7 Scrub through the clip to see the result.

This creates an animated zoom effect for the clip. Because the clip never scales to more than 100%, it maintains full quality.

8 Turn on the Track Output option for the V2 track.

This track has an adjustment layer clip on it. Adjustment layers apply effects to all footage on lower video tracks.

9 Select the Adjustment Layer clip to display its values in the Effect Controls panel.

You'll see that two visual effects have been added: a Black and White effect, which removes color saturation, and a Brightness & Contrast effect, which increases contrast. You'll learn more about adjustment layers in Lesson 13, "Adding Video Effects."

10 Play the sequence.

You may need to render the sequence to see smooth playback because some of the clips are high resolution and will take a lot of computer processing power to play. To render the sequence, choose Sequence > Render In To Out.

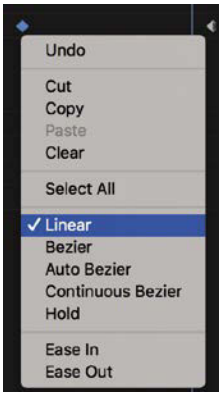
## Working with keyframe interpolation

Throughout this lesson you've been using keyframes to define your animation. The term *keyframe* originates from traditional animation, where the lead artist would draw the key frames (or major poses) and then assistant animators would animate the frames in between. When animating in Premiere Pro, you're the master animator, and the computer does the rest of the work as it interpolates values in between the keyframes you set.

## Using different keyframe interpolation methods

While you've already used keyframes to animate, you've only touched on their power. One of the most useful yet least utilized features of keyframes is their interpolation method. This is a fancy way of saying how to get from point A to point B. Think of it as describing the sharp ramp-up as a runner takes off from the starting line and the gradual slowdown after they cross the finish line.

Premiere Pro has five interpolation methods. Changing the method can create a very different animation. You can access the available interpolation methods by right-clicking a keyframe to see the options (some effects have both spatial and temporal options).



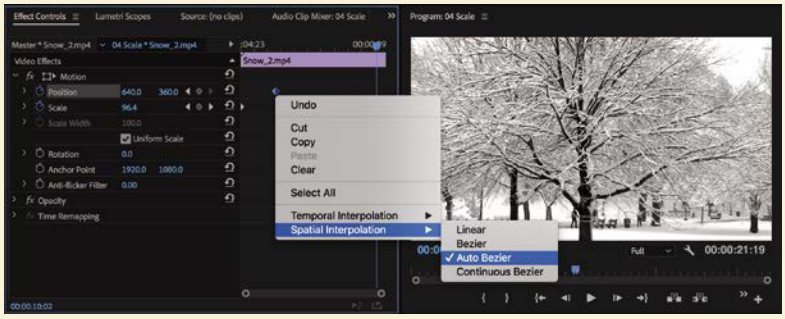

- **Linear:** This is the default method of keyframe interpolation. This method gives a uniform rate of change between keyframes. Changes begin instantly at the first keyframe and continue to the next keyframe at a constant speed. At the second keyframe, the rate of change switches instantly to the rate between it and the third keyframe, and so on. This can be effective, but it can also look a little mechanical.
- **Bezier:** This gives the most control over keyframe interpolation. Bezier keyframes (named after the French engineer Pierre Bézier) provide manual handles you can adjust to change the shape of the value graph or motion path on either side of the keyframe. By dragging the Bezier handles that appear when the keyframe is selected, you can create smooth curved adjustments or sharp angles. For example, you could have an object move smoothly to a position on-screen and then sharply take off in another direction.

  ▶ **Tip:** If you are familiar with Adobe Illustrator or Adobe Photoshop, you will recognize Bezier handles—they work the same way.

- **Auto Bezier:** Auto Bezier keyframes create a smooth rate of change through the keyframe. They automatically update as you change settings. This is a good quick-fix version of Bezier keyframes.
- **Continuous Bezier:** This option is similar to the Auto Bezier option, but it provides some manual control. The motion or value path will always have smooth transitions, but you can adjust the shape of the Bezier curve on both sides of the keyframe with a control handle.
- **Hold:** This is available only for temporal (time-based) properties. Hold-style keyframes hold their value across time, without a gradual transition. This is useful if you want to create staccato-type movements or make an object suddenly disappear. When the Hold style is used, the value of the first keyframe will hold until the next hold keyframe is encountered, and then the value will change instantly.

## Temporal vs. spatial interpolation

Some properties and effects offer a choice of temporal and spatial interpolation methods for transitioning between keyframes. You'll find that all properties have temporal controls (which relate to time). Some properties also offer spatial interpolation (which refers to space or movement).




Here's what you need to know about each method:

- **Temporal interpolation:** Temporal interpolation deals with changes in time. It's an effective way to determine the speed at which an object moves. For example, you can add acceleration and deceleration with special kinds of keyframes called Ease or Bezier.
- **Spatial interpolation:** The spatial method deals with changes in an object's position. It's an effective way to control the shape of the path an object takes across the screen. That path is called a *motion path*. For example, does an object create hard angular ricochets as it moves from one keyframe to the next, or does it have a more sloping movement with round corners?

## Adding Ease to Motion

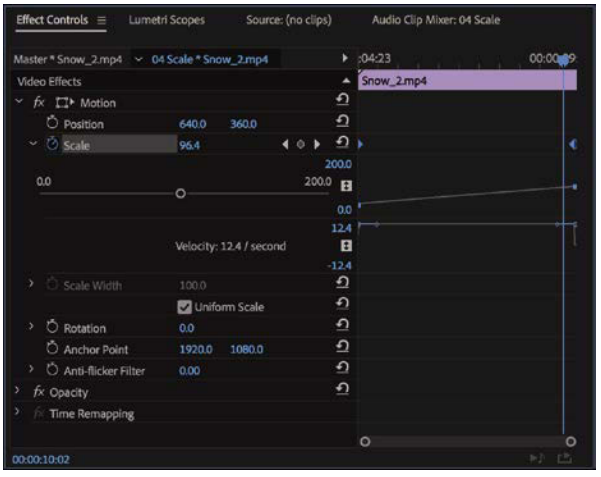
A quick way to add a feeling of inertia to clip motion is to use a keyframe preset. For example, you can create a ramp-up effect for speed by right-clicking a keyframe and choosing Ease In or Ease Out. Ease In is used for approaching a keyframe, and Ease Out is used when leaving a keyframe.

Continue working with the 04 Scale sequence.

1 Select the second video clip in the sequence.

2 In the Effect Controls panel, locate the Rotation and Scale properties.

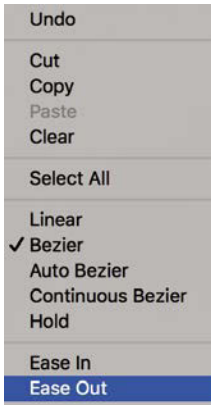
3 Click the disclosure icon next to the Scale property, and select the Scale property heading to reveal the control handles and velocity graphs.




You might want to increase the height of the Effect Controls panel to make room for the extra controls.

Don't be overwhelmed by the next numbers and graphs. Once you understand one of these, you'll understand them all because they all use a common design.

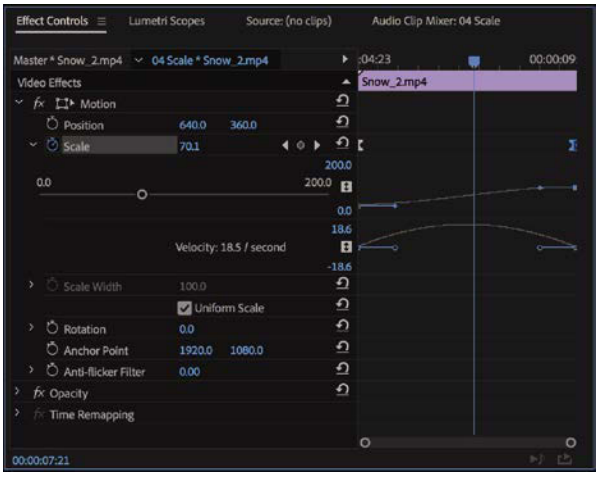
The graph makes it easier to view the effects of keyframe interpolation. A straight line means essentially no change in speed or acceleration.




4 Right-click the first Scale keyframe, displayed in the Effect Controls panel mini Timeline, and choose Ease Out.

5 Right-click the second Scale keyframe and choose Ease In.

The graph now shows a curved line, which translates as a gradual acceleration and deceleration of the animation.



6 Play the sequence to see your animation.

7 Experiment by dragging the blue Bezier handles in the Effect Controls panel to see their effects on speed and ramping.

The steeper the curve you create, the more sharply the animation's movement or speed increases. After experimenting, you can choose Edit > Undo repeatedly if you don't like the changes.

# Using other motion-related effects

Premiere Pro offers a number of other effects to control motion. While the Motion effect is the most intuitive, you may find yourself wanting more.

The Transform and Basic 3D effects are also useful and give more control over an object (including 3D rotation).

## Adding a drop shadow

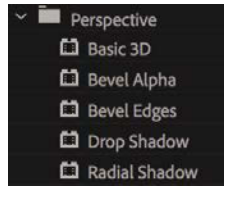
A drop shadow creates perspective by adding a small shadow behind an object. This is often used to help create a sense of separation between foreground and background elements.

Try adding a drop shadow.

1 Open the sequence 05 Enhance.

2 Make sure the Program Monitor zoom level is set to Fit.

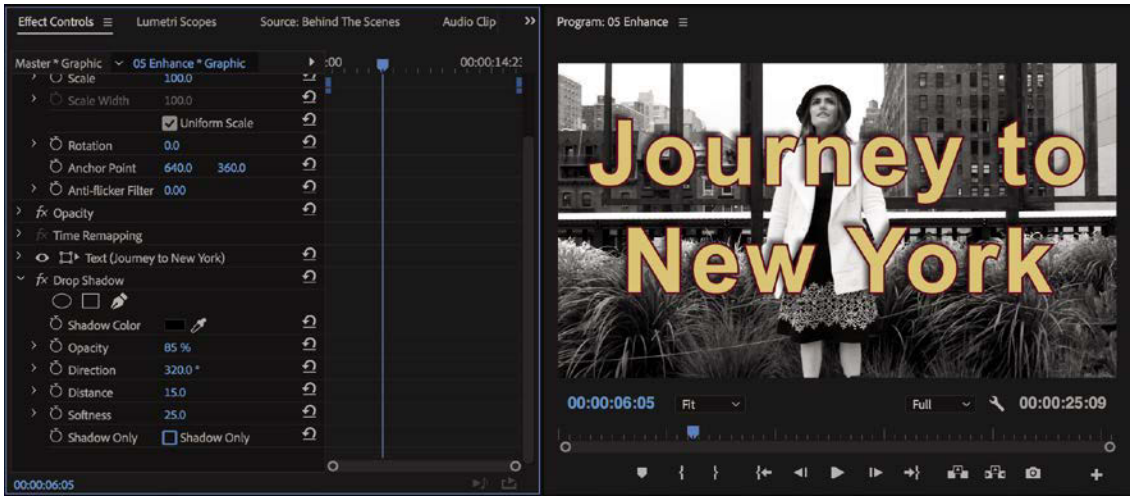
3 In the Effects panel, browse into Video Effects > Perspective.




4 Drag the Drop Shadow effect onto the Journey to New York Title clip on the V3 track.

5 Experiment with the Drop Shadow settings in the Effect Controls panel. You may need to scroll down to see them. When you have finished experimenting, choose the following settings:

- Set Distance to **15** so the shadow is further offset from the clip.
- Drag the Direction value to about 320° to see the shadow's angle change.
- Darken the shadow by changing Opacity to **85%**.
- Set Softness to **25** to soften the edges of the shadow. Generally, the greater the Distance setting, the more softness you should apply.




6 Play the sequence to watch your animation.

● **Note:** To make shadows fall away from a light source, add or subtract 180° from a perceived light source direction to get the correct direction for the shadow to fall.

## Adding a bevel

● **Note:** The Bevel Edges effect produces slightly harder edges than the Bevel Alpha effect. Both effects work well on rectangular clips, but the Bevel Alpha effect is better suited to text or logos.

Another way to enhance the edges of a clip is to add a bevel. This type of effect is useful on a picture-in-picture effect or on text. There are two bevels to choose from. The Bevel Edges effect is useful when the object is simply a standard video clip. The Bevel Alpha effect works better for text or logos because it detects the complex transparent areas in the image before applying the beveled edge.

Let's enhance the title a little.

1 Continue working with the 05 Enhance sequence.

2 Select the Journey to New York Title clip on V3 to see its controls in the Effect Controls panel.

3 In the Effects panel, choose Video Effects > Perspective and drag the Bevel Alpha effect into the Effect Controls panel, under the Drop Shadow effect.

The edges of the text should appear slightly beveled.

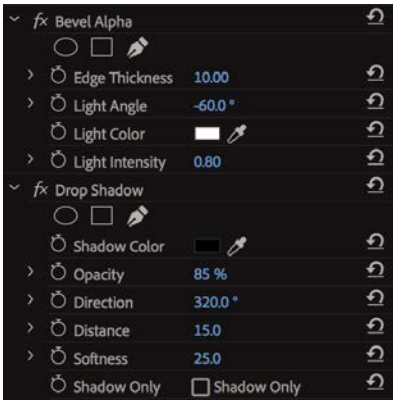
4 In the Effect Controls panel, increase Bevel Alpha Edge Thickness to **10** to make the edge more pronounced. You might need to scroll down in the Effect Controls panel to see all the settings.

▶ **Tip:** You can apply effects by dragging them onto clips, by dragging them into the Effect Controls panel when a clip is selected, or by double-clicking them in the Effects panel after selecting one or more clips.

5 Increase Light Intensity to **0.80** to see a brighter edge effect.


The effect is looking pretty good, but it's currently applied to both the text and the drop shadow. This is because the effect is below the drop shadow in the Effect Controls panel (the stacking order matters).

6 In the Effect Controls panel, drag the Bevel Alpha effect heading up, until it's just above the Drop Shadow effect. You'll see a black line where the effect will be placed. This changes the rendering order.




**Note:** If you're not getting the look you want when applying multiple effects to a clip, drag the order around and see whether that produces a better result.

7 Reduce the Edge Thickness amount to **8**.

8 Examine the subtle differences in the bevel.


9 Play the sequence to see your animation.

**Note:** You may need to render the sequence to see smooth playback because of the high-resolution clips and nonaccelerated effect.

## Adding motion with the Transform effect

An alternative to the Motion effect settings is the Transform effect. These two effects offer similar controls, but there are two key differences.

- The Transform effect processes changes to a clip's Anchor Point, Position, Scale, and Opacity settings in the stack with other effects, unlike the Motion settings. This means effects such as drop shadows and bevels can behave differently.
- The Transform effect includes Skew, Skew Axis, and Shuttle Angle settings to allow a visual angular transformation to clips.

Let's compare the two effects using a prebuilt sequence.

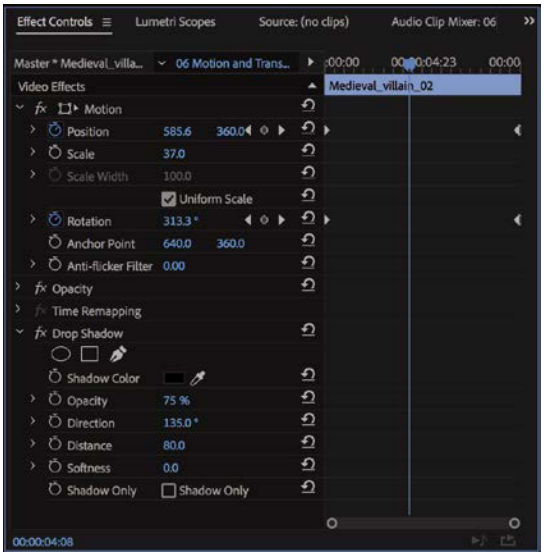
1 Open the sequence 06 Motion and Transform.

2 Play the sequence to familiarize yourself with it.

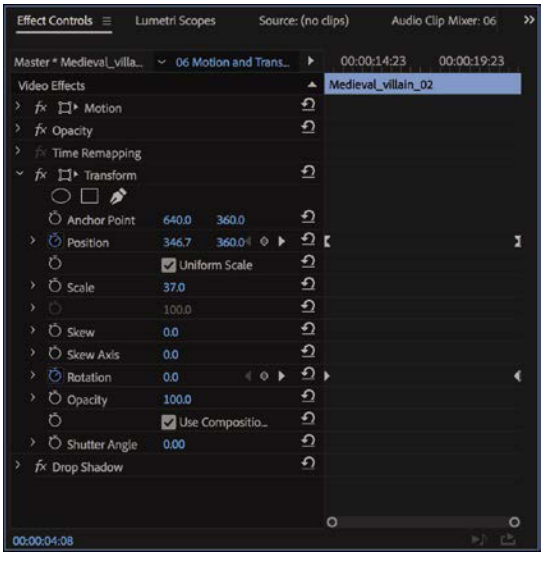
There are two sections in the sequence. Each has a picture-in-picture (PIP), rotating twice over a background clip, while moving from left to right. Look carefully at the position of the shadow on each pair of clips.

- In the first example, the shadow follows the bottom edge of the PIP and appears on all four sides of the clip as it rotates, which obviously isn't realistic because the light source producing the shadow wouldn't be moving.
- In the second example, the shadow stays on the lower right of the PIP, which is more realistic.

3 Click the first clip on the V2 track, and view the effects applied in the Effect Controls panel: the Motion effect and the Drop Shadow effect.




4 Now click the second clip on the V2 track. The Transform effect is producing the motion this time, with the Drop Shadow effect again producing the shadow.




The Transform effect has many of the same options as the Motion effect, with the addition of Skew, Skew Axis, and Shutter Angle. As you can see, the Transform effect also works more realistically with the Drop Shadow effect than the Motion effect because of the order in which the effects are applied; the Motion effect is always applied after other effects.

## Manipulating clips in 3D space with Basic 3D

Another option for creating movement is the Basic 3D effect, which can manipulate a clip in 3D space. It allows you to rotate the image around horizontal and vertical axes as well as move it toward or away from you. You'll also find an option to enable a specular highlight, which creates the appearance of light reflecting off the rotating surface.

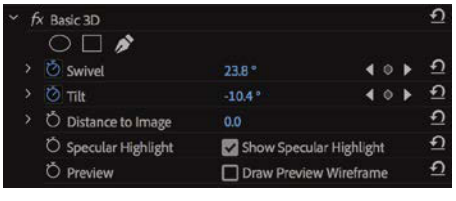
Let's explore the effect using a prebuilt sequence.

1 Open the sequence 07 Basic 3D.

2 Drag the playhead over the sequence Timeline (scrub) to view the contents.

The light that follows the motion comes from above, from behind, and from the left of the viewer. Since the light comes from above, you won't see the effect until the image is tilted backward to catch the reflection. Specular highlights of this kind can be used to enhance the realism of a 3D effect.

The following are four major properties of the Basic 3D effect:




- **Swivel:** This controls the rotation around the vertical y-axis. If you rotate past 90°, you'll see the back of the image, which is a mirror of the front.
- **Tilt:** This controls the rotation around a horizontal x-axis. If you rotate beyond 90°, the back will also be visible.
- **Distance to Image:** This moves the image along the z-axis to simulate depth. As the distance value gets larger, the image moves farther away.
- **Specular Highlight:** This adds a glint of light that reflects off the surface of the rotated image, as though an overhead light were shining on the surface. This option is either on or off.

3 Experiment with the Basic 3D options.

## Review questions

1. Which fixed effect will move a clip in the frame?
2. You want a clip to appear full-screen for a few seconds and then spin away. How do you make the Motion effect's Rotation feature start within a clip rather than at the beginning?
3. How can you start an object rotating gradually and have it stop rotating slowly?
4. If you want to add a drop shadow to a clip, why might you choose to use a different motion-related effect from the Motion fixed effect?

## Review answers

1. The Motion effect lets you set a new position for a clip. If keyframes are used, the effect can be animated.
2. Position the playhead where you want the rotation to begin, and click the Add/Remove Keyframe button or the stopwatch icon. Then move to where you want the spinning to end and change the Rotation parameter; another keyframe will appear.
3. Use the Ease Out and Ease In options to change the keyframe interpolation to be gradual rather than sudden.
4. The Motion effect is the last effect applied to a clip. Motion takes whatever effects you apply before it (including Drop Shadow) and spins the entire assemblage as a single unit. To create a realistic drop shadow on a spinning object, use Transform or Basic 3D and then place a Drop Shadow below that in the Effect Controls panel.