3D Model File Importing Guide

zSpace Studio

Version - zSpace Studio 2014

This guide is for learning the process of importing a 3D model file into zSpace Studio. Use this guide to determine what file formats Studio supports. If you have a 3D model in an un-supported format, this guide will also walk you through the process of re-exporting your 3D model in a format that will load in Studio.

In the "File Format Quick Guide Q&A" section, you will find basic information on what file formats are supported by zSpace Studio. You can easily compare your 3D model file's format against the formats listed to determine whether Studio can load it or not.

For further details on file formats and preparing model files for importing into Studio, use the table of contents to navigate within this document. This guide currently details the exporting and importing process for four 3D modeling programs: Autodesk 123D, Autodesk Maya, SketchUp, and Solidworks. Choose a program to learn what file formats it can export as, then use that program's "Guide to Exporting…" walkthrough to obtain a supported file format for Studio.

You can also read notes and view screenshots of models in Studio of various file types to get a sense of what your model will look like when imported into Studio.

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File Format Quick Guide Q&A

Q: What file format is the best to use in Studio?

A: DAE (OpenCOLLADA) files work the best in Studio. They're guaranteed to load and look the best. Check the table of contents to see which programs will let you save or export a model as an OpenCOLLADA DAE file.

Q: What file formats can zSpace Studio load?

A: These are the file formats Studio will try to load. Your level of success depends on the individual model and the program used to export the model.

Studio Will Try to Load These File Formats
".dae", ".fbx", ".stl", ".xml", ".blend", ".bvh", ".3ds", ".ase", ".obj", ".ply", ".dxf", ".ifc", ".nff", ".smd", ".vta", ".mdl", ".md2", ".md3", ".pk3", ".mdc", ".md5mesh", ".md5anim", ".md5camera", ".x", ".q3o", ".q3s", ".raw", ".ac", ".irrmesh", ".irr", ".off", ".ter", ".mdl", ".hmp", ".ms3d", ".lwo", ".lws", ".lxo", ".csm", ".cob", ".scn", ".xgl", ".zgl"

DAE, FBX, and STL files have been the most reliable formats from those listed in the box above. It is recommended that you use a 3D model file in one of those three formats for the best results.

Q: I've got a DAE / FBX / STL file, but it won't load in Studio. Why?

A: Depending on what program exported the model, the file may trigger an error message as Studio and the underlying Unity engine can fail to understand how to open it. One way to get around this issue is to re-export the model using a different program or to change the file format to a different supported format.

Autodesk 123D Design

What files can 123D Design open or import?

Will Import	Will Open
SVG	123DX OBJ SAT / SMB STP / STEP STL

What files can 123D Design save as or export?

123dx

This is a format used by 123D Design when saving projects in progress.
- You can get this file format option by selecting "Save…".
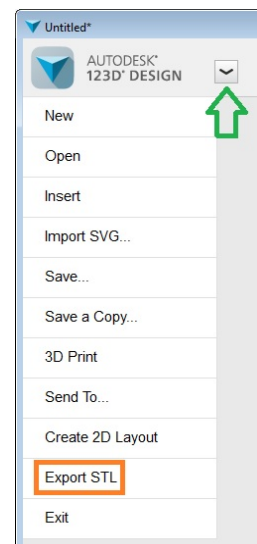- This file format will <u>not</u> open in Studio.

STL

This format is commonly used for 3D printing. This is a file format supported by Studio.
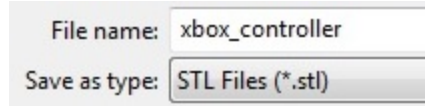- You can get this file format option by selecting "Export STL".
- This file format will open in Studio.

Guide to Exporting Your Autodesk 123D Design Model

This section will guide you through exporting a 3D model file in 123D Design that results in a format that will load in zSpace Studio. This guide will focus on converting a model into a **STL** file, since that is the only available file format option from this program that will load in zSpace Studio.

1. Open or load your model in the scene. You can drag your model file into the scene to load it.

2. Make any last-minute changes to your model, if necessary. You won't be able to edit your model in Studio.

3. Click on the downward-pointing arrow in the top control bar (see green arrow in screenshot to the right) to bring up the file menu.

4. Select "Export STL" (see orange box) to export your model as an STL file. This is a file format recognised by zSpace Studio.

5. In the export window, name your model file. 6. Make sure the "Save as type" field has "STL Files" selected. 7. Select a location on your computer to export your model file to. 8. Click "Save" in the lower right of the export window.	File name: xbox_controller Save as type: STL Files (*.stl)
9. Open zSpace Studio. 10. Click on "Import Model" on the top control bar to browse your computer for your STL file. 11. Select the STL file and wait for it to load in Studio.	Import Model

Viewing Your Autodesk 123D Design Model in zSpace Studio

Here are things to expect when viewing an STL file from Autodesk 123D Design.

- STL files are often used for 3D printing, so you can use zSpace Studio to view what your STL file will look like before it is 3D printed.
- STL files do not show materials or textures. They will appear as a single solid color (usually white or grey).
- STL files show external geometry. This means you see which parts of the model are raised or sunken into the model.
- You can use the cutting plane tool in Studio to view whether your model is hollow or solid.

Autodesk Maya

What files can Autodesk Maya open or import?

Will Import / Open
DAE
FBX
IGS
IPT
MA / MB
STL
STP / STEP

There are many plug-ins for Autodesk Maya that can allow you to import/open more file types. If you want to load a file with a format not listed in this box, it may be worthwhile to try searching online for a plug-in that suits your needs.

What files can Autodesk Maya save as or export?

DAE FBX

Exporting with this option results in a DAE file. This is a file format supported by Studio.
- You can get this file format option by selecting "Export Selection…" and choosing "Files of Type > DAE_FBX export".
- This file format will open in Studio.
- You will need a plug-in for this export option. The plug-in is called *fbxmaya.mll* and should be included with Maya. Make sure it is turned on by using the Plug-in Manager.

FBX

This is a file format supported by Studio.
- You can get this file format option by selecting "Export Selection…" and choosing "Files of Type > FBX export".
- This file format will open in Studio.
- You will need a plug-in for this export option. The plug-in is called *fbxmaya.mll* and should be included with Maya. Make sure it is turned on by using the Plug-in Manager.

OpenCOLLADA (DAE)

Exporting with this option results in a DAE file. This is the best file format to use in Studio. Studio was built to run its best with this file type.
- You can get this file format option by selecting "Export Selection…" and choosing "Files of Type > OpenCOLLADA exporter".
- This file format will open in Studio.
- You will need a plug-in for this export option. The plug-in is called *COLLADAMaya.mll*. You can download it from here:

STL

This format is commonly used for 3D printing. This is a file format supported by Studio.

- You can get this file format option by selecting "Export Selection…" and choosing "Files of Type > STL_DCE".
- This file format will open in Studio.

Other Export Formats

There are plenty of other formats for "Export Selection" options, but the 4 options listed above are the only format options for exporting that are supported by Studio.

Guide to Exporting Your Autodesk Maya Model

This section will guide you through exporting a 3D model file in Autodesk Maya that results in a format that will load in zSpace Studio. This guide will focus on converting a model into an **OpenCOLLADA (DAE)** file, since that is the best file format to use in Studio.

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1. Open or load your model in the scene. You can drag your model file into the scene to load it. 2. Make any last-minute changes to your model, if necessary. You can define dissectible segments in Maya using "Mesh" > "Combine" or "Separate" and these changes will be reflected in Studio. You won't be able to edit your model in Studio.	
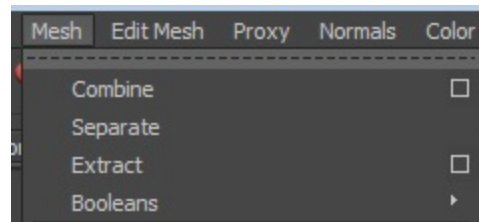
Before exporting, there are 2 steps that need to be taken.

3. The first is to click on "Freeze Transformations". If your model has multiple pieces, this will keep the pieces together in Studio (otherwise they will scatter across the scene when loaded into Studio).
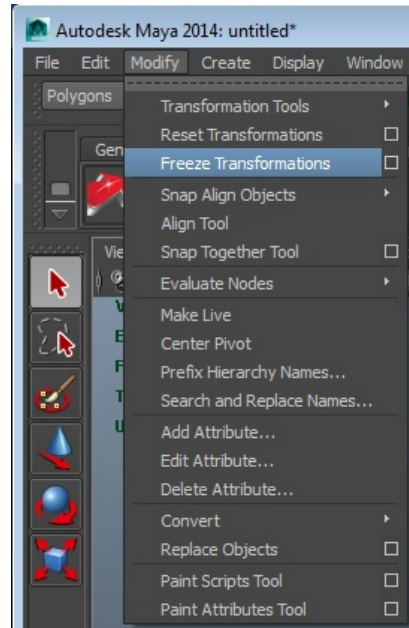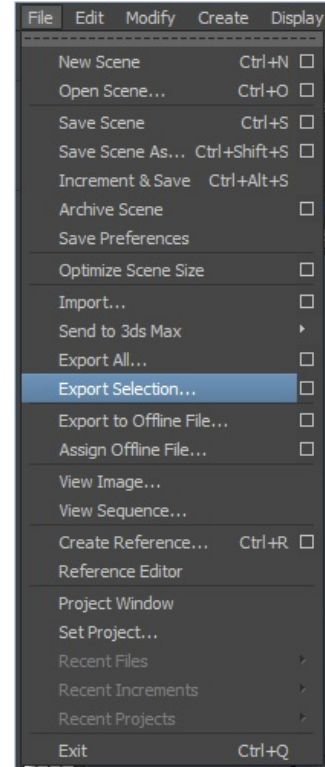

4. The second pre-export step is to select: Edit > Delete All by Type > History Selecting this gets rid of any extra information that could impact what your model will look like in Studio.
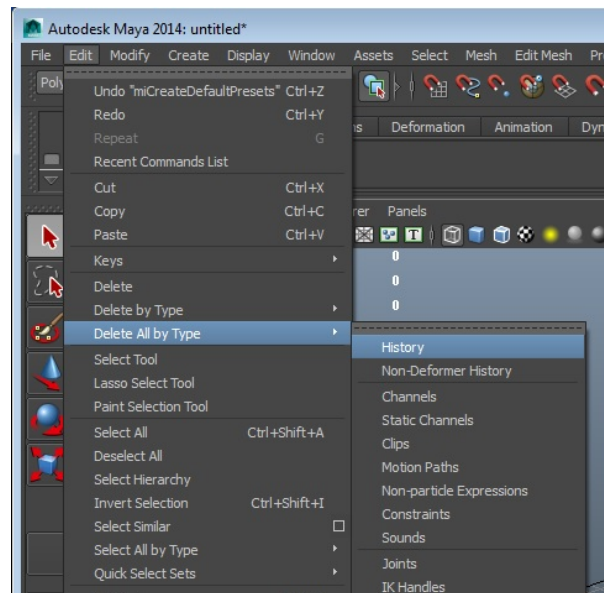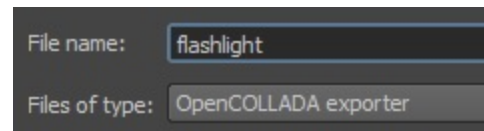
|	
5. Highlight your entire model. It will appear green or white. Then, under "File", select "Export Selection…"	File Edit Modify Create Display New Scene Ctrl+N Open Scene... Ctrl+O Save Scene Ctrl+S Save Scene As... Ctrl+Shift+S Increment & Save Ctrl+Alt+S Archive Scene Save Preferences Optimize Scene Size Import... Send to 3ds Max Export All... Export Selection... Export to Offline File... Assign Offline File... View Image... View Sequence... Create Reference... Ctrl+R Reference Editor Project Window Set Project... Recent Files Recent Increments Recent Projects Exit Ctrl+Q
6. In the export window, name your model file. 7. Make sure the "Files of Type" field has "OpenCOLLADA exporter" selected. 8. Select a location on your computer to export your model file to. 9. Click "Export Selection" in the lower right of the export window.	File name: flashlight Files of type: OpenCOLLADA exporter **Note:** If you do not see OpenCOLLADA as an option for exporting, you'll need to download a plug-in. See "OpenCOLLADA (DAE)" above for links to the plug-in.
10. Open zSpace Studio. 11. Click on "Import Model" on the top control bar to browse your computer for your OpenCOLLADA (DAE) file. 12. Select the OpenCOLLADA file and wait for it to load in Studio.	Import Model
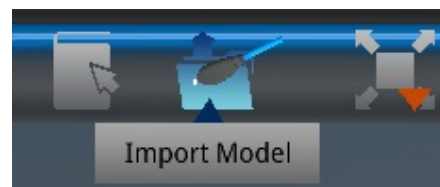
Viewing Your Autodesk Maya Model in zSpace Studio

Here are things to expect when viewing an OpenCOLLADA (DAE) file from Autodesk Maya.

- OpenCOLLADA files show materials, textures, and colors. They will appear how they looked in Maya. In the example screenshots, I chose to make certain segments of the flashlight white, and others grey.
- OpenCOLLADA files show external and internal geometry.
- You can use the cutting plane tool in Studio to view the inside geometry of your model.
- Any pieces you defined as individual segments in Maya will be reflected in Studio. You will be able to dissect your model accordingly.
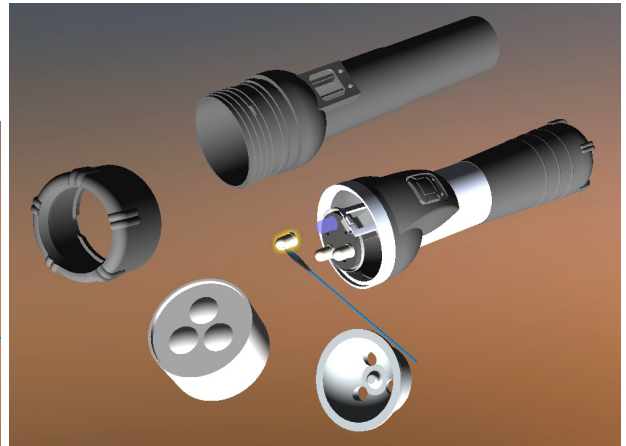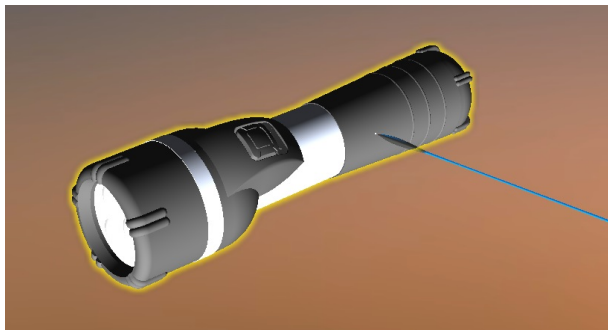
SketchUp

What file formats can SketchUp open or import?

Will Import	Will Open
SKP 3DS DAE DEM / DDF KML / KMZ STL	SKP

What file formats can SketchUp save as or export?

COLLADA DAE

This is the best file format for Studio.
- You can get this file format option by selecting "Export > 3D Model...".
- This file format will open in Studio.

KML / KMZ

This is a file format used by Google (SketchUp, Earth, 3D Warehouse).
- You can get this file format option by selecting "Download" while browsing the 3D Warehouse online (https://3dwarehouse.sketchup.com).
- You can get this file format option by selecting "Export > 3D Model...".
- This file format will <u>not</u> open in Studio.

SKP

This is a file format used by SketchUp. You get this file format when you save your work-in-progress in SketchUp.
- You can get this file format option by selecting "Download" while browsing the 3D Warehouse online (https://3dwarehouse.sketchup.com).
- You can get this file format option by selecting "Save as...".
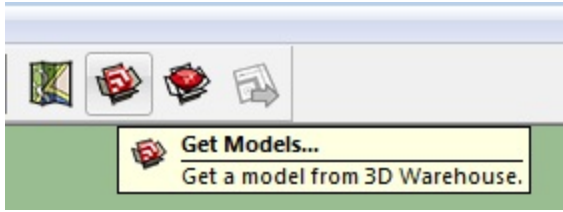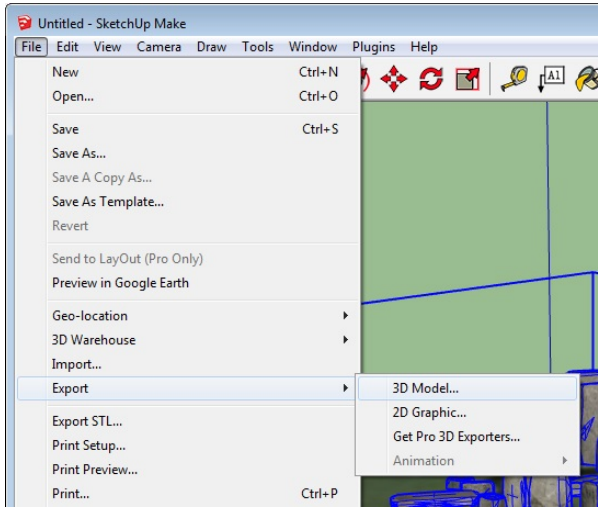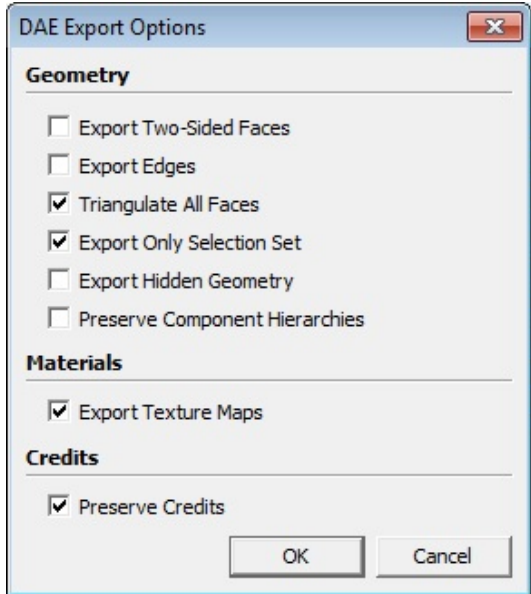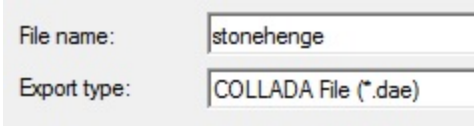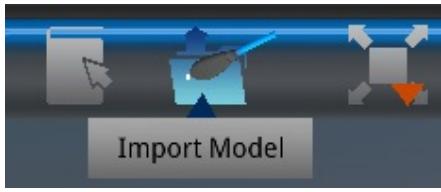- This file format will <u>not</u> open in Studio.

STL

This format is commonly used for 3D printing. This is a file format supported by Studio.
- You can get this file format option by selecting "Export STL...". Make sure the file format field says ACSII, not Binary, in the export pop-up window.
- This file format will open in Studio.

Guide to Exporting Your SketchUp Model

This section will guide you through exporting a 3D model file in SketchUp 2014 that results in a format that will load in zSpace Studio. This guide will focus on converting a model into a **DAE** file, since that is the best file format to use in Studio.

1. Open or load your model in the scene. You can drag your model file into the scene to load it, or open a model directly from SketchUp's 3D Warehouse. 2. Make any last-minute changes to your model, if necessary. You won't be able to edit your model in Studio.	
3. Under "File", select "Export > 3D Model…".	
4. Click on "Options" in the lower right of the export window. 5. Make sure these 4 boxes are checked in the "DAE Export Options" pop-up window: "Triangulate All Faces", "Export Only Selection Set", "Export Texture Maps", and "Preserve Credits". These options ensure that all the necessary information and materials for Studio performance are exported with your model.	

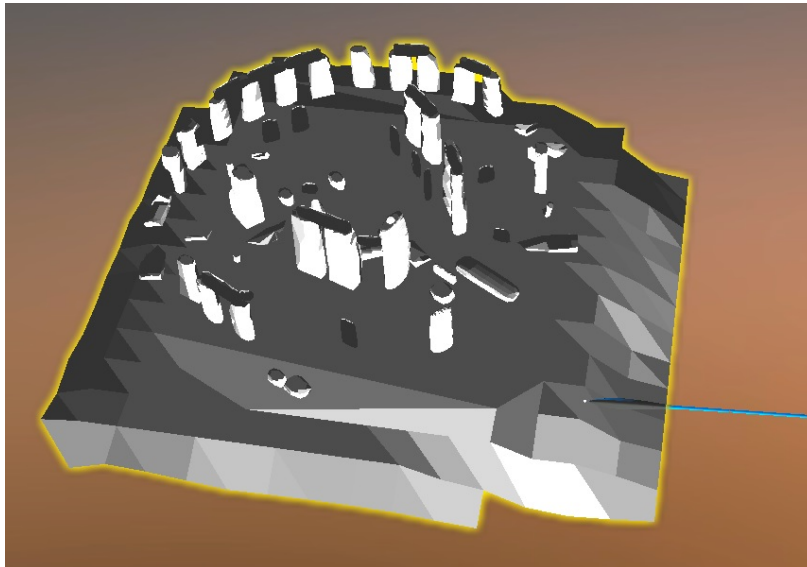|	
6. In the export window, name your model file.	File name: stonehenge Export type: COLLADA File (*.dae)
7. Make sure the "Export Type" field has "COLLADA File" selected.	
8. Select a location on your computer to export your model file to.	**Note:** Make sure your model file and materials folder export to the same location on your computer. If not, your model will lose it's colors/textures/materials when viewed in Studio.
9. Click "Export" in the lower right of the export window.	
10. Open zSpace Studio. 11. Click on "Import Model" on the top control bar to browse your computer for your COLLADA file. 12. Select the COLLADA file and wait for it to load in Studio.	Import Model

Viewing Your SketchUp Model in zSpace Studio

Here are things to expect when viewing a COLLADA file from SketchUp.

● Oftentimes, a DAE file exported from SketchUp will NOT appear correctly in Studio. Sometimes materials will not be attached. Sometimes pieces will scatter across the scene in Studio.
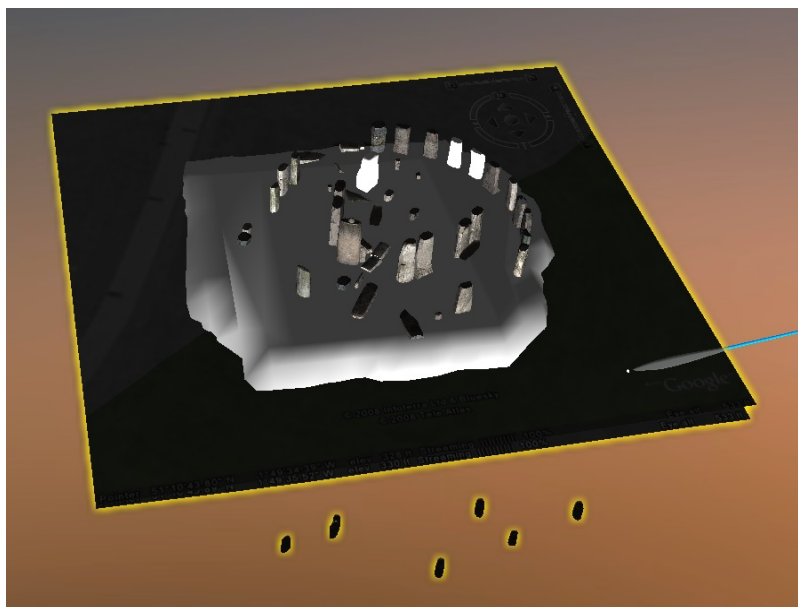
- You may have to load a SketchUp model file in another program, re-attach materials, and make sure piece segmentation is correct, then re-export with the other program to ensure that the model can be successfully imported into Studio.

- You may have much better luck with viewing a model from SketchUp when it has been exported as an STL file (see picture below), most likely because there are no separate pieces or materials.
- STL files are often used for 3D printing, so you can use zSpace Studio to view what your STL file will look like before it is 3D printed.
- STL files do not show materials or textures. They will appear as a single solid color (usually white or grey).
- STL files show external geometry. This means you see which parts of the model are raised or sunken into the model.

Solidworks

What files can Solidworks open or import?

Will Import	Will Open
(No import option.)	ASM / SLDASM DRW / SLDDRW DXF DWG PSD AI LFP / SLDLFP PRTDOT / ASMDOT / DRWDOT X_T / X_B / XMT_TXT IGS / IGES STEP / STP IFC SAT VDA WRL STL CGR SLDXML PRT / XPR ASM / XAS PRT IPT IAM PAR / PSM ASM PRT / CKD DLL EMN / BRD / BDF / IDB 3DM

What files can Solidworks save as or export?

FBX

This is a file format supported by Studio.
- You can get this file format option by selecting "Export to FBX".
- This file format will <u>not</u> open in Studio. This is most likely because the exporting is being done in a way that is incompatible with Unity or zSpace Studio.
- If you want a 3D model from Solidworks with materials/textures to be viewed in zSpace Studio, you'll need another program like Autodesk Maya to edit and re-export your model file in a supported format.

STL

This is a file format supported by Studio. This format is commonly used for 3D printing.

- You can get this file format option by selecting "Save as...". Your model must be saved as an ACSII file, not a binary one.
- This file format will open in Studio.

Other "Save As" Formats

There are plenty of other formats for "Save as" options, but STL is the only format option for saving that is supported by Studio.

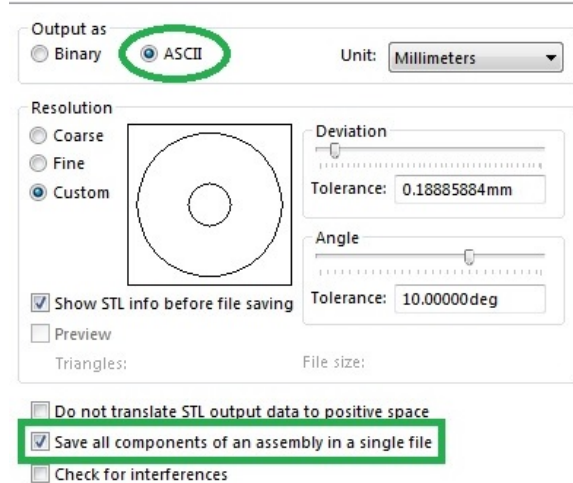## Guide to Exporting Your Solidworks Model

This section will guide you through exporting a 3D model file in Solidworks 2014 that results in a format that will load in zSpace Studio. This guide will focus on converting a model into a **STL** file, since that is the only available file format option from this program that will load in zSpace Studio.

|	
1. Open or load your model in the scene. You can drag your model file into the scene to load it. 2. Make any last-minute changes to your model, if necessary. You won't be able to edit your model in Studio. 3. Hover over the grey arrow pointing to the Solidworks logo to bring up the "File" menu (see green arrow in screenshot to the right). 4. In the "File" menu, select "Save As…"	
5. In the "Save As" window, name your model file. 6. Make sure the "Save As Type" field has "STL" selected. 7. Select a location on your computer to export your model file to. 8. Click on "Options" in the lower left of the "Save As" window.	

Make sure these options are selected: 9. Under "Output as" make sure ACSII is selected, not Binary. 10. In the group of 3 checkboxes in the middle of the window, check the box that says "Save all components of an assembly in a single file". 11. Click "Save" in the lower right of the export window.	 **Note:** This window will say "Export Options", but it is your option window when saving.
12. Open zSpace Studio. 13. Click on "Import Model" on the top control bar to browse your computer for your STL file. 14. Select the STL file and wait for it to load in Studio.	
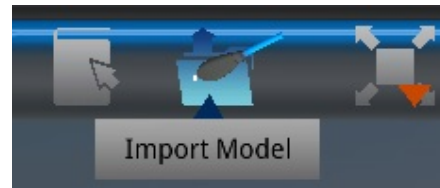
Viewing Your Solidworks Model in zSpace Studio

Here are things to expect when viewing a STL file from Solidworks.
- STL files are often used for 3D printing, so you can use zSpace Studio to view what your STL file will look like before it is 3D printed.
- STL files do not show materials or textures. They will appear as a single solid color (usually white or grey).
- STL files show external geometry. This means you see which parts of the model are raised or sunken into the model.
- You can use the cutting plane tool in Studio to view whether your model is hollow or solid.