Grid*Pro* v9.0

Bug Fixes:

1. Fixed a crash while right-clicking on a surface.
2. Fixed a crash while using the Heal tool.
3. Fixed a crash while giving periodic assignment selecting periodic pair option.
4. Fixed a crash/freeze issue while doing reverse nest
5. Fixed a bug in Internal Wrap, now internal wrap works consistently for valid topology.
6. Fixed a bug in Internal + External wrap creating a broken topology.
7. Fixed a bug in align when an insert is added to topology after running the ggrid.
8. Fixed a bug in insert block and sheet.
9. Fixed a bug in controlnet surfaces adding a popup message if branching is present.
10. Fixed a bug in Refine. A warning message is prompted when trying to refine an Analytical surface.
11. Fixed a bug in the manual assignment of Periodic surfaces.
12. Fixed a bug while merging mismatched surfaces.
13. Fixed a bug in saving the surfaces without extension, now the extension is added automatically.
14. Fixed a bug in transform topology, now Scaling and rotation parameters are disabled when matrix form is enabled.
15. Fixed a bug in the restart, it doesn't display any popup now when the restart parameter is disabled after restarting the grid.
16. Fixed a bug in mirroring the grid whose periodicity is not achieved.
17. Fixed a bug in the block label, now selected block label can also be used as a reference group.
    Fixed a bug in modifying surface settings dialog when the current surface is modified

List of functions whose capabilities are improved/modified:

1. Qt Upgradation to 5.x
2. Improved Surface meshing with Updated NetGen meshing.

3. Improved import process of STEP and IGES files.

4. Improved Cut planes. Users can create multiple Cut planes to create sectional views at any given location and direction.

5. Improved GL features by new Picking and new surface selection addition.

6. Extrude block faces. Block face/s can be extruded whose properties are carried forward now after extrusion.

7. Users now can stop the surface meshing in the CAD panel if it is taking too long instead of killing the GUI.

8. Tube and Quad import formats are added under the Import section.

9. Grid schedule dialog box is changed for easy access to advanced features.

10. Optimize visualization for large cases.

11. Optimized rendering large cases in the GUI. Edge evaluation, maintaining corner groups etc are optimized for performance.

12. Optimized Split topology operation. Topology is now split into different segments without regenerating faces and blocks.

13. Local faces and blocks for insert purpose alone. Block and faces evaluation are localized to increase the speed of the insert operation in large topologies.

14. Surface rendering upgraded to the shader approach for reliable and smooth rendering.

15. Automatic suggestion of Densities. User can now get Automatic suggestion of densities according to the edge length in both the Command line and UI.

List of new features:

1. **Surface mesh quality** - A quality metric is added to investigate the quality of the surface triangulation. Now user can inspect the quality of surface mesh so that he can know if surface is suitable to generate a good mesh.

2. **Revolve surface** - Feature curves along the axis. Edge/s or features can be revolved about an axis to create a surface/Geometry.

3. **CAD label-based surface splitting -** The user can split the surfaces using the CAD Face Groups.

4. **Map Topology from existing template to new geometry** - Block can be mapped from one template to another new geometry which is topologically similar to create valid topology.

5. **Auto-mesh Volute -** The user can automatically generate a topology and mesh for a volute geometry.

6. **Smart topology-based mesh sizing** - Can auto-adjust the density by changing the density of the topology based on a reference density for a reference edge.

7. **Polygon macro -** The user can use the polygonal topology macro to automatically create a topology with the desired specifications.

8. **Advanced topology smoother -** Able to smooth entire topology or corners in groups, thus reducing the convergence time of the grid smoother Ggrid.

9. **Grid on disjoint Topology -** Two disjoint topologies made by splitting the single topology can be used to generate the grid using the disjoint grid command and output is written in the same grid file.

10. **Variable boundary layer clustering using scale planes -** The user can create boundary layer clustering which can be increased along given direction/s using scale plane.

11. **New grid block smoother** - New TFI and PDE-based smoothing are available for smoothing the Grid as a post-processing step.

12. **Load multiple grids at once -** Multiple grid files can be loaded at once in the Grid panel.

13. **Basic Entity Creation -** Node, Line, Arc, Spline are added as new geometry creation features in the CAD panel.

14. Tools for **Revolve, Extrude, Sweep, Loft** and are added as advanced geometry tools in CAD panel.

15. A new **EGADS**-based meshing algorithm is available along with NetGen meshing.

16. New GridPro CAD format *.gpcad is available for import.

17. **Higher Order view -** The user now can import a higher order grid to visualize it and check its quality.

18. **Remove Faces** - Now User can remove the individual faces of the CAD geometry from Cad panel.

19. **Invert Orientation -** Faces of the CAD geometry can be inverted when needed and it displays a message in case the inversion is causing the invalid geometry.

20. **Extrude CAD –** Curves or Faces of the CAD geometries can be extruded along the desired axis.

21. **sync_grid_nodes command** – Sync nodes at block interfaces

22. **map_corner_indices command** – Map the corner indices and reset the corner ids in the input topology

23. **smoothen_grid command –** smooth blocks which have bad quality cells in target matrics.

24. **extconn_topology command** - Copy the topology in multiple directions if geometry has similar patterns across any/all directions.

25. **sheet_faces_of_topology command** – Create surface from grid sheets

26. **mrgg command** – Concatenate multiple surfaces into single file even if they doesn't have matching triangulations.

27. **density_balance command** – Balances the densities so that cell length are uniform all over the input group/region.

28. **extract_sheet command** - regenerate or check .conn file from point data.

29. **tube_from_curves command** – Create a tube surface from a profile curve and a cross sectional circular arc.

30. **split_blocks command** – Split the blocks of the grid at the selected grid sheet.

31. **auto_trim_surface_group command** – Trim the topology with respect to the surface and surface group.

32. **curve_redistribution command** – To distribute the curves and add more points in high curvature region