

MESAVISIONS

June 2011

Autodesk

Gold Partner
Manufacturing

Autodesk

Authorized Developer

Autodesk

Authorized Training Center
Authorized Certification Center

The New Autodesk Design Suites have arrived!

Autodesk Product Design Suites

This edition is based on the AutoCAD Mechanical and Inventor Products. As the name implies the tools contained within this product suite are for designing industrial machinery, consumer products, building products, even amusement rides like the thrill ride that forms the basis of the images on this page.

Autodesk Factory Design Suites

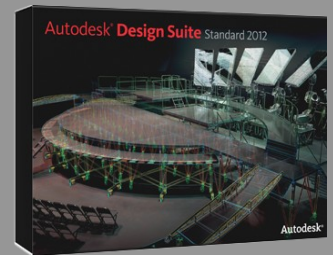
These suites are designed to help companies design their factories as well as the equipment that goes into the factories. The tools included provide the users with support for the design of the building as well as the design of the workflow of the equipment being produced.

Autodesk Building / Plant Design Suites

These new suites are based on Revit (building design) and Autodesk Plant 3D (plant design) and provide tools similar those in the previously listed suites to support the building design and process and plant design industries.

Each of the new Autodesk Suites are available in three editions:

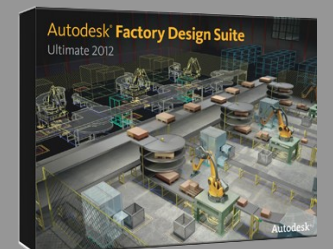
Standard - Is the entry level suite, with the appropriate version of AutoCAD as its base and includes Autodesk Sketchbook Design, Autodesk Mudbox and Autodesk Showcase. Each suite product is delivered on single flash memory stick. Installation is literally as easy as plugging in the memory stick and selecting "install products".



Premium - Is the mid-level suite and includes all of the products included in the Standard edition and adds the appropriate Autodesk 3D product. Autodesk Product Design and Factory Suites include Autodesk Inventor. Autodesk Building Design Suite Premium includes Revit as its base while Autodesk Plant Design Premium includes AutoCAD Plant 3D as its base. All the Premium products include 3DS Max® Design.



Ultimate - Is the top-level suite and includes all of the products included in the Standard and Premium editions and adds to that the highest level 3D product. In the case of Autodesk Product Design Suite Ultimate, the 3D product is Autodesk Inventor Professional. Autodesk Product Design Suite Ultimate also includes Alias Design for advanced conceptual design and surface modeling.



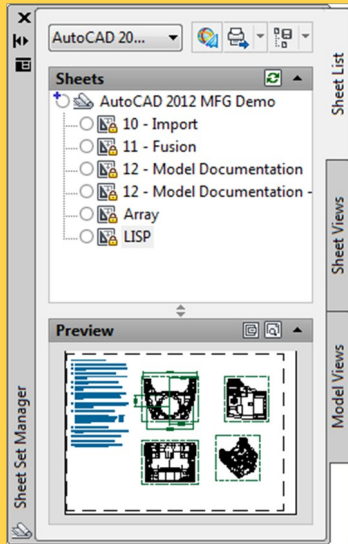
You can learn more about the new Autodesk Product & Factory Design Suites at our "Make Your Ideas a Reality" Road Shows coming to a location near you. The schedule and locations are listed on the back page of this newsletter.

Autodesk Vault Family 2012 Highlights of What's New

Autodesk Vault provides a single, visually oriented platform for connecting Autodesk users to their data, allowing them to collaborate on a project basis.

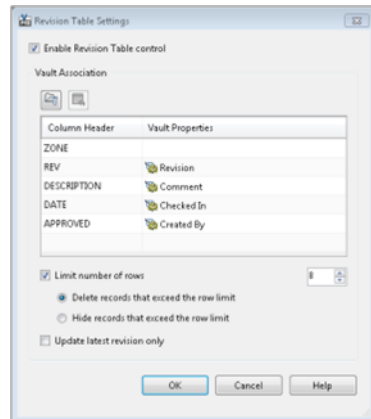
AutoCAD Sheet Set Manager Integration

This will make adoption of the Vault easier for AutoCAD users.



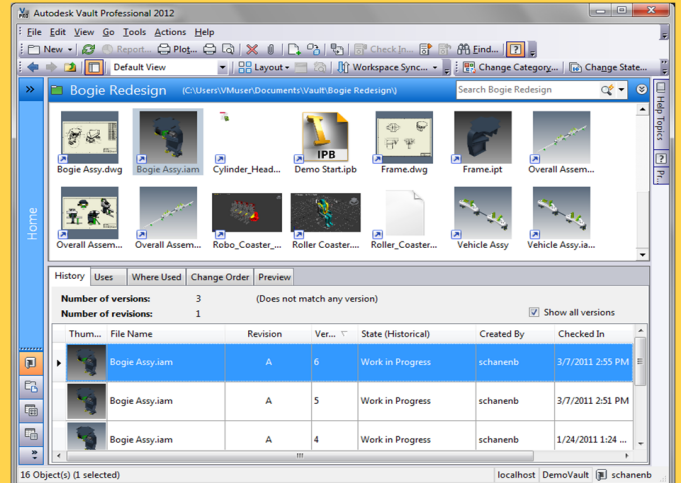
Revision Table Support

- Track Vault revision information within your drawing.
- Map Vault information within CAD revision table
- Highly configurable revision block
- Automated workflow on setup
- Supports both AutoCAD and Inventor



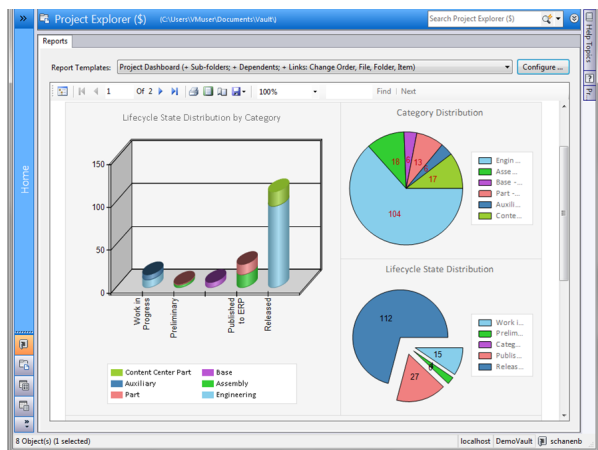
Project Container and Navigation

- Collaborate on a project basis and realize a more effective re-use of your designs.
- Manage all data types within a consolidated Project context
- Simultaneously search across data types within a project
- Categorize folders like files
- Assign user-defined properties



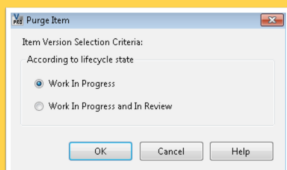
Project Dashboard

- Dashboard style reporting offers immediate feedback on project status.
- Built into the folder detail pane
- Easy status updating
- Reporting based on project structure date, including: Files, Sub-Projects, Items, and Change Orders



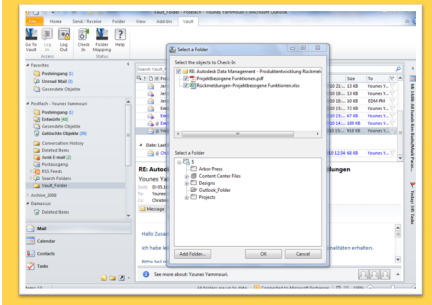
Relax Rules Related for Items Lifecycle

- Rules regarding lifecycle transitions loosened to provide more flexibility.
- Purge Item versions in "Work in Progress" and "Review" states
- Easier to work with Obsolete Items
- Apply "Quick Change" on Items, skipping revision bump



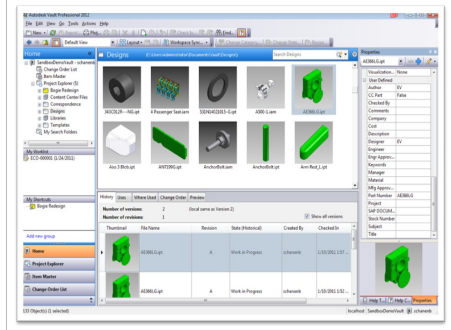
Microsoft® Outlook® Collaboration

- Manage and track Outlook communication within Vault.
- Automatically manage project communication
- Add new email threads and extract attachments to Vault
- Map your Vault projects within Outlook 2010



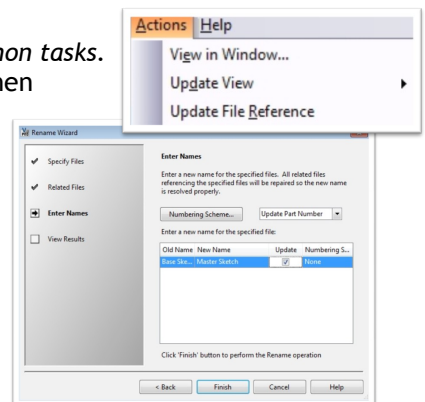
Navigation & UI Enhancements

- Configurable User Interface makes Vault navigation easier.
- Visual display and buttons for thumbing through documents quickly
- Vault Folders visible in pane
- Property pane offers 3 layout options: Detail View, Small Icon & Large Icon



File Management Improvements

- Faster file management for many common tasks.
- Greater flexibility and consistency when working with Inventor files for "move" and "replace" commands
- Speed improvements in:
 - Copy Design (3x faster)
 - Edit Properties (2x faster)
 - Web Client (2x faster)
 - Check Out Office (3x faster)
 - AutoCAD Electrical Open From Vault (2x faster)



AutoCAD® Mechanical 2012

What's New Highlights

Model Documentation Tools

Save time by automatically generating intelligent documentation for 3D models

Create intelligent drawings from the following sources:

- > AutoCAD
- > Inventor
- > Fusion
- > Rhino
- > CATIA
- > NX
- > ProEngineer
- > SolidWorks

Drawing views, edge display, and location are instantly updated when a change is made.



Autodesk Content Explorer

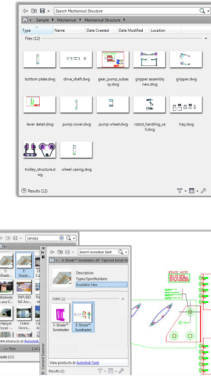
Instantly find your design content based on file objects or text attributes

Creates an index of your data based on where you instruct it to look.

Quickly Access:

- > Files
- > Layers
- > Linetypes
- > Blocks
- > Styles

This will enable you to access and insert data into DWG files.



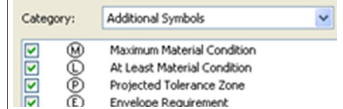
Standards Update

Includes updates for standards derived from the recently updated standard

Updates for recently updated ISO standard

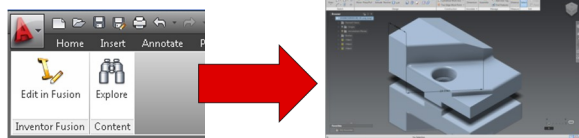
- > Dimensioning
- > Parts Lists
- > GD&T
- > Leaders

This also includes updates for DIN, JIS, and BSO, as well as other standards.



Autodesk Inventor Fusion

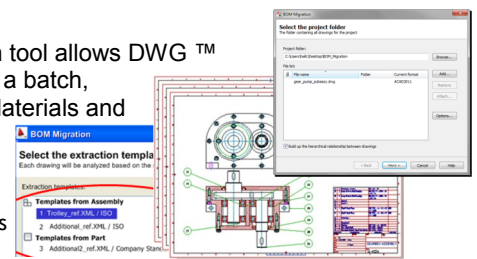
Is included as a desktop app within Mechanical which allows the user to intelligently edit 3D models in the native DWG format.



Enhanced BOM Migration

AutoCAD® Mechanical's BOM Migration tool allows DWG™ data from any source to be imported as a batch, while creating the engineering Bills of Materials and Parts list.

- > Works with multiple templates
- > Automatic mapping of BOM properties
- > Automatic creation of migration templates



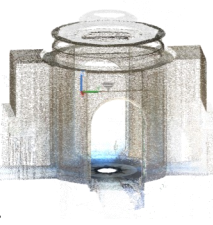
AutoCAD® 2012 Software

What's New Highlights +

(a list without screenshots)

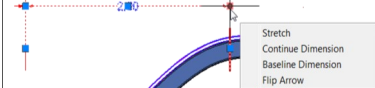
Point Cloud Support

- > Bring your 3D scans to life, streamlining time-consuming renovation and restoration projects.
- > Supporting up to 2 billion points, you can quickly visualize your scanned objects directly within your modeling workspace.



Multi-Function Grips

Grips have been added to multiple AutoCAD objects. Including lines, arcs, elliptical arcs, dimensions, mleaders, 3D faces, edges, and vertices.



Associative Array

- > Establish and maintain a set of relationships between arrayed objects.
- > Array objects along a specified path.
- > Array selected objects in 3D space.



Additional New Tools:

- > **Command Line Enhancements:** Now you can access commands more efficiently, with new auto-complete options.
- > **Copy Array Tool:** The Copy tool includes a new array option that helps you to create a linear, non-associative array.
- > **Blend Tool:** The new Blend tool creates spline objects with options for tangent or smooth continuity between two curves.
- > **Delete Duplicate Objects:** Helping you clean up your drawings by removing duplicate or unneeded geometry, the Delete Duplicates tool facilitates increased performance - especially when you are working on drawings with many objects.
- > **MLeader Enhancements:** With more control over your leaders, you can now control the gap around Mleader text in a text frame. You can also extend the leader line to the text rather than ending at the text bounding box.
- > **In-Canvas Viewport Controls:** These enable you to change viewport settings, views, and visual styles directly on the viewport canvas.
- > **Simplified Migration Tools:** New and enhanced tools make it easier to migrate your tool palettes and custom settings or reset AutoCAD to the default install settings, helping to ease the transition to AutoCAD 2012 from previous versions.
- > **DWG Convert:** With the DWG conversion tool, you can translate DWG files created with AutoCAD, AutoCAD LT®, or other AutoCAD-based applications to any of the following DWG versions: Release 14, 2000, 2004, 2007, and 2010.
- > Also, some of Mechanical 2012's new features are included in AutoCAD 2012. Such as:
Model Documentation Tools, Autodesk Content Explorer, Autodesk Inventor Fusion, and AutoCAD WS web and mobile software.

Autodesk Inventor 2012

Top 14 “What’s New” Items

The primary focus of this release of Inventor is on user interface, existing feature enhancements, and increasing the performance of the software. Some of these items are new to Inventor, but have been used in other software packages (such as Alias) and others are expansions into already established functionalities (such as file import/export). After working with the software for a few weeks, our Sr. Application Engineer, Jeremy Everhart, has come up with his list of the top fourteen items he likes the best.

1. Marking Menus



The marking menu displays at the center of the cursor by right clicking in the graphics window. To access any of the commands move the mouse over the command and left click to pick.

Note: if you hold down your right mouse button while in the marking menu, move the cursor to the desired command and then let go of the button, the command will also activate. This is known as “gesturing”.

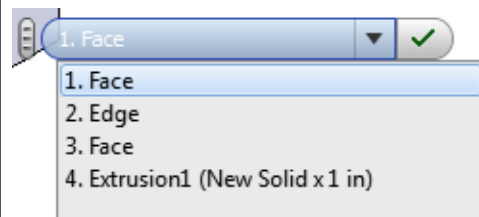
2. Enhanced Mini-Toolbars



The new Mini-Toolbars are larger, easier to understand, and possess greater functionality. Automatic roll-up of the old dialog boxes makes the transition easier.

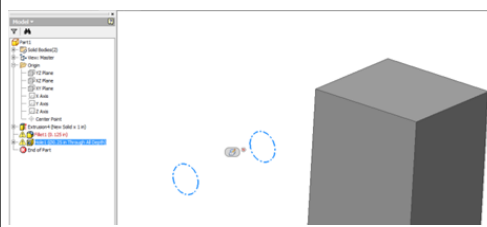
3. “Select Other”

Instead of just relying on visual cues to “select other” inside of Inventor, we now have a drop down menu that allows us to quickly and effectively select other items.



4. Display Failed Feature

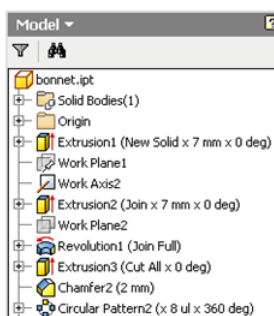
Inventor 2012 now makes it easy to locate failed features by displaying the edges of the feature in the graphics window when selecting the feature in the browser.



5. Extended Feature Names

To turn on the extended feature names: Application Options > Part Tab

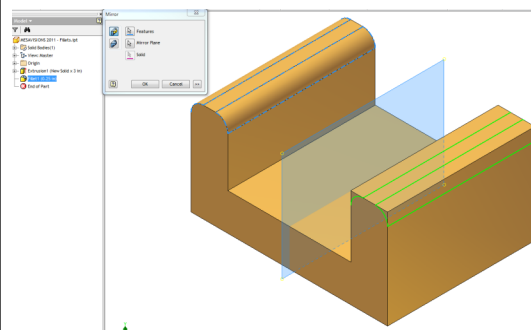
☒ Display extended information after feature node name in browser



This feature allows users to identify the desired feature faster than in previous releases and see the key parameters used in its creation.

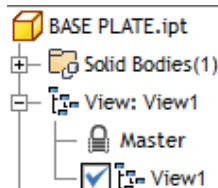
6. Enhanced Mirror Command

Inventor 2012 can now mirror fillets without including the parent feature.



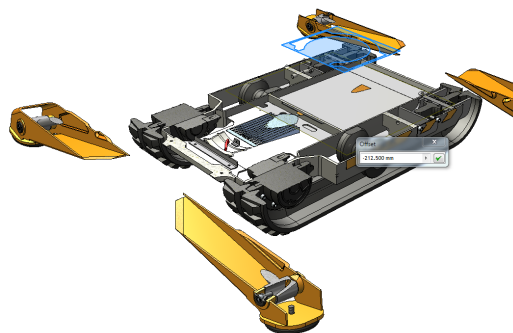
7. View Representations in Part files

Part files now have View Representations, which are capable of storing color overrides, work feature visibility, sketch visibility, and view orientation.



8. Dynamic Section Views

In both Inventor assemblies and part files there is now a dynamic sectioning tool. Simply select the “Half Section View” command, pick a face or plane and drag the section to the desired direction and distance.



EASY

- > User Interaction
- > Enhanced Modeling
- > Simulation
- > Learning
- > Install and Deployment

FAST

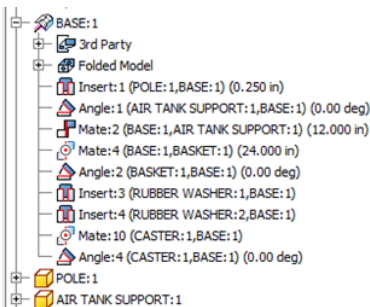
- > Startup
- > Drawing Views
- > iLogic

OPEN

- > Inventor Fusion
- > Accept More Designs
- > Share More Designs
- > Produce Better Designs

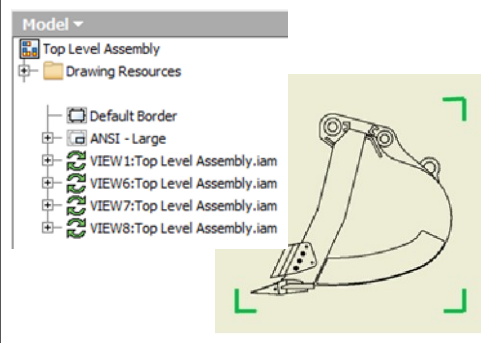
9. Assembly Constraint Enhancement

Inventor 2012 displays both component names after each constraint in order to make identification easier for the user.



10. Ultra-fast Drawing View Generation (Multi-Core Support)

Inventor 2012's drawing environment will increase drawing productivity with Raster views. The drawing views are calculated in the background while the user annotates the raster view. Raster views are marked with green corner glyphs in the graphics window, and by green arrows in the browser.



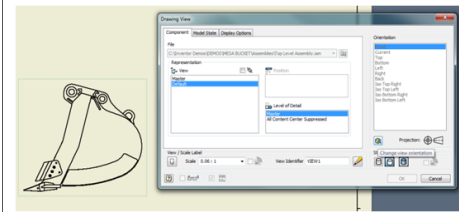
11. Rotate Views with sketches in an IDW File

The Rotate View command is available for views that include sketches inside of an Inventor IDW file.

Note: The sketches need to be constrained to projected geometry for the command to work properly.

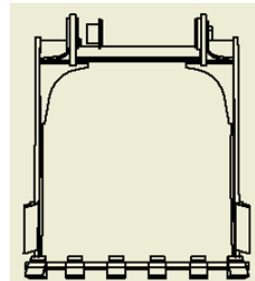
12. Change IDW View Orientation After Placing the View

Edit the base view.



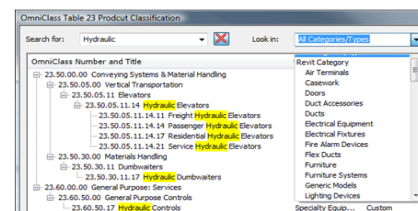
Select the change orientation icon (which is above the Style area of the dialog box).

Change the view to its new orientation, select OK to close the dialog box, and the base view will update, as well as any of the projected views.



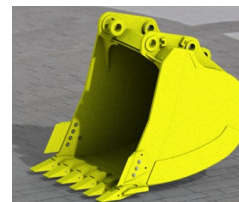
13. Enhanced BIM interoperability

The OmniClass Table has been improved for locating the Revit class for the Inventor BIM ready models. Additionally, Revit will sync with the Inventor model orientation through the View Cube position.



14. Ray Tracing

When changing the Visual Style to Realistic, ray tracing is enabled. Ray tracing is used for creating a high degree of visual realism.



Additional Note-Worthy Items:

1. Classic UI is no longer an option.
2. Inventor Help is now internet-based through Wiki Help (*but can be downloaded to your local machine*).
3. Dialog boxes are easier to collapse when using the Mini-Toolbars.
4. Wizard to copy iLogic Designs.
5. Model Repair Tools are here.
6. Boss feature enhancements now create geometry in a single command that would have previously required multiple features.
7. Users can now project to 3D Sketch.
8. Sweep Along Edge is now available.
9. There are several new options in the AutoCAD Import command.
10. Translators have been updated to newer versions of CATIA, Parasolid, and NX.
11. BIM Exchange has been expanded to include iPart and iAssembly tables and exporting has several new features.
12. Simulation joints are now retained when the translator is turned off.
13. Simulation enhancements have been added to help users define the start and end magnitudes of a continuous load in a frame generator assembly.
14. New Probe and Probe Label commands add to the list of tools that allow users to view simulation results.
15. Frame Analysis now allows users to create rigid links and to trim mitered beam ends which will improve the accuracy of the results.
16. Complex designs will now benefit from enhancements in the geometry healing and meshing operations.
17. The Eco Materials Adviser tool enables the user to analyze the environmental impact of your project during its design.

AutoCAD® Electrical 2012

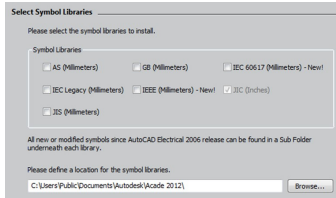
What's New Highlights

AutoCAD® Electrical 2012 offers designers of control systems immediate productivity gains with a new set of specialized tools. It also includes smarter drawings designed to make it even easier to save time, reduce errors, and create innovative electrical control designs.

Library Standards

Easily create standards-based designs that comply with industry requirements

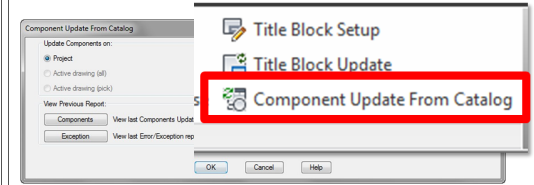
- > Accuracy & flexibility with standards based design
- > Compliance with IEEE 315/315A & IEC-60617
- > Legacy libraries preserved for reference



Intelligent Component Updating

Component updates with related values from the catalog database

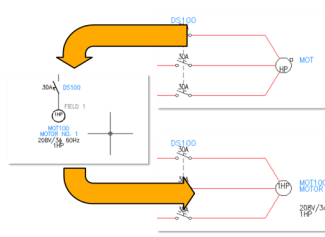
- > Error Prevention
- > Easy to use list of changes
- > Ability to update:
 - > Schematic parent pin list
 - > Weblink
 - > Terminal properties
 - > Text Value



Streamlined Schematic Component Updating

Quickly copy information from a one-line component to a schematic component

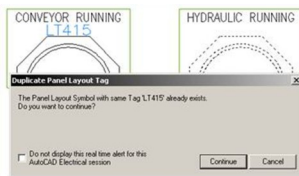
- > Improved productivity
- > Update select values or all:
 - > Installation/Location
 - > Ratings
 - > Catalog Values
 - > Descriptions



Duplicate Tag Check for Panel Footprints

Easily edit components on your panel layouts while having the value for duplication

- > Error prevention
- > Checks for duplication



Streamlined Tools

Autodesk has enhanced many of their tools to make you even more productive.

- > Terminal Strip Editor
- > Copy Circuit
- > Reports
- > Electrical Audit
- > Footprint Update

Additional Export & Import Drawing Settings

Drawing setting properties are now exportable. Giving you the ability to import the values into other drawings and project files.

- > These properties are exported: Section, Sub-Section, Sheet, Drawing, IEC Project, and Drawing Descriptions

Multiple Balloon Placement

Simply add multiple balloons for your components that have multiple catalog values

- > Simplify component identification
- > Multiple placement options



At Your Service

Why in the world do we do two or more times what we could do once (if we could do it right the first time)? As the old saying goes, "I don't have enough time to do it right," invariably leads to doing it again.

In our world, we see this demonstrated all the time when CAD users, rushed to meet a deadline overwrite a dimension (in the case of AutoCAD) or worse (in the case of Inventor) allow errors to accumulate in the model.

In AutoCAD, an overwritten dimension might get the job done today but the next person who has to use the drawing won't know for certain whether the geometry or the dimension is correct.

In Inventor, model errors left unrepaired will eventually slow the performance of Inventor; in some extreme examples, literally, to a crawl.

And when do these problems of performance happen to most users? When the deadline is near and drawings must be com-

pleted. Waiting tens of minutes (or an hour or more) for a view to be placed or a change to be made can be extremely frustrating when the boss is bearing down to get the work done.

The obvious solution to this dilemma is to fix the Inventor errors as they occur. The solution for large models with uncorrected errors requires a bit more work and it can be done; it just takes a bit of work to do so.

[For the record, in the many years we have been working with Inventor we have never seen a performance issue caused by the software. As long as the computer is up to the task (based on model size), the performance issues of which I speak have nothing to do with the software and everything to do with models whose errors go un-resolved. Really!]

So what is the overburdened and overdue user to do? If the model performance is very bad (meaning the errors have been percolating for a while), there is a procedure/process that can be performed to find the errors within the model in order to fix it.

And what's the problem with that? Fixing these errors takes time—the least abundant resource anyone has near the end of a project. Most users opt to 'gut it out' but by doing so they have to play the "waiting game". Worse, some dump their Inventor drawings into AutoCAD and finish the detailing there.

If you want to know how to find and fix your model errors contact us and we will walk you through the process. We'll define the process in a later edition of MESAVISIONS or our monthly M3 Newsletters. We can also work with your model to fix it for you (for a fee) if you prefer.

So the next time you think you don't have the time to do it right, you may want to reconsider what you might be in for.

Sam Runyon, President

Key Benefits of the Visualization Tools Inside the Autodesk® Product Design Suites (Premium & Ultimate Editions)

Inventor Studio

- > Works in the same environment that the models were created in.
- > Utilizes the constraints that were created inside of the assembly.
- > Positional representation can be animated with very little set-up.
- > Materials can be overwritten in the Studio environment which will not affect the original model.
- > Pre-created lighting styles are easy to copy and modify.
- > Global lighting can be used to create fantastic looking renderings very rapidly without having to spend too much time on set-up.
- > Camera creation and animation are extremely easy.
- > The video producer allows the user to join different segments of animations together all within the program.
- > *Without a doubt, the best tool for creating animations of mechanical movements and processes.*

Showcase

- > Intuitive workflows with Autodesk models, but can also import more than 15 third-party CAD file formats.
- > Very easy to learn. Proficiency takes less than a week.
- > Free viewer allows designs to be shared with salespeople and customers.
- > RapidRT raytracing has been accelerated by a factor of up to 10x.
- > Non-photorealistic effects are available to simulate a variety of artistic styles that look to be created by hand.
- > The storyboard enables the user to create the story of their design in a slide-based metaphor.
- > Materials and decal images can easily be modified and applied to any surface with controls that are very intuitive.
- > *Best suited for live presentations to show different color schemes and design alternatives, but can also export photo-realistic images and animations to a wide variety of formats.*

3Ds Max Design

- > Integrated iRay rendering technology allows the user to easily get more predictable photo-real results.
- > A new library of 80 Substance procedural textures are dynamically editable and can automatically generate bump maps and specular maps.
- > The new Nitrous Accelerated Graphics Core dramatically improves performance and visual quality, enabling designers to iterate faster, make creative decisions in context, and handle larger datasets.
- > Exposure Lighting Analysis allows the user to simulate the lighting in their design, which includes the sun, sky, and artificial light.
- > *Being the most complicated package for rendering that Autodesk offers, the amount of control is well worth the time needed to master this program. This has the most realistic environment settings to convey your story.*

The Training Corner @ MESA

Just a few things you may or may not know about MESA's Training Services:

- > Did you know most of the training we perform is done at customer sites? *[About 65% is done away from our office]*
- > Did you know if you need to train 5 or more people having MESA come to your site can be more cost effective than having your people come to our office? *[No space here to run the math]*
- > Did you know all of our instructors have worked in industry making them better at relating to their students how the software will be used? *[They know its more than picks and clicks.]*
- > Did you know we utilize Autodesk-Authorized courseware when ever its available? *[Best to use the instruction guides the developer of the software recommends.]*
- > Did you know that MESA is an Autodesk Training Center? *[As such our instructors are certified ATC instructors]*
- > Did you know all of our instructors (as well as all of our technical staff) will have passed the Autodesk Professional Certification tests by August of this year? *[As a major truck company likes to say, "We are Professional Grade (Instructors)".]*
- > Did you know our training comes with a Guarantee? *[If you are unhappy with a MESA training course, we will offer you another class of the same value or your money back. A guarantee we've offered now for over ten years!]*

Our most current schedule of courses can always be found on our website. We will also be scheduling classes in Akron and Erie. For additional information contact your salesperson or MESA's Training Manager, Steve Olson at steve.olson@mesa-cad.com.

MESA's Technical Services

Do you have a fully developed road map to get where you want to be with your design tools like Inventor or AutoCAD?

The reality is many companies spend all of their effort choosing a design tool and give little thought to how the tool will be implemented in everyday design and engineering processes.

Your company is far more likely to succeed in utilizing new design tools if you have a well-conceived plan to implement those tools. Our consulting services will help you enjoy a faster return on your technology investment, assist you in moving forward with digital prototyping and/or simply use the technology to gain a competitive advantage.

Here are but a few of the 'assists' our staff is able to provide:

- ◆ Template and title block creation.
- ◆ Working with your staff on Pilot/Proof of concept projects.
- ◆ Development of standards for using Inventor.
- ◆ On-site support during the start of a project.
- ◆ Data Management integration with company business systems.
- ◆ Assessment-type engagements to determine where you are and help in getting you where you want to go.

We are not typical consultants. It is always our intention to work ourselves out of a job by making your users as productive as possible. If you would like to know how we can help you move into more productive territory with your Autodesk software, please contact your sales rep or our Manager of Design Services, Jeremy Everhart at jeremy.everhart@mesa-cad.com.



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Pittsburgh, PA 15205



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Make Your Ideas A Reality

MESA, Inc. will be holding several 1/2 day "Make Your Ideas a Reality" events throughout Eastern Ohio and Western PA to showcase the new functionality of the 2012 Autodesk Product line.

Cities to include:

- > Cranberry 6/29
- > Canton, OH 6/30
- > Cleveland 7/1
- > St. Mary's, PA 7/7
- > Erie, PA 7/8
- > Farmington, PA 7/12
- > Johnstown, PA 7/14

Please look for our e-mail announcements and postings on our website under the "Events" section. They are also listed in the Autodesk Events Calendar.

Autodesk's Get Current Promotion

From now until July 15, 2011, you can access the latest Autodesk® software and take advantage of significant savings.

Bring winning ideas to life and produce stunning visualizations with the latest Autodesk product design and manufacturing software — including an all-new family of design suites. Now you can accelerate the creation and delivery of ideas by purchasing a complete and cost-effective set of tools.

MESA, Inc. is proud to be a reseller for



We also purchase these products for all of our Mechanical Design Service team members.

Revolutionize the way you work with 3D applications. Pan, zoom and rotate the model or camera as if you're holding it in your hand. It's a level of control that's simply not possible with a traditional mouse and keyboard.

1. Improvement in product design

More than 84% of CAD design engineers report a noticeable or significant improvement in their product designs and their ability to detect design problems as a result of using 3D mice.

2. Productivity up by over 20%

The average productivity gain reported by users of 3D mice is 21%.

3. Short ROI period

The payback period for 3D mice is typically less than one month.

Please contact us if you would like more information on these products.



In an effort to save some trees and help the environment, we have now created a new page on our website named "Publications". Feel free to download any and all of the M3s in PDF format which include direct web-linking to all related articles. If you would like to opt out of receiving mailed publications from us, please e-mail marketing@mesa-cad.com with "Opt Out of MESA Mailings" in the subject line.