

COMP2007 - Game Development

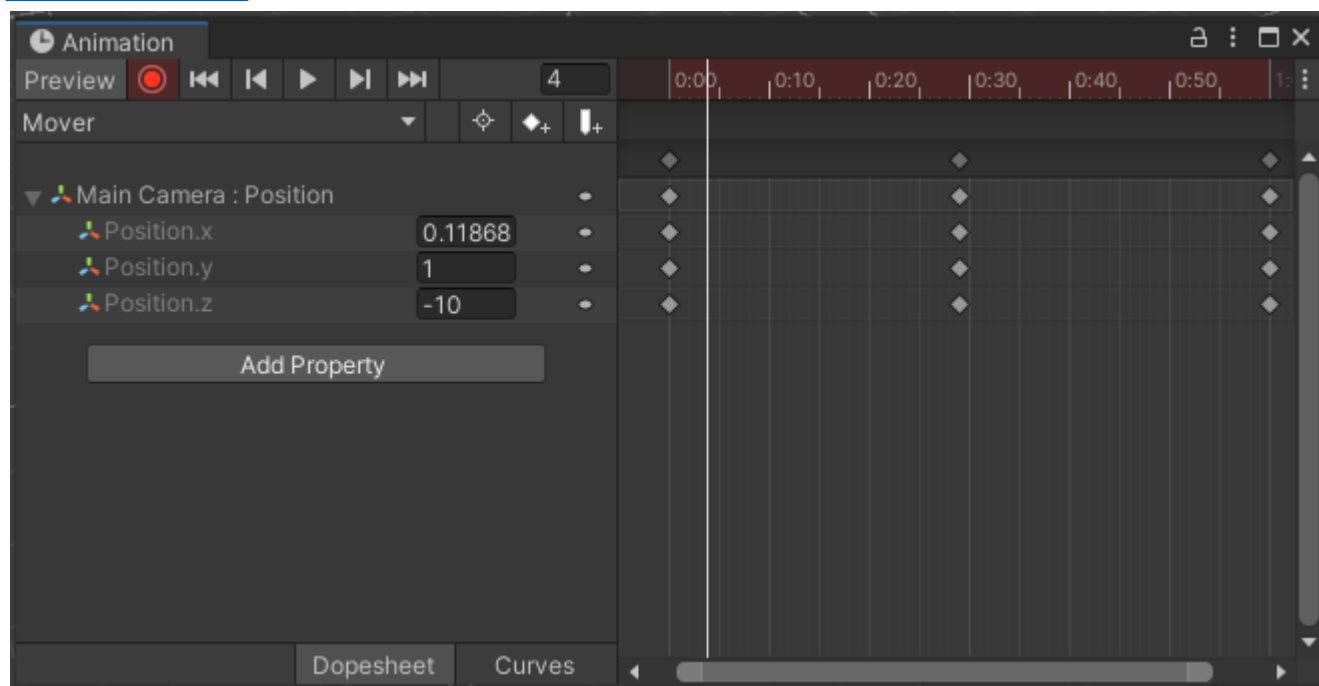
Week 5 - Art session

Animation in Unity

Unity has two distinct animation systems: **Animation** and **Animator** (also known as **Mecanim**).

The **Animation system** deals with animation data. Animation assets inside of unity are known as **Animation Clips**, The Animation system deals with playing and editing them individually.

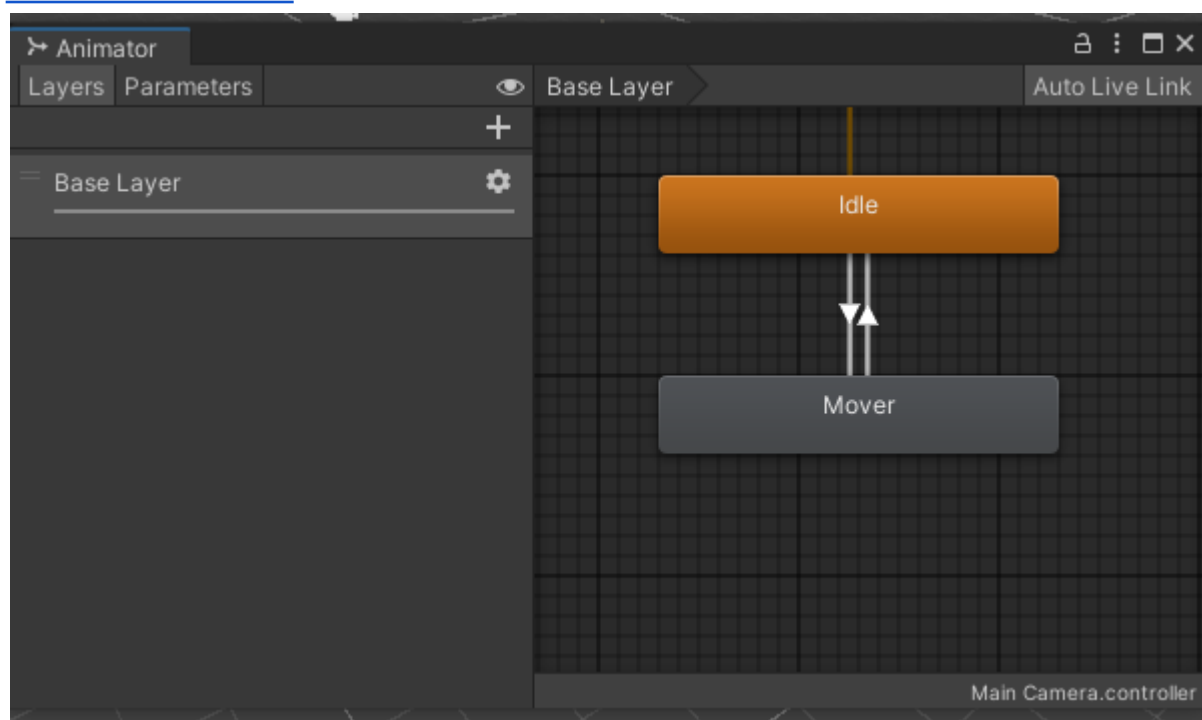
[Animation Window](#)



The **Animator system** is a 'state machine' system for playing animation clips in sequences or from custom code logic. We can use the animator system to arrange all animations either created with the [Animation system](#) tool or [imported animations](#) easily.

NOTE: you cannot edit animations inside of the Animator window, use the Animation window for this.

[The Animator Window](#)

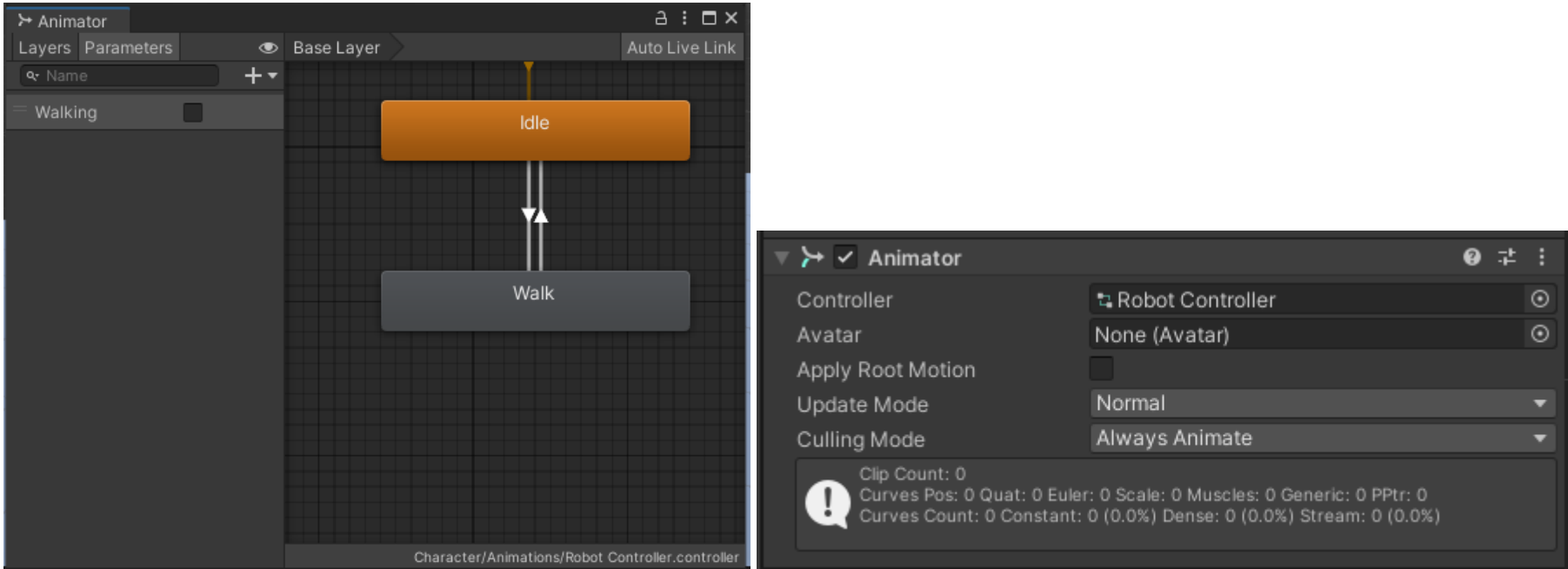


Animator component

The **Animator** component allows a GameObject to use animations set in the Animator.
The **Animator** component required an **Animator Controller** to run animations.
The **Animator Controller** edits the state machine logic set in the Animator window.

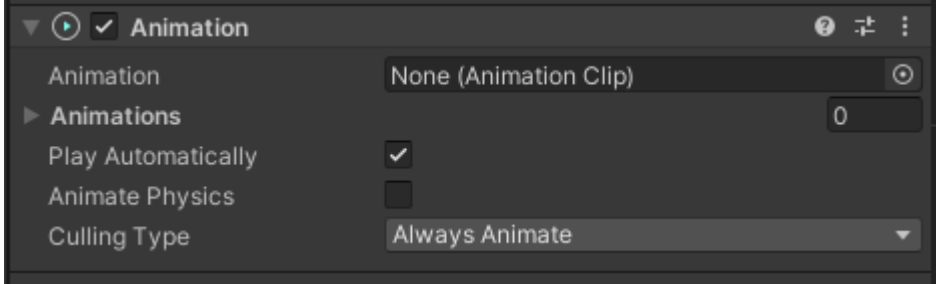
The **Animator** window is an editor for **Animator Controller** assets.
The **Animator Controller** asset is then used in the **Animator** component to run the animations.

Animator Component



Animation component (don't use this!)

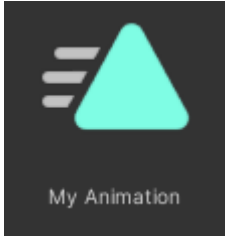
This is the older system for using Animation clips, it is recommended to use an **Animator** component with an **Animator Controller** file instead.
This component may be removed from future versions of Unity.



Animation Clip

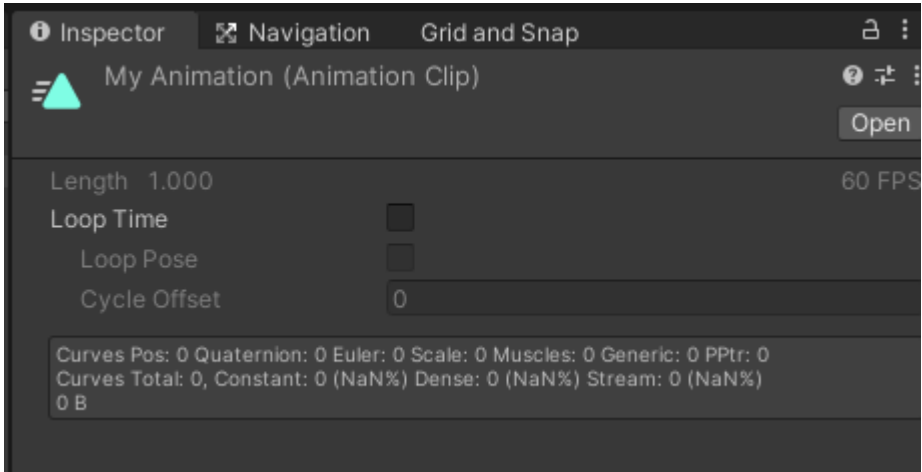
This is an asset file containing animation data. We can create these using the Animator window in the Unity editor, or import them from other software.

Animation Clip icon



Looping

Looping in animations has to be set on the animation clip itself through the Inspector:
Tick the Loop Time box to set the animation to looping.

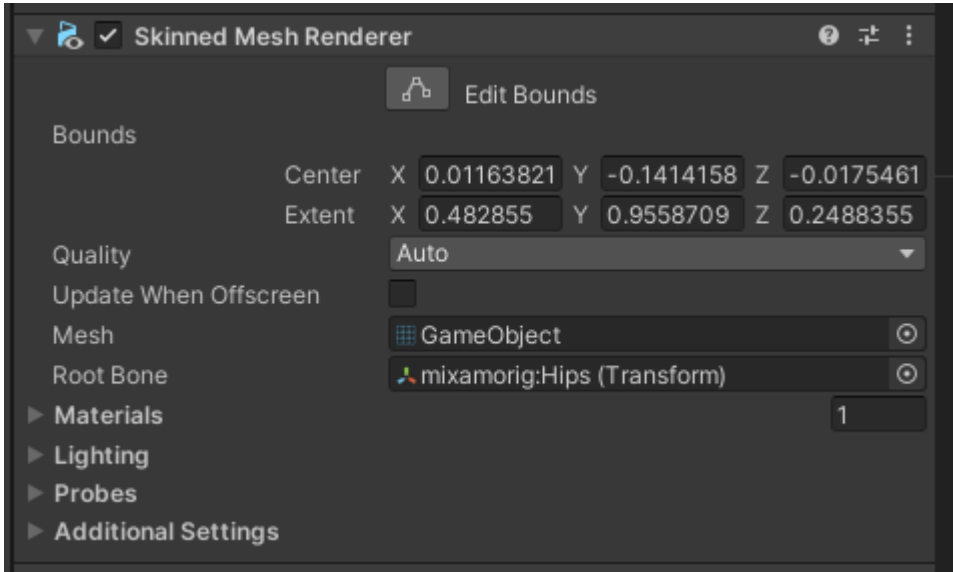


Character animations

Unity has a component for dealing with animated character, or meshes that deform when animated. These 3D meshes come with a set of points for deforming the mesh called a rig. Animation rigs are created in 3D modelling software or provided by services such as Mixamo.

The Skinned Mesh Renderer is the component for using animated characters in Unity.
The component requires a 3D mesh and the rig (called “Root Bone” below) to function:

[Skinned Mesh Renderer](#)



NOTE: The Skinned Mesh Renderer component is ONLY for use with 3D rigged meshes.

Unity displays a rig as a hierarchy of gameobjects in a scene.
Note the naming of the GameObjects in the hierarchy below, they correspond to the limbs of the animated character.



Use cases

- The Animation system is used for creating custom animations or editing existing animations using the Unity editor.
- The Animator is used to control a set of animations together.
 - For Gameobjects, it is recommended to use the Animator component

Mixamo

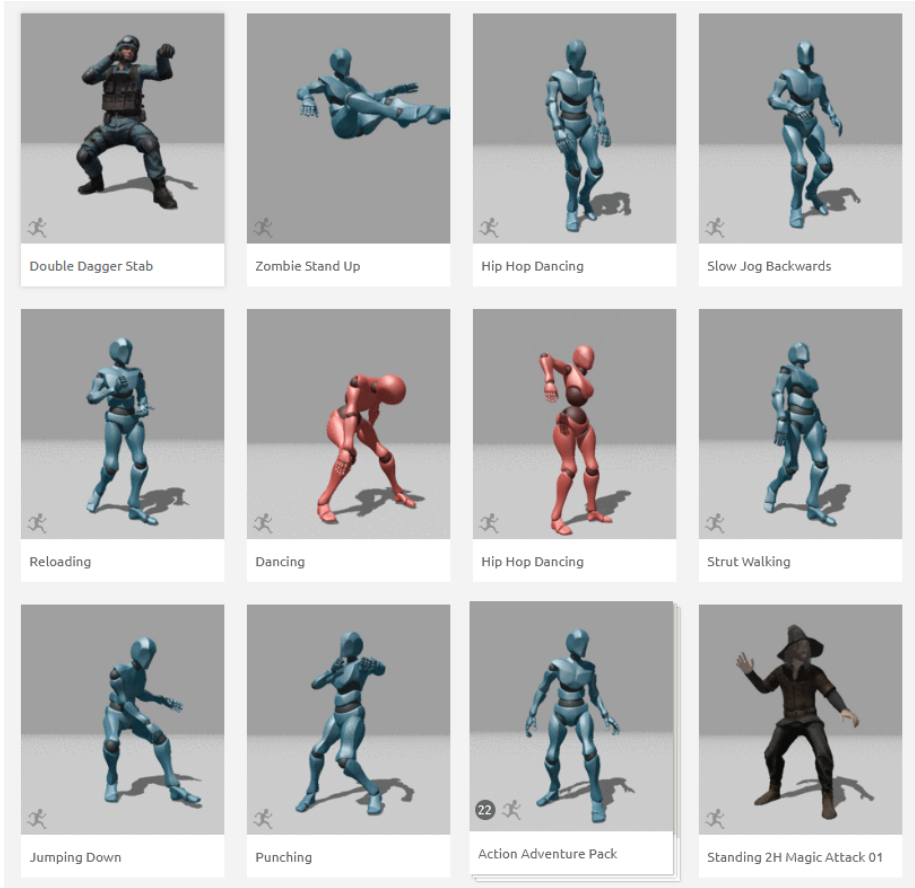
Mixamo is a free service for animations and 3d models.

It's best feature is an auto-rigger system.

The auto rigger will rig your 3D model with mixamo animations, you don't need to provide any rig for your character mode.

You can download as many rigged animations for your character as you want!

Mixamo has hundreds of animations for most game situations



Sign up for a free Adobe account to access Mixamo using the link below

<https://www.mixamo.com/>

Animation files

- Mixamo requires a 3D model to rig your model, it is recommended to use **FBX** files
- The download file containing the animation will also be an **FBX** file.
- **FBX** files are the recommended format for Unity 3D models with animations.
- **FBX** files can contain 3D meshes, animations, materials and textures.

NOTE: you can create FBX files from assets inside of unity using the [FBX exporter](#) package from the package manager

Links

The Animation window is used for creating and editing animations in the Unity editor

[Using the Animation Window](#)

The Animator window is used for controlling sets of animation using a state machine system

[The Animator Window](#)

The Animator Controller asset

[Animator Controller](#)

The Animator component

<https://docs.unity3d.com/Manual/class-Animator.html>

The Skinned Mesh Renderer component

<https://docs.unity3d.com/Manual/class-SkinnedMeshRenderer.html>

3D model file formats in unity

<https://docs.unity3d.com/Manual/3D-formats.html>

FBX Exporter

<https://docs.unity3d.com/Packages/com.unity.formats.fbx@4.1/manual/index.html>

Mixamo free animation service

<https://www.mixamo.com/>



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