

What's New in BricsCAD V16 – Blog post Summary

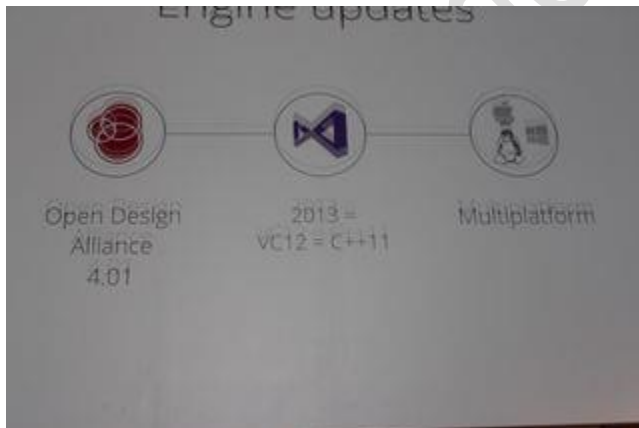
This document summarizes the new features in BricsCAD V16, as collected from several of my blog posts during the annual conference in October 2015.



Hans de Backer, Head of Product Development at Bricsys now starts the presentation of all that is new in BricsCAD V16.

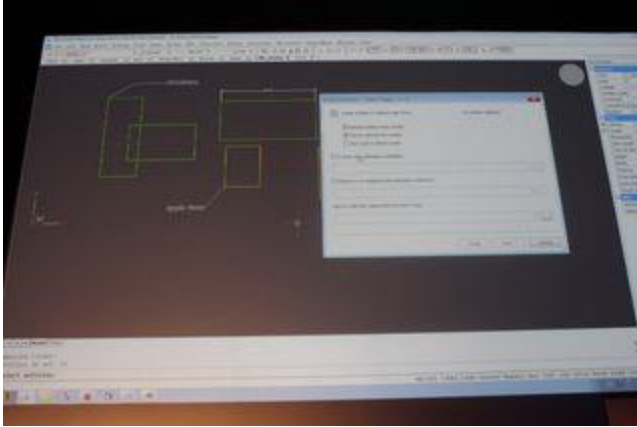
BricsCAD V16 packs a combination of new features in each CAD department and fine tweaks that improve usability and enhance productivity of existing tools. There is certainly a treasure of new tools and options that enable precision editing, and you need to really understand and pay attention how to use them.

Hans starts with the changes that have happened under the hood.

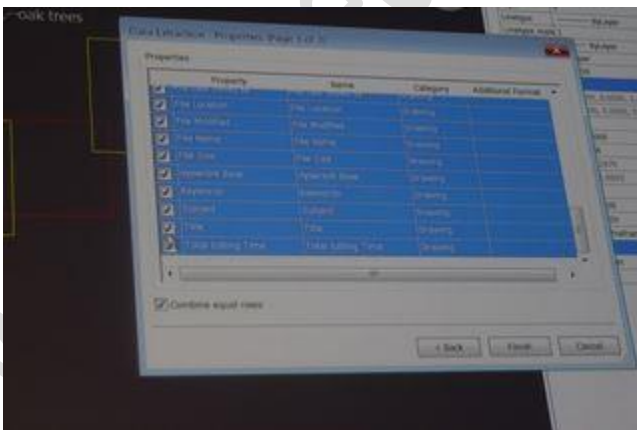
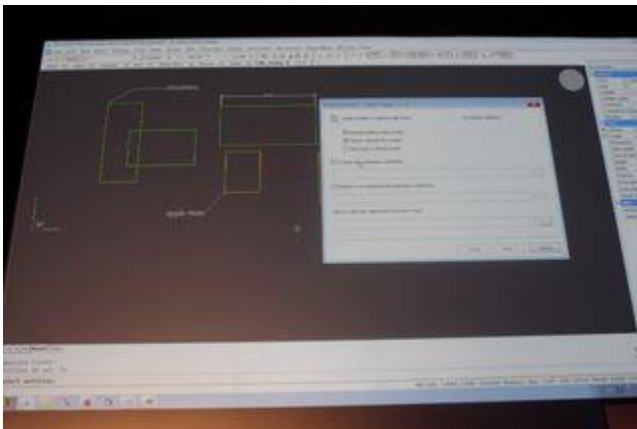


And now the detailed listing of new features:

- **New: Data Extraction Wizard:** A new wizard allows to export mostly any property of the entities contained in a dwg file. Export configuration is saved in Data Extraction file (DXE) template files and the exported file is a CSV format.



RR: This is one tool many users have been waiting for and makes it easy to derive information from .dwg and export to Excel, Word or similar software.



CSV file imported back into BricsCAD as a table

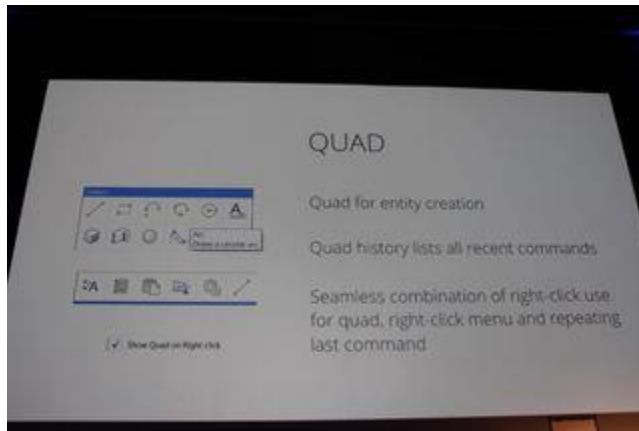
A drawing is not just a graphical sketch any more but also a database, comprising of attributes, entity data, dictionaries, styles and more. You can now query and extract the info into textual data and reports. The CSV file makes it easy to export the data into Excel, Open Office or similar software.

- **New: ExportLayout Command:** Bricsys recognizes a need many CAD vendors pretend does not exist. Many users still compose & print their drawings from model space. The EXPORTLAYOUT command exports all visible paper space objects into model space and creates new drawing.

If you have had to deal with multi-layout drawings and wanted to edit them in model space, this is really convenient.

RR: I see one real good use for this tool that I recently was struggling with. If I have to collect multiple paper space layouts from drawings and create one single compiste drawing, this is the tool to use. Of course, a Lisp to set the process in place is needed but the bulk of the dirty work is handled by EXPORTAYOUT command.

- **Improvements in the QUAD menu**



- **COMMUNICATOR:** Import of product (assembly) structure is now supported for a number of CAD formats (ACIS, CATIA V4/V5/V6, IGES, Inventor, NX, Parasolid, Pro/E/Creo, Solid Edge, SolidWorks, STEP, VDA-FS, XCGM).

The PRODUCTSTRUCTURE system variable controls whether the structure is imported as regular blocks or as local mechanical components.

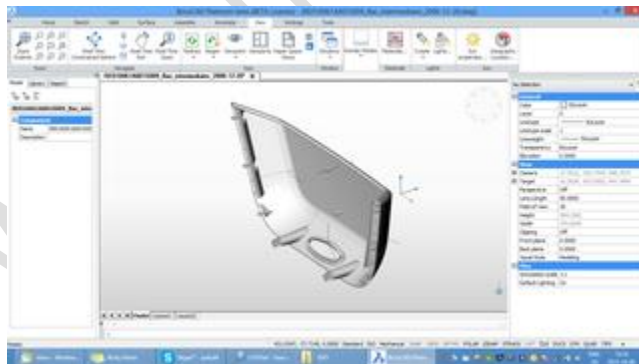


Photo Courtesy: [RAP Technologies, India](http://RAPTechnologies.com) (N.Pakutharivu)

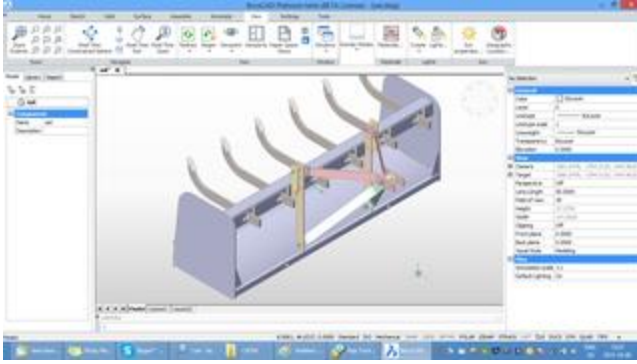
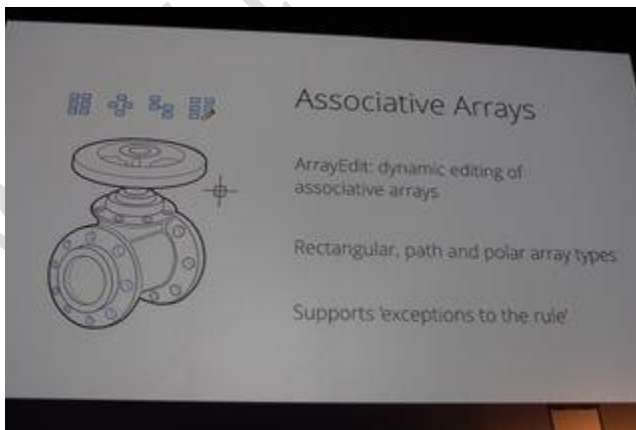


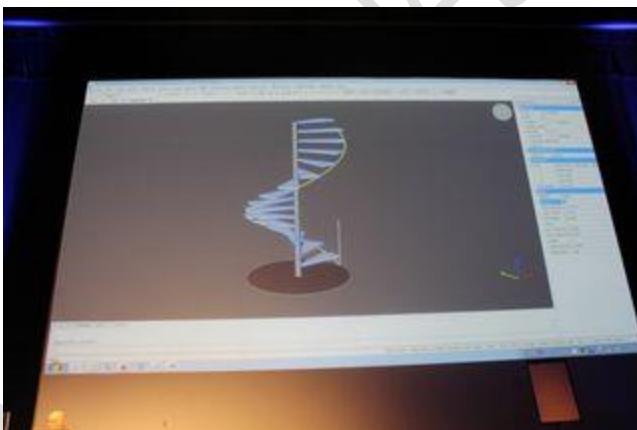
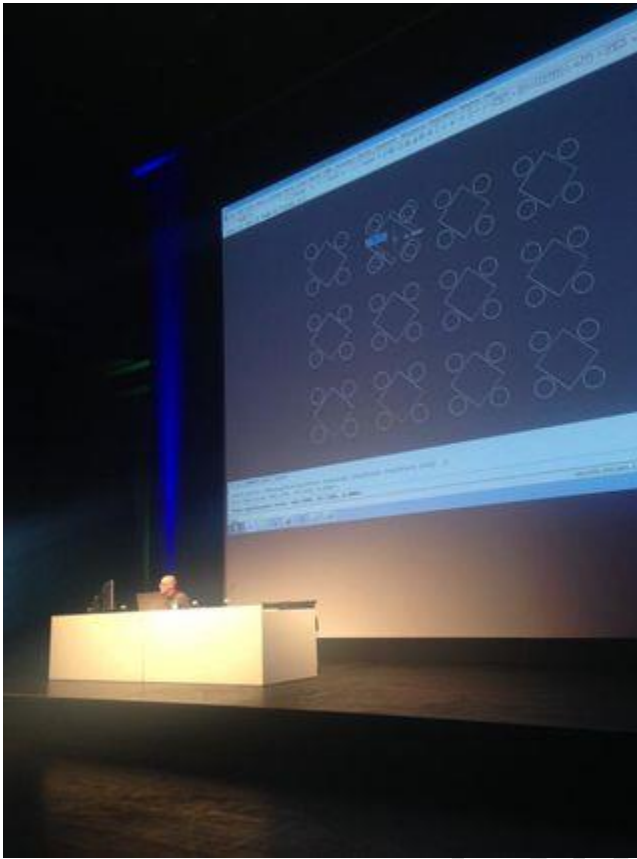
Photo Courtesy: [RAP Technologies, India](http://www.raptechnologies.com), India (N.Pakutharivu)

- **GDIPLUS** is now the default graphics device on the Windows platform. GDIPLUS promises to deliver better graphics functionality including refresh rates, updates and rendering. It replaces the GDI device which also has no support for transparency.
- **TRANSPARENCY:**
 - Transparency setting is supported now and can be set for selected entities, or for all entities on a layer.
 - Transparency of new hatch entities is controlled separately using the HPTRANSPARENCY system variable.
 - Transparency when plotting is controlled by the Plot Transparencies option in the Page Setup and Print dialog. Bricsys has decided to disable it by default for performance reasons.

RR: Presentation is an important aspect and these improvements make the visual communication of .dwg data better and more expressive. Architects are surely one lot that would really appreciate this features.
- **ASSOCIATIVE ARRAYS:** This feature is finally in BricsCAD. A subject of many forum discussions and wishlists, associative arrays complete the list of associative styles and drafting features that already exist in BricsCAD.



An array is a pattern of copied items, each item consisting of a selection of entities. The associativity between the items allows to propagate changes throughout the array by maintaining relationships between the items.



Hans is now showing us how to create a spiral staircase and a ferris wheel, both in 3d using the associative arrays.

The Associative array feature set is enabled via a number of commands.

ARRAYPATH: command to distribute entity copies evenly along a (portion of) a path.

ARRAYPOLAR: command to distribute entity copies evenly in a circular pattern about a center point or axis of rotation.

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ARRAYRECT: command to distribute entity copies into any number of rows, columns, and levels.

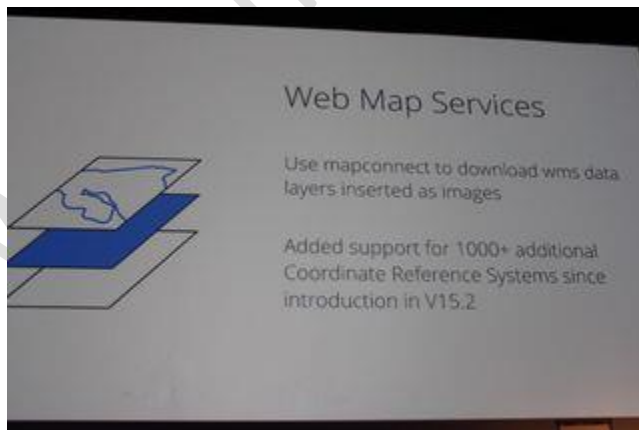
ARRAYASSOCIATIVITY: system variable that sets whether new arrays are associative or not.

ARRAYEDIT: command that allows the editing of associative array objects and their source objects.

- **3D Direct Modeling & Mechanical:** A bunch of small productivity improvements saves keystrokes and makes design more intuitive.
 - For example, pressing Enter on a feature node now zooms the view to the corresponding entities.
 - Extension and diameter of a corner relief feature are now available for editing in the node properties. Rapid access to frequently used parameters is what Bricsys is attempting to deliver here.
 - Visual improvements: Internal and external components now color-coded and separately identifiable.
 - The commands DMROTATE, DMMOVE can now be applied to entities of any type, not only the ones supported by 3d constraints.
- **Deformable Modeling:** This is something mechanical designers would love. A new toolset enables freeform modifications of 3D solids and surfaces by deforming their faces and edges. Works on imported geometry also.

These three are the new tools of the trade.

- DMDEFORMPOINT: deforms object by transforming a point lying on the specified face.
 - DMDEFORMMOVE: deforms object by transforming (moving and rotating) the specified edges.
 - DMDEFORMCURVE: deforms object by transforming a set of its edges into the specified set of target curves.
- **Web map Services & Geographic Coordinate Reference Systems:** Added support for projections and coordinate reference systems for New Zealand, North America, Canada, Russia and the Russian Commonwealth of Independent States.



- **GCE SNAP:** A new snap type - Geometric Center snap allows to snap to the centroid of any closed polylines and splines, planar 3d polylines, regions and planar faces of 3d solids.

RR: I like this tool, and am sure many others will. The standard set of entity snap tools are in desperate need to being extended in functionality. I would love to see more geometrical, mathematical and formula based snaps.

- **BIM:** Once again, the focus has been on improving the usability of what is already existing, rather than introducing new tools.

BIMINSERT: A number of context based editing options have been added to make the process of inserting windows and doors easier. You can hover on existing BIM objects and make a new insert copy of the object by choosing a new option in the QUAD.

BIMSECTION: A completely new way of creating cross-sections will switch from using drawing views to enhanced section plane definitions.

BIMFLIP: Mirror a window or door left/right or in/out with one click in the quad.

Custom properties can be added to Materials & Compositions, enabling better project definition & IFC exports etc.

- **Sheet Metal Improvements:** The Sheet Metal features have been considerably extended, and requires a new license with additional payment.

Two types of corner relief - Circular & V-Type are supported. The Relief parameters can be modified in the Properties panel of the Mechanical Browser.

One of the difficult tasks in sheet metal bends is to identify the correct bends, their locations and so on. This is made easier now by feature coloring. Specific colors are assigned to faces of Sheet Metal features.

In another significant feature addition, lofted bends are now supported. The SMLOFT, SMCONVERT, SMBENDSWITCH, SMREPAIR and SMRETHICKEN commands offer a complete portfolio of commands to handle lofted sheet metal.

- **PDF Improvements:** PDF Export is getting important and is receiving attention. Support added for JPEG image compression.
Result: tighter, faster PDF publishing with optimized sizes.
- A completely new license manager is in place now that manages the available BricsCAD, Communicator & Sheet Metal licenses.



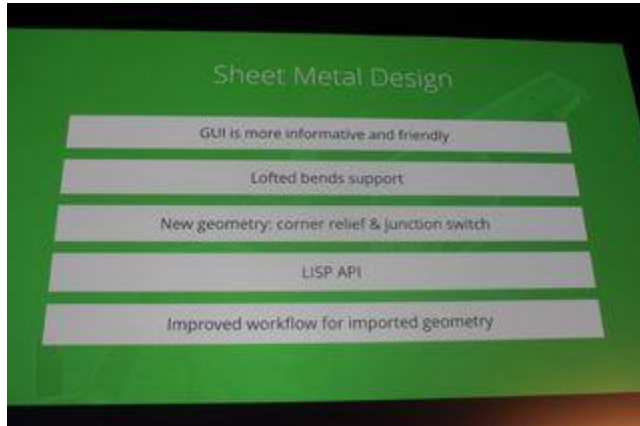
- **Cosmetic change:** A new startup menu puts the available startup options in a row.



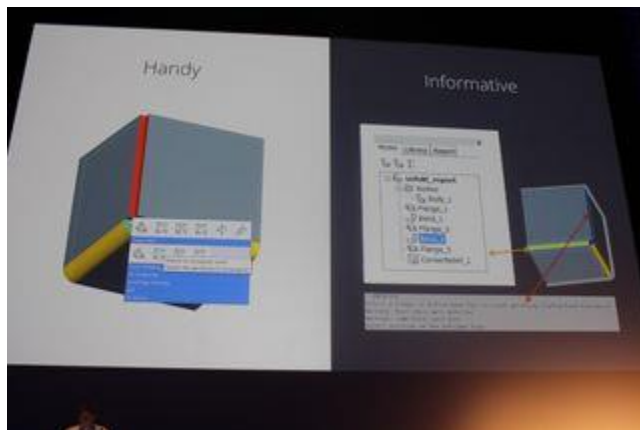
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Sheet Metal Design in BricsCAD V16

Post lunch, this is the first presentation. Maxim is presenter and Ilya doing the demos.



There is one key word we are hearing repeatedly in this conference. And that is usability improvements, productivity gains and error-forgiving interface. The above slide captures a number of these punch-points very aptly.



User interface is now handy (pretty) as well as informative depending on context.

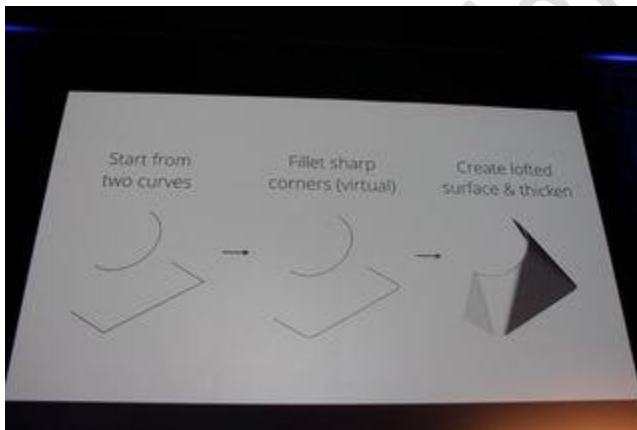
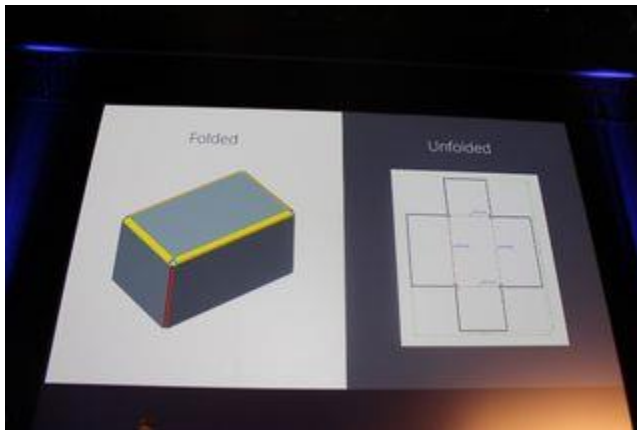


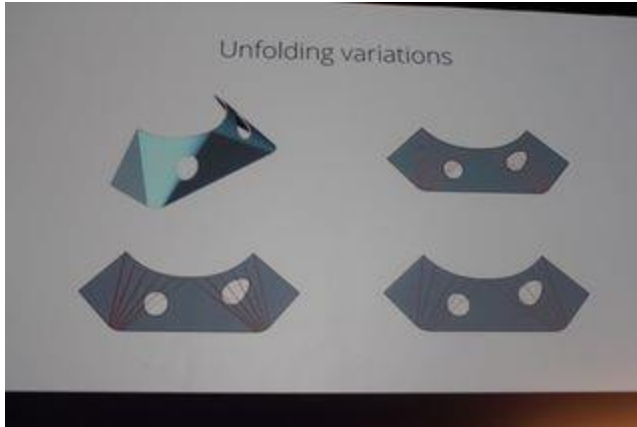
Everything (well, almost) is configurable and anything that is not promises to be so, soon.

This is one module that holds the most promise in V16 and has evolved considerably. Sheet Metal improves handling of imported geometry with built-in features with names like heal, convert, stitch, simplify and more.

Here are some of the key improvements:

- GUI improvements are both informative (about errors) and handy
- Lofted bends is now possible and an extension of the new LOFT command in BricsCAD. Choose two 2d curve and create lofted bends between them.





- Holes can be punched in lofted bends now.
- New SMCONVERT command can recognize lofted bends created in other CAD systems.
- Unfolding options have improved and reporting of key parameter data (annotations) makes it easy to understand the unfolded body easily.
- Corner reliefs, flanges and bent angles can now be applied easily and everywhere possible. Not just user-friendly but forgiving user interface allows you to revert back to original state easily.
- Junction switch: New SMJUNCTIONSWITCH command allows to switch the junction switch as per flanges.
- Lisp API support: supports many Sheet Metal commands in command line more for script access.
- Smart selection: For example, a number of property query based selection can be performed using this feature.

Live demo continues with emphasis of lofted bends, unfolding and the ability to change parameters and redo the operations again.



We are nearing the end of the Sheet Metal presentation and Dmitry is on stage now telling us the wishlist of the Sheet Metal industry and what is planned for V17. He adds a caveat however - these are not approved yet and only on the wish-list and nice-to-have features.

Post presentation, we have a highly passionate Sheet Metal industry veteran Christian Lemonte who explained why BricsCAD Sheet Metal is not BEST choice but the ONLY choice.



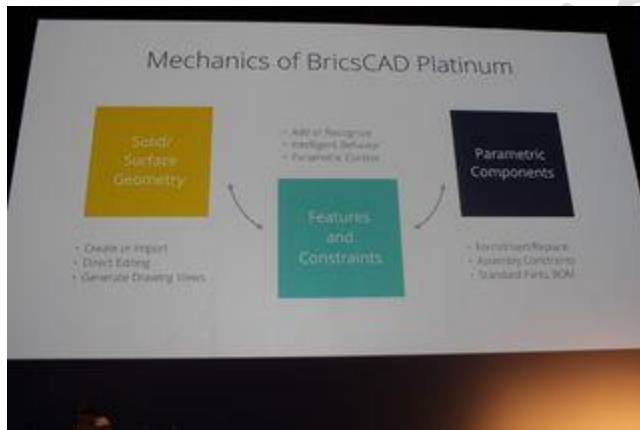
He says all "Other CAD" sheet metal software got it all wrong and explains why using a series of slides.

The MCAD Overview by Dmitry Ushakov & Ilya Tatarnikov



After a short coffee break, Dmitry Ushakov and Ilya Tatarnikov are now on centre-stage to tell us more about the BricsCAD 3d Modeling update.

"There is no more any boundary between parametric and direct modeling. It is in one single unified environment" said Dmitry.



Ease of use and flexibility and freedom in component management is one of the key new conveniences introduced in BricsCAD V16.

Key highlights from his presentation:

- MCAD components can be now be created from blocks easily.
- 3D Constraints can be easily applied on components.
- Import assemblies
- Replace components easily and intelligently
- Generated drawing views has improved considerably. You no longer need to know in advance the number of views and the scale of the view-ports etc.
- A section style interface allows to control the section parameters via styles
- Similarly, a new detail view style option helps define and control section detail.

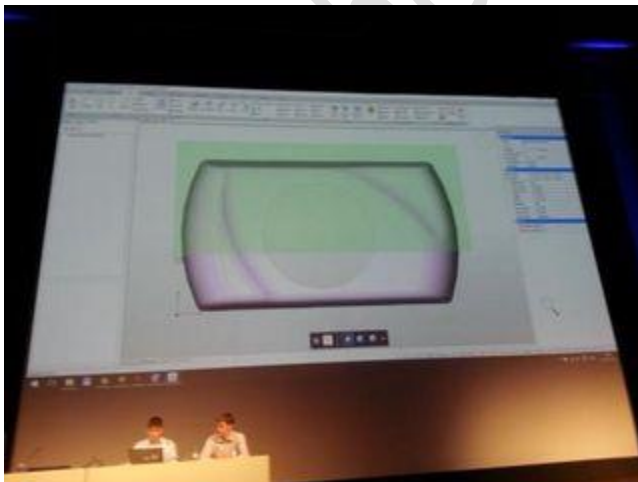
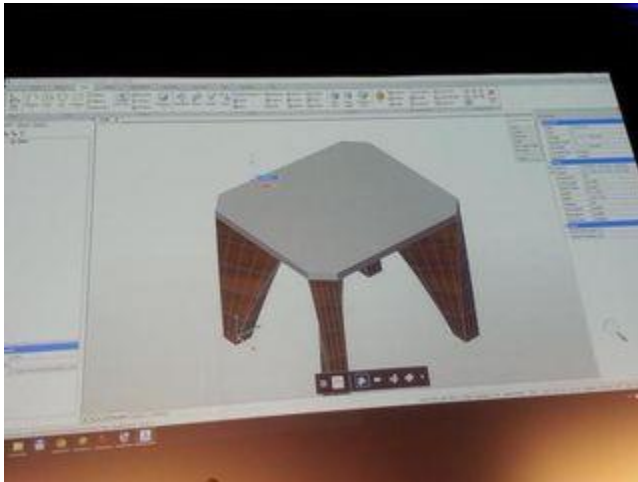
- Bill of Materials has been improved and a more accurate, comprehensive representation of

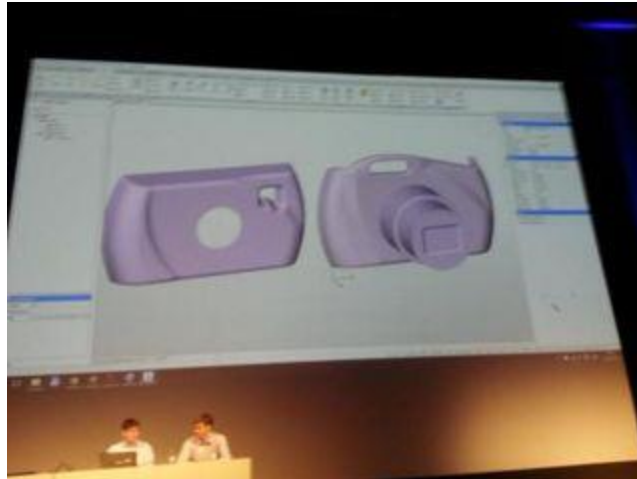
Alexy Kazakov or Bricsys Russia now joins the stage to present the technical details of 3d modeling and improvements.

Ilya Tatarnikov is now demonstrating how a 3d dust pan is created from scratch in just 2 minutes. Indeed, the new tools in V16 makes fine-tuning and editing of 3d models a breeze. The catch is that you need to know exactly how and where to access the commands and sub-options which are nestled in various context menus and QUAD options. Not rocket science, but the key to productive understanding of the new commands in BricsCAD and applying them in correct context.

Bricsys Russia presenters are coming on stage one after one to show off the incredibly powerful deformable modeling features. This is really cool and propels BricsCAD 3d modeling to a new level. All models shown in the live demo has been created from scratch.

Here are some screen grabs:





The fruits of the labor: A camera case created with deformable modeling features

An impressive demo of deformable modeling saw the loudest cheering we have seen so far.

Alexey comes back on stage to summarize the new tools and tricks of the trade of 3d direct modeling.

