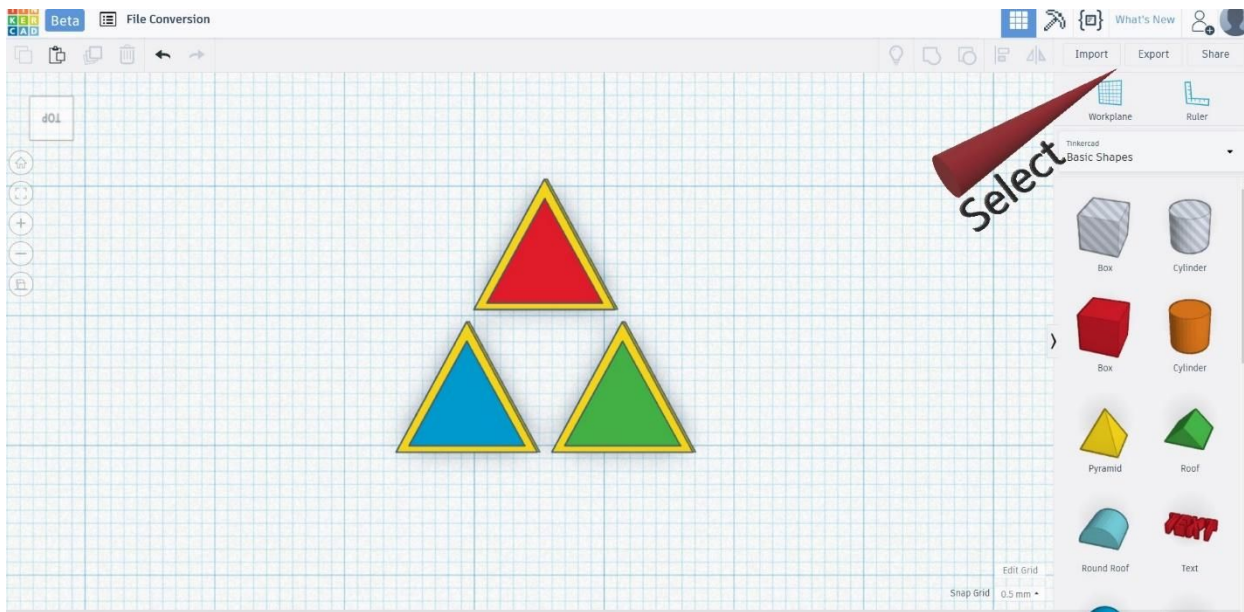


How to export for 3D printing from different software: Tinkercad, Onshape, Inventor, and Fusion360

Tinkercad

- 1) Complete model design in available work space
- 2) Select Export in the Top Right-hand corner

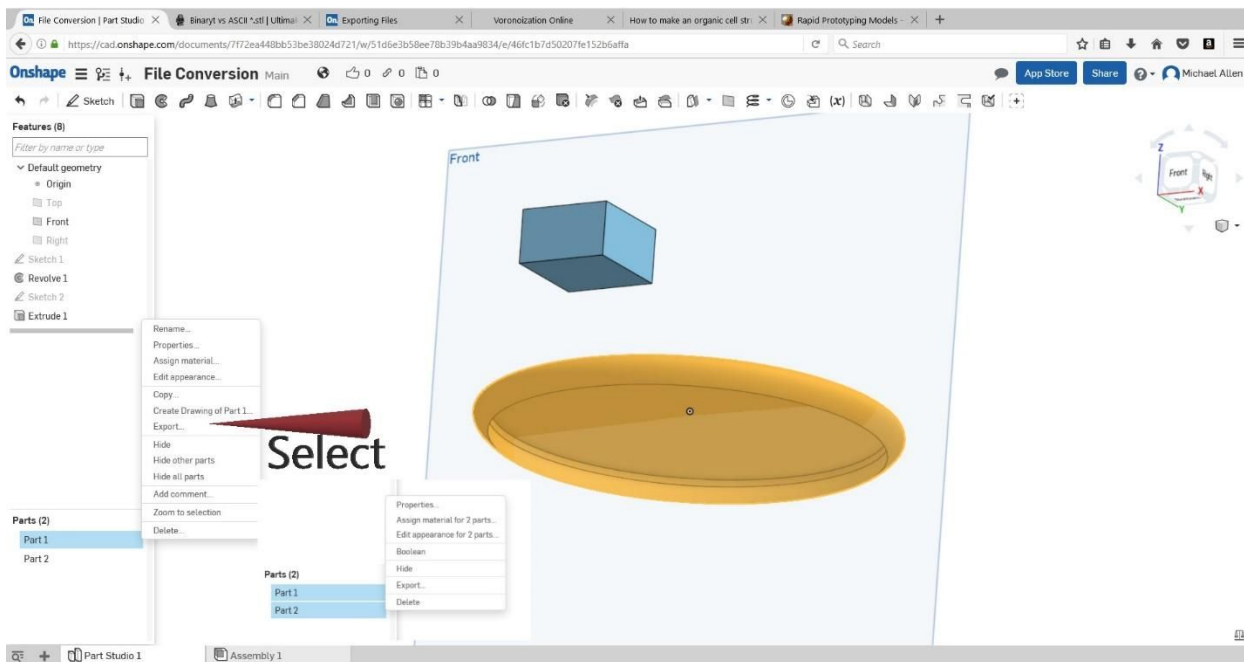


- 3) Choose Inclusion for Export
 - a. Everything
 - b. Selected Shapes (Must select prior to clicking export)
- 4) Choose File Type(s) for Download
 - a. .STL – polygon mesh* (Standard Triangle Language)
 - b. .OBJ – polygon mesh* with surface details (color, texture, material, etc...)
 - c. .SVG – Scalable Vector Graphics (Laser Cutting/Engraving)
- 5) Clicking on the type will open a download menu, Select the “Save File” option
- 6) Click “Ok” to download your model for 3D printing

*Polygon Mesh: a collection of vertices, edges, and faces that define the shape of an object in 3D model

Onshape

- 1) Complete model design in available work space
- 2) Locate the Parts Manager in the Lower Left Corner
- 3) Select parts ready for file conversion. (Select multiple by holding CTRL + Left Click)
- 4) Right click on selected part(s) and choose Export



- 5) Choose applicable settings:
 - a. File Name: Your_File_Name
 - b. Format: STL
 - c. STL Format: Text (ASCII*) or Binary** (Both are usable; Binary reduces file size)
 - d. Units: (Determined by measurement system your design utilized)
 - e. Resolution: (Determines surface area and angular difference of polygons: Coarse to Smooth Texture; higher resolutions produce more accurate curved surfaces for a better looking model)
 - f. Options: Download

(Separate files are available for individual parts, creates .ZIP with multiple .STLs)

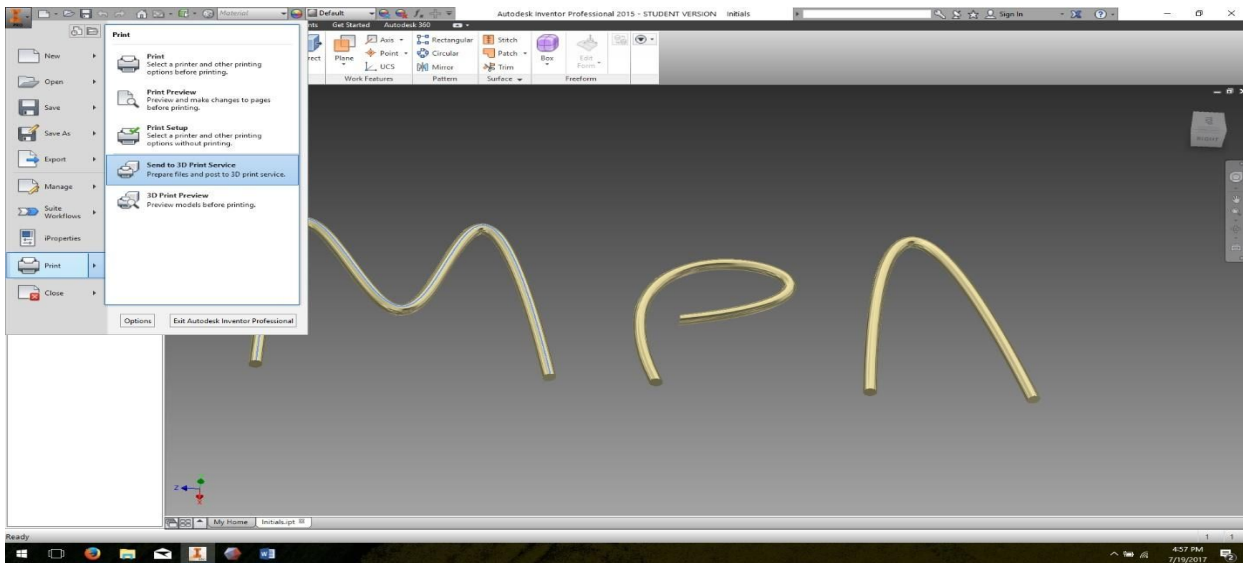
- 6) Click “Ok” after you have the desired settings
- 7) Select the “Save File” option and click “Ok” to download your model for 3D printing

*ASCII STL: File type that stores information about the surface covering polygons

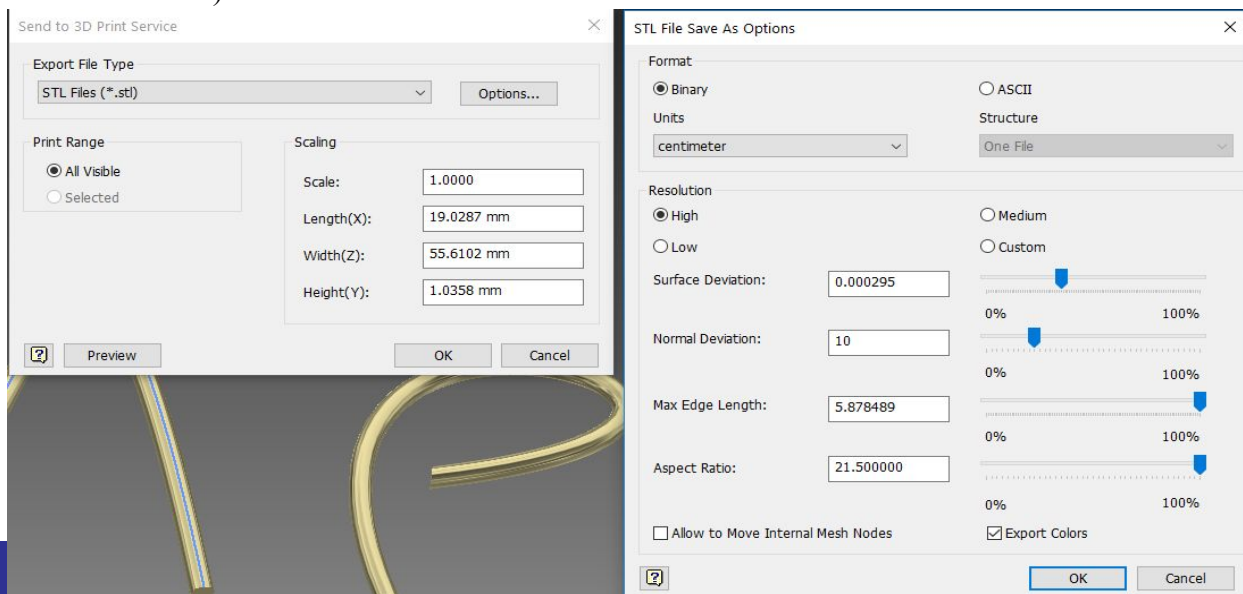
**Binary STL: File type that stores information about the surface covering polygons, condenses polygon coordinates to maintain a smaller file size

Inventor (2015 Professional)

- 1) Finalize model and save .ipt file to desired location
- 2) Click on the I in the top left corner
- 3) Hover over Print, Select “Send to 3D Print Service”

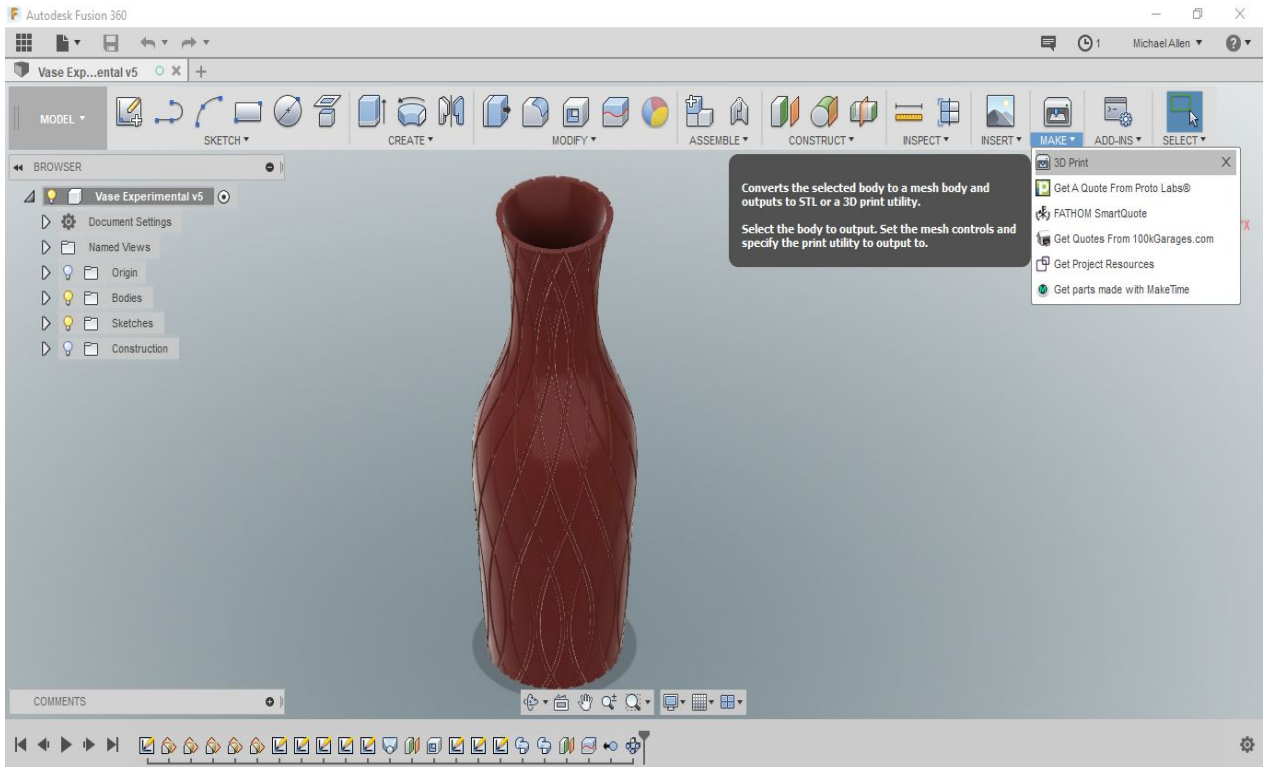


- 4) Change object Scaling if desired
- 5) Advanced Options:
 - a. File Type: ASCII/Binary (Similar Usability; Binary reduces file export size)
 - b. Units for exported file and Resolution settings
 - c. Resolution: increasing or decreasing surface area and angular difference of polygons for final model surface (higher resolutions produce more accurate curved surfaces for a better looking model)

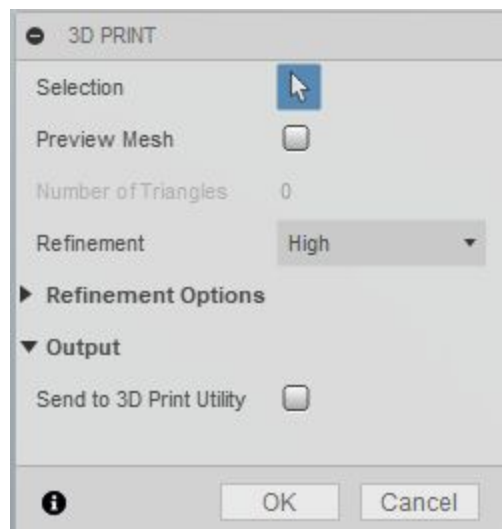


Fusion360

- 1) Complete model iteration and save file
- 2) Locate “Make” in the tool selection ribbon, select “3D Print”



- 3) Chose the object(s) ready for export by left-clicking on the model or in the browser. Choose refinement and unselect 3D Print Utility. Select Ok and Save to desired destination



SketchUp Pro 2018

- 1) Open a Template that uses “Units: Millimeters” and complete your model
- 2) Click on the “Extension Warehouse” that looks like a diamond in a box



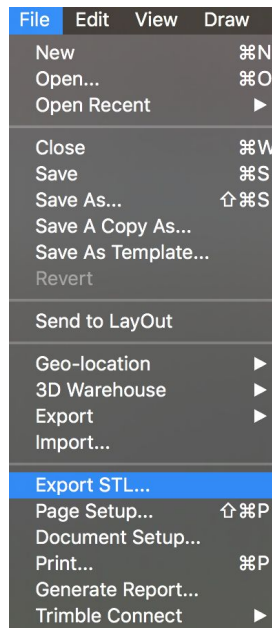
- 3) Search “STL” in the search field and install “SketchUp STL” by the SketchUp Team



SketchUp STL by SketchUp Team

Import and Export STL files for 3D printing

- 4) Select File > Export STL



- 5) Export Unit: “Millimeter” and File Format: “Binary” to keep your file easier for the slicer to read

- 6) Name your file and save to desired destination