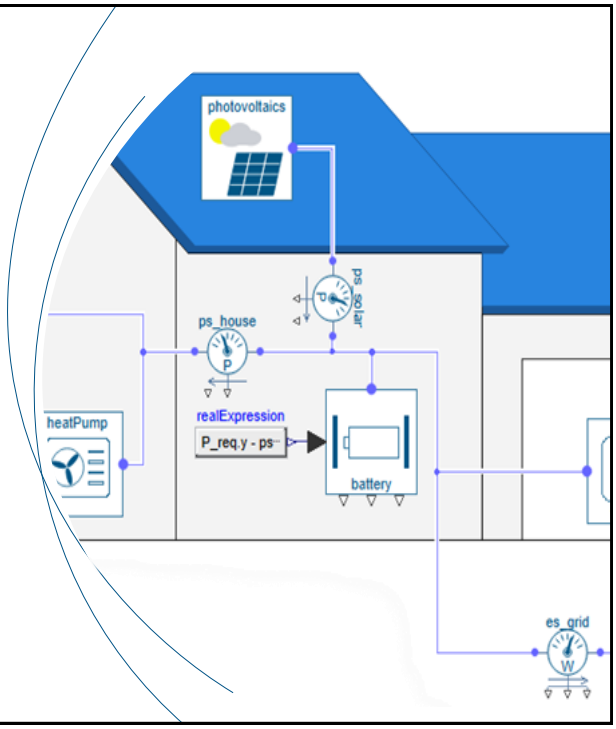
DYMOLA 2026X HIGHLIGHTS

28 November 2025



EXECUTIVE SUMMARY

Model development

- Text editor: select a variable and open its definition

Simulation

- Reduced size of Modelica FMU wrapper
- More efficient code generation for arrays
- Analytical adjoint derivatives for the ODE problem

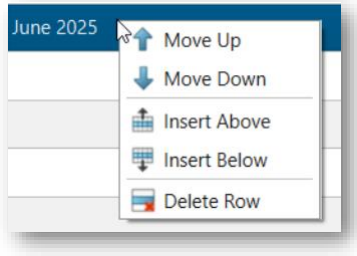
Libraries

- Sustainable Supply Systems Library
- Modelica Standard library 4.1.0

MODEL DEVELOPMENT AND SIMULATION

MODEL DEVELOPMENT

- Support for nonphysical display units
  - Currencies as display units
  - Allows currency conversion
- Text editor: selected class on variable
  - Can select a variable and open its definition (not only a class)
- Check that all bus signals have a source
  - All signals in bus are given values by matching non-inputs.
  - Errors messages instead of warnings: `Advanced.Modelica.PedanticBus=true`
- Meta data editor: move up/down, insert above/below
- Plot macros in legend: `%name, %unit, %description`
  - To improve user-defined legend of signals



MORE EFFICIENT SIMULATION

- Better code generation for duplicate functions
  - For example caused by redeclaration of media functions
- More efficient declaration of arrays
  - Significantly less C code generated
  - Requires: `Advanced.Beta.Translation.ArrayDeclare=true`
- More efficient FMI import
  - Reduced size of Modelica wrapper
  - Greatly reduced size of generated C code
  - Requires: `Advanced.Beta.FMI.ExternalLibrary=true`
- Adjoint derivatives for the ODE problem
  - Generate analytical adjoint derivatives for the ODE problem
  - Makes the function fmi3GetAdjointDerivative more efficient
  - Part of handling parameter sensitivity in, for example, FMUs
  - Requires: `Advanced.Beta.Translation.Generate.AdjointDerivatives=true`

# FMUs	C Code
1	−34 %
3	−48 %

SYSTEM STRUCTURE AND PARAMETERIZATION (SSP)

- SSP read-modify-write cycle
  - Export an entire package and all its models
  - Export includes all contents of `resources` and `extra` folders
  - Import unpacks all SSP files in current directory by default
  - Exporting as SSV instead of SSP if the model contains an extends-clause with modifiers
- Repository mode
  - Store all files in the file system, instead of packing into SSP archive
  - Import SSP purges all existing resource files to avoid old contents
  - Purging by default keeps folders (that may be version controlled)
- Specifying SSP version 2.0 when exporting
  - To always store the system description as version 2.0 when exporting an SSP
  - `Advanced.Beta.SSP.MinimumVersion2=true`
- Export SSP parameter bindings as external files
  - SSP parameter bindings can be stored inline in the SSD file, or as external files (SSV files
  - `Advanced.Beta.SSP.ExportExternalBinding`

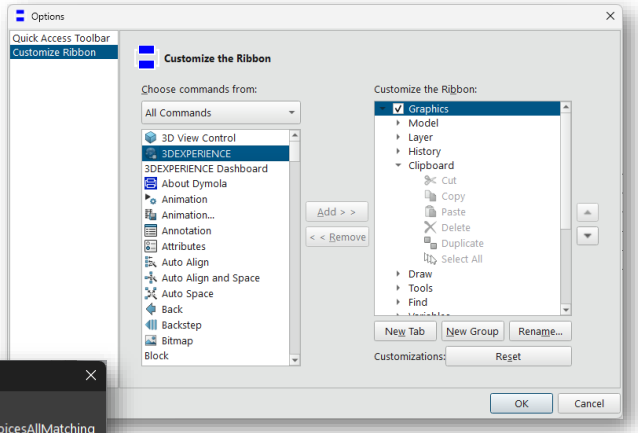
FMI FOR EMBEDDED SYSTEMS (EFMI)

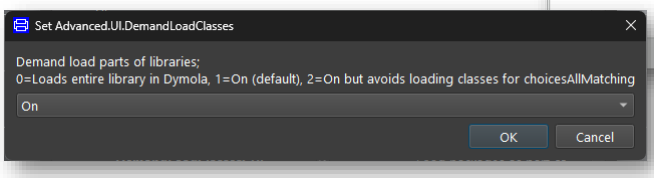
- eFMI for neural networks
  - Generate embedded code for neural networks modeled via eFMI.NeuralNeworks
  - Preservation of multi-dimensional tensor-flow arithmetic
- GALEC built-in functions
  - New implementation of Software Production Engineering satisfies MISRA C:2023
- Checking eFMUs
  - You can now check eFMUs for eFMI Standard compliance with eFMPy
- Multi-dimensional equations
  - The GALEC code generator now supports preservation of multi-dimensional equations in source models
  - Avoids scalarizing multi-dimensional equations

OTHER NEWS

CUSTOMIZATION

- Customization of ribbon and quick-access
  - Enable or disable commands
  - Rearrange the ribbon contents
- Improved variables dialog
  - Enumerations instead of integers
  - Still script-compatible
- Darker dark mode
  - On popular demand
  - Boring grey → stylish black





DASSAULT SYSTEMES

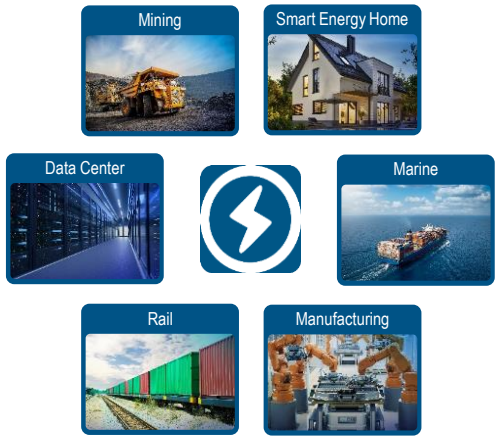
LIBRARIES

DASSAULT SYSTEMES

SUSTAINABLE SUPPLY SYSTEMS LIBRARY

Accelerate the evaluation and optimization of complex, interconnected supply systems

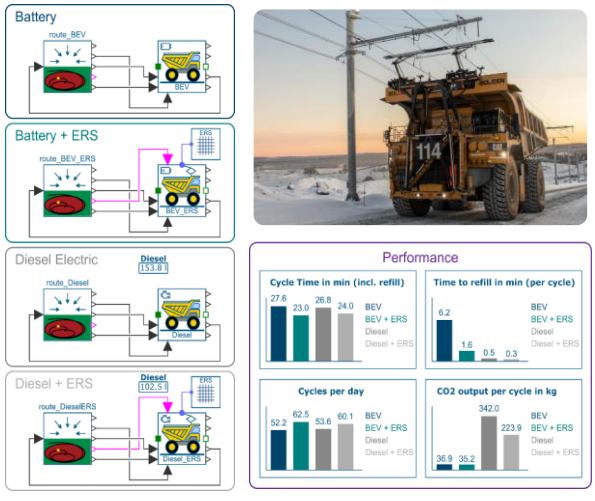
- **Simplicity meets complexity**
  - Tailored model fidelity for speed and efficiency
  - Requires minimum input data for fast setup
  - Scalable and robust - ideal for complex, large-scale systems
- **Powerful multi-energy system modelling** [1]
  - Flexible, ready-to-use components for inter-connected supply systems
  - Capture interactions between different domains
- **Optimize design and performance**
  - Perform trade-off studies to balance performance, cost and emissions
  - Test and refine control strategies before implementation
- **Cut costs and minimize risk**
  - Reduce physical prototyping with simulations and hardware-in-the-loop (HiL) testing
  - Build digital twins for early-stage fault detection and analysis
  - Identify potential issues before they have any impact



SUSTAINABLE SUPPLY SYSTEMS LIBRARY

Use Case: Electric Road System (ERS) for mining operations

- Evaluate alternative drivetrain technologies
  - Pure battery electric vehicle
  - Battery with catenary/electric road system (ERS)
  - Diesel-Electric
  - Diesel-Electric with ERS
- Typical applications
  - Estimate the optimal truck speed for continuous operation using an ERS
  - Simulate the integration of renewable energy sources
  - Run fleet simulations for the evaluation of operation strategies
  - Use Reduced Order Models (ROM) for long term simulations



Data and picture from paper "Drive-Cycle Simulations of Battery-Electric Large Haul Trucks for Open-Pit Mining with Electric Roads"

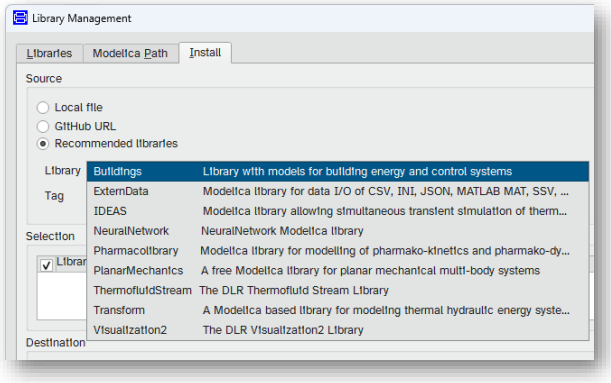
SUSTAINABLE SUPPLY SYSTEMS LIBRARY

Use Case: Operation of a modern family home equipped with distributed energy resources

- Simulate the integration of renewable energy sources and battery storages
- Run annual simulations to capture the energy demand in all seasons
- Find the optimal size for the battery storage considering:
  - Investment
  - Annual earnings
  - Battery charging cycles
- Evaluate operational strategies for the battery of a connected electric vehicle
  - Vehicle to house (V2H)
  - Vehicle to grid (V2G)

MSL AND OTHER FREE LIBRARIES

- MSL 4.1.0
  - MSL 4.1 is default
  - Automatic conversion of models
  - MSL 4.0 as add-on package
- Download and install recommended free libraries
  - Select from a list, saves you the trouble to search for them

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