



AUTODESK UNIVERSITY 2015

PL10733

The Power of Custom Objects

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Learning Objectives

- Discover what custom objects are
- Discover custom object security
- Discover utilizing categories with custom objects
- Discover UI modification with custom objects

Description

Have you ever thought, “Wow, I'd like to use Vault Professional software to manage that”? Vault software is great at managing files and items, but what about other things like project information, task lists, and whatever else you can dream up. Well, with Custom Objects now you can. This exciting class will teach you how to get started with Custom Objects. You'll learn about creating custom objects, custom object security, categories, and maybe even a little UI modification.

Your AU Experts

Robert Stein

Based in Novi, Michigan, Robert Stein manages a team of data management implementation consultants for Autodesk, Inc., focusing on data management. Prior to working for Autodesk, Robert worked as a designer, CAD manager, and consultant at a variety of companies. Robert has worked on a number of large-scale implementations and custom programming projects with Autodesk manufacturing products, including Inventor software, AutoCAD Electrical software, AutoCAD Mechanical software, and the Vault software family. Robert is in his 10th year as a presenter at Autodesk University.

Adam Luttenbacher

Adam Luttenbacher is a principal user experience designer and has been with Autodesk, Inc., for over 13 years. Extensive experience with Autodesk's data management software has given Adam a significant role in improving both the user's experience and the product quality. Educating and interacting directly with the user community at Autodesk University each year has been a top priority for Adam.



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Custom Objects Overview

What are Vault Objects

Vault objects are the types of information that the Vault manages. The four standard Vault objects are Files, Folders, Items, and Change Orders. Each of these objects are unique from each other and built to do very specific jobs. The Files and Folders allow you to securely store, organize, and version valuable data. Items are used for BOM management and Change Orders allow controlled changes of items and files stored in the Vault.

These standard objects are great for what they are intended to do. But how would you manage other important data that doesn't fall into one of these data types or workflows? That is the goal of the Custom Object.

What are custom objects

Custom Objects allow you, as an administrator, to create a new Vault object of any type. If your team is interested in managing critical project data, create a Custom Object called 'Projects' and store important information on them. Maybe your team would like to store customer information in the Vault so that it can be associated to the design data or their Bill Of Materials. A Custom Object can be created and can transition between different workflow states to communicate the progress.

All of this functionality is available to the administrator and can be done 100% through the user interface. No coding skills are required to create, edit, and manage Custom Objects. You can extend Custom Objects functionality with code, but again, it is not required.

Example Ideas

- Problem Reports
- Change Requests
- Requirements
- Transmittal
- Suppliers
- Organizations

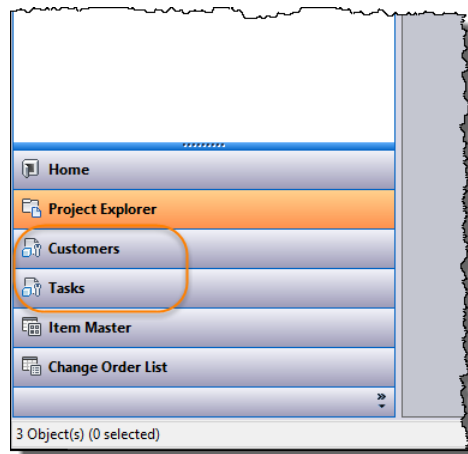
Admin vs. User

When it comes to the administer role and all other roles, there is an important distinction to make regarding the visibility and control of Custom Objects.

Custom Object vs Object Name

Remember this rule: The administrator users are the only users that will see the words 'Custom Object'.

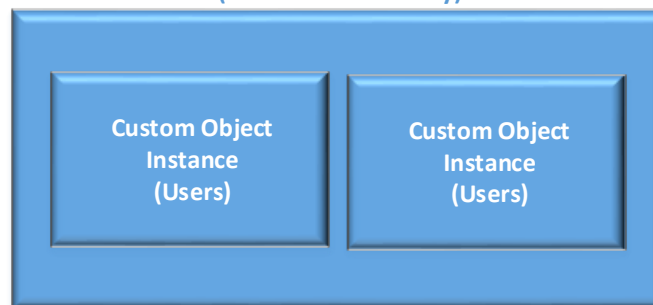
The end user (non-administrator) will never see those words. Since the administrator manages all of the configuration of the objects, the end user will only see what the Custom Object is meant to represent. For example, the end user will only see the objects called 'Tasks' or 'Customers'.



Custom Object Terminology

There are two important terms to know with Custom Objects. There are Custom Object Definitions and Custom Object Instances.

Custom Object Definition (Administrator's Only)



Custom Object Definition

This is the new object type that you have configured for your Vault. You can think of it just like any of the other object types in Vault. You can give it a name, an icon to visually represent it, and apply security at the most basic level.

Custom Object Instance

These are the individual instances of the definition that are created and managed separately. If Files is the object definition, then each file is an instance of that definition.

Example:

Custom object definition: Tasks

Custom object instances: "Create ECR for the PRD009673 item", "Send request to customer: ACME"



Security

Custom Objects have three levels of security that provide the administrator with ultimate configuration of control. They are roles, definition security, and instance security.

- Roles – Like any Vault object type, a suite of roles are available for assignment to users and groups. Remember that only users and groups with these roles can view and/or interact with custom objects. This is the most basic level of security for the Custom Objects and **it applies to all Custom Object Definitions** (not specific to definitions).

Role Name	Description Details
Custom Object Consumer	Read-only access to Custom Objects only. <ul style="list-style-type: none"> • Custom Entity Read • Vault Get Options
Custom Object Editor (Level 1)	Basic Custom Object adding and editing privileges within the vault, and add/remove Custom Object user-defined properties privileges. Cannot delete Custom Objects. Does not have administrative privileges on the server. <ul style="list-style-type: none"> • Custom Entity Add & Remove User Defined Property • Custom Entity Create • Custom Entity Edit User Defined Property • Custom Entity Read • Custom Entity Rename • Vault Get Options
Custom Object Editor (Level 2)	Full privileges within the vault, as well as add/remove Custom Object user-defined properties. Does not have administrative privileges on the server. <ul style="list-style-type: none"> • Custom Entity Add & Remove User Defined Property • Custom Entity Create • Custom Entity Delete • Custom Entity Edit User Defined Property • Custom Entity Read • Custom Entity Rename • Vault Get Options
Custom Object Manager (Level 1)	Privileges to change category, lifecycle, and revision assignments, and to edit user-defined properties. <ul style="list-style-type: none"> • Custom Entity Category Change • Custom Entity Change Lifecycle State

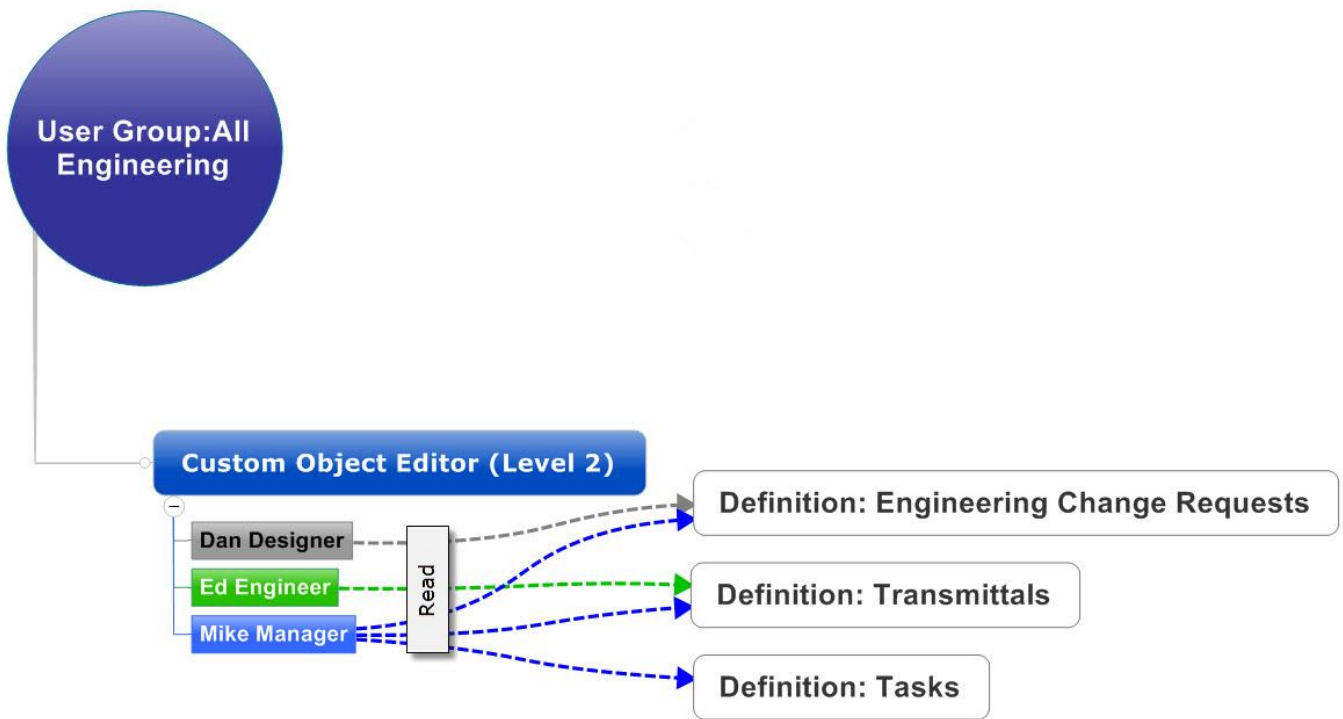


	<ul style="list-style-type: none"> • Vault Get Options
Custom Object Manager (Level 2)	<p>Full file behavior management privileges within Autodesk Vault, including the ability to add, remove, and edit user-defined properties. This role does not have the ability to create behavior definitions.</p> <ul style="list-style-type: none"> • Custom Entity Add & Remove User Defined Property • Custom Entity Category Change • Custom Entity Change Lifecycle State Definition • Custom Entity Change Lifecycle State • Vault Get Options

- Custom Object Definition – Each definition you create can have its own security configured. Since the role opens up access to all definitions, this is how an administrator would apply another layer of control on the definitions.

Example: The Vault administrator has assigned 'All Engineering' user group the 'Custom Object Editor (Level 2)' role. On each definition, the administrator has configured specific permissions for each of the users in that same group. In this case, Mike manager can view all three definitions, but Dan Designer can only view the 'Engineering Change Requests'.





Integrations

Custom Objects are fully integrated into the Vault user interface and functionality. This allows for a professional look and feel and your end users won't be able to tell that it didn't ship that way. This allows you as the admin, to extend the functionality and have your customers (end users) work seamlessly with the rest of the Vault product.

User Interface

Custom Objects are integrated into the various user interface elements such as the right click menus, buttons and more.

Lifecycles

Custom Objects are fully integrated into Lifecycles allowing you to create a workflow around your custom object allowing you to build a solution for the organization. Take the example of a "change request", you might have a workflow around that of work in "created", "in review", "approved", or "rejected". This would allow the right people to see the Custom Object instance at the right time.

Categories

Custom Objects are fully integrated into Categories within Vault allowing you to properly assign Lifecycle Definitions.



Properties

Custom Objects are fully integrated into Properties within Vault. This allows you to provide additional information about your object. For example with the Engineering Change Request example you may have a few properties such as:

Property Name

Description

Details

Corrective Action Taken

Number

Type

As with other object types (files, items etc...) you utilize categories to assign the right properties to the right objects.

Vault Data Standard

With Vault Data Standard for Vault Professional 2016 you now have the ability to utilize Vault Data Standard Custom Objects in the Vault Data Standard interface. This allows you to have a nice front end to your custom object, giving a standard look at feel to your custom object. This is customizable to meet your needs using XAML format.

Property Name	Property Value
PR_Description	
PR_Details	
PR_Final_Action_Taken	
PR_Number	
PR_Problem_Verification	
PR_Root_Cause_Code	- Select -
PR_Title	
PR_Type	-Select-

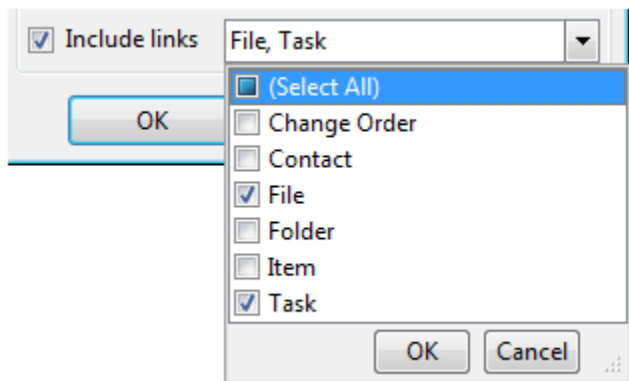
OK Cancel



Vault links

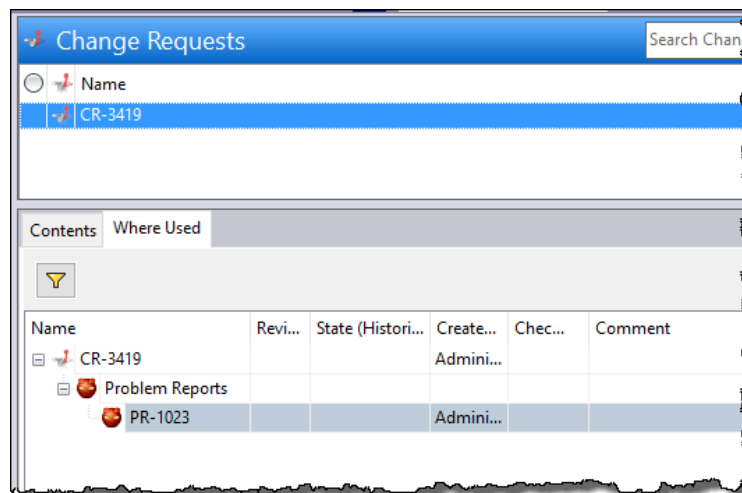
If the selection includes a link to a custom object instance (task, contact, etc.), the links to the custom object will be used to gather file data. Custom Objects do not contain actual files, folders, change orders, or items. Custom objects only contain links to those things as well as links to other custom objects.

Each custom object definition defined in a Vault will appear in the Include links option. Any links that the custom object contains will be followed based on the rest of the selection. For example, if an administrator has defined a custom object called Tasks, and the user chooses links to Tasks and files, then any files that are linked to the task will be included in the download set.



(Borrowed from the help file located <http://help.autodesk.com/view/VAULT/2016/ENU/?guid=GUID-197D50D5-64EB-46AE-BD5A-04920A92F103>)

Links between custom objects to show where used functionality



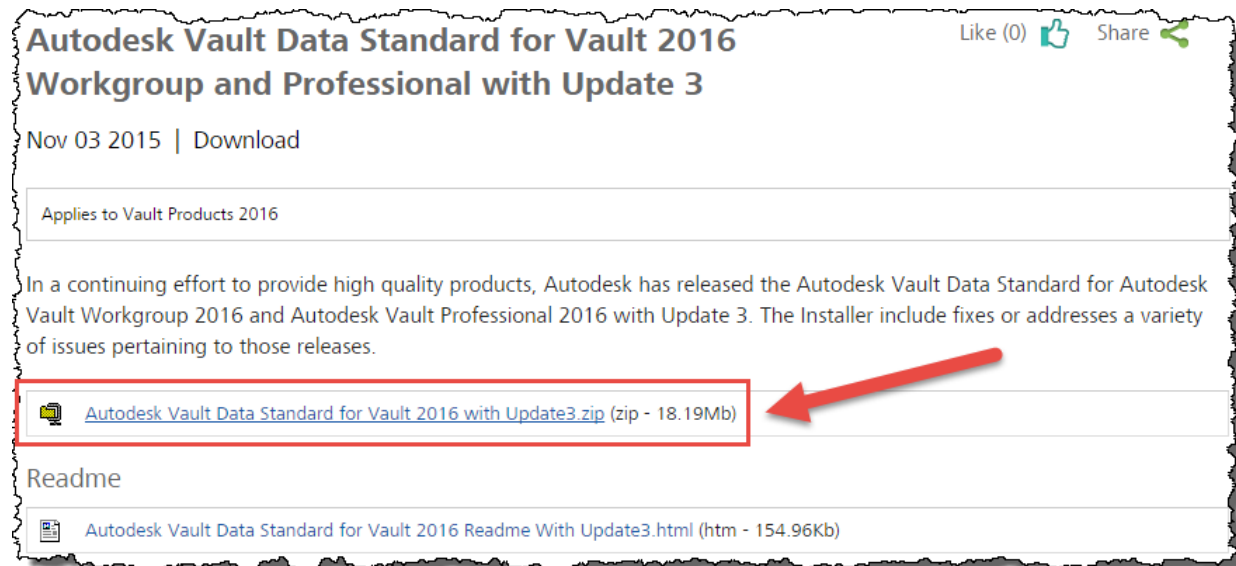
What doesn't work

Currently Vault does not support versioning of Custom Objects. What this means is there won't be a "history" of what has been changed with that custom object.



Class Exercises

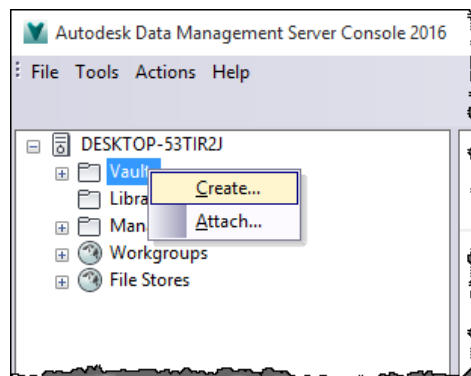
This section outlines how to get the Vault Demo's set up that we will be covering in class. We are using Autodesk Vault Professional 2016 Build Number 21.0.59.0. We are also using Vault Data Standard for Vault 2016 Workgroup and Professional with Update 3. <https://knowledge.autodesk.com/support/vault-products/downloads/caas/downloads/content/autodesk-vault-data-standard-for-vault-2016-workgroup-and-professional-update-3.html?v=2016>.



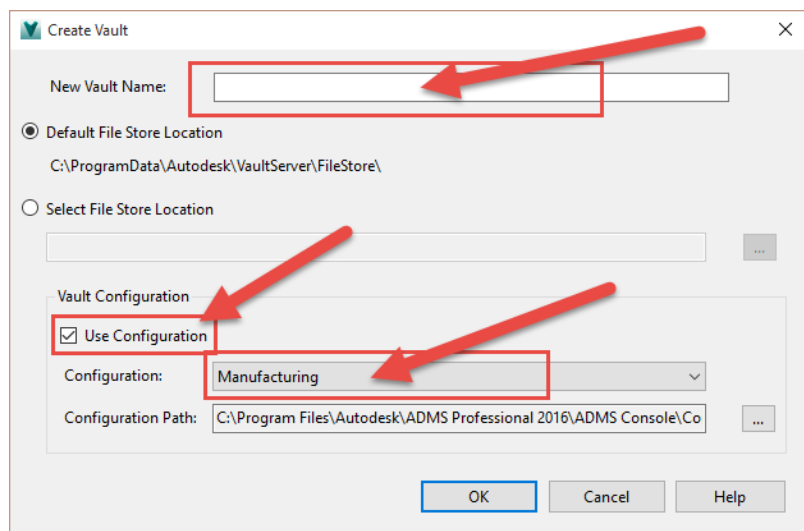
Vault Server Setup

For this class we will be breaking the content up into 3 main sections. For demonstration purposes we are using 3 separate Vaults to help with time, however below are the high level steps for you to configure some custom objects on your own.

Log into the Autodesk Data Management Server Console (ADMS), then right click and select Create.



In the Create Vault window type in the New Vault Name (as shown in the table below), then select the use configuration, and Manufacturing as the configuration type.



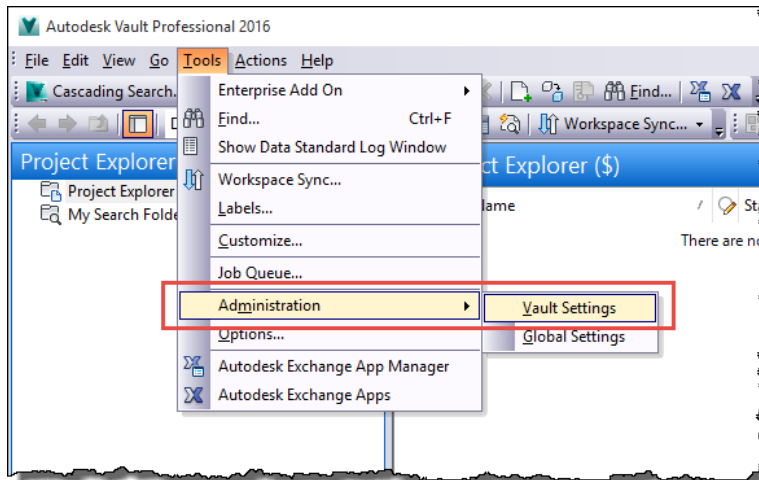
Vault Name	Description
PL10733	Base Vault with minimal configuration to show how to create Custom Objects



PL10733 Base Configuration

In this section we will configure the PL10733 Base Vault. Start the Autodesk Vault Professional Client and log in with administrative privileges to the PL10733 Base.

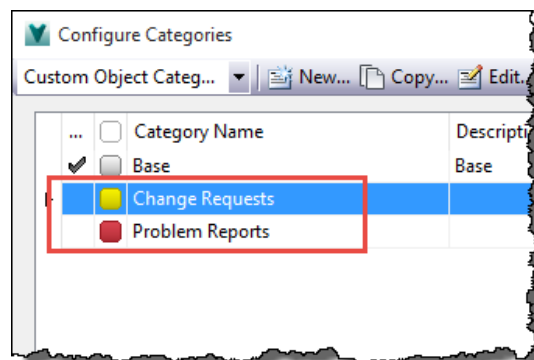
Click Tools - > Administration - > then Vault Settings.



Configure the Categories “Problem Reports”

For more information on configuring Categories please see the help located at:

<http://help.autodesk.com/view/VAULT/2016/ENU/?guid=GUID-F1864CF2-0DF9-4640-A38C-FAE41F900CB4>



Configure the Category Rules

For more information on configuring Category Rules please see the help located at:

<http://help.autodesk.com/view/VAULT/2016/ENU/?guid=GUID-F7493811-53BC-4CC2-B5B2-F131970E19C3>

Assignment Rules

Custom Object Rules | New... | Copy... | Edit... | Delete | Up | Down

Rule	Category Assignment
Problem Reports	Problem Reports
Change Requests	Change Requests
Default	Base

Rule Condition Builder

Property: Condition: Value:

Add Replace Remove

Rule Criteria:

Custom Object Name is Problem Report

☒ Apply rules on object creation

Apply OK Cancel Help



Configure the Properties

For more information on property administration please see the help located at:

<http://help.autodesk.com/view/VAULT/2016/ENU/?guid=GUID-26645DD0-AC27-4CFB-BC15-41719B5DE609>

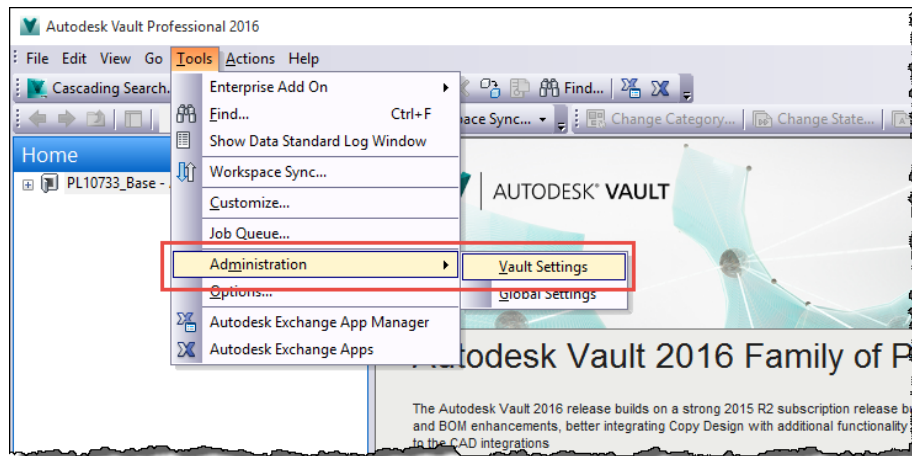
Property Name	Category
PR_Description	Problem Reports
PR_Details	Problem Reports
PR_Final_Action_Taken	Problem Reports
PR_Number	Problem Reports
PR_Problem_Verification	Problem Reports
PR_Root_Cause_Code	Problem Reports
PR_Title	Problem Reports
PR_Type	Problem Reports
CR_Change_Reason_Code	Change Requests
CR_Number	Change Requests
CR_Priority	Change Requests
CR_Purpose	Change Requests
CR_Related_Problem_Report	Change Requests
CR_Title	Change Requests



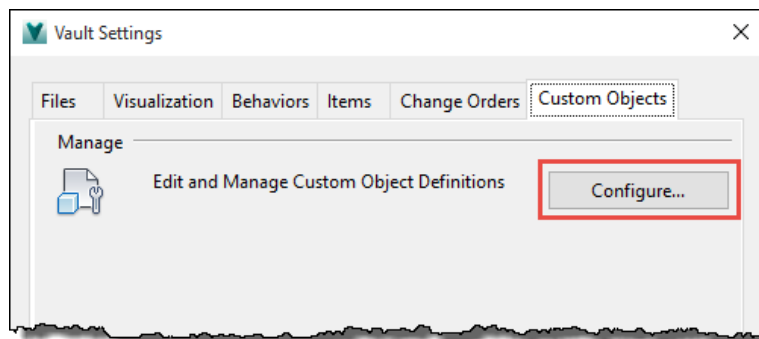
Create Custom Objects

This is what we have all been waiting for, creating a custom object. We will be creating two custom objects. You guessed it, one called Problem Reports and one called Change Requests. You need to be logged in as an administrator in the Vault Professional Client.

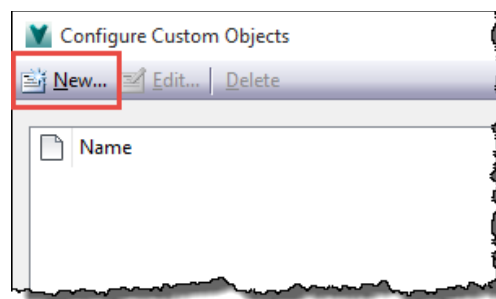
From the tools menu select Administration then Vault Settings.



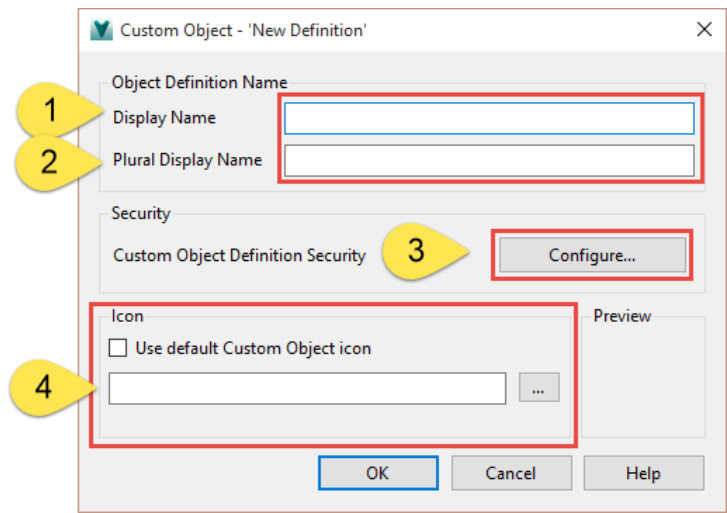
From the Vault Settings dialog choose the Custom Objects tab.



On the Configure Custom Objects dialog choose New.

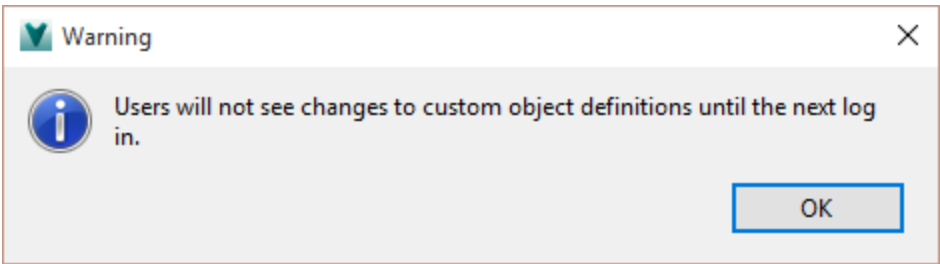


In the Custom Object – New Definition dialog complete the following.

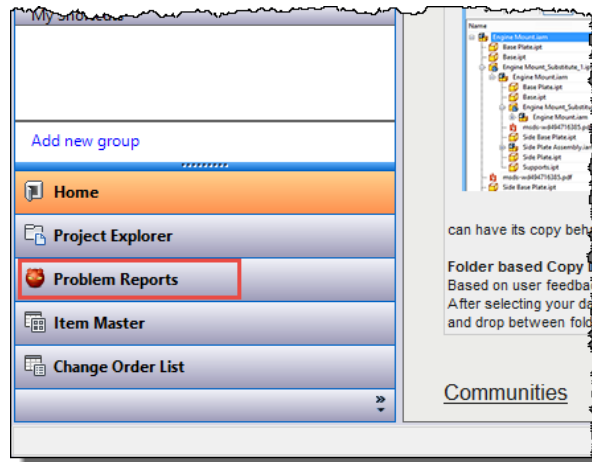


ID	Description	Example	
1	Display Name	Singular Name for the Custom Object	Problem Report
2	Plural Display Name	Plural Name for the Custom Object	Problem Reports
3	Security	Custom Object Security	
4	Icon	Custom Object Icon	

Complete this for Problem Report and Change Request Custom Object Definitions? After clicking Ok to confirm the Custom Object Creation you will see the following dialog. This simply means log out of Vault and log back in before you will see the changes to the UI.



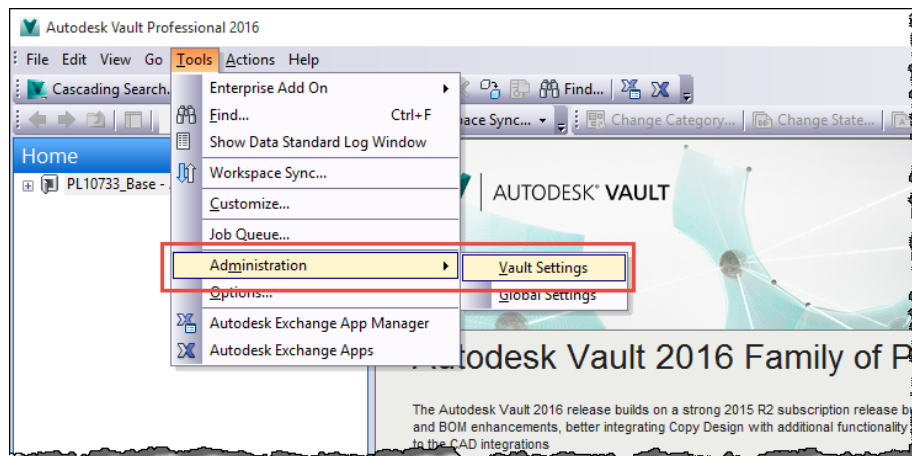
After logging back in to the Vault you will see the new Custom Object.



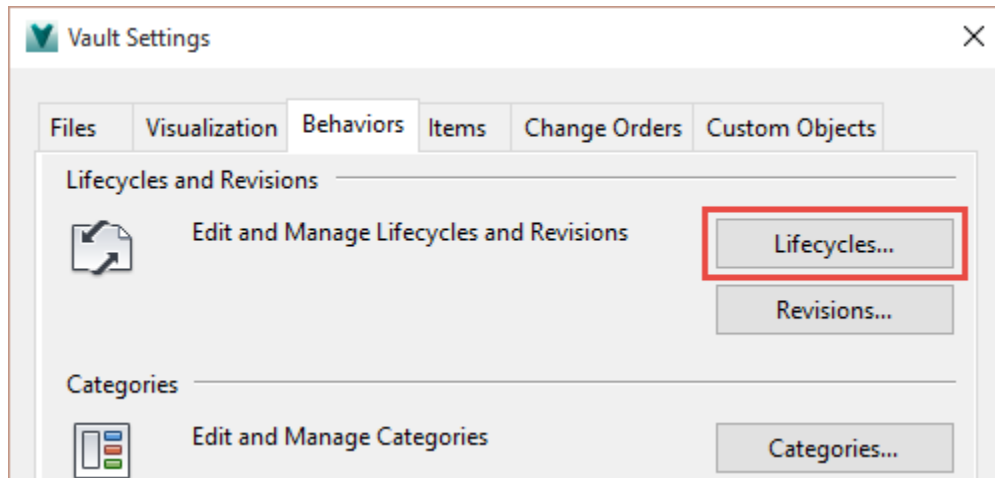
Create Lifecycles

To make Custom Objects even more powerful we can add lifecycle definitions around them providing a full featured workflow.

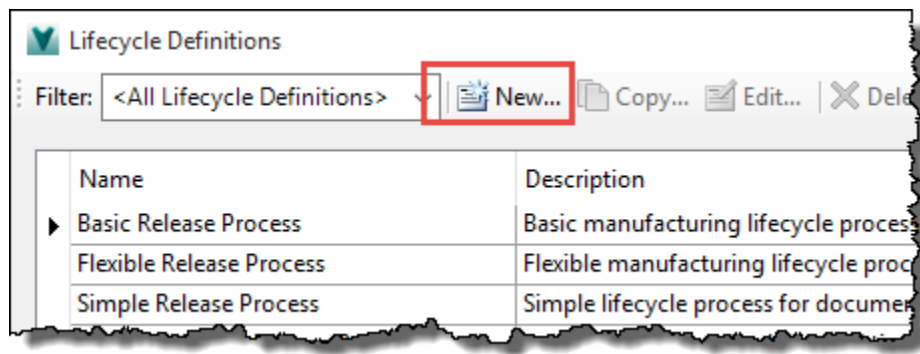
From the tools menu select Administration then Vault Settings.



From the Vault Settings dialog select the Behaviors tab, then click Lifecycles.



In the Lifecycle Definitions dialog click the New button.



Configure the following lifecycle states

Lifecycle Definition - 'Custom Object Workflow'

Definition Name:

Category:

Lifecycle Details

Lifecycle States:

☒ ☐ ☐ ☐ ☐ ☐

✓	Name	Description
✓	Created	
	In Review	
	Approved	
	Rejected	

General Transitions Security

State Name:

State Description: