GameGuru

game making for everyone

# The How To Guide

Compiled by Tony Strike.

ALL CREDIT GOES TO THE ORIGINAL AUTHORS OF THESE GUIDES..

## CONTENTS:

# Modeling For GameGuru: Texture Sets

Taken from an online guide by By Belidos .

What you will find in this mini-guide is a simple explanation of which texture sets GameGuru uses for both PBR and non-PBR with some basic examples, hopefully it answers a few questions for those who aren't sure.

## Introduction

What you will find in this mini-guide is a simple explanation of which texture sets GameGuru uses for both PBR and non-PBR with some basic examples, hopefully it answers a few questions for those who aren't sure.

What you won't find in this guide is instructions on how to make these textures, the scope of this guide is to simply tell you which textures do and don't work in GameGuru, it is up to you to learn how to make your own textures.

There are two primary methods of PBR (there are variations, but these two are the common methods):

- Spec/Gloss: This will usually include a Diffuse or Albedo, Specular, Gloss, Normal, and Ambient Occlusion
- Metalic/Roughness: This will usually include a Color, Metalic, Roughness, Normal, and Ambient Occlusion

There are also additional maps you can use, such as height, detail, glow etc.

### With GameGuru, we have two rendering methods:

- The first is the basic non-PBR which consists of Diffuse, Specular, and Normal (with additional options for illumination and cube maps),
- The second is for PBR models, and we use a Metalic/Roughness method with a little twist, the Roughness map is named _gloss, but is actually a roughness map, and the metalic map is named _metalness.

Height maps, although added to the PBr workflow in GameGuru, as far as i know don't actually work yet (confirmed as not working by Lee 6th March 2018), and i'm not sure if _ao is added yet (confirmed as working by Lee 6th March 2018).

As of a recent update both non-PBR and PBR textures can be supplied with a model, and with a simple change in GameGuru's setup.ini you can switch between using non-PBR and PBR by using changing the value of pbroverride from "1" to "0" and vice versa.

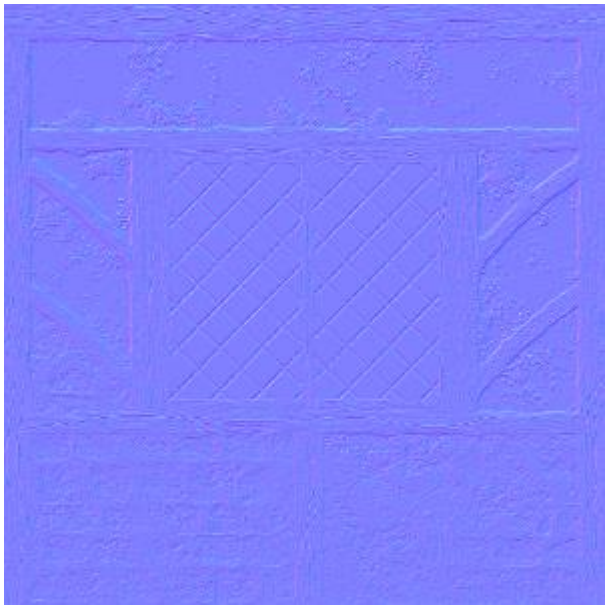
Note:
The textures and model shown in the images in this guide aren't perfect, they're just quick examples i knocked up to give a rough idea of how they look.

## Non PBR Textures

**Textures a non-PBR model should have in Gameguru are:**

_D
- this is the diffuse texture
A Diffuse map defines the color and pattern of the object. Mapping the diffuse color is like painting an image on the surface of the object.

_N
- this is the normal texture
A Normal Map is a texture that fakes the lighting for bumps and grooves n a texture, effectively adding geometry without creating more polygons.



_S
- this is specular texture
Specular maps are the maps you use to define a surface's shininess and highlight colour. The higher the value of a pixel (from black to white), the shinier the surface will appear in-game.

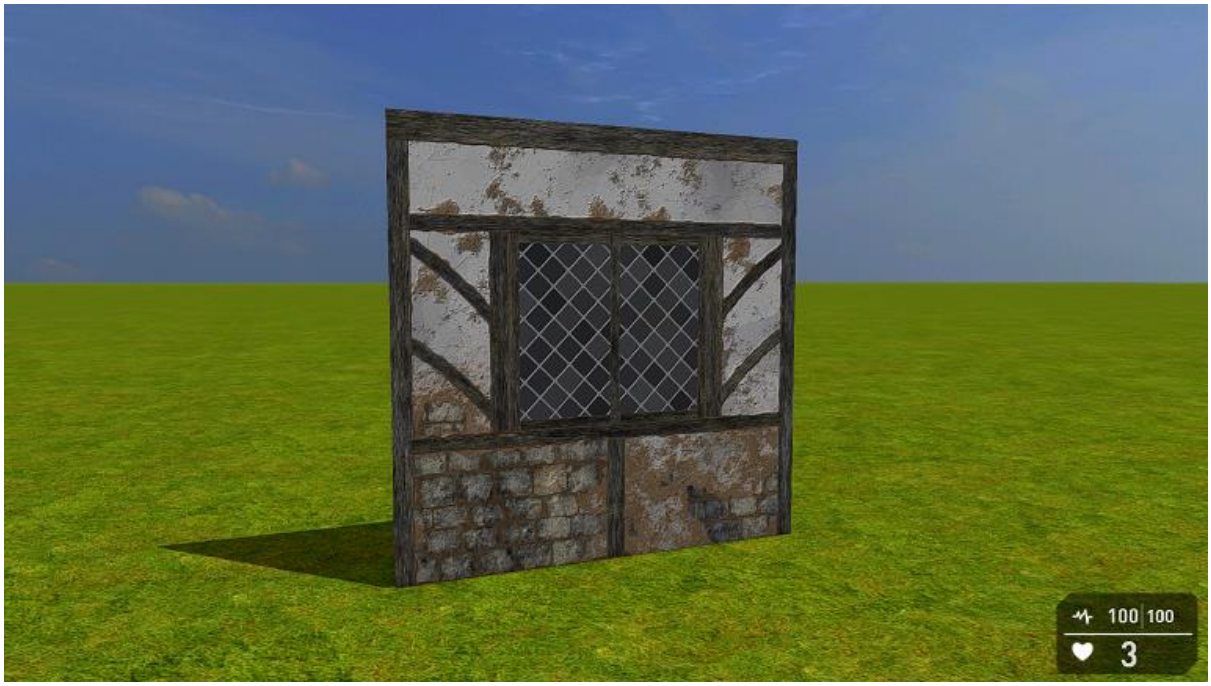
_I
- this is an illumination texture
An illumination texture is used to highlight areas on the model that glow, all areas that have no glow should be masked in black, and the areas you want to glow will be filled in a different colour, if you want it to glow the colour on it's main texture then you fill the area in a shade of grey to white, if you wish to give it a colour to glow, then you fill the area in with that colour, the lighter the colour the brighter it will glow.

- ***Optional***
- *I don't have an example of an illumination map at this time.*

_cube
- this is a cube reflection map
A cube reflection map is a way for the shaders to use a texture to fake reflections, each cube map containes 6 mipmap images, with each image representing a direction around the object (up down left right front back etc.) those images are projected onto the model in such a way that as you move around the object it appears to be reflecting them back to you.

- ***Optional***
- *I don't have an example of a cube map at this time.*

Result in GameGuru:



# PBR Textures

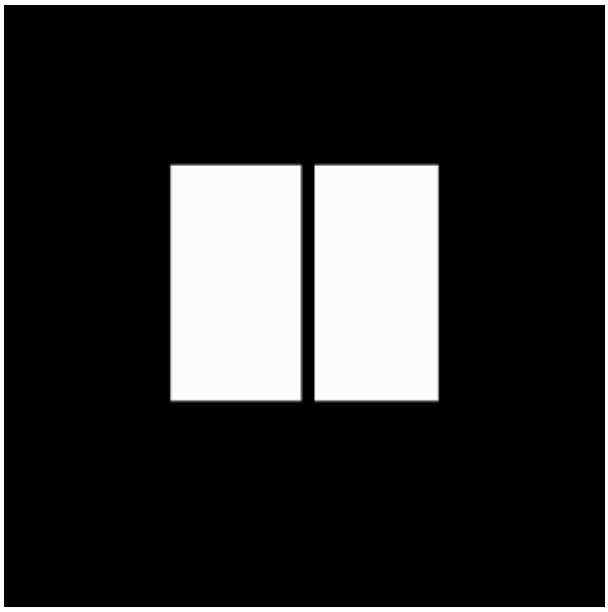
Textures a PBR model should have for GameGuru are:

_color

- this is your base coloured texture.

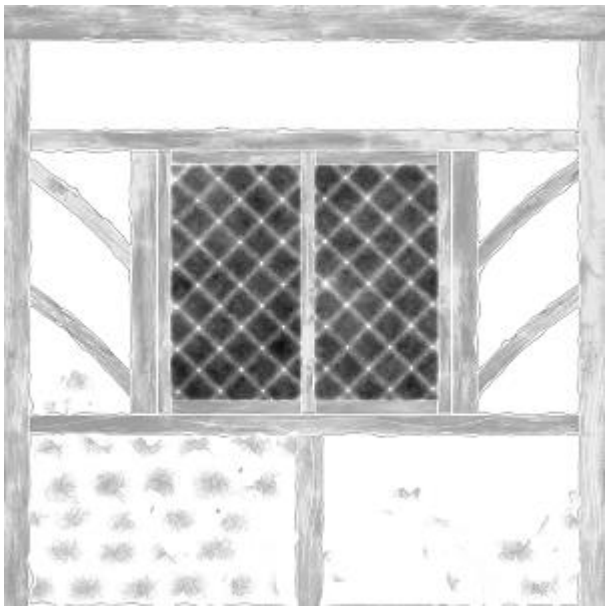
_metalness

- this is a standard metalic texture, this is a grey scale image where white is highly reflective/shiny, and black is non-reflective/shiny. This would be the **Specular map.**



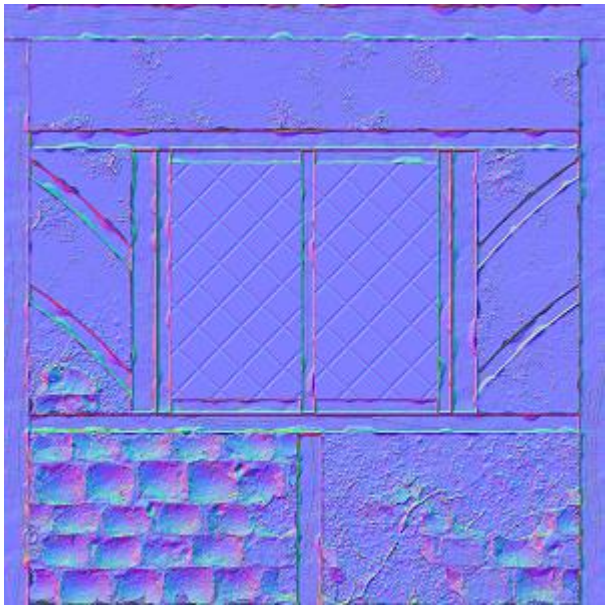
_gloss

- this is actually a roughness texture renamed to _gloss, it is a grey scale image where back is completely smooth, and white is highly rough.



_normal

- this is your normal map

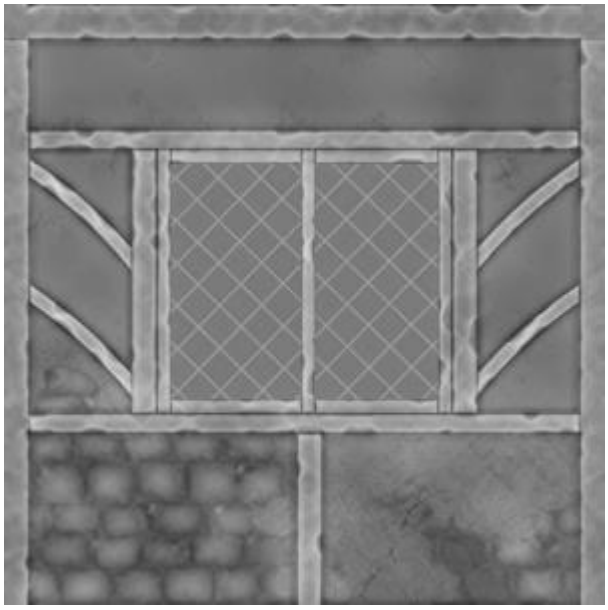


***Just a quick note to add:***

*With the _normal texture required for PBR in GameGuru the normal direction should be -y in the green channel, most mesh painters tend to paint the normals in +y so you may need to load the _normal in a paint program like photo shop, or GIMP, go to the green channel and invert it, then save it out again.*

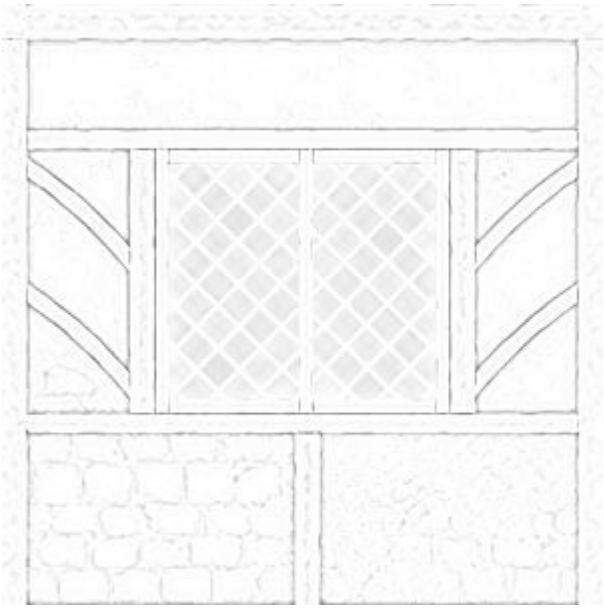
_height
- a height map (confirmed as not working by Lee 6th March 2018)

- ***Optional***



_ao
- ambient occlusion, a grey scale image that creates the shadows in cracks, crevices, and corners etc. (confirmed as working by Lee 6th March 2018)

- ***Optional***



_detail
- this adds fine detail scaled and tiled across the model

- ***Optional***
- *I don't have an example of a detail map at this time.*

_illumination
- this is an emissive map, it will allow you to assign areas of your texture to glow. Primarily it is grey scale with black = no glow, white = glow, however the glowing areas can be coloured, and lighter is brighter, the illumination map will take the place of the detail map, they cannot be used at the same time.

PirateMyke: to use an illumination map the models fpe shader line has to point to apbr_illum.fx . GraPhyX: Confirmed you don't need to change the FX, and _emissive will also work.

- ***Optional***
- *I don't have an example of an illuminationmap at this time.*

## Result in GameGuru:

## NON-PBR TEXTURES


## PBR TEXTURES

**Thanks to GraPhiX**

**_ALBEDO = _color**
**_METAL = _metalness**
**_ROUGH = _gloss (has to be inverted)**
**_NORM = _normal**
**_AO = _ao (ambient occlusion)**
**_DISP = _height**
**_RMA = RMA texture is just the Roughness, Metallic and AO packed into the RGB channels of an image. (not used in GG yet but maybe soon)**

# Physically Based Rendering Chart

## BaseColor

The color is provide in sRGB 0-255.

The diffuse part of the base color (the one use by the non-metallic) must be in the range of the first gradient 50-243. There is some sample values of real world material in sRGB below the gradient. Some of these values are based on real world measured material. Take a calibrated raw picture of representative material, take the luminance histogram in Photoshop and use the value of the medium axis for the luminance. Then blur the picture and take one pixel inside the blurred region and use that as the colour value. This explains why in few cases like the clean cement the colour and the luminance don't match perfectly. We also lower a bit the value to take into account the inevitable specular present during the capture.

The reflectance part (the one use by metallic) must be in the range 186-255 (not present in the chart). Some example are provided below the grey square. Most of the time the metallic color of material match what the eye see.

## Metallic

Simple monochrome linear parameter. Range is 0-1 but the gradient is from 0-255. The yellow sphere below represents in-engine capture of a sphere and a cube.

## Roughness

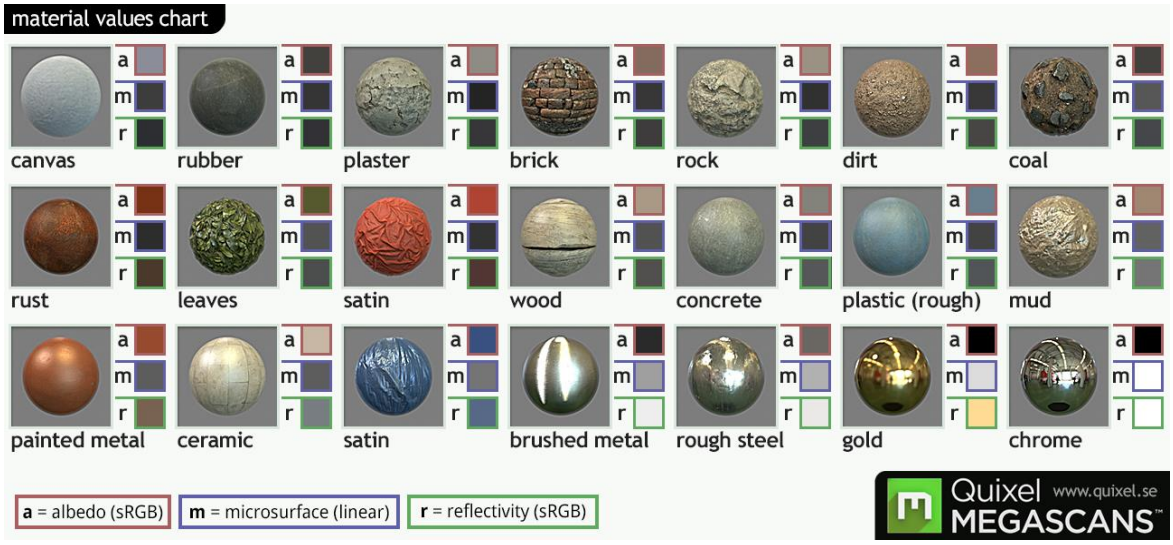
The gradient display roughness from 0 for smooth (left) material to 1 for rough material (right).

The grey gradient are from 0 to 255 and red segments are displayed every 1/10 with a sphere like object below to show the in-game result of the designated value.
The first row of real world image above represent no metallic object, the second row represent metallic object. Goal is to give artist a better feeling of what is roughness.
The first row of sphere like object represent metallic object, the second row represent non-metallic object.

## Material Reference Values

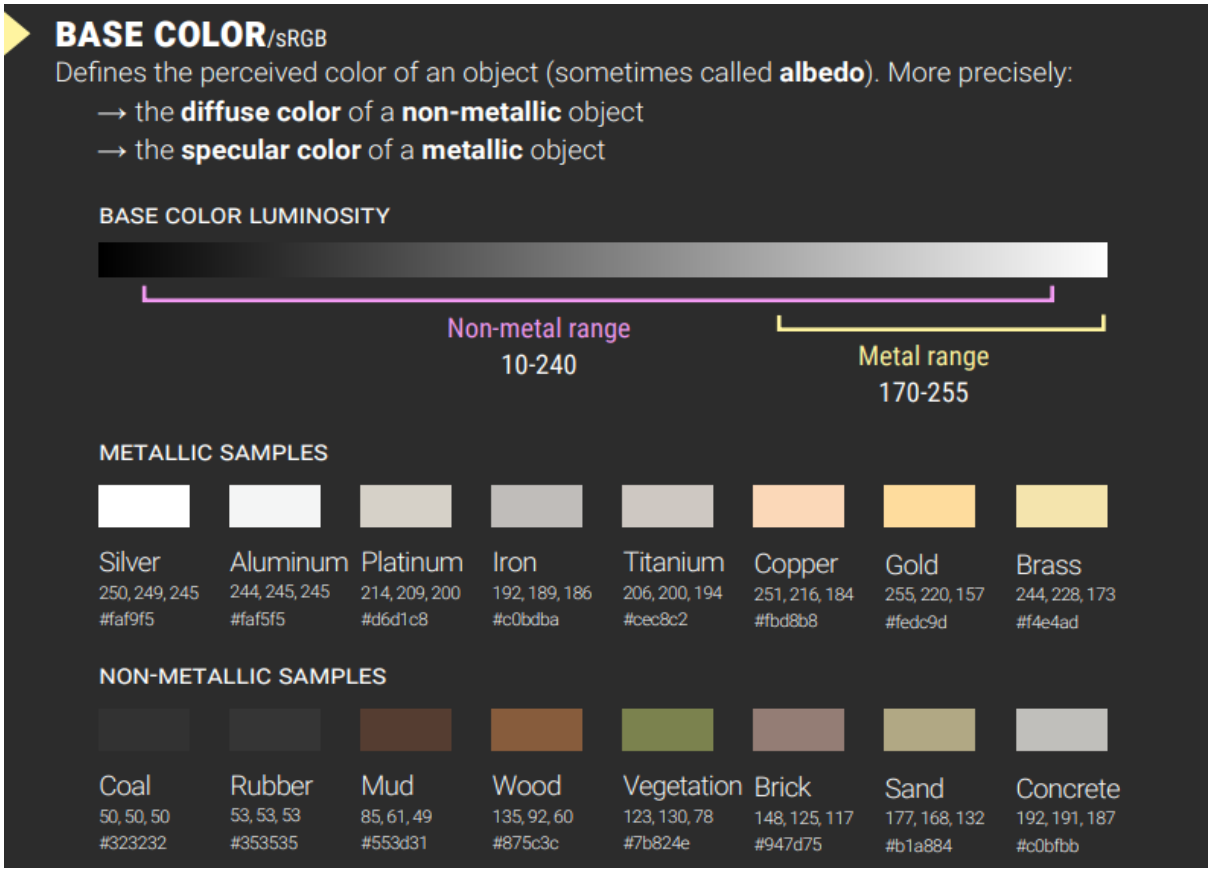
Should be considered as a **general/base guideline and not the absolute/only value**. This is because of various real world conditions, weathering, age, purity of material, etc. Some values will contradict each other (ex. water). Select or play with the present values and adjust accordingly, depending on the shader/engine you are using.

**Lastly take special consideration of the colour space for each respective value**.



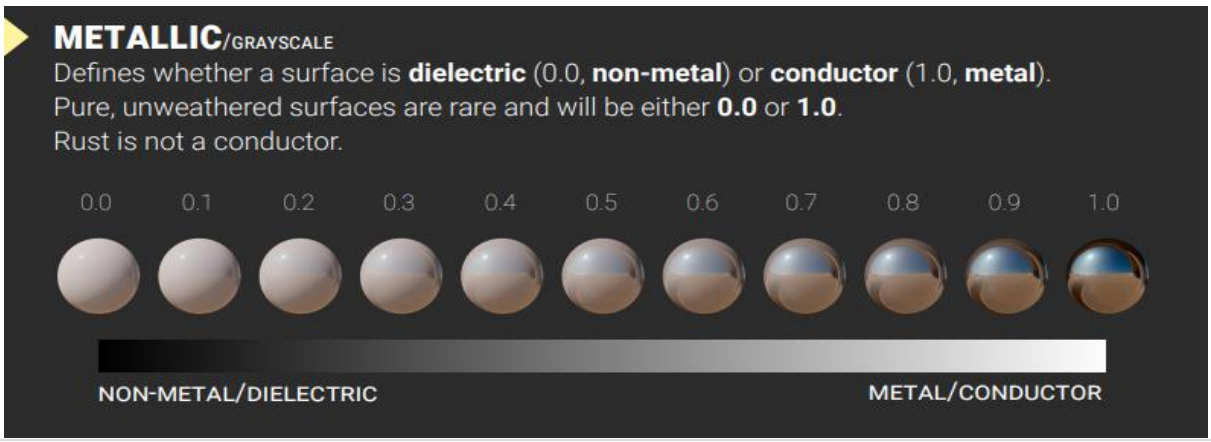
## Base Colour

Another chart for base colours.  Note that depending on the engine (this is based on **Google's** new **Filament renderer**), the values may differ slightly.



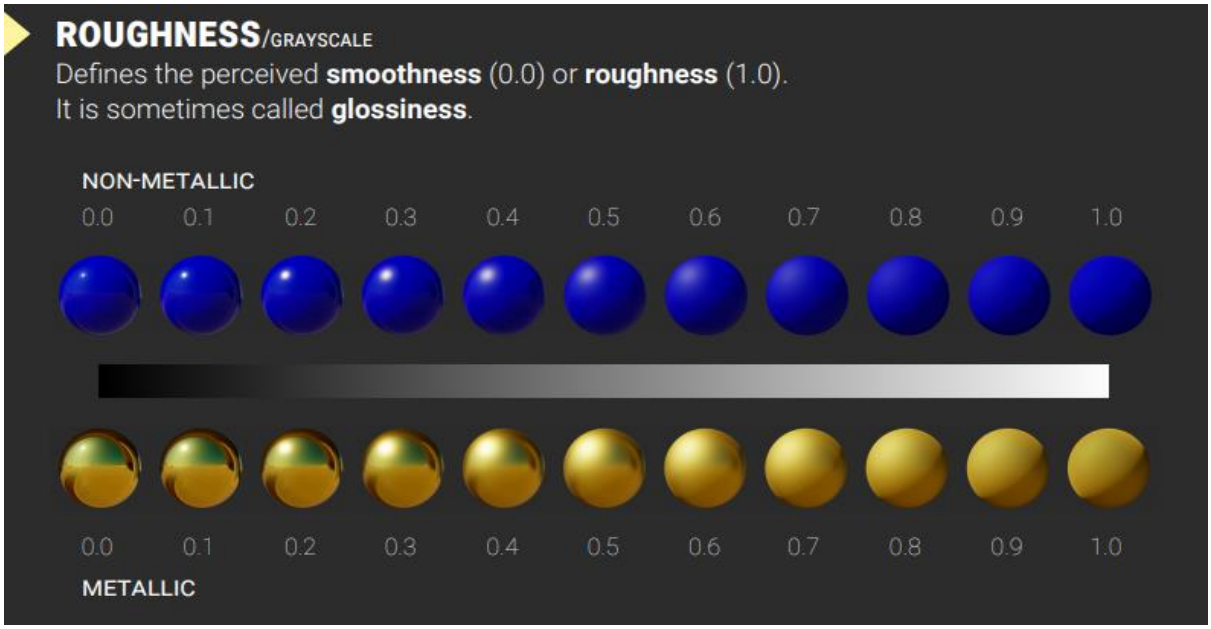

## Metallic

Another chart for base colours.  Note that depending on the engine (this is based on **Google's** new **Filament renderer**), the values may differ slightly.



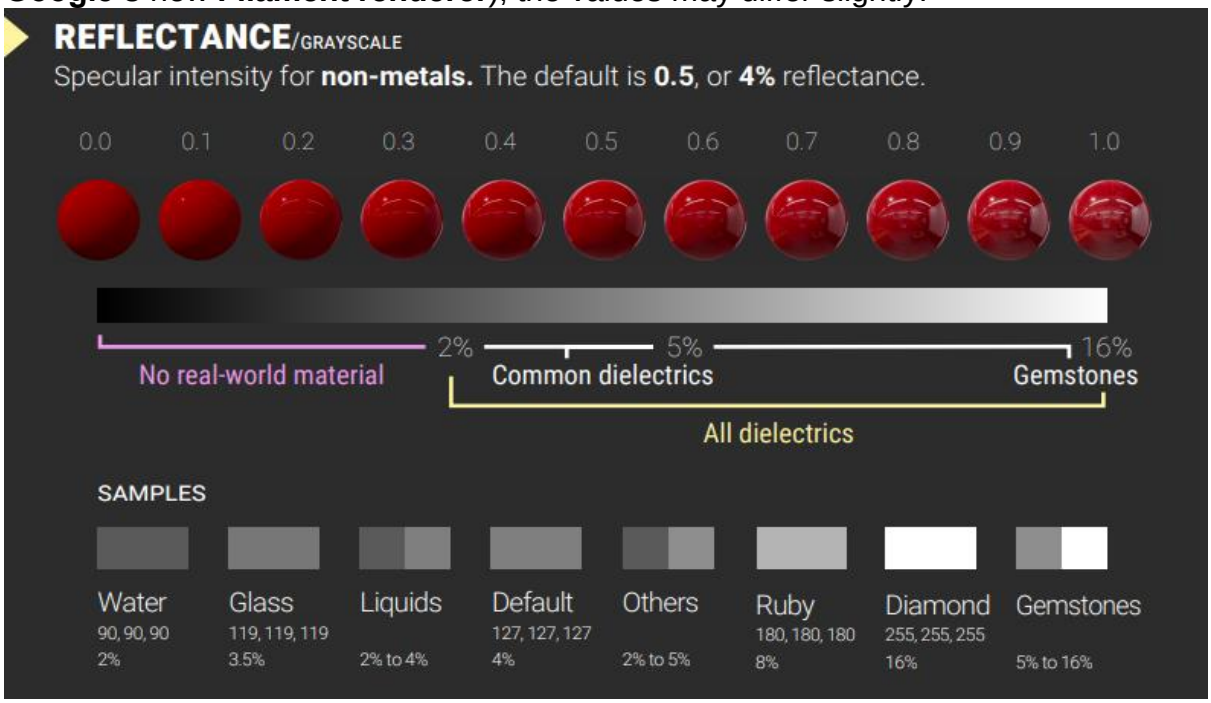
## Roughness

Another chart for base colours.  Note that depending on the engine (this is based on **Google's** new **Filament renderer**), the values may differ slightly.



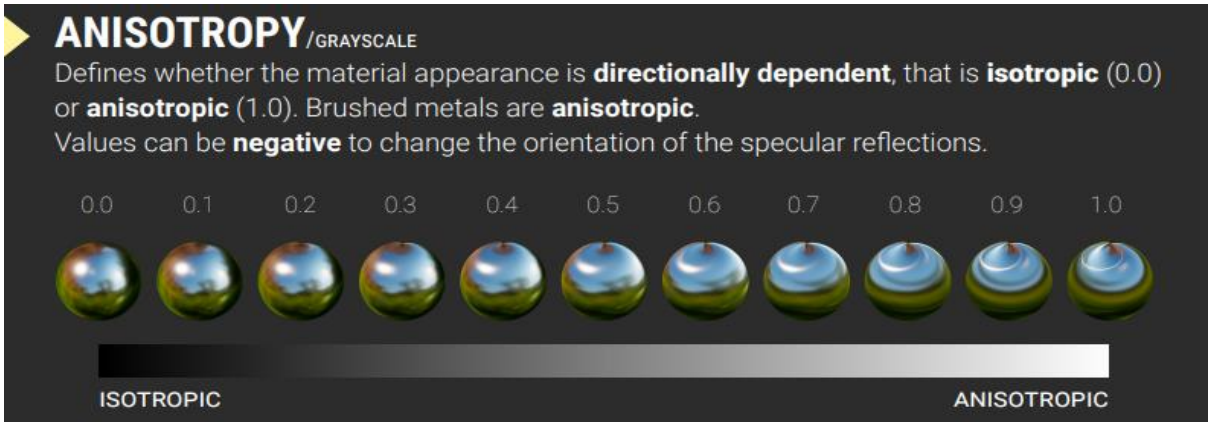

## Reflectance (spec)

Another chart for base colours.  Note that depending on the engine (this is based on **Google's** new **Filament renderer**), the values may differ slightly.



## Anisotropy

Another chart for base colours. Note that depending on the engine (this is based on **Google's** new **Filament renderer**), the values may differ slightly.



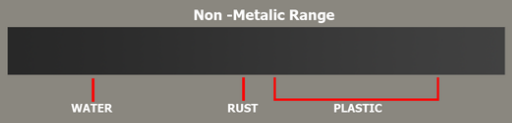

## Specular Colour

| Material | sRGB Color | Linear (Blend Layer) |
|---|---|---|
| Water | 38 38 38 | 0.02 |
| Skin | 51 51 51 | 0.03 |
| Hair | 65 65 65 | 0.05 |
| Plastic / Glass (Low) | 53 53 53 | 0.03 |
| Plastic High | 61 61 61 | 0.05 |
| Glass (High) / Ruby | 79 79 79 | 0.08 |
| Diamond | 115 115 115 | 0.17 |
| Iron | 196 199 199 | 0.57 |
| Copper | 250 209 194 | N/A |
| Gold | 255 219 145 | N/A |
| Aluminum | 245 245 247 | 0.91 |
| Silver | 250 247 242 | N/A |
| If a non-metal material is not in the list, use a value between 45 and 65. | | |

# PHYSICALLY BASED SHADING

## SPECULAR COLOR

### NON METALS



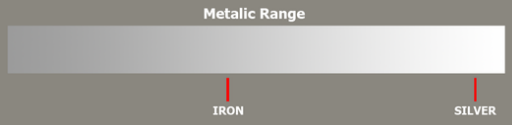

- Ice 41,41,41
- Water 43,43,43
- Glass 58,58,58
- Rust 52,52,52
- Diamond 115,115,115
- Plastic High 61,61,61
- Plastic Low 53,53,53
- Skin 51,51,51
- Chalk 60,60,60
- Ivory 62,62,62

All Non-metals are in an sRGB range of 40 - 65

Stone, wood, brick, concrete and fabric are within the same range as plastic

Non metals never have colored specular

### METALS




- Chromiuim 195,195,195
- Platinum 213,208,200
- Cobalt 211,210,207
- Nickel 211,203,190
- Titanium 193,186,177
- Copper 250,209,194
- Iron 196,199,199
- Aluminium 245,245,247
- Silver 250,247,242
- Gold 255,219,145

For pure metals the sRGB should always be above 180

Pure/Polished metals have black diffuse

Impure/Worn metals can have a bit of diffuse color

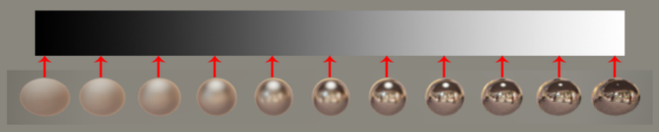
Rust should be considered a not metalic

## GLOSS

Determines the roughness of the material

Influences size and brightness of the highlights

Influences sharpness of environmental reflections



| Material | Albedo (Linear) | Albedo (sRGB) |
|---|---|---|
| Ice (lowest) | 0.3 | 148 |
| Ice (highest) | 0.45 | 177 |
| Fresh Asphalt | 0.04 | 59 |
| Worn Asphalt | 0.15 | 108 |
| Red brick | 0.3 | 148 |
| White paper | 0.75 | 224 |
| Gravel (lowest) | 0.18 | 117 |
| Gravel (highest) | 0.72 | 220 |
| Terracotta tile | 0.28 | 143 |
| Galvanised steel | 0.24 | 133 |
| Light-coloured brick (lowest) | 0.3 | 148 |
| Light-coloured brick (highest) | 0.5 | 186 |
| Slate | 0.2 | 123 |
| Limestone (lowest) | 0.3 | 148 |
| Limestone (highest) | 0.45 | 177 |
| Old Concrete | 0.3 | 148 |
| New Concrete | 0.5 | 186 |
| Cement | 0.55 | 194 |
| White cement | 0.7 | 217 |
| Green grass (lowest) | 0.2 | 123 |
| Green grass (highest) | 0.3 | 148 |
| Average soil | 0.3 | 148 |
| Dry clay soil | 0.23 | 131 |
| Sand (lowest) | 0.2 | 123 |
| Sand (highest) | 0.3 | 148 |
| Leaves (lowest) | 0.2 | 123 |
| Leaves (highest) | 0.3 | 148 |
| Red/brown/green paint (lowest) | 0.2 | 123 |
| Red/brown/green paint (highest) | 0.35 | 158 |
| Black paint | 0.15 | 108 |
| White paint (lowest) | 0.5 | 186 |
| White paint (highest) | 0.9 | 243 |
| Corrugated iron (lowest) | 0.1 | 90 |
| Corrugated iron (highest) | 0.16 | 111 |
| Rock | 0.3 | 148 |
| Tree bark (oak) | 0.1 | 90 |
| Charcoal | 0.04 | 59 |
| Fresh snow | 0.9 | 243 |
| Water (lowest) | 0.03 | 52 |
| Water (highest) | 0.1 | 90 |
| Old/melting snow (lowest) | 0.4 | 168 |
| Old/melting snow (highest) | 0.8 | 230 |
| Skin (African) – (lowest) | 0.05 | 65 |
| Skin (African) – (highest) | 0.1 | 90 |
| Skin (Pigmy) – (lowest) | 0.1 | 90 |
| Skin (Pigmy) – (highest) | 0.15 | 108 |
| Skin (Indian) – (lowest) | 0.15 | 108 |
| Skin (Indian) – (highest) | 0.3 | 148 |
| Skin (Iranian) – (lowest) | 0.2 | 123 |
| Skin (Iranian) – (highest) | 0.4 | 168 |
| Skin (European) – (lowest) | 0.35 | 158 |
| Skin (European) – (highest) | 0.6 | 202 |

# Create PBR Textures With ShaderMap

Follow these steps to generate an albedo map:

**Step 1: Load a Photographic Texture**

From the Start Screen load the texture you want to convert to albedo as a Color Texture. Allow the default maps to be setup. In this example I will be using a Rock texture which can be downloaded at the bottom of this tutorial.

**Step 2: Add an Albedo Map to the Project**

Move your mouse over an empty cell in the Project Grid. Click the plus (+) button to bring up the "Add Node to Project" dialog. Scroll down and find "Map: Albedo [Diff]". Double-click the map to add it to the project.

**Step 3: Adjust Shadow and Highlight**

Select the Albedo map in the Project Grid. Use the "Shadow" and "Highlight" sliders to decrease the amount of shadows and highlights in the image. On the rock texture I use the following settings:

**Shadow – 70**

**Highlight – 85**

**Step 4: Set the Luminance of the Image**

An important part of PBR albedo maps is that they have the correct luminance value for the material. In this example I am working with a rock texture, I know that Rock generally has a linear luminance of 0.33 and an sRGB luminance of 0.6. Using the "Level" control I can adjust luminance of the image which is displayed in the properties "Linear" and "sRGB".

For the rock example increase the Luminance as follows:

**Level – 19**

# Make Human to Maxamo to FBX2GG

**By myke1net**

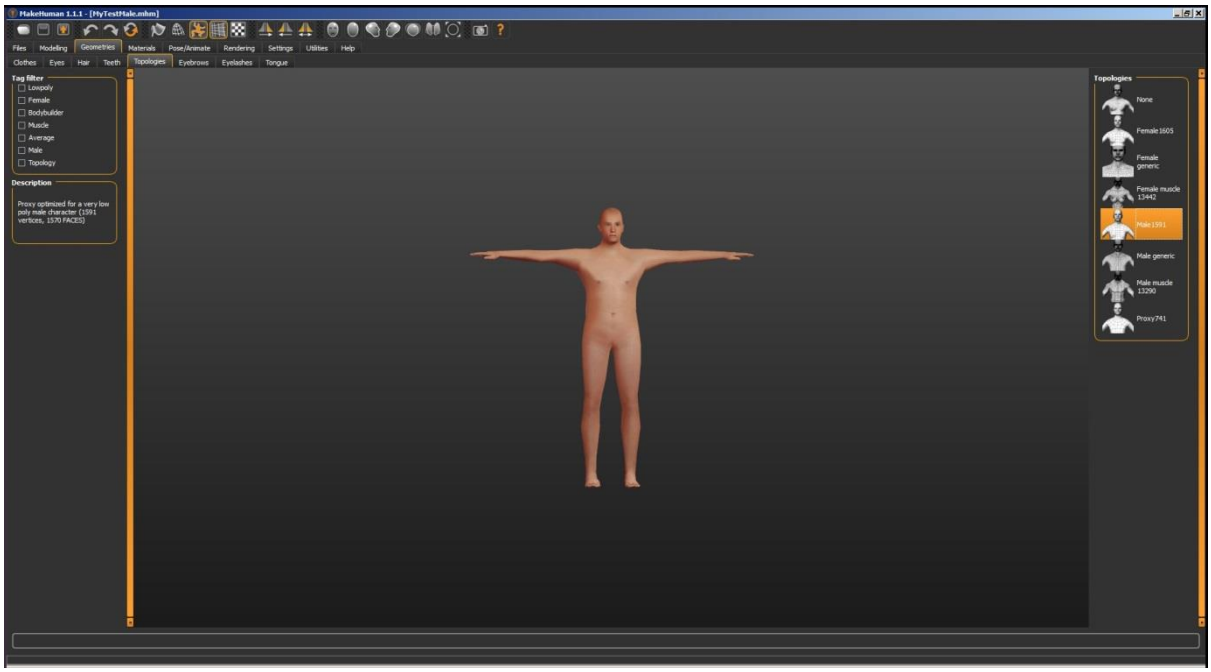
This guide will describe the basic processes to get a character from Make Human thru Maxamo animations and into FBX2GG program for custom characters.

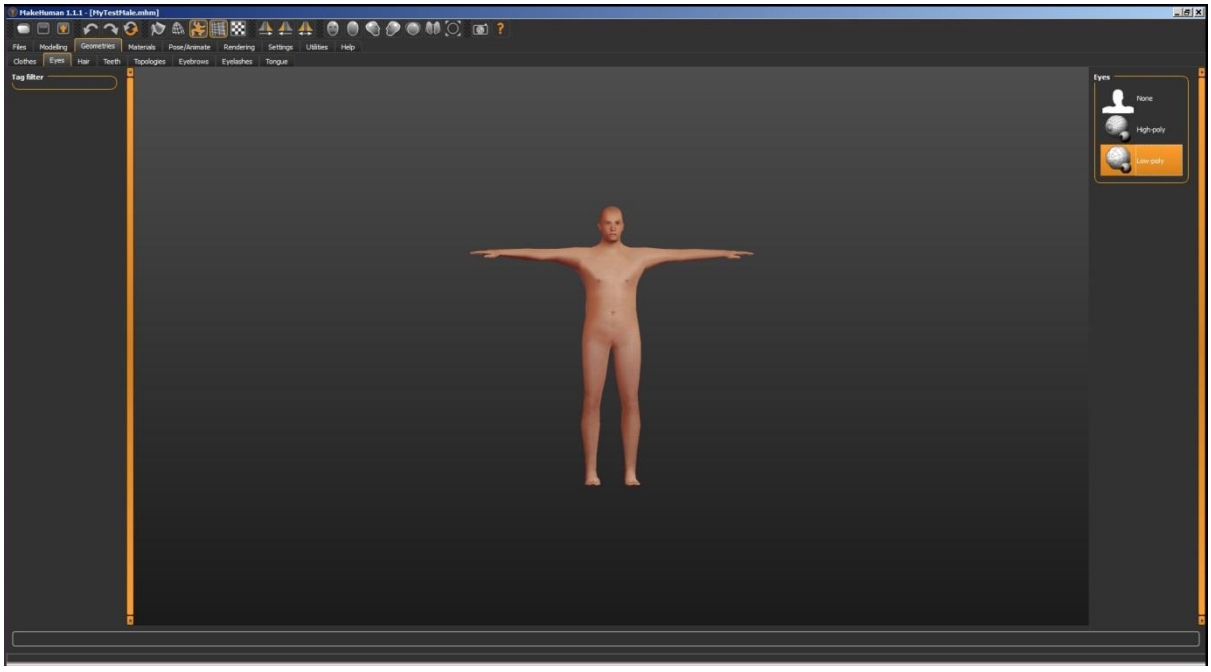
You will need:
Make Human program
A Maximo Account for adding animations
FBX2GG program

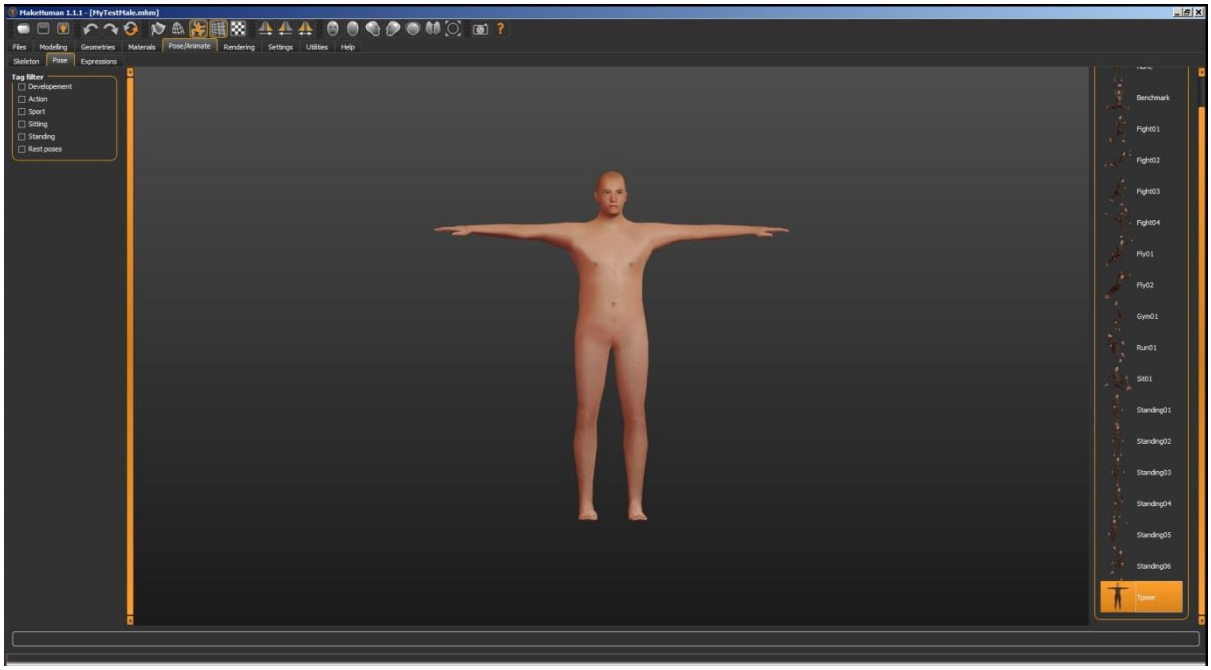
## Make Human

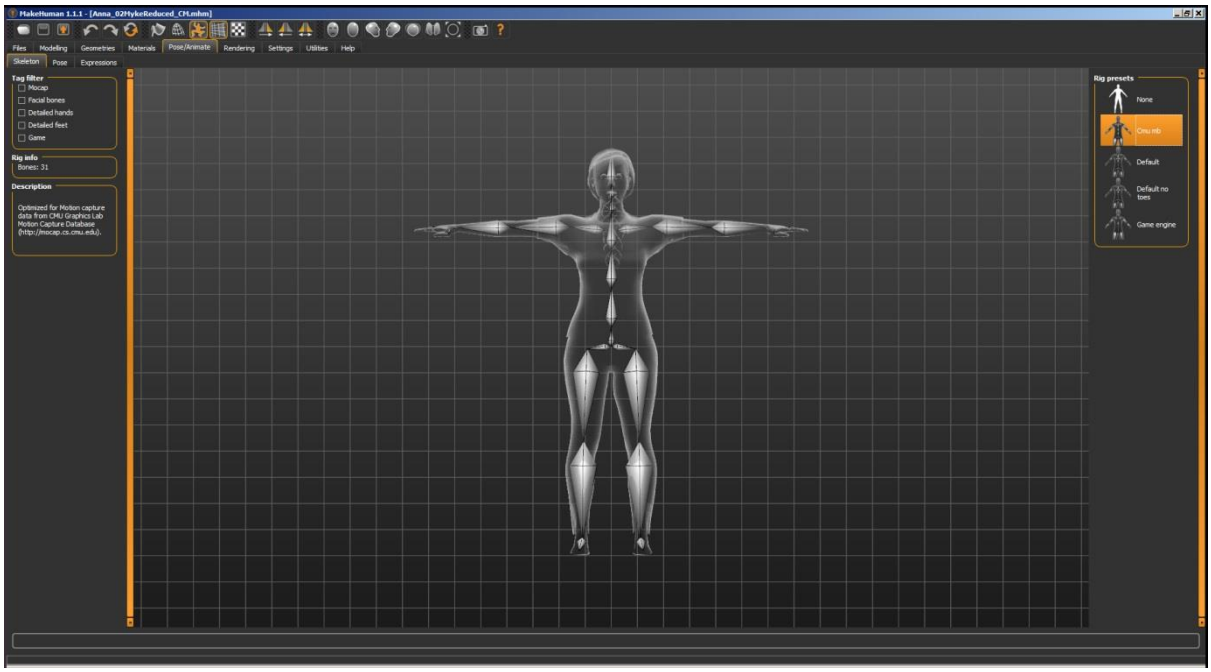
Open make human and make your character as you please.

Make sure you have the following settings when complete.



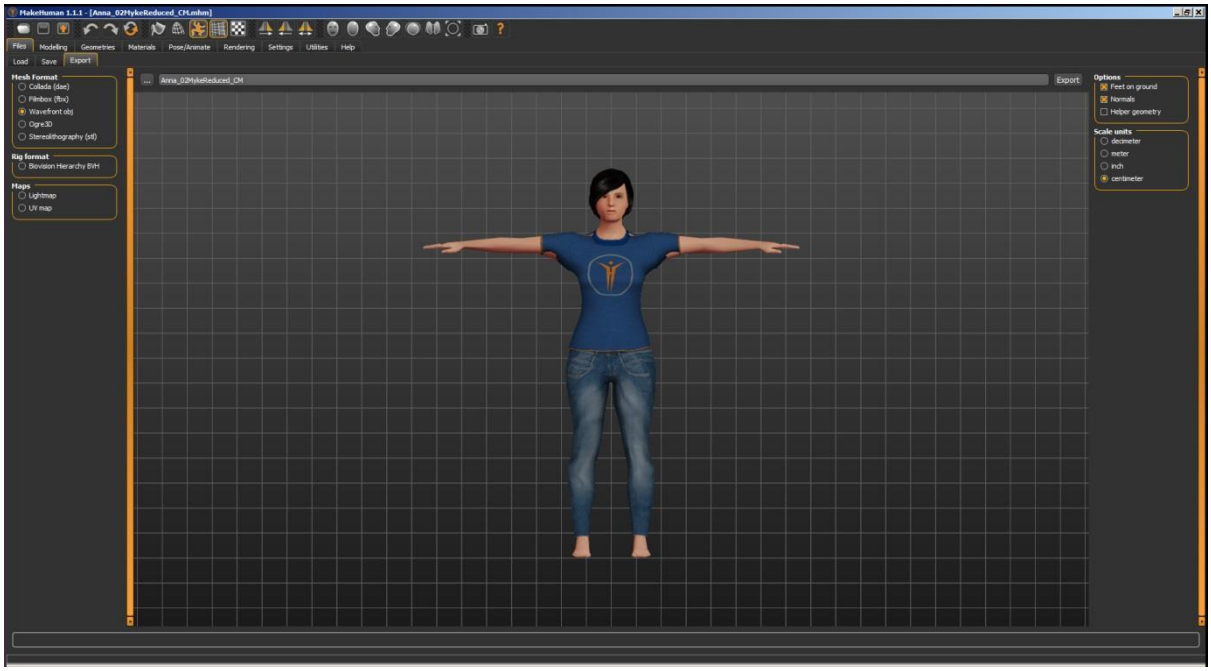






Using these setting above will prevent you from having to mess with it in a 3d model program. This model comes in at 13006 polys.

Export this with these settings

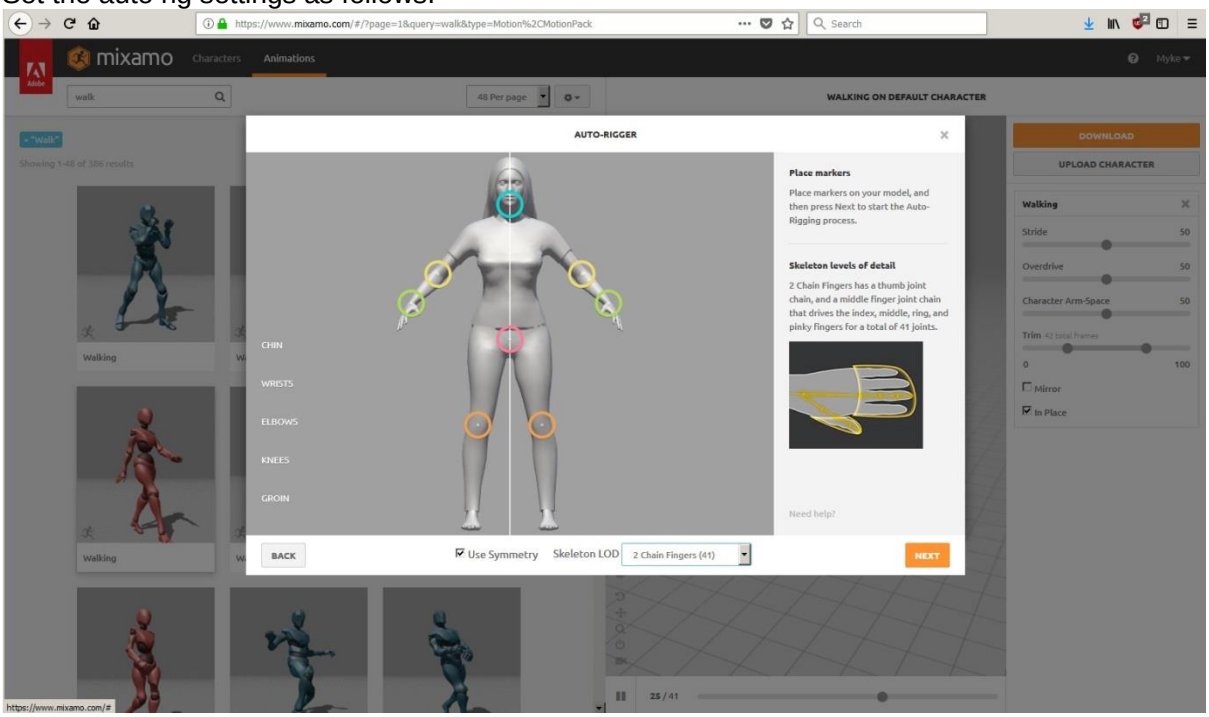



Exported file will be in this location.
C:\Users\Your-Profile\Documents\makehuman\v1\exports

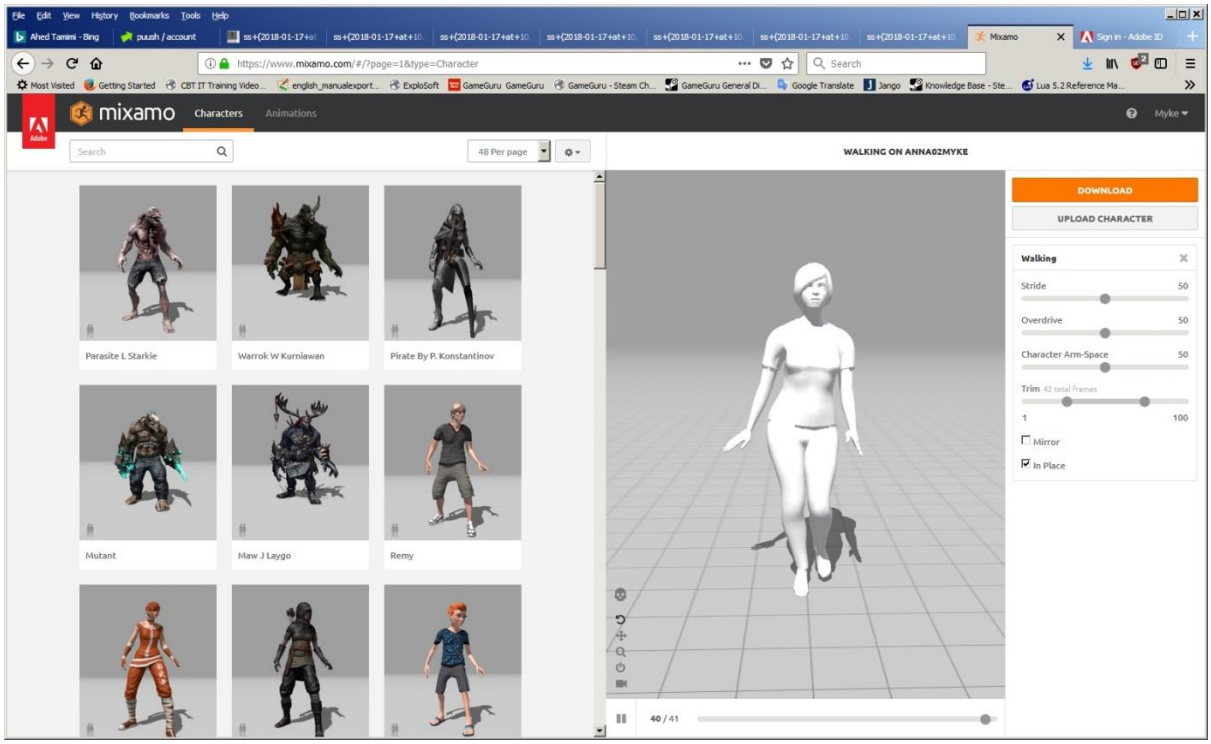
# Maxamo Animations

Log into Maximo
Drag your .obj file to the upload character screen.

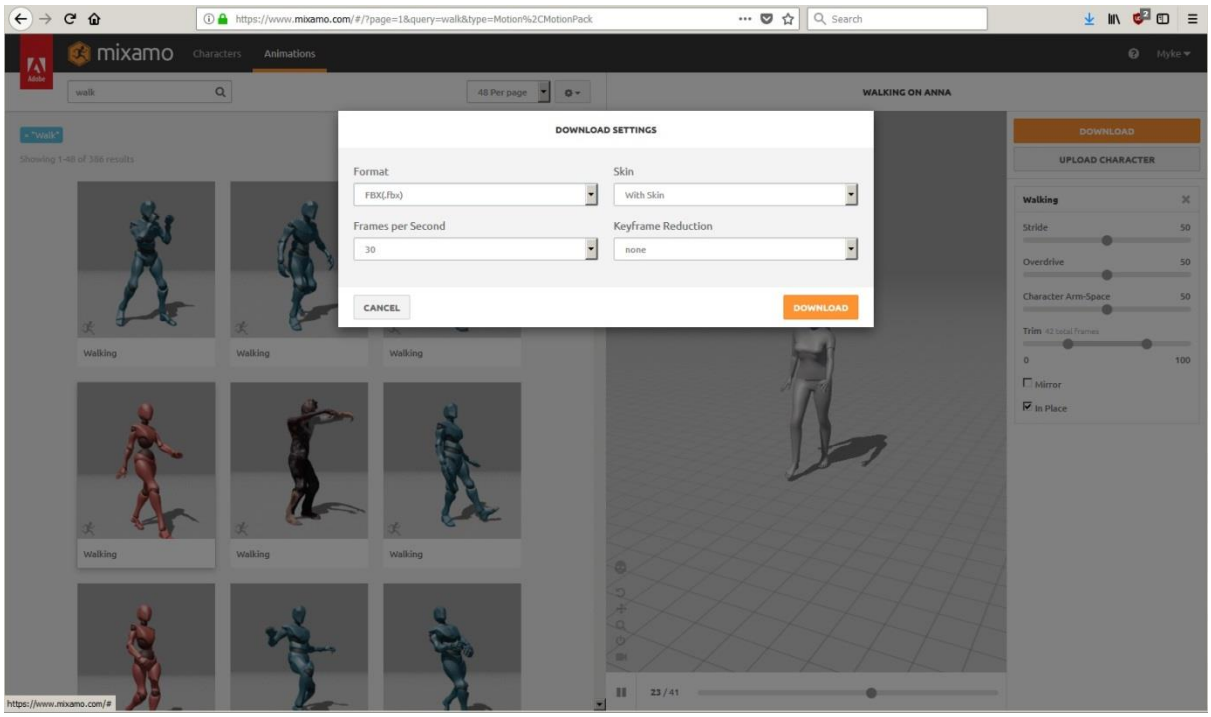
Set the auto rig settings as follows.




**Apply your animations and keep them in place for standard character types.**



Down load 2 versions of the character
One with skin and one without skin. The one without skin is for the animation.

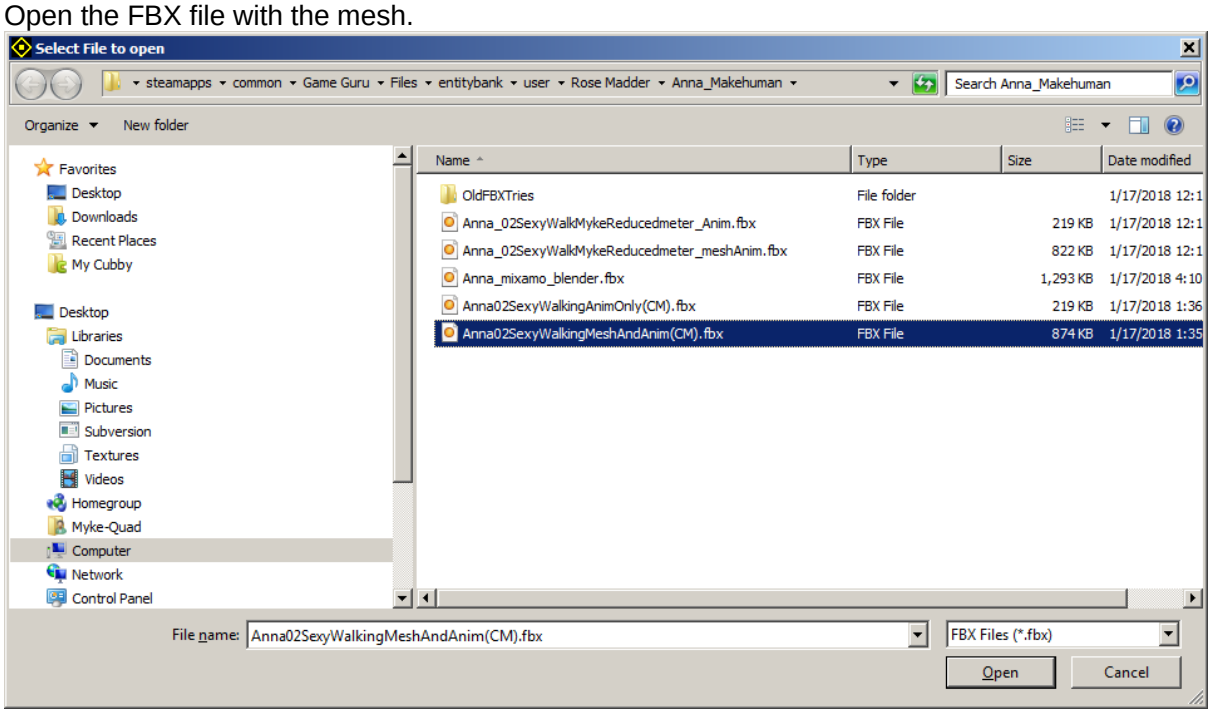



**Note:**
When each one is done rename it so the next will not over write it.

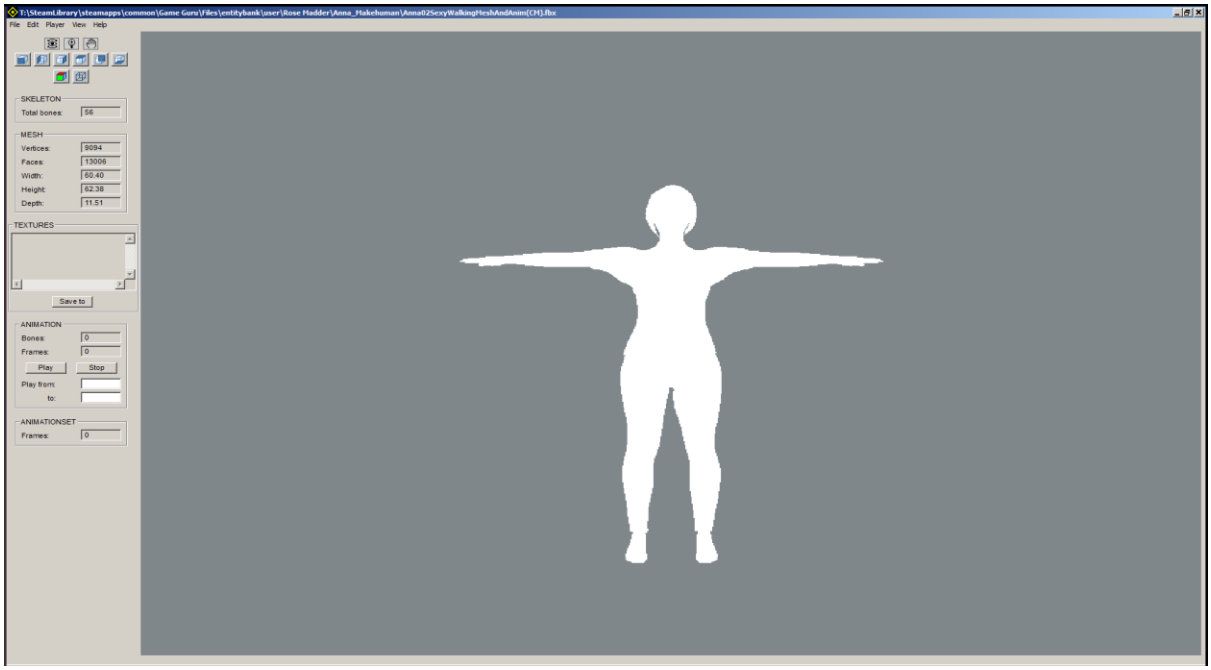
# FBX2GG Convertion and animations

Open FBX2GG

Open the FBX file with the mesh.

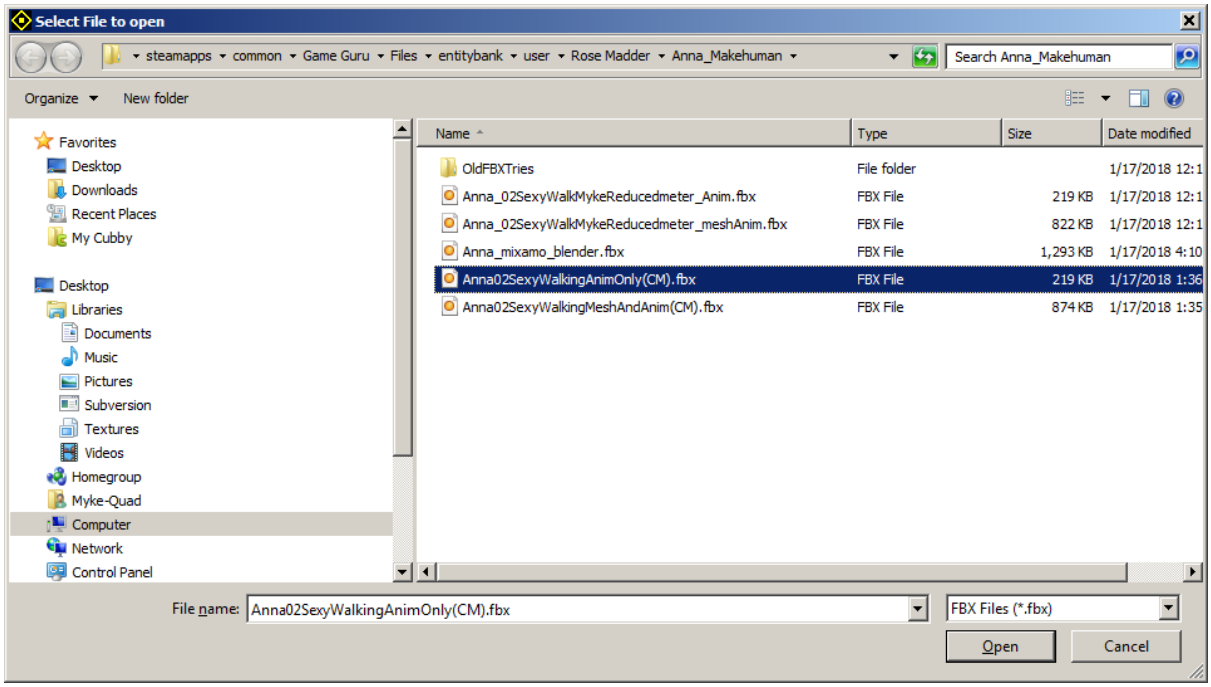



**Should look like this. Dont worry that the textures are not showing. It is not important right now.**

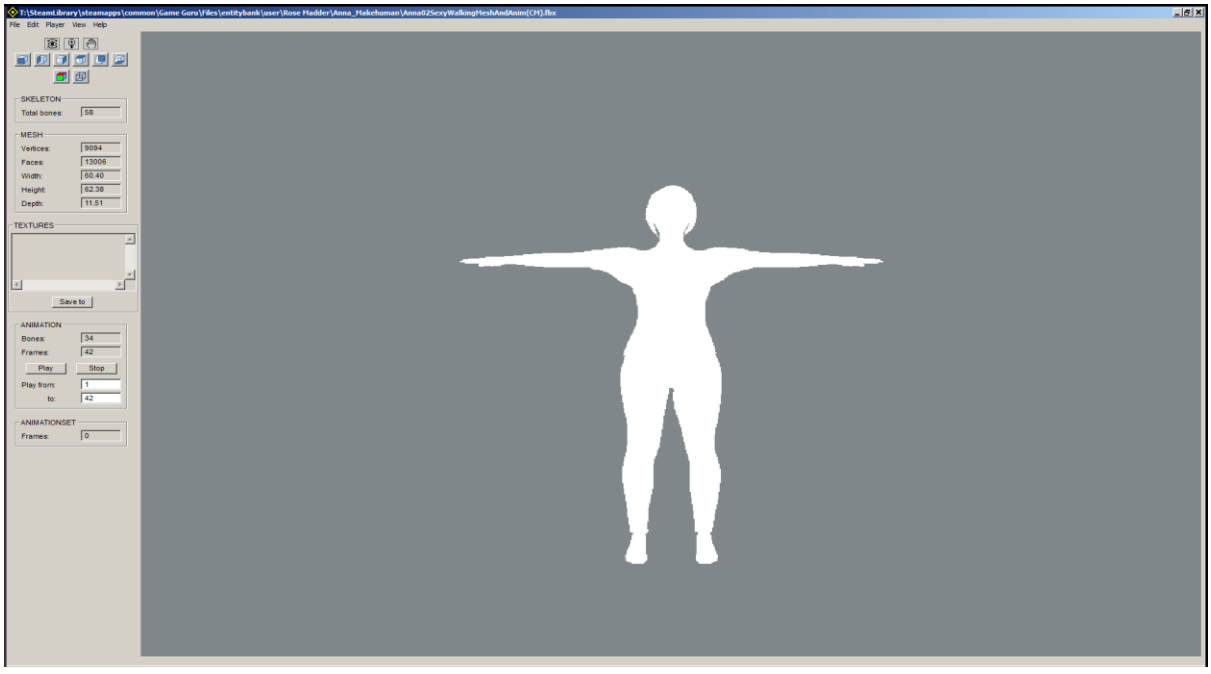


**Press <edit> <prepare skeleton for FBX animations>**

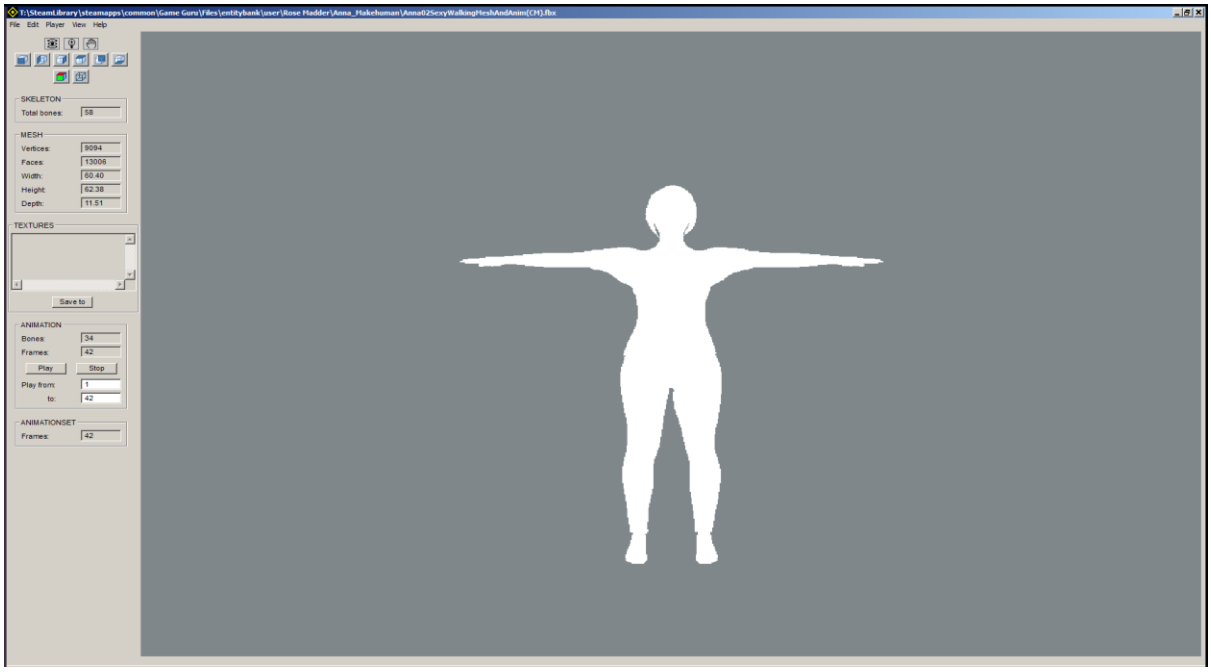
**Press <edit> <Import FBX animations> Choose the FBX without the skin.**



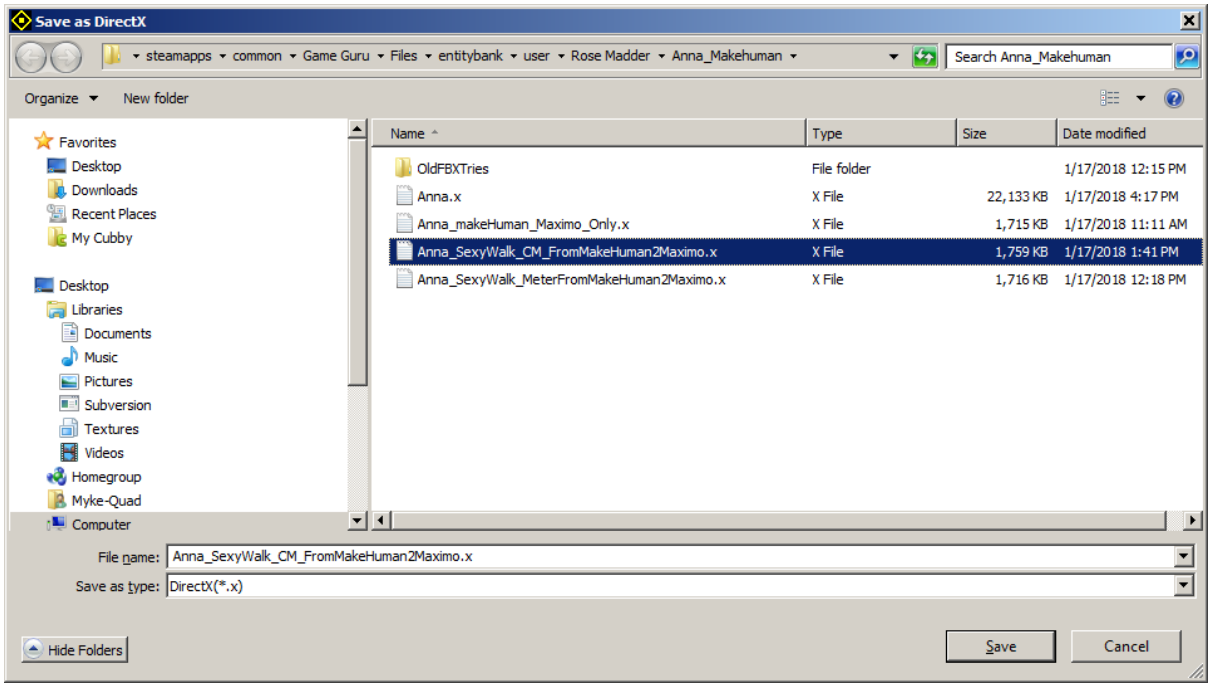

**It will look like this.**



**Press <edit> <Add FBX animation to animation set>**



**Press <File> <save as DirectX with animation set>**




**Press Save button to export it with animations.**

**Place the X file, textures all in the same folder.**
**Modify a FPE file like below. Changing the names of the mesh and textures to match your new character.**

# Setting up the FPE file

**This example only has 1 animation in it. Yours may vary. add the frames as needed to the animation section.**

**FPE file format:**

```
;header

desc = AnnaSexyWalk_PBR

 ;visualinfo textured = young_lightskinned_female_diffuse2.png
effect = effectbank\reloaded\character_basic.fx
castshadow = 0

;ai aimain = ai_soldier.lua

;orientation model = Anna_SexyWalk_CM_FromMakeHuman2Maximo.X
offx = 0
offy = 0
offz = 0
rotx = 0
roty = 0
rotz = 0
defaultstatic = 0
materialindex = 0
scale = 100

;identity details
ischaracter = 1
hasweapon =
isobjective = 0
cantakeweapon = 1
rateoffire = 100
ragdoll = 1
endcollision = 0

;headlimbs
headlimbs = 32,54

;statistics strength = 100
explodable = 0
debrisshape = 0

;thirdperson
jumpmodifier = 100
jumpvaulttrim = 1

;anim animmax = 5
```

```
playanimineditor = 1

anim0 = 0,1   ;idle
anim1 = 1,42  ;move
anim2 = 1,42  ;kick
anim3 = 1,42  ;hurt
anim4 = 1,42  ;reload
```

**Save the file and test the character in Game Guru.**
**You will need to script it for your needs.**

# FPE Material Index

**// materialindex**

**// 0 = GenericSoft**

**// 1 = Stone**

**//2 = Metal**

**//3 = Wood**

**//4 = Glass**

**//5 = Liquid Splashy Wet**

**//6 = Flesh (Bloody Organic)**

**//7 = Hollow Drum Metal**

**//8 = Small High Pitch Tin**

**//9 = Small Low Pitch Tin**

**//10 = Silly Material**

**//11 = Marble**

**//12 = Cobble**

**//13 = Gravel**

**//14 = Soft Metal**

**//15 = Old Stone**

**//16 = Old Wood**

**//17 = Shallow Water**

**//18 = Underwater**

# Questions & Answers

## Theory: Textures

**Why should my textures be in .DDS format?**

Because it is a format that is made for game engines, It is compressed and decompresses fast for game play.

Why do these textures have _D, _S and _N in the file names?
They are suffixes that tell the shader which texture to use.

**What do they mean?**

_D is for Diffuse texture. The diffuse texture is the color on your model.
_S is for Specular texture. The specular texture are the highlight of light that come off the models edges, and faces.
_N is for Normal or Bump texture. The Normal texture is used to simulate roughness on your model.

**What do you mean by power of 2.?**

Gaming textures use this format of size, so calculations come out correct, for UV mapping and Scale.
Power of two examples. 2x2, 16x64, 128x128, 1024x1024, 512x1024,
You can use any size up to 4096 x 4096. In any power of 2 combinations.

**Do I have to use .dds textures?**

No, but you will either see nasty textures on your model in game, or you will bog down the engine in no time.

Example. 2048 x 2048 tga texture can be as big as 80mb or larger. The same texture converted to .dds format is around 2 mb.

One can obviously see the advantages there.

**Why should I not use .jpg files?**

They have a dirty compression technique, that produces a lot of unwanted artefacts on the model in game. This format was made to transfer graphics over the web faster, not use in gaming.

But wait, you say that .dds files are compressed?
Yes that is true, but they are compressed with a less lossy algorithm and are specifically designed for gaming.

**What programs can I use to make these .dds textures?**

You can use Photoshop with the NVidia dds plugin
You can use GIMP with the .dds and Normal plug ins
You can use any paint program that is capable of exporting .dds files. Do a search online for your paint program and see if an import / export plug in is available.

**Requirements:**
**Required:**

The textures and intended import object is .X (Direct X) file format or DBO format.

**Note: It is suggested that you keep your imported assets together in a folder for your convenience**.

**The model:**

Must be in Direct x format, or Dark Basic Pro format.
Make your model in your model program, and export it as a x file.
There are many programs and each one has its way of exporting these files for you. Read the help files for the model program you are using for procedures on how to export.

**Things to consider:**

Model size and complexity. Scale the object to a real world size, don't make a 10 Foot tissue box, when in reality it is only 12 inches. Just a good habit to get into.
Split your models up into logical pieces, don't try and export your fully modelled house as one piece. Yes it might get in without errors, but it is not efficient for collision purposes, as there will be collision assigned to parts of the model, that don't need it. Like ceiling and columns against walls.

**The Textures:**

Prepare the textures in your paint program and place them in the folder with the model.
Create your textures for your model, and export them to your folder where the model is.

Use only one map when mapping your model.
If you have a tree with leaves and a trunk, do not have one map for the wood and a seperate map for the leves. Everything should be on one map.

Be sure to name your textures with the appropriate suffix in the file name.

TextureName_D: The Diffuse texture slot for you model.

Optionally, you may also have the following effect maps for use with shaders.

Texturename_S: The specular texture slot for your model.
Texturename_N: The normal map slot for your model.

Texturename_I: The illumination map slot for your model.

Accepted formats include: png, bmp, jpg, tga and dds, but will be converted to dds format for use in GameGuru.

Important: You must include at least a diffuse texture (_D) or else no texture will be imported and your model will appear black in-game

What will be made from the conversion:

The 6 basic files you need for any object being used in GameGuru.
FPE: The File that contains the initial settings for the editor to setup the object when used.
BMP: The preview image (thumbnail) used when choosing an asset from the library.
DBO: The model format that will be used for the mesh in the editor when placed in the level.

TextureName_D.dds: The Diffuse texture slot for you model.
Texturename_S.dds: The specular texture slot for your model.
Texturename_N.dds: The normal map slot for your model.

Note: These are the minimal texture requirements for the shaders used in GameGuru. Other textures can be needed for different shaders. Furthermore, these will only be converted if they already exist and are in the same folder location as the _D texture (explained in the Requirements section). The importer will not generate these shader maps on its own.

Model Importer - The Basics - Proceedure
To access the Model Importer:
Left Mouse Button (LMB) on the file menu and choose Import Model:

A window will open up, asking you to choose which asset you want to import.
You can choose from the following file formats: X, FPE or DBO. Now press the "Open" button at the lower right of the window.

The import interface will appear:

Options:
View: Shows you which view direction you are using.
Save Entity: Saves entity to GameGuru Format.
Cancel: Cancels out of the importer and returns to the editor main screen.
?: Help for using the import functions.
Properties: Switches to the properties screen where you can set the desired properties of the imported object.
Collision: Switches to the collision page where you can define your custom collision to an imported object.
Thumbnail: Switches to the Thumbnail screen where you can position your imported object for the snap shot.

The Property Screen:

Once you have you model in the importer, this is where most of the settings will be changed.
If your model has a texture exported with it, you should see it in the importer screen, on the model and the Square Preview on the left.

Clicking on texture preview will open up a window where you can choose a different texture.

Accepted formats include: png, bmp, jpg, tga and dds, but will be converted to dds format for use in GameGuru.

Note: Make sure your textures are in multiples of 2 (ie., 512x512, 1024x1024, 512x1024, 2048x2048, 64x128, 128x1024).

If your model does not have a texture exported with it, the model will have red and white UV squares on it.

Click the texture view icon to choose a desired texture. Clicking on texture preview will open up a window where you can choose a different texture.

Again; accepted formats include: png, bmp, jpg, tga and dds, but will be converted to dds format for use in GameGuru.

Note: Make sure your textures are in multiples of 2. IE: 512x512, 1024x1024, 512x1024, 2048x2048, 64x128, 128x1024.

Also; not all textures will be appropriate for all models, do to the way their individual UV Mapping is set up on the model. Some prior thought might be required.

GameGuru - Model Importer - Operations
The function of the model importer is to make custom assets available in GameGuru for use in populating your game. All you need is the textures and the model file.

Properties Panel:

Options:
Scale: Allows you to scale your model up or down.
Shader: Sets the shader for use for rendering. Press and hold the LMB and scroll to the desired shader. Note: Entity_basic.fx Shader is the best choice for most objects.
Y Rotation Allows you to rotate your object around the Y axis as the default insert position. Note: You can also use the LMB in the view to rotate your object. Use Shift+LMB to snap to 45 degree increments.
Collision Mode: Changes the collision options allowing you to choose the collision style needed. Hold down the LMB to change.
Collision types:
Polygon: Per vertex collision, Static and Dynamic objects. More work for the engine.
Box: Uses a box encompassing the bounding box of the object. Static and Dynamic objects.
No Collision: Use this if an object cannot be reached by the player. Ceiling lamps, beams things like that. Door and window frames, as the walls would carry the collision. Columns against the walls.

Limb one Box: Limb number will cause that limb only to receive BOX collision and the rest of the object will have no collision at all. Used for trees where the trunk needs Collision, but the rest of the canopy does not.

Limb one Poly: For unusual or curved objects such as bent trees or collapsed pylons for example, POLYGON collision can be achieved by choosing this mode.

Collision Boxes: An advanced collision assigning mode allowing you to define multiple boxes for collision use. Used for very complex objects and will have it's own guide.

Default Static: Yes, sets the entity into static mode making it non script-able or movable. Setting this to no, will allow the object to be script-able.

Strength: Sets the strength of an object , defining how much strength till the object is destroyed. Setting this to Zero, make the object invulnerable.

Is A Character: No, to define this object as a non character, Yes, to define this object as a character.

Is An Objective: Setting this property to other then zero, will allow you to define objects as objectives, for collection purpose. Once all objectives have been achieved in the game, then that will end the level.

Transparency: None is no transparency, but pure black will still be transparent. Standard for when you need transparency along with Alpha Masking, Render Last for use with objects that are water line object (separates depth sort automatically).

Material: Sets the material for the sound and the bullet hole decals.

Script: Choose the script require for any dynamic entity. For static object use default LUA.

Show Guide: On will show a scaled image of a normal human for size comparison against your model. Off will Hide the object.

Note: You can rotate an object on this screen in the Y Axis only by clicking your left mouse button (LMB) and dragging in the direction of rotation desired. Pressing shift key and dragging the left mouse button (LMB) will snap to 45 degree increments.

Collision Screen

Where you can set up Custom Collision boxes for your object, for complex Collision. Note: this screen will do nothing unless the Collision Boxes are selected in the Properties Screen. Under collision mode. This will be covered in depth in a later Guide.

Thumbnail Screen

With this screen you can rotate your object to the desired x,y,z rotation for the required thumbnail file to show an icon of your object in the library.

When you are finished making adjustments to your imported object, then press the Save Entity button at the top. A window will open asking for the location that you would like the files stored. Browse to the location, give the file a name, then press the Save button in the lower right.

All the required files are generated for you, and are now ready for use in GameGuru!

Open the Entity Library, and find your object under the entitybank\user folder.

Double-click on it, then place it in your level where you would like. Press the Test Game icon and watch your creation be part of your next game!

**Maps**

Blurry textures in PP version.
Check the setup.ini file for this statement and make it this setting.
dividetexturesize=1

Save file and restart Game Guru.
NVidia DDS plugin for Photoshop
I use GIMP for this and the .dds plugin for that. It seems to process faster for me.
Awesome bump is free and can to this from photos if you want with quite a few adjustments that can be made.
Of course, 3ds max can bake normal maps also very well from a high poly model to a low poly model.

**Texture naming for Game Guru:**

For non PBR shaders:
_D for diffuse
_N for normal you will want to use normal not bump maps
_S for specular
_i for Illumination
_cube for cube mapping objects with prebens shaders.

**For APBE shaders:**

_color for diffused of Albedo
_ao for ambient occlusion
_normal for normal you will want to use normal not bump maps
_gloss for roughness (need to invert for use in Game Guru
_Metalness for metal
_height for height map
_detail for detail map can't be used with illumination.
_detail for illumination map (illumination map needs to be renamed to detail to be used) can't be used with a detail map
_cube for cube map reflections on objects instead of the environment generations from picking skyboxes and terrains

Other useful information.
Metalness - black is dielectric, White is metal

Gloss - Black is shiny, white is rough (changed 11-6-17 Shader change Lee)

Specular - Mostly grey scale except for metallic objects, then the reflectance colour of the metal is used for the specular colour.

Roughness - Black is Rough, White is shiny

Normal direction +X -Y +Z or x right, y down, z right

**Quote: "Is the .X model used the same as the .fbx as far as PBR rendering is concerned?"**

As far as any rendering is concerned now, Static FBX files can be used like the x file was. The engine will make the required .dbo file for use in the game level.

**Quote: "Can current .X models be converted to PBR by restructuring the texture files, and switching to the apbr_basic shader in the FPE?"**

Any model can be converted to pbr texture use. Follow the metallic workflow and use the roughness map as the gloss map. You can most time use the apbr_basic shader unless you want illumination, animated bones objects, or characters.

**Quote: "I noted the mention of an emmisive file. Is this part of the public Preview? how does it work?"**

Label your emissive map as _illumination and use the apbr_illum.fx shader for objects and character basic for characters.

**Quote: "should we be using .dds or .png now for PBR?"**

That is really up to you.
.dds format is for gaming engines
.png and .jpg and.bmp can also be used for dx11 stuff. Strangely enough you cant use .tga files in dx11.

Questions:

**Is there a way to reduce the wet look on stone?**

yes you can either turn the specular down in the asset properties in GG editor or tone down your gloss map

The wet look is probably your gloss map.

In gameguru the _gloss map is NOT a gloss map, it's actually a roughness map that has been called _gloss, so the black and white will be reversed. So if you are using anything that generates the maps, like B2M3, you need to ignore the gloss map it produces and use the roughness map and change its name to _gloss, or edit the existing gloss map in a paint program and invert the colours..

Create a grayscale version of the color map, and used it as the _gloss.dds file.
Make the _ao.dds file.  Copy, rename, and modified the FBE file to the new texture (_color.dds)
Set the effect to apbr_basic.fx, using the same .x model as the original.
The PBR structure does make the shadows much more natural. There is also a very noticeable
Difference to metals, making them look more life-like. The Ambient slider works the way it should