



Spirit User Manual

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hiyu.art

Some Quick Rules:

1. You can't claim that the Spirit Avatar is your own work.
2. You can't redistribute, share, or resell any of the Spirit Avatar files.
3. If you want to **sell a customisation** (e.g. a custom skin or other modification) of the Spirit Avatar to someone else, you may only do so if **both you and the other person** have purchased it.
4. If you want to upload your Spirit Avatar as a **Public VRChat Avatar**, you need to include the **CreditQuad** object (inside the chest) with its material, unchanged from the template avatar.

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Setting up your Unity Project



Installing the VRChat Creator Companion

Download and install the Creator Companion app from the [VRChat Downloads Page](#). If you don't already have VRChat's version of Unity Engine installed, the app will prompt you with a button that installs it.

Creating a new Unity Project

Once the correct version of Unity is installed, click 'New' in Creator Companion, and choose 'Avatar' as the project type. The Unity editor will start up with your new project.

Projects

Add

New

Importing the Unity Package

Drag and drop the .unitypackage file from the .zip into the 'Project' tab of your Unity Project.

If the Project tab doesn't let you do that, make sure you don't have anything written in its search bar.

If the file fails to extract from the .zip, try extracting it to another folder first, before dragging it in.

Alternatively, you can choose *Assets > Import Package > Custom Package...* and navigate to the .unitypackage file.



SpiritAvatar.unitypackage

Quest Version

It's now recommended to use the same Unity Project for both PC and Quest avatars.

When you're ready to upload your Quest version, you'll need to switch to Android mode: Click *File > Build Settings...* and select *Android* from the list.

Change *Texture Compression* to *ASTC* (it's much prettier!).

Click *Switch Platform* in the bottom right of the window. Unity will do a Big Think for a bit.

(To return to PC mode, select *PC* in the Build Settings window and click *Switch Platform* again.)

If you ever get confused which mode your Unity editor is set to, a quick way to check is to look at the top title-bar of the Unity window, and it'll specify the current platform there.

Note: Quest prefers lower-resolution texture settings. See the instructions in the next section if you're using your own custom textures!



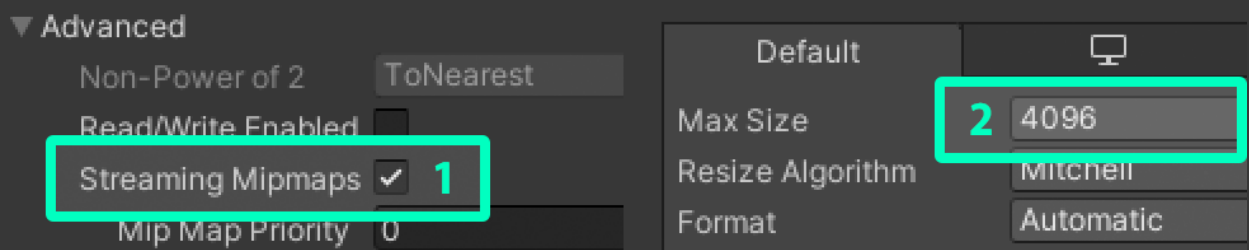
Importing Textures

Example textures are provided in Avatars/SpiritAvatar/SpiritAvatar.

1. **Create a new folder in Avatars/SpiritAvatar/ with the name of your character (I recommend doing this from within the Project view in the Unity editor).**

If you are exporting from Substance Painter, you can create & choose this folder from the export dialog. By default, the provided Painter projects will name your textures based on the project's file name. (I recommend exporting to Avatars/SpiritAvatar/<CharacterName>/Textures)

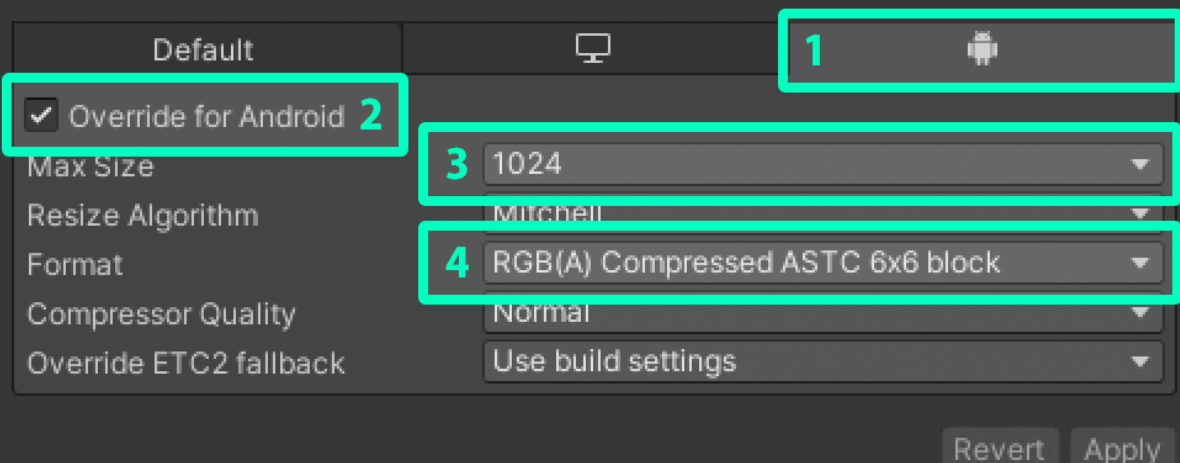
2. **PC** Select all of your textures and look in the Inspector. **Set the Max Size setting to 2048, and enable Streaming Mip Maps** (under Advanced). Click Apply, or continue to the next step.



Note: If you notice colour banding/visible texture compression on your Spirit, you can set the 'Compressor Quality' setting of your Albedo (_A) and Emission (_E) textures to High Quality.

Note: You can set the Normal (_N) texture's Max Size to 4096 for more definition on skin.

3. **Quest** Click the **Android logo** tab in the compression settings (1), then select **Override for Android** (2).



Set the Max Size setting to 1024 (3) and change the Format (4) to RGB(A) Compressed ASTC 6x6 block. Click Apply.

If you need some extra resolution on Quest, set the Albedo texture's Max Size to 2048.



Setting up Materials

1. Navigate to Avatars/SpiritAvatar/SpiritAvatar/Materials.

You will see 4 materials - the body, the eye gloss layer, the eyes, and the Quest material.

2. Select all materials except the EyeGloss and duplicate them (Ctrl+D), then drag-and-drop the new materials into your own character's folder. It's helpful to add your character's name to each - I also recommend making a dedicated Materials folder for these.

Note: The Body and Eye materials are exactly the same, except that the Body material has a black texture in the Emissive by default. This prevents eye emission appearing at texture seams.

3. Inside each new material, replace the default textures with your own. There's two ways to do this:

Click the texture slot and find your texture

or Drag-and-drop your texture from the Project view into the slot.

Notes:

- *You don't need to change out the Subsurface texture unless you changed any of the Transmission values in Substance Painter.*

- *You shouldn't modify the Effect Masks texture.*

- *I've found that the Quest version doesn't really benefit from having a Normal texture assigned. Leaving it unassigned reduces file size and memory usage.*

4. Navigate to Avatars/SpiritAvatar/ and open the Scene file (SpiritAvatar.unity).

You can choose to use the existing SpiritAvatar object, or duplicate it (Ctrl+D) and make another. I also recommend renaming this new one to your character's name, and moving it to the side.

5. Click on your Spirit in the Scene view, then click again to select the Body object. In the Inspector, set the first material to your Body material, the second material to your Eye material, and leave the third material as the EyeGloss material.



Using the Fur Shader

If you'd like more detailed fur, download [Warren's Fast Fur Shader](#) (a free 'Lite' version is available for download on the same page). Import the Fast Fur Shader .unitypackage into your project, then navigate to *Avatars/SpiritAvatar/CommonFiles/Materials/* and duplicate either the *Fur Shader Template* or *Fur Shader (Lite) Template* material. You can edit this fur material and assign your custom texture(s) to it.



Custom Fur Colours Shader

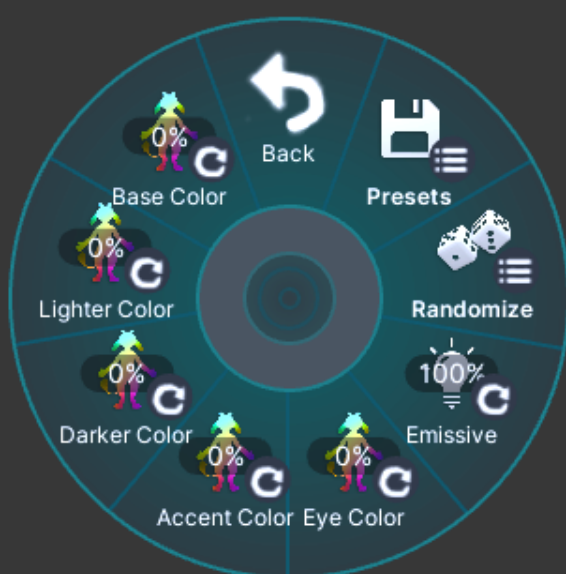
The unitypackage includes a special material that lets you change the fur colours in-engine!

This uses its own shader, so is only available on PC. There's two ways to make use of it:

Method 1: In-Game

In the SpiritAvatar scene, you'll find a Spirit called *SpiritAvatar Customizable In-Game*.

Uploading this to VRChat will give you custom colour options on the Radial Menu, including the ability to save & load your own in-game colour preset:



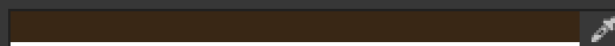
Note: This Spirit uses its own set of menus, parameters, and animators. In-game, It will override existing colours in its materials. If you want to set the colours within Unity, use Method 2.

Method 2: In Unity

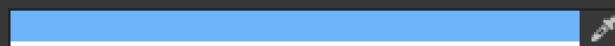
You can also apply the same customizable material to your own avatar, and set its colours directly in Unity. Set your avatar's body and eye materials to the materials found in *Assets/Avatars/SpiritAvatar/Customizable/Materials*, then select both materials and change their colours together.

Custom Colors

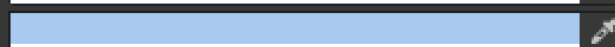
Eye Color



Base Color



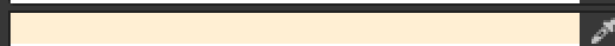
Lighter Color



Darker Color



Accent Color



Uploading to VRChat

PC Version Upload

Note: This section assumes you are uploading for PC first, before uploading for Quest!

1. In the top menu bar, select **VRChat SDK > Show Control Panel**.
2. **Sign in** to the VRChat SDK control panel.
3. On the **Builder** tab (ensuring the correct avatar is selected if you have multiple), you'll see a breakdown of your avatar's performance stats and any issues it may have. If there are no issues, you can click the **Build & Publish** button.
4. Unity will start packaging your avatar for upload, then will enter Play mode where the SDK shows an interface in the Game view.
After entering a name for your avatar, you can set up your thumbnail image using the freshly-created VRCCam object. For this, I recommend dragging the Game view to be alongside the Scene view, so you can see both at once.

Recommended camera settings:

- Position & Zoom
 - I've set up a camera called Main Camera in a clear position. In the Hierarchy, drag the VRCCam object on top of the Main Camera so that it becomes a child of it, then go to the Inspector, right click at the top of its Transform component, and select Reset. Zoom in with the Field of View slider (18 is a good value).
- Post Processing (*requires Post Processing package, find in Window > Package Manager*)
 - Unity cameras display only raw colour by default, without being tuned to what the eye expects to see. On the VRCCam, click Add Component, and add a Post Process Layer. Set the Layer dropdown to Water, and if you want, set Anti-aliasing to SMAA.

5. Upload your Spirit!

Note: when using Full-Body Tracking, I've found that setting VRChat's in-game IK setting to 'Lock Hip' gives the best results with Spirit. This is due to the size of the head & neck in relation to the rest of the body. Otherwise, switch to 'Lock All' to go granny mode.

Quest Version Upload

You will be uploading your Quest version to the same Avatar ID as your PC version.

This will not overwrite the existing PC version, so don't worry. When you're wearing your avatar, PC and Quest users will each see the version that was uploaded for their platform.

1. If the VRCSDK is not shown, select **VRChat SDK > Show Control Panel**.
2. If you aren't signed in already, **Sign in** to the VRChat SDK control panel.
3. In the **Content Manager** tab, find your existing PC Spirit Avatar and click **Copy ID**.
4. Select your Quest avatar and look in the Inspector for the **Pipeline Manager** component. **Paste the ID into it and click Attach**.
5. Switch Unity into Android build mode as described in [this section](#).
6. Go to the **Builder** tab, ensuring you have your Quest avatar selected in the SDK, and click **Build & Publish for Android**.

Your Spirit should now have both a PC and Quest version uploaded to the same ID!

Quest/PC Fallback Avatars (Optional)

VRChat allows you to upload a super-optimised avatar that users will see if the avatar you're wearing is hidden to them for whatever reason (usually safety settings). This is called a **Fallback Avatar** - and both PC and Quest fallback avatars are included.

This is a special type of avatar, so you'll need to upload it to a **new avatar ID**, ensuring that it has a performance rank of Good or Excellent. Quest and PC fallback templates are included in the Scene.

To unlock the SDK option to set an avatar as a Fallback, you'll need to be in Android/iOS mode in Unity, have a rating of Good on mobile, and also **have every other avatar in the scene hidden/disabled**.

Upload your Quest fallback first, then upload your PC fallback to the same ID.

Note: Quest fallbacks are especially useful if you have multiple PC versions of an avatar, and don't want to upload a separate Quest version for each.

Texturing

Substance Painter

The Workflow

The first layers I recommend changing are the ones highlighted in **Blue**.

Optional layers for more detailed editing, e.g. separate eye colours, are **Green**.

Some of these will reference a separate, shared Anchor for their colour input - replace this (in the Properties panel, *not* the Layers panel) if you want to change them individually.

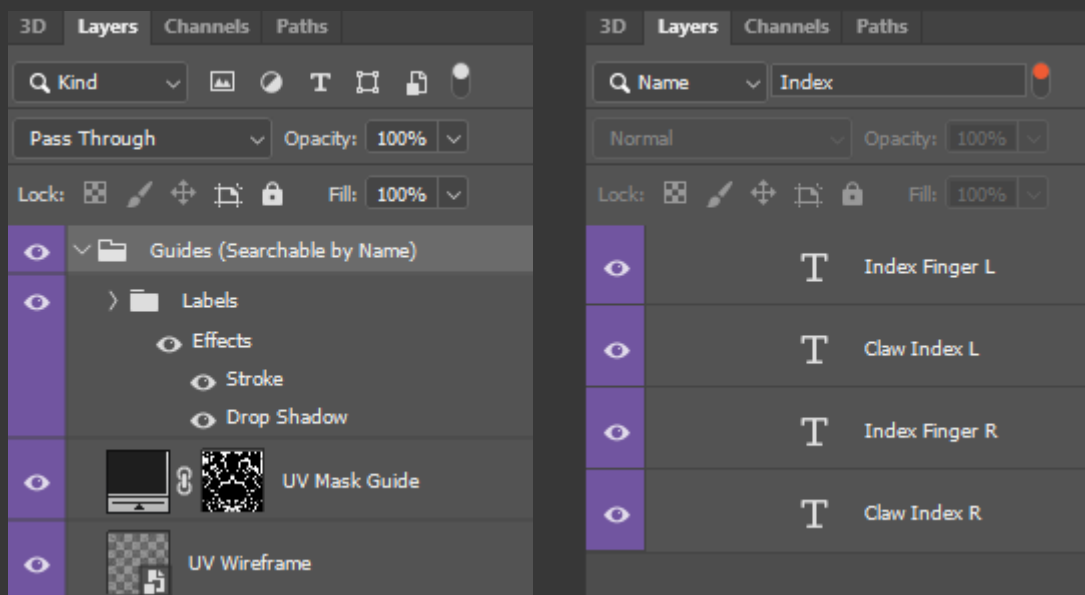
Note: For editing the fur on the body, I recommend not touching the Fur Data layer at the bottom of the Fur folder, and only adjusting the colours & masks of the various colour layers.

When you're done, you will need to export the textures. The correct export settings are already set up in the project - you just need to set an export location. As mentioned in [Importing Textures](#), I recommend `Assets/Avatars/SpiritAvatar/<CharacterName>/Textures`.

2D Graphics Editors e.g. Photoshop

A .PSD file is available for download. It has the same layer setup as the Substance Painter file.

Included is a **Guides** layer group with a UV wireframe and labels for the UV islands:



To locate a UV island in Photoshop, you can use the Name search function in the Layers tab.

Modelling (Optional)

You don't need Blender to upload the Spirit Avatar to VRChat.

This section is for users who want to make custom edits to the base model's shape.

For adding custom textures & uploading, see the [Unity Project](#) section.

Three .blend files are provided - for PC, Quest, and Quest Fallback.

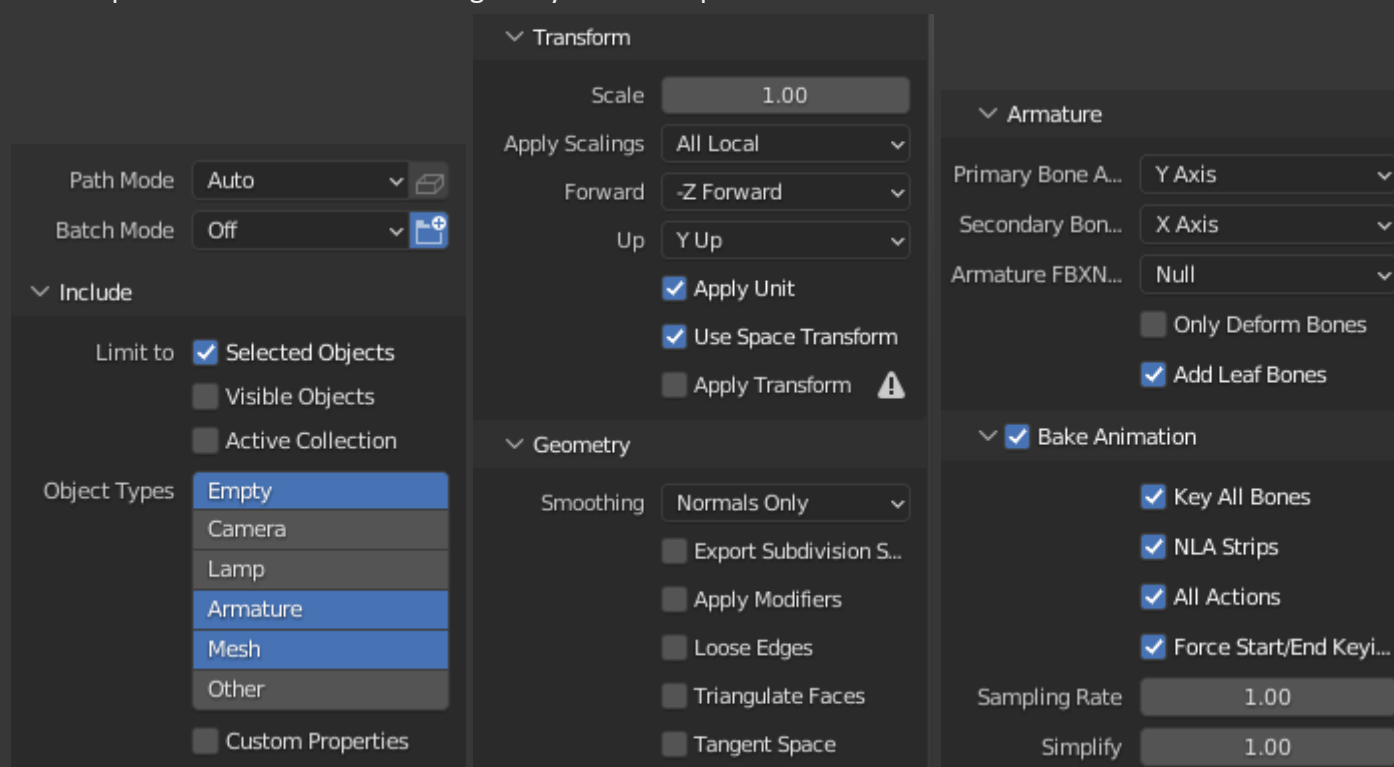
Editing the Model

When editing the model, proceed with caution - Spirit has lots of **Shape Keys** - adding or removing anything from the mesh may break them. Ensure that you're in the **Basis** shape key when making changes to the base model. If you're not adding or removing any geometry, then **starting with a new Shape Key to contain all your edits** is also a recommended workflow (the shape key can be set to 100% on the mesh in Unity).

Exporting Your Custom Model to Unity

I highly recommend using [Asset Creation Toolset](#) (a free addon) for exporting to Unity from Blender. You can access it from the Object Mode sidebar after installing & enabling the addon. In ACT's *Import/Export Tools* tab, set *Export Mode* to *All -> One FBX*. Choose a name & export path, then select both the Body mesh and Armature and click *Export FBX to Unity*.

Otherwise, if you aren't using ACT, select both your Body mesh and Armature, and choose File > Export > FBX. Use these settings for your FBX export:



Setting Up Your Custom Model in Unity

If you're unfamiliar with avatar creation for VRChat, it's good to first read the [Creating Your First Avatar](#) page on the VRChat docs.

Before we get started, click on the FBX file, and its Import Settings will show up in the Inspector. Go to the *Model* tab and enable *Read/Write Enabled*, as well as *Legacy Blend Shape Normals*.

Now go to the Rig tab, and set the *Animation Type* to *Humanoid*. From this point, there's two ways you can set it up:

Method 1: Inheriting properties from the existing Spirit Avatar

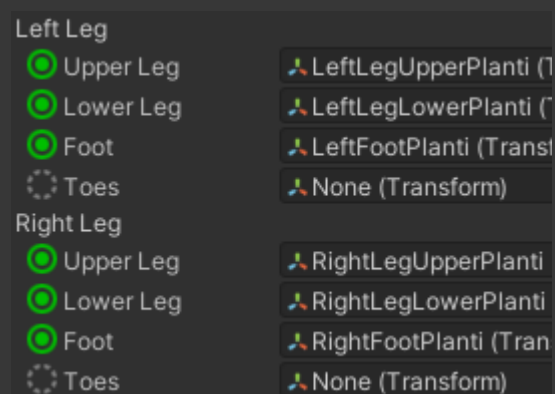
Set *Avatar Definition* to *Copy From Other Avatar*, and choose SpiritAvatarAvatar (from the original SpiritAvatar mesh), or for Quest, SpiritAvatar_QuestAvatar. This will allow you to easily switch out the mesh in the Skinned Mesh Renderer on the existing Spirit in the scene.

You can also place your model into the scene and copy everything over from the existing SpiritAvatar object. To do this easily, I recommend using the *Copy Components* function of [Pumkin's Avatar Tools](#).

Method 2: Full custom setup

With *Avatar Definition* set to *Create From This Model*, click Configure.

Spirit uses a digitigrade approximation, consisting of a specific arrangement of bones and rotation constraints. Set up the Leg and Foot assignments as pictured (right).



Note: VRChat doesn't support constraints on Quest avatars, so this arrangement is not present on the Quest version.

Ignore errors about the avatar not being in T-Pose.

In the Head section, make sure there's *no* Jaw bone assigned. Then click Apply.

In the scene, you'll need to copy the Avatar Descriptor, Avatar Dynamics components, and Constraints from the existing SpiritAvatar (as well as the CreditQuad, if you're making a public avatar). As above, I recommend using the *Copy Components* function of [Pumkin's Avatar Tools](#) to do this all-in-one-go.

Acknowledgements

People who helped make this project what it is! My heartfelt thanks go out to:

Eslar [@EslarFox](#)

For the awesome [Substance Painter Fur Brush & Transition Filter](#)

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For their invaluable [Digitigrade Legs Tutorial](#)

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For their video version

AtlasTheFox [@atlasthefoxx](#)

BleuSomme [@BleuSomme](#)

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For your generosity and support.

Thank you!