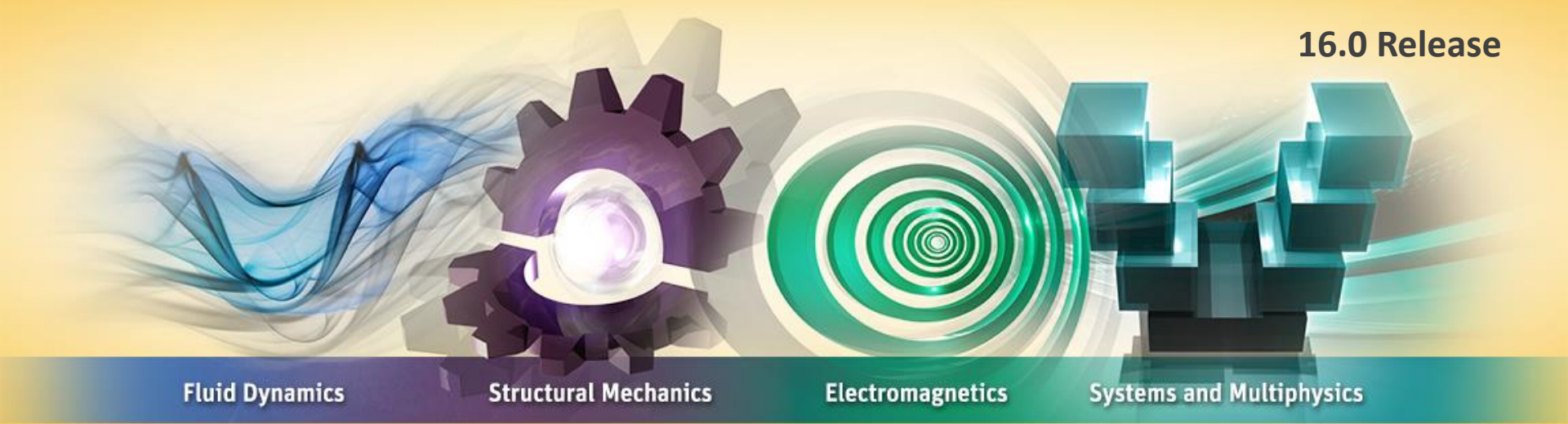


Lecture 5: Global Mesh Controls

16.0 Release

A horizontal banner with a yellow background. It features four distinct 3D visualizations: blue fluid flow lines, purple interlocking gears, green concentric circles, and teal stacked blocks. Below each visualization is a label. The entire banner is set against a background of soft, glowing light rays.

Fluid Dynamics

Structural Mechanics

Electromagnetics

Systems and Multiphysics

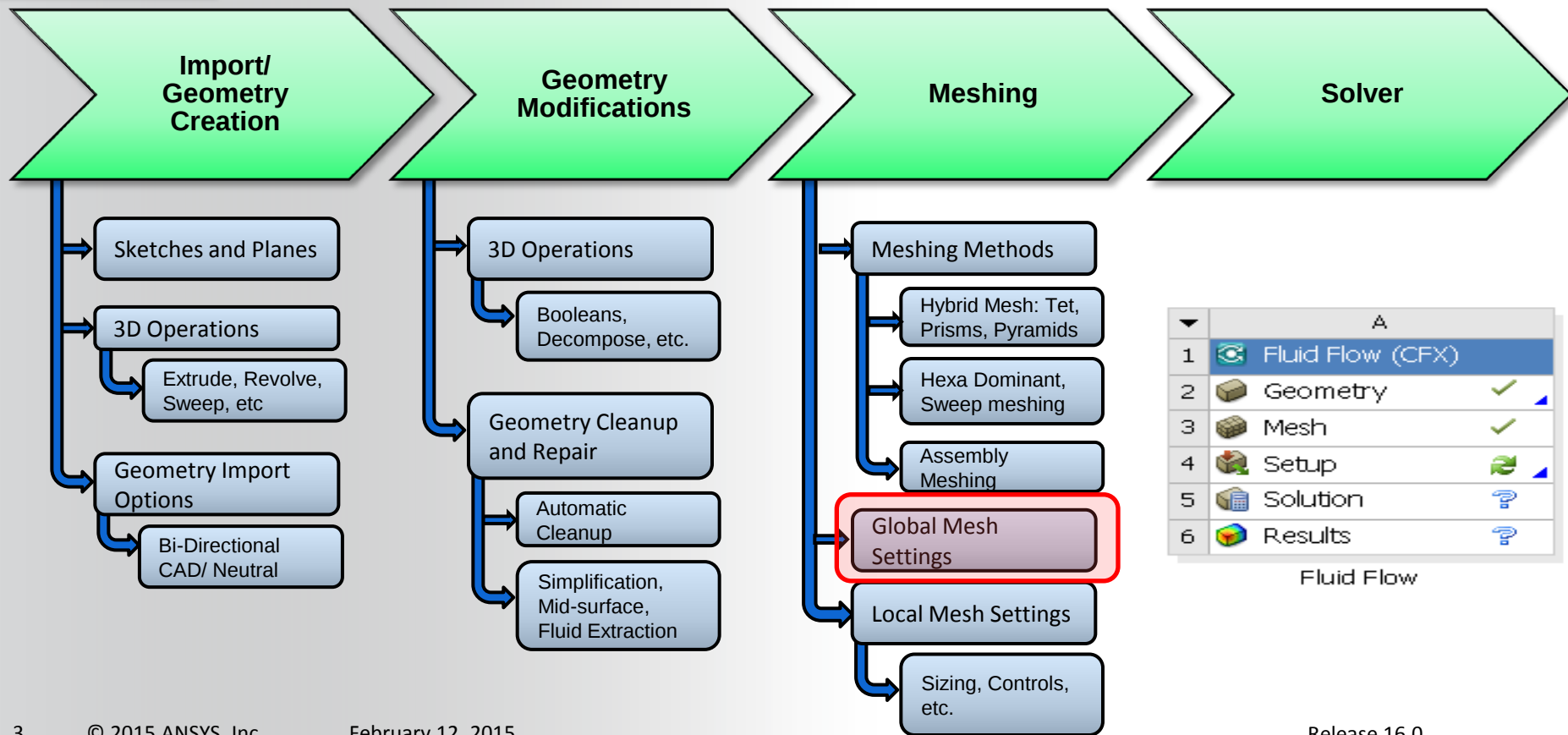
Introduction to ANSYS Meshing

Global Mesh Controls

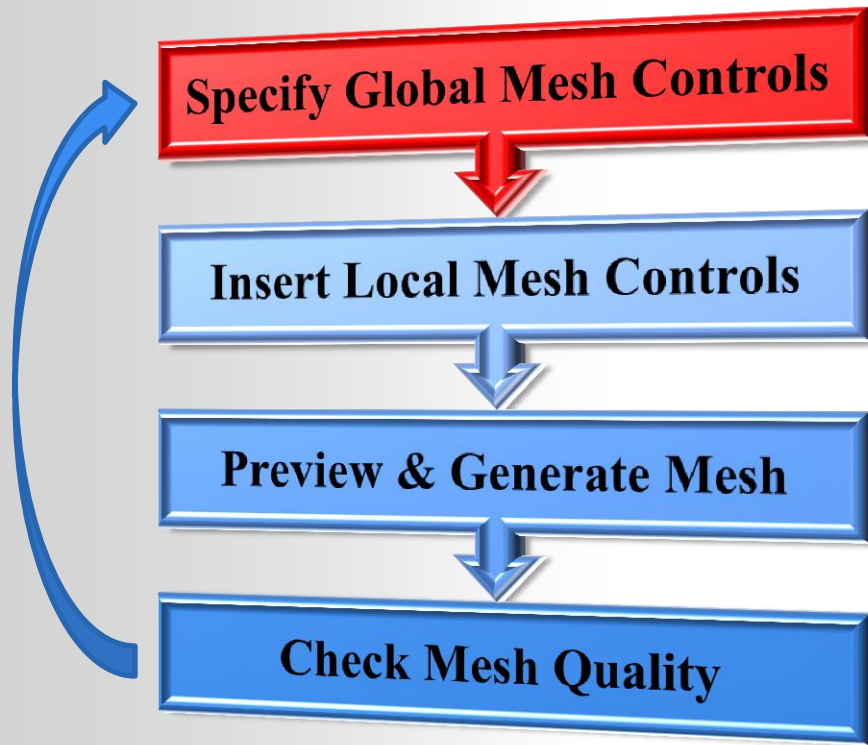
In this lecture we will learn about:

- **Introduction to Global Mesh Controls**
- **Defaults**
- **General Sizing Controls & Advanced Size Functions**
- **Global Inflation**
- **Assembly Meshing Controls**
- **Statistics**

Preprocessing Workflow



Meshing Process in ANSYS Meshing



Global Mesh Controls (1)

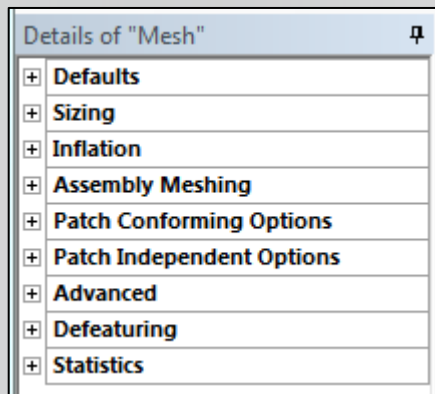
- Global mesh controls are used to make global adjustment in the meshing strategy, which includes sizing functions, inflation, smoothing, defeaturing, parameter inputs, assembly meshing inputs, etc.
- Minimal inputs
 - Automatically calculates global element sizes based on the smallest geometric entity
 - Smart defaults are chosen based on physics preference
- Makes global adjustments for required level of mesh refinement
- Advanced Size Functions for resolving regions with curvatures and proximity of surfaces

Smoothing	Medium
Transition	Slow
Span Angle Center	Fine
☐ Curvature Normal Angle	Default (18.0 °)
☐ Min Size	Default (4.2653e-004 m)
☐ Max Face Size	Default (4.2653e-002 m)
☐ Max Size	Default (8.5307e-002 m)
☐ Growth Rate	Default (1.20)
Minimum Edge Length	0.319190 m
Inflation	
Use Automatic Inflation	Program Controlled
Inflation Option	Smooth Transition
☐ Transition Ratio	0.272
☐ Maximum Layers	5
☐ Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	No

Smart defaults !

Details of "Mesh"	
Defaults	
Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0
Sizing	
Use Advanced Size Function	On: Curvature
Relevance Center	Coarse
Initial Size Seed	Active Assembly
Smoothing	Medium
Transition	Slow
Span Angle Center	Fine
☐ Curvature Normal Angle	Default (18.0 °)
☐ Min Size	Default (4.2653e-004 m)
☐ Max Face Size	Default (4.2653e-002 m)
☐ Max Size	Default (8.5307e-002 m)
☐ Growth Rate	Default (1.20)
Minimum Edge Length	0.319190 m
Inflation	
Use Automatic Inflation	Program Controlled
Inflation Option	Smooth Transition
☐ Transition Ratio	0.272
☐ Maximum Layers	5
☐ Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	No
Assembly Meshing	
Method	None
Patch Conforming Options	
Triangle Surface Mesher	Program Controlled
Patch Independent Options	
Topology Checking	Yes
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Shape Checking	CFD
Element Midside Nodes	Dropped
Straight Sided Elements	
Number of Retries	0
Extra Retries For Assembly	Yes
Rigid Body Behavior	Dimensionally Reduced
Mesh Morphing	Disabled
Defeating	
Pinch Tolerance	Default (8.8388e-004 m)
Generate Pinch on Refresh	No
Automatic Mesh Based Defeating	On
☐ Defeating Tolerance	Default (2.1327e-004 m)
Statistics	
☐ Nodes	8342
☐ Elements	21152
Mesh Metric	None

Global Mesh Controls (2)



Details of "Mesh"	
Defaults	
Physics Preference	CFD
Solver Preference	Fluent
Relevance	0
Sizing	
Use Advanced Size Function	On: Curvature
Relevance Center	Coarse
Initial Size Seed	Active Assembly
Smoothing	Medium
Transition	Slow
Span Angle Center	Fine
Curvature Normal Angle	Default (18.0 °)
Min Size	Default (4.2653e-004 m)
Max Face Size	Default (4.2653e-002 m)
Max Size	Default (8.5307e-002 m)
Growth Rate	Default (1.20)
Minimum Edge Length	0.319190 m
Inflation	
Use Automatic Inflation	Program Controlled
Inflation Option	Smooth Transition
Transition Ratio	0.272
Maximum Layers	5
Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	No
Assembly Meshing	
Method	None
Patch Conforming Options	
Triangle Surface Mesher	Program Controlled
Patch Independent Options	
Topology Checking	Yes
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Shape Checking	CFD
Element Midside Nodes	Dropped
Straight Sided Elements	
Number of Retries	0
Extra Retries For Assembly	Yes
Rigid Body Behavior	Dimensionally Reduced
Mesh Morphing	Disabled
Defeaturing	
Pinch Tolerance	Default (3.8388e-004 m)
Generate Pinch on Refresh	No
Automatic Mesh Based Defeaturing	On
Defeaturing Tolerance	Default (2.1327e-004 m)
Statistics	
Nodes	8342
Elements	21152
Mesh Metric	None

Physics Based Settings

- Physics and Solver Preferences

Global Mesh Sizing Controls

- Relevance and Relevance Center
- Advanced Size Functions
- Smoothing and Transition
- Span Angle Center
- Curvature Normal Angle
- Proximity Accuracy and Cells Across Gap

Inflation

- Inflation Option, Inflation Algorithm
- Collision Avoidance
- Maximum Angle, Fillet Ratio, Smoothing

Assembly Meshing

- Activation of CutCell/Tetrahedrons Meshing

Patch Confirming Options

- Activation of Advancing Front Method

Patch Independent Options

- For validating topology

Advanced

- Number of CPUs for Parallel Part Meshing
- Shape Checking
- Element midside nodes

Defeaturing

- Pinch based
- Automatic Mesh Based

Statistics

- Mesh statistics, Quality criteria

Global Mesh Controls (3)

Details of "Mesh"	
Defaults	
Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0
Sizing	
Use Advanced Size Function	On: Curvature
Relevance Center	Coarse
Initial Size Seed	Active Assembly
Smoothing	Medium
Transition	Slow
Span Angle Center	Fine
☐ Curvature Normal Angle	Default (18.0 °)
☐ Min Size	Default (4.2653e-004 m)
☐ Max Face Size	Default (4.2653e-002 m)
☐ Max Size	Default (8.5307e-002 m)
☐ Growth Rate	Default (1.20)
Minimum Edge Length	0.319190 m
Inflation	
Use Automatic Inflation	Program Controlled
Inflation Option	Smooth Transition
☐ Transition Ratio	0.272
☐ Maximum Layers	5
☐ Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	No
Assembly Meshing	
Method	None
Patch Conforming Options	
Triangle Surface Mesher	Program Controlled
Patch Independent Options	
Topology Checking	Yes
Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Shape Checking	CFD
Element Midside Nodes	Dropped
Straight Sided Elements	
Number of Retries	0
Extra Retries For Assembly	Yes
Rigid Body Behavior	Dimensionally Reduced
Mesh Morphing	Disabled
Defeaturing	
Pinch Tolerance	Default (3.8388e-004 m)
Generate Pinch on Refresh	No
Automatic Mesh Based Defeaturing	On
☐ Defeaturing Tolerance	Default (2.1327e-004 m)
Statistics	
☐ Nodes	8342
☐ Elements	21152
Mesh Metric	None

Details of "Mesh"	
Defaults	
Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0
Sizing	
Use Advanced Size Function	On: Curvature
Relevance Center	Coarse
Initial Size Seed	Active Assembly
Smoothing	Medium
Transition	Slow
Span Angle Center	Fine
☐ Curvature Normal Angle	Default (18.0 °)
☐ Min Size	Default (4.2653e-004 m)
☐ Max Face Size	Default (4.2653e-002 m)
☐ Max Size	Default (8.5307e-002 m)
☐ Growth Rate	Default (1.20)
Minimum Edge Length	0.319190 m

Inflation	
Use Automatic Inflation	Program Controlled
Inflation Option	Smooth Transition
☐ Transition Ratio	0.272
☐ Maximum Layers	5
☐ Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	No
Assembly Meshing	
Method	None
Patch Conforming Options	
Triangle Surface Mesher	Program Controlled
Patch Independent Options	
Topology Checking	Yes

Advanced	
Number of CPUs for Parallel Part Meshing	Program Controlled
Shape Checking	CFD
Element Midside Nodes	Dropped
Straight Sided Elements	
Number of Retries	0
Extra Retries For Assembly	Yes
Rigid Body Behavior	Dimensionally Reduced
Mesh Morphing	Disabled
Defeaturing	
Pinch Tolerance	Default (3.8388e-004 m)
Generate Pinch on Refresh	No
Automatic Mesh Based Defeaturing	On
☐ Defeaturing Tolerance	Default (2.1327e-004 m)
Statistics	
☐ Nodes	8342
☐ Elements	21152
Mesh Metric	None

Defaults

Details of "Mesh"	
Defaults	
Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0
Sizing	
Use Advanced Size Function	On: Curvature
Relevance Center	Coarse
Initial Size Seed	Active Assembly
Smoothing	High
Transition	Slow
Span Angle Center	Fine
☐ Curvature Normal Angle	Default (18.0 °)
☐ Min Size	Default (0.33020 mm)
☐ Max Face Size	Default (33.020 mm)
☐ Max Size	Default (66.040 mm)
☐ Growth Rate	Default (1.20)
Minimum Edge Length	12.70 mm

- **Four options under “Physics Preference”**
 - CFD, Mechanical, Explicit and Electromagnetic
- **Three options under “Solver Preference” when CFD is selected:**
 - Fluent, CFX and POLYFLOW
- **Mesh setting defaults are automatically adjusted to suit the “Physics Preference” and “Solver Preference”**
- **Assembly Meshing is active only when Physics Preference is CFD and Solver Preference is Fluent**

Details of "Mesh"	
Defaults	
Physics Preference	Mechanical
☐ Relevance	0
Sizing	
Use Advanced Size Function	Off
Relevance Center	Coarse
☐ Element Size	Default
Initial Size Seed	Active Assembly
Smoothing	Medium
Transition	Fast
Span Angle Center	Coarse
Minimum Edge Length	12.70 mm

Details of "Mesh"	
Defaults	
Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0
Sizing	
Use Advanced Size Function	On: Curvature
Relevance Center	Coarse
Initial Size Seed	Active Assembly
Smoothing	Medium
Transition	Slow
Span Angle Center	Fine
☐ Curvature Normal Angle	Default (18.0 °)
☐ Min Size	Default (0.33020 mm)
☐ Max Face Size	Default (33.020 mm)
☐ Max Size	Default (66.040 mm)
☐ Growth Rate	Default (1.20)
Minimum Edge Length	12.70 mm

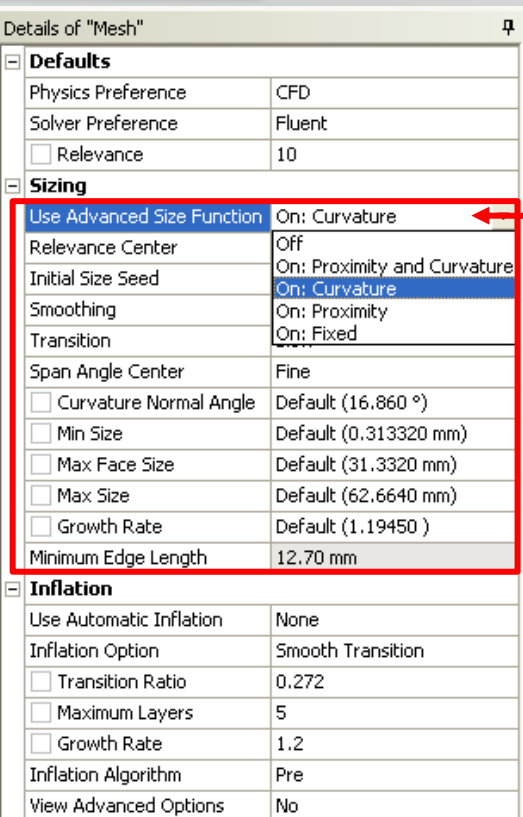
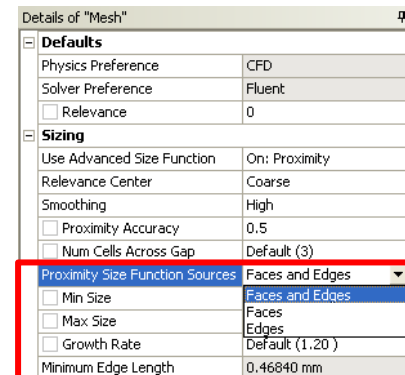
Sizing : Advanced Sizing Functions

- Controls the growth and distribution of mesh in important regions of high curvature or close proximity of surfaces

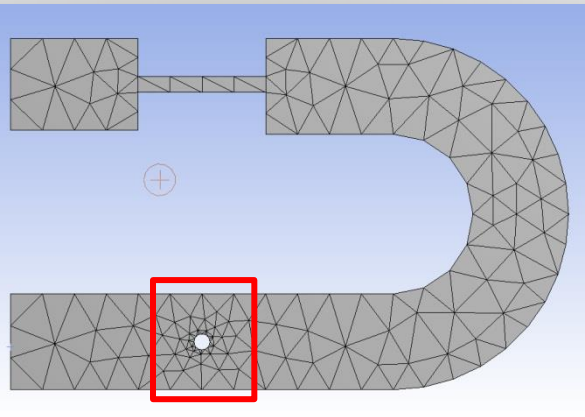
Five Options:

- Off. Unavailable for Assembly
- Proximity and Curvature
- Curvature
- Proximity
- Fixed

- When CutCell Meshing is active with 'Proximity' or 'Proximity and Curvature' Advanced Size Function (ASF), Proximity Size Function Sources control is displayed to specify the regions of proximity between "Edges", "Faces" or "Faces and Edges" in the computation of Proximity ASF

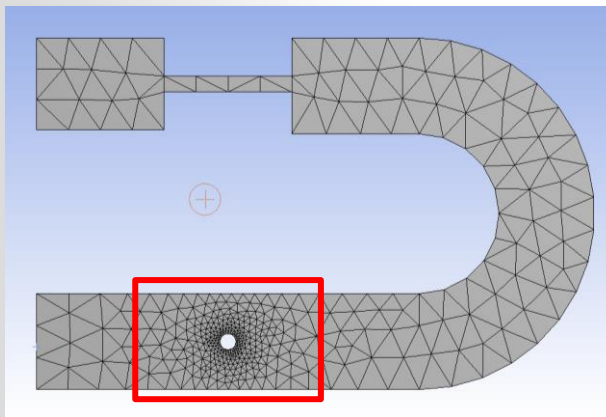


Sizing : Advanced Sizing Function Examples



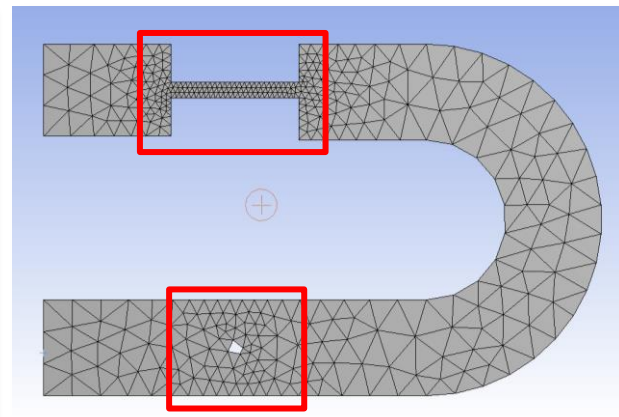
ASF: Off

- The edges are meshed with global Element Size
- Then the edges are refined for curvature and 2D proximity
- At the end, corresponding face and volume mesh is generated
- Transition of cell size is defined by *Transition*



ASF: Curvature

- Determines the Edge and Face sizes based on Curvature Normal Angle
- Finer Curvature Normal Angle creates finer surface mesh
- Transition of cell size is defined by Growth Rate



ASF: Proximity

- Controls the mesh resolution on proximity regions in the model
- Fits in specified number of elements in the narrow gaps
- Higher Number of Cells Across Gap creates more refined surface mesh
- Transition of cell size is defined by Growth Rate

Sizing : Element Size

Element Size

- Element size used for the entire model
 - This size will be used for meshing all edges, faces and bodies
- Default value based on Relevance and Initial Size Seed
 - User can input required value as per geometry dimensions



*Element size option available
when Advanced Size Function
is not used*

Details of "Mesh"

Defaults	
Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0
Sizing	
Use Advanced Size Function	On: Curvature
Relevance Center	Coarse
Initial Size Seed	Active Assembly
Smoothing	High
Transition	Slow
Span Angle Center	Fine
☐ Curvature Normal Angle	Default (18.0 °)
☐ Min Size	Default (0.33020 mm)
☐ Max Face Size	Default (33.020 mm)
☐ Max Size	Default (66.040 mm)
☐ Growth Rate	Default (1.20)
Minimum Edge Length	12.70 mm
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
☐ Transition Ratio	0.272
☐ Maximum Layers	5
☐ Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	No

Details of "Mesh"

Defaults	
Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0
Sizing	
Use Advanced Size Function	Off
Relevance Center	Coarse
☒ Element Size	Default
Initial Size Seed	Active Assembly
Smoothing	Medium
Transition	Slow
Span Angle Center	Fine
Minimum Edge Length	311.760 mm

Sizing : Min and Max Size

Min Size

- Minimum element size that the size function will generate
- Some element sizes may be smaller than this size depending on the edge length

Max Face Size

- Maximum face size that the size function will generate
- Not supported by CutCell meshing

Max Size

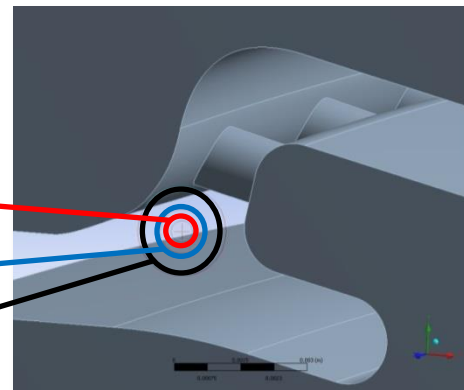
- Maximum element size that can be grown in the interior of volume mesh

Mouse Pointer serves to estimate mesh sizes

Min Size

Max Face Size

Max Size



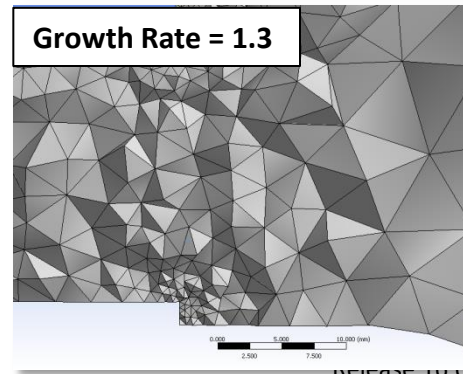
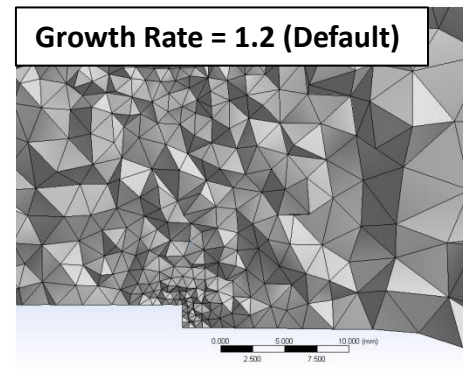
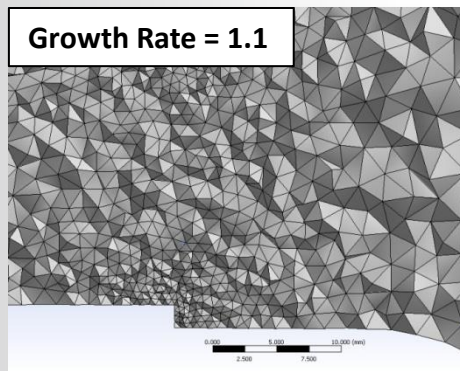
Release 16.0



Min Size ≤ Max Face Size ≤ Max Size

Sizing : Growth Rate

- Define the ratio between sizes of adjacent cells
 - On surfaces and inside the volumes



Mesh size:

GR = 1.1 : 1,263,297 cells

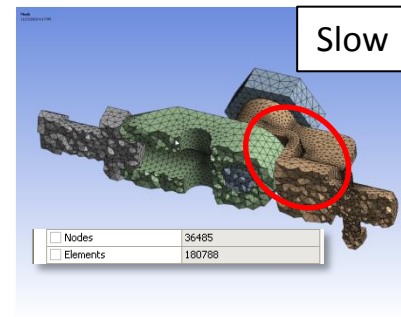
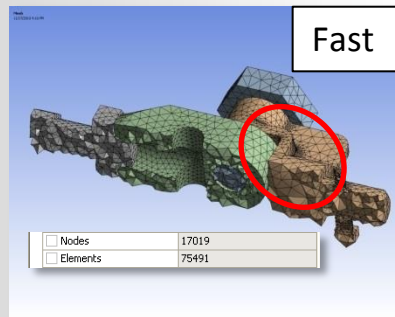
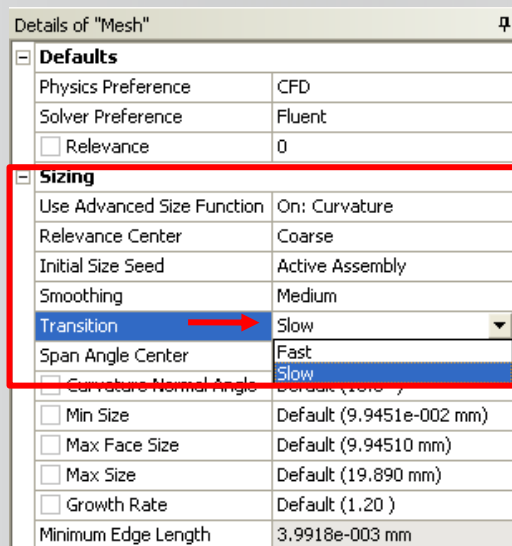
GR = 1.2 : 587,026 cells

GR = 1.3 : 392,061 cells

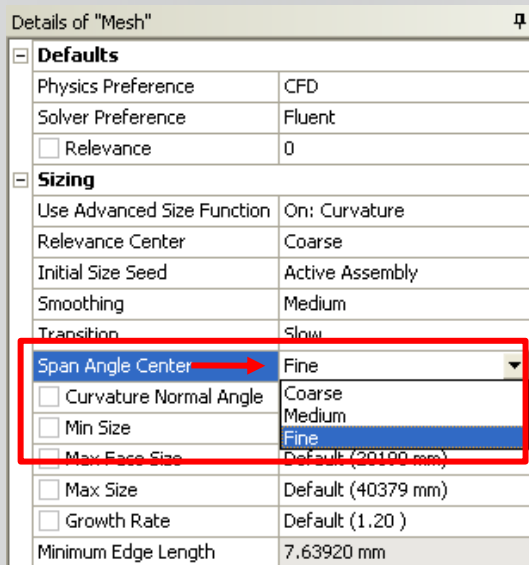
Details of "Mesh"	
Defaults	
Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0
Sizing	
Use Advanced Size Function	On: Curvature
Relevance Center	Coarse
Initial Size Seed	Active Assembly
Smoothing	High
Transition	Slow
Span Angle Center	Fine
☐ Curvature Normal Angle	Default (18.0 °)
☐ Min Size	Default (0.33020 mm)
☐ Max Face Size	Default (33.020 mm)
☐ Max Size	Default (66.040 mm)
☐ Growth Rate	Default (1.20)
Minimum Edge Length	12.70 mm
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
☐ Transition Ratio	0.272
☐ Maximum Layers	5
☐ Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	No

Sizing : Transition

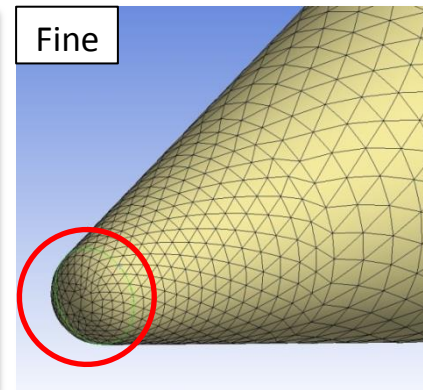
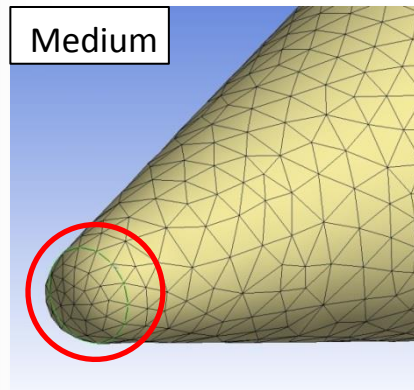
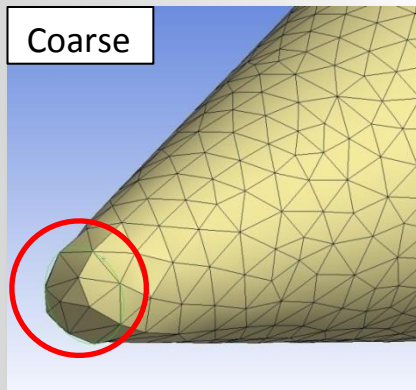
- Controls the rate at which elements grow
- Two level control for transition
 - Slow (Default for CFD, Explicit), produces smooth transitions
 - Fast (Default for Mechanical and Electromagnetic), produces more abrupt transitions
- Not available for Cutcell meshing
- Hidden for sheet models, ignored for assemblies containing sheets, when ASF is On



Sizing : Span Angle Center



- Controls curvature based refinement for Edges
- Three options and corresponding span angle ranges are
 - Coarse: 91° to 60°
 - Medium: 75° to 24°
 - Fine: 36° to 12°
- Not available for Cutcell meshing



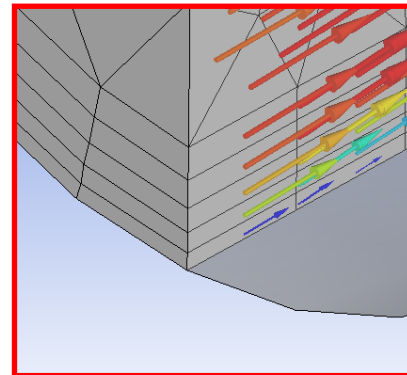
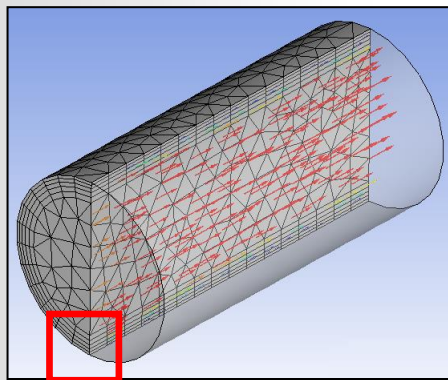
Inflation

Inflation

- Used to generate thin cells adjacent to boundaries
- Required for capture of wall adjacent boundary layers
 - Resolve viscous boundary layer in CFD
 - Resolve thin air gaps in Electromagnetic analysis
 - Resolve high stress concentration regions in Structures
- Cells are created by 'inflating' from the surface mesh into the volume (3d) or inflating from the boundary edge onto the face (2d)
- Options to control growth

Details of "Mesh"

Defaults	
Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0
Sizing	
Use Advanced Size Function	On: Curvature
Relevance Center	Coarse
Initial Size Seed	Active Assembly
Smoothing	Medium
Transition	Slow
Span Angle Center	Fine
☐ Curvature Normal Angle	Default (18.0 °)
☐ Min Size	Default (9.9451e-002 mm)
☐ Max Face Size	Default (9.94510 mm)
☐ Max Size	Default (19.890 mm)
☐ Growth Rate	Default (1.20)
Minimum Edge Length	3.9918e-003 mm
Inflation	
Use Automatic Inflation	None
Inflation Option	Smooth Transition
☐ Transition Ratio	0.272
☐ Maximum Layers	5
☐ Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	No



Inflation : Automatic Inflation

Details of "Mesh"

Defaults	
Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0
Sizing	
Use Advanced Size Function	On: Curvature
Relevance Center	Coarse
Initial Size Seed	Active Assembly
Smoothing	Medium
Transition	Slow
Span Angle Center	Fine
☐ Curvature Normal Angle	Default (18.0 °)
☐ Min Size	Default (9.9451e-002 mm)
☐ Max Face Size	Default (9.94510 mm)
☐ Max Size	Default (19.890 mm)
☐ Growth Rate	Default (1.20)
Minimum Edge Length	3.9918e-003 mm
Inflation	
Use Automatic Inflation	None
Inflation Option	None
☐ Transition Ratio	Program Controlled
☐ Maximum Layers	All Faces in Chosen Named Selection
☐ Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	No

- **Three options**
 - **None**
 - Select this for manual inflation settings using local mesh controls
 - **Program Controlled**

All the faces are selected for inflation except:

 - Faces scoped to a Named Selection
 - Faces with manual inflation defined
 - Faces in contact regions
 - Faces in symmetry
 - Faces that belong to a part or body that has a mesh method defined that does not support 3D inflation, such as sweep or hex-dominant
 - Faces in sheet bodies
 - **All Faces in chosen Named Selection:** can grow inflation layers from faces grouped in one named selection

Inflation : Inflation Options

Five options:

All available for Patch Conformal (PC) tets and Assembly meshing

Smooth Transition

Maintains smooth volumetric growth between each adjacent layer. Total thickness depends on the variation of base surface mesh sizes (Default)

First Layer Thickness

Maintains constant first cell height throughout

Total Thickness

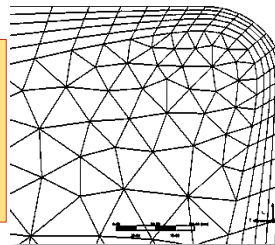
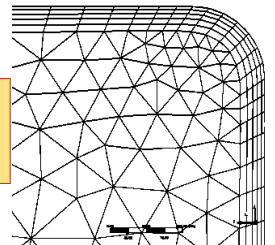
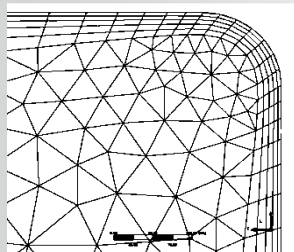
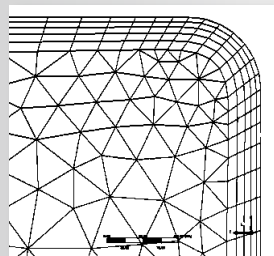
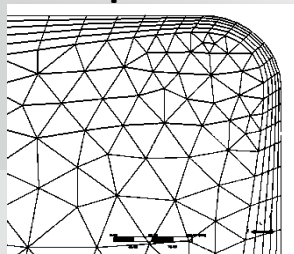
Maintains constant total height of inflation layer throughout

First Aspect Ratio

Controls the heights of the inflation layers by defining the aspect ratio of the inflations that are extruded from the inflation base

Last Aspect Ratio

Creates inflation layers using the values of the first layer height, maximum layers, and aspect ratio controls

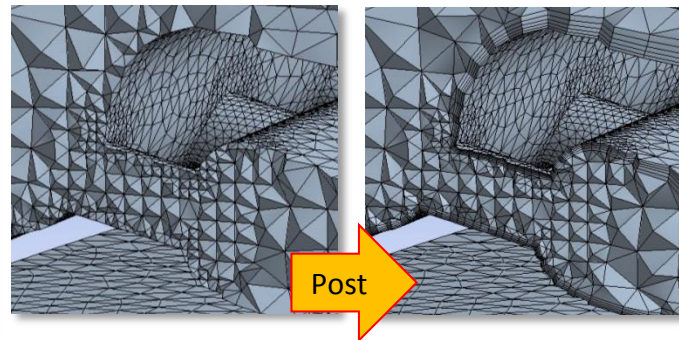


Details of "Mesh"	
Defaults	
Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0
Sizing	
Use Advanced Size Function	On: Curvature
Relevance Center	Coarse
Initial Size Seed	Active Assembly
Smoothing	Medium
Transition	Slow
Span Angle Center	Fine
☐ Curvature Normal Angle	Default (18.0 °)
☐ Min Size	1.60 mm
☐ Max Face Size	Default (238.760 mm)
☐ Max Size	Default (477.510 mm)
☐ Growth Rate	Default (1.20)
Minimum Edge Length	0.303010 mm
Inflation	
Use Automatic Inflation	Program Controlled
Inflation Option	Smooth Transition
☐ Transition Ratio	Total Thickness
☐ Maximum Layers	First Layer Thickness
☐ Growth Rate	Smooth Transition
Inflation Algorithm	First Aspect Ratio
	Last Aspect Ratio
View Advanced Options	No

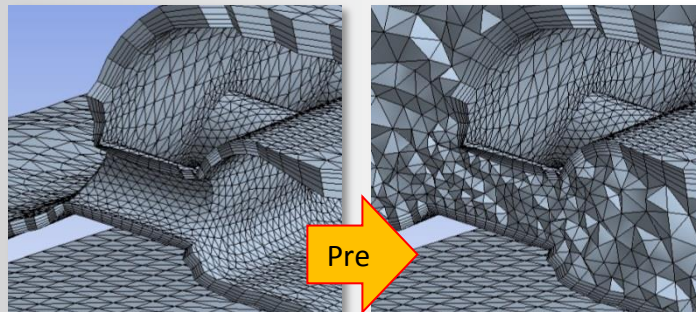
Inflation : Inflation Algorithms

Details of "Mesh"	
[-] Defaults	
Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0
[-] Sizing	
Use Advanced Size Function	On: Curvature
Relevance Center	Coarse
Initial Size Seed	Active Assembly
Smoothing	Medium
Transition	Slow
Span Angle Center	Fine
☐ Curvature Normal Angle	Default (18.0 °)
☐ Min Size	Default (7.7699e-005 m)
☐ Max Face Size	Default (7.7699e-003 m)
☐ Max Size	Default (1.554e-002 m)
☐ Growth Rate	Default (1.20)
Minimum Edge Length	3.e-002 m
[-] Inflation	
Use Automatic Inflation	Program Controlled
Inflation Option	Smooth Transition
☐ Transition Ratio	0.272
☐ Maximum Layers	5
☐ Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	Post
Assembly Meshing	Pre
[-] Patch Conforming Options	
[-] Advanced	
[-] Defeaturing	
[-] Statistics	

- Two Algorithms
 - Post
 - Pre
- Patch independent meshes (including Assembly) use Post



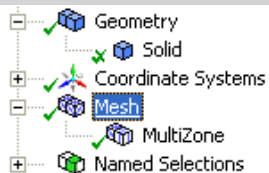
- First Tet grows then Inflation process starts
- Tet mesh is undisturbed, if the inflation options are altered
- Default option for Patch Independent Tetrahedrons



Preview Inflation is available only with Pre Algorithm

- Surface mesh is inflated first, then rest of the volume mesh grows
- Default method for Patch Conforming Tetrahedrons

Inflation: Automatic Inflation example



Details of "Mesh"

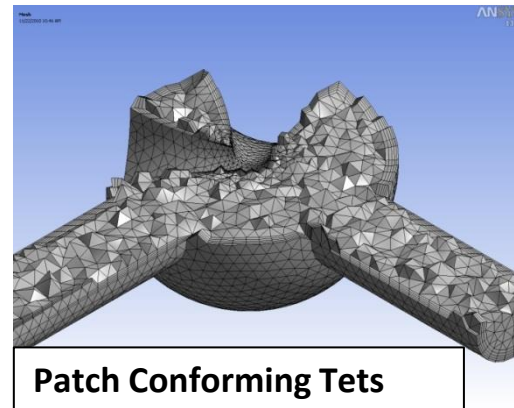
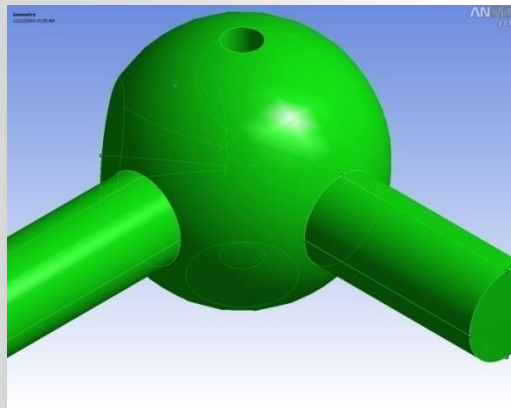
Defaults

Physics Preference	CFD
Solver Preference	Fluent
☐ Relevance	0

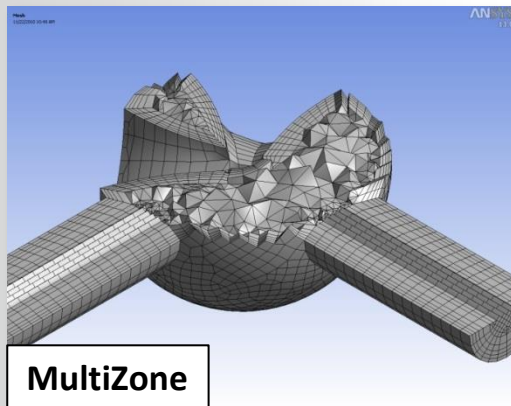
Sizing

Inflation

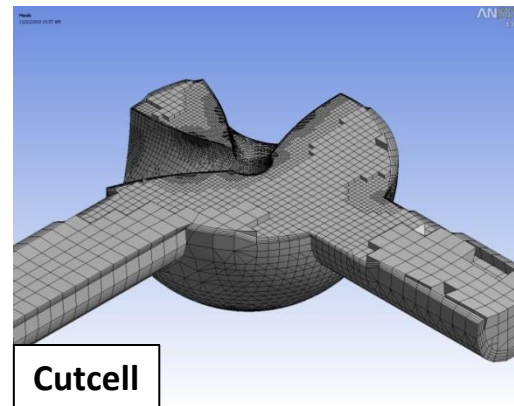
Use Automatic Inflation	Program Controlled
Inflation Option	Smooth Transition
☐ Transition Ratio	0.272
☐ Maximum Layers	5
☐ Growth Rate	1.2
Inflation Algorithm	Pre
View Advanced Options	No



Patch Conforming Tets



MultiZone



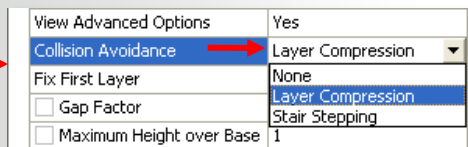
Cutcell

Inflation : Advanced Options

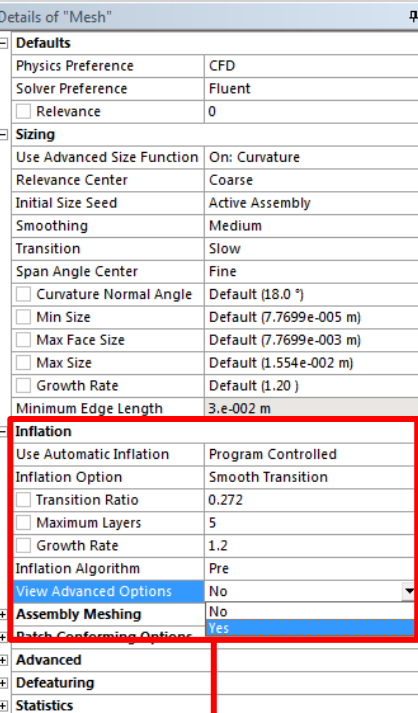
Collision Avoidance: Control to detect proximity regions and adjust the cells in the inflation layer.

- **None**
 - Does not check for proximity regions
- **Layer Compression (Default for Fluent)**
 - Compresses inflation layers in the proximity regions
 - Maintains the given number of layers in the proximity regions
 - May stair-step if needed (will give a warning)
- **Stair Stepping (Default for CFX)**
 - Inflation layers are stair stepped in the proximity regions
 - Removing layers locally in steps to avoid collisions as well as bad quality at sharp corners

When Cutcell meshing is used, both Layer Compression and Stair Steeping algorithms are used depending on the geometry complexity.



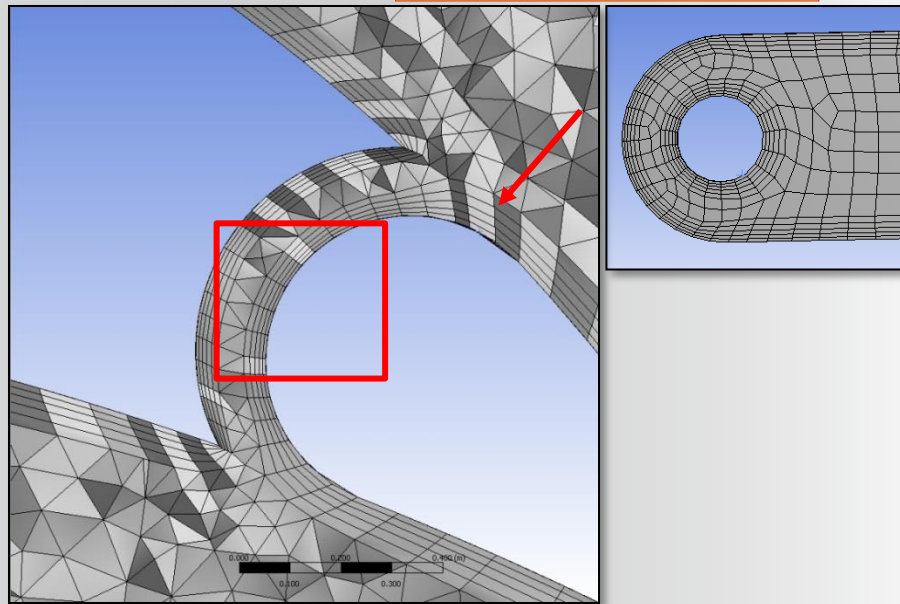
Generates combination of Pyramids and Tets to fill the stair step



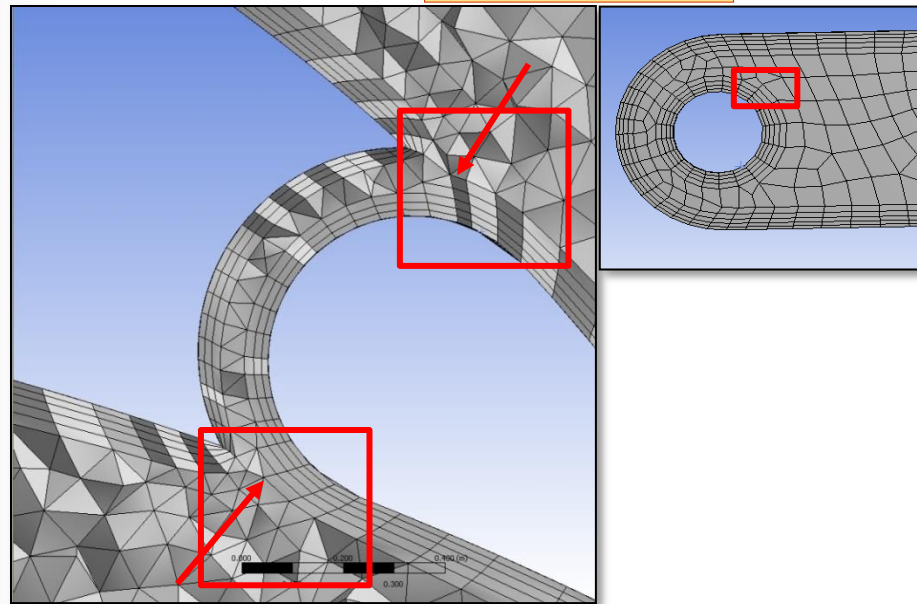
Inflation : Collision Avoidance Example

Example

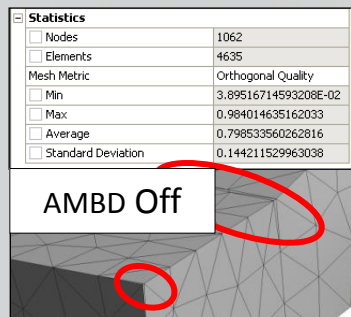
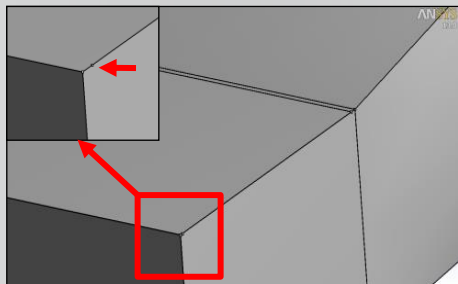
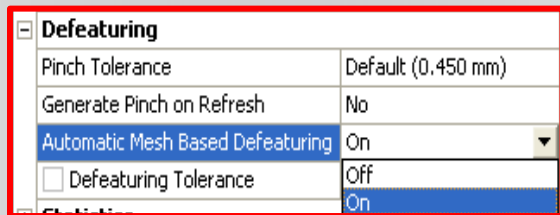
Layer Compression



Stair Stepping

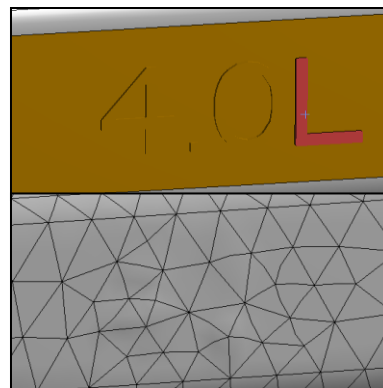
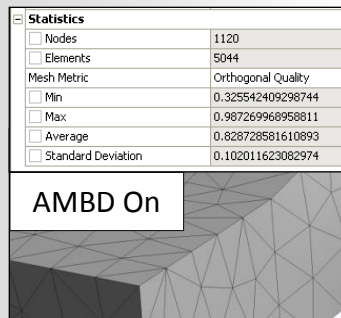


Defeating



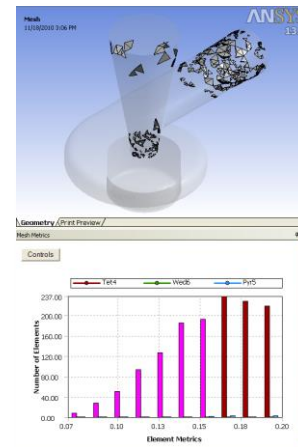
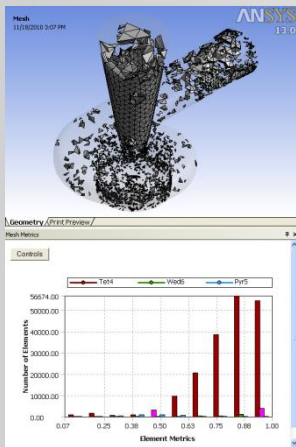
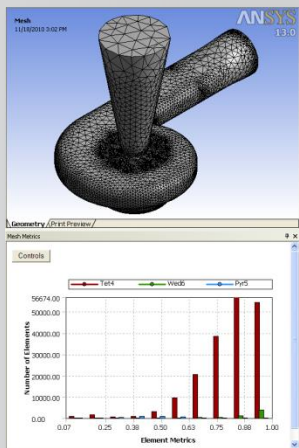
- Removes small geometry features meeting the tolerances using Pinch or/and Automatic Mesh Based Defeating controls in order to improve the mesh quality.
- Automatic Mesh Based Defeating (AMBD) when it is 'On', features smaller than or equal to the value of Defeating Tolerance are removed automatically.

Note: Defeating Tolerance can be set maximum upto Global Min Size/2. Use a high value for Global Min Size and use Local Sizing controls for defining Local Min Sizes smaller than this value. Defeating will respect local min sizes and will clean only those faces/bodies with no local control. This approach is recommended over Virtual Topology.



Statistics	
☐ Nodes	42344
☐ Elements	192686
Mesh Metric	Orthogonal Quality
☐ Min	Jacobian Ratio
☐ Max	Warping Factor
☐ Average	Parallel Deviation
☐ Standard Deviation	Maximum Corner Angle
	Skewness
	Orthogonal Quality

- Option to view the mesh quality metric
- Exhaustive list of quality metrics
- Orthogonal Quality mesh quality metrics
- Option to view the Mesh Metric chart
 - Intuitive controls available under Mesh Metric Chart
 - Various options to explore under the 'Controls'
- See lecture 7 for details



Workshop 5.1 – Global Mesh Controls

