

Reliable Hybrid Meshing with Gridgen

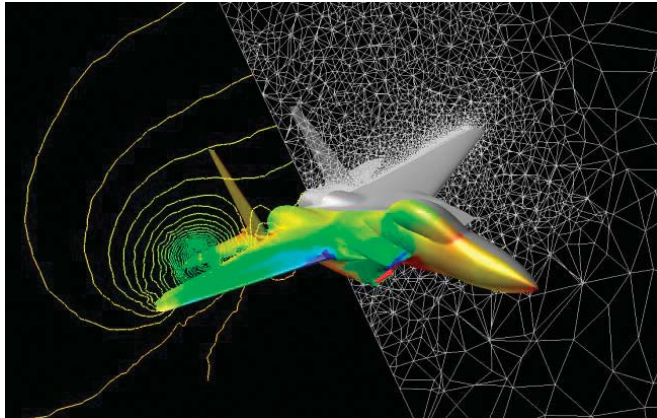
Save time and get better results with an all-in-one program for constructing any type of CFD grid.

The Problem

You are under pressure to get good CFD results quickly. Yet, you spend most of your time trying to clean up dirty CAD files and build meshes instead of trying to improve your company's products. You need a way to produce high-quality grids quickly without worrying about flaws in the CAD files you were provided.

The Gridgen Answer

Gridgen integrates automatic CAD cleanup and surface meshing with robust extrusion and volume meshing techniques to let you rapidly build hybrid meshes of high quality. For the ultimate in automation, Gridgen has built in scripting and journaling that can be used for one-button-push meshing. And Gridgen's grids are of such high quality they have proven to converge faster and produce more accurate answers in CFD codes.

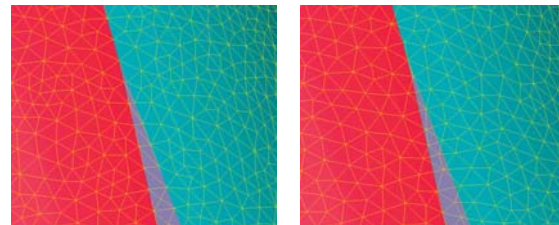


Gridgen is known for its high quality meshes. F-15 grid and solution courtesy of Cobalt Solutions L.L.C.

Use dirty CAD – no cleanup needed

Gridgen has a unique solution to the CAD cleanup problem – it repairs the flaws in the grid instead of in the CAD model. This is a better-defined problem that can be automated to a high degree. You can specify both local and global gap tolerances that Gridgen then uses to determine if two surface meshes should be connected.

It can even join multiple surface meshes into a single entity if you want to remove the troublesome effects of skewed and sliver surfaces.



Automatically merging grids removes skewness: before (left) and after (right).

Surface meshing is automatic

With Gridgen you can easily mix and match triangular and quadrilateral surface cells in the same grid. Both types of grids automatically adhere to CAD surface shapes even as the number of grid points change and smoothing techniques are applied.

Gridgen's unique elliptic partial differential equation based smoothing techniques produce smooth grids while still controlling clustering and orthogonality.

Extrude grids rapidly

Gridgen can extrude quadrilateral, hexahedral and prismatic volume grids. Its quadrilateral and hexahedral extrusion techniques are based on hyperbolic partial-differential equations, which provide control over mesh smoothness, orthogonality, and spacing. For quadrilateral surface grids, the extrusion can be constrained to lie on a CAD model. Fully connected multiple-block hexahedral structured grids can also be extruded.

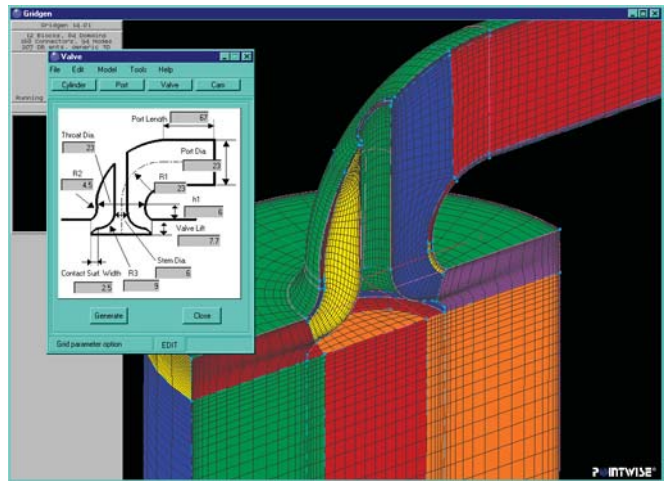
For prism extrusions, Gridgen uses a recently introduced quality-based smoothing technique to increase marching distance on those difficult cases like tight concave corners.

High quality volume meshing

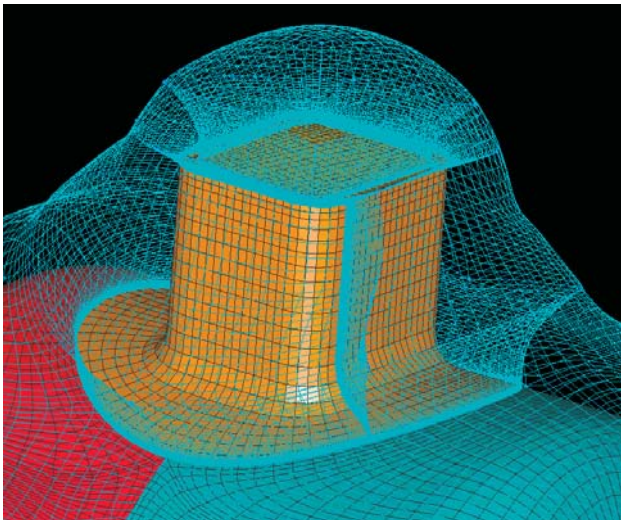
The same methods used for high quality surface meshing for structured and unstructured grids are applied to volume grids as well. Volume grids can include baffle faces for modeling infinitely thin boundaries or controlling mesh spacing on the interior of a volume. Gridgen automatically adds pyramids to any quadrilateral faces included in a tetrahedral block to ensure point-to-point matching between adjacent blocks containing different cell types.

Hands-off Gridding: GridgenGlyph

Gridding can be even more automated with scripts written in Glyph. It is powerful enough to interrogate geometries to find different components, mesh them according to your specifications, and export formatted files for your flow solver.



Use Glyph to build completely automated grid tools - or let Pointwise® do it for you!



Gridgen can extrude fully connected multiple block structured grids with a single command.

Try Gridgen now!

If you are ready to try Gridgen now, fill out the **Free Evaluation** form at www.pointwise.com/hybrid, and we will send you a fully functional Gridgen to try for yourself for 60 days at no charge.

Pointwise and Gridgen are registered trademarks and GridgenGlyph is a trademark of Pointwise, Inc.

FIRST CLASS
 US POSTAGE
 PAID
 FORT WORTH, TX
 PERMIT 2816

POINTWISE®
 Pointwise, Inc.
 213 South Jennings Avenue
 Fort Worth, Texas 76104-1107