

SolidWorks 2009 Released

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Recently we attended a review of SolidWorks 2009 in Barcelona Spain¹ for industry analysts.

Jeff Ray, CEO, continued in the same vein as his predecessors, stating that Dassault Systemes SolidWorks goal is "to provide all the necessary tools to design the world's greatest products." The company shipped 800,000 seats since its inception 12 years ago, with about half shipped to educational institutions. He went on to say that listening to the voice of the customer is the key to their product strategy. Ray went on to note that half of SolidWorks users spend 70% of their time using SolidWorks; thus their focus on performance, enabling users to be more productive and produce better quality designs.

Growth through the first half showed simulation up 30%, enterprise PDM installations being adopted by larger customers than expected with an average of 50 seats per installation and some as large as 500 seats, and an emphasis on 3DViaComposer for producing documentation related to design data.

In a preview earlier this year, the company highlighted a few functions that they would unveil, including:

- SpeedPak for assemblies: removes small components using a slider to select component physical size.
- Sketching: slots tools, line and arc sizing possible.
- Sheetmetal: new solid to sheetmetal toolsets, wrap sheetmetal around solid.
- Plastics: new lip and groove auto feature, auto add cutouts while maintaining existing draft and fillets.
- Create a BOM from assembly without the need for a drawing and with different configurations, can now edit directly in the BOM list/window.
- New assembly feature that can be appended to each part.
- Sketch: stretch sketch using negative values for dimensions.
- Sensors: can be added to design parameters or simulation values for feedback on modifications and changes
- Fasteners (enhanced toolbox): size fasteners depending on the values in the fastener library.
- Bolt sizing validation
- Validation of harness design and adding ribbon cable support
- Drafting: Drag chamfers, add jog to any dimension, direct editing of the title block, new wizards for detailing tools and for title block creation
- Significant assembly performance improvements

¹ In the interest of openness, SolidWorks provided air transportation and 2 nights at a hotel; Dassault Systemes is a client of TechniCom's Vendor Program.

SolidWorks 2009 Premium (pretty much the standard choice now), shows an out-of-the-box, large assembly speed increase of up to 65% over SolidWorks 2008. SolidWorks 2009 reflects the results of a concentrated focus on performance. The company stated that designers and engineers most valued performance trait of their CAD software is **performance**. Documented through internal testing, using what SolidWorks calls realistic data and workflows, SolidWorks calculated the speed increase in the creation and modification of large assemblies and drawings. Customer workflows were studied and tested to ensure that the overall design process was being improved, not just specific functions and tasks. These performance gains were attained without new features and functions, meaning that users do not have to learn new techniques, settings, or functionality to take advantage of the performance improvement of SolidWorks 2009.

Adding to their raw performance improvements, SpeedPak, a manual or automatic assembly simplification approach for large assembly handling, provides additional function whereby, users can reduce an assembly size by retaining component graphics yet eliminating unneeded component details. A slider bar allows reducing components by size (similar to Solid Edge) and/or choosing to retain only selected components. Obviously the resultant simplified assembly (a concept similar to that used by Pro/ENGINEER for the past several releases) substantially reduces the storage needed while maintaining full graphic detail and associativity. As a result, users can build and work with massive assemblies and drawings with high performance and memory efficiency. Uniquely, SolidWorks added, what can best be described as a loupe, that, when dragged over the assembly shows which components have been simplified. We thought this was a great idea and instantly shows areas that are missing component details from the full assembly. SolidWorks claims that this allows viewing and drafting truly massive assemblies, in excess of 500,000 components.

SolidWorks 2009 includes a new Simulation Advisor that helps users analyze designs, guiding them through a simulation, making the built-in simulation now readily available for use even by relative novices. Note that the COSMOS name has disappeared and renamed Simulation. A new Simulation Sensors alert users when parts and assemblies deviate from user-defined limits, Assembly Clearance Verification lets designers and engineers specify keep-out areas around parts because of operating requirements, and PhotoView 360, a very impressive progressive easy to use, rendering tool lets users photorealistically render a scene while allowing the user to continue working on the same scene.

Plastics and sheetmetal benefit from modeling improvements that reduce design time. Plastics has an automated lip and groove creator and improved rib interactions for moving and changing rib locations and size. Sheetmetal now has a first; users design a 3D enclosure, then with a few commands convert the enclosure into a sheetmetal flat pattern without the need to shell the solid.

Little attention was paid to Enterprise PDM except to say that it integrates more tightly with SolidWorks. Additional improvements include a more extensive workflow with signoffs and an item centric approach that allows adding non CAD designed components, thus providing a better interface to an ERP BOM system. The referenced press release has the details. We hope to have a hands on review soon.

Pricing remains the same with SolidWorks Professional and SolidWorks Premium containing the new enhancements at no increase in cost.

SolidWorks 2009 focuses primarily on improvements to the product rather than dramatic new tools. But this focus really pays off, resulting in a faster, easier to use product. SolidWorks seems to be avoiding function creep, where function is added but usability suffers. A very impressive release!

With these type tools available in "mainstream" CAD software what is left to differentiate between mainstream and high end CAD software? From a modeling viewpoint – very little. Multi-CAD support, exotic surfacing technology, knowledge based applications used to build customized design processes, and a full systems installation, are a few items of differentiation. A recent Cyon Research whitepaper concluded that high end vendors differentiate themselves by "providing the narrow but deep needs of their demanding large clients' niches."

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