

# User Guide

 shapelab  
for zSpace



Developed by

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# Brushes and how to use them

## Brushes and tools



### Paint brush

- A quite straightforward paint brush tool using vertex painting technology. It operates specifically to vertex data rather than texture maps.
- Use the color picker tool to select colors from your object's surface.



### Paint bucket

- Use this tool if you wish to replace the color of your entire object or specific regions of your object.
- Use the color picker tool to select colors from your object's surface.



### Standard / Standard negative

- This brush displaces the vertices outwards or inwards, like if you would add or remove material. Invert the brush on the brush modifier panel or use the "Alt" button.



### Inflate/Deflate

- An easy way to expand or dent the surface. Invert the brush on the brush modifier panel or use the "Alt" button.



### Clay buildup/carve

- Work with this brush to sculpt surfaces using alphas.
- You can either build up or carve out "material" in the chosen shape. Invert the brush on the brush modifier panel or use the "Alt" button.
- You can use this brush to build up your shape layer by layer or to add small details like various types of skin textures.



### Smooth

- Use the Smooth brush to even out peaks, troughs and polygons.
- It can also be helpful for fixing topology issues when it is used with the dynamic topology turned on.



### Move

- You can easily relocate and move geometries with this tool without adding or losing details.
- It can be very useful for moving body parts or modifying facial expressions and other features.



### Flatten

- Use the Flatten brush to even out the surface by pulling out the area.



### Trim

- Use the Trim brush to even out the surface by pushing down the area.



### Snake Hook (or "Tentacle")

- When it comes to creating long tentacles, horns, branches, limbs or other similar shapes, this is probably your go-to brush.



### Pinch/Crease

- This brush basically pulls the surface together. Use the Pinch mode to slightly pull out the surface and the Crease mode to push it in.
- This tool will come in handy when adding wrinkles or making edges sharper.



### Regularize

- Use this tool to change mesh resolution, regularize and even out topology locally by subdividing and decimating the surface.
- Set the resolution to achieve the desired polygon density.
- Keep in mind that it works relative to brush and object size.

## General brush settings

### Size

- You can modify your brush size, relative to the scene.
- Uncheck the "Global" checkbox if you want to set the brush size separately for each brush.

Strength	50
Size	0.040
Falloff	50
Resolution	50

### Strength (or Opacity for painting)

- Choose your brush's intensity. You can use a fixed value if you set the slider or controller trigger pressure sensitivity by checking the "Pressure Sensitivity" checkbox

### Falloff

- You can dim or blur the intensity of the brush around its edge.
- A too high falloff value can significantly change how your brush behaves. Try out multiple settings and see what configuration is best for your goals.
- The higher the falloff value is, the less defined your clay buildup pattern will be.

### Resolution

- You can choose to turn dynamic topology on and off. When the "dynamic" checkbox is checked, the algorithm dynamically adds and removes polygons while you are sculpting.
- "Resolution" refers to the density of the polygons generated. Increase the resolution to add more details and reduce it or turn it off completely in case you are just blocking out chunky shapes.
- The resolution slider is disabled when the "dynamic" checkbox is unchecked. In this case, the algorithm doesn't change the number of polygons at all.

## Raycast

- Brushes can be projected onto the object's surface (as it is usually done in traditional flat screen design programs) or can be kept attached to the controller.
- All brushes can be used in either way, however, some of them usually work better with a certain configuration:
  - Snake Hook: None
  - Move: None
  - Clay buildup: Projected



## Edit connected surfaces only

- Check "Edit connected surfaces only" to manipulate areas independently that form a continuous surface with the polygon that is closest to the center of your sphere cursor.



## Edit front faces only

- Check "Edit front faces only" to only manipulate the surfaces that are facing your controller.



## Brush-specific settings

### Paint brush: Paint layers

- Use this mode to build up multiple paint layers in one long and contiguous stroke, like if you were using a paint spray gun.



### Paint bucket: Threshold, Contiguous OR Global fill

- Threshold defines the acceptable range of colors that can be filled.
- Contiguous: Starting from the selected point, the tool fills **adjacent** vertices that have the same color as the selected vertex (plus vertices that have similar colors within the threshold value).
- Global fill: Starting from the selected point, the tool fills **all** vertices that have the same color as the selected vertex (plus vertices that have similar colors within the threshold value).



### Standard and Claybuildup brushes: Alphas

- Choose a pattern which will determine the shape of the brush being used. These are basically greyscale images that define the shape the height and the depth of the given pattern.
- Use the alphas to create various 3D textures and bumps.
- Subdivide your model or increase the brush resolution if the shape doesn't appear on the surface detailed enough.



## Pinch: Point OR Line

- Pinch to Point: Pulls the surface together into a **point**.
- Pinch to Line: Pulls the surface together into a **line**.



## Flatten and Trim brushes: Lock plane upon edit

- Locks the position and rotation of the Flattening/Trimming plane when the trigger is pressed. When it is unlocked, the plane moves along the surface of the model dynamically.



## Flatten: Dynamic OR Keep edges OR Stairs

- Dynamic: follows the geometry surface while flattening it.
- Keep Edges: tries to preserve the edge borders while flattening along the geometry surface.
- Stairs: flatten the surface with a locked cursor rotation creating a cascading shape.



# File tab

## New

- Select "New" to discard your current work, and restart from scratch.

## Import/Export

- You can import and export the following file formats: STL, OBJ, GLB, FBX
- Choose GLB or FBX to keep colors.

## Save, Quick Save/Load

- If you choose Save or Quick Save, the app will save your creation in a proprietary file format called SL3D.
- SL3D will keep the colors of your creation.
- Use the "Ctrl + S" shortcut save instantly.
- Find the "Quick Saved" creations here: C:\Users\Username\Documents\ShapeLab

# Topology tab

## Decimate – To simplify and reduce the number of faces

- Set target number of faces and apply.
- Applies to the entire sculpt object.

## Subdivide – To increase the number of faces

- Set topology smoothing intensity and apply 4x subdivision.
- Applies to the entire sculpt object.

## Regularize

- To change mesh resolution, regularize and even out topology globally by subdividing and decimating the surface.
- Set the resolution to achieve the desired polygon density.

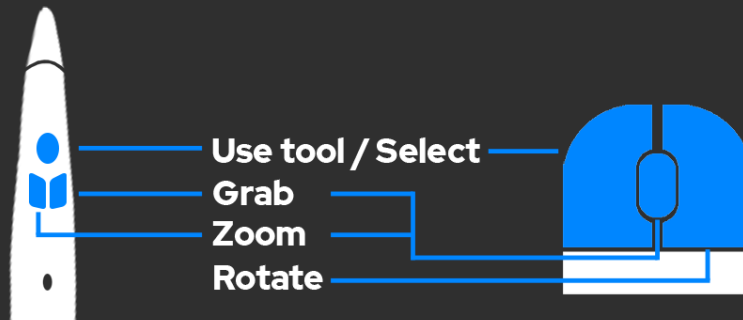
## Material tab

- Choose from numerous material options and change how the sculpt object looks and feels.
- Both matcap and PBR materials are available.
- There are paintable and unpaintable materials. Paintable materials are indicated with a small paint brush icon.

## View tab

- Turn on and off the visibility of the
  - left and right UI panels.
  - activated mirror (or symmetry) planes.
  - polygon wireframe of your model.

# Controls and Shortcuts



**[Alt]** : Invert brush

**[Shift]** : Alternate brush

**[W]** : Wireframe on/off

**[F]** : Fit mesh to view

**[▲]** : Object scale up

**[▼]** : Object scale down

**[Ctrl] + [Z]** : Undo

**[Ctrl] + [Y]** : Redo

**[Ctrl] + [S]** : Quick export

**[S] + [Horizontal stylus movement]** : Brush size

**[R]** : Raycast on/off

## Alternate brush (Shift button)

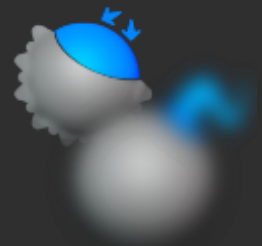
You can define a primary brush and an alternate brush and switch back and forth between them quickly and easily.

### How to activate

- Press "Shift" to activate your alternate brush.
  - As the button is pressed, the alternate brush will remain active.
- Use this shortcut to quickly switch between two brushes.
- The "Smooth" brush is your alternate brush by default.

### How to configure

- Just keep pressing "Shift" while selecting another brush from the brush palette. A small blue dot will appear on the palette next to the selected brush.
- You can make any combination of brushes to suit your sculpting task by assigning another sculpting brush to your alternate brush.

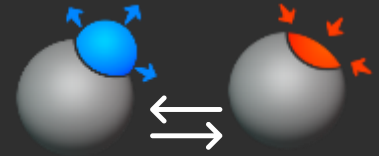




## Invert brush (Alt button)

- **Invertible brushes**

- There are a number of invertible brushes in the application that you can use in two different ways.
  - Standard – Standard negative
  - Inflate – Deflate
  - Pinch – Crease
  - Clay buildup – Carve



- You can select the desired mode on the brush modifier menu, but there is also a shortcut.

- **The shortcut**

- Besides selecting the inverted brush on the brush modifier menu, you can quickly switch between the two modes by pressing the “Alt” button.

## Other shortcuts

- Wire frame on/off: W
- Fit mesh to view: F
- Object scale up/down: Keyboard up/down ↑↓
- Undo/Redo: Ctrl + Z / Ctrl + Y
- Quick export: Ctrl + S
- Brush size: S + Horizontal stylus or cursor movement
- Raycast on/off: R

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