

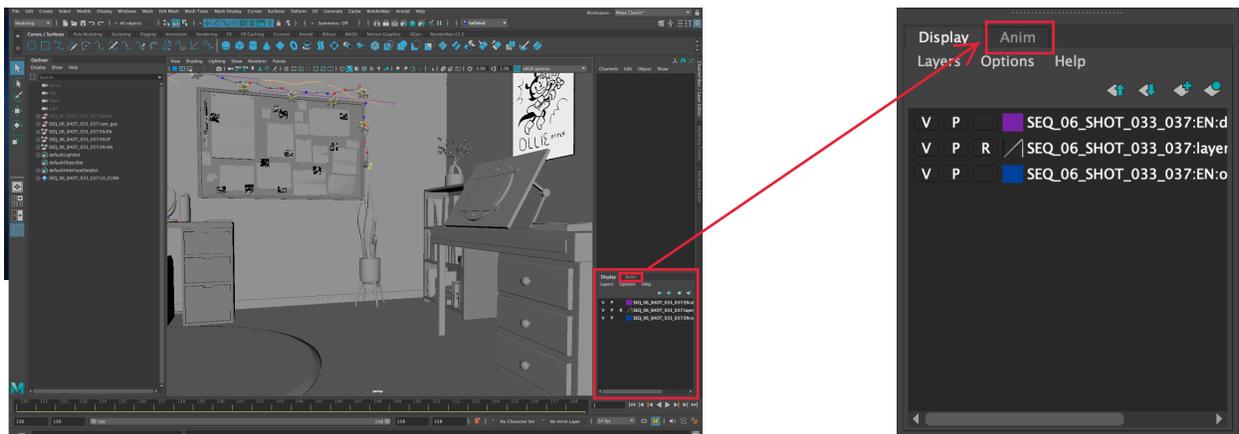
# How to Use Animation Layers

## Introduction

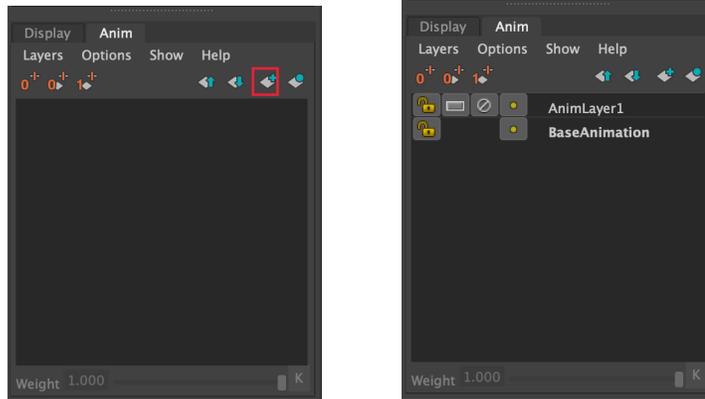
Animation layers are an efficient way to animate and create an organized workflow. This tech paper will cover the basics of animation layers. There are many other features, such as parenting layers, importing/exporting layers onto different files, etc. However, understanding the foundation of animation layers will help reduce time working on the animation. While 3D animating at first, a problem that occurred for me was that I would be confused on which curve was keyed at which frame, especially if the scene required props or another character. Although saving in iterations is absolutely necessary, animation layers allows the animator to have everything on one file, such as keyframes in stepped on one layer and in-betweens in clamped on another. Not every animator will use animation layers. However, as long as the layer is visible, it will playblast and play on the camera sequencer the same as a sequence only utilizing the BaseAnimation layer. In addition, lighting, compositing, rendering, texturing team, etc., will also be able to work in a file the same as one that uses layers and one that does not.

## Let's Begin, Y'all!

1. Set up your Maya Project by going to File > Set Project. You should already have your project folder made with all your assets and character(s) organized so you can reference or import them into the scene.
2. If your maya workspace layout is set to the default, access the Animation Layer menu by clicking on the Anim tab in the bottom righthand corner.



3. Create a new animation layer. You can click  or go to Layers > Create Empty Layer. After you create a new layer, two layers should appear: BaseAnimation and AnimLayer1. Even though the BaseAnimation layer is not visible until you create a new layer, all keyframes by default are on the BaseAnimation layer, which also cannot be deleted or moved.



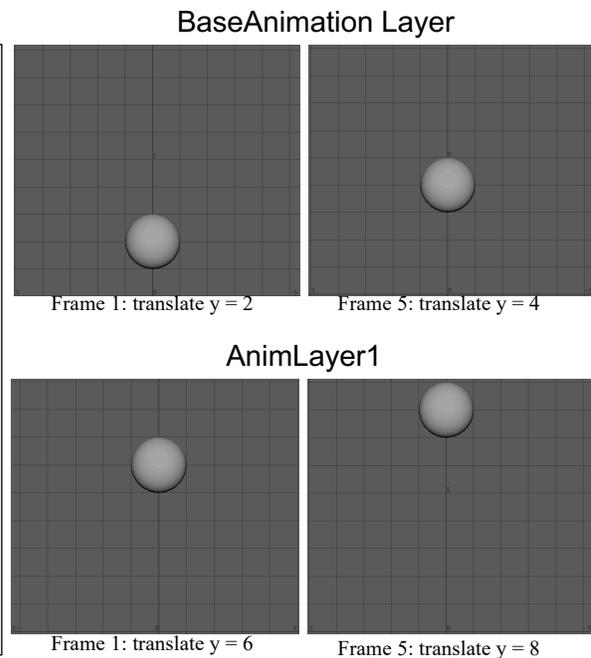
4. Excluding the BaseAnimation layer (which cannot be changed), set the animation layer(s) to be an Additive or Override layer.

*What is the difference between additive and override mode?*

- Additive – adds keyframes on each layer together

Example: On the BaseAnimation layer, if you set *translate y* to 2 on frame 1 and then set *translate y* to 4 on frame 5, the sphere will move up 2 units.

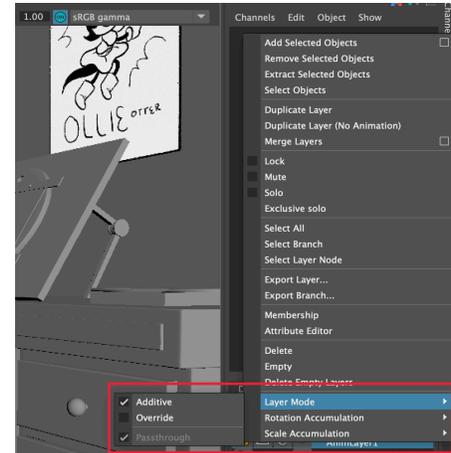
If you create a new layer (default name is AnimLayer1) and set *translate y* to 6 on frame 1, the sphere will override the keyframe set on the BaseAnimation layer and start on *translate y*: 6. However, without setting a keyframe on frame 5, the sphere will move *translate y* to 8. Maya calculates that if the sphere moved 2 units in BaseAnimation between frames 1-5, then the sphere still needs to move 2 units up in frames 1-5 in AnimLayer1. In simple terms, maya is adding 6 + 2 to know that it should move *translate y* to 8 on frame 5 in AnimLayer1.



- Override – this will mute all the keyframes on layers stacked underneath it  
\*\*If there is an override layer on top of another override layer, the topmost override layer keys will be shown.

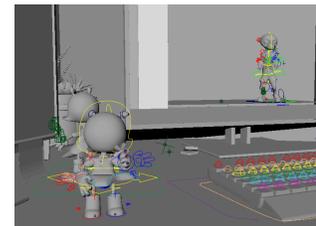
Although you can change the layer type anytime, it is helpful to set it to the correct mode in order to avoid unexpected animation. By default, a new layer is set to additive. In order to change the layer mode to override, select layer you want to change, go to Layers > Layer Modes and click the box next to either additive or override.

Personally, I use override layers 90% of the time because keyframes can become messy and cluttered in additive mode.



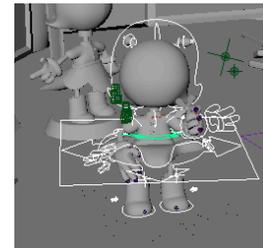
5. In order to use a new animation layer, you have to select all the curves and/or objects that you want on that layer and add the selected.

For this shot in *Forget Me Not*, I have two characters that I want on separate layers so I can keep track of where each character's keyframes are.



- a) Since I am working with rigged characters and props, I go to the top menu and deselect everything except for the curves button. I only want to keyframe curves in my layers. However, you can select and add objects onto a layer if they are not rigged.

- b) I select all of Ollie's curves, and then deselect her all\_anim. You should NEVER animate the all\_anim unless there is certain effect you are trying to achieve.

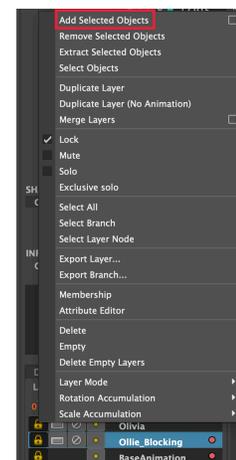


- c) Select the animation layer where you want to add the curves, click on the **LMB**, and click on Add Selected Objects.

Voilà, you created a functional animation layer!

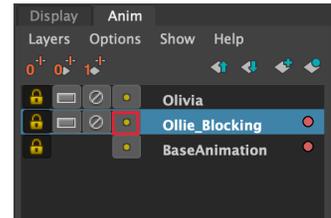
Once you add which curves you want in a layer, you might want to rename the layer. Double click the **RMB** to rename the layer. Because I selected Ollie's curves, the layer is renamed to Ollie\_Blocking.

Note: If you are animating on a layer but select a curve that is not a part of that layer, it will not be keyed. Be careful that you are on the correct layer.

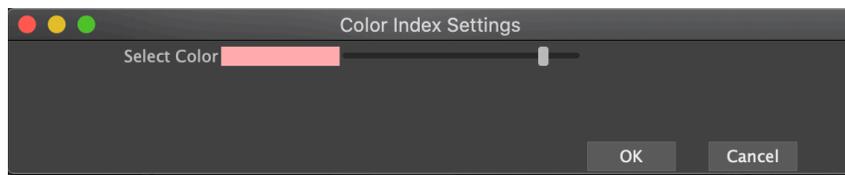


Alternatively, if you have not created a new animation layer, you can select all the curves you want to put on one layer and select . Also, if you forget to grab a curve or object that you want on a layer, you can always add it anytime while you are animating, but it's better to have everything organized before you start keyframing.

- Once you organize which curves and objects go on which animation layers, change the keyframe color for each layer. Hover your cursor over the yellow dot next to the layer name and click the **RMB**.



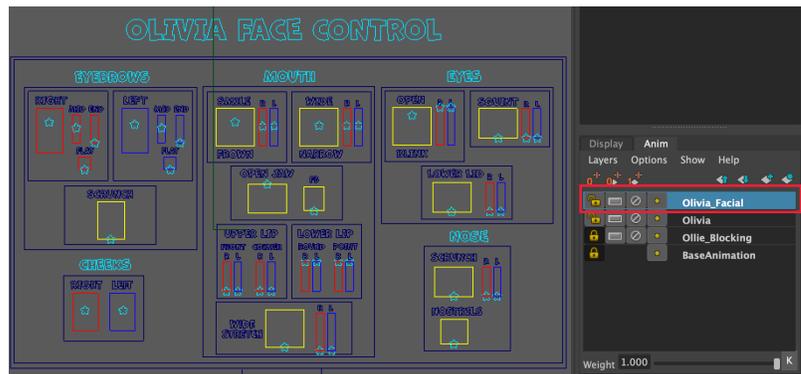
The Color Index Setting should pop-up. You can move the slider left or right to make your keyframes on a specific layer different. This should help you avoid animating on the wrong layer.



Steps 1-6 should be done before you start keying your frames. Step 7-12 can be done anytime during the animating process and in any order.

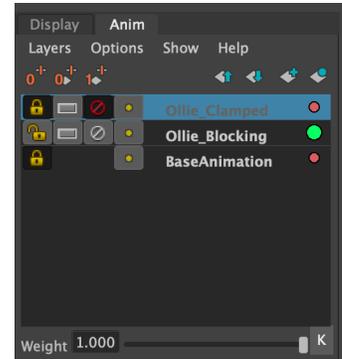
- All of a character's curves do not have to be on one layer. For example, if you want to add secondary action with a character's hair or ears, it would be easier to create a new layer (probably in override mode) with the specific curves you want to animate.

*Forget Me Not* is first focusing on action and then facial animation. However, some shots are focused more on emotion than action, so I put all of Olivia's facial curves on a separate layer for better organization.



- There is also the option to mute layers. As I mentioned in the previous step, *FMN* is focusing on action first. If I want to hide the basic facial animation that I have done, I can click the  next to the animation layer name, and it'll turn red. When I playblast it, the action on the muted layer won't show.

In addition, I can mute my in-between layer (Ollie\_Clamped) and just show my keyframed layer (which is in stepped mode). Since both are override layers, if I want my in-between layer to playblast, I don't have to mute the Ollie\_Blocking layer because the hierarchy is that the top override layer will be shown.



Note: turning on and off the mute button sometimes helps if some animation is not showing up on a layer

- When you are not using a layer, lock the layer so you do not accidentally start keyframing on the wrong one. Located on the left of the Anim menu, you can toggle the lock icon,  , on and off.
- If you do need to change the hierarchy of the layers, you can click the **MMB** and rearrange a layer's order or you can use these .
- Animation layers also allow you to change the impact of each layer by controlling the weight, located at the bottom. Weight varies between 0-1.000. The default setting for each layer is 1.000.



100% impact

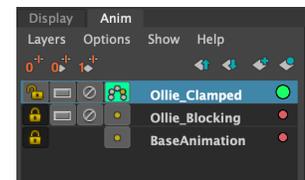


50% impact

Let's say you have overlap action on a character's tail, but it is swaying too much. You can reduce the weight on the tail animation layer instead of having to keyframe all the tail curves again.

- There is also an option to toggle on ghost display for a layer. Press the yellow dot next to the animation layer and it'll change like in the image to the right. The background color of the ghost button will match whatever color you set for the keyframe color.

In a way, the ghost button works like an onion skin. For example, since the same curves are selected in the Ollie\_Clamped and Ollie\_Blocking layer, I can see the progression Ollie's action. However, if I did not have the Ollie\_Clamped layer, the ghost button would not work on just the Ollie\_Blocked layer. You have to have a certain curve on more than one layer to see the progression.



Note: You need have a good graphics card for the ghost button to work. Otherwise, you will get a fatal error, which is why I do not utilize this tool often.

13. You can still edit keys on the graph editor using animation layers. Active keys on a layer will show up in color. Locked layers will show up in black.

Below, I have Ollie's left FK hand control on the Ollie\_Blocking and Ollie\_Clamped layer. Because I am currently working on the Ollie\_Clamped layer, I can move those keys in the graph editor without affecting the keys on layers underneath it.

