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## Tool for interactive postprocessing STANLEY

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### 1 Goal

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Application STANLEY is a tool for interactive postprocessing for calculations *Code\_Aster*. This graphic interface gives access the list of the sizes, to calculate those which are not it yet, to generate the exits for the tools for visualization SALOMÉ (isovaleurs and curves), Gmsh (isovaleurs) and Xmgrace (curves) and of launching those.

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## 2 Syntax

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```
STANLEY (
    ◇ RESULT          = result,          [result]
    ◇ MODEL           = model,           [model]
    ◇ CHAM_MATER      = chmater           [cham_mater]
    ◇ CARA_ELEM       = carac            [cara_elem]
    ◇ DISPLAY         = 'IP: N'         [TXM]
    ◇ UNITE_VALIDATION = ul,             [I]
)
```

Note: all the keyword are optional. The natural mode mode of use of Stanley is not to specify a keyword:

```
STANLEY ()
```

Stanley will then propose interactivement to select the result which one wishes post-to treat.

To recover the setting in data produced by STANLEY with the wire of postprocessings, it can be useful to add `IMPR_MACRO=' OUI '` in the order BEGINNING or CONTINUATION.

## 3 Operands

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### 3.1 Operand RESULT

◇ RESULT = result

Name of the result post-to treat.

### 3.2 Operand MODEL

◇ MODEL = model

Name of the model.

### 3.3 Operand CHAM\_MATER

◇ CHAM\_MATER = chmater

Name of the field material.

### 3.4 Operand CARA\_ELEM

◇ CARA\_ELEM = carac

Name of the concept cara\_elem.

### 3.5 Operand DISPLAY

◇ DISPLAY = 'IP: N'

This keyword makes it possible to fix or redirect the variable of environment DISPLAY before the opening of the chart window of Stanley. This functionality can be used when the conditions of operations of the waiter of calculation make that the variable DISPLAY is lost during the execution (cluster, distant machines, mode batch, etc...).

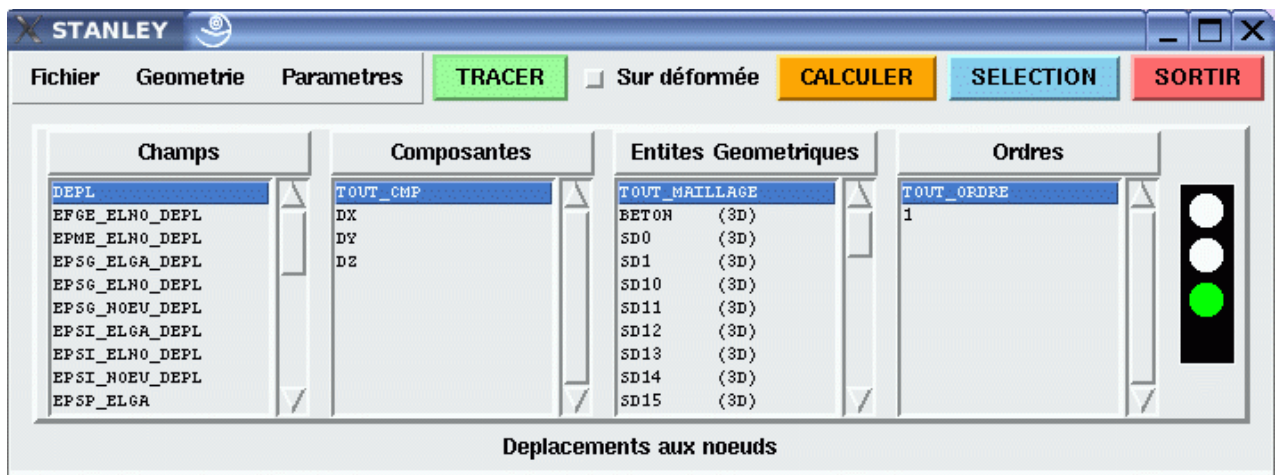
### 3.6 Operand UNITE\_VALIDATION

◇ UNITE\_VALIDATION = ul

This parameter is used only for the developers of Stanley, in order to validate to it not regression of the software.

## 4 Presentation

Application STANLEY is a tool for interactive postprocessing for calculations *Code\_Aster*. This graphic interface gives access the list of the sizes, to calculate those which are not it yet, to generate the exits for the tools of visualization and launching the tools SALOMÉ (isovaleurs and curves), Gmsh (isovaleurs) and Xmgrace (curves).



## 5 Launching of the interface

Stanley is usable by the users of *Code\_Aster*, which is in one of the following situations:

- Work station under Linux/Unix and calculation locally;
- Work station under Linux/Unix and calculation on a distant waiter.

Stanley must be used in interactive. It is thus advised to carry out its study in the first calculation (which can be launched in mode *Batch*), at the conclusion which one will save a base post-to treat in mode Interactif with Stanley, either on the same machine, or on a different machine. In this last case, it is necessary to use format HDF if the operating systems are different:

```
END (FORMAT_HDF=' OUI ')
```

There exists two ways of launching STANLEY:

- 1) In the interface ASTK, right button on a basis containing an Aster result, then **To open with Stanley**.
- 2) At the end of the command file, to insert the line:

```
STANLEY ()
```

The configuration of Stanley is done directly in the interface via menus. A file of configuration is generated by the interface and is stored to be re-used.

### First use :

When the file of configuration was not yet creates or is not available, Stanley launches out with options by default. In these cases there, it is necessary necessarily that the variable of environment `DISPLAY` that is to say correctly well informed. It is the case when one launches calculation in **interactive by notching the box followed interactive**.

If the interface Stanley still does not appear, the variable `DISPLAY` can be overloaded in the arguments of the order by indicating address IP of the local machine and the number of `DISPLAY` :

```
STANLEY (DISPLAY=' mon_adresse_ip.der.edf.fr: 0 ')
```

Or:

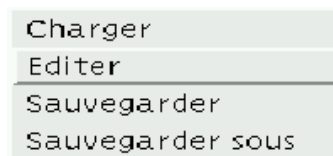
```
STANLEY (DISPLAY=' aaa.bbb.ccc.ddd: 0 ')
```

In light, the argument of the order `DISPLAY` is the same one as for the Unix order:

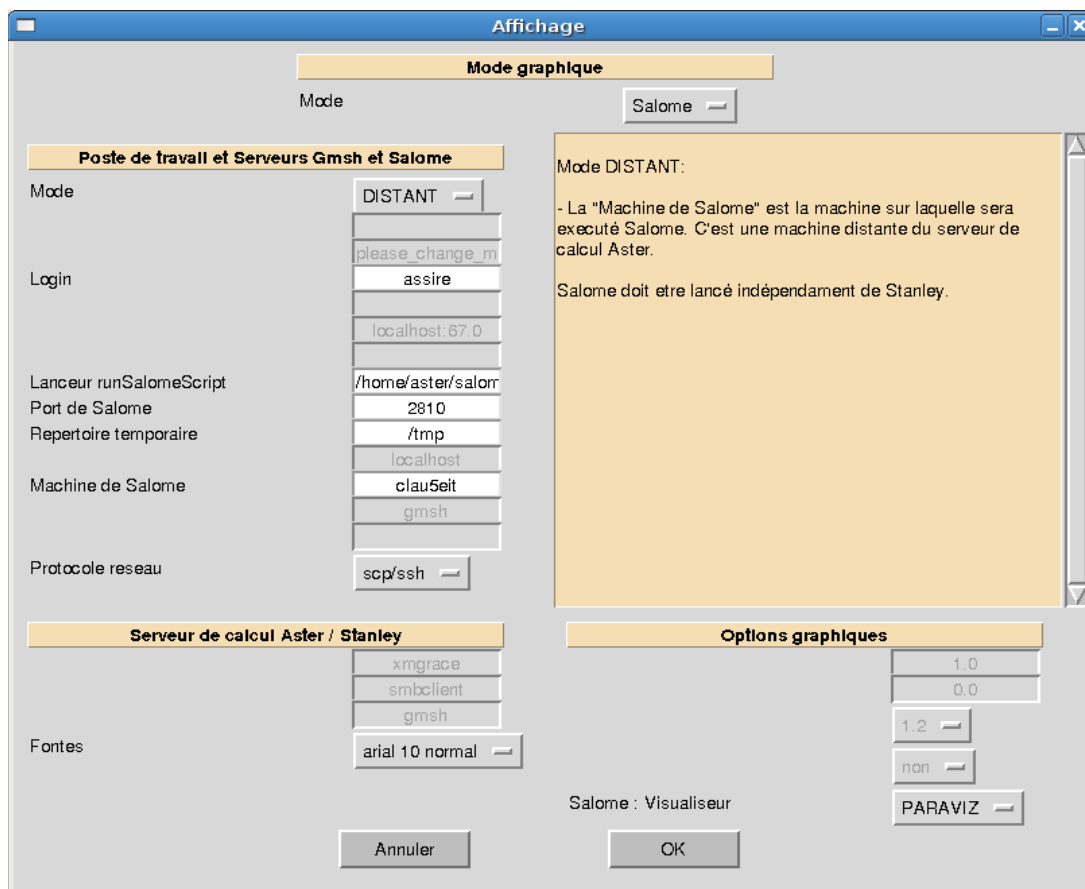
```
DISPLAY=aaa.bbb.ccc.ddd export: N
```

## 6 Parameter setting of the interface Stanley

The parameter setting of Stanley is done directly since the interface. In the menu **Parameters**, to choose **To publish** :



The window which appears contains all the modifiable parameters in Stanley.



The first two parameters make it possible to define the graphic driver used (the Gmsh/Xmgrace couple or SALOMÉ) and configuration of the work station of user (calculation Aster on the local machine of the user or a distant machine, etc.).

According to the choices carried out for these the first two parameters, the options are activated or disabled.

**Affichage**

**Mode graphique**

Mode: Gmsh/Xmgrace

**Poste de travail et Serveurs Gmsh et Salome**

Mode: LOCAL

please\_change\_m  
assire

localhost:67.0

/home/aster/salome  
2810

Repertoire temporaire: /tmp

localhost  
clau5eit  
gmsh

scp/ssh

**Mode LOCAL:**

Il n'y a qu'une seule machine : le serveur de calcul Aster est sur le poste de travail de l'utilisateur (la machine locale).

Gmsh est exécuté sur la machine locale.

Il n'y a donc aucune adresse de machine à fournir.

**Serveur de calcul Aster / Stanley**

Xmgrace: xmgrace

Gmsh: gmsh

Fontes: arial 10 normal

**Options graphiques**

Gmsh : Shrink: 1.0

Gmsh : Taille minimale: 0.0

Gmsh : Version du fichier: 1.2

Gmsh : Affichage sur la peau: non

PARAVIZ

Annuler OK

The description of all the parameters is carried out below:

- **Graphic mode** : allows to choose the graphic driver used.
  - **MODE** : SALOMÉ (by default) or Gmsh/Xmgrace.
- **Work station and Gmsh Waiters and SALOMÉ** : gather parameters of the station of the user and Gmsh software or SALOMÉ used for visualization.
  - **Mode** : allows to define the work station of the user:
    - **ROOM** : Aster is installed in local version on the machine of the user, this one also being useful for visualization (by default)
    - **DISTANT** : Aster is carried out on a distant machine and Gmsh or SALOMÉ on the machine of the user (one is carried out can also have a diagram with three machine: machine of calculation + Gmsh machine with export of the DISPLAY towards the station of the user).

Concerning the detail of the parameters for each mode, one will refer to the paragraph [§7].

- **Waiter of calculation Aster/Stanley** : gather parameters for the waiter of calculation (machine on which is launched Aster) and the configuration of the IHM of Stanley.
  - **Pig iron and cast iron** : pig iron and cast iron used in the interface. Taking into account with next launching.
  - **Gmsh** : the way towards achievable Gmsh on the waiter of calculation (or 'Gmsh' if it is in the way defined by variable \$PATH). This Gmsh is localised on the waiter of calculation and can be a version batch. It is only used to generate points and lines of postprocessing.
  - **Xmgrace** : the way towards Xmgrace on the waiter of calculation (Xmgrace is obligatorily on the waiter of calculation).
- **Graphic options (parameters of Gmsh)**
  - **SHRINK** : parameter for CREA\_MAILLAGE/CRÉA\_RESU keyword ECLA\_PG.
  - **TAILLE\_MIN** : parameter for CREA\_MAILLAGE/CRÉA\_RESU keyword ECLA\_PG.
  - **version\_fichier\_Gmsh** (1. or 1.2): the version of file produced. Version = 1: the QUAD are cut out SORTED some, the HEXA and PENTA in TETRA for postprocessing. Version 1.2 (to be visualized with Gmsh more recent than 1.35): no the cutting of the QUAD, HEXA and PENTA linear.
  - **Posting on the skin** (value YES or NOT): allows to engage the mode SKIN in Gmsh and thus to charge only the skin with the grid.
- **Graphic options (parameters of SALOMÉ)**
  - **Visualisor** : parameter to define the module of visualization which will be used in SALOMÉ (ParaVis).

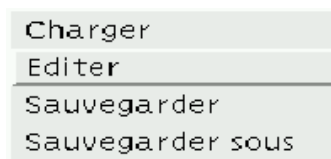


## 7 Parameter setting of the Work station

The configuration of the work station is done since the interface. Each configuration being saved on the waiter of calculation in a file, one can manage several configurations and rock directly in Stanley of worms the others.

Once a new configuration will have been created by the menu **Parameters / To publish**, this one could be saved in a file on the waiter of calculation Aster (and not the local machine of the user, except if Aster turns on the local machine...).

The user will have to choose **Parameters / To save** (crushes the current file of configuration) or **Parameters / To save under** (created a new file of configuration).



One can thus manage several configurations and pass from the one to the other directly in a session of Stanley, by choosing the menu **Parameters**, then **To charge**.

In the window To publish of Stanley, the relevant parameters are in the part: **Work station and Gmsh Waiters and SALOMÉ** :

For the Graphic Mode Gmsh/Xmgrace:

- **Temporary repertoire** (ROOM, DISTANT): the repertoire where the temporary files Gmsh will be copied.
- **Login** (DISTANT): the login Unix/Linux on the distant machine since which Gmsh will be launched.
- **Machine of visualization** (DISTANT): DISPLAY (in general IP of the station of the user with the number of display 0: ip\_locale: 0).
- **Machine of Gmsh** (DISTANT): address IP of the machine since which Gmsh will be carried out.
- **Gmsh machine: way towards Gmsh** (DISTANT): the way towards the achievable one of Gmsh on the distant machine.
- **Protocol network** (DISTANT): the protocol network for the execution of distant order and the recopy of files (CCP/rsh or SCP/HS).

For the Graphic Mode SALOMÉ :

- **Temporary repertoire** (ROOM, DISTANT): the repertoire where will be copied the temporary files.
- **Port of SALOMÉ** (ROOM, DISTANT): port TCP/IP of SALOMÉ. In general, the user will leave the value by default (2810).
- **Machine of SALOMÉ** (DISTANT): address IP of the machine which carries out SALOMÉ.
- **Protocol network** (DISTANT): the protocol network for the execution of distant order and the recopy of files (CCP/rsh or SCP/HS).

## 8 Use

### 8.1 Use of the IHM

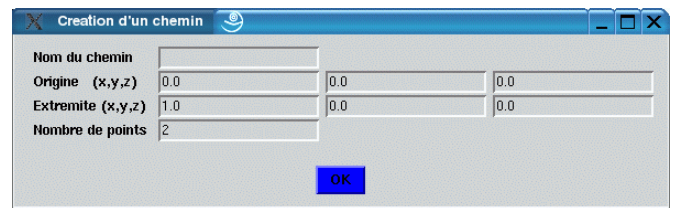
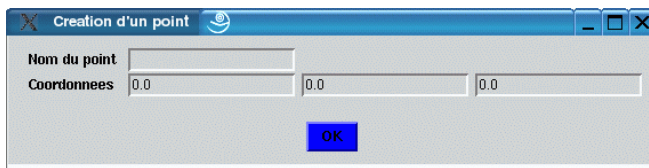
The use itself of the graphic interface does not pose a problem: the term is that of `CALC_CHAMP` and `DE_IMPR_RESU`.

Concerning ergonomics:

- On the right side, tricolour fire indicates the state of the concepts: green: calculated and displayable, orange concept: concept which one can calculate to pass to green light, red: concept which one cannot calculate within the framework of calculation.
- While clicking on `Order` one rocks between `NUME_ORDRE` and them `INST`.
- While clicking on `Geometrical entities` one rocks between the layout of `isovaleurs` (with Gmsh) or of `curves` (with Xmgrace).

### 8.2 Addition of points and ways of postprocessing

One can add points and lines which will be used like place for postprocessing, by choosing the menu **Geometry** and **Addition Not** or **Addition Way**.



The geometries added by this intermediary will appear directly in the interface under **Geometrical Entities**. One can thus, for example, to add a point and to look at the temporal evolution of a variable in this point.

### 8.3 Layout on the deformed grid

Since STANLEY, one can notch a button to print the field as well as the field of displacements (except for fields ELGA).

Once in Gmsh, the user can display the field on the deformed grid.

It has three solutions to visualize the field on the deformation in Gmsh (v1.60.1):

- Solution 1 (most general):
  - To strip the field `XXX_DEPL_VECTEUR`
  - To go in `Tools/Options` then 'View [0]' (or that corresponding to the field to trace)
  - `Mitre Offset`, to click on "Uses general transformation expressions", then to choose `Dated Source = 'View [1]'` (or that corresponding to the deformed field)
- Solution the 2 (two fields must be compatible, e.g. field `NOEU`) :
  - To strip the field (to leave only the field `XXX_DEPL_VECTEUR`)
  - To go in `Tools/Options` then 'View [1]' (or that corresponding to the field `XXX_DEPL_VECTEUR`)
  - `Mitre Aspect`, to choose `Dated Source = 'View [0]'` (or that corresponding to the field has to visualize)

- In this same mitre Aspect, to put Vector Display = Displacement
- Solution 3 (walk for the fields NOEU and ELNO) :
  - To strip the field XXX\_DEPL\_VECTEUR
  - To click on does the box have right field? to visualize then to choose 'Plugins' and 'Displacement Raise'.
  - In the window of the plugin: Is Factor the factor of amplification, dTimeStep is the moment used in the field deformed to build the grid deformed (one definite only one deformed grid which will be used for all the steps of time of the field? to visualize).
    - To click on About to have the details concerning this Plugin.

## 8.4 Visualization of the animation of the modes

If calculation Aster is a dynamic calculation, Stanley gives the opportunity of visualizing with Gmsh each mode in the form of an animation. If the user seeks to display field DEPL over one moment (or a sequence number), then Stanley will ask to him whether he wants to visualize animation or not.

## 8.5 Use of the validation mode

This functionality is irrelevant for the user and is useful only for the validation of Stanley with each stabilization of the code.

A keyword UNITE\_VALIDATION allows to specify a logical unit which will define a file in which all the results displayed during the session Stanley will be traced. This functionality is used to check that between two sessions Stanley carried out with two different versions Aster, the layouts are quite identical.

## 8.6 Recovery of the orders generated by STANLEY

To recover the setting in data produced by STANLEY with the wire of postprocessings, it can be useful to add IMPR\_MACRO=' OUI ' in the order BEGINNING or CONTINUATION.