AUTODESK UNIVERSITY 2013

Autodesk Vault Professional Meets Alice in Wonderland: Down the Rabbit Hole We Go!

Jason Eggen – Strathcona County
(Co-presenter Jeffrey Orr) - Strathcona County

CI3284-P

This class presents a real-world example of a local government trying to introduce Autodesk Vault Professional software, and all of the challenges that were encountered while doing so. Find out what was learned from the process and some of the issues, including the need to upgrade a server to meet IT department standards, and figuring out how to apply Vault roles and permissions into the business workflows when it has not been mapped out.

Learning Objectives

At the end of this class, you will be able to:

- Explain the importance of mapping out the process both for the project and business workflow
- Avoid the pitfalls and Obstacles
- Define roles and permissions
- Tie them back into Vault Professional
- Bring it all together in the end

About the Speaker

I am the Supervisor - Design / Cad Manager for Strathcona County based in Alberta, Canada. For the past nine years I've been working in the civil field; designing road projects for older neighbour-hoods. I also provide technical support and training for our Autodesk users and the implementation of Cad Standards. With Implementation Cad Standards I held information sessions on the benefits for a regional Cad Standards. I graduated from the Northern Alberta Institute of Technology's Engineering Design and Drafting Technology program; starting work in the Oil and Gas field drafting well sites and pipeline rights-of-way plans. Next I moved into the GIS world where I mapped the assets for the oil companies. I have been using Autodesk products for close to 20 years, starting with AutoCAD R14.

jason.eggen@strathcona.ca

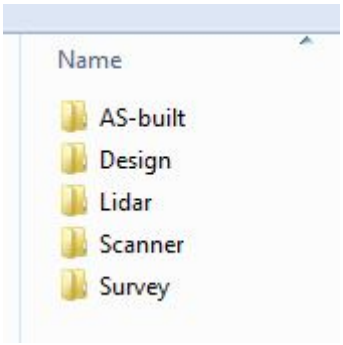
The Reasons for using Vault

There were many reasons why Strathcona County went to Vault Professional. First was Strathcona County had a file management system (FMS) in place. It was created back in the early 2000. FMS was designed to work with Microsoft Office products and Novell Groupwise (E-mail) that was in a folder structure format. The typical engineering work flow wasn't built into FMS so that it wasn't able to manage our ACAD drawings. The Information Technology group set up Windows Explorer structure for the engineering group to manage projects and drawings.

What I would like to do next is to show what Strathcona County's existing process was and how the different groups used folder structures and what were the issues with this system.

Existing Process:

Information Technology (IT)



Will start with information technology group (IT); they are in charge of managing the security rights for the folders. For an example the surveyors had Read/Write/Modify rights to their Survey folder but designers and project managers had read only. They were also keeping back-ups of all the data.

Some of the issues with this existing process were: managing the rights was not a easy to keep up to date because we were having staffing challenges. If someone new started or transferred to a different department there wasn't a way to track those changes. Our Document Management System was not flexible enough to correctly manage drawing files. Back-ups were stored off site, which is normally a good practice; however it affected the timely delivery of our back-ups.

Surveyors

Now we move over to our Surveyor Group. The surveyors would get a form requesting for a survey. The surveyor crew chief was responsible for compiling the data and creating a topographical drawing. The reason for them completing the topographical drawing is that they were the ones out in the field. The surveyors would only work in the Survey folder to compile their work in and have nobody else manipulates their data. When the surveyor was done with a project they would copy the drawing over to Design folder. The surveyors would also create back-ups to protect the project. They would zip the project up and store the data on CDRs in the office. The surveyors would also send data to outside consultants for them to use in a current project.

Here are some of the issues that face the surveyors. Once upon a time both the surveyor and designer would work in the same file. It also was stored in one location. The problem with that is they both were making changes to the same file. Who had made the changed to the drawing and how could you go back if you needed to? They would share files with outside sources and

unaware to best practices of how to package the data. Finding status of a given project after a survey had been shelved was also an issue.

Designers

Now the designer would work on completing the design. They would work with the drawing the surveyors copied into the design folder. During the design process they would work with the surveyors (scope creep), project manager and responsible member. Then we would create a set of drawings for tendering and construction.

Some issues that came from our workflow were if there was new survey data captured you would have to isolate the survey layers and then delete them. Then W-Block the new drawing in and explode the drawing to get the new data. Another big problem was tackling who made changes to the design drawings (revisions). Finding the status of a given project after design had been shelved continued to be an issue.

Project Mangers

The project manager (construction) would work to put the project out to tender. This meant that they would go into the design drawing to get quantities they needed. Sometimes they would create a copy of the design drawing for them to work on. The PM would also work with the designers and the surveyors during construction phase of the project. If there are changes to the project they inform all the parties to help manage the changes.

When the project manager would go into the drawing to get his quantities they would turn layers off and on. This wouldn't normally be a problem but every once and a while they would save the drawing and override the design drawing. Then designer or project manager would go into the drawing and unintentionally print the wrong information. Finding status of a given project after design had been shelved. Project info and drawings not always filed together, using separate document management systems.

What we are going to talk about is a project that we are currently building and how the issues that we were talking about above can to light.

Example: (Lakeland Drive Trail)

The project was initially started by someone drawing a line on a map. Then it was brought forward to Council and approved as a project. The project was had over to the surveyors to gather the data for the project. The surveyors originally started the project in Land Development Desktop then it was rolled over into Civil 3D. When they were done with gathering the data, the project was handed over to the designers. The designers completed the design and the project was handed over to the construction project manager. The Project Manager had utility locates done and found out that there was a missing gas line that affected the design. The project went back to the designers and a redesign was completed. Then the project was put on the shelf as we found out that we didn't have all the permissions required in the utility corridor. A year went

by and we finally got approval to build the trail but found that the trail was now too close to the power poles and needed to redesign the trail again. The following year the trail went to construction group to be built. The Contractor hydro-vacced the gas line and found the gas line was too shallow and a fourth redesign was required. This project was start in 2008 and will be completed in 2014.

Survey in 2009

Construction in 2013

Project Summary:

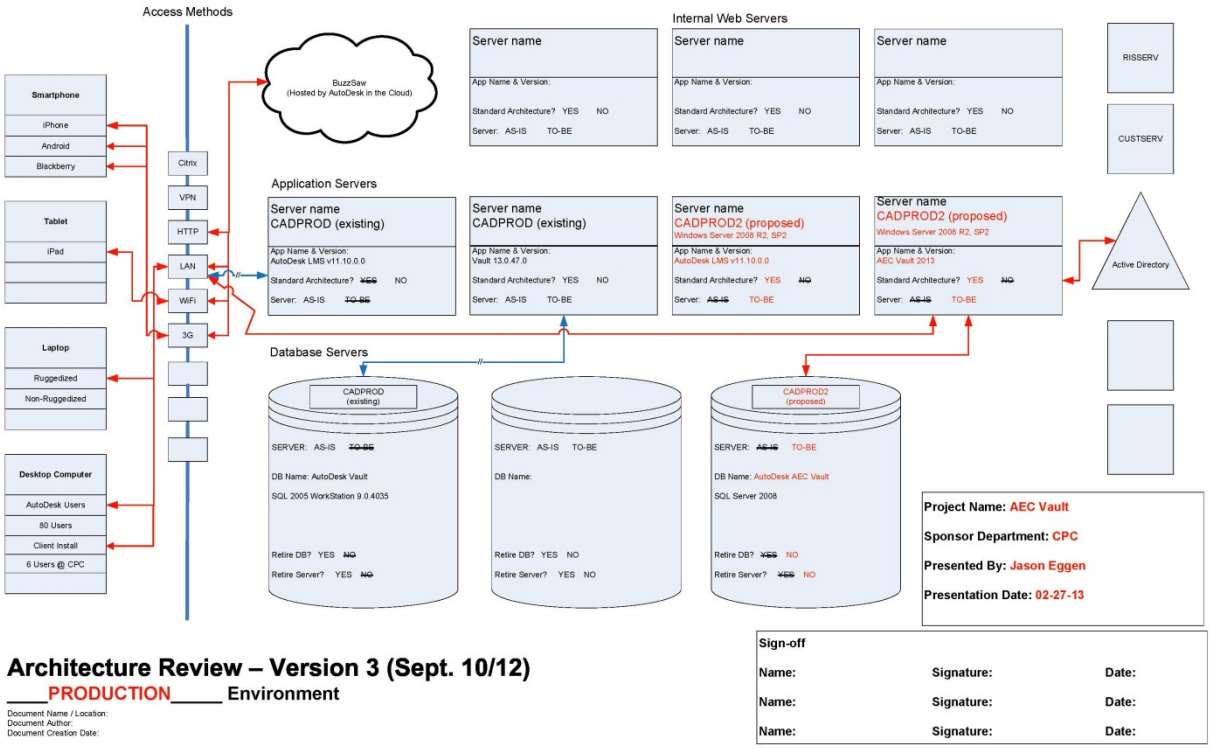
Without Vault, Pitfalls were	**How Vault could have helped:**
Five different PM and Designers	Roles and Permissions
Process was not mapped out	Life Cycle Definition
Who did what?	Versions
What was the status of the project?	Life Cycle State & Revisions
Where were the back-ups?	Vault Administrators

The need to work with "IT"

In September of 2012 we meet with Autodesk and Imaginit Technologies to talk about AEC Vault Collaboration and the Strathcona County's need to move to a project management system. It was agreed that we would work together to implement AEC Vault. It was decided that the next step was to talk to our IT department and understand what were the department needs to get the project rolling.

We sat down with IT and talked about our current server and IT noted that there was a new standard for the servers. We were running a dedicated server and IT recommended that we move to a virtual server. The current system was Windows Server 2005 with SQL Server 2005 and the new standard was Windows Sever 2008 R2, SP2 and SQL Server 2008 R2. It was also noted that there was a new process that we need to go through.

This process is called an Architecture Review which we need to take it to IT sub-committee. What they were looking for was how the current system worked. Also needed to now how the new application was going to interact with existing infrastructure and application. We needed to show them what type of equipment would be used. What was the access method from the equipment to the application server to access the data off the database server? See Figure below.



Once the group signed off we were able to request to set-up a Lab testing environment.

The first thing we needed to do was fill out form called Virtual Server Request. This form was looking for the memory needs, storage for the server, and the number of users. This was a good thing to do because it made us think not just about current needs but the next five years out. Once we completed the form, IT set up a lab environment. It was decided that we would set up the new lab environment on the production side. The reason for this was it would be easier when we roll this out to the corporation.

We worked with Autodesk to set up the lab environment with as few hiccups as possible.

- **Pro Tip: One Thing is to make sure you have the right rights for the server**.

Part of the setup we had to create a "how-to" document to show the steps to reproduce the installation. This document was created for IT to use if they needed to re-create the server.

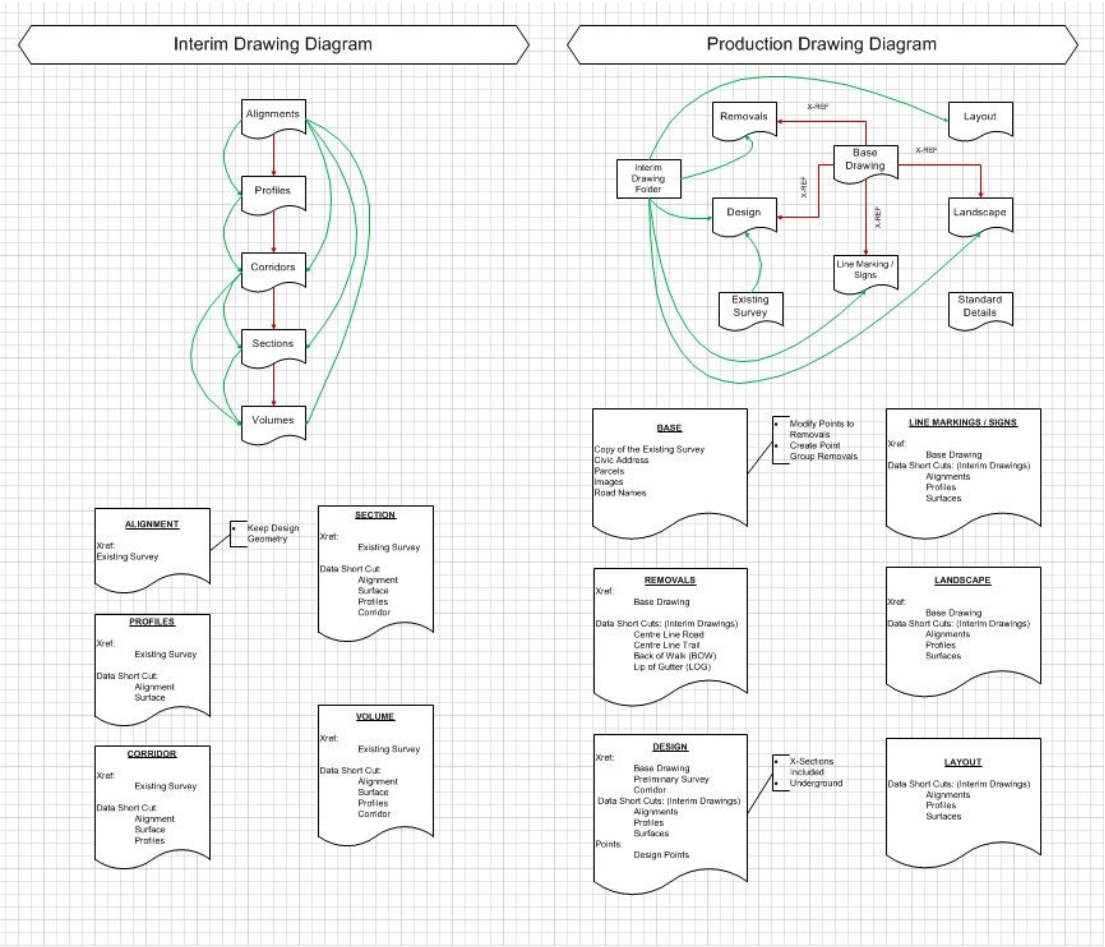
When we started to test Vault it became clear we needed to map out our process on how we manage projects; more on this later. When we were finished testing AEC Vault we went back to IT to move the server into production. There was another form we had to fill out called Change Control. IT was looking for background, impact, disk consumption, system affected, implementation, testing, risk/rollback, and user notification. Also with the form we needed to get signatures from all departments affected by this change. These include ITs different branches. We had to then present to the whole IT department for any questions or concerns. During the meeting discussion on the timing of the update and if there was any other project that might be conflict was raised.

We got approval to move server from the lab to production. We needed to notify all the users that the old server was going offline for a weekend and that when they got back the server would be upgraded.

The Vault upgrade team had to go back to IT change control group and update them how the project went and if there was any problems.

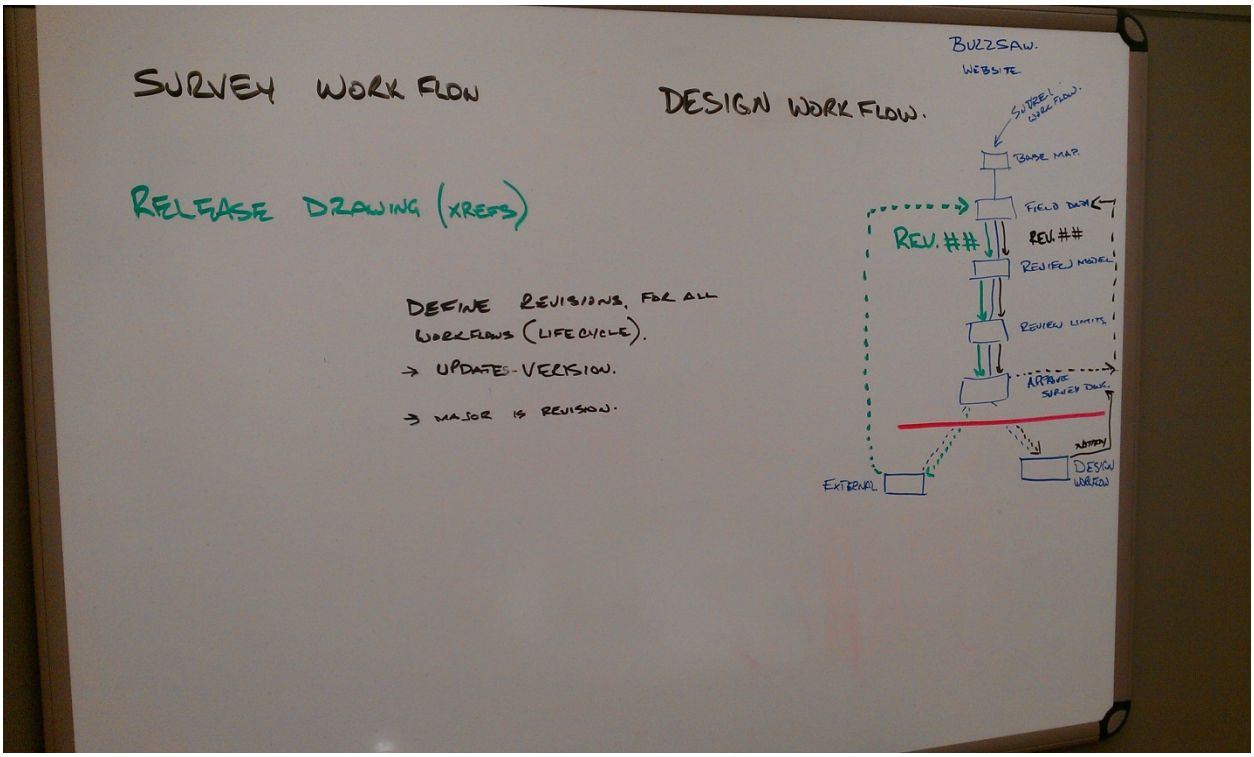
Mapping Work flows

As we were testing AEC Vault we started to map out the workflow for the designers and how we were going to uses Vault and Civil 3D together. Design group can up with this workflow.



We decided that we would have two workflows for dealing with design projects. The first one was to deal with initial design and the second to deal with production when we are ready to publish the drawings. We needed to map out how we would use xrefs and data shortcuts together in a project.

Then we started to look at how the surveyors work and how could you incorporate there workflow with designers.



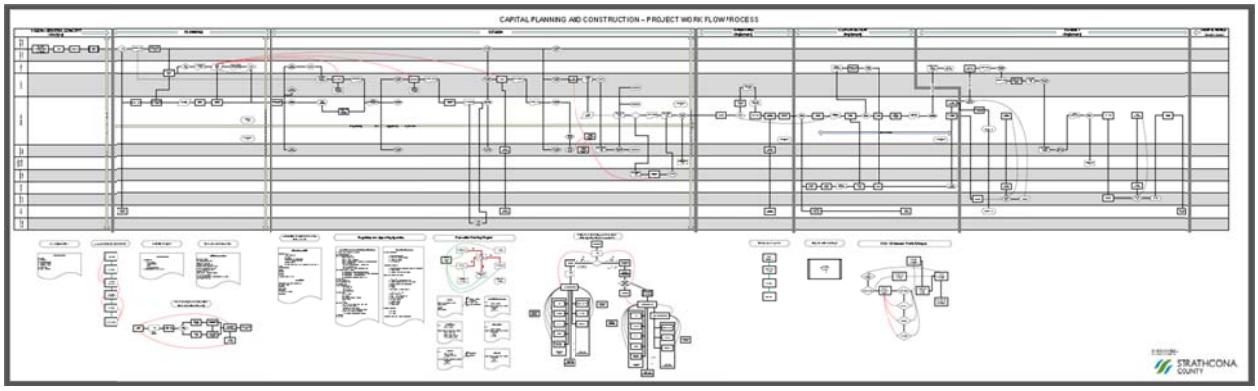
When we were doing this it started a second conversation with project managers and how do their workflow work with the designers. We need to create a swim diagram showing how each group work with each other.

We created a swim diagram that was blank and sat down with the project and design group. We used yellow stick notes to start mapping out the big picture. The further we got in to mapping the workflow the more people were getting added to the swim diagram. In the swim diagram we added the people by the job title. This way if people left the position was still there. The diagram started to get bigger and bigger with more input from users.

We broke a project down into seven categories. The first step was Vision/General Concept which dealt with Functional planning, Budgets and approval from Council. The second step was the Planning stage. This deals with Stakeholders, Surveying and Project Managing. The third step is dealing with the Design. In this stage we deal with Detail Design, Review of the Design with Stakeholders, Review from Development Group and Issuance for Tendering. Next stage is Tendering process of the project. Once the Contract has been awarded we move to the next stage, Construction. Now we start building the project. Once this stage is finished we move into the As-built Stage. In here there are a lot of different things that happen. As-built drawings to Construction Completion Certificate (CCC) to Final Acceptance Certificate (FAC) to closing the Work In Progress (WIP) account. The last stage is Maintenance were the asset is passed to department in charge of maintaining the asset.

While we were sitting down with different groups, separately we were also doing review of our project manager book. We worked closely to make sure we match our process with our document.

We started to break the page into two halves the top half was the big picture on how the corporation works on a project. We didn't want to lose any of the sub process that we had gathered, so we added them to the bottom half of the page.

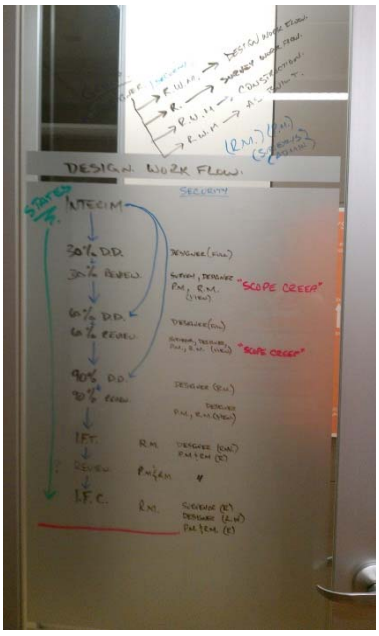


Vault Key Term Definitions:

Congratulations, you have now completed the most important task of compiling your company's many workflows and practices into one workflow. Once the workflows for your company have been sorted out on paper, it's time to translate them into the terms and phrases that Vault uses. This was one of the biggest challenges that we faced while setting up Vault AEC Collaboration. The knowledge of these terms will make it easier to translate your workflows to Vault.

The following is a glossary of sorts to help you determine what each of the phrases mean and how they translate to layman's terms:

- Users/Groups: These are pretty self-explanatory. Users are the people in your organization that will need access into your vault. Groups are ways to combine users based on their positions in the organization and their functions.
- Roles: Roles are assigned to users/groups to determine what actions they can perform inside of the Vault.
- Category: In a traditional workflow a category can be thought of as a label. Categories initially organize similar files together. Once a file has been assigned a category, a lifecycle and initial state will be assigned to that file.
- User Defined Properties: These properties are custom created metadata attached to a given file, offering another layer of customization. These can be useful for validating transitions, or keeping track of who was editing a file. We will go into deeper detail of the process of using properties of a document as criteria later in the handout.
- Lifecycle Definition: The lifecycle definition is, for all intents and purposes, your workflow. It helps to break the large corporate workflow down into separate, more manageable workflow sizes. The decision of where to separate your workflows should be discernible after the corporate workflow has been created.
    - **Pro Tip: Spend as much time as you can to detail your documents lifecycles. The more time you spend talking with administrators, managers and users the better your understanding of the workflow will be. Who has access to which files when, and who can transition that document to the next phase of the project?**



- Lifecycle State: The lifecycle state can be thought of as a single point in a given lifecycle. These are the nodes in your workflow, or the different stages that a document travels through on its way to completion.
- Security (Lifecycle State): The lifecycle state security controls which users/groups have access to a file in that state.
- Transitions: Diving deeper into the lifecycle state, transitions can be found. Think of these as the arrows that link each

node in your workflow. However, transitions in Vault connect each lifecycle state to each every other lifecycle state and must be set up with great care.

- Security (Transitions): This security tab controls which users can change the state of a file to another state in that lifecycle. It also controls which states the given user can move a file to.
- Released: A file that has reached a “Released” state is usually considered approved. This property can be used as criteria for changing a file's lifecycle state. Also, these files will not be removed when the vault is purged.
- Versions: These can be thought of as working copies in a files lifecycle. Versions track all changes made to a document when that file is checked back into the vault. These can easily be recovered if an issue with later work is discovered. Depending on state control, unneeded versions can be purged from the Vault. There can be multiple versions prior to any revisions being created.
- Revisions: Revisions are used primarily to track major milestones in a files lifecycle. Similar to versions, however revisions are created when a document is pushed through a transition that creates revisions or when a user prompts Vault to create another revision.

With an understanding of the basic terms used in Vault, transitioning all of your workflows into vault will be made much easier. The next step in the process will be to create your users and groups and allow them access into the Vault

Users and Groups

After gaining an understanding of the terminology used in the Vault software, it's time to start setting up. Some of the terminology tied with this section is: Users, Groups, and Roles. Vault works as a database, so the first step would be to allow the users to gain access to the database. This is where the users and groups come into play.

Users are the ones who consume data in the Vault. To create or edit **users**, click on the Tools dropdown menu, select Administration, and Global Settings. After clicking on the user button, the User Management Window will appear on the screen. There are two ways to add users, either by creating them manually or importing a domain user.

When a user is manually created their name, username, email address and password must be included. Also, information on roles, vaults and groups should be included, but can be left blank during creation. We will be going into these pieces of information a little bit later on.

- **Pro Tip: When first testing Vault in your company's workflows, create a separate Vault to act as a sandbox environment for you to test in. Similar to this, ensure that you create "dummy" users with realistic roles, groups and securities. This will allow you to simulate your lifecycles with real documents.**

The other way to add a user is to import a domain user. In the User Management Window, select the Action dropdown menu, and select Import Domain User. This is by far the fastest way to add new users into the vault. It takes the information that is already stored in an Active Directory, and adds it to Vaults user database. This allows each domain user a single point of access for corporate computers as well as any Vaults.

- **Pro Tip: It should also be noted that no matter how users are placed into Vault, they cannot be removed. Users cannot be removed because it would invalidate any action associated with that user. The user must be retained to ensure accuracy and accountability into the future. The best way to get around this is to render a user "disabled".**

After all of the users have been imported into Vault, it now becomes time for User Management. Vault makes this easy by including the ability to group certain types of users together. To create or edit **groups**, select the Tools dropdown menu, Administration, Global Settings, then select Groups. This will open the Group Management window.

The same techniques used to create users can be employed to create Groups. Groups are, by definition, a collection of people, so it would seem that is the next logical step. To create a new group, select the Tools dropdown, Administration, Global Settings and select Groups. Give the new group a name, add users, roles, vaults and other groups. To add users to a group highlight the group, select the Action dropdown menu, and select Edit. It is here, the Group Window, which you can add and remove users to the group list. Also, in this window, you can edit the

properties of the group. That is, the group's roles, vault accesses, and other groups that they are a part of. The properties of the group are also inherited by the members of that group. This is a way to add another level of customization for your Vault.

- **Pro Tip: In the lifecycle definition creation section, both users and groups are displayed at the same time by default. This can be confusing if you use the same name for both a user and a group. To help differentiate, use uppercase to name any GROUPS, and lowercase to name users.**

The strategy in use by Strathcona County for setting up the users was to take advantage of importing domain users. This ensures that all users can be accounted for and have access to the Vault, as well as not having to create passwords and log-ins for each account. After all the users were inputted, groups were formed to follow our workflows. Groups for surveyors, designers, project managers, responsible members, administrators, and general users were created. Users and groups were created first in a sandbox testing environment to ensure they worked in the production environment.

Now that the users are created and organized, it's time to give them their rights. These "rights", are better known as **Roles**, and are the next topic. Roles in vault can be a bit difficult to comprehend, but by understanding this presentation, can be made quite simple.

There are several roles that can be applied to users or groups; depending on the versions of Vault you are using (Basic, Workgroup, Collaboration and Professional). The following roles can be found in Vault Collaboration. Essentially, the question you want to ask is: "What do you want your users to be able to do?" You can assign roles based on the answer to that question. The following chart will list and describe common roles.

Role	Explanation
Administrator	Access to everything in the Vault, read/write/delete, change lifecycle state properties, user defined properties.
Document Consumer	Read only access to files in the vault.
Document Editor Level 1	Basic Vault functionality. Check In/Out, file creation, Add/Remove user defined properties. Cannot delete files/folders.
Document Editor Level 2	All privileges of Level 1 with the ability to conditionally delete files/folders, and delete folder labels.
Document Manager Level 1	Basic Vault Functionality. Ability to change file/folder LifeCycle category, state and revision. Also edit User Defined Properties.

Document Manager Level 2	All privileges of Document Manager Level 1. Also, the ability to add/remove user defined property, change file LifeCycle definition, and revision scheme for files/folders.

Roles were established for each user based primarily on groups. This made it easier to apply the same roles to similar users. The survey group, who primarily create base maps and review internal data, were given the following roles: Document Consumer, Document Editor (Level 1), and Document Manager (Level 1). The survey manager was given Document Editor (Level 2) as well as Document Manager (Level 2). The production lifecycle that Strathcona County uses has many states to it, and as such the Design group needs to have the ability to move drawings between states to a certain extent. The group of designers was given the following roles: Document Consumer, Document Editor (Levels 1 & 2), and Document Manager (Levels 1 & 2). Project Managers mainly access drawings for quantity take offs as well as the revision process. They were given the following roles: Document Consumer, Document Editor (Level 1), and Document Manager (Level 1). The task of approving drawings lays largely in the Responsible Members group. To accomplish this, they were given the roles of: Document Consumer, Document Editor (Level 1), and Document Manager (Level 1). Administrators were given Admin rights to the Vault, as a way of maintaining control. Some members of these groups were given enhanced roles, based on their position in the organization or experience.

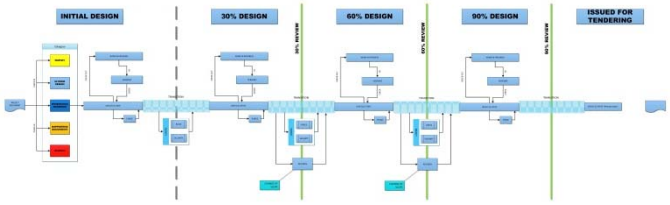
Remember that roles can be applied to both users and groups alike, leading to a varied level of customized access and permissions. After the users are set up and organized, the next thing to do is digitize the corporate workflow. Lifecycles and states will be the next chapter.

Lifecycles & States

This is the backbone of Vault, and where it offers the most customization. The lifecycles can be customized to fit any corporate workflow. Here are some of the terms that you should be familiar with for this section: Category, User Defined Properties, LifeCycle Definition, LifeCycle State, Security, Transitions, Released, Versions and Revisions. Now, with the terminology down pat, it's time to get to the foundation of Vault.

Going through the set up in a chronological order will lead us to discussing the Category first. **Categories** are high level organizational tools that ensure documents and files fall into proper lifecycles. To do this requires the setup of categories and rules. To create a category, click on the Tools drop down menu, select administration, and Vault settings. In the Vault settings window, select the Category button. This will open a dialogue to create/edit categories for both files and folders. When you create a Category, give it a relevant name, a colour to differentiate the files with this category from others and a description if needed.

After the category has been created, a rule needs to be put in place in order for files to be assigned to this category. In the same Vault settings menu, select the rules button; this will open up the Assignment Rules window. To create a rule to sort files it must have at least one criterion associated with it. There are many different properties that can be associated with a criterion. They can range from filename, which users checked in/out a file, the lifecycle definition as well as any **User Defined Properties**.



Property types include list, string, date and Boolean. Different conditions can be assigned to the properties to act as the filter.

- **Pro Tip: Rule Criteria are based on "and" not "or" statements. If you have multiple rule criterions, a file will only be assigned to that Category if it meets all of the criteria. If you need multiple criteria, try using multiple rules instead.**

To accommodate the multiple lifecycles planned for input into vault, several categories needed to be created. These categories were: Survey, Interim Design, Production Design, Supporting Documents, and As Built/Records. Rules were then created to ensure that new documents were filtered into the correct lifecycle. Like most engineering offices, we use a naming convention to differentiate files. This naming convention became the basis of our rules for filtering the documents. Separate rules for "File Name Starts with PreLim…" etc. were added to

filter drawings to the Survey Category. Similar rules were put into effect for the Interim Design, Production Design, Supporting Documents, and As-Built Categories.

Now that there are Categories and rules created, ensure that the rules are set to be applied on object creation. This will ensure that files/folders will be placed in the correct categories without any additional user input.

Continuing with the big picture, let's talk about the LifeCycle Definition. When creating a **LifeCycle Definition**, select the Tools dropdown menu, select Administration, Vault options. Select the behavior tab, and click on the lifecycles button. This will open up the Lifecycle Definitions window, which allows you to edit current definitions or copy/create new definitions based on your corporate workflows.

There are several out of the box definitions included, but the best customization is to build one from scratch. If you've spent any time breaking down your workflows and analyzing the smaller practices, this should be no problem. Every stage that a document goes through is a **LifeCycle State**. After the creation of the new definition, a name and category will need to be assigned to the definition. If you so desire, a definition description as well. The lifecycle can't really be considered a lifecycle until it has a State associated with it. Create states based on your workflow.

Every state in a given workflow has properties associated to it. General, where the name and description live; Transitions, how the document flows from one state to another; Security, who has access to the document at that state; Control, how many versions are kept upon purging and; Comments, user input field to track changes.

After the General information of the state has been input, **transitions** are the next step. The transitions tab shows the current state and a list of each state in the lifecycle with arrows representing a different transition direction. It is important to note the direction of the arrow when editing a transition, as the security to move from "A" to "B" could be very different than that of moving from "B" to "A". After selecting a transition and clicking the edit button, a Transition window will appear. The act of "Transitioning" a file to another state requires three things: any property criteria to be met, designated actions to occur, and a user who clears transition security to perform the transition.

- **Pro Tip: There is no workflow like visual display in Vault. Take the time to set up each and every transition. Loopholes can exist if some transitions are not set up correctly. Thoroughly test your lifecycles before you put Vault into a production environment.**

For a transition to occur a criterion may be required. Much like that of the Category Rule, the criteria can range from any out of the box property or it can be a user defined property. Once all criteria have been met, a specified action may occur. These actions can bump revision numbers; synchronize properties, or check dependent or linked files for a "Released State". To

regulate the users/groups that can affect the transition, the Security is used. The list detailed in this window shows all users or groups capable of completing the given transition. If this list is left blank any user can initiate that transition.

To control which users/groups are able to read/modify/delete a file in the current state, the Lifecycle State Security tab must be completed. This tab lists all users and groups and separates their rights to the file when it is in the current state.

Remembering that versions are created every time a file is checked out, saved and checked in again, the issue of Control begins to arise. It is simply, which versions of a file in each state will remain when the vault is purged. This is also where the administrator will mark a desired state to be **released**.

The comments section can be customized to show users a pre-defined message when a transition is to be initiated. These messages can prompt users to check a given User Defined Property or ensure that a team member has reviewed a drawing.

Now that there are drawings and files in the vault, it's time to start tracking the changes. Vault accomplishes this by way of **versions** and revisions. Every time a user checks a drawing out of the Vault, makes changes, and saves and checks the file back in, a version is automatically created. These versions can be very handy for keeping track of change, and at any time in the lifecycle, can be revisited for any reason. There can be many versions created during a files time in a given state, so to help manage this version can be purged. Setting up the state Control will allow the administrator to select which versions will be kept for each given state. Other versions will be deemed unimportant, and will be purged out of the vault. The version number will only be shown as a piece of metadata in the System Properties window.

Revisions are similar to versions; however they require more user input. While a version is created automatically after a file is checked into the vault, **Revisions** are created with user input, or during a specified transition. These are used to capture major milestones in the lifecycle. After a revision is created it will always remain visible in the history tab. Depending on which major milestone is reached, a corresponding change in the revision number will occur. These revision numbers are up to three values long, and can be customized to be numeric (1.2.4), alphabetic (A.B.D) or customized further to match the corporate scheme.

The production design workflow for Strathcona County lent itself well to the customization that Vault offers. This workflow follows a set of design benchmarks followed by their respective reviews, culminating with the Issued for Tender documents, Construction review, and the Issued for Construction Documents. After the states have been added to the definition, editing the Transitions was the next step. As the usual process of how a document flows through this lifecycle definition is fairly linear, it simplifies the process of editing the transitions. As each state can transition into each other state, having the document flow linearly means most of the transitions can be left to the administrator. Assigning the security of a transition to an administrator guarantees that only they can execute that transition. For example, a document

would never travel from the initial design state to the Issued for Construction state. So, for this transition, the administrator would have sole access. Security through most of the transitions can be left to the designers, save for the last few states when it becomes important to have Responsible Members sign off. During the transitions to the Issued for Tender, and Issued for Construction states, actions are performed to check for dependent and linked files to be released. This ensures that all information associated with the project has been approved before the final drawing is released. Our workflow has some flexibility built into it as well. The project scale will have a direct effect on where the file may be transitioned to in the production design lifecycle. Files can be transitioned into any of the detailed design phases (30, 60, or 90%) from the initial design. To ensure compliance with the lifecycle, several criteria were added to the transitions. Project managers and responsible members initials are required before any design file leaves a review state. Those same signatures are also needed to transition a file to the issued for construction state. These properties are an example of the user defined properties Strathcona County has created to manage their files.

The last stage of setting up Vault is now complete. Wash, rinse and repeat for any and other lifecycles that may need to be added into vault. And with all that work behind us, it’s time to take a look at where things stand now.

Bringing it All Together in the End (The Summary)

At the beginning of this document, we described some key learning objectives. Now it's time to bring it all back together at the end of your implementation.

After this class is finished, you will be able to:

- Explain the importance of mapping out the process both for the project and the business workflow
    - **Sit down with senior staff members to document the processes they have in their heads. Put everything on paper, you never know when that knowledge will leave.**
- Avoid the pitfalls and obstacles
    - **This is twofold: The use Vault to remedy existing broken process, as well as avoiding the issues that crop up during the implementation and set up of Vault.**
- Define roles and permissions
    - **By mapping your workflow, it should become more evident of who does what and who needs access to certain files and when.**
- Tie them back into Vault Professional
    - **By understanding the big picture of your business workflow it's easier to implement Vault. When it comes time to implement your lifecycles, the understanding of your business workflows and the Vault terminology will aid your efforts to tie everything together.**

Thanks for attending.