

MFG319298

## **PDM and PLM United: Vault Fusion Lifecycle Connector – a Zero-Code Connector**

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### **Learning Objectives**

- Discover the advantages of connecting PDM and PLM
- Learn how to install and configure the Vault Fusion Lifecycle Connector
- Learn about the most-important configuration details of the Vault Fusion Lifecycle Connector
- Learn how to customize and extend the Vault Fusion Lifecycle Connector

### **Description**

When used together, Vault Professional software and Fusion Lifecycle software provide a combined solution that is the best of all worlds for product data management (PDM) and product lifecycle management (PLM). While Vault runs on-premises to keep your CAD data safe behind your firewall, Fusion Lifecycle is cloud based for flexibility and ease of deployment. Sadly, this has made a seamless integration between the two difficult – until now. This class describes the benefits of the Vault Fusion Lifecycle Connector (vaultFLC), including installation, configuration, and extensibility, so you can create a best-of-all-worlds solution.

## **Speaker(s)**

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.

Brian Schanen works for Autodesk, Inc., as a Strategy Manager for Autodesk Data Management & Collaboration software in the Business Strategy & Marketing division. He is responsible for evangelizing Autodesk PLM and Data Management software both internally and externally, ensuring customer success with the software. This includes building and delivering materials for nurturing prospects, customers, and the partner channel on Autodesk PLM and product data management (PDM) solutions. With 18 years of PDM and PLM experience, he is an Autodesk University veteran speaker. On any given day, you can find him coaching prospects, mentoring new customers, and even assisting in deployments of Autodesk software.

## Table of Contents

<b><i>PDM and PLM United: Vault Fusion Lifecycle Connector – a Zero-Code Connector .....</i></b>	<b><i>1</i></b>
<b>Learning Objectives .....</b>	<b>1</b>
<b>Description .....</b>	<b>1</b>
<b>Speaker(s) .....</b>	<b>2</b>
<b>Table of Contents .....</b>	<b>3</b>
<b>Vault Fusion Lifecycle Connector a.k.a. vaultFLC .....</b>	<b>5</b>
New Product Introduction (NPI) .....	5
Transfer the CAD BOM to Fusion Lifecycle .....	5
Change Orders to Vault Files .....	5
<b>Architecture .....</b>	<b>6</b>
Components .....	6
Connections .....	6
HTTP Requirements .....	6
<b>Download, Installation and Configuration .....</b>	<b>7</b>
Download .....	7
Unblock .....	7
Pre-requisites .....	8
Installation .....	9
Installation validation .....	10
Licensing and Activation .....	12
Forge App .....	15
Fusion Lifecycle Whitelist .....	15
Fusion Lifecycle App Store Workspace .....	16
<b>Configuration Details .....</b>	<b>17</b>
Prefer current user .....	17
Vault User Permissions .....	17
Storage of settings .....	18
Delete settings .....	18
Load and save settings .....	18
Delete Attributes .....	19
<b>Logging .....</b>	<b>20</b>
Log Level .....	20
Log File .....	20
Vault Addin and Job Processor Addin .....	21
Job Error Description .....	21
Requests and Responses .....	21
<b>Workflow Details .....</b>	<b>22</b>
Project Workflow .....	22
Change Order Workflow .....	22
File Workflow .....	23
BOM Workflow .....	24

<b>Customize and extend the Vault Fusion Lifecycle Connector .....</b>	<b>25</b>
Vault Data Standard .....	25
coolOrange powerEvents .....	26
coolOrange powerJobs.....	26
<b>Additional Information .....</b>	<b>27</b>
Links .....	27

## **Vault Fusion Lifecycle Connector a.k.a. vaultFLC**

In collaboration with Autodesk, coolOrange created a product that connects Vault and Fusion Lifecycle and does not require any change of your configuration. It uses 100% of the latest Vault and Fusion Lifecycle API and standard tools such as the Vault Job Processor. This product is called *vaultFLC* and also known as *Vault Fusion Lifecycle Connector*.

Connecting the engineering department with the rest of the company improves overall product quality, reduces costs, and enhances the communication across departments. Autodesk Fusion Lifecycle is the cloud-based PLM solution for accelerating product development processes. Connecting Vault with Fusion Lifecycle is therefore an obvious step. With vaultFLC this task is super simple.

Common scenarios will help you get Vault connected to Fusion Lifecycle in less than 5 Minutes, in a reliable and modern way.

### **New Product Introduction (NPI)**

New projects in a very early stage need a place where information can be collected and discussed – in Fusion Lifecycle. As soon the project reaches a certain maturity, it's time to involve engineering. vaultFLC lets you define at which stage of the Fusion Lifecycle project and according Vault project shall be created in Vault, with given properties and sub-folders. Engineers can now start their work with all information set.

### **Transfer the CAD BOM to Fusion Lifecycle**

Bill of Material data is the core piece of your product. vaultFLC lets you publish the CAD BOM to Fusion Lifecycle at given Vault lifecycle transitions, for instance on release. The Inventor BOM gets extracted and transferred to a Fusion Lifecycle workspace. Missing items are created, and in case the BOM already exists, it gets updated with fresh data. There is no need for using Vault items, it all comes from the Inventor BOM.

### **Change Orders to Vault Files**

Fusion Lifecycle is a great place for managing changes. When a change request becomes an order, it's time to involve engineering, so that they can apply the requested changes. vaultFLC lets you map Fusion Lifecycle change order states with according Vault file states. When a change order in Fusion Lifecycle reaches a given state, the related files in Vault will be move to the according state as well. Once the change order is completed, the files in Vault will be released as well.

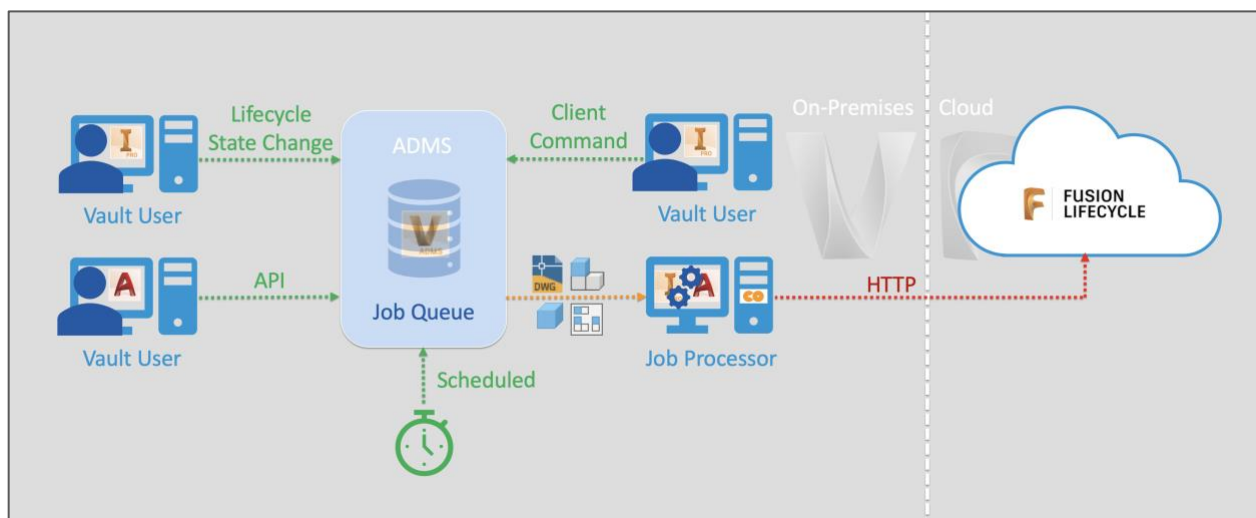
## Architecture

### Components

vaultFLC consists of two components:

- 1) A *Vault Explorer Extension* that allows administrators to configure the workflows
- 2) A *Vault Job Extensions* that utilizes the *Job Processor* to execute the jobs by using the settings done by administrator in the Vault Explorer

Depending on the workflow, the job is either triggered by a lifecycle state change or frequently on a configurable interval. The synchronization of items from Fusion Lifecycle to Vault is using a polling mechanism based on Vault's *Scheduled Jobs*. The transfer of data from Vault to Fusion Lifecycle is triggered by a file lifecycle state change in Vault. Either way, the communication is always initialized by Vault, from within a secure network (on-premises) so there is no need to open the firewall.



JOB PROCESSOR ARCHITECTURE

### Connections

vaultFLC uses *Autodesk Forge* to establish the communication between Vault and Fusion Lifecycle. More precisely, the communication is based on the Autodesk Forge NuGet package: <https://www.nuget.org/packages/Autodesk.Forge/>

### HTTP Requirements

*Transport Layer Security* (TLS) 1.2 must be activated on the Job Processor machine to establish a connection to Forge and Fusion Lifecycle. TLS 1.2 is enabled by default on the latest Microsoft operating systems such as Windows 10.

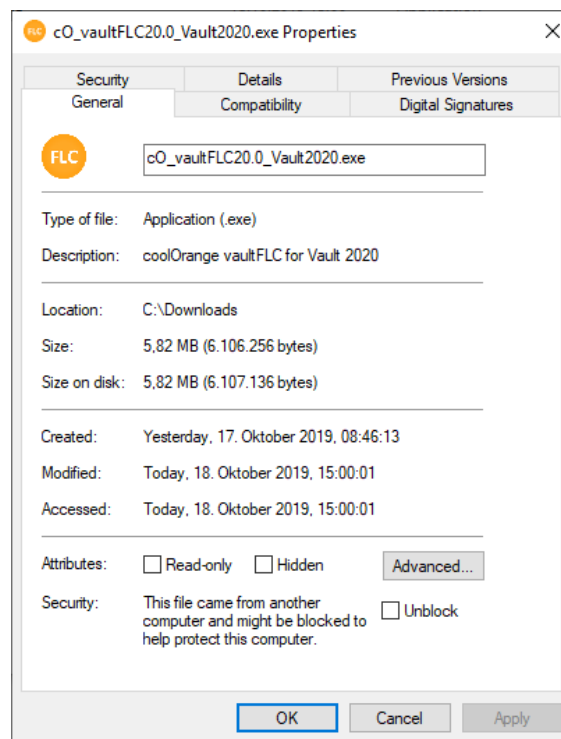
## Download, Installation and Configuration

### Download

The latest version of vaultFLC can be downloaded from the coolOrange download portal:  
<http://download.coolorange.com/>

### Unblock

Depending on network and security policy settings, the downloaded file may be blocked by Windows. If this is the case, open the file properties of the downloaded installer package, enable the “Unblock” checkbox and apply the changes with “Apply” or “OK”:



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*Note: The file can also be unblocked by using a PowerShell command:*

<https://docs.microsoft.com/en-us/powershell/module/microsoft.powershell.utility/unblock-file?view=powershell-6>

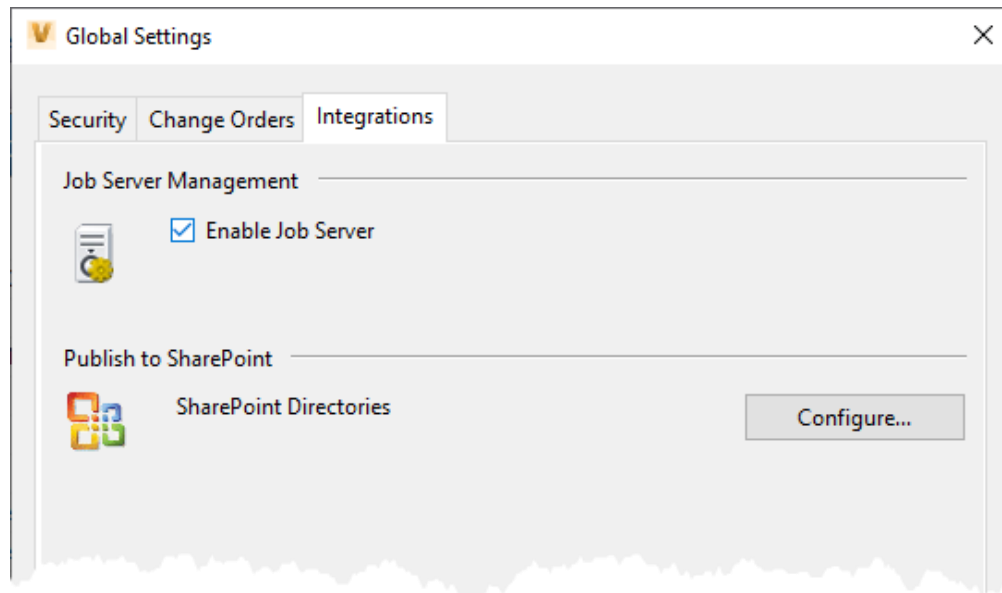
*Command:*

```
Get-Item "C:\cO_vaultFLC20.0_Vault2020.msi" | Unblock-File
```

---

## Pre-requisites

vaultFLC uses the *Autodesk Vault Job Processor* as a host to exchange data between Vault and Fusion Lifecycle. The option “Enable Job Server” has to be checked in the Vault settings to enable the Vault Job Processor functionality:



VAULT GLOBAL SETTINGS: “ENABLE JOB SERVER”

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*More detailed information about the concept of the Vault Job Processor can be obtained from:*

<https://knowledge.autodesk.com/support/vault-products/learn-explore/caas/CloudHelp/cloudhelp/2015/ENU/Vault/files/GUID-DAE28A42-45C3-4501-9BF2-78EE2F42808D-htm.html>

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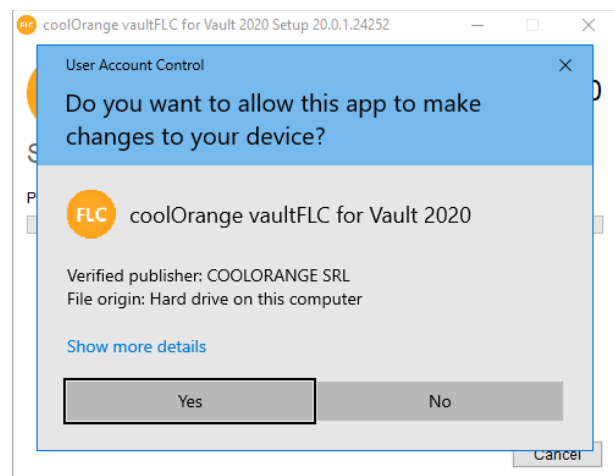
## Installation

The setup can be started by executing the downloaded installer package file (.exe). Even though an “Options” button exists on the first page that can be used to change the installation location, the same should never be changed. Otherwise vaultFLC will not function properly. All settings are pre-configured, an installation wizard guides through a very straight forward installation process:

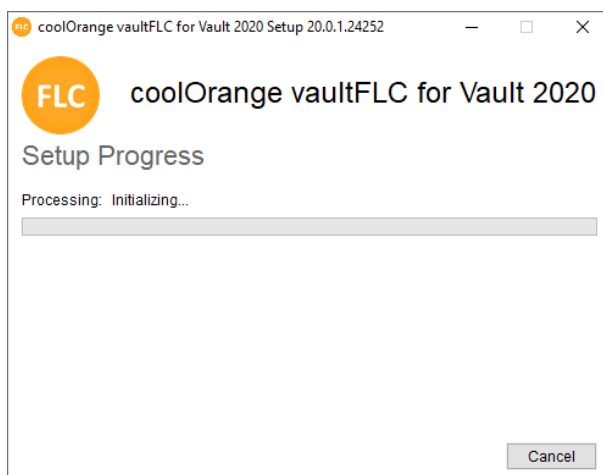
1. License Agreement page: Agree the license terms and conditions and click “Install”
2. User Account Control Dialog: click “Yes”
3. Setup Progress page: Wait for the installer
4. Confirmation page: click “Close”



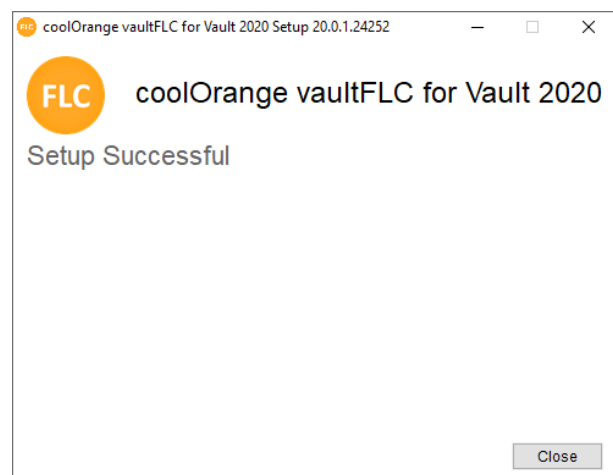
1. LICENSE AGREEMENT PAGE



2. USER ACCOUNT CONTROL DIALOG



3. SETUP PROGRESS PAGE



4. CONFIRMATION PAGE

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*Note: if a beta version of vaultFLC (version smaller than 20.0.1) was installed an uninstallation is necessary before installing the released version!*

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## Installation validation

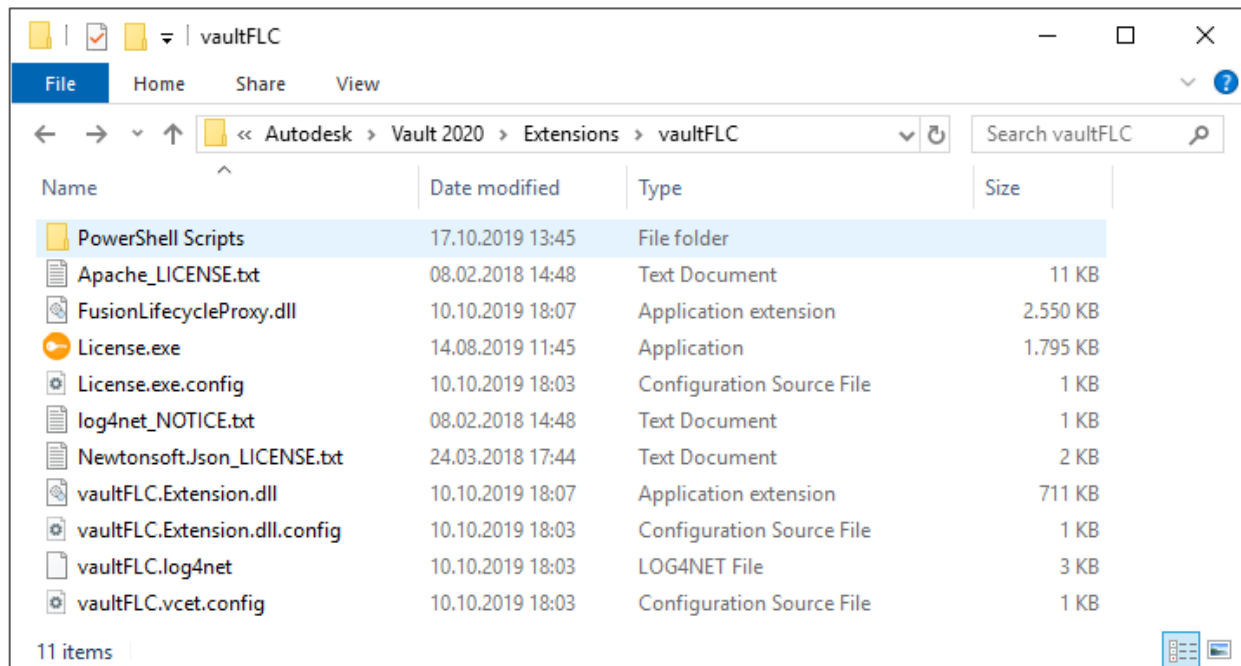
vaultFLC is a Vault Extension. All files - except the once that are installed to the Windows *Global Assembly Cache (GAC)* - can be found in the Vault extensions directory:

*C:\ProgramData\Autodesk\Vault [Version]\Extensions\vaultFLC*

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*Note: vaultFLC installer installs dependent assemblies to the Global Assembly Cache (GAC). Therefore, the assemblies cannot be distributed other than executing the setup.*

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CONTENT OF THE VAULT EXTENSION

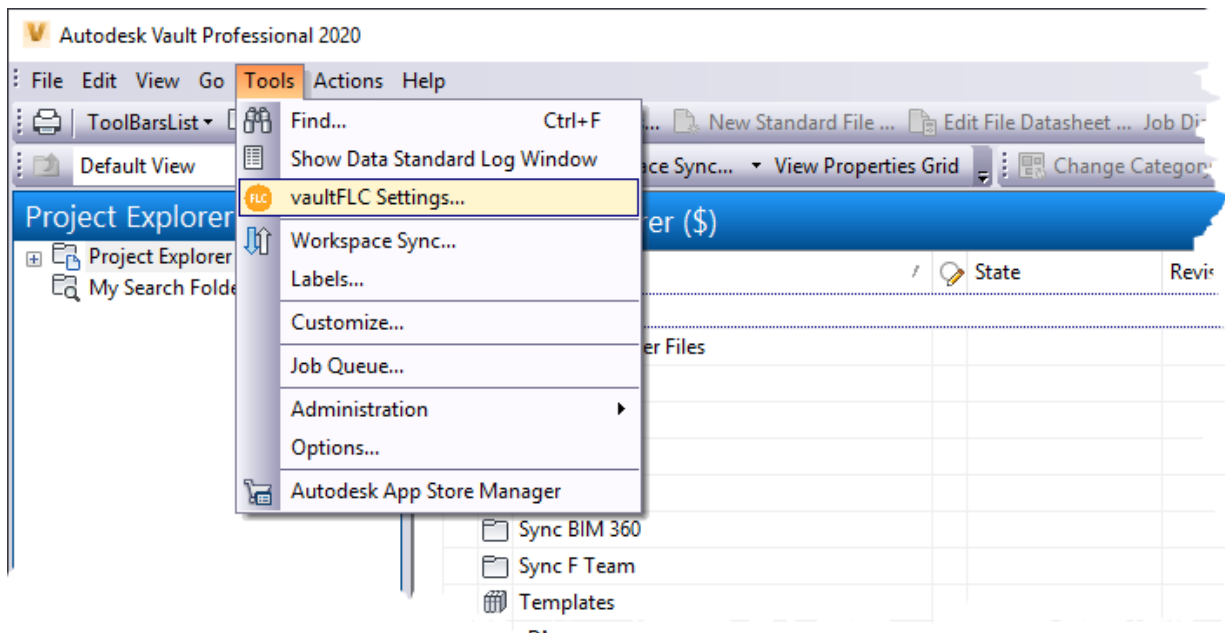
Folder / File	Description
PowerShell Scripts	Directory that contains PowerShell script files for administrative purposes
FusionLifecycleProxy.dll	Core functionality to communicate with Fusion Lifecycle <b>Note:</b> References assemblies in the GAC
License.exe	Application to register and activate the product
vaultFLC.Extension.dll	Vault Jobs and the Vault Explorer Extension
vaultFLC.vcet.config	Configuration file for Vault Jobs and the Vault Explorer Extension
vaultFLC.log4net	Configuration file for the vaultFLC logging functionality

#### DESCRIPTION OF THE FILES

Following shared libraries are installed to the GAC:

- *coolOrange.logging.dll*
- *coolOrange.VaultServices\_[VAULT VERSION].dll*

Once installed, the menu button “*vaultFLC Settings...*” can be found in the Vault Explorer tools menu:

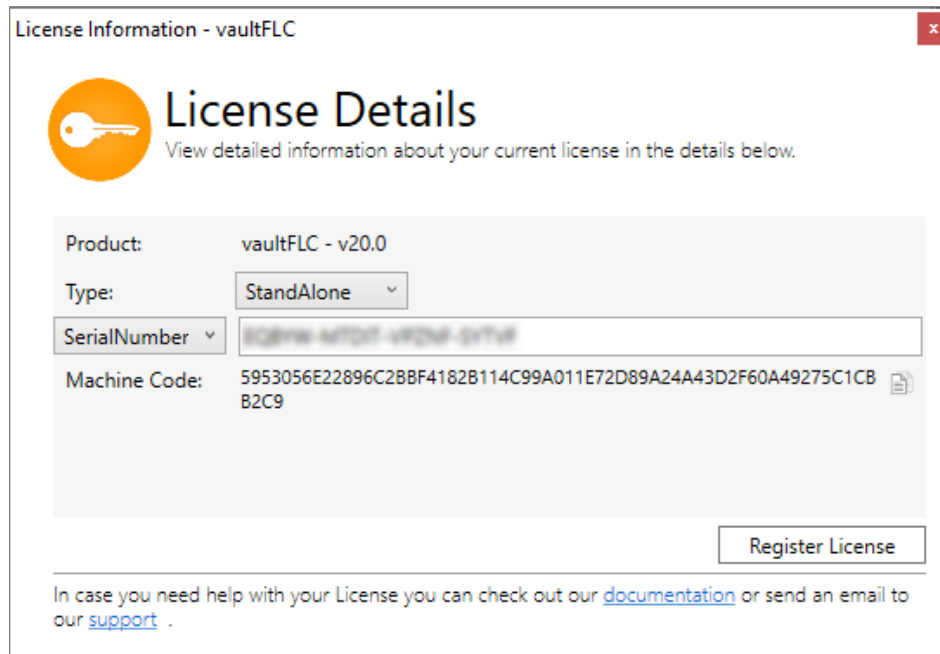


## Licensing and Activation

To activate vaultFLC, a serial number needs to be provided. To enter the serial number, the License activation utility must be started:

`C:\ProgramData\Autodesk\Vault [VERSION]\Extensions\vaultFLC\License.exe`

Once started, the serial number must be entered and submitted with “Register License”:



The screenshot shows a window titled "License Information - vaultFLC". It features an orange key icon and the heading "License Details" with the subtitle "View detailed information about your current license in the details below." The form contains the following fields:

Product:	vaultFLC - v20.0
Type:	StandAlone
SerialNumber	<input type="text" value="5953056E22896C28BF4182B114C99A011E72D89A24A43D2F60A49275C1CB B2C9"/>
Machine Code:	5953056E22896C28BF4182B114C99A011E72D89A24A43D2F60A49275C1CB B2C9

At the bottom right is a "Register License" button. Below the form, there is a note: "In case you need help with your License you can check out our [documentation](#) or send an email to our [support](#) ."

### LICENSE REGISTRATION UTILITY

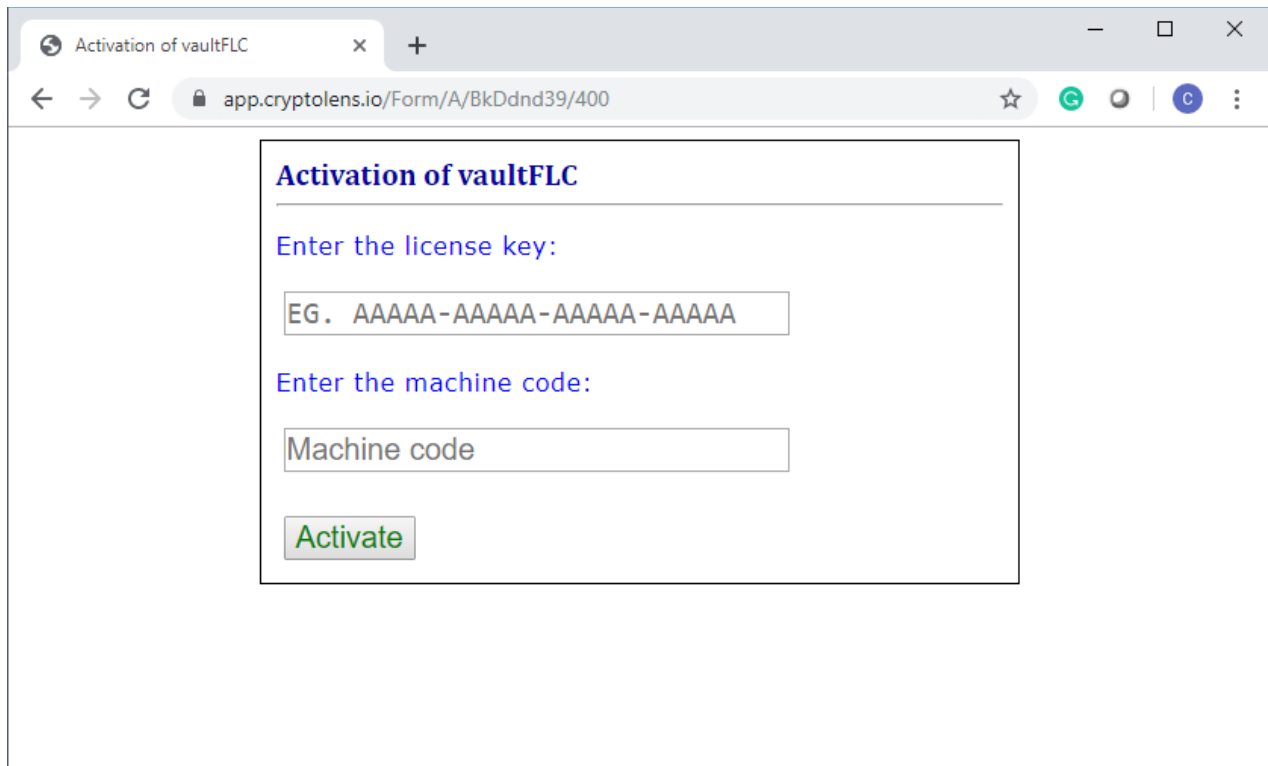
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*To request a trial license or to purchase vaultFLC or any other product from coolOrange, please contact [sales@coolorange.com](mailto:sales@coolorange.com)*

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vaultFLC uses an online activation service that receives the serial number along with an automatically generated machine code that is unique for each machine. Other than activating the product using *License.exe*, it is possible to use a browser to activate the product. In this case, *License.exe* still needs to be used to obtain the machine code. The link to the activation page is:

<https://app.cryptolens.io/Form/A/BkDdnd39/400>



Activation of vaultFLC

Enter the license key:

EG. AAAAA-AAAAA-AAAAA-AAAAA

Enter the machine code:

Machine code

Activate

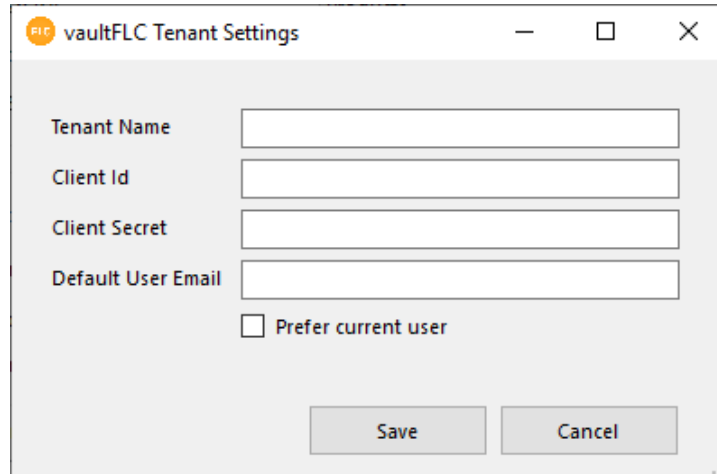
ONLINE ACTIVATION IN A WEB BROWSER

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*Note: if a beta version of vaultFLC (version smaller than 20.0.1) was installed and registered, the registration cannot be applied to the released version. The serial number must be re-entered, and the released version must be re-activated. In this case, the same serial number can be used.*

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When launched the first time, a dialog appears to gather the information needed to connect to Fusion Lifecycle:



The dialog box is titled "vaultFLC Tenant Settings". It contains four text input fields: "Tenant Name", "Client Id", "Client Secret", and "Default User Email". Below these fields is a checkbox labeled "Prefer current user". At the bottom right are "Save" and "Cancel" buttons.

TENANT SETTINGS IN VAULT SETTINGS DIALOG

This dialog can also be exposed using the "..."-button in the settings dialog:



The dialog box is titled "vaultFLC Settings". It features a "Fusion Lifecycle Authentication" section with a "Tenant Name" field. To the right of the "Tenant Name" field is a button with three dots "...". Below this section is a horizontal tab bar with tabs labeled "Projects", "Change Orders", "Files", and "Interf. COMs".

## Forge App

For vaultFLC to communicate with Fusion Lifecycle, a common platform is necessary that can be used by vaultFLC and that is trusted by Fusion Lifecycle. This common platform is Autodesk Forge's *Authentication (OAuth) API*.

To get access to the Auth API a Forge app must be created:  
<https://forge.autodesk.com/en/docs/oauth/v2/tutorials/create-app/>

When creating a new app in Forge, the following information has to be provided:

Name	Description
APIs	At least one API must be chosen. None of the selected APIs will be used by vaultFLC but only the Authentication API that is always available, independent of the selection
Name	Any name can be chosen
Description	Any description can be chosen
Callback URL	A valid URL must be provided. E.g. <a href="https://localhost">https://localhost</a> . This URL won't be used by vaultFLC since this is only needed for 3-legged authentication

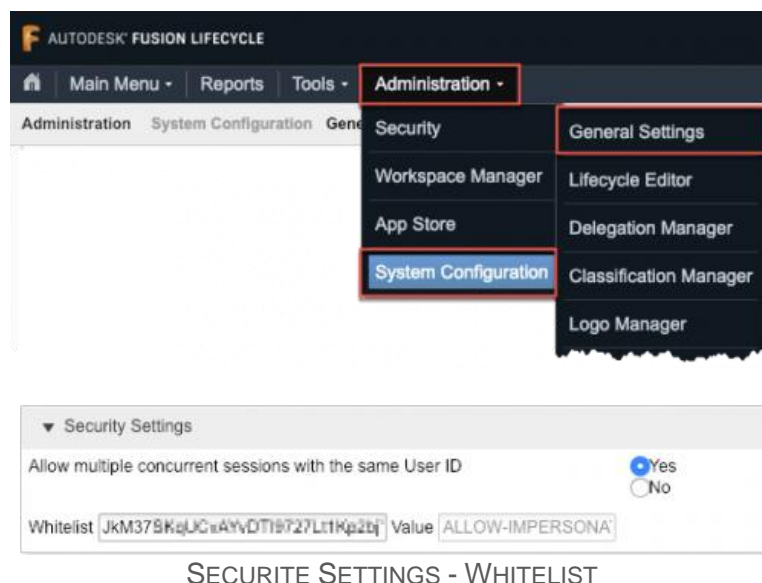
Once created, it provides a **Client ID** and a **Client Secret**.

## Fusion Lifecycle Whitelist

vaultFLC uses Forge's 2-legged authentication to communicate with Fusion Lifecycle.

In order for Fusion Lifecycle to allow 2-legged authentication, the Forge Apps Client ID needs to be added to the whitelist in Fusion Lifecycle.

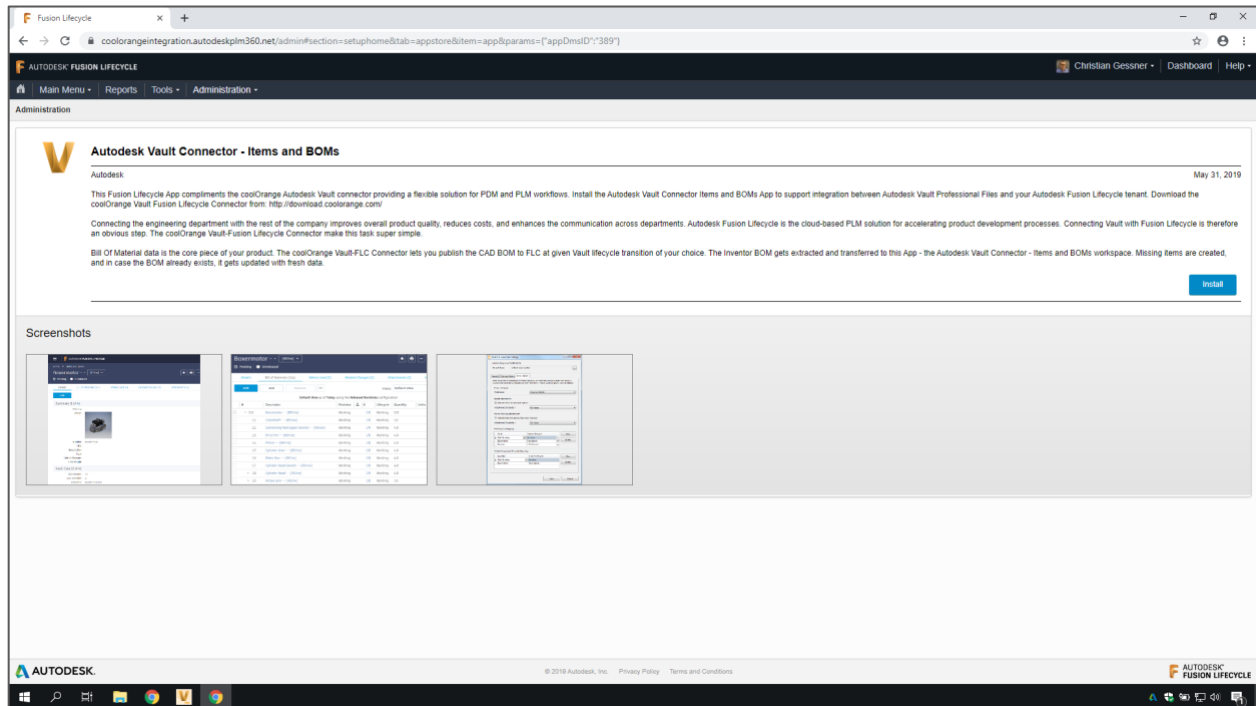
The whitelist can be modified in the *Security Settings*:  
*Administration -> System Configuration -> General Settings*



SECURITE SETTINGS - WHITELIST

## Fusion Lifecycle App Store Workspace

There is a special workspace available in the Fusion Lifecycle *App Store* that provides all necessary fields and configuration for the *Items and BOMs* workflow of vaultFLC:



### FUSION LIFECYCLE APP STORE: WORKSPACE FOR THE ITEMS AND BOMS WORKFLOW

To add this workspace to Fusion Lifecycle, "Install" needs to be clicked. After the installation, the necessary permissions have to be granted and the menus have to be adjusted in order to make this workspace visible.

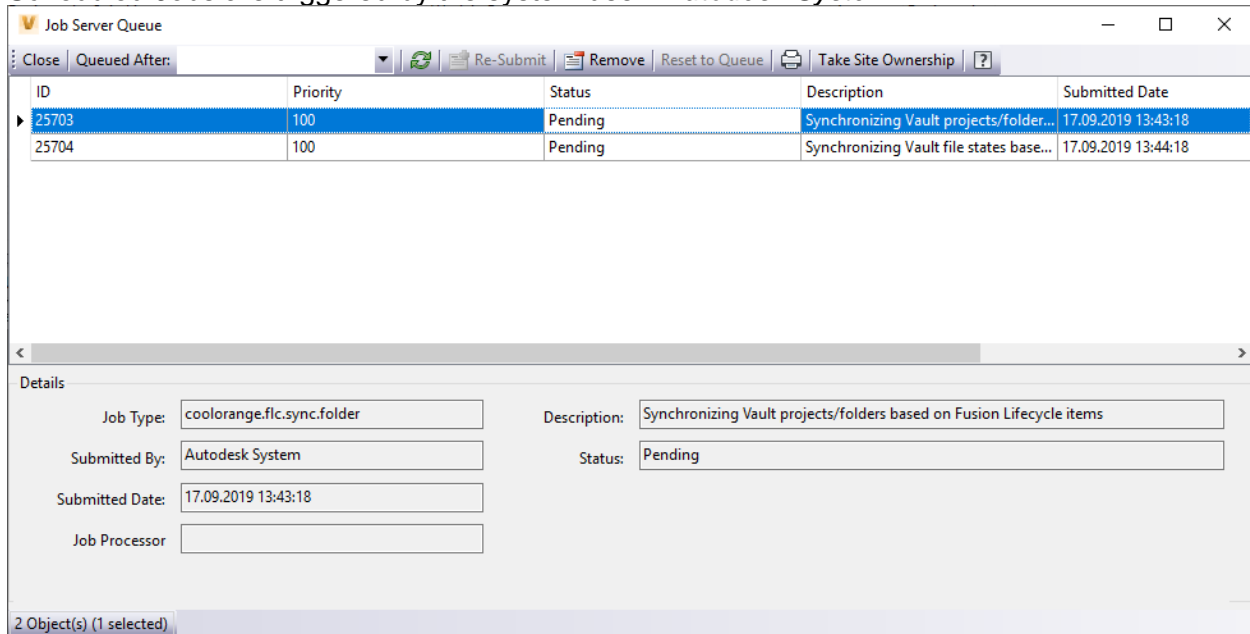


## Configuration Details

### Prefer current user

For the jobs that are queued by Vault's Scheduled Jobs, the switch "Prefer current user" will not be considered but the user that is configured as *Default User* will be used.

Scheduled Jobs are triggered by the system user "*Autodesk System*":



The screenshot shows the 'Job Server Queue' window. It contains a table with the following data:

ID	Priority	Status	Description	Submitted Date
25703	100	Pending	Synchronizing Vault projects/folder...	17.09.2019 13:43:18
25704	100	Pending	Synchronizing Vault file states base...	17.09.2019 13:44:18

Below the table, the 'Details' section for the selected job (ID 25703) is shown:

- Job Type: coolorange.flc.sync.folder
- Submitted By: Autodesk System
- Submitted Date: 17.09.2019 13:43:18
- Job Processor: (empty)
- Description: Synchronizing Vault projects/folders based on Fusion Lifecycle items
- Status: Pending

At the bottom, it indicates '2 Object(s) (1 selected)'.

JOBS TRIGGERED BY THE "SCHEDULED JOBS" FUNCTIONALITY OF VAULT

Actions that can be associated to a Vault user, e.g. a file lifecycle state change, will use the "Prefer current user" switch based on the following logic:

If "Prefer current user" is enabled, the Vault user email address will be used to establish the connection to Fusion Lifecycle. If there is no email address associated to this user in Vault, the *Default user* will be taken.

If "Prefer current user" is disabled, the *Default user* is used, independent from who performed the state change.

### Vault User Permissions

The settings dialog of vaultFLC needs to be opened as "Administrator" or a user with the permission "Vault Set Options". Otherwise Vault cannot store the settings and returns with error 303: "Permission Denied" (Invalid permissions for transaction).

The user that logs in to the Job Processor must have the permissions "Vault Get Options" for the same reason. This user must read the settings from the *Vault Options* to execute the jobs.

## Storage of settings

The settings made in the vaultFLC settings dialog are stored in *Vault Options*. The following option names are used:

Option Name	Description
VAULTFLC_CONNECTION_SETTINGS	Connection settings such as tenant, Client Id and Client secret and the like
VAULTFLC_MAPPING_SETTINGS	Mapping settings of all available workflows including workspaces and field mappings

## Delete settings

All the settings can be deleted by executing a pre-delivered PowerShell script:

```
C:\ProgramData\Autodesk\Vault [Version]\Extensions\vaultFLC\PowerShell Scripts\  
DeleteSettings.ps1
```

## Load and save settings

In order to save and load existing vaultFLC configurations, two key combinations are available when the settings dialog of vaultFLC is open:

- *Control + Alt + "S"*: to export the settings to a JSON file
- *Control + Alt + "O"*: to import previously exported settings from the JSON file

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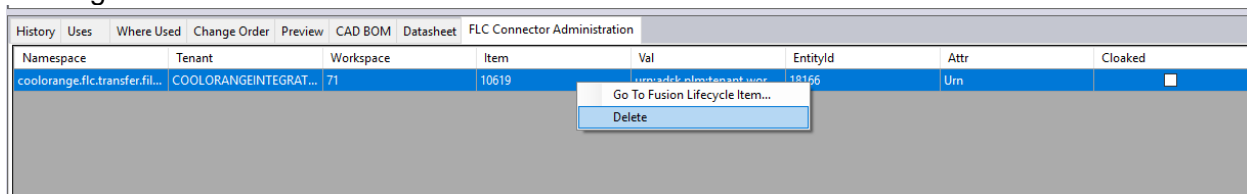
*Note: the ID of the Vault Properties and the Fusion Lifecycle properties are used to persist the configured settings in the JSON file. An ID of a Vault User Defined Property (UDP) varies from installation to installation and therefore the JSON file can only be used for the same Vault.*

---

## Delete Attributes

In order to recognize that an item is available in Fusion Lifecycle for a selected file or folder in Vault, *Attributes* will be used that connect the Vault entity with a Fusion Lifecycle URN.

vaultFLC extends the Vault UI with an additional tab that allows the Administrator to delete an existing attribute:

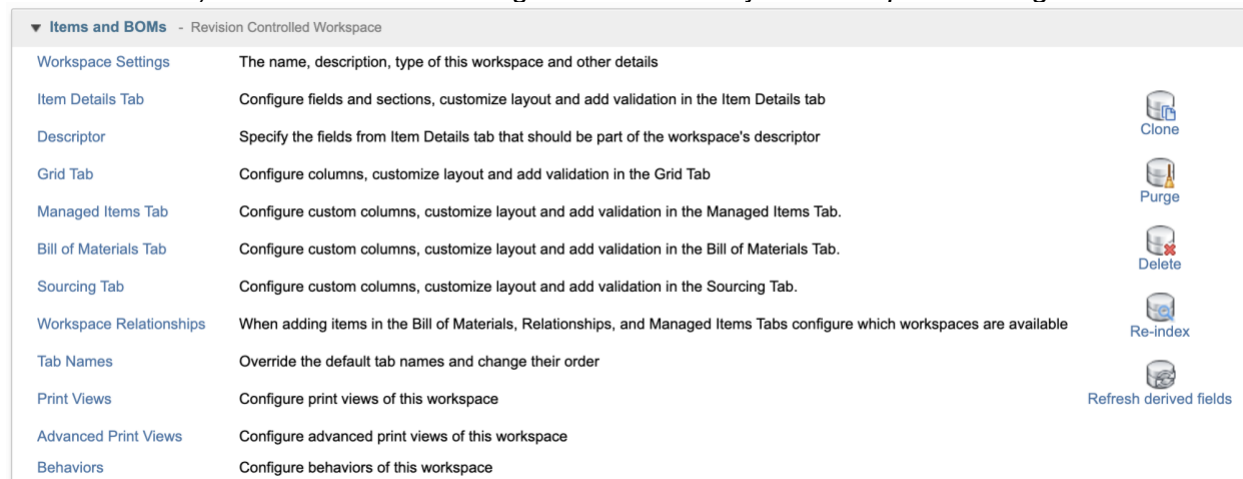


In this case, the corresponding Fusion Lifecycle item needs to be deleted too, otherwise the vaultFLC business logic will try to create a new item in Fusion Lifecycle even though that item already exists.

All the attributes can be deleted by executing a pre-delivered PowerShell script:

*C:\ProgramData\Autodesk\Vault [Version]\Extensions\vaultFLC\PowerShell Scripts\DeleteAttributes.ps1*

When executing that script, all related workspaces in Fusion Lifecycle must be purged (all entries deleted). This can be done using the Fusion Lifecycle *Workspace Manager*.



WORKSPACE MANAGER WITH “PURGE” OPTION ON THE RIGHT

## Logging

vaultFLC uses *Apache log4net* as core logging library, and additionally *PostSharp Diagnostics* for extended Debug logging.

By default, all the logs are stored in a logfile located in

`C:\Users\{USER}\AppData\Local\coolOrange\vaultFLC\Logs\vaultFLC.log`

and it contains only *Info*, *Warning* and *Error* log levels. The log4net settings file is located in

`C:\ProgramData\Autodesk\Vault {Version}\Extensions\vaultFLC\vaultFLC.log4net.`

Further information about log4net configuration can be found on the official log4net website:  
<https://logging.apache.org/log4net/release/manual/configuration.html>

## Log Level

The log level can be increased to get more detailed information in case of issues. The following resource can be used to get more information on how to change the log level:

[https://www.coolorange.com/wiki/doku.php?id=powerjobs:logging:log\\_level](https://www.coolorange.com/wiki/doku.php?id=powerjobs:logging:log_level)

## Log File

The file *vaultFLC.log4net* contains one logging-appender, the *FileAppender*:

```
<appender name="FileAppender" type="log4net.Appender.RollingFileAppender">
```

If the log level needs to be changed, the configuration can be changed as shown in the following example:

```
<root>
  <level value="INFO" />
  <appender-ref ref="FileAppender"/>
</root>
```

In the root element, the log level for all appenders can be configured. When set to "DEBUG", all the appenders will log in debug mode.

The following line configures the output path and the name of the logfile:

```
<param name="File" value="{LOCALAPPDATA}\coolOrange\vaultFLC\Logs\
                                vaultFLC.log" />
```

### **Vault Addin and Job Processor Addin**

The following section is used to control the logging behavior for the vaultFLC menu in Vault and the logging of the Jobs executed by the Job Processor:

```
<logger name="vaultFLC.Extension">  
  <appender-ref ref="JobProcessorServicesAppender" />  
</logger>
```

### **Job Error Description**

When jobs are failing with exceptions, the job is marked as error in the Job Queue. In the description of the job you can find all the errors that happened during execution. The format of the error description or the log level can be configured similar as for the logfile:

```
<appender name="JobProcessorServicesAppender"  
  type="vaultFLC.Extension.log4net.JobProcessorServicesAppender" >
```

This appender controls, how vaultFLC logs to the default Job Processor logging mechanism. By default, the Autodesk Job Processor creates logfiles located in the Job Processor installation directory:

*C:\Program Files\Autodesk\Vault Professional {YEAR}\Explorer{GUID}\JobProcessor.log*

### **Requests and Responses**

The following section is used to control the logging behavior for the requests/responses made to the Fusion Lifecycle backend:

```
<logger name="FusionLifecycleProxy.RestProxy">  
  <appender-ref ref="ColoredConsoleAppender" />  
</logger>
```

## Workflow Details

### Project Workflow

The Project Synchronization feature allows you to synchronize Fusion Lifecycle Items to Vault folders/projects using Scheduled jobs.

---

*Note: The Projects workflow pulls data from Fusion Lifecycle to Vault.*

---

#### **Mechanism:**

Polling of project data from Fusion Lifecycle to Vault using *Scheduled Jobs*

#### **Job Type:**

*coolorange.flc.sync.folder*

#### **Attributes:**

*coolorange.flc.sync.folder.attributes*

#### **Configuration:**

[https://www.coolorange.com/wiki/doku.php?id=vaultflc:configuration:project\\_sync](https://www.coolorange.com/wiki/doku.php?id=vaultflc:configuration:project_sync)

### Change Order Workflow

The Change Management feature allows you to map Fusion Lifecycle Change Order states to Vault File Lifecycle states, managing approvals and signoff of vaulted designs from Fusion Lifecycle.

---

*Note: The Change Order workflow pulls the states from Fusion Lifecycle Change Orders to Vault Files.*

*The Fusion Lifecycle workspace for change orders must contain items that are linked to items that were generated from the File BOM Transfer workflow.*

---

#### **Mechanism:**

Polling of change order data from Fusion Lifecycle to Vault using *Scheduled Jobs*

#### **Job Type:**

*coolorange.flc.sync.changeorder*

#### **Attributes:**

*coolorange.flc.transfer.filebom.attributes*

#### **Configuration:**

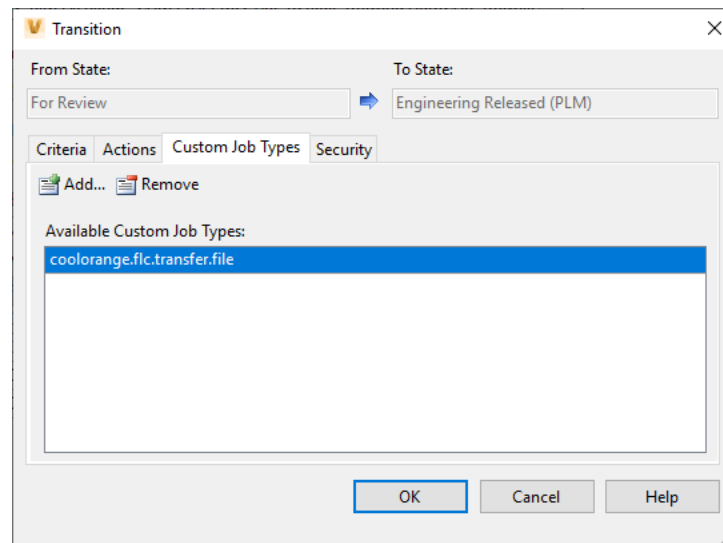
[https://www.coolorange.com/wiki/doku.php?id=vaultflc:configuration:change\\_mgmt](https://www.coolorange.com/wiki/doku.php?id=vaultflc:configuration:change_mgmt)

## File Workflow

The file transfer feature allows you to transfer files and attachments from Vault to Fusion Lifecycle with jobs that get queued on state changes.

### Mechanism:

A file lifecycle state transition triggers a job that transfers file metadata and attachments from Vault to Fusion Lifecycle. The trigger can be configured in Vault using the *Custom Job Types* functionality:



### Job Type:

*coolorange.flc.transfer.file*

### Attributes:

*coolorange.flc.transfer.file.attributes*

### Configuration:

[https://www.coolorange.com/wiki/doku.php?id=vaultflc:configuration:file\\_sync](https://www.coolorange.com/wiki/doku.php?id=vaultflc:configuration:file_sync)

## BOM Workflow

The File BOM Transfer feature allows you to transfer Vault file metadata, file and drawing attachments as well as Bill of Material information to Fusion Lifecycle at configurable Vault file lifecycle state changes.

---

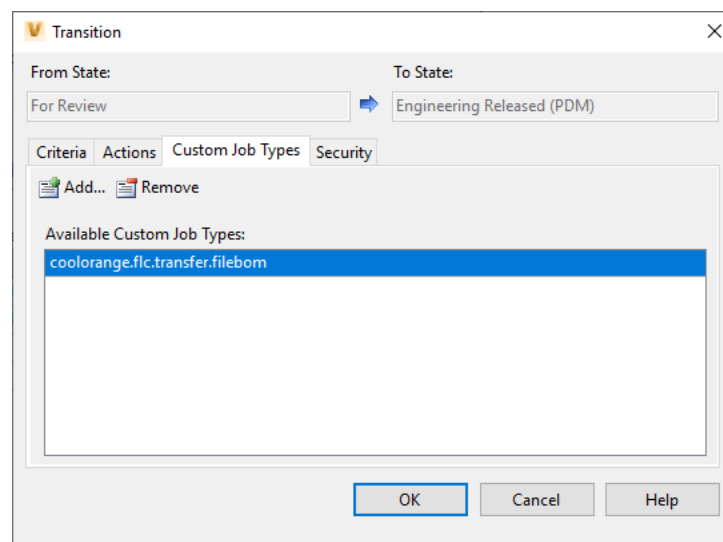
*Note: The Vault Option “Enforce consistent project file for all clients” must be enabled in order for the job to be able to extract the BOM data. More information on how to enable this option can be found [here](https://knowledge.autodesk.com/support/vault-products/learn-explore/caas/CloudHelp/cloudhelp/2020/ENU/Vault-Admin/files/GUID-B2E77991-E8BA-41D3-83C8-565510F3C9D1-htm.html):*

<https://knowledge.autodesk.com/support/vault-products/learn-explore/caas/CloudHelp/cloudhelp/2020/ENU/Vault-Admin/files/GUID-B2E77991-E8BA-41D3-83C8-565510F3C9D1-htm.html>

---

### Mechanism:

A file lifecycle state transition triggers a job that transfers file metadata, BOM information and attachments from Vault to Fusion Lifecycle. The trigger can be configured in Vault using the *Custom Job Types* functionality:



### Job Type:

*coolorange.flc.transfer.filebom*

### Attributes:

*coolorange.flc.transfer.filebom.attributes*

### Configuration:

[https://www.coolorange.com/wiki/doku.php?id=vaultflc:configuration:filebom\\_transfer](https://www.coolorange.com/wiki/doku.php?id=vaultflc:configuration:filebom_transfer)



## Customize and extend the Vault Fusion Lifecycle Connector

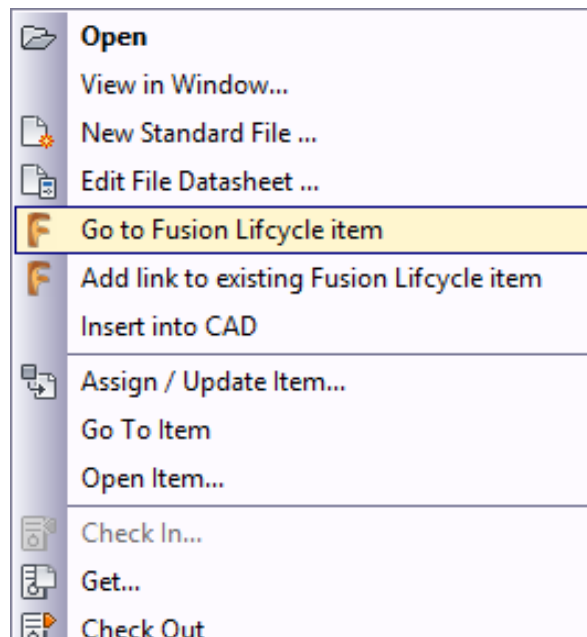
Even though vaultFLC is designed to work without any 3<sup>rd</sup> party products, the user experience and the behaviors can be improved and extend by using additional software and tools.

### Vault Data Standard

Vault Data Standard (VDS) is a data control feature for the Vault Client, Vault Office Client, Inventor, and AutoCAD that helps you enter data for new or existing files in a standardized format.

Vault has many ways in which you can enter or modify data surrounding a file, but some companies require a standardized format for their files. With Data Standard, administrators can not only design a save dialog that enforces the company's requirements for file data, but are also able to extend the Vault UI with new buttons and new tabs that can execute PowerShell scripts.

The following picture shows how Vault Data Standard extends a context menu in Vault with functionality to interact with Fusion Lifecycle:



VAULT FILE CONTEXT MENU WITH TWO ADDITIONAL ENTRIES TO INTERACT WITH FUSION LIFECYCLE

## coolOrange powerEvents



powerEvents enhances existing Vault workflows and makes it possible to extend the business logic of a workflow. Would like to add more control to lifecycle transitions? Or perform an action on certain check-in/-out operation, or other Vault actions? Vault permits to be customized for several years, but this was limited to developers only. powerEvents makes it now easy to add custom logic via the Windows PowerShell scripting language, so that you can tweak your Vault the way you want.

Together with vaultFLC, powerEvents can be used to trigger jobs more intelligently than the Vault “Custom Job Types” functionality. Examples:

- Trigger jobs to transfer drawings to one workspace and models to another workspace
- Trigger jobs to create a PDF file or any other neutral format file before that file is transferred to Fusion Lifecycle

## coolOrange powerJobs



powerJobs extends a Vault Job Processor and makes it possible to create custom jobs via a simple scripting language. No need for high end development skills. It comes with ready to use samples for the most common use cases, such as publishing to other file formats, sending email notification and printing.

Together with vaultFLC powerJobs can be used to create new, custom workflows such as:

- Transfer Attachments from Fusion Lifecycle to Vault during project creation
- Scan Fusion Lifecycle for new attachments and transfer new files to Vault
- Transfer native Files (e.g. DWG, Inventor or Office) from Vault to Fusion Lifecycle
- Transfer BOM from AutoCAD/SolidWorks/other formats (BOM Blobs)
- Transfer BOMs based on Vault Items (Item Master)
- Provide Vault Thin/Thick-Client Links
- Synchronize Vault Change Orders (ECOs) with Fusion Lifecycle Change Orders
- Synchronize Vault Custom Objects with Fusion Lifecycle Items

## Additional Information

### Links

Additional Class Material

[https://github.com/christiangessner/AU2019\\_MFG319298](https://github.com/christiangessner/AU2019_MFG319298)

vaultFLC Official Autodesk Website

<https://www.autodesk.com/solutions/vault-and-fusion-lifecycle>

vaultFLC Official coolOrange Website

<https://www.coolorange.com/en-eu/connect.html#fusionLifecycle>

vaultFLC Online Documentation

<https://www.coolorange.com/wiki/doku.php?id=vaultflc>

Help Forum

<https://support.coolorange.com/support/discussions/forums/22000188646>

Autodesk License: Terms of Use

<https://www.autodesk.com/company/terms-of-use/en/subscription-types>

Vault Data Standard Documentation

<https://knowledge.autodesk.com/support/vault-products/learn-explore/caas/CloudHelp/cloudhelp/2019/ENU/Vault-General/files/GUID-D475D22B-3873-4B78-9936-DD773F109136-htm.html>

powerJobs Website

<https://www.coolorange.com/en-eu/enhance.html#powerJobs>

powerEvents Website

<https://www.coolorange.com/en-eu/enhance.html#powerEvents>