ABB ABILITY™ ZENON

Manual

Release notes ABB Ability zenon 12.0.0

V.12.0.0

Contents

1. General

This document contains general improvements for ABB Ability™ zenon 12.0.0.

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 zenon.sales@abb.com.

For detailed technical information on ABB Ability™ zenon, please browse https://help.zenon.abb.com.

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

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

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

This section provides an overview of new features, changes and improvements since Version 11.

Where necessary, this section also contains compatibility notes.

The information contained in these release notes is valid as of March 23, 2024.

1.1. New product terminology

As of version 12, the naming of the zenon Software Platform was updated. The updates were implemented in the Graphical User Interfaces and the Help:

SERVICE
Service is used for functional equipment assemblies of zenon. Service replace the term module used in previous versions.

Examples:

- Extended Trend, Recipegroup Manager, Message Control: Services configured in the Engineering Studio and processed in the Service Engine.
- Identity Service, Device Management: Services that run as independent functionalities of the IIoT Services as a separate process.

APP
App is the umbrella term for all executable programs on the zenon Software Platform. No distinction is made as to whether it is a development environment, a runtime application, or a utility program. All launchable programs are referred to as an app.

Examples:

Engineering apps:

- Engineering Studio
- Logic Studio
- Reporting Studio
- Service Configuration Studio

Runtime apps:

- Report Engine
- Logic Service

Utility programs (apps):

- Startup Tool
- License Manager
- Diagnosis Viewer
- System Information Collector

The names for EXE files, configuration files, and DLL files were not updated. The established names will continue to be used here for reasons of compatibility.

1.2. OpenSSL 1.1.1.t (F 260686)

Under Windows, components and apps of the zenon Software Platform use OpenSSL in the current version 1.1.1.t (as of May 2022). Under Linux, the OpenSSL version of the respective distribution is used.

1.3. IIoT Services Connection Wizard (F 254801)

The IIoT Services Connection Wizard provides easy configuration with a GUI in order to connect components and apps of the zenon Software Platform with IIoT Services.

This wizard can be called in the following apps and offers context-dependent configuration options:

Reporting Studio
When configuring the Service Nodes.

- Connect Report Engine to IIoT Services (get Certificate Bundle, set up Identity Service Client).
- Create resource on Identity Management.

Engineering Studio
When configuring the new project property Connection settings.

- Connect projects to IIoT Services (get Certificate Bundle, set up Identity Service Client).
- Create resource on Identity Management.
- Data Storage: Set up access permissions for Service Engine.
- Configure Metadata Synchronizer (optional).

Startup Tool
In the Tools tab in the overview of zenon apps. The wizard replaces the Service Node Configuration Tool (SNCT) which was used up to and including version 11.2.

Web Engine Deployment Tool
When configuring the IIoT Services connector. The wizard replaces the Service Node Configuration Tool (SNCT) which was used up to and including version 11.2.

1.4. Renaming of Service Grid to IIoT Services

With version 12, the Service Grid and its Services and components were renamed to IIoT Services. The graphical user interface of the IIoT Services and apps (programs) and the help have been amended accordingly.

Previous versions up to and including

11.2	From version 12
Service Grid	IIoT Services
Service Grid	Hub Controller Certificate Management
Service Grid	API IIoT API
Service Grid Persistence	Persistence Service
Service Grid Studio	Service Configuration Studio
Service Grid Proxy	Proxy Service
Service Grid Gateway	IIoT Services Gateway
Service Grid Egress Connector	Data Hub Driver
Service Grid Ingress Connector	IIoT Services Gateway

2. ABB Ability™ zenon

2.1. Installation and updates

2.1.1. New folder structure (F 256402)

With version 12, the folder structure for the installed components for the zenon Software Platform was updated and standardized. Every component gets its own folder under the master folder for 64-bit and 32-bit programs.

- %ProgramFiles%\ABB\zenon Software Platform 12
- %ProgramFiles(x86)%\ABB\zenon Software Platform 12

2.1.2. Optimization activities for installation (F 243115)

Optimizations are made for installation:

- Common causes of errors, such as paths that are too long and pending updates of the operating system, now lead to display of a corresponding error message.
- When closing the setup, a Summary section is added to the log file. This indicates the success of the installation or lists the errors that occurred during installation.
- If the configuration checks for SQL Server fail, a corresponding dialog is displayed with the error results displayed in a list. Clicking on the corresponding link opens the detailed report in the web browser.
- Messages are now formatted more consistently in the log and are easier to read.
- The logging information now contains additional information about execution method name and their return values.
- The Return-Codes 3010 and 3011 are now treated as a pending reboot. They no longer result in a rollback.
- The SQL script to create zenon users is now also executed after a restart if the user does not exist yet. This is primarily applicable for the system user zenOnSrv. The SQL script is now always executed before the 32-bit package of the Engineering Studio is installed. SQL Server settings and user settings for zenOnSrv are only applied if the user does not already exist. Settings of already existing installations are no longer overwritten.
- If the installation fails due to a pending reboot (after a Windows update for example), the computer will restart when you click on the Exit button. The user is asked in a message window if they really want to restart. After confirming the restart, the setup will continue as soon as the computer is available again. Make sure that the ISO image is mounted after a reboot.

  Note: This does not apply to clicking the button Close - X in the upper right corner. This button cancels the installation. You can also cancel the installation by clicking the Cancel button.

2.1.3. Component selection - Tool tips for status (F 250975)

When selecting components for installation, you now receive information on the installation status and necessary prerequisites for each component as a tool tip.

2.1.4. Deinstallation for different versions (F 243115)

For components of the zenon Software Platform that were installed in different versions or upgraded to a higher version:

Components can only be modified in the version in which they were installed or upgraded to.

Example:

Components of versions 11 and 12 are available on the system.

The Report Engine was installed in version 11. An upgrade to version 12 has not been made. This means that the Report Engine can only be removed via the version 11 installer.

The Report Engine was installed in version 11. It was then upgraded to version 12. This means that the Report Engine can only be removed via the version 12 installer.

2.1.5. Smart Client - upgrade possible (F 256414)

It is now possible to install a new version of the Smart Client if an older version is already installed.

When selected, the new version is marked as an upgrade. During installation, the old version is updated to the version selected. Only the new version is available on the system.

2.1.6. Device Management Interface components (F 250975)

In the packages for installing the zenon Software Platform you will now also find Device Management Interface components. These can be activated by default in the respective installation packages. They can be selected or deselected.

These components are used on the client/device by the Device Management of IIoT Services. This allows zenon projects to be distributed over devices. Setup installs those devices that are required on a device to work with Device Management.

2.1.7. Incorrect installation - Creating the SIC file (F 250975)

If installation is canceled due to an error, a comprehensive LOG file can now be created by the System Information Collector.

To do this, click the button Collect system information for support. The SIC collects all relevant data.

You can use this log for your own analysis and, if necessary, also send it to zenon.support@abb.com.

2.1.8. Report Engine - configurable database folder (F 250975)

When installing the Report Engine the folder for the SQL Server database can now be defined.

Note: There must not yet be an instance of the Report Engine available.

2.2. Engineering Studio

2.2.1. Removed "Insert vector graphic..." option (F 255324)

The option Insert vector graphic... was removed from the Screens and Symbols menus and removed from the context menus. DXF/PLT files can no longer be inserted in zenon screens or symbols.

2.2.2. Increase project version after restoring a project backup (F 254464)

If a project is restored and versioning is activated, the detail number of the project version (version minor - number) is increased automatically.

2.2.3. Renamed property group Service Grid to IIoT Services (F 254803)

The previous Service Grid property group for the Network property in Engineering Studio has been renamed and redesigned as IIoT Services. By activating the Activate IIoT Services checkbox and with the help of the IIoT Services Connection Wizards the Connection settings to the IIoT Services can now be configured.

2.2.4. Validation when creating Service Engine files enhanced (F 247214)

When creating or updating the Service Engine files, the following configurations are also evaluated:

zenon functions: Invalid function parameters or missing links are displayed as a warning message in the output window.

Deleted reaction matrix: Links of variables or data types with a deleted reaction matrix are visualized in the output window with a warning message.

Deleted interlockings: Links to screen elements, symbols or menus with a deleted interlocking generate a warning message in the output window.

Clicking on a warning message jumps to the corresponding configuration content.

2.2.5. Warning for unsupported graphics files in WVS (F 241150)

Graphics files that are not supported in Web Visualization Service now result in a warning in the output window when creating the Service Engine files. Also activating the Direct file selection option leads to a warning.

The WVS supports the following formats as graphic files:

- JPG
- JPEG
- PNG
- GIF
- BMP

2.3. Service Engine

2.3.1. Customization of configurable lists (F 252222)

The display of lists in the Service Engine was updated.

HEADER AND GRID
The properties for Header and grid are now displayed consistently.

COLUMN WIDTH FOR LISTS
For configurable lists, the new property Unit for column width can be used to select for configuration between characters or pixels.

Note: Already configured lists from projects from previous versions are not modified in the current version. Existing values are adopted.

HEIGHT FOR IMAGES
The height of images in cells can now be customized in the properties Image height and Height [pixels].

Note: In previous versions, images were always scaled with the width, but circle symbols were cropped. Now circle symbols are treated like screens.

VERTICAL ALIGNMENT OF COLUMNS
The vertical alignment of the contents of columns can now be defined for configurable lists. The new property Vertical alignment has been implemented for configuring the alignment.

2.3.2. Display of Service Engine when a monitor is switched off or on (F 251714)

If the Service Engine runs on a system with multiple monitors, this applies to removing and adding monitors:

- Monitor is turned off: The display of Service Engine is adjusted to the new configuration.
- A previously switched off monitor is switched on again: An attempt is made to optimally adjust the display and position of the main window of the Service Engine to the resolution and monitor configuration. Requirement: The main window has been configured with a fixed size and position.

2.3.3. More command processing warnings contain jump targets (F 247214)

The number of command processing warning messages has been increased. The messages contain jump targets and cover the areas Copy&Paste as well as creating Service Engine files.

2.4. Web Visualization Service

2.4.1. Web kiosk is supported (F 258435)

The main focus of the web kiosk is to provide access to a single app. Other settings or programs cannot be used.

Web kiosk is supported for:

- Windows
- Linux (Debian)

The following browsers can be used:

- Microsoft Edge (Chromium)
- Google Chrome
- Mozilla Firefox

Kiosk OS (Porteus Kiosk) is also supported.

2.4.2. Web Visualization Service OPS Manager Controller available (F 258857)

The Web Visualization Service OPS Manager Controller allows you to configure the WVS OPS Manager settings in a GUI.

- The GUI is loaded to the configured default browser.
- This app can be opened using the Startup Tool.

2.4.3. Web Visualization Service for Windows Docker Container (F 251085)

The Web Visualization Service and the WVS OPS Manager are now also available in the Windows Docker container.

2.4.4. Configuration in Engineering Studio (F 241150, F 240109)

In Engineering Studio you can now exclude objects that are not available in the Web Visualization Service from the configuration. Now activate the new property Only display compatible content for Web Visualization Service in the group General of project settings. Above all, graphic functionalities are offered that are suitable for use in the Web Visualization Service. Graphic functionalities that cannot be used are usually hidden.

If unsupported screen elements are used, a warning is displayed in the output window when the Service Engine files are created.

2.4.5. Screen of type Equipment model is supported (F 239922)

The screen of type Equipment Model can be called up in the Web Visualization Service. Browsing the equipment model tree is not supported.

2.4.6. Screen of type Command Processing is supported (F 250017)

The screen of type Command Processing can be called up in the Web Visualization Service.

The following are supported:

- Write set value via the following screen elements: Dynamic text, Numeric value, Combined element, Bar display
- Action type switching command for Return state/switching direction: On and Off for one-step command processing action.
- Select Before Operate for one-step switching actions.

- Screen-type specific objects
- Interlocking and individual unlocking

2.4.7. Screen of type Keyboard is supported (F 250738)

The WVS now supports screens of type Keyboard. Keyboards can only be used in the WVS for entering set values in dynamic elements and in the Recipe Group Manager (RGM). The onfigured labeling is adopted. Automatic labeling is not supported.

The following are supported:

- SETVALUEKBD
- SETSTRINGKBD
- SETBOOLKBD

Not supported:

- DIALOGKBD

For details on supported functionalities, see the chapter Web Visualization Service/Keyboards in the help.

2.4.8. Screen of type RGM is supported (F 250018)

The screen of type Recipe Group Manager can be called up in the Web Visualization Service.

The following are supported:

- Recipe value table

With direct editing, except Action column

- Read and set values
- Save recipes
- Sending progress
- User rights, but no signature and no eSignature
- Response variables

2.4.9. Screen elements

Notes on support for screen elements.

For details on supported properties, see the product documentation in the Web Visualization Service section in the Screen elements chapter.

2.4.9.1. Bar display (F 245413)

The WVS now supports the Bar Display element.

2.4.9.2. Dynamic text - Support for additional properties (F 245084)

The Dynamic Text screen element now also supports the listed properties:

- Display text: Limit value text

- Text: Display of the configured text in Service Engine if no limit value is currently violated.

2.4.9.3. Line ends (F 240091)

The WVS now supports all configurable line ends.

2.4.9.4. Dynamic set value limits - support for minimum and maximum (F 250041)

The WVS now supports Minimum and Maximum for Set value limits dynamic.

2.4.9.5. Static Text - Auto-wrap support (F 240091)

The Static Text screen element now supports automatic line breaks.

2.4.9.6. Support for Switch screen element (F 241158)

The WVS now supports the display and functionality of the Switch screen element.

2.4.9.7. Numeric value - Support for additional properties (F 241145)

The numeric value screen element now also supports the properties:

With Value display:

- Base for display
- Show base
- Show measuring unit
- Unit position [%]
- Show value in percent
- Show leading zeros
- Absolute amount

2.4.9.8. Interlocking of screen elements (F 240109)

The Interlocking of all screen elements is now supported, including Visibility. Substitution with linking rules of symbols or via the Screen switch function is also taken into account.

Exception: The graphical display of the interlocking is not supported.

2.4.9.9. Pointer instrument is supported (F 245414)

The WVS now supports the display of the pointer instrument.

2.4.9.10. Select alarm cause" dialog updated (F 251085)

The dialog to enter alarm causes has been updated.

Differences to Service Engine:

- Project list is only displayed if there is more than 1 project.
- List cannot be filtered.
- List cannot be sorted.

2.4.9.11. Dialog "Write/modify set value" updated (F 251085)

The dialog for Write/modify set value has been completely redesigned. Above all, the size is now adjusted automatically to the data type and display.

2.4.9.12. Communication with minimized browser (F 250014)

The communication between the WVS and the display in the browser is interrupted in case of any of the following events:

- The browser is minimized.
- The WVS tab is not visible.

As soon as the browser content is visible again, communication is resumed and updates are sent.

2.4.9.13. System driver variable is available [F 241150]

In the Service Engine you can now check whether the Web Visualization Service is active.

To do this, configure the system driver variable Web Visualization Service active in theme [System information].

2.4.9.14. Warning for start problem (F 251085)

If the WVS cannot be started, error information is now shown as Windows notifications. These are also available in Windows Action Center.

2.5. HTML Web Engine

2.5.1. 64-Bit application (F 250975)

The HTML Web Engine Compiler is now also available as a 64-bit application. This means that even very large projects with large RAM requirements can be started without any problems. It also makes it possible to compile extensive projects that cannot be compiled in a 32-bit architecture due to lack of memory.

2.6. Services

2.6.1. New Services

2.6.1.1. New 3D Integration is available (F 236365)

A new web-based 3D integration is now available. This can integrated via ActiveX screen elements.

Only the *.GLB format is supported. Functionalities can be triggered in the 3D Integration via limit violations.

A prerequisite for execution is a link to a node in the 3D model via an equipment group.

2.6.1.2. CIM CGMES interface (F 242770)

The CIM CGMES Interface enables configurations in Engineering Studio to be exported to a CIM

CGMS standards-compliant file.

For the export:

- Engineering content is linked to an equipment model.
- In the equipment model, in the new property Model Type the Substation configuration value is selected.
- The screen elements Line and Pipeline can be used for CIM-compliant configuration with the property Function type as Bus bar or Line.
- If the Model Type in the equipment model is configured properly (Substation), the new property Type is available in the equipment groups subordinate to the equipment model. This property can be used to configure further parameters of the CGMS standard (geographical area, geographical subregion and substation).

Based on these configurations, the standard-compliant file is generated by running a wizard.

2.6.1.3. MTP (Module Type Package) (E 242238)

The service Module Type Package (MTP) is now available in the zenon Software Platform.

The service consists of the following components included in the scope of delivery:

MTP Studio
Configuration environment for the standard-compliant orchestration of the process. Every single configuration step is checked in real time to ensure the process complies with the VDI/VDE/NAMUR 2658 standard.

Template Project
Basis for creating zenon project content based on the MTP standard. A complete navigation concept is included in this project, and it can be used to access zenon screen types such as Chronological Event List, Extended Trend, Batch Control, Alarm Message List, Recipe Group Manager, user administration, etc. Without further manual intervention in the project configuration, the connected devices (PEAs) can be controlled fully automatically in the Service Engine by integrating the configured MTP services in zenon Batch Control and thus running batch recipes.

MTP Gateway
Existing equipments that do not have an MTP interface can be equipped with the MTP gateway. With the help of zenon Logic, a signal translation interface is created, which means that the connected device is fully MTP-compatible externally. An MTP standard-compliant connection to the POL is therefore also possible for older devices.

Validation service for MTP files
Fast validation for existing MTP files. The basic requirement for consistent modularization in production is a uniform description of the information about the individual modules. Which data objects are recorded? Which services are to be executed? The description is carried out consistently via the cross-industry and cross-manufacturer standard Module Type Package. All information is provided in a standardized format and can thus be integrated into a higher level Process Orchestration Layer (POL).

The POL and the Engineering Studio interlock in a fully automated manner here. All work steps are thus automated in the Engineering Studio and transferred to the Service Engine via the POL. In this way, it only takes a few steps to create a fully automatically generated process control system (DCS).

2.6.1.4. Werum MSI Interface (F 237856)

The Werum MSI Interface enables the bidirectional exchange of data between Werum PAS-X and zenon. Werum PAS-X can thus use zenon to directly access the production machines and process data.

The interface is configured using the Werum MSI Configuration Tool.

2.6.2. Alarm Message List

2.6.2.1. Equipment group of the users or the user group is taken into account when acknowledging alarms (F 251730)

Users or user groups can be linked with a corresponding equipment group for the acknowledging of alarms in Service Engine.

For this purpose, the new property Equipment group required for acknowledgement has been added to the Alarm Message List project properties group in Engineering Studio.

If this property is activated, users can acknowledge alarms when either they themselves are linked with the corresponding equipment group or when they are linked to it via the user group.

2.6.2.2. Alternating blink color (F 253643)

Entries in the alarm message list can now be visualized in Service Engine with alternating blink colors.

The prerequisite is to configure the blinking via alarm classes. For this purpose, the corresponding properties were added to the configuration of alarm classes in the Engineering Studio.

2.6.2.3. Automatic re-sorting (F 260713)

The alarm message list is now sorted automatically when an alarm with an older time stamp is added.

The prerequisite for this is that the Automatic re-sorting property must be activated in the Alarm Message List project properties group when configuring in Engineering Studio.

2.6.2.4. Optimizing external AML/CEL storage (F 250661)

External storage and continuous export of AML and/or CEL to SQL/database tables or Data Storage has been updated:

Up to version 12: The buffer for entries not yet exported is always completely stored in RAM.

Result: If writing is not possible for a longer period of time, memory consumption continues to increase. Write attempts take increasingly longer and log files grow very fast.

As of version 12: Non-exported entries are cached in a file as soon as they exceed a configurable limit (default: 90k). By default, the export is retried every 60 seconds until it is successful.

The necessary configurations are made in zenon6.ini.

Attention The configuration is carried out per computer. Therefore, it applies to all projects on that computer. Different settings for Server 1 and Server 2 of the same project result in different behavior of the Transaction Container management on both servers. When switching between Server 1 and Server 2 this may cause some containers on Server 2 to have the size settings of Server 1 and vice versa.

2.6.3. Equipment modelling

2.6.3.1. Upper and lower case are no longer taken into account when searching in equipment model screens (F 250063)

In Service Engine, screens can now be filtered for equipment groups without taking upper and lower case into account.

2.6.4. Historian

2.6.4.1. Archive evacuation has been accelerated (F 254362)

The evacuation of archives from Service Engine into SQL-compatible databases has been accelerated.

If the database supports the optimized insertion of multiple rows, this method is used by Service Engine for the evacuation.

2.6.4.2. Swinging door algorithm for spontaneous archives (F 245359)

For spontaneous archives, the number of entries that are transferred to an archive file can be reduced. The new Swinging Door algorithm functionality has been implemented for this. Values within a tolerance range are not transferred to the archive.

Configuration:

- This functionality is activated in the Edit archive dialog in the Save tab with the new option Swinging Door algorithm.
- The configuration of the tolerance value is done in the new Tolerance for Swinging Door Algorithm variable property.

Information For this new option in the dialog to be activated, the following requirements

must be met:

- The archive is a base archive.
- The archive is a spontaneous archive.

2.6.4.3. Offset settings from the base archive are taken into account for aggregated archives (B 108671)

In the Edit archive dialog in the Recording type tab, the new option Use offset for aggregated archives is available.

Aggregated archives take into account offset settings from the base archive if this property is activated.

2.6.5. Automatic Line Coloring

2.6.5.1. Copy and paste aliases of screen elements and symbols (F 172714)

After copying screen elements or symbols, these can be simultaneously inserted and set as an alias via a new option in the main and context menu.

2.6.5.2. ALC - Configure alias in symbol (F 172714)

From now on, aliases can also be created in symbols. A new radio button has been added to the dialog for selecting an ALC alias.

2.6.6. User administration

2.6.6.1. Changes in the CEL entries of the user administration (F 252873)

The existing CEL entries of the user administration have been standardized.

NEW CEL ENTRIES FOR CHANGES IN THE USER ADMINISTRATION
CEL entries for the user administration are now created when changes are made to the listed properties:

- User can edit other Power users.
- User cannot edit other Power users.
- User expiration date activated.
- User expiration date deactivated.
- User expiration date changed.
- Automatic logout for user group activated.
- Automatic logout for user group deactivated.
- Automatic logout time for user group changed.

NEW CEL ENTRIES FOR USER ADMINISTRATION - MESSAGE CONTROL
The following CEL entries for user administration - Message Control have been introduced:

- User activated for Message Control.
- User deactivated for Message Control.
- User phone number changed.
- User email address changed.
- User substitute person changed.
- User PIN code changed.
- User NA code changed.

2.6.6.2. eSignature: Process description supports placeholders (F 255983)

The eSignature process description is now configurable as dynamic text. The %<variable name> placeholder can be used multiple times with different variables. The values of the variables used are language-translatable.

2.6.7. Screens

2.6.7.1. Screens of type HTML exclusively use WebView2 (F 250975)

Screens of type HTML are now based in the Service Engine on the Microsoft component WebView2.

In this way, the content of complete websites can be integrated in the Service Engine.

2.6.7.2. Screens of type HTML adopt proxy server settings from Windows system settings (F 255956)

For the use of a proxy server, proxy settings can be configured with entries in the project.ini file.

If no relevant entries have been configured in project.ini, the settings for the proxy server are adopted from the Windows operating system, if any exist.

2.6.8. Chronological Event List

2.6.8.1. Optimizing external AML/CEL storage (F 250661)

External storage and continuous export of AML and/or CEL to SQL/database tables or Data Storage has been updated:

Up to version 12: The buffer for entries not yet exported is always completely stored in RAM.

Result: If writing is not possible for a longer period of time, memory consumption continues to increase. Write attempts take increasingly longer and log files grow very fast.

As of version 12: Non-exported entries are cached in a file as soon as they exceed a configurable limit (default: 90k). By default, the export is retried every 60 seconds until it is successful. The necessary configurations are made in zenon6.ini.

Attention
The configuration is carried out per computer. Therefore, it applies to all projects on that computer. Different settings for Server 1 and Server 2 of the same project result in different behavior of the Transaction Container management on both servers. When switching between Server 1 and Server 2 this may cause some containers on Server 2 to have the size settings of Server 1 and vice versa.

2.6.8.2. User Administration - New messages for Active Directory Operation (F 252873)

For Active Directory operations of the User Administration service, new messages were implemented in the Chronological Event List.

2.6.9. Extended Trend

2.6.9.1. In Web Engine - Crosshair replaced by tool tip (F 250019)

Crosshair is no longer available for display in the HTML Web Engine. It was replaced by a tool tip.

2.6.9.2. Resources label is available (F 254447)

The column Resources label is now available via 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.

Note: The Extended Trend in the Web Visualization Service (WVS) does not support this change.

2.6.9.3. Multi-processing of trend curves possible in the Edit Curve dialog (F 245203)

From now on, both in the Engineering Studio as well as in the Service Engine, several curves of Extended Trend can be edited at the same time. To enable quick changes, properties that do not have the same value for all curves are shown in red font. After successful changes, these properties are displayed in black and can then be saved.

2.6.9.4. Update rate of the archive data is adjusted automatically after peak loads (F 253633)

So far, the update rate of the Extended Trend automatically increased at peak load and then had to be reduced again manually. This reduction now happens automatically. The configured update rate is not undercut.

This update works in the Service Engine as well as in the Web Visualization Service (WVS).

2.6.9.5. Archive - Last value before hysteresis violation is stored (F 261996)

The last value before the hysteresis violation is now automatically saved. This ensures that the curve progresses continuously in Extended Trend.

2.6.10. Functions and scripts

4.6.10.1 Screen switch function - Selection of equipment group in

AML/CEL filter dialogs (B 222907)

In the screen switch filter dialog for AML/CEL, an equipment model can be selected in the column

setting tab for the column type equipment group in the column Display*.

4.6.10.2 Smart Client supports "Exit Service Engine" function (F 255873)

The already existing Exit Service Engine function is now also supported in the Smart Client. The prerequisite is that the Smart Client was launched in the Smart Client Starter.

2.6.10.1. New function "Process Gateway Action" (F 256388)

Process Gateways configured in Engineering Studio can be started, stopped, or forced to be restarted via the new Process gateway action function.

2.6.11. GIS

2.6.11.1. Search functionality in the Service Engine (F 246692)

In the Service Engine a search functionality is available to search for specific equipment groups.

2.6.11.2. Equipment models and equipment groups can be linked with GIS elements (F 246692)

GIS supports the linking of equipment models and equipment groups with GIS elements. In this way, in Service Engine, for example, the searched GIS elements can be given colors.

2.6.11.3. Coloring of elements linked to an equipment group in Service Engine (F 246692)

In order to to make it easier to locate elements in the Service Engine, these can be colored as soon as an element is selected in the tree view.

The marked element is centered on the GIS map and zoomed in.

Note: To use this functionality, the element must be linked to an equipment group.

2.6.11.4. Information about selected markers in Service Engine is available (F 246692)

Variables can be assigned to properties in the GIS Editor. The property values provide information about the currently selected marker.

The following properties can be linked to variables of the STRING data type in the GIS Editor:

- Selected marker description variable
- Selected marker Equipment Group ID variable
- Selected marker Equipment Group name variable
- Selected marker name variable

Example: The contents of the linked variables can be displayed using dynamic text fields in the Service Engine.

2.6.12. Network

2.6.12.1. Accelerated start of hierarchical network projects (F 257285)

The start of hierarchical projects has been accelerated. The improvement in performance is achieved by determining the availability of the servers more efficiently.

2.6.13. Process Gateway

2.6.13.1. Interprocess communication via zenDrvOpsManager.exe (F 250292)

From zenon Version 12 and higher, the Process Gateways use the service zenDrvOpsManager.exe for interprocess communication for the Service Engine and the Engineering Studio. Every Process Gateway starts as a sub-process of zenDrvOpsManager.

Note: For the communication of the drivers, this functionality was already implemented with version 11.

2.6.13.2. Start behavior at start of the Service Engine configurable (F 236810)

For configuration of the start behavior of a Process Gateway in the Service Engine, the properties in the Engineering Studio were adjusted. The properties Startup location and Specific computers are always available for configuration from version 12.

In previous versions, configuration was only possible if the Start automatically property was activated.

2.6.13.3. SNMP_SG - new Process Gateway with SNMPv3 (F 252528)

The new Process Gateway SNMP_SG includes the following functionality:

- Support for SNMPv1, SNMPv2 and SNMPv3.
- Configuration for a zenon project.
- Values of the configured variables can be read and written.
- Traps are sent in case of value changes, CEL events and alarms.

2.6.13.4. IEC 60870-5-101/104 slave

The following enhancements have been implemented for the Process Gateway Slave for IEC60870-5-101/104 communication protocol:

TLS communication (F 246808)
TCP/IP Process Gateway connections for the IEC 60870-5-104 communication protocol can be secured via TLS. For easy configuration, the IEC 62351-3/TLS button was implemented in the 104 settings tab in the configuration dialog.

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

- TLS communication is configured per device/master.
- Password support when using the PKCS#12 file format.
- Implementation was carried out in accordance with the IEC TS 62351 standard.

Attention
his invalidates TLS configurations of previous versions which have been set in the INI file for the respective Process Gateway.

Logging commands received in CEL (F 255293)
The Process Gateway can optionally create a CEL entry when a command is received.

To do this, the new option Log commands in CEL was implemented in the configuration dialog in the device tab. If this option is active, a CEL entry is generated when a command (select, execute, cancel or direct execute) is received from a 870 master. This option is configured per Device. The CEL entry for the command variable includes Devicename/Description and Sectorname/Description. This means that the master and the gateway instance can be clearly identified.

IPv6 (F 249113)
The Process Gateway supports IPv6. Configuration is available for 870-104 redundancy/IPv6 communication. To do so, we updated the option IP-Addresses of redundant Masters in the Device tab for entering IPv6 addresses.

2.6.13.5. OPC UA Server

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

Support for external OPC UA information models (F 243450)
The AccessOPCUA Process Gateway now also supports external OPC UA information models. The following enhancements have been implemented for this purpose:

- Reload supports customized OPC UA information models without interrupting communication
- Mapping of customized OPC UA information models

RELOAD SUPPORTS CUSTOMIZED OPC UA INFORMATION MODELS WITHOUT INTERRUPTING COMMUNICATION (S 250447)

If the Process Gateway uses a customized OPC UA information model, reloading is possible without interrupting the communication to OPC UA clients.

Reloading takes into account the following changes to a customized OPC UA information model:

- Customized node changes
- Mapping type changes
- Add, remove or change namespaces

MAPPING OF CUSTOMIZED OPC UA INFORMATION MODELS (S 249638, S 249639)

The following methods are available for mapping variables of a customized OPC UA information

model:

- Automatic mapping - The AccessOPCUA Process Gateway automatically assigns nodes of a customized OPC UA information model based on the DisplayName property in the UANodeSet file to zenon projects and zenon variables, if corresponding variables exist in zenon.
- Mapping with Siemens SiOME software - With this option, variable mapping is based on the manual mapping, which is saved in a file when using Siemens SiOME software. SiOME saves the mapping - as so-called extensions - in the UANodeSet file.

OPC UA Server optionally only accepts encrypted connections (F 239431)
The AccessOPCUA Process Gateway accepts, as an option, only encrypted connections.

For this, the additional selection Sign & Encrypt was added in the configuration dialog in the Endpoints tab in the drop-down lists of the options of the group Endpoints. If this entry is selected, only communication with signing and encryption is accepted.

ServerDiagnostics removed (S 261375)
The ServerDiagnostics, which were partially implemented in version 11, have been removed again for version 12, because they did not meet the OPC UA specification.

2.6.13.6. [Smart Objects] enhancements

The Namespace Scada.AddIn.Contracts.SmartObjects was updated:

WRITE/READ RELEASED PROPERTIES (F 253639)
The released properties of a Smart Object can be read and written using the API. To do this, the list of Released Properties was completed.

AUTOMATED MAPPING: VARIABLE MAPPING PROJECT -> SMART OBJECT (F 253652)
The Interface ISmartObject was extended by the property of type ISoMappingRuleCollection. This allows existing mappings to be read or deleted, and new mappings to be created.

PLACE SMART OBJECT SYMBOL IN SCREEN (F 251541)
The Interface ISmartObject has been extended by the ISoSymbolLibrary type property as well as the createSpecification method. This allows Smart Objects to be placed on a configurable zenon screen.

Released properties and mapping rules thus are automatically assigned the correct value. This functionality can also be performed as a bulk operation.

The insertion itself is done using the InsertSoSymbols method on Iscreen. This method gets an ISoSymbolSpecification type object that defines which symbols of which Smart Objects are to be inserted into the screen.

2.6.14. Process recorder - playback speed can be increased/decreased (F 258278)

To control the playback speed of the process recorder, you can now configure different screen elements for playback speed in Engineering Studio.

The following are available:

- Current playback speed
- Increase playback speed
- Decrease playback speed

The playback speed can be increased or decreased during playback.

2.6.15. Remote Transport

2.6.15.1. "Copy & register" and "Copy & execute" are no longer supported (B 255291)

When transferring data via Remote Transport, the following actions are no longer available for the option Execution:

- "Copy & register"
- "Copy & execute"

This also applies if the remote computer is running Service Engine in a previous version and the zenon project has been created for previous versions.

2.6.16. Recipe Group Manager (RGM)

2.6.16.1. Dialog for saving changes when exiting the screen of type RGM in the Service Engine (F 253735)

In the Service Engine, when you close a screen of type Recipe Group Manager, a confirmation dialog is displayed, if the screen you are closing contains unsaved changes.

2.6.16.2. Standardization of the CEL entries of RGM recipe and RGM recipe group operations (F 246356)

The CEL entries of RGM recipe operations and RGM recipe group operations have been standardized.

2.6.17. SAP interface - Support for the current SAP NetWeaver RFC API interface (F 247085)

The internal interface to an external SAP system has been updated. This ensures that communication of zenon to current SAP systems is supported.

2.6.18. Smart Objects

2.6.18.1. Variables will be consumed for TAG-based licensing (F 236748)

Smart Object variables are now consumed in Engineering Studio and Service Engine for the licensing.

2.6.18.2. Ranking of rules for variable mapping available (F 236748)

The order of the rules for variable mapping can now be changed manually.

2.6.18.3. New Apply Rule button (F 236748)

The mapping rules list now has the Apply rule button. The selected rule will be applied to both the Smart Objects as well as the project variables.

2.6.18.4. Password protection for Smart Object Templates (F 218195)

Smart Object Templates can now be protected with a configurable password. This password is also retained when copying, exporting and reinserting the Smart Object Template. If known, the password can also be changed or deleted. For configuration, the two new properties Password protection and Password were implemented.

2.6.18.5. Copy protection for Smart Object Templates Files(F 218195)

Protects the contents of a Smart Object Template from being copied using Copy&Paste to the configuration of another Smart Object Template. It also prevents duplication of a Smart Object Template file outside of Engineering Studio.

2.6.18.6. Security mechanism when creating Smart Object Templates from the equipment model (F 218195)

A Smart Object Template can only be created from a system group, if no element originating from a Smart Object has been assigned to this group. If such a link exists, the creation of the Smart Object Template is canceled with a warning message.

2.6.18.7. Smart Object Templates support WPF elements from CDWPF files (F 258589)

WPF screen elements can now also be configured in Smart Object Templates.

2.6.18.8. Mapping zenon Logic projects to Smart Object (F 258730)

zenon Logic projects from Smart Object Templates can now be mapped to zenon Logic projects from the zenon project or another Smart Object Template. To do this, we implemented the zenon Logic project mapping dialog. This dialog is called with the property zenon Logic project mapping.

2.6.19. Styles

2.6.19.1. Automatically assigned color in curve style (F 253968)

The new property Use color from curve is now available for the curve style. If this property is activated, the curve adopts its color from the Extended Trend dialog. All other curve settings are carried over from the curve style.

2.6.20. Interlockings

2.6.20.1. Additional options for the substitution of symbols with interlocking (F 255966)

When configuring the substitution rules of symbols with an interlock, two new options are available in the dialog:

- Consider interlockings
- Do not consider interlockings

2.7. Programming interface

2.7.1. Update for add-in wizards during Build Setup (F 290975)

When importing build updates for zenon Add-In Wizards are now updated automatically. Manual configurations or updates are no longer necessary.

The entry UPDATE=1 in the zenon6.ini file is set automatically and is the default value.

2.7.2. [Process Gateway] Creation (F 255988)

Process Gateways can be created or deleted via API.

The Interface IProject has been supplemented with the IProcessGatewayCollection property. This property can be used to access preconfigured Process Gateways, delete existing Process Gateways, and add new Process Gateways. The output of configuration dialogs is suppressed for this property.

2.7.3. [Equipment model] enhancement (F 236365)

The Namespace Scada.AddIn.Contracts.Variable in the Interface IVariableCollection was extended by the GetItemsByEquipmentModel method. This allows all variables assigned to an equipment model to be read out.

2.7.4. [Driver] Save data model to file (F 245172)

A parameter has been added to the Browse method in the Interface IDriver for the Namespace Scada.AddIn.Contracts.Variable. This allows the result of reading a driver to be saved in a file.

Reading to a .plccache file (Browse) is available for the following drivers:

- OPCUA32 - For this driver, additional drivers can be created offline from this file in Engineering Studio.
- S7TIA

- LOGIX_ODVA

2.8. Drivers

2.8.1. Driver configuration via API (F 254631)

From version 12, the following drivers can be fully configured via the API:

- LOGIX_ODVA
- MELSECA
- S7TIA

2.8.2. Driver simulation

The programmed driver simulation now supports the following new functionalities:

- WSTRING data type (S 257803)
- zenon Logic function blocks for JSON and ARRAY (F 257804)

2.8.3. XML export and XML import of driver configuration (F 252858)

Driver configurations can be exported and imported as an XML file from version 12 in Engineering Studio. For this purpose, in the driver configuration in the Engineering Studio we added the menu items Export selected as XML and Import XML. External editing of this XML file is not supported. This functionality is primarily used to exchange configurations between zenon projects and workspaces.

Note: Only the driver configuration is exported. Additional files required by the driver (such as certificates or configuration files of the driver) are not included in the export. These must be customized and made available again after importing the XML file.

2.8.4. zenon Drivers for Linux (F 250280, F 244782)

The following drivers are also available for use with the supported Linux versions:

- 3S_V3 (S 252863)
- BACnetNG (S 247803)
- BECKHNG (S 252864)
- GENERICNET (S 254668)
- LOGIX_ODVA (S 250283)
- MBUS32 (S 246407)
- MELSECA (S 252863)
- OMRON_EIP (S 252863)
- OPCUA32 (S 247788)
- S5TCP32 (S 252863)
- S7TCP32 (S 252863)

- stratonNG (S 247798)

2.8.5. Additions to existing drivers

The zenon drivers have been enhanced by the following functionalities:

2.8.5.1. 3S_V3

Linux porting (F 252863)
The 3S_V3 driverare also available for use with supported Linux versions.

Support for Device User Management (F 253336)
The 3S_V3 driver now supports communications with systems that require Device User Management. For this purpose, the option group in the configuration dialog of a connection Device User Management was added for username and password configuration.

These options are available for version 3 for the connection types Gateway and ARTI.

2.8.5.2. BACNETNG - Linux porting (F 247782)

The BACNETNG driverare also available for use with supported Linux versions.

2.8.5.3. EUROMAP63 - CYCLIC TIME communication (F 251560)

The EUROMAP63 driver supports CYCLIC TIME communication. In the Connections tab in the configuration dialog, we added the new option Cyclic time interval. The parameters of this option can be set for each connection.

The new driver object type State (cyclic) is also available for configuration of variables. If a zenon project includes at least one variable for this driver object type, a cycle-based report is created.

The previous driver object type State (in previous versions) has been renamed to State (shot).

2.8.5.4. IEC870

Alternative redundancy concept (F 253123)
The driver supports an additional, non-standard, redundancy mode. This is used, for example, by Siemens devices with redundant processor modules.

With this additional redundancy design, the IEC870 driver communicates simultaneously with the primary and the secondary IP address. The values received are accepted simultaneously by both connections and transferred to Service Engine.

For this purpose, we have added the new option group Redundancy mode for configuration of a connection in the Device dialog.

Configuration:

- The redundancy mode is selected from a drop-down list during configuration in the new option Redundancy mode.
- In addition, the new No START_DT on Secondary Server option was added.

If this option is activated, 60870-5-104 test frames are sent, but no telegrams of the application layer are transmitted. The driver on the standby server sends test frames, but no telegrams are transmitted.

Initial value for command variables (F 260182)
During initialization, the driver can set a default value for command variables. In the Basic settings tab of the driver configuration dialog, the Initialize command variables option was newly added.

The following applies for command variables:

- If available, the last known value is set from a remanent variable image.
- If no remanent variable image is available, the command variable is initialized with the value 0 with the status bit NT_870 (not topical).

Command T105 - Reset Process Command (F 254869)
The driver supports T105 commands. To do this, a USINT variable with the Type ID T105 (C_RP_NA_1) and the corresponding Net address and COA must be created.

2.8.5.5. BECKHNG - Linux porting (F 252864)

The BECKHNG driverare also available for use with supported Linux versions.

The use of the driver under Linux operating systems requires appropriate configuration. For this purpose, the following new options have been added to the driver:

- Use platform independent library - This option must be activated for Linux operating systems.
- Own NetID
- Remote IP

In the configuration dialog of the connection

2.8.5.6. GENERICNET - Linux porting (F 254668)

The GENERICNET driverare also available for use with supported Linux versions.

2.8.5.7. Jetter file storage (F 250975)

When installing the Jetter driver, the files for the required additional software are also installed.

Storage location:

- Windows 64: C:\Windows\SysWOW64
- Windows 32: C:\Windows\System32

The following are required:

- Jet32Ex2.dll
- JetIP32.dll
- Jet32Controllers.xml
- Jet32Controllers.bin

2.8.5.8. LOGIX_ODVA - configuration via API (S 254633)

The LOGIX_ODVA driver can be configured via API from version 12.

2.8.5.9. Modbus Energy

RTU frame via TCP/IP (F 258111)
The Modbus Energy driver supports communication of RTU frame via TCP/IP. For this purpose, the new Modbus TCP/RTU frame via TCP radio button has been implemented in the Settings tab of the driver configuration dialog.

For Linux operating systems, only communication via TCP/IP with B-Bus gateways is supported.

Optimization of the block size during communication (F 262863)
The driver optionally optimizes the block size for requests, based on existing variable offsets. This ensures that the driver does not request any addresses for which no zenon variables exist.

For this purpose, the new option Skip not existing addresses has been implemented in the configuration dialog of the driver in the Settings tab. The option works globally for all connections and can also be used in combination with the RTU Frame over TCP option.

2.8.5.10. MBUS32

Linux porting (S 246407)
The MBUS32 driverare also available for use with supported Linux versions.

2.8.5.11. MELSECA

Linux porting (F 252863)
The MELSECA driverare also available for use with supported Linux versions. Only communication via TCP/IP is supported. Serial communication for Linux operating systems is not supported.

Configuration via API (S 254635)
The MELSECA driver can be configured via API from version 12.

2.8.5.12. OMRON_EIP - Linux porting (F 252863)

The OMRON_EIP driverare also available for use with supported Linux versions.

2.8.5.13. OPCUA32

Linux porting (F 247782)
The OPCUA32 driverare also available for use with supported Linux versions.

Read offline variable import from UaNodeset file (F 249369)
Variables can also be imported offline based on a UaNodeSet file. The basis of data when executing the Read PLC variables in background command can be selected per connection in a dialog.

The choices are:

- Read from OpcUa server
- Read from local UaNodeset files

2.8.5.14. S5TCP32 - Linux porting (F 252863)

The S5TCP32 drivers are available for use with supported Linux versions.

2.8.5.15. S7TIA

Configuration via API (S 254634)
The S7TIA driver can be configured via API from version 12.

Variable import enhanced (F 258988)
The variable import for the S7TIA driver has been enhanced by the following functionalities:

Variable import dialog:

- Nodes can be selected for import in an import dialog by means of multiple selection. Variables can be pre-filtered with “Accessible from HMI”.
- The nodes are sorted alphabetically
- New import options:
    - Write Identification - Overwrites the Identification property during import. This also applies for existing configurations.
- Overwrite only empty Identifications - Overwrites all variable properties during import. If the Identification property of the variable already contains a value, this value is not changed. If the Identification property does not contain a value, this is set during import.
- New column Writable from HMI. Corresponds to the configuration in a TIA project. The Write set value variable property is set according to the Writable from HMI import option.
- The filter criterias for variable names take into account the case sensitive setting in Engineering Studio
- New subsequent dialog for the import method:
    - Import all variables
    - Only import new variables (the variable name is decisive)
    - Only import existing variables (the variable name is decisive)

Support for TIA 18 and access level password (F 260508)
The driver supports the current version TIA 18 (AGL Version 6.0.0.0).

For each connection, the new Password option can be used to enter the Access Level password for the S7 TIA project. This password is used for communication if the password has been configured and has been selected under Options Symbols from PLC. This option is also available for the API, but as write only.

Extended error message (F 246674)
If a S7 read or write request from the S7TIA driver fails with the error code AGL40_SYMBOLIC_PARTIAL_ERRORS (some elements failed, some succeeded), each object's error code is checked and an error message is generated for the failed objects, including their address.

2.8.5.16. S7TCP32

The following new features have been implemented for the S7TCP32 driver:

Linux porting (F 252863)
The S7TCP32 driverare also available for use with supported Linux versions.

High-precision timestamp for ALARM_8 (F 260488)
The driver supports for ALARM_8P messages high-precision timestamps, as an option. To do this, the new High-precision timestamp for ALARM_8 option has been added. This can be found in the TCP/IP connection tab of the driver configuration dialog in the ALARM_x options option group.

2.8.5.17. SNMPNG32 - configurable cycle interval (F 253334)

The cycle interval of the query and the initial waiting time can be customized for each agent, as an option. For this purpose, the new Connection-specific polling interval option group, with the two options Polling interval and Initial waiting time, has been added for the configuration of the agent.

Note: Trap variables are - as in previous versions - always received immediately when they occur.

2.8.5.18. stratonNG (F 247782)

The stratonNG Driver are also available for use with supported Linux versions.

2.8.5.19. VASS (F69994)

The VASS driver was enhanced with the following functionalities:

- New driver object type MessagesSorted (S254516). MessagesSorted contains the message from the M1 telegram on the index on which it was originally entered.
- Support of M2 telegrams (S 255769).
- Restore from shadow for SetValues and SwitchPoints (S 257574). The set values written last are restored to the variables as soon as the variable with Offset 20 has been written.

2.9. Apps (Tools)

2.9.1. Diagnosis Viewer

2.9.1.1. Changed file extension for zenon LOG files (F 246806)

The file ending was changed from *.txt to *.dvlog. Double-click on the DVLOG file to open the Diagnosis Viewer.

2.9.1.2. LOG entry, if the Service Engine is shutdown unexpectedly (F 246854)

An unexpected shutdown of Service Engine is now logged. After restarting Service Engine, a notification is issued in the Diagnosis Viewer about the shutdown.

2.9.1.3. Support for regular expressions (F 246806)

To filter the columns in the Diagnosis Viewer, Regular expressions (Regex) are supported.

2.9.1.4. Switch Time display (F 246806)

In the Filter configuration dialog for the Time interval it is now possible to select different time zones.

The start and end time for the time interval is adjusted automatically to the selected time zone.

2.9.1.5. Expanded background color options (F 246806)

For the Filter configuration dialog in the Colors tab, we expanded the options for selecting the display color. Operation has been made more intuitive.

2.9.1.6. Export and import of filter profiles (F 246806)

Filter profiles can also be exported and imported. The filter profiles include:

- Server configuration
- Client configuration
- Column settings

2.9.2. System Information Collector

2.9.2.1. New file extension for SIC files (F 246805)

The file ending was changed from *.zip to *.sic. Double-click on the SIC file to open the System Information Collector.

2.9.2.2. Collection of Windows event logs from the last 10 days (F 246805)

In Full mode of the System Information Collector now the Windows Event logs will also collect events for the last 10 days (System, Application, Security and Setup). They are saved in EVTX format and can be opened in Windows Event Viewer.

2.9.3. Startup Tool

2.9.3.1. Configurable timeout for services started by zenon Startup Manager (F 255856)

Components of the zenon Software Platform that have been started as a service by zenStartupMgr can be terminated with a timeout. This timeout can now be configured in the Startup Tool. To do this, in the Startup tab the new Services shutdown option has been added.

2.9.3.2. Windows Handle limits can be configured (F 252257)

The limit values for warnings and errors of Windows Handles and GDI Objects can now be set manually in the Startup Tool.

2.10. Wizards

2.10.1. Removed Pharmaceutical Wizard from the zenon Software Platform (S 255325)

The Pharmaceutical Wizard is no longer included in the scope of delivery from version 12.

2.10.2. IIoT Services Connection Wizard (F 254801)

The IIoT Services Connection Wizard provides easy configuration with a GUI in order to connect components and apps of the zenon Software Platform with IIoT Services.

This wizard can be called in the following apps and offers context-dependent configuration options:

- Reporting Studio - When configuring the Service Nodes.
- Connect Report Engine to IIoT Services (get Certificate Bundle, set up Identity Service Client).
- Create resource on Identity Management.
- Engineering Studio - When configuring the new project property Connection settings.
- Connect projects to IIoT Services (get Certificate Bundle, set up Identity Service Client).
- Create resource on Identity Management.
- Data Storage: Set up access permissions for Service Engine.
- Configure Metadata Synchronizer (optional).
- Startup Tool - In the Tools tab in the overview of zenon apps. The wizard replaces the Service Node Configuration Tool (SNCT) which was used up to and including version 11.2.
- Web Engine Deployment Tool

When configuring the IIoT Services connector.

The wizard replaces the Service Node Configuration Tool (SNCT) which was used up to and including version 11.2.

2.10.3. ABB Template Wizard

2.10.3.1. User password complexity in the template project is not as per the design requirement (BUG 221777)

Minimum password length in ABB Template project is defined as 6 which shall be adapted by user under User Administration section in project properties. ABB recommends minimum password length as 12.

2.11. zenon Logic

2.11.1. Release notes zenon Logic 12

The following chapters contain information to the new features of zenon Logic 12.

2.11.1.1. ProfinetIO “S2” redundancy (F 249572)

The redundant Logic Service supports the ProfinetIO “S2” redundancy. Both active and passive CPUs connect to the device in order to allow a bump less change of primary controller. This ensures safe controller switching from Standby to Primary and avoids temporary network faults on devices.

2.11.1.2. Logic Studio

Project names with up to 255 characters (F 201887)
The maximum length of zenon Logic project names has been enlarged to 255 characters. Hint: Project names containing more than 15 characters cannot be downloaded to Logic Service versions smaller than 12.

Support of WSTRING Variables (F 260267)
Variables of type WSTRING, which are configured in Engineering Studio and have the Visible externally property (variable property group Integrated 61131-3 settings) activated are available in the variable list of Logic Studio.

Predefined View layouts in Logic Studio (F 250382)
The Logic Studio provides 16 predefined View layouts now. The Select View Layout dialog can be opened via Tools, Options... and View layout.

Libraries - blocks can be arranged into subfolders (F 256886)
If a library is linked to a project, all blocks in the tree view of the project workspace are shown and can be moved to subfolders.

POUs can also be hidden away in the list of blocks. All POUs under the Hidden folder are not visible in the list of blocks.

Active Online change opens the Create Variable dialog automatically, when a variable is created (F 251659)
If the Project settings property Online change is ACTIVE, the Create Variable dialog will be opened automatically when a new variable is created in the variable editor.

Strict CRC calculation for RETAIN variables (F 252588)
A more strict calculation is available for RETAIN variables in the Project settings dialog (Advanced/Other compiling options).

If STRICTRETAINCRC=ON is active, the variable names will also be included in the calculation of the CRC signature. The CRC will be displayed at the end of the build report.

2.11.1.3. Fieldbus drivers

Parts of driver configurations can be disabled (F 250420)
In addition to entire drivers, parts of driver configurations can be disabled now too. Select the driver node to be disabled and click on Disable node.

The entry Disable node is available in the vertical toolbar of the fieldbus configuration and in the context menu.

Hint: Not available for AS-I driver configurations. In case of MODBUS drivers there are restrictions regarding XML export and import.

MODBUS supports 64 bit variables (F 249045)
The Modbus Master and Modbus Slave fieldbus drivers now also support the communication of 64 bit variable (LINT/ULINT). The WORD/DWORD order can be configured.

IEC 60870 Slave - IPv6 communication support (F 249113)
The IEC 60870 Slave fieldbus driver supports communication for IPv6.

OPC UA Client does not support synchrone mode anymore
The Mode property has been deleted in the Group dialog, because the synchrone mode is not supported anymore.

Log traces available for Ethernet/IP I/O Scanner (Client)
The property Log traces is available now for the Ethernet/IP I/O Scanner. The property is reserved for technical support and may slow down the PLC execution, if active.

Library of MODBUS Slave Devices in XML file format (F 254609)
Device specific templates can now be created and managed for the MODBUS Master. The definition contains the MODBUS function code, size and variables. Thus the address space of different MODBUS SLAVES can be mapped. When inserting a template, a variable prefix can be assigned.

Logic to SCADA - support for WSTRING variables (S 260268)
Variables of data type WSTRING variables are supported and externally visible for integration and communication.

Support of UNICODE strings - WSTRING (F 258112)
STRING variable length of UNICODE characters encoded as UTF16 are supported. Unlike STRING variables, these variables are dynamically allocated/reallocated in memory and thus are not declared with a maximum length.

Note: To use WSTRING variables in a project, the option Store complex variables in a separate segment must be enabled in the project settings.

Notes and restrictions:

- variable locking is not available for WSTRING
- no WSTRING available in recipes
- no WSTRING available on binding (spont via T5 Logic Service protocol)
- Maximum length for WSTRING: 32000 characters.
- Custom functions and function blocks are required to use WSTRING.
- WSTRING variables can be communicated in version 12 via the Logic to SCADA fieldbus driver.
- WSTRING variables are not yet supported in version 12 for the stratonNG driver and the straton32 driver.

MODBUS Master supports encrypted communication via TLS (F 249713)
Encrypted communication via Transport Security Layer (TLS) is available now for the MODBUS Master.

Configurable access rights for JSON Data Server (F 253293)
The Link with embedded HTTP server configurator and driver now optionally proposes to enumerate the variables that can be exposed by the JSON Data Server and their access rights.

This is possible via the property Access rights:

- Free (by name): if active, the server gives free Read/Write access to any variable having its name embedded (same as previous versions).
- Configured variables only: if active, exposed variables must be enumerated in the configuration tree. The property Access to unconfigured variables allows to define the default access rights for any variable which is not explicitly configured in this tree:
- Read only
- Read / Write

- Access forbidden

MQTT Client driver available (F 260624)
The MQTT Client driver is available now in zenon Logic. The driver supports MQTT version 3.1 and 3.1.1 via TCP/IP and optionally also with TLS. The setup and monitoring of communication, the publishing of topics and subscription to topics is all carried out by means of function blocks. Only one topic action can be executed per cycle.

2.11.1.4. Programming

Support of UNIONs (F 256212)
UNION are a kind of user defined Data types. As structures, a UNION is defined as a set of data members, each member having a name and a data type.

For the UNION usage the option Store complex variables in a separate segment must be enabled.

Restrictions:

A UNION cannot:

- contain STRING members
- have an initial value
- work with the Soft Scope

Use STRETCH mode for bitmaps to generate HTML
Set the property mode to STRETCH for bitmaps in the graphic editor if you want to generate an HTML page. HTML generation does not support ORIGINAL mode.

"Search in Selection" is supported in graphic editors (F 254537)
The Find/Replace dialog can be used now in the following languages:

- Ladder Diagram
- Free Form Ladder Diagram
- Function Block Diagram

If Current Selection is selected in the Property Look in, the following buttons are available:

- Find Next
- Replace
- Replace All

New pragmas to display messages in the build report (F 257108)
The following pragmas are available now in the compiler to add texts for Messages, Warnings and Errors for the compiling report:

- #message text line - Add the line text to the report
- #warning text line - Add the line text to the report and treat it as a warning
- #error text line - Add the line text to the report and treat it as an error

2.11.1.5. Tools

SCL editor supports IEC 61850-7-420:2021 (F 257228)
The SCL Editor now simplifies standard-compliant engineering. It supports the Logical Nodes from the IEC 61850-7-420:2021 standard now.

To simplify configuration the Add New Type dialog has been enhanced with the Namespace property. In this property you can choose the IEC 61850-7-4 or the IEC 61400-25-2 standard.

When a standard is selected, only the corresponding Logical nodes, listed in the selected standard, are available for creation.

Export Project for WEB Monitoring supports T5 protocol (F 252118)
The Export Project for WEB Monitoring functionality supports the T5 Protocol now. The required download time is much slower than the SFTP download time. Files can be received in sub-directories.

Dialog for import merge of items (F 249043)
The dialog allows to define the procedure for the import of project items in XML format. The items can be merged or not merged with existing content. Via the property Do the same for all items the desired action can be performed for all items in one step.

2.11.1.6. Function Blocks

Dialog for function block usage (F 251881)
The new Select inputs and outputs dialog allows to:

- select/deselect variables
- get information about the pin
- select a variable name or to create a new variable name

The dialog is opened automatically when a function block is moved into the program, if the corresponding options are set active.

MUX64 - up to 64 input values (F 249317)
The MUX64 function block with 64 possible input values is available now in the Selectors section.

New JSON parser function blocks library (F 253835)
New library of IEC61131-3 function blocks to parse and read JSON text. The text can be exchanged in files or text buffers.

Several function blocks have been added:

- JsonAddMember
- JsonFindMember
- JsonFirstMember
- JsonFree
- JsonGetArrayElt
- JsonGetNumber
- JsonGetString

- JsonGetStrTxb
- JsonIsArray
- JsonIsNumber
- JsonIsObject
- JsonIsString
- JsonLastError
- JsonMemberName
- JsonNbArrayElt
- JsonNewArray
- JsonNewNumber
- JsonNewObj
- JsonNewString
- JsonNewStrTxb
- JsonNextMember
- JsonParseFile
- JsonParseTxb
- JsonSetNumber
- JsonSetString
- JsonSetStrTxb
- JsonWriteFile
- JsonWriteTxb

EIP Scanner - restart an EIP I/O connection via EipRestartCnx function (F 264253)
With the new driver-specific EipRestartCnx function an EIP I/O connection can be restarted from the Ethernet/IP I/O Scanner (Client) fieldbus driver.

2.11.1.7. TLS support for Logic Service (S 260570)

The T5 communication of the Logic Service can be secured via TLS with mutual authentication. Only applications that can provide a trusted TLS client certificate are allowed to communicate. The Logic Studio can be configured to use TLS secured communication, thus allowing only a trusted Logic Studio to communicate with the Logic Service and for example force variables, download application changes or stop and start the application. The configuration for the Logic Service is done via a configuration file. The Logic Studio provides a basic dialog for setting up the secure communication.

Note: Required certificates for the TLS communication need to be created manually or provided externally.

Attention

The zenon drivers stratonNG and straton32 as well as the x5monitoring, do not yet support TLS communication and will no longer be able to communicate with the Logic Service, when the optional support for TLS is enabled to secure the communication.

2.11.1.8. Logic Service with Real Time Kernel (STRATONRTK) no longer available (F 254923)

The Logic Service with Real Time Kernel (STRATONRTK) is no longer included in the zenon Software Platform from Version 12.

2.12. Important information

2.12.1. ActiveX Controls

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

If the DISPATCH – which is sent in the „zenonInit" event of zenon – is saved in the ActiveX control, an „AddRef""must be carried out because this DISPATCH is only valid within the „zenonInit"" event. If the „AddRef"" is not called up, this leads to Service Engine crashing completely. A release must also be performed in the „zenonExit"" event.

2.12.2. 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.

2.12.3. 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.

2.12.4. 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.

2.12.5. 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.

3. IIoT Services 12

Information on changes in IIoT Services version 12.

This section also includes the new features in minor releases 11.1 and 11.2.

3.1. Device Management

3.1.1. Device Management

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

The following is applicable here:

- The configuration of the distribution (= deployment) is configured in Service Configuration Studio. This configuration includes scheduling as well as the allocation to devices.
- The preparations for the software package are carried out in Engineering Studio. To do this, a software package for Device Management is created based on the current zenon project and transferred to Device Management.
- The Device Agent enables the deployment to the devices. Software packages can be delivered to all devices on which the Device Agent is running as the registered service. Both Windows operating systems as well as Linux and Raspberry are supported as devices.

Note: This functionality is already included in minor release 11.1.

3.1.2. Device Agent configures Certificate Bundle on the device (F 246366)

When running a deployment task, in addition to transferring the corresponding zenon project, it is also ensured that a corresponding Certificate Bundle is configured on the device, as long as the project is configured for the IIoT Services.

3.1.3. Device Management - additional information in the Service Configuration Studio (F 253413)

Configuration of Device Management in the Service Configuration Studio has been expanded with additional information to provide a better overview:

- In the Devices node, the new options Currently deployed package and Currently deployed package Version were added. These options contain information about the projects installed on the device.
- In the detail view for a device, the new option group Service Engine Information has been added.
    - Status: Status of Service Engine on the device
    - Name of active project: Name of the project that is set as the start project in the Service Engine.
    - GUID of active project: GUID of the project that is set as the start project in the Service Engine.

3.2. Platform configuration

3.2.1. Initial configuration simplified (F 250161)

The initial setup of the Platform Configuration has been revised and offers the following improvements:

- Automatic creation of Service Connections.
- Creation of an initial administrator account.
- Integration of initial steps by calling them in the setup.
- Redesigned wizard with:
- Information on the existing certificate
- Simplified and dialog-controlled new creation

3.2.2. Redesign of functionality and user interface (F 250162)

The Platform Configuration has been redesigned. As of Version 11.1, existing certificates can be reissued. For this purpose, the graphic interface in Service Configuration Studio has also been revised.

Note: This functionality is already included in minor release 11.1.

3.2.3. %CD_SYSTEM% as the saving location for Certificate Management data (S 256097)

Certificate Management saves its data and related subfolders (incl. certificates for the communication) in the %CD_SYSTEM% directory.

3.2.4. Root certificate contains domain name (F 253412)

The root certificate has been renamed in line with the new naming conventions. Name of the root certificate from version 12: IIoTServicesRootCA.crt.

In addition, this certificate now also contains the FQDN as Issuer as well as in Subject.

Example: IIoT Services Root CA - iiot-services.mydomain.local

This root certificate is created automatically during the initial start of IIoT Services.

3.2.5. Establish trust with multiple certificates (F 253413)

It is possible to install additional trustworthy certificates for the IIoT Services. This is necessary, for example, if the services have to communicate with third-party systems that use self-signed certificates.

An example of this is communication between Identity Service and identity providers (e.g. OpenLDAP or Keycloak).

In Windows, the IIoT Services use the certificates from the certificate store to automatically check certificates. In a Docker environment, these additional certificates that have to be trusted must be stored manually in the services.

Note: This functionality is already included in minor release 11.2.

3.3. Identity Management

New client type for Report Engine in Identity Management (F 254800)

Report Engine Client has been added as a new client type in Identity Management. Thus, the communication of IIoT Services with Report Engine can be configured more quickly and easily.

3.3.1. Password complexity configurable (F 252415)

The minimum password requirements for a user of the Identity Service are now configurable. For this purpose, the new subnode Settings has been added in Service Configuration Studio in Identity Management.

3.3.2. Revised dialog "New Client" (F 249953)

The dialog for creating a new client in Service Configuration Studio Identity Management has been reworked:

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

Note: This functionality is already included in minor release 11.1.

3.4. Identity Service

3.4.1. Identity Service - new preconfigured resources and roles (F 233437)

The following preconfigured resources and roles have been added to allow for more detailed mapping of user rights and related security benefits:

Service Engine Client: With this role, the Service Engine user administration can be used with the Identity Service of IIoT Services. This role can only read users and groups. Configuration of the Identity Service cannot be edited by this role.

Service Connection Commissioner: This role can be used for the connection of a Service Engine to the IIot Services Connection Wizard and for the registration of the Device Agent with Device Management.

3.4.2. Calling Service Configuration Studio in Identity Service (F 253413)

The web-based configuration interface of Service Configuration Studio can now be called directly in the web-based user interface of the Identity Service.

To do this, a link to Service Configuration Studio has been added in the header.

Note: This functionality is already included in minor release 11.2.

3.4.3. Activation of two-factor authentication updated (F 253413)

The web-based configuration of the two-factor authentication in the Identity Service has been reworked and simplified.

Note: This functionality is available from version 11.2 or higher.

3.5. Data Modelling (F 238706, 238730, 246599, 251735, 247404, 251735)

Data Modelling is a central service of the zenon Software Platform. It offers a central repository for all types of structured data both of the zenon Software Platform as well as custom data models. The data is available via a GraphQL interface.

zenon Data Modelling is based on a relational model, similar to an Entity Relationship model. Modular data models are defined in Construction Kit Libraries.

Management of the data models:

- Support of tenants
- Import and removal of models
- Validation of models
- Administration of versions
- Operative use of data models:
- Comprehensive GraphQL interface, which enables the adjustment and querying of data and the querying of metadata.

- GraphQL Editor with autocomplete and integrated scheme documentation
- Online scheme update when changing the data model
- Validation of GraphQL mutations to scheme breaches

Note: zenon Data Modelling is still in development. Over time, there will be more and more data and functionality available.

3.6. Data Storage (F 255613)

Data Storage enables you to evacuate data centrally via IIoT Services and make it available for other applications. Data Storage can now be managed centrally in Service Configuration Studio.

The service for Data Storage in Service Configuration Studio allows the following:

- Display of database statistics
- Display of project statistics
- Manage data saved in Data Storage

3.7. Mongo DB

3.7.1. MongoDB version updated (F 250975)

The following MongoDB programs are included in the setup:

- MongoDB 6.0.3
- MongoDB Shell 1.6.0
- MongoDB Database Tools 100.61

3.7.2. New storage location %CD_SYSTEM% for MongoDB config file (S 256097)

The MongoDB config file is saved in a subfolder in the %CD_SYSTEM% directory.

3.8. IIoT Services supports logging to zenon log files (F 247981)

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

3.9. Central IIoT Services URL (F 250153)

From version 11.2 and higher, the individual services of IIoT Services are addressed using a central URL. The addressing of services was by means of port numbers in previous versions.

The default port of IIoT Services is 9443. This port number can be adjusted by means of configuration.

If the central IIoT Services URL is entered in a web browser, Service Configuration Studio is opened.

COMPATIBILITY NOTE IIOT SERVICES V 11.2
The following is applicable in order to work seamlessly with a zenon installation with IIoT Services:

Service Engine or Engineering Studio in version 11 communicate with IIoT Services version 11.2 or higher:

- Build 111398 or higher for Service Engine or Engineering Studio must be installed.
- Service Node Configuration Tool - When entering a Connection setting, add the /hub-controller sub-path to the central URL. **Example:** https://hostname.local/hub-controller
- Configuration in Engineering Studio - It is not necessary to specify a subpath for configurations in Engineering Studio. The same URL is used for Identity Service and Data Storage. Entering the central URL is sufficient. The URL of the corresponding properties must be configured as URL + port. **Examples:** URL for Identity Service (Network property group, Identity Service, property: URL) ; URL for Data Storage (Network property group, Data Storage, property: URL) hostname.local:9443

4. Documentation

Bookmark icon colour is inverted to the action performed (BUG 221774)
Bookmark Icon Color is inverted to the action performed.