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Learning Lab: Upload and view your models with Forge

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Learning Objectives

- Discover the basics of Forge
- Learn how to create your first app based on Forge
- Learn how to use OAuth and Data Management
- Learn about Model Derivative and Viewer

Description

Want to view your models on the web using Forge? In this class, we'll show you how to write a basic application to upload, translate, and view your models using Forge. Bring your own laptop or use the lab. This class requires basic knowledge of .NET or Node.js.

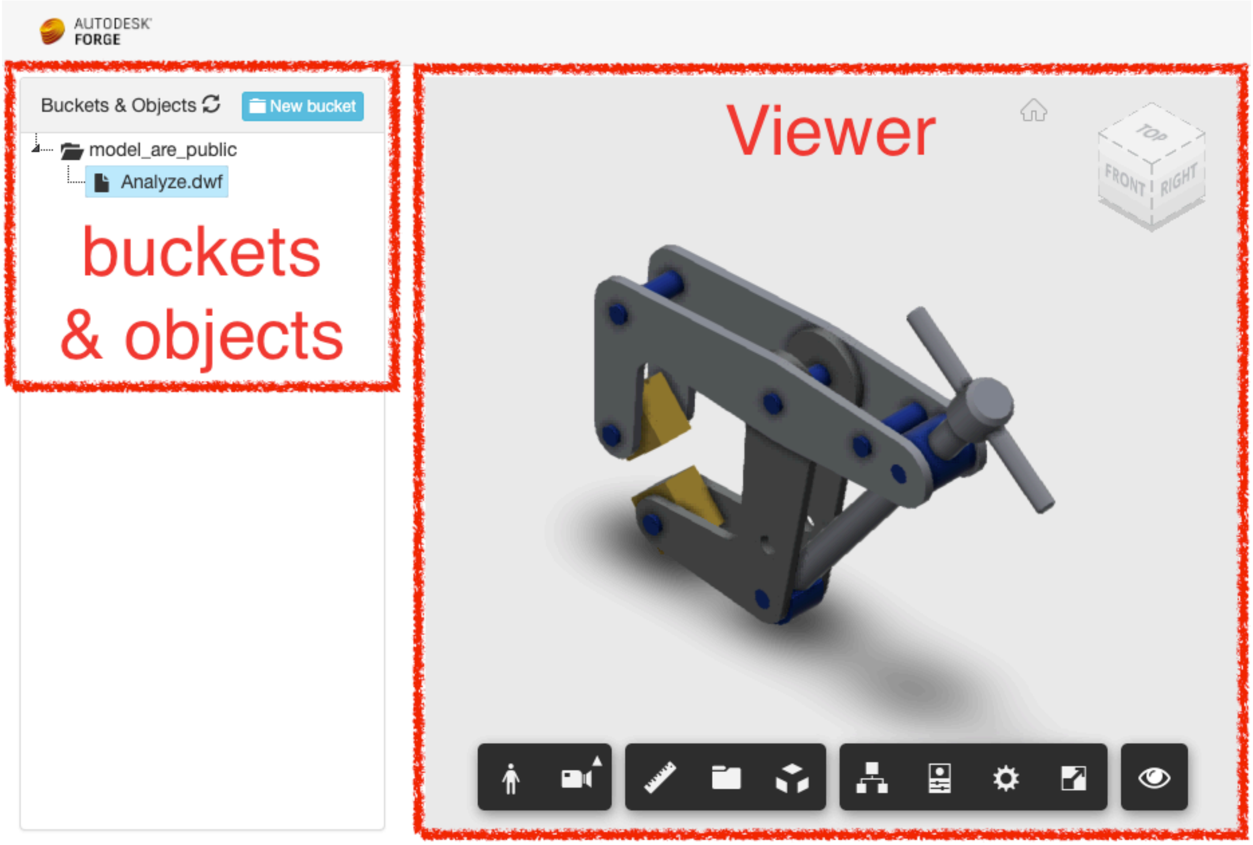
Speaker(s)

Augusto Goncalves has been an API evangelist at Autodesk, Inc., since 2008. He works with all sorts of technologies, from classic desktop to modern mobile and web platforms, including .NET for AutoCAD software and Revit software, and JavaScript application programming interface for NodeJS. Twitter: @augustomaia

Adam Nagy joined Autodesk back in 2005, and he has been providing programming support, consulting, training, and evangelism to external developers. He started his career in Budapest working for a civil engineering CAD software company. He then worked for Autodesk in Prague for 3 years, and he now lives in South England, United Kingdom. Twitter: @AdamTheNagy

Introduction

This lab will cover how to view your models on the browser using Autodesk Forge. It will cover how to create an account, create buckets (i.e. folders) and upload objects (i.e. files), translate them to a web-friendly format and, finally, show them on a custom webpage. The end result will be the following:



To participate on this lab, it's strongly recommended to have some development experience. The lab material includes code samples in Node.js and .NET C# and supporting HTML files.

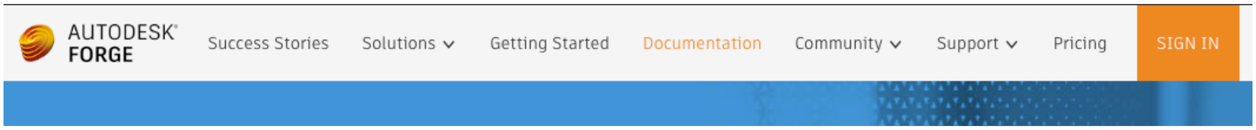
You can participate using one the machines provided on the classroom, which will have all required software:

- Visual Studio (for .NET C#)
- Visual Code (for Node.js)
- Any modern browser

If you cannot attend the lab at DevCon, the exact same lab is available as a tutorial under https://learnforge.autodesk.io, see "View your models" section.

Create a Forge Account

Before you start, make sure to create a Forge Account at http://forge.autodesk.com, see "Sign in" orange button on the top-right.



The, click on "Create an app" and give it a name and description. To help run most of the official samples with the same credentials, please use http://localhost:3000/api/forge/callback/oauth as **Callback URL**.

For a complete step-by-step, please visit: https://learnforge.autodesk.io/#/account/

Create a server

The server is where the app will run.

In a general web development, a web application can connect and use many different APIs and services. As an example, a web app may use a SMS provider to send text messages, or weather services to gather forecast data, to name a few. In that ecosystem, Forge provide a service to access CAD data in files, from any source, like Revit, AutoCAD, Inventor, or even from non-Autodesk file formats, like IFC or OBJ.

Our web app is running on our server, connecting to Forge and showing the data in the form of a 3D model with metadata. Our server, at this point, will run on our machine. This is useful for testing. Later you can publish on a professional host, like AWS or Azure.

Please go to https://learnforge.autodesk.io/#/environment/setup/2legged and select the language of your preference. For this DevCon Lab we will focus on Node.js or .NET C#.

Authenticate

Every information on Forge is protected and requires authentication. Your web app must authenticate before accessing any kind of data, from 3D view to metadata.

In this scenario the web app will perform a "2 legged" authentication, as there are only to parties involved: Autodesk Forge that hosts the data and the web app that owns it.

The authentication requires a Forge App Client ID and Secret for the given app. Note that buckets and objects cannot be shared between Forge Apps.

For this section of the sample app, please go to https://learnforge.autodesk.io/#/oauth/2legged/ and choose the language to access the code.

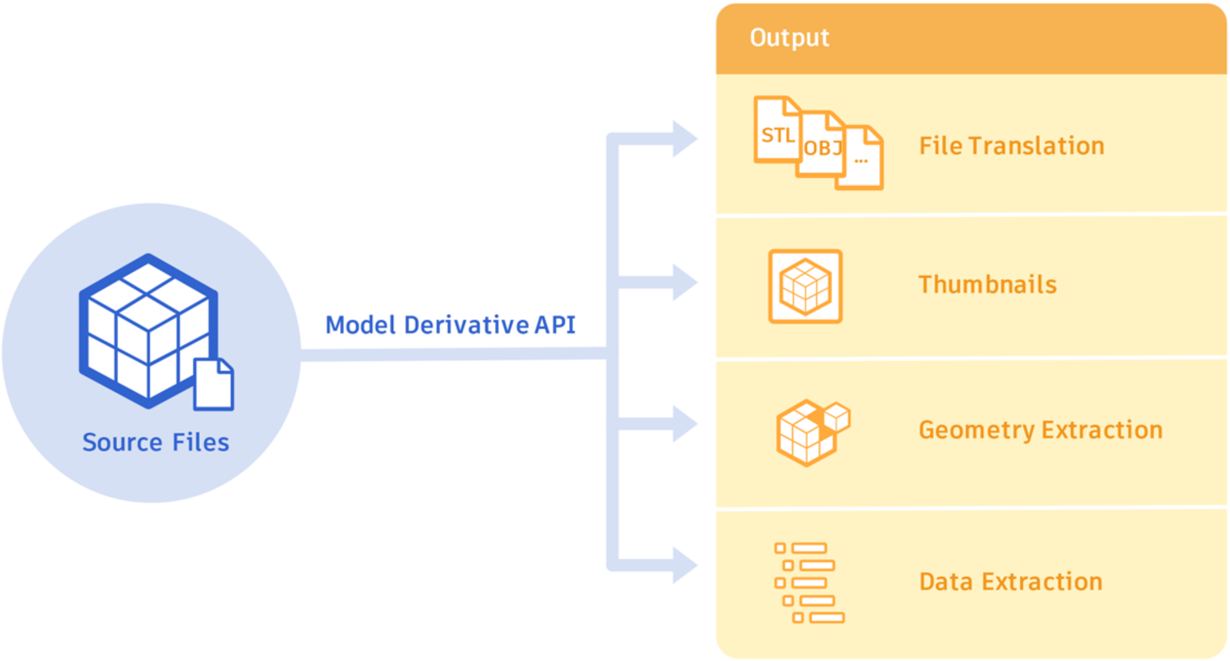
Upload to OSS

Apps can upload files to OSS (Object Storage Service), that's only accessible to applications (or via APIs). Objects (or files) will live on a bucket for 24, 1 month or until is deleted, according to the bucket retention policy. For this tutorial, let's use the first policy, transient.

Please go to https://learnforge.autodesk.io/#/datamanagement/oss/ to access the code for this step.

Translate the file

Model Derivative API is used to generate the web-friendly version of files, a translation. The process is actually very direct: a simple POST call to /job endpoint.



The most common translation is to prepare for Viewer, which in the official documentation and endpoint is references as SVF format.

To get the code to translate your files, which is the same for any file type input, please go to this section of the tutorial: https://learnforge.autodesk.io/#/modelderivative/translate/

Viewer

Now the file is translated and ready, it's time for viewing. The Viewer is essentially a JavaScript library that shows models using a canvas HTML element.

Although one could place the entire Viewer code into a single file, this tutorial uses a few files: JS, CSS and HTML. It's also possible to use it with any modern approach, like React, Angular, Vue, or any other. This tutorial, for simplicity, uses "vanilla" jQuery with jsTree and bootstrap.

For the code requires, please visit https://learnforge.autodesk.io/#/viewer/2legged/, which contains the code for current version 7 and, as a bonus, the equivalent v6.

Conclusion

Despite simple, the code on this tutorial is very versatile and can be used to demonstrate many different aspects of how Forge can bring value to workflows. Using this as a foundation for your application "proof of concept" or "prototype" is valid. For a production environment it would require additional validation and error check.

And technology is constantly evolving, the live version is always up-to-date.

The next labs in the track will use this as foundation: extending the Viewer and creating a first dashboard.

Where to go next?

For a complete documentation please visit https://forge.autodesk.com. The Forge team monitors and support developers on StackOverflow:

- https://stackoverflow.com/tags/autodesk-viewer
- https://stackoverflow.com/tags/autodesk-model-derivative