

## Validation of the AsterStudy module

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### Summary:

Card of validation of the operation of the AsterStudy module of the platform Salome\_meca.

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## 1 Files

Files following are necessary to lead the procedure of test and validation of the operation of the application.

```
lot6_stage1.comm  
lot6_stage2.comm  
lot6_stage3.comm  
lot6.mmed
```

These files are installed in the following repertoire:

```
salome_meca/V [version] /modules/ASTERSTUDY_ [version]  
/share/salome/asterstudy_test/data/validation
```

## 2 Principle

The procedure of validation consists in creating a command file, for a thermal calculation, using the user interface, then to export this file and to compare the result with the file of reference. Then a second stage (mechanical calculation) is imported since a command file. The first calculation then will be launched, then one will add a third stage of postprocessing by using the text mode, and one will start again a calculation starting from the results of the first calculation.

## 3 Creation of the case

Launch the module AsterStudy.

### 3.1 Thermal calculation

Without a stage while clicking on the button "Add Stage" in the tool bar.

- A Stage\_1 stage is added in Settings dated.

To re-select the stage in "Calcul\_Thermique", by selecting the stage then by typing F2 or by using the contextual menu "Rename".

#### Order LIRE\_MAILLAGE

In the bar of tools, in the drop-down list "Mesh", to select the order "Read mesh".

- The file "Mesh" with an order "mesh" is added at the stage.
- The panel of edition opens on the right.

In the field "Mesh spins hiring" (UNIT), Clicker on the selector knob "..." and to select the file of grid "lot6.mmed".

To modify the noun of the order in the field "Name" in "E-MAIL".

Then, to notch the box "Mesh spins format" (FORMAT).

Then, to select the option "MED" in the drop-down list.

To validate while clicking on button "OK".

- The panel of edition disappears and the order is famous.

#### Order MODI\_MAILLAGE

To add an order MODI\_MAILLAGE by clicking on the button "All Show Commands" in the tool bar, the panel of research appears on the right.

To type MODI\_MAILLAGE in the research area.

Puis double to click on item the MODI\_MAILLAGE.

- An order mesh0 is added at the stage.
- The panel of edition opens on the right.

To select "E-MAIL (LIRE\_MAILLAGE)" like value of the field "Mesh".

To notch box "ORIE\_PEAU\_3D".

To click on the button "Add items", then on the button "Edict", then "Edict" of the field Group of element (GROUP\_MA). In the field "Manual selection", to seize "SURFINT" or coachman box "SURFINT" and to click on button "OK".

To validate while clicking on the button "OK" on each panel (2 times).

- The panel is closed.

## Order DEFI\_MATERIAU

To add order DEFI\_MATERIAU, either by using research, or directly in the tool bar "Material/ Define has material".

- An order "MATER" and the file "Material" are added at the stage.
- The panel of edition opens on the right.

To re-elect the order "MATER" and to inform the following values:

- To notch the box "Linear isotropic elasticity" (ELAS) then to click on the button "Edict".
  - Young' S modulus (E) = 204000000000.
  - Poisson' S ratio (NAKED) = 0.3.
  - To notch the box "Thermal expansion coefficient" (ALPHA) = 1.096e-05.
  - To click on button "OK".
- To use the research area to find field THER then to notch the box "Isotropic heat conduction" (THER).
  - Cliquer on the button "Edict".
  - Thermal conductivity (LAMBDA) = 54.6.
  - To notch the box "Volumetric heat capacity" (RHO\_CP) = 3710000.
  - To click on button "OK".
- To click on button "OK".
- The panel is closed.

## Order AFFE\_MODELE

To add an order AFFE\_MODELE, either by using research, or directly in the tool bar "Model Definition / Assign finite element". ET to inform the fields:

- Name = MODTH
- Mesh = E-MAIL (MODI\_MAILLAGE)
- To notch the box "Finite element assignement" (AFFE), then to item add an element while clicking on the button "AddS", then "Edict".
  - To notch the box "Everywhere" (ALL) and to select "Yes".
  - Phenomenon (PHENOMENON) = Thermic (THERMICS).
  - To click on the button "Add items" for the field MODELING.
    - Sélectionner "3D".
    - To click on button "OK".
- To validate the order while clicking on button "OK".

## Order AFFE\_MATERIAU

To add an order AFFE\_MATERIAU, either by using research, or directly in the tool bar "Material/ Assign has material". ET to inform the fields:

- Name = CHMATER.
- To notch the box " Mesh " = E-MAIL (MODI\_MAILLAGE).
- For the field "Material assignement" (AFFE), to click on the button "Add items", then "Edict".
  - To notch the box "Everywhere" (ALL) and to select "Yes".
  - Material (MATER), to click on the button "Add items" and to select "MATER".
  - To click on button "OK".
- To validate the order while clicking on button "OK".

## Order DEFI\_FONCTION

To add an order DEFI\_FONCTION, either by using research, or directly in the tool bar "Functions and Lists / Define function". ET to inform the fields:

- Name = F\_TEMP.
- Parameter name (NOM\_PARA) = Time (INST).
- To notch the box "Coordinates" (VALE), to click on the button "Edict" and to seize the lines (0.20) then (10.70), then to validate with OK.
- To validate the order while clicking on button "OK".

## Order AFFE\_CHAR\_THER\_F

To add an order AFFE\_CHAR\_THER\_F, either by using research, or directly in tool bar "BC and load / Thermal variable Assign load ". ET to inform the fields:

- Name = CHARTH.
- Model (MODEL) = MODTH.
- To notch the box "Enforce Temperature" (TEMP\_IMPO), to click on the button "Add items " then on "Edict".
  - To notch the box "Group of element" (GROUP\_MA), to click on the button "Edict", then to seize "SURFINT" in the manual field or coachman box "SURFINT" and to validate with OK.
- To notch the box "Temperature" (TEMP) = F\_TEMP.
- To click on button "OK".
- To validate the order while clicking on button "OK".

## Order DEFI\_LIST\_REEL

To add one order DEFI\_LIST\_REEL, either by using research, or directly in the tool bar " Functions and Lists ". ET to inform the fields:

- Name = LINST
- To notch the "Been worth" box (VALE), to click on the button " Edict " then to seize values 0,5,10.
- To validate the order while clicking on button "OK".

## Order DEFI\_FONCTION

To add an order DEFI\_FONCTION, either by using research, or directly in the tool bar "Functions and Lists/Define function ". ET to inform the fields:

- Name = F\_MULT.
- Parameter name (NOM\_PARA) = Time (INST).
- To notch the box "Coordinates" (VALE), to click on the button "Edict" and to seize the lines (0, 1) then (10, 1) and to validate with OK.
- To validate the order while clicking on button "OK".

## Order THER\_LINEAIRE

To add an order THER\_LINEAIRE, either by using research, or directly in the tool bar " Analysis/thermal Linear analysis ". ET to inform the fields:

- Name = TEMPLE.
- Model (MODEL) = MODTH.
- Material field (CHAM\_MATER) = CHMATER.
- Loads (EXCIT), to click on the button "Add items " then "Edict".
  - Load (LOAD) = CHARTH.
  - To notch the box "To multiply function" (FONC\_MULT) = F\_MULT.
  - To click on button "OK".
- To notch the box "Timestepping" (INCREMENT), to click on the button "Edict".
  - To notch the box "Time step list" (LIST\_INST) = LINST.
  - To click on button "OK".
- To notch the box "Initial condition" (ETAT\_INIT), to click on the button "Edict".
  - To notch the "Been worth" box (VALE) = 20.
  - To click on button "OK".
- To validate the order while clicking on button "OK".

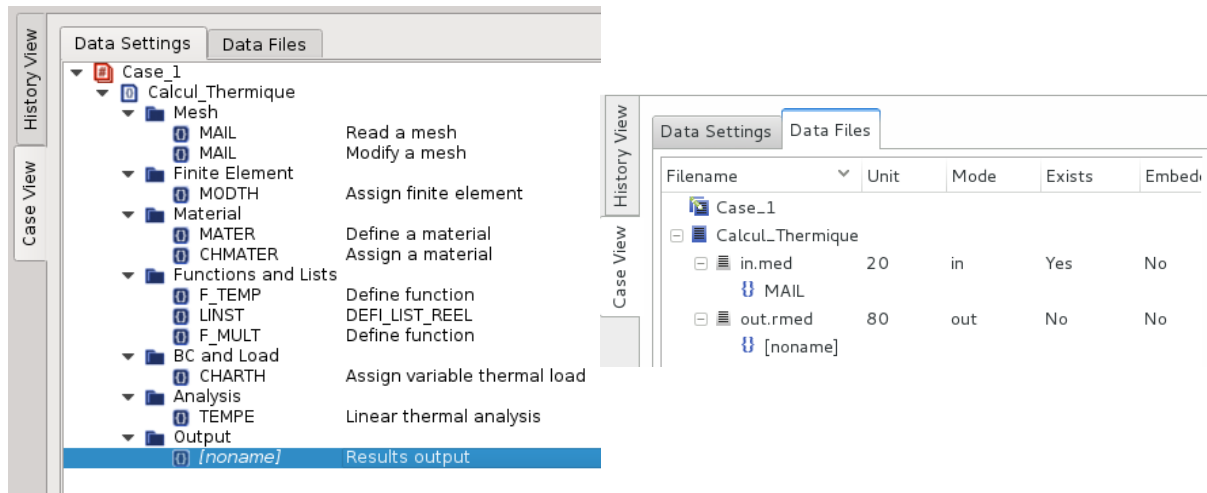
## Order IMPR\_RESU

To add an order IMPR\_RESU, either by using research, or directly in the tool bar " Output/Set output results ". ET to inform the fields:

- In the field "Result spins hiring" (UNIT), to click on the selector knob "..." and to choose the name and the site of the output file in format rmed.
- To notch the box "Format" = MED.
- For the field "Results" (RESU), to click on the button "Add items ", then "Edict".
  - To notch the box "Result" (RESULT) = TEMPLE.
  - To click on button "OK".
- To validate the order while clicking on button "OK".

- The order are created in the stage.
- A file is present in the mitre “ Dated Files “.

To save the study while clicking on the icon “Save document ”.



In the mitre “Dated Settings”, Sélectionner the stage “Calcul\_Thermique”, then “Export Command Slips by “ in the contextual menu. You can change the name of the command file or preserve the name by default. To validate.

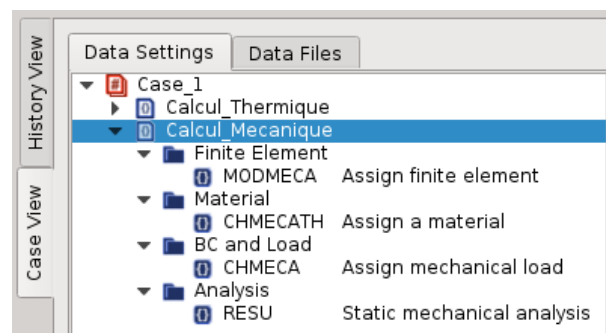
- The command file is generated.
- To check that its contents correspond to the file of reference.

## 3.2 Mechanical calculation

In the tool bar, to click on the button “ Add internship from file ”.  
 To select the file “lot6\_stage2.comm”.

- The stage is imported in mode graph.

To re-elect the stage in “Calcul\_Mecanique”.



## 3.3 Launching of calculation

To go in the “Historical” sight while clicking on the mitre “History View”.  
 To click on the button of the second stage (green cross).

- The two stages are selected automatically.

To click on the button “Run” to launch calculation.

- A warning message indicates that the study must be recorded before the execution if the study were not recorded before.

ClickR on button “OK” and recordsR the study.

ClickR once more on the button “Run”.



**Notice** : it is important that the two stages are carried out successfully (round green). If need be, to start again calculation to get the expected result.

## 3.4 Postprocessing

To go in the sight “Case” while clicking on the mitre “Puts View”.

To add a new stage while clicking on the button “Add Stage “.

To put the stage in text mode by selecting it then by choosing “Text Mode “in the contextual menu.

To re-elect the stage in Post\_TraitementT.

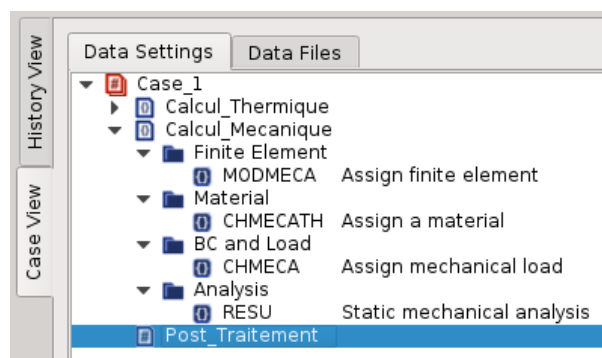
To publish the stage (double clicksR).

- The text editor opens.

To copy the contents of the file “lot6\_stage3.comm” and to add in the file “lot6\_stage3.comm” “UNITE=81” in order “IMPR\_RESU”:

```
IMPR_RESU (FORMAT='MED' ,
           RESU= ( _F (MAILLAGE=MAIL ,
                     RESULTAT=RESU , ) ,
                 _F (RESULTAT=TEMPE , ) , ) ,
           UNITE=81 , ) ;
```

then to validate.



Dyears the mitre “Dated Files”, Cliquer on “Post\_Traitement”.

To click on the button “Add slips by” in the panel Dated Files.

In the field “Mode”, to select “out”.

In the field “Filename”, to click on the selector knob “...” and to choose the name and the site of the output file in format rmed.

In the field “Links”, to seize 81.

To remake the same approach to add a file in format and unit = 8.

## 3.5 New execution

*Warning : The translation process used on this website is a “Machine Translation”. It may be imprecise and inaccurate in whole or in part and is provided as a convenience.*

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To turn over in the mitre “History View ”.

- The three stages are visible.

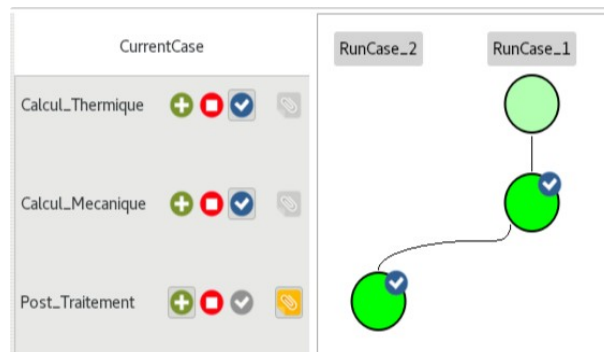
To select “ CurrentCase “to carry out calculations.

To select the stage “Post\_Traitement” while clicking on the button (green cross).

- The preceding stages are automatically selected to re-use the preceding results (marks with arrows blue).

To launch calculation.

- Only the last stage is carried out.



To select “ CurrentCase “.

To again select the first stage while clicking on the button (green cross).

- The first two stages are automatically selected to be re-executed (green cross).

To launch calculation.

- The three stages are carried out.

