Starting the lesson

Video projects are often motion graphics-oriented, and it's common to see multiple shots combined as complex compositions. These are often put into motion. Perhaps you'll see multiple video clips streaming past in floating boxes, or you'll see a video clip shrunk down and placed next to an on-camera host. You can create those effects (and more) in Premiere Pro using the Motion settings or a number of clip-based effects that offer Motion settings.

The Motion effect controls allow you to position, rotate, or change the size of a clip within the frame. Some adjustments can be made directly in the Program Monitor. It's important to be clear that the adjustments you make in the Effect Controls panel relate exclusively to the clip you have selected and not to the sequence it is in. The sequence settings, in the Sequence menu, can be considered the output settings.

A keyframe is a special kind of marker that defines settings at a particular point in time. If you use two (or more) keyframes, Premiere Pro can automatically animate the settings for an adjustment between them. You can use advanced controls to control the timing of that animation using different types of keyframes.

Adjusting the Motion effect

Every visual clip in a Premiere Pro sequence automatically has a number of effects applied as fixed effects (also sometimes called *intrinsic effects*). Motion is the name of one of these effects.

To adjust the effect, select the clip in a sequence and look in the Effect Controls panel. Expand the Motion effect to adjust the settings.

The Motion effect allows you to adjust the position, scale, or rotation of a clip. Let's look at the way this effect has been used to reposition a clip in a sequence.

Tip: Unlike other effect controls, if you expand or collapse the settings for the Motion effect, the settings will remain expanded or collapsed for all clips.

Tip: As you have been saving projects with new names while working on them, you can go back to earlier lessons and experiment again with a fresh copy of the original project file.

1. Open Lesson 09.prproj in the Lesson 09 folder.
2. Save the project as Lesson 09 Working.prproj.
3. Choose Effects in the Workspaces panel, or choose Window > Workspaces > Effects.

   This workspace was created to make it easier to work with transitions and effects. If you have been using Premiere Pro for a while, you may need to reset the workspace to the saved version by clicking the menu next to the Effects option in the Workspaces panel.
4. Open the sequence 01 Floating.

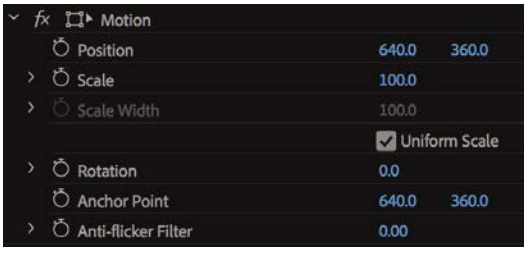
5 Make sure the Select Zoom Level menu in the Program Monitor is set to Fit. It's important to see the whole composition when setting up visual effects.

6 Play the sequence.

This clip's Position, Scale, and Rotation properties have been changed. Keyframes have been added, with different settings at different points in time, so the clip animates.

Understanding Motion settings

Though these controls are called Motion, there's no movement until you add it. By default, clips are displayed at 100% scale in the center of the Program Monitor.



Select a single clip in a sequence, and expand the Motion controls to view them.

Here are the options:

- **Position:** This places the clip along the x-axis (horizontal) and y-axis (vertical). Coordinates are calculated based on the pixel position of an anchor point (covered later in this list) from the upper-left corner of the image. So, the default position for a 1280x720 clip would be 640, 360, that is, the exact center.
- **Scale (Scale Height, when Uniform Scale is deselected):** Clips are set to their full size by default (100%). To shrink a clip, reduce this number. You can scale up to 10,000%—though be warned, scaling up will make images pixelated and soft.
- **Scale Width:** Deselect Uniform Scale to make Scale Width available. This lets you change the clip width and height independently.
- **Rotation:** You can rotate an image along the z-axis—a flat spin (as if viewing a spinning turntable or carousel from above). You can enter degrees or a number of rotations. For example, 450 is the same as 1x90 (the 1 counts as one full 360-degree turn). Positive numbers give clockwise rotation, and negative numbers give counterclockwise rotation.
- **Anchor Point:** Rotation and position adjustments are all based on the anchor point, which is a point at the center of a clip by default. This can be changed to any point, including one of the clip's corners or even a point outside the clip.

▶ **Tip:** The Anchor point position can be animated, just like every other Motion control, for more complex motion.

● **Note:** If the frame containing the Effect Controls panel is too narrow, some of the controls will overlap, making it difficult to interact with them. If this is the case, make the frame wider before working with the Effect Controls panel.

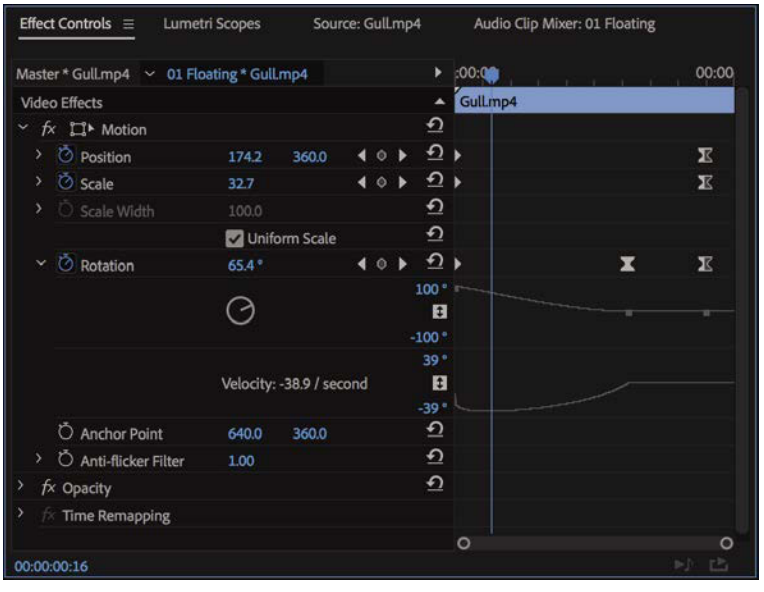
For example, if you set the anchor point to the corner of the clip, when you adjust the Rotation setting, the clip will rotate around that corner rather than around the center of the image. If you change the anchor point in relation to the image, you may have to reposition the clip in the frame to compensate for the adjustment.

- **Anti-flicker Filter:** This feature is useful for interlaced video clips and for images that contain high detail, such as fine lines, hard edges, or parallel lines (that can cause moiré problems). These high-detail images can flicker during motion. To add some blurring and reduce flicker, use 1.00.

Let's look closer at the animated clip, continuing to work with the sequence 01 Floating.

1. Click once on the clip on the Timeline to make sure it is selected.
2. Make sure the Effect Controls panel is visible. It should have appeared when you reset the Effects workspace, but if you can't find it, look for it in the Window menu.
3. In the Effect Controls panel, expand the Motion effect controls by clicking the disclosure triangle ▸ next to the word *Motion*.
4. At the upper right of the Effect Controls panel settings, to the right of the master clip name and sequence clip name (these can be different if you choose), a small triangle ▸ toggles the display of an integrated Timeline. Make sure the Effect Controls Timeline is visible.

   If it isn't, click the triangle to show it. The Timeline in the Effect Controls panel displays keyframes.



5 Click the Go To Previous Keyframe or Go To Next Keyframe arrows to jump between existing keyframes. Each control has its own keyframes.

Note: It can be difficult to line up the playhead with an existing keyframe. Using the Previous/Next Keyframe buttons helps you avoid adding unwanted keyframes.

Now that you know how to view an existing animation, let's reset the clip. You'll animate from a clip's position later in this lesson.

6 Click the Toggle Animation stopwatch button for the Position property to turn off its keyframes.

7 Click OK in the dialog warning that all keyframes will be deleted; that's what you want.

8 Turn off keyframes for the Scale and Rotation properties in the same way.

9 Click the curved-arrow Reset Parameter button to the right of the Motion effect heading in the Effect Controls panel.

Now the Motion settings are all set to their default settings.

Note: Each control has its own Reset button. If you reset the whole effect, every control is returned to its default state.

Note: When the Toggle Animation button is on, clicking the Reset button will not change any existing keyframes. Instead, a new keyframe is added with default settings. It's important to turn off animation before resetting the effect to avoid this.

Examining Motion properties

The Position, Scale, and Rotation properties are spatial. That means the changes you make are easy to see because the object will change in size and position. You can adjust these properties by entering numerical values, by using the scrubbable text, or by dragging the Transform controls.

1 Open the sequence 02 Motion.

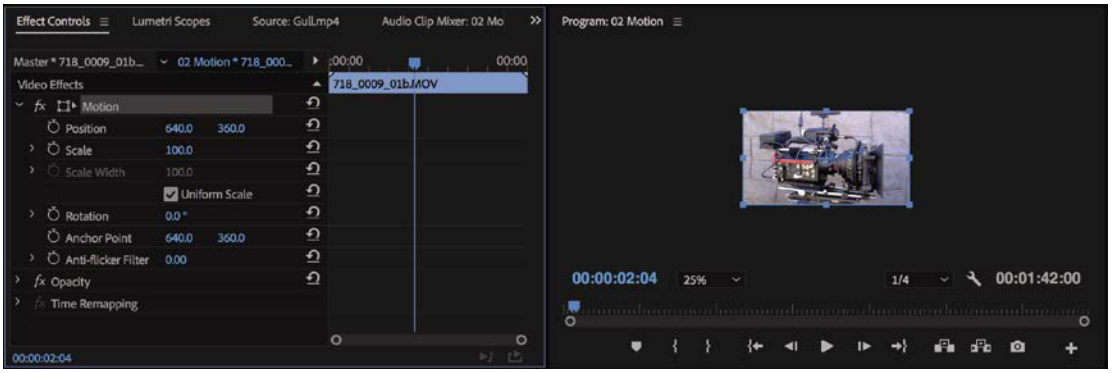
2 In the Program Monitor, make sure the zoom level is set to 25% or 50% (or a zoom amount that allows you to see space around the active frame).

Setting the zoom small like this makes it easy to position items outside the frame.

3 Drag the Timeline playhead anywhere in the clip so you can see the video in the Program Monitor.

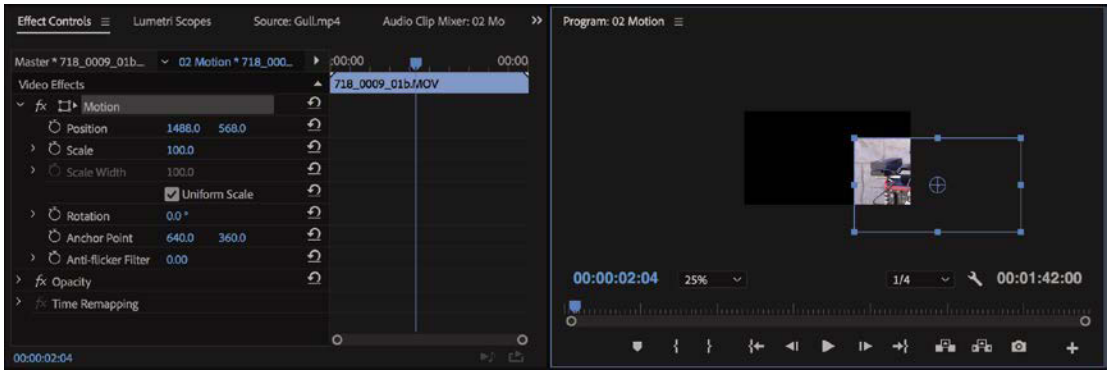
4 Click the clip in the Timeline so it's selected, with its settings displayed in the Effect Controls panel. If necessary, expand the Motion settings.

5 Click the Motion effect heading in the Effect Controls panel to select it.



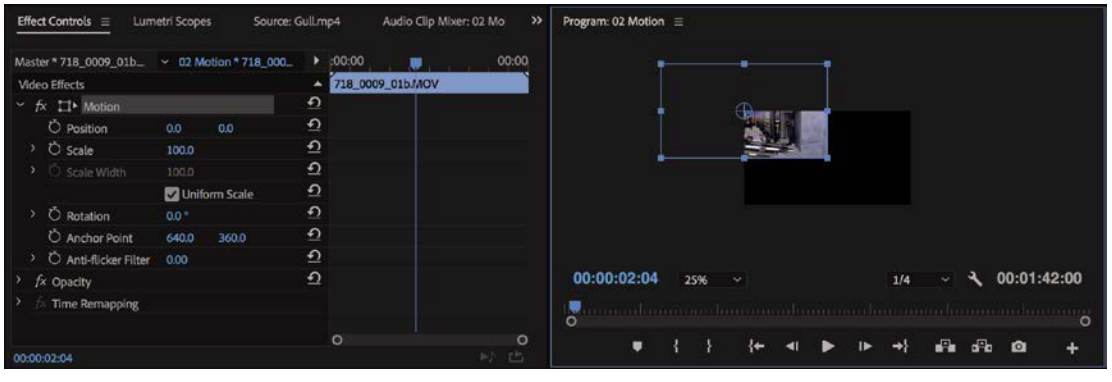
When you select the motion effect, a bounding box with a crosshair and handles appears around the clip in the Program Monitor.

6 Click inside the clip bounding box in the Program Monitor, avoiding the crosshair, and drag the clip around.



Position values in the Effect Controls panel update as you move the clip.

7 Position the clip so that it's centered on the upper-left corner of the screen. Use the guides to line up the clip with the edge of the picture.



That crosshair is the anchor point, which is used for position and rotation controls. Be careful not to click the anchor point, or you'll move it in relation to the image.

You'll see that the Position settings in the Effect Controls panel are 0, 0 (or close to that, depending on where you placed the center of the clip).

This is a 720p sequence, so the lower-right corner of the screen is 1280, 720.

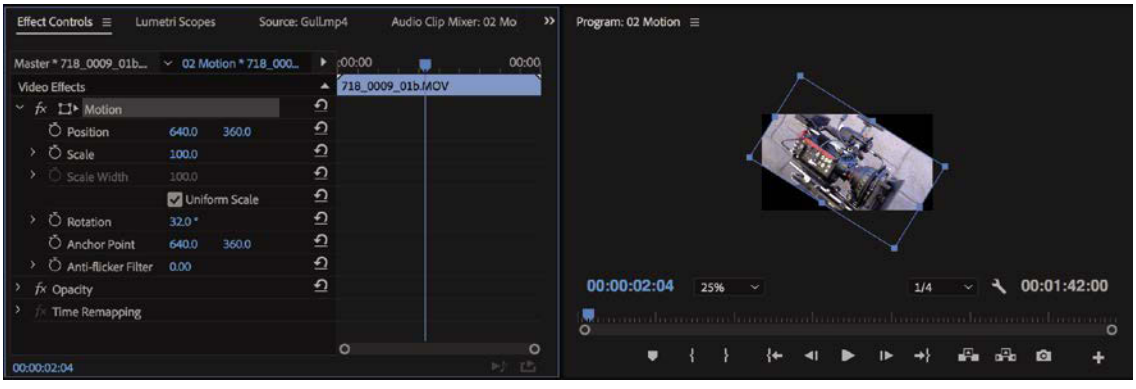
Note: Premiere Pro uses a coordinate system that has the upper-left corner of the screen as 0, 0. All x and y values, respectively, to the left of and above that point are negative. All x and y values to the right of and below that point are positive.

Note: Several effects, like the Motion effect, have a Transform icon to indicate that you can use direct manipulation in the Program Monitor when you select the effect heading. Try this with Corner Pin, Crop, Mirror, Transform, and Twirl.

8 Click the Reset button for the motion settings to restore the clip to its default position.

9 Drag the blue number for the Rotation setting in the Effect Controls panel. As you drag left or right, the clip rotates.

Tip: Hold Shift while dragging numbers and they'll change ten times faster, for a more dramatic adjustment. Hold Control (Windows) or Command (macOS) and they'll change ten times slower, for a more precise adjustment.



10 Click the Reset button for the Motion heading in the Effect Controls panel to restore the clip to its default position.

Changing clip position, size, and rotation

Sliding a clip around the screen only begins to exploit the possibilities of the Motion effect controls. One feature that makes the Motion effect so useful is the ability to change the scale of the clip as well as rotate it. In the next example, you'll build a simple intro segment for a behind-the-scenes featurette.

Changing position

Let's begin by using keyframes to animate the position of a layer. For this exercise, the first thing you'll do is change the clip position. The picture will start off-screen and then move across the screen from right to left.

1 Open the sequence 03 Montage.

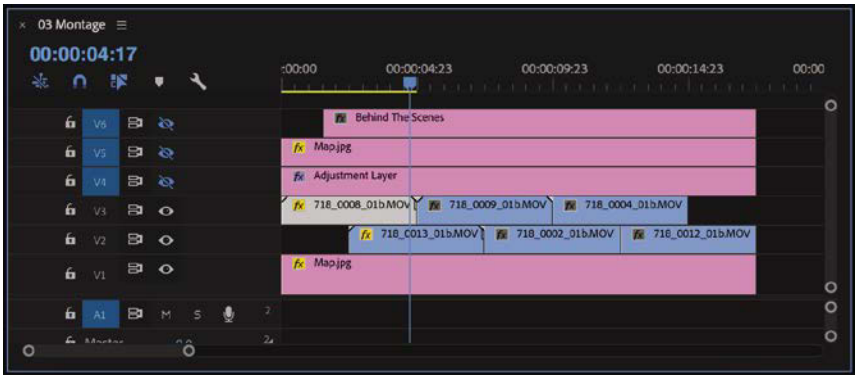
The sequence has several tracks, some of which are currently disabled. You'll use them later.

2 Position the playhead to the start of the sequence.

3 Set the Program Monitor zoom level to Fit.

4 Click once to select the first video clip on track V3.

You might want to make the track taller to see it better.



The clip's controls appear in the Effect Controls panel.

5 In the Effect Controls panel, click the Toggle Animation stopwatch button for Position. This turns on keyframing for that setting and automatically adds a keyframe at the playhead position.

From now on, when you change the setting, Premiere Pro will add (or update) a keyframe automatically.

6 The Position control has two numbers. The first is the x-axis, and the second is the y-axis. Enter a Position setting of **–640** into the x-axis (the first number) as a starting position.

The clip moves off-screen to the left, revealing the clips on the V1 and V2 tracks.

The clip Map.jpg on track V1 is revealed when the selected clip is moved off-screen.

7 Drag the playhead to the last frame of the clip (00:00:4:23). You can do this in the Timeline panel or in the Effect Controls panel.

8 Enter **1920** for the position x-axis. The clip moves off the right edge of the screen.

Where there are two numbers for a control, they often represent the x-axis and y-axis.

9 Play the sequence from the beginning. The clip moves from off-screen left to off-screen right.

The second clip on V3 pops up suddenly. You'll animate this clip and others next.

Reusing Motion settings

Now that you've applied keyframes and effects to a clip, you can save time by reusing them on other clips. It's as easy as copying and pasting to apply effects from one clip to one or more other clips. In this example, you'll apply the same left-to-right floating animation to other clips in the project.

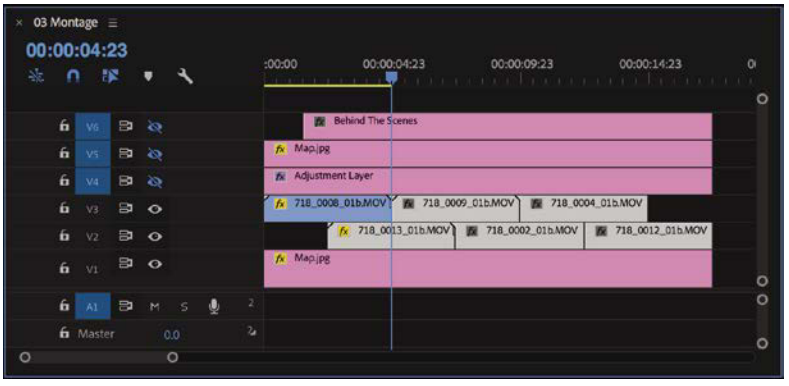
There are several methods for reusing effects. Let's try one now.

1 In the Timeline panel, select the clip you just animated. It's the first clip on V3.

2 Choose Edit > Copy.

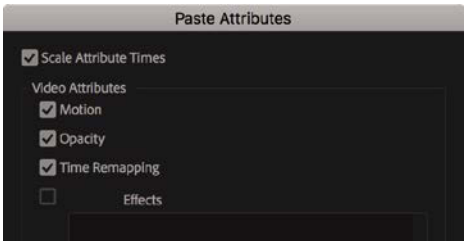
The clip and its effects and settings are now temporarily stored on your computer's clipboard.

3 With the Selection tool (V), drag from right to left to select the five other clips on the V2 and V3 tracks (you may need to zoom out a little to see all the clips). You could also hold the Shift key and select the first and last of the five clips.



4 Choose Edit > Paste Attributes.

The Paste Attributes dialog opens, letting you selectively apply effects and keyframes copied from another clip.



5 Leave the check boxes with their default values, and click OK.

6 Play the sequence to see the result.

Note: As an alternative to selecting a clip in the Timeline, you can always select one or more specific effect headings in the Effect Controls panel. Ctrl-click (Windows) or Command-click (macOS) to select multiple noncontiguous effects, and choose Edit > Copy. You can then select another clip (or clips) and choose Edit > Paste to paste the effects onto other clips.

Adding rotation and changing the anchor point

Moving clips around the screen can be effective, but you can really bring things to life using two more properties. Let's start with Rotation.

The Rotation property revolves a clip around its anchor point on the z-axis. By default, the anchor point is in the center of the image. However, you can change the relationship between the anchor point and the image for more interesting animation.

Let's add some rotation to a clip.

1 On the Timeline, ensure the Toggle Track Output button for V6 to enable it . The clip on the track is a graphic that reads *Behind The Scenes*.

2 Move the playhead to the start of the graphic clip (00:00:01:13). Try holding the Shift key while you drag the playhead to do this.

3 Select the graphic clip in the Timeline.

The clip's controls appear in the Effect Controls panel.

4 Select the Motion effect heading to see the anchor point and bounding-box controls in the Program Monitor. Notice the position of the anchor point, in the center of the title.

The anchor point is a small circle with a cross.

Let's adjust the Rotation property in the Effect Controls panel and see the effect it has.

5 Enter a value of **90.0** into the Rotation field.

The title rotates in the center of the screen.

6 Choose Edit > Undo.

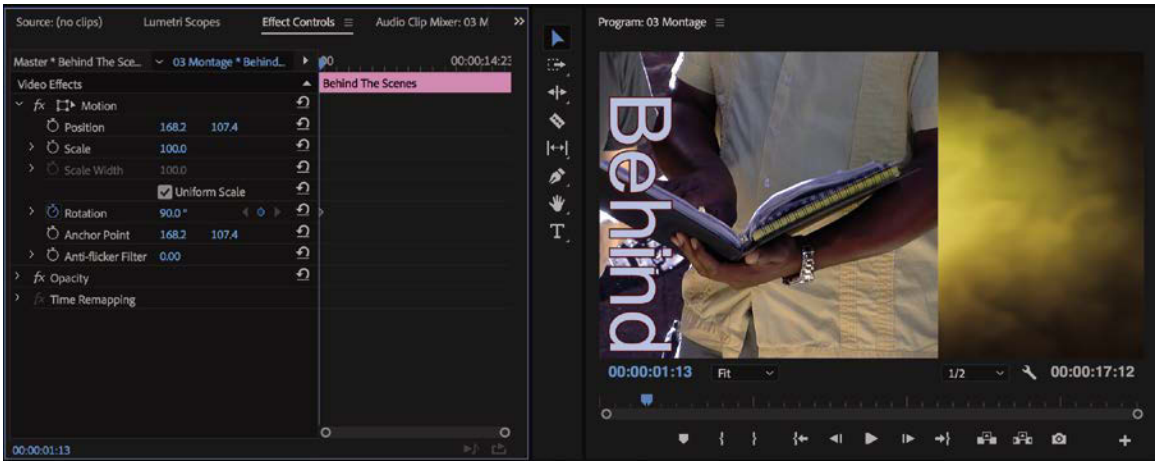
7 Make sure the Motion settings heading is still selected in the Effect Controls panel.

8 In the Program Monitor, drag the anchor point until the crosshair sits on the upper-left corner of the letter *B* in the first word.

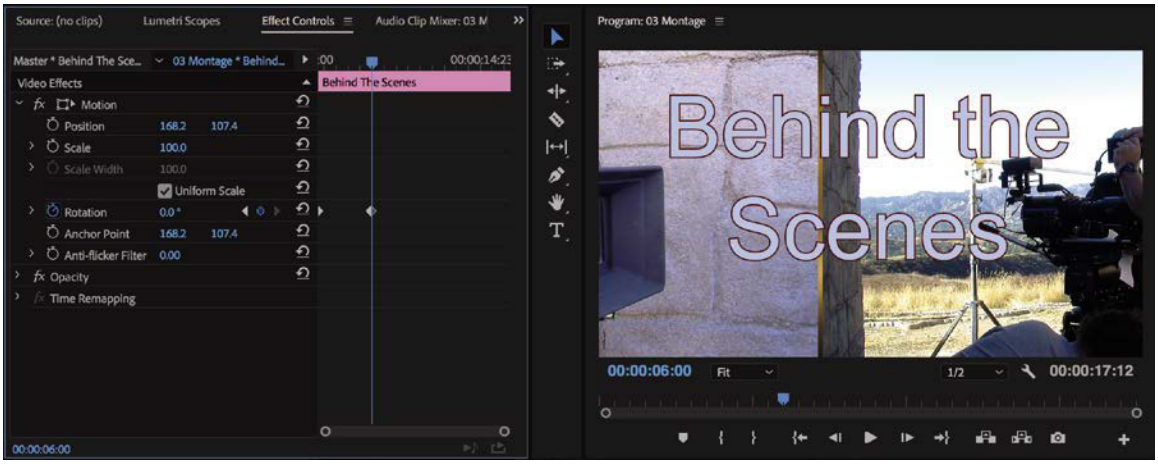
The Position settings control the anchor point, and now that you have moved it in the image, the settings have updated automatically.

9 Your playhead should still be on the first frame of the clip. Click the Toggle Animation stopwatch button for Rotation to toggle on animation. This adds a keyframe automatically.

10 Set the rotation to **90.0**. This updates the keyframe you just added.



11 Move the playhead forward to 00:00:06:00, and set the clip rotation to 0.0 in the Effect Controls panel. This adds another keyframe automatically.



12 Play the sequence to see your animation.

Changing clip size

There are a few approaches to changing the size of items in a sequence. By default, items added to a sequence come in at 100% of their original size. However, you can choose to manually adjust the size or let Premiere Pro do it for you automatically.

You can choose from these methods:

- Use the Scale property of the Motion effect in the Effect Controls panel.

- If the clip has a different frame size compared to your sequence, right-click the clip on the Timeline and choose Set To Frame Size. This automatically adjusts the Scale property of the Motion effect to match the frame size of the clip with the size of the sequence.
- If the clip has a different frame size compared to your sequence, right-click the clip on the Timeline and choose Scale To Frame Size. This has a similar result to the Set To Frame Size option, but Premiere Pro resamples the image at the new (often lower) resolution. If you scale back up now using the Motion > Scale setting, the image might look soft, even if the original clip was very high resolution.
- You can also select Scale To Frame Size or Set To Frame Size automatically by choosing Edit > Preferences > Media > Default Media Scaling (Windows) or Premiere Pro CC > Preferences > Media > Default Media Scaling (macOS). The setting is applied to assets as you import them.

For maximum flexibility, use the first or second method so you can scale as needed without sacrificing quality. Let's try this.

1. Open the sequence 04 Scale.
2. Scrub through the sequence to view the clips.

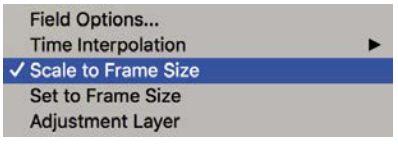
   The second and third clips on the V1 track are much larger than the first two. In fact, your system may struggle to play those clips without dropping frames, and they are dramatically cropped by the edge of the frame.

3 Move the Timeline playhead over the last clip in the sequence, on the V1 track. Right-click this clip, and choose Scale To Frame Size.

This conveniently scales the image to fit the sequence resolution, though it resamples the image, losing the original picture quality. However, there's an issue: The clip is full 4K, with a resolution of 4096x2160, and that is not a perfect 16:9 image. It doesn't fit the aspect ratio of the sequence, and black bars are introduced at the top and bottom of the image. These bars are often called *letterboxing*.

This is a common outcome when working with content that has a different aspect ratio than your sequence, and there is no easy way around it. You'll need to make a manual adjustment.

4 Right-click the clip again and select Scale To Frame Size again to deselect it. This is an option you can turn off and on at any time.



5 With the clip selected, open the Effect Controls panel.

6 Use the Scale setting to adjust the frame size until the clip image fits the sequence frame without showing letterboxing; a setting of roughly 34% should work. You can choose any framing and adjust the Position settings to reframe the shot if necessary.

When you scale an image to avoid letterboxing, you'll have to crop the sides. When aspect ratios don't match, you have to choose between letterboxing, cropping, or changing the aspect ratio of the image by deselecting the Uniform Scale option in the Effect Controls panel.

Animating clip size changes

In the previous example, the clip image has a different aspect ratio compared to the sequence.

Let's try a different example and animate the adjustment.

1 Position the Timeline playhead over the first frame of the second clip in the 04 Scale sequence, at 00:00:05:00.

Note: The settings in the Effect Controls panel don't show if they are pixels, percentages, or degrees. This can take a little getting used to, but you'll find with experience the controls do make sense for each setting.

This clip is 3840x2160-pixel ultra-high definition (UHD), which is the same image aspect ratio as the sequence, which is 1280x720. It's also the same aspect ratio as full HD, at 1920x1080. This makes shooting UHD content convenient if you intend to include it in an HD production.

2 Select the clip and open the Effect Controls panel. The scale is set to 100%.

3 Right-click the clip in the Timeline panel and choose Set To Frame Size.

When you select Set To Frame Size, Premiere Pro resizes the clip using the Scale setting so that it fits inside the frame of the sequence. The amount of adjustment varies depending on the image size of the clip and the resolution of the sequence.

This clip scales down to 33.3% to fit the image. You now know you can scale this clip between 33.3% and 100% and maintain quality, while still filling the frame.

4 Turn on keyframing for Scale by clicking the Toggle Animation stopwatch button for Scale in the Effect Controls panel.

5 Position the playhead over the last frame of the clip.

6 Click the reset button for the Scale setting in the Effect Controls panel.

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.