

Sep/Oct 2004



AUGIWorld

The Official Publication of Autodesk User Group International



Third Party Applications In Action

*AUGI members
share their stories
about AutoCAD
plug-ins and other
Autodesk-compatible
third-party
applications*

- *What's New with Building Systems 2005?*
- *Handling Electronic Markups*
- *Autodesk University: A Booster Shot For The Brain*

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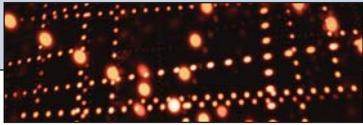
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feature

Third Party Applications In Action

We asked AUGI members to share their experiences with third-party applications (Autodesk plug-ins and other Autodesk-compliant products) and many complied. Herein, their stories

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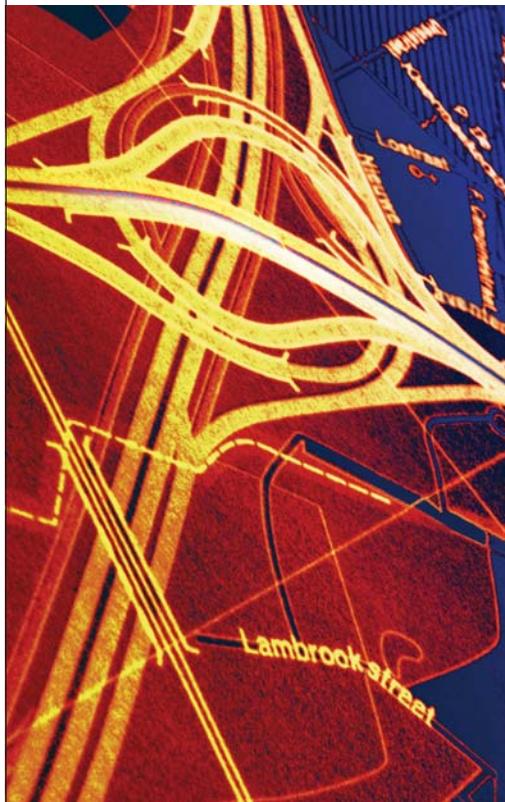
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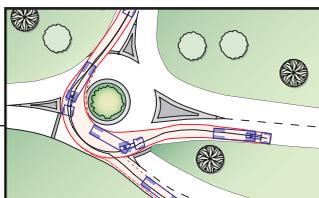
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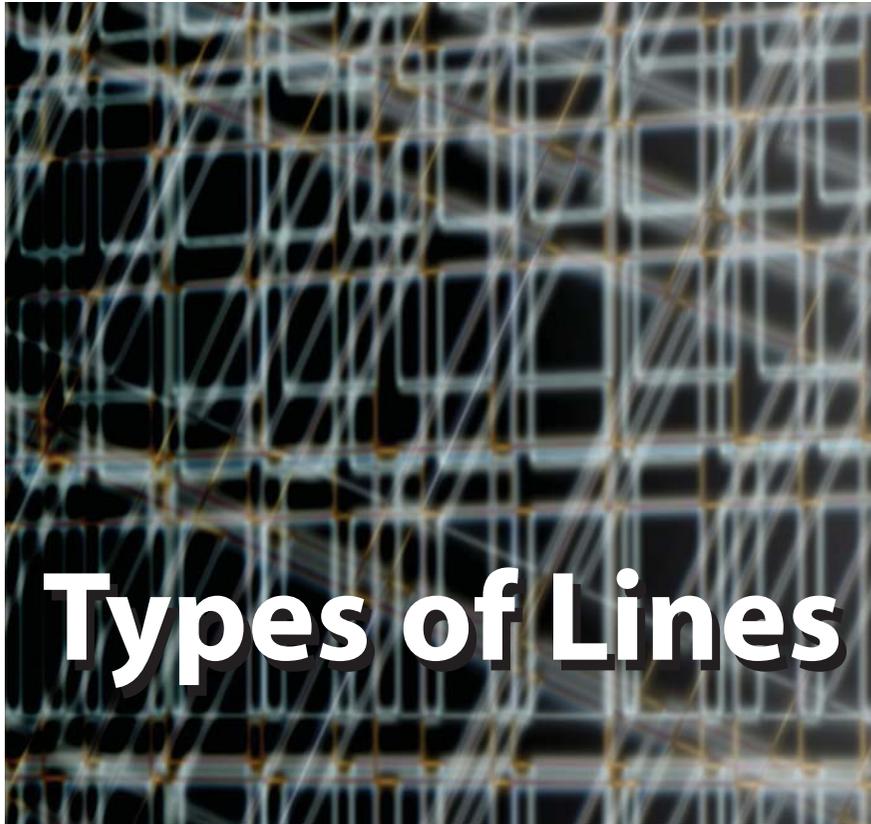
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The Cad Manager



David Harrington



Types of Lines

My article title may sound a little funny to us AutoCAD® people. We use the term LINETYPE to express what we are talking about with other CAD folk. Within AutoCAD a linetype is both a command and a property. But before computer-aided design software came on the scene, drafters had to use their creativity and training to develop their various line types.

Many users think that pen weights are the end-all with regard to whether drawings are shown well. As I have discussed before, the thickness of a plotted line certainly conveys a statement to the person viewing the plotted document. But not everything on a given sheet can (or should) be screaming “Look at me!” So we use various pen weights to tone down the visual impact of the many lines shown on a drawing. But there are lines that need another form of control, enabling then to convey an even more special meaning to the reader.

Line Them Up

Being an “old-school” drafter, I enjoy these forays into the past. I see the lack of understanding in today’s production environments. AutoCAD ships with dozens of predefined Linetype patterns for your use. They can found in the ACAD.LIN file in most cases. How many different line appearances did we use back on the board, when we drafted by hand? About six I believe.

Solid

These are the meat and potatoes of drafting. I would bet more than 80 percent of your lines are continuous in nature. No patterns are needed; you just use pen weights to convey different information. If you never use anything else but continuous, you are scaring me. Either the whole linetype concept is foreign to you or you have been using the BREAK command

quite a bit. If this is the case, go to Autodesk University and get some therapy.

Hidden

Something that is hidden isn’t there, right? Right, so there is a linetype that you use to show the outline of something, but the start-stop nature conveys that the line is behind other elements. Seems simple enough, but issues on how the hidden lines meet at corners either help strengthen the geometry ends or alternatively “round” them. The sizing of the lines and gaps also can help delineate various different hidden lines.

Center

These are poorly done in today’s CADD world. A center line is a standard type of line often used to show the center or axis of geometry. The tough part is that you should end up with a small line segment in the center of round objects like bolts or other circular objects. It’s a center line after all. But the AutoCAD system doesn’t really allow for this unless you manually place breaks in the objects with center line linetype properties.

Phantom

I like phantom lines, I really do. This form of linetype helps represent elements that aren’t there at the moment or not yours at all. I use it for building cladding but others use it for showing motion for mechanically hinged items. This linetype is also used to show repetitive object placement. With AutoCAD we tend to just copy the whole object over and over no matter how detailed. In the past you might just draw one instance of a light scone and then outline the five others in phantom line.

Section Cut

Whereas hidden lines tend to be light and airy, section lines are heavy, bold, and

for lack of a better word—dashed. We use those to indicate a graphic element much more so than something real. We have created a building section right HERE. You get my point—the boldness of the line makes it stand out, but the dashed pattern indicates it is a graphic instead of something solid.

Break

You are probably thinking of the break mark symbol that people use to stop and start a long object. Partially correct, but I am really thinking of a squiggling line, drawn by hand, breaking the object or ending it altogether. You could argue that it is just a series of short solid lines. Right again, but to the viewer it should be quite jagged. Making that in AutoCAD isn't easy sometimes. We are so into our 16 decimals of precision that wavy, zigzag lines go against our grain. It is funny to think that some items on the board look better drawn by hand than by computer!

To the Batting, Robin!

Now the fun part of AutoCAD is that you can make up whatever line you want! You can make a linetype that has words in

it like GAS for a gas line on a plan. I would not like to draw that manually. You can make a linetype that has no straight segments at all and use that for insulation batting, like a linetype of SSSSSs. But you have to try and use them.



Now the fun part of AutoCAD is that you can make up whatever line you want!



Don't settle for using the stock linetypes given to you by AutoCAD. The program is also supposed to help you make better looking drawings, not just faster

produced drawings. If you have a building grid with consistent bay dimensions, create a custom grid line pattern that matches your bay spacing so that the columns get a + in the middle of them. That would be so sweet! If you have an object that is small and needs to be hidden, adjust the LTSCALE for the object so that you get some dashes shown instead of a continuous line. And be a little creative and not so linear; use the SKETCH command to draw a break in an object. Your task, should you accept, is to make one custom linetype and apply it in a drawing. It cannot be achievable with the AutoCAD-provided linetypes. If you succeed, please send me a drawing with it used and a short description. It will help me write a future article on user-created custom linetypes.

David Harrington, Technical Editor for AUGIWorld, works for Walter P. Moore and Associates in Tampa, Florida, USA. David is the author of Inside AutoCAD 2005, Inside AutoCAD 2002, and original programmer for REV CLOUD. He can be reached at david.harrington@augiworld.com.

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Autodesk University:

A BOOSTER SHOT FOR THE BRAIN

Late in November, CAD professionals will descend upon Las Vegas to learn, to share, and, yes, to have a little fun. Here's what Autodesk University delivers to AUGI members

About a third of the attendees at Autodesk's annual education event, Autodesk University®, are members of AUGI. They come not only for AUGI's Annual Meeting and subsequent Beer Bust, but also for four days of training on how to make the most of Autodesk products and, moreover, how to apply what they've learned in the real world.

While it's hardly a burden to travel to Vegas in bleak November, AUGI members wouldn't bother if not for the benefits they receive from attending Autodesk University. And the benefits are plentiful.

The Education Element

Foremost in the benefits category are course quality and quantity. Let's face it, furthering one's education is the primary reason to attend Autodesk University. More than 275 classes and labs, arranged by discipline-specific tracks, are offered during the four-day event. The classes are organized so that attendees can home in on the ideal class or lab at the skill level suitable for them.

These "tailored" classes are part of the attraction for Melanie Stone, senior CADD operator/plans coordinator for Barnes-Jewish Hospital, St. Louis. Stone, who first attended Autodesk University in 2001, says of her initial exposure to AU, "I was inquiring about post-college training with one of our local resellers, but none of their classes were applicable to my needs, my skill level, or my discipline. He told me about AU and once I checked out the class offerings, I was on board." She has attended every event since 2001.

Michael Robinson of RN Design, Woodbridge, Ontario, adds, "I had heard about Autodesk University and attended another similar conference that was CAD-related, so I thought I should try AU as well. Once I went to AU, I never went to any other CAD-related conferences."

The variety of courses attracts many to AU and course layout and scheduling also appeal across the board. Charles A.

Graham, Jr., AIA, NCARB, says, "Presenting the same program in several time slots allows attendees to take part in most of the course of interest without having to sacrifice one." Graham works for Diversified Technology, Inc. of Greenville, South Carolina.

If you're into CAD, Autodesk University will please on many different levels. There is more to AU than CAD, however. In conjunction with Autodesk University, Autodesk will host the annual Worldwide GIS and Civil User Conference, attracting professionals in GIS, mapping, and infrastructure with many classes and labs devoted to their information needs.

All of the AUGI members we contacted rate Autodesk University "excellent" as an education event. Melanie Stone says, "It is great because I can get lectures on programming or hands-on classes on database connectivity. You can't get that anywhere else." Rick Weathers, senior design supervisor at Fluor Corporation, Greenville, South Carolina, agrees that Autodesk University is one-of-a-kind. "All the experts are assembled in one event, available for consultation, and more than willing to share with end users."

One of Weathers' colleagues at Fluor Corporation is Dr. LeAnne Thurmond, who works in Project Information Management Services, Computer Aided Engineering – AutoCAD. Dr. Thurmond is an Autodesk University veteran, having attended every AU since its 1992 inaugural. She was, in fact, one of Autodesk University's founders in a sense. An active participant in AUGI's predecessor, North American Autodesk Users Group (NAAUG), Thurmond helped plan the program for the first AU.

Indeed, Dr. Thurmond could probably teach Autodesk University instructors a thing or two, yet she keeps attending year after year as a student. She cites the many reasons she returns to AU every autumn: "I always learn something new. I keep current with issues affecting my company and

others. I learn what direction Autodesk is taking and, through Q&A sessions, I can provide Autodesk my input concerning my company's needs."

Priceless Peer-to-Peer Interaction

Autodesk University is a great place to network and forge professional friendships. That's another benefit and one that cannot be dismissed as purely social activity, for it is from these one-on-one relationships that new ideas are formed and productivity boosts are realized. Stone, of Barnes-Jewish Hospital, notes, "I consider peer contacts a huge benefit of attending AU. Working in facilities management, as I do, can be a real challenge when you need to find someone who has been through what you've been through. I'm trying to get an FM program going here, but I would be at a complete loss if I didn't have a couple of contacts from AU to share their experiences with me—to let me know what challenges to expect along the way."

Graham, of Diversified Technology, agrees. "The contacts provide a wider database for problem solving, improving the odds that someone has experienced the same problem before. Hearing a suggestion from an experienced person has no substitute."

Technology Advances

Autodesk University attendees who go for technology updates don't leave wanting. There are plenty of Autodesk University classes and labs to bring attendees up to date on the technology side of Autodesk products. In addition, Autodesk University's exhibit floor, which accommodates booths from Autodesk and more than 70 of its developer partners, give attendees a first-hand look at the newest add-ons from third-party providers.

Besides experiencing the casual fun associated with Autodesk University's exhibit area, there is a real benefit to being able to learn more about available third-party appli-

cations. "The exhibits allow interaction with several vendors and give me the chance to compare software in a closed situation," remarks Weathers. It is particularly convenient to have so many developers housed under one roof, as Dr. Thurmond summarizes, "It keeps me from having to make special trips to see software demonstrations."

In addition to being able to visit exhibitor booths and, as Charles Graham puts it, "to kick the tires on new products," attendees find more than booths on the exhibit floor. For example, the AUGI Playpen, an area replete with computers on which third-party applications are available for try-outs, is a hit with most attendees. Proving that benefits are in the eye of the beholder, in this case the attendee rather than the exhibitor, Weathers says, "The Playpen allows me to try out some new software without having to listen to a sales pitch."

Getting Management Buy-In

At some point, nearly every Autodesk University attendee has had to "sell" his or her employer on the merits of Autodesk University. Luckily, though, this hurdle usually has to be cleared only once, because AU attendance ultimately benefits the company as much as the individual, and employers are quick to see it. Michael Robinson of RN Design, for example, admits that early on he did have to justify his attendance. But that was then. "Now," he says, "we do not have much discussion because the benefits have been proven. Every year I come back with some really innovative ideas. It is a great place to see how other people are doing things and review how we are doing things."

Jeannine Huskey notes that she tried many times to convince her former employer to allow her to attend, without success. "When in doubt, change to an employer who values quality training experiences," she advises. Huskey, who finally made it to AU last year, adds, "I finally worked for a company who saw the importance of the event."

If you aren't sure how to approach your employer about Autodesk University, you might want to follow the approach of RN Design's Robinson, who has attended for the past three years. "I come up with two or three targets to focus on to support the company. For example, when we were upgrading to Autodesk Architectural Desktop 2004, I took primarily '2004' courses and we even scheduled our ADT

2004 roll-out for the month after AU so I could incorporate new techniques or ideas. One year I focused on training and new techniques. I still do this, but I don't have to justify [AU] as much."

For other tips on getting management buy-in for your attendance, consult Lynn Allen's article titled "Justifying Autodesk University to Your Management," which can be found at <http://www.autodeskevents.com/au2004/> under Justifying AU in the left-hand sash.

All Work and No Play?

Autodesk University is a serious education event, serious in the sense that attendees are there to learn and to apply what they've learned to enhance their jobs. Still, the venue is Las Vegas, a town that isn't exactly an entertainment void. Autodesk wisely adds a little fun to the mix and AUGI helps here, too. The AUGI Beer Bust, an AU tradition, takes place on the exhibit floor following the AUGI Annual Meeting. In addition, Autodesk plans a big event on the last evening of AU. Prize drawings, contests, and giveaways abound as well, so there's ample opportunity for fun.

Hidden Benefits

For all the obvious reasons Autodesk University is a good investment (e.g., the more informed you are, the more productive you'll be), there are other benefits. For example, Melanie Stone of Barnes-Jewish Hospital received valuable advice from a fellow AU attendee that enabled her to form a thriving Autodesk local user group.

Attendance at Autodesk University can also bring users closer to the "mother ship," Autodesk. Autodesk University is, after all, an Autodesk event and you'll find its employees everywhere from the exhibit floor to the main stage to many of the classrooms and labs where they serve as instructors. Autodesk executives are also in attendance at AUGI's Annual Meeting, at which time the AUGI Wish List, a list of features that Autodesk product users would like to see included in future releases of various products, is formally presented.

Make no mistake—Autodesk University is a wise use of time and resources for AUGI members interested in helping their companies and advancing their careers. Complete details on Autodesk University 2004 can be found at www.autodesk.com/au.

See you in Vegas!

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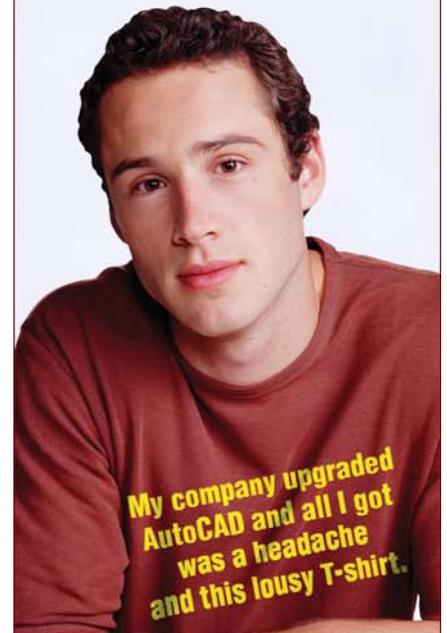
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Third Party Applications In Action

We asked AUGI members to share their experiences about using third-party applications (Autodesk plug-ins and other Autodesk-compliant products) to solve problems, boost productivity, and streamline operations. Herein, a compilation of their stories

Help with PDF Needs

Despite the existence of Autodesk's DWF file format, most of our customers utilize the Adobe Acrobat PDF file format for the technical documents exchanged through the Web. We discovered pdf995 Suite from the software995 company (<http://www.software995.com>). Pdf995 is a fast way to create professional quality documents. You can create PDF files by simply selecting the "print" command from any application. Now, we can generate PDF files right from Autodesk Architectural Desktop.

Antonio Fontenele, Architect

*Radiest Projetos, Sistemas e Multimida Ltda
Itajai, Brazil*

Color Drawings Needed

We needed some way of producing color presentation drawings. AutoCAD Release 14 improved the ability with Solid hatching, but there were several issues that made us look for another solution. We found M-Color by Motive Systems that worked with AutoCAD Release 14 and have been using it since.

M-Color does all its filling of closed polylines and circles outside of AutoCAD. It has gradient fills that can be radial, angular, fill inside an object or fill outside an object. It has translucent fills. It can use a bitmap image as a fill so the fill can look more realistic. It has a preview program that you can easily change the color or type of fill if it doesn't look correct. It can create a PDF from the Preview program or as it creates an output file from AutoCAD. It has a CFG file that stores the layer order with outline colors and lineweights, what fill pattern to apply to a layer and can now even fill objects based on their color. It can sort the drawing by layer or by color. The CFG file can be used with multiple files so if layer standards are in place, a color rendering can be created very quickly. The preview program can also export to TIF or BMP format to use with other programs or can even be copied to the clipboard to be pasted into another program.

Tom Berning, SD Tech Advisor

Woolpert LLP

Cincinnati, Ohio

Getting a Handle on FM

Facilities Management has not been a favored child of Autodesk and we have had to look elsewhere for database software to work with AutoCAD. We researched several FM software programs. VisionFM (in Toronto) is the vehicle we chose to complement basic AutoCAD in gaining control

of the information we need to maintain. As the Space Planning group for M&T Bank, part of our responsibility is to maintain occupancy data on an ever-changing employee roster of over 15,000 people, right down to the cube or office where they sit.

VisionFM operates a database that allows linking vital occupancy information to our AutoCAD floor plans. The information displayed in the drawings including employee names, cost centers for charge-backs, square footage, and more. The data is easily compiled for reports and queries, many of which are included in the software purchase. Customization grooms the software for individual corporate needs. Our occupancy data is the basis for cost allocations for the Bank's annual budget process. Our database is becoming more in demand as time goes by, being used by corporate mail services and corporate publication distribution. Internal service departments, such as Telecomm, Property Management and Security have tapped us on numerous occasions for the information we can provide to them.

VisionFM has saved our group a great deal of time. Formerly, manual preparation of the budget occupancy process took over three months to prepare and update. With "Vision," it can be completed in a couple of days.

Catherine Gorecki, CAD Administrator

M&T Bank

Buffalo, New York

Great Time Saver

Currently, one of my favorite AutoCAD add-on tools is called AutoHook created by www.Command-Digital.com. When I found myself repeating the same tasks over and over again, I decided that I had to automate certain procedures. However, lacking both time and courage, I neglected learning how to customize certain elements in AutoCAD. That's when I discovered AutoHook. Basically, AutoHook is a tiny Windows tray application that "hooks" onto AutoCAD keyboard input. If AutoHook detects a key-press that has a user-defined macro, the key is trapped and the macro is sent to AutoCAD. In less time that it takes to figure out the AutoCAD "help" menus, I had created a number of macros which shaved hours off my drafting time per week.

The true benefits of this program is that you DON'T have to be a programmer, you DON'T have to customize AutoCAD itself (for fear of breaking it), it will NOT interfere with other AutoCAD add-on applica-

tions, and you can always turn it off without it affecting AutoCAD. My initial fear, as with installing any third-party add-on, is how will it affect AutoCAD if I have to uninstall it. AutoHook is so self-sufficient that AutoCAD doesn't even know it's there.

Murray Clack, Municipal Technician

CBCL Limited

Halifax, Nova Scotia

Tablet, Keyboard Ensure Efficiency

I do freelance 2D design, mostly for the cellular industry. I use two accessories that really speed production for me.

The first is a digitizing tablet, with a twelve-button puck. Four buttons are programmed for left mouse, right mouse, enter, and escape. Four more are programmed for my most common osnaps, plus "pick." It's very fast; I don't have to select an osnap and then a pick—one click does both, and, I don't have to worry about the stickiness or inadvertent choices of "running osnaps."

My second productivity booster is my keyboard from Monumental Computer Applications. It has twenty programmable function-keys, on which I have programmed my most-used commands, plus the all important "enter." Even though AutoCAD has command shortcuts, typing "L" plus "enter," gives you a line slower than hitting one key that types both

Darrel Astin

Alto Builders

Rancho Santa Margarita, California

Tracking with Barcodes

At my former job, my problem was tracking time on drawings and location of parts in our manufacturing facility as parts were being made. I use AutoCAD Barcodes Pro by BarcodeONE.com. It allowed tracking of drawings using barcode scanners attached to existing PCs. Time, Location, JOB number, Employee,



A co-worker using the Barcode Scanner to track a drawing, location, date and time stamp was built into the software.

were tracked in seconds using barcodes. This also eliminated a second sheet stapled to the drawing with the Job number and other information that was invariably lost somewhere along the way.

*Douglas Poston, (formerly with Universal Labeling)
St. Petersburg, Florida*

Help with Architecture

I started learning AutoCAD with release 10, using it with release 12. At this time I started looking for Architectural Software and found ArchT's predecessor listed in one of the publications that came with AutoCAD at that time (before ADT was married to AutoCAD). I liked it and

learned to use its replacement, ArchT, and liked the way it works with common lines as wells as walls and the fact that it came with Civil, Mechanical, Plumbing & Electrical symbols as well. This helped me to do construction drawings in all these fields faster. Its website is <http://www.autodsys.com>.

Another add-on I use is CADRasterPro. This program is complete software that will do anything that can be done with raster as well as convert .xxx to some other .xxx (a long list there). I primarily use it to trace drawings. I've done a complete map of our ever-growing university using this software. You can find CADRasterPro at <http://www.tessel.com/home.htm>.

Don R. Foltz, architectural remodel draftsman

The University of Texas at Dallas

The KISS Principle

I support a staff of 45 who use CADD for civil engineering, survey and traffic engineering, with a mix of AutoCAD 2004, Autodesk Map 2004, and Autodesk Land Desktop 2004. When Autodesk moved from DOS to Windows-based applications, we decided to abandon our suite of custom tablet tools. The only third-party application we continue to use inside AutoCAD-based applications is IconTools by McNeel and Associates. They have orphaned this product but graciously updated the .ARX

When to Customize, How to Customize

For many organizations the big question is "why customize?" The main reasons to customize are to increase productivity, implement drawing standards, and improve accuracy. All of these benefits directly affect the bottom line of an organization. If you choose to customize, following are the steps I recommend

1. Identify the process to be customized.
2. Identify the means to customize it either by third-party application, third-party developer or in-house development. There is no magic formula for determine the best means. I suggest that simple drafting tools, macros, and simple routines are best created in house by the individual using them or your own in-house customization guru. More complex applications that interface with other external applications and databases are probably better developed by third-party developers or purchased from third-party vendors.
3. Identify the type of customization such as script files, menu files (including tablet menus), LISP routines, VBA routines, or external applications utilizing VB.net and ObjectARX or C#.
4. Estimate the savings from creating the customization versus the cost of purchasing or developing it. Get pricing from third-party vendors and estimates from outside developers.
5. Before writing or purchasing the routines I would recommend joining some of the customization forums like the Autodesk newsgroups or the AUGI forums and ask around. Many individuals in both of those groups have a great deal of information to share and the best part is, it is free. Many routines are shared between those people, too. You can find routines for free at places such as the AUGI exchange.
6. The next option I would recommend is having a member of your team take the time to learn a little system customization skills themselves. Training can be obtained through many sources such as Authorized Autodesk training centers, Autodesk University, the AUGI Training Program (ATP), many good customization books, local users groups, and local colleges for languages such as VB, VBA, and C#. I strongly recommend the investment in your staff—this way you have on-site technical support if your custom program isn't working properly.
7. If you decide to use an outside consultant, select the individual to develop the application based on experience, cost, and knowledge of the process or select the vendor for the application. If you need help locating third-party applications, the Autodesk Developer Network (ADN) can help put you in touch with qualified programmers with Autodesk product experience. Visit www.autodesk.com/partnerproducts to get started.
8. If you choose to have the application developed, be sure to create a detailed functional specification that clearly defines the scope of the application, including the user interface and the capabilities. Clearly agree on the cost. You might consider having the application developed in stages. You should also include in the contract a specified length of time for debugging the application after delivery.
9. Once you obtain the custom application, try it out with a few select individuals who can manually verify consistent results. It is not uncommon for applications to have unpredictable results in some cases. The cases need to be identified prior to implementing the application throughout your company. The best way to test an application is just put it to work and "crash test" it. You will quickly discover if problems exist.
10. After implementation, I would recommend that your operators evaluate the application for ease of use, appearance, and usefulness. Frequently, applications have many features that are never used and other features that need to be enhanced. It is my opinion that system customization is an evolutionary process that is ever-changing and never completed.

Once your organization sees the benefits of system customization, I promise that you will become another believer. It is not uncommon for good routines to improve productivity over 100 percent. Good luck!

Peter Jamtgaard is the company engineer and CAD manager for Cordeck Sales, Inc., Kenosha, Wisconsin. A former member of the AUGI Board of Directors, Peter has participated in the AUGI Forums and contributes to AUGIWorld magazine. He can be reached at cordeck@acronet.net.

file, which seems to work fine in 2004.

We did keep the LISP routines available that staff wanted, a collection of several hundred, but the Autodesk applications have incorporated so many of them it just wasn't cost effective to "port" them over, especially since the McNeel product took care of many of the drafting tasks for us. We've decided to focus instead on improving productivity in our core, out-of-the-box applications.

We supplement our road design with StormShed2G from Lenny Kong, for drainage network design; MGSFlood by MGS Software, for detention pond design; BRIDG by A K Gordon and Associates, concrete and steel bridge structural analysis; some Haestad tools and other drainage and hydrological design and analysis tools from agencies; and some freeware like Corpsecon to supplement our survey tasks.



*Brad Hofman,
Snohomish
County Public
Works*

These are essentially stand-alone applications for various engineering tasks; we also have Spanner to help us use spreadsheets in AutoCAD-based applications.

The KISS (Keep It Simple, Stupid) principle seems to work fine for us, and my staff has systems that are as solid as a rock thanks to Autodesk's QA/QC programs.

Brad Hofman, CADD Systems

Administrator

Snohomish County Public Works

Everett, Washington

Making Life Easier

I work in the engineering department at Gematt Asphalt Products, Inc, a sand and gravel producer. I have to draw steel structures and every time I needed a steel section I had to pull out my Manual of Steel Construction, look up the section and draw it using the dimensions in the book. I had to do this for the top and side views of beams as well. I eventually created blocks of the sections I used most often.

I subscribe to *Cadallyst* magazine and my favorite section is "Get the Code." I always look to see if anyone has provided any tools that could make my life easier. There I found, and was able to download, "Al's Steel Mill" created by Al Rogers. At

What Do You Know About the Autodesk Developer Network?

Just for fun, take this quiz to test your knowledge of the Autodesk Developer Network. Answers are on page 13.

1. In what year did Autodesk open the Autodesk Developer Network for third-party software developers?

1982

1985

1987

1995

2. True or False—Any software developer with a product that is compatible with an Autodesk product can be a member of the Autodesk Developer Network.

True

False

3. True or False—AutoCAD is the only Autodesk product that has add-on programs available

True

False

4. True or False—Only software developers can be members of the Autodesk Developer Network.

True

False

5. Approximately how many companies are currently active in the Autodesk Developer Network?

1,400

2,200

2,500

3,000

6. What company has been the longest-running continuous member of the Autodesk Developer Network?

a) 1a Software in Germany

b) 21st Century in the U.S.

c) 3 am Solutions in the U.K.

7. Autodesk introduced a .NET interface with its latest release of AutoCAD 2005. ObjectARX was introduced with Release 13 in 1994, and ADS was introduced with Release 11 in 1991. In what year was AutoLISP introduced?

1982

1985

1992

1994

8. The Autodesk Developer Network includes members from more than 60 countries around the world. Which country hasn't yet had an ADN member?

a. Mongolia

b. Bulgaria

c. Slovenia

d. Somalia

e. Lithuania

f. Morocco

g. Jamaica

h. Estonia

i. Slovakia

9. The online catalog of Partner Products and Services has more than 700 products listed in various languages. This catalog can be found at www.autodesk.com/partnerproducts. This set of web pages went live in what new language just last month?

Japanese

Italian

Chinese

10. How many authorized partners are expected to exhibit their products and services at Autodesk University this year?

50

35

65

11. How can you tell if a company is an "authorized" developer of products that are compatible with Autodesk software?

Look for an Autodesk Developer logo
Look for a compatibility logo that features a recent Autodesk release (e.g., AutoCAD 2005 compatible)

Visit adn-area-manager-american.autodesk.com

All of the above

Bonus

12. Say you have done some customization and are interested in learning more about the Autodesk Developer Network. How do you become an ADN member?

the click of a toolbar button, I now have every steel section at my fingertips through a very simple and easy-to-use dialog box. If I need a top or side view, I simply choose the section and specify a length. I love this program and I would be very unhappy if I was forced to do without it. I even use it for reference instead of the steel book.

Jennifer Grande

*Gernatt Asphalt Products, Inc.
Collins, New York*

Phone Company Finds GIS Solution

Ponderosa Telephone Co. has used GIS for the past 10 years. Until 2002 we used older software consisting of an AutoCAD Release 13 front-end that stored and managed GIS data in an ESRI environment. We faced three significant problems using this tool set.

1. Design tools were obsolete
2. Process of creating and storing data used proprietary tools and methods, making it difficult to integrate new technologies.
3. Existing base map was geographically incorrect.



Jeremiah McKnelly gets help from GeoExplorer, a data management solution.

With these factors in mind we began to research a solution that would address several issues we found essential to the quality, functionality, and maintainability of our GIS. The new solution required the following features.

- Converting and geo-rectifying facility map data
- User-friendly tools for maintaining inside and outside plant data
- Industry-standard data formats
- Integration with our customer billing system
- Streamlining existing records-based procedures
- Flexible integration of GPS, and imaging data
- Scalable for future technologies

We found GeoExplorer by Martin Group could address all of our needs. It uses Autodesk Map for base map manipulation, SQL Server for data storage, Map's standard linking functionality to SQL, and the GeoExplorer front-end to simplify the linking, maintenance, and analysis of the data.

This solution meets most of our needs and its greatest benefit is flexibility. By using standard Autodesk Map and SQL functions, any tool we need can be quickly created and implemented. This also allows integrity of all GIS data independent of the GeoExplorer application.

*Jeremiah McKnelly, Engineering Supervisor – GIS (and AUGI's 2003 Top DAUG Contest winner)
Ponderosa Telephone Co.
O'Neals, California*

Seeking a Tighter Link

Back in the early '90s, a group of us here bought into the concepts presented by the ConDoc keynoting system, namely a tighter link between specifications and drawings. A five-character CSI/ MasterSpec section number is used to identify materials on detail drawings with three-character extensions to differentiate components in the same spec section. Benefits included: consistent vocabulary for material call-outs on details; a complete and accurate checklist of specification sections generated from the drawings; and most importantly, a mandatory introduction to specifications for junior staff, who might otherwise lag on this for a few years or more.

Drawbacks included: not enough flexibility in the software (we desired to add a third extension character for expandability—not easy), and product support that evaporated by the late '90s.

We turned to ArchT to help us carry on with our keynoting. The product has a more current GUI (nice). One other nice ArchT feature is its steel shapes blocks; simple 2D blocks are created from a steel manual-like chart, and the "LIST" command will show size designations of an inserted shape.

*John (Gus) Gramling
San Francisco, California*

Batch Processing Eases Chore

The creation and management of large sets of engineering drawings often results in the time-consuming problem of making reasonably simple changes (such as modifying attributes or layer properties) that affect every sheet. QwikBatch allows us to batch process selected files and perform multiple functions all at once. The primary benefits we have seen as a result of using QwikBatch are:

- Ability to manipulate whole sets of drawings all at once rather than opening each drawing, making the adjustments, saving and closing then opening the next sheet.
- Ability to have QwikBatch running and

do other work (in AutoCAD or other programs) simultaneously.

- Performing multiple actions at once. For example, changing the color of a particular layer, importing a page set-up and creating a plot file can all be set up to happen together. This cuts down significantly on time as the drawing set can be gone through once, rather than multiple times.
- Consistent results. The program was designed to be not only user-friendly, but also accurate and reliable.

La Donna Mattson, Engineering Technician III

HNTB

Bellevue, Washington

Help with PDFs

Our customers are requesting PDFs of our drawings. We purchased Bluebeam Pushbutton PDF (<http://www.bluebeam.com>). It is quick and simple to make the PDFs for our customers.

Kris "J" Keller, Engineering Design and Drafting

Bechtel BWXT (INEEL)

Idaho Falls, Idaho

Crystal Clear PDFs

Our company's logo is inserted as an image file into the standard title block used for AutoCAD drawings. When creating a PDF version of these drawings with



Kris "J" Keller, at work.

another program, the logo is not displayed very clearly. I was searching for a solution to correct this problem.

I used the trial version of Bluebeam's Pushbutton PDF and completed a comparison of drawings created with the Pushbutton PDF with drawings created using the other program. There was a visible difference in the quality when using the Pushbutton PDF. I was given authorization immediately to purchase this plug-in program for AutoCAD.

Pushbutton PDF also corrected another quality issue. I had created a color floor plan in AutoCAD and needed to save it as a jpeg for presentation purposes. The drawing was

blurred and I needed to determine another file type to be used. I tried Pushbutton PDF to see whether I could get a clearer representation of my drawing in PDF. There was a considerable difference in the quality between the jpeg and the PDF drawing.

*Lynn Elder, AutoCAD Specialist
Brookfield Properties Corporation
Toronto, Ontario*

Cool Tool for Layers

I was working on a major chiller plant renovation with multiple floors. Each of those floors was broken up into multiple levels of piping for clarity. The entire plant was built into a single x-reference that was loaded into sheets where layer control handled what levels of piping were shown where. To further complicate issues, the client wanted prints in both color and black & white. The only way to handle this was to create the drawings using style dependent plotting as opposed to color.

There were some 200 hundred layers each with four different plot styles, Full weight Color, Half Weight Color, Full Weight Black & White and Half weight Black & White. As you can imagine, layer management was a daunting task. We needed a way to analyze sheets to determine if all their layer styles were set correctly. We found that DotSoft.com had a very useful free tool called LayerHTM. With this tool you can go into to any drawing, initiate LayerHTM, and it will generate an html list of every layer and their attributes. I found the tool extremely useful and still use it today to perform layer state checks for quality control purposes. Awesome job, DotSoft!

*Nick Fuller, Mechanical Designer
Bowman Foster & Associates
Norfolk, Virginia*

Making Excel and AutoCAD Work Together

One problem I ran into often was adding Excel tables to our drawings. Excel makes nice tables. The problem was Excel and AutoCAD didn't play nicely together when you COPY/PASTE them in place. Once in CAD they behave like an image, but to resize them within the drawing caused them to not print properly. You had to insert them at the exact size you wanted them to appear by zooming in and out to the size you want, then inserting each at that same zoom. When you want to edit one later you double click it and Excel opens and you can edit it, but when you close Excel the table in the drawing "collapses" vertically compressing all the text.



Steve Poultney of Weston Solutions relies on AutoXLstable 2.51 to insert Excel table data into AutoCAD.

Enter CADAddOn's AutoXLstable 2.51. Now we can easily insert any Excel table or even create one in CAD. One click, Excel opens and you edit it, then click the finish button and it goes back to CAD also saving it to its original location. To resize you only need to specify the scale you want it inserted at and bingo! You can even link it to

specific blocks to tally the results of added or removed blocks in the drawing. I think this program is a great time (and frustration) saver and anyone who uses tables in their drawings should check it out. The website is: <http://www.cadaddon.com>.

*Steve Poultney
Weston Solutions, Inc.
Edison, New Jersey*

Want to read more? The October issue of AUGI HotNews, which is emailed to all AUGI members the first week of every month, will feature the continuation of this article. Thanks to all AUGI members who shared their stories.

Note: These user stories may have been edited for length and/or clarity.

Compiled by Marilyn Law, managing editor.

Answers to Autodesk Developer Network Quiz

1. d. The Autodesk Developer Network, known by that name, was created in 1995. Preceding that was the Autodesk Registered Developer Program, which originated in 1987.
2. False. In order to become a member of the Autodesk Developer Network, developers must complete a comprehensive questionnaire, often submitting their software for Autodesk scrutiny and providing names of customers who will attest to the quality of the developer's software.
3. False. The Autodesk Developer Network comprises manufacturers of software compatible with many Autodesk products including AutoCAD, Autodesk Inventor, Autodesk Map 3D, Autodesk Civil 3D, Autodesk MapGuide, Autodesk Architectural Desktop, and many more.
4. False. The Autodesk Developer Network includes authors, publishers, researchers, consultants, educators, and hardware manufacturers, in addition to software developers. Many large Autodesk customers and VARs are also members of the Autodesk Developer Network.
5. c. More than 2,500 companies are current members of the Autodesk Developer Network.
6. b. 21st Century, Inc., based in Aliso Viejo, California, has been an Autodesk Authorized Developer since 1987.
7. b. AutoLISP was introduced in 1985 with AutoCAD Release 2.1.
8. d. Somalia does not yet have an authorized developer within its borders, but that doesn't mean it won't happen soon! (Lithuania, by the way, has several active ADN members that develop custom products in the local language.)
9. c. Simplified Chinese. The online catalog of authorized products is also translated into English, French, German, Italian, Spanish, and Japanese so that customers around the world can search for the right add-on products in global languages.
10. c
11. d. Any or all of these are good ways to ensure that the product you are considering has been developed by an authorized member of the Autodesk Developer Network.
12. Go to www.autodesk.com/adn and from there you can learn more about the Autodesk Developer Network. You can also fill out an easy, online application!

Making AutoCAD Scream: *The Dynamics of Efficient Thinking and AutoCAD*



» What makes an AutoCAD user best, or fastest? It takes more than fast fingers. Here are the skills you really need

My first AutoCAD® instructor often said, “It will take you six months to find ‘your own personal magic.’” Perhaps he was right. I believe genuine competitive proficiency requires two years of on-the-job work. Soon after, I found myself bewildered by the amazing speed I advanced each day, always thinking it could not possibly get any faster.

Would I need faster fingers? People were already aware of my capacity to keep two, three, even four computers active. Regularly, when I left work for the day, the computers were still hard at work on my AutoCAD needs and would continue for hours.

One day more than a decade later, I encountered a freshman CAD fellow who told me that he knew of no one faster than himself, believing he, too, had reached the ceiling of AutoCAD capability. His activity was fierce, yet I had seen faster. I promptly asked if he knew how to write AutoLISP. No. I informed him that if I had a dollar for every person believing him/herself the best and fastest, I could pay his yearly income, and that he basically classed the other 30,000 candidates as liars.

Truth is, speed demons do not make AutoCAD scream, nor does the awesome computer station. Thinking does; tools do. Attitude will, if users accept themselves as yet to learn.

Let’s explore some of the REAL methods of AutoCAD efficiency:

1. Thinking is primary
2. Plan
3. Know and use your arsenal
4. Become a proficient tool creator
5. Be the consummate librarian
6. Establish quality on-line contacts
7. Discipline oneself to the work at hand

Let’s Study More Closely

1. Your mind is yet faster than the machine working for you. Over time, one discovers that the more thinking one does “for the computer,” the fewer steps you will need to ask of it. For example, if you use construction lines to locate points, know that often a bit of deeper thinking (such as using .X, .Y & .Z filters) will more efficiently sidestep these extra, consuming constructs. Get to know these and the vast array of other tools, and put your mind to use for fewer step through your documents.

Common are those people who feel deeper thinking is “too much like work.” The power tools usually DO require greater brain activity, yet failing to use them can take you round-about through tougher ways of accomplishment than that devoted moment of thinking. Trust me, your brain will get used to it.

Knowing the dimensionality of nominal piping, steel, or lumber intrinsically, if called for, will garner strong advantages over the person engaged in resorting elsewhere. Designers using Imperial measurement (feet and inches) should always know multiples of 12, 16 and the divisions by them. Many AutoCAD disciplines have mathematical needs where memory can serve well. Using memory of such things assures faster creation.

Endeavor to know your materials and discipline as you would your pets or siblings, and you will be thriving in the execution of AutoCAD.

2. Before tackling any task, examine options for practical approach. Very few drawings actually should begin with a single line, arc, or circle. A primary rule of AutoCAD is that work should be done only

once. Do it twice, and you are doing yesterday's work all over. Maybe you should live re-spending last week's pay, as well.

Autodesk suggests a plan to create Template files. Know that these need not be blank documents with only environments pre-established. Neither are they limited to borders and title blocks. Indeed, one can discover that last week's approved document set becomes fertile ground for this week's new production.

Take a moment to plan a strategy that best utilizes resources already on hand. It will be a worthy investment.

The fuller your template data contemplates daily need, the less work needs to be re-done.

3. Do you know your arsenal? Do you naturally "double-return" at the end of a selection set, or does the computer wait for you? For each command line dialogue, are your fingers already replying to choices without your conscious evaluation? Is the "Fence" selection option one you regularly call, and can you "crossing-polygon stretch?"

Anticipating the computer is one method of speed, but becoming thoroughly familiar with all options will give that anticipation vitality. If you see your projects as a challenge, then you can go fortified on the attack, once you have gathered familiarity with the available artillery.

4. Do not think you are limited to the "available." Creating new tools can be a valuable asset to any user, and most AutoCAD users should really know how. If you are a "menu person" you may be missing the mark. Though there can be a time savings overall, there are likely far more efficient methods. Still I won't begrudge a person who at least tries to enhance the arsenal with a well-written menu structure.

There is truly no more valuable tool to AutoCAD than AutoLISP. This can be used to create any number of new tools. Investment in time and effort designing new tools can pay for itself often in the same day. Most LISP routines are not grandiose, drawn-out programs that can polish shoes and make ice cream. Instead, they are but tiny fragments designed to render every task easier, and every day's chores simpler and more efficient.

My master file carries more than 500 of these quick toys, some of which will load a collection of others. The usefulness is enormous, and rare is the command for which I have not yet developed tailored arrays of choices that quicken the original sequence. The ability to create more such tools can only increase your efficiency.

5. This master LISP file is, of course,

not the only or even most obvious arena to collect the useful. One can develop block libraries that make artful use of the layer zero. Add to that standard details or note collections and we still are using primitive AutoCAD techniques.

Interchangeable menus, hatch patterns, complex linetypes...the list of collectables can be long. You owe it to yourself to discover the many sources of new collections and to be creative enough to find new things to collect. Keep organized and well-documented, and the libraries will serve you well.

6. Online contacts are intrinsic to libraries. Some may be governmental, some business, some might simply be worthy friends. Finding the useful ones and creating a well-tuned "Favorites" library on your browser will help you snap quickly to the resources you see as valuable.

Finding details and data sheets are always getting easier (especially with the growing number of companies willing to hire a temp CAD OP for just such cause). Be warned that registering through some libraries may become a bit intrusive with SPYBOTS and SPAM, yet membership in these libraries might still be worthwhile.

Locating reputable online user groups will often provide 24/7 access to experts and varied ideas. They also offer unique resources themselves, and should be investigated. Be wary of those groups that do not offer reasonable protections against spamming, viruses, membership abusiveness, and sale of your private information.

7. Genuine firepower with AutoCAD requires time properly spent. Part of this comes through full knowledge of your operating system and hardware, handy tools, and efficient use of techniques beyond AutoCAD.

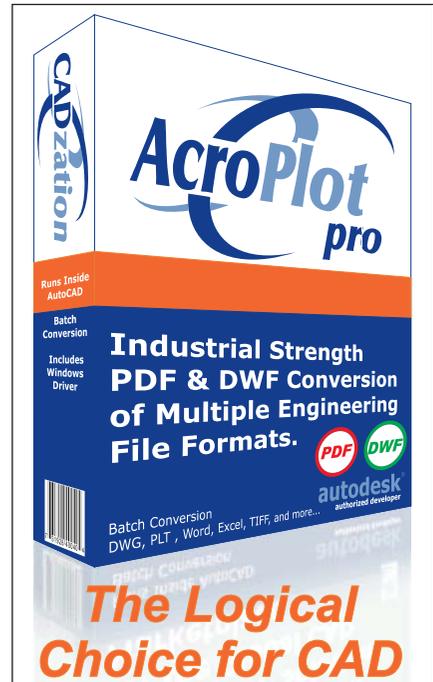
It also requires a mindset. Thirst for the ideas. Arrive on time for work and go with the extra effort at each juncture. Always know that AutoCAD is usually not the goal, but the means.

In the next article I shall expand these ideas with more specific presentation.

Believing "there is always a better way" is the father of invention, thus the way to making AutoCAD scream.



Wayne Hillman is AutoCAD Administrator for Medallion Homes. He has experience in architecture and electrical, structural, mechanical, and civil engineering and is a long-time AutoCAD and AutoLISP user. He can be reached at argutuq@yahoo.com.



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What's New With Building Systems 2005?



I believe that creating accurate, detailed project drawings is an art form. Rembrandt had his paintbrush; Frank Lloyd Wright had his drafting board; Mechanical, Electrical, and Plumbing (MEP) firms have Autodesk Building Systems

Users of Autodesk® Building Systems can look forward to the first release of a yearly product update that has come with many new features to help produce a quick, more advanced and detailed finished product. Since Building Systems is bundled with AutoCAD® 2005 and Autodesk® Architectural Desktop 2005, you will receive all of the product updates that come along with those releases. Independent of the updates to those programs, you will see the following updates for Autodesk Building Systems 2005.

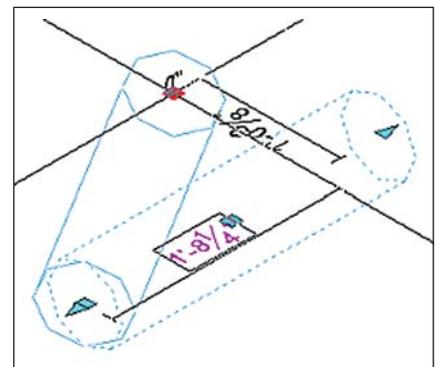
Program Enhancements

Tool Palettes: A nice feature of Building Systems 2005 is the categorization of Tool Palettes. The default set of Tool Palettes contains groups organized by disciplines. This includes both engineering and architectural tools. As in the illustration shown, all you have to do to switch between disciplines is right click on the title bar and select which discipline you want to access. You can add and modify palette groups as you choose. Dragging an object from the drawing space to the tool palette will create customized palettes. This gives you the ability to quickly create a palette that can be client- or project-specific.

Catalogs: With Catalog Editor, you can publish catalogs to a web interface. Once the catalog is published as a web page, remote users may retrieve the data using I-Drop. This gives you an opportunity to standardize outside of a normal network environment.

Convert to MVPart: The new Convert to MVPart function allows you to quickly update blocks in architectural drawings to useful multiview parts that can be connected to Building Systems Objects. After

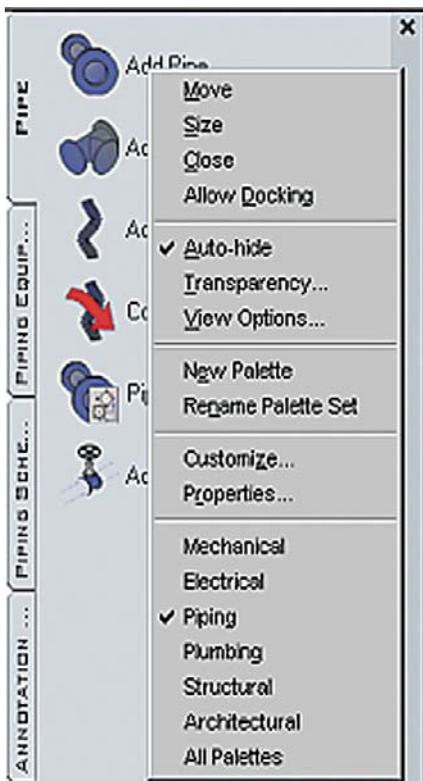
selecting a block, you can add connectors on your MVPart and tell the program to replace all instances of the block with the new MVPart. Convert to MVPart lets you also designate type, subtype, and layer key.

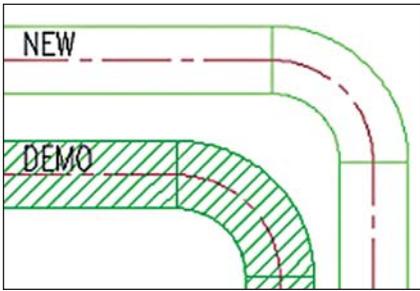


Grips

Grip Enhancement: Using the Tab key, you can switch between the dynamic dimensions to enter a value directly on the screen for the X, Y, and Z dimension. You can also use the lengthen arrow to adjust the length of a segment along its axis.

Schematic symbols: You can quickly create multiple views of symbols with the Generate Isometric Views function in the schematic symbol style dialog box. You can create all views of an isometric symbol by picking the plan view of the symbol and then clicking the Generate Isometric Views button. Schematic symbols have become easier due to improvements that allow you to place a symbol anywhere along a line and in any direction. After placing a symbol, you can easily change its position or orientation with the new schematic symbol grips. Schematic symbols grips include the isometric plane, rotate the symbol, and move.





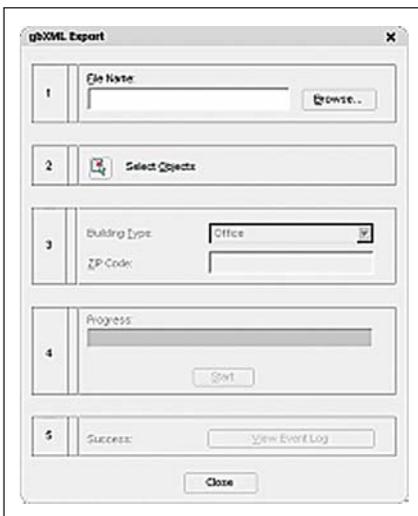
Duct Hatch

Duct Hatching: You can now apply a hatch to a duct system definition through the display properties tab. The hatch information is located in the hatching tab of the display properties dialog box.

Engineering Spaces and Zones: The new engineering space and zone features are tools you use to model rooms and assign data necessary for load calculations. Assigned data includes load calculations, number of air changes, heating and cooling design temperatures, heat gain from lighting, and heat transfer elements such as doors and windows. This information can be exported to a third-party program for further analysis. You can create engineering spaces of just about any shape. Engineering spaces can be generated from x-referenced architectural floor plans created with AutoCAD or Autodesk Architectural Desktop.

A Look at Third-Party Software

This is the largest and most important release update Autodesk Building Systems 2005 has received. The software now provides tools that extract engineering data from your models in a common format such as gbXML and ddXML. This format will allow you to export and import



gbXML

data to and from a variety of programs including Microsoft Visual Basic, Excel, and Access.

Let me put your mind to ease. The first questions I asked myself were what third-party analysis programs are available? What do they do? What standards do they follow? How much do they cost? Following are short descriptions of programs I found, what each one does and what industry standards the programs follow. Note: More third-party products can be found at www.autodesk.com/partnerproducts.

Elite Software (<http://www.elitesoft.com>) has four programs available for use with Autodesk Building Systems. The two piping programs are SPipe 2.0 (\$495.00), which computes optimal pipe sizes for domestic plumbing supply systems and DPipe 2.0 (\$295), which computes optimal pipe sizes for residential and commercial drainage and waste pipe systems. Both programs can import an Autodesk piping drawing and export calculated data and pipe sizes back to the drawing. These programs can perform a system analysis complete with bills of material and labor estimate. SPipe follows ASHRAE, ASPE, UPC and IPC standards. DPipe Follows ASPE, UPC and IPC standards.

Elite Fire 6.0 (\$1,250) performs all necessary hydraulic calculations as required by the National Fire Protection Association (NFPA 13). It also estimates sprinkler head requirements, calculates optimal pipe sizes, and automatically performs a peaking analysis. Elite Fire will import a piping drawing and export calculated data and pipe sizes back to the drawing.

Elite Ductsize 6.0 (\$495) calculates optimal duct sizes in a residential or commercial duct system using the static regain, equal friction, or constant velocity method. Duct sizes can be calculated on a round, rectangular, and flat oval basis. Noise levels and required attenuation are printed for each run out duct. Elite Ductsize can import a duct drawing and export calculated data and duct sizes back to the drawing. The software follows ASHRAE and SMACNA standards.

Trane Trace 700 4.1 (\$1,995) (<http://www.trane.com>) enables users to optimize the building, system, and equipment designs on the basis of energy utilization and life-cycle cost. The TRACE program incorporates load, design, system simulation, equipment simulation, and

economic analysis to provide complete energy and economic analysis. Trace uses ASHRAE standards.

Trane Varitrane 3.0 (\$495) enables you to upload duct systems directly into Trane Varitrane Duct Designer and perform static regain and equal friction analyses. The information can then be imported back into Autodesk Building Systems where you can use the information to resize the HVAC system. The program is based on engineering data and procedures outlined in the ASHRAE Fundamentals Handbook. It includes tested data from the ASHRAE Fitting Database.

Green Building Studio v1.0 from GeoPraxis, Inc. (<http://www.geopraxis.com>). This free plug-in features a pull-down menu to set up new projects and scenarios as well as to send gbXML files to Green Building Studio from within Autodesk Building Systems to create geometrically correct engineering models, develop baseline energy analysis using DOE-2.2 models and local ASHRAE 9.1 energy code assumptions for specific building types, provide additional export and visualization capabilities, and provide building product information based on appropriate technologies for the specific building.

CADvent from Lindab, Inc. (<http://www.lindab.com>) is full-featured software that simplifies duct design, product selection, drafting, and estimating processes into one integrated and automated solution, making it a unique and professional tool for HVAC designers. Lindab is responsible for the general product database being available in Autodesk Building Systems. CADvent is free with paid training.

Whether it is selection enhancements, creating smart models that keep track of engineering data, the ability to transfer that data to a third-party program, or the many product enhancements to rid the user of program bugs, Autodesk Building Systems clearly is on the right track for providing MEP firms the tools they need to efficiently get the job done.



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Handling Electronic Markups

» Dealing with electronic markups has never been easier. The AutoCAD 2005 Markup command in conjunction with DWF Composer makes the job of editing drawing files smooth and easy. This article takes a closer look to the process

DWF Composer

DWF (Design Web Format) files are relatively small size images of your drawings. You can view DWF images with Autodesk® DWF™ Composer or the free Autodesk® DWF™ Viewer, downloadable from www.autodesk.com/dwfviewer. You may create DWF files with AutoCAD PUBLISH or PLOT command. A DWF file created by PUBLISH can consist of several sheets. Autodesk Inventor® and

AutoCAD® vertical applications can also create DWF files. Inventor 9 is capable to create 3D DWF images. You may also use the free of charge DWF Writer to create DWF files with Autodesk® Revit™, Bentley Microstation, SolidWorks, and so on. For a free copy of DWF Writer visit www.autodesk.com/dwfwriter.

DWF Composer is a viewing and editing application for DWF files. The Composer is offered as a bundle that consists of DWF Composer, DWG Viewer for

viewing and plotting DWG files, and DWF Writer. Figure 1 shows DWF composer when a multi-sheet DWF file is open. You can open one DWF file at a time. However, as mentioned previously, a DWF file can consist of several sheets. You may also open several instances of Composer at the same time.

On the left side of the Composer window there are two panels called Navigator and Properties. The Navigator panel consists of four tabs. The List tab displays a list of available sheets in current DWF file while the Thumbnail tab shows thumbnail images representing sheets. You may also use the Bookmark tab to select bookmarked sheets. The Markup tab displays a complete list of markups. When you select a markup from this list Composer zooms into the markup area in the associated sheet. The zoom factor depends on the display settings at the time of creating the Markup.

The Description panel consists of three tabs. The Sheet tab presents some information about the selected sheet and the associated drawing file. The Object tab displays information about Architectural Desktop objects. Use the Markup tab to place Notes and track the editing process of every electronic markup. When you select a markup from the Navigator the relevant tracking information appears on this tab.

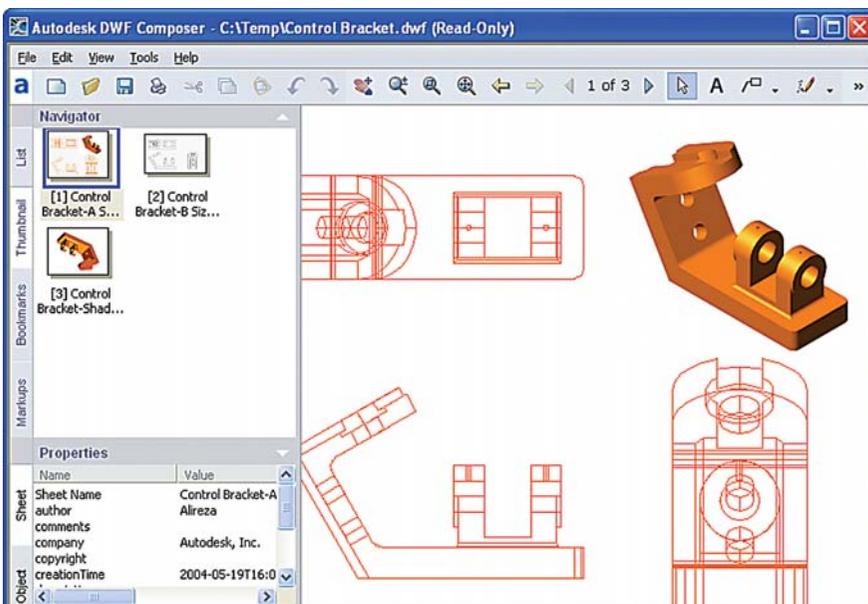


Figure 1



Figure 3

Placing and Editing Electronic Markups

The right section of DWF Composer toolbar offers some tools to place electronic markups. The following image shows all markup tools. With these tools you can select markups, place revision clouds, draw some shapes, place stamps, and even measure distances and areas. You can also control the size and color of texts and shadings (see Figure 2).



Figure 2

When you place a markup it appears on the Markup tab of the Navigator panel. You can later select a markup from the panel and then add some notes about it in Notes box of the Properties panel.

AutoCAD 2005 Markup Set Manager

With Markup Set Manager modeless dialog box you can load marked-up DWF files in AutoCAD 2005. Invoke the MARKUP command to view this dialog box (see Figure 3 at the top of this page).

AutoCAD is not able to display DWF files. You can, however, open DWG files associated with DWF files with the help of Markup Set Manager. Simply double-click the sheet or markup name on the dialog box to view the relevant drawing file in AutoCAD drawing area. You not only view drawings but also associated markups. Make modifications and then save drawing files.

You can also update the current status of every markup and add notes through the Details section of the dialog box. Later click the Republish button on the dialog box to modify the existing DWF file.

Note that Markup Set Manager displays those sheets that contain electronic markups.

The Editing Process

I'll describe a possible scenario. When you are done with drawings, publish them to a single multisheet DWF file. Send the DWF file to the person who is in charge of approving drawings. He or she opens the DWF file in Composer and adds necessary markups, then saves the modified DWF file and sends it back to you. You load the DWF file in Markup Set Manager. Open associated drawing files by double-clicking markup names. Make necessary modifications. Republish the DWF file and send it back to the same person. This process can continue until the drawings are fully approved.

DWF Composer Versatility

With DWF composer you can open several types of images including BMP, GIF, JPEG, PCX, PICT, PNG, RLC, and TARGA files. You can also open Autodesk Map™ and Autodesk Animator files. Later you can save these files with the Composer Save As command to a DWF file and add electronic markups. Thus DWF Composer can also help you to modify other types of files.



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eTransmit for 2005

Improvements in the eTransmit feature boost productivity



I have had a love/hate relationship with eTransmit for quite some time. I love it because I can bundle up my drawing file and all associated support files very easily when transmitting a file to a client. I hate it because I have to trudge through each of my drawing files one at a time in order to bundle up the entire drawing set. Well, no more. With the release of AutoCAD® 2005 and 2005-based products, some exciting changes have been made to the eTransmit command. If you work with sets of multiple files like I do, the new 2005 eTransmit features are going to save you a lot of time and effort.

All New Interface

The eTransmit command starts the same way it did in AutoCAD 2004, either by selecting etransmit from the File pulldown menu or by entering ETRANSMIT at the command prompt. This opens the Create Transmittal dialog box. By the way, you can now also access eTransmit via the Sheet Set Manager, but more on that later. There's also a non-dialog box version of eTransmit available by typing -ETRANSMIT at the

command prompt. Just be sure to include the leading dash.

After starting the eTransmit command, the first thing you'll notice is that the Create Transmittal dialog box has been

ing belongs to a Sheet Set. (See Figure 2)

Both the Files Tree and Files Table tabs list all of the files that are available for you to include in your transmittal package.

Both tabs also include checkboxes in their lists so that you have the option to make file exclusions, if desired, and an Add File button for browsing to and adding any additional files to your package. The only real difference between the two tabs is the way they display the file information. The Files Tree tab displays the files in a Windows Explorer-like tree format while the Files Table tab displays them in a Windows Details View format (complete with clickable column headers for sorting). The Sheets tab is a much less detailed version of the Files Tree tab but it adds Sheet Set Manager set and subset names to the information displayed. Sheets may be included or excluded here but not the individual supporting files as on the other two tabs.

Directly below the Current Drawing(s) field is another field where you may enter a note to include with your transmittal package.

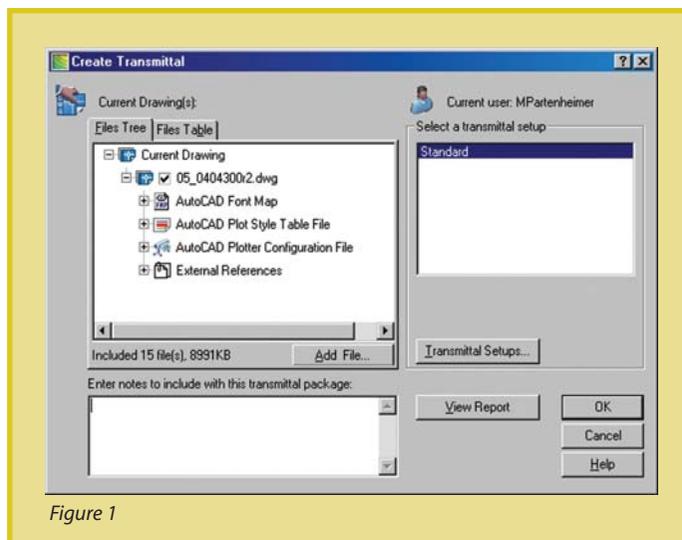


Figure 1

completely revised and updated. On the left hand side is the Current Drawing(s) field, which contains at least two tabs, Files Tree and Files Table. (See Figure 1)

There will also be a third tab named Sheets if you've accessed eTransmit via the Sheet Set Manager or your current draw-

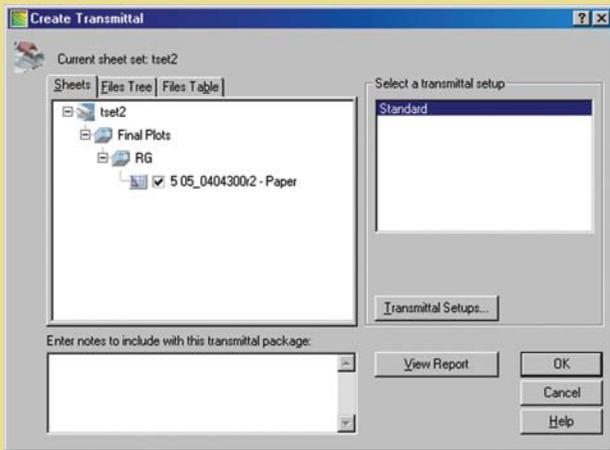


Figure 2

If you work with sets of multiple files like I do, the new 2005 eTransmit features are going to save you a lot of time and effort.

A “Select a transmittal setup” field is located on the upper right hand side of the Create Transmittal dialog box. At the top is a list of your available Transmittal Setups from which you may select your Setup of choice. Transmittal Setups are simply a group of eTransmit configuration settings that have been named and saved for future use. Below the list is the Transmittal Setups button through which you may add or delete named Transmittal Setups or make configuration setting changes. By default, only one named configuration (Standard) exists.

On the left below the Select a transmittal setup field is the View Report button. Click on this when you want a complete report of what you’ve included in your transmittal set. Additionally, you have the option to save the report as a text file should you wish to do so.

Completing our tour of the Create Transmittal dialog box, you’ll find the OK, Cancel, and Help buttons located in the bottom right-hand corner.

Named Transmittal Setups

Being able to tailor a transmittal package to suit a client’s needs is critical. To make this happen, Autodesk has added several new options to eTransmit, set the options into a clean, easy-to-use interface, and given you the ability to save those settings for easy reuse at a later time. Welcome to named Transmittal Setups. As noted above, Transmittal Setups are accessed via the Transmittal Setups button located on the Create Transmittal dialog box. This button opens the Transmittal Setups dialog box where you can add a new Transmittal Setup and rename, modify, or delete an existing one.

The Transmittal Setups dialog box consists of a selectable field on the left-hand side (it lists all of your Transmittal Setups) and control buttons on the right-hand side and below. Let’s look at the control buttons starting with the New button at the top right. When you click on the New button the New Transmittal Setup dialog box will open. (See Figure 3, next page)

A new Transmittal Setup is copied from an existing Setup of your choice. That way when you create a Setup that is similar to an existing one, a minimum amount of modification is required. Once you’ve named your new Transmittal Setup and clicked the Continue button, the Modify Transmittal Setup dialog box opens. This is the heart of the new eTransmit command.



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All of your configuration options, detailed later in this article, are set here. After making your setting modifications, close the dialog box and your new Transmittal Setup is added to the list. You may add as many or as few as you would like. (See Figure 4)

Important Note: When working with the Sheet Set Manager, the list of available Transmittal Setups is Sheet Set specific. That is: Sheet Set “A” will have a different Transmittal Setups list than Sheet Set “B.” This can be a little disorienting if you are not aware of the correlation but extremely useful in a collaborative office setting. Everyone in the office accessing the same Sheet Set will see the same list of Setups.

Below the New button you’ll find the Rename button. Use this to rename any of your existing Setups. Note that the default Standard setup cannot be renamed or deleted. Below the Rename button is the Modify button, which opens the same Modify Transmittal Setup dialog box used when creating a new Setup. Use this to make modifications to your existing Transmittal Setups. The last button is the Delete button. Use it to delete any of your unwanted Setups (except Standard).

Transmittal Setup Options

There are more than a dozen different settings and options available in the Modify Transmittal Settings dialog box. Despite this, Autodesk did a great job of creating an easy-to-use yet powerful interface. The display is broken into three fields: Transmittal type and location at the top, Transmittal Options below, and Transmittal setup description at the very bottom. Please note though, if you use one of Autodesk’s vertical products such as Autodesk® Land Desktop, your available options will vary slightly from those available in plain AutoCAD. (See Figures 5a and 5b)

Let’s start at the top of the dialog box and work our way down.

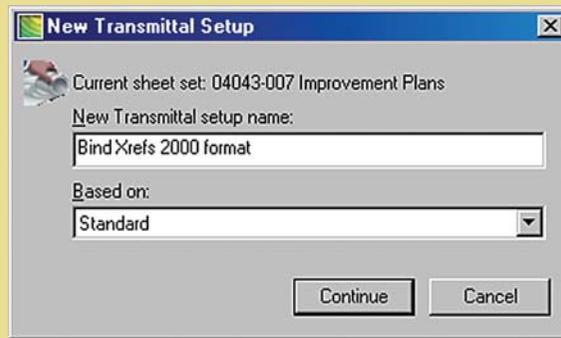


Figure 3

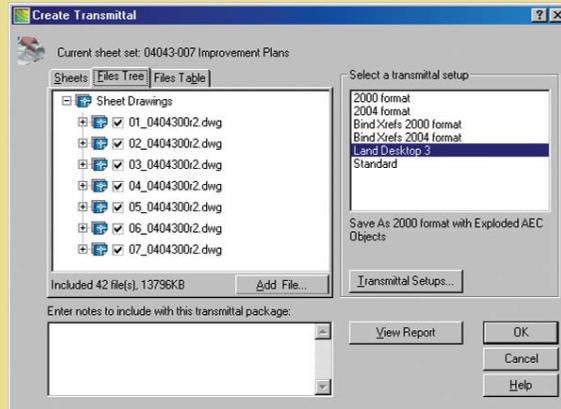


Figure 4

The Transmittal package type dropdown list is where you select the type of package you are going to create; a ZIP file, a self-extracting ZIP executable (EXE), or an unzipped set of files. Next

you’ll find the File Format dropdown list. There are three selections here: Keep existing drawing file formats, AutoCAD 2004/LT 2004 Drawing Format, and AutoCAD 2000/LT 2000 Drawing Format. If you use Autodesk Land Desktop, however, you will find four selections instead: AutoCAD 2004 Drawing Format, AutoCAD 2000 Drawing Format, AutoCAD 2004 Drawing Format with Exploded AEC Objects, and AutoCAD 2000 Drawing Format with Exploded AEC Objects. The last two choices are significant to Land Desktop users. Land Desktop creates custom AEC objects such as Contour objects, Point objects, and Grading objects. Previously, in order to distribute usable drawing files to 2000 based consultants (those using Land Desktop 2i or 3), the very cumbersome EXPORT TO AUTOCAD 2000 command had to be used. No longer! The Exploded AEC Objects selections will “strip” custom

AEC objects out of dwg files by “exploding” them into common AutoCAD equivalent objects. The third setting is Transmittal file folder. This setting specifies the computer or

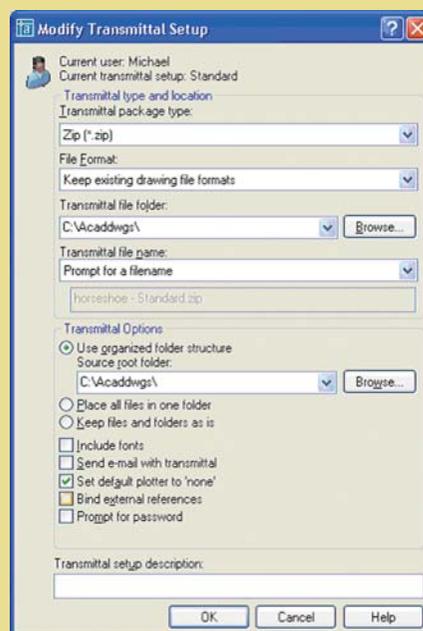


Figure 5a

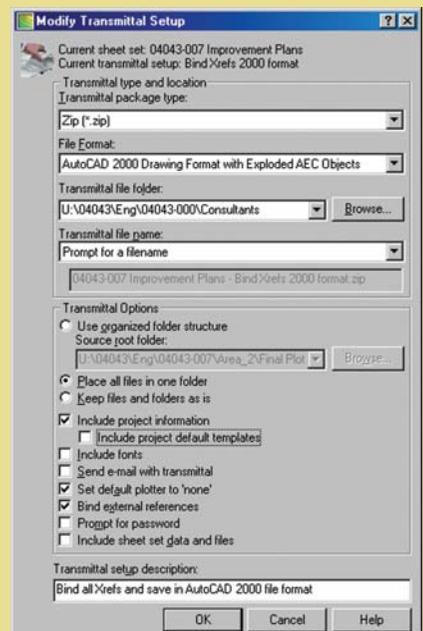


Figure 5b

network drive folder location where your eTransmit package, whether it is a single file or a set of files, is created. The fourth and last Transmittal type and location field setting is Transmittal file name. This setting is only available if your package is a ZIP file or an EXE file. There are three selections: Prompt for a filename, Overwrite if necessary, and Increment file name if necessary. When either of the last two choices is selected, a text box directly below the dropdown list becomes available to specify the name of your file.

At the top of the Transmittal Options field you'll find a set of three radio buttons. Use these to specify the folder structure of your eTransmit package. Selections are: Use organized folder structure (this is the selection of choice if you use partial pathway Xrefs), Place all files in one folder, or Keep all files and folders as is. Following the radio button set you'll find five to seven checkbox options. These options may simply be toggled on or off. In order, from top to bottom, these are: Include fonts, Send e-mail with transmittal, Set default plotter to "none", Bind external references, prompt for password, and Include sheet set data and files. The last option (Include sheet set data and files) is available only when the transmittal package is part of a Sheet Set. Land Desktop users will also find the option Include project information and the Sub-option Include project default templates in addition to those listed above.

The last item in the Modify Transmittal Settings dialog box is Transmittal setup description. This is where you may enter a description for your named Transmittal Setup. The description you enter here will display on the Create Transmittal dialog box whenever the corresponding Transmittal Setup is selected in the list. (See Figure 4)

Transmitting a Set of Files

Sheet Set Manager is a revolutionary new feature. Its existence complements and enhances many other AutoCAD commands, eTransmit among them. Previously, in order to create a transmittal package of a complete drawing set, you would have to open one dwg file at a time to execute the eTransmit command. But now, used in conjunction with Sheet Set Manager, that burdensome exercise is no longer necessary. Simply use Sheet Set Manager to open the desired Sheet Set, highlight the desired files, right click, and then select eTransmit

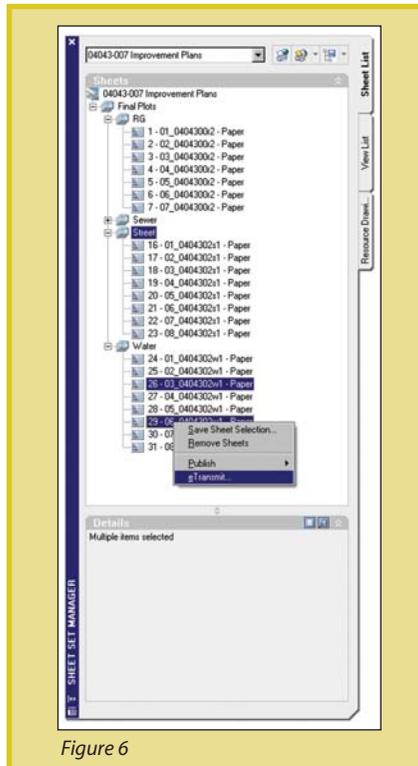


Figure 6

from the pop-up menu (See Figure 6). Note that you may select single drawings or multiple drawings by using standard

Windows selection techniques (click, SHIFT-click, or CTRL-click). You may also select complete sheet sets or complete sheet subsets by highlighting the sheet set header names (instead of the individual sheets).

By combining your use of both the Sheet Set Manager and named Transmittal Setups your efficiency in generating electronic transmittal packages is increased dramatically. You can even make bound Xref backup drawing sets with this tool. Autodesk has done a fine job of taking a tired old command and turning it into a potent, highly efficient yet easy-to-use power utility. I think you'll find the updated eTransmit command to be one of your new favorites.



An Autodesk user since 1990, Mike Partenheimer is the corporate CAD manager for Hall & Foreman, Inc (HFI) a southern California-based Civil Engineering firm. Mike is a member of the Civil CAD Consortium (C3) and long-time AUGI member. He can be reached at mikepartenheimer@hotmail.com.

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Getting at Attributes Using Visual LISP, ActiveX, and VBA, Part 2

» In the last issue I covered how to write a program in Visual Basic for Applications (VBA) that permitted the user to select and modify a specific attribute. I also covered how to use Visual LISP for the same thing. Now we will combine the best of both worlds for our application

The object model used by VBA has been exposed to Visual LISP by means of the ActiveX interface. Many mistakenly use the term “Visual LISP” to refer to just the ActiveX interface. However, this is incorrect. Visual LISP should be thought of as AutoLISP v2.0, which includes new functions (that have nothing to do with ActiveX), the VLIDE, and the ability to compile your Visual LISP code.

To load the ActiveX interface you need to use the function (vl-Load-Com), which has no arguments, at least once during your AutoCAD® session. If you run the function more than once, nothing happens, so it is good practice to place this function at the beginning of each application that will be using the ActiveX interface.

Once you have run that function, a whole host of otherwise unavailable functions become useful. Most of these functions are prefixed with “vla-”. I will describe these in further detail in a moment. These extra functions appear to be undocumented, but that is untrue when you consider what the “vla-” functions represent: an interface to VBA’s object model. Yes, these functions are documented, in a roundabout way, in the ActiveX and VBA Reference. You will spend enough time in these help files that I recommend placing a shortcut to them on your desktop. The shortcut’s target (for a default installation of AutoCAD 2004) is: “C:\Program Files\AutoCAD 2004\Help\acad_dev.chm”.

Every method in VBA’s object model is directly available by simply prefixing “vla-” to the method’s name, e.g., GetAttributes in VBA is (vla-GetAttributes) in Visual LISP. Every property in VBA’s object model can be retrieved by prefixing “vla-Get-” to the property’s name, and can be set (if it is not read-only) by prefixing “vla-Put-”. For example, to get to a layer’s color property you would use the function (vla-Get-Color). These functions will return either objects or some type of value, depending on the method or property being used.

How do you figure out how to use the Visual LISP function? For example, let’s take a method that we used last month to get a block reference’s attributes: GetAttributes. Bring up the VBA help on that method (ActiveX and VBA Reference->Methods->GetAttributes).

Signature

```
RetVal = object.GetAttributes()
```

Object

BlockRef, ExternalReference, MInsertBlock

The object or objects this method applies to.

RetVal

Variant (array of AttributeReference objects)

The array of AttributeReference objects.

Remarks

This method returns an array of editable attribute references attached to the block reference.

To translate the help from VBA to Visual LISP, you need to first concentrate on the right side of the signature, in this case `object.GetAttributes()`. After you understand what the function needs you can then deal with the return value. In this case we see that we need an object to apply this method to (for instance, a `BlockRef`), and that this method requires no arguments (the empty parens). The method will return a variant, which is an array (I will show you how to deal with this later). In VBA the object is automatic; you cannot get to the method without the object. In Visual LISP's ActiveX interface the function (`vla-GetAttributes`) would appear to be able to stand on its own. However, you still need an object. So how do we get to the `BlockRef` object using Visual LISP? Take a moment to study the object model map that is in the help file (ActiveX and VBA Reference->Object Model).

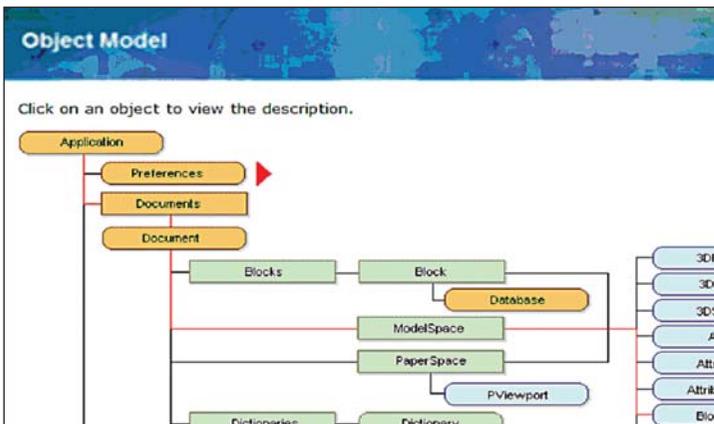


Figure 1

Do you see the structure in the object model? To get to a `BlockRef`, we need to have `ModelSpace` (for instance), which needs a `Document` (from the `Documents` collection), which comes from the `Application`. So the root of the object model is the AutoCAD `Application`. Nearly everything in the object model has its root in the `Application`. To get to the `Application` object from Visual LISP you need to use the function (`vla-Get-Acad-Object`), which has no arguments. Astute readers might say, "Hey, that starts with `vla-` and not `vla-`!" You are correct, and the reason is something that will likely put you to sleep, so e-mail me if you really want to know.

You can set a variable to the return value from ActiveX functions, or use the return value directly. Until you are familiar with the ramifications of both approaches I would recommend setting a variable. Do the following in the VLIDE Console window:

```
_$ (setq App (vfax-Get-Acad-Object))  
#<VLA-OBJECT IAcadApplication 00af9594>
```

If you get a "no function definition" error, or the (`vla-Get-Acad-Object`) function does not turn blue, you haven't run the (`vl-Load-Com`) function yet. You should get a result similar to the above.

If you highlight the `App` variable in the Console, then right-click and select `Inspect` from the pop-up menu, you will get a window that shows you the properties available on the object. Any of the properties that refer to an object may be double-clicked on, which brings up another `Inspect` window that displays the properties of that object. So you can quickly drill down through the object model for examination.



Figure 3

Notice the `ActiveDocument` property. This is a quick way to get to the current document. This is a property of the `Application` object so we must use the "vla-Get-" prefix to retrieve the information that property holds. In other words, the function would be: (`vla-Get-ActiveDocument`).

Take a moment to look in the help files under the `ActiveDocument` property. Do you see how this property requires an object, the `Application`? (Indeed, how can you have a property without an object?)

Important! All ActiveX functions that have the "vla-" prefix will require an object as their first argument. Again, if it starts with "vla--", you need to provide an object.

So in order to get the `ActiveDocument` we need to use the function (`vla-Get-ActiveDocument`) but provide it with the `Application` object. We previously saved that object using the variable `App`. This is how the statement will look (remember to save the return value to a variable):

```
_$ (setq Doc (vla-Get-ActiveDocument App))  
#<VLA-OBJECT IAcadDocument 0107bde0>
```

Now we need to get the `ModelSpace` object. A quick glance at the help files (see, I told you that you would spend a lot of time there!) for the `Document` object tells me that there is a `ModelSpace` property. That means the function would be (`vla-Get-ModelSpace`). That property requires the `Document` object, which we saved in the variable `Doc`.

```
_$ (setq MS (vla-Get-ModelSpace Doc))  
#<VLA-OBJECT IAcadModelSpace 02505384>
```

This may seem like a lot to digest, but after you work with the ActiveX interface a few times, it becomes very easy. And, although I demonstrated how to drill down through the object model, as you will see later, you can shortcut to just a particular object.

I will use our familiar example application to demonstrate further the ActiveX interface. We know that we want the program to have functions that:

1. Permit the user to select an inserted block (let's use Visual LISP for this),
2. Retrieve the desired attribute (let's use ActiveX for this),
3. And modify the attribute (let's use ActiveX for this).

Here is the start of the main function:

```
;;; command name is "RM"
(defun C:RM (/objInsert ; BlockReference object
  (vl-Load-Com) ; load ActiveX interface
  (setq objInsert (GetInsert "A-Rm")))
```

Remember that it is important to make sure the ActiveX interface is loaded for each application that will rely on the interface. Here is a slightly modified version of the original GetInsert function that we developed in the first article:

```
;;; return only matching inserted block, or nil if <Esc>
(defun GetInsert (BlkN / ; provide string argument
  ssFound) ; selection set
  (vl-Catch-All-Apply ; trap any error
  (function
  (lambda ()
  (while ; loop until good pick
  (not
  (setq ssFound (ssget "+.:E:S" ; point mode, in pick-
  box, single mode
  (list ; filter on...
  (cons 0 "INSERT") ; inserts only
  (cons 2 BlkN)))))))) ; and provided block name
  (if ssFound (vlax-ENAME->vla-Object (ssname ssFound 0)))
  ; return 1st object
```

The only change to the original function is on the last line, where the function (vlax-ENAME->vla-Object) was added to convert an entity into an ActiveX object. This is the shortcut that I mentioned earlier. As you can see, converting your existing routines to use ActiveX can be easy. Next, let's work on the second function, the one used to retrieve the desired attribute.

```
;;; Return only matching attribute object, or nil
(defun GetAttrib (BlkRef ; provide BlockReference argu-
  ment
  AttTag / ; provide string argument
  AttList ; list of attribute objects
  chkAtt ; attribute object to check
  gotAtt) ; correct attribute
  (setq AttList (vlax-SafeArray->List ; make list from array
  (vlax-Variant-Value ; get array from variant
  (vla-GetAttributes BlkRef)))) ; get
  attributes variant
  (while (setq chkAtt (car AttList)) ; loop until done
  (setq AttList (cdr AttList)) ; save rest of list
  (if (= (vla-Get-TagString chkAtt) AttTag) ; if matches tag
  (setq gotAtt chkAtt ; return correct attribute
  AttList nil))) ; clear list to exit loop
  gotAtt) ; return attribute object
```

The first change to this function from the original one was to use the ActiveX method GetAttributes to retrieve the attributes in one statement. Note that I provided the object as an argument to the function (vla-GetAttributes). The result of using the ActiveX method is that it does not have to loop through the sub-entities of the inserted block looking for attributes. Note that it took three statements to actually get a list of the attributes. The GetAttributes method returns a variant, which Visual LISP usually does not handle directly. So we use the (vlax-Variant-Value) function to get at the data that the variant holds. This would be an array in VBA, but in Visual LISP it is called a SafeArray. Although Visual LISP can work with a SafeArray it is usually easier to convert it to a true LISP list, which is what the (vlax-SafeArray->List) function does.



Because we have a list of only attributes, we were able to simplify the loop that checks for the correct attribute, which was the second change. As you can see, by converting this function to ActiveX, we were able to significantly simplify the function.

The final function, to modify the attribute itself, is so much easier to understand with ActiveX. We also are not required to force an update of the inserted block to see the modification, because the modification of the TextString property forces an update automatically. Compare the two equivalent code sequences:

```
(entmod (subst (cons 1 Inp) (assoc 1 eDataAttrib)
eDataAttrib))
(entupd objInsert)
—Or—
(vla-Put-TextString objAttrib Inp)
```

Which would you rather use, and maintain for years to come?

Here is the complete main function:

```
;;; command name is "RM"
(defun C:RM (/ objInsert ; BlockReference object
  objAttrib ; Attribute object
  Inp) ; user's input
  (vl-Load-Com) ; load ActiveX interface
  (and
  (setq objInsert (GetInsert "A-Rm"))
  (setq objAttrib (GetAttrib objInsert "ROOM"))
  (setq Inp (getstring "\nSpecify new room #: "))
  (vla-Put-TextString objAttrib Inp)
  (princ))
```

As you can see, the ActiveX interface is not something scary, or over-complicated. Use the help files to determine what the function name should be, what arguments are required, and what kind of values will be returned. Experiment in the VLIDE, inspecting the return values, and remember to use the data conversion functions when needed.

I hope that you enjoyed this programming series. If you have any questions or comments, please feel free to e-mail me at RobertB@AcadX.com. If there are topics you would like to see discussed in future issues, please let me know.



AUGI Board Member R. Robert Bell is the Network Administrator for MW Consulting Engineers, located in Spokane, Washington. He has programmed AutoCAD since version 2.5. He programs primarily in Visual LISP, VBA, and Visual Basic. He is one of the partners in AcadX.com, a website dedicated to extending AutoCAD.

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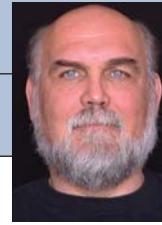
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On The Back Page



David Kingsley

Chickens in a Hailstorm

At one time or another, everyone has watched in awe as a huge cloud of blackbirds turned every few seconds in perfect synchronicity, with no apparent leader, but with every bird doing exactly what needed to be done with millisecond response time. On the other hand, if you have ever seen chickens in a hailstorm, you can tell that they have no knowledge that there are even other chickens around them. As my farm-girl sister-in-law says, "The only thing dumber than a chicken is a carrot."

I'm sure you have witnessed times at work when people were behaving like chickens, and hopefully you have also seen them behaving like blackbirds in flight. The only time you should see carrots at work is in the cafeteria salad bar.

Most CAD projects require a small or large number of people working in design teams. In this issue I am going to talk about teamwork and the parallels between the engineering world and the sports world. Many times people don't see those parallels or use them as a model. I'm going to attempt to explore some of them here.

The Team Captain

The most important factor is that someone has to be Captain and everybody else has to understand who it is and respect the position, including the Captain. If no one makes critical decisions at critical times, you end up like the chickens. Also, there can be only one Captain. If someone appoints himself or herself Captain, again, you end up like the chickens.

The Playbook

There has to be a plan with options. Everybody has to know it cold. A successful team can switch from one play to another on the fly with minimal communication. There is no such thing as a rogue quarterback. During the play the QB has one or two clearly designated options, and they may be able to make up a third if they are really on top of their game. They certainly can't make up new plays and new rules during the game.

Weak Team Members

I grew up in Michigan and did some

pretty serious canoeing as a youth. My best buddy and I did some really scary stuff. We were a two-man team and we trusted each other when the water was white. A few years ago my wife and I took a three-day whitewater raft trip. It was a pre-arranged tourist trip, so I didn't know or select the people with whom I rafted. It was during spring runoff so the river was high and fast. There is no doubt on a raft trip who is the boss—it's the river guide in the back yelling directions at you. During lunch on day two, our guide talked for ten minutes



explaining a critical turn that we would make that afternoon. The entire turn lasted no more than 30 seconds, so every second was critical. The river literally slammed into a wall and turned left. The current had undercut the wall for about 20 yards and there was a very real danger that we could get jammed under a shelf of rock. People had died there.

The young woman sitting in front of me after lunch appeared to be on her first visit to our planet (incidentally she and hubby were on their honeymoon). She had no apparent sense of rhythm or danger. Entering into the critical turn, her oar was always out of synch, which prevented me from digging in because she was on her backstroke while I was on my front. The guide was yelling at her, and I was yelling at her, to pay attention, but she was oblivious. She had effectively disabled two of the five critical arms on the right side of the raft, which is responsible for making left turns. I had no choice but to yank the oar out of her hands and throw it in the boat.

Some people just don't understand the game sometimes, or they have extenuating circumstances (in this case a honeymoon). You just have to isolate them and carry

their weight. As a result, everybody gets down the river safely.

When Disaster Strikes

On any team, there are always going to be unforeseen events. These can take many forms—the sickness or injury of a key player, a worm infestation on the web server, or a plane that flies into the building. These are the times that our birdlike qualities all come out. We all have them. Keep in mind that when things go terribly wrong we always seem to know what to do without thinking.

Technology and Teamwork

When we were putting the AUGI forums back together, we found an expert on the forum software in Istanbul. We hesitated for a bit before hiring him, but it turned out to be an education in modern collaboration. Many of you have probably seen forum posts from the "Logician." I spent many hours with Sinan on MS Instant Messenger.

There is a nine-hour time difference between Denver and Istanbul. At 9:00 a.m. in Denver, it is 6:00 p.m. in Istanbul. Sinan would be home from work and I would be on my second cup of coffee (my best time of the day). We would IM about some changes to the website, he would go off and make them, then return to IM 10 minutes later and say "try it now." I would go to the website and, behold, they were done! This 9,000 mile exchange would go on for hours and we couldn't have made more progress if he were in the next office.

New Projects

I have recently taken a new job, which may be the most demanding position of my career. Unfortunately, it has nothing to do with CAD. At the same time, per the AUGI bylaws I am term-limited on the AUGI Board. After six years I cannot run for another term, which expires at the end of this year. This has led me to the decision that it is time to say farewell to *AUGIWorld*. My next column will be my last. I will offer you my perspective on the last six years of AUGI and what I hope for its future.

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