zenon
by COPA-DATA

zenon manual

Release Notes zenon Software Platform 14

v.14

Table of contents

1 Welcome to COPA-DATA help

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.

LICENSES AND SERVICES

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

2 Release Notes

Information on changes in zenon Software Platform version 14.

> **Information**
>
> The information contained in these release notes is valid as of March 20, 2024.

3 General

Information on new features and enhancements for the entire zenon Software Platform.

This node provides an overview of new features, changes and improvements since Version 12. Where necessary, this node also contains compatibility notes.

The information contained in these release notes is valid as of February 29, 2024.

3.1 ID for release note entries

The text contains notes about the basis on which changes were made. They consist 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.

3.2 Update .NET to Version 8

Applications of the zenon software platform based on .NET have been updated to .NET Version 8.

This applies to all services, apps, drivers and components of the entire zenon software platform. The components of Service Engine for Linux have also been updated. In addition, all Docker images have also been updated to .NET 8.

3.3 New structure of the Help

The Help has been restructured.

The main focuses of the restructuring were the platform concept and a less app-oriented structure. The new structure is now more oriented towards the challenges of automation technology.

In addition, more cross-references have been added to reduce redundant information.

3.4 Compatibility mode - Supported services (F 259920)

For version 14, selected functionalities are no longer available by default for configuration in Engineering Studio.

The listed services and functionalities can be activated service-specifically in the new **Compatible services** property in the **General** project properties group.

Note: Changes to the configuration of this property are not applied immediately. Reload the project in Engineering Studio to apply the changes to the compatible services for your configuration.

When converting projects from previous versions, the corresponding service is automatically activated during the project conversion.

The following services and functionalities are only available in compatibility mode:

- dBase
  Exception: The dBase file format is always available for extended variable import or export, regardless of whether this service is activated or deactivated.
- **Everywhere Server**
- **Industrial Performance Analyzer**
- Online printing functionality for all zenon services
- Programming Interface COM and PCE
- **Report Generator**
- Screen elements
  - Control elements of various screen types from the respective **Compatible elements** group.
  - Different characteristic of the dialog for the **Screen switch** to a **Recipegroup Manager** type screen.

- Availability of the **With brightness values**, **Brightness outside** and **Brightness inside** properties for screen elements of the type *ellipse/circle*, *segment of a circle* and *rectangle*.

- Screens
  - **Video** screen type
- **Service Engine Help**
- S7 Graph
- zenon network
  Redundancy type *Hardware* of the zenon network
- **Message Control**
  The **SMS message (SMS gateway)** property group has been removed from the **Message Control** workspace-property group in Engineering Studio. Properties of this group can only be configured via .INI entries.

3.5 OpenSSL - Update to Version 3.0 LTS (F 266891)

The OpenSSL library used by the zenon Software Platform has been updated to Version 3.0 LTS.

Attention: Configurations from previous versions that use the *.PFX* or *PKCS#12*certificate files with the old RC2 algorithm must be adapted in the current version 14 with new certificate files.

4 Installation and updates

4.1 Setup revised (F 261648)

The installation wizard has been revised. The design and content of the component selection packages have been adapted.

4.2 Build update IIoT Services (F 240104)

IIoT Services versions can already be updated as of version 12 when installing a zenon build update. In this case, an option for updating the IIoT Services version to the current version is offered when the setup is called.

The new command line argument **/UPGRADEIIOTSERVICES** is available for upgrading IIoT Services. During the update, a silent installation of the IIoT Services setup is carried out with the argument **CDP_NOREBOOT** without rebooting. The restart must be performed manually.

4.3 Harden installation - User permissions (F 261648)

If the **Harden installation** option is activated, the user permissions for the zenon project folders are now also restricted.

A new **SoftwarePlatformAccess** user group is created during installation if the **Harden installation** option is activated.
Members of this group are:

- the currently logged-in user
- the **SYSTEM** user
- the **LOCAL_SERVICE** user

Access to the zenon project folders is restricted to members of the **SoftwarePlatformAccess** and **Administrators** groups.

Setting permissions for files and folders takes effect immediately. The token for access by the user currently logged in is not updated. This means that the new permissions only take effect when the user logs in again. The setup requests a restart at the end of the installation to force the current user to log out and log in again.

4.4 Setup - Extended options for IIoT Services updates (F 250975)

When installing zenon, existing IIoT Services components can now also be replaced. The already available buttons for licensing and configuration can now also be used to customize existing installations.

4.5 SQL Server 2022 (F 259293, 270051)

As of version 14, SQL Server 2022 is used for zenon Engineering Studio .
Note: Create backups in the previous version for all projects that you want to transfer. Before creating this backup, decide whether you want to read Service Engine files back into Engineering Studio.

4.6 Silent installation - New parameter for alternative path to workload (F 250975)

A new parameter can now be used to specify an individual path and name of the configuration file for the workload during silent installation. The **CDP_WORKLOADCONFIG_PATH** parameter defines

where the workload files for the setup are located. If the parameter is not specified, the default storage location and the **WorkloadSetup.config**file are used.

Example:

CDP_WORKLOADCONFIG_PATH=*"C:\Users\User\Desktop\My Workload\workload.config"*

4.7 Update CodeMeter software to version 8.00 (S 273028)

The **CodeMeter** software used for licensing has been updated to version 8.00. The necessary components are included in the setup of the zenon software platform.

5 Engineering Studio

5.1 Confirmation dialog when changing the project or exiting Engineering Studio removed (F 272066)

The confirmation dialog for creating Service Engine files when changing the project in the workspace or when exiting Engineering Studio has been removed.

- Pending configurations are automatically saved.
- When a project is activated in the workspace, the new project is activated immediately.
- Engineering Studio is exited immediately.

6 Service Engine

6.1 Customization of configurable lists (F 265208)

The display of lists in the Service Engine has been updated.

SHOW BORDER LINES

For configurable lists, the **Display border lines** property is supported, which visualizes a frame for certain elements in Service Engine.

HEIGHT OF THE LIST HEADER CAN BE ADJUSTED

The height of the header of a list can be defined in the properties under **Header and grid** and **Height of the header [pixels]**.

FILTER ROW FOR LISTS CAN BE CONFIGURED

Filter rows for lists can now be configured to achieve a uniform appearance and behavior in Service Engine.

Example: The filter row for **Recipegroup Manager** type screens can now be configured.

AUTOMATIC WORD WRAP IS SUPPORTED

The **Automatic word wrap** property is supported and determines whether a line break is available for the text in a list.

Note: The property is always used in combination with the **Line height [pixels]** property.

6.2 Extended import/export of filter profiles (F 265711)

All screens with filter profiles have been extended:

- Element **Export**
  Exports the selected profile as an XML file
- Element Export all
  Exports all profiles as an XML file
- If conflicts arise during import, these are displayed in a dialog.

6.3 Behavior when zooming and scrolling with mouse wheel adjusted (F 256494)

The same behavior for zooming and scrolling with the mouse wheel is available for:

- Engineering Studio screens, symbols and Frame Editor
- Service Engine screens of **Worldview Overview** type
- Service Engine screens of **Extended Trend** (and **Web Visualization Service**)
- Service Engine **batch editor**
- Service Engine **command sequences editor**

6.4 Service Engine can optionally fetch files from the server when starting via CLI (F 262321)

Service Engine can now also optionally fetch files from the server if it is started via the **Command Line Interface** (**CLI**).

6.5 Registry entries for Keyblock Service Engine configurable (F 260019)

When starting or ending Service Engine when protected with a **Keyblock**, certain functions are blocked:

- Open task manager
- Lock computer
- Change password for user
- Switch Windows user
- Log out Windows user
- Close application
- Call system control

Their registry entries are overwritten for this. This can now be prevented by means of an entry in **zenon6.ini**. You can thus define which Windows registry entries are changed when starting or ending **Keyblock** Service Engine and which functions are available.

To do this, create and configure entries in **zenon6.ini** in the **[KeyblockServiceEngine]** section in the following format:

- **<RegistryEntryName>=***0*: **Keyblock** Service Engine cannot change the corresponding registry entry.
  The function is also present under **Keyblock** .
- **<RegistryEntryName>=***1*: **Keyblock** Service Engine creates the registration entry on starting and deletes it again on closing.
  Whilst **Keyblock** Service Engine is active, these functions are not available.

The default value is *1*. It is also applied if there is no corresponding entry in **zenon6.ini**.

The configuration in **zenon6.ini** is read when starting and initializing **Keyblock** Service Engine. Changes to the INI file when running are taken into account the next time **Keyblock** Service Engine is started.

7 Services

7.1 New Services

7.1.1 OpenDCS

7.1.1.1 TIA function blocks (F 266453)

The following TIA function blocks are available for the OpenDCS service:

- **AnaViewV1 TIA**
- **AnaManIntV1 TIA**
- **AnaManV1 TIA**
- **AnaMonV1 TIA**
- **AnaVlvV1 TIA**
- **AnaDrvV1 TIA**
- **BinDrvV1 TIA**
- **BinManV1 TIA**
- **BinManIntV1 TIA**
- **BinMonV1 TIA**
- **BinViewV1 TIA**
- **BinVlvV1 TIA**
- **DIntManV1 TIA**
- **DIntManIntV1 TIA**
- **DIntMonV1 TIA**
- **DIntViewV1 TIA**
- **LockView16V1 TIA**
- **LockView8V1 TIA**
- **LockView4V1 TIA**
- **MonAnaDrvV1 TIA**
- **MonAnaVlv1 TIA**
- **MonBinDirV1 TIA**
- **MonBinVlvV1 TIA**

- **PIDCtrlV1 TIA**
- **StringViewV1 TIA**

7.1.1.2 Smart Object Templates (F 266453)

The following Smart Object Templates (SOT) are available for the OpenDCS service:

- **AnaViewV1 SOT**
- **AnaManIntV1 SOT**
- **AnaManV1 SOT**
- **AnaMonV1 SOT**
- **AnaVlvV1 SOT**
- **AnaDrvV1 SOT**
- **BinDrvV1 SOT**
- **BinManV1 SOT**
- **BinManIntV1 SOT**
- **BinMonV1 SOT**
- **BinViewV1 SOT**
- **BinVlvV1 SOT**
- **DIntManV1 SOT**
- **DIntManIntV1 SOT**
- **DIntMonV1 SOT**
- **DIntViewV1 SOT**
- **LockView16V1 SOT**
- **LockView8V1 SOT**
- **LockView4V1 SOT**
- **MonAnaDrvV1 SOT**
- **MonAnaVlv1 SOT**
- **MonBinDirV1 SOT**
- **MonBinVlvV1 SOT**
- **PIDCtrlV1 SOT**
- **StringViewV1 SOT**

7.2 3D Integration

7.2.1 New function for browsing the equipment model structure (F 267319)

The new **Upwards Recursive** property influences the behavior of the execution of functions that are linked to the 3D model. If the property is activated, clicking on a component of the model searches for functions that are linked to higher-level equipment groups of the equipment model. The search is carried out until a node with linked functions is found. Then, the search is ended.

7.2.2 Inertia intensity for 3D model movements can be adjusted (F 269738)

The inertia intensity for 3D model movements can be adjusted using a slider.

To do this, go to the **Inertia** area in the **Configure Web Element** dialog.

7.2.3 Configurable light sources available (F 267420)

In the user interface of the **Configure Web Element** dialog, it is possible to configure light sources with the following properties:

- there is a separate light source for each direction
- only one light source can be used for each direction
- a maximum of four activated light sources can be used at the same time
- the color of each light source can be selected via a color palette
- the intensity of each light source can be changed using a slider
- each light source can be turned on or off individually

7.2.4 3D integration package (outdated) removed from scope of delivery (S 271938)

The **3D integration package** was already replaced by the **3D integration via ActiveX screen element with native Html host control container** in Version 12.

In the current version, the **3D integration package** has been removed from the scope of delivery of the zenon software platform. It can be requested from your sales partner if required.

7.3 Alarm Message List

7.3.1 Automatic deletion of binary files (F 256114)

For AML and CEL, the duration of storage of the binary files on Service Engine can be limited. You thus avoid overfilling the file system with data that is no longer currently needed for the operation of Service Engine.

To this end, the new **Automatically delete data** option has been implemented in the **AML storage configuration** and **CEL storage configuration** dialogs.

Recommendation: In this case, configure an additional storage location, such as an SQL database or a **Data Storage**, if permanent storage is required, but the computer of the Service Engine does not offer enough storage space. You thus have access to older files at all times.

7.3.2 Filtering of columns in AML & CEL (F 265245)

The **Alarm Message List** and **Chronological Event List** support the filtering of certain columns. Additional configuration options are offered for filtering: for instance, configurable color for text, background, background color of the filter row, etc.

7.3.3 External reference and Description columns are supported (F 265218)

Two new column types are now available for the **Screen switch** function on a **Alarm Message List** or **Chronological Event List** type screen:

- **External reference**
- **Description**

Both properties of a variable linked with the **Alarm Message List** or **Chronological Event List** can be configured in the **Filter** dialog of the **Screen switch** in the **Column settings** tab and displayed in the list.

7.3.4 Display of uncleared and unacknowledged alarms (F 264163)

In the Alarm Message List of Service Engine and in the **Web Visualization Service**, you can now filter for *uncleared* or *unacknowledged alarms*.

This filtering can be activated in the dialog of **Screen switch** on a **Alarm Message List** type screen in the **General** tab under the new options **Only unacknowledged alarms** and **Only uncleared alarms**.

7.3.5 Display of user-defined text for cleared alarms in the limit value text (F 260714)

By activating the **Text for cleared alarms** option in Engineering Studio in the **Alarm Message List** node, a cleared alarm can be labeled with a generic, user-defined text as the limit value text. This can be used to emphasize that an alarm is no longer active.

7.4 Historian

7.4.1 Spontaneous gap detection (F 267321)

The new **Spontaneous gap detection** option group has been added in the **Recording type** tab in the **Edit archives** configuration dialog for archiving on value change.

If this option is activated, the last known value is written to the archive after the configured cycle time has elapsed:

- If no value change takes place within the configured time range, the current value of the variable is automatically saved in the archive.
- Variables of spontaneous gap detection receive the new status bit **GAP_REC** in the archive.
- If the value changes within the configured time range, the value is immediately written to the archive - as in previous versions. The timer is reset, and the cycle starts again.

7.5 Automatic Line Coloring

7.5.1 All sources of ALC configuration can be displayed as dashed (F 264103)

All sources of **ALC configuration** can now be displayed as dashed by activating the checkbox.

7.5.2 Color display of uncovered areas (F 264103)

Unsupplied areas of a network can now be displayed in color in the ALC topology.

- The visualization of these areas can be activated by the new **Color unsupplied areas** property.
- The color is configured for the new system source *UNSUPPLIED* (source color number *4*).

7.5.3 ALC screen elements are colored based on their configuration (F 257145)

Screen elements can now be displayed in color based on their ALC configuration in open screens or symbols in Engineering Studio. This color coding makes it easier to visually identify and differentiate between ALC elements and non-ALC elements and alias elements during configuration.

The following new functionalities have been implemented in Engineering Studio for this purpose:

- New **ALC configuration** option group in the **Color scheme** tab of the **Settings** dialog.

  Configuration of the *ALC element* and *Alias element* preview colors.
- New toolbar with the two symbols **Color ALC elements** and **Color alias elements**. Activates or deactivates coloring in open screens or symbols.

7.5.4 Clicking on warning messages jumps directly to the affected screen elements in the symbol (F 257145)

The behavior for clicking on an error or warning message in the output window of Engineering Studio has been optimized for screen elements:

- When double-clicked, messages in the output window now jump directly to the affected screen elements within the symbol in the symbol library.
  - The zenon screen is opened, and the element of the error message is selected in it.
  - If this element is a linked symbol, the symbol is also opened and selected in the symbol library.

7.5.5 Enhancement of the ground fault search (F 258524)

The ground fault search in **Automatic Line Coloring** has been extended to include the following possible uses:

- The ground fault search continues to search in the opposite direction or without direction if the protective devices are not tripped.
- If directional or non-directional protective devices do not trip and other ground fault devices have tripped in the same direction or non-directionally, the ground fault search colors in the correct places.
- If several protective devices have tripped, all corresponding network parts are also colored.
- Tripped protective devices in the opposite direction enclose an area subject to a ground fault. The ground fault search is completed when there is no other protective device in the network.

7.6 Batch Control

7.6.1 Configurable design of the recipe editor in Service Engine (F 26716)

The graphic design of the recipe editor in Service Engine can now be configured. The windows of the recipe editor are configured in Engineering Studio with new properties:

Dockable windows Property group

- **Master recipe list**
- **Control recipe list**
- **Operation list**

The individual symbols can be deactivated via .INI entries for operation in Service Engine.

7.6.2 Suppressing the context menu (F 26716)

In a **Batch Control** type screen, context menus for the elements **Master recipe list** and **Control recipe list** can be deactivated for execution in Service Engine. The new **Control elements** property group with the **Context menu** property has been implemented for this purpose.

7.6.3 Condition always true in the formula editor (F 265964)

In the current version, conditions can be defined that are always *TRUE*.

The new **Condition is always fulfilled** option has been added in the formula editor for this purpose.

7.7 User administration

7.7.1 CEL entries for rejected login attempts adapted (F 272176)

CEL entries for rejected login attempts have been changed and extended to include the login user's information. The information on the login attempts still remaining has been removed from the text.

Changed entries:

- [username] Login rejected
- [username] Login attempt by blocked user

7.7.2 Web login to Identity Service in Service Engine (F 252756)

Users can now log in to Service Engine using the web login of the **Identity Service**.

The new **IDS Login** screen type has also been introduced. With this zenon screen, users can authenticate themselves via web login directly in Service Engine with the **Identity Service**.

7.8 Screens

7.8.1 HTML screen with new WebView2 browser (F 268008)

As of zenon 12, **WebView2** is the only browser available for the *HTML* screen type. **WebView2** is the basis of the Microsoft Edge Browser.

With zenon 10 and 11, Build *160736*, **WebView2** replaces the previous default browser **CEF** (**Chromium Embedded Framework)** from Google.
When installing a current build of zenon 10 or 11, **CEF**, if still available, is replaced by **WebView2**. If this is not desired, **CEF** can be activated again manually for versions 10 and 11 via the configuration of **zenon6.ini**. As of zenon 12, **WebView2** is the only default browser. It can no longer be replaced by **CEF**.

Note: **WebView2** is not available for Windows versions 8 and 8.1 as well as older builds of Windows 10. **WebView2** can be installed manually for these versions.

7.9 Chronological Event List

7.9.1 Automatic deletion of binary files (F 256114)

For AML and CEL, the duration of storage of the binary files on Service Engine can be limited. You thus avoid overfilling the file system with data that is no longer currently needed for the operation of Service Engine.

To this end, the new **Automatically delete data** option has been implemented in the **AML storage configuration** and **CEL storage configuration** dialogs.

Recommendation: In this case, configure an additional storage location, such as an SQL database or a **Data Storage**, if permanent storage is required, but the computer of the Service Engine does not offer enough storage space. You thus have access to older files at all times.

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Changed entries:

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- [username] Login attempt by blocked user

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The **Alarm Message List** and **Chronological Event List** support the filtering of certain columns. Additional configuration options are offered for filtering: for instance, configurable color for text, background, background color of the filter row, etc.

7.9.4 External reference and Description columns are supported (F 265218)

Two new column types are now available for the **Screen switch** function on a **Alarm Message List** or **Chronological Event List** type screen:

- **External reference**
- **Description**

Both properties of a variable linked with the **Alarm Message List** or **Chronological Event List** can be configured in the **Filter** dialog of the **Screen switch** in the **Column settings** tab and displayed in the list.

7.10 Extended Trend

7.10.1 Display of archives for variable selection has been simplified (F 262878)

Two new columns **Archive type** and **Archive description** have been added to the display for the selection of archive variables. Filtering these columns makes it possible to select archives more quickly.

In addition, only the short name and the long name are given for aggregated archives, as the connection to the basic archive can be seen from the tree view.

7.10.2 Export settings can be configured in the screen switch function (F 262878)

The settings for data export can now be configured in the screen switch function of the Extended Trend. To do this, the new **Export settings** tab has been implemented in the screen switch function. The previous data storage dialog can be suppressed.

7.10.3 Add, change or delete curves when the cursor is active (F 262878)

In Service Engine, curves can now be edited, added or deleted in a **Extended Trend** type screen even when the cursor is active.

7.10.4 Moving the columns of the cursor output list when the cursor is active (S 265963)

In Service Engine, the column sequence in the **Column settings** tab can be changed for a **Screen switch** on a **Extended Trend** screen type when the cursor is active. When saving a filter profile, the order configured for the cursor output list is also taken into account.

7.10.5 Variable identification is available (F 262878)

The **Variable identification** column is now available in the column settings of the Extended Trend. If this column is selected, this column will be shown in the Service Engine both in the list **Cursor output** as well as in the **Extended curve list**.

7.10.6 Time display is the same as the current time format of the operating system (F 254447)

Extended Trend type screens take into account the current time format of the operating system with the specific separators. This means that the time display is the same as for AML, CEL and archive revision.

7.11 GIS Integration

7.11.1 Improved display in Service Engine (F 267613)

The performance for displaying the GIS control in Service Engine has been optimized. In particular, the dynamic coloring of many objects and flashing displays are now visualized much more smoothly.

7.12 Licensing

7.12.1 CLI for automated licensing for Linux operating systems available (F 270130)

The licensing of Linux operating systems can now also be carried out via command line interface. For this purpose, the **LicenseManagerAutomation** command line tool already used for Windows operating systems has been ported to Linux operating systems.

7.13 MTP Suite (Module Type Package)

7.13.1 Internal modules (F 265765)

7.13.1.1Import/export of COPA-DATA POL objects is supported (S 268132)

Orchestration Studio objects with the *.cdpol file format can now be imported and exported. If a file already exists, a selection dialog opens asking whether the existing file should be overwritten.

7.13.1.2 Introduction of internal modules (S 266836)

Internal modules can now be used in **Orchestration Studio**. **Internal modules** can be used to realize additional functionalities that are not directly available in MTP modules, for example, value conversions, scaling, etc.

Basic mathematical functions are already available by default. Internal modules can also be customized.

Example: Adding two inputs and outputting the sum as an output.

7.13.1.3 Internal modules: Deployment mechanisms available (S 266838)

Internal MTP modules can be imported or exported.

7.13.1.4 Updating of views for internal modules (S 266833)

The tabs for the following views have been extended to include the three new module types **MTP**, **OpenDCS** and **interne Module**:

- Importing of MTP files

The file type is now checked when importing the **Templates**. The tabs and interface texts adapt accordingly depending on the file type (**MTP**, internal modules or **OpenDCS**).

Note: Internal modules use the new COPA-DATA file format ***.cdpol.**

- Template administration
  - The view has been adapted accordingly. Three tabs for the file types **MTP**, **internal modules** and **OpenDCS** are now available.
  - The functionality of the **Download SOT** button has been changed accordingly.
- Device management

  The view has been extended to include a tab for **OpenDCS**.
- POL project: Logical view

  The view has been adapted accordingly. Three tabs for the file types **MTP**, **internal modules** and **OpenDCS** are now available.

7.13.1.5 Creating internal modules (S 266831)

It is now possible to create internal modules within the **MTP Editor**:

- Unlike in the **MTP** view, the **Internal modules** tab does not contain any further tabs for **Services**, **Servers** and **Texts**.
- A maximum of one screen can be added to the internal module.
- In the **Variables** tab, entries cannot be converted to *static*.

7.13.1.6 Compiling zenon Logic project Smart_Object (S 268528)

New message available: If the **Orchestration project** contains internal modules, an attempt is made to compile the zenon Logic project **Smart_Objects**. A corresponding message is displayed while this process is taking place.

7.13.1.7 Improvements to POL project editing (S 266837)

Improvements have been made in the **Logical view** and **HMI view** areas:

LOGICAL VIEW

- Instead of the tree view on the left-hand side, a list of devices is available as device blocks.
- The color of the device blocks adapts to the respective status of the device blocks.
- The texts **Condition** and **Location** within a device block have been replaced by corresponding symbols.

- The condition symbol and the color change if the status changes.
  Example: When the status is Warning, the symbol turns into an exclamation mark, and the color changes to orange.
- Comments are shown in italics within the device blocks.
- If a **condition** is set, the border line of the device block is widened.
- Visibility when zooming out has been improved. The banner color adapts to the respective status.
- The connection lines are shown as dashed lines when being drawn. As soon as the drawing process is complete, the line is solid and wider.
- As soon as a device block is selected, the background of the device block is also colored in the same color as the border.
- Three tabs are now available: **MTP**, **Internal modules** and **OpenDCS**. The background color changes depending on the type.
- In the **Internal modules** tab, the **SOT**s are listed instead of the device blocks.
- A tooltip with additional information is now available for the title of the respective tab (**Example: MTP devices**).
- The search function has been extended to filter for all visible information
  Example: Condition and **Location**.
- The grid settings button has been moved in the Logical view.
- The project settings are now displayed as a detail view on the right-hand side.
- The button for generating a **POL** project has been removed from the view.

HMI VIEW

- The device blocks are provided with device names within the drawing area.
- In addition to the buttons also available in the Logical view, the label of a block can be shown or hidden.
- The background color of the device blocks varies depending on the type (**MTP**, **Internal modules** or **OpenDCS**).

7.13.1.8 Default internal modules are provided (S 268557)

A set of default **internal modules** for simple mathematical operations are now installed automatically when establishing a connection to a database.

If such a default **internal module** is deleted by the user, it is restored the next time a connection is established.

7.13.2 Instance management (F 263145)

7.13.2.1 Extension of instance management (S 263897, S 263903, S 263992, S 263995, S 263898, S 263900)

PEA STATE

The **PEA State** has been added to specify the status or the current availability of the PEA. After the **PEA State** is configured, the status can be selected in the **Instance Management** and **Process Orchestration** columns. The status is shown in the **Process Orchestration View** with the assigned color.

SIMULATION STATIC

State configurations have been provided for the **Default Values** in **Settings**. If the checkbox for **Simulation Mode** is *active*, the driver sets an instance to **Simulation Static**.

STATE WARNING

State Warning has been added. Clicking on the **Generate POL Project** button checks for warning signals. This is used to check the PEAS in a POL project. Once the warning has been triggered, the affected PEAs are listed.

STATE TRANSITION

State Transition describes the transition from one **State** to the next. These are selected via a drop-down list. **State Transition** is the last step after POL generation if it was successful.

Example: A **State Transition** *in use* is configured for **State** *Available*.

PEA LOCATIONS

PEA locations have been added to specify the physical **location** of an instance.

SUBSTITUTING DEVICES IN THE POL PROJECT

If a device is neither in use nor has been substituted, the following functions are available:

- can be substituted in the POL project via **Drag&Drop**.
- can be added to the POL project via **Drag&Drop**.
- can be removed in the **Instance management** overview.

Notes:

- In the **Instance management** overview, the devices in use are listed under **Used in POL projects**.
- The deleting of instances in use is deactivated.

7.13.2.2 Drag&drop is only possible for available instances (S 263146)

Only available instances can be added to the POL project using drag&drop. If an instance has already been used, it is not available.

7.13.2.3 Separate SQL database for each major version (S 264056)

As of **Orchestration Studio** version 14, there is a separate SQL database for each major version.

Data can be transferred from previous versions during configuration.

7.13.2.4 Dialog for adding new instances available (S 263896)

In **Instance management**, there is now a separate dialog for creating new instances.

Click on the plus symbol to open the dialog.

7.13.2.5 Instance visual name (PEAName) is displayed for variables (S 265696)

The instance visual name (PEAName) is now displayed in Engineering Studio and in Service Engine for variables. For this purpose, each instance variable generated from **Orchestration Studio** has the ResourcesLabel field configured as language-switchable text. This allows the name of the instance display to be derived from the language file.

7.13.2.6 Default values for PEA State when starting Orchestration Studio (S 265618)

When **Orchestration Studio** is started for the first time, the following default states are created: *Available*, *In Use*, *In Repair*, *Out of Order*, *Blocked* and *Planned*. These states can be imported into the **Settings**.

7.13.2.7 Multiple use of devices possible (S 263901)

Devices can be used in several projects.

The following areas have been extended:

- **Device management:** The **Used in POL projects** property in the tab lists all projects in which the devices are used.
- In the **Logical view**:
  - device names
  - **template names**
  - and if available, condition and
  - location in the DataBlock are displayed on the drawing area.
- The devices can be dragged in the drawing area via **Drag&Drop**, even if they are already being used in another **POL** project.
- However, a device cannot be dragged twice into a **POL** project. In this case, an invalid mouse pointer is displayed.

7.13.2.8 Customized device naming (S 263902)

Each device now has an **internal name** and a **name**.

- The **internal name** is required for unique identification and can only be configured when the device is created.
- The **name** of the device is used for the display in the generated project. This **name** can be changed at any time.

In addition, enhancements have been made to the **Name** property:

- The **name** of a device can be changed for each **POL** project.
- The **name** of a device is saved for each **POL** project. If the device is being used in another **POL** project, it can have its own name there.
- The name of the device and the **Template** are only displayed if they differ from the **names** used in the **POL** project.
- The devices are displayed with the selected **names** in the **Overview** screen of the generated zenon project.

7.13.3 POL Orchestration (F 266442)

7.13.3.1 Automatic resizing of the VisualObject when creating the POL project (S 266498)

The size of the VisualObject is automatically adjusted when the POL project is created.

The device symbol is inserted in the permitted area within the VisualObject.

The rotation angle is applied to the device symbol as defined in the MTP file.

7.13.3.2 Usability Orchestration Studio (S 265693)

HARMONIZATION OF MOUSE OPERATION

Navigation via mouse has been adapted to the familiar behavior in the zenon Software Platform.

IMPROVED TOOLTIPS AND HELP TEXTS

The **Visual name** field of the **MTP Import** has been replaced by **Name**. If the mouse pointer is positioned on the info symbol next to the **Name** field, more detailed information about the names appears: The **Name** initially denotes both the visual name of the template in the app and the name of the generated **Smart Object**. This can be changed later in the app.

VISUAL IMPROVEMENT OF THE DEVICE SYMBOLS

Device symbols have been visually improved so that the lines are thicker and the symbols are larger. The migration from version 12 is automatically adapted or overwritten.

7.13.3.3 Fallback device images available for generating POL projects (S 265702)

If the **Use fallback device images** option is activated, device symbols based on the data assembly type can be used if the VisualObject is assigned:

- no eCl@ss, or
- an unknown eCl@ss, or
- an invalid eCl@ss

.

If this option is activated, the device symbols are also displayed in the HMI view of a POL project in the preview if the zoom range is above 50%.

7.13.3.4 Touchscreen support (S 268019)

Navigation via touchscreen is supported in **Orchestration Studio**. Zooming and scrolling of HMI view and Logical view have been optimized.

7.13.4 OpenDCS (F 266453)

7.13.4.1 OpenDCS configuration options added (S 268559)

Specific configurations are now available for **OpenDCS** devices.

- Additional function blocks can be added to a POL project that are not part of a physical device or MTP-internal module.
- These blocks contain both a visual representation and a logical component. If a block is placed in a POL project and the zenon project is generated, a corresponding Smart Object is instantiated and the associated zenon Logic code is created.

This combination of MTP and OpenDCS concepts simplifies and speeds up the engineering. This also significantly reduces the risk of incorrect configurations.

7.13.4.2 Reading MTP files of type OpenDCS (S 267100)

MTP files of type **OpenDCS** can be read. It is not possible to change such a file in **MTP Editor** because of zenon-specific implementations.

7.13.4.3 Default values can be configured for data items of OpenDCS devices (S 272243)

Default values can be defined for the following **DataItems**:

PVSclMin, **PVSclMax**, **SPSclMin**, **SPSclMax**, **SPIntMin**, **SPIntMax**, **SPManMin**, **SPManMax**, **MVMin**, **MVMaax**, **MVSclMin**, **MVSclMax**, **PosSclMin**, **PosSclMax**, **PosMin**, **PosMax**, **RpmSclMin**, **RpmSclMax**, **RpmMin**, **RpmMax**, **VUnit**, **PVUnit**, **SPUnit**, **MVUnit**, **PosUnit** and **RpmUnit**.

7.13.4.4 Logic Studio drivers and projects for OpenDCS devices are generated (S 268658)

If the **Logic Studio** generation variant is selected for **OpenDCS** devices, a driver and a Logic Studio project are generated for each **IP/host name** and **port** combination.
If several **OpenDCS** devices use the same endpoint, they share the driver and the project.

The generated project contains generated code for initializing the associated Logic Studio **OpenDCS** function blocks.

7.13.4.5 Siemens S7 TIA can be configured as OpenDCS variant (S 268659)

If the **Siemens S7 TIA** generation variant is selected for **OpenDCS** devices, a driver is created for each configured **IP**.
If several **OpenDCS** devices use the same endpoint, they share the driver.

7.13.5 Improved usability (F 261134)

7.13.5.1 60 characters for SOT and PEA names (S 264276)

Previously, the MTP and PEA name was limited to 10 characters via the **Orchestration Studio**. The maximum length of SOT names and PEA names is now 60 characters.

7.13.5.2 Archiving and Extended Trend (S 265356)

EXTENDED TREND SCREEN - IMPROVED USABILITY

In order to make the **Extended Trend** screen clearer, only the first 5 curves are activated by default.

EXTENSION OF VARIABLES FOR ARCHIVING AND TREND

The variables recorded by default have been extended.

- The following variables are now configured for archiving: **VExt**, **VOp**, **Text**, **V**, **VOut**, **VFbk**, **RevFbk**, **FwdFbk**, **CloseFbk**, **OpenFbk**, **RpmFbk**, **PosFbk**, **Out** and **PV**.
- The following variables are defined for the Trend: **V**, **VOut** and **RpmFbk**.

These can still be adapted in **Orchestration Studio** in the **Settings** dialog

7.13.5.3 Confirmation dialog for deleting Smart Object Templates in the case of failed import (S 263170)

If the import is not successful, a confirmation dialog for deleting the incompletely generated Smart Object Template is opened.

7.13.5.4 Configuration of default decimal numbers for data items is supported (S 263174)

The number of decimal places for **data items** that are based on a floating-point variable can be defined via the **Default decimal places** property.

The configured value is used as the default value.

7.13.5.5 Data assembly detail view (S 263162)

A separate screen is now available for the AML and audit trail information of the respective DataAssembly.

The audit trail contains data from:

- Status archives
- PEA-specific archives

The screen is opened via a separate button in the respective faceplate.

Selected values of the DataAssembly are displayed in trend curves:

- Numerical variable values are automatically scaled by default.
- In the case of status values, only a Gantt curve is displayed by default.

7.13.5.6 Skip welcome page and automatic login (S 268119)

Two options have been added to the start dialog of **Orchestration Studio**:

- **Skip this view during start-up**.
  Default: *inactive*
- Automatic login with the last successful connection settings.
  Default: *active*

7.13.5.7 Default prefix MTP/ is no longer used (S 269859)

When creating new **DataItems**, the prefix *MTP/* is no longer added by default.

7.13.5.8 Allowing non-matching host names for OPC UA localhost connections (S 269864)

If the configured endpoint corresponds to **localhost**, the **Allow application Host Name mismatch** checkbox is set for the generated OPC UA driver.

7.13.5.9 Inputs and outputs of the same device can be connected (S 270039)

Inputs and outputs of the same device can now be connected with each other in the orchestration.

7.13.6 Improved engineering handling (F 265766)

7.13.6.1 Import/export of POL projects (S 268666)

POL projects can now be imported and exported. The following buttons in **Orchestration** are available for this purpose.

The import functionality allows you to exchange different **POL** projects.

Import control elements:

- **Restore project Backup**
- **Restore Service Engine Files**
- **Restore external directory Backup**

Export control elements:

- **Include project backup of the linked Engineering Studio project**
- **Include Service Engine files**
- **Include external folder**

Note: In order to activate the control elements, the connection to the associatedEngineering Studio project must be maintained.

7.13.6.2 Project change and availability in Engineering Studio is taken into account (S 268133)

Orchestration Studio can be used independently of Engineering Studio.

Depending on the status of an active project in Engineering Studio, the project is displayed in the title bar of **Orchestration Studio**.

The buttons for generating a **POL** project and importing **MTP** files are inactive if:

- the active Engineering Studio project is not an **Orchestration Studio** project,
- Engineering Studio is not available.

7.13.6.3 Linking of Engineering Studio project and orchestration project (S 268667)

The Engineering Studio target project for generating an orchestration project can now be selected.

If an orchestration project is generated in a Engineering Studio project, both projects are linked with each other, so that the relationship between the two projects is known.
Orchestration Studio can therefore warn you before a new generation that an existing link would be overwritten or offer to create a copy of the Engineering Studio project beforehand.

Selecting a Engineering Studio template project for generating a new project has been added as an option.

7.13.6.4 Orchestration project is backed up during generation (S 270914)

After successful generation, the orchestration project is automatically backed up in a Engineering Studio project in its files in the **Other** folder.
The name of the backup is **Generated.cdpol** and is overwritten in the same Engineering Studio when it is generated again.

7.13.7 Checking for version compatibility of the generated Smart Object Templates (S 266496)

Smart Object Templates that have been generated with a previous version do not offer all the requirements for new functionalities. In order to understand this difference, the user is notified with a message.

7.13.8 Improvements to SOT creation (S 263177)

NUMBER OF GENERATED SYMBOLS REDUCED

The number of generated symbols has been reduced to shorten the import time. Only required symbols are generated now.

Example: Instead of 3 symbols for 3 parameters of the same data type, only one symbol is generated.

IMPORT LIMITED TO RELEVANT OBJECTS

In previous versions, all available components were imported when importing an MTP file. As of version 14, only the required components are imported:

- Variables
- Frames
- Symbols
- Functions
- Interlockings

7.13.9 Resizing available for all visual objects (S 264563)

Resizing of view and font is now available for all **VisualObjects**. For POL projects with several configured PEAs, the current value elements are scaled up for visualization. This provides better legibility and is activated by default. In every HMI view of a PEA instance, there is the option of deactivating this behavior via the magnifying glass symbol.

7.13.10 Importing files with method items/object items is not supported (S 263230)

Importing MTP files that use **ObjectItems** and/or **MethodItems** is not supported. If the imported MTP file contains such items, you will receive a corresponding error message.

7.13.11 Rotation and terminations (S 264295)

ROTATION OF ICONS

The Rotation of symbols property is now supported. This also applies for imported MTP files. The rotation influences how a device image is rendered. In the **HMI** view of a **POL** project, device images are not displayed at a zoom level of less than 50%.

TERMINATIONS

Besides **Sinks** and **Sources**, **Terminations** can now also be used for the connection to PEAs.

- **Terminations** can be added in the **MTP Editor** of **Orchestration Studio**.
- In the **Orchestration Projekt Editor**, **Terminations** can be used both in the Logical view and the HMI view.

7.13.12 Importing MTPs from external marketplaces (S 267990)

MTP files and PEAs can now be imported from online marketplaces. **Orchestation Studio** has been extended to include the basic functionalities for this purpose.

Note: a separate interface must be configured for each marketplace.

Two new buttons have been added in the **Template administration** view:

- Detail view of the existing **Templates**.
- View of **Templates** from configured marketplaces.

The button for the marketplaces has been added in the **Templates administration** view and **Device management**.

7.14 Network

7.14.1 Use of user names and device names in the zenon network (F 268698)

Several iPhones and iPads can now be differentiated as clients in the zenon network despite identical host names in sessions of a Remote Desktop Session Host. The entry **AnonymousClients=** has been added in the *zenon6.ini* file for this purpose. Several client names can be used, separated by a semicolon (;). For the configured computer names, the user name of the current session is used to identify the client.

7.15 Process Gateway

7.15.1 Importing configurations from previous versions 10 (F 261678)

Process Gateway configurations from previous versions can be transferred to the configuration in Engineering Studio by importing the .INI file.

To this end, the new action **Import Process Gateway** has been implemented in Engineering Studio in the **Process Gateway** node. When this action is executed, a file selection dialog for selecting the .INI file is opened. The configuration is transferred to the Engineering Studio on the basis of the selected .INI file.

Messages in the output window provide information about the success or failure of the import.

7.15.2 Monitoring via status variables (F 256383)

Variables can be configured in Engineering Studio for **Process Gateways** which depict in Service Engine the current status of the **Process Gateway** on the primary server, secondary server or on a single-user client. This can be used to monitor **Process Gateway** instances configured in Engineering Studio.

The following statuses are possible:

- *Not started*
- *Starting*
- *Running*
- *Shut down*
- *Timeout/Gateway Error*

7.15.3 DNP3_SG

7.15.3.1 Accept TCP connection of any DNP3 master and new communication variable (F 260472)

The **AccessDNP3_SG Process Gateway** now optionally accepts a connection from a DNP3 master with any IP address. To do this, the address *0.0.0.0* can be configured in the configuration dialog in the **Datalink** node under the **Master IP Address** option.

A new communication statistic variable has been introduced that shows the IP address of the currently connected master.

- Started manually from Service Engine:
  [Process gateway configuration file name]_AccessDNP3_SG_link0_PL_ConnectedIP
- Started automatically:
  [Computer name on which the Process Gateway is running]_[GUID of the Process Gateway]_link0_PL_ConnectedIP

7.15.3.2 Configurable deadbands for analog inputs (F 260466)

Deadbands can optionally be configured for **Analog Inputs** to reduce the number of events. The new **Deadband** option has been implemented in the **Analog Input** node for this purpose.

7.15.3.3 Export and import of configuration in .CSV file format (S 260476)

The current version supports the import and export of configurations from and into a .CSV file. Importing overwrites the existing configuration. This is visualized with a configuration dialog.

For this purpose, the two new buttons **CSV Import** and **CSV Export** have been added to the **Binary Input**, **Binary Output**, **Analog Input** and **Analog Output** nodes. The **DNP3 Points** are included, but not the **DNP3 Object Group** settings.

7.15.3.4 Improved reloading behavior (S 266076)

The configuration is no longer automatically saved when reloading or exiting the Process Gateway. This causes a configuration transferred from Engineering Studio to be applied by reloading. **DNP3 Device Objects,** that have been written by a master are therefore no longer saved. The **AccessDNP3_SG Prozess Gateway** continues to save configuration changes that have been made manually in the configuration dialog while the **Prozess Gateway** is running.

7.15.4 OPC UA Server

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

7.15.4.1 New API for data exchange with historical data/archive data (F 261646)

Historical data/archive data can now also be exchanged with Linux operating systems. This is done with a new API.

7.15.4.2 Language switching for AML/CEL keywords (F 266879)

The **AccessOPCUA Process Gateway** communicates translated keywords for AML/CEL.

- The new **Use keywords for untranslated texts** option has been introduced in the **Server** tab.
- A language table in the zenon project must be available for the **LocaleID** used by the OPC UA client.
  Example: *en-US.txt* or *FR.txt*
- An optional **Locale ID** can be configured in the new **Default LocaleID** option field. If the zenon project does not contain any language tables, this configuration is used for the **LocaleID** used by the OPC UA client.

Note: The language switch is alway active. This changes the content of **LocalizedText** fields in events for AJL and CEL entries with Version 14. Depending on the name of the existing language

tables in the zenon project and the **LocaleId** used by the OPC UA Client, translated texts are now communicated instead of keywords.

7.16 Process Recorder

7.16.1 Extended Trend - Correct playback time for time filters (F 264097)

When playing back a **Extended Trend** type screen in the **Process Recorder**, the playback times are played back correctly if time filters are used. In previous versions, it could happen in exceptional cases that the filtered time period was displayed incorrectly.

7.17 RGM

7.17.1 Close screen - "Save changes" dialog can be suppressed (Bug 266024)

When closing a screen, a dialog for saving the changes is displayed automatically. This must be operated manually. If there is no input, the screen is closed after 15 seconds. Changes are not saved in this case.

This dialog can now be suppressed by means of an entry in **project.ini**.

Configuration project.ini:

- Section:
  [RGM]
- Entry:
  ShowUnsavedDataMessage=
  - *1*: Dialog is displayed.
  - *0*: Dialog is not displayed.

  Default: 1

This setting is applicable for all RGM screens.

7.18 Smart Objects

7.18.1 Dynamic limit value text and eSignature process description (F 264073)

Dynamic limit value texts and eSignature process descriptions are now also supported by the **Smart Object Template** service.

Note: Please note that an eSignature process description is not supported for screen elements of symbols in the **Smart Objects** service.

7.18.2 Update of variable mapping for all existing Smart Objects (F 264944)

The new **Update variable mapping** functionality allows you to update the variable mapping for all Smart Objects in a project. This functionality has been added in the toolbar and context menu of the Smart Objects.

7.18.3 Support for distributed engineering (F 263194)

Smart Objects now use the multi-user functionality of distributed engineering.

For the configuration of a Smart Object, **changes must be always be enabled** for the entire project. A corresponding dialog is opened during configuration to enable changes for the entire project.

7.18.4 Replacement of character strings in rule-based variable mapping (F 264688)

Character strings can be replaced in rule-based variable mapping according to the scheme *<string>* (source) and <other string> (target). The previous rules of variable mapping remain in place.

7.19 Language switching (F 269260)

7.19.1 Content of the language switch can be selected (F 269260)

When switching languages with the **Language switch** function, the content of the switch can now be selected. For this purpose, the language switching dialog has been extended to include the **Content of switch** option. The following contents are available for selection during configuration:

- Language file, font list and folder

- Language file and font list
- Folder

7.20 Status processing

7.20.1 New status bit GAP_REC (F 264632)

The new status bit **GAP_REC** has been introduced for **spontaneous gap detection** during archiving. This status bit is always set in the archive entry when a variable value is written to an archive by **spontaneous gap detection**.

The status bit with the bit number *56* replaces the RES56 identifier of previous versions.

7.21 Styles

7.21.1 Possible to define the value range of the variable for the Y-axis (F 253968)

The value range for the Y-axis variable can now be defined in the properties of the scale style.

7.22 Werum MSI Interface

7.22.1 Export all Order Message Parameter configuration data (F 268046)

Via the **Export All XML...** entry in the **File** menu bar, you can now export all **Order Parameter Message** configuration data in a single process. This extension also makes it possible to export several **Order Paramater Messages** with one export via multiple selection in the corresponding list.

7.22.2 Creating/restoring a backup file (F 268046)

In the current version, backups can be created and restored that contain only **Message Definitions**. Two new entries have been implemented for this in the **Edit** menu bar:

- **Backup (Message Definitions only)...**
  Creates a backup file that only contains **Message Definitions**.
- **Restore (Message Definitions only)...**
  Opens a file selection dialog for selecting a backup file. Only **Message Definitions** are taken into account when restoring the file.

8 Programming interface

8.1 API enhancements

8.1.1 Event for current playback time of the Process Recorder (F 266046)

The current playback time of the **Process Recorder** is now available via an API event.

For this purpose, the Interface **IApplication** has been extended in the Namespace **Scada.AddIn.Contracts** to include the **ReplayTimeChanged** event handler of the **ReplayEventArgs** type.

8.1.2 Smart Object Templates - zenon Logic project mapping for API available (F 258730)

In Namespace **Scada.AddIn.Contracts.SmartObject**, the new *LogicProjectCollection* property has been added to the Interface **ISmartObject** of the **ILogicProjectMappingCollection** type.

The new property provides the API with access to the mapping of zenon Logic projects in the Smart Object Templates. The *LogicProjectCollection* property enables the following functionalities for instances of the **ILogicProjectMapping** type:

- Map
- Delete
- Apply

8.1.3 Change user for eSignature without comment (F 248392)

In Namespace **Scada.AddIn.Contracts.ESignature**, the **SetStepData** method in the Interface **IESignature** has been provided with an additional overload. This overload requires no comment as a parameter. This means that an existing comment is no longer overwritten when the user is subsequently entered via the API.

8.1.4 Creating the Process Gateway "SNMP Agent - SNMPv3" via API (F 255988)

The Process Gateway **SNMP Agent - SNMPv3** can now be created via API.

For this purpose, the **ProcessGatewayProtocol** enumeration in Namespace **Scada.Addin.Contracts.ProcessGateway** has been extended to include the value *SNMP_NG*.

9 Drivers

9.1 Additions to existing drivers

The zenon drivers have been enhanced by the following functionalities.

9.1.1 EUROMAP63

9.1.1.1 Compatibility mode for KraussMaffei MC4/MC5 machines (F 267483)

The **EUROMAP63 driver** has been extended to include a compatibility mode for certain machines to allow special handling of line breaks if the header exceeds 1000 characters and subsequent .DAT files no longer contain a header.

9.1.2 LS_XGT32

9.1.2.1 LS_XGT - Connection-specific selection of the PLC type (F 263356)

For the **LS_XGT32 driver**, the PLC type can now be configured per connection. For this purpose, the new **PLC type** option has been implemented in the configuration dialog of the driver in the **TCP/IP** tab:

- *XGB*:
  The driver uses a maximum frame length of 512 bytes for communication.
- *XGT*:
  The driver uses a maximum frame length of 1400 bytes for communication.

9.1.2.2 Support for STRING variables (F 267744)

The driver has been extended to include support for reading and writing the *STRING* data type for integer-based memory areas. The driver always writes the configured maximum string length and fills it with *0x00* values.

9.1.2.3 Alternative addressing with memory overlap (F 263542)

The driver now supports alternative addressing with overlapping of the memory area for read and write access. For this purpose, the new **Offset Type** option group has been implemented in the driver configuration dialog in the **TCP/IP Connections** tab.

Note: An activated **Offset with memory overlap** option corresponds to the **Device Monitoring** of the **XG5000 application**.

9.1.3 MELSECA

9.1.3.1 Optimization of existing driver object types (F 265450)

The already existing driver object types **Link Relay**, **Latch Relay** and **Internal Relay M** now support the 16-bit data types *INT*, *UINT* and *WORD*. In addition, these new data types use *batch-read* and *batch-write* for the BOOL-based address range to read or write 16 bits with just one request.

9.1.4 OPCUA32

9.1.4.1 Access to bits for OPC UA integer types (F 262273)

For the **OPCUA32 driver**, Boolean variables can be created manually, which allow read and write access to individual bits of OPC UA integer types in Service Engine. 64-bit integer types are excluded.

9.1.4.2 Request the language (locale) from the OPC UA server (F 266162)

The driver can now request the language for communication with an OPC UA server.

For this purpose, the new **Language** option group with the option **Locale-IDs** has been added to the **Communication settings** tab in the driver configuration dialog. The definition of an array of **OPC UA LocaleIDs** can be configured in this option. Several **LocaleIDs** are separated by a comma (,).

9.1.4.3 Use namespace or node ID as zenon variable name for online import (F 266905)

When reading the variables from the PLC in the background, you can optionally select whether the variables are imported with the browser name as the variable name or with the node ID (+ relative structure path).

To do this, the dialog for reading variables from the PLC in the background has been extended with the **Variable naming** radio button.

9.1.4.4 Optional prefix for zenon for online import (F 266902)

When reading the variables from the PLC in the background, an optional prefix can be configured for the zenon variable name.

To do this, the dialog for reading variables from the PLC in the background has been extended with the **Variablename prefix** input field.

9.1.4.5 Mapping of OPC UA status to zenon status bits (F 267614)

With the current version, it is possible to set certain zenon status bits when changing the value of OPC UA variables, depending on the OPC UA status.

For this purpose, the **Custom status mapping** option has been added to the **Advanced Settings** tab in the driver configuration dialog for configuring a connection.

9.1.4.6 New driver object type Certificate Information (F 268555)

A new driver object type **Certificate information** has been implemented for the driver.

This new object type saves all relevant certificate data and makes it possible to extract information for each connection and use it in Zenon projects. This makes it possible to monitor the expiration date of your own OPC UA client driver certificate and the OPC UA server certificate of the communication partner in the Service Engine.

9.1.5 S7TIA - S7 driver for S7-1500/1200

9.1.5.1 Support for TIA 19 (F 272313)

The driver supports the current version TIA 19 (*AGL Version 6.0.2.0*).

9.1.5.2 Support for access level password and encrypted communication (F 260508)

New options are available per connection:

- The communication of a connection can be encrypted if the communication partner supports or requires this. To do this, the new option **Secure communication** has been added in the connection configuration.
- The access level password can be configured for the **Symbols from PLC** communication type.

Note: TIA19 and the **S7TIA driver** support **Access Control via Access Level** only if the option *use legacy access control via access levels* is activated in the **Access Control** properties of the project in the TIA Portal. You can find this property in the TIA portal in the **General** tab, **Protection & Security** property group in the **Connection mechanisms** subnode.

9.1.6 System driver

9.1.6.1 System driver variable with WVS client ID (F 258435)

The new **Web Visualization Service: IP address browser** variable has been added in the [**System information]** theme for the identification of connected clientsto WVS.

This system driver variable contains as a value the IP address of the computer on which the browser is running with which the **WVS** is connected. This information can be used to authenticate the **WVS** client via add-in.

9.1.6.2 System driver variables for lot starting time and end time (F 252251)

The new **Starting time of the lot** and the **End time of the lot** variables have been implemented for identifying the current lot in the **[Historian]** theme.

This system driver variable contains the respective time stamp of the currently selected lot as a value.

9.1.7 stratonNG

9.1.7.1 Adaptive communication (F 272338)

The driver automatically selects the type of communication depending on the communication partner. Variables with Ansi and non-Ansi characters (e.g. country-specific special characters such as "ä", "ø", "Ş") in the variable name can be used for communication from and with Logic Service.

To do this, the Logic Service project must fulfill the following requirements:

- The <NAME_LOCIG_SERVICE> project has already been converted to UTF-8 and the compatibility option is not used.
- The <NAME_LOCIG_SERVICE> project has already been converted to UTF-8 and the **STRINGSTOANSI=***ON* compatibility option is not used.
- The <NAME_LOCIG_SERVICE> project has not yet been converted to UTF-8 or is not used in any older versions of Logic Service.

9.1.7.2 Secured communication via TLS (F 265435)

For secured communication via TLS, the **TLS settings** button has been added for the driver in the Connections tab of the connection configuration. Clicking on the button opens the configuration dialog for setting the TLS parameters.

9.1.7.3 Support for WSTRING variables (F 265438)

The driver now supports WSTRING variables. The existing option**Max. write request length** has been renamed **Max. request length** in the **Connections** tab of the configuration dialog.

10 Apps (Tools)

10.1 Diagnosis Viewer

10.1.1 Resetting Diagnosis Viewer to default settings (F 261677)

The user-defined settings of the **Diagnosis Viewer** can be reset to the default settings. The new entry **Reset configuration** has been added in the **Settings** context menu for this purpose.

10.2 Startup Tool

10.2.1 Address of logging service can be configured (F 256111)

As of version 14, the logging service of another computer in the zenon network can also be used on the local computer.

The new **Logging service** option group has been implemented in the **Startup Tool** for this purpose. This option group has been placed in the **General** tab for the configuration of the **Application Settings**.

10.3 System Information Collector

10.3.1 System Information Collector enhancements (F 263443)

The **System Information Collector** now also collects:

- all files in the *%CD_SYSTEM%* folder

- the **WvsOpsManager.json** file
- the registry setting for protocols (TLS, SSL)

11 HTML Web Engine

11.1 Automatic restoration of connection takes start URL into account (F 266576)

HTML Web Engine can also be opened with a certain script via a URL parameter.

Example: **https://serveraddress/applicationname?startfunction=myScriptExecute**

Note: If a reload occurs after the connection has been lost, the script is now executed again.

11.2 Login via Identity Service (F 187139)

Web Engine now also supports login via **Identity Service** of IIoT Services.

Authorization (permission levels) is based on group assignments in the **Identity Service**. **Web Engine** maps these assignments to the user groups of Service Engine.

The new client **Web Engine** has been added to the **Identity Service** for this purpose.

11.3 Support for multiple projects (F 261697)

In the current version, a **Web Engine** instance can provide multiple zenon projects (webx) in parallel. The projects are identified by different URLs.

11.4 URL suffix available for HTML Web Engine (F 266576)

The new **URL suffix for Web Engine** property can be used to assign a suffix for the URL of **HTML Web Engine** in Engineering Studio. This makes it easy to differentiate between zenon projects that are in use at the same time.

12 Web Visualization Service

12.1 Screen elements (F 265208)

Notes on support for screen elements.

For details on supported properties, see the product documentation in the **Web Visualization Service** node in the **Screen elements** and **Lists** nodes.

12.2 Setpoint input function for keyboard screen is supported (F 261569)

The **Setpoint input for keyboard screen** function is not available for the keyboard screen. In addition, the text **Setpoint input** text field must have been created.

12.3 Batch Control - Master recipe and control recipe (F 259032)

Batch Control supports the following functionalities for WVS:

- Select a master recipe
- Select, start and execute a control recipe from the list

12.4 Write/modify set value dialogs are supported (F 253385)

The **Write/modify set value** function now also supports the use of the **Set value input** dialog in **Web Visualization Service**.

The following settings are available:

- *Switch to spontaneous value*
- *Modify spontaneous value*
- *Switch to and modifySpontaneous value*
- *Switch to alternate value*
- *Modify alternate value*
- *Switch to and modifyAlternate value*
- *Switch off spontaneous value*
- *Switch on spontaneous value*

12.5 Switches use predefined graphics (B 263010)

If non-supported graphic files are used for switches in Service Engine or **Web Visualization Service**, a predefined graphic is displayed. Visibility and flashing / flashing in color are supported.

12.6 Faceplate screen type is supported (F 262874)

Faceplate screen types can be called up in Web Visualization Service:

- The screen container of the faceplate screen works in exactly the same way as in Service Engine.
- Filters that have been defined in the screen switch function for the screen are applied.

12.7 Worldview functionality is supported for screens (F 261073)

Screens can be used with worldview functionality in the Web Visualization Service.

The following are supported:

- Zoom
- Scroll
- Decluttering
- Screen: Move center

12.8 System driver variable with WVS client ID (F 258435)

The new **Web Visualization Service: IP address browser** variable has been added in the [**System information]** theme for the identification of connected clientsto WVS.

This system driver variable contains as a value the IP address of the computer on which the browser is running with which the **WVS** is connected. This information can be used to authenticate the **WVS** client via add-in.

12.9 Frames can be opened multiple times (F

Screens with the same frame can be opened multiple times.

12.10 Type-dependent system keyboards on mobile devices (F 261569)

The numeric value and dynamic text elements open the corresponding system keyboard on mobile devices in **WVS**, depending on the data type and **Base for display**.

12.11 Interlocking for RGM supported (F 250350)

In **WVS**, each line can be displayed by default as normal or grayed out, depending on the condition of the interlocking. The value cannot be edited when the interlocking is active. The colors for text and background can now also be defined individually using the properties of the RGM (Colors/Interlocking group).

12.12 Command processing functionalities for WVS

12.12.1 Supported command processing actions (F 263812)

The following command processing actions are supported during execution in WVS:

- Two-stage command actions and select before operate.
- **Auto/remote command** with **Return state/switching direction** *ON/OFF*.
- **Block**
- **Replace**
- **Release**
- **Manual correction**
- **Revision** with **Return state/switching direction** *ON/OFF*
- **Setpoint input** with the parameters DIR and set value
- **Switching command** with **Action type** pulse command in the **Return state/switching direction** *ON/OFF*.
- **Forced command** with **Return state/switching direction** *ON/OFF*.

12.12.2 Command processing screen can be closed automatically (F 263812)

Command Processing screen types can also be closed automatically in **Web Visualization Service** after successful execution of the action.

12.13 Browse equipment model (F 263753)

Browsing the equipment model is also supported in **Web Visualization Service**.

12.14 Alarm Message List: User-defined text is displayed (F 260714)

The user-defined text for cleared alarms is now also displayed in **Web Visualization Service**.

12.15 Alarm Message List: Automatic re-sorting also works in Web Visualization Service (F 260713)

The automatic re-sorting of entries in the Alarm Message List is now also supported in *Web Visualization Service*.

To do this, the **Automatic re-sorting** project property in the **Alarm Message List** property group must be configured.

12.16 Support for add-in services and wizards (F 272222)

Add-in services and wizards are now also supported in **Web Visualization Service**.

This applies for standalone and WVS clients.

13 Web Visualization Service Ops Manager Controller

13.1 WVS Ops Manager Controller enhancements (F 262321)

The WebVisuOpsManager.json has been renamed WvsOpsManager.json.

WvsOpsManagerController Configuration file has been renamed WvsOpsManagerCtrl.json.

The files are now stored in the following directory:

C:\ProgramData\COPA-DATA\System\WebVisualizationService

14 Wizards

14.1 Connection Wizard can install root certificate (F 269571)

The **IIoT Services Connection Wizard** can now undertake the installation of the root certificate of IIoT Services.

15 Service Engine for Linux

15.1 Newly supported functions (F 256534)

The current version supports the following functions for execution in Service Engine for Linux:

- **Alarm/event group log in/log off**
- **Acknowledge alarms**
- **Confirm alarm acknowledgement**
- **Alarm Message List active**
- **Alarm Message List active/inactive**
- **Alarm Message List inactive**
- **Activate/deactivate Alarm Message List, alarm/event groups/classes**
- **Alarm/event group log in/log off**
- **Save AML and CEL remanent data**
- **Start/stop archive(s)**
- **Functions active at limit values**
- **Functions active/inactive at limit values**
- **Functions inactive at limit values**
- **Save remanent data**
- **Exit Service Engine**
- **Reload project online**
  Note: Reloading can be triggered by configuring a value limit violation with linked **Reload project online** function.
- Function execution in the case of limit value violation (F 256534)

15.2 Newly supported system driver variables (F 252251)

The following system driver variables are newly available as of version 14 in Service Engine for Linux:

- **[Historian] End time of lot**
- **[Historian] Start time of lot**

15.3 OPC UA Process Gateway - Support for historical data (F 26164)

Historical data/archive data can now also be exchanged with Linux operating systems. This is done with a new API.

15.4 Newly supported zenon Logic fieldbus drivers (F 254844)

The following drivers have been ported to 64-bit and are now also available for Linux operating systems:

- **PROFINET IO Device**
- **PROFINET IO RT Controller**
- **IEC 61850 Server + GOOSE field bus driver**
- **Logic Service to Service Engine connection**

15.5 CLI for automated licensing for Linux operating systems available (F 270130)

The licensing of Linux operating systems can now also be carried out via command line interface. For this purpose, the **LicenseManagerAutomation** command line tool already used for Windows operating systems has been ported to Linux operating systems.

15.6 Logic Service for Linux (F 254924)

Logic Service is installed with Service Engine on Linux operating systems. zenon Logic projects of a zenon project are started with Service Engine.

15.7 zenon Logic IEC 61850 Server + GOOSE fieldbus driver for Linux available (F 262255)

The **IEC 61850 Server + GOOSE fieldbus driver** has been ported to 64-bit and is now also available for Linux operating systems.

16 Report Engine

In this section, you are provided with information about technical requirements, as well as innovations and changes for Report Engine 14.

16.1 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	CPU XEON (maximum 24 cores/4 sockets)	XEON processor
RAM	64GB or larger	32 GB
Free memory	1TB or more (depending on the data to be saved)	1 TB

Engineering computer:

Parameters	Recommended	Minimum
CPU	CPU i7 or more powerful	CPU i7
RAM	64GB or larger	32 GB
Free memory	1TB or more (depending on the data to be saved)	2 GB

Parameters	Recommended	Minimum
Monitor (pixels)	Full HD or higher	1024 x 768

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 changed in Report Engine. Information from color palettes can therefore not be evaluated. This can lead to illegible graphics.

16.2 Installation of Report Engine 14 (F 268812)

The Report Engine 14 cannot be installed in parallel with a Report Engine version 10, 11 or 12 on the same computer. If one of these versions already exists on the system, a corresponding message is displayed when you select it in the setup. The installation of Report Engine 14 is only possible after the uninstallation of Report Engine 10, 11 or 12. Versions of **Analyzer 3.40** or older can be installed in parallel with Report Engine 14.

16.3 New SQL Server version and new name of instance (F 268812)

SQL Server 2022 is used for Report Engine 14.

The name of the server instance from this version is: *ZA2022*.

16.4 Migration Tool adapted to version 14 (F 259292)

The **Migration Tool** has been adapted to Report Engine 14. It enables the migration of databases from Report Engine 2.00 to zenon software platform 14.

The following can be migrated:

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

PASSWORD ENTRY FOR DATABASES

When selecting the data source, it may now be necessary to enter the user password to execute the report. The **Password for data sources** dialog has been integrated in the **Databases** area for entering the password.

16.5 GraphQL Interface - freely definable query interval for archive data (F 257857)

In the **GraphQL Interface**, the query interval can now be freely defined when querying archive data. Depending on the selected interval and the recorded data, data is aggregated or interpolated. It is also possible to query the minimum, maximum and time-adjusted mean value.

This parameter defines the seconds in which the last recorded value is written back to the archive if no measured value has been recorded. The **Metadata Synchronizer** has been adapted accordingly.

16.6 Deletion of linked servers optimized (F 32321)

Validations have been implemented for the deletion of linked servers. This prevents the deletion of a linked server from leading to undefined conditions. A new dialog is now available for this validation.

16.7 Metadata Synchronizer

16.7.1 Metadata Synchronizer supports export to Data Modeling (F 249339)

The **Metadata Synchronizer** transfers data from Engineering Studio to **Data Modeling**.

The new **Synchronization to IIoT Services Data Modeling** property group has been implemented in Engineering Studio for this purpose. This enables the activation of synchronization to **Modeling** and the selection of a tenant.

16.7.2 Adaptation for spontaneous gap detection (F 257857)

The **Metadata Synchronizer** has been adapted to the new **Spontaneous gap detection** functionality of the **historian**.

16.8 Reporting Studio

16.8.1 Passwords can be changed for SQL users (F 208525)

Passwords of SQL users used in Report Engine can now be changed in the **Administration** section:

- User password for report execution:
  This user's password is saved in a persistence file as soon as it is changed or specified by the user.

- User password for service connections:
  This is used by:
  - GraphQL Interface to read the metadata and access the connector functions.
  - zanMQTTClient service to read and write the metadata.
  - Connector client to read the metadata relevant to the connector.

Note: Users receive a default password during setup. Change the passwords immediately after installation.

16.8.2 Report administration roles (F 208525)

Reporting Studio creates and manages roles and users on the Report Engine databases:

- **ReportExecutor** role is created when a database is created via Reporting Studio.
- **zenOnSrv** is the **user for report execution**. This is a member of the **db_datareader** and **ReportExecutor** roles.
- **ReportingUser** is the **user for service connections**. This is a member of the **db_datareader**, **db_datawriter** and **ReportExecutor** roles.

16.9 Report templates

16.9.1 Short name for status bits and new report elements Status Overview table and Status Overview chart (F 255185)

Instead of a *long* data type, the readable short name is now displayed for the status bits, as described in the Help under **Status processing** in the **Status bits** section.

A Status Overview table and a Status Overview chart are now also available for some reports. These enable a relative or absolute display of the selected status bits that occur in the variables.

The Status Overview is available for all reports of the type:

- Alarm and Event Analysis
- Historian Analysis
- Extended Historian Analysis

17 IIoT Services 14

Information on changes in IIoT Services version 14.

17.1 Update .NET to version 8 (S 267533)

All services and apps of IIoT Services that use .NET have been updated to .NET version 8.

17.2 Build update IIoT Services (F 240104)

IIoT Services versions can already be updated as of version 12 when installing a zenon build update. In this case, an option for updating the IIoT Services version to the current version is offered when the setup is called.

The new command line argument **/UPGRADEIIOTSERVICES** is available for upgrading IIoT Services. During the update, a silent installation of the IIoT Services setup is carried out with the argument **CDP_NOREBOOT** without rebooting. The restart must be performed manually.

17.3 Data Modeling

17.3.1 Deletion of Construction Kit Library (F 263655)

Construction Kit Libraries can be deleted. You can either delete all existing versions of a **CKL** or just the selected version. When a **CKL** is deleted, all the data stored in it is also deleted. Deleted **CKLs** and their data cannot be restored.

17.3.2 Functionalities "Tenant detach" and "Tenant attach" removed (F 269921)

The **Tenant attach** and **Tenant detach** functionalities have been removed as of version 14. These are thus no longer available.

Tenants that were **detached** in previous zenon versions can no longer be displayed. Attach these before converting to zenon 14.

17.3.3 Import of Construction Kit Libraries redesigned (F 261383)

The import of **Construction Kit Libraries** has been redesigned. The dialog has been replaced by a drag & drop field. Importing can now be done via:

- Drag and drop the desired file onto the field.
- Click on the field and select from the file dialog.

17.4 Data Hub

17.4.1 Configuration interface for Data Hub removed from Service Configuration Studio (F 267531)

The configuration of Data Hub has been removed from the interface of Service Configuration Studio.

- The necessary Data Hub configurations are created by default during installation.
- Customizations are possible in the *CDDataHub.conf* file.
- The service for Data Hub now starts automatically, approx. 2 minutes after the computer is started.

17.5 Device Management

17.5.1 Update the device agent on the device via Device Management (F 253428)

The device agent can now be updated centrally in Service Configuration Studio via **Device Management**.

The **Upgrade** button has been added to the detailed view of the devices for this purpose. This button is visible if an older version of the device agent is installed on the device. When executed, this is updated via a corresponding deployment task.

17.5.2 Context-dependent installation help for devices (S 253937)

In Service Configuration Studio, the **Register new device** button has been added in the **Device Management** node.

17.5.3 Remove devices in Service Configuration Studio (F 251956)

Devices can now be removed directly in Device Management. The new **Remove Device** button has been added for this purpose. The corresponding tasks are processed automatically in **Device Management**. The **Force remove** button is also available for devices that are no longer available in the process or for communication.

In addition, devices that have already been removed can be shown or hidden in the overview of devices using the new **Show removed devices** option.

17.5.4 Packages contain version information (F 251956)

Packages now contain the information for which version of Service Engine they were created. The following extensions have been implemented in the Device Management dialogs in Service Configuration Studio for this purpose:

- The Service Engine column has been added to the detailed information of a package. This contains the version for which the Service Engine data were generated.
- Compatibility information has been added to the detail view of a deployment task.
- When creating a deployment task, the Service Engine version of the package is also visualized for the selection of a package in the **Package Version** drop-down list.

17.5.5 Additional information when canceling a deployment task (F 251956)

The handling and the information displayed when canceling a deployment task have been extended:

- The status of a deployment task is displayed with a status-specific color.
- An optional comment can be entered when canceling a deployment task.
- Additional information has been added to the detail view.

17.5.6 Version-specific comment for project packages (F 251956)

Packages now contain an optional comment. For this, the following extensions have been added:

- In Engineering Studio, the new **Comment** option field is available in the wizard dialog when deploying the project for **Device Management**.
- The **Comment** column has been added to the detailed information of a package in Service Configuration Studio. This column contains the comment entered in the wizard.
- This comment can also be changed directly in Service Configuration Studio. To this end, the option of editing in the **list of Packages** has been added and a corresponding editing dialog implemented.

17.5.7 User-defined device name (S 253931)

The name of a device can optionally be configured with a user-defined name. The new **Device Name** option has been added to the configuration dialog of a device for this purpose.

In addition, IIoT-CLI now supports the *-n* or *--name* parameter.

17.6 Identity Management

17.6.1 Additional configuration options for password

The options for configuring a password have been extended. To this end, new options have been added to Service Configuration Studio in the **Properties** area.

- Additional configuration of password rules (F 266373)
  - Notification before expiration
  - Validity period for password
  - Password history to avoid previously used passwords
- Configuration of the automatic blocking of a user in the event of incorrect login (F 266375)
- Configuration option for the optional linking of external providers for local users and the option to change the local password (F 227965).
  The following dialogs have been enhanced for these purposes:
  - The new option **Allow login linking of Identity Providers** has been added in the **Edit local user** dialog for user-specific configuration.
  - The **Default option for login linking of new users** has been newly implemented in the Settings dialog for general configuration.

17.7 Identity Service

17.7.1 Access Control - Roles for Data Modeling (F 256565)

The assignment of roles for **Data Modeling** has been revised and simplified.

In Access Control, the following roles are now available for **Data Modeling**:

- **Data Modeling**
  - *Data Modeling Admin*
  - *Data Modeling Write*
  - *Data Modeling Read*

- **Tenant**
  - *Tenant Admin*
  - *Tenant Write*
  - *Tenant Read*

17.7.2 Combined roles for IIoT Services API and Data Storage (F 261577)

The assignment of roles for data access and alarm acknowledgment has been revised and simplified.

The following roles have been renamed and combined:

- **Data Read**
  Replaces and combines the existing *IIoT API – Data Read* and *Data Storage – Data Read* roles in previous versions.
- **Data Write**
  Replaces and combines the existing *IIoT API – Data Write* and *Data Storage – Data Write* roles in previous versions.
- **Acknowledge Alarms**
  Replaces the existing *IIoT API – Acknowledge Alarms* role in previous versions.

Old roles from previous versions are automatically adapted when migrating to the current version.

17.7.3 Login for Web Engine (F 187139)

The **Identity Service** of IIoT Services now also supports the login in **Web Engine**.

Authorization (permission levels) is based on group assignments in the **Identity Service**. **Web Engine** maps these assignments to the user groups of Service Engine.

The new client **Web Engine** has been added to the **Identity Service** for this purpose.

17.7.4 Web login to Identity Service in Service Engine (F 252756)

Users can now log in to Service Engine using the web login of the **Identity Service**.

The new **IDS Login** screen type has also been introduced. With this zenon screen, users can authenticate themselves via web login directly in Service Engine with the **Identity Service**.

17.7.5 Configuration of externally managed groups (F 255345)

The **MS AD**, **RADIUS** and **Keycloak Identity Providers**s support the use of group assignments for users. In the case of **MS AD**, higher-level groups created by an administrator are also taken into account.

Groups required for the group assignment can be created manually.

When IIoT Services are upgraded, RADIUS users are removed from all groups in the **Identity Service**. The corresponding groups must be created again and configured as *Managed by RADIUS*. After the user logs in again, the group assignment is automatically applied again.

Account linking is deactivated by default for all users after the upgrade of IIoT Services.

17.8 IIoT API

17.8.1 Query alarms and events from Service Engine ring buffer and without time filter (F 260128)

Two methods for querying alarm and event data of variables have been implemented for the IIoT Services API. These contain options for reading an alarm condition and distinguishing whether data is read from the ring buffer or from historical data.

- New *None* **request type** for time filter object
  The time range within the time filter is ignored and is optional if it is set to "*none*".
- The **dataOrigin** field offers the option of selecting from historical data or data from the ring buffer of Service Engine:
  - Reading data from historical data:
    "dataOrigin": *"ServiceEngine_Historic"*
  - Reading data from ring buffer:
    "dataOrigin": *"ServiceEngine_Ringbuffer"*
- (AML only) The alarm entries in the response contain a special object/array that contains information about the condition of an alarm (**alarmStates**).
  - **"cleared":** *true* or *false*
  - **"acknowledged:"** *true* or *false*

17.8.2 All IIoT API endpoints updated to version 2 (F 267531)

The version number of all IIoT API endpoints has been changed to version 2. By default, version 2 is now always displayed in the Swagger API documentation. In addition, a description of the differences between version 1 and version 2 has been added to the API documentation.

17.9 IIoT command line interface

17.9.1 CLI - Version selection via command (F 253428)

The IIoT command line interface can be installed in different versions at the same time. For Linux, a specific version can also be selected using the *update-alternatives --config iiot-cli* command.

17.9.2 Commands for creating certificate bundles and registering device agents using client credential flow (S 264449)

The IIoT Services CLI offers command line arguments for creating certificate bundles:

- Authentication is possible via web login and client credential flow.
- URL of IIoT Services can be transferred
- A list of services for which bundles are to be issued can also be transferred.
- The device agent can be registered via the client credential flow

The command line arguments are grouped by categories.

17.10 IIoT Services Connection Wizard

17.10.1 Connection Wizard can install root certificate (F 269571)

The **IIoT Services Connection Wizard** can now undertake the installation of the root certificate of IIoT Services.

17.10.2 Automatic assignment of Service Engine client role to Service Engine (F 252756)

The **Connection Wizard** now automatically assigns the Service Engine client role to the newly connected Service Engine when executed in Engineering Studio.

For existing installations, this is carried out during migration.

17.11 IIoT Services Gateway - Changed version check (F 268202)

The existing version check of the **IIoT Services Gateway** has been adapted. Different versions between IIoT Services and **IIoT Services Gateway** can now communicate with one another on the basis of a common protocol version.

The protocol for this check currently contains version number 20. The check is successful if all components use the protocol with this major version. If this major version is different for a component, communication is no longer possible.

Example:

- Components with *20.00* can communicate with *20.10*.
- Components with *20.10* cannot communicate with *30.10*

17.12 Service Configuration Studio

17.12.1 Hiding elements of the interface if authorizations are missing (F 262465)

Menus, buttons and nodes are hidden if the user does not have the required user roles (either read or write).

17.13 Platform configuration

17.13.1 Connected services - Revision of the list (F 269743)

The list of service connections has been reduced to those services that cannot be automatically connected to IIoT Services by an automatic mechanism, e.g. the Platform Configuration Wizard.

To do this, the affected services and zenon apps have been removed from the list of service connections. Removed apps are, for example, Service Engine, Engineering Studio and Report Engine.

For the initial installation on Windows systems, the configuration of the service connections has been removed from the **Platform Configuration Wizard**.

17.14 Trend Visualizer (F 265726)

The **Trend Visualizer** is an app integrated into IIoT Services for visualizing variable trends. The **Trend Visualizer** is available as a Docker image or Windows service. The display can be configured directly in IIoT Services Studio.

17.15 Docker configuration files updated (F 260020)

The content of Docker configuration files (YML and ENV) have been adapted to the current version of the zenon software platform.

18 Important information

18.1 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.

18.2 Buttons and screen elements with screen-type specific functions

Buttons and elements with screen-type specific functions may only be used once in a screen. If there are identical elements in a screen, all duplicates are removed when creating the Service Engine files.
Example: If a button is copied and pasted in the same screen, the copy is removed when creating the Service Engine files.

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

18.3 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.

18.4 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.

18.5 Overwriting Service Engine files

When creating Service Engine files in Engineering Studio it is possible that Service Engine-changeable files are overwritten.

Affected services:

- 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 tab in the dialog for project configuration: **Service Engine changeable files**. For the components mentioned above, it is possible to configure whether or not the corresponding files are to be generated when creating Service Engine files. 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 default setting is: Service Engine files are not overwritten.