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**Techniques, Tips, and Procedures
(TTP) for using Poser Models in
Virtual Stage**

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Introduction

This document discusses the techniques, tips, and procedures (TTP) for transforming a Poser Model, full or partial, into a 3d character suitable for Virtual Stage. The TTP is based on my experience with building my own characters to suit my projects. There are lots of things that Virtual Stage does well. The voice sound and model's mouth synchronization is a great feature. The creation of the animation is very easy to use. Software is a matter of preference. Although Poser is a power multi-purpose character development tool, the learning curve in Poser is very steep. In Virtual Stage, once the 3d models are developed according to the Virtual Stage model specifications, the next big task is developing the animation motion sets other than what is already in Virtual Stage. Once the models and animation sets for your story is created, it becomes a lot of fun making your movie, film, play, or multi-media project.

Legal

All procedures and discussions throughout this document assume that the models are used within the copyright or license agreements.

What I believe (at the time of this writing) the great advantage of Virtual Stage over Machinima and movie making simulation software such as "The Movies" is the flexibility of rights to the artist. Can you really produce movies using Machinima or software such as "The Movies" for commercial use? If you really don't know then you better find out before you release that DVD to the public consumers. Art is not about money but with all the blood, sweat, and tears expended to create the work of art, wouldn't be nice to eat?

There is no reason why you can't use Virtual Stage's models to show off your work to friends or to the public. If there are commercial aspirations for your final work then you better make sure you check all legal aspects in using other organization or individual's work. For example, some of the models in Virtual Stage were developed by a third-party and the license agreement does not permit commercial use of the models or its derivatives. Derivatives are the altered versions of the third-party models. For example, if you give the third-party models a new texture, change the size of the head or any body part, you have created a derivative.

The third-party models can be found in the Actor's Agency, casually dressed folder. These were the original models from VS1.x. The generic (morphing) models are new models to demonstrate the power of facial expressions and more natural lip movements. These were developed in-house by Dakine Wave.

The safest bet from legal impacts in use of 3d models is to make your own models from scratch. An alternative is to use other works provided that you understand the license or copyright agreements. There are several 3d characters in the standard Poser 5 software, from child to adult, low resolution to high resolution. The license agreement allows you to use the output of your works with the Poser characters or its derivatives to be used commercially. There are many Poser models available in the internet that are free or can be purchased. They may or may not be used commercially and in some cases, you have to ensure you give credit to the entity that developed the original Poser model. Just make sure you check the license agreement before you download or after you download. There are instances where only detailed legal agreements come with the downloaded models.

Resources

You will need Virtual Stage, Poser, and your favorite 3d Modeling tool. You'll need a computer that is powerful enough to run these software. The computer used in the work describe in this document has an Althon 64 based processor with 1.35 GB 400 MHz DDR RAM.

For these procedures I have DakineWave's Virtual Stage 2.0 and Curious Lab's Poser 5. For 3d modeling, I used Anim8or. Unfortunately, Anim8or does not allow you to define the joint or pivot position but there are ways around that. One way is to build the model and parts in Anim8or and then edit the model to match the one of the Virtual Stage character specifications. (You can see

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the joint or pivot values under the model edit option in Actor's Agency). I am a big time Anim8or user, never satisfied with the many 3d modeling tools available.

A good starting character specification is one of the models from the "casually dressed" folder.

The basic difference between the models with facial expressions that morph and the facial expressions from texture is that the morphing models require 14 morph head models on top of the basic model. If using facial expressions you will need three texture maps to change the character's facial features like eyes closed, eyes open, and mouth open.

The specifications for 2.0 can be obtained from DakineWave's website at <http://www.dakinewave.com/virtualstage/modelspec.htm>

Outline of the 3ds Model/Poser Model transformation

Create or obtain a 3ds Model or Poser Model

Segregate the parts to conform to VS parts

For VS 2.0 models, make the 14 morph expressions for the model's body

Develop textures for the models

Outline of the Test Process

Import test the model in VS

-Ensure the joints and scaling is fine

-Ensure that there are no large gaps in the model as animation tests are performed

Create the textures for facial features (for VS 1.x or 2.0 characters)

Create the morph heads for facial expressions (for 2.0 characters)

Create the rest of the VS 2.0 character textures

Do final integration testing of the model in VS

-Ensure the textured model looks fine

-Ensure the joints and scaling is fine

-Do more thorough animation tests with complex movements such as sitting or swinging model parts around its limits

Have fun making a movie with your character

Standard Procedures For Users with 3d Modelling experience

With your favorite 3d modeling software, you can create your own body parts based on the spec model. They are the head, neck, chest/back, pelvis, rtshoulder, rtelbow, rtwrist, lfshoulder, lfelbow, rthip, rtknee, rtankle, rttoes, lfhip, lfknee, lfankle, and lf toes. I made my own shapes similar to the spec models. Repeat the process for every part until you have a complete character.

You can add the textures before or after you import your character in Virtual Stage for testing.

For import testing, you want to note the following: making sure the model part is not missing, the part is named correctly, and the scale is not too big or too large. With integration testing, you will need to put your model in the action repertoire set and try out some basic movements. You can also add the working model into a scene and try out basic movements too.

For integration testing, you want to make sure that the bending of joints looks right. If they look wrong, you can either change the location of the joint positions in the Virtual Stage acting agency or change the joint or part position with your 3d modeling software. It is always a good idea to make the body parts closed. When the characters bend, there will be a less chance you will see "holes" or gaps in the body parts.

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Standard Procedure for Users with Poser and 3d Modelling experience

If you understand how to make a regular 3d model with the .3ds format and make it work in Virtual Stage then creating a model with Poser or Poser parts will be make your work much easier.

Partial Poser Model

If you have created a 3d character and feel that your work is not adequate or that the work could take up too much time, using another model's body part may provide the solution you're looking for. Poser 5 does have characters that you can alter or morph. There are high and low resolution models in Poser but there are pros and cons. The big advantage with high quality Poser models is that the head's features are easily morphable. As of this writing, there does not appear to be an easy way to make facial expressions with a low resolution Poser model or any non-Poser model such as straight .3ds format file model. If you have much experience creating morphable Poser models then you have it made!

The disadvantage with the high quality model or model part is that more computer resources will be used. Depending on your computer specification, you could cause your Virtual Stage software or your operating system to be sluggish. A super advantage is that you can morph all the required Virtual Stage 2.0 expressions and use them for you model.

To improve VS performance, add more hardware RAM and increase VS's memory allocation. I have my settings in the max at 512 MB.

As a 3d modeller with little experience, it is difficult to model a detailed face even close to the Poser low resolution models. If there is a body part that you like in a Poser model, you can export the Poser character as a .3ds model. I have used Poser model's face and hands since these parts are complicated to create from scratch. I usually import the whole Poser model so I can decide exactly how much of the model part I need to use.

Full Poser Model

Use the same procedures used for partial Poser models.

It may be more difficult to obtain VS body parts from Poser models because there is no one to one mapping between the body parts. Poser models are many orders of magnitude more complex. For example, the rtshoulder part for a VS model may be embedded in the right upper arm, right shoulder, AND part of the chest of the Poser model.

If the Poser model has clothing it could make things more complicated since clothing pieces can be another object covering the body part. In these cases, you will only need to acquire the outer most objects. For example, if the arm has a jacket or shirt covering the arm, use the jacket or shirt covering the arm as the arm for your model.

Another difficulty is the hair. Standard Poser models are bald and you will have to grow your own hair in Poser. If you don't know how to grow hair, acquire hair from other sources, model the hair (instead of growing it), or leave your character bald.

If you have trouble obtaining VS model parts from Poser parts, one easy solution is to turn the model into one solid object such as a Wavefront or .obj model. You can do this in Poser or Anim8or.

With the Wavefront format model, you can "chop" up the model to suit the VS model specifications.

Always do the head last. You will need up to 14 heads with varying expressions. For VS2.0 morph models, it is important to ensure that the vertices of the models are identical. Do not make 14 whole models and separate the head. Just make the 14 morph heads later and then add them

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to the model.

For testing purposes, you can make the heads identical (but different object names like \$df_closee, \$sem_anger, etc.) and then add the morph heads later.

Many Many Ways to Texture a Model

You could use modeling software like Anim8or and change the color of the iris, pupils, etc. I've encountered a model where I could not ungroup the individual pieces of the eye. As a result, I could not change colors to the details such as iris and pupil. I keep getting eyeballs that were one color and after many hours, I still could not get around this problem.

But since there are 14 morph heads, you don't really want to make complex textures like some Poser 5 models which may have textures for every part like the eyelids leading to multiple texture files. At the same time, you don't want to individually paint each tiny part like iris, pupils, eyelashes, nostrils, etc. It is better to have texture maps in one texture file per model or body part.

I've had frustrating experiences where I could not texture the eyeball. If I wanted to change the iris, the whole eyeball would change color.

There is a workaround. Use Ultimate UVMapper and unwrap the face by group. If you unwrap by material, you could get many pieces of detail and you end up with too many objects to paint.

I simplified by unwrapping the head and two eyes. There were some characters where I was not concerned about lip, nostril, eyelash colors, etc.

Make sure you export the 3d model from UVMapper associated with the saved texture. For some reason, the textures don't line up with 3d models not associated with the texture save – even if the models are identical.

Model Complexity and Resolution

Poser models have a very high polygon count. It is important that you try to reduce the polygon count of the model that will be used in VS. You can reduce the polygon count with polygon reducer tools. The dilemma is that if you export the Poser model to reduce the polygons, you may not be able to morph the faces later. Unless you can make the reduce polygon model morphable in Poser again, you may be stuck with one expression for you model.

One solution is to reduce the polygon count of the model. Morph the high resolution Poser heads and export them to your low resolution body model.

Test the number of high resolution VS models that your computer hardware configuration can handle. VS's default models average 600 KB in file size. As of this writing, I've only tested two VS models that were 4MB and 5.6 MB in the same scene. If you have ideas for implementing scenes with several characters, kept the resources of your hardware in mind and try to lower the polygon counts or use whatever creative solution you can come up to lessen the impact of stressing VS and your computer: have low resolution versions of your high res characters, mix low res and high res characters, have background characters as "wall paper" in a set, etc.