# zenon manual
## Release Notes zenon Software Platform 11

v.11

**COPADATA**

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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://go.copadata.com/tutorials). 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 11

Information on changes in zenon Software Platform version 11.

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

# 4  zenon

## 4.1  General

### 4.1.1  Help system for zenon product family revised

The zenon Help has been completely revised for version 11.

**NEW APPEARANCE**

The appearance of the product help has been revised and redesigned.

**NEW SEARCH**

The search for content has been implemented in a new way for version 11.

▶ Revision of the search algorithm with significantly increased performance when displaying results.

▶ Possibility of setting the parameters for different search types:

  ▶ Fuzzy search

  ▶ Search with regular expressions

  ▶ Search according to heading title

  ▶ Search in navigation view

▶ Different output formats for search results

  ▶ Real-time updating when activating or deactivating results in the filtered view of the results found.

  ▶ Display of search results with preview. With or without hierarchical information (as chosen).

  ▶ Display of the search results in a structure tree

  ▶ Forwarding to search results in different views.

**BOOKMARKS**

Bookmarks can be sorted by dragging & dropping. The bookmarks can also be managed in folders.

**CURRENT VERSION OF THE HELP**

You can also find the most recent Help on the internet: onlinehelp.copadata.com (https://onlinehelp.copadata.com).

The Help for the supplied versions of minor releases is also updated. You can find the most recent Help on our website or can download it to your computer with the **Documentation Download Tool**.

## 4.1.2  Discontinuation of support for VSTA (F 244699)

Support for VSTA has been discontinued from version 11.

**ENGINEERING STUDIO**

Engineering Studio still contains the **VSTA** node. This node is visible when converting older projects. The following steps are possible as a result:

▶ Simplified migration of older projects into the add-in framework.

▶ Amendment for projects that were executed in older versions of Service Engine.

The use of VSTA workspace add-ins in Engineering Studio has been discontinued completely with version 11.

**SERVICE ENGINE**

**Compatibility mode** Version 11 of the Service Engine will still load and run VSTA project Add-Ins for converted projects of previous versions. This facilitates the migration to current and future zenon versions.

In addition, brownfield scenarios using older projects and solutions - which cannot be upgraded or modified - can be integrated into version 11 solutions.

> ⚠**Attention**
>
> The use of the compatibility mode is at your own risk! Support and maintenance for VSTA are no longer available starting with version 11 of the zenon Software Platform.
>
> Note that the functionality offered by the compatibility mode is subject to change for future versions of the platform and might not offer the same scope of services in future versions.

## 4.1.3  Data type conversion for ODBC database (F 232787)

Data for AML and CEL can now be stored in any database that can connect via ODBC. The ODBC database processor in Service Engine recognizes the data types of the existing columns in the database and performs the necessary data conversions. Therefore other database systems such as Oracle or MySQL can also be used for the continuous export and external storage of AML and CEL. Tables must be manually created on these systems.

**Note:** This only applies to the external SQL storage of AML and CEL and the continuous SQL export. The SQL export functions for AML and CEL or other SQL interactions such as actions for the Historian are not affected.

You can find the documentation for this in the sections for continuous export for AML and CEL.

## 4.1.4  New symbols for zenon applications

The symbols for applications, services, wizards and tools have been modernized and redesigned for version 11. This amendment is applicable for all components of the complete zenon Software Platform.

## 4.1.5 zenon for Linux OS

Initial partial functionalities of zenon are provided for Linux operating systems from version 11.

Available functionality in version 11:

### SCOPE OF FUNCTION

The following functionality for Linux is supported with release version 11:

▶ Service Engine

    ▶ Read values

    ▶ Write values

▶ System driver variables of the following themes:

    ▶ **[HW resources]**

    ▶ **[System information]**

    ▶ **[Project information]**

▶ Service Grid Gateway

▶ **Diagnosis Server**

▶ Supported drivers

    ▶ **Modbus_Energy**

    ▶ **MBUS32**

    ▶ **stratonNG**

    ▶ **SNMPNG32**

### SUPPORTED OPERATING SYSTEMS

The following Linux derivatives are supported with version 11:

▶ Docker for Ubuntu 20.04

▶ Ubuntu 20.04

▶ Raspberry Pi (Raspbian) Buster

## 4.2   Installation and updates

### 4.2.1  Supported operating systems (F 244692, F 225464, 244827)

<u>The zenon Software Platform supports the following operating systems:</u>

- ▸ Desktop:

  - ▸ Windows 11:
    The Home version is not supported.

  - ▸ Windows 10: as of TH1 1607
    The Home version is not supported.

  - ▸ Windows 8/8.1: Engineering Studio, Report Engine and Reporting Studio are not supported.

- ▸ Server:

  - ▸ from Windows 2016 - from TH1 1607

  - ▸ 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.

<u>Support for the following operating systems has been stopped:</u>

- ▸ Windows 7 (all versions)

- ▸ The application files for Windows CE are no longer supplied. Parameter settings for this operating system are no longer included in th components of the zenon Software Platform.

### 4.2.2  .NET Framework 4.8 (F 243115)

The **.NET framework** used in the zenon Software Platform has been changed to version 4.8.

### 4.2.3  HTML Web Engine - Web Engine supports .NET 6 (F 247307 )

Web Engine now supports **.NET 6**.
The minimum version is still **.NET 4.5**.

### 4.2.4  Setup has been revised (F 243115)

The installation of the packages has been revised.

### NEW PACKAGE

There is now a separate installation package available for Engineering Studio and Service Engine.

### SERVICE GRID

You can now do the following with the Service Grid components:

▶   Deselect them individually from a package

▶   Install them from a separate package

You can also start the configuration for Service Grid directly from the subsequent summary after installation.

## 4.2.5  Harden system (F 244426)

Now it is also possible to select installation as a hardened system in the options during installation. If you activate the **Harden Installation** option, TCP/IP communication is limited:

▶   zenon only permits local access.

▶   The SQL Server only permits local access.

▶   The firewall rules only allow zenon services to have local access

This primarily has effects on distributed engineering. You must amend the SQL Server, firewalls and connection to your requirements after installation.

### CONFIGURATION SERVICES

With a new installation of zenon, all zenon services are only configured for local access. Only the network service (**zenNetSrv**) is open for external access. If there is already a **zenon6.ini** on the system, its settings are applied.

Attention: With the default settings for local communication, the **Diagnosis Viewer** cannot establish a connection to the local LOG server. Configure the connection in **Diagnosis Viewer**. For the **Diagnosis server name**, select *localhost* (127.0.0.1).

## 4.2.6  Uninstall components individually (F 225464)

From version 10, individual components of the zenon Software Platform can also be uninstalled via Windows **Apps**.

## 4.2.7 Updates for all components (F 240104)

Updates (build setups) are offered for all installed components together from version 11. When starting a build setup, you get information about which components on which version will be amended.

## 4.2.8 Install additional components (F 225464)

From version 10, you can install components of the zenon Software Platform that you have not yet installed at any time via the setup. To do this, start the setup for the zenon Software Platform.

# 4.3 Licensing

## 4.3.1 Install License Manager (F 237531)

The License Manager can be installed regardless of the components of the zenon Software Platform. To do this, all other components must be deselected during installation of the software platform. Only the checkbox for the License Manager should be selected. The License Manager can then be started as an application.

## 4.3.2 Demo licenses (F 237264)

If there is no demo license configured for the zenon Software Platform, an entry for the selection of a demo license is shown on the start page of the License Manager. A demo license can be selected here. This is activated immediately and can be used immediately. Only one demo license can be active at any time. Product licenses that have already been obtained are not displayed here.

## 4.3.3 Licensed Process Gateways (F 240269)

The number of **Process Gateway** modules and/or communication protocols that can be started at the same time in Service Engine has been limited through licensing. Licenses are available for the number of Process Gateway instances to be started, individual protocols or for groups.

## 4.4 Engineering Studio

### 4.4.1 New authorization levels for alarm shelving (S 237560)

For the new alarm shelving function, the **Alarm: Shelve and unshelve** action has been implemented for the function authorizations of Service Engine.

### 4.4.2 Output window - warnings contain link (F 247214)

When creating Service Engine files, a corresponding warning is displayed in the output window if a linking to an element is invalid. If the warning contains a link, this link leads to the respective element if clicked on.

### 4.4.3 Display for messages in the output window (F 247214)

The color for the display of the different message types can be set in the **Settings** configuration dialog in the **Color Scheme** tab in the **Text color in output window** option group. The messages are also marked with symbols. The symbols represent the type of message and visualize whether a message contains information about a linked element.

The pre-existing option for **Color of filtered columns in object lists** has been renamed and moved to the **Color scheme** tab. The naming of the column from version 11 is: **Filtered columns background color**

## 4.5 Service Engine

### 4.5.1 Action on reloading (F 219193)

When creating Service Engine files in Engineering Studio, the number of files that are deleted from the Service Engine folder is now displayed. If no files were deleted, nothing is displayed.

When reloading, all screens are first closed and then reopened.

## 4.6 Web Visualization Service (initiative 171672)

The Web Visualization Service enables the use of Service Engine by means of a platform-independent visualization that is based on HTML5. This visualization can be opened using a web browser without further installation.

You can find information on operation, as well as supported functions in the **Web Visualization Service** manual.

### 4.6.1 WVS OPS Manager (F240915)

The OPS Manager (**WebVisuOpsManager**):

▶ Is a session manager for the **Web Visualization Service** and adds multisession functionality to it.

▶ Receives queries for potentially several different projects.

▶ Reserves a **Web Visualization Service** for each initial connection from a browser and

▶ Forwards all subsequent requests that belong to the same browser session to the same Service Engine instance

### 4.6.2 New tab for Web Visualization Service in the Startup Tool (F 191662)

For the **Web Visualization Service**, the settings for the connection in the network can now be configured in the **Startup Tool**. The new **Web Visualization Service** tab was implemented for this.

## 4.7 Modules

### 4.7.1 Alarm Message List

### 4.7.1.1 Alarm Shelving (E 244213)

With the new Alarm Shelving functionality, occurring alarms can be snoozed (= shelved). The new development is in compliance with the standards ISA 18.2-2016 and IEC62682.

During operation in Service Engine, incoming alarms are shelved in an **alarm message list** screen by clicking on a button. This is done when a dialog is opened in which the duration of the shift (= shelving) and the alarm shelving reason are parameterized. The alarm is automatically moved back to the **Alarm Message List** on expiry of the shelving duration.

The following new features and enhancements have been implemented:

▶ New **Alarm Shelving reasons** in the Alarm node in the project tree of Engineering Studio.
In this node, alarm shelving reasons for the selection in Service Engine are set. Alarm shelving reasons can also be configured in a global project.

▶ Addition of the **Alarm: shelve and unshelve** action to the Service Engine function authorizations.

▶ Enhancement of the categorization. To this end, the following entries were added in the **Alarm Message List** node in the Engineering Studio project tree:

▶ *303 AML entry shelved.*

▸ *304 AML AML entry unshelved.*

▸ Enhancement of the **Screen switch** function:
When switching to a **Alarm Message List** screen, the following views can be selected in the new **Display Options** group in the **General** tab:

  ▸ *Alarm Message List*: "classic" Alarm Message List with gathered alarm information.

  ▸ *View:Shelved alarms* Alarm Message List for displaying shelved alarms. Only shelved alarms are visualized in this view.

▸ Enhancement of the **Alarm Message List** screen for productive operation in Service Engine:

  ▸ New columns:
  - **Time shelved**: Time at which the incoming alarm was snoozed (= shelved).
  - **Shelve expires**: Time when the alarm snooze expires.
  - **Shelving reason**: Reason for the alarm snooze

  ▸ New screen elements:
  - **Shelve alarms**: snoozes incoming alarms. The new **Shelve alarms** dialog is called up for this.
  - **Unshelve alarms**: withdraws an alarm snooze (= shelving).

  ▸ Amendment of the existing control elements to the respective display options. Depending on the visualization, the functionality or information of the buttons is applied to the respective display type.

▸ Adaptation of existing functionality:

  ▸ The flashing and the **Play audio file** and **Start continuous tone** functions are suppressed for shelved alarms.

▸ New **[Alarms] number of shelved alarms** system driver variable:
Shows the number of all shelved alarms.

▸ Class linking of alarm areas with equipment modeling:
New **Number of shelved alarms** property in the **Aggregated alarms** and **Class linking** property groups.

▸ Complete integration into the zenon network including integration project(s), **Distributed engineering** as well as integration into the **Process Recorder** module.

## 4.7.1.2 AML - change of the rules for color of the alarm/event classes (bug 251726, 210538)

The behavior of the coloring of AML columns has been changed for zenon 11. It is now different from the behavior up to and including version 10.

**The following is applicable from version 11:**

> ▸ All columns are colored with the color of the alarm/event class if these conditions have been met:

>> ▸ **Alarm/event class color** has the value *as a text color*.

>> ▸ **Apply status text color to** has the value *complete row*.

> ▸ All columns - except time columns and group columns - are colored with the color of the alarm/event class if these conditions have been met:

>> ▸ **Alarm/event class color** has the value *as a text color*.

>> ▸ **Apply status text color to** has the value *time columns*.

Note the amended behavior when converting projects in version 11. Amend your projects to the amended behavior.

## 4.7.1.3 Continuous AML export to Service Grid Data Storage (F 228824)

The continuous AML export can now also save data in the **Service Grid Data Storage**. Configuration is carried out using the **Continuous export** project property.

## 4.7.1.4 Unbuffered alarm aggregation (F 248386)

The buffering of the alarm aggregation for alarm areas can be switched to unbuffered mode. The **Unbuffered alarm aggregation** property in the project properties in the **Service Engine settings** group has been implemented for this.

**Behavior with the property active:** The alarm aggregation is not periodically evaluated. Each alarm that has an influence on the status or the number of aggregated alarms is evaluated individually. In addition, if the property is activated, the time stamp of the most recent alarm event is forwarded to the linked status variables.
The property is deactivated by default. This increases the performance.
**For example:** 5 alarms come in an alarm area or alarm class within 100 milliseconds. The variables with the number of alarms is increased 5 times by 1. If, during this, the value of the status variable is already 1, there is no new writing of the set value to the status variable.
If the property is deactivated, there is 1 increase by 5.

## 4.7.1.5 Unix time stamp for exported alarm data (S 248238)

To guarantee support for the Unix time stamp beyond the year 2038 for evacuated and SQL-exported data, the database schematic has been amended accordingly.

For the following columns for exported alarm data, the data type was changed from *INT* to *BIGINT*:

- *COMES_S*
- *GOES_S*
- *QUIT*
- *REACT_S*
- *LASTING_S*
- *COMES_INTERNAL_S*
- *COMES_EXTERNAL_S*
- *GOES_INTERNAL_S*
- *GOES_EXTERNAL_S*
- *REACT_INTERNAL_S*
- *REACT_EXTERNAL_S*
- *LASTMODY_S*

## 4.7.2  Equipment Modeling

**CLASS LINKING FOR SHELVED ALARMS (S 240921)**

Shelved alarms can be linked to an equipment modeling equipment group or an alarm area. The new **Number of shelved alarms** property has been implemented in the **Class linking** and **Aggregated alarms** property groups for this. With this property, a variable can be linked that contains the number of shelved alarms.

## 4.7.2.1 Linking of screen elements (S 242726)

Screen elements can be linked to an equipment model. The **Equipment Groups** property is also available for a screen element in the **General** property group from version 11. The linked equipment groups can be queried via the API.

## 4.7.3  Historian

Changes to the Historian module in version 11:

## 4.7.3.1 Lot name from variable - call up name on starting (F 237140)

The lot name from a variable can now also be obtained and assigned when starting the lot. Changes to the variable are ignored after that. The **Get lot name from the variable at start** option has been implemented for this.

**Tip:** Use this option if lots are to be used with Batch Control.

The **Get lot name from the variable at stop** option remains the default.

## 4.7.3.2 SQL evacuation in the event of a missing license (F 244330)

SQL evacuation requires its own license. If there is no appropriate license in Service Engine, the evacuation is set to the internal database (*\*.arx*). Evacuation will take place as long as enough storage space is available.

## 4.7.3.3 Swinging door algorithm for spontaneous archives (F 245359)

For spontaneous archives, the number of entries that are transferred to an archive file is reduced with the functionality of the swinging door algorithm. In doing so, the values are not transferred to the archive within the tolerance range.

▸ This functionality is activated in the **Edit archive** dialog in the **Save** tab with the new **Use Swinging Door Algorithm** option.

▸ The parameters for the tolerance value are set with the new **Tolerance for Swinging Door Algorithm** variable property.

> ### 💡 Information
>
> For this new option in the dialog to be activated, the following requirements must be met:
> ▸ the archive is a basic archive.
> ▸ the archive is a spontaneous archive.
> ▸ the necessary **Historian - Swinging Door Algorithm** license is available.

## 4.7.3.4 Unix time stamp for evacuated or exported archives and lot archives (S 248230)

To guarantee support for the Unix time stamp beyond the year 2038 for evacuated and SQL-exported data, the database schematic has been amended accordingly.

The data type has been changed from *INT* to *BIGINT* for the following columns:

▸ Evacuated or exported archive data

  ▸ *TIMESTAMP_S*

▸ Evacuated or exported lot archives

> ▶ *START_S*

> ▶ *END_S*

## 4.7.4 Automatic Line Coloring

**STYLE TYPE ENHANCED WITH PROPERTIES FOR ALC (F 241956)**

The *Line* style type supports the configuration of Automatic Line Coloring for lines and polylines.

## 4.7.5 Batch Control

New features in the Batch Control module.

## 4.7.5.1 Redundancy (F 243856)

Batch Control now supports zenon redundancy. If the **Server 1** fails, batch operation is continued seamlessly with **Server 2**.

The following is applicable with active redundancy:

▶ Recipe images are transferred to **Server 2** immediately. In doing so, all started recipes are taken into account.
All changes for REE and/or recipes are synchronized.

▶ REE is started on **Server 2**.

▶ **Server 2** continues the batch process if **Server 1** fails or redundancy switches.

▶ Redundancy switching:

▶ Planned switching: The switching is carried out once a safe stopping point has been reached.

▶ Switching in the event of a failure: The duration of the set network timeout is waited for (default: 30 s). The switching takes place after that.

You configure how recipes act after switching with the **Action for redundancy switch** property.

## 4.7.5.2 Batch identifiers (F 237140, 236659, 237140)

Batch Identifiers enable the unique naming of recipes. These identifiers are used for lot identification in the CEL. The batch identifier is created for master recipes and control recipes. The batch identifier is written to a variable when a recipe is started. This variable is defined in Engineering Studio.

**Identifiers for master recipes consist of:**

- ▶ Name or ID of the master recipe
- ▶ Version (for name)
- ▶ Underscore
- ▶ Execution counter
  Master recipes get a counter for the execution of tests. This counter is increased by 1 each time a master recipe is started.

**Identifiers for control recipes consist of:**

- ▶ Name or ID of the master recipe
- ▶ Dot
- ▶ Name or ID of the control recipe

Because control recipes can only be executed once, no execution counter is needed.

## SELECT FROM LIST

Batch Identifiers allow you to select a control recipe for a report from the recipe list via a variable in Service Engine.

## 4.7.5.3 Lot filter supports batch recipes (F 236730)

In the CEL, entries that correspond to a particular lot can now be created for batch recipes.

If the lot name matches a batch identifier, the recipe that matches the selected lot can be identified. The CEL messages of this recipe are also displayed then. When using a lot filter, the display is extended to include the affected recipes. These are displayed as a recipe list. Entries relating to the execution of the batch recipe are also included in the CEL. If no matching recipes are found, the list will remain empty. If recipes are found, these are displayed as a separate section at the end of the lot list.

**Note:** This functionality is available for:

- ▶ Screen switch to a *CEL* screen type: Lot filter tab
- ▶ Screen switching to a *Faceplate* screen: Lot filter for CEL container tab
- ▶ Screen switching to a *Report Viewer* screen: Lot filter in the time filter tab
- ▶ Export CEL function Lot tab

## 4.7.5.4 CEL - placeholders (F 236730)

For CEL entries from reactions, there are now also placeholders for the recipe reference and for positioning:
Placeholders are evaluated regardless of upper case / lower case:

### RECIPE REFERENCE

The following are available:

**Default:**

- ▶ *;%phaseEvent;*: Type of event
- ▶ *;%phaseContext;*: ID of the phase (name of the unit, name of the phase, position of the phase, information on the operation)
- ▶ *;%recipeContext;*: Recipe type and recipe name (including version)

**Recipe reference reactions:**

- ▶ *;%phaseEvent;*: type of reaction of the phase
- ▶ *;%phaseIdentifier;*: Identifier of the phase (phase active)
- ▶ *;%recipeIdentifier;*: Identifier for recipe
- ▶ *;%recipeType;*: Type of recipe

### POSITIONING

The position of a phase can now be given in the CEL.
The position is added to the *%PhaseIdentifier* parameter as a column and row.

Configuration is by means of the **Element position** property in the **CEL**/**CEL logging** group.
Default: *(@column@ ;%elementCol; - @row@ ;%elementRow;)*

## 4.7.5.5 CEL - display of recipes for lots (F 236730)

When using a lot filter in the CEL, the display of lots is extended to include the affected recipes. These are displayed as a recipe list. If no matching recipes are found, the list will remain empty. If recipes are found, these are displayed as a separate section at the end of the lot list. These configurations are also available for reports from the Report Viewer.

## 4.7.5.6 CEL - syntax for identifiers (F 236730)

The recipe identifier for batch recipes is now written in a defined syntax. It is thus also possible to filter for the identifier.

<u>Syntax for:</u>

- ▶ Master recipe: **<Name of master recipe> <(Vx)**
  x = recipe version

- ▶ Control recipe: **<Name of master recipe> <(Vx).<Name of control recipe>**
  x = recipe version

- ▶ Operation template: **<Name of operation template>**

- ▶ Operation instance **<Format host recipe format> (master recipe or control recipe)**

## 4.7.5.7 Log parameter values with time stamp in the CEL (F 236730)

Parameter values can be logged in the CEL with an indication of the point in time at which they appear.

The new **CEL logging via reactions** property and **Tags CEL entries** property group are available for this. The following can be selected for logging in the properties group:

- ▶ **Initial tag set value**

- ▶ **Initial tag actual value**

- ▶ **Value tag set value**

- ▶ **Value tag actual value**

- ▶ **Return tag actual value**

In Service Engine, the parameter values are logged in the CEL with the time at which they occur. To do this, the parameter in the phase must be selected. If the phase has a control strategy, it must be selected in the control strategy.

## 4.7.5.8 Report with batch identifier (F 236730)

Batch Identifiers can now be used for the filtering of control recipes. To do this, when switching to a *Report Viewer* viewer screen for the **Recipe filter settings** option, the *Use Batch Identifier for selection of the control recipe* entry is selected. Filtering for name or ID can be configured in the control recipe filter.

## 4.7.5.9 Report - limit value text available (238033)

The **TagValueLimitText** column name is now available in the report definition file. This name shows the limit value text in the report.

## 4.7.5.10 End time point in the control recipe (F 236730)

Control recipes have the new **Ended on** property.

If a control recipe is closed, the time of this is entered in the property. The time indicated is always rounded up to the next-highest second. Ended means: Canceled, stopped or completed.

The time for **Ended at** can be displayed:

▶   in the recipe list

▶   via the API

▶   in Report Viewer reports

## 4.7.5.11  Transitions - tooltip and detail view enhanced (F 245285)

Detail view and tooltips have been enhanced:

### DETAIL VIEW

In the detail view of a transition, you now receive the following information if the recipe is in execution mode or if the transition is active or has already been run through:

▶   Status of the condition

▶   Variable values

▶   Logical and relational operators
    (bitwise operators **&** and **|** are not supported)

If the recipe is outside execution mode, transitions that have not yet been reached are displayed with full variable names. Condition result or value is not displayed in this case

### TOOLTIPS

Tooltips for transitions now contain, in the context of recipes in execution, information about variable names and values. If the execution is not active, the complete name of the variable is displayed without value.

## 4.7.5.12 Versioning of batch identifier (F 236730)

The version number of a master recipe is also used in certain cases if the **Versioning active** option has been switched to inactive.

The version number is always used for:

- ▶ Batch identifier (from name)
- ▶ Search for a matching recipe for a lot
- ▶ CEL entries regarding a recipe
- ▶ Filtering in the CEL (recipe name incl. version)

The default setting for the **Versioning active** property is now *active*.

## 4.7.6 User administration

### 4.7.6.1 Change password dialog for signature and eSignature (F 267406)

When the entry key of the **Signature** or **eSignature** is password protected, this must be entered during the operator action. If the user logs in to Service Engine for the first time during this action, they must initially change their password. In this case, the dialog to change the password is called up before the signature process.

### 4.7.6.2 Invalid user names can be suppressed in CEL (F 245176)

If an invalid user name is used on login, this is logged in the CEL. The event and user name used are displayed by default.
The display of the invalid user name in the CEL can now be suppressed. The **Do not include user data for login in CEL entry** project property has been implemented for this. If this property is activated, the display of the user name is suppressed. The property is deactivated by default.

### 4.7.6.3 Temporary user block (F 248385)

Users can now be blocked for a certain period of time if they enter an incorrect password. There can be 2 lockout times with a defined number of login attemptsand a suitable time range can be defined.

The number and names of the blocked users can be retrieved via system driver variables:

- ▶ **[User Administration] Number of blocked users**
- ▶ **[User Administration] Names of blocked users**

In the zenon network, locks are performed via the Primary Server. This synchronizes the status with the relevant client.

#### 4.7.6.4 Reset time without operator action (F 246983)

With **login without password**, the counter (**time without operation**) can automatically be reset automatically for each login. The option is configured in the **Login without password** function. It is applicable for all logins in the projects in which the function has been configured. If this option is active, the counter is reset on each login. The counter also runs in the event of a new login by default. The counter for **time without operation** can now also be reset for login via RFID cards.

### 4.7.7  Screens

#### 4.7.7.1 HTML screens use the Chromium Embedded Framework    for display (F 172721)

**HTML** screens now use the **Chromium Embedded Framework** (**CEF**) by default for display. For compatibility purposes, the use of Internet Explorer can be forced by means of an entry in zenon6.ini. To enable this and to remain compatible at the same time, the following new entries have been created.

| Entry | Description |
| --- | --- |
| **[BROWSER]** | Settings for browser selection. |
| **IE=** | Selection of the browser. |
| **[CEF]** | Settings for **Chromium Embedded Framework** (**CEF**). |
| **IGNORE_CERTIFICATE_ERRORS=** | Handling of errors in certificates. |
| **RENDER_PROCESS_LIMIT=** | Number of rendering processes. |
| **CACHE_PATH=** | Path for caching in zenon6.ini, which can be defined. |

#### 4.7.7.2 Linking of screen elements (S 242726)

Screen elements can be linked to an equipment model. The **Equipment Groups** property is also available for a screen element in the **General** property group from version 11. The linked equipment groups can be queried via the API.

#### 4.7.7.3 Additional symbols for line start and line end (F 241955)

There are 3 respective new symbols available for the screen elements **Line**, **Arc** and **Polyline** for the configuration of the line start and line end

- New selection for **Start type** property

    - ⊢—

    - ✕—

    - o—

- New selection for **End type** property

    - —⊣

    - —✕

    - —o

### 4.7.7.4 Apply substitution rules for linked symbols multiple times (F 251149)

Substitution rules for linked symbols and combined elements can now be applied multiple times per source variable or function.

The new **Apply several rules** option in the **Element input** dialog has been implemented for this.

**Note:** This dialog is called up for a zenon symbol with the **Preview** property in the **Linking rule** property group.

## 4.7.8 Chronological Event List

### 4.7.8.1 Continuous CEL export to Service Grid Data Storage (F 228824)

The continuous CEL export can now also save data in the **Service Grid Data Storage**. Configuration is carried out using the project setting **Continuous export** in the **Chronological Event List** group.

### 4.7.8.2 Unix time stamp for exported CEL data (S 248238)

To guarantee support for the Unix time stamp beyond the year 2038 for evacuated and SQL-exported data, the database schematic has been amended accordingly.

For the following columns for exported alarm data, the data type was changed from *INT* to *BIGINT*:

- *COMES_S*

- *COMES_INTERNAL_S*

- *COMES_EXTERNAL_S*

## 4.7.9 Extended Trend

### 4.7.9.1 Online data - add curves in Service Engine (F 245203)

Curves with **online data** data origin can now also be added in Service Engine.

**Note:** Only variables for which the **Harddisk data storage active** property has been set can be selected.

## 4.7.10 Functions and scripts

### 4.7.10.1 Start - close - restart archives (F 237140)

The previous start archive and close archive functions have been combined into a new function. The new function of a restart has also been added. You can now do the following with the **Start/stop archive(s)** function:

- ▶ Start archive
- ▶ End archive
- ▶ Restart archive

The relevant action can be applied to several archives at the same time. When restarting, the selected archives are first closed and then restarted.

When converting from previous versions, the previous functions are transferred to the new function.

## 4.7.11 Categorization

#### CEL ENTRIES FOR ALARM SHELVING (S 240873)

The following entries have been added to the **CEL entries** of the **categorization** for the new alarm shelving function in the **Alarm Message List** node:

- ▶ *303 AML entry shelved.*
- ▶ *304 AML AML entry unshelved.*

## 4.7.12 Message Control

New features for Message Control.

### 4.7.12.1 Support of TLS 1.3 for SMTP and POP (F 242427)

POP and SMTP now support TLS up to version 1.3.

POP and SMTP were added to the **Encryption** property for this. These now offer the following in the drop-down list:

- *none*: The connection established will not be secure.

- *Automatically negotiate the highest TLS version available with server (up to TLS 1.3)*: The connection is automatically established with the highest available TLS protocol version that can be negotiated with the server. Maximum: TLS version 1.3

- *TLS version 1*: The connection is established with TLS 1.
  TLS version1 is the successor of SSL and is equivalent to SSL 3.1.

- *TLS version 1.1*: The connection is established with TLS 1.1.

- *TLS version 1.2*: The connection is established with TLS 1.2.

The default value has been amended from *None* to *Automatically negotiate highest TLS version available with server (up to TLS 1.3)*.

### 4.7.12.2 STARTTLS support for SMTP and POP (F 242427)

For SMTP and POP connections, the following can now be configured for a TLS connection:

- direct setup

- by means of STARTTLS delayed setup

### 4.7.13 Process Gateway

### 4.7.13.1 Licensing (F 240269)

The number of **Process Gateway** modules and/or communication protocols that can be started at the same time in Service Engine has been limited through licensing. Licenses are available for the number of Process Gateway instances to be started, individual protocols or for groups.

### 4.7.13.2 Configuration of Process Gateway modules in Engineering Studio (E 211417)

Further selected **Process Gateway** modules and/or communication protocols can now be configured and set in Engineering Studio directly. You can find the configuration in the project tree, under the **Variables** node in the **Process Gateways** node.

For version 11, the following **Process Gateway** module and/or communication protocols have been implemented in Engineering Studio for configuration:

- ▶ **ICCP/TASE.2**
- ▶ **OPC UA Server**
- ▶ **IEC870 Slave**
- ▶ **SNMP Agent**
- ▶ **SQL Online Interface**
- ▶ **Syslog**
- ▶ **Gateway for MS Azure**

### 4.7.13.3 Project administration - transfer Service Engine files (F 236810)

For Process Gateways, the **Service Engine changeable data** project property can now be used to decide whether changes between Engineering Studio   and Service Engine are transferred.

### 4.7.13.4 DNP3 outstation

The following additions have been implemented for the **Process Gateway DNP3_SG** module for version 11:

### 4.7.13.4.1 Configurable behavior for command routing (F 232043)

For *Binary Outputs*, the parameters of behavior for Command routing can now be set. To do this, the option for **Command routing** has been expanded in the **Binary Output** node.

Previously, with Command routing active, there was always a wait for successful command execution before the DNP3 outstation sent an *Operate Response*. Now an *Operate Response* can already be sent as soon as a positive response to the command has been received.

### 4.7.13.4.2 Dynamically permit/turn off control commands (F 243946)

Control commands can now be permitted or turned off by means of a variable. The respective mode is dynamically selected with the value of a linked zenon variable.

▶ *Remote mode*
**Select**, **Operate** or **Direct Operate** are allowed.

▶ *Local mode*
**Select**, **Operate** or **Direct Operate** are not permitted.

### 4.7.13.4.3 Enhancements for communication with redundant communication channels (F 229753)

The following enhancements have been implemented for communication with redundant communication channels for version 11:

▶ Redundant communication via UDP:
In the configuration dialog in the **Datalink** node, **IP addresses** for a master can be configured for UDP-based communication. The addresses are separated by a comma (,) when setting parameters. The following is applicable here:

  ▶ The response and *Unsolicited Responses* are sent to the IP address from which a request was last received.

  ▶ The *Unsolicited Response* when starting, it is always sent to the first configured IP address.

▶ No UDP communication on the standby server:
If the new **Silent on standby server** option has been activated in the configuration dialog in the **Outstation** node, the Process Gateway on the current standby server does not respond to UDP queries.

▶ Clearing of the event buffers with redundancy switching:
The parameters for the behavior of redundancy switching for the higher-level primary server can be set.
If the new **Purge event Buffer and delay Master connect** option has been activated, master connections are only activated after a wait time of 10 seconds and an automatic restart of the outstation. The event buffer on the (new) primary server is also cleared with this option.

### 4.7.13.4.4 Inversion of values for binary inputs (F 243944)

Variable values for binary inputs can be avoided/inverted.

The new **Invert value** checkbox was added in the configuration dialog in the **Binary Input** node for the **Binary Input** option group for this. Time stamp and status of the variable are not changed as a result.

### 4.7.13.4.5 No new event on change of the time stamp without value change or status change (F 241476)

The creation of a new value can also be optionally suppressed if only the time stamp of a variable changes, but the value and status remain the same.

The new **Events on value and status change only** option was added for configuration in the **Events/Unsolicited** node for this.

### 4.7.13.4.6 Scaling factor for analog inputs (F 245590)

zenon variable values for analog inputs can optionally also be scaled/multiplied with a factor.

The new **Scaling factor** option was added in the configuration dialog in the **Analog Input** node for the **Analog Input** option group for this. Time stamp and status of the variable are not changed as a result.

### 4.7.13.4.7 Amendment of status and statistics variables to the project configuration in Engineering Studio (F 238677)

The naming of status and statistics variables has been enhanced for **Process Gateway** project configurations in Engineering Studio.

▶ Configuration in Engineering Studio:

*[Computer name on which the* **Process Gateway** *is running].[Domain name]_[GUID of the* **Process Gateway***]_[Name of the specific information]*

▶ Configuration with external parameterization:

For Process Gateways with external parameter setting, the naming remains the same: *[Name of the configuration file for the Process Gateway]_[DLL name of the Process Gateway]_[Name of the specific information]*

### 4.7.13.4.8 Subset level qualifiers - compatibility amendments (F 245592)

The DNP3 qualifiers of the outstation were optimized for compatibility during communication to DNP3 masters. This ensures that DNP3 masters also accept and process those events of the outstation which, due to optimization of the transmission bandwidth, would otherwise be sent with a less frequently used qualifier.

### 4.7.13.4.9 TLS communication (F 246808)

TCP/IP **Process Gateway** connections for the *DNP3* module can now be secured via TLS. To do this, the new **IEC 62351-3/TLS** button has been implemented in the **Datalink** node in the configuration dialog.

It opens the new **TLS Settings** configuration dialog for setting parameters of secure communication:

▸ TLS communication is configured per master.

▸ Password support when using the PKCS#12 file format.

Implementation was carried out in accordance with the **IEC TS 62351** standard.

**⚠Attention**

This invalidates TLS configurations set in the .INI file previously to version <11.

## 4.7.13.5 MS Azure services - project configuration in Engineering Studio (F 237589)

**Process Gateways** for the *AccessAzure* 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.

## 4.7.13.6 ICCP/TASE.2 - IEC 60870-6/TASE.2

The following additions have been implemented for the **Process Gateway AccessICCP** module for version 11:

### 4.7.13.6.1 ICCP TASE.2 - project configuration in Engineering Studio (F 237592)

**Process Gateways** for the *AccessICCP* 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.

### 4.7.13.6.2 TLS and MMS authentication (F 209878)

The **Process Gateway** connections for the *AccessICCP* module can now be protected by means of TLS and/or MMS authentication. A new **Communication Security** tab was implemented in the configuration dialog for this:

▸ A separate certificate for TLS client and TLS server is used for TLS communication.

▸ A separate certificate is used for MMS authentication.

▸ Password on signing and encryption for PKCS #12 files.

Additional parameters for interoperability are possible in the .INI file.

Implementation was carried out in accordance with standards **IEC TS 62351-4:2007**/**compatibility mode in IEC 62351-4:2018**.

### 4.7.13.6.3 Configuration of optional, user-defined ICCP datasets (F 241756)

By default, the **ICCP Process Gateway** in the role as ICCP client automatically creates **DataSets**, depending on the configured ICCP client variables and the APDU size.

A file can be selected with the new **Custom data set configuration file** option in the **General** tab of the configuration dialog. In this file, user-defined **DataSets** can be configured for the configured ICCP client variables.

### 4.7.13.7 IEC EC60870-5-101/104 slave

The following additions have been implemented for the **Process Gateway Slave for IEC60870-5-101/104 protocol** module for version 11:

### 4.7.13.7.1 Project configuration in Engineering Studio (F 223885)

**Process Gateways** for the *AccessIEC870SL* 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.

### 4.7.13.7.2 Only send values for general interrogation (F 207365)

The **Process Gateway** *AccessIEC870SL* module supports parameter settings with values only being communicated once during a general interrogation (GI). The new **Only at GI** option in the configuration dialog for the sectors **Information object settings** (**Sector** tab) in the **Data Transfer** option group has been implemented for this.

If this option has been activated, no more-recent data is communicated.

### 4.7.13.7.3 T00 IOA19 - internal status variable for the activation/deactivation of communication (F 243917)

With the new **T00** *IOA19* variable, it is possible to control communication. This variable only needs to be set up for one sector of a master and is applicable globally for the gateway. Communication is permitted depending on the value of the variable (value 1) or suppressed (value <>1).

As a result, it is possible, for example, for the **Process Gateway** on the primary server to allow communication with the IEC 60870 master and the **Process Gateway** on the secondary server to not send any data to the master.

### 4.7.13.7.4 Support for redundancy in accordance with IEC 60870-5-104 ed2.0 (F 181246)

For communication to a master via the IEC 60870-5-104 protocol, several connections in a redundancy group are now also supported:

▸ The new **870-104 redundancy** option for protocol selection was implemented for this.

▸ In addition, when setting the parameters of a master in the **Device** tab, the input of several IP addresses in the (protocol-dependent) **IP-Addresses of redundant Masters (870-104)** input field is possible. These IP addresses are separated by a comma.

▶ For the configured master, the 870 slave accepts TCP connections from all configured IP addresses.

▶ The current status of the redundancy group can be monitored by means of internal variable.

This enhancement conforms to the standard *IEC 60870-5-104_ed2.0_b - section 10*. It is redundancy at connection level. The 870 master is responsible for selecting the active connection.

## 4.7.13.7.5 Support for UTC time (F 246335)

The **Process Gateway** *AccessIEC870SL* module supports the UTC time format for the time stamp.

The new **UTC time** option was added to the configuration dialog for this. If this option is deactivated - as in previous versions - local time is used.

## 4.7.13.8 OPC UA Server

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

## 4.7.13.8.1 Configurable number of client sessions (S 246559)

The maximum number of permitted client sessions on the **AccessOPCUA Process Gateway** can now be set. The new **Sessions** option group has been added in the configuration dialog in the **Server** tab for this.

If the number of permitted sessions has been reached, all further sessions are rejected with a *BadTooManySession* error during the **CreateSession** request.

## 4.7.13.8.2 OPC UA server optimizations (F 239316, F 219312)

The **AccessOPCUA Process Gateway** has been optimized.

▶ Support for AML, CEL and archives in the **AccessOPCUA Process Gateway** can be activated or deactivated. This reduces the start duration of the **AccessOPCUA Process Gateway**.

▶ Implementation of **Server Diagnostics**. As a result, OPC UA clients can monitor the **AccessOPCUA Process Gateway**.

▶ The connection to OPC UA clients is no longer separated if the support of AML, CEL or archives is inactive and variables are added or removed. Unnecessary interruptions in communication are thus avoided.

▶ The **AccessOPCUA Process Gateway** can be configured in Engineering Studio.

▶ The configuration changes in Engineering Studio are applied after being transferred to the target system on which **Service Engine** runs, without an interruption to communication on reloading. A requirement for this is that the support for AML, CEL or archives is inactive.

▸ Data from CEL now also contains the CEL categories.

### 4.7.13.8.3 Project configuration in Engineering Studio (F 223887)

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

▸ The parameters for paths can be set with the *%CD_SYSTEM%* environment variable.
  **Note:** this corresponds to the path *C:\ProgramData\COPA-DATA\System*

▸ If the **Process Gateways** for the *AccessOPCUA* module in Engineering Studio have been configured and the corresponding certificates are not on the client computer, they are created automatically without an additional warning message.

> ⚠**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.

### 4.7.13.8.4 Server diagnostics (S 241998)

From version 11, the prescribed **ServerDiagnostics** in the **AccessOPCUA Process Gateway** OPC UA information model are supported.

### 4.7.13.8.5 Secure and encrypted communication (F 239431)

Secure and encrypted communication has been enhanced.

The new **Endpoints** tab has been added to the configuration dialog for this.

The parameter setting contains:

▸ Client authentication on the server

  ▸ Anonymous login

  ▸ Authentication by means of user name and password

  ▸ Certificate-based authentication

▸ Secure communication for configured endpoints.

  ▸ Selectable encryption algorithms with selectable option *signed* (*sign*) or *signed & encrypted* (*sign + sign & encrypt*)

▸ Certificate administration with definable save locations.

▸ Setting of parameters of OPC UA validation exceptions

## 💡 Information

The OPC UA Process Gateway now always supports authentication by means of user name and password, even if there are no local users in the zenon project. This is also applicable for existing configurations from previous versions. Authentication is also possible with external users, such as with an Active Directory user.

Authentication by means of user name and password can be deactivated in the configuration for the endpoints.

The security policies *Basic128RSA15* and *Basic256*, used in previous versions, have been marked as obsolete. These policies have been deactivated by default for existing and new configurations. If OPC UA clients need these policies for compatibility reasons, they can be activated in the configuration for the endpoints.

## ⚠ Attention

In a zenon project, check the **System lock for wrong external authentication** project property to prevent unintentional block of Service Engine by an OPC UA client. Alternatively, you can also deactivate the authentication with user name and password in the new configuration dialog.

## 4.7.13.9 SNMP - project configuration in Engineering Studio (F 237593)

### CONFIGURATION IN ENGINEERING STUDIO

**Process Gateways** for the *AccessSNMP* 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.

**NO MULTIPLE START**

From version 11, the *AccessSNMP* module can only be started once. The reason for this is that the module uses the Windows SNMP service, which always communicates with the same port. This is visualized with a warning dialog.

## 4.7.13.10  SQL - project configuration in Engineering Studio (F 237594)

**Process Gateways** for the *AccessSQL* 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.

## 4.7.13.11 Syslog - project configuration Engineering Studio (F 237595)

**Process Gateways** for the *Syslog* 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.

## 4.7.14 RGM

### 4.7.14.1  Protect actions in Service Engine (F 249393)

Actions that are executed in the RGM screen by means of buttons can now be protected by means of linking to an equipment model. The editing or deleting of recipes, for example. You configure the protection using the **Operating authorization in the network** project property and the **Equipment model relevant for operating authorization** property.

Actions can thus only be executed via buttons in Service Engine if permitted by the linked equipment model.

### 4.7.15 Smart Objects

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

### 4.7.15.1 Rule-based variable mapping (F 236748)

In the **Variable Mapping: Project -> Smart Object** dialog, variables can now also be assigned to rules. The dialog was enhanced with a new option group for this. In addition, the assignment type is visualized in the assignment list with a graphical symbol.

### 4.7.15.2 Mapping rules for zenon Logic variables (F 251149)

Substitution rules for linked symbols and combined elements can now be applied multiple times per source variable or function.

The new **Apply several rules** option in the **Element input** dialog has been implemented for this.

**Note:** This dialog is called up for a zenon symbol with the **Preview** property in the **Linking rule** property group.

### 4.7.15.3 API access to Smart Objects and Smart Object templates (F 207422, F 233431)

The zenon API offers the 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.

### 4.7.16 Language File

### 4.7.16.1 Missing key words (F 242148)

If keywords for linked elements or variables are missing in the language file, this will now be indicated when Service Engine files are created:

▶ All missing entries are highlighted orange in the output window.

▶ Double-clicking on an entry leads to the linked element.

## 4.7.16.2 Import and export for ODS (F 239982)

Language files can now also be exported to Open Document (ODS) format or imported from an ODS file.

## 4.7.16.3 Import preview (F 240038)

When importing a language file in CSV or ODS format, a preview is now shown before import.

The preview allows you to:

▶ Preview the texts that will be imported

▶ Exclusion of keywords

▶ Exclusion of languages

▶ Exclusion of already existing keywords

▶ Comparison of imported and existing entries

It is also possible to filter for differences. Differences between import file and entries present in the project are highlighted in color. Key words and languages can be excluded from the import.

## 4.7.16.4 Key word - display usage in project (F 244336)

The use of key words can now be displayed via the project analysis. The project analysis is called by the context menu entry or the **Key word usage** toolbar. Select the command in the detail view for the **Language file** node after selecting a key word in the language table.

Keyword usage is analyzed. The result is displayed in a project analysis window. By clicking on any entry in the results list, you can jump directly to the linked element.

The analysis takes into account the use of keywords in:

▶ Alarms: Alarm groups, alarm classes, alarm areas and shelving cause

▶ Screens: Name and description

▶ Screen elements

▶ Screen switches: Column configurations

▶ Reaction Matrices

▶ RGM: RGM settings and RGM variables

▶ Variables

▶ Interlockings

### 4.7.17 Styles

**STYLE TYPE ENHANCED WITH PROPERTIES FOR ALC (F 241956)**

The *Line* style type supports the configuration of Automatic Line Coloring for lines and polylines.

### 4.7.18 Variables

### 4.7.18.1 Variable diagnosis - new columns (F 245286)

There are additional optional columns available for the variable diagnosis screen:

- ▸ Resource label: Character sequence for export
- ▸ Project: unique project name

These columns can be shown in Service Engine by the user.

### 4.7.18.2 Variable diagnosis - equipment groups can be linked (F 245286)

*Variable diagnosis* screens now also support equipment groups.

Equipment groups can be displayed in the *variable diagnosis* screen. The equipment model screen type can use update *variable diagnosis* screens for screen-type-specific actions.

### 4.7.19 zenon network

### 4.7.19.1 COPA-DATA PRP supports gigabit (F 245943)

The PRP configuration and diagnose tool now also supports 1-gigabit Ethernet connections.

In addition, the new **Entry forget time** option was added in the configuration dialog. This option can be used to amend the monitoring of the speed of the respective computer network connections.

### 4.7.19.2 Set parameters for encrypted communication for the zenon network (F 244244)

Communication in a (redundant) zenon network between **Server(s)** and **Client(s)** as well as communication between **Smart Server** and **Smart Clients(s)** can now also optionally be protected with TLS.

The parameters of the certificates are set in the Startup Tool. The **Encrypt network communication** option group in the **Application settings** dialog of the **Network configuration** tab has been revised for this.

## 4.8 Programming interface

### 4.8.1 [Equipment modeling] enhancement (F 242770, F 236365)

The following functionality has been added to the object model for **equipment modeling**:

- An equipment model can be set with a type from version 11. To do this, the **IEquipmentModel** interface was enhanced with the new Property **ModelType**. Values for **Enum:ModelType**:

  - 1 = *Substation*

  - 2 = *3DModel*

- An equipment group can be set with a type from version 11. To do this, the **IEquipmentGroup** interface was enhanced with the new Property **EquipmentGroupType**. Values for **Enum:***EquipmentGroupeType*:

  - 1 = *Substation*

  - 2 = *GeographicalRegion*

  - 3 = *SubGeographicalRegion*

These enhancements make standards-compliant parameter setting for the CIM CGMES standard easier.

#### IMPROVED ACCESS TO THE EQUIPMENT MODEL VIA API

In addition, new functions and Properties have been added to the **IEquipmentModeling** Interface.

- **GetEquipmentGroupsByPath**
  Function to read the path of the equipment group. The transfer parameter can be given as a string or as a string array.

- New Properties: **Guid**, **Name** and **Description**.

Four new Properties were added to the **IEquipmentGroup** Interface: **FullPath, Guid**, **Name** and **Description**

The equipment model can be read directly with this implementation. Workarounds, like the interpretation via XML files, are no longer necessary. Information for paths, GUID and name of a model are now available in an object.

## 4.8.2 [Alarm administration]

### ALARM SHELVING (F 239935)

The implementation for the new zenon **alarm shelving** (on page 16) functionality has been transferred to the zenon object model.

In doing so, the object model includes the following functionality: Recreate shelving cause and process existing causes. This is applicable for both the default causes prescribed by the system as well as the user-defined causes.

### ALARM/EVENT GROUPS AND ALARM EVENT CLASSES (F 237856)

Existing project configurations of **alarm/event groups** and **alarm event classes** can now be read off in the zenon object model.

## 4.8.3 [ALC] enhancements (F 242770)

The following functionality has been added to the object model for **ALC**:

- ▶ Parameter setting for the *line* topological element available: The **LineName** Property was added to the **ITopologicalElement** interface for this.

- ▶ New function type for lines:
  The **Enum:FunctionType** was enhanced with the *Line* and *Busbar* values.

- ▶ Additional information for transformers:
  The **IProceduralElement** interface has been enhanced with three Properties :

  - ▶ *TapChangeMinimum*

  - ▶ *TapChangeMaximum*

  - ▶ *TapChangeNominal*

These enhancements make standards-compliant parameter setting for the CIM CGMES standard easier.

## 4.8.4 [Screen elements] SVG element - evaluate download status (F 247380)

The Namespace **ScreenElement** has been enhanced with the **IBrowserDownloadHandler** interface. The status of a download in the zenon **SVG element** screen element can be queried.

- ▶ *DownloadStartingEventArgs*
  Download was started.

▶ *DownloadUpdatedEventArgs*
Current status of download.

## 4.8.5 [Historian] - apply aggregation type from source archive (F 246612)

When adding a variable to an archive, the aggregation type can be taken from the source archive. The transfer parameter for the source archive has been added to the overloadings (operator overloading) of the **AddVariable** function in the **IEditorArchiveVariable** Interface.

## 4.8.6 [Batch Control]

### ADAPTATION FOR ADD-IN (F 244699)

The API commands for the **Batch Control** module have been released for the add-in programming interface. The VSTA programming language has thus been replaced; it is no longer supported with version 11.

### TIME FOR RECIPE EXECUTION (F 236730)

The **ControlRecipe** class has been supplemented with the **FinishedTime** property. This property contains the time stamp if a batch recipe (of any desired type) has been executed. In doing so, the status of execution is not significant.

As a result, there is the possibility in the Chronological Event List to filter this time stamp according to executed batch recipes.

### BATCH IDENTIFIERS (F 237140)

The newly-implemented zenon properties for the implementation of batch identifiers (on page 21)have been transferred to the zenon object model.

### MEASURING UNITS FOR OBJECT (F 238318)

The **RecipePhase** class has been supplemented with the **Unit** property. This property returns the measuring unit of the object as a result.

## 4.8.7 [eSignature] - support for authentication of third-party providers (F 248392)

By using new events in the API, authentication can also be used through solutions from third-party providers (such as biometrics) in the eSignature workflow. For each individual step in the process, an

event is triggered, which can be used to transfer the user name and the password to the workflow. A response value can be used to stipulate the way in which the login information should be used:

- ▶ User name only (like login without password)

- ▶ User name and password (normal login).

The login information provided by the third-party components is visualized in Service Engine.

The **ESignature** Namespace was enhanced for this accordingly.

## 4.8.8 Restore Engineering Studio project as a new project (F 246701)

zenon project configurations can be read back as a new project via the API in the workspace of Engineering Studio.

A new overflow (operator overloading) of the **RestoreProjectBackup** function has been added to the **IWorkspace** Workspace.

## 4.8.9 [Licensing] New information available

The API for licensing now supports queries for the licensing forms "**one project only**" as well as "**one process image only**".

- ▶ The **Enum:LicenseModule** has been supplemented with the *SingleProjectOnly* value.

- ▶ The new value *NumberOfProcessScreens* has been implemented for the **Enum:Module**.

### LICENSE INFORMATION FOR PROCESS GATEWAY MODULES (F 240269)

The licensing possibilities for the **Process Gateway** modules are now shown in the object model. This information has been amended to the licensing according to price groups. The following new entries have been implemented for the **Enum:Module**:

- ▶ *NumberOfProcessGatewaysInPriceGroupL*

- ▶ *NumberOfProcessGatewaysInPriceGroupM*

- ▶ *NumberOfProcessGatewaysInPriceGroupN*

## 4.8.10 Control Service Engine services (F 237856)

Add-in Service Engine services can now be controlled and monitored via API. The new **IAddIn** namespace with the **IAddInContext** interface was implemented for this:

- ▶ **Enum:StartStopOperation**

  - ▶ *Completed*

- ▸ *NotFound*
- ▸ *ErrorDuringOperation*
- ▸ *AlreadyRunning*

▸ **Enum:ServiceExtensionStatus**

- ▸ *Started*
- ▸ *Stopped*
- ▸ *NotFound*

## 4.8.11 [Logic Studio] cross-reference from and to Logic Studio (F 228450)

The new **OpenLogicVarXRef** method was implemented in the **Workspace** namespace for this. With this method, references in    Logic Studio can be called up in Engineering Studio.

An *IVariable* object is to be used as a transfer parameter. This object references a Logic Studio variable for the transfer in zenon.

## 4.8.12 [zenon screens] swipe & lock, snap scrolling functionality and information for zenon screens (F 239217)

The **Screen** namespace has been enhanced with methods and classes for the support of additional devices as well as the control of **Swipe & Lock** and **Snap** functionalities.

In addition, an event has been implemented that is triggered when the position of the screen changes or when the zoom level is changed. This event provides information about the current position and zoom level of the screen.

## 4.8.13 Time stamp supports 64-bit (F 55182)

With support for 64-bit, time stamps can now be processed with nanosecond precision. The time stamp for the following interfaces is a *long* data type from version 11:

- ▸ IArchiveFilter
  The methods **QueryBlock()** now return an array with 7 entries for each value:

  - ▸ Entry 5 is a *long* as **DateTime ticks**.
  - ▸ Entry 6 is a *ulong* as **64bit state**.

- ▸ IArchiveValue
- ▸ IEventEntryData
- ▸ IVariable

This is applicable for both internal and external time stamps.

## 4.9 Drivers

### 4.9.1 Alternative interprocess communication via zenDrvOpsManager.exe (F 190696)

From zenon version 11, the **zenDrvOpsManager.exe** application is used for interprocess communication between Service Engine and drivers, as well as between Engineering Studio and drivers. The application is started automatically in the background and only permits local communication.

### 4.9.2 New drivers

The following new drivers are available from version 11:

#### 4.9.2.1 VASS driver (F 69994)

The new VASS driver communicates with controllers with implemented Volkswagen VASS 5 (Step-7) and VASS 6 (TIA) modules. The driver is used for applications for Zentralen Anlagen Überwachung (ZAÜ).

The development is based on the *Schnittstellenbeschreibung Zentrale Anlagenüberwachung-SPS* in the version dated 07/22/2015.

### 4.9.3 Additions to existing drivers

The functionality of the <CD_PRODUCNTAME> driver has been enhanced with the following functionalities for version 11:

#### 4.9.3.1 BACnetNG - improved usability for device configuration (F 245945)

The **BACnetNG** parameter setting of *Devices* now allows sorting and filtering in configuration.

#### 4.9.3.2 DNP3_TG

The following enhancements have been implemented for the **DNP3_TG driver**:

### 4.9.3.2.1Additional option for double point mapping (F 241754)

The *Double Point Mapping* of the **DNP3_TG driver** was enhanced with an additional - not standards-compliant - mapping option. To do this, in the driver configuration dialog, in the **Options** tab, the drop-down list for the existing **Double Point Mapping** option was supplemented with the *Custom legacy mapping 2* entry.

### 4.9.3.2.2  TLS communication (F 246808)

The TCP/IP communication of the **DNP3_TG driver** can be secured by TLS. The new **IEC 62351-3/TLS** button in the **TCP/UDP Link** configuration dialog was implemented for this.

It opens the new **TLS Settings** configuration dialog for setting parameters of secure communication:

▸ TLS communication is configured per connection.

▸ Password support when using the PKCS#12 file format.

Implementation was carried out in accordance with the **IEC TS 62351** standard.

### 4.9.3.3GenericNet - update to .NET 6 LTS (F 24375)

Because support for .NET core 3.1 will end, the driver has been updated to the current version .NET 6 LTS.

### 4.9.3.4IEC850

The following enhancements have been implemented for the **IEC860 driver**:

### 4.9.3.4.1Always write selected RCB attributes (F 242322)

In the driver configuration in the **Server** dialog, the new **Always write RCB attributes** option has been implemented. If this option is activated, the RCB attributes **TrgOps**, **OptFlds**, **IntgPd** and **BufTm** are always written, regardless of whether the current value of this attribute is already present or not.

For the individual configuration of **RCBs**, this option is also available in the **Statically assigned RCB** dialog.

### 4.9.3.4.2  TLS and MMS parameters can be set via dialog (F 246808)

The TCP/IP communication of the **IEC850 driver** can be secured by TLS. The new **IEC 62351-3/TLS** button in the **Server** configuration dialog was implemented for this.

It opens the new **TLS Settings** configuration dialog for setting parameters of secure communication:

▸ TLS communication is configured per connection.

▸ Password support when using the PKCS#12 file format.

In addition, the parameter setting for authentication has been enhanced. With the new **Authentication** button, the new **MMS authentication settings** configuration dialog is opened. This dialog replaces and enhances the options **Use Authentication** and the *[input field for Authentication String]* from prior versions.

## 4.9.3.5 IEC870_10332

**SUPPORT FOR PRIVATE ASDU TYPE 205 (F 239043)**

The **IEC870_10332 driver** now supports the private ASDU type 205 for SIEMENS SIPROTEC 7SJ62 .

**CONFIGURABLE DOUBLE POINT MAPPING (F 241077)**

The **IEC870_10332 driver** offers a configuration option for whether a mapping is to be applied to *Double Point Values/Double Point Commands*. The parameters of this option can be set for each connection.

To do this, the new **deactivate DPI/DCO mapping** option has been added in the driver configuration dialog in the **Connections** tab.

## 4.9.3.6 IEC870 - TLS communication (F 246808)

The TCP/IP communication of the **IEC870 driver** (60870-5-104) can be secured by TLS. The new **IEC 62351-3/TLS** button in the **Device** configuration dialog was implemented for this.

It opens the new **TLS Settings** configuration dialog for setting parameters of secure communication:

▸ TLS communication is configured per connection.

▸ Password support when using the PKCS#12 file format.

Implementation was carried out in accordance with the **IEC TS 62351** standard.

## 4.9.3.7 LOGIX_ODVA - support for additional data types (F 248654)

From version 11, for the **SPSMERKER** and **SONDERMERKER** driver object types, the *ULINT* data type is also supported.

▸ Enhancement of variable import for the creation of *unsigned* data types in zenon for *unsigned* LOGIX data types.

> Enhancement of communication with support for these *unsigned* data types in write and read direction.

**Note:** These changes require at least firmware version 32 on the PLC.

## 4.9.3.8 MBUS32 - TCP connection (F 243929)

The **MBUS32 driver** supports TCP connections to MBUS gateways. The new **Connections** tab was added in the configuration dialog of the driver.

Different connections can be configured in this tab. With TCP connections, the parameters for the target measuring units per connection are set.

## 4.9.3.9 OCPP - update to .NET 6 LTS (F 24375)

Because support for .NET core 3.1 will end, the driver has been updated to the current version .NET 6 LTS.

## 4.9.3.10 OmronEIP

### NEW DATE_AND_TIME DATA TYPE (F 245533)

The **OmronEIP driver** now also supports the *DATE_AND_TIME* data type.

### OPTIMIZED READING OF STRING VARIABLES (F 245533)

STRING variables are taken into account with optimized reading (**Use Block access** option activated in the **Connections** tab of the driver configuration dialog). In addition, a new LOG message has been implemented, which identifies queries that are too large (by exceeding the string length, for example).

## 4.9.3.11 OPCUA32

The following enhancements have been implemented for the **OPCUA32 client driver** for version 11:

## 4.9.3.11.1 Configurable communication parameters (F 249209)

The following communication parameters have been changed and/or can now be configured:

> **Request Timeout:**
> The default value has been changed from 20 seconds to 30 seconds. The value can also be set higher or lower in the configuration. For communication with OPC UA servers that need a long time for a response, it can make sense to increase this timeout.

▸ **Max. requested references per Node:**
When reading the information models in communication, a *BrowseRequest* now uses a maximum number of 500 subnodes in the query. The number can be configured and can be further reduced for communication with OPC UA servers that need a lot of time for a response with many nodes.

▸ **Session Timeout:**
The session timeout is unchanged, but can now be set in the configuration.

## 4.9.3.11.2 OPCUA - definable queue size (F 235299)

The queue size that is queried by the driver for **monitored items**, can be configured per connection in the **Advanced settings** tab using the new **Queuesize** option.

## 4.9.3.11.3 Configurable start nodes for online import (F 241981)

The online import of variables has been optimized. Now one or several nodes of the OPC UA information model can now be configured for import, which are taken into account with the **Read PLC variables in background** command. These nodes can be configured in the **Import - Driver - Connection selection** dialog with the new **Parameter** input field.

As a result, online import for partial areas of very comprehensive OPC UA information models is possible.

## 4.9.3.11.4 Support for further data types for OPC UA data access (F 240675)

The **OPCUA32 driver** now supports the following data types from the OPC UA data access specification (part 8):

▸ **LocalizedText**

  ▸ Locale and Text are mapped to separate string variable.

  ▸ There must be a current value for a successful write process.

▸ **ByteString**

  ▸ The values are mapped to a string variable and coded in Base64.

  ▸ The byte string must be written in Base64-coded format.

▸ **AnalogItemType**

  ▸ With the support of **EngineeringUnits**, **InstrumentRange** and **EURange** for the display of areas and units in zenon screens.

▸ **DiscreteItemType**

▶ *Truestate*, *FalseState*, *Enumstrings*, *EnumValues* and *ValueAsText* are supported

## 4.9.3.11.5 Support for OPC UA alarms and conditions (F 217993)

The **OPCUA32 driver** now supports communication of event reports of an OPC UA server for alarms and conditions, for example. The call-up of OPC UA methods is now also supported, such as for the acknowledgment of OPC UA alarms, for example.

Two new driver object types were implemented for this.

▶ **Event notifier** driver object type
Variables of this type contain the content of the received events as a JSON string. The parameters for the fields that are taken into account for the subscription of the event notifier are set in the new **Select clauses** variable property.

▶ **Method** driver object type
Variables of this type can trigger a method call by writing a JSON string. The method that is called and the arguments of the method are encoded in the written string value.

After a successful subscription for an *EventNotifier*, the **OPCUA32 driver** automatically requests a *ConditionRefresh2* method. The *ConditionRefresh* method is called if the OPC UA server does not support *ConditionReferesh2*.

In order for the new driver object types to be available in the driver, the driver configuration must be open and closed with **OK**.

## 4.9.3.12 S7TIA

### OPTIONALLY OVERWRITE EXISTING VARIABLES DURING ONLINE IMPORT (F 214311)

When importing variables online, you can overwrite existing variables with the variables from the PLC during configuration inEngineering Studio.

In the output window for Engineering Studio the output messages are displayed, summarizing the online import.

In the variable selection dialog for import, the **overwrite variables** option can be activated. In doing so, the key is the variable name.

### OPTIMIZED READING OF ARRAYS (F 214306)

The **S7TIA driver** now supports optimized reading of array variables. The driver reads in optimized mode by default if variables have been imported from the controller or from the TIA project. Optimized reading is not possible with the **Symbols from precompiled file** option.

### SUPPORT FOR SOFTWARE UNITS (F 237601)

The **S7TIA driver** now also supports software units for communication and variable import.

### SUPPORT FOR TIA17 (F 242299)

The **S7TIA driver** has been amended to the current TIA version 17. As a result, TIA17 projects and pre-compiled TIA17 files can be used with zenon and variables can be imported.

## 4.9.3.13 stratonNG driver (F 249062)

### STATUS BITS T_INVAL (49) AND T_UNSYNC (53)

When changing the value of a Logic Service variable the **stratonNG driver** also uses the status bits for the quality of the variable's timestamp: **T_INVAL (49)** and **T_UNSYNC (53**.

## 4.9.3.14 SYSDRV - driver for system variables

The following enhancements have been implemented for the **system driver**:

## 4.9.3.14.1 New system driver variables for alarms and events (F 228824)

The following new system driver variables have been implemented for the **driver for system variables**:

**Alarms:**

  ▶ [Alarms] Data Storage: Storage status

  ▶ [Alarms] Data Storage: Time of last successful storage

  ▶ [Alarms] Continuous Data Storage export: Storage status

  ▶ [Alarms] Continuous Data Storage export: Time of last successful storage

  ▶ [Alarms] Continuous SQL export: Storage status

  ▶ [Alarms] Continuous SQL export: Time of last successful storage

  ▶ [Alarms] SQL: Storage status

  ▶ [Alarms] SQL: Time of last successful storage

**Events:**

  ▶ [Events] Data Storage: Storage status

▶ [Events] Data Storage: Time of last successful storage

▶ [Events] Continuous Data Storage export: Storage status

▶ [Events] Continuous Data Storage export: Time of last successful storage

▶ [Events] Continuous SQL export: Storage status

▶ [Events] Continuous SQL export: Time of last successful storage

▶ [Events] SQL: Storage status

▶ [Events] SQL: Time of last successful storage

### 4.9.3.14.2 [Alarms] Number of shelved alarms (S 244264)

This system driver variable shows the number of currently shelved alarms.

### 4.9.3.14.3 [HW resources] available for server (F 236459)

The system driver variables for the display of the hardware resources have been enhanced. They now also output the corresponding values for the server.

### 4.9.3.14.4 Last completed recipe

There are new system driver variables available, which give the last completed recipe:

▶ **[Batch Control] Last finished control recipe: Batch identifier from IDs**

▶ **[Batch Control] Last finished control recipe: Batch identifier from name**

▶ **[Batch Control] Last finished Master recipe: Batch identifier from IDs**

▶ **[Batch Control] Last finished Master recipe: Batch identifier from name**

▶ **[Batch Control] Last finished Master recipe: ID**

## 4.10 Tools

### 4.10.1 COPA-DATA PRP supports gigabit (F 245943)

The PRP configuration and diagnose tool now also supports 1-gigabit Ethernet connections.

In addition, the new **Entry forget time** option was added in the configuration dialog. This option can be used to amend the monitoring of the speed of the respective computer network connections.

## 4.10.2 File Inspector (F 247533)

The new **File Inspector** tool is used for system diagnosis and troubleshooting. To this end, the tool uses LOG files created by components of the zenon Software Platform and binary data created by Service Engine during operation.

## 4.10.3 Startup Tool

### 4.10.3.1 Start components via the command-line interface (F 236660)

Components of the zenon Software Platform can now be started using command-line parameters of the Startup Tool. The new parameters **-start** and **-force32** were added for this. The version is registered automatically if necessary.

### 4.10.3.2 Set parameters for encrypted communication for the zenon network (F 244244)

Communication in a (redundant) zenon network between **Server(s)** and **Client(s)** as well as communication between **Smart Server** and **Smart Clients(s)** can now also optionally be protected with TLS.

The parameters of the certificates are set in the Startup Tool. The **Encrypt network communication** option group in the **Application settings** dialog of the **Network configuration** tab has been revised for this.

### 4.10.3.3 New tab for Web Visualization Service in the Startup Tool (F 191662)

For the **Web Visualization Service**, the settings for the connection in the network can now be configured in the **Startup Tool**. The new **Web Visualization Service** tab was implemented for this.

## 4.10.4 System Information Collector - SIC

### COMMAND LINE CALL OF SELECTED FUNCTIONS (F 246805, S 246894)

Selected functions of the **System Information Collector** are available as a command-line call from version 11.

As a result, information from the **SIC** can be collected automatically, with a simple .BAT file for example.

**INFORMATION ABOUT ACTIVE CONNECTIONS CONTAINS PID (F 246805, S 246882)**

The information gathered by the SIC about the active connections now also contains the process ID. The call used in previous versions for analysis **netstat** *-a -b -n* has been replaced with the call **netstat** *-a -b -n -o* for this in version 11.

## 4.11 Wizards

### 4.11.1 Metadata Synchronizer enhanced with dynamic limit value texts (F 248466)

The **Metadata Synchronizer** now also takes dynamic limit value texts into account.

### 4.11.2 Waterfall chart improved (F 244897)

Display and configuration of the waterfall diagram have been improved in the wizard and WPF element.

**WIZARD**

In the **Meaning and Waterfall Chart Wizard**, the configuration of the Chart for **Machine** has been revised:

▸ The bars can now be rearranged by dragging & dropping in the Chart.

▸ The complete variable names are displayed for each bar with a mouse-over.

▸ There is a context menu available for the deletion and recoloring of bars.

**WPF ELEMENT**

In the WPF, it is now possible to configure whether the WPF calculates the value for the last bar or uses the value of the linked variable.
The **zenonCalculateLongBars** Property    has been introduced for this.

## 4.12 zenon Logic

### 4.12.1 Release notes zenon Logic 11

The following chapters contain information to the new features of zenon Logic 11.

### 4.12.2 Logic Service available on Linux

Logic Service is supported for Linux for different processor architectures like **ARM**, **x86** and **x64** now.

**Example:**    Logic Service on **Ubuntu 20.04** (**x64**)

### 4.12.3 Fieldbus drivers

## 4.12.3.1 Driver configuration parameters available in English only (F 243115)

The configuration parameters are available in English language only now.

Some options, properties or buttons might be displayed in the language of the operating system.

## 4.12.3.2 CAN Bus

Please find all CAN Bus enhancements in the chapters below.

## 4.12.3.2.1 CAN Bus supports message forwarding (F 240193)

Incoming messages can be forwarded now to other ports via the new properties:

▶    **All messages to port(s)** / Port Level

▶    **To port(s)** / Message Level

Additionally it is possible to use the new property **Substitution ID**. This ID will be used instead of the message ID to forward the message.

## 4.12.3.2.2 CAN Bus supports CAN FD (F 241119)

The CAN Bus driver supports CAN FD (CAN Flexible Data Rate) now.

The length of message data has been increased to 64 bytes.

### 4.12.3.3 EtherNet IP scanner

Please find all EtherNet IP scanner enhancements in the chapters below.

### 4.12.3.3.1 Enhanced import of EDS-files (F 202082)

The EtherNet IP scanner supports the import of EDS-files with no defined assemblies from defined connection points.

The settings can be defined in the new **Import from EDS** dialog.

### 4.12.3.3.2 New property to declare IO assemblies (F 243253)

The new property **Declare IO assemblies** is available now in the Master/port configuration dialog.

Some devices with explicit messaging have no IO connection.

In this case ist is possible to declare a server in the configuration with no assembly via the new option.

### 4.12.3.4 IEC 61850 Server + Goose

**SUPPORT FOR SETTING GROUPS (F 21849)**

The **IEC 61850 Server** now provides support Setting Group Management. Application code needs to be created in the program for proper setting group handling.

**SECURE MMS AUTHENTICATION (S 205362)**

The **IEC 61850 Server + Goose** supports secure MMS communication with MMS authentication, according to according to **IEC TS 62351-4:2007** or "compatibility mode" in **IEC 62351-4:2018**.

**NEW DRIVER-SPECIFIC FUNCTIONS (S 226257)**

The IEC 61850 S Fieldbus driver supports two new functions:

▸ **IEC61850S_READCONTROLBLOCK**

▸ **IEC61850S_WRITECONTROLBLOCK**

These functions can be used to read or write an element of an IEC61850 Control Block.

**SUPPORT FOR SIMULATION MODE (F 239149)**

The IEC 61850 Server is enhanced with support for GOOSE simulation both as a IEC 61850 GOOSE publisher and a IEC 61850 GOOSE subscriber. This implementation is standard-conform to *IEC 61850-7-1 ed2.0 - part 7.8.*

▶ Support for *Sim.stVal*

▶ Setting of Simulation bit by GOOSE publisher

## 4.12.3.5 IEC 60870-5-101/104 Slave

The **IEC 60870-5-101/104 Slave** fieldbus driver was enhanced with the following improvements.

## 4.12.3.5.1 Secure Authentication (F 209947)

The **IEC 60870-5-101/104 Slave** fieldbus driver supports Secure Authentication according to IEC 60870-5-7 and IEC TS 62351-5.

This implementation includes:

▶ Configuration of Secure Authentication
The Secure authentication can be configured on a per sector-basis.
**Notice:** For the use of Secure Authentication, one dummy variable per sector must be created. Variables addressing and functions are are generally defined using **profiles**.

▶ Security statistics to the master (**ASDU** *41*) - for association *0* - are sent as a response to a counter interrogation command.
All statistic values will be sent automatically to the master spontaneously, when the configured threshold for a specific statistic value is reached. It is not necessary to configure ASDU 41 profile variables.

▶ Local security statistics can be configured as variables with Type ID *41* in the profile. This configuration is valid for all masters.

▶ Use of Secure Authentication with a pre-shared Update Key.

▶ Support for Aggressive Mode messages (following IEC 62351-5 7.2.8.5):

  ▶ **S_AR_NA_1** (*ASDU 83*) for critical functions when aggressive mode is enabled

  ▶ When aggressive mode is disabled, on receive of **S_AR_NA_1** (*ASDU 83*) an error is returned - **S_ER_NA_1** (*ASDU 87*) - error code *4*.

**Note:** Remote Update of the Update Key is not supported.

## 4.12.3.5.2 Configured masters - diagnostic information (F 234475)

Each master (TCP/IP as well as serial) allows retrieving T00 IOA ASDU values with diagnostic information.

The new driver-specific function **IEC60870S_GetInternalStatusValue** retrieve internal **T00** status variables from different devices and sectors. This offers various information, e.g. connection state of the master, information on buffer overflow and more.

## 4.12.3.5.3 Communicate only on GI (F 207356)

The **IEC60870-5-101/104 slave fieldbus driver** supports a configuration that values are only communicated once during a general interrogation (GI).

This was realized with the new property **Only at GI** in the variable configuration in the IEC60870S2 profile.

If this property is selected, no more current data is communicated.

## 4.12.3.6 MODBUS

## 4.12.3.6.1 32 bit variables can be mapped on two consecutive words

For exchanging 32 bit variables (*DINT*, *REAL*...) you can select to map the variable on two consecutive words now.

- ▸ *STRING* variables are supported only if a "string" data format is specified.
- ▸ 64 bit variable (*LINT* and *LREAL*) cannot be extracted directly without lost of accuracy or data.

## 4.12.3.7 OPCUA Server

## 4.12.3.7.1 "URI" and "Security Check" available for OPCUA Server (F 244840)

Two new options are available now:

- ▸ **URI:** Used for the certificate authentication. It must be the same as the one configured in the **Subject Alternative Name** of the server certificate.
- ▸ **Security Check**: Allows to define a level for the check of the certificate (*0 - 3*).

### 4.12.3.8 Profinet IO controller (2021) implementation (F 242952)

A new Profinet controller driver with the following features has been implemented:

▶ enhanced slot configuration dialog design

▶ the MinDeviceInterval parameters from the GSDML file are considered in the "check procedure" of the compilation

▶ possibility to select another GSDML file, when a file has already been loaded

▶ new property **Do not send SET IP request**

## 4.12.4 Programming Environment

### 4.12.4.1 New system definition for the project name as a STRING (F 236815)

The new predefined string value **__APPNAME__** represents the project name.

### 4.12.4.2 View of Selection dialog definable via property setting (F 239206)

In the editing programs context the view of the **Selection dialog** can be defined now via the new property **Variable selection box: use list of suggestions**.

The property setting can be changed at **Tools**, **Options...** and **Editing**.

Checkbox of the property is:

▶ *active*: The dialog does not show the tree view, but a list with the prefix entered in the textfield. If the dialog is opened in context with the ST language, the list also includes language keywords and system functions.

▶ *inactive*: The dialog shows the tree view, the Variables drop-down menu and the properties **Local variables only** and **Hide FB instances**.

### 4.12.4.3 ST Language accepts "/*" comments too (F 247032)

The ST Language supports comment texts beginning with "/*" and ending with "*/" too.

### 4.12.4.4 New option to enable or disable warnings one by one (F 244358)

Warnings can be enabled or disabled now one by one in the corresponding program code or in the Global or Local Defines via:

‣ #warning_on (identifier)

‣ #warning_off (identifier)

The identifier is the number of the LOG Message (see Output window).

### 4.12.4.5 New option to define different setting modes (F 243950)

The dialog allows to define and save different setting modes. The default settings can be copied and renamed to be used as base for further setting configurations.

The name of the active setting mode is displayed in the **Project settings** dialog above the **Setting modes** button.

### 4.12.4.6 Support of Bit Fields derived from 64bit integers (F 242000)

Bit Fields derived from 64bit integers are supported now too.

### 4.12.4.7 Ungroup all variables of a group with one command (F 236815)

Grouped variables can be ungrouped now via the context menu entry **Ungroup Variables**, if the corresponding group is selected.

### 4.12.4.8 New option to define extra columns in the Variable Editor (F 245455)

Additional predefined columns can be modified as desired via the new **Arrange columns** dialog.

The dialog can be opened via a click on the filter symbol in the Variable Editor.

### 4.12.4.9 Array size has been expanded to 10000000 elements (F 245681)

The total number of items in an array (merging all dimensions) has been expanded to 10000000 elements. This amount    cannot be exceeded. The possible range of Arrays reaches from *ArrayName[0]* until *ArrayName[9999999]*.

### 4.12.4.10 Alias declared as global define can be used as variable name (F 242285)

An alias declared as global define can be used now as variable name in a fieldbus configuration.

It can replace a full variable name or an array element.

### 4.12.4.11 Soft oscilloscope displays variable status bits (F234878)

The soft oscilloscope is able to display the variable status bits now in an own dialog.

The **View status bits** dialog can be opened via a click on the symbol **View status bits...** in the vertical menu bar.

### 4.12.4.12 Content preview for graphical objects nodes (F 244265)

Via a click on the desired node the preview of the corresponding graphical objects is available at the bottom of the window.

The size ratio of the nodes tree view and the preview is saved and is available again the next time the preview is opened.

### 4.12.4.13 New graphical object Rotary Switch is available (F 244265)

This object combines a rotary button and multi bitmap object. It allows user to create several values with an angle for each of them and a bitmap.

The view can be defined via the property **Aspect**:

▶ *SCALES_ONLY*

▶ *BITMAPS_ONLY*

▶ *BOTH_SCALES_BITMAPS*

The **Graduations** dialog allows to define possible values (i.e. 0 to 3), an angle for each of them (i.e. steps of 90°) and one bitmap for each value.

### 4.12.4.14 New options to align graphics vertical and horizontal (F 244265)

Two new options have been added in the toolbar of the watch window for graphic monitoring:

- ▸ **Center vertical**: Aligns the selected items vertical.
- ▸ **Center horizontal**: Aligns the selected items horizontal.

## 4.12.4.15 New Graphic object property for continuous value sending (F 244231)

The property **Writing delay [ms]** allows to define a time span in milliseconds for the sending of the variable value while draging the slider position with a click on the mouse.

**Hint:** The property is available for Sliders and Rotating buttons.

## 4.12.5 Tools

## 4.12.5.1 Graphic export via HTML based Monitoring tool (F 226259, F 236815)

The export of graphics as HTML5 file can be done now via a Wizard.

Select the property **Export graphic as HTML5 file** in the **Select Export Type** dialog and define the desired settings in the following dialogs.

## 4.12.5.2 HTML5 Monitoring Application available (F 226259, F 201873)

A HTML5 Monitoring Application is available now via the menu bar entry **Tools** and **Build Monitoring Application...**.

Select the property **Generate HTML5 (requires JSON Data Server)** in the **Generate Monitoring Application** dialog.

Define your desired settings in the following dialogs.

### HTML MONITORING SUPPORTS FAST FILE TRANSPORT USING SFTP

SFTP is used now for a fast file transport in the HTML monitoring.

The tool checks automatically, if the files to be transferred already exist there.

A new popup dialog allows:

- ▸ to overwrite all the files on the Remote Server or to
- ▸ not overwrite the existing files on the Remote Server, but to upload the files that do not exist yet there or to

- ▶ stop the upload process

### 4.12.5.3 HTML5 Monitoring Application component selection (B 250418)

If the checkbox of a component folder is unchecked in the **Export Project for WEB Monitoring** dialog, all elements contained in it are also unchecked.

### 4.12.5.4 SCL editor supports adding, removing and copying of IEDs (F 230756)

Via new context menu entries it is possible to add, remove and copy IEDs in the SCL editor:

- ▶ **Delete**: removes the entire IED
- ▶ **Duplicate IED**: allows to duplicate the selected IED
- ▶ **Add New IED**: allows to add a new IED in the tree. The name is set by the program automatically.

**Hint:** This allows to create substation descriptions for test purposes.

## 4.12.6 Function Blocks

### 4.12.6.1 New function block OSSHELL (F 236793)

Via the new function block it is possible to run a shell command line.

**Hint:** This function block may be not available on some platforms. Refer to your OEM for more details.

### 4.12.6.2 New function blocks ISINF(L) and ISNAN(L) available (F 239592)

The following function blocks are available now in the Maths folder:

- ▶ **ISINF** for *REAL* input values
- ▶ **ISINFL** for *LREAL* inputs values
- ▶ **ISNAN** for *REAL* inputs values
- ▶ **ISNANL** for *LREAL* inputs values

The function blocks **ISINF** and **ISINFL** are checking if the input value is infinite.

The function blocks **ISNAN** and **ISNANL** are checking if the input value is not a number.

### 4.12.6.3 MIN and MAX function blocks accept a non fixed number of Inputs (F 238380)

The **MIN** and the **MAX** function blocks are resizable in LD and FBD Language now.

The amount of Inputs can be entered in the **Select** dialog of the corresponding function block.

In the ST Language a variable number of arguments is supported too.

### 4.12.6.4 IEC 61850S - new driver-specific functions (S 226257)

The IEC 61850 S Fieldbus driver supports two new functions:

▸ **IEC61850S_READCONTROLBLOCK**

▸ **IEC61850S_WRITECONTROLBLOCK**

These functions can be used to read or write an element of an IEC61850 Control Block.

### 4.12.6.5 IEC61870 Slave - driver-specific function (F 234475)

The **IEC 60870-5-101/104 Slave** fieldbus driver get a new function:
**IEC60870S_GetInternalStatusValue**.

By retrieving values from internal **T00** status variables from different devices and sectors this function offers information about connection state of the master as well as information on buffer overflow and more.

## 4.13 Important information

### 4.13.1 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 the „**AddRef"**" is not called up, this leads to Service Engine crashing completely. A release must also be performed in the „**zenonExit"**" event.

### 4.13.2 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.

### 4.13.3 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.

### 4.13.4 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.

### 4.13.5 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
- ▶ Standard Recipes
- ▶ User administration
- ▶ Production & Facility Scheduler or Scheduler
- ▶ Process Gateways

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: **Changeable files in Service Engine**. 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  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  Requirements

The following prerequisites are applicable for work with Report Engine:

### REPORT ENGINE SERVER: HARDWARE AND SOFTWARE

### HARDWARE

**Report Engine Server:**

| Parameters | 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:**

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

### SOFTWARE

**Report Engine Server:**

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

▶    Windows Server 2022 (all editions with the exception of Core)

- ▶ Windows Server 2019 (all editions with the exception of Core)
- ▶ Windows Server 2016 (all editions with the exception of Core)
- ▶ Windows 10 Professional 64-Bit
- ▶ Windows 10 Enterprise 64-Bit
- ▶ Windows 11 Professional 64-Bit
- ▶ Windows 11 Enterprise 64-Bit

**Engineering computer:**

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

- ▶ Windows Server 2022 (all editions with the exception of Core)
- ▶ Windows Server 2019 (all editions with the exception of Core)
- ▶ Windows Server 2016 (all editions with the exception of Core)
- ▶ Windows 10 Professional 64-Bit
- ▶ Windows 10 Enterprise 64-Bit
- ▶ Windows 11 Professional 64-Bit
- ▶ Windows 11 Enterprise 64-Bit

**Web browser:**

- ▶ Internet Explorer 11 (up to and including Windows 10 and normal view only)
- ▶ Internet Explorer 10 (up to and including Windows 10 and normal view only)
- ▶ Edge
- ▶ Chrome
- ▶ Firefox

    **Note:** Zooming in the report is only possible with Chrome and Edge.

**Recommended HMI/SCADA system:**

- ▶ zenon 11

**.NET Framework 4.8:**

- ▶ .NET Framework 4.8 must already be executable on the target computer in order to carry out 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 the Report Engine server

- ▶ 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**
>
> Archive data can only be evaluated if the variables and archive configuration are in the same project.
>
> 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.

### 5.1.1 Updates for all components (F 240104)

Updates (build setups) are offered for all installed components together from version 11. When starting a build setup, you get information about which components on which version will be amended.

## 5.2 Automatic Connector (F 247128, 241520)

The data query is has now been simplified by the new automatic connector. This is now used as the default connector.

The Automatic Connector reads as much data as possible. In doing so, it combines different connectors.
The following applies:

▶    Service Engine load must be avoided.

▶    The data must be complete and current.

▶    Smallest distance from the database for best performance.

**Display of the data combination:**
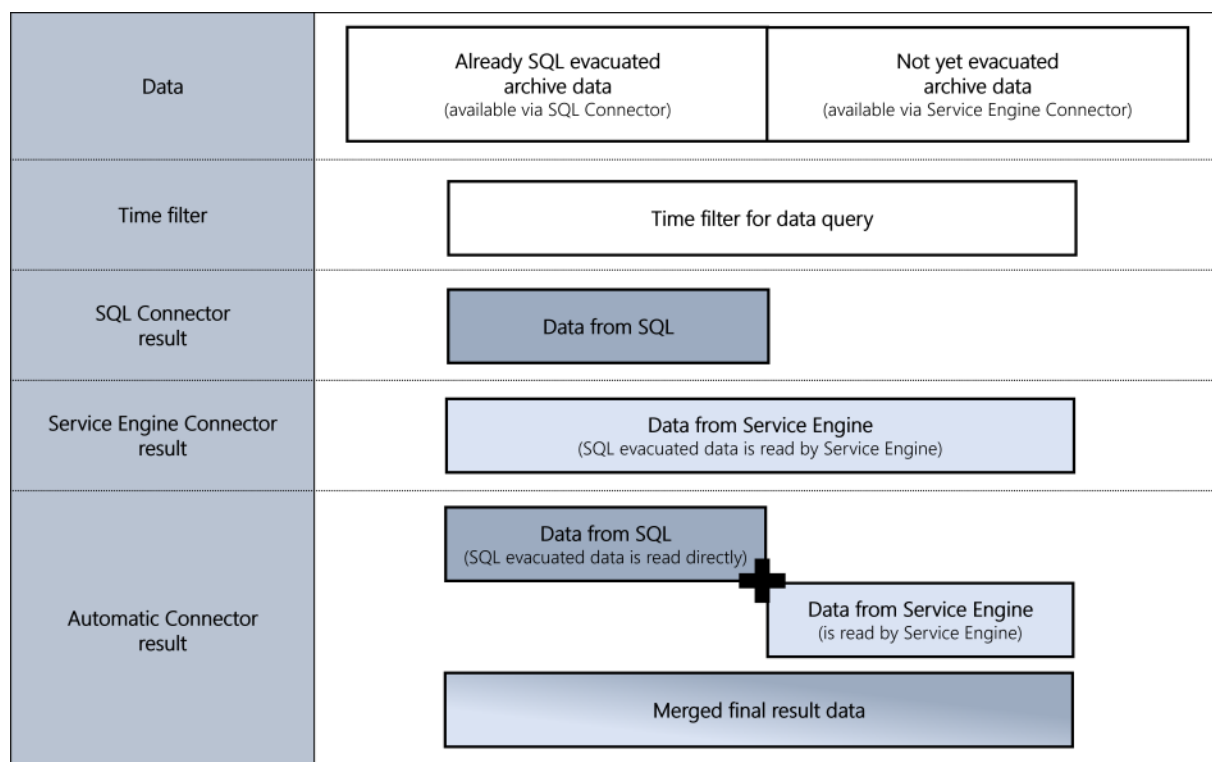


The data sources are queried in a defined sequence

**Query of data sources for AML and CEL:**

1.    SQL continuous export

2. SQL internal file format

3. Service Grid Data Storage internal file format

4. Service Grid Data Storage continuous export

5. SQL export function

6. Service Engine

**Query of data source for archives and lots:**

1. SQL

2. Service Grid Data Storage

3. Service Engine

**Query of data sources for shift and context list:**

1. SQL

2. Service Engine

**Data source for current variable value:**

▶ Service Engine

## 5.3 Report Engine Service Node interface logging removed (bug 249461)

The logging was removed in the Report Engine Service Node interface. Logging continues to be available via the Diagnosis Viewer however.

## 5.4 Metadata Synchronizer

### 5.4.1 Metadata Synchronizer - verification of projects And archives (F 241520)

The Metadata Synchronizer also verifies the following on transfer:

▶ for projects:

  ▶ Is there at least one AML SQL export function?

  ▶ Was continuous export for AML SQL export activated?

  ▶ Is there at least one CEL SQL export function?

  ▶ Was continuous CEL SQL export activated?

▶ for archives:

> ▶ How is the archive evacuated to SQL?

> ▶ Is the archive evacuated to Service Grid Data Storage?

## 5.4.2 Metadata Synchronizer enhanced with dynamic limit value texts (F 248466)

The **Metadata Synchronizer** now also takes dynamic limit value texts into account.

# 5.5 Reporting Studio

## 5.5.1 Service Node dialog was divided up (F 246604)

The previous **Service Node Interface** dialog has been renamed to **Service Node** and divided up. It now contains a drop-down list with the following entries:

> ▶ **Service Node Interface**: Here you configure

>> ▶ **Service Hub**

>> ▶ **Identity Service**

>> ▶ **Data Storage**

> ▶ Service Node configuration: here you configure the objects that are to be provided:

>> ▶ Reports

>> ▶ SQL elements

>> ▶ Prediction models

# 5.6 Wizards

## 5.6.1 Meaning and waterfall chart wizard improved (F 244897)

In the **Meaning and Waterfall Chart Wizard**, the configuration of the Charts for **Machine** has been revised:

> ▶ The bars can now be rearranged by dragging & dropping in the Chart.

> ▶ The complete variable names are displayed for each bar with a mouse-over.

> ▶ There is a context menu available for the deletion and recoloring of bars.

## 5.7    Report templates

### 5.7.1  Display of time duration (F 248566)

The following reports now enable the selection of how the event duration is displayed.

| Display format available in | Charts | Tables |
|---|---:|---:|
| Seconds | X | X |
| Minutes | X | X |
| Hours | X | X |
| Days | X | X |
| Seconds as formatted character sequence: *[d]d [h]h [m]m [s]s* | -- | X |
| Milliseconds as formatted character sequence: *[d]d [h]h [m]m [s].[fff]s* | -- | X |
| Microseconds as formatted character sequence: *[d]d [h]h [m]m [s]s.[ffffff]s* | -- | X |

Detailing is possible for:

▶  Theme Alarm and Event Analysis

  ▶  All top N alarms

  ▶  All alarm aggregations

▶  Production Analysis Line Based:

  ▶  All Gantt chart reports

▶  In addition, all report templates that allow the combining of time duration.

  Topics:

  ▶  Custom Formula Analysis

  ▶  Advanced archive analysis (exception: relative trends with archive aggregation and relative trends with limits)

  ▶  Archive analysis (exception: Historian distribution)

  ▶  Predictive analytics (time-based reports only)

  ▶  Target-actual analysis (is used in other themes)

All other time periods are applied directly from variables from Service Engine. These time periods cannot be amended for output.

## 5.7.2 Additional columns for alarms, N last alarms and events (F 249356)

Columns for **description**, **identification** and **resource identification** from the metadata variables can now be displayed in tables for the following report templates:

- **Alarm List**
- **N last alarms**
- **Event List**

**Identification** is displayed by default.

# 5.8 Report Engine

Changes in Report Engine 11:

## 5.8.1 Supported browsers (F 246217, 246048)

The browser that has been configured in the operating system as the default is the browser that is used by default.

**The following are supported as a default browser:**

- Internet Explorer 11 (up to and including Windows 10 and normal view only)
- Internet Explorer 10 (up to and including Windows 10 and normal view only)
- Chrome
- Firefox
- Edge

## 5.8.2 Reading of historical data from Data Storage (F 241520)

The Service Grid client can load the following data from the **Data Storage**:

- Archives
- Lots
- AML
- CEL

# 6 Service Grid

This document contains information on new features and changes for Service Grid.

## 6.1 Service Grid 11

Information on new features and changes for Service Grid.

### 6.1.1 New symbols for Service Grid applications (F 249953)

The symbols for Service Grid applications, services and tools have been modernized and redesigned for version 11. This amendment is applicable for all components of the complete zenon software platform.

### 6.1.2 "localhost" for Service Grid Studio permitted (S 248400)

As of Version 11, Service Grid Studio can also be called with *localhost:9450*. This applies both for Service Grid in a Docker environment as well as for Service Grid on Windows.

To do this, create an HTTPS certificate for the domains *localhost* in **Platform Configuration**.

### 6.1.3 Service Node Configuration Tool - alternative login (F 247783)

Web-based login is also possible for the connections from version 11. The input of the access data in the **Connection** tab of the dialog was revised for this. There are two login methods available:

- ▶ **Compatibility login (Service Grid 10.3 and earlier)**
  Entry of user name and password. Setting of parameters in the Service Node Configuration Tool.
  The SNCT then logs the user into the **Identity Service**.

- ▶ **Web login (Service Grid 10.4 and later)**
  Opens the **Identity Service** web interface:

  - ▶ If the user is already logged into the **Identity Service**, the Client Certificate Bundles are created for the clients immediately.

  - ▶ If the user is not yet logged into the **Identity Service**, it is necessary to log in to the **Identity Service** web service first.

### 6.1.4  zenon diagnosis system in Docker environment (F 247981)

The **Diagnosis Server** is also available for Linux Docker. Service Grid LOG entries and evaluation has thus been integrated into the diagnosis system of the zenon product family from version 11.

This application is also contained in the current Docker image.

## 6.2  Service Grid 11.1

Information on new features and changes in the Service Grid 11.1.

### 6.2.1  Device Management

The new **Device Management** service is available as of Version 11.1. This service allows zenon projects to be distributed over devices.

The following is applicable here:

▶ The configuration of the distribution (= deployment) is configured in Service Grid Studio. This configuration includes scheduling as well as the allocation to devices.

▶ The preparations for the software package are carried out in Engineering Studio. To do this, a software package for **Device Management** is created based on the current zenon project and transferred to **Device Management**.

▶ The **Device Agent** enables the deployment to the devices. Software packages can be delivered to all devices on which the **Device Agent** is running as the registered service. Both Windows operating systems as well as Linux and Raspberry are supported as devices.

### 6.2.2  Platform Configuration (F 250162)

The platform configuration has been modified. As of Version 11.1, existing certificates can be reissued. For this purpose, the graphic interface in Service Grid Studio has also been modified.

### 6.2.3  Revised dialog "New Client" (F 249953)

The dialog for creating a new client in Service Grid Studio **Identity Management** has been revised:

When adding a new client, **Identity Management** now offers the option to create a Service Engine client or a custom OAuth2 client. The subsequent dialogs thus offer additional configuration fields based on the selection made.

### 6.2.4 Service Grid supports zenon logging (F 247981)

Service Grid Services now also use the zenon LOG Server component **Diagnosis Server** for logging when running in a Docker environment. The desired LOG levels can be changed while the services are operating with the help of the **Diagnosis Viewers**.

## 6.3 Service Grid 11.2

This document contains information on new features and changes in the Service Grid 11.2.

### 6.3.1 Central Service Grid URL (F 250153)

As of version 11.2, the individual services of Service Grid are addressed using a central URL. The addressing of services was by means of port numbers in previous versions. The default port number for Service Grid is *9443*. This port number can be amended by means of configuration.

If the central Service Grid URL is entered in a web browser, Service Grid Studio starts.

**COMPATIBILITY NOTE - SERVICE GRID V 11.2**

The following is applicable in order to work seamlessly with a zenon installation with Service Grid:

▸ Service Engine or Engineering Studio in version 11 communicate with Service Grid version 11.2 or higher:
Build *111398* or higher for Service Engine or Engineering Studio must be installed.
The following configurations must also be amended:

  ▸ **Service Node Configuration Tool**
When entering a **Connection** setting, add the */hub-controller* sub-path to the central URL.
**Example:** *https://hostname.local/hub-controller*

  ▸ Configuration in Engineering Studio
The same URL is used for **Identity Service** and **Data Storage**. The URL of the corresponding properties must be configured as URL + port.
**Examples:**
URL for **Identity Service** (**Network** property group, **Service Grid - Identity Service**, property: **URL**)
URL for **Data Storage** (**Network** property group, **Service Grid - Data Storage**, property: **URL**)
*hostname.local:9443*