Byte Setup/Editing Guide

Overview

Byte is designed to be as modular as possible, to allow the creation of personalized pixel-poly characters, and has thus been streamlined to allow for as much customization as possible. This document will help users develop their own edits to the model for both VRChat avatar creation and VRM for vtubing purposes.

VRChat Avatars

Prerequisites

1. Basic Understanding of Unity (How to navigate menus, tabs, and assets)
2. VRC Creator Companion:
3. Poiyomi 9.0.61 or Higher: https://github.com/poiyomi/PoiyomiToonShader
    a. Using a different shader is okay, as long as it can support texture shifting.
4. VRCFury: https://vrcfury.com
    a. A lot of this guide focuses on using VRCFury to streamline the process, you have the option to not use VRCFury but this is not recommended if you lack unity experience.

Installation

1. Create a new “Unity 2022 Avatars Project” in the creator companion.
2. Import, VRCFury and Poiyomi.
    a. This can be done either with the creator companion, or by manually importing the unitypackages for them.
3. Import the unity package for this avatar.
4. In the assets folder, navigate to “Assets/MarinoDev/Byte (MarinoBase)” and open the “(OpenMe!) Byte MarinoBase.scene” file by double click

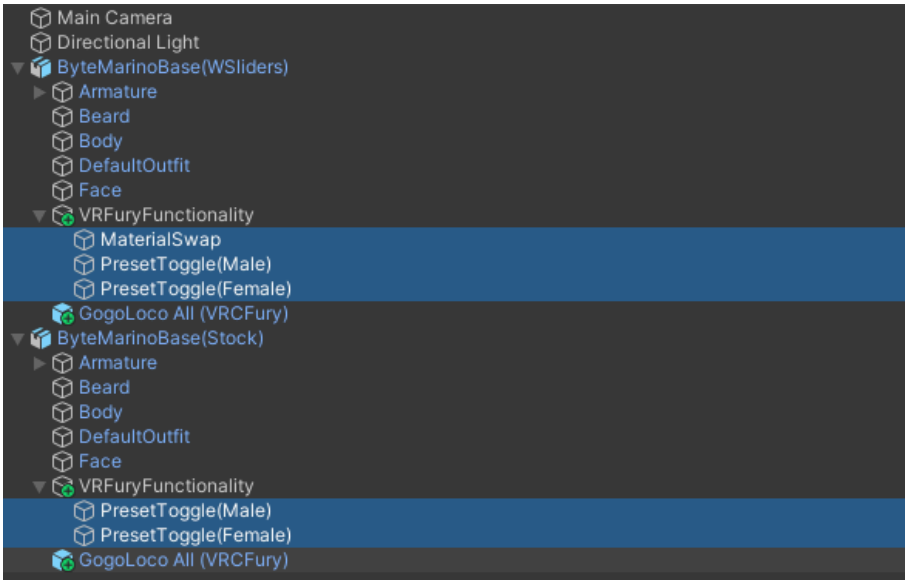
    a. Open “No VRCFury Byte MarinoBase.scene” if you choose to forgo VRCFury.

Technical Stuff

- **The face texture can be completely swapped out for another one and work perfectly fine, the avatar utilizes texture shifting for visemes and facial expressions. You can edit the 4x8 face grid to freely change how you want the model's facial features to look**
- Two versions of the avatar are provided in the scene, one named "ByteMarinoBase(WSliders)" that has body sliders and toggles, and "ByteMarinoBase(Stock)" which has no functionality aside from visemes, facial expressions, and eye movement, which one you'd rather upload is up to you to decide to do.
- For this avatar to work the best it can, "Write Defaults" is set to OFF in the FX animator, this is because adding preset toggles relies on playing animations on higher layers to override changes made in lower layers, when the toggles are turned off playing they revert back to the body settings set by the sliders. With "Write Defaults" set to ON, you won't be able to use the avatar's body sliders if you add preset toggles because they will override the lower layers in the animator. Write Defaults basically dictates if changes made by an animation revert after it stops playing, it can be turned off if you chose not to use add preset toggles.

Making Presets

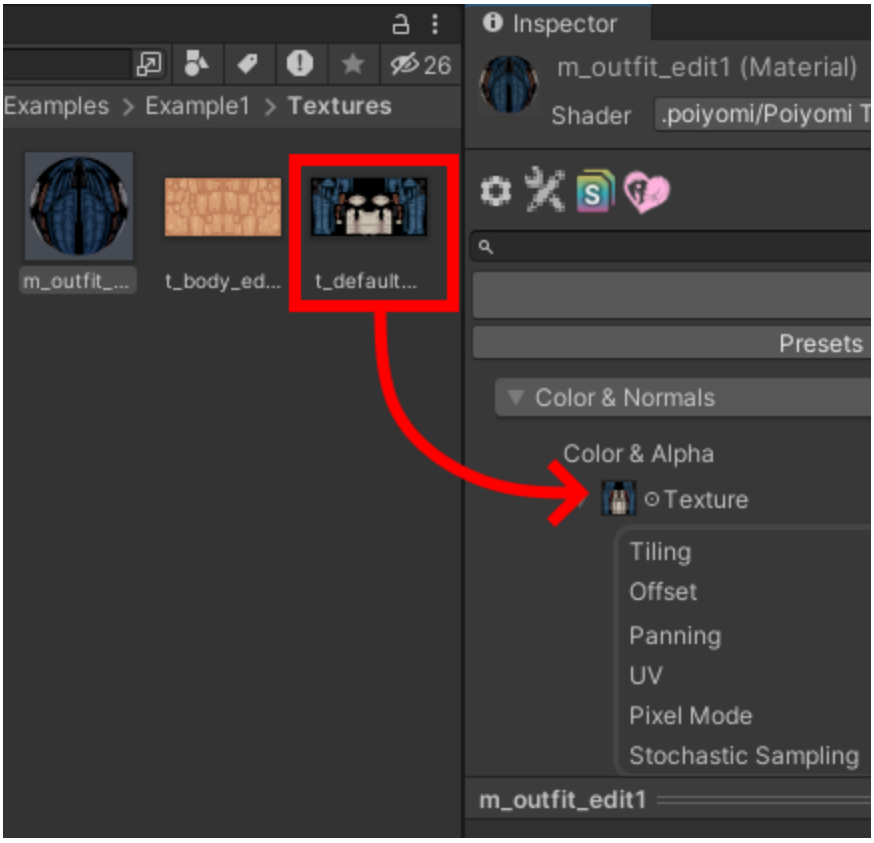
There are two ways to do it! Navigate to hierarchy as there is some functionality already set up for you to utilize.



*****It's recommended you create unique assets for edits so the avatar can be updated with a new unity package later on, Press Ctrl+D to duplicate an existing asset**

Material Swaps

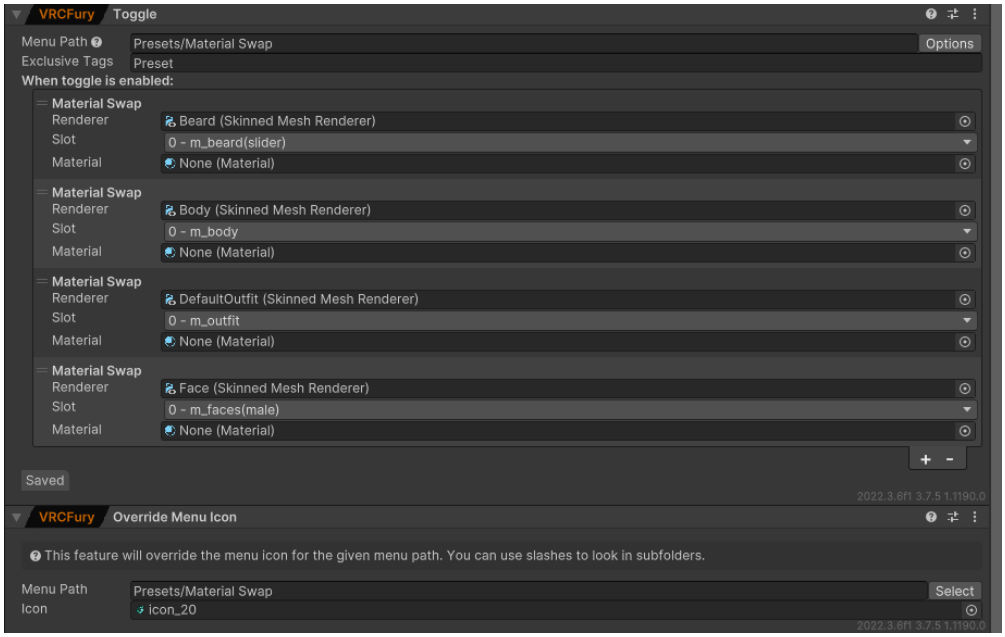
These involve swapping out materials to apply custom textures to the avatar, utilize the avatar's built-in sliders to do the rest of the work for you. **This section will assume you understand the basics of how to navigate unity's many different menus and tabs.**



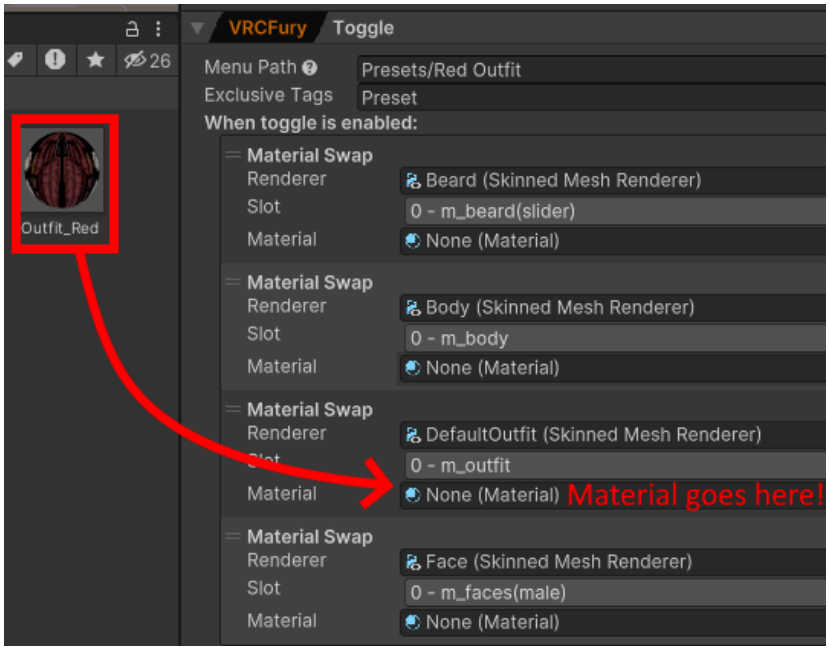
You can add a custom texture to a material by dragging it into the "Texture" or "Albedo" field on a selected material.

Select this game object from the Hierarchy:

The inspector should contain these scripts:



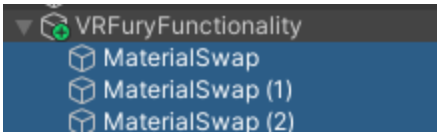
This gameobject adds a toggle to the avatar that swaps out the materials for your own custom materials,



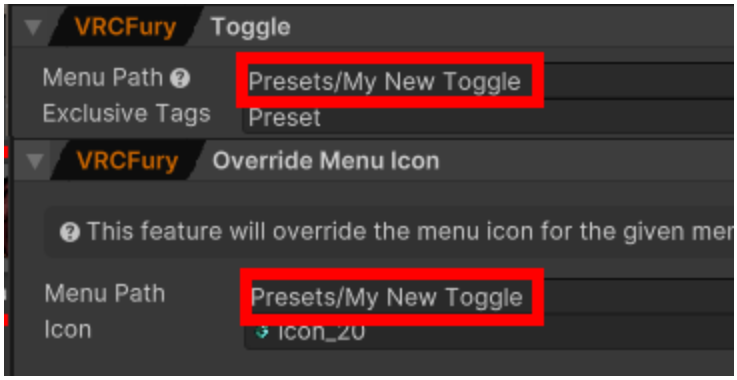
Drag your materials into this the allotted material slots on this game object for the Beard, Body, Default outfit, and Face respectively. Leave the slots you don't want to swap blank.

Following the steps above, I was able to add a toggle to set model's outfit color to red! This will persist no matter what settings you have set with the avatar's built in sliders.

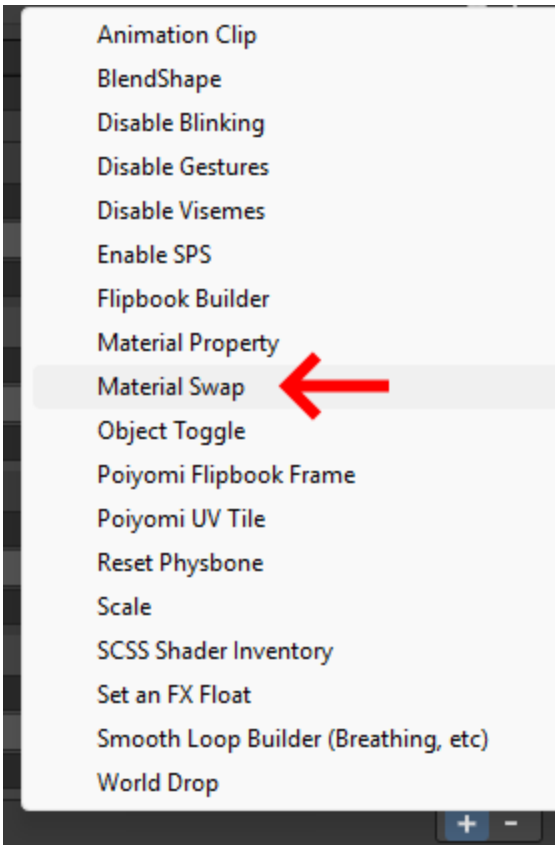
You can duplicate this game object in the hierarchy and make several different material swap toggles!

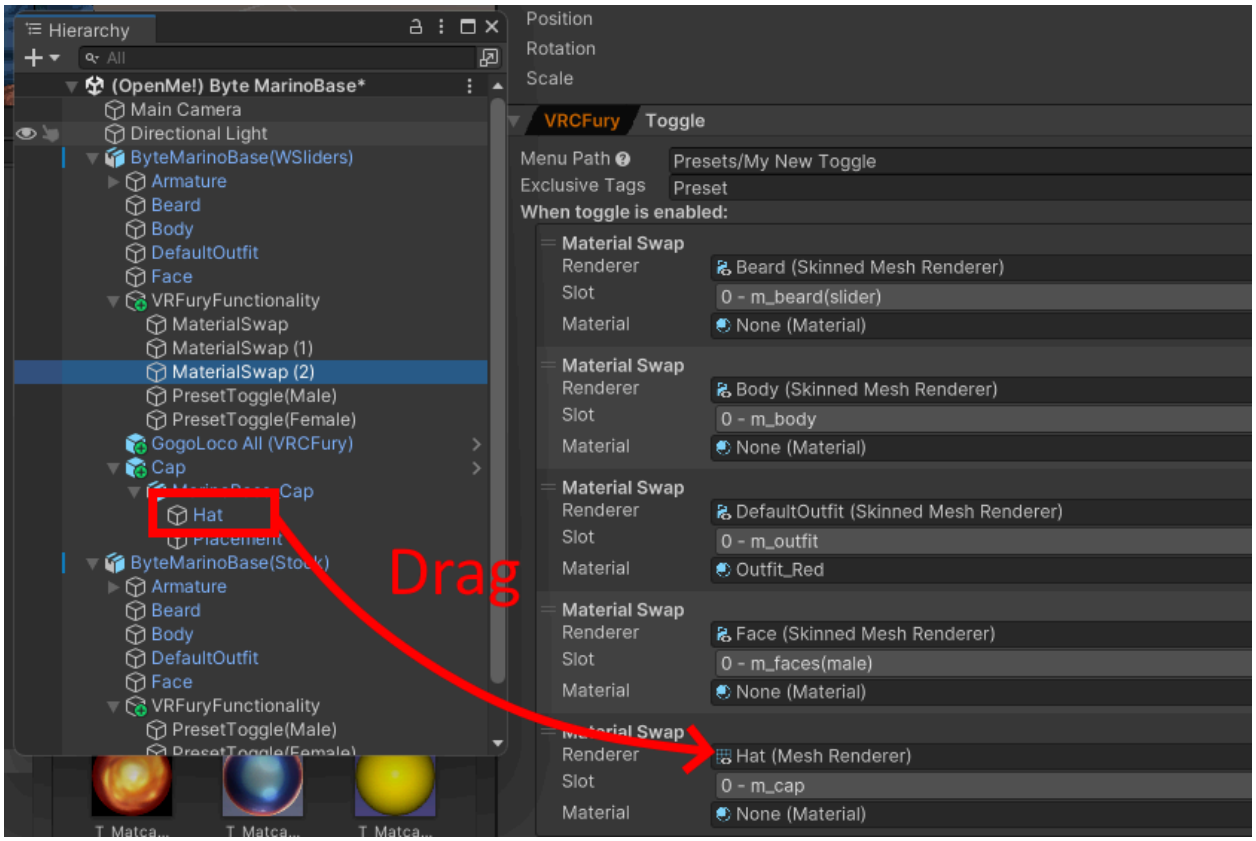


If you decide to do this however, make sure you rename the paths for the toggles in the radial menu, you can do this in the inspector. Also make sure these two fields have the same name!



If you have dlc clothing or accessories you also want to swap the materials for, simply add a new field on the inspector for the toggle, and enter the required inputs.



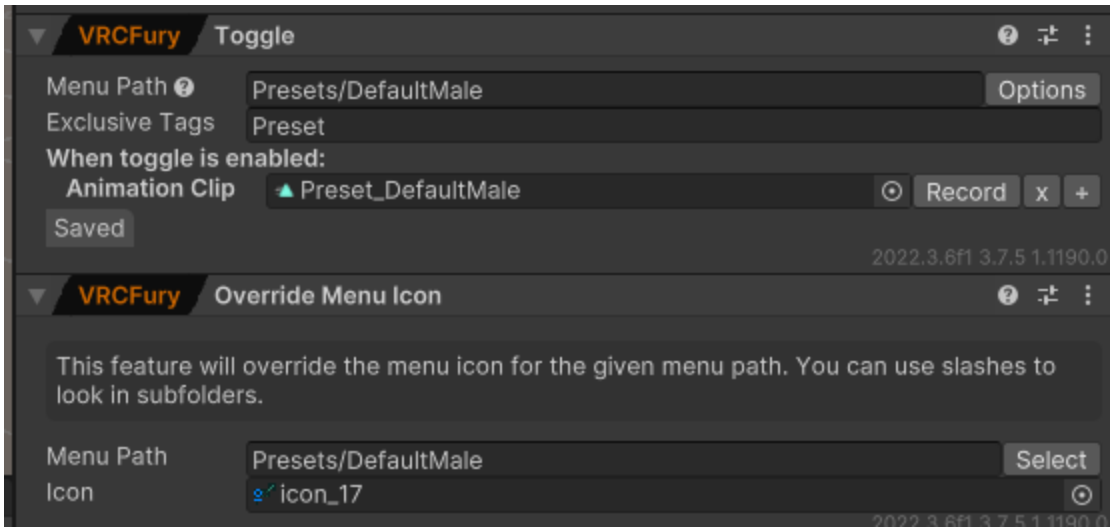


Preset Toggles

These types of toggles require more unity knowledge to implement, but they allow you to change the way the model looks completely in a single toggle, overriding the values of the avatar's built in sliders. This is done by animating every single value that drives the desired look of the avatar. **This section will assume that you have the understanding of how to create animation clips and have an intermediate understanding of unity and avatar making.**

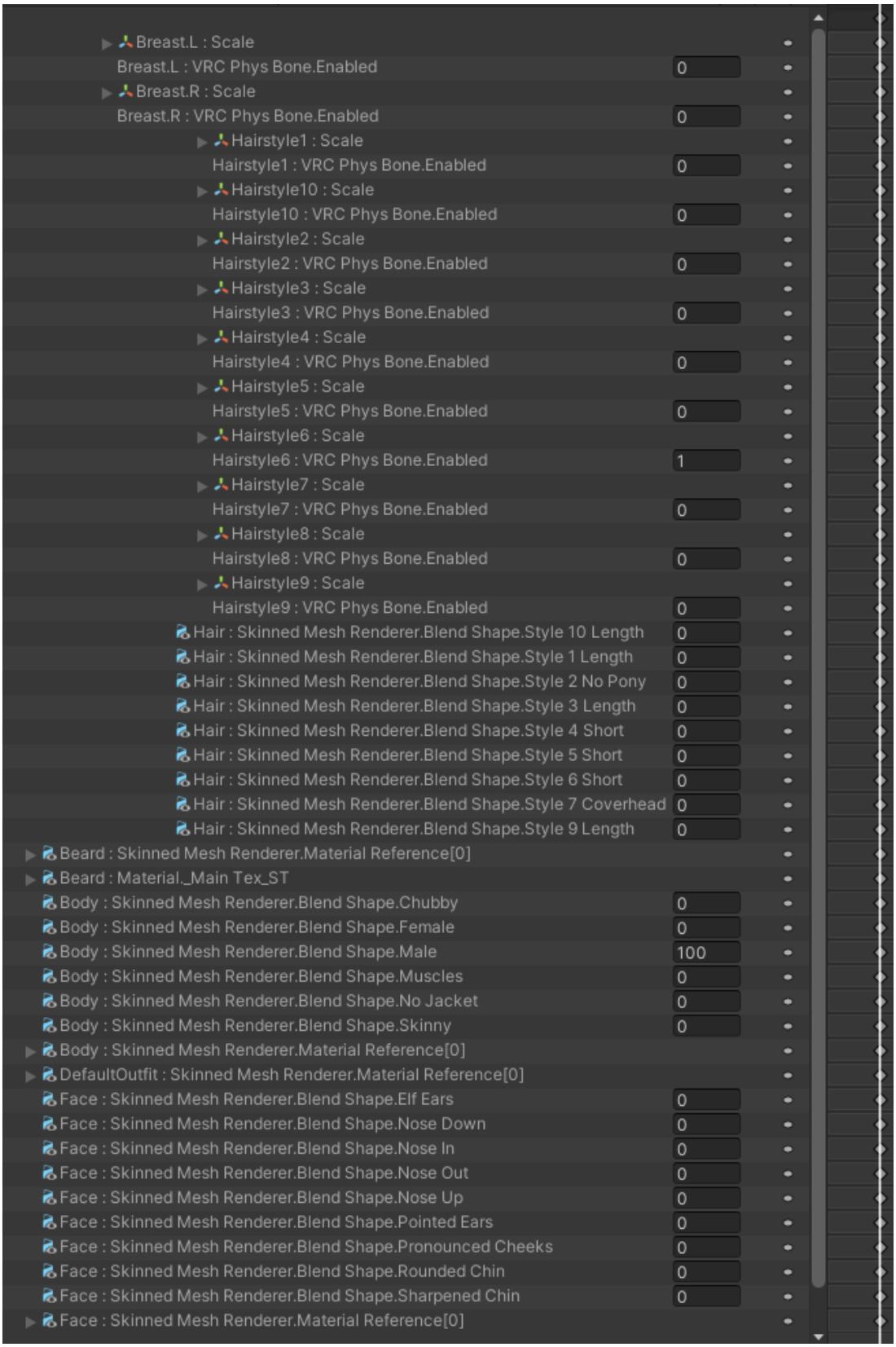
Select one of the toggles from the hierarchy:

The inspector should look like this:



It's recommended you make a duplicate of the preset animation, and drag it into the "Animation Clip" field, Open the animation tab, and click the "Record" button in the toggle script.

This is a list of every single parameter required for making entire presets, I'll briefly go through each one:



- Breasts
    - Scale the breast bones to change the size of the breasts, It's recommended to keep their scale to 1,1,1 if you are making a "masculine" avatar.
    - Toggle the physbones ON if you want chest physics.
- Hairstyles
    - Set the root bones of the desired hairstyle to 1,1,1 and the rest of the root bones to 0,0,0. Toggle the physbone for that hairstyle ON and the rest to OFF to save on performance.
    - There are blendshapes in the "Hair" mesh renderer that can modify hairstyles as well.
- Beard
    - Simply swap the material of the beard to the desired material you want.
    - Do not worry about the "Material._Main Tex_ST" field, this is simply to override the beard slider.
- Body Blendshapes
    - Swap the material to the body material you want
    - Set the values for Male, Female, Skinny, Chubby, Muscles, and NoJacket to reflect how you want the body to look.
    - VRCFury will automatically transfer these values to the rest of the meshes on the avatar.
    - It is recommended to set either Male or Female to either 100 or 0. If you want to mix and match, use the Female slider and set it somewhere in between 0 to 100, however if you decide to do this set Male to 0 for the sake of DLC outfits.
- DefaultOutfit
    - Simply swap the material of the default outfit to the desired material you want.
- Face
    - Swap the material to the face material you want
    - Set the values for Chin, Cheek, and Nose to reflect how you want the head to look
    - VRCFury will automatically transfer these values to the rest of the meshes on the avatar.
- DLC Stuff
    - Simply swap the material of the mesh renderers to the desired material you want.
- You can also animate anything else you want on the entire avatar, it will override the lower animation levels.

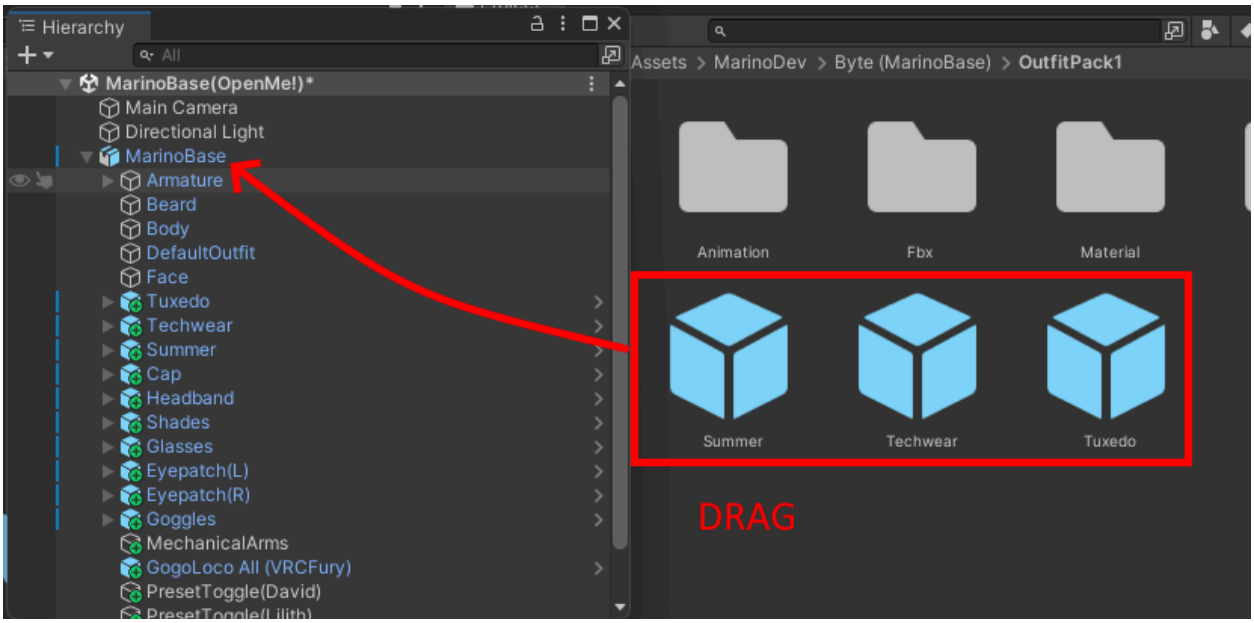
These toggles will override the settings of the avatar's built in sliders when toggled ON, and revert back to the slider settings when toggled OFF. Note that this functionality only works when Write Defaults are set to OFF.

Two example presets with their own textures are included in the unity package for you to try out, they are located in the "ExampleEdits" folder. Drag and drop their prefabs onto the root of your avatar to apply them to your avatar.

Applying DLC Addons

Outfits and Accessories

Drag onto root of avatar



Decals

If using poiyomi, utilize the decal functions, you can also edit the texture directly.

VRMs

Prerequisites

1. Experience with setting up VRMs, through either Blender or Unity
    a. There are several tutorials online designed to help you understand various processes in VRM creation if you need help.
2. UniVRM SDK: https://github.com/vrm-c/UniVRM
    a. This requires (as of March 10th 2025) Unity 2022.3 of higher.
    b. The provided VRMs are VRM0, so please use VRM0 if possible
        i. There are guides to convert to VRM1 if you wish to do so, conversions are beyond the scope of this document.
3. Blender VRM Addon: https://extensions.blender.org/add-ons/vrm/
    a. This guide will focus on using unity to set up the VRM, you can also use blender if you wish to do so.

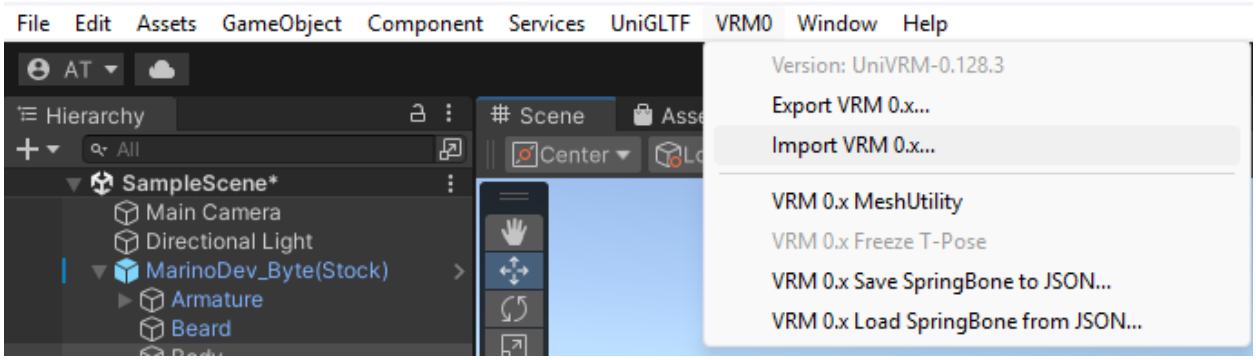
Technical Stuff

The VRM version of this model has one extra material / texture. The face is split into two materials, a mouth and blink texture. The mouth texture can just be overwritten by your existing face texture, the blink texture consists of the first column of the face sprite sheet and a second column where the blinking expression is copied across the whole column. Keep this in mind while you are making a texture edit that involves editing the face.

Setting up a Customized VRM in Unity

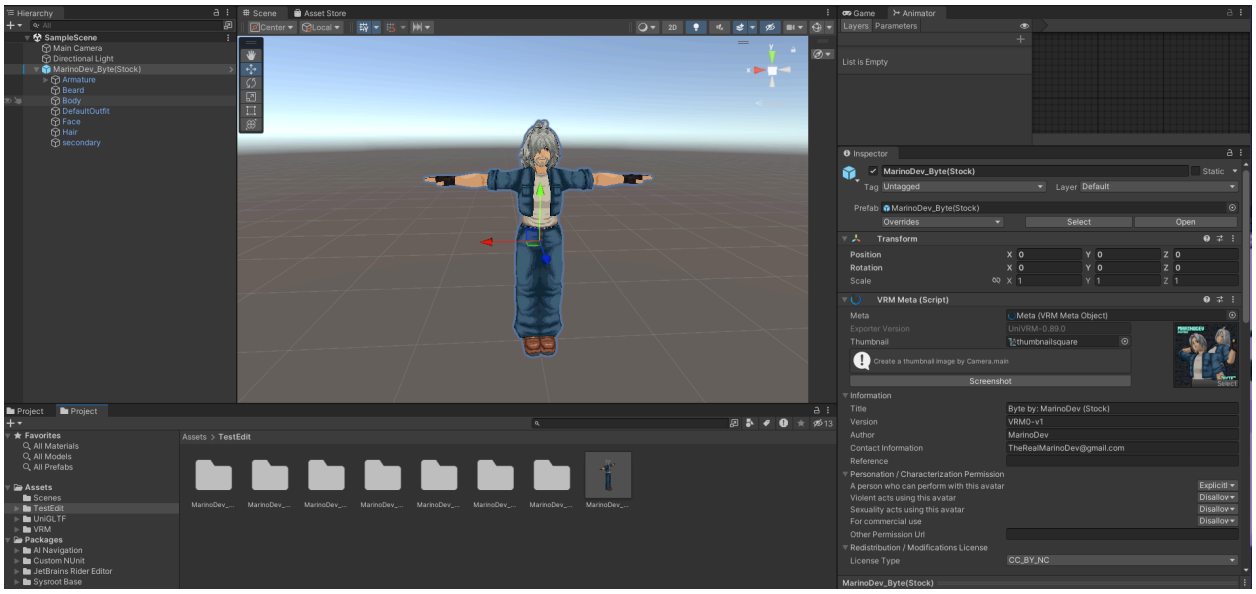
This section will assume you understand the basics of how to navigate unity's many different menus and tabs.

1. Create a new empty Unity 2022 project using the Unity Hub.
2. Import the UniVRM **VRM0 .**unitypackage.
3. Create a folder in your assets folder to house your vrm's assets.
4. In the top bar in unity, import the "MarinoDev_Byte(stock).vrm" file.



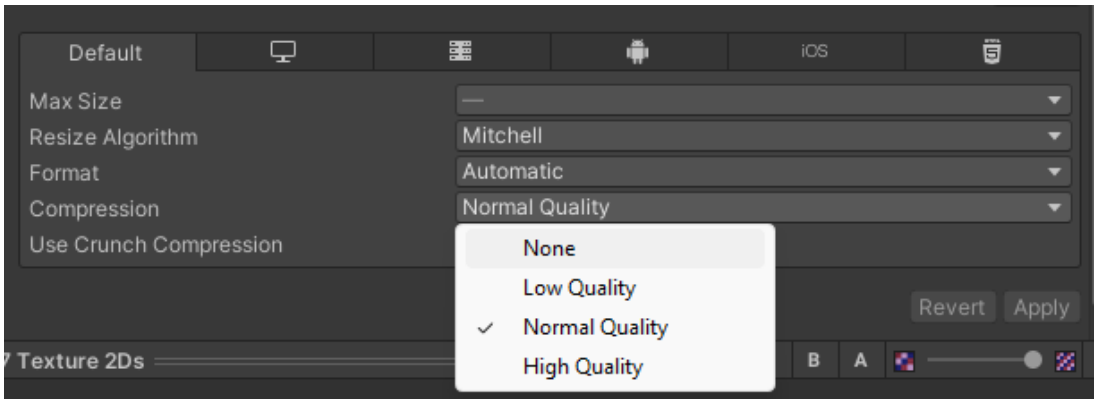
5. Select the folder you created when prompted to save a prefab of your vrm.
6. Locate your vrm's assets. Drag your avatar's prefab into the hierarchy

   Your unity scene & file folder should look like this now:



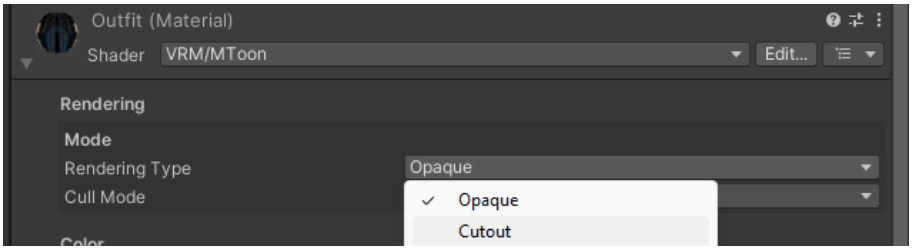
7. First, select all the avatar's textures (usually the last folder)

In the inspector, set their compression values to “none”, this happens every time you import a vrm into unity.



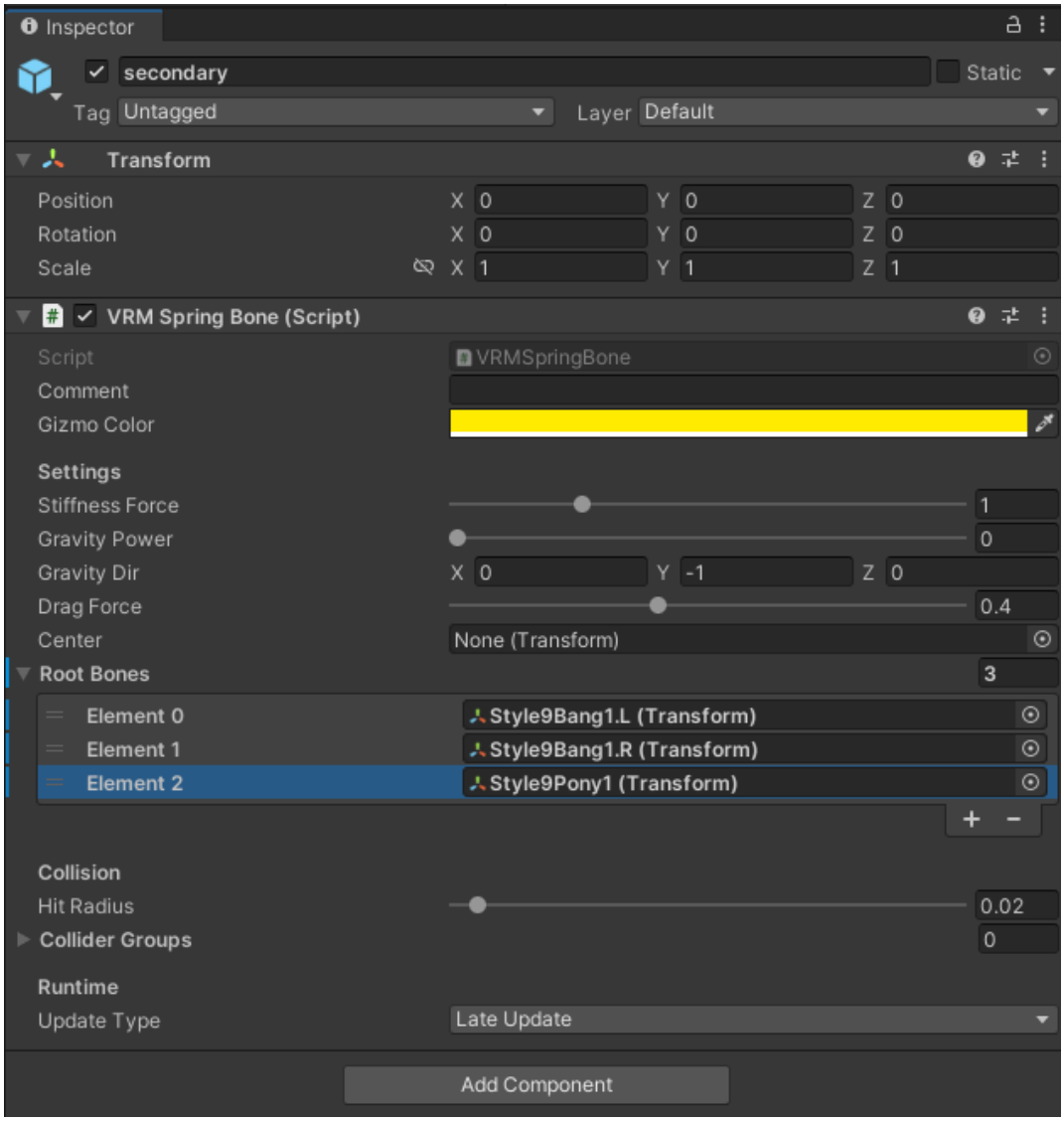
Also overwrite the textures in this folder with your custom textures (if you have any).

a. Remember to set the outfit material to cutout if you need to



8. By default, all of the hair is turned on by default, navigate to the hierarchy, and locate the hairbones.

Set the scale of the hairstyle you want to 1,1,1. Set the rest of the hair to 0,0,0.

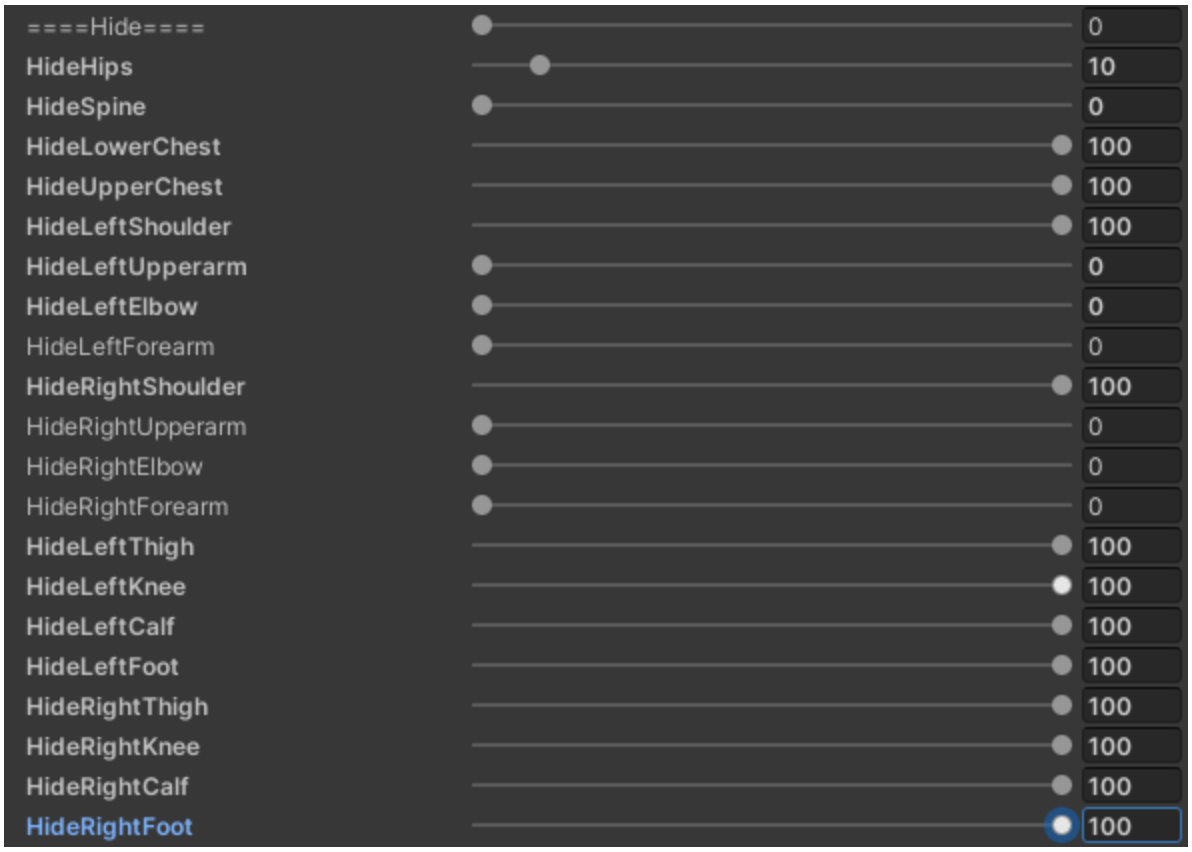


You can add spring bones in the “secondary” game object if you wish to have physics on any parts of the model. This can be hairstyle or breasts for example.

DO NOT USE ANY OF THE “HairstyleX” bones AS ROOT BONES,

ADD THEIR CHILDREN INDIVIDUALLY!

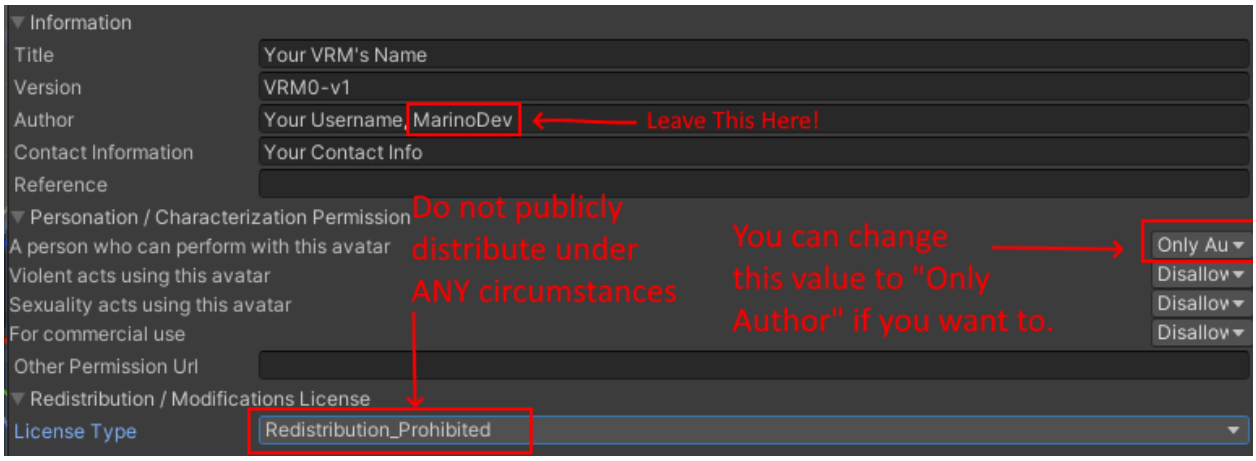
9. It's now time to edit the blendshapes. Select the mesh renders of the avatar and edit their blendshapes, **make sure you do this for all meshes, use the hide blendshapes where appropriate.**
    a. **If you plan to add extra clothing options on the model, do not worry about hard setting the blendshapes, as you can set them as part of the toggle for that outfit, this will be further covered in that part of the document.**
    b. It's good practice to make sure the blendshapes are around the same values on ALL meshes if they share some. Examples: Set female to 100 on all 5 meshes if you wish to have a feminine model, Set chubby to 40 on Body, DefaultOutfit and Face if you wish to modify the body that way.
    c. For the hide blendshapes, I recommend this configuration for the default outfit:



10. At this point you may export the avatar as all of the customizations are set (remember to save this unity scene somewhere).

    Create a new folder in your, assets for the export, then go to export vrm:

Fill out the metadata for the VRM.



You may add yourself to the author section, but please don't remove "MarinoDev" from there. I still reserve the right to the original avatar.

11. Export to the new folder you made
12. You are done, enjoy using your customized VRM

    Following this guide, I was able to recreate one of the example presets as a VRM to assure that the process can be done.

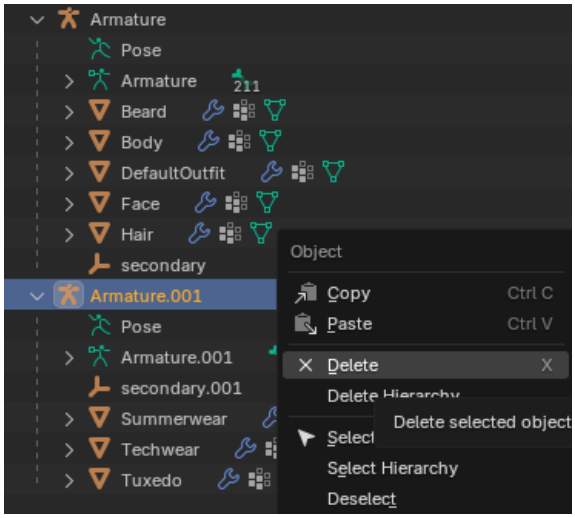
Applying DLC Addons in Blender

This section will assume you understand how to use blender to modify rigs

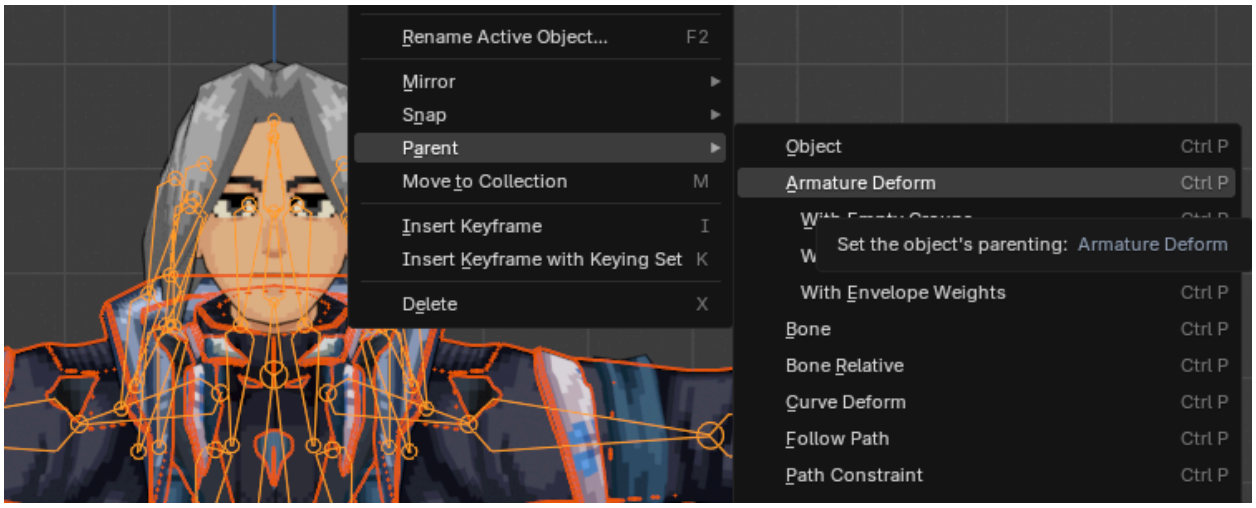
1. Create a new blender file. Import the VRM addon if you haven't already
2. Import the VRM File of your avatar.
3. Import the VRM File of the included addons you wish to add to your model.

Your scene should look like this:

4. Select the armature of your addon and delete it.

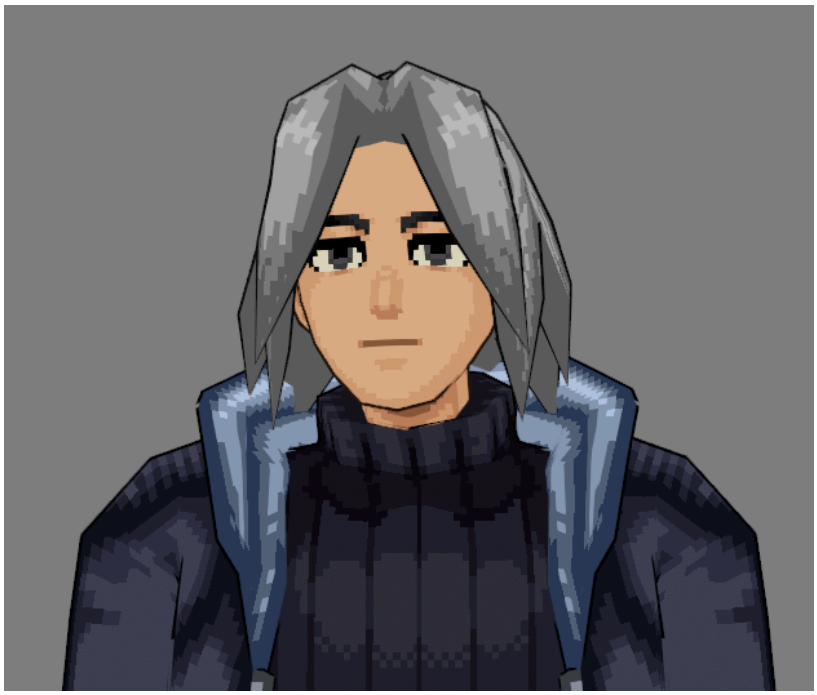


5. Select all the meshes that were children of the armature, and parent them to the model's armature, using Armature Deform.



6. Delete the meshes of the parts you are not using (unless you plan to make toggles for them). If you are only using one outfit, remember to use the body's "hide" shape keys to hide relative body parts (and the hair's "WearingHat" shape key if you are applying headwear).
7. Export your VRM file.

At this point, you are done!



If you plan on making toggles, there is a section in this youtube video below that can help you set them up: VroidStudio - Unity Clothing toggles - How to trade outfits!. An official section could be added to this document in the future that can discuss the process of making toggles.

License

WHAT IS ALLOWED:

-You may use these assets for PERSONAL use (ie: Private upload for VRChat, PFPs, Twitter Posts, ect.)

-Anything that DOES NOT involve redistribution of assets and/or commercial profit is considered PERSONAL use.

-You may make edits to the avatar (infact, this is encouraged)

WHAT IS NOT ALLOWED:

-NO Commercial Use (Contact me first if you wish to use my assets commercially);

-However, Livestreaming is allowed! (Credit me if possible)!

-DO NOT Redistribute these assets to anyone.

-DO NOT Upload these assets publicly, (ie: Public avatars in VRChat and/or ports to other games are NOT allowed).

-I reserve the right to takedown anything I don’t condone using my assets, (ie: Malicious intent and/or ToS violations)!

-NSFW edits are allowed under the condition that they are NEVER used or shown in public settings.

VIOLATION OF THESE TERMS COULD RESULT IN A DMCA TAKEDOWN OR A REFUSAL OF SERVICE

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