SOMNIUM
SPACE

Somnium Space
avatars
unitySDK

User Guide

Version 2.0.1 - 18032022
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1 Install Unity Hub and Unity 2019.2.21f1

1.1- Go to https://unity3d.com/get-unity/download and press "Download Unity Hub". Install it as you would with any software. It will come in useful if Somnium Space updates to a newer version of the Unity Editor in the future.


1.2- After installing Unity Hub, go to https://unity3d.com/get-unity/download/archive and press the "Unity 2019.x" tab.
1.3- Scroll down to Unity 2019.2.21f1 and press the "Unity Hub" download button.

1.4 - Unity Hub will automatically open with an install window. You can uncheck most modules if you aren't using this Unity version for anything other than Avatars (keep at least the Android Build Support checked for potential Quest Avatar exporting in the future.) Then, press "Install".
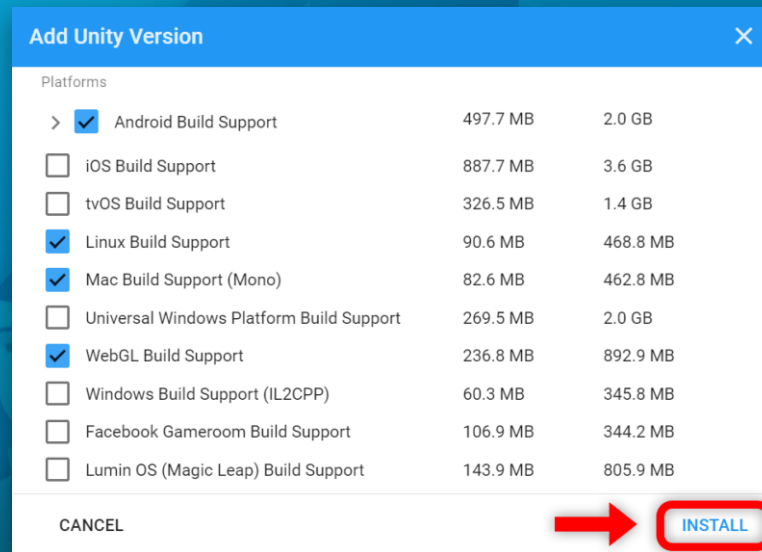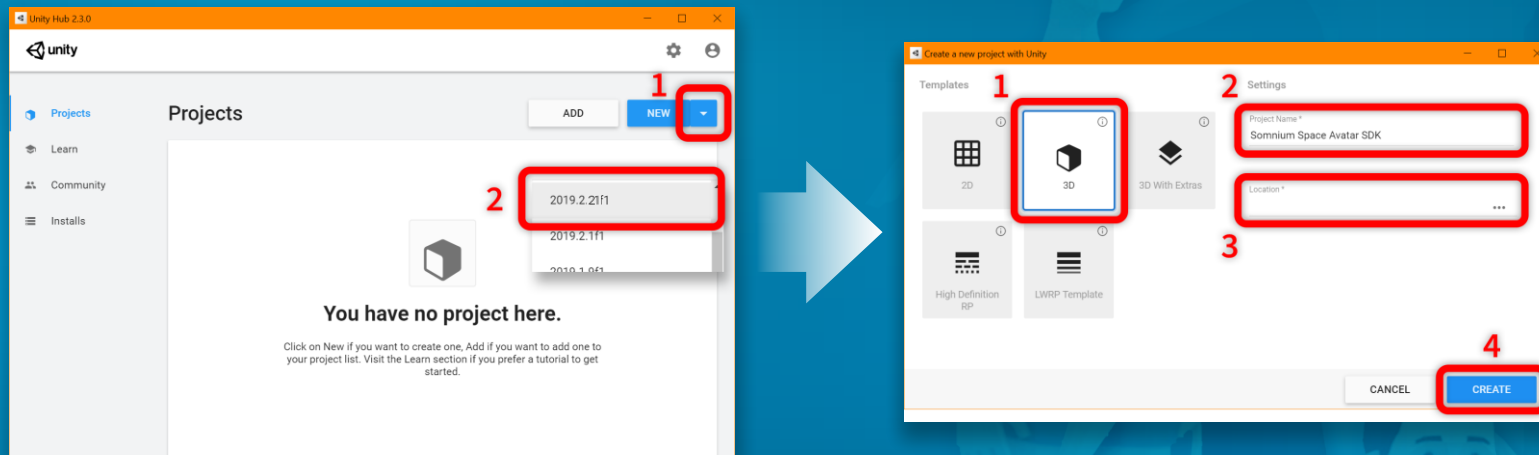


2 Download and setup the Somnium Space SDK

2.1 - Download the Somnium Space Unity package by clicking this link here.

2.2 - Open Unity Hub, press the small arrow next to the "NEW" (1) button and select 2019.2.21f1. (2)

2.3 - Select the 3D template (1), fill in a name for your project (2) and select the location on your system where the project will be created (3). Then, press "Create". (4)


2.4 - Once the project is opened and booted up, open up the Windows Explorer, go to the location where you downloaded the SDK package (usually in the Downloads folder) and double click it.

Tutorial
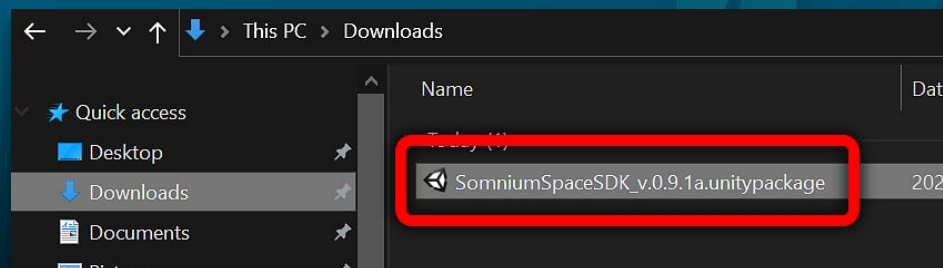
You can also go from within Unity into the menu "Assets > Import Package > Custom Package…" to select the package from there.

2.5 - In Unity, an Import window should have opened. To be sure everything will be imported, press "All" (1) and then "Import" (2)
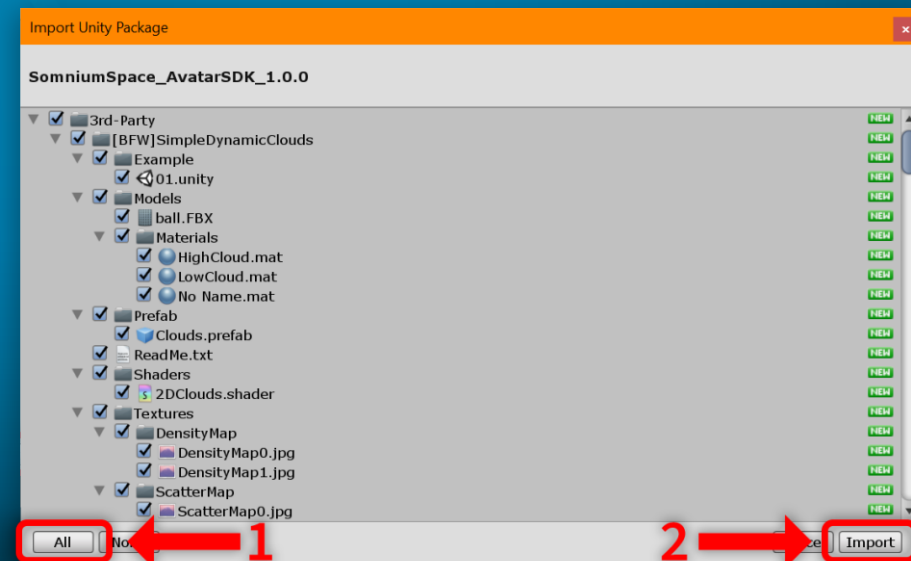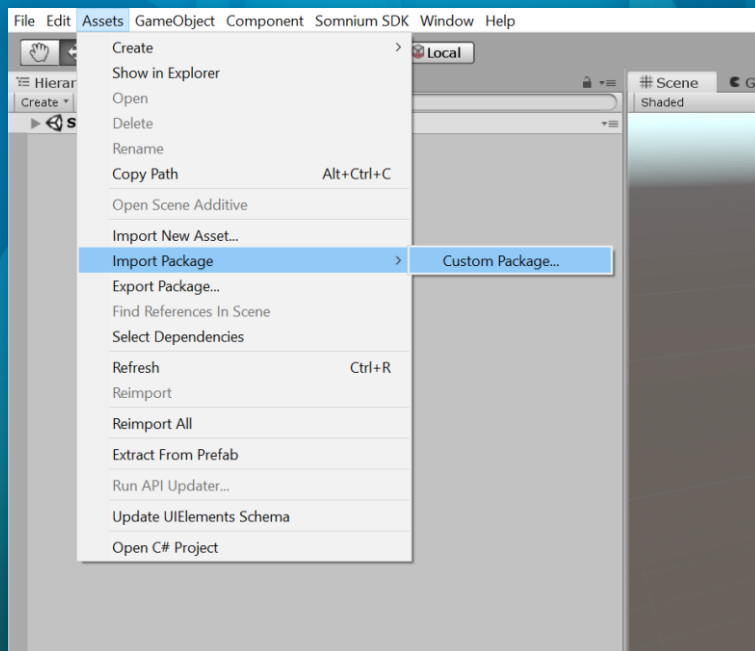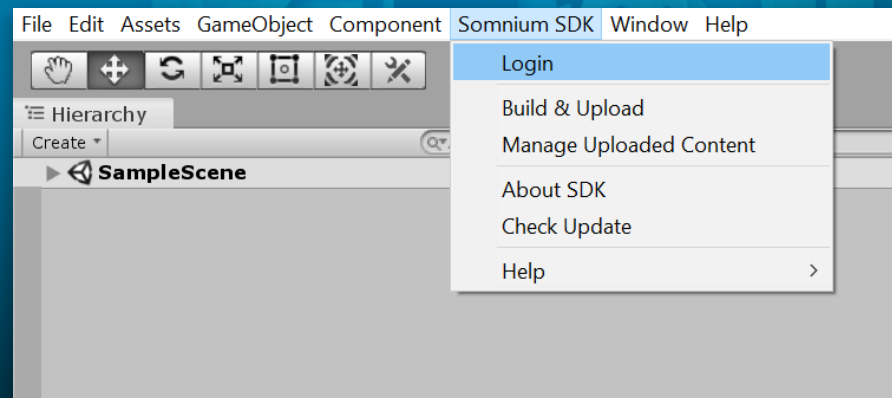
2.6 - Once the package is imported, the Somnium Space Login Window will appear. Enter your Somnium Space account login information in the appropriate boxes (1) and then press "Login" (2)
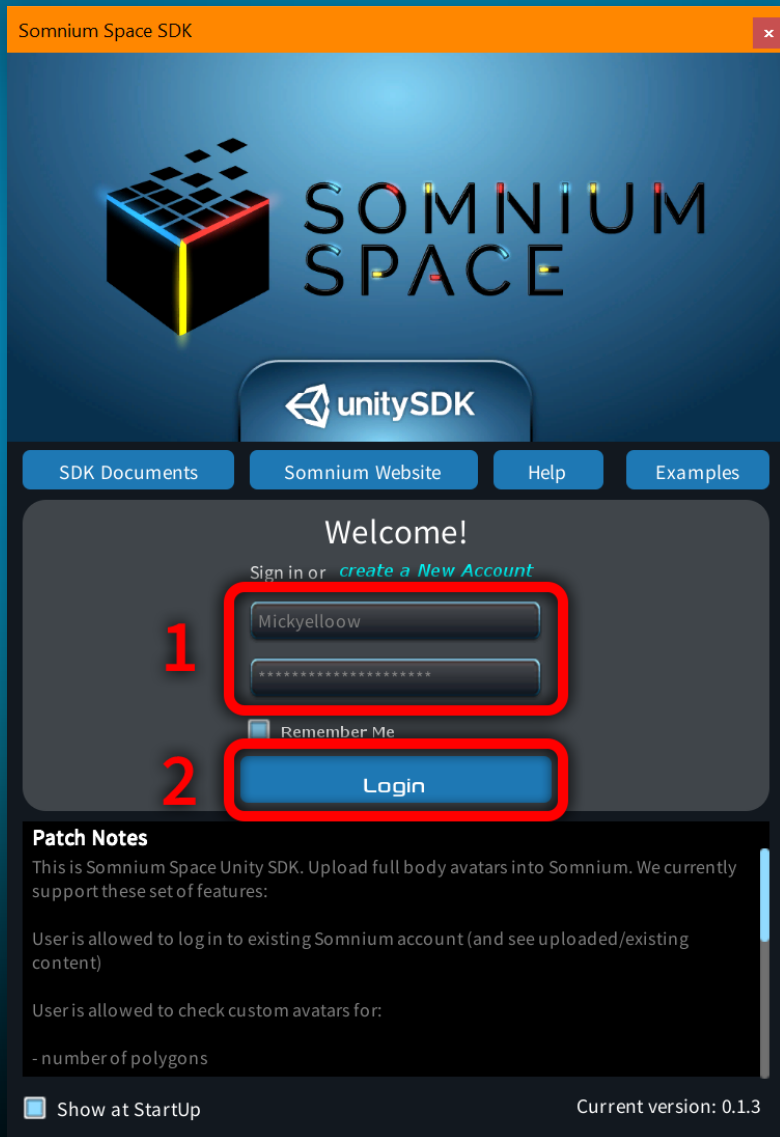
If it doesn't open automatically or you want to go back to it, you can always access it from the menu item "Somnium SDK > Login".

2.7 - After logging in, you can navigate to the Scenes folder inside the Project tab (1) and open up the UploadScene scene by double clicking it. (2) You should now be ready to import your avatar!

Tip - You can move inside the Scene view by holding down right click. When you hold right click, move your mouse to rotate the view and use WASD to move around the scene. Q and E let you move up and down as well.
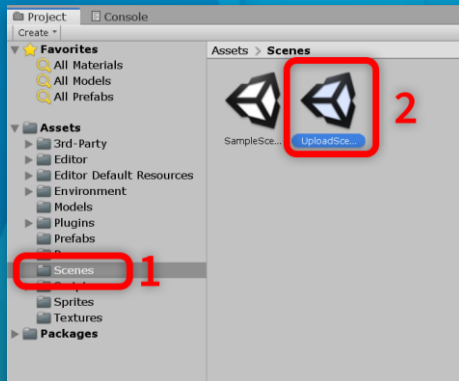
(The first thing you see when opening up the UploadScene for the first time)

3 Importing an avatar

If you do not make avatars or do not have any in possession, you can download avatars from many websites like https://free3d.com/3d-models/human. Some are free, some are paid, you choose what you want to have here (note that if downloading an avatar from someone else, you might not be able to resell them on the blockchain later due to copyright. If you try to tokenize and sell them, they might end up disabled and their thumbnail will be updated to say that it has been taken down. So be careful!)

If you are an avatar creator, you can directly export avatars from your modeling software to .FBX or even transfer your avatars from other games supporting custom avatars (even with Dynamic Bones!) In your modeling software, be sure that the armature is at the origin of the world, your feet are aligned with the floor and that the scale of all of your objects is 1. This will ensure that the avatar behaves correctly in game. Once you have your files ready, you can start importing them into the project.


"Grim Reaper"
(An avatar ready for import into the project that will be used as an example avatar for this tutorial)

3.1 - In Unity, from the Project tab, go to the Models folder (1) and create a new folder by right clicking. (2)
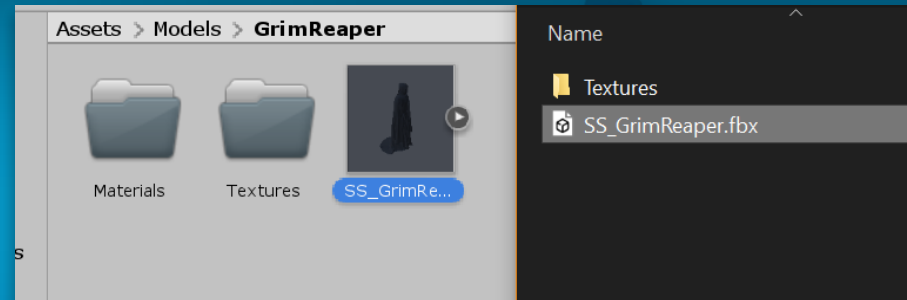This will contain all of your avatar's assets
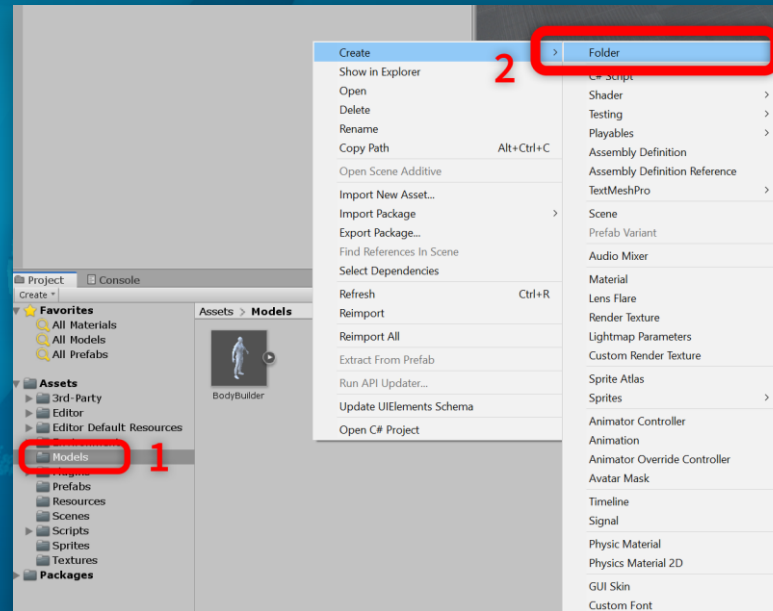
3.2 - Enter this new folder by double clicking it. If you feel the need to (because you have lots of textures and / or lots of materials,) you can create 2 other folders inside it for Materials and Textures.
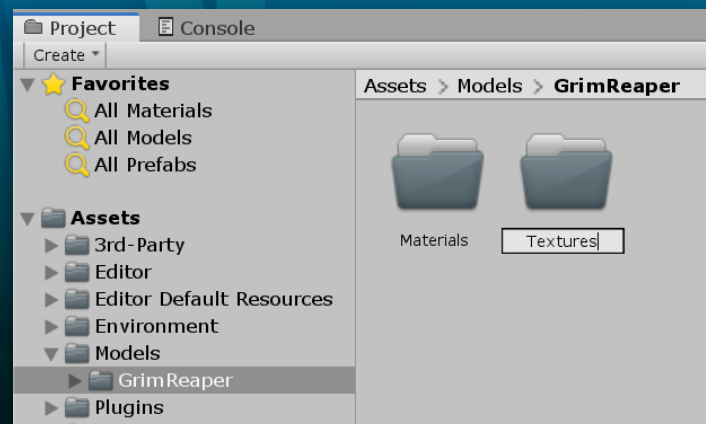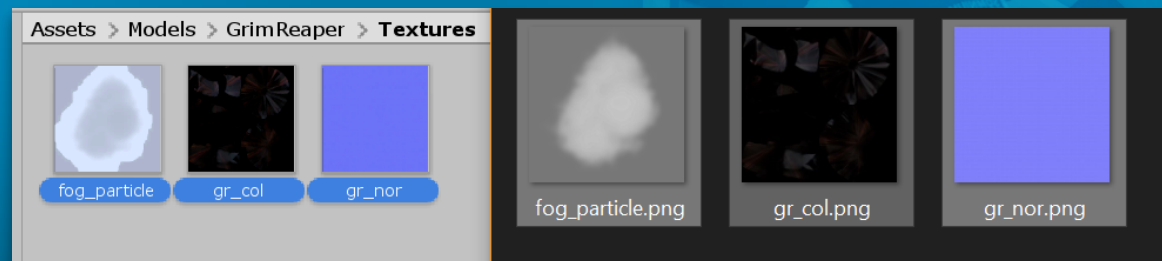
3.3 - Find your model file inside the Windows Explorer and drag & drop your model inside your newly created avatar's folder.

3.4 - Repeat this step for the textures by entering your Textures folder in both the Unity project and the Window Explorer and then drag & dropping them into your project.


4 Setting up the humanoid rig

Now that your files are imported, the most important step for your avatar is to set up it's humanoid rig. All avatars in Somnium Space use it at the moment, so it is quite mandatory to take the time to do it correctly. Some of it should be done automatically, but you never know if some things might need tweaking.
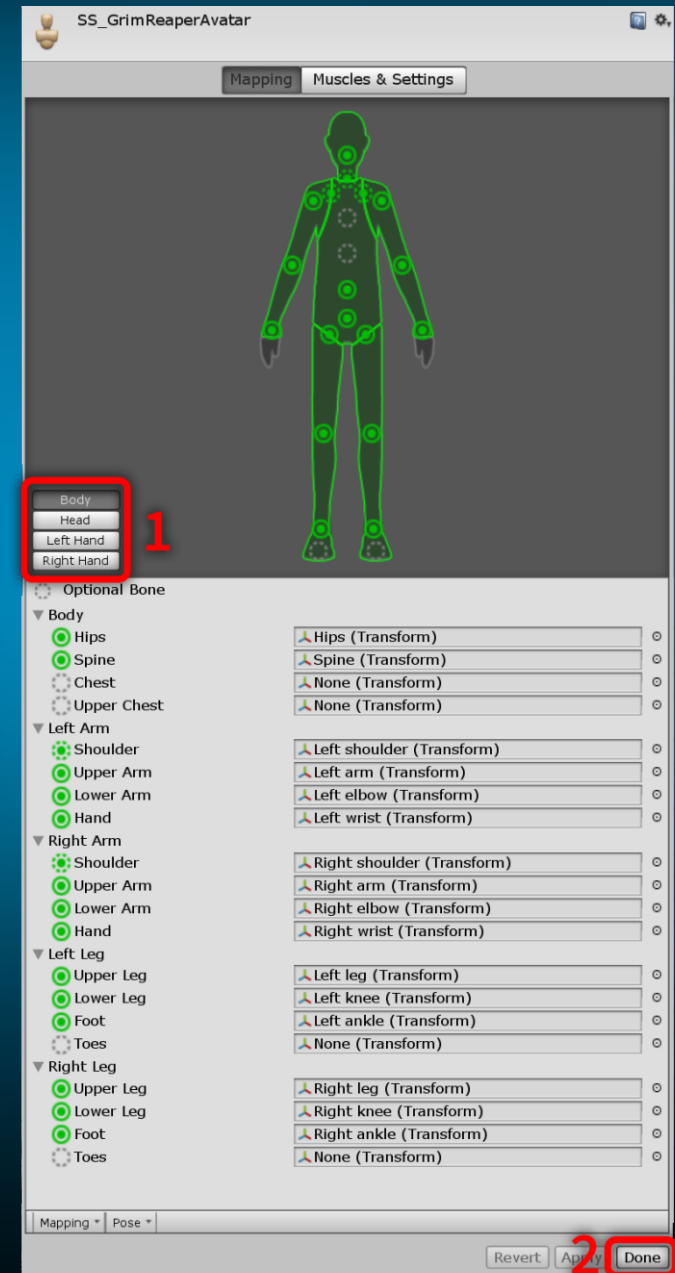
4.1 - Select your avatar in the Project tab by clicking it once and go to the Inspector tab (it should be on the right of the Unity window in the Default layout.) Go inside the Rig section and select the Humanoid Animation Type from the dropdown (if it isn't applied automatically.) (1) Then, press "Apply" (2) and click "Configure". (3)
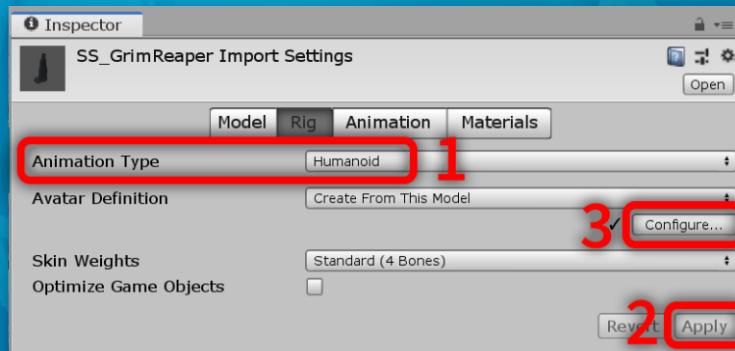
4.2 - In all four sections of the Mapping window (Body, Head, Left Hand and Right Hand) (1) verify that everything that has a full circle is mapped and green (if it is a dashed circle, it isn't mandatory for the avatar to work.) If you are more advanced, you can tweak the mappings for your needs. For now, check if everything is green and then press "Apply", then "Done". (2)
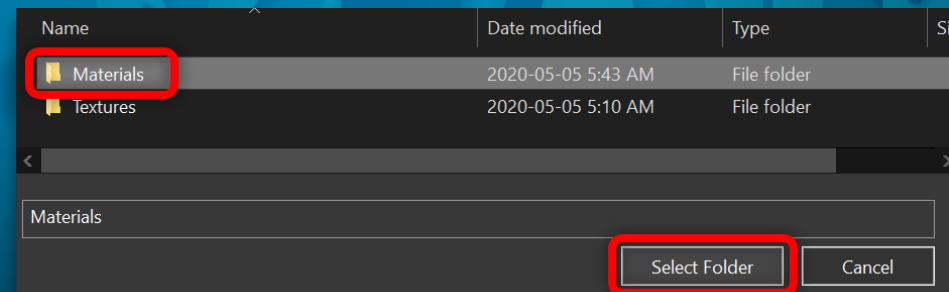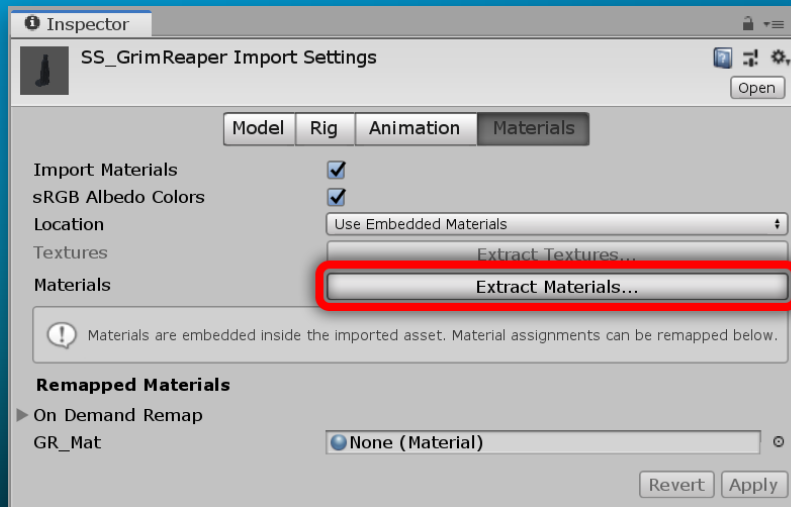

11

5 Setting up the materials

Some avatars may have textures and materials. They may need to be set up manually to be displayed on your model.

5.1 - Select your avatar in the Project tab by clicking it once and go to the Inspector tab. Go to the Materials section and click "Extract Materials" Extract them to your Materials folder you created earlier.
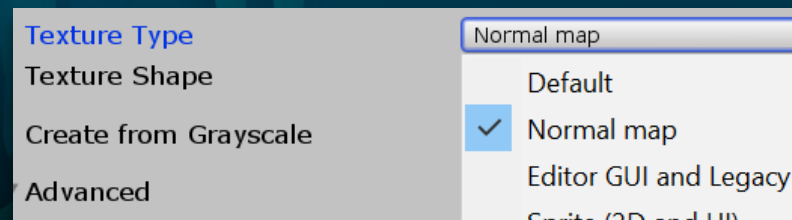
5.2 - Before going check out your materials, go inside your Textures folder, select all of them in the Project tab and go in the Inspector. Set the Texture Type to "Sprite (2D and UI)" (1) and press "Apply". (2)
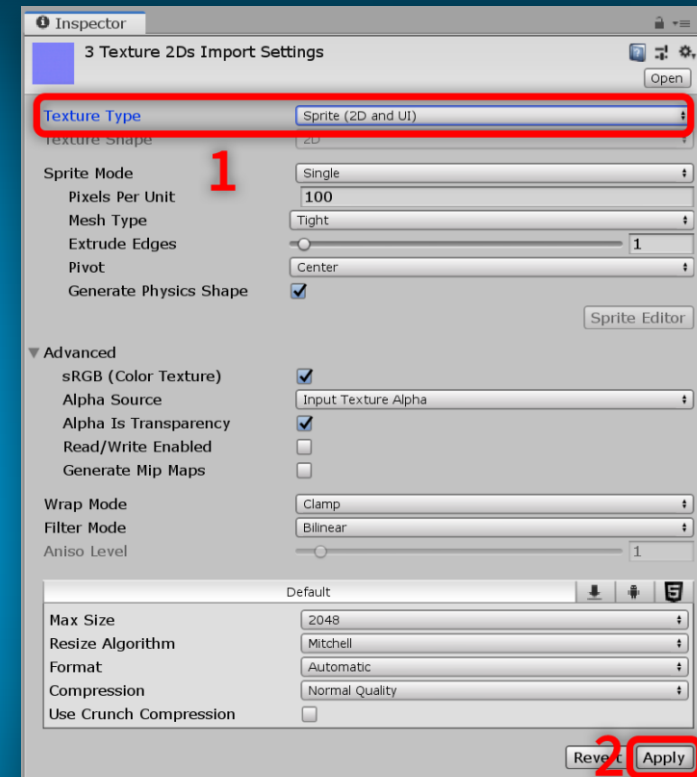
5.3 - You may also have one normal map with your textures (or more.) If so, select it and set its texture type to "Normal map" instead and go press "Apply" like in the previous step.

5.4 - You can now go back to your Materials folder you've extracted all of your model's materials in. Select one and go in the Inspector. The Shader on the drop down at the top should be set to "Standard". If not, open up the drop down and select the "Standard" shader. (1) Then, drag & drop at least the color texture into the Albedo slot and set the tint to white (no textures defaults to a pure white texture.) (2) If it is transparent, set the Rendering mode to "Cutout" (the "Transparent" mode may work, but it may not produce proper shadows.) (3) If you know what you're doing, you can also play with the other texture slots and parameters. Do this for all of your materials.

Tutorial
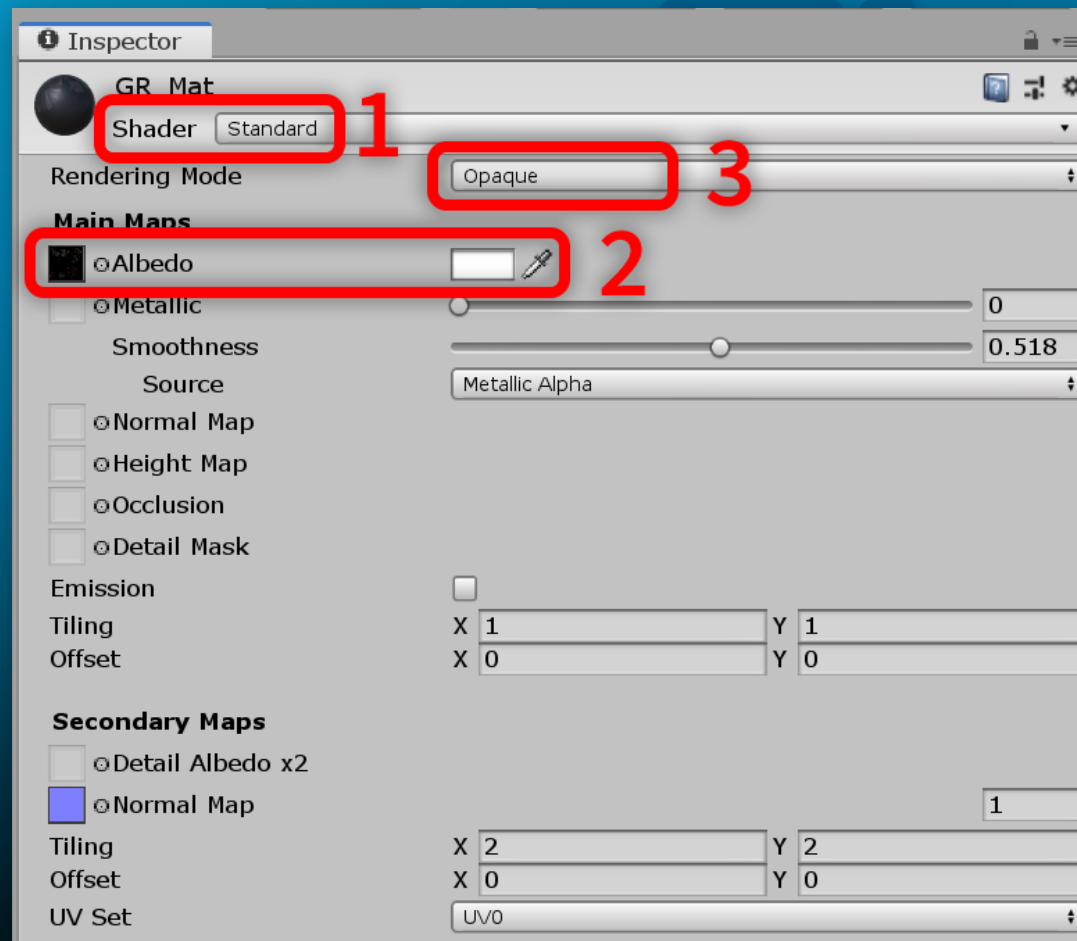
## 6 Building and uploading your avatar

Your avatar is now ready to be built and uploaded to the Somnium Space world! Before you upload your avatar, it is possible to add extra effects to your character, like some particle systems, audio sources, trails or even dynamic bones. An entire whitelist of supported components and limitations is available. **Be careful though, you need to have less than 4 warnings and no errors to be able to upload your avatar.**

Avatar Quality	Excellent	Good	Poor	Hard Limit
Polygons	20,000	32,000	70,000	70,001 +
Bounds Size (m)	2.5 x 2.5 x 2.5	4 x 4 x 4	5 x 6 x 5	5 x 6x 5 +
Skinned Meshes	1	2	8	9 +
Meshes	4	8	16	17 +
Material Slots	4	8	16	17 +
Dynamic Bone Components	0	4	16	17 +
Dynamic Bone Transforms	0	16	32	33 +
Dynamic Bone Colliders	0	2	8	9 +
Dynamic Bone Collision Check Count	0	2	8	9 +
Animators	1	4	16	17 +
Bones	75	150	256	257 +
Particle Systems	0	4	8	9 +
Total Active Particles	0	300	1000	1001 +
Total Active Mesh Particle Polys	0	1000	2000	2001 +
Particle Trails Enabled	False	False	True	------------
Particle Collisions Enabled	False	False	False	True
Trail Renderers	1	2	4	5 +
Line Renderers	1	2	4	5 +
Cloth	0	0	1	2 +
Total Cloth Vertices	0	50	100	101 +
Physics Colliders	0	1	8	9 +
Physics RigidBodies	0	1	8	9 +
Audio Sources	1	4	8	9 +

AVATAR VALIDATION CHARACTERISTICS

For a component to be in the "Excellent" category, it has to be equal or lower than the value showed. Same with all other categories until the "Hard Limit." A component in "Poor" will trigger a warning and one in "Hard Limit" will trigger an error. Remember: You have to be below 4 warnings and have 0 errors to be able to build and upload your avatar.

(The components whitelist and limitations)

6.1 - In the Hierarchy tab (which should be on the left by default,) find the object named "ModelPivot". Drag your model from the Project tab and drop it inside this object.
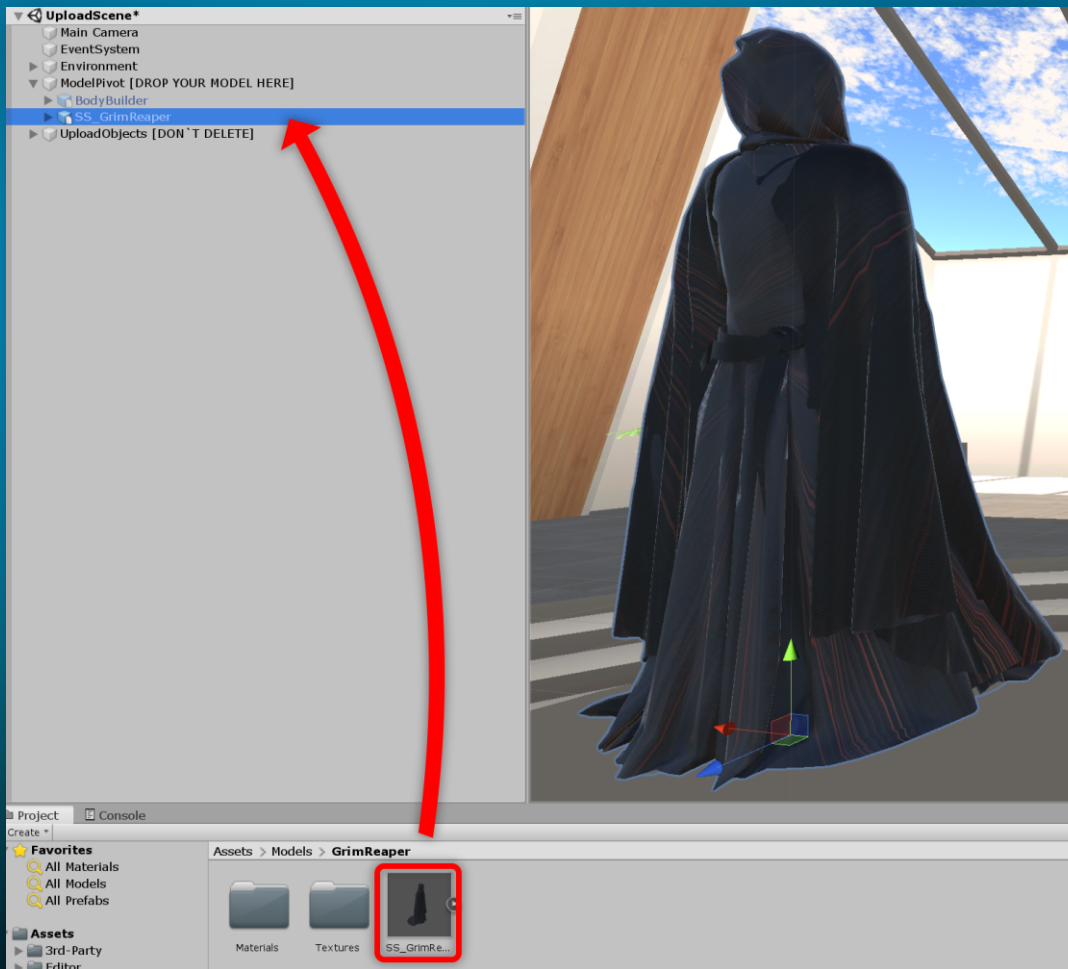

Tip - If another avatar is inside the ModelPivot, you can click it in the Hierarchy tab, go to the Inspector tab and hide it by toggling off the checkbox next to its name.
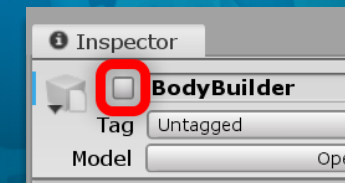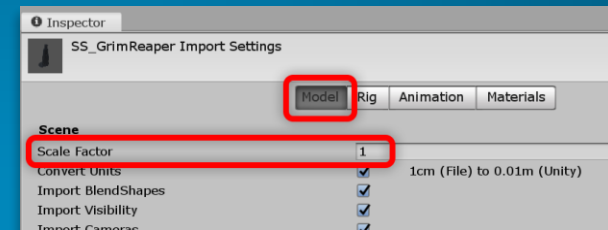
6.2 - Select your avatar in the Hierarchy tab, go to the Inspector tab, click the small gear icon inside the Transform component and select "Reset". This will ensure that your avatar is perfectly centered and aligned to the ModelPivot and that it is 1:1 scale.
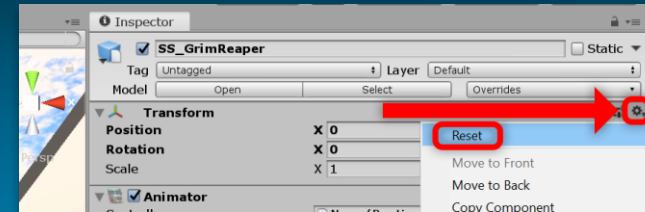
6.3 - If the avatar is too big or too small, you can always change its imported scale by clicking his model in the Project tab, going into the Inspector tab, and then in the Model section change the Scale Factor. Changing its scale from the Transform component of the avatar you dropped into ModelPivot might give unexpected results in-game.
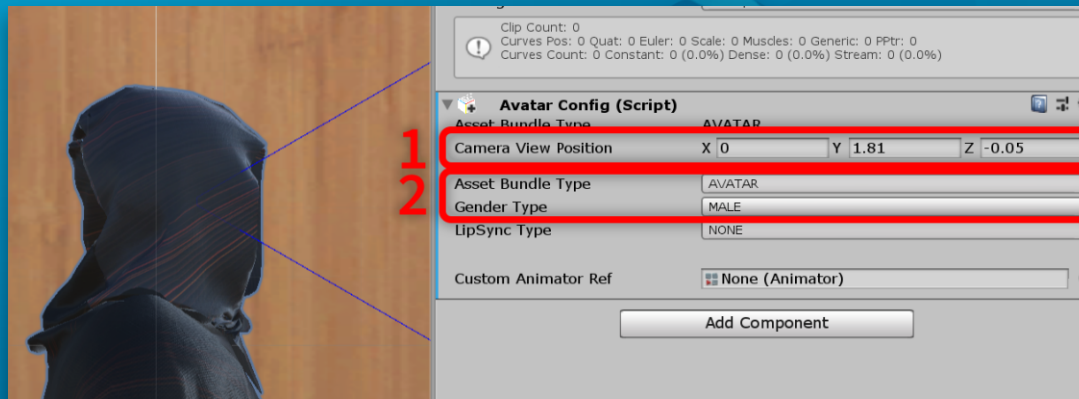

6.4 - With your avatar selected in the Hierarchy tab, from the Inspector tab, press "Add Component", search for "Avatar Config" and add it to the avatar.
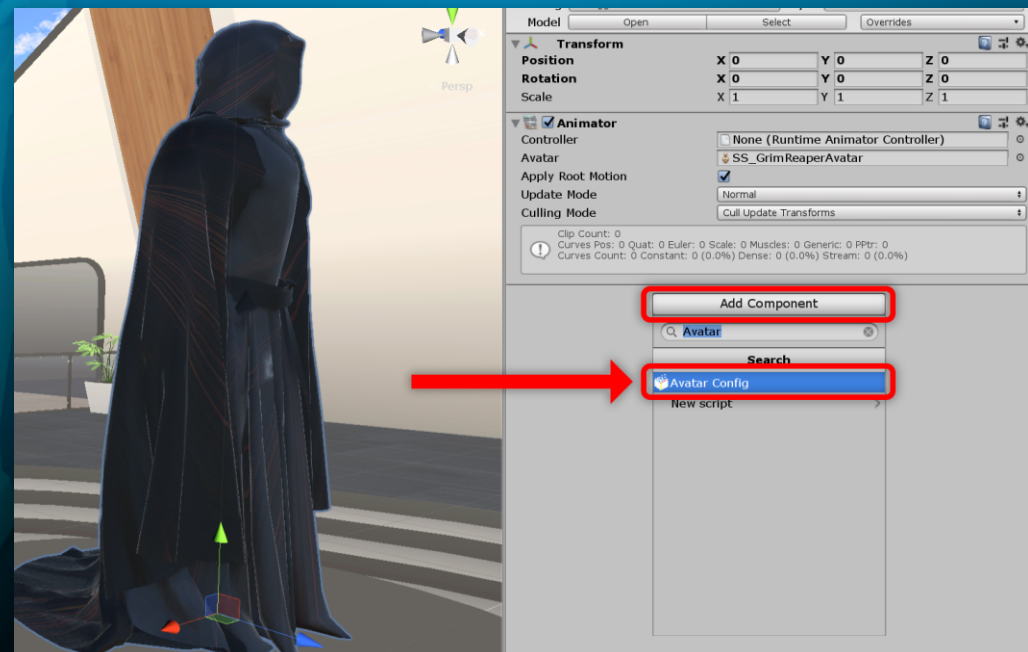
6.5 - You have a couple of parameters you can set for your avatar. The most important one is the Camera View Position. (1) Set it to the eye level of your character for accurate results (but it may vary for some avatars.) A blue frame in the Scene view displaying the player's point of view will help you position it. Also, be sure to have the Asset Bundle Type set to AVATAR (2) and the proper Gender Type (2) so your avatar is listed correctly in the PC Client's Avatar Selection screen. You can also set a LipSync Type if you want your character to have lip syncing when you talk, but it isn't mandatory and may be for users a little more advanced.

6.6 - Your avatar is now properly set up for the building process! To build it, be sure it is selected in the Hierarchy tab, go in the menu item "Somnium SDK > Build & Upload" (You can also right click your avatar in the Hierarchy tab and access the same menu item)

18

Tutorial
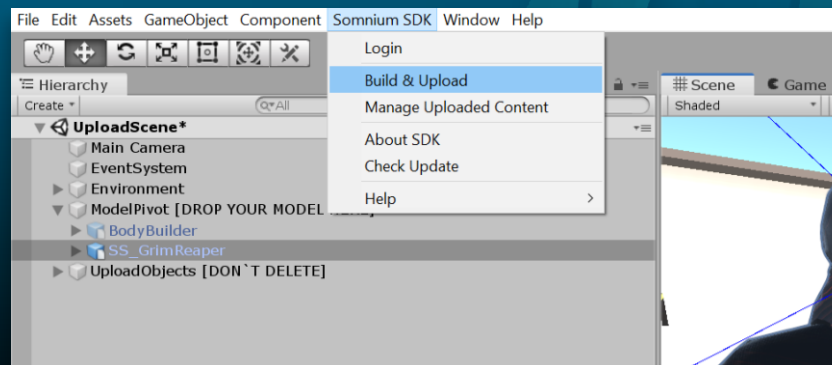
6.7 - The Build & Upload window will open. Inside, you can check on some info about your meshes and model (1), all warnings, errors and validated components (2) with filters to show only the ones you want to see (3) and a detailed component description when you select a specific component. (4) If everything is fine, you can press the "Build" button just above the filters to start the build and upload process.

6.8 - Once the build process is done, the entire Unity window will show the Upload UI. From there, you can give a name to your avatar, (1) enter a description (2) and set it public to be usable by everyone (keep it off if you don't want anyone else to use your avatar) (3). You can also press the camera icon at the top right of the preview image to change the preview camera's position using left click and the WASD keys. (4) More advanced users will be able to unmaximise the tab, go into the Scene view and freely add, delete or modify anything in the scene for the preview image (including the camera). Once everything looks fine, agree to the Terms and Conditions at the bottom using the checkbox and press the "Upload Model" button right above it to upload it to the Somnium Space servers. (5)

If the upload completed successfully, you will see a confirmation message appear. Your avatar is now officially available for you to use inside Somnium Space! You can press "OK" and this'll leave the upload UI automatically

Tutorial
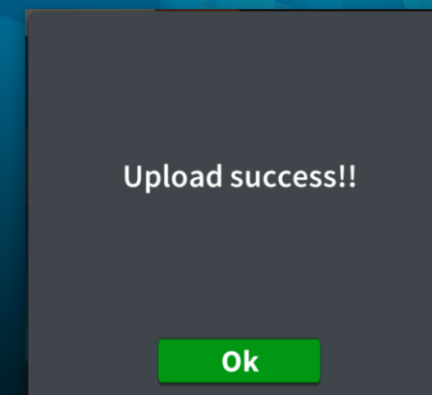
6.9 - To confirm that your avatar is online, you can go in the menu item "Somnium SDK > Manage Uploaded Content"

This will open the Manage Uploaded Content window. In there, you have different categories you can unfold (1) and they each say inside parentheses beside their name how many items of each type you have uploaded. If you unfold "Avatars", you will see the avatar you just uploaded and any other ones you may have already uploaded (2). From there, you can either make them public / private or delete them from the servers.
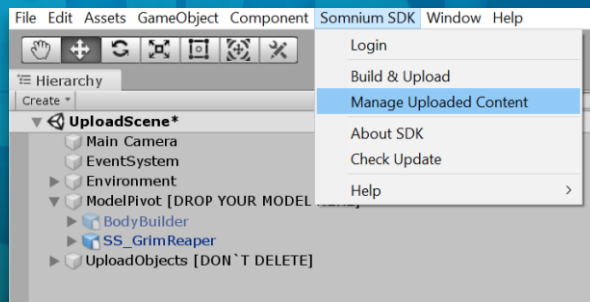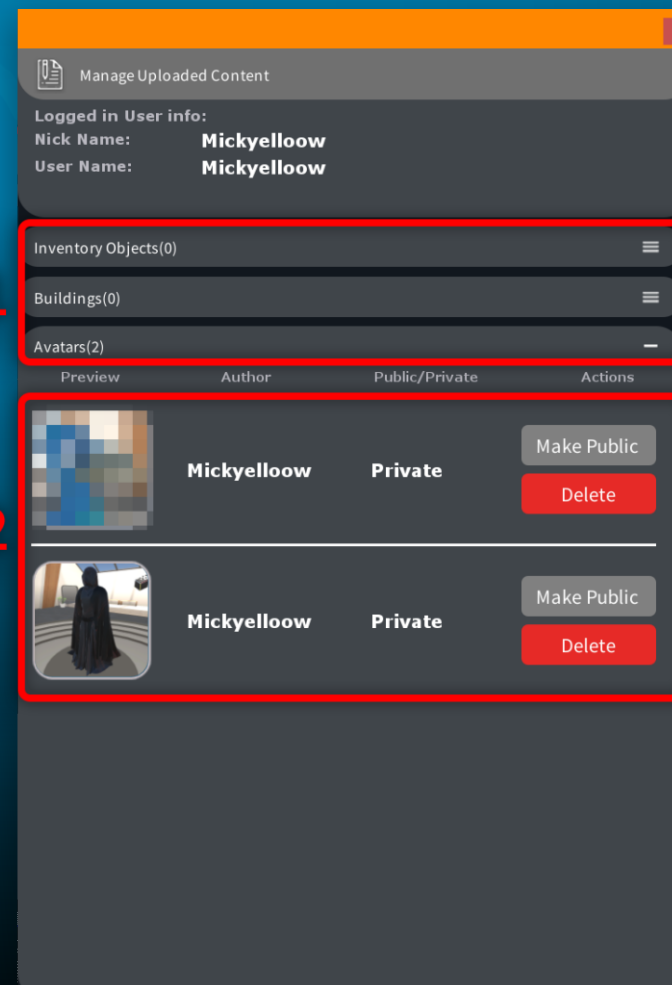
7 Selecting and using your avatar

You can now open up the PC client to select your avatar and then launch the 2D or VR client to see it in action in the world! You'll first have to install the Somnium Launcher to start using any of the clients.

7.1 - Go to https://somniumspace.com/ and download the launcher by clicking the "Download Client" button at the top right of the page. Install it as you would with any other software.

7.2 - Open the launcher, agree to all agreements and login using your Somnium Space account credentials. Once you are logged in, wait for any updates that might need to be downloaded (progress bar at the bottom) and then click on the "Launch PC Client" button.

Tutorial
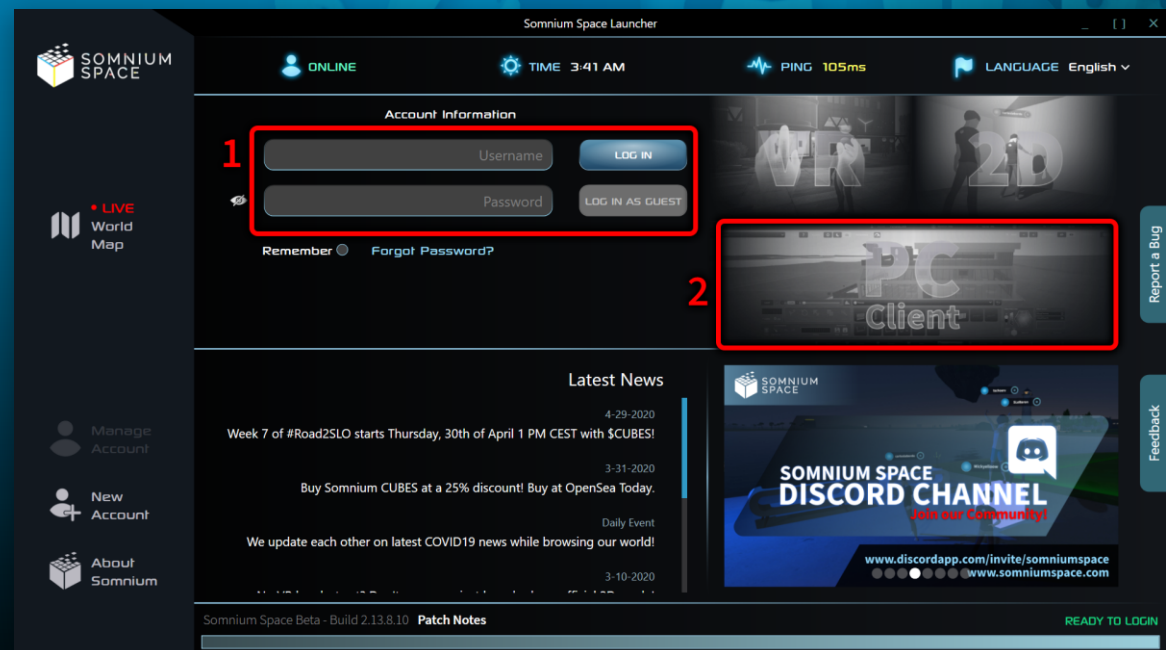
7.3 - Once the client is opened, at the bottom of the screen, open up the "Avatar" tab.

7.4 - Once the tab is opened, you will see some Avatars on the left with different categories (1), some editing options on the right to edit your avatars a bit further (2) and an avatar type selection in the top middle of the screen. (3) When you have an avatar displayed in the center, you can look around it using the controls at the bottom of the screen. (4)

Using the left and right arrows of the avatar type selection, select the "CUSTOM" type.
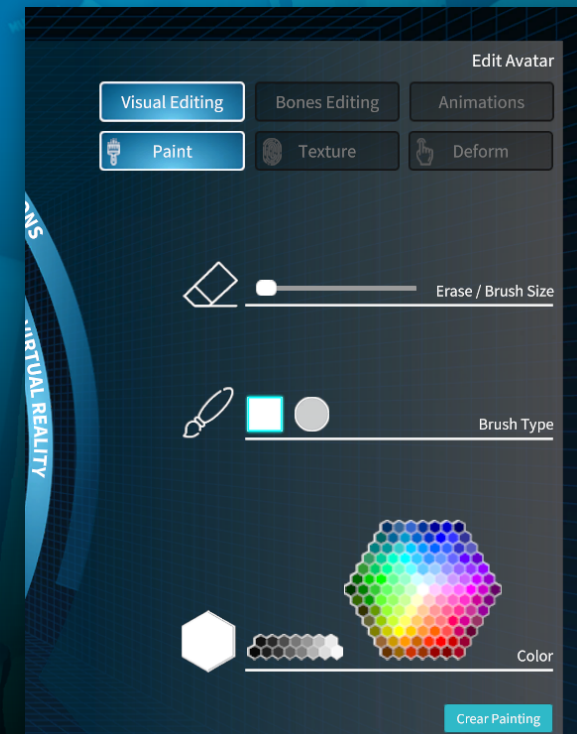
7.5 - With this type selected, you will see inside the avatars section all of the avatars you have uploaded using the Avatar SDK. You can click on one and it will display in the center of the screen.
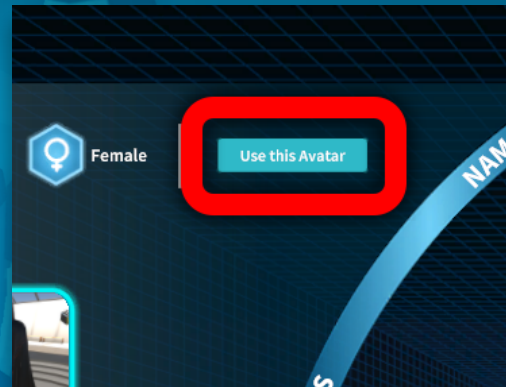

7.6 - With it selected, you are able to make further changes using the tools on the right. You can edit bones, animations, paint over it, deform the model, etc.

24

Tutorial

7.7 - Once you are happy with your changes (or don't need any,) you can go at the top of the avatar section and click "Use this Avatar".

7.8- Finally, go to the bottom right of the client and two buttons are available: You can first preview your avatar on a pedestal while in a closed environment by pressing the "Avatar VR Preview" button. When you are ready, press "ENTER Somnium Space" to enter the game without closing the PC client first!

See you on the
OTHER SIDE!