Code_Aster

Version default

Titre : Procédure DEFI_FICHIER
Responsable : LEFEBVRE Jean-Pierre

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Clé : U4.12.03 Révision :
c795a872984f

Procedure `DEFI_FICHIER`

1 Goal

To open or close a file associated with a number with logical unit. This number can be indicated in the procedure or obtained in return of the latter. This action can be carried out constantly during work. This procedure makes it possible to associate a logical number of unit with a file FORTRAN of the ASCII type, but this concept can also apply with certain restrictions on files of the binary type.

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2 Syntax

```
[nfic [whole] =] DEFI_FICHIER (

          ◊   ACTION   =  /  'TO ASSOCIATE',        [DEFECT]
                          /  'TO RELEASE',
                          /  'TO RESERVE',

          ◊   FILE   = nomfic,             [K255]

          ◊   UNIT      =  numul,           [I]

          ◊   TYPE      =  /  'ASCII',       [DEFECT]
                           /  'FREE',
                           /  'BINARY',
          ◊   ACCESS    =  /  'NEW',         [DEFECT]
                           /  'OLD',
                           /  'SUSPENDS',

          ◊   INFORMATION    =  /  1,
                                /  2

          )
```

The obligatory or optional character of certain operands depends on the presence or the value associated with the keywords indicated previously.

This operator has the characteristic to function at the same time like an order by providing a result of the whole type reusable behind a keyword of a further order, that is to say like a procedure.

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3   Operation of `DEFI_FICHIER`

Inputs/outputs on the ASCII files since *Code_Aster* are realized for the majority, using instructions FORTRAN using the concept of**logical unit,** it is a variable entirety from 1 to 99 associate using an instruction of the "open" type to a file. By default this number xx is associated with the name fort.xx, but it is possible to associate it with an unspecified file name. The logical number of unit is used in the interface of access to the code astk to recopy the files as starter and in exit.

In the command file *Aster* the various operators carrying out of the readings or the writings admit the keyword UNIT like argument.

logical unit 6 is reserved by the code at the time of the phase of initialization. It is not authorized to modify this number oflogical unit 6 which makes it possible to trace the course of an execution.

logical unit	name of the file	authorized modification
6	MESSAGE	not

The user can wish to add or **to modify** associations using the procedure DEFI_FICHIER to use for example new file names, to print certain results or to differently gather them in files. Procedure DEFI_FICHIER allows moreover to directly indicate the file of the ASCII type which will be associated with the specified logical unit. It can be specified either by a name in absolute (limited to 255 characters) if the file is localised on the machine, or by a relative name in an agreed repertoire (./REPE_IN or ./REPE_OUT) when the interface takes care of the distant and total transfer of the whole of the files located under the repertoire (standard repe in astk). One OPEN Named FORTRAN is then carried out on the files of the ASCII type. The order makes it possible of more than position either at the top of file, or at the end of the file.

The code manages in-house a structure of data gathering the unit of associations logical unit – file name – type of file - type of access.

4   Operands

The modifications of association unit logic-name of file relates to the files of **exit** and of**entry**.

4.1   Operand ACTION

◊   ACTION = 'TO ASSOCIATE'

The logical number of unit is associated, when that is allowed, the name defined behind the keyword FILE if it is indicated, with the name fort.xx if not.
It is not possible to redefine associations of the logical numbers 6 and 9.

◊   ACTION = 'TO RELEASE'

The logical number of unit is released, it is not more licit to use this number of unit, the associated file, when it is of ASCII type, is the object of an order of closing using instruction FORTRAN CLOSED. It then becomes possible to re-use the logical number of unit with an action of the type 'TO RELEASE'. This mechanism is essential if L' one wants to be able D-to immediately exploit the contents of the file associated in the command file in progress, indeed the buffers must be completely emptied and the file must be able to be accessible, possibly at the time of a call to a software since an order python of the type os.system.

◊   ACTION = 'TO RESERVE'

This kind of action is used in the macros orders and makes it possible to avoid the conflicts of logical number of unit between FORTRAN and python.

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The logical number of unit is associated, when that is allowed, the name defined behind the keyword FILE if it is indicated, with the name fort.xx if not. There is no instruction of the OPEN type carried out, with load for the macro order to carry out the various actions necessary.

4.2 Operand FILE

◊   FILE = nomfic

Physical name of the file (< 255 characters) which one wishes to associate with a logical unit. This file will be created under the repertoire of execution of the code, but one can directly indicate a file name (respecting UNIX conventions) in the repertoire of the user. Under the repertoire of execution, it is possible to use an additional level of tree structure of conventional name REPE_IN (data files) or REPE_OUT (files of results) recognized by the interface of access to the code astk. This name must be placed between quotes. Although they are not associated with a logical unit by an OPEN order FORTRAN, the binary files (for example MED) can be treated with this mechanism, it is necessary nevertheless to specify the type of access NEW or OLD to activate the recopy (by a call system since the code) since the data directory or repertoire as a result.
When the operand is absent, it is by default the file name fort.ul where ul is the number of unit which is associated with the logical unit definite behind UNIT.
For the files of the ASCII type, an instruction OPEN FORTRAN is carried out on the name associated with the logical unit.

4.3 Operand UNIT

◊   UNIT = numul

Number of logical unit associated, its value for the ASCII file opened by instructions lies between 1 and 99 included.

It is possible to re-use an already affected number but in this case it is necessary to take the precaution to release this last before. Certain numbers of logical units cannot be redefined since the orders Aster, it is the numbers 6 and 9 which are respectively allocated with the files MESSAGE and ERROR.
This number can be used then in all the orders Aster which have the operand UNIT (IMPR_RESU, IMPR_TABLE, IMPR_FONCTION, etc).

The operand UNIT can sometimes be omitted, it is then the code which will choose to affect a number, according to the availabilities, it is then necessary imperatively to specify the operand FILE, the code is given the responsibility then in-house to associate the logical number of unit and the associated file. It is then possible to recover a whole value at exit of the operator.

4.4 Operand TYPE

◊   TYPE = 'ASCII'

The file associated with the logical unit is of ASCII type.

◊   TYPE = 'FREE'

The file associated with the logical unit is of unspecified type within the meaning of FORTRAN, that makes it possible to manage in a more flexible way the access to the file, this type is primarily used for the access to files MED. The logical unit is not really used in this case, but that makes it possible to have the convention of name fort.ul on the file and being able to easily transmit it through the interface of access to the code.

◊   TYPE = 'BINARY'

The file associated with the logical unit is of type BINARY.

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4.5   Operand ACCESS

◊   ACCESS = 'NEW'

The file of the "ASCII" type is opened and one positions at the head, a Fortan instruction of the type REWIND is carried out. If there exists, the file is crushed. To use for a file as a result.

◊   ACCESS = 'OLD'

The file of the "ASCII" type is opened and one positions such as it is, i.e. possibly with the position at which one was located at the time of the last access.
To use for a data file.

◊   ACCESS = 'SUSPENDS'

The file is opened and one positions at the end of the file. Is used only in the case of the files of the ASCII type.
To use for a data file which one wants to supplement (who will be thus a priori as a result).

4.6   Operand INFORMATION

◊   INFORMATION = inf

Allows to print in the file MESSAGE the list of the open logical units with the order DEFI_FICHIER as well as the associated parameters. If INFORMATION = 1, there is no impression.

5   Declaration in the interface of access to the code of the logical unit put in work in DEFI_FICHIER

Generally the user will call DEFI_FICHIER in order to carry out postprocessings when it tests the need to physically create several files of results according to the loading cases, of the sizes, the steps or moments of evolution of calculation.

The user must declare the names physical of the files and the associated logical units. This declaration is carried out, in the interface astk prior to launching of the completion of the work. It is necessary to add the files in the profile of study by selecting the type **libr** and to associate the number of logical unit to them selected.

The type repe is used in the interface astk to transmit or receive all the contents of a file directory, with load for the user to call in the command file on DEFI_FICHIER to carry out association with the logical number of unit.
For convention the data files are transmitted in the repertoire of nonroom REPE_IN, the files as a result are transmitted in the repertoire of local name REPE_OUT.
In the order DEFI_FICHIER, the name passed behind FILE is form: ./REPE_IN/mon_fichier.

For a data file, one will make for example:
```
DEFI_FICHIER (FICHIER='. /REPE_IN/FILE.DATA',
             ACCES=' OLD',
             UNITE=11)
LIRE_FONCTION (UNITE=11,…)
```

Notice

INCLUDE cannot be used with a logical unit associated with a particular file name.