Carlson-IntelliCAD GIS Starter Kit from ESRI

Those currently using Carlson with IntelliCAD are eligible for a new “GIS Starter Kit” from ESRI. The Kit includes:

- ArcGIS ArcView desktop software
- A copy of the book *A to Z GIS: An Illustrated Dictionary of Geographic Information Systems*
- A copy of *GIS Tutorial: Workbook for ArcView 9*, Third Edition
- A 10% discount for the ESRI Survey & Engineering GIS Summit ($325 – standard registration price)

To take advantage of the offer, call 1-800-GIS-XPRT (1-800-447-9778) and request the **Carlson-IntelliCAD GIS Starter Kit** and **please have your Carlson Serial Number available**.

You can read more about ESRI’s commitment to survey and engineering services by visiting http://www.ESRI.com/engineering.

Originally posted on **Carlson Connection** by Jennifer DiBona

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ESRI Offer for Carlson IntelliCAD Users

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That CAD Girl – June Newsletter

Our June Newsletter can be downloaded HERE

The Power of LandXML

The ability to import and export to LandXML has been around for quite awhile, but I still get a lot of curious looks when I mention it in my training classes. So, what is it? And why should you be using it?

Why Should We Be Using It?

We've all become accustomed to saving archive copies of our drawings for various purposes but saving the corresponding project data is often overlooked. Retrieving the drawing file may allow you to recover proposed contours and profile grid, but the underlying "surface" is lost unless the project was also archived.

Importing and exporting using XML files is the most convenient way to convert, transfer and archive data created in Carlson Software, Land Desktop, Civil 3D, Eagle Point, TerraModel and, I'm sure, other programs.

But, What Is LandXML?

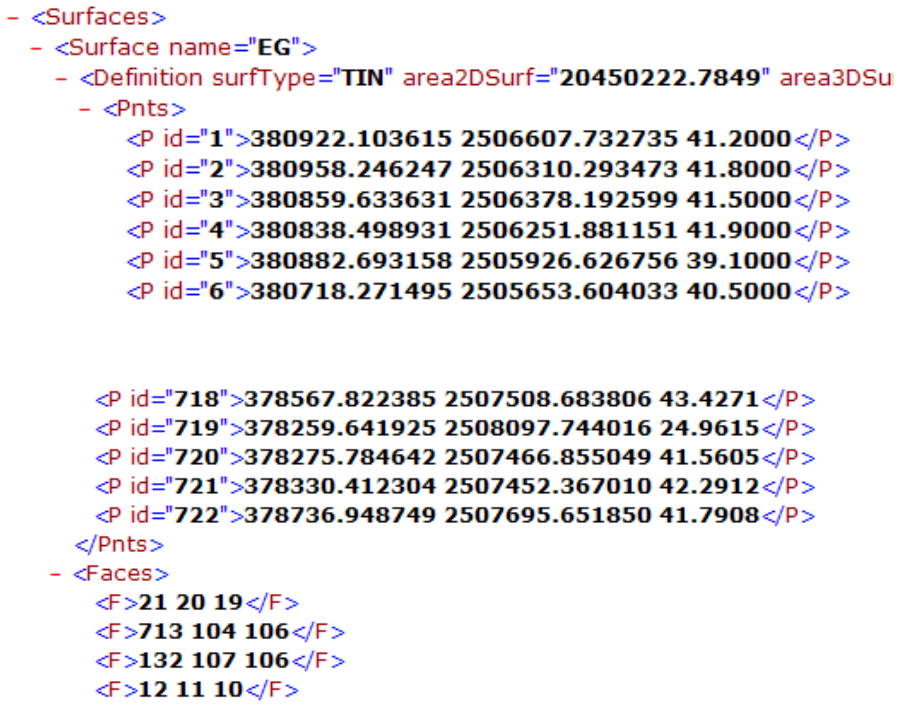
LandXML refers to a file format (.xml) containing data created in a civil/survey program. My recommendation is that ALL civil and survey data should be archived – progress, submittal and final archive – using LandXML.

The way I like to explain it is that we use XML files in the same way we used to rely on DXF files. They're mostly outdated now, but DXF files are a generic file format that, for example, we used to convert MicroStation DGN files to AutoCAD DWG files. At that time, AutoCAD couldn't read DGN files and Microstation couldn't read DWG files; but both could read DXF files. So, we had to convert our drawing files to the generic DXF format that could then be read into the other program.

Similarly, Carlson Software, Land Desktop, Civil 3D and the other programs create their own unique files for civil/survey project data such as points, point groups, surfaces, centerlines, profiles, etc. When we have to pass that data onto someone using a different civil/survey program – it's a nightmare!

That’s where LandXML files prove their value.

Exporting your civil/survey data to an XML file breaks it all down into, basically, a text file. Specifically, it’s an HTML file that can be viewed through a web browser such as Internet Explorer or Firefox. For instance, when a surface model (TIN) is exported to XML, the X, Y, Z values of each point on the TIN is assigned a number, and then each “face” (triangle) of the TIN is defined by specifying the 3 corners. See the examples below:



Note that one type of data that is currently not supported in XML files is typical cross-sections or template files.

Another benefit of using LandXML to transfer or archive project data is that any combination or all of your project data can be saved in a single XML file. This is valuable because exporting ALL of the data for a project can create a massive XML file.

Even if you archive your project data in its native format, you should consider additional archiving in XML format. No one knows what kind data files we’ll be using 10 or 20 years down the road

so saving your data in such a generic, text-based format such as XML files allows for easier retrieval down the road.

Originally posted on **Carlson Connection** by Jennifer Dibona

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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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Available at:http://en.wikipedia.org/wiki/IntelliCAD_Technology_Consortium 09 April 2008

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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

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Ribbon vs. Menu… Your preference is??

I was reading a recent AP article that was similar to the article entitled Meet Microsoft’s antidote to Vista and saw the following:

> *You probably don’t know her name, but if you’re using Office 2007, the sleeper hit of the Vista era, you’re already familiar with Larson-Green’s work.*

> *She was the one who banished the familiar system of menus on Word, Excel and other programs in favour of a new "ribbon" that shows different options at different times, depending on what a user is working on.*

Hmmm… I'm wondering if she'd be willing to re-think that decision?

I'm not sure what it is about the ribbon interface but I cannot seem to get used to it. I've tried… I mean *I've really tried* to be productive with the Office 2007 ribbon but continually find myself wasting lots of time searching for a particular command whose location I could find instantly in the traditional pull-down menu system used in Windows and Office applications for the past +15 years. The article also said:

> *"We want to reduce the amount of thinking about the software that they have to do, so that they can concentrate all their thinking on the task they're trying to get done," Larson-Green said in an interview.*

The task I'm trying to get done?? I'm trying to figure out where all my favorite old commands went for getting my work done. I'm finding that I'm spending **more** time thinking and searching for commands and having less time for the task(s) I'm trying to get done. Don't even get me started on the new default file formats for Office files (*.docx, *.xlsx, *.accdb, *etc*) and having to Save As for those who haven't adopted Office 2007 and later.

Side note observation… I wonder how soon it will be until Autodesk decides to release a **.dwgx* file format? Perhaps the Open Design Alliance should beat them to the punch.

According to the frequently changing Wikipedia write-up on

ribbons:

> *Microsoft has started the process of acquiring a patent on the ribbon user interface concept[2] and licenses the ribbon design to third-party developers royalty-free, as long as the user interface conforms to the Microsoft's design guidelines and they can get an approval from Microsoft. The ribbon design guidelines are confidential and an evaluation copy is only available when a non-disclosure agreement has been signed.*
>
> *The Ribbon has been licensed by Autodesk for AutoCAD 2009…*

My fear is that when I eventually have to migrate out of AutoCAD 2008 (I'm running the ribbon-less AutoCAD 2008 and IntelliCAD and haven't even looked at AutoCAD 2009/2010), I'll be too far behind the 8-ball. Maybe I'm too grounded and comfortable with pull-down menus. I still prefer Windows XP over Vista and suspect I'd prefer pull-down menus in my CAD product like many of comments left at AutoCAD 2009 – How do you use the Ribbon? blog. Perhaps it is time to accept the fact that ribbons are likely here to stay. However, if my CAD productivity takes a hit due to the migration to ribbons like my Office productivity took a hit, I suspect I'm "going to have some 'splainin' to do." Personally, I'd love to have a one-to-one chat with Julie Larson-Green (*a.k.a. "Microsoft's antidote to Vista*") to learn why throwing away +15 years of interface familiarity is/was a good idea.

What do you think?

[polldaddy poll=1552888]

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

Working with Land Desktop or Civil 3D Contours in IntelliCAD-based Carlson Programs

If you are working in an IntelliCAD version of Carlson Survey or Civil and need to bring in surface entities (contours) from a Civil 3D (C3D) or Land Desktop (LDT) drawing, it's actually very easy to do. However, it's not necessarily easy to find on your own. And, unfortunately, it's in a slightly different place depending on whether you're using the Carlson Survey or Civil menu.

FYI – If you simply try to "Open" a drawing that has AECC Contour Objects with an IntelliCAD-based program, it may look correct, but the entities will only be the dreaded "ACAD PROXY OBJECTS" that have bogus elevations. These are only good to look at… not work with.

Whether you're using Survey or Civil, the only thing you'll need is a drawing file (DWG) containing the C3D or LDT contours for the surface. It doesn't even need to be opened, you just need to have it and be able to find it. (hey, I'm getting old!).

First, start a new drawing in Carlson.

Then, if you're using Carlson Civil:

1. Go to the “Surface” menu,
2. Select “Import/Export Surface”
3. Then, select “Convert LDT/Civil 3D Surface Drawing”.

If you’re using Carlson Survey:

1. Go to the “Surface” menu,
2. Select “Import/Export Surface Data”
3. Then, select “Convert Civil 3D Surface Drawing”.

Next, you’re prompted to “Select the LDT/Civil 3D Drawing to Read”. After browsing to and selecting the LDT or C3D file, pick “Open”.

Next, you’re prompted to to “Select Converted Drawing to Write”. This will be a new DWG file containing the converted data. After browsing to a new location and specifying a new file name, pick the “Save” button.

You’ll see the conversion process in the text window. Once finished, you can open the converted drawing.

What you will find in the new drawing are all of the entities from the original LDT/C3D drawing except that any AECC Contour Objects have been converted to elevated PLINEs and LINEs.

The first step you’ll probably want to take after opening the new drawing is to join together all of the contour PLINEs and LINEs. You may want to “Isolate” the layers for the contours first.

Then use the “Join Nearest” command under the “Edit” menu. Like most cases, make sure to have the “Join Only Common Elevations” and “Join Only Common Layers” options selected.

Originally posted on **Carlson Connection** by Jennifer Dibona