Walkthrough

Introduction

This is a quick walkthrough, how to setup a character for animation using Puppet2D.

First open a new scene and click on the 2D button in the Scene View. The Window can be found in the top menu Window>Puppet2D

Create the Character

In the Project you'll find the puppet2d character sprite in Puppet2D/Textures/PuppetMan.

Expand it and drag each of the body parts into the Scene View, arrange them so it looks like the image bellow. (Move the z component so that the arms and legs appear in the correct draw order.)

Create Layers

Now we want to put the character onto a locked layer so that we don't accidentally select him when we draw the bones. To do this select the layer drop down at the top right of the screen, go to edit layers and type Character into a free layer slot. Lock the layer, and then select all the sprites in your scene and and choose the Character from the layer dropdown in the inspector.
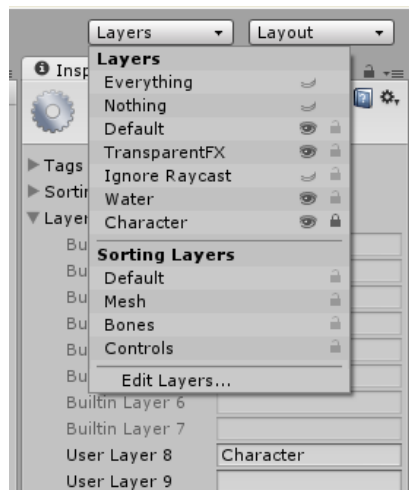
Now we should make a bones and control sorting layer. In the Layer drop down on the top right of the screen, add two sorting layers – call one Bones and lower one Controls. Now we're ready to draw the bones.

Bone Creation

Firstly set the bone layer in the Puppet2D window to Bones. Click the "Create Bone Tool" button to start the tool. You can now click into the Scene View to start drawing bones. Start at the hip and give him a couple of spine bones and a head bone, then right click to end the current bone. Click on the top spine joint and start drawing the left arm, elbow and then hand , right click to end the bone. Now do the same for the right arm. Left click the hip bone and start drawing the thigh, knee and then foot, right click and repeat for the other leg. Now to exit the bone creation press enter or click the "Finish Bone" button.

Now we should name all the bones, to keep things clear. Your hierarchy should look like this:
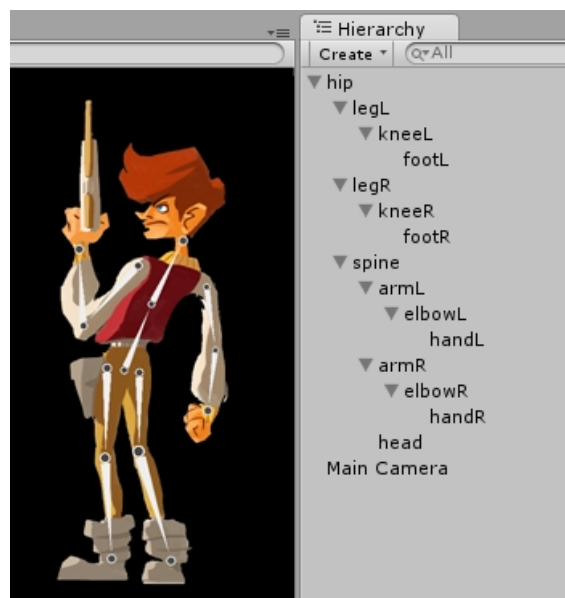
Rigging Setup

Now we are going to create the controls that we can use to animate the character.

First select controls in the drop down so the controls get created on the "Controls" sorting layer.

Select the handL bone and click "Create IK Control". This will create a hand control that will be easy to animate. Repeat for the handR, footL, and footR.

Next we need to create the body control – select the hip and click "Create Parent Control". This will make a control that moves and rotates the hip.

To create the spine controls, select the spine and click "Create Orient Control". If you notice in our heierachy we have a global control – this is where all the controls will be parented. Select the spine_CTRL_GRP and drag it onto the hip_CTRL. Next select the head bone and click "Create Orient Control". Select the head_CTRL_GRP and drag it onto the spine_CTRL.
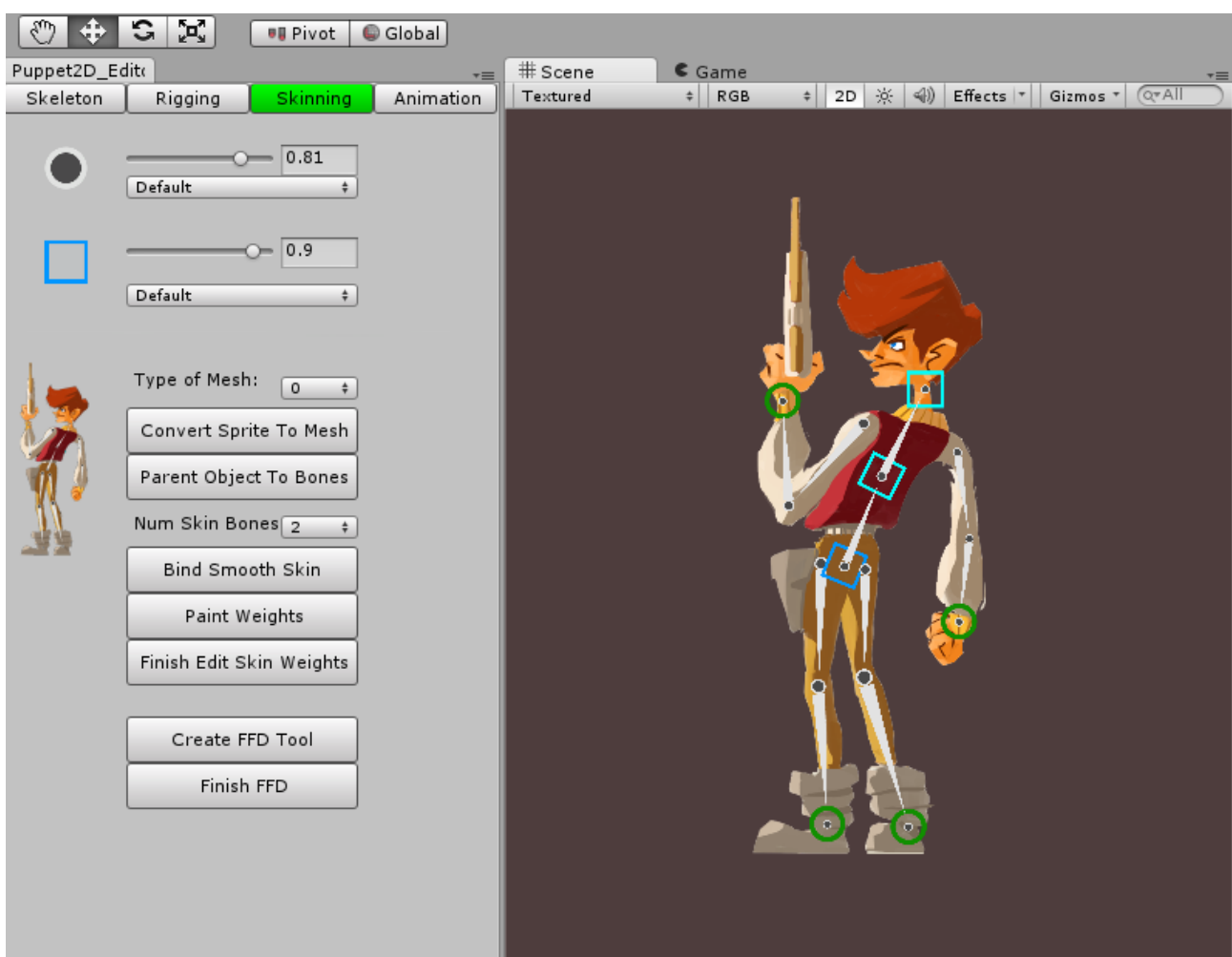
Skinning

Now that the controls have been setup we need to join the character to the bones. There are two ways to do this – by parenting the sprite to the joints and skinning:

Parenting

In the hierarchy Select the PuppetMan_armBottom, PuppetMan_armTopand, and PuppetMan_gunTop as well as all the bones. "Now click Parent Objects to bones".

Skin Binding

To skin the rest of the body parts to the bones, first we need to convert them to skinnable meshes. To do this select the rest of the meshes and click "Convert Sprites to Mesh". Select them and add them to the Character Layer.

Now select legL, kneeL,footL,hip, spine and PuppetMan_body_GEO and click "Bind smooth Skin".

Select hip,legR,kneeR,footR and PuppetMan_leg_GEO and click "Bind smooth Skin".

Select Spine, armR, elbowR,handR and PuppetMan_armR_GEO and click "Bind smooth Skin".

Select Spine , head and PuppetMan_head_GEO and click "Bind smooth Skin".

Final Setup

Its almost ready to animate. But first we need to clean up the scene and fix some of the skin weights.

In the hierarchy drag the hip and all the meshes onto the Global_CTRL. Now select the global control and turn it on and off to refresh it. You can now turn of the visibility of the bones – as you dont need to see them to animate the character.

Try moving round the controls – there maybe a few weighting issues like the foot area. To fix this select the PuppetMan_leg_GEO and PuppetMan_body_GEO and click "Edit skin weights". You should notice little vertex handles appear. Select them and you'll see you can change the weights in the inspector. If you want to update multiple weights at once - click "Update Skin Weights" button in the inspector.

Once you've tweaked them to your satisfaction, click "Finish Edit Skin Weights" to remove the vertex handles.

Now the character should be ready to animate.

Animating

Animating the Puppet2D character works in the same way that everything else is animated inside Unity.

Select the Global_CTRL and in the animation window create a new clip. Move the the controls around and set keyframes wherever you like – happy animating!