



Issue#2

dot

AN8

(hope this helps)

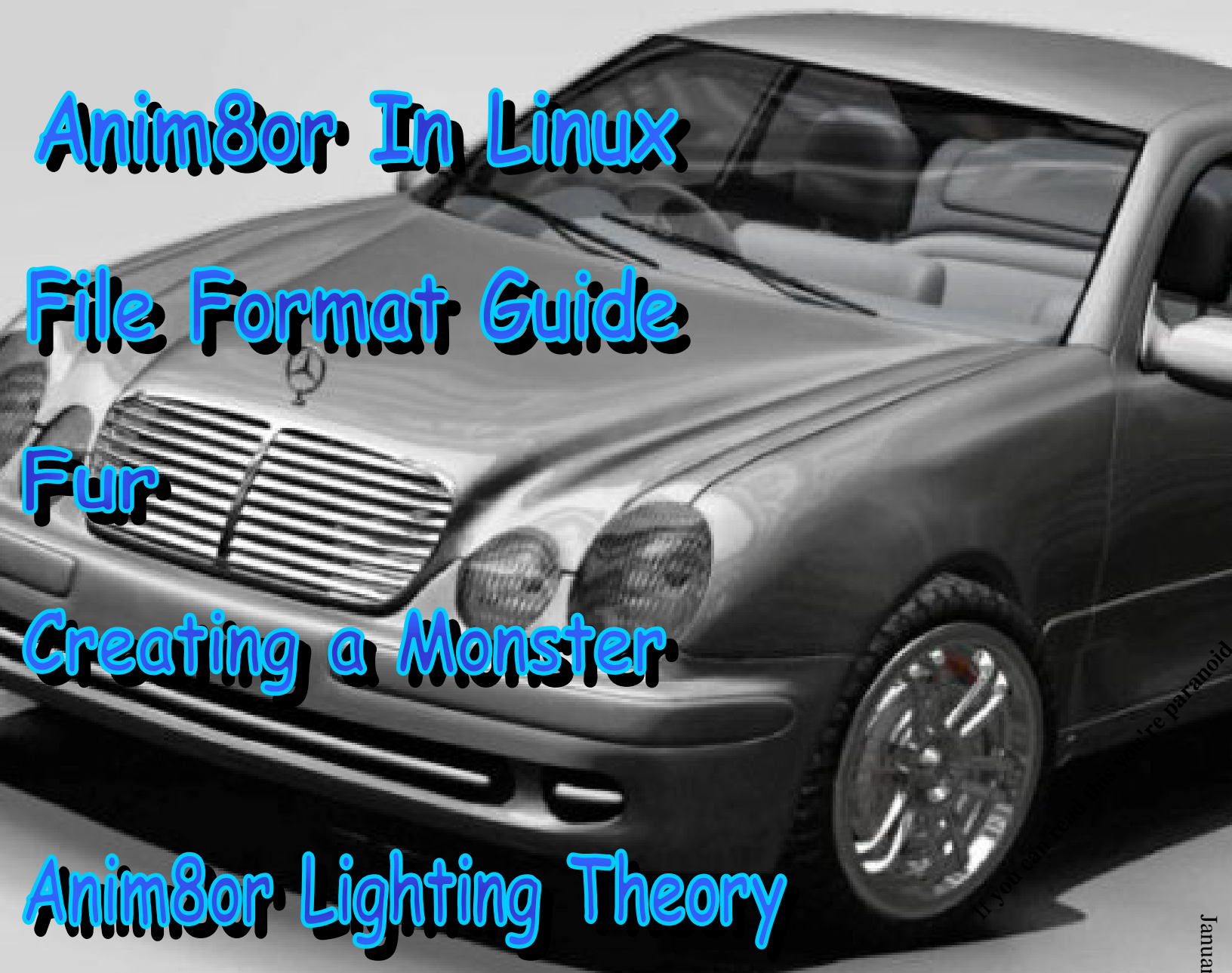
Anim8or In Linux

File Format Guide

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Creating a Monster

Anim8or Lighting Theory



January 2005

Mercedes by The Armenian

From The Editor

Thank you for taking the time to read the second (but most certainly not the last) issue of the anim8or magazine, dotAN8. I would first like to thank the community for everything that they have done for everyone, including taking the time to help the less experienced users out. This magazine tries to do the same thing, by making most of the articles Noob friendly (that doesn't mean there's nothing for the more experienced users ;)). Secondly, I would like to thank The Producer, I have really enjoyed working with him, and saw in him the same want for the magazine to continue that I have. Thus, I have promoted The Producer to Co-Editor. Unfortunately, due to the date I promoted him, he did not have as big a part in editing this issue as he will in issues to come. I would also like to thank everyone else who has taken the time to write an article for this issue. Thank you Howitzer, Moley, Lasukie, and others who's articles had to be pushed to next issue. I hope you decide to stay with the group for further issues, The articles you have written were top-notch.

Thank you, rufsketch1

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Simulating Refractions

(exterior)

You will need:

*Terranim8or v.6.3.1

*Anim8or v.85

*Any paint program

Before we begin you should know that this way of simulating refraction is only good for two types of densities, very dense, and not so dense, It also doesn't work well when the camera is close to the object, since refracted objects are magnified when the eye/camera is close to the refracting object. OK, lets begin. You probably already have your own little scene set up and waiting for refractions, if you don't, then shame on you, if you do, delete it, chances are you've done it wrong. If you haven't touched the camera, then you can keep your scene.

First, make a scene (assuming you haven't made one already, **AND DON'T TOUCH THE CAMERA!!!**) In scene mode, click on the object that you want to make have refractions. Scroll down on the bar beside the timeline until you reach some text that is shown in white. Remember its name, or if you have bad memory, write it down! Save the file and remember where you put it, and what you called it.

Now fire up terranim8or. On the toolbar select "objects-> make environment map". A menu should come up, and where it says eobject01, type in the what you saw earlier written in white, (if what was in white was already named eobject01, then you can leave this box alone). Press "Select file and setup rendering". Click the anim8or file you saved earlier and press "open". A new save window should come up, save the file **under a different name**. Now with anim8or, open up the file you just saved from terranim8or. Go into scene mode, and click **view-> Camera**. Click on **render->preview** and set the height and width to 600. Render the first six frames (0-5), naming each one accordingly.

Frame0-(+x)

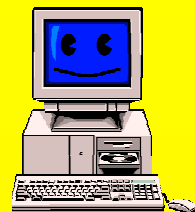
Frame1-(-x)

frame2-(+y)

frame3-(-y)

frame4-(+z)

frame5-(-z)



Noob friendly!!

Simulating Refractions

(exterior)

Ok, fire up the paint program of your choice. Use it to vertically flip files, +x, -x, +z, and -z. Horizontally flip files +y, -y. Save each of them under the same name. Now open up the original anim8or file you created (not the one you exported from terranim8or!). Make a new material to the object that you want to have refractions. Click on the "textures" button in the middle of the window that pops up. On the bottom, there is text saying "Env. Map", next to it should be two text bars, and next to that, there should be a button saying "...". A window should pop up with a bunch of buttons with text bars next to them. The first button should say Right[+x], the next one saying Left[-x] etc... . Click on the first button saying "Right[+x]" and browse the computer for the paint file you previously altered saying (-x). Then match up "Left[-x]" with the file you previously altered in paint named (+x). Continue doing this for the next buttons, matching up the buttons with the file you saved with the same letter, but the opposite symbol. Once you get all of the boxes filled, click "ok", and continue clicking it on the windows that were open before it until you get to the anim8or work place. If you go to scene mode and render, you will notice that the refraction is upside down, this is how it should be if your object is very dense. If you want it to be *less* dense, here's what you have to do.

In object mode, go back to the material editor. In the middle of the window that pops up, there should be a check box with the text "two sided" written next to it. Check that box, and two buttons saying "front" and "back", should now be accessible. Click on the one saying "front". Above the button saying "textures" there should be a text box with the abbreviation "trans" written next to it. In this text box, delete what is written and set it to zero. Now click on the button saying "back", now click on the "textures" button. Click on the button saying "..." next to the "Env.map" text. There should be something there saying "-x[cube map]" or something along those lines. Click on it once and then click "ok". Click "ok" on the buttons after it to until you are out of the material editor. Go into your scene and render it again, you should notice that everything is now right side up.

Simulating Refractions

(exterior)

If you have a more powerful paint program at your disposal, you can use it to make effects like a big bubble distortion on your images. As long as it does not affect the very edges of the picture, this is a great way to have more control over the density of your object. And If you're willing to go even further with this, you can add focal blur in the paint program to simulate the blurring that refraction tends to make.

By rufsketch1
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Fur

You will need:

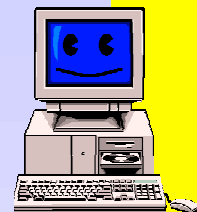
***Terranim8or v.6.3.1**

***Anim8or v.85+**

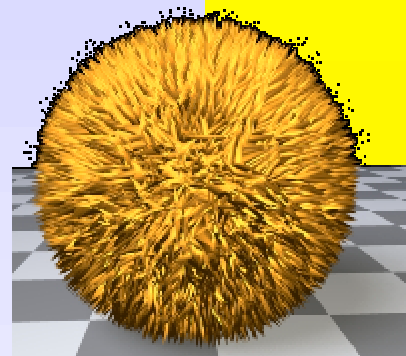
Many people have tried to make fur in anim8or. And too many times, It's come out pretty bad. Well, I'm here to explain a method of making fur that don't completely suck, or take forever to setup. What makes my methods so much better than all the other ones you've tried? Simple, I sat down for hours and hours thinking about the perfect ways and stayed up many a restless night fine tuning my findings. All else aside, I gladly present to you..... method 1.

This method is probably the best I have come up with. The render time is lower than any of the other ones (which will be in the next issue), the effect comes out to be very believable, and it's easier to work with in edit mode. The only draw back is that you don't have the best control over how the fur comes out. It looks very untamed, so you don't want to use this for something like a house pet, or well combed hair.

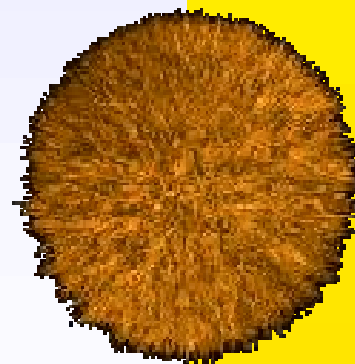
With that in mind, lets begin. If you don't already have a model waiting for fur, you can either make one, or just use a sphere. If you *do* have a model, I'm betting you don't want *all* of it to be covered with fur. If this is the case select the object, then, in the toolbar press edit-> copy. Now, press build-> new object. Edit->paste. This should have copied your object into the new object room. Select the object and click build->convert to subdivided (if it's already subdivided, turn it into a mesh first), and then build-> convert to mesh. (the more times you subdivide during this step the better it looks, but becomes more expensive to compute, so decide carefully what you want). Finally, we reach the hard part of this whole thing. You need to determine what parts of the model will have fur, and what won't. If there are more parts of the model that will have fur than parts that won't, I want you to go into point edit mode, and select all of the faces that *won't* have fur. Once you have selected them delete them. Then, in the toolbar click, object-> export. Under file type select "anim8or file (.an8)" Save it under whatever name you want and wherever you want. **It is very important that you remember the name and location.** If you have more parts that won't have fur than will,



Noob friendly!!



Subdivided once: this looks too spiky, though it can pass as fur from long distances.




Subdivided twice: as you can see, subdivided twice looks *much* furrrier, but takes longer to render.

Fur

I want you to select (in point edit mode) all the faces that *will* have fur. Then, on the toolbar click edit->select->invert selection. All of the polygons that you **didn't** want to have fur, should now be in yellow (or blue), and all the parts that you *did* want to have fur, should no longer be selected. Press the delete button on your keyboard to delete all the faces that are now in yellow. On the toolbar click object-> export. Under file type select "anim8or file (.an8)". Save it under any name in any location. **It's very important that you remember the name and location that you saved it under.**

Now fire up terranim8or. In the toolbar click object-> import. Select the object that you just exported from anim8or and click open. Again, in the terranim8or toolbar click object, the list that comes down should now have all of the choices available. Select "apply noise modifier", set the x, y, and z values to 2.5, don't touch the radiosity. Click Ok. Now a third time, in the toolbar click object->export, and save your file under any name, in any place, and remembering where you saved it.

Import your object back into your original anim8or file (object->import) and change it's name to something like "original bumpy". It should now have bumps covering it. If you subdivided twice earlier, it should look much jaggier than the picture.

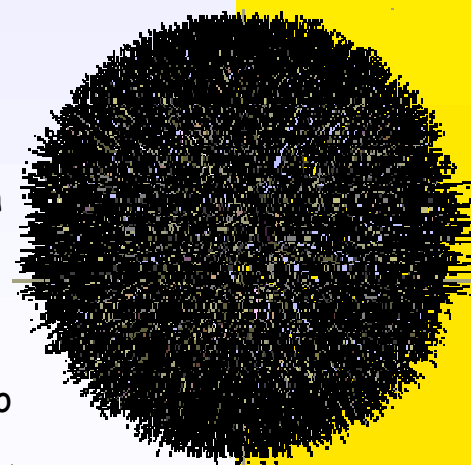
Now we come to the part that's almost computational suicide (depending on your computers strength). First make sure that your object is a mesh, and *not* a subdivision. Now go into point edit mode, and select all the faces (the more advanced users can probably guess where this is going, but don't stop reading yet, there's still one more important step you may not have thought about). Now click the peak faces tool . Finish reading the rest of this paragraph before you do what it says. Press and hold the left mouse button, **making sure never to let go of it**, over your

Hint box

It is suggested that you skin and animate your model *before* applying fur. Otherwise things get really difficult to work with. However, you might want to test if the fur method will work on your model before animating just in case.




The object after using terranim8or



The furball in wireframe

Fur

object and drag to the right slowly, then stop dragging, and let go of the mouse button. It seems as if nothing has happened, but don't worry, anim8or is still calculating all the necessary steps. Minimize the anim8or window and do whatever you need to do on the computer. Open the window later and you should have some fur awaiting you. On a Pentium II processor you may have to wait up to four minutes before seeing anything, on a Pentium four, about one minute. If it takes longer, don't worry, it hasn't frozen. Depending on how far you dragged the mouse button, your fur may be either too long, or too short. If so, press undo, this time, drag a little less if you want it shorter, and a little more if you want it longer. Yet again, wait for results, you can repeat this until you have the desired length, or you can peak the faces of a cube first to see how far you need to drag for the appropriate hair length.

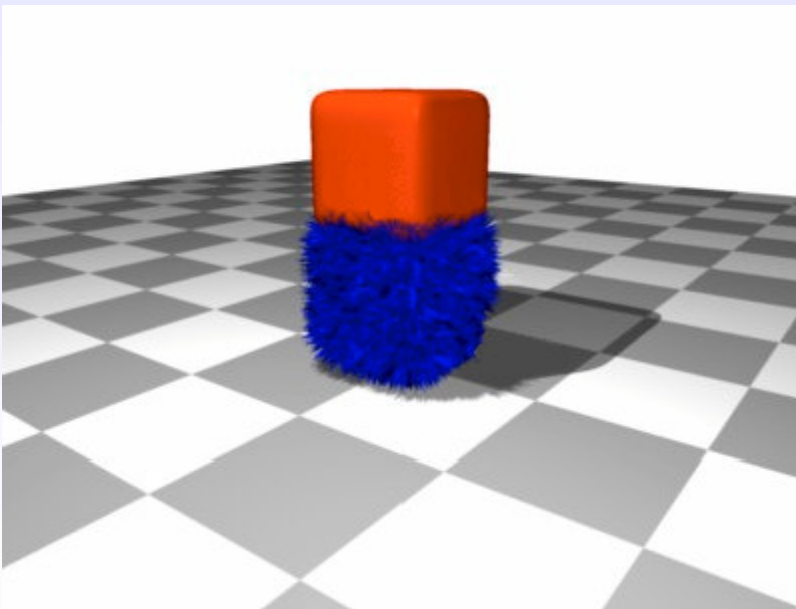
Now that you've gotten the fur to the desirable length, we get to the beautifying part. Don't skip this part, it **really** helps the effect. First, double click on your mesh. A window should pop up, and near the bottom there should be something saying "set smooth angle." Change this to 150. Then open the material editor . Double click on one of the empty squares to the left (they or it, should say new in the middle). A window should pop up with six boxes. These boxes should have numbers in them. Next to the numbers you should see writing, ambient, diffuse, specular etc... . Click on the gray box to the right of the numbered box that is to right of the word diffuse (I know, it's a mouthful). Change this into whatever color you want your fur to be. Click the white color box to the right of the numbered box to the right of the word specular (specular is jargon for shininess), and change it's color to a more primitive or darker version of the fur color. For brown or orange fur change the the color to something like red, or yellow fur change the color to something like orange. Feel free to experiment. Change

Fur

The *number* next to the word specular to anything from 1.00 to 3.00. Next to the box that says rough, change the digits (which should be 32, to something like 5. Setting a Material with a different specular value than the diffuse, should only be used for still renders, in animations it will make your fur look like shards of glass. As I said before, this method will work on any model, and the great part is that it still looks realistic when skinned. I really hope this article has helped you, and as a closing statement, I would like to tell you not to overuse it, chances are your computer will crash with more than three fur models subdivided twice.

Hint box

If you plan to cover a whole model with fur, be careful, anim8or can crash. It is suggested that you use the knife tool to cut the object into smaller pieces and apply the fur separately to each piece. To use the knife tool to cut the object into smaller pieces, slash with the knife tool where you want to separate the object, and then, with out deselecting the points, in the top toolbar go edit->loopcut.



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File Formats

A List of the Most Used and Asked About Formats

File Formats

A List of the Most Used and Asked About Formats

by The Producer [Joseph Pender]
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When working in computer graphics, it's good to know the capabilities of a decent number of file formats. Most of these formats aren't related to Anim8or necessarily, but there's no doubt you'll run into them. Out of hundreds of formats, most of which I've used in some form, I'll list the most common.

Image File Formats

JPEG (Joint Photographic Experts Group)	.jpg, .jpe, jpeg
This image file format is perfect for presenting images on the web, or in multimedia projects. JPEG is a lossy format, meaning it sacrifices some image quality for file size. JPEG is superb at maintaining an overall good image quality, while still keeping file size relatively small.	
GIF (Graphics Interchange Format)	.gif
GIF is another compressed, extremely lossy image format. GIF only supports 256 colors, animation, and transparent backgrounds. I would not use GIF for large images. It is however good for small icons that need transparent BGs, or when you want to show animation without having the user download a file. It's also good for animated web banners, whenever Flash (SWF) could not be used. GIFs do not support layers.	
BMP (Bitmap)	.bmp
Everyone knows this format. Microsoft's BMP format is lossless, meaning it is uncompressed, and doesn't lose quality, making for great looking images with large file sizes to go along with it. Do NOT use BMPs for websites (I've seen it done). It's useful for transferring your images from editing program to editing program, without having to worry about quality loss. 32-bit BMPs support alpha channels. Layers or animation are not supported in BMP.	
TGA (Targa)	.tga
This is one of my favorites. Targa is a lossless image file format. It supports alpha layers, and is great for exporting frames of video for individual treatment in GIMP, Photoshop, or another editing tool. Don't think about using this anywhere on the Internet.	
PSD (Photoshop Project File)	.psd
This is the saved project file format for Adobe Photoshop. Don't expect to use this anywhere outside of the Adobe family for digital editing programs and maybe the GIMP. Supports alpha channels, layers and more.	

File Formats

A List of the Most Used and Asked About Formats

XCF (GIMP Project File)	.xcf
This is the saved project file format for the GIMP. Like PSD, you're not using XCF anywhere else except for the GIMP. Supports alpha channels, layers, and animation, through the GAP (GIMP Animation Package).	
TIFF (Tagged Image File Format)	.tiff
I've never used TIFF files for graphics. Not a lot of 3D graphics programs support TIFF. These files are normally used for newly scanned documents, and the file sizes can get real big fast. Doesn't support any special features.	
PNG (Portable Network Graphics)	.png
Another compressed image file format similar to GIF. Instead, PNGs support alpha channels (different from transparent backgrounds). Does not support animation or layers.	

The 8 previous image file formats were of the raster variety, meaning they are made up of small individual dots of pixels of color. Evidence of these pixels can be seen by scaling up any of those formats. This will always ruin the quality and clarity of an image. As a practice, I always keep all of my images in the lossless format until I'm finished working on them. Then I export to one of the lossy, compressed formats for presentation. This way, all of my work is presented in the highest possible quality. These next images file format are vector images, images generated by mathematical formulas. These images can be scaled up infinitely, without losing quality. They are also EXTREMELY small, compared to their raster counterparts. Some vector images can be imported into 3D modeling programs as splines.

WMF (Windows Meta File)	.wmf
Mostly used for 2D clip art images for Windows Office products. I found my first "The Gamers" characters in WMF format at Design Gallery Live. I've never seen WMF supported in any 3D programs, but they are in 2D graphics programs.	
2D DXF (AutoCAD DXF Files)	.dxf
Some 3D home design programs export 2D DXF versions of their floor plans, which can be imported into programs like MAX and MAYA as lines.	
SWF (Shockwave File Format)	.swf
This is the widely known and used vector file format. Through Macromedia Flash, SWFs are capable of more than just still images graphics. SWF can handle animation, text, video, audio, and interactivity through a programming language called Action Script. Check out (http://www.freewebs.com/hollyyifg/) for Holly, a good example of an interactive SWF.	

File Formats

A List of the Most Used and Asked About Formats

Now, let's move on to the audio file formats. Anim8or doesn't support audio, but you will come across these formats if you decided to add sound effects or music to your animations.

Audio File Formats

MP1 (MPEG 1-Layer 1 Audio)	.mp1, .mpa
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The first layer of the MPEG audio specifications. There's nothing special about MP1. It can be encoded for mono or stereo audio streams. This is a compressed format, however the file size is considerably large for its decent audio quality.

MP2 (MPEG 1-Layer 2 Audio)	.mp2, .mpa
-----------------------------------	-------------------

This layer of the MPEG audio specification is used in the Video CD and Super Video CD standards. It can be encoded for mono, stereo, and multichannel (meaning capable of surround sound) 7.1 audio streams. Playing back surround sound MP2 is rare, on the computer, and on standalone hardware. Only some Phillips Home Theater systems are known to recognize surround MP2. This compressed format can provide VHS quality audio with decent file size, if configured properly.

MP3 (MPEG 1-Layer 3 Audio)	.mp3
-----------------------------------	-------------

Everyone knows this format. This is not used in any VCD or SVCD standard. As you know, it provides excellent audio quality, with small file sizes. It is also streamable. Although it is compressed, loading MP3s into editing programs is actually a good idea ... the quality is actually not too different than WAV, its uncompressed counterpart. MP3s can be encoded for mono, stereo and (rare) multichannel streams.

AAC (Advanced Audio Coding)	.aac
------------------------------------	-------------

The next generation of MP3 provides awesome audio quality at extremely small sizes. This compressed format is streamable, and supports mono, stereo and not-rare multichannel audio streams. AAC is apart of the new open MPEG-4 standard. You can come across AAC in its native .acc format, or inside of a video-less .mp4 format.

WMA (Windows Media Audio)	.wma
----------------------------------	-------------

This is my personal favorite. Windows Media Audio is an extremely compressed (or lossless, if you use WMA 9 Pro Lossless), streamable format that provides great audio quality with moderately sized files. It's capable of mono, and stereo streams at an awesome 24-bit/96-kHz sampling rates. The best part, in my opinion is its capability to also support multichannel 5.1 or 7.1 streams, that can be streamed across the Internet. Two of my Gamers episodes are in multichannel WMA format. Don't try to edit with WMA ... it's disgusting.

RM (Real Media Audio)	.rm, .ram, .rmvb, and several others
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Real Media audio is another compressed, streamable format that offers 24-bit/96-kHz sampling rates for mono, stereo, or multichannel audio streams. I get the feeling that not a lot of people use the RealONE player, so this format may not be well known. Do not feed this into an editing program.

File Formats

A List of the Most Used and Asked About Formats

OGG (OGG Vorbis Audio Format)	.ogg
This is an open-source file format. Extremely small and extremely high quality. Supports mono, stereo or 5.1 audio streams.	
WAV (Waveform Audio)	.wav
The most used audio format for Windows machines. WAV provides excellent audio quality as it is uncompressed, however there are some WAV codecs (compressor/decompressors) that can make WAV files compressed. Because of the quality of these compressed codecs, you may as well use MP3 if you want a compressed audio file, MP3 is about the same quality, with a much smaller file size. This is the preferred format to load into editing programs. WAV supports mono, stereo, and 5.1 audio streams.	
AIFF (Audio Interchange File Format)	.aiff, .aif
The most used audio format for MacOS machines. Provides basically the same thing WAV does. AIFF supports mono, stereo, and 5.1 audio streams. Also great for using in editing programs.	
AC3 (Dolby Digital :-D)	.ac3
Another one of my favorite formats. AC3, or Dolby Digital, is used in the DVD standard. Support crystal clear mono, stereo or 5.1 audio. BeSweet is the only freeware AC3 audio encoder. AC3 is compressed ... so don't try to edit with it, even though you can't.	
DTS (Digital Theater Sound)	.dts
This is the digital version of the theater DTS audio setup. DTS is also used in the DVD standard. I doubt you'll come across this in your freeware editing procedures, but I have, out of curiosity. Prepare to pay a lot to encode DTS files. If you find a DTS file, you'll only be able to play it in software DVD players.	
SDDS (Sony Dynamic Digital Sound)	.sdds ???
It's not confirmed that this file format actually exists. I've heard a little bit about SDDS in computer form, but I doubt any of it is true.	

Before I continue on to the video file formats, I would like to make this statement about Dolby Digital and Dolby Surround.

Dolby Digital is AC3, and nothing else. It supports up to 6 discrete channels of audio (Left, Right, Center, Rear Left, Rear Right, and Subwoofer or LFE). Dolby Surround does not have it's own file format, instead, it's a AC3 file downmixed into the stereo channels of either WAV or MP2 (it *can* exist in MP3, but there are little players that can extract the Dolby Surround stream. It cannot survive in formats like WMA or RM or etc...). When a DS stream is played back on a Dolby Surround decoder (usually a surround sound system), the surround data is pulled out, and "unfolded" out to *simulate* 5.1 sound. This way, it is possible to have surround sound VCDs or SVCDs.

File Formats

A List of the Most Used and Asked About Formats

Video File Formats

AVI (Audio Video Interleave)

.avi

This is the preferred video format for Windows systems. Microsoft's AVI format can be lossless (uncompressed) or lossy (compressed), via a variety of codecs that are available for it.

⌘ Uncompressed AVI (RAW)

Supports high quality video. 32-bit AVIs support alpha channels.

⌘ DivX

The most popular codec for AVI. DivX can achieve DVD-quality video with small file sizes, if you use the proper configuration. The downside is that the viewer needs to install the DivX codec to view your movie.

⌘ XviD

Another popular, and high quality free AVI codec is XviD. Some say that XviD looks better than DivX, and in my opinion it's true. Has the same downside as DivX.

⌘ Others (H.264, Indeo, Cinepak, etc)

I've never seen these used much in AVI, except for making small test videos for previews. Quality is not that great with these. The upside is that most Windows systems already have these codecs installed.

As the name states, *Audio Video Interleave* AVIs can store audio data. The most common format is WAV, however, any audio format can be multiplexed (*multiplexed: To take two separate audio and video streams, for example .mlv and .mp2, and fuse them together to make .mpeg*) to AVIs. I've seen AC3, MP3 and in a rare case, DTS multiplexed to an AVI. But in most AVI exporters that support exporting the audio track, WAV, ADPCM or MP3 will be your common audio format choices.

As a practice, when I render out video, I always save it as Raw AVI. I then import those AVIs into video editors for work. As usual, my objective is to maintain as much quality as possible, regardless of size. Your situation may vary!

MOV (Quicktime Movie)

.qt, .mov

This is the preferred video format for Mac systems. Quicktime MOVs can also be lossy or lossless. However, the choice of codecs are a lot more advanced than AVI.

⌘ None/Uncompressed

Uses no codec for maximum quality and maximum file size.

⌘ TGA, JPEG, PNG, BMP

By selecting one of these formats, it will create a series of sequential images that make up the animation, and contain them with your MOV file. The MOV file will then take on the characteristics of the image format your selected (ie., alpha channels, compression level, etc). This is useful if you want a sequential TGA animation of, lets say, a flying jet with a blank background for compositing in Vegas or Premiere. All 255 of your TGA images will be contained nice and neat in the MOV file for easy transport and maintenance! But if you screw up...you'll have to render ALL of the frames over again.

File Formats

A List of the Most Used and Asked About Formats

⌘ Sorenson Video, Sorenson Video 3

The best compressed codec for MOV. You can get superb quality if you can set the encoder settings properly. Resulting filesizes wouldn't be considered small, but manageable. If you have the latest Quicktime player installed, you can encode and watch these MOVs.

⌘ Others (Animation, Graphics, etc)

Each one of these generic codecs are specialized for a certain use, like for animations, still image graphics, etc.

MPEG (Moving Pictures Expert Group)

MPEG1: .mpg, .mpeg, .m1v(video only), .dat

MPEG2: .mpg, .mpeg, .m2v(video only), .dat, .vbs

MPEG4: .mp4

This is the video format of choice for finished edits. Being lossy, MPEG is the video standard for Video CD, Super Video CD, and DVD. Before I continue, let me make a statement: Do NOT edit with MPEG files! It's designed for finished video projects being shown on the computer or on TV, without taking up enormous amounts of disk space. A lot of shortcuts are taken in MPEG ... and if you edit with it, you will end up with trash.

⌘ MPEG-1

This is the MPEG variant for Video CDs or normal PC playback. Offers decent quality, and decent file size. Uses MP2 audio. Any other audio format multiplexed with MPEG1 breaks the standard. I will go over the exact specs, resolutions, and settings for a legal Video CD MPEG file in my "Making a Movie" article.

⌘ MPEG-2

This is the MPEG variant for Super Video CD and DVD. PC player is processor intensive. MPEG2 can use AC3, DTS, and WAV or MP2 (only in certain parts of the world), as audio formats. MPEG2 can also have more than 1 audio track for multilingual soundtracks. It also supports digital surround sound. MPEG2 video quality is superb, considering it's final file size. I will go over the exact specs, settings and video resolutions in "Making a Movie".

⌘ MPEG-3

No longer exists. MPEG2 performs the same tasks (HDTV, Satellite broadcasts...) MPEG3 was designed to do. If it still exists, email me, I'd love to learn about it!

⌘ MPEG-4

This is on an entirely different tilt than the previous MPEGs. MPEG4 is an open standard that will eventually support interactivity, streamable high-quality video and audio. MPEG-4 is a container format. Video is made from AVI's encoded with the following formats: DivX, XviD, 3viX, Nero Digital. MPEG-4 audio is made with AAC or MP3. These two streams are then multiplexed together as a .mp4 file in special (some freeware) applications.

⌘ MPEG-7

The purpose of MPEG-7 is far out of our realm. It's purpose is to provide digital libraries (image catalog, musical dictionary,...), multimedia directory services (e.g. yellow pages), broadcast media selection (radio channel, TV channel,...), multimedia editing (personalized electronic news service, media authoring), etc, etc. Don't worry about it.

File Formats

A List of the Most Used and Asked About Formats

RM (Real Media)[.rm](#)

RM is Real Media's proprietary compressed video format. Supports multichannel audio, and HD video. You're not going to do it for free, however. Real Producer, the encoder for RM9, is very limited in its free version. That, along with people's dislike for RealONE, is probably a reason you're not going use this format.

MKV (Mastroka)[.mkv](#)

This is another container file format. Mastroka is a new, open source container, I haven't played with MKVs yet. They require special processes to encode and to playback. Just check back with MKV in a few months and years to see how it develops.

That has been the most used, image, audio and video file formats. But then you come up with another question... how do I make these files from my renders? In my .AN8 Magazine exclusive series "Making the Movie", I will go into the ins and outs of creating an awesome presentation, from first render, to the finial cut.

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Making A Move Part 1

Pre-Render Checklist and Final Format Considerations

Here's the scene from my upcoming animated short "The Gamers 5: Mike's Revenge": "A news media ship is flying at high speed towards an island landing zone, flanked by two military attack choppers. The news ship lands at the LZ, and the reporters are greeted by two representatives of the islands secret society, as the attack choppers hover overhead. Suddenly, three anti-aircraft batteries rise from out of the landscape. The attack choppers are shot down, and the news ship is blasted before the crew could get back to it. Now, they're hostages to the members of the secret society."

This would be an awesome opening sequence to my 5th episode ... but rendered straight from AN8 and Blender, it would look worth-less. In the following 2 part article series, i'm going to go into what it takes to create fully featured, edited animated movies, complete with sound and music, using The Gamers 5 as an example.

Pre-Render Considerations

Before you would start to rendering your scene, there is something you need to consider: What are you going to do with the animation? The answer to that question will determine what paths you're going to take.

If you're just rendering a vibrating cube to show off real quick to the community, then there really isn't anything else you need to do. But if you're creating a scene where space ships fly past you at high speeds in deep interstellar space, engaged in a dogfight with enemy ships of the opposite alien race, you NEED to top it off with sounds and music. Or otherwise, it's just another animation.

Next, you need to consider where your going to show it.

1. On the Internet or Local PC Playback

2. TV

- VideoCD
- Super Video CD
- DVD

Each final destination has some requirements, or "standards" that you need to conform to to be sure that everyone can properly view your work. These define the video resolutions, frame rates, and formats that you must render to. Take note, because I'm going to go through them. I'll assume you've read my File Format guide (page 10), or already know a good deal about audio/video media formats.

Making A Move Part 1

Pre-Render Checklist and Final Format Considerations

Internet or PC Playback

There really isn't much of a set standard here. You just need to consider the strength of your viewers computers, and the speed of their Internet connections when you go about authoring video for this medium. Here is what I normally see.

Low Resolution

320x240 FPS 30, with 441K Hz 128kbps MP3 audio

High Resolution

640x480 FPS30, with 441kHz 128kbps or higher MP3 audio, or on some occasions, AC3

Then, you must consider the codec or format you want to use. Keep in mind, this must be a codec or format that a lot of people would probably already have on their computers, and one that could be played on non-Windows machines. Here are the common ones.

DivX

XviD

WMV

MOV, MP4

(notice MPEG is not in the list ... I don't recommend MPEG for Internet or PC playback.)

So, if you were going to create an animation with the intent of showing online, you would have to set the image resolution Anim8or or any other renderer you're using, to 320x240 for low resolution, or 640x480 for high resolution, with a frame rate of 30.

(If you want to create both high and low resolutions, render to the highest. The video can always be scaled down without losing quality.

NEVER scale a video up.)

TV Playback

The standards for this medium must be followed closely from the beginning, otherwise, it simply may not play in a DVD player. The standards are different if you live in different parts of the world. If you live in North America or Japan, your TV and all of the DVDs you're watch are using the NTSC signal system. If you live in Europe, your using the PAL system.

Video CD: Basically a VHS tape on CD. Offers the same quality as VHS. The VCD specifications supports menus and chapters. VCDs can hold about 80 minutes of VHS quality video on a 650/700MB CDR.

NTSC: 352x240 FPS 29.97, with 441kHz 224kbps MP2 audio, stereo or Dolby Surround

PAL: 352x288 FPS 25, with 441kHz 224kbps MP2 audio, stereo or

Making A Move Part 1

Pre-Render Checklist and Final Format Considerations

Dolby Surround

For Menu Images: NTSC 704x480, or 352x240

PAL 704x576 or 352x288

If you use the MPEG-1 format, you MUST use it at a bit rate of 1150kbps

Super Video CD: Basically a SVHS tape on CD. Offer the same clear video quality as SVHS. Also supports menus and chapters like VCD. SVCD can hold around 55 minutes of high quality video on a 700MB CDR.

NTSC: 480x480, 352x480 FPS 29.97, with 441kHz, 32 - 384kbps MP2 audio, stereo, Dolby Surround, or MP2 Multichannel

PAL: 480x576, 352x576 FPS 25, with 441kHz, 32 - 384kbps MP2 audio, stereo, Dolby Surround or MP2 Multichannel

For Menu Images: NTSC 704x480, or 352x240

PAL 704x576 or 352x288

If you use the MPEG-2 format, only use it at a MAXIMUM of 2600kbps

**NOTE: Since SVCD has odd video resolutions, it's better to render with 640x480, then scale down to 480x480/576 during authoring.*

DVD: You know what a DVD is. DVD's offer the highest quality video and audio possible. DVD menus support advanced interactivity, chapters, angles, subtitles, additional language tracks and more. You can store 2 hours of DVD quality video on a 4.7GB DVD disc, 15 minutes on a CDR (this is called a Mini-DVD, and is not guaranteed to work in a DVD player).

NTSC: 720x480, 704x480, 352x480, 352x240 FPS 29.97, with 48kHz, 32 - 1536kbps AC3 or PCM (WAV) audio, stereo or digital 5.1. (note that you must either use AC3 or WAV)

PAL: 720x576, 704x576, 352x576, 352x288 FPS 25, with 48kHz, 32 - 1536kbps AC3, PCM or MP2 (WAV) audio, stereo or digital 5.1. (note that our PAL friends can use AC3, WAV or MP2. NTSC viewers CANNOT)

For Menu Images: NTSC 720x480, 704x480, or 352x240

PAL 720x576, 704x576 or 352x288

Your MUST use the MPEG-2 format at the following bit rate: AT MOST 9.8Mbps

DVD supports a widescreen 16:9 aspect ratio, only if you use 720x480/576

Making A Move Part 1

Pre-Render Checklist and Final Format Considerations

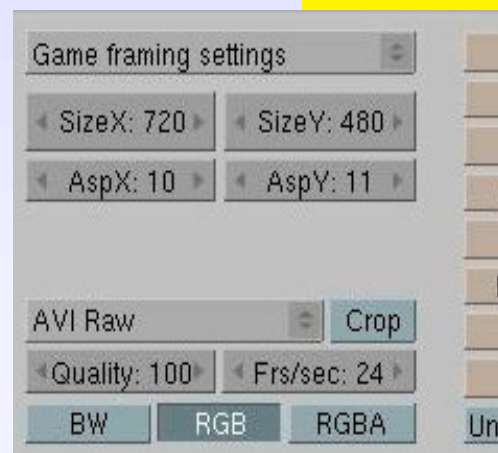
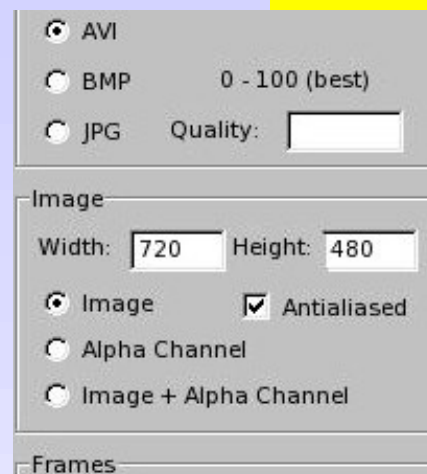
That's quite a mouthful of data. However, at this point, you're only interested in the video resolutions and frame rates. We'll get caught up with the other data during editing and authoring.

Now it's time for you to decide where your final animation is going to end up. I've already decided, *The Gamers 5* will be authored in both DVD and Internet formats.

Here are my settings. Notice I'm using 24FPS to give my movie a film-like appearance. This simple modification is known as the NTSC-Film specification. PAL viewers cannot do this and still be within specification. Also notice that I'm rendering to 720x480, even when I'm going to author to DVD *and* Internet. Remember to render to the highest size, and scale down to all the other sizes you need during authoring.

With that out of the way, there's one more thing: What file do I render to? The answer, uncompressed AVI (if you're short on space, AVI compressed with the Microsoft Video 1 compressor. NOT with DivX or XviD). This is to save the video quality as we edit and add sound to our animations. Remember, try to stay uncompressed until it's time to author.

Now, start animating and rendering! I'll see you in the next edition with the second and final part to this article!!



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Creating a Monster

This step by step tutorial will teach you how to create your very own creature of darkness (or light). The process is somewhat complex and will take you a little while to complete, but when you are finished, I promise you will be very happy with the results. This tutorial can not only be applied to monsters but to other organic models as well. However, do not expect any tips dealing with human modeling as I am not experienced in that area. Creating the human body requires knowledge of anatomy and that's the one thing you can be free with when it comes to creatures. I hope you enjoy this tutorial and I'd really like to hear your comments when and if you have completed your model. Okay, Now lets get to work!

Before you create anything artistic on the computer you ned to plan it out. In this case we will draw the creature using either a pencil, paper, and a scanner, or a Wacom tablet. I'm going to use the tablet for convenience's sake.

A Wacom tablet is a computer drawing tool that comes in variable sizes and shapes. It is best to use the tablet with Photoshop or Paintshop Pro, it can be used for everyday tasks such as selecting files and running programs(although it's difficult to do). Here is one I did just for this article. His name is Kuba Cartalk- just what he is is a mystery to me. Obviously, this image simply won't do by itself. Don't worry, this was just the idea sketch, something I recommend you do first. Now you that have your idea on paper, you can sketch the schematic(or blue print, or reference image, quakenbobble, or whatever you want to call it).

You're probably wondering by now why we are only working on the head. It's because the head, in my opinion, is the most complex part of any organic model you create, and it would be wise to start with it first. In the 3rd issue of DotAN8 I will give detailed instructions on how to create the body.

Ok, Here is the schematic drawing I was talking about. As you can see, I have removed the shades. Don't worry, they'll be added afterwards. I also want you to notice that it's faded out a bit- this is to help you see were your lines are when you're working in Anim8or. Now it's time to model!

1)I want you to open up Anim8or.

2)Change to Side view.

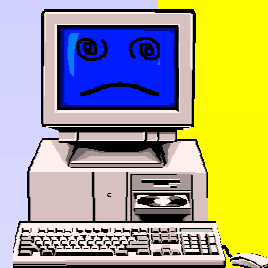
3)click build-> reference image

4)A window should pop up, in the first location box type -100. After that click on the Load button and select your creatures' schematic image. If you haven't made one, then feel free to use mine. It should be found along with theDotAN8 magazine under the name Kubaschematic.jpg

You will need:

*a scanner, or wacom tablet

*Anim8or v.85 or higher




Semi-Noob friendly

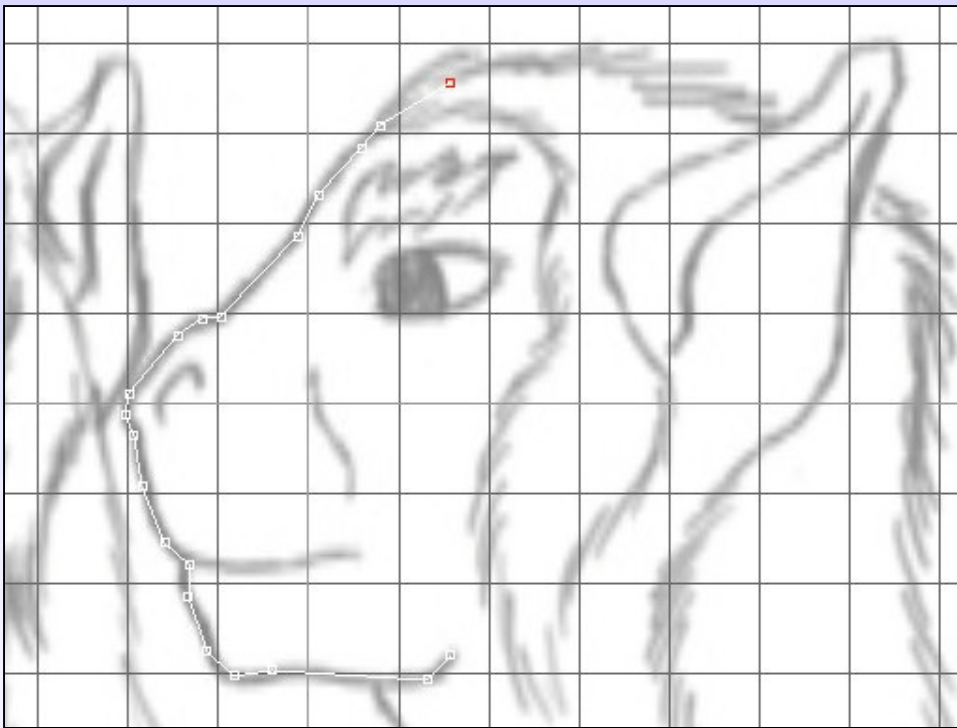


Cr eat i ng a Monst er

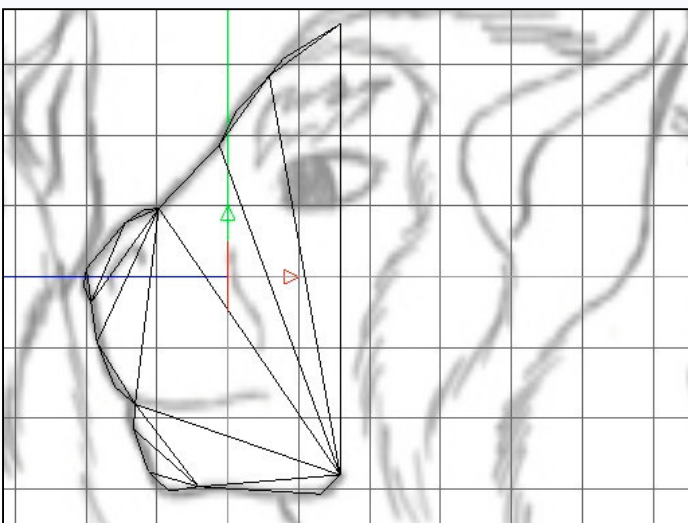
Scale the image up a little. 

Select the Straight-spline button. 

And use it to trace the outline of the side of Kuba's face.



Now proceed to fill the outline (build->fill). From now on, the spline will be a mesh.



Creating a Monster

Unfortunately, this isn't what you want. You're going to need to select and delete the edges within the original outline like so:

Now for the fun part. You're going to need to create lines across the face in the shape of four sided polygons. Because the image is two dimensional, this won't be easy. To make things even harder you want to make it so that it forms edge loops. An edge-looping is a method of facial modeling that allows for realistic facial animation. Edge loops make the edges of a model seem to form a loop. You would not want to animate a face that has not been edge looped properly, as it will create undesired effects.

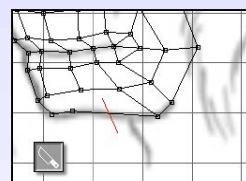
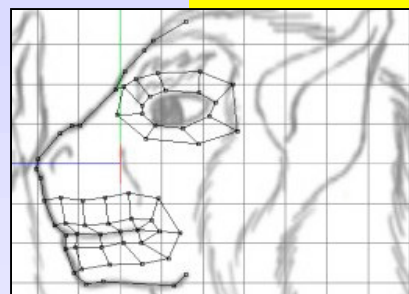
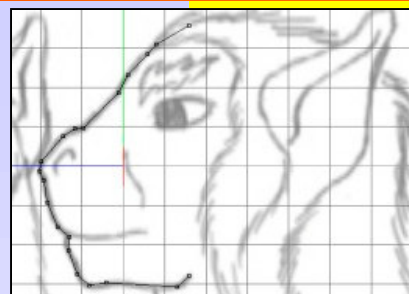
As you can see in the image to the right, I have "looped" the segments around the mouth and the eyes. You should eventually come across a situation where you need a vertex where there is none. This is usually the case when you make fewer segments on one edge than an edge that is right next to it.

There is a simple solution to this, the knife tool. You can see what I did in the images on the right.

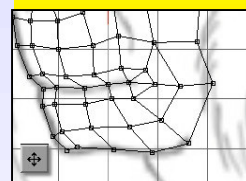
If you believe that your segments aren't in the right place than don't hesitate to move them. Simply select the vertex(s) that you wish to move and then move them in the proper place.

We're almost halfway there! Now, comes the three-dimensional part. Switch to Front view and select Reference Image from the pull-down menu. Load up the same picture again and move it far enough behind the segment wires so you can see them (when you load the image, type in -100 in the **last** Location number box). Then scale the image until it's the same size as the first one. Now move the image around until the front view of Kuba is centered in relation to the segment wires.

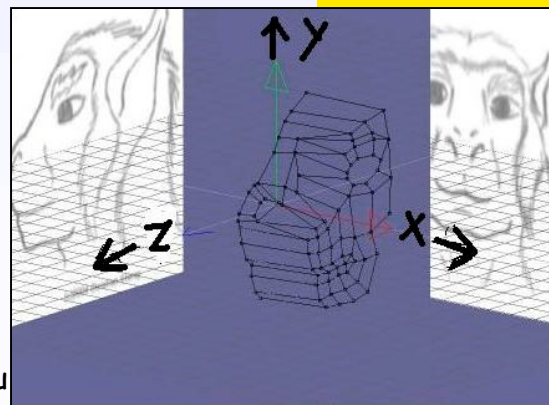
From there you are to select the vertexes and move them until they match the shape of the front schematic view of Kuba. This will probably be the most challenging part of Kuba's face. I recommend that you set it so that it will only move on the X axis no matter what the orientation of the User view is in. This will make it easier for you to give the wire-frame the correct shape.



Before/during
knife tool



After knife
plus add edge
tool



Creating a Monster

In this situation, having a multiple view set up may not be a bad idea.

Ok. Select all of your segments and select Fill from the Edit pull-down menu. When you finish, you will need to fix it up a little. Unless you are a really good at modeling, your mesh will not come out perfect the first time. You would probably want to erase both schematic pictures from your work space. After that, feel free to edit your vertexes and segments until they look right. Then, mirror your mesh to see how it would look once finished. If it looks good, then erase the mirrored mesh and reload your schematic. We are now ready to model the back of the head.

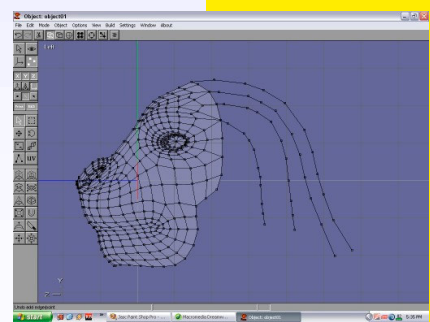
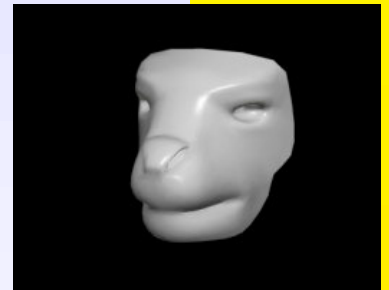
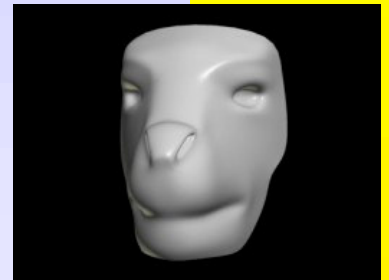
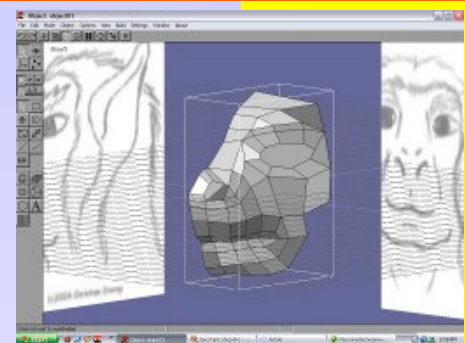
Even after editing the segments and what-not, it still doesn't quit look right. It's too long, as if it was stretched out. Although you can keep it like this if you want, I have chosen not to. I used the free-scaling button to get it shaped the way I wanted.

Congratulations, you've made it to the easy part. We're about to model the back of the head. This task doesn't even require you use the schematic, although you may use it if you must (I've changed the mesh so much now that the schematic would no longer be accurate).

I went ahead and subdivided the face permanently to allow more detail to be added later on. You don't have to do this, but if you do, be very precise in your modeling.

As you can see in the image on the right, I'm creating the back of Kubas' head. Even without the reference image, this isn't difficult, and you should have no problem doing this.

Once you are finished creating the back of the head, connect each vertex and Fill. Once complete you should make any needed adjustments. We're almost done. My adjustments to Kuba involved opening his mouth, and getting rid of any strange bumps. I congratulate you if you have gotten this far. We've nearly completed the head. The only things left to do is add the eyes, ears, hair, teeth (optional), material, and finalize with a few more adjustments.



Creating a Monster

Creating the ear can be difficult depending on how you do it. A lot of people create the ear by extruding faces from back of the head. While this does work, it does not look realistic. What we're about to do is create a whole different mesh. Click on the Object pull-down menu and create a new object. Turn to the side view. Then load the reference image again, scale the image, and proceed to move it -100 units along the X axis. Now create a straight spline and trace the edges of the ear. Fill the spline to turn it into a mesh and delete any crossing segments. After that you should see this:

Now, delete the reference image again. After that fill the polygons and move certain segments and vertices along the X axis to make it three-dimensional. Then proceed to create new segments along the back of the ear. Fill those as well.

Once completed turn the mesh into a subdivided object. Then hit CTRL-C. After switching to the original object hit CTRL-V. This should have made a copy of the ear mesh and moved it into the same workspace as the head we made earlier. After you scale and move it into the area where you feel satisfied, select and delete the vertices from the head directly under the ear until there appears a hole big enough for the base of the ear to fit through.

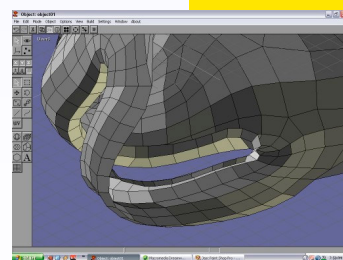
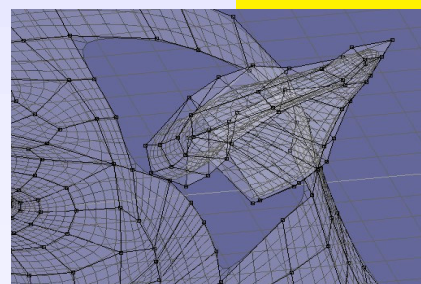
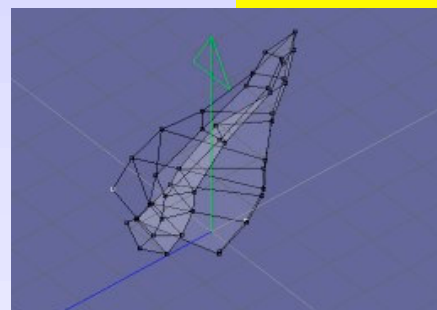
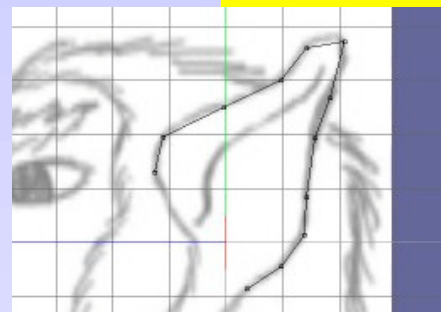
After that, turn both of the objects subdivision levels down to 0 and convert them back to a regular mesh. Then, join both meshes into one. We can now proceed to connect the ear to the head in a realistic way. Feel free to move around vertices as this will probably be necessary in order to insure a realistically smooth transition between the head and the ear.

Where finished right?

Nope. Not yet.

It appears that we have forgotten to fill the underside of the chin. Do so. If you've managed to get this far in my tutorial, than I need not bother telling you how to do it. It's very simple to do.

Infact, I will leave it up to you to complete Kuba. Why you ask? Because chances are, your mesh is probably very different from mine. In this same magazine, you'll find an article teaching a new way to create realistic fur, I suggest you use your Kuba model to try it out, maybe use it for his hair?



Cr eat i n g a M onst er

Here is my completed Kuba:



Creating a Monster is (c)2004 by Christian Alexander Storay

Lighting Theory

Realism And Lighting in Anim8or.

By: Lasukie-Kai

Part One:

Introduction

As anybody familiar with 3d software knows, One of the keys to successful compositions and scene setting is lighting and realism. However in less expensive programs, such as anim8or, this is not the most simple thing to accomplish.

Anim8or, unlike much 3d software, is freeware. It focuses more on animation, and less on single images and rendering, this may change in future versions, but we will have to deal with the features its renderer and scene mode has in the current releases (0.85 and 0.9Beta). In this article, I will explain lighting and shadow types, and show you some tips and tricks to get the most out of your anim8or renders.

Part Two:

Shadows

In 3d, shadows are an integral part of realism. A shadow is basically light being blocked by an object. Obviously you see shadows all around you, both outdoors and indoors. In anim8or, there are four shadow types. Volume, or un-raytraced shadows, are the simplest and in theory the fastest (in reality you need to have a very simple scene for them to work right), but also the ugliest and buggiest of all the shadow types, I avoid this type like the russian plague. After Volume shadows, come hard shadows, these very rarely show up in the real world, and so you should only use them when combined with soft shadows from other lights, hard shadows are raytraced and not very buggy. Next are ordered shadows, Ordered shadows are my second most used shadows, and often the most realistic ones. Ordered shadows are raytraced. After ordered are of course Monte-Carlo shadows, This is the shadow type I most commonly use.

The following list goes into more detail to explain all of the shadow types.

Lighting Theory

I will start with monte-carlo shadows, these shadows are good for a variety of reasons. Monte-Carlo shadows can simulate most if not all the effects of the more realistic, but costly Ordered shadows. You may often place Monte-Carlo with the new "Grainy" shadow phase that many people find makes their images "Cool", however, this effect can be overused, and LOSE appeal in your images if done incorrectly. As a tip, I suggest using Monte-Carlo shadows sparsely on Local Lights in a scene. My most common setup is:

Percent Dark: 75-100

Size: 35-55

Minimum Samples: 4

Maximum Samples: 6

Ordered Shadows handle light a little differently than Monte-Carlo, though not by much. Ordered shadows can be used to simulate exterior lighting, I very rarely use them for interior lighting, as they take so long to render. Even one local and one spot casting ordered on a few high poly objects, can cost upwards of two hours rendertime. This is not to say, that you can't use Ordered in interior shots, however you can create an equally realistic light setup with Monte-Carlo for interior scenes, we'll touch on that later. My most common setup for Ordered shadows is:

Percent Dark: 60-80

Size: 50

Minimum Samples: 4

Maximum Samples: 6

Part Three:

Lighting and Light Types

There are three types of Lights in Anim8or. The first light type is Infinite, This provides a constant color and intensity of light throughout the whole scene, Infinite lights casting shadows are VERY costly. The next is light type is Local, These can be used to simulate everything, including infinite light, often with more realism at less cost.

Lighting Theory

The last type is Spot light. Spot Lights can be used for highlighting, and definition of shadows and objects.

When lighting your scene, you have to consider many variables to get an accurate render. The first is, the type of render. Is it a dark damp dungeon, or a mountain top? The next is camera placement, and POV (point of view) And finally, the polycount and placement of the models themselves (Scene setup).

For exterior lighting (mountain top, ocean, etc.) I suggest Ordered shadows, you don't need many lights this way.

For scenes like a dungeon or other indoor places (houses, theaters ,hotel foyers, etc.) I suggest Monte-Carlo shadows, with many lights.

When lighting an interior scene, consider two light types. Usually I make Local lights my light "bulbs" in a scene for accurate shadow casting, and spot for highlighting or higher powered "bulbs"

Infinite lights only serve two real interior purposes, light casting through windows, and light casting a color tint on the scene (sunset, sunrise, midday, or a blue tint for that rainstorm) They can be used for diffused light as well.

Diffused light is a term you may have heard, but don't quite understand. Diffused light are lights rays bouncing of objects, walls, etc. It's the scattered light that causes a shadow on the wall behind your stereo, even if its not facing any obvious light, or why a shadow is never completely black.

Consider this simple idea. If sunlight from a bay window, hits a white wall, the wall becomes a bright white (or other color, depending on the time of day) This light rays are reflected off the wall and bounce around like rubber superballs.

Since anim8or doesn't support this normally, you may choose to "Fake" it, by placing a dim local or infinite light below your scene, or just inside of the floor or walls, with *really* light shadows. This is also known as radiosity.

Lighting Theory

II. setting up your lights (light setups)

Once you have an idea what you want the scene to look like, its time to light it up. Here's a breakdown of light setup types I use. Some of the names may not be commonly used by all of you (basically names I made up for my own scenes).

Radiosity/Global Illumination: This is THE most costly of all light setups in existence. Useful for showing off a product or model in a way that highlights it all realistically. Equally applicable to inside and outside renders, You can do a search for GI creator to create your "Dome" of lights to get a simulated GI effect.

Airbrushed or Cold shadows: These are the "Hardest" of soft shadows. I use these in showing off models, usually using two or three local and spot lights. They have the effect of being sort of "Airbrushed" on the scene. Good for your product renders, and showing off your models outside of GI.

Grainy: Recently in 3d, and anim8or in specific, Grainy shadows have become a sort of trend. Grainy shadows make soft shadows diffuse themselves into pixelization, causing an effect similar, but not the same as an actual shadow diffusion. You can use it to simulate GI and Radiosity with fewer lights then you would need, with say hard ray traced shadows.

The Five o'clock shadow: No, I don't mean Steve's beard. The five o'clock shadow is placing a light directly in front, or above and in front of an object that causes the shadows to stretch a certain way, creating that sunset like or five o'clock like shadow that I strive for in a lot of my scenes.

Part Four:

Polycount and Patience

You didn't really expect those sixteen local lights to render your 50k poly character in twenty seconds did you? You have to optimize your polies for rendering and be patient.

This can be done two ways, first, make your high poly object's polygons nearly the same size, and all quads (triangled meshes and crossed polies make for longer render times, and an ugly render to boot).

Hint box

To change an object's subdivision level double click on it and a window should pop up. In the box where it says "working," change the number to what you want it. The higher the number the higher your division level.

Lighting Theory

The next is simpler, if you have a subdivided mesh that's not yet converted to a standard mesh, you can adjust the divisions. For an object that's far away, 0-1 divisions can be used. For one that's closer, 1-2 divisions can be used. I don't recommend higher than 2 divisions in the sub-d stage, as this can severely increase polycount.

Either way, if your lights are complicated, your render will take a good while to finish. So you might complain about not having time to play your little FPS's and moan about missing that flag game in an arcade shooter, but if you want to have decent renders, put time into them. You'll need patience, especially with freeware apps with simpler render engines. Anim8or is no C4D.

My renders take on the side of 45mins to 5hrs, averaging right around 30min-2hr.

This is where that pentium 1, 100mhz, your mother nearly tossed away may come in handy, use it to render while you use your other comp for more fun stuff, like reading this magazine ;).

Part Five:

Footnotes

I stress that this is not a how to or a tutorial. Its merely an article on lighting theory in anim8or, and how it applies to your renders with the occasional tip. I hope it can be of use to you, and your future creations.

~Las Aka Sean-san

Modeling Techniques

This article will be covering all modeling techniques seen in anim8or; Box Modeling, Spline Modeling, Polygon Modeling (better known as point by point to the anim8or community, this is NOT to be confused with spline modeling which some people do), Sub-Division Modeling and what I like to call Primitive Modeling.

Box Modeling

Box modeling is where you extrude the faces of a primitive in order to create a more complex object, quite often you will start off with a box and go from there, extruding faces, scaling faces, cutting faces etc. There's a lot you can do with box modeling, and if you have some patience you can get some real detail into your models.

You can combine box modeling with any of the other techniques described here to get even *more* detail in.

Box modeling is best suited for making quick, simple models. However you can model anything you want with it if you know what you're doing.

Spline Modeling

Spline modeling is often confused with polygon modeling which is a shame because if you learn how to model using both methods you can create some real special stuff. Spline modeling is a technique in which you create a shape using either the spline tool or the curved spline tool (which creates a rounded spline rather than a straight edged one). Next you can do one of a few things to your spline, you can extrude your spline and start box or polygon modeling with it from there, you can lathe your spline around a particular axis to make something rounded like a bowl, you can extrude along a path and fill it from there to make something like a cord, or you can extrude and fill normally to make your own custom text. One last thing you can do with splines is you can fake Booleans by making one spline larger than another and then join the splines by using the Build > Join Splines command, from there you can either extrude or lathe to get a shape with a hole in it.

Polygon Modeling

Better known as 'point by point' to most of the anim8or community, and mistakenly known as 'spline' to some of the community, I don't know why and it can get really confusing sometimes when someone asks for help in spline modeling but really they mean polygon modeling.

Modeling Techniques

The difference is small and huge at the same time, I think (and this is taking a guess) that people got confused somewhere along the line because in spline modeling you add points and in polygon modeling you add points but that's where the similarities end. In polygon modeling you edit the topology of the mesh by adding each point to the mesh and positioning them in their proper place (this technique is almost always used with at least two reference pictures) references help in positioning the points. You can also use the cut tool to add more points and edges to the mesh. The only drawback is that it takes a lot longer to make the model.

In anim8or v0.9, which is still in the beta process at the time of writing, there is a new tool called 'edge extrude' this new tool as far as I understand is incredibly useful in polygon modeling because it helps to speed up the process by allowing you to simply extrude an edge in order to create the next set of edges rather than adding each edge one by one. I currently do not know any more about edge - extrude so that is the best overview I can give. This technique also seems to be the good for making cars.

Sub - Division Modeling

Sub-division modeling can be linked to any of the other modeling techniques. This is because sub-division modeling is simply smoothing out the model to give it a nicer, smoother (and often more organic) look. People who are new to modeling will immediately think that sub-dividing your models is the most wonderful thing to do, but what it can do is ruin your models if you don't use it properly. For instance you might want some of your edges to be sharper than others so what you should do is bevel the edges you want sharper just a little bit, or even make a cut in parallel to the edge you want sharper, once you experiment a bit more and learn little techniques like that you will be more easily able to control how sub - division works rather than just hoping for the best.

This can be used on any type of model and in almost any situation except for when you want something low - poly maybe a game.

Anim8or in Linux

As most people may know, Linux is an operating system, similar to Microsoft Windows, and Apple's Mac OSX. However, there is one difference that sets Linux apart from the rest: It's free!

Linux claims to be faster and more stable than Windows (whether or not it's true I believe is a matter of personal opinion. My W2K system has rarely ever crashed on me. I have locked up Linux occasionally as well, so to me they're about the same). Linux also has superb support for developing applications and setting up web servers, and to go along with that is an enormous list of freeware applications that cover a whole range of tasks, from word processing (Open-Office-also available for Windows), all the way to video editing (Cinerella) and CD/DVD burning (K3b). It also has an application called WINE, a Linux program that allows you to run Windows applications ... perfect for Anim8or users. If you're into computer graphics, I suggest you give Linux a try.

Linux comes in several "flavors" or distributions. Each one is designed to better support a specific purpose. In my history of being a Linux user, I've tried out Knoppix, Fedora (Red Hat), Mandrake, and SuSE. Those (including Debian) are all of the most used Linux distros, but there are at least over 100 to choose from. If you're new to Linux, I suggest you start with either Mandrake or SuSE. This tutorial will use SuSE, the distro I've been using for months now.

You can obtain Linux distros by downloading them from their websites, by buying Linux magazines from your local bookstore, or by buying boxed versions of the OS, which usually comes with the printed manuals, special technical support options, and more packages (or programs) than what comes with the standard downloadable ISO. Expect to pay a considerable amount for a boxed version, usually around \$50 to \$100. I paid \$55 for Mandrake Discovery 10.0, and I'm planning to invest \$90 for the boxed version of SuSE Professional to upgrade my good ol' SuSE Personal! Alternatively, you can buy just the distro CDs for extremely cheap from OSDisc (www.osdisc.com). This is the recommended route if you are on dial up Internet, as ISOs are usually around 700MB.

If this is your first time using Linux, and you want to take it for a spin, the following guide will help you to set up a dual boot Windows and Linux PC. I've taken all the hard work out of it ... no need to screw up partitions, or browse forums full of mean, Linux-elitists, for help. It's all here, in English, not l33t.

****This guide will help you to setup up fresh installs of SuSE Linux 9.1 Personal and/or Windows XP/2000/98SE. Data will be lost in this process.** In my research, resizing NTFS or FAT32 partitions was very difficult, can't be done safely with any freeware, so I don't expect a first time user to be able to accomplish it. So I say again,

DATA WILL BE LOST IN THIS PROCESS. DO NOT PROCEED UNTIL YOU HAVE BACKED UP YOUR SYSTEM, AND HAVE THE INSTALL

Anim8or in Linux

INSTALL CDS FOR WINDOWS (if your keeping it as a second OS), AND ALL YOUR OTHER HARDWARE DEVICES, OR SOFTWARE. dotAN8 TAKES NO RESPONSIBILIY FOR WHATEVER MAY OCCUR IF YOU FAIL TO HEED THE WARNINGS. **

In the following instructions, all text in black applies for all XP, 2000 and 98SE users. Text in blue applies ONLY for 98SE users. Text in red applies for only XP and 2000 users.

Preparing Your Computer

This is the most important part. Before attempting to do ANYTHING that could potentially compromise your data, do a backup. Use USB flash keys, CDRs, or DVDRs, it doesn't matter, but just make sure your important data is safely tucked away some where.

Be sure to have your install CDs and serial numbers for all of your applications and for Windows, since your probably going to have a dual boot system.

Make sure you have enough space for Linux on your hard drive. I suggest having two drives, one for Linux, and one for Windows. If that's not possible, I'll go through the method of partitioning off a single drive to support multiple operating systems.

Create a Windows Boot Disk. This is needed, as the Windows 98 install process doesn't support some of the things we need to do. You can download it online from (<http://www.bootdisk.com/bootdisk.htm>) or just use the Create a Bootdisk function inside the Add/Remove Software function in the Control Panel.

Once all of your important data is secure, all of your Windows and application CDs are secure, and when you have created a boot disk (if your running Windows 98), you can move on to the next step.

Obtaining a Linux "Flavor"

Next, it's time to get Linux. You can pick any version you want, but for this guide, we're going to be installing SuSE, the Linux OS that I've been running for a while. You could choose Mandrake as well, since the install procedures are almost identical.

If you have a dial up connection, scrap the idea of downloading Linux. For SuSE you'll need to download 1 CD (700MB). For Mandrake, try 3 (2100MB).

(http://www.suse.com/us/private/download/ftp/personal_iso_int.html) is where to go to obtain the SuSE 9.1 Personal ISO. Pick a download site nearest to your location.

Once you receive the file, it will be in ISO format. ISO is basically all of the contents of a CD, along with burning instructions for CD-DVD programs, all

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wrapped up in one convenient file. Open Nero, EDCD, or some other burning application and load the ISO file in. Burn, test, and once it's all done, we will move on to the next step.

Pre-Install Checklist

Now, for this next step, be sure you have the following items, Linux install CD, Windows install CD, all your backed up data on CDs or otherwise, application CDs, serial numbers, and [bootdisk](#). If you're a Win98SE user, say night-night to your GUI as you're going to be in command line for the next few steps.

Reboot your PC, and make sure you can access your computers BIOS setup utility (you do it by holding DEL or INSERT or F1 right when you turn your system on. It's different for different BIOSs). We come here to make sure our primary HD is set to LBA Access Mode. Failure to do this will result in failure to boot Windows once both operating systems are installed. Newer computers should have this option ... if not, or if you can't get into your BIOS, there are some alternate methods that you must follow:

First download and unpack [parted.img.gz](#) from <ftp://ftp.suse.com/pub/suse/i386/update/9.1/misc/parted/parted.img.gz> with a Windows unpacking program, preferably WinRAR. We are going to write this floppy disk image to a blank floppy, so have one ready.

The directory `/dosutils/rawrite/` on the SuSE Install CD includes the program [rawrite.exe](#) that can be used to write the image to a floppy. Copy this program to the directory containing the unpacked file [parted.img](#).

Insert a floppy in the drive and start [rawrite.exe](#). Enter the file [parted.img](#) as source file and confirm with Enter. Then enter the name of the floppy drive (usually "A") as write medium. The image will be written to the floppy. Keep this floppy on standby, we'll be using it if the Windows boot fails.

Once that is good to go, you're ready to install Linux!

The Install Process

Restart your computer, with the boot-disk inserted into the floppy disk drive. You can choose to boot MS-DOS with CD-ROM support, or not, it doesn't really matter. Once you're at the prompt, type:

```
fdisk
```

This should load the FDISK Utility.
(If it asks about enabling Large Drive Support or something, be sure to enable it)
Next, you'll see a series of 5 menu items. You're going to choose number 3, "Delete Partitions or Logical DOS Drive".

If you only had one partition when you were using Win98SE, you should

Anim8or in Linux

only have one option. Choose it, and confirm the deletion of the partition. As it will warn you, like I warned you above, your data will be lost when this happens. Once it's deleted, you'll be dropped off at the main menu. This time we're going to choose the first option, "Create DOS Partition or Logical DOS Drive". It will then ask you if you want to use the entire amount of disk space for this partition. Since we're going to be installing Linux and Win98SE, choose NO. For users of Win98SE and FAT32, I recommend using half of the partition for Windows, and half for Linux. So, enter in the half of your HD size (in megabytes), and continue. We'll worry about setting up the other half for Linux later. Once it's done, you'll be dropped back off at the main menu. Exit FDISK and restart your computer, with the bootdisk still inside.

Once your finished rebooting, and back at the A: prompt, enter:

format C:

This should begin the FAT32 format process for your primary partition, C. Depending on the size, this might take a while.

Once you've waken back up, and the format is done, restart your computer, take out the bootdisk, install the Win98SE install CD, and install Windows as usual.

Insert your Windows 2000 or XP install CD. Follow the onscreen directions as usual, until you get to the screen showing you all of the partitioned and unpartitioned space on your hard drives. You should see your old one which takes up the whole hard drive. Press D to delete it. Like I stated above, this will permanently delete all of your data, so I hope you did some backups. Once it's gone, the only selection in the box should read "Unpartitioned space". Select it and press C to create a partition. Create a partition that takes up half of your hard drive. The other half will be used for Linux, we'll leave that alone for later. Once you get back to the main partition screen, you should see one partitioned space, and one unpartitioned space. Select the partitioned space, and press Enter.

It should now ask you to format with either NTFS or FAT32. FAT32 can be read and safely written to by Linux. NTFS can only be read by Linux, writing to NTFS partitions from Linux at this point is experimental and dangerous. However, if you're going to be doing intense work in Windows, I suggest you choose NTFS. If you have enough disk space, you could create one NTFS partition for Windows installations, one partition for Linux, and another FAT32 partition that both OS will share. If not, there are ways you can transfer files back and forth between Windows and Linux. Once you make the selection, the Windows install will begin. In a few minutes you will then be back inside of Windows.

Congratulate yourself ... you're halfway there!

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Insert your SuSE install CD, and restart your computer. Once you've rebooted, you'll be greeted with a graphical SuSE install splash screen, then a series of options. Before time runs out, select the "Installation" option. Stand by as the Linux Kernel is temporarily loaded into memory. Next, you will be inside YaST, the SuSE Installer.

Choose your language, and then you will be presented with a summary screen. This screen is a list of everything that SuSE will do when you click the Accept button in the lower right hand corner. **Nothing will be done until you click that button!**

Now, there are two categories that we are interested in at this point. First, it's the Partitioning category. Click on it. It will display a pre-determined configuration that it will do ... which is usually to format all remaining unpartitioned space for use with Linux. That's not really a problem if you've got one Hard Drive, and you only want to install Linux on the remaining unpartitioned space. If so, click Back. But for those who want to do advanced partitioning, or keep Linux from formatting parts of the HD that you want to keep for other things, we're going to create our own custom partition setup, so click the "Create Custom Partition Setup" button, and click next. Then you're going to see a list of your hard drives to choose from. Just click "Custom Partitioning - for experts", and click next. Don't worry, everything will go fine if you follow directions!

Next you'll see a list of partitions. This is pretty confusing, so I'll break it down:

/dev/hda: This is your primary drive

/dev/hdb: This is your secondary drive

/dev/hdc: This is your third drive, and it goes on in that pattern.

/dev/sda: Could be an SCSI drive. or in my case, a USB attached hard drive.

/dev/hda1: This is the first partition under your primary drive., hda2 is the second, etc, etc.

If you're in XP or 2000, your primary partition is known as /dev/hda1 as NTFS. If you're in Win98SE, it might say Win95 FAT32 LBA. **DO NOT MODIFY THIS**

Anim8or in Linux

ENTRY!!

YaST has automatically created some Linux partitions that it will format during installation, labeled as Linux native. If these preset partitions aren't what you want, you can just select the partition, and click Delete, at the bottom of the screen. To create a Linux partition, click on create. It'll ask you the drive you want to create it on. Choose one, and pick OK, then you should see this screen.

First, select the Format bubble. Then, pick a file system (I recommend ReiserFS or EXT3). Then in the End Cylinder field, enter how large, in megabytes, the partition is supposed to be (ex. 700M). Next, in the mount point area, choose "/" from the drop down box.

If you had enough space, you could create several Linux partitions, one for "/" (for all Linux distro system files), one for "/home" (which holds user data), and "swap" (serves as virtual memory in Linux). This way, you could switch distros without losing your user data, or share two different distros.

Once you've finished the hard part of setting up partitions, click next to return to the main summary page.

The last area of interest for us is the boot loader. The boot loader is responsible for allowing us to boot into two or more operating systems. The default boot loader that should be selected is GRUB. This predetermined configuration should be fine for most users, so it's now time to click the Accept button. After the final confirmation, YaST will initiate the installation of your first Linux distro, SuSE Personal 9.1. Sit back and relax. Don't relax too much ... there's one more extremely important part coming up, *The Post Install*.

Anim8or in Linux

The Post Install

Once it's done, take out the SuSE CD. Restart your computer. You should now see the GRUB boot loader, with a selection to load Linux and Windows, among others. Choose Windows. If Windows loads, congratulations! Nothing else can go wrong with the installation process now! Restart, and then log into SuSE for the first time!

If not, make sure LBA is enabled on your primary hard drive, like I explained above. If that still doesn't work, do this with that floppy you made earlier.

Insert the SuSE installation CD. When you reach the screen asking you to either Boot from Hard Disk, Installation, etc, etc, press F6. A message asking you to keep the driver update ready will be displayed. Now, highlight the menu item "Installation", **but don't press enter yet!!!** Type "fixpart=1" which should appear in the boot parameter field at the bottom. Then press ENTER. When the message "Please choose the Driver Update medium" is displayed, insert the floppy you created and press "OK". In the following menu, select "floppy" and confirm with "OK". After completing the driver update, press "Back". Now you'll see a dialogue for repairing your partition table. It'll display your hard disk (usually /dev/hda) and the status of the partition table (broken). Select the hard disk and click "OK" to repair the partition table. After repairing the partition table, exit the menu with "Back". Press CTRL-ALT-DEL to reboot the computer and Take out the floppy and the install CD.

Now you should be able to boot both Windows *and* Linux!!!

If it *still* doesn't work, you may have to reinstall Windows and get expert help, as I don't see any other reason why it wouldn't work.

Once you're in SuSE, it will go through a process of setting up users and passwords, setting up your network devices (if your using a wireless USB device, you may have problems ... if so, go back into Windows and email me), and getting your GUI, KDE, up and running. During this process, you will get a password, the root password....

DO NOT FORGET THIS PASSWORD!!

Linux is built around security. You need this password to access certain areas of Linux. Be sure you write this down somewhere!!!

Welcome to Linux

Now lets run anim8or. Anim8or is a Windows program, and will not run natively in Linux. However, we have a little program called WINE, that can attempt to run Windows programs. It's not guaranteed to work with all programs, but since Anim8or is small, it'll work fine for our purpose. To demonstrate the power of WINE, I've got Macromedia Flash, ACID Music, Windows Media Player 6.4, Terranim8or and DAZ Studio to run in Linux, with reduced or full functionality.

Anim8or in Linux

I'm going to walk through getting the basic WINE setup on Linux, and getting AN8 to run. First, click on the K-Menu (or the little green frog), and go to System, YaST.

Type in your root password, and you'll be delivered to the YaST Control Center. Next, click on "Install and Remove Software". This will load up a browser that allows you to pick and choose from thousands of different software packages available for SuSE Linux. You can have access to more if you have a working network connection, and if you click on "Change Source of Installation" in YaST. Add a FTP source, and enter the following information:

Server Name: [ftp.suse.com](ftp://ftp.suse.com/) <<ftp://ftp.suse.com/>>

Directory on Server: /pub/suse/i386/9.1

Authentication: anonymous

*If you have AMD64, change i386 to x86_64

Now, go back to Install and Remove Software, and you'll have more packages to choose from.

Once the browser is open, you'll see Filter set to Search, and a search box underneath. We could change the filter to Package Groups to search for it manually, or just type "wine" in the field and hit enter. Next, put a check mark next to wine, click "Check Dependencies" in the bottom to make sure no other libraries need to be installed, then click Accept. Insert your SuSE Install CD, and wait for it to finish.

Once it's done, it's time to check to make sure it's installed. Go to the K Menu, System, Terminal, Konsole.

Next, you're going to see a prompt similar to MSDOS. Don't panic, we're not going to be doing anything hard! just type the following:

```
wine
```

and press enter. You should see something similar to what I have in the screen. Don't worry if your version number is different than mine.

Now, go get the Anim8or executable. Mine is in a special folder that I've devoted

Anim8or in Linux

to all of my Linux applications. Right click on the file, and choose "Open With...". In the window that comes up, type "wine" in the Open With... field, and click "Remember application association for this type of file". Click OK, then...

Mission Complete! You're now running Anim8or!

To create a shortcut, right click on the desktop, and go to Create New... File... Link to Application. In the window that appears, type the name of the shortcut, then switch to the application tab. In the command field, type wine, then the path to your anim8or.exe file, for example "wine '/home/theproducer/Apps/anim8or/anim8or.exe'"

Enjoy! Anim8or in Linux runs with almost complete functionality as AVI writing doesn't work, yet.

That concludes this article! If you would like to run more applications than anim8or, like Terranim8or, and others, or if your having trouble with wine and anim8or, or Linux, email me and I'll help you to go about fixing it and getting more advanced programs to run.

by The Producer [Joseph Pender]

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<http://www.freewebs.com/projectsiteweb/>

Robin Clone Competition

I really enjoyed judging these models (and by that I mean it was hell and my head was about to explode from lack of sleep), most if not all of these were very original, and that's great, since originality accounted for 45% of the score. I can tell people had a lot of fun with these, I hope you'll enjoy future challenges just as much. That being said, find out what you got!

Modeling:55%
originality:45%

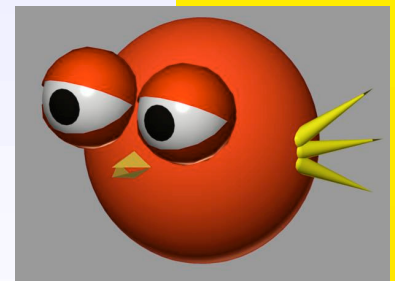
Contestant: jokersha
Entry Name: ...
Score: 6.3/10

Ok, it's original but not very. It's almost like robo-cop robin, with that one scanning/sliding eye. I assume the specularity was intended to give the model a more metallic look, but I think it's overdone, a good environment map woks wonders. The modeling isn't all that special, just a few intruded faces and some points moved outwards.



Contestant: The rogue
Entry Name: Baby Robin
Score: 6.5/10

Very original, I love it. It's just a few adjustments to the original robin, but it adds so much. It would've looked better had the eyes been a little subdivided, but other than that, nice job.



Contestant: Newworld
Entry Name: Robin Destructor
Score: 6.5/10

Not too original, and not all that great modeling, it looks like the original robin with a different material. However, the model is visually pleasing for some reason, so it gets a higher score.



Robin Clone Competition

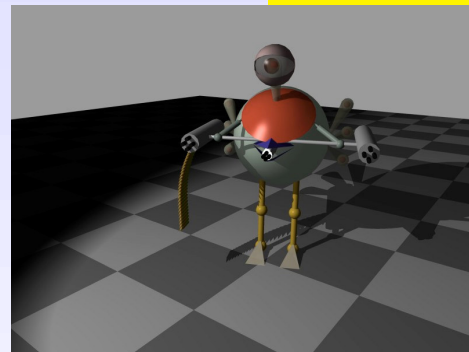
Contestant: Na
Entry Name: ...
score: 7.1/10

Nice Job, very original. Clever choice of material colors and the environment map intensity is just right. Doesn't have a real resemblance to robin though, and the modeling isn't all that special



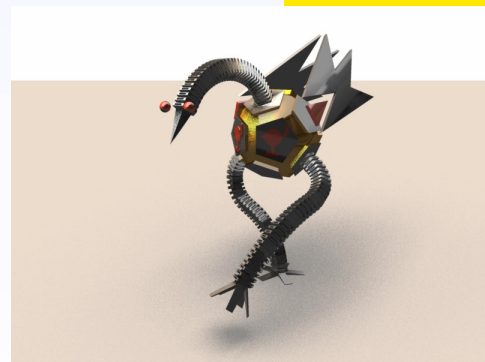
Contestant: Tezzinator
Entry Name: ...
Score: 7.2/10

This models done pretty well. Nice modeling, and it's pretty original. It's kind of creepy. Gave me a chance to see a whole new side of robin, the bad ass robin that's ready to fill you with lead if you say anything he doesn't like. So out of fear and fear alone, I give this model a 7.2 .



Contestant: paradox999
Entry Name: ...
Score: 7.8/10

Very original, maybe too original, it's kind of hard to tell that he's a spin off of robin. Paradox999 says it's not a mech, but you could've fooled me. I really like the little robin emblems on him. Maybe we'll just say he's a tribute to robin? The modeling is nothing special, but it does take full advantage of most of anim8ors modeling tools. I really like this one.



Robin Clone Competition

Contestant: Wrench

Entry Name:...

score: 8.3/10

Haha, I get the joke. Very original. The modeling is pretty good and I love the cartoony materials. Looks like he just came from a hard day of fighting crime with the Batman. The pose is great but it doesn't affect the score at all (modeling only, sorry).



Contestant: bcniko

Entry Name: robin clause

Score: 7.2/10

Very original. The modeling not to great and the beard looks a little tiled. Nice job with the rim of the hat. I really like the whites on the end of the... feathers...or wings....or you know. Really gives it a Christmasy flavor.



Contestant: rallydriver

Entry Name:...

Score: 7.1/10

Pretty cool, I'm not quite sure what it is, maybe a mars rover? The modeling's ok, but it's very basic. Nice job with the eyes. Not much else to comment on, I find it visually pleasing so we'll leave it at that. Maybe I have an eye for shiny things?



Robin Clone Competition

Contestant: zman

Entry Name:...

score: 8.4/10

Really nice job. Very original and the modeling's pretty good. Nice choice of materials. I love the camera lens eyes. Very original having the text around them say anim8or. Very cute. The score would be a little higher had the beak been shelled. It looks too thin.



Contestant: bcniko

Entry Name: robin hood

Score: 6.8/10

Haha **Robin** hood. Very original. The modeling isn't too great and the textures are pretty bad. Fingers would help him be a much better archer. The feather in his hat would look better if it had some curves, but it's a good attempt. Personally I liked bcniko's robin clause more.



Contestant: rpb

Entry Name:...

Score: 8.2/10

Very very original. I can't see a single unoriginal thing. From the propeller of the plane being robins er...wings. To robin in the cockpit of an airplane that looks just like him. Just one thing's bugging me, he's a bird, why does he need a plane? Just kidding, it doesn't bring the score down a bit, I *love* it.



Robin Clone Competition

Contestant: Masterpiece

Entry Name: Gangster

score: 9.1/10

Pretty original, I never imagined robin would resort to a life of crime. The modeling is awesome. Really nice detail on the body, great job modeling the face. The model was unfinished because of the due date, so lets just say he lost his arms in the gang wars. For all the younger anim8or users, don't join gangs, stay in school, and don't do drugs.



Contestant: frig

Entry Name: robin mech

Score: 9.1/10

Why? Why all the evil robins? Not all clones have to be evil you know. Great job with this one. Very detailed, and pretty original. It reminds me of the terminator. The modeling is right on, but the textures could use work. The beak isn't shelled, and that takes away from the realism. He looks very fierce, I love it.



Rendering Competition

scene setup 33%
lighting 33%
use of shadows 33%

Contestant: Bravo one
Entry Name: Tough Droid with a big heart
score:4.3/10

The shadows are terrible and the scene setup isn't too good. I don't know if it's the lighting or the high specular level, but the render looks washed out. I do like the fake reflections however, so he gets points for that.



Contestant: lasukie kai
Entry Name:...
Score:9.4/10

Awesome job. I love the lighting, gives the impression of sunset (or sunrise) perfectly. The soft shadows are awesome and the water looks really good. However I had to subtract points on scene setup since you can see the end of the world. Horizon shouldn't be visible from this angle, however, it does allow for a beautiful sky background. Overall good job.



Contestant: lasuki kai
Entry Name:...
score: 9.2/10

Nice job. The shadows are awesome and the scene setup is flawless. The lighting is pretty good but it seems a little washed out. Not much else to comment on, nice job



Rendering Competition

Contestant: Howitzer

Entry Name:

score:8.3/10

An overall good job. The material of the space ship is perfect, it looks like a very durable metal. I'm not quite sure if soft shadows can be made from direct sunlight in space so I won't comment on it. The shadows are very dark which is good, since there is little in the scene for light rays to bounce off of. I don't know what that sphere near that vortex is, but if it's a moon, it's way too shiny.



Contestant: Mental

Entry Name:...

Score:6.9

Not too good. It only uses hard shadows and it's not much of a scene setup. By what I can see from the walls the lighting is ok, but it means very little if your shadows are terrible.

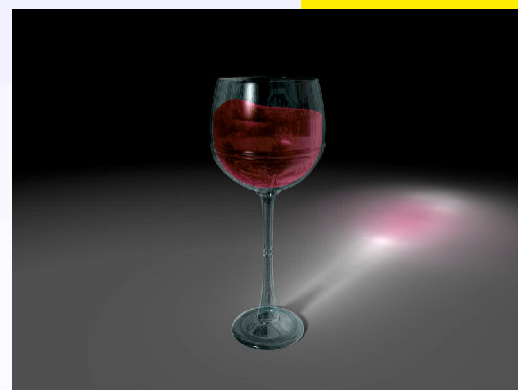


Contestant: Dion

Entry Name:...

score: 9.1/10

This is awesome. The simulated caustics aren't right on but it's a great attempt. The caustics are also a little too bright for the scene. Nice job on the wine glass too, perfect transparency number with a perfect environment map number to match, it looks just like glass, nice job.



Rendering Competition

Contestant: Masterpiece

Entry Name:

score:8.9/10

Really nice job. Great scene setup, great light setup, and great shadows. The newspaper on the coffee table really adds to the scene. However, the couch cushions should have a texture like the rest of the couch. I've also noticed that the plant is just floating in the pot, there is no dirt. The carpet looks a little tiled and would look much better with a bump map, but the scene looks good despite all that, Nice job!



Contestant: DJ

Entry Name:...

Score:9.7/10

Awesome Job. The couch textures are right on and the scene comes pretty close to being photorealistic. The carpet texture is great, and the effect of the cups reflection is awesome. The material of the lamp in the corner doesn't seem quite right, and the hanging light on the ceiling is see through, which doesn't make sense if the light is on. Still, the scene looks amazing, I think we've found a winner.



Contestant: DJ

Entry Name:...

score: 7.9/10

Very nice, it looks like claymation. Again just short of photorealism. Could've benefited from some soft shadows. I'm not supposed to comment on modeling, but it's so CUTE!



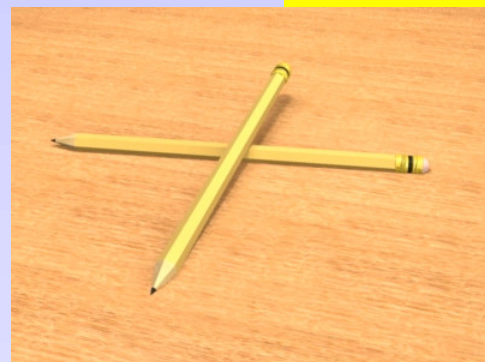
Rendering Competition

Contestant: Mac404

Entry Name:

score:9.1/10

Great job. Very photorealistic. Great use of shadows and great lighting. Not much in the way of scene setup, but good nonetheless.



Contestant: TheHulk

Entry Name:...

Score:8.5/10

Oooo. The classic radiosity scene. Nice job, the effect is pretty convincing. Obviously not too great a scene setup, but the lighting and shadows are terrific.

