Third Person Controller – Basic Locomotion

(v2.3.1 - 20/06/2018)

Thank you for support this asset, we develop this template because a lot of developers have good ideas for a Third Person Game, but build a Controller is really hard and takes too much time.

The goal on this project was always to deliver a top quality controller that can help those who wants to make a Third Person Game but are stuck trying to make a controller.

With this template, you can setup a 3D Model in just a few seconds, without the need of knowing hardcore code or wasting time dragging and drop gameobjects to the inspector, instead you can just focus on making your game.

--- Invector Team ---

Ps This Documentation is for the **Basic Locomotion**, there is another for the Melee Combat and Shooter in their respective folders.*

Summary

FIRST RUN

IMPORTANT

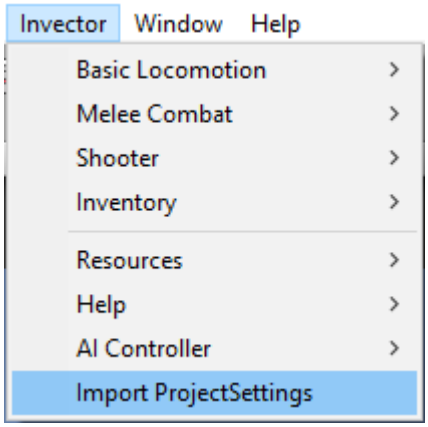
This is a **Complete Project**, and as every complete project it includes a custom **InputManager**, **Tags**, **Layers**, etc… **Make** sure that you import **on** a **Clean Project**.

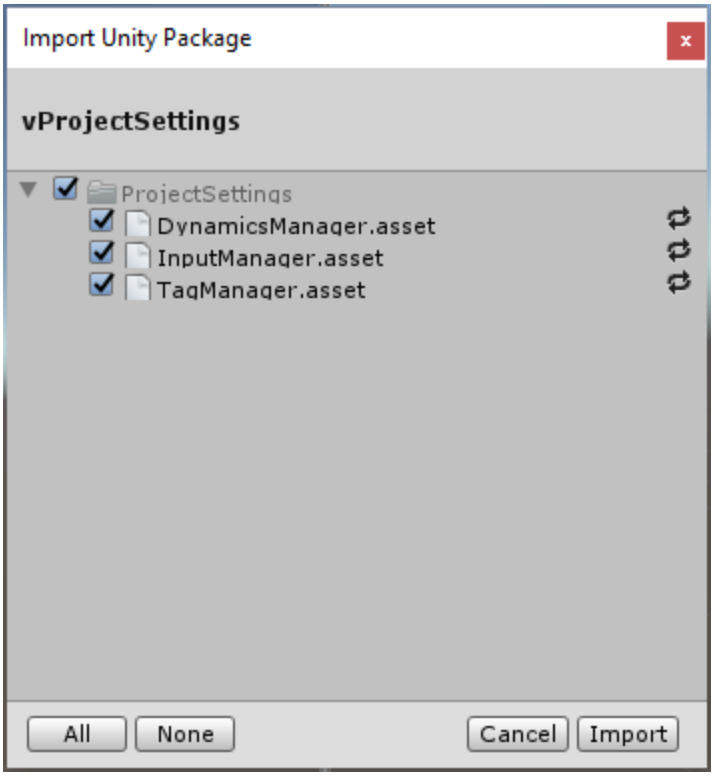
- *Importing on an existent project*

There are basically 3 files that are extremely necessary to the function of the template.

- DynamicsManager.asset - this will apply correct all the Collision Matrix of our Layers, for example we need the layer "Triggers" to not collide with the layer "Player".
- InputManager.asset - We have a custom input mapped with the Xbox360 controller, if you don't input those 2 files, the template will present erros and undesire behaviour.
- TagManager.asset - Includes all the necessary Tags and Layers for the project to work correctly.

You can manually import those files by going to the tab Invector > Import ProjectSettings.



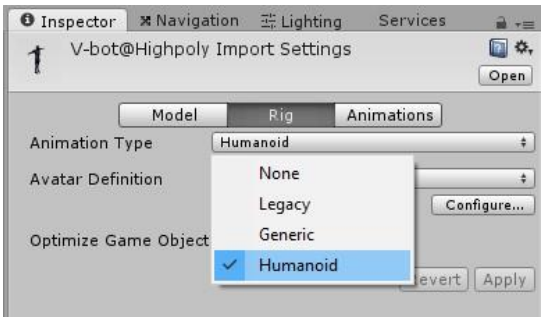


Now that you have imported the necessary files, you can explore the several demo scenes and figure it out what kind of Third Person Game you want to create.

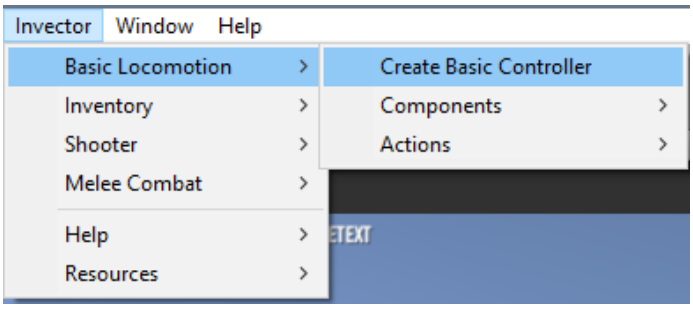
***Updates also need to be imported into a Clean Project, so MAKE SURE TO BACKUP your previous project and transfer the necessary files to your new project. ***

CREATING A CHARACTER CONTROLLER

Make sure that your fbx character is set up as **Humanoid**

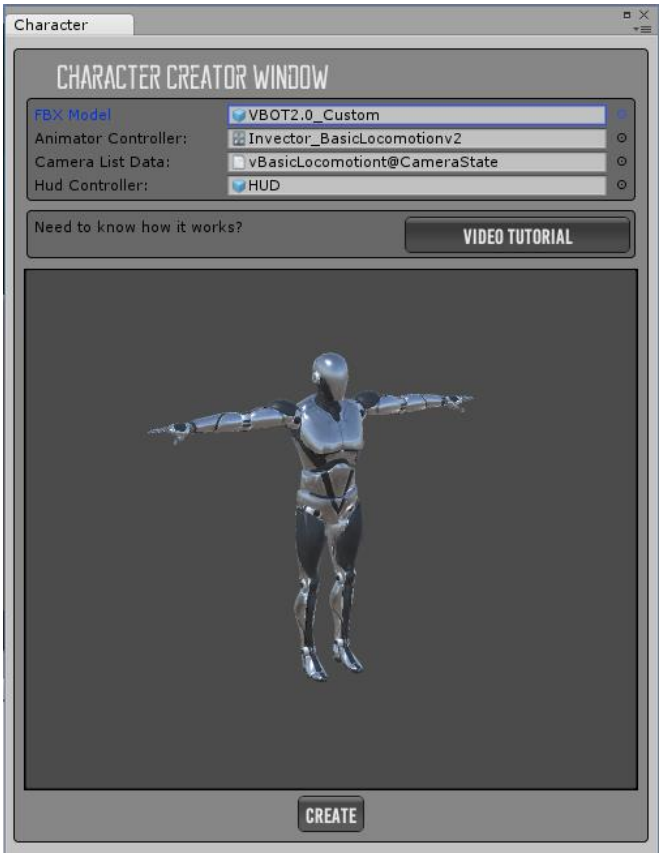


To setup a new character, go to the tab *Invector* > *Basic Locomotion* > *Create Basic Controller*

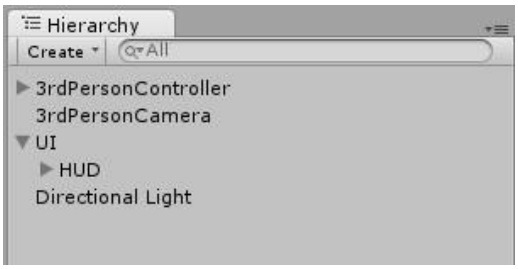


Make sure your Character is **Fully Rigged** and set up the FBX as a **Humanoid**, then assign the FBX to the field "FBX Model", the AnimatorController and CameraListData you can click the little circle icon and a window will

appear with the necessary files pre-filter. Click on the button “Create” to finish the character.



The **Character Creator** window will take care of all the hard work automatically and set up components such as capsule collider, layers, tags, rigibody, etc... It will create the **ThirdPersonController**, **ThirdPersonCamera** and a UI Canvas with a **HUD** to display health, stamina and other information’s.



Your Capsule Collider settings will be based on your model proportions, if the capsule gets the wrong size, make sure that you rig is correct, and that your **model is using the correct Scale Factor** the same goes if the ragdoll **gets** weird.

Hit Play and enjoy ☺

TOPDOWN / 2.5D / CLICK TO MOVE CONTROLLER

To turn your Third Person Controller into a TopDown or Isometric controller just go into your ThirdPersonCamera and change the CameraState to **TopDown@CameraState, Isometric@CameraState or 2.5@CameraState** depending on what controller you want.

Go to the folder *Basic Locomotion\Scripts\CharacterController\Examples* and replace your current **vThirdPersonController** component for the **vTopDownController** or **2_5Dcontroller** in the Player Inspector.

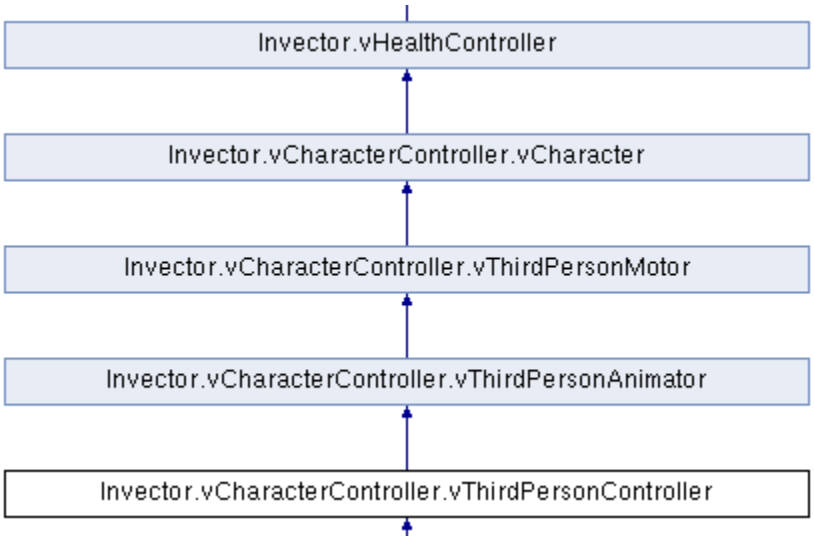
In order to the **TopDown Strafe** mode to work correct, don't forget to UNCHECK the "**Rotate to Camera While Strafe**" option in the **InputManager** Inspector.

To use the **ClickToMove** you can still use the vThirdPersonController, but you will need to replace the Input to **vClickToMoveInput**, for more information check the vClickToMove-Demo scene.

And for the **2.5DController** check the 2.5Demo scene, you will need a 2.5Path to navigate.

HOW IT WORKS?

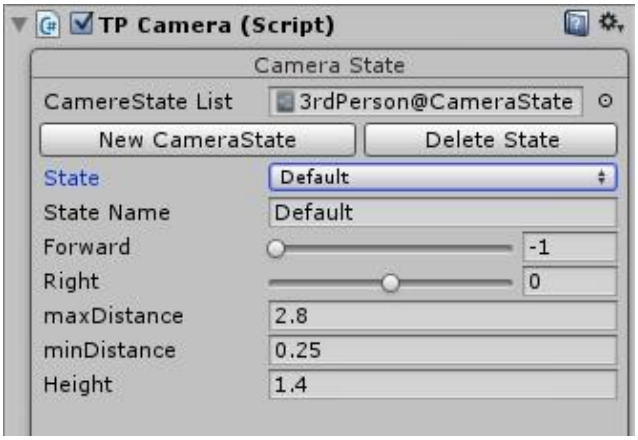
The Controller works with **six main scripts**:



1- **vHealthController** takes care of Health/Stamina and has the method TakeDamage to apply damage.
2- **vCharacter** - it prepares the vHealthController to be a vCharacter using our animator parameters, ragdoll and action system.
3- **vThirdPersonMotor** handles all the information of rigibody, colliders, verifications of ground distance, stepoffset, slope limit, etc…
4- **vThirdPersonAnimator** is responsible to control the behavior of animations
5- **vThirdPersonController** manage methods like sprint, crouch, roll, jump, etc…
6- **vThirdPersonInput** receives all the input and call every method of the other scripts on Updates.

CREATING A NEW CAMERA STATE

In the Third Person Camera you can create new CameraStates to manage different values, states like “Default”, “Aiming”, “Crouch”, to set up new camera position, distance, height, etc.



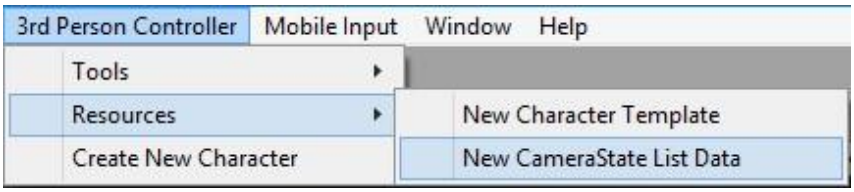
Then just change the CameraState on the method ControlCameraState() on the script TP_Motor.

Example:

if(aiming) tpCamera.ChangeState ("Aim", true);

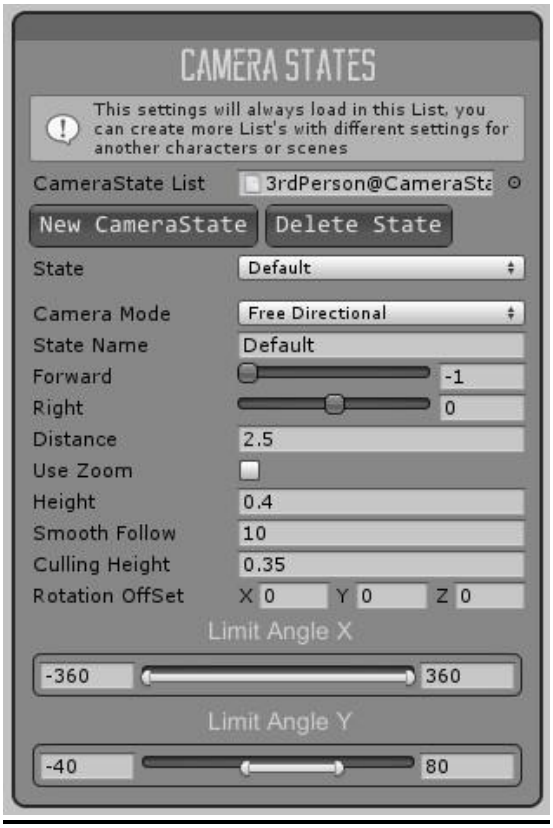
The first string value is the State Name that you created on the Camera Inspector, the second value is a bool, leave it true if you want a smooth transition to this state or false if not.

If you have more than one character and want to use different States, you can create a new **CameraState List Data** here (pic below) and assign on the CameraState List field on TP Camera Inspector.



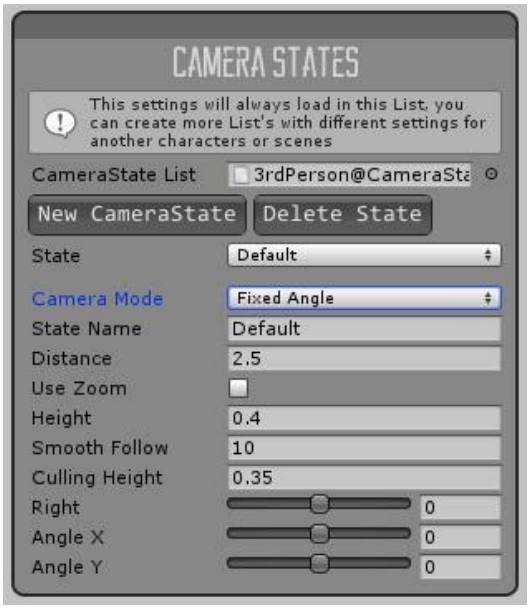
CameraMode - Free Directional

This CameraMode offer a free directional – orbital around the character, with a lot of options to customize and make over the shoulders, or above the character, zoom (mouse only) etc…



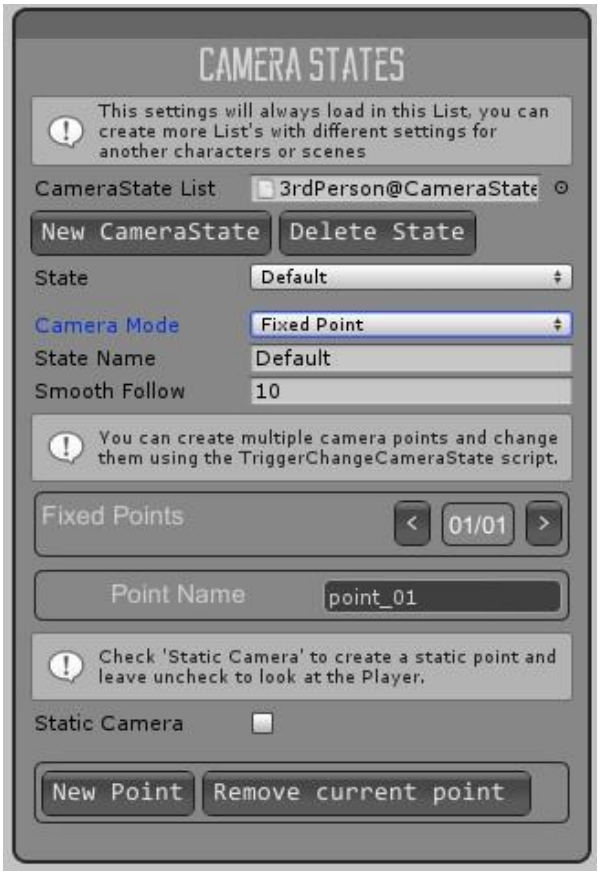
CameraMode - Fixed Angle

This is a feature to use for Isometric or Topdown games, you can set up a fixed rotation for the camera and make games like Diablo or MGS 1.

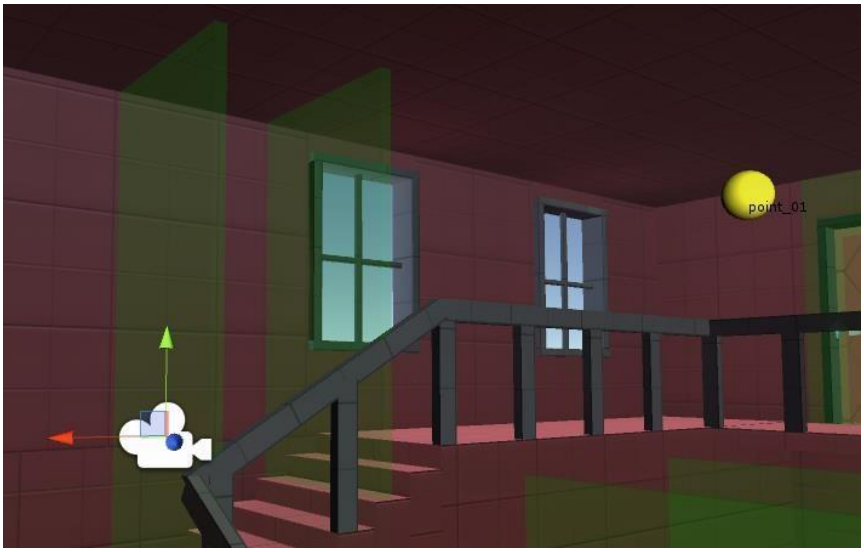


CameraMode - Fixed Point

Fixed Points are states that you can create to use the Camera as a CCTV mode (Oldschool Resident Evil series), this state will follow the character by default or you can check Static Camera to make it fixed.



You can also create multiple points and change with the **TriggerChangeCameraState** that has an option for smooth transition between points or not. *always leave a safe-space between triggers


point_01

XBOX CONTROLLER SUPPORT

This package works great with the **360 controller** and supports **vibration** (Windows only), make sure you compile your build according to your system. If you are using Windows 32bits make sure the build settings are set to x86 or if you are using Windows 64bits make sure the build settings are set to x86_x64.

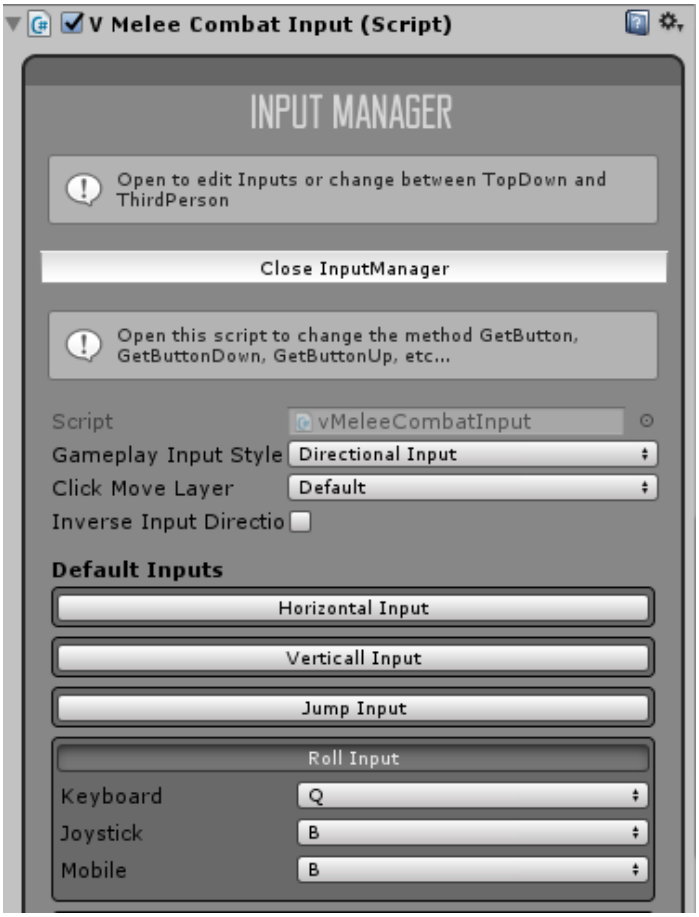
To apply the vibration, you can call the method by SendMessage to the player, for example:

target.SendMessage("GamepadVibration",0.25f,SendMessageOptions.DontRequireReceiver); The float value is the duration that you want for the vibration to last.

V1.1 add support for MFi iOS gamepad.

INPUT MANAGER

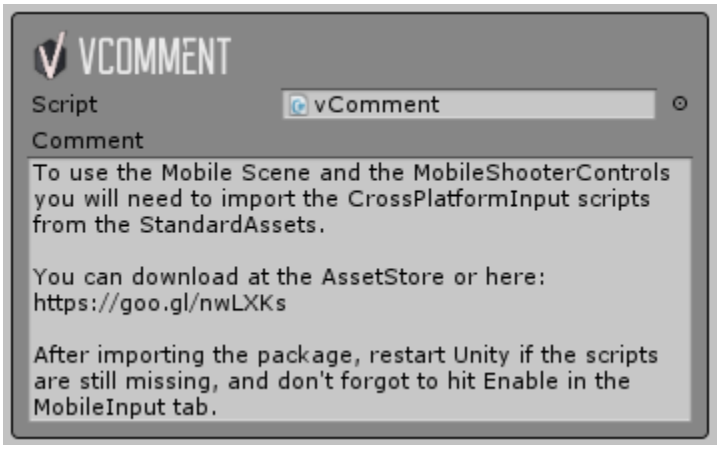
We have a InputManager so you can change the input of the character actions and movement.
If you created a Basic Locomotion it will use the vThirdPersonInput, if it's a Melee Combat character it will use the vMeleeCombatInput, and the Shooter uses the vShooterMeleeInput.



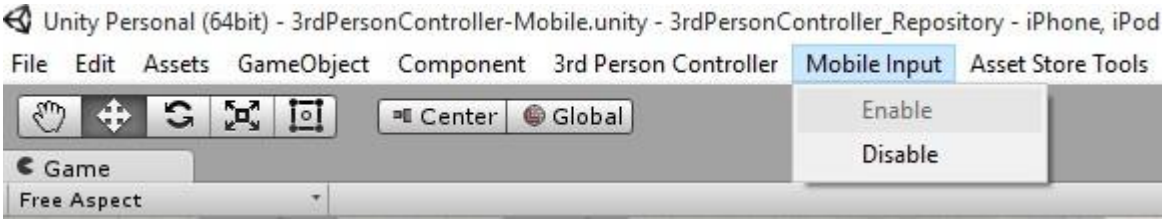
MOBILE CONTROLS

Since the release of the Shooter Template, we have to remove all content of the **StandardAssets** from our project, and since we need some files from the **CrossPlatformInput** in order to the Mobile Controls work, we have to separated those files into a package, you can [DOWNLOAD HERE]

This information is also available in the Mobile Demo Scene, in the hierarchy we add the gameObject "**___README FIRST!!!**"



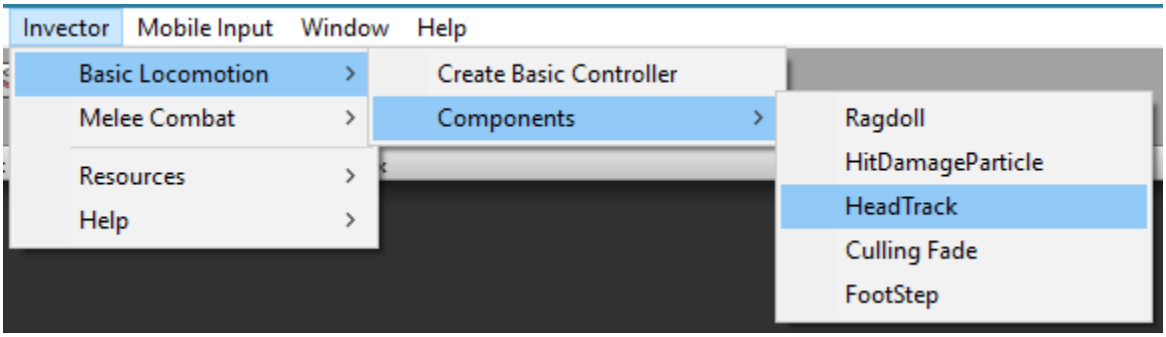
After importing the package, change your platform to **Android** or **iOS** on the **Build Settings** and make sure you have the **SDK** installed and don't forget to **Enable** the Mobile Input after change the platform, it should work right on the Editor.



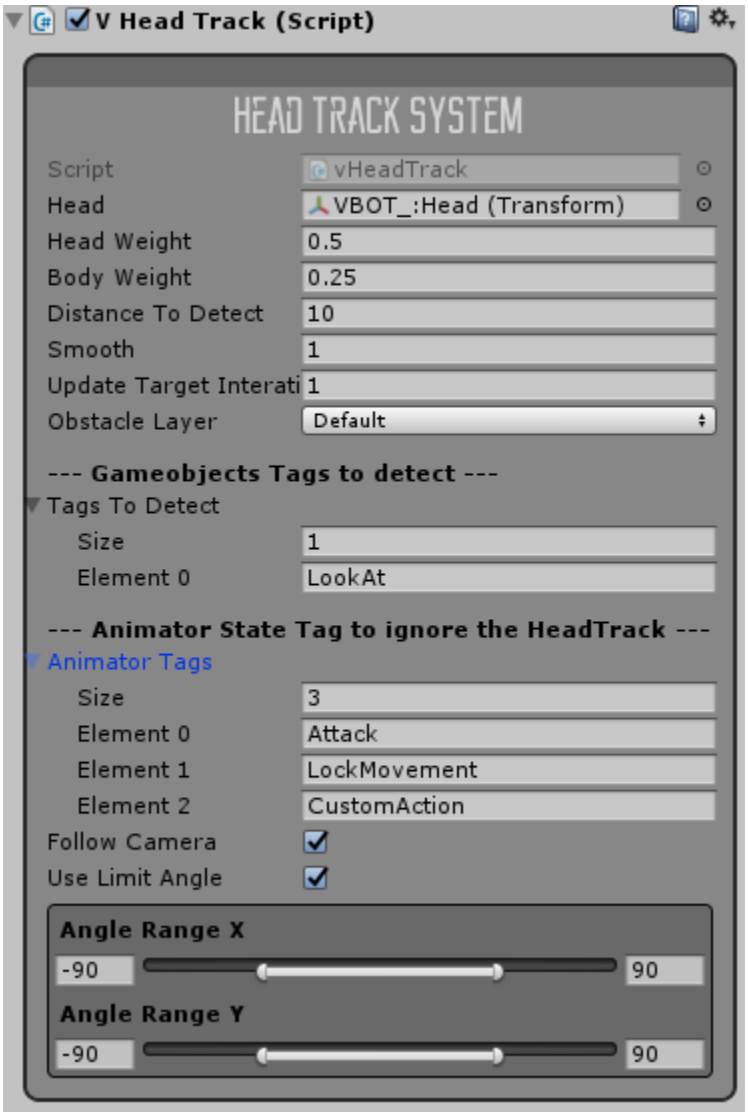
In order to have a **stable performance** on mobile devices, we recommend **compress all your textures**, set the **Quality Settings to Good or Simple**, and remove any **Camera Effects.**

HEAD TRACK

ADD V2.0 - Now the Headtrack is a separated component and you need to add manually:
*__Shooter__ – automatically add's the headtrack in order to aim up/down

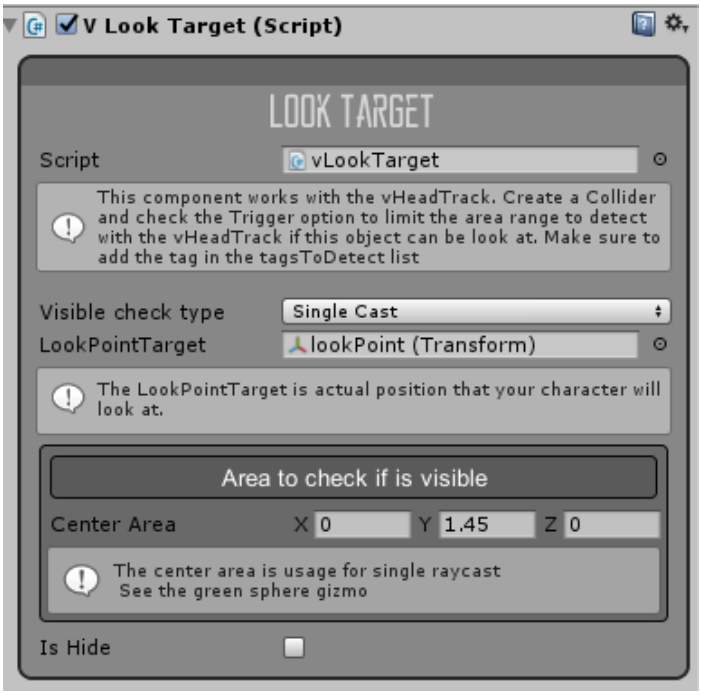


Now we have a lot of more options and we can use the LookAt feature as well.



If you don't want the HeadTrack in a specific animation, you can add the Tag CustomAction into the animationState and the headtrack will turn off while this animation is playing.

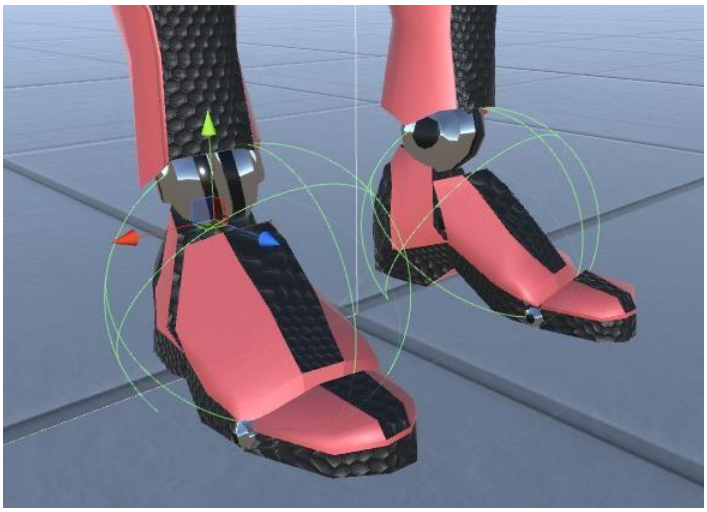
To make the character look at an object, you need to add the component vLookTarget into the object, you can take a look at several examples in the DemoScenes.



FOOSTEP AUDIO SYSTEM

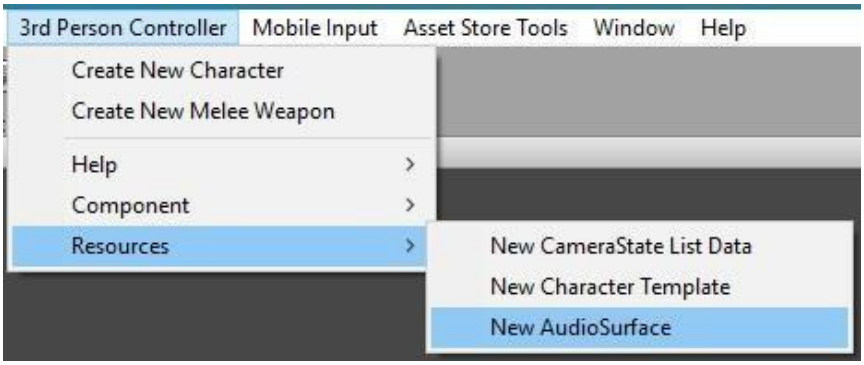
Video tutorial: *https://www.youtube.com/watch?v=gxesgNH0UBM*

When you create a new Character the FootStep component will be already attached, if you want to add a component into another Character go to the *3rdPersonController Menu* > *Component* > *FootStep*. The component will automatically create a **sphere collider** on the foot of your character, but you need to make sure that the Radius and Position of the sphere is **touching** the ground.



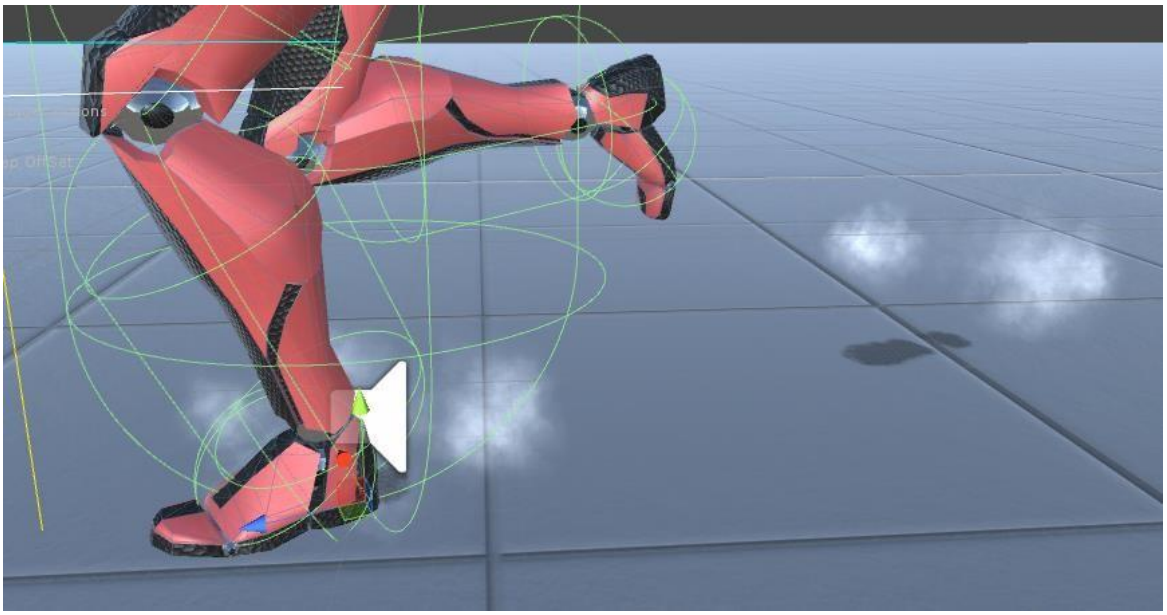
You can select the **LeftFoot** and **RightFoot** Sphere and manipulate the **Center XYZ** to position as you like, and change the **Collider Radius** too, the size of this sphere will depend on your Rig bone size. Assign the "***defaultSurface***" that comes with the package to have an example of how it works.

To create a new AudioSurface go to the 3rd Person Controller menu > Resources > New AudioSurface.



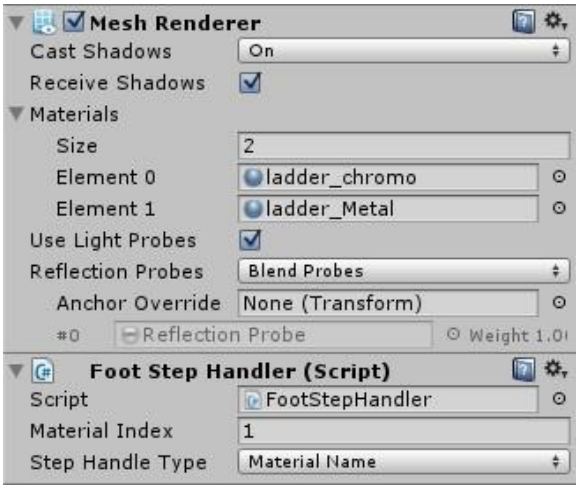
Now you can create **Custom Surfaces**, to play other audioclips based on the **material** that the sphere collider will hit. Assign the new CustomSurface to a new CustomSurface on the FootStep Inspector.

You can assign a **AudioMixer** for better control the surfaces, and you can instantiate a **Particle** as well, see the example on the DefaultSurface call ‘smoke’ that also uses a **StepMark** sprite call SimpleStepMark.



V1.1 Using the FootStep system in objects with multiple Materials

If your gameobject has multiple materials and you need to play a specific material, you can use the FootStepHandler script and set the correct Material Index of your object. (*See example on the Ladder prefab)

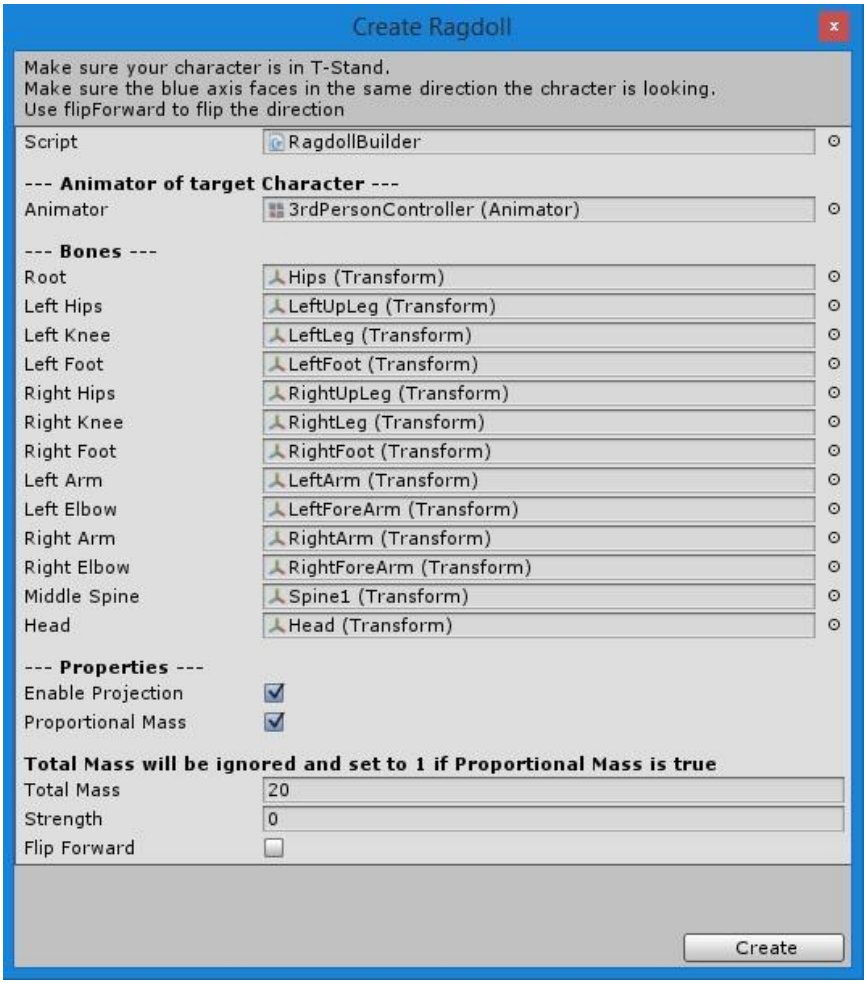


CREATING A RAGDOLL

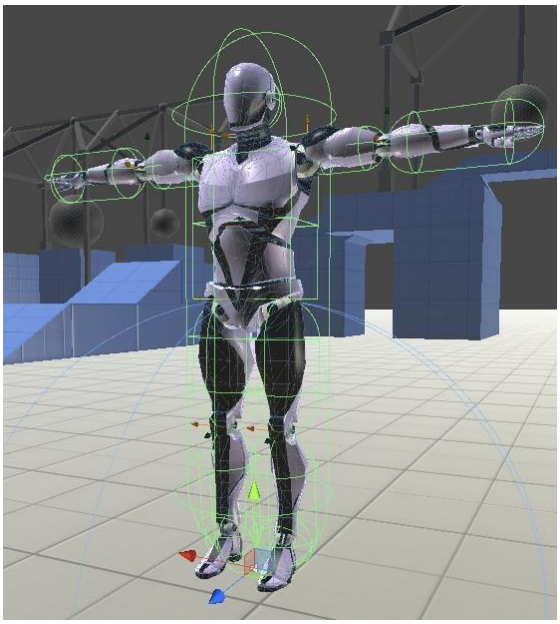
Ps* Make sure to add the Ragdoll First and then equip the character with the MeleeManager and Weapons!

Creating a Ragdoll is just easy as creating your Character, just go to the tab *Invector* > *Basic Locomotion* > *Components* > *Ragdoll*.

If you have your character selected on the Hierarchy, all the fields will **autofill**, if not, just click on your character and it will autofill for you, this template was design to **save time**, so you don't have to waste your time dragging and drop every bone, instead just hit the "Create" button and it's ready to go.

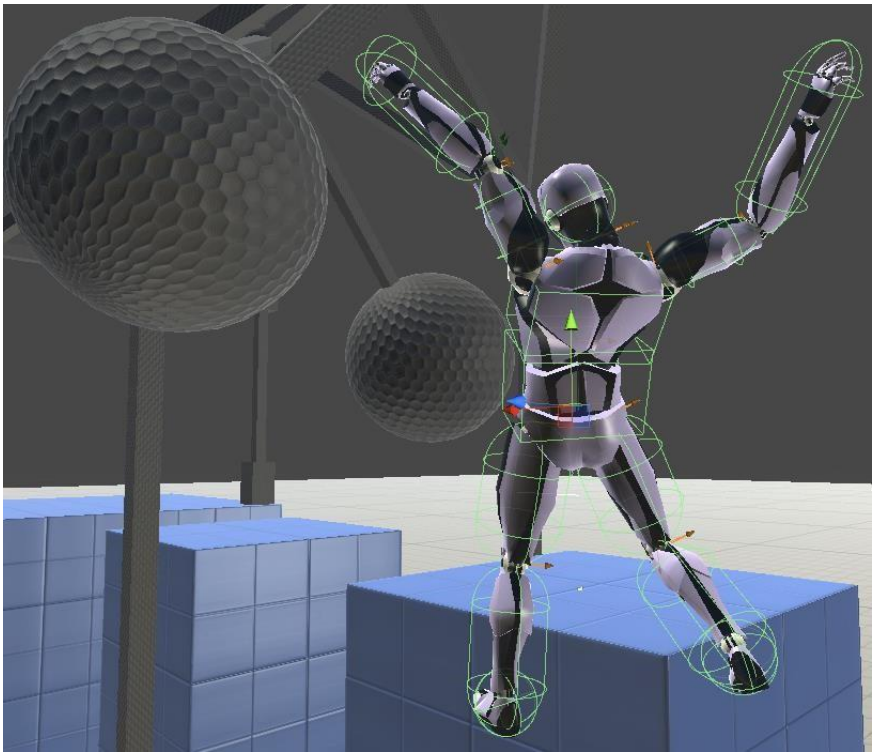


We strongly recommend keep the **Enable Projection** and the **Proportional Mass** enabled, and do not forget to use **Scale Factor 1** on your **fbx** Model. This you provide better behavior of your ragdoll.

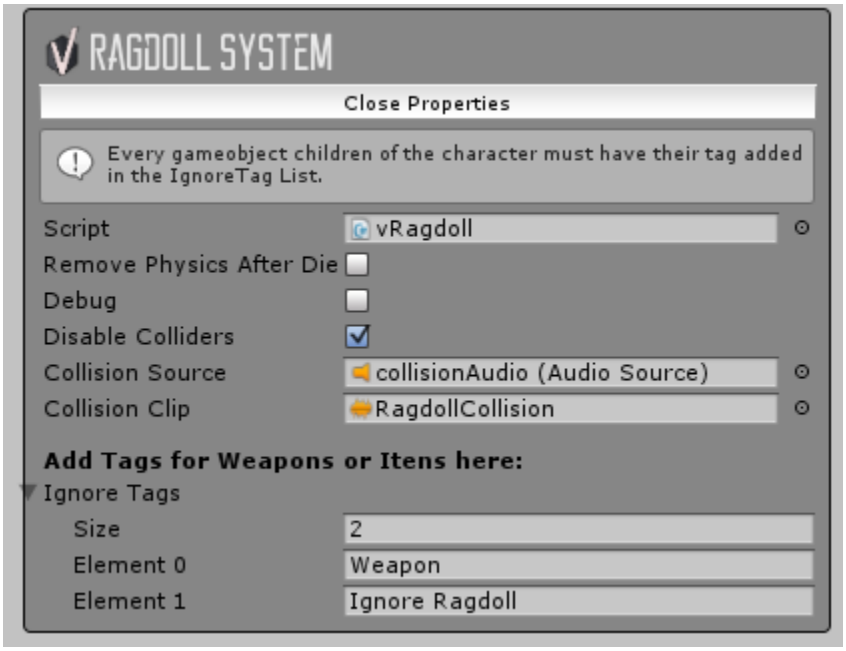


To enable the ragdoll, you can use the Script **ObjectDamage** or just call this line on the **OnCollisionEnter** method.

hit.transform.root.SendMessage ("ActivateRagdoll", SendMessageOptions.DontRequireReceiver);

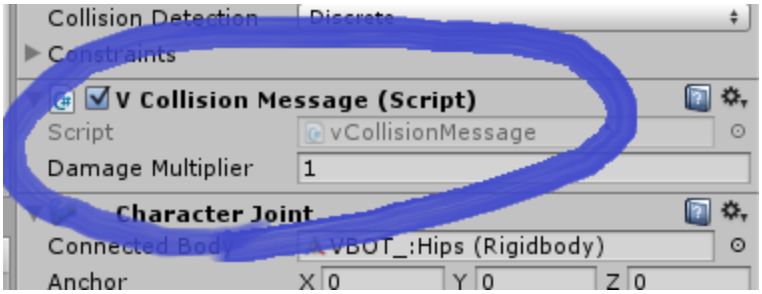


v1.1b – Add "***Ignored Tags***" you can add a list of tags for objects that are children of the Player to keep the rotation correctly, otherwise it will mess up the rotation when the Ragdoll are on.



*** SHOOTER >** If you want to cause damage for each body member using the ragdoll colliders, UNCHECK the "Disable Colliders" and you can add damage multiplier on each member.

Ps* Don't forger to add the Layer "BodyPart" for each collider.



HOW TO ADD NEW ANIMATIONS/ACTIONS?

We have 2 excelent video tutorials showing example on how to add simple and complex animations

Simple > https://www.youtube.com/watch?v=VVqkSlQ4x2M

Complex > https://www.youtube.com/watch?v=hlLWnsIQz-c

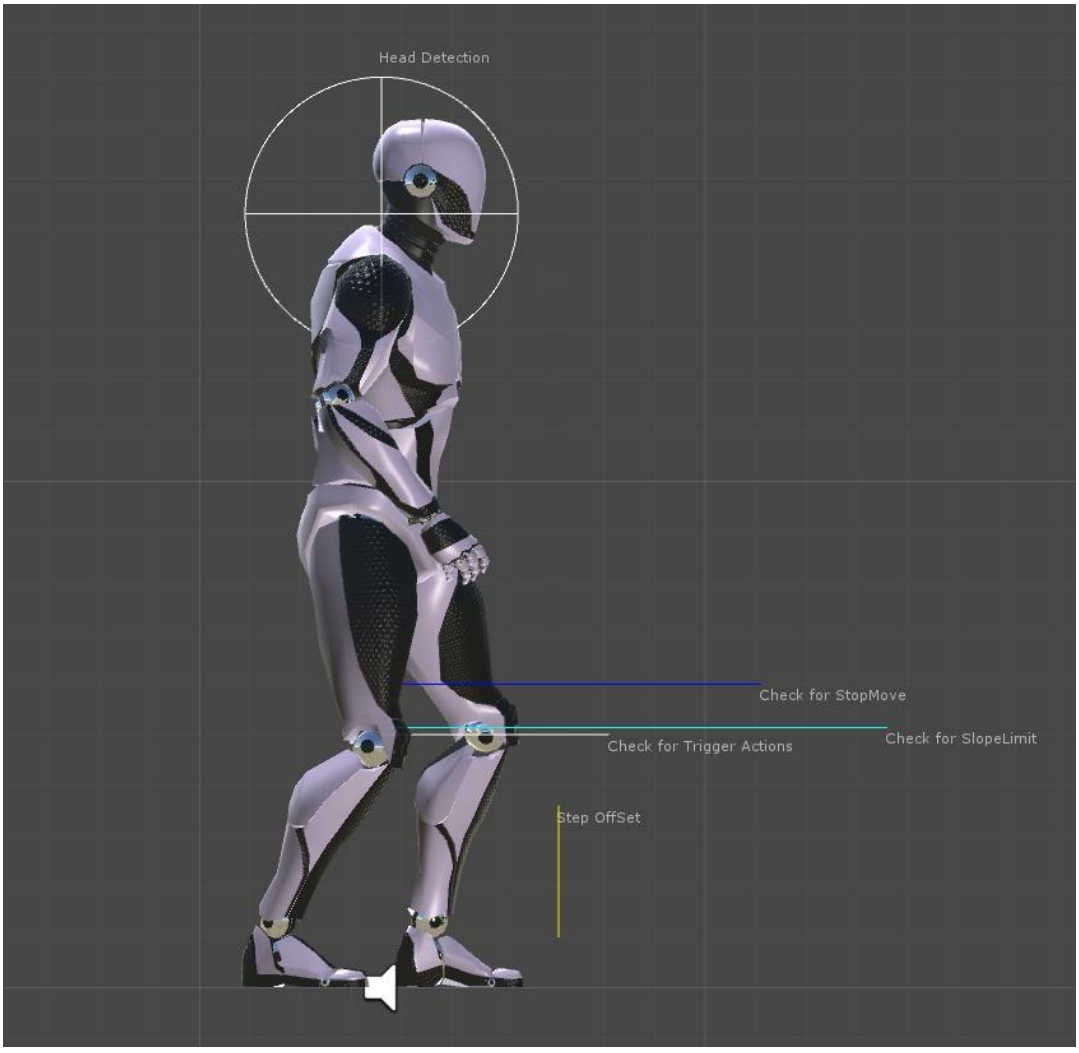
RAYCAST CHECKERS

Head Detection is a SphereCast that will detect if has an object above, and keep the character crouched, use the same layer as the Ground Layer (Default). Just adjust to sync with the height of your capsule collider.

StopMove is a Raycast that detect any object with the layer (Default, StopMove) to prevent the character to walk in place, you can use a StopMove in an invisible wall for example, and the camera will not clip, because the culling layer is set to “Default”.

SlopeLimit will prevent the character of walking in absurd angle heights, float customizable on the Player Inspector.

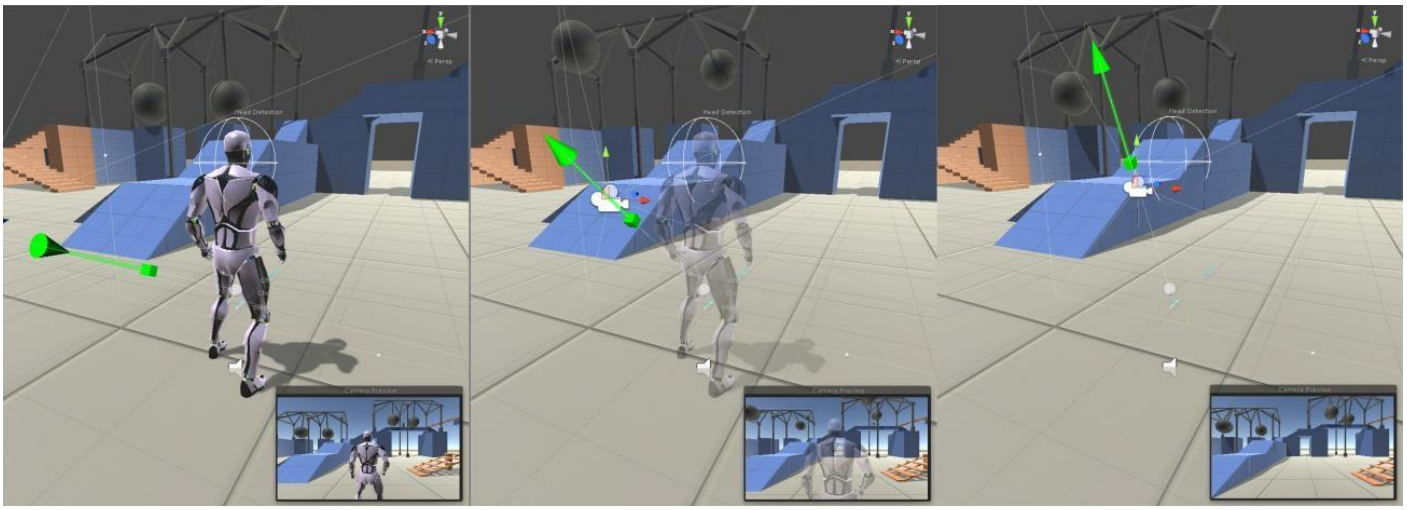
StepOffset is to help the character walk in custom height steps, adjust the values on the Player Inspector.



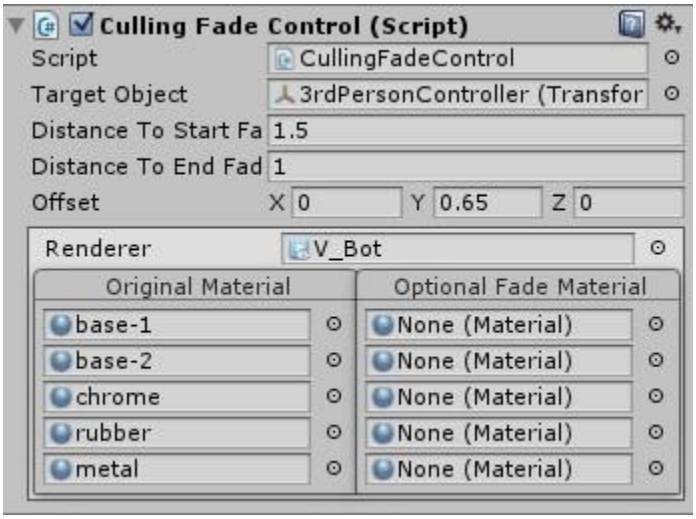
CAMERA CULLING FADE

We add a Culling Fade script for the camera to avoid see through the character's mesh, you can set up the distance to start fading and an offset.

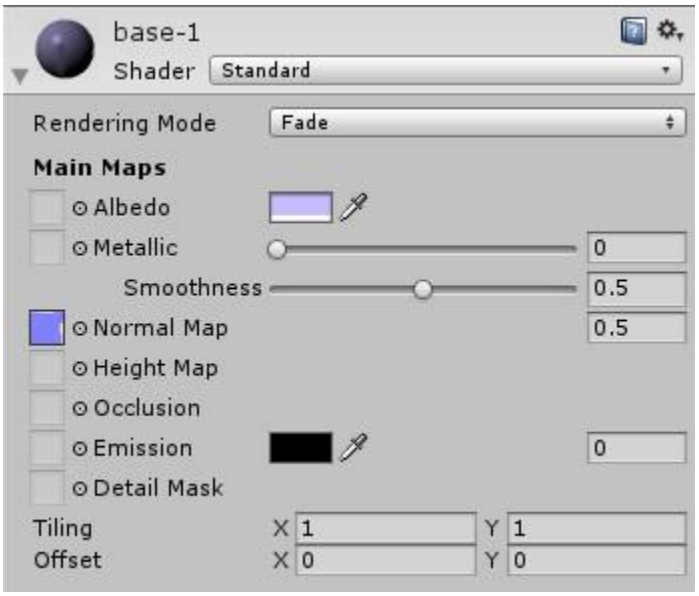
Example:



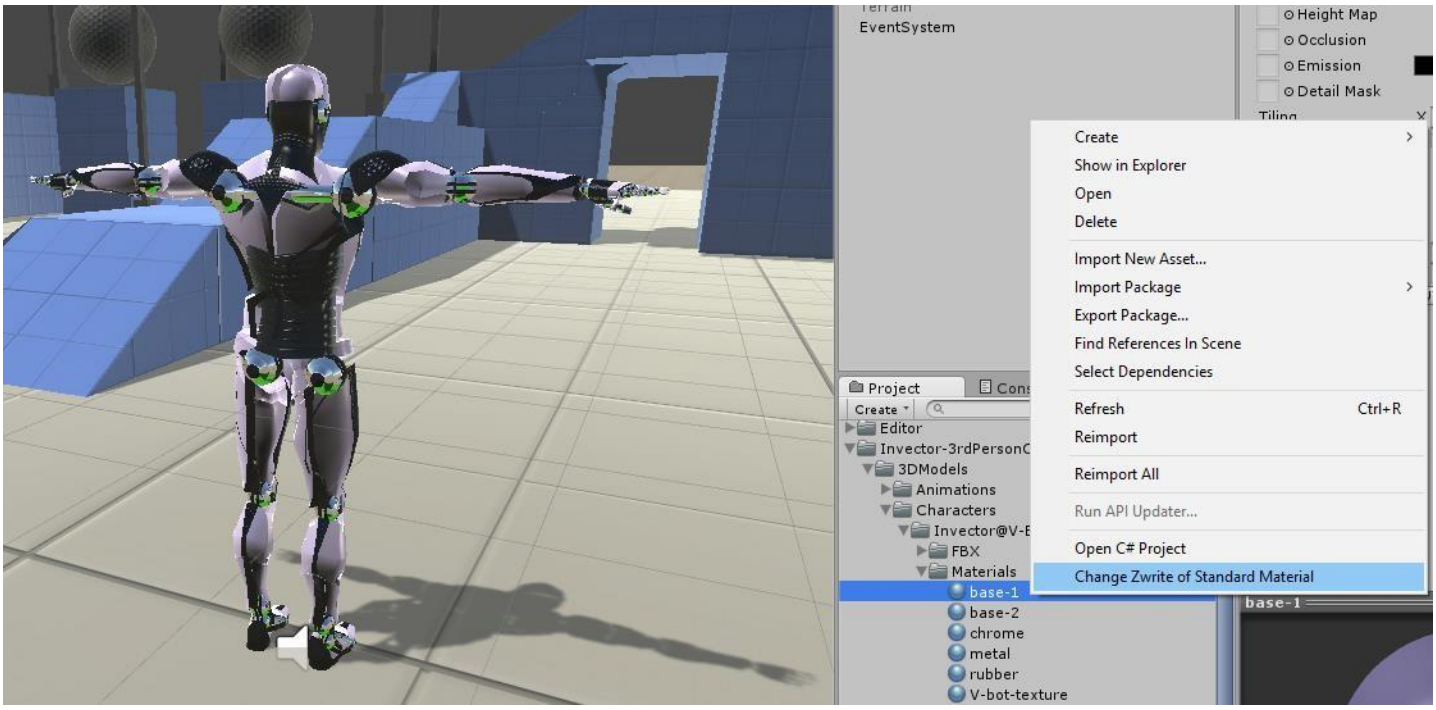
Our Culling Fade will set up automatically for the default Stardard Shader of Unity's, but you also can use custom shaders, just make an additional copy with the fade material and assign in the "Optional Fade Material" field.



If you are using the Standard Shader, just select the Rendering Mode “Fade” on the Material.



The character will look like this (picture below) but you can fix by right clicking at the material and “Change Zwrite of Standard Material”.



UPDATE V1.1B – now the script will be attached into the Controller just like the Ragdoll and the Footstep, It’s a modular feature.