DRIVING **EMBEDDED EXCELLENCE**

ETΛS

ETAS COSYM V3.2.0

Release Notes

DRIVING **EMBEDDED EXCELLENCE**

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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: https://www.etas.com/kir
VECU	Virtual Electronic Controlling Unit

1.2   References

- COSYM V3.2.0 User Guide
- COSYM V3.2.0 Software Compatibility List
- COSYM V3.2.0 Getting Started Guide
- COSYM-CAR V3.2.0 User 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.

COSYM-CAR enables you to import, change, and export AUTOSAR based system and ECU extracts. You can use it to make the network and restbus configuration based on AUTOSAR to continue with the simulation workflow. COSYM-CAR is delivered along with COSYM as an add-on application and you can install it separately.

2.2   General Description

2.2.1   System Prerequisites

The system prerequisites are documented in the COSYM V3.2.0 User Guide. Please refer to the section, "2.2 System Requirements".

2.2.2   Software Prerequisites

To install COSYM V3.2.0, Windows 10 or 2019 (64-bit) is required. All additional dependencies are part of the COSYM V3.2.0 installer and are installed automatically. The interoperability of COSYM V3.2.0 with other applications is described in the COSYM V3.2.0 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 two DVDs. The software documentation files are available in the Portable Document (PDF) format, 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 V3.2.0 setup files
Manuals	Documentation files
	− Software
	− OSS
	− Pages

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

Directory	Meaning / Explanation
COSYM CAR	COSYM-CAR V3.2.0 setup files
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 V3.2.0 Getting Started Guide.pdf for installing COSYM V3.2.0, COSYM-CAR V3.2.0, setting up a SiL Linux system. The compatibility to other tools is documented in the COSYM V3.2.0 Software Compatibility List.

2.5	Licensing

Please note that, COSYM V3.2.0 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.

2.5.1	3rd Party Software in COSYM-CAR

COSYM-CAR uses third-party software components. Licensing information for these components can be found in the `3rdPartyLicenseInformation` directory.

To obtain License information of individual plug-ins that are used by COSYM-CAR, please click the **Help** menu → **About COSYM-CAR 3.2** → **Installation Details** → **Plug-ins tab.**

3   Changes

This chapter describes the changes with respect to the previous version of COSYM V3.2.0.
COSYM supports only SiL use case from V3.0.0. The HiL related features are removed.

3.1   What's New

COSYM V3.2.0 introduces several new concepts and features and is shipped with an extended user interface. The main new features are:

- Maps and Curves advanced feature is provided to configure auto recognition patterns
- Support of INCA 7.4 for XCP connecting to COSYM simulations
- COSYM 3.2 is compatible with ETAS ASCMO 5.10

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 V3.2.0 supports the migration of the earlier versions COSYM V3.0.0 and 3.1.0.

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

COSYM V3.2.0 doesn't 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 V3.2.0 and COSYM-CAR V3.2.0 are documented below.

3.4.1 Known Issues of COSYM V3.2.0

Summary	Description	Workaround
FlexRay bus simulation shows too many FlexRay frames	In case the BusConnector FlexRay or VECU using SimPlugin for FlexRay is integrated in a COSYM simulation. It is observed that transmission behaviour is not correct due to too many FlexRay frames sent to the bus. The result could be bus errors.	Replace COSYM ESSE binaries with latest VNET standalone binaries (VNET V1.7.0 or later)
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
Shared axis support on COSYM and ETAS EE for scoop-ix models	Scoop-ix model with shared axis cannot be imported on COSYM and ETAS EE as COSYM does not support any parametrization with shared axis.	Convert shared axis into standard axis before importing into COSYM
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.

Summary	Description	Workaround
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.	-
After uninstallation of COSYM, few of the environment variables are not deleted	-	Delete the environment variable manually
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
COSYM does not preserve the zip file structure of an FMU	It is not mandatory to preserve the zip file structure as per the standard. But some exporting tools expect that the simulator preserves the zip file structure. The FMUs from these tools might not work in COSYM.	Re-arrange the file structure manually

Summary	Description	Workaround
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

3.4.2   Known Issues of COSYM-CAR V3.2.0

Summary	Description	Workaround
Check Breadcrumb behaviour for child elements	-	-
When you make the copy/paste of ARXML file, the title of the Eclipse framework dialog is not proper	-	-
If the column header is bigger, not shown completely	-	Provide multiline row header or bigger columns for applicable attributes
Warning message is displayed when you launch COSYM-CAR	-	Warnings shown during startup must be cleaned up
The status bar does not show when "Show Status Bar" operation is performed after the "Hide Status Bar" operation	-	-

Other Known Issues of COSYM-CAR

Other known issues of COSYM-CAR are listed here:

- Text Editor

  ARXML files should be opened with the various editors of COSYM-CAR. Do not open them with the built-in "Text Editor" to avoid any issues from extended loading times.

- Performance Issue

  – Problem Description

    On some PCs, COSYM-CAR may show a slower startup behaviour or performances than expected.

  – Root Cause

    Eclipse OXYGEN had some performance issue (cf. BugZilla ID: https://bugs.eclipse.org/bugs/show_bug.cgi?id=516664).

    Eclipse PHOTON (V4.8.0), integrated with COSYM-CAR, also has the same random issue.

  – Workaround

Performance issues caused by the underlying Eclipse version will be fixed when migrating to the next version of Eclipse.

- Startup Issue
  - Problem Description

    There may be random cases when COSYM-CAR V1.0 does not launch, and an error-dialog will pop-up.
  - Root Cause

    Eclipse MARS had a random issue while launching (cf. BugZilla ID: https://bugs.eclipse.org/bugs/show_bug.cgi?id=473149).

    Eclipse PHOTON (V4.8.0), integrated with COSYM-CAR V1.0, also has the same random issue.
  - Workaround

    Go to the installation folder of COSYM-CAR V3.0 (e.g., "C:\Program Files\ETAS\COSYM-CAR3.0").

    Run the "CleanUpConfig.bat" batch file with administrator rights.
- Eclipse Performance Issue
  - Problem Description

    Windows 10 defender if enabled, significantly slows down eclipse which might impact the performance of COSYM-CAR.
  - Root Cause

    Windows 10 defender if enabled, continuously scans the JAR files in the background, thereby slowing down eclipse which would impact COSYM-CAR (cf. BugZilla ID: https://bugs.eclipse.org/bugs/show_bug.cgi?id=548443).
  - Workaround:
    1. Add eclipse root directory to windows 10 defender's exclusion list.
    2. Open Windows 10 settings.
    3. Search for "Virus & threat protection" and open it.
    4. Now click on "Virus & threat protection settings" section.
    5. Now click "Add or remove exclusions" under "Exclusions" section.
    6. Now click "Add an exclusion" then select "Folder".
    7. Point to directory where product is installed (C:\ProgramFiles\ETAS) and click "Select Folder".

3.5   Known Issue Report

Even after careful development and extensive release testing, you might find defects after the Product has been released into the marketplace. We correct the minor problems in the course of our regular maintenance and development activities. For more significant problems, we publish a Known Issue Report (KIR) to inform you about the technical effects of a known problem as well as the offered solutions. Therefore, we recommend you to check the KIR 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:

https://www.etas.com/kir

4 Contact, Support and Problem Reporting

For details of your local sales office as well as your local technical support team and product hotlines, take a look at the ETAS website:

ETAS subsidiaries WWW: www.etas.com/en/contact.php
ETAS technical support WWW: www.etas.com/en/hotlines.php