

## Operator INTE\_MAIL\_3D

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### 1 Goal

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To define a way of type segment of right-hand side in a grid 3D. At the points of intersection of the curve thus defined with the grid could be carried out, using the operator `POST_RELEVE_T` [U4.81.21] of the statements of values and/or calculations of average.

These postprocessings do not function with the elements of structure (hulls, plates, beams).

The produced concept is of type `surface` (although the only possible way is a segment of right-hand side).

**Note:**

This order will be removed soon.

It is advised to replace it by the order `MACR_LIGN_COUPE`

## 2 Syntax

```
srfc [surface] = INTE_MAIL_3D
      ( ♦ GRID = my , [grid]
        ♦ / ALL = 'YES' ,
          / GROUP_MA = lgrma , [l_group_ma]
          / MESH = lma , [l_maille]
        ♦ DEFI_SEGMENT = _F
          ( ♦ / ORIGIN = (xA, there is, zA),
            / NOEUD_ORIG = node, [node]
            / GROUP_NO_ORIG = grno, [group_no]
            ♦ / END = (xB, yB, zB), [l_R]
              / NOEUD_EXTR = node, [node]
              / GROUP_NO_EXTR= grno , [group_no]
            )
          ♦ PRECISION = / epsi , [R]
                    / 10-6 , [DEFECT]
          ♦ INFORMATION = / 1,
                    / 2,
          )
      )
```

## 3 Operands

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### 3.1 Operand GRID

GRID =

Name of the concept of the type `grid` in which the location is carried out.

### 3.2 Operands ALL / GROUP\_MA / MESH

These operands make it possible to possibly specify the place where the location of the segment will be carried out.

ALL = 'YES'

The location is carried out on all the grid.

GROUP\_MA = `lgrma`

The location is carried out on the list of groups of meshes `lgrma`.

MESH = `lma`

The location is carried out on the list of meshes `lma`.

### 3.3 Keyword DEFI\_SEGMENT

Keyword factor whose each occurrence defines a segment of right-hand side by the data of its points origin and end (in the form of coordinates or of names of node or group\_no).

The point origin of the arc is specified by one of the keywords:

```
ORIGIN          = (Xwith, therewith, Zwith),  
NOEUD_ORIG     = node,  
GROUP_NO_ORIG  = grno,
```

The point end of the arc is specified by one of the keywords:

```
END            = (XB, thereB, ZB),  
NOEUD_EXTR    = node,  
GROUP_NO_EXTR = grno,
```

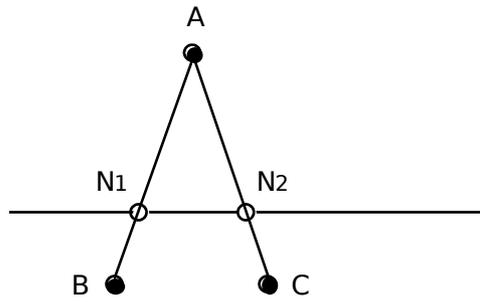
If the origin (or the end) of the arc is located inside an element 3D, then the under-segment including the origin (or the end) will be excluded from the way; a message of alarm will appear and postprocessing will continue. The way should comprise only under-segments uniting 2 faces (or edges).

### 3.4 Operand PRECISION

PRECISION = `epsi`

Fix by the value of `epsi` precision used as criterion of statement of the coordinates.

One considers a triangle which meets a segment of right-hand side according to the diagram:



One poses  $r_1 = \frac{AN_1}{\|AB\|}$  and  $r_2 = \frac{AN_2}{\|AC\|}$  and one supposes  $r_1 = r_2 = r$

If  $R < \text{epsi}$ , INTE\_MAIL\_3D consider that the ABC triangle meets the segment considered in only one point: point A. the ABC triangle does not contribute to the location.

Whereas if the user chooses one  $\text{epsi}$  such as  $\text{epsi} < R$  then the triangle contributes to the location within the meaning of INTE\_MAIL\_3D.

**The Council of use: It is possible to increase the value of  $\text{epsi}$  if the way indicated in *DEFI\_SEGMENT* do not intersect meshes with the value by default.**

## 3.5 Operand INFORMATION

The impression defines

- INFORMATION = 1 pas d' impression
- INFORMATION = 2 for each segment are printed:
  - the component count related,
  - the interval of elementary segments of each related component,
  - the curvilinear interval of X-coordinate of each related component.

and for each elementary segment:

- the type of the elementary segment (interior, of face or edge),
- the number of the mesh 3D the container,
- numbers of face and edge which contain its points ends,
- the curvilinear interval of X-coordinate (according to the segment) which it covers,
- the value of the coordinates of reference of its points ends in their face,
- the value of the coordinates of reference of its points ends in the mesh 3D.

## 4 Example of use

2 segments are defined `seg1` and `seg2` by `INTE_MAIL_3D` on which, one will extract the temperatures by `POST_RELEVE_T` :

```
seg1 = INTE_MAIL_3D (  GRID = e-mail,
                      DEFI_SEGMENT = _F (  ORIGIN = (.015, .02,0.),
                                           END = (.055, .05,0.),),
                      INFORMATION = 1)

seg2 = INTE_MAIL_3D (  MAILLAGE= e-mail,
                      DEFI_SEGMENT=_F (  ORIGIN = (.015, .02,0.001),
                                           END = (.055, .05,0.001),),
                      INFORMATION = 1)

POST_RELEVE_T (ACTION = (_F ( WAY = seg1,  CHAM_GD = t2,
                              NOM_CMP = 'temp', OPERATION = '
extraction'),
                  - F ( WAY = seg2,  CHAM_GD = t2,
                       NOM_CMP = 'temp', OPERATION='
extraction'))))

POST_RELEVE_T (ACTION= (_F ( WAY = seg1, RESULT = temple,
                              NOM_CHAM= 'temp', TOUT_ORDRE=' OUI', NOM_CMP=' temp', OPERATION=
                              'extraction'))))
```