

## The PLM Components Newsletter

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Welcome to the fifth edition of *The PLM Components Newsletter*. PLM Components are software tools developed by Siemens PLM Software for product design, manufacture, engineering, simulation, visualization and collaboration. They are licensed to application developers in the CAD, CAM, CAE and PLM industry. They are proving valuable to software developers during these difficult economic times, enabling fast and cost effective innovations in their products. More at [www.siemens.com/plm/open](http://www.siemens.com/plm/open).

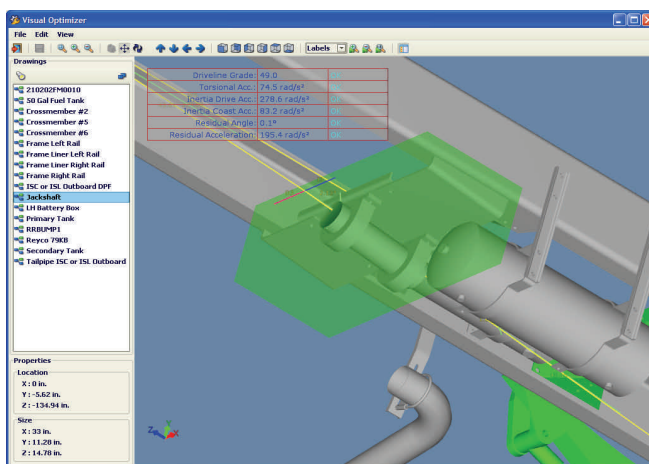
### PLM Components used in more AEC applications

Building on the news in the previous edition about the increasing use of PLM Components in AEC applications, Nemetschek North America (NNA) released Parasolid® in their Vectorworks 2009 product line (*more on page 2*). Other developments include an integration by Analist of the D-Cubed™ 2D DCM into ArchiPlan3D to support constraint based sketching of 2D architectural plans. Also, Bentley Systems have made the first release of the D-Cubed Collision Detection Manager (CDM) in its ProjectWise Navigator immersive project review product.

### PLM Components used in configuration applications

Configuration applications enable the sale and manufacture of products that are made-to-order to satisfy individual customer requirements. Customers select from a range of options to define a particular product configuration. Working with a CAD model is often an important part of the process, with growing use of PLM Components to support developments in this area.

Certusoft is a developer of a configurator that supports the design of multi-axle vehicles, ensuring such designs satisfy a variety of physical conditions. They have licensed the D-Cubed 3D DCM, CDM and Hidden Line Manager (HLM) to enable a range of mechanical CAD functions. The figure opposite illustrates the positioning of parts during an automatic process to optimise an assembly for minimal vibrations. *Continued on page 3.*



Optimising for minimal torsional vibrations in a truck's driveline using the Visual Optimizer in Certusoft Configurator

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### Business news

**Nemetschek North America Inc., USA,** released Parasolid Designer in their Vectorworks 2009 application for the architecture, entertainment, landscape and machine design industries (see page 2).

**IMSI/Design LLC, USA,** released the 2D DCM in its new DoubleCAD XT PRO mechanical and architectural drafting and detailing application. This enables users to control their drawings with driving dimensions and geometric constraints.

**CNC Software Inc., USA,** released Mastercam X3, which was upgraded to use Parasolid Editor. Full modeling based on Parasolid Designer is available with the Mastercam SOLIDS option.

**Renishaw plc, UK,** licensed the CDM to provide future collision detection capabilities in its new off-line Coordinate Measuring Machine (CMM) programming application called MODUS.

*“Product innovation and excellence are key targets in our business development strategy, making the D-Cubed components the obvious solution for meeting our critical 3D modeling objectives. Our customers demand strong commitments to quality and functionality. Licensing solutions from Siemens PLM Software will enable us to fulfil those commitments more rapidly and with full peace of mind.” - Sermet Yucel, president of Certusoft*

## Parasolid product news

### Parasolid v21 Released

Parasolid v21 was released in December 2008 and includes numerous enhancements focussed on improving modeling capability and productivity.

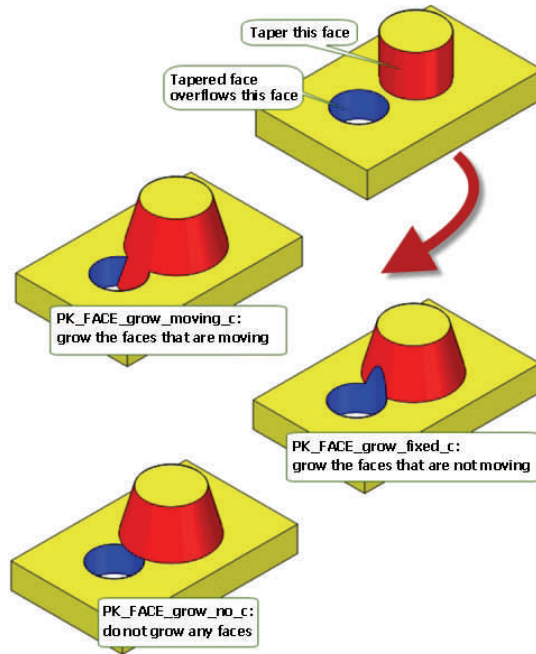
■ **Local operations:**

Enhancements have been made to allow more complex changes while performing local edits of geometry. For example, options have been added to automatically indicate desired behavior when features such as holes and bosses interact as the result of a local editing operation.

■ **Enhanced surface creation:**

Sophisticated sheet and surface creation and manipulation capabilities have been extended. For example, users can perform sweep operations with enhanced control of rotation as well as with more complex configurations of guide curves. In addition, users can perform loft operations between profiles while twisting along a path.

■ **Application support:** A new diagnostic mechanism has been added and tools that help developers track creation, editing and deletion of entities have been developed to add more support for sophisticated undo and rollback algorithms.



## More business news...

**Autodesk, Inc.**, USA, released the Inventor Simulation Suite which utilizes Parasolid Communicator for interoperability.

**WIPL-D d.o.o.**, Serbia, licensed Parasolid Editor for use in their Electromagnetic solver.

**CEI, Inc.**, USA, licensed Parasolid Communicator for use in their EnSight Visualization software.

**VX Corp.**, USA, licensed the Parasolid STEP Translator.

**DP Technology, Inc.**, USA, signed a new agreement for Parasolid Designer and the STEP translator, allowing for full solid modeling capability in every seat of ESPRIT.

**COMSOL**, Sweden, upgraded to Parasolid Editor for use in the COMSOL Multiphysics ® CAD Import Module.

**Auton S.r.l.**, Italy, a subsidiary of DP Technology, licensed Parasolid Communicator for use in the Auton CAM Processor.

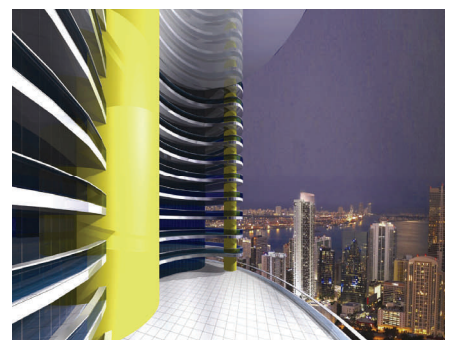
## Parasolid: foundation of Nemetschek launch

In September 2008 Nemetschek North America (NNA) launched Vectorworks 2009, their first Parasolid-based product, comprising: Designer, Architect, Landmark, Spotlight, Machine Design, Fundamentals, and Renderworks.

After evaluating Parasolid, NNA were impressed by its out-of-the-box performance and the robustness of its functionality, in particular the high-level modeling operations such as shelling, tapering and offsetting. Many AEC professionals still use a combination of 2D and 3D techniques in their design process with inherent performance issues and opportunities for ambiguity and errors. NNA decided that Parasolid could provide a major competitive advantage over many of their competitors by bringing mature modeling capabilities from the MCAD world to their AEC users.

As a result NNA set the ambitious target of integrating Parasolid into every module for simultaneous launch in Vectorworks 2009, which was less than a year away. This was achieved comfortably with assistance from the Parasolid Support Team. Parasolid and solid modeling were the focus of the launch and marketing program. Such a bold strategy, supported by extensive launch activities, created considerable excitement in the AEC world with many positive reviews and comments from analysts. Questions were also raised about how competitors would react. More about NNA and Vectorworks 2009 at [www.nemetschek.net](http://www.nemetschek.net).

More about Parasolid at [www.siemens.com/plm/parasolid](http://www.siemens.com/plm/parasolid)



*Image courtesy of Paul Oravec*

## More business news...

**Certusoft Inc.**, USA, licensed the 3D DCM, CDM and HLM components for use in its Certusoft Configurator application.

**Analist Group S.r.l.**, Italy, licensed the 2D DCM to solve parametric wall junctions in its 3DRoom / ArchiPlan3D AEC application.

**Euklid CAD/CAM AG**, Switzerland, licensed the 2D DCM for a future sketcher module for its CAD/CAM software.

**Remcom Inc.**, USA, released the 2D DCM to power an enhanced sketcher in its XFtd Release 7.0 electromagnetic simulation product.

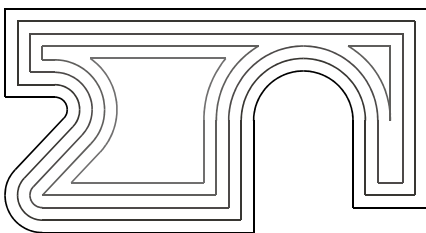
**Cimatron Ltd.**, Israel, renewed its commitment to the 2D DCM, 3D DCM and HLM components with a multi-year contract extension.

**VX Corp.**, USA, licensed the 2D DCM and released it as the sketching engine in their range of CAD/CAM applications. This builds upon their established use of the 3D DCM to support assembly part positioning.

### D-Cubed PGM: now available as independent component

The Profile Geometry Manager (PGM) was previously available for integration only with a 2D DCM-enabled sketcher.

Version 55 is now also available for applications that need to provide advanced profile offsetting capabilities independently of the 2D DCM.



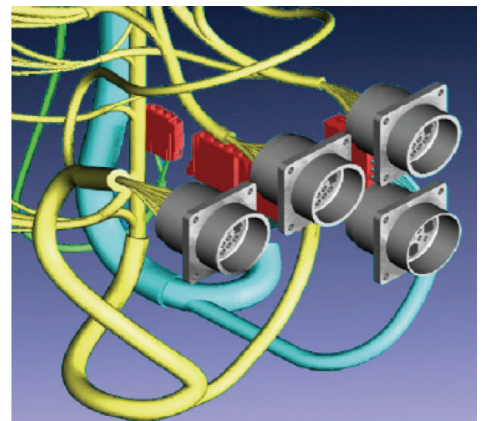
*PGM creates multiple trimmed offsets*

## D-Cubed components product news

### Product development focus: DCM splines

Spline curves are widely used in 2D sketching applications, and in 3D for spline curve and surface design and 3D routing applications. Since our last edition, much work has been done to extend the support for splines in both the 2D DCM and 3D DCM, including:

- 2D and 3D spline length constraint computations can now be spread across multiple processors. Algorithms run on four processors in under 38% of the time on one processor.
- Intrinsic enhancements to the spline length computation time have been made, resulting in a factor of two improvement, even on a single processor.
- Signed distances added to define which side of a 2D spline a distance is solved.
- Equal curvature vector constraint for 3D DCM splines, enabling improved continuity control between curves.
- Improved control of tangent magnitudes on 3D DCM interpolating splines for maintaining aesthetically pleasing curves during interactive manipulation.



*3D DCM controlled splines in routing*

### D-Cubed CDM: extensions for faceted models

Version 40 of our component for computing fast and accurate collisions and clearances was released in May 2009. Various functions previously supporting only accurate (B-rep) models are now available on faceted models, including the ability to predict collisions along a given path for a faceted object.

### D-Cubed components in Certusoft Configurator

*Continued from page 1:* Certusoft will use the 3D DCM to support the automated 3D assembly of integrated chassis and body configurations and to enable users to configure their models interactively. The CDM was adopted to ensure that the assembled configuration has no interpenetrating parts, and the HLM will be used to improve the automated production of drawings that provide users with accurate visual representations of the configured products.

Certusoft follows TDCI, USA, who licensed the 2D DCM to support the creation of home design configurations, such as windows and doors, in its BuyDesign application. The 2D DCM enables the dynamic creation of configuration-specific parametric drawings without the cost of integrating with a third party CAD system.

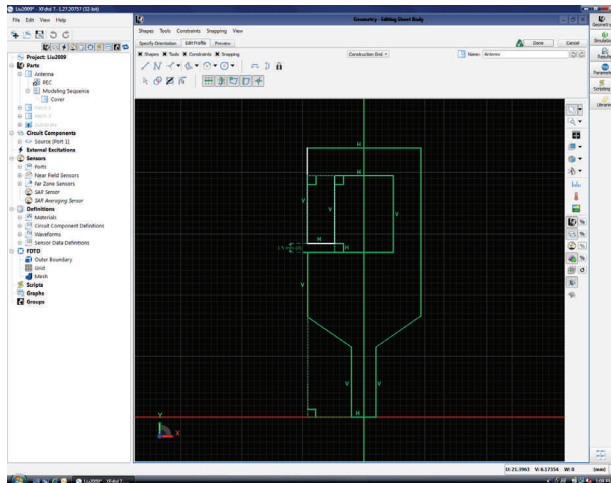
Configurators are often server-based solutions that can take advantage of parallel processing to serve multiple users simultaneously. The D-Cubed components licensed by Certusoft and TDCI were all recently optimized for thread-safety operation on parallel processors to support such applications.

More about D-Cubed components at [www.siemens.com/plm/d-cubed](http://www.siemens.com/plm/d-cubed)

## New application for 2D DCM in CAE

Remcom recently became the first electromagnetic simulation software supplier to license the 2D DCM. Remcom's flagship application, XF7, provides engineers with design, simulation and analysis tools for modeling electromagnetic characteristics and effects. The 2D DCM has previously been adopted by other CAE software providers, including ANSYS and Samtech, where it is used to provide an integrated parametric sketching capability.

The 2D DCM has been integrated in XF7 to assist with the parametric design of new and imported models, such as antennae, microwave circuits and wireless communication devices. The figure opposite illustrates the profile of a part that has been sketched with the assistance of geometric constraints that are solved by the 2D DCM. In common with other parametric sketching applications, XF7 tracks the modeling operations so that users can return and edit the original sketch and the relevant changes will be propagated through the modeling history.



*2D DCM based sketching in the XF7 electromagnetic simulation application*

*"We selected the D-Cubed 2D DCM because it was clearly the most credible option in the market. The 2D DCM's status as the industry-standard sketching engine, coupled with an excellent support service and the stability of Siemens PLM Software as a component supplier, ensure market-leading value for Remcom and our customers."*

*- Bradley Flubacher, Senior Software Engineer at Remcom*

## JT Open - Recent board meetings reinforce mission

JT is a lightweight data format, used by automobile, aerospace and other manufacturing industries in a range of MultiCAD, visualization and virtual prototyping applications. The JT Open Program is a global community of leading manufacturers, software vendors and academic institutions that work to establish JT as an open standard for digital 3D product representation, helping members benefit from open collaboration across the extended enterprise through the adoption of the JT format.

The Management and Technical review boards of the JT Open Program recently met in the USA. A wide range of topics on the status and direction of the program were discussed, including interoperability and standards initiatives and applications in visualization, Computer-Aided Engineering and the nuclear power industry. New members of the JT Open Program include Rolls Royce, Suzuki, VW/Audi, AWE (UK), and Mori Seiki. The JT Open Program continues to grow and actively drive new technology into JT. More about JT Open at [www.jtopen.com](http://www.jtopen.com).

## PLM Vis update

PLM Vis provides highly customizable 2D and 3D visualization and markup tools. It is used by software vendors to enhance their applications and by end-users to enrich current, and develop new, business processes. Examples include Boeing, Caterpillar, John Deere, LG, Sikorsky and Visiprise. PLM Vis is available in a range of service levels, each one building upon the capabilities of the preceding configurations:

Mockup	<ul style="list-style-type: none"> <li>• Closest approach</li> <li>• 3D alignment</li> <li>• Outline</li> </ul>
Pro	<ul style="list-style-type: none"> <li>• 3D measure and markup, properties, appearance</li> <li>• Animation, cross-section, PMI, conferencing</li> </ul>
Standard	<ul style="list-style-type: none"> <li>• 3D viewing, part selection, rubber-banding</li> <li>• Save/load sessions, navigation</li> </ul>
Base	<ul style="list-style-type: none"> <li>• 2D navigation, image capture/export</li> <li>• 2D viewing; 3D simple viewing</li> </ul>

PLM Vis 8 has just been released and supports the JT feature "Ultra Lightweight Precision" that enables collaboration over the web yet sufficient precision for users who do not require "exact" geometry.

More about PLM Vis at [www.plmvis.com](http://www.plmvis.com)

## Contact details

Please see the websites listed in the articles or use the contact details below and your enquiry will be forwarded to the appropriate recipient:

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