ALTAIR
ONLY FORWARD

RELEASE NOTES

Altair® Compose® 2024

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New Features and Enhancements 2024

Release Highlights

Communication Library *

KAFKA

This library communicates with KAFKA consumers and producers.

The library contains the following commands:

- **KafkaConsumer**
- **KafkaProducer**

Serial Port

This library communicates between the server and client applications via serial port.

The library contains following command:

- **serialport**: Connects and communicates with serial port with the methods:
  - **read**: Reads data from a serial port object.
  - **write**: Writes data to a serial port object.
  - **close**: Closes serial port.

FTP

This library communicates between the server and client via file transfer protocol and a computer network.

The library contains the following commands:

- **ftp**: Create an FTP object to connect to a remote FTP server.

Supported file operation functions via FTP protocol are:

- **ascii**: Sets FTP connection to use ascii mode of transfer.
- **binary**: Sets FTP connection to use binary mode of transfer.
- **cd**: Change or get the current directory on the remote server over FTP connection.
- **close**: Close the FTP connection to the server.
- **delete**: Deletes a file over an FTP connection.
- **dir**: List the current directory or given directory of an FTP server.
- **mget**: Download files over FTP connection in the current working directory.
- **mkdir**: Create a new directory in a server over FTP connection.
- **mput**: Upload files to an FTP server.
- **rename**: Rename a file or directory on an FTP server.
- **rmdir**: Delete a directory of an FTP server.

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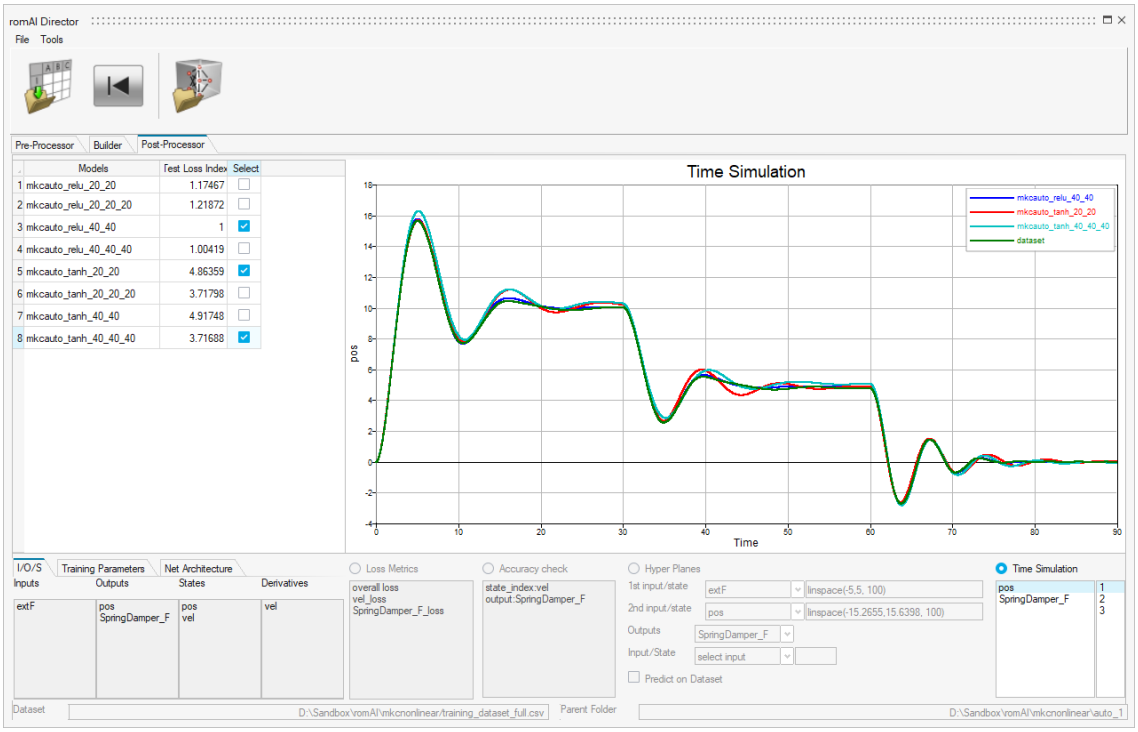
romAI Director*

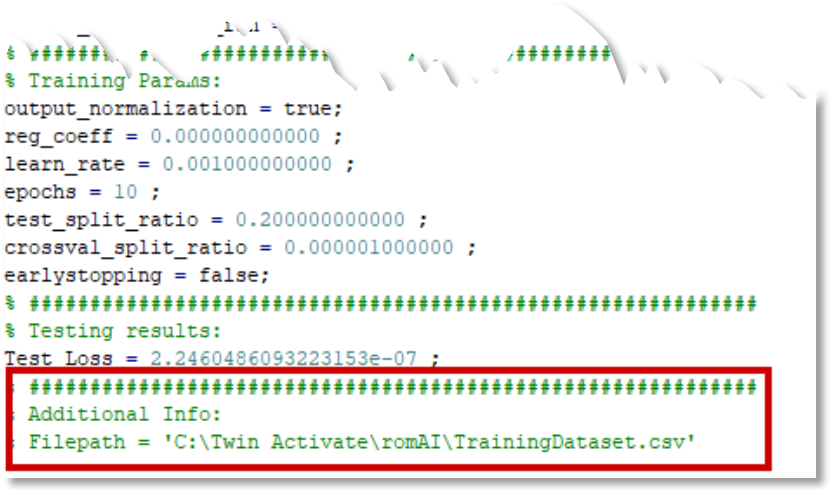
Multi-Selection of Different romAI Models in Post Processing

The Automatic Exploration option is used to create multiple models for the same input data. In order to support the selection of the best model, the post/processor enables the selection of several models and the comparison of the time simulation results.



Report of the Dataset Name/Location in the OML File Inside romAI

Information about the original dataset that was used to generate the model is provided in the OML file that is included in the romAI folder.



```
% ##########################################################
% Training Params:
output_normalization = true;
reg_coeff = 0.000000000000 ;
learn_rate = 0.001000000000 ;
epochs = 10 ;
test_split_ratio = 0.200000000000 ;
crossval_split_ratio = 0.000001000000 ;
earlystopping = false;
% ##########################################################
% Testing results:
Test Loss = 2.2460486093223153e-07 ;
% ##########################################################
% Additional Info:
% Filepath = 'C:\Twin Activate\romAI\TrainingDataset.csv'
```

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OML

New OML Commands

Communication *

See Release Highlights above.

Control Systems

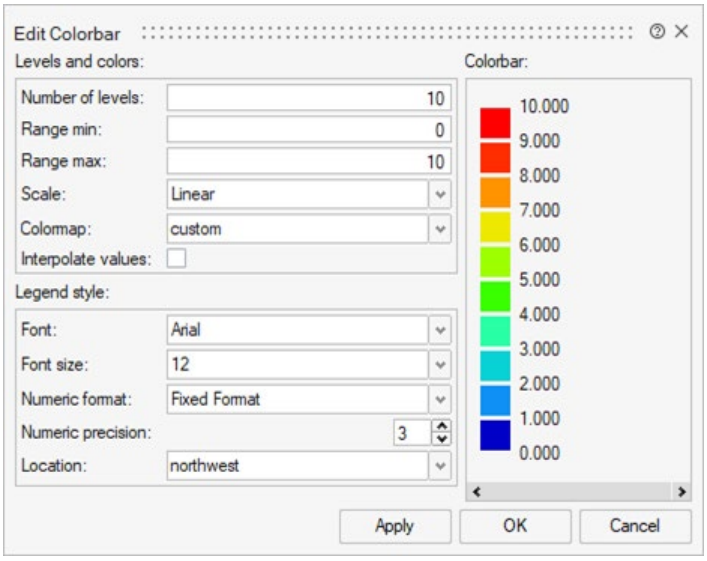
rlocfind: The root locus plot can be made interactive by using the mouse location to provide the input p and then display the outputs in a text box.

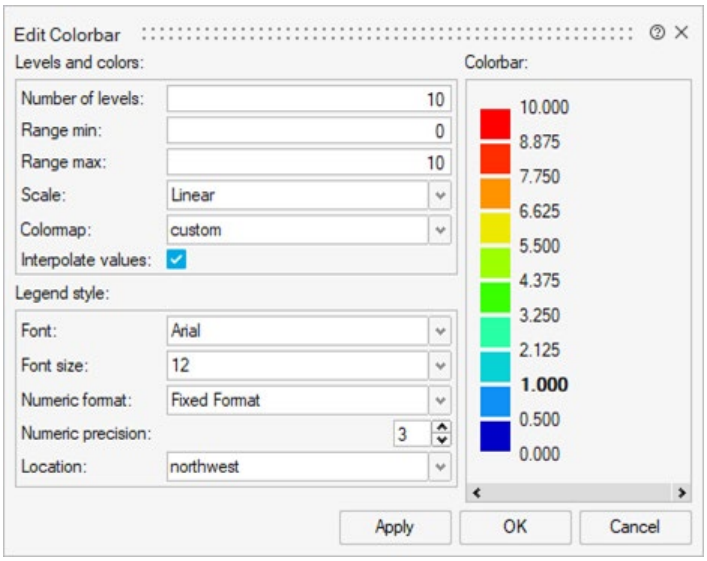
```
[k, p] = rlocfind(sys, p)
```

Plotting

You now have an option to interpolate legend values via the **Edit** property of plots:

If the **Interpolate values** option is selected and a colorbar value changes (val1), the values between val1 and the colorbar's min and max values are interpolated. If a second colorbar value changes (val2), then the interpolation is performed on the values between val1 and val2, and between val2 and the colorbar's min or max value.





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Signal Processing

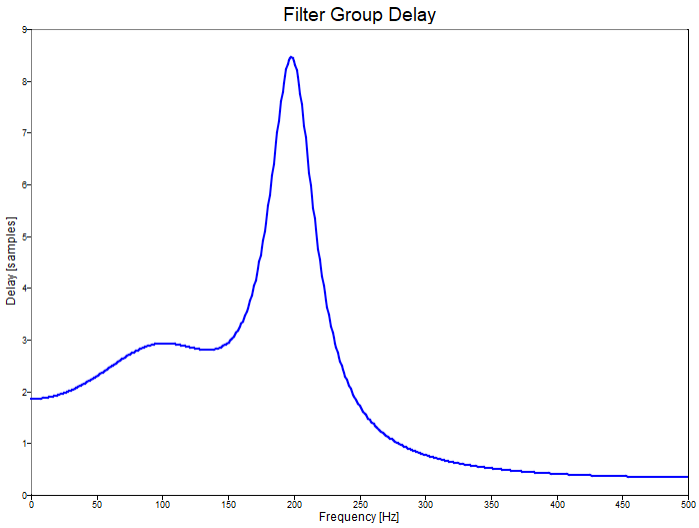
- **hilbert**: OML command that takes real signal and converts it to analytical signal using hilbert transformation
- **medfilt1**: Applies a moving median filter in one dimension.
- **grpdelay**: Compute digital filter group delay values.

```
fc = 200;

fs = 1000;

[b,a] = cheby1(4,1,fc/(fs/2));

grpdelay(b,a,[],fs);
```



Statistical Analysis

- **movmedian**: Computes moving median values with wide properties of endpoints.

  Supported end points are:

  - shrink: Windows that would extend beyond the matrix boundary shrink to contain only the existing data.
  - discard: Windows that would extend beyond the matrix boundary are discarded with the result that the output dimensions are reduced.
  - fill: Window elements that extend beyond the matrix boundary are filled with NaN values.
  - same: Window elements that extend beyond the matrix boundary are filled with the values of the elements on the matrix boundary.
  - periodic: Window elements that extend beyond the matrix boundary are filled by wrapping around the other end of each dimension.
  - number: Window elements that extend beyond the matrix boundary are filled with a specified numeric value.

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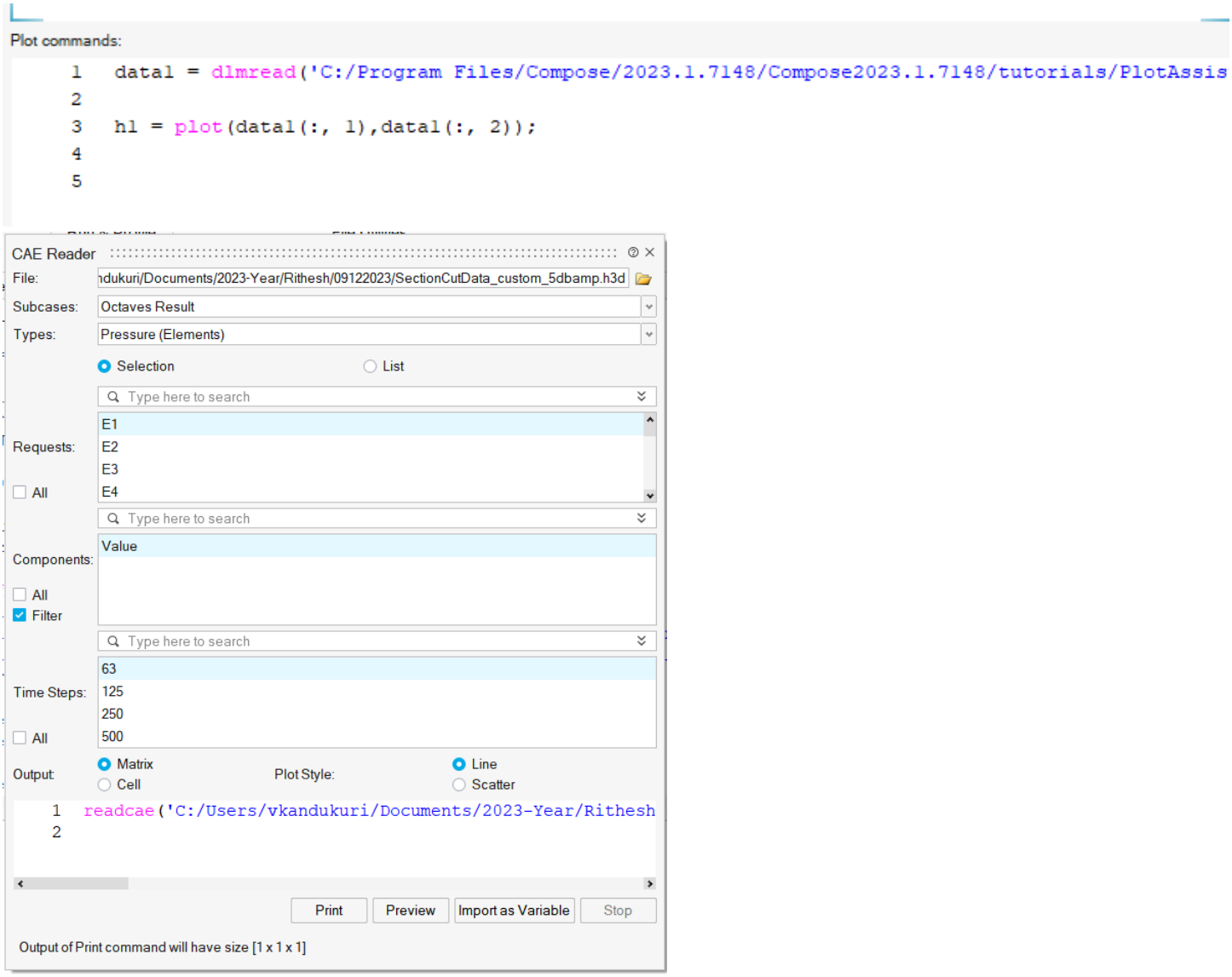
- **randi**: Return random integers in the range of 1 to user-specified number.

```
r = randi(idmax) --> returns a single random integer between 1:idmax

r = randi(idmax,n) --> returns matrix of size n X n random integers between 1:idmax

r = randi(idmax,n,m,...) --> returns matrix of size n X m random integers between 1:idmax

r = randi([idmin: idmax], ...) --> returns random integers between idmin:idmax
```

Enhancements

Enhancements for GUI Utilities

Syntax highlighting of inbuilt commands is now show in command print in Signal Viewer, Plot Assistant, CAE Reader, and HDF5 Viewer.



Resolved Issues

- tcpclient fails to check connection but crash
- cumtrapz test failures
- readtable error out reading the attach xlsx file
- Library Browser population throws up assertion in QT code
- factor command should check input argument range
- classdef < handle behavior
- dba, dbb, dbc & dbu documentation contain misleading examples
- jsondecode outputs error invalid format in argument 1
- OML crash when a function returns a handle to a function
- tcpip and udp commands are not available in console mode launched from startmenu
- tcplient NumBytesAvailable is always zero although there are bytes to be read
- PsimSimulate_HyperSpice and PsimSimulate_LTSpice commands output "ErrorMessage" even when simulation is successful
- Jupyter notebook: License setup status shows not activated even after activation is successful
- Paste multiple lines to OML window error out
- Memory leak when using function handles
- table2struct doesn't display column name correctly
- movefile command does not return error or message of move failed on windows
- Uninstall extension should remove the demo folder from demo browser
- cannot set negative figure position

* ***Applies to Standard Edition only as a paid extension***

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