

## Greenbriar Studio

### Rigged Character Import and Poser New Product Development Tools for Lightwave

#### **Lightwave Modeler Plugins**

CR2 Loader 1.7  
Export Weights  
Load Weights  
Export LW Endomorphs  
Load LW Endomorphs  
Morph Mirror  
Export Poser Morphs  
Export Poser Morphs by Body Part  
Shade Weights 1.0

#### **Lightwave Layout Plugins**

CR2 Rigger 1.7  
Export LW Poses  
Load LW Poses  
Import GMI Parents  
Write GMI  
Conformer  
Animation Loader  
LW to MAP  
LW to MDL7

For more information on Greenbriar Studio's line of 3D tools Contact:

#### **Greenbriar Studio**

4771 Cool Springs Rd  
Winston, GA 30187  
USA  
770 949 2014

[www.GreenbriarStudio.com/3D](http://www.GreenbriarStudio.com/3D)  
[DavidMathews@GreenbriarStudio.com](mailto:DavidMathews@GreenbriarStudio.com)

# Greenbriar Studio Lightwave Tools

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Mandi by Dark Whisper



Alexis by Angielyn

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## Release Notes - 1.7

The major addition for this release is the addition of Poser 6 abilities. This version adds the following to make it compatible with Poser 6:

- Auto texture locate for Poser 6 and Poser 5
- Compressed obj file reader
- New Poser 6 format cr2 reader
- Poser 6 binary morph file read ability

Other Changes:

Create Char has been changed - when selected, it will merge all morphs that are non-zero (and not exactly 2.0) at their current setting. It will skip and not load morphs set to 0. And it will load all morphs set to 2.0, but make them zero. This lets you drop all the morphs you don't need when loading a figure.

## Important Notes for Poser 6:

The body morph special files for the new P6 characters are script files, not figure files. You need to open these in Poser, which will pull together the model and the new morphs and then save to a library to create a full cr2 file in P6 format. This can then be loaded into ToolBox.

The only models that will currently not load correctly are the robots. They can be fixed by hand by uncompressing the obj file and changing the g group lines. These lines should have the bone name as the only or last name. It is in most cases, but in some the valid bone name is in various places. Moved to the end it will load correctly. Otherwise, the arms are not attached to the skeleton.

NOTE - The new hires modele (like Jessie) and VERY large, 115K faces compared to 75K for Vic3, so expect them to be much slower than normal.

# Greenbriar Studio Lightwave Tools

## Tool Overview and Summary

The Greenbriar Studio tool set has been designed to accomplish two goals: to enable Lightwave users access to the most sophisticated character animation figures available to the general market and to facilitate the construction of new Poser products by commercial developers.

Figures designed for the Poser market come in up to 75K polygon meshes, with up to 2,500 preinstalled body and animation morphs, with complete skeletons and with multi surface discontinuous uv texture mapping. In other words, everything that is needed for high end character animation work. However, accessing these features has been very difficult. Tools available to date have been only able to load single .obj file mesh shells, leaving out morphs and skeletons and requiring re-texturing. All these features are now available through our tool set.

Lightwave has been commonly used to develop products for the Poser market, since it can handle all of the features that Poser uses in its meshes and no changes to the mesh are required to work on these meshes in Lightwave. Lightwave has no problem with the quad polygons and lots of odd sided polygons that are in these figures. But getting work back and forth is a little clumsy due to the separate body part nature of these models and their morphs. So our tools allow you to work on complete figures, or individual parts, to create morphs and then can save these out in the variuos formats needed for test and distribution, included the 'squeezed' format that even ProPack can read. No more trying to be extra careful with the text editor.

**Here is a summary of our tools and their use.**

### CR2 Loader

This Modeler plugin creates a welded single mesh with no normal problems. Keeps all Poser named parts and surfaces. Imports ALL morphs. Can join multi part morphs into body level morphs. Imports all material colors, texture, trans and bump maps and settings, applying them correctly for Lightwave. When CR2 loader finds a texture map in use, settings are made for Image Map, Blending Mode, Invert Layer, Projection, setting the created UV Map, the loaded image, tiling, pixel blending and texture antialiasing. Smoothing is also turned on. Imports the Poser skeleton and joint positions. Loads multiple figures from a file and will also load props, each as a seperate object. Loads external props, props with morphs and inline geometry props. Loads PZ3, PZZ, CR2, CRZ, HR2, HRZ, PP2, PPZ files. Creates a basic Lightwave scene file assembling the objects found in the CR2 file, complete with bones for all figures. Automatically saves the set of .lwo objects along with the new .lws scene file. Creates a plain or shaded set of weight maps as a start on weight map creation.

### CR2 Rigger

The Layout companion to CR2 Loader completes the work of moving figures to Lightwave. This plugin correctly parents all bones, which can not otherwise be done automatically since the Poser skeleton does not connect in many places. It also scales, moves, rotates and parents props and secondary figures that were in the CR2 file. It also creates the .cr2 defined IK chains.

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## **Export Weights**

### **Load Weights**

This pair of plugins is designed to let you work with saved weight maps sets. Initial weight map sets created by CR2 Loader always need joint rework, but since many characters share the same base mesh, these reworked weight maps sets can be re-used. These utilities allow you to save out, independent of the model, your adjusted weight maps and reload them onto other characters sharing the same base mesh.

## **Export LW Endomorphs**

### **Load LW Endomorphs**

This pair of plugins is designed to allow you to transfer morphs from one figure to another with the same base mesh. It can be used with any Lightwave model that uses endomorphs, but was created specifically to allow you to easily combine morphs from different Poser figures into your characters.

## **Export LW Poses**

### **Load LW Poses**

These utilities give you an easy save and restore poses for your figures after they are converted to Lightwave. They are saved in bone name format, so they can be applied back to any figure with the same part naming structure and not just the original model. They are also time based. In other words, they are aware of the current animation time. So you can scrub to a particular frame, keyframed or not, and the export pose will get the bone settings at that point in time and save it.

## **Morph Mirror**

Morph Mirror is a tool for working on Poser meshes that have been loaded into Lightwave as a complete UNWELDED figure. It allows you to create a morph on one body part and then auto create it reversed on the matching body part.

## **Export Poser Morphs**

This tool writes out a file for each morph of the currently loaded object. For Poser development, this tool is used when you are working on one body part at a time, like the head, and wish to export all the morphs belonging to it in a complete or squeezed format.

## **Export Poser Morphs by Body Part**

This tool is for use when you are creating body level morphs. You can create an endomorph on the entire figure and this utility will export it and break each body part out into separate files that can be loaded as morph targets back into Poser so you can re-create your body level morph there.

# Greenbriar Studio Lightwave Tools

## Install and Use - Step by Step

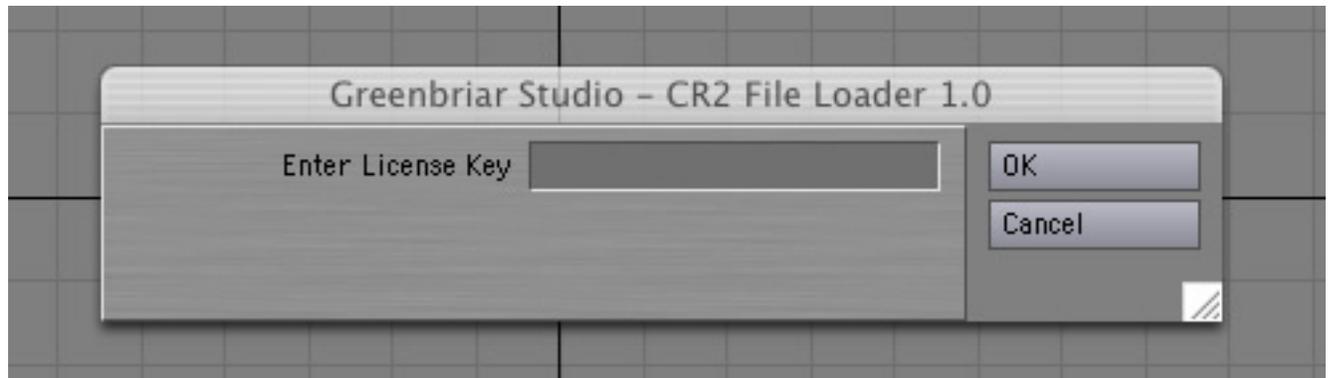
### Installation of plugins

You can place our plugins in any directory. You must use the Add Plugin command under the Modeler or Layout menu to add our plugins to your system.

CR2 Rigger, Export Pose and Load Pose are Layout plugins. After they are loaded into Layout you will find them under Scene/Utilities/Generics.

All other plugins are Modeler plugins. After they are loaded into Modeler you will find them under Construct/Additional.

The first time you run CR2 Loader or CR2 Rigger it will ask you for your License Key.



Type in, or cut and paste, the License key string you received with the plugins. Upper and lower case letters are important. Hit OK and a License file will be created in your default directory.

If you exit without entering a key, a blank file will have been created and then next time you run the plugin it will say invalid License key. Just search for GS\_CR2\* (PC users note - not \*.\*). Remove this file and then run the plugin again. If it doesn't see a License file it will ask you to enter the Key.

CR2 Rigger and CR2 Loader share the same key and License file. You only have to enter it once.

If you change the runtime default directory, you can copy the License file to the new directory rather than re-enter the key. So if you use multiple content directories that you switch between, just copy the License file to your new project.

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## First Run with CR2 Loader

After installing the plugins and entering the key into CR2 Loader, try a test CR2 load. Hit the File to Load button and select a single figure CR2 file. These will be found under runtime/libraries/character/ and then an assortment of directories from different sources. The file must end in .cr2.

Next find the Poser application and finally select the directory where you want the converted Lightwave objects to be created. With these three fields filled out hit OK. How long it takes depends on the model, the version 1 and 2 Mill figures take about 30-45 seconds, Victoria three can take more than 5 minutes.

After the program has loaded the base geometry and morphs, you will see a pop up window asking you to find the first texture map, if the model you chose uses any (Not for new Poser 5 files - they contain full texture map paths, so these load fully automatically, unless the texture map is missing). Hit the button to browse and find the texture map requested. Then hit OK. If all the maps are together in one place, you will not be asked to locate another. Most texture maps are located in runtime/textures. You are asked to locate the first map since the pre-Poser 5 CR2 does not contain full texture file paths and also so you can optionally copy these over to your Lightwave work directory before loading and then your Lightwave objects can be set to reference these local copies of the maps.

You should now have a figure, and if you check the maps in the lower right in Modeler, you should have a set of weight maps for each body part, a uv texture map and a set of morph maps. You can open the Surface editor and see the different surfaces that were created and textured.

## First run with CR2 Rigger

If you did the above, you now have a .lwo and a.lws file in your Lightwave working directory you selected in CR2 Loader. Run Layout and load the .lws scene. DO NOT MOVE ANYTHING YET! Before moving or rotating the figure, run CR2 Rigger. Select the same .cr2 file you use with CR2 Loader, turn off all options, and then hit OK. Depending on your Lightwave messaging level, you may see a Bones Created message - hit OK. When all bones are parented you will see CR2 Rigger complete. Hit OK and try out your model. The bones should all be moveable and move the mesh with them. HINT- Turn on local coordinates to manipulate the bones easier.

## Poser Standard Character Warning

Some of the standard characters that come with Poser have no outside geometry file reference to an object file. Instead they have something like:

```
figureResFile GetStringRes(1052,42)
```

figureResFile is normally followed by the obj file path such as:

```
figureResFile :Runtime:Geometries:Poser 4 Lo:Blendlobusman.obj
```

Curious Labs has declined to make this information available, so we can not load these files at this

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Glamorous Vickie, by Jim Burton, based on Victoria 3, loaded into Lightwave. The clothes were loaded as separate props and retextured in Modeler with some of Jim's textures, since they use only reflection maps in Poser. Only the hair had to be realigned in Layout. Vickie 3 supports up to 2,500 morphs.

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## Reference

### CR2 Loader

CR2 Loader imports characters from Poser CR2 format files. It imports the base mesh, all morphs, all materials and the skeleton. It can load multiple figures and props from a CR2 file, creating each as a separate object in Lightwave.

There are several required fields and options:



Required -

**File to load** – The file you wish to import. Hit the ‘File to Load’ button to browse to locate the input PZ3, PZZ, CR2, CRZ, HR2, HRZ, PP2 or PPZ file (Scene, Character, Hair or Prop).

**Find Poser App** – This locates the directory that is the base for the references in the Poser files. Hit ‘Find Poser App’ and browse to locate the Poser application. This path is remembered, so if you are loading several figures you will only have to find this once in a session.

**Output Dir** – Where you want the auto saved .lwo and .lws files to be written. This directory is also used for inline geometry prop temp files.

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These are the only required fields, for your first runs just select a CR2 file and you can leave the other settings at default.

## Optional Settings

**Skip Props** – ignore props in the CR2 file (Button ignored in PP2/HR2 mode). This is used to disable prop loading for files where the props will not correctly load from the CR2. This allows you to load the figure from the CR2 and then load the props from their PP2 files.

**Skip Morphs** – do not load any morphs from the file.

**Skip Textures** – do not load any textures from the file. This is mostly included since there have been problems with Lightwave not being able to load jpg files on some systems. This problem has occurred on both Macs and PCs.

**Skip Output** - Suppress the automatic save of all the objects from a CR2 or PZ3 and the creation of a matching .lws file. The objects will be created as unnamed in Modeler and you can do whatever you need to before saving them out. No .lws scene file is created.

**Connect and Parent Bones** - Creates a joined and parented skeleton for Lightwave from the Poser skeleton information. Creates a fully parented skeleton right in Modeler. An alternative to manually parenting the bones in Layout. If you use CR2 Rigger, this option is not needed as Rigger will correctly parent the bones for you.

**Triangulate Mesh** - To prevent non-planar faces during animation, you can now optionally convert all polygons to triangles during load.

**Create Weight Maps** - Creates two types of default weight maps for each bone. The plain map consists of all points in the corresponding body part set to 1.0 all others 0. All weight maps are named to match the bones, so they will be automatically applied when you convert the skelegons to bones in Layout. The shaded set uses the Poser joint parameters to create a weight map set that blends across joint areas. Since the point sets are the same for all characters based on the same mesh, these sets can be tweaked, saved and then re-used for different characters. See the Weight Map save and load plugins to make this easy. This function provides a starter weight map set that can be finished in Vertex Paint. You do not have to select Connect and Parent Bones to use this feature. If Connect and Parent Bones IS in use, the weight map option does NOT create weight maps for the new connecting bones so that they will not affect the mesh. They are just place holders to keep the Poser joints in position and allow them to be parented in Modeler.

**Create Char from Morphs** - This is a function that allows you to ‘spin the dials’ in Poser and create a new character and when you import it into Lightwave, all the creation morphs will be applied to the base mesh instead of being loaded as morphs. This helps reduce the number of morphs to a Lightwave manageable level. It functions by applying, at the dial setting, any non-zero morphs and loading all morphs set to zero to use for animation. You can also flag morphs that are just to be dropped and not imported. A more efficient way to create characters in Poser for Lightwave! (To flag to be dropped, set

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the morph to -.001 and save as a new figure.)

Now also uses Body level Poser dial settings as well as part level settings when merging character morphs.

Convert to Lightwave Scale - Scales Poser figures up to standard Lightwave Scale. Mike will be six feet. Handy if you are using the figures with other Lightwave props. All morphs, bones, props, etc are all scaled up proportionally. NOTE - Convert to Lightwave scale is not currently compatible with the Create Poser Scene option. The Poser cameras will be pointing at the original small Poser sized figure.

## **New Poser Morph Creation Options**

The CR2 Loader was primarily designed for importing Poser figures into Lightwave. But we have also added features for use in creating custom Poser morphs. The new option to not weld the parts together - preserves the Poser required extra points and point order. The flip Z axis brings the model in so that it agrees with Poser right and left and is easier to export back to Poser. This does create some poly normal issues, but they are not important if your goal is to create morph targets. With these two features turned on, you can work on the model as a whole, creating part or whole body morphs on a single endomorph map. We also have a plugin that will output a single endomorph map into separate .obj files with correct point alignments to import the pieces back into Poser. (See our write morph by part plugin.)

Do Not Weld Parts – leaves all the duplicate points between parts that are used by Poser. Must be selected if you are going to make Poser morph targets to maintain point count and order.

Flip Z Axis – invert the z value to orient the model in Lightwave that same as in Poser. Must be selected if you are going to make Poser morph targets or your targets will appear backwards in Poser.

Poser Default Scene – If checked, the save .lws process will create the 3 light, multi camera scene similar to Poser instead of the single light, single camera Lightwave style default scene. Includes Poser locked on target hand and face cameras. NOTE - Convert to Lightwave scale is not currently compatible with the Create Poser Scene option. The Poser cameras will be pointing at the original small Poser sized figure.

## **Encountering Loading Problems with CR2 Load**

There are many quality levels of files out there made by many large and small shops. Some are much better than others. They have been created many different ways. If you find files that you can't load, both let us know about it and try loading only the figure if it is a figure with props. Then load the props from the individual prop files. There are many models that we have not yet been able to test. Let us know about problems.

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## CR2 Rigger

The companion Layout plugin continues the rigging on the scene created by the modeler CR2 Loader plugin. This plugin correctly parents all bones, which can not otherwise be done automatically since the Poser skeleton does not connect in many places.

It also scales, moves, rotates and parents props and secondary figures that were in the CR2 file.



CR2 Source - Hit this button to select the CR2 file that was used to create this scene in Modeler.

Z Axis Flipped - The Flip Z button is so Rigger will know whether this model was Loaded with Z axis inverted. Must be selected if you loaded the model into Modeler using Flip Z Axis.

Convert to LW Scale - This must be selected if it was selected in the CR2 Loader. NOTE - Convert to Lightwave scale is not currently compatible with the Create Poser Scene option. The Poser cameras will be pointing at the original small Poser sized figure.

### Optionally

Set Props - Rotate, Scale and Move props. How well this works depends on how the components in the file were set up.

Set Part Scaling - Apply body part level (bone level) scaling. Use at your own risk! Scaling by body part is not quite the same in Lightwave and Poser. This will get you close, but expect some hand adjustment of clothes, etc.

Create IK Chains - Auto create all IK chains in all objects in the CR2 file. Creates nulls at each goal bone as the IK goal and manipulation point.

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## **Rigger – Variations with Props and Poses**

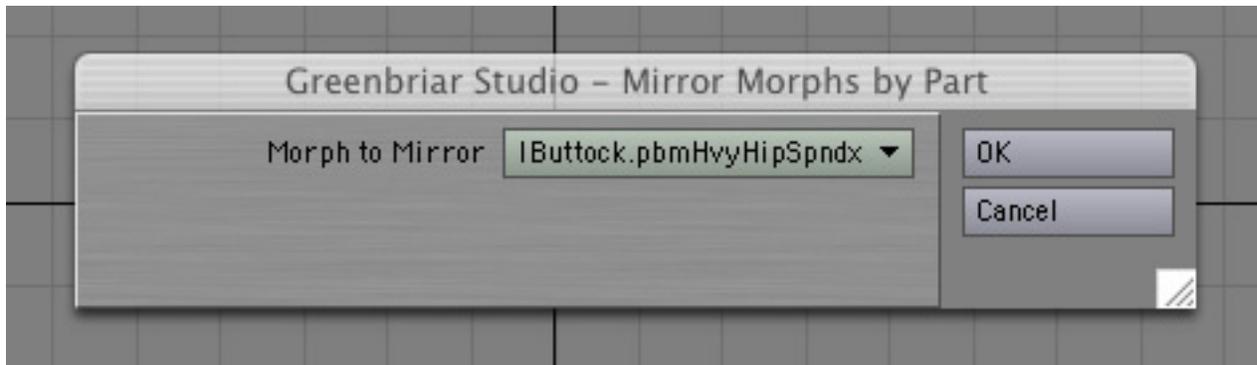
Depending on how props are created, when Rigger tries to scale and place them, there will be varying degrees of difference from the Poser placement. Many props have to be hand adjusted before the character is finished. While Loader gets the correct and exact geometry, Rigger can not always be very exact due to the different way that Lightwave and Poser scales and handle figure joints. Rigger tries to get as much of the hard work done as possible, and we keep working to get it closer, but it will never be perfect. You will find some items that load perfectly and some that load way off. It depends on how they were constructed and posed onto the figure. Poses are the same situation. As our ability to apply poses from Poser improves we may offer tools to load poses from any Poser pose file type.



Ziza by Thorne - After CR2 Rigger I scaled out the top a bit and scaled in the hair so you could see her ears.

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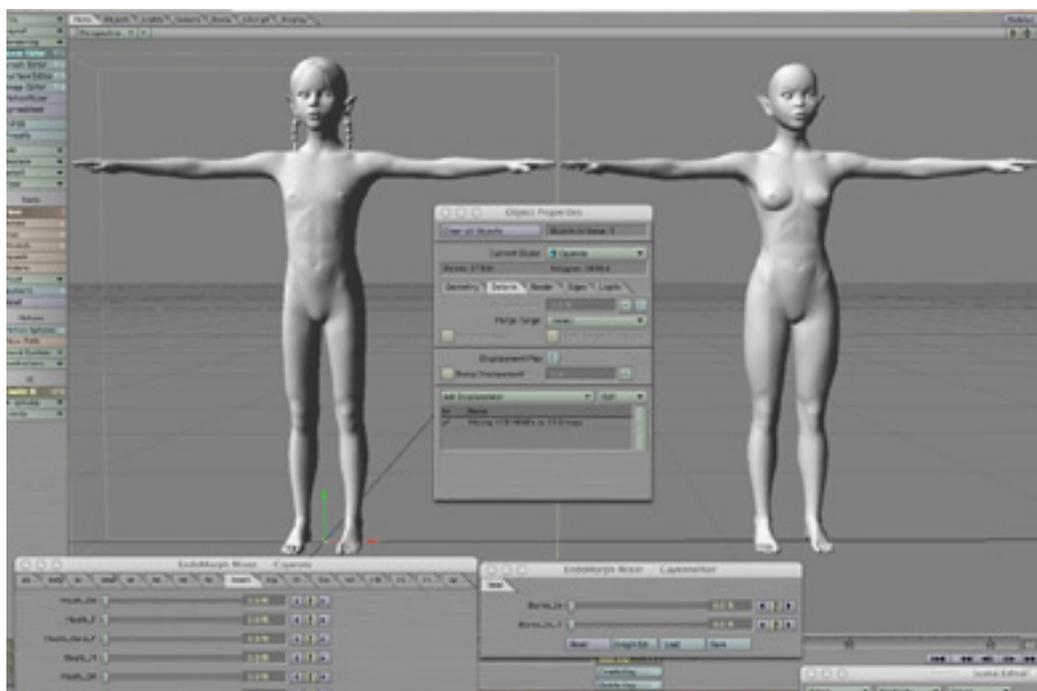
## Mirror Morphs



Mirror morphs is designed to use on Poser figures, whole or parts, loaded into LW as a single object. It is to create right / left matching part level endomorphs. Create an endomorph for a single body part, choose that morph from the pulldown, and a new mirror image endomorph is created on the matching body part.

To function, part names must be present in the model. Endomorphs must be named <part name>.<any morphname>. The plugin will only allow you to select from morphs that start with a left or right designator (l, r, Left Right, L ,R LEFT, RIGHT, left, right). Morphs for lThigh and rightEye will show up, ones for neck or head will not. The part name is used to select the other part, the morphname remains the same. lThigh.mine becomes rThigh.mine. The point counts must be the same, or it will report the error and abort.

NOTE - This works with the original unwelded mesh (welding changes point order). If your goal is to make morph targets that can be imported back into Poser, select the Do Not Weld Parts option when using the CR2 Load plugin. It works fairly well with the welded mesh, but count on some tweaking.



Two faries, Cayenne and Alexis, showing the banks of morphs loaded into Morphmixer.

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## Shade Weights



This utility is designed to make working on weight maps easier. It provides two major functions: auto setting of weight map values over a selected range of points and direct modification of individual point values.

You can select any set of points on your figure, run the utility, select the weight map you wish to apply to, select the direction - X, Y, Z + or - or radial, change the value range, if desired, and the utility will set the values of all selected points shaded between your low and high values to give you an even change of value across the selected section of weight map. For radial, you first select a single point, set it as the current point (or enter the desired center yourself) before executing the shade. Set Point from Selection uses the first point, if more than one, from the selection set. Selecting a single point is recommended. Shade Radial is a separate button only because if you add a seventh button to a set of pushbuttons, the text labels go away and all you see is ... on each button. Once a point has been selected, you can also read its current value from any map or set its value on any map, to allow tweaking of point values.

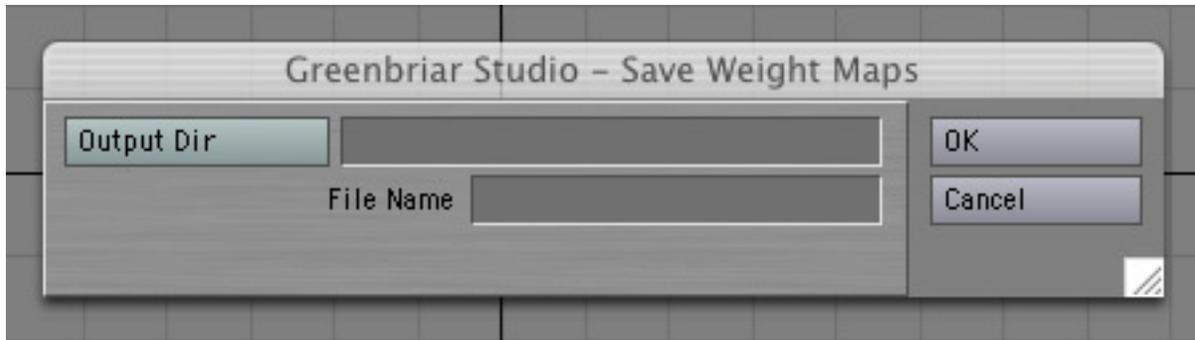
All parameters are remembered between executions of the tool.

Due to the nature of the Lightwave interface and the editing that we are trying to do, it cannot function as a floating modal panel, so we recommend setting a keyboard short cut for the plugin, as you switch back and forth between Lightwave select mode and tool execution mode.

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## Export Weights

## Load Weights



Our CR2 Load plugin optionally creates default weight maps for each Poser bone by creating a weight map with all the points at 1.0 for the body part the bone supports or a joint shaded set based on the Poser joint information. But these maps need corrections at the joints, and right now, this must be done by hand. So these utilities are to allow you to tweak generated weight maps (or ones you create by hand) and then save them.

Why go to the trouble? To use with Poser meshes. Poser characters are based on very few different meshes. So weight map sets can be reused to a great extent. If you tweak a map set for the PTMill figure from DAZ and save it, you can reload it correctly on any character mesh based on this figure, since all Poser characters are only point displacements, not geometry alterations. Our CR2 Load plugin, since it uses the same standard names (required by Poser) to apply to the parts, bones and weight maps, it will always correctly match up all parts. And since matching names are used for the bones and weight maps, they are automatically applied when you convert the skelegons into bones in Layout.

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## Export Morphs



NOTE – For Poser, this plugin is design to use with one body part at a time. It writes out the ENTIRE model for each endomorph. I tested it on a figure and got 168 complete figures in a directory, one of each morph.

Write morphs is designed to aid in using Lightwave for custom morph creation for Poser characters. You bring the Poser character part into Lightwave that you want to make morphs for. And then you create all the morphs you need, each as a separate endomorph. Not only can you make several morphs at a time this way, but you can save the object, load it into Layout and with Morph Mixer, check your morphs for any interaction problems before taking them back to Poser.

Just pick a destination directory and run! A new file named <endomorph map name>.obj is created for each endomorph.

Our write morphs utility now supports multiple output flavors, as requested! It will write the set of endomorphs out as ‘squeezed’ Poser morph files, as point and face format, which can be read back into Lightwave and as a full .obj file with points, continuous and discontinuous UVs and faces, the normal new object format.

This plugin is designed to be used with single Poser parts loaded into LW, or any model that uses multiple endomorph maps. For working with complete Poser figures - see our Write Morphs by Part plugin.

This utility allows you to choose to create a Poser compressed vertex morph file for each endomorph. WARNING! These files are the recommended method for distributing Poser morphs, but you can not read them back into Lightwave as they are not complete geometry, just the point offsets required by Poser to load a body part morph. So always save your working object as a .lwo or as a set of point and face or complete files.

Had problems reading squeezed morph target files into ProPack? These files are readable by both Poser 4 and ProPack. To fix your other morphs - ProPack requires at least one face line at the end of the file. Poser 4 will accept the end of the file as the end of the vertex list, Pro Pack will not!

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## Export Morphs by Part



Write morphs by part is designed to aid in using Lightwave for custom morph creation for Poser characters. You bring the Poser character, in whole or in part into Lightwave that you want to make morphs for. And then you create the morphs you need. This utility allows you to work on a complete figure as a single endomorph map and then it will break out the morph to separate Poser readable files by part to recreate your design in Poser. No more trying to match up part edges on different morphs! Do them both at the same time with a body level morph and we will split it out for you.

Just pick a destination directory and run! A new file named <partname>.<endomorph map name>.obj is created for each part of the endomorph. This plugin is specifically designed to work with an entire Poser figure loaded into LW. Poser part names must be present in the model.

NOTE – This plugin generates a file for each body part that an endomorph ALTERS from the base figure. If it only changes points for one body part, there is only one output file. If your morph impacted more than one part, you will see multiple output files. Of course a true body morph will generate an output file for each part of the figure.

For this to generate correct morph targets for Poser your figure MUST NOT have the parts welded together (this changes the point order) and for non-symmetrical morphs to work correctly in Poser, the model must have the Z axis flipped so that left and right read correctly in LW. Our CR2 Loader plugin and the export as morph target function from Poser both do this.

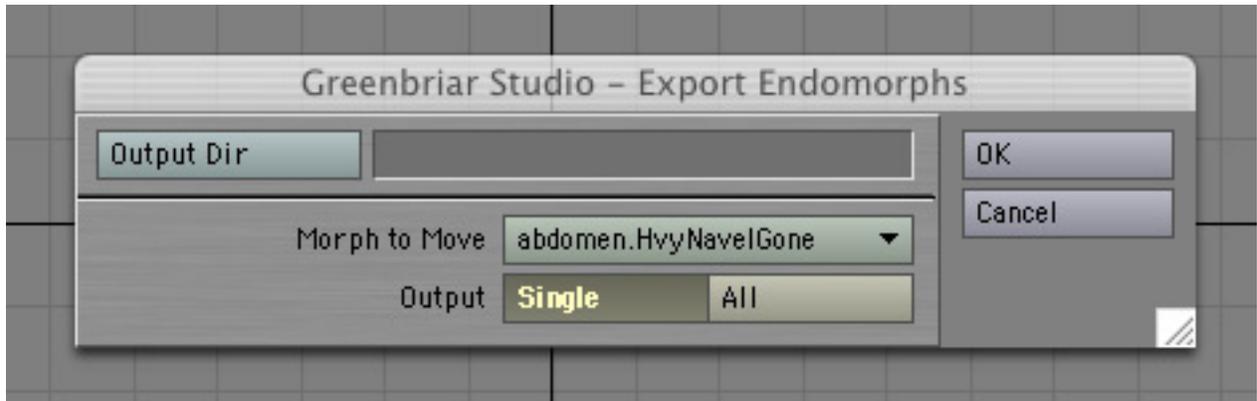
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## Export / Load Endomorphs



This pair of plugins can be used to save and restore endomorphs on any Lightwave object. But it was specifically designed to make the transfer of morphs between Poser figures fast and simple. You can save from one character and then load onto another. For this to work properly, both figures must have the same base mesh.

These plugins work on both figures that have been welded into single mesh Lightwave characters and on the separate body part Poser figures used to create Poser morph targets. NOTE - Both figures must be the same type. Single mesh objects do not have the same point count and order as the unaltered Poser figures. It will run, but the result will probably be pretty strange!

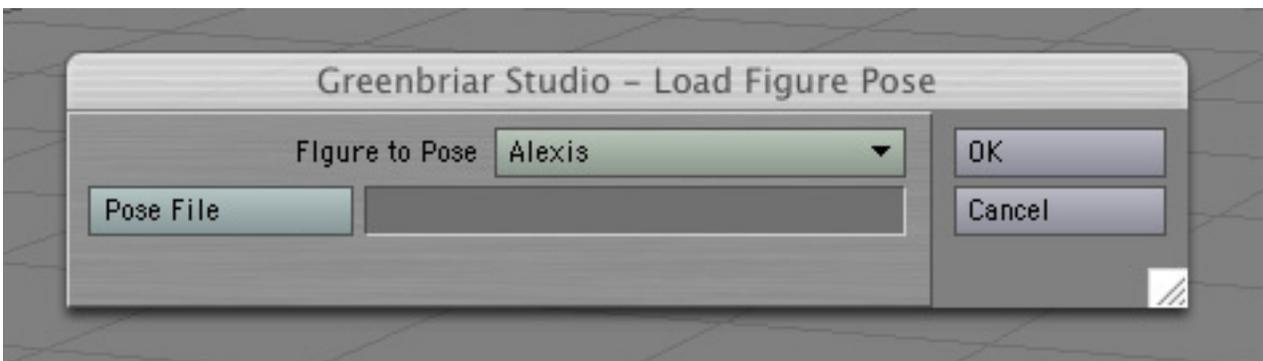
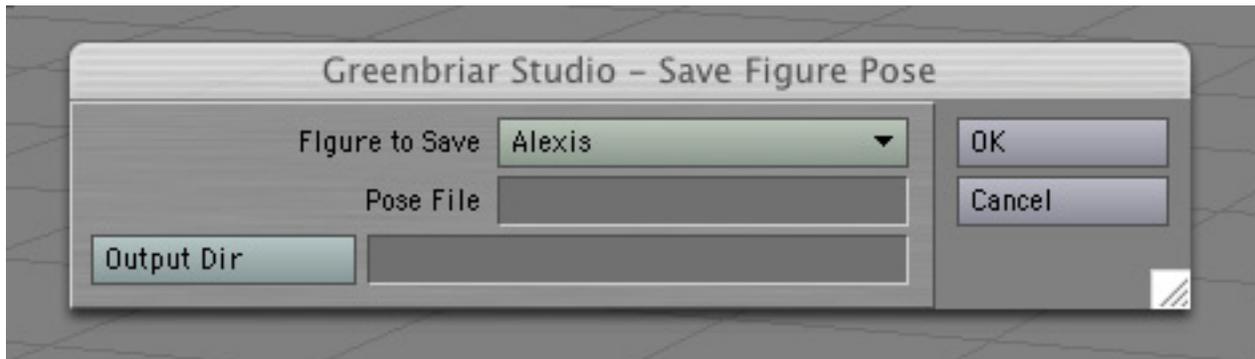


Victoria 3 Face as automatically textured by CR2 Loader.

# Greenbriar Studio Lightwave Tools

## Export Figure Poses

## Load Figure Poses



This pair of plugins can be used to save and restore poses - movement, scale and rotation of all bones - from any boned Lightwave object in Layout. Poses can be read back to any figure that shares all (or some - unknown bones are ignored) of the same bone names. If you use a standard named skeleton, they can be used to and from any figure. These work well with imported Poser figures as they use standard naming.

The export plugin is time sensitive. It checks for current time and grabs all settings at that point. So you can move the time slider to any point, on or between keyframes, and grab any pose you wish to save.

Loading a pose simply applies the offsets to all bones that it can match by name from the pose file. Mismatches are ignored so you can use a pose to get a start and set the odd or new bones by hand, rather than erroring on any mismatch and stopping.

# Greenbriar Studio Lightwave Tools

## What the CR2 Loader Plugin set does NOT do

In order to avoid any confusion or misunderstanding, we list in this section the capabilities that we would like to add to our tool set, but are not yet available. Check our website for updates on new available features.

The current version of our plug ins do NOT create a completed weight map set. We currently create two versions, a plain set - all points of the body part assigned 100% to the matching bone and a shaded set - using the Poser joint parameters to create a weight map set that blends across joint areas. The releases of the 1.2 versions will be attempting to improve this weight map set, to help minimize the work required to get a fully functioning weight map set for animation. At the moment, joints still have to be edited in Vertex Paint or with our Shade Weights tool. But since these maps are highly reusable, we are hoping to offer a selection of adjusted maps for the major DAZ meshes. Since the CR2 Loader plugin does create a weight map set, the characters are animatable as is, but the joints need to be much smoother.

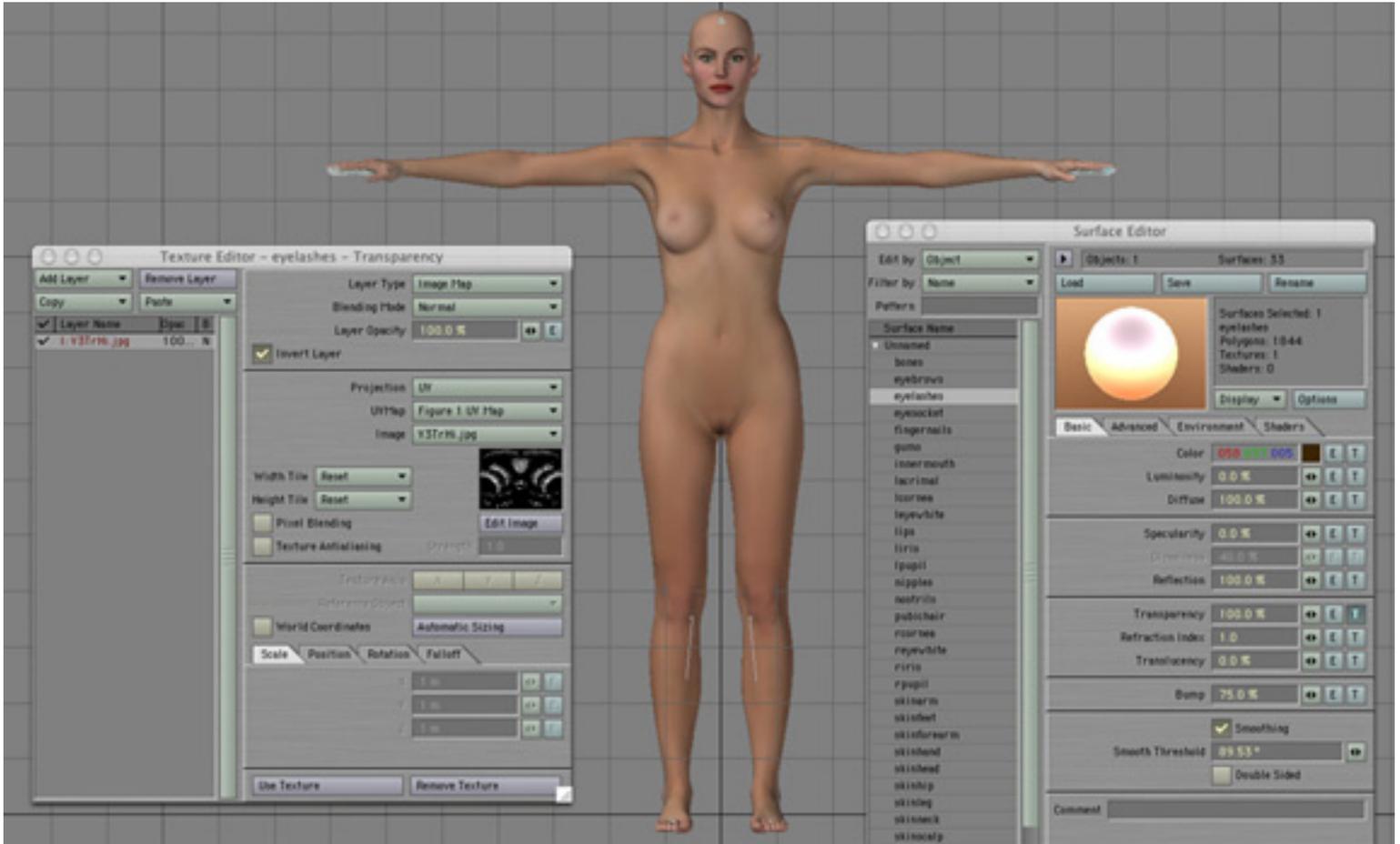
The CR2 Loader and CR2 Rigger do NOT currently apply Poser pose type files. We import rigged characters, but not pose and pose animation data. We now have a product, Animation Loader, that can import all Poser pose and animation files, Mimic files and .bvh files.

We do NOT yet read Poser 5 cloth and hair. We can read anything else from Poser 5 including all compressed files.

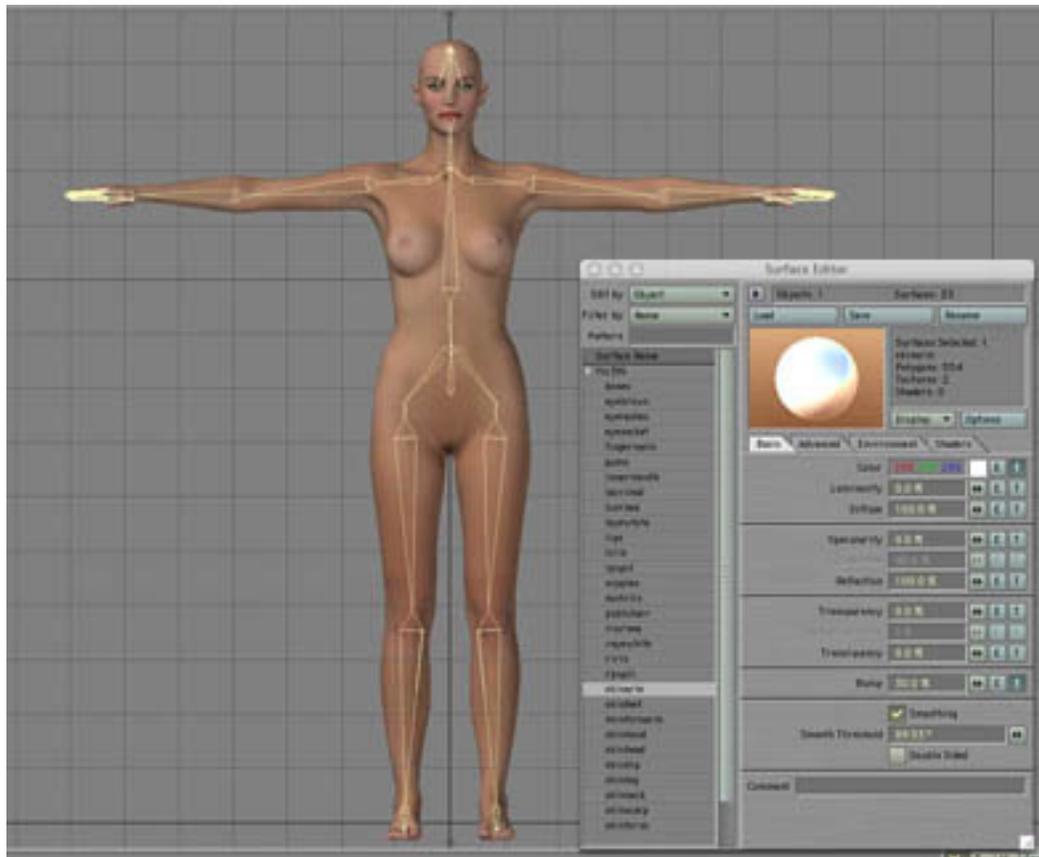


Cayenne by Thorne

# Greenbriar Studio Lightwave Tools



Victoria 3 by DAZ showing the auto set eyelash transparency settings.



Victoria 3 with the Auto-connected skeleton.

# Greenbriar Studio Lightwave Tools

## Load Object File as Morph



This utility is an add-on for our CR2 loader which allows you to import, as a morph, obj files exported from Poser.

To use - create a scene in Poser and save as a pz3 (or cr2) file. Then export each figure and prop in the scene as an obj file, with NO check boxes selected. This tells Poser to export final point positions, which includes the effect of all Poser deformers - morphs, posing, scaling, moving, JCM, etc. Then load the pz3 file with CR2 Loader. The objects are created in LW and a basic scene is created. But before opening the scene in Layout, load each object in modeler and use this utility to create a new morph (or morphs) from your exported obj files and resave the lwos. Now open the scene in LW, activate MorphMixer for each object and turn on the new morph. All components move back to their posed Poser positions. So now you have the scene, with all morphs and materials and in the exact pose you started with in Poser, ready to render. Works on Figures, hair and props. Converts any combination of morphs, posing, scaling and movement to a single LW morph. Of course, you can always go back, reopen a .lwo, add new morphs via obj files and when you reopen any scene that uses that .lwo, the new morphs will be there, just not turned on.

Options:

LW Scale - used if CR2 was loaded with convert to LW scale. (Actually, it works fine even if the CR2 was not enlarged. It just creates a morph that enlarges as well as everything else)

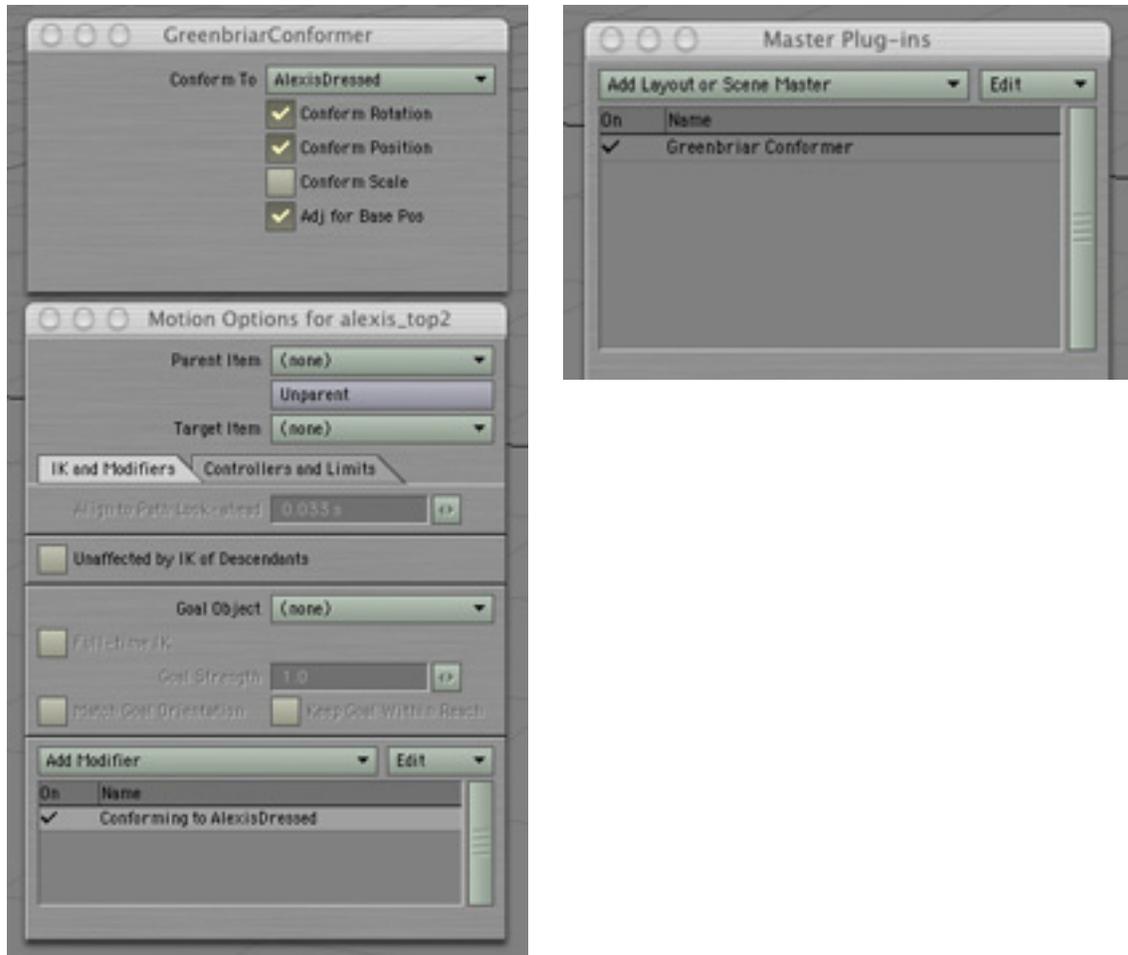
Flip Z Axis - used if Flip Z was used in the CR2 load to preserve Poser left and right (This one DOES matter!).

To go with this utility the new CR2 Loader version 1.3 supports loading without bones. (They get in the way if you're posing with morphs and not bones.)

You normally load figures 'welded' in CR2 Loader so that the seams aren't visible in LW. This utility can load onto either welded or unwelded meshes (that was a little trick since welding changes point count!) EXCEPT for meshes where there are dupe points not on part edges. I have only seen this so far in the Glam Dress and two hair models since I've been working with CR2 loader. If you see one part of an item getting trashed, that's probably the reason. Just reload that item by itself with CR2 Loader and select do not weld. So far, I have not hit a human figure that this happens to, but you will see it on some 3rd party props because of the way they make them. Not a big deal (Once you know to check for it - which took me a while to figure out.)

# Greenbriar Studio Lightwave Tools

## Conformer for Lightwave



A set of plugins for Layout that will conform boned objects. Requires adding only a single Motion Handler per figure to be controlled. Automatically keeps all bones of conformed object aligned with the bones of the target object. Any number of items can be conformed to a target. Finally, get those Poser clothes to behave in LW! In addition, you can select what parameters are conformed - conform rotation only and you have a crowd or chorus line moving in sync! The motion handlers are controlled by a single Master Handler, which allows you to easily turn the system on and off for placing and animating figures. We can even conform figures that don't have the same bone hierarchy! (We kept finding weird Poser clothes with partial skeletons and with bones missing in the middle!)

There are three bone relation situations - both items have the same skeleton - easy, the conformed item has a cut down version of the target skeleton, the case with most clothes - this requires careful calculation of the new root bone to keep it in sync with the matching child bone in the target, and mismatched bones, where pieces have been removed within the skeleton - we simply unparent these bones that are parented differently than the target bones and treat them as new root bones.

We can conform any figure whose bones exist by the same name in the target. Unmatched bones are not conformed, so while the conformed figure can have less bones than the target, it can NOT have more. That's the only rule for using the conform tools on your own custom created figures.

By default, rotation and position are conformed, leaving scale free to adjust clothes fit. The adjust for

# Greenbriar Studio Lightwave Tools

base position, means the base offset of the conformed figure is used in the calculations. This means that wherever you put the figure in the scene all bones will snap exactly to the targets. Sometimes, however, you may want to shift a conformed figure a bit, move it up or down a little, for example. With the bones fully conformed you can't do this. So we added this feature so you can put the conformed item at 0,0,0, then move it in any direction by how much you need to shift it, turn off adjust for base and it will conform, but offset by how much you moved it.

You must turn the Master switch off to position items and set the animation on the target figures. LW DOES NOT like it when you try to move something that is under plugin control. When you click the Master back on, everything snaps to the new locations. And of course it is left on during animation.

## Step by Step:

Make sure the objects have had the bones created and are properly parented (by hand or with our Load CR2 or Load GMI). Select the clothing or other item you wish to conform to another figure. Select Items->Motion Options. Under Add Modifier at the bottom of the motion options pop-up, select GreenbriarConformer. When it appears in the Modifier window, double click the name to bring up the control interface. Select the target boned figure from the pull down list. (Note - if you conform something to itself it will be ignored.) The default selectins of Position, Rotation and Adj for Base give the Poser style conforming - always exactly together. See top of this page for description of the Adj for Base feature. Close the window. Repeat for other objects.

Now you have to turn the system on. The individual handlers just make the selections and set parameters. Select Scene->Utilities->Master Plug-ins and under Add Layout or Scene Master select GreenbriarConformer. Click on any item in the user window and the figures should snap together.

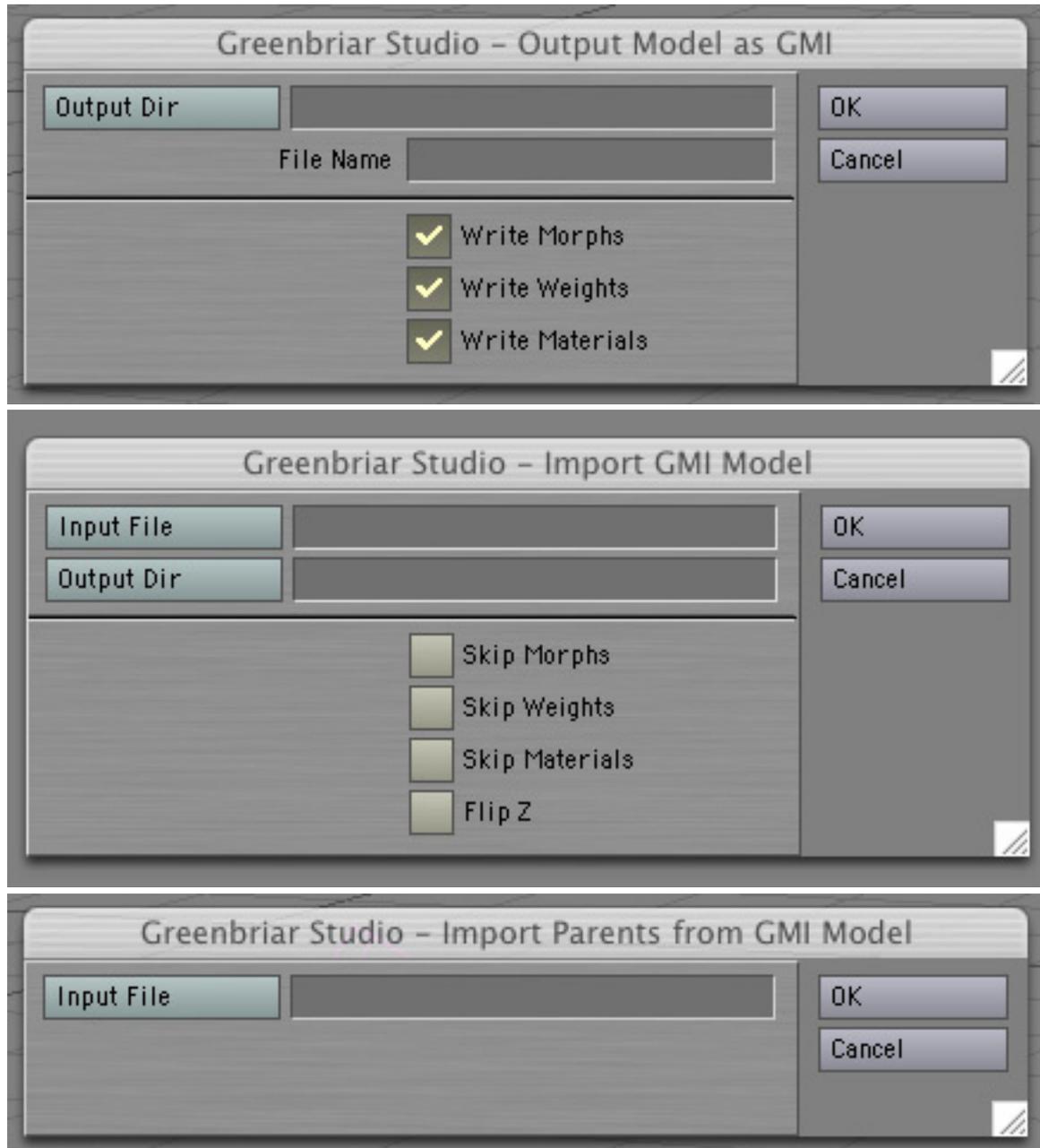
**WARNING:** Lightwave does not like it if you try to move something that is under conformer plugin control. It generates a ton of conflicting internal commands. Since LW tracks real time, every bit of movement calls the Conformer plugin. It will crash LW. You must turn the master Conformer off when positioning figures. (Actually, it will let me move a base figure with one attached item, if I move the base and not the item. More than one attached item and it goes nuts.) I always save my scene before playing with the conformer in case I forget, move something and crash it. We are trying to figure out a way to make the Conformer automatically stop working while you move something and then snap things back together when you stop.

Note - once snapped to a figure items will NOT go back when you turn the conformer off. They have been moved. The original position is lost. These are all changes saved in the scene file - the .lwo file is not affected.

Note - Conformer can not conform an object if it is selected and in a mode other than Move. If you select a conformed figure set it to Rotate, it will not conform until you unselect it or turn Rotate off.

# Greenbriar Studio Lightwave Tools

## GMI Import / Export for Lightwave



The Greenbriar Model Interchange file(.gmi) is really just a practical method to exchange models between platforms and apps. It uses a zlib compressed file format, to keep them small and so they are readable on any platform. The two choices for doing export systems are 1) write a custom export (and import) for each system to every other system you wish to communicate with. For only five systems that's 25 sets of code, expensive to make, expensive to buy. The other choice 2) is to write a single package that talks to a common format. Five systems require 5 sets of code. The use of a file means issues of 'right version on this app to talk to right version of that app on that platform - and oops it doesn't connect to OSX' are no longer issues. The goal is an inexpensive system that can move fully rigged models from platform to platform, not just mesh shells.

So we designed a system to allow the interchange of fully rigged models between high and low end

# Greenbriar Studio Lightwave Tools

apps. Work in the system of your choice and move your model to the format of your client. This first release supports geometry with discontinuous UVs, bones and bone/vertex weighting, unlimited vertex based morphs and materials with texture mapping for all channels. Available for PC and Mac. Allows transport between apps and platforms. Creates zlib compressed model files to reduce space. (12M text to 2.6M compressed.)

Options include the ability to limit reading and writing the morph, bone weights and materials sections, depending on how much of the model you wish to read or write. And Flip the Z axis to invert the model on load.

LW version note - Export is done in one step from layout. However since Layout can not create geometry, import is a two step process. Import GMI is run in Modeler which creates all the objects as .lwos and creates a .lws scene file. This scene file is loaded in Layout and then the same GMI file is selected with the Import Parents tool and all the bones are created and properly parented, the one step that can not be done in Modeler (but a real pain to do by hand). Resave the scene and you're done.

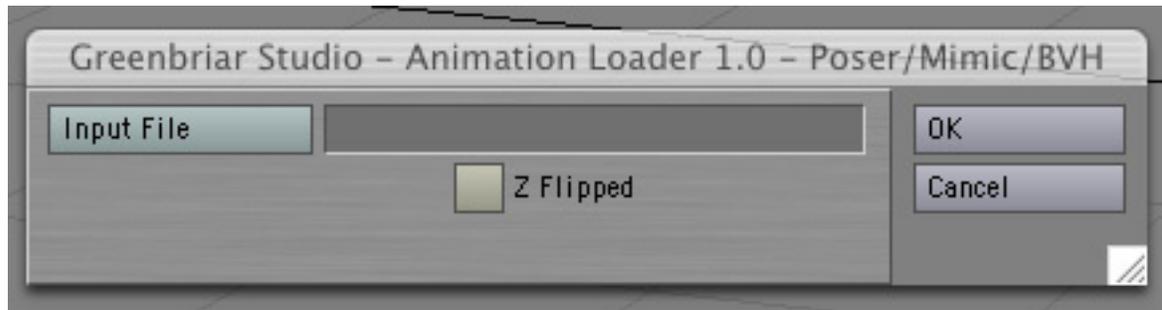
In the Lightwave Modeler Import interface, the Output directory is where the created .lwos and .lws are written.



Glamorous Vickie by Jim Burton, posed with Load Obj as Morph.

# Greenbriar Studio Lightwave Tools

## Animation Loader



The Greenbriar Animation Loader for Lightwave, although designed primarily to work with figures loaded with CR2 Loader, can work with any models in Lightwave that have the correct skeletal structure and animation morphs as appropriate for the file you are loading. It is designed to skip bones and morphs that it doesn't find, so you can, for instance, use it to pose a dress that has no legs from a figure pose. The arms and torso will get posed (note - a partially boned figure that is missing the hip will not completely match a full figure, but the parts that are there will get posed). This also allows you to import a pose even though you may be missing a few morphs, it doesn't throw up its hands and stop if one is missing.

Our new Animation Loader can read Poser pose and animation, Mimic and Poser .bvh files and apply them to your Lightwave figures. It can also read any .bvh file, but it also contains special code to map the bone names to your figures skeleton and create keys there, rather than creating the skeleton defined in the .bvh file. So the motion is automatically applied to the figure.

Use is simple - select a figure with the mouse (an already boned figure, not a bone must be selected). select an input file of a type it can read and check the Z Flipped box if you used this to load the model and go. Loading an animation is very fast, usually a couple of seconds. (If you have created your own model, use the Z Flipped if your model faces towards you by default in Layout.)

Animation Loader reads single and multiframe keyed poses/animations from .pz2, .p2z, .hd2, .hdz, .fc2, .fcz, .cr2, .crz, .pz3, .pzz Poser files. It also reads frame by frame animations from the two types of .bvh files that Poser can generate.

And Animation Loader also imports, with all morphs and movements, the output pose files from the DAZ Mimic lip-syncing tool!

The only option is the button for inverted Z (to keep it aligned with Poser). The tool will also load into non-Z flipped models, but be aware that all the poses and animations will be backwards (mirror image) to what you saw in Poser. But we were very careful to make sure that the tool could reverse all of the animation types and correctly load them on non-Inverted Z figures (which are better to use in Lightwave, since they don't have the normal problems frequently associated with Poser figures in Lightwave).

There are some limitations peculiar to Lightwave due to some important facts about how LW works. LW does not store the starting position of all the joints of a figure. Once you move the model, this information is lost. And guess what you HAVE to have in order to import an animation? Those default

# Greenbriar Studio Lightwave Tools

starting positions. So our little bit of Posing software was removed from CR2 Rigger some time ago (some who bought early may remember you could have it set a pose for you from the CR2 - very roughly) because they have to come in with the default joint positions. We already have the save and load pose tools (now folks will start to see why they are in the set) that will let you save a default pose of each model that you can load back later to allow animation import without having to reload the model every time!

So after months of very frustrating work (I had a math minor in graduate school (mostly statistics) and still had to go back and relearn a lot math!) and some gracious help from the folks at DAZ, including access to their latest Mimic tools, we finally have an animation product. Our tools can now read all Poser files that contain model and pose/animation data.

## **Limitations to Animation Loader 1.0**

The only limitation is with .cr2 and .pz3 files. In this first release it only reads the first figure from the multi figure files, normally the main figure (multi figure ability to come later). So if you want to import a scene with several animated figures, save each figure to a pose file and then load from there. The other files are all single figure file types and are read completely with ver 1.0.

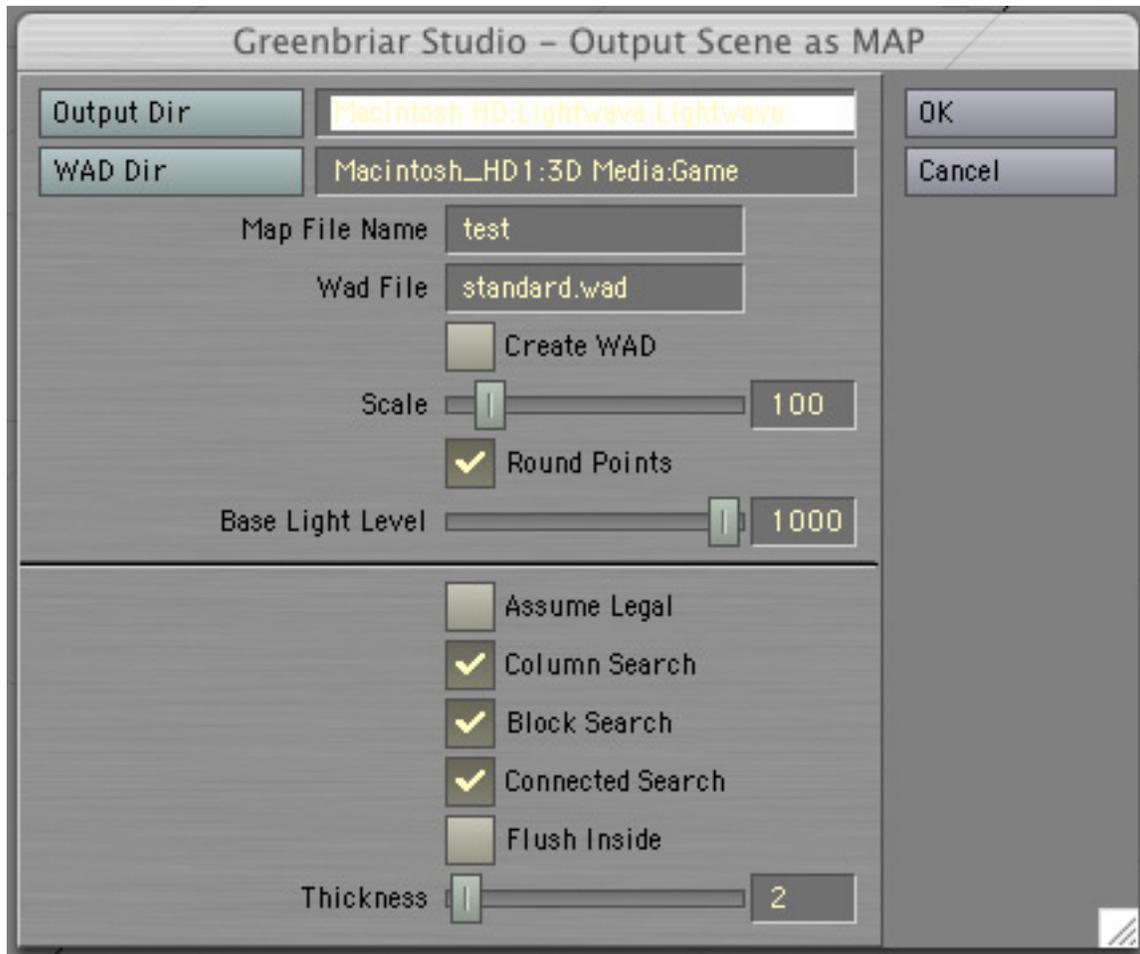
Coming next - for Animation Loader, the next thing up is to be able to correctly handle the cr2 and pz3 multi character files like CR2 Loader can. Plus I'm sure I'll get a lot of friendly comments and suggestions from Animation Loader owners. :)

## **Final Reminder!**

You **MUST** have the figure in the default UNROTATED position (figure itself and bones - use the default pose you saved when you first loaded the model and set figure rotation to 0,0,0) in LW to load an animation or you'll get very weird results. Other system allow us to 'zero' the figure automatically for you, but at this time, Lightwave does not.

# Greenbriar Studio Lightwave Tools

## LW to MAP



The Greenbriar Output Scene as Map is designed to let you export an entire scene to the standard game level .map format. Exports geometry and lights to the map file and textures to an optional wad file.

It breaks down LW Geometry into valid blocks with full support for Modeler object layers

Includes a Load WAD plugin for Layout AND Modeler to load an entire wad file into LW's image list so you can apply them to surfaces.

Main features:

Exports Map file in 3DGS quake/Halflife .map format.

Includes lights with position, color and range.

Textures defined by standard LW surfaces. Separate texture per polygon permitted.

Breaks up complex LW geometry into game legal components.

File Options -

# Greenbriar Studio Lightwave Tools

Output Dir - Where map file will be written

WAD Dir - Where optional wad file will be written (so it will go directly to your wad directory)

Map File Name - Name of output file - .map is added if not included with the name

Create WAD - if selected a wad file of the textures applied to surfaces (not all textures in the image list) is created.

Wad file - This is the wad file that is referenced in the map file. If you are creating a WAD file, this is also the name of the file to be created, .wad is added if not already part of the name. If you are not creating a wad file, this should be the name of the wad file you loaded into LW.

Scale - A multiplier for converting LW's meters into quants. Scales textures and lights as well as geometry.

Round Points - If selected all geometry references (including light locations) are rounded to the closest quant, to avoid the rounding errors that appear as gaps between blocks.

Base Light Level - Converts light intensity (0-100%) to 3DGS range. Set this to the largest range you need and scale other lights to less than 100%.

## Geometry Breakout Options -

These options control how complex geometry is broken up. Objects, as referred to here are either separate LW objects, or layers of an object. If it shows up as an item in the object list, we treat it as a separate object. These controls allow you to control the amount of geometry created. The goal, of course, is to create the minimum geometry necessary. These can be turned on in any combination.

Assume Legal - When on, this tells the engine that any object/layer with 32 faces or less is a legal object and to write it out as a single block. This lets you setup odd legal objects. When off, all objects pass to the breakout engine, if on, only objects/layers with more than 32 faces go to the breakout engine.

Column Search - Breaks out columns. Searches for matching multi side faces connected by quad polygons. Handles columns and solid pipes. NOTE - requires faces at joints of pipes, otherwise you get a hollow pipe composed of double sided blocks (See flush inside).

Block Search - Breaks out simple six sided blocks. This is the most used breakout function. Walls composed of sections created by extruding from lines, etc, create a set of hollow, no end cap box shapes. While it may actually be a single several hundred face mesh, it can be broken down into individual 6 sided blocks that are game BSP legal. End caps are not required for this function to work, just four connected quad faces.

Connected Search - Searches for sets of faces that are connected by shared points within an object/layer.

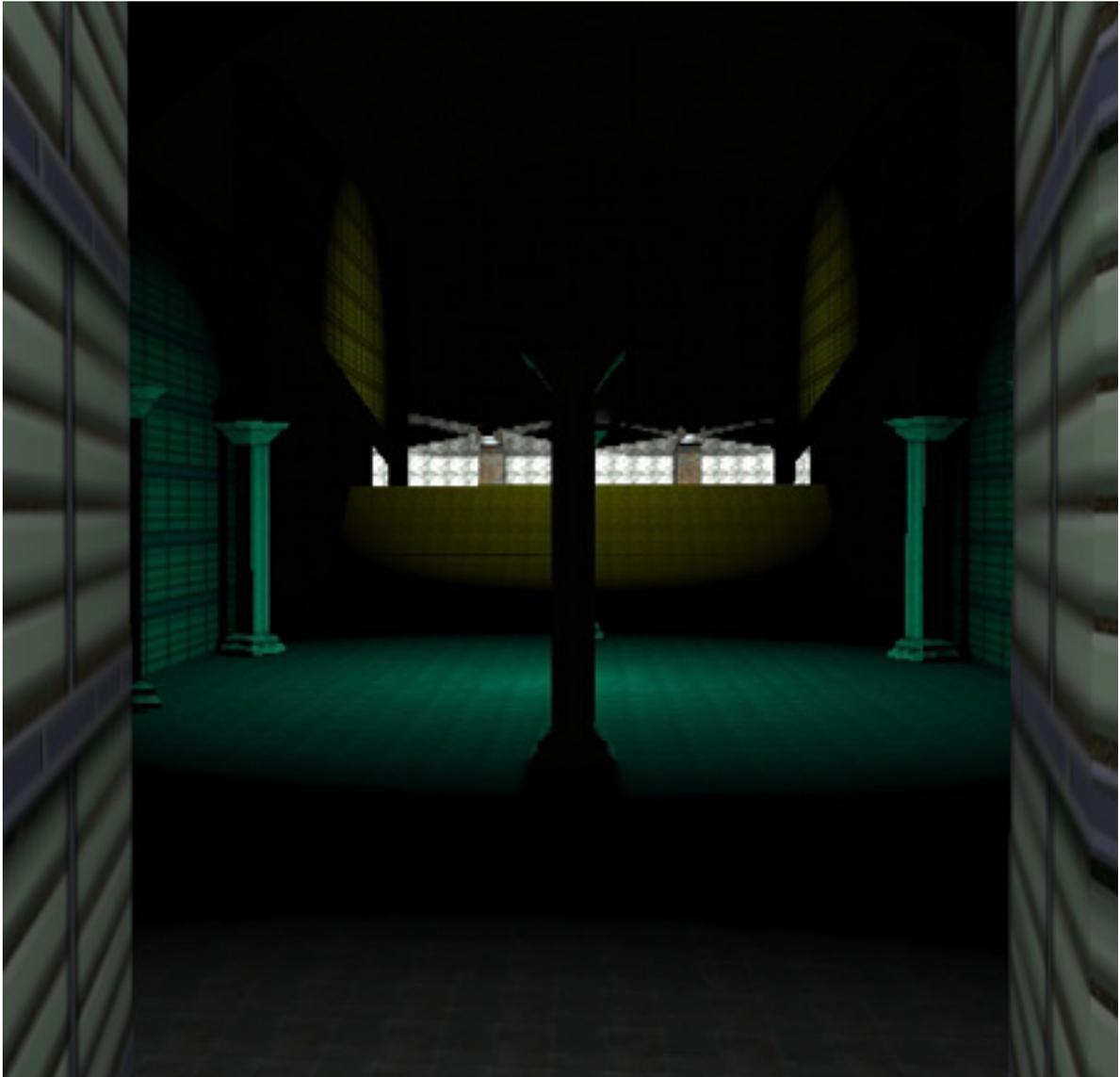
# Greenbriar Studio Lightwave Tools

If a set is found with less than 32 faces, it is written out as a block. Handles 20 sided spheres, etc. This handles odd objects within a high poly count object/layer.

Flush Inside - Flush inside tells the final breakout engine to flush blocks on the inside vs the outside. The final engine allows you to create otherwise illegal geometry by creating a block for each face. This can make hollow spheres or pipes that you can enter, shapes with holes in them, etc. Any faces not used by a previous breakout technique are generated as separate blocks by this code. It's like an igloo, thin slabs set edge to edge.

Thickness - The thickness is the thickness in quants of the new block created by the face by face final geometry creator. The thickness direction is determined by the face's normal. Away from the normal (default) flushes the outside of the object.

You can force an object to be created face by face just by turning the other switches off.



# Greenbriar Studio Lightwave Tools

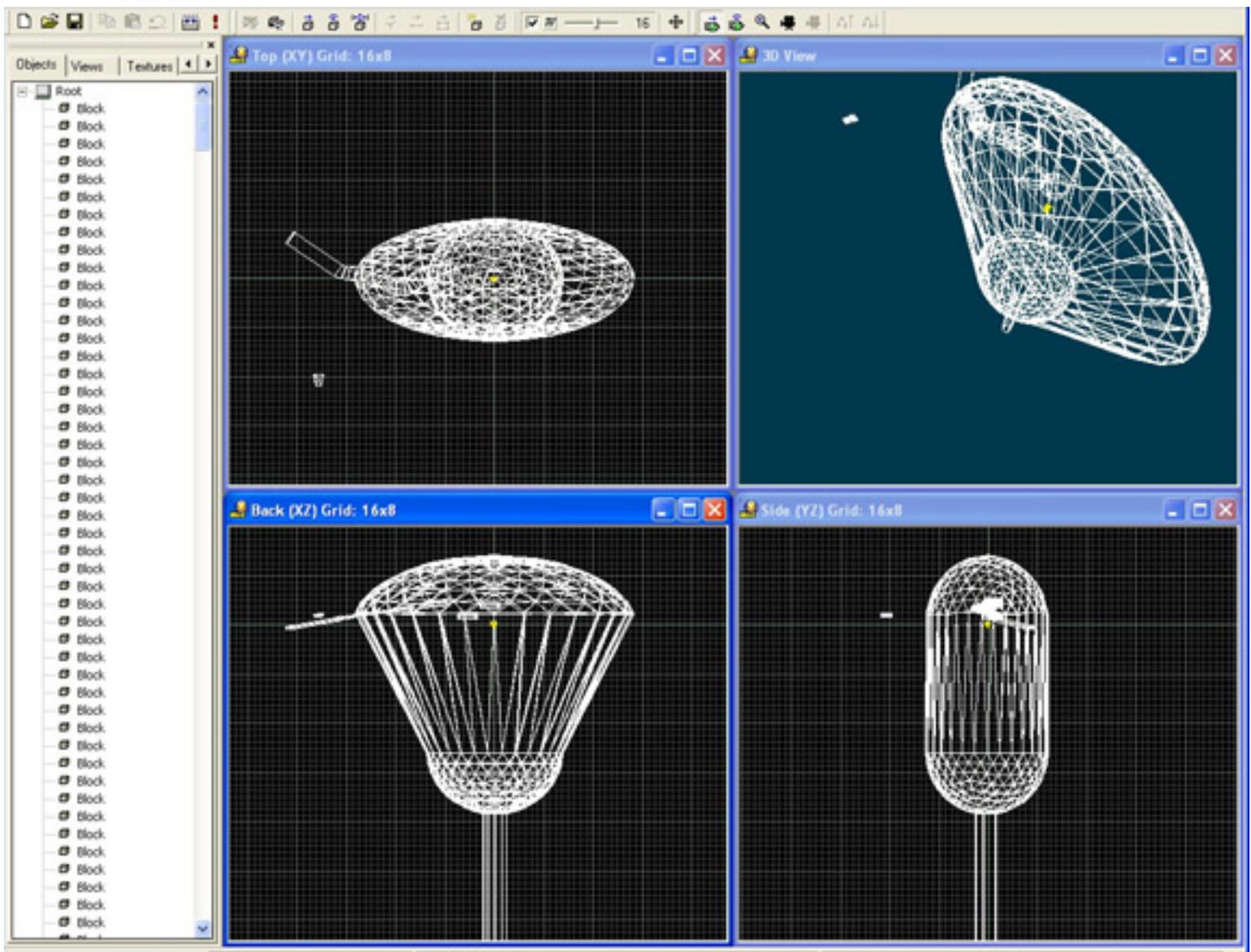
As you can see, you may have a model that is mostly corridors, that are generated by Block Search, but a couple of special pieces that are created one face at a time, or as a single legal object by placing it in its own layer.

The engine can not recognize all cases of illegal geometry. If something can not be generated with the rest of your model, save it by itself and then run it with all switches off and it will create a face by face version. Except for non-planar faces and faces with notches, this should always give valid output, but it is the highest geometry count, so it shouldn't be your default method.

## Load WAD to Image List:

The only thing to note here is to put your Wad in a 'safe' folder. Disk files have to be created in order to load them into LW (you can't load directly from memory) so the wad is blown out to a set of tif files (no compression) in the same directory and then loaded into LW. This plugin comes with two versions in the same file, so you can install it in both Modeler and Layout.

## Texture Notes:



# Greenbriar Studio Lightwave Tools

The texture name given to each face comes from 1) the name of the texture file (minus extension) that is applied to the color channel of the surface that the face is part of, 2) the name of the surface, if no texture map is applied or 3) #default if there is no surface or if the surface is named default.

LW and 3DGS handle textures very differently. 3DGS textures are repeating and start from the origin, not your block. This makes it easy for sets of blocks with the same texture to be seamless, but makes it difficult to position a special texture. To make a special texture, use a single face surface, apply and scale the texture using planar projection (the map export picks up your texture position scale and rotation) and export. But expect to reset the position in Wed as Wed does NOT start the texture from the edge of your block. And if you move the block you'll notice that the texture slides around. Using lock texture will help this, but try to avoid moving the block afterwards as the texture will still shift, but more slowly.

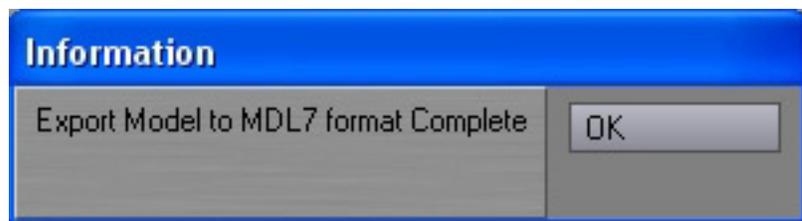
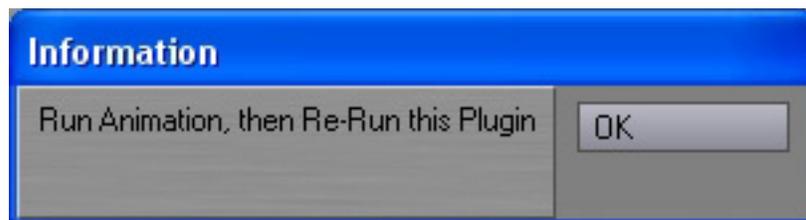
## **What the map file can not accept:**

Any single FACE that is concave. We can create concave OBJECTS, but a single face can not be concave - ie the edges must be straight and the edge can not have 'notches'.

Any non-planar face. We will create a block where you have non-planar faces, but since all block sides are defined as planes, you will not see the twist that you had in the face, so one end or the other of the object will be changed.

# Greenbriar Studio Lightwave Tools

## LW to MDL7



The Greenbriar Export Model as MDL7 is designed to let you export a single figure (with or without skeleton) to the 3DGS mdl7 format.

This first version exports point based animations as points can export changes made with bones, morphs or any other deformation method.

Exports one object as a mdl7 model.

Exports first valid (each dimension divisible by 8 and an image applied to the color channel) as the skin.

Skin is exported complete with mipmaps.

Running this plugin is a little unusual compared to most of our tools. Since a plugin can not sequence an animation while it is running (maybe we will be able to with the new LW8), when you run the plugin, it writes out the model and the skin and then attaches a catcher plugin to your model and exits with the instruction to run the animation and then re-run the plugin.

The simplest thing at this point is to step through the animation, one frame at a time. As you do, the point positions are being captured and added to the model file. When you are on the last frame you want, you re-run the plugin. It will then say finished. What it just did was write the last frame, take off

# Greenbriar Studio Lightwave Tools

the data capture from your model and shutdown. It's actually easier than it sounds!

The scenes below are from a 360 frame animation by Alex Russell, as it appears in Med.

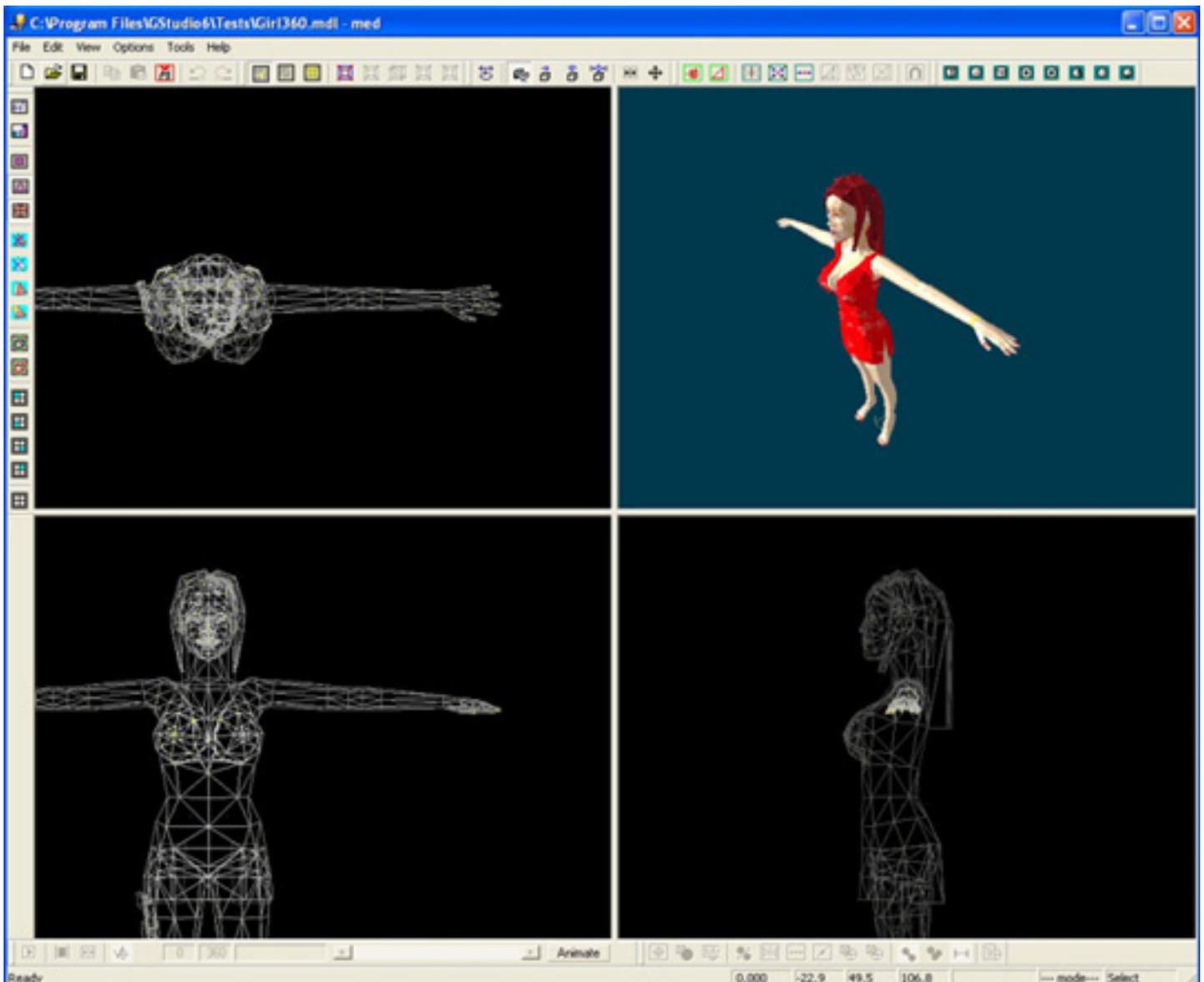
Notes:

This format requires data for all frames, if you only skip to keyframes, you will not have any frames in between. It is not based on keyframes.

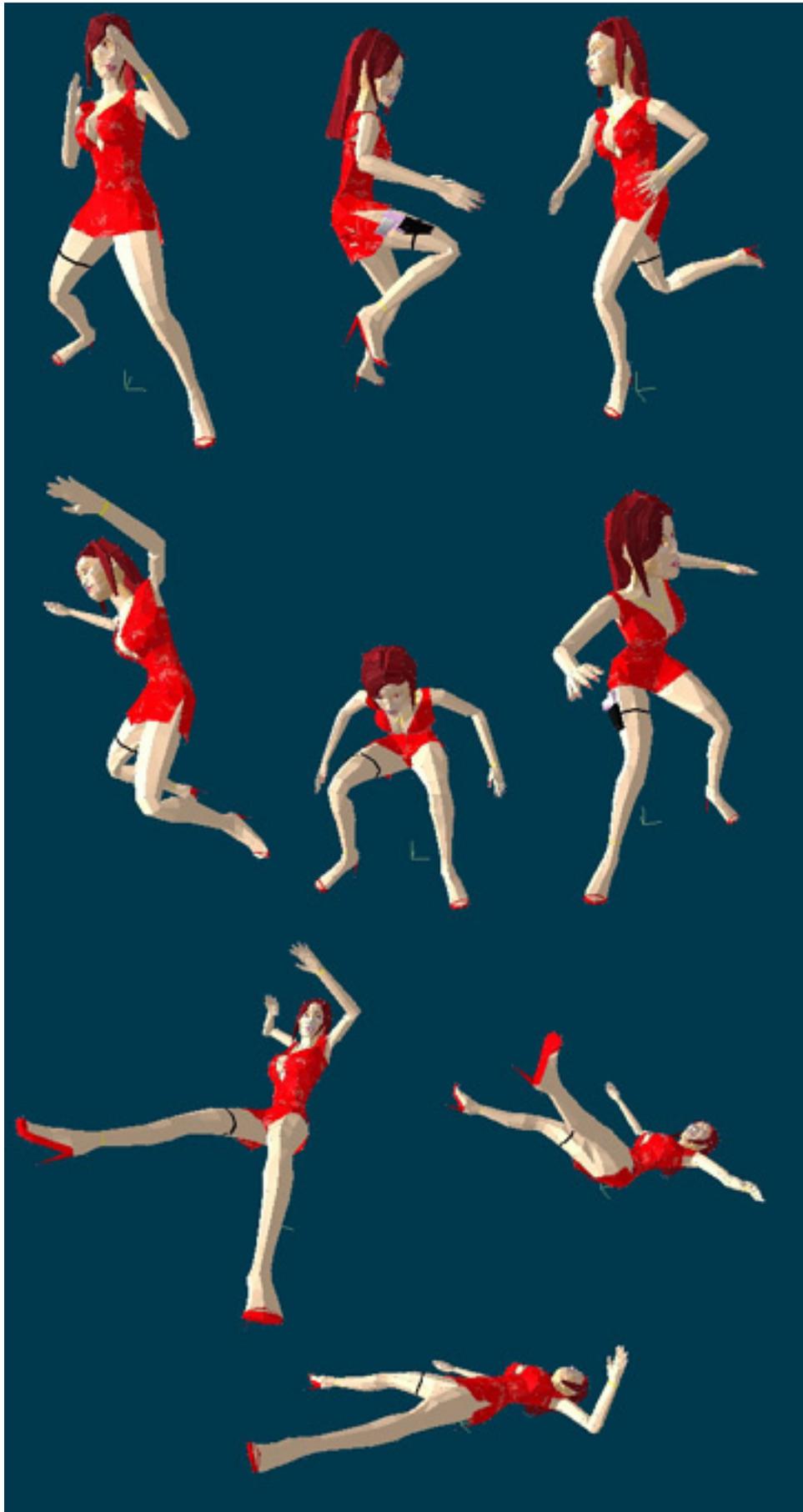
Meshes are triangulated automatically by the plugin.

Scale allows one decimal place so 100 is 10.0 times larger. Range is .1 to 1000 times larger.

Base frame is the frame used to generate the base model. Especially important with bones, it is usually a frame of the undistorted model. It does NOT have to be one of the frames generated for animation.



# Greenbriar Studio Lightwave Tools



Model and animation  
by Alex Russell.