Playing Well With Others

The Problem
You get CAD data, meshes, and drawings from many different sources to define your project. Since they are all in different formats, they can be difficult to integrate into the final grid you need. And once your grid is generated, you may need to export it or parts of it to different solvers. You waste time unnecessarily converting and reworking when you should be completing your CFD analysis.

The Gridgen Answer
Sure, we at Pointwise would like you to use Gridgen for every pre-processing task. But our customers tell us one thing they like most about Gridgen is its ability to interoperate with other components of their CAE process, whether that is importing geometry or an old mesh, or exporting geometry, mesh, or boundary conditions to other applications.

Mix Geometries From Any Source
Gridgen uses a hybrid geometry kernel. It is hybrid in the sense that it simultaneously handles analytic geometries, like what you typically get from a CAD system, and discrete geometries, like stereolithography (STL) data and wireframes. You can mix and match geometry from multiple sources to build up the shape you are trying to model.

Gridgen's support for standard-based, neutral geometry formats like IGES and STEP provides the greatest flexibility for geometry exchange. Customers who want to eliminate a step from their analysis process or who want to avoid the potential for translation errors use Gridgen's Native CAD Readers (NCR) to import geometry directly from native CATIA V4, CATIA V5, Pro/ENGINEER, and Unigraphics files - without using a license of the CAD software. One NCR customer saw his geometry preparation time drop from four days to less than a couple of hours.

Use of discrete geometry is great for taking advantage of legacy data. The CAD file may be long gone, but you still have an old mesh lying around. Read that mesh into Gridgen from an STL, VRML, or NASTRAN file and use it as geometry for generating a new mesh.

You do not have to import all your geometry either. Gridgen's geometry modeler can create a variety of curve and surface types, intersections, and trimmed surfaces.

Share Analysis-Ready Geometry
Once you have imported and created all your geometry, deleted the unnecessary bits, set layers, and performed general cleanup, your analysis-ready geometry can be exported from Gridgen in IGES format for use in your other CAE applications. Or, if you are tweaking the geometry as part of your analyses, you can send an IGES file to the designers as the new, optimized shape.

Improve Grids from Other Sources
Gridgen has earned a reputation for producing high quality structured, unstructured, and hybrid grids. And since Gridgen can import grids from many different sources, those same high-quality meshing techniques can be used to improve grids that you generated using other tools.

The left figure on the next page shows a portion of a grid on the nose of an aircraft that was generated by other software and then imported into Gridgen. Due to limitations in the other
software, the grid lacks smoothness and orthogonality. The right figure shows the grid improvement after simply running this grid through Gridgen’s elliptic PDE-based smoother. This same approach works for triangular and tetrahedral grids also. Import grids from any source and then apply Gridgen’s techniques to improve the quality.

**Export Grids In Your Solver’s Native Format**

Now that you have the grid tweaked to your satisfaction, you can send it on its way in a variety of formats. Gridgen writes the native formats of all the popular CFD solvers including Fluent, STAR-CD, and CFX. Gridgen also supports several neutral file formats like CGNS, EXODUS-II, PLOT3D, NASTRAN, and PATRAN. If you have been tweaking the grid (and not the geometry) for your design optimizations, you can also export structured surface grids to IGES files and send them back to the designers as the new, optimized shape.

Learn more right now!

To learn more about Gridgen’s suite of interoperability tools and all its other capabilities visit:

[www.pointwise.com/focus](http://www.pointwise.com/focus)

or call us at 888-GRIDGEN

You can also sign-up for a FREE 60-day evaluation license so you can see for yourself how Gridgen plays well with others.