# Pipeline for the creation and processing of a basic square nonlinear FEM element

## NX12

* Create a sketch on the XY plane
* Draw the basic element
  + 20mmx20mm square/quarter thereof
  + 2mm wide walls
  + Centred on the global origin
* Finish sketch
* Application > Pre/Post
* Geometry Preparation > More > Bounded plane
  + Select the boundaries
* New FEM and Simulation > New FEM > Ok

|  |  |  |
| --- | --- | --- |
| New FEM | Solver | NX Nastran |
| New FEM | Analysis Type | Structural |
| New FEM | 2D Solid Option | XY Plane, X Axis |

* Ok
* 2D Mesh
  + Select the surface

|  |  |  |
| --- | --- | --- |
| 2D Mesh | Element Type | CQUAD4 |
| 2D Mesh | Meshing Method | Subdivision |
| 2D Mesh | Element Size | 2mm |
| 2D Mesh | Attempt free mapped meshing | Checked |

* + Automatic mesh creation
  + Apply
* Save

## Marc Mentat

* Import Nastran Bulk Data (.dat) file
* Fill view
* Geometry & Mesh
  + Operations
    - Sweep
      * All
      * Ok
  + 20mmx20mm square/quarter thereof
  + 2mm wide walls
  + Centred on the global origin
* Finish sketch
* Application > Pre/Post

Geometry Preparation > More