PL10597

Behaviors 101 for Younglings

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Learning Objectives

- Understand what system and user defined properties are

- Understand what revisions are

- Understand what lifecycles are

- Understand categories and how they bring Vault behaviors together

Description

A young Jedi's first foray into understanding the force—or rather, fundamentals of Vault software document behaviors, including an introduction to the concepts of properties, revisioning files, lifecycles, and how they all work together to provide a complete document-management experience.

Your AU Experts

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Ralf F. A. Walter has a degree in computer information systems. Before his 20-year tenure at Autodesk, Inc., Ralf was a software engineer with AT&T Network Systems and specialized in CAD productivity applications for AutoCAD users. At Autodesk, he has been in many development roles for software products such as AutoCAD, AutoCAD Mechanical, Mechanical Desktop, Inventor, Simulation, and, currently, Vault.

Contents

Introduction

The intent of this course is to provide an introduction to Vault behaviors from the end user perspective. The content should serve to provide a good understanding for administrator's as to the intent of these Vault features however this is **<u>not</u>** intended to provide administrators instruction on how to set up and configure these behaviors.

Administrators and super users should see **Behaviors 201 for Padawan Learners** and **Behaviors 301 for the Jedi Master** for more details on the administration and advance usage of Vault behaviors.

Due to the additional capabilities and controls available in Vault Workgroup and Professional over Vault Basic the focus of this course is Vault Workgroup and Professional. Where possible common examples are used but Item, Change Orders, Custom Objects and Replication features are only available in Vault Professional.

For more detail on the availability of Vault features visit the Autodesk Website or contact your partner to understand more about moving to Vault Professional.

Understand what system and user defined properties are

Properties are text based strings, numeric values or dates making up non-visual object identifiers, enabling users to describe object characteristics, search on and identify objects.

One of the primary value propositions for Vault is the ability to search on, access and reuse project data and the key to powerful and useful searches which allow us to quickly locate the correct data to work on or reuse is capturing properties.

Whether these are standard document properties, file names, comments or file action detail in "Vault Basic", through to custom properties created to describe additional object data on items, folders, custom objects, change orders or files in Vault Workgroup and Professional, properties are a critical piece of effective Vault usage and a major advantage over simple file storage where searching may be limited to file name and file system characteristics.

Overall we can divide these two property types into System Properties and User Defined Properties (UDP's).

System Properties

System properties are global values tracked by Vault describing unique object behaviors like the history, when a version was created, who created it, when it was edited, and who edited it, information critical to the integrity of the object history and not directly editable by users.
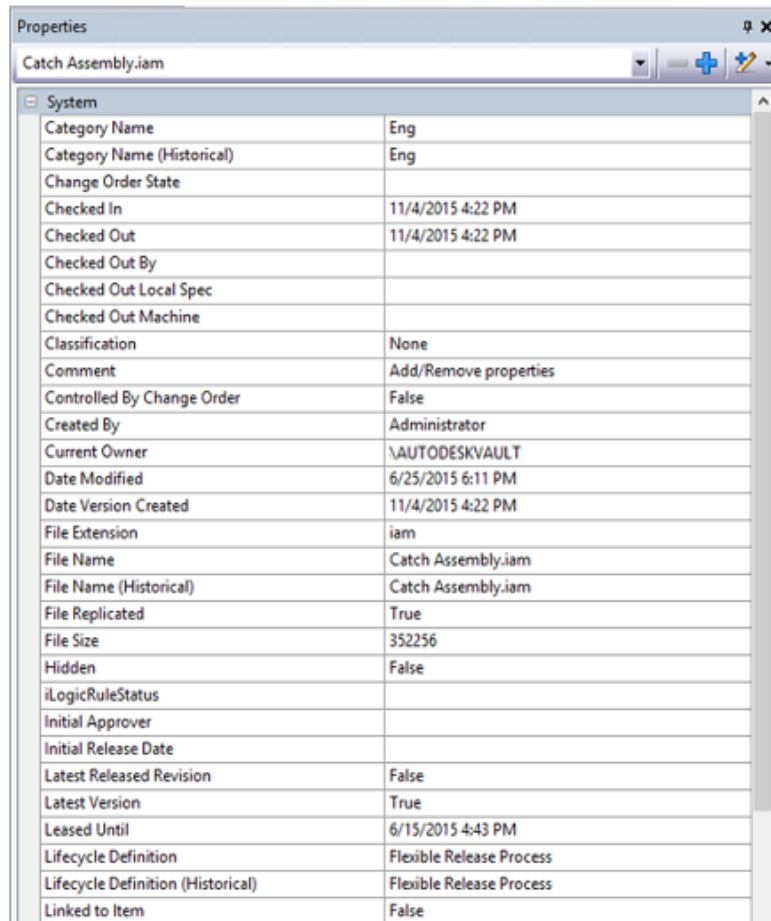
System properties cannot be deleted, but may be renamed and in some cases mapped to your design documentation to provide title block detail like document state or revision.

Example: <u>Checked Out By</u>

This system property is a simple example in which the Vault database records and displays the name of the Vault User that has a file checked out for the duration of the check out. To ensure integrity, users cannot change this value through edit properties as a string of text or otherwise manipulate the detail.

Similarly, Checked Out (Date Property), Checked Out Local Machine and Checked Out Local Spec record other details of a Check Out event like time and machine settings which drive system logic.

FIGURE 1: SYSTEM PROPERTIES SHOWN IN VAULT PROPERTIES GRID

TIP: (Historical) System Properties

Browsing through the property list you will notice several system property duplicates with a (Historical) tag appended to the end like State (Historical) or Category Name (Historical) – unlike State or Category Name, State (Historical) and Category Name (Historical) can be mapped to a file and displayed in a title block, but it may not be so obvious why we need this.

In short, these duplicates which are also controlled by Vault are created to deal with system values that can be changed by the administrator (via configuration change) without creating new file versions.

If a file has a State which is "Released", an administrator could go to the lifecycle definition and change the Released state name to "Approved". This does not create a new version of the file, but all files with a Released state will be updated to display "Approved". Here the State (Historical) retains "Released" because that was what it was called when the version was created.

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User Defined Properties (UDP)

User defined properties which could also be called custom properties are those that the user defines in order to capture additional information about the file.
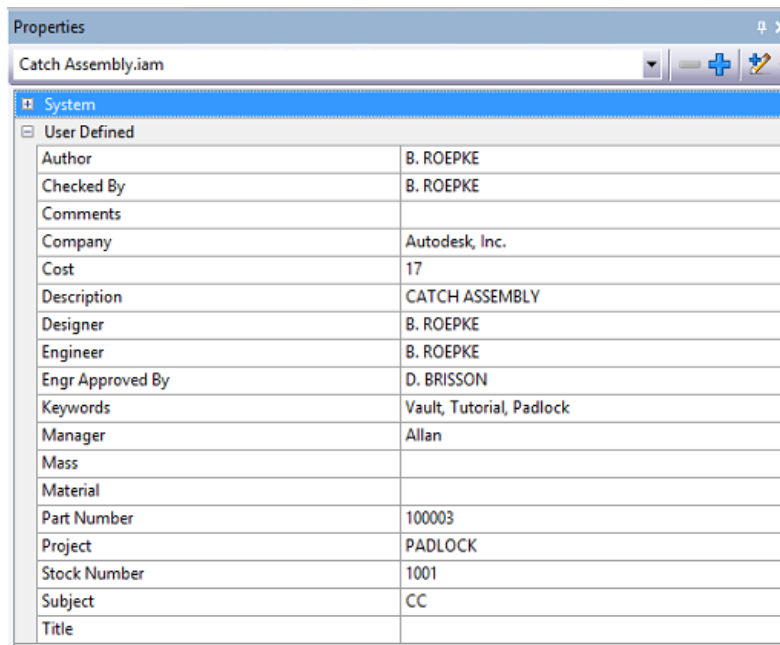
System properties represent the set of minimum property values required to manage user data and does not typically provide enough information for document definition in Vault which is why we also provide user defined properties.

User defined properties can be mapped from and to documents, they can be edited directly by the user and you can make as many or as few of these as you like.

Vault Workgroup and Professional by default contain a number of default user defined properties, primarily related to common Autodesk Inventor iProperties, however these existing user defined properties can be just as easily mapped to AutoCAD titleblocks, regular file properties, or select 3rd party file properties.

Example: Project

Project is a good example of a common user defined property used to record files associated with a specific design effort or contract, this can then be used to sort data correctly, used to discover documents for batch plotting and even reporting, where a report could be generated on a set of search results.

FIGURE 2: USER DEFINED PROPERTIES SHOWN IN VAULT PROPERTIES GRID

TIP: Prefill User Defined Properties in Templates

At the start of a large project users can create template files pre-filled with project name. This ensures the project name is always filled out correctly and could even be used to help decide what the behaviors of that file will be in Category rules (See Category section below)

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Manually add a user defined property
System properties are defined by Vault and are neither added nor removed from objects, but there are 2 ways to associate a user defined property with files, automating through Categories (discussed below in category section) or manually adding via "Add or Remove Property" under the Action menu.

Users must have editor level permissions to carry this out, only properties enabled for the selected object type can be added.

To add a property to a file:

1. Select 1 or more files
2. From the actions menu select "Add orRemove Properties"
3. Browse down the list and select the desired property
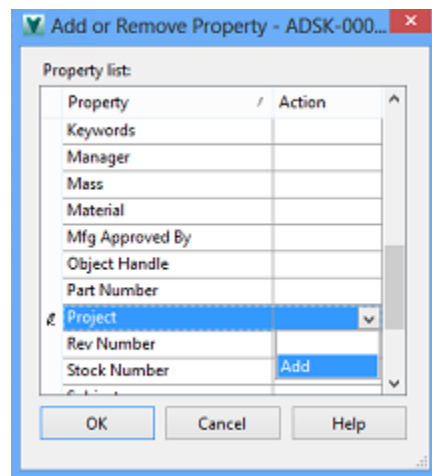4. Select "Add" to associate the property with the file

FIGURE 3: ADD PROPERTY TO FILE

5. Select OK to apply and close

Edit a user defined property
User defined properties can be edited by selecting specific properties from the grid and choosing "Edit Selected Properties" or selecting "Edit Properties" option from the Properties Grid or Edit menu which will bring up the default property set in the edit properties wizard.

Users need to have Editor Level 1 permissions to change these values.

Edit specific properties from the grid:

1. Select 1 or more files (users can edit multiple file properties at once)
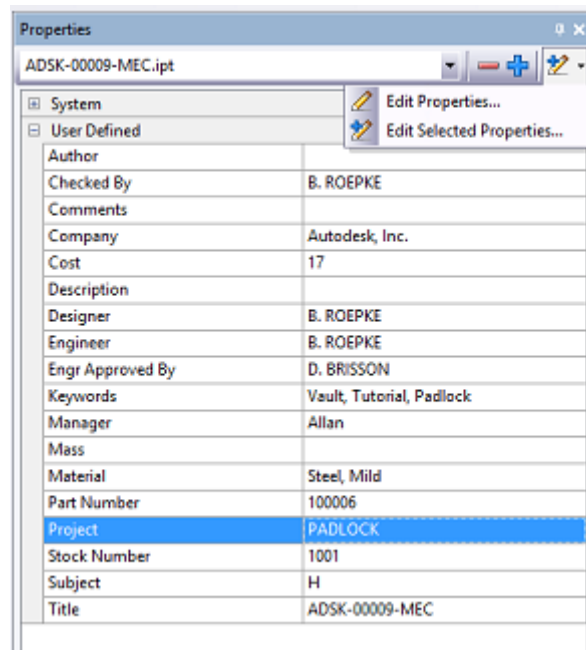2. Select 1 or more properties and pick "Edit Selected Properties"

FIGURE 4: EDIT PROPERTY FROM GRID

3. The Edit properties dialog appears with selected properties for you to edit

Edit Properties General:

1. Select 1 or more files
2. From the Edit Menu select "Edit Properties" (CTRL+E)
3. The edit properties dialog appears
4. Add additional files to edit or remove files
5. Add or remove properties you wish to edit
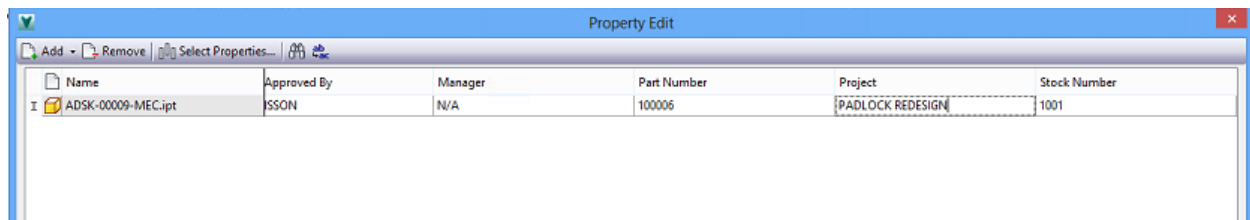6. Edit the properties and select OK

FIGURE 5: EDIT PROPERTY WIZARD

7. A report of the successful property updates (or failures) is displayed
8. Close to complete

Your file now has the correct user define property associated with it and modified to the user's requirement.

Understand what revisions are

A revision or revision number is an identifying alpha-numeric value that represents the iteration of an object corresponding to a design milestone or release event.

Revisions are the primary key to understanding whether you are working with the latest or correct record

A revision scheme denotes the progressive values that can be assigned as revision

- Revision Scheme can be numeric, alphabetic or a mixture, traditionally it is from 0-1 or A-Z with a number of variations
- Revision schemes can be employed to denote major and minor iteration changes for example contain a secondary revision value A.**1** or tertiary revision value A.1.**1**
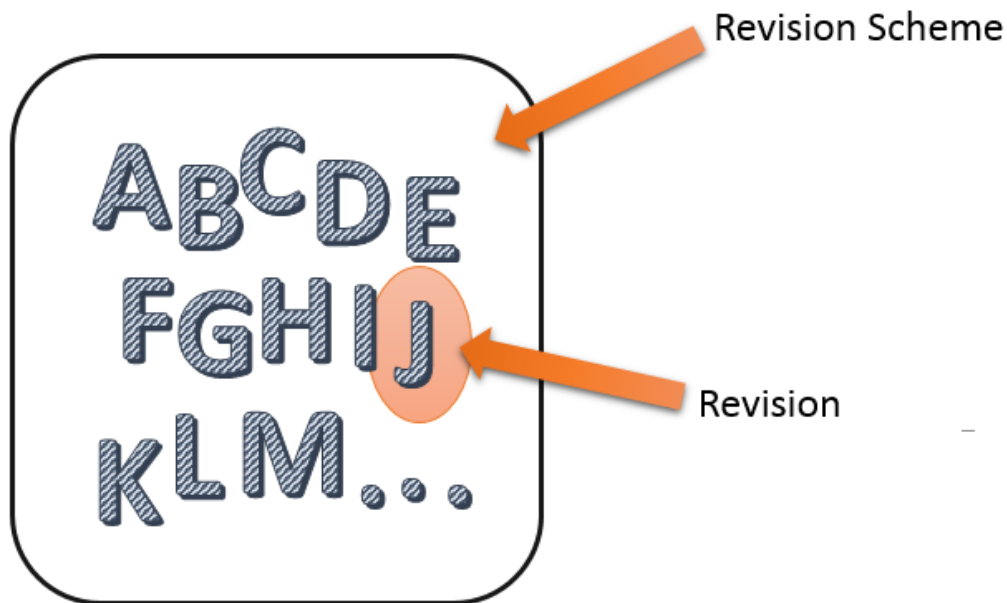

FIGURE 6: COLLECTION OF ORDERED REVISION VALUES MAKES UP A REVISION SCHEME

What is the difference between versions and revisions?

In Vault file speak a version is a file iteration created during work in progress with every edit and subsequent check in, these versions do not necessarily represent anything more important than a user going home for the day or changing a file state.

Many versions are typically created through the design process which can be useful for tracking design intent, but often unnecessary meaning these versions are removed (purged) on design completion.

A revision though, as we mention above, when combined with an object state is used to identify an important milestone in the design evolution like the "initial release".

In the figure below we see that Revision A of this part has 5 versions – here the "Approved" file is locked at "A" – this is the document and model sent to manufacture and identified as Revision A.
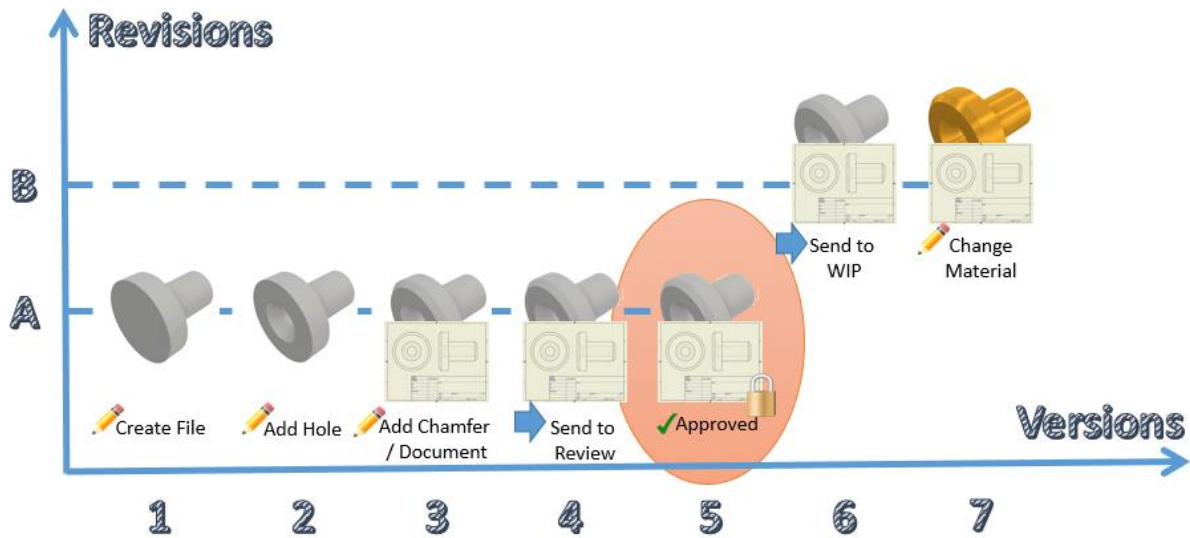
FIGURE 7: REVISIONS COMPARED TO VERSIONS

Any change to the released / manufactured part requires a new revision (based on form, fit, function rules) and we see that version 6 and 7 take on Revision B tag as the design change process continues.

Once the changes in Revision B are complete and it is release - Revision B will be the current correct and manufactured iteration of the file.

Manually Change Revision Scheme
Typically a revision scheme is applied to an object via the category (see Category section below) but schemes and the actual revision letter itself can be edited through the Revise command.

1. Highlight file and select "Change Revision"
2. From the Revise dialog select the ellipse button to set the revision schemes
3. Select a Revision scheme
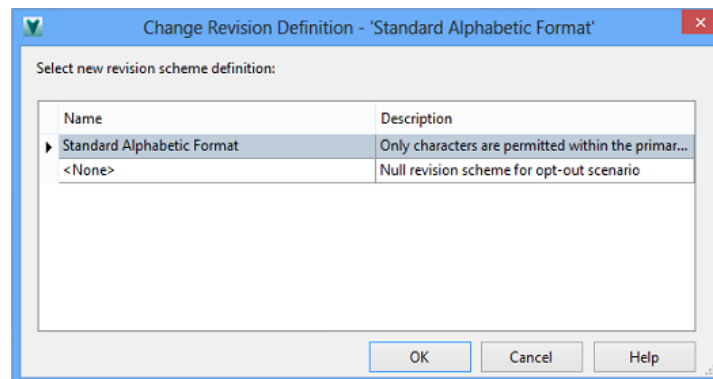4. The scheme and default or initial revision value is applied to the file

FIGURE 8: CHANGE REVISION

TIP – Change Revisions on individual files

Vault comes preconfigured with Numeric, Alphabetic and <None> schemes. Users are able to edit the alphabetic and numeric schemes or build their own.

Different files and file types can have separate schemes, and through this dialog users can highlight and change the scheme for each file by clicking on the scheme name value in the grid.

Manually Change Revision
Once a revision scheme has been applied to a file the default revision value is applied and typically, the system will now manage revisions (automatically change or bump revision on state change for example) but if you are adding a file with an existing revision or need to correct the revision value it can be done manually here.

1. From the "Select next revision" pull down menu choose a new revision value
2. The user can create a new primary, secondary or tertiary revision or even have the revision pulled from the file
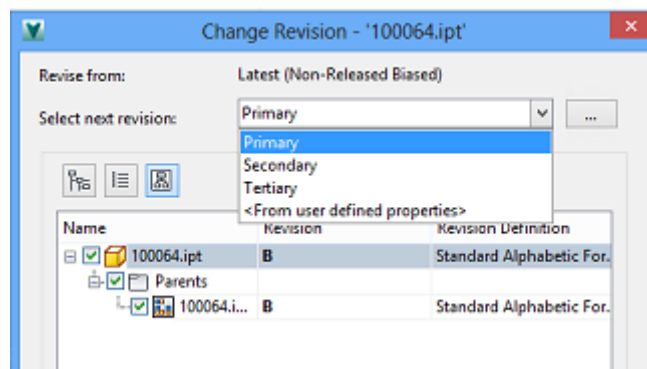

FIGURE 9: CHANGE REVISION

3. The user sees a preview of the new revision value for all selected files
4. Review and select OK to apply new revision

TIP – Take revision from file property

If you already have a revision value in your file we can select <From user defined property> and update to the correct revision, as long as the value appears in the selected revision scheme.

TIP – Roll Back Revision

Once Revision is changed or "bumped" to the next value you <u>cannot manually go back to an older Revision</u> value, like changing from Revision C to Revision A. If you have automated revision bumps though, you can roll back to the last revision and delete the new file version when a mistake is made. This is a separate command "Roll Back Lifecycle State Change" and available from the Actions menu.

Understand what lifecycles are

A lifecycle describes the process or stages an object passes through from innovation to production or construction.

A lifecycle state is a reflection of an object status within a discrete process, typically in Vault a process managing design data through to manufacture or build.

- It describes the current design status
- Can contain security settings to control access to an object
- Can control who can read, modify and delete an object
- It also controls whether objects can be purged.

In Vault we create lifecycle definitions which contain a series of lifecycle states with the above characteristics and a set of rules around these states, including transitions which control how files are moved from state to state, by whom and what actions these transitions trigger.

The figure below gives us a view of what we might expect a lifecycle map to look like where the arrows between states reflect the available transitions.
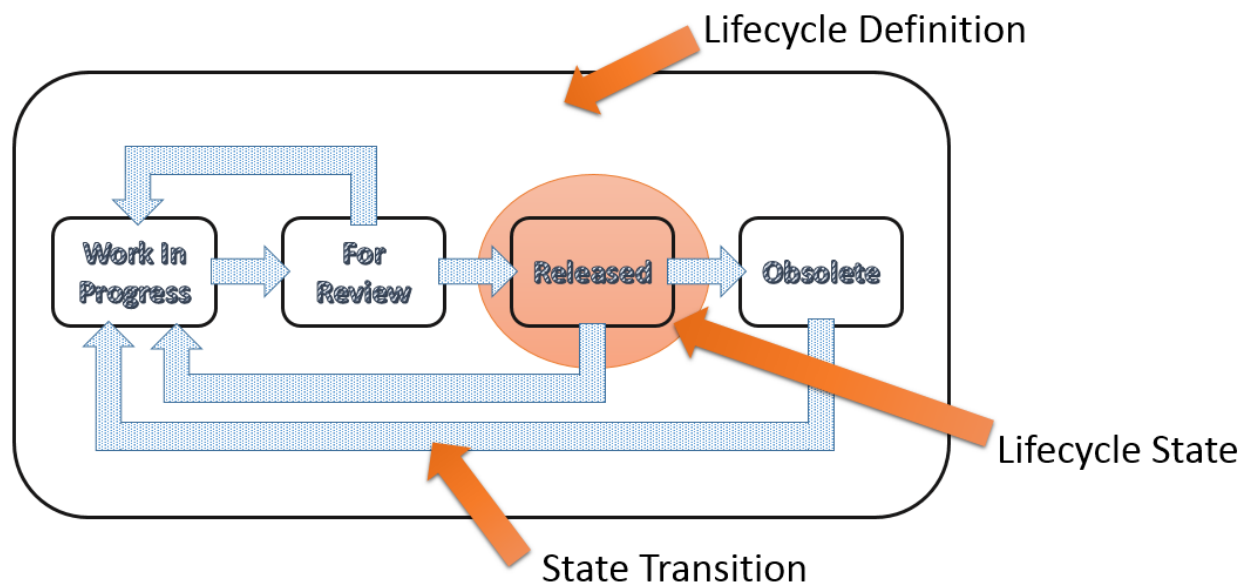
FIGURE 10: CHANGE REVISION

Vault comes preconfigured with a number of sample lifecycle definitions including a <None> definition that allows you to "opt out" of using any lifecycle or release controls. With the exception of the <None> definition administrators can modify these definitions to suit your processes or create their own from scratch.

Manually apply lifecycle definition

Typically a lifecycle definition is applied to an object via the category (see Categories below) but definitions and the actual lifecycle state itself can be edited through the Change State command.

1. Highlight file and select "Change State" from Actions menu
2. From the change state dialog select the ellipses button to set the lifecycle definition for all selected files
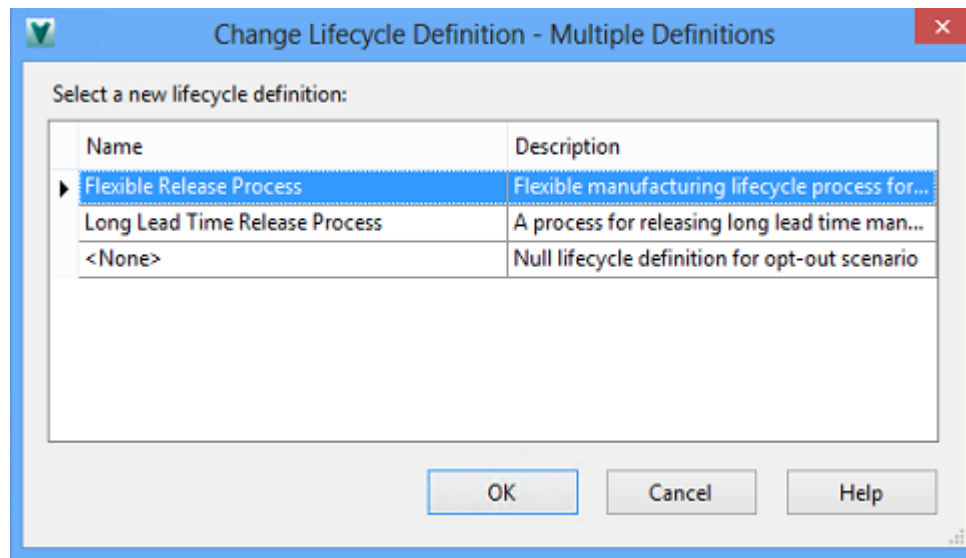

FIGURE 11: CHANGE LIFECYCLE DEFINITION

3. Select a lifecycle definition
4. The definition and default or initial state is set for the file
5. Preview the new settings and select OK to apply and close

TIP – Change State on individual files

Different objects, or in this example files and file types can have separate definitions, a word document for instance will have a different review and approval process to an engineering drawing. Through this dialog users can highlight and change the scheme for each file separately by clicking on the definition name value in the grid.

Change State

Change state is perhaps the most common behavior interaction once you are up and running in Vault, as the design progresses towards completion designers, document and item reviewers and approvers will change the lifecycle state as they complete their tasks.

The change state action is limited to Manager (Level 1) and above as well as by the lifecycle transition rules.

1. Highlight file and right click to select "Change State"
2. From the change state dialog choose whether to add parents and child files (Note that you likely have to release any un-released children to release parent)
3. From the menu select the new State from available Lifecycle States (Not all may be available depending on transition rules)
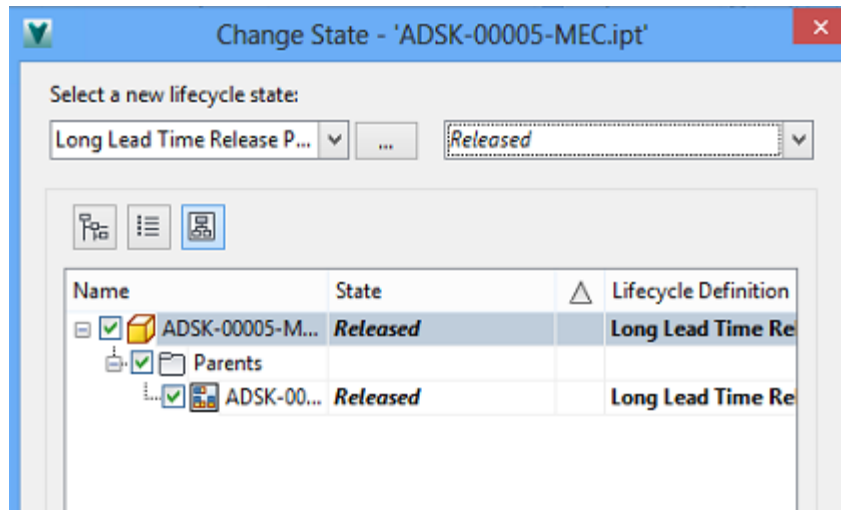4. A preview of the new state appears next to the file

FIGURE 12: CHANGE STATE

5. If there is more than one lifecycle definition present select the other and change state for that definition
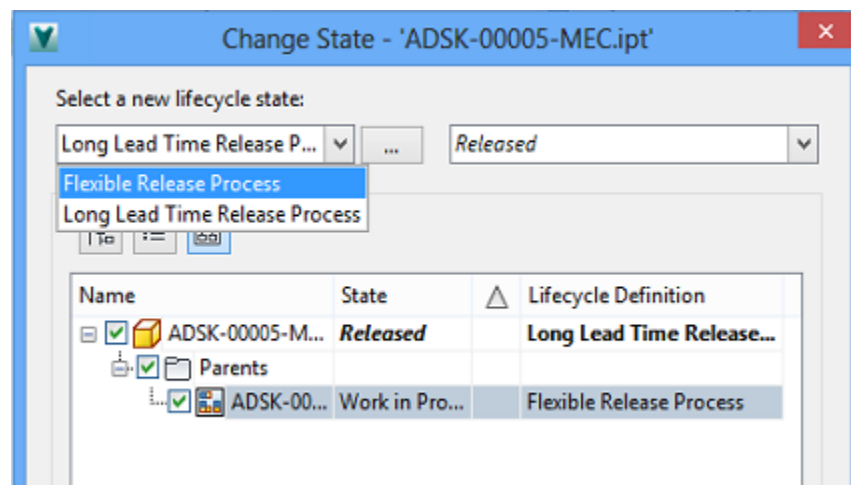
FIGURE 13: CHANGE STATE FOR DIFFERENT DEFINITION

6. Preview the new states
7. Select OK to apply and close the Change State dialog

TIP – Automate Revision bump

It's worth noting here that revision changes can be automated as part of a user initiated lifecycle transition, we typically do this as shown in Figure 7 above, when file or item state changes from Released back to Work In Progress.

Understand what categories are and how they bring Vault behaviors together

A Category is a container which brings all these behaviors together, applying a set of properties, lifecycle definitions and revision schemes to an object.

A category can be a simple method for classifying files allowing us to organize data into different types for simple visual recognition and filtering or searching but more importantly:

- Categories are assigned to objects via rules or manual application
- Categories define
    - Object Property associations
    - Object Lifecycle Scheme and State defaults
    - Object Revision Scheme and Revision defaults
- Categories provide consistent, automatic application of all the above
- Categories are how we enable standard object behaviors
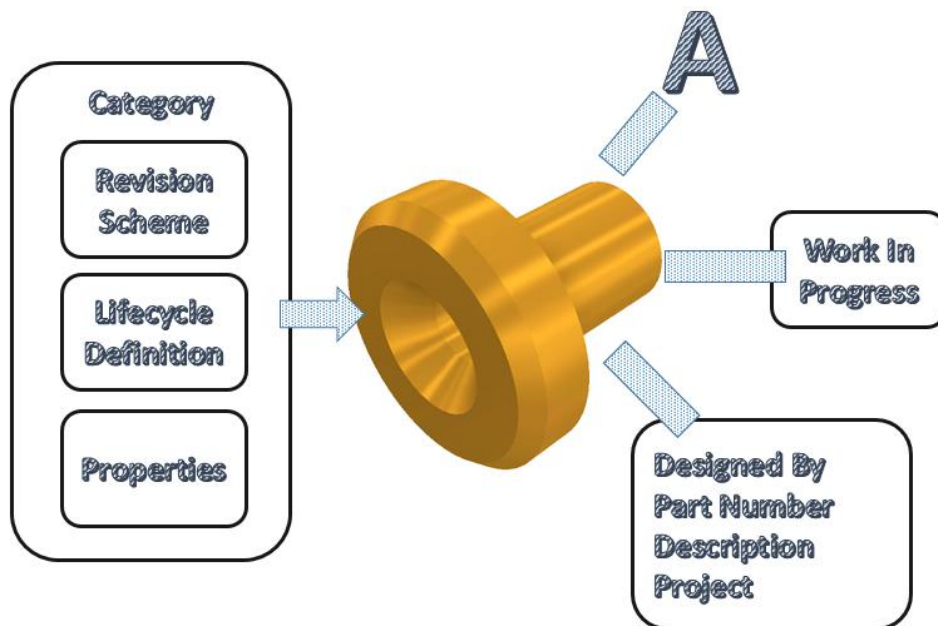
FIGURE 13: ASSIGNING FILE BEHAVIORS VIA CATEGORIES

Autodesk Vault Professional and Workgroup come preconfigured with a number of sample file and item Categories the administrators can modify to suit your processes or create their own from scratch.

Categories can be applied to Files, Items, Folders which are limited to Properties and Lifecycles only and Custom Objects which include properties only

Categories can be assigned manually, can be applied automatically to files via property rules and in Items based on the file type being assigned an Item.

Base default File Category

As noted above Vault Professional and Workgroup both come pre-configured with a number of default categories with default settings. A single default Category Rule that means any file added to Vault Workgroup or Professional will have a category applied to them. This "Base" category does not specify any Revision Scheme or Lifecycle Definition (Actually set to the <None> Scheme and Definition), all files will have the same system properties independent of categories and this category applies a basic set of User Defined Properties.

TIP: Automatically Assigning Categories

As files, custom objects and items often have different behaviors depending on the file type, project or source it is most common to set up a number of categories with specific revision schemes, lifecycle definitions and properties to accommodate this.

Rather than having to manually change the categories which can be error prone and time consuming, administrators can set up rules based on file or object properties which will assign them to different categories. Things like the earlier example of a Project property in your template files can be used as a big time saver in assigning files to the right category and behaviors.

Manually Assign or Change a Category

To manually assign a category you must be Manager Level 1 and above

1. Select the file or files(s) you wish to copy.
2. From the actions menu select "Change Category"
3. In the dialog select any children or parents to include
4. Select the new Category from the drop down list
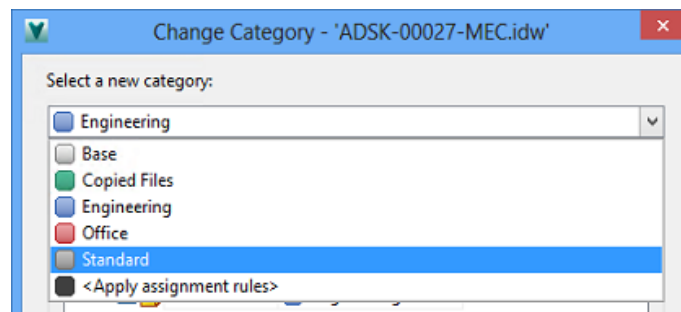
FIGURE 15: CHANGE CATEGORY

5. If you wish to assign separate categories per file click on the Category name from the grid
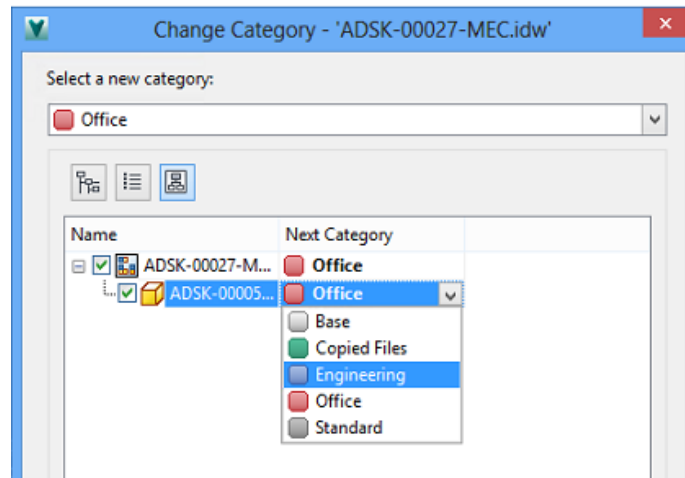
FIGURE 16: CHANGE CATEGORY ON INDIVIDUAL REFERENCE

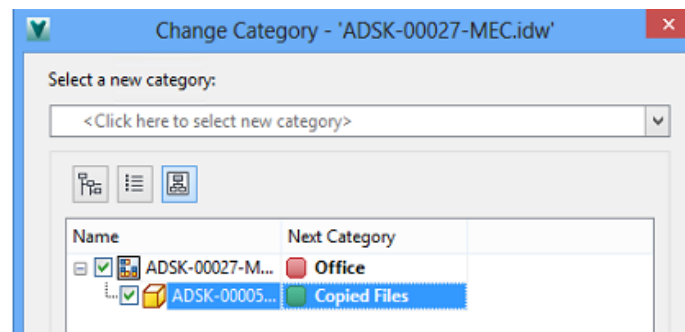6. Preview the new category assignment and select OK to Apply and Exit

FIGURE 17: ASSIGN CATEGORY PREVIEW

7. The files are now configured with new Lifecycle Definition, Revision Scheme and Properties

TIP: Existing Object Behaviors

It is important to note here that if the object you are changing category on already has lifecycle and revision behaviors applied these are not removed or updated automatically.

There are a number of potential and undesirable issues which could arise in automatically transitioning an object to a new state or revision without user interaction, so here the object will retain its existing Lifecycle and Revision. Users should change state or revision to assign the new lifecycle definition and revision scheme with the correct values.

TIP: Categories can have more than one Revision Scheme and Lifecycle Definition

When defining the lifecycle definitions and revision schemes users should note that more than one can be made available per category. In some cases it is desirable to change a revision scheme before releasing a document to a supplier or construction partner.

In this example an alphabetic revision scheme could be used internally creating Revisions A, B, C, then when final approval is received for release to construction the revision scheme is changed to numeric scheme and Revision 0.

Summary

Vault behaviors consisting of properties, Lifecycles and Revisions and applied via categories permit users to have a consistent approach to searching, identifying, managing and accessing Vault objects. Below is a quick guide to which controls are applied to which object and the equivalent end user roles required to interact with these, but please refer to the Autodesk Vault Help documentation for further detail:

Object	System Properties	User Defined Properties	Lifecycles	Revisions	Categories
Files	X	X	X	X	X
Items	X	X	X	X	X
Folders	X	X	X		X
Custom Objects	X	X	X		X
Change Orders	X	X			

- Document Editor (Level 1)
- Document Manager (Level 1)
- Item Editor (Level 1)
- Custom Object Editor (Level 1)
- Custom Object Manager (Level 1)
- Item Editor (Level 2)
- Change Order (Level 1)