

[acronym]

An abbreviated look at digital design for government.

ISSUE 1. WINTER 2006

MAKING THE LEAP

Acronym's editor talks to Autodesk® Technical Evangelist Lynn Allen about the advantages of Autodesk Inventor®.

RETHINKING EMERGENCY PLANS

The effect of Hurricane Katrina was widespread, leading government agencies to rethink critical infrastructure risks. Learn how one company is helping them do that through a one portal environment.

INDIAN HEALTH SERVICE STREAMLINES DESIGN PROCESS

Inconsistency was plaguing the IHS and slowing its design process. Find out how the IHS solved this problem.



Welcome to the first issue of *Acronym!* We are excited to launch a magazine created just for government users of Autodesk®'s products and services. Along with a progressive design that reflects modern government agencies, we've given the magazine a forward focus. *Acronym* is a completely new way to look at Autodesk's digital design applications, tailored specifically to your needs and interests.

Inside each issue you'll find timely news and relevant topics, written by known experts. Each segment offers a tasty bite of information... not too much and easily digested. We want you to read and be inspired to make the most of your Autodesk solutions. From news and information, to events and case studies, every story contains actionable ideas and advice.

The Autodesk Government Team at DLT Solutions, Inc. produces *Acronym*. We are Autodesk's master government reseller, and therefore a great source of experience, know-how and contacts to create a dynamic magazine all about Autodesk. Each issue will be carefully planned to deliver innovative ideas, address trends and changes in the government climate, and meet the needs of government users.

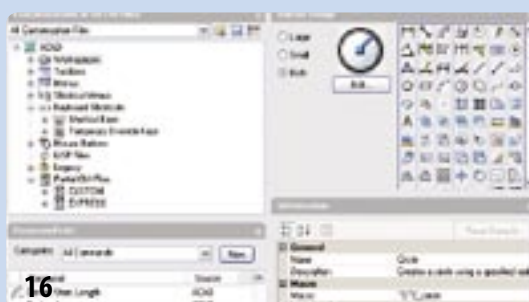
We welcome your feedback and thoughts. Email me at editor@autodeskgovernment.com. Now enough of the introductions, dive in to the really good stuff and enjoy *Acronym*.

Cheers,

Caron Beesley, Editor

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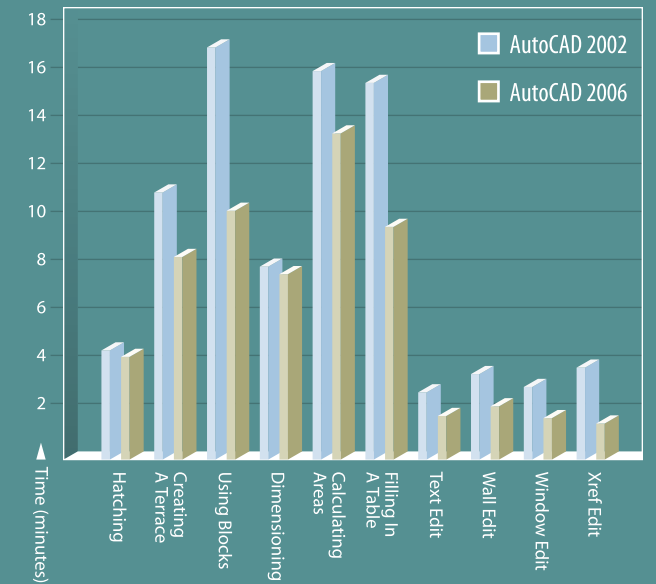


AutoCAD 2006 Boosts Productivity

Architects using AutoCAD® 2006 were able to complete their tasks an average 23 minutes faster than their AutoCAD 2002 counterparts, according to a recent independent study from U.K. consulting firm Cambashi Limited.

To conduct its study, the firm timed architects on how long it took them to complete a typical design task, such as filling in a table and using blocks. Half of the group worked in AutoCAD 2006 and half in AutoCAD 2002. The result: AutoCAD 2006 users were an average 29 percent quicker on every task.

The reasons for the improved productivity, according to Cambashi, is AutoCAD 2006 has a number of improvements that make common tasks in architectural drawing much easier. These include Dynamic Blocks, hatching and parametric table entries.



EVENTS LISTING

EVENT	DATE	LOCATION	INFORMATION
Pacific Design and Manufacturing Show	January 31–February 2	Anaheim, CA	www.devicelink.com/expo/pac05/
AUGI CAD Camp	February 21	Omaha, NE	cadcamp.com
	February 23	Seattle, WA	
	March 2	Milwaukee, MN	
	March 7	San Jose, CA	
	March 21	Indianapolis, IN	
	March 30	Orange County, CA	
	April 4	Tampa, FL	
AUGI CAD Camp	April 25	Baltimore, MD	cadcamp.com
	April 27	Raleigh, NC	
	May 16	Lansing, MI	
	May 18	Dallas, TX	
AUGI CAD Camp	June 6	Atlanta, GA	cadcamp.com
	June 13	St. Paul, MN	
	American Conference on Surveying and Mapping	April 21-26	
Governors Hurricane Conference	May 8-12	Ft. Lauderdale, FL	www.flghc.org
FAC 2006 Annual Conference	June 27-31	Marco Island, FL	www.fl-counties.com
Autodesk Government Users Conference	(Coming in 2006)	Washington, DC	Call 1-888-447-2223 for more information.

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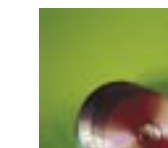
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Making The Leap To Inventor

BY CARON BEESLEY

One of the main advantages of Autodesk® Inventor, according to Lynn Allen, Autodesk's Technical Evangelist, is that it's not AutoCAD®. While making the move to Inventor might take a leap of faith, especially for long-time AutoCAD users, Allen is sure once you try Inventor you'll never go back. In this interview, read why Allen wants to turn you into a believer – like she is – in the powerful and easy-to-use Autodesk Inventor and 3D.



Lynn Allen

Q. Why are you, a self-professed AutoCAD fan, trying to convince users to move to Autodesk Inventor?

A. AutoCAD is a great product, but if you're in manufacturing for the public sector, it's clear you need a much more powerful package. In the manufacturing industry, more and more people are making the move to 3D and solid modeling. Inventor is so powerful and yet also so easy to use.

Q. Do you still need 2D?

A. You still need 2D, because you can't send those 3D models to the shop floor. If you buy the Inventor series, you get AutoCAD and Inventor. If you have a project that makes more sense to do in AutoCAD, you can use it. Very few public sector employees today have made the move entirely to 3D. But the more time you spend with Inventor, the sooner you'll see how easy it is to use 3D.

Q. What are the biggest advantages of Autodesk Inventor versus AutoCAD?

A. Well, for one, Inventor is much newer. It's based on today's technology, so it's smarter from the get-go. AutoCAD has had to be all things for all people. Inventor was created from day one for the mechanical person. And it's much easier to use. There are so many advantages of us-

ing 3D. You can do virtual prototyping. You can do error checking and finite element analysis. You can check your designs thoroughly before making a physical prototype. Prototypes are expensive and time consuming. With Autodesk Inventor you can create the prototypes online first and then send them to be manufactured, saving a lot of money and increasing efficiencies.

In addition, if you make a change in Inventor, it makes the change everywhere for you. If you make a change in AutoCAD, you have to make sure you update the drawings everywhere the change is referenced (which can often lead to errors). There also is much tedium in AutoCAD... tedium that goes away with Inventor. And lastly, I must admit Inventor is also more fun. I love AutoCAD. It's a great package and I know it inside and out, but Inventor is so much more enjoyable to use. It's powerful and yet super easy to use.

Q. Who would you say are prime Autodesk Inventor users?

A. Any public sector person in the manufacturing or mechanical industry who is designing parts and/or assemblies.

Q. How easy will it be for AutoCAD users to feel comfortable in the Autodesk Inventor environment?

A. Inventor is much more intuitive than AutoCAD. But it's also a different package, so users will need to spend some time learning it. We do have a lot of people who pick it up and run with it, but I'm a big believer in hands-on training. Exactly how long it will take to get up and running depends on the user. Start with a simple project and take it from there. Once they learn Inventor, they will get their projects done faster than they did with AutoCAD. I actually spend little time in Inventor, but I am still able to use it, which is a testament to the product. If I get lost, I am easily able to get out of it. If I'm lost in AutoCAD, it's just a chore to figure out what to do.

Q. Is the move to 3D inevitable?

A. In general, most people realize the world is moving to 3D. I don't think anyone believes we are going to stay in the 2D world forever. More and more government agencies are making the move to 3D. We have different 3D packages for the different industries. If you are collaborating with someone doing everything in 3D and you're still in 2D, that's a challenge. More and more public sector users are making the shift to 3D.

Q. How well do AutoCAD and Inventor interoperate?

A. AutoCAD and Inventor talk to each other very well. One strength of Inventor is you can take AutoCAD drawings and bring them right into Inventor and turn them into solid models. So you can take the hard work you did in AutoCAD, and with some modification create 3D solid models. Who better to understand your AutoCAD data than Autodesk, the company that created AutoCAD?

You can also take solid models and drawings in Inventor and send them back to AutoCAD. It can be set up so an AutoCAD user will receive a notification when a change occurs in the inserted Inventor file, so it can easily be reloaded and keep AutoCAD drawing up to date. This is done in AutoCAD Mechanical (which also comes with the Inventor series).

AutoCAD Mechanical is AutoCAD flavored for the mechanical user. If you aren't ready to make the move to 3D, it's a great stepping stone to get you on your way. In the Inventor Series, you also get the Vault which is a powerful – yet low-stress – data management program helping ensure you are always working with the most recent file. The Vault also saves multiple versions of your files, should you need to trace back the design history or restore a previous version. It operates in the background, as you are designing.

There also happens to be a great help function in Inventor, focusing specifically on assisting the AutoCAD user. For example, there is a command map to track the AutoCAD commands to the Inventor commands. In AutoCAD, I use this command, and therefore in Inventor I would use that command.

Q. Any final words on the merits of Inventor?

A. No one goes in, learns Inventor and says: "If only I could go back to AutoCAD!" That speaks for itself. ■

Caron Beesley is editor of Acronym magazine.
(editor@autodeskgovernment.com)



Keeping It Together

How File and Free Space Management Can Help Autodesk Performance

BY ROBERT NOLAN

Government agencies using Autodesk® applications have made a considerable investment in hardware, software and user training. Presumably, they made this investment to improve the productivity of their employees and to increase operational efficiencies. The return on this investment is diluted if the systems do not perform at their optimum level. Everyone has experienced the frustration of working on a system that is just plain slow. Few systems start being slow, so how do they get that way?

Over the past couple of years, processor speeds have increased dramatically. For less than \$500, you can buy a desktop system with a 2.4GHz processor. Despite the availability of very fast processors, systems still bog down. While processor speeds continue getting faster in accordance with Moore's Law, disk speeds have not increased at the same rate. A fast disk in a desktop machine has an access speed of about 10 milliseconds. The processor will go through 24 million cycles in the same amount of time. Systems get slower because the disk is the bottleneck in the processing pipeline. If you want to increase the speed of your system, look for ways to speed up disk I/O.

A Likely Culprit

The Autodesk environment is unique, because it primarily deals with drawings, models and graphic representations rather than text. These files tend to be large, and on Windows systems, they are subjected to two phenomena that have an adverse effect on system I/O throughput. These phenomena are file fragmentation and free space fragmentation. In combination, these two events can slow the

read/write performance of the disk and leave you waiting.

Both of these situations are normal byproducts of using the Windows operating systems and their file system. The Windows file system makes one check to see if it can allocate space in one contiguous string of clusters. If it can't, the file becomes fragmented. Fragmentation is not a function of disk size; it is a function of file modification and free space availability. It is not uncommon for files to be in hundreds or even thousands of fragments and you would never know.

When an application needs a file, a request goes to the file system and it looks in the Master File Table (MFT), which contains information about every file on the disk. The MFT stores the starting address and length of every fragment of every file, which it reports to the disk controller. If a file is contiguous, the MFT provides a single starting address and a single length to the controller. If a file is in 1,000 fragments, the MFT must provide the address and length of all 1,000 fragments. Guess which one takes longer and uses more memory and CPU resources? Disk defragmentation eliminates this problem.

Free space fragmentation occurs when files are deleted and "holes" are created among files. The Windows file system checks the disk bitmap and determines where to allocate space based on free space availability. When the free space is fragmented, the file system needs to work harder to find space. When a file is created in fragments, the write performance to the disk degrades. To combat this condition, you need to consolidate the free space on the disk.

The Importance of Consolidated Free Space

David Goebel of Balder Technologies is one of the original Microsoft engineers who developed the NT File System (NTFS). Goebel examined the impact of free space consolidation on servers and workstations by measuring the system throughput score using the WinBench benchmarking tool. WinBench provides two scores measuring disk throughput with a combination of reads and writes. He compared a baseline fragmented disk to images of the same disk that had been defragmented with two different defragmentation packages. One of the packages defragments files and consolidates free space; the other only defragments the files.

Goebel found the server disk with the consolidated free space scored 14.5 percent to 28 percent better than the baseline, while the disk without consolidated free space underperformed the baseline by 5.6 percent and 7.6 percent, respectively (Table A). On the workstation test, the disk with the consolidated free space outperformed the baseline by 74.3 percent and 12.1

TABLE A. Server

	Business Disk WinMark	High-End Disk WinBench Overall
Base Fragmented Disk	6,740	42,100
With Consolidated Free Space	7,720	53,900
Without Consolidated Free Space	6,360	38,900

(Disk throughput in thousands of bytes per second)

TABLE B. Workstation

	Business Disk WinMark	High-End Disk WinBench Overall
Base Fragmented Disk	4,900	18,200
With Consolidated Free Space	8,540	20,400
Without Consolidated Free Space	5,410	13,700

(Disk throughput in thousands of bytes per second)

TABLE C. Server

	Total number of I/O requests sent to the file system*	Total number of resulting disk accesses/seek	Net wasted seeks when running WinBench
Base Fragmented Disk	58,844	63,038	4,194 = 7.12%
With Consolidated Free Space	58,517	59,469	952 = 1.63%
Without Consolidated Free Space	58,955	65,227	6,272 = 10.64%

TABLE D. Workstation

	Total number of I/O requests sent to the file system*	Total number of resulting disk accesses/seek	Net wasted seeks when running WinBench
Base Fragmented Disk	56,745	58,458	1,713 = 3.02%
With Consolidated Free Space	55,508	56,340	832 = 1.50%
Without Consolidated Free Space	57,123	36,253	6,130 = 10.73%

* This is the number of non-cached I/O requests received by the file system. Cached I/O requests are not included as they don't directly cause a disk request; however, if there is a cache miss, a non-cached read to satisfy the page fault will be sent to the file system, and at that time included in the total.

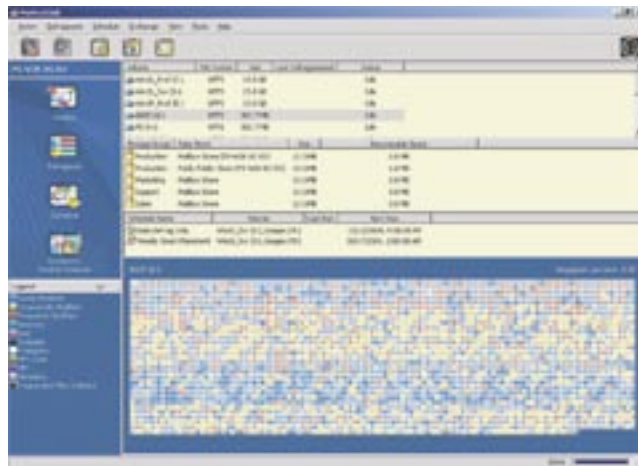


Figure 1. Fragmented Drive

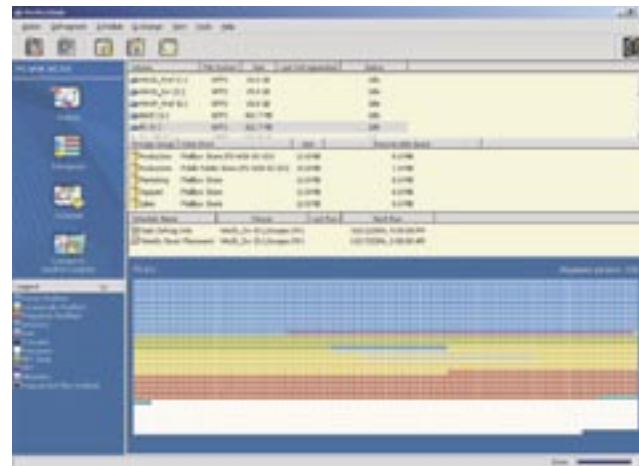


Figure 2. Defragmented Drive

percent, while the disk without consolidated free space outperformed the baseline on one score by 10.4 percent, but underperformed on the second score by 24.7 percent (Table B).

A second metrics set was also measured in these tests. A special driver was installed that measured the number of physical disk seeks needed to satisfy every I/O request to the file system. In an ideal world, it would take one physical access to satisfy each I/O request. Any physical access in excess of one was considered a “wasted seek.”

On the server disk with the consolidated free space, only 1.63 percent of the total disk seeks were wasted. This is a 77.3 percent reduction from the baseline disk experience. The server disk without consolidated free space wasted 10.64 percent of its total seeks; this is an increase of 49.5 percent over the baseline (Table C).

The workstation disk saw similar performance with the disk, with the consolidated free space wasting only 1.5 percent of its disk seeks, 51.4 percent less than the baseline. The disk without consolidated free space wasted 10.73 percent of its seeks, a 255 percent increase over the baseline (Table D). A review of the Table C and D data shows consolidated free space reduces disk seeks and improves disk read and write performance.

The Goebel analysis shows that while file defragmentation can improve file read access time, you need to have

consolidated free space if you also want to improve file write time and reduce the number of wasted seeks to the disk. In Table C the baseline system wasted 4,194 seeks. At 10ms per seek, this totals 42 seconds of elapsed time unnecessarily spent waiting to access files. The disk with consolidated free space wasted only 9.5 seconds.

The Windows Solution

Microsoft® has provided a built-in disk defragmenter since the launch of Windows® 2000. Isn't that solution enough? The Windows defragmenter has a number of shortcomings that preclude it as a viable solution for corporate use in general and Autodesk use in particular. Some of the areas where the Windows utility does not measure up are:

1. It struggles with large files and large drives (>200GB). Autodesk files tend to be large.
2. It has no ability to consolidate free space.
3. It has a multi-pass engine, which means it needs to be run over and over to chip away at fragmentation. While it defragments files with each pass, a side effect is it chops the remaining free space into lots of small pieces. This accelerates new fragmentation, exacerbating the very problem you are trying to fix.
4. There is no easy way to schedule the Windows defragmenter to run unattended.
5. It cannot defragment system files, so data files need to

be split around system files on the disk.

6. It requires Administrator rights to run. In most cases this means end users cannot defragment their own disks.

Autodesk and Defragmentation Solutions

Autodesk environments are particularly prone to file and free space fragmentation, because they typically deal with larger files subject to frequent change. The likelihood is high that large files will fragment when they are created or when they are modified. The more fragments the drawing files are in, the longer they will take to load and edit. Without free space consolidation, any file modification increases the probability fragmentation will increase. Figure 1 shows a disk where the files and free space are fragmented. Figure 2 shows the same disk where the files are defragmented and the free space is consolidated. Which one would you prefer to work with?

As the research in this article shows, disks can be maintained in near optimal I/O condition when the files are contiguous and the free space is consolidated. In Part 2 of this article, we will provide performance metrics from an actual Autodesk environment and demonstrate the performance gains realized in a real-world setting.

Disk defragmentation was probably not on your radar screen as something that could improve disk I/O performance. It is even less likely you ever gave a thought to the condition of the free space on the disk, but managing both can keep your Autodesk applications running quickly and smoothly. ■

Robert Nolan is president and chief executive officer of Raxco Software, a leading provider of system administration software and resource management solutions for medium- to large-sized organizations as well as home users around the world.

Rethinking Emergency Plans

BY COLLEEN O'HARA

Hurricane Katrina forced all government agencies – not just the agencies directly affected by the disaster – to take another look at how they prepare for emergencies and disasters. They learned that being unprepared has a price – in lives and property.

Presidential Decision Directive 63 states agency managers must identify critical infrastructures, assess their vulnerability, and alleviate the risk of terrorist attacks and natural disasters. By law, agency managers must identify critical infrastructures, assess their vulnerability, and alleviate the risk of terrorist attacks and natural disasters. Officials must have access to accurate data about buildings and the location of physical assets and people within buildings.

In the aftermath of Katrina, agency managers asked themselves: Are there adequate solutions and plans in place to protect our people, communications and buildings essential to our operations? Do we have the right information? How can we keep operations and services running when disaster strikes?

CADD Microsystems, Inc., an Autodesk® reseller and solutions provider, is helping agencies answer some of these tough questions. The company offers a solution integrating

internal and external agency data to help customers make informed decisions about protecting their assets and planning for the worst.

“A solution that integrates facilities management and geospatial data would allow users to do critical infrastructure protection and crisis response planning,” said Scott Eden, vice president of CADD Microsystems, Inc. Government Solutions Group.

However, customers should use this information in their everyday planning, not just in a crisis situation, he added. “One point we are making when talking to our customers is how important it is to use these solutions every day, for pre-planning and continuity of operations planning,” Eden said. “This is not just a break-the-glass emergency response. Use this type of solution every day as part of your COOP (Capabilities for Continuity of Operations) planning to make better informed decisions.”

Most of CADD Microsystems' Autodesk customers already maintain the CAD and physical asset data that would be used in a Critical Infrastructure Management solution. “The problem is these disparate data sources and islands of information aren't linked or don't talk to each

other,” Eden said. “What we are recommending is to integrate all inside and outside building facility information with applicable geospatial layers of information in one environment.”

This would allow agencies to know the location of buildings in relation to political, demographic and geographic boundaries, flood plain or historical seismic data. “The actual location of these buildings has a huge impact on determining if they are high risk for natural disasters or terrorist attacks,” Eden said. Identifying the critical infrastructure potentially at risk is the first step in emergency response planning.

CADD Microsystems' solution is based on Autodesk Map®, Autodesk MapGuide® and Oracle® Spatial. The solution integrates CAD and geospatial data with imagery, aerial photography and other disparate data sources into a single data portal.

Fortunately, much of the mapping data such as the location of streets, political boundaries and flood plains, is available for free from the government, Eden said. “We assist our customers in getting their hands on this valuable data.”

CADD Microsystems' offering is not a commercial off-the-shelf offering, Eden said. “It's a solution that would be developed for a government agency to meet its specific business process needs. It is a customized, real solution.”

Once integrated, the Critical Infrastructure Management solution would be easily accessible through a browser. “The whole idea is for there to be one portal, one environment allowing you to get to all your critical infrastructure information,” Eden said. The data would be updated and maintained just as it is now, but it would be easily accessible and integrated via a single site.

When embarking on such an endeavor, however, it is important for agencies to have the right business processes in place, Eden said, to keep the data current. ■

Colleen O'Hara is a freelancer writer based in Arlington, VA. She specializes in government technology writing and frequently contributes to Federal Computer Week. (cmohara@comcast.net)

At A Glance

CADD Microsystems, Inc. (CMI) is one of a select few Autodesk Premier Solutions Providers and the leading reseller of Autodesk® solutions to the federal government. With a rich engineering, architecture and mapping background, CMI's professionals have built solid relationships with leading technology innovators and are sought by an impressive list of architectural firms, engineering companies and government agencies. CMI focuses on assisting organizations interested in getting the most out of their investment in geospatial and digital design data. ■



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Standardization of Autodesk® Land Desktop helped the Indian Health Service design this waste water system in Arizona much faster than prior projects.

Indian Health Service Streamlines Design Process

BY COLLEEN O'HARA

Worldwide consulting and training firm K-TEK has helped the Indian Health Service (IHS) streamline and shorten the time the agency takes to design new water and sewer infrastructures for the communities it serves.

As part of its mission, IHS provides health programs to American Indians and Alaska Natives, so its employment of doctors and nurses is no surprise.

But what might not be as well known is that the agency provides many other services contributing to the health of its community, including engineering design for new water and sewer lines and wastewater treatment facilities.

To help its civil engineers, technicians and surveyors design and plan systems for housing developments in American Indian communities, the agency has tapped the power of Autodesk's infrastructure solution software including Land Desktop 2005, Civil Design 2005, Survey 2005 and Raster Design 2005. IHS is in the process of upgrading to the 2006 software versions.

The products help the IHS Office of Environmental Health and Engineering design the location of sewer and water lines for new and existing communities. As part of its mission, the office works with tribes to promote a healthy environment through the cooperative development and operation of safe water, wastewater and solid waste systems.

For many years, K-TEK founder and CEO, Pete Kelsey, has been working with IHS to train customers on using Autodesk software successfully. More recently, he showed the agency how standardizing its drafting procedures and using Autodesk software would increase productivity and speed the design process on all projects.

"We wrote a complete standards package incorporating drawing templates, prototype settings, description key files and other aspects, and documented the entire process," said Clay Abajian, business development manager for K-TEK's western region. He is a K-TEK certified professional and fulfillment provider for the Indian Health Service.

"We then went to each area and installed the standards files on their servers and configured workstations to utilize them," he added. "We also trained more than 200 engineers, surveyors and technicians in 12 different areas nationwide to utilize the new IHS standard and Autodesk's Land Desktop software solution. Laptops were also configured to use the standard files while in the field, off line from the network."

Remote laptop use allows surveyors and design engineers to create and view surface data collected from the survey on site. They can then determine if the data, which is set to the standard, is complete and correct or if more survey data is required prior to leaving the site. This process eliminates costly, time-consuming trips back to the site to gather additional survey data.

The lack of standardization was slowing the design process, Abajian said. "People working in the same office were often doing procedures differently, so plots, drawings and construction documents were inconsistent. The training provided by K-TEK not only taught IHS how to use the new standard, but also taught the most effective way to use the software and brought new users up to speed on both the standard and Autodesk® Land Desktop."




Land Desktop is civil design software enabling site design and development from field-to-finish, so there were hundreds of settings made to provide standardization.

K-TEK streamlined the process as much as possible, Abajian said. "So when users start a new Land Desktop project, all the prototype settings have already been set in the IHS standard prototype as well as other standard startup files," he said. "The end user no longer has to worry about configuring these settings each time a new Land Desktop project is started. With the template file, the prototype and all the users pointing to the same data files

on the server, starting a new project is a no-brainer."

For instance, the layers are already set to accommodate the design of sewer or water systems. "We also train customers to use the software the most effective way," Abajian said. "It's complex. There's a lot to it. But IHS realizes the importance of standardization and training and how it affects IHS return on investment." ■

Colleen O'Hara is a freelancer writer based in Arlington, VA. She specializes in government technology writing and frequently contributes to Federal Computer Week. (cmohara@comcast.net)



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AutoCAD 2006

Eases Customization, Migration Pains

BY CARON BEESLEY

If you're like most AutoCAD® users, you probably spend a considerable amount of time customizing your menus and toolbars – and then wonder how they will migrate to the next software release. But now there is an easier and faster way to customize, without having to know complex macro code.

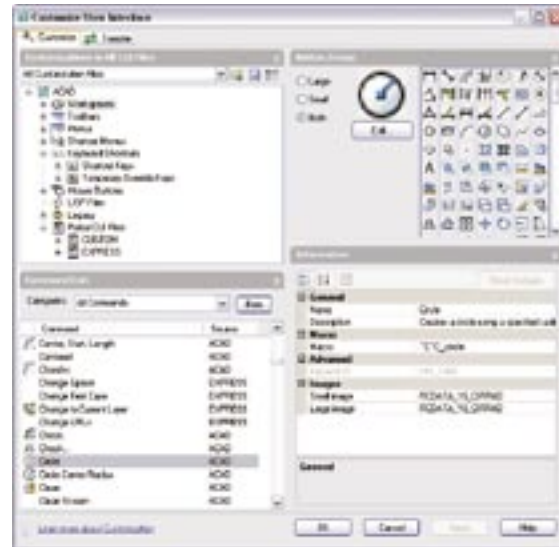
With the release of AutoCAD 2006, Autodesk® has taken the drudgery out of customization by creating an easy-to-use Customize User Interface (CUI). The CUI feature allows users to customize their menus and toolbars graphically instead of writing text-based commands. The CUI replaces text-based menu files with a new menu file based on XML.

“Customization in AutoCAD has been available since the beginning,” said Heidi Hewett, AutoCAD technical marketing manager, Autodesk, Inc. “But the ability to customize graphically without having to be a menu programming expert is new in AutoCAD 2006.”

In the past, creating a custom command required users to edit a text file and write the code for the function they wanted to add to a button or pull-down menu option. However, it wasn't enough to write the code one time. Users had to create code every time they wanted to add the command to another location, whether in a right click menu or a pull-down menu.

“Users had to be familiar with that old and archaic code,” Hewett said. And because it required manual editing, the process of customizing the user interface was time-consuming and error prone.

In AutoCAD 2006, things changed. Autodesk changed the file format from an old text file-based format into an



XML-based format. Anything from the old menu file is now in the CUI file. Within the dialog box, users can add a new toolbar or menu and customize graphically.

“In AutoCAD 2006, users can create a command once, name it, and drag and drop it into different locations,” Hewett said. “We’ve combined multiple steps into one.”

AutoCAD 2006 addresses another problem facing users: What happens to all the customization work, when it's time to upgrade to the next version of AutoCAD? “Users have been creating wonderful tools,” Hewett said, “but in the past, each time another release of AutoCAD hit the shelves, users had to take their code and integrate it into our code.”

Since AutoCAD 2006 now supports XML, future releases of the software automatically will be able to detect any changes between the old menu file and the new menu file and migrate the changes.

AutoCAD also allows users to create custom workspaces. Unlike user profiles, which store a lot of information in addition to the AutoCAD environment, a workspace only stores information about the AutoCAD display. “It is very easy to create custom workspaces, which are stored in the CUI file, and then switch between them,” Hewett said. “The idea with workspaces is to customize them to be task-oriented.”

They can create different workspaces, each of which has just the tools needed for a particular task. One workspace, for example, might have all the tools for creating 2D construction drawings, another workspace might have the tools for annotation, and yet another might have the tools for 3D modeling. To access a workspace, a user selects it from the new Workspaces toolbar.

When it comes to managing customization files, users have different menu files to choose from, depending on what they want to accomplish. “Maybe the CAD manager has a standard menu that should remain consistent for all users, but the users also want the flexibility to add their own tools,” Hewett said. “In AutoCAD 2006, the CAD manager can set up the users’ systems with an enterprise customization file, which is read-only.” Users can't edit the tools in an enterprise file, but they customize and load a partial menu file in addition to the enterprise file.

“AutoCAD is incredibly powerful, but it can be overwhelming,” Hewett said. “That's what these tools address.” ■

Caron Beesley is editor of *Acronym magazine*.
(editor@autodeskgovernment.com)



Heidi Hewett began using AutoCAD® in 1986 and has been employed by Autodesk since 1992. At Autodesk, Heidi has held a variety of AutoCAD-related positions including product support technician, training

specialist and senior applications engineer. In her current position as a technical marketing manager, Heidi assists the AutoCAD development teams in developing and delivering technical marketing material for AutoCAD and AutoCAD LT.

Here, Heidi answers some commonly asked questions about using the new customization and migration features in AutoCAD 2006.

Question: How do I use my existing MNU files in the new CUI format?

Answer: You can use the MENU, MENULOAD or CUILOAD commands as well as the Transfer tab of the CUI dialog box. Select your MNU or MNS file and AutoCAD will automatically create an equivalent CUI file.

Question: Does AutoCAD change my old MNU files?

Answer: When you “load” an MNU or MNS file into AutoCAD 2006, AutoCAD does not change the original MNU or MNS file. It copies the data from the original menu file into a new XML-based file with a CUI extension and then loads the CUI file. When you customize AutoCAD using the CUI dialog box, those changes are written to the CUI file.

Question: When I use the Customize User Interface (CUI) dialog box to customize my interface, where is that information stored and how can I share that customized interface with others?

Answer: When you customize AutoCAD using the CUI dialog box, those changes are stored in the CUI file. You can use the transfer tab to create additional CUI files and copy components, such as tool bars, between CUI files. You can then share those CUI files with others just like you previously shared MNU or MNS files. ■

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Tips & Tricks

AutoCAD 2006

Lynn Allen, Autodesk® Technical Evangelist speaks to more than 30,000 Autodesk® users each year. She personally started using AutoCAD software with Release 1.4 – more than 20 years ago. Below, you'll find some of Allen's useful suggestions, advice and time savers for using AutoCAD 2006. For more information read Allen's booklet: Tips & Tricks for Using AutoCAD 2006 software.

To customize the Tool palette using DesignCenter:

1. Display Tool palette by pressing Ctrl+3 or by selecting from the Tools menu.
2. Open the DesignCenter utility and drag blocks, xrefs, images and hatch patterns one by one to the Tool palette. Or right-click on any drawing name in DesignCenter to create a new tab that contains all the content within the drawing.



To maximize a viewpoint:

While in a paper space layout, you can automatically maximize a layout to work on your model space drawing, using the entire drawing area. Doing so will not modify the scale factor or change the layer settings in any way.

1. Select the viewport.
2. Click the Maximize Viewport button on the status bar.
3. After editing, simply hit the Minimize Viewport button. ■



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