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DesignSafe – GiD+OpenSees User Manual

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Contents

1 Running Analysis Properly

Firstly, the user should make sure that Analysis, on GiD+OpenSees Interface, runs without errors (Figure 1.1). If analysis starts normally (especially in huge models), user should stop the analysis and proceed to the following steps.

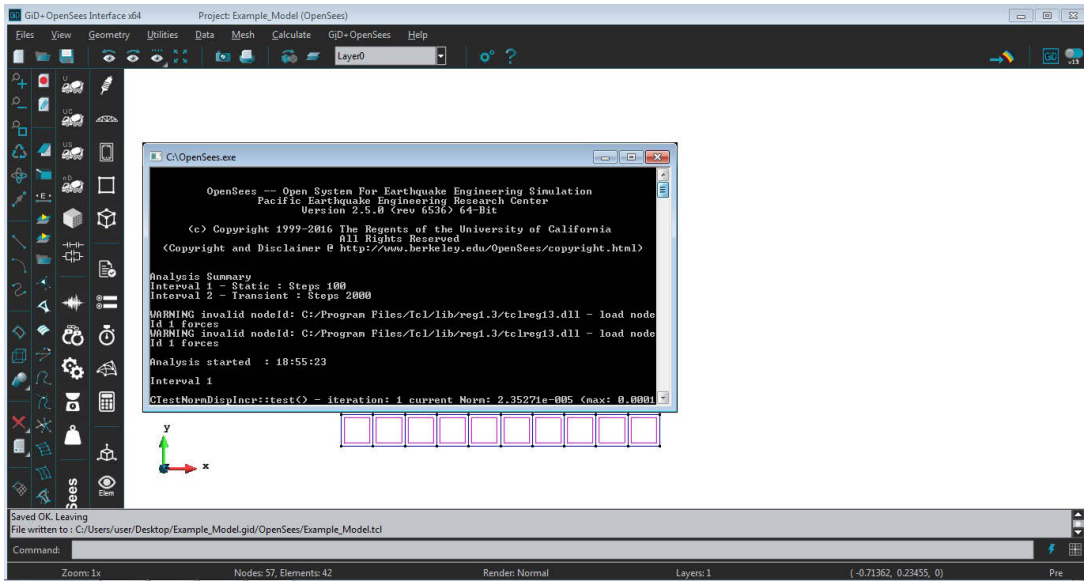
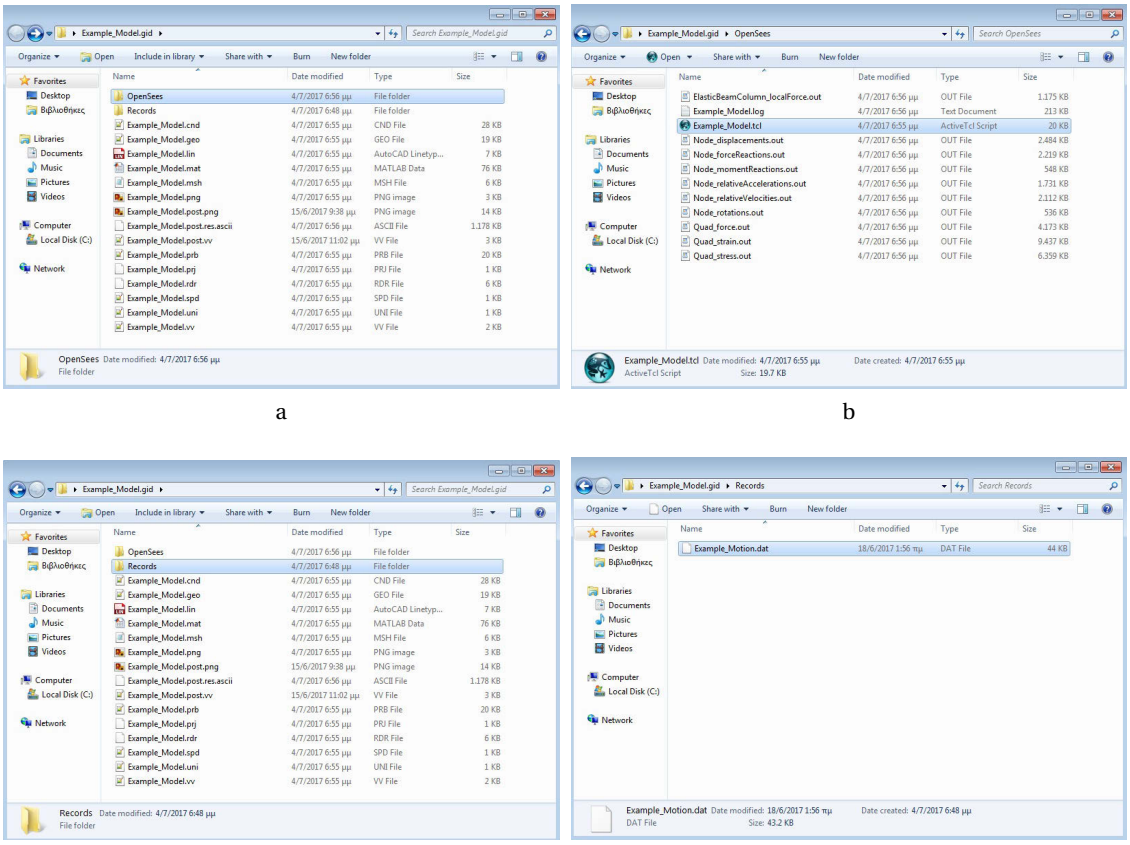


Figure 1.1: Analysis started without Errors

2 Processing Necessary Files

The model of this example is named Example_Model and is located in the Example_Model.gid folder. Two subfolders reside in that folder, the first one named OpenSees and the second one named Records (Figure 2.1a, 2.1c). As it is depicted in Figure 2.1b, 2.1d, the user copies the .tcl and .dat files, Example_Model.tcl and Example_Motion.dat respectively. Afterwards, the user creates a new folder (in that case the folder is named Example_Model_Folder) and pastes these two files in the new folder (Figure 2.2).



a b

c d

Figure 2.1: Locating and Copying Necessary Files

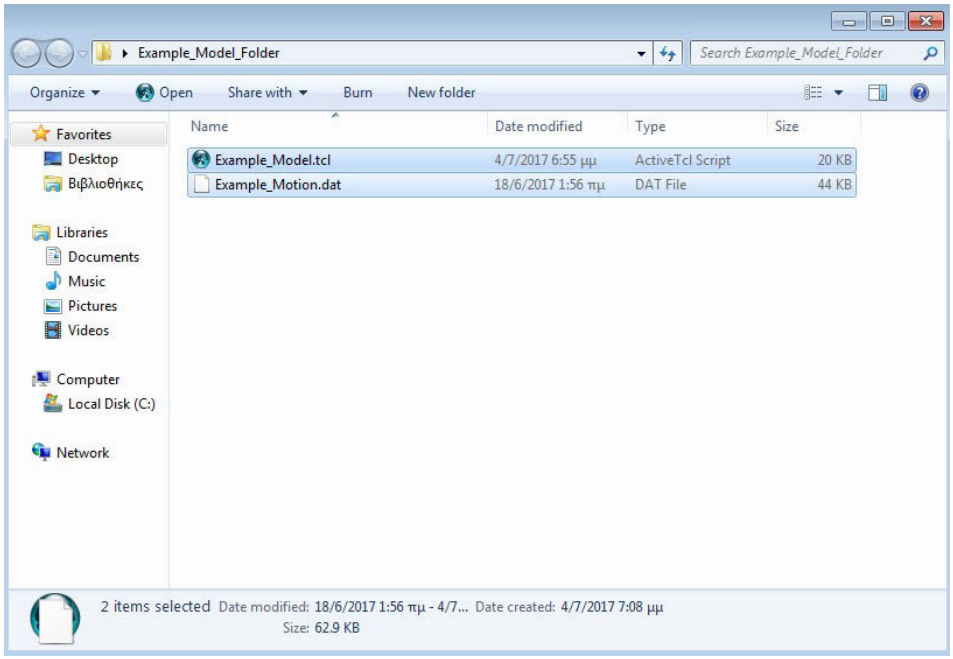


Figure 2.2: Pasting Files in the new Folder

The aforementioned folder will be uploaded to Design-Safe website, after the following modifications. The Example_Model.tcl file should be modified, as shown in Figure 2.3. The user should replace the path of the Record in that file. More specifically, the "/Records" part, from the "../Records/Example_Motion.dat" path is deleted , so that the "../Example_Motion.dat" path remains and the modified .tcl file is saved.

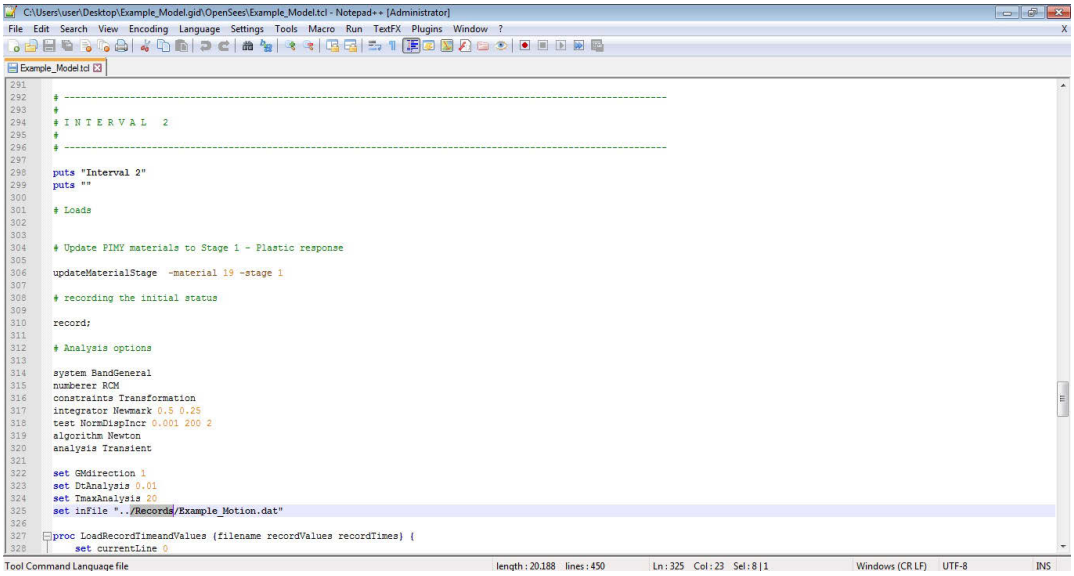


Figure 2.3: Modifying .tcl File

3 Uploading Folder in Design-Safe Website

After visiting http://www.designsafe-ci.org/, the user should initially create a new account. As illustrated in Figure 3.1, the "Data Depot" option should be chosen from the "Research Workbench" tab.

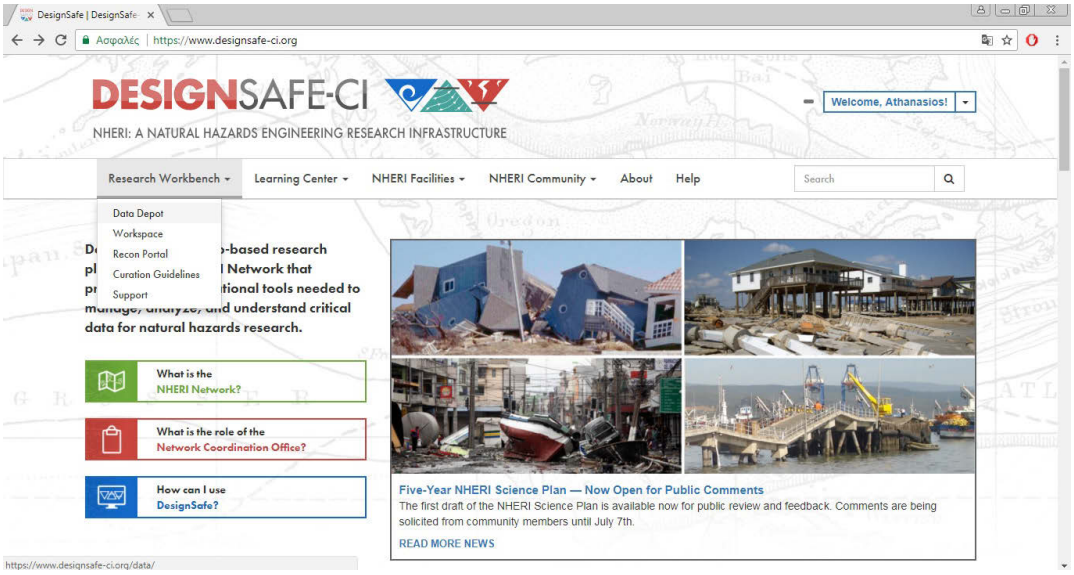


Figure 3.1: Data Depot Option

The user should now upload the Example_Model_Folder by clicking "Add" and selecting the "Folder upload" option (Figure 3.2). After the folder selection, a window appears, which should display the files contained in the uploaded folder (Figure 3.3). If these files are the desired ones, the user can proceed to the "Begin upload" option.

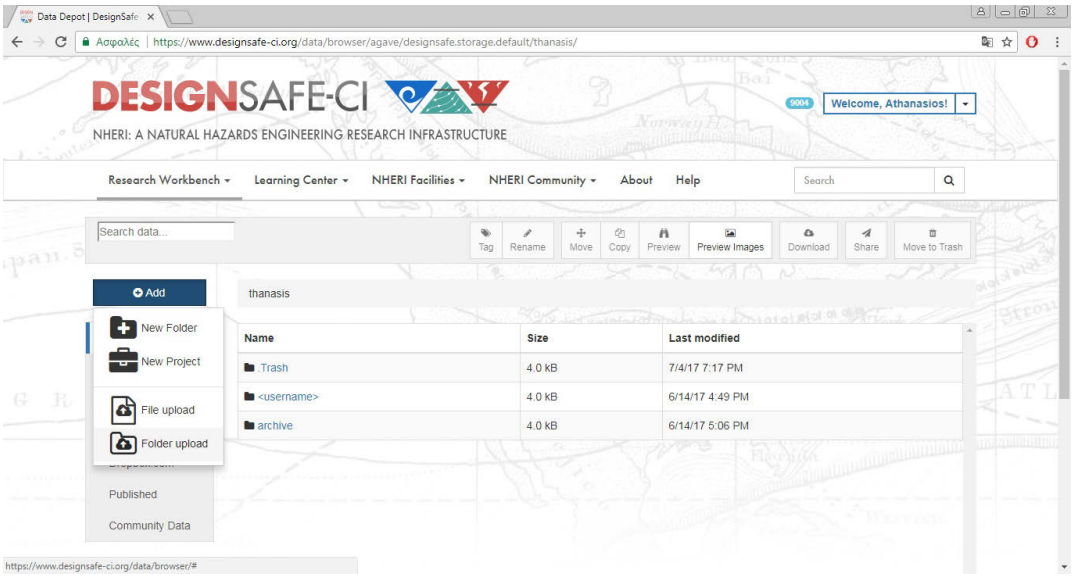


Figure 3.2: Folder Upload

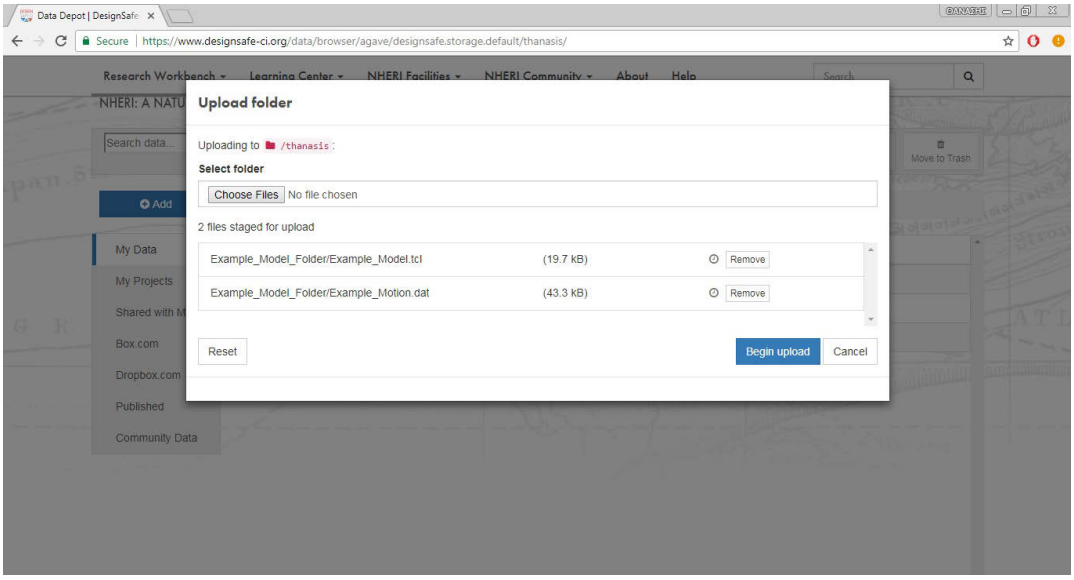


Figure 3.3: Specified Files Upload

4 Submitting Analysis

Provided that the files are uploaded successfully the user should now proceed to the next step. As shown in Figure 4.1, the "Workspace" option should now be chosen from the "Research Workbench" tab.

Regarding OpenSees, three choices are available:

- OpenSeesSP: For Performing analysis of very large models.
- OpenSeesMP: For Performing parameter studies or analysis of large models with user defined partitions
- OpenSees-EXPRESS:

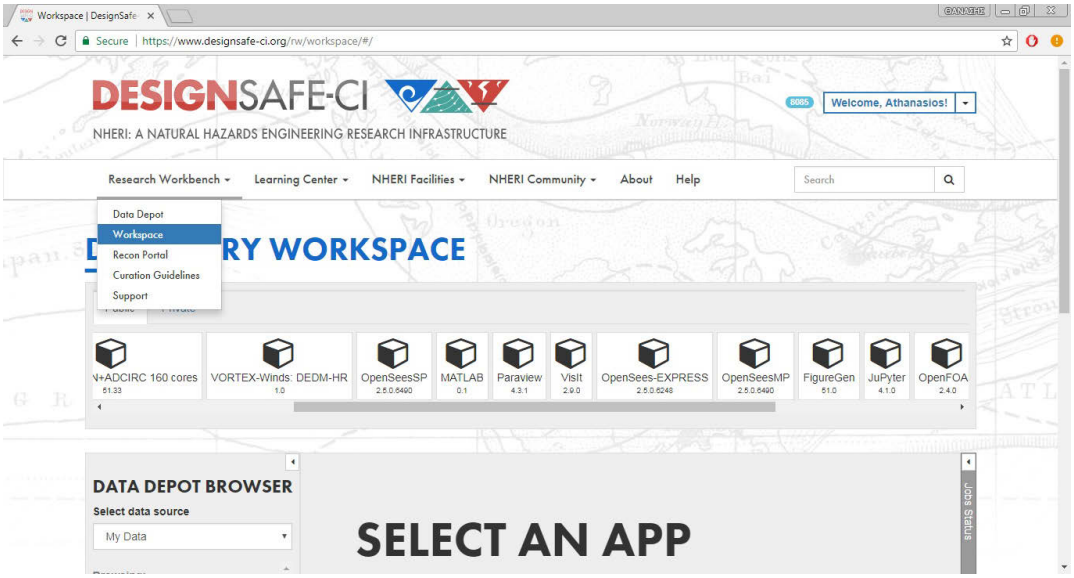


Figure 4.1: Workspace Option

In that case the OpenSeesSP option is chosen (Figure 4.2).

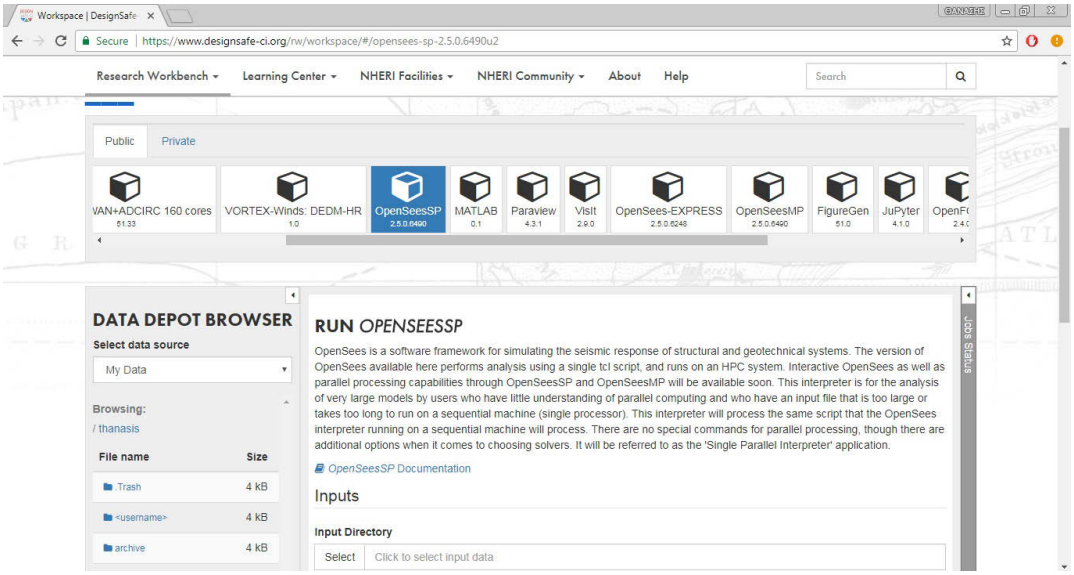


Figure 4.2: OpenSeesSP Option

In order to submit the necessary files for the analysis, the user should complete five fields. Firstly, the desired file is selected for the "Input Directory" field (Figure 4.3). Secondly, the filename only of the OpenSees .tcl script is filled in the "TCL Script" field.

Afterwards, the user should provide the "Maximum job runtime" of the analysis. If the user is unaware of the expected runtime, it is recommended to use the limit of 48 hours. If the analysis runtime **exceeds** the provided one, the analysis will **stop**. The last two fields are user defined, in order to be easily recognized (Figure 4.4)

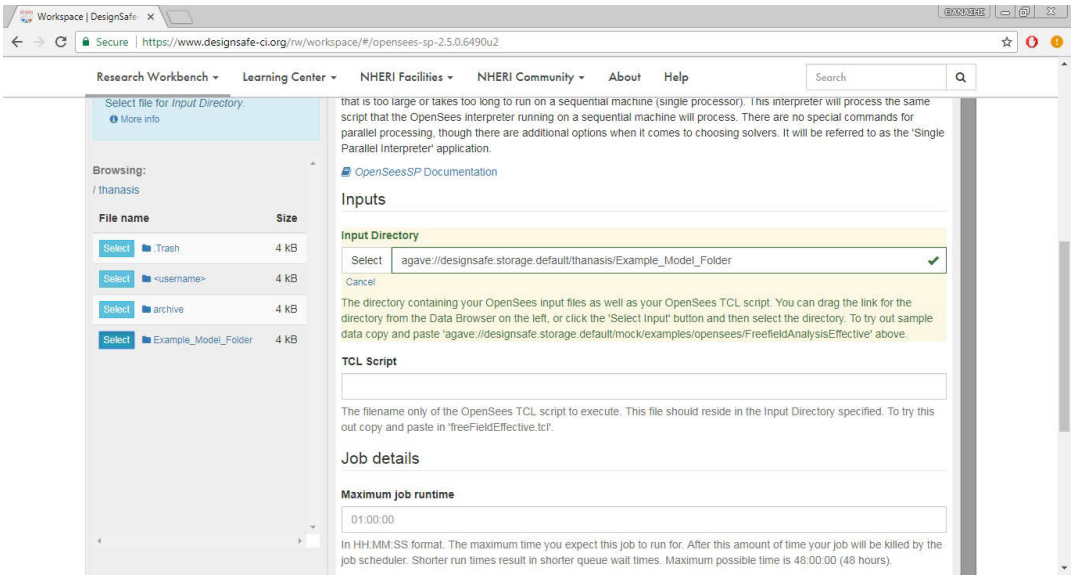


Figure 4.3: Completion of Job Fields (a)

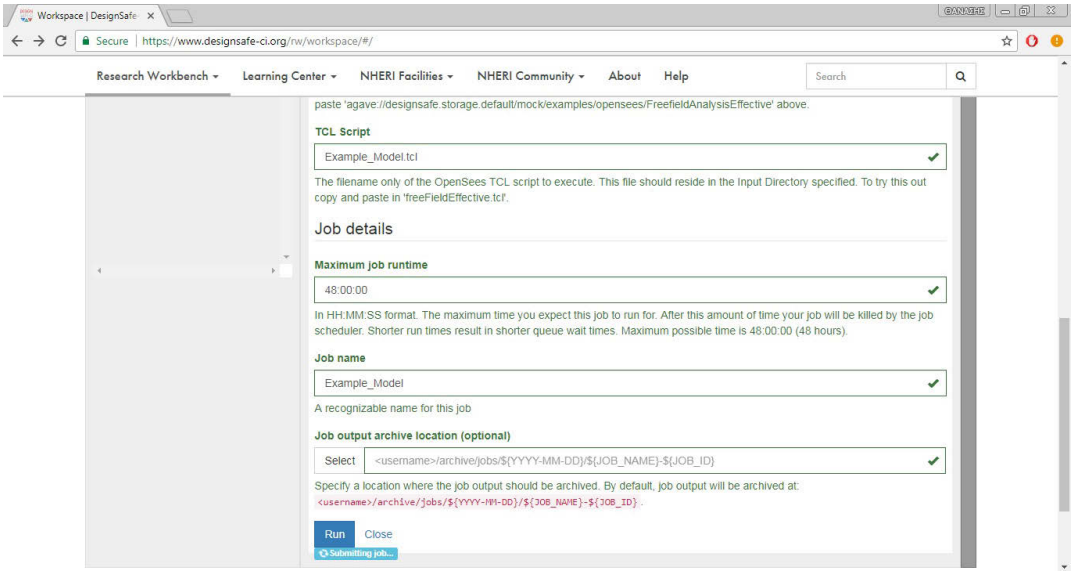


Figure 4.4: Completion of Job Fields (b)

Following the completion of the fields, the user should click "Run" and shortly after, an up-

date regarding the status of the analysis will appear, as portrayed in Figure 4.5.

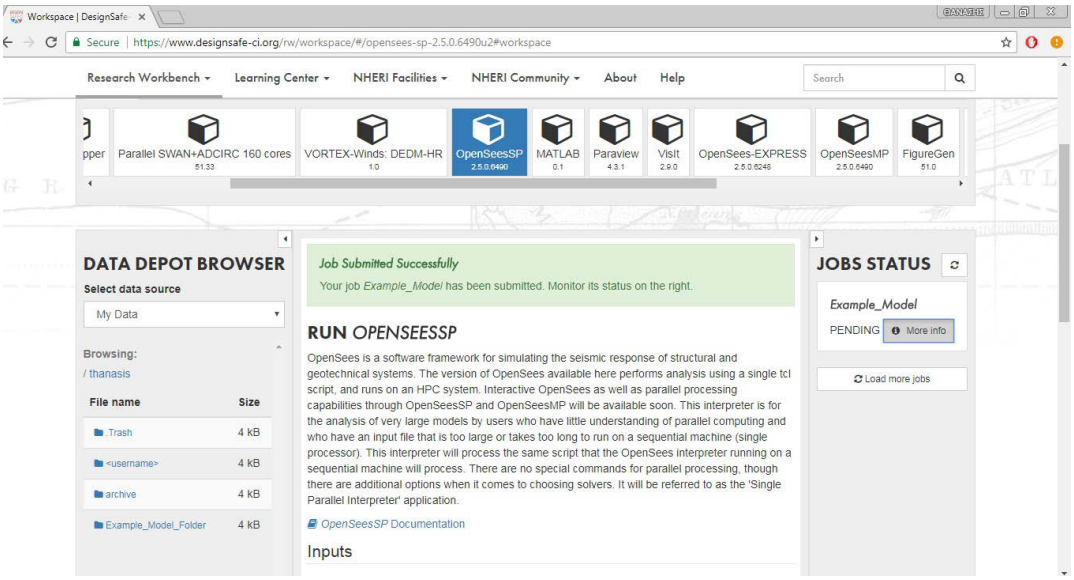


Figure 4.5: Job Submission

5 Downloading Output Files

By clicking on "More info", when the "JOB STATUS" is "FINISHED", the user should choose to "View" the output in the window that appeared (Figure 5.1). In the directory that appears (Figure 5.2), the user chooses the desired folder (in that case Example_Model_Folder).

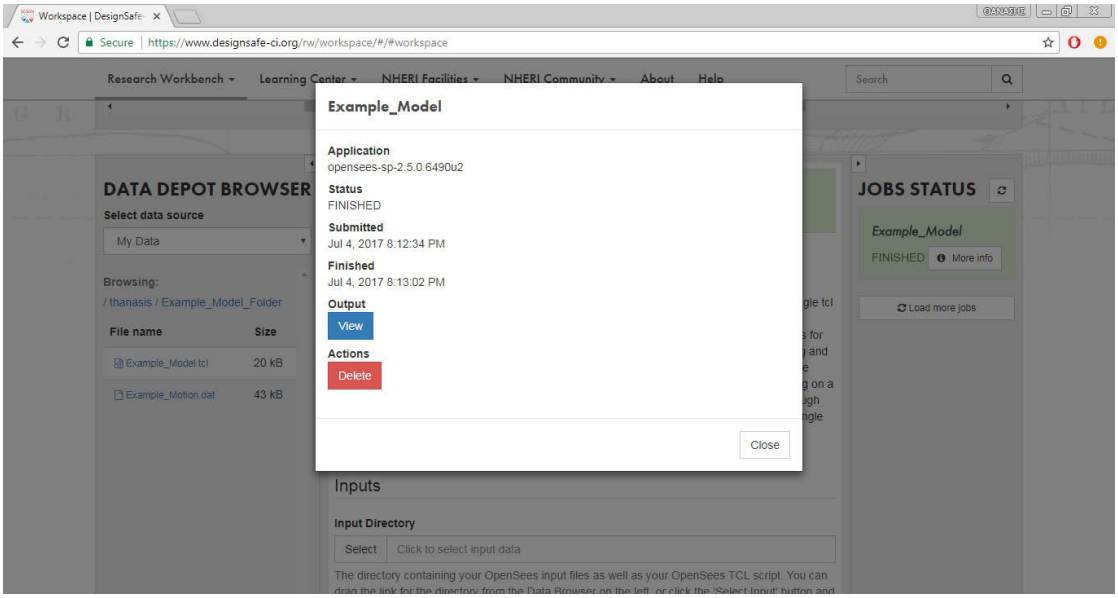


Figure 5.1: Job Finished

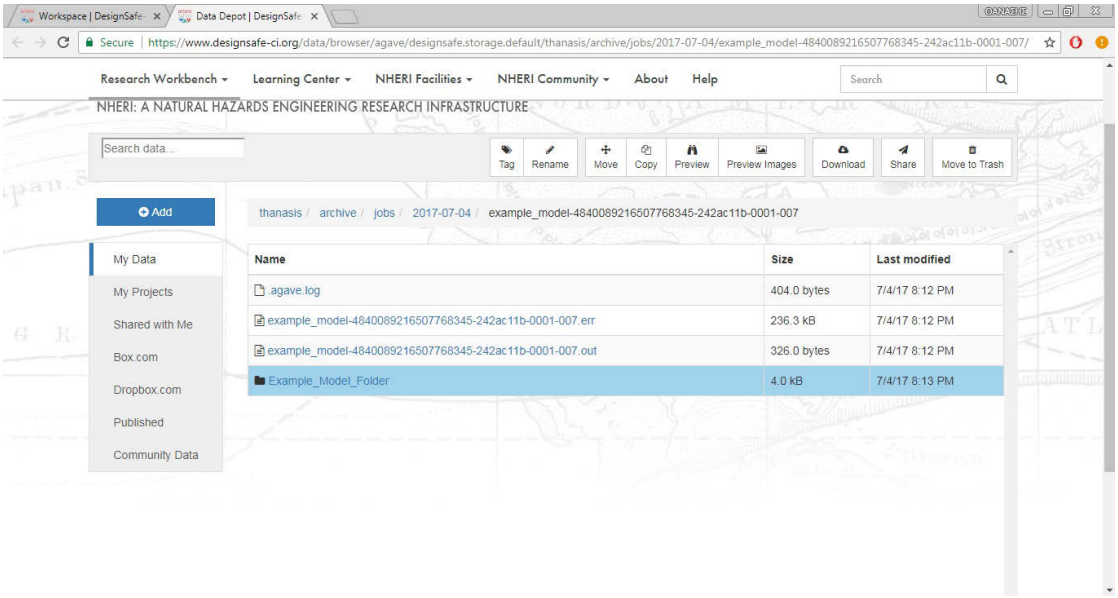


Figure 5.2: Jobs Directory

Consequently, the user should save the generated files, which are the .out files and the .log file (Figure 5.3).

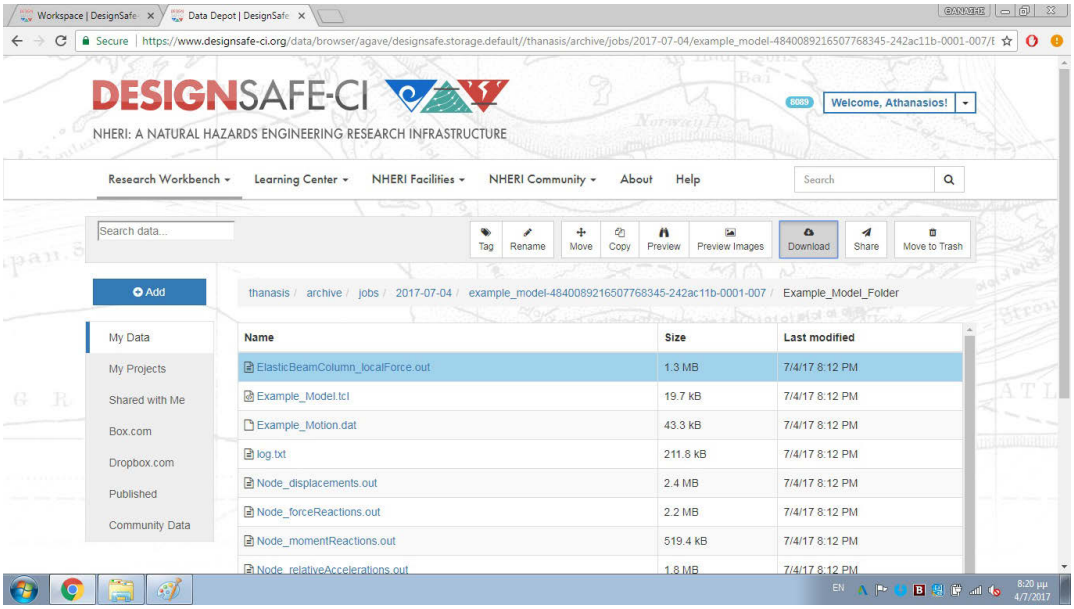


Figure 5.3: Analysis Generated Files

As depicted in Figure 5.4, these files should be saved in the .gid folder (in that example Example_Model.gid) and more specifically, in the OpenSees subfolder residing in the .gid folder (Figure 5.5).

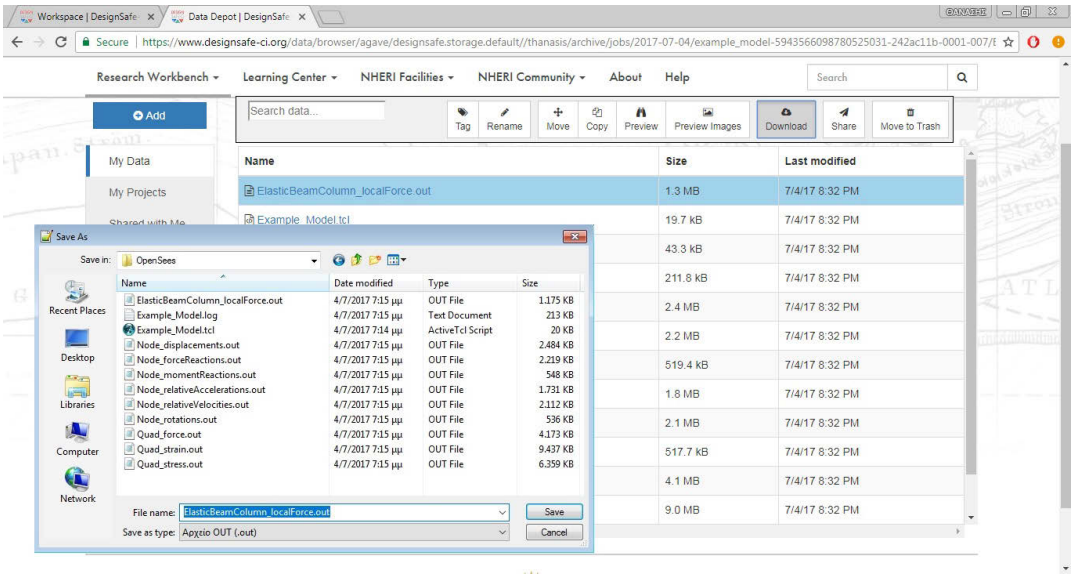


Figure 5.4: Saving Generated Files

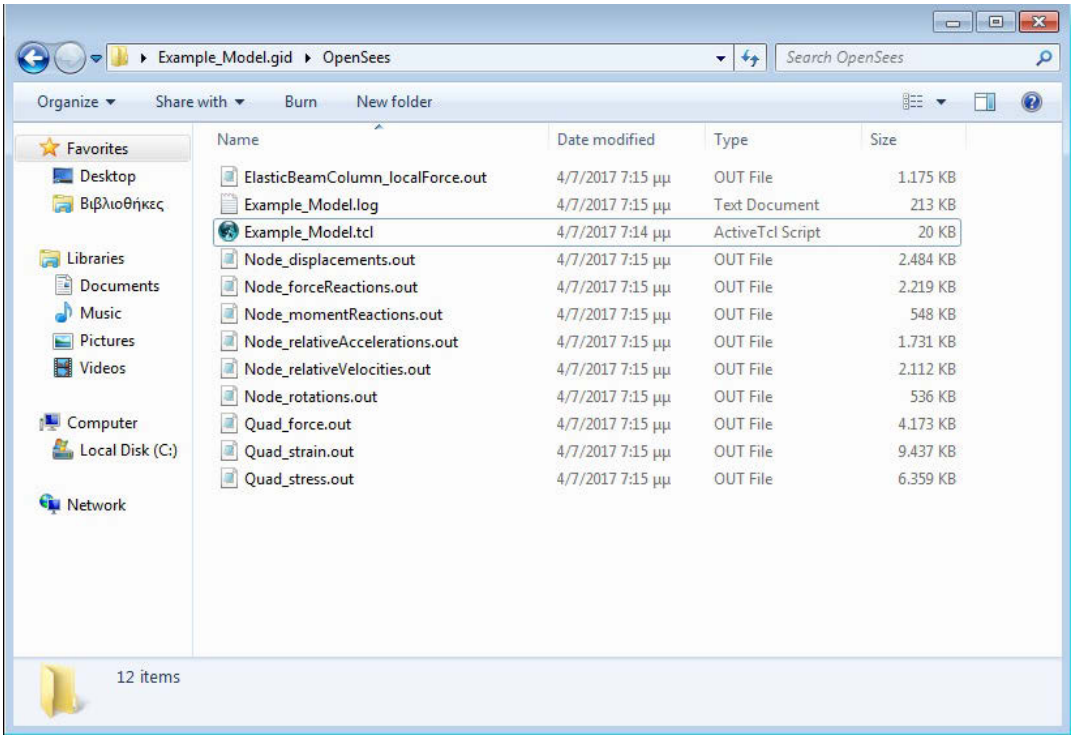


Figure 5.5: Final .gid Folder Status

6 POSTPROCESSING

In the final stage, it is now feasible to proceed to postprocess in the GiD graphical environment. Specifically, from the "GiD+OpenSees" tab the "Postprocess only" option should be selected (Figure 6.1).

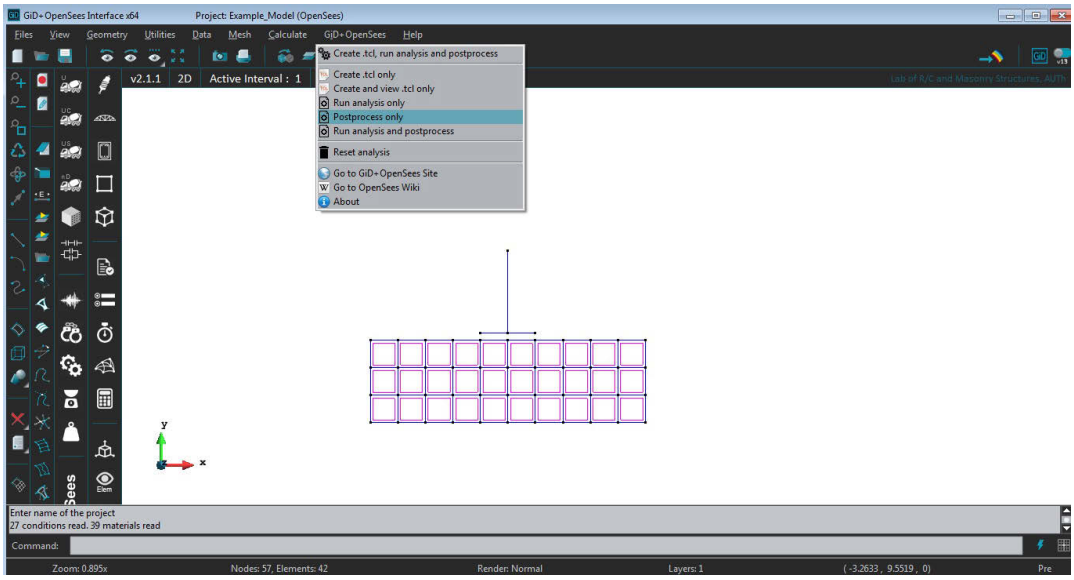


Figure 6.1: Postprocess Only Option

Finally, results of the Example_Model, which were generated following the aforementioned procedure, are demonstrated in the following Figures.

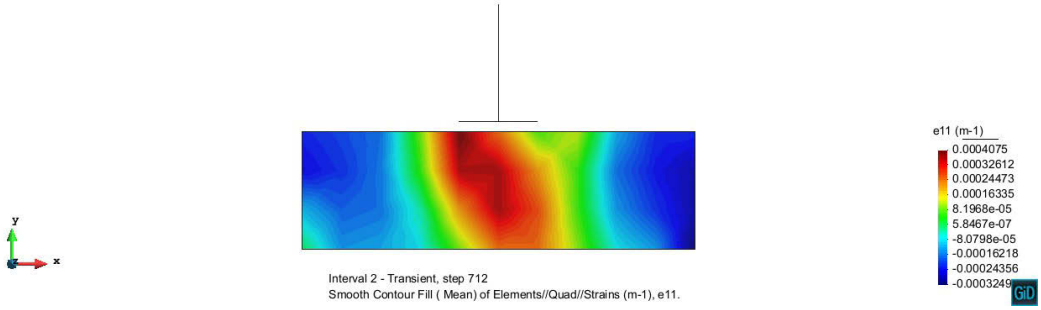


Figure 6.2: Smooth Contour Fill of Quad Strains

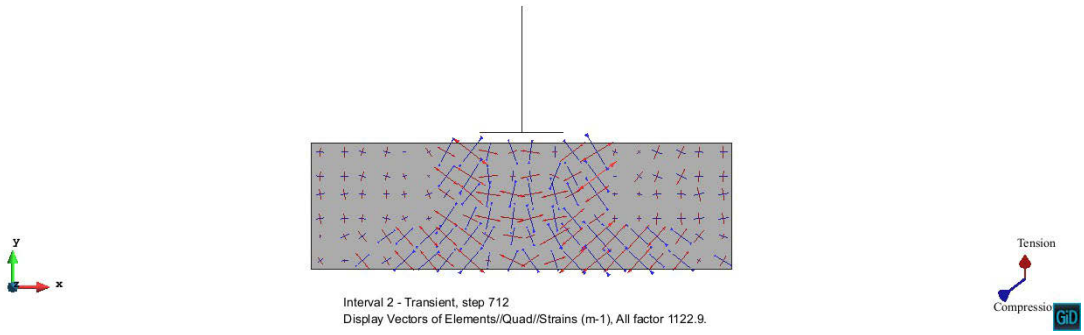


Figure 6.3: Vectors of Quad Strains

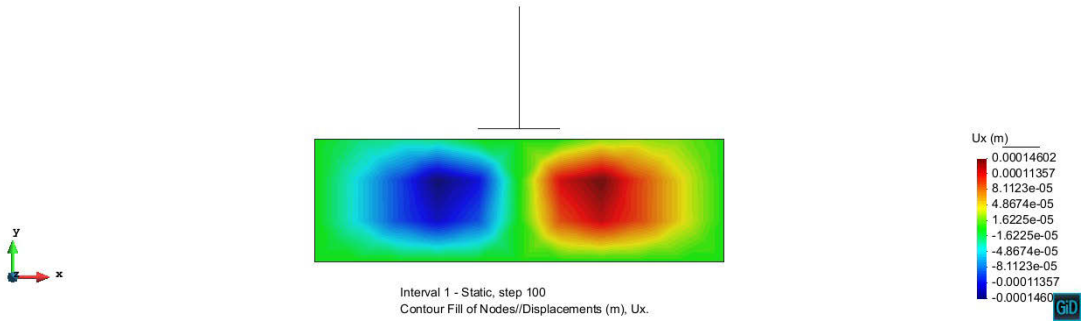


Figure 6.4: Contour Fill of Horizontal Displacements

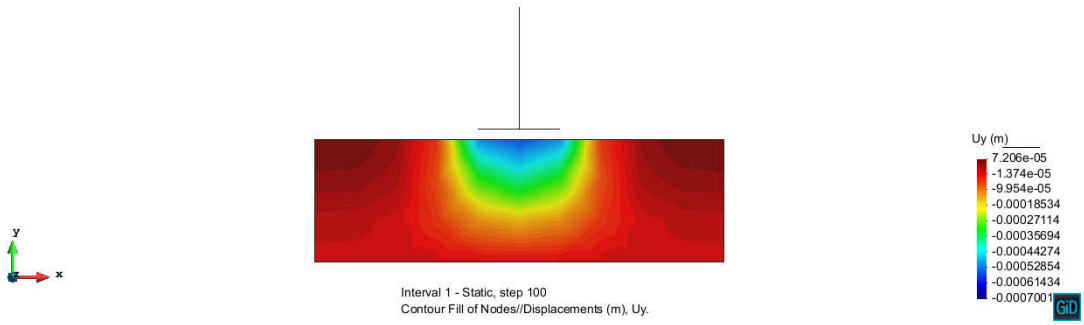


Figure 6.5: Contour Fill of Vertical Displacements