

MFG500041

Property Management with Vault Professional

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Learning Objectives

- Learn how to find properties in Vault Professional
- Discover the difference between system- and user-defined properties
- Learn how to map properties to and from your CAD files
- Learn how to share property information with other systems

Description

Vault Professional software is a powerful tool for data management, relying heavily on meta (property) data. Do you know how to access them? Where you can access them? How to create mappings to your CAD files? And how to use this information not only in Vault Professional, but on your CAD files themselves? See examples from the speaker's own Vault Professional setup to learn about the power of property data, how to use it, and how to share it.

Speaker

Mike is the Technical Services Manager at [Prairie Machine](#) a mining equipment manufacturer. Reporting to the general manager, Mike is responsible for overseeing the company's technical operations and strategic technical growth. His primary duties include the ongoing support of critical computer applications and the interactions between departments.

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Vault Properties

Meta Data

What is metadata? “a set of data that describes and gives information about other data”
[Oxford Dictionary]

Meta means *beyond* making metadata the *data* about *data* It describes and provides a summary about the data making it easier to track and work with the data

What are Vault Properties? The attributes associated with your data, your files, items, change orders, folders, and custom objects.

Vault provides two types

- **System Properties** are out of the out of box properties; the ones defined by Vault
- **User Defined Properties** (UDP) are those defined by the Vault Administrator

Property Management is not the same across all flavours of Vault. For example, Outlook email integration and the Vault Item Master are only available with Vault Professional.

Data Extraction

Autodesk Vault allows you to store documents of ANY type, however there are differences with how capable Vault is for viewing and dealing with metadata from the various file types.



AutoCAD

Document Properties,
Sheet Sets, & Block
Attributes



Inventor

iProperties



Revit

Project Properties &
Revit Families



MS Office

Document
Properties

In addition to AutoCAD, Inventor, Revit, and MS Office the Vault add-in is available for Factory, the Alias Suite, 3DS Max, Advanced Steel, Navisworks, and SOLIDWORKS.

Notes:

- Inventor LT & AutoCAD LT are only available with Vault Workgroup/Professional
- FDU, Revit, and Outlook with Vault Professional

The act of checking-in a file populates Vault with the available property information.

User Tasks

Users interaction with Vault properties centers around adding the data to Vault. This is the building blocks. Data including adding files, creating change orders, building items, and interacting with custom objects.

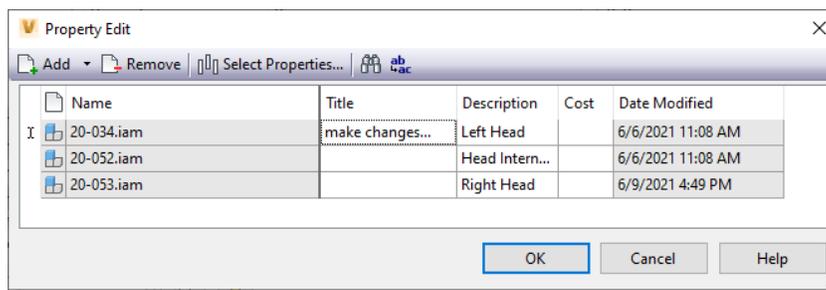
Vault indicates property compliance via a specific column. The icons represent if the property is compliant, non-compliant, pending, or has failed the evaluation.

With the data added users can *edit* property values, *add* (or remove) properties, and *synchronize* the properties (between items and files and between Vault and the local file store)

Editing Properties

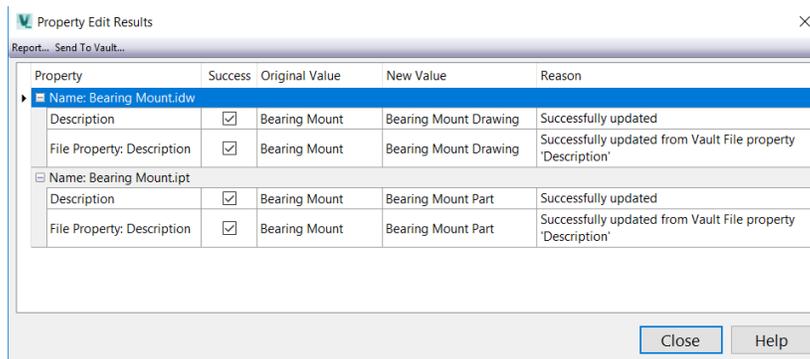
Use **Edit Properties** (a modal dialog) or the **Property Grid** (a dockable palette). Editing properties is available on all object types, but you need to be an editor or admin. You can edit multiple objects, but not all properties are editable.

From the main grid, select the object(s) and from the *Edit menu* select **Edit Properties** (or press Ctrl E)



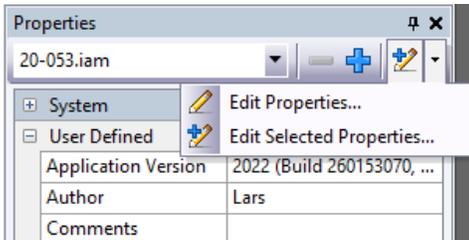
- use the **Add** and **Remove** options to add and remove objects from the dialog
- with **Select Properties** you select the property definitions to be displayed in the editing grid. Read-only properties display with a grey background.
- Use **Find/Replace** to quickly locate values & for mass replacing values with a new value
- **Double-click** a value to edit it
- **Right click** to copy and/or paste a value.
- Select a single cell and click-and-drag the small black square to place that value into multiple cells at one time.
- The new value must match the property's data type or the entry will be marked as incorrect.

When finished editing select **OK** to process the changes. When finished updating the **Property Edit Results** displays the results for each property edited.



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Enable the **Properties Grid** from the *View menu*. This grid can be moved to other locations, depending on your needs.



To edit properties, select a file or group of objects. Using the *Pencil Icon menu* select **Edit Properties** to open edit dialog with the last used settings. To edit specific properties, select a group of files in the main view, then select a group of properties in the grid, and select **Edit Selected Properties**.



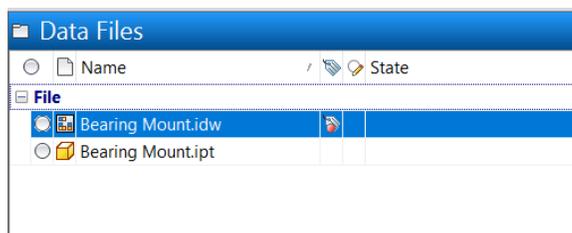
When editing properties Vault increments the version, creating a new version with the changes. If using lifecycles the object must be in the work in-progress (WIP) state to modify properties.

Add or Remove Properties

In the above section we talked about how to add or remove properties from the properties grid, but what if the object does not contain the specific property? Select an object and from the Actions menu select **Add or Remove Property**. A list of available property definitions appear, which you can select the properties to add to the object.

Synchronize Properties

Often you may see a situation where a local file property value does not match the value of the same property in the Vault.



Property Compl...	Noncompliant equ...
Property Compl...	Compliant
Provider	Inventor
Released Revisi...	False
Revision	⚠
Revision Scheme	
Revision Schem...	
State	
State (Historical)	
Version	3

To fix this, select the files and use **Synchronize properties** (Actions menu). Depending on how your properties are mapped, the file property and Vault property will be brought to the same value, and the error icons cleared.

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Add Ins

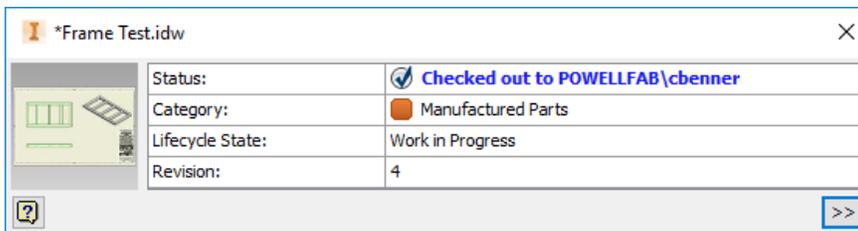
Updating Properties

Editing properties within Vault can leave your local copies out of date. However, during check-out Vault will prompt you to update the local copy.

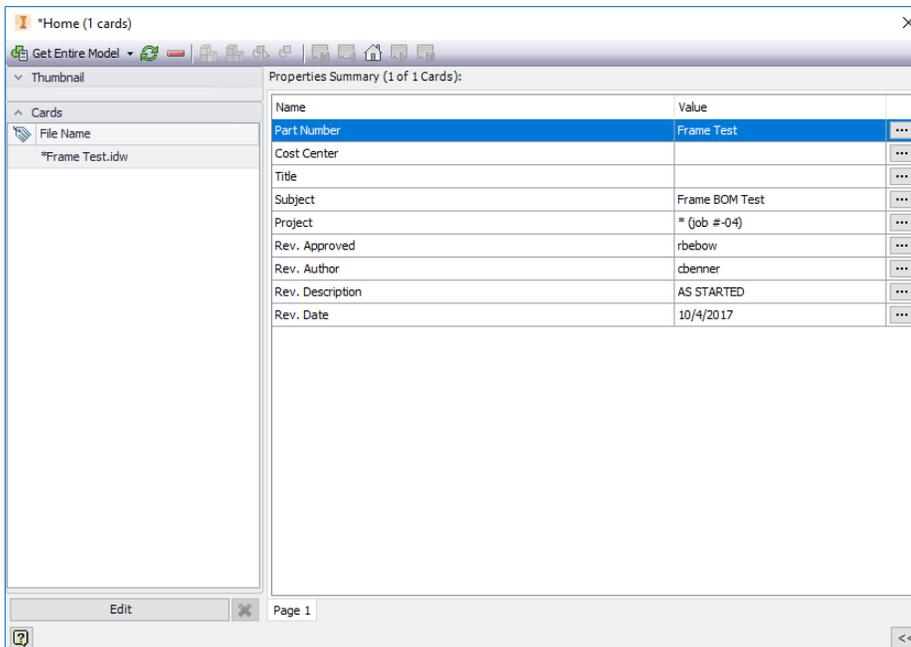
Or, you can use **Update Properties** (Vault Add-in). This software-side tool synchronizes the property values between the local file and the Vault data.

Inventor Data Cards

Use Data Cards to view and edit multiple properties from within Inventor, updating both the local file and the Vault data. When first opened, the view defaults to a thumbnail image and the values of Vault Status, Category, Lifecycle State and Revision.



Expand the data card by clicking the >> in the lower right corner. Once expanded, the card will show the properties that were set up inside of Vault by the administrator

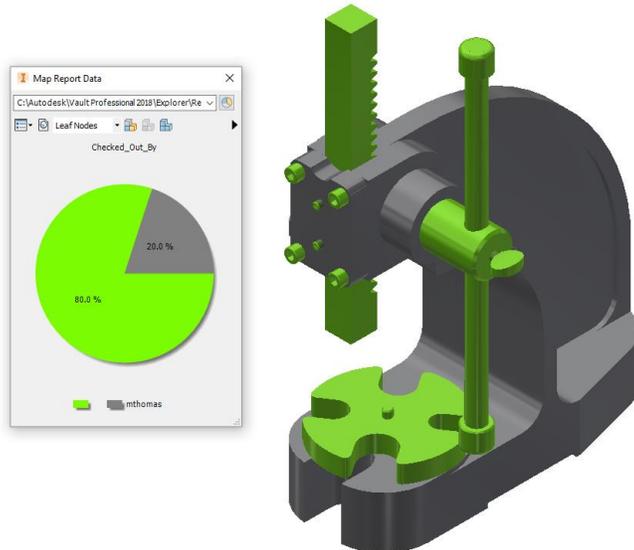


The **Edit button** opens the properties for editing. If more than one page was set up in the Vault, you will see multiple page tabs.

To create a card deck, select the Get Entire Model. All files associated with the top level are added to the card deck. To scroll through the files on at a time there are forward and back buttons along the top, as well as a Home button to take you back to the top level.

Inventor Data Mapping

Within Inventor, use the Data Mapping feature to map report data onto the components contained within the model. The displayed chart corresponds with the coloring of the model. In the image shown below, the grey color represents the components currently checked out by mthomas and the green represents components currently not checked out.



Data Mapping is advantageous in that it provides a visual representation of your Vault property information, and how it impacts your models.

Use the dropdown along the top of the Map Report Data panel to select the desired report. With the report picked select the Generate Report icon (to the right of the dropdown) to generate the report and populate the chart. Use the toolbar to map the data on the model, choosing the desired level before applying the coloring.

The Autodesk Knowledge Network (AKN) contains information on creating your own reports.

Property Administration

Properties are available for files, folders, items (Vault Pro), and custom objects (Vault Pro). You associate with the entity classes the available properties. Mapping determines where the property gets its information from.

Term	Definition
Associations	Attribute that determines whether the property is associated with a file, an item, or a change order.
Compliant	The status of a property that meets all property policies and equivalence evaluations.
Data Type	The type of data accepted for the property value. This type can be text, number, boolean, or date.
Database Property	Any property in the database, either user defined or system.
Entity	An entity is the system class with which a file can be associated. Entities are files, items, or change orders.
Equivalent	The status of a mapped property when its value matches the source value.
File Property	A property associated with a file.
Mapped Property	A property from which the propriety being defined gets its value. For example, a UDP can get its value from several different file properties. A file property can get its value from a system property.
Mapping	A set of relationships between the property being defined and a property from which it receives its value. There can be multiple mappings for a given property definition.
Master	The property from which a mapped property gets its value. The master property writes its value to the subordinate property.
Non-compliant	The status of a property when it has failed to meet one or more property policies or its equivalence evaluation.
Non-equivalent	The status of a mapped property when its value does not match the source value.
Property Definition	All attributes and constraints about the property including its name, data type, initial value, mapping, minimum and maximum values, case values, in-use value, and basic search value.
Property Name	The name used in the GUI (graphical user interface) to identify the property.
Property Policy	Depending on the data type, the property policy specifies certain constraints that must be met. The constraints may include a value range, a value type, or a value format must be met. For example, a property policy might be described as follows: the property must have a value and that value must be in the range of 1 to 10. When a property fails to meet its property policies, it is considered non-compliant.
Property Value	The literal content of a property attribute for a specific file version.
Override	Determines whether the property value is over-ridden by the policy defined by its category.
Subordinate	The mapped property that receives its value from the master property.
System-Defined Property	A property in the database created by the system, which is then assigned to a file.
User-Defined Property (UDP)	A property in the database created by an administrator. The property can be applied to a file when it is added to a vault.

Figure 1: Common Terms

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When files are checked into the vault, only the properties that are set enabled are automatically extracted and indexed by default.

Creating and editing properties – Tools > Administration > Vault Settings > Behaviors > Properties.

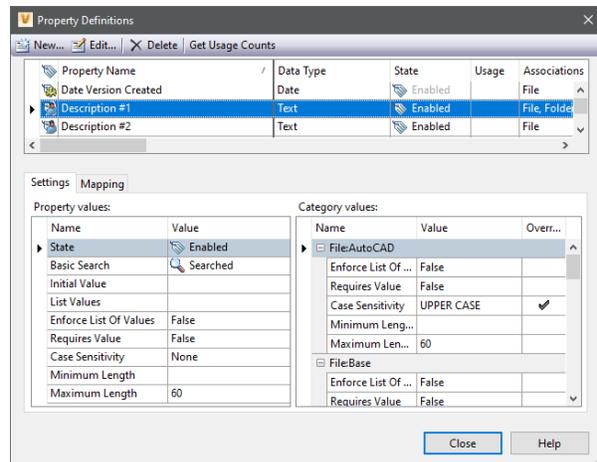
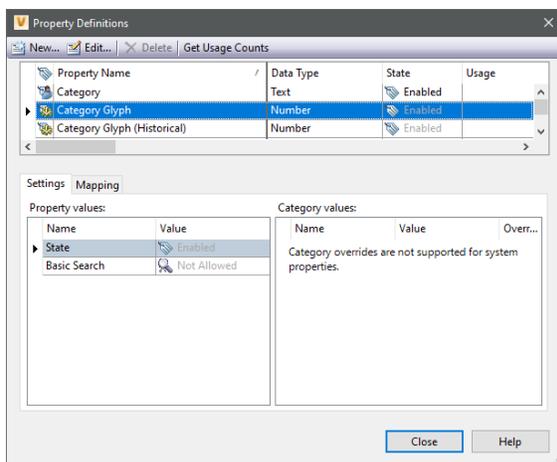
In the **Property Definitions** dialog select **New**

- Specify the **Name**
- Select the **Property Type**
- Assign the UDP to one or more **Categories**
- Use the **Settings** to optional further configure the property (see below)
- Optional configure **Mapping**



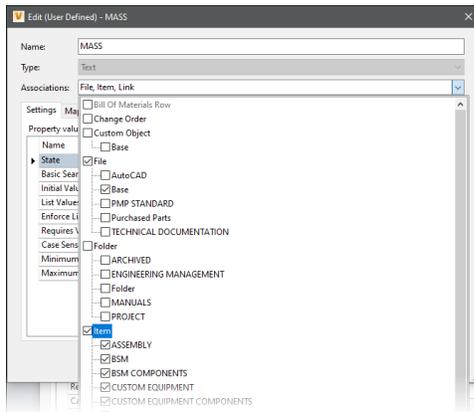
Map properties so that values from the master file (like a file property) write to the property on file check-in or on item assignment.

For example mapping AutoCAD titleblock, AutoCAD drawing properties, AutoCAD Electrical Project information, and Inventor iProperties to the Item Description property



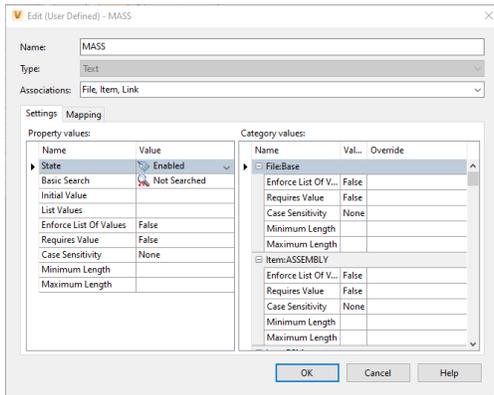
Vault provides 4-data types: **Boolean** (True or False), **Date**, **Number** (Integers only), and **Text** (strings).

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The **association** is the attribute determining to what the property is available. This varies on the version of Vault you are using, for example Item is only available with Vault Professional.

When creating a new property, ask yourself...



What data type is required (text, boolean, or number)?
Should it be included in searches?
Is there a list of values?
Should the user only pick from the list?
Is there an initial (default) value?
Is it mandatory (required)?
Sensitive to case?
A minimum and/or maximum length?



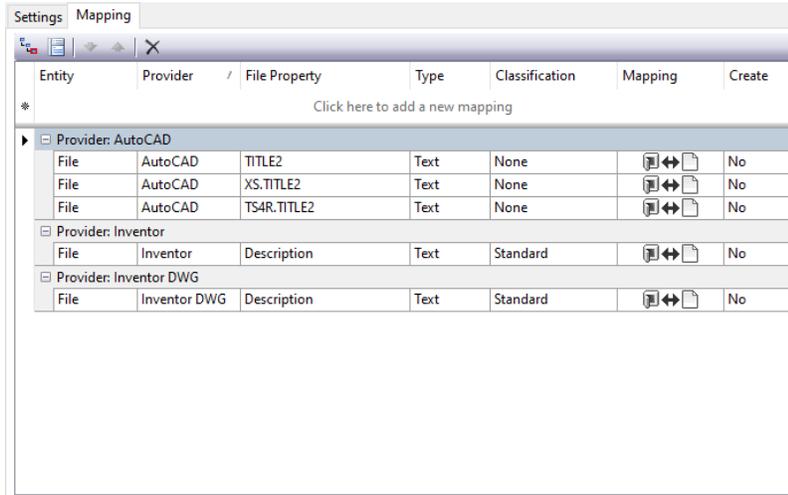
Disabling a property will prevent it from being indexed by Vault. This may be used to “shut off” properties that are in use on files, but are no longer needed. If a property is in use anywhere in the Vault, it cannot be deleted.

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Index AutoCAD Block Attributes

From the ADMS Console add AutoCAD blocks (by name) to index the attribute property values allowing you to map block attribute properties to Vault properties.

Within the ADMS, select **Tools > Index Block Attributes...**



Within the **Index Block Attributes dialog** select **New**. Enter the name of the attributed block for attribute extraction. **The name is case sensitive.**

Optionally enable the option to extract the attribute prompt instead of the tag.

If drawings exist within your Vault that contain the attributed block a re-index will be required. The re-index extracts the information, making it searchable and available to your properties.

Lifecycles

Our drawings and models are the language of engineering and manufacturing. It is how we communicate with others. It is how we go from concept-to-design-to-manufacture. How we manage this language is as important as the documents themselves.

It is important to maintain a history of a document (including drawings) to track what has changed, when it changed, and hopefully why it changed. This history aids in making better decisions, provides crucial customer information, and provides the means to go back to a previous version.

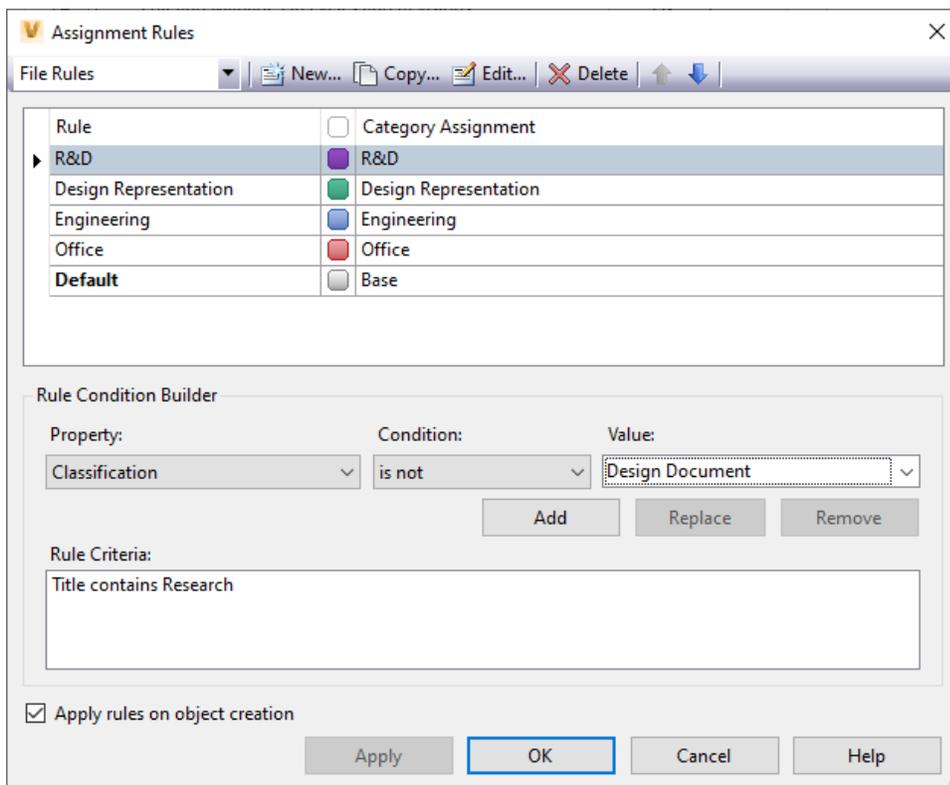
If you are using **Autodesk Vault Basic** you will not have access to the lifecycle engine. Vault Basic only provides *version control*, no tools to manage the change. **Vault Workgroup** and **Vault Professional** provide the tools for managing change

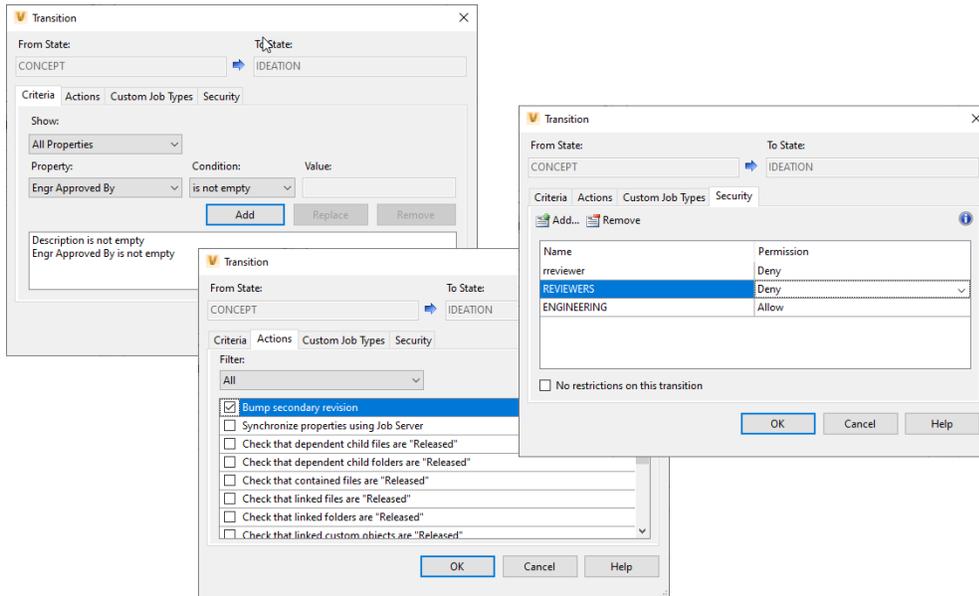
From Vault's help: "A lifecycle definition is an engine that can be configured to automatically assign security, behaviors, and properties to Vault objects based on where the object is in the life of the design process."

The *lifecycle engine* is available for files and folders, and additionally within Vault Professional custom objects and items.

Building your **Properties** is one of the key steps to establishing lifecycles.

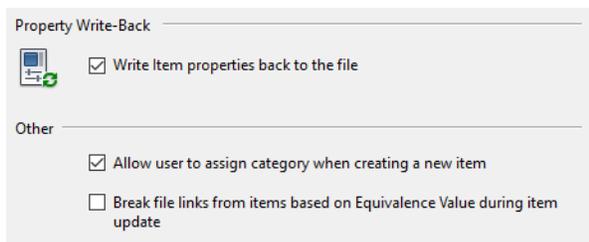
Categories are *labels*, providing a method to group objects logically. Categories assign **user-defined properties** to the objects, the available lifecycle definitions, and the available revision schemes.





Use **Rules** to define conditions where objects automatically assign to a category based on the object's **properties**.

Item properties take precedence over the associated files. If the value of a property on a file is modified and the properties are synchronized, the value of that property on the Item will overwrite the File property value.



The **State** identifies the object's status within the lifecycle. The state identifies the object's status within the lifecycle. The state determines the **Property Criteria requirements** (Compliance) that must be in place before the state change can occur, the actions that happen during the change (i.e. revision bump), and the **security** enforcing who can make the change and who can see the file in the state.

Projects

Vault Projects are folders you manage with lifecycles. With projects you organize the related data and manage it from one location.

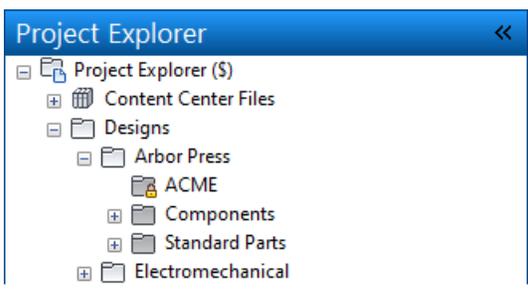


Figure 2: Projects

Convert the folder to a project by assigning a category.

Projects have **properties**, meaning a terrific location for project data.

Projects are like files except you cannot set the revision. After applying the desired category, adjust the state of that folder. The state change configuration may force you to perform the state change on the files contained within the folder as well.

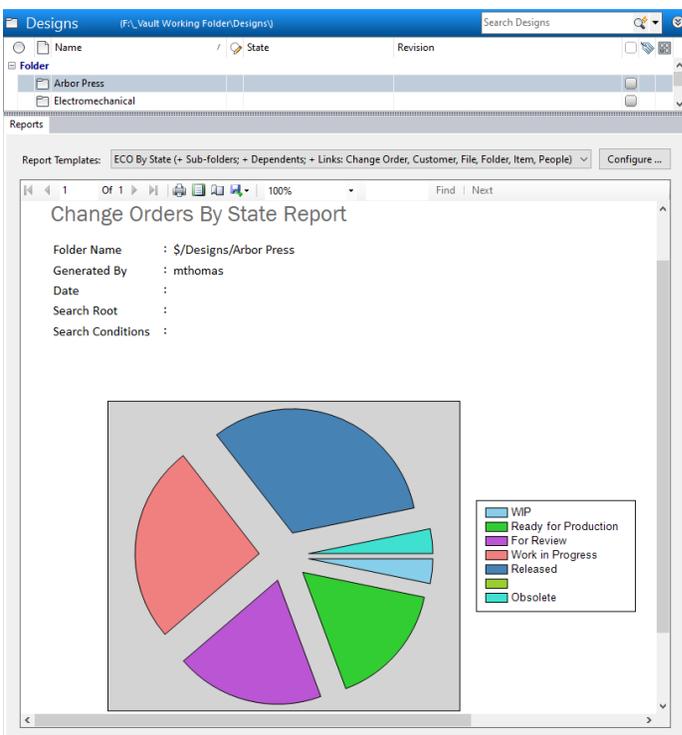


Figure 3: Project Reports

Run **reports** on the project to gain insight including information on the files, items, sub-projects, and other objects contained within the project.

Access reports from the **Preview tab** of the project.