

## #1275: HyperStudy – Validation run after Fit optimization

**Product:** HyperStudy

**Product Version:** HyperStudy 14.0 or above

### Topic Objective

Validation run after Fit optimization in HyperStudy.

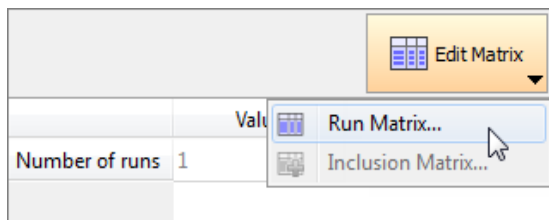
### Topic Details

You probably often make optimizations using fit approximations.

A good practice to have, when using SQP (Sequential Quadratic Programming) or GA (Genetic Algorithm) with Fit, is to perform a **Validation run** of the optimal solution.

For that, you have to do the following steps:

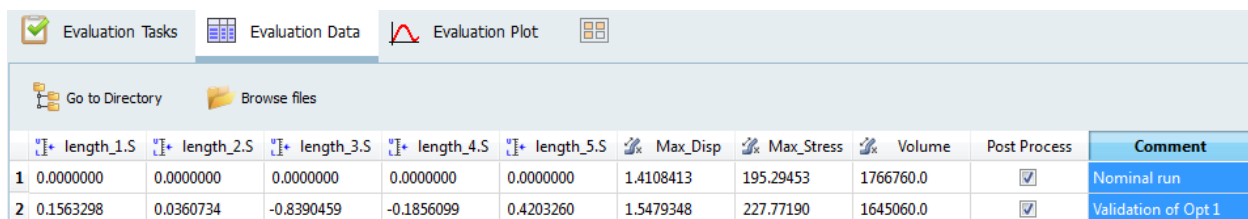
1. Copy the parameter values for the optimal solution from the Iteration history tab;
2. Go to the study Setup, Specifications step and click **Edit Matrix** à **Run Matrix** from the top-right corner of the work area.



3. In the Edit Data Summary dialog, click Add Run and paste the copied values;
4. Go to the Evaluate step and clear the checkbox in the Active column for the previous nominal run, then click Evaluate Tasks. It will launch an Exact solver run.

	Active	Write	Execute	Extract
1	<input type="checkbox"/>	Success	Success	Success
2	<input checked="" type="checkbox"/>			

Note: With version 2017.2 you can add a comment to each run in order to bring clarity to what each run represents.



The screenshot shows the 'Evaluation Data' tab in HyperStudy. The table below shows the results for two runs. Run 1 is the nominal run, and Run 2 is the validation run. The 'Active' column for Run 1 is unchecked, and for Run 2 it is checked. The 'Comment' column for Run 2 contains 'Validation of Opt 1'.

	length_1.S	length_2.S	length_3.S	length_4.S	length_5.S	Max_Displacement	Max_Stress	Volume	Post Process	Comment
1	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	1.4108413	195.29453	1766760.0	<input checked="" type="checkbox"/>	Nominal run
2	0.1563298	0.0360734	-0.8390459	-0.1856099	0.4203260	1.5479348	227.77190	1645060.0	<input checked="" type="checkbox"/>	Validation of Opt 1

5. Compare the response values provided by the exact solver with those found by the optimization.