

Lesson 11 – Animation: Tracks and Controllers

Frame behavior determined by a Key's **CONTROLLER**. Every key has a default controller, which is managed by a Track View (and, if a transform, the Motion tab)

Track View

Two track views – Curve Editor and Dope Sheet.

Accessed by toolbar, “Graph Editor/...”, or contextual menu (right-click)

Timeline (Right side) - keys, curves (RGB = XYZ)

Horizontal axis = Frames

Vertical axis = parameter(s) setting (curve editor only)

Hierarchy (Left side) – Animatable parameters

1. Curve Editor - Graphic adjustment of an object's controller, behavior of keys.
Mini-curve editor to the left of “active time segment” timeline

Tangents – Transitions between keys

Auto – The default.

Adjusting handles will revert to “Spline”

Changing to “Auto” will reset the controller

Spline - Bezier handles. Visually changes rate of change.

Fast - speeds action up at key

Slow - slows action down at key

Step - Freezes parameter until next key.

Linear - Lines

Smooth - "Dumb Curve"

Defaults for NEW keys below “auto key” button

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2. Dope Sheet - Location of keys on timeline

Dope sheet is about key location/relationship, not specific behavior (setting)

Filter - What displays in track view

Right-click - Use Animated Only, Selected Only, or both.

“Edit Keys” – Shows individual keys

Typically used to position keys on timeline

Right-click on specific key to access settings (also in “motion” tab)

“Edit Ranges” – Scope of animation between first and last keys

Defines a cycle

All keys within the range will be effected

Move range at center will reposition entire range

Moving range endpoint will rescale range

Out of Range – Behavior outside the Range (before the First and/or after the Last key)

In a track view, select a track. “Edit/Controller/Out of Range Types”

Left button is behavior prior to first key

Right button is behavior after the last key

Constant – Maintains First key and/or Last key’s value. No repeating.

Cycle – Last key’s value to first key’s value. Will “jump” if different

Loop – Interpolates last to first keys. Usually behaves like “Cycle”

Ping Pong – At last key, reverses range back to first key value.

Linear – Extrapolates first and last key’s value

Relative Repeat – Last key become the new first key

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Tracks

Sound – Open the Dope Sheet and double-click on “Sound” track.

Click the “add” button and choose WAV or AVI files.

Can add multiple sound files.

Default start is frame 0, but can be changed

If rendered output is an AVI (or MOV), sound will be included.

No sound for sequences of Still images. Must add in video editor.

Curves

Apply in curve editor (“Track View/Curves”). Becomes sub-curve.

Ease Curve - Speeds/Slows over all keys of track(s), not just between keys.

Multiplier Curve - Increases/Decreases effects (i.e move, scale, etc...) by factor

Linking

Objects are independent by default. Animation can be inherited by linking.

Terms:

Parents – Animated object

Children – Object(s) that inherit animation from (linked) parent.

Children can also be parents.

Dummies – Non-renderable “helper” object.

To Link: Click “Select & Link” in the toolbar, the “child” and then the “parent”

To Unlink: With the “child” selected, click “Unlink Selection” in the toolbar.

NOTE: Childs state will be at the frame it was unlinked.

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Controllers

1. Everything has an assigned (default) controller
2. Managed from Track View (Curve Editor or Dope Sheet or both)
3. Transform animation can also be managed from the Motion Panel
4. Some transform controllers managed only in one location

To change: In Trackview, select track, Right-click. Choose “Assign Controller...”

Transform Controllers

1. Position/Rotation/Scale (default)

Position - All three axes controlled by:

Position XYZ (default) - Each axis separate controllers

Bezier Float (default) – Axis controlled by Bezier curve

Noise Float - Random noise pattern controls axis

Audio Float - Choose WAV, Base Point/Target Point

Waveform - Chose waveform type, period, etc...

Others...

Noise - Random noise pattern controls all three axes

Audio Position – All three axes controlled by audio file

Path Constraint - Select path(s), banking (Motion Panel-only)

Surface - Pick Surface. Animate U and/or V (Motion Panel-only)

Rotation - All three axes controlled by:

Euler XYZ (default) - Each axis separate controllers

Bezier Float (default) – Axis controlled by Bezier curve

Noise Float - Random noise pattern controls axis

Audio Float - Choose WAV, Base Point/Target Point

Waveform - Chose waveform type, period, etc...

Others...

Noise - Random noise pattern controls one or more axes

Audio Position - Choose WAV, Base/Target

Look At - Choose target(s) and weight(s) (Motion Panel-only)

Lesson 11 - Animation: Tracks and Controllers (cont...)

Transform Controllers (cont...)

1. Position/Rotation/Scale (default)

Scale - All three axes controlled by:

Bezier Scale (default) - Curve controls scaling

ScaleXYZ - Each axis separate controllers (Bezier Float)

Bezier Float (default) – Axis controlled by Bezier curve

Noise Float - Random noise pattern controls axis

Audio Float - Choose WAV, Base Point/Target Point

Waveform - Chose waveform type, period, etc...

Others...

Noise - Random noise pattern controls or more axes

Audio Position - Choose WAV, Base/Target

2. Link Constraints - Allows animating (transferring) a link

Replaces all “transform” tracks (Move/Rotate/Scale)

Managed in the “Motion Tab”

“Add Link” – Links to selected object at current frame

“Delete Link” – Removes link

Non-Transform Controllers – Added/Managed through Track View

Type depends on parameter(s) to be animated

Float – Real Number. Any setting involving a single number

Bezier Float (default) – Curves

Noise Float

Audio Float

Point4 - Four floating point numbers

Bezier RGBA Color – RGB + Alpha Channel (transparency)

Color RGBA – Separate tracks for each channel