



## MODELBUS<sup>®</sup> ADAPTER: MATLAB SIMULINK

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Software development is becoming more and more complex and has to meet increasing demands for time to market, saving of resources and product quality. The number of tools which are used for the development comprise traditional well known vendor tools, open source tools as well as customized and in-house tools. Each tool serves a particular purpose and may be highly specialized for accomplishing certain tasks.

The important challenge in such complex development environments is the exchange of data between the individual tools. An easy exchange of data between the tools also minimizes the vendor-lock-in effect. Thus, companies can easily switch between different tools with different strengths and capabilities. The automation of small and repetitive tasks within a development process is another challenge. These tasks, e.g. the automatic execution of quality checks or the documentation of changes performed, are important for the efficient creation of high quality products.

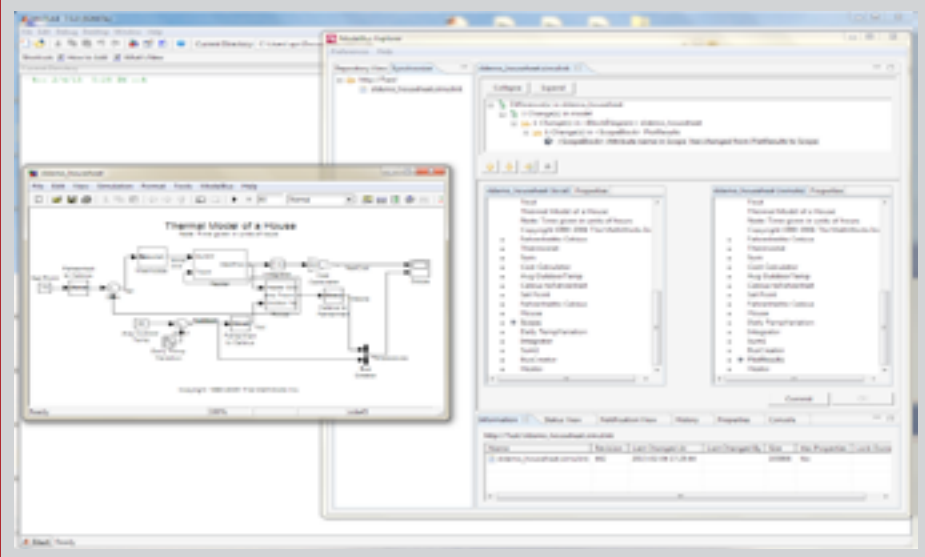
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### ModelBus<sup>®</sup> – Tool Integration and Automation

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With ModelBus<sup>®</sup>, Fraunhofer FOKUS offers a model-driven tool integration framework which supports the integration of heterogeneous development and engineering tools as well as the automation of error-prone and tedious tasks. The engineer's activities automatically trigger subsequent actions, like model transformation, code generation and quality checks so the exchange of data in distributed teams with their respective tools is ensured. That way, ModelBus<sup>®</sup> can substantially increase the productivity of creating complex software-based systems.

*MATLAB-Simulink with  
ModelBus® Adapter*



Each tool is connected to ModelBus® via a specific ModelBus® Adapter and can optionally act as a service by providing its functionality to other tools. An adapter typically bridges between a tool's internal representation of data and a tool's external format, which is then the basis for further processing within the development process. ModelBus® Adapters utilize the capabilities of the respective tools for a seamless integration into the tool workflow and for an unconstrained user experience.

### ModelBus® Adapter for Simulink

MATLAB Simulink is a widely used tool for modeling, simulating and verifying multidomain dynamic systems. MATLAB Simulink provides a platform for graphical modeling of a customizable set of block libraries, and provides mechanisms for model simulation and analysis. The ModelBus® Adapter for Simulink enables MATLAB Simulink to connect with other tools by allowing seamless exchange of its native models as EMF models. Thus, through the adapter models developed in MATLAB Simulink can be exchanged, transformed and visualized in other modeling tools and vice-versa. Furthermore, the adapter equips a modeler to synchronize, compare and merge local MATLAB Simulink models with models remotely created and/or modified. The adapter furnishes MATLAB Simulink to participate in the ModelBus®-based systems engineering process and provides access to ModelBus® Services such as traceability, model-to-model transformations and process orchestration.

### Application and Benefits

The ModelBus® Adapter for Simulink offers a new way for interoperability among tools. It is now possible to seamlessly exchange native MATLAB Simulink models with other tools without the need for a specialized bridge between MATLAB Simulink and the proprietary model formats of the various tools. The adapter also offers the possibility for the automation of the development process by providing access to code-generation, model-transformation and the process orchestration services and capabilities of the ModelBus® tool integration framework. A complete tool environment by chaining various different tools can be created with the help of the other available ModelBus® tool adapters.

The ModelBus® Adapter for Simulink offers great user experience as it performs very fast imports and exports of models and comes with a user interface that allows the modeler to synchronize, compare and merge local and remote models. These, along with the notification mechanism of the ModelBus® framework, allow for a collaborative and interactive model development experience.

### Features

- High performance seamless model-exchange
- Synchronize, compare and diffmerge Simulink models
- Access to ModelBus repository services

### Selection of available Adapters

Tools:

- Eclipse: Topcased, Papyrus etc.
- IBM: DOORS, RSA Rhapsody
- Sparx Enterprise Architect
- Matlab: Simulink
- Microsoft: Office, Visio
- TRAC

Services:

- Transformation: ATL, QVT etc.
- Verification: OCL, Metrino etc.
- Testing: FOKUS!MBT etc.
- Code and document generation: MOF-script, M2T etc.
- Traceability: Traceino

