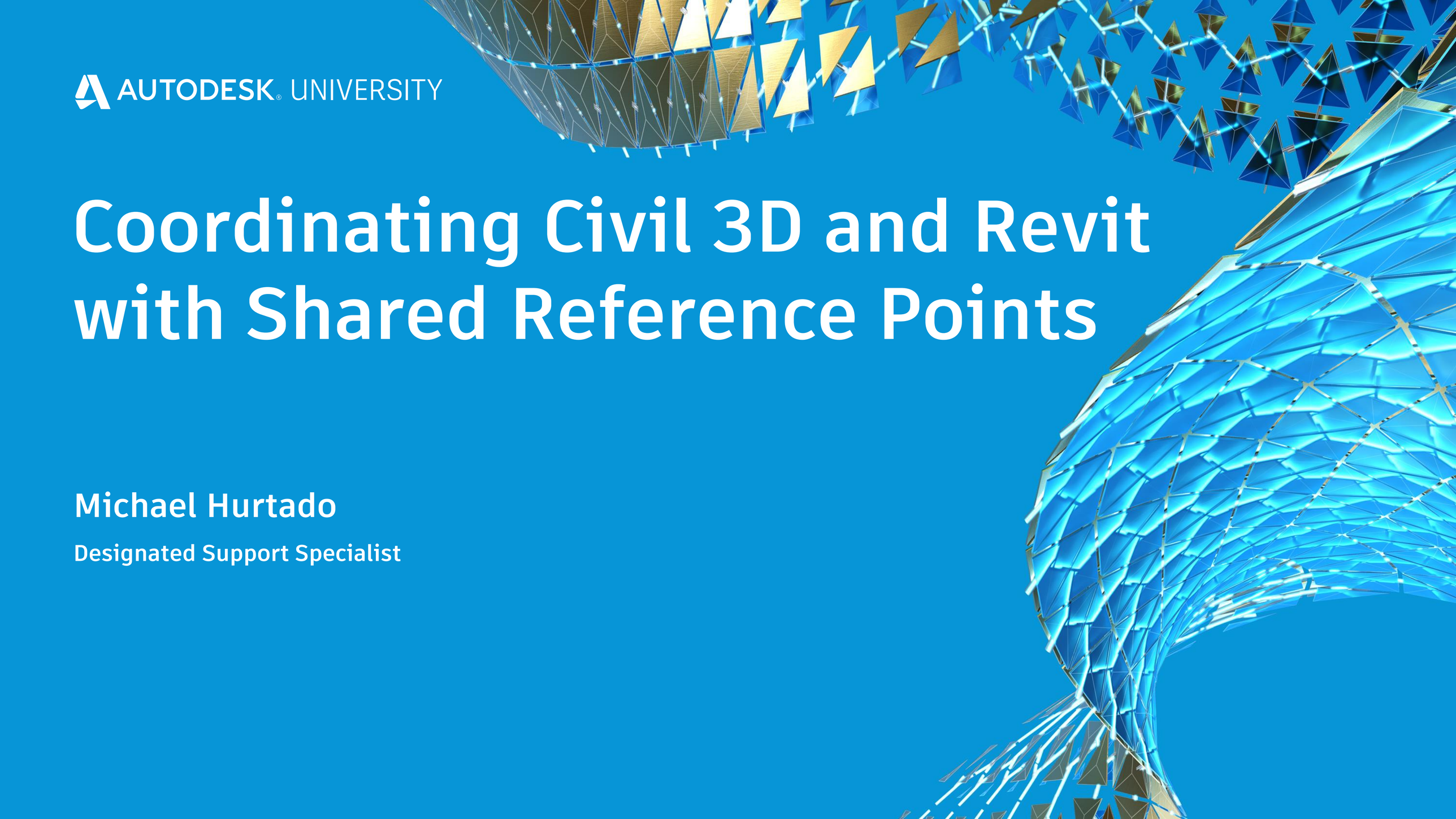
AUTODESK. UNIVERSITY

Coordinating Civil 3D and Revit with Shared Reference Points

Michael Hurtado

Designated Support Specialist



About the speaker

Michael Hurtado, EIT

Michael is a Designated Support Specialist that has been working at the Autodesk Boston Drydock office for a little over 5 and a half years. He earned his Bachelor's in Civil Engineering from Northeastern University where he specialized in Transportation. While at Northeastern, he worked as a surveyor for the Department of Public Works in Cambridge, and later at two large Civil Engineering firms that his team helps support in his current role. In his current role, Michael works with Enterprise Accounts to integrate the latest technology into their workflows while simultaneously ensuring they're receiving the support required to be successful. This is Michael's third time taking part in AU and the second time presenting.

Downloads

- **If you’d like this dataset or the latest worksheet, it’s hosted on OneDrive which can be accessed via the following QR code or link HERE.**
- **This dataset is the same one I’ll be using during the in-product demo. Feel free to download it and follow along!**
- **Will expire after 30 days. If it has expired, feel free to reach out for the files.**

Learning Objectives

UNDERSTANDING HOW CIVIL 3D AND REVIT HANDLE COORDINATE SYSTEMS

Why are we all here in the first place? This will lay the groundwork for what will be covering later in class. We'll also be introduced to the tools available that will help with model coordination and where to find them.

USE THE SHARED REFERENCE POINT TOOL TO IMPORT REVIT MODEL INTO CIVIL 3D

Time to jump into the software. We'll start by creating a shared reference point and cap it off by importing a Revit model into our Civil 3D site.

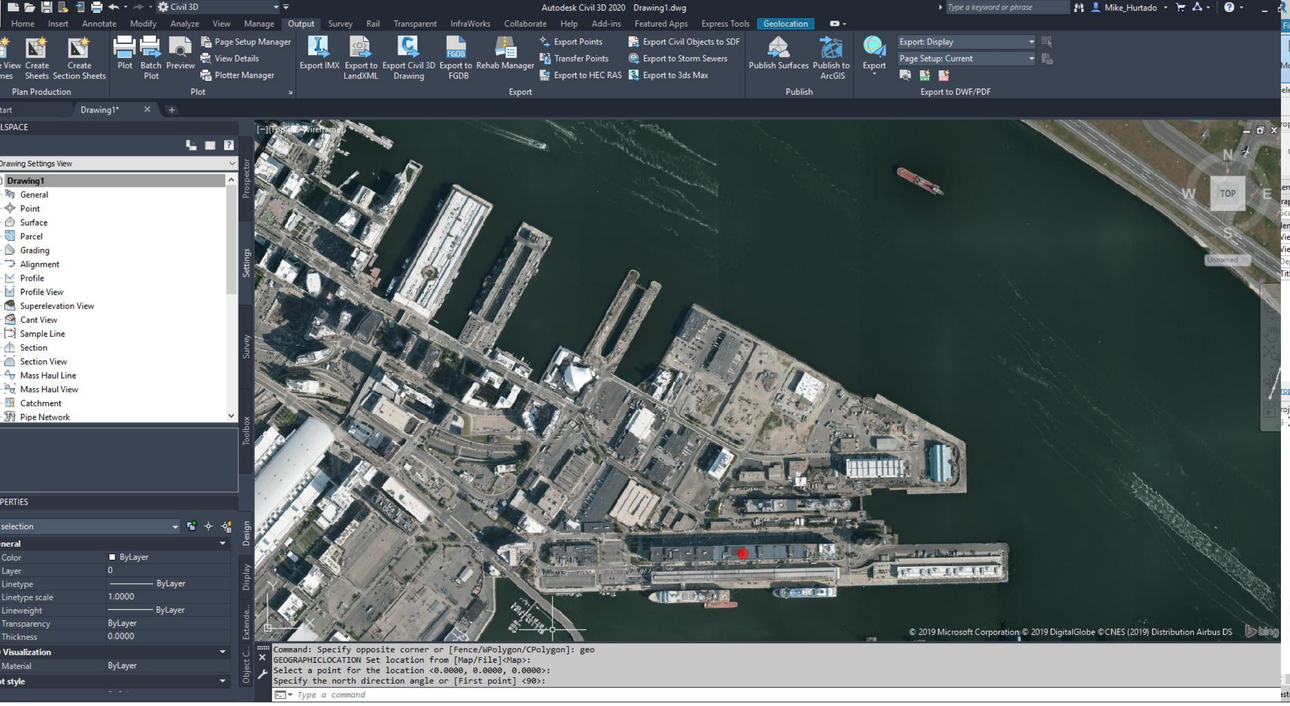
LEVERAGE BIM 360 TO IMPORT CIVIL 3D SURFACES INTO REVIT

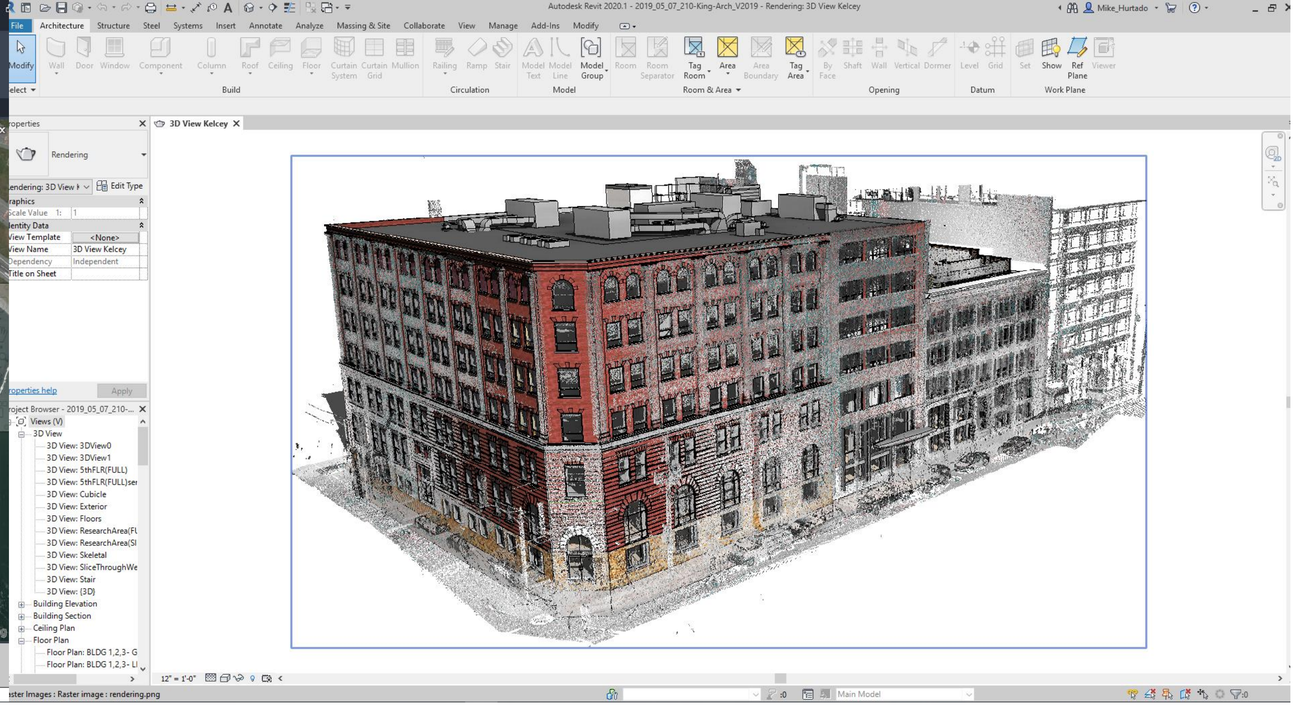
We've gotten our Revit model into Civil 3D but what if we want to go the other way? We'll walk through using BIM 360 to get our Civil 3D data into Revit.

SETTING UP A DWG TO IMPORT INTO REVIT

We've got our topography imported into Revit, but what if we want additional information from the DWG imported? We'll go through the process of preparing a DWG for Revit import.

Understanding How Civil 3D and Revit Handle Coordinate Systems





Civil 3D

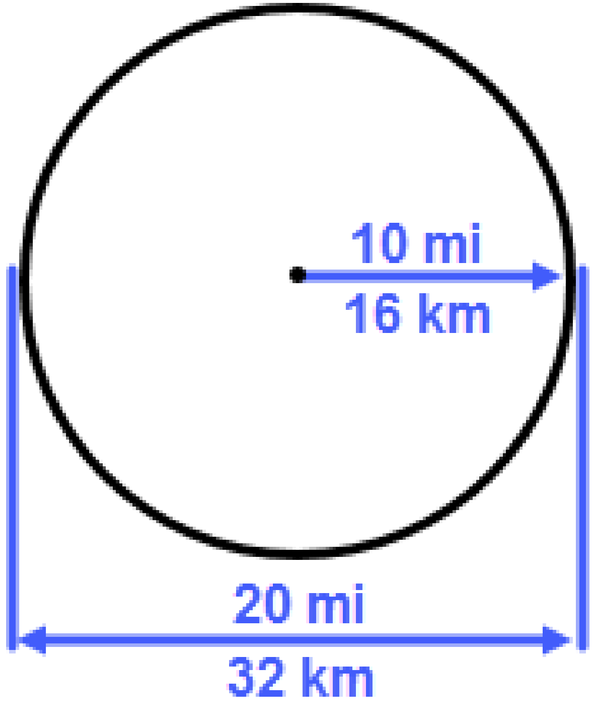
- Preloaded with a vast library of coordinate systems
- Can handle data that is far from the drawing origin.
- Can create site that are georeferenced (tied to real-world locations)
- Bing maps can be turned on as a reference tool

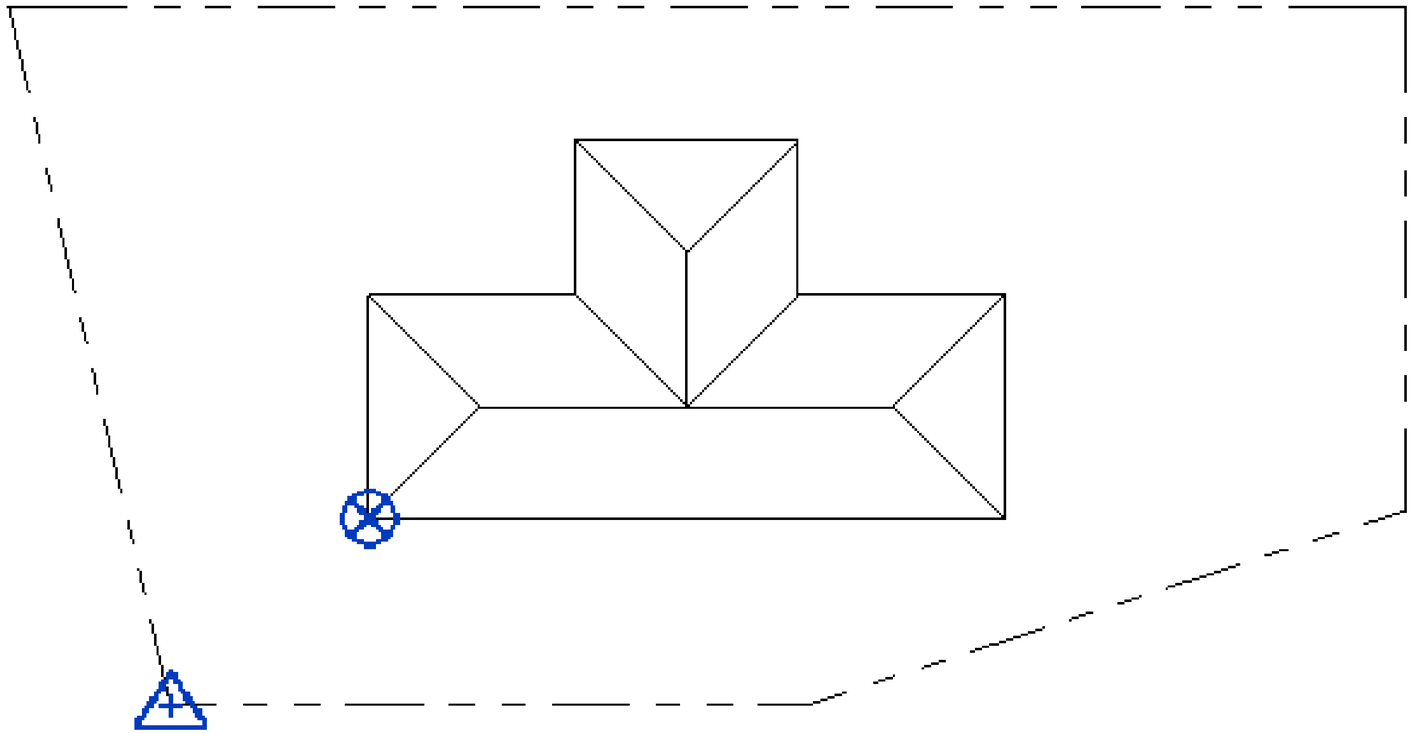
Revit

- Doesn’t come preloaded with any coordinate systems
- Can’t handle data far from the drawing origin

Revit (Cont.)

- Revit has a 20 mile/ 32 kilometer work plane.
- Uses a Project Base Point to help coordinating within the model and a Survey Point to tie the model to the real world



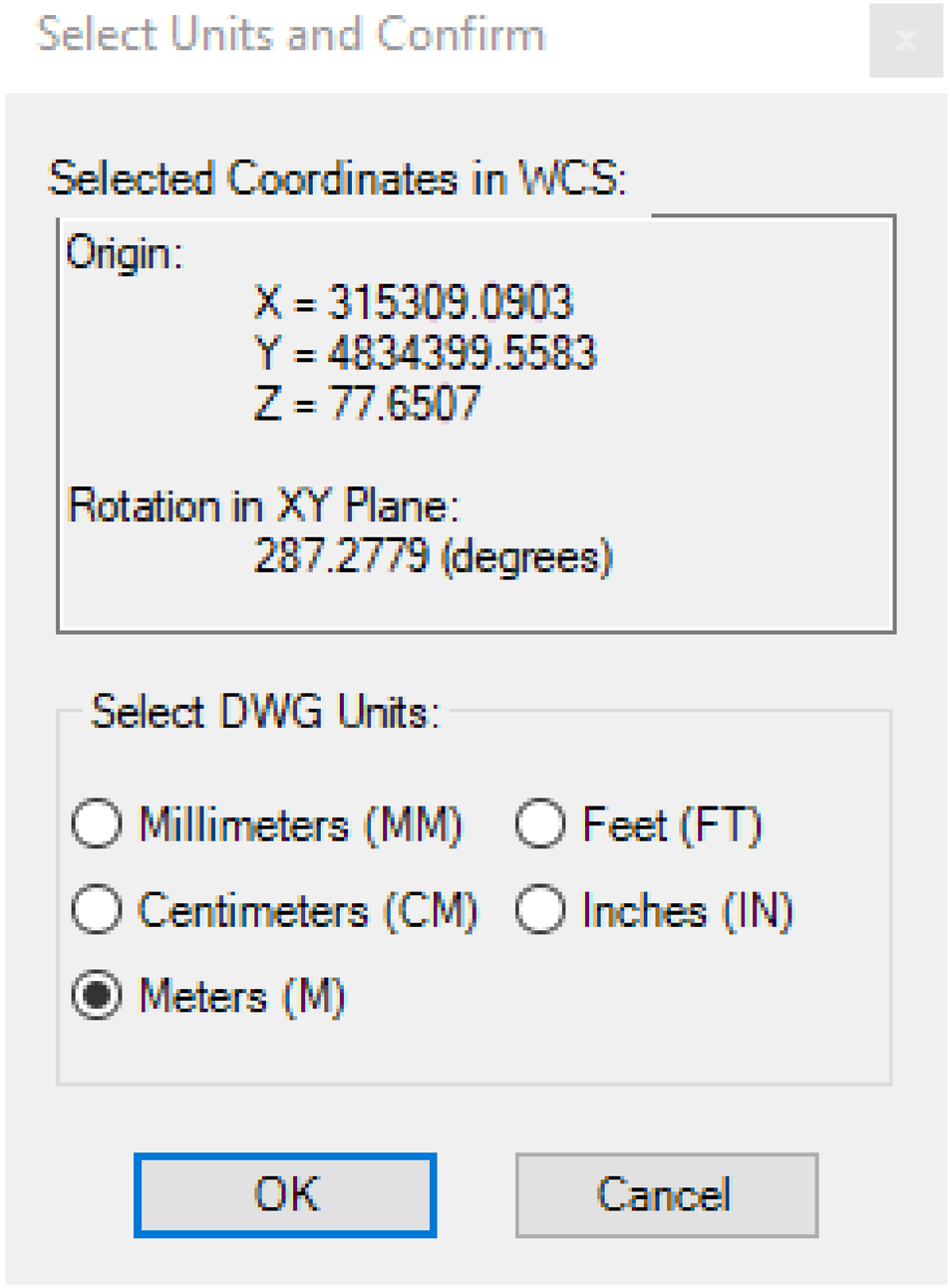


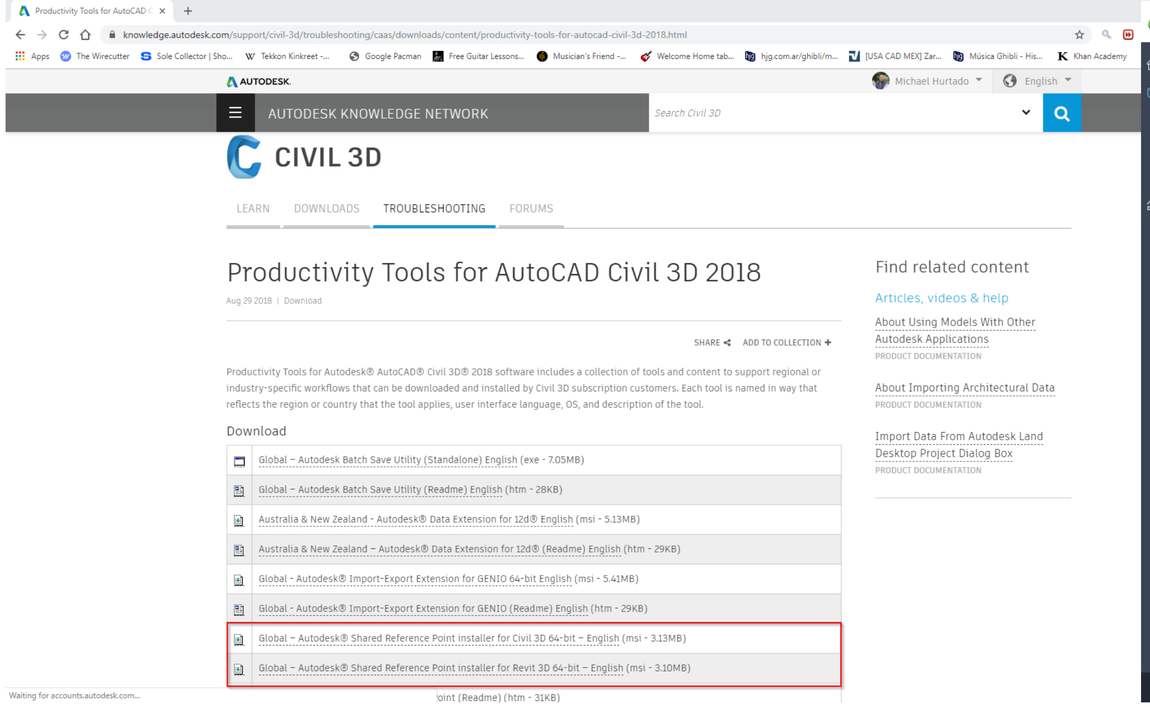
What tools are available and where can we find them?

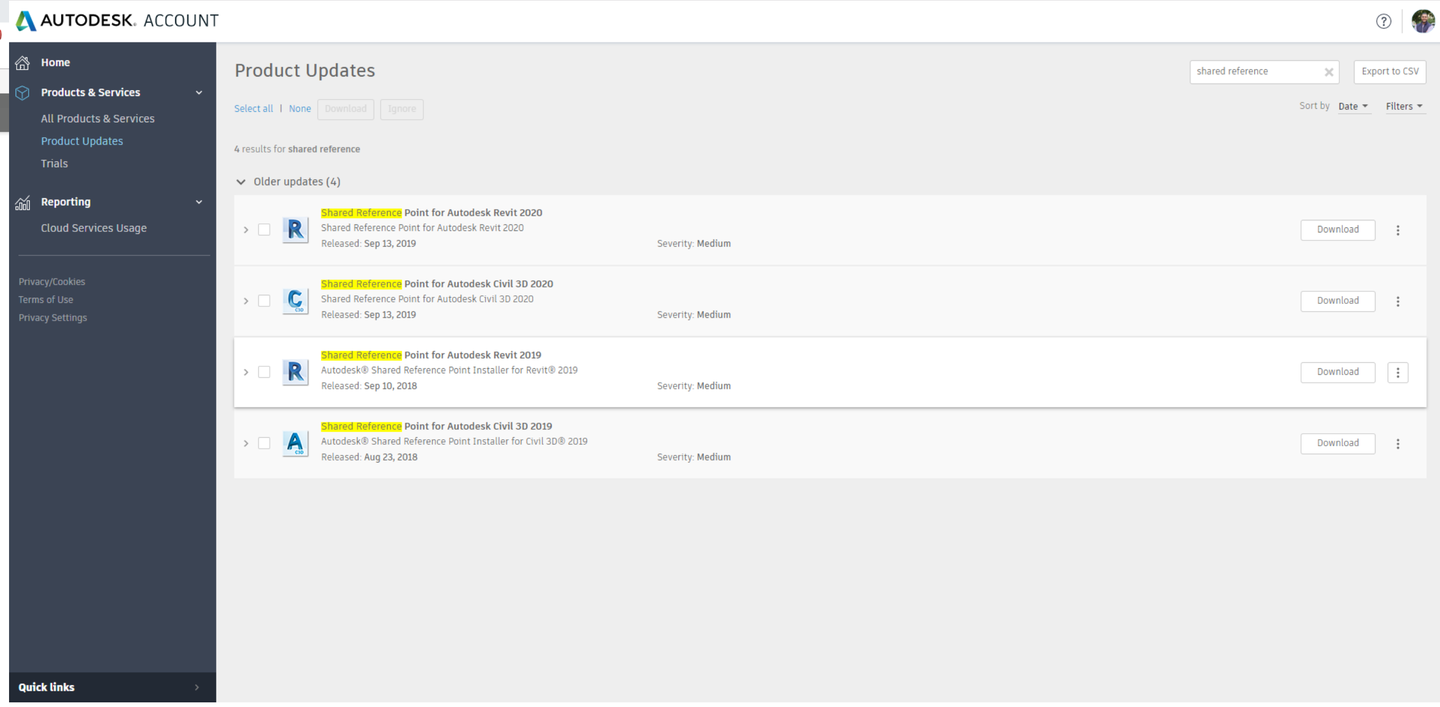
Shared Reference Point Tool

What does it do?

- **User selects a point that is shared between Civil 3D and Revit. A second point is then selected to help determine model rotation.**
- **Information is taken and exported to an XML file.**
- **The XML file is then imported into Revit and used to move the Survey Base Point. A new site is created in the Revit model that is tied back to the Civil 3D DWG.**







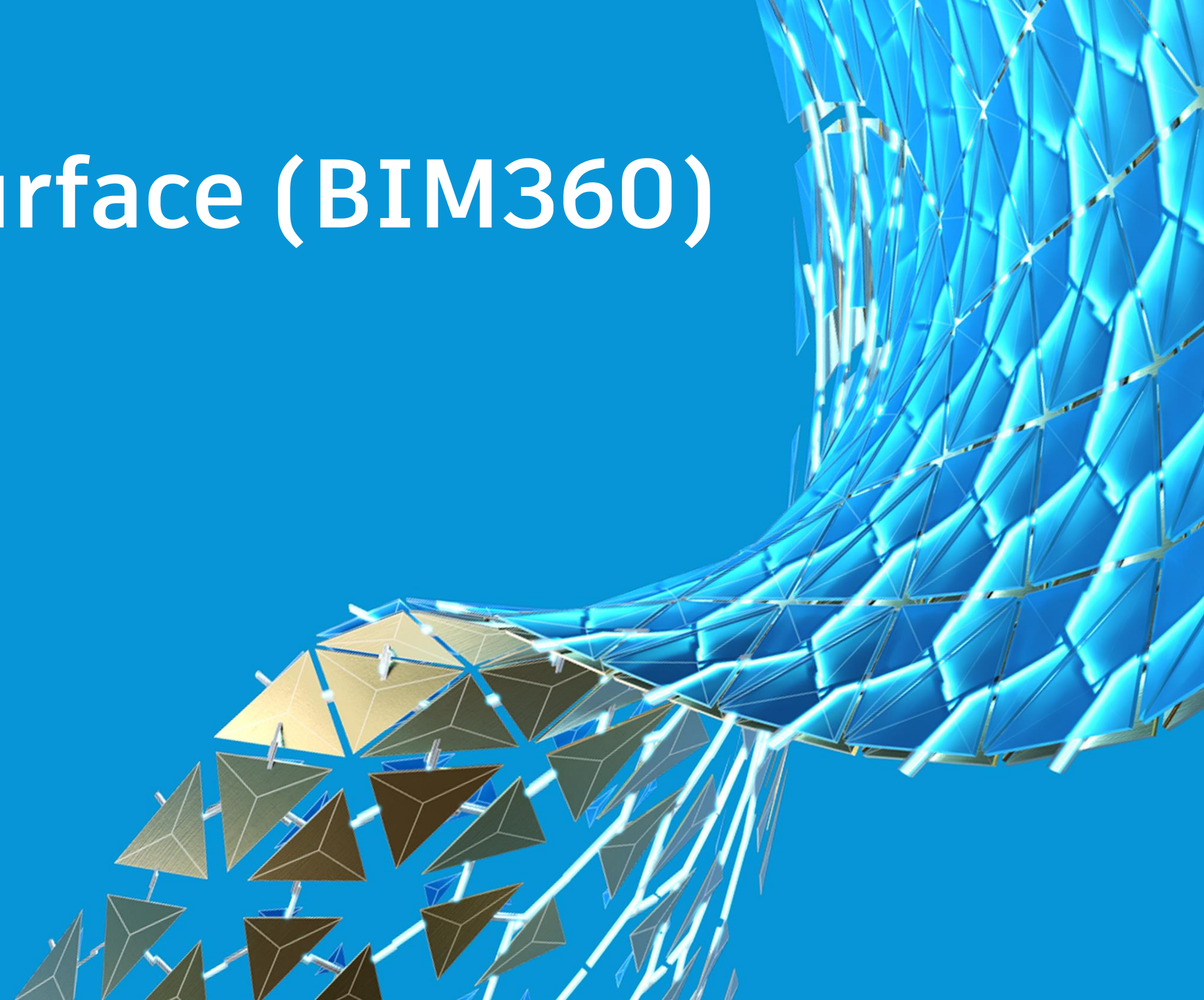
2018 and older

The tool can be found in the Productivity Tools page for each respective release in the Autodesk Knowledge Network: 2015 / 2016 / 2017 / 2018

2019-Present

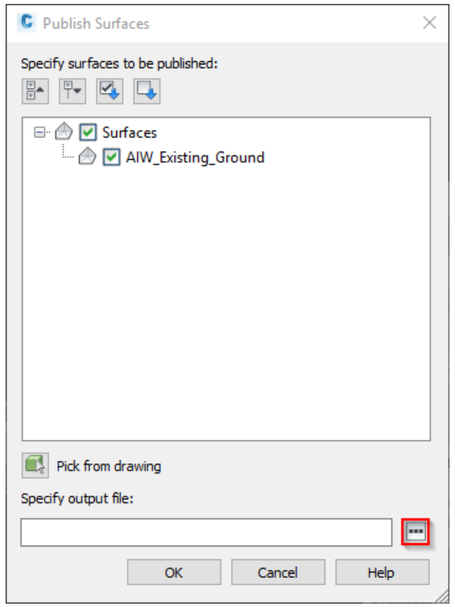
Moved to the Autodesk Account Page. It can be found in the Updates and Add-ons section of each of the respective products, but can also be conveniently found in the Product Updates section.

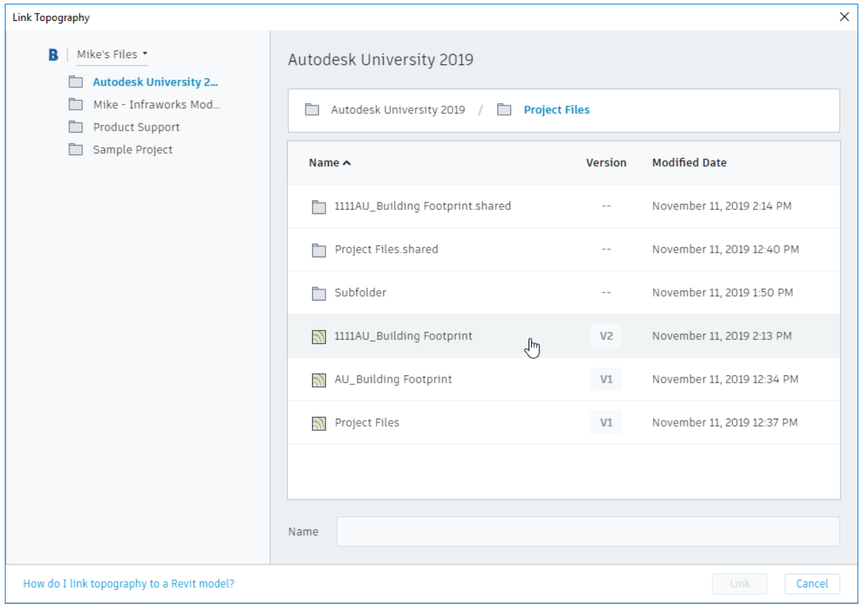
Publish Surface (BIM360)

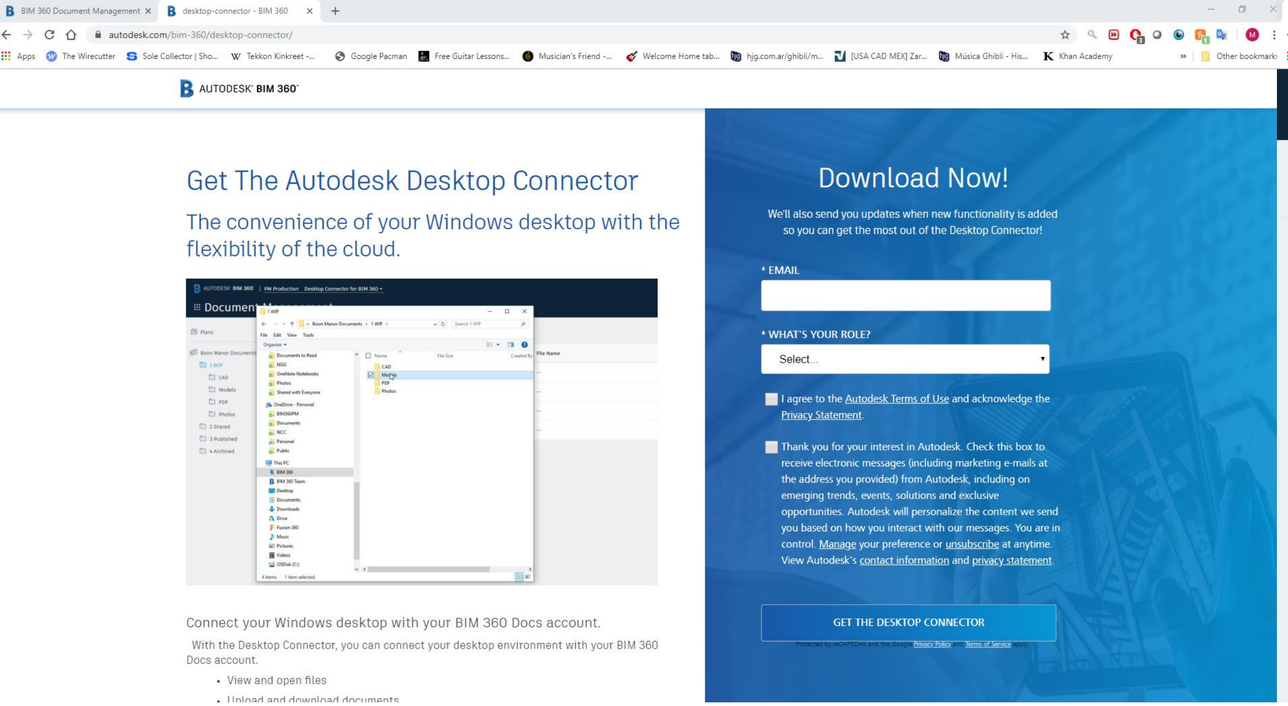


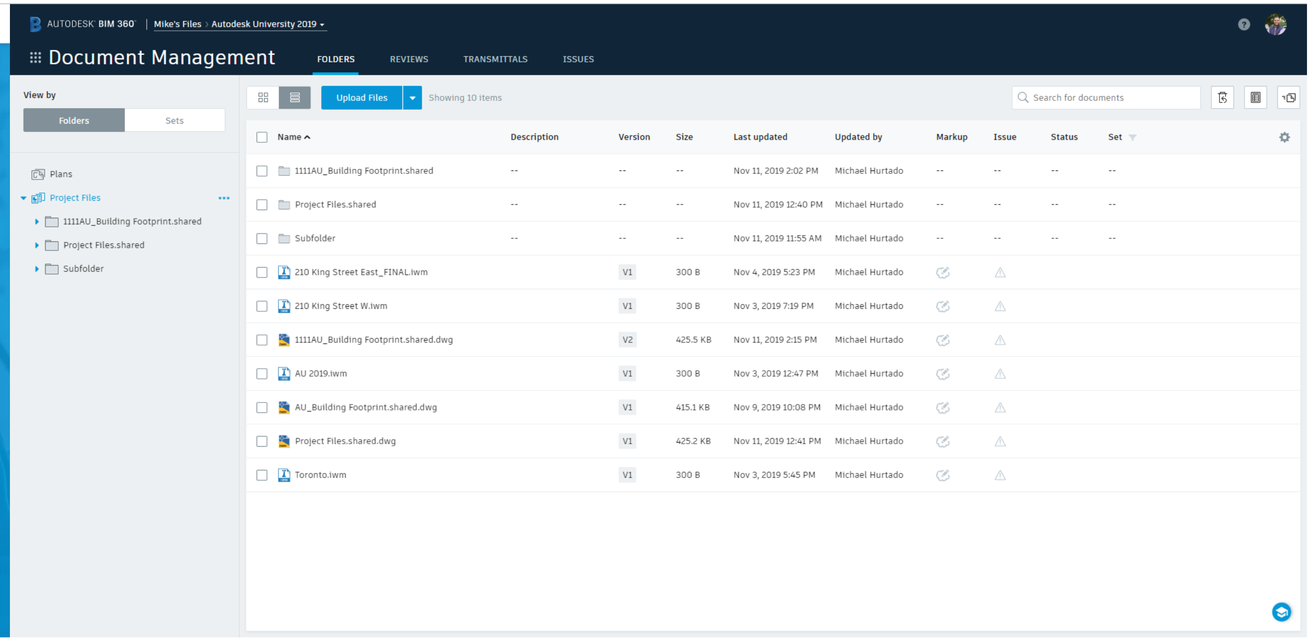
What does it do?

- Publishes a Civil 3D surface to BIM 360 where magic happens
- Once the surface is done being processed, it can be linked into a Revit model as Topograpy.
- If changes are made to the Civil 3D surface and updated, it will be updated in the Revit model.
- All this is made possible by the desktop connector









Desktop Connector

Can be found on the [Autodesk Desktop Connector] Site or on the Autodesk Knowledge Network

BIM 360 Docs

The Desktop Connector will need a project to upload to. For this you'll need to have BIM 360 Docs access.

Let’s dive into the software!

Thank you!

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