Knowledge Base

(?) **Abaqus/CAE plug-in application to visually compare results from two output databases**

Portfolio / Domain: SIMULIA Abaqus Unified FEA / n/a
Product: n/a

QUESTION   **I am testing a model and have two output databases. I would like to compute and plot the difference between the two sets of results. Is there a tool in Abaqus/CAE to do such task?**

ANSWER   (The following applies to Version 6.7 and higher)

An Abaqus/CAE plug-in application for this purpose is attached below. The plug-in computes and contour plots the difference in a specific field output variable for the two output database (.odb) files you select.

Installation

To install the plug-in, save the attached archive file to one of the following directories:

abaqus_dir\abaqus_plugins where *abaqus_dir* is the Abaqus parent directory

home_dir\abaqus_plugins where *home_dir* is your home directory

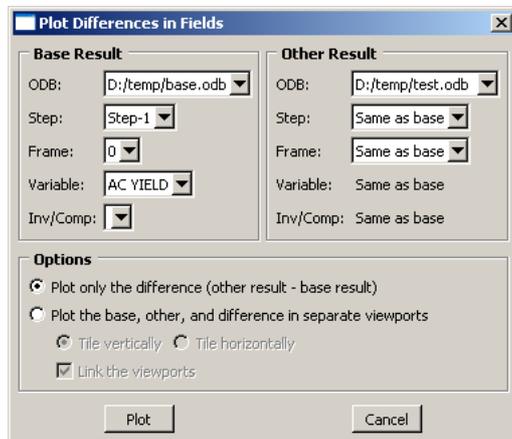*current_dir*\abaqus_plugins where *current_dir* is the current directory

Note that if the abaqus_plugins directory does not exist in the desired path, it must be created. The *plugin_dir* directory can also be used, where *plugin_dir* is a directory specified in the abaqus_v6.env file by the environment variable **plugin_central_dir**. You can store plug-ins in a central location that can be accessed by all users at your site if the directory to which **plugin_central_dir** refers is mounted on a file system that all users can access. For example, plugin_central_dir = r'\\fileServer\sharedDirectory'

On Windows platforms, right click on the archive file and select **WinZip** → **Extract to here**. On Linux platforms, type **unzip fieldDiffer.zip** at the command prompt. A folder named abq_FieldDiffer and a file named fieldDiffer_plugin.py will be extracted. Note that the plug-in will not function properly if this procedure is not followed.

Usage

The plug-in requires that at least two .odb files be open. We will refer to one as the base result, and the other as the test result. The difference is computed as the test result subtracted from the base result.

From Visualization module, select **Plug-ins → Visualization → Plot Differences in Fields...** to open the following dialog:

Browse to select the base and test .odb files. Select the appropriate step, frame, variable and invariant/component for each .odb. In the **Options** pane, select if only the difference should be plotted, or if the base result, test result and difference should be plotted in separate viewports.

Notes

1. The difference in the chosen field variable will be contour plotted on the undeformed model shape.

2. The difference in the chosen field variable will be calculated first from the field (tensor) difference. The invariants are then calculated from this difference.

3. The intended use of the plug-in is to compare two sets of results from the same model. If the number of elements or element types are different, an error message will be issued.

4. The plug-in uses a scratch output database to hold the temporary values. After the difference computation is completed, a step named "Field Differences" will appear in the list of available steps when you select **Results → Field Output → Step/Frame....** Each difference result will be stored in this Step and listed in the associated **Output Variable** portion of the **Field Output** dialog box.

Revision History

| 18 Mar 08 | Release of Version 1.1-1 |
| 13 May 11 | Release of Version 1.1-2. Fix add frame bug. |

Disclaimer

The attachments to this article are subject to certain usage conditions. Please click here for details.

KEYWORDS

plot, plug-in, load, difference, odb, output, database, field, visualize, visualization,, 3640

ATTACHMENT

fieldDiffer.zip   Answer_3640_Fig1.png

SUBSCRIBE TO
CHANGES

RATING

On a scale of 1-5, how would you rate the technical content of the article?

Please rate this article...

LET US KNOW
IF THIS ARTICLE
NEEDS TO BE
ENHANCED

UNCLEAR   MISSING INFO   DUPLICATE   OUT OF DATE   ERROR DETECTED

MY FAVORITE CONTENT