DRIVING EMBEDDED EXCELLENCE

Question:

How to couple COSYM V2.1 with a Simulink model?

Answer:

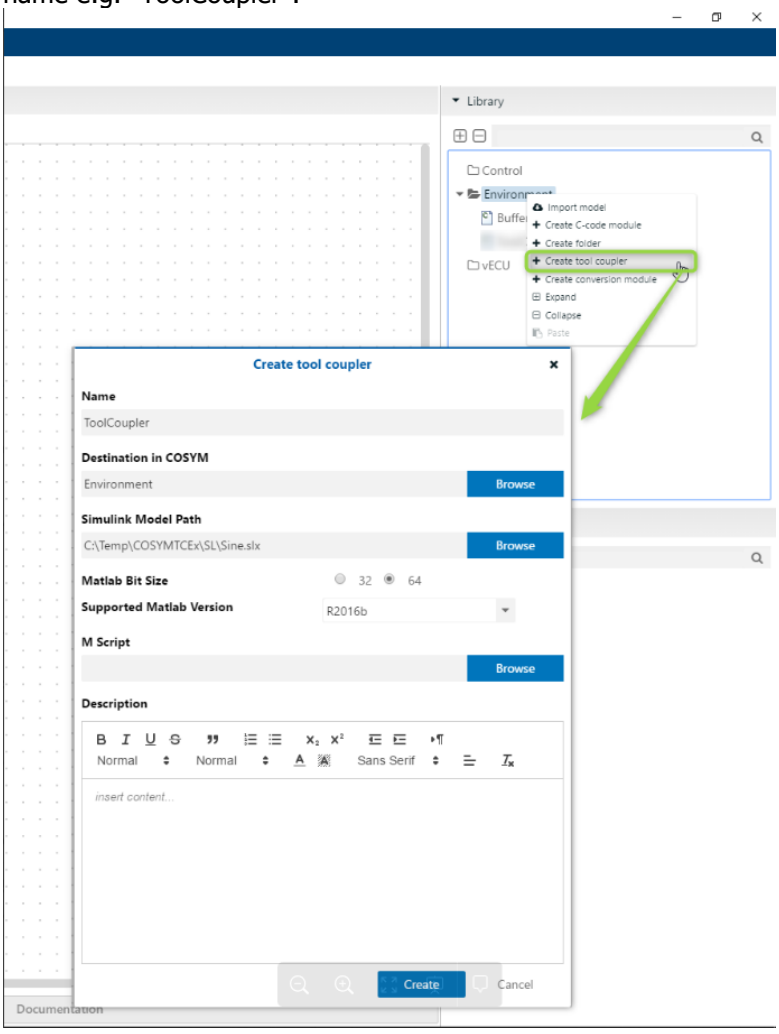
The tool coupling feature in COSYM is used to connect to various simulation tools. Currently, COSYM supports tool coupling with MATLAB®/Simulink®, for SiL ATS simulations.

In few cases, some of the native simulink models cannot be imported to COSYM (source code of model could be unavailable, protected, etc.,). In that case, it is possible to run the simulation of such simulink models natively in MATLAB®/Simulink® application itself, and to couple with other models integrated and running in COSYM.

On the following pages the workflow is briefly described:

1. Prepare the system in COSYM.

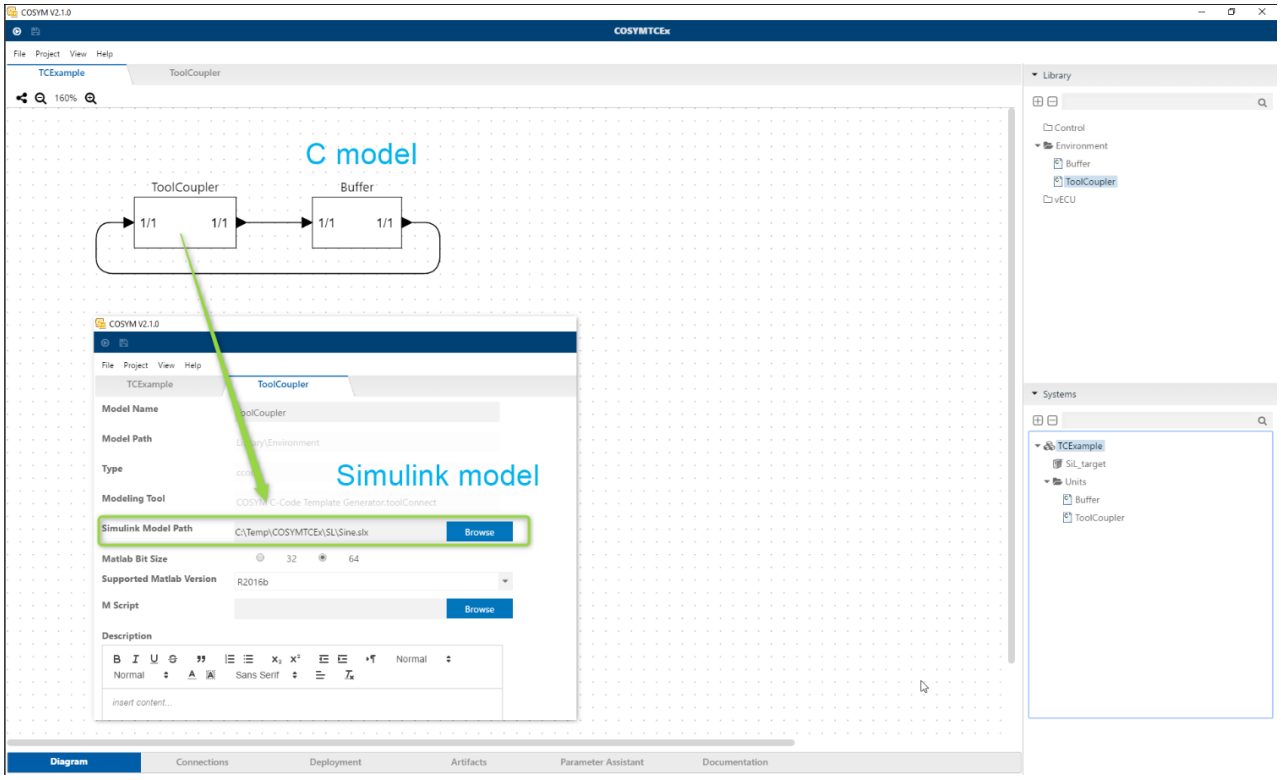
1.1. Create a C-Code module in COSYM using the context menu in the Library "Create tool coupler", with name e.g. "ToolCoupler":



1.2. Create a system in COSYM with a model from the COSYM Library (i.e., Buffer) and the tool coupler model (i.e., ToolCoupler).

1.3. Connect those simulation units in Connections editor, define the OS configuration in Deployment editor, etc.

1.4. Generate code with build system in COSYM.

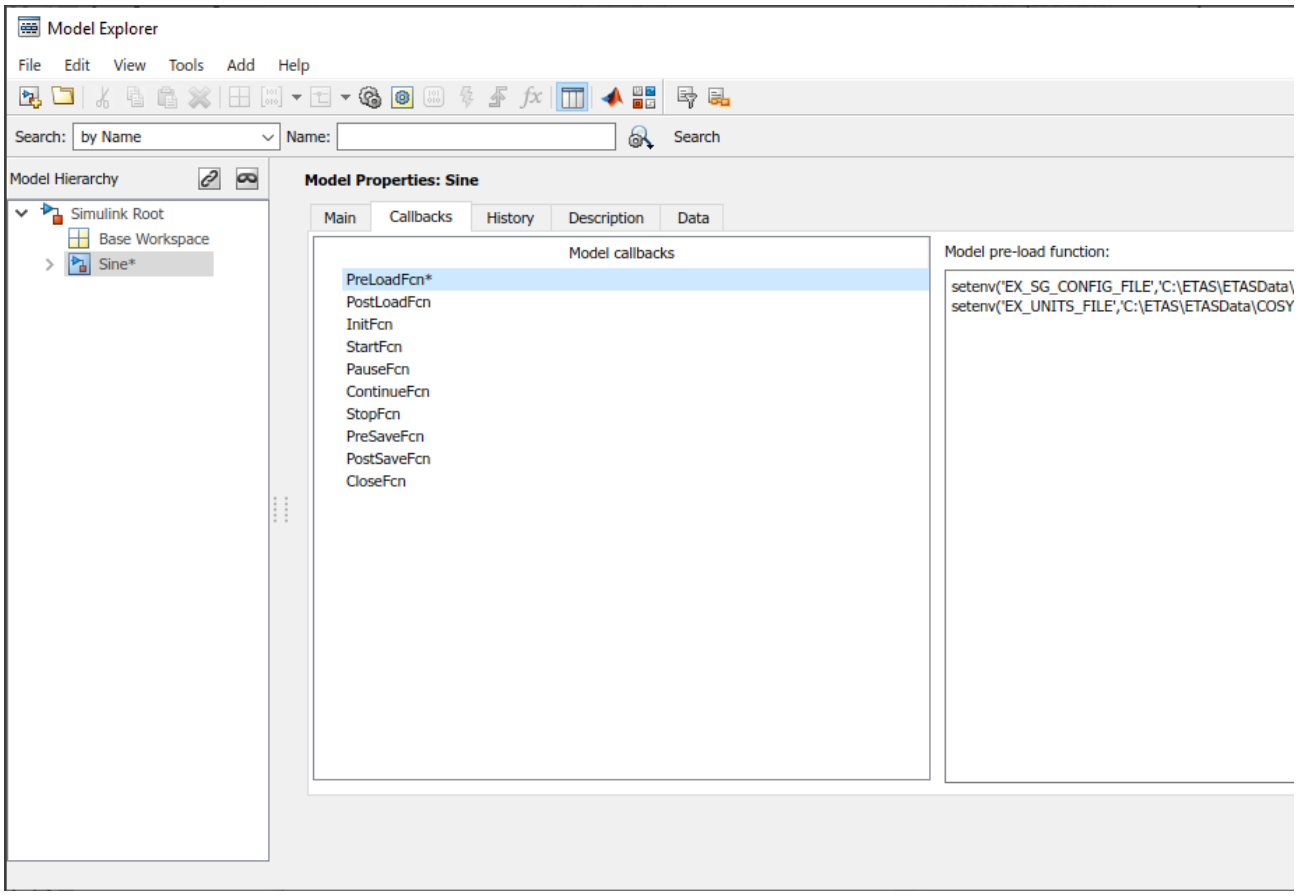


2. Prepare the native model in Simulink.

2.1. Setting the environment variables in MATLAB®/Simulink® in the PreLoadFcn. These variables are 'EX_SG_CONFIG_FILE' and 'EX_UNITS_FILE'. The configuration files 'SyncSignalsConfig.xml' and 'SnfSyncSignalsUnits.xml' are generated after build of the system in COSYM and they are created in the system directory.

See next page for example provided with COSYM Installation:

- setenv('EX_SG_CONFIG_FILE','C:\ETAS\ETASData\COSYM2.1\Samples\SiL\COSYMTCEx\Systems\TCExample\Configuration\OS\deployables\SyncSignalsConfig.xml')
- setenv('EX_UNITS_FILE','C:\ETAS\ETASData\COSYM2.1\Samples\SiL\COSYMTCEx\Systems\TCExample\Configuration\OS\deployables\SnfSyncSignalsUnits.xml')

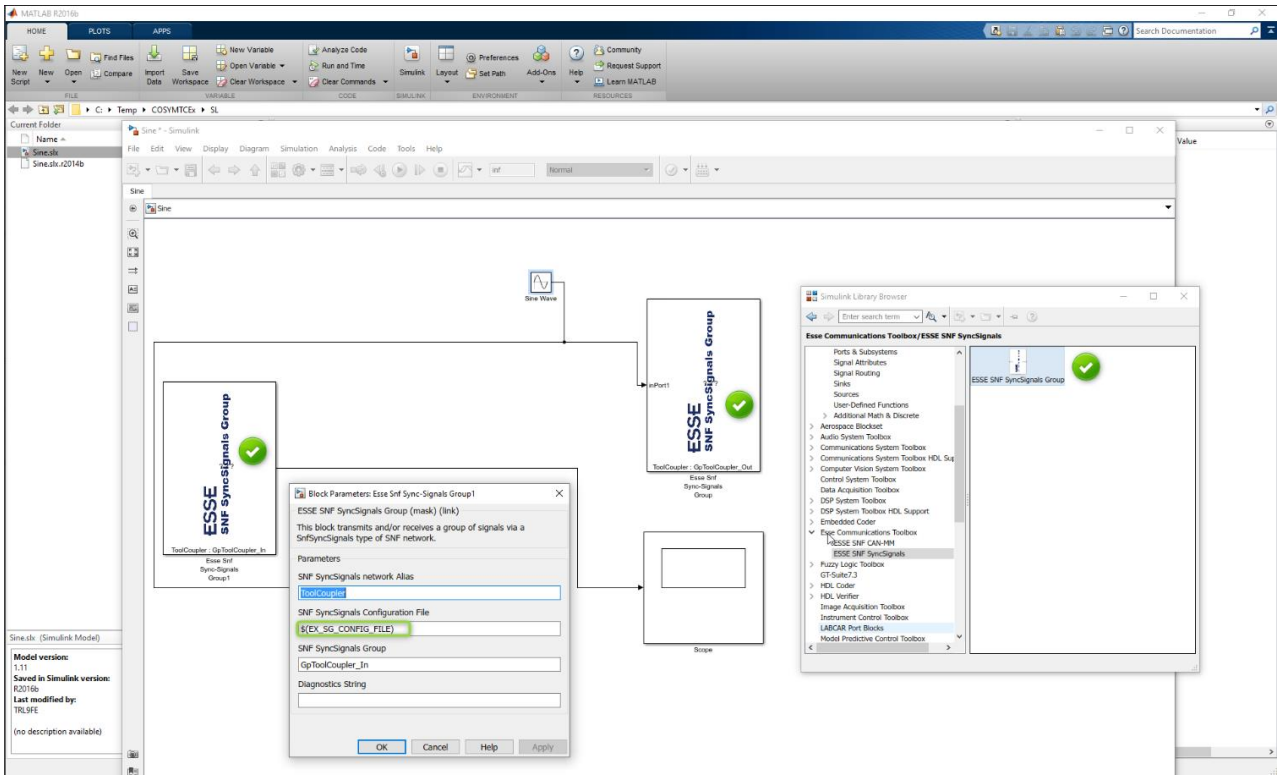


2.2. Add the path of the coupling s-functions to the MATLAB Library.

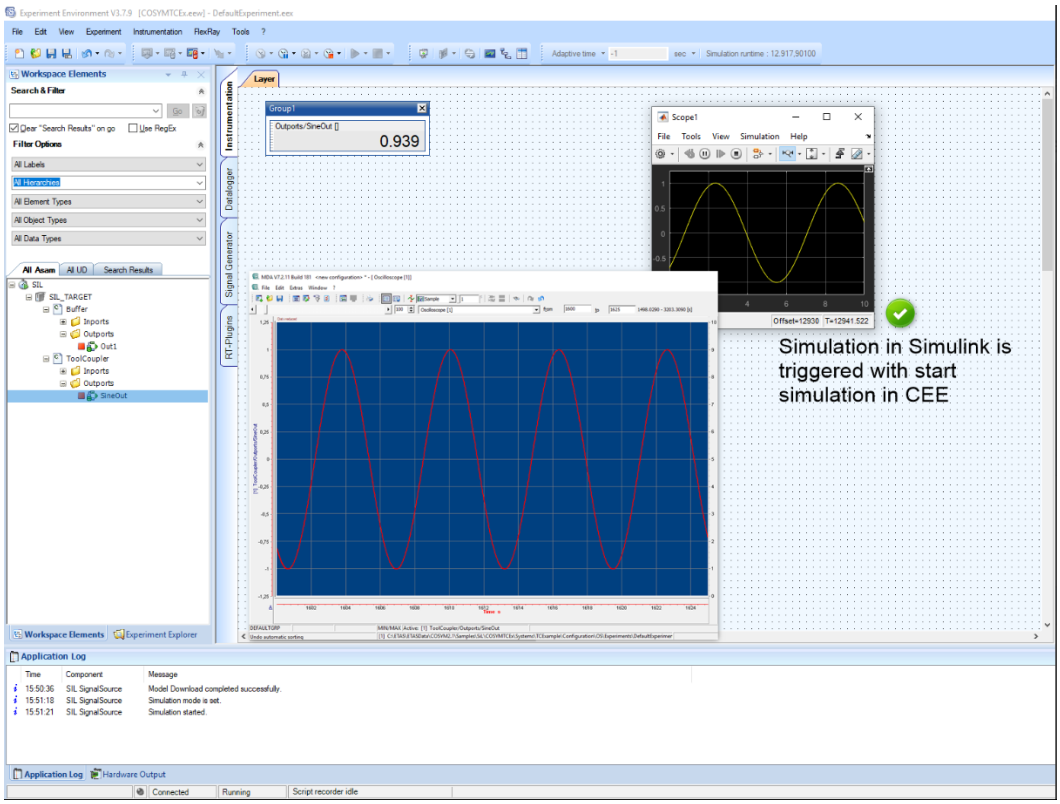
- E.g., execute the command addpath('C:\Program Files(x86)\esse\active\aif\simulink') in the Matlab Command Window.

2.3. Instantiate the tool coupling s-functions.

- ESSE blocks in the Simulink model act as tool coupling interface to COSYM.
  This s-function can have either inputs or outputs. In case, you want to add the Library and the ESSE blocks, refer to "Adding ESSE blocks to the Library" in the User Guide. In the Simulink model "Sine.slx" provided with COSYM installation, the ESSE Sync Signals blocks are already added.
  Configure the instantiated s-functions with the generated SyncSignalsConfig.xml file and the group name of the corresponding in/out signals, as described next:



3. [Download SiL system and "Start Simulation" in CEE.]



Additional information:

Tool coupling is supported with COSYM V2.1.0 and newer.

In case of further questions:

Please feel free to contact our Support Center, if you have further questions.
Here you can find all information: http://www.etas.com/en/hotlines.php?langS=true&

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