RELEASE NOTES

Altair Compose® 2022

New Features and Enhancements 2022

Release Highlights

UI Designer *

The UI Designer is an interactive toolkit that provides you with an easy drag-drop method to create graphical user interface designs without manual coding.

UI Designer Workflow

1. Drag and drop predefined objects to create your GUI design.
2. Preview and modify your design.
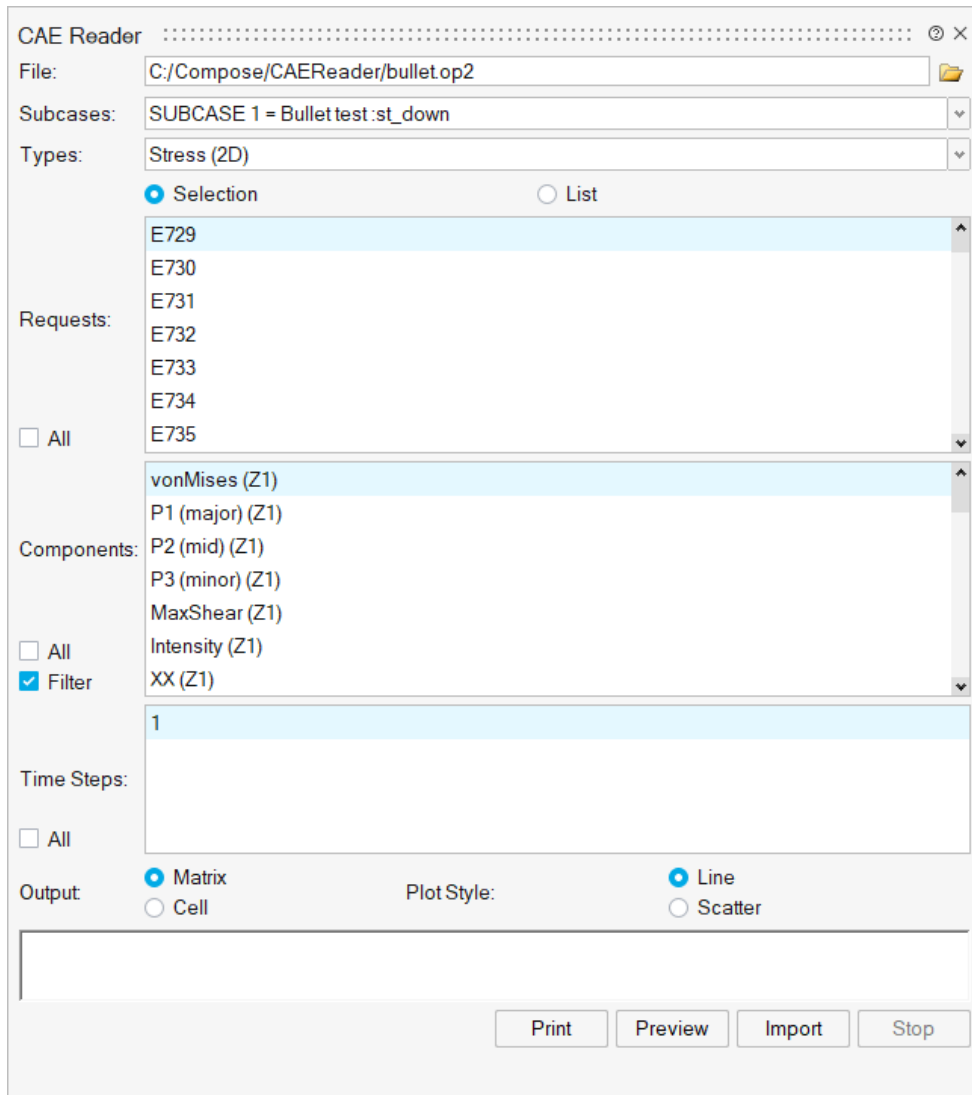3. Save your design as an OML code skeleton that you can further develop.
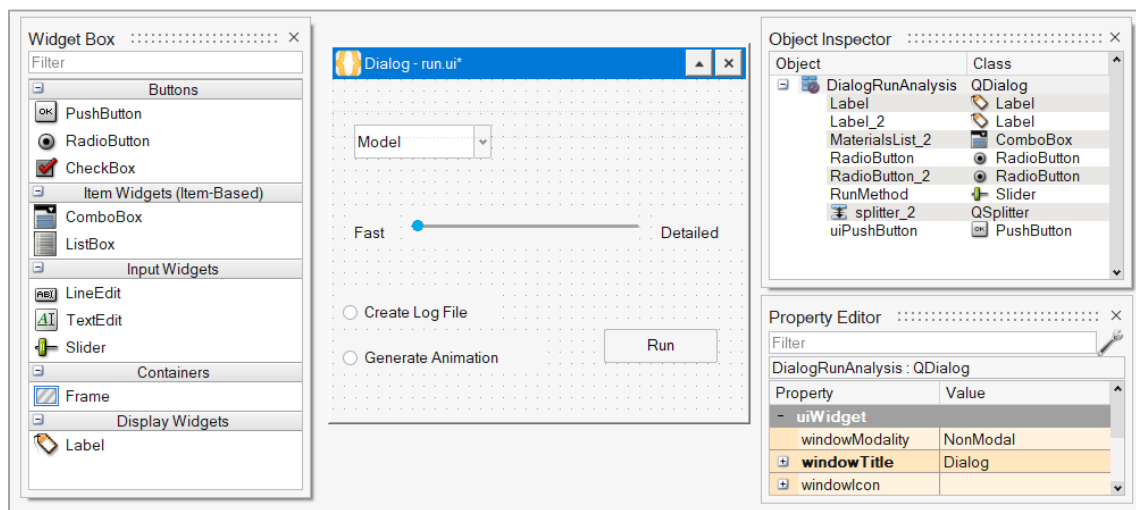
Access the UI Designer on the GUI Utilities Ribbon

Note: More GUI Utilities will be available with the upcoming versions of Compose.

CAE Reader *

The CAE Reader utility imports CAE/Test data, writes the syntax for the imported data, and plots the data.
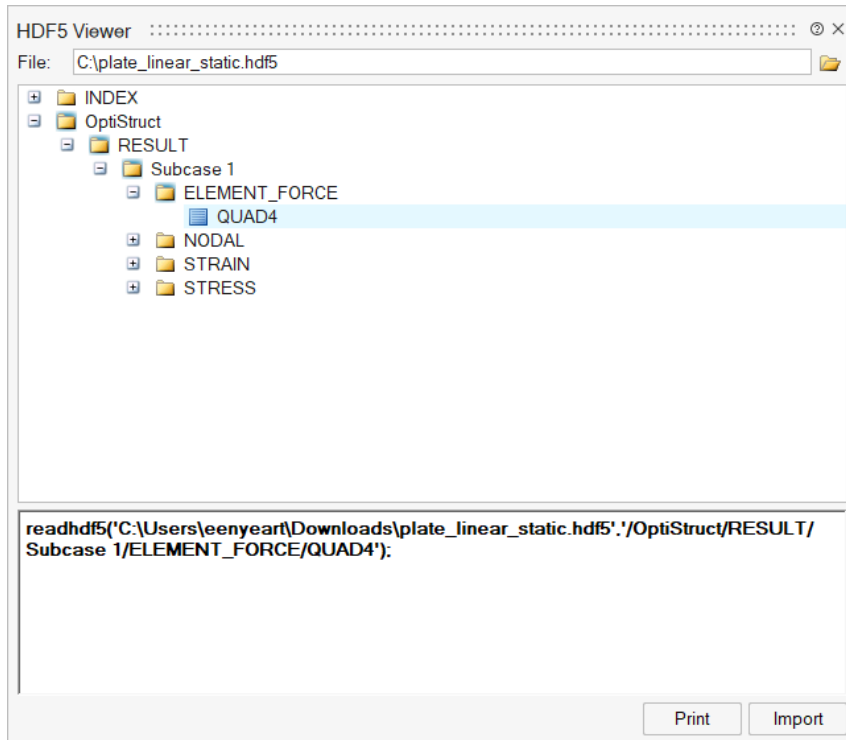

Access the CAE Reader on the File Utilities Ribbon

Note: More File Utilities will be available with the upcoming versions of Compose.

HDF5 Viewer *

The HDF5 Viewer lets you navigate through the hierarchy of HDF5 files. The viewer also imports data and writes the required commands to read a group or dataset that you select:


Access the HDF5 Viewer on the File Utilities Ribbon

Machine Learning Library *

The Machine Learning library is comprised of a set of methods for predictive data analysis. The library features various algorithms for the following processes:

- Pre-processing
- Regression
- Classification
- Clustering
- Decomposition
- Distance calculation
- Evaluation metrics
- Model selection

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Cluster Analysis
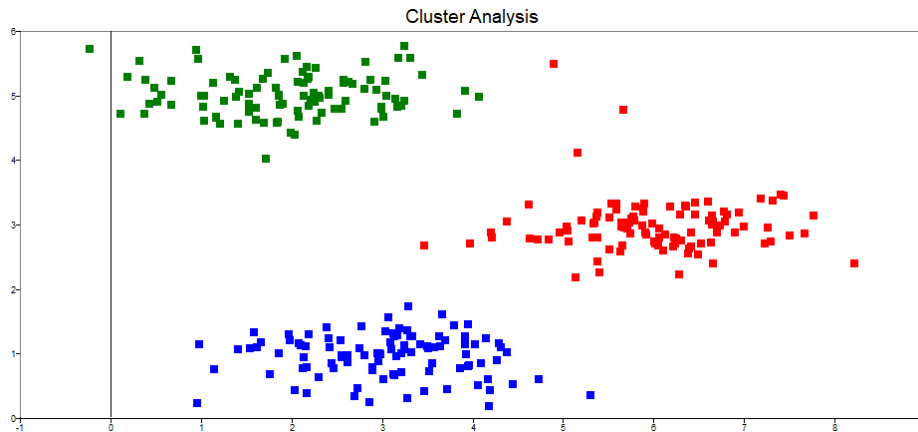
User Interface

Enhancements for Projects (.apri files)

- Add breakpoints to the project.
- Enable variables to be added to the project
- Retrieve data that is within the project with `getprojectdata`.
- Warning is now issued if a file cannot be saved.
- Search and Filter issues in the Project Browser are resolved.
- The appropriate dialog window now appears when opening a project.
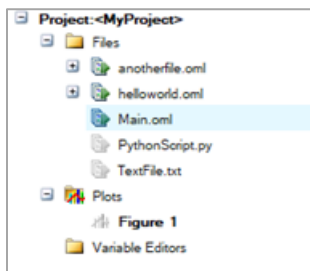
Additional Changes and Enhancements for the User Interface

- Dark mode is now available.
- A Hinting feature helps you choose the correct OML arguments when working in the Command Window or Command Editor.

```
> interp1(
yi = interp1(x,y,xi)
yi = interp1(x,y,xi,method)
yi = interp1(x,y,xi,extrap)
yi = interp1(x,y,xi,method,extrap)
```

- The Find option is enabled when a breakpoint is hit.
- The Variable Browser can be used to inspect objects, structs within cells, and cells within structs.

- Plot data can now be saved to a MAT or CSV file:
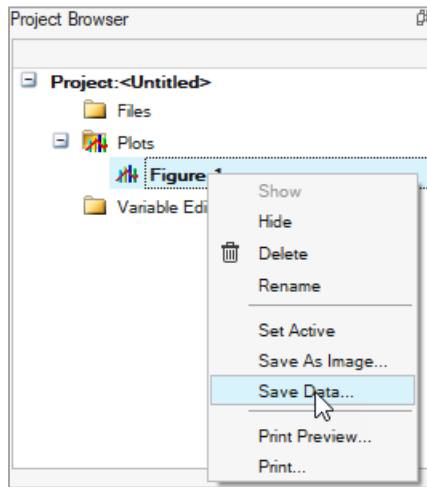
OML Commands

Compose includes new functions in the following categories:

CORA Functions

Use the CORA (Correlation Analysis) and ISO-18571 methods in `cora` and `iso18571` functions to calculate the correlation metric between test and CAE data.

Computer Vision *

- `Addcv, subtractcv, multiplycv, dividecv`: arithmetical operations in images.
- `histogramcv`: computes the histogram of the red, green, and blue colors of an image.
- `rectanglecv` and `circlecv`: draws a rectangle or a circle in an image, respectively.
- `copycv`: copies an image.
- `templatematchcv`: finds a template within an image and returns the handle to an output image highlighting the match and the position of the match.
- `addweightedcv`: adds weighted inputs to an image.
- `houghcirclescv`: detects circles in a grayscale image using the Hough transformation algorithm.
- `findcontourscv`: finds and draws contours in an image.
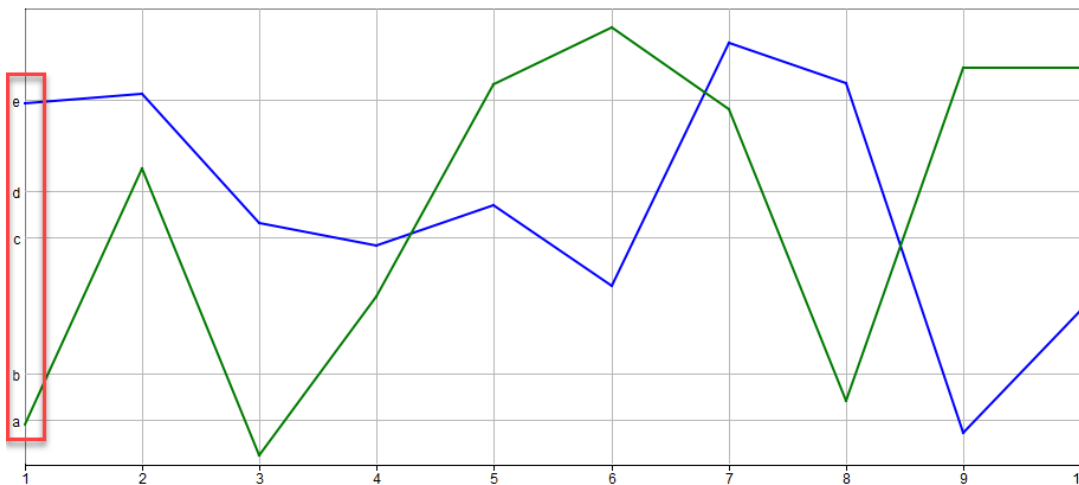
Signal Processing

- `resample`: resamples a real signal by a rational factor using a polyphase FIR filter.
- `stft` and `istft`: enables a short-time Fourier transform and its inverse counterparts.
- `spectrogram`: enables spectrogram calculation and plotting.

Plotting

- TeX rich text interpreter available in 2D plots:
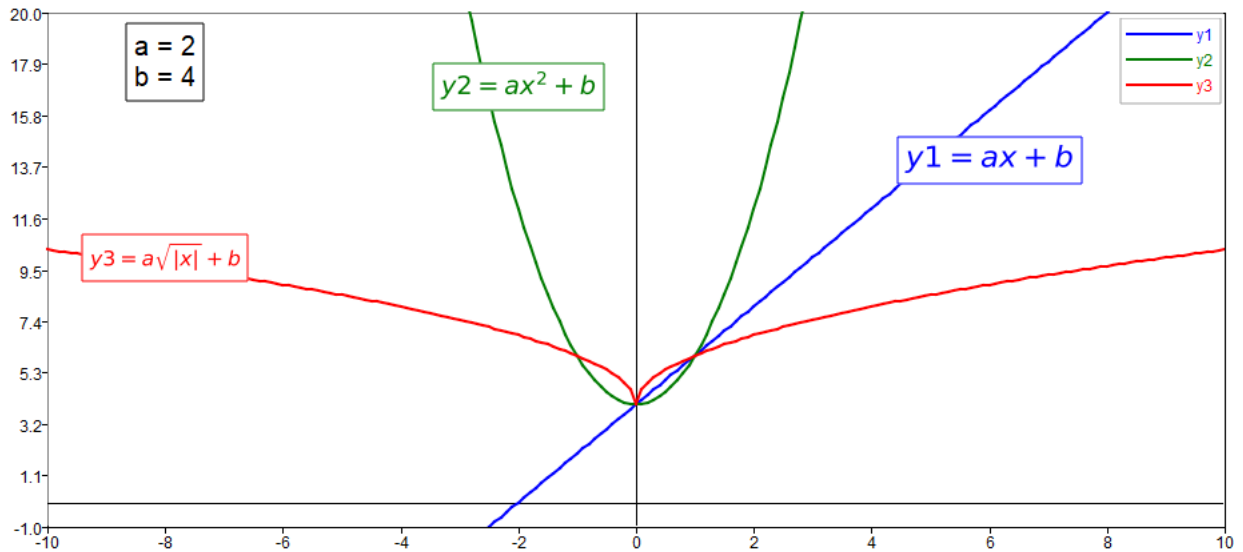
- Axis labels and ticks can now be customized:

- New colormap functions: `autumn`, `bone`, `cividis`, `cool`, `copper`, `cubehelix`, `flag`, `gray`, `hot`, `hsv`, `inferno`, `jet`, `lines`, `magma`, `ocean`, `pink`, `plasma`, `prism`, `rainbow`, `spring`, `summer`, `twilight`, `viridis`, `white` and `winter`.

- `movie` and `getframe`: captures an image of a figure and generates an animated composition of images.

- New axes properties: `framecolor`, `gridcolor`, `xminortick`, `yminortick`, `zminortick` and `zerolinecolor`.

- New Compose Notebook functions: `fanplot`, `patch`, `pcolor` and `polar`.

- `windowstyle` property for figures.

- `ynumericprecision` and `ynumericformat` properties for axes ticks.

GUI Creation

- Property to stop the execution of a `uicontrol` callback.

- `uitable` supports `uicontrol` widgets within its cells (`checkbox, radiobutton, listbox, combobox`).

- orientation property for `uicontrol` slider.

- verticalalignment property for uicontrol widgets.

General Functions

- `writersp` writes RSP files that contain time history and channel information.

- `isfile` detects if input is a file or not.

- `movefile` moves file(s) or directory(ies).

- `audioread, audiowrite, audioformats` and `audioinfo` command set reads and writes audio files and gets information about supported formats and existing audio files.

- `keyboard` enters the keyboard mode, interrupts the current script, and evaluates user input(s).

- `table, readtable` and `writetable` command set creates a table object, reads a file as a table object, and writes a file in the same fashion.

Additional Changes and Enhancements for the OML Commands

- Sorting argument for `unique, union, intersect, setxor` and `setdiff` functions.

- Support `'c'` as `cyan` color of curves in plots.

- Overwrite a line int the command window with `'\b'` operator.

- Automatically adjust Y limit if text is used in `bar` plot.

- Performance of `save` command to export MAT files has improved.

- `waterfall` plot supports slices along X direction.

- Support for `HorizontalAlignment` property in `uicontrol`.

- Allow debugging of Python script when using `evalpythonfile`.

- `load` now supports inputs without the .mat extension.

- Altair Integration library now supports non-solvers, such as HyperMesh, HyperView and MotionView.

- Optimization of performance of ND matrix slicing.

- Support for 3D matrices in `mergecv`.

- Operations between scalar and sparse matrix are now supported.

- Give legend only to a certain number of curves.
- `librarymanager` displays the installed libraries when no input argument is provided.
- Retrieve data from `histogramcv` and `dftcv` using second output argument.
- Improve performance of sparse matrix operations.

Resolved Issues

- Paginate issue when using `readfiletoc` to read certain H3D files. *
- Text input issue when using Chinese language input.
- `run` command does not work if a given filename is in a path with a directory that has UTF8 characters.
- Plot with (0,0,0) point is not suppressed in log-log plots.
- Cannot compare sparse logical matrices.
- Unsupported operations between characters and numbers.
- `csvwrite` does not support very large matrices.
- Interpretation issue with NaN in `max` and `min` functions.
- `uicontrol` saved in image should look exactly the same as the `uicontrol`-based GUI.
- In the Japanese version, multiple lines are pasted as a whole in the command window.
- Not able to change folder of File Browser when in debug mode.
- `exist` function does not work outside of the current directory.
- Wrong output of CAE readers with specific PCH files. *
- Strange positioning using `view` function.
- Wrong result of `regex` function.
- Pagination issue in ND matrix.
- `imagesc` performance issue with large matrix.
- Horizontal scrollbar disappears after inserting characters in a long line.
- Combination of surface and `colorbar` keeps alternating from 2D to 3D plots.
- `strjoin` is slow.
- In batch mode, the size returned by `imread` is zero.
- Very slow display in console mode.
- Helvetica font is missing after you assign a different font then try to reassign Helvetica.ND operation with singleton dimension does not work.
- Crash with 3D empty matrix using `max` function.
- Cannot add 2 images to the same axes using `image` or `imagesc`.
- 'v' marker does not work.
- `omlfilename` does not support file path containing UTF8 characters.
- `exist` function return priority is not what is expected.
- Crash when using `installpythonpackage`.
- UTF8 path issue in batch mode.
- Certain usage of `mad` function crashes Compose.
- Last column is not read in `xlsread` with empty values in some columns.

- `patch` plot should show the border of the patches.
- Wrong result of `ind2sub`.
- Slider position is set incorrectly in `uicontrol` function.
- Very slow `vertcat` function.
- Wrong output when wrong size of matrix is appended to the variable.
- `input` function not reading strings properly.
- Profiler summary does not expand.
- X and Y data are swapped for `resizecv`.
- Unexpected error with `parfor`.
- `parfor` indentation is not automatically recognized.
- `imagesc` image shows incorrect axis ticks.
- `run` changes the current directory if the file extension is .omc.
- F1 does not display `callalairbatch` and `librarymanager` help.
- `callaltairbatch` should not print the variable `varargout`.
- `horzcat` and `vertcat` don't handle struct inputs correctly.
- Issue with variable definition when line break and whitespace are used together.
- 0^0 returns NaN when in matrix.
- Crash using `saturatecastcv` and `mergecv` functions.
- `subplot` not working correctly for unequal number of rows and columns.
- Unexpected crash in class.
- Legend upper frame is cut off by plot window when it is placed on top of the plot.
- Unsupported special characters in comments and strings.
- `normrnd (ones (2,1), 2)` returns an error.
- Rendering issue while plotting data using `surf` with XY view setting.
- Unreachable `tag` and `name` figure properties.
- Cannot use `dbcont` to quit when keyboard is used with user prompt and up arrow is pressed.
- `fmincon` fails in an incorrect fashion when the user function fails.
- `restoredefaultpath` did not restore the path to the same path as on startup.
- `bitand` doesn't work correctly when input number is large.
- `iso6487` (nan,nan,60) crashes Compose.
- Compose crashes when there is a NaN in the input to `delaunay` function.
- Issue on rounding choices in `linspace`.

*** Applies to Business Edition only**