AUTODESK® UNIVERSITY

Using Autodesk Vault with Forge Design Automation for Inventor

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About the speaker

Sajith Subramanian

A qualified software engineer with over a decade of development experience with various CAD tools, he is part of the Manufacturing team at Autodesk, supporting and evangelizing API's for Inventor, Fusion and Vault.

Now an evangelist and an enthusiast on the Forge platform, he has published various code samples showcasing the combined use of desktop product API's with our Forge platform.

Class summary

This class will explore how to use the Vault API and Forge Design Automation for Inventor to programmatically modify Inventor files that reside within Autodesk Vault.

You will learn how to access a file from Vault and modify it using Forge Design Automation for Inventor, thus eliminating the need of having Autodesk Inventor locally installed on your machine.

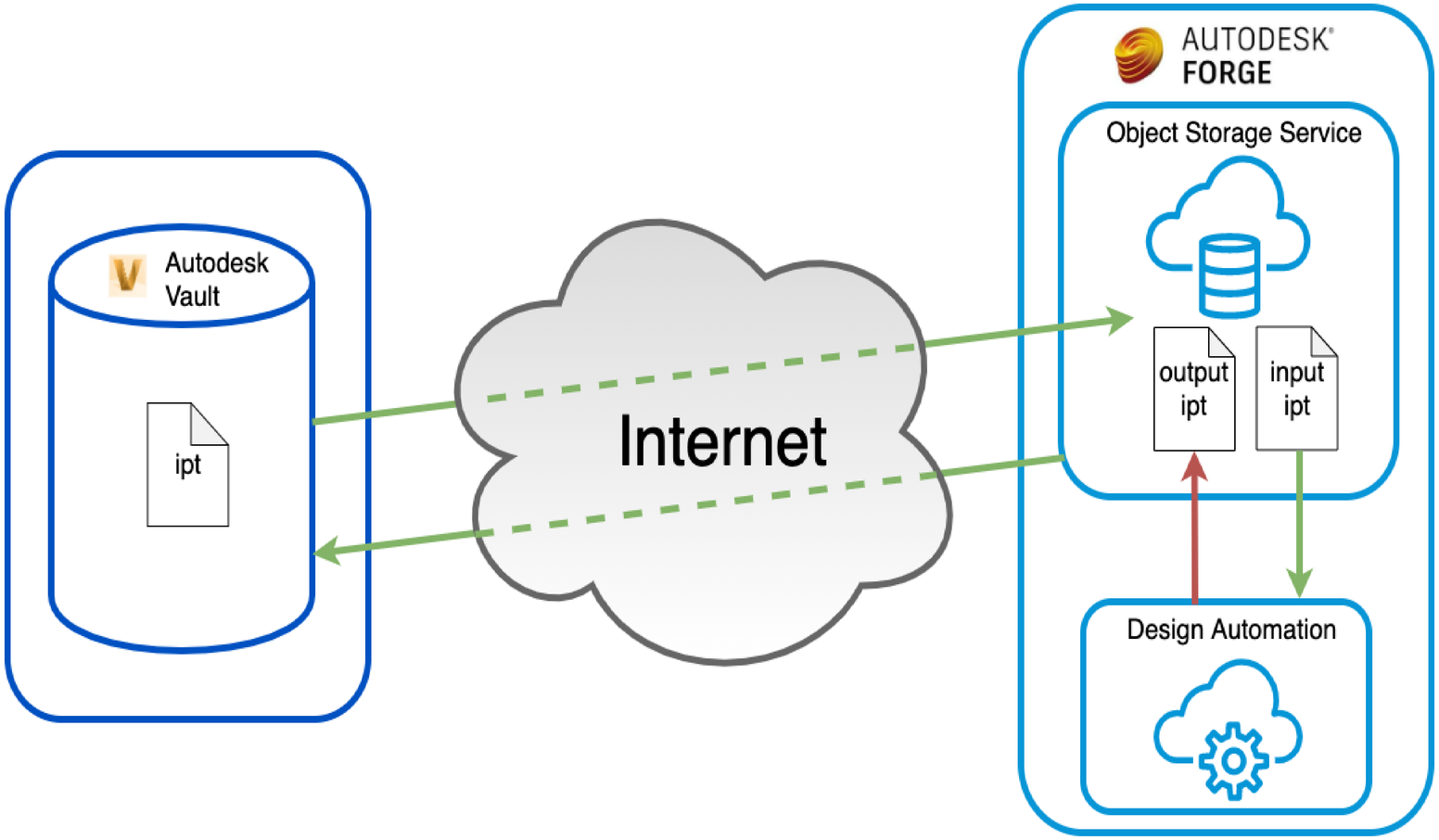
Post modification, the updated file is checked-in to Vault thus creating a new version and maintaining file history.

Key learning objectives

At the end of this class, you will be able to:

- Download files residing within Vault using the Vault API and use them as input for Design Automation for Inventor.
- Use Design Automation for Inventor for running Inventor Add-ins without the need of having a local install of Autodesk Inventor.
- Learn how to use different API’s to combine both desktop and cloud capabilities in one custom application.

Overview of the application



Primary Components

VAULT API

- Login into Vault
- Select a file
- Download the file.
- Check-in the result file back into Vault

INVENTOR ADD-IN

- Create an Inventor add-in.
- Prepare an AppBundle to be used as input to Forge Design Automation engine

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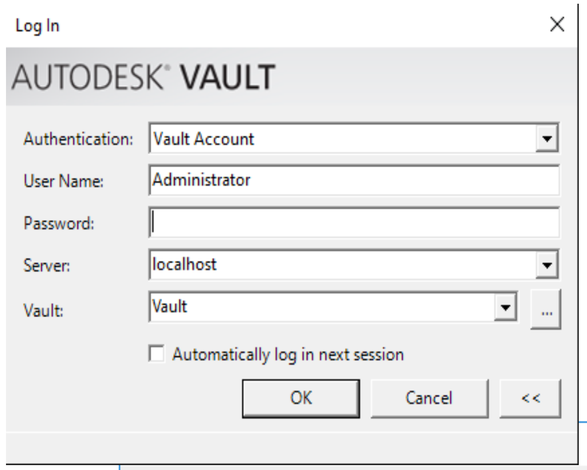
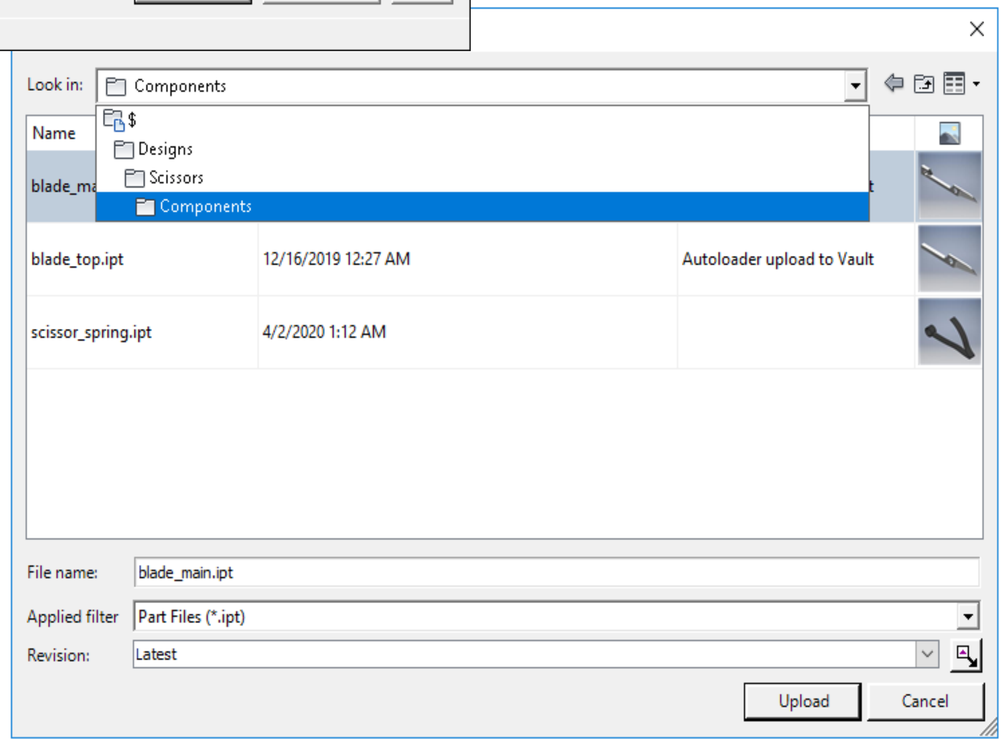
- Use Forge APIs to process the input file from Vault and execute the Inventor plug-in code using Forge Design Automation

Using the Vault API to access files

Using the Vault Development Framework(VDF):

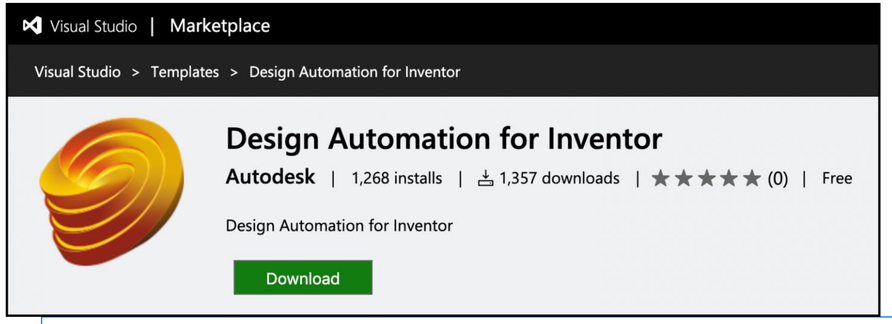
- Connect to a Vault server.
- Launch a User Interface to browse for files within Vault.
- Fetch the file from Vault to be used as input for Forge Design Automation for Inventor.
- Post processing, check-in the result file back into Vault.

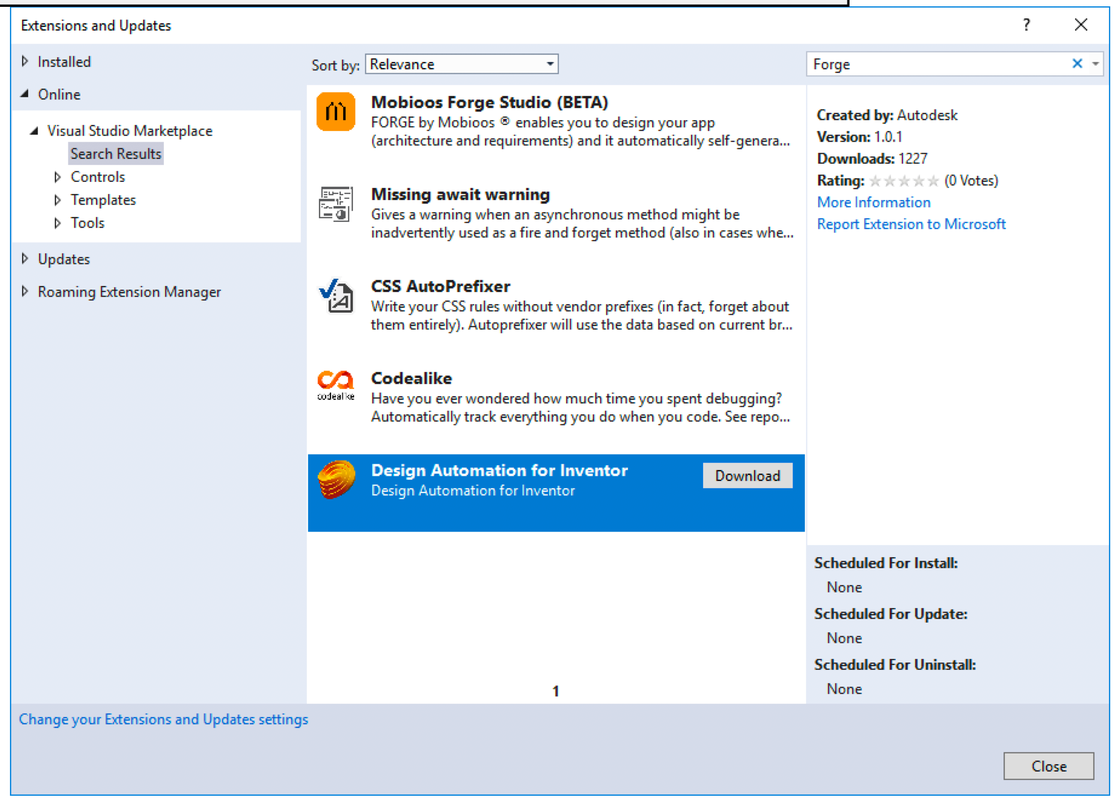




Preparing the Inventor Plug-in

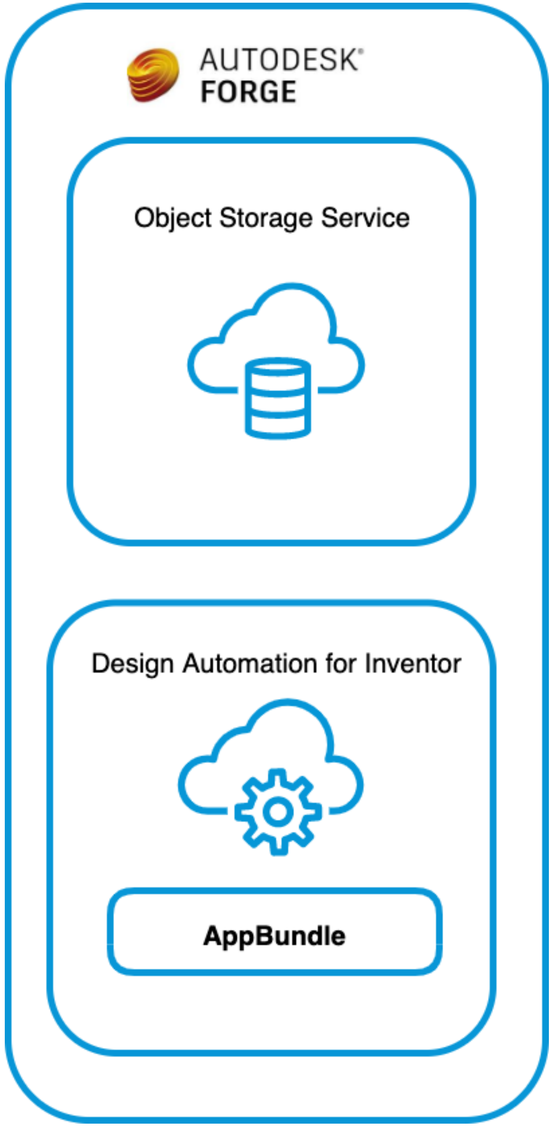
- The plug-in refers to Inventor API code (like the plug-in which you use for Inventor desktop application) that you would want to execute in the cloud using Design Automation.
- It is recommended to use the Design Automation template for creating the plug-in project.
- The output of this project would be a zipped folder containing the resulting files – known as an AppBundle.





Using Design Automation for Inventor

- Pre-requisite: Creating an app on your Forge account.
- Getting an access token.
- Creating a bucket using Object Storage Service (OSS), to store our input file, so that it can be accessed by Design Automation.
- Specifying the inputs that need to be executed by the Design Automation engine. Also known as - Defining the 'Activity'
- Execute the specifics that were listed by the Activity. Also known as – Executing the 'Workitem'.
- Store the result back into OSS to be checked-in back into Vault



Live Demo

May the source be with you!

The full source code of this application can be found on GitHub:

https://github.com/sajith-subramanian/Inventor_Design_Automation_with_Vault

Additional Resources

- **Forge:**
  - Forge Blog: https://forge.autodesk.com/blog
  - Learn Forge (Getting started): https://learnforge.autodesk.io/#/?id=learn-autodesk-forge

- **Vault:**
  - Vault API Blog: http://justonesandzeros.typepad.com/
  - MFG Dev Blog: http://adndevblog.typepad.com/manufacturing/
  - Vault customization forum: http://forums.autodesk.com/t5/vault-customization/bd-p/301

- **Inventor:**
  - MFG Dev Blog: http://adndevblog.typepad.com/manufacturing/
  - Mod the machine blog: http://modthemachine.typepad.com/
  - Inventor customization forum: https://forums.autodesk.com/t5/inventor-customization/bd-p/120

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