AUTODESK **UNIVERSITY** 2015

PL11458

Moving from Files to Items in Vault – Part 2

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Learning Objectives

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

- Navigate and Understand the Areas of Vault to Configure for Items
- Configure and Use Item Workflows
- Identify Areas to make your Transition to Items Easier
- Learn some of what you can do with Items and BOM

Description

This class is the second in a two-part series continuing the principles of Items and Bill of Materials (BOM). In this class, we go over the use of Items and BOM, configurations, customizations, and example workflows. Additionally, we discuss areas to help ease the transition from being file-centric to item-centric.

This class assumes a general understanding of the Vault Client user interface (menu locations, user role security concepts, etc.) as well as an understanding of the topics covered in Moving from Files to Items - Part 1 of this learning series (Item / BOM concept, file links to items, etc.).

The content of this document is based on functionality in the 2016 product line. Previous and future product functionality may differ.

Your AU Experts

Spending several years in both the Product Support and Premium Support organizations at Autodesk supporting the Vault family of products, ***Andy Spivey*** *is currently a Senior SQA Engineer at Autodesk and has been with Autodesk for over 7 years. Before Autodesk, Andy has held various IT related positions from MIS Administrator to Technology Consultant. With an IT-centric background, Andy brings a somewhat different approach and experience when analyzing issues, solving problems, and testing.*

Bill Schwerin *is a Senior Principal Engineer at Autodesk Inc., and has been at Autodesk for 15 years. He currently works in the Data Management group on the Vault software product line. Bill started his career at Autodesk in 2001 working on AutoCAD Mechanical. Bill has a Master's degree in Computer Science.*

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Moving from Files to Items in Vault – Part 2

Introduction

This class is a continuation of PL11224 - Moving from Files to Items in Vault – Part 1. Where Part 1 focuses on the What and the Why, this course focuses on the How.

There are some configuration options and choices that must be made to tailor the Item experience for YOUR desired workflows. This course helps to explain these various options, where to find them, and what they do for you!

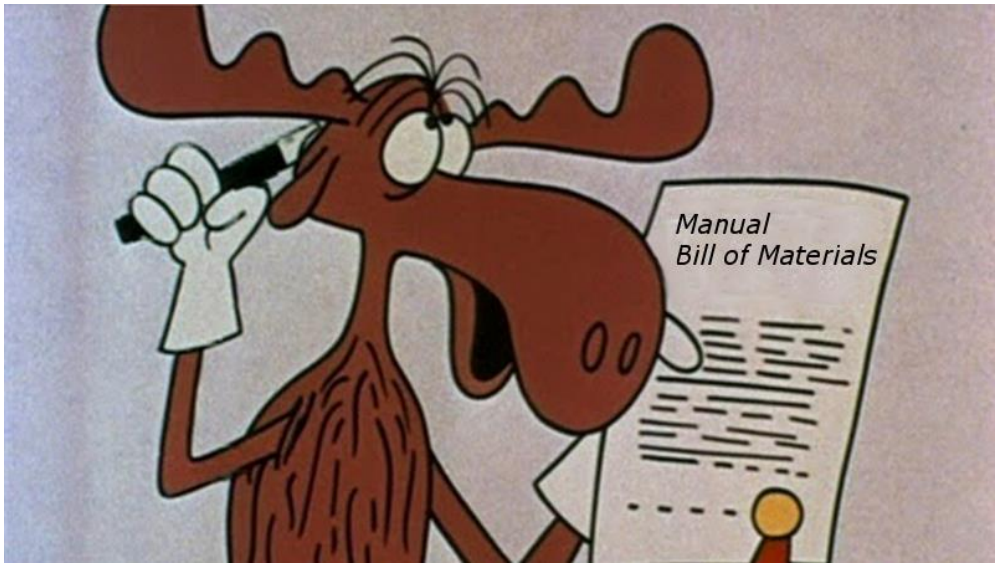


FIGURE 1: MANUALLY GENERATING A BOM…

Terminology Used

Pro Tip – Helpful tip!

In the Weeds – Areas to explore further.

OOTB – Out of the Box – Value, behavior, or object that are present in any new Vault or Vault installation.

UDP – User Defined Property – Property that can be created and configured by an administrator. Several UDP's are present out of the box (OOTB).

BOM – Bill of Materials

ECO – Engineering Change Order

ADMS – Autodesk Data Management Server – The Vault server.

Requirements

To use Items, a vault user must have an appropriate **Role.** User roles are Global settings versus Vault settings, and can get assigned by a Vault administrator either through the Vault Server Console or from the Vault client. The Item specific roles are **only** present in the Vault Professional product.

Roles are assigned to Vault Users and Groups by going into Tools -> Administration -> Global Settings (Vault Client) or Tools -> Administration (Vault Server).

Utilizing Groups can help reduce administrative overhead – especially when adding new users to the Vault!

Item Roles – Key differences

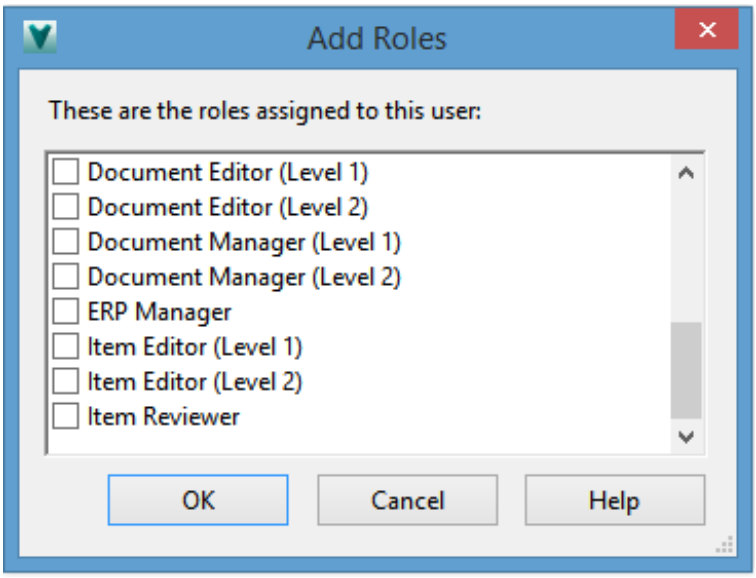


FIGURE 2: LIST OF VAULT ROLE PERMISSIONS

- Item Reviewer – Item Read
- Item Editor (Level 1) – Item Create, Edit, and Read
- Item Editor (Level 2) – Change Category, Number, Lifecycle State, Revision, and Delete
- ERP Manager – Item Export / Import
- Administrator – Hold all roles in the environment

Item roles can be combined, and the user have the combined permissions. For example, adding Item Editor (Level 1) and ERP Manager to the same user grants that user all the role permissions under Item Editor (Level 1) and the additional permissions under ERP Manager.

Roles do NOT need to be combined if all the role permissions in the more restrictive role are included in the less restrictive role.
Example: If your user is Item Editor (Level 1) they do NOT need to have the Item Reviewer role – as the Item Read permission is part of the Item Editor (Level 1) role.

Overview of Item Settings

Like many other administrative actions in the Vault, Items are configured at the Vault level.

Most Item configurations get performed under the Tools -> Administration -> **Vault Settings** dialog, specifically under the **Behaviors** and **Items** tabs.

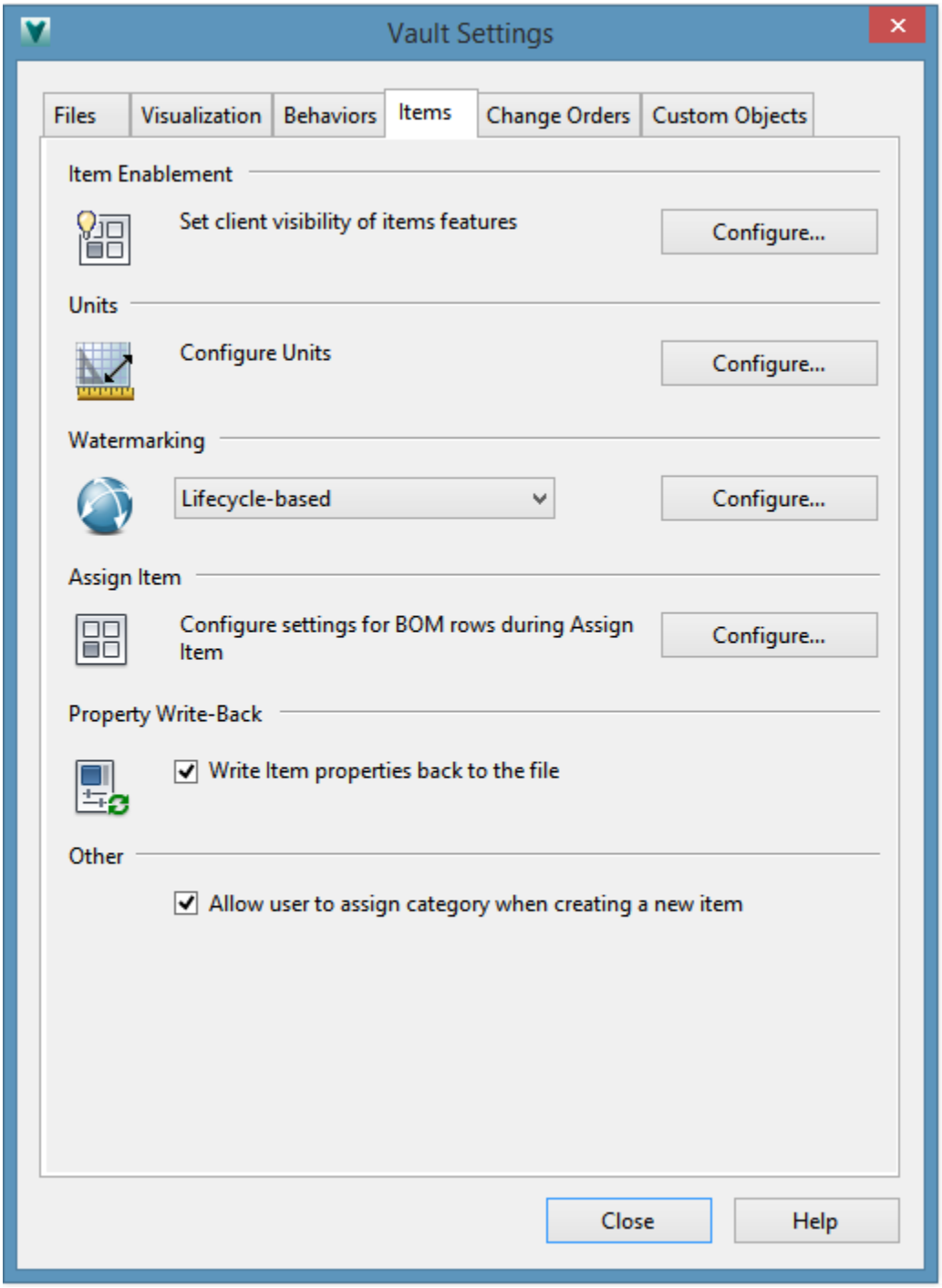


FIGURE 3: ITEM-SPECIFIC VAULT SETTINGS

Items Tab

Underneath the Items tab, there are several configuration options that are configurable. These options are Item specific and cannot be a shared behavior in a document-centric environment. However, in the Behaviors tab, some configuration settings can be set, so they get shared across document-centric and item-centric workflows.

Item Enablement – This allows or disallows the Vault users to view the Item Master. This option will need to be enabled to view and work with items in the Vault though you can give the users the option to have the Item user interface enabled or disabled.

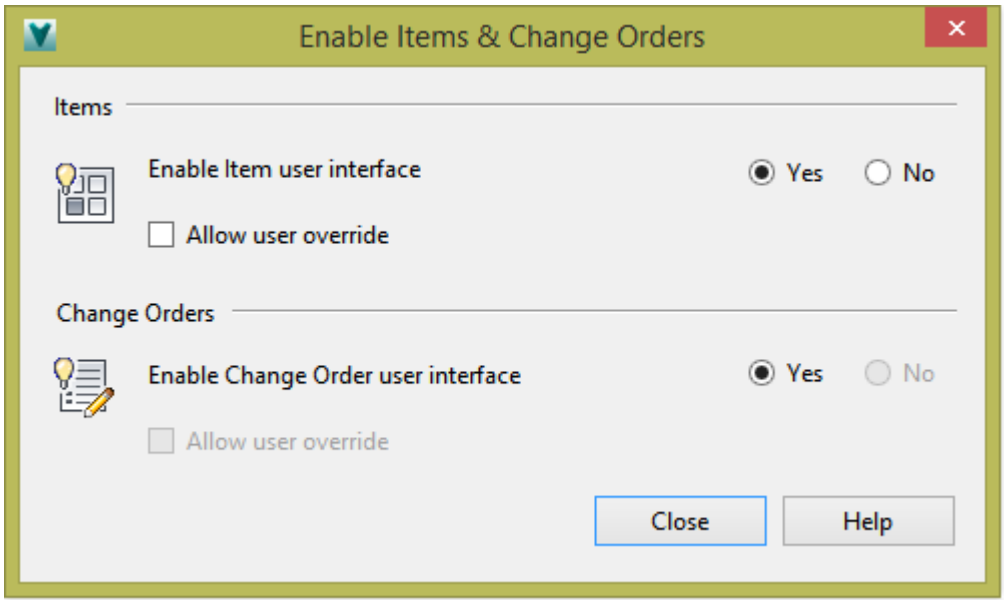


FIGURE 4: ENABLE ITEM AND CHANGE ORDER VISIBILITY OPTIONS.

Units – Allows you to define and edit the units of measure to get used with your items.

Watermarking – Watermarking items works in conjunction with a lifecycle definition or an item property. A custom watermark is also available.

Watermarks get overlaid onto to the DWF file of a drawing.

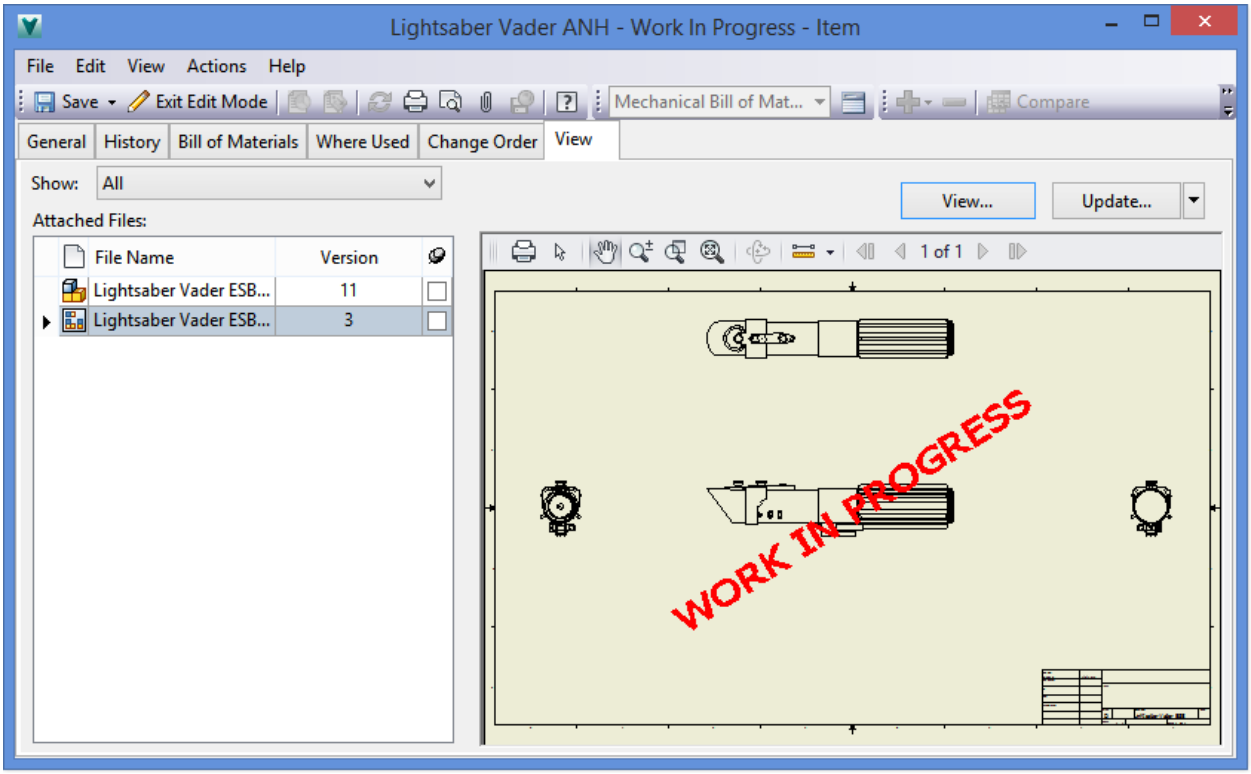


FIGURE 5: WATERMARK DISPLAYING LIFECYCLE STATE.

Additional information on watermarks can be found HERE.

Assign Item – Configuring the Assign Item behavior has several options for how the command operates.

> **Duplicate Items** - You can automatically select the first duplicate item found during an item assignment operation. You can also grant your users the ability to override this. If this option is selected, child BOM Components attempt to link to an existing item using the Equivalence Value property.
>
> **Rows that will be turned ON during Assign Item** (None, Existing Only, All) allows you to control the BOM during the initial assignment. Once a BOM row is linked to an item, rows will NOT be turned on / off during subsequent updates.
>
> **Group** BOM rows as per the CAD BOM show the merged (or unmerged) BOM rows as shown in the CAD application. By disabling this option, BOM rows get automatically merged.
>
> Merged rows get identified with the merged icon .

Subcomponent Link Types get created during the Item Assign / Update command. Creating the links as Primary / Secondary subcomponent links or Standard components links change how properties are read/written to these links.

Additional detail on the link type differences can be found HERE.

Disable Assignment for Design Document Files can restrict users from assigning an item directly (primary file association) to a drawing.

Additional information on item assignment can be found HERE.

Property Write-Back – Item properties take precedence over file properties and file mappings. If a file's properties get edited and properties are synchronized, the item properties overwrite the file properties.

Also, if a property contains both an Item and File mapping, the Item mapping takes precedence.

User Category Assignment – Enabling this option allows the user creating the item to manually assign a category to the item upon creation.

- Rules can also be used to automatically assign items to specific categories upon creation. More on this under the Behaviors Tab Rules section.
- This dialog is present when creating an item from the New Item command in the Item Master.

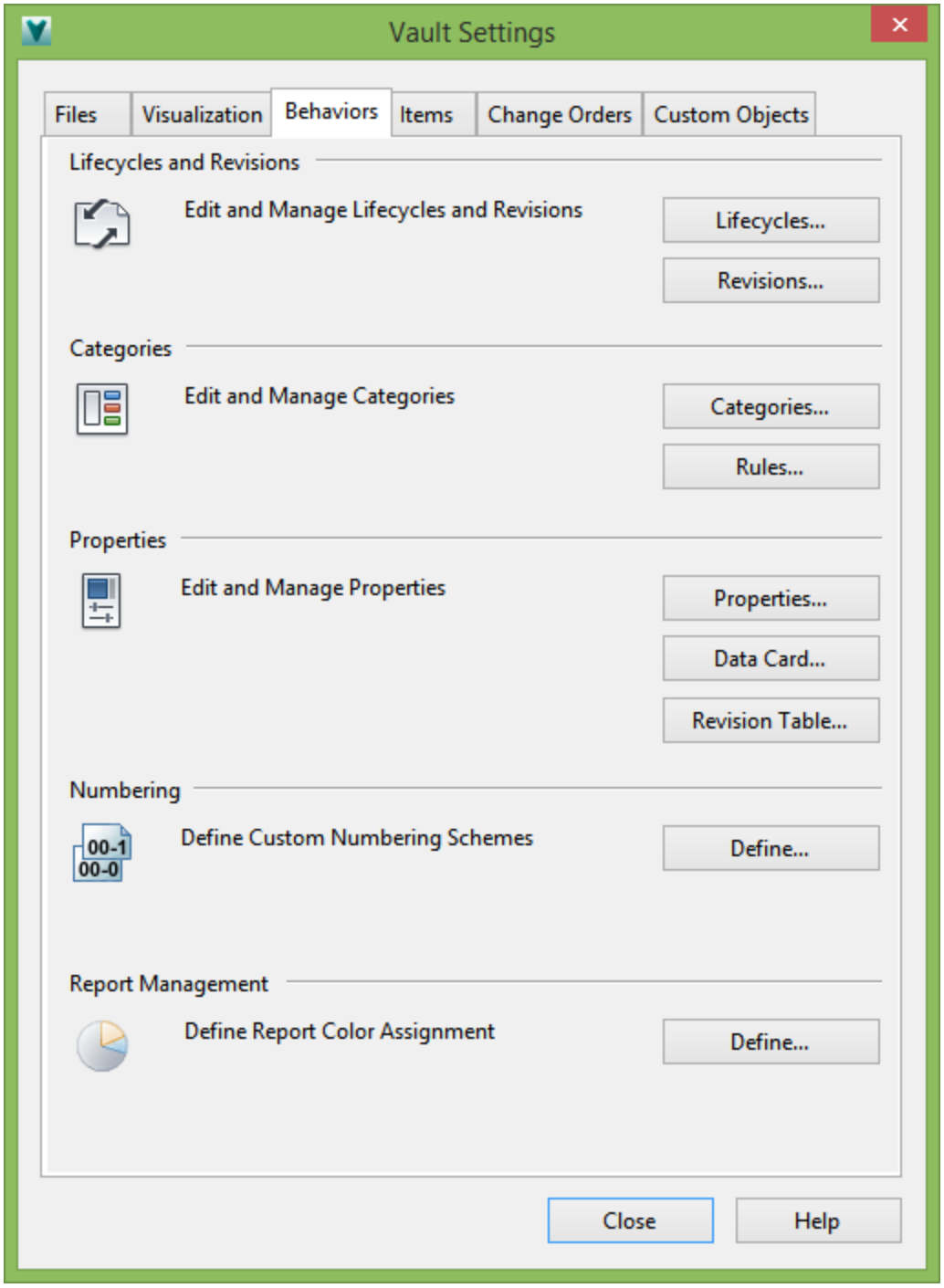


FIGURE 6: VAULT-SPECIFIC SHARED BEHAVIORS.

Behaviors Tab

The Behaviors tab contains options that can get applied to items but are not exclusive to items, like categories, revisions, and lifecycles. The OOTB configurations make some assumptions that may or may not apply to your desired workflows, so it is important to review the behaviors to ensure it achieves

what you want. You can build up and test your configurations in a test vault before configuring the production vault. Once the initial configuration is acceptable, the configuration can then be exported from the test vault and imported into the production vault via the Vault Server Console.

- When setting up your configuration, if you choose not to use some entities (lifecycles, specific states, etc.) you may NOT be able to delete them after if they get consumed by a vault object (item, custom object, or file). Therefore, it may be best to do configuration testing in a separate vault.
- The Import Configuration command requires that the configuration imported gets created from a Vault Server of the same release and service pack/hotfix level.

  Example: A Vault configuration export generated from Vault 2016 Professional Service Pack 1 CANNOT get imported into a Vault Professional 2016 server without the same Service Pack.

Lifecycles – The lifecycle is the configurable workflow engine for moving your vault objects (items, files, custom objects) through their design life. Multiple lifecycles can get assigned to multiple categories. OOTB there are several lifecycles that have been pre-configured.

- Lifecycles have several individual configuration choices – like which users have permission to change from one state to another, what security should get applied to the item at any given state, should the same or different, or no security be applied to the related files, and should a specific action occur when performing the state change.

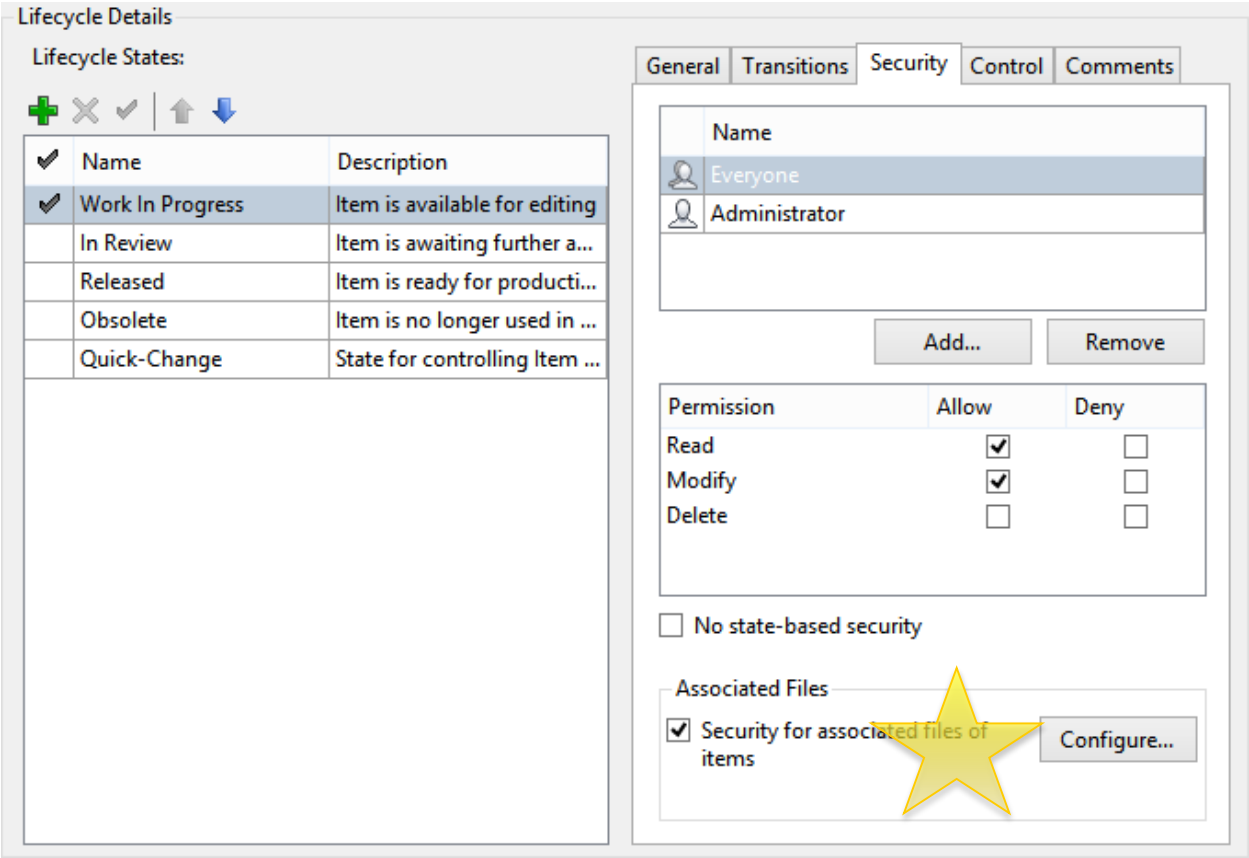


FIGURE 7: ITEM SECURITY TO BE APPLIED AT A STATE.

- If you do not want to start from the beginning to configure your lifecycle? Choose an OOTB definition and use it as a template with the Copy command!
- Curious on what Transition Actions can apply to items? Apply the Filter!

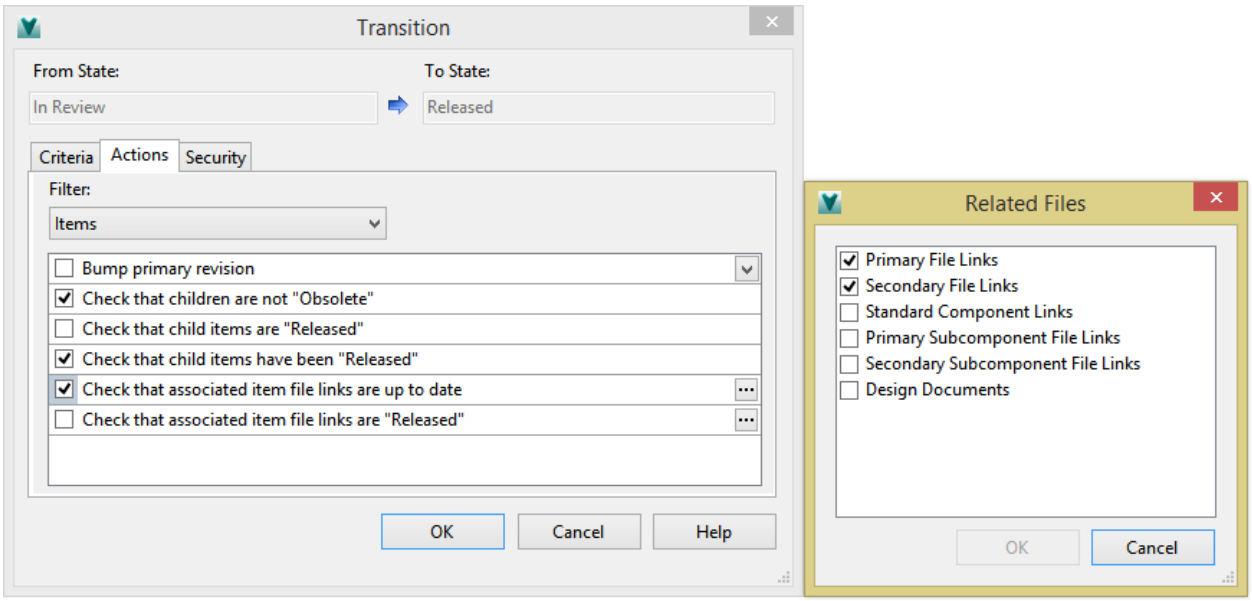


FIGURE 8: ITEM ACTIONS THAT CAN BE EXECUTED DURING A STATE TRANSITION.

- Actions with the "…" option or ⌄ dropdown can get configured further!

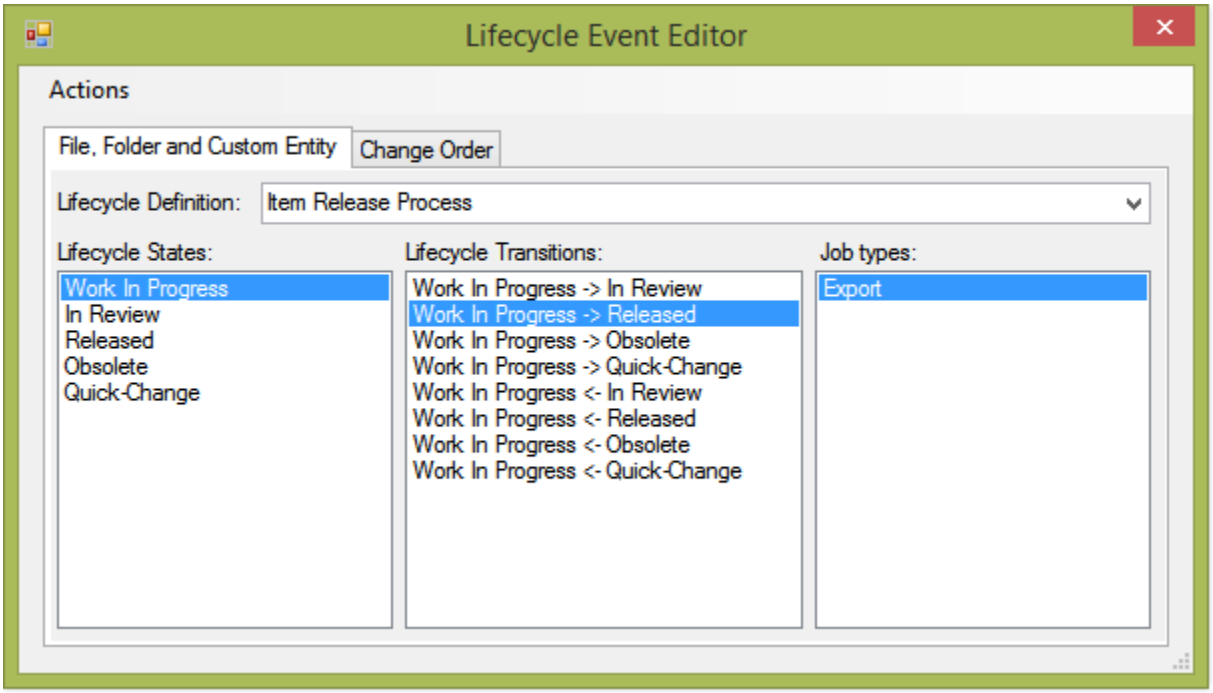


FIGURE 9: ADDING A CUSTOM ACTION THROUGH THE LIFECYCLE EVENT EDITOR.

- Do you have a need for a custom job to get executed during a state change? The Lifecycle Event Editor (installed with the SDK) can help you add your custom job to a lifecycle transition.

Additional information on lifecycles can be found HERE.

Revisions – Like lifecycles above, Revision schemes can be associated with multiple categories.

- Do you have a need for a LARGE revision scheme (and do not want to build it out in the Vault UI)? Build it in MS Excel or Google Sheets and import it!

Additional information on revisions can be found HERE.

Categories – Categories are used to group or bucket vault object data together. Categories can have various lifecycles, revision schemes, and properties associated with them. Out of the Box, there are pre-built categories for various component types for items (Assembly, Electrical Project, Part, etc.)

- When moving a vault object from one category to another, lifecycles and revisions that were associated with the objects INITIAL category remain in place. When performing a lifecycle state change, or Change Revision command, the new schemes can then be selected and used.
- In the case where the INITIAL category did NOT assign a revision or lifecycle definition, the NEW category values get used.

  Example: OOTB the Base category does not have a lifecycle definition or revision scheme associated with it. Upon changing the objects category to another category that does have

these associations, the lifecycle definition, and state and revision scheme and revision gets applied.

- When moving from an INITIAL Category to a NEW Category that does NOT share commonly associated properties (UDPs), the previously applied properties assigned from the INITIAL Category are not automatically removed - they need to get manually removed if desired through the Add or Remove Property command. The command is available via the Actions menu or by right-clicking the Properties Pane for an editable item

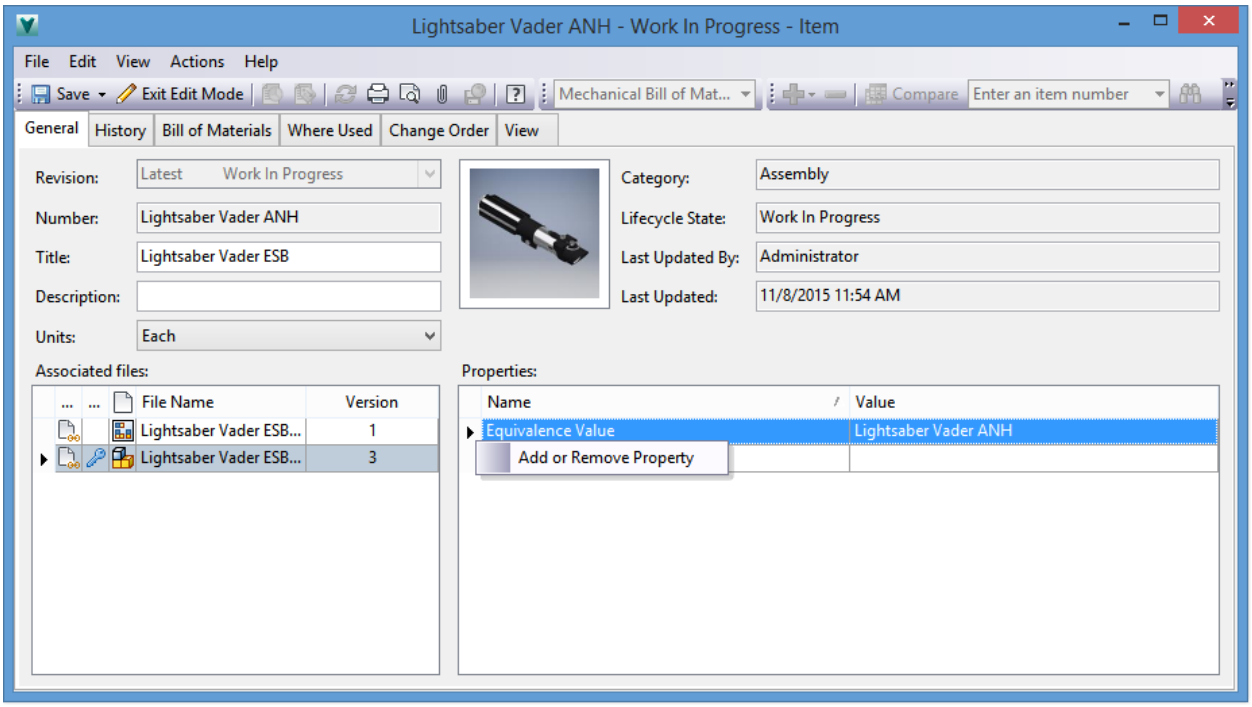


FIGURE 10: RIGHT-CLICK OPTION TO ASSOCIATE A UDP TO AN ITEM.

Additional information on categories can be found HERE.

Rules – Rules are used to assign an object (item) to a category based on specified property criteria. The Rules can get exercised during item creation or the Change Category command.

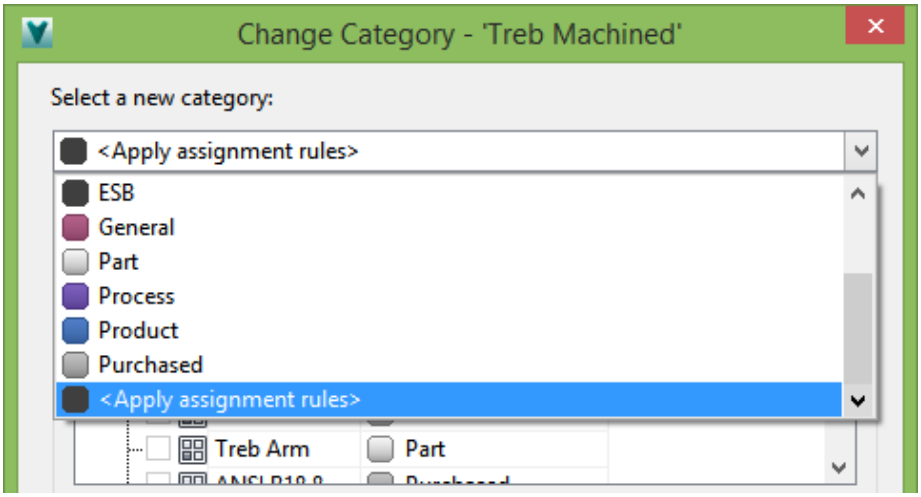


FIGURE 11: CHANGE CATEGORY COMMAND.

Rules execute from top-down. If your default rule is above your other rules, all your items go to the default rule! IE, once a rule fits further rules do not evaluated.

Additional information on rules can be found HERE.

Properties – Properties are attributes associated with an object in Vault. There are two property types – system properties and user-defined properties (UDP).

Vault 2016 also introduces a new property association type – Bill of Materials. Unit Quantity, Item Quantity, and Row Type (CAD or Manual) are examples of properties that gets associated with a Bill of Material line item.

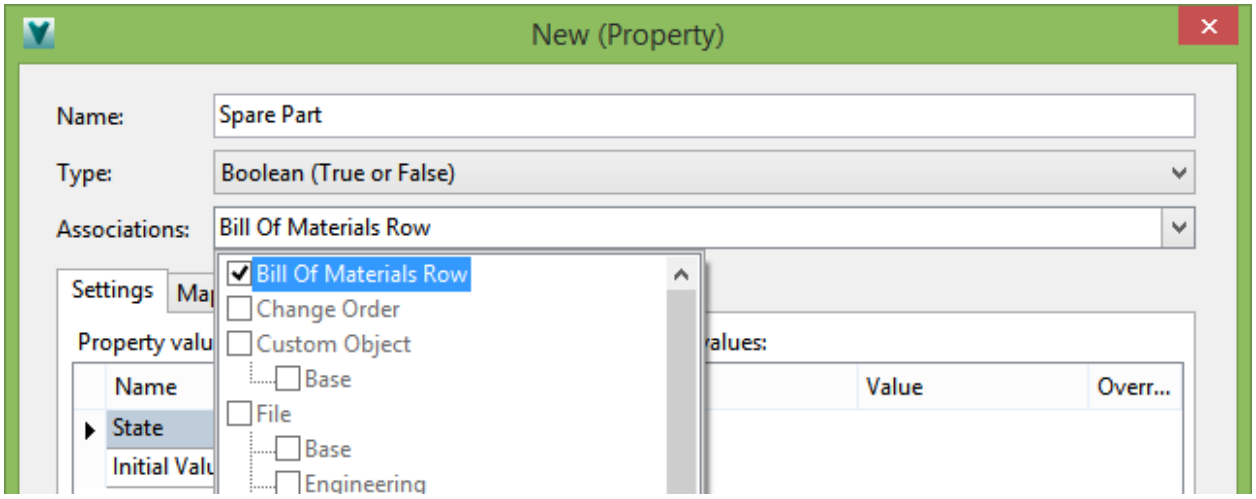


FIGURE 12: BILL OF MATERIALS ROW PROPERTY ASSOCIATION.

Bill of Material properties can only get viewed from the Bill of Materials Item tab.

- Property mapping additions in a test environment get imported into the production environment through the export/import configuration command. Review the console log file to see your results.
- The System property Number has an OOTB initial mapping for the iProperty Part Number. If your Item number does not appear as you expect, check your mapping.

Additional information on properties can be found HERE.

Numbering – Use of numbering schemes permit you to control the naming convention of your items. Unlike most areas of the Behaviors tab, numbering schemes cannot be shared between items and files. HOWEVER - if the item numbering scheme is set to pull a value from a file that was created using a file numbering scheme, this may be used.

- Using Connected Workgroups (SQL Replication)? You can use the Workgroup label in your numbering scheme.
- Have some items that are not following your scheme? Check your system property Numbering setting and Assign Item options.

Additional information on numbering schemes can be found HERE.

Report Management – Allows you to open a created report and assign colors and values to charts associated with the report opened.

Additional information on report management can be found HERE.

Additional information on creating your custom Vault reports can be found HERE.

Building your Workflow

Now that we have a base understanding of the various configuration choices we have for Items, we can piece them all together. Consider your needs and how you want your work to "flow" and configure the behaviors. Also to consider is where you are coming from – if you are currently using Vault Basic, the configuration may seem more daunting. If you are coming from Vault Workgroup or even Vault Professional you have the ability to share or copy existing workflow for your items.

Configurations Check-List

The additional course handout can be used as a guide and checklist to record the decisions made regarding your item workflows. It is intended to leave you with an understanding of the choices that had been made and ask "Have I considered …" questions.

Some Questions to Answer or Consider When Designing Your Workflow:

- How should my Item numbers be created?
  - If coming from a file iProperty, what should happen if the property is not present?
  - What should happen if the property value is missing?
- How should my Item's be associated with categories?
  - If assigning the items to specific categories after creation, does my default category add properties that I do not need?
  - Do my rules execute correctly?
- How do I want a (potential) duplicate item number handled?
  - Should the system link the (new) file to the existing item in the system?
  - Do I want the command to fail?
- When an Item is in a specific state:
  - Should it be hidden or special permissions granted to a specific group of users?
  - What groups/users should be able to transition the item to a specific state?
  - Do I want the associated files to receive a specific security access control list?
  - Do specific criteria need to be met to transition to a specific state?
  - Do I want a specific task to execute upon a transition?
- What is our revision process?
  - Does a revision bump need to occur automatically when a specific state transition occurs?
  - Should this be a manual process?
  - Do we need to account for an accidental revision bump?
- Are there specific properties and attribute that should get exposed to downstream systems or processes?
  - Do values for these properties need to be present in the CAD model?
  - Should these properties or values influence the lifecycle/workflow?

Ideally, if the questions that get asked get answered, your end results should be predictable.

Sample:
The image below is a mock-up of the lifecycle states and transition paths for the OOTB Item Release Process lifecycle definition.

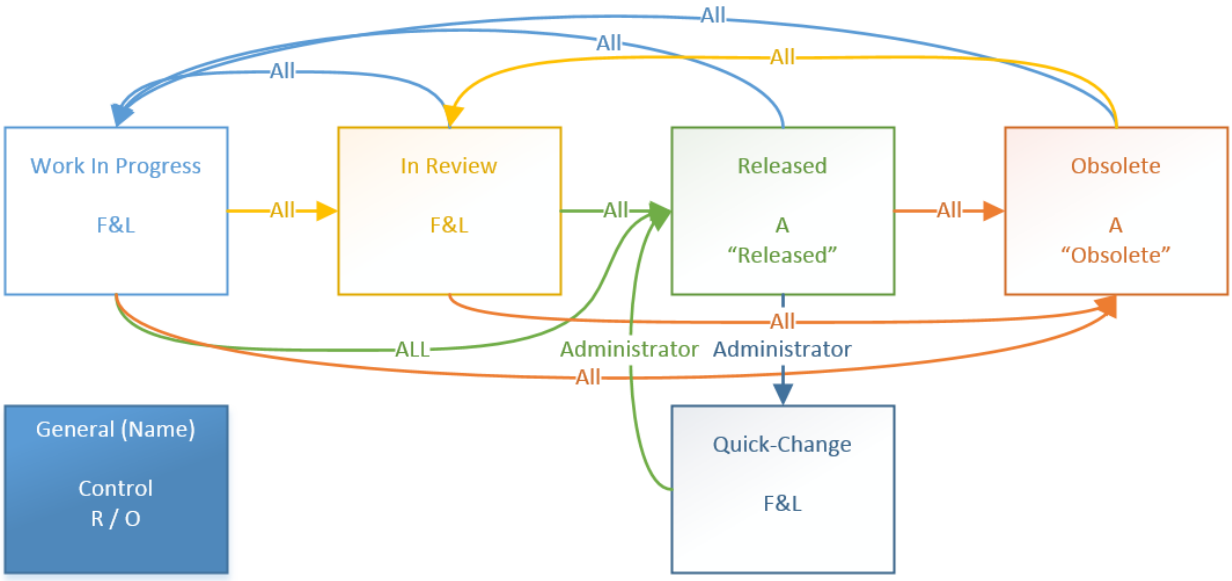


FIGURE 13: OOTB ITEM RELEASE PROCESS STATES AND STATE TRANSITION PATHS.

The colored arrows indicate the color of the destination state. Transactional security (permission to move from State A to State B) is indicated by "All" and "Administrator" – the users/groups that can perform the change. The values inside of each state indicate the control bit assignment for the item versions contained in the state.

- The control bit is what allows a milestone to get retained during a purge operation and permit the Roll Back Lifecycle State Change command to have a previous valid state to return into.

Finally, the "Released" and "Obsolete" flags set on individual states allow for further control in the lifecycle definition.

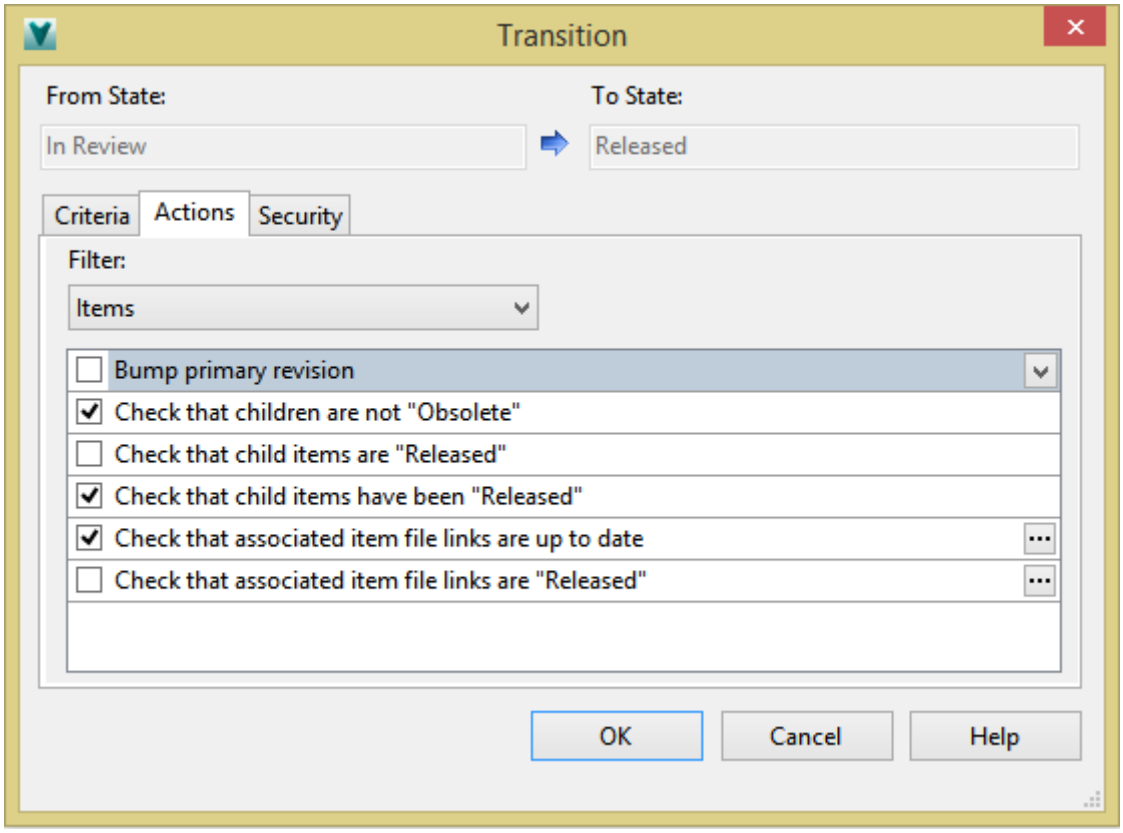


FIGURE 14: ITEM ACTIONS THAT CAN GET EXECUTED DURING A STATE TRANSITION.

You can restrict a lifecycle state change based on if the children are “obsolete” OR if the children are not currently nor have never gotten released.

Making The Move

Now that our workflow(s) are designed and configured, we can begin our move to items.

Build-Out your Item Master

There are multiple ways that you can build out your Item Master. We go through some methods below.

New Item Command

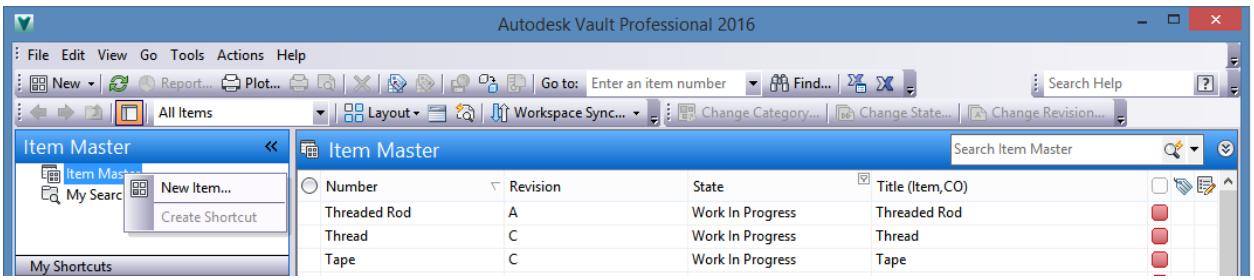


FIGURE 15: NEW ITEM COMMAND FROM THE ITEM MASTER.

The **New** Item command is available from the Item Master, either from a command button on the Standard menu bar or by right-clicking the Item Master icon. Based on your configuration, you may be presented with an option to assign the Item to a specific category and Numbering scheme. Clicking the **Precheck** command when creating the item number verifies if the desired item number is already in use.

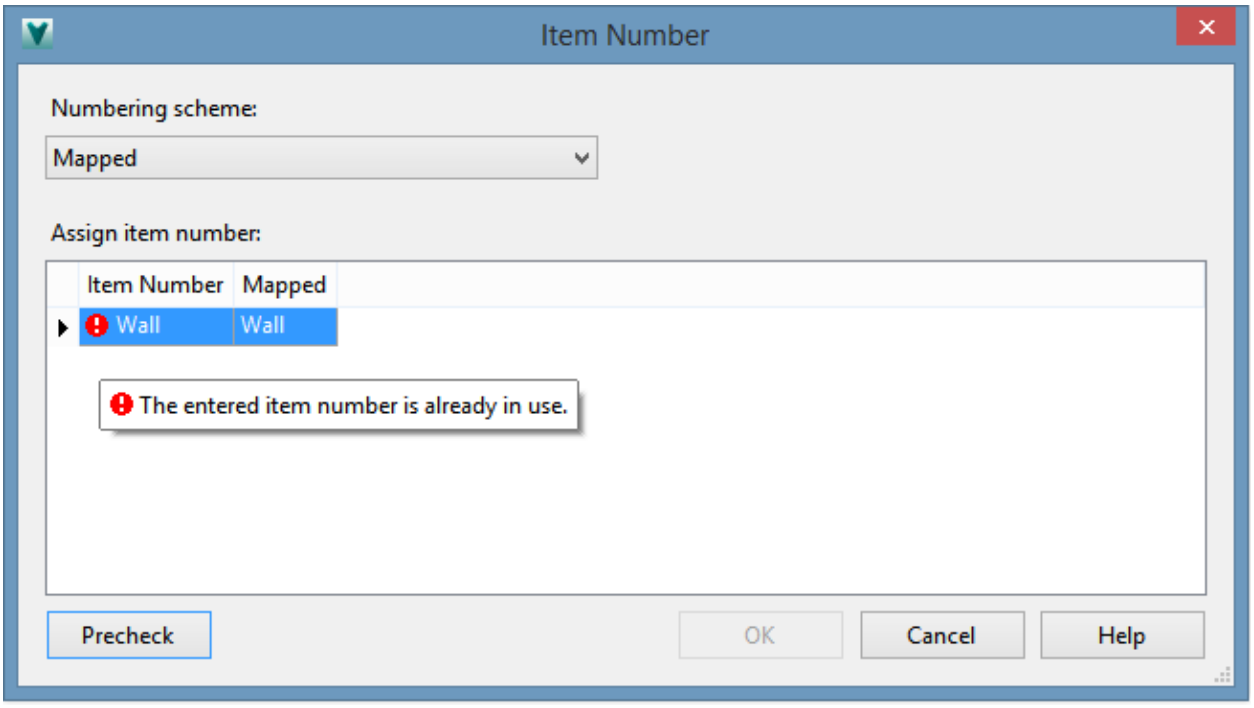


FIGURE 16: TOOLTIP INDICATING THE ENTERED ITEM NUMBER IS IN USE.

The Numbering scheme mapped can be entered as free-text in the Change Number dialog.

Assign Item from the CAD Model

CAD models (and their Bill of Material information) can be promoted to the Item Master via the Assign / Update Item command, either by a Right-Click on the CAD model or from the Actions menu.

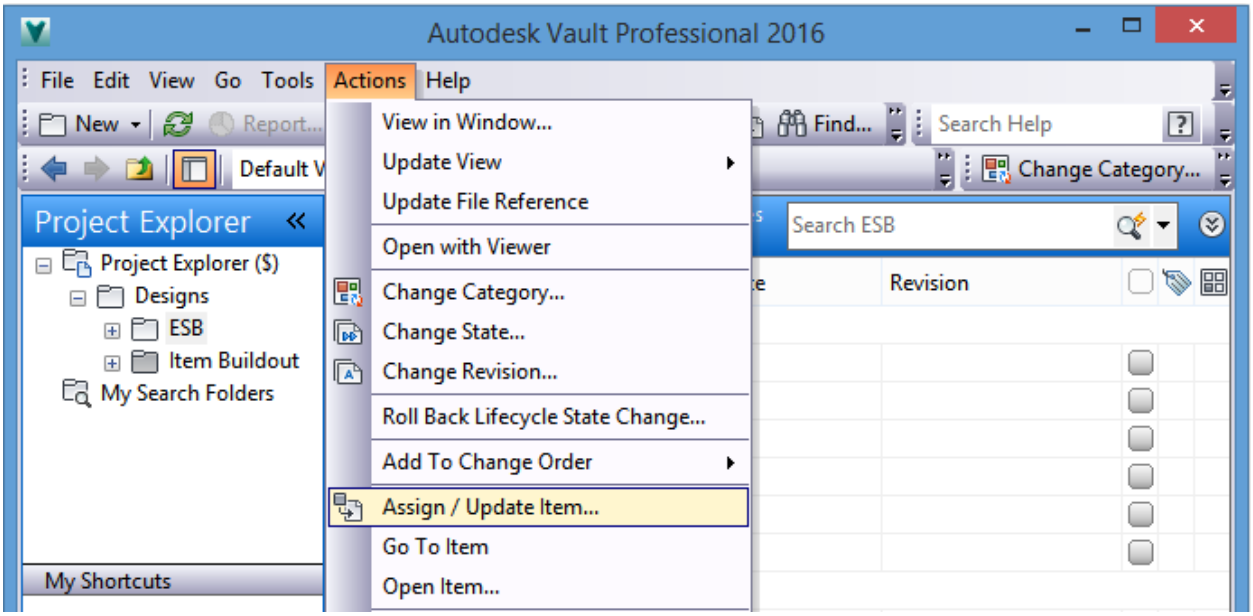


FIGURE 17: ASSIGN / UPDATE ITEM COMMAND FROM THE ACTIONS MENU.

The resulting Item gets displayed for review.

- The Item is **not** committed to the system until it gets saved.
- The Item Number **can** get changed before committed to the system.
- When performing an Assign Item with multiple files selected, no resulting item is displayed, and the items get committed to the Item Master.

While in this state, additional items from the CAD models' BOM can be created from the Bill of Materials tab. Auto-enablement of these rows gets controlled by the Assign Item options from the Item section above.

- Individual rows (items) can be enabled (turned on) through some ways in the BOM tab.
- Additional Items not present in the CAD BOM can get created via the **Add Row** -> command.
- The **Assign To…** command can be used to specify a pre-existing item to the specific uncommitted BOM line item.

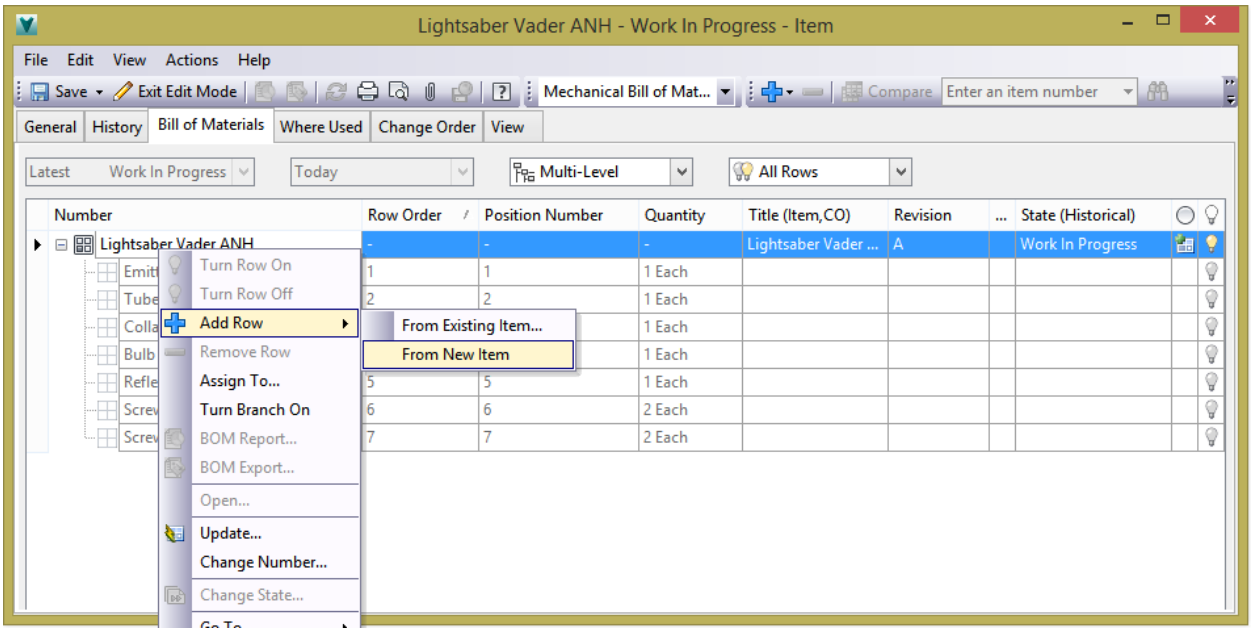


FIGURE 18: ASSIGN / UPDATE ITEM COMMAND FROM THE ACTIONS MENU.

Item Import

Another method to generate items into the Vault is through the Import Item command. This command is available from the Standard toolbar when viewing the Item Master as well as the Actions menu.

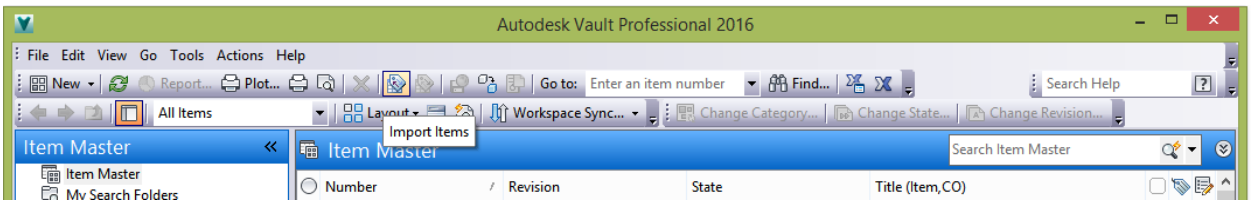


FIGURE 19: IMPORT ITEM COMMAND ON THE TOOLBAR.

Items can get imported from some formats – CSV (Comma Separated Values), TDL (Tab Separated Values), DWF (Design Web Format), and XML. These file types may be generated from a separate system, generated manually, or from part of a larger process. The command could be used to import a single item or a complex hierarchal object consisting of several items with a BOM several levels deep.

The Item Import command CAN be used to update various values to Items.

Example: The initial Import package had all Title values in mixed case where they are required to be in all capitals. The import package can get changed so the title values are all capitalized, and the saved package can get imported again.

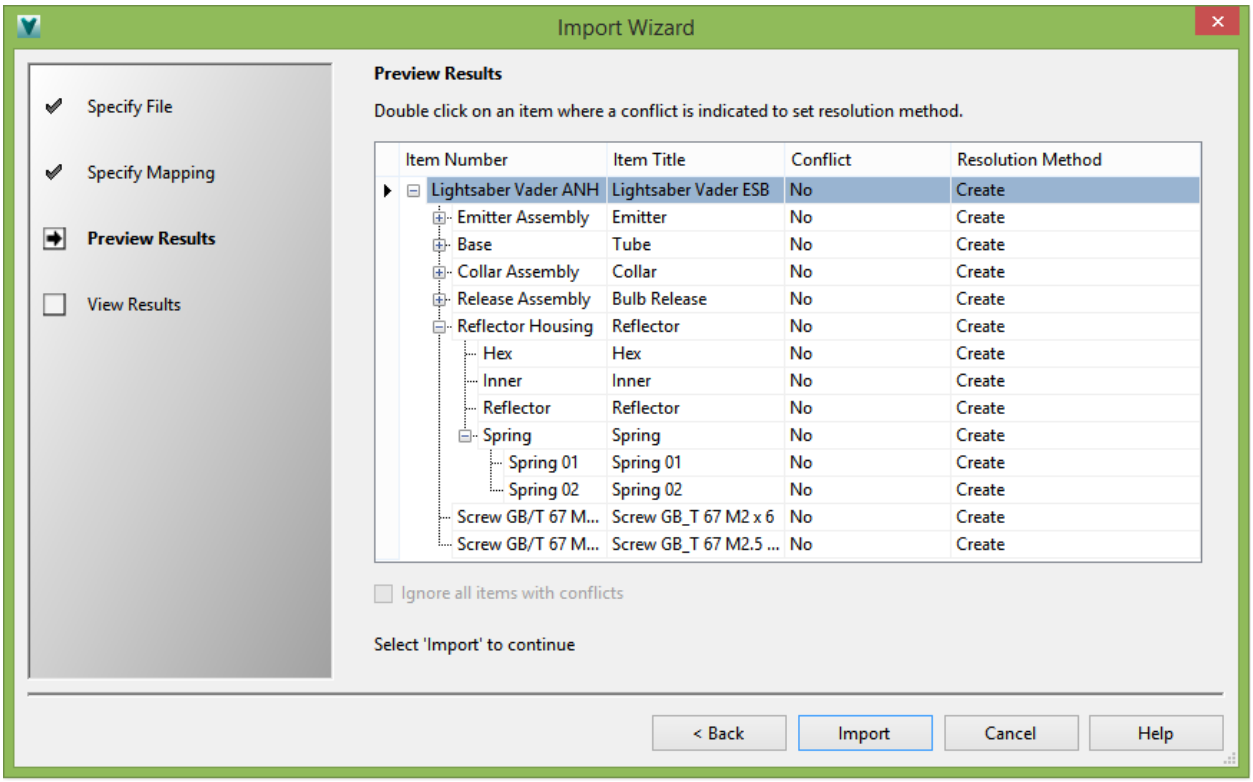


FIGURE 20: IMPORT ITEM PREVIEW OF ITEMS TO BE CREATED FROM AN XML IMPORT.

When an item or set of items gets imported, the item's BOM indicates that the BOM entry did NOT originate from a CAD model – it is a manual row type. Manual BOM rows can also get added from the

Add Row command noted above. Once CAD models have been created and added to the Vault, the Assign Item command can link the CAD and BOM data to the pre-created items from the import.

- The manual rows get shown in the **Off** state after the CAD rows get created.
- Off rows do NOT appear in reports or Item Export commands.
- Off rows can be filtered out of the view by only showing On rows.
- BOM rows can be removed from the UI through the **Remove Row** command if desired.
- Pre-creating items can allow you to move the data downstream before design work gets created/completed.

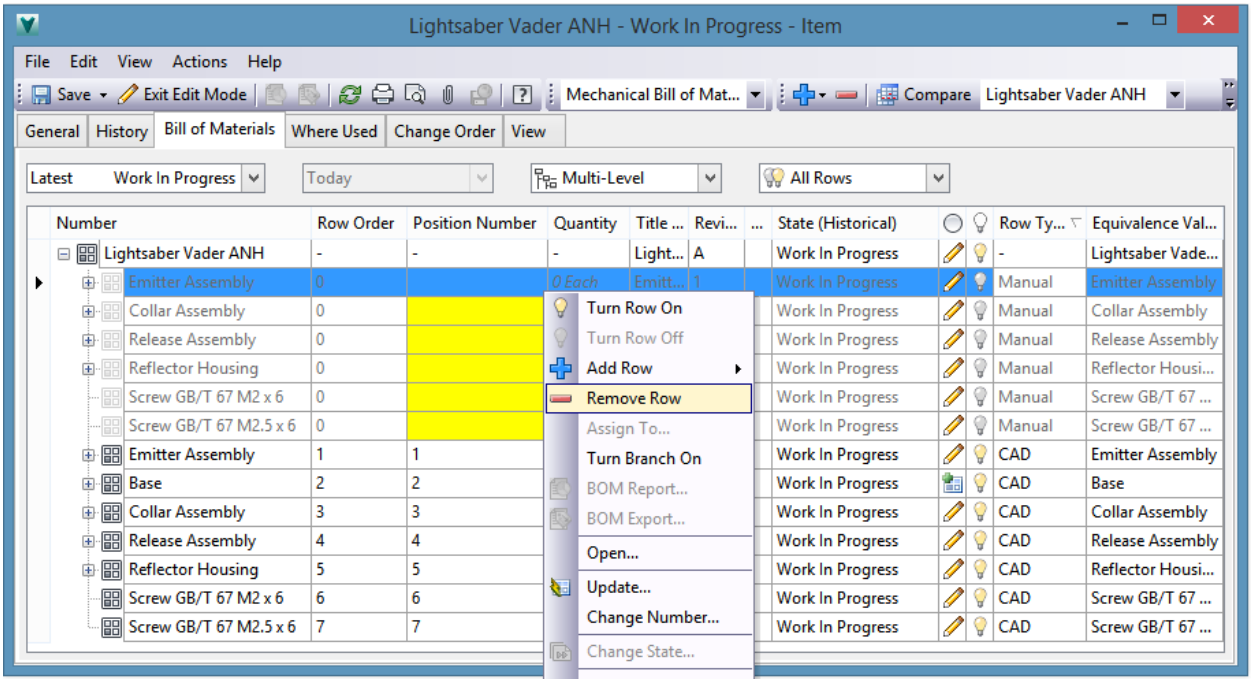


FIGURE 21: REMOVE ROW COMMAND WHEN EDITING AN ITEM.

Migrations from Previous Systems

There may be some instances where an existing system is being replaced or retired, and Vault Professional is going to manage item and BOM management. In these instances where existing Item history must get inserted and then managed by into the Vault ecosystem, the Data Transfer Utility (DTU) can be used. Additional information on the DTU is available through contacting Autodesk Consulting.

Creating Items from the CAD Models when Existing File Workflows are Present

Many of the above scenarios can be applied to promote your files to Items. However, you may have a need to include various values –like current state and revision level - into items. Though you can set the desired revision and lifecycle state(s) after creating the items, this is not always ideal. By using a combination of the above options, this outcome can be achieved.

There are a few strategies that can get applied to set the revision and lifecycle state to the previous file values.

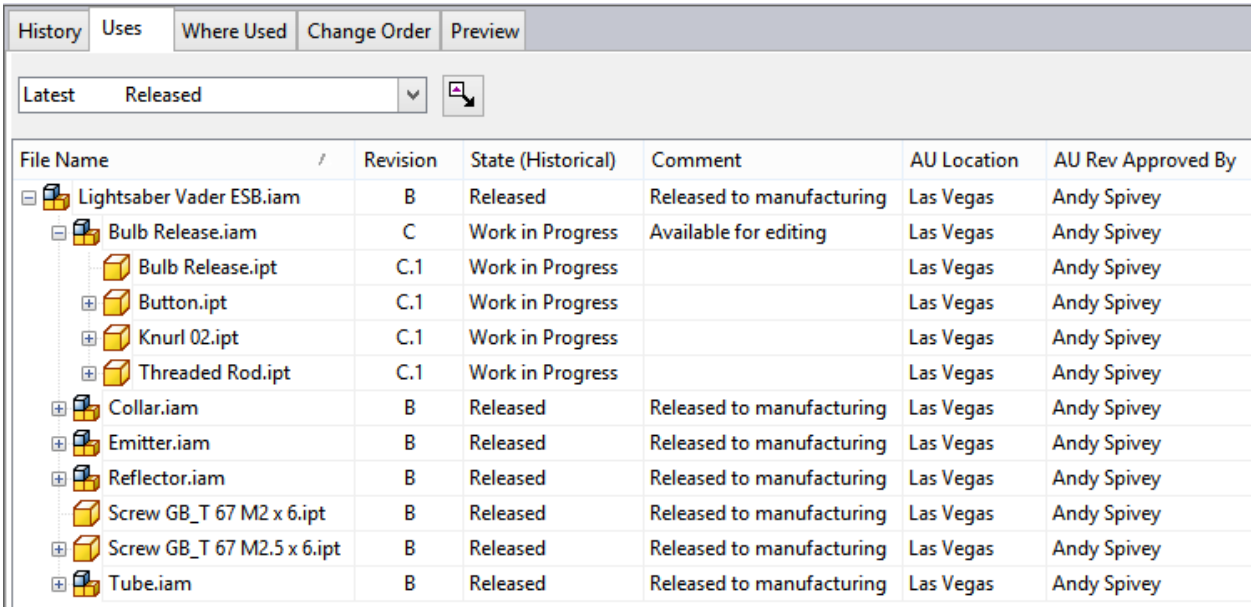
One method may be to create your items from your CAD models, then export your parent item. The resulting file can then be modified to set the desired Revision and Lifecycle state, and then imported.

Another method would be to write the revision and lifecycle state back to an iProperty value and then use that value during item creation.

Similarly, the files' revision could be mapped to a UDP, and that UDP value used in the Change Revision command against the item. More information on this workflow can be found HERE.

A third option would be to set the desired values for the parent items Bill of Materials tab, once the initial save of the items has occurred.

An additional option would be to wait to promote the item until the files are ready to be released – then promote them to items and begin your item workflow.



File Name	Revision	State (Historical)	Comment	AU Location	AU Rev Approved By
Lightsaber Vader ESB.iam	B	Released	Released to manufacturing	Las Vegas	Andy Spivey
Bulb Release.iam	C	Work in Progress	Available for editing	Las Vegas	Andy Spivey
Bulb Release.ipt	C.1	Work in Progress		Las Vegas	Andy Spivey
Button.ipt	C.1	Work in Progress		Las Vegas	Andy Spivey
Knurl 02.ipt	C.1	Work in Progress		Las Vegas	Andy Spivey
Threaded Rod.ipt	C.1	Work in Progress		Las Vegas	Andy Spivey
Collar.iam	B	Released	Released to manufacturing	Las Vegas	Andy Spivey
Emitter.iam	B	Released	Released to manufacturing	Las Vegas	Andy Spivey
Reflector.iam	B	Released	Released to manufacturing	Las Vegas	Andy Spivey
Screw GB_T 67 M2 x 6.ipt	B	Released	Released to manufacturing	Las Vegas	Andy Spivey
Screw GB_T 67 M2.5 x 6.ipt	B	Released	Released to manufacturing	Las Vegas	Andy Spivey
Tube.iam	B	Released	Released to manufacturing	Las Vegas	Andy Spivey

FIGURE 22: CAD MODEL DATA WITH VALUES TO MOVE TO ITEMS.

Example – Editing an Exported Item Package and Re-Import.

The columns shown above in figure 22 are values we would like to get assigned to our resulting items. Since we cannot map a value into Revision or State, we can promote the parent and children to items, perform an item export to a CSV, edit the CSV to set the desired values, and then re-import the package.

Steps Performed

1. Assign item to the top level assembly.
2. Verify that all required rows get enabled from the BOM tab.
3. Save the items.
4. Exit Edit Mode on the item.
5. From the Actions menu, select Export Items…

The Item Export Wizard is now displayed, showing all items that get included in the package.

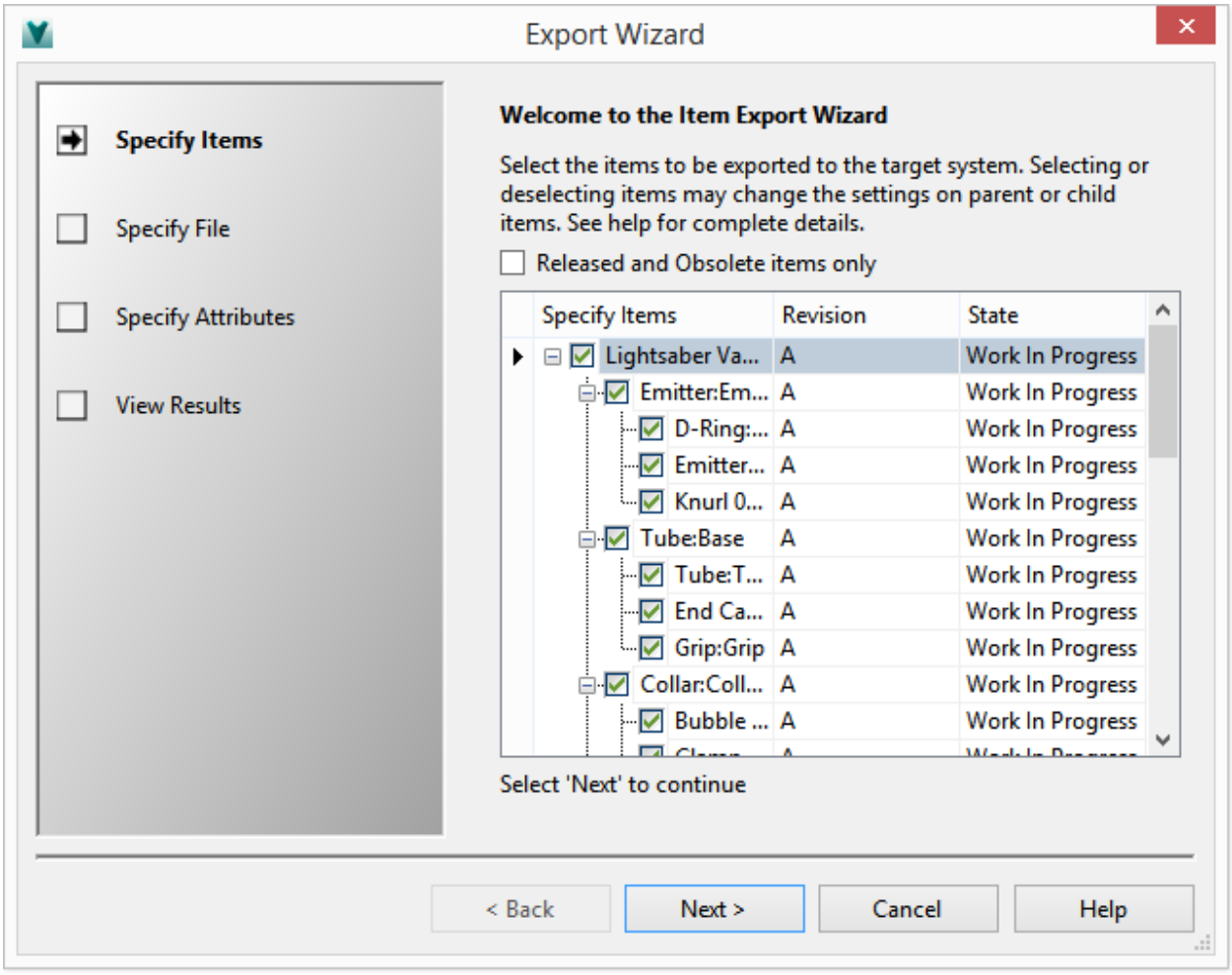


FIGURE 23: CAD MODEL DATA WITH VALUES TO MOVE TO ITEMS.

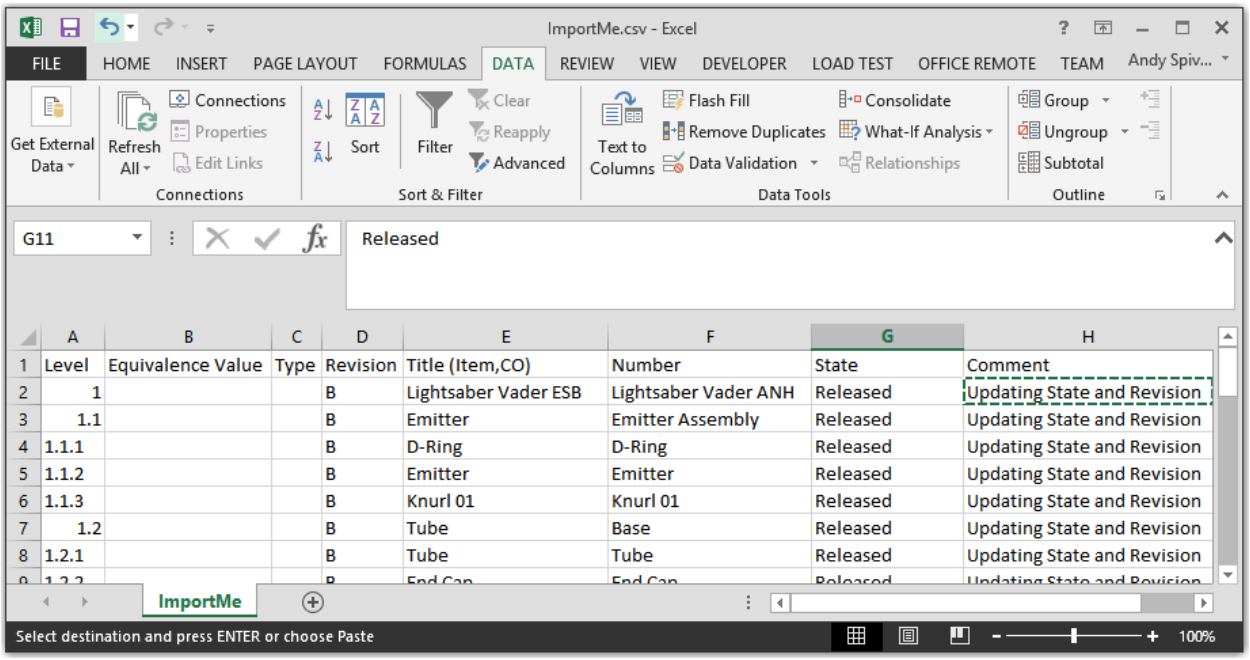
6. Continue through the Export Wizard, indicating the type of file to create and providing a File Name.

7. Specify which attributes to Export. We then add Revision and State, along with any other Item properties we wish.
8. Export the package.

A report is be shown, providing a summary of the items that got exported and if any errors occurred.

9. Open the file that got generated and modify the values to match the desired State and Revision.
   - The Item will fail to import if the revision or state does not exist in the item's revision scheme or lifecycle definition.
   - The Item will fail to import if you attempt to set an earlier revision number.

Open the CSV created the edit the values as desired.



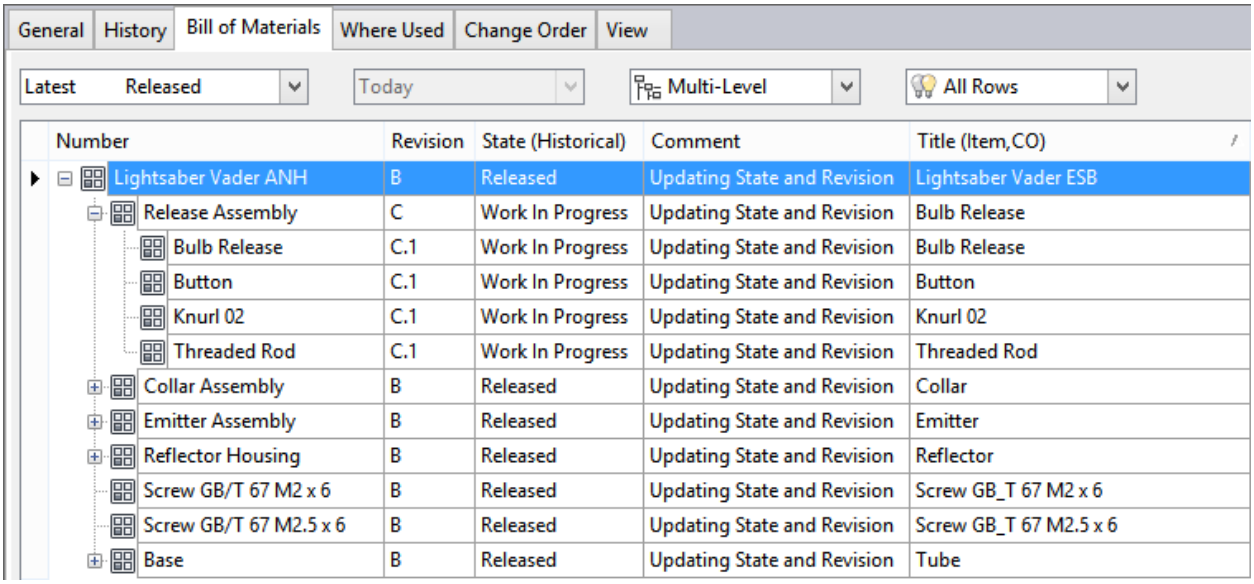
	A	B	C	D	E	F	G	H
1	Level	Equivalence Value	Type	Revision	Title (Item,CO)	Number	State	Comment
2	1			B	Lightsaber Vader ESB	Lightsaber Vader ANH	Released	Updating State and Revision
3	1.1			B	Emitter	Emitter Assembly	Released	Updating State and Revision
4	1.1.1			B	D-Ring	D-Ring	Released	Updating State and Revision
5	1.1.2			B	Emitter	Emitter	Released	Updating State and Revision
6	1.1.3			B	Knurl 01	Knurl 01	Released	Updating State and Revision
7	1.2			B	Tube	Base	Released	Updating State and Revision
8	1.2.1			B	Tube	Tube	Released	Updating State and Revision

FIGURE 24: CSV FILE WITH UPDATED VALUES.

10. Perform an Item Import command from Vault and select the CSV file.
11. Update any mappings of column headers in the CSV to item properties available.
12. A preview is listed of the items to get imported – verify the preview and Import the package.

A report is shown, providing a summary of the items that got imported and if any errors occurred.

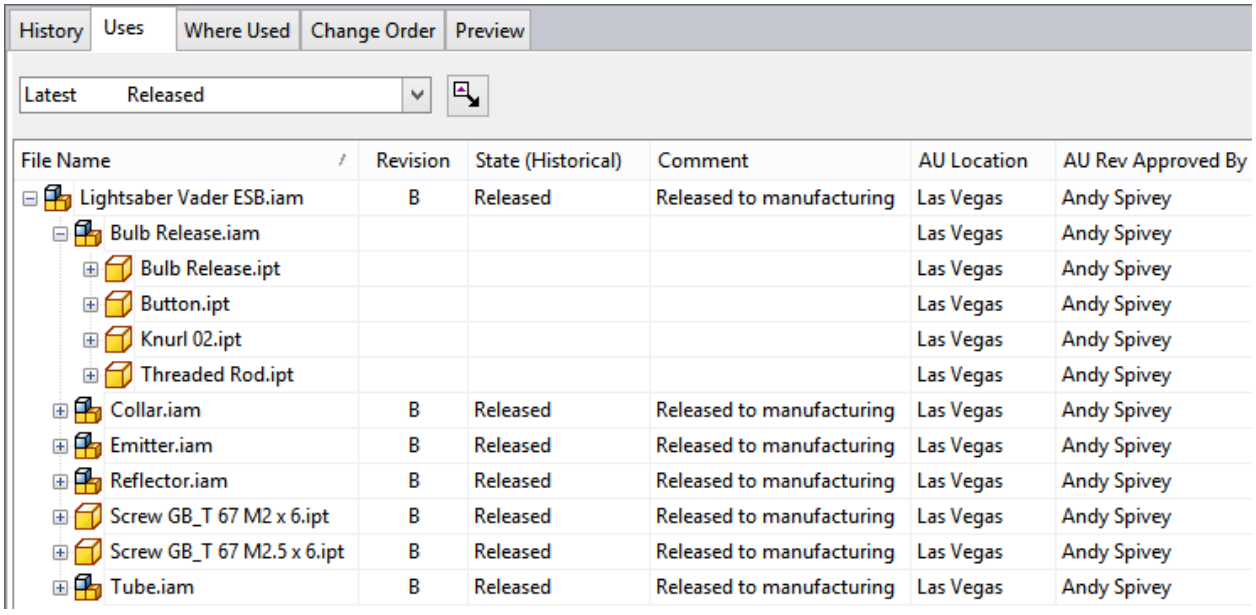
The resulting items get updated per the previous file values.



Number	Revision	State (Historical)	Comment	Title (Item,CO)
Lightsaber Vader ANH	B	Released	Updating State and Revision	Lightsaber Vader ESB
Release Assembly	C	Work In Progress	Updating State and Revision	Bulb Release
Bulb Release	C.1	Work In Progress	Updating State and Revision	Bulb Release
Button	C.1	Work In Progress	Updating State and Revision	Button
Knurl 02	C.1	Work In Progress	Updating State and Revision	Knurl 02
Threaded Rod	C.1	Work In Progress	Updating State and Revision	Threaded Rod
Collar Assembly	B	Released	Updating State and Revision	Collar
Emitter Assembly	B	Released	Updating State and Revision	Emitter
Reflector Housing	B	Released	Updating State and Revision	Reflector
Screw GB/T 67 M2 x 6	B	Released	Updating State and Revision	Screw GB_T 67 M2 x 6
Screw GB/T 67 M2.5 x 6	B	Released	Updating State and Revision	Screw GB_T 67 M2.5 x 6
Base	B	Released	Updating State and Revision	Tube

FIGURE 25: ITEM ATTRIBUTE VALUES AFTER IMPORT.

- The CAD files still retain their previous workflow values.
- The previous values assign to the CAD files can be removed by changing their State and Review to the Null lifecycle and Revision schemes



File Name	Revision	State (Historical)	Comment	AU Location	AU Rev Approved By
Lightsaber Vader ESB.iam	B	Released	Released to manufacturing	Las Vegas	Andy Spivey
Bulb Release.iam				Las Vegas	Andy Spivey
Bulb Release.ipt				Las Vegas	Andy Spivey
Button.ipt				Las Vegas	Andy Spivey
Knurl 02.ipt				Las Vegas	Andy Spivey
Threaded Rod.ipt				Las Vegas	Andy Spivey
Collar.iam	B	Released	Released to manufacturing	Las Vegas	Andy Spivey
Emitter.iam	B	Released	Released to manufacturing	Las Vegas	Andy Spivey
Reflector.iam	B	Released	Released to manufacturing	Las Vegas	Andy Spivey
Screw GB_T 67 M2 x 6.ipt	B	Released	Released to manufacturing	Las Vegas	Andy Spivey
Screw GB_T 67 M2.5 x 6.ipt	B	Released	Released to manufacturing	Las Vegas	Andy Spivey
Tube.iam	B	Released	Released to manufacturing	Las Vegas	Andy Spivey

FIGURE 26: BULB RELEASE.IAM AND CHILDREN HAVE BEEN ASSIGNED TO THE NULL DEFINITION AND SCHEME.

Example – Assigning State and Revision after Item Commitment

Another method to set the desired lifecycle state and revision would be to set them after the initial item commitment.

- These steps could also be modified to pull the desired revision from a UDP value originating from the file as indicated in the section HERE.

Steps Performed

1. Assign item to the top level assembly.
2. Verify that all required rows get enabled from the BOM tab.
3. Save the items.
4. Exit Edit mode.
5. Select you bottom level items and perform a Change Revision command from the Action menu.
6. Set each item to the desired revision.

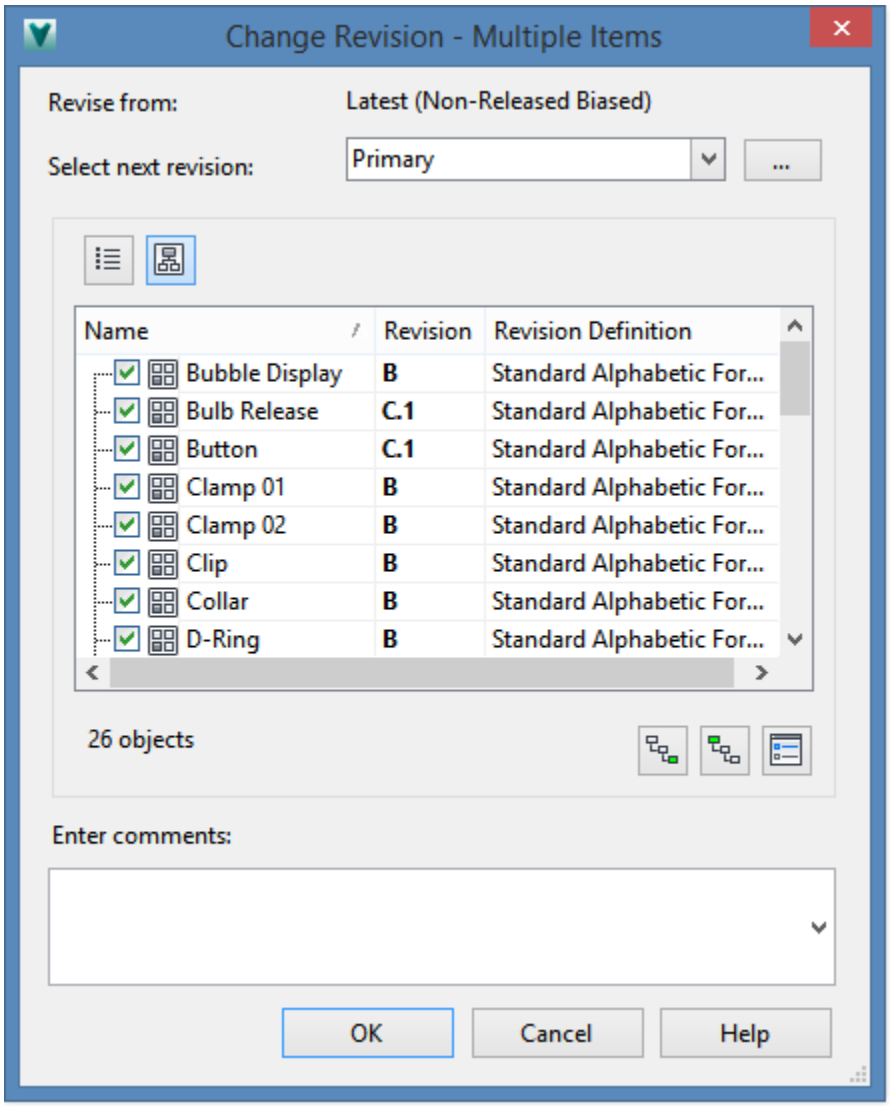


FIGURE 27: CHANGE REVISION COMMAND.

7. Select the same item set, and perform a Change State command from the Action menu.
8. Set each Item to the desired state.
9. Perform the same steps for the next level items until it gets completed on the parent.

- Using this method, you need to be mindful of your transition actions – if some child items did not go through a released state or are not currently released, you may not be able to release the parent.
- This method can also be used to build out the previous file workflow history if it is required.

What's Next?

We have gained an understanding of areas in Vault related to Items. Item workflows have gotten created and utilized. Now what?

BOM Compare

The BOM Compare tool can be used to review changes between versions or revisions of an item. You can also use it to compare different items all together. The tool is available after opening an item and going to the Bill of Material tab.

- To compare a specific version of an Item, make sure **Show all versions** is selected in the item's **History** tab.

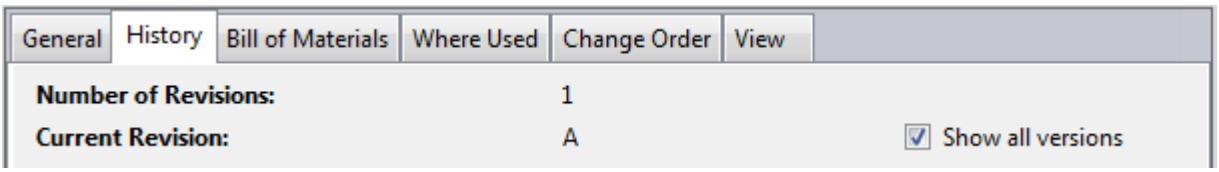


FIGURE 28: CHANGE REVISION COMMAND.

Differences in the BOM get noted with a change in text - color, strikethrough, and formatting. Changes can also get reviewed via the arrow keys at the bottom of the window and via a mouse-over tooltip.

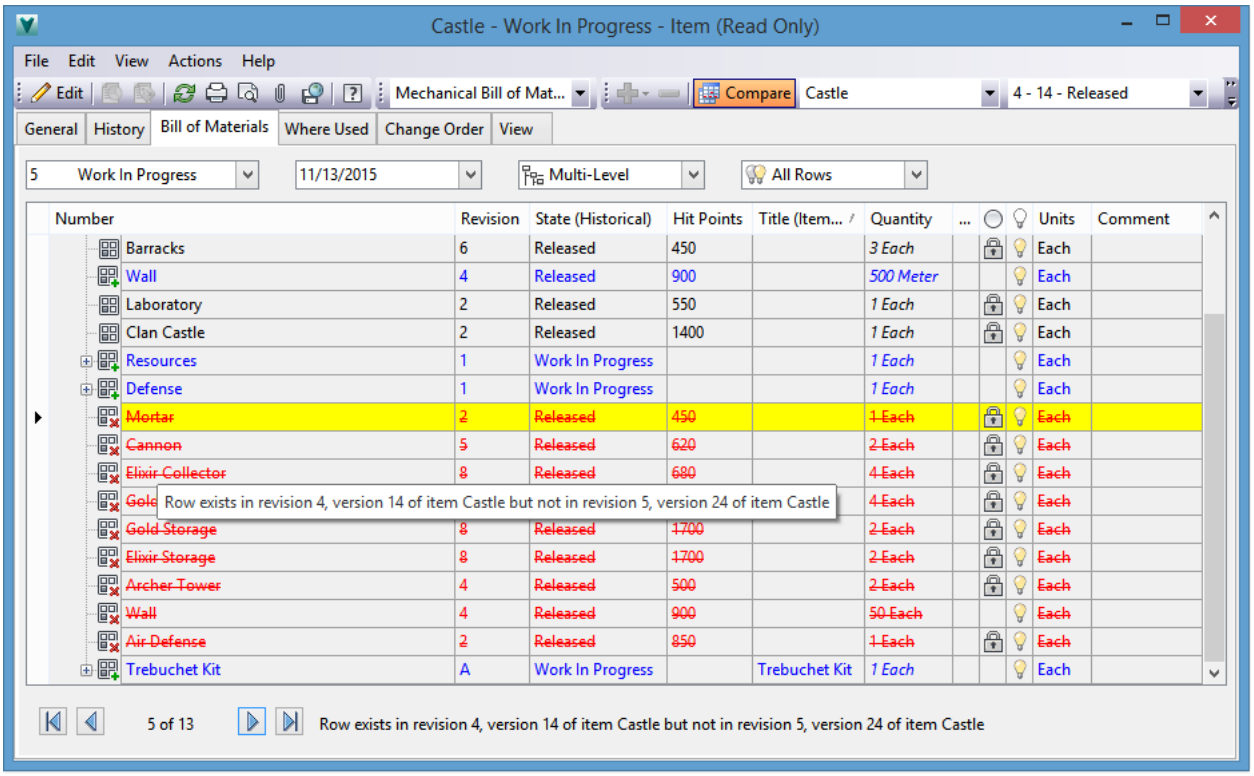
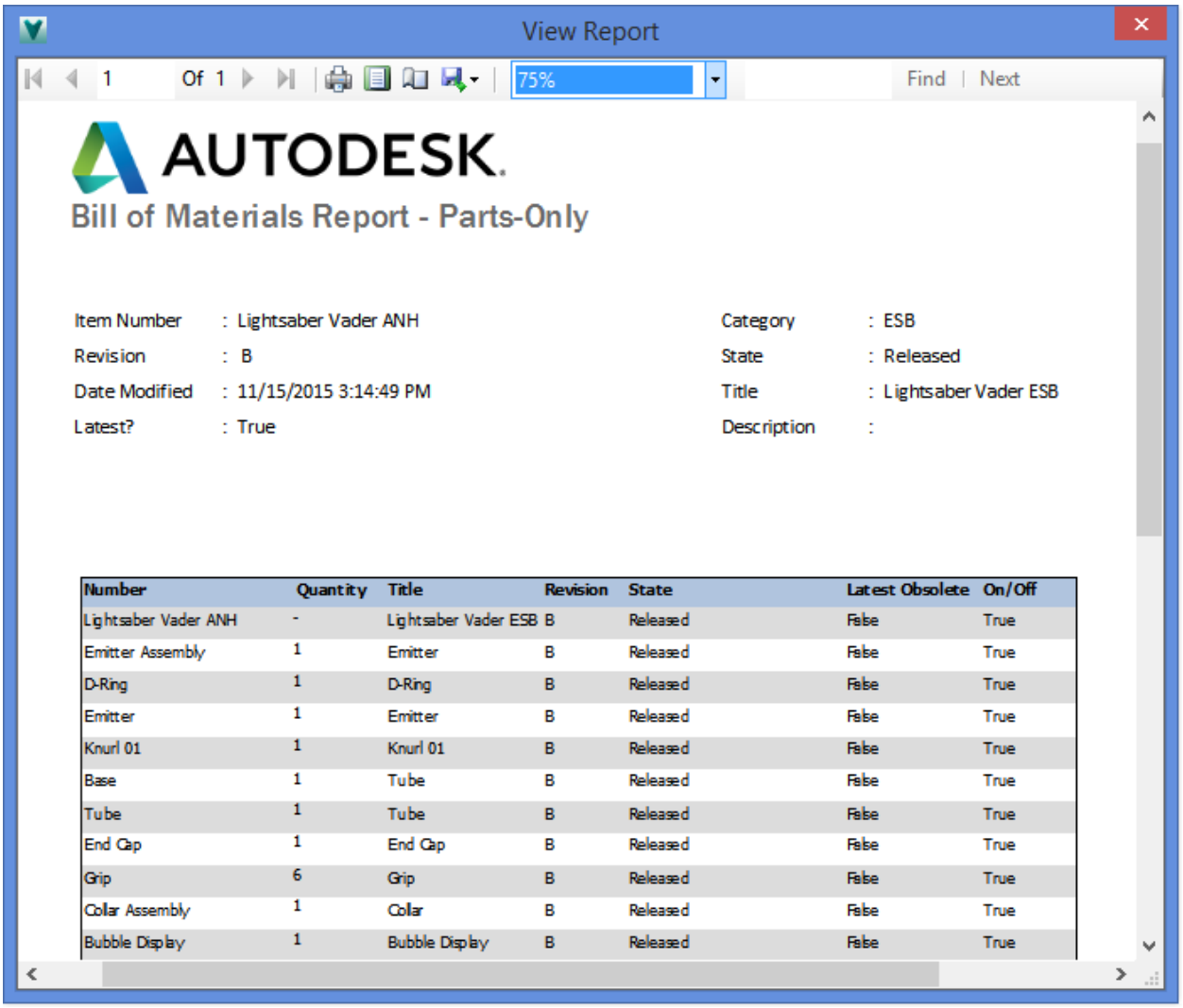


FIGURE 29: BOM COMPARE, SHOWING CHANGES BETWEEN REVISION 5 AND 4 OF ITEM CASTLE.

Additional information on BOM Compare can be found HERE.

BOM Reports

With Vault 2016, a new BOM Report command is available from the Standard Toolbar menu. The command includes some OOTB templates for Multi-Level, First-Level, and Parts-Only reports. As indicated earlier, only rows tagged as ON get displayed. Additionally, the provided reports can be used as a template with the authoring utility to create your reports.



Number	Quantity	Title	Revision	State	Latest Obsolete	On/Off
Lightsaber Vader ANH	-	Lightsaber Vader ESB	B	Released	False	True
Emitter Assembly	1	Emitter	B	Released	False	True
D-Ring	1	D-Ring	B	Released	False	True
Emitter	1	Emitter	B	Released	False	True
Knurl 01	1	Knurl 01	B	Released	False	True
Base	1	Tube	B	Released	False	True
Tube	1	Tube	B	Released	False	True
End Cap	1	End Cap	B	Released	False	True
Grip	6	Grip	B	Released	False	True
Collar Assembly	1	Collar	B	Released	False	True
Bubble Display	1	Bubble Display	B	Released	False	True

FIGURE 30: BOM REPORT EXAMPLE.

Additional information on creating your reports can be found HERE and HERE.

Rollback Lifecycle State Change

Similar to files, items can roll-back a lifecycle state change if the change of state was undesired.

This workflow is performed by selecting the item and choosing Roll Back Lifecycle State Change from the Actions menu.

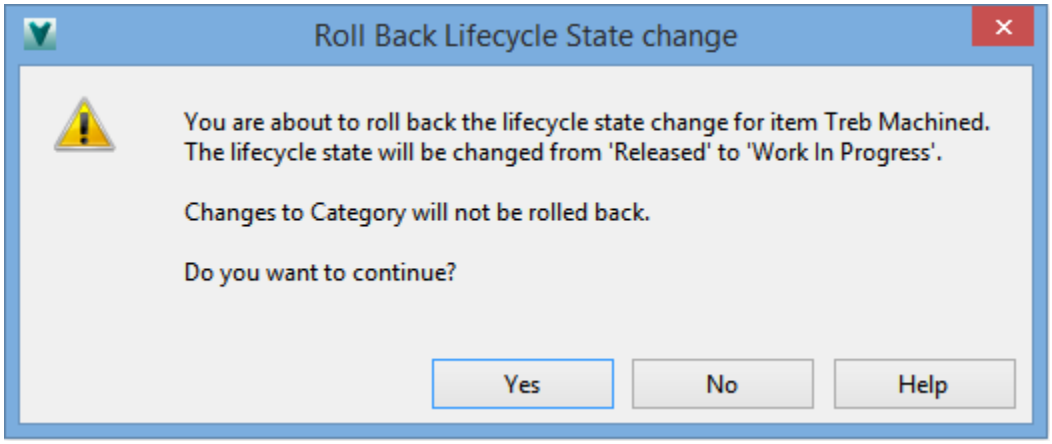


FIGURE 31: BOM REPORT EXAMPLE.

- You cannot roll back from the current state to a previous state if the previous state is uncontrolled.
- You cannot roll back from the current state to a previous state if the previous state crosses the threshold of an ECO

Additional information on lifecycle state roll back can be found HERE.

Control bits can be set on all versions of an item in a specific state, the first and last version in a specific state, on the last item version in a specific state, or no item versions in a specific state.

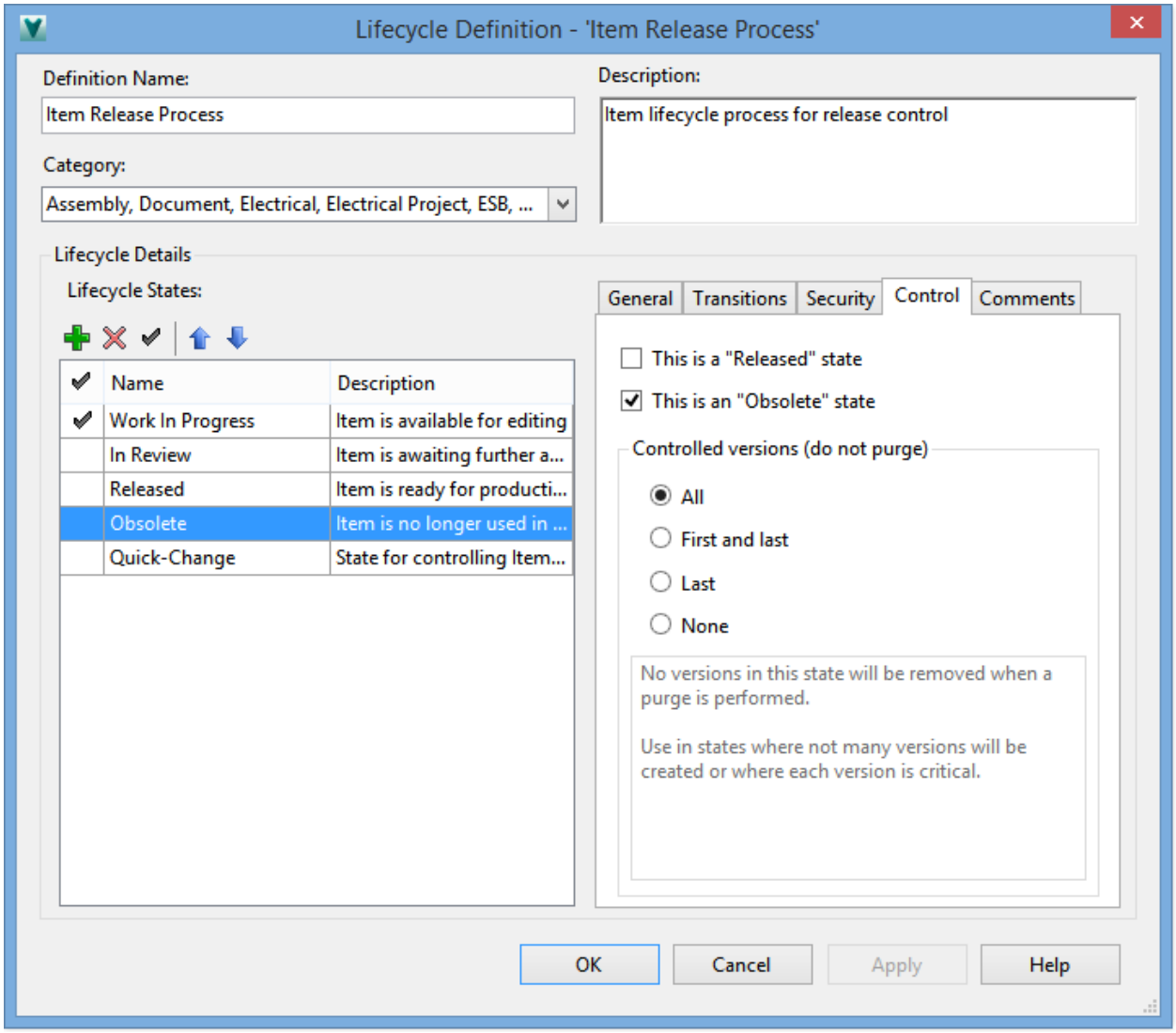


FIGURE 32: CONTROL BIT OPTIONS FOR LIFECYCLE STATES.

Control bits get set per state in the Lifecycle editor.

Additional information on state control bits can be found HERE.

Integration with other Systems

Though not covered by this course, Vault can be connected to ERP systems for data sharing. If you would like to know more about this level of integration, review PL11390 – Integration Options for Vault.

Items in CAD

During an Open from Vault command from inside a supporting CAD application, an Item can be searched for and linked files opened directly. Child items will also be listed and their linked files displayed.

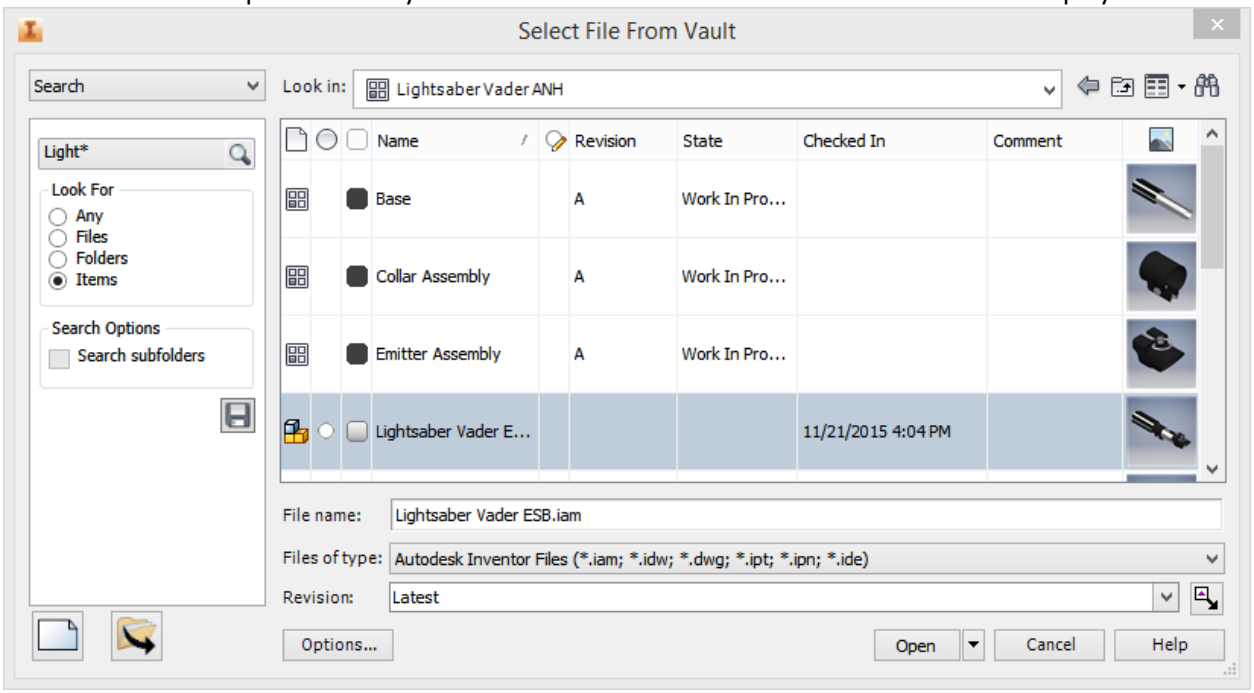


FIGURE 33: ITEM SEARCH IN OPEN FROM VAULT COMMAND INSIDE INVENTOR.

In addition, a Place from Vault command can be used to place an item's primary link or place the item as a virtual component in an opened assembly.

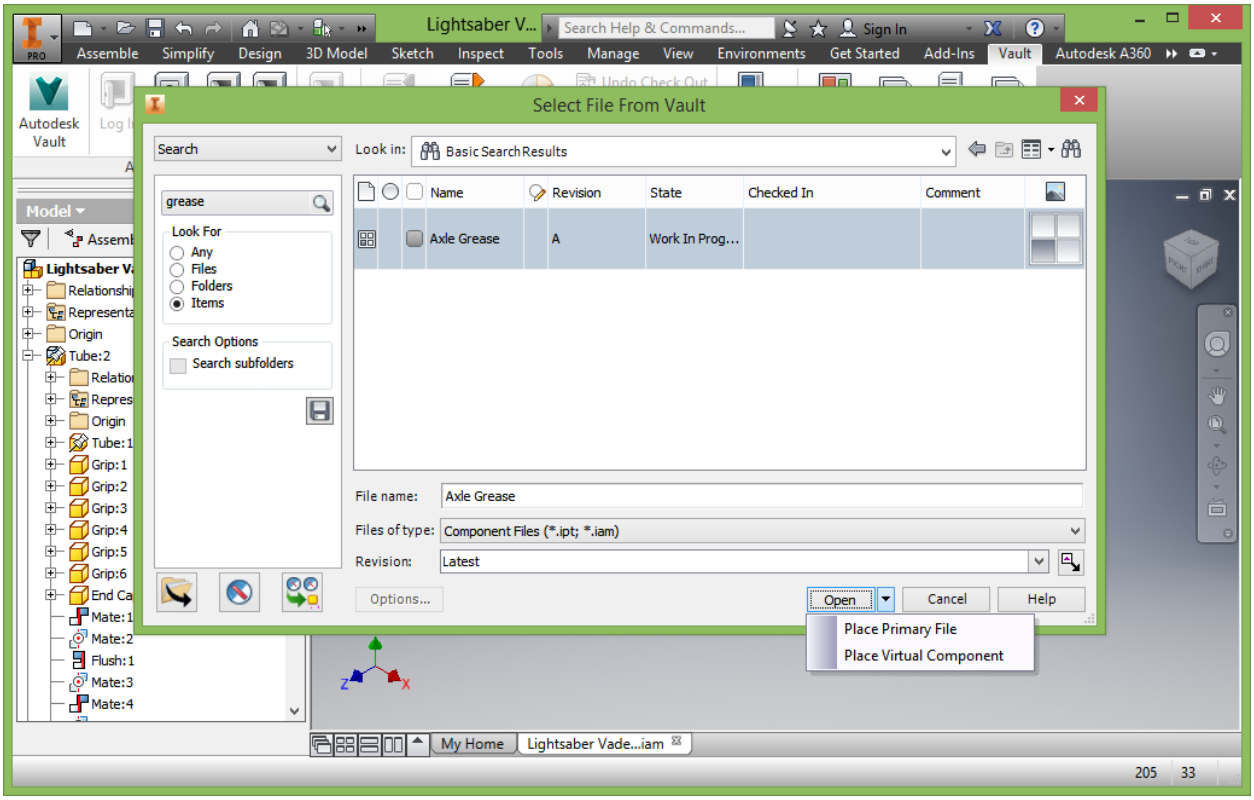


FIGURE 34: PLACE FROM VAULT COMMAND INSIDE INVENTOR.

Additional information on Items in CAD can be found HERE.

Additional References

AU 2015 Classes

PL10597 - Behaviors 101 for Younglings

PL11233 - Behaviors 201 for Padawan Learners

PL11664 - Behaviors 301 for the Jedi Master

PL10972 - Becoming a Master at Vault Administration

PL11390 - Integration Options for Vault

PL11319 - Evolve with Vault: What's New in Vault 2016

Online Resources

Autodesk Vault Online Help

Using AcadM and Vault (Items and BOM)

What's New in Vault 2016

Cracking the Vault

Under the Hood

Just Ones and Zeros

BOM Report Jobs

Autodesk Vault Screencast

YouTube – TheVaultKnowsAll

History

1.0	Initial Publish
1.1	Grammer Review
1.2	Image Update
2.0	Additional Item/BOM Workflow