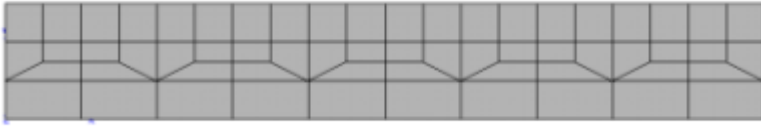


Create progressive 2D structured mesh with Z-set mesher



When simulating large domains with structured mesh (to avoid border effects for instance), it could be usefull to use the NG_extension mesher function of Z-Set (which - of course - is not even mentioned in Z-Set documentation).

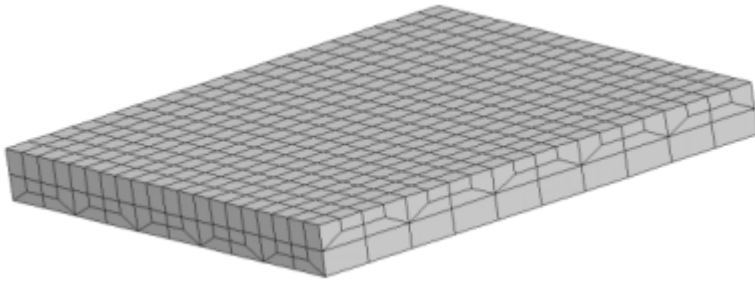
This function allows to extend a 2D quadrilateral mesh, dividing the mesh size by two. The function takes the following parameters:

- `*bset _bset_` : the border set to extend
- `*length _float_` : total length of the extension
- `*nb\_extension _int_` : number of extension (2 will for instance consists of two extension floor dividing th initial size by 4)
- `*direction _x y z_` : direction of extension

The following example computes a simple 2D extension

```
****mesher
  ***mesh deraf
    **mesh_lin_rectangle
      *ncutx 20
      *ncuty 1
      *size x 1
      *size y 0.05
    **bset toExtend
      *use_nset y0
    **NG_extension
    *bset toExtend
    *length 0.05
    *nb_extension 1
    *direction (0. -1.)
    **translate 0. 0.1 0.
  ***mesh deraf
    **mesh_lin_rectangle
      *ncutx 10
      *ncuty 1
      *size x 1
      *size y 0.05
    **union
      *add deraf.geof
****return
```

What about 3D ?



For 3D meshes, a simple way to use the above function is to combine two extension planes as follows:

```
****mesher
  ***mesh deraf
    **mesh_lin_rectangle
      *ncutx 20
      *ncuty 1
      *size x 1
      *size y 0.05
    **bset toExtend
      *use_nset y0
    **elset toDel
      *add_elset ALL_ELEMENT
    **NG_extension
    *bset toExtend
    *length 0.05
    *nb_extension 1
    *direction (0. -1.)
    **delete_elset toDel
    **extension
      *distance 1.
      *num 20
      *dir (0. 0. -1.)
  ***mesh deraf
    **mesh_lin_rectangle
      *ncutx 20
      *ncuty 1
      *size x 1
      *size y 0.05
    **bset toExtend
      *use_nset y0
    **elset toDel
      *add_elset ALL_ELEMENT
    **NG_extension
    *bset toExtend
    *length 0.05
```

```
*nb_extension 1
*direction (0. -1.)
**delete_elset toDel
**extension
    *distance 1.
    *num 10
    *dir (0. 0. -1.)
**translate 0. -0.05 0.
**rotate
    x1 0. 0. -1.
    x3 1. 0. 0.
**translate 1. 0. 0.
**union
    *add deraf.geof
```

```
****return
```

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