

Release Notes 10.1

The release notes cover bug fixes, a list of functions whose capabilities are improved/modified, and a list of new features.

New Features(What's New):

CAD Panel

1. **Buttons to label volute, impeller and guide vane:** Automatically lists the volute, impeller and guide vane face labels, pick faces according to the selected label.
2. **Node - load text file:** Load Text File imports a text file with X, Y, Z coordinates and automatically creates nodes (vertices) at those locations.
3. **Split Face- sketch:** Splitting by sketching tool is useful for precisely dividing a face into segments, enabling better control for geometry editing, feature creation, and localised modifications in CAD.
Split Face- sketch : Split Triangle Patch into Quads: Selecting a triangular face automatically subdivides it into three well-defined quadrilateral patches.
4. **Domain selection for NG mesh:** Now the user can choose a specific domain to create a surface mesh using the NG mesh algorithm along with EGADS.
5. **Loading option for the EDAGS and NG surface mesh:** A separate section has been added to load/ export surface meshes.
6. **Export Curve:** The Export Curve button is used to generate the linear files from the CAD edges. The export curve button is added in the Mesh/Export section of the CAD panel. The user can now give specific names to the exported curves.
7. **Extract Blade Profile Curves:** Tool is used to extract multiple 2D blade profile curves from a 3D blade CAD surface. These extracted curves can be used for automation workflows in GridPro's Blade Automation module or for generating 2D grids of blade cross-sections.
8. **Separate groups** for CAD Bodies and Labelled Groups.

Topology Panel

1. Run Ggrid on **valid block labels**.
2. Added an **interleaved pattern** for hole topology creation.
3. Option to **Evaluate curve center** using measure button dropdown.
4. Added **Curvature-based extrusion**.
5. Option to **delete guideline corners** in the extrude button: Added an option to delete guideline/master corners after extruding topology.
6. Option to **respect and not respect surface assignment** added to the align UI.
7. Added an option to **remove all the topology exclusions** using remove Exclusions button.

Grid Panel

1. **Merge:** Using this option, grid blocks/sheets within a single grid can be merged, or grid blocks from two different grids can be welded together.
2. **Sync Grid Faces:** The Sync Grid Faces tool is used to synchronise the grid nodes between two different grid sheets. It aligns the one-to-one connected grid nodes of the selected sheets, so that they lie at the same location across the interface.
3. **Expansion Ratio** added to quality metric evaluation.
4. Command line to **weld multiple grid faces**.
5. GridPro **GMSH Export**- Higher Order.
6. View **super block grids** in the GUI.
7. Delete **labelled grid blocks**.

Grid Generation Techniques

1. **Transfinite Interpolation on CAD:** TFI is a structured mesh generation technique that creates a grid between boundary curves or surfaces using mathematical interpolation.

Feature Updates(Improvements)

1. Improvement in **saving topology as a group** in a different directory.
2. Option to **multi-apply**, load 2D linear files in a 3D environment in the surface panel.
3. Block colour by quality (**color improvement**).
4. Partial transform - now the dialogue box **will not collapse** after applying.
5. **Enabled wrap option under 'nozzle'** dialog which will generate surface by surface wrap.
6. The size of the cutplane can be increased to show some offset surfaces similar to **shade near the cutplane** feature.
7. Cutplane size to be set as **0** by default.
8. **Note for Heal** added: Increase the tolerance value gradually to heal the model without collapsing faces.
9. Added a **pop-up message** to empty the existing corners in a group before adding the hole topology linking pattern.
10. **Help Message** for Spacing tool: "Please select two nodes to evaluate spacing between them."
11. Separate groups for **CAD Bodies** and **Labelled Groups**.
12. **Consistent color** across all **three axes**: global axis, centre of rotation axis and block orientation axis across all Panels.
13. The highlight of the **color of the vertices** changed for better feedback.
14. **Highlighting** in the **CAD Panel** (click on the face/body/group in the group list, and it highlights that face/ body/group in the GUI).
15. The **face list section** in the CAD panel is now **longer** for ease of visibility and accessibility of respective entities.
16. The **original name** of the grid will be **retained** during post-processing operations.
17. **Click and create vertices** at any location on the edge and face in the CAD panel.
18. Select all the CAD **faces at once** by using the Feature Select.
19. **Hide the surface mesh visualisation** by pressing escape or moving to another button.
20. **Ignore interblock faces** to all converters using the ignore internal flag.
21. Improvements in the **Generic tria** hole linking pattern.
22. **Updated License manager** added for windows package.

23. **Warning message** while updating grid after doing post processing operations.
24. **Size and visibility of the workplane** - size and visibility of the workplane can be controlled in the CAD panel.
25. **Saving options in CAD**- made saving to .gpcad format more robust
26. **Merge grid without weld** - output grid name made consistent as the input name in dialog box.
27. Updated **Jacobian grid quality** visualisation with good visualization.
28. **Block orientation**:Grid sheets are toggled off when block id/orientation is on to see the block orientation. They are turned off when the block orientation dialog box is closed.
29. **Removed HCLXAW.dll libraries** - removed legacy libraries causing unnecessary warning messages while GridPro installation.
30. Changes made in **automation volute code** for better control over topology and grid.
31. Added GL view of the **bad quality blocks for expansion ratio**.
32. Evaluation of quality metrics in the Volute grid was made **faster**.
33. Changes made in **clustering** command for better control over Grid while clustering.
34. Users can now click on the radio button to **delete the input corners** while creating an internal surface.
35. **Highlight selected faces in GL** when modifying CAD groups.
36. Changes made in **undo redo operations in Grid Panel** to make undo/redo operation more reliable.
37. **Feedback message** is added when the user tries to smooth analytical surfaces.

38. **GMSH with separate periodic** -changes made to export the separate periodic grid patches in Gmsh export.

Bug Fixes

1. Fixed Crash while using Edges surface mesh.
2. Fixed Crash in post processing while changing the density to 1.
3. Fixed Crash while using TFI in Remesh.
4. Fixed Crash while exporting grid to CIRA format.
5. Fixed Crash when welding two different grids.
6. Fixed Crash while loading .gpcad file.
7. Fixed Crash - split face by sketching.
8. Fixed Crash while using Gordon surface.
9. Fixed Crash while projecting the topology corners on the surface.
10. Fixed Crash after partial transform in windows.
11. Fixed Crash on Ctrl + Right-Drag Box Selection in Edge Mode with Revolve.
12. Fixed Crash - box/sphere selection and hit apply.
13. Fixed issue in Right Click button working on grid.
14. Fixed Issues with visualisation of quality parameters.
15. Issue in flma format - exporting issue resolved.
16. Fixed highlight Visualization issue while changing density in topology panel.
17. Fixed Bugs in Merge two interfaces in Single grid.
18. Bug in Grid Sparsening/ refinement in grid post processing fixed.
19. Fixed Nodes Visibility when vertices option is clicked under toggle display.
20. Fixed issues in Healing of the heavy CAD models.
21. Fixed Jacobian quality visualisation flipped colour: now bad blocks are shown in red and good blocks are shown in blue colour.
22. Fixed issues in visualization in removing faces from the newly created CAD groups.
23. Fixed issues in saving CAD to .gpcad creating duplicate faces.
24. Fixed issues in CGNS export - now able to export to both HDF5 and ADF CGNS formats from GUI and from command line.
25. Fixed Duplicate faces appearing when creating new CAD groups.
26. While using the Split edge operation, fixed the missing split edges issue.
27. Property being merged with the interblock in the weld grid is now fixed.

28. Welding via the GUI does not carry over the interface properties that are now fixed.
29. The issue in moving the workplane using the handle in Windows is fixed.
30. Unable to remove exclusion in Mac has been resolved.
31. Fixed issues in Split blocks in grid panel - splits properly now.
32. Vertex color issue in CAD resolved.
33. Fixed topology jumps in the extrude topology features.
34. Not able to load the STL converted to tria in the GUI is now fixed.
35. Orientation of hole topology in dummy holes in Curvature is fixed.
36. Scaling of the 3D Box in the CAD panel is fixed.
37. Bug in smoothing surfaces using smooth surface is now fixed.
38. The progress bar getting stuck while loading 3D CAD in a 2D environment is fixed.
39. The clustering tool generating folds (issues related to tolerance and projection when the points are too close) on a zero-fold grid has been resolved.
40. Fixed issue in the workplane not visible during preview is fixed.
41. Fixed issue in Grid extrusion - Grid extrusion can be executed multiple times without any issue.
42. Not being able to extrude a 2D grid to 3D is fixed.
43. The fold highlight color changed to bright red to indicate the issue clearly.
44. Fixed issue in CAD translate - Child entities (vertices and edges) are being translated with the CAD faces and edges after using translate.
45. Resolved the issue of dialog box popping up while reloading the surface.
46. Fixed the issue to merge the edges in CAD when they form a closed curve.
47. Option to pick a centre node of an edge/face in the CAD panel is fixed.
48. Fixed issue while merging two edges - When merging two curves sharp edges are formed.
49. Fixed Issue in performing the rail function under Sweep - linear file.
50. Fixed Hole topology validity issue due to exclusions - now exclusions can be removed by using remove exclusion button.
51. Fixed issue in vanishing of the grid sheet while grid undo-redo in grid panel.

And many more..