



zenon
by COPA-DATA

zenon manual

Release Notes zenon Software Platform 10

v.10



COPA-DATA

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1 Welcome to COPA-DATA help

ZENON VIDEO TUTORIALS

You can find practical examples for project configuration with zenon in our YouTube channel (https://www.copadata.com/tutorial_menu). The tutorials are grouped according to topics and give an initial insight into working with different zenon modules. All tutorials are available in English.

GENERAL HELP

If you cannot find any information you require in this help chapter or can think of anything that you would like added, please send an email to documentation@copadata.com.

PROJECT SUPPORT

You can receive support for any real project you may have from our customer service team, which 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 Release Notes - zenon Software Platform 10

Information on changes in zenon Service Engine and Engineering Studio version 10.

The text contains notes about the basis on which changes were made. This consists of a letter and a number. The letter refers to the level in the implementation process; the number refers to the respective number:

Character	Meaning	Description
I	Initiative	New requirement for a product.
F	Feature	Central organization unit for new requirements for development. Refers to Initiatives, consists of Stories.
S	Story	Divides a feature into several clear areas for development. They are formulated from the point of view of the user.
B	Bug	Requirement to rectify an error in the product.

(F 123456) means: The described behavior was implemented due to feature 123456.

3 General

General improvements for the zenon Software Platform.

3.1 Renaming to zenon Software Platform

With version 10, the previously separate products zenon Supervisor, zenon Analyzer, zenon Logic and zenon Service Grid have been combined and renamed to form the zenon Software Platform.

Renaming to zenon Software Platform:

Until the end of 2020	As of version 10 (short)	As of version 10 (long)
zenon Editor	Engineering Studio	Engineering Studio
zenon Logic Workbench	Logic Studio	Engineering Studio – Logic
zenon Analyzer	Report Engine	Report Engine
zenon Analyzer Management Studio	Reporting Studio	Engineering Studio – Reporting

Until the end of 2020	As of version 10 (short)	As of version 10 (long)
ZAMS	Reporting Studio	Engineering Studio – Reporting
zenon Runtime	Service Engine	Service Engine
zenon Logic Runtime	Logic Service	Logic Service
Report Launcher	Report Launcher	Report Launcher
Service Grid	Service Grid	Service Grid
zenon Web Server	Smart Server	Smart Server
zenon Web Client	Smart Client	Smart Client

Note: Key texts for Language Switch also change with the renaming. They must be amended with project conversions.

3.2 OpenSSL version 1.1.1.i (F 224713)

The OpenSSL version has been updated. All components of the zenon product family now use **OpenSSL** in version *1.1.1.i*.

4 zenon

4.1 Installation and updates

4.1.1 Revision texts for build setups (F 148450)

You now get, for new builds too, a link to the changes between the previous version and the newly-installed one.

4.1.2 New Software Platform setup (F 206426 - 230303 - 225464)

The zenon setup now combines all components of the zenon Software Platform:

- ▶ zenon with all **Engineering Studios**, **Service Engines** and **Services**
- ▶ Report Engine
- ▶ Service Grid

4.1.3 Supported operating systems (F 225464)

The zenon Software Platform supports the following operating systems:

- ▶ Desktop:
 - ▶ Windows 10: as of TH1 1507
The Home version is not supported.
 - ▶ Windows 8/8.1: Engineering Studio, Report Engine and Reporting Studio are not supported.
- ▶ Server:
 - ▶ From Windows 2016 - fully supported
 - ▶ Windows Server 2012 and Windows Server 2012 R2: Engineering Studio, Report Engine and Reporting Studio are not supported.
 - ▶ Windows Server 2008: Engineering Studio, Report Engine and Reporting Studio are not supported.

Support for the following operating systems has been stopped:

- ▶ Windows 7 (all versions)

4.2 Licensing

4.2.1 Demo licenses are not automatically issued during setup (F 237264)

The setup of zenon 10 installs the demo licenses for zenon 10. It does not provide these for use automatically however. If, when starting a zenon component, no valid licenses is found, the user is notified that they should activate a demo license. In the Wizard view of License Manager, there is a new option with which the scope of the demo license can be selected.

4.2.2 LicenseManagerAutomation.exe command line interface tool: New argument AllValid (F 206936)

The **LicenseManagerAutomation.exe** command line interface tool now has a new **--AllValid** argument for the **WritelnTop** action.

This is used with the **WritelnTop** action. It 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:

- ▶ Hardware dongles before software dongles
- ▶ More recent product versions before older ones

Attention: Demo licenses are ignored.

4.2.3 Network: New license options

From version 10, the following license options are available for the network:

- ▶ **StandaloneOnly:** The zenon network is not available in Service Engine.
- ▶ **ServerOnlyNoRedundancy:** The computer cannot be used as a standby server.
- ▶ **OneInstancePerDriver:** Only one instance can be started for each driver type in Service Engine.
- ▶ **ReadOnlyClient:** The client only has read-only access.

4.2.4 License Manager can be installed additionally (F 225464)

If there is no License Manager in the system, it can be subsequently installed. To do this, start setup and select the **License Manager** package in **Engineering Studios and Edge Services**.

4.3 Engineering Studio

4.3.1 Properties: Copying of content (F 216119)

Values of deactivated properties can now be copied in the dialog view of the properties. This is not possible in the *Grouped* and *All Properties* views. Copying is generally not possible in tree views and drop-down lists.

4.3.2 Menu extras: Add-Ins changed to Programming Interface (F 231346)

In the **Settings** dialog, which can be called up via the **Extras** menu entry, the **Add-Ins** tab has been renamed to **Programming Interface**.

4.3.3 Menu extras: Programming Interface tab supplemented with option for add-in note (F 231346)

The Programming Interface tab in the **Extras** menu has been supplemented with a new option: **Prefer the usage of the add-in framework**

This controls the behavior when an attempt is made to start a VSTA editor or VBA editor directly:

- ▶ **Active:** A notice is displayed when a VSTA editor or VBA editor is selected. It says that you must use the add-in framework. The selected editor is opened after the notice is confirmed.

- ▶ *Inactive*: The selected editor is opened immediately. There is no reference to the add-in framework.

This option is active by default.

4.3.4 Configuration of Process Gateway modules in Engineering Studio (F 210697 & F 218858)

Selected **Process Gateway** modules and/or communication protocols can now be configured and set in Engineering Studio directly. The full scope of the zenon project configuration environment, such as distributed engineering, reloadability in Service Engine and integration into the zenon network, including for **Process Gateway**, can also be used.

- ▶ The **Process Gateways** subnode has been added to the **Variables** node in the project tree for this. In this node, selected **Process Gateway** modules can be created and configured. **Process Gateway** project configurations in Engineering Studio can also be carried out if Service Engine is not running. This configuration was only possible in zenon before version 10 in a running Service Engine.
- ▶ The parameters for the executing computer(s) on which **Process Gateway** is started when Service Engine is started can be set with the corresponding properties for each configured protocol or module.
- ▶ In the **Diagnosis Viewer**, the *zenProcGatewayDLL* module entry is available for the filtering of the new functionality. It can be selected in the **Diagnosis Viewer** in the **Modules** tab for the filtering of the LOG entries and represents project configuration in Engineering Studio.

For version 10, the following **Process Gateway** module and/or communication protocols have been implemented in Engineering Studio for configuration:

- ▶ **MODBUS**
- ▶ **DNP3**

4.3.5 Revision of the graphical user interface (F 206341)

The graphical user interface of Engineering Studio has been fully revised. In doing so, the symbols used in the project configuration environment have been replaced.

4.3.6 Linked variables of the integrated solution can be skipped to from Engineering Studio directly (F 227670)

The **Linked elements** context menu can now be used to skip to variables in Logic Studio if the corresponding variable is part of the integrated solution.

The context menu entry is available for the list entry of the variable in the variable editor and for linked screen elements.

Select the desired entry in order to skip to the variable in the zenon variable editor or zenon Logic.

4.4 Modules

4.4.1 Alarm Message List

4.4.1.1 Alarm causes - display of the GUID (F 206432)

The display of alarm causes in the Alarm message List can now be supplemented with the **alarm cause ID**. It can be selected for display in Engineering Studio by means of the **Screen switch** function in the column setting. In addition, the text and GUID of the alarm causes can be exported with the AML.

4.4.1.2 Evacuate alarm files (F 206719)

Alarm data can now be evacuated. The **Select storage location** property was implemented for this.

The following is available:

- ▶ Local Service Engine
- ▶ Microsoft SQL Server
- ▶ Service Grid **Data Storage**

4.4.1.3 Continuous export (F 206719)

Continuous export continuously writes the data from the save location to an SQL database. You configure the evacuation file and options by means of the new **Continuous Export** project property.

4.4.2 Batch Control

4.4.2.1 Phase - read in set value limits of the parameters (F 236445)

When inserting a phase, its set value limits are now read in and applied. The values are read and set each time the attendant phase is selected.

4.4.2.2 Copy and paste (F 222807)

For PFC recipes, elements can now be copied and pasted at suitable places. This is possible via the respective toolbar or the **Copy** and **Paste** elements.

4.4.3 Command Processing

4.4.3.1 Support for QoC for set value input action type (F 213794)

The **set value input** action type supports Qualifier of Command. The **Use Qualifier of Command** and **Qualifier of command** properties for setting parameters in Engineering Studio have been unlocked for this.

4.4.4 User administration

4.4.4.1 Active Directory - secure TLS connection (F 224810)

The connection to Active Directory can now be encrypted in Service Engine by means of TLS. To do this, activate the new **Use encrypted communication** project property in Engineering Studio in the **User Administration** group.

4.4.4.2 Service Engine enables login via Identity Service (F 225770, B 238636)

The Service Grid **Identity Service** can now be used to log into Service Engine. It supports user logins via third-party systems, known as **Identity Providers**. Microsoft Active Directory and RADIUS are supported for login to Service Engine.

Please note the following limitations for logging in to the **Identity Service** in Service Engine:

- ▶ Service Engine can authenticate users either by the internal user administration of the **Identity Service** or by means of the **Identity Provider**. The simultaneous use of the internal user administration and the **Identity Provider** cannot be configured and is not possible.
- ▶ Service Engine can only use one **Identity Provider** at a time for user authentication. Several **Identity Providers** cannot be used at the same time by Service Engine.
- ▶ User passwords can only be changed by Service Engine if the internal user administration of the **Identity Service** is configured in the zenon project. If the use of an **Identity Provider** has been configured for Service Engine, changing user passwords has no effect on this user. User passwords from external systems (**Identity Provider**) can only be changed by the options provided by these systems.

4.4.5 Screens

4.4.5.1 Filter - display in Service Engine optimized (F 199160)

The display of the filter with the screen element **Set Filter (Detail List)** has been enhanced. Specific filter components are also displayed from version 10.

The enhanced display is also available for:

- ▶ *AML*
- ▶ *Archive revision*
- ▶ *CEL*
- ▶ *ETM*
- ▶ *Report Viewer*

4.4.6 Chronological Event List

4.4.6.1 Evacuate event data (F 206719)

Event data can now be evacuated. The **Select storage location** property was implemented for this.

The following is available:

- ▶ Local Service Engine
- ▶ Microsoft SQL Server
- ▶ Service Grid **Data Storage**

4.4.6.2 Continuous export (F 206719)

Continuous export continuously writes the data from the save location to an SQL database. You configure the evacuation file and options by means of the new **Continuous Export** project property.

4.4.7 Docker

4.4.7.1 Container: Path indications for Service Engine (F 208513)

With version 10, the naming of Runtime in zenon has been changed to Service Engine. The paths to Service Engine are thus:

- ▶ From version zenon 10: **zenon-serviceengine10**

- ▶ Up to and including zenon 8.20: **zenon-runtime820**

4.4.7.2 Logging of error messages [F 209170]

Error messages about message boxes in Service Engine are now entered into the LOG files by default. The setting is made by means of the **Modul0=33** entry in **zenon6.ini**. This entry is automatically created during installation.

The entry must be deleted if the logging of **Messages** is to be prevented. **Errors** continue to be logged.

4.4.8 Extended Trend

4.4.8.1 Display of value for 2nd cursor (F 204010)

The value for the second cursor can now be displayed in the screen. To do this, select the *2nd value* entry in the column setting.

4.4.8.2 Limit value colors and auxiliary lines (F 204010)

The status of the variable value in the curve can be displayed in Extended Trend. To do this, curves can be colored with the limit value colors. In addition, the limit values can be signaled with auxiliary lines.

Configuration is carried out in the screen switching via the settings for the curves. To do this, the options **Use limit value colors** and **Display limit values as auxiliary lines** have been added to the **Curve Settings** tab.

The new properties are also available for use with styles.

4.4.8.3 Selectable default setting for cursor when opening a screen (F 232761)

With the new **Show cursor after screen switch** property, the cursor setting when opening a screen can be defined.

The property is in the filter dialog in the screen switching in the **Display** tab.

The following options are available for selection:

- ▶ *None*
- ▶ *Single cursor*
- ▶ *Double cursor*

4.4.9 eSignature (F 214790, 225885)

User actions can also be protected by means of an **eSignature**. This applies for example, to dynamic elements, variables, data types, actions via a menu or the Recipegroup Manager.

The eSignature is available for:

- ▶ Dynamic elements
- ▶ Variables
- ▶ Data Types
- ▶ RGM variables
- ▶ Menus

Configuration is carried out in Engineering Studio via:

- ▶ Project properties of the **eSignature** group
- ▶ Properties of elements in the **Authorization/eSignature** group

USE ESIGNATURE

To use an **eSignature**, select one of the options in the **Signature necessary** element property:

- ▶ *eSignature with "Execute"*:
An **eSignature** is necessary to operate the element. This can always only be executed by the user who is logged in. The system user is not entitled to do this.
- ▶ *eSignature with "Perform and Verify"*:
An **eSignature** is necessary to operate the element. This must be confirmed by another person in an additional input field. Executing and verifying must be signed by two different users.
- ▶ *eSignature with "Perform, Verify and Approve"*:
An **eSignature** is necessary to operate the element. This must first be checked by two further persons and then confirmed. Performing, verifying and approving must be signed by three different users.

The **eSignature** is retrieved in Service Engine when attempting to operate the protected element. The **eSignature** is entered via a dialog or via a configured and linked *eSignature* screen.

These settings are centrally managed in the **Authorization/eSignature** property group. In the Recipegroup Manager, this happens in the **Authorization/eSignature** group for linked variables. Other settings are available in the project properties in the **eSignature** group.

Which settings are used in Service Engine depends on the **Apply authorization properties from variable** property. If this is active, the properties configured for this variable are applicable in Service Engine. Local configurations are ignored for these properties.

4.4.10 Functions and scripts

4.4.10.1 AML/CEL export - selection of the language (F 208154)

The *key language* for export can now also be selected for the functions **Export AML** and **Export CEL**. All terms are output directly as key terms without translation (including @ character).

4.4.10.2 AML/CEL export - column settings (F 208154, 206813)

When exporting information from the AML or CEL via the **Export AML** and **Export CEL** functions, the columns to be exported can now be configured. To this end, the Column Settings tab has been added to the dialogs.

The display of milliseconds and microseconds can now also be configured for the time columns when exporting to SQL.

NOTES ON SQL EXPORT

Columns, when added, are generally added to the end of the table.

Exception: This does not apply for milliseconds and microseconds. They are part of the complete time information given and are added there.

Attention

Do not change the columns for milliseconds or microseconds any more once the table has been created in SQL Server. Export would no longer work correctly in this case.

4.4.10.3 AML/CEL export - Unicode for SQL export (F 206813)

When exporting information from the AML or CEL using the **Export AML** or **Export CEL** functions, Unicode can now be selected as a format for SQL export.

Unicode is the default setting from version 10. The setting is left as ANSI for converted projects. A direct switch between ANSI and Unicode is not possible.

Recommendation: Always retain the setting once set.

4.4.10.4 Export alarm causes as a context list (F 210758)

Alarm causes can now be exported to SQL Server by exporting the **context list** in Service Engine. To do this, use the **Export Context list** function in the **AML and CEL** node. After they are exported, the alarm causes are available for use in Report Engine.

4.4.10.5 Execute script when Service Engine starts depending on the computer: Instructions (F 211401)

The execution of scripts when Service Engine starts can also be configured in a computer-dependent manner. In this case, a script is only executed if the script is started on a certain computer. This possibility has already existed in many versions. The steps to do this have now been integrated into the documentation.

You can find the instructions in the **Functions and scripts** manual in the **Execute script depending on computer**.

4.4.11 Process Gateway

4.4.11.1 Configuration of Process Gateway modules in Engineering Studio (F 210697 & F 218858)

Selected **Process Gateway** modules and/or communication protocols can now be configured and set in Engineering Studio directly. The full scope of the zenon project configuration environment, such as distributed engineering, reloadability in Service Engine and integration into the zenon network, including for **Process Gateway**, can also be used.

- ▶ The **Process Gateways** subnode has been added to the **Variables** node in the project tree for this. In this node, selected **Process Gateway** modules can be created and configured. **Process Gateway** project configurations in Engineering Studio can also be carried out if Service Engine is not running. This configuration was only possible in zenon before version 10 in a running Service Engine.
- ▶ The parameters for the executing computer(s) on which **Process Gateway** is started when Service Engine is started can be set with the corresponding properties for each configured protocol or module.
- ▶ In the **Diagnosis Viewer**, the *zenProcGatewayDLL* module entry is available for the filtering of the new functionality. It can be selected in the **Diagnosis Viewer** in the **Modules** tab for the filtering of the LOG entries and represents project configuration in Engineering Studio.

For version 10, the following **Process Gateway** module and/or communication protocols have been implemented in Engineering Studio for configuration:

- ▶ **MODBUS**

► DNP3

4.4.11.2 AccessAzure (I 206199)

NEW ISINTEGRITY FLAG FOR EVENT HUB MESSAGES (F 211018)

IsIntegrity has been added to the message format for the Event Hub. As a result, a distinction can be made between spontaneous value changes and value changes of an integrity interval.

COMMAND LINE PARAMETER /IGNOREERROR FOR PROCESS GATEWAY START (F 211029)

With this command line parameter, the **AccessAzure Prozess Gateway** also starts if configured variables are missing in Service Engine. The start is no longer canceled by an error message. If Service Engine runs as a service, the gateway will now start with an incorrect configuration. Errors are logged accordingly.

4.4.11.3 DNP3SG

The following enhancements have been implemented for the **Process Gateway DNP3_SG** module:

4.4.11.3.1 Optional doubled events with and without timestamp (F 210144)

The outstation can, as an option, support the sending of two events for the same change: once with a timestamp and also once without a timestamp. The sending of such events is not compliant with IEEE standard ^(TM) 1815. This functionality must be activated globally. The sending of doubled events can then also be configured via the drop-down list:

- For individually-configured variables as *Event Variation*
- Globally as a *Default Event Variation* of a group

The response to an *Integrity Poll (Class 0)* always only provides a single statistical value.

4.4.11.3.2 MODBUS slave - AccessMODBUS (S 215949)

Process Gateways for the *AccessDNP3_SG* module can be newly configured in Engineering Studio directly. The project configuration is validated when creating Service Engine files. Existing configurations from previous versions can still be run in Service Engine.

Attention

Please note that only new **Process Gateway** configurations in Engineering Studio are possible. Existing configurations of previous versions cannot be changed in Engineering Studio.

4.4.11.3.3 Sequence of the processing of events can be configured (B 222011)

The sequence of processing received changes can now be configured in the configuration dialog. The configuration dialog for the **AccessDNP3_SG-Prozess-Gateway** in the **Events/Unsolicited** node has been supplemented with the **Event order** option.

With this option, you can configure how received changes are processed. You can sort and process these events chronologically according to time stamp (*Timestamp*) or in the sequence in which these occur in the received data (*Occurrence*).

The chronological sequence of occurrence corresponds to that of TB2018-001 published by the DNP user group.

4.4.11.3.4 Redundancy for serial communication (F 210143)

The **DNP3_SG Process Gateway** supports communication to a single **Master** via two redundant serial interfaces. To do this, in the configuration dialog for the **Outstation** node in the **Serial port** option, the possibility has been created, in addition to selection from the drop-down list, to configure a second port manually (separated by commas). The **Outstation** receives queries via both interfaces and sends the response via the interface from which the query was received. If there is no response, any possible *Retries* are sent via the same interface. If *Unsolicited Responses* are configured in the **Outstation**, an *Unsolicited Response* is sent via the last-used interface. The *Unsolicited Response* when the **Outstation** is started is sent to the first configured interface.

4.4.11.3.5 Visualization of connection information (F 202371)

A new mechanism has been added to the **Dnp3_SGProcess Gateway**, which makes it possible to read the current status of the **DNP3_SGProcess Gateways** in Service Engine. To do this, configure the numeric variables of the **internal driver**, in accordance with a fixed naming scheme. The result is visualized in Service Engine with the configured variables.

The following information can be set to variables:

- Process status of **Process Gateway**

- ▶ Connection status
- ▶ Connection statistics

Several instances of the **Process Gateway** in Service Engine can be monitored, such as in instance on the Primary Server and an instance on the Secondary Server. The variables and their nomenclature are documented accordingly.

4.4.11.4 ICCP-TASE.2

The following enhancements have been implemented for the **Process Gateway AccessICCP** module:

4.4.11.4.1 Secondary IP address or host name and port (F 230234)

For connection redundancy, it is possible to configure a secondary address or port in the **General** configuration dialog for the options **IP Address/Hostname** and **Port**. The ICCP gateway as ICCP client uses the secondary IP address or host name if a connection via the primary IP address fails. The same settings for PSEL, SSEL, TSEL, AE qualifier and AP title are used for both settings.

4.4.11.4.2 Select routing/command routing in control direction (F 218782)

The **AccessICCP Prozess-Gateway** enables the setting of *Select-Routing* parameters for **Device Object** ICCP server variables.

- ▶ **Select** (reading the CheckBack ID) is always answered positively.
- ▶ After an **Operate** command, **Select**, and subsequently, **Operate** will be carried out via command processing. A corresponding *write response* with success or error is sent after completing.

4.4.11.4.3 Configurable datasets (F 230239)

The following *Optional Fields* can now be requested for datasets that are created by the **AccessICCP Prozess-Gateway** as an ICCP client:

- ▶ *Transferset Name*
- ▶ *DSConditions Detected*
- ▶ *Event Code Detected*
- ▶ *Transferset Timestamp*

For the *Transfer Sets*, the parameters for *DSTransmissionPars* and *DSConditionsRequested* can now be configured.

It is possible to configure whether the ICCP client deletes existing data sets or creates new data sets when establishing a connection.

Parameters are set by means of entries in the .INI file.

4.4.11.4.4 Variables from subprojects (F 230229)

Variables from subprojects are also supported for the **AccessICCP Process Gateway**. This is applicable for both server and client variables.

To do this, in the configuration dialog of the **Process Gateway** module, the options in the **Server Variables** and **Client Variables** tabs have been amended accordingly:

- ▶ The **SCADA Variables** option has been supplemented with the *Project* column.
- ▶ The **Available for ICCP** option contains the project names as a prefix in front of the variable name, separated with the # character.

For status variables, *<projectname>#* must be placed in front if necessary.

NOTE ON COMPATIBILITY

A pre-existing project entry has been taken into account for existing configurations. Otherwise the start project is assumed.

4.4.11.5 MODBUS slave - AccessMODBUS (F 215944)

Process Gateways for the *AccessMODBUS* module can be configured in Engineering Studio. Existing configurations from previous versions can still be run in Service Engine.

Attention

Please note that only new **Process Gateway** configurations in Engineering Studio are possible. Existing configurations of previous versions cannot be changed in Engineering Studio.

4.4.11.6 OPC UA

4.4.11.6.1 Limitation of the maximum TCP connections (F 225045)

The following additions have been implemented for the **Process Gateway AccessOPCUA** module for TCP connections:

- ▶ A maximum of 100 TCP connections at the same time are accepted
- ▶ TCP connections that have been established are separated if no data is exchanged for 30 seconds.
- ▶ Only secure connections are accepted by default.

4.4.11.6.2 Use of a new file format for the configuration file (F 192911)

The configuration file for the **Process Gateway** Module **AccessOPCUA** is saved in a new file format (UTF-16 LE). Configurations from previous versions are executable in the current version.

Attention

The created Service Engine files are no longer executable in previous versions. Therefore, changes of the parameterizations are only possible for use with Version 10 onwards.

4.4.12 Reporting

4.4.12.1 Report Viewer: Filter display (F 209308)

In Service Engine, you can display which data from which sources are currently being visualized. In addition, the filter that is currently being applied is displayed.

To do this, use one of these new possibilities:

- ▶ **Filter settings** dataset: Project configuration in screen switching.
- ▶ **Set filter (detail list)** screen element: Project configuration in the *Report Viewer* screen.

4.4.13 Smart Objects (I 127914)

The functionality of the **Smart Object** module has been further developed and expanded.

4.4.13.1 Recipes including Recipegroup Manager (F 207419)

For the configuration of Smart Object Templates, recipes and recipe groups are supported in the Recipegroup Manager.

The functions and screens of the Smart Object Template configuration have been enhanced accordingly with functionality for the **Recipes** module.

4.4.13.2 Frames (F 206241)

The following restrictions apply for the configuration of Smart Object Templates:

NOTE ON COMPATIBILITY

Due to the support for frames in the Smart Object Template configuration, the project frames are no longer used for a Smart Object. As a result, the following manual adaptation is necessary when using Smart Objects from prior versions:

The required frames must be exported from the project as an XML file. This exported XML file must be added in the Smart Object Template project configuration by means of XML import.

4.4.13.3 Revised variable assignment and new assignment dialog (F 230959)

The internal process and the dialog for the assignment of variables when using a Smart Object has been revised. The dialog is automatically opened if a Smart Object is created and the Smart Object Template contains a configuration that supports the assignment of project variables.

- ▶ Allocation:
 - ▶ From version 10, complex variables (arrays, user-defined structure data types) can be assigned as a project variable.
 - ▶ Assigned project variables are always retained and are no longer deleted.
- ▶ Automatic variable creation:

Variables of a Smart Object Template project configuration are created automatically in the project when using a Smart Object. These variables are marked graphically in Service Engine both with a symbol in the **Status** column as well as by the display of the entry in blue text color.

 - ▶ With the automatically-created variables, the name of the Smart Object (zenon Smart Object property **Name**) is used for the new **Smart Object** variable property.
- ▶ Transfer of variable parameter settings of a Smart Object Template

Parameter settings can, as an option, be transferred from the variable properties of the Smart Object Template project configuration. To do this, the **Use variable properties of Smart Object** option has been added to the dialog.

 - ▶ If the option is activated, this information is also applied in the **Source** variable property.
- ▶ Additional information:

The assignment dialog now offers additional information

- ▶ **Smart Object variable description** option
Description of the variable from the Smart Object Template configuration
- ▶ **Property origin**
Visualization of whether variable properties are applied from the Smart Object Template project configuration or local project variables

NOTE ON COMPATIBILITY

For Smart Objects from prior versions, the following manual parameter settings are necessary during variable assignment:

- ▶ The variable assignment must be resolved in projects from prior versions before conversion to version 10. There can be no variable assignments.
- ▶ In the current version, the variables of a Smart Object Template project configuration must be newly assigned to the respective project variables in the **variable assignment** dialog.

4.4.13.4 XML import and export of Smart Object configurations (E 132307)

Individual configuration content of the modules of a zenon project can be imported via XML in the **Smart Object Templates** project configuration environment. The same is applicable for content of a Smart Object Template configuration.

To do this, the XML export function has been installed into the project configuration environment for a Smart Object Template in the tree view for the respective node.

This is applicable for project configuration content for all supported models in the tree view of a Smart Object Template.

4.4.13.5 API access to Smart Objects and Smart Object Templates (F 207422. 233431)

The zenon API offers a possibility to access the Smart Object Templates and Smart Objects of a zenon project. You can find more information in the online help for the zenon object model.

4.4.13.6 Enhancements (F 202141)

The following enhancements have been implemented for version 10:

4.4.13.6.1 Optimized zenon Logic project for Smart Object Templates (S 206635)

Logic Studio is started with an optimized zenon Logic project for the configuration of a zenon Logic project in a smart object template.

4.4.13.6.2 Visualization of the project configuration origin (S 188781)

The origin of project configuration content that has been defined in Smart Object Templates has been integrated into the zenon project configuration environment.

The project configuration origin of Smart Object or Smart Object Template reference content is displayed graphically with a corresponding symbol in front of the zenon element. In addition, the name of the origin object, from which the configuration is taken, is visualized with the new **Smart Object** property. In doing so, they can be Smart Object Templates, Smart Objects or Smart Object Template references. This information is also available in the new **Smart Object** column in the detail list of the element in Engineering Studio.

4.4.13.6.3 Visualization of unsaved changes for Smart Object Template configurations (S 210716)

If the configuration environment for Smart Object Templates contains project content that has not been saved, this is displayed with a symbol in the **Smart Object Templates** tab of the Project Manager.

In addition, when a project is activated, there is an evaluation to see whether the current project still contains unsaved Smart Object Template configurations. A dialog is shown in this case.

4.4.14 Language files: Link language codes (F 206432)

Language files can now be linked to language codes. They can be selected when creating a new language file in the dialog for new language files.

Language codes for pre-existing language files can be linked manually in the **Description** property.

The entries for available languages are created from the language codes in the operating system. All languages without a hyphen are included. They are available for selection.

This means: The **de** language code is shown. It is applicable for all German language variants. The language code **de-AT** is ignored.

Exception: For Chinese, **zh-CHS** (simplified Chinese) is available.

Attention: Each language code can only be used once. If several language files refer to the same language code, these language files are ignored by the **Metadata Synchronizer**.

4.5 HTML Web Engine

4.5.1 Use of font lists from global projects is supported (F 209773)

The HTML Web Engine can now also use the fonts from a global project. If there is a global project, the fonts are transferred to the font lists of the compiled projects when compiling the HTML Web Engine.

4.5.2 Use of graphics files and audio files from global projects is supported (F 209773)

HTML Web Engine can now also use graphics files and audio files from local and global projects.

The files of the local project are used in principle. If there are no such files in the local project, a search for them is carried out in the global project and the corresponding files are used.

4.5.3 AML and CEL support the display of additional data and columns (F 209772)

The screen types *AML* and *CEL* now also support the display of the following data and columns for the HTML Web Engine:

- ▶ Alarm/Event Class
- ▶ Alarm/event class number
- ▶ Alarm/event class symbol
- ▶ Alarm/Event Group
- ▶ Alarm/event group number
- ▶ Alarm/event group symbol
- ▶ Alarm area
- ▶ Alarm area number

4.5.4 HTML Web Engine available as a Docker image (F 201576, 221527)

The use of the HTML Web Engine is now also possible as a Docker Container. It is a Linux-based Docker Image.

The HTML Web Engine as a Docker Container is designed for use with Service Grid.

The licensing has been amended for the operation of the HTML Web Engine in the Docker Container.

4.5.5 HTML Web Engine supports the display of Gantt charts in the ETM (F 201455)

The HTML Web Engine can now also visualize Gantt charts in the ETM and supports:

- ▶ Definition of the Gantt line height
- ▶ The automatic positioning of the Gantt Lines
- ▶ The arrangement of the Gantt lines from bottom to top
- ▶ Coloring of the Gantt lines from data from numerical reaction matrices, limit value definitions or color definitions in the screen switching function.

4.5.6 Frame behavior in the event of a loss of focus can be defined (F 202117)

The configured frame behavior in the event of a loss of focus is taken into account in the display in the HTML Web Engine.

The parameters for the behavior are set in Engineering Studio in the following properties:

- ▶ **Close after losing focus**
- ▶ **Do not close after losing focus**

4.5.7 Moving of screens using the mouse (F 202117)

Screens can be moved with the mouse in the HTML Web Engine if the **Move Frame via mouse** frame property of the respective screen is active in Engineering Studio.

4.5.8 Opening of screens dependent on mouse pointer or element position (F 202117)

Frames can be opened depending on the position of the mouse cursor or element. The position of display is defined for frames.

If there is no mouse cursor position, a defined position is used.

The last-known position is used for devices with touchscreens.

4.5.9 Display of newly-opened screens in the foreground (F 202117)

Newly-opened screens with the **Always in the foreground** property activated are always displayed in the foreground.

4.5.10 Configurable Y-axis for Web Engine trend (F 218413)

The configuration of the Y-axis for the Web Engine trend supports the following properties:

- ▶ **Axis active**
- ▶ **Position** (only to the left or the right of the diagram)
- ▶ **Axis title** (*static*, variable name)
- ▶ **Labeling** of the axis ticks
- ▶ **Color**
- ▶ **Use color from curve**

The display of several axes is possible.

The colors of curves and axes are configurable.

4.5.11 Web Engine compiler optimized for large projects (F 222290)

The Web Engine compiler has been optimized and the compilation time has been reduced.

4.5.12 Update to .NET core 3.1 and SignalR 1.1.4 (F195896)

The Web Engine has been updated with the more recent versions of .NET core 3.1 and SignalR 1.1.4.

4.5.13 Support for Internet Explorer discontinued

Internet Explorer will no longer be supported for HTML Web Engine from version 10 and above.

4.5.14 Support for equipment model type filter (F 212400)

The screen types *AML* and *CEL* now also support the *equipment model* filter.

4.5.15 The HTML Web Engine supports the equipment model screen type (F 212400)

The HTML Web Engine now also supports the *set value input* screen type.

It can also be used as a filter for *AML* and *CEL* and to execute the functions linked to the equipment group. As an option, alarms for the *hierarchical alarming via equipment model* can also be displayed as a text.

4.5.16 Zooming / moving with curve configuration as a Gantt line in the Extended Trend deactivated (F 225379)

Zoom and move function in the line diagram. However, as soon as at least one curve in Extended Trend is configured as a Gantt line, you cannot zoom or move in either the line diagram or in the Gantt display.

4.6 Programming Interfaces

4.6.1 New function "Start/stop project service extension services" (F 226815)

The new **Start/Stop Project Service Extension** function in the **Add-In** function group allows you to start or stop a project service extension service in Service Engine.

4.6.2 API for Smart Object module (F 207422, F 233431)

The **SmartObject** has been added to the API. As a result, content from the Smart Object module can be contacted via API.

- ▶ Import and export of Smart Object templates
- ▶ Creation of Smart Objects
- ▶ Administering Smart Objects
- ▶ Configuration of Smart Object templates

4.6.3 [AML] Access to "Alarm cause GUID" column (F 206432)

The **Alarmcause GUID** column in the Alarm Message List can be reached via the API. To do this, the *CauseGuid* DynProperty was added in the **IChronologicalEventList** interface.

With the *CauseGuidAnz* DynProperty, which is also new, the length of the **Alarmcause GUID** column can be defined.

4.6.4 [AML and CEL] Access to AML and CEL raw data (F 173110)

AML & CEL raw data can be read via the API in a language-dependent way in ISO 8601 format.

To do this, the classes **IEventEntry** and **IAlarmEntry** were enhanced with the **GetFieldData** method.

- ▶ **IEventEntry**
GetFieldData(AlarmFieldId, DataTextFormat, MeasuringUnitFormat)

- ▶ **IAlarmEntry**
GetFieldData(*EventFieldId*, *DataTextFormat*, *MeasuringUnitFormat*)

4.6.5 [AML] Expansion of Enum:AlarmFieldId by the value LatestChange - "last change" AML column (F 160866)

In the **AlarmMessageList** namespace, the **Enum:AlarmFieldId** was enhanced with the *LatestChange* value. As a result, the "Last Change" AML column can also be accessed via API.

4.6.6 [AML] enhancement of Enum:EventFieldId with the value categories - "Category" CEL column (F 173222)

In the **ChronologicalEventList** namespace, the **Enum:EventFieldId** was enhanced with the *Categories* value. As a result, the "Category" CEL column can also be accessed via API.

4.6.7 [Engineering Studio] New event HistoryChangedEntryAdded for IWorkspace interface (216417)

In order to be able to detect changes to Engineering Studio objects, the new **HistoryChangedEntryAdded** event has been implemented for the **IWorkspace** interface. All changes made to objects can be tracked with this event.

If the event is triggered, an instance of the new class **HistoryChangedEntryAddedEventArgs** is transferred. This new class can be reached in the root namespace **Scada.AddIn.Contracts**.

4.6.8 [Licensing] new values for Enum modules of the namespace license (F 229218)

For the new license options, the Enum **Module** modules in the **License** namespace were extended with the following values:

- ▶ *StandaloneOnly*
- ▶ *ServerOnlyNoRedundancy*
- ▶ *OneInstancePerDriver*
- ▶ *ReadOnlyClient*

- ▶ *SingleProjectOnly*

4.7 Drivers

4.7.1 Communication via modem connection no longer available (F 230753)

The communication of drivers to a PLC via modem is no longer supported from version 10. In current zenon projects, neither new modem connections nor a connection to a PLC via modem can be set up. Communication details variables for modem information have the status bit *INVALID* from version 10.

Projects from prior versions that are upgraded have a special status. The following is applicable for these converted drivers:

- ▶ Creation of Service Engine files
 - ▶ When creating Service Engine files for current versions, no modem support for drivers is included.
 - ▶ Modem support is only supported for the creation of Service Engine files for prior versions up to version 8.20.
- ▶ Setting parameters in Engineering Studio
 - ▶ If the modem connection has been deactivated in the driver's configuration dialog, it can no longer be activated again.
 - ▶ The parameters for driver modem connections configured in prior versions can also be changed in the current version.
 - ▶ The parameter settings for upgraded projects are only available if the computer on which Engineering Studio has been started also has a modem configured.

4.7.2 Online variable import can be filtered for upper case and lower case letters (F 215830)

When importing variables online from a PLC, it is possible to filter for upper-case letters and lower-case letters.

This filtering can be activated by means of an INI entry. To do this, the existing entry, **CASESENSITIVEFILTER=** in the zenon6.ini file in the **[EDITOR]** section is now also used for online variable import.

4.7.3 New drivers

4.7.3.1 OCPP driver - driver for communication with OCPP charging points (F 213006)

The **OCPP driver** fulfills the role of the central management system for communication with charging points for electric vehicles in accordance with version 1.6 of the Open Charge Point Protocol on the basis of WebSocket communication with JSON message format (OCPP1.6-J).

In contrast to most zenon drivers, the **OCPP driver** does not establish an active connection. The **OCPP driver** waits and receives incoming connections from the charging point. In principle each incoming TCP connection is accepted by the driver. Only in the next step, if the communication partner sends an update message, is the query checked to see whether this message comes from a configured charging point.

OVERVIEW

- ▶ The driver accepts incoming TCP connections of pre-configured charging points and, as an option, can also support secure communication in accordance with OCPP 1.6 Security Whitepaper Edition 2.
- ▶ The driver represents incoming messages from the charging point as a JSON message on string variables and sends an automatic response.
- ▶ For *Authorize.req*, *StartTransaction.req* and *DataTransfer.req*, an appropriate password must be sent by the application in that a corresponding suitable JSON message is written to the corresponding string variable.
- ▶ The driver supports the sending of queries from the central management system to the charging point as JSON messages, by writing string variables.
- ▶ Individual content from *StatusNotification.req* messages and *MeterValues.req* messages can be reproduced to variables with a corresponding driver object type.
- ▶ *MeterValues* can also be included in the *StopTransaction.req* message and mapped to zenon variables

4.7.3.2 .NET Driver API - Generic .NET Driver (F 197149)

The driver is a host for assemblies that you program yourself. The .NET API of the driver makes it possible to connect Service Engine via self-programmed .NET assemblies to any applications you want. They are called DriverExtension.

Among other things, this enables access to third-party software that provides IoT protocols/interfaces, such as REST WebServices or MQTT/AMQP interfaces.

4.7.4 Addition to existing drivers

4.7.4.1 BACNETNG

4.7.4.1.1 Addition of online import via API (F 197154)

The API of the **BACNETNG driver** was upgraded to enable the online import of variables from a selected connection or a selected device. In addition, as a result of the import, variables that correspond to a programmed filter criterion can be created automatically in Engineering Studio.

This online import, including variable creation, can be carried out in the background without a dialog through the execution by means of API

4.7.4.1.2 Support for LifeSafetyOperation (F 187592)

The BACnetNG driver now supports the sending of **LifeSafetyOperation** commands

4.7.4.2 BiffiDCM - support for DCM2 format (F 206430)

The **BiffiDCM driver** has been upgraded to support the new DCM2 format.

4.7.4.3 BURPVI - configuration of a PVI station address (F 224720)

In a redundant zenon network, the driver can communicate on the **Server 1** and **Server 2** with a different PVI station address. In the configuration dialog for Ethernet connections, the new **Source address (Server 2)** option was added for the second server.

The workaround solution used up to version 10 is no longer necessary.

4.7.4.4 EUROMAP63 - DOS compatibility (F 217411)

The **EUROMAP63 driver** now also communicates with older systems that only support directory names and file names in accordance with DOS 8.3 format. The **Use DOS compatible file/directory format** option was implemented for this. If this option is activated for a connection configuration, file and folder names are amended to the limitations accordingly.

Note: The EUROMAP63 standard does not restrict file and directory naming and also contains examples with file names that are longer than 8 characters.

4.7.4.5 IEC 61850

4.7.4.5.1 Enhanced functionality for file transfer from 850 server (F 213753)

The functionality of an IED (850 server) to the **IEC850 driver** has been enhanced:

- ▶ Use of a time stamp for transferred files.
New **Add file timestamp as prefix** option in the **Basic settings** tab of the driver configuration dialog.
- ▶ Subfolder for transferred files can be configured for each connection
New **Subfolder** option in the configuration dialog of a connection.
- ▶ Additions to the file transfer commands:
 - ▶ New file transfer commands *GETALL*, *GETNEW*, *GETDIFF*
 - ▶ Filter for all file transfer commands
- ▶ Configuration of monitoring variables
To monitor status, progress and the result of the data transfer for the commands *GET*, *GETALL*, *GETDIFF*, *GETNEW*, corresponding response variables can be configured. To do this, the *UINT* data type was added to the existing **File Transfer** data object type.

4.7.4.5.2 Connection to IPv6 (F 201447)

The **IEC 61850 driver** now also supports IPv6 communication.

4.7.4.6 IEC 61870

4.7.4.6.1 Map IEC quality descriptor "not topical" (status bit NT_870) and "overflow" (status bit OV_870) as INVALID to zenon variable (F 204652)

Two new options have been added to the driver configuration dialog in the **Basic settings** tab:

- ▶ **Not topical as invalid**
- ▶ **Overflow as invalid**

If the option is activated, the status bit *18 (INVALID;invalid)* is also set for the zenon variable. As a result, the variable is marked accordingly when displayed in Service Engine if the **Display status of variable** element property has been activated in the project configuration.

4.7.4.6.2 Writing in reverse direction for ASDU types TI36 (M_ME_TF_1) or TI13 (M_ME_NC_1) (F 236998)

The **IEC870 driver** sends ASDU type TI36 in reverse direction in the event of a value change in Service Engine.

When writing a variable with the ASDU types **TI36** (*M_ME_TF_1*) or **TI13** (*M_ME_NC_1*), the following is applicable in Service Engine:

- ▶ The value is sent in reverse direction
- ▶ The value written in Service Engine is mirrored to the zenon variable with following parameters. Thereby **COT 12** - ret [return information from the local command] (COT bits 2 and 3) is set. As a result, it is possible to detect whether the value in Service Engine has been written to or received from the device.

4.7.4.7 IEC870_103 - new supported private ASDU types (F 205339)

The **IEC870_103 driver** now supports the following manufacturer-specific ASDU types:

- ▶ **time-tagged message of switchgear positions** - *ASDU 33* (with zenon DPI mapping - derived from *ASDU 1*)
- ▶ **statistical measurement values (primary values)** - *ASDU 36* (floating point value with timestamp and duration - derived from *ASDU 4*)
- ▶ **measurement values type 3 (primary values)** - *ASDU 41* (floating point value without assignment - derived from *ASDU 9*)

4.7.4.8 INTEGRA - send local time to PLC cyclically (F 205811)

The **INTEGRA driver** automatically cyclically sends the time stamp of the local time of the executing computer to the PLC. The values are written to a datablock:

4.7.4.9 LOGiX_ODVA - support for "Symbolic Instance" communication method (F 217835)

The LOGiX_ODVA driver now also supports the communication method by means of **Symbolic Instance**. To do this, the new **communication method** option has been implemented in the driver configuration dialog in the **TCP Connections** tab. In this option, it is possible to select between "*symbolic segment*" or "*symbolic instance*" for each connection. When using the **Symbolic Instance** methods, communication of simple variables is optimized, as a result of which higher performance can be achieved.

4.7.4.10 S7TIA - support for TIA16 (F 205400)

The **S7TIA driver** (for S7-1200/1500) has been upgraded for TIA16. Both variable import and project optimizations are supported with the **TIAtoAGL.exe** tool.

4.7.4.11 S7TCP32 - support for peripheral addressing (F 209206)

The **S7TCP32 driver** can alternatively use inputs and outputs directly by means of 'peripheral addressing'. As a result, more inputs and outputs than are available via the image (PII and PIQ) in OB1 can be used.

Two new driver object types were implemented for this:

- ▶ **PQ area**
peripheral output
- ▶ **PI area)**
peripheral input

4.7.4.12 SIMOTION - enhanced variable import (F 215830)

The import dialog for the SIMOTION driver has been enhanced.

4.7.4.13 SNMPNG32

4.7.4.13.1 Support for GETBULK (F 200394)

The SNMPNG32 driver now also supports, as an option, **GETBULK** for the online import of variables in Engineering Studio as well as for Service Engine communication.

4.7.4.13.2 Support for SNMP INFORM messages (F 200389)

INFORM messages received by the **zenSnmppTrapSrv** service are forwarded to the applicable **SNMPNG32 driver**. The receipt of the INFORM message is confirmed.

4.7.5 System driver variables for Service Engine and Service Engine files (F 209019)

For Service Engine and Service Engine, **files**, the following can now be displayed in Service Engine with system driver variables:

- ▶ Main version

- ▶ Minor version
- ▶ Build number

It is thus possible to check whether the version of the driver data and the Service Engine version correspond.

The build number is also checked during transfer with **Remote Transport**. If the version of the target version does not correspond to the source version, a warning is given.

4.8 Tools

4.8.1 3D integration available in the Smart Client (F227847)

3D integration is now available in the Smart Client.

4.8.2 Diagnosis Viewer - filtering for Process Gateway configurations in Engineering Studio (F 210697 & F 218858)

In the **Diagnosis Viewer**, the *zenProcGatewayDLL* module entry is available for the filtering of the new functionality. It can be selected in the **Diagnosis Viewer** in the **Modules** tab for the filtering of the LOG entries and represents project configuration in Engineering Studio.

4.8.3 GIS integration (E 67388)

4.8.3.1 Display of element names as a tooltip (F 233373)

The name of a GIS element can be visualized in Service Engine. To do this, a GIS line element or GIS area element for display has been added to the **Description** property. The configuration is visible as a tooltip in Service Engine if the mouse pointer is moved over the element.

4.8.3.2 Configuration of local map cache (F 236521)

The configuration of the map cache has been changed. From version 10, the parameters for the project folder for GIS integration in the project.ini file are configured in the new **GIS** section with the **MapCachePath** entry. It can be configured as an absolute path or a relative path.

CHANGED SAVE LOCATION

Change of the save location and the parameter settings for buffered data in the cache:

- ▶ Up to and including version 8.20

- ▶ Save location:
C:\ProgramData\GISControlMapCache
- ▶ Setting of parameters:
In the GIS editor
- ▶ Version 10 and higher:
 - ▶ Save location:
Project directory with INI entry **MapCachePath** in the **GIS** section.
By default and if no INI entry has been set up:
[standard project folder]\RT\FILE\zenon\custom\giscache
 - ▶ Setting of parameters:
Display only in the GIS editor.
Setting of parameters in the project.ini file.

4.8.3.3 Additions for marker

SHOW MARKER-NAME IN SERVICE ENGINE (F 217854)

The name of a marker can be visualized in Service Engine. To do this, the new **Display name** property was added in the GIS editor in the properties for a marker in the **Settings** group. The visibility in Service Engine is configured with this property.

USER-DEFINED MARKER GRAPHICS WITH LIMIT COLOR FRAME (F 221257)

User-defined markers can visualize configured limit value colors (of data type, variable or reaction matrix) for display in Service Engine. This can be either in the form of background coloring or as a frame. The width of the frame can be set with the new **Marker border width** property in the marker configuration.

TOOL TIP FOR FAULT MARKER (F 223063)

In Service Engine, additional information for the display of fault locating detail can be visualized. To do this, the **Fault marker tooltip text** property has been added for configuration in the GIS editor in the main node (**CD_GIS**).

In Service Engine, the following information can thus be displayed for the fault marker:

- ▶ Name of the station
- ▶ Distance to the fault location in kilometers
- ▶ If configured, CEL message as well as attendant timestamp are displayed.

4.8.3.4 Import GIS configuration from XML file (F 219901)

GIS editor configurations can be imported from an XML file. To do this, the **Import XML** menu entry has been implemented in the menu bar of the **GIS editor** in the **File** menu.

As a result, GIS configurations can be replaced with one another or taken from third-party applications for zenon GIS integration.

4.8.3.5 New map providers (F 208929)

There are two new map providers available for visualization in Service Engine. The drop-down list of the **Map provider** property in the **GIS editor** was upgraded for this:

- ▶ *Baidu Map*
- ▶ *BaiduSatelit Map*

4.8.4 SIC tool enhanced (F 214285)

The System Information Collector has been revised and enhanced. Data for Report Engine is now collected. Operation has been simplified.

4.8.5 Startup Tool enhanced (F 199133, 208513)

The **Startup Tool** has been enhanced and modernized.

New features:

- ▶ Pre-selection of the version. Only the applications appropriate for the version are offered.
- ▶ Start of Report Engine applications:
 - ▶ Reporting Studio
 - ▶ **Manual Data Editor**
 - ▶ **Metadata Editor**
 - ▶ **Migration Tool**
 - ▶ **Prediction Model Manager**
- ▶ Tools are offered in a separate tab.
- ▶ Start of applications and tools by means of a double-click.
- ▶ The **Update Help** tool for starting the download of documentation is now in the **Tools** tab.

4.8.6 Comparison Tool integrated into Startup Tool (F 236812)

The **Comparison Tool** can be used to compare two different versions of a file to one another.

To do this, the *.XML files are accessed from the content of the respective *.ZIP file of a zenon project backup.

The *.XML files of both data versions are then compared to one another on a text basis.

The **Comparison Tool** can be started via the **Startup Tool**.

4.9 Wizards

4.9.1 Everywhere Essentials QR code generator no longer available (F 232304)

With version 10, all mobile applications have been removed from the zenon Software Platform. As a result, the mobile application **Everywhere Essentials QR Data App** has been removed from the supplied package. The Engineering Studio wizard used for configuration is also no longer included in the supplied package.

4.10 zenon Logic

4.10.1 Release notes zenon Logic 10

The following chapters contain information to the new features of zenon Logic 10.

4.10.2 Fieldbus drivers

4.10.2.1 Parameter Our IP address available for several drivers (F 204194)

The new parameter **Our IP address** is available now for the following drivers:

- ▶ EtherNet IP point IO driver
- ▶ EtherNet IP scanner
- ▶ FlexIO/PointIO

If the parameter is not specified in any EIP configuration, the first adapter recognized by the system is used.

4.10.2.2 New possibility to open/close a MODBUS Master port dynamically (F 187646)

The dynamically opening or closing of a port can be defined now via a command variable. The behaviour can be defined in the new Option *Enable connection* in the property **Operation**.

4.10.2.3 TLS Security available for IEC 61850 driver protocols (F 201436)

TLS Security is provided now for the following driver protocols:

- ▶ IEC 61850 Server
- ▶ IEC 61850 Client

4.10.2.4 IEC 61850 client

4.10.2.4.1 IEC 61850 client allows configurable values for TimeQuality and TimeAccuracy via function block (F 202306)

The **IEC 61850 client fieldbus driver** was enhanced to allow setting user-defined values for **TimeQuality** and **TimeAccuracy** via the new IEC 61850 function block **IEC61850_SETMQ**. The settings are considered during control commands.

4.10.2.4.2 Connection via IPv6 (F 201447)

The **IEC 61850 client fieldbus driver** now also supports IPv6 communication.

4.10.2.5 IEC60870-5-101/104 Slave

4.10.2.5.1 Secure Authentication (F 209947)

The **IEC60870-5-101/104 Slave fieldbus driver** supports Secure Authentication, according to IEC 60870-5-7 and IEC TS 62351-5 standards with a pre-shared update key.

4.10.2.5.2 File transfer in control direction (F 218316)

The **IEC60870-5-101/104 slave** fieldbus driver supports file transfer in control direction.

The storage location on the RTU can be configured with the new option **File transfer directory in control direction** in the fieldbus driver Slave/Data block properties.

4.10.2.5.3 IEC60870-101 slave in Balanced Mode allows to deactivate the sending of FC2 frames (F 202307)

It is possible to deactivate the sending of <2> **Test function for link** (also called FC2 frames), if the zenon Logic fieldbus driver acts as an IEC60870-101 slave in Balanced Mode.

Use the new parameter **Test Frame timeout (ms)** [101].

4.10.2.5.4 Support of COT 11 and 12 in IEC60870 slave (F 203024)

The usage of different COT allocations can be enabled via the new property **Use specific COT** in the Slave/Data Block configuration of the driver.

4.10.2.6 Read only properties in fieldbus configuration are grayed out (F 212894)

To enhance the usability read only properties in the fieldbus configuration are grayed out now.

This includes texts and/or background colors.

4.10.2.7 OPCUA Server

4.10.2.7.1 Additional status variables for information about connected Clients (F 221258)

The following status variables have been added:

- ▶ *Nb. Use Sessions*: displays the number of clients connected (sessions) to the server
- ▶ *Nb. Used Subscriptions*: displays number of subscriptions to the server
- ▶ *Nb. Used MonitoredItems*: displays number of monitored items to the server
- ▶ *Nb. Used PublishRequest*: displays the current managed requests in the server
- ▶ *Nb. Used NotificationMsg*: displays the current number of notification messages send by the server

4.10.2.7.2 TCP connections (F 225045)

The option **Use certificate** in the properties window for the **OPC UA Server** fieldbus driver is now activated by default.

For TCP connections the following enhancements have been implemented:

- ▶ a maximum of 100 TCP connections is accepted simultaneously
- ▶ established TCP connections are disconnected if no data is exchanged within 30 seconds.

4.10.3 Logic Studio

4.10.3.1 New option in vertical fieldbus tool bar (F 160491)

Some entries of the context menus depend on the selected fieldbus configuration.

This specific commands are shown if you click on the **Execute additional command** option in the vertical fieldbus tool bar.

4.10.3.2 Download process can be aborted (F 160491)

In case of huge applications the download process can be aborted now via a click on the **X** button in the **Load** dialog.

4.10.3.3 New possibility to include all files when the source code is sent to the Logic Service (F 160491)

Via the new property **Entire project directory** it is possible to include all files, when the source code is sent to the Logic Service.

Activate the checkbox if all files should be sent.

4.10.3.4 New option to select the export format in Export Assistant dialog (F 206098)

Now you can choose the export format in the **Export Assistant** dialog:

- ▶ **default:** XML format 61131-3 specific
- ▶ **PLCopen TC6:** XML format according to PLCopen TC6 (IEC 61131-10)

4.10.3.5 Monitored projects are remembered for following online sessions (F 202225)

If more than one project is monitored at the same time and you go offline, the projects will be remembered to be monitored for the next online sessions too.

4.10.3.6 Removal of connected variables when function block is deleted (F 220451)

Via the new property **Remove connected variables when removing function block** it is possible to remove the variables connected with the deleted function block automatically. If a variable is used for another function block too, it will not be removed.

Please note, removed variables are not removed from the variable editor.

4.10.3.7 Loading of projects in projects list can be defined (F 219107)

The new property **Do not load project when not used** allows to define if projects will be loaded in the project file.

So only the **Startup project** and the used projects are loaded when the project list opens and the checkbox of the property is active.

The usage of the new property improves the performance in case of lots of projects, which should be loaded.

4.10.3.8 New multi-state bitmap in Graphic Library (F 221453)

The new multi-state bitmap **TrafficLight_64_64** allows to associate several values to several bitmap paths.

The traffic light has 3 different bitmaps, one for each color.

In the edit mode or if the value is unknown the default bitmap is displayed, which is mandatory for this object.

The variable value can be *INTEGER* or *STRING*.

4.10.3.9 New graphic object "Lines" in library (F 221453)

The new graphic objects allows to draw:

- ▶ horizontal lines (top or bottom)
- ▶ vertical lines (left or right)
- ▶ oblique (down or up)

Hint: The new object allows also to draw full polygons or to draw lines in an single object.

4.10.4 Programming Environment

4.10.4.1 New possibilities for Private tag handling in SCL Editor (F 201418)

Private tags can be edited, added and removed now in an own dialog for the following items:

- ▶ Logical Devices
- ▶ Logical Nodes
- ▶ Data Sets
- ▶ Report Control Blocks
- ▶ GOOSE Control Blocks

4.10.4.2 New option to mark occurrences in ST programs (F 201569)

Via the new option **Display all occurrences of the searched string** in the menu bar entry **Tools, Options...** and **Editing** occurrences can be marked.

Activate the property and double-click on the corresponding word in the ST program to use this option.

4.10.4.3 Show variable values in binary format (F 201966)

The visualisation of one online value can be set to binary format via the new property **Binary Display (This Symbol Only)**.

4.10.4.4 Autocompletion functionality in ST and IL language menu bar (F 220451)

In ST and IL language you can use now the autocompletion functionality to replace the entered prefix with the whole variable name.

If more than one variable with the used prefix exists, a proposal variable list is shown.

Open the dialog via a click on the **Autocompletion** symbol of the vertical menu bar or via pressing **Ctrl + Space**.

4.10.4.5 Cross navigation for integrated solution variables available (F 227670)

The new context menu entry **Jump to Variable in Engineering...** allows to jump to the variable usage in the corresponding engineering environment, if the variable is part of the integrated solution.

4.10.5 Tools

4.10.5.1 Project comparison dialog provides detailed information about differences (F 160491)

The Project comparison dialog provides statistical information about project differences in %.

4.10.5.2 Enhancement of Import Assistant behavior (F 235404)

Two new properties for the XML import are available now:

- ▶ **Re-create variables that cannot be changed:** allows to delete and recreate a variable due to the import procedure, if active.
- ▶ **Do not merge private members of UDFBs:** prevents the merge of the private members of the UDFBs due to the import procedure, if active.

4.10.6 Function Blocks

4.10.6.1 Expansion of CIP range for EIP function blocks (F 204194)

The CIP instance number range has been expanded to 16 bits [7...65535] for the following function blocks:

- ▶ **eipReadAttr**
- ▶ **eipWriteAttr**

Hint: This enhancement is not supported for the **EIPADAPTER** function block.

4.10.6.2 Real Time Clock management function supports Milliseconds (F 231030)

The Real Time Clock function block **DTFORMAT** supports Milliseconds now.

4.10.7 Standalone Logic Service - Supported Operating Systems (S 227603)

The Logic Service Standalone can be used with the following Operating Systems now:

- ▶ Fedora 32
- ▶ Debian 10.5
- ▶ Ubuntu LTS 20.4
- ▶ Raspberry Pi 4

4.11 Functionality no longer supported

4.11.1 Mobile applications (F 232304)

With version 10, all mobile applications have been removed from the zenon Software Platform.

The following modules and applications are no longer included in the supplied package:

- ▶ **Everywhere Server**
- ▶ **alle Everywhere Apps**
 - ▶ **Everywhere Essentials - Alarm Management**
 - ▶ **Everywhere Essentials QR Data App** including **Everywhere Essentials QR Code Generator**
 - ▶ **Everywhere App** for **MS Windows Phone**
 - ▶ **Everywhere App** for **iPhone und iPad**
 - ▶ **Everywhere App** for **Android**
 - ▶ **Everywhere Desktop App**

4.11.2 SharpDevelop no longer available (F 206816)

The **SharpDevelop** programming environment has been removed from the Engineering Studio. Microsoft Visual Studio continues to be supported.

4.12 Important information

4.12.1 ActiveX Controls

If customer-specific ActiveX controls are developed, the following must be noted:

If the DISPATCH – which is sent in the „zenonInit“ event of zenon – is saved in the ActiveX control, an „AddRef“ must be carried out because this DISPATCH is only valid within the „zenonInit“ event. If an „AddRef“ call is not made, a crash of the entire Service Engine will be the result. Additionally, a release has to be performed in the „zenonExit“ event.

4.12.2 Buttons and screen elements with screen-type specific functions

Buttons and elements with screen type-specific functions may only be used once on a screen. If there are identical elements on a screen, all duplicates are removed during compilation.

Example: If a button is copied and pasted in the same screen, the copy is removed during compilation.

Exception: Several containers can be created in a *Faceplate* screen.

4.12.3 Integration of VBA wizards and VSTA wizards

All VBA wizards are saved by Engineering Studio in the file called *ZenWorkspace.vba*. All VSTA wizards are saved in *Workspace AddIn*.

When performing a new installation, these files will only be copied to the configuration computer if they do not already exist in the installation folder. Existing VBA/VSTA files are not overwritten, because all your changes would be deleted in this case.

If the newly-supplied or modified COPA-DATA wizards continue to be used, they must be manually copied in Engineering Studio using the menu entries **Extras** and **Update Engineering Studio VBA/VSTA wizards....**

In doing so, it is possible to decide individually which wizards are overwritten.

4.12.4 Complex vector graphics

Please note when configuring process screens. When using many and/or complex vector graphics, loading screens in Service Engine can take longer.

4.12.5 Converting projects

Before you convert a project, please read back all Service Engine changeable files (User Administration, Standard Recipes, Recipe Group Manager, Scheduler/PFS) into Engineering Studio. This ensures a complete file conversion. You thus ensure that no changes that have been made in Service Engine are lost. After conversion into the new version, create all Service Engine files, including Service Engine changeable files, as a one-off process.

Note: You can find important information for the conversion of certain versions in the zenon help in the Project conversion manual.

CONVERTING MULTI-USER PROJECTS

Multi-user projects can only be converted if no elements are checked out. This means that all people configuring projects have to **accept** their changes first.

If this is not possible for some reason, you have to create a project backup of the project on the project database server (central project database) and then immediately restore it. This resets all the **Under construction** information.

Attention: All changes in the local project versions are lost!

The conversion can only be done on the PC, on which the central project database resides. If there is no Engineering Studio installed on this computer (standalone database server – no longer supported), you must first install Engineering Studio on this computer. Only after that can the conversion be done on this PC.

CONVERSION OF PROJECTS FROM A VERSION PRIOR TO 5.50

If a project that has been created using a version prior to 5.50 is activated, the profiles in the schedule structure are converted. The profiles are no longer supported from version 5.50. For each profile, a structure schedule is created, containing the linked schedules. The linked schedules contain all the times which fall within the profile's activation/deactivation times.

The day information contained in the profile schedule is input into the calendar.

The configuration process can be viewed in the Engineering Studio output window.

CONVERSION OF PROJECTS FROM VERSION 6.01 AND 6.20

zenon projects from version 6.01 and 6.20 can no longer be directly read back in zenon 7.10 or higher.

Background: Versions that are based on MSDE (SQL Server 2000) are not compatible with SQL Server 2012, which is used in zenon 7.10.

Solution: First convert the project in zenon 7.0 and then in 7.10 or higher.

CONVERSION OF PROJECTS FOR 7.20

For compatibility with version 7.20, there is an additional possible selection - "*Most recent version*" - available for the **Create Service Engine files for** property. This can be selected by clicking the 7.20 *SPO + [recent build no.]* entry in the drop-down list.

Selecting this option makes the Service Engine files available for the current build of version 7.20. As a result, functionality that has since been incorporated into version 7.20 after the official release of 7.20 is thus supported. This is applicable most of all for enhancements to drivers that are now supported with this option. Note that in order to use the most recent build, you must have zenon 7.20 installed on your computer.

Note: Selecting 7.20 SP0 compiles the Service Engine files - as before - to the default settings of 7.20 SP0.

4.12.6 MS-ActiveX element DBGrid32.ocx does not work

There are several problems known in relation to the use of Microsoft ActiveX element **DBGrid32.ocx** in Service Engine. You should therefore use other ActiveX elements such as **MSDATGRD.ocx**.

4.12.7 Reload of projects with Simulator driver variables

Simulator driver variables, not projected as HD variables, are reset to the value 0 with the function "**Reload**". Only HD simulator driver variables keep their value after reloading.

4.12.8 Network access - Firewalls

Different components of zenon try to access the network and can cause an alarm by firewalls or personal firewalls. If you want to use the network or the zenon Remote Transport, you have to unlock the according TCP/IP ports.

The following zenon components result in network access:

- ▶ Administration service (*zenAdminSrv.exe*)
- ▶ Engineering Studio (*zenone32.exe*)
- ▶ Database server (*zendbsrv.exe*)
- ▶ Diagnosis Server (*zenLogSrv.exe*)
- ▶ OPC Server (*zenOPCSrv.exe*)
- ▶ Process Gateway (*zenProcGateway.exe*)
- ▶ Network server (*zennetsrv.exe*)
- ▶ Transport service (*zensyssrv.exe*)
- ▶ Drivers with TCP/IP connections
- ▶ zenon Smart Server (*zenWEBSrv.exe*)
- ▶ Logic Studio
- ▶ Logic Service

4.12.9 Process Desk – killing tasks

The **zenon Process Desk** allows you to end frozen tasks.

Attention: Some drivers need a certain follow-up time, because they write a process image on closing. Premature closing can result in data loss! Use this option only in case of emergency, when you are really sure, that the task will not close on its own.

4.12.10 Saving Report Generator reports in Service Engine

Note that when saving reports in Service Engine, all functions are replaced by the current contents of the cells (numbers). The functions in these reports (.xrs files) are no longer available. These reports can also no longer be edited in Engineering Studio. Use the "**Save as**" MDI function so that the original reports from Engineering Studio are not overwritten. Moreover, we recommend to define the original reports as *read-only*.

4.12.11 zenon Logic Intellisense is slow

With large programs, the Intellisense function of Logic Studio can cause the project to open very slowly. In this case you should deactivate the Intellisense function in the Logic Studio.

4.12.12 Transport service Autostart

The transport service (**zensysrv.exe**) is normally started automatically by the operating system when a user logs in. If the transport service is not started, the computer cannot be reached via the Remote Transport.

At a new installation it is restarted after the computer has rebooted.

If you accidentally delete the entry for the automatic start from the registry, you can restore it with the help of command *Register* in the Startup Tool. At this the transport service is also automatically restarted.

4.12.13 Overwriting Service Engine files

When creating Service Engine files in Engineering Studio it is possible that Service Engine-changeable files are overwritten. This occurs with the following modules:

- ▶ Recipegroup Manager
- ▶ Production & Facility Scheduler or Scheduler
- ▶ User administration
- ▶ Standard Recipes

In order to guarantee that data created in Service Engine (recipes, schedules, etc.) is not lost when creating Service Engine files, there is a new tab in the dialog for project configuration: Service Engine **changeable files**. For the modules mentioned above, it is possible to define here whether the corresponding files are to be overwritten when Service Engine files are created. If a checkbox is not activated, the data for the respective option is overwritten!

This behavior is also true for Remote Transport, if the Service Engine files are to be transferred to another computer. So these checkboxes also apply here. If you want to transport all files to the remote system, deactivate all checkboxes. Otherwise the corresponding data will not be transported.

When creating Service Engine, as well as when transferring remote Service Engine files, a message appears in the output window indicating that the corresponding files were not overwritten.

The standard setting is: Service Engine files are not overwritten!

5 Release notes Report Engine

In this document, you are provided with information about technical requirements, as well as innovations and changes for Report Engine 10.

5.1 Metadata Synchronizer

5.1.1 Language files and language-dependent key words (F 206432)

The **Metadata Synchronizer** now also transfers language files and language-dependent key words.

All languages without a hyphen are supported.

That means: The language code **de** is supported. The language code **de-AT** is ignored.

Exception: For Chinese, **zh-CHS** (simplified Chinese) is available.

The following is applicable for synchronization:

- ▶ Languages are never deleted or changed.
- ▶ Missing languages are added.
- ▶ Key words and translations are synchronized for the global project and for each standard project.
- ▶ Translatable project content is synchronized for both translatable and untranslatable reports.
- ▶ If the same code is used for more than one language, these languages are ignored by the **Metadata Synchronizer**.

The automatic assignment of language codes via the dialog is only possible when a language file is newly created. Language codes can also be assigned subsequently. Assignment must be manual for pre-existing languages.

5.1.2 New API interface: **IMetadataSynchronizer** in the **MetadataSynchronizer** namespace (F 217118)

The **Metadata Synchronizer** can be triggered by means of the API. To do this, the **IMetadataSynchronizer** is newly created in the **MetadataSynchronizer** namespace.

5.2 Migration Tool amended for version 10 (F 206447)

The **Migration Tool** has been amended for Report Engine 10. It enables migration from version 2.00 to 10.

The following can be migrated:

- ▶ Server with the same software version
- ▶ Servers from one software version to a later version

5.3 New SQL Server version and new naming of instance (F 206447)

SQL Server 2019 is used for Report Engine 10. This is no longer tied to the main version. Switching to the main version can now take place without the version of SQL Server being amended.

The name of the server instance from this version is: *ZA2019*.

SQL Server reporting services still only support one instance on a computer. Exceptions are versions 2.XX and 3.XX.

This means, for version 10 or higher:

- ▶ Concurrent installations of Report Engine are not possible if they use the same SQL Server version.
- ▶ Concurrent installation with a version 3.40 or earlier is possible.
- ▶ Different versions of Reporting Studio and metadata database editors can be used at the same time.

5.4 Start Report Engine via Startup Tool (F 199133)

The COPA-DATA **Startup Tool** has been enhanced. Previously, only zenon applications could be administered with it.

It now also enables the start of Report Engine applications:

- ▶ Reporting Studio
- ▶ **Manual Data Editor**
- ▶ **Metadata Editor**

- ▶ Migration Tool
- ▶ Prediction Model Manager

5.5 Requirements

The following prerequisites are applicable for work with Report Engine:

REPORT ENGINE HARDWARE AND SOFTWARE

HARDWARE

Report Engine:

Parameter	Recommended	Minimum
CPU	Quad-Core Server CPU (maximum 24 cores/4 sockets)	Quad-core
RAM	Up to 128 GB	12 GB
Free memory	200 GB	10 GB

Engineering computer:

Parameter	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

Report Engine:

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

- ▶ Windows Server 2019 Standard
- ▶ Windows Server 2019 Essentials
- ▶ Windows Server 2019 Datacenter
- ▶ Windows Server 2016 Standard
- ▶ Windows Server 2016 Essentials
- ▶ Windows Server 2016 Datacenter

- ▶ Windows 10 Professional 64-Bit
- ▶ Windows 10 Enterprise 64-Bit

Engineering computer:

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

- ▶ Windows Server 2019
- ▶ Windows Server 2016
- ▶ Windows 10 Professional 64-Bit
- ▶ Windows 10 Enterprise 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 10

.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 Service Engine 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 Report Engine
- ▶ Performance of the Service Engine server
- ▶ Service Engine server load (connector runs with lower 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 Report Engine 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

Information

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

5.5.1 Connection to IP address and port (F 8960)

All Report Engine modules use the stipulated ports and IP addresses for licensing. These can be amended in the **Startup Tool**. If a network adapter is set, the adapter name is resolved for the IP address.

The connector container now uses the stipulated ports and IP addresses to open the listening socket. These can be amended in the **Startup Tool**.

5.5.2 SQL Server 2019: Installation with Report Engine

Note, before installing Report Engine, existing installations of SQL Server Management Studio (SSMS):

SQL Server 2019 cannot be installed if version 18.3 or earlier of SQL Server Management Studio (SSMS) has already been installed.

To install **SQL Server 2019**:

1. Uninstall SQL Server Management Studio (SSMS).
2. Uninstall Microsoft SQL Server 2012 Native Client.
This is also installed with SSMS

5.5.3 Browser selection (F 216803)

The selection of the browser that is used in Report Launcher can be pre-defined in Reporting Studio. The following are available:

- ▶ Internet Explorer
- ▶ Default browser of the system

The following are supported as a default browser:

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

5.6 Reporting Studio

5.6.1 Automatic layout: Size limit (F 212162)

The maximum permitted height and width for the automatic creation of layouts via **Report/Design/Generate Layout** can now be defined. Configuration is carried out in the settings in the **Layout Generation** tab.

These values can also be overwritten manually. If the defined limit values are exceeded or gone below as a result of manual configuration, then:

- ▶ The values in the dialog are set to the permitted maximum
- ▶ The default value is applied for the diagram

5.6.2 Deployment: Default settings changed (F 220135)

The default settings for the deployment of reports have been changed in the **Settings/Deployment** dialog.

Option	Up to version 3.40	Version 10 and higher
Save report definitions before deployment	<i>Prompt</i>	<i>Yes</i>
Overwrite reports on Report Engine	<i>Prompt</i>	<i>Yes</i>

5.6.3 Update deployment with structure: Retain individual content (F 214278)

During deployment, it is now possible to select whether individual content is retained or removed for the updating of the structure. Selection is made by means of entries in the drop-down list for the action. Individually-added content is, for example, user-defined datasets, columns or parameters.

5.6.4 Configuration of user rights (F 196837)

When configuring users for Report Engine applications, two dialogs now notify you of special circumstances:

- ▶ Inheritance of rights:
If your configuration leads to a user having no access to rights because they have not been inherited, a dialog notifies you of this. Decide whether the user shall also receive the rights that are not granted from inheritance from higher-level objects.
- ▶ Effects on Report Launcher: If a user is deleted in Reporting Studio, they are also deleted from Report Launcher. A dialog notifies you when a user is deleted. Confirm this dialog with **Yes** and the user is removed from all applications. Close the dialog with **No** and the user is neither deleted in Reporting Studio nor in Report Launcher.

5.6.5 Report styles: Color gradients (F 212152)

The types of color gradient that can be selected in Reporting Studio have been increased. The following new features are available:

- ▶ *Diagonal right*
- ▶ *Horizontal center*

Previously, these styles could only be applied manually via MS Report Builder.

5.6.6 Language tables are now saved in the database (F 206432)

The language table has been changed from file based to database based. When converting databases from versions before version 10, these entries are carried over.

5.7 Report templates

5.7.1 Box plot diagram: Table labeling (F 212160)

Three tables are automatically created when a box plot diagram is created. They are now also labeled automatically.

5.7.2 Grouped tables: Configuration of display collapsed/expanded (F 213718)

For grouped tables, it is now possible to preset whether these are displayed as collapsed or expanded.

Configuration is carried out using the new **Collapsed** property:

- ▶ *Active*: Grouping is shown as collapsed.
- ▶ *Inactive*: Grouping is shown as expanded.

Default: *active*

5.7.3 Report templates with online language selection (F 206432)

Some report templates that are supplied can now also be used with online language switching. With this configuration, the user decides the language in which the report is displayed when the report is called up. When configuring the report template, a language can also be stipulated with a direct value.

Attention

Report templates with different language settings cannot be mixed. If a report template with online language switching is selected, it can only be supplemented with templates that also offer online language switching.

AVAILABLE REPORT TEMPLATES AND SETTINGS

Report templates with online language selection contain the same properties and settings as report templates without online language selection. Datasets and properties are marked with the suffix **_Translated** however.

The following are available for online language selection:

- ▶ Alarm and event analysis group:
 - ▶ Alarm list with online language selection
 - ▶ N last alarms with online language selection
 - ▶ Top N alarms with online language selection
 - ▶ Top N alarms grouped with online language selection
 - ▶ Alarm aggregation with online language selection
 - ▶ Event analysis with online language selection
 - ▶ Top N events with online language selection
 - ▶ Top N events grouped with online language selection
- ▶ Archive analysis group:
 - ▶ Archive trend with online language selection
 - ▶ Archive aggregation trend with online variable selection
 - ▶ Archive aggregation with online language selection
 - ▶ Archive distribution with online language selection

5.7.4 Text boxes and lines (F 213707)

Text boxes can now allow the entry of text in the design area. This text can be a key word from the language table or freely entered as a static text. Free static text is not translated.

Lines enable individual drawing elements in report templates to be deployed. For example, a line for the signature in a print-out.

Note: Not every browser displays vertical or horizontal lines correctly. Diagonal lines cannot be displayed in Report Launcher. They are displayed correctly in the PDF however.

5.8 Report Engine

5.8.1 Reports translatable: Adjusting the tables (F 145904, 206432)

For online translatability of reports, the necessary tables have been enhanced or created for this.

6 Service Grid Release Notes

This document contains information on new features and changes for Service Grid versions 10, 10.1, 10.2, 10.3 and 10.4.

6.1 Data Storage Service - compatibility note

An upgrade from Service Grid 10 to Service Grid 10.1 is not possible for the **Data Storage Service**. In this case, the installation for version 10.1 cannot be completed.

Recommended procedure: Deinstall Service Grid 10 and reinstall version 10.1.

6.2 Service Grid 10 Release Notes

You can find information here on new features and changes for Service Grid Version 10.

6.2.1 Service Hub for integration projects (F 210641)

With zenon integration projects, each of the subordinate projects can communicate with their Service Hub. Several projects can also access the same Service Hub.

6.2.2 Configuration of connection to Identity Service and Data Storage (F 227386)

In Engineering Studio, you now configure the connection to the **Identity Service** and **Data Storage** in the project properties.

- ▶ **Identity Service:** Network\Service Grid - Identity Service.
- ▶ **Data Storage:** Network\Service Grid - Data Storage.

Connections can be configured in the global project or the local project. The following is applicable when using the global project:

- ▶ The settings of the global project are used when the Service Engine files are created.

- ▶ If the settings in the global project are changed, the Service Engine files must be created again for the local project.

6.2.3 Service Engine uses password flow from external identity provider (F 226630)

Service Engine can authenticate user data from external Identity Providers – such as Microsoft Active Directory, OpenLDAP or RADIUS for example – with the help of the Identity Service.

- ▶ The desired Identity Provider can be defined in the zenon project in that the corresponding **Alias** is given for the identity provider.
- ▶ If no **Alias** is given in the zenon project, the regular internal user administration of the Identity Service is used.

In addition to the email address, user accounts can now also be given a user name in the Identity Service.

6.2.4 RADIUS as an external identity provider (F 226289)

Service Grid supports RADIUS as an external identity provider. As a result, users can authenticate themselves in the Identity Service with RADIUS user accounts.

The supported authentication methods are:

- ▶ PAP
- ▶ CHAP

Group information can also be transferred through the use of specified VSAs (vendor specific attributes).

It is possible to assign several fall-back server connections to a RADIUS provider.

6.2.5 Service Grid (Windows/native): Demo license (F 228307)

A demo license with a duration of 30 days is available for the Service Grid (Windows/native) installation version. The demo license is installed together with the application.

6.2.6 Configuration of connection to Identity Service and Data Storage in Engineering Studio (F 227386)

In Engineering Studio, you now configure the connection to the **Identity Service** and **Data Storage** in the project properties.

- ▶ **Identity Service:** Network\Service Grid - Identity Service.

- ▶ **Data Storage:** Network\Service Grid - Data Storage.

Connections can be configured in the global project or the local project. The following is applicable when using the global project:

- ▶ The settings of the global project are used when the Service Engine files are created.
- ▶ If the settings in the global project are changed, the Service Engine files must be created again for the local project.

6.2.7 Version information (F 229049)

The user can be shown the current version number of the installation can be shown in the Service Grid web interface.

Where this information is saved depends on the web interface:

- ▶ **Identity Service , Service Grid API:** Button **About**
- ▶ **Identity Management, Hub Controller, Service Grid Studio:** Button **i**

The version number of Service Grid is thus available in the web GUI.

6.3 Service Grid 10.2 Release Notes

You can find information here on new features and changes for Service Grid Version 10.2.

6.3.1 Hub Controller integrated in Service Grid Studio (F 219720)

The user interface of the Hub Controller is now available in Service Grid Studio. Identity Service is used for user login. In addition, Identity Service users can be used to retrieve Certificate Bundles using the Service Node Configuration Tool (SNCT).

6.3.2 Platform Configuration Service (F 234987)

Platform Configuration is a wizard-based configuration program for Service Grid. It currently offers the following capabilities:

- ▶ Create the initial Service Grid administrator user account.
- ▶ Configure custom or self-signed HTTPS certificates.
- ▶ Connect all Service Grid services with Service Hub when starting Service Grid for the first time.

The **Platform Configuration Service** is available for Windows and Docker.

6.3.3 Identity Service offers OIDC and Keycloak Identity Provider (F 240288)

Identity Service now offers the possibility to use Keycloak and generic Open IDConnect Identity Provider for user authentication. The use of Keycloak allows Identity Service to also reuse the user groups defined in Keycloak for the assignment of permissions to the user accounts.

Users can also log in to Service Engine with their Keycloak user accounts. Logging in to Service Engine with the generic Open IDConnect only works for Identity Service directly and all connected Service Grid services.

6.3.4 Identity Service offers multi-factor authentication (F 241819)

Identity Service allows Service Grid users to configure a two-factor authentication using mobile authentication apps. This increases the security of user logins. If a user loses access to their authenticator app, the Service Grid administrator has the possibility to reset the two-factor authentication for selected users.

6.3.5 Service Grid API - Provision of historical data from Data Storage (F 228818)

Service Grid API now offers the possibility to retrieve historical variable data directly from Data Storage.

6.4 Service Grid 10.3 Release Notes

You can find information here on new features and changes for Service Grid Version 10.3.

6.4.1 Configuration of user name in OpenLDAP (F 245357)

In the configuration of OpenLDAP as the external identity provider, you can define the LDAP attribute whose content should be interpreted by **Identity Service** as the user name. This is required if the user name is to be taken not from the "cn" attribute, but from a different attribute.

6.4.2 Optimized login in OpenLDAP (F 243019)

Administrators can pre-configure domain-specific LDAP attributes for logging in users to **Identity Management**.

This has the following consequences:

- ▶ The user does not have to use the entire Distinguished Name when logging in.

- ▶ This reduces the length of the user name to be entered. This makes OpenLDAP also suitable for user login to Service Engine.

6.5 Service Grid 10.4 Release Notes

You can find information here on new features and changes for Service Grid Version 10.4.

6.5.1 New combined scope for Data Storage (F 243971)

The previous scopes *DataStorage.read_only* and *Data Storage.full_access* have been replaced in Service Grid 10.4 by the new *DataStorageAPI* scope.

When upgrading from an earlier Service Grid version, the scopes must be adapted manually.