A Closer Look at the Drawing Inspector

Learn more about using the Drawing Inspector to view data about drawing entities.

More About IntelliCAD®

IntelliCAD – An Introduction

The development of IntelliCAD is overseen by the IntelliCAD Technology Consortium, “an organization of CAD software developers, who develop applications for IntelliCAD, a Computer-aided design engine. The IntelliCAD engine, which is based on the DWGdirect library from the Open Design Alliance reads and writes the ‘.dwg’ data format – a widely used file format for storing both graphic and textual information of CAD-related software applications.”

The primary goals of the IntelliCAD Technology Consortium are to “research and develop CAD technology, the IntelliCAD platform, and to deliver CAD solutions to customers worldwide.” In other words, to provide the personal and commercial CAD markets with a cost-effective solution that is capable of reading and writing the common drawing (DWG) file.

The ITC is a non-profit, independent organization of commercial software developers (members). The ITC has an elected, volunteer, member based Board of Directors which guide its strategic vision. An independent (non-member) President manages

the tactical business operations. Members pay annual dues that fund the ITC. Today the ITC has over 50 members who support 13 languages and ship product in more than 35 countries.

IntelliCAD – A Trip through Time

Except where noted, each of the following items were obtained from An Outside Look in at IntelliCAD (used by permission) which requires the free Adobe Reader.

> *"Where did the name come from? The name of the software 'IntelliCAD' comes from a programming company that was formed in the early 1990s in San Diego, CA, USA. Their main claim to fame was ADE (AutoCAD Data Extension), which they sold to Autodesk, and which eventually became part of Autodesk Map."*
>
> *"IntelliCAD the software has a complex and fascinating history that winds its way through Softdesk, Autodesk, Boomerang, Visio, just missing Microsoft, then onto the IntelliCAD Technology Consortium, and now [includes] a variety of brand names, such as CADopia, Bricscad, and DWGEditor."*

- *1994, August: "IntelliCAD is purchased by Softdesk of Henniker, NH."*
- *1996, December: "Autodesk acquires Softdesk… Softdesk apparently did not tell Autodesk about its AutoCAD clone."*
- *1997, March: "Autodesk investigated by the FTC (Federal Trade Commission) over the alleged monopoly status of AutoCAD… The FTC allowed Autodesk to purchase Softdesk after Autodesk agreed to: (1) spin off IntelliCAD; (2) not attempt re-acquire the technology; (3) not attempt to acquire any company that owns or controls IntelliCAD; and (4) not interfere with employees who leave Autodesk to work with IntelliCAD… IntelliCAD was spun off as Boomerang Technology in San Jose, CA."*

- *1997, March: "Visio bought Boomerang."*
- *1998, March: "IntelliCAD 98 ships. The price was originally pegged at US$495; upon release, the price dropped to $349 as a 'special introductory price'; the price drops further to $149 at computer superstores, such as CompUSA. Through to the end of June, the first three months of sales for IntelliCAD were nearly 12,000 licenses, producing $3 million in gross revenue – an average of $250 per license."*
- *1998, May: "IntelliCAD is suddenly incompatible with AutoCAD! Autodesk releases a maintenance release for AutoCAD R14.01 that makes a change to the .dwg format, and preventing IntelliCAD from reading drawing files… Visio updated IntelliCAD 98 to work with 14.01 files."*
- *1999, July 27: "Visio cuts IntelliCAD loose by granting the IntelliCAD Technology Consortium a royalty-free, perpetual license for the source code of the IntelliCAD 2000 technology. The ITC was set up by Visio, but run by an independent board of directors.*
- *1999, September: "IntelliCAD Technical Consortium opens its Web site at http://www.intellicad.org/."*

Subsequent releases of IntelliCAD through the ITC occur every year since its initial release (see the IntelliCAD version history link under the Press section of the IntelliCAD Technology Consortium web site).

IntelliCAD Release History

- *IntelliCAD 6.4 July 27, 2007*
- *IntelliCAD 6.3 February 28, 2007*
- *IntelliCAD 6.2 May 27, 2006*
- *IntelliCAD 6.1 September 5, 2005*
- *IntelliCAD 6.0 May 3, 2005*
- *IntelliCAD 5.1 January 12, 2005*

- *IntelliCAD 5.0 October 24, 2004*
- *IntelliCAD 4.0 March 14, 2003*
- *IntelliCAD 2001 version 3.3 July 19, 2002*
- *IntelliCAD 2001 May 22, 2001*
- *IntelliCAD 2000 March 6, 2000*
- *IntelliCAD 98 May 1, 1998*

Carlson Support for IntelliCAD

The Carlson 2009 installation comes with IntelliCAD 6.4 built-in. When you choose IntelliCAD as the CAD platform during installation, the IntelliCAD engine is installed along with the Carlson program files. Carlson 2009 only works with this built-in version of IntelliCAD and not on any other version of IntelliCAD or other IntelliCAD based products like Bricscad.

Running Carlson 2009 on IntelliCAD is largely the same as running on AutoCAD. IntelliCAD supports a development environment with a similar interface as AutoCAD which allows Carlson Software to use the same code base on both CAD platforms. Of the over 1700 Carlson commands across the Carlson 2009 products, there are 11 commands that are not supported with IntelliCAD for the Carlson 2009 release. These are:

- Editor Reactors (ie Link Points To Coordinate File)
- Point Object Snap (node snap does work)
- Text Explode To Polylines
- Edit Centerline On-Screen
- Extract Centroid Data
- Label Object Data Areas
- Drape Image On Surface
- Retaining Wall Placement
- Pillar Cut
- Calculate Variogram

- Production By Block Model

IntelliCAD – AutoCAD Comparison

IntelliCAD has a very similar user interface as AutoCAD, supports the core AutoCAD commands and uses the DWG drawing formats 2009 to R14. For some Carlson commands, creating entities in AutoCAD is twice as fast as IntelliCAD which makes a significant difference in routines that create lots of entities.

The upcoming IntelliCAD 7 will be built on DWGdirect from the Open Design Alliance and will add a "DRX development environment" similar to ObjectARX with AutoCAD. Using DRX should greatly improve the speed of entity creation within IntelliCAD.

While most of the AutoCAD commands Carlson clients use in AutoCAD can also be found in IntelliCAD 6.4, there are many features in AutoCAD that are not in IntelliCAD. Among these features are ones for architectural and mechanical applications that don't apply to Carlson customers. For this initial release of Carlson 2009 on IntelliCAD 6.4, here are AutoCAD commands that Carlson customers might miss:

- Spell Check
- DGN import/export
- Orbit command
- Find command
- Express Tools
- Tool Palettes
- Annotative Text
- Sheet Set Manager
- Page Setup Manager
- Import .PC3 Files
- Irregular viewports
- Clipboard commands for copybase and paste to original

- VBA not supported for custom applications; VB with COM is supported
- Object Enablers for LDT points and contours
- User-interface for menu customizaiton (no CUI, old MNU method)
- Ctrl-pick cycle for object selection
- Dialog user interface for WBlock
- Dialog user interface for Purge command
- Dialog user interface for Filter command
- Right-Click menus
- Entity Properties as docked-dialog
- Grip snapping to other grips
- Highlighting of entities when dragging cursor over them
- Mudst hatch pattern

If you identify any other AutoCAD feature that you miss when running Carlson with IntelliCAD, please email us at support@carlsonsw.com and we willl add to this list which helps guide future developments.

Bibliography

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Another Twist for World

I’d like to offer a few other arguments for the use of the DVIEW TWIST routines discussed in North Rotation: Using Twist Screen. The four Carlson DVIEW routines cited:

1. ***Standard*** *– This option allows you to select a rotation angle using the mouse.*
2. ***Line, Polyline or Text*** *– This option allow you to select an object to set as a view baseline. It is the most*

useful when trying to match views to objects such as property lines or road centerlines.

3. ***Surveyor*** *– This option prompts for the manual entry of a bearing or azimuth for the rotation angle.*
4. ***Restore Due North*** *– This option returns the screen to the orientation where North is straight up.*

fall right in line with remarks made by ESRI's Brent Jones at the 2009 Carlson User Conference who said:

> *"GIS changes the whole domain for surveyors," Jones added, "And surveyors need to be ready for what's coming next – high accuracy GIS. The key is geo-referencing," he said. "We can use our data to communicate to our world with greater precision over greater areas."*

In my opinion, a **U**ser **C**oordinate **S**ystem (UCS, by its very definition), takes the data one step further away from being geo-referenced. There are those that would probably argue that having data in a World Coordinate System (WCS) and at assumed coordinates of something like 5000,5000,100 is no better than using a UCS to shift this same data to a proper geo-referenced coordinate system. From a holistic stand-point, I'd tend to agree. However, what sets the WCS *vs.* UCS argument apart is this simple statement:

All drawings must have a WCS yet not all drawings have a UCS.

When one considers the longevity of information represented in drawings created to this point in time and then reflects on how this information might also be used in the future, I feel it is important to model that information (and subsequently allow that information to be easily extracted) in a consistent and reliable fashion. A **U**ser **C**oordinate **S**ystem is typically only understood and used by its creator which in turn, limits its use and

subsequently increases the risk of liability when the **U**ser **C**oordinate **S**ystem isn't known or understood by a "downstream" recipient of the drawing (survey stake-out, machine control excavation, *etc*).

Side note observation… Is it me or are there some parallels between UCS and custom ARX objects used in other products? When I look at how long the DVIEW *vs.* UCS arguments have been made, I can only surmise the length of time that will be involved to bring the non-proprietary *vs.* proprietary data argument to a close. I suspect it's going to be a long, tough road.

In any event, it is my opinion that standardizing on a single WCS should provide more consistent deliverables when the drawings/projects span multiple people, offices and/or disciplines. When properly adopted, using a "twisted view" of geo-referenced data in a World Coordinate System should provide more feature-rich information now and into the future when our data is mapped onto the Earth.

Originally posted on **Carlson Connection** by Ladd Nelson

North Rotation: Using Twist Screen

There have been many debates in various blog posts, discussion group posts, and articles regarding what is the best way to handle North rotation on maps. With AutoCAD-based systems, there were essentially two choices: you could set a User Coordinate System (UCS) or rotate the screen using a tool such as 3D Dynamic View. Carlson Civil and Survey offers these

choices with a twist.

One of the main drawbacks to setting up a UCS is that it can throw off calculations being made by your mapping/design software. For example, point databases and external TIN files often refer to the coordinates used in the field, or that existed when the data was generated (such as the TIN being built). If you change the UCS, the coordinates may be wrong, and you may end up with incorrect results for things such as profile generation.

Because of this, many people choose to rotate the screen without rotating the coordinate system. In AutoCAD, the simplest way to do this was by using 3D Dynamic View (DVIEW). The main drawback to the DVIEW command is that while the screen would be rotated, common tasks such as adding text and symbols would be more difficult as they would have to compensate for the rotation of the screen. This was usually managed using a setting called SNAPANG, which could be set to the opposite of the DVIEW rotation, making the use of ORTHO mode viable. In AutoCAD-based systems, this would be fairly tedious, particularly if you wanted to match the rotation to a specific item, such as a portion of a road centerline.

In any of the Carlson desktop applications, there is a View pull-down menu with several commands that can solve this issue, often with a single click. To see the most commonly used options, go to the View pull-down menu and choose the Twist Screen sub-menu. There are four commands available, each one rotates the screen and automatically sets the SNAPANG to match.

- **Standard** – This option allows you to select a rotation angle using the mouse.
- **Line, Polyline or Text** – This option allow you to select an object to set as a view baseline. It is the most

useful when trying to match views to objects such as property lines or road centerlines.

- **Surveyor** – This option prompts for the manual entry of a bearing or azimuth for the rotation angle.
- **Restore Due North** – This option returns the screen to the orientation where North is straight up.

By using these options, you can quickly set up plot sheets and layout tabs, annotate the maps appropriately, and preserve the coordinate system for future design work or other calculations.

Originally posted on **Carlson Connection** by Felicia Provencal