MA2911 - The Secret Life(Cycles) of Autodesk® Vault

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Class Summary

This class will explore the ins and outs of using Autodesk® Vault Workgroup, Autodesk® Vault Collaboration, and Autodesk® Vault Professional to manage the release process of your design documents. We will cover several aspects of release management, including how to build the right lifecycle workflow and how to incorporate Vault engineering change order (ECO) capabilities into your process. We will also explore the key considerations for security and access to your data.
Learning Objectives

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

- Create sophisticated document lifecycles and revision management schemes
- Explain how versions and revisions play into the lifecycle process
- Explain how groups and lifecycle states interact and play key roles in security and access
- Incorporate the ECO process in Vault Professional ECO into your document lifecycle process
A Few Assumptions

- You know what Autodesk® Vault is

- Document management for
  - Vault Workgroup
  - Vault Collaboration
  - Vault Professional

  - ECO portion is only applicable to Vault Professional

- You are familiar with basic Data Management
  - Check-in/Checkout
  - Revision practices for document control
  - Etc.
Where to Begin?
GDMB, Inc.

- GDMB wants to get their processes formalized
- Want Engineering Control, Enforced Revision Schemes, etc.
- Has Vault, ready to bring Lifecycles, securities, etc. online
Engineering Process Whiteboard

- Typical Engineering Process
  - WIP – New Order/New Rev
  - Design Check – Drafting check
  - Review – Formal Engineering review for Release
  - Released – Send to Mfg.

- ERP Process
  - Obsolete – Component no longer used/valid to use
R&D Process Whiteboard

- Process for Special Orders and New Product Lines

- R&DPrototype Phase
  - Proto WIP
  - Proto Review (Optional)
  - Proto Release to Manufacturing

- Notes:
  - Has its own Revision Scheme
  - Can have multiple revisions during R&D
  - Typically leads into Mfg Process
    - Changes Rev Scheme to Mfg.
Revision Management Whiteboard

- Production Scheme – A, B, C, etc.
- R&D – 01, 02, 03, etc.
  - Change to Rev A when released to production

Prod. Rev Scheme
A, B, C, ...

R&D Rev Scheme
01, 02, 03, ...
Responsibilities in GDMB

- Designers
- Engineers
- Managers
- CAD Admin
- Reviewers
- Manufacturing

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Process Authority</th>
<th>WIP</th>
<th>Design Check</th>
<th>Review</th>
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How This Maps To Vault
Lifecycle Definition/States

- Your **Process** is the **Lifecycle Definition** (LCD)

- Your **Process Steps** are the **Lifecycle States** (State)

- Your **paths** between each step are the **Lifecycle Transitions** (Transition)
Lifecycles, Versions, & Revisions

- **Versions**
  - Created with each Check-in and State change
  - Each Version is a point in history
  - Vault does this automatically

- **Revision**
  - Only created when a user initiates it, or
  - When the process dictates it (like Transition from Released to WIP)
Vault Roles and Groups

- Each user is assigned Roles and to Groups

**Roles** define *maximum* a user can do to any document
- Editor: Can read and modify
- Consumer: Can at most read
- Admin: Read/Modify/Delete

**Groups** define what a user can do to *each specific document*
- State Dependent
- Transition Dependent

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<tr>
<th>Group</th>
<th>Role</th>
<th>State</th>
<th>Transition</th>
<th>Design Check</th>
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<th>To Obsolete</th>
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Categories: The Glue and The Gatekeeper

- Categories match files to Vault process by defining available
  - Lifecycle(s)
  - Revision Scheme(s)
  - Properties
  - Etc.

- Examples:
  - Custom Sales/Library Parts
  - Word/Excel for Quote
  - Electrical,
  - Mechanical, etc.
Creating a Lifecycle Definition
Creating a Lifecycle Definition

- Create a new *Lifecycle Definition* object
- Assign the document *Categories* to which the Lifecycle Definition will be applied
- Add the necessary Lifecycle *States*
- Define *Security* for States
- Define *Transitions* between States
- Define *State Control* Properties
Creating a Lifecycle Definition - Prerequisites

- A document **Category** should already be defined

- In our example, we have created a Category named “GDMB Engineering”
Creating a Lifecycle Definition - Prerequisites

- A Revision Scheme should already be defined
  - Lifecycle Definitions can drive the Revision level on documents
- The desired Revision Scheme should be assigned to the Category
Creating a Lifecycle Definition – Initial Setup

- **Configuration** of Lifecycle Definitions is done through the Vault Settings
  - Tools->Administration->Vault Settings

- From the **Behaviors Tab**, Select *Lifecycles*
Creating a Lifecycle Definition – Initial Setup

- From the Lifecycle Definitions dialog, select **New**

- Provide a meaningful **Definition Name** and **Description** for the Lifecycle Definition

- **Select the Categories** to which the LCD will be applied
Creating a Lifecycle Definition – Adding States

- From the Lifecycle Definition Dialog, add the *Lifecycle States* necessary to define your workflow
  - Work in Progress
Creating a Lifecycle Definition – Adding States

- Repeat these steps to create all remaining **States** in our workflow
  - Design Check
  - Review, Released, Obsolete
Creating a Lifecycle Definition – State Security

- **State Security** defines who can do what within each State

- First specify the Groups that will have a role within the selected state
  - Uncheck “No state-based security”
  - Select “Add” to add groups
  - Add the necessary groups
Creating a Lifecycle Definition – State Security

- Define which Groups can…
  - Read, Modify, Delete

- Repeat this process for all states in the Lifecycle Definition

- Best Practices
  - Apply security to Groups (not individual users)
  - Use the ‘Deny’ permission sparingly
State Security

- As a Designer, I can check out and edit a file in the Work in Progress State.
- States apply an *Access Control List* (ACL) to the files. This can be viewed through the File Properties.
State Security

- Logged in as a Manager user, I can’t check out the file based on the State Security

- The Lock Icon indicates the file cannot be edited

- The Lifecycle Definition only grants “Managers” Read Access in the Work in Progress State
Creating a Lifecycle Definition – Control Options

- Define ‘Released’ States
  - *Released* should be checked if the State is a Released State
    - Released, Production, etc.
  - Drives the “Release Bias” options within the CAD integrations
Creating a Lifecycle Definition – Control Options

- Set the **Controlled File Versions Options**
  - This determines what gets purged during a purge operation
  - “**Controlled File Versions**” selection will **protect** the specified document versions in the corresponding State from being purged
Creating a Lifecycle Definition – Transitions

- **Transitions** link **Lifecycle States** together into a process
- By default, all States link to all other States
- Our goal is to limit transitions to support the defined workflow path
Creating a Lifecycle Definition – Transitions

- For each state, select each transition and select Edit.

- If the desired workflow does not have a direct path between two States, set the transition security to “everyone deny”.
Creating a Lifecycle Definition – Transitions

- If only a specific group of users are allowed to transition between two states, add **Transition Security** of “allow” for the appropriate groups.
Creating a Lifecycle Definition – Transitions

- Repeat this process for each transition on each state

- Tip: Only set the security on the transitions with “To” indicated by the blue arrow.
  - This saves confusion and time!
Creating a Lifecycle Definition – Rev Bump

- In most document workflows, it makes sense to advance the revision level of document on specific state changes.

- In our scenario, we want to **Bump the Revision** to the next rev in the sequence when transitioning from the **Released** state to the **Work in Progress** state.
Creating a Lifecycle Definition – Rev Bump

- Set the *Action* within the appropriate transition
  - Released to Work in Progress

- Edit the “Released to Work in Progress Transition”

- In the ‘Actions’ tab, check the “*Bump primary revision*” box
Adding the R&D Process
Setup for R&D

- R&D Groups
  - R&D
  - R&D Reviewers (Part of R&D)

- R&D Revision Scheme
Two Lifecycles, or One?

- **Keep R&D and Production Separate?**
  - **Pros:**
    - Simplifies LCD creation
    - Good if 1 R&D Group and Several Production Divisions
  - **Cons:**
    - Changing to Production LCD can be difficult

- **Make Production part of R&D LCD?**
  - **Pros:**
    - Transition from R&D to Production easier
  - **Cons:**
    - More work to setup properly
Adding R&D States to Production Lifecycle

- Create a Copy of GDMB Production
- Adding States
  - Three new States
  - Proto WIP is Default
- Add Transitions and state Securities
  - Rev Bump on Transition from Proto Release to Proto WIP
Category Setup

- Reuse GDMB Engineering Category
- Add R&D LCD
- Add R&D Rev Scheme
Enforce Proper Revision Schemes

- Need to Enforce which Rev Scheme is used during the Process
- Enforce with Criteria on Transitions
- Proto WIP to Proto Review – R&D Revs (Numeric)
- WIP to Design Check – Production Revs (Alpha)
Switching to Production Revisions

- Done manually first time file is in WIP
  - Because we created the LCD this way
    - Change Rev Scheme only allowed by Document Manager 2 Role
    - User must also have Modify rights

- User Chooses Revise and selects new Rev Scheme and Revision

- Once set can change states beyond WIP
Companies with Multiple Division
Companies with Multiple Divisions

- Some organization require more granularity with Security
  - Multiple Divisions
  - Specific Product line Responsibility
- Different Engineering groups for each division
- Different Reviewers, Managers
Companies with Multiple Divisions

- Multiple Lifecycle Definitions
  - Setup the appropriate Groups for each Division
  - Configure a unique Lifecycle Definition for each group
    - Lifecycle Definitions can be copied as a starting template
    - Each State and Transition will need to be configured to the appropriate groups for each Division
  - Separate Categories may simplify user workflows
Multiple Divisions - Groups

- Create Security Groups to Support Divisions
  - Use common nomenclature for Group Names

- Users can be in multiple Groups if the need to support multiple divisions
Multiple Divisions – Lifecycle Definitions

- Create a unique Lifecycle Definition for each Division
- For each state, set State Security specific to each Division’s Groups
- Set Transition Security specific to each division’s Groups
Multiple Divisions – Category Assignment

- Assign each Divisions Lifecycle Definition to the appropriate Category
- Set the Lifecycle Definition of “None” to default
- Or Create separate Categories for each division
Related Workflows
Changing Lifecycle Definition

- In certain workflows, it may be necessary to change from one Lifecycle Definition to another
  - Multiple Division
  - R&D vs. Production
  - User error

- Users Can Change Lifecycle Definitions Provided:
  1. The user (Group) has been granted the “Document Manager (Level 2)” Role
  2. The document is in an editable state
  3. The user (Group) has edit rights in that state
Changing Lifecycle Definition

- To change a Lifecycle Definition:
  - Verify the document is in an editable state
  - Select a document (or multiple documents)
  - Rt-Click and select *Change State*
Changing Lifecycle Definition

- From the Change State Dialog:
  - Select the ellipsis button

- Select the desired Lifecycle Definition from the list of available options and then select OK.
Engineering Change for Documents
Vault Pro ECO Setup

- Enabling ECO UI
  - GDMB doesn’t want Items
  - GDMB doesn’t want user control on UI visibility

- Markup Folder (for Redlines)
  - Markups created using DWF
  - GDMB will keep with original files

- User Defined Linked Properties
  - Vault Properties that are part of the ECO
  - Like custom properties on Files
  - Used for searching, etc. like properties on files

- ECO Numbering Scheme
  - GDMB will Use Default
  - Can create custom if desired
ECO Process Notes

- Pre-Defined by Vault
- Only Check state is Optional
- Responsibilities defined by Routing Definitions
ECO Routing Definitions

- Choose optional Check State
- Create routing by adding participants and assigning Roles
Adding ECO Criteria to Lifecycles

- Enforce ECO Use by Lifecycle Transition
  - Prevent entering certain states unless ECO Process is being used
    - WIP -> Design Check
      - Controlled by Change Order is True
    - ECO State is Check
    - Design Check -> Review
      - ECO State is Review
    - Review -> Released
      - ECO State is Approved
Initiating and Managing the ECO/Lifecycle

- Initiating the ECO can be done directly from the file
- Can add related files from ECO dialog
- Can change the Lifecycle State from the ECO Interface as the ECO moves forward
Questions?