

MFG501430

A Case Study: Marvin Windows – from Marvin Docs to Autodesk Vault, and back

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D3 Technologies

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Marvin

Learning Objectives

- How to assess what is currently in place.
- Outlining the steps to migrate from one platform to another.
- Learn when to integrate back versus put new processes in place.
- Ask the customer, Marvin will be answering your questions.

Description

Marvin Windows developed its own data management platform and used it successfully for many years. With tribal knowledge leaving and technology changing it was time to move toward a more standard approach. However, some things in Marvin Docs needed to remain, so migrating all the data and then integrating some workflows back to Marvin Docs became the focus. In this study, we'll talk about the assessment, the migration, the integration, and the overall success and continued growth of this partnership.

Speaker(s)

Kimberley Hendrix

Based in Tulsa, Oklahoma, Kimberley Hendrix provides custom solutions for lean engineering using Autodesk, Inc., products, and industry knowledge to streamline design and engineering departments. Hendrix has worked in the manufacturing industry for over 30 years, and she specialized in automated solutions for manufacturers. She has worked with Autodesk products since 1984. Hendrix is associated with D3 Technologies as the Manager of Data Management, focusing on data management and the customization of applications to streamline access to data across an organization

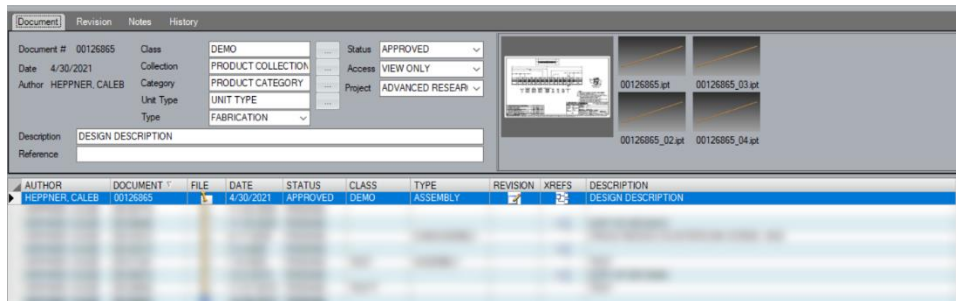
Caleb Heppner

Manages company CAD processes and standards as they relate to product design, workflow management, and training. Through the years, Marvin has developed a reputation for innovation, quality, and efficiency, making them an industry leader for more than a century. Caleb has worked in the fenestration industry with Marvin for the past 20 years in the Research and Development department. His current role revolves around CAD solutions, developing new and better ways of approaching design documentation and management for our industry.

The History of Marvin Docs

A successful “home-grown” PDM system developed in house by Marvin. The Marvin Documents platform was initially created in 1996 to digitally manage controlled documentation.

Later the documents were linked through an Oracle database to Marvin’s own change order (ECN) and print resource management applications (Print Book Viewer). Over the years Marvin Documents successfully managed the transition from drafting board documentation, to Medusa, AutoCAD, Mechanical Desktop, and finally to Autodesk Inventor.



VIEW OF MARVIN DOCS

Assessing the Project

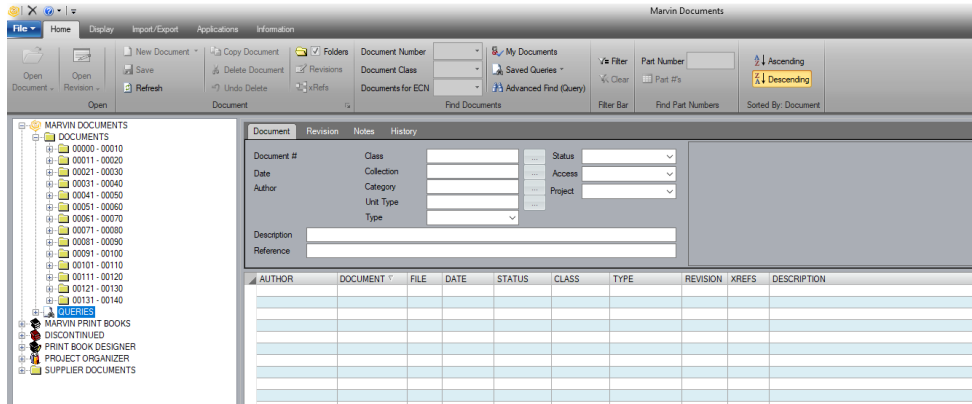
Project Objectives

- End usage of Marvin Docs
- Improve upgrade process for Autodesk products
- Solution compatible with Marvin tools
 - Print Book Viewer application
 - Marvin ECN program
- 100+ Vault Professional users
- 200+ Vault Office users

Learning the current environment

- Full large group meeting/demo was held to get the current usage of Marvin Docs
 - Data Management – Marvin Docs
 - Engineering Change Orders
 - Print Book Viewer
- What else?
 - If you had an easy button what would Autodesk Vault do for you that you don't get out of Marvin Doc's
 - File/Part Numbering

- Utilize Copy Design with the Part Numbering
- Publish DWG, PDF, DWF automatically



MARVIN DOCUMENTS

The Plan

Marvin + D3 Technologies

Consultative Partnership



Vault Pro to replace the document management portion of Marvin Docs



Vault Data Standards to automate, connect and integrate data to and from Marvin Doc's legacy systems



coolOrange powerJobs to automate, export and integrate

coolOrange powerLoad utilities to facilitate the data migration from Marvin Docs to Vault Pro

Migrating the existing data from Marvin Documents

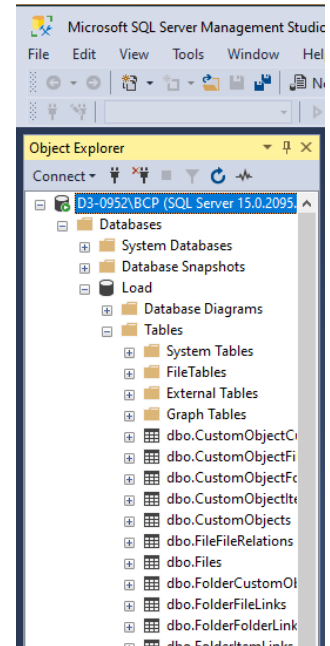
The team at Marvin expertly exported the metadata and file paths from the Oracle database to an intermediate database in SQL (IDB).

The team at D3 consumed that SQL database, manipulated folder structures, filenames add additional metadata from other sources.

We then applied categories and lifecycles to match the target Autodesk Vault.

Using [coolOrange's](#) tool [powerLoad](#) we were able to export the IDB to a “bulk copy package” that Autodesk Vault will accept.

This progress was repeated and tested as many as 10 times, before the production shut down and subsequent load was attempted. We are both very proud of the **99.8%** success rate.



Automate & Connect

The Vault is configured, and the data is successfully loaded, now to mimic and enhance what they already had with Marvin Docs.

We relied heavily on Vault Data Standards to create some dialogs and standards that Marvin was both accustomed to and some new ones to enhance.


New File / Edit File

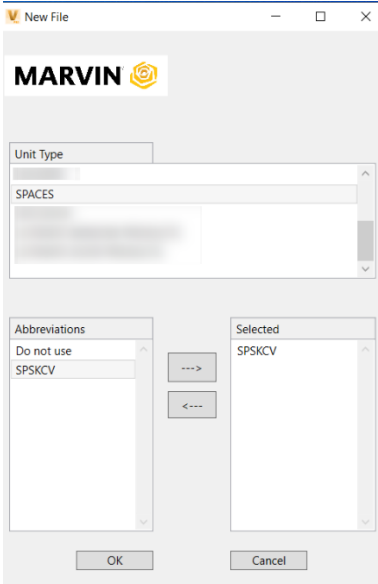
Vault Data Standards comes out of the box with a “new file” dialog shown here

Property Name	Property Value
Author	
EDI NUMBER	
E.D.I. NUMBER	
HP Title1	
Release Note	
PDF Created	
EDI	
Project	
Mfg Approved By	
Manager	
Engr Approved By	
Engineer	
Release Note	

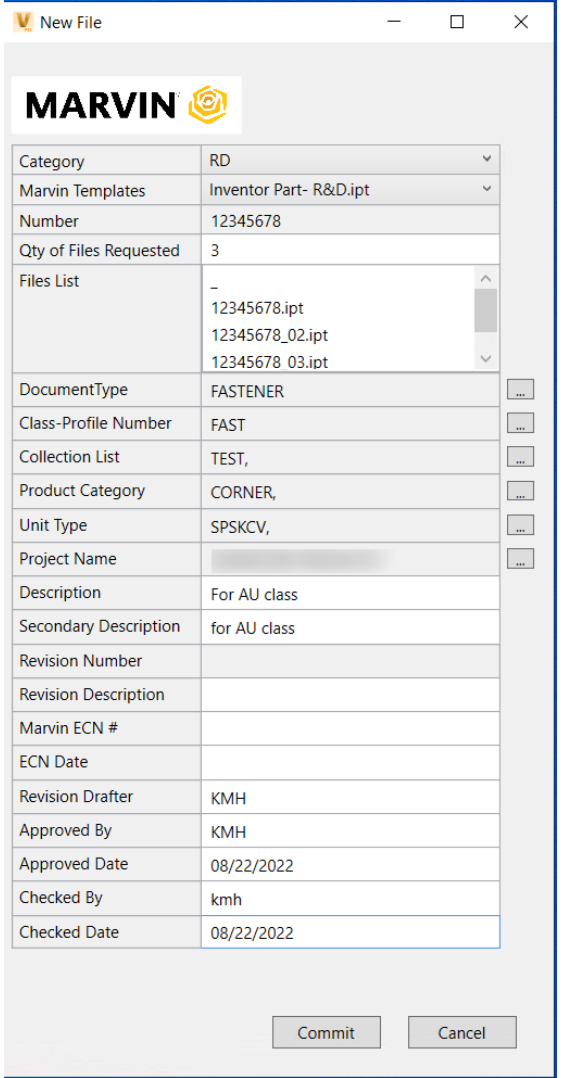
This was not exactly what Marvin was looking for, we needed to be able to pick custom properties from various list, decide which template to use, and then validate and add the file.
The updated form –

Some cool things on this form

- The name is derived from the folder you start in
- The templates are dynamic and read from a folder in Vault depending on the category selected
- When the Qty is updated, the list of file names update
- When you select any of the  ellipses, the dialog resets to allow for an intelligent list; shown below is the Unit Type list
- Commit – will copy the selected template to the appropriate folder and rename it applying all the properties selected



The screenshot shows the Marvin New File dialog with the 'Unit Type' list expanded. The list contains 'SPACES' and 'SPSKCV'. The 'Selected' list on the right also contains 'SPSKCV'. The 'Abbreviations' list on the left contains 'Do not use' and 'SPSKCV'. The 'Commit' button is visible at the bottom.



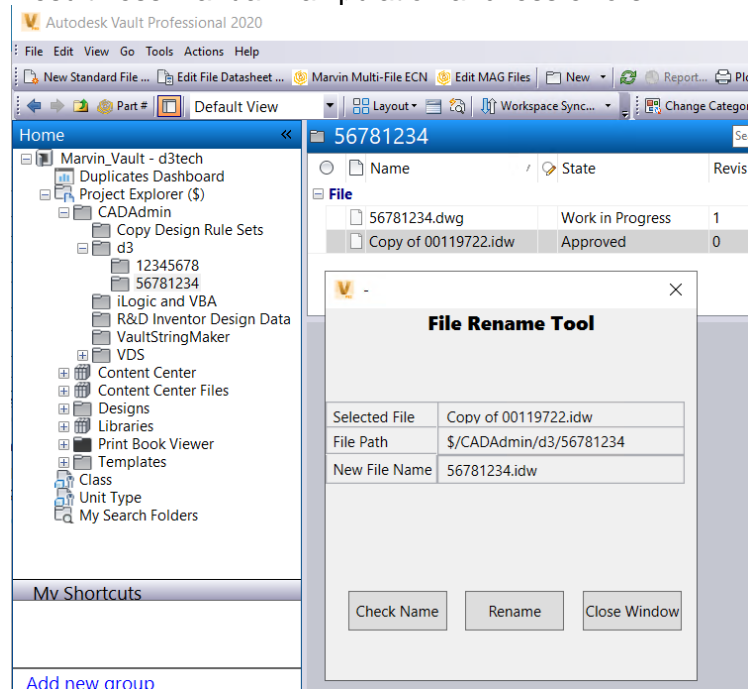
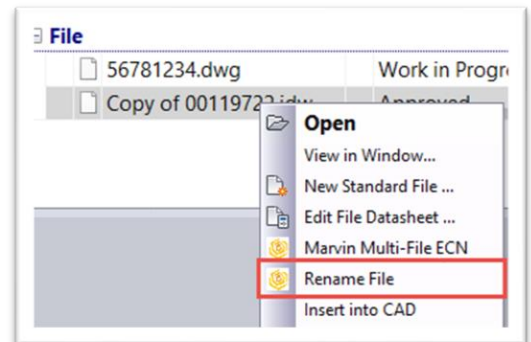
The screenshot shows the Marvin New File dialog with the full form. The form includes fields for Category, Marvin Templates, Number, Qty of Files Requested, Files List, DocumentType, Class-Profile Number, Collection List, Product Category, Unit Type, Project Name, Description, Secondary Description, Revision Number, Revision Description, Marvin ECN #, ECN Date, Revision Drafter, Approved By, Approved Date, Checked By, and Checked Date. The 'Commit' and 'Cancel' buttons are at the bottom.

Category	RD
Marvin Templates	Inventor Part- R&D.ipt
Number	12345678
Qty of Files Requested	3
Files List	- 12345678.ipt 12345678_02.ipt 12345678_03.ipt
DocumentType	FASTENER
Class-Profile Number	FAST
Collection List	TEST,
Product Category	CORNER,
Unit Type	SPSKCV,
Project Name	
Description	For AU class
Secondary Description	for AU class
Revision Number	
Revision Description	
Marvin ECN #	
ECN Date	
Revision Drafter	KMH
Approved By	KMH
Approved Date	08/22/2022
Checked By	kmh
Checked Date	08/22/2022

File Rename

I know you are thinking, come on this is out of the box stuff in Vault. Not the way Marvin needed to use it. Remember the files names take on the name of the folder + _01 and increments up for each file type. When you use copy design, you can manually go see what that number should be, or you can just copy the file(s) into the directory, then execute this tool that is found on the right click menu.

The tool finds the folder, then scans it for what files of the same extension exist, then creates the new file name for you. Result: less manual manipulation and less errors.



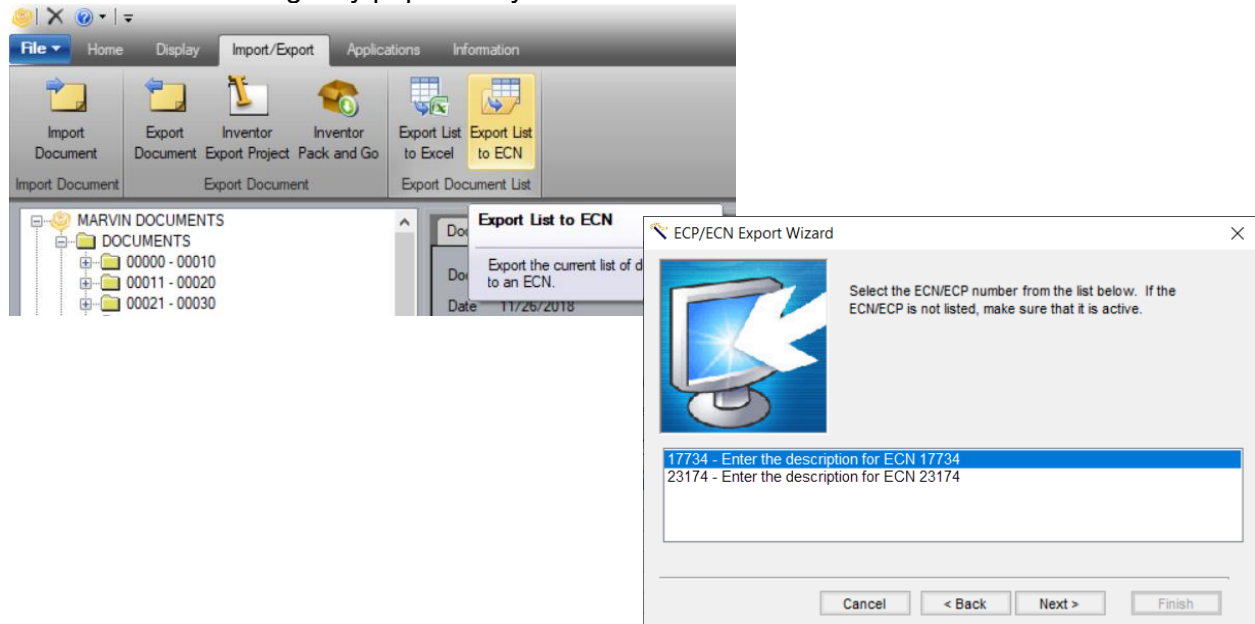
Working back to Marvin Documents

During our assessment it was determined we need to eat this elephant one bite at a time and introducing too many changes at once would disrupt the productivity of Marvin. It was determined that Marvin would maintain it's Marvin ECN system, and their native Print Book Viewer. We needed to be able to populate Vaulted data back to the existing ECN system, that would populate the Print Book Viewer, and we needed access to the Print Book Viewer from Vault.

Marvin Docs ECN program

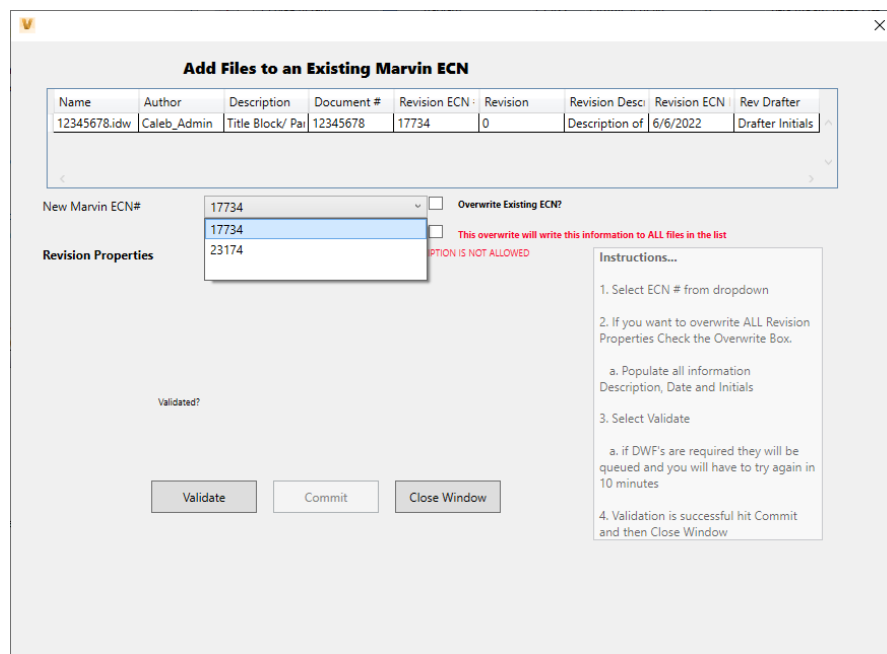
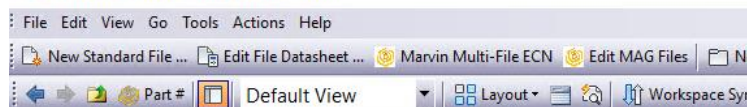
Connected to the Marvin Docs PDM system was a way to assign, track and approve ECN's in Marvin Docs, they would select a document, and export that list of documents to an ECN, with

Marvin the user name was tied to an ECN that you created so when you selected the “export List to ECN” the dialog only populated your ECN numbers.



Using Vault Data Standards and a custom job running in coolOrange powerJobs. This system was recreated inside Vault and then wrote back to Marvin’s Oracle DB, for processing through their legacy system.

Autodesk Vault Professional 2020



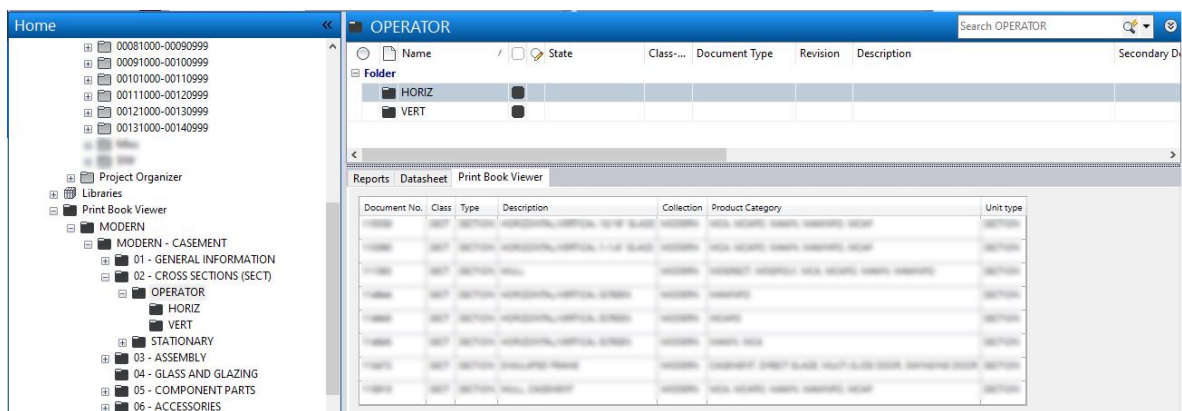
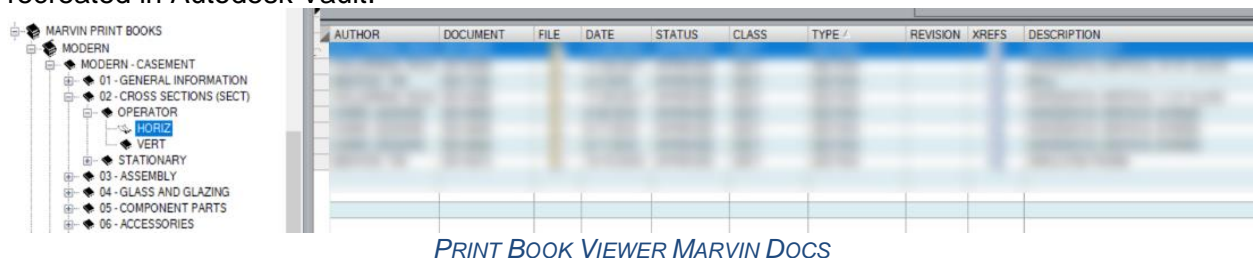
With the ECN information being written back to the original Oracle DB, the Print book viewer was still intact. Using the properties that were assigned and associated with files when we created them, and the appropriate approved ECN. A DWF file and some metadata were sent to the ECN program – that is current state. With the upgrade to 2023 in the works, we will no longer send an actual DWF file, but instead will send an http link that will open the file in the Thin Client and utilize the Forge viewer.

The Print Book Viewer

The history of the Print Book Viewer (PBV) is that it used to actually be large bound books of printed drawings. As Marvin migrated to a more digital world this became a digital sorting of prints. A print in the Marvin's system can be used in many different designs, such as a weather strip for instance, it can be used in a door, or a window, and many designs of each of those. In Vault that can be tricky, we explored using links, using custom objects, and lots of other ideas, and finally decided that for now, since it can not be in the PBV until an ECN is approved, we would leave those tables in the Oracle DB. So that presented the next issue, we didn't want users to have to leave Vault to view the PBV.

Vault Data Standards to the rescue, by adding a folder structure that simulated the actual books although no files were in the folders, it allowed us to act on the file structure to make a call to the Oracle DB, and display the list of files, right in the Vault Professional display.

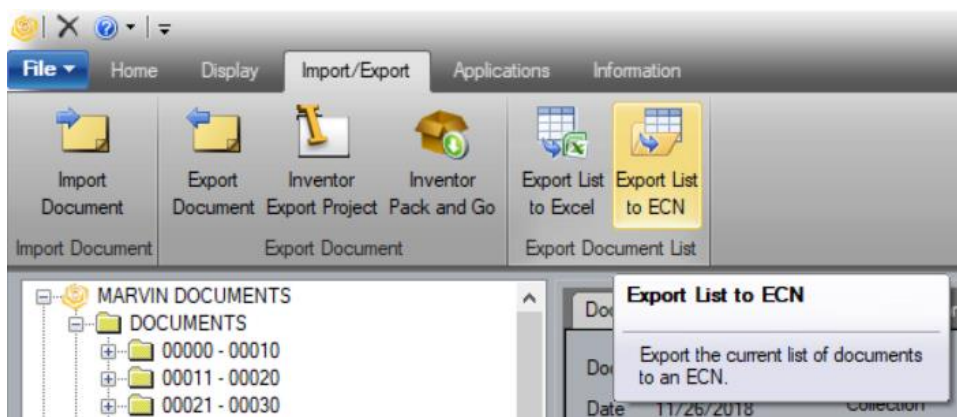
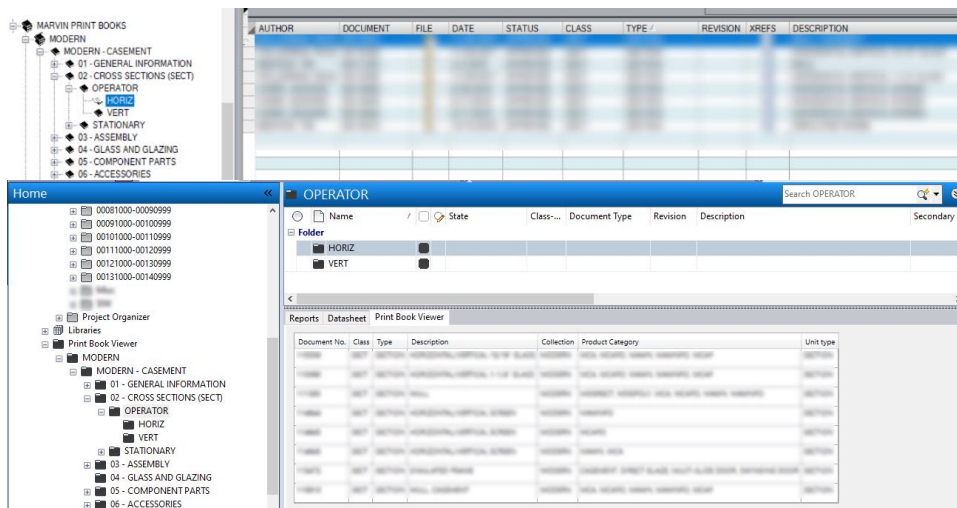
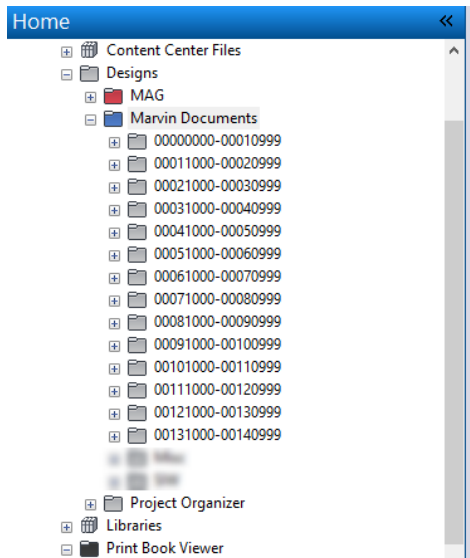
The first image is what the PBC looks like in Marvin Docs, and the second image is what we recreated in Autodesk Vault.



What is Next for Marvin

Complete the Sunset of Marvin Docs

- Looking at options for the ECN and Print Book Viewer application
- Considering F360 Manage to handle the ECN function
- The Print Book Viewer will follow the new ECN platform, as the prints must be approved before showing up in the viewer – likely F360M as well



ECP/ECN Export Wizard

Select the ECN/ECP number from the list below. If the ECN/ECP is not listed, make sure that it is active.

17734 - Enter the description for ECN 17734
23174 - Enter the description for ECN 23174

Cancel < Back Next > Finish

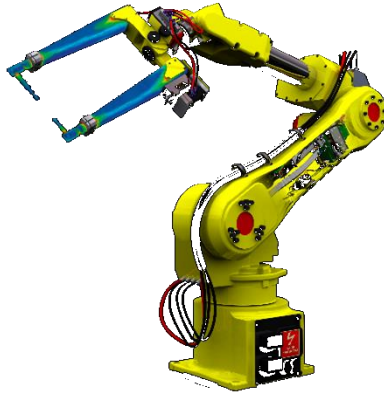
Marvin Multi-File ECN Edit MAG Files New Report...

Layout Workspace Sync... Change C

Marvin ECN

12345678

	Name	State
File		
	12345678.idw	Review
	12345678.ipt	Work in Progress



Insert AU caption.

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Assessing the Current Environment

To figure out how to bring Marvin into a current environment with as much out of the box technology as possible we had to get a good outline of what Marvin Docs was, what parts must remain in place and how the data was currently being used.

Several assessment meetings were held to get a good overview of the existing use of Marvin Docs. Figuring out how things had been done was step one to the successful implementation. Step two involved what a positive future state would look like.

What was Marvin Docs

Describe Marvin