

 RELEASE NOTES

Altair Activate[®] 2021

Business Edition *

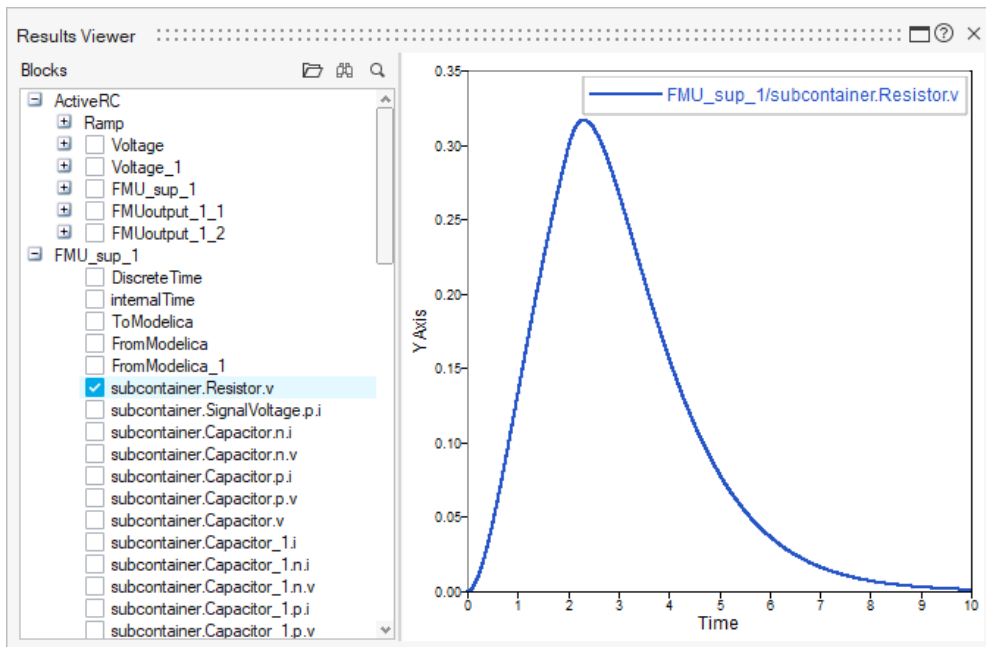
Personal Edition

New Features, Enhancements and Resolved Issues

Altair Activate 2021 includes a new Results Viewer, new features for the Modelica compiler, Spice simulator, Block Diagram Editor and User Interface, new blocks in the Activate, Modelica and *Hydraulics by Fluidon* libraries, and a variety of enhancements and resolved issues.

Results Viewer

The Results Viewer lets you view data for all blocks, including the Modelica blocks and the FMUs. To generate results files (.mtsf), select the *Create results file* option in the Simulation Preferences, then run a simulation.



Note: The Results Viewer replaces the Debug File Viewer.

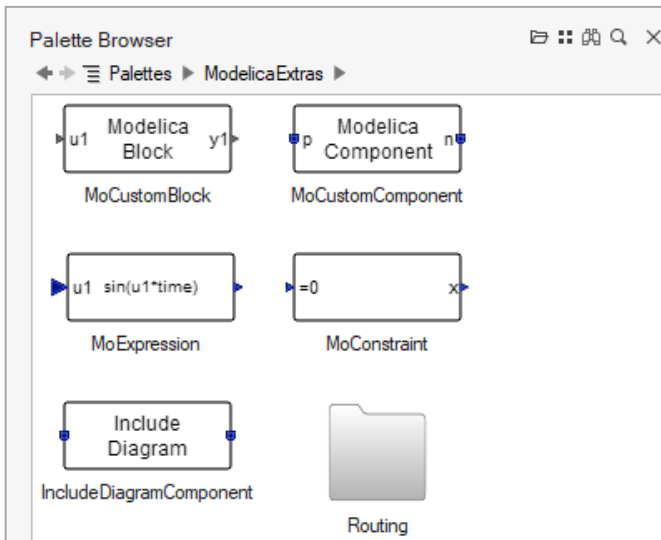
Modelica

Modelica Compiler

The compiler now uses different weights for the default and user-defined input values to improve the initialization of variables.

Modelica Extras Palette

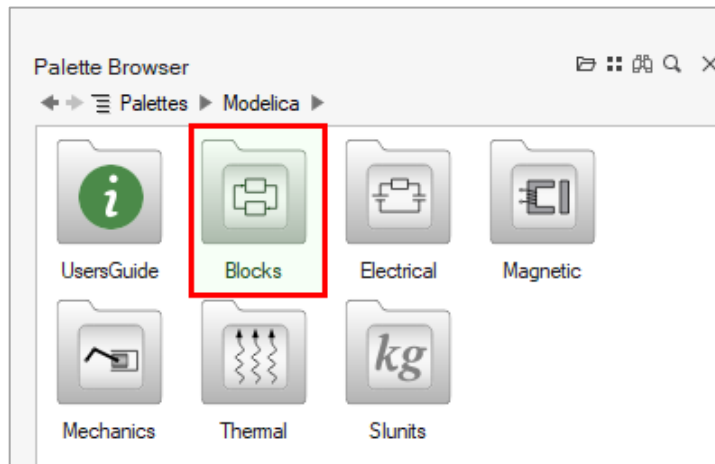
The new Modelica Extras palette contains the Activate utility blocks that are available for use with Modelica in Activate models. The new organization provides easy access to a commonly-used set of blocks.



Modelica Blocks

New blocks are available in the Modelica library:

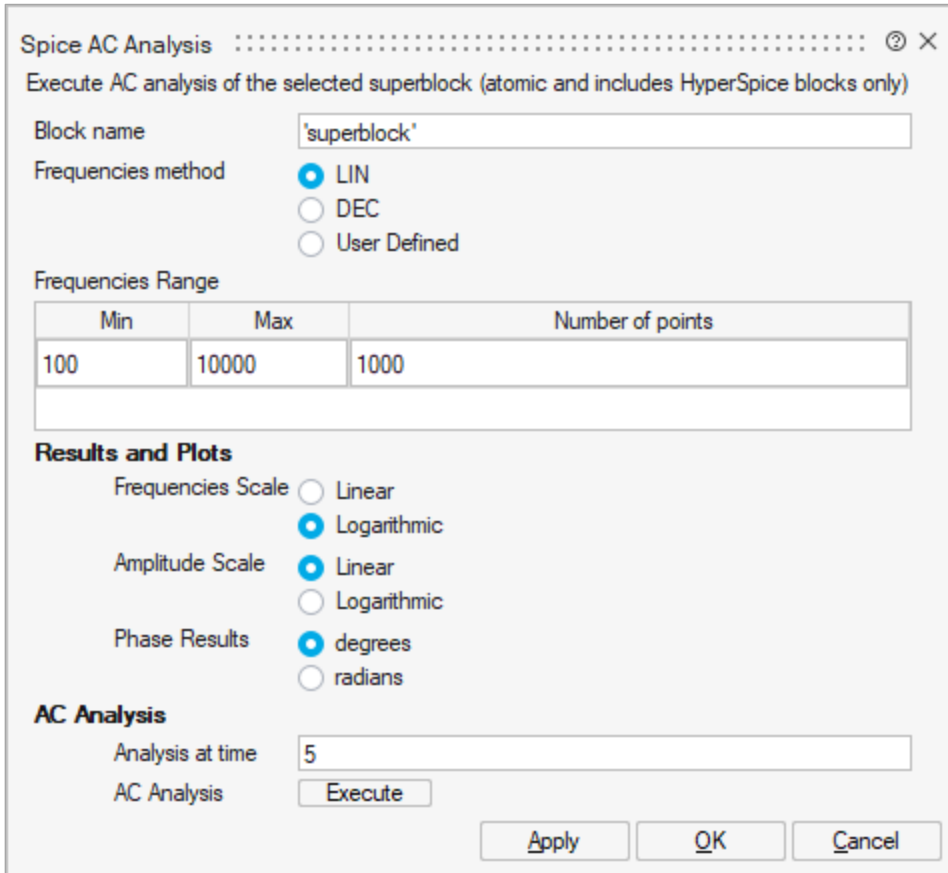
- *Modelica Expression (MoExpression)*: The output of this block is a real scalar value obtained by evaluating the Modelica expressions specified as block parameters. The expression is given in terms of variables u_1, \dots, u_n (except if using custom input names) where u_i is the i th scalar input.
- *Modelica Constraint (MoConstraint)*: This block outputs a Modelica signal so that its input remains zero.
- The *Blocks* category of the Modelica Standard library is now accessible from the Modelica palette.



Spice Simulation

Perform AC Analysis with Spice Models

This feature applies to super blocks that contain only HyperSpice blocks. A dedicated block is available to define the AC analysis options (frequencies) and desired outputs (plots). Voltage source blocks in the HyperSpice library have been extended to allow for the definition of AC source properties.



Spice AC Analysis

Execute AC analysis of the selected superblock (atomic and includes HyperSpice blocks only)

Block name: 'superblock'

Frequencies method: LIN, DEC, User Defined

Frequencies Range

Min	Max	Number of points
100	10000	1000

Results and Plots

Frequencies Scale: Linear, Logarithmic

Amplitude Scale: Linear, Logarithmic

Phase Results: degrees, radians

AC Analysis

Analysis at time: 5

AC Analysis: Execute

Apply OK Cancel

Fluidon Hydraulics

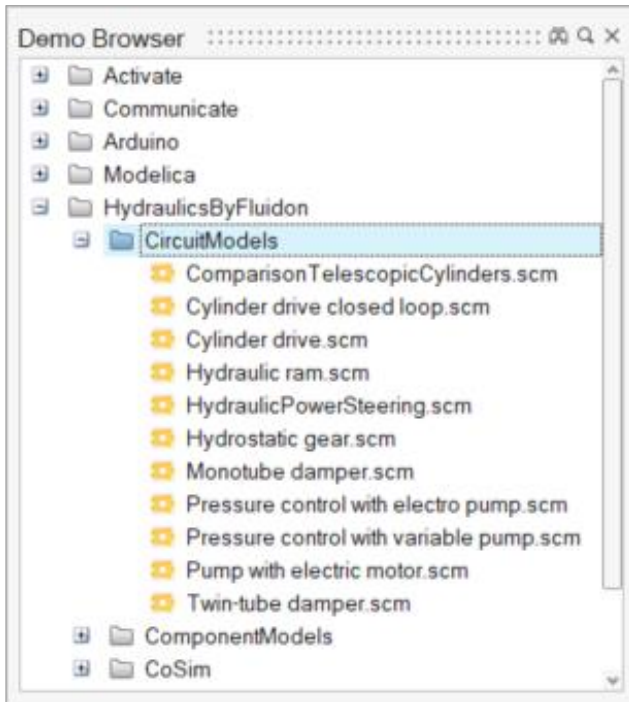
Hydraulics by Fluidon Blocks *

The following new blocks are available in the *Hydraulics by Fluidon* library:

- ResistorTableQp: resistor with look-up table for flow $Q(\Delta p)$.
- ResistorTableQpx: resistor with look-up table for flow $Q(\Delta p, x)$.
- ResistorTableAx: resistor with look-up table for cross-section of valve opening $A(x)$.
- PropValveXXPT2TableAx: directional valves 2/2, 3/3, and 4/3 with look-up tables for cross-section of valve opening $A(x)$ per metering edge.
- PropValveXXPT2TableQpx: directional valves 2/2, 3/3, and 4/3 with look-up tables for flow $Q(\Delta p, x)$ per metering edge.

Hydraulics by Fluidon Models *

The following new circuit models are available in the *Hydraulics by Fluidon* library and are accessible from the Demo Browser:



Activate Blocks

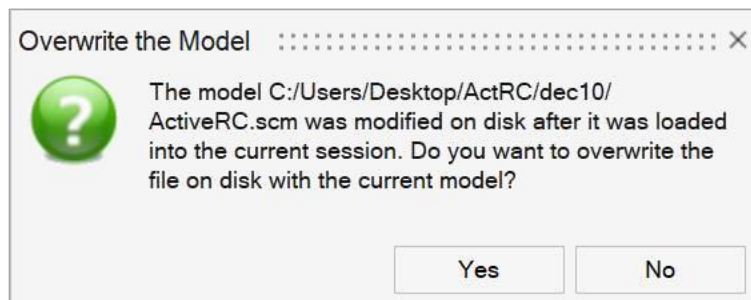
The following new blocks are available in the Activate library:

- FormattedString: This block emulates the sprintf functionality of C/C++.
- Encoder: This block is available in the Arduino library.

User Interface and Block Diagram Editor

New options are available in the Project Browser, Property Editor and UI:

- A *Collapse All Models* option is available in the Context menu of Project Browser.
- A warning and prompt alerts you when models on disk have been changed during your session.



- An *Expand* option is available to control the display of objects in the Project Browser.
- The Property Editor supports multi line editing.

Additional Changes and Enhancements for Activate

Enhancements are available for the Project Browser, Property Editor, User Interface, code generation, co-simulation, and Activate blocks.

Project Browser, Property Editor and User Interface

- Status messages are displayed during the compilation phase.
- Batch mode `vssRunSimulation` has optional arguments.
- Block dialogs display the row numbers on tables.
- Read-only elements are no longer highlighted.
- The number of visible items in block dialog tables are now only limited by the dialog height.
- A new function returns the current model path for true batch mode.
- Mask Editor updates include a size increase and added sorting parameters.

Miscellaneous Blocks

- The Transfer Function block was extended to support the MIMO case.
- The documentation has been further developed for all the various From blocks.

Code Generation

- Support has been added for the `conditionselect` and `conditionalNselect` blocks.*
- Operations in the code generation (inlined code) have been vectorized.*
- The `RealTime` block is now supported in P Project code generation.

Co-Simulation with Altair MotionSolve and Altair Flux*

- Co-simulation with Altair MotionSolve now supports MotionSolve models in Python format.*
- The Flux block dialog now avoids the modification of inputs and outputs after the F2STA is loaded.*

Resolved Issues

- The Find button in the `GetSignal` block should not look for signal definition in an atomic super block.
- Python block with non-inlined script does not work.
- Sample clock block offset issue.
- Issue in the `JumpStateSpace` block in the case of an initial event.
- `GetFromBase` should not create a variable in base in case the variable does not exist.
- Port labels are not shown in some cases.

- The image for the Modelica block InverseBlockConstraints block is incorrect.
- Code-generation does not work correctly for the EdgeTrigger block.
- SignalIn block should not raise an error when a variable is not found.
- Issue with vertical spacing of parameters in block dialogs.
- Code generation (using inlined code) failure in some cases. *
- A PAUSE requested by the END block at initialization event is not ignored.
- FMU export for Hydraulics blocks fails with the error: *Array index out of range.* *
- The Find operation of the GetSignal block does handle signal names correctly.
- When a new file is opened from the Curve Editor, the new file name is not updated in the block parameters.
- Opening a file in the Curve Editor does not update the dialog title to display the new name.
- The search string in the Palette Browser disappears when the view is switched from Tree View to Icon View.
- Model report header color issue.
- Curve Editor should not change the curve color when loading data from a .csv file.
- Modelica blocks should look for data files from the current model directory when a relative path is used.
- The simulation hangs in a MotionSolve co-simulation model that has no input and no output.*
- The Activate simulation cannot stop when MQTT PUB and MQTT SUB blocks generate a connection error. *
- With Linux64, the FMU Export function hangs for some models.*
- OML exit function argument is ignored.
- fixed=true flag is not propagated to the generated Modelica code when a default value is used.
- Spurious split created by the *Expand super block* operation.
- Inlined code generation issue when handling FALSE. *
- Curve Editor .csv reader does not handle files with many empty lines.
- Missing pulses from an HyperSpice pulse source. *
- The lasterr OML command gives an error message after Activate is invoked
- CCustomBlock should support UINT64 , INT64 and POINTER types.
- Code generation (using inlined code) for FMU export issue with MatrixExpression block.
- Code generation (using inlined code) for FMU export issue with IfExpressions block.
- Cannot name the first model of a Modelica package as the package itself.
- Execute Activate_batch with system command doesn't work with double quotes on Linux platform.
- Text partially missing in the OML command window for some Flux co-simulation parameters.
- Many errors occur when generating code (using inlined code) for FMU with the LookupTable block. *

* **Applies to Business Edition only.**