Releasenotes

Content

1 New Version 6.114 of SILworX

This document describes the improvements and new functions of V6.114 compared to the previous version:

- Chapters 2 and 3 describe the new functions and improvements.
- Chapters 5 and 4 present the resolved problems.

- Chapter 6 specifies the current restrictions of V6.114.
- Chapter 7 describes the migration procedure from the previous version.
- Chapter 8 provides references.

1.1 Compatibility with PES Operating System

SILworX 6.114 can be used for the following HIMA system families:

- HIMax
- HIMatrix F systems
- HIMatrix M45

1.2 Compatibility with Existing Projects

The version can convert and edit projects created with a previous version. If a code generation is performed for the unchanged project, the existing CRC is maintained except for:

- X-OPC server, see Chapter 6.1, point 4
- X-OTS, see Chapter 6.1, point 4
- Projects in which SCF steps are used with Retain = TRUE, see Chapter 4, point 4
  After converting the project, SILworX V6 sets the retain attribute of SFC steps to FALSE.
- Projects containing licenses for certain system capabilities, see Chapter 6.1, point 14.
- Projects containing redundancy groups of HIMax X-CI 24 51. [HE23091]

1.3 Compatibility with the PC in Use

The minimum requirements for the computer used to run SILworX are specified on the corresponding **HIMA DVD**.

In particular with very large projects, old PCs may require long processing times and thus be inappropriate for this task. Therefore, state-of-the-art computers should be used whenever possible. Enhanced hardware features such as computing power and memory space result in improved performance.

2 Improvements of Version 6.48

This chapter describes improvements of V6.48 compared to versions prior up to V6.

1 Support for HIMatrix M45
SILworX can be used for engineering controllers of the HIMatrix M45 family.

2 Support for HIMax X-CPU 31
When engineering HIMax controllers, processor modules X-CPU 31 can be used in rack 0.

3 Programming of function blocks and functions in structured text
Support for programming function blocks and functions in structured text.

4 Reload functionality
- Reload of the safe**ethernet** configuration.
- Reload of the configuration for alarms and events.
- Cold reload

Modules that are not capable of reload, e.g., due to a previous firmware version, are first set to STOP during the reload procedure and then to RUN again. For communication modules, this process runs automatically. Processor modules and system bus modules must be stopped and restarted manually upon request from the reload process.

5 Improvements of the Hardware Editor
   – HIMax racks can be located at any position. The rack IDs can also be freely defined.
   – System variables are grouped in a specific tab of the rack detail view.
   – Comment fields can be added.

6 Improvements of online outputs
   – Dialog boxes for command feedbacks include graphical symbols for success or failure.
   – Extensive fault description.
   – Option for copying diagnostic messages to the clipboard.
   – Multiline diagnostic messages are possible.
   – Filter criteria can be selected from a list.
   – Reviewed message texts.
   – To avoid operational errors, diagnostic messages can no longer be saved as CSV files.

7 Enhancements of graphic editors
   – The zoom reduction factor was increased by a factor of 10.
     More pages can thus be visualized at the minimum zoom level.
   – If a selection rectangle is used in a graphic editor to select multiple objects, the selection only includes objects completely enclosed by the selection rectangle.
   – More precise drag&drop functionality for graphic objects.
     When dropping graphic objects onto a specific position, more attention is paid to the shape of the existing objects and of the objects to be inserted. As a result, objects can now be added closer to the existing objects or between them.

8 Improvements of the Global Variable Editor
   – Global variables can be filtered based on their usage.
     The usage of global variables can be displayed in additional columns that users can activate or deactivate. These columns can be used to filter variables.
   – Columns containing the global variable names are wider.
   – The *Search and Replace* dialog box is equipped with the **Help** button.
     Click this button to open the corresponding online help.

9 File paths in the dialog box for selecting files remain selected when the same dialog box is open again

10 *Reading* is the setting used in the Alarms&Events Editor to indicate how global variables are accessed to.
   The minus sign (-) was displayed in the previous version.

11 Performance enhancements
   – Code Generation
   – XML import
   – Restore

12 The system variable *SB Essential Information* was renamed in *Responsible Module Essential*
   This takes account of the fact that the X-CPU 31 can also be responsible and essential.

13 The minimum interval for executing the ComUserTask can be set to 2 ms.

14 Redundant power supply can be configured for HIMatrix F10 PCI 03

Redundant power supply via rail 1, 2 or both can be configured in the Hardware Editor for a resource of type HIMatrix F10 PCI 03.

15 The default value for the resource property *Max. Duration of Configuration Connections* is 12 ms

The default value was increased to ensure that no warnings are sent if the X-CPU 31 processor module is used.

16 Improvements of Force Editor
  – Changed name for the tabs **Global Forcing** and **Local Forcing**.
  – The **Inputs** tab shows rack and slot for the inputs in an additional columns

2.1　　safeethernet, NSIP

1 Reload code generation for safe**ethernet**

In hardware capable of reload, a reload code generation can be performed for safe**ethernet**: HIMax, HIMatrix PCI 10 03, F30 03, F31 03, F35 03, F60 CPU 03, HIMatrix M45.

Consequently, the *safeethernet CRC* configuration switch no longer exists.

2 Multiple safe**ethernet** connections between two PES are allowed

SILworX allows up to 64 safe**ethernet** connections to be established between two PES.

3 New *Code Generation* parameter available for processor modules and communication modules

The detail view of the processor and communication modules that can also be engineered with previous SILworX versions is equipped with the new *Code Generation* parameter:
  – If **Up to V6** is set, the code generation is performed in accordance with the previous versions to ensure that the CRC checksum is retained in a converted project.
  – If **V6 and higher** is set, an optimized code generation supporting safe**ethernet** reload is executed.

4 Cold reload

All the changes performed to a communication module can be applied by performing a reload. During the reload process, the module to be loaded stops running in system operation (cold) and restarts afterwards.

5 Redesigned safe**ethernet** Editor and safe**ethernet** online view
  – Code generation can be set to **Up to V6** for converted projects and to **V6 and higher** to ensure support for reload.
  – A resource can be selected as the *Timing Master.*
  – The following editors can be opened by selecting the **Edit** context menu function (or **Detail View** in previous versions), or double-clicking:

    safe**ethernet** Editor for connections between resources, or

    Hardware Editor, in the detail view of a remote I/O.
  – In the online view, attribute names were changed, the arrangement of attributes was modified and the new *Version State* attribute was added to support the reload process.

6 The default value for *Behavior on CPU/COM Connection Loss* for the Modbus slave is **Retain Last Value**

This setting is more convenient if a cold reload is performed for the communication module.

3   Improvements of Version 6.114

This chapter describes improvements of V6.114 compared to V6.48

1   Support for safeEDR

safeEDR is a software for data exchange between Metso DNA systems and the following HIMA systems:

- HIMax
- HIMatrix F10 PCI 03, F30 03, F31 03, F35 03, F60 CPU 03
- HIMatrix M45

2   Reload support for X-OPC and safeEDR

3   *Maintenance License* license option

This license enables operation of the resources, but does not allow any change to the project.

4   Licensing of resource types

The SILworX license can be restricted to certain types of resources.

The available license options, e.g., the available resource types, are displayed in the *About SILworX* window.

5   The installation file name is *SILworX_setup.exe*

No further files or directories exist.

6   Improvements related to structured text:

- Improved warnings, error messages and other displayed texts
- The version comparator for structured text includes an additional hierarchical level for statements that contains several expressions, e.g., FOR statement. This hierarchical level is only available when comparing version releases created with V6.114.

7   System variables override

System variable override allows the user to assign an own OPC name for all system variable types, or to hide it in the OPC name space.

4   Problems Resolved in Version 6.48

This chapter describes problems within versions up to V6, that have been resolved in Version 6.114.

1   Code generation terminated if only the second OPC server of an OPC server set existed

If only the second OPC server existed within an OPC server set, the previous version terminated during code generation. [HE22259]

2   The code generator terminated in conjunction with an open Multitasking Editor

The previous version terminated if a code generation was started while the Multitasking Editor was open. [HE22316]

3   Connections and ENO no longer existed when updating conflicts

After a function block was moved to another location within the structure tree, the previous version reported that all references between interface variables and local/global variables were removed. If the function block was then updated, the connections and ENO were deleted. [HE22532]

4   TRUE *Retain* attribute for SFC steps

In the previous version, the *Retain* attribute could be set to TRUE for an SFC step. This is no longer possible in V6. SILworX V6 changes the attribute when converting a project. In doing so, when code is generated with SILworX V6, the CRC of *<User Program Name>_retain.config* is changed with respect to a previous code generation if the program <User Program Name> or a function block contains one or multiple SFC steps that have been previously declared as *Retain*. [HE23097]

5   The previous version terminated when trying to use the search and replace function within tables while the cell was in edit mode

The following sequence of actions is an example of how to cause the previous version to terminate:

– Opening the *Search/Replace* dialog box in the Global Variable Editor.
– Double-click any cell in the global variable table to set it to the edit mode.
– Clicking the Search and Replace dialog box to exit the edit mode.
– Using **Replace All** with settings ensuring successful completion of the action.

This problem was removed in SILworX V6. [HE22543]

6   Reference of OLT field to deleted variables

In the previous version, the reference of an independent online test field to a variable sub-element could no longer be removed if the structure or array variable was deleted. The online test field had to be created again. [HE22627]

7   The previous version terminated when restoring a project with PROFINET

The previous version terminated when a project archive containing PROFINET was restored. [HE22265]

8   Hardlock license file is located in the proper directory

The license file required for activating the license via hardlock is located in the *\OLicense* directory of the USB stick used as hardlock. [HE22436]

4.1   Variables

1   When generating code, SILworX displays a warning if global retain variables are not maintained in the memory.

If there is no user program to read and write to a global variable with the *Retain* attribute, the variable loses its value during a warm start. If this occurs, SILworX V6 outputs a warning while generating the code. [HE14283]

2   Global variables with the *Const* attribute can be transmitted via safe**ethernet**

3   Arrays displayed in the cross-reference list

If a local variable or a global variable used as VAR_EXTERNAL was composed of an array with additional sub-elements, the use of the first sub-element in the opened FBD Editor was not displayed in the cross-reference list. This problem was removed in SILworX V6. [HE22739]

4.2   Online

1   Online Goto function for global variables with target in function blocks located above the resource

In online mode, a Goto function can be applied to global variables having the Goto target (VAR_EXTERNAL) in the structure tree above the resource. The Goto target is located in

function blocks contained in libraries within the Project or Configuration structure tree element. [HE22626]

2 Progress dialog box terminates if connection problems occur during an operating system download

If the connection between PADT and PES is lost during an operating system download, SILworX terminates the progress dialog box with an error message. [HE20037]

3 Error message appears in the dialog box when the **Set Responsible Attribute** command is being executed

When attempting to change the *Responsible* attribute while a system bus module is running in system operation, an error message appears not only in the logbook, but also in the dialog box. [HE22209]

4 Program ID integrated in command response dialog boxes and diagnostic texts

The user program ID is integrated in command response dialog boxes and diagnostic messages that refer to the user program. This enables easier allocation of the messages. [HE18426]

5 Program states deviating from the system state are displayed as system error or system warning

Program states deviating from the system state are displayed in the Control Panel as system error or system warning in accordance with their classification.

(The *System* LED is activated accordingly). [HE21048]

4.3 FBD

1 Optimized representation of sequence changes in the version comparator

Compared to the previous version, changes to the processing sequence can thus be displayed in a different manner. [HE23283, HE23763]

2 Current initial step name used to identify SFC networks in the version comparator

In the previous SILworX version, SFC networks were identified based on the initial step name used at its creation. It was therefore possible to display changes with a name that no longer exists in the current version.

In the following cases, the version comparator in SILworX V6 displays SFC networks as deleted in the previous version and as new in the current version:

– The initial step was renamed after its creation.
– The previous version was created with SILworX V5.
– The current version was created with SILworX V6.
– Changes were performed within the function block. [HE24104]

3 Updating an extendible function block not always possible

If the minimum extendibility of an extendible function block was increased and inputs/outputs were added, an existing function block instance could no longer be updated, if it was extended to a value less than the minimum extendibility set last. [HE21622]

4 Faulty error detection during changes within the function block type of extendible function blocks

If a function block instance was extended up to a certain point, no errors were reported during validation if additional inputs or outputs were added in the extended area of the corresponding function block type. [HE22309]

5 Changes to interface variables of functions/function blocks caused SILworX to terminate

SILworX could terminate if changes were performed to the interfaces of functions or function blocks and the instance(s) was(were) then updated, e.g., conversion of inputs to outputs or vice versa. [HE22582]

6 Cutting and pasting assigned comments or online test fields caused SILworX to terminate

The fault does not occur when simultaneously cutting and pasting a variable and an assigned comment or online test field. [HE21719]

7 Connections and ENO no longer existed when updating conflicts

After a function block was moved to another location within the structure tree, the previous version reported that all references between interface variables and local/global variables were removed. If the function block was then updated, the connections and ENO were deleted. [HE22532]

4.4 safeethernet/NSIP

1 Deleting safe**ethernet** partners no longer results in deleted references of data types to system variables

In the previous version, if a partner was deleted during a safe**ethernet** connection, the PADT also deleted the reference of the data types to the system variables. The verification returned "No data type referenced." [HE23602]

2 **Assign Fragments Automatically** for OPC connection caused SILworX to terminate

The previous version terminated when trying to execute **Assign Fragments Automatically** from within the detail view of a safe**ethernet** connection. The safe**ethernet** connection was defined between resource and X-OPC server. No variables were assigned. [HE22828]

3 Online view displays the *Time Stamp* in milliseconds resolution

In the previous version, the *time stamp* in the safe**ethernet** online view (channel view) had a second, instead of millisecond accuracy. [HE23922]

4 Export for cross-project communication with *Fixed* profile caused SILworX to terminate

In the previous version, exporting a resource for cross-project communication with ELOP II Factory caused SILworX to terminate if the *Fixed* profile was selected. [HE21594]

5 Only export of default data types allowed for cross-project communication with ELOP II Factory

For export in connection with cross-project communication, the previous version also allowed data types not permitted in ELOP II Factory, in particular structures and arrays. [HE21029]

6 New safeethernet objects can be created at project and configuration level

In the previous version, it was not possible to create safe**ethernet** objects at project and at configuration level. [HE22279]

4.5 Hardware Editor

1 Variable conflicts can be updated and resolved

In the previous version, when assigning global variables to system variables from within the detail views of the I/O modules, no menu function could be selected to update the global variables. As a consequence, conflicts resulting from actions such as deletion of used global variables could not be resolved. [HE22240]

2 No superfluous attributes during XML export

In the previous version, attributes only configurable via the redundancy group, were added to the XML export data of some modules. [HE21720]

3 The standard interface is copied when copying modules with IP connections

The value of the *Standard Interface* parameter is copied when copying modules with IP connections. The previous version used a random value for the copy. [HE22597]

4 Hardware online view update returns proper status

If both the Hardware Editor and its online view are opened in the OFFLINE state, a change in the Hardware Editor is adopted in the online view, but the displayed state does not change. In such a case, the previous version displayed the state ONLINE, although no connection existed to the PES. [HE21671]

5 Range of values for rack ID of remote I/Os changed to 128…1023

In SILworX V6.114, the rack IDs of remote I/Os can be set to a value included in 128…1023 (instead of 200…1023 in the previous version). [HE20561]

6 SILworX no longer terminates in connection with the deletion of a redundancy group

The previous version terminated if a redundancy group was deleted repeatedly and the detail view of one of the affected modules was closed. [HE21860]

After a redundancy group was deleted, the previous version terminated if the image of the deleted redundancy group was right-clicked. [HE21740]

7 SILworX no longer terminates while closing a redundancy group

The previous version terminated when the following step sequence was performed while closing the project:

- Create a new HIMax PES and drag any module above the rack.
- Select the module, slightly move it and drop it again onto the same slot.
- Save and close the Hardware Editor.

After these steps, the Hardware Editor could no longer be opened, and SILworX terminated when closing the project. [HE23576]

8 Inputs of the X-DI 32 02 module represented in the Force Editor with the corresponding channel number

The Force Editor of the previous version did not specify the channel number of X-DI 32 02 modules, if the project was created in a version up to SILworX V2.6. [HE22218]

9 During the creation of X-MIO 7/6 01 modules the parameter *Supply Used* is set to the default value ON for all the DI channels

In the previous version, the *Supply Used* parameter had a random value. [HE22577]

4.6   Protocols

1 Modbus slave: the SRS of the redundant module is updated properly when simultaneously connected to HIMax and HIMatrix

The previous version did not update the SRS when switching between online views of the Modbus slave for a HIMax and a HIMatrix resource. [HE22331]

2 Host editor information relating to X-OPC/X-OTS is adopted in the documentation

The previous version did not adopt the host editor information for OPC and OTS into the documentation:

- IP addresses
- PADT port [HE23125]

3 Changeability of structures in X-OPC server improved

The changeability of the *EU Initial Value*, *EU Final Value*, *Default Display* properties of structures and structure elements was improved in the OPC server:

- These properties cannot be changed for structures.
- These properties can be changed for structure elements.
- If EU Initial Value, EU Final Value or Default Display are defined for structure elements, additional properties are available in the X-OPC server. [HE22714]

4 Collision check in the PROFINET editor

SILworX outputs collision warnings if data structures overlap one another due to unfavorable offset specifications. [HE16763]

5 Error message if the GSDML file name is invalid (PROFINET)

If the GSDML file name for PROFINET does not comply with the valid naming conventions, SILworX V6 rejects the file.

In such a case, the previous version terminated. [HE21522]

6 Generation of valid data values for iParameters (PROFIsafe)

For the bit data type, SILworX V6 generates valid data values for the iParameters. [HE21905]

7 **Goto…** in connection with PROFINET error messages jumps to intended target
[HE22385]

5 Problems Resolved in Version 6.114

This chapter describes problems of V6.48, that have been resolved in V6.114. Some of these problems already existed in versions prior to V6.48.

1 Moving a rack above another difficult to pursue

In the Hardware Editor, if a new rack was moved above an existing rack while dragging it from the Object Panel onto the workspace, the existing rack appeared in the foreground an the moved rack was displayed in the background. It was therefore difficult to pursue the movement of the rack. [HE24401]

2 Online help for the X-Lib function blocks completely visible

In V6.48, the online help for the X-Lib function blocks was not completely visible, if it was opened for the first time from within the FBD Editor and contained external graphics being not part of the HTML. [HE24986]

3 Problems when replacing a POU instance using drag&drop

In V6.48, replacing a POU instance using drag&drop led to an infinite loop, if both conditions were fulfilled:

- The interfaces EN and ENO of the POU instance were visible
- At least one input or output of the POU instance was connected. [HE25097]

4 Whitespace at the beginning or at the end of names

SILworX displays a warning if names begin or end with a whitespace (blank, tab, etc.). [HE24151]

5 % characters in global variable names

V6.48 could terminate when archiving and restoring, if the name of a global variable ended with %. [HE25232]

6 Pasting a deleted object from the clipboard

V6.48 could terminate in connection with the following command sequence:
- – Copy an object to the clipboard.
- – Delete the object from the workspace.
- – Paste the object from the clipboard.

V6.114 prevents an object from being pasted from the clipboard, if the copied object has been deleted. [HE24260]

7 Error handling within **Search via MAC**

Improved error messages and more robust behavior within **Search via MAC**. [HE24808]

8 Style sheets file created when exporting XML

When diagnostic messages are exported as XML file, SILworX also creates a style sheets file for remote I/Os. [HE25170]

9 Test mode displayed for all the user programs

If at least one user program is operating in TEST MODE or TEST CYCLE, the resource online view displays the test mode. [HE25118]

10 CRC remains stable even after changing the SILworX language setting to English

In V6.48, the following conditions caused the CRC to change when converting a project:
- – Conversion from a SILworX version prior to V6
- – Configured alarms or events
- – SILworX language set to English

[HE25379]

11 Cross-reference to the use of array variables in structured text

The use of array variables within structured text POUs is displayed in the cross-reference list. This also applies if the array index is a global variable. [HE25367]

5.1   Hardware

1 Indication of the measured system bus latency for a HIMax resource

During online operation of a HIMax resource, SILworX displays the measured system bus latency in red if the mean value of the measured system bus latency exceeds the configured maximum system bus latency. In V6.48, red was only displayed when the measured maximum value exceeded the configured maximum value. [HE24781]

2 Texts for voltage status of HM31 resource type

Display texts are also available for indicating the voltage status of resources of type SEW PFF-HM31. [HE24389]

3 Moving and cutting out modules in connection with a full M45 rack

If the M45 rack was full (63 modules), V6.48 prevented users from moving modules or pasting modules that had been cut out. [HE24531]

4 Hardware online view represented in window mode

In V6.48, the hardware online view and other windows were excessively large when represented in window mode. [HE21402]

5 Online view of an empty extension rack after changing the rack ID

Changing the rack ID in the project and loading the configuration into the resource causes the modified rack to be displayed twice in the online view:

- As missing rack with the new rack ID
- As unknown rack with the previous rack ID

The online change of the rack ID in the system bus module causes the rack with the previous rack ID to disappear from the online view. [HE24517].

6 Confirmation message after deletion of comment fields

The confirmation dialog box properly reports the deletion of a comment field. [HE25051

7 Column header in the channel table of M-DI 08 modules corrected

The column header is -> SC/OC [BOOL]. [HE25043]

8 Order of I/O channels in the documentation of remote I/Os defined

The I/O channels of remote I/Os are sorted by name. [HE25058]

9 Unsuitable error message for M45 suppressed

If an M45 module was configured, but not inserted, and was then removed, the online view in V6.48 displayed an error message not suitable for an M45 (The configured rack ... cannot display all the online modules - ...). [HE24299]

10 Creating a comment field in the Hardware Editor of a proxy resource

V6.48 terminated when creating a comment field in the Hardware Editor of a proxy resource. [HE24907]

11 Deletion of a remote I/O in the Hardware Editor of a M45 system

V6.48 terminated when deleting a remote I/O, if the remote I/O was selected using a frame. [HE24722]

12 Deletion of a redundancy group caused by the deletion of a rack

In V6.48, an error occurred during code generation if a rack containing a redundancy group of I/O modules was deleted. [HE24453]

13 Deletion of a global variable used as event source

V6.48 terminated in connection with the following step sequence:

a A global variable is deleted in the Global Variable Editor. The deleted variable is used as event source.

b The Event Editor is opened using **Goto** without saving the change in the Globale Variable Editor.

Opening the Event Editor directly, without using the **Goto** function, caused an error message reporting that the object was in use. [HE25206]

5.2 Communication

1 Parameter for NSIP protocols renamed

The parameter in the properties of NSIP protocols designated as Force Process Data Consistency was renamed Allow Multiple Fragments per Cycle. [HE25056]

2 Moving an OPC server

The OPC server can be moved without errors. [HE24810]

3 Time dependency check for OPC and OTS

The dependencies of the time values configured in the OPC server set and OTS are checked.

Example of dependency: watchdog time < safety time/2. [HE24839]

4 Deadlock situation during safe**ethernet** reload

The code generator in V6.48 did not detect a deadlock situation during safeethernet reload. [HE24788]

5 The CSV export file of the P2P connection overview contains value in the Enable SER column

[HE24863]

6 Attributes of alarms and events in safe**ethernet** connection overview

V6.114 only displays the attributes of alarms and events in the safe**ethernet** connection overview if they were defined for the connection type. [HE24858]

7 safe**ethernet** connection between OPC and ELOP II Factory resource.

In V6.48, a safe**ethernet** connection could be configured between the OPC server and an ELOP II proxy resource. [HE24806]

8 Documentation for OPC server connection

In V6.48, the connection documentation for a single OPC server contained useless information about a second, non-existing OPC server. [HE25022]

9 The safe**ethernet** index in the property editor represented as read-only

[HE24932]

10 safe**ethernet** connection to ELOP II Factory resource.

A safe**ethernet** connection to a resource configured with ELOP II Factory is represented as non-redundant. [HE25036]

11 Loading a configuration from converted project with redundant X-OPC

A configuration from a project converted from a previous version can be loaded into the PES by performing a reload or a download although it contains a redundant OPC connection. [HE25234]

12 Representations in the CUT online view

a If ComUserTask is not configured, the following text is displayed in the online view as task state: The task has not been started. [HE24646]

b If ComUserTask is configured, the name CUT is properly displayed in the online view. [HE24672]

13 Renaming safe**ethernet** connections to remote I/Os

SILworX terminated when renaming safe**ethernet** connections to remote I/Os. In particular, this occurred if the renaming action was not saved and one tried to open the remote I/O detail view within the Hardware Editor using **Edit** or a double-click. [HE24815]

14 Loading of a ComUserTask with wrong data checksum (CRC)

Attempting to load a ComUserTask with an invalid data checksum causes SILworX to issue a critical fault. The user thus recognizes that the ComUserTask has not been loaded. [HE24677]

15 The ComUserTask documentation contains system variables and process variables

[HE25044]

5.3   Code Generation and Loading Process

1   SILworX outputs an error if two variables have the same name

If a variable is created in a function or function block and has the same name as an existing variable, SILworX code generation reports an error. This may happen, e.g., if a variable is created and named ENO; the variable would then exist twice due to the predefined ENO variable. [HE24641]

2   safe**ethernet** reload when changing the fragment definition

If the fragment definition is changed and no other change is performed, SILworX creates a dual configuration supporting safe**ethernet** reload. [HE24823]

3   Updating variables with invalid data type

Updating conflicts for variables with invalid data type results in an error message. [HE25005]

4   Reload code generation terminated if global variables named ENO were used

In V6.48, if a global variable named ENO was assigned a value, e.g., through a physical input, the code generator terminated when generating reloadable code. [HE24642]

5   The reload dialog box properly displays the loaded configuration

After a reload process was aborted, the reload dialog box still displays the loaded configuration and the configuration to be loaded properly. [HE23130]

6   Restrictions

When using SILworX versions V6.x, take the following restrictions into account.

If the following instructions are observed, the restrictions have no influence on safety and on the availability of the code generated for a controller.

6.1   Restrictions of Versions 6.48 and 6.114

1   Progress dialog box in connection with actions applying to structured tree sub-elements

If an action such as a copy should apply to a structure tree element including its sub-elements, SILworX opens a progress dialog box. If errors occur during the action, the progress dialog box remains open even if the parameter *Automatically close the dialog upon success* is activated.

The dialog box offers the option to abort the running process. A running process is also aborted, if an error occurs. In both cases, however, actions that have already been executed cannot be undone.

2   Sequential function chart: No indication of deadlocks

Combined use of selection and simultaneous nodes causes deadlocks, i.e., undefined states in which either all steps or no steps are active. SILworX does not warn the users. [HE17716]

3   Information on global variables used as VAR_EXTERNAL is not displayed

If global variables with Struct or Array data type are used as VAR_EXTERNAL, the FBD Editor does not display for the sub-elements the information entered in the column *Initial Value, Description, Additional Comment and Technical Unit* [HE19688]

4   CRC change during OPC configuration

Generating a new code for X-OPC or X-OTS in a project converted from a previous version, the CRC of the `opc.conf` file changes.

5 Cross-project communication

Cross-project communication files between SILworX projects are now exchanged using the Archive and Restore functions.

Existing connections are converted to normal connections.

The assignment of global variables with other names to the transport variables is no longer supported during import (up to SILworX V4).

Proxy resources remain available, their semantic remain the same (resources without code generation).

6 The MUL function block provides erroneous values in concomitance with the following circumstances:
  – HIMatrix standard resource
  – Data type LREAL
  – One input has the value +/-∞, the other input the value *nan* (not a number)

In this case the result is -∞, and not *nan* as specified. [HE21924]

7 Unfavorable positioning of objects in the FBD Editor

Objects with open line ends can be moved by drag&drop or using hotkeys such that they appear as they were connected to other objects. These objects may be even positioned directly behind other objects.

Workaround: The verification procedure detects open line ends. [HE24238]

8 Extending function block instances and open line ends

If the two following conditions are met, extending function block instances can cause SILworX to terminate:
  – The unused connections resulting from the extension immediately dock to open line ends.
  – Docking is not possible due to data type incompatibility.

In these cases, the function block can be damaged to an extent that a repair by HIMA may be necessary. [HE23898]

9 Conflict resulting from changing the constant attribute for global variables after their use

A conflict occurs during the code generation, if a global variable is used as VAR_EXTERNAL and is set from Constant to Changeable or vice versa, when a value is assigned to this VAR_EXTERNAL and the global variable is constant.

Workaround: Add the variable once again at all positions in which it is used. [HE24487]

10 Conflict icon remains visible, in spite of removed conflict

In the following cases, the conflict icon remains visible although the invalid action was canceled and the valid value displayed:
  – Invalid name is entered for a variable.
  – An existing sequence number is assigned to an interface variable.

Workaround: Start verification or update process. [HE24339]

11 Copying obsolete online values

In the Force Editor and other force tables, online values can be copied to the clipboard. If values that were not located in the visible window are copied, the values may be obsolete. [HE23314]

12 Adding the 64th M45 module can cause SILworX to terminate

The maximum number of modules permitted for the HIMatrix M45 system is 63, including the processor module. Trying to add an illicit 64th module can cause SILworX to terminate. [HE24522]

13 Under Windows XP, administrator rights are required for SILworX

Trying to start SILworX under Windows XP as standard or guest user causes SILworX to terminate.

Workaround: Start SILworX as administrator.

Notice: Microsoft's Windows XP support ends on the 8th April 2014! Check the possibility of using Windows 7.

14 Licenses are sorted by names which may result in a changed CRC

During code generation, SILworX V6.114 and higher no longer stores the licenses sorted by entry order, but by names. This may result in a changed CRC.

Workaround: Use suitable names, ask for HIMA technical support.

15 The CRC calculation for the source code of a C++ function block does not take the entire code into account

The source code of a C++ function block is not taken into account in the CRC if the code follows a comment in which the line break is *masked* with the character: \, i.e., it is a part of the comment. Example of such a comment composed of 3 lines:

```
/\
* This comment contains 2 masked line breaks *\
/
```

As shown in the example, the masked line breaks can be used within the comment delimiters: /* and */.

Workaround: Do not mask line breaks within comments by using the character: \. [HE24925]

16 Setting a filter for a table hides its content

If a filter is set in a table view, e.g., in the Force Editor, the table is hidden within a row preceded by a plus sign. Only a click on the plus sign makes the filtered table visible again. [HE25054]

17 OPC: Transmission of read/write data

SILworX creates an invalid configuration if the following conditions are met:
- One or several variables are configured for the transmission in both directions, i.e., as write/read data.
- The variables with transmission direction from the PES to the OPC server are not in the first fragment. The fragments are sorted by names.

Such a resource configuration cannot be loaded into the PES!

This also applies to safeEDR connections. [HE25694]

18 User program size in the Control Panel and version comparator

The user program size displayed in the Control Panel may differ from that displayed in the version comparator. The control panel displays the size of the memory actually used. This value is usually higher than the value indicated in the version comparator. The values may also be identical.

This deviation is due to technical reasons and does not mean that a fault or a security problem has occurred.

19 Attempting to start a download during the code generation, caused SILworX to terminate. [HE24758]

20 Reloadable code is generated, but Reload cannot be performed

If the only safeethernet connection with status V6 and higher is deleted (all other safeethernet connections are prior to V6), the whole safeethernet configuration drops back from *V6 and higher* to version *prior to V6*. The code is not reloadable anymore.

The Version Comparison can be used for detecting whether this restriction exists**.** Then, the configuration file safe**ethernet** drops back from version 3.0 to 2.0.

Workaround: To restore the reloadability, the safe**ethernet** configuration file must be maintained to version 3.0. To this end, assign at least one of the safe**ethernet** system variables *Version State* with a global variable (no further functionality). [HE25818]

21 Incorrect stack calculation

The stack calculation may be incorrect when using nested user-defined data types (arrays, structs). This leads to the following behavior:

Effect on code generation, if stack calculation is too big or too small:
By multiple code generation the incorrect stack calculation can result in different CRCs of the generated code.

Impact during the operation, if the stack calculation is too small:
A large reserve is already added to the calculated stack buffer. Therefore, an impact of the error at run time is only expected if the nesting depth is > 50.
If the stack buffer is not sufficient, the error response is as follows:
Minimum configuration version ≥ SILworX V4: Error Stop
Minimum configuration version < SILworX V4: Error is safety relevant

Instructions for determining the causing program part

If at least two assignments with following properties exist in the user program (including the called function blocks) this may be the cause of the incorrect stack calculation:

a It exists a nested user defined data type that is used by both assignments directly or indirectly (as a part of a still more deeply nested data type).

b The source of one assignment is a VAR_EXTERNAL that is read and written in this program, VAR_INPUT or VAR.

c The source of the other assignment is a VAR_EXTERNAL, that is read only in this program.

d The target of both assignments is VAR, VAR_OUTPUT, VAR_TEMP, VAR_EXTERNAL, or a VAR_INPUT in the call to MOVE, SEL, MUX.

Workaround: Create an empty C++ function block with a bigger stack buffer than the total stack buffer of the program and call this C++ function block in the user program.
or
Create a dummy POE with a bigger stack buffer than the used stack buffer of the caused POE.
The stack buffer of the dummy POE can be increased, e. g., by using VAR_Input with 8-byte data types or by the call hierarchy of other nested dummy POEs. [HE 25801]

6.1.1   safe**ethernet**

1 Inconsistent priorities of a safe**ethernet** connection cause the connection to be lost during reload

For a safe**ethernet** connection, the priority can be set to different values for both directions (partners). The different priorities result in differing safe**ethernet** signatures, which are saved in the configuration file. During a reload performed at a later point in time, this causes the connection to be lost. The problem occurs under the following conditions:

– The connection exists between controllers, no OPC connection

– The *Codegen* parameter is set to *V6 and Higher*. [HE24864]

2 Converting a safe**ethernet** connection from *Up to V6* to *V6 and Higher*

When converting from a version *Up to V6* to *V6 and Higher,* observe that the timing master behavior may be changed. Refer to the SILworX communication manual (HI 801 101 E) V6.01 and higher for more information on the timing master. [HE25666]

3 Missing warning during reload code generation for safe**ethernet** connection

If two PES, A and B, are connected via safe**ethernet**, and no dual configuration is loaded in PES B, SILworX does not output any warning in connection with the following sequence:

a   The safe**ethernet** connection changes causing the signature to change.

b   Reloadable code is generated and loaded into PES A through reload. In PES A, the dual configuration state is now *Updated*.

c   Reloadable code is generated again for PES A. SILworX removes the dual configuration.

The SILworX code generator does not report that PES B has not loaded any suitable version!

When the reload process is started for PES A, the operating system reports the problem and the reload is not continued. [HE25678]

6.2   Restriction of V6.48

These restrictions correspond to the problems resolved in V6.114 and described in Chapter 5.

1 Moving a rack above another difficult to pursue

In the Hardware Editor, if a new rack is moved above an existing rack while dragging it from the Object Panel onto the workspace, the existing rack appears in the foreground and the moved rack is displayed in the background. It is therefore difficult to pursue the movement of the rack. [HE24401]

2 Online help for the X-Lib function blocks completely visible

The online help for the X-Lib function blocks is not completely visible if it is opened for the first time from within the FBD Editor and contains external graphics being not part of the HTML. [HE24986]

3 Problems when replacing a POU instance using drag&drop

Replacing a POU instance using drag&dop leads to an infinite loop, if both conditions are fulfilled:

–   The interfaces EN and ENO of the POU instance are visible

–   At least one input or output of the POU instance is connected. [HE25097]

4 Whitespace at the beginning or at the end of names

A whitespace (blank, tab, etc.) at the beginning or at the end of names are difficult to recognize. [HE24151]

5 % characters in global variable names

SILworX can terminate when archiving and restoring, if the name of a global variable ends with %. [HE25232]

6 Pasting a deleted object from the clipboard

SILworX V6.48 can terminate in connection with the following command sequence:

–   Copy an object to the clipboard.

–   Delete the object from the workspace.

–   Paste the object from the clipboard.

[HE24260]

7 Error handling within **Search via MAC**

Search via MAC already aborts when an interface error occurs. [HE24808]

8 Style sheet file created when exporting XML

When diagnostic messages are exported as XML file, SILworX does not create any style sheet file for remote I/Os. [HE25170]

9 Test mode displayed for just one user program

The resource online view only displays the test mode if the last user program is operating in TEST MODE or TEST CYCLE.

10 CRC change in connection with SILworX language setting English

The following conditions cause the CRC to change when converting a project:

– Conversion from a SILworX version prior to V6
– Configured alarms or events
– SILworX language set to English

[HE25379]

11 Cross-reference to the use of array variables in structured text

If the array index is a global variable, the use of array variables within structured text POUs is not displayed in the cross-reference list. [HE25367]

6.2.1   Hardware

1 Indication of the measured system bus latency for a HIMax resource

During online operation of a HIMax resource, SILworX displays the measured system bus latency in red only after the system bus latency has exceeded the configured maximum value. Proper behavior is when the measured system bus latency is already displayed in red when the mean value exceeds the configured maximum system bus latency. [HE24781]

2 Texts for voltage status of HM31 resource type

No display texts available for indicating the voltage status of resources of type SEW PFF-HM31. [HE24389]

3 Moving and cutting out modules in connection with a full M45 rack

If the M45 rack is full (63 modules), SILworX prevents users from moving modules or pasting modules that have been cut out. [HE24531]

4 Hardware online view represented in window mode

In SILworX, the hardware online view and other windows are excessively large when represented in window mode. [HE21402]

5 The online view displays an empty extension rack after changing the rack ID

The following sequence in a HIMax system results in a system malfunction:

a The rack ID is changed in the project.
b Code is generated and the configuration is loaded into the resource.
c The rack ID is changed online. in the system bus module of the affected rack

After this sequence, the rack with the old rack ID and containing the system bus modules and the I/O modules is still visible in the online view in addition to the rack with the new ID. The system bus modules and I/O modules gradually disappear, but the empty rack remains visible. [HE24517].

6   Confirmation message after deletion of comment fields

The confirmation dialog box improperly reports the deletion of a comment field as the deletion of some hardware. [HE25051

7   Incorrect column header in the channel table of M-DI 08 modules

The column header is ->OC [BOOL] instead of -> SC/OC [BOOL]. [HE25043]

8   Order of I/O channels in the documentation of remote I/Os

The I/O channels of remote I/Os are displayed in a different order. [HE25058]

9   Unsuitable error message for M45

If an M45 module was configured, but not inserted, and is then removed, the online view displays an error message not suitable for an M45 (The configured rack ... cannot display all the online modules - ...). [HE24299]

10   Creating a comment field in the Hardware Editor of a proxy resource

SILworX terminates when creating a comment field in the Hardware Editor of a proxy resource. [HE24907]

11   Deletion of a remote I/O in the Hardware Editor of a M45 system

SILworX terminates when deleting a remote I/O, if the remote I/O was selected using a frame. [HE24722]

12   Deletion of a redundancy group caused by the deletion of a rack

During code generation, an error occurs if a rack containing a redundancy group of I/O modules was deleted. [HE24453]

13   Deletion of a global variable used as event source

SILworX V6.48 terminates in connection with the following sequence:

a   A global variable is deleted in the Global Variable Editor. The deleted variable is used as event source.

b   The Event Editor is opened using **Goto** without saving the change in the Globale Variable Editor.

Opening the Event Editor directly, without using the **Goto** function, causes an error message reporting that the object is in use. [HE25206]

6.2.2   Communication

1   Parameter for NSIP protocols

The parameter name Force Process Data Consistency in the properties of NSIP protocols is misleading. [HE 25056]

2   Moving an OPC server

Moving an OPC server results in error messages. [HE24810]

3   Time dependency check for OPC and OTS

The dependencies of the time values configured in the OPC server set and OTS was not checked.

Example of dependency: watchdog time < safety time/2. [HE24839]

4   Deadlock situation during safe**ethernet** reload

The code generator in V6.48 does not detect a deadlock situation during safe**ethernet** reload. [HE24788]

5   The CSV export file of the P2P connection overview does not contain any value in the Enable SER column

[HE24863]

6   Attributes of alarms and events in safe**ethernet** connection overview

SILworX displays the attributes of alarms and events in the safe**ethernet** connection overview even if they are not defined for the connection type. [HE24858]

7   safe**ethernet** connection between OPC and ELOP II Factory resource.

A safe**ethernet** connection between OPC server and ELOP II proxy resource can be configured in SILworX. [HE24806]

8   Documentation for OPC server connection

The connection documentation for a single OPC server contains useless information about a second, non-existing OPC server. [HE25022]

9   The safe**ethernet** index in the property editor is not represented as read-only, although it cannot be changed

[HE24932]

10   safe**ethernet** connection to ELOP II Factory resource.

A safe**ethernet** connection to a resource configured with ELOP II Factory can be configured as redundant. [HE25036]

11   Loading a configuration from converted project with redundant X-OPC

A configuration from a project converted from a previous version cannot be loaded into the PES if it contains a redundant OPC connection. The cause is that the new Version State system variable is not created in the redundant part.

Workaround: Upon completion of the conversion, delete the redundant safe**ethernet** connection and create a new one:

a   Open safe**ethernet** connection

b   Save the safe**ethernet** connection settings, e.g., through a CSV export, or using the SILworX menu functions **Select All** and **Copy** and pasting the contents in Excel.

c   Export all the tables in the safe**ethernet** connection to a CSV file

d   Delete the safe**ethernet** connection

e   Create a new safe**ethernet** connection

f   Manually specify the new connection settings saved in step b

g   Fill in all tables by importing the CSV files created in step c

h   For verification purposes, compare the CRCs before and after the creation of the new connection. The CRCs must be identical.

[HE25234]

12   SILworX terminates when renaming safe**ethernet** connections to remote I/Os

In particular, this occurs if the renaming action is not saved and one tries to open the remote I/O detail view within the Hardware Editor using **Edit** or a double-click. [HE24815]

13   Representations in the CUT online view

a   If ComUserTask is not configured, the following text is displayed in the online view as task state: The task has not been started. [HE24646]

b   If ComUserTask is configured, the name CUT is properly displayed in the online view. [HE24672]

14 Loading of a ComUserTask with wrong data checksum (CRC)

Attempting to load a ComUserTask with an invalid data checksum causes SILworX to issue a critical fault. The user thus recognizes that the ComUserTask has not been loaded. [HE24677]

15 The ComUserTask documentation contains system variables and process variables [HE25044]

6.2.3   Code Generation and Loading Process

1 SILworX outputs an error if two variables have the same name

If a variable is created in a function or function block and has the same name as an existing variable, SILworX code generation reports an error. This may happen, e.g., if a variable is created and named ENO; the variable would then exist twice due to the predefined ENO variable. [HE24641]

2 safe**ethernet** reload when changing the fragment definition

If the fragment definition is changed and no other change is performed, SILworX creates a dual configuration supporting safe**ethernet** reload. [HE 24823]

3 Updating variables with invalid data type

Updating conflicts for variables with invalid data type results in an error message. [HE25005]

4 Reload code generation terminated if global variables named ENO were used

In V6.48, if a global variable named ENO was assigned a value, e.g., through a physical input, the code generator terminated when generating reloadable code. [HE24642]

5 Download dialog box outputs an error message when the code generation is still running [HE24758]

6 The reload dialog box properly displays the loaded configuration

After a reload process was aborted, the reload dialog box still displays the loaded configuration and the configuration to be loaded properly. [HE23130]

6.3   **Restriction of V6.114**

1 Execution order represented in the comparator for structured text

The execution order is not consistently represented in the comparator for structured text:
- The inputs and outputs have the same number
- The inputs and outputs are numbered beginning by 1 [HE25438]

2 X-OPC server V3 terminates in connection with reload

SILworX V6.114 can generate reloadable code for the X-OPC server. This capability is planned for a future version of the X-OPC server. X-OPC server V3 is not reloadable and terminates after reloadable code has been loaded.

Workaround: Do not generate reloadable code for X-OPC server V3. Deactivate the setting for reload in the dialog box for code generation. [HE25714]

3 Setting the *Responsible* attribute and the system bus mode via MAC not always possible

If **Write via MAC** is used, the following settings are not always configured properly:
- *Responsible* attribute
- System Bus Mode
- Gateway

Failure of **Write via MAC** is not reported as such. Proper writing of the value can only be determined after the value has been read.

Workaround: Configure the settings using the IP address instead of the MAC. [HE25763]

6.4 Special features

6.4.1 General

1 In the Hardware Editor, the scaling settings for an analog value are read as REAL

SILworX reads the values specified for the vertices of an analog value as REAL (at 4 mA and 20 mA). LREAL can also be used in the user program. This restriction is only relevant with very large or very small interpolation point values. [HE16388, Restriction]

2 Logic operations of BOOL variables having values that originate from external systems can provide results that differ from those expected.

The cause is that the coding of BOOL values used in the third-party system deviates from the coding used in the HIMA system.

Two **workarounds** are possible:

– The external system only provides 0 for FALSE and 1 for TRUE.

– A correction circuit is implemented in the user program for all relevant BOOL variables to normalize the value to 0 or 1:

Non-normalized variable -> AtoByte function block -> AtoBOOL function block -> normalized variable [HE13042, restriction]

3 Impossible to save certain changes in a SILworX editor

After specific changes are made in an editor, the message 'Impossible to save changes' appears while attempting to save. After confirming the message, however, the changes are saved.

If the SILworX editor is then closed and re-opened, the message 'The required data is being processed' appears.

An example of changes in which this problem occurs is the cyclic renaming of variables (A => B, B => C, C => A).

Workaround: Avoid exchanging names.

If required, restart SILworX. [HE11613, Restriction]

4 Variations of the cycle time during LREAL calculations

The cycle times can strongly vary during calculations with variables of type LREAL. To measure the watchdog time, the cycle time must be determined under realistic conditions. [HE12115, Restriction]

5 Sequential function chart: Step-internal TON starts a cycle later than normal TON

A reload is performed and leads to the following changes:

– A new step is added and must be active immediately after the reload.

– A TON function block with the input permanently set to TRUE is added.

Afterwards, the step-internal TON starts one cycle later than the TON function block in the program logic. [HE16288, Restriction]

6 If the diagnostic view is opened during a system login and the connection is closed, SILworX offers the module login when attempting to re-establish the connection. [HE11926, Restriction]

7 Online help associated with a POU not printable

The document management cannot print the content of the online help associated with a user-defined POU.

Workaround: Use Windows to display the online help content and print out the individual topics. [HE14244]

8 Value of user program's system variables during the online test and offline simulation

The value of user program's system variables is not displayed during the online test and offline simulation:

- The OLT field is empty.
- The value of digital system variables is not represented by the color of the corresponding line.
- The Process Value column in the System Variables tab of the Object Panel is empty.
- The Force Editor contains no system variables

Workaround: Most of the information is displayed elsewhere, e.g., in the Control Panel. To display it in the OLT, connect the system variable to a variable (VAR_TEMP) and connect this variable to an OLT field. Forcing can only be performed in HIMax, if the program is connected to the system variable via a variable. The variable can be forced. [HE15396, Restriction]

9 Import of export files from a previous version

It cannot be ensured that key terms in the export or import files (.CSV, .XML) do not change between SILworX versions. If this occurs, SILworX imports the corresponding data as default values, and outputs an error message.

Example: The data type for the **English** language setting was denoted Data Type in versions up to V5.xx, and Data type in V5.xx and higher. When an export file is imported from a version up to V5.xx, SILworX creates all the variables with the default data type BOOL.

Workaround: Adjust the corresponding key words in the file to be imported. [HE21691]

10 Misleading indication of the force status for local forcing in connection with HIMatrix standard systems

For HIMatrix standard systems, the parameters indicating the status of local forcing (located above the force table) are set to regular values as if the information was actually available. In particular, these parameters are 'Force State', 'Forced Variables', 'Remaining Force Duration' and 'Force Time Reaction'.[HE23021]

6.4.2 Arrays and Structures

1 Various elements of a structure variable cannot be written simultaneously from different sources

The user program and the hardware or communication cannot simultaneously write to two different elements of the same structure variable.

Workaround: Use different structure variables for the elements written to by the user program and for the elements written to by the hardware or communication. [HE15700]

2 Elements of structure variables used as index

It is not possible to use elements of variables with structure data type as array index. [HE16159]

3 Invalid array index addresses a random array element

If the array index value is outside the defined range, accessing the array with this index returns the value of a random array element. [HE25075]

6.4.3 PC Environment

1 Use of hardlocks

Licensing SILworX using hardlocks (U3 USB sticks, standard USB sticks) is handled differently among the various operating systems:

– With Windows XP, administrator rights are required in the following cases:

a For installation.

b For operation, if SILworX was licensed using U3 USB sticks.
The rights of a standard user are sufficient for operation, if SILworX was licensed using standard USB sticks.

– With Windows 7, administrator rights are required to perform the installation.
For operation, hardlocks can be used to license SILworX to all types of users.

Workaround for Windows XP: Use softlock licenses or standard USB sticks. [HE17056, Restriction]

2 Windows synchronization deletes the project file from the network drive

The following sequence could cause a project file to be unintentionally deleted:

– The project file is located in a directory on a network drive.

– The Windows synchronization is running on the client PC.

– The project file is being edited with SILworX on the client PC.

– A synchronization process is started.

– The user stops editing the project file and exits SILworX.

Cause: When a project is being edited, SILworX saves the project to a temporary file. When the project is closed, SILworX deletes the previous project file and renames the temporary file. In the process, it may happen that the Windows synchronization on the server deletes but not renames the temporary file.

Workaround: Only perform synchronization after closing the project in SILworX. [HE25231]

6.4.4 Function Blocks and Functions

1 DIV_TIME with REAL typecast reports an error on ENO for divisor := +/-INF

The DIV_TIME function from the standard library improperly sets the ENO error output ENO to FALSE and reports therefore an error under the following conditions:

– The IN2 input (divisor) is of type REAL.

– The value of IN2 is +/-INF. [HE15199, restriction]

2 ENO output in connection with user-defined function blocks may be overwritten during reload

With user-defined function blocks, in which the ENO output only depends on the EN input, ENO may be set to FALSE during a reload. Such function blocks do not themselves write to ENO. [HE19129]

3 Timer function blocks cannot be correctly used with the retain attribute

If a timer function block is used with the retain attribute, the time counter may adopt any potential value after a warm start.

Workaround: Do not use timer function blocks with the retain attribute. [HE17252]

4 The number of instances of function blocks restricts the program's reloadability

If the user program has a very nested structure, the maximum number of operations necessary to perform a reload may be exceeded.

Only resources with 21845 or less instances can be reloaded. Depending on its structure, a user program may not be capable of reload in connection with a significant lower number. [HE23791]

5   Value change for VAR_INPUT variables for user-defined function blocks

For user-defined function blocks, SILworX handles VAR_INPUT variables differently, depending on how the inputs are connected:

– If the inputs are wired with variables of a default data type, the value of the variable is transferred to a copy within the function block (call by value).

– If the inputs are connected to variables of a user-defined data type, a reference to the variable is transferred to the function block (call by reference).

Notice: If the VAR_INPUT variable is a global variable, take into account that it may additionally be used as VAR_EXTERNAL in the called function block and may be modified. During the subsequent reading of the corresponding VAR_INPUT variable in the function block, value changes of VAR_EXTERNAL result in the following actions:

– For a user-defined data type, the new values are read.

– For an elementary data type, the previous values are read. [HE17740, Restriction]

7   Upgrading from a Previous Version to 6.114.

Project data from previous versions can continue to be used in V6.114.

No CRC changes occur as long as the **minimum configuration version** setting remains unchanged for a resource and none of the cases described in Chapter 1.2 has occurred. SILworX maintains the CRCs compatible provided that no changes occur or no new features are used.

Observe the following procedure to upgrade from V2.36 and higher to V6.114:

▪ Generate code for all resources prior to conversion. This allows potential deviations after the conversion to be detected during generation.

▪ Prior to converting the project, save it, e.g., on a removable medium.

▪ Open the project in V6.114 and convert it.

▪ Since the conversion is extensive, check the project integrity after completing the conversion.

▪ Generate the code in V6.114 to detect potential errors and check if CRCs has changed.

▪ Remove detected errors and re-generate the code to detect changed CRCs.

▪ If no CRC changes are detected, the migration was completed successfully.

▪ If CRC changes are detected, verify if they can be accepted.

▪ If the changes can be accepted, the migration is successfully completed.

▪ If they cannot be accepted, continue to work with corresponding previous version.

Conversion Notes:

▪ The procedure to convert up to V2.36 is described in the release notes to V2.36.

▪ For very large projects, the conversion can take several hours.

8   References

▪ SILworX first steps manual V6, HI 801 103 E

▪ SILworX communication manual V6, HI 801 101 E