EASY POPULATION

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==========**PREPARATORY STEPS**==========

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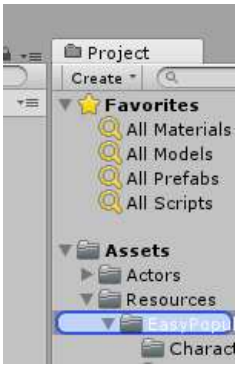
CHARACTERS

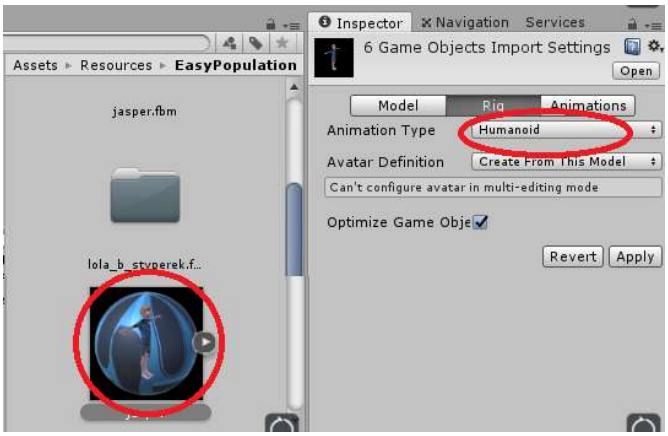
1- Prepare your characters. These should be previously rigged with at least 21 bones. Use your preferred modelling tool to do this step. Ideally use Mixamo.com, or the plugin from Manuel Bastionni Lab with Blender.

2- Import the package. This will import the animation assets and will create the required folder structure.

3.1- Import all the models of characters that you will need. These should be previously rigged and imported to the folder. **Assets>Resources>EasyPopulation**



3.2- Once you have imported the models, set their rigs as being the type **Humanoid** (Animation type=Humanoid, in the Rig separator of the animation settings).



4.1- If you need workers in your scene, import also the fbx models corresponding to their actions.

4.2- Set equally (as in 3.2) the animation type of these animations to be marked, as well, as Humanoid (in the Rig separator of the animation settings, set Animation type=Humanoid).

4.3- Define a unique name for each of these clips. These names are the identifiers that you will be using (In the separator Animations of the animation settings).

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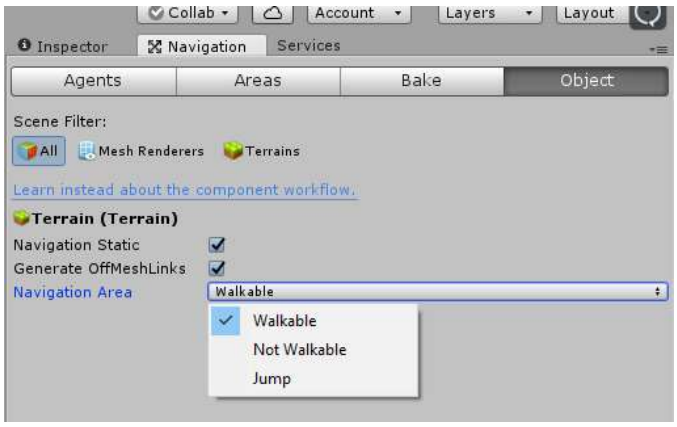
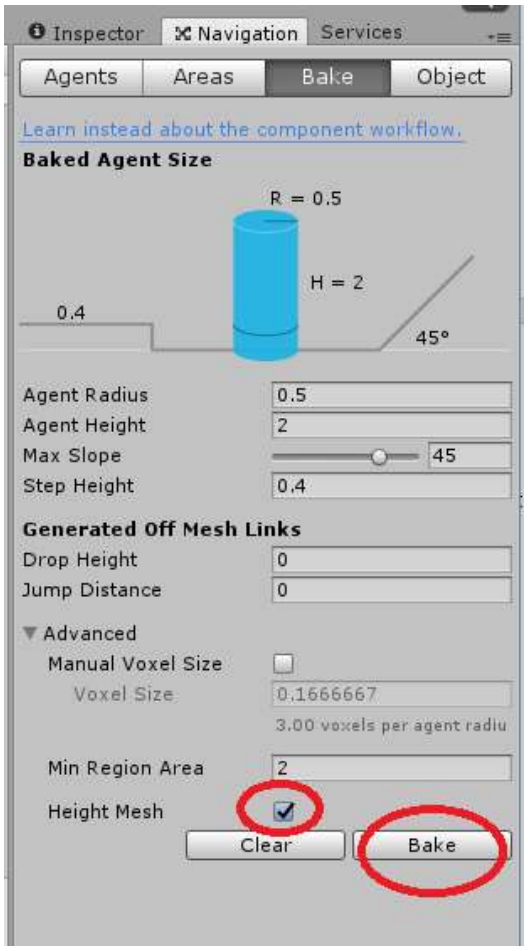
WALKABLE AREAS

1- Define the Navmesh (in Window>Navmesh) with the walkable areas of the terrain as well as the static obstacles. Simply, open the Navigation panel, and then in the Hierarchy panel, select each of the objects (you can select multiple objects in one go) and choose their respective status in the Navmesh panel.



2- Once this definition is complete, **Bake** the final Navmesh with Height Mesh included.


Inspector
Navigation
Services
Agents
Areas
Bake
Object
Learn instead about the component workflow.
Baked Agent Size
R = 0.5
H = 2
0.4
45°
Agent Radius
0.5
Agent Height
2
Max Slope
45
Step Height
0.4
Generated Off Mesh Links
Drop Height
0
Jump Distance
0
Advanced
Manual Voxel Size
Voxel Size
0.1666667
3.00 voxels per agent radiu
Min Region Area
2
Height Mesh
Clear
Bake

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========= ========= =========**CREATE THE POPULATION** ========== ==========
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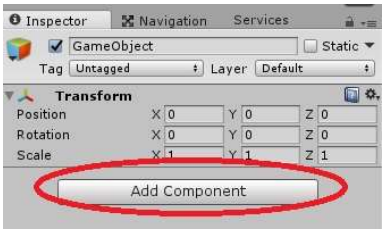
Be sure you have completed the preparatory steps

*Create the AI generator *

5.1 - Create an **empty gameObject** (GameObject> Empty).

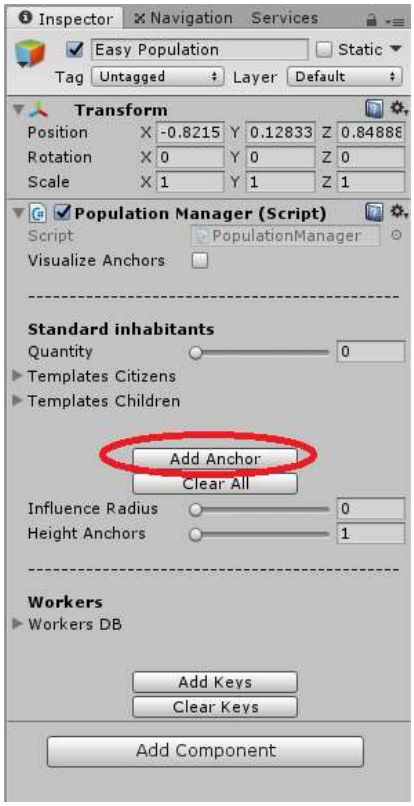
5.2 - Then, add a script component: **Population Manager**.



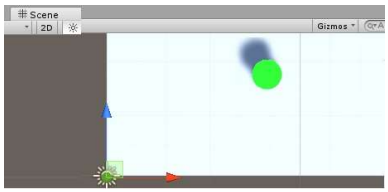
Define the interest points (anchors) -

this is where individuals will appear and will constitute locomotion waypoints

6.1 - Add an anchor to the scene (Press **Add anchor** and **click on the scene**)



When the button is pressed the focus changes to the Scene panel, where the mouse drags an anchor until you click to define its final position.



Note that after the definition of each anchor, there is need of selecting again, in the Hierarchy panel, the gameObject EasyPopulation to access the configuration settings.

6.2 - You can calibrate the radius of the area where character will show up, with **influence radius**.

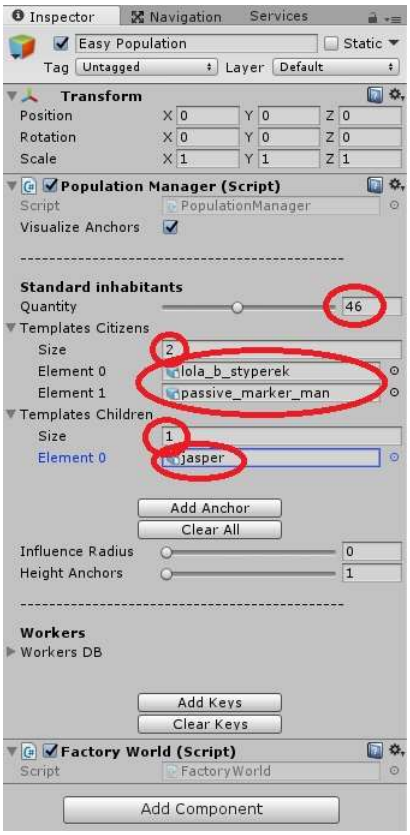
6.3 - You can also calibrate the height of the anchors with the **Height** Anchors

6.4 - Anchors can be hidden, when **Visualize Anchors** is unchecked.

*Define the characters constituting the population *

7.1 - In **Quantity**, define the total amount of character that you will need.

7.2 - In **Templates Citizens**, assign the models of adult characters prepared in 3.2. Say how many templates you will be using and specify their models.



7.3 - In **Templates Children**, assign the models for children, prepared in 3.2. Say how many templates you will be using and specify their models.

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==========**HOW TO CREATE A *SINGLE STATE* WORKER?** ==========
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==This is a worker (or group of workers) performing the same repetitive action in one spot =======
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Make sure you have completed steps 3.2, 4.2 and 4.3

Define location

8- Add an **Anchor Key** to define where the character or group of characters will show up. Press Add Keys, and place the anchor in the desired location in the stage.

Configure new class of individuals

9- Create a new class of individuals by adding one unit to the list of the database of workers (WorkersDB>List)

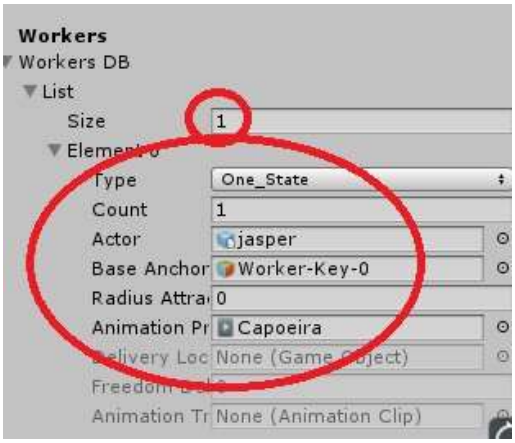
10- Define the **type** of this class to be **ONE-state** (this means one single looping animation)

11- In **Count,** specify how many characters you want at this place

12- In **Actor**, specify the model you want to use

13- Define where it will show up, dragging the anchor placed at step 8 to **Base Anchor**.

14- In **Animation Producer**, define what clip will you be using as animation (make sure this is marked as humanoid, as specified in step 4.2).



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==========**=HOW TO CREATE A *TWO STATE* ACTION WORKER?** ==========
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==This is a worker performing one action in one spot, then walking to a second spot and performing a second action over there. Then, when finished this second action, he returns to the first spot and repeats ========== ========== ========== ========

Be sure you have completed the steps 3.2, 4.2 and 4.3

Define locations

14- Add two Worker anchor **Keys** to define where the character(s) will show up and where he/they will move to.

Configure new class of individuals

15- Define type as **TWO-state**

16- Specify how many characters you want at this place, in **Coun**t.

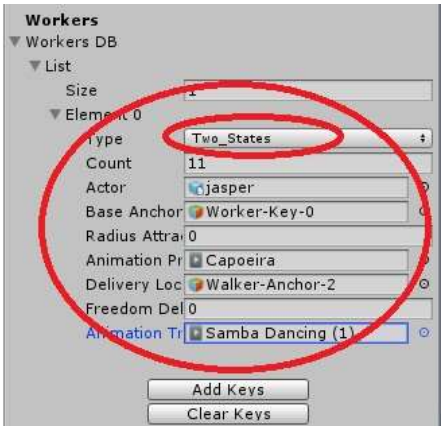
17- Specify the model you want to use, in **Actor.**

18- Specify where it/they will show up, dragging the first anchor defined at step 14 **to Base Anchor.**

19- In **Animation Producer**, define what clip will you be using for the initial stage (make sure this is marked as humanoid, as specified in step 4.2).

20- Define the second location where this character will be moving, after completing the animation of state 19. To do this, drag the second anchors placed at step 14 to **Delivery Anchor**.

21- In **Animation Transaction**, define what clip will you be using for the delivery stage (make sure this is marked as humanoid).



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Disclaimer

This project is free for use in research and educational projects. If you publish results obtained using this data, we would appreciate if you would send the citation to your published paper to rfantunes@fc.ul.pt, and also would add this text to your acknowledgments section:

The animation generator was created with funding from the European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant agreement No 655226. *Some of the motion data used in this project was obtained from mocap.cs.cmu.edu, and rigged with Mixamo.com. The database was created with funding from NSF EIA-0196217*.

Citation

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