

#1250: HyperMesh – Tetramesh Optimization

Product: HyperMesh

Product Version: HyperMesh 12.0 and above

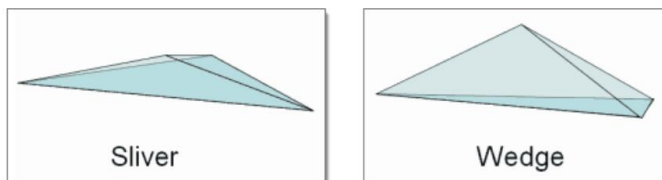
Topic Objective

Tetramesh optimization in HyperMesh

Topic Details

Tetramesh optimization (Mesh Check Elements Tetra Mesh Optimization)

Use this tool to modify an existing tetramesh, either by moving nodes or remeshing, to meet required parameters. One function is to remove sliver elements--tetrahedral elements which are so flattened that all of their nodes are very close to planar. If the element's Aspect Ratio (the ratio of its maximum length to its minimum length) is high, the element is a sliver; otherwise, it is a wedge.



When you click Tetra Mesh Optimization, you will first be prompted with a temporary panel to select a set of elements to fix. Once you do so and proceed, a new window opens which contains the tools and settings for fixing slivers and wedges. The utility also has the ability to constrain trias, feature lines, nodes or elements within a refinement box.

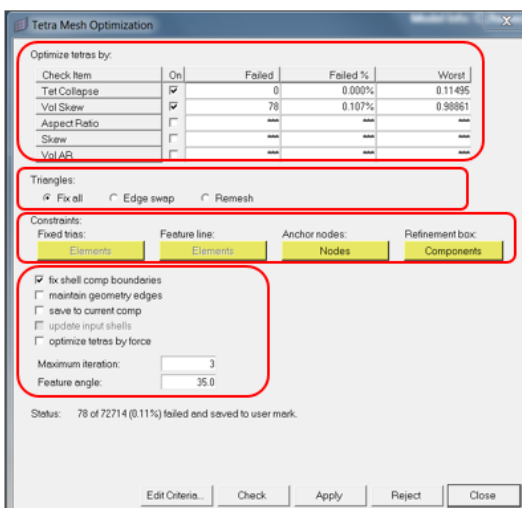
Several criteria for optimization

Mesh statistics

Boundary shell mesh

Constraints

More options



Check Item	On	Failed	Failed %	Worst
Tet Collapse	<input checked="" type="checkbox"/>	0	0.000%	0.11495
Val Skew	<input checked="" type="checkbox"/>	78	0.107%	0.98961
Aspect Ratio	<input type="checkbox"/>	***	***	***
Skew	<input type="checkbox"/>	***	***	***
Val AR	<input type="checkbox"/>	***	***	***

Triangles:
 Fix all Edge swap Remesh

Constraints:
Fixed bias: Feature line: Anchor nodes: Refinement box:

fix shell comp boundaries
 maintain geometry edges
 save to current comp
 update input shells
 optimize tetras by force

Maximum iteration:
Feature angle:

Status: 78 of 72714 (0.11%) failed and saved to user mark.