GridPro

What's New – v8.0

Save→Project

PURPOSE: Saves the existing fra file in the GUI along with the surfaces to the user-defined folder.

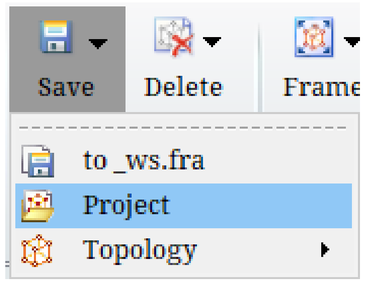

Figure: Save→Project

How to use:

1. Go to Save→Project
2. Select the desired folder where you would like to save the fra file along with its surfaces.
3. You can also create a new folder and save it inside.

Application:

1. It helps in transferring the files from one system to another without loosing any related surfaces, especially when you want to send your files for support.

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Save→Topology→Group

PURPOSE: Saves a part of the topology as a template using the given corner and surface group.

How to use:

1. Group the desired blocks and surfaces in a corner and surface group respectively.
2. Go to Save→Topology→Group
3. Select the corner and surface group where the blocks and surfaces are grouped.
4. Enter the fra file name and click ok.

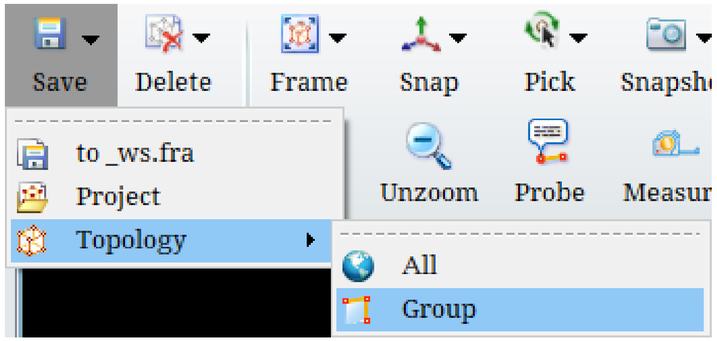

Figure: Save→Topology→Group

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Measure

PURPOSE: Measures the distance between any two selected elements in the GUI. You can find the distance between any two surface nodes, corners, grid nodes and geometry faces.

Figure: Measure

How to use:

1. Click on Measure button to switch ON the tool.
2. Select any two points on the surface, two corners, two points on the grid or two points on the geometry faces. The distance between the selected points will be displayed by connecting the points by a green colored line.

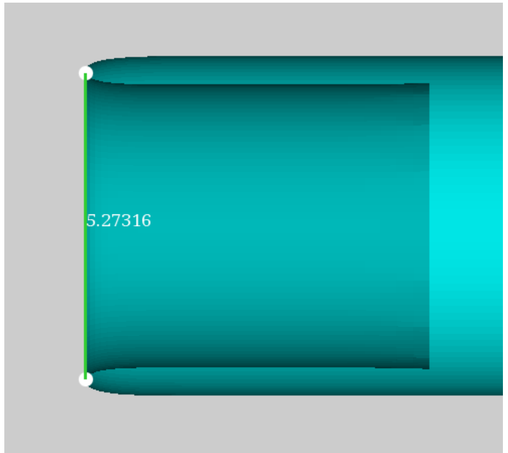

Figure: Distance between two selected points on the surface

Display - Transparency

PURPOSE: Sets transparency to the surfaces so that users can either view the features inside the geometry or the topology behind the surfaces.

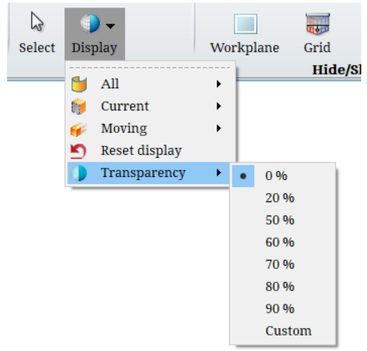

Figure: Transparency dropdown

How to use:

1. Go to Display button→Transparency
2. Select the desired transparency value from the dropdown list, where 0% represents opaque and 100% represents fully transparent.
3. You can also choose to set a user-defined value by selecting the custom option which will open a dialog box for input.

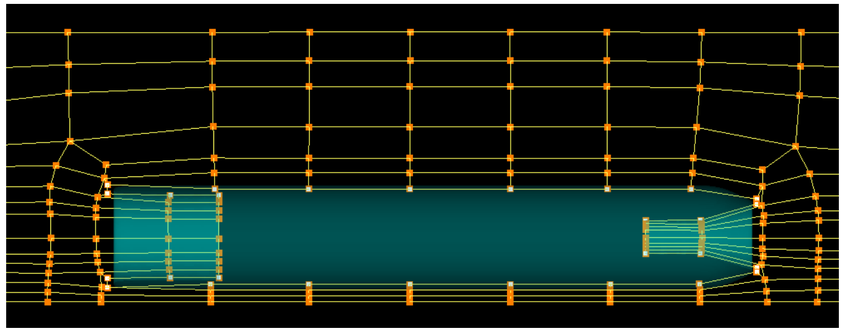

Figure: With 50%Transparency

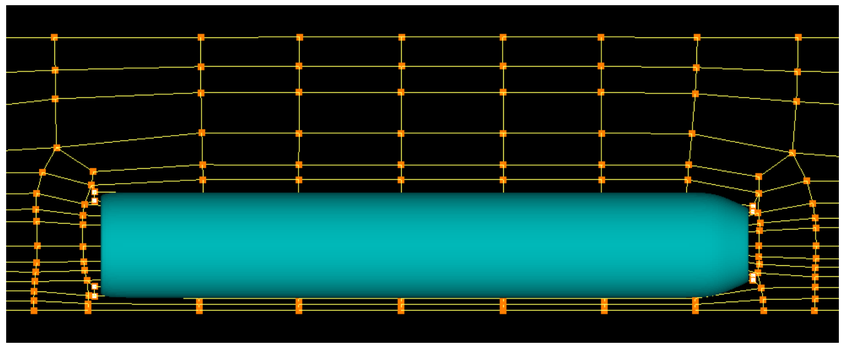

Figure: With 0%Transparency(Default)

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Workplane→Center

PURPOSE: Set the center of the workplane to origin, center of the entire model or center of the topology.

How to use:

1. Click on Center button in the left side tool bar.
2. Select the desired option from the drop down. The workplane center will be moved to the selected option.

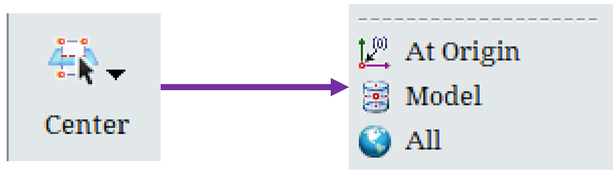

Figure: Workplane center dropdown

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Wrap – Face Exclusion Group

PURPOSE: Excludes the given face/s from wrapping. Alternate option for excluding a face using ‘F’ key.

How to use:

1. Group the desired face/s which has to be excluded while wrapping.
2. Input the corner group under Exclusion Group option.
3. Execute wrap.

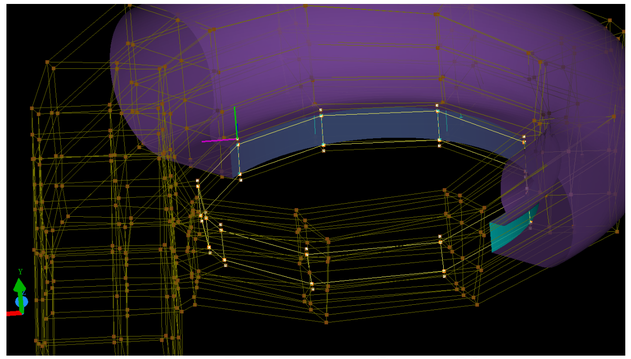
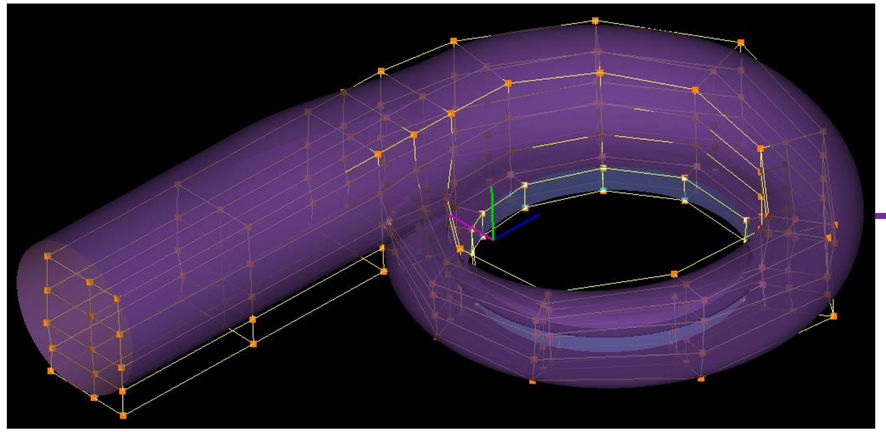


Figure: Face Exclusion Group - C2



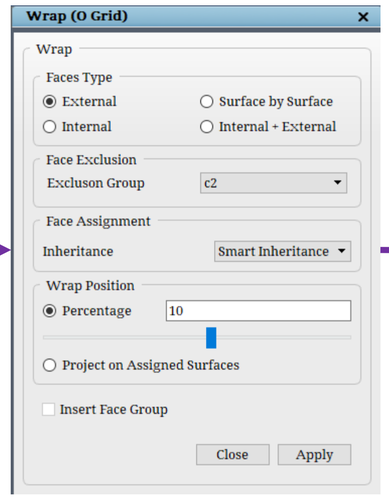
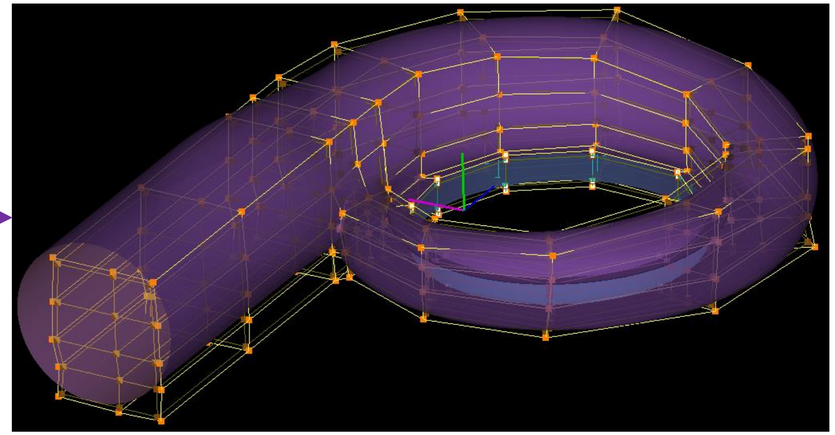


Figure: Wrap with Face Exclusion Group



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Density

- Density dialog box is totally revamped with various advanced functionalities.
- Clicking on Density button opens a dialog box with two options – GL Select and List.
- GL Select is the traditional wrap of setting density by clicking on the desired edge. By default the GL Select option is enabled. The old dialog box will open once the desired edge is selected.
- List has different features to update the existing density modifications.

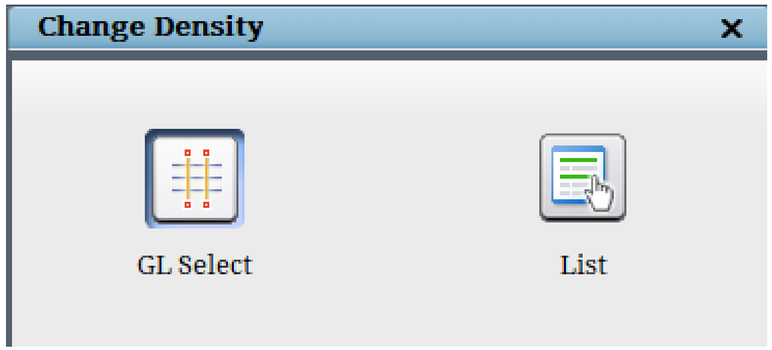

Figure: Density Dialog box

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Density

- The first section lists all the densities which are already modified from their default density. Click On Edit icon to modify them again or Delete icon to reset it to default.
- Under Global settings, you can change the default density of the topology and change the density of multiple edges from one density to another. For e.g. you can change all the edges whose density are set as 12 to 16.
- By enabling the scaling check box, you can either increase the density of all the edges by 2/3/4 times or decrease it by half/quarter.

Note: Make sure to click on Apply if you modify anything, otherwise the changes won't be considered.

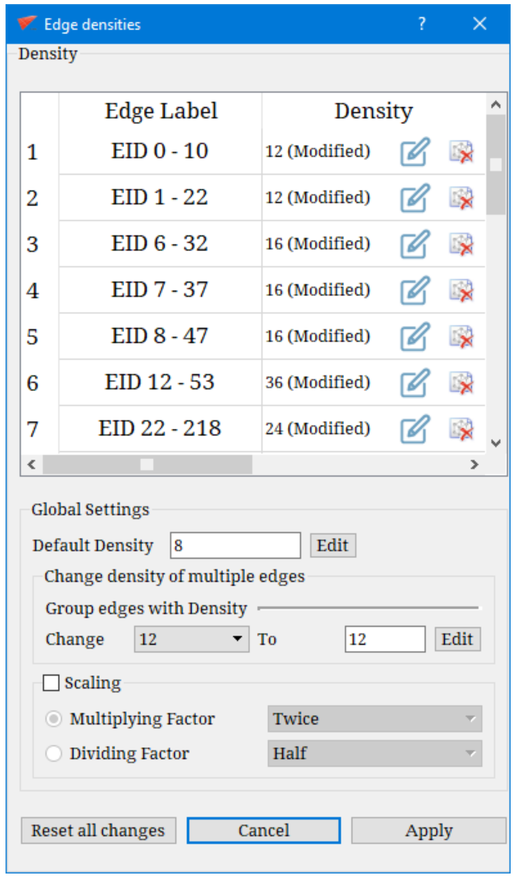

Figure: Density List Dialog box

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Density

- Density Legend – A visualization tool which helps in viewing all the similar densities in the topology with a click of a button.
- Click on the colour bar which says 24, to view all the edges whose densities are set to 24.

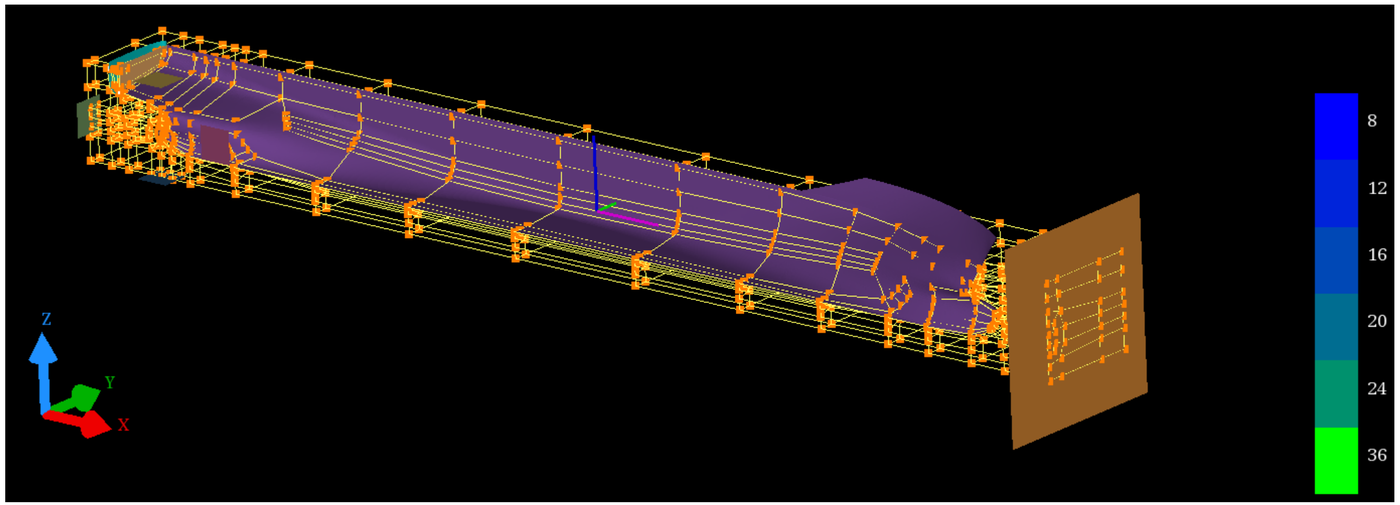

Figure: Density Legend

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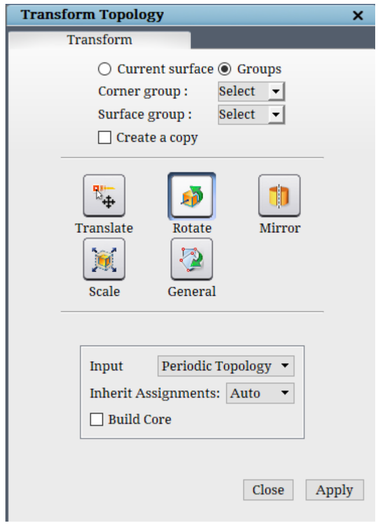
Periodic Core Blocks

PURPOSE: Automatically create core blocks when the periodic topology is rotated to form full 360 degree topology.



How to use:

1. Click on Transform button and go to Rotate option.
2. Select ‘Periodic Topology’ under Input.
3. Enable the ‘Build Core’ check box and click Apply.

Application:

1. Till v7.0SP1, when you rotate a periodic topology to full topology, it simply rotates and create singular edges at the center. Based on the number of copies, the singularity increases. From v8, with the help of build core blocks, we can create a hex block at the center and avoid the singular edges.

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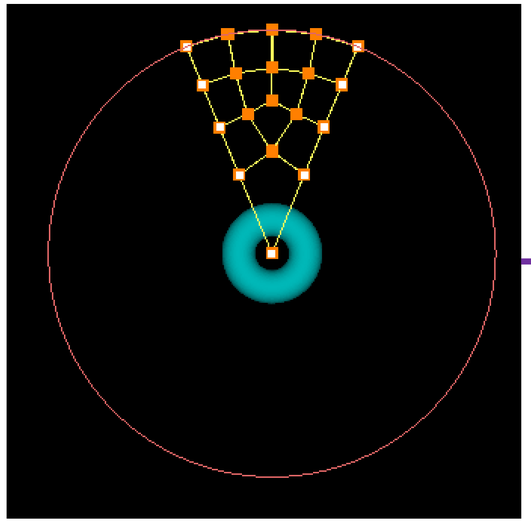
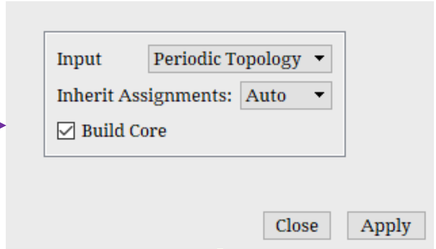
Periodic Core Blocks





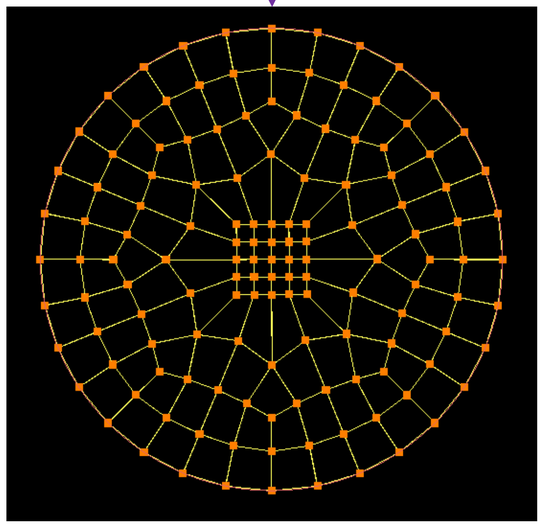


Figure : Periodic to full topology with Build Core

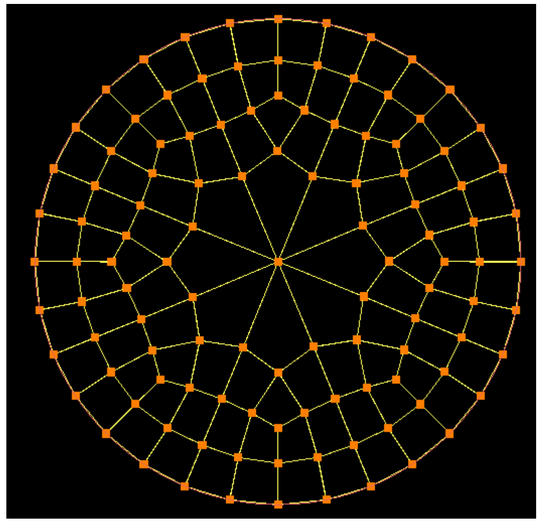


Figure : Without Build Core

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Edge Length

PURPOSE: Increases/Decreases the selected edge length by moving either one of its topology sheet.

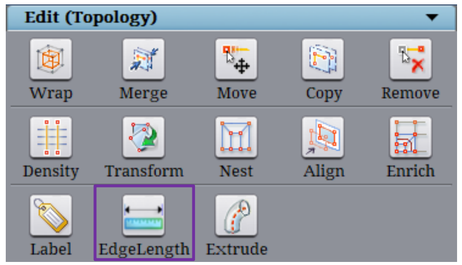

Figure: Edge Length button

How to use:

1. Click on Edge Length button under Topology→Edit Section.
2. Select the desired edge whose length has to be modified.
3. Select the desired option under the Adjust group. It decides whether to move ALL the parallel edges' length, a group of given edges or a selected edge alone.
4. If 'Group' option is selected, you need to input the corner group whose edge length has to be modified under Reference group.
5. Sheet selection
6. Adjust the slider to move the selected topology sheet to reposition to the desired location.

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Edge Length

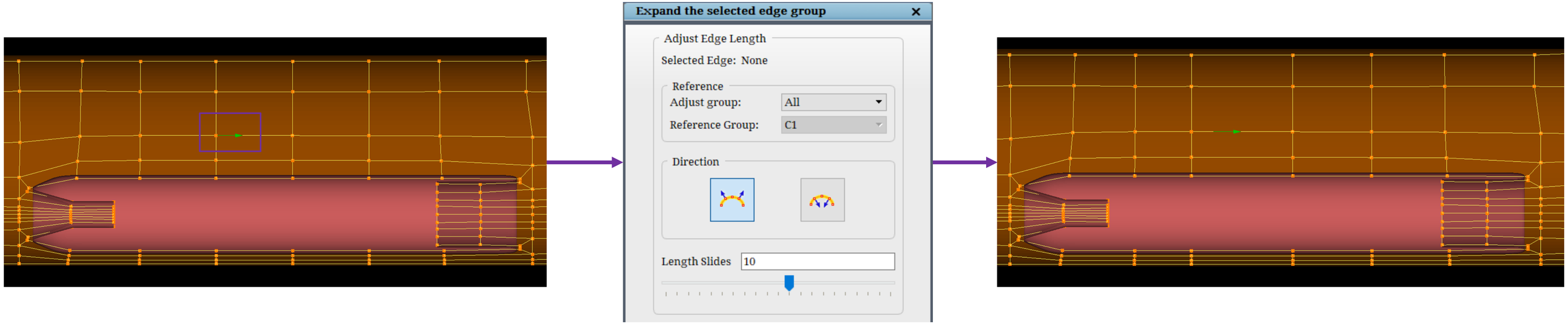

Figure: Edge Length Dialog box

- Once the edge is selected, an arrow highlighting the sheet which will be moved appears.
- If you wish to move the opposite edge, then click on the other direction icon to switch the arrow.
- Then adjust the slider to fix the length of the selected edge.
- The selected edge's length can either be increased or decreased.

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Extrude

PURPOSE: Extrudes the given group of faces along the given chain of corners, curve or a surface. Works well for surfaces which are tubular in nature.

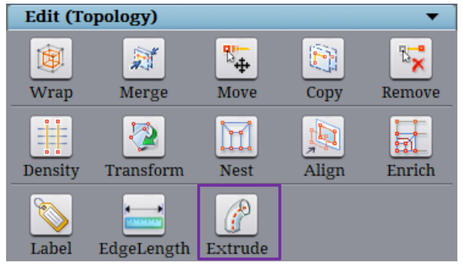

Figure: Extrude button

How to use:

1. Click on Extrude button to open the dialog box.
2. Select the corner group which has to be extruded under ‘Source’
3. Select Surfaces under Reference Type in Guideline section and Input the surface group to calculate the centerline of the geometry.
4. If required, you can edit the centerline to suit your need by enabling the checkbox.
5. Input the desired values under parameters section and Click Copy to extrude.

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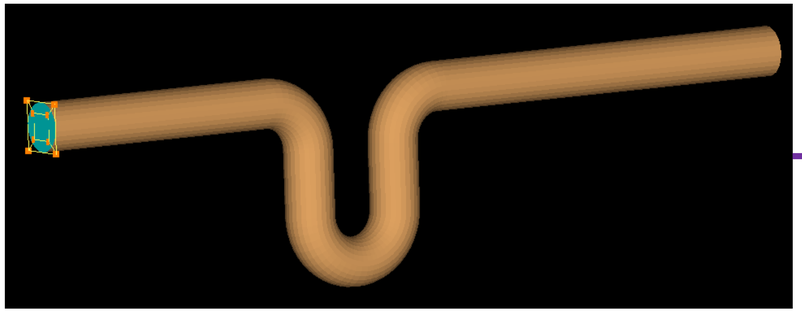
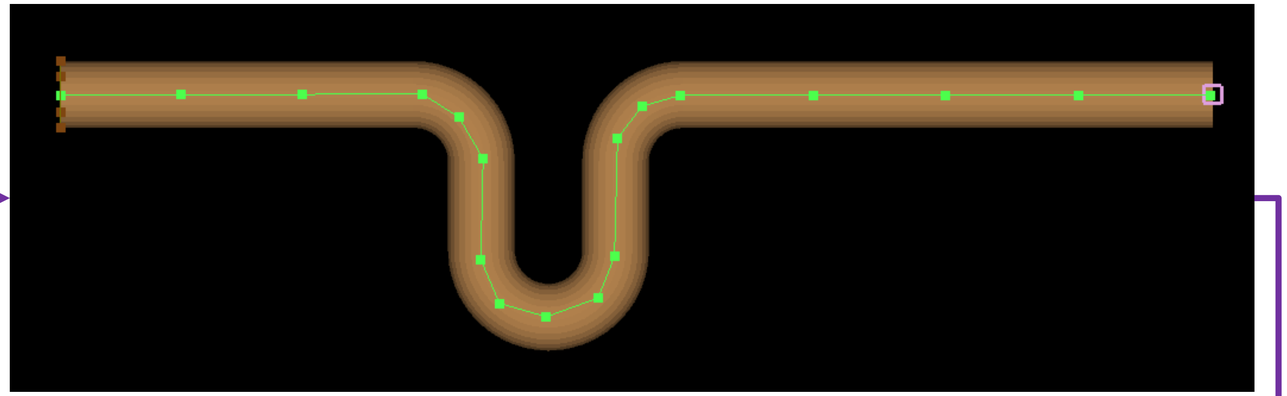
Extrude

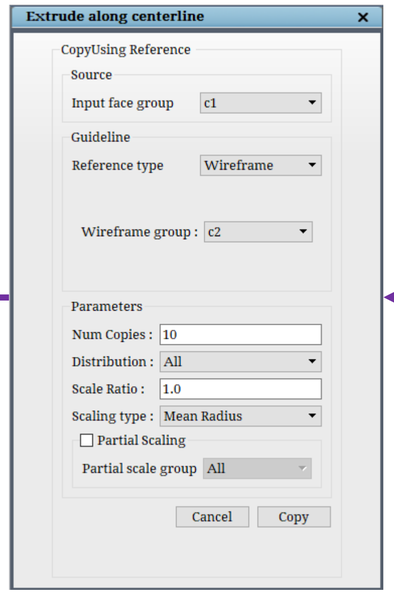


Input

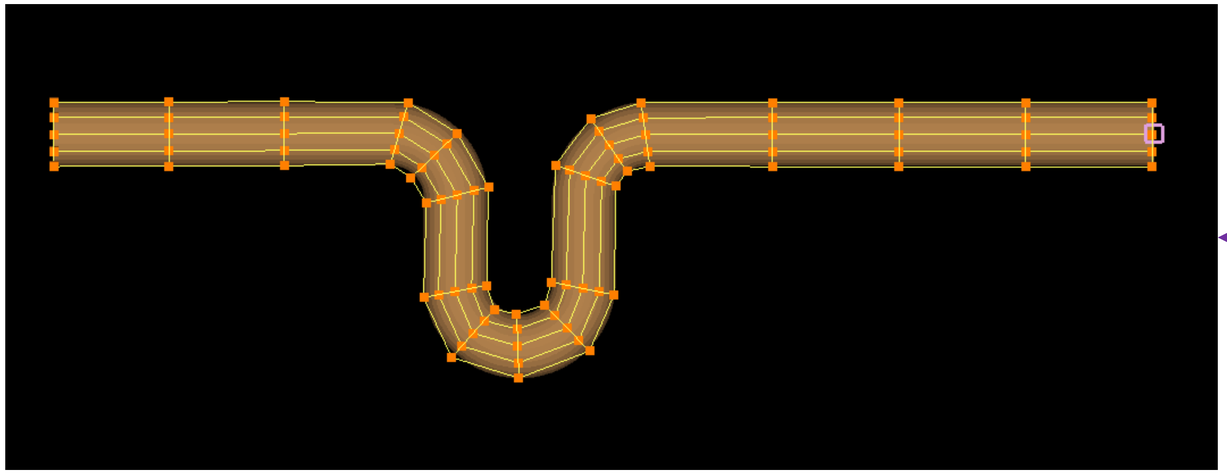


Manually created centerline wireframe

Uniform Cross section – Reference Type - Wireframe



Extrude dialog box



Topology copied along the centerline

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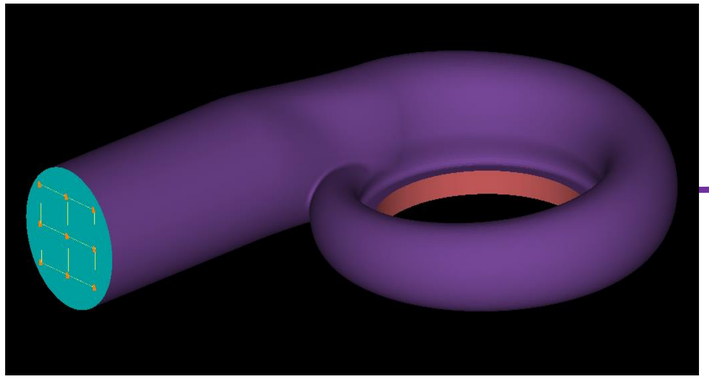
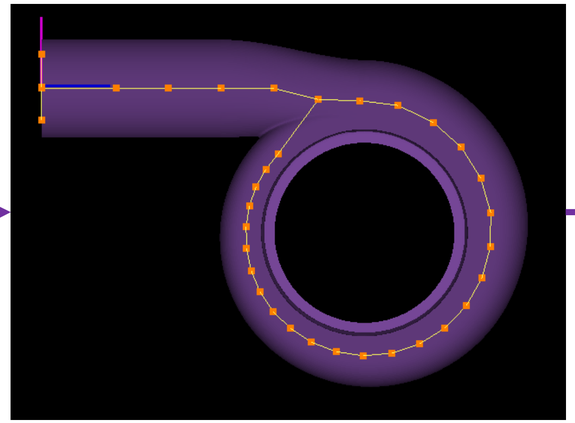
Extrude

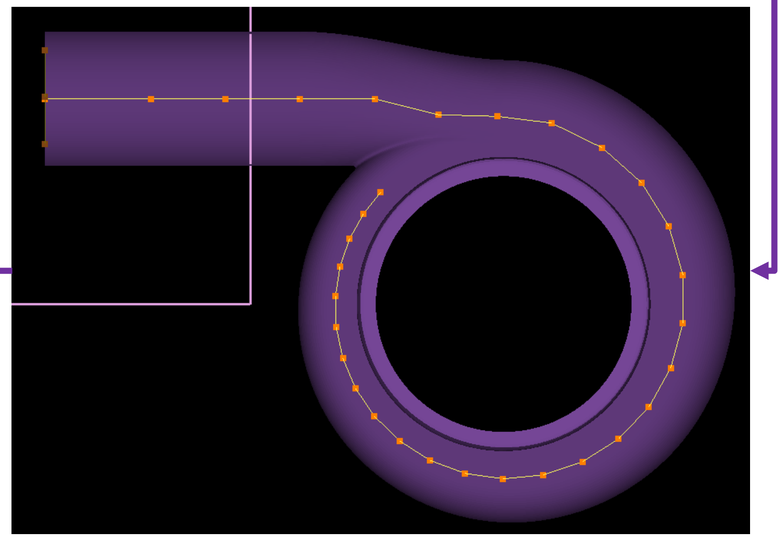


Input

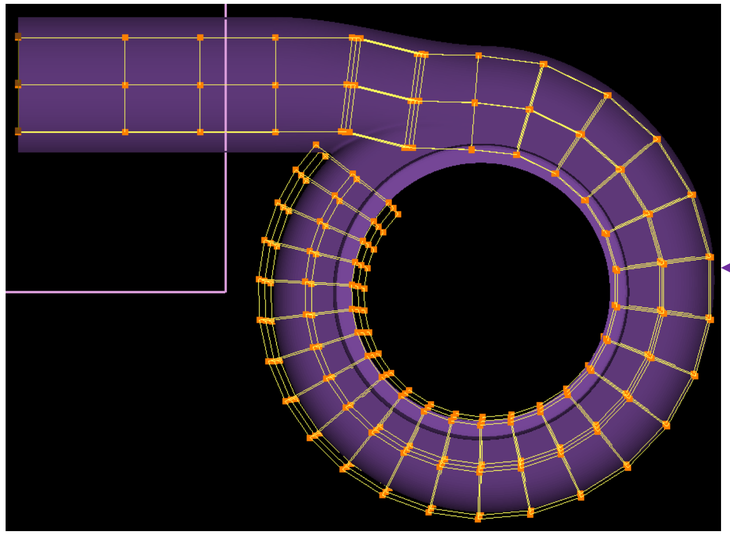
Reference Type – Surface for centerline evaluation
Reference Type – Wireframe for copying the topology



Centerline Calculated



Centerline Modified



Extruded Topology

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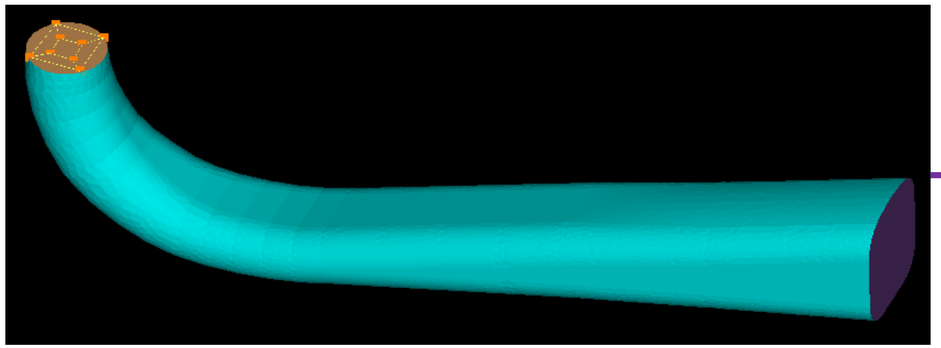
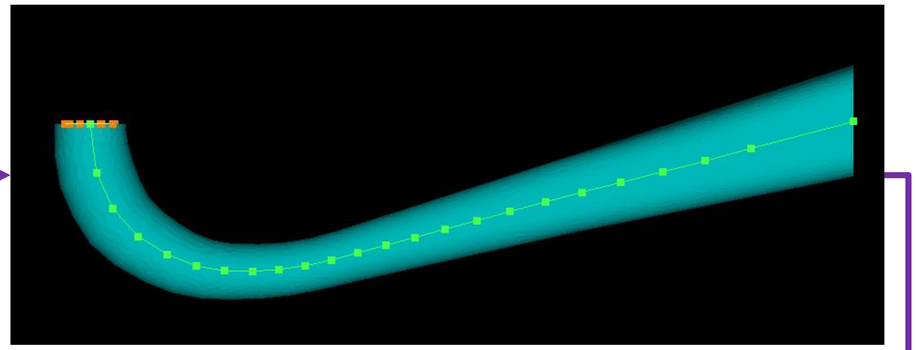
Extrude

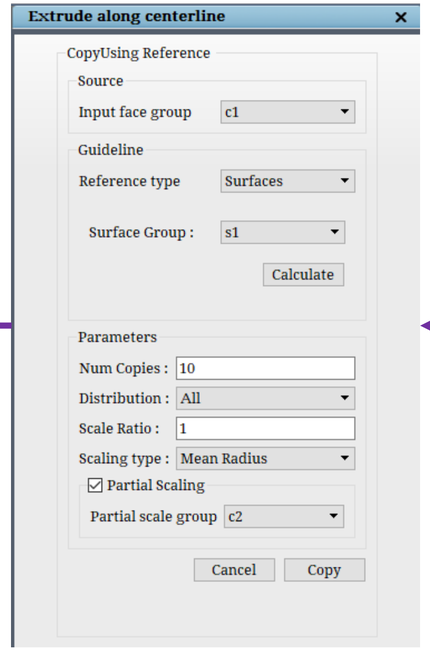


Input

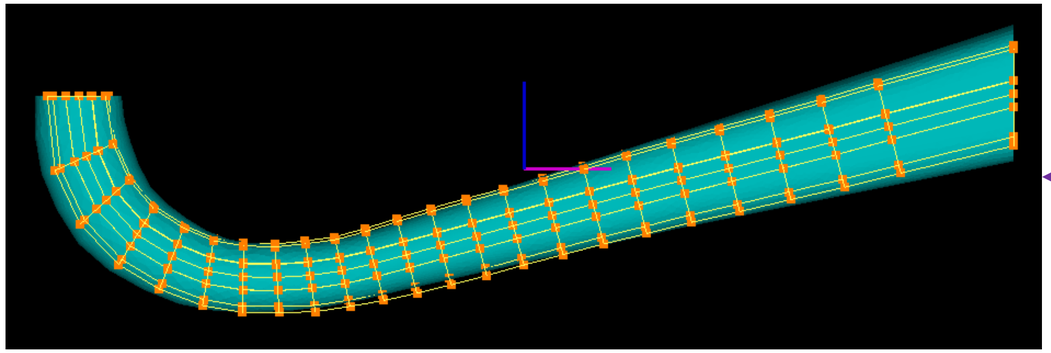


Centerline Calculated

Variable Cross section
Reference Type – Surface



Extrude - with Partial Scaling



Extruded Topology

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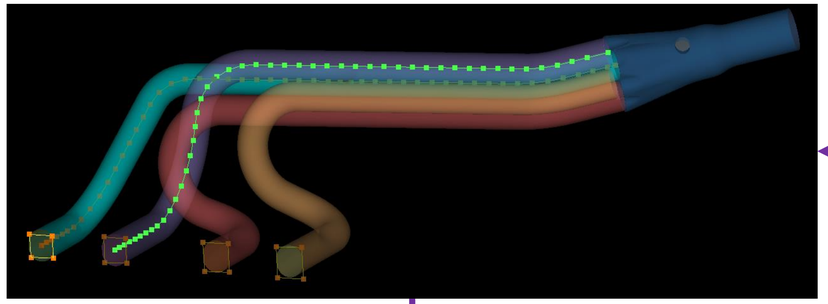
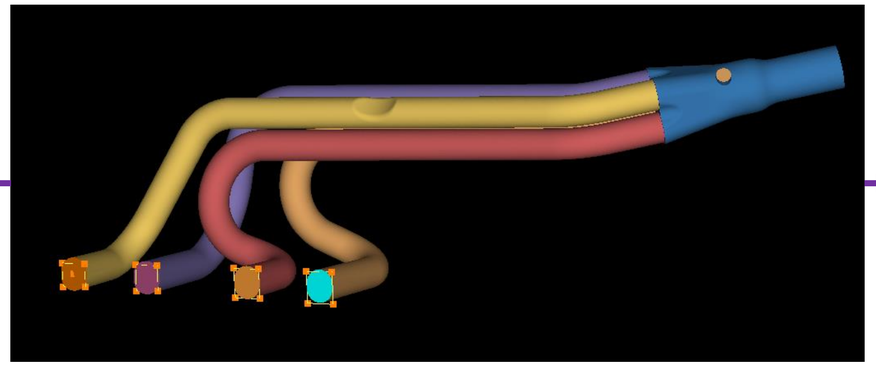
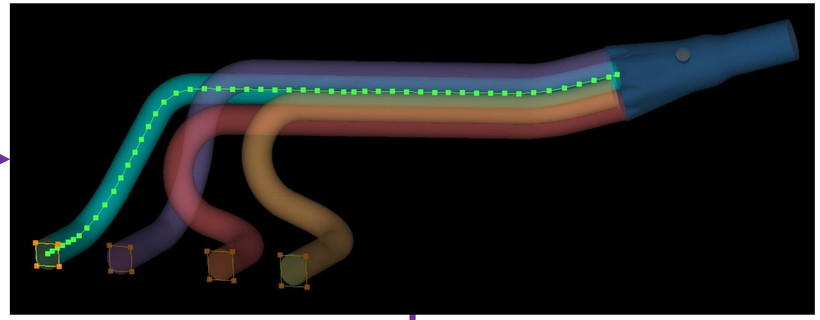
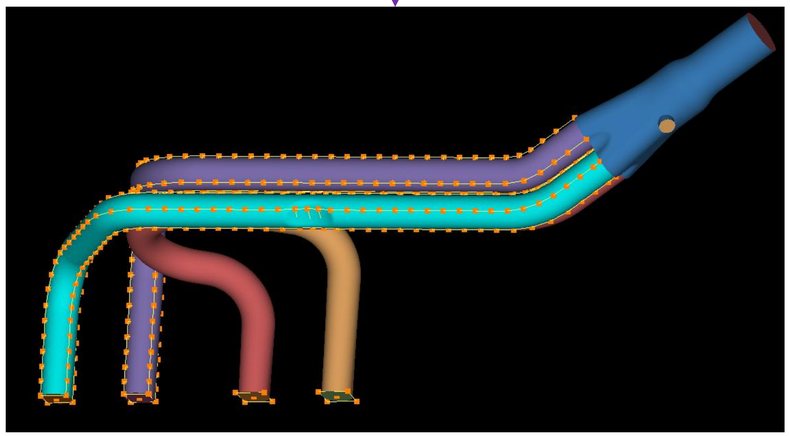
Extrude

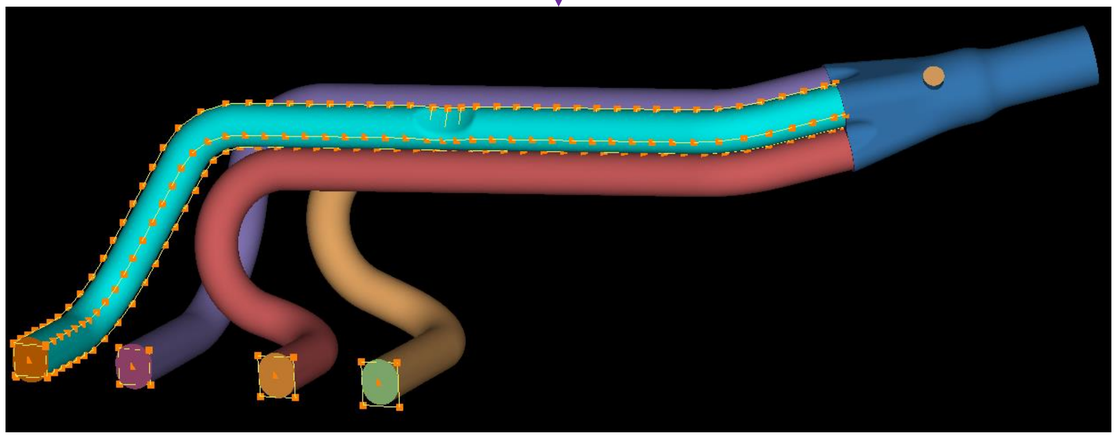






Uniform Cross section
Reference Type – Surfaces





Note: For this case, Centerline has to be calculated for each surface separately and then copy the input faces.

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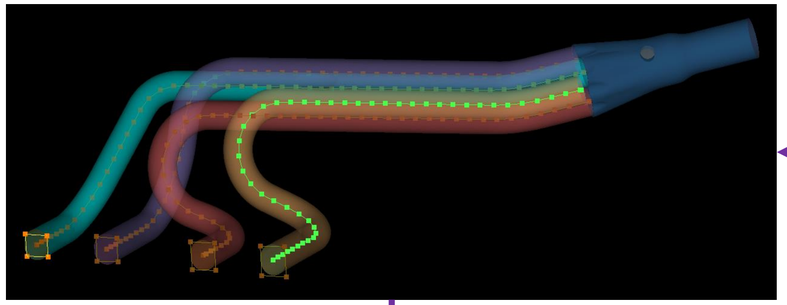
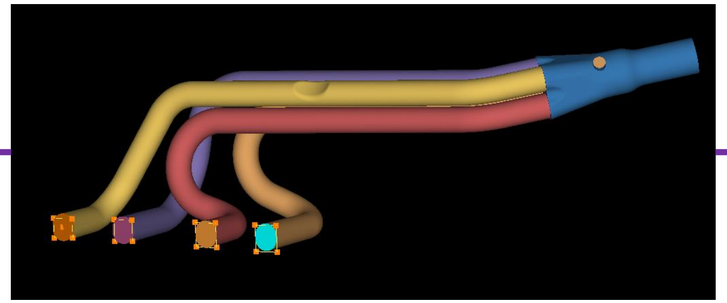
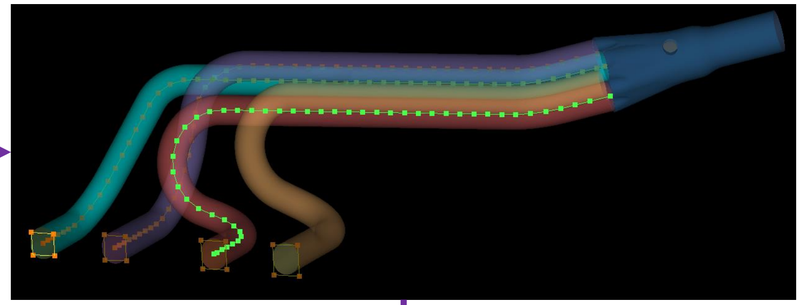
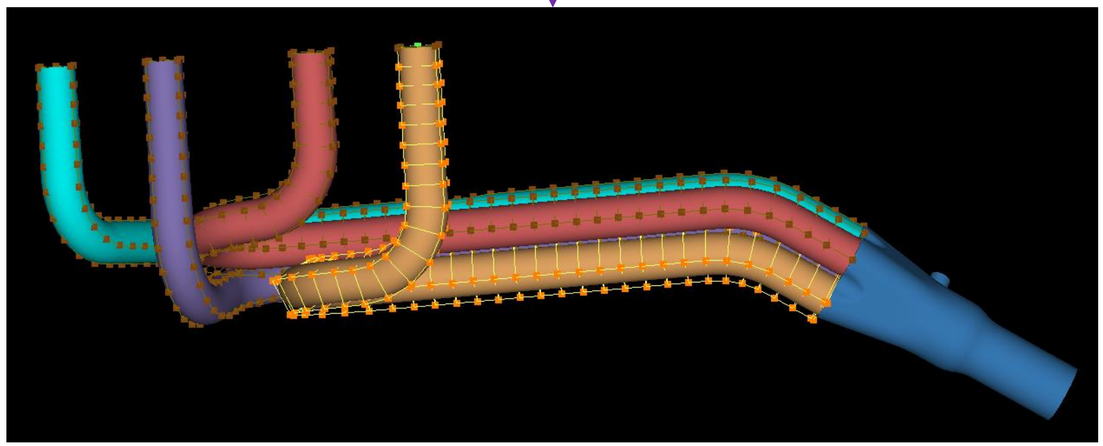
Extrude

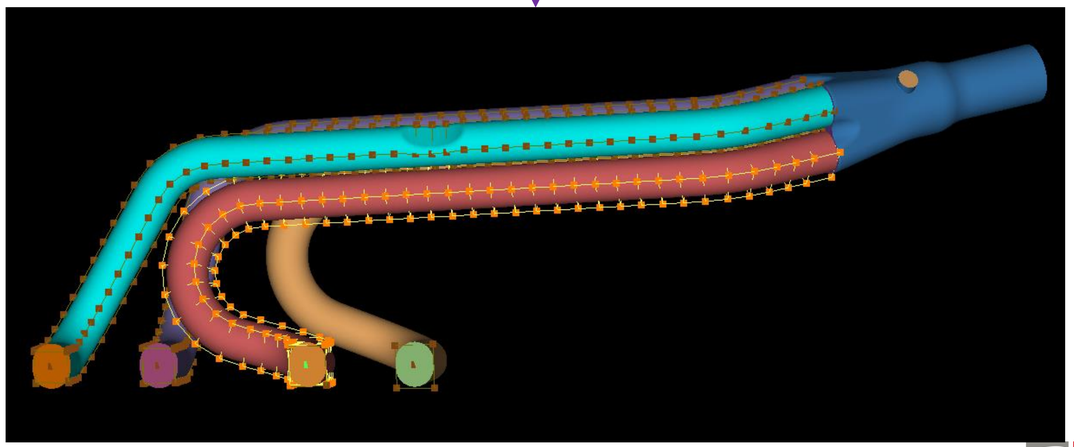






Uniform Cross section
Reference Type – Surfaces





Note: For this case, Centerline has to be calculated for each surface separately and then copy the input faces.

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extconn_topology

PURPOSE: Copy the given topology blocks along the defined directions like linear, X*Y or X*Y*Z.

Syntax:

extconn_topology -fn <fra file> -g <corner group> -csg <surface group> -dim <dimension> -dirn <direction>-nc <num of copies in x and y direction> -t <type>-m -offset <offset distance>-ofn <output fra file> -pairs <pair of corner groups>

Example: ws extconn_topology -fn step9.1hole.fra -g 1 -csg 3 -dim 2 -dirn 1 0 0 0 -1 0 -nc 3 3 -t 0 0 -m -offset 1.8 1.8 -ofn step10.extconn.fra -pairs 2 4 3 5

For detailed information on this command, refer section 11 in GridPro Utilities Manual.

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replace_surfaces_text_processing

PURPOSE: Replaces the given id/surface name with the new surface name in the fra file.

Syntax:

replace_surfaces_text_processing -ifn <fra file> -outfn <output> -in <old id> <new surf file name> -nn <old file name> <new file name>

Example: ws replace_surfaces_text_processing -ifn step1.fra -outfn step2.fra -in 0 surf0.tria 10 surf10.tria -nn input1.quad output1.quad

Note: The advantage of this command over replace_surfaces is that you don't need to have the surface files in the working directory since it's a simple editing on the fra file.

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Output Restart File

PURPOSE: Restart file is a binary format grid file which used to be written along with the grid files. This is helpful when you want to restart the previous gridding process. From v8 onwards, it is made as an optional output.

How to use:

1. Click on Start Ggrid button to open the schedule dialog box.
2. Disable the checkbox before the Output Restart file option to avoid writing the file.

Note: By default, the dump.tmp will be written to the working directory.

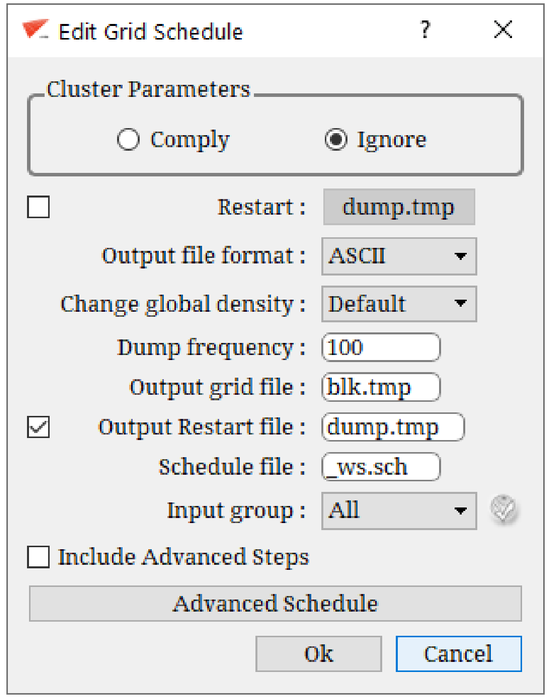

Figure: Grid Schedule Dialog box

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Load Sheet as Wireframe

PURPOSE: Converts the selected grid sheet to wireframe and loads it into the GUI.

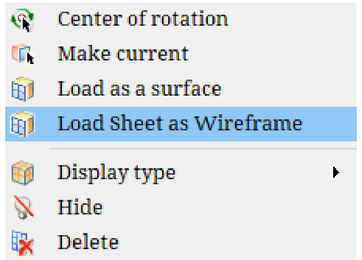

Figure: Right Click Menu - Grid Sheet

How to use:

1. Create a cross sectional grid sheet in the grid.
2. Right click on the sheet and select ***'Load Sheet as Wireframe'*** from the drop down.

Note: Only the grid sheets which are created at the block boundaries can be converted to wireframe.

Application:

1. It helps in creating the base wireframe for the internal surface easily. Using this as an initial wireframe, we can build the internal surfaces comparatively faster.

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Thank you

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