

Operator LIRE_MAILLAGE

Usage

Creates a mesh by reading a file. The file to be read must be with format “Aster” or “MED”. For other formats, like `IDEAS` or `GIBI`, it is necessary to use a preliminary command `PRE_IDEAS` or `PRE_GIBI` respectively.

The resulting data structure is of type `mesh`.

Note - important:

User can check the quality of the mesh by using command `MACR_INFO_MAIL` [U7.03.02] after `LIRE_MAILLAGE`.

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Syntax

```
my [mesh] = LIRE_MAILLAGE (  
    ◇UNITE = / 20, [DEFAULT]  
        / i, [I]  
    /FORMAT = 'ASTER', [DEFAULT]  
    /FORMAT = 'MED',  
        ◇NOM_MED = mamed [K*]  
        ◇INFO_MED = / 1, [DEFAULT]  
            / 2,  
            / 3,  
        ◇RENOMME = _F (◇NOM_MED = grmmed, [K*]  
            ◇NOM = grma, [K8]),  
    ◇VERI_MAIL = _F (◇APLAT = / 1E-3, [DEFAULT]  
        / ap, [R]  
        ◇VERIF = / 'OUI', [DEFAULT]  
            / 'NON',),  
    ◇ABSC_CURV = _F (TOUT = / 'NON', [DEFAULT]  
        / 'OUI',),  
    ◇INFO = / 1, [DEFAULT]  
        / 2,  
);
```

Operands

Operand **UNITE**

```
◇UNITE = / 20, [DEFAULT]  
        / i, [I]
```

This operand is used to define the logical number of unit of the mesh file. '20' is used by default. If there are multiple mesh files to be read give different integer numbers to each.

Operand **FORMAT**

This keyword is used to specify the format of the file to be read. At the time of writing 2 formats are available: 'ASTER' and 'MED'.

Format 'ASTER' is described in [U3.01.00]

Format 'MED' is described in [U7.01.21]

Operands for format 'MED'

```
◇NOM_MED = mamed [K*]
```

Name of the mesh to be read in MED file (if there are several meshes in a single file)

```
◇INFO_MED = / 1, [DEFAULT]
             / 2,
             / 3,
```

Prints the information while reading the mesh file (node numbers and information on MED family are re-read)

```
◇RENOMME = _F (
              ◆NOM_MED = grmmmed, [K*]
              ◆NOM      = grma,   [K8]),
```

There are chances that after truncation, two different names in the MED file become identical if they have more than 8 characters. This keyword factor is used to rename a group of meshes in MED file to avoid conflict in names when the names are truncated to 8 characters to become the group name `GROUP_MA` in Aster.

Operand `VERI_MAIL`

Operand `VERI_MAIL` starts 3 checks on the mesh file:

- absence of orphan nodes
- absence of double meshes
- absence of too flattened meshes.

If these checks are not satisfied, the code emits an alarm.

By default (i.e. in the absence of keyword `VERI_MAIL`), the checks are made. If the user does not want to perform these checks, they should write:

```
VERI_MAIL = _F (VERIF = 'NON',),
```

A node is declared orphan, if it is not connected to anything else in a mesh file.

A mesh is declared “double”, if 2 (or more) meshes have the same list of nodes in common.

The keyword `APLAT = ap` makes it possible to emit alarms when the mesh contains too flattened meshes.

The flattening of a cell is defined as the ratio of A_{min} / A_{max} where A_{min} and A_{max} are lengths of the shortest and the longest edges of the mesh. The name of meshes having flattening less than `ap` will be printed on the file 'MESSAGE'.

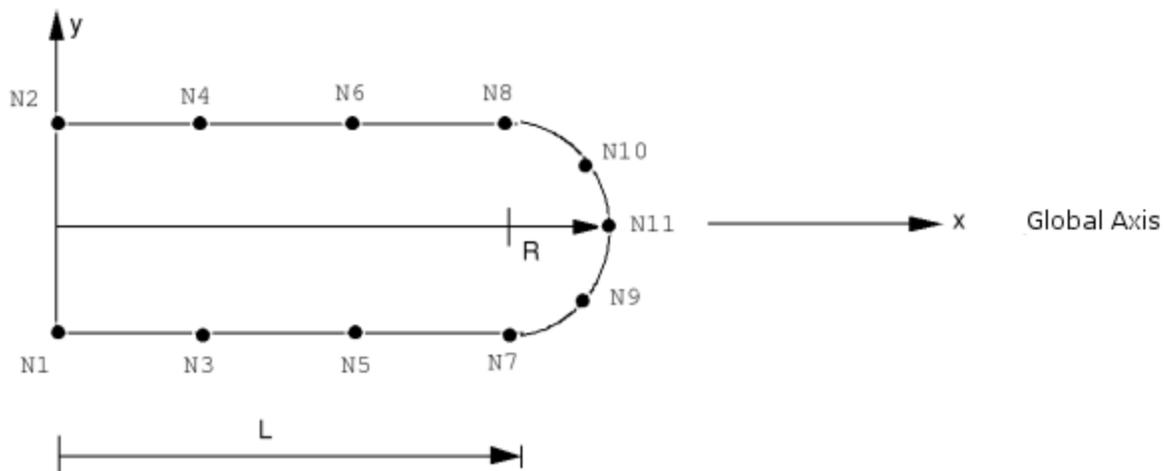
Other quality criterias for the mesh are available via command `MACR_INFO_MAIL` [U7.03.02]

Operand `ABS_CURV`

```
◇ABSC_CURV = _F (TOUT = / 'NON, [DEFAULT]  
                  / 'OUI', ),
```

Calculate a curvilinear horizontal axis for all meshes of the mesh SEG2. Association is made of the curvilinear horizontal axis with the first and second node of each cell in the direction of travel.

This is necessary, for example, to achieve a modal computation for a tube which has both internal as well as external fluid, when the density of the external fluid is defined as a function of the curvilinear horizontal axis



All meshes of the mesh must be of the type 'SEG2'

When the mesh file is read, the first mesh is encountered when there is a neighbouring mesh (N1 N3)

The last mesh is encountered when while reading the mesh during the traversal if there is only 1 neighbouring mesh (N4 N2)

If there are more paths between the starting and end mesh, computation is not possible.

Note:

The computed curvilinear horizontal axis does not take account of the possible curvature of the segments as the elements are SEG2.

Operand `INFO`

◇ `INFO = / 1,` [DEFAULT]
`/ 2,`

Operand `INFO` suggests the level of printing

If `INFO = 1`, following items are printed

- title of the mesh
- number of nodes
- number of meshes
- number of node groups and for each of them the name and number of node group
- number of mesh group and for each of them the name and number of mesh group

If `INFO = 2`, following items are printed in addition to those printed for `INFO = 1`

- list of nodes number, name, address,
- list of mesh number, name, type, name nodes,
- list of groups of nodes number, name, number of nodes, node names,
- list of groups of mesh number, name, number of meshes, mesh names.