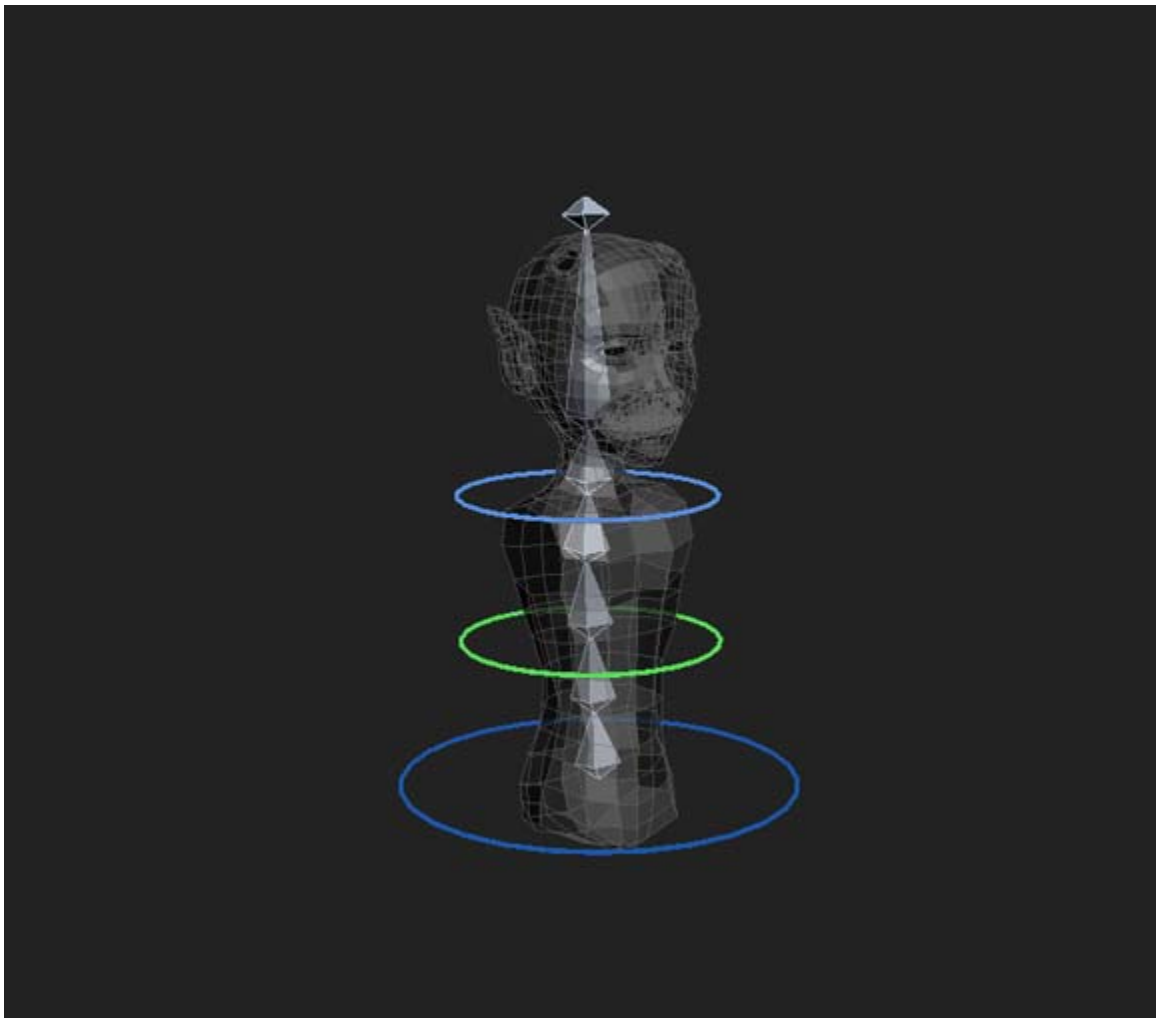
Character Rigging Workshop
Part Three: Torso & Head



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Introduction

Character rigging can make or break an animation. If a character rig isn't set up correctly the pipeline can suffer towards the end of production. So, it's important to make the rig easy to control and completely functional with little or no errors. Studying the bone structures of humans / creatures will help you translate a workflow into 3D (it's important to note, of course, that you do not need the correct realistic number of bones used to make a 3D rig work).

This workshop will cover basic to intermediate techniques on rigging. Users can take this knowledge and build upon it for their own rigs later on.

Software

3D Studio Max 9 will be used for this workshop. The reason for this choice is not only personal preference but also because our school only teaches rigging in Maya. Knowing both ends of the spectrum ultimately will help one's job hunt.

Note: A basic to intermediate knowledge of 3D Studio Max is required.

Set-Up & Layout

In this workshop we will rig a torso and head using a low-poly mesh as a guide. This will allow us to apply technical knowledge to a real-world application rather than just showing an extremely simplified version. It also helps one understand what issues will arise and how to troubleshoot the problems; another huge factor in being an efficient 3D artist.

Sections:

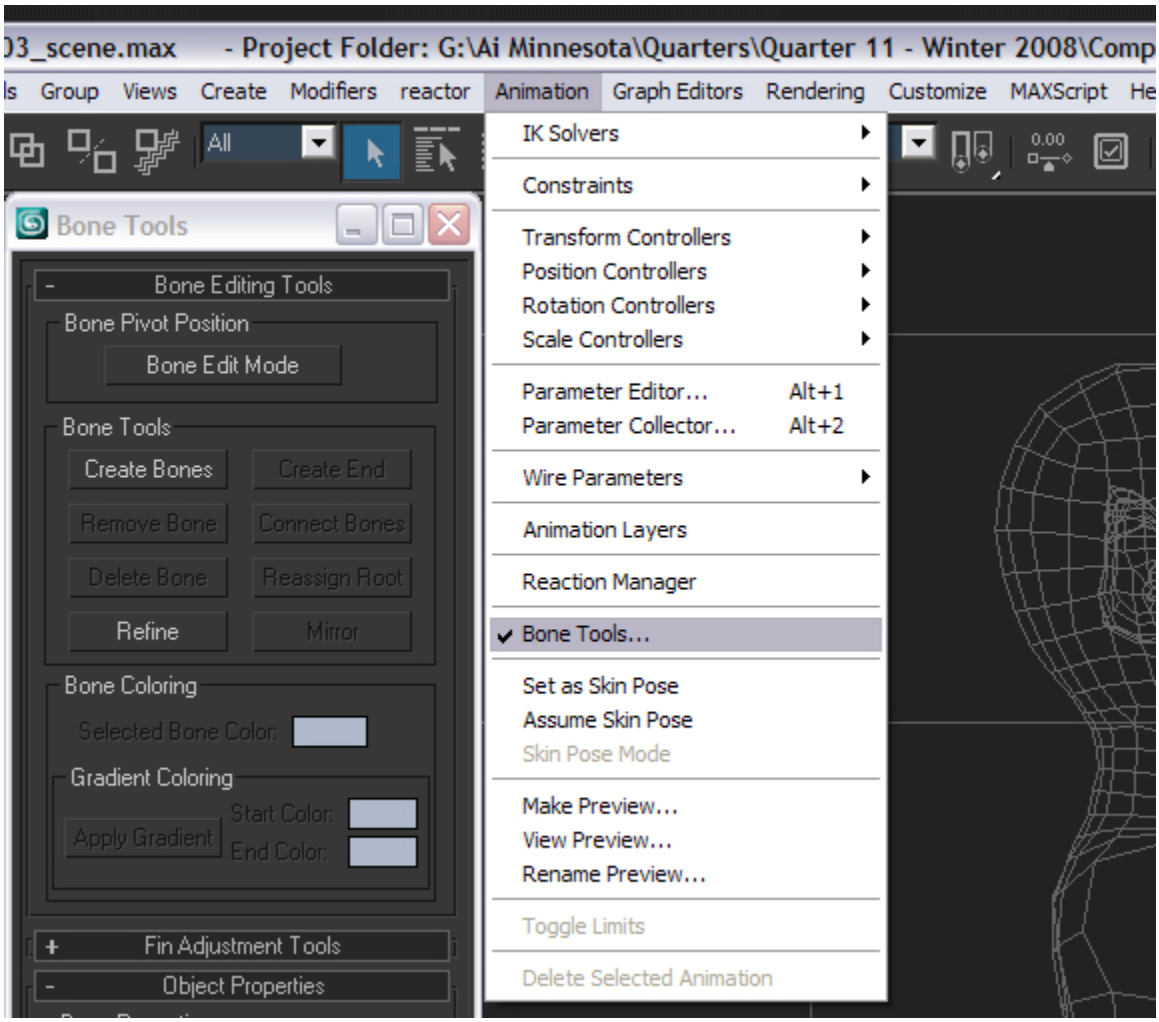
Each section has steps which will be explained throughout the course of the workshop.

File Directory

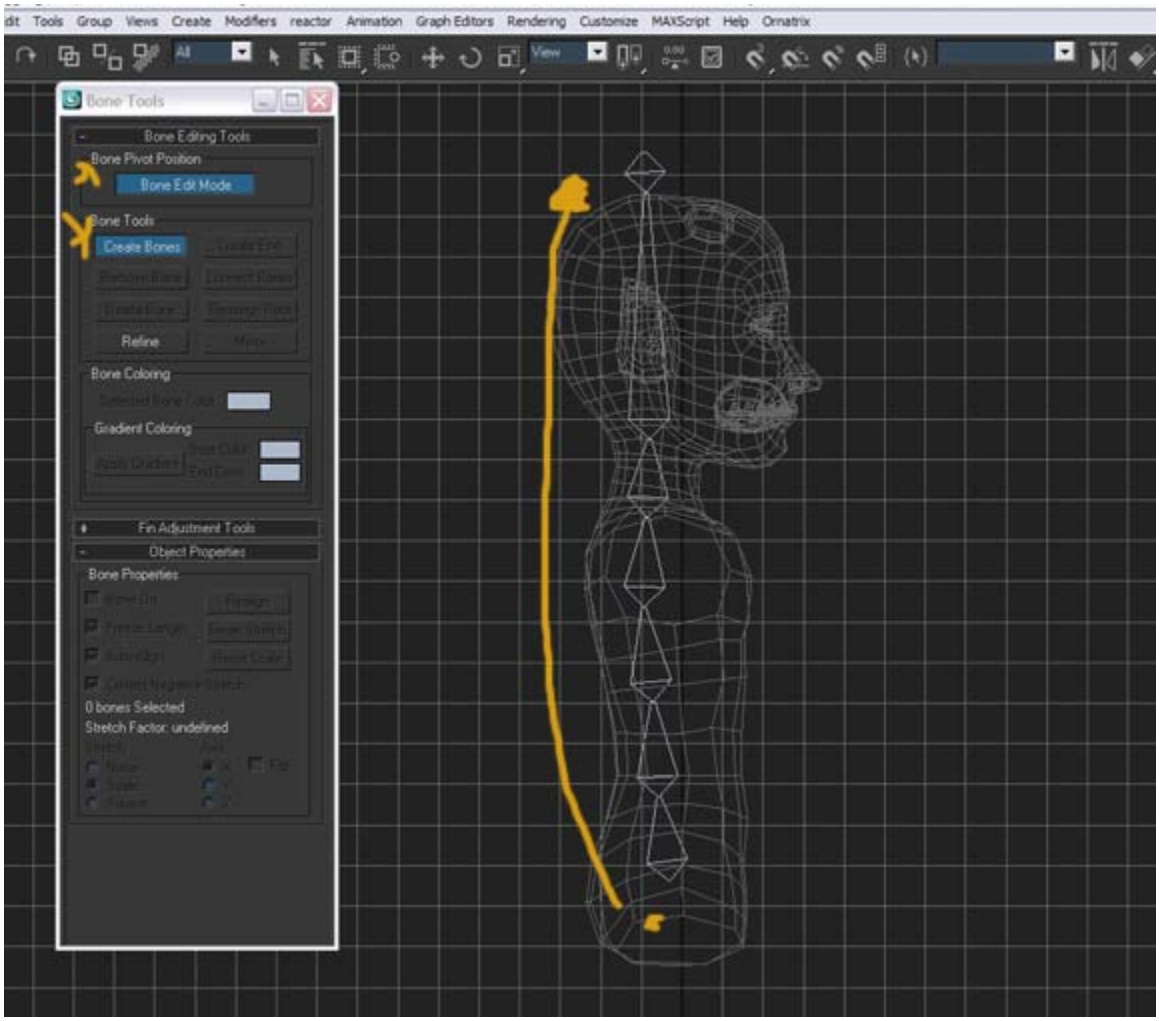
Open the file ***Rigging_03_Scene_Start.max.***

Section One: Bone placement.

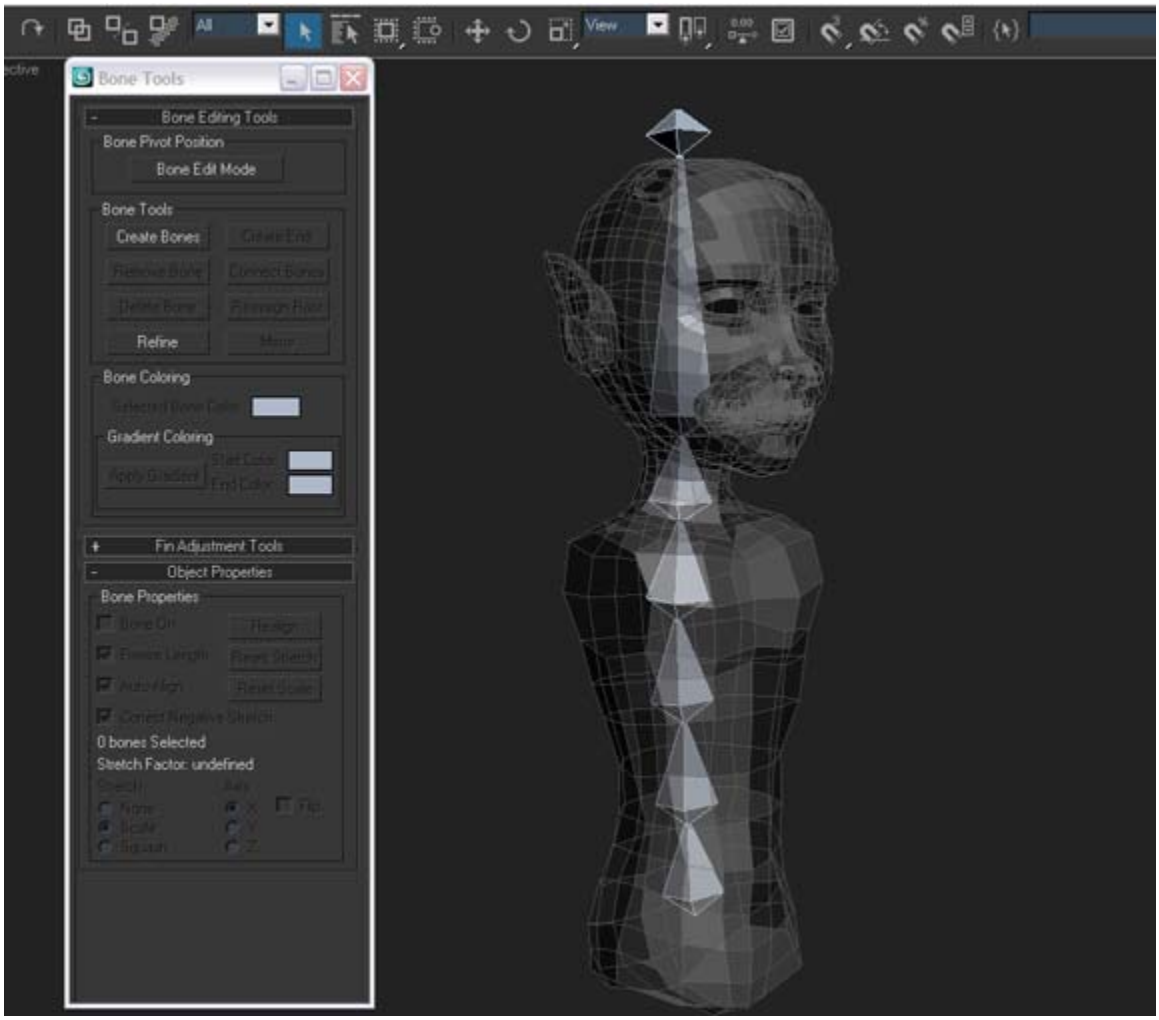
Step One→ Choose the left view port. Under animation, choose bone tools.



Step Two→ Using create bones drag each bone into place. Hip bone, lower spine, middle spine, upper spine, neck, and head. Then use bone edit mode to fine tune the position of the pivots. Reference the image below.



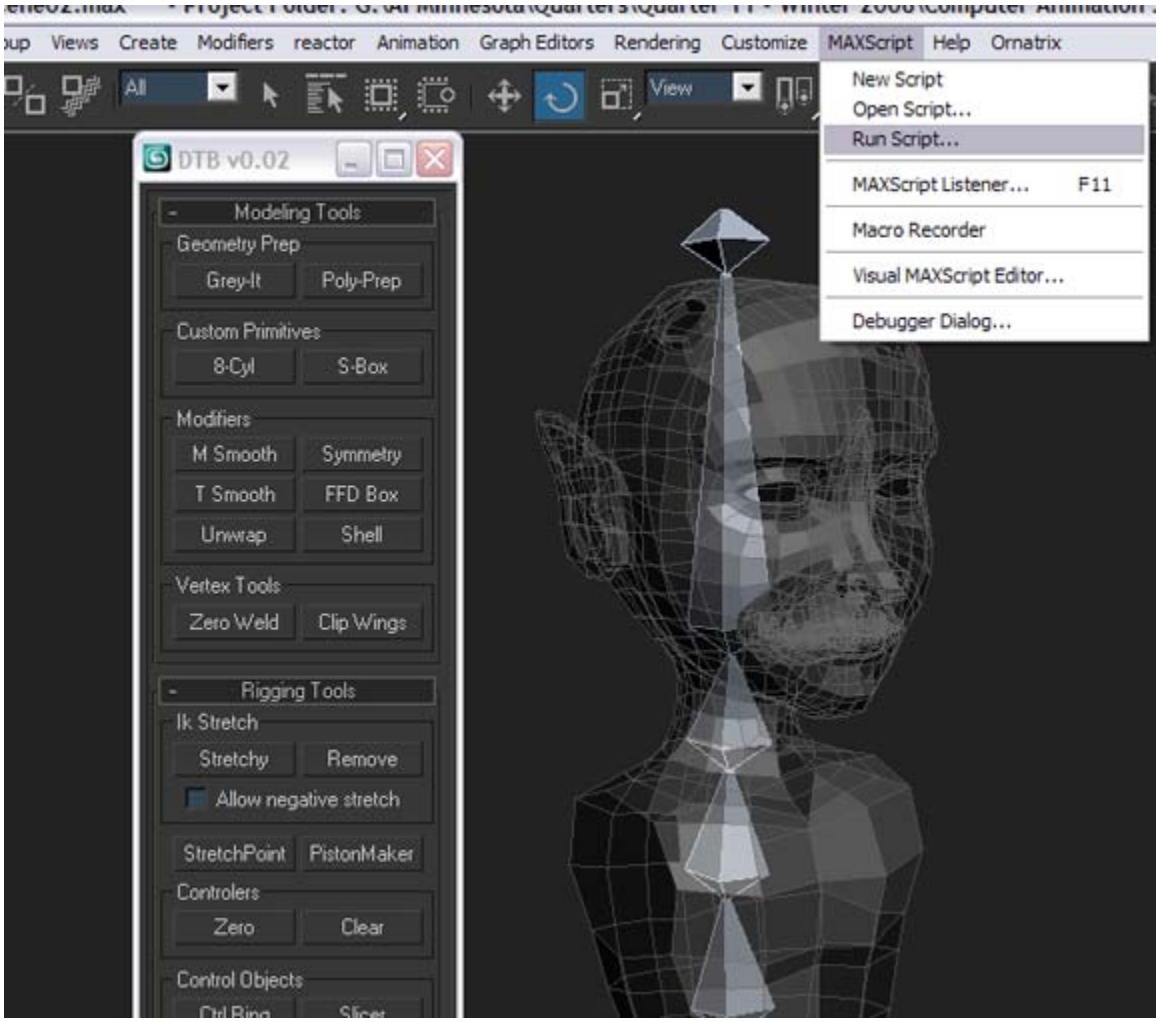
Step Three→ And now you're done! Pretty simple huh? Since we created it in the left view, it's aligned perfectly in the middle therefore disallowing for anymore moving.



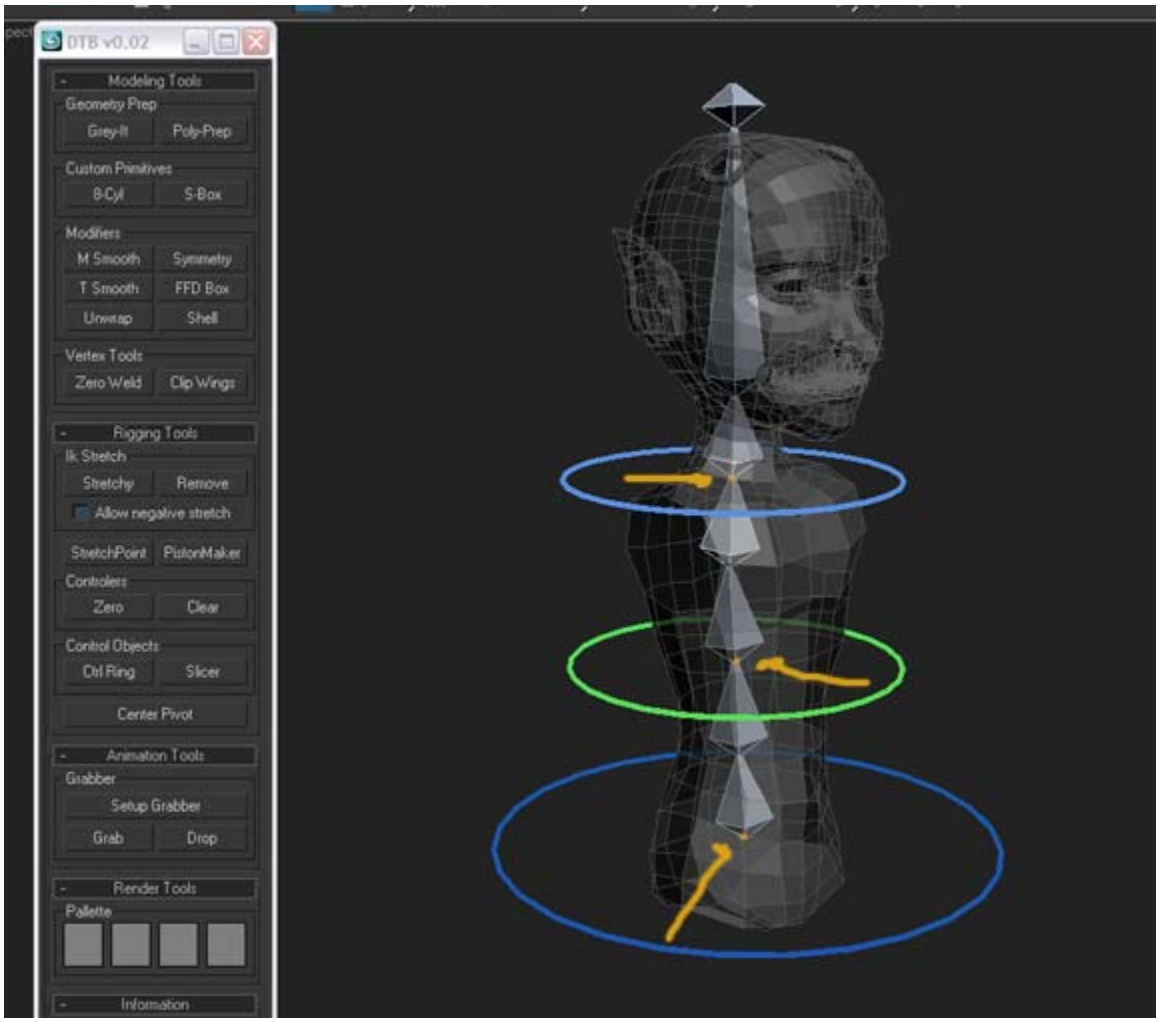
Section Two: Control Objects & Wire Parameters.

Step One→ In this section we're going to create only 3 control objects: hips, spine and neck/head.

First load Dabelow's ToolBox. MAXScript→load script.

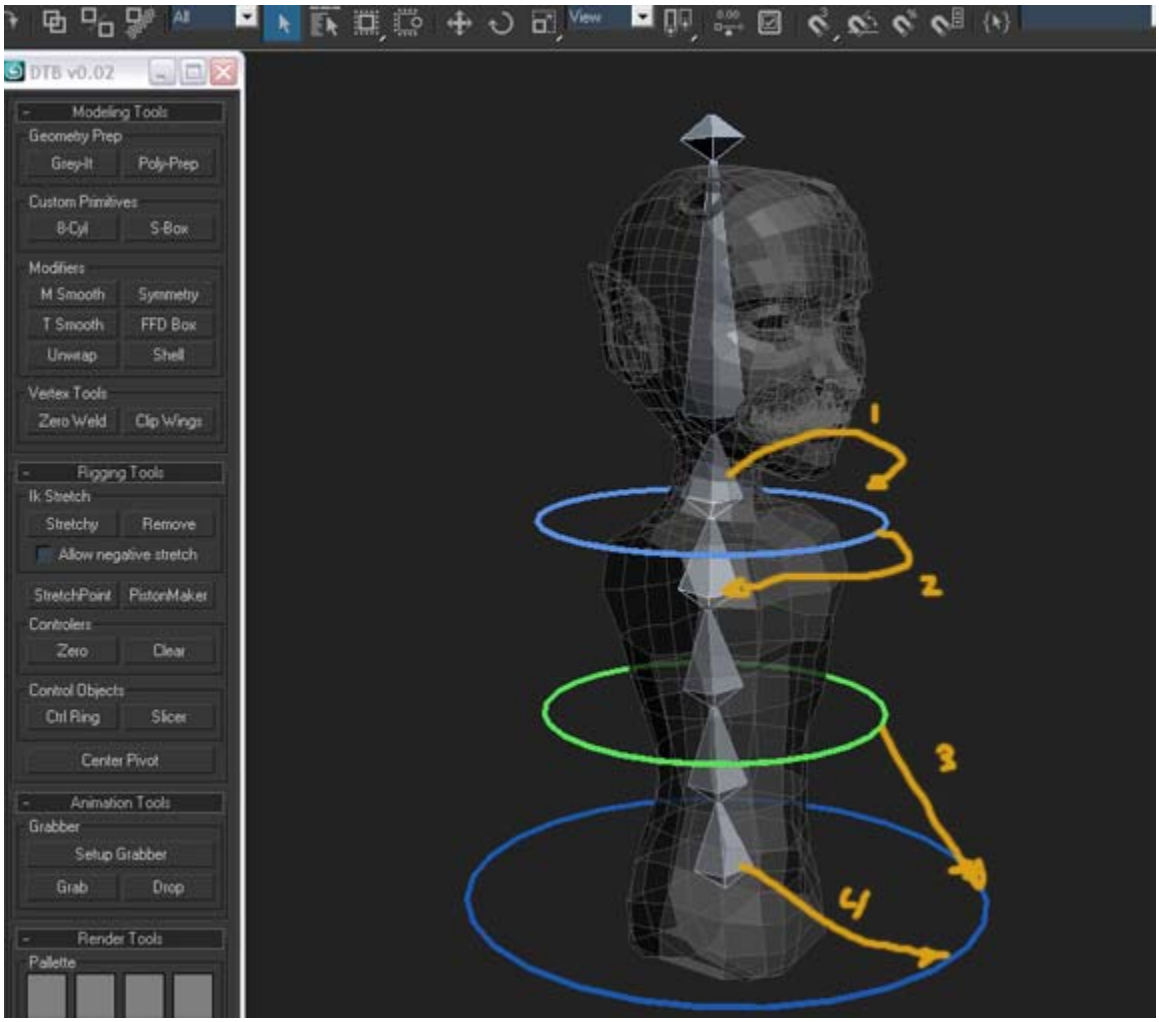


Step Two→ Create 3 circle splines. Align them as followed: Large blue ring to hip bone. Green ring to middle spine bone. Light blue ring to neck bone.



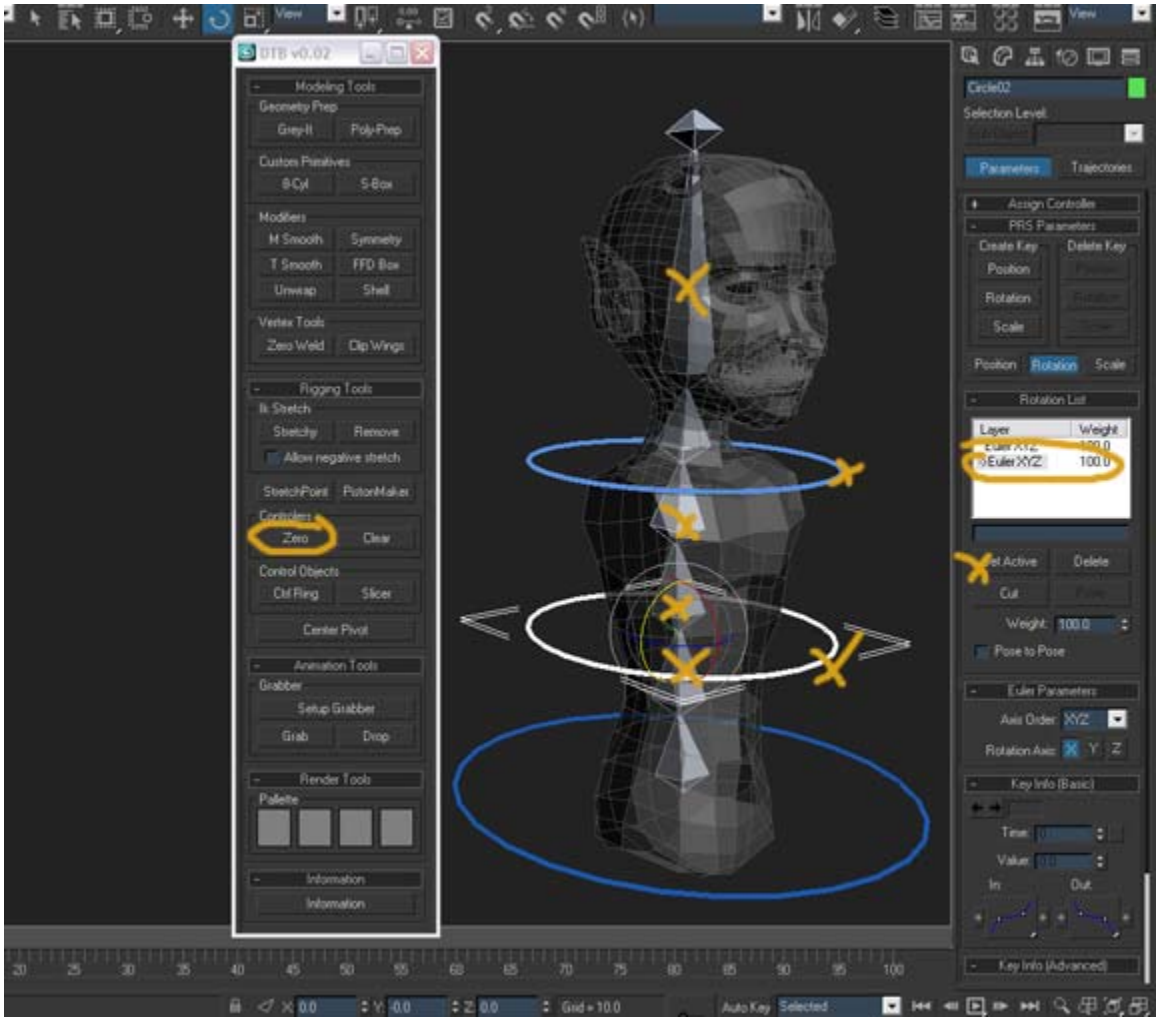
Step Three→ Now we need to add these control objects into the hierarchy.

1. Neck bone is linked to neck control.
2. Neck control is linked to top spine bone.
3. spine control is linked to hip control.
4. hip bone is linked to hip control.

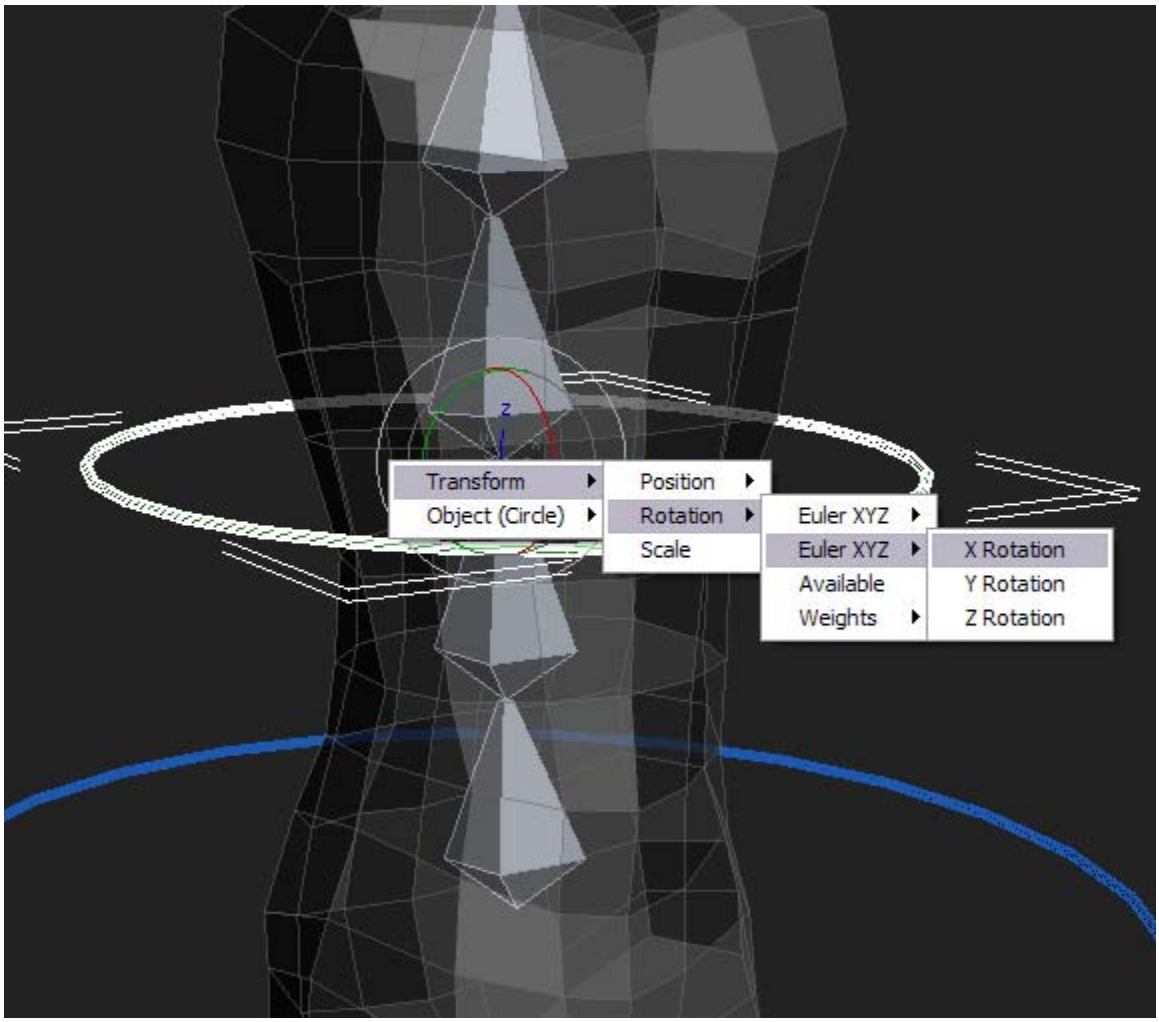


Step Four→ In order for wire parameters to work correctly we need to zero out some bones and control objects. We want the neck control to move the head bone while also rotating the neck bone. We want the spine control to rotate all 3 spine bones simultaneously.

Select the neck control spine control, spine bones, and head bone. Press Zero under rigging tools in Dabelow's toolbox. In the motion panel, set the active rotation to the newly created Euler XYZ rotation for each zeroed object.

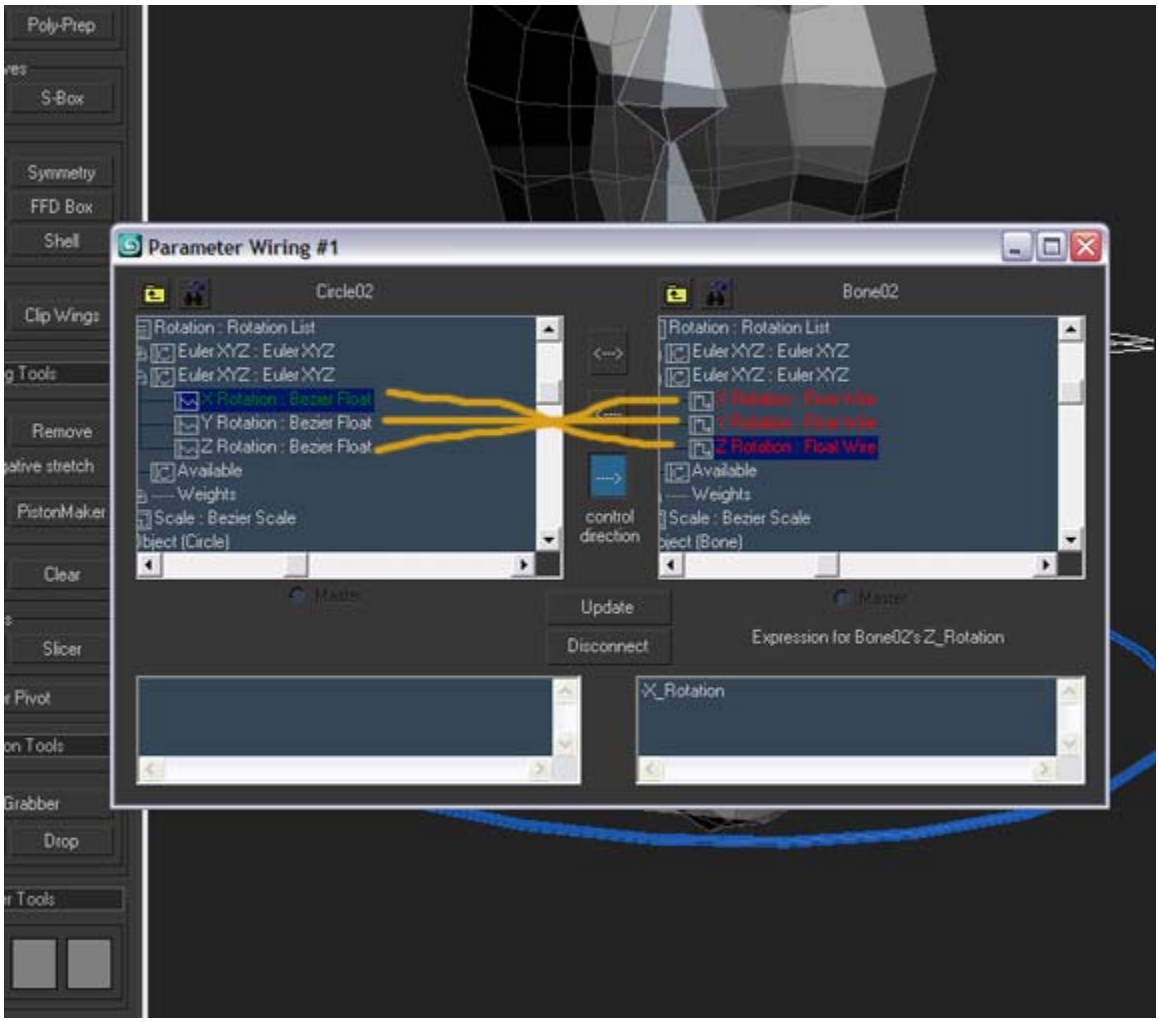


Step Five→ Now let's setup the spine control function. The green ring is going to basically "curl" the spine in the axis it's rotated in. Right click and choose wire parameters. The second Euler XYZ of the spine control will control the second Euler XYZ of each of the spine bones.

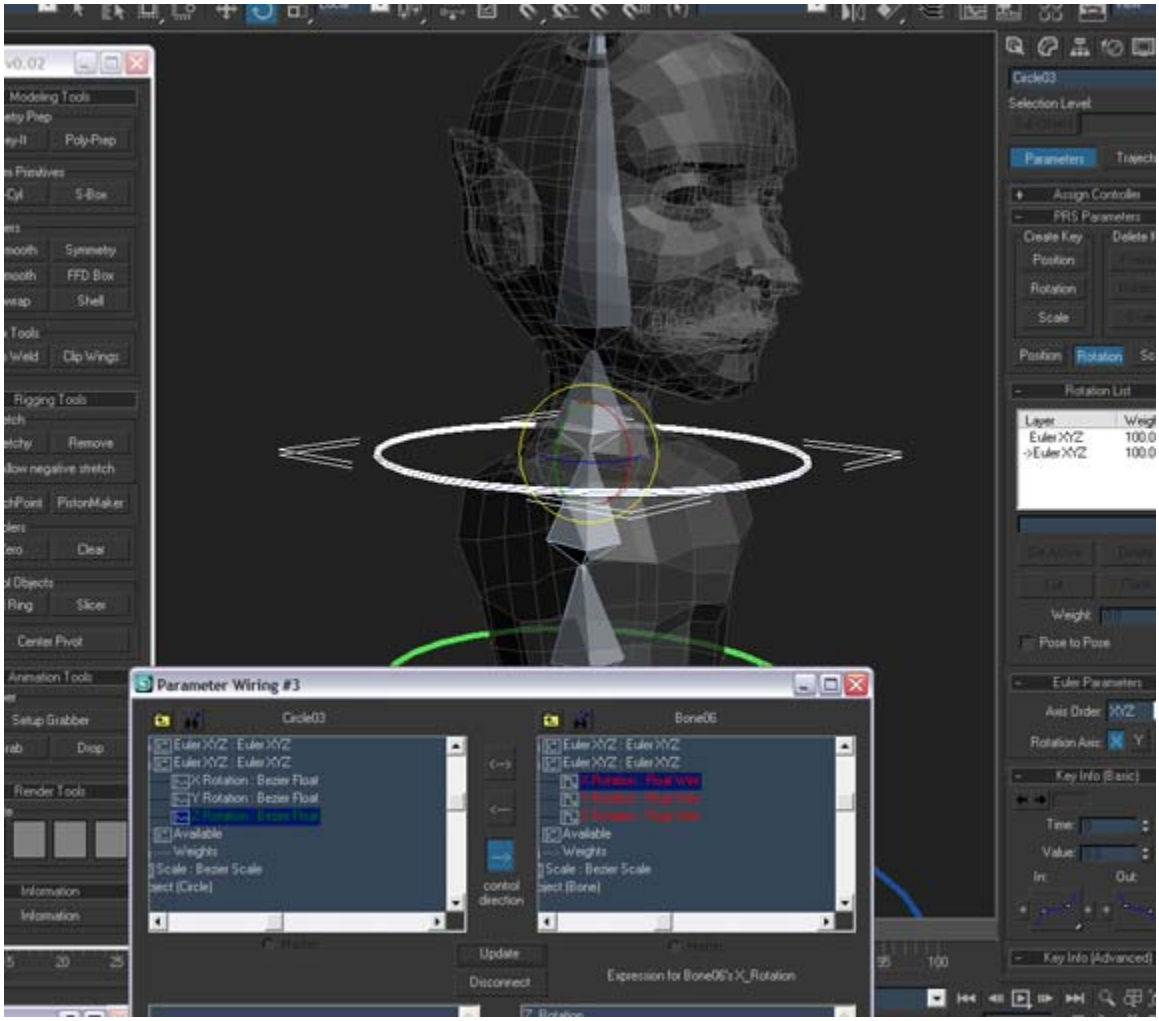


Step Six→ Which axis may change depending on how you set your scene up. Also, sometimes the bone will rotate in the opposite direction. If that happens just type a negative sign in front of the rotation in the expression box.

In this case, -X controls Z, Y controls Y and Z controls X. Repeat this process for the other spine bones.



Step Seven→ Same idea for the neck control. It's rotational axis should control the head bone.



Step Eight→ When's all said and done, you now have a simple control for the hips, spine and neck/head region. I hope this tutorial has helped!