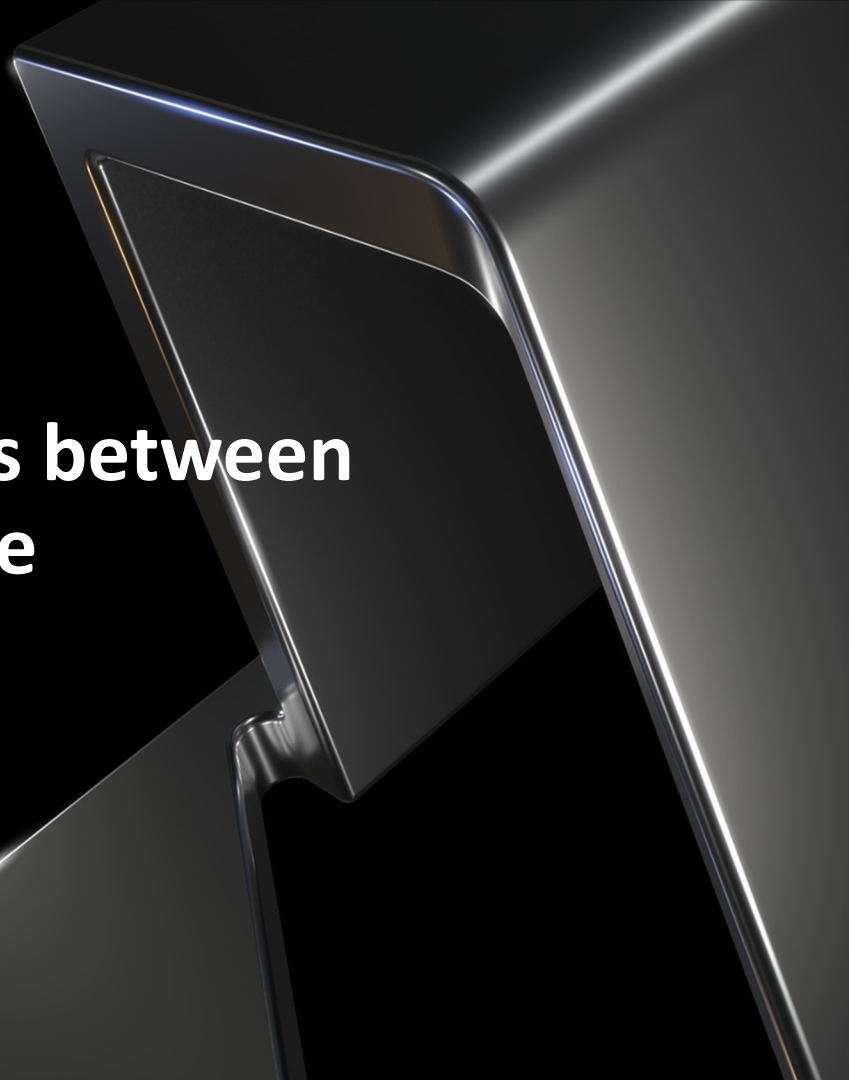
AUTODESK UNIVERSITY

Synchronizing Change Orders between Vault and Fusion 360 Manage MFG500023

Christian Gessner

Technical Evangelist | COOLORANGE



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About the Speaker

Christian Gessner

Christian Gessner is a co-founder and Technical Evangelist at COOLORANGE. In this role, he helps customers and resellers to use the right technology and tools to successfully design, implement and customize Autodesk data management solutions.

He has over 15 years of experience in software development with a focus on Autodesk data management products and Microsoft development technologies.

Prior to COOLORANGE, Christian was member of the data management software engineering team at Autodesk.

Synchronizing Change Orders between Vault and Fusion 360 Manage

Agenda

- Advantages
- Demo
- Prerequisites
- Installation & Configuration
- Customization Capabilities
- Additional resources

History of powerPLM

Items and BOMs

Change Management

2014

Idea was born

coolOrange plays with the idea to connect Vault and PLM360 based on PowerShell cmdlets

2018

Prototype

In collaboration with Autodesk, coolOrange investigates in the topic again and starts developing a Vault-to-Fusion Lifecycle-Connector

2019

vaultFLC

coolOrange releases vaultFLC, a configurable connector with predefined workflows

2020

powerFLC

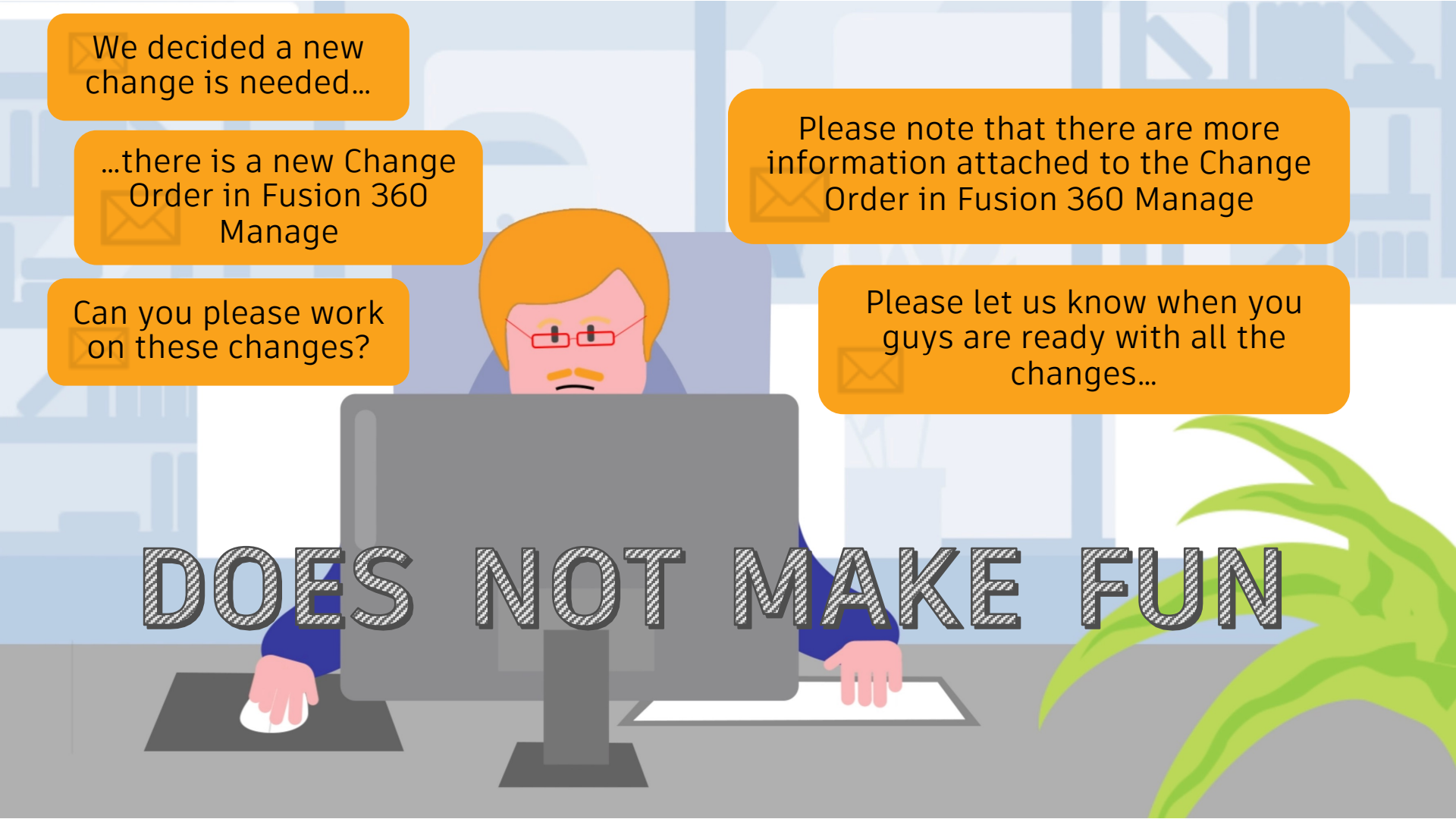
coolOrange releases powerFLC, a configurable and customizable connector with unlimited workflows

2021

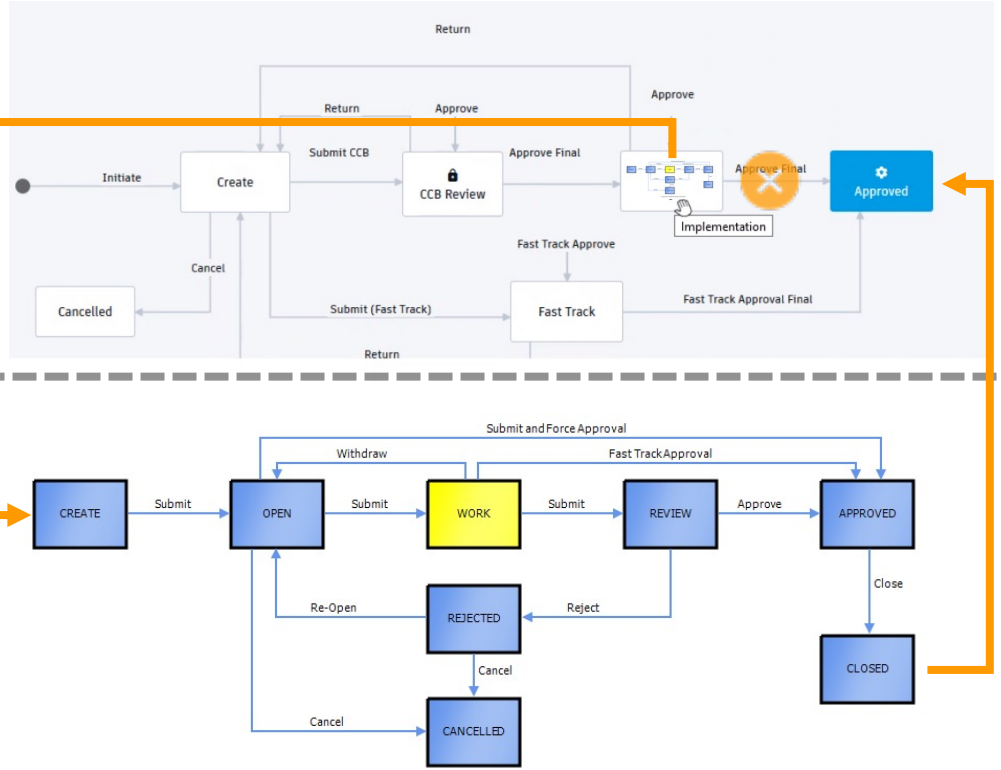
powerPLM

coolOrange renames powerFLC to powerPLM in reaction to Autodesk's product rename to Fusion 360 Manage

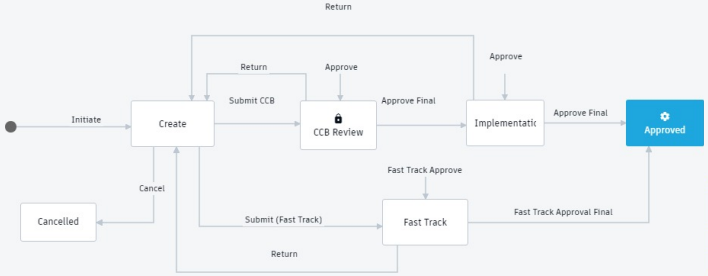
Advantages

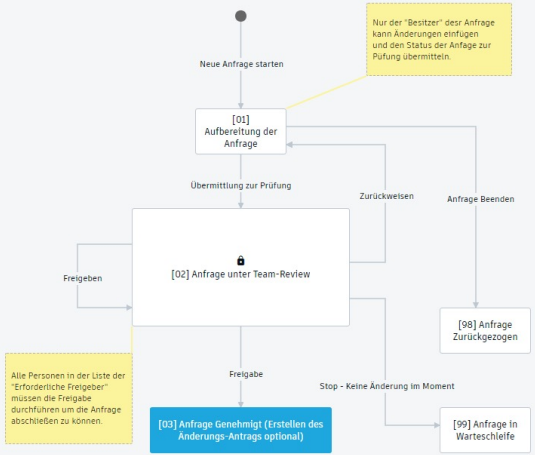

We decided a new change is needed...
...there is a new Change Order in Fusion 360 Manage
Can you please work on these changes?
Please note that there are more information attached to the Change Order in Fusion 360 Manage
Please let us know when you guys are ready with all the changes...
DOES NOT MAKE FUN

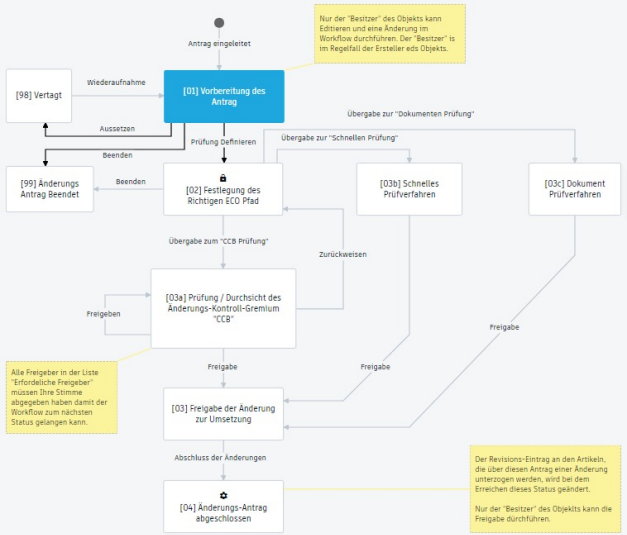
Workflow to “outsource” Change Orders to Vault

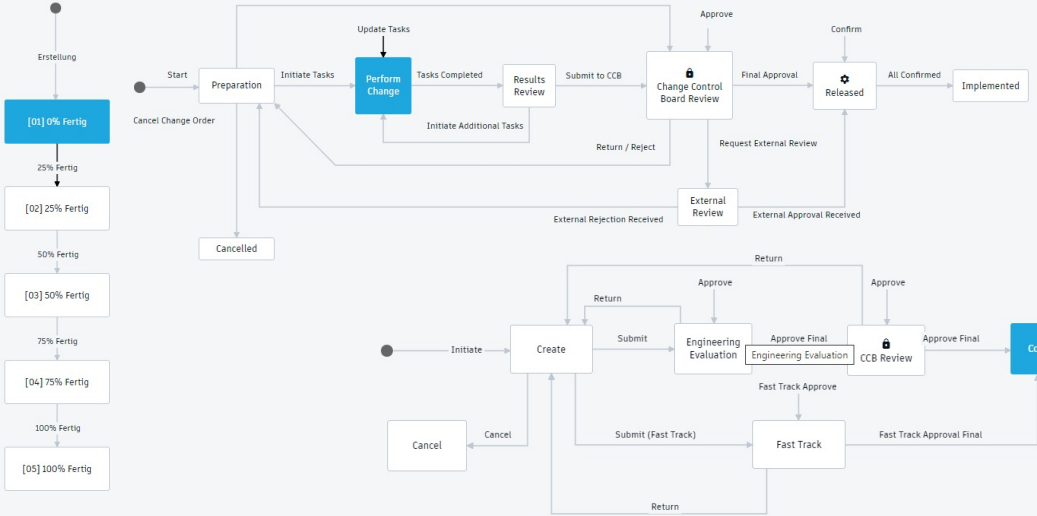


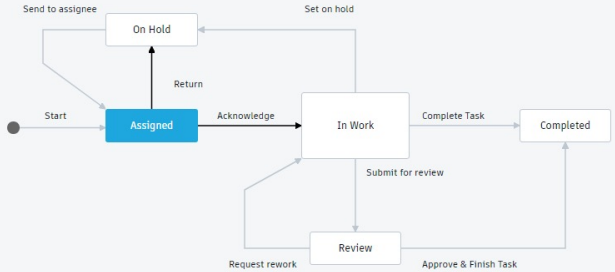
Workflow = Sample





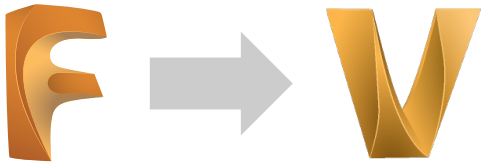






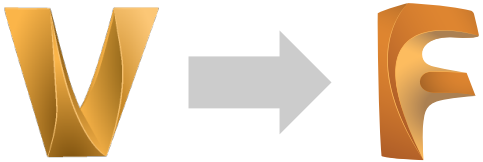
Change Management Workflow

Consists of two major steps



When Fusion 360 Change Orders == predefined state

- Vault ECOs created/updated
  - Item Fields → ECO Properties
  - Affected Items → ECO Records
  - Affected Items not in Vault → ECO comment
  - Change Order Attachments → ECO attachments

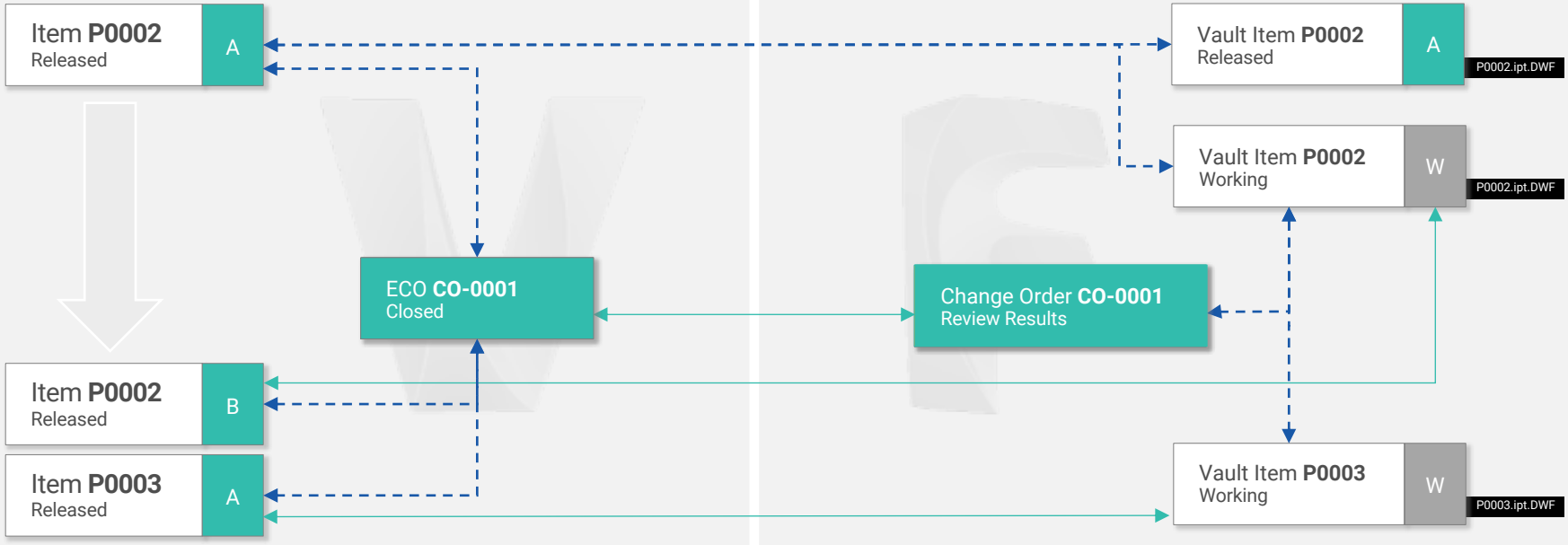


When Vault ECO == “Closed”

- Affected Items updated
- “Workflow action” executed
  - Can change Change Order state

Change Management Workflow

Create Change Order → Connect Affected Items → Transition CO state → Create ECO & link items → Revise & release design. Add, attach and release new data. → Sync Item data with FLC → Close ECO → Finish Task & Sync Links → CO Workflow Action - next state



Demo

CO-000034 - Hobbyist CNC Parts Kit - Wheels

Perform Change | Workflow actions

Change Order | Attachments (2) | Affected Items (4) | Task Planning (1) | Schedule (1) | Approval Workflow | References (0) | Change Log

Edit

Summary (1 of 8)

Number	CO-000034
Title	Hobbyist CNC Parts Kit - Wheels
Description	Wheels need to be replaced by more solid and more accurate linear rails
Change Template	Mechanical Change Template
Priority	2 / Medium
Change Reason	CNC can perform faster and more accurate when the wheels are replaced by a linear rail system
Change Reason Code	Functional Fix
Change Requests	

Details (2 of 8)

Status (3 of 8)

	Progress	Flag	Tasks Progress
Status	NEW PERFORM CCB REL		0 of 1

Stakeholders (4 of 8)

Approvals & Confirmation (5 of 8)

	Required	Additional	Remaining	Completed By
CCB Approvers	Gessner, Christian	Gessner, Christian		
Confirmation	Gessner, Christian	Gessner, Christian		

Schedule & Duration Tracking (6 of 8)

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AUTODESK FUSION 360 MANAGE

COOLORANGE
powerPLM

Prerequisites

Prerequisite

Items- and BOM Workflow

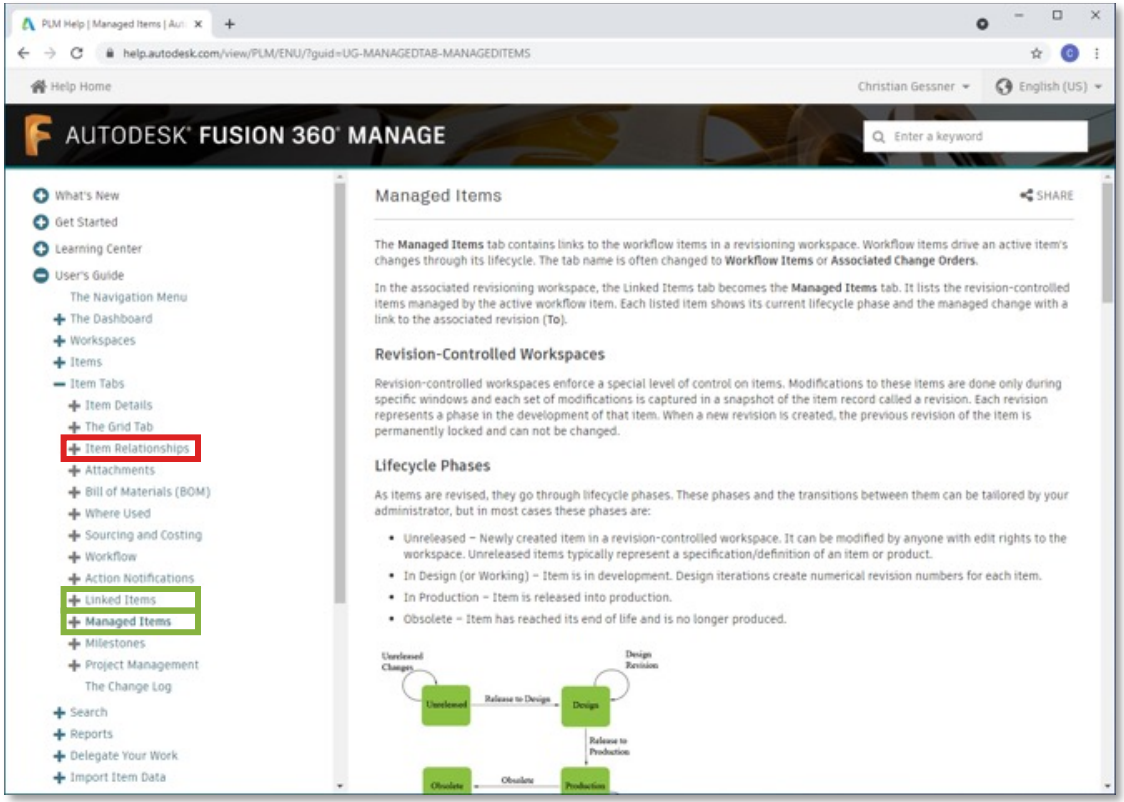
- Items must be transferred by the “Items- and BOM” Workflow in order to be recognized and automatically added to the ECO in Vault

https://www.autodesk.com/autodesk-university/class/Joint-Effort-Vault-and-Fusion-Lifecycle-New-Dream-Couple-2020

Prerequisite

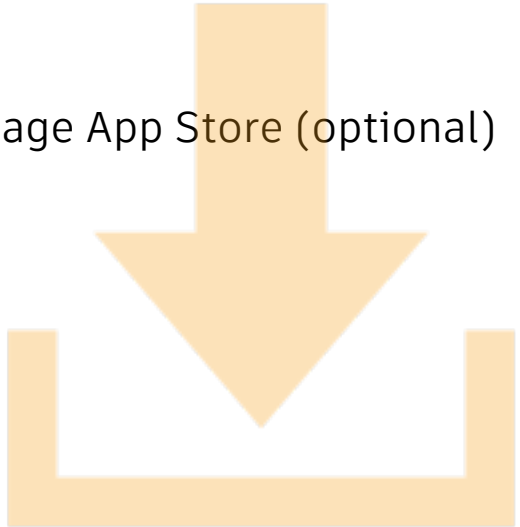
"Affected Items" Type

- Works with **Managed Items** and **Linked Items**
- Does not work with **Item Relationships**
  - Relationships require custom code



Installation & Configuration

Installation & Configuration



- Install “Change Management” app from Fusion 360 Manage App Store (optional)
- Download & Install COOLORANGE powerJobs Processor
- Download & Install COOLORANGE powerPLM
- Start the ”Configuration Manager” in Vault
  - Enter Fusion 360 Manage credentials
  - Import workflow(s)
- Adjust workflows
- Configure the triggers
  - powerJobs Processor to periodically check for new and updated Change Orders
  - “Lifecycle Event Editor” to trigger job when Vault ECO transitions to “Close”

powered by Autodesk Fusion 360 Manage.

More information

communicate quality issues onsite on any device, and at any time.

More information

standardized and repeatable means to manage the RMA process.

More information

means to distribute, enforce standards, and manage change of your documents.

More information

Customer Management

The Customer Management App powered by Autodesk Fusion 360 Manage can connect your customer data to all of your processes currently or soon to be managed by Autodesk Fusion 360

More information

Marketing Asset Management

Marketing Asset Management app can be used for the management, control, tracking, and distribution of brand assets, marketing materials, sales tools and creative materials.

More information

CE Marking

Use the CE Marking App to manage your approval stages needed for the affixing of the CE marking on your product. Track when the EC Declaration Of Conformity is completed and get a automatically

More information

Supplier Quarterly Business Review (SQBR)

Supplier Quarterly Business Review (SQBR) helps everyone in the organization to visualize the Supplier Performance.

More information

Supplier Corrective Action Request (SCAR)

A supplier quality action report (SCAR) was derived from the need to issue suppliers a corrective action to a problem that occurred due to their product or service. As a way to differentiate this from an internal

More information

Octopart - Item & BOM

The Octopart - Item & BOM app allows you to create part items that link automatically to the Octopart search engine. Octopart develops search technology to help design engineers and part purchasers to find

More information

Training

Install the Training Workspace to manage employee training with Autodesk Fusion 360 Manage.

More information

Vault Connector - Items and BOMs

This App compliments coolOrange's powerFLC connector to Vault, providing a flexible solution for both PDM & PLM workflows. Install the Autodesk "Vault Items and BOMs" App to support integration

More information

Implementation Tracker

Manage Events, Tasks and Documents needed by your global implementation team. Assign tasks and plan both efforts and due dates. Track the progress of your project in real time.

More information

Claim Management

Manage your customer claims within Autodesk Fusion 360 Manage. Allows claims to be logged and managed by their financial cost to the business. Create claims and assign them to a claim handler for

More information

Design Reviews

Manage your complete design review processes online, from planning through review documentation to rework and followup reviews. Do not miss any outcome of your reviews and derive corrective tasks

More information

Change Management

This app provides a repeatable request, review, analysis, and change implementation process that is flexible for a number of typical product related changes.

More information

New Product Introduction

The NPI App powered by Autodesk Fusion 360 Manage provides an industry standard phase gate process keeping your new product's introduction to the market on schedule and on budget.

More information

Reminders Utility

Send reminder notifications to responsible users automatically to better meet time schedules.

More information

Quick Release Processes

Release initial design of your product data in an easy and quick manner to share new designs with downstream processes as early as possible.

More information

Product Portfolio Management

Build a competitive product portfolio consisting of product lines, categories and product variants. Capture the full specification and lifecycle of your products. Relate your products to New Product

More information

Quality Management

Quality Management Powered by Autodesk Fusion 360 Manage delivers the tools manufacturers need to collect and analyze quality data, define inspection

Asset Management

Get the tools you need to collect and analyze data related to assets so you can keep them available and in good shape.

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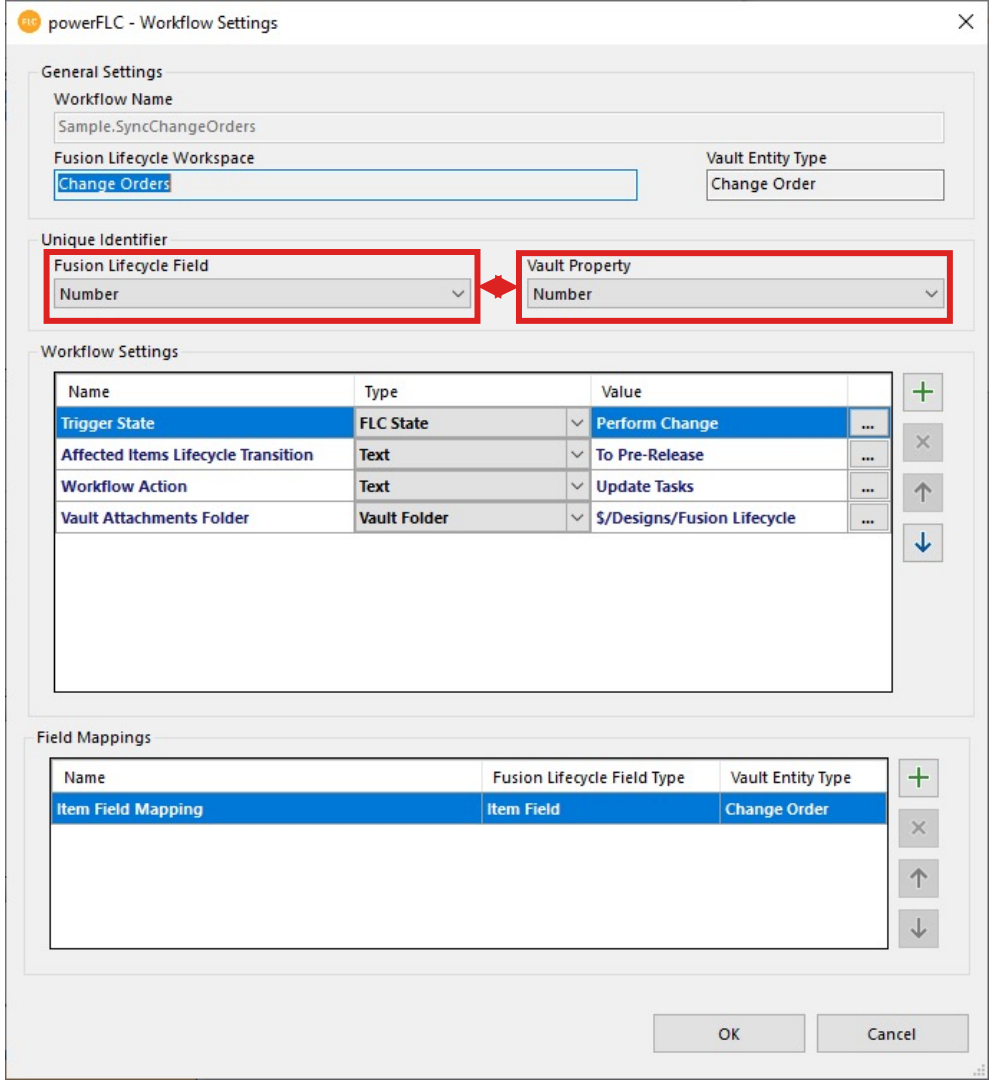
AUTODESK® FUSION 360® MANAGE

Configuration

Unique Identifier

- Used to find out if ECO needs to be created vs. updated
- Vault property must not be changed!

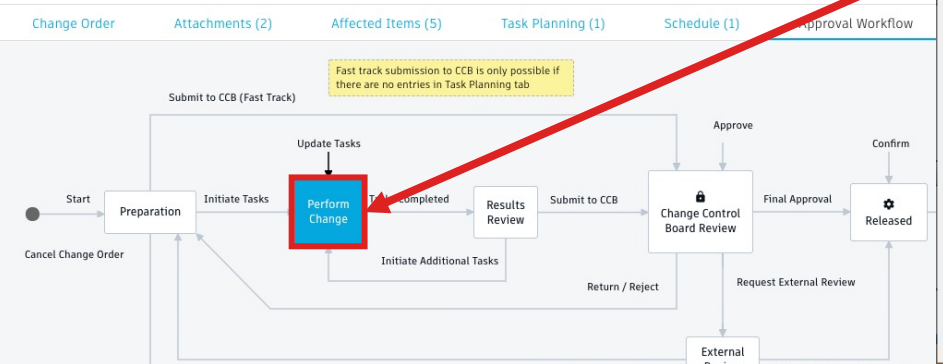
Additionally, Vault “Attributes” (= hidden properties) are used to save the Fusion 360 Manage Change Order ID in Vault

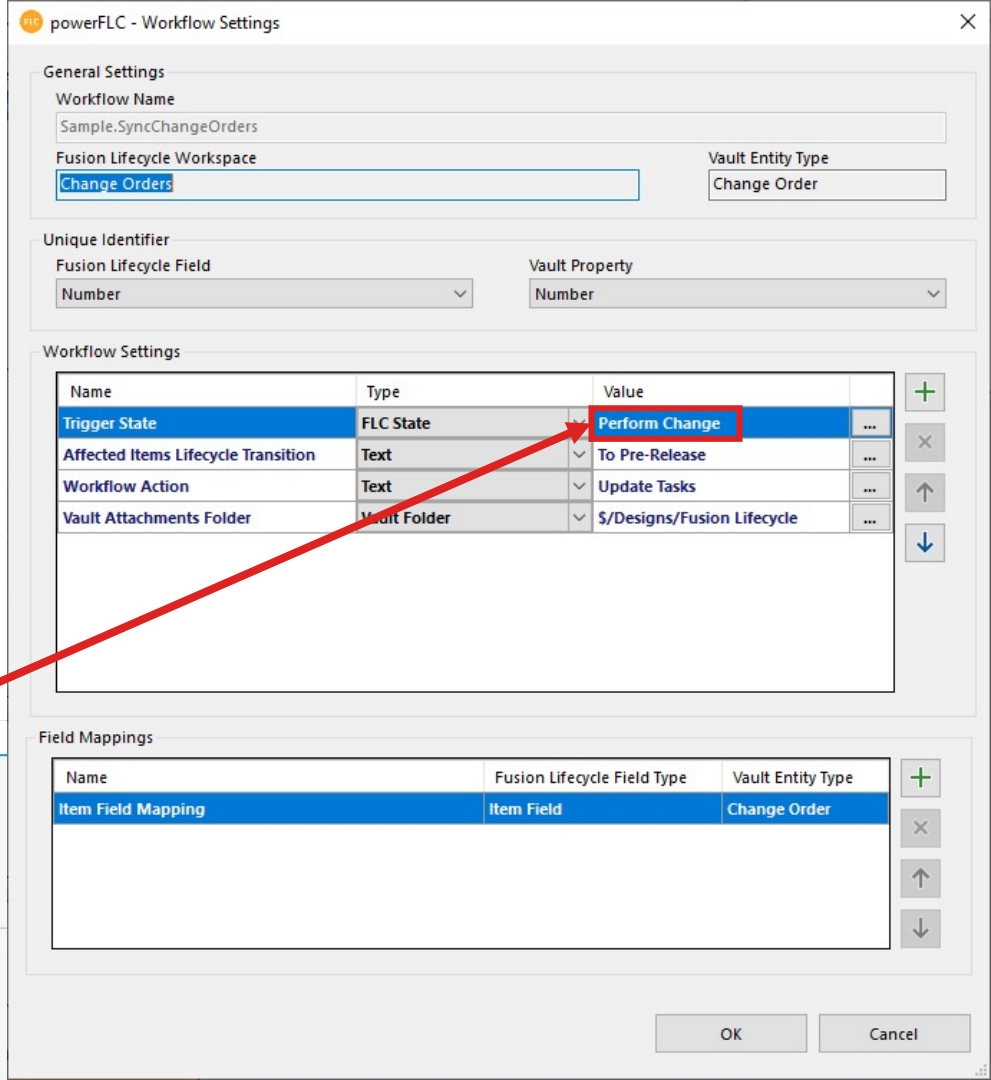


Configuration

Trigger State

- Change Order state in Fusion 360 Manage
- Change Orders in this state are created in Vault
- Synchronization triggered periodically

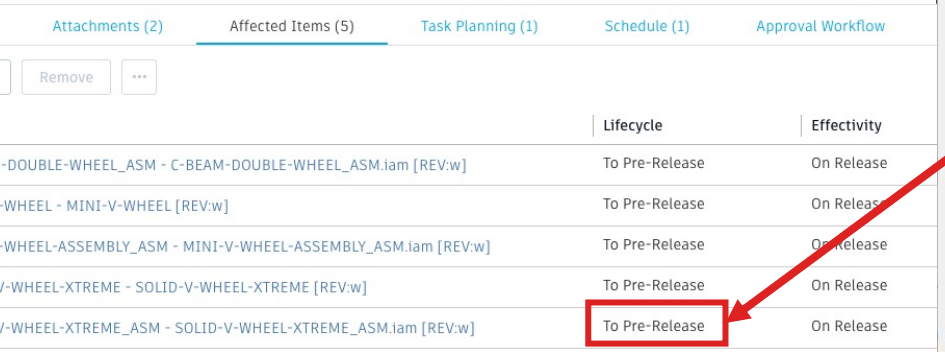


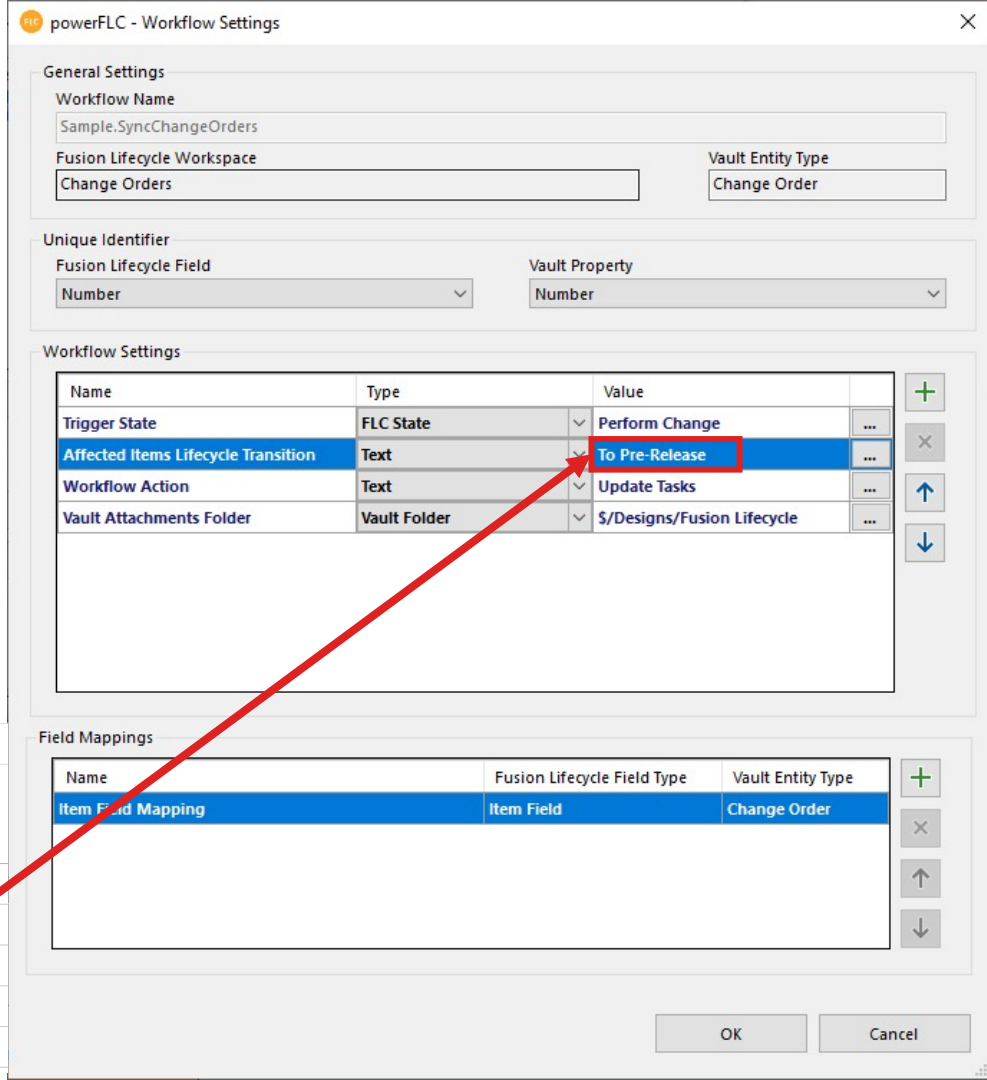


Configuration

Affected Items Lifecycle Transition

- Lifecycle of the newly attached Affected Items
- Only applicable if additional records are attached the the Vault ECO
- Required to later execute a “Workflow Action”

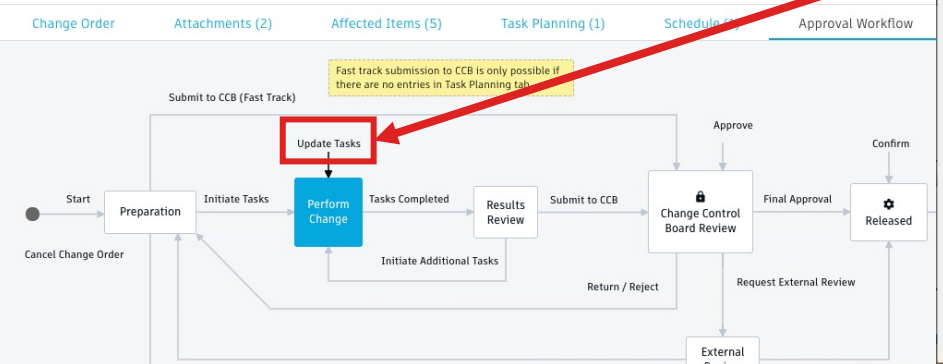


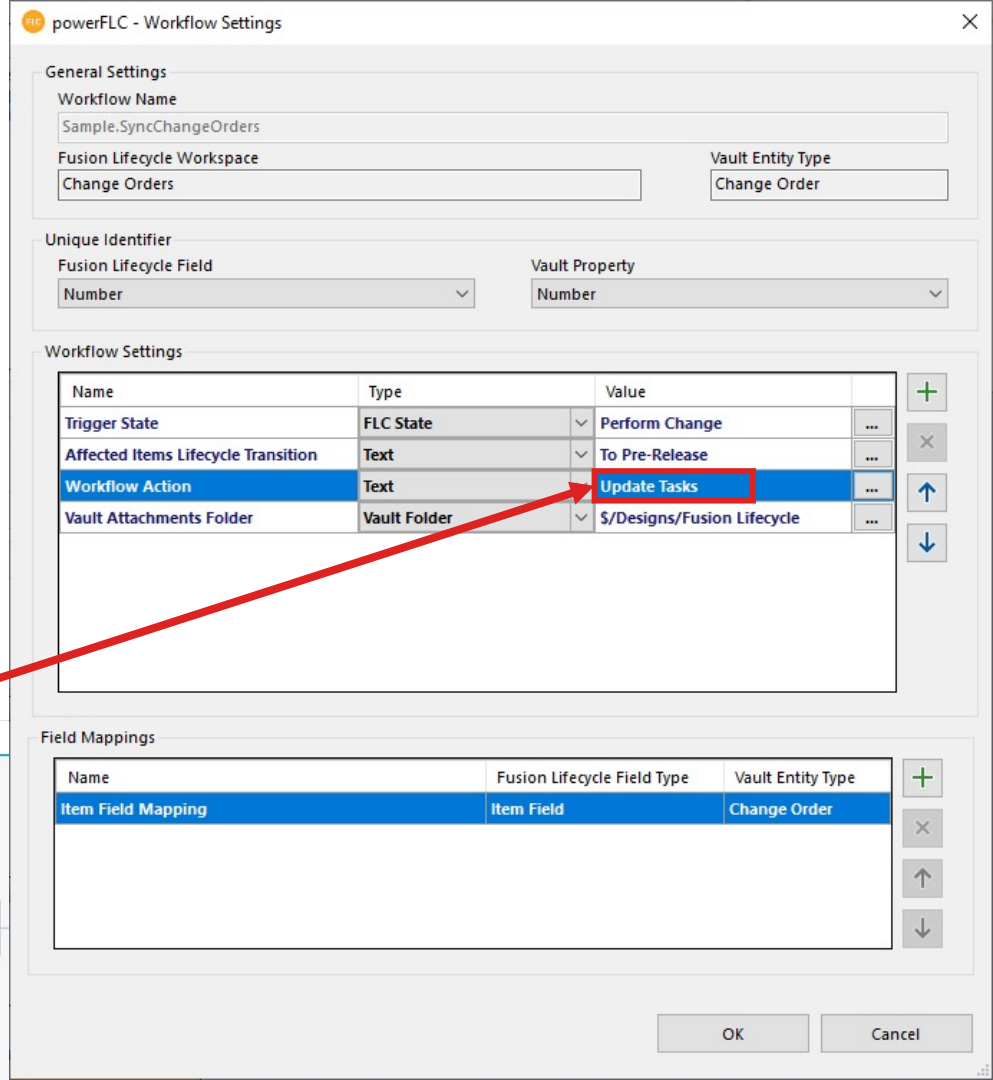


Configuration

Workflow Action

- Name of “Workflow Action” that is being executed
- When a Vault ECO is closed
- Can perform a state change

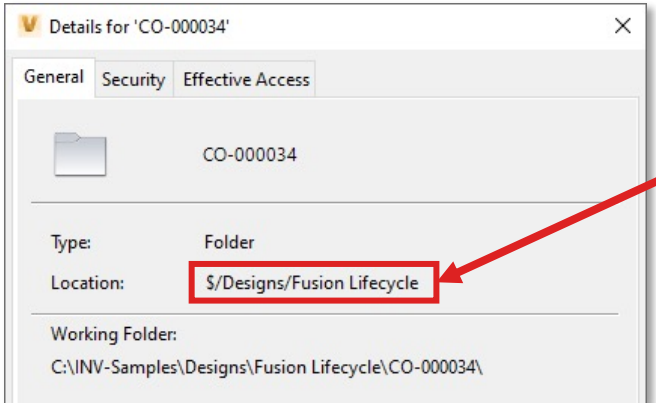


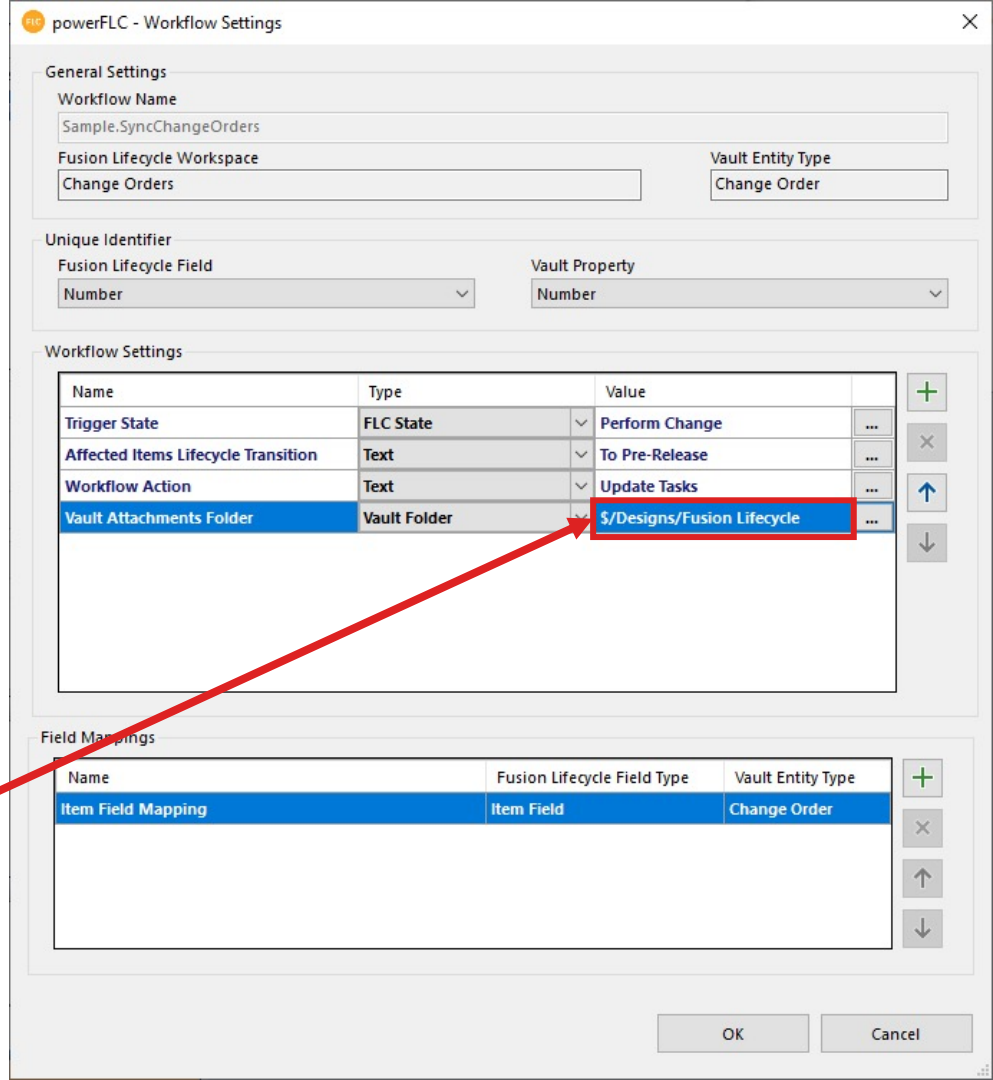


Configuration

Vault Attachments Folder

- Attachment location in Vault
- Downloaded from Fusion 360 Manage
- Subfolder = Change Order number

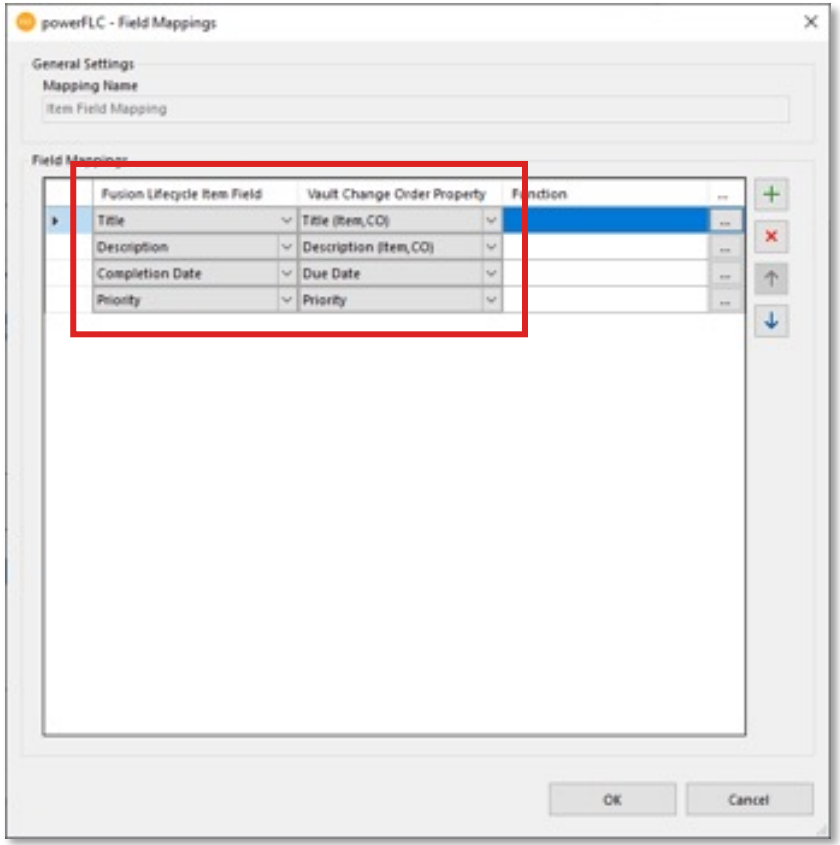




Configuration

Item Field Mapping

- Field Mapping
  - Fusion 360 Manage Change Order field to Vault ECO UDP
- Applied when ECO is
  - Created in Vault
  - Updated in Vault

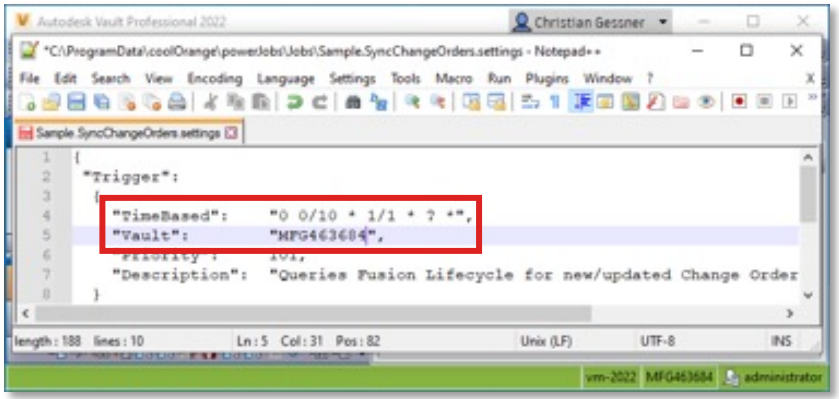


Configuration

Workflow Trigger

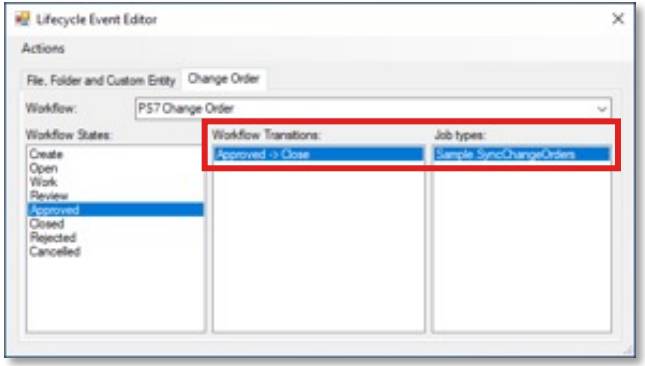
Periodically (every 10 minutes)

- *C:\ProgramData\coolOrange\powerJobs \Jobs\Sample.SynChangeOrders.settings*
- “TimeBased” = CRON syntax
- “Vault” = name of your Vault



State driven (on Vault ECO close)

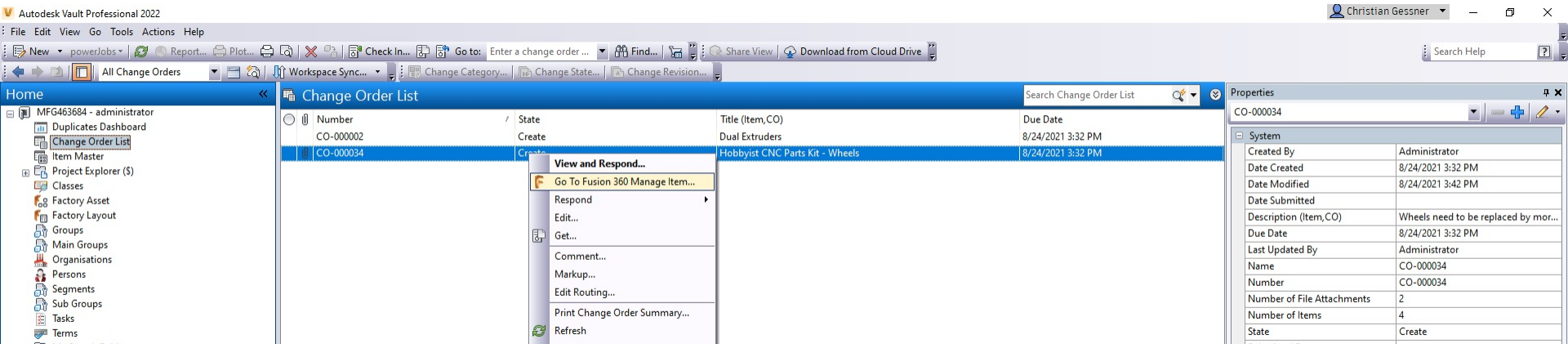
- Lifecycle Event Editor
- “Change Order” tab
- Job type: “Sample.SyncChangeOrders”



Customization Capabilities

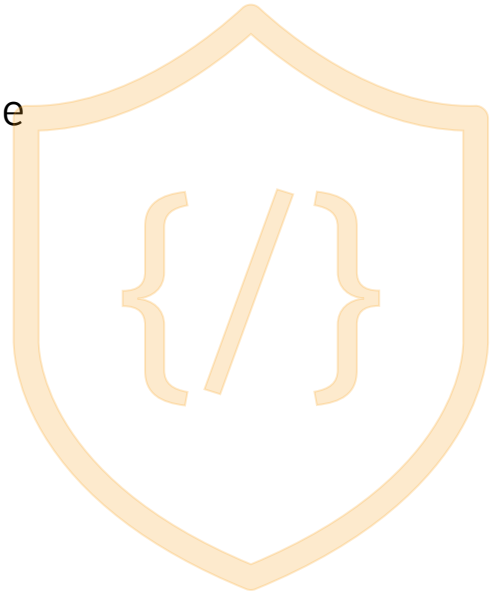
Vault Explorer Extension

- Change Order context menu
  - Go To Fusion 360 Manage Item
- Available on GitHub
  - Source code (C#) + Installer
  - Free
  - https://github.com/coolOrangeLabs/powerflc-explorer-extension



Examples how to extend the Workflow

- Use “Change Tasks” instead of “Change Orders”
- Synchronize two or more state changes
- Synchronize UDPs back from Vault to Fusion 360 Manage
- React to “Decline” use cases
  - ECO is “Cancelled” in Vault
  - Change Order is “declined” in Fusion 360 Manage



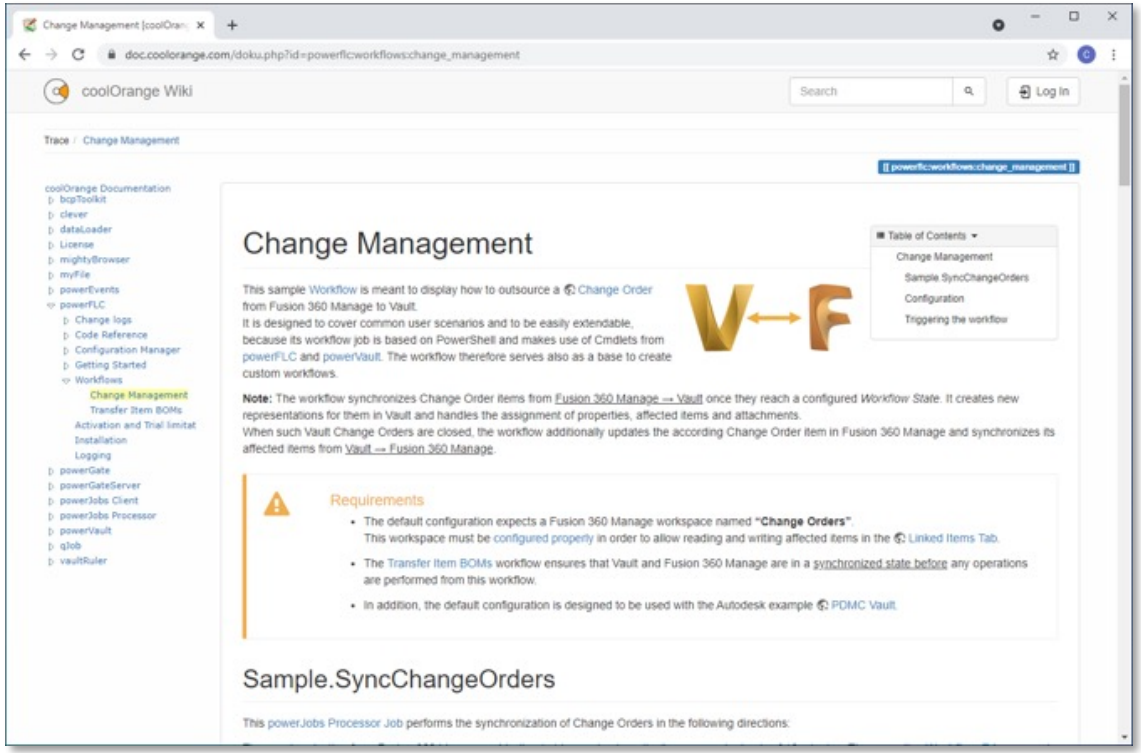
Additional resources

Workflow Documentation

https://doc.coolorange.com/doku.php?id=powerflc:workflows:change_management

- Workflow descriptions
- Installation
- Configuration

- https://doc.coolorange.com



AU 2020

Joint Effort: Vault and Fusion Lifecycle as the new dream couple

- powerPLM architecture
- Components involved
- Installation and configuration
- Customization
- Items and BOM workflow

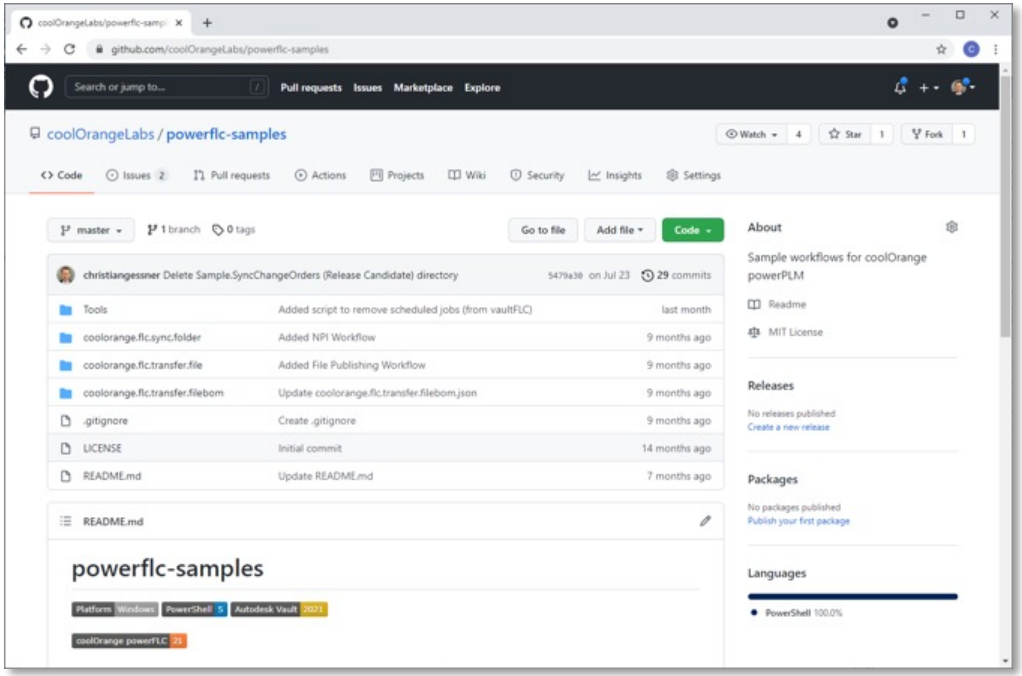
https://www.autodesk.com/autodesk-university/class/Joint-Effort-Vault-and-Fusion-Lifecycle-New-Dream-Couple-2020

Additional Workflows

coolOrangeLabs on GitHub

- Repository: **powerflc-samples**
  - NPI (New Product Introduction)
  - File centric Items and BOMs
  - Drawing File synchronization
  - …
- Additional workflows
  - Please share ideas!!!

- https://labs.coolorange.com



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