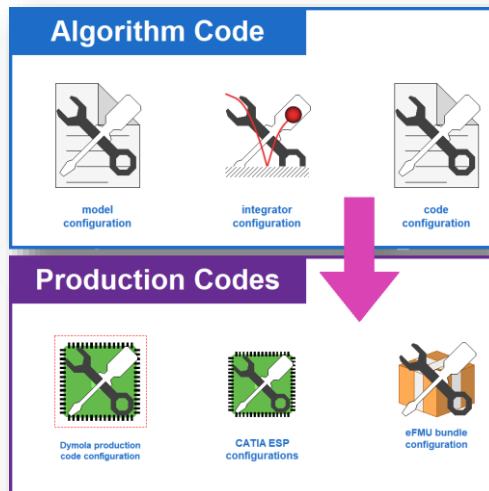**3DEXPERIENCE**

DYMOLA 2023

May 13, 2022

DASSAULT SYSTEMES | The **3DEXPERIENCE** Company

EXECUTIVE SUMMARY

Model editing
- Search records (e.g. medium model)
- Model meta data attributes

Simulation
- Improved user interface for steady-state solver
- Simulation timers to analyze model performance
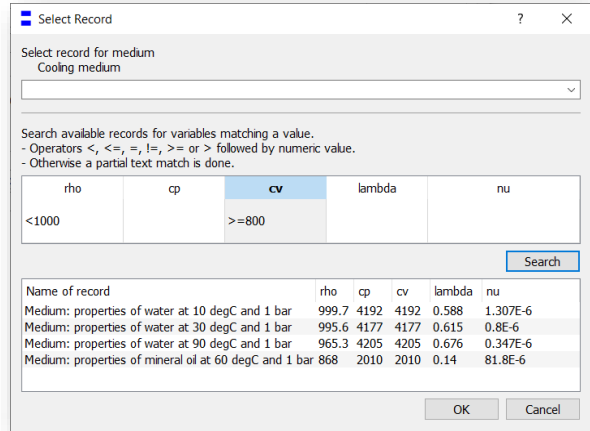
Model export
- eFMI support is now available in Dymola
- System Structure and Parameterization (SSP) export of models

SEARCH RECORDS USING GUI
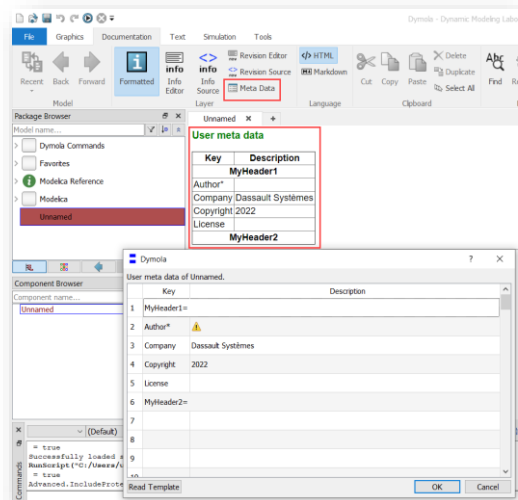
New user interface to search records

- Easily enter search criteria by double clicking on criteria boxes
- Enter values using specified operators
- User can select the wanted record from the list
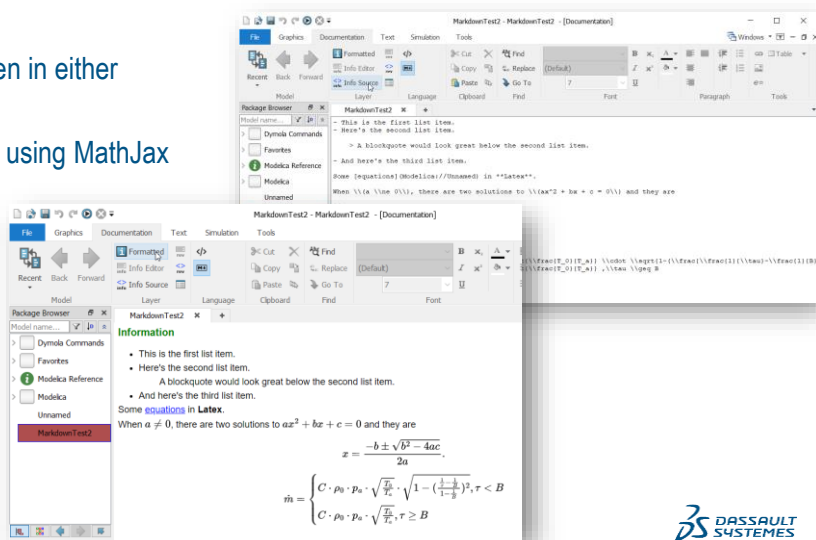
3

MODEL METADATA SUPPORT

- Model metadata, in the form of key/value pairs, can be stored in models
- The metadata is stored as an annotation in the model, and is automatically displayed in the documentation layer, if present
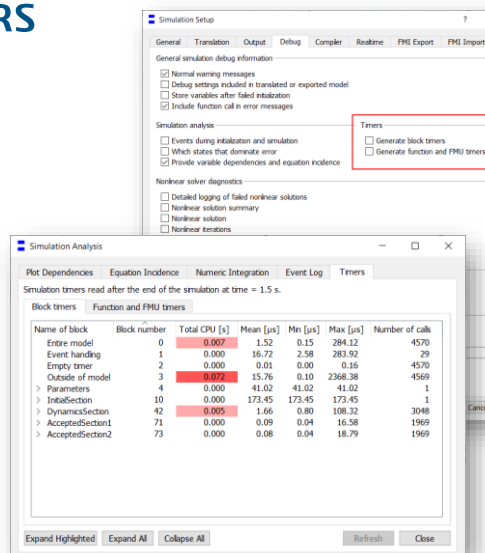
4

DOCUMENTATION USING MARKDOWN AND MATHJAX

- Documentation can be written in either HTML or MarkDown (new)
- Equations can be described using MathJax to improve formatting

5 *DS CATIA*

DASSAULT SYSTEMES
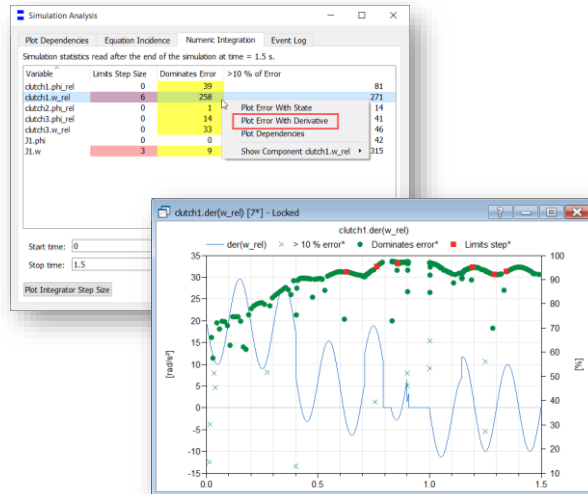

BETTER PRESENTATION OF TIMERS

New group **Timers** is available in Simulation Setup dialog

- The timer values are presented in the Simulation Analysis dialog, in the new tab Timers
- The tab has two subtabs
  - Block timers
  - Function and FMU timers
- The results of timers will be printed to the file timers.txt
  - User need to set flag Advanced.Debug.WriteTimerResultsToFile = true
- The timer values are automatically read from the file timers.txt at the end of the simulation
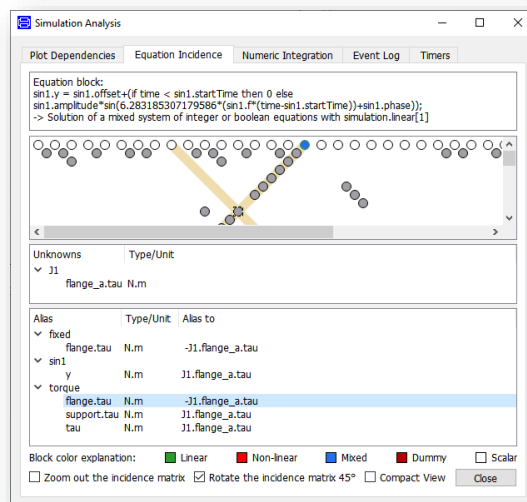

6 *DS CATIA*

DASSAULT SYSTEMES

ERROR STATE DERIVATIVE FOR SIMULATION ANALYSIS

- For numeric integration in Simulation Analysis
- User can now plot error with the state derivative instead of the state itself

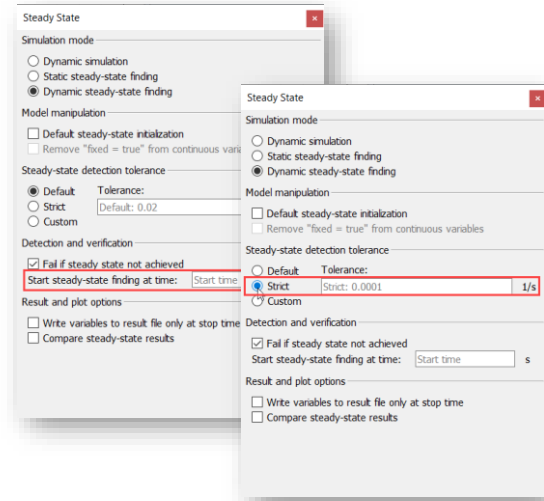

PRESENTATION OF ALIAS VARIABLES

- Improved presentation of alias variables
- Set how aliases are presented in messages
  `Advanced.Translation.KeepAliasInMessages`
- Equation incidence show aliases in a new table

STEADY STATE SOLVER INTERFACE

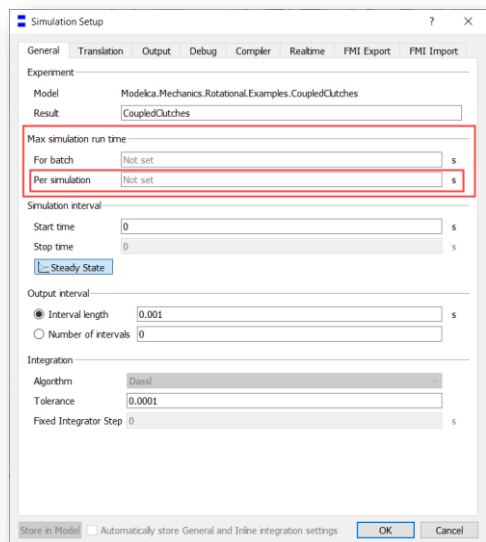Specify start time for dynamic steady-state finding

- Possible to set a start time for the dynamic steady-state finding
- Useful when an event triggers dynamic behavior at a time later than the start time of the simulation

- Strict steady-state detection tolerance for dynamic steady-state finding

9 ƆS CATIA

ƆS DASSAULT SYSTEMES

MAX RUN TIME PER SIMULATION

- Specify max time per
  - Each simulation
  - Total time for batch simulation
- Each simulation starts its own timer and stops itself if this timer runs out
- Useful if a few of the simulations in a sweep takes very long time and eventually fails
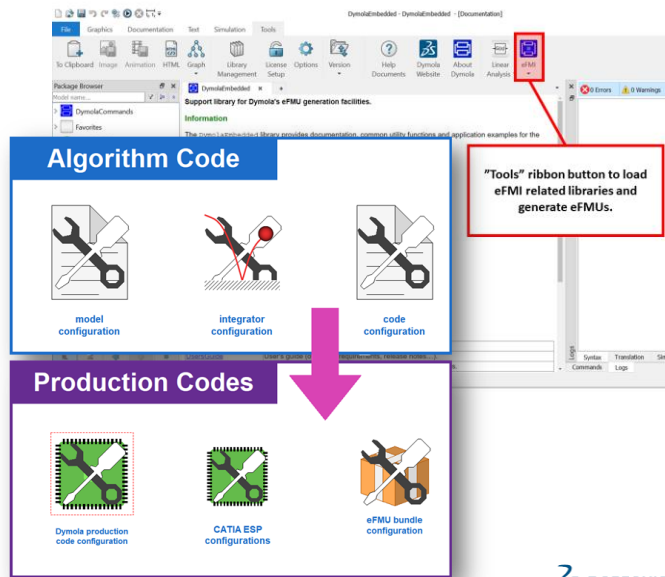
10 ƆS CATIA

ƆS DASSAULT SYSTEMES
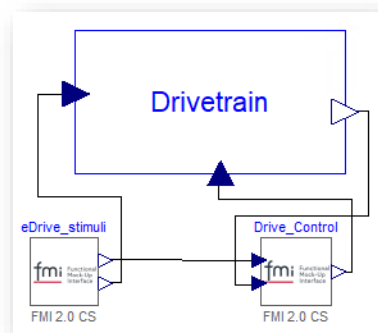
EFMI SUPPORT

FMI for embedded systems

- eFMI facilities comprise
  - Generate eFMUs with algorithm code
  - Production and binary code containers
  - Use generated eFMUs for co-simulation from within Modelica models
- The **eFMI** button in **Tools** ribbon is used to load Dymola´s eFMI facilities
- To generate eFMU, a Dymola Source Code Generation License is required

Algorithm Code

- model configuration
- integrator configuration
- code configuration

Production Codes

- Dymola production code configuration
- CATIA ESP configurations
- eFMU bundle configuration

"Tools" ribbon button to load eFMI related libraries and generate eFMUs.

11 ⅅ𝕊 CATIA

ⅅ𝕊 DASSAULT SYSTEMES

SSP EXPORT

SSP System Structure & Parameterization

- Export Modelica models according to the System Structure and Parametrization (SSP) file format
  - www.ssp-standard.org
- Dymola performs the following steps when exporting to SSP:
  - The top-level model structure is stored as a System Structure Description (SSD).
  - Any FMU is copied to the resources directory of the SSP.
  - Otherwise, assume Modelica model. The full path of the component's model is stored in the SSD. The model itself is not stored in the SSP file.
- Model documentation, user metadata, parameter types, and component modifiers are stored in the SSD

Drivetrain

eDrive_stimuli

Drive_Control

FMI 2.0 CS

FMI 2.0 CS

12 ⅅ𝕊 CATIA

ⅅ𝕊 DASSAULT SYSTEMES

DYMOLA LICENSE SERVER ON WINDOWS AND LINUX
Upgrade of FLEXnet Publisher version

- FLEXnet Publisher in Dymola 2023 is upgraded to version 11.16.2.1
  - License server used for Dymola must be upgraded to a version number >= 11.16.2.1
  - Enables running license server on Windows Server 2019
  - License server 11.16.2.1 works with previous Dymola versions as well
- The 32-bit license server on Windows is replaced by a 64-bit license server
  - Consistent with Linux, where newer versions will only be 64-bit
- The web-based license server front-end lmadmin removed (on Windows and Linux)

13 ӠS CATIA

ӠS DASSAULT SYSTEMES

14

ӠS DASSAULT SYSTEMES