



pdfPost Tutorial

pdfPost & ANSYS Workbench extension (v3) for starters.

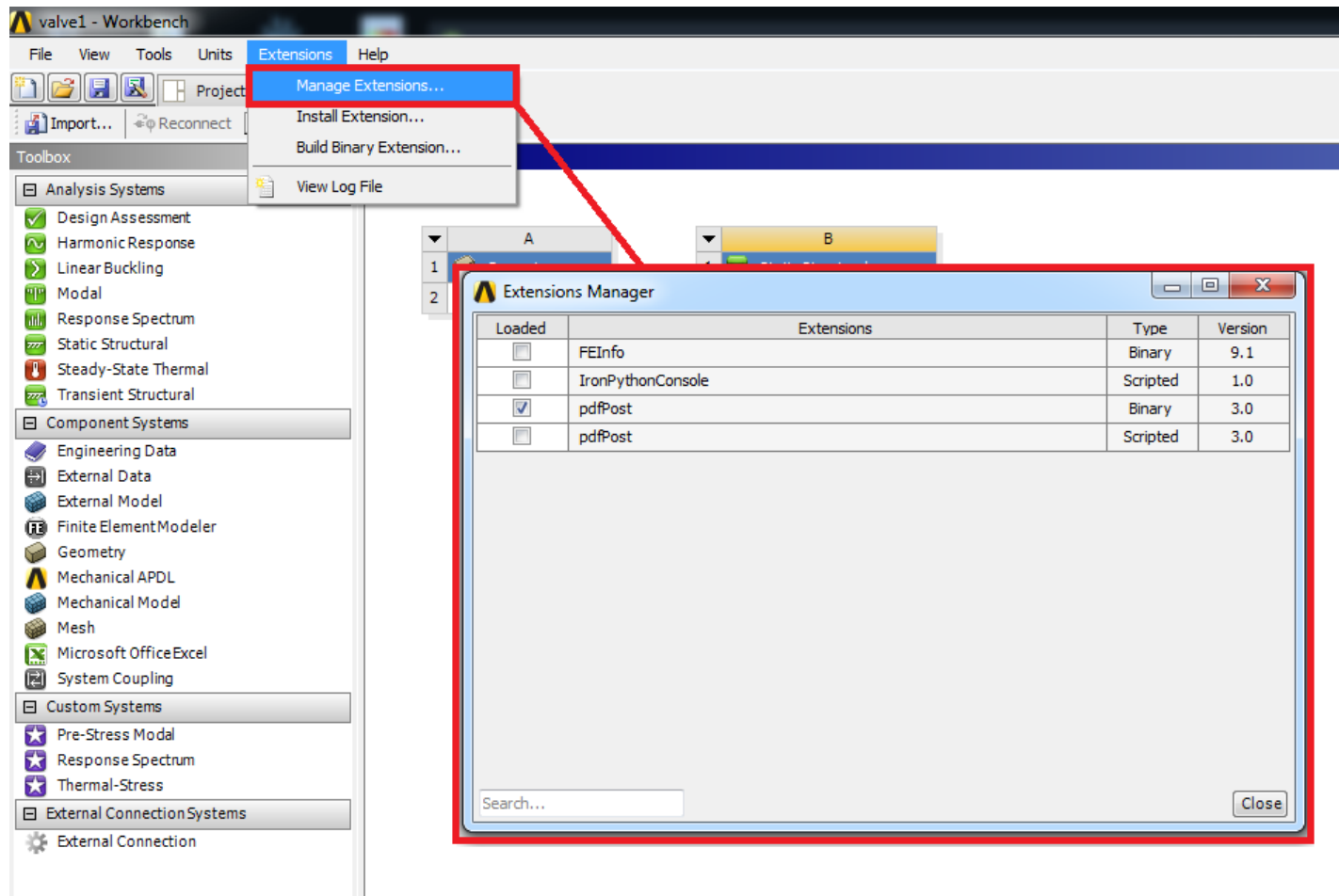
This tutorial shows how to convert ANSYS Mechanical simulation data to 3D PDF using pdfPost and ANSYS Mechanical ACT extension. Our goal is, to create PDF document with valve geometry and three 3D result plots. First one, showing elemental mean equivalent stress, second one showing averaged maximum principal stress and third one, showing total deformation. Final 3D plots are attached at the end of this document. We hope, that following tasks will be clear after this tutorial:

- how to check, enable and install ACT plug-in in Workbench environment;
- how to use basic features of pdfPost plot result object in ANSYS Mechanical environment;
- how to export ANSYS Mechanical data to pdfPost;
- how to create 3D PDF document;



1. Plug-in installation

- Unzip "valve1.zip" file to desired location.
- Run "valve1.wbpi" in ANSYS Workbench 15.0 or higher.
- Check, if ANSYS Workbench plug-in is installed on your system by selecting "Manage Extensions" from "Extensions" top menu.



- If the plug-in is not installed, use "Install Extension..." from "Extensions" top menu and select pdfPost plug-in file (*.wbex).

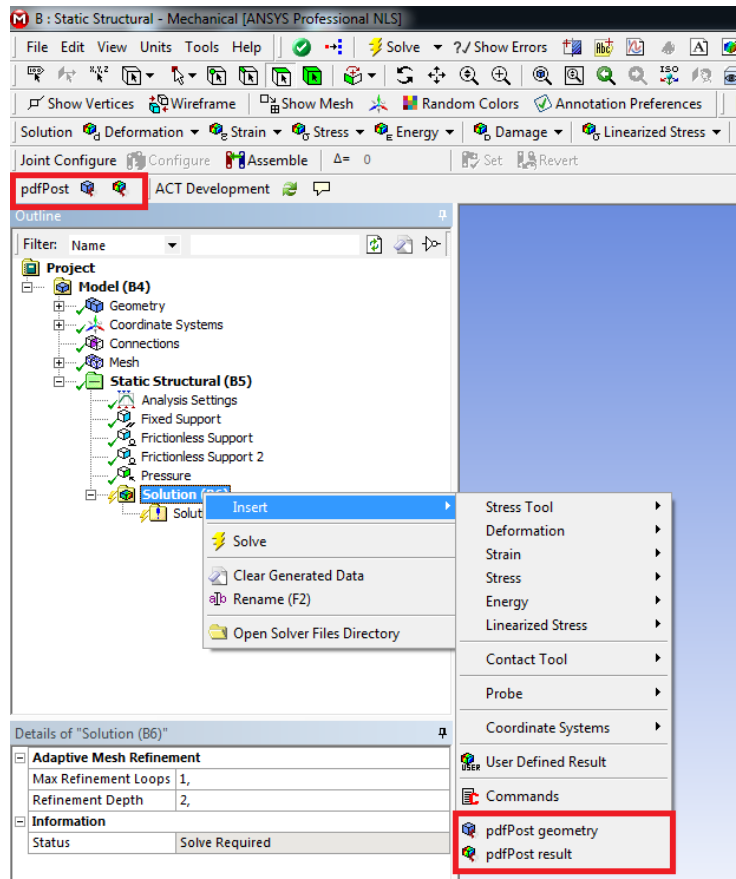


2. pdfPost geometry and result objects

a. pdfPost has two result objects

"pdfPost geometry" which represents overall PDF document with the corresponding geometry definition (elements, nodes and components) and "pdfPost result" which represents result object (single page within 3D PDF document).

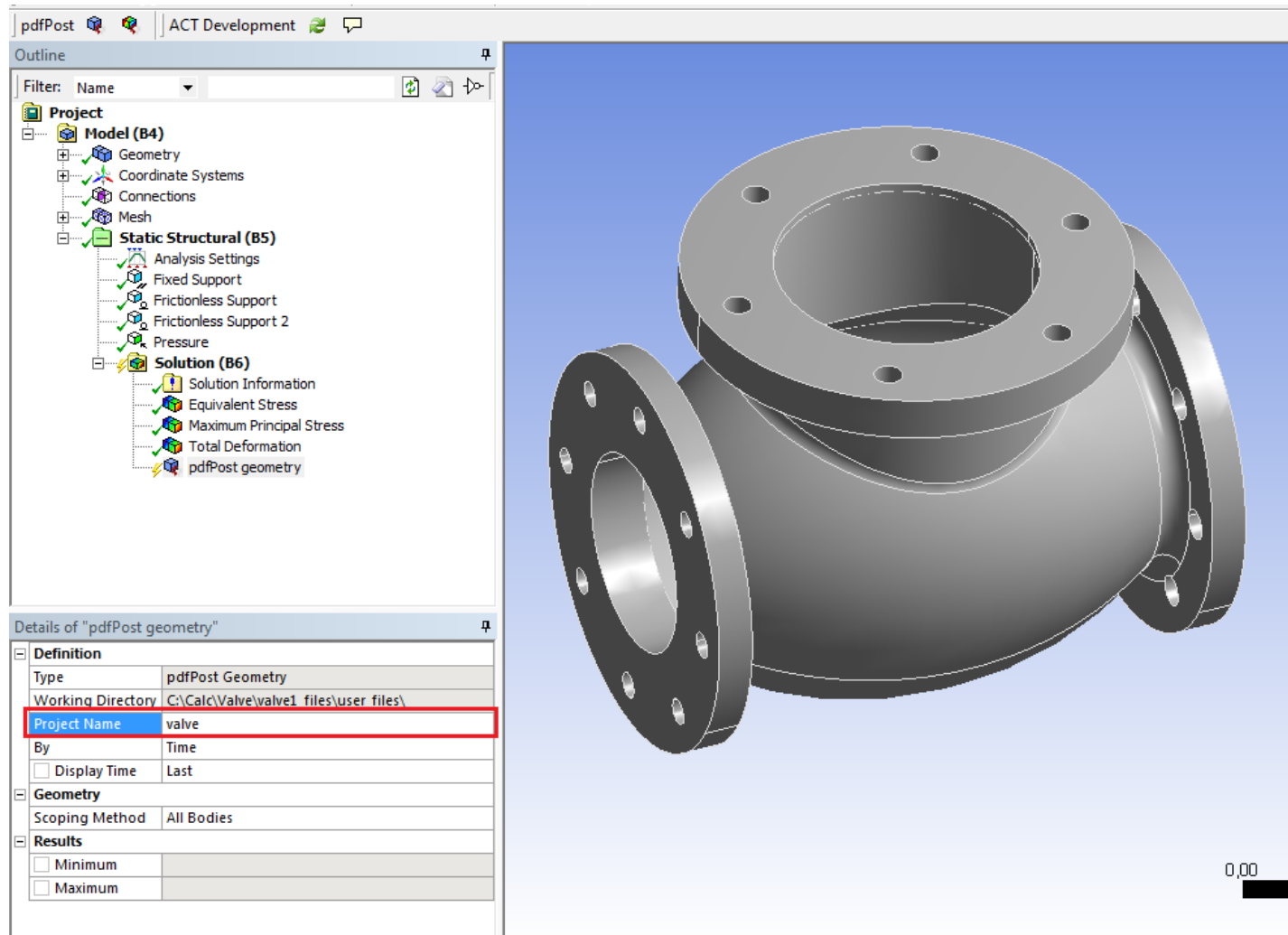
b. pdfPost objects can be accessed from pdfPost extension toolbar and from "Solution" context menu.



c. Multiple "pdfPost result" objects can be assigned to a single "pdfPost geometry" object to create multi-page result documents.



- d. Create desired result objects, ex. Equivalent Stress (Integration Point Result -> Display Option -> Elemental Mean), Maximum Principal Stress and Total Deformation. Evaluate the results.
- e. Create "pdfPost geometry" object. Set the project name property as "valve".





- f. Add "pdfPost result" object. From drop-down "Object to export" list select "Equivalent Stress" object. From "Select geometry" drop-down list select "pdfPost geometry". Set the "Extension" property to "vonm". A number of additional plot options can be set.

Details of "pdfPost result"

Definition	
Type	pdfPost Result
Object to export	Equivalent Stress
Select geometry	pdfPost geometry
Working Directory	C:\Calc\Valve\valve1_files\user_files\
Project Name	valve
Display Option	Averaged
Extension	vonm
By	Time
<input type="checkbox"/> Display Time	Last
Geometry	
Scoping Method	All Bodies
Options	
Displacement Scale	0
Plot Title	pdfPost trial document
Plot Description	Equivalent Stress [MPa]
Plot Footer	Created with pdfPost and ANSYS Mechanical e...
Default View	Top
Render Mode	SolidOutline
Vertical Axis	Z
Results	
<input type="checkbox"/> Minimum	
<input type="checkbox"/> Maximum	

- g. Repeat step "f" with "Maximum Principal Stress" and "Total Deformation". For "Total deformation", set the "Displacement Scale" property to 1000. Evaluate the results.



- h. Open pdfPost, read the XML file created in working directory (check "Working Directory" property) and run the conversion. PDF document will be created in working directory.

3. pdfPost customization

- a. User can further customize plots within pdfPost:
 - i. color legends (predefined or custom);
 - ii. geometry hierarchy (groups of components);
 - iii. 3D background color, 3D emissive color;
 - iv. Manual color-value settings, independent bands (top & bottom);
 - v. Custom PDF page layout;
 - vi. Displacement and value scale factors;

4. Remarks

- a. Averaged and Unaveraged results are not displayed within ANSYS "pdfPost result" objects yet.
- b. Source result objects need to be evaluated before evaluating "pdfPost result" objects.
- c. If number of pages in PDF document is different than number of "pdfPost result" object, user should run "Clear Generated Data" for all pdfPost objects and evaluate results again.
- d. Users without pdfPost license can use free commercial pdfPostLite (<http://www.bpsolutions.com.pl/pdfpost/pdfpost-lite-free/>)
- e. Extension and pdfPost are being provided to user "as is" without warranty of any kind. Problems and errors may be reported at pdfpost@bpsolutions.com.pl.

pdfPost
LITE



BP SOLUTIONS

pdfPost converter 1.5

MESCO

ANSYS ANSYS
Channel Partner

ANSYS Mechanical Plug-in
in cooperation with MESco

Click to activate 3D content



N/A

0.534



7.505



14.477



21.449



28.421



35.393



42.365



49.337



56.309



63.281

pdfPost
LITE



BP SOLUTIONS

pdfPost converter 1.5

MESCO

ANSYS ANSYS
Channel Partner

ANSYS Mechanical Plug-in
in cooperation with MESco

Click to activate 3D content



N/A

0.000



7.031



14.062



21.094



28.125



35.156



42.187



49.219



56.250



63.281

pdfPost
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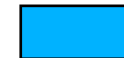


N/A

0.000



0.005



0.009



0.014



0.018



0.023



0.027



0.032



0.036



0.041