



FINAL DRAFT

Engineering Change Order 0063, Revision B, Release Date: December 2010, Released by CC

more news you can use from Adraft



TECHNOLOGY...FRIEND OR ENEMY?

Technology has become the backbone of our society, bringing new information and communication every day into our lives. When it enhances our jobs and/or lives, we can't imagine a world without it. When it "doesn't work", we just blame "technology" without looking more into it. I am one of those people that in my home life I want it to just work and don't really care to understand how it works.

In my work life, I look at it in a different way though. It is my job to understand how CAD, CAE tools, and Data management systems work. So, when I get phone calls and emails questioning "technology" I tend to not get frustrated with "technology" but with "human lack of knowledge". See, when processes are understood and followed, technology enhances innovation, product development, marketing, sales,

the entire supply chain. When it is not implemented and understood, it tends to cause chaos and frustration.

I have on occasion gotten phone calls and emails telling me that they have seen other technology that does something "better." Large assemblies, revision management, analysis, whatever... The problem with those calls is that someone or an organization is looking for a fix to their issues without looking at their process and how technology affects their process.

Technology doesn't fix anything without people and processes. Let's face it, we got along for thousands of years without CAD and data management systems, and the pyramids were built, the airplane was designed and flown, buildings architected and erected, as well as many other innovations

over the years. The ones that succeeded worked because the people understood and used the processes and tools available to the best of their ability. There have been many inventions and products designed that were never built, bought, or known about. While not in all cases, my guess is that the tools were used without knowledge and processes weren't followed.

As 2010 comes to a close, I challenge all of us to look to ourselves to understand how to use technology to best suit your needs, but understanding that technology is just that, technology. It's you that make it work or fail.

I wish each of you a very special holiday season and looking forward to a prosperous 2011.

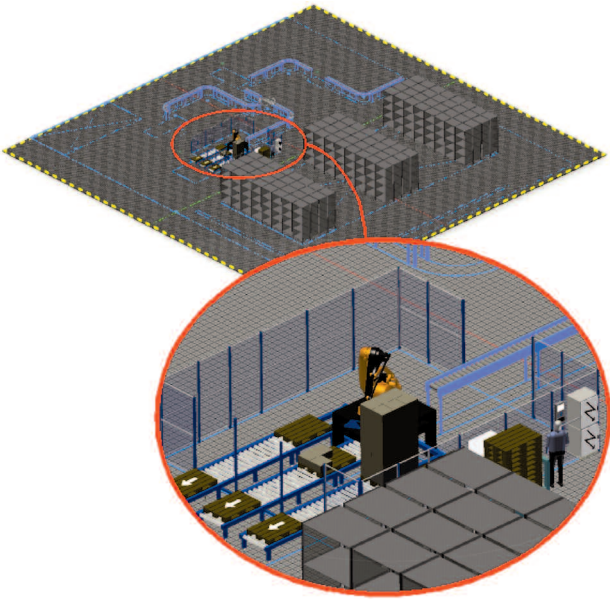
Julia Grant
Julia.grant@adraft.com

CONTENTS

Technology... Friend or Enemy?	1
Factory Fundamentals	2
The New Frontier is In the Clouds	3
Taking AutoCAD to the Next Level with Autodesk Design Suite	4
AutoCAD Inventor "How Suite It Is"	5
One Digital Model, Multiple Benefits... Mechatronics	6
Newsletter Tip or Teick	7
Autodesk's Newest Promotions Are Here!	8

FACTORY FUNDAMENTALS

The Autodesk Inventor Factory Design Utility is an add-in to the assembly environment. It provides an optimized environment and design tools for factory floor layout.



A factory floor layout is a 3D model of a factory, warehouse, or office environment. The size and complexity can range from a work cell to an entire factory. The layout can contain building elements such as walls, columns, and utilities. You can check for interference and plan how individual pieces of equipment connect to power, data, compressed air, or other resources.

The Factory Assets library contains models of standard factory components such as conveyors, ductwork, and walls. You can publish your frequently used models to the library. You can also use Inventor part and assembly files or imported models.

The suite provides tools for integrating 2D layout data with 3D models of factory equipment, creating accurate factory models and 3D visual walk-

throughs that help teams collaborate effectively and make more informed decisions before any equipment is installed and commissioned on the factory floor. Core products in the suite include AutoCAD® Architecture, Autodesk® Navisworks®, Autodesk® Vault, and Autodesk® Inventor® software enhanced with the Autodesk® Factory Design Utility, which gives users a factory-specific work environment that helps factory layout designers spend more time innovating rather than drafting.

Autodesk Factory Design Suite can help machine and equipment builders, system integrators, and manufacturers to better design, optimize, and visualize factory layouts in order to:

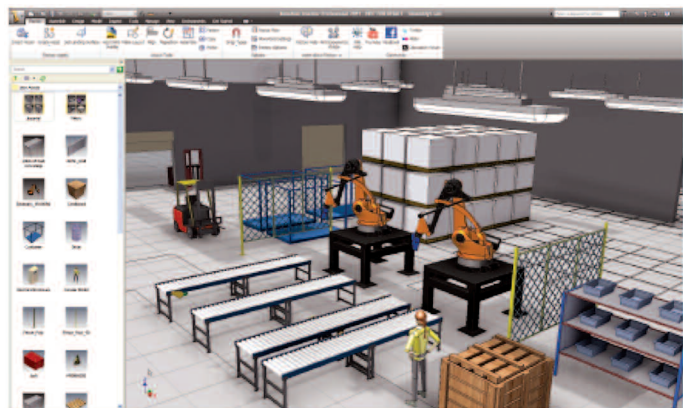
- Win more business—Help decision makers visualize layout proposals in 3D instead of multilayered 2D drawings.
- Meet compressed project schedules—Move from 2D conceptual layout, to factory model, to creating a 3D virtual fly-through in less time than traditional 2D layout methods.
- Optimize the factory layout process—A factory focused solution enables you to transform facility layout liabilities into profit-generating assets and take advantage of modern laserscanning workflows.

- Collaborate more effectively with suppliers and partners—Reduce installation risks by analyzing the digital factory model for clashes and space constraints digitally, before they become problems onsite.

Digital Prototyping for the Manufacturing Market

A world leader in 2D and 3D design, engineering, and entertainment software, Autodesk delivers the broadest product portfolio to empower customers to digitally design, visualize, and simulate their ideas. By putting powerful Digital Prototyping technology within the reach of mainstream manufacturers, Autodesk is changing the way manufacturers think about their design processes and is helping them create more productive workflows. The Autodesk approach to Digital Prototyping is unique in that it is scalable, attainable, and cost-effective, which allows a broader group of manufacturers to realize the benefits with minimal disruption to existing workflows, and provides the most straightforward path to creating and maintaining a single digital model in a multidisciplinary engineering environment.

Alex Hatziemanual
alexh@adraft.com



THE NEW FRONTIER IS IN THE CLOUDS

The IT industry and the world around us are all changing rapidly. Nothing new. We often talk about how improvements in CAD Design (example, 3D design) are changing business and the world. But today I want to spend some time talking about how the world is changing CAD Design. I am going to do my best to put “the cloud” into perspective using my words (definitions of “the cloud” vary) and then showcase some Autodesk applications that are or will be using “the cloud.”

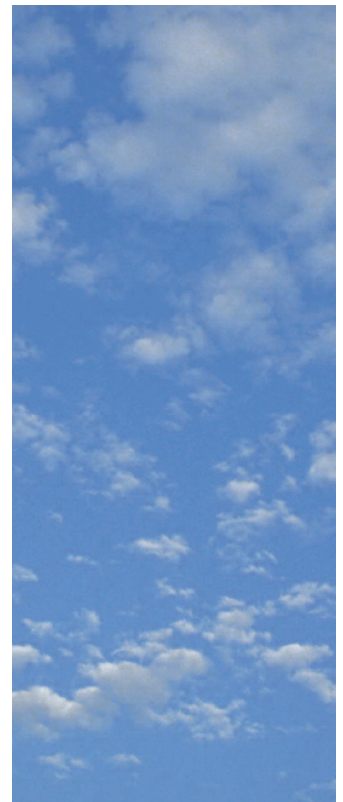
Design has a history of successfully adapting to new technologies, applications, customer types, and business models. From mainframes to minicomputers, UNIX workstations to PCs, desktops to enterprise, each round of innovation has led to improvements for the design community. Today, Design continues to evolve in response to infrastructure changes. The distributed computing environment enabled by the web introduces a whole new set of challenges and opportunities. Merging with and adapting to the latest advances are making design easier to use, more collaborative, more powerful, and ultimately more useful for the work you do everyday.

Cloud computing delivers technological capabilities on demand as a service via the internet. Rather than the classic computing model of operating system plus software applications with files and database storage, “the cloud” model consists of services, clients, hosted content, and virtual machines. In other words, you do not load and run software and store data on your computer. You log in and use the system in the cloud.

In addition to cloud computing on the public internet, the same pattern can apply to a smaller and more secure community (“private cloud”) using the same concepts.

Cloud computing is emerging as an important technology trend in almost every industry, including the Design community, and rapidly moving into the mainstream (Netflix, gaming, GIS applications, CRM, etc.). With that said, let’s look at some of the different ways that Autodesk Design Software is going to “the cloud”:

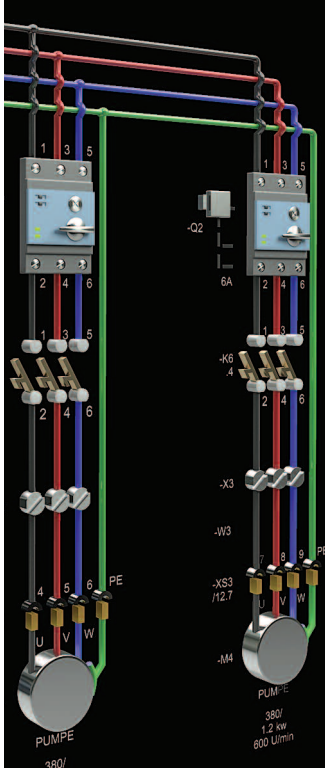
- The Autodesk Streamline® hosted project management environment increases communication with customers and suppliers outside the enterprise. This web-based collaboration service manages access to design data, project versioning, and usage tracking while allowing secure access from anywhere in the world. (<http://usa.autodesk.com/adsk/servlet/pc/index?siteID=123112&id=2164339>)
- AutoCAD WS is a Web-based CAD editor with built-in collaboration features. Because it is on the Web, it is accessible from anywhere, using any computer — provided there is an internet connection. The drawings and other files are also stored on the Internet. You can share drawings with colleagues and clients without having to send any files. All the drawings and documentations are kept in a centralized place, so nothing ever gets lost and it’s easily accessible. Your collaborators access your files with exactly the permissions you grant them. (<https://www.autocad-ws.com/>)
- Autodesk® Homestyler™ free* online home design software bring your interior design plans to life. Easy drag and drop, brand name products, and 3D views make using Autodesk Homestyler the best way to start your next home design project. (<http://www.homestyler.com/>)
- Autodesk Vault Collaboration and Professional 2011 software introduce an enhanced multi-site feature set leveraging both file caching as well as Vault database replication to help customers connect their workgroups globally. The full replication solution offers a scalable approach to enabling workgroups worldwide. This is an example of a “private cloud” as describe above. This type of application requires a lot of planning by the users, whereas the other applications are ready-to-go. (<http://usa.autodesk.com/adsk/servlet/pc/index?siteID=123112&id=4502718>)
- Autodesk Freewheel is the free web service to view and share 2D and 3D designs all without the need to download or install any software. Whether it’s a complex 3D model or a simple 2D drawing, Freewheel allows you to fully visualize the design. (<http://freewheel.autodesk.com/>).
- Project Neon is a rendering service that offers greater productivity and a faster turnaround of photorealistic renderings by leveraging the power and compute capabilities of the cloud. Rendering is a time and hardware intensive process that translates 3D models into photorealistic images that allow the design team to optimize the results they deliver to their clients. By harnessing the power of the



cloud, customers no longer have to wait for long periods of time to generate single or multiple views of their designs, The Project Neon service eliminates the need for customers to purchase and maintain expensive hardware for their rendering needs. Providing a realistic view into designs during the entire design process delivers superior results for your customers. (<http://labs.autodesk.com/technologies/neon/>)

One thing that is constant is change. Well, here we go again!

by **Matt Cole**
matt.cole@adraft.com



TAKING AUTOCAD TO THE NEXT LEVEL WITH AUTODESK DESIGN SUITE

If you still think AutoCAD is only capable of 2D drawings, we may have a thing or two to show you. AutoCAD has come a LONG way since its early releases, in many ways. When asked about the new version of AutoCAD, Autodesk has four main points they emphasize, Speed Documentation, Explore Your Ideas, Communicate Seamlessly, and Customize with Ease.

Speed Documentation:

Even the most experienced users would find ways to save time in AutoCAD, the improvements made to existing tools added to the new functionality make huge efficiency improvements. Even making changes has become less cumbersome, using parametric constraints to create relationships allows users to quickly and easily ensure their design updates as expected.

Explore Your Ideas:

Ever had an idea, but had trouble documenting, or conveying that idea within AutoCAD? With the new surface and mesh modeling tools available, free form design is an excellent alternative to your normal design process. The AutoCAD 3D environment has gotten much more user friendly as well. With the changes to navigating, getting around in your designs is smooth and seamless; it's not just pan/zoom anymore.

Communicate Seamlessly:

As always, AutoCAD has worked with a native DWG, negating the need to "save-as" to send drawings to customers. Also any user that is familiar with X-Ref's will find it quite easy to attach a DWF or PDF to their design, to leverage

existing work. The rendering capabilities have also been improved, giving users the option to create photorealistic pictures of projects that have not been prototyped.

Customize with Ease:

Every user has individual preferences within software. Why not improve the interface to meet your needs as a designer/engineer? Making changes to the UI can be done by anyone allowing users to create a unique working environment.

With the Autodesk Design Suite, companies now have the option to pair AutoCAD with other Autodesk software, which include Alias Sketch, Alias Design, Showcase, and 3Ds Max. There are three different flavors of this suite Standard, which includes AutoCAD, Alias Sketch and Showcase, Premium, which is the Standard Suite and also includes 3Ds Max, and lastly, Advanced, which is the Premium Suite and also includes Alias Design.

Alias Sketch allows designers or artists to quickly and easily create graphic illustrations for communication, rather than scribbling down ideas on a napkin. Showcase allows the creation of photorealistic real time renderings. This means no more waiting for the software to render your picture to find out the lighting wasn't right. 3Ds Max offers 3D modeling, rendering and animation for your project workflow, while giving you higher quality presentations of your product in much less time. Alias Design takes conception and design process to a whole new level, giving users the ability to control style and refine designs. Alias allows

users to take their 2D sketches and transform them into a 3D model. With advanced sketching tools, and 3D output, creating rapid prototypes has never been easier.

The proper tools throughout the design process can make all the difference in creating a better product, or even getting to market faster. Autodesk gives you the option to buy these products without breaking the bank and piecing them together manually. Offering three different levels, allows companies to pick which suite would best fit for their workflow.

Josh Gunther
josh.gunther@adraft.com

AUTOCAD INVENTOR “HOW SUITE IT IS”

Every company requires different functionality from their AutoCAD Inventor. As the software functionality continues to expand, it's important for users and companies to understand not only what they need from the software but what the different Inventor Suites will provide to them. This article is going to give you a brief overview of each of the Inventor Suites and their benefits.

AutoCAD Inventor Suite

AutoCAD Inventor Suite is the base package that will provide users the flexibility to create their 3D mechanical designs and documentation. Not only will package provide the ability to create a 3D digital prototype with 2D documentation, but it also gives users to ability to perform engineering calculations with the Design Accelerators without them every having to leave the context of the software. This package gives all the benefits of a 3D parametric modeling system with the addition of the engineering tools to make each user as efficient as possible.

AutoCAD Inventor Tooling Suite

The AutoCAD Inventor Tooling Suite is for the plastic part designers. It has all the base functionality of the Inventor software with the additional tools to create and simulate injection molds and plastic parts. With these advanced capabilities within the plastics world, users will be able to create designs more easily and efficient.

AutoCAD Inventor Routed Systems

The Routed Systems package provides all the core functionality of the AutoCAD Inventor Suite, plus additional functionality for

Cable and Harness and Tube and Pipe design. Each of these environments provides an easier way to create those difficult pipe runs and complex harness designs. They also add the capabilities of documenting these designs which captures the accurate data from the routed designs. Performing these tasks within the software truly give users the tools to create a complete design in a digital format.

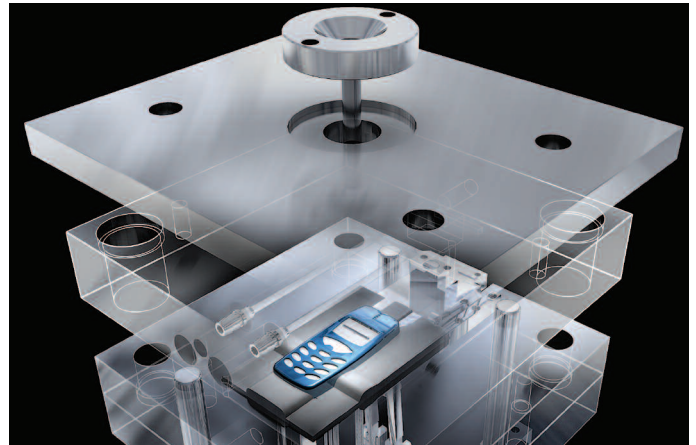
AutoCAD Inventor Simulation Suite

The Simulation Suite caters to the engineer in all of us. This package allows users to run motion and FEA analysis on their designs to make sure they will hold up against the real world conditions that will be placed on them. With these type of capabilities, designers and engineers can make their sure their designs won't fail while they are out in the field.

AutoCAD Inventor Professional Suite

The Professional Suite is the whole bag of chips and more. This provides the core functionality of the Inventor software with the addition of the Tooling Suite, Routed Systems Suite, and Simulation Suite. This package provides users with the ability to create that true Digital Prototype by creating, visualizing, and simulating their designs before anything physical is ever built.

Kevin Gunther
Kevin.gunther@adraft.com



AUTODESK TRAINING COURSES

Sign up today to educate yourself so that you can be up on the latest Autodesk software releases.

Training Classes Currently Available

- AutoCAD
- AutoCAD Electrical
- AutoCAD Mechanical
- Vault
- Inventor:
 - Fundamentals
 - Update Class (What's new)
 - Tube and Pipe
 - Cable and Harness
 - Sheet Metal Design
 - Tooling
 - Professional Simulation

NEW... ADRAFT WORKSHOPS

Learn a specific task or function in 2 hours for \$99. Perfect if you can't be out of the office for an entire day.

AutoCAD

- Dynamic Blocks

AutoCAD Electrical

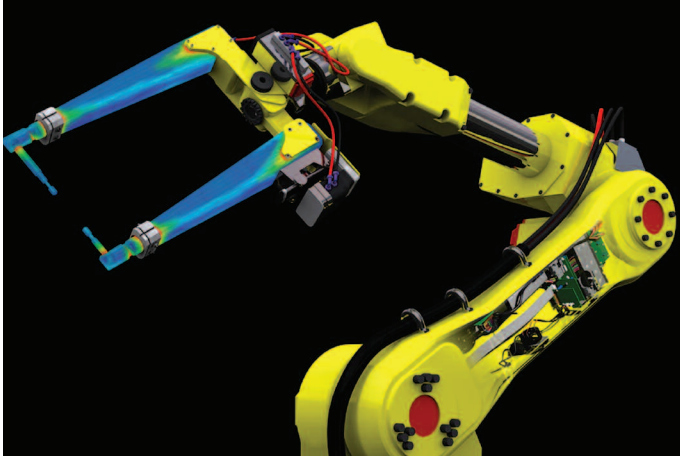
- Title Block Creation
- Custom Schematic Symbol / Blocks Creation
- Converting AutoCAD Drawing into AutoCAD Electrical Intelligent Drawings

AutoCAD Electrical / Inventor

- Linking Cables between AutoCAD Electrical and Inventor

Inventor

- Large Assembly Best Practice Overview
- Inventor Template and Title Block Creation



ONE DIGITAL MODEL, MULTIPLE BENEFITS... MECHATRONICS

What is Mechatronics?

Microsoft Word doesn't recognize the name because when I just typed it in it placed that nice little red line underneath it. I must confess that I probably slept through the semester of college when I was first introduced to the word because it has only been recently that I've heard it again and I have had to re-educate myself on it. If you ever visit Webster's Dictionary website and Wikipedia you will find their definition of it. I don't want to insult anyone's intelligence out there who has a full understanding of what it is, but just to recap; The word itself was actually first coined in 1969 by an engineer in Japan. I personally heard the word being thrown around by our esteemed colleagues at Autodesk several months ago. I will attempt to explain where mechatronics fits into the Autodesk world and how you can take full advantage of its use with two or three of our core products. For those of you that don't know what mechatronics is or want to be re-acquainted with it I will start with the definition straight out of the encyclopedia.

Mechatronics -

a multidisciplinary engineering system design, that is to say it rejects splitting engineering into separate disciplines. Mechatronics is the synergistic combination of Mechanical engineering, Electronic engineering, Computer engineering, Control engineering, and Systems Design engineering in order to design, and manufacture useful products.

Now, tell me that doesn't sound very familiar to everyone in the manufacturing world. For years we have tried to find that missing link between engineering departments in order to better marry them together. I'm sure everyone reading this article has experienced the pitfalls of separate engineering departments and the separation it causes during the design process. Autodesk Inventor and AutoCAD Electrical have narrowed the gap between the mechanical design and the electrical design process. It's also a key ingredient in our digital prototype world of letting the software figure out the mistakes instead of finding those mistakes during the build process.

Using a Digital Prototyping workflow enables mechatronics design to take place in swift parallel across all technical specialties involved. This is a significant improvement on the mistake-prone, time-consuming, and costly traditional approach. Before we had this technology we had cascading and interdependent developments going on at the same time from one specialist department to another as a product is designed. A digitally prototyped mechatronics design keeps all specialists updated on exactly what is happening in every other specialty as the product or part moves through the design process and towards final production. To reference one of many examples, product-management sub-programs allow for on-the-fly updating of a bill of materials. So when a safety curtain is added to a design it can have a direct reflection on the bill of material. It could add material to the electrical BOM, the mechanical BOM or both and each design group will see the change immediately and at the same time. By having an open, collaborative feedback loop it typically results not only in more speed but a better-designed product and a happier customer.

The Autodesk solution for Digital Prototyping can bring particular benefits to users who are looking to create mechatronic designs. As I stated earlier the solution includes leading tools such as AutoCAD Electrical and AutoCAD Mechanical, which work in parallel with Autodesk Inventor software to support integrated 2D and 3D mechanical and electrical design processes. More than any other solution on the market, the Autodesk solution for Digital Prototyping gives the smoothest bi-directional interoperability between 2D and 3D mechanical and electrical design applications.

As an example AutoCAD Electrical software passes electrical design intent information for cables and conductors directly to Autodesk Inventor software to automatically create a 3D harness design. On the flip side Autodesk Inventor users can pass wire-connectivity information to AutoCAD Electrical and automatically create the corresponding 2D schematics. The smooth integration between AutoCAD Electrical and Autodesk Inventor software helps users create accurate mechatronics designs in less time.

In a nut shell mechatronics designs are bringing all of the different design departments closer together and getting them on the same page. The changes that frequently occur during the design process are taking place at a higher pace and are more efficient. We are all well aware of the fact that the customer is constantly looking for a quicker to market schedule for their end product. Mechatronics designs are a great way to meet those customer demands.

You can go to our website (www.adraft.com/whats-new) and watch a screencast and learn more about this.

by Greg Fisher
greg.fisher@adraft.com

NEWSLETTER TIP OR TRICK:

Would you like a weekly email from an Adraft AE that will give you a tip or trick about the Autodesk software that you already use? Every week an Adraft AE will give you a helpful Tip or Trick about one of the following: AutoCAD, Inventor, AutoCAD Electrical, AutoCAD Mechanical, Data Management and other things that will help you better utilize Autodesk software. To Sign up to receive weekly Tip or Tricks, go to www.adraft.com/whats-new

Here is an example of Tips that you will receive:

Converting PDF back to DWG using nothing but free stuff

I get asked, often I might add, how can I convert a PDF back to a DWG? My usual answer is "Why do you need to do that?" I admit it, I am skeptical when someone is trying to convert a protected format back into an editable one. But, often the case is much less "Cloak and Dagger," and simply that old drawing files can't be found but a PDF is still floating around. Well, a

recent post on Ten Links daily mailing, linked me to a website where just such a process was discussed in detail. So, without further ado, here are the steps required to obtain vector information from PDFs.

Tools You Will Need

You will need 3 programs for this:

Ghostscript

<http://sourceforge.net/projects/ghostscript/files/>
or
<http://code.google.com/p/ghostscript/downloads/list>

GSView

<http://pages.cs.wisc.edu/~ghost/gsview/get49.htm>

pstoedit

<http://www.pstoedit.net/pstoedit/>
or
<http://prdownloads.sourceforge.net/pstoedit/pstoeidsetup350.exe?download>

Download and install each of the above tools. I recommend sticking with the 32bit versions of everything.

Converting

Once you have the programs installed, open a PDF file using GSView. This program is usually located in "C:\Program Files\Ghostgum\gsview\gsview32.exe".

With the PDF file open, take the following steps:

1. Click on "Media" and set the correct paper size.

2. Go to "Edit" and click on "Convert to Vector Format..."

3. At the "PS to Edit" dialog box, choose "dxf_s", and add the following Driver options"
-mm -splinespolyline -splineprecision 10
(the original author found these setting to work well)

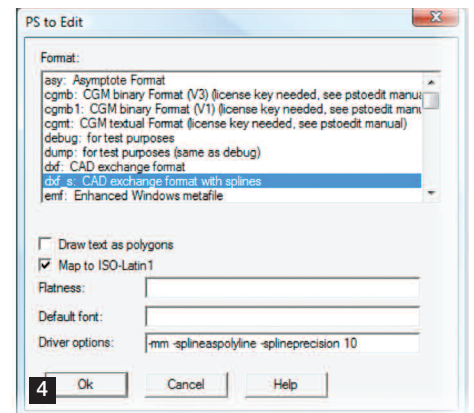
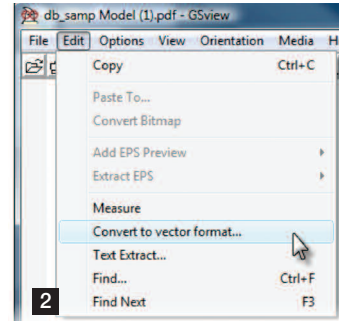
4. Click "OK".

5. Select the page in the next dialog (usually only 1), press "OK", and then pick a place to save the DXF file.

6. Click "Save".

7. Open the DXF file in AutoCAD and scale to the correct size.

8. Save the DWG.



To view the original article, go to:

<http://whatrevitwants.blogspot.com/2010/11/obtain-vector-information-from-pdfs.html>

NEW SOFTWARE UPGRADE DELIVERY POLICY

Starting in 2010, software download will be the default method for delivering product upgrades to Autodesk® Subscription customers.

If you prefer a DVD/CD, you can submit a request in Subscription Center and Autodesk will ship a box at no additional cost.



Adraft

Autodraft, Inc. dba Adraft

Autodraft is a certified woman-owned business.

email: info@adraft.com
www.adraft.com

Rochester Office:

2815 Baird Road
Fairport, NY 14450-1244
Phone: (585) 389-1900
Fax: (585) 389-0953

Buffalo Office:

8201 Main Street, Suite 3
Williamsville, NY 14221
Phone: (866) 769-6163
Fax: (585) 389-0953

Syracuse Office:

126 Dwight Park Circle
Syracuse, NY 13209
Phone: (866) 769-6163
Fax: (585) 389-0953



Autodraft
2815 Baird Road
Fairport, NY 14450-1244

Autodesk®
Authorized Training Center

Autodesk®
Gold Partner
Manufacturing

Autodesk®
Consulting Services Partner

Autodesk's newest Promotions are here! Now until January 14th get some great deals on select software:

Design Suite Promo:

For designers who need it all, the Autodesk® Design Suite Premium 2011 combines the power and flexibility of AutoCAD® software with enhanced sketching, illustration, and concept design workflows, as well as Autodesk's leading visualization solutions. Create powerful, emotionally engaging visualizations and real-time presentations that tell your design story and help market and sell concepts before they are real.

For a limited time, from November 15, 2010, through January 14, 2011 customers who purchase qualifying commercial licenses of Autodesk Design Suite Premium or Autodesk Design Suite Advanced may be eligible for a rebate up to \$400 for each new license, or \$200 for each upgrade license purchased. The \$200 rebate offer may be combined with

the *It's Time* promotion for customers updating their software from eligible R14 – 2007 version products.

During this offer, customers can realize the tremendous savings built into the suite, as well as additional rebates and promotions. There has never been a better time to add an Autodesk Design Suite Premium option to ALL AutoCAD quotes!

It's Time:

Autodesk® 2011 software is faster and more powerful than ever, and thanks to familiar and intuitive interfaces, it's easier to integrate into your workflow. Now's the time to act — if you're still working on a 2007 or earlier version of Autodesk software, move today and save up to 45%.

The *It's Time* promotion offers discounts up to 45% off the new license MSRP on

select Legacy Program paths from November 15, 2010, through January 14, 2011. New for 2010, customers with Subscription Only products may be eligible to participate in the promotional Legacy pricing for the duration of the *It's Time* promotion. See the updated Autodesk Legacy Matrix and FAQ for eligibility details.

\$350 Inventor LT Promo:

From November 15, 2010 through January 14, 2011, customers who purchase qualifying new commercial licenses of Autodesk® Inventor LT™ and AutoCAD® Inventor LT™ Suite 2011 software may be eligible for a rebate of up to \$350 for each new license purchased after submitting an online request and providing proof of license purchase documentation. **This offer is limited to a maximum of twenty (20) seats total per customer invoice address.**

Autodraft, Inc. dba Adraft

email: info@adraft.com
www.adraft.com

Rochester Office:

2815 Baird Road
Fairport, NY 14450-1244
Phone: (585) 389-1900
Fax: (585) 389-0953

Buffalo Office:

8201 Main Street, Suite 3
Williamsville, NY 14221
Phone: (866) 769-6163
Fax: (585) 389-0953

Syracuse Office:

126 Dwight Park Circle
Syracuse, NY 13209
Phone: (866) 769-6163
Fax: (585) 389-0953