



*International TechneGroup*

# *CADfix 12/SP1*

**May 2019**

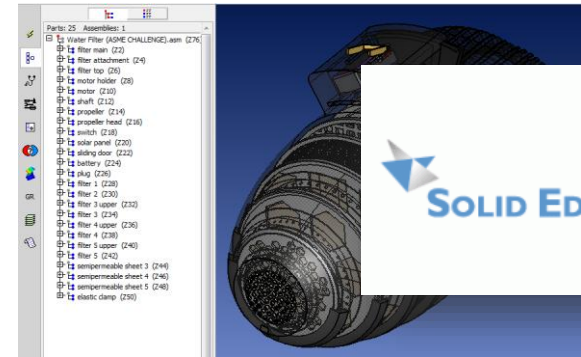


# CADfix 12/SP1 Summary

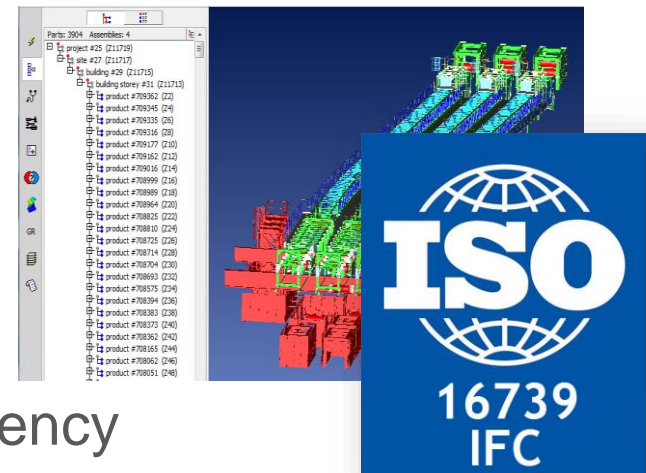
- Import/Export
  - CAD version updates:
    - CATIA V5 – V5V62019
    - NX 12
    - SolidWorks 2019
    - Inventor 2019
    - DXF/DWG 2018
  - New SolidEdge import (V18-ST11)
  - New IFC import (prototype)
  - New VRML export (.wrl & .wrz)
  - New XDMF mesh export
  - FBX export – new auto-decimation option
  - STL export – new facet length controls
  - Creo import – new option for missing accelerator files
  - Major speed-up in DXF/DWG import
- Assemblies
  - Smarter default display quality for large assemblies
- Morph
  - Morphing now available for batch runs
- Zones
  - Improved zone editing and trimming
- Build
  - Improved part scaling tool
  - Improved swept part creation
- GUI
  - New compact mode for Probe tool
  - New “Add neighbours” selection tool
- Misc.
  - New model orientation tool
  - Faster screen picking
  - Faster dynamic model viewing
  - **FlexNet licence server upgrade**

# 12/SP1: Import/Export

- New SolidEdge Import
  - Versions V18-ST11
  - Parts, Assembly and sheet metal
    - .par, .asm & .psm
  - Attributes: colour, layer, label, transparency

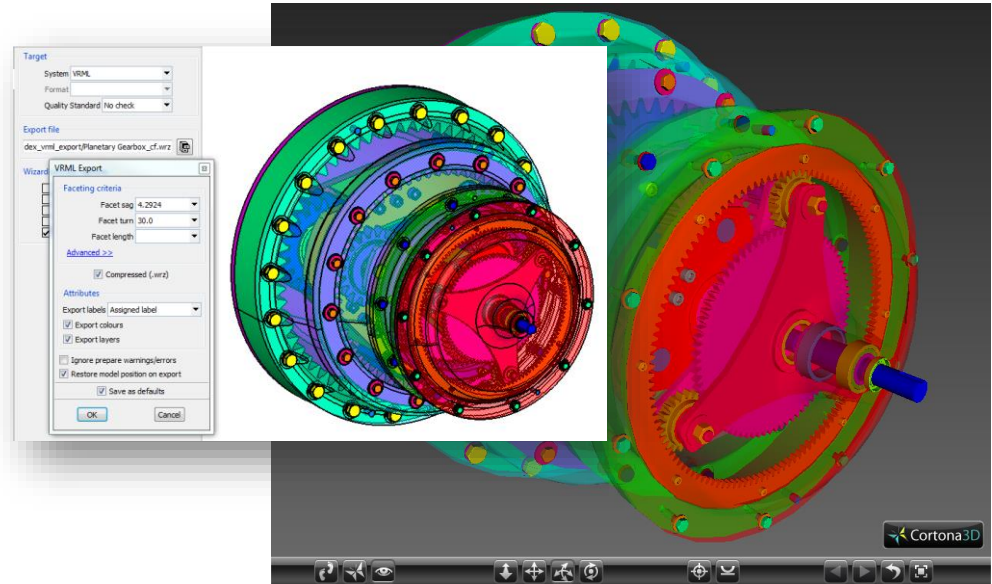


- New IFC Import
  - Support for common entity types
    - Facet based solids
    - Point and wireframe
  - Complete assembly tree
  - Attributes: colour, layer, label, transparency
  - Further entity support coming
  - *(prototype)*

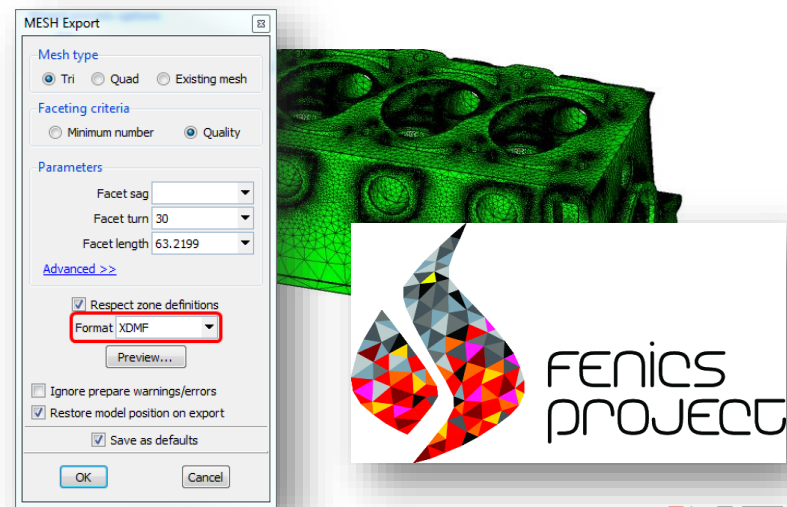


# 12/SP1: Import/Export

- New VRML export
  - VRML 2.0 support
  - .wrz compressed support
  - Assembly tree exported
  - Attributes + transparency
  - Interactive and batch



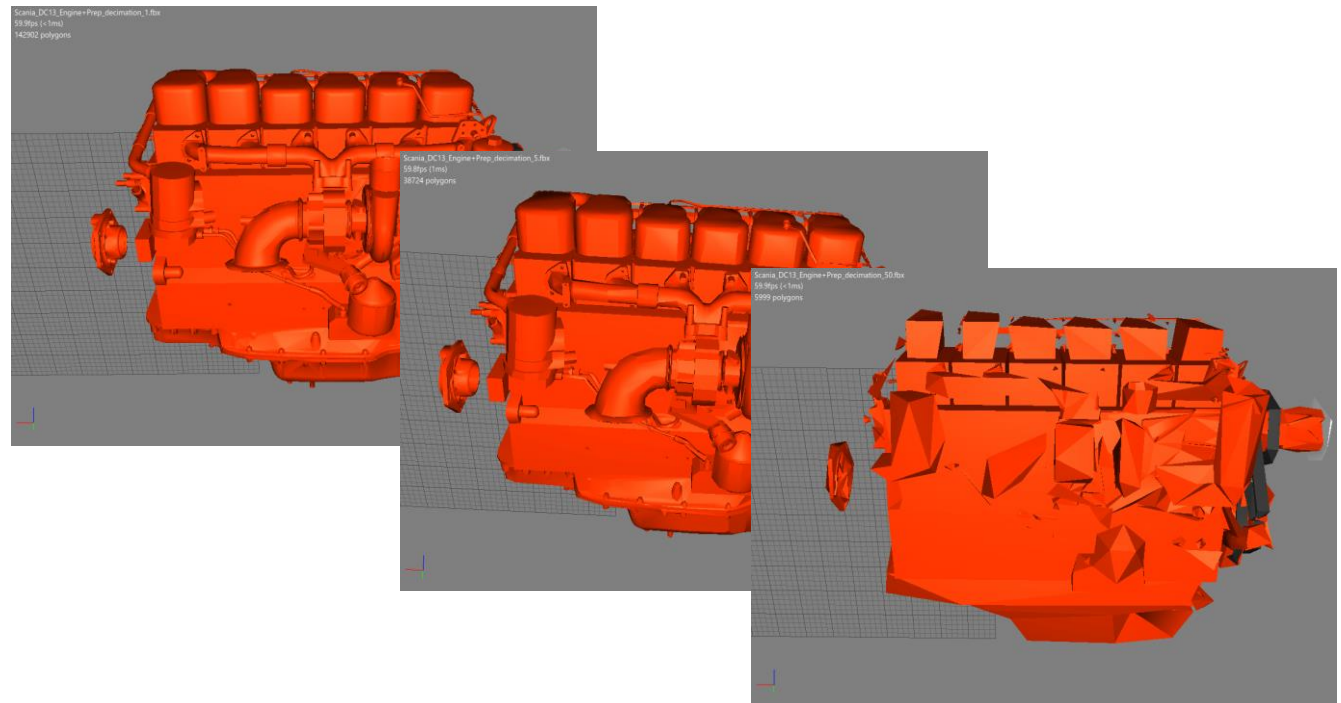
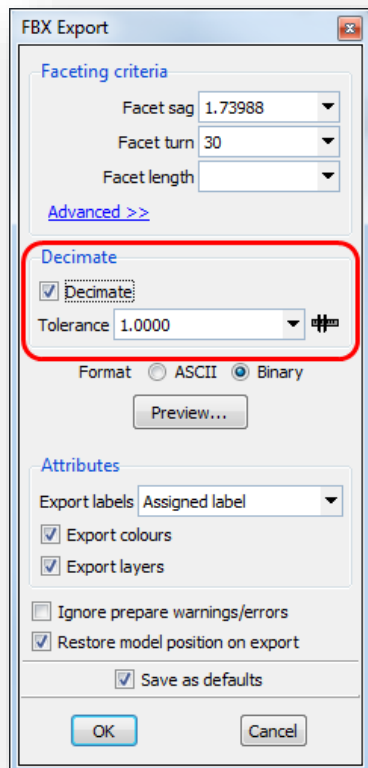
- New XDMF mesh export
  - Export CADfix surface and volume mesh to .xdm files for simulation in FEniCS
  - Tri/Quad & Tet/Pyr/Pent/Hex elements supported



T (prototype)

# 12/SP1: Import/Export

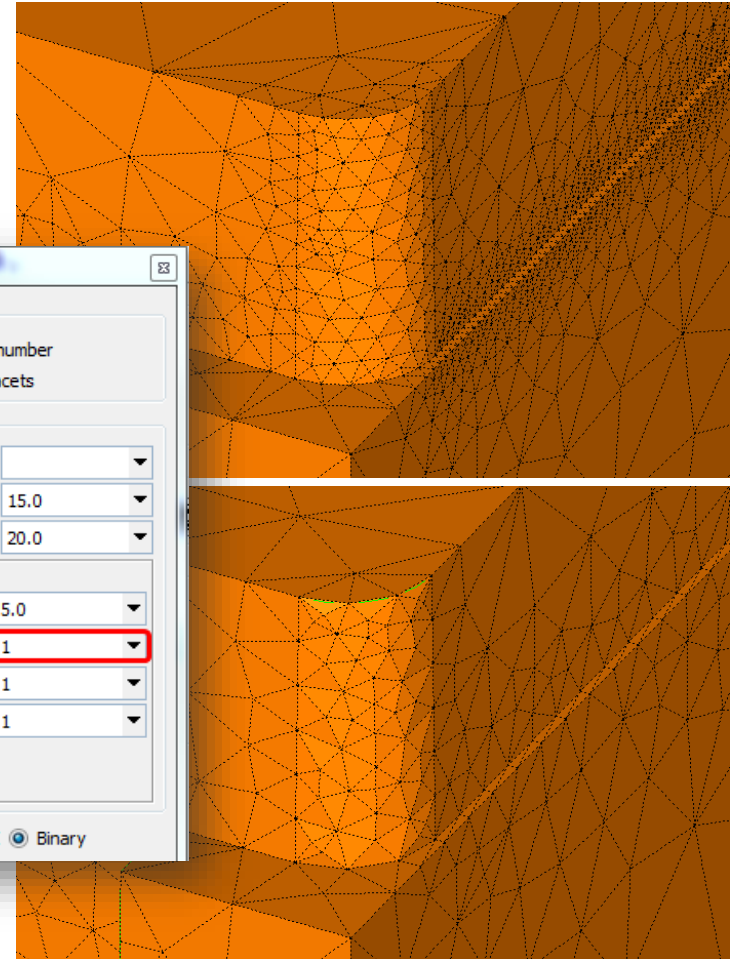
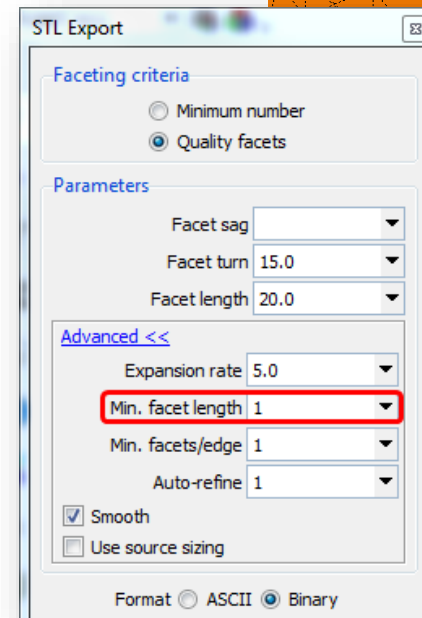
- New auto-decimation in FBX export
  - Polygon reduction through user controlled decimation
  - High tolerance = aggressive reduction, low file size
  - Interactive or batch





# 12/SP1: Import/Export

- New STL export control
  - Min. Facet length
  - Also controls the minimum radius of curvature resolved by the facet turn parameter
  - Use to reduce the effects of very small features that would result in areas of dense facets
  - Can result in anisotropic triangles where density has been capped



# 12/SP1: Morph

- Morphing now supported in batch runs
  - New .cwc configuration options control all morphing parameters
  - Input undefomed and deformed files defined in cwc file
  - Wizard log file reports progress and final status of Morph

```
transform,morph,apply [0, 1] : 1
transform,morph,undefile [NULL, file] : undefomed.stl
transform,morph,defofile [NULL, file] : deformed.stl
transform,morph,nomids [0, 1] : 0
transform,morph,matchTol [DEFAULT, value] : DEFAULT
transform,morph,fitMethod [POSONLY, POS+DERIV] : POSONLY
transform,morph,edgeTol [DEFAULT, value] : DEFAULT
transform,morph,interiorTol [DEFAULT, value] : DEFAULT
transform,morph,normalTol [DEFAULT, value] : 5.0
transform,morph,keepBad [0, 1] : 1
transform,morph,delete [0, 1] : 1
```

```
TRANSFORM
Morph: Importing mesh...

Importing model (stl 1.317Mb)...

Reading file...

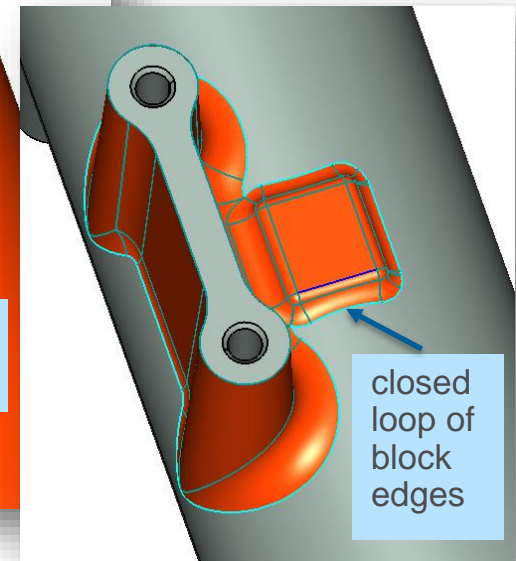
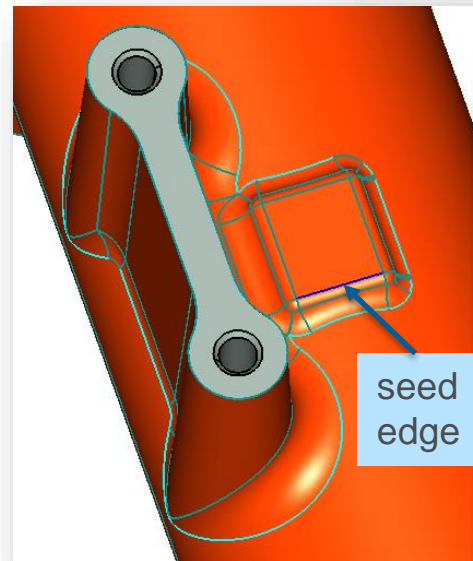
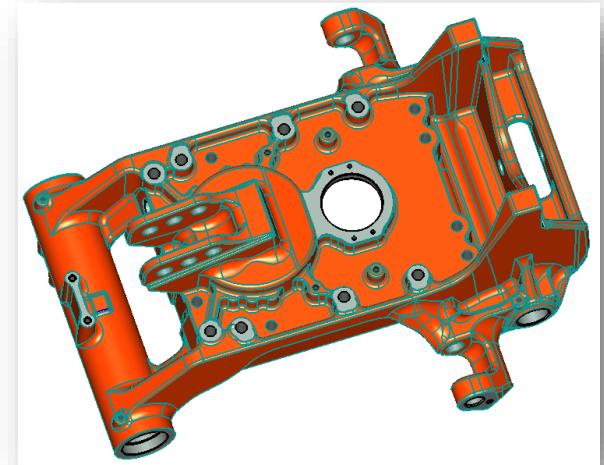
Importing model (stl 1.319Mb)...

Reading file...
Import complete ({3434 6868 0} {3434 6868 0})
Morph: Matching mesh (@ 0.00010388)...
Morph: Matching complete. Max. distance: 6.13252729511098E-07
Morph: Morphing geometry to mesh...
Deformed NURBS surfaces created: 19

TRANSFORM COMPLETED
```

# 12/SP1: Zones

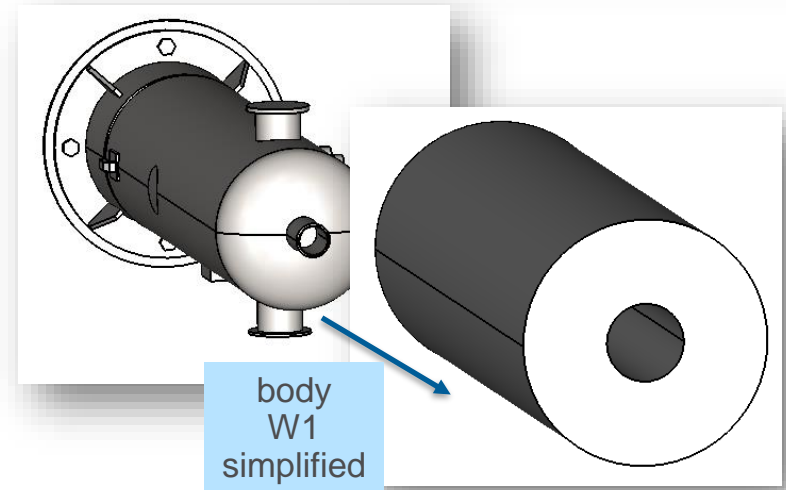
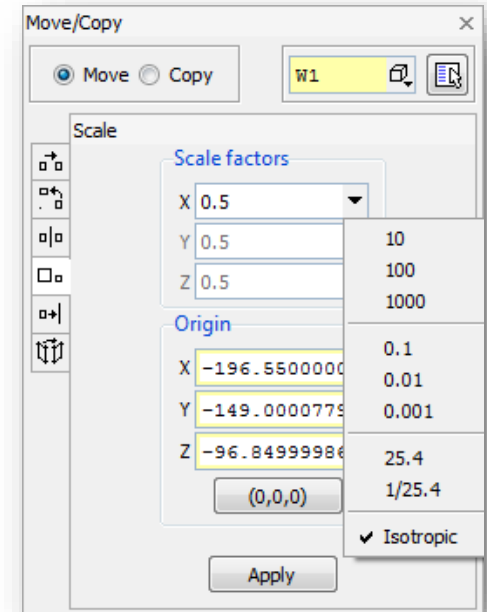
- Improved Zone construction
  - Tangential carpet selection can pick too much!
  - New colour scheme:
    - Initial “seed” edge (dark blue)
    - Blocking edges (cyan)
  - Allows for easy trimming back of a large zone by tracing out a closed loop of blocking edges
  - Further improvements coming in SP2 – auto-chain and loop tracing to speed up trimming





# 12/SP1: Build Tools

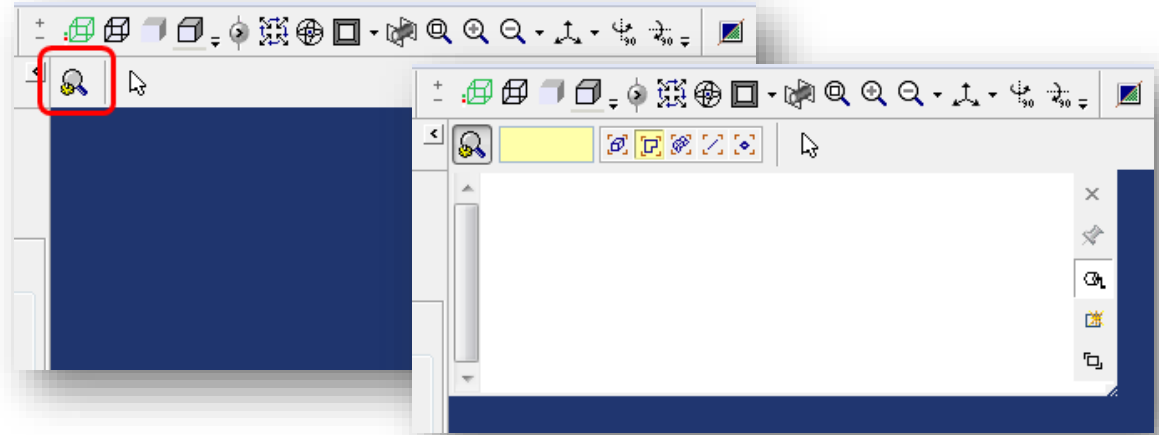
- Improved Scaling Tool
  - New menu of common scale factors
  - Option to lock to isotropic scaling (default)
  - Origin auto-populated to centroid of selected part
  - New option to reset origin to (0,0,0)
- Improved swept body creation
  - Swept and spun body creation can now redefine and existing body
  - Preserves original properties while redefining its geometry



# 12/SP1: GUI

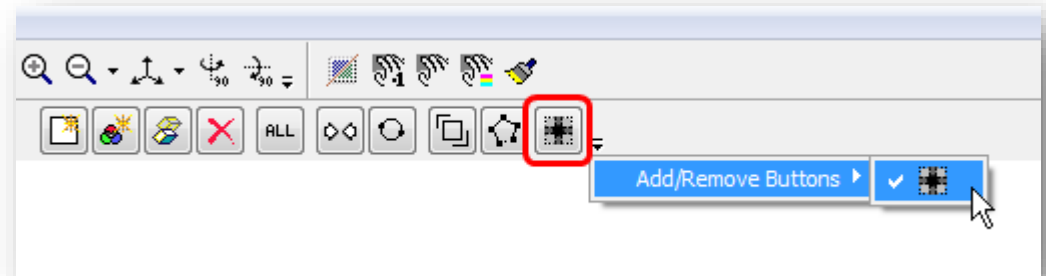
- New compact Probe mode

- When closed the probe tool hides the pick controls taking up less screen space



- New “Add neighbours” tool

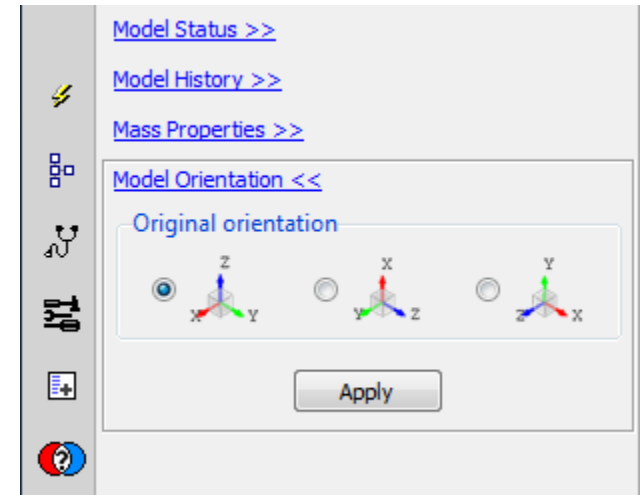
- Optional tool that can be added to the selection tools
- Quick action to extend selection by adding connected neighbours



# 12/SP1: Miscellaneous

- Model Status: New Orientation tool

- Tool to quickly rotate the model to a different standard orientation
- Select the “up” axis that the model was originally created in



- FlexNet licence server upgrade

- The FlexNet license server has been upgraded in 12/SP1 to pickup security fixes and fix linux hostid problems

**\*\*\* To run 12/SP1 and future CADfix versions the FlexNet licence server MUST be upgraded to the version (11.16.1) delivered with 12/SP1 \*\*\***