



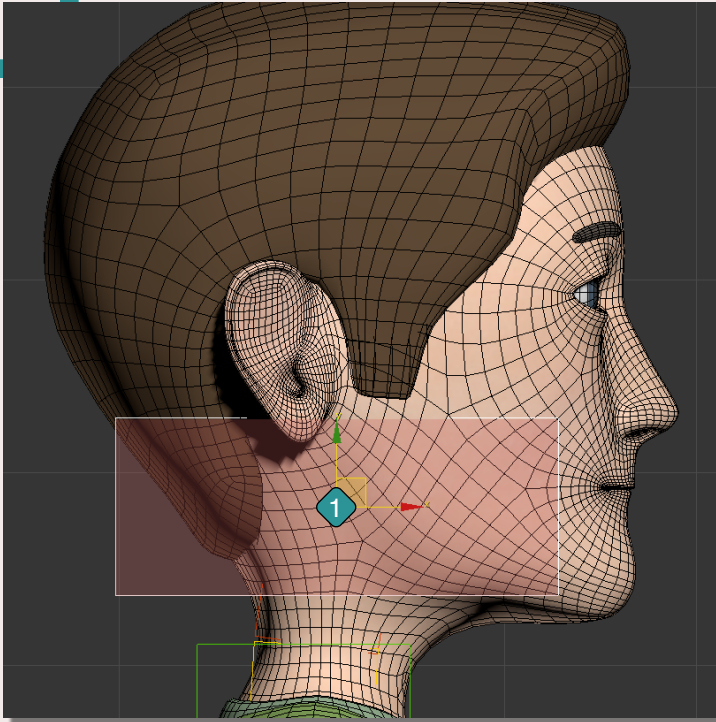
How To Use Custom Meshes As CAT Bones In 3ds Max

Miloš Černý
www.miloscerny.com

When you create a CAT bone it's always in a Box shape.

But sometimes the box shape doesn't visually represent the particular part of your model and maybe you would like to change it. With CAT you have a complete control over how you would like your bones to look.

More importantly, with this way of changing the shape, written here in this tutorial, you can also move the bone without changing it's pivot position. Which is important and very useful in many cases.



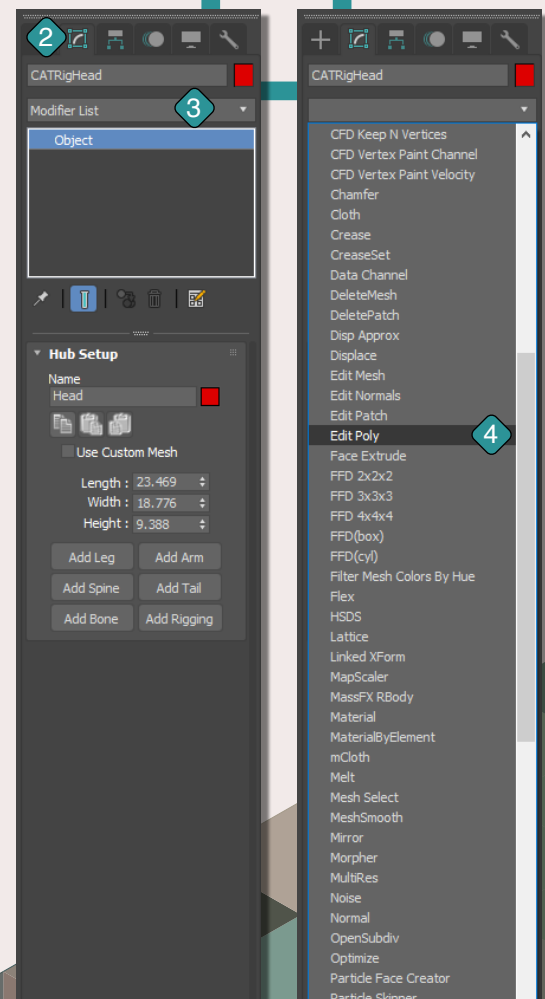
On the left you can see a Head bone selected, which has a pivot **1** exactly where we want it. Somewhere below the ear and behind a jaw (basically where a human head has a point of rotation).

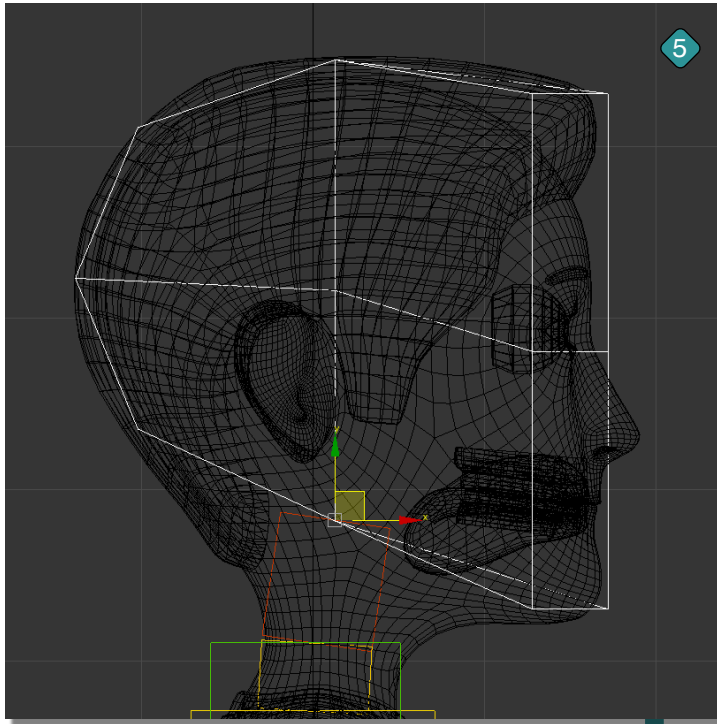
This is the first thing you should always do when rigging - place the bone just by looking at it's pivot. Not paying any attention to the actual shape of the box.

Now, we could keep it like this. There would be nothing wrong with it and it would work just fine. However, this tutorial is about changing it's shape to better visually represent the head mesh.

What you can do now is head to 'Modify Panel' **2** and apply the 'Edit Poly' modifier **4** from the 'Modifier List'. **3** This will give you all the options of mesh editing for this bone. Like for any other editable poly in 3ds Max. You can now freely reshape the box in any way you want. Adding vertices, edges, extrude, whatever you need.

The point of all this is, that with any of these changes, the pivot point still remains in the same place as we have put it before, which means the point of rotation is still correct. You can see it on a next picture. **5**

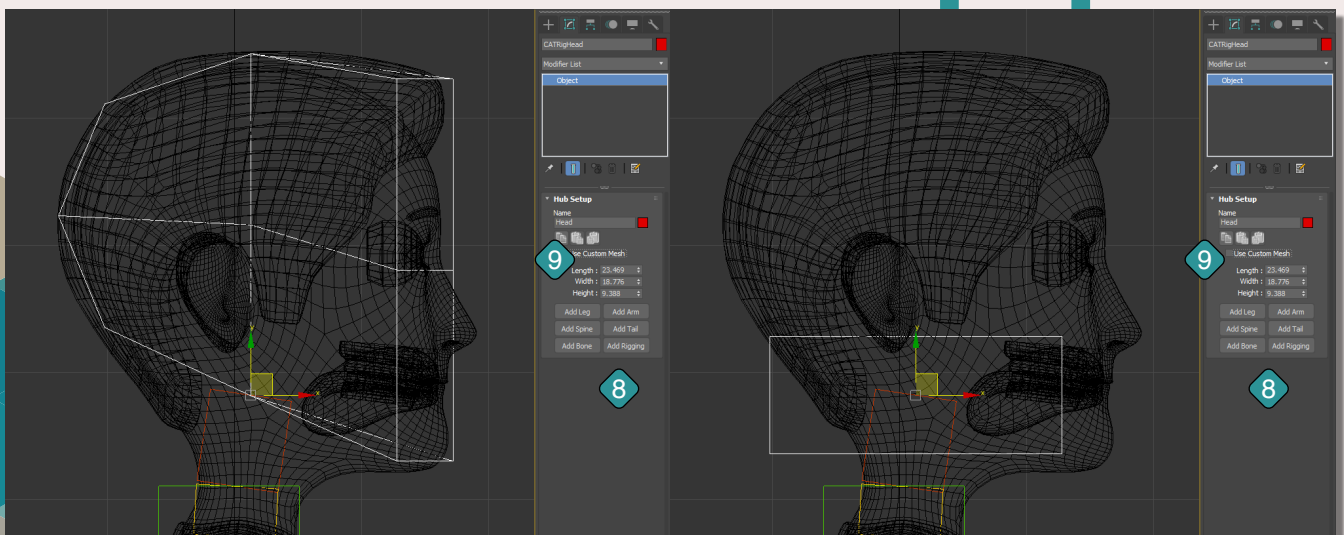
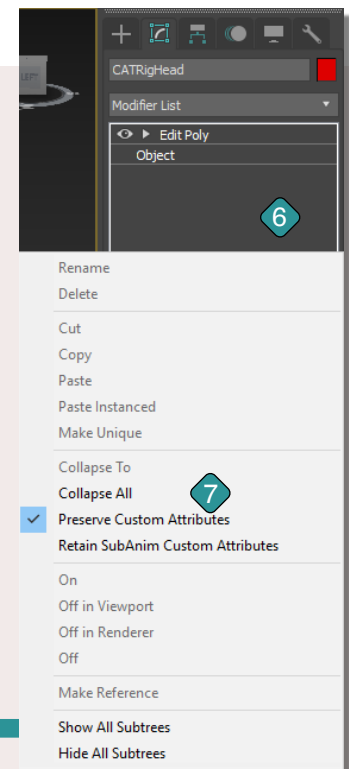


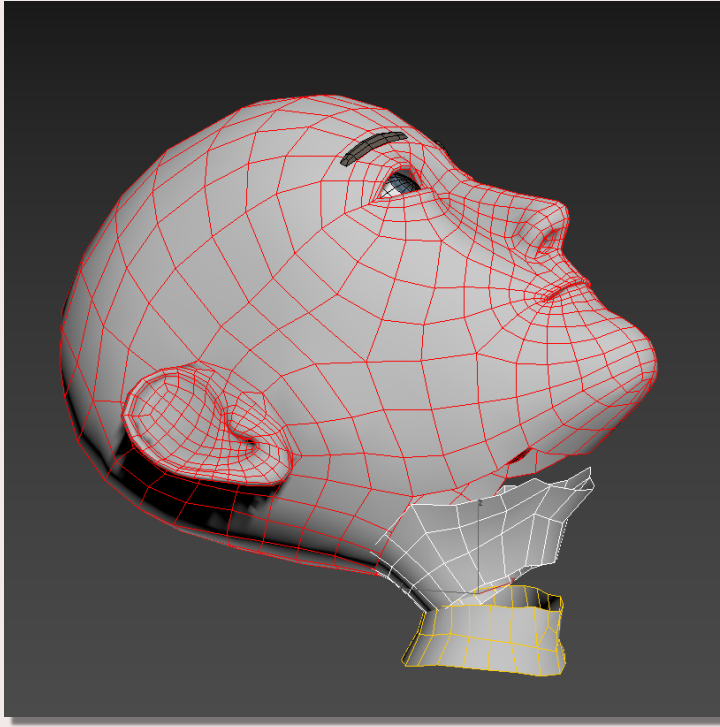


The shape of the Head bone is changed, but the pivot stayed on the same spot.

After you are done with all the modeling changes. You can collapse the 'Modifier Stack', **6** by right clicking on it and selecting 'Collapse All'. **7** The 'Edit Poly' modifier gets collapsed and the bone will still keep its original CAT parameters. **8**

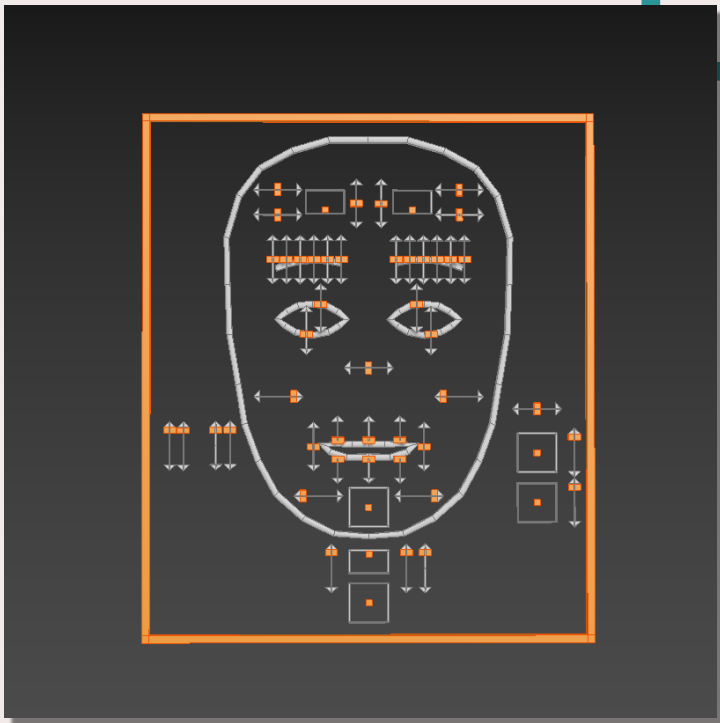
You can notice that after the collapse, 'Use Custom Mesh' **9** checkbox is enabled automatically, which means CAT is displaying your modified version of the bone. If you untick it, you will still see the original CAT bone again.





And that is basically all there is to it. You can use this for whatever creative purpose you need. You can even replace the original box shape for completely custom ones, by attaching a different mesh and then deleting the original box shape.

This way you can even use your model as bone shapes, like in this example. Here all the 3 parts (Head and 2 Neck parts) are actually CAT bones created from pieces of the character model.



Or maybe you want to use custom shapes for creating a facial rig controllers. All the controllers here are CAT bones. Anything is possible.

The reason for using CAT bones as controllers is to keep all the CAT features (like animation layers) even for these.

Summary

To create a custom shape for a CAT bone:

- 1 - Select the bone you want to edit
- 2 - Apply 'Edit Poly' modifier
- 3 - Edit the shape of the bone
- 4 - Collapse the Modifier Stack

