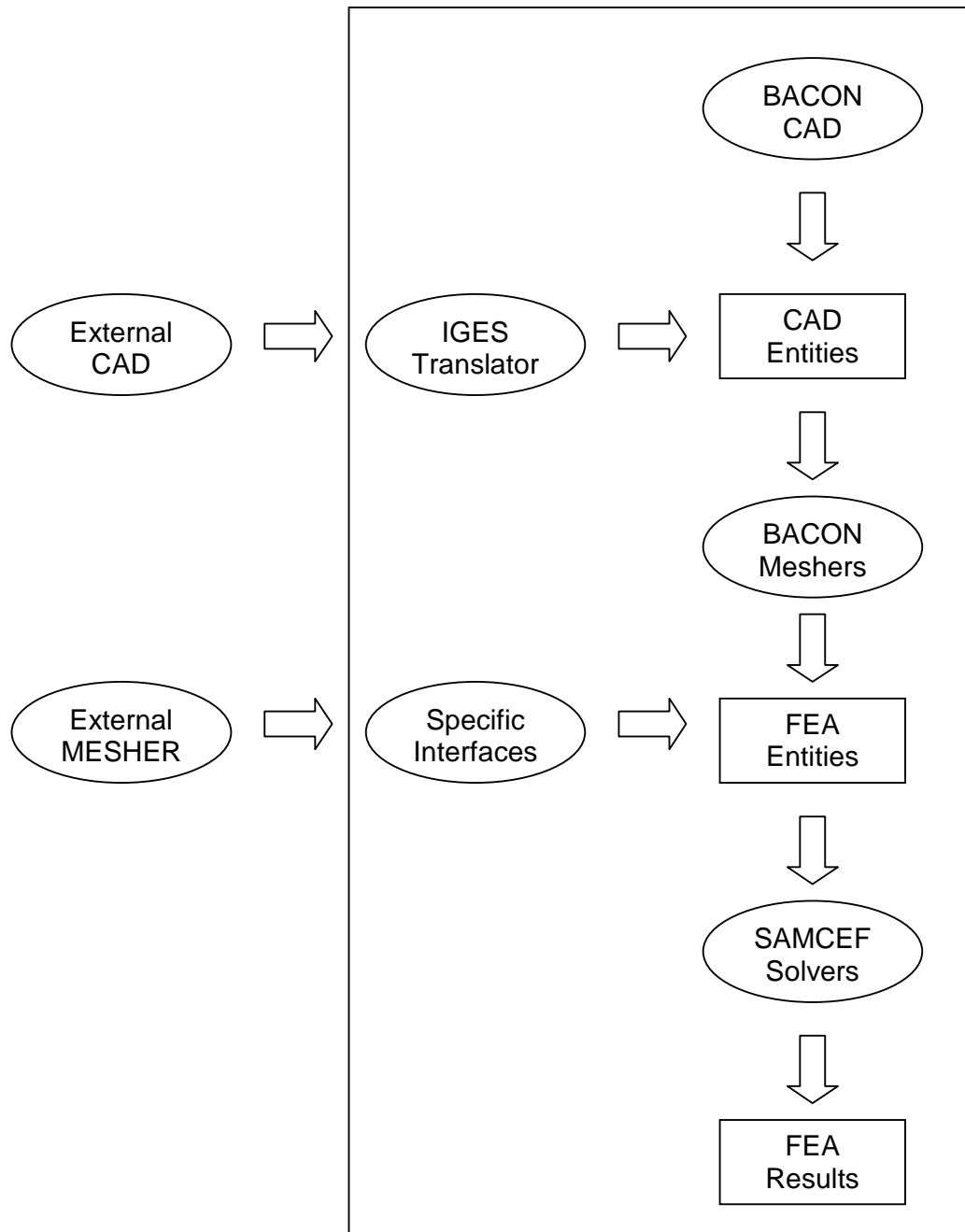


Introduction to BACON

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1. Objective



2. Steps of a session

- Pre-processing
- Computation
- Post-processing

2.1. The pre-processing

2.1.1. Ways to introduce data

- Menu
- Keyboard
- Bank file
- Retrieving a CAD file

2.1.2. Operations and steps to define a problem

- Geometry
- Meshing
- Hypothesis
 - Choice of finite element :
Shells, membranes, beams, volumes, rods, axisymmetrics
- Properties
 - Materials: Elasticity Module, Poisson's ratio, ...
 - Thickness
- Loading
 - Nodal Forces, pressure, weight, acceleration, ...
- Boundary conditions
 - Fixed displacements, symmetry conditions, links, ...
- Exporting computation file
 - Creating a file containing data for computation (nodes, elements, properties, ...)

2.2. Computation

2.2.1. Methods

- Using the procedure or within BACON
- Interactive or batch processing.

2.2.2. Operations

- Solving the problem
- Computation of displacements, stresses, strains, temperatures, eigenvalues
- Writing results files

2.3. The post-processing

2.3.1. Methods

- Menu
- Keyboard
- Bank file

2.3.2. Operations

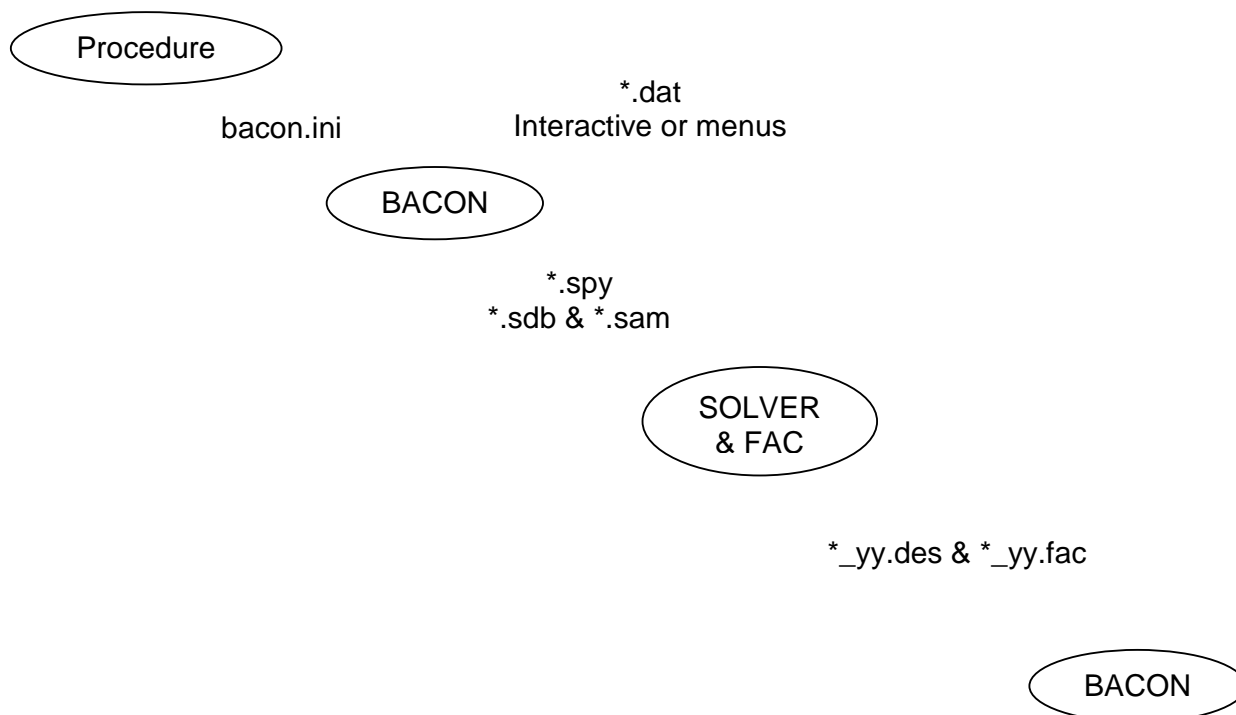
- Validation of results
- First validation : Reading the results file (**name_nn.res**).
 - Looking for warning and error messages
 - Inspection of matrix diagonal
 - Null pivots
 - Reactions
- Second validation : graphical analysis
 - Isovalues, curves
 - Displacements, stresses, deformed shape

3. Guided exercise

Exercise 3 in exercices manual Holed plate (samcef procedure, menu mode, session steps, ...)

4. BACON DATA FILE Management

samrc.ini



T = free format file, B = binary

Name	Format	Comments	Generated by ...
samrc.ini	T	User's customization.	SAMCEF Procedure
bacon.ini	T	User's initialisation of BACON session (abbreviations)	User
x.dat	T	Command file for BACON	User
x.spy	T	Spy file of the commands used during the session.	BACON
x.sam	B	Data for computation.	BACON
x_yy.des	T	Description of the results	FAC
x_yy.fac	B	Result file	FAC
x.sdb	B	Database	BACON
x_yy.log	T	Resume of the batch operations	BACON

The file `samrc.ini`

Located at \$SAM_HOME location.
Contains some environments variables (memory, language...).

The file `bacon.ini`

Automatically executed by BACON if located at \$SAM_HOME location.
User defined file for customized parameters.

The file bank : `<name>.dat`

Created by user :
- through text editor,
- through saving command (.sauve bank).

It contains the modeling, post-processing commands or any other command.
User can execute this file for creating data or post-processing.

The spy file : `<name>.spy`

Created during any BACON session if MODE MOUCHARD is activated.
It duplicates all commands used during the session.
It can be reexecuted in case of unexpected end of session.

The data base file : `<name>.sdb`

Created by saving command (**.sauv db** or **.fin 1**).
It contains informations as: geometry, meshing , loadings, ...
Used by computation modules.

The computation file: `<name>.sam`

Created at end of pre-processing.
It contains data for computation.

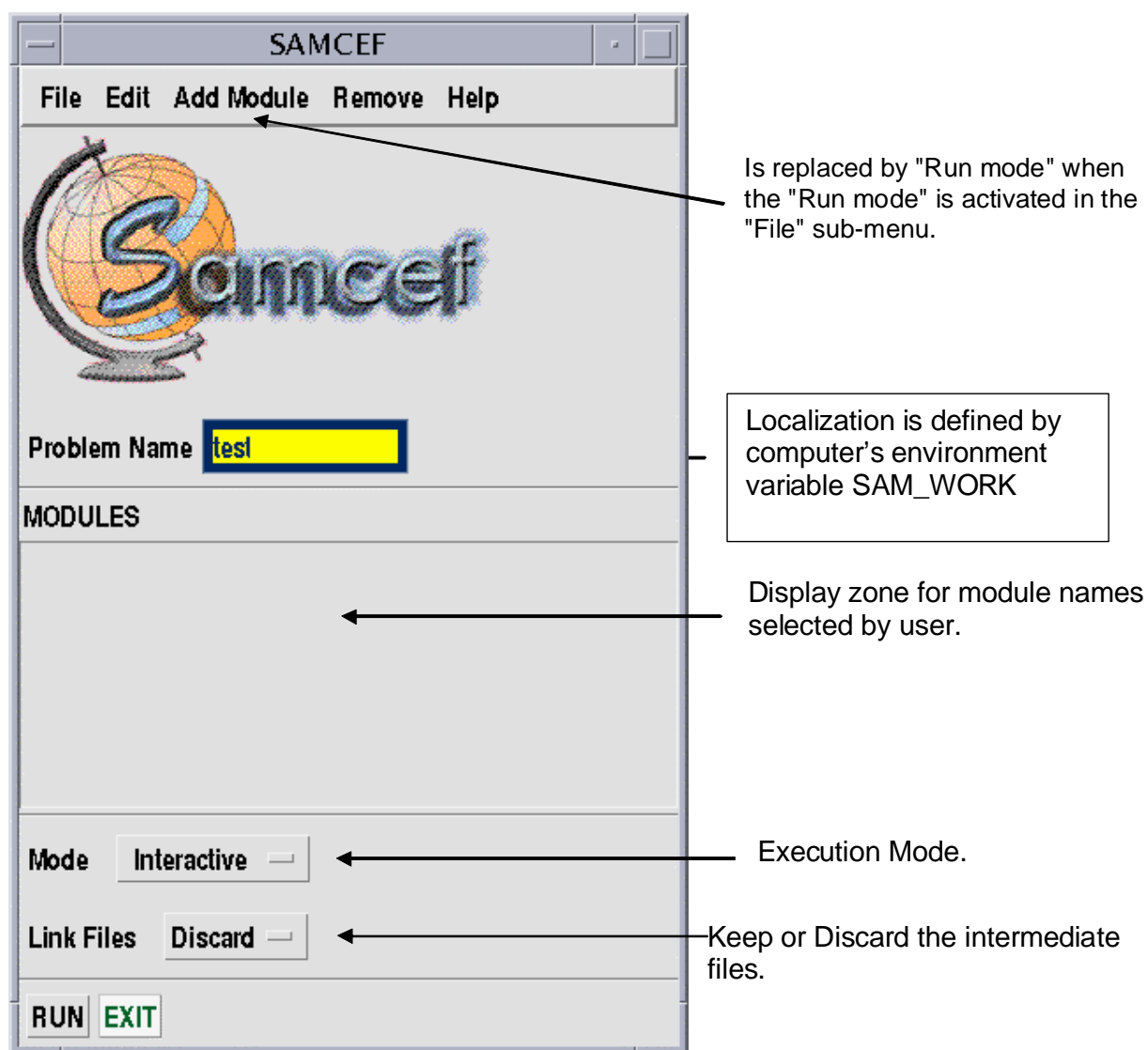
Exercise : number 6 (use of bacon.ini).

5. Samcef procedure

All SAMCEF modules are executed using *samcef* command which starts a script. The file names assignment is performed in the *samcef.proc* file.

samcef is a script used to manage interactive user - samcef dialog and executes modules in order to respect user's choices : batch, background, .

When *samcef* command is entered, the following dialog box is displayed :



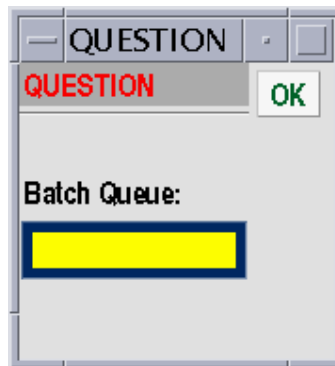
5.1. Sub-menus description.

FILE	
Run Creates Run Files Chain mode Run mode Environment Colors Fonts Exit	<i>Run the selected modules Command file (.csh for UNIX-.bat on PC User defined Chain (ex: bacon,asef) started by RUN If Active, it immediately executes the selected module. List of values of environment Variables. Modification of menu colors Modification of menu fonts Exit the program.</i>
EDIT	
Session variables Module Variables User Defaults	<i>It lists or modifies env. Variables (language, memory,..) for the current session or for a specific module.</i>
ADD MODULE or EXECUTION	
User Asef Bacon ...	<i>If selected, the module name to be executed is viewed in the display area.</i>
DELETE	
Remove All	<i>Delete a selected module Delete all selected modules</i>
HELP	
SAMCEF doc Doc on Topic	<i>Display HTML documentation Display help for selected command (.NOE) or analysis module (REPDYN,..)</i>

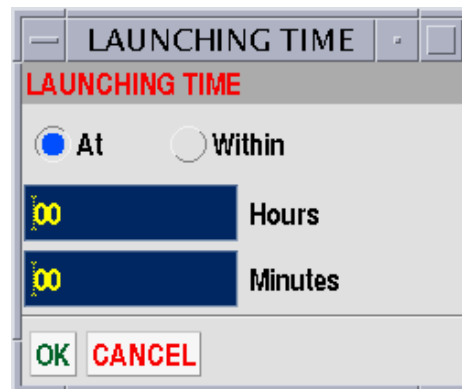
5.2. Choice of execution mode

MODE	
Detached	<i>The module is executed in an other window than the one in which samcef run command has been entered</i>
Interactive	
Batch	
Background	
Delayed	

If Batch is selected :



If Delayed is selected :



5.3. Chaining modules

Example : BACON session followed by an ASEF linear static computation :

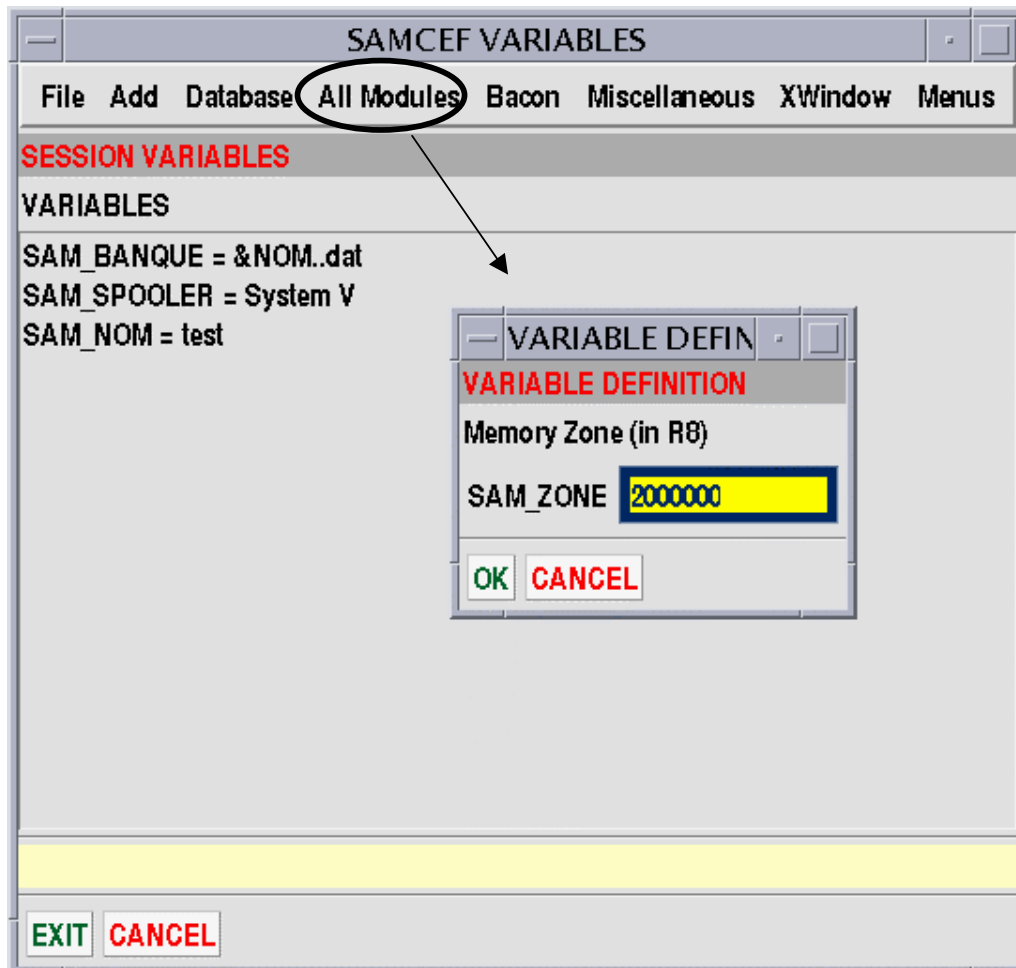
```
samcef ba,as <name> n 1
```

Exercise :

- rename the .sam and .sdb file and re-run the analysis.

5.4. Modification of memory space zone

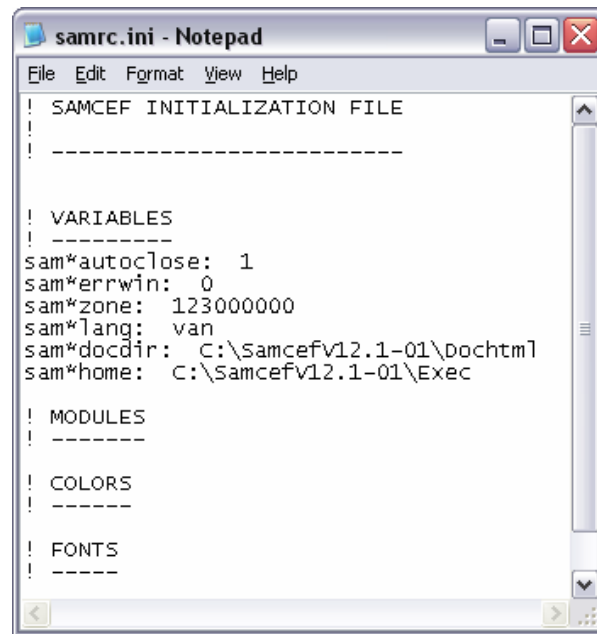
Selecting the **Session Variables** :



Using editor file (UNIX command) :

```
vi samrc.ini  
SAM_ZONE <valeur>
```

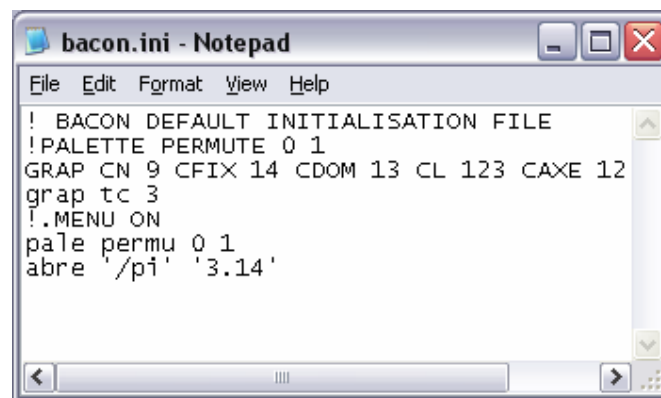
Example :



```

! SAMCEF INITIALIZATION FILE
! -----
!
! VARIABLES
! -----
sam*autoclose: 1
sam*errwin: 0
sam*zone: 123000000
sam*lang: van
sam*docdir: C:\Samcefv12.1-01\dochtml
sam*home: C:\Samcefv12.1-01\Exec
!
! MODULES
! -----
!
! COLORS
! -----
!
! FONTS
! -----

```



```

! BACON DEFAULT INITIALISATION FILE
! PALETTE PERMUTE 0 1
GRAP CN 9 CFIX 14 CDOM 13 CL 123 CAXE 12
grap tc 3
!.MENU ON
pale permu 0 1
abre '/pi' '3.14'

```

5.5. Choice of the language

One can use dialog boxes , or write in .cshrc file :

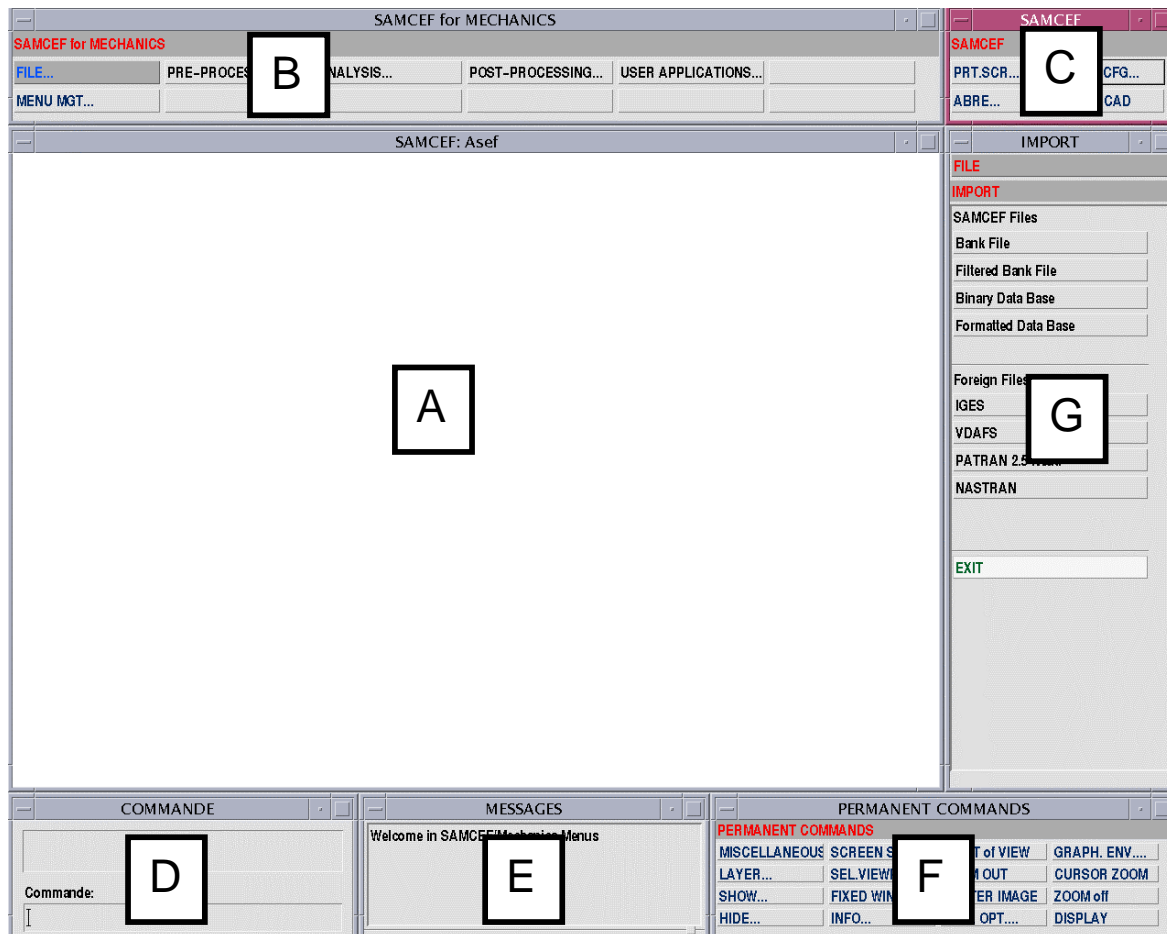
setenv SAM_LANG van	for the english version
setenv SAM_LANG vfr	for the french version

Exercise :

- Set a new value for memory space zone ;
- Set a new choice for the language

6. Main Screen description (MENU mode)

- A : Screen display
- B : Main menu bar
- C : menu configuration
- D : Keyboard commands access zone
- E : Display zone for program messages and instructions
- F : Permanent commands zone (point of view, scales, display options, ...)
- D : Keyboard commands access zone
- G : Sub menus zones



FILE		
Open New Save Save as Import Export Export→Computation Quit Cancel	<i>Open a file .sdb</i> <i>Create a new .sdb</i> <i>Save the current db</i> <i>Save the db with a new name</i> <i>Import files</i> <i>Export files</i> <i>Create the computation file</i> <i>Exit the session</i> <i>Exit the FILE menu</i>	.DOC DB "" .SAUV DB .SAUV DB " " INPUT or .INT .SAU BAN or .EXP .FIN 1 .STOP
PRE-PROCESSING		
FILE 2D Geometry 3D Geometry STRUCTURE JOINTS GROUPS FUNCTIONS Struc PROPERTIES. Joints Properties Loadings and BCs Lin. Exec. Params Display CONTROL UNITS TITLE	<i>Back to FILE menu</i> <i>Creation of Geometry 2D entities</i> <i>Creation of Geometry 3D entities</i> <i>Meshing , Hypothesis, ...</i> <i>Special elements for Motion tool</i> <i>Creation of groups</i> <i>Creation of functions</i> <i>Materials, sections, ...</i> <i>Motion elements properties</i> <i>Loadings, Boundary Conditions,</i> <i>Asef parameters</i>	.POIN,3POI,HYP, .MCE,SEL .FCT .MAT, .PHP, .AEL .MCE, .MCC .CLM, .JER, .. .SAM .UNIT TITRE
ANALYSIS		
Dialog box	<i>computation (interactive, batch, memory space zone, ...)</i>	samcef as name n 2
POST - PROCESSING		
FILE Access to results Drawings +Listes Display Control Animation Trajectories Curves Exit POST-	<i>Back to FILE menu</i> <i>Assigning fac results</i> <i>Graphical post-processing</i> <i>Entities selection</i> <i>Animation</i> <i>Kinematic trajectories</i> <i>Display evolution curves</i> <i>Back to main menu.</i>	ASSI FAC,DES .DES .DES ANIMMCE .VIF
MENU MGT...	Menu management	
	<i>Screen refresh</i> <i>Messages are directed to terminal</i> <i>Translation of menu command in keyboard equivalent</i> <i>Disable the menu</i>	Vi Mode Echo 0 Mode Echo 1 .MENU OFF