

# Simcenter System Synthesis

## Enhancing system integration, configuration and simulation architecture management

### Benefits

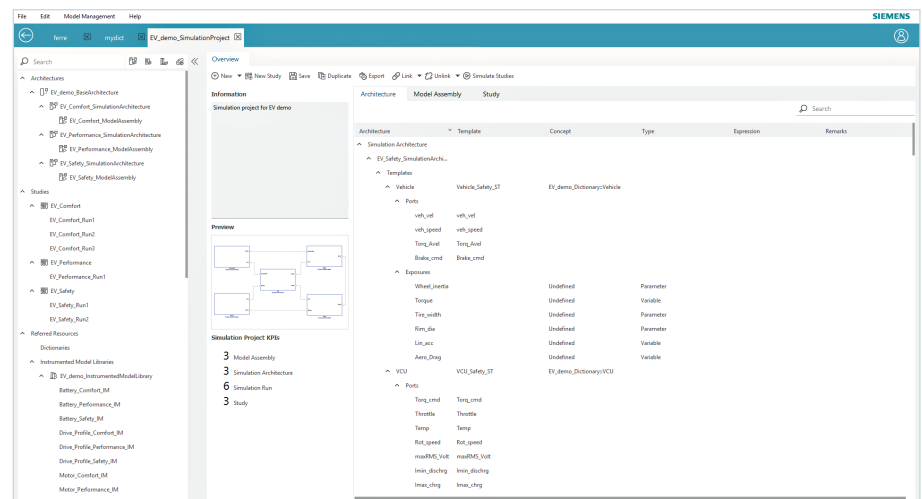
- Significantly reduce the time and effort needed to integrate systems
- Enable the analysis of transverse system performance attributes (energy management, drivability, aircraft synthesis)
- Modularize system development for global distribution and concurrent development
- Use only a few generic reference architectures to generate and simulate multiple system simulation models
- Increase re-usability and leverage enterprise know-how

### Summary

Today systems engineering is based on a top-down approach in which product requirements define functionality. You can simulate mechanical and controls subsystems to check the selected architecture fits the original requirements. Starting with this process, Simcenter™ System Synthesis software provides a platform to configure and integrate plant and controls models into a logical view of the entire system for

simulation. This system integration solution lets you author the most logical structure, configure it and integrate the various models as required for system simulation.

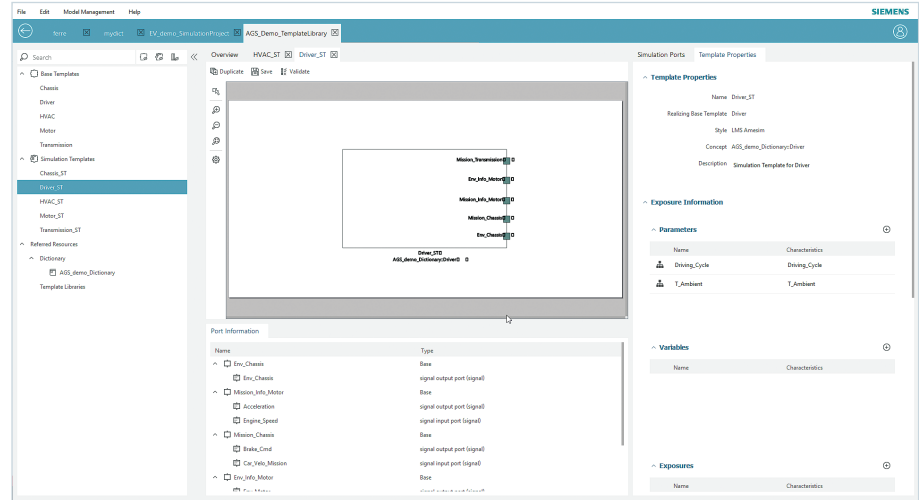
With Simcenter System Synthesis, system engineers and architects can seamlessly work on conceptual design and system architecture, integration and validation using data and models originating from multiple authoring applications, such as Simcenter Amesim™ software, the Simulink® environment and any application that supports the Functional Mockup Interface (FMI) standard for model exchange and co-simulation. By supporting system assembly, the end result is an executable system model ready for different test scenarios to validate and optimize overall system concepts.



# Simcenter System Synthesis

## Features

- Create base and simulation architectures
- Configure architecture models with Simcenter Amesim, Simulink or FMU models
- Connect to Simcenter Sysdm or Teamcenter and their model management features
- Pre- and postprocessing capabilities as well as an open interface for evaluating analysis and studies



## Creating and configuring system architectures

With Simcenter System Synthesis, creating and configuring system architectures becomes a straightforward task. You can easily create base and simulation architecture models with the diagram editor. Simcenter System Synthesis enables you to store the base and simulation architectures in a tool-neutral format, and add metadata about the architecture that corresponds to requirements, test and usage cases.

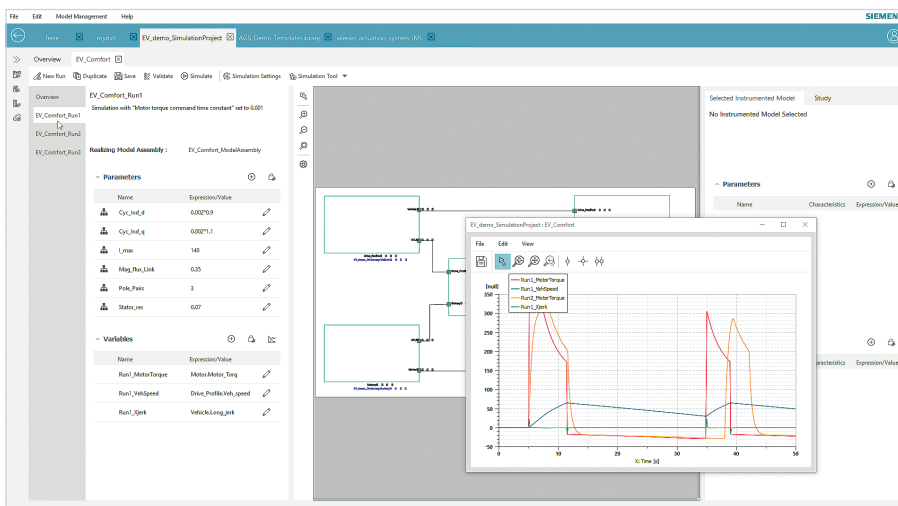
Starting from these reference architecture models, Simcenter System Synthesis enables you to populate system configurations with behavioral models, using libraries and models stored in the selected data management environment such as Simcenter Sysdm or Teamcenter®. These models originate from Simcenter Amesim libraries, Simulink, Functional Mockup Units (FMUs), S-functions or a combination of the above. Once configurations have been made, it is still possible to propagate any changes in reference architecture to all these configurations.

7 Instrumented Models in: " WindTurbine_IM_demo " Library					
Preview	Name	Type	Target	Last Edit	Created
	IM_Controller	Simulink	Simulink	16.09.2016 21:21:17	16.09.2016 21:21:16
	IM_Environment	Simulink	Simulink	16.09.2016 21:21:17	16.09.2016 21:21:16
	IM_Gearbox	Simulink	Simulink	16.09.2016 21:21:17	16.09.2016 21:21:16
	IM_Motor_AME	Simulink	Simcenter Amesim	16.09.2016 21:21:17	16.09.2016 21:21:16
	IM_Motor_FMU	Simcenter Amesim	Fmu	19.10.2016 14:03:50	19.10.2016 13:53:39
	IM_Motor_SLK	Simulink	Simulink	16.09.2016 21:21:17	16.09.2016 21:21:16
	IM_Propeller	Simulink	Simulink	16.09.2016 21:21:17	16.09.2016 21:21:16

## Simulating executable systems and design comparisons

Once system configurations have been filled with models, Simcenter System Synthesis helps you create ready-for-simulation, executable systems, and run system simulations in the tool of your preference.

You can also create simulation run sets by selecting various configurations using built-in postprocessing as well as scripts to compare configurations, and considering architecture choices to test design options.



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