Both Joseph and Nicholas were able to be productive with SpaceClaim in short order, and told me that the GUI was laid out very simply. Nicholas, who is the less experienced CAD user of the two, is picking up the tool fast, and Joseph said that as an experienced power user, "I quickly learned and changed to the new paradigm and was using it in a day."

Learning the Tool

The reason I was able to get up to speed so fast was by attending a SpaceClaim hands-on webinar, open to all comers, and by watching many of the more than seventy video tutorials available for download from their site. These tutorials take you from beginner through advanced operation and include large project design. The support team was always immediately available to assist me, and the users I interviewed during the learning process, and then during the life of the product.

The tool comes with context based help, roll-over pop-up usage instructions and excellent context based help that includes videos. The tool itself is virtually self learning, very ergonomic, and is designed to get designers productive in the shortest possible time.

Data Exchange

3D Data Exchange capabilities include both industry standard formats, included with SpaceClaim Professional, and native CAD file formats. Here's a complete list of supported formats and versions:

Data Import:
CATIA® V5 R6 – R17 SP1 and V4 4.1.9 – 4.2.4, NX® versions
NX1 – NX4 and UG v11 – 18, Pro/ENGINEER® 16 - Wildfire 3, SolidWorks® version 98 - , Inventor® 6-11, ACIS®, Parasolid® v10.0 – 18.0.141, IGES up to v5.3, STEP AP203, AP214 (geometry), VDA FS 1.0, 2.0 and JT Open.

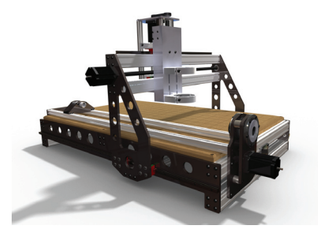
Data Export:
CATIA V5 R17 SP1, ACIS, Parasolid v18.0, IGES v5.3, STEP AP203, AP214 (geometry), VDA FS 2.0 and JT Open.

Note: IGES, STEP, VDA, DWG and DXF data exchanges are included with-SpaceClaim Professional. Support for vendor-specific file formats, ACIS and Parasolid, and JT Open require a separately purchased add-on product.

Summary

This tool's short learning curve is bolstered by a user interface that needs few commands to allow users to quickly create and modify models, and that features full creation, editing, and design commands that give you the ability to edit any design in context.

Design re-use (The ability to directly manipulate, edit and combine imported data with your models.) and its wysiwyg operation are the two features I found most compelling, but you might find that its 2D/3D capabilities or sheet metal design features are at the top of your list. Whether or not this tool can save you time and money, or help you become even more creative is something you can quickly assess by visiting www.spaceclaim.com and downloading their trial software. You might also want to view a few of their video tutorials, starting with the basic ones, to gauge if this tool is right for you.



By David Heller

David Heller has written more than twelve technical and fiction books published by Addisson-Wesely, Simon-Schuster, Prentice-Hall, McGraw Hill, and more, as a technical writer and professional columnist, and has devoted the past twenty-two years to the Internet business primarily focused on MCAD/CAM, Electronic Design Automation, Architectural Engineering & Construction, and Geographical Information Systems.

www.SpaceClaim.com

Molding 3D Objects Intuitively

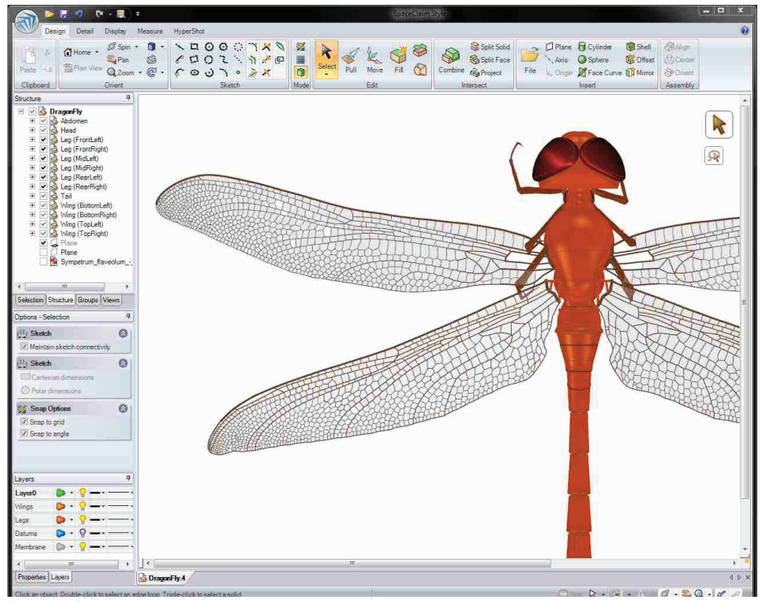
SpaceClaim's short learning curve is bolstered by a user interface that needs few commands to allow users to quickly create and modify models.

By David Heller

SpaceClaim is a new and innovative design tool that hides its mammoth power beneath an uncluttered and easy to use interface. The more I delved into the software the more I appreciated the elegance of its design, its ease of use, and its ability to take mechanical design processes to the next level. This feature-packed tool can help virtually any designer increase his or her productivity, and in many cases, can pay for itself the first month out of the box.

At its most fundamental level, SpaceClaim allows designers to virtually grab a model and interact with it in an intuitive and real world way. You create and modify geometry using an adaptive modeling approach by pulling and moving directly on geometry while also building associations or design intent into the model.

When using other weightier mechanical de-sign tools engineers work on a sketch then hit regenerate and hope that what they've changed is what they really intended to change. With SpaceClaim there's no finger crossing or breath holding, you see the 3D model transform visually as you're ma-nipulating it and you instantly know when you've achieved the desired outcome.



SpaceClaim's tools simulate free thinking to help you explore your limitless imagination.

Working in 2D Drawings with 3D Compatibility

Many designers are accustomed to working in a 2D drawing environment, and since SpaceClaim is mode independent they can work on a design equally in SpaceClaim's Part, Assembly, Drawing Sheet, or Mark-up environments. The boundaries between 2D and 3D designing are transparent and switching between the two is only a mouse click away.

With SpaceClaim's 2D/3D capability you can work with 2D legacy data and then easily export 3D data for machining.

Design Re-use and Collaboration

SpaceClaim allows you to work with bits and pieces of geometry brought in from virtually any system and then modify and interconnect them as if they were native.

Yes, you can create intuitively directly in SpaceClaim, but you can also import de-signs and components directly from the likes of Pro/Engineer®, CATIA®, Sol-idEdge®, SolidWorks®, and Inventor®. You can then manipulate them, add them to your work, and then export your final amal-gamated design in a wide array of industry standard formats. You can also export your design as a SpaceClaim XML file (.scdoc) that's perfect for collaboration and that al-lows third parties to get the information they need from SpaceClaim without talking directly to the SpaceClaim API.

A great example of SpaceClaim's ability to re-use designs is shown in one of their many online videos.

I highly recommend watching this video if you want to get a very quick overview of SpaceClaim's capabilities and see how you'll use it in your work environment.

Working with and Designing Sheet Metal Assemblies

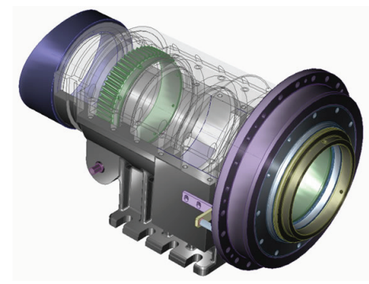
Full sheet metal 3D design and manufac-turing optimization capabilities are built into the latest SpaceClaim release. You quickly design a sheet metal assembly in your choice of metal thickness, add the appropriate bends and through-holes, and then unfold the bended piece and make adjustments to ensure that your design un-bends with no overlaps so it's ready to be machined and manufactured.

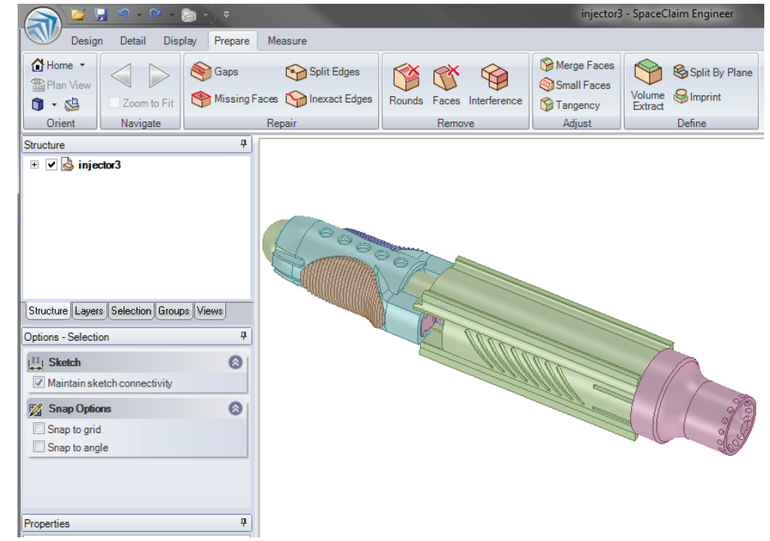
You can quickly change and fix trouble-some corner junctions, reliefs, bends and bend allowances or work in the bent or state and see your changes in both. Using SpaceClaim you're able to speed the mann-ufacturing process by splitting a single part into multiple parts at critical junction areas saving time and money during the manu-facturing process.

Space Claim in the Real World

To do this review I rolled up my sleeves and immersed myself in the tool starting with the basic 'make a bracket' exercise and working my way up to complex assem-blies I'd fabricated using assemblies and parts designed on a wide array of high-end mechanical design tools. I then added and modified new geometries of my own.

I jumped into SpaceClaim as a complete novice, and within a few minutes was creat-ing my own simple designs, and today, after just a week, I'm a proud 'SpaceClaimer.' Who would have known?





New Drawing after conversion to 3D

But, a critical part of this review was my need to understand how SpaceClaim is used in the real world. And then, as luck would have it, I realized that one of the world's foremost industrial product design firms, Nicholas Talesfore's 1D3D Design, was in the same building as us. I introduced 1D3D to SpaceClaim, arranged for a demo, let them work with the tool, and then asked Nicholas and his lead mechanical engineer about their experience.

Nicholas Talesfore & Joseph McArdle – 1D3D Design (www.ID-3D.com)

ID3D Design is one of the nation's premier industrial design companies. They designed the original Mac Classic and have gone on to provide ergonomic and attractive prod-uct designs to many of the world's leading companies.

Nicholas does the bulk of the creative de-sign work at ID3D while Joseph primarily-does more of the form development design work or makes modifications to designs based on the actual surface form of a par-ticular product as opposed to looking at the functional aspects of a model.

I asked Joseph what features and benefits he was looking for when he decided to evalu-ate and use SpaceClaim. Joe told me that, "Just from the initial information the of view of its intuitiveness its tool set, com-mand structure and how easily it allows you to manipulate objects."

The "really big" thing that Joseph men-tioned was SpaceClaim's ability to bring in models from different sources and then allow full manipulation of these models. "You can add and change model features even though it came in from a different source," Joe said, "and I thought that this was a really nice feature."

Now that Joe is using the tool, I asked him if it lived up to his expectations. Joe said that, "It absolutely did! In fact the idea of being able to manipulate solids from other applications was extremely impressive. This is very nice because now we can bring in models from tooling shops and such, add and delete features and pretty much use it as if it were a native file." Joe also told me that, "I use Solidworks, and I don't see us throwing this away, but I do see the two of them working hand in hand, complement-ing each other."