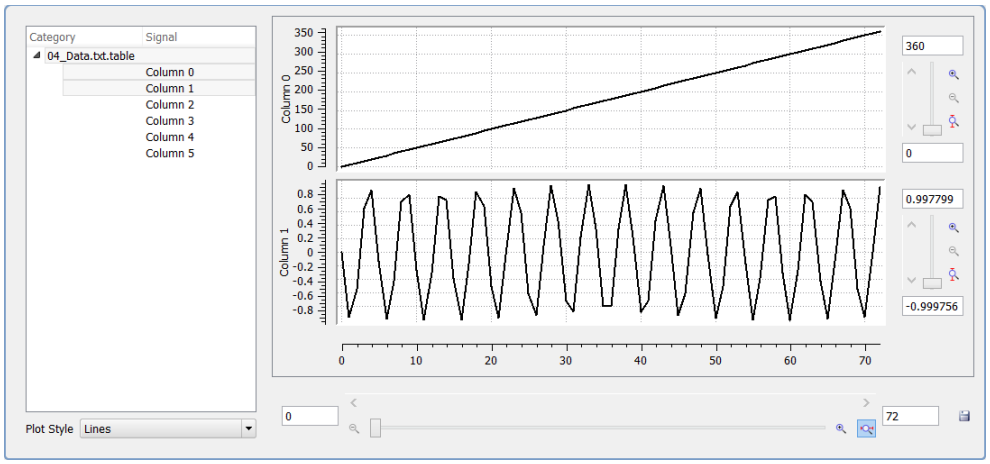
An Introduction to the Time Series Viewer

This tutorial will guide you through the process of visualizing your table data as plots.

For this purpose, we will import a simple text file that contains table data and create plots in the time series viewer. With this, you can visualize trends, make convergence plots or check whether your results oscillate.

Besides the plotting of results, this viewer functionality can also be used in a screenshot collection, e.g. store plots for each variant in design engine.

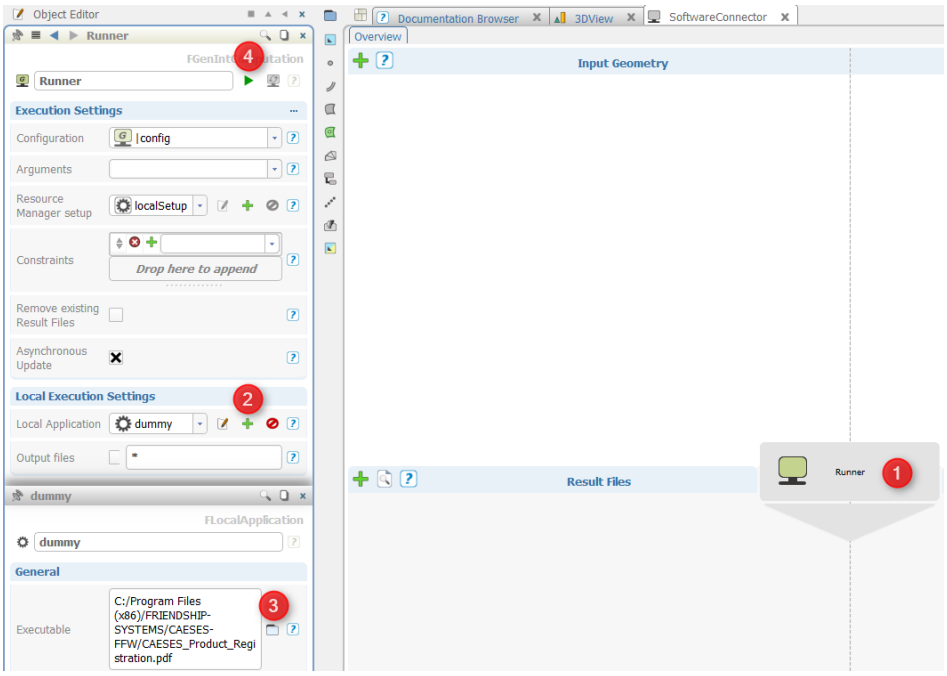


1 Dummy Application

Typically, the table data comes from an external tool. In order to quickly demonstrate this functionality, we will work with a dummy connection. With this, we can then import some table data for visualization.

- Create a *Software Connector* via *menu > optimization > software connector*.
- Click on the “Runner”.
- Click on the green “+” button to create a “dummy” application.
- Set an executable this can be either a file or any software (e.g. wordpad).
- Save the project (CTRL+S).
- Hit the *Run* button.

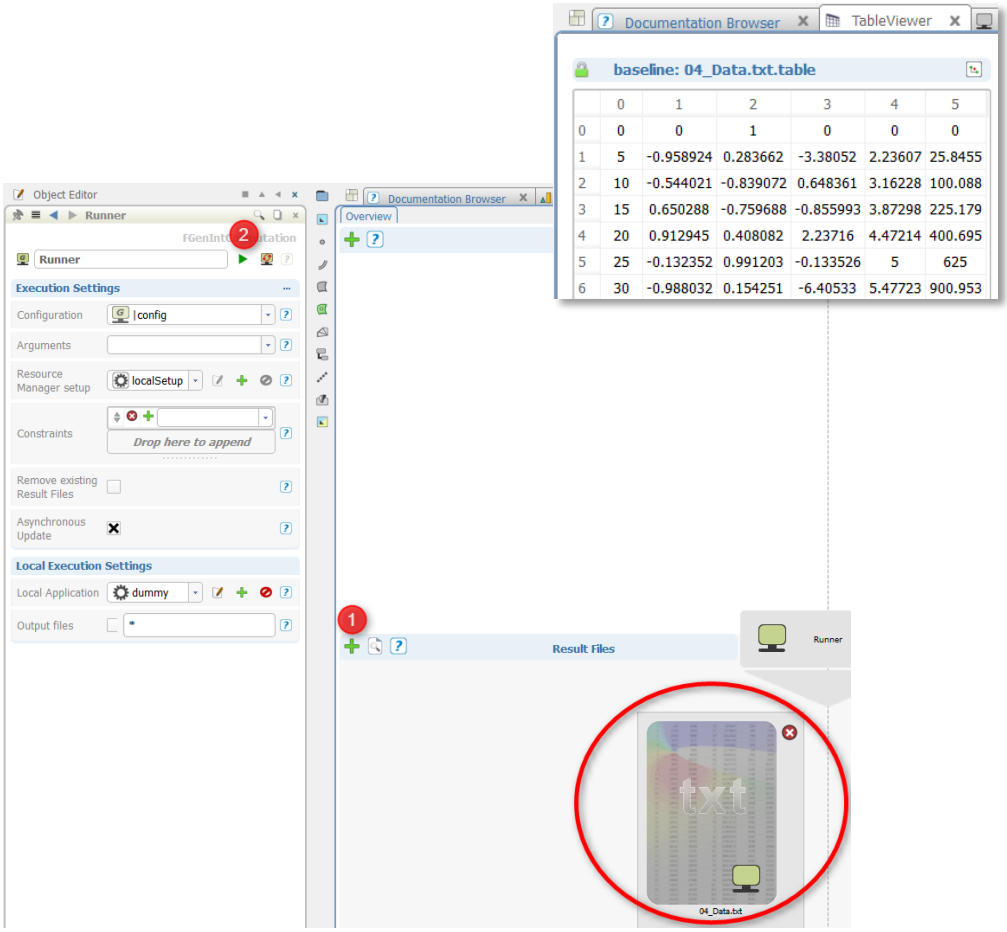
This will create the default folder structure: *myprojectname\manual_results\baseline\Runner.*



2 Set and Load the Result File

We will set and import arbitrary table data as a result file.

- An exsample result file 204_Data.txt"can be found in *CAESES\tutorials\07_learn_more.*
- Copy "04_Data.txt" to *myproject\manual_results\baseline\Runner.*
- Click on the green "+" button in the software connector (section *Result Files*) and navigate to the folder above and add the file "04_Data".
- Hit the *Run* button of the computation "Runner" again.
- Your file has been imported and is shown in the *Table Viewer.*

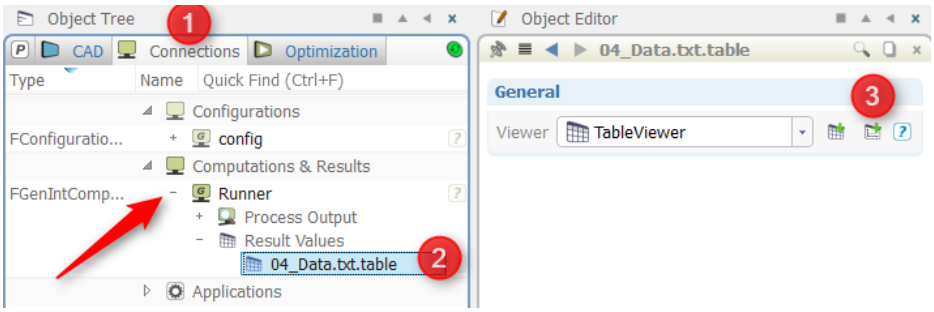


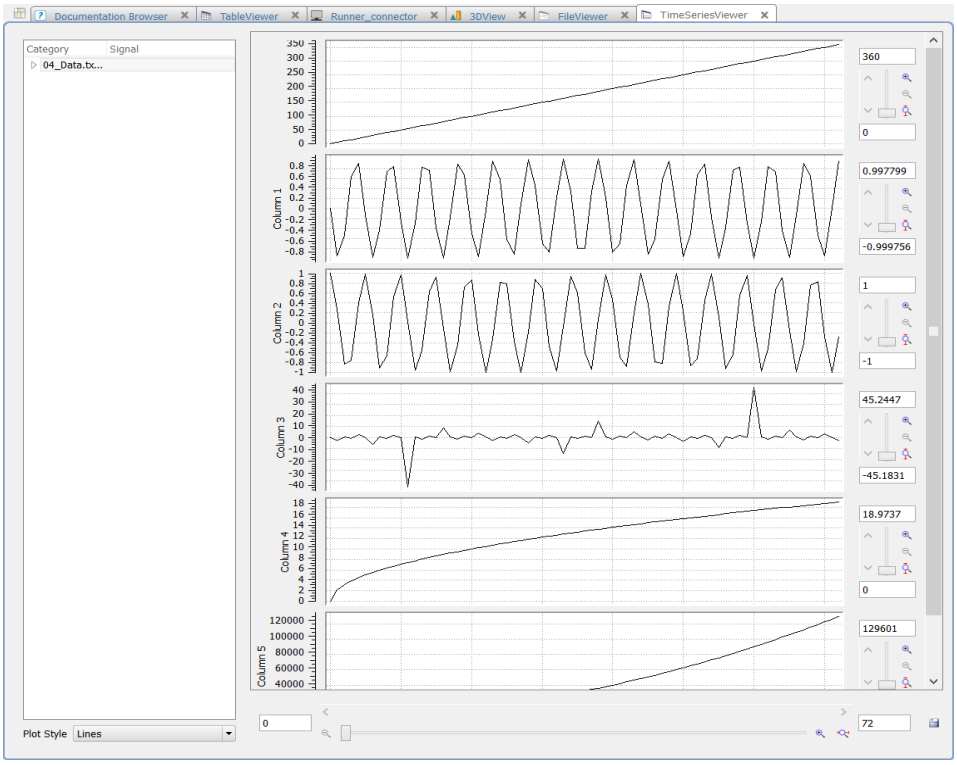
	0	1	2	3	4	5
0	0	0	1	0	0	0
1	5	-0.958924	0.283662	-3.38052	2.23607	25.8455
2	10	-0.544021	-0.839072	0.648361	3.16228	100.088
3	15	0.650288	-0.759688	-0.855993	3.87298	225.179
4	20	0.912945	0.408082	2.23716	4.47214	400.695
5	25	-0.132352	0.991203	-0.133526	5	625
6	30	-0.988032	0.154251	-6.40533	5.47723	900.953

3 Create a Time Series Viewer

In this step, we create a new time series viewer.

- Go to the *Connections* tab (1) and open all sub objects of “Runner” (click on the “+” in front of “Runner” and a second time on the “+” in front of “Result Values”).
- Click on the result table “04_Data.txt.table”. (2)
- Create a new time series viewer by clicking on the corresponding button (3).
- The time series viewer window is created and the table data plot is shown.



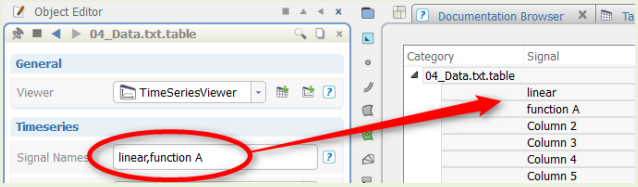


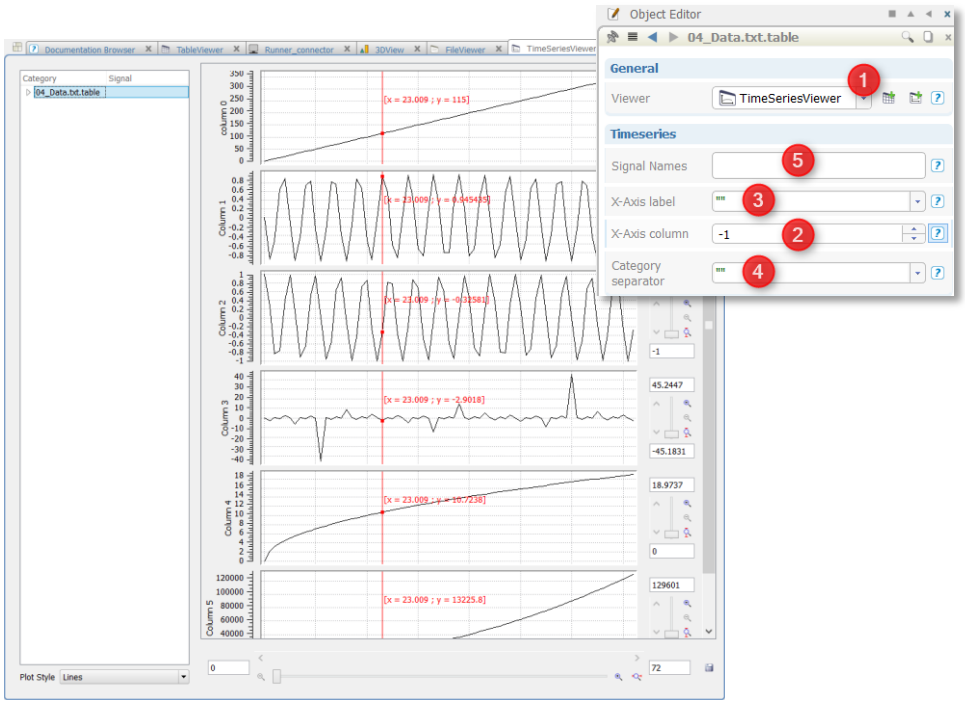
4 Configuration of the Viewer

We will change the settings of the time series viewer such as labels and x-axis plotting column.

- Each column of the table is shown in a unique plot.
- You can change the *X-axis* (1).
- Add a label for the *X-Axis* (2).
- Define your column separator (3).
- If you want to switch back to the table viewer, then simply click on the combo box and choose *Table Viewer* (4).
- You can set names for each column (5).

✓ Signal Names: The input of *signal names* is a comma separated list of strings.





5 Further Settings – Part 1

Here are some further settings of the time series viewer:

The imported result file contains 6 columns each column is represented by one column.

- If you want to visualize specific plots only, you can deactivate plots with “CTRL + LMB” (left mouse button) and to add a plot again use “LMB” (1).
- If you move your mouse cursor into a plot, you’ll see a red line along with the corresponding “X” and “Y” values for each plot (2).
- You can choose amongst several plot styles (3).
- Adjust the zoom level for all plots, save a screenshot and adjust the min and max values for each plot individually (4).

6 Further Settings – Part 2

This step illustrates how to access and change additional setting of the time series viewer.

- Right click on the *Time Series Viewer* tab (1).
- Go to *Settings* (2).
- Documentation: Simply click on the type icon (3) in the object editor, or press "F1".
- In the settings menu of the viewer, you can change the pen size for the plot style. It is also possible to change the *Plot style* (4).