Blender Animation Editors

Animation Editors

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Blender has several different editors for creating and fine tuning our animations. Each one is built around a specific approach to editing keyframes. While they are capable of preforming some or all of the basic edits on their own, each is suited to a different approach to editing. We can use the different editors at various stages in our work flow to help simplify the production.

The Timeline

The Timeline is a linear graph showing the keyframes of an object during the passage of time in your scene. You can adjust the playback range of your scene with the Start and Stop attributes to work on either a specific section or the entirety of your animation. The playhead can be adjusted by LMB clicking anywhere in the timeline or entering a value in the current frame attribute. Note that the playback controls have a “Play” and “Play Backward” button to help you view your work in different ways.

The Timeline is a good place to set down your main keyframes and to get a rough idea of timing. It is also good for focusing on a specific section of an animation while working on it. Moving keys can be a little tricky, especially if there are lots of them close together. Also, only keyframes for selected objects are shown, making it difficult to compare the motion of two or more objects. Use the timeline as the first place to begin an animation – setting down the main poses and actions

Timeline Pros:
Quickly setup main keyframes
- Adjust playback

Timeline Cons:
- Hard to fine tune timing and motion
- Hard to edit more than one keyframe or object at once
- Hard to compare to other objects in the scene

Useful Hotkeys:
- **I** – Insert keyframe.
- **Alt + A** – Start stop animation

**The Dope sheet**

The Dope Sheet is a term from the early hand drawn animation days. It was a list of the timing and relationship of the movement of the objects in a scene. Blender’s Dope Sheet gives us all of those things – the objects in our scene (to the left) and when they move (keyframes). Being able to view the relationships between the movement of several objects helps us work out the timing of our animation.

Use the **RMB** to select keyframes in the Dope Sheet and **G** (grab) and **S** (scale) to adjust them. Adding keyframes and adjusting playback is possible but not as intuitive as it is in the Timeline. The Dope Sheet should be the second place you go to edit your animation – adjusting the distribution of keyframes. Use the Dope Sheet to control the timing of motion in your scene.

Dope Sheet Pros:
See relationship between all objects in scene
- Adjust timing of keyframes
- Adjust multiple keyframes from multiple objects at once

Dope Sheet Cons:
- Not as intuitive to set down object keyframes
- Hard to fine tune object motion

Dope Sheet Hotkeys:
- **A** – Toggle select none/all
- **B** – Toggle Box/Marquee select
- **G** – Grab
- **S** – Scale

**The Graph Editor**

The Graph Editor is similar to the Timeline in the respect that it shows keyframes along the passage of time of the scene. It is like the Dope Sheet in that it can show multiple objects and their relationships at the same time. The difference is that it shows the change in value between keyframes. An object falling would have first a Z Location keyframe of a fairly high value and then a Z Location keyframe of a fairly low value. The Graph Editor shows the rate of change between those two keyframes. A straight Line between two keys would be a constant change where as a curved line would be a shifting change – from fast to slow or vice versa.

Keyframes are shown as yellow dots and keyframe handles as yellow circles. You can change time timing and value of a
keyframe by grabbing it and moving it in the graph. You can change the rate of change between two keyframes by grabbing the handles and moving them. By default, the handles on either side of a keyframe will be “aligned” to keep the motion smooth. A handle can be made “free” to adjust just one side of the keyframe for a sharp transition, for example, an object hitting a wall. Handles can be aligned or freed in the header with Key > Handle Type > Free or Align, or with the H hotkey.

The Graph Editor gives you extremely fine control over your motion. If you are fine tuning your work it is a valuable tool. If you are in the early stages of setting up a scene it may offer too much complexity to quickly and effectively get work done.

The Graph Editor Pros

- Edit multiple objects
- Control timing
- Adjust keyframe value
- Edit velocity (motion curve)

The Graph Editor Cons

- Too complex for early stages of animation

The Graph Editor Hotkeys:

- H – Change handle type – free or aligned
- A – Toggle select none/all
A note on work flow

The work flow we have discussed goes like this:

1. **Timeline**
   - setup main keys
2. **Dope Sheet**
   - refine timing of motion
3. **Graph Editor**
   - fine tune motion

This progression gives you increasing control of your animation as work on it. Going back a step from time to time is encouraged and is a huge part of refining your project. Try to use the proper editor for what you are trying to accomplish.

While you don’t have to follow the work flow we setup in class, it is a good idea to try it out. It will give you a feel for the different editors and how to combine them to do your work. I personally started animating with just a graph editor and it worked for me. Once I tried out the other editors, I was able to streamline my process and get more and better work done. We all create and work in different ways, so use what you are comfortable with. Let us know how your work flow differs from this one as you develop your own style.

**Action Editor, Shape Key Editor and the NLA**

Blender has other animation editors that we won’t get into for the moment. The Action editor groups movements into separately editable actions like walking and waving. The Shape Key Editor is used for blending predefined shapes into things like lip syncing and facial expressions. The NLA (Non Linear Animation) Editor is used to combine and reuse predefined actions, like
waving while walking at the same time.

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