

Learning Guide

Create 3D Models with SculptGL

Introduction

SculptGL is a free software that runs in a web browser and enables users to make 3D models using digital sculpting. The SculptGL website does not require an account and is easily accessible. As with physical clay sculpting, you can get started with a digital ball of clay and shape it with different brushes within the software to create a custom 3D sculpt of your own, or you can import a pre-made 3D model and sculpt on top of it. Your 3D model can be exported and used in many different 3D projects, including 3D printing, animation, game design, and more.

Video Learning Guide for this Lesson:

www.youtube.com/watch?v=oPffpjMsdpc

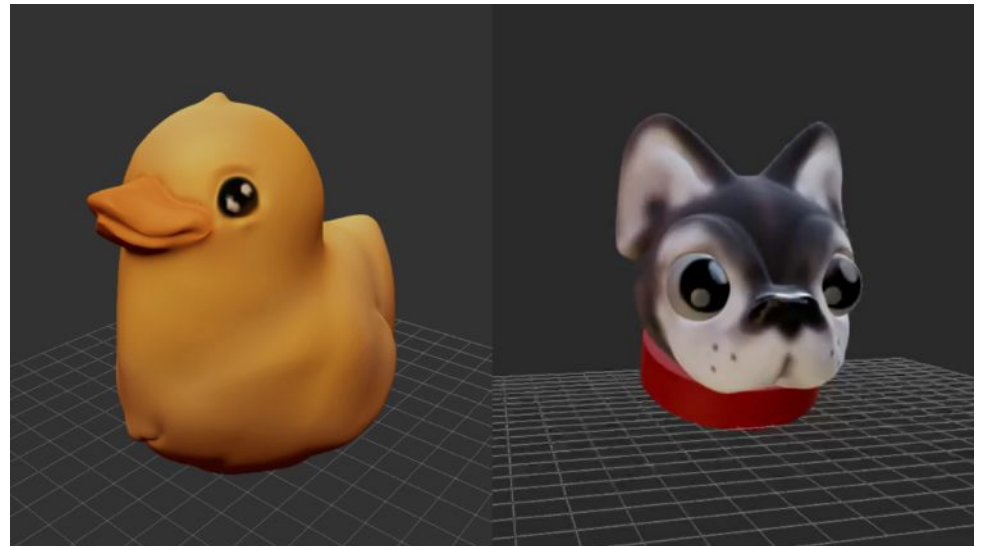
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Step 1: Learn SculptGL basics

Preview

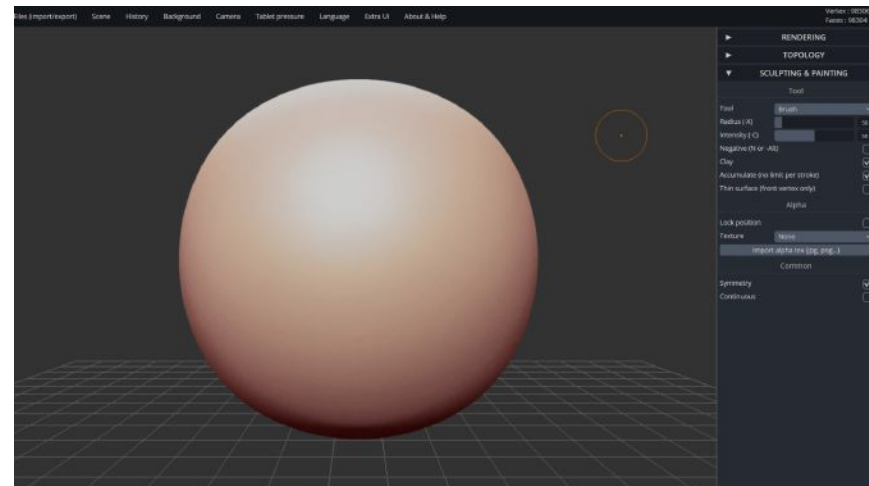
It's easy to get started with creating 3D models in SculptGL once you learn the basics. This section will show you how to open SculptGL, navigate the software, and get started with making your first digital sculpt. It is recommended that you use an external mouse for ease.

Experiment

OPEN SCULPTGL

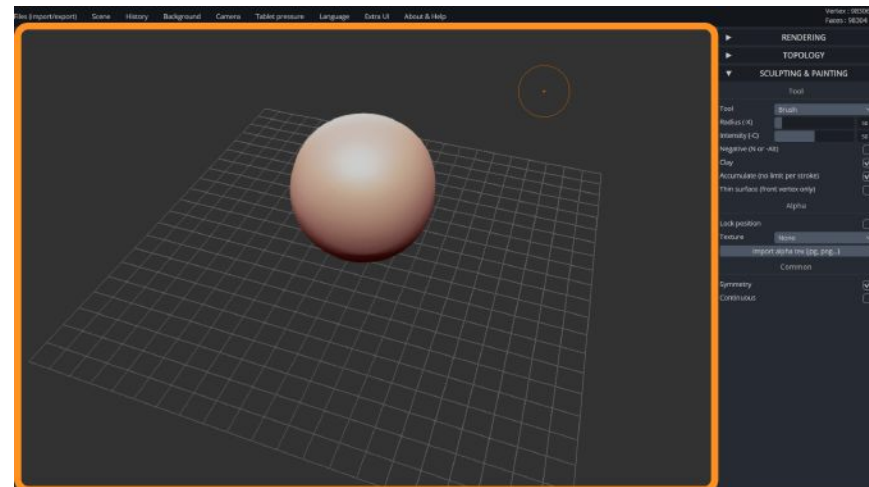
Search for SculptGL on your browser or go to (<https://stephaneginier.com/sculptgl>).

You will start with the default clay sphere in your scene.



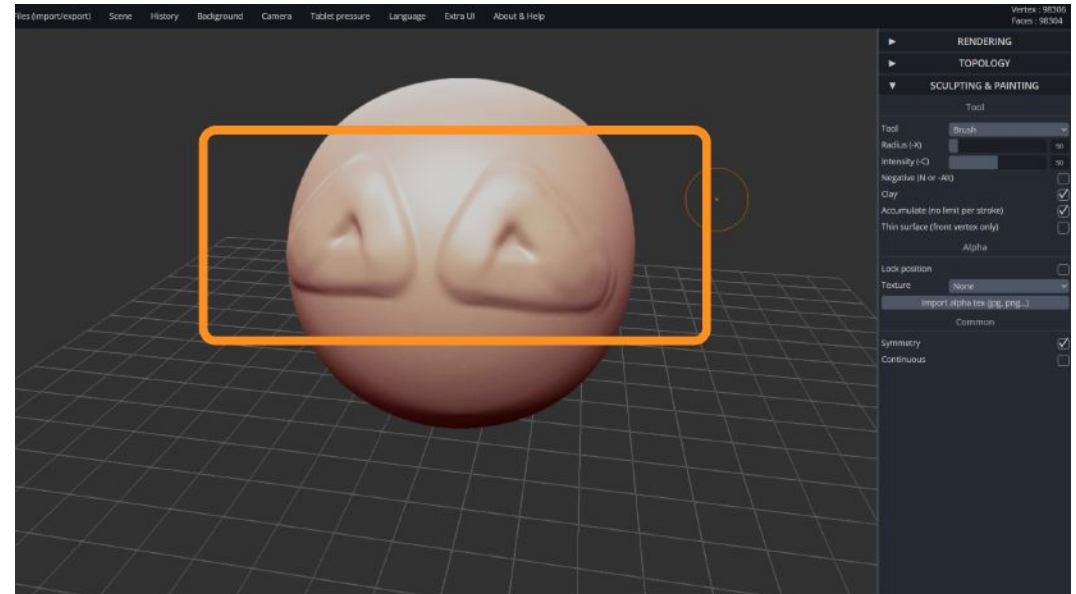
The main window in the center is the **Viewport**. You can navigate in the Viewport by:

- **Left clicking and dragging outside the clay (or right clicking anywhere)** to rotate,
- **Holding down the middle mouse button** to pan around,
- Using the **scroll wheel** to zoom in/out.



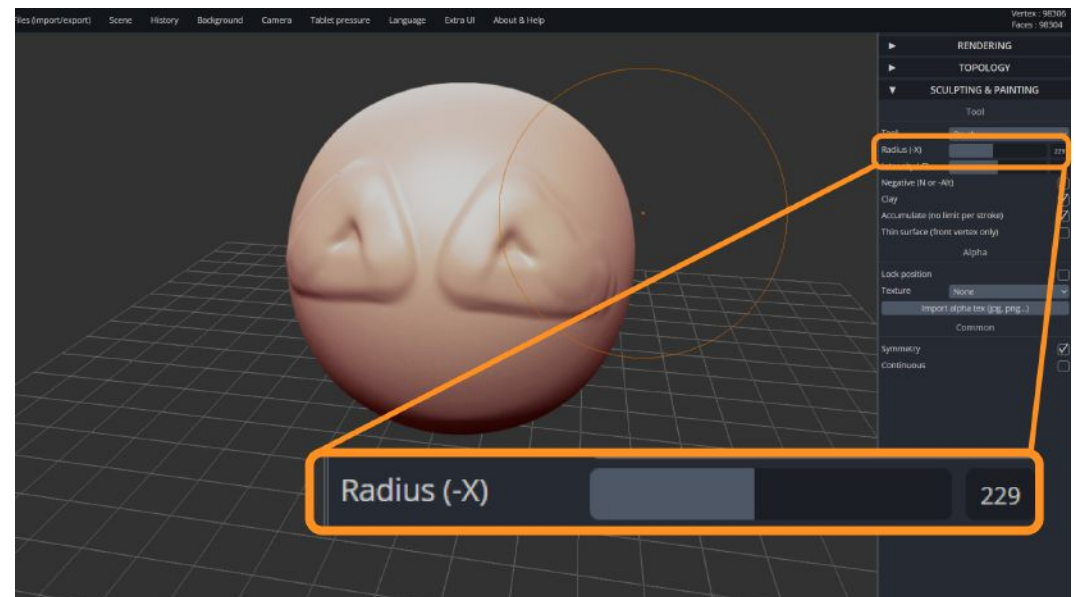
LEARN THE TOOLS

By default, you will start with the **Brush Tool**. To start sculpting, **click and drag** over the clay sphere. You will notice that clay will start building up and shaping over the sphere.



You can change the size of the brush to build larger or smaller areas. Use the **Radius** slider from the toolbar on the right, or hold down the **“X”** key, and click and drag your mouse anywhere over the Viewport.

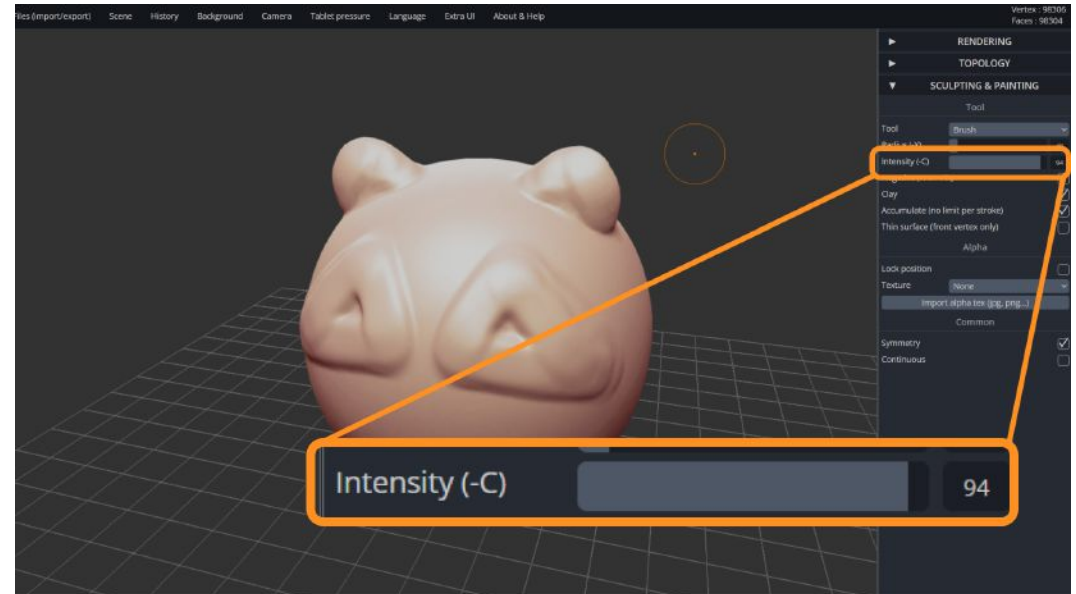
The red circle around your mouse in the Viewport will indicate the size of the brush.



The **Intensity** slider under the Radius option will change the strength of the tool you're using.

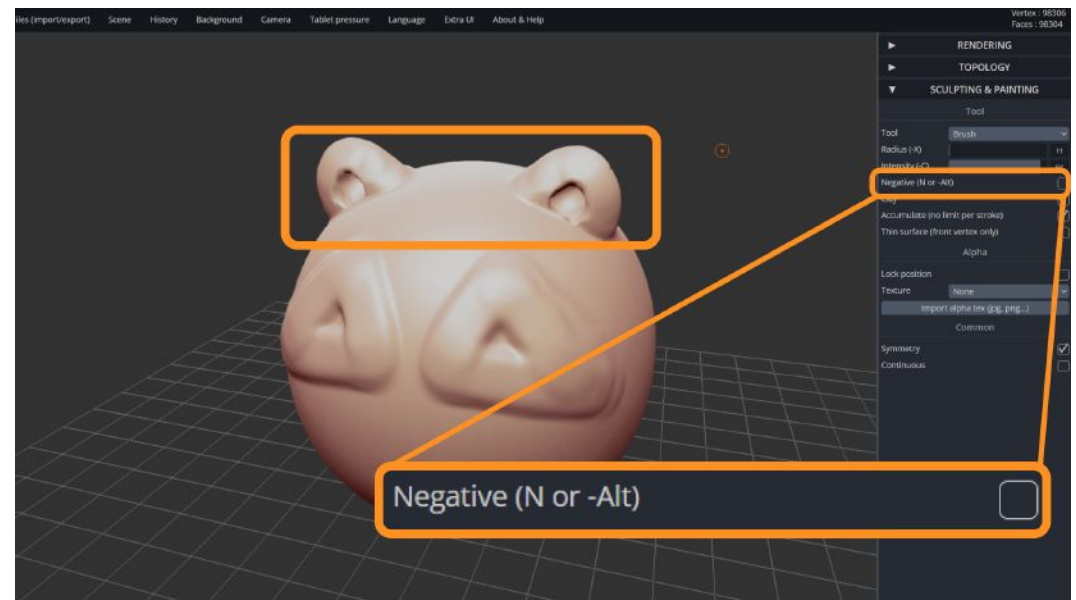
Increasing the intensity will cause the brush to build clay faster, while lowering it will keep the process slower.

Try different brush sizes and intensity levels to start sculpting. Generally, you can try using a larger brush with higher intensity to create the overall rough shape of your model, and then switch to a smaller brush with low intensity to build the finer details.



By default, the tools you're using will build **upon** the clay. You can use the **Negative checkbox** in the toolbar to invert the tool and carve **into** the clay instead.

You can also **hold the ALT (OPTION for Mac) key and sculpt** upon the clay to use the inverse brush instead of using the checkbox.



As you're sculpting your model, if you ever want to reverse a brush move you've made, use **CTRL + Z** to undo your last action.

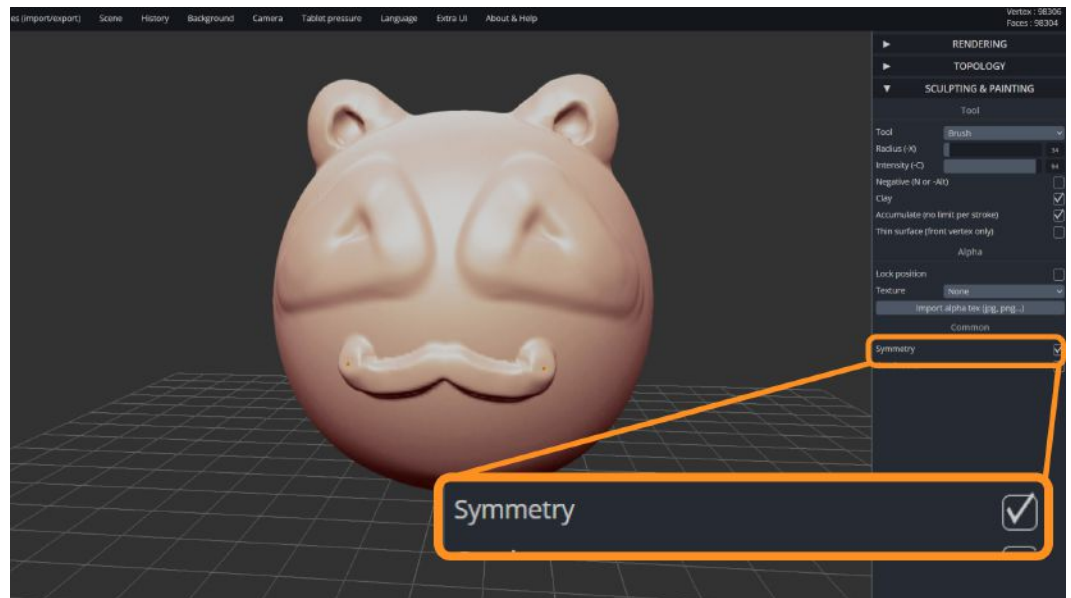


Depending on your modeling needs, you can toggle the **Symmetry** option from the bottom of the Toolbar.

Toggling Symmetry **ON** means any clay added, removed, or moved on one side of the model is automatically reflected on the opposite side.

Toggling it **OFF** means you can manipulate only one side of the model at a time, without your changes being mirrored on the other side.

When you toggle this setting, it will change for all tools you're using.



In addition to the Brush Tool, there are several other tools available in SculptGL to help you sculpt your creative vision to life. Just like the Brush Tool, you can use the size, intensity, negative, and other settings for all tools to refine the details of your digital sculpture.

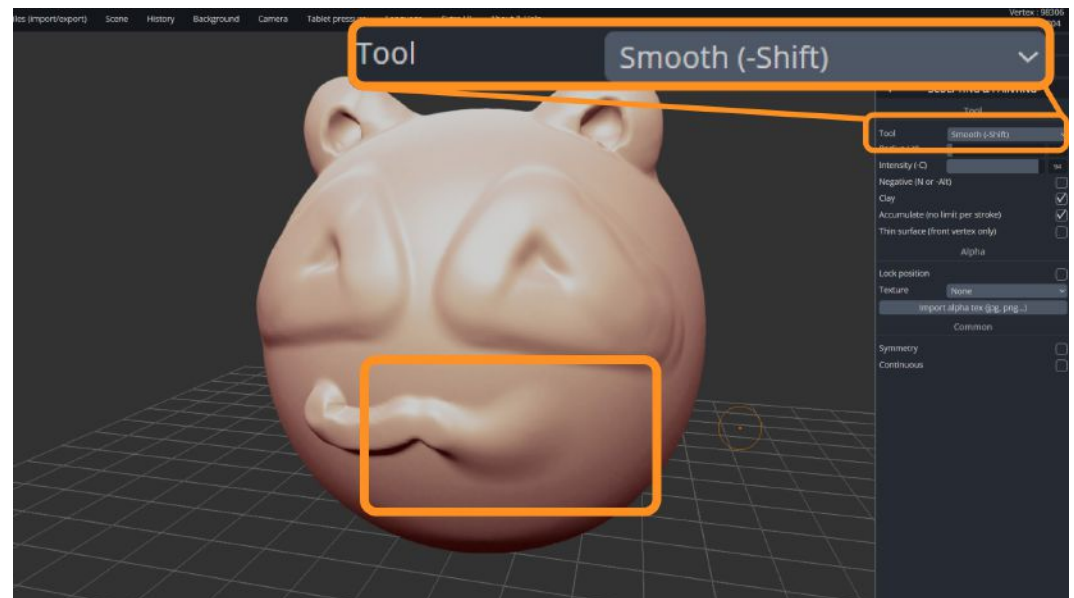
You can switch to different tools from the **Tool Dropdown** in the toolbar.



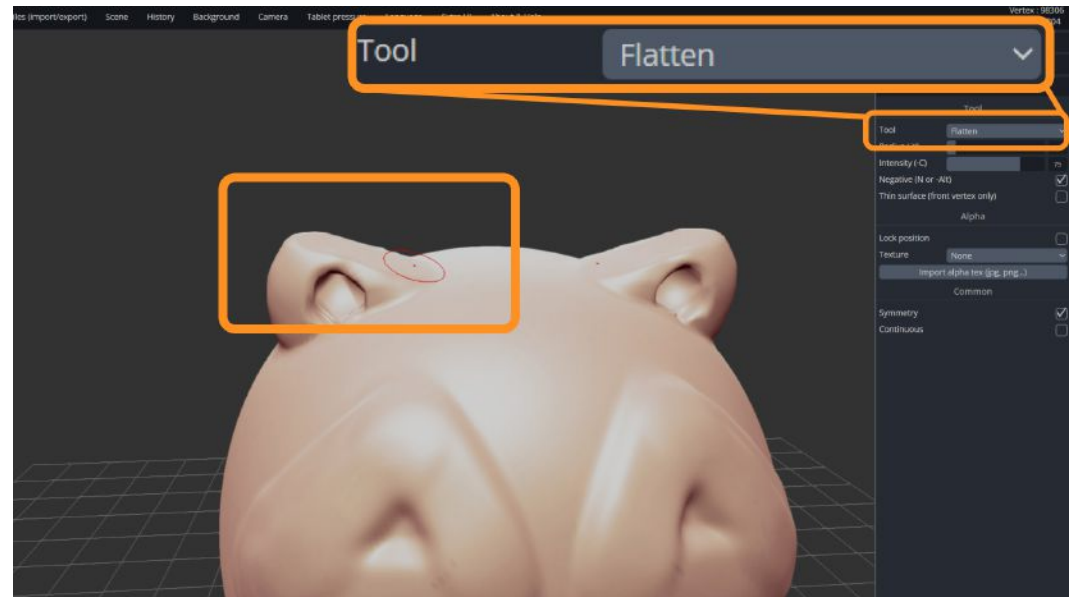
The **Smooth Tool** will smooth over the areas of your clay that might have jagged edges or bumps.

Switch to this tool and drag your cursor over the clay to try it out.

Instead of switching to this tool from the dropdown, you can also **hold down the SHIFT key** to turn any brush you're using into the Smooth tool.

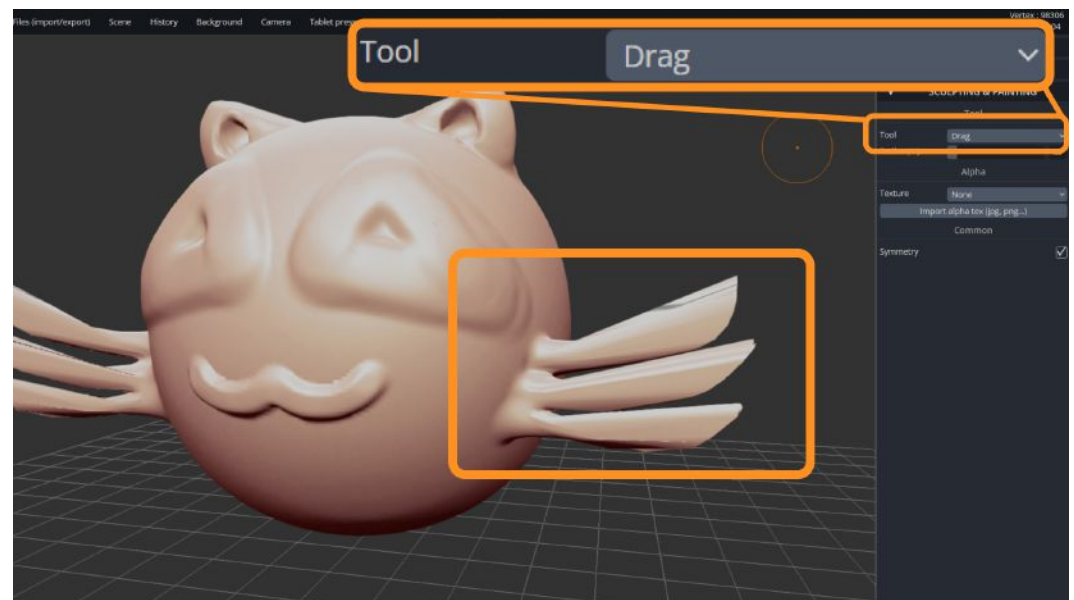


The **Flatten Tool** will push the surface you're working on to create a flat plane.

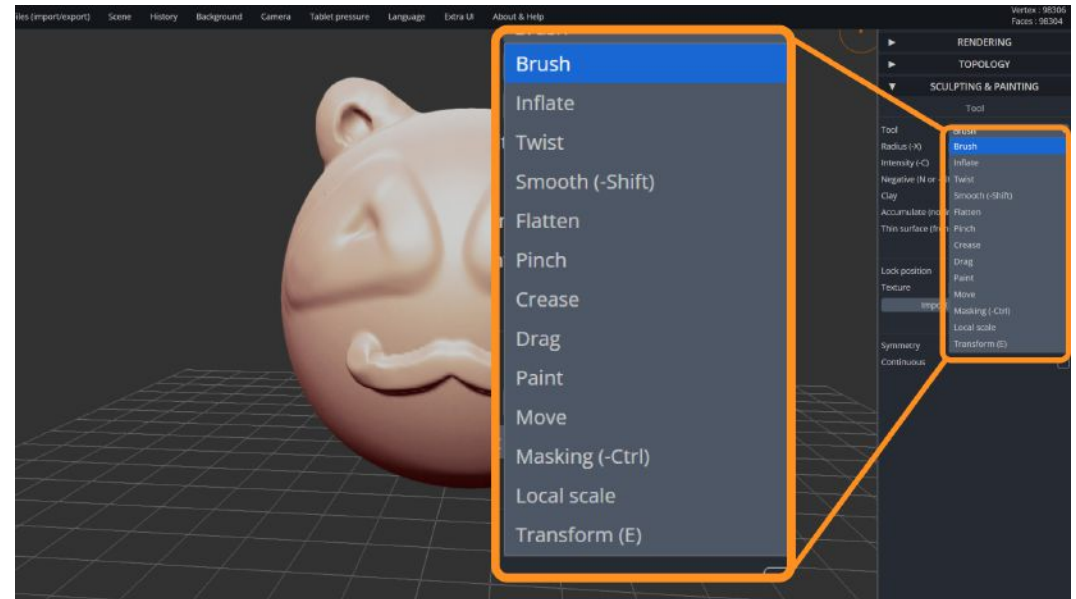


To move around your clay, you can try using the **Drag Tool**.

Click on your model and drag the area you would like to shape.



Explore more tools from the dropdown to keep sculpting your vision to life. Each tool has a different function that can help you modify your sculpt.



Self Check

Were you able to try the different tools within SculptGL? Could you create a 3D sculpt that aligns with your creative vision?

Step 2: Refine the surface of your model

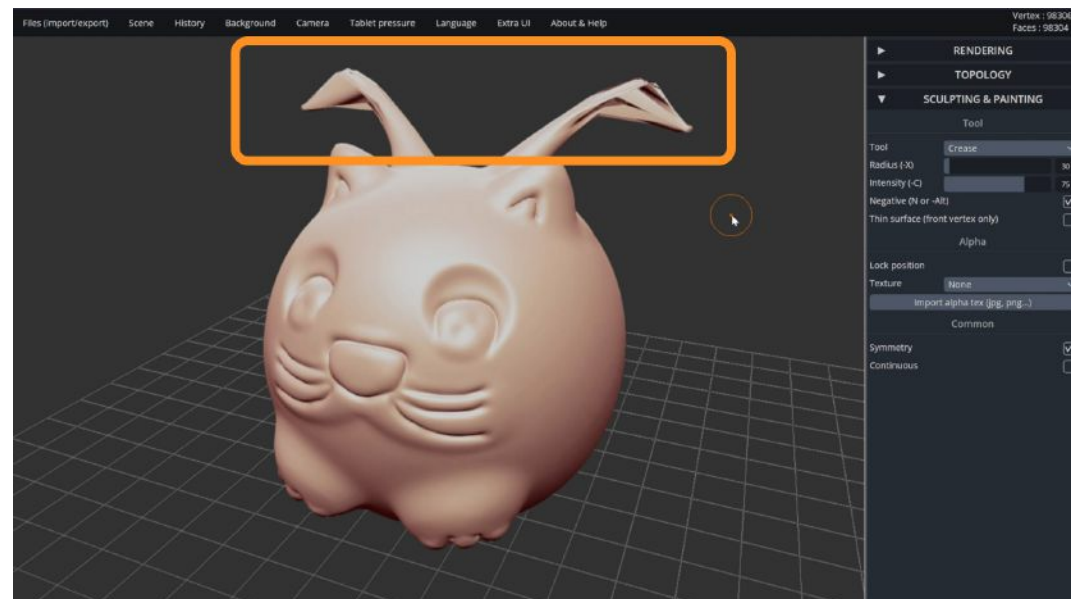
Preview

As you build your 3D model with different tools, you might notice that some parts look jagged or broken on the surface of your sculpt. This happens because the current clay shape you're sculpting does not have enough **surface detail** to handle the sculpted area. This can be addressed by remeshing your sculpt. This step will show you how to do so and explain the process.

Experiment

CHECK YOUR SCULPT

As you're working with different tools, check your sculpt for any areas that might look distorted or stretched out.



REMESH YOUR SCULPT

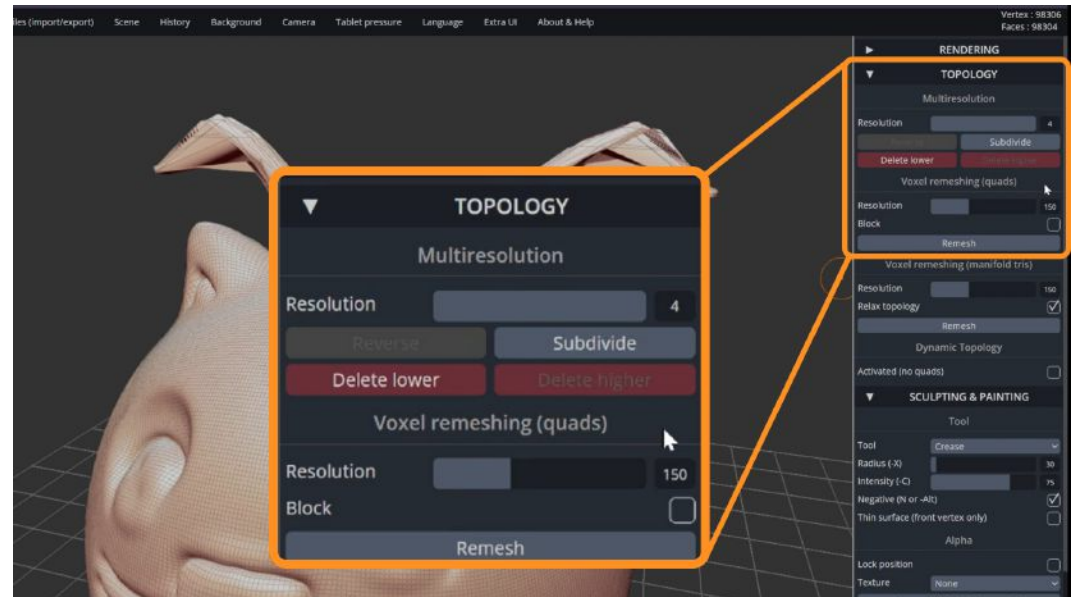
All enclosed 3D models, in this case “the clay sphere”, are made up of a number of connected triangles or squares to hold its shape.

Sometimes, if there is not enough surface detail on the clay sphere, your sculpt might look distorted instead of smooth when adding new parts.

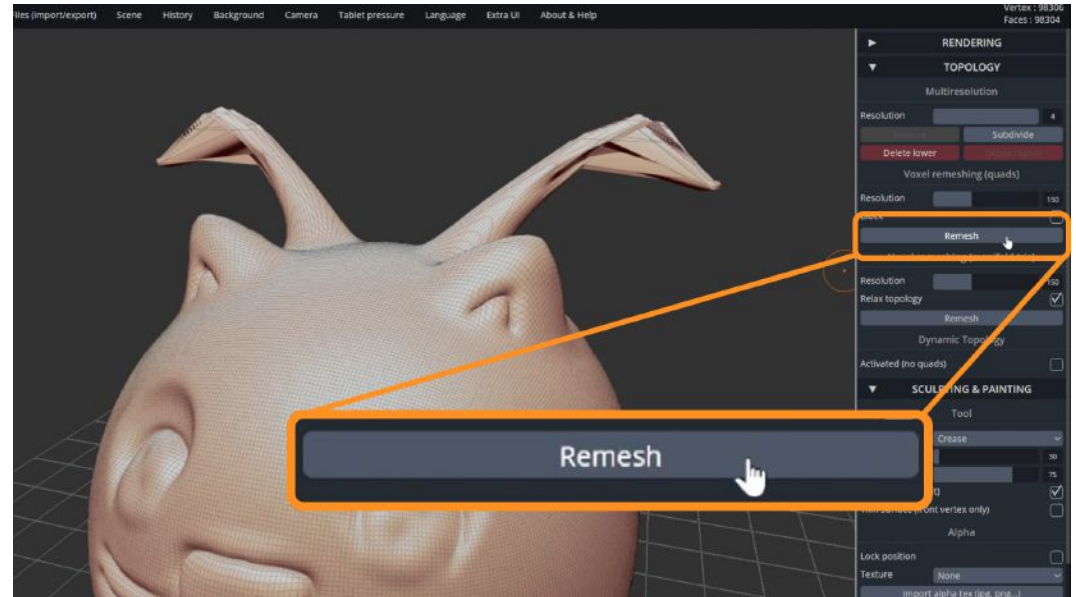
You can see the triangles and quads that make up your model, called “**the wireframe**”, by pressing the “**W**” key on your keyboard.



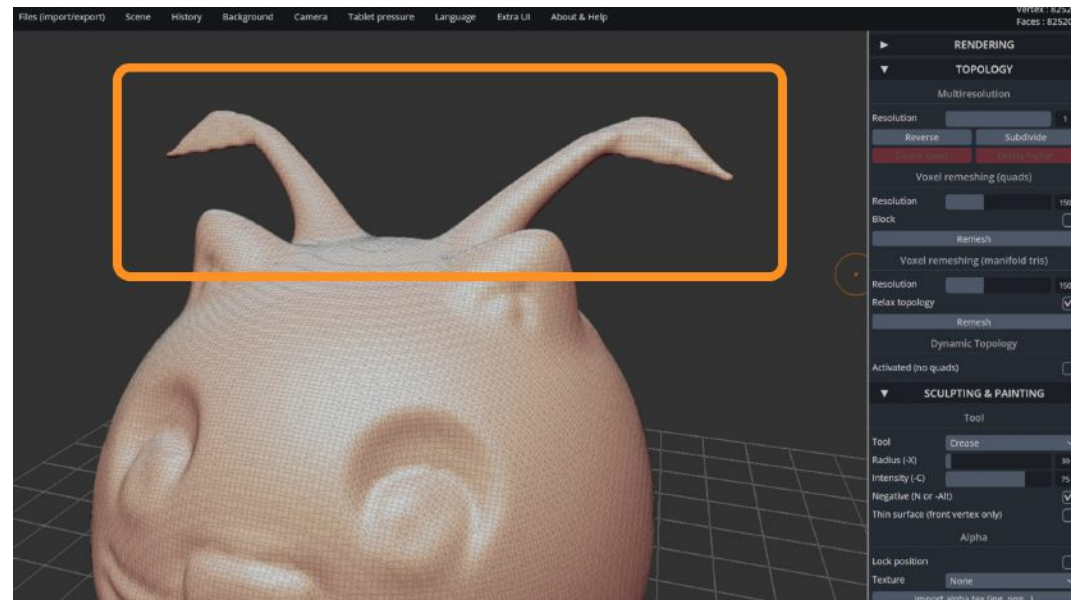
To fix your model, open the **TOPOLOGY** tab from the right panel and look for the **Voxel Remeshing (Quads)** option.



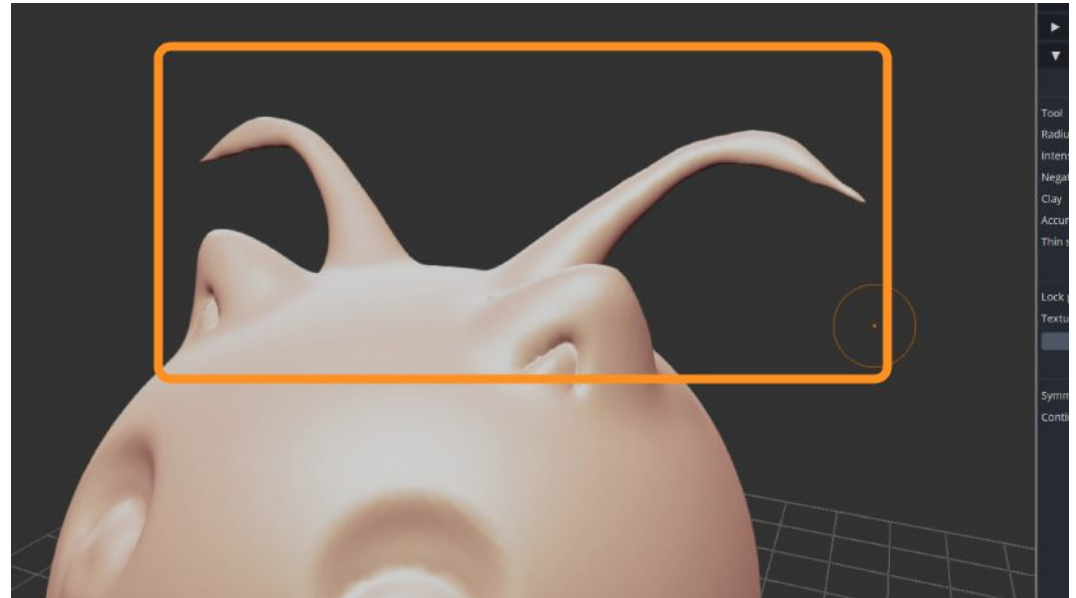
Click on the **Remesh** button. This will add more detail to the surface of your model to accommodate your sculpting.



If your sculpt has stretched too much, the default remesh option may not work perfectly the first time. For this, you can press the **Remesh** button multiple times.



After remeshing, your sculpture will have more detail but some parts might still look bumpy or jagged. If this is the case in minor areas, use the **Smooth** brush to go over these areas of your sculpt.



Self Check

Were you able to use the Remesh tool to fix any areas of your sculpt that needed more detail?

Step 3: Import and save a model in SculptGL

Preview

After learning the basics of sculpting in SculptGL, you can start building your own 3D models and exporting them to use in other software programs. You can also bring previously created 3D models into SculptGL to modify or sculpt additional parts. This step will show you how to save your work from SculptGL, as well as how to import models.

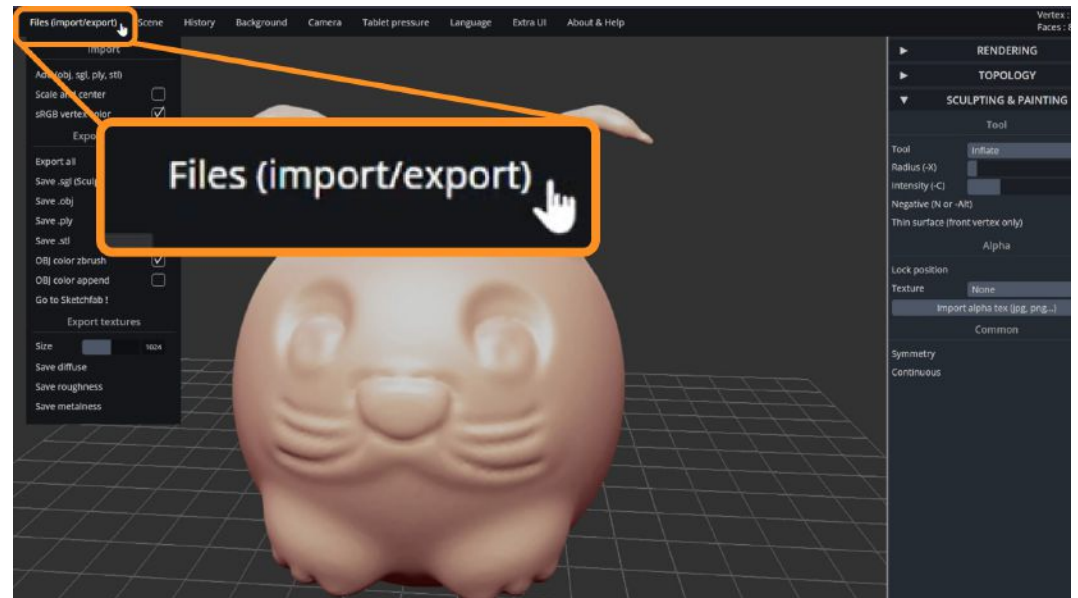
Experiment

SAVE YOUR WORK

Since SculptGL is a browser based app without any account information, the sculpt you work on is not saved automatically.

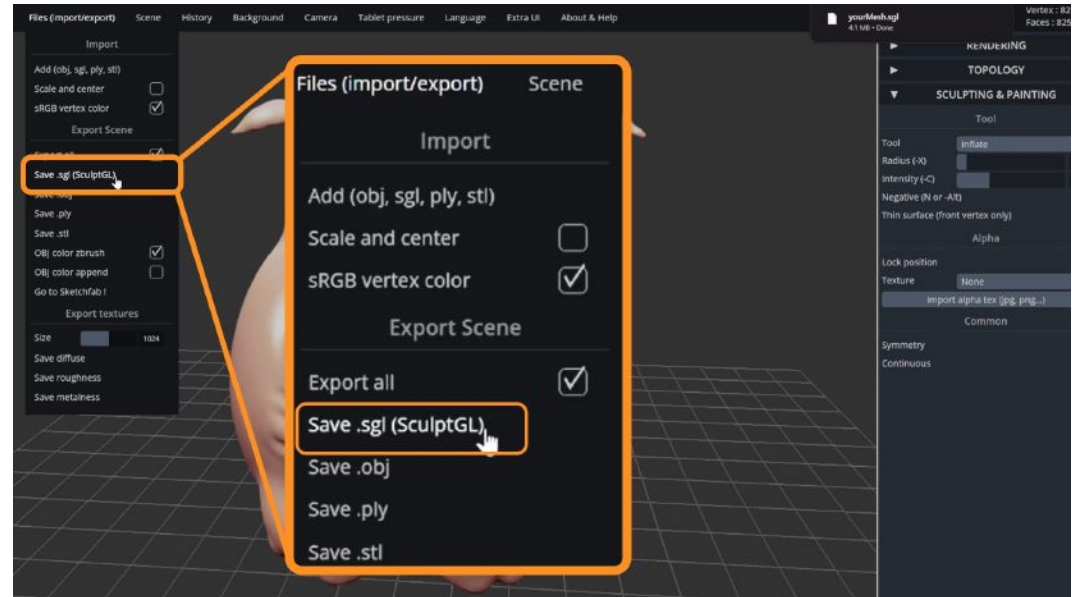
If you ever quit SculptGL or refresh your browser without saving your work, you will lose your progress.

To save your sculpt, you need to download it from the **Files (import/export)** menu in the top panel.



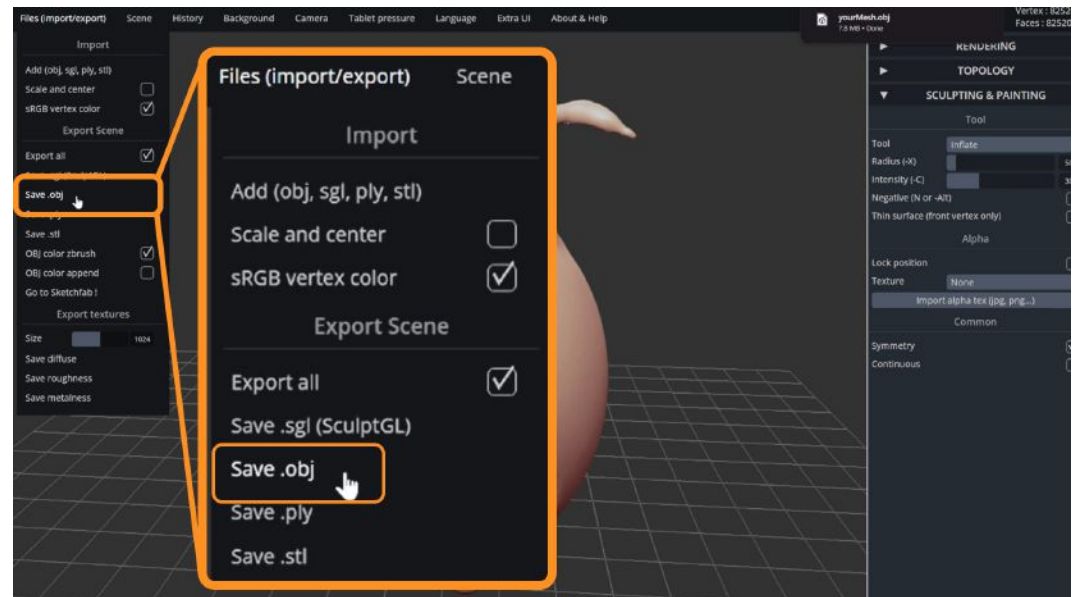
You can save your file in multiple formats. If you're not done sculpting but want to save your sculpt or take a break, you can use the “**Save .sgl (SculptGL)**” option.

This will save your work as a native SculptGL file and will allow you to easily come back to your model *only in* SculptGL to keep working.



If you are done creating your model, or would like to save it in a format that is compatible with other software, you can use the “**Save .obj**” option from the Files menu.

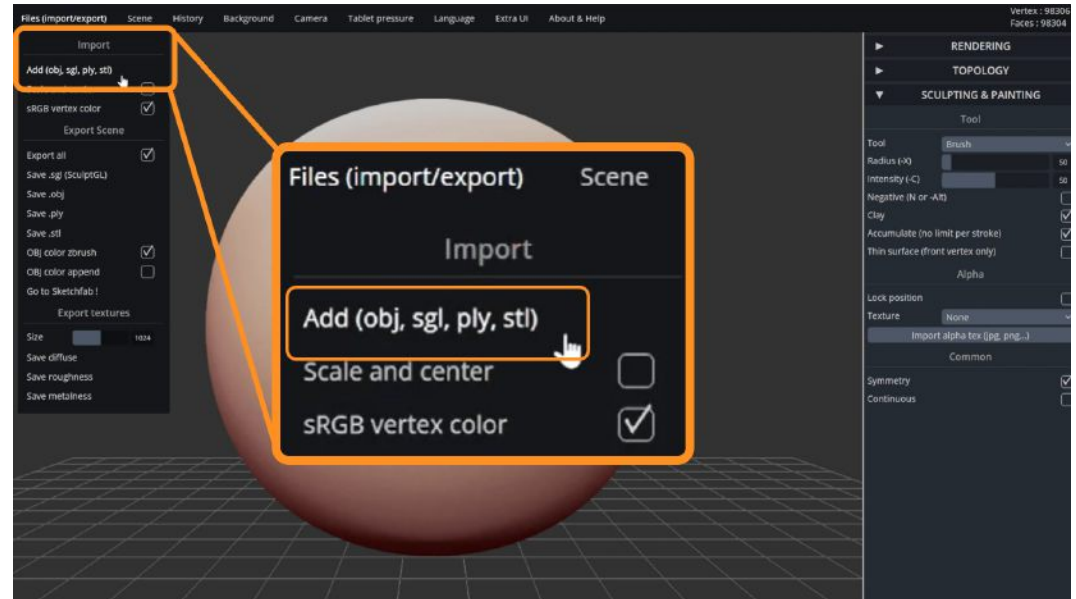
This will allow you to use your model in other 3D software while also giving the ability to bring your file back into SculptGL later.



IMPORT A FILE

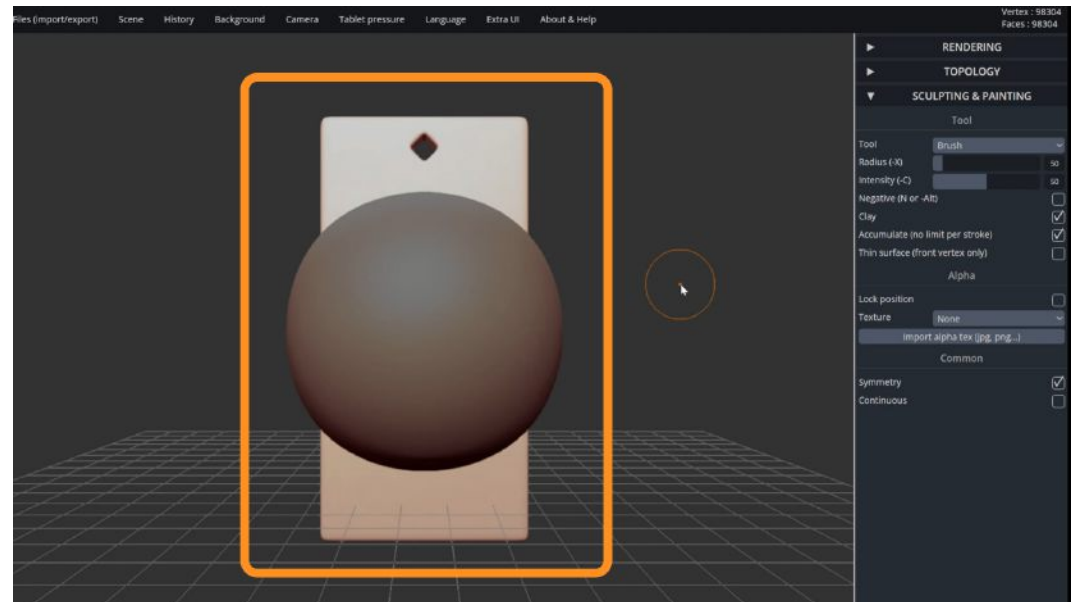
You can use the Import function in SculptGL to bring in a sculpted model you have been working on before, or a totally different 3D model created with a different software that you can use as your starting block.

In the **Files (import/export)** menu, select the “**Add (obj, sgl, ply, stl)**” option.



Navigate to the file you would like to add to SculptGL on your computer and select it.

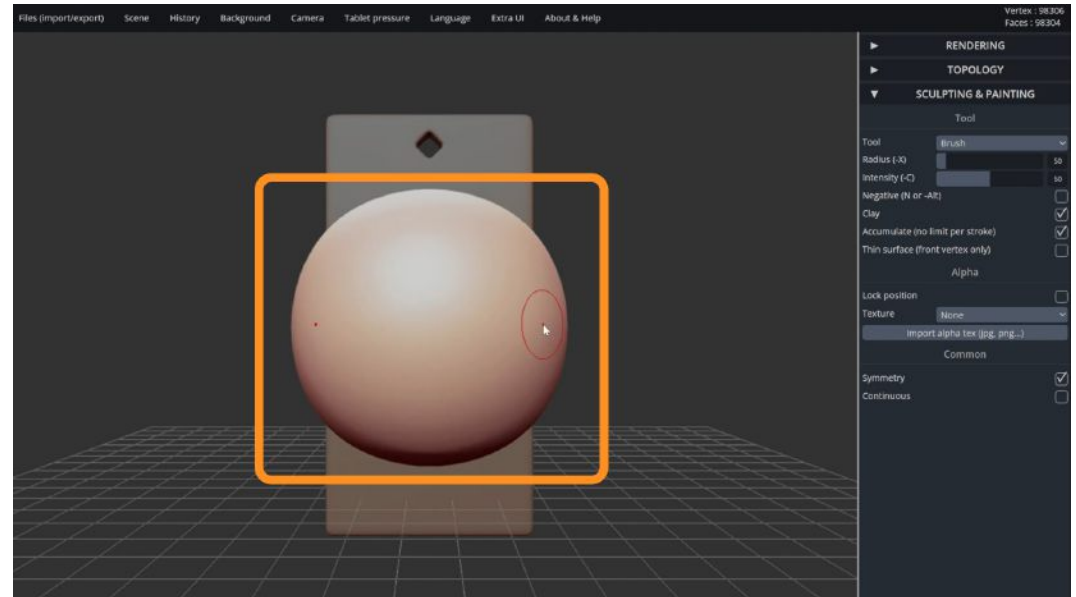
The model you've chosen will be added to the **Viewport**.



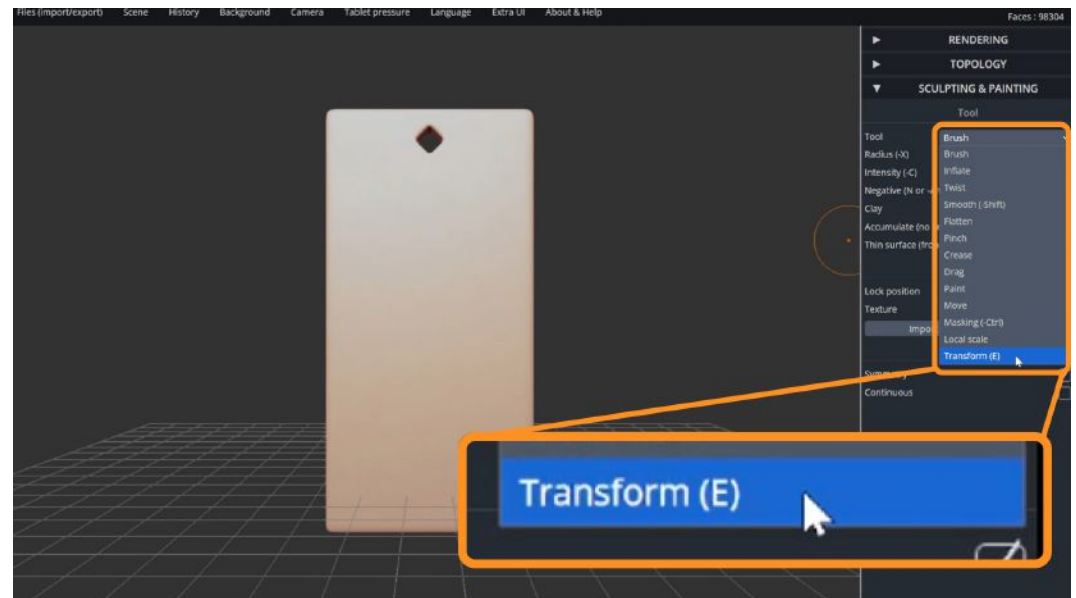
When you import a model, your previous sculpt or the default clay sphere might still be visible in the Viewport.

To remove it, you can simply click on the unwanted model and press the **Delete** key on your keyboard.

If you're deleting a sculpt you were working on previously, *make sure it is saved to your computer before deleting.*

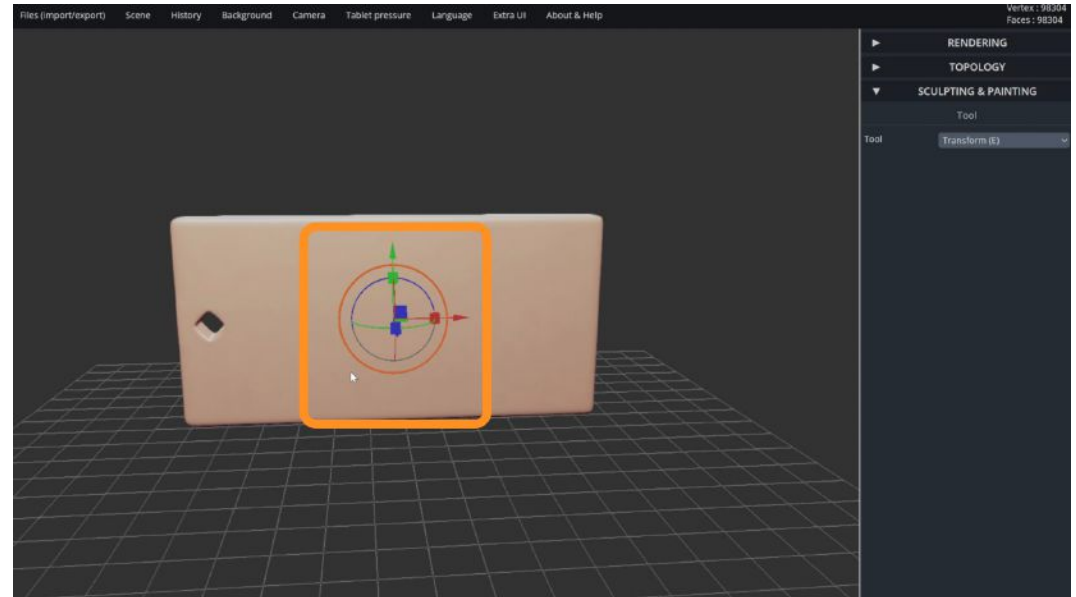


If the model you imported is facing the wrong direction or needs to be rotated, you can use the **Transform** Tool from the toolbar or press "**E**" key to activate it.

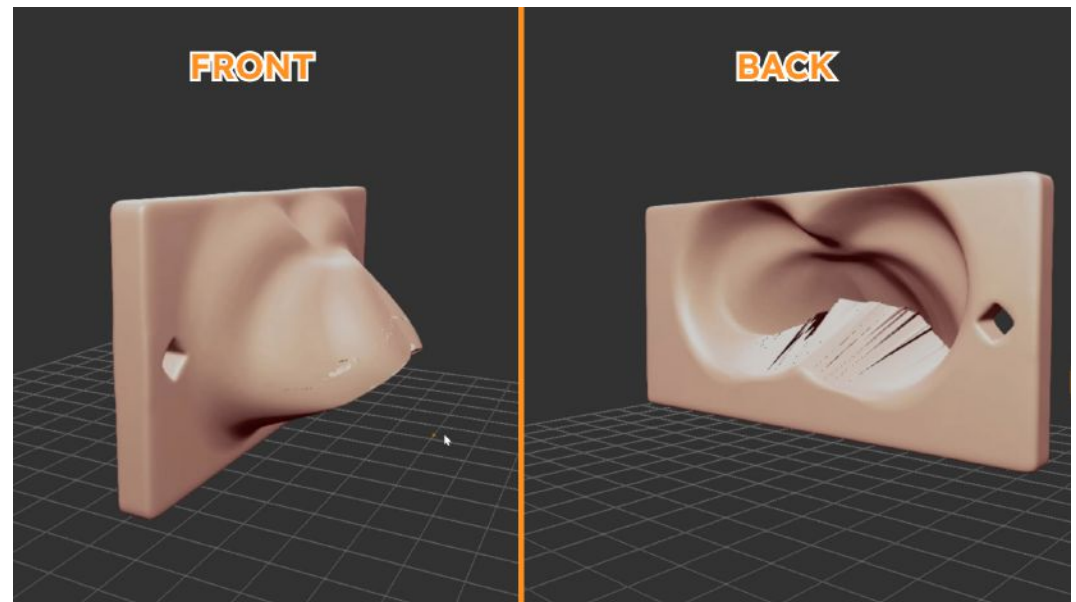


A **gizmo** with transform and rotation handles will appear over your model. Click and drag the handles on the gizmo to move, rotate, or scale the model as you need.

When you're happy with the orientation of your model, you can go back to the sculpting tools to start sculpting over your base shape.

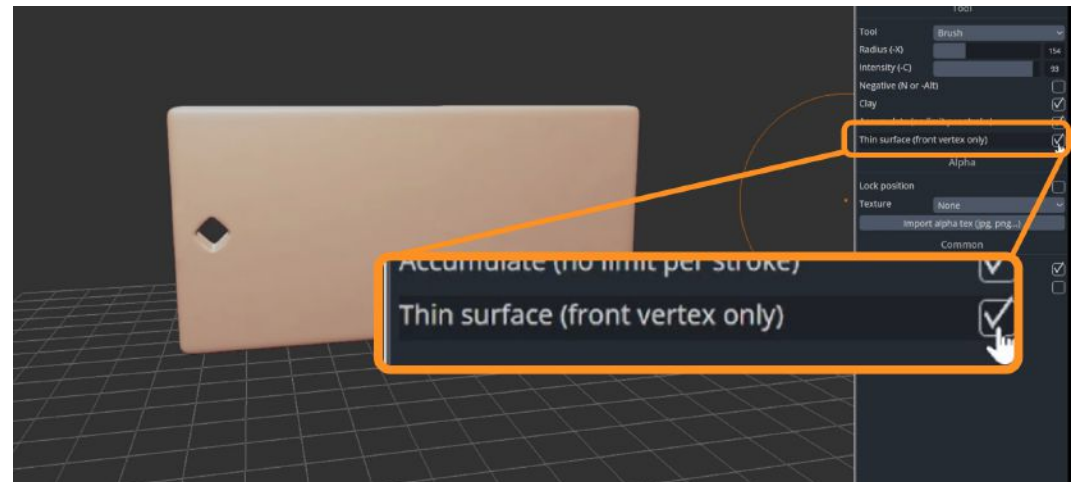


If you're ever sculpting on a 3D mesh with thin edges, you might notice that the back side of the mesh becomes distorted through your sculpting.

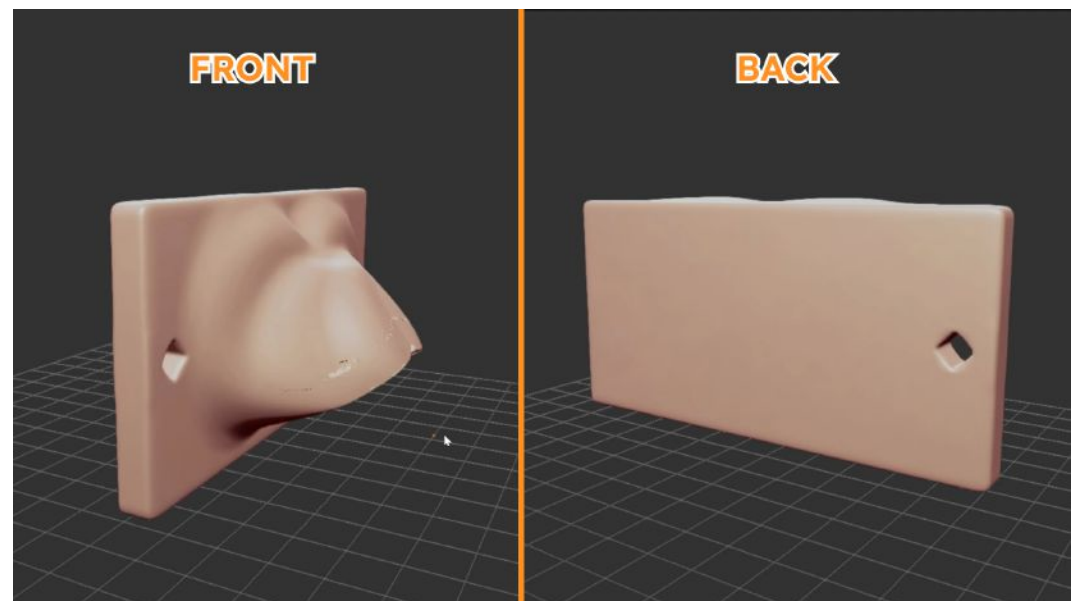


To fix this, **toggle ON** the **Thin surface (front vertex only)** setting in the Toolbar. This way, the backside of the model will not be affected as you sculpt.

Keep in mind that this setting needs to be *toggled on/off* for *each tool* separately.



When you're done working on your new model, save it as previously shown so it can be used in the next steps of your creation journey.



Self Check

Were you able to save your model from SculptGL successfully? Did you find a 3D model to use as a base for your sculpting and add it to the Viewport?

Lesson Closure

Demonstration of Learning

In this Guide, you've learned how to start a sculpting project in SculptGL, how to use different tools and fix the topology of your 3D model, and how to import/export models in the software. You now know all the basics to get started with digital sculpting projects.

Exploration Opportunities

You can now use the 3D sculpt you've created and exported from SculptGL in many different types of 3D projects. If you're interested in learning how to create your own webpage with animated 3D features, check out the following lessons:

[Edit and Animate 3D Models with Spline](#)

[Create a Website with 3D Animations in Google Sites](#)

If you're interested in creating 3D models with other methods, such as mesh modeling or sculpting, look into following lessons to learn more:

[Create 3D Models with Tinkercad](#)

[Generate 3D Models with Meshy](#)