Chaos Canine - Customization Guide

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Basic Customization

*The basic customization guide is written with people unfamiliar with Unity in mind.*

Swapping Hairstyles, Ears and Tails.

Chaos comes with 2 hairstyles, 3 ear options and 3 tail options.

1. Expand the child object of your avatar. Select one of the grayed out objects and click on the check box in the **inspector** window to enable them. Unchecking the box will disable it.
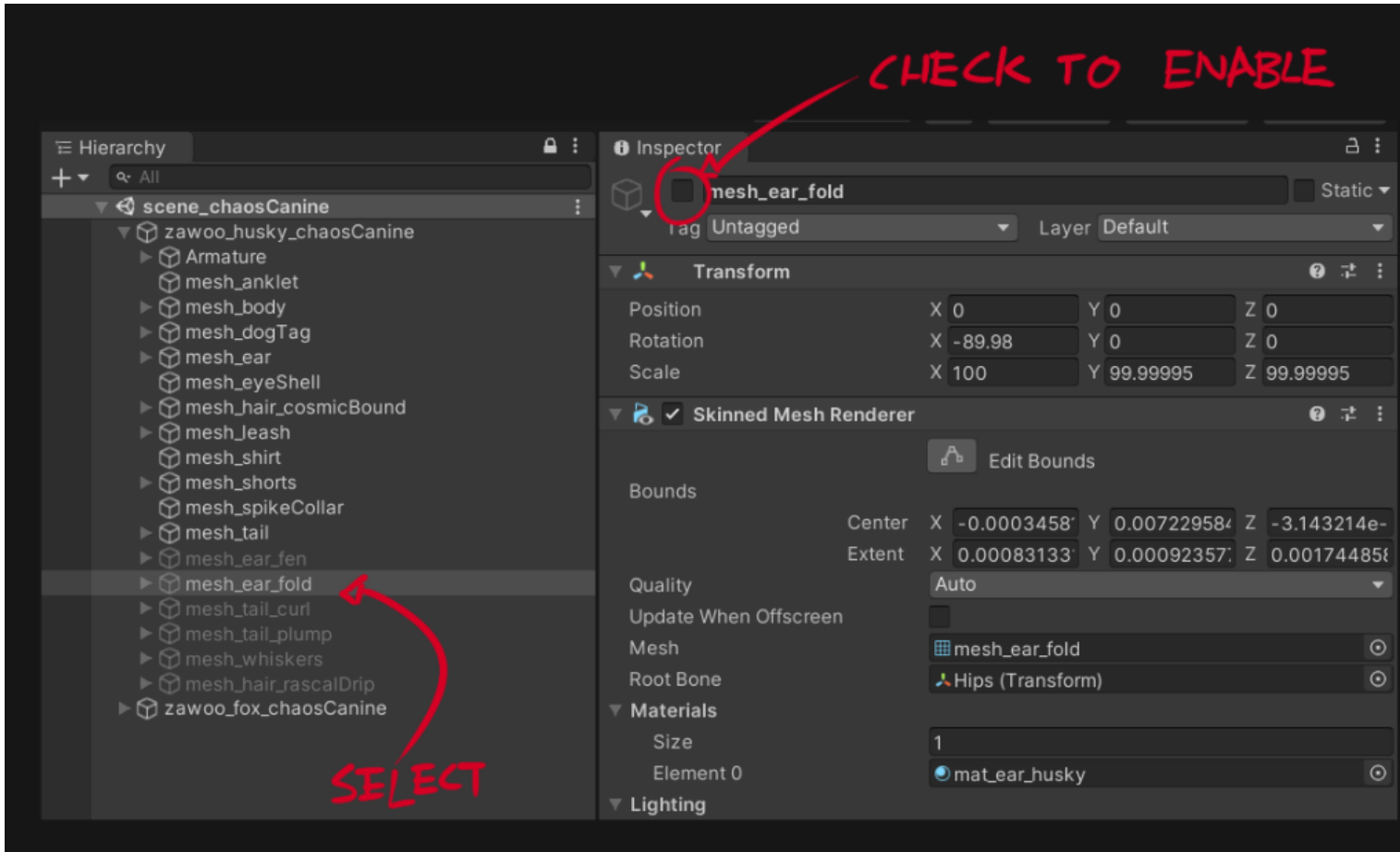

2. After you're happy with the result, you should remove the unused ears, hair and tails to save on uploaded file size. You can either select them and press delete, or unparent (drag them out to an empty spot in the hierarchy) them in case you change your mind later.
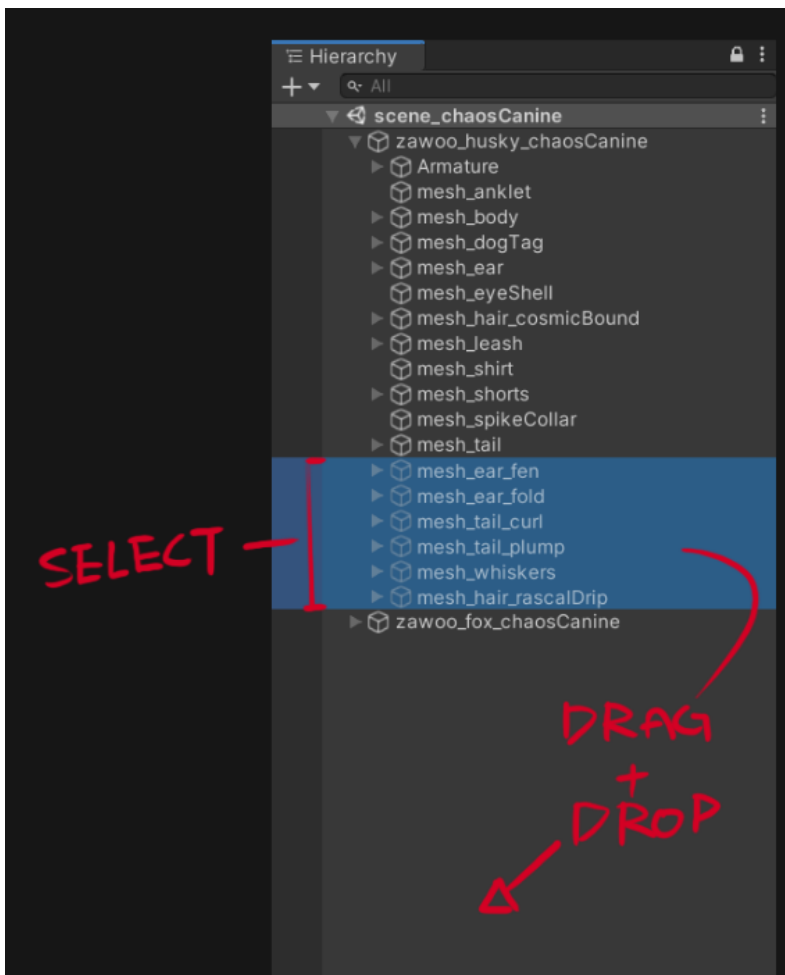
Changing Body Shape with Blendshapes

1. In the hierarchy, select "mesh_body" (this is the body mesh of the avatar) and modify the blendshapes under the "skinned mesh renderer" component; the body shapes have the "shape_" prefix. You can enter values over 100 if you want to.
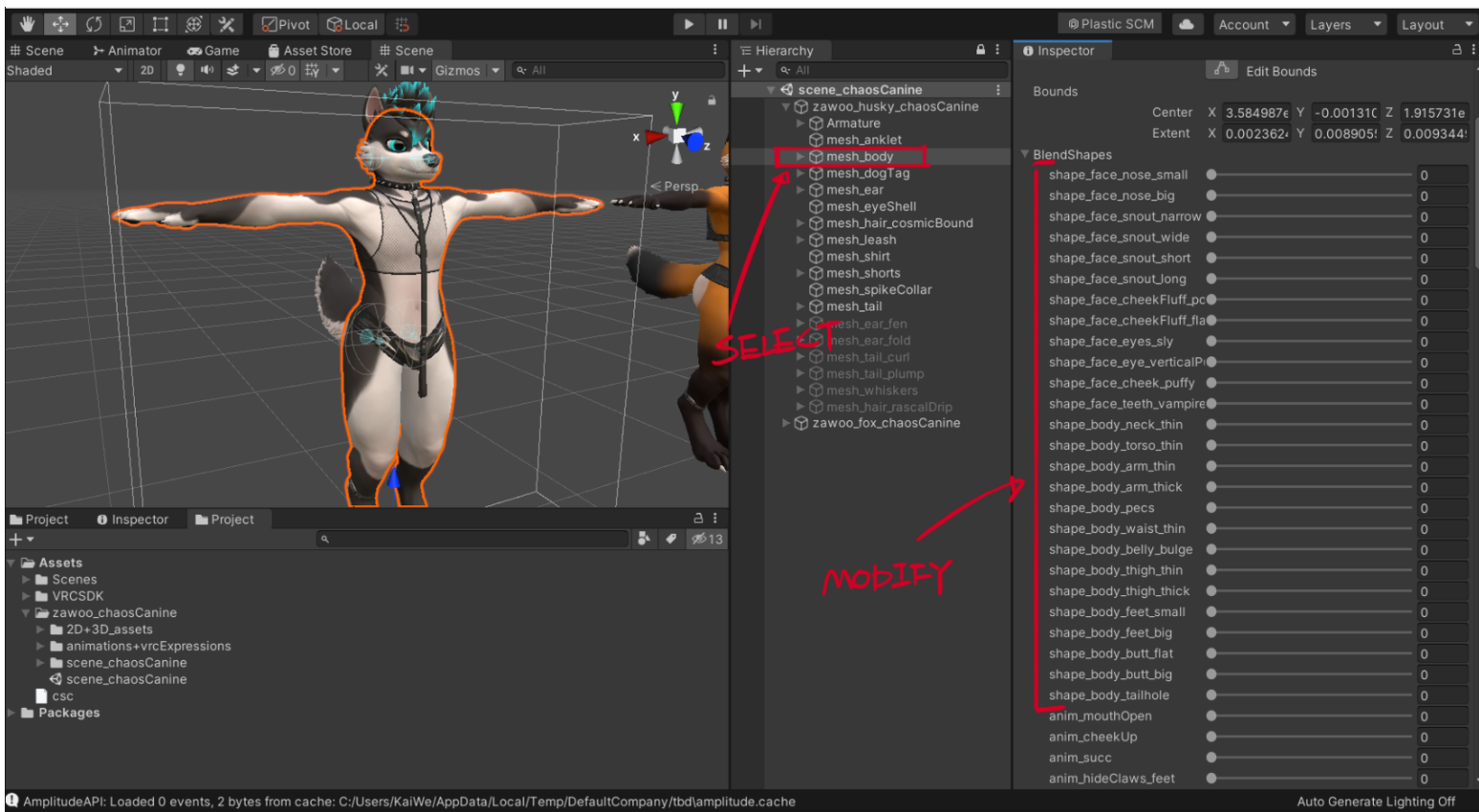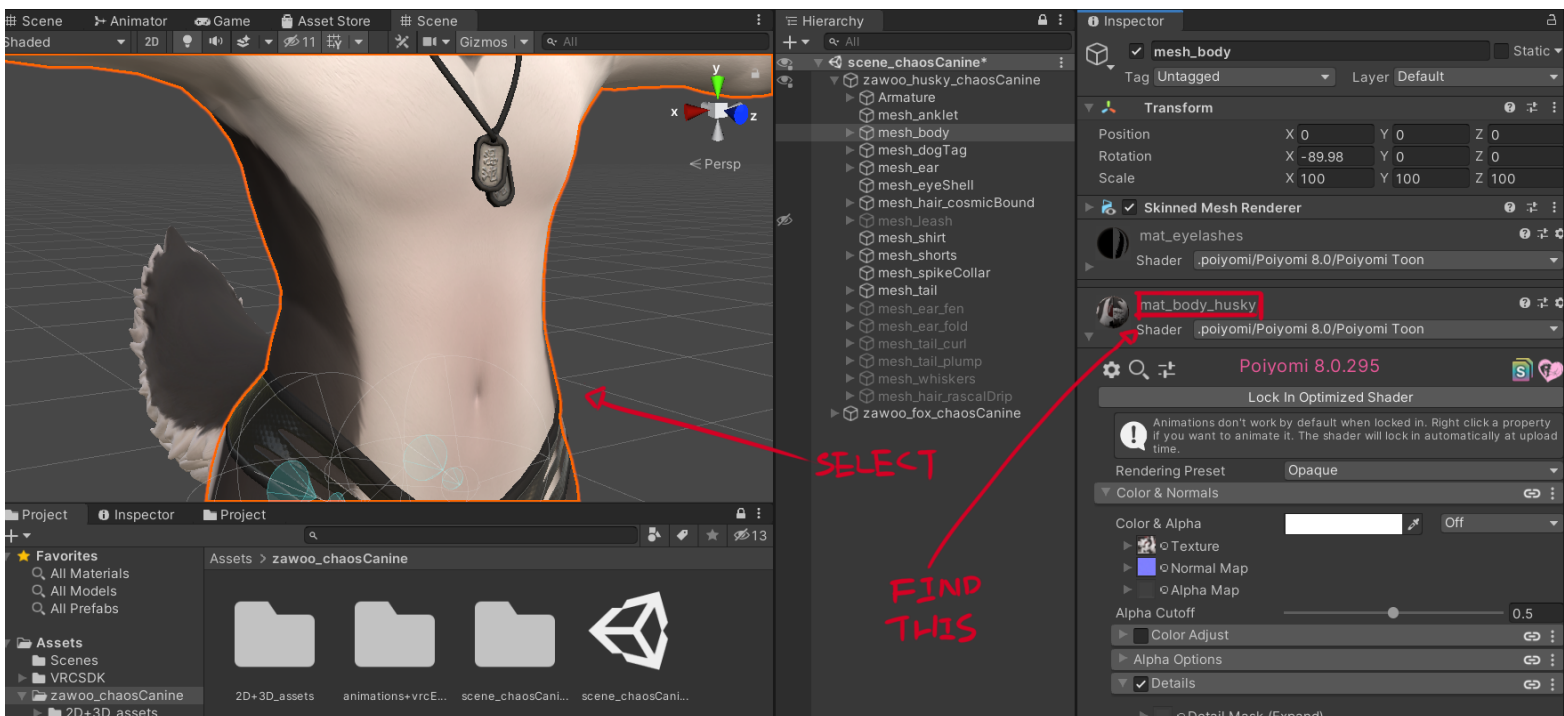

2. Remember to apply the same blendshape setting to the clothing meshes as well, after you're happy with your body shape. If you don't do this, your clothes might not fit correctly and clip through your body!
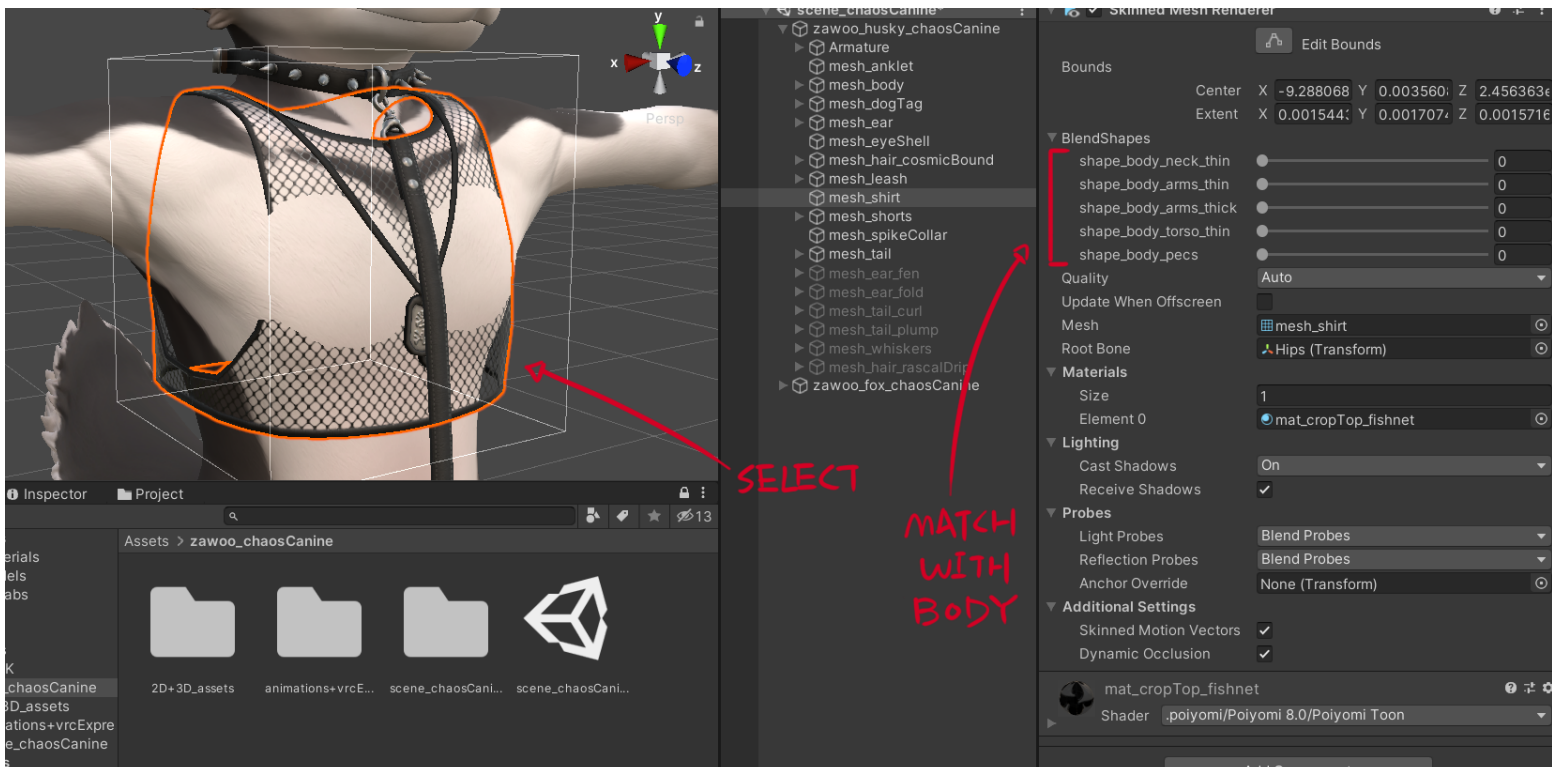

Adding Abs to Chaos

1. Select your body and find the material of your body.

2. Modify the "Detail Normal Intensity" value; Values from 0 to 1.5 is recommended. This adds a texture that reacts to lighting.

3. Check at least 1 box in the "Decals" section (up to 4). This adds a painted on shading effect. Some worlds in VRChat have no lighting whatsoever. Without this texture, the abs will disappear in those worlds. 1 or 2 boxes checked is recommended.
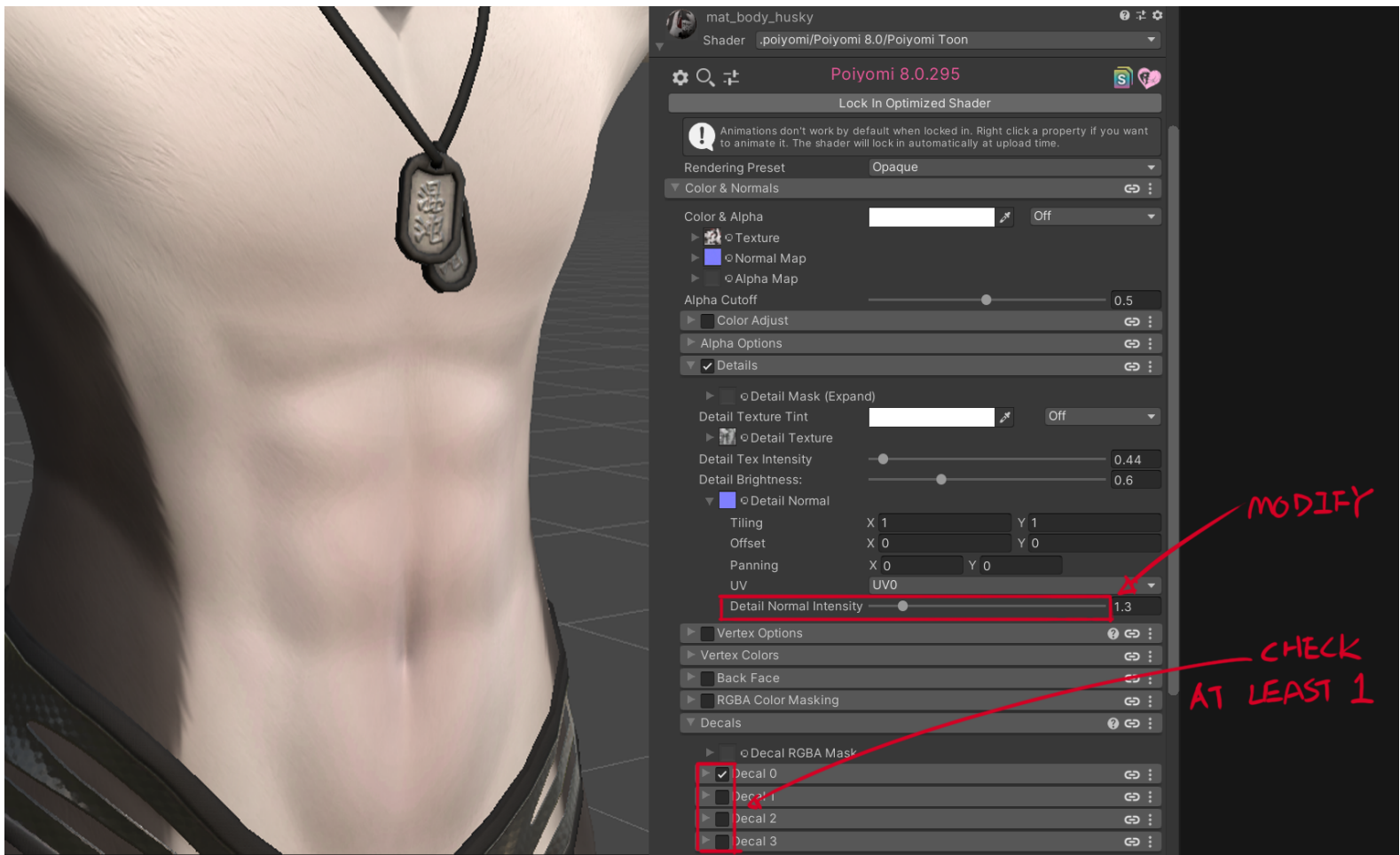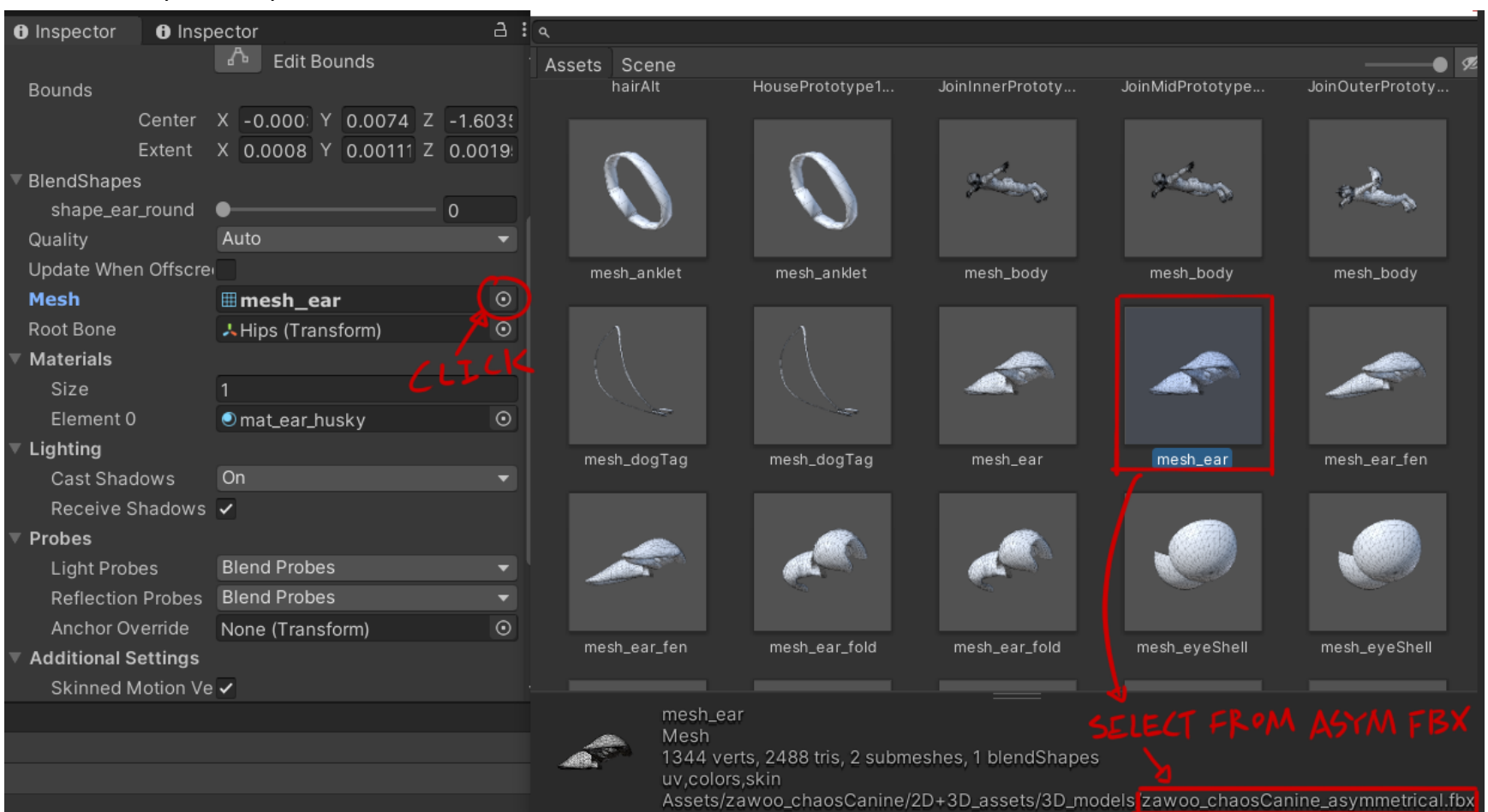

Asymmetrical Body Textures.

If you need asymmetrical body textures, use the prefab located in **"avatarPrefabs"** in the unitypackage. Drag and drop it into the hierarchy to use it.
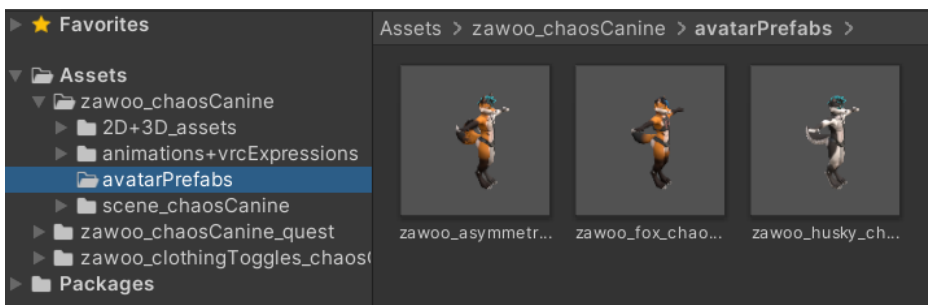
You can also swap the mesh of a normal model to an asymmetrical one. This might be more convenient to you if you just need the ear, tail or body to be asymmetrical.

Advanced Customization

The advanced customization guide assumes that you are at least adept at image manipulation and understand the basic principles of how 3D models work.
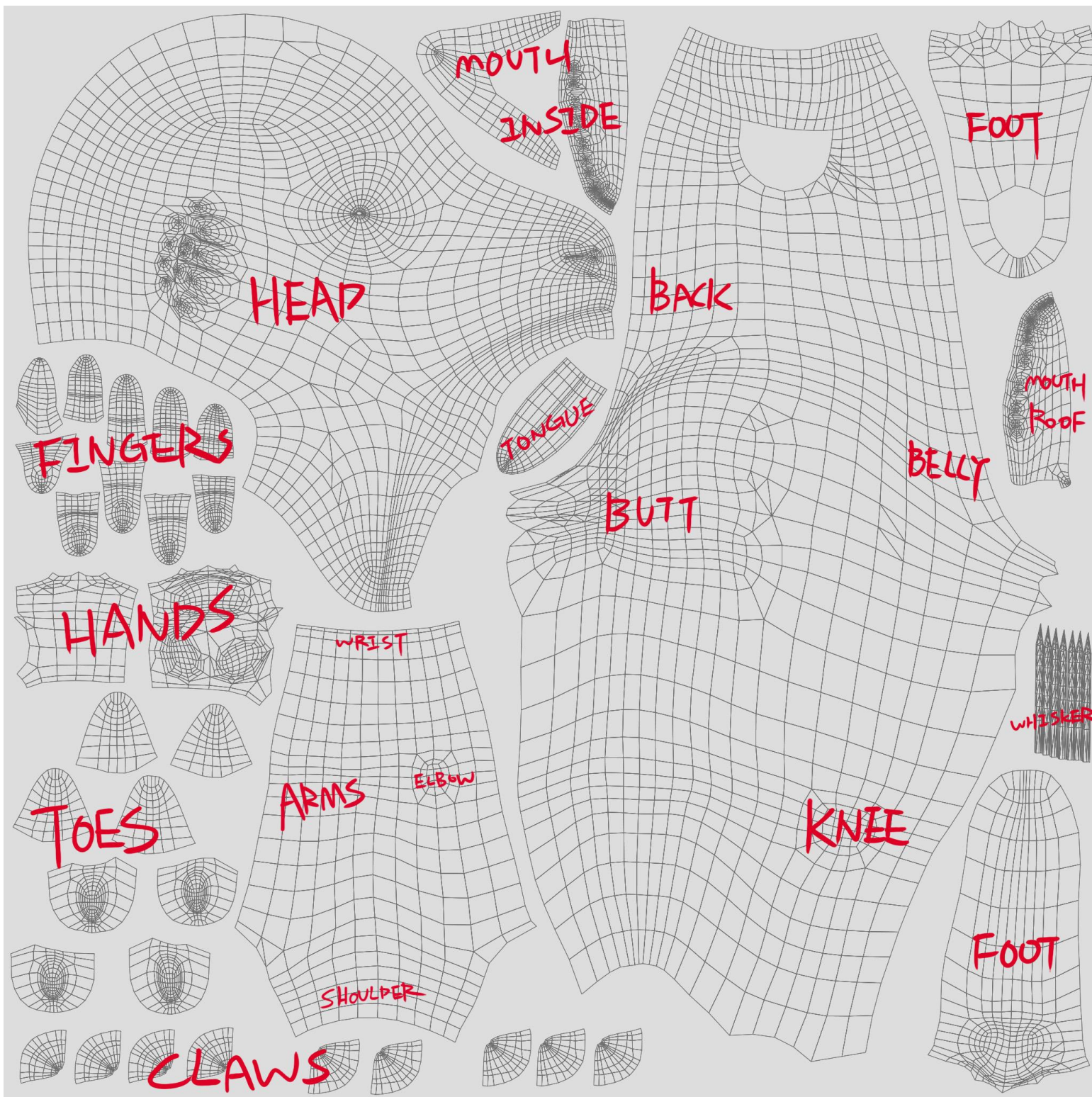
UV Sets

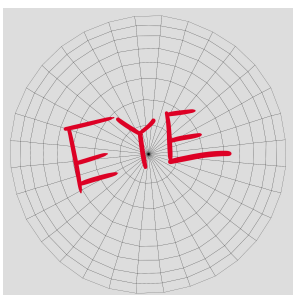The clothing uses 1 UV set each.
The body uses 4 UV sets.
The tails and ears use 1 each.
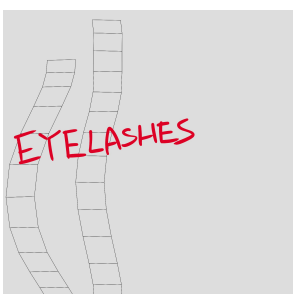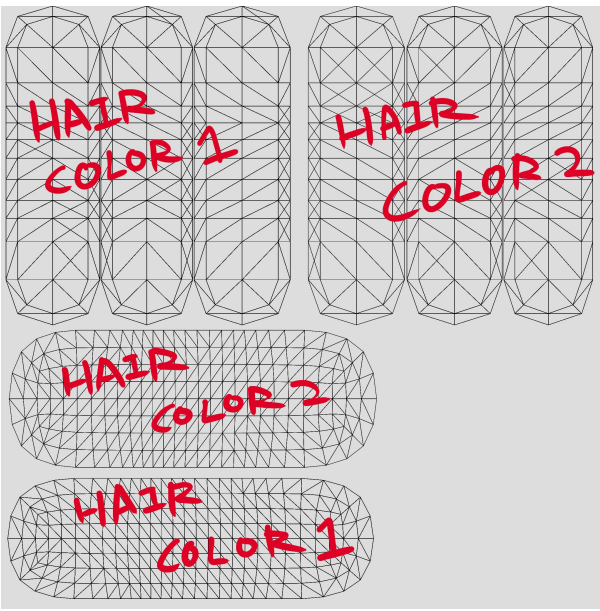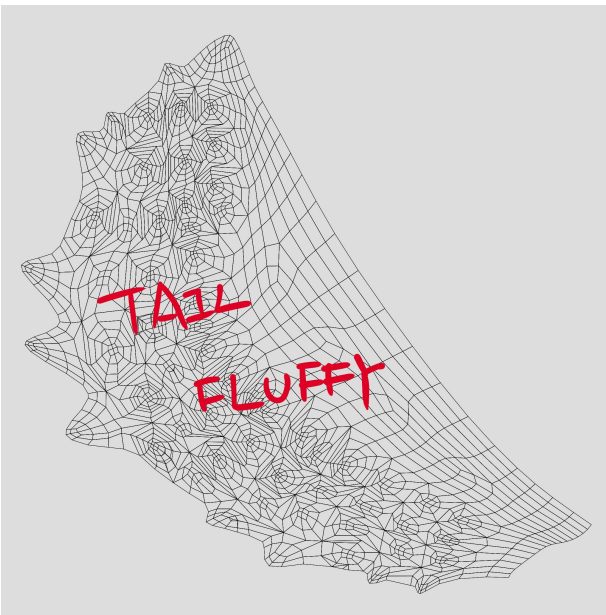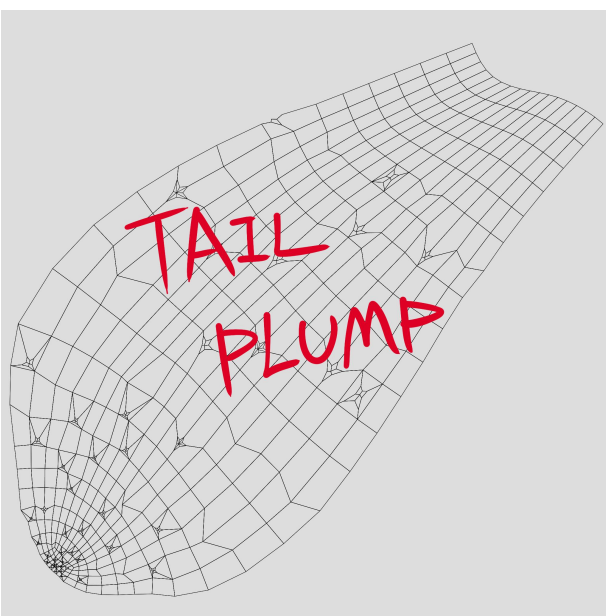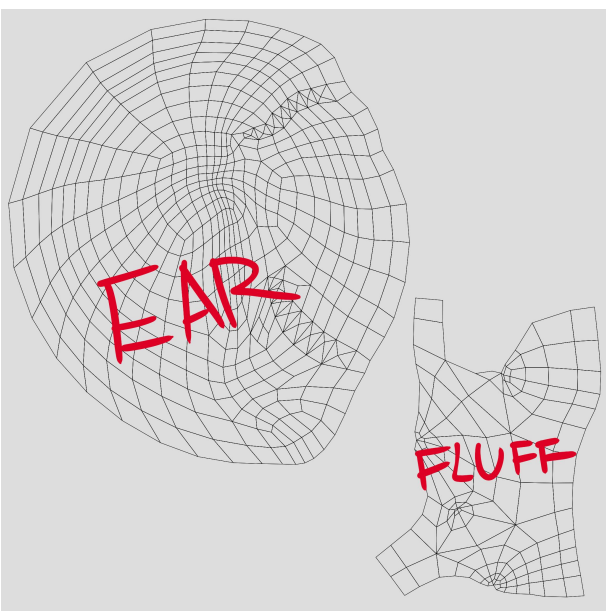The whisker shares UV with the body.

UV1:

UV2:

UV3:

UV4:

UV5:

UV6:

UV7:

Transparent images of these UV layouts can be found in the imageTextures folder.

UV1: mat_body
UV2: mat_eye_L and R
UV3: mat_eyelashes
UV4: mat_alphas_hair
UV5: mat_tail_fluffy
UV6: mat_tail_plump
UV6: mat_ear

Shaders for Materials

This section pertains to shaders used and what they are used on.

The body model uses 3 different shaders for the body:
PBR Metallic - Opaque rendering mode:
mat_body, mat_eye, mat_tail_fluffy, mat_tail_plump, mat_whiskers, mat_ear
PBR Metallic - Cutout rendering mode:
mat_hair_alpha, mat_eyelashes
PBR Metallic - Transparent rendering mode:
mat_alphaBlend (for the eye-shell)

Two different shader is used for the clothes:
PBR Metallic - Cutout rendering mode:
mat_croptop and mat shorts
PBR Metallic - Opaque rendering mode:
All the accessories

The "PBR shader" mentioned above don't refer to one particular shader, but a type of shader often included in 3D programs. Common PBR shaders include Standard(Unity), PBS(Neos), Principled BSDF(Blender), Standard Surface (Arnold).

The preset shader for VRChat is Poiyomi 8, customized to look mostly PBR in well-lit environments, only with minimum brightness set to 0.05 to compensate for worlds that lack baked global illumination, getting around the issue where shaded parts appear completely back in some worlds.

There is a set of alternative materials in "3D+2D_assets\materials\standardMaterials" which uses the Standard shader; you can use these if Poiyomi doesn't work for you.

About the Poiyomi 8 shader

Poiyomi 8 is quite different from previous versions, the PBR textures have a totally different RGBA channel setup and old materials can sometimes be hard to port over. The PBR looks a lot better, but some special effects like subsurface scattering are missing.

VRC SDK also warns about shader keywords, according to the author of the shader, this warning can safely be ignored.

Further Optimization

This model comes with a lot of materials, made with facilitating customization in mind. If you are interested in further improving performance and optimization, you can use tools such as CATS blender plugin to create a texture atlas. Please keep in mind that if you want to preserve the original look, at least 4 materials need to be present for the different shaders mentioned above

Included SPP and PSD

The included SPP for the body is organized in a similar manner to the PSD, it's only meant for exporting albedo. It is saved with Substance Painter 7.3 Steam Edition.

The models in the front of the SPP files have mirrored UV on either side, this allows for doubled effective texture resolution, but will only work if your character has symmetrical markings. If your character has asymmetrical design, paint your texture on the models on the back. Both the mirrored and asymmetrical models have the same eyes and hair UVs.

Technical Info

Normal map orientation:
Y+ (OpenGL)

Tangent Space:
MikkTSpace

Quest Customization:

The quest customization guide pertains only to the Quest and fallback versions of the model.

Full Featured

The full featured version is almost identical to the PC version, with cut down features, lowered texture resolution, and VRC mobile shaders. You can directly use your PC textures on the full featured model. Just keep in mind that the VRC mobile shaders are very simplistic, and do not support seemingly basic features like transparency.

While using your own textures, you can resize the texture in Unity if VRChat SDK deems the avatar upload size too large, or use too much video memory.

Fallback - Texture Atlasing

The fallback version uses texture atlas to reduce material slots usage to 1, you can find chaosCanine_questFallback_textureAtlas.psd in the **Image Textures** folder.
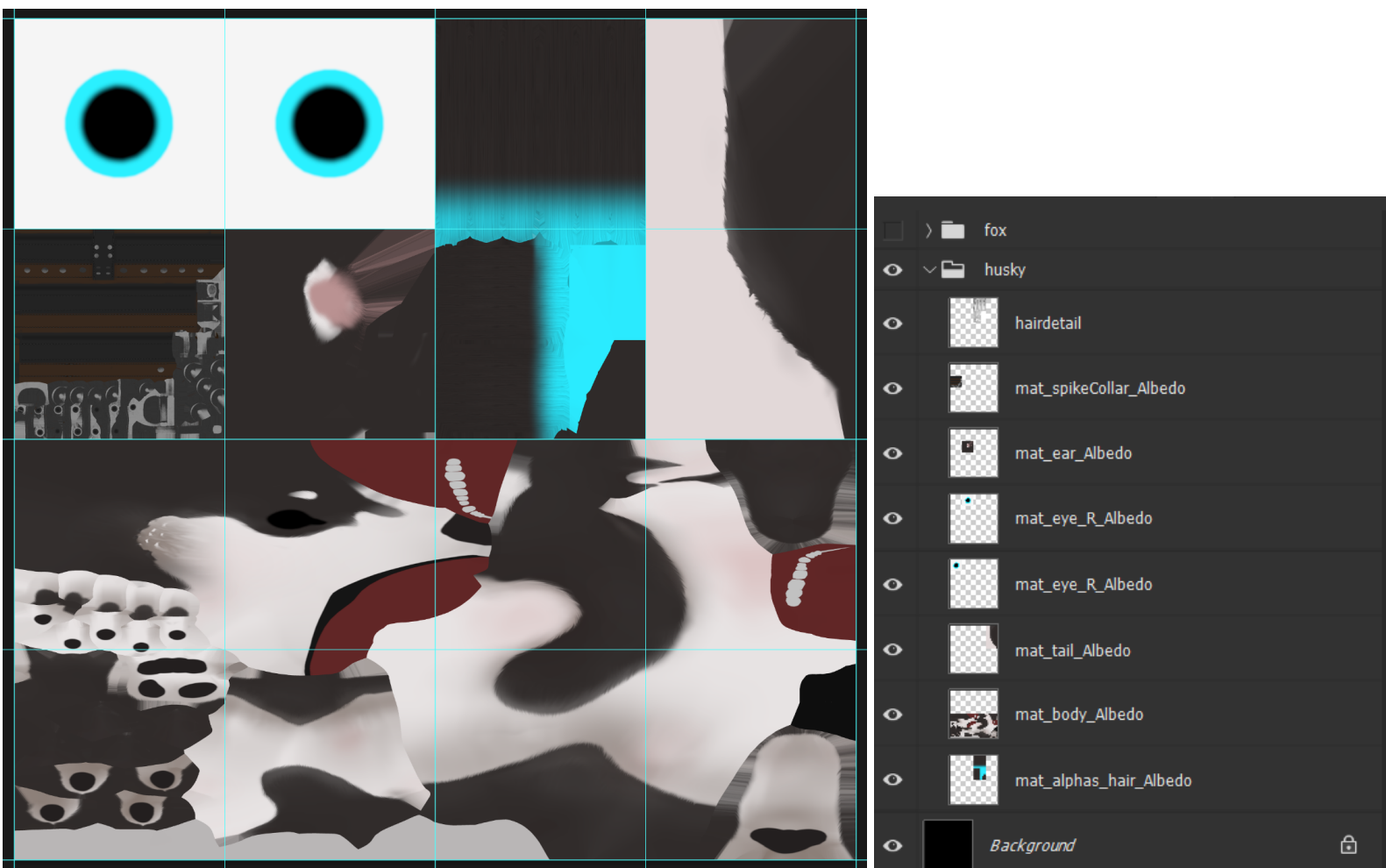
Make your textures like you would for the PC version, then move and stretch the textures to their spots, they are all organized with different layers by default. If your image editing software supports guides, the guides will help you resize them and they'll not show up when you save the texture.

The fallback model only supports mirrored UV, which means asymmetrical textures aren't possible.

The body textures are stretched to double width, and fits on a 4x2 block as seen above.
The hair and tail textures are stretched to double height, and fits on a 1x2 block.