

Posing a Dinosaur in Poser Pro Pack

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Jurassic Jogger

The last two tutorials covered modeling a dinosaur in Organica and painting it in Deep Paint 3D. This time out, we're going to import our model into Poser Pro Pack and give it a skeleton to make it posable. We'll start by covering the use of Pro Pack for pre-grouped, un-grouped, and semi-grouped models. Then we'll go to work to make our dinosaur model posable. If you are not familiar with the concepts of grouping and hierarchies, I'd recommend that you consult the manual on those topics before attempting this tutorial.

The end result is shown in the above picture, "Jurassic Jogger". It shows a Dilophosaurus enjoying its morning constitutional in a grove of cycads, around 180 million years ago. Flowering plants, grass, and broadleaf trees were still 100 million years in the future. Conifers, gingkoes, cycads, and tree ferns made up the bulk of Jurassic plant life.

General Techniques for a Pre-Grouped Model

The easiest way to make a posable model is to start with a model that has already been sliced into groups. Each body part is a separate group with a name identical to the internal name of the bone it will be assigned to. The model is imported into the Pose room, then it's brought into the Setup room where a pre-existing skeleton is added or a new skeleton is created from scratch. As long as there are no naming conflicts between the bones and the groups, the model is now posable and only needs tweaking to adjust the blend zones, rotations, positions, and orientations.

General Techniques for an Un-Grouped Model

If the model has not been divided into groups, Poser can do that for you. Add the skeleton in the Setup room as you did above, then use the Auto Group function in the Grouping Tool to slice the model. You'll need to reassign polygons to get the model grouped the way you want it, but the Auto Group will get you started. Using Auto Group, the group names will automatically agree with the bones.

General Techniques for a Semi-Grouped Model

If the main body of the model is ungrouped but has extra grouped parts, like movable eyes, using the Auto Group function will wipe out the grouping for those extras parts. This is where things can get complexicated. One possible approach is to export the eyes to their own object files, delete them from the figure, add the skeleton, Auto Group the figure, and import the eyes back in as props. You can keep the eyes as props, but it makes the model difficult to work with. The solution is to Spawn Props on the figure in the Setup room. Spawning Props duplicates all of the groups in the figure as props. Delete the original model and export all of the props to an object file. Clear the Pose room, import the object file you just created and reinsert its skeleton in the Setup room. The eyes have been turned into actual parts of the figure instead of just being props.

Overview of Posing Strategy

Build or get the model you want to pose.

Import the model into Poser.

Go into the Setup room and build a skeleton from scratch or open a similar figure in the library to get its skeleton.

Add bones where needed.

Adjust the size, position, and orientation of the skeleton to fit the model.

Open the Group Tool and Auto Group the model.

Manually clean up the groupings and any misassigned polygons.

Open the Joint editor to fix any rotations that need it and adjust the Blend Zones.

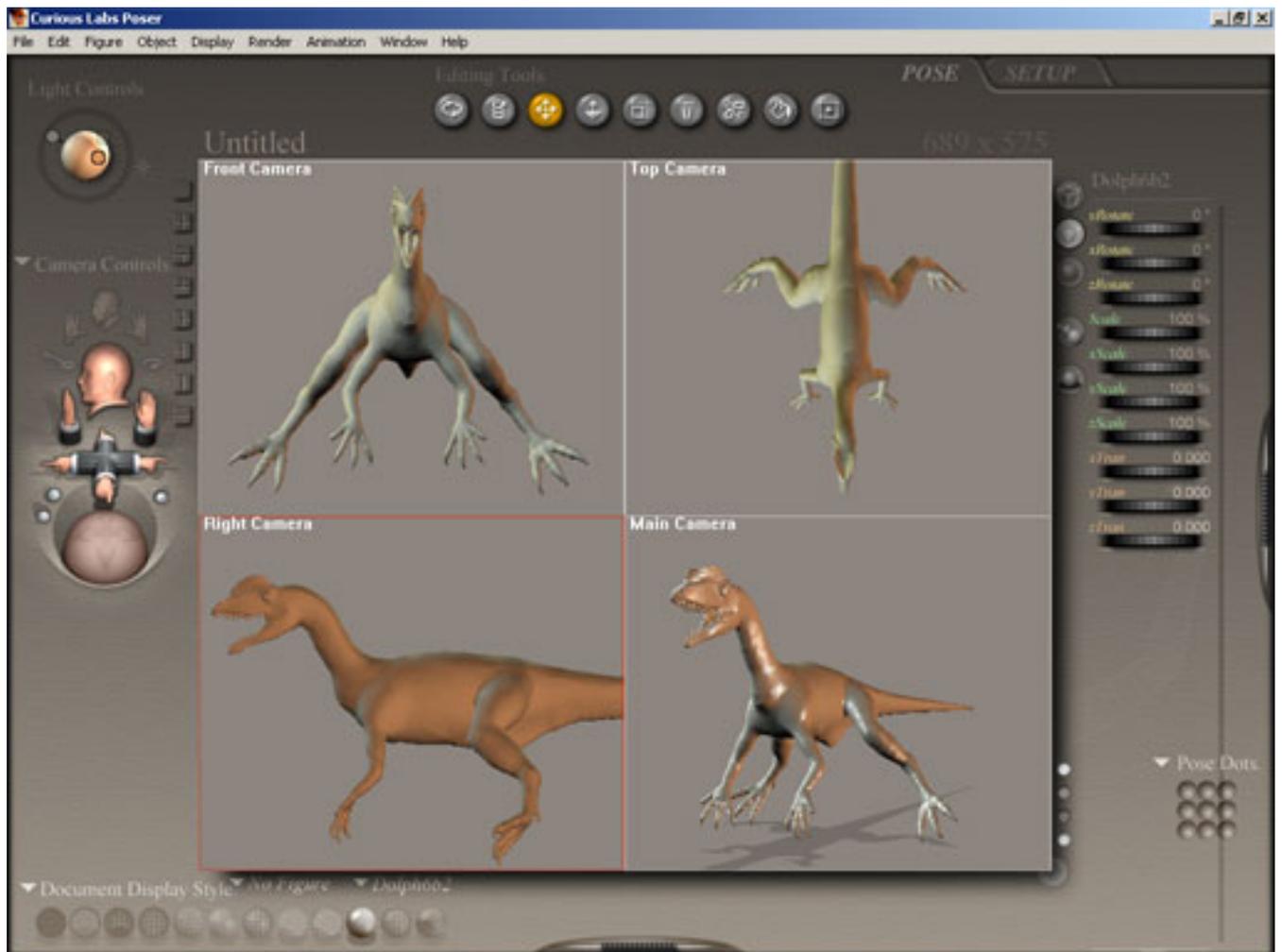
Test the model in the Pose room. Fix any problems and tweak the bones.

Add the eyes, if they are to be posable.

Add the finished figure to the library.

Loading the Model

Start up Poser and clear the Pose room by selecting Default Guy and deleting him. Click on File>Import>Wavefront Object and use the browser to select your model. On the Import Options popup menu, check Centered, Place on Floor, set Percent of Standard Figure Size to 100, and Make Normal Polygons Consistent. Once this is done, you should see something like the image below.

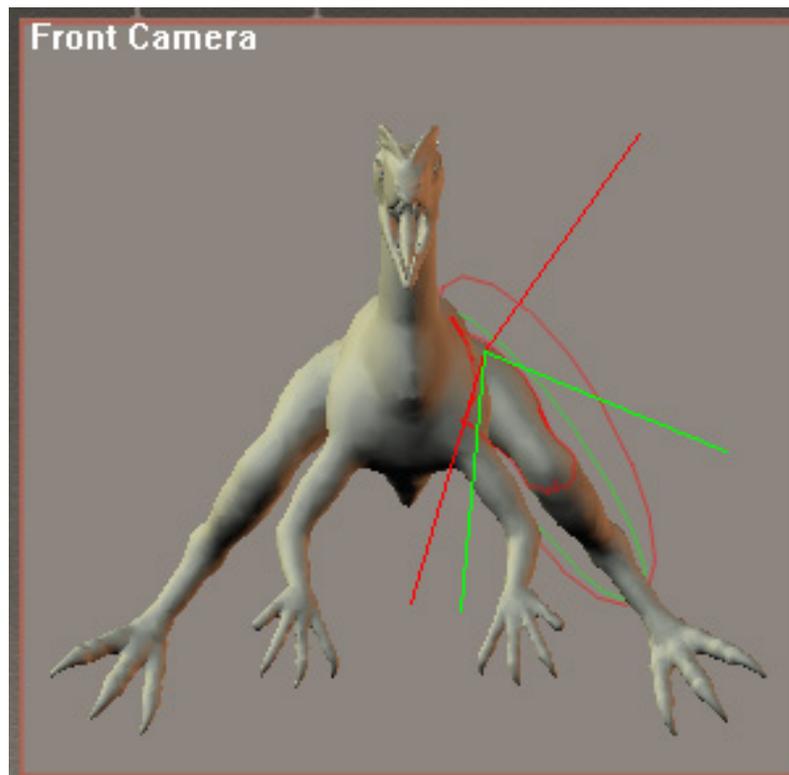


If you produced your model in Organica by following the earlier tutorial, you have a semi-grouped model with a group for the main body and a group for each of the eyes. If you want to be able to keep the eyes posable, you'll need to remove them from the model before Auto Grouping. Export each eye to its own object file, then delete them from the figure. This isn't as serious as it sounds. You can restore your dinosaur's sight after you've grouped the rest of the model.

Adding the Bones and Adjusting the Zones

Now we're going to enter the Setup room where we will add a pre-existing skeleton from a similar figure, which we will modify to fit our model. Click the Setup tab along the top right of your screen. You will be told that doing this will turn your model into a figure. Since that's the whole point of this tutorial, click on OK to enter the Setup room.

Click on Window>Libraries>Figures>Animals and select the Raptor figure. Click the Change Figure check mark and the skeleton will be brought into the Setup room. Use the editing tools to adjust the size, position, and orientation of the bones to fit the model. Activate the Joint Editor, check the box for Display Deformer, and look at the green cross displayed for the joint's Center. If it's out of line with the bone, click on Align and bear in mind that the limb may need work later on. This is the case with the dinosaur's thigh as is shown in the image below. Here, we are looking at the side to side blend zones of that limb.



We're going to want a lot of flexibility in the neck so we're going to add some new bones between the two existing neck bones. The two pre-existing bones are called "neck1" and "neck2". To do this, select the bone neck1 in the body parts menu and activate the Bone Creation Tool in the editing tools section. Now, left click and drag to generate the new bones. Open the Hierarchy Editor and double click one of the bones you just created to give it a name and an internal name consistent with the rest of the model. Repeat this until all of the new bones have been renamed. Rearrange the parent-child relationships in the Hierarchy Editor by clicking and dragging the bones until everything is in the right order. The same process was repeated for the eight fingers (3 bones each) and the six toes (3 bones each). A bone was also added for the lower jaw, though this may be replaced using morph targets at a later date.

Slicing and Dicing - The Art of Grouping

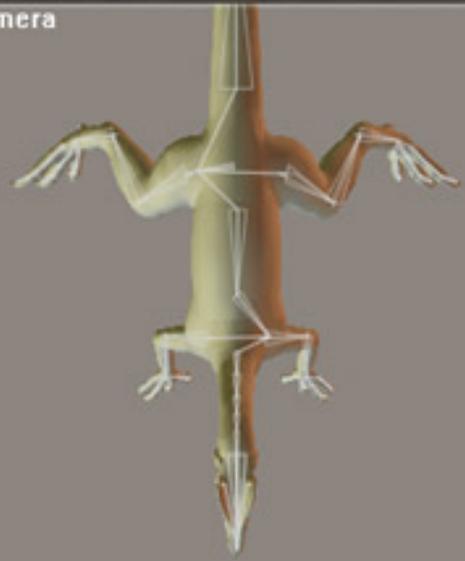
If you produced your model in Organica by following the earlier tutorial, you're now ready to use the Auto-Group function in the Grouping Tool. If you are using a model that has already been grouped by body parts, and you want to keep those groups, do NOT perform the Auto-Group step.

Activate the Grouping Tool and click on Auto Group. Poser will automatically group each of the model's polygons the nearest bone. This is a good start, but there is almost always some cleanup involved where you need to reassign polygons to the proper groups. You'll also need to ensure that no polygons are assigned to more than one group and that there are no ungrouped polygons. Remember that the model will only bend between adjacent groups in the hierarchy. If two adjacent sections of the mesh are controlled by two non-adjacent bones, the mesh will tear when you try to bend it. The first attempt at grouping is shown below.

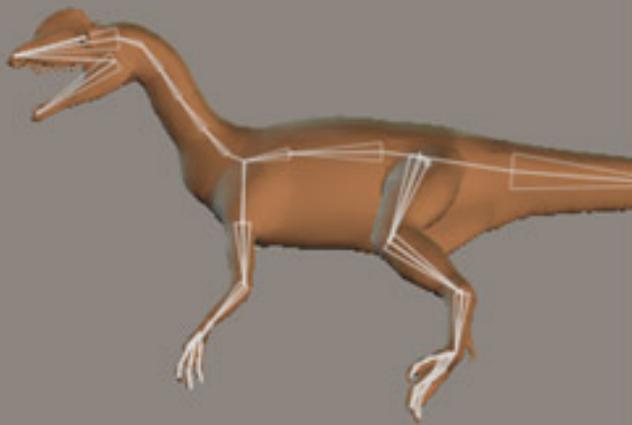
Front Camera



Top Camera



Right Camera



Main Camera



Re-Aligning Off Axis Limbs

The ideal Poser model has all of its body parts aligned directly on one the three major axes (X, Y, or Z). This is done to prevent unnatural distortion of the mesh when the figure is posed.

If your model has limbs that are not closely aligned to the X, Y, or Z axis, the first step is to try clicking the Align button in the Joint Editor and readjusting the limbs Blend Zones. If this is not enough, you'll have to realign the limb. This is done by saving the figure to the Library so you can get it's skeleton later. I saved mine as Dolph_Bones1 (short for Dilophosaurus). Go into the Pose room, select the limb you need to adjust, and rotate it into alignment. In the case of my model, the legs were spread out to prevent the mesh from glomming together in Organica. I rotated the legs on the Z axis to bring them in vertical under the body. Export the model as an object file, clear the Pose room, and re-import the object file you just created. Enter the Setup room, open the Library, and select the figure you just saved (Dolph_Bones1) to get your skeleton back. Adjust the skeleton to fit the re-positioned model and you'll be good to go.

Tweaking Your Dinosaur

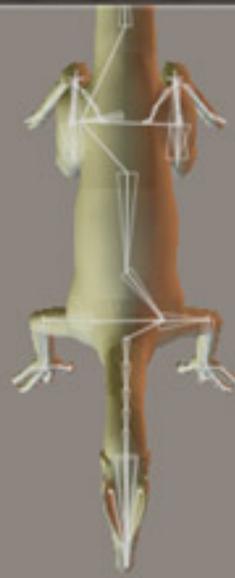
Now it's time to start testing and tweaking the model until you're satisfied with the way it moves. Do your testing in the Pose room. If the model moves in some way that looks wrong, go into the Setup room to readjust the blend zones.

In my model, I didn't like the way the original four boned raptor tail was working, so I changed the tail to a twelve bone hierarchy and used regular rotation orders instead of the curved orders. This meant creating additional groups for the tail. The re-positioned model with enhanced tail is shown below.

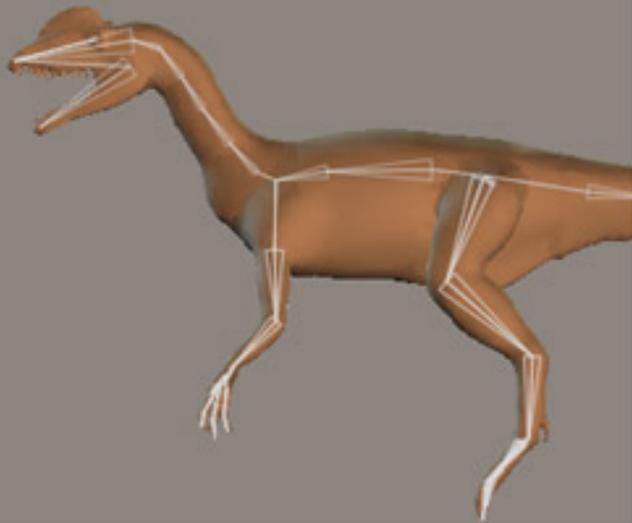
Front Camera



Top Camera



Right Camera



Main Camera



Giving your Dinosaur the Gift of Sight

If you had to delete your critter's eyes prior to Auto Grouping, now is the time to restore its sight. Add the current figure to the Library so you can use the skeleton later. I called mine Dolph_Bones2. In the Pose room, import the two eye objects you exported earlier and move them into the correct position. The eyes will be listed under Props. Select the figure and go into the Setup room. Activate the Grouping Tool and click Spawn Props once. In the Hierarchy Editor, make sure the eye props are at the same level as the other props. Delete the original figure and return to the Pose room. All of the groups should now be listed under props. Export all of the props to an object file, clear the Pose room, and re-import the object. Go into the Setup room and re-insert the skeleton (Dolph_Bones2) from the Library. Create a very small bone in the center of each eye, parented to the head.

Cleaning Up After Your Dinosaur

You'll want to do some cleanup before you finalize the model and save it to the Library. If you had to change rotation orders on any of the bones, the parameter dials for those bones are probably now labeled wrong. Double click on a dial's name to change it or to set limits on how far a bone can move. If there are dials you know you'll never need, you can remove them using the Hierarchy Editor, but I'd be very careful doing that.

When you're done, you may have trouble importing the finished object file into Bryce. For some reason, repeatedly exporting and re-importing a model can cause Poser to produce out of range coordinates in the final exported object file. This is easy to repair with UV Mapper, which can automatically fix the coordinates. Just open the file in UV Mapper, then save it out again without changing anything.

The Rest of the Picture

The picture at the start of this tutorial, "Jurassic Jogger" was rendered in Bryce. The file size was about 100 MB. There were 3 billion total rays with 9 billion total intersect attempts. The cycads were produced using Tree Professional 5 by Onyx Computing. The distant tree line was made from a terrain which originally came from Meski at the Poser Forum Online.

Acknowledgements

I'd like to express my appreciation to Tracy Ford at Prehistoric Times magazine for his input concerning the appearance of dinosaurs. I'd also like to thank the people at Poser Forum Online who took the time to help me over some rough spots in this project.

Related Links

<http://www.curiouslabs.com/>

<http://www.poserforum.net/main.shtml>

<http://www.prehistorictimes.com/>

<http://www.onyxtree.com/enterpro.html>

<http://www.uvmapper.com/>

<http://www.dinohunter.info/>

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