VRCFaceTracking-Templates
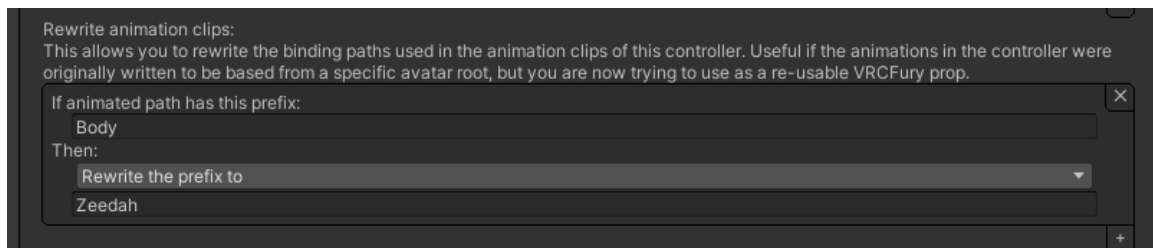
Face Tracking Template Setup
By Adjerry91

Introduction

This setup will go over how to set up the face tracking template animations to drive blendshapes and eye movements to Unity for VRChat.

Prerequisites

- [VRCFaceTracking](#) v5 setup and working. **Test public face tracking avatars first before doing customs.**
- Avatar with [SRanipal](#), [ARkit](#), and [UnifiedExpressions](#) Blend Shapes - *Case Sensitive* Note what blendshapes are being used on the avatar. If you don't know take look at this ⊞ Face Tracking Conversion for naming
- Blendshapes on Skinned Mesh Render named **"Body"** in the root of the avatar. You can change the mapping of the animations to other mesh renders with VRCFury "Rewrite Animation Clips" feature. Example face tracking shapes are on "Zeedah" skinned mesh render.

Rewrite animation clips:
This allows you to rewrite the binding paths used in the animation clips of this controller. Useful if the animations in the controller were originally written to be based from a specific avatar root, but you are now trying to use as a re-usable VRCFury prop.
If animated path has this prefix:
 Body
Then:
 Rewrite the prefix to
 Zeedah

- Avoid unpacking FBX, make sure eye bones are assigned rig configuration before unpacking.

Support

See the avatar-help-forum for advance support on Jerry's Face Tracking [Discord](#)

Face Tracking Menu Controls

Face tracking template has menu controls to allow toggling of the following:

- EyeTrackingActive (Bool) - If true enables all eye tracking animations (VRCFaceTracking) and disables VRChat eye tracking

- LipTrackingActive (Bool) - If true enables all lip tracking animations (VRCFaceTracking)
- VisemesEnable (Bool) - If true enables Visemes.
  Tip - Recommend to leave VisemesEnable on with lip tracking as face tracking has network lag and is not useful for talking.
- EyeDilationEnable (Bool) - If true enables dilation
- FacialExpressionsDisabled (Bool) - If true disables facial expressions. This does not do anything within the face tracking template, it is intended to be used in transitions for hand gestures on the FX layer to disable them when either eye or lip tracking is activated.
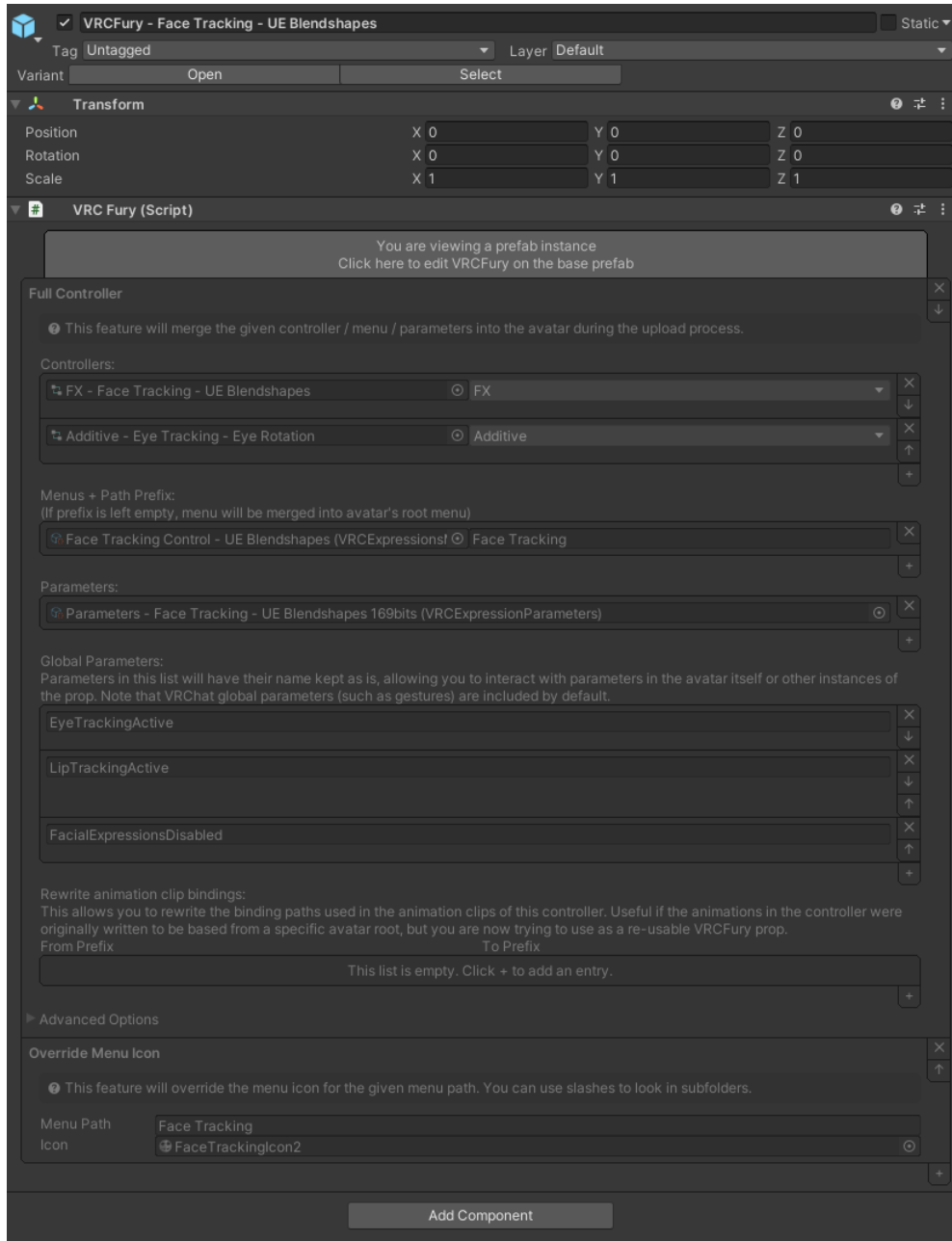
Setup

- ☐ Add/Import VCC listing https://adjerry91.github.io/VRCFaceTracking-Templates/
- ☐ Add/Import https://vrcfury.com/download
  Note - VRCFury is not required. You will need to use merge animators, parameters, and menus manually which will not be covered in this guide.
- ☐ Go to the **Packages/VRCFT - Jerry's Templates/Prefabs** folder. You will see the three different available blendshape VRCFury Face Tracking prefab templates.
  Tip - you can change the view of the project window text on the bottom right slider
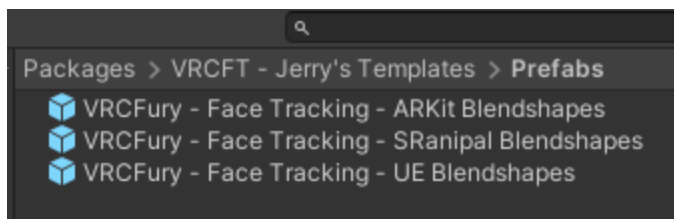
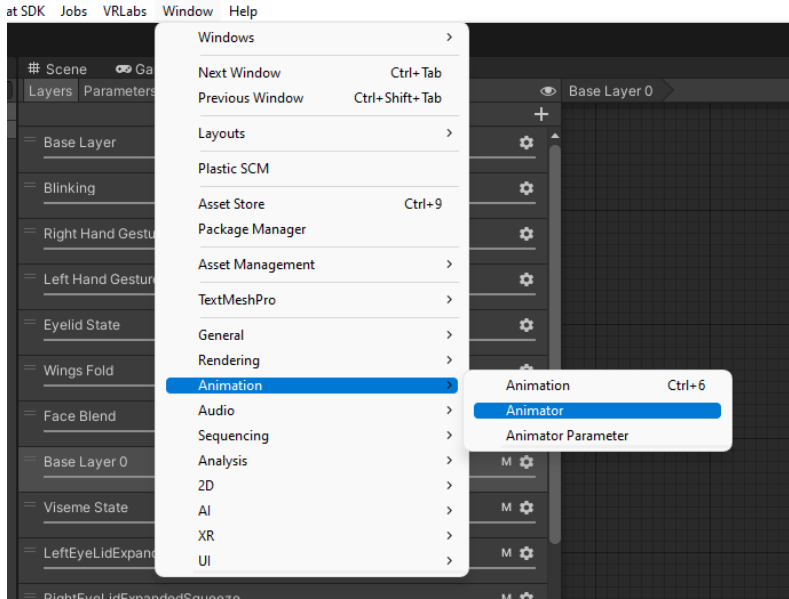- ☐ Drag the corresponding template prefab to the base of the avatar.
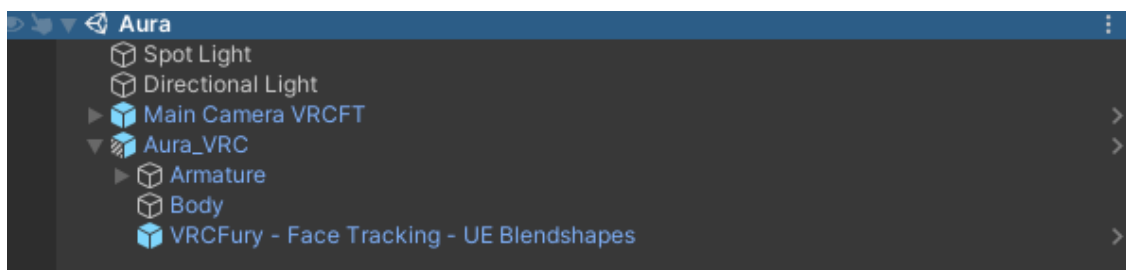
☐ In the prefab you can see the details of the Face Tracking template. Note that this example UE template takes 169 bits for the parameters.

Additional Setup

Blocking hand gestures and blinking overlaying with the face tracking.
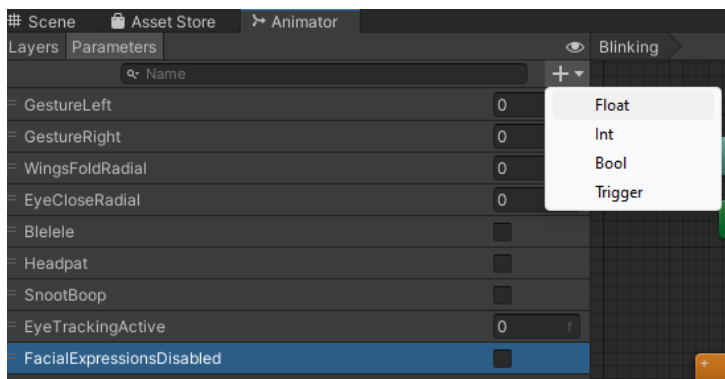
☐ Show Animator and Animation Windows

☐ Create the following parameters:

EyeTrackingActive (Float)

Note - in parameters list EyeTrackingActive is a bool but in the animator it has to be float because of the face tracking template type casting.

FacialExpressionsDisabled (Bool)

☐ Add conditions for all hand gestures transitions to disable hand emotes. Click plus icon and add **FacialExpressionsDisabled** and set it to **False.** The toggle will automatically turn off gestures when starting face or eye tracking.
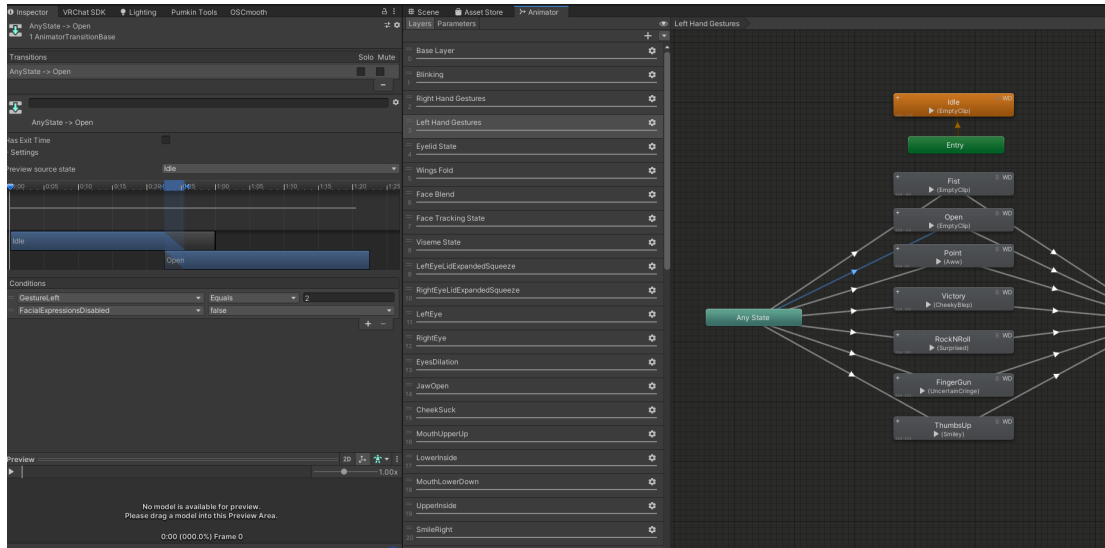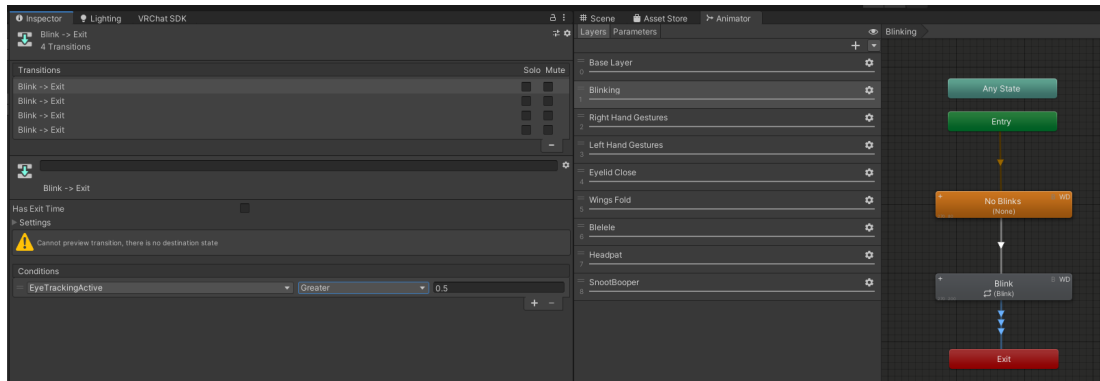

☐ If blink is within the FX animator, add transition logic to disable the blinking animation.

EyeTrackingActive Greater 0.5 is equivalent to **True**

**EyeTrackingActive Less 0.5** is equivalent to **False**
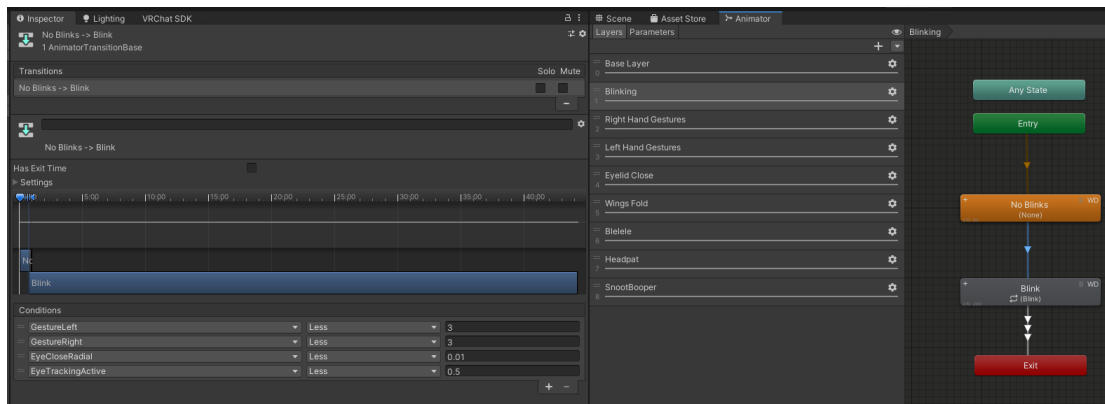
Note the multiple arrows on the exit transitions is equivalent to "OR" logic statement. Right click transition from and select make transition then select exit as the destination. Click the exit transition arrows and you will see a new transition added to the list. Expand the settings, uncheck the exit time and change the transition duration desired, this is the time delay for the transition.

Testing in Unity

☐ Import Lyuma Av3Emulator

☐ Click on play mode in Unity

☐ Enable **Avatar 3.0 Emulator**
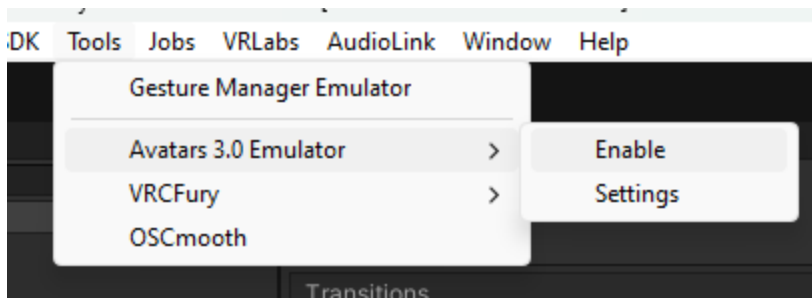
☐ Click on the avatar to test. You will see a Gesture Manager Av 3 Menu and Lyuma Av 3 Runtime on the avatar.
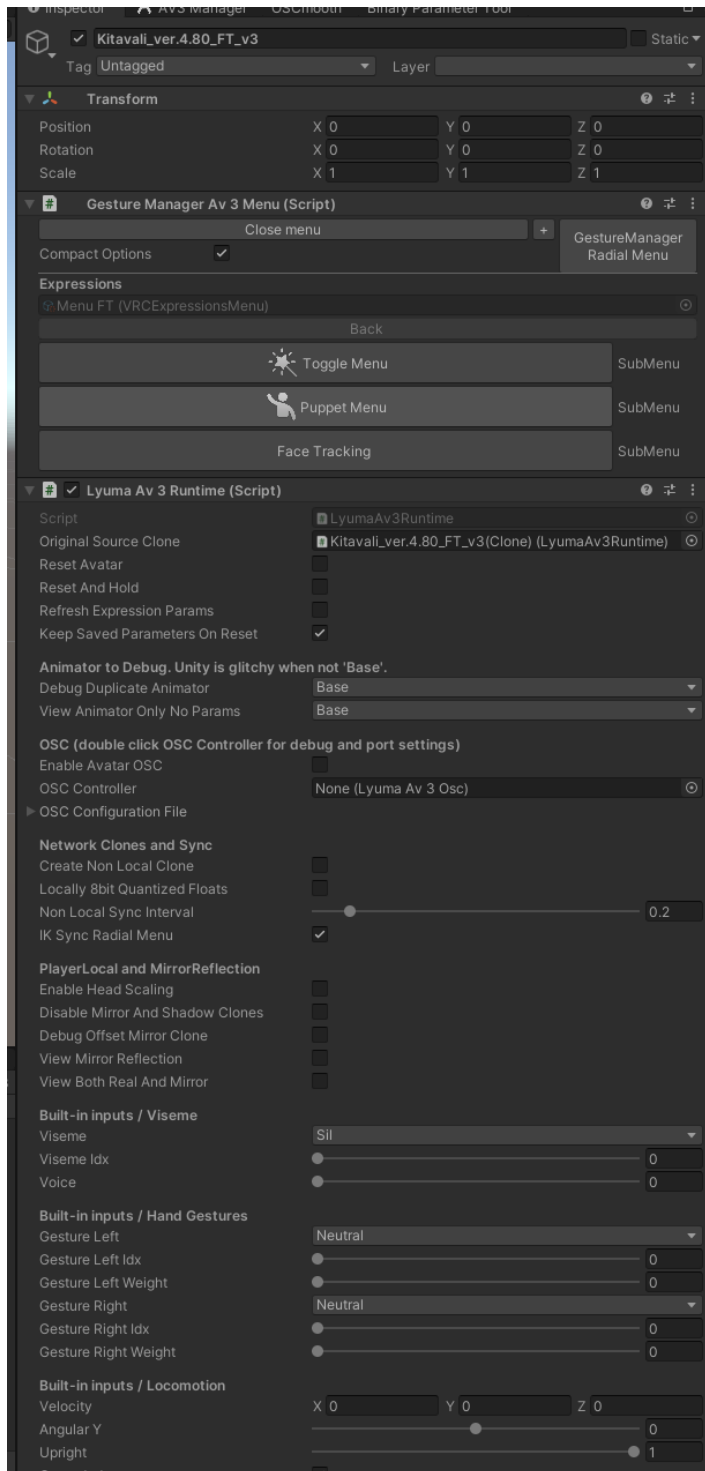
☐ Go in menu an enable eye and lip tracking
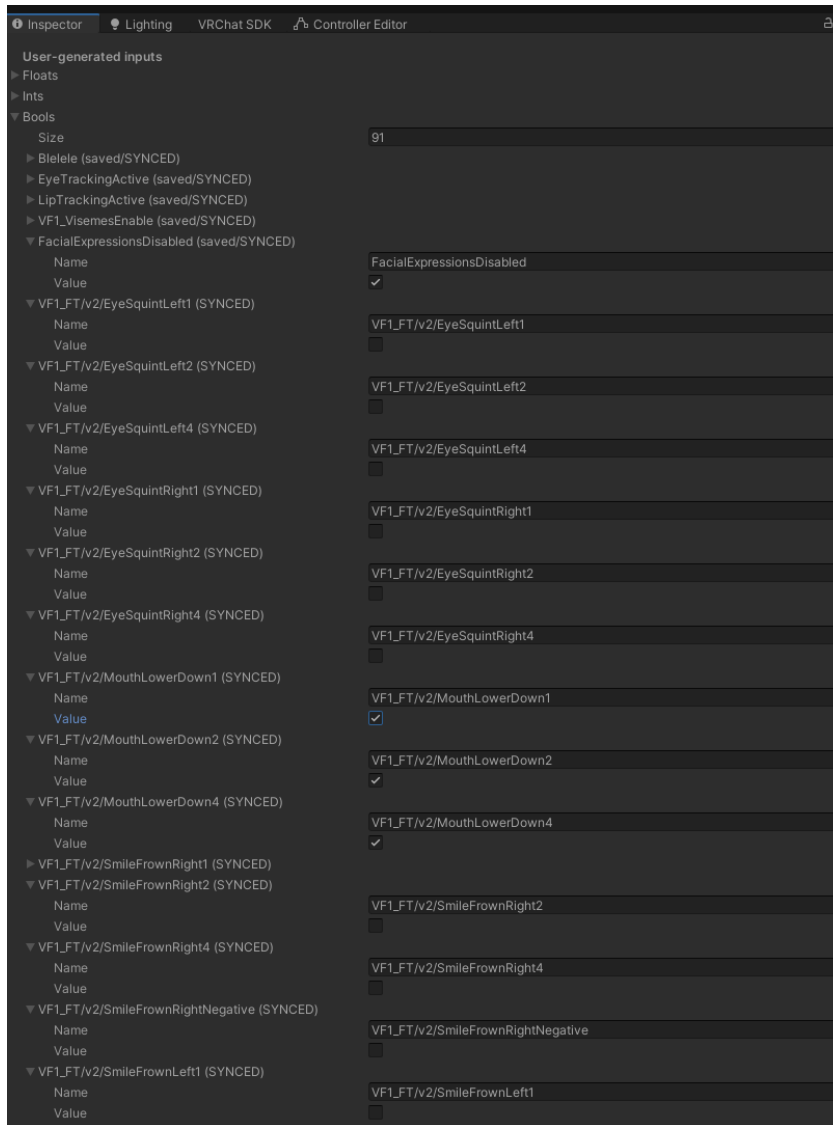
☐ Scroll down the inspect to the Use-generated input section and expand floats. Not that the eye tracking parameters state **SYNCED**, the parameters will be network synced in the game
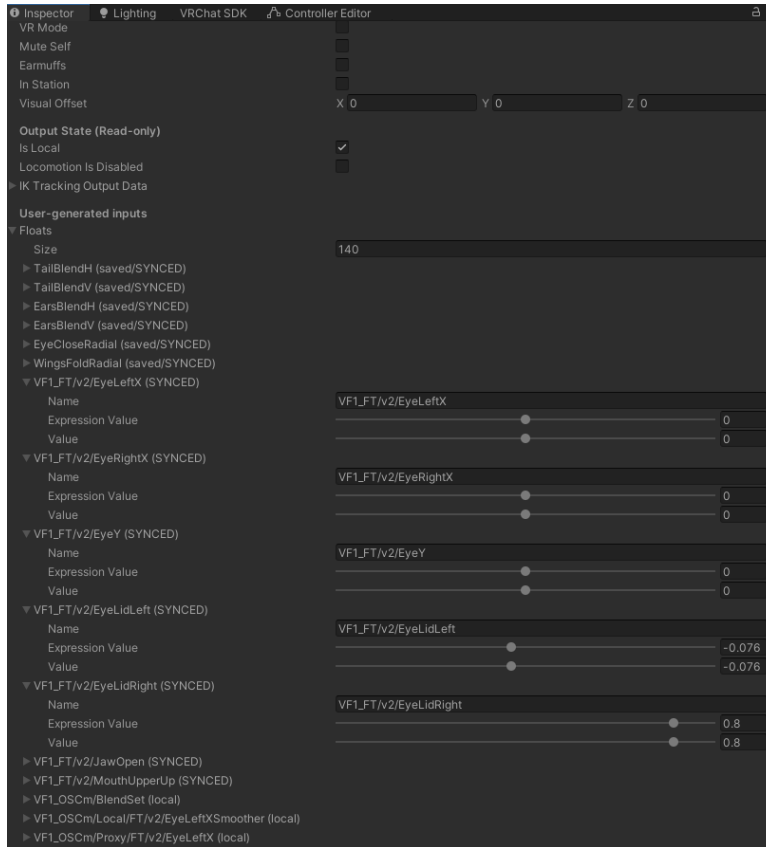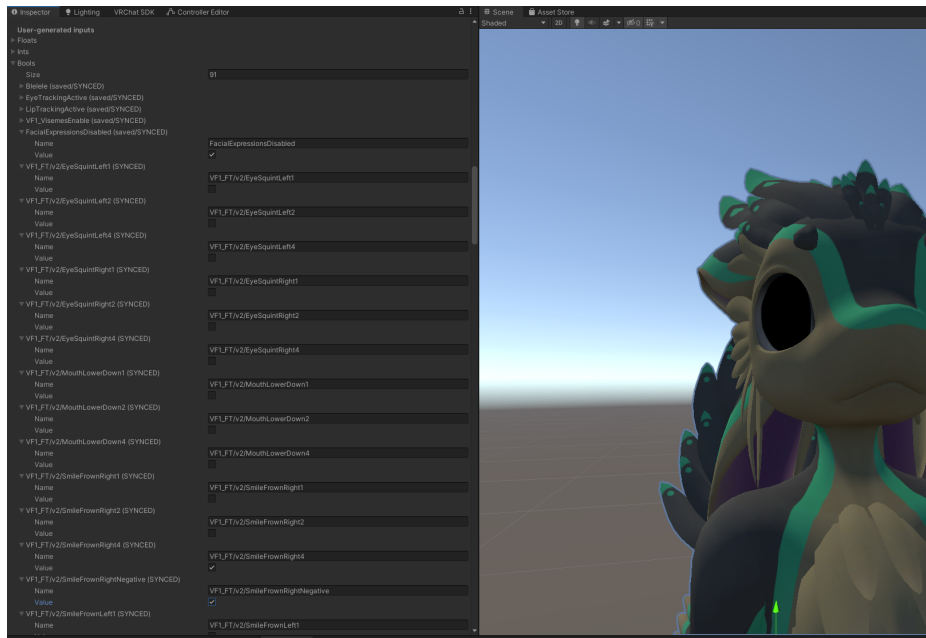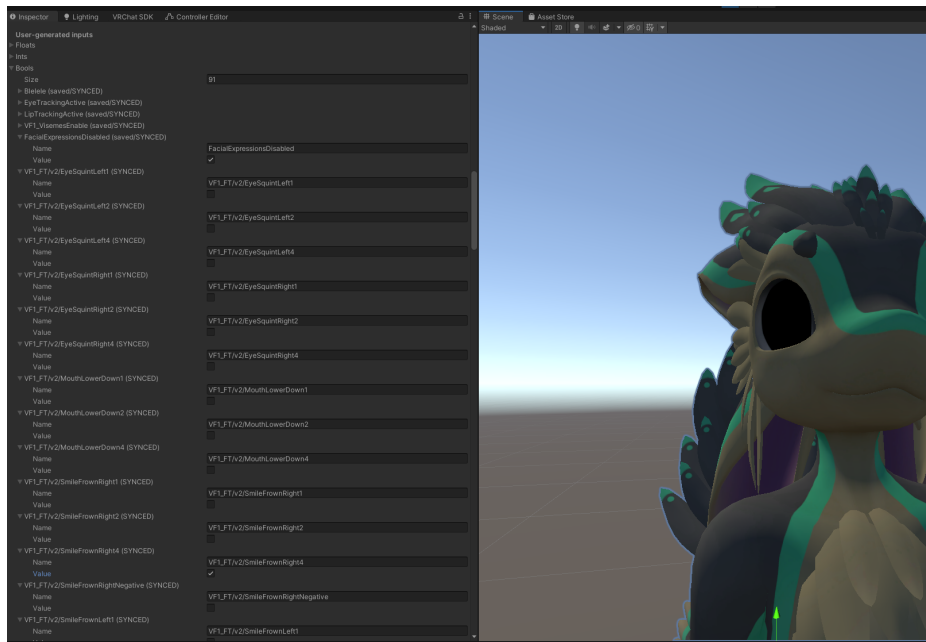
☐ Test each of the sync float parameters to see to test that they control the avatar.
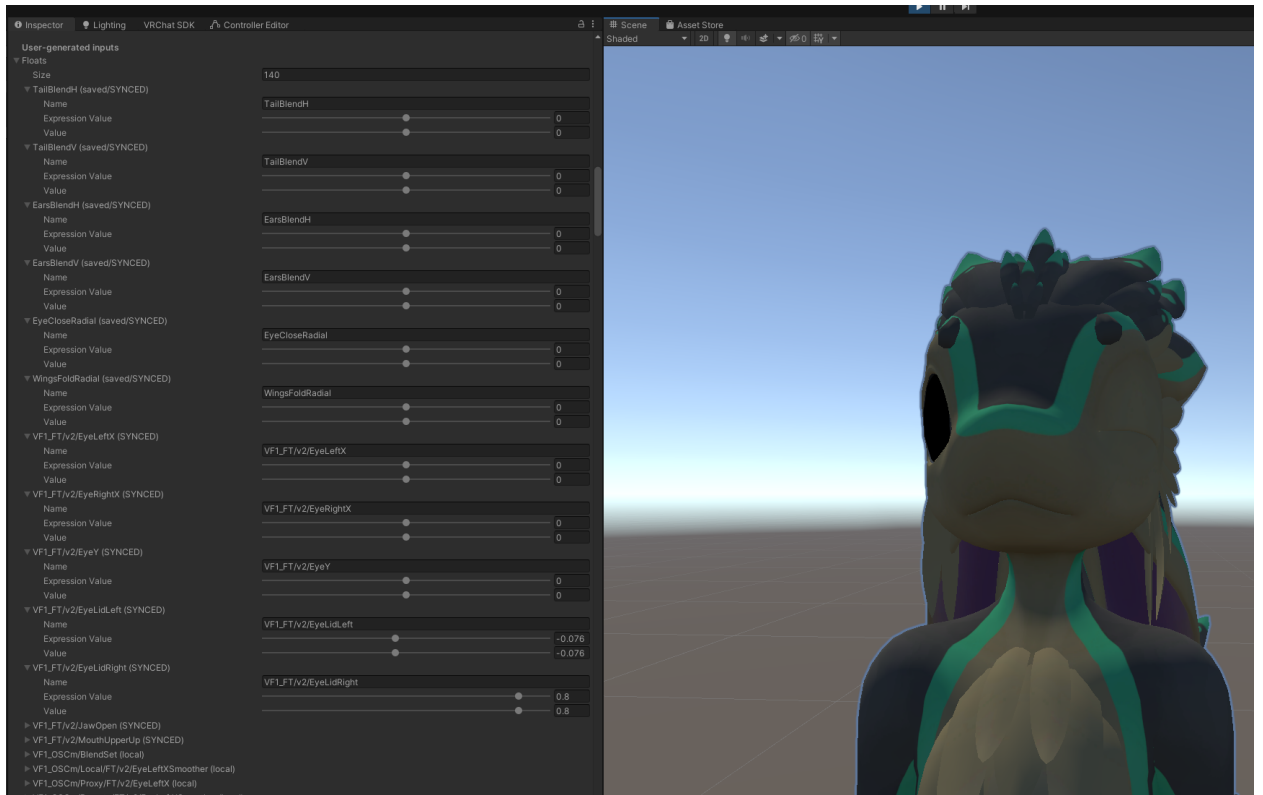
☐ When done with the float sync parameters now to test the binary parameters. Go to the Bools section.

☐ Only need to really test the max values. Show the max bool and negative to test

Understanding How Face Tracking Works

There are three different animation layers with different functions for face tracking in the animator.

1. VRC Face Tracking parameters OSC values come in as floats and bools.
2. Bools are converted to floats with binary layers
3. Floats are then smoothed with smoothing logic from OSCmooth to make face tracking not choppy with OSC
4. Proxy values will drive the driver layers to control the face tracking blendshapes/animations i.e. OSCm/Proxy/FT/v2/JawOpen

Face Tracking
Binarys

Face Tracking
Floats

| Binary Layers | Smoothing Layer | Driver Layers |
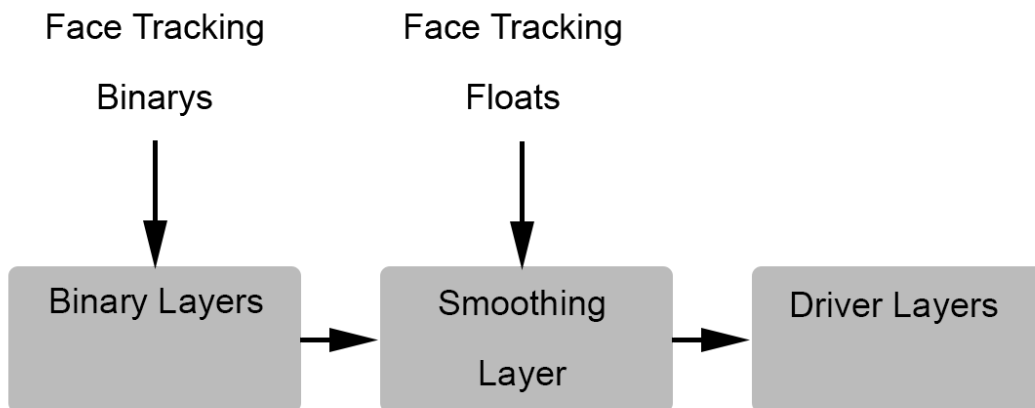
Binary Layer

These layers are generated by the [Binary Parameter Tool](#). These layers take [binary parameters](#) to reduce the amount of parameters on the avatar at the cost of resolution. Output of the layer is face tracking parameter float.
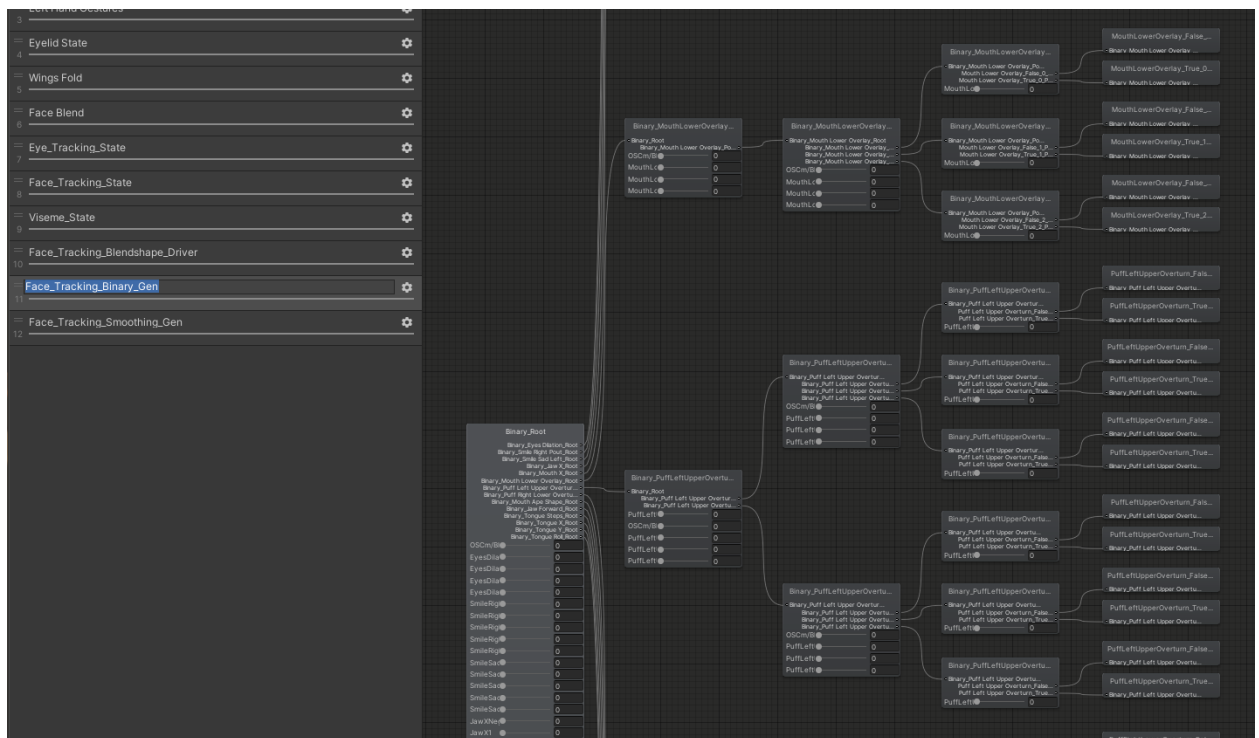
Smoothing Layer

These layers are generated by [OSCmooth](#) tool. This has local and remote switch bases on the **isLocal** bool provided natively from VRChat.
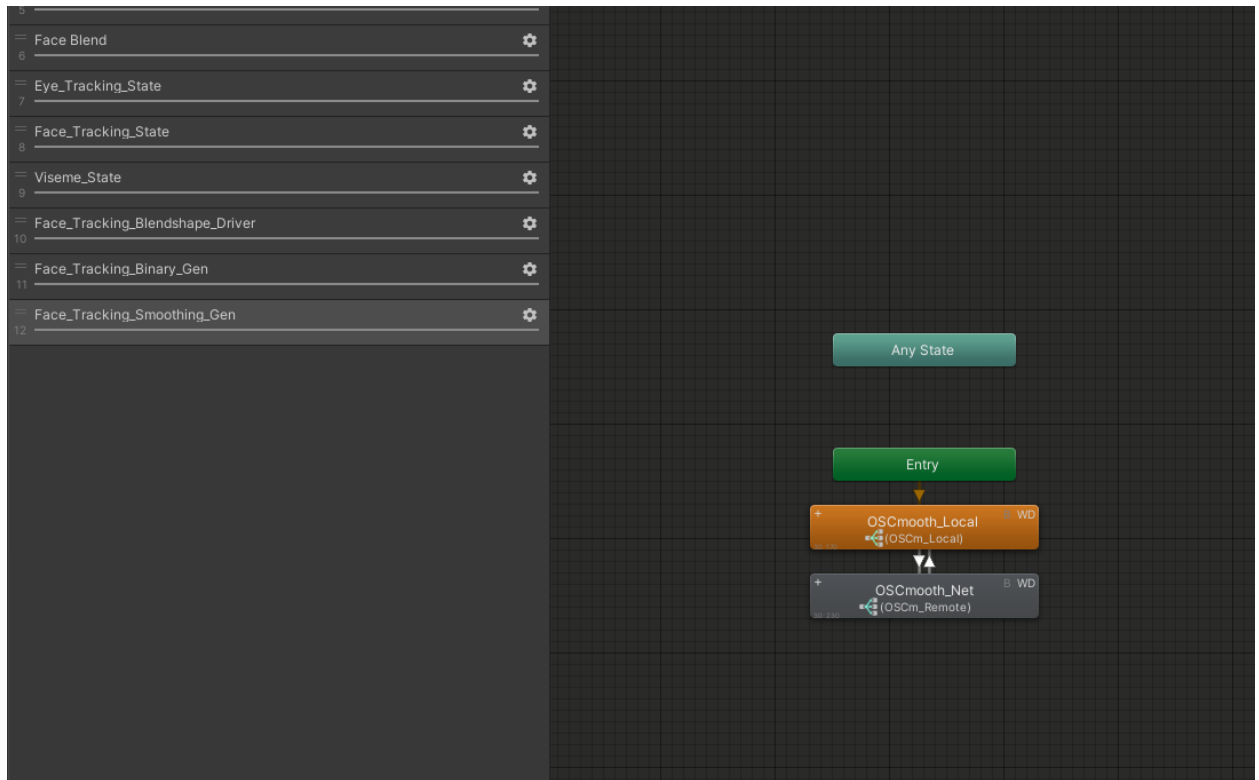

Smooth parameters have the prefix **OSCm/Local/** and **OSCm/Remote/** with the **Smoother** tag. These values can be changed as desired the higher the value more smooth lower the value less smooth. Do not set it exactly to 1 otherwise the smoothing is infinite so it freezes. This layer takes the face tracking float parameter and the output is float with the **OSCm/Proxy/** prefix. Local is lower smoothing as the OSC update rate is good for local view but is slow for remote users, so more smoothing is used for the remote users. All smoother values a static variable and do not change and do not need to be networked.

|	
FT/v2/BrowOuterUpLeft1	0
FT/v2/BrowOuterUpLeft2	0
FT/v2/BrowOuterUpLeft4	0
FT/v2/BrowOuterUpRight1	0
FT/v2/BrowOuterUpRight2	0
FT/v2/BrowOuterUpRight4	0
OSCm/Local/FT/v2/EyeLeftXSmoother	0.15
OSCm/Proxy/FT/v2/EyeLeftX	0
OSCm/Remote/FT/v2/EyeLeftXSmoother	0.7
OSCm/Local/FT/v2/EyeRightXSmoother	0.15
OSCm/Proxy/FT/v2/EyeRightX	0
OSCm/Remote/FT/v2/EyeRightXSmoother	0.7
OSCm/Local/FT/v2/EyeYSmoother	0.15
OSCm/Proxy/FT/v2/EyeY	0
OSCm/Remote/FT/v2/EyeYSmoother	0.7
OSCm/Local/FT/v2/EyeLidLeftSmoother	0.15
OSCm/Proxy/FT/v2/EyeLidLeft	0
OSCm/Remote/FT/v2/EyeLidLeftSmoother	0.5
OSCm/Local/FT/v2/EyeLidRightSmoother	0.15
OSCm/Proxy/FT/v2/EyeLidRight	0
OSCm/Remote/FT/v2/EyeLidRightSmoother	0.5
OSCm/Local/FT/v2/EyeSquintLeftSmoother	0.7
OSCm/Proxy/FT/v2/EyeSquintLeft	0
OSCm/Remote/FT/v2/EyeSquintLeftSmoother	0.7
OSCm/Local/FT/v2/EyeSquintRightSmoother	0.7
OSCm/Proxy/FT/v2/EyeSquintRight	0

Smoother parameters are in the second blend trees in the OSCmooth_Local and
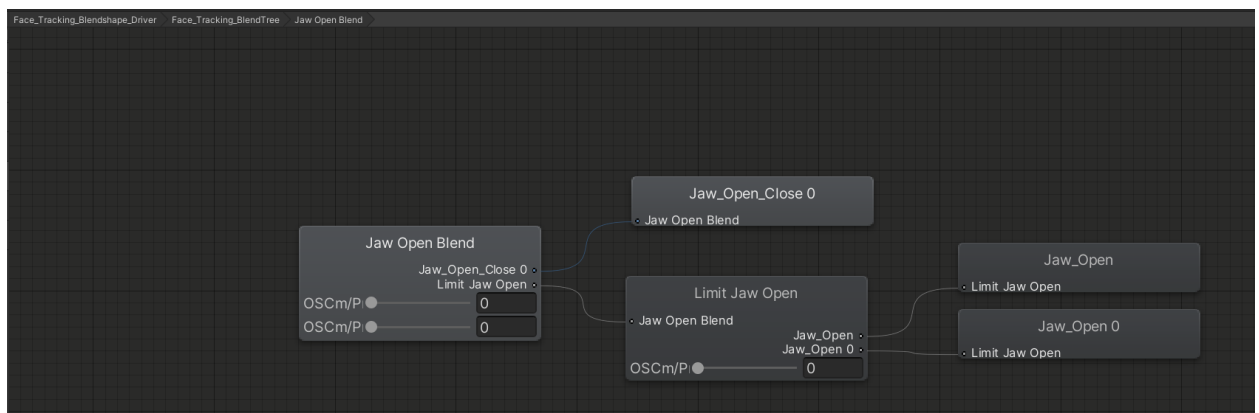
OSCmooth_Remote.
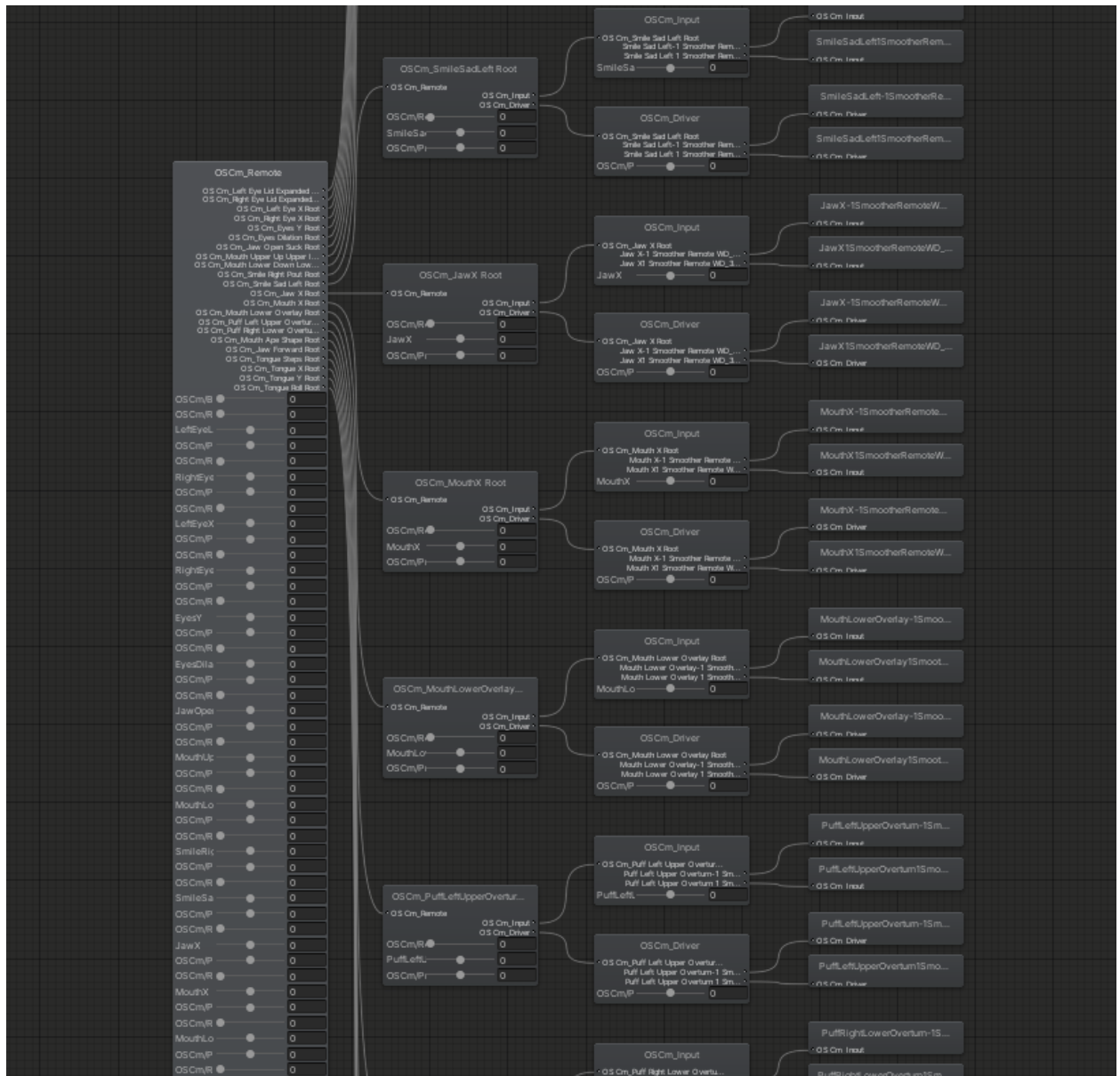
Driver Layer

This layer is used to drive the animation for each of the face tracking parameters.

Each child has an off state and a blend tree.
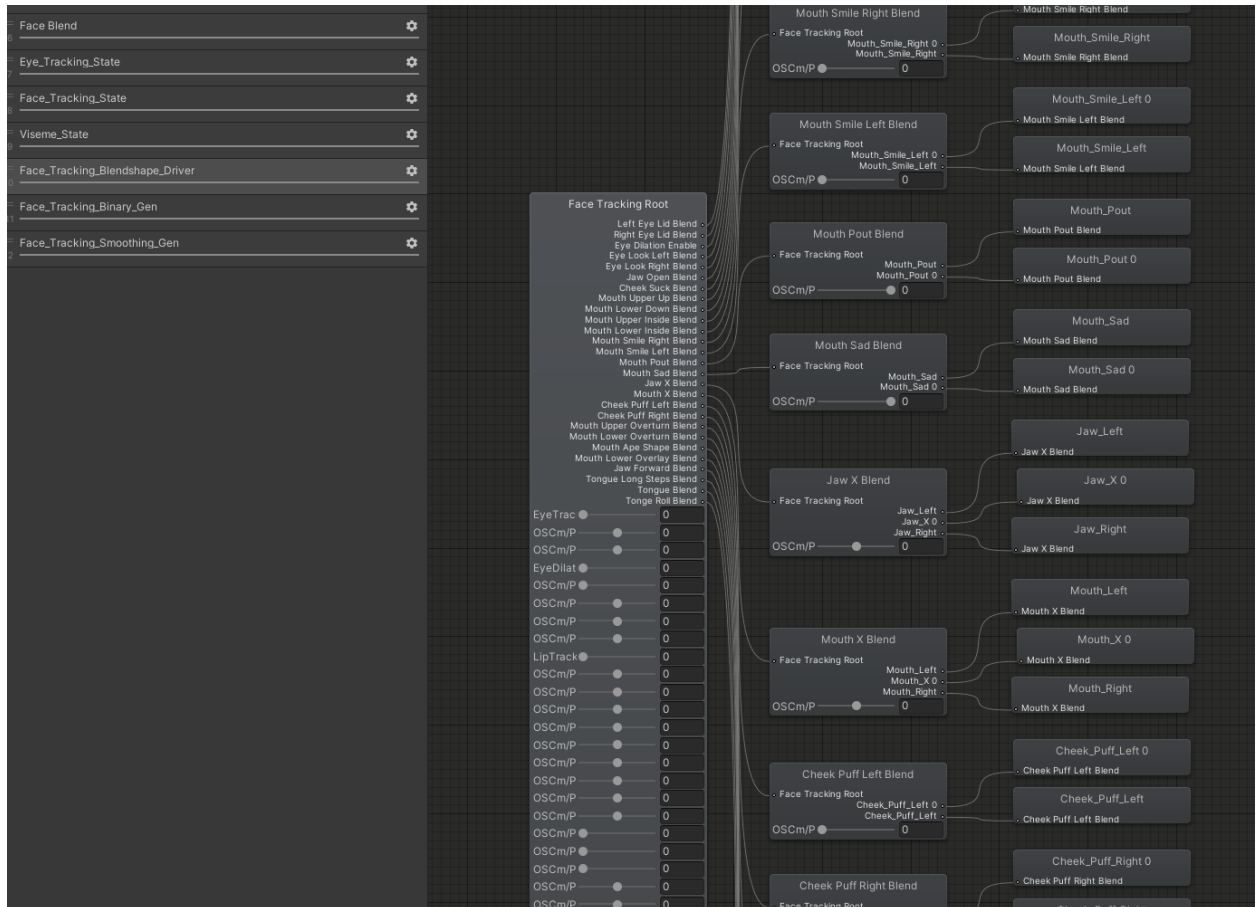
Double clicking the blend state will go into blend tree settings.

In the inspector for the blend tree you will see settings being used in the template. The **OSCm/Proxy/** parameter is coming from the smoother layer. The thresholds can be changed as desired in these blend trees to change the sensitivity. Reducing the max threshold increases the sensitivity and adding dead zones decreases the sensitivity.
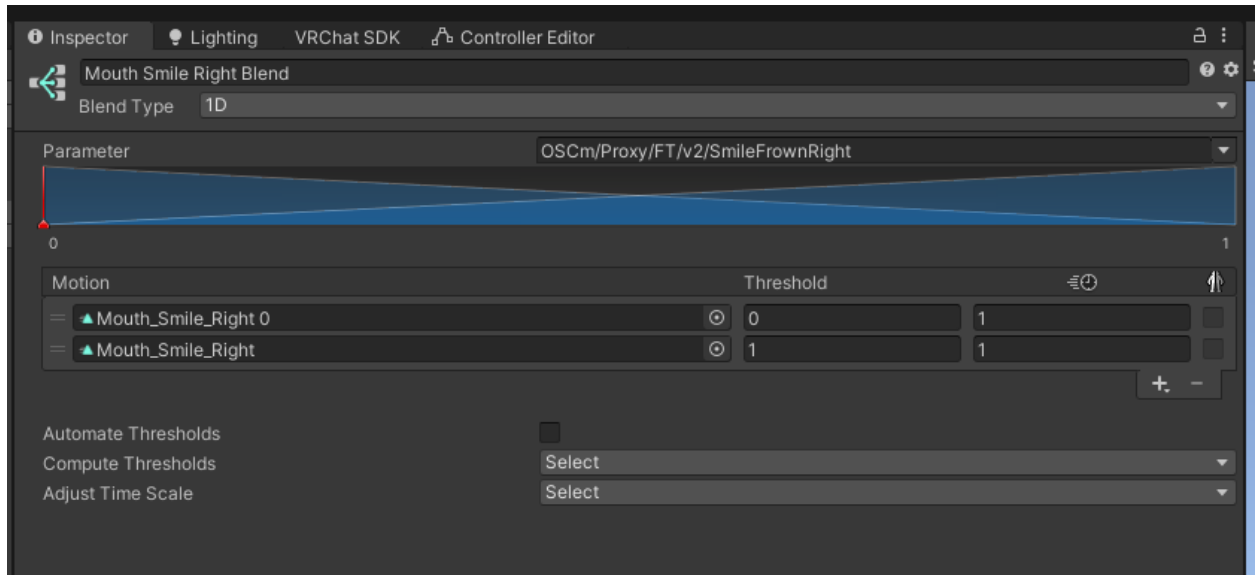
License

MIT License

Copyright (c) 2023 Adjerry91

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.