distribution.
REFERENCES	Where to learn more about JPEG.
ARCHIVE LOCATIONS	Where to find newer versions of this software.
RELATED SOFTWARE	Other stuff you should get.
FILE FORMAT WARS	Software <i>*not*</i> to get.
TO DO	Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:

Documentation	Description
install.doc	How to configure and install the IJG software.
usage.doc	Usage instructions for cjpeg, djpeg, jpegtran, rdjpgcom, and wrjpgcom.
*.1	Unix-style man pages for programs (same info as usage.doc).
wizard.doc	Advanced usage instructions for JPEG wizards only.
change.log	Version to version change highlights.

Programmer and internal documentation:

Documentation	Description
libjpeg.doc	How to use the JPEG library in your own programs.
example.c	Sample code for calling the JPEG library.
structure.doc	Overview of the JPEG library's internal structure.
filelist.doc	Road map of IJG files.

Documentation	Description
coderrules.doc	Coding style rules - please read if you contribute code.

Please read at least the files `install.doc` and `usage.doc`. Useful information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in roughly the order listed) before diving into the code.

OVERVIEW

This package contains C software to implement JPEG image compression and decompression. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images. JPEG is intended for compressing "real-world" scenes; line drawings, cartoons and other non-realistic images are not its strong suit. JPEG is lossy, meaning that the output image is not exactly identical to the input image. Hence you must not use JPEG if you have to have identical output bits. However, on typical photographic images, very good compression levels can be obtained with no visible change, and remarkably high compression levels are possible if you can tolerate a low-quality image. For more details, see the references, or just experiment with various compression settings.

This software implements JPEG baseline, extended-sequential, and progressive compression processes. Provision is made for supporting all variants of these processes, although some uncommon parameter settings aren't implemented yet. For legal reasons, we are not distributing code for the arithmetic-coding variants of JPEG; see LEGAL ISSUES. We have made no provision for supporting the hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjpeg" and "djpeg", which use the library to perform conversion between JPEG and some other popular image file formats. The library is intended to be reused in other applications.

In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped file formats or colormapped displays. These extra functions can be compiled out of the library if not required for a particular application. We have also included "jpegtran", a utility for lossless transcoding between different JPEG processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments in JFIF files.

The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the REFERENCES section for introductory material.) Rather, it

is intended to be reliable, portable, industrial-strength code. We do not claim to have achieved that goal in every aspect of the software, but we strive for it.

We welcome the use of this software as a component of commercial products.

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ansi2knr.c is NOT covered by the above copyright and conditions, but instead by the usual distribution terms of the Free Software Foundation; principally, that you must include source code if you redistribute it. (See the file ansi2knr.c for full details.) However, since ansi2knr.c is not needed as part of any program generated from the IJG code, this does not limit you more than the foregoing paragraphs do.

The Unix configuration script "configure" was produced with GNU Autoconf. It is copyright by the Free Software Foundation but is freely distributable. The same holds for its supporting scripts (config.guess, config.sub, ltconfig, ltmain.sh). Another support script, install-sh, is copyright by M.I.T. but is also freely distributable.

It appears that the arithmetic coding option of the JPEG spec is covered by patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic coding cannot legally be used without obtaining one or more licenses. For this reason, support for arithmetic coding has been removed from the free JPEG software. (Since arithmetic coding provides only a marginal gain over the unpatented Huffman mode, it is unlikely that very many implementations will support it.) So far as we are aware, there are no patent restrictions on the remaining code.

The IJG distribution formerly included code to read and write GIF files. To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

We are required to state that "The Graphics Interchange Format(c) is the Copyright property of CompuServe Incorporated. GIF(sm) is a Service Mark property of CompuServe Incorporated."

REFERENCES

We highly recommend reading one or more of these references before trying to understand the innards of the JPEG software.

The best short technical introduction to the JPEG compression algorithm is:

Wallace, Gregory K. "The JPEG Still Picture Compression Standard",

Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 30-44.

(Adjacent articles in that issue discuss MPEG motion picture compression, applications of JPEG, and related topics.) If you don't have the CACM issue handy, a PostScript file containing a revised version of Wallace's article is available at <ftp://ftp.uu.net/graphics/jpeg/wallace.ps.gz>. The file (actually a preprint for an article that appeared in IEEE Trans. Consumer Electronics) omits the sample images that appeared in CACM, but it includes corrections and some added material. Note: the Wallace article is copyright ACM and IEEE, and it may not be used for commercial purposes.

A somewhat less technical, more leisurely introduction to JPEG can be found in "The Data Compression Book" by Mark Nelson and Jean-loup Gailly, published by M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides good explanations and example C code for a multitude of compression methods including JPEG. It is an excellent source if you are comfortable reading C code but don't know much about data compression in general. The book's JPEG sample code is far from industrial-strength, but when you are ready to look at a full implementation, you've got one here...

The best full description of JPEG is the textbook "JPEG Still Image Data Compression Standard" by William B. Pennebaker and Joan L. Mitchell, published by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1. Price US\$59.95, 638 pp. The book includes the complete text of the ISO JPEG standards (DIS 10918-1 and draft DIS 10918-2). This is by far the most complete exposition of JPEG in existence, and we highly recommend it.

The JPEG standard itself is not available electronically; you must order a paper copy through ISO or ITU. (Unless you feel a need to own a certified official copy, we recommend buying the Pennebaker and Mitchell book instead; it's much cheaper and includes a great deal of useful explanatory material.) In the USA, copies of the standard may be ordered from ANSI Sales at (212) 642-4900, or from Global Engineering Documents at (800) 854-7179. (ANSI doesn't take credit card orders, but Global does.) It's not cheap: as of 1992, ANSI was charging \$95 for Part 1 and \$47 for Part 2, plus 7% shipping/handling. The standard is divided into two parts, Part 1 being the actual specification, while Part 2 covers compliance testing methods. Part 1 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS 10918-1, ITU-T T.81. Part 2 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 2: Compliance testing" and has document numbers ISO/IEC IS 10918-2, ITU-T T.83.

Some extensions to the original JPEG standard are defined in JPEG Part 3, a newer ISO standard numbered ISO/IEC IS 10918-3 and ITU-T T.84. IJG currently does not support any Part 3 extensions.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, revision 1.02. A copy of the JFIF spec is available from:

Literature Department

C-Cube Microsystems, Inc.

1778 McCarthy Blvd.

Milpitas, CA 95035

phone (408) 944-6300, fax (408) 944-6314

A PostScript version of this document is available by FTP at <ftp://ftp.uu.net/graphics/jpeg/jfif.ps.gz>. There is also a plain text version at <ftp://ftp.uu.net/graphics/jpeg/jfif.txt.gz>, but it is missing the figures. The TIFF 6.0 file format specification can be obtained by FTP from <ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz>. The JPEG incorporation scheme found in the TIFF 6.0 spec of 3-June-92 has a number of serious

problems. IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 Straton3dPartySoftware-(Compression tag 7). Copies of this Note can be obtained from <ftp.sgi.com> or from <ftp://ftp.uu.net/graphics/jpeg/>. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design. Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note. libtiff is available from <ftp://ftp.sgi.com/graphics/tiff/>.

ARCHIVE LOCATIONS

The "official" archive site for this software is <ftp.uu.net> (Internet address 192.48.96.9). The most recent released version can always be found there in directory [graphics/jpeg](ftp://ftp.uu.net/graphics/jpeg/). This particular version will be archived as <ftp://ftp.uu.net/graphics/jpeg/jpegsrc.v6b.tar.gz>. If you don't have direct Internet access, UUNET's archives are also available via UUCP; contact help@uunet.uu.net for information on retrieving files that way.

Numerous Internet sites maintain copies of the UUNET files. However, only <ftp.uu.net> is guaranteed to have the latest official version.

You can also obtain this software in DOS-compatible "zip" archive format from the SimTel archives (<ftp://ftp.simtel.net/pub/simtelnet/msdos/graphics/>), or on CompuServe in the Graphics Support forum (GO CIS:GRAPHSUP), library 12 "JPEG Tools". Again, these versions may sometimes lag behind the <ftp.uu.net> release.

The JPEG FAQ (Frequently Asked Questions) article is a useful source of general information about JPEG. It is updated constantly and therefore is not included in this distribution. The FAQ is posted every two weeks to Usenet newsgroups comp.graphics.misc, news.answers, and other groups. It is available on the World Wide Web at <http://www.faqs.org/faqs/jpeg-faq/> and other news.answers archive sites, including the official news.answersarchive at rtfm.mit.edu: <ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/>. If you don't have Web or FTP access, send e-mail to mail-server@rtfm.mit.edu with body

send usenet/news.answers/jpeg-faq/part1

send usenet/news.answers/jpeg-faq/part2

RELATED SOFTWARE

Numerous viewing and image manipulation programs now support JPEG. (Quite a few of them use this library to do so.) The JPEG FAQ described above lists some of the more popular free and shareware viewers, and tells where to obtain them on Internet.

If you are on a Unix machine, we highly recommend Jef Poskanzer's free PBMPLUS software, which provides many useful operations on PPM-format image files. In particular, it can convert PPM images to and from a wide range of other formats, thus making [cjpeg/djpeg](http://cjpeg.djv) considerably more useful. The latest version is distributed by the NetPBM group, and is available from numerous sites, notably <ftp://wuarchive.wustl.edu/graphics/graphics/packages/NetPBM/>.

Unfortunately PBMPLUS/NETPBM is not nearly as portable as the IJG software is; you are likely to have difficulty making it work on any non-Unix machine.

A different free JPEG implementation, written by the PVRG group at Stanford, is available from <ftp://havefun.stanford.edu/pub/jpeg/>. This program is designed for research and experimentation rather than production use; it is slower, harder to use, and less portable than the IJG code, but it is easier to read and modify. Also, the PVRG code supports lossless JPEG, which we do not. (On the other hand, it doesn't do progressive JPEG.)

FILE FORMAT WARS

Some JPEG programs produce files that are not compatible with our library. The root of the problem is that the ISO JPEG committee failed to specify a concrete file format. Some vendors "filled in the blanks" on their own, creating proprietary formats that no one else could read. (For example, none of the early commercial JPEG implementations for the Macintosh were able to exchange compressed files.)

The file format we have adopted is called JFIF (see REFERENCES). This format has been agreed to by a number of major commercial JPEG vendors, and it has become the de facto standard. JFIF is a minimal or "low end" representation. We recommend the use of TIFF/JPEG (TIFF revision 6.0 as modified by TIFF Technical Note #2) for "high end" applications that need to record a lot of additional data about an image. TIFF/JPEG is fairly new and not yet widely supported, unfortunately.

The upcoming JPEG Part 3 standard defines a file format called SPIFF. SPIFF is interoperable with JFIF, in the sense that most JFIF decoders should be able to read the most common variant of SPIFF. SPIFF has some technical advantages over JFIF, but its major claim to fame is simply that it is an official standard rather than an informal one. At this point it is unclear whether SPIFF will supersede JFIF or whether JFIF will remain the de-facto standard. IJG intends to support SPIFF once the standard is frozen, but we have not decided whether it should become our default output format or not. (In any case, our decoder will remain capable of reading JFIF indefinitely.)

Various proprietary file formats incorporating JPEG compression also exist. We have little or no sympathy for the existence of these formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, open format standards for JPEG files. Don't use a proprietary file format!

TO DO

The major thrust for v7 will probably be improvement of visual quality. The current method for scaling the quantization tables is known not to be very good at low Q values. We also intend to investigate block boundary smoothing, "poor man's variable quantization", and other means of improving quality-vs-file-size performance without sacrificing compatibility.

In future versions, we are considering supporting some of the upcoming JPEG Part 3 extensions --- principally, variable quantization and the SPIFF file format.

As always, speeding things up is of great interest.

Please send bug reports, offers of help, etc. to jpeg-info@uunet.uu.net.

57.5 Libpng Library

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A "png_get_copyright" function is available, for convenient use in "about" boxes and the like:
`printf("%s",png_get_copyright(NULL));`

Also, the PNG logo (in PNG format, of course) is supplied in the files "pngbar.png" and "pngbar.jpg" (88x31) and "pngnow.png" (98x31).

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Glenn Randers-Pehrson

glennrp at users.sourceforge.net

December 14, 2007

57.6 Math.NET Numerics Library

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57.7 MNG Library

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Parts of this software have been adapted from the libpng package. Although this library supports all features from the PNG specification (as MNG descends from it) it does not require the libpng package. It does require the zlib library and optionally the IJG jpeg library, and/or the "little-cms" library by Marti Maria (depending on the inclusion of support for JNG and Full-Color-Management respectively).

This library's function is primarily to read and display MNG animations. It is not meant as a full-featured image-editing component! It does however offer creation and editing functionality at the chunk level (future modifications may include some more support for creation and or editing).

57.8 PCap Library

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57.9 SQLite Library

2001 September 15

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This header file defines the interface that the SQLite library presents to client programs. If a C-function, structure, datatype, or constant definition does not appear in this file, then it is not a published API of SQLite, is subject to change without notice, and should not be referenced by programs that use SQLite.

Some of the definitions that are in this file are marked as "experimental". Experimental interfaces are normally new features recently added to SQLite. We do not anticipate changes to experimental interfaces but reserve the right to make minor changes if experience from use "in the wild" suggest such changes are prudent.

The official C-language API documentation for SQLite is derived from comments in this file. This file is the authoritative source on how SQLite interfaces are supposed to operate.

The name of this file under configuration management is "sqlite.h.in".

The makefile makes some minor changes to this file (such as inserting the version number) and changes its name to "sqlite3.h" as part of the build process.

57.10Tiff Library

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57.11 Tinyxml Library

www.sourceforge.net/projects/tinyxml

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57.12 Zlib Library

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zlib.h -- interface of the 'zlib' general purpose compression library version 1.2.11, January 15th, 2017

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