Import new assets as walkers into CARLA

1) Create new folder at carla/Content/Static/Animals

2) Inside create folders named "Animations" and "Materials" to keep things a bit organized

3) Export rigged and animated animal model as .FBX with mesh and animation included
   Important: Animal model shoud be faced in the -y direction (tested with Blender)

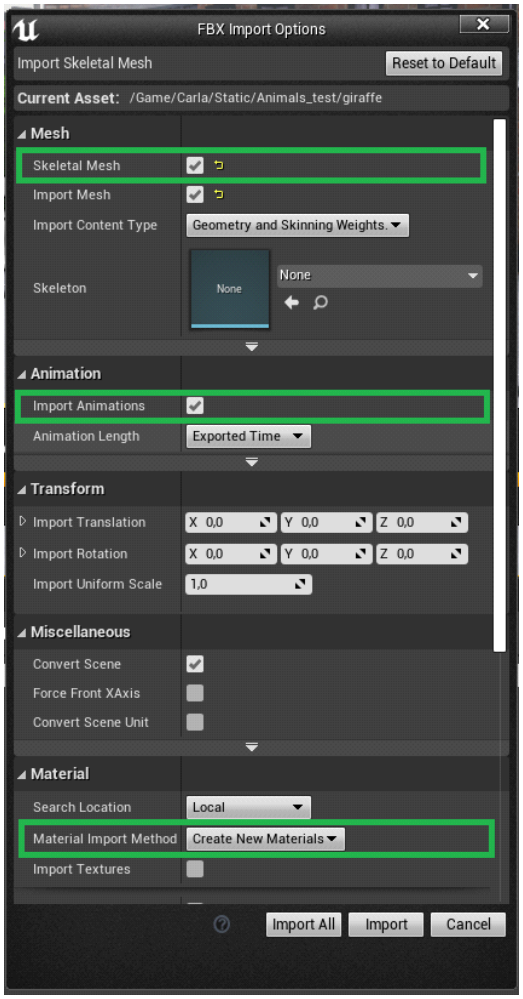
4) Import .FBX file into the in Step 1 created Folder inside Unreal Engine editor (Drag & Drop into the content browser)

   a) Make sure "Skeletal Mesh" is checked

   b) Make sure "Import Animations" is checked

   c) Under "Material" choose "Create new materials"

   d) Accept with "Import All"



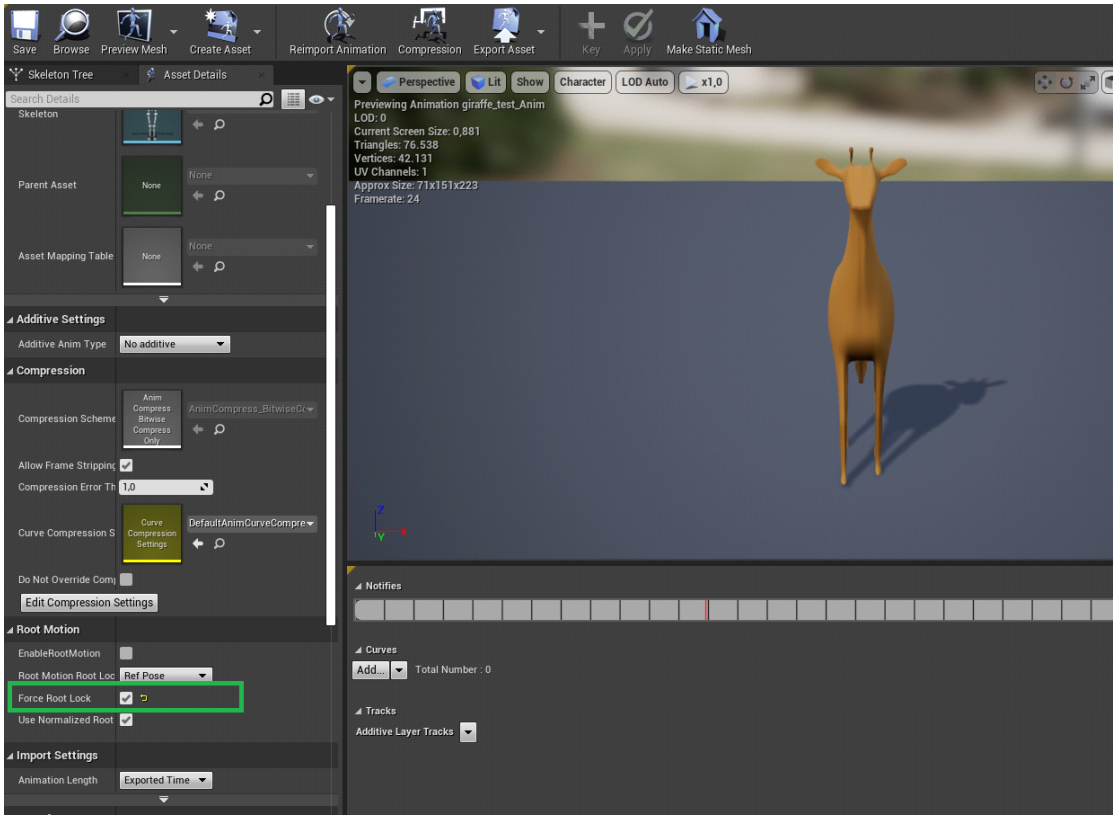
5) Select all files and save them (Ctrl + S)

6) Move the <AnimalName>_Anim file inside the "Animations" folder

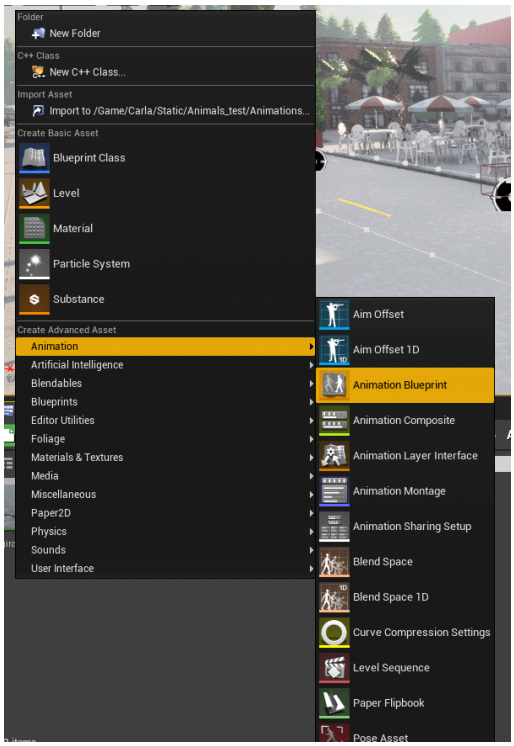
7) Move the Material file to the "Materials" folder and rename it to M_<AnimalName>

8) Open the <AnimalName>_Anim file inside Unreal Engine Editor
(The animated model is not visible at that moment)

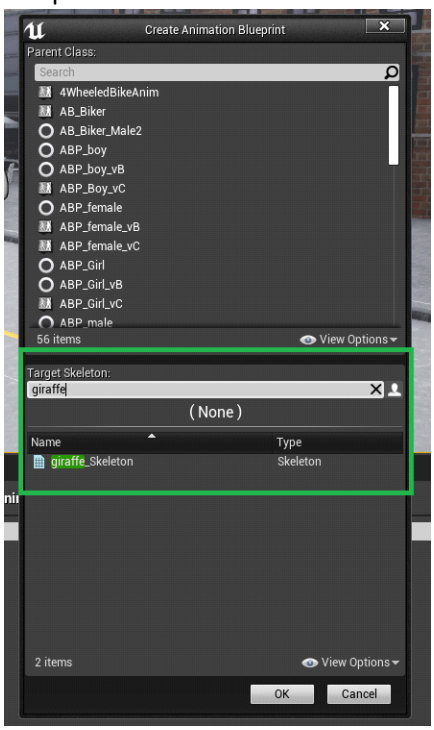
9) To make it visible, in the "Asset details" menu on the left side check "Force Root Lock" -> then save and close the animation file



10) Inside "Animations" folder create new Animation Blueprint
(right click -> Animation -> Animation Blueprint)



11) Under "target skeleton" search for the skeleton that was created with importing the .FBX ("<AnimalName>_Skeleton")
The parent class can be left without choosing anything



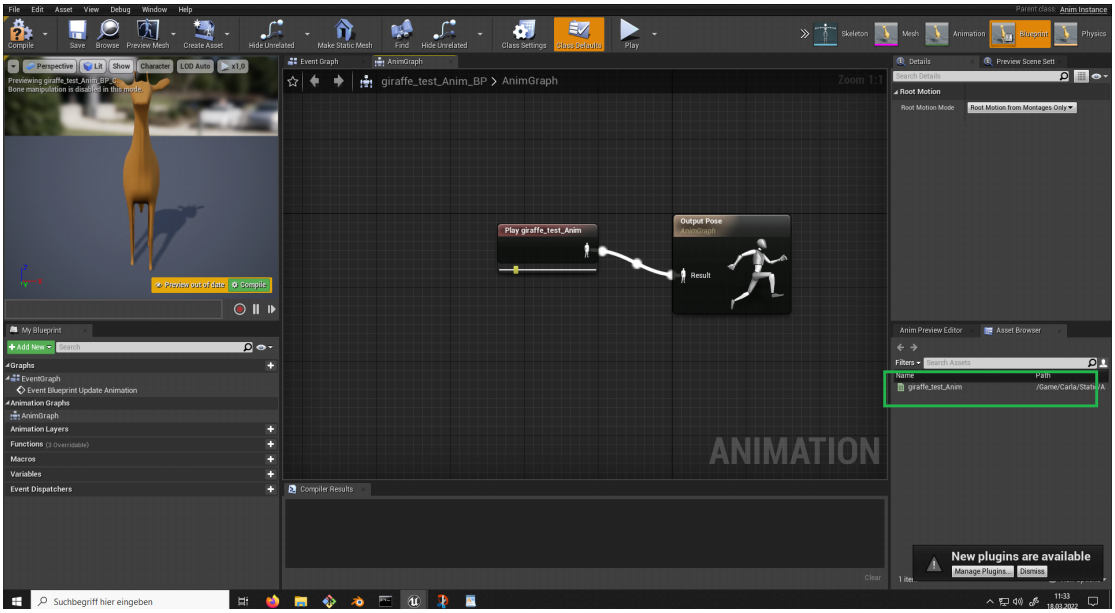
12) Name the new file *<AnimalName>_Anim_BP*

13) Open the Animation Blueprint

    a) In the bottom right under "Asset Browser" drag & drop the Anim asset ("<AnimalName>_Anim") into the big AnimGraph window

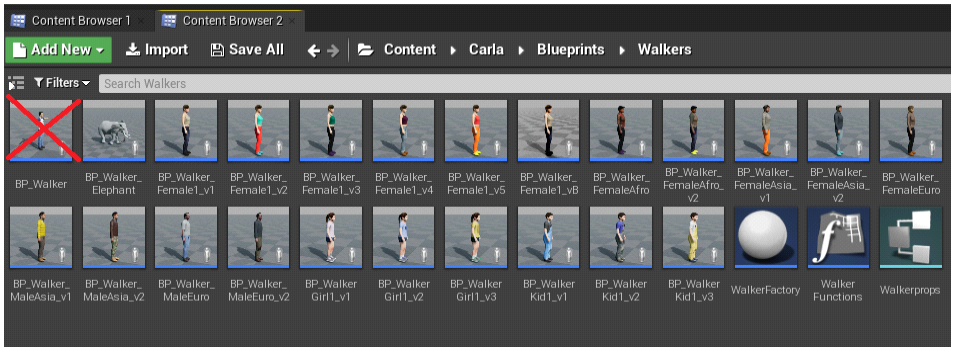
    b) Connect the node "play <AnimalName>_Anim" with the "Output Pose" node (connect the two figure icons with drag & drop)

    c) Click "Compile" and "Save" and close the window

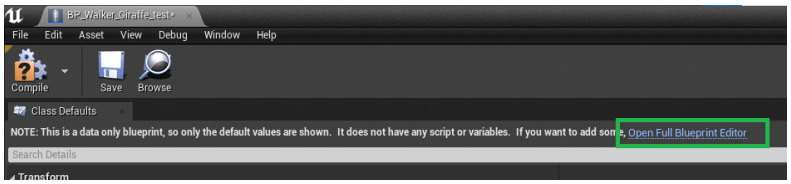


14) Navigate to carla/Content/Carla/Blueprints/Walkers

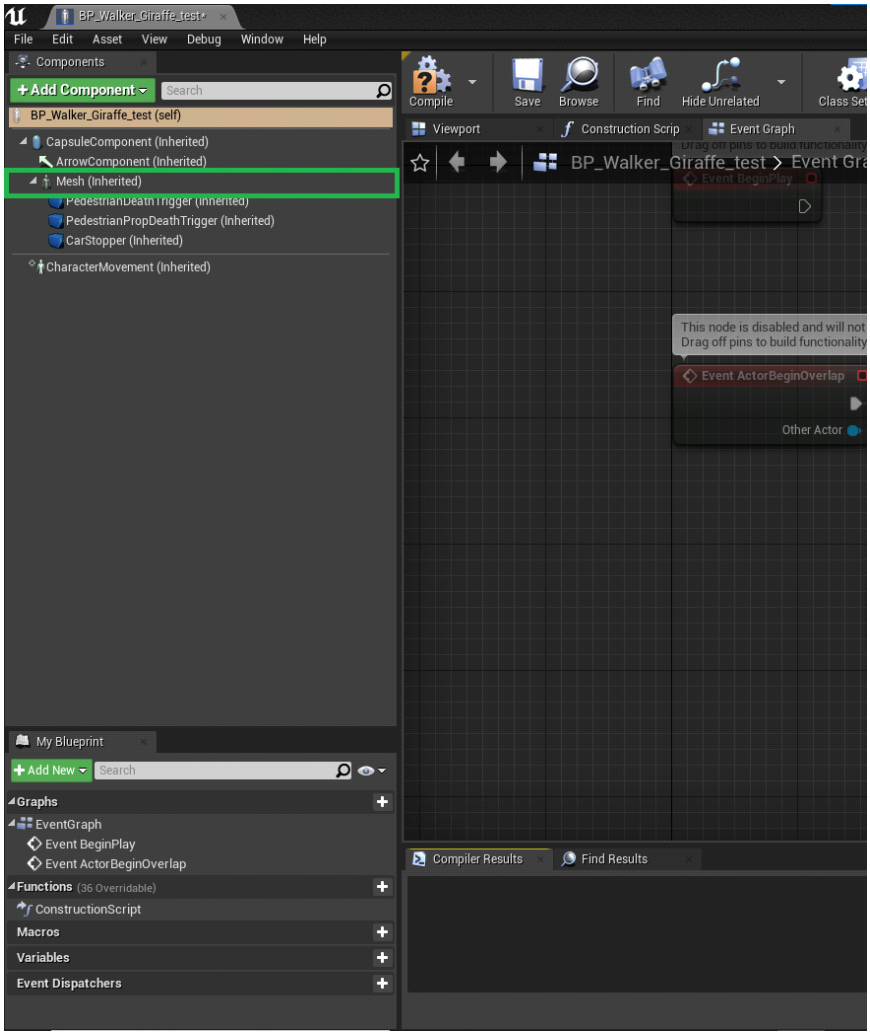
15) Duplicate one of the Walker blueprints and name it *BP_Walker_<AnimalName>*
Important: Don't use the first one (*BP_Walker*) since this is the parent Blueprint and has no movement integrated



16) Open the duplicated blueprint
(Sometimes the blueprint editor only opens in a reduced view. If necessary, click "Open full blueprint editor")



17) On the left in the component menu select the mesh component



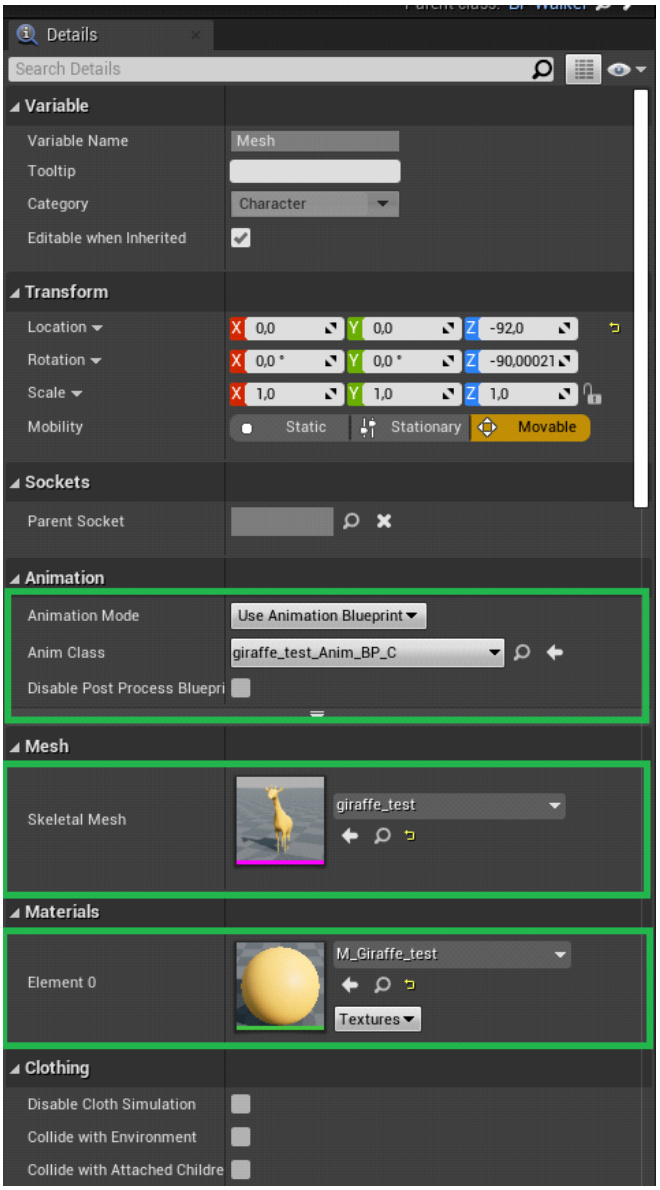
18) In the details menu on the right

a) change the skeletal mesh to the imported mesh ("<AnimalName>")

b) change the Material to the imported Material (M_<AnimalName>)

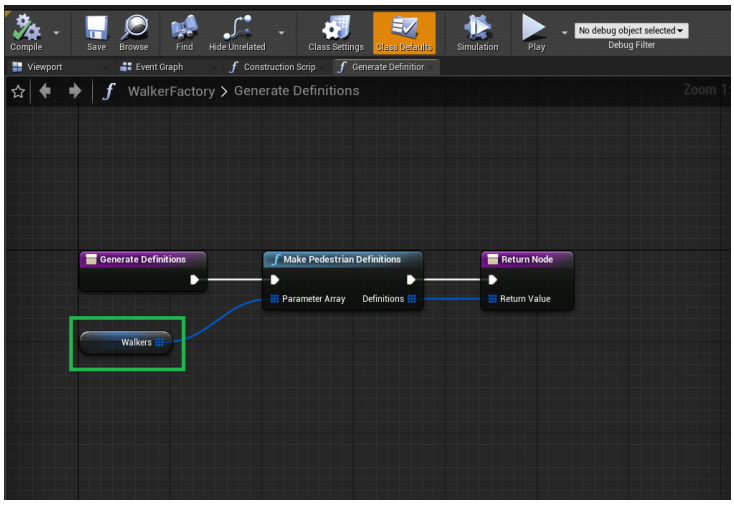
c) under *Animation* change the the Anim class to the previously created animation blueprint (*<AnimalName>_Anim_BP*)

d) Click "Compile" and "Save" and close the window



19) Inside the current Walkers folder open the *WalkersFactory*

20) In the "Generate Definitions" tab click on the *Walkers* node



21) In the details menu on the right click on the plus button to create a new element and open extend it at the bottom of the list

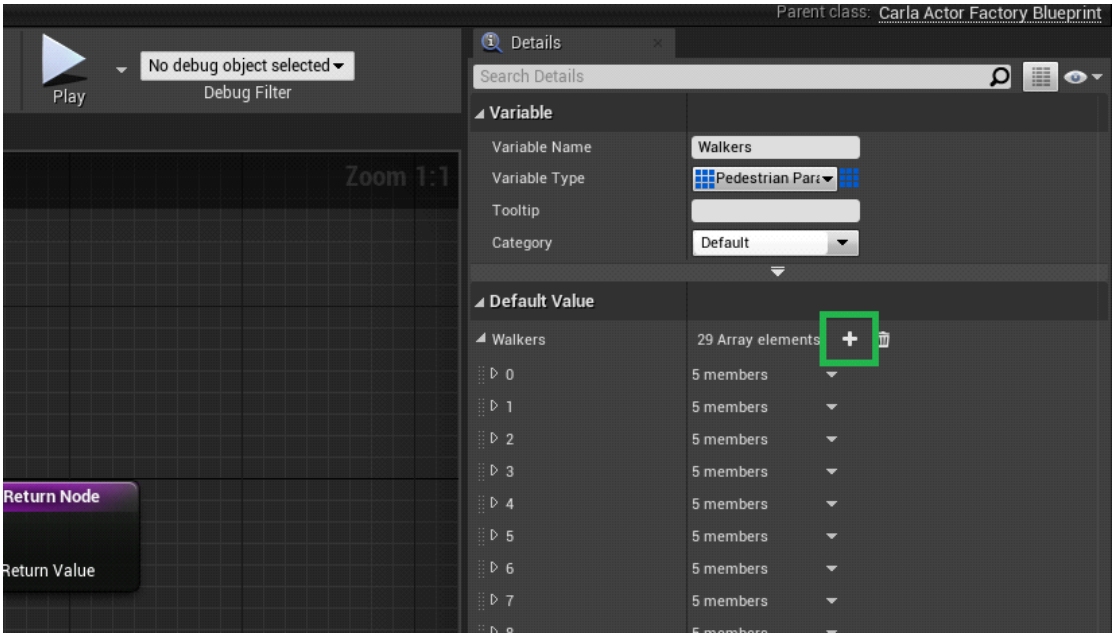
a) Enter a ID (this will be used to reference it for the spawning)

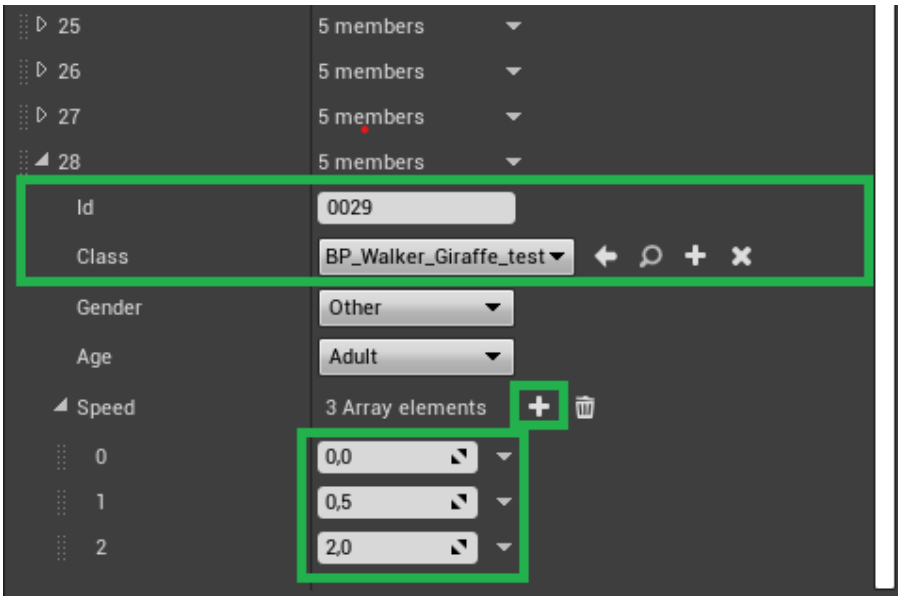
b) For *class* select the Blueprint of the animal (*BP_Walker_<AnimalName>*)

c) Under *speed* create three new values with clicking the plus button three times

d) Copy the values of one of the other elements in the list for now, you can adjust them later when testing spawning the animal and see what suits best

e) Click "Compile" and "Save" and close the window





Note: When exporting CARLA as a package: If assets get spawned but aren't visible, open the file *carla/Unreal/CarlaUE4/Config/DefaultGame.ini* and add the directory with the assets to be cooked during the packaging process
for example *+DirectoriesToAlwaysCook=(Path="/Game/Carla/Static/Animals")*