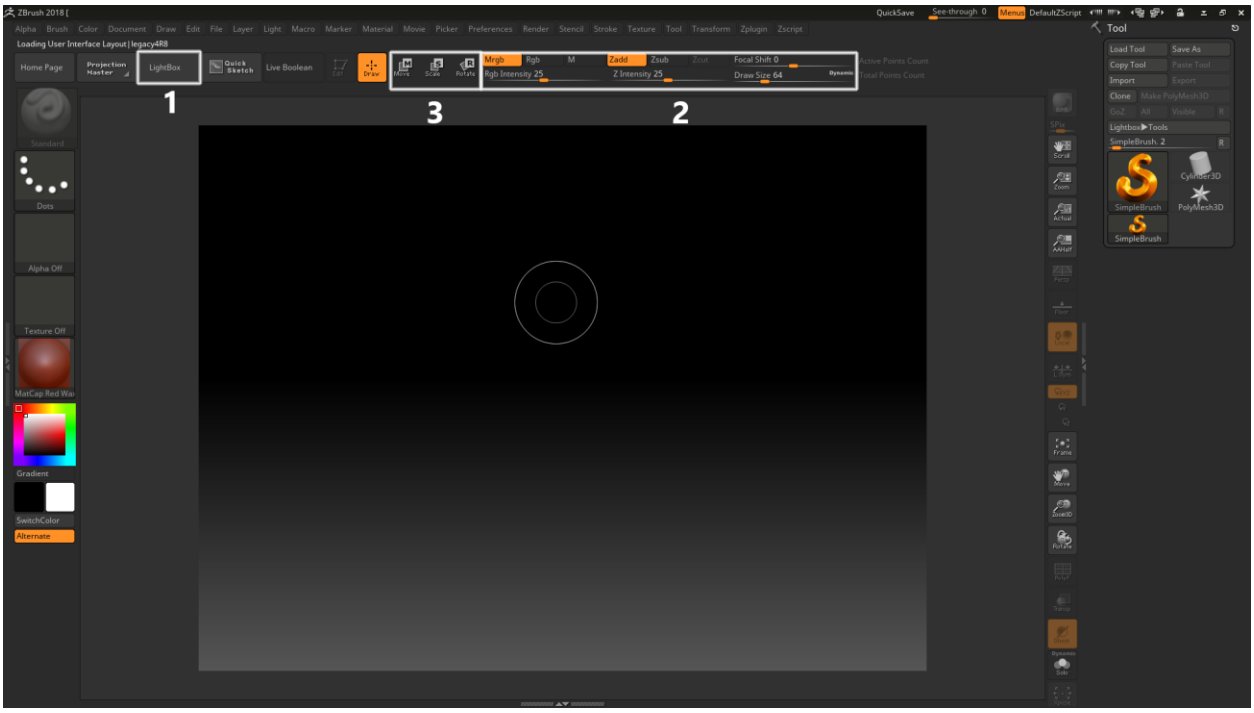
Introduction to Zbrush

This document will look at the basic Zbrush interface, offering translations of 3DS Max and Photoshop commands into Zbrush commands and menus.

***NOTE* - Most tools have help dialogue boxes, which can be seen by holding down CTRL and mousing over the icon**



Main Interface Window

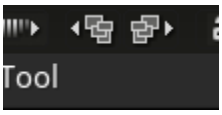
1. LIGHT BOX – OPEN PREVIOUS MODEL/PROJECT, OPEN TEMPLATE
2. Brush Settings
    a. Brush size – Draw Size
    b. Brush Hardness – Focal Shift
    c. Z Intensity – Strength of the brush when sculpting
    d. RGB Intensity – Strength of the brush when applying color
    e. Mrgb | RGB |M | Zadd | Zsub |Zcut – Changes whether the brush effects the Material+Color information, Color Information | Material information and the Z____ change whether the brush adds, removes or cuts into the mesh
3. Manipulator Tool – W,E,R – Move, Scale, Rotate

Many of these options can be accessed via the RMB menu

(RMB Menu)

Changing your UI

The default UI can be customized, but in the interest of time you can use the “Load next user interface” icons shown below to switch to more comprehensive UI’s



- I want to maneuver in the viewport -

Command	Zbrush Hotkey
Move/Pan	ALT + RMB
Zoom In/Out	Hold ALT, Press and hold RMB, release ALT and move mouse while still holding RMB
Rotate	Click and drag anywhere outside of the mesh or if zoomed tightly into the mesh, place your cursor in the box surrounding the viewport, click and drag
Side/Front/Top views	Holding down SHIFT while rotating the camera will snap you between the different views as you rotate around the object
Zoom to Object	Press “F” to Frame the current tool to the viewport.
 Right of the viewport, middle	- Toggle between orthographic and perspective views - Let’s you set where “floor” of the scene is - Set manipulators to use local coordinates (like switching to “local” in ‘Max - Set the manipulator to use local coordinates AND symmetry - Sets the rotation of the camera to primarily use XYZ, Y or Z axis for rotation

- I want to create geometry -

Zbrush's Tool Palette

(To the left is the tool palette, one of the default windows visible on start-up)

Project – The over-arching Zbrush file, saved out in the .ZPR format

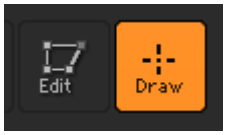
Tool – This is like a single entry in Scene Explorer, a single "object" in 3DS Max. A single entry in the "tool" list. These can be exported and imported as .ZTL or .OBJ files, with the "Import" and "Export" options towards the top of the Tool palette window

Subtool – similar in many respects to Elements in Max

In the lower portion of the palette are seven thumbnails of seven tools. By clicking twice you have the option to change the tool from a list of presets, or double click it and choose "load tool" to load an OBJ mesh from another program.

First, it should be noted that Zbrush works in 2 different "modes", it defaults to a 2D/3D paint program, but where you will be spending most of the program you will be 3D edit mode

DRAW/EDIT Mode



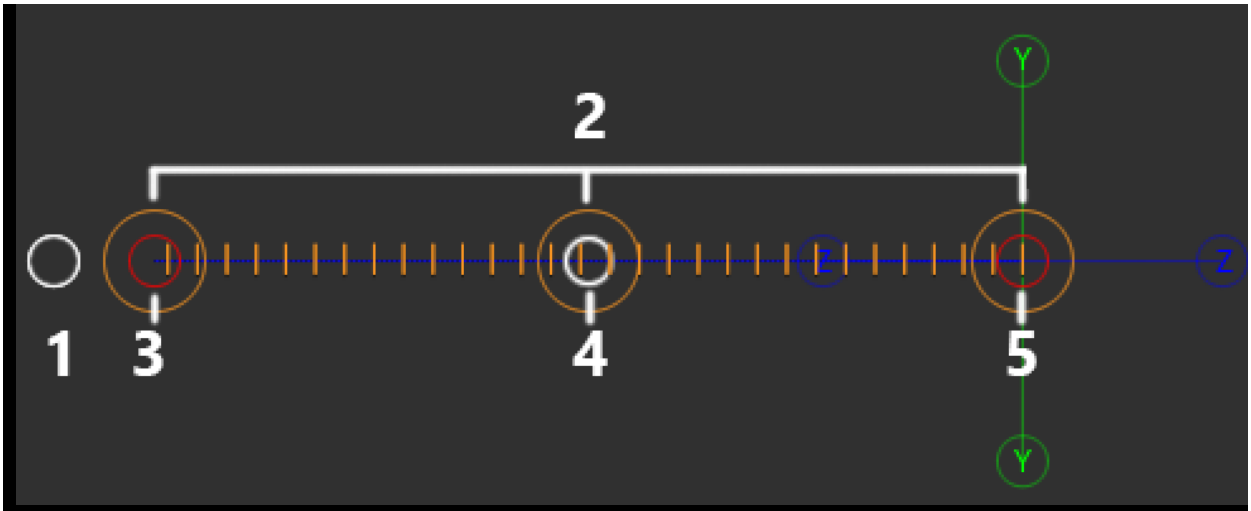
When you have chosen a tool from the "tool" list, you will immediately enter into "Draw" mode. By clicking and drawing in the viewport you will create, scale and rotate in your chosen model. As soon as this is done, you typically want to immediately hit "T" as the hotkey to go into Edit mode.

Startup:

1. If you are going to be working from one of the presets, open Lightbox and select the preset you want to use from the "Project" list.
2. If you are working from mesh from another program or instance of Zbrush, use the "Import" command from the tool palette, then drag it out in the viewport

3. If you are going to be working from a basic primitive, you can double-click one of the default tools from the palette, select the new primitive, and draw it in the viewport

- I want to make large scale changes to the mesh -



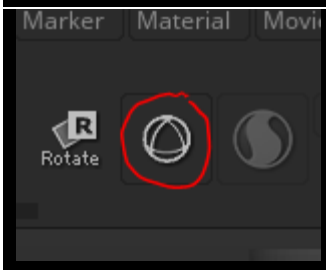
Default Manipulator – Select either Move, Scale or Rotate and click and drag across the mesh

Move Manipulator

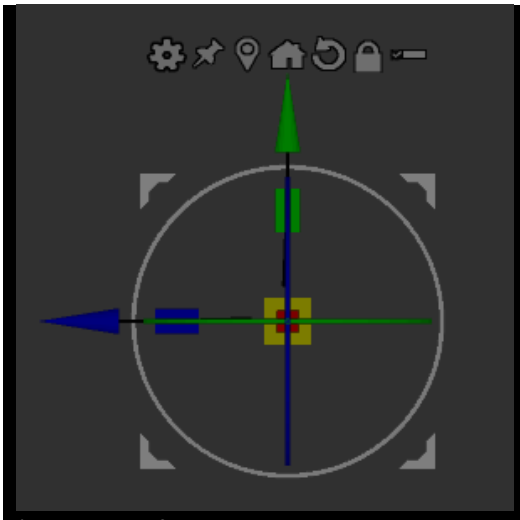
1. Reset Manipulator
2. Move/Adjust Manipulator
3. Scale Object from Origin (5)
4. Move Object
5. Trim Mesh

Scale/Rotate Manipulator

1. Reset Manipulator
2. Move/Adjust Manipulator
3. Scale/Rotate Object from Origin (5)
4. Scale/Rotate around Manipulator
5. Scale/Rotate Object from Extent (3)



Manipulator switch (Hotkey Y) – Switches between the multipurpose 3D manipulator and the standard manipulator handles.



(W,E, or R after switching to Gizmo 3D with "Y")

Gear Icon – Modifier list

- FFD in Max – Deformer in Zbrush
- Bend in Max – Bend Deformer or Bend Curve
- etc

Safety Pin – Keep manipulator in place in scene

Location Icon – Move manipulator to middle of unmasked mesh

"Undo" Icon – Reset manipulator rotation

Lock – Locks your object to your manipulators, or when turned off lets you reposition your manipulator in scene without effecting the object

[Hotkey - Hold ALT]

Move All Subtool toggle – Sets your manipulators to move one or more subtools

Hotkeys

W,E or R to bring up the move/rotate

Y to switch between the two modes of the manipulator

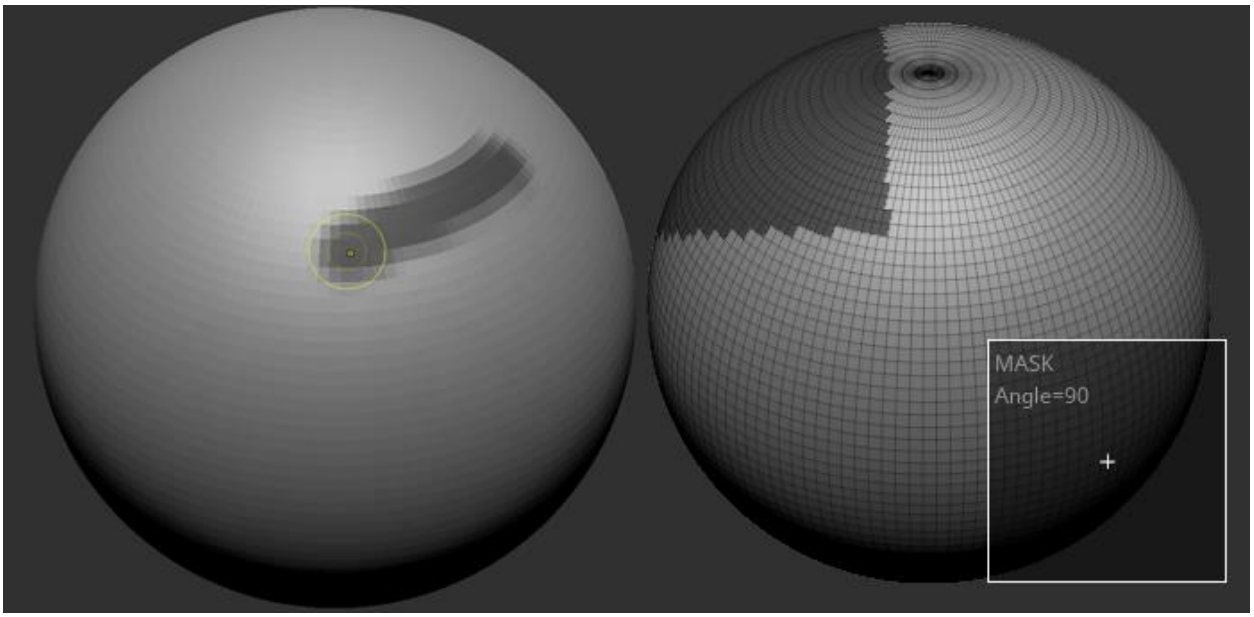
Hold "ALT" and click and drag the manipulator to move JUST the manipulator

Access "Modifiers" by stitching to manipulator and click the gear icon 

SHIFT – hold to constrain angle rotation

SHIFT+F - Wireframe

- I want to alter only PART of a mesh -



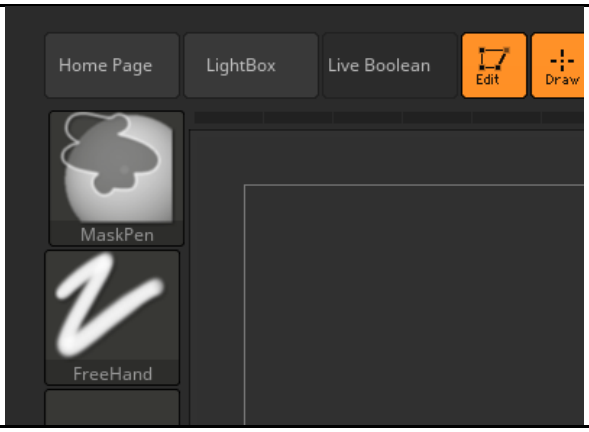
Holding CTRL / CTRL+ALT for masking brush | Holding CTRL and clicking and dragging from off the mesh

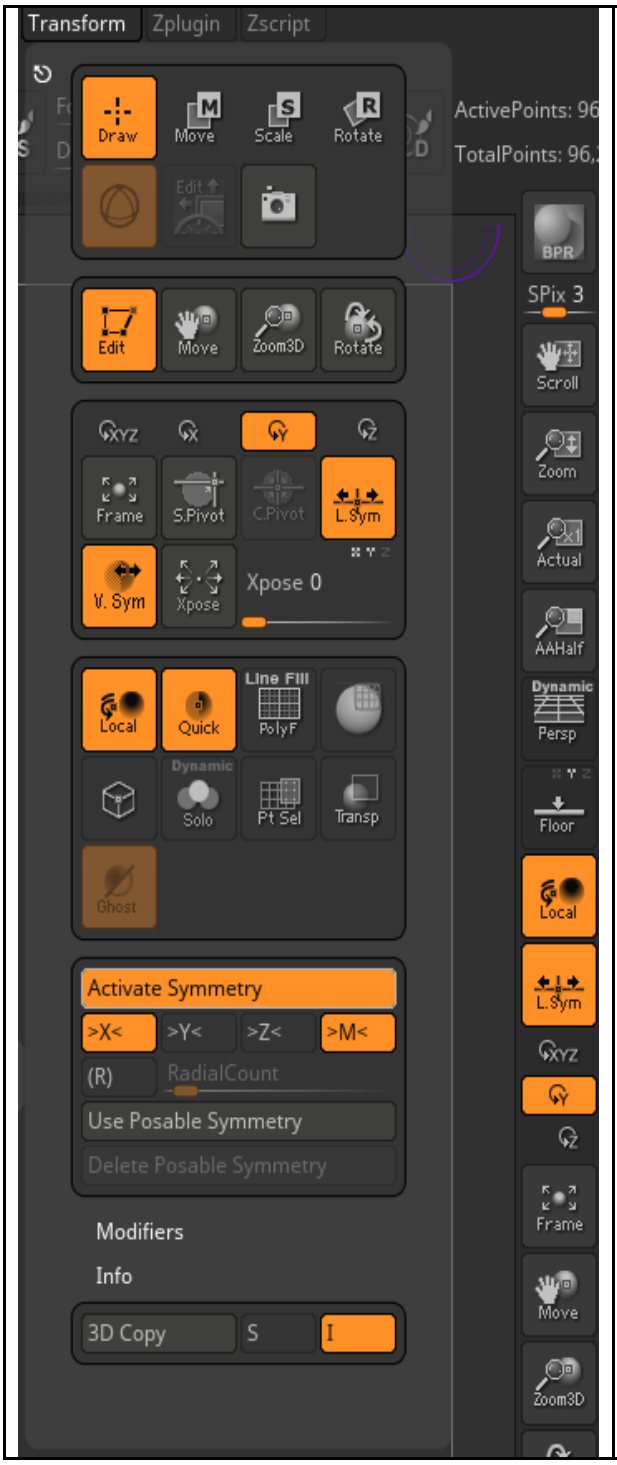
MASKS

There are two initial ways of applying a mask to mesh:

1- You can start with your cursor on the mesh, hold down CTRL and your cursor will switch to a yellow “MASK” brush. The brush size and falloff can be adjusted the same way as the regular brushes, with Focal Shift and Draw Size while “CTRL” is held

2- Alternatively, you can place your cursor off the mesh, hold down CTRL and then click and drag to (by default) create a rectangular marque that will mask the mesh when LMB is released. Like the brush method, if after you have applied the mask, you can hold down CTRL+ALT to drag out a marque that will remove from your current mask

While CTRL is being held, notice that your current brush above and left of the window is being changed from “Standard” to “Mask Pen”. Holding CTRL and clicking on this icon will allow you to change the tool that is used when CTRL is held	

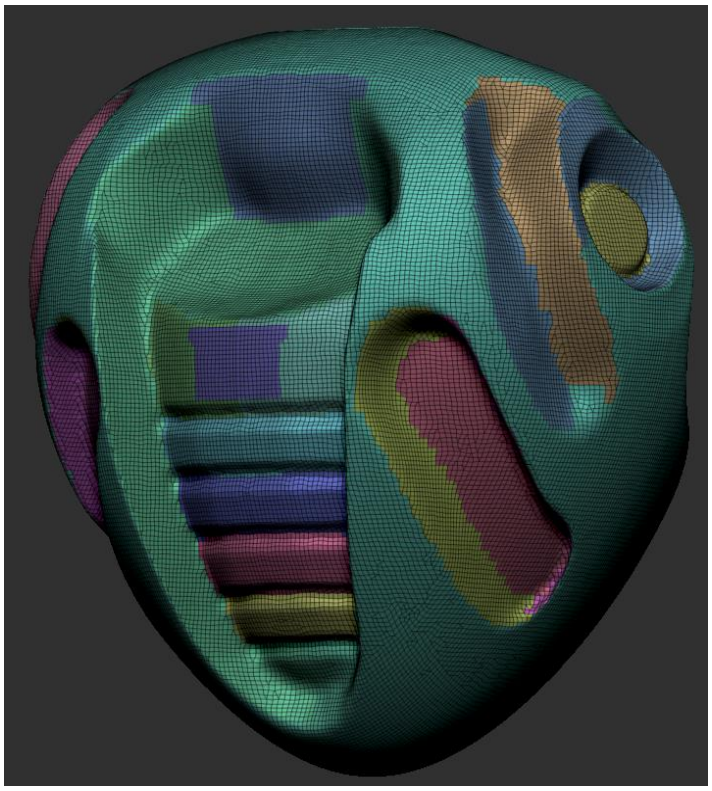


Symmetry

Inside of the “Transform” palette, along with the viewport options from the right side of the toolbar on the right of the viewport, are the Symmetry options.

“Activate Symmetry” (Hotkey: “Y”)
Turns on symmetry mode, which will mirrror your manipulators and sculpting brushes on the mesh, with the ability to choose the axis from the options below it

Polygroups



Shift+F – Make wireframe and polygroups visible

Polygroups are a way to isolate specific groups of polys and can be used in conjunction with other mesh commands.

With nothing masked, CTRL+W will set the entire subtool to a single polygroup.

With part of the mesh masked, CTRL+W will assign a new polygroup from the masked portion.

Masking Hotkeys

CTRL – Add/Start mask

On the mesh – Add Mask Paintbrush
Off the mesh – Add Mask Marque

CTRL+ALT – Remove from mask

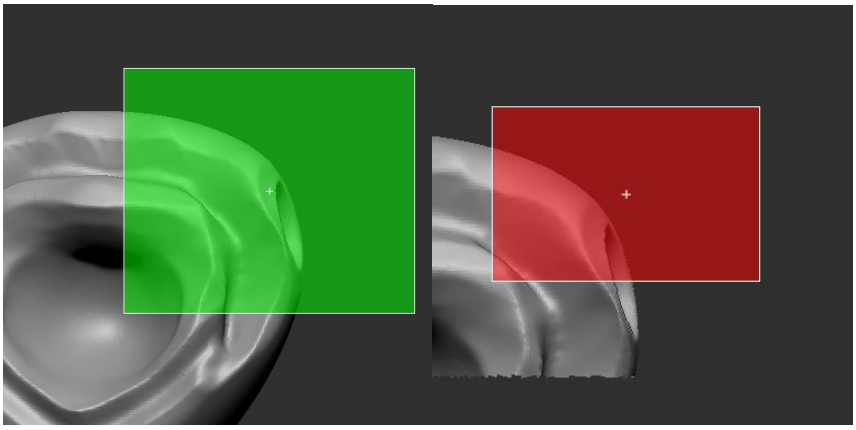
On the mesh – "Remove From" Mask Paintbrush
Off the mesh – Remove Mask Marque

CTRL+LMB Click outside the mesh – Invert Mask

CTRL+LMB drag outside the mesh – Clear mask

CTRL+LMB Click on masked mesh – Blur Mask

CTRL+ALT+LMB Click on masked mesh – Sharpen Mask



Hide Hotkeys

CTRL+LMB, start dragging Drag from off mesh – Pressing CTRL will switch it to a green marquee, which when LMB is released everything inside of the marquee will stay visible

Polygroup Hotkeys

SHIFT+F – Turn on Wireframe and Polygroup display

CTRL+W – Create new Polygroup from masked mesh

CTRL+SHIFT+Click on polygroup – Hide all other polygroups

CTRL+SHIFT+Click one that isolated group again – Invert Isolation

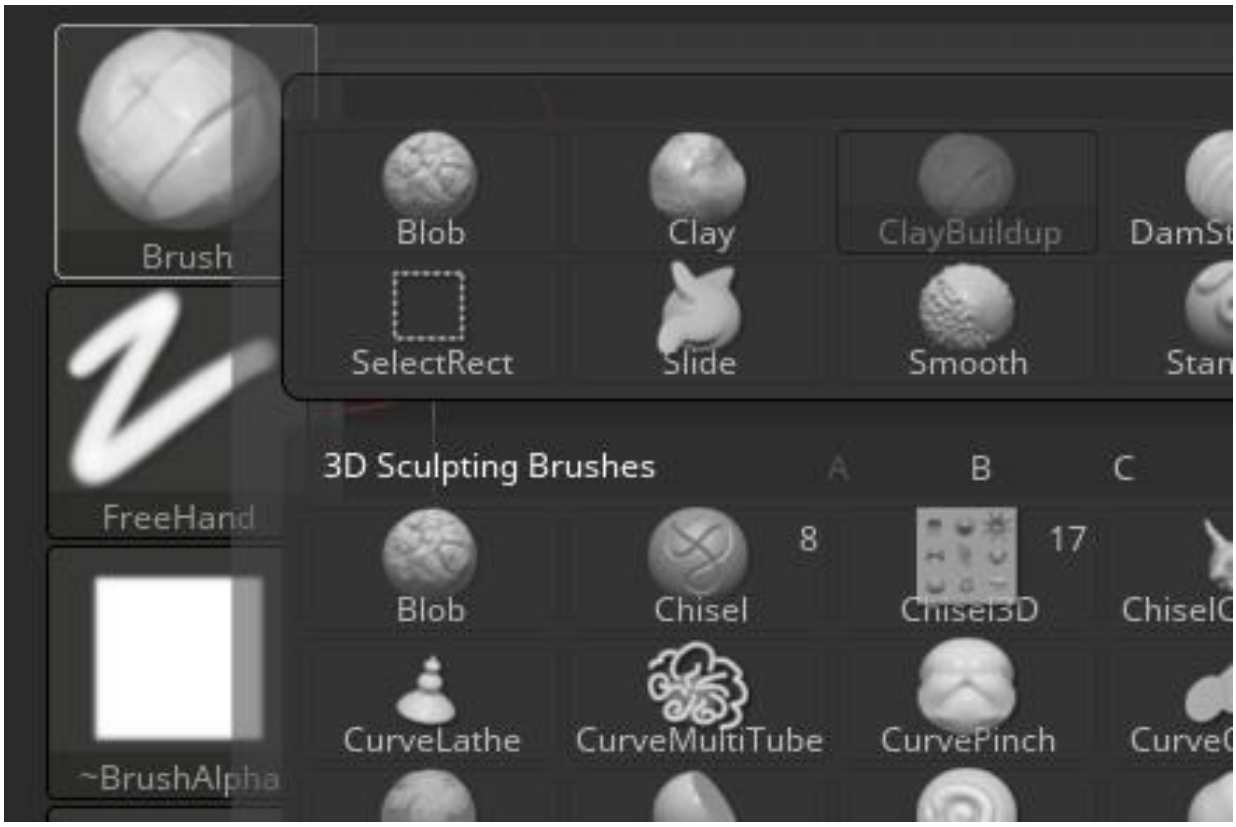
CTRL+SHIFT+Click on another polygroup - Hide that polygroup

- I want to make small modifications (sculpt) on a mesh –

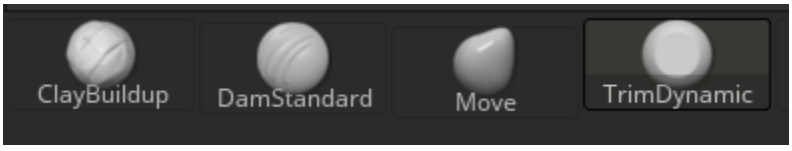
This is a slightly modified version of one of the "Load next User Interface" setups, showing five of the most versatile brushes. I'll briefly describe them and how they're used, and you can find the full brush list by pressing "B", and most of them have their hotkeys that allow them to be selected quickly. Pressing "B", "M" then "V" (sequentially, not holding any down) will change your brush to "Move" for example.

Full Brush Palette

You can also click the current tool button to open the brush palette



Opening the brush palette by clicking the current brush icon in the upper left



Clay Build-up – For roughing in forms, building up areas

DamStandard – For cutting seams, wrinkles and creases into the mesh

Move – Moves mesh based on brush settings

Trim Dynamic – Cuts away at the mesh, like carving wood with a knife or using a wire to cut pieces off a clay block/sculpture

Hotkeys

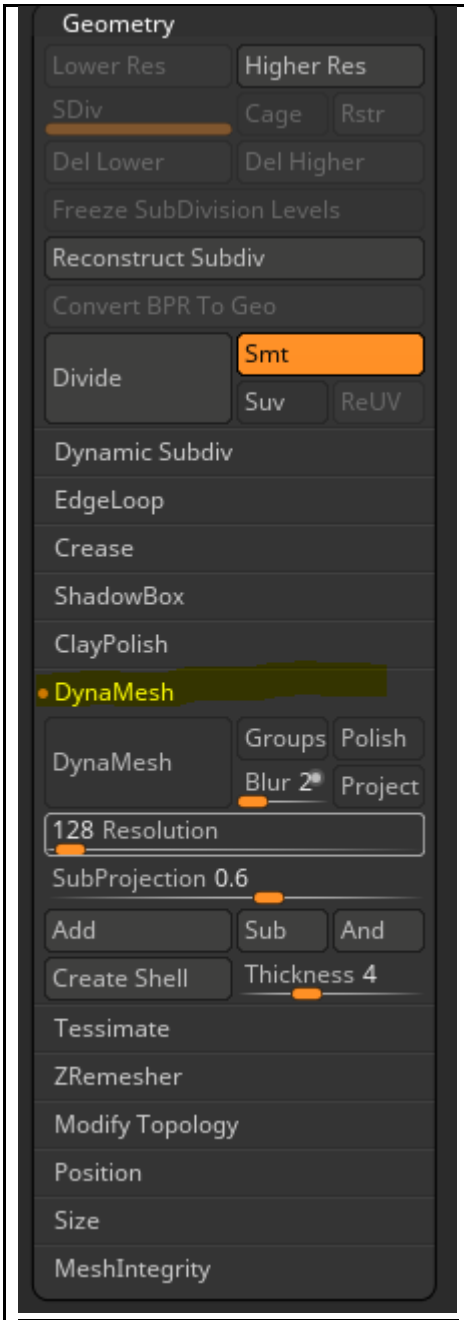
B – Open brush palette

ALT – Holding down ALT will invert the function of the brush. ClayBuildup will cut into the mesh, DAMStandard will create a raised peak, etc

SHIFT – Smooth the mesh

- Employing Zbrush Sculpting/Geometry Features –

CAUTION Many of these commands cannot be undone. MAKE SURE TO BACKUP YOUR WORK BEFORE CONFIRMING THEM.



Dynamesh (Geometry Submenu)

Dynamesh is one of the biggest features of Zbrush. The main areas to take note of at this point are:

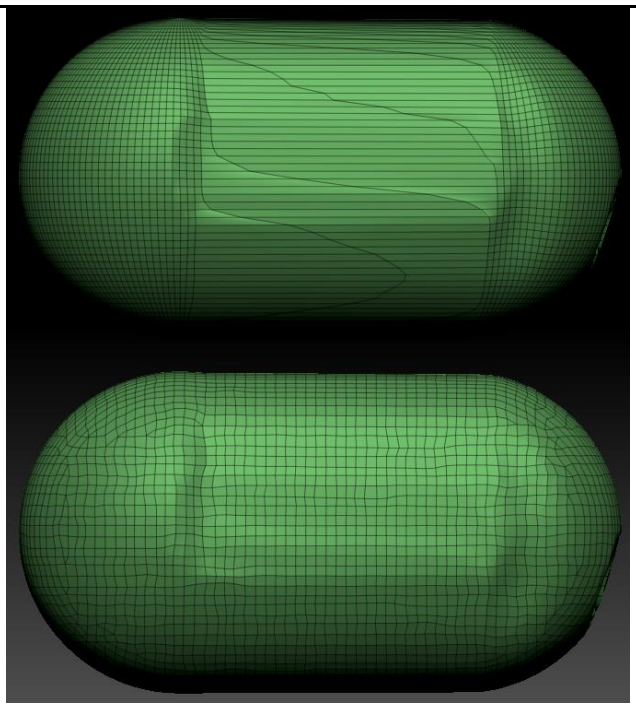
Resolution – How highly subdivided the mesh will be when you apply Dynamesh to it. When starting a mesh, start with a lower subdivision. This will make creating large adjustments easier, and as you get into more and more detail, you can increase the resolution to suit.

Project – Dynamesh will prioritize maintaining finer details when applied

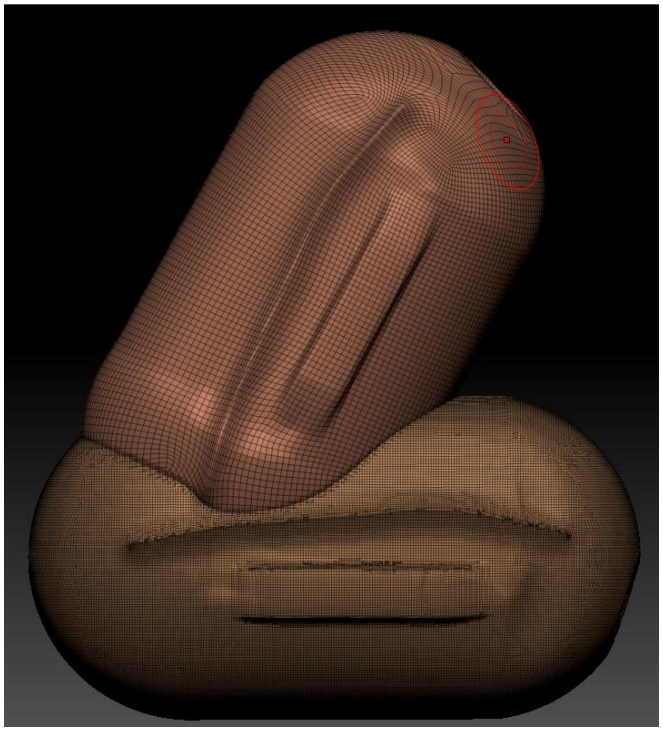
When you turn on Dynamesh, the current subtool will have its mesh flow and distribution adjusted, so that the distribution is completely even and edges flow along the form of the object.

Re-calculate Dynamesh - As you sculpt and start tearing apart or severely distorting your mesh, you can hold down CTRL and then draw a small marquee outside of your mesh to re-apply Dynamesh, which will recalculate and redistribute the mesh, letting you consistently sculpt in full detail.

Combine Mesh - If two objects are in the same subtool, Dynamesh will combine them.

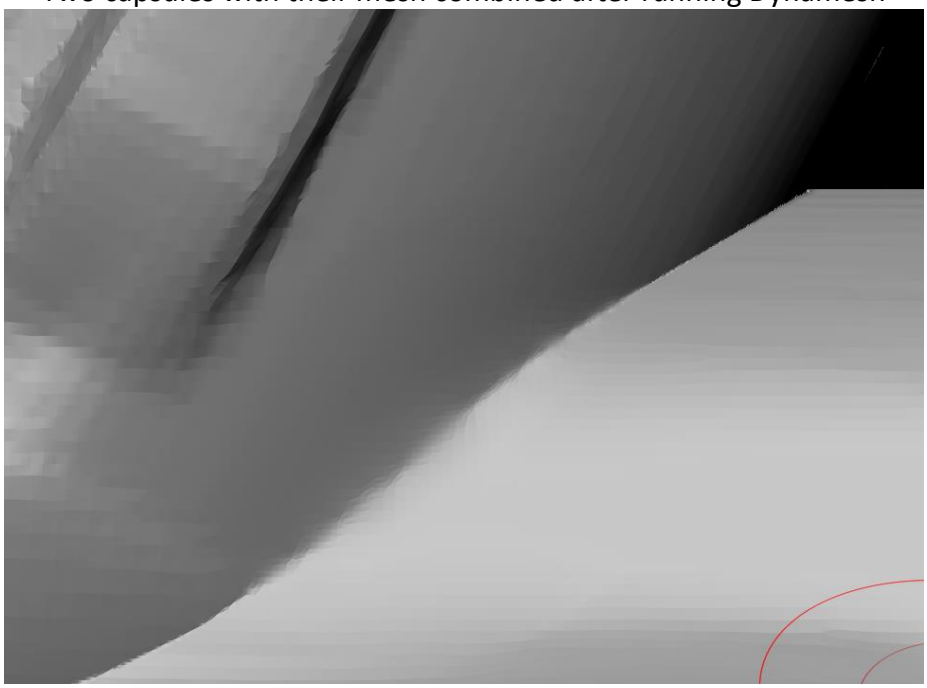


Mesh before (above) and after Dynamesh (below)

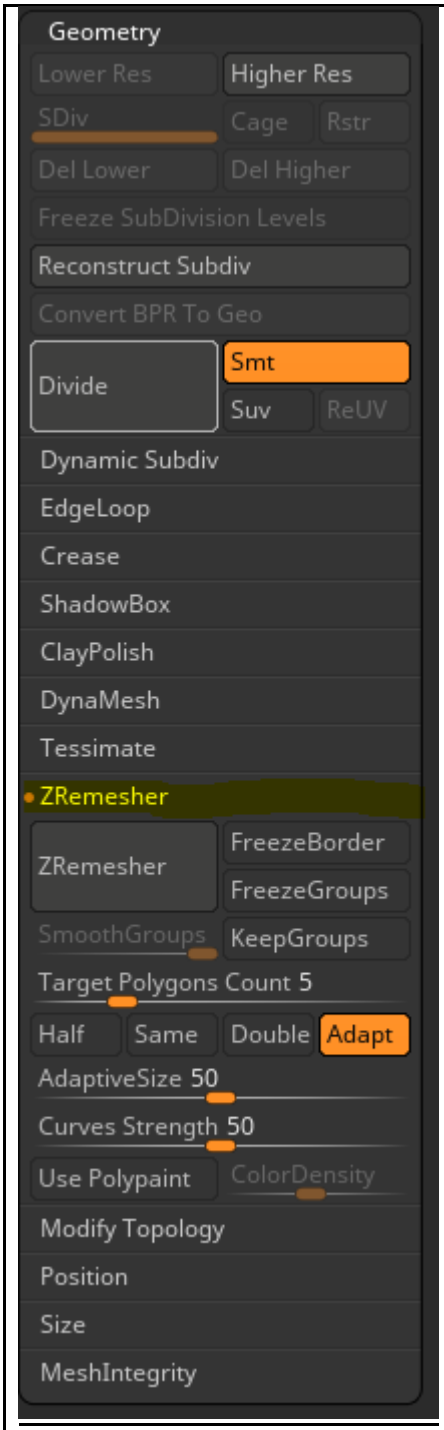


Two capsules intersecting before running Dynamesh

Two capsules with their mesh combined after running Dynamesh



A close-up of the welded region of the joined capsules

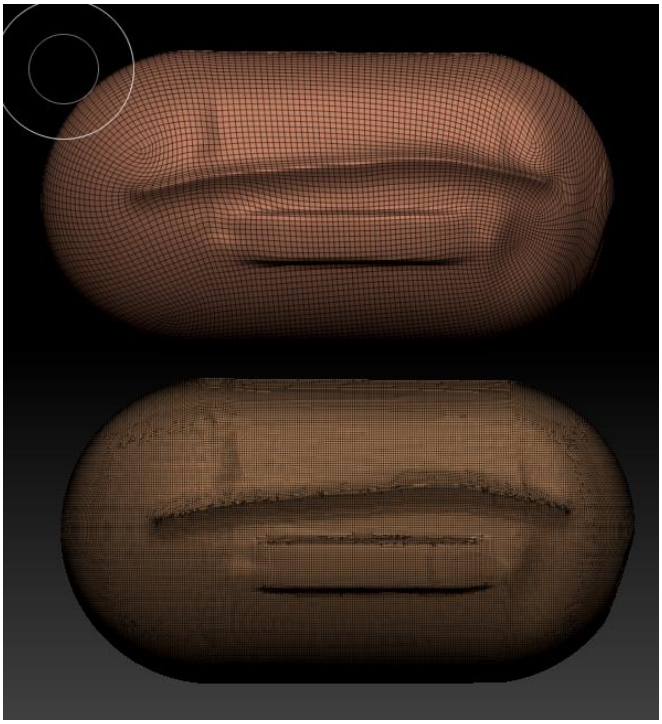


Z Remesher

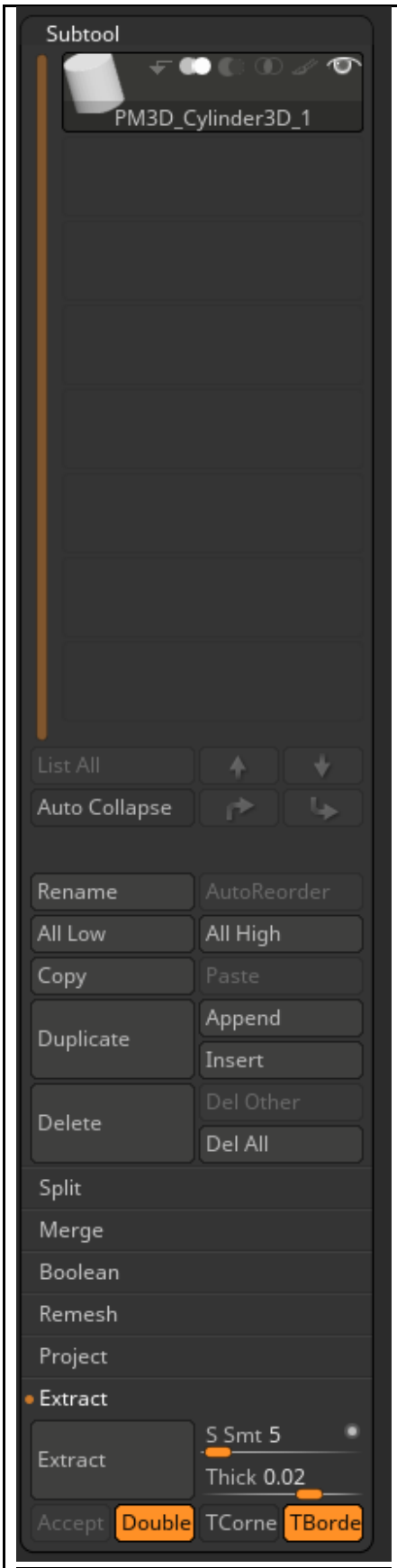
Like Dynamesh, Zremesher is a powerful feature, although slightly smaller in scale when it comes to usage. Simply put, it retops (adjusts/reduces) your polys and polygon flow. This is incredibly useful for bringing your overall polycount down, as well as working in multiple passes on a sculpt.

The main areas of note are

Target Polycount – The number of polys you want Zbrush to aim for
Half – tells Zbrush to try and reduce your mesh to half of its current polycount
Same – Zremesher will redistribute current polycount to even it out
Double – Will double your polycount



The original mesh below, the Zremeshed version with a much lower polycount above it



Subtool Panel

Basically, a more evolved version of the “elements” breakdown of mesh in 3DS max, only now each element is referred to as a “Subtool”, and a single subtool may include more than one mesh.

HIDE/UNHIDE - You can quickly hide and unhide subtools with the eye icon, select them from the list, or **hold down ALT and left-click** a visible subtool to select it.

Append/Insert - if you want to add a new tool to the current one as a subtool

Duplicate – makes a duplicate of the subtool

Split – separates a subtool into multiple subtools

Merge – combines subtools into a single entry

Modify Topology

Mirror and Weld [3DS Max Symmetry Modifier] – Mirror the geometry on _ axis, and weld on that axis

Del(ete) Hidden – Deletes any hidden mesh

Mirror – Mirror the geometry on _ axis

Polish – Smooths out the entire mesh

Size – Similar to the “Push” command in Max

Problems:

Issue: I keep drawing the same object over and over again

Or

Issue: I have more that one object on screen but can only revolve around one of them, the others stay in place.

Solution: Make sure to switch over to Edit mode as soon as your mesh is in place (T).