Inventor iLogic-Vault | Quickstart Library Version 2020.4 | 2021

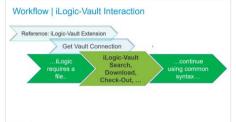
Solutions Engineer PDM|PLM – Autodesk Central Europe Markus Koechl



Agenda

iLogic-Vault Command Library





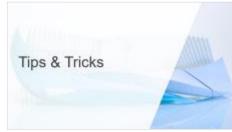








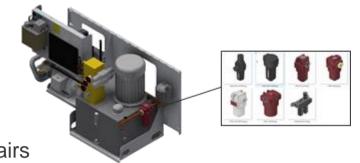






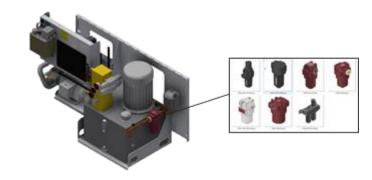
iLogic Vault | Features

- ✓ Enable Rule Vault Interactions
 - ✓ Search files in Vault by one to many property-value pairs
 - ✓ Supports AND | OR conditions for multiple search criteria
 - ✓ Get latest file(s) by Vault path (NEW 2019.1/2020.0 Check-out Option)
 - ✓ Get latest files from Vault as a search result.
 - ✓ Get new files as copy of vaulted files (NEW 2019.1 / 2020.0)
 - ✓ Get new file numbers from Vault (NEW 2019.1 / 2020.0)
 - Check-Out / Check-In / Undo Check-Out
 - ✓ Get Thumbnails as image object or image file by search or by name (New 2020.1.0)
 - ✓ Option to update Part Number for all copy functions (New 2020.2.0)



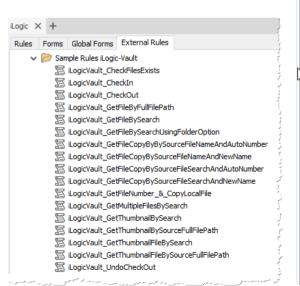
iLogic Vault | Benefits

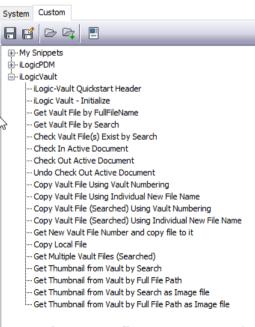
- ✓ Continue Using Known iLogic Rule Syntax
 - ✓ Classic & Managed Components approach
- ✓ Identify matching components by search criteria
 - ✓ File naming independency
 - ✓ File path independency
- ✓ Create "Dynamic" variant definitions
 - ✓ Fill iLogic variant selections by search results
- ✓ Add new derivates to Vault and skip source template changes



iLogic-Vault | Content

- iLogic application extension "QuickstartiLogicLibrary.dll"
- Sample rule for each function
- Snippet library to quickly reuse function calls





iLogic-Vault | Intellisense

Library includes documentation enabling Intellisense





Reference: iLogic-Vault Extension

Get Vault Connection

...iLogic requires a file..

iLogic-Vault Search, Download, Check-Out, ...

...continue using common syntax...

Reference: iLogic-Vault Extension

```
ᢖ 🗋 🐰 🛅 🖺 🥙 🖭 譚 譚 📜 🚆 If...Then...End If ▼ Keywords ▼ Operators ▼
  AddReference "QuickstartiLogicLibrary.dll"
    'rule to update current model and PDM preview tab
⊟Sub Main
    iLogicVb.UpdateWhenDone = True
    'update geometry
    Parameter("Ring", "ND") = G D
    Parameter("Ring", "G_L") = G_L
    Parameter("Flange:1", "ND") = G D + 25
    'update material
    iProperties.MaterialOfComponent("Flange:1") = Mat_Flange
    iProperties.MaterialOfComponent("Flange:2") = Mat_Flange
```

Reference: iLogic-Vault Extension

Get Vault Connection

```
'enable iLogicVault commands and validate user's login state

Dim iLogicVault As New QuickstartiLogicLibrary.QuickstartiLogicLib

If iLogicVault.LoggedIn = False

Logger.Error("Not Logged In to Vault! - Login first and repeat executing this rule.")

Exit Function

End If
```

Reference: iLogic-Vault Extension

Get Vault Connection

iLogic-Vault Functions

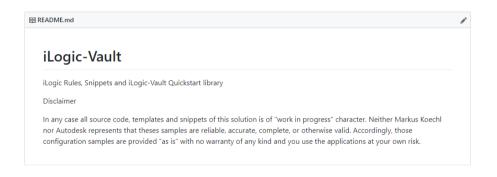
- --- Get Vault File by FullFileName
- --- Get Vault File by Search
- --- Check Vault File(s) Exist by Search
- --- Check In Active Document
- --- Check Out Active Document
- Undo Check Out Active Document
- --- Copy Vault File Using Vault Numbering

- --- Get New Vault File Number and copy file to it
- --- Copy Local File
- --- Get Multiple Vault Files (Searched)
- --- Get Thumbnail from Vault by Search
- --- Get Thumbnail from Vault by Full File Path
- --- Get Thumbnail from Vault by Search as Image file
- Get Thumbnail from Vault by Full File Path as Image file
- --- Copy Vault File Using Individual New File Name
- --- Copy Vault File (Searched) Using Vault Numbering
- --- Copy Vault File (Searched) Using Individual New File Name

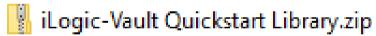


iLogic Vault | Download Options

ReadMe



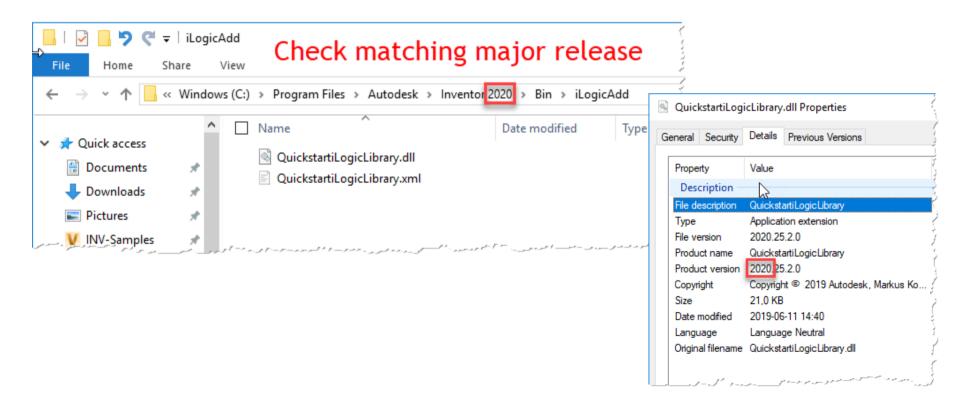
- Download Library
 - iLogic-Vault Library
 - Code Snippets
 - Sample Rules



<u>Download Development Project and Sources</u> – GitHub

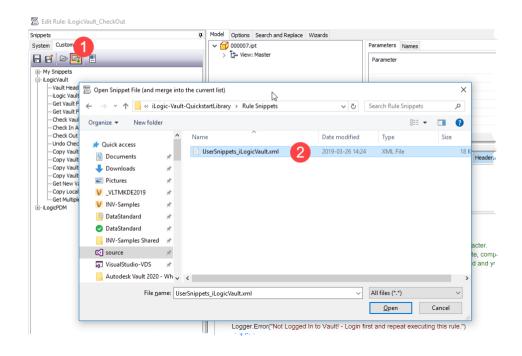
Add Library Extension

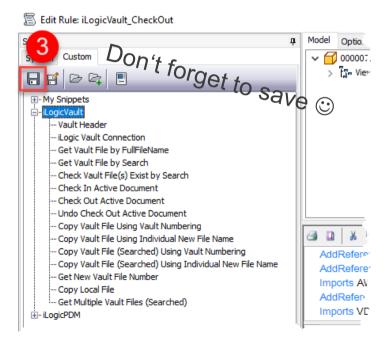
Copy QuickstartiLogicLibrary.* to iLogic default extension folder



Add iLogic-Vault Snippet Library

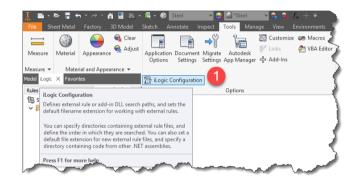
Add/Merge snippets into your existing library

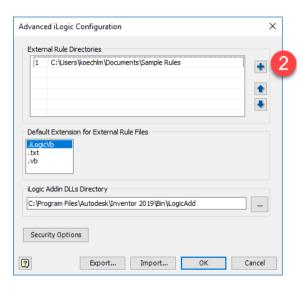




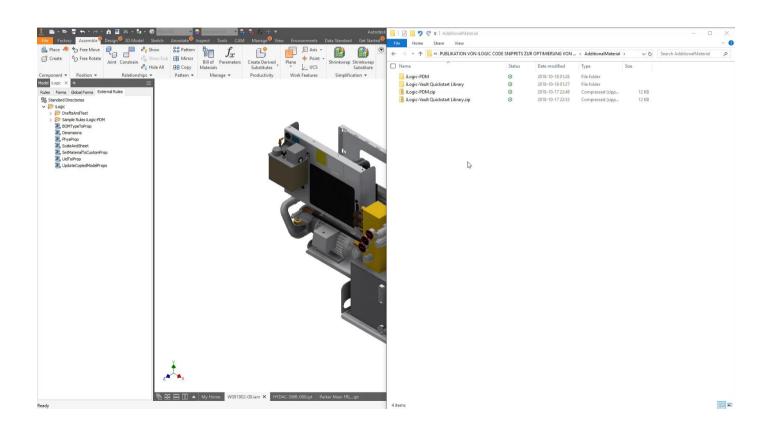
Add Samples

Configure External Rules directory





iLogic-Vault Quickstart Library | Installation





Definite and Indefinite Variants

Managing Unique Variants and Re-Use

- Scenario 1 Definite assembly variants
 - 2 components, 70 sizes, 2 materials each



280 variants

Component	Variants Dm	Variants Length	Variants Material	Variants
Flange	14		2	
Ring		5	2	
Assembly Variants				280
Flange Diameter	120		1.4510 X3CrTi17	
	130		1.1191 C45E	
	140			
	150			
	160			
	170			
	180			
	190			
	200			
	210			
	220			
	230			
	240			
	250			
Ring Length		50	PA6 - black	
		60	POM/Delin® 150	
		70		
		80		
		90		

Definite and Indefinite Variants

Managing Unique Variants and Re-Use

- Scenario 2 Indefinite assembly variants
 - 2 components, range of sizes, 1 decimal, 2 materials each



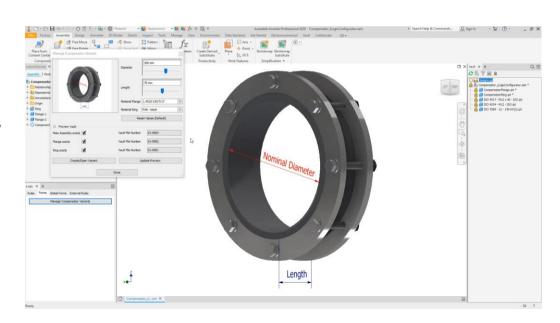
2,09 Mio variants

Component	Variants Dm	Variants Length	Variants Material	Variants		
Flange	1301,0		2			Г
Ring		401,0	2			
Assembly Variants				2,09E+06		
Component	Variants Dm	Variants Material		Component	Variants Length	٧
Flange Diameter	120,0	1.4510 X3CrTi17		Ring Length	50,0	L.
	120,1	1.1191 C45E			50,1	P
	120,2				50,2	- 1
	120,3				50,3	
	120,4				50,4	
	₽ 120,5				50,5	
	120,6				50,6	-
	120,7				50,7	
	120,8				50,8	
	120,9				50,9	
	121,0				51,0	-
	121,1				51,1	
	121,2				51,2	
	121,3				51,3	
	1014		ر. اس مر	رميس رامير ارساس	J 51.4	

Definite and Indefinite Variants

Managing Unique Variants and Re-Use

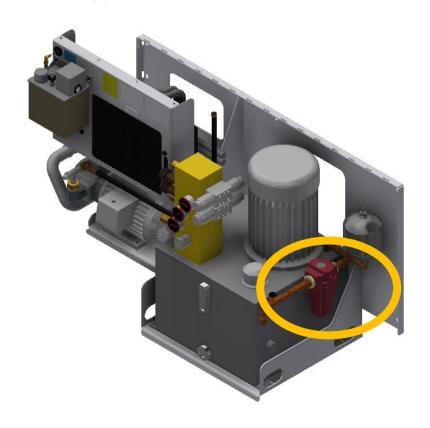
- iLogic-Vault outperforms manual or iPart/iAssembly workflows for both scenarios
 - Check unique components
 - Check unique assemblies
 - ⇒ Re-Use or create component(s)
 - ⇒ Open/create individual assembly

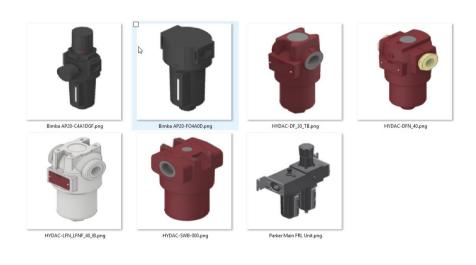




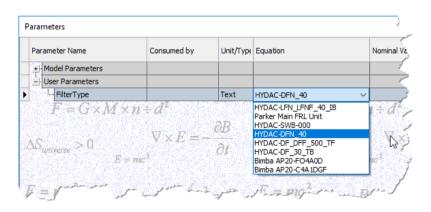
iLogic | Application Sample

Filter-Types / Variants





Static Selection List of Filters



Static Selection
List of Filters

Select Filter

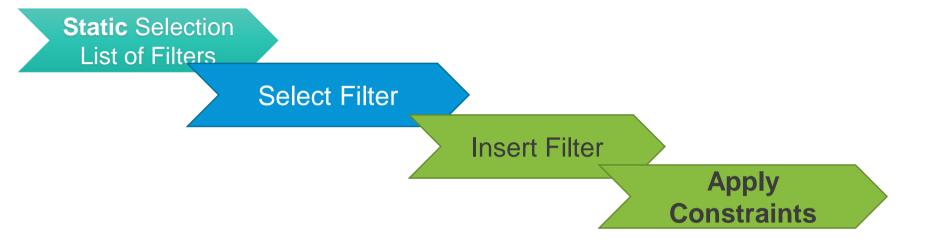


Static Selection
List of Filters

Select Filter

Insert Filter

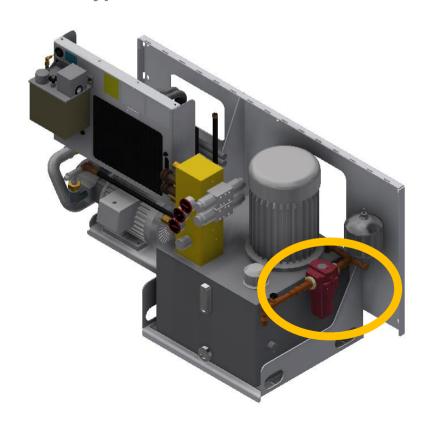
ThisAssembly.BeginManage("Group Filter")
Components.Add("Filter", FullFileName)
ThisAssembly.EndManage("Group Filter")



```
Constraints.AddInsert("Insert1", "W0000133-03-I:1", "In", "Filter", "Filter_In", axesOpposed := True, distance := 0.0, lockRotation := False, biasPoint1 := Nothing, biasPoint2 := Nothing) Constraints.AddInsert("Insert2", "W0000133-03-O:1", "Out", "Filter", "Filter_Out", axesOpposed := True, distance := 0.0, lockRotation := False, biasPoint1 := Nothing, biasPoint2 := Nothing)
```

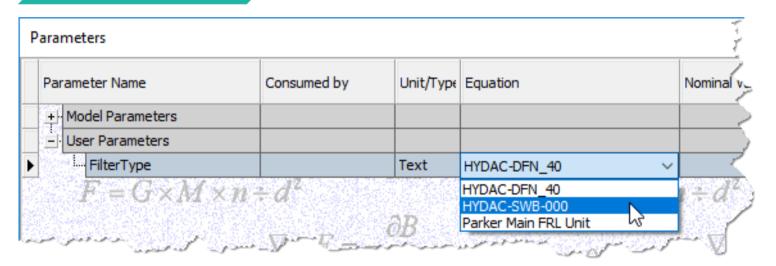
iLogic-Vault | Application Sample

Filter-Types / Variants





CurrentSelection List



Current Selection List Update Selection List by Filters Available in Vault

'Build one to many name/value pairs of Property/Value as search criteria;

Dim mSearchParams As New System.Collections.Generic.Dictionary(Of String, String) 'add UDP.DisplayName, Value Pairs mSearchParams.Add("Part Family", "FAM-00000") 'applies to all filters

Dim mVaultFiles As String()

mVaultFiles = iLogicVault.mCheckFilesExistBySearchCriteria(mVltCon, mSearchParams, False) -

CurrentSelection List

Update Selection
List by Filters
Available in Vault

Select Filter



CurrentSelection List

Update Selection
List by Filters
Available in Vault

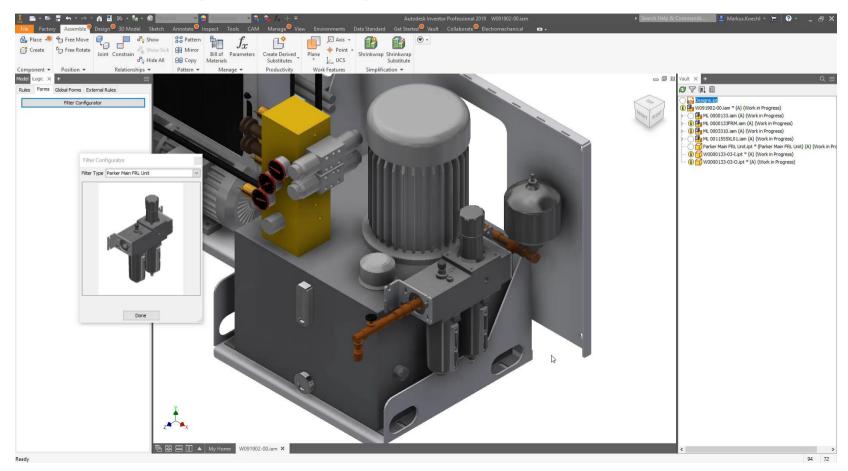
Select Filter

Get Latest Revision of Filter

'Build one to many name/value pairs of Property/Value as search criteria mSearchParams = New System.Collections.Generic.Dictionary(Of String, String) mSearchParams.Add("Part Family", "FAM-00000") 'applies to all filters mSearchParams.Add("Name", FilterType)

"...add as many as required to enable a unique search result

mVaultFile = iLogicVault.mGetFilebySearchCriteria(mVltCon, mSearchParams)



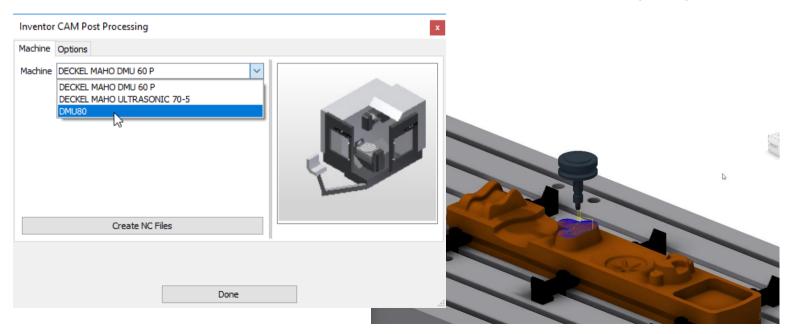


Inventor CAM – Vault – iLogic Design Automation

Automate NC Code Output and Vault File Management

- Activate Inventor CAM-Setup Assembly
 - Select Machine

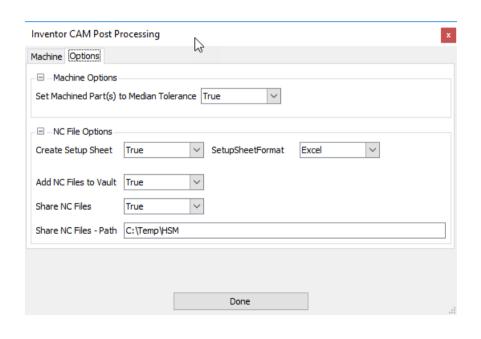
- Automation
 - Reads available Machines from Vault
 - Download post processor definition

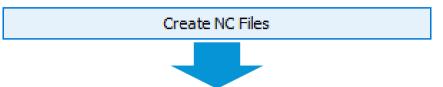


Inventor CAM – Vault – iLogic Design Automation

Automate NC Code Output and Vault File Management

- Activate Inventor CAM-Setup Assembly
 - Select Options





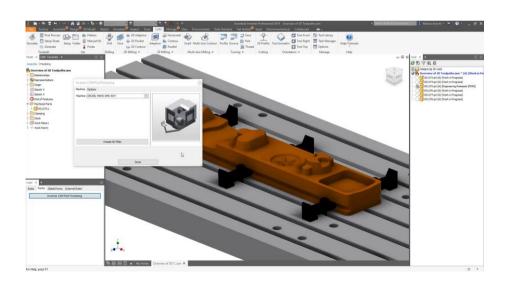
- Automation Machining Tolerance
 - Iterates one to many work pieces activating median tolerance

- Automation NC-File
 - Create NC file for selected machine
 - Create Setup Sheet
 - Add Machine/NC Code to Vault
 - Copy NC Code/Setup to external share

Inventor CAM – Vault – iLogic Design Automation

Automate NC Code Output and Vault File Management

- Video
 - Create NC output for 1 to n machines
 - Check-in to Vault
 - Include output into Manufacturing Release process

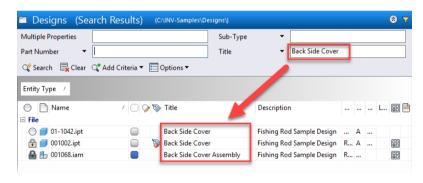




Library Version Number 2020.25.2.1

- Optimized Search Behavior
 - Search Operator "Equals"
 - Apply "AND" | "OR" Condition
 - Search all field types
 - Text
 - Date
 - Boolean
 - Extend range for text search using "*"

- Legacy Search Behavior
 - Aligned to Vault Query Builder
 - Search operator = "Contains"



- Allowed using "And" | "Or" criteria
- Search text field type only

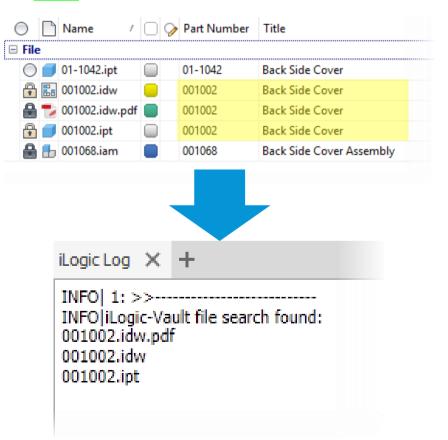
Library Version Number 2020.25.2.1

Example Scenario/Data Set

(Name /		Part Number	Title
⊟ File					
		01-1042.ipt		01-1042	Back Side Cover
		001002.idw		001002	Back Side Cover
		001002.idw.pdf		001002	Back Side Cover
		001002.ipt		001002	Back Side Cover
		001068.iam		001068	Back Side Cover Assembly

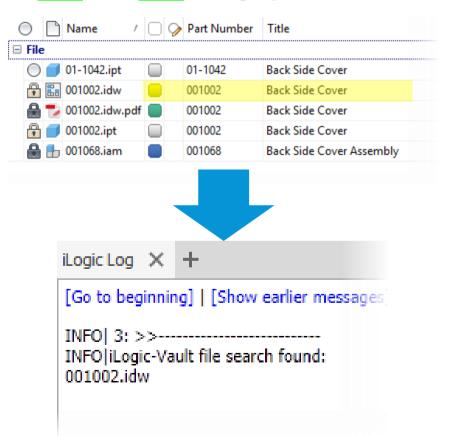
New Search Behavior – Example 1: Part Number AND Title

- Multiple Criteria
 - Part Number = "001002"
 - Title = "Back Side Cover"
- Option
 - Match All Criteria = "True"



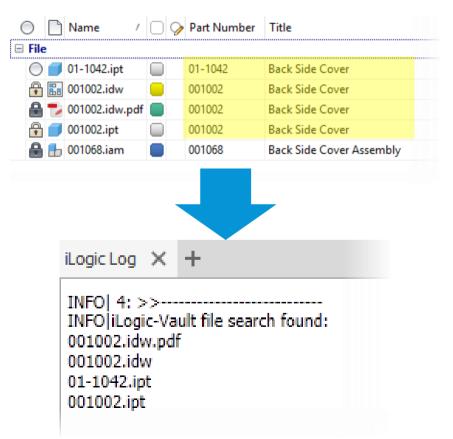
New Search Behavior – Example 2: Part Number AND Title AND Category Name

- Multiple Criteria
 - Part Number = "001002"
 - Title = "Back Side Cover"
 - Category Name = "Drawing Inventor"
- Option
 - Match All Criteria = "True"



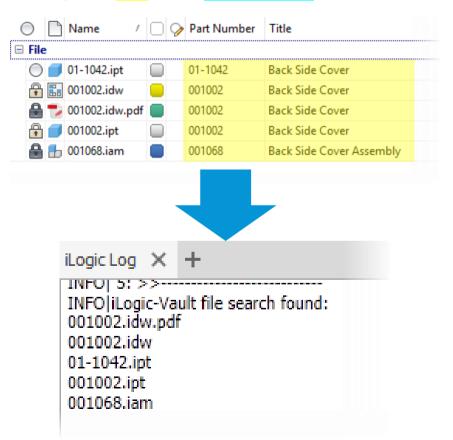
New Search Behavior – Example 3: Part Number OR Title

- Multiple Criteria
 - Part Number = "001002"
 - Title = "Back Side Cover"
- Option
 - Match All Criteria = "False"



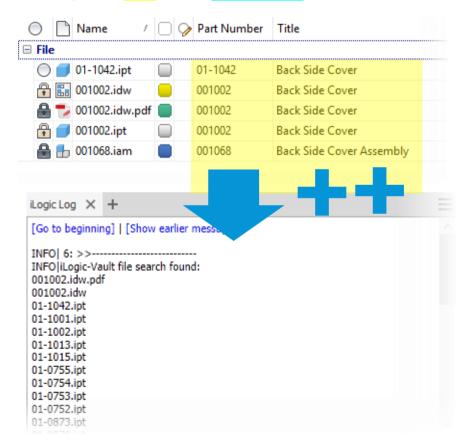
New Search Behavior – Example 4: Part Number Equals OR Title Starts with

- Multiple Criteria
 - Part Number = "001002"
 - Title = "Back Side Cover*"
- Option
 - Match All Criteria = "False"



New Search Behavior – Example 5: Part Number Equals OR Title Contains

- Multiple Criteria
 - Part Number = "001002"
 - Title = "*Side*"
- Option
 - Match All Criteria = "False"



New Search Behavior – Example 6: Search Data Type Boolean

- Multiple Criteria
 - Part Number = "001002"
 - Linked to Item = "True"
- Option
 - Match All Criteria = "True"

```
'Build one to many name/value pairs of Property/Value as search criteria; mSearchParams.Add("Part Number", "001002") mSearchParams.Add("Linked to Item", True)
```

```
mVaultFiles = iLogicVault.CheckFilesExistBySearchCriteria(mSearchParams, True)
```

New Search Behavior – Example 7: Search Data Type Date

- Single Criteria
 - Initial Release Date = "09/20/2019 15:10:34"
- Option [no impact for single criteria]
 - Match All Criteria = Default, True, or False

```
'Prepare the DateTime value as search criteria;

Dim mDateStr As String = "2019-09-20 15:10:34" 'seconds are the expected precision to search Vault Date type field

Dim mDate As Date = Date.Parse(mDateStr) 'parse to date type for UTC conversion

mDateStr = mDate.ToUniversalTime().ToString("MM/dd/yyyy HH:mm:ss")' convert the UTC time to Vault internal date/time format MM/dd/yyyy HH:mm:ss
```

'Build one to many name/value pairs of Property/Value as search criteria; mSearchParams.Add("Initial Release Date", mDateStr)

What's New | Update 2 – New Features & Functions

Library Version Number 2020.25.2.0

- New Search Option "FolderPaths"
 - Limit scope of search to one to many folders or folder tree
 - E.g., search only \$/Designs/ and \$/Libraries/ tree
- Get Thumbnails of Vault Files by Search, by Name and Download
 - image file
 - or image object (custom dialogs only).
- Intellisense Support for iLogicVault Commands



What's New | Update 2 - Changes

Library Version Number 2020.25.2.0

- Simplified Rule Syntax
 - Single line header
 - Single line Vault Log-In/connection status verification
- Function return values aligned to common iLogic objects "String" and "List(of String)"
- Function names aligned to the iLogic naming convention

⇒Note - Legacy code requires updating

What's New | Update 3 - Changes

Library Version Number 2020.25.3.0

Version required to support Autodesk. VltInvSrv.iLogicSampleJob (Pre-Release 2020)

Custom Job to execute external or internal iLogic rules

- New method to re-use existing connections of Job Processor while running iLogic rule
 - Job to hand-over rule arguments

Function QuickstartiLogicLib.ReuseConnection(DbSrvName As String, FISrvName As String, VaultName As String, Userld As Long, Ticket As String) As Boolean For VaultInventorServer application only: Re-uses the job processors log-in user Id and ticket for iLogic-Vault interactions within rules.

Custom Job template includes sample rule VaultJobRuleConnected.iLogicVb

What's New | 2020 Update 4 / 2021 - Changes

Library Version Number 2020.25.4.0 | 2021.26.0.0

2020.25.4.0 version stopped support for VaultInventorServer

A new Library "QuickstartiLogicVltInvSrvLibrary.dll" supporting VaultInventorServer is introduced instead.

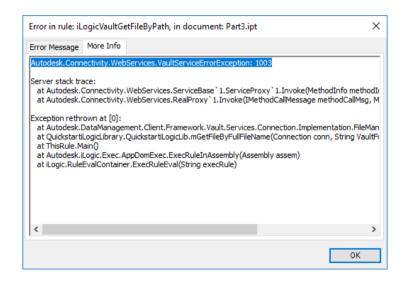
- Use this library to support <u>Vault-Job-Processor---iLogic-Extension</u>
 - Custom Job to execute external or internal iLogic rules
- Library contains a subset of QuickstartiLogicLibrary.dll matching the needs of iLogic rules included in Job Processing
 - Reuse Job Processor connection to access Vault from iLogic
 - Multiple methods to search, download files and thumbnail images

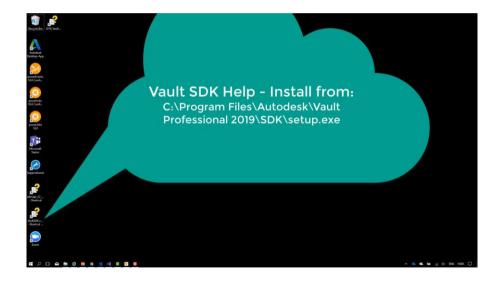
Function QuickstartiLogicLib.ReuseConnection(DbSrvName As String, FISrvName As String, VaultName As String, UserId As Long, Ticket As String) As Boolean For VaultInventorServer application only: Re-uses the job processors log-in user Id and ticket for iLogic-Vault interactions within rules.



Lookup Vault Error Codes

What can you do if you encountered an error message from Vault?







Make anything...