ETAS COSYM V3.4.1

Release Notes

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Table of Contents

1. Introduction

Thank you for using our products. This document contains important information. We strongly recommend that you read the entire document.

1.1. Definitions and Abbreviations

Term/Abbreviation	Definition
DVD	Digital Versatile Disc
FMU	Functional Mock-up Unit
KIR	**K**nown **I**ssue **R**eport – For severe Problem Reports which occur after a release, ETAS has introduced the Known Issue Report to inform affected customer immediately. The current Known Issues of former versions can be found on the ETAS website: www.etas.com/kir
VECU	Virtual Electronic Controlling Unit

1.2. References

- COSYM V3.4.1 User Guide
- COSYM V3.4.1 Software Compatibility List
- COSYM V3.4.1 Getting Started Guide

2. Product Definition

2.1. Functions at a Glance

Co-simulation of Systems (COSYM) is built to integrate and simulate mechatronic systems consisting of control as well as plant models. COSYM offers an integration and simulation platform for Software-in-the-Loop (SiL) with soft real-time simulation respectively. COSYM enables users to work with Graphical User Interface (GUI) which helps to interact with the Product efficiently. COSYM users can also work without GUI using the provided Application Programming Interfaces (APIs).

COSYM allows the user to integrate and simulate models based on the Functional Mock-up Interface (FMI) Version 2.0 for Co-Simulation. FMUs from 3rd party model development tools which are FMI compliant can be imported into a COSYM project. COSYM allows the integration and simulation of virtual ECUs (VECUs), along with plant models.

The ETAS Experiment Environment (ETAS EE) controls the simulation, and the results are visualized using the various instruments, which are available in ETAS EE.

2.2. General Description

2.2.1. System Prerequisites

The system prerequisites are documented in the COSYM V3.4.1 User Guide. Please refer to the section, “2.2 System Requirements”.

2.2.2. Software Prerequisites

To install COSYM V3.4.1, Windows 10 or 2019 (64-bit) is required. All additional dependencies are part of the COSYM V3.4.1 installer and are installed automatically. The interoperability of COSYM V3.4.1 with other applications is described in the COSYM V3.4.1 User Guide. Please refer to the section, “2.2.2 Interoperability with other Applications”.

2.3. Delivery

The software is delivered with an installation routine on 2 DVDs. All software documentation is available in the Portable Document Format (PDF), which requires Adobe® Reader®. You can download the actual version from Adobe®. (http://www.adobe.de/products/acrobat/readstep2.html).

The DVD 1 contains the following items in the folder data:

Directory	Meaning / Explanation
COSYM Installation	COSYM V3.4.1 setup files
Manuals	Documentation files – Software – OSS – Pages

The DVD 2 contains the following items in the folder data:

Directory	Meaning / Explanation
MISC folder	Miscellaneous files/folders

The deliverables are also available in our ETAS Download Portal at https://license.etas.com/flexnet/operationsportal/logon.do.

Click **Help** on the bottom of this portal to get more details.

2.4. Installation

Please refer to COSYM V3.4.1 Getting Started Guide for installing COSYM V3.4.1 and setting up a SiL Linux system. The compatibility to other tools is documented in the COSYM V3.4.1 Software Compatibility List.

2.5. Licensing

Please note that, COSYM V3.4.1 requires software license activation. Besides the perpetual product licenses that you obtain, when you purchase COSYM, ETAS offers fully functional time-limited evaluation licenses.

In order to obtain your software license certificates you need the MAC address of an installed network adapter. We recommend you to choose an adapter that is always present in your system (e.g., the main company network adapter). Please make sure that this adapter is also present, if you remove e.g., your laptop from the docking station.

During the ordering process, ETAS provides you with a license activation number (the so-called Entitlement ID). With this information, the MAC address and the user name, please do one of the following:

- Visit https://www.etas.com/support/licensing and generate your license certificate based on the information mentioned above.
- Mail the information mentioned above to licenses.de@etas.com or one of the contact addresses provided in the section 4.

The information that you submit permits ETAS to generate the software license certificate, i.e. the license key. It will not be used for any other purpose.

Please copy the license key into a text file with the extension `*.lic` (e.g., `COSYM_SiL.lic`) and store it on your hard disk. When starting COSYM, it will ask you for the location of this file. If you have further questions regarding the installation procedure, please contact ETAS for assistance.

3. Changes

This chapter describes changes with respect to the previous version of COSYM V3.4.1.

COSYM supports only SiL use case from V3.0.0. The HiL related features are removed.

3.1. What's New

COSYM V3.4.1 introduces several new concepts and features and is shipped with an extended user interface. The main new features are:

- COSYM installation is supported at folder level with folder name having space.
- Slider instrument extended to control an in-port of scalar type.
- Inform user if required environment variables are not set during installation.
- SIL simulation task statistics enabled for user to analyze and optimize the task scheduling for better simulation performance.

The APIs that are added/updated/deleted in the Swagger Interface are shown below.

New APIs

Sl. No.	APIs	Details
1	URL	/v2/projects/{projectId}/fieldandaxispatterns
	Description	Creates field and axis patterns for advanced elements of a project
	Component	Project
	Request Method	POST
	Parameters	projectId, fieldAndAxisPatternRequestVO
	Reason	To create field and axis patterns for a project
2	URL	/v2/projects/{projectId}/fieldandaxispatterns
	Description	Updates field and axis patterns for advanced elements of a project
	Component	Project
	Request Method	PUT
	Parameters	projectId, fieldAndAxisPatternRequestVO
	Reason	To update field and axis patterns of the project
3	URL	/v2/projects/{projectId}/fieldandaxispatterns
	Description	Read field and axis patterns from datamap.yaml
	Component	Project
	Request Method	GET
	Parameters	projectId
	Reason	To read the field and axis patterns of a project

Sl. No.	APIs	Details
4	URL	/v2/projects/{projectId}/fieldandaxispatterns
	Description	Delete the field and axis patterns for advanced elements
	Component	Project
	Request Method	DELETE
	Parameters	projectId, stringContainer
	Reason	To delete the field/axis patterns of a project
5	URL	/v2/projects/{projectId}/models/{modelId}/variablesproposal
	Description	Gets the proposed variables of a model
	Component	Model
	Request Method	GET
	Parameters	projectId, modelId
	Reason	To get the possible proposed variables of a model
6	URL	/v2/projects/{projectId}/models/{modelId}/variablesproposal
	Description	Creates proposed calibration variable for a model
	Component	Model
	Request Method	PUT
	Parameters	projectId, modelId, calibrationVariableVO
	Reason	To create proposed calibration variable for a model

Updated APIs

None

Deleted APIs

None

3.2. Compatibility to Earlier Releases

COSYM V3.4.1 supports the migration of the earlier versions COSYM V3.3.0 and 3.2.0.

3.3. Removal of LCRT-Based MATLAB®/Simulink® Models

COSYM V3.4.1 does not extend its support for the LCRT-based MATLAB®/Simulink® models if any issue arises. However, you are still able to import these in COSYM. It is planned to remove the support of LCRT-based MATLAB®/Simulink® models in the future.

3.4. Reported Known Issues

The existing known issues of COSYM V3.4.1 and VNET are documented below.

3.4.1. Known Issues of COSYM V3.4.1

Summary	Description	Workaround
Simulation states are not reset to the initial state.	This happens when only the stop operation is performed without disconnecting the simulation which may lead to generate the different simulation result.	To get the deterministic value, disconnect the simulation and perform the simulation again.
Scoop-ix models Parameterization with Shared-Axes is not supported for MPA and CDFX formats.	Scoop-ix models Parameterization with Shared-Axes is supported only for DCM v2.0 format.	Create parameter files having Shared-Axes only in DCM v2.0 format.
Update of MPA file in ETAS EE is not possible.	The FMU string variable(s) can be edited only in COSYM. It is not possible to edit in ETAS EE as it doesn't support FMU string variable(s).	Re-import the model and edit the parameter values in the "Calibration Variables" view in COSYM UI.
Performance issue with fmi2Boolean	The COSYM datatype 'bool' is internally mapped to one byte. The fmi2Boolean datatype is mapped to a signed integer of 32-bit or 64-bit depending on the platform. For that reason, the values have to be converted at each call to the getter and setter methods. This has a performance impact which could be significant when using a higher number of boolean values. This issue will be solved by the FMI standard version 3.0.	-

Summary	Description	Workaround
Read and write of string calibration variables through INCA and ETAS EE in parallel is taking only first single byte for the last calibration variable instead of complete string.	-	Add one more dummy calibration variable to resolve the issue.
ETAS EE does not show the values in oscilloscope and in edit box for a short SiL simulation.	ETAS EE does not show the values in oscilloscope and in edit box for a short SiL simulation. In some cases where simulation time is very short, the values are not displayed in ETAS EE instruments. The short duration depends on the complexity of a project.	To see the complete data for the shorter simulation, it is recommended to look into the data files generated from the datalogger. If the issue arises due to shorter simulation time set in the ETAS EE user interface, it is recommended to extend the time duration.
Parameterization module is not possible with ETAS EE.	When you have created different size in different parameter files or different size in model instance(s), the protobuf file (model.bin) is not aware about the new size. It is not having the size which is pointing to *.mpa file. The modeldescription.bin is also not aware as it depends on model.bin file. The Modeldescription.bin file is the reference file for SiL-ATS target and hence the changes done in the UI is not linked between modules.	-
In SiL simulation of network modules, sometimes ETAS EE does not show the right physical values computed by AUTOSAR compu methods for signals coming from frames.	In some examples, the special value “NaN" is not visible, but the actual signal value is shown.	Switch to hex mode for the signal value in the EE user interface and send the intended value.

Summary	Description	Workaround
When 'Monitoring and Manipulation' is enabled, approximately 2x factor lower performance is observed in simulation speed.	When ‘Monitoring’ tasks are configured in *.xs file to capture frames to text, *.pcap files or console, then there is impact on simulation speed as data is written to the files/console in the same simulation step.	If applicable, add filters in monitoring tasks to record only the required frames which will reduce the impact on simulation speed, instead of recording the entire network data to *.txt/*.pcap files or console.
Unable to open parameter file in ETAS EE if parameter file contains string parameters	-	It is recommended either to use COSYM PA or edit the MPA file in any other editors.
The details given in the tutorials are not sufficient for the creation of C-Code model with vNET integration.	A generic description is given to add ports in a model for the vNET tutorials. This is specific for each tutorial as different models involved.	You can follow any one of the below. - Import the C-Code model which is available inside the respective sample project - While creating a C-Code model, specify the port names as same as in the sample C-Code model which is present inside the respective sample project
ETAS EE Workspace cannot be edited in SMF editor.	On SMF editor, we cannot open the ETAS EE workspace starting from EE V3.9.2.	User can manually edit using a text editor.
Connections are not visible after deleting port involved in any connection.	-	Close and re-open the system again. Connections will reflect appropriately.

Summary	Description	Workaround
In ETAS-EE, unsigned 32-bit integer value greater than 2147483647 is displayed as signed 32-bit value.	-	-
Default values are displayed incorrectly in ETAS EE for Maps and Curves of real32 data type.	-	Use real64 instead of real32 data type for Maps and Curves.
X-Axis and Y-Axis of a MAP should not have same reference.	-	-
Silent installation does not associate MATLAB as expected.	Silent installation does not associate MATLAB as expected when there are many MATLAB versions in the system.	The Installer should be installed manually using the installer UI (non-silent).

3.4.2. Known Issues of VNET

Summary	Description	Workaround
SelfReception feature settings overwritten by the second connection to the same CAN Network instance	There is only one global self-reception configuration affecting all VECUs. This configuration can be changed by each VECU. Every change will overwrite the previous change.	
MultiCModule_vNet_Ethernet project error after simulation stop	The simulation freezes after the second stop of the simulation with the MultiCModule_vNet_Ethernet project from samples.	Disconnect the simulation and reload the workspace in ETAS EE.

3.5. Known Issue Reports

If a product issue develops, ETAS will prepare a Known Issue Report (KIR) and post it on the internet. The report includes information regarding the technical impact and status of the solution. Therefore, you must check the KIR applicable to this ETAS product version and follow the relevant instructions prior to operation of the product.

The Known Issue Report (KIR) can be found here: www.etas.com/kir.

4. Contact Information

4.1. Technical Support

For details of your local sales office as well as your local technical support team and product hotlines, look at the website: www.etas.com/hotlines .

4.2. ETAS Headquarters

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