

iLogic & Vault Vault & iLogic

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Learning Objectives

ILOGIC - VAULT

Identify the benefits of managing iLogic rules and settings in Vault

List possible benefits of connecting iLogic rules to Vault

ILOGIC - VAULT

Create iLogic rules that query Vault, retrieve files, or automate new file generation using familiar iLogic rule syntax

VAULT – ILOGIC

Solve automation tasks by running iLogic rules as custom Jobs in Vault Job Processor

VAULT - ILOGIC

Explain the differences of writing iLogic rules for Inventor and Vault Job Processor

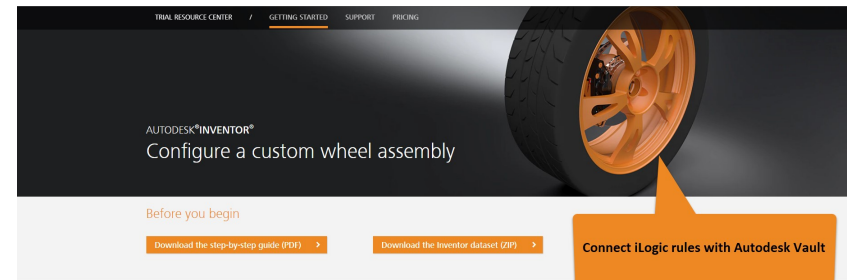
Class Handout

Content – iLogic-Vault

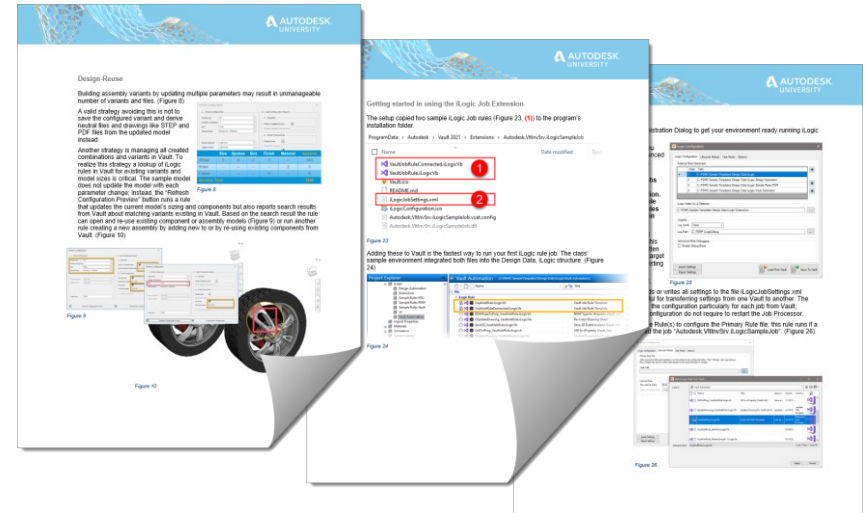
- How to gain the benefits of managing iLogic Rules and Settings in Vault
- Instructions to re-build the “Dynamic Rule” solution sample by writing an iLogic-Vault rule
- Instructions to use the sample “Design-Reuse” on your computer

Content – Vault-iLogic Job Processing

- Download and install the iLogic Job Extension Sample
- Getting started in using the iLogic Job Extension



Connect iLogic rules with Autodesk Vault



Agenda

Double the Power of iLogic

Writing iLogic-Vault Rules

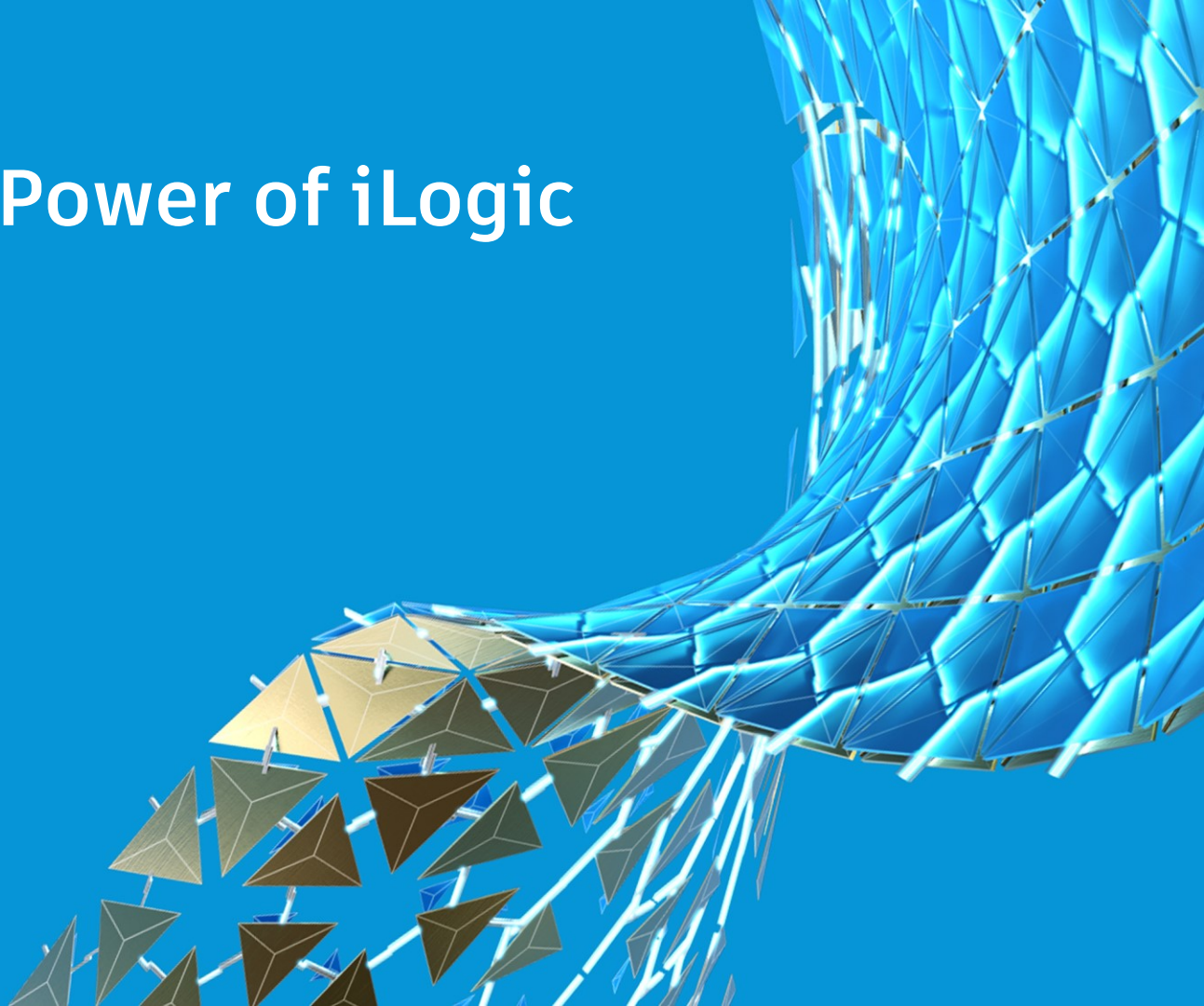
Vault-iLogic - Job Processing

The Better Task Scheduler

Writing iLogic Job Rules

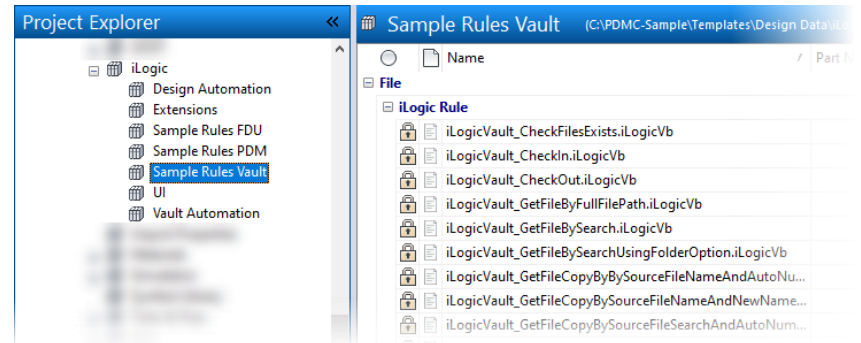
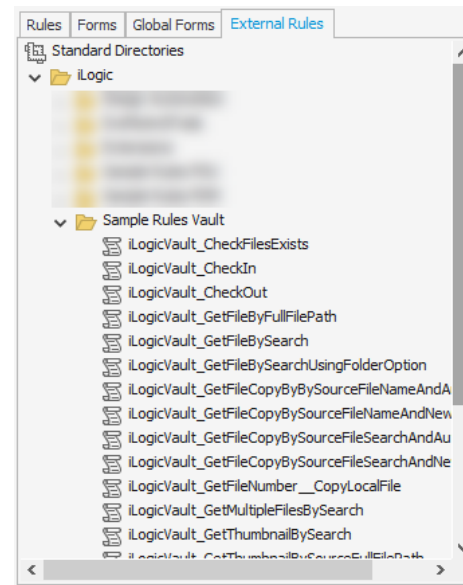
What's Next?

Double the Power of iLogic



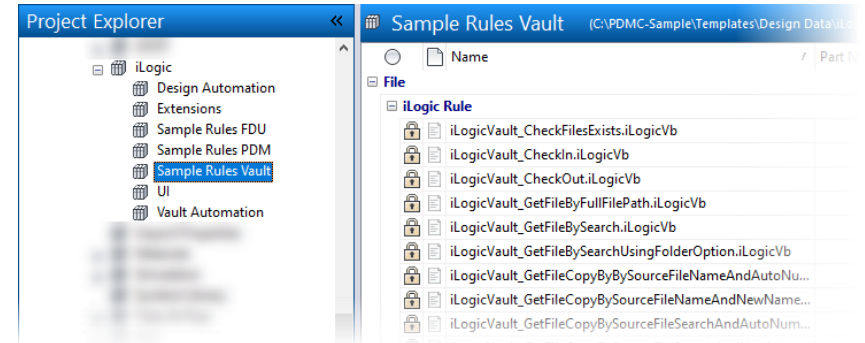
Managing Rules and Settings

- Managing access to and state of external rules
- Control access to iLogic settings
- Control access to external forms



Managing Rules and Settings

- Managing access to and state of external rules
 - Control access to iLogic settings
 - Control access to external forms
-
- ✓ Read/Write access for Rule Editors to rules in state “Work in Progress”
 - ✓ Optional – Download restriction for non-Editors for rules in state “Work in Progress” (2021 and newer)
 - ✓ Read Access for all iLogic rule consumers to rules in state “Released”
 - ✓ History of rule changes and revisions



History

Number of versions:5

Number of revisions:1

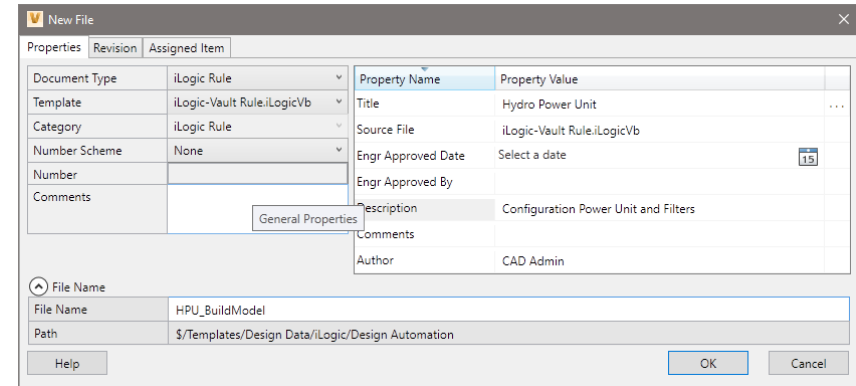
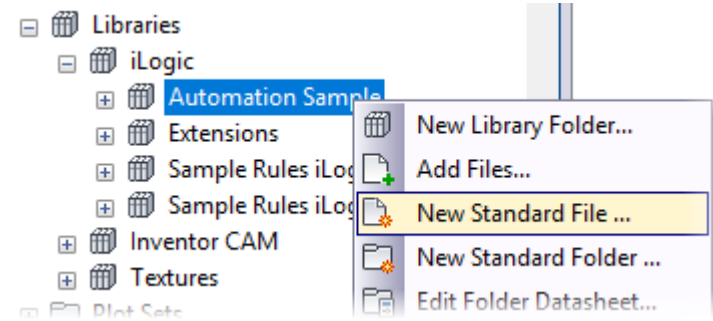
Revision #7)

☐ Show all versions

Thumbnail	File Name	Latest Released Revision	Status	Checked In	Comment
	iLogicUserSnippets.xml	<input checked="" type="checkbox"/>	Released	11/10/2020 03:35	added Vault Inventor Server Snippets
	iLogicUserSnippets.xml	<input type="checkbox"/>	Released	07/10/2020 09:51	Released

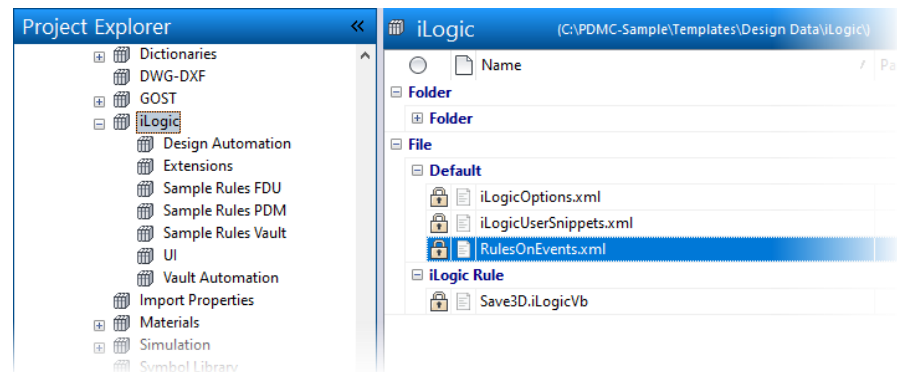
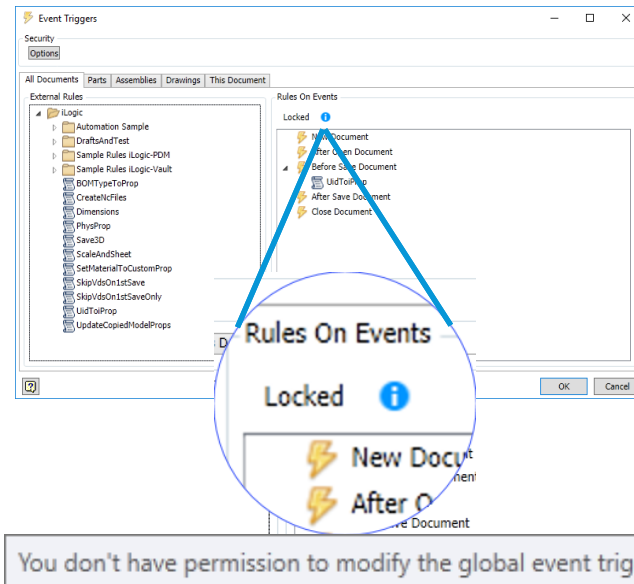
Managing Rules and Settings

- **Managing access to external rules**
 - Option: Create new rules in Vault using Data Standard
- **Control access to iLogic settings**
- **Control access to external forms**



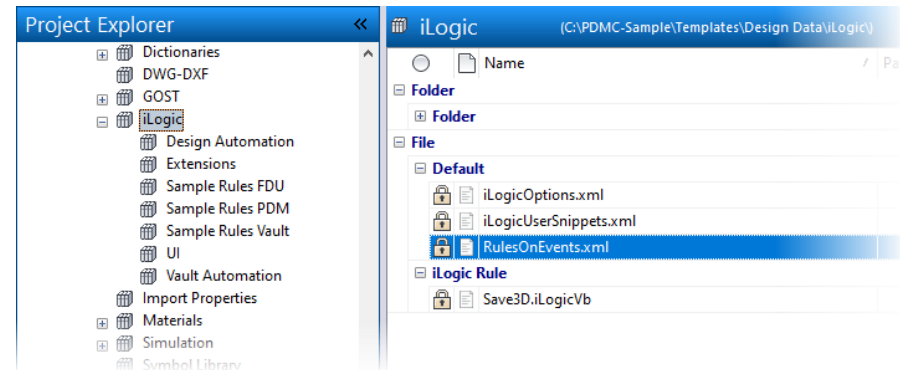
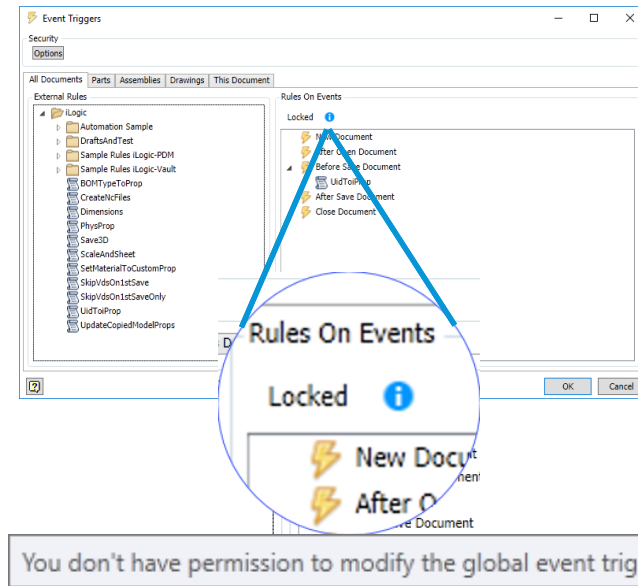
Managing Rules and Settings

- Managing access to external rules
- Control access to iLogic settings
- Control access to external forms



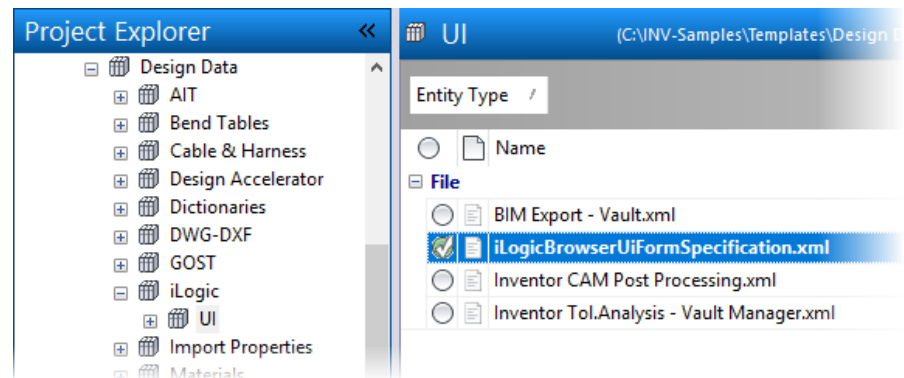
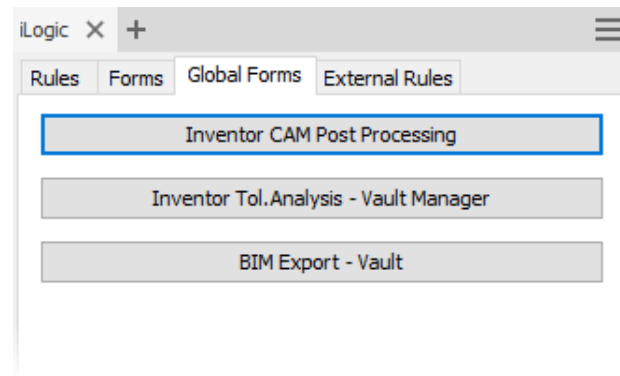
Managing Rules and Settings

- Managing access to external rules
 - Control access to iLogic settings
 - Control access to external forms
-
- ✓ Restrict change of settings for users
 - ✓ Allow editing for CAD Administrators or iLogic Rule Authors



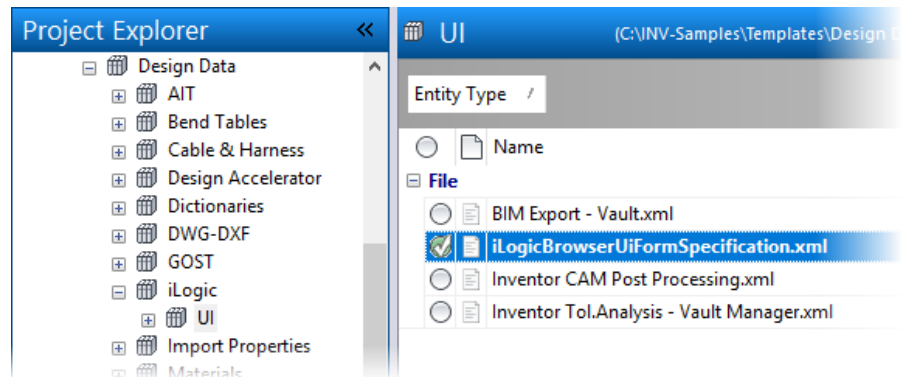
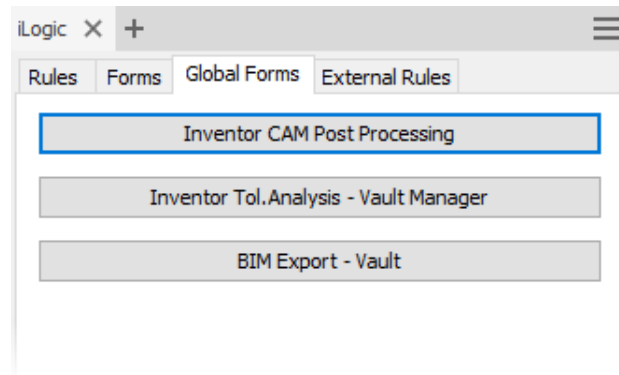
Managing Rules and Settings

- Managing access to external rules
- Control access to iLogic settings
- Control access to external forms



Managing Rules and Settings

- Managing access to external rules
 - Control access to iLogic settings
 - Control access to external forms
-
- ✓ **CAD Administrators and iLogic Editors can**
 - ✓ Add new Forms
 - ✓ Check-out and edit existing Forms
 - **Inventor users cannot**
 - Add Forms
 - Edit Forms



Managing Rules and Settings

Tip – Include iLogic Rule and Settings in Thunderdome Deployments

Autodesk App Store – Vault – Project Thunderdome



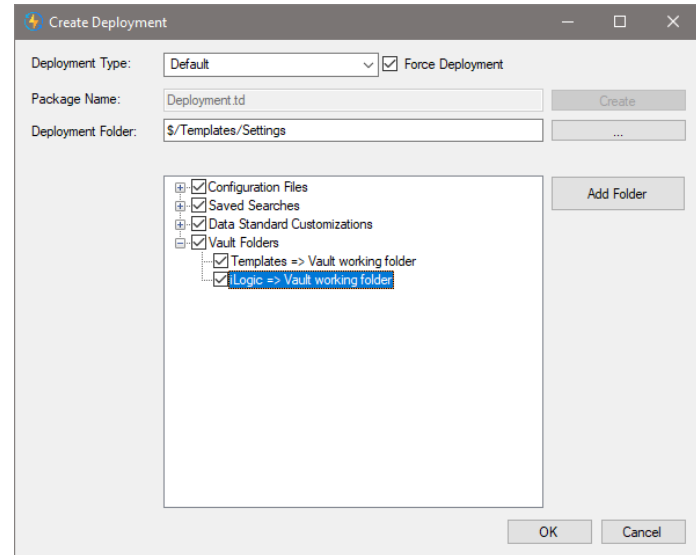
Project Thunderdome for Autodesk® Vault® 2021

★★★★★ (0)

OS: Win64

Project Thunderdome for Vault 2021 is a technology demonstration add-in for managing and deploying client-side Vault settings and content.

Free



AUTODESK® INVENTOR®

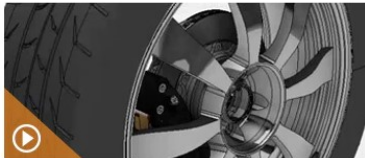
Configure a custom wheel assembly



Before you begin

[Download the step-by-step guide \(PDF\) >](#)[Download the Inventor dataset \(ZIP\) >](#)

Watch the tutorial videos



Getting started

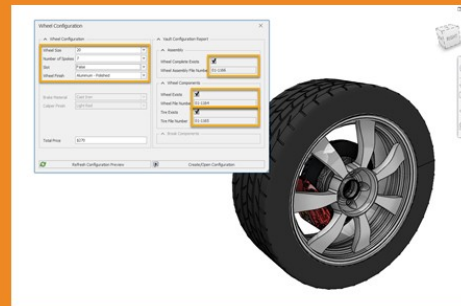
Edit iLogic rules used to configure assembly (4:28)



Completing the project

Create a form to automate the configuration (3:14)

Connect iLogic rules with Autodesk Vault



Static Rules | The Default

- Available wheel sizes are “hard-coded” in the assembly’s parameter list

Parameters						
	Parameter Name	Consumed by	Unit/Type	Equation	Nominal Value	Driving Rule
+	Model Parameters					
-	User Parameters					
▶	WheelSize		in	19 in	19,000000	
	NumberOfSpokes		ul	19 in	8,000000	
	BrakeMaterial		Text	18 20		
	WheelFinish		Text	21 22		
	CaliperFinish		Text	Light Red		
	TotalPrice		Text	\$955		PricingRule

Wheel Configuration

Wheel Size

20

Number of Spokes

18
19
20
21
22

Slot

Wheel Finish

Brake Material

Cast Iron

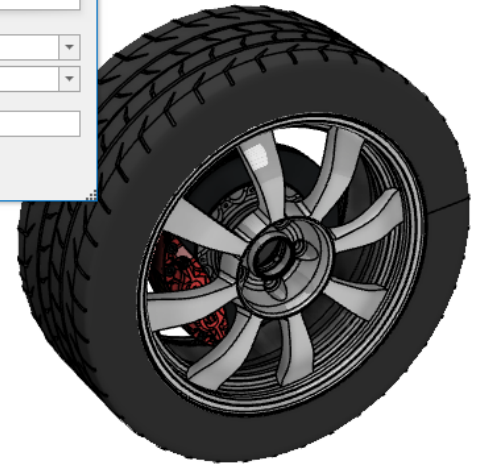
Caliper Finish

Light Red

Total Price

\$255

Done



Dynamic Rules | iLogic-Vault

- Available wheel sizes result from a search in Vault
- Multi-Value list updates based on search result

Designs (Search Results)

Multiple Properties: Classification:

Provider: Stock Number:

Part Number: Part Family:

BOM Type:

Search Add Criteria

Entity Type: Category Name:

Name	Title	Description	State
M-RS-0019-A OZ Racing Alleggerita Wheel 18 inch.ipt	OZ Racing Alleggerita Wheel	Size 8.5 x 18 inch	Work in Progress
M-RS-0019-A OZ Racing Alleggerita Wheel 19 inch.ipt	OZ Racing Alleggerita Wheel	Size 8.5 x 19 inch	Work in Progress
M-RS-0019-A OZ Racing Alleggerita Wheel 20 inch.ipt	OZ Racing Alleggerita Wheel	Size 8.5 x 20 inch	Work in Progress
M-RS-0019-A OZ Racing Alleggerita Wheel 21 inch.ipt	OZ Racing Alleggerita Wheel	Size 8.5 x 21 inch	Work in Progress
M-RS-0019-A OZ Racing Alleggerita Wheel 22 inch.ipt	OZ Racing Alleggerita Wheel	Size 8.5 x 22 inch	Work in Progress

Wheel Configuration

Wheel Type/Size:

Number of Spokes:

Slot:

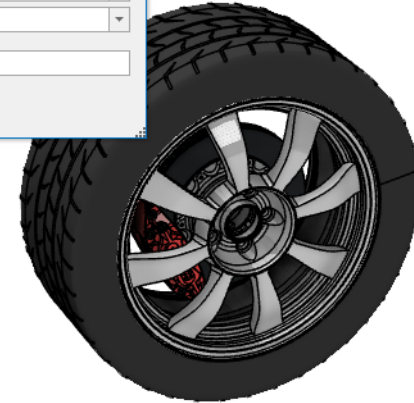
Wheel Finish:

Brake Material:

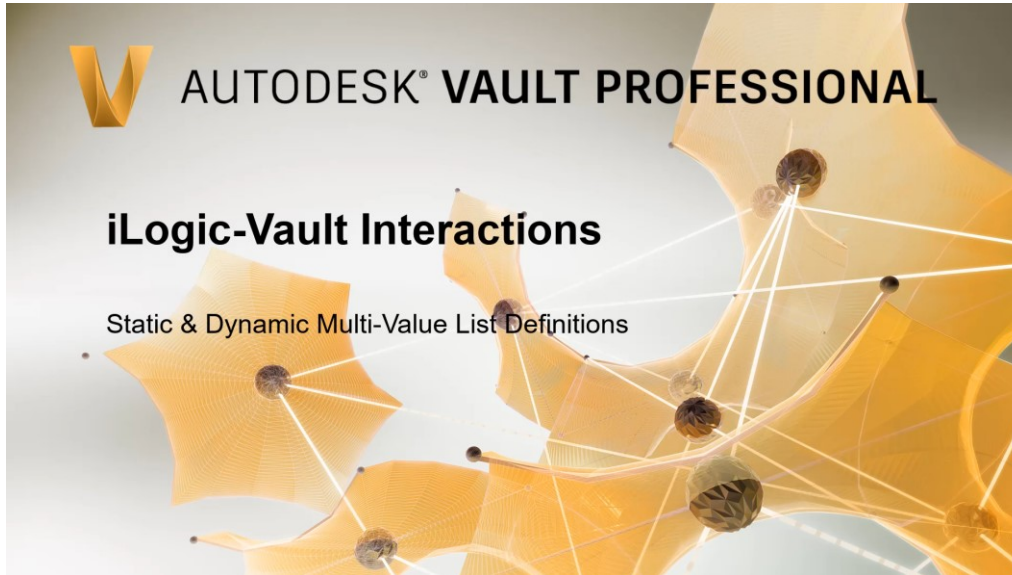
Caliper Finish:

Total Price:

Done



Workflow Demonstration



Video – YouTube Link: https://youtu.be/lgue_NxekFw

Dynamic Rules | Concept

- **iLogic-Vault search**

- Criteria = Property Name | Value map
- Returns file name(s)

```
mSearchParams.Add("Part Family", "FAM-00009")  
mSearchParams.Add("State", "Engineering Released")
```

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

Design Re-Use – Unlimited

- Managing “unknown” variants
 - High numbers of variations
 - iLogic Manage Assembly and dynamic component selection

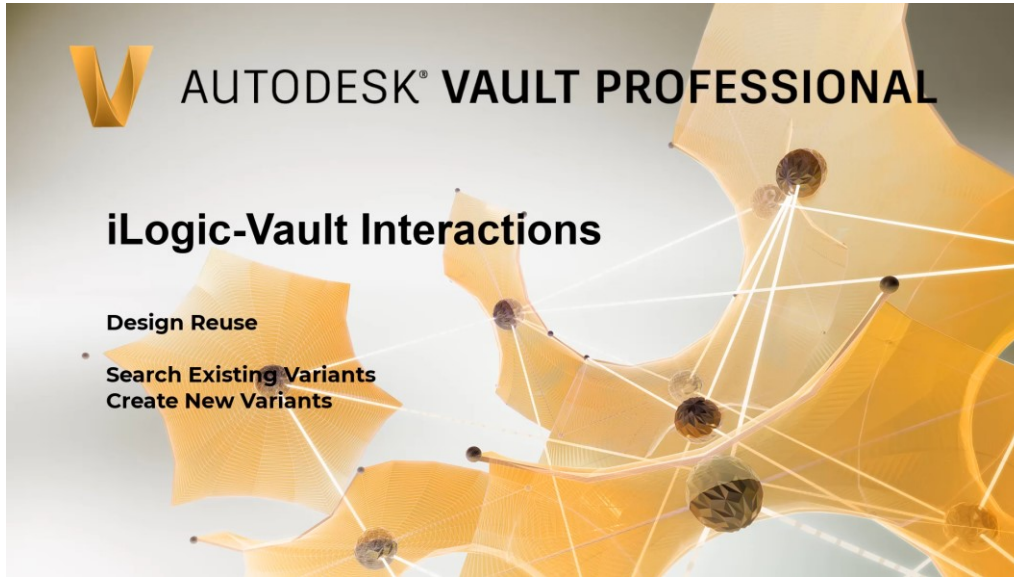
The screenshot shows a 'Wheel Configuration' dialog box with the following sections:

- Wheel Configuration:**
 - Wheel Size: 20
 - Number of Spokes: 7
 - Slot: True
 - Wheel Finish: Aluminum - Polished
 - Brake Material: Cast Iron
 - Caliper Finish: Light Red
 - Total Price: \$345
- Vault Configuration Report:**
 - Assembly:**
 - Wheel Complete Exists: ☐
 - Wheel Assembly File Number:
 - Wheel Components:**
 - Wheel Exists: ☐
 - Wheel File Number:
 - Tire Exists: ☒
 - Tire File Number: 01-1165
 - Break Components:**

At the bottom, there are two buttons: 'Refresh Configuration Preview' and 'Create/Open Configuration'.

	Size	Spokes	Slot	Finish	Material	Variants
Wheel	5	8	2	3	--	240
Brake	--	--	--	--	2	2
Caliper	--	--	--	8	--	8
Variants Total						3840

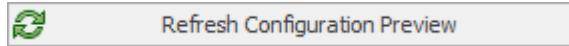
Workflow Demonstration



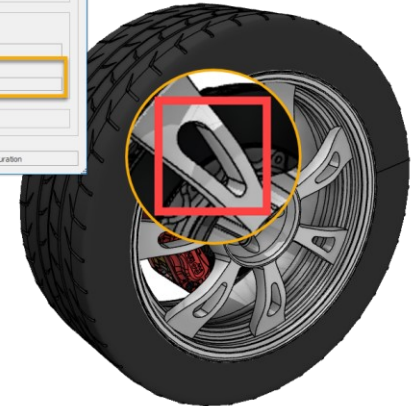
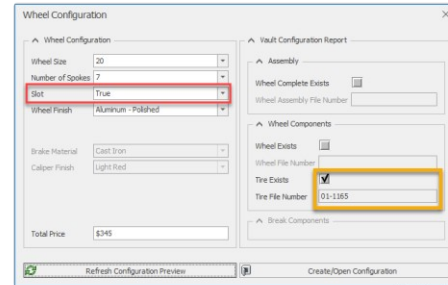
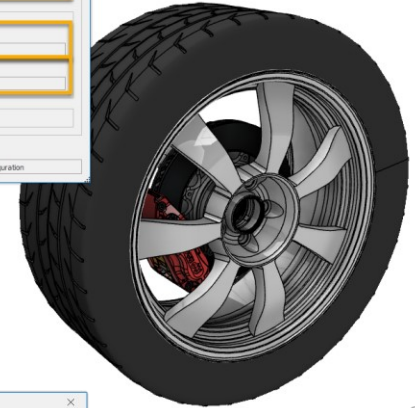
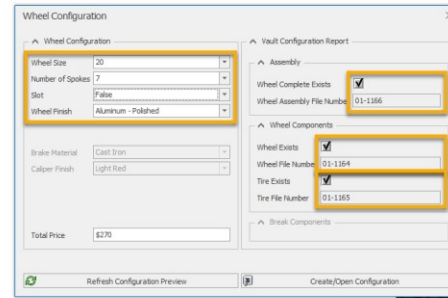
Video – YouTube Link: <https://youtu.be/EPIDgaK9HPI>

Design Re-Use | Concept “Preview”

- Update parameter changes on demand



- “Refresh Configuration Preview”
 - updates parameters
 - creates a unique key concatenating all Key-Parameters
 - Updates iProperty “Key Parameters”
 - Searches Vault for existing models matching
 - Key Parameters including Part Family
 - Returns file numbers for existing components



Design Re-Use | Concept “Create”

- Based on “Configuration Preview” results
 - Open assembly if configuration exists in Vault

```
If WheelAsmExists = True Then
```

```
mVaultFile = ILogicVault.GetFilesBySearchCriteria(mSearchParams, True, False, mSearchFolders)  
ThisApplication.Documents.Open(mVaultFile, True)
```

```
End If 'WheeAsmExists = True
```


Design Re-Use | Concept “Create”

- Based on “Configuration Preview” results

- Create new assembly as Vault copy

- Create new components as Vault copy
 - Add components
 - Update all component's parameters
 - Update all component's unique keys
 - Check-in

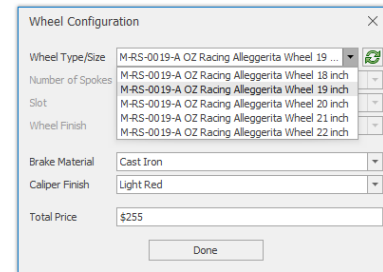
If WheelAsmExists = False Then

```
mTemplate = iLogicVault.GetFileCopyBySourceFileNameAndAutoNumber("$/Designs/Inve  
mNewAsmDoc = ThisApplication.Documents.Open(mTemplate, True)  
iLogicAuto.RunRuleWithArguments(mNewAsmDoc, "BuildModel", mMap)  
iLogicAuto.RunRule(mNewAsmDoc, "RunUpdateKeyParameters")  
iLogicAuto.RunRule(mNewAsmDoc, "CheckIn")
```

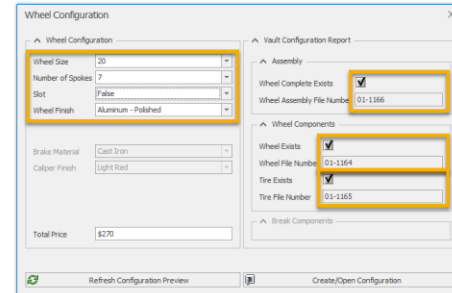
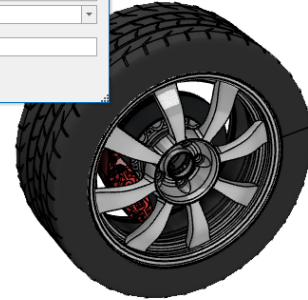
End If 'WheelAsmExists = false

iLogic-Vault | Benefits

- **Dynamic component selection based on availability**
- **Search results replace “hard-coded”**
 - File names
 - Paths
- **Flexible configuration templates optimized for**
 - Bottom-up configuration
 - Growing component families
- **Smart duplicate reduction by**
 - Saving unique variants only
 - Predicting configuration results



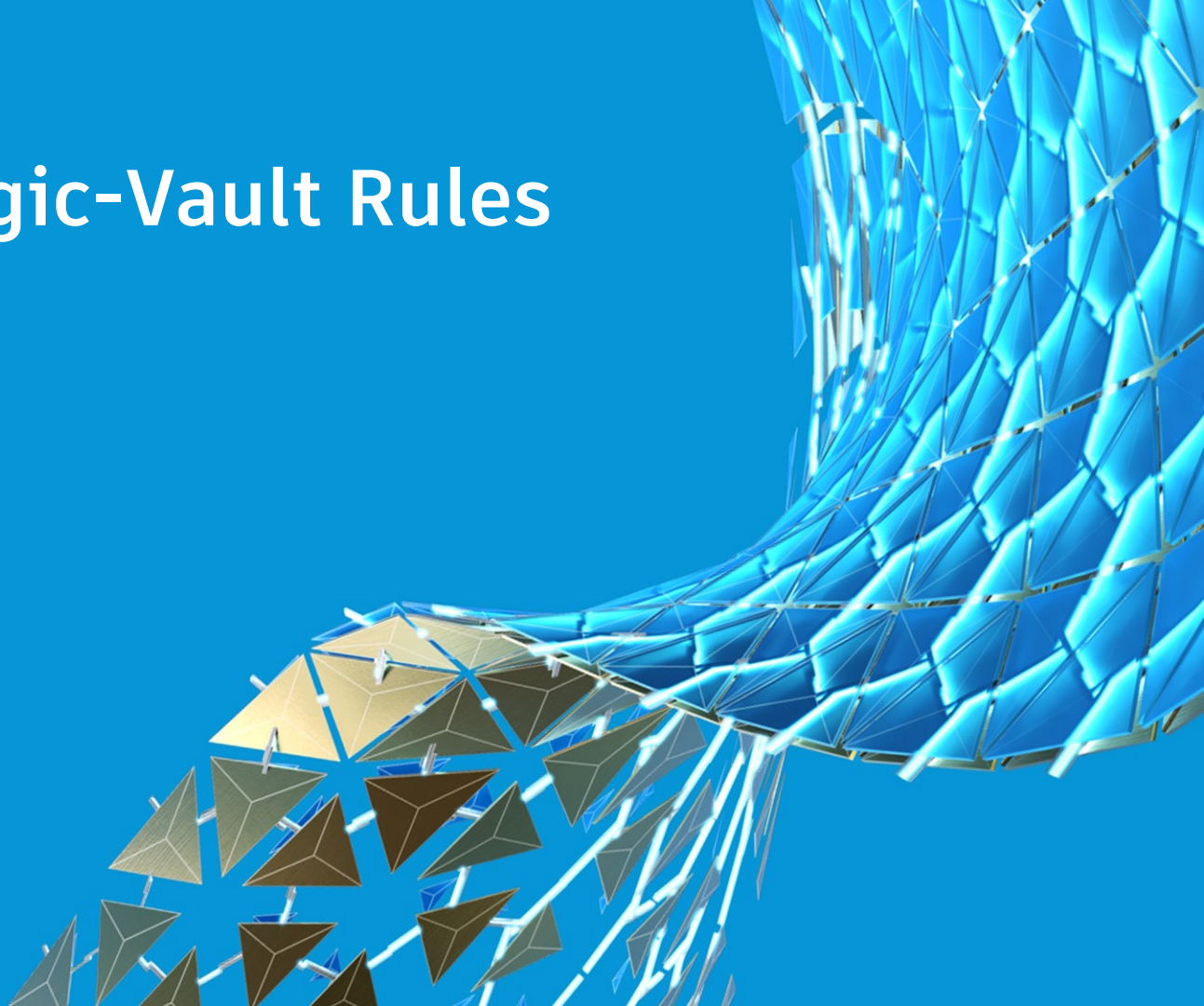
Wheel Type/Size	Number of Spokes	Slot	Wheel Finish	Brake Material	Caliper Finish	Total Price
M-RS-0019-A OZ Racing Alleggerita Wheel 19				Cast Iron	Light Red	\$255
M-RS-0019-A OZ Racing Alleggerita Wheel 18 inch						
M-RS-0019-A OZ Racing Alleggerita Wheel 19 inch						
M-RS-0019-A OZ Racing Alleggerita Wheel 20 inch						
M-RS-0019-A OZ Racing Alleggerita Wheel 21 inch						
M-RS-0019-A OZ Racing Alleggerita Wheel 22 inch						



Configuration Item	File Number	Status
Wheel Complete Exists	01-1156	✓
Wheel Assembly File Number	01-1156	
Wheel Exists	01-1154	✓
Wheel File Number	01-1154	
Tire Exists	01-1155	✓
Tire File Number	01-1155	

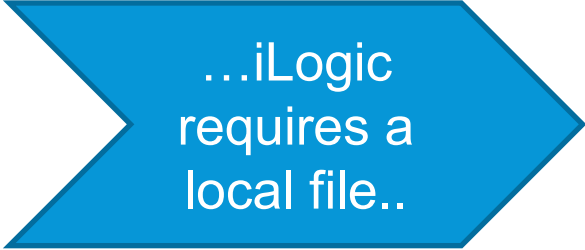


Writing iLogic-Vault Rules

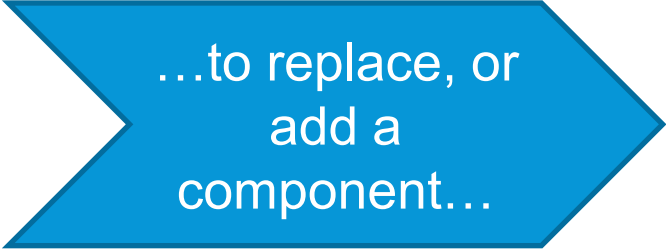


iLogic-Vault Interaction | How does this work?

- “Download a file from Vault”



...iLogic
requires a
local file..



...to replace, or
add a
component...

iLogic-Vault Interaction | How does this work?

- “Download a file from Vault”



```
Imports Autodesk.Connectivity.WebServices
Imports Autodesk.DataManagement.Client.Framework.Vault.dll
Imports VDF = Autodesk.DataManagement.Client.Framework
Imports VDFC = Autodesk.DataManagement.Client.Framework.Currency
AddReference "Connectivity.Application.VaultBase.dll"
Imports VB = Connectivity.Application.VaultBase

Dim wsFiles() As AWS.File = mVltCon.WebServiceManager.DocumentService.FindLatestFilesByPaths(VaultPaths)
Dim mFileIt As VDF.Vault.Currency.Entities.FileIteration = New VDF.Vault.Currency.Entities.FileIteration(conn, (wsFiles(0)))

'define download options, including DefaultAcquisitionOptions
Dim settings As VDF.Vault.Settings.AcquireFilesSettings = CreateAcquireSettings(False, mVltCon)
settings.AddFileToAcquire(mFileIt, settings.DefaultAcquisitionOption)

'download
Dim results As VDF.Vault.Results.AcquireFilesResults = mVltCon.FileManager.AcquireFiles(settings)
Dim mFilesDownloaded As VDF.Vault.Results.FileAcquisitionResult = results.FileResults.Last
Dim LocalFile As String = mFilesDownloaded.LocalPath.FullPath.ToString
Logger.Info("The File returned is: " & LocalFile)

End Sub

Private Function CreateAcquireSettings(ByVal CheckOut As Boolean, ByVal conn As VDF.Vault.Currency.Connections.Connection) As VDF.Vault.Settings.AcquireFilesSettings
    Dim settings As VDF.Vault.Settings.AcquireFilesSettings = New VDF.Vault.Settings.AcquireFilesSettings(conn)
    If CheckOut Then
        settings.DefaultAcquisitionOption = VDF.Vault.Settings.AcquireFilesSettings.AcquisitionOption.Checkout
    Else
        settings.DefaultAcquisitionOption = VDF.Vault.Settings.AcquireFilesSettings.AcquisitionOption.Download
        settings.OptionsRelationshipGathering.FileRelationshipSettings.IncludeChildren = True
        settings.OptionsRelationshipGathering.FileRelationshipSettings.RecurseChildren = True
        settings.OptionsRelationshipGathering.FileRelationshipSettings.IncludeAttachments = True
        settings.OptionsRelationshipGathering.FileRelationshipSettings.IncludeLibraryContents = True
        settings.OptionsRelationshipGathering.FileRelationshipSettings.ReleaseBiased = True
        settings.OptionsRelationshipGathering.FileRelationshipSettings.VersionGatheringOption = VDF.Vault.Currency.VersionGatheringOption.Revision
    End If
    Return settings
End Function
```

The “hard” way

Use the Vault API and write native VB.NET code



```
Public Sub Main()  
    Dim iLogicVault As New QuickstartLogicLibrary.QuickstartLogicLib  
    If iLogicVault.LoggedIn = False  
        Logger.Error("Not Logged In to Vault! - Login first and repeat executing this rule.")  
        Exit Sub  
    End If  
  
    Dim VaultPath As String = ThisDoc.PathAndFileName(True)  
    VaultPath = VaultPath.Replace("C:\PDMC-Sample\", "$/")  
    'flip the slashes, Vault paths use "/"  
    VaultPath = VaultPath.Replace "\", "/"  
  
    Dim mVaultFile As String = iLogicVault.GetFileByFullPath(VaultPath) 'add ..., True to enable check-out of downloaded file.  
  
    Logger.Info("Downloaded file from Vault to local workspace: " & mVaultFile)
```

```
AddReference "QuickstartLogicLibrary.dll"  
  
'enable iLogicVault commands and validate user's login state  
Dim iLogicVault As New QuickstartLogicLibrary.QuickstartLogicLib  
If iLogicVault.LoggedIn = False  
    Logger.Error("Not Logged In to Vault! - Login first and repeat executing this rule.")  
    Exit Sub  
End If  
  
Dim VaultPath As String = ThisDoc.PathAndFileName(True)  
VaultPath = VaultPath.Replace("C:\PDMC-Sample\", "$/")  
'flip the slashes, Vault paths use "/"  
VaultPath = VaultPath.Replace "\", "/"  
  
Dim mVaultFile As String = iLogicVault.GetFileByFullPath(VaultPath) 'add ..., True to enable check-out of downloaded file.  
  
Logger.Info("Downloaded file from Vault to local workspace: " & mVaultFile)
```

The “hard” way

Use the Vault API and write native VB.NET code



The “smart” way

Use the iLogic-Vault Extension
“QuickstartLogicLibrary”



iLogic-Vault Interaction | The “smart” way

- Using the iLogic-Vault Extension “QuickstartiLogicLibrary”



Add
Reference

...iLogic
requires a
local file..

...continue
using
common
syntax...

iLogic-Vault Interaction | The “smart” way

- Using the iLogic-Vault Extension “QuickstartiLogicLibrary”



Add
Reference

...iLogic
requires a
local file..

Validate
Vault Login

...continue
using
common
syntax...

iLogic-Vault Interaction | The “smart” way

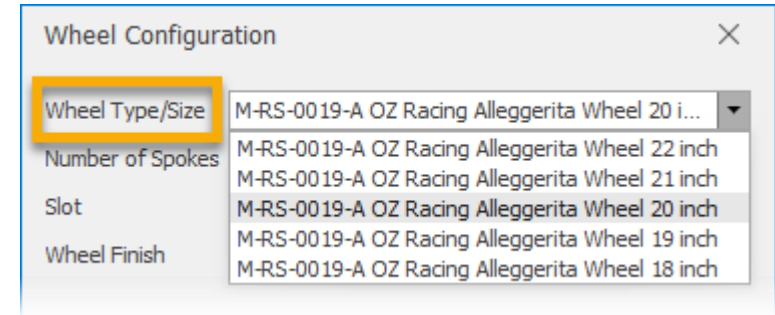
- Using the iLogic-Vault Extension “QuickstartiLogicLibrary”



Get Vault File by FullFileName	Get New Vault File Number and copy file to it
Get Vault File by Search	Copy Local File
Check Vault File(s) Exist by Search	Get Multiple Vault Files (Searched)
Check In Active Document	Get Thumbnail from Vault by Search
Check Out Active Document	Get Thumbnail from Vault by Full File Path
Undo Check Out Active Document	Get Thumbnail from Vault by Search as Image file
Copy Vault File Using Vault Number	Get Thumbnail from Vault by Full File Path as Image file
Copy Vault File Using Individual Name	
Copy Vault File (Searched) Using Vault Numbering	
Copy Vault File (Searched) Using Individual New File Name	

New Rule | Objectives

- **What is the result of the rule?**
 - Fill the Multi-Value-List with a list of file names
- **Which data from Vault are required to achieve the result?**
 - Search for files matching these criteria
 - Part Family = “FAM-00006”
 - State = “Engineering Released”



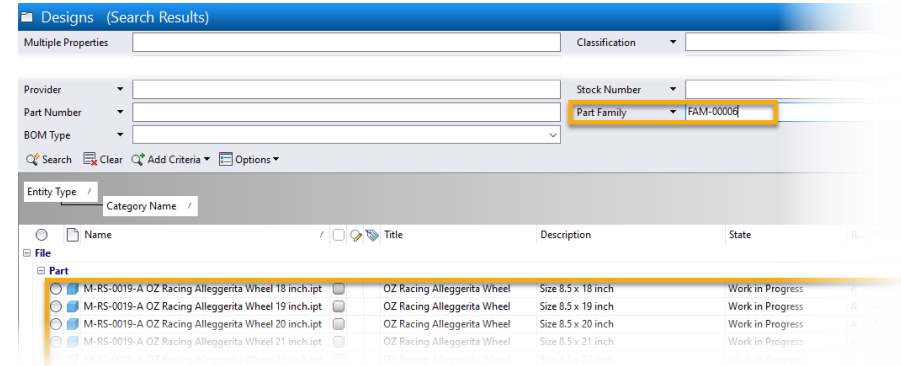
Wheel Configuration

Wheel Type/Size: M-RS-0019-A OZ Racing Alleggerita Wheel 20 i...

Number of Spokes: M-RS-0019-A OZ Racing Alleggerita Wheel 22 inch

Slot: M-RS-0019-A OZ Racing Alleggerita Wheel 21 inch

Wheel Finish: M-RS-0019-A OZ Racing Alleggerita Wheel 20 inch



Designs (Search Results)

Multiple Properties: [Search Box] Classification: [Dropdown]

Provider: [Dropdown] Stock Number: [Dropdown]

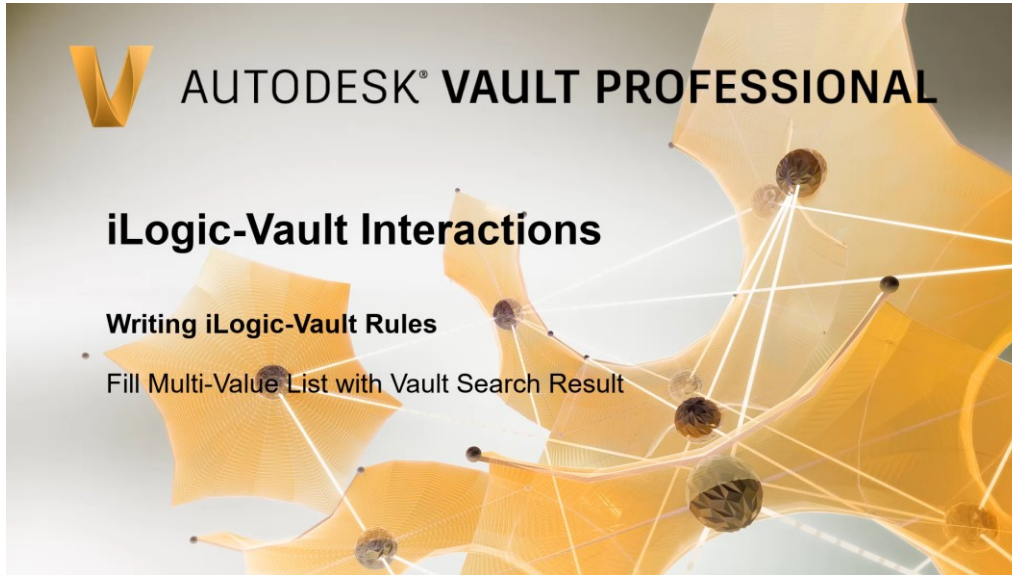
Part Number: [Dropdown] Part Family: FAM-00006

BOM Type: [Dropdown]

Search [Clear] Add Criteria [Options]

Entity Type	Category Name	Name	Title	Description	State
Part		M-RS-0019-A OZ Racing Alleggerita Wheel 18 inch.ipt	OZ Racing Alleggerita Wheel	Size 8.5 x 18 inch	Work in Progress
Part		M-RS-0019-A OZ Racing Alleggerita Wheel 19 inch.ipt	OZ Racing Alleggerita Wheel	Size 8.5 x 19 inch	Work in Progress
Part		M-RS-0019-A OZ Racing Alleggerita Wheel 20 inch.ipt	OZ Racing Alleggerita Wheel	Size 8.5 x 20 inch	Work in Progress
Part		M-RS-0019-A OZ Racing Alleggerita Wheel 21 inch.ipt	OZ Racing Alleggerita Wheel	Size 8.5 x 21 inch	Work in Progress

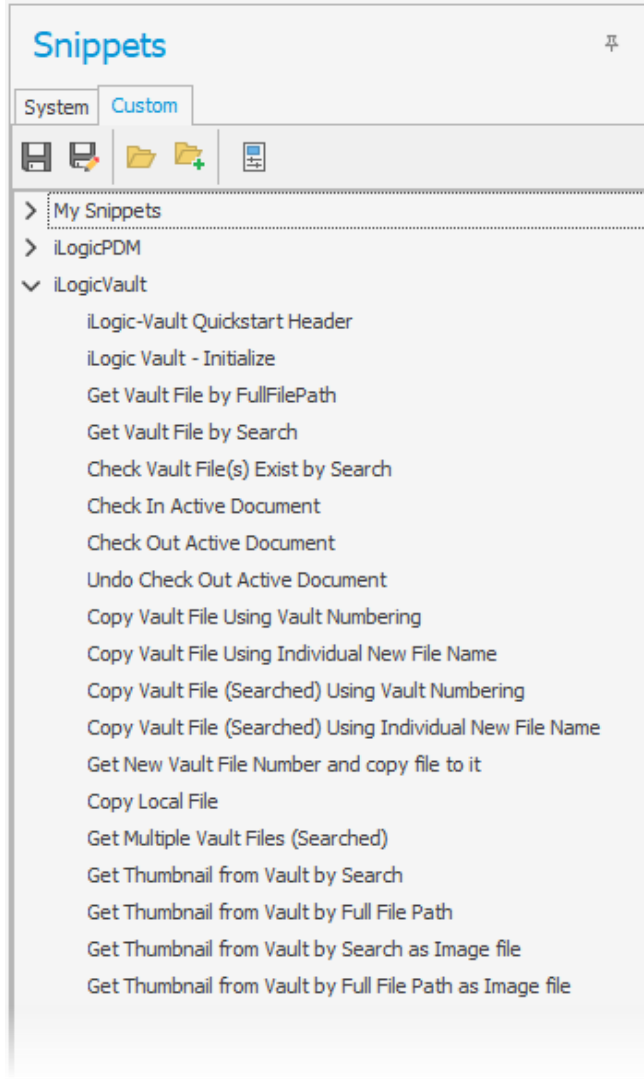
Writing iLogic-Vault Rules | Demonstration



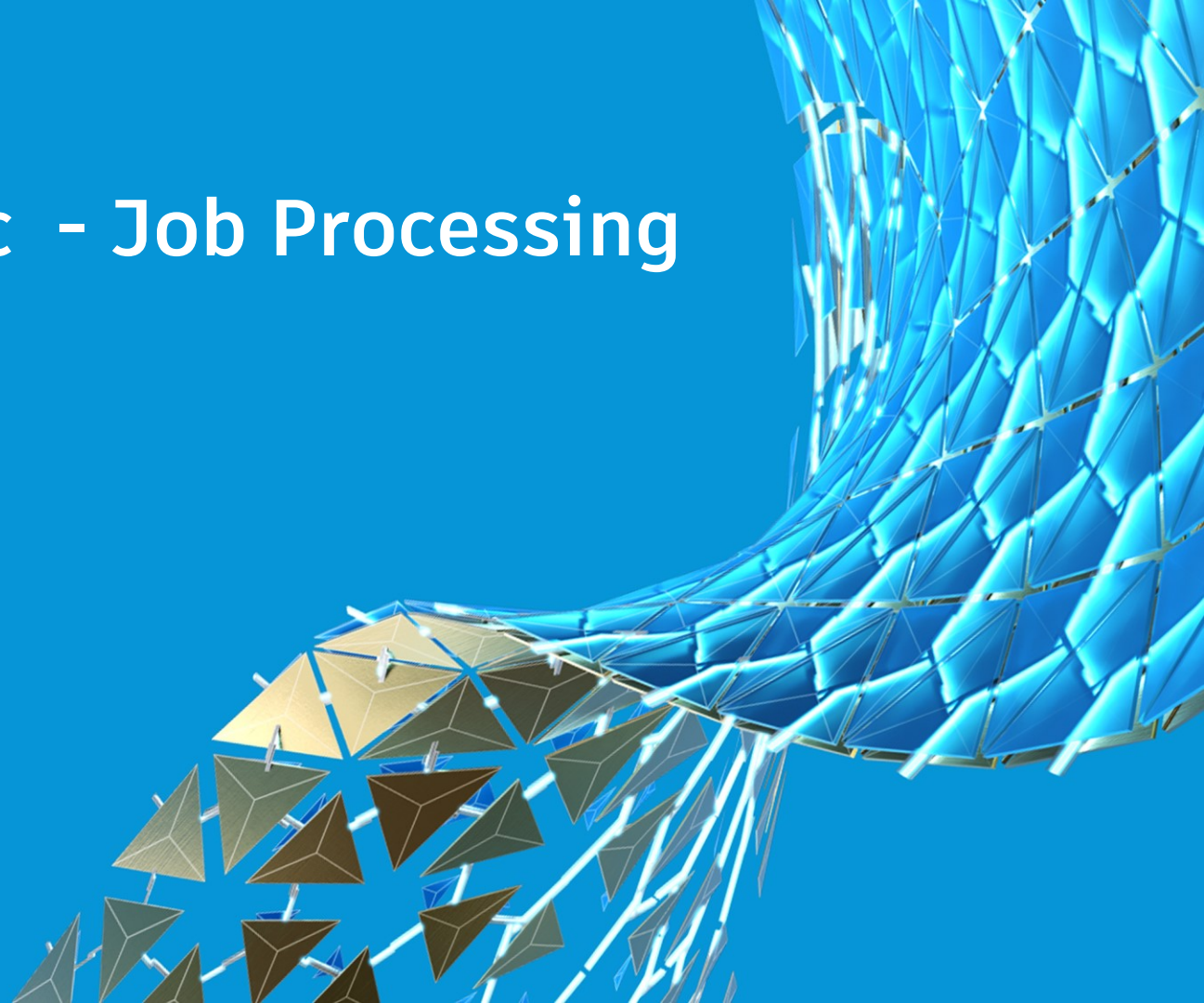
Video – YouTube Link: <https://youtu.be/Ab8KcxNlxe0>

iLogic-Vault Rules | Summary

- **iLogic-Vault Quickstart Library – Availability**
 - iLogic extension (DLL)
 - iLogic extension source code (C#)
 - [Download](#)
- **Class Hand-out documented**
 - Download Inventor Data Set “Wheel Assembly”
 - Installation of iLogic extension DLL
 - Merge of iLogic-Vault snippets
- **Call to Action – In case you liked what you have seen...**
 - Inventor idea station – [Vote to get it into the product](#).
 - Request additional functions, e.g., getting properties for the active document – [Submit](#) an issue on my GitHub or [drop](#) me an email

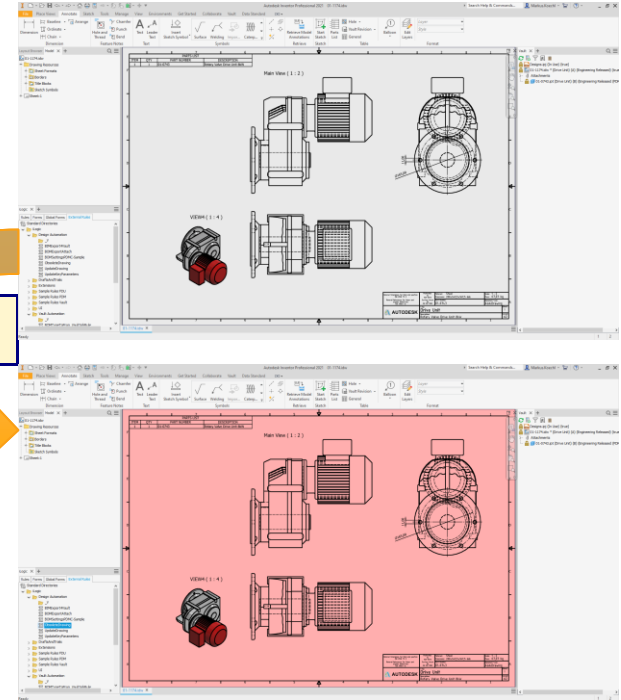
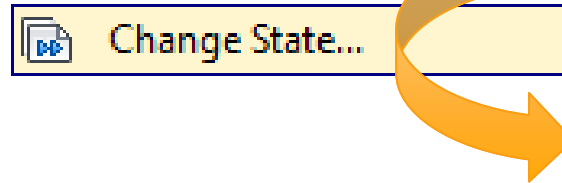


Vault-iLogic - Job Processing




What if...?

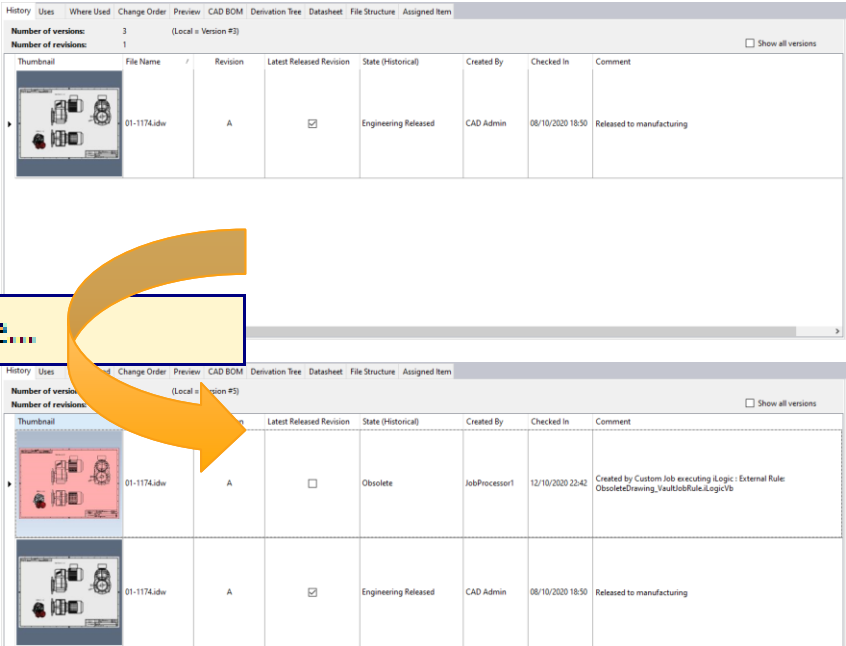
- You liked to re-color drawings as they move to the lifecycle state “Obsolete”


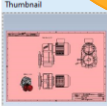



What if...?

- You liked to re-color drawings as they move to the lifecycle state “Obsolete”

 **Change State...**

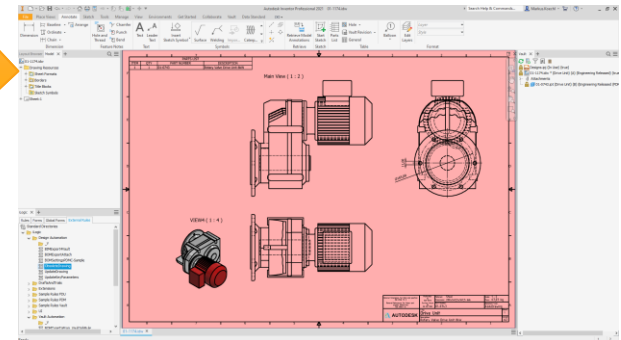
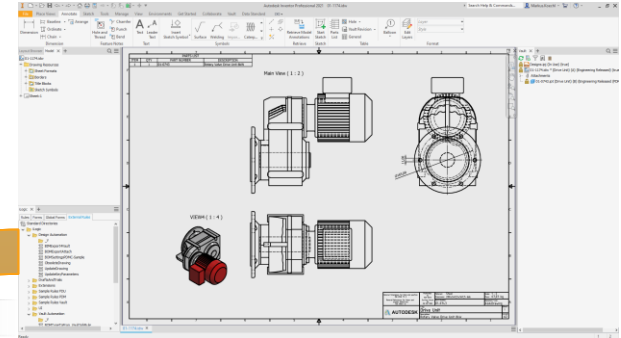


Thumbnail	File Name	Revision	Latest Released Revision	State (Historical)	Created By	Checked In	Comment
	01-1174.dwg	A	<input checked="" type="checkbox"/>	Engineering Released	CAD Admin	08/10/2020 18:50	Released to manufacturing
	01-1174.dwg	A	<input type="checkbox"/>	Obsolete	JobProcessor1	12/10/2020 22:42	Created by Custom Job executing Logic: External Rule: ObsoleteDrawing_VaultJobRule.LogicVb
	01-1174.dwg	A	<input checked="" type="checkbox"/>	Engineering Released	CAD Admin	08/10/2020 18:50	Released to manufacturing

What if...?

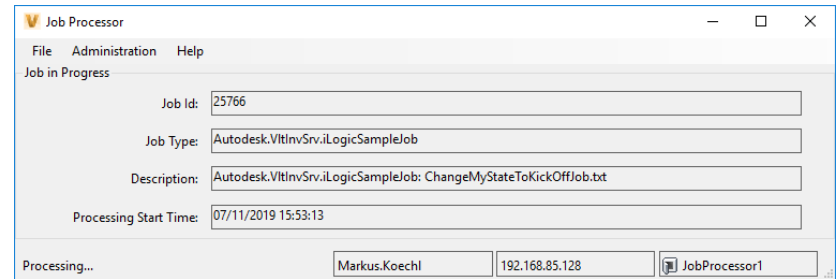
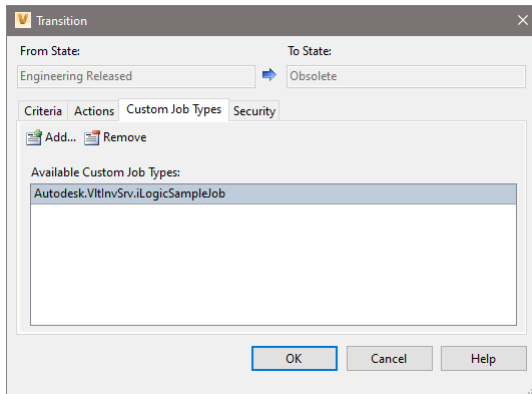
- You liked to re-color drawings as they move to the lifecycle state “Obsolete”
 - You knew how to do this using Inventor iLogic

```
'access the active document
Dim mDoc As Document = ThisDoc.Document
If mDoc.DocumentType = Inventor.DocumentTypeEnum.kDrawingDocumentObject Then
    Dim mDrwDoc As DrawingDocument = mDoc
    'set the sheet's color
    Dim mColor As Inventor.Color = ThisServer.TransientObjects.CreateColor(255, 174, 174) 'red for obsolete
    mDrwDoc.SheetSettings.SheetColor = (mColor)
Else
    Logger.Warn("The rule exited because the expected document type Drawing did not match.")
Exit Sub
End If
```



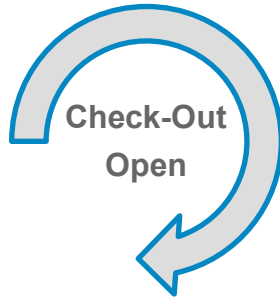
The Solution

- **Vault 2020.2 and higher support iLogic rule execution for Vault Inventor Server**
 - No Inventor Application license required
- **Add a Custom Job to the “Obsolete” transition that runs iLogic Rule on Vault Job Execution**



Job Processing & iLogic

- Custom Job Sample
“Autodesk.VltInvSrv.iLogicSampleJob”



History | Usr | Where Used | Change Order | Preview | CAD BOM | Derivation Tree | Datasheet | File Structure | Assigned Item

Number of versions: 3 (Local > Version #2)
Number of revisions: 1

☐ Show all versions

Thumbnail	File Name	Revision	Latest Released Revision	State (Historical)	Created By	Checked In	Comment
	01-1174.Lbr	A		Engineering Released	CAD Admin	08/10/2020 18:50	Released to manufacturing

Job Processor

File Administration Help

Job in Progress

Job Id: 25766

Job Type: Autodesk.VltInvSrv.iLogicSampleJob

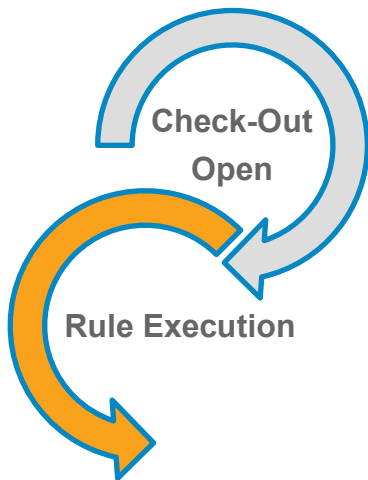
Description: Autodesk.VltInvSrv.iLogicSampleJob: ChangeMyStateToKickOffJob.txt



Processing Start Time: 07/11/2019 15:53:13

Processing... Markus.Koechl 192.168.85.128 JobProcessor1

Job Processing & iLogic

- Custom Job Sample
“Autodesk.VltInvSrv.iLogicSampleJob”



Thumbnail	File Name	Revision	Latest Released Revision	State (Historical)	Created By	Checked In	Comment
	01-1174.Lbr	A		Engineering Released	CAD Admin	08/10/2020 18:50	Released to manufacturing

Job Processor

File Administration Help

Job in Progress

Job Id: 25766

Job Type: Autodesk.VltInvSrv.iLogicSampleJob

Description: Autodesk.VltInvSrv.iLogicSampleJob: ChangeMyStateToKickOffJob.txt

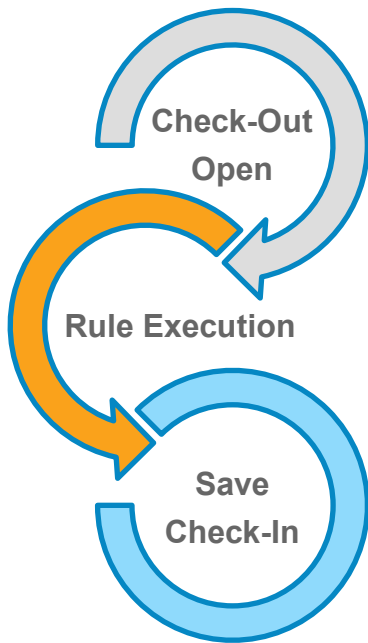
Processing Start Time: 07/11/2019 15:53:13

Processing... Markus.Koechl 192.168.85.128 JobProcessor1

```
return unhandled exceptions to Vault Job Processor
Dim ex As Exception
Try
    'access the active document
    Dim mDoc As Document = ThisDoc.Document
    If mDoc.DocumentType = Inventor.DocumentTypeEnum.kDrawingDocumentObject Then
        Dim mDrwDoc As DrawingDocument = mDoc
        'set the sheet's color
        Dim mColor As Inventor.Color = ThisServer.TransientObjects.CreateColor(255, 174, 174) 'red for obsolete
        mDrwDoc.SheetSettings.SheetColor = (mColor)
    Else
        Logger.Warn("The rule exited because the expected document type Drawing did not match.")
    End If
Catch
    Logger.Error("Unhandled exception in rule ObsoleteDrawgin_VaultJobRule.")
    Throw ex
End Try
```

Job Processing & iLogic

- Custom Job Sample
“Autodesk.VltInvSrv.iLogicSampleJob”



Thumbnail	File Name	Revision	Latest Released Revision	State (Historical)	Created By	Checked In	Comment
	01-1174.Lbr	A		Engineering Released	CAD Admin	06/10/2020 18:30	Released to manufacturing

Job Processor

File Administration Help

Job in Progress

Job Id: 25766

Job Type: Autodesk.VltInvSrv.iLogicSampleJob

Description: Autodesk.VltInvSrv.iLogicSampleJob: ChangeMyStateToKickOffJob.txt

Processing Start Time: 07/11/2019 15:53:13

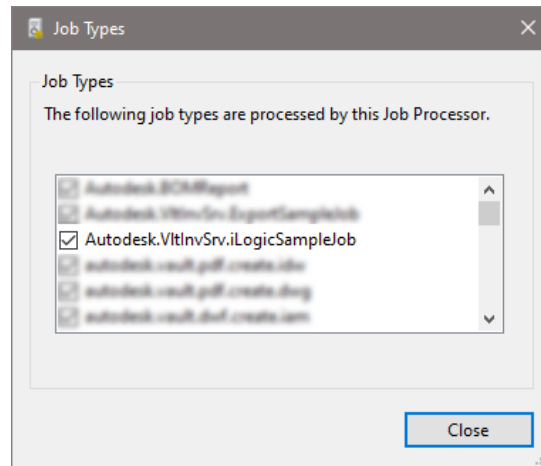
Processing... Markus.Koechl 192.168.85.128 JobProcessor1

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        'set the sheet's color
        Dim mColor As Inventor.Color = ThisServer.TransientObjects.CreateColor(255, 174, 174) 'red for obsolete
        mDrwDoc.SheetSettings.SheetColor = (mColor)
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        Logger.Warn("The rule exited because the expected document type Drawing did not match.")
    End If
Catch
    Logger.Error("Unhandled exception in rule ObsoleteDrawing_VaultJobRule.")
    Throw ex
End Try
```

Thumbnail	File Name	Revision	Latest Released Revision	State (Historical)	Created By	Checked In	Comment
	01-1174.Lbr	A		Obsolete	JobProcessor1	12/10/2020 22:42	Created by Custom Job executing Logic: External Rule ObsoleteDrawing_VaultJobRule.iLogicVb
	01-1174.Lbr	A		Engineering Released	CAD Admin	06/10/2020 18:30	Released to manufacturing

“Autodesk.VltInvSrv.iLogicSampleJob”

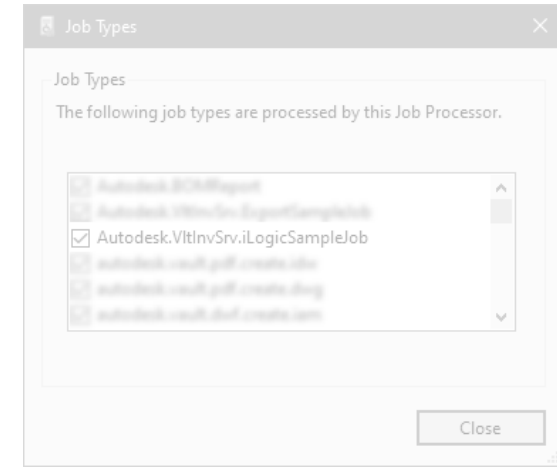
- Job Processor – Custom Job Extension



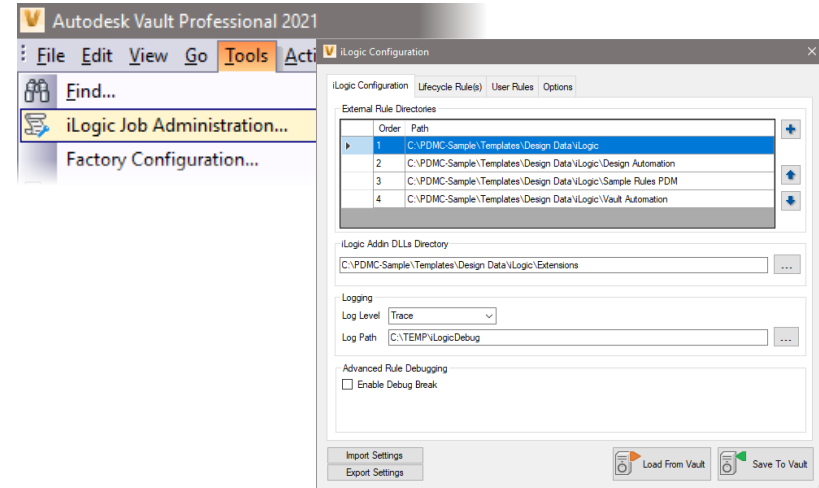
- Vault Explorer Extension – Configuration Dialog

“Autodesk.VltInvSrv.iLogicSampleJob”

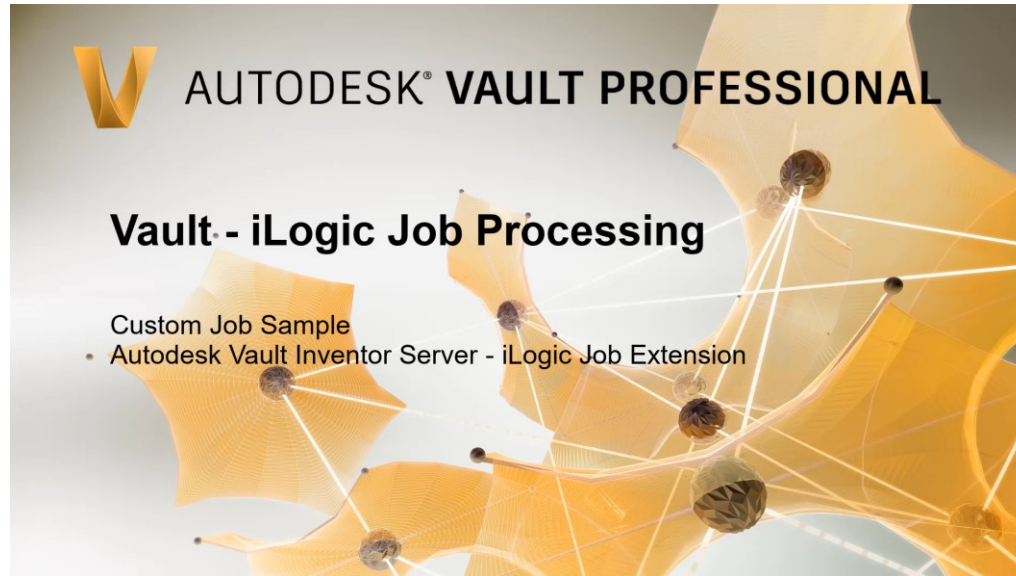
- Job Processor – Custom Job Extension



- Vault Explorer Extension – Configuration Dialog



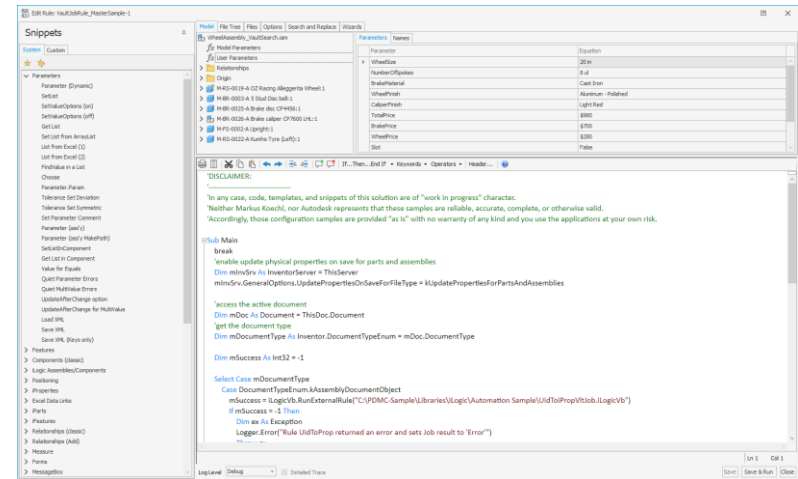
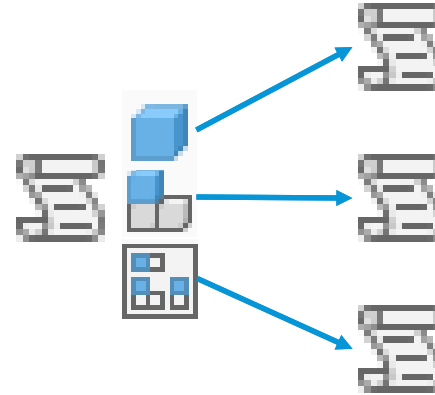
Vault – iLogic Job Processing | Demonstration



Video – YouTube Link: <https://youtu.be/5lF5dJhiivw>

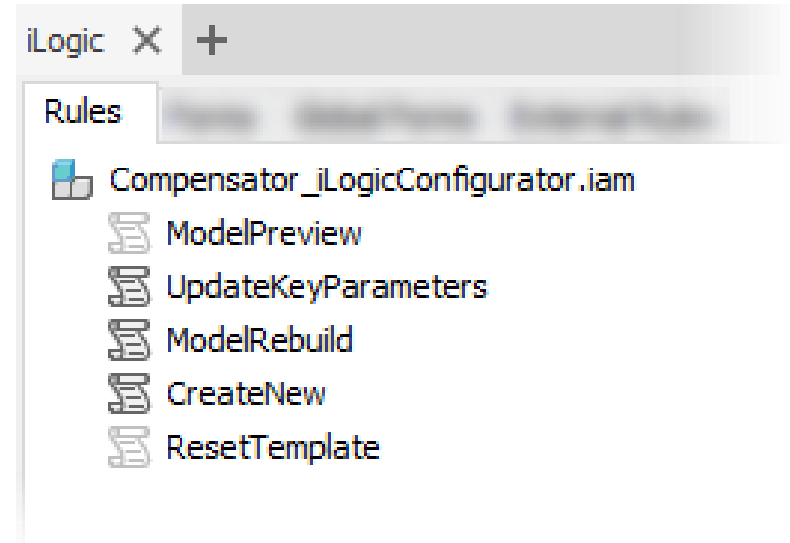
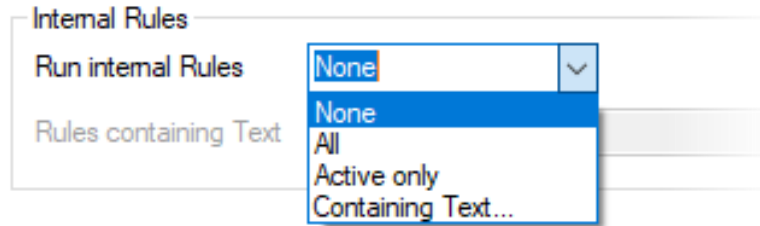
The “Primary-Rule” Concept

- The custom job configures to run a single rule only => Primary Rule
 - Run other rules conditionally
 - Extend your custom job by extending the Primary Rule and Sub-Rules
 - Any change is done in the iLogic Rule Editor
 - Does NOT require skills to program custom Vault jobs
- Best in class flexibility!



Internal-Rules

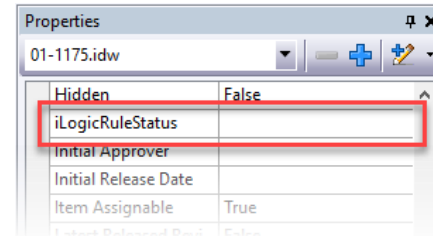
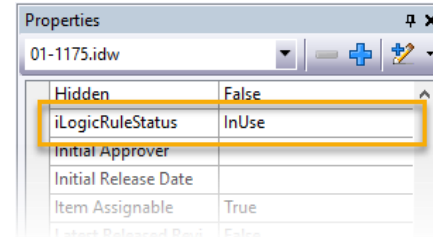
- **Configure Autodesk.VltInvSrv.iLogicSampleJob to run Internal Rule(s)**
 - Active Rules Only
 - All Rules
 - Rules Filter by *Name*



Summary | Considerations

- **Internal Rules**

- The given sample Job reads the Vault Rule Status
- ⇒ Don't write a primary rule running unknown internal rule(s) like "All", "Active", "Containing Text"
- ⇒ Use the Internal Rules configuration instead



Summary | Considerations

- **Internal Rules**

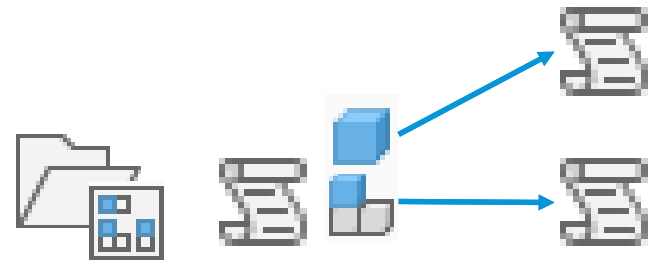
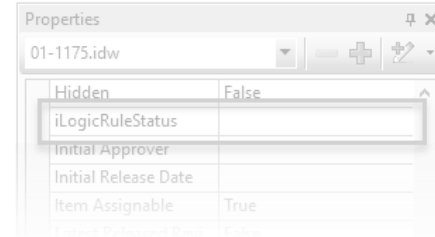
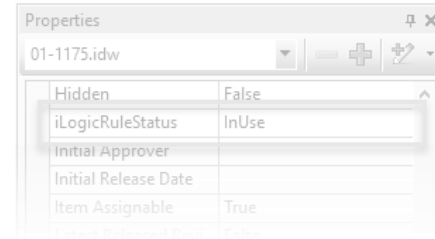
- The given sample Job reads the Vault Rule Status
- Don't write a primary rule running any internal rule
- Use the Internal Rules configuration instead

- **Single Custom Job may call multiple rules**

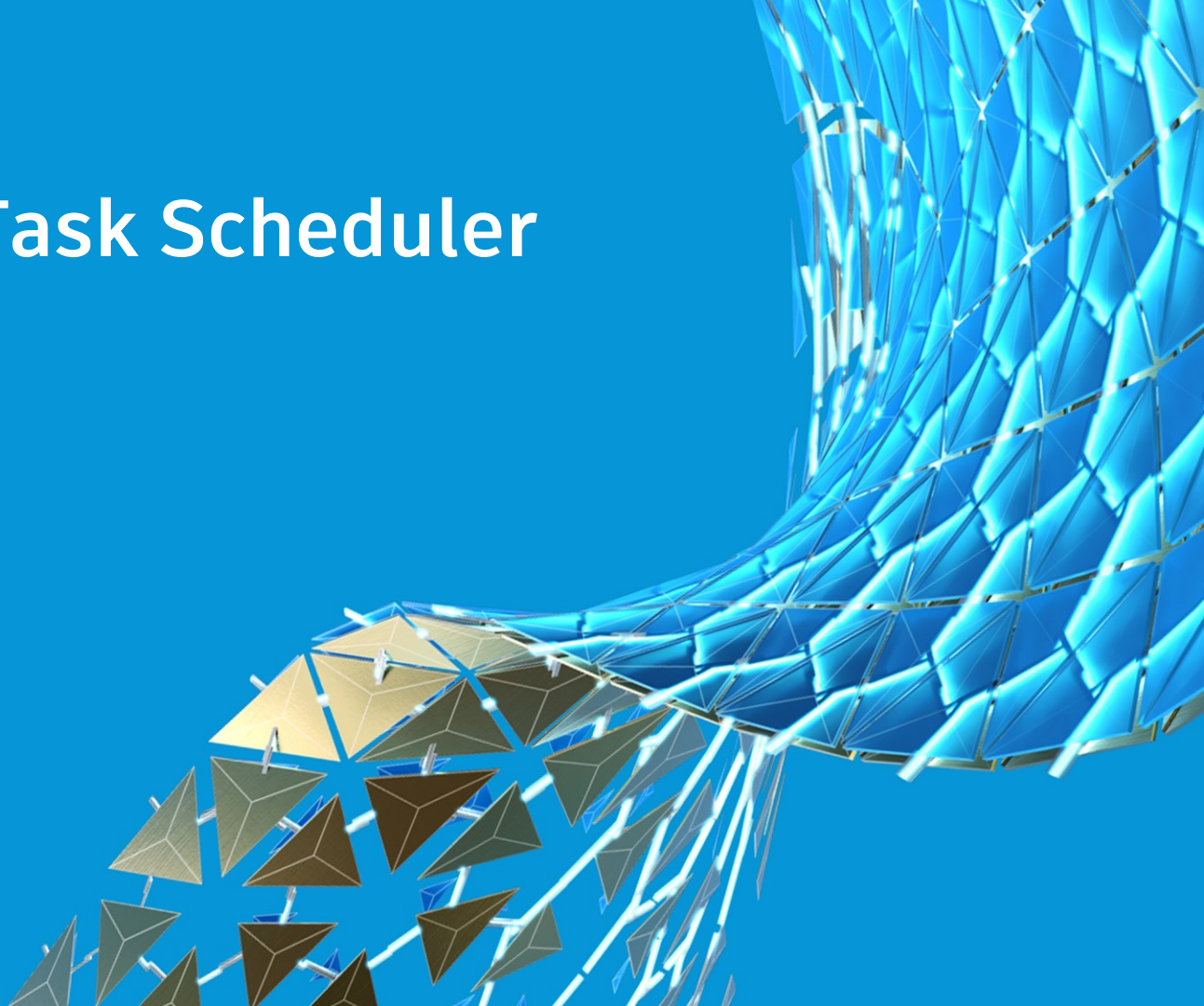
- If DocumentType = kPartDocument, kAssembly...
- ⇒ Great, and flexible option to write custom jobs

- **Flexibility < = > Performance**

- Distinctive custom jobs are faster
- ⇒ Use iLogic Job Processing carefully for high volume jobs

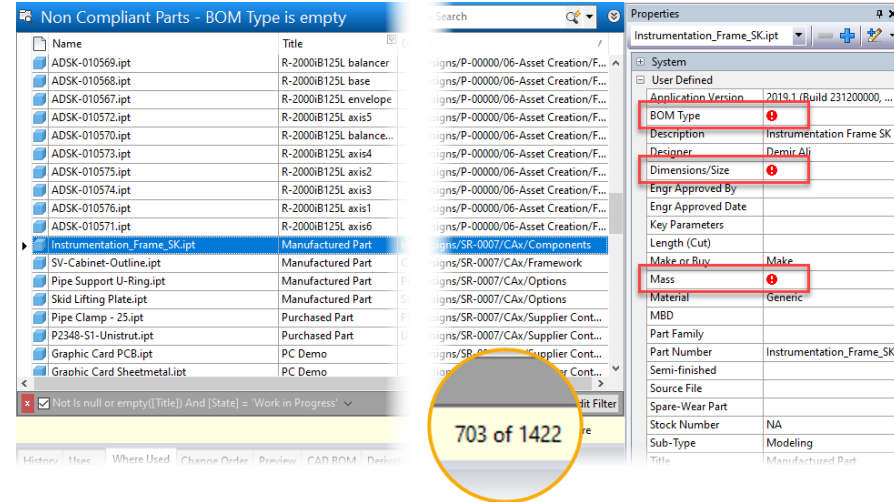
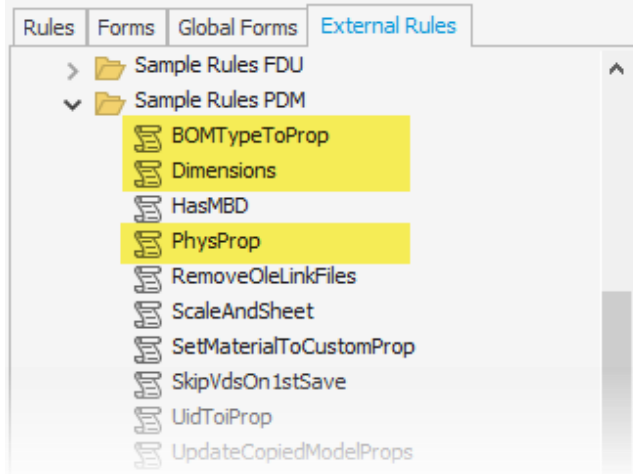


The Better Task Scheduler



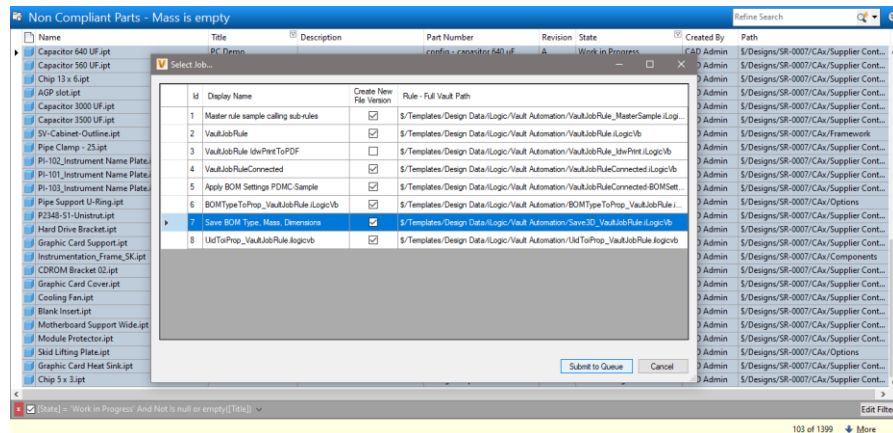
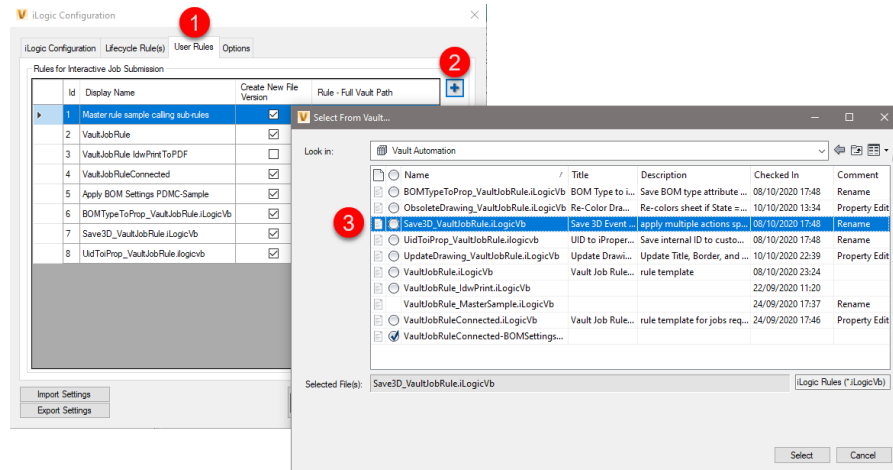
What if...?

- You have a bunch of files that need run iLogic rules, e.g., to update title blocks or compute missing physical properties on 3D files?
 - You have an iLogic rule for each task

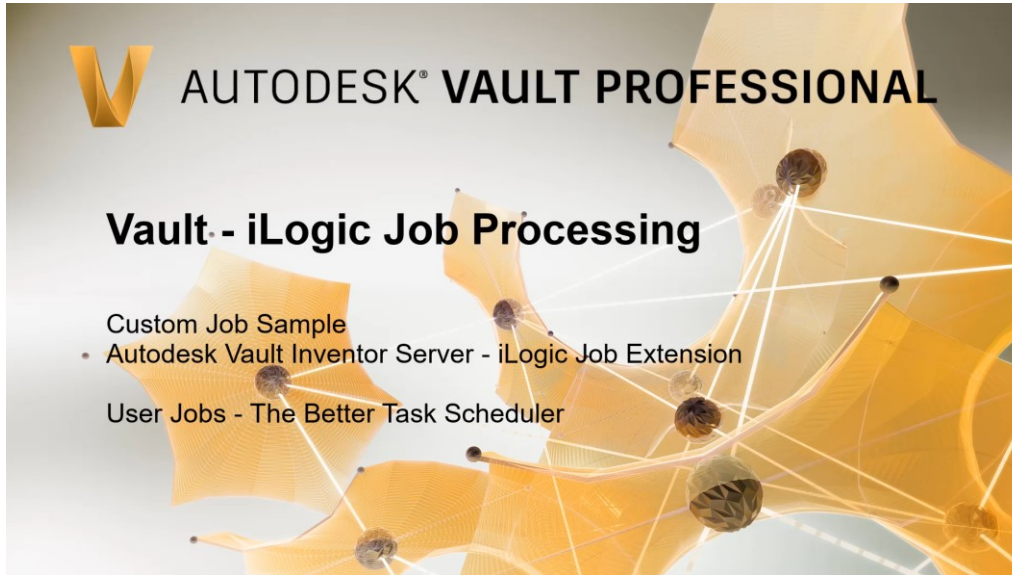


The Solution

- “Autodesk.VltInvSrv.iLogicSampleJob”
 - Configure User Job Rules
- Run iLogic rules for a set of files on demand aka “User Job Submission”

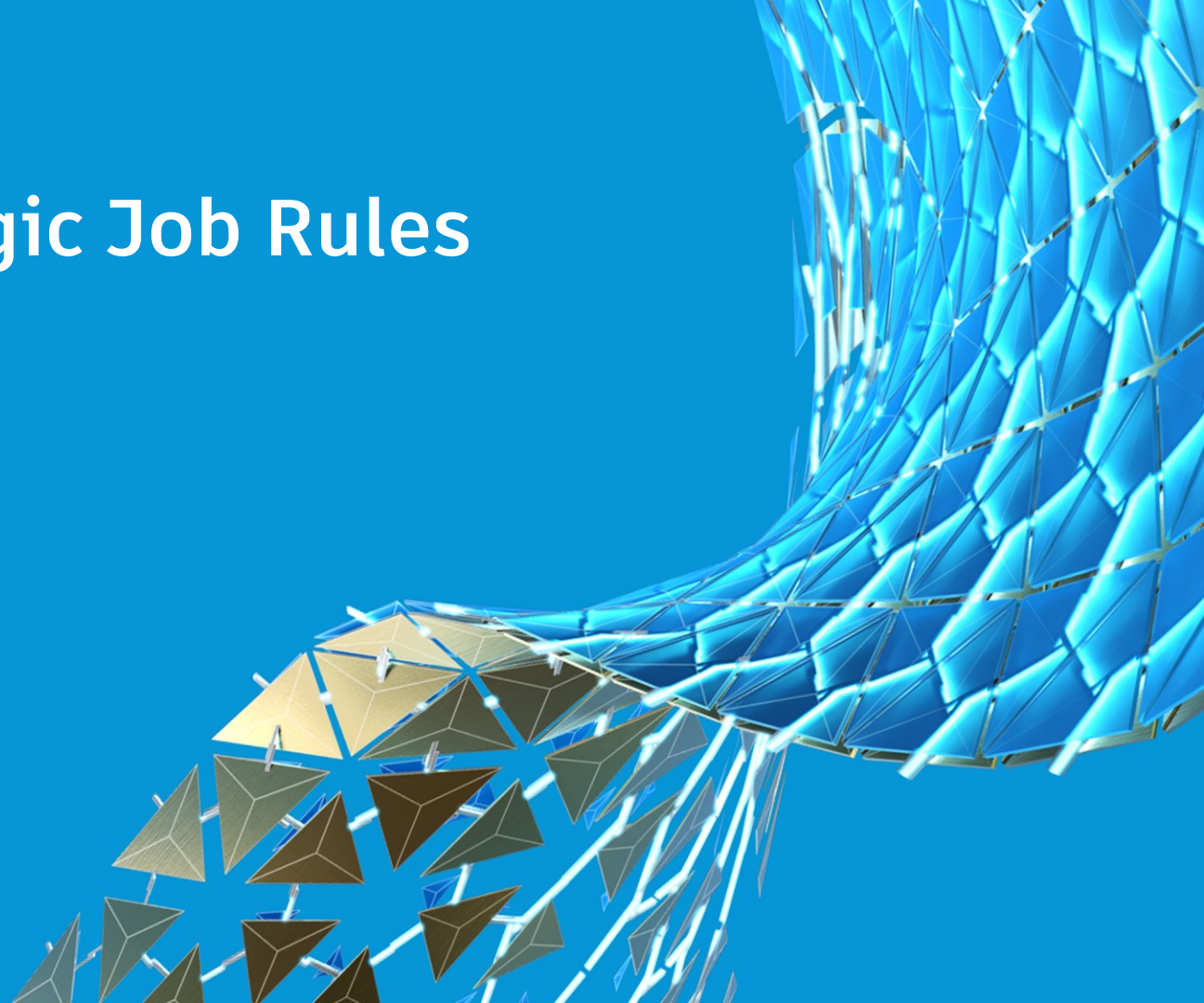


Vault iLogic User Jobs | Demonstration



Video – YouTube Link: <https://youtu.be/M3VmZiofOx0>

Writing iLogic Job Rules

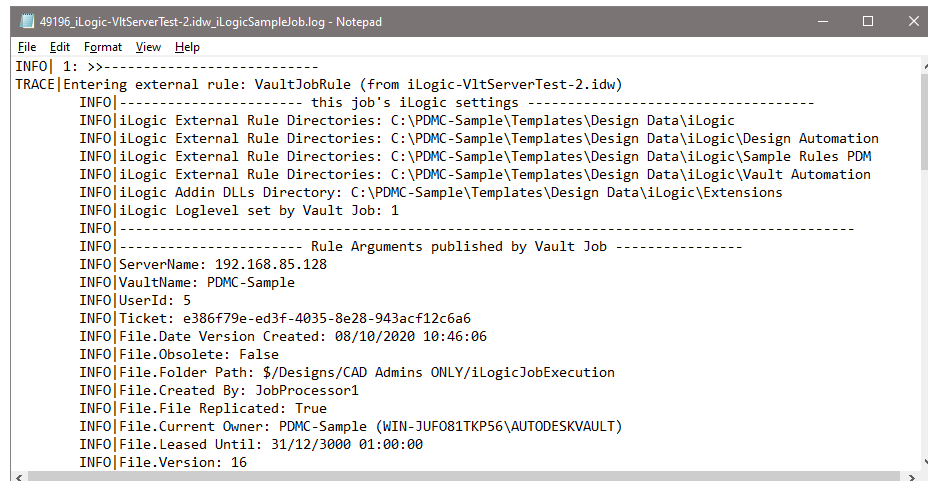
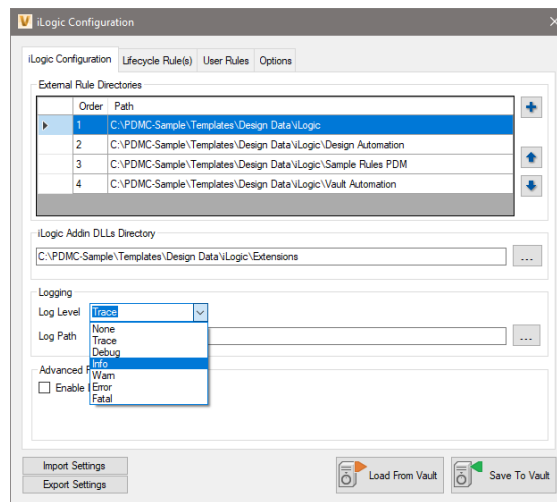


Writing iLogic Job Rules | Essentials

- **iLogic Logging & Error Handling**
 - Sample Job's default behavior: Undo Check Out on Errors in Rules
- **Rules including Vault file properties**
 - Sample Job shares all file properties per default

iLogic Logging

- **Logging is available**
 - Written to Text File
 - Sample Job offers all Log-Levels
 - Set to “None” if rules are proven
- **Logger.Warn -> Logger.Error?**
 - The critical question is – should this event result in an Undo Check Out?
 - If yes – Log an Error and proceed with Error Handling (next slide)



Error Handling

- **Sample Job handles return values of rules**

- Failed rules result in Job Error outcome

⇒ Manage return values of rules

- **Logger.Error("This must not happen...")**

- Throw an Exception

⇒ The resulting return value is "-1"

- **Sub Rules return "0" on success**

⇒ Capture return values of cascading rules


Description:	Autodesk.VltInvSrv.iLogicSampleJob: iLogic-VltServerTest-5.idw
Status:	Error
Results:	Job failed due to failure in internal rule: ErrorHandlingTestRule.

```
mSuccess = iLogicVb.RunExternalRule("UidToProp_VaultJobRule.iLogicVb")  
If mSuccess <> 0 Then  
    Dim ex As Exception  
    Logger.Error("Rule UidToProp returned an error and sets Job result to 'Error'")  
    Throw ex  
End If
```


Error Handling

- Rules return “0” on success
- If...Then...Else...End If
 - Consider to return a rule exception instead of exiting a rule
 - The critical question is – should this event result in an Undo Check Out?

```
If mFileReadOnly = True Then 'the rule can't apply changes if the file is write protected
    Logger.Error("File is read-only.")
    Exit Sub
End If
```



```
Dim ex As New Exception
If mFileReadOnly = True Then 'the rule can't apply changes if the file is write protected
    Logger.Error("File is read-only; throwing exception.")
    Throw ex
End If
```



Error Handling

- Rules return “0” on success
- If...Then...Else...End If
- **Handle the unforeseen exceptions**
 - Try – Catch – End Try

Try

```
iProperties.Value("Custom", "InternalName") = ThisDoc.Document.InternalName  
! ...
```

Catch

```
Logger.Error("File " & ThisDoc.FileName & " invoked error in rule 'UidToiProp'.")
```

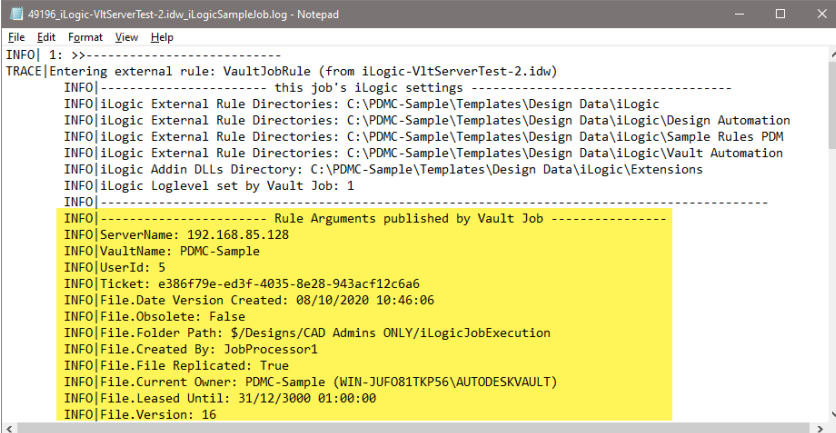
Throw ex

End Try

Vault File Properties

- Sample Job shares all file properties per default
 - Access via RuleArguments("File.<Property Name>")
- Sample Job shares a Rule Sample to write all Rule Arguments to the log file

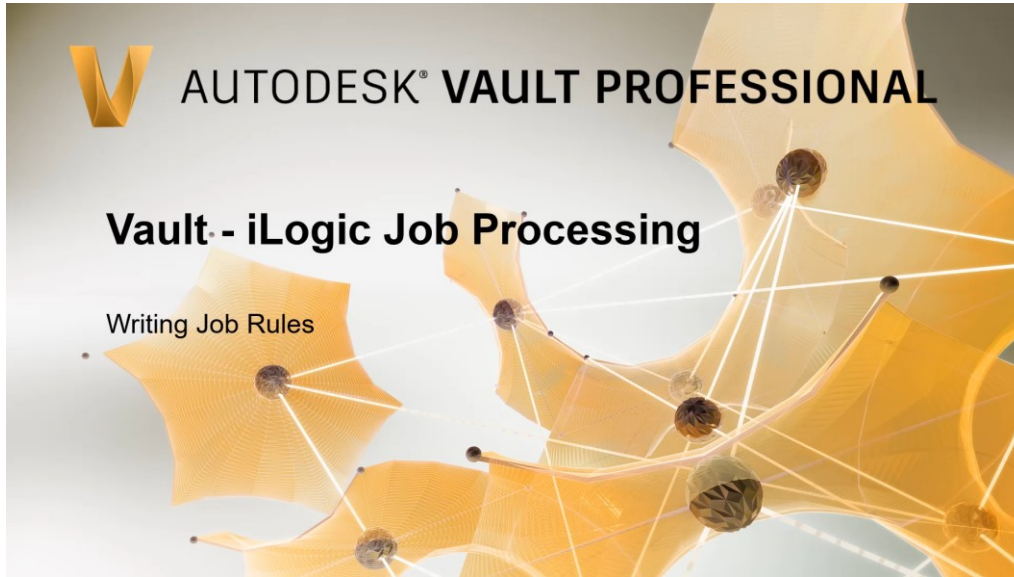
```
'don't update drawings in Obsolete State;  
If RuleArguments("File.Obsolete") = "True" Then  
    Dim mColor As Inventor.Color = ThisServer.Transien  
    mDryDes SheetSettings.SheetColor = (mColor)
```



The screenshot shows a Notepad window titled '49196_iLogic-VltServerTest-2.idw_iLogicSampleJob.log - Notepad'. The log content includes a trace of an external rule being entered and a detailed list of rule arguments published by the Vault Job. The arguments are highlighted in yellow in the original image.

```
File Edit Format View Help  
INFO| 1: >>-----  
TRACE|Entering external rule: VaultJobRule (from iLogic-VltServerTest-2.idw)  
INFO|----- this job's iLogic settings -----  
INFO|iLogic External Rule Directories: C:\PDMC-Sample\Templates\Design Data\iLogic  
INFO|iLogic External Rule Directories: C:\PDMC-Sample\Templates\Design Data\iLogic\Design Automation  
INFO|iLogic External Rule Directories: C:\PDMC-Sample\Templates\Design Data\iLogic\Sample Rules PDM  
INFO|iLogic External Rule Directories: C:\PDMC-Sample\Templates\Design Data\iLogic\Vault Automation  
INFO|iLogic Addin DLLs Directory: C:\PDMC-Sample\Templates\Design Data\iLogic\Extensions  
INFO|iLogic LogLevel set by Vault Job: 1  
INFO|-----  
INFO|----- Rule Arguments published by Vault Job -----  
INFO|ServerName: 192.168.85.128  
INFO|VaultName: PDMC-Sample  
INFO|UserId: 5  
INFO|Ticket: e386f79e-ed3f-4035-8e28-943acf12c6a6  
INFO|File.Date Version Created: 08/10/2020 10:46:06  
INFO|File.Obsolete: False  
INFO|File.Folder Path: $/Designs/CAD Admins ONLY/iLogicJobExecution  
INFO|File.Created By: JobProcessor1  
INFO|File.File Replicated: True  
INFO|File.Current Owner: PDMC-Sample (WIN-JUF081TKP56\AUTODESKVAULT)  
INFO|File.Licensed Until: 31/12/3000 01:00:00  
INFO|File.Version: 16
```

Writing iLogic Job Rules | Demonstration



Video – YouTube Link: <https://youtu.be/-7Yz-C-aDEE>

Writing iLogic Job Rules | Advanced

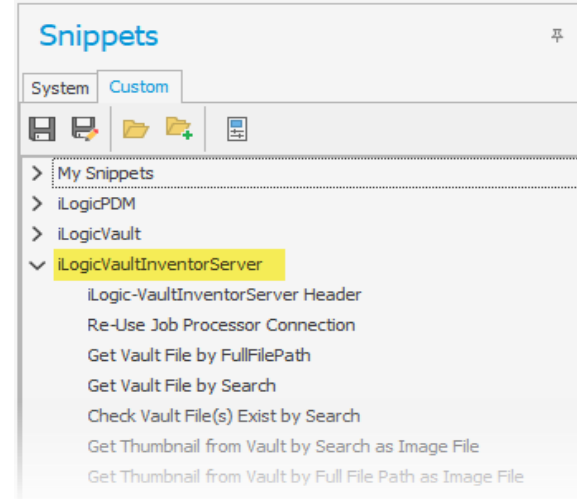
- **iLogic Logging & Error Handling**
 - Sample Job's default behavior: Undo Check Out on Errors in Rules
- **Rules including Vault file properties**
 - Sample Job shares all file properties per default
- **Rules with Vault interactions**
 - Download and access other files during job runtime – aka “iLogic-Vault” library methods
- **Advanced API**
 - Inventor Application <-> Vault Inventor Server

Vault Interaction

- **Rules with Vault interactions**
 - Download and access other files during job runtime aka “iLogic-Vault” library methods
 - E.g., Acquire drawing resources from Vault

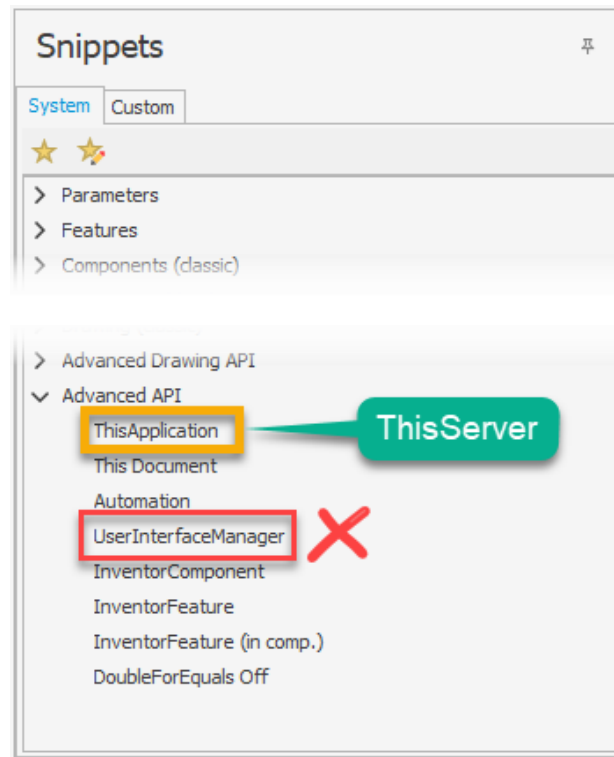
⇒ **Use the iLogic-Vault Quickstart Library for Vault Inventor Server**

'get the drawing resource file (= latest drawing template) and update the title block on all sheets.
Dim mVaultFile As String = iLogicVault.GetFileByFullPath("\$Templates/Inventor/Standard.idw")



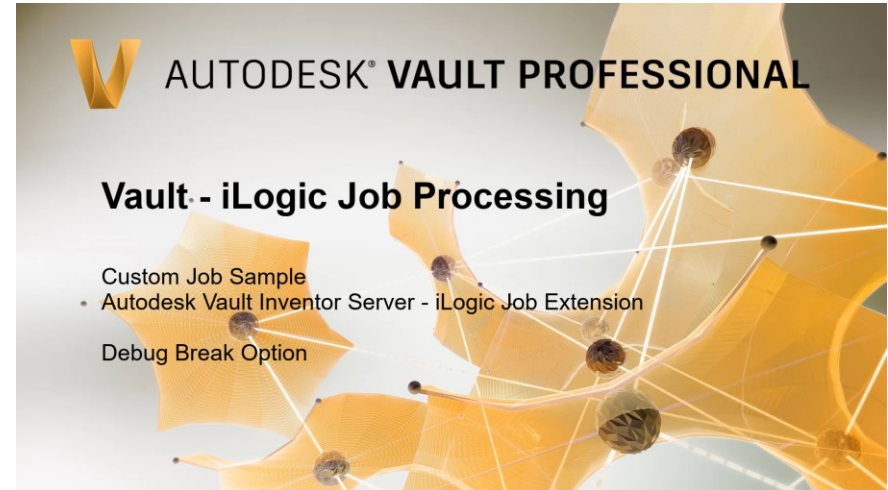
Advanced API Access

- **iLogic Syntax – Advanced API**
 - ThisApplication -> ThisServer
- **Vault Inventor Server - ThisServer**
 - User Interface is not available
 - Graphics Window is not available
 - Views, etc.
 - Save PNG and other bitmap formats



Debug Break

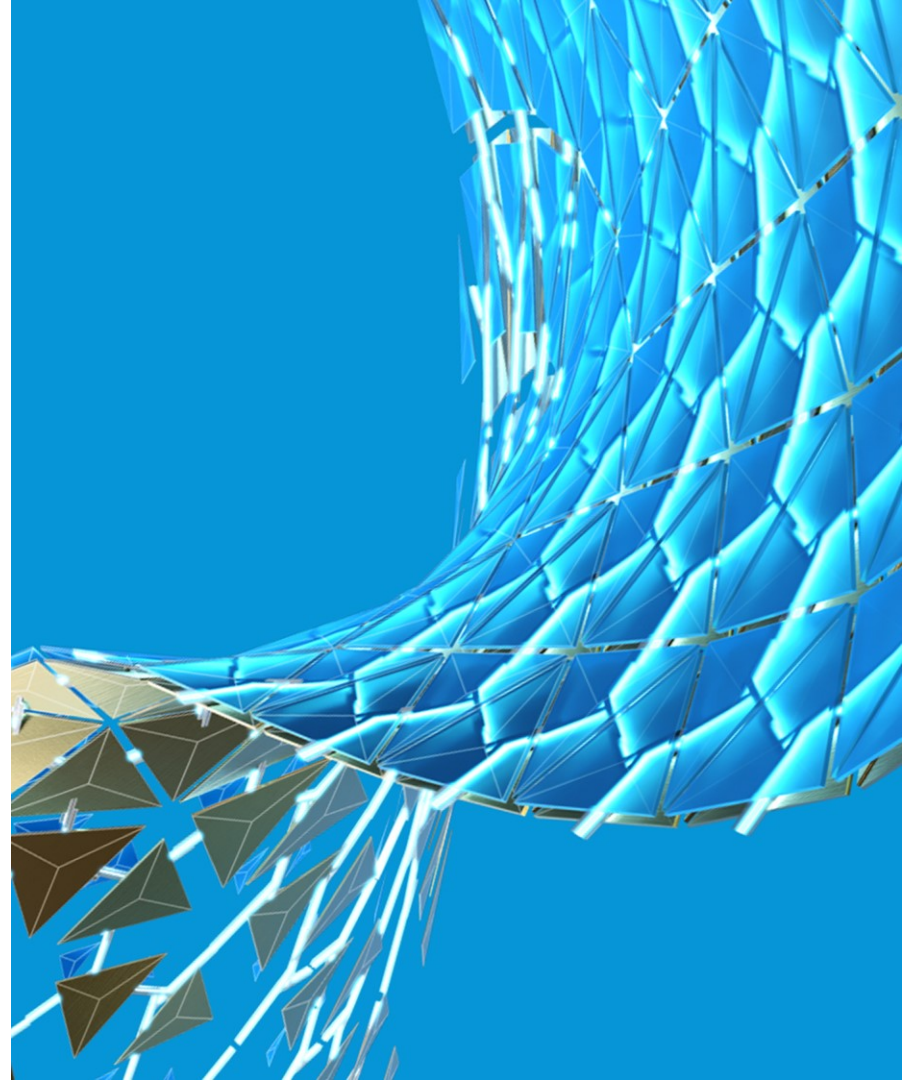
- Advanced Job rules might not run in Inventor's Rule Editor
- ⇒ Apply Advanced iLogic Debugging method to iLogic Jobs



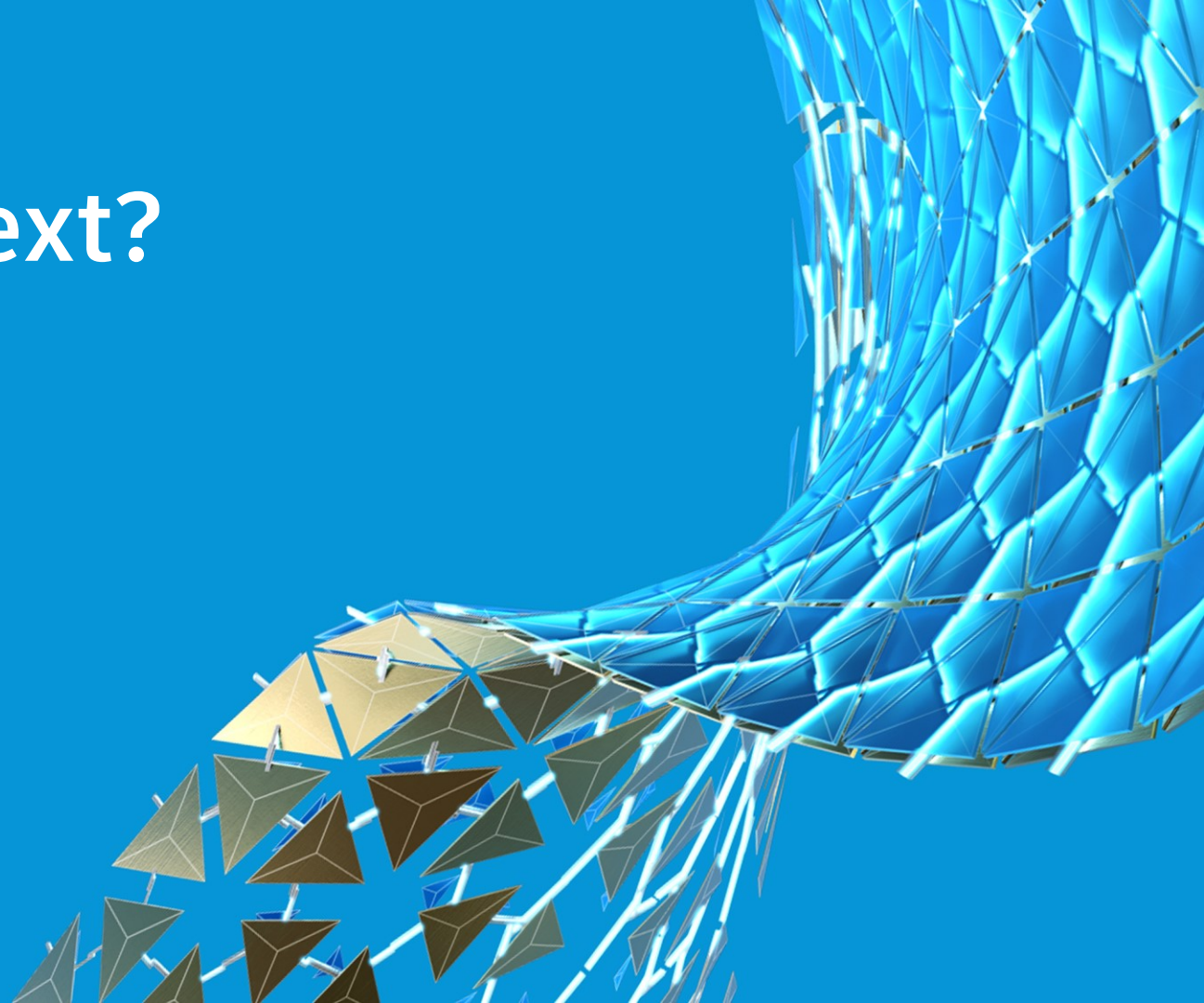
- Video – YouTube Link: <https://youtu.be/3ZAFcfyomaQ>

Writing iLogic Job Rules | Summary

- **Essential rules of the Inventor iLogic application should run without changes on Vault Job Processor**
- **Remove any user interaction like “MessageBox()” and establish meaningful logging**
- **Error handling and return values secure reliable Job Automation**
- **Known Limitations**
 - Vault iLogic Jobs must not change file references of assemblies and drawings
 - Vault iLogic Jobs must not create new files that require initial check-in actions

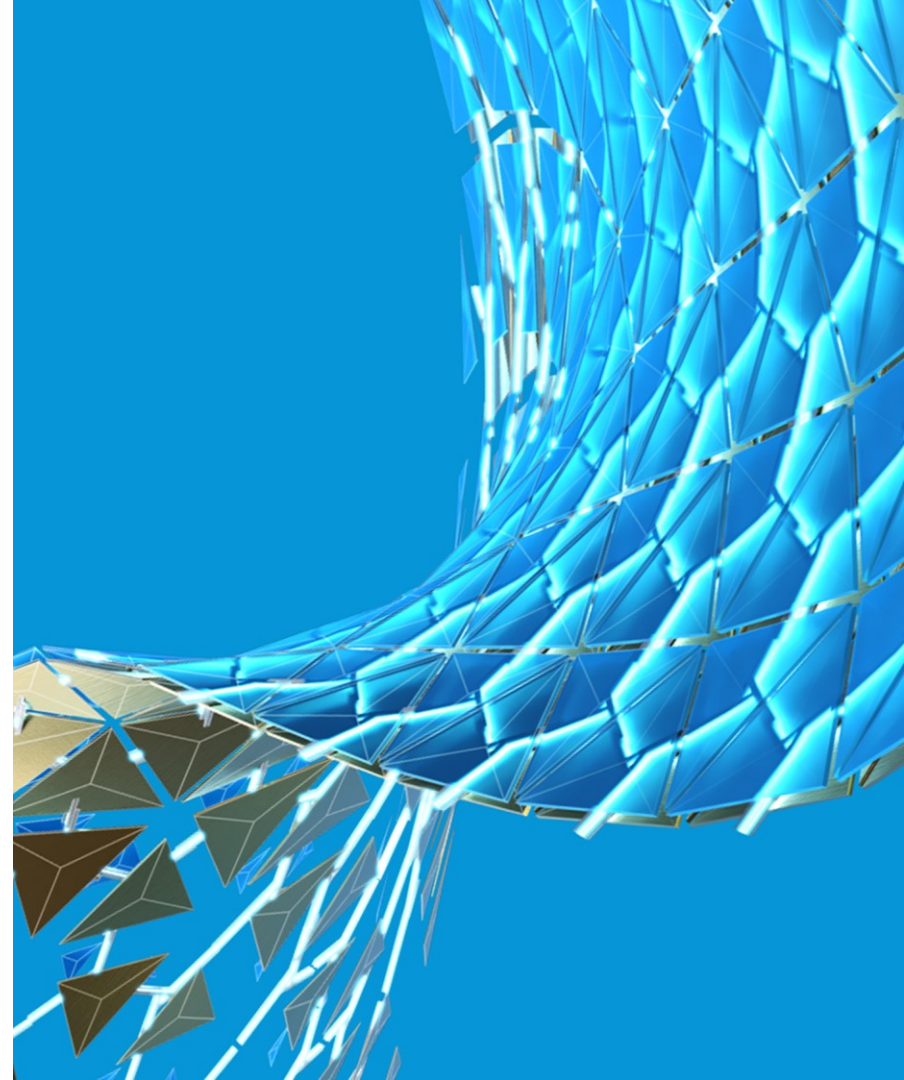


What's Next?



My Questions for You

- Which use case matters most to you?
 - What *Your* use case that I did not cover?
 - Did you already try
 - iLogic – Vault interactions?
 - iLogic support in Vault Job Processing?
- ⇒ Join the live Q&A session for discussions, more questions, ...



Where to Access...

- **iLogic-Vault Library and Samples**
 - GitHub - <https://github.com/koechlm/iLogic-Vault/releases/latest>

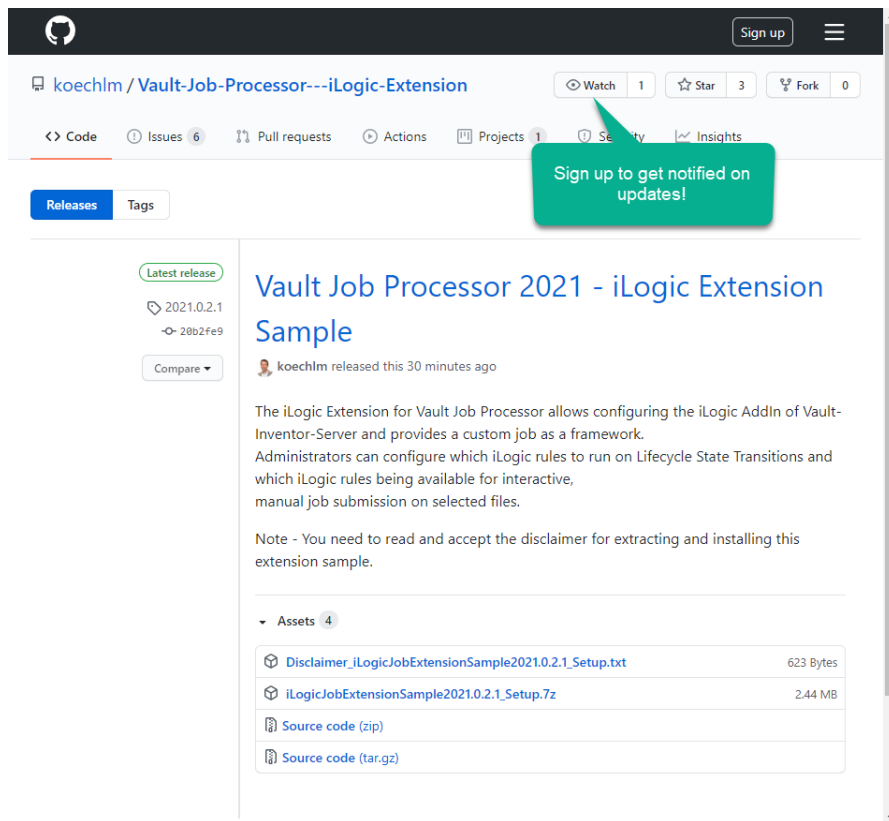
The screenshot shows the GitHub repository page for `koechlm/iLogic-Vault`. The repository has 6 stars and 5 forks. The latest release is `2021.0.2` (commit `8a72e34`), released 2 hours ago by `koechlm`. The release description states: "iLogic-Vault Collection for Inventor 2021 and Vault 2021 (includes binaries for Inventor/Vault 2020 as well) iLogic-Vault Quickstart Library 2021.0.2 and 2020.4.2 iLogic-Vault Quickstart Library for VaultInventorServer 2021 and VaultInventorServer 2020. Note - You will need to read and accept the disclaimer to extract each package. And, never forget to remove the security block from the *.7z file before extracting it."

The assets section lists the following files:

Asset Name	Size
iLogic-Vault_QuickstartLibraryPackage_2020.4.2.7z	27.4 KB
iLogic-Vault_QuickstartLibraryPackage_2020.4.2_Disclaimer.txt	623 Bytes
iLogic-Vault_QuickstartLibraryPackage_2021.0.2.7z	27.4 KB
iLogic-Vault_QuickstartLibraryPackage_2021.0.2_Disclaimer.txt	623 Bytes
Source code (zip)	
Source code (tar.gz)	

Where to Access...

- **iLogic-Vault Library and Samples**
 - GitHub - <https://github.com/koechlm/iLogic-Vault/releases/latest>
- **iLogic Extension for Vault Job Processor**
 - GitHub - <https://github.com/koechlm/Vault-Job-Processor---iLogic-Extension/releases/latest>



Sign up to get notified on updates!

koechlm / Vault-Job-Processor---iLogic-Extension

<> Code 6 Issues Pull requests Actions Projects 1 Security Insights

Releases Tags

Latest release

2021.0.2.1
20b2fe9

Compare

Vault Job Processor 2021 - iLogic Extension Sample

koechlm released this 30 minutes ago

The iLogic Extension for Vault Job Processor allows configuring the iLogic AddIn of Vault-Inventor-Server and provides a custom job as a framework. Administrators can configure which iLogic rules to run on Lifecycle State Transitions and which iLogic rules being available for interactive, manual job submission on selected files.

Note - You need to read and accept the disclaimer for extracting and installing this extension sample.

Assets 4

- Disclaimer_iLogicJobExtensionSample2021.0.2.1_Setup.txt 623 Bytes
- iLogicJobExtensionSample2021.0.2.1_Setup.7z 2.44 MB
- Source code (zip)
- Source code (tar.gz)

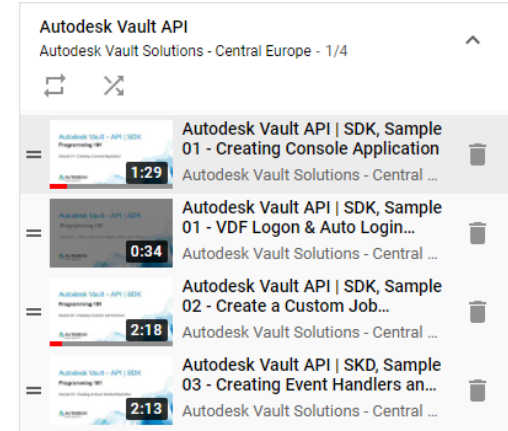
Resources for Programmers

- **Vault SDK – C:\Program Files\Autodesk\Vault Client 2021\SDK\Setup.exe**
- **Autodesk SDK Template – Creating Custom Jobs**
 - [Watch on YouTube](#)
- **Autodesk Vault API | SDK [YouTube Playlist](#)**
- **Autodesk Vault 2020 – Programming 101**
<https://www.autodesk.com/autodesk-university/class/Autodesk-Vault-2020-Programming-101-2019>

Autodesk Vault – API | SDK

Programming 101

Sample 02 - Creating a Custom Job Extension



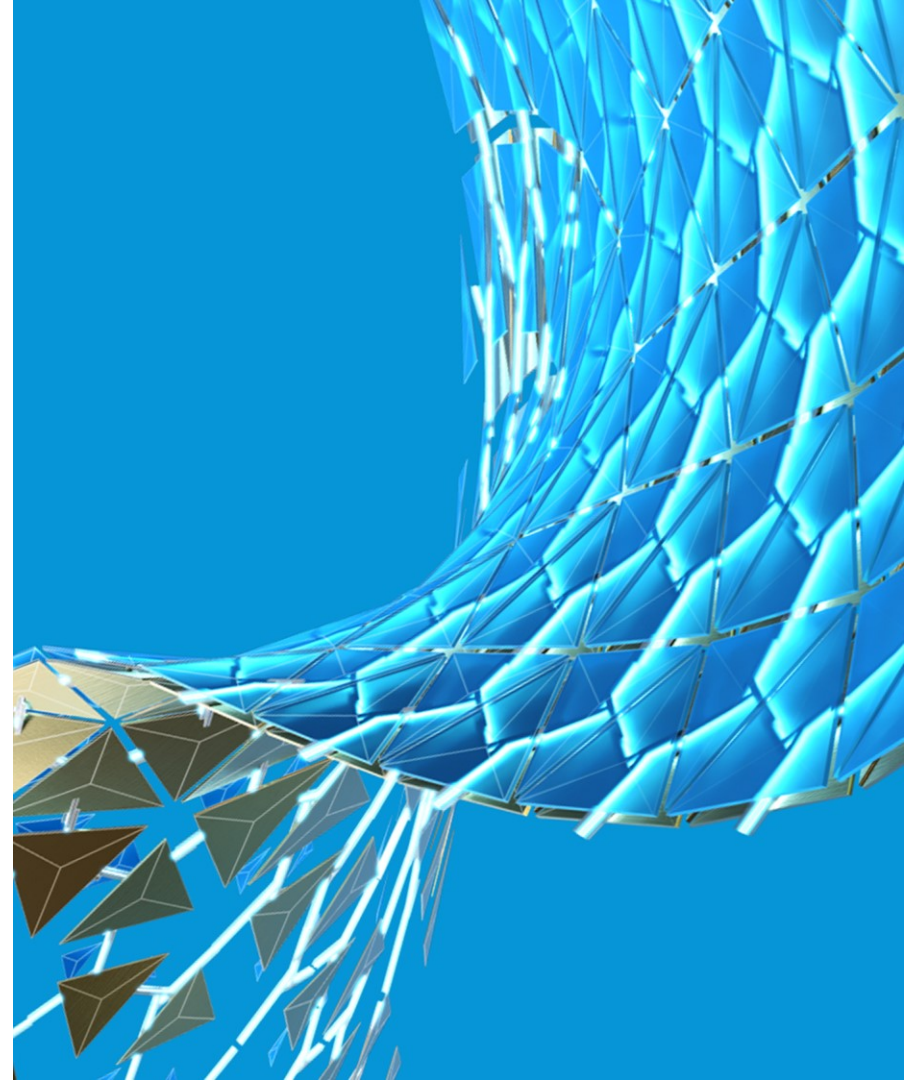
Idea Station & Forum

Idea Station - iLogic-Vault Interactions

- <https://forums.autodesk.com/t5/vault-ideas/open-vault-api-to-ilogic/idi-p/9080653>

Customization Forum

- [Threads related iLogic](#)





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