

Understand the Power of Copy Design

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QA Engineer / Product Manager





About the speaker

Jim McMullen

- 15 + years at Autodesk
- Work with customers to resolve various Vault problems
- Quality Assurance team member
- PO for a development team
- Former Scrum Master



About the speaker

Irvin Hayes Jr

- 13 + years at Autodesk
- 20 + years of IT Support and technical leadership
- Work with key customers or prospects to identify unsolved problems
- Assess and investigate different technologies to solve given market problems
- Lead user experience and development teams

Class Summary

Copy Design is one of the most powerful features in Autodesk Vault. Engineers are leveraging existing designs in one way or another, where either you reuse the design completely to eliminate the design time, or by copying an existing design or updating the design which will take less time. Moreover, less time is less cost. Not only this, apart from the reduced modeling time, design reuse will further have its impact in the form of cost and time savings in the downstream engineering, manufacturing, and purchasing. The Copy Design feature, in Autodesk Vault 2020, has many enhancements which help engineers do more faster with existing designs. This class will discuss the enhancements to Copy Design and illustrate how to use Copy Design to be more productive.

Class Objectives

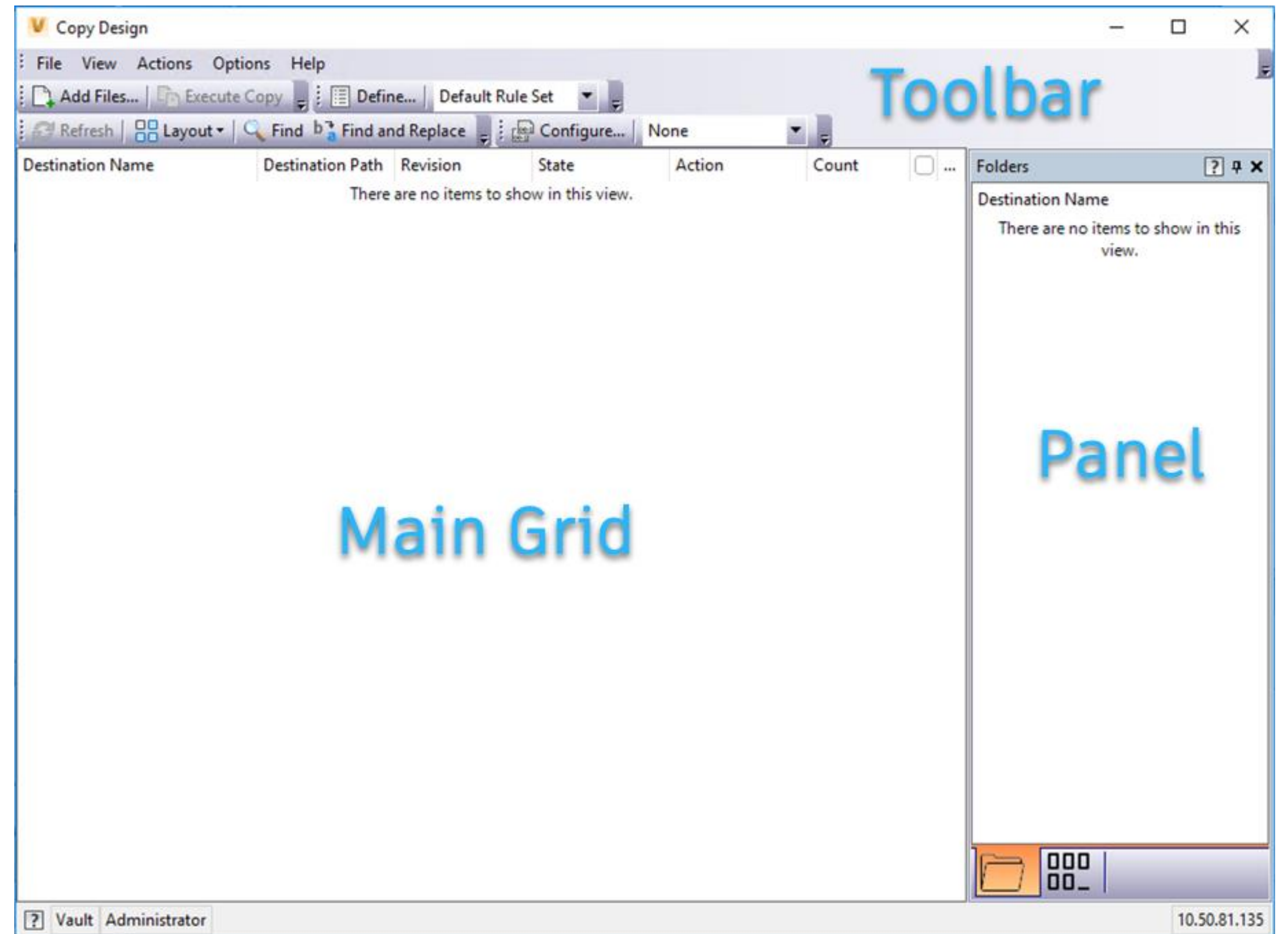
- Understand the Copy Design feature
- Understand why Copy Design is used
- Learn how to use Copy Design to reuse existing designs
- Learn how to configure Copy Design for the best outcome

Overview

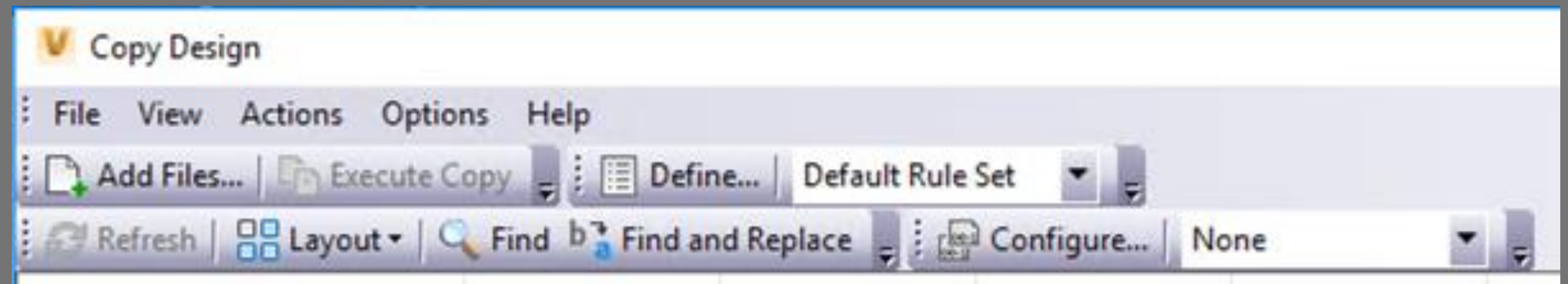


The Dialog

- Main Grid
- Toolbar
- Panels




































Menus & Toolbar



- Change from Icons
- Customizable
- Intuitive
- Consistent with client

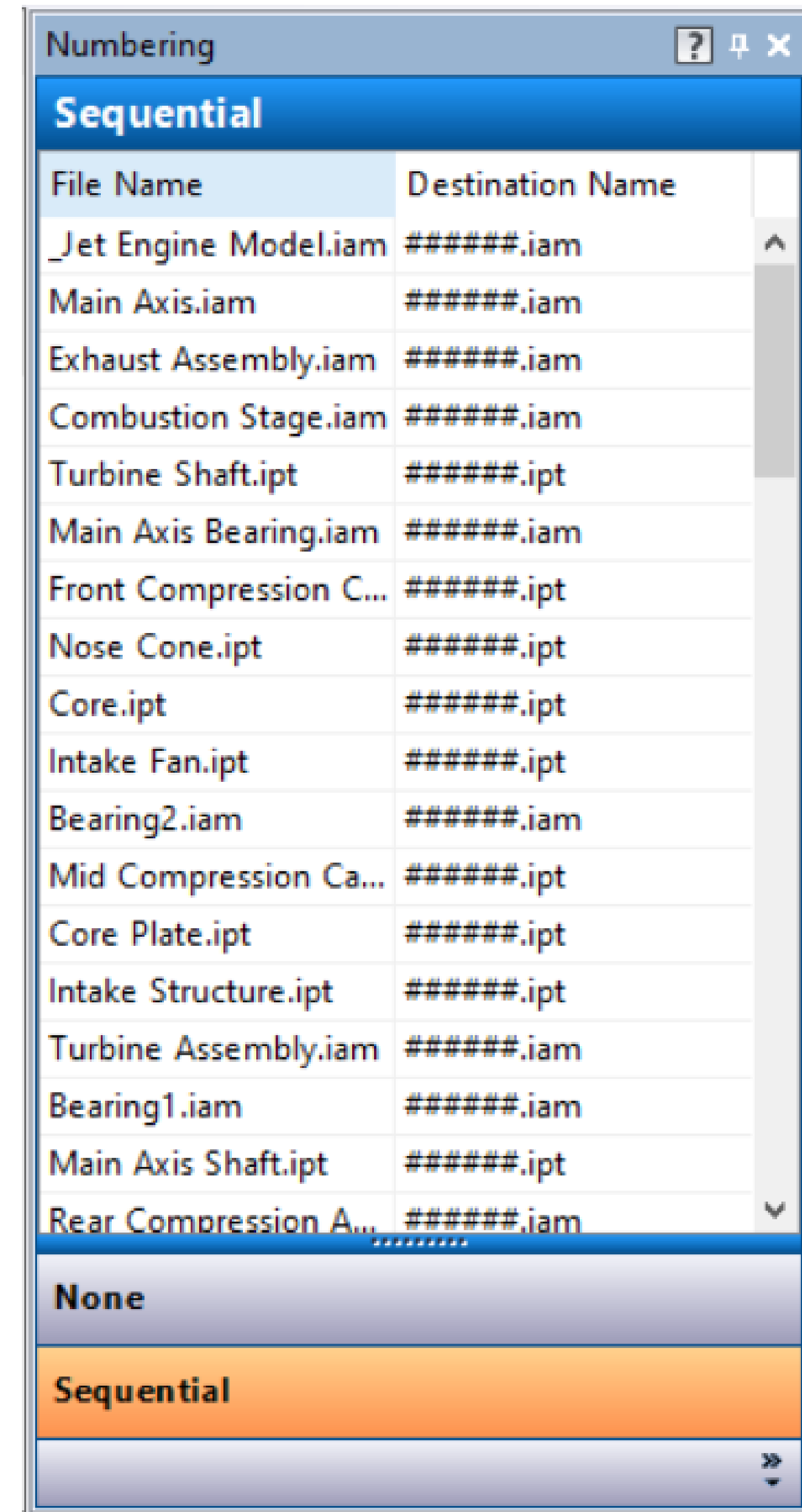
Main Grid

- Displays files involved
- Three different layouts (Tree, List, & Folder)

Destination Name	Destination Path	Revision	State	Action	Count		...
 A-####.iam	\$/Designs/Engine 2	A	Work in Progress	Copy	2		
 Documentation							
 A-####.idw		A	For Review	Auto	1		
 _Jet Engine Model - Markup.idw.pdf		1	Work in Progress	Remove	1		
 A-####.iam	\$/Designs/Engine 2	A	Work in Progress	Copy	1		
 A-####.iam	\$/Designs/Engine 2	A	Work in Progress	Copy	1		
 A-####.ipt	\$/Designs/Engine 2	A	Work in Progress	Copy	1		
 A-####.ipt	\$/Designs/Engine 2	A	Work in Progress	Copy	1		
 A-####.ipt	\$/Designs/Engine 2	A	Work in Progress	Copy	1		
 A-####.ipt	\$/Designs/Engine 2	A	Work in Progress	Copy	1		
 A-####.ipt	\$/Designs/Engine 2	A	Work in Progress	Copy	1		
 A-####.ipt	\$/Designs/Engine 2	A	Work in Progress	Copy	1		
 A-####.ipt	\$/Designs/Engine 2	A	Work in Progress	Copy	1		
 A-####.ipt	\$/Designs/Engine 2	A	Work in Progress	Copy	1		
 A-####.ipt	\$/Designs/Engine 2	A	Work in Progress	Copy	1		
 A-####.ipt	\$/Designs/Engine 2	A	Work in Progress	Copy	1		
 A-####.iam	\$/Designs/Engine 2	A	Work in Progress	Copy	2		

Panels

- Numbering
- Hidden Panels
 - Folders
 - Where Used
 - Action



Functions & Layouts



Tree View

- Assembly hierarchy
- Find
- Find & Replace
- Edit the file name
- Edit the file path
- Set Numbering Scheme
- Drag & drop to the Numbering panel
- Set Copy Action
- Drag & drop to the Folder panel

Destination Name	Destination ...	Revision	State	Action	Count	<input type="checkbox"/>	...
A-####.iam	\$/Designs/J...	A	Work in Pro...	Copy	2	<input type="checkbox"/>	
Documentation							
_Jet Engine Model.idw		A	For Review	Exclude	1	<input checked="" type="checkbox"/>	
_Jet Engine Model - Marku...		1	Work in Pro...	Remove	1	<input checked="" type="checkbox"/>	
A-####.iam	\$/Designs/J...	A	Work in Pro...	Copy	1	<input type="checkbox"/>	
MT-#####.ipt	\$/Designs/J...	A	Work in Pro...	Copy	1	<input type="checkbox"/>	
MT-#####.ipt	\$/Designs/J...	A	Work in Pro...	Copy	1	<input type="checkbox"/>	
MT-#####.ipt	\$/Designs/J...	A	Work in Pro...	Copy	1	<input type="checkbox"/>	
MT-#####.ipt	\$/Designs/J...	A	Work in Pro...	Copy	1	<input type="checkbox"/>	
MT-#####.ipt	\$/Designs/J...	A	Work in Pro...	Copy	1	<input type="checkbox"/>	
MT-#####.ipt	\$/Designs/J...	A	Work in Pro...	Copy	3	<input type="checkbox"/>	
MT-#####.ipt	\$/Designs/J...	A	Work in Pro...	Copy	1	<input type="checkbox"/>	
MT-#####.ipt	\$/Designs/J...	A	Work in Pro...	Copy	3	<input type="checkbox"/>	
MT-#####.ipt	\$/Designs/J...	A	Work in Pro...	Copy	1	<input type="checkbox"/>	
MT-#####.ipt	\$/Designs/J...	A	Work in Pro...	Copy	1	<input type="checkbox"/>	
MT-#####.ipt	\$/Designs/J...	A	Work in Pro...	Copy	3	<input type="checkbox"/>	
MT-#####.ipt	\$/Designs/J...	A	Work in Pro...	Copy	1	<input type="checkbox"/>	
A-####.iam	\$/Designs/J...	A	Work in Pro...	Copy	2	<input type="checkbox"/>	
A-####.iam	\$/Designs/J...	A	Work in Pro...	Copy	1	<input type="checkbox"/>	

List View

- List of all files
- Edit the file name
- Edit the file path
- Set Naming Scheme
- Set Copy Action
- Column filtering
- Grouping

File Name	Revision	State	Action	Destination ...	Destination Path	<input type="checkbox"/>	...
_Jet Engine Model.idw	A	For Review	Exclude	_Jet Engine ...			
Main Axis.idw	A	For Review		Main Axis.idw			
Turbine Assembly.idw	A	Work in Prog...		Turbine Asse...			
_Jet Engine Model.iam	A	Work in Pro...	Copy	A-#####.iam	\$/Designs/Jet ...		
_Jet Engine Model - Markup.idw.pdf	1	Work in Pro...	Remove	_Jet Engine ...			
Main Axis.iam	A	Work in Pro...	Copy	A-#####.iam	\$/Designs/Jet ...		
Exhaust Assembly.iam	A	Work in Pro...	Copy	A-#####.iam	\$/Designs/Jet ...		
Combustion Stage.iam	A	Work in Pro...	Copy	A-#####.iam	\$/Designs/Jet ...		
Heat Ring.ipt	A	Work in Pro...	Copy	MT-#####....	\$/Designs/Jet ...		
Flare Lever-1.ipt	A	Work in Pro...	Copy	MT-#####....	\$/Designs/Jet ...		
Flare Lever-2.ipt	A	Work in Pro...	Copy	MT-#####....	\$/Designs/Jet ...		
Flare Base.ipt	A	Work in Pro...	Copy	MT-#####....	\$/Designs/Jet ...		
Blade-2.ipt	A	Work in Pro...	Copy	MT-#####....	\$/Designs/Jet ...		
Blade-1.ipt	A	Work in Pro...	Copy	MT-#####....	\$/Designs/Jet ...		
Rear Casing.ipt	A	Work in Pro...	Copy	MT-#####....	\$/Designs/Jet ...		
Blade-3.ipt	A	Work in Pro...	Copy	MT-#####....	\$/Designs/Jet ...		
Flare Lever-3.ipt	A	Work in Pro...	Copy	MT-#####....	\$/Designs/Jet ...		
Front Compression Cap.ipt	A	Work in Pro...	Copy	Copy of Fro...	\$/Designs/Jet ...		
Core Plate.ipt	A	Work in Pro...	Copy	Copy of Cor...	\$/Designs/Jet ...		
Bearing2.iam	A	Work in Pro...	Copy	Copy of Bea...	\$/Designs/Jet ...		
Main Axis Shaft.ipt	A	Work in Pro...	Copy	Copy of Mai...	\$/Designs/Jet ...		
Main Axis Bearing.iam	A	Work in Pro...	Copy	Copy of Mai...	\$/Designs/Jet ...		
Mid Compression Assembly.iam	A	Work in Pro...	Copy	Copy of Mid ...	\$/Designs/Jet ...		
Rear Compression Assembly.iam	A	Work in Pro...	Copy	Copy of Rea...	\$/Designs/Jet ...		
Nose Cone.ipt	A	Work in Pro...	Copy	Copy of Nos...	\$/Designs/Jet ...		

Folder View

- Folder view showing destination location
- Find
- Find & Replace
- Edit the file name
- Edit the file path
- Drag & drop to the Numbering panel
- Set Copy Action
- Drag & drop to the Folder panel.

Destination Name	File Name	Destination Path	Revision	State	Action		...
\$							
Designs							
Jet Engine							
_Jet Engine Model - Mar...	_Jet Engine ...		1	Work i...	Remove		
A-#####.iam	_Jet Engine ...	\$/Designs/Jet Engine	A	Work i...	Copy		
A-#####.iam	Exhaust Ass...	\$/Designs/Jet Engine	A	Work i...	Copy		
A-#####.iam	Main Axis.ia...	\$/Designs/Jet Engine	A	Work i...	Copy		
A-#####.iam	Combustio...	\$/Designs/Jet Engine	A	Work i...	Copy		
A-#####.iam	Rear Comp...	\$/Designs/Jet Engine	A	Work i...	Copy		
A-#####.iam	Mid Compr...	\$/Designs/Jet Engine	A	Work i...	Copy		
A-#####.iam	Main Axis B...	\$/Designs/Jet Engine	A	Work i...	Copy		
A-#####.iam	Turbine Ass...	\$/Designs/Jet Engine	A	Work i...	Copy		
A-#####.iam	Turbine Lin...	\$/Designs/Jet Engine	A	Work i...	Copy		
A-#####.idw	_Jet Engine ...		A	For Re...	Auto		
A-#####.idw	Main Axis.idw		A	For Re...	Auto		
A-#####.idw	Turbine Ass...		A	Work i...	Auto		
Design Accelerator							
Front Compression Fan							
MT-#####.ipt	Flare Lever...	\$/Designs/Jet Engine	A	Work i...	Copy		
MT-#####.ipt	Flare Lever...	\$/Designs/Jet Engine	A	Work i...	Copy		
MT-#####.ipt	Heat Ring.ipt	\$/Designs/Jet Engine	A	Work i...	Copy		
MT-#####.ipt	Flare Base.ipt	\$/Designs/Jet Engine	A	Work i...	Copy		
MT-#####.ipt	Blade-2.ipt	\$/Designs/Jet Engine	A	Work i...	Copy		
MT-#####.ipt	Blade-1.ipt	\$/Designs/Jet Engine	A	Work i...	Copy		

Actions

Action	Details
Auto	<p>The Auto action is set on a drawing, documentation file when the parent file’s action is set to Copy.</p> <p>Note: the drawing receives the same new file name as the parent file and will be saved in the same location as the associated file when the copy operation completes.</p>
Copy All	Sets the Copy action on all files in the Copy Design dialog.
Copy Top Nodes	Sets the Copy action on all files at the top node in the Copy Design dialog.
Copy	Sets the Copy action on all selected files.
Copy To	<p>Sets the Copy action on all selected files, and the selected files will be placed in the specified folder.</p> <p>Note: The original folder structure will not be maintained for files with this action.</p>
Copy Branch	Sets the Copy action on the selected files and the entire file structure (branch) beneath it.
Copy Branch To	<p>Sets the Copy action on the selected files and the entire file structure (branch) beneath and sets the destination path to the specified folder.</p> <p>Note: When the copy operation completes, the copied files are placed to a specific folder maintaining the original folder structure.</p>
Reuse	<p>Sets the Reuse action on the selected files. The selected files are reused instead of creating a copy.</p> <p>Note: The Action column is cleared when this action is set.</p>
Reuse All	All files in the Copy Design dialog will be set to Reuse.
Reuse Branch	Sets the Reuse action to the selected file and the entire file structure beneath it.
Replace	Replaces the selected file with the specified file. The name of the original file changes to the replacement file's name.
Exclude	Sets the Exclude action on the selected files. This action can only be used on parent documentation files. If this is set on any other file in the structure, that file will be reused during the copy operation.
Go To	<p>You can go to the original file in the Vault Client using the Source Folder option.</p> <p>After the Copy operation, you can go to the newly copied file in the Vault client using the Destination option.</p>
Edit	The Edit action is set when a child of a file is set to Copy, and the parent is set to Reuse. The copy operation will edit, create a new version, of the parent file, and connect it to the newly copied child.
Remove	Removes the selected attachment

Options

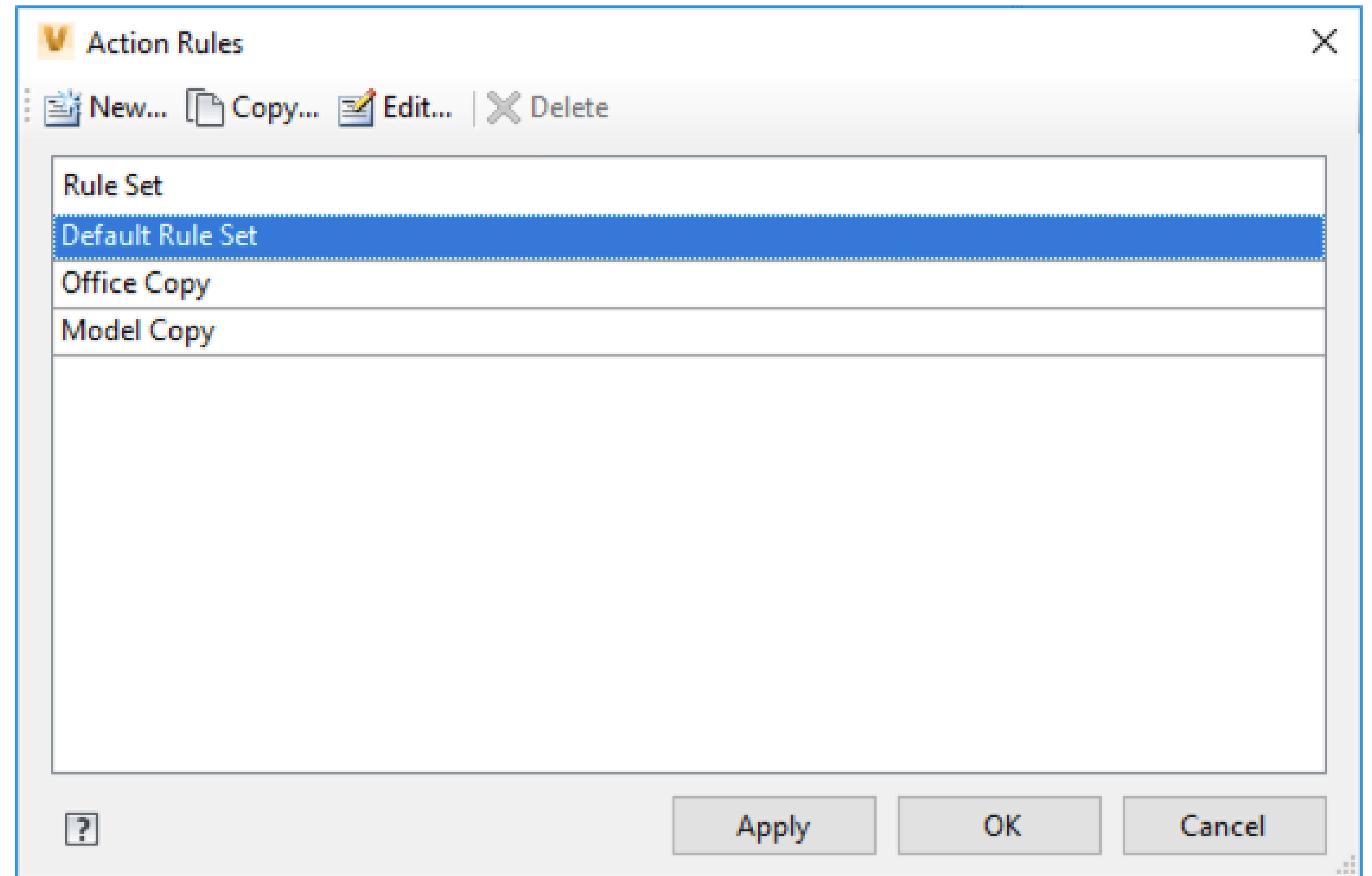
Options Menu	
Numbering Schemes	Set which numbering schemes will be available to set on files during the copy design process. You can also set the default numbering scheme to be used when the Copy action is set on a file.
Action Rules	Select to create, edit, and delete rules that apply to your copy operations. Each Rule Set can contain several property behaviors which are applied to the copied file when the tested condition is met.
Automatically Copy Parents	<p>When selected, parents of child components with the Copy action set will automatically set the Copy action to the parent file.</p> <p>Note: When this option is not selected, the Edit action is set on the parent file.</p>
Link Drawings with Models	<p>When selected, the drawing connected to a model is copied to the same location and shares the same new file name as the model. The Auto action is set on the drawing</p> <p>Note: If more than one drawing is associated with the model, the copy process will prompt with an error stating that both drawings cannot have the same name, and the copy process will not execute. Exclude or rename one of the drawings to resolve the error.</p>
Remove All Attachments	When selected, all attachments are removed from the newly created files. By default, all file attachments will get attached to the new file.
Remove BOM Objects	<p>When selected, the BOM information inside of the newly created files will be removed during the copy operation.</p> <p>Note: These files will not be able to be assigned to an Item until they are updated inside of the CAD application.</p>
Select References	<p>By default, all component references are copied. When Select References is turned on, you can choose which references of a component are copied.</p> <p>Note: Multi-select is not enabled when using Select References view. Any reference that is selected must have a unique action.</p>

Workflow



Action Rules

- Collection of rules which define property behaviors
- Multiple Rule sets can be created
- Set default set to be used



Rule Set

- Define the condition to be met
- Define property behavior
- All conditions must be met before behavior is executed

Rule Condition Builder

Property

File Name

Condition

contains

Value

IDW or DWG

Add

Replace

Remove

Rule Criteria

File Name contains ipt OR iam

Property Behavior

☐ Reset All

Property

Part Number

Action

Set Blank

Value

Add

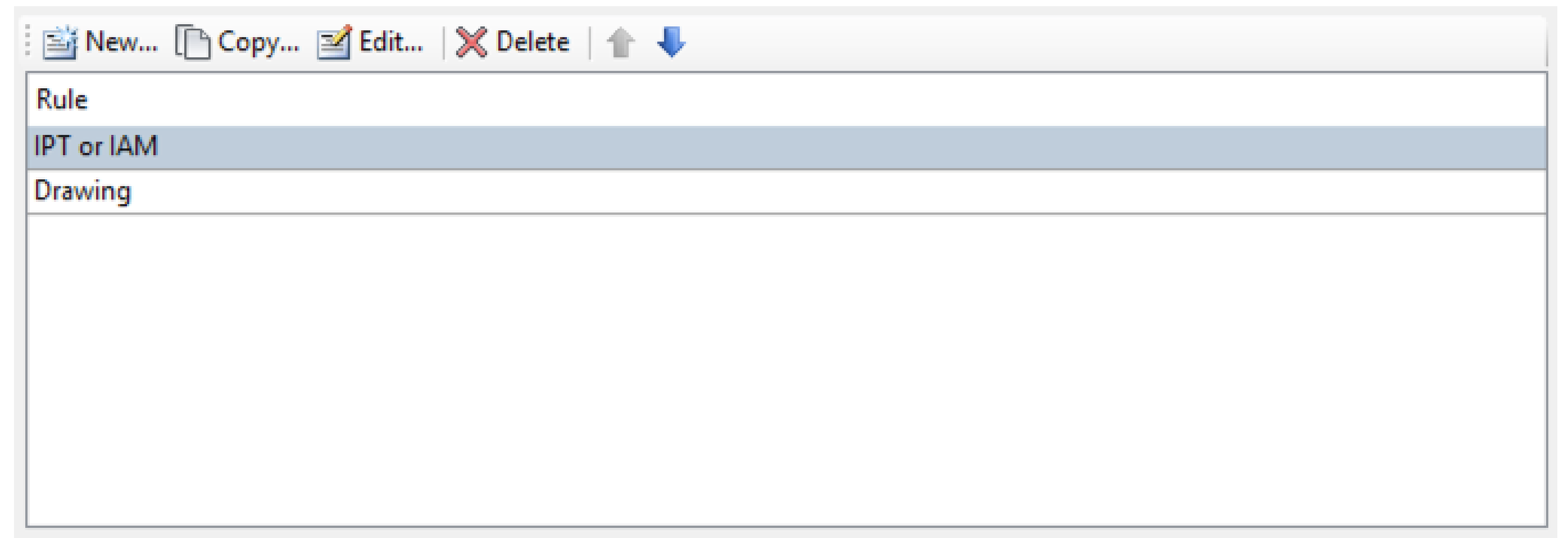
Replace

Remove

Property Name	Action
Part Number	Set Blank
Category Name	Reset

Rule Priority

- Rules are test in priority order, top to bottom
- First rule tested true is executed
- No other rules will be executed



Copy Design Report

- Export report of copy process
- Open in MS Excel

1	2	3	4	5	A	B	C	D	E	F	G	H
	1	Destination Name	Destination Path	Revision	State	Action	Count	Category Glyph	Copy Design Status			
-	2	A-00015.iam	\$/Designs/Engine 2	A	Work in Progress	Copy	2	Engineering	Successfully Copied			
-	3	Documentation										
-	4	A-00015.idw		A	For Review	Auto	1	Drawing Files	Successfully Copied			
	5	A-00016.iam	\$/Designs/Engine 2	A	Work in Progress	Copy	1	Engineering	Successfully Copied			
	6	A-00019.ipt	\$/Designs/Engine 2/Front Compression Fan	A	Work in Progress	Copy	1	Engineering	Successfully Copied			
	7	A-00020.iam	\$/Designs/Engine 2/Design Accelerator	A	Work in Progress	Copy	1	Engineering	Successfully Copied			
	8	A-00021.ipt	\$/Designs/Engine 2/Front Compression Fan	A	Work in Progress	Copy	1	Engineering	Successfully Copied			
	9	A-00022.iam	\$/Designs/Engine 2/Front Compression Fan	A	Work in Progress	Copy	1	Engineering	Successfully Copied			
	10	A-00049.iam	\$/Designs/Engine 2/Design Accelerator	A	Work in Progress	Copy	1	Engineering	Successfully Copied			
	11	A-00050.ipt	\$/Designs/Engine 2/Front Compression Fan	A	Work in Progress	Copy	1	Engineering	Successfully Copied			
	12	A-00051.ipt	\$/Designs/Engine 2/Front Compression Fan	A	Work in Progress	Copy	1	Engineering	Successfully Copied			
	13	A-00052.ipt	\$/Designs/Engine 2/Front Compression Fan	A	Work in Progress	Copy	1	Engineering	Successfully Copied			
	14	A-00053.ipt	\$/Designs/Engine 2/Front Compression Fan	A	Work in Progress	Copy	1	Engineering	Successfully Copied			
	15	A-00023.ipt	\$/Designs/Engine 2/Front Compression Fan	A	Work in Progress	Copy	1	Engineering	Successfully Copied			
	16	A-00017.iam	\$/Designs/Engine 2	A	Work in Progress	Copy	1	Engineering	Successfully Copied			
	17	A-00024.ipt	\$/Designs/Engine 2	A	Work in Progress	Copy	1	Engineering	Successfully Copied			

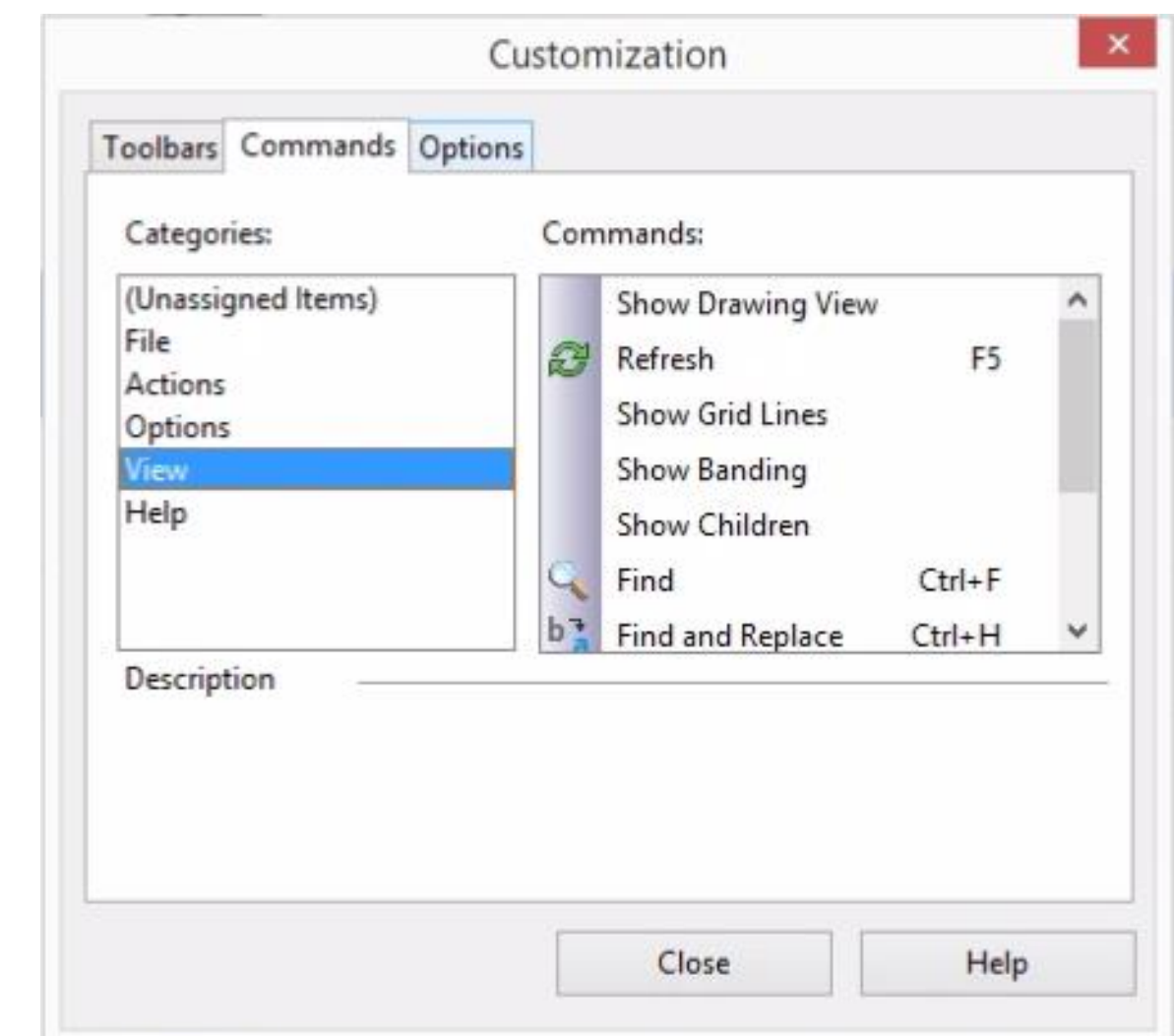
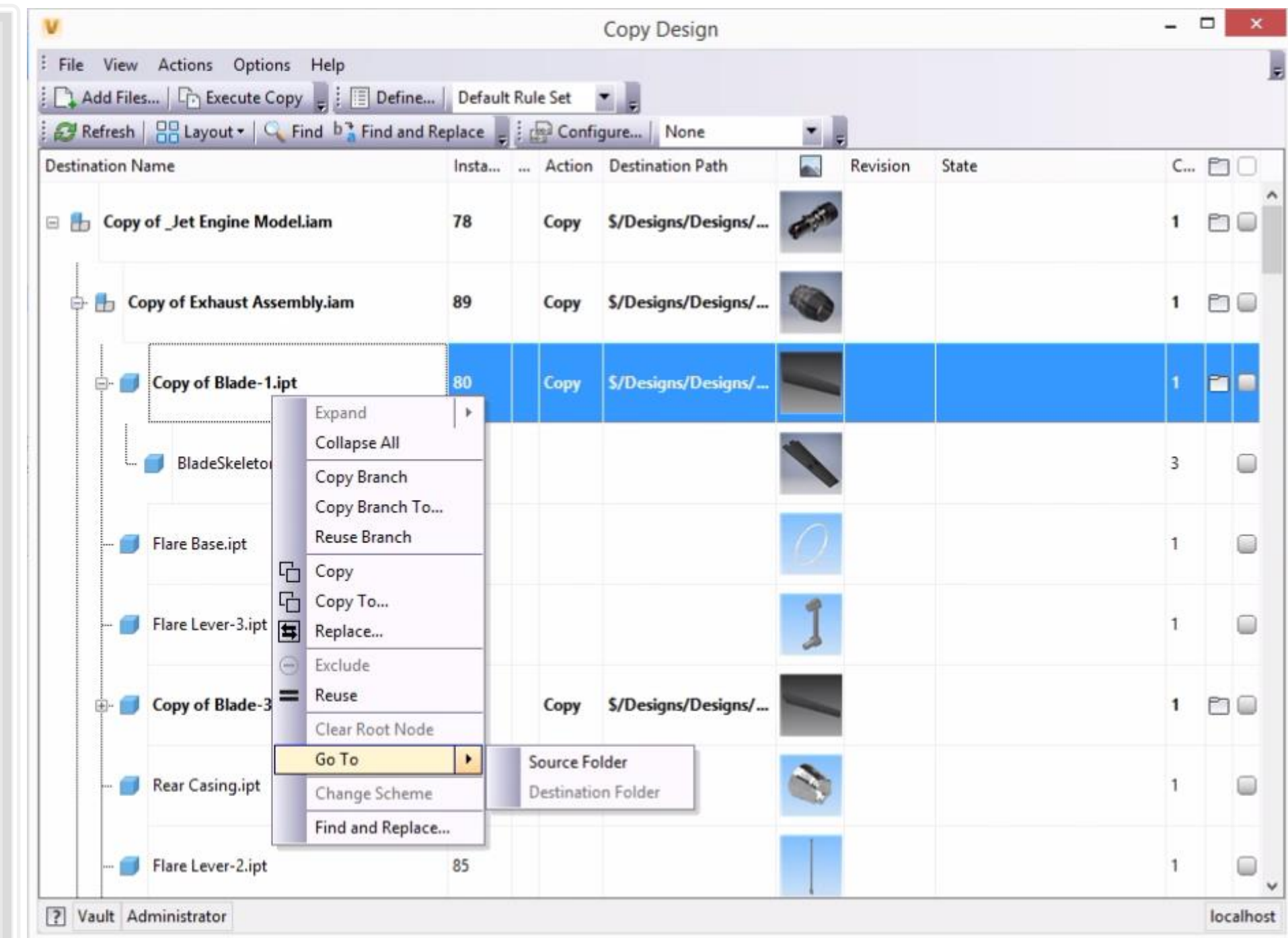
Things to Know

- Unless attachments are set to Remove in the Copy Design process, they will get attached to the new parent file.
- The Exclude action can only be set on documentation files when the Link Drawings with Model option is unchecked in the Options menu.
- The Remove action can only be set on attachments.
- Newly created files will be placed in the same folder as the file it was copied from unless the destination path is changed.
- Add the Original File Name column to the main grid see the original file name.
- PDF files created by the Job Processor will not appear in the Copy Design dialog and are ignored by the copy process.



Copy Design – Consistence & Aligned User Interface

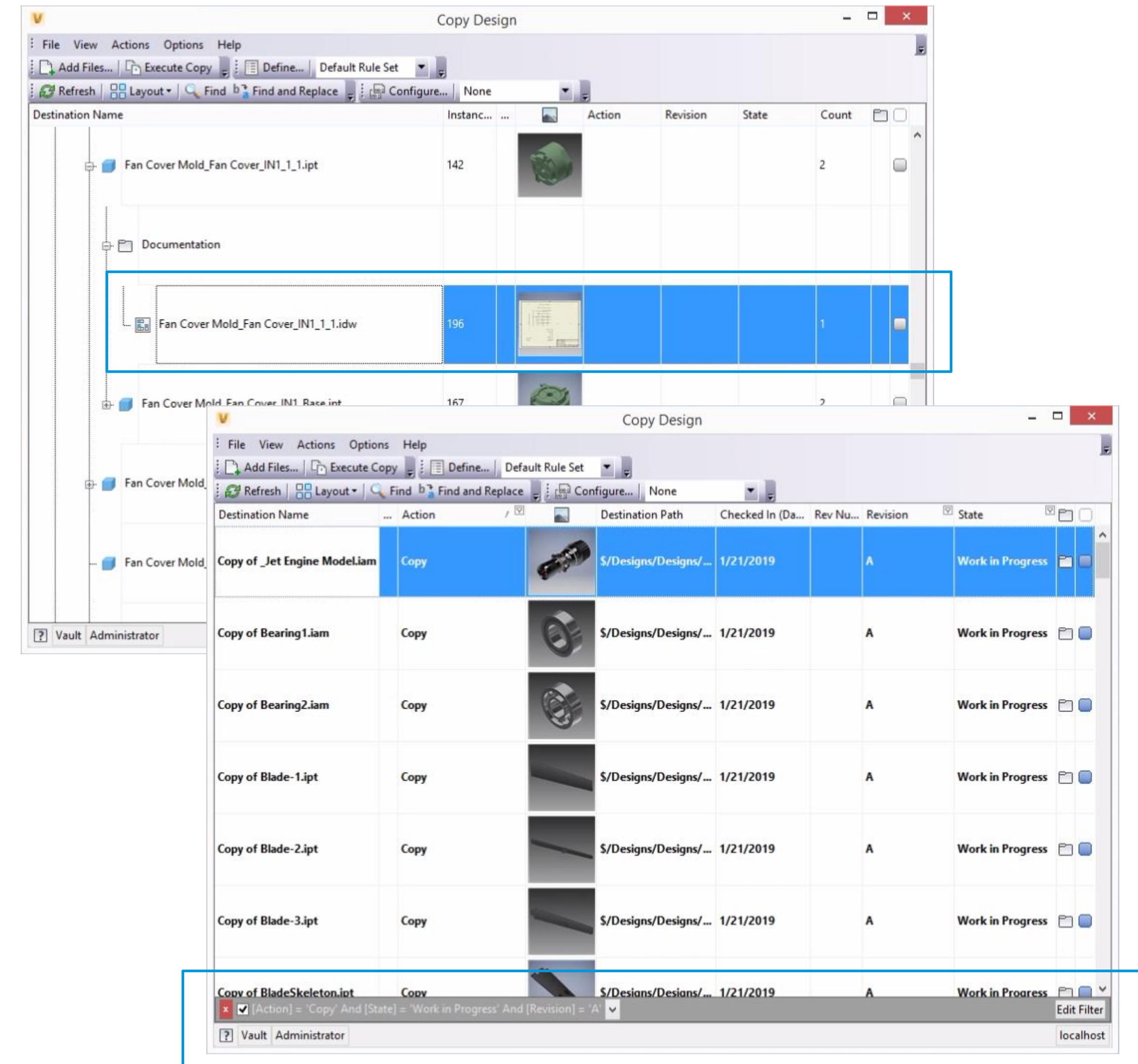
- More consistency with Vault User Interface
 - **Menu** and **Toolbar** customizable
- **Modeless** dialog to switch between Copy Design and Vault Client and use other commands like Add Files
- Accessibility & Short keys
- Better Attachment handling and remove BOM object option
- New file names appears after copy
- New commands with ability to **Go To** the source folder and destination folder



Copy Design – Simplified User Experience

Intuitive and easy to navigate

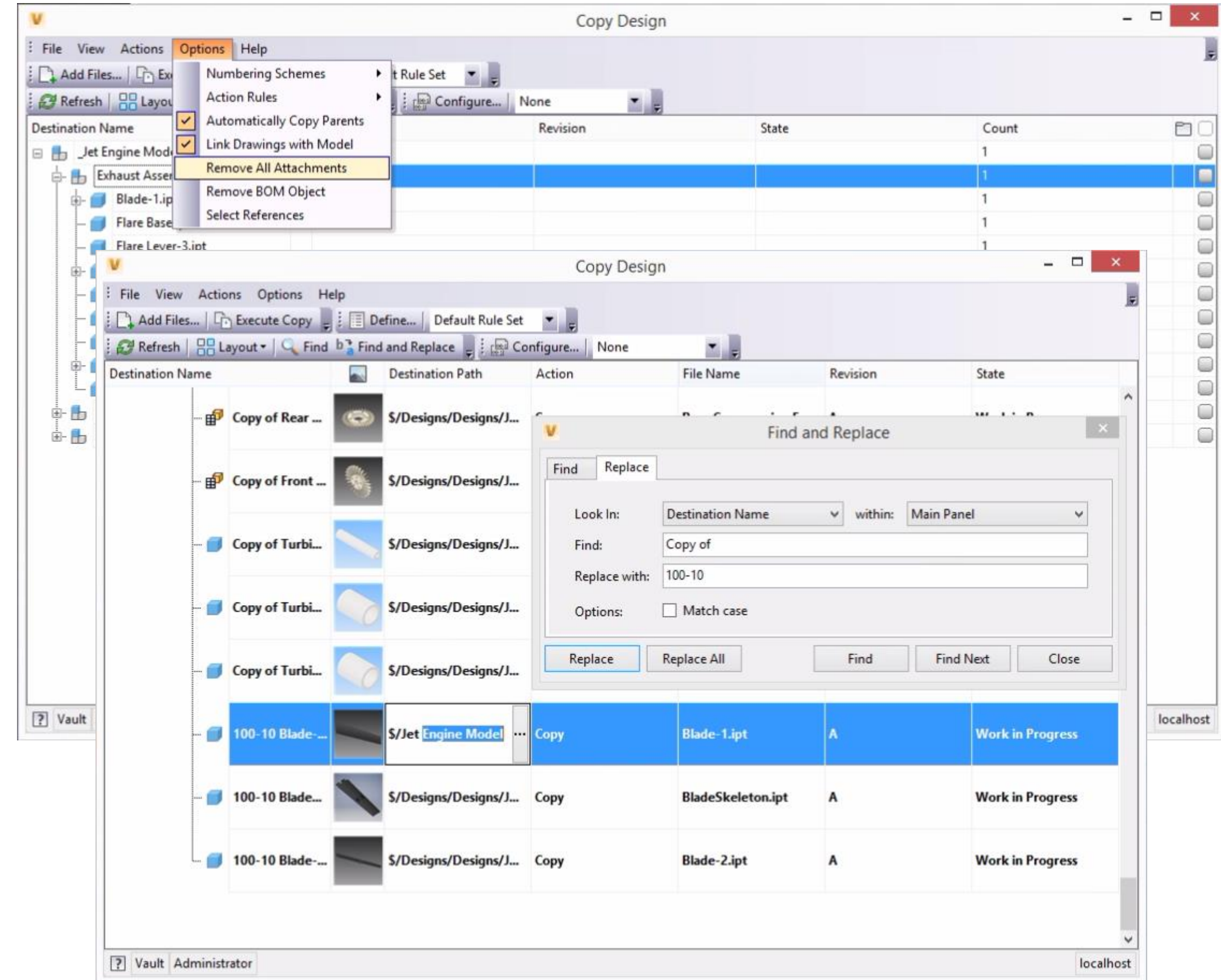
- Add Documentation folder for drawings in the tree view
- Add new Folder views in main grid
- Add new List view including column Filtering
- Clear Root Node capability
- Removed few panels for simplicity



Copy Design – Powerful Usability Enhancements

Powerful usability enhancements & more options

- Edit Destination Name and Destination Path in main grid
- Change naming scheme in main grid
- Find & Replace enhancements
- Add **Copy Branch To** command keeping folder structure
- Pre-check Enhancements
- Export Copy Design operation for record keeping





Got An Idea? Share it!

- Share your idea directly with the Autodesk Development Team
- Community can support ideas to surface the most relevant



V AUTODESK® **VAULT**

<https://autode.sk/vaultidea>

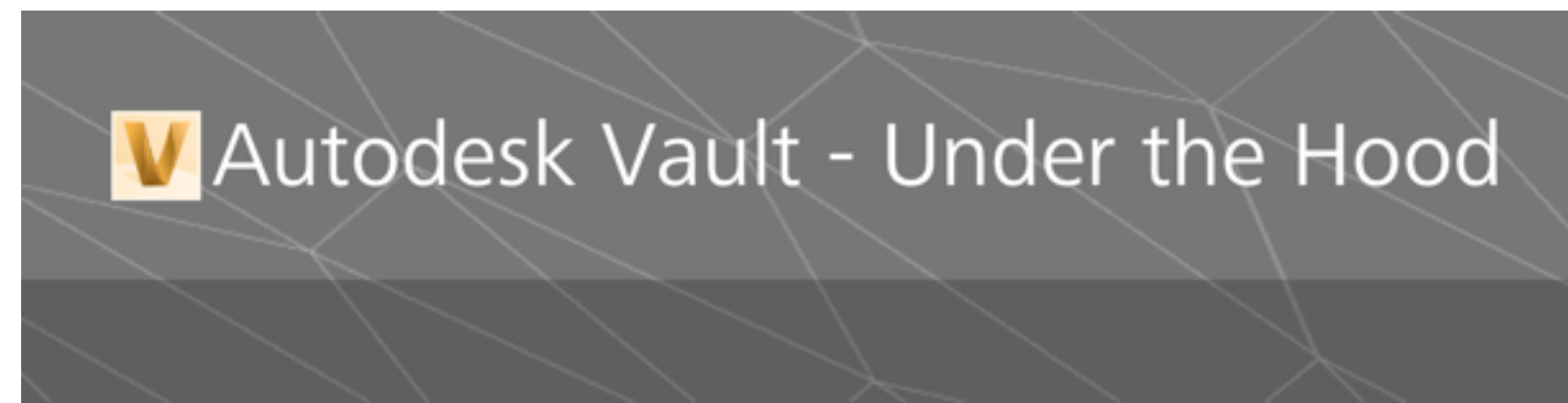
I AUTODESK® **INVENTOR**®

<https://autode.sk/inventoridea>

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