

GALILEO 11.0
Release Notes



Galileo

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Important:

Please contact our support (Automation@Eaton.com) if you find any errors, malfunctions, missing functions or other problems with the software. Your cooperation is greatly appreciated.

System Requirements

- Windows 10 / Windows 11
- 1GHz or faster processor
- 1GB of RAM
- Minimum available hard disk space: 600MB (application only)
Recommended available hard disk space: 1GB (application, help system, sample projects, panel operating system images)
- 1024x768 or higher display resolution
- Browser (only needed for help system)
- .NET Framework 4.8.2

System Requirements Galileo Open Runtime

- Windows 10 / Windows 11
- 1GHz or faster processor
- 512MB of RAM
- Graphics card supporting OpenGL 1.5 for using graphics acceleration (otherwise, software rendering can be utilized)
- Minimum available hard disk space depends on project (at least 20MB needed for application only)

System Requirements XV-303

- Image version 1.0.1 or above

System Requirements XV-102

- Image version 1.0.2 or above

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Supported panels

Galileo 11 supports the following panel series:

- Linux-based panels XV-102-**Lx**-...
- Linux-based panels XV-303-...-**B2**
- Windows 32 based devices (like XP-503, XP-504 and any other Win32 PCs)

For the Windows CE 5.0 based XV-102 panel series and the Windows Embedded Compact 7 based XV-303 panel series please continue to use the latest Galileo 10.x version. It will not be possible to run Galileo 11 projects on these devices.

In case of a change to the Linux-based panels, please refer to the separate "Migration Guide" for more details and hints about the migration of the Galileo projects to these new panels.

2 New Features

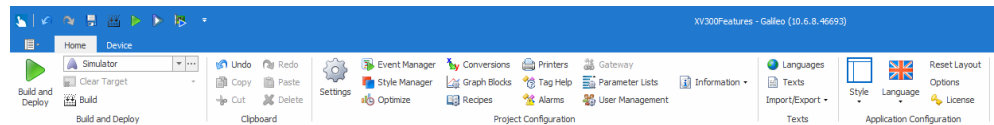
2.1 Galileo Design Tool user interface modernization

The user interface of the Galileo Design Tool was slightly modernized and some of the ribbons were reorganized to provide a better user experience. Apart from that, there were no bigger changes done to keep the familiarity with the tool.

Following the changes will be highlighted and explained.

2.1.1 Home Ribbon

Galileo 10.6:

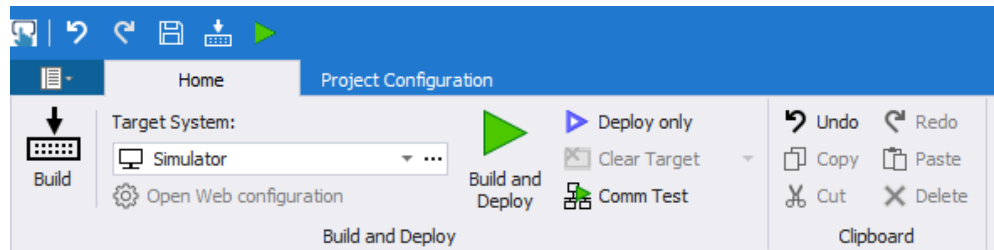


The ribbon "Home" was fully packed from "Build and Deploy" options to "Clipboard" actions to "Project Configuration" related items up to application settings.

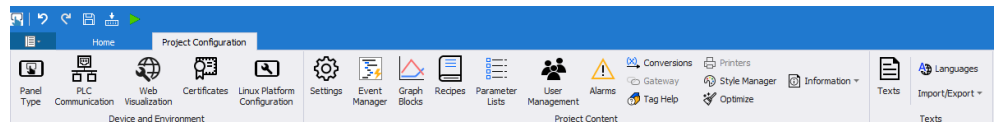
Galileo 11:


The content is now split up into several ribbons to provide more clarity and increase the size of the most used "Project Configuration" items on the ribbon bar.

The "Home" ribbon now only contains the items for "Build and Deploy" and the "Clipboard" actions:



All the "Project Configuration" related items can now be found in a dedicated "Project Configuration" ribbon. Also the former content of the "Device" ribbon is now placed here to complete the project related configurations in a single place:



The rarely used application settings were moved to the "Application Menu" view, which can be reached by pressing  in the upper left corner of the application:



And then navigate to "Help and Options":

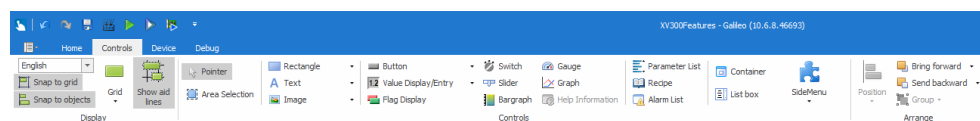


2.1.2

Ribbons for working on the Screen Designer

Galileo 10.6:

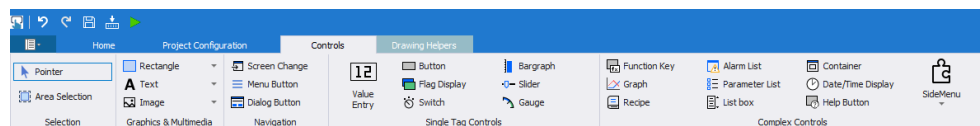
Once a screen gets opened respectively in focus, the "Controls" ribbon appeared, containing all the "Controls" types, the "Display" options as well as the "Arrange" actions:



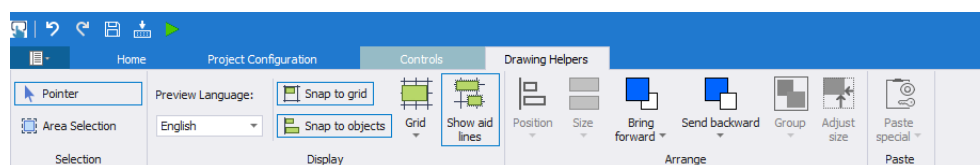
Galileo 11:

Still, once a screen gets opened respectively in focus, some additional ribbons appear. There are two now: The "Controls" ribbon and the "Drawing Helpers" ribbon.

The "Controls" ribbon contains all the control types as well as the "Selection" tools. The most common used controls are no longer "hidden" into drop-down menus (e.g., the "Button", "Screen Change", "Menu Button", ... which were in Galileo 10.6 all put into a single drop-down menu for selection):



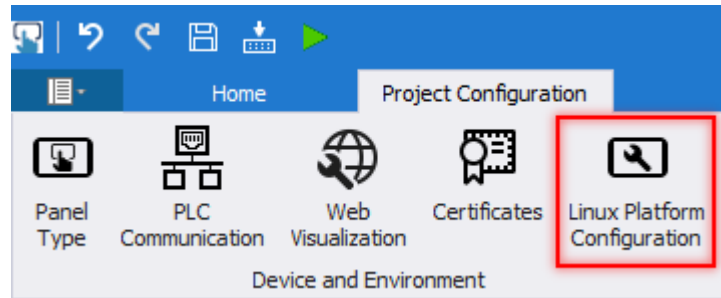
All the supportive tools for the Screen Designer are available on the "Drawing Helpers" ribbon now:



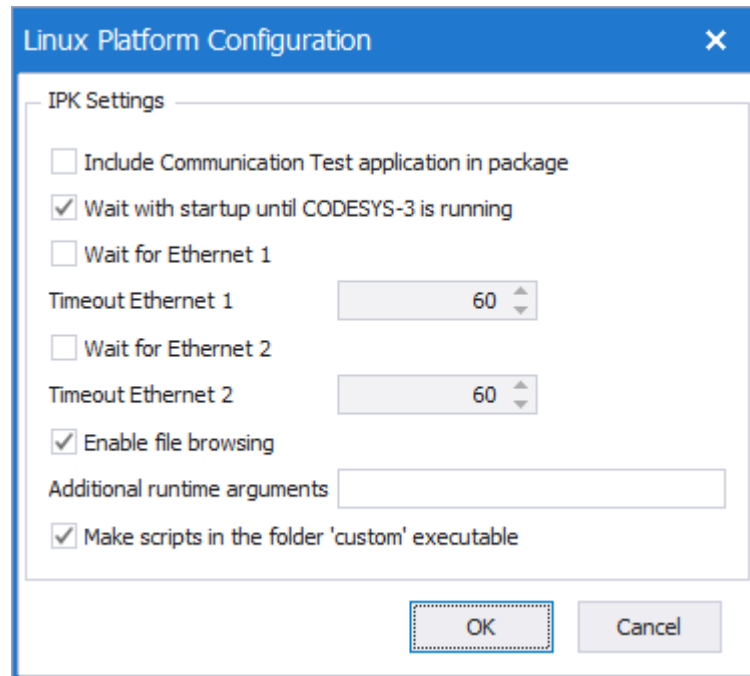
2.2

Linux Platform Configuration

With the change to Linux-based panels there are some new configuration settings available. You will find them on the ribbon "Project Configuration" by clicking on "Linux Platform Configuration":



The content of the dialog can vary, depending on the selected panel and the configured communications:



The following options are available:

Include Communication Test application in package
If this option is enabled, a separate application for the execution of a functional communication test will be included into the package, which gets transferred to the panel in the end.
Disable this option if the application will not be needed on the panel or if you want to save memory space on the panel.

(Note: The Communication Test application has no impact on the Galileo project itself or its functioning.)

Wait with startup until CODESYS-3 is running
This option is only available if a CODESYS-3 communication is part of the project and has either "localhost" or "127.0.0.1" configured as target address, running therefore in the end on the same panel as Galileo.

If this option is enabled, the startup of Galileo will be delayed until the CODESYS-3 runtime system has started up. This can be helpful to guard communication errors on startup. Please be aware that, depending on the

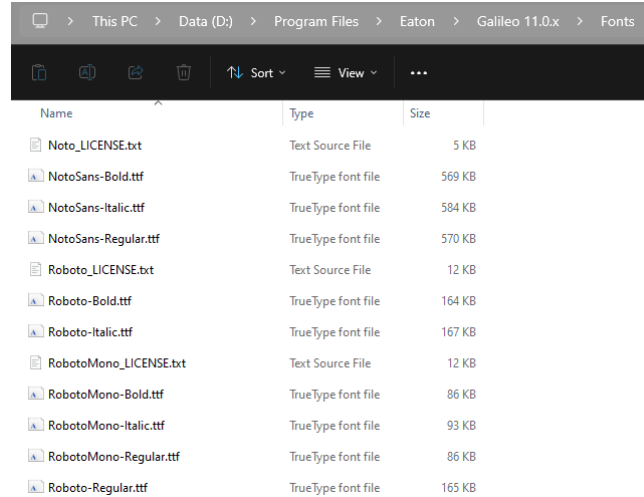
extent of the CODESYS application itself, the additional "Startup Delay" time must be configured at the CODESYS communication settings.

Wait for Ethernet 1	<p>If this option is enabled, the startup of Galileo will be delayed until the network communication on ethernet interface 1 has an active signal. This can be helpful to prevent communication errors caused by other (at the machine) involved network components which might have a delayed startup.</p> <p>If this option is enabled, the maximum amount of time to wait can be configured in seconds.</p>
Wait for Ethernet 2	<p>This option is only available if the selected panel offers 2 ethernet ports. The settings are identical to the ones for ethernet 1, just related to the 2nd ethernet interface.</p>
Enable file browsing	<p>If this option is enabled, the Galileo directory appears on the file browser on the panel. This enables, for example, the manual copying of data like recipe files to/from an external USB storage device.</p> <p>If this option is disabled, the Galileo directory remains hidden.</p>
Additional runtime arguments	<p>It's possible to pass additional startup arguments to Galileo. This is usually not required, and you shouldn't make use of this option unless instructed by the support team of Eaton for your specific project.</p>
Make scripts in the folder 'custom' executable	<p>Galileo allows the storing of own, project related files in the "custom" directory. Due to security reasons, scripts (.sh) in this folder are not executable by default. If this is desired and intended, enable this option.</p>

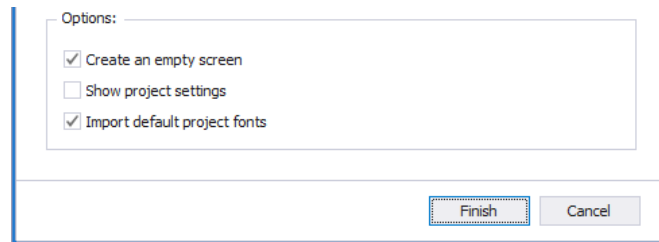
2.3

Fonts handling

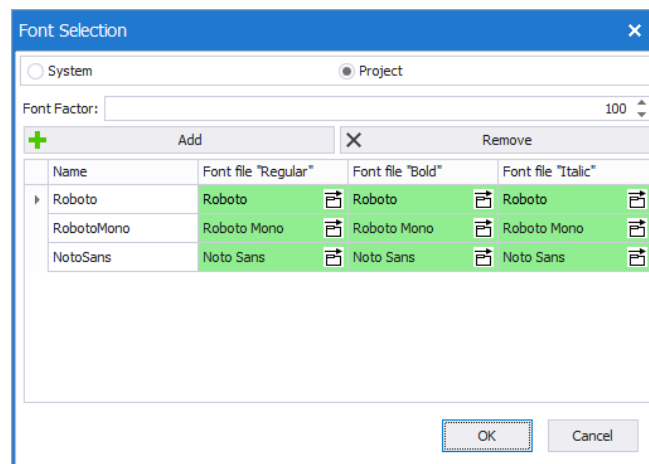
The Galileo installer now contains some free licensed font files which can be used for creating Galileo projects without violating license restrictions. The fonts (with the corresponding license information files) get installed within the "Fonts" sub directory of the Galileo installation.



When creating a new project, on the last page of the "New Project Wizard", it can be selected whether these fonts should be imported by default into the project:



For existing projects, or generally later during the project programming phase, the "Font Selection" dialog (ribbon "Project Configuration" → "Languages" → pressing the "..." button on any font entry line) gives the ability to edit the "Project" fonts:

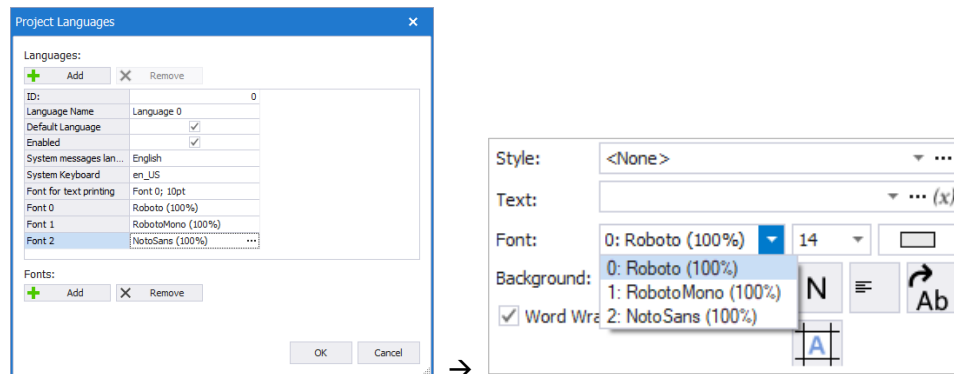


One can add new fonts here, edit existing fonts or remove them. If there are specialized variants for "Bold" and "Italic", also these special font files can be configured/imported here.

The "Project" fonts, compared to the "System" fonts are always stored together with the Galileo project. In this way it's easily possible to port/move the Galileo project to another PC and edit it there, ensuring the exactly same fonts will be used.

The concept of "System" fonts is the way which was used until and with Galileo 10.x. Always (and only) the fonts installed on the current PC were available for selection. Leading to the issue, if font "A" is installed on PC "X" but not on PC "Y", then Galileo complained about the missing font and used a default one instead. Which then, of course, lead to a different visualization look.

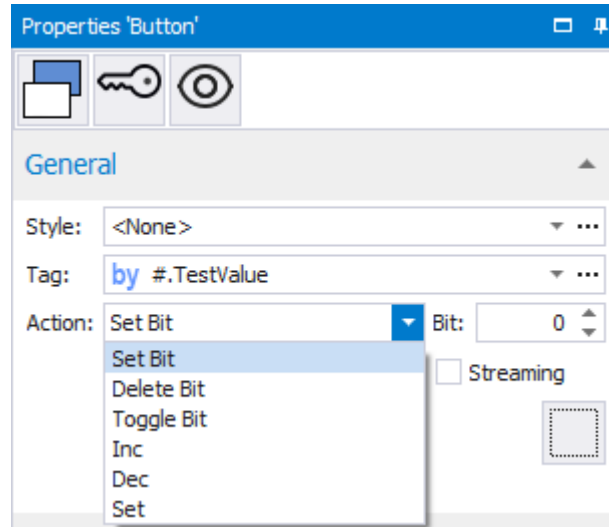
When working with the Screen Designer, there is no difference whether "Project" or "System" fonts are used. The selection of the font remains simple:



2.4

Control "Button": New actions

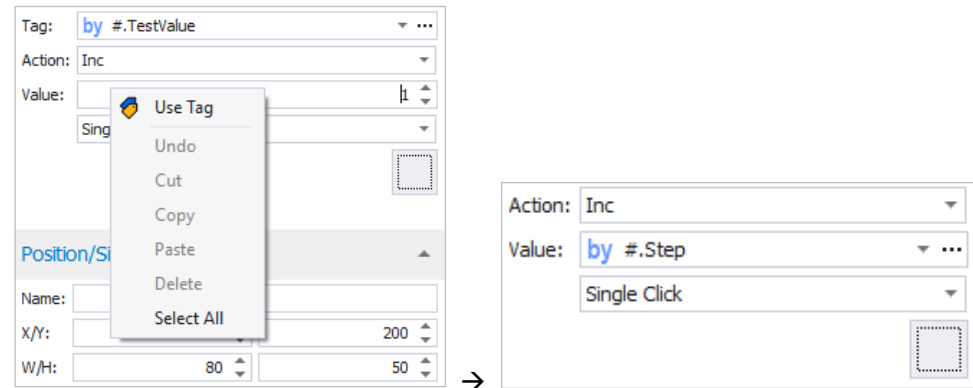
The control "Button" offers additional actions to "Set Bit", "Delete Bit" and "Toggle Bit":



The new actions are:

- Inc: Increment the assigned tag value by a specified value.
- Dec: Decrement the assigned tag value by a specified value.
- Set: Set the assigned tag value to a specified value.

The value can be either a constant number or another tag. To switch between "value" and "tag" use the context menu of the control:

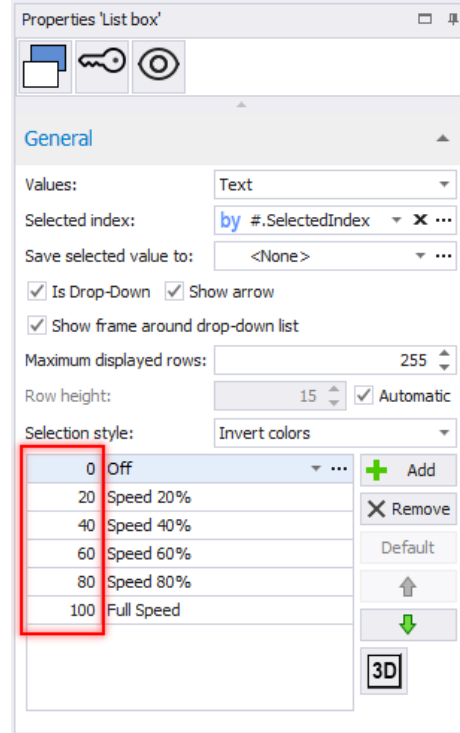


2.5

Control "List Box": Freely configurable indexes

The indexes for the List Box can now freely be configured. This enables, for example, use cases where the selection should display a text and the corresponding values are not consecutively numbered but have "gaps". Previously, in Galileo 10.x, to achieve this, it was required to handle somewhere (in the PLC or in a Galileo script) a mapping of values. For example: "index 0 equals value 0", "index 1 equals value 20", ...

Now in Galileo 11 it is possible to edit the highlighted index column:



2.6

"Pre-Entry" and "Post-Entry" events for screens

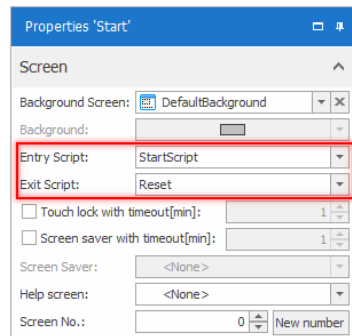
In Galileo 10.x to each screen an "Entry Script" and an "Exit Script" could be assigned. The execution of the "Entry Script" depended on the project-wide setting "Delayed Entry Script Execution":

- If this option was set, any "Entry Script" got executed after the screen was completely loaded. This was helpful in case some of the controls needed to be accessed by the script (e.g., selected a specific entry in a "Recipe" control on the screen). (Exception to this rule: The "Entry Script" assigned to the project start screen.)
- If this option was not set, any "Entry Script" got executed before the screen got loaded. This was helpful to initialize some values before entering the screen.

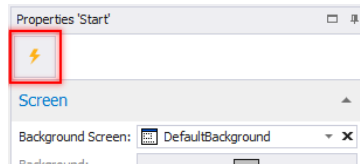
This approach had some disadvantages:

- The behavior could only be set project-global, not per use case.
- Only one script could be assigned.

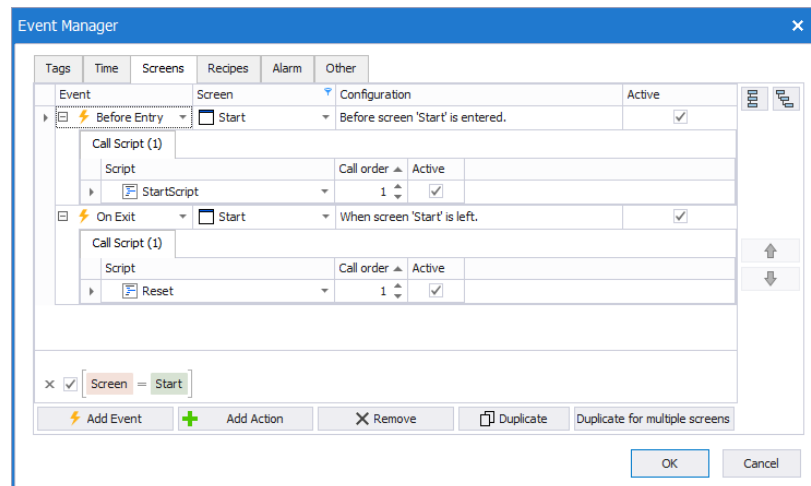
In Galileo 11 the configuration of "Entry Script" and "Exit Script" is now no longer part of the properties side bar of the screen like visualized here (screenshot of Galileo 10.6.x):



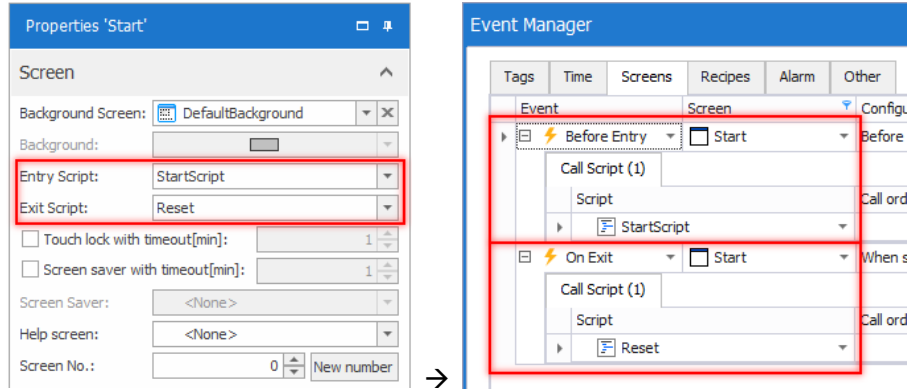
Instead, there is now a quick access button to open the "Event Manager":



By clicking this button, the "Event Manager" appears and automatically filters the view so only the configuration for the current screen is visible:



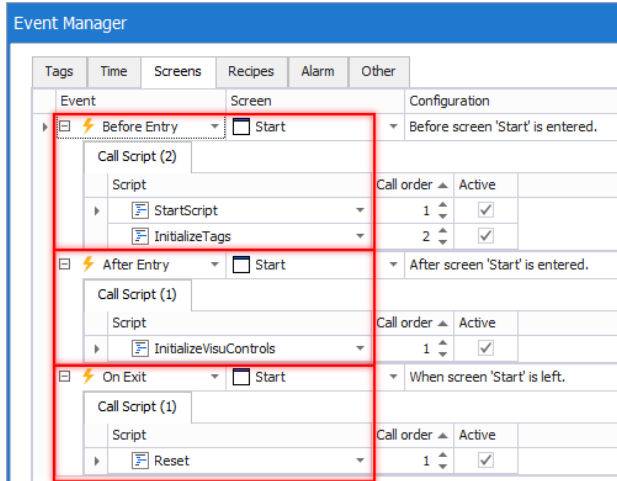
The conversion of the configuration is done automatically:



The conversion will be performed according to following rules:

- Any **"Exit Script"** assignment gets converted to an **"On Exit"** event.
- For any **"Entry Script"** assignment:
 - o If the option **"Delayed Entry Script Execution"** was **used** in Galileo 10.x, it get converted to an **"After Entry"** event.
 - o If the option **"Delayed Entry Script Execution"** was **used** in Galileo 10.x and it's the **"Start Screen"** of the project, it gets converted to a **"Before Entry"** event.
 - o If the option **"Delayed Entry Script Execution"** was **not used** in Galileo 10.x, it gets converted to a **"Before Entry"** event.

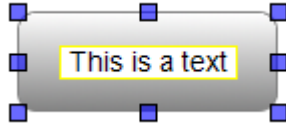
The "Event Manager" now also offers assigning multiple scripts to a certain screen entry/exit event. Together with the possible mix-up of "Before Entry" and "After Entry" script, complex configurations such like that are possible now:



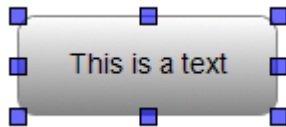
2.7 Minor changes and enhancements

2.7.1 Screen Designer: In-Place editing

It's now possible to edit text of "Text" state supporting controls directly while working on the Screen Designer. Simply start typing text while having the appropriate control selected on the Screen Designer. The in-place edited text will be displayed on a white background with yellow frame:



By hitting the key ENTER/RETURN, the typed text gets assigned to the control.



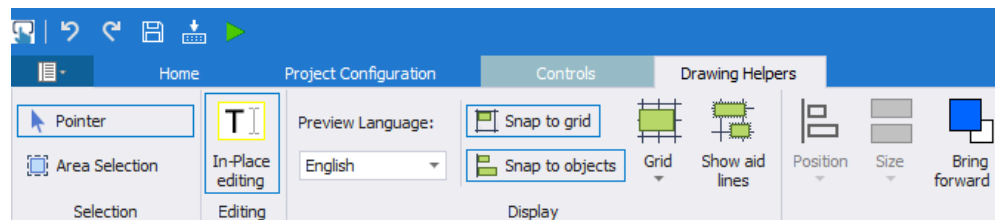
By hitting the key ESC, clicking anywhere else on the screen or leaving focus of the Screen Designer, the typed text gets discarded.

The typed text gets assigned to all states of the selected control (e.g., "On" and "Off" state of a "Button" control, all states of a "Flag Display" control).

In-Place editing is only allowed for a single selected control. This control must be already configured as "Text as foreground" (in case of e.g. "Button", "Switch", and so on).

The typed in text will be searched in the Text Manager for the currently selected "Preview Language". If an existing text is found which matches the currently typed text, this text (with its possible translations) will be used. If no such text exists, a new text gets added.

The In-Place editing can be enabled/disabled on the "Drawing Helpers" ribbon page:



Limitations/Restrictions:

- It's not possible to enter text with tabulators or line-break
- It's not possible to enter text starting with "+" or "-" characters because these characters are used as shortcuts for the commands "Send backwards" and "Bring forward".

2.7.2 Screen Designer: Direct image import

It's now possible to import images directly into the project by performing a drag & drop operation directly onto the Screen Designer. The image then will be imported into the Media Tree automatically and a control of type "Image" will be created on the screen, containing the appropriate image.

2.7.3 Graph: Graph Buffer full indication tag

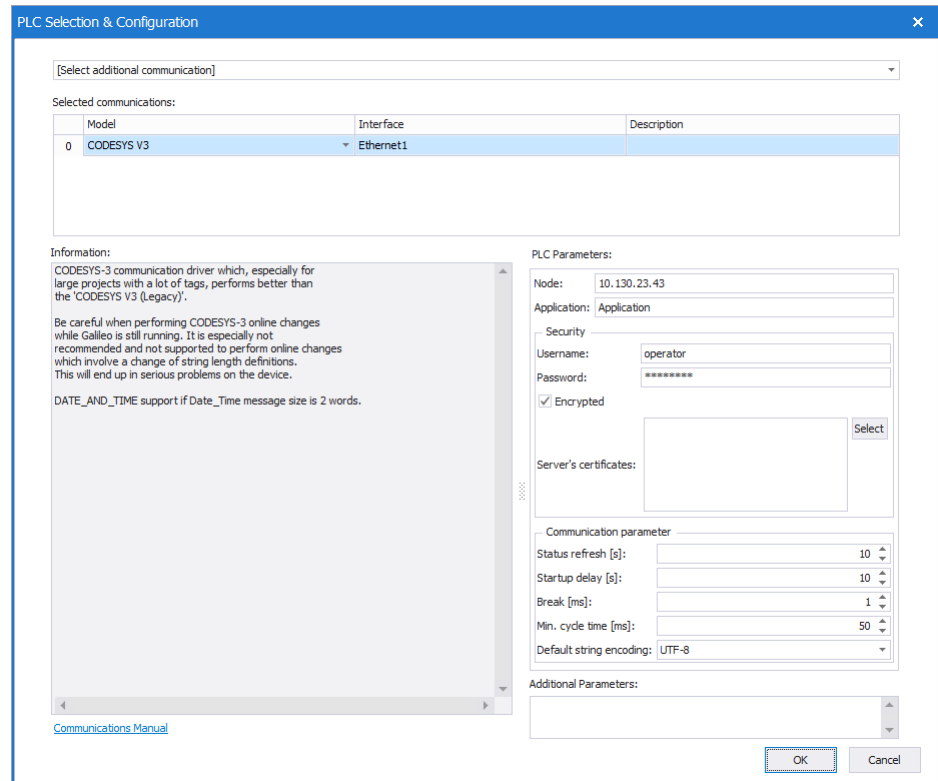
On Graph Blocks an additional event tag can be assigned: An indication (bit set) whenever the Graph buffer is full.

2.7.4 Allow copying of whole UDTs

It is now possible to copy/paste whole User defined Data Types.

2.7.5 CODESYS-3 configuration

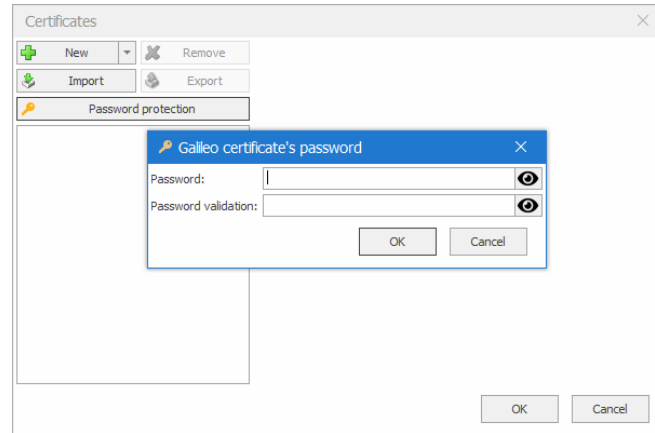
The CODESYS-3 communication parameter settings user interface is slightly revised. There is now also support for encrypted communication to the CODESYS-3 PLC. Please refer to the separate "Communications" manual for additional information about configuration and certificate handling.



2.7.6

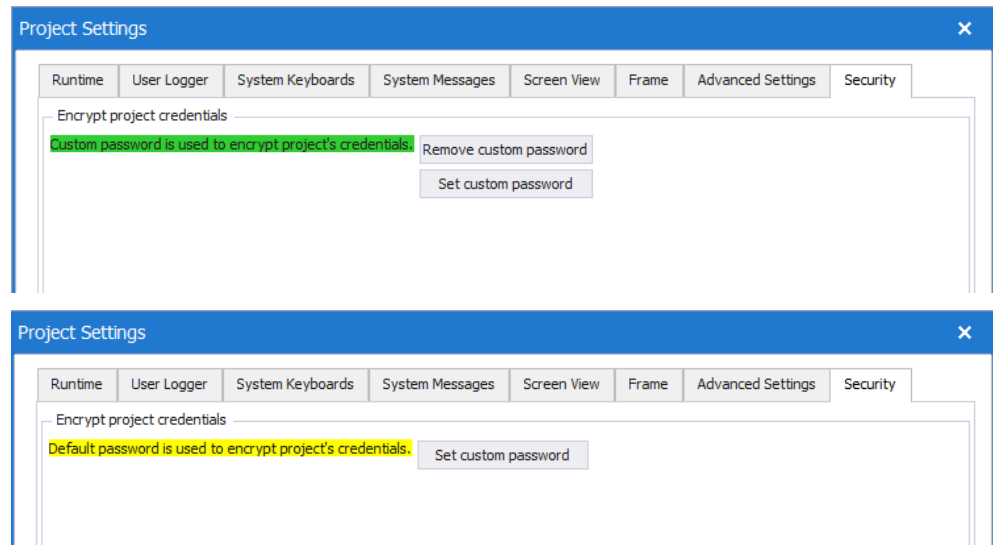
Encrypt project credentials with own password

With Galileo 10.x there was already the possibility to secure your certificates with an own password:



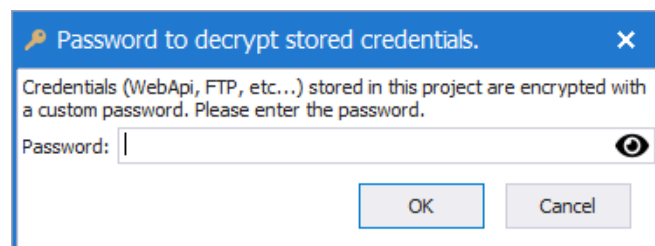
Other credentials, like for example FTP login passwords, were encrypted with default mechanisms of Galileo so they would not be stored in clear text.

With Galileo 11, the securing of the credentials and certificates is now unified. You can either define your own password to encrypt the data or use the default mechanisms of Galileo. You will find the settings within the "Project Settings" dialog on the new tab "Security":

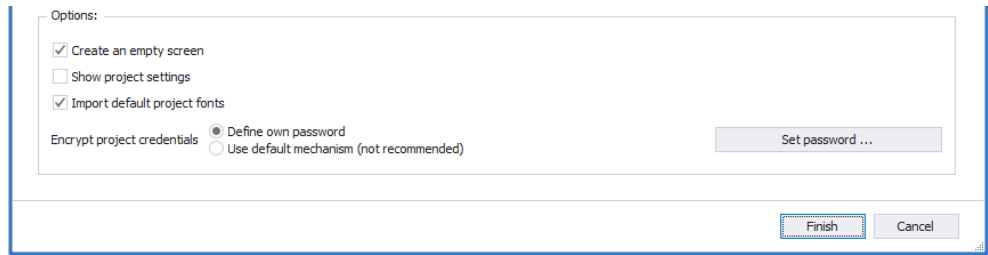


If the "Default password" mechanism is used, Galileo handles the encryption and decryption itself. Be aware, that by using this mechanism it is possible for anybody to open the Galileo project and work the stored credentials. (Note: The credentials are nowhere stored or visible in clear text.)

If a custom password is used to encrypt the project's credentials, you will get asked on opening of the project for the credentials:



Also, when creating a new project, you have to either define your own password to encrypt the credentials or explicitly change to "Use default mechanism". The last page of the "New project wizard" there offers this configuration:



The screenshot shows a configuration window titled "Options:". It contains several checkboxes and radio buttons. The "Encrypt project credentials" section has two radio buttons: "Define own password" (selected) and "Use default mechanism (not recommended)". There is a "Set password ..." button to the right. At the bottom right, there are "Finish" and "Cancel" buttons.

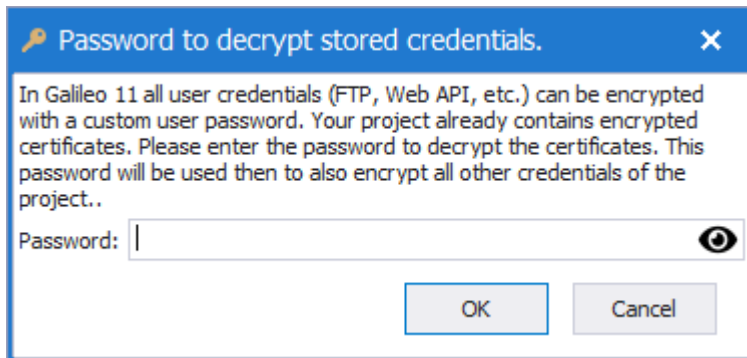
Options:

- Create an empty screen
- Show project settings
- Import default project fonts
- Encrypt project credentials
 - Define own password
 - Use default mechanism (not recommended)

Set password ...

Finish Cancel

If you open a Galileo 10.x project where you have encrypted your certificates with a password, you will see following message appearing on project opening:



The screenshot shows a dialog box titled "Password to decrypt stored credentials." with a close button (X) in the top right corner. The text inside reads: "In Galileo 11 all user credentials (FTP, Web API, etc.) can be encrypted with a custom user password. Your project already contains encrypted certificates. Please enter the password to decrypt the certificates. This password will be used then to also encrypt all other credentials of the project..". Below the text is a "Password:" label followed by an empty text input field with a visibility icon (eye) on the right. At the bottom, there are "OK" and "Cancel" buttons.

Password to decrypt stored credentials. X

In Galileo 11 all user credentials (FTP, Web API, etc.) can be encrypted with a custom user password. Your project already contains encrypted certificates. Please enter the password to decrypt the certificates. This password will be used then to also encrypt all other credentials of the project..

Password: [] [eye icon]

OK Cancel

You have to enter your password, which you used for encrypting the certificates. If the correct password was entered, this password will now be used to encrypt all the project credentials.

Note: If you have forgotten your password, you are not able anymore to open the project with the stored credentials. The only option then is to delete the file "credentials.json" in your Galileo project directory. If you do this, on next open of the Galileo project, all the stored credentials get removed from the project which means, you must configure these settings again (e.g., Web API connection passwords). In addition to that, you also have to remove all the certificates from Galileo's Certificate Manager manually and define them again.

Known issues

The following issues are known and will be addressed in a future release:

General

- Only the remote connection related system tags "RemoteClientEnable" (to control the running/stopping of the VNC service) and "RemoteClientEnabled" (to retrieve the state if the VNC service is running) are supported. The system tags "RemoteClientActive", "RemoteClientInputEnable" and "RemoteClientInputEnabled" are not yet supported.
- The Galileo help documentation is only available/updated in German language so far. Please refer to this Release Notes document and the separate Migration Guide to get information about the most important changes and additions.

Design Tool

- Upload: Uploading of recipe files and the user management file from Linux-based XV-102 is not yet working if the file is stored on an external storage device like SD card or USB drives.

Runtime

- Gateway: If a tag defined as "Secondary Tag" has a non-existent tag address defined, the error message handling is too extensive, causing the alarm history and possible User Logger to be filled up very quickly.
- Webcam: No support for MJPEG streams so far. (But JPEG streams are supported.)
- Webcam: The functions "Capture Image As" and "Capture Image As Var" cannot be used yet respectively they show an error. (The function "Capture Image" is not affected by this.)

Communication

- CODESYS-2: When changing the CODESYS-2 symbol file on the PLC while Galileo is connected to it, too many error messages with partly misleading messages could occur.
- CODESYS-3: It can be that the CODESYS-3 application requires a bigger amount of time until it is capable of handling connections to Galileo and starting to communicate. It is therefore, until further notice, recommended to configure a sufficiently large "Startup Delay" time (e.g., 20s).
- The "CommTest" application for testing the communication and tag definitions is not checking the "Date_Time" structure.

Web

- Auto-reconnect only works in case of connection problems and if the Galileo application got restarted on the panel. It is not yet working in case where the project itself has changed on the panel (caused by a download of a new Galileo project).
- Using GIF images can lead to crash on web client connection attempt.

4

Improvements and bug fixes in 11.0

Galileo 11.0.0 includes all the improvements and bug fixes of Galileo 10.6.x up to the release date (state Galileo 10.6.9).