

# Butterfly Animation Tutorials

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Unity 2018.3



Download the Butterfly example content [here](#)

Tutorials:

[1 - Playing an animation with the Animator state machine](#)

[2 - Setting up random animation variants](#)

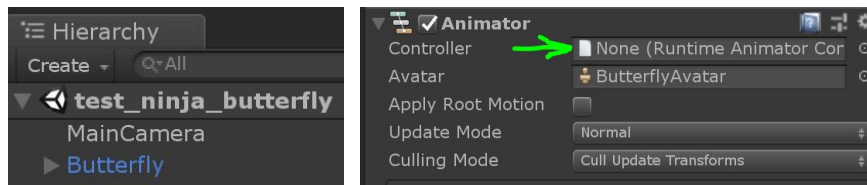
[3 - Making a new animation clip in Animation Window](#)

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## 1 - Playing an animation with the Animator state machine

1. Drag and drop the Butterfly.fbx model into your scene hierarchy

Note that it already has an Animator component, but the Controller field is blank

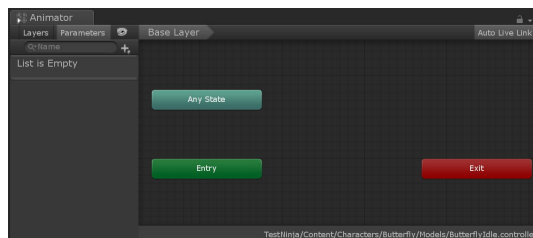


2. Create a new **AnimatorController** and assign it to the Butterfly

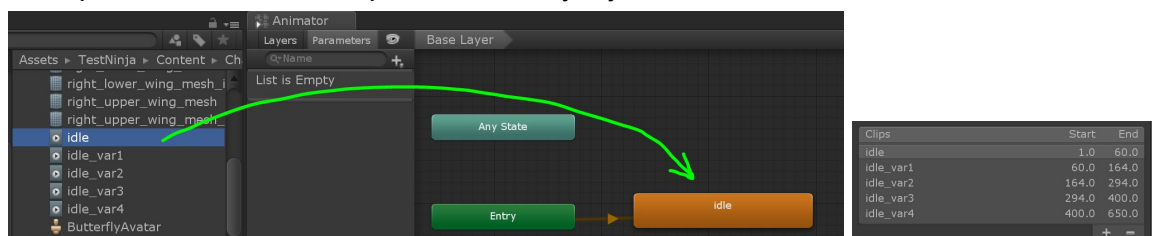
Right-click in the Project window and **Create > AnimatorController** (name ButterflyIdle)  
Drag and drop it into the Controller field in the Butterfly's Animator component

3. Open the AnimatorController in the **Animator** state machine window


Double-click the AnimatorController in the Project view to open the Animator window

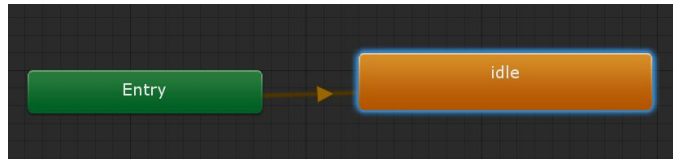


4. Drag and drop the idle animation clip onto the Entry layer



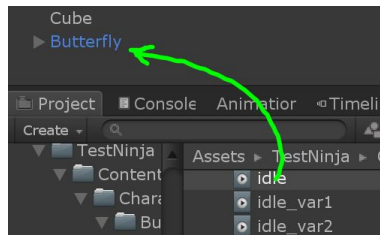
Note that the clips have already been defined in the FBX import settings Animation tab

5. Press Play  in the Unity editor to see the idle animation play  
The orange node identifies the default animation state, which will automatically play when gameplay starts



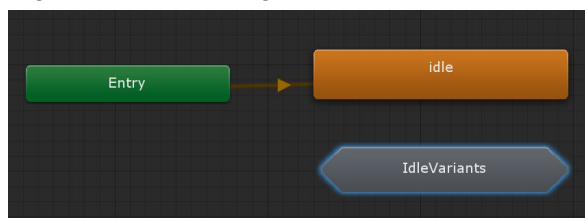
(End of Tutorial 1)

- Note: there is a shortcut to do all of these steps at once:  
Drag and drop a clip onto Butterfly (The object with Animator, but no Controller)  
This automatically creates AnimatorController and connect the clip as the default state



## 2 - Setting up random animation variants

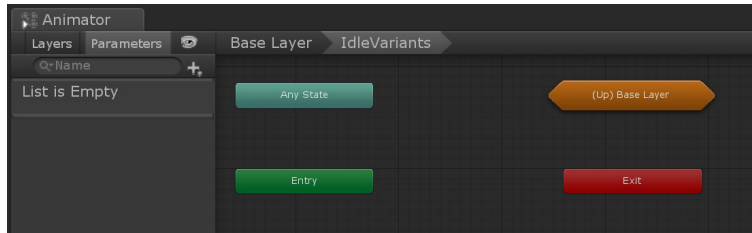
1. In the Animator window, create a new **Sub-State Machine**  
Right-click the background and **Create New Sub-State Machine** (name IdleVariants)



2. Add a **Transition** from idle to the new IdleVariants sub-state machine  
Right-click on the orange idle state and **Make Transition...**  
Next, click on the IdleVariants node to connect the Transition

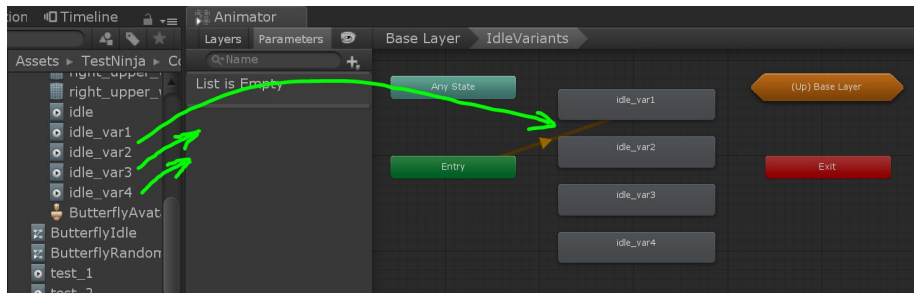


3. Double-click on the IdleVariants node to open it



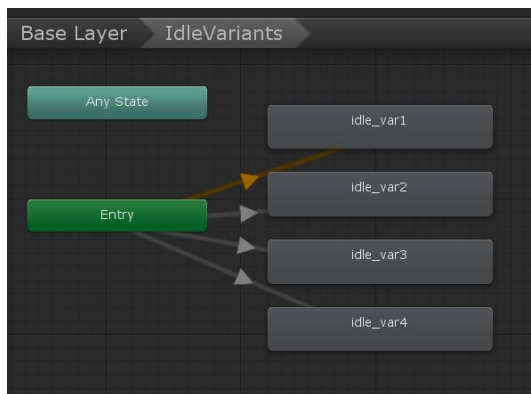
4. Drag and drop the four idle variant clips onto the canvas

Note that the first clip automatically makes a transition from the Entry node. The arrow is orange, indicating that it is the default state



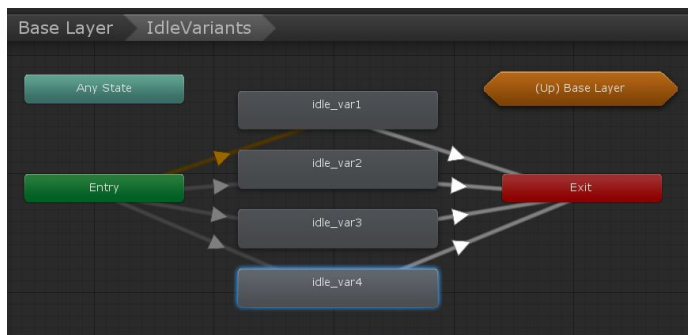
5. Add Transitions from the Entry node to each of the animation clips

Right-click the Entry node and **Make Transition**, then click on the clip



6. Add Transitions from each of the animation clips to the Exit node

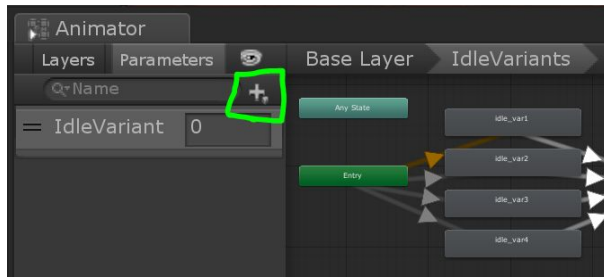
Right-click the animation clip and **Make Transition**, then click the Exit node



7. Press Play  and it will start with idle, then transition to idle\_var1 and repeat.

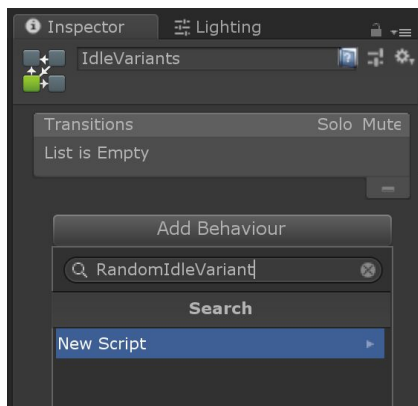
There is currently nothing in the Transitions telling it which idle variant to choose so it automatically picks the default state, which is marked with the orange arrow.

8. Add a new integer **Parameter** called IdleVariants to the sub-state machine  
 Click the + in the Parameters tab and choose Int  
 Name it IdleVariant and press enter



9. Add a new **State Machine Behaviour** to the IdleVariants sub-state machine

- a. Navigate up to the Base Layer by clicking this link at the top
- b. Select the IdleVariants sub-state machine. In the Inspector click **Add Behaviour**
- c. Name the behaviour RandomIdleVariant. Press enter and then click **Create and Add**



[State Machine Behaviours docs](#)

(Note that automatically saves the script to the Assets root folder. You may want to move it into a Scripts folder with your asset in order to keep your project organized)

10. Open the RandomIdleVariant.cs in **Visual Studio** by double-clicking it in Project view  
 Note that it contains comments describing each of the callbacks that are available

11. Uncomment the **OnStateMachineEnter** function and add the following line of code

```
animator.SetInteger("IdleVariant", Random.Range(0, 4));
```

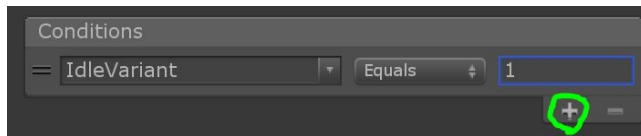
```
// OnStateMachineEnter is called when entering a statemachine via its Entry Node
1 reference | 0 changes | 0 authors, 0 changes
override public void OnStateMachineEnter(Animator animator, int stateMachinePathHash){
    animator.SetInteger("IdleVariant", Random.Range(0, 4));
}
```

12. Set up **Conditions** in the transitions to idle variant clips

- a. Go back into the IdleVariants sub-state machine by double-clicking on the node
- b. Select the Transition arrow from **Entry** to **idle\_var2**



- c. In the Inspector in the **Conditions** tab, press the + to add a new one

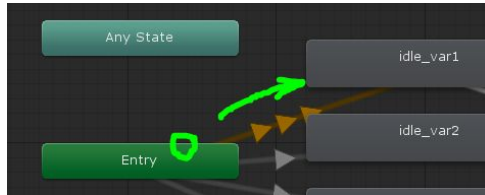


- d. Set it to: **IdleVariant Equals 1**

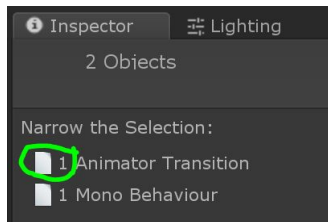
13. Set up similar conditions for the rest of the transitions from Entry to the clip, incrementing the number by 1 each time. (idle\_var3 = 2, idle\_var4 = 3)

14. Create one more transition from Entry to idle\_var1


Note that the orange arrow turns into a triple arrow



Select the triple arrow and in Inspector, narrow the selection to **Animator Transition**



Set the condition to **IdleVariant Equals 0**

15. Press Play  the idle animation will play followed by a random variant, repeating

(End of Tutorial 2)

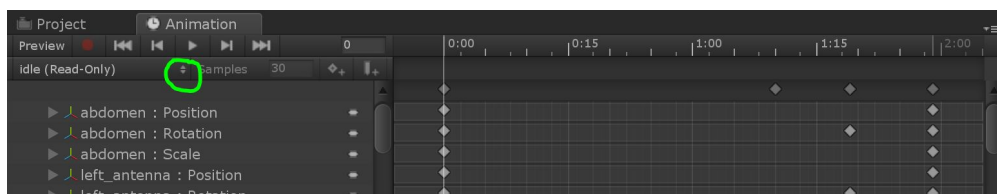
### 3 - Making a new animation clip in Animation Window

This section describes how to make a new animation clip with a single pose that can be used in the next tutorial for blending as an animation layer.

1. Select the Butterfly in the scene hierarchy and open **Animation Window**

On the main menu choose **Window > Animation > Animation**

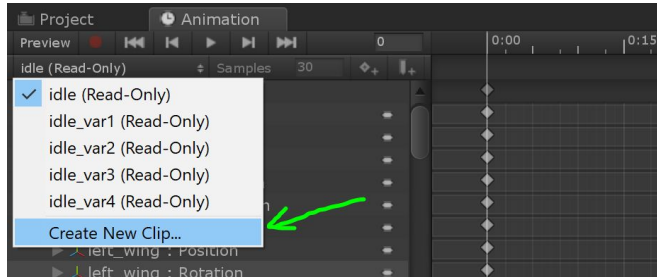
It will start on the first animation: idle. Switch between clips with the menu here:



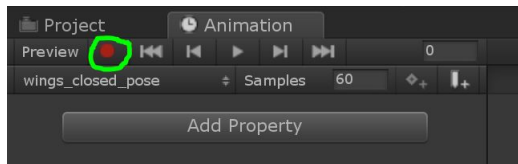
2. Create a new animation clip

Click the menu for selecting the active clip and choose **Create New Clip...**

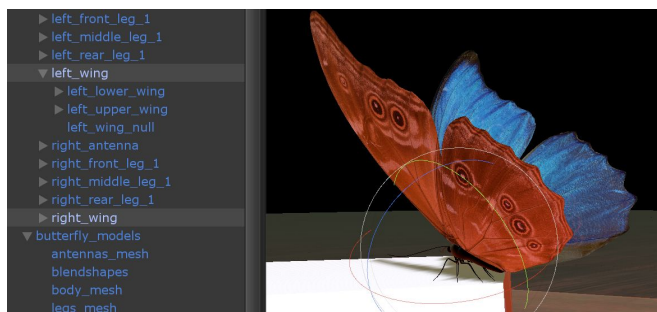
Name the new clip wings\_closed\_pose



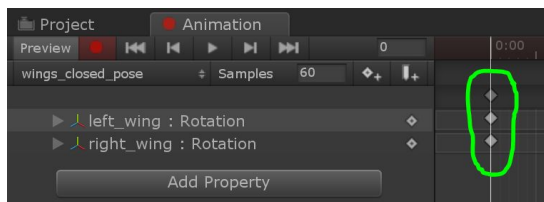
3. Press the Record button in Animation Window



4. Select the Butterfly's left\_wing and right\_wing bones and rotate them upward to set keyframes



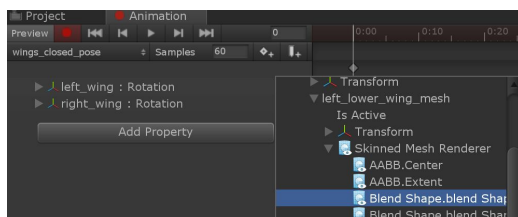
Note that keyframes are automatically set on properties that move when recording



5. You can also add more properties to the clip in the following ways:

Click the **Add Property** button

Blend shape properties can be found in the model's SkinnedMeshRenderer section



Click the + on the right to add the property

After the pose has been defined, you now have a new AnimationClip



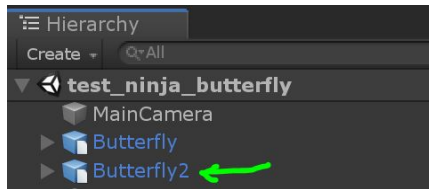
(End of Tutorial 3)

## 4 - Setting up animation layers

This will be used to make a modified copy of the Butterfly AnimatorController so it can have a different animation style. It will be set up to play more subtle motion on a more closed wings pose using the same animations modified by an animation layer.

1. Duplicate the Butterfly in the scene Hierarchy

Select the Butterfly and press ctrl-d (name it Butterfly2)

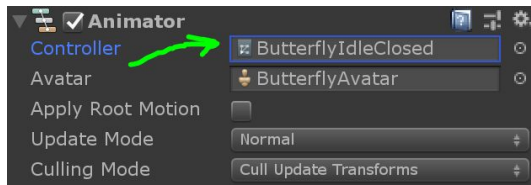


2. Duplicate the **AnimatorController** and assign it to Butterfly2

- a. Select the ButterflyIdle AnimatorController and press ctrl-d (name it ButterflyIdleClosed)



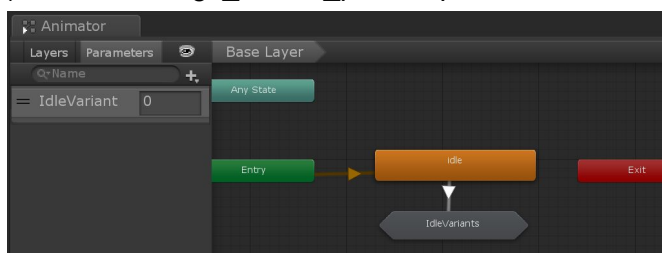
- b. Drag and drop it into the Controller field in Butterfly2's Animator component



3. Open the ButterflyIdleClosed AnimatorController in the **Animator** state machine window

This should look the same as the result of Tutorial 2

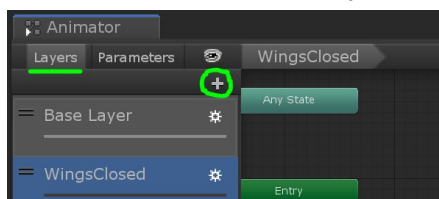
(If the new wings\_closed\_pose clip from Tutorial 3 is there, delete it from Base Layer)



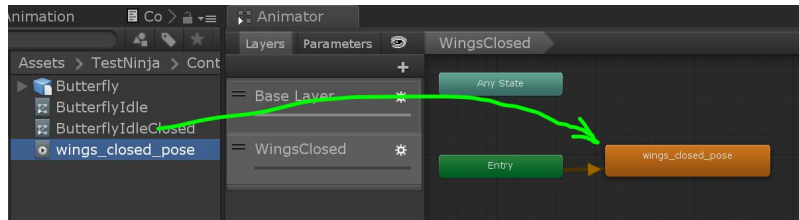
4. Add a new **Animation Layer**

Switch to the **Layers** tab

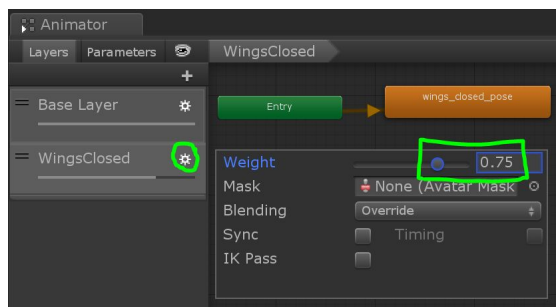
Click the + to add a new layer (name it WingsClosed)




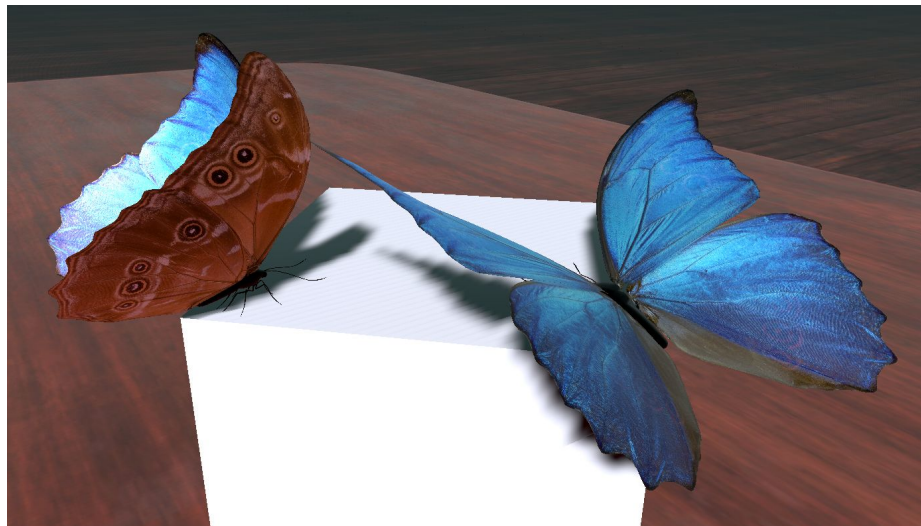
5. Drag and drop the wings\_closed\_pose clip into the new layer  
Note that since it is the first clip in this layer it automatically gets connected to Entry as the default animation state



6. Set the WingsClosed layer weight to 0.75  
Click the settings icon on the WingsClosed layer  
Set the **Weight** value to 0.75  
(Blending mode should stay at the default setting: Override)



7. Press Play  to see the animation playing back  
Since the WingsClosed layer is set to Override, it will have the effect of making the idle animations look more subtle. It will play the same animations at a lower intensity blended with the wings closed pose.



(End of Tutorial 4)