What is Carlson up to?

May 13, 2010
This is a good article about Bruce Carlson and where Carlson Software is planning to go in the future…

Independence All the Way

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

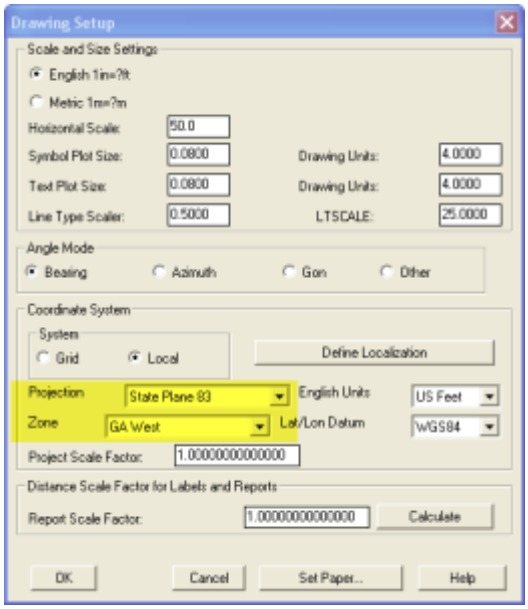
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Export IntelliCAD or AutoCAD DWG files to Google Earth

May 13, 2010
I've recently started using a very cool feature in Carlson Software. The bad thing… it was in the 2009 version and I didn't even realize it!

I had no idea exporting our DWG files from IntelliCAD or AutoCAD out to Google Earth was so easy.

1. Download and install Google Earth. You can download it here: http://earth.google.com/
2. Open any one of your project DWG files that has been positioned at its correct state plane coordinate system.
3. In Carlson, go to Settings –> Drawing Setup and then select the correct **Projection** and correct **Zone** for the project site. If you're not sure of the **Projection**, try using "State Plane 83". This will work for most systems.



4. Next, go to File –> Polyline File –> Write Polyline File. When prompted for "Polyline File Format", type

"G" for Google. You will be prompted to specify a new filename and save location for a "Google Earth File to Write (.kml)".

5. You will then be prompted to select the entities that are to be exported out to the .kml file and viewed in Google Earth. After selecting the entities, press Enter. For this exercise, we only want to see the drawing entities in 2D, so press "N" for "No" when prompted to "Use elevation from drawing in Google Earth [Yes/<No>]?"
6. Finally, you are then prompted "Would you like to display the file in Google Earth now [<Yes>/No]?". Press "Y" for "Yes". Google Earth should automatically launch and zoom into the project location.

In the example shown below and pointed out with arrows, notice how closely the new roads and designed turn lanes match up to the existing roadway. Also, you can see the designed graded slopes perfectly avoiding the tank that is to be preserved during construction.
Not too shabby…

This feature is available in all of the Carlson Desktop products: Carlson Civil, Survey, Hydrology, Construction and

TakeOff.

Look for a future post on bringing Google Earth surface data into Carlson Software. Hint: It’s easy too!

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

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The Kansas City Carlson User Group

May 13, 2010
I’m reflecting on my impressions of the inaugural meeting of the Kansas City Carlson User Group meeting held at the corporate office of Griner & Schmitz on August 20, 2009. About a dozen individuals showed up to form new business relationships with one another and draw on the strengths from their common bond.

The meeting started out with the gracious hospitality of Griner & Schmitz who hosted the event at their corporate

headquarters in Kansas City. Complimentary food and beverages were aplenty and the guests quickly found themselves forming or renewing friendships with others in attendance.

After a bit of socializing, the guests were treated to a sneak peek of Carlson SurvCE 2.5 from Carlson Software South Central Regional Sales Director Aaron Newman. Aaron demonstrated many of the new and powerful features of SurvCE and showed the attendees how to leverage the power of the Carlson Field-to-Finish routines. Throughout the presentation, one of the key benefits of a User Group is that questions posed by one individual benefits the others and attendees are generally willing to share their observations and experiences with others. After Aaron's presentation, I was given the opportunity to demonstrate some of the new features that will be released with Carlson 2010 with particular focus on surveying and the communication of information between the field and the office.

It was amazing at how quickly the two-hour meeting flew by but it is my opinion the Kansas City Carlson User Group is off to a great start. If you're in the Kansas City area in mid-October for the expected follow-up meeting, consider

dropping in for some informational aspects of the products and services offered by Carlson Software. Otherwise, express your interest in forming a Carlson User Group in your region!

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

BIM is not GIS

May 13, 2010
As someone quite entrenched in both disciplines (Civil and Architectural), I'll add my 2 cents worth on the BIM vs. GIS subject.

In my opinion, BIM and GIS are both "methodologies" rather than "products". The acronyms each have their own meaning and refer to designing, building, and managing information in a full life-cycle.

Each discipline has its own standards; from CAD standards to design standards (think of AIA vs. AASHTO), but both BIM and GIS rely on correct As-Built data to provide accurate

information about their models.

BIM

The National BIM standard states the definition of BIM as:

"BIM is best thought of as a digital representation of physical and functional characteristics of a facility…and a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle; defined as existing from earliest conception to demolition."

Autodesk has taken the BIM acronym that has provided a great deal of success with their Architectural Modelling packages and applied it to their Civil products as well. Their logic appears to be that its a "3D" product, therefore it is a "BIM" product. I believe that it is irresponsible to change terminology to simply advance product sales.

On the Autodesk Web Site, Autodesk lists a number of products as being "BIM" products:

- Revit
- Navisworks
- Design Review

- AutoCAD LT
- + several more

With the acronym meaning *Building Information Modelling* (with *building* being a *verb* **OR** a *noun*), its interesting to see products such as **AutoCAD LT** and **Design Review** being shown on the list.

Revit
Revit is a Design Tool that allows the storage of certain pieces of information as well as the ability to add custom fields (heating capacity, cooling capacity, etc.) to the actual objects.

Navisworks
Navisworks integrates information from multiple data sources to provide a cohesive collection of information (graphics and data) to analyze things such as clash detection (HVAC duct work clashing with structural components, etc.).

AutoCAD LT
AutoCAD LT is Autodesk’s low-end design package. Apparently, any DWG file creation tool is now a BIM product as well.

Design Review

Design Review is a light-weight DWF viewer and markup tool. While it has been used as a backbone of products such as FMDesktop, its neither a Design tool, nor a Modelling tool.

FMDesktop

Absent from the list is FMDesktop. FMDesktop was one of Autodesk's tools for managing the Building Information and Autodesk just dropped the product (***Note*:** There are dozens of Facilities Managent Products available that provide similar capabilities such as FM:Systems, Archibus, Tririga, Manhattan, Cadapult, Famis, and more).

In the 2006 – 2007 time frame (when Autodesk acquired FMDesktop), Autodesk themselves showed customers Power Point slides regarding BIM. These slides showed where the "Design", "Build", and then "Operate and Manage" processes were performed. FMDesktop was Autodesk's solution to tell the story of the building lifecycle and where the *information* was to be *managed*. These were broken down into 2 sections: The "Data Collection" piece and the FMDesktop piece.

Data Collection incorporated the Design (several disciplines such as Architects, MEP Systems Engineers, and Structural Engineers) as well as the majority of the Build process. The

FMDesktop piece overlapped the Build process and then took over for the “Operate and Manage” process.

In my opinion, building that model of information **AND** managing that information is the true test of a “BIM” solution. There is no 1 product that is a “BIM” product. Its a series of technologies that are incorporated to provide the “information”.

Ultimately, a database component is required to work with the graphical representation of data (which certainly could be referred to as the “Building Model”).

GIS
GIS is BIM’s counterpart whereby Geographic (position on the planet) information is being stored and managed.

Most end users might think of GIS solutions as Google Maps or Google Earth where they can enter an address and out pops a graphic representation of that location or directions on how to get there. The graphic is just the tip of the iceberg. Without the data, the graphic would simply be a pretty picture.

Just as with BIM data, GIS data utilizes design tools to build the graphics and As-Built data and then tools to expand upon the As-Built information.

While there are a number of individual products on the market to assist in the creation, manipulation and distribution of GIS data, a complete GIS system involves more than 1 product or techonology.

A couple of the common Design Products are: Autodesk Civil 3D and Carlson Civil Suite

AutoCAD Civil 3D
Civil 3D is an object-oriented design tool for Civil Engineering applications. Because the tool is object oriented, the end product is not easily distributable. The data can be transferred to other links in the GIS solution chain by using technologies such as LandXML, but the graphical interaction is lost in this process (i.e. the objects are lost).

Carlson Civil Suite
Carlson's Civil products work with DWG files in an AutoCAD or IntelliCAD DWG format. Because the data is stored as

compatible DWG information with external data files, the data is easily transferred to other products in the GIS solution chain.

Managing the data developed in the design process is the next component of the GIS life-cycle. A number of products provide those solutions: ESRI ArcGIS, Vueworks, and Custom Mapguide Solutions.

ESRI ArcGIS
ESRI's shp (shape) and adn (coverage) files are quite possibly the most prevalent GIS specific data files available and are often integrated in GIS solutions. ArcGIS allows GIS solutions to be deployed similar to FM solutions in the BIM world.

Vueworks
Vueworks is an organization that builds GIS and Work Management solutions using the ESRI base applications.

MapGuide
MapGuide is Autodesk's development environment to build GIS applications. It is often used in concert with ESRI, Microstation and Autodesk data files.

GIS Standard

While there is not yet a concensus on a singular GIS standard, there are independent Spatial Data Standards employed by each digester of GIS data. You can view some of those here:

- Denver Colorodo Spatial Data Standard
- Oregon Spatial Data Standard
- Federal Geographic Data Committee

Both GIS and BIM perform very specific functions in accordance with their own disciplines. While the terminology is often mis-used, they refer to unique information systems; BIM in the structural facility world and GIS in the geographic world.

Originally posted on **Carlson Connection** by Jon Luby

BIM for Civil… Not

May 13, 2010

Several months have passed since I made my original post BIM This, BIM That… What is BIM?. In that time, I have asked a lot more questions, read a lot more on the internet and had a lot of discussions with Ladd and Felicia and also read the post by one of our commenters. I think I've developed a more concrete idea about BIM and how it applies, or doesn't, to the civil/survey world and where the various software packages stand in regard to their "BIM-ability".

Now, after all this additional information has percolated in my brain, I'm drawing two main conclusions:

1. It's a fact that the term BIM as it's always been used applies to actual **BUILDINGS** – the noun form of the word. But, more specifically, it starts with construction drawings/design data but then incorporates the as-built data and, over time, continues to grow and collect data through the entire lifespan of the building.

Nothing in all this discussion of "BIM for Civil" gets beyond

construction drawings and design data of a civil project. Autodesk is trying to stretch the definition of BIM to cover Civil 3D even though they never move beyond the design process with it either.

Remember, we do not talk about “BM” or Building Modeling. And, we don’t work with “GS” or Geographic Systems. The “I” is THE critical factor. And the “I”, or Information, piece of BIM is so valuable because it chronicles and helps manage the building through its lifespan.

To be able to legitimately call what we’re doing with our Civil programs “BIM”, we would need to have a mechanism to attach some sort of database or information to the objects in our drawings.

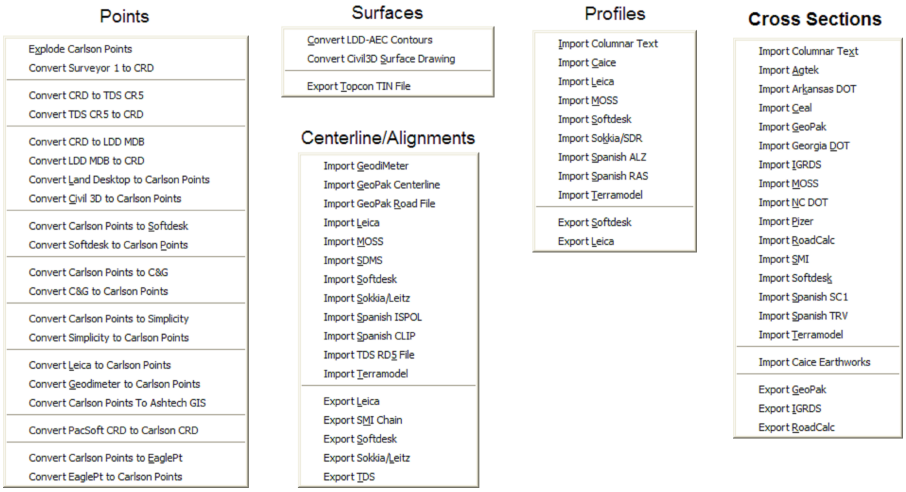
I know, I know… that’s why Civil 3D is so great – you can attach data to the objects. But, remember, we’re talking about attaching ***AS-BUILT*** data to these objects. Even though we could attach data using Carlson GIS or AutoCAD Map or ESRI, it’s simply not part of our current project scope to go back into our construction drawings and update them with as-built data so that:

- maintenance schedules are attached to roadway template surfaces based on asphalt type,
- model numbers are associated to pump stations or
- inspection reports and flow rates are attached to fire hydrant blocks.

My conclusion here is that neither of these products – Carlson nor Civil 3D – meet the true definition of a BIM for civil. Until we start addressing the Information piece for the lifetime of a project, starting with the as-built data, using the term BIM is wrong.

In my opinion, if anyone has the lead on this in the civil arena, it's ESRI.

2. Just because we don't yet attach as-built data to our objects doesn't mean that the data we do attach to our objects isn't valuable. But, leading to my 2nd conclusion, why is it valuable? It's only valuable if it can be shared. And this is where I believe Carlson has the undisputed edge. The image below shows the number of formats and other programs that Carlson is able to import data from and export data to.



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

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Carlson Webinars – BIM, GIS and CAD Standards

May 13, 2010

Carlson Software recently asked Felicia and me to present webinars on topics we have particular interest in or specialize in.

That CAD Girl

Felicia's webinar on BIM, GIS and Carlson Software can be viewed here: BIM, GIS and Carlson Software Webinar

My webinar on CAD Standards can be viewed here: CAD Standards for Carlson Software with AutoCAD or IntelliCAD

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

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Carlson 2010 Sneak Peek

May 13, 2010
The highly anticipated Carlson 2010 release offers clients hundreds of new or improved features from that found in Carlson 2009 and continues Carlson Software's track-record of delivering responsive solutions to client-requested technology needs.

Carlson-IntelliCAD GIS Starter Kit from ESRI

May 13, 2010
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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Another Twist for World

May 13, 2010
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

Carlson + ESRI = Wow!

May 13, 2010

So, how cool is this?

At the Carlson User Conference this week in Lexington, KY, Brent Jones of ESRI announced a new grant program in coordination with Carlson Software. The program will bring ESRI products to every IntelliCAD-based Carlson program.

Speaking with Brent on Tuesday, he said that a few of the details have yet to be worked out, but Carlson IntelliCAD users should be hearing details in about a month.

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