

CI10536

From Data Shortcuts to Vault and Buzzsaw—A Piece of Cake

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Learning Objectives

- Learn the advantages to referencing AutoCAD Civil 3D objects, and then how Vault can improve this process.
- Learn what Vault can do for your business
- Learn how Vault can be capitalized on in a business with multiple geographic locations
- Learn how to collaborate and share files with external stakeholders using Buzzsaw software

Description

Data shortcuts provide a flexible, object-level, project management tool without the administrative overhead. Data shortcuts are managed in the Toolspace on the Prospector tab in a structure that is similar to Vault software. However, data shortcuts do not provide the editing controls, protection, and data security that Vault software does. Do you know what Vault software is? Do you know what Vault software is really for? Do you know why you should use it? Do you have challenges managing data while working in project teams? Are you part of a civil/survey firm with multiple geographic locations? Do you need to collaborate your civil projects with external partners? Have you ever registered for a 30-day free trial of Buzzsaw software? Come and join us as we give you “A Piece of Cake” of how to install and implement Vault software and Buzzsaw software for civil/survey firms with multisites.

Your AU Experts

Matt Kolberg has over 22 years of experience using Autodesk products; 13 of them in production design and drafting, 9 of them as an Application Specialist providing instruction, implementation, and customization services for many engineering consultants. He is well-known in the AutoCAD and Civil 3D communities and he is the president of his local Civil 3D user group.

Hung Nguyen has 22+ years of experience in Autodesk products. He has a strong background in the architectural, mechanical, plant design, and manufacturing fields, and he is a Building and Manufacturing and Plant Solutions technical consultant. Hung has extensive experience in the areas of manufacturing, plant, mechanical design, architecture, and structural detailing; and he is knowledgeable in a diverse range of CAD/CAM-related software and digital simulation. He is an Autodesk Certified Instructor, and has presented at CanBIM, Revit Technology Conference, Canadian Festival of Architecture, and Autodesk University 2014.



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Introduction

What is the purpose of this class?

This class format is a series of Q&A where we will take a big step back and answer the more important questions that you have about Civil 3D's Data Shortcuts feature, Autodesk Vault and Buzzsaw applications. We'll show what it is, but more importantly, why you need to use it. This class is instructed through a series of conversations that involve a client and a technical support person. These two will convey a story that should sound very familiar to most of the attendees.

This handout is formatted to direct you to a series of videos that will explain and answer those questions being asked. The videos can be downloaded by clicking on the links provided below. These videos will be available after Autodesk University 2015.



Data Shortcuts

The Advantages to Referencing AutoCAD Civil 3D objects using Data Shortcuts

A data shortcut provides a direct path to the location of a shareable source object. In a single operation, you can create data shortcuts for multiple objects in a source drawing. The data shortcut is used only for the creation of data references.

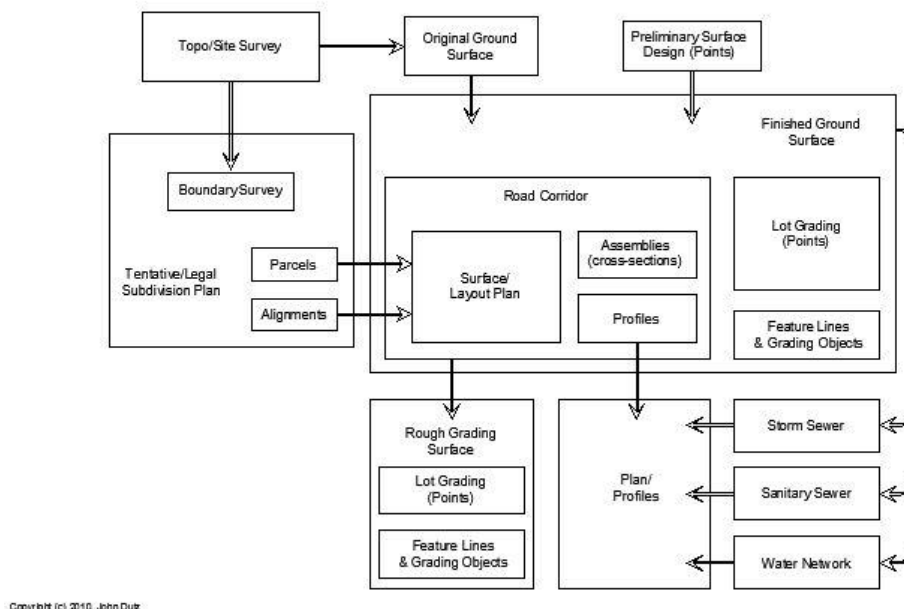
A data reference is a read-only copy of a source object, inserted into another drawing, often called a consumer drawing. From the Prospector tab, you can select a shortcut for an object and create a reference to that object in the active drawing. The data reference maintains an active link to the source object in the source drawing, without relying on the data shortcut.

Using Data References with Vault allows for an easier method for selecting objects to share. It is also a superior tool for managing the relationships between the source and target files, especially if the source files are renamed or moved to alternate folders.

Q1: My drawing is too large and unwieldy, how can I make it faster? A better computer, more RAM, better video card?

Maintaining good performance with your Civil 3D models is partially about your hardware, otherwise it's about how well your model is organized. Civil 3D's dynamic engineering model allows for a change to a single design element resulting in affected sub-elements to be automatically updated. This behavior enables many model iterations in a short time span, but it requires adherence to typical model organization methods. Simply by storing some objects in their own dedicated DWG files and then using the Data Reference technology to reference and synchronize them, you will see significant performance gains.

Civil 3D Object Relationships
for Large Subdivision Plans



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Image courtesy of [John Dutz's blog](#).



Check out [this document](#) by Jason Hickey and Joshua Coombs of Autodesk if you want to learn more about optimizing your performance of Civil 3D. It's a little on the older side, but there are some excellent tips that are still valid today.

Q2: My DWG became corrupt on me and I lost everything. How can I safeguard my data besides backups?

Drawing files seldom become corrupted, but on the rare occasion they do, it will cause rework. How your files are managed will affect how much rework is required. If your entire model resides in a single DWG file, the amount of rework required will be whatever you did since your last BAK file, AutoSave file, or your system backup. If there were no BAK, AutoSave, or recent backups, your effort could be monumental and could entail re-creation of the entire model. If Data Reference technology was employed to split your model between 2, 5, maybe 10 DWG files, it would be highly unlikely that the entire model would need to be recreated. Instead, only items within the affected DWG file would require re-creation.



Q3: I'm working on a project and the deadline is getting down to the wire. I need help, how can 2 or 3 people access my DWG at the same time?

The AutoCAD DWG engine does not allow for simultaneous editing amongst multiple users. Splitting your design into multiple DWG files using Data Reference technology allows different model elements to be edited by multiple team members at the same time. Use the synchronize tool to update DWGs once a user has made changes.



Q4: Matt, it seems that many of my problems can be solved by using Data Shortcuts; where can I learn the concepts and procedures for managing data shortcuts?

There are four essential steps you need to follow.

- a. Set your working folder.
- b. Create a Data Shortcut project.
- c. Add your data shortcuts.
- d. Create a reference to the object.

There is an excellent tutorial online which you can find [here](#).

See my video [here](#).

Q5: So I tried Data Shortcuts and I end up with broken references if I move a file to a different folder.

Data Shortcuts are very sensitive to the locations of your files, like AutoCAD XREFs. You'll need to use the Data Shortcuts Editor to fix these now. There is some information online about how to do this, you'll find it [here](#).

Implement Autodesk Vault, however, and you'll have no more worries about moving, or even renaming your referenced source files. You can even find out which files are consuming your XREFs and Data References.

You'll have to stick around for the next segment to see how.



Autodesk Vault

What can Vault do for your business?

A data shortcut provides a complete reference copy of an object that you can import from one drawing into one or more additional drawings. Data shortcuts provide a flexible, object-level project management tool without the administrative overhead that is associated with Autodesk Vault. Data shortcuts are managed in the Civil 3D Toolspace on the Prospector tab, in a structure that is similar to Autodesk Vault. However, data shortcuts do not provide the editing controls, protection, and data security that Autodesk Vault does.

The integration between Autodesk Vault and the AutoCAD Civil 3D software provides a consistent user interface between the Prospector tab and Vault Explorer. When AutoCAD Civil 3D software objects are shared they act like files in Autodesk Vault, enabling you to easily see the relationship between source drawings, objects, and consumer drawings. This also enables you to search for specific objects or drawing files using the Vault search capabilities. AutoCAD Civil 3D software projects can be searched based on folder properties. Also, when working in a Connected Workgroups environment, it is possible to manage drawing and object ownership right from the AutoCAD Civil 3D software.

You can access the data management tools provided by the Autodesk Vault add-in from a number of locations, including the Prospector tab in the Toolspace, the X-ref manager, the Sheet Set Manager, and the Vault tab on the Ribbon

In many multidisciplinary firms, multiple groups are responsible for editing civil project drawings at different times throughout the course of the project. A project typically starts with the surveying department, and then gets turned over to the engineering department, then over to the drafters/designers, and back to the surveyors for staking out the project. Lastly, it goes to the construction managers to ensure that it is built properly.



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Q6: Matt, What do I need for Vault installation and where can I download it?

Vault has two main components that require installation.

- a. Autodesk Data Management Server on its own server.
 - i. Vault server.
 - ii. IIS.
 - iii. SQL server.
 - iv. Autodesk thin client (web client).
 - v. Network license manager.
 - vi. If you'll be using Vault replication, the Autodesk Vault File Server.
- b. Vault Professional on each client computer.

Before you head out and install Vault, it's very important to [plan your attack](#).

You can download Vault Server from Autodesk Account found [here](#)

If you need to size your Server and get it ready for Vault installation, go [here](#). (You must use your Autodesk login credentials).

Q7: Hey, how can I create my Vault and upload my C3D projects into the Vault?

Very simple, Hung. Creating a Vault is done using the ADMS console on your Vault server.

Adding Civil 3D projects can be done right within Civil 3D's Prospector.

Watch [this video](#) to learn how to create your first Vault.

[This one](#) will show you how to load your Civil 3D project data into that new Vault.

Q8: Matt, where and how can I create user names, groups and rights for people in my firm?

Piece of Cake. Most firms employ a practice where some data should be available for some users to fully create and edit; that same data being read-only for other users. And this dynamic can even change throughout the project lifecycle. Autodesk Vault is able to handle this practice easily.

I made [this video](#) to explain where and how to create user names and groups

This Autodesk [Knowledge Network document](#) can guide you as well.





Q9: Earlier you said you were going to teach me how I can resolve those broken references using Vault...show me!

Indeed. Here is [an example](#) of a source file being lost without Vault compared to how the relationship is maintained with it.

Q10: ... Matt, how can I access the Autodesk Vault Web Client?

Well, the thin client needs to be installed onto your Vault Server, but after that, all you need is a web browser and a URL. **http://servername/AutodeskTC**, where servername is either the IP address or the name of the computer hosting Autodesk Data Management Server.

In [this video](#) I will demonstrate how to access a Vault using the thin client.

Here is an [Autodesk document](#) which describes this process.



How Vault can be capitalized on in a business with multiple geographic locations?

Vault data management software is available in different configurations. Compare Vault Basic software to the advanced functionality and features in Vault Workgroup or Vault Professional software.

	<i>Vault Basic</i>	<i>Vault Workgroup</i>	<i>Vault Professional</i>
<i>File store</i>	✓	✓	✓
<i>Versions</i>	✓	✓	✓
<i>Properties</i>	✓	✓	✓
<i>Security</i>	✓	✓	✓
<i>Dependencies</i>	✓	✓	✓
<i>Move & Rename</i>	✓	✓	✓
<i>Copy Design</i>	✓	✓	✓
<i>Visualization</i>	✓	✓	✓
<i>Reporting</i>		✓	✓
<i>Non-CAD Access</i>		✓	✓
<i>Release Management</i>		✓	✓
<i>Integration</i>			✓
<i>Replication</i>			✓
<i>Bill of Material/Change Orders</i>			✓
<i>Web Access</i>			✓

1. Vault Basic

Vault basic is the base level of the Autodesk Vault suite. It comes full of great functionality and is included, for free, with your CAD application install or a Vault Office license

File Store

The file store and the database server work with each other. The database provides the index information for the location of the files. The file store is the secure location on the server where the files are located.

Versions

Versioning of files means to store historical “snap-shots” allowing you to revert to them if needed.

Properties

Properties are attributes associated with a file. Property management means to pull properties from your files, allow you to search on them, and even edit them.

Security

Security can be configured by roles as well as at each folder level. In the pay-for Vault products, security can be overridden by lifecycle states.

File Dependencies



File relationships are stored and managed in the Vault.

Move and Rename Commands

Moving and renaming of files might seem like a simple task. But Vault is doing even more. The Vault is repairing the relationships of the files.

Copy Design

The copy design feature in Vault allows you to create new design objects by copying existing data within a vault. Depending on which design application you are using, copying a design involves copying a drawing and its related files, or copying an entire design structure along with the related 2D drawings for 3D models.

Visualization

Visualization files are created and attached to data files automatically when files are checked into the vault. Visualization files are only created for files that have changed or for files that do not have visualization files published already. Automatic publishing can be turned off to save room and keep the size of the vault down.

2. Vault Workgroup

Vault Workgroup includes all of the functionality listed for Vault Basic plus the added benefits of revision control and release management.

Reporting

Create Vault project reports to help you manage your vault data. Vault Project reports contain information on files, sub-projects, items, and change orders within the project.

Non-CAD Access

Vault basic users can only install Vault if there is a qualified product on the machine. This can be a constraint for people that want to use Vault but do not use a qualifying CAD design application. With Vault Workgroup, Vault can be installed without this restriction.

Release Management

Lifecycles and States to automatically drive behaviors and differentiate file statuses in the design process. Examples of states are Work in Progress, For Review, or Released. An object moves from one state to another based on the lifecycle definition's transition rules. These transition rules determine when the state change happens, if it can occur manually or automatically (or both), based on criteria determined by the administrator.

3. Vault Professional

Vault Professional includes all of the functionality listed for Vault Basic and Vault Workgroup plus the added benefits of Bill of Material management, replication, and web access. It is the most fully loaded Vault product available.

Integration

ERP (Engineering Resource Procurement) systems track a bill of materials (BOM) after it has been released to manufacturing. ERP systems track information on all purchased materials. Vault Professional bridges the gap between tracking CAD design development and ERP



management tools. The integration of an ERP system into Vault Professional allows item and BOM information to be exchanged between Autodesk Vault Professional and other products.

The focus of Vault Professional on the design data and the focus of ERP on financial and inventory data allows data for the manufacturing process within a specialized system to be managed and also keeps the ERP system accurate and up-to-date.

Replication

Replication is the process of copying data from one server to another server usually located in two different physical locations. This process allows the setup of a Vault environment which has two different locations and users will not have to spend time downloading large CAD files across their Wide Area Network (WAN) connection.

Bill of Material & Change Order

A BOM summarizes the information needed for manufacturing a specific revision of a part or product. The summary of items includes the item numbers, quantities, part descriptions, lifecycle state, and other properties that are required throughout the design release and manufacturing processes.

Vault professional extracts BOM data from design files and allows you to manage the BOM from within the Vault product.

Web Access

The Autodesk Vault Web Client allows you to perform read-access tasks in a vault, such as searching the vault and viewing file history. If you have a Vault Office license, you can also perform file management tasks.



Autodesk Buzzsaw

How to collaborate and share files with external stakeholders using Buzzsaw.

Buzzsaw® is data management software as a service (SaaS) that helps enable Building Information Modeling (BIM), Civil 3D workflows. It includes tools for documentation, modeling, and data management, and it is integrated with the Autodesk portfolio of design and data management solutions. Access Buzzsaw securely from your desktop, the web, or your mobile device.

With Buzzsaw cloud-based software, project teams can better centralize and more securely exchange and synchronize project information, enhance team collaboration, and support Building Information Modeling (BIM) workflows. There are two Buzzsaw solutions: Buzzsaw and Buzzsaw Pro. To choose the right solution, you can see the comparison between the products [here](#).



Q11: ... Matt, Can I register for a 30 days Buzzsaw free trial?

Definitely! You can register a 30 day free trial [here](#).

Q12: ... Can you show me how to enable my Buzzsaw to share files with external stakeholders?

Piece of cake! I've made a video to show you how. Click [here](#).

Q13: ... How can I setup Vault to sync with Buzzsaw?

Piece of cake! [Here](#) is the video I made to show you the steps for Share to, Update from and Add from Buzzsaw.



Conclusion.

There are many reasons to use Civli 3D's data shortcuts; from performance to team collaboration, and more. Using them in conjunction with Autodesk Vault will yield even more advantages. Even more if you are working across a Wide Area Network and you decide to replicate your vault file store using the Autodesk Vault File Server. Collaborate with your customers using Buzzsaw and you have a winning combination of Autodesk solutions to help you win more business by being an efficient, well-oiled engineering machine.

Thank you,

Matt Kolberg

Hung Nguyen

