

Proxy Models in A:M

- Sam Buntrock

WHAT?

A Proxy Model is a simplified, low patch-count version of a model.

Below is an example of a character's Beauty Model (for final render) and it's Proxy Model counter-part.

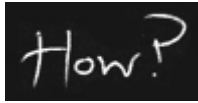


WHY?

There are two main reasons to use a Proxy - one of them practical, the other as an aid to creating more dynamic animation:

The practical reason is that the higher the patch count, the slower your realtime playback is going to be. In an ideal world, as you are working on your animation, you want to be able to play it back at the same frame rate that you are going to render it. When working with a slow model, the only way to see how it moves at the proper frame rate is to do a test render. Though test renders are an important part of the process, you want to be able to get an idea of the precise timing whilst you are actually animating. With a Proxy, because the patch count is low you should be able to get a good frame rate, even on a relatively slow machine.

The other reason is that a Proxy model is not concerned with looking nice. It's just the basic shapes and outline of the model. This means that when you are working with it, you have to concentrate on making each pose work with just the basic body language. You have to "sell" each gesture, emotion or thought without the aid of either model detail or facial animation.

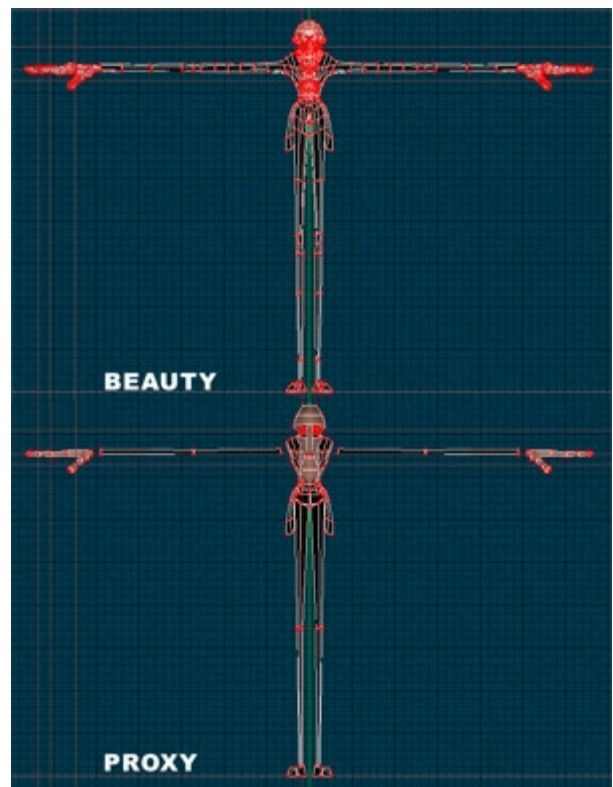


Ok...so firstly, how do I build one of these things?

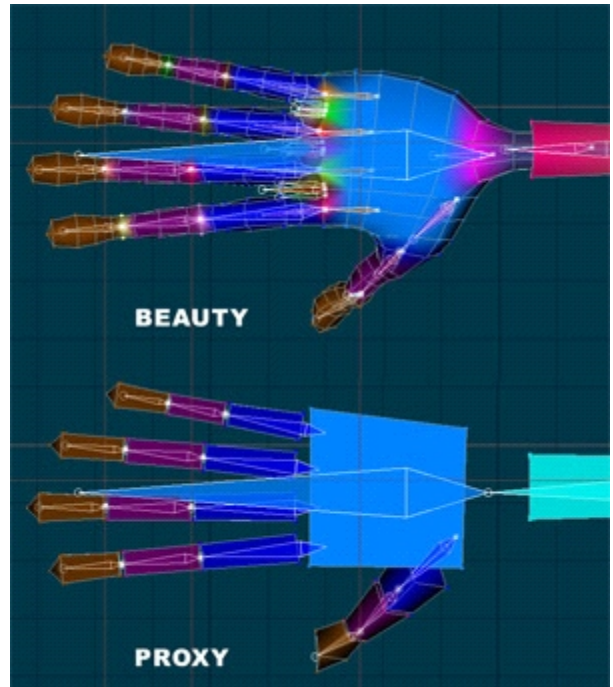
- 1 - Create a new project.
- 2 - Open the model that you want to create a Proxy for.
- 3 - Save the model as its Proxy name - eg. Man-proxy.mdl
- 4 - Strip down and replace your geometry!

It's as simple as that. Your two models will have exactly the same bones and constraint poses, so any animation you do with the Proxy will effect the Beauty in exactly the same way.

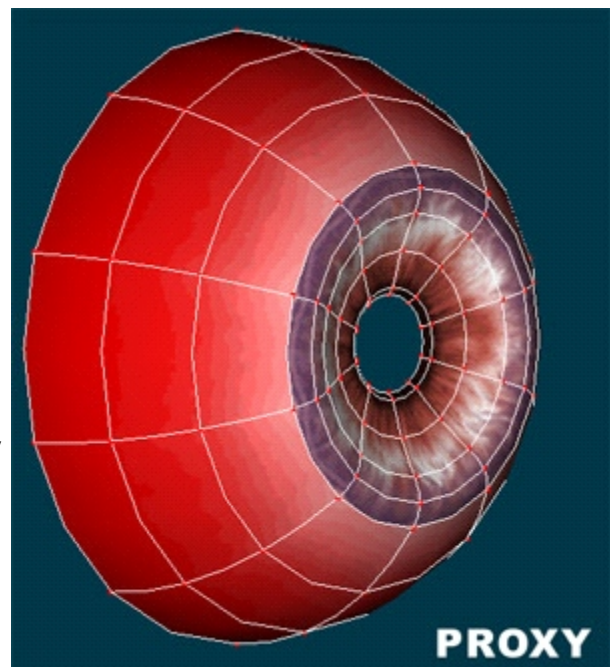
Here's the model window view of both of the above model. You can see that there are far less CPs on the Proxy than there are on the Beauty. The goal is to strip down the model enough so that you can get a decent frame rate whilst working.



Here's the right hand on both models. The palm has been replaced by a flattened cube and each finger joint is now a simple 4 CP tube. You can see on the Beauty that there are a lot of extra fan bones - these are unnecessary on the Proxy so have been stripped out. When modelling the simple replacement geometry I try to match the general feel of the shape as best I can with as little CPs as possible. There is no need to try and attach any of the geometry (like attaching a finger to the hand or each finger joint to the next). This model is not trying to win any beauty contest, the aim is to make it streamline with as few patches as possible.



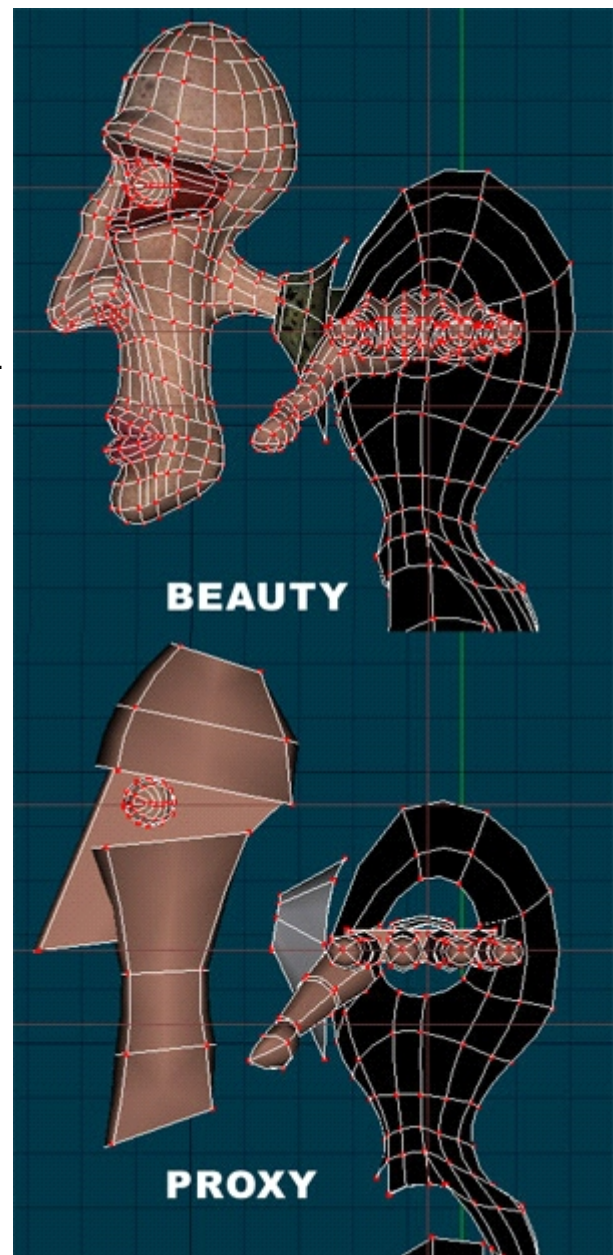
I wanted to keep as much of the eyeballs as possible. The reasoning behind this is that the smallest change in the shape of the eye affects the character so I wanted a perfect match between the Proxy and the Beauty. In order to cut down on the patches I simply removed the back half of them! This does become apparent if he's looking all the way over to either side - but again, this is no beauty contest and the relationship between the pupil and the lids remains identical which is what matters.



With the head, the geometry has been replaced with a very rough representation of it's shape. I've removed the neck entirely because, whilst animating, I found that is wasn't necessary to have it present in the Proxy - the position of the head was enough for me to know what the neck would be doing. I have kept the eyes and their "eye cases" however because I rely heavily on the eyes when I am blocking out my animation.

With most models you could replace each section of the spline with a horizontal flattened cube. This would show you how the spline was deforming as you were working. However, with this guy I found it was necessary to keep more of his upper body shape due to it's design.

The places where the legs join the hips and the arms join the shoulders, I haven't bothered with. All you need is a 4 CP tube for each bone of the limbs. You can see the shape of the shoulder by looking at the top of the upperarm. With some models it is useful to have a flattened cube represent the shoulder bone, so that you can see it's action further into the spine.



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Workflow

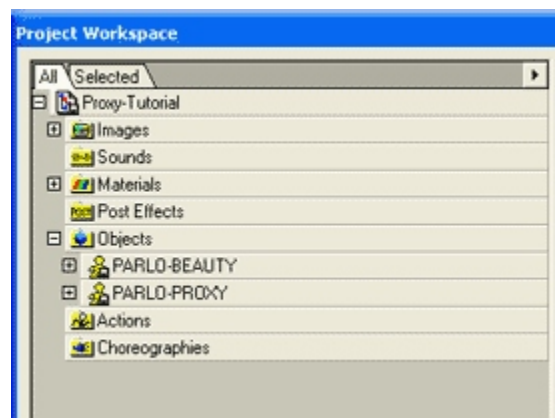
Ok... so I know what these things are, I know why I'd want to use them and how to make one... Now, how do I use a Proxy in a project?

Actions

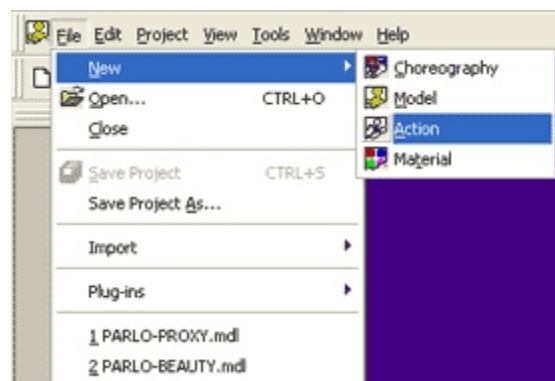
Switching between the Proxy and the Beauty model in actions is very easy.

Let's say that you want to create the action with the Proxy first, and occasionally switch to the Beauty model just to see how it'll all look with the real thing:

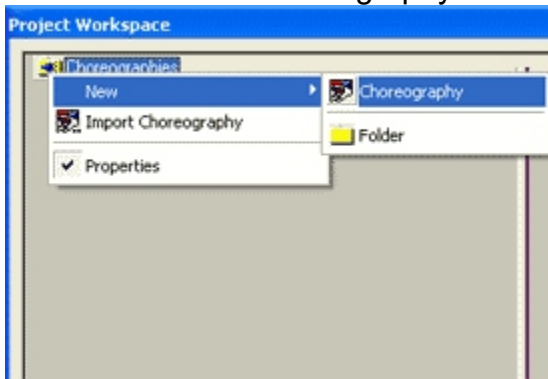
1 - We start off making sure that we have both our objects in the project.



2 - Then we create a new action....



1 - Create a new Choreography...



CONSTRAINTS

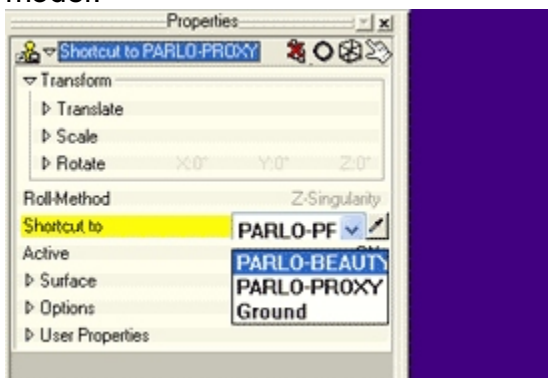
There is one issue switching between models in a choreography and it concerns constraints:

If you have another object constrained to the Proxy, the constraint will no longer work when you switch to the Beauty (or vice versa). This is because the constraint will refer specifically to one model and will not be updated when it is switched.

To stop this from happening you need to rename the in "Shortcut to Proxy" when you put it into a choreography.

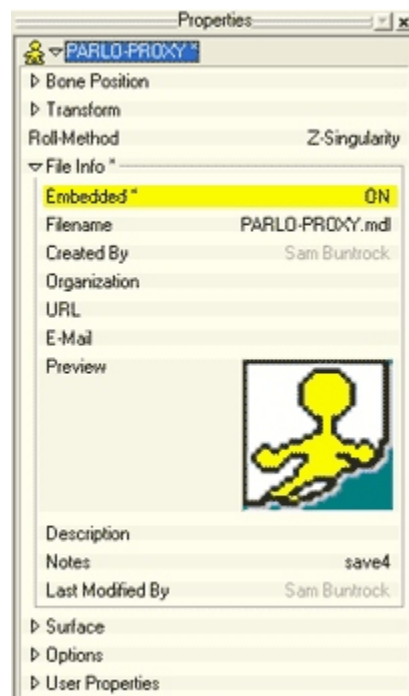
The **Rename** option is only available if the model is embedded. So if your Proxy is not embedded, what you have to do is:

3 - When you want to switch to the Beauty model (or vice versa) all you have to do is click the **Shortcut to** in the Properties panel, and change it to the other model.



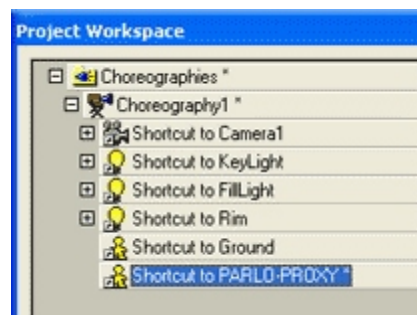
... which puts the model into it. (You could also use any of the other methods of bringing a model into a choreography)

1 - Select the Proxy model in the **Objects** container. Go to the Properties panel and switch **Embedded** to on.

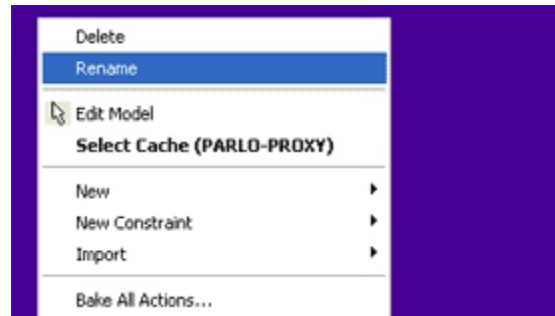


2 - Open the Choreography.

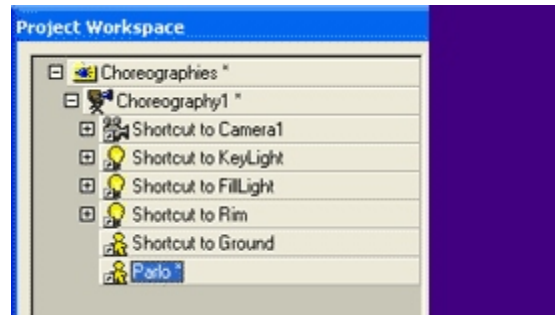
3 - In the PWS, Right click the **Shortcut to Proxy** in the Choreography...



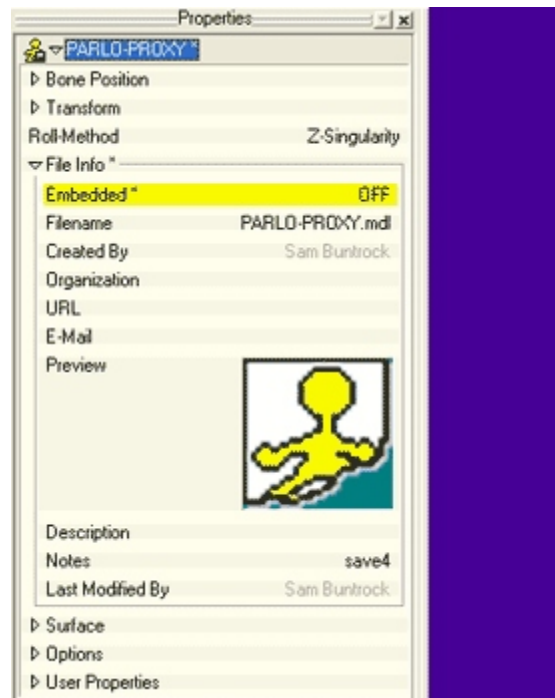
... and select Rename.



4 - Rename the shortcut - in my case just to "Parlo".



5 - Select the Proxy model in the Objects container. Go to the Properties panel and switch **Embedded** to off.



(If your model is already embedded, and that is the way you prefer to work, you only need to do steps 2 - 4.)

Now, when I constrain another object to the model - for example if I want to have the character hold a sword using **Translate to** and **Orient Like** - the constraints will refer to **Parlo** and not **Shortcut to Proxy**. This means that when I switch between the Proxy and the Beauty models, the constraints will be unaffected.