

RELEASE NOTES

# Altair Activate<sup>®</sup> 2022.1

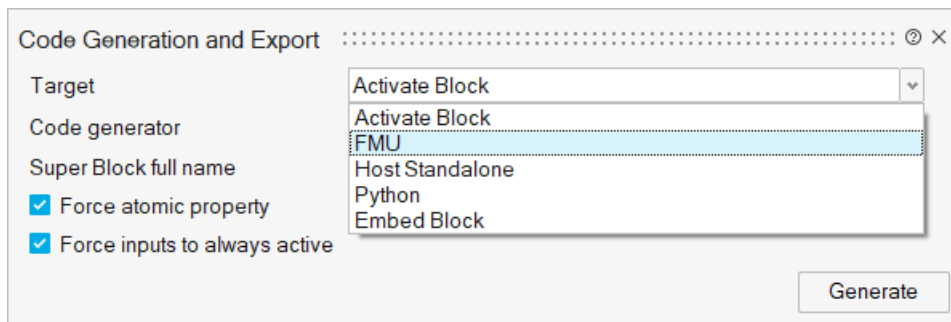
# New Features and Enhancements 2022.1

## Release Highlights

### Code Generation and Export <sup>\*</sup>

The Code Generator and Export tools regroup and extend many existing functionalities that were previously available only through APIs. New tools are also featured:

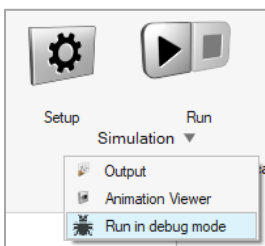
Location: **Tools** menu > **Code Generator**

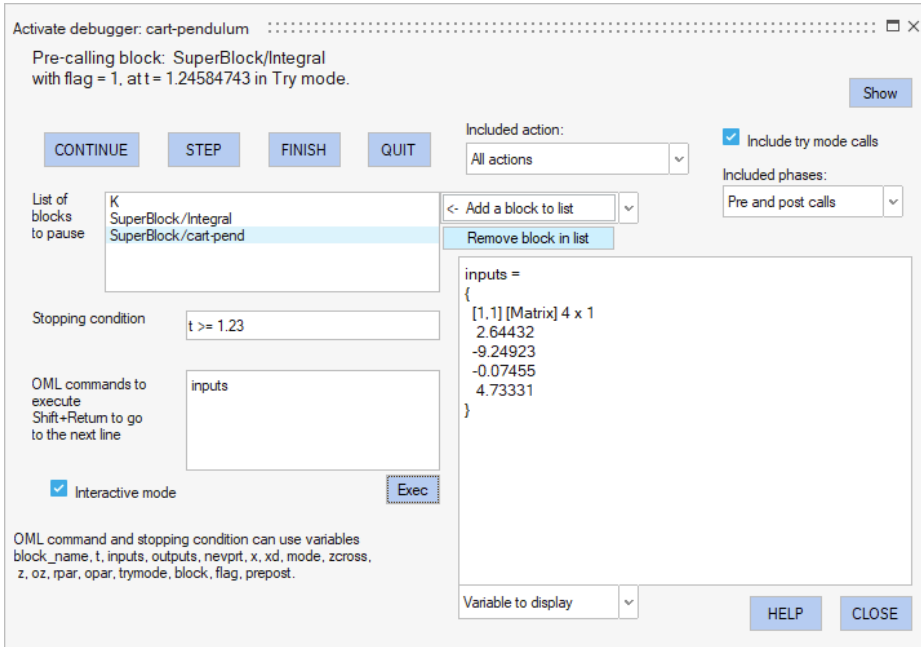


### Model Debugger

This utility lets you set breakpoints during a simulation and debug your Activate model.

Location: **Simulation** ribbon > **Run in debug mode**





## UI Designer \*

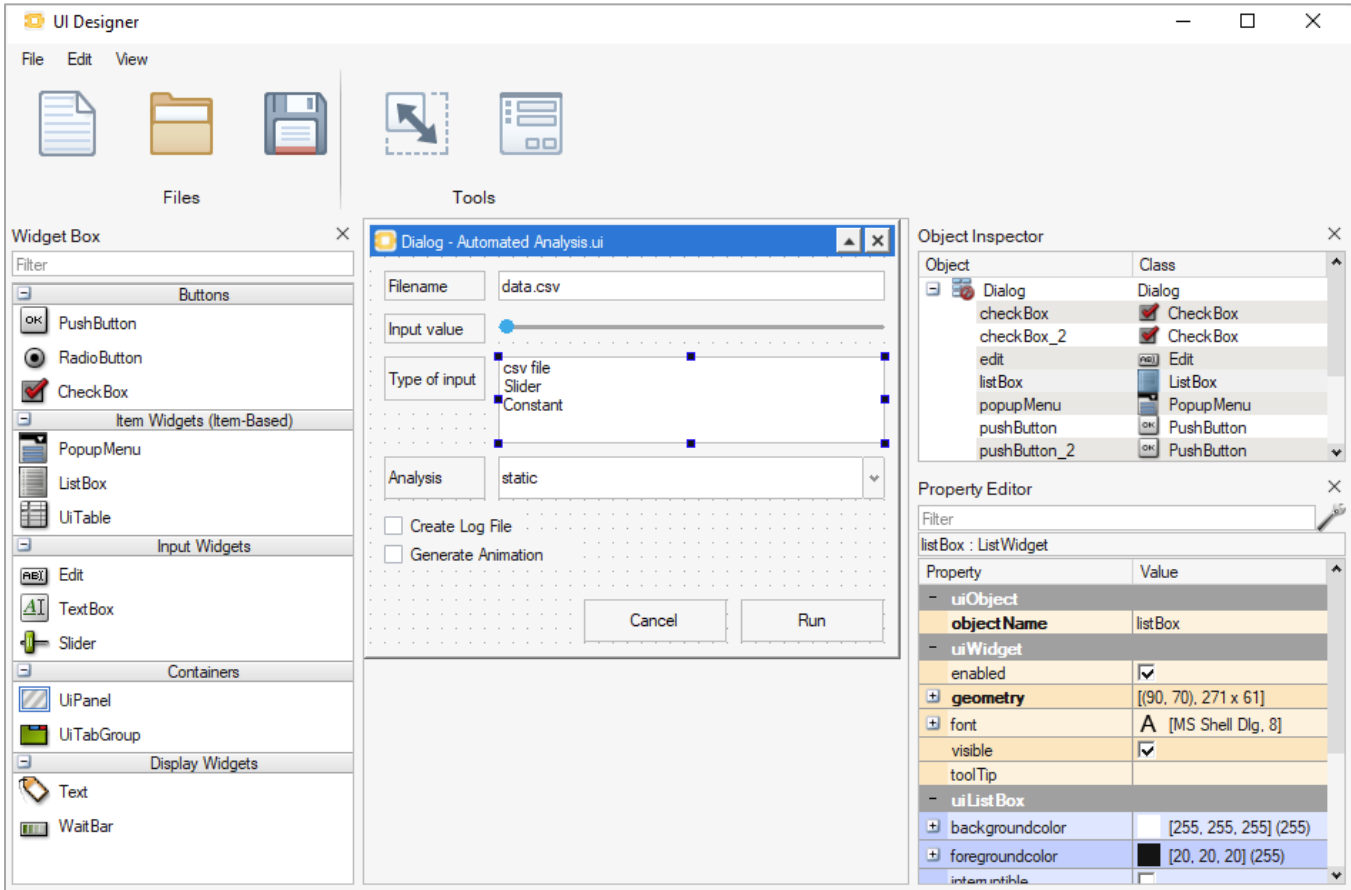
The UI Designer is an interactive toolkit that provides you with an easy drag-drop method for coding graphical user interface designs.

### UI Designer Workflow

1. Drag predefined objects into the UI Designer Dialog.
2. Preview and modify your design.
3. Save your design as an OML code skeleton that you can further develop.

Location: **GUI Utilities** ribbon

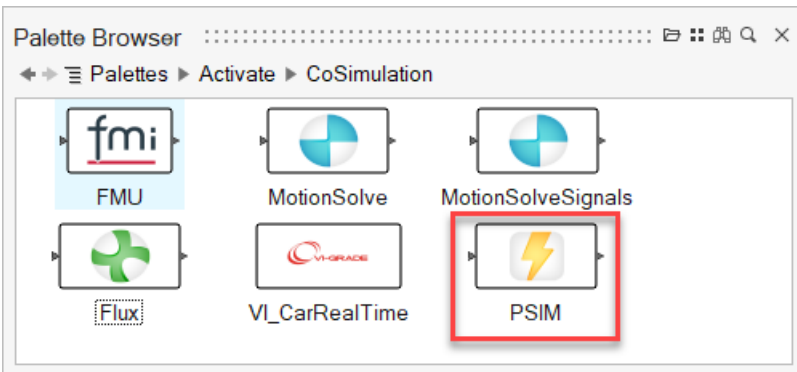




## Libraries

### Co-Simulation Interface with PSIM Block \*

This block performs a co-simulation with Altair PSIM.





## Additional Changes and Enhancements for Libraries

### MQTT Block Extension

- Support Json format
- Encrypt the password

### Kafka Block Extension

- Support Json format

### ASM Blocks

- New blocks have been added to the ASM to facilitate usage.

### MQTT Block \*

- New option to hide password.
- New option to choose an array separator.

### FromCSV Block

- Filename of the *FromCSV* block is exposable and can be used as FMU parameter.

### Spice AC Analysis \*

- Documentation added for *AC Analysis* block.

### OML Custom Block

- Improved error reporting (line number) in *OML custom block*.

## Demo Browser

### MSL Components

New models are available that illustrate the use of MSL components:

- Electrical.Machines.AsynchronousInductionMachines
- Electrical.Machines.DCMachines

## Solvers

### SDIRK Solver

The numerical solver SDIRK is now available to implicit models with algebraic constraints.

You can select this solver from the **Simulation** ribbon > **Setup** > **Solvers** tab.

## Enhancements for Compilers and Operating Systems

### Modelica

The MapleSoft compiler update for Version 1595462 features:

- Access to more debug information such as the state selection.
- Fixes for the usage of the TCC compiler.

### Core

Microsoft Visual Studio 2022 added to support FMI export, Modelica, and C-code generation.

### Linux OS

Support added for RHEL Oracle 8.3, SLES 15 SP2.

## Enhancements for Model Export

### Code Generation - General

- Automatic detection of super block ports sizes and types.
- Support super blocks activated with *InitialEvent*.
- Issues with memory leaks are resolved.
- You can now check the size of exposable parameters for code generation, which helps avoid model failures. Error messages alert you if the wrong size is used.
- Support for Embed export.

### P Code Generation

- Vectorization of many functions and operators with *P Block*.
- Support for additional blocks and documentation.

### FMU Extension \*

- Support for SPICE added.
- Issues with memory leaks are resolved.

## Enhancements for UI

### Show/Hide Port Labels

The Property Editor includes new options to show or hide port labels for blocks and components.

### Select Read Only Fields

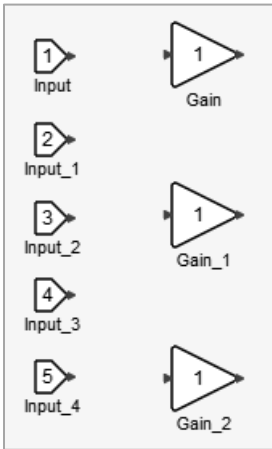
You can now select read-only fields, such as block names, for copying and pasting.

### Insert Block from Palette

Insert a block or component from a palette by double-clicking or pressing Enter in the last-clicked or default position.

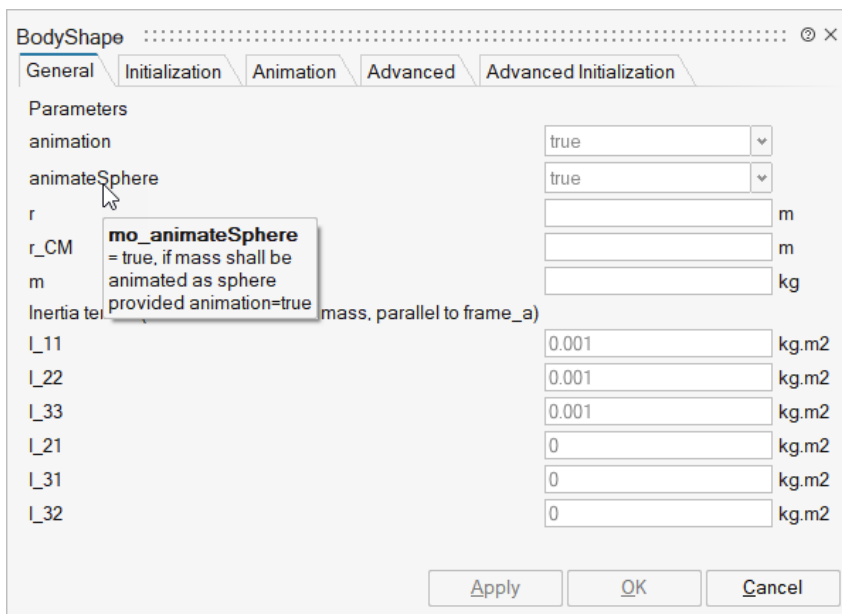
### Block Naming

Automatic naming of blocks by adding only one number instead of several:



### Component Parameter Dialog

Provides both the parameter name and description of Modelica blocks.



## Enhancements for Documentation

### Extended Definitions for Advanced Users

New chapters added on *CoSimulation with Electromagnetic and Thermal Models*, *Co-Simulation with PSIM*, and *Code Generation*.



## Resolved Issues

### General

- Retro compatibility problem with a Flux co-simulation component. \*
- Spice library import failed with error.
- Cannot open the directory opamp in call to function vssExportSPICEActivateFiles. \*
- Busy pointer when selecting solver.
- Size of FromModelica is not known and should return an error.
- MTSF-generator (for ResultViewer) fails if a block has input or output of type string.
- FromModelica extraction overloading should accept ":" only in special cases.
- Init parameter of Integral block doesn't work as expected in generated C block.
- Incorrect Skeleton generator behavior in OML custom block.
- Activate silently crashes with this model when 3D animation and variable browser are enabled.
- FMU export doesn't handle model with Spice components correctly. \*
- Inlined C block doesn't work for MatrixExpression and struct as exposed parameters.
- Error with code generation using a variable from context. \*
- Application crashes when importing a Spice library. \*
- Generate FMU from non-masked super block should not expose any FMU parameters. \*
- Hard coded absolute library path in FMU. \*
- FluxServer stays alive after the end of simulation. \*
- Error with FMU export using a variable from context. \*
- Auto recovery of model causes Activate to crash.
- Activate + Flux cosim fails with variable step solvers (Lsoda, cvode1) at initial step. \*
- MQTTSub does not recognize multiple objects.
- romAIdirector button is not visible after turning on/off romAI in extension manager.
- Bug during the Replace operation after Find Next in OML Editor.
- Exported FMU fails in FMU checker with error: Memory leak: freeMemory was not called. \*
- Tables in block GUI show a spurious empty line.
- Delay on MQTT PUB & MQTT SUB. \*
- Lag during FMU import with Many-variables.
- Application crashes when unloading an .mtsf file and reopening it through the Results Viewer.
- GetFromBase args not checked.
- Application crashes when opening a model report after viewing results in the Results Viewer.
- Inlined C block and inlined FMU export don't work after installing romAI library.
- Error with parameter + impure function (Modelica).
- Wrong output at initial activation when generating C codes.

- Slow classical code generator. \*
- FMU export for Spice fails. \*

### Linux

- Activate crashes upon exit when romAI is enabled.
- Spurious exception when generating FMU or C block from Modelica blocks. \*

## Known Issues

### CCustomBlock

Issues exist running models containing the *CCustomBlock* with non-inlined code. The C-code model must be rebuilt (check inline C-code, call generate dll and convert).

\* *Applies to Business Edition only*