

RELEASE NOTES

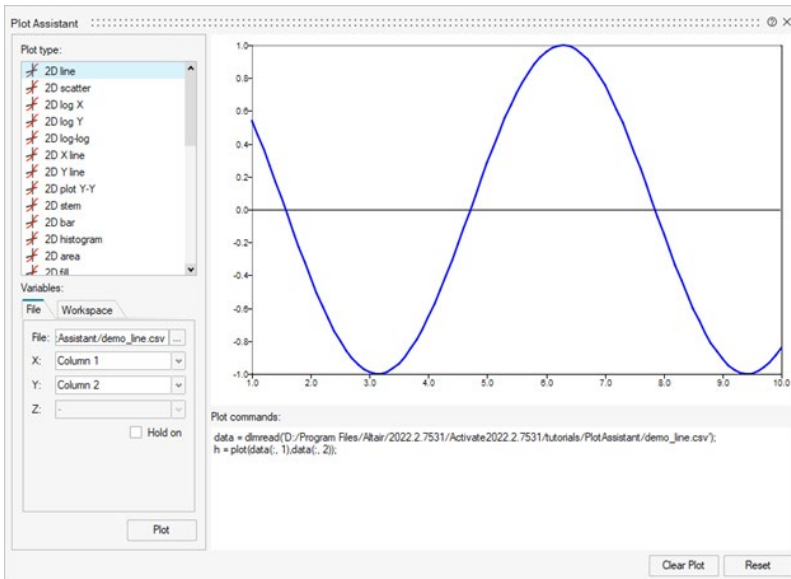
Altair Activate[®] 2022.2 and 2022.2.1

New Features and Enhancements 2022.2

Release Highlights

Plot Assistant*

The Plot Assistant lets you create plots from the various 2D and 3D OML plot types for post-processing simulation results. You can also plot data from your workspace or delimited file, such as a .CSV file.



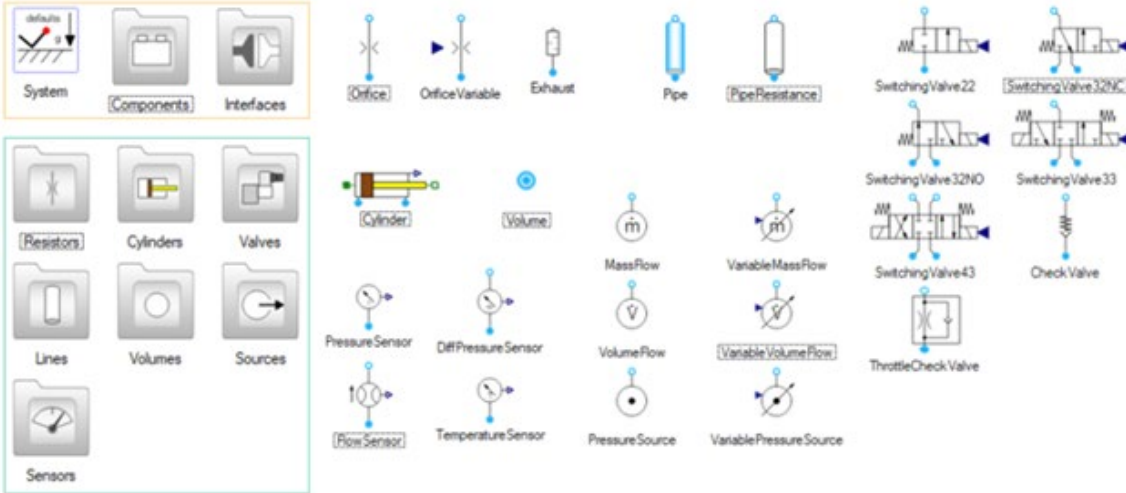
You can open the Plot Assistant from the GUI Utilities ribbon:



Libraries

Pneumatics Library*

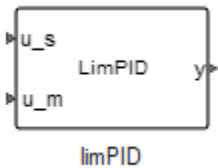
The new Pneumatics library can be used to model industrial pneumatic systems as well as common compressed air systems.



It is available as an extension on Marketplace, which requires a separate installation.

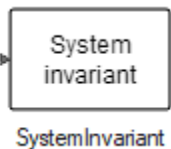
limPID

The limPID block implements PID controllers with output saturation, anti-windup, and setpoint weighting.



SystemInvariant

The SystemInvariant block is used to impose additional constraints on signals to better control the simulation error. A typical example is constant energy constraint. This block can be used with some, but not all, choices of numerical solvers.



Additional Changes and Enhancements for Libraries

Execution speed has been greatly improved for:

- FromBase / ToBase
- ImageViewer

The file name is exposable in the FromHDF block.

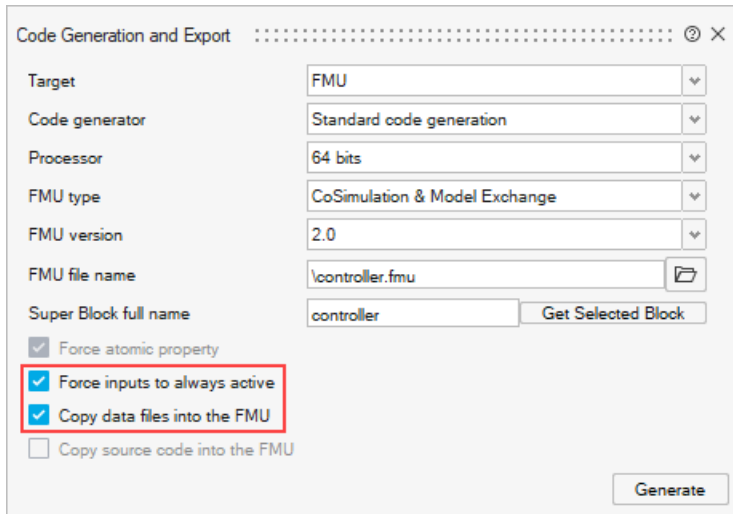
Enhancements

Enhancements for Code Generation and Export*

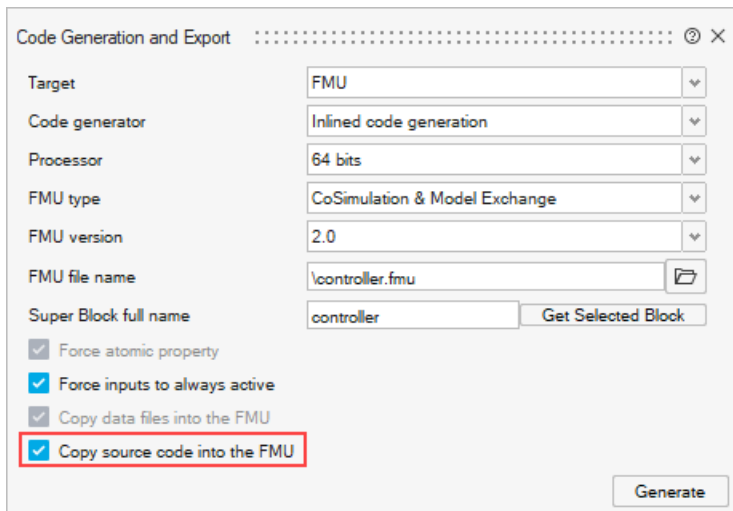
In the Code Generation and Export window, there are several enhancements. When standard code generation is used, there are two new check boxes:

Copy data files into the FMU: If selected, data files are copied into the FMU. If the check box is not selected, data files are copied to the file path entered in the FMU file name field.

Force inputs to always active: If selected, an FMU is exported with inputs always active regardless of the time-dependency of its inputs. This check box is selected by default.



For inlined code generation, the new **Copy source code into the FMU** check box lets you include the source code in the FMU export.



Enhancements for Demo Browser

There are new demos for:

- MQTT and Kafka using Json
- Modelica.Electrical.Machines.Examples.Transformers: TransformerTEstbench.scm
- Modelica.Blocks: FilterWithDifferentiation.scm, IntegerNetwork1.scm, RealNetwork1.scm, SlewRateLimiter.scm and TotalHarmonicDistorsion.scm

Demos have been reorganized in the demo browser.

Enhancements for Documentation*

Help topics for Machine Learning functions have been added.

Enhancements for OML Commands*

The following OML functions have been added from Compose:

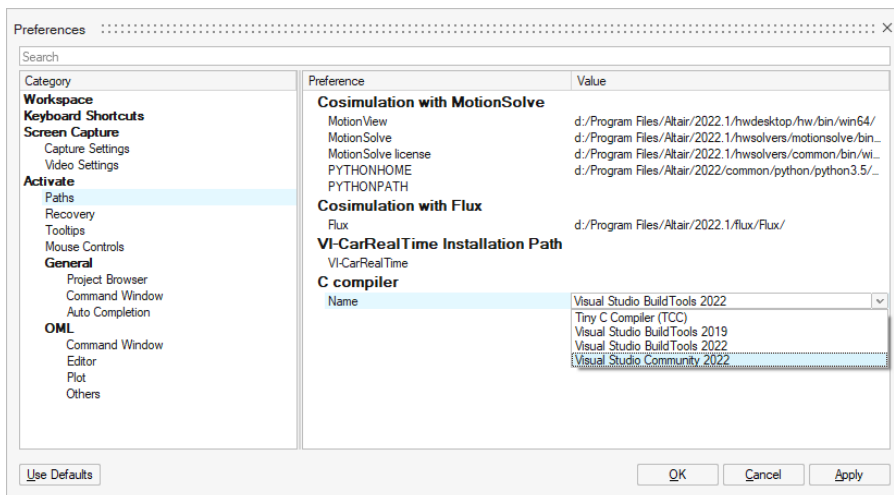
- CAE Reader commands
- arrayfun, bigstab, chirp, clearvars, createdistributable, diric, gausspuls, gmres, goodfeaturestotrackcv, isbanded, isbatch, magnitudecv, movmean, openfig, pcg, pulstran, rectpuls, savefig, sawtooth, setmsolveapi, square, stairs, structfun, suppresspythoncmdwindow, treatasbuiltin, tripuls, uitree, uitreenode

Enhancements for Solvers

The latest Sundials solver 6.2.0 has been updated to use constraints (CVOICE, IDA, CVOICE).

Enhancements for UI

You can now select a C compiler in **File > Preferences > Activate > Paths**.



Online Help

Dark Theme for Online Help

Use the button in the footer to toggle between dark and light themes.

Note: Firefox does not support dark theme for locally installed help files.

Version Navigator for Online Help

Navigate to other versions of the Altair Simulation online help.

Note: This feature is not supported in locally installed help files. Online help for previous releases does not have this feature and remains unchanged.

Cookie Consent

The help footer now contains a cookie consent option. Click the link to review and revise your settings.

Resolved Issues

Code Generation and Export

- FMU (ME) with EdgeTrigger or StepGenerator generated the wrong result. *
- Include and Lib paths of CCustomBlock was not considered at FMU export. *
- Export FMU of CCustomBlock failed for external libpath. *
- FMU inlined code export with TCC did not handle external libs such as blas correctly. *
- FMU (CS) failures for DiscrPoleZero (spikes in result). *
- FMU export failed when FromCSV filename parameter was a variable *
- Standard FMU export (ME) gave the wrong result for the rate limiter block. *
- FMU (CS, inlined code) with a SampleClock inside got stuck in simulation. *
- Inlined code generation was incorrect in atomic case with 3 or more activation inputs to the super block. *
- Inlined code generation did not report a discrete state correctly. *
- Inlined code block of DiscrEdgeTrigger block was not correct. *
- Inlined code generation gave the wrong output for the rate-limiter block. *
- Modelica vector parameters were not exposed in the generated FMU. *
- Pressing Enter after modification of an FMU file name closed the GUI. *

Solver

- Cold restart should only be used in integral blocks if the event changes the state ().

Library

- Multiple events generated for a single crossing: zero-crossing issue with edge trigger.
- When a constant block was typed as a double but the input matrix was written using logicals, the output was always 0.
- Modelica blocks should look for data files from the current model directory when a relative path is used.
- Modelica parameter groups were not respected correctly.

- HydraulicsByFluidon: numerical issue with Elbow and Bend at low viscosity (e. g. with water). *

romAI

- Transfer Learning did not load filtered signal. *
- romAI block could not run in Activate batch mode. *
- Number of input/outputs/states were not updated after checking off the Transfer Learning flag. *

Misc

- Interpolation function interp2 crashed in initialization (used in lookup table2D).
- Available parameters were incorrectly computed for mask parameters of type vector.
- Error using .pyfit on Activate / HstPyFitBlock (Error: cannot use cell indexing on a non-cell in function hstParameterCallbackReload at line number 23 in file hstParameterCallbackReload.oml).
- Activate crashed if the model contained Scope on a machine without a graphic card.
- Modelica models did not allow component names with unicodes.
- Encrypted script could not run in model context when running simulation in batch mode.

Linux

- FMU was generated in model temp dir when generating CBlock from modelica. *

New Features and Enhancements 2022.2.1

Altair Activate 2022.2.1 includes the following resolved issues.

Resolved Issues

Code Generation and Export

- Simulation of exported mixed Activate-Modelica models (FMUs) was slow. *
- An unexpected parsing error in inlined code generation occurred for some models. *
- romAI FMU support with inlined code. *

Interfaces

- env variable PATH became empty after running a PSIM cosimulation model twice. *

Modelica

- The Modelica compiler was updated to fix an error with the filter component.

OML

- There were evaluation phase performance issues. For example, the slider application and optimization were slow.

romAI

- romAI batch training examples did not run. *
- In romAI Director, the physical constraint table scroll bar was not visible when there were more than 8 states. *
- When a state label was deleted, an error was shown in the OML window. *

* **Applies to Business Edition only**