

Faux Reflections

by Chris & Trish Meyer, Crish Design (*formally known as CyberMotion*)

Ways to fake reflections in After Effects.

Although After Effects has long offered 3D capabilities, they are not as sophisticated as those offered by a dedicated 3D program. One of its shortcomings is in the area of reflections, such as having a video or text reflect along a virtual floor. As a result, many recipes – plus a few really cool plug-ins – have surfaced to help fake reflections inside After Effects. We'll walk you through our favorite workaround, exploiting some features in After Effects you may not have thought of using.

Flip, Fade, and Blur

When we develop a technique we suspect we'll be using over and over again in the future, we try to avoid building a "house of cards" that might be easy too easy to break (especially when a client demands last-second changes). As a result, our approach may initially seem like it requires a few more steps than other recipes, but the tradeoff is extra flexibility and changeability.

Step 1: Select your layer to be reflected, and choose Layer > Pre-compose. Choose the option Leave All Attributes, and disable the checkbox for Open New Composition. Name the precomp as you like, and click Okay. The reason we did this is so that if you ever want to edit or swap out the video, you can do it in the precomp you just created, and your changes will automatically be reflected (no pun intended) in both the original source layer and the reflection layer you're about to create.

Step 2: In the main comp, enable the 3D Layer switch for the layer that you wish to reflect. You don't need a 3D camera or lights for this trick; putting this layer in 3D just makes it easier to position its reflection.

Step 3: Place the layer's Anchor Point where the imaginary floor should be relative to that layer. For example, if the layer is supposed to be sitting on the floor, put its Anchor Point at the bottom of the layer.

The easy way to do this is to select the layer, press A to reveal its Anchor Point in the Timeline panel, right-click on the Anchor Point value, set the Units popup to Percentage of Source, and then set the Y value to 100%. If the layer is supposed to float off the floor, place its Anchor Point below the bottom edge of the layer.

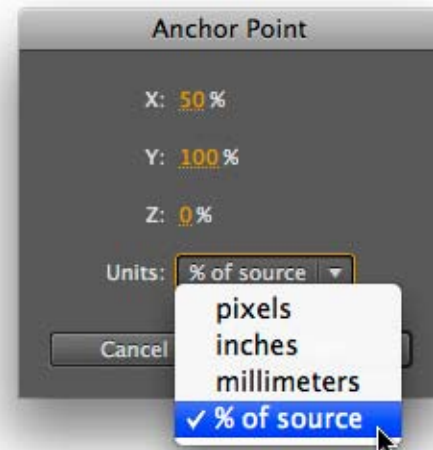


Figure 1

Figure 1: Right-click on a value in the Timeline panel to open a special editing dialog where you can choose what units to use when setting a parameter's value.

Step 4: Move the layer into place relative to your imaginary floor. If your floor is a 3D layer, look at the Y Position value for the floor, and use the same Y Position value for the layer you wish to reflect.

Step 5: Duplicate the layer. This duplicate will become your reflection. We usually move the duplicate underneath the original in the Timeline panel just to reinforce that the original sits on top of its reflection.

Step 6: Press Shift+F4 to open the Parent column in the Timeline panel. Parent the duplicate to the original layer. This will make it possible to scale and reposition the source layer plus its reflection as a group, rather than having to move each one individually.

Step 7: With the duplicate selected, press R to reveal its Rotation and Orientation values. Set the X Orientation value for the reflection to 180°. (If your floor was an opaque 3D layer, this will make the reflection disappear as it rotates underneath the floor. Don't worry; we'll solve that problem later.)

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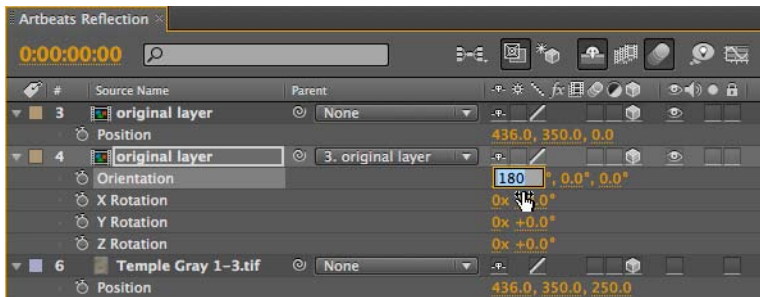


Figure 2a



Figure 2b

Figure 2: Duplicate your layer, parent the duplicate to the original, and flip the duplicate 180° on its X axis. (The floor is turned off to show the reflection layer unobscured.) The video is clip GRW206H from the Artbeats Grow 2 HD collection.

At this point, you've created a perfect reflection. But reflections are seldom perfect! The real heart of this tutorial comes in distressing the reflection:

Step 8: Isolate the reflection layer into its own comp to work on it. To do this, select the duplicated layer, and choose Layer > Pre-compose. In the dialog that opens, choose option 1, Leave All Attributes, and enable the checkbox for Open New Composition. Give the new precomp a name such as "reflection" and click OK; a new comp will be created that contains your reflected layer. Note that in the precomp, the reflection image appears right way up, so you'll create that reflection effects upside-down as well.

(The next few steps use Shape Layers, introduced in After Effects CS3. If you have an earlier version, create the linear gradient using any other method you're familiar with. For instance, you could apply the Ramp effect to a Solid layer in its own precomp, or import a gradient image from Photoshop.)

Step 9: In the reflection precomp, make sure this layer is not selected (press F2 to Deselect All). Select the Rectangle tool from the Tool panel along the top of the After Effects application window. The words Fill and Stroke – plus a pair of color swatches – will appear to the right along the Tool panel. (If they didn't, you have a layer selected; press F2.) Double-click the Rectangle tool, and a rectangular shape layer the same size as the comp will be created.

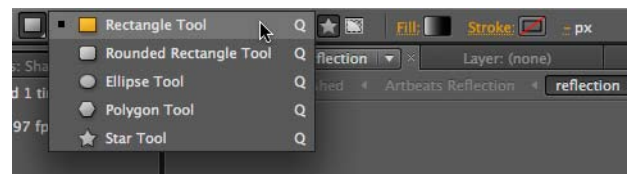


Figure 3

Figure 3: Select and then double-click the Rectangle tool – with no other layers selected – to create a comp-sized rectangular shape layer. (If a layer was selected, you'd be creating a mask instead.)

Step 10: With Shape Layer 1 selected, hold down Option on Mac (Alt on Windows) and click on the swatch to the right of the word Stroke until it has a red "no" slash through it. Next, hold Option (Alt) and click on the swatch to the right of the word Fill until you see a thumbnail image of a linear gradient. Then click on this thumbnail to open the Gradient Editor. Create a simple white-to-black gradient that remains fully opaque across the entire gradient. (You can later edit the Location value to alter how fast the gradient transitions from white to black, which in turn alters how quickly the reflection will blur and fade away.)

Step 11: In the Timeline panel, twirl open Shape Layer 1 > Contents > Rectangle 1 > Gradient Fill. Scrub the Start Point and End Point to put black at the top of the comp, and the white at the bottom. (If some component of Rectangle 1 is selected, you will also see start and end dots in the Comp panel; you can drag those into position instead as well.) Twirl up Shape Layer 1 when done to clean up the Timeline.

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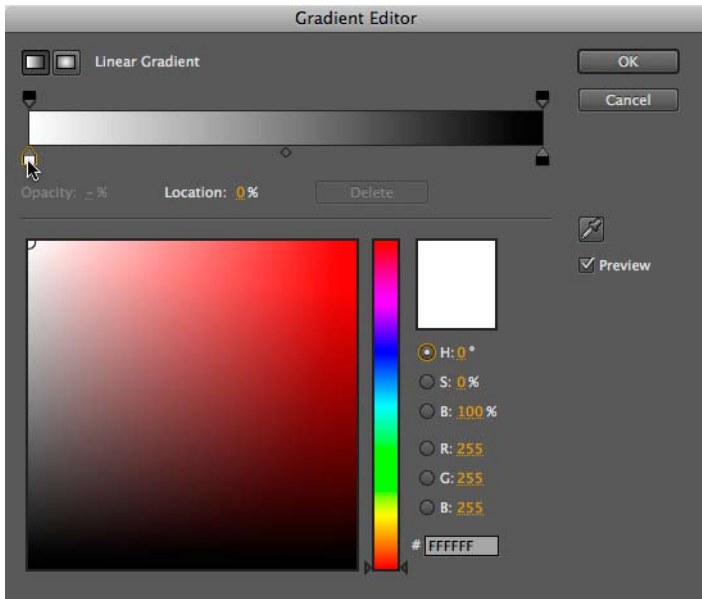


Figure 4a

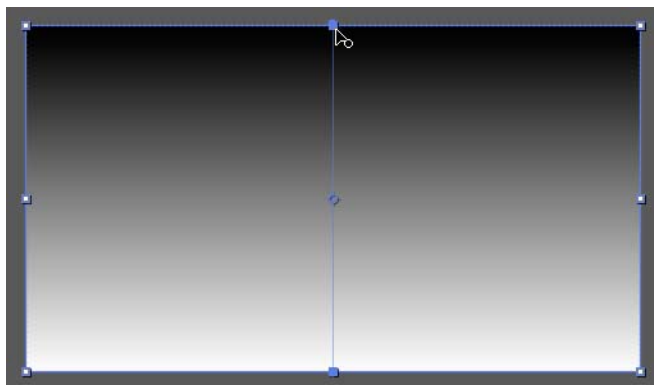


Figure 4b

Figure 4: Create a simple white-to-black gradient (a), and edit it so that white is at the bottom of the comp and black at the top (b).

Step 12: Reveal the Modes column in the Timeline panel; the shortcut is F4. Set the TrkMat (Track Matte) popup for the reflection layer (not the shape layer) to Luma Matte. This will fade off the reflection the further away it gets from the source (remember that the reflection is flipped upside-down in the main comp).

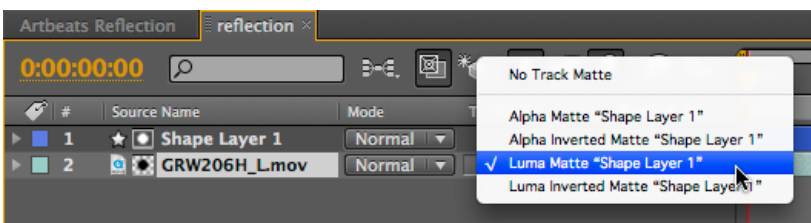


Figure 5a

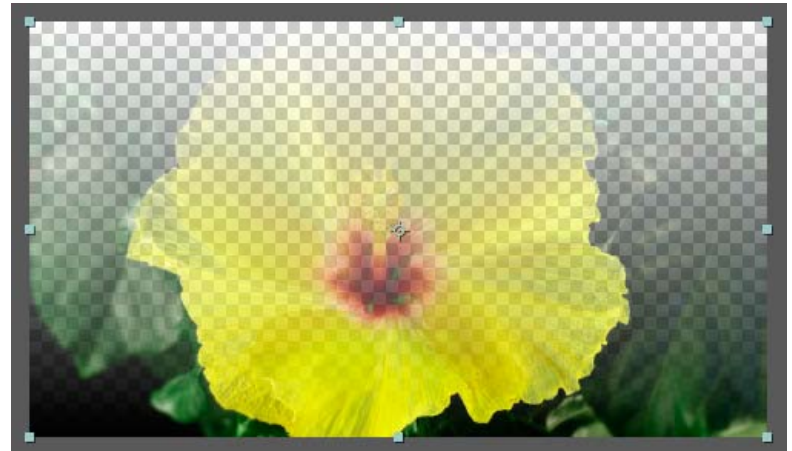


Figure 5b

Figure 5: Set the reflection layer to be luma matted by the shape layer (a). We've temporarily turned on the transparency grid so you can see how it now fades away in the Comp panel (b).

Step 13: With the reflection layer selected, add Effect > Blur & Sharpen > Lens Blur. Lens Blur can use a second layer as a guide for how and where to blur the layer it is applied to, and looks better than the old Compound Blur effect. In the Effect Controls panel, set Lens Blur's Depth Map Layer popup to Shape Layer 1, and enable its Invert Depth Map option. Scrub its Iris Radius value to adjust the amount of blur.

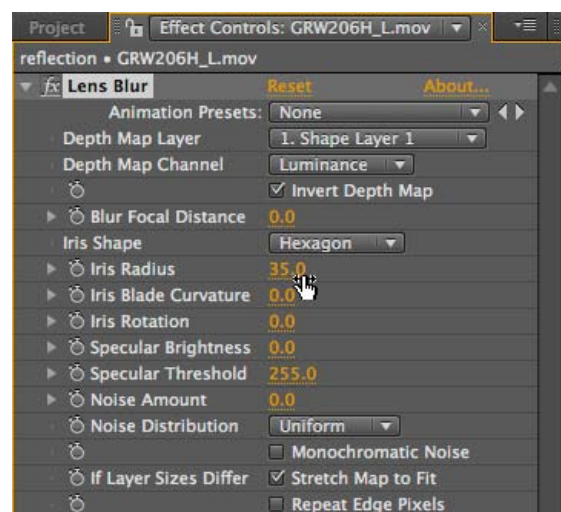


Figure 6a

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Figure 6b

Figure 6: Apply Lens Blur to the reflection layer, and set it to use the shape layer as its Depth Map (a). The reflection will now get progressively blurrier across its height (b).

Step 14: Return to your main comp. If the floor is a 2D layer, the reflection should be visible; set the reflection's Blending Mode to Screen or Add for it to interact with the floor like a real reflection. If the floor is a 3D layer, the reflection layer is underneath the floor; in this case, set the floor's Blending Mode to Screen or Add. (If an additional background is lurking underneath the floor, you may want to instead composite it in a comp downstream from this one.) In addition to the gradient's Location value mentioned back in Step 10, you can also reduce its Opacity and stylize it further by playing with the Orientation of the reflection layer.

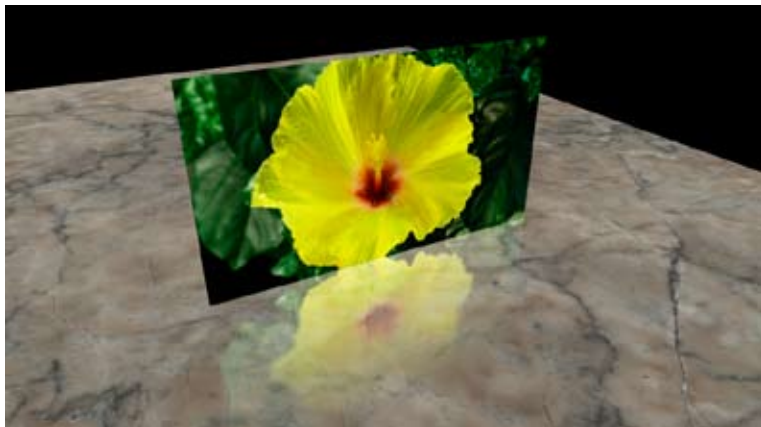


Figure 7

Figure 7: The final reflection. The "floor" is Temple Gray from the Artbeats still image collection Marble & Granite 1.

Note that that the original layer does not need to be a full-frame video clip: It can include text, a logo, or even an animation. Create your scene in its own composition, and use that in place of the original video clip.



Figure 8

Figure 8: This technique can also be used to reflect nested compositions that may contain their own animations. The ball is clip SBE175H from the Artbeats Sports Ball Elements HD collection.

Note: This tutorial is adapted from Lesson 12 in *After Effects Apprentice, 2nd Edition*, by Trish & Chris Meyer. Published by Focal Press, 2009.

Zooming Out

This tutorial shows but one way to create reflections in After Effects, with a focus on using features and plug-ins that already come with the program. As you might imagine, several clever third-party manufacturers have also come up with plug-ins that help create reflections.

For example, Red Giant Software's Warp plug-in set includes RG Reflection, which allows you to create similar looks – and interesting variations – using a single layer in 2D or 3D space. (Tip: If the source is a video or still image, place the source layer in a pre-comp that is big enough to accommodate the source and any planned reflections.)

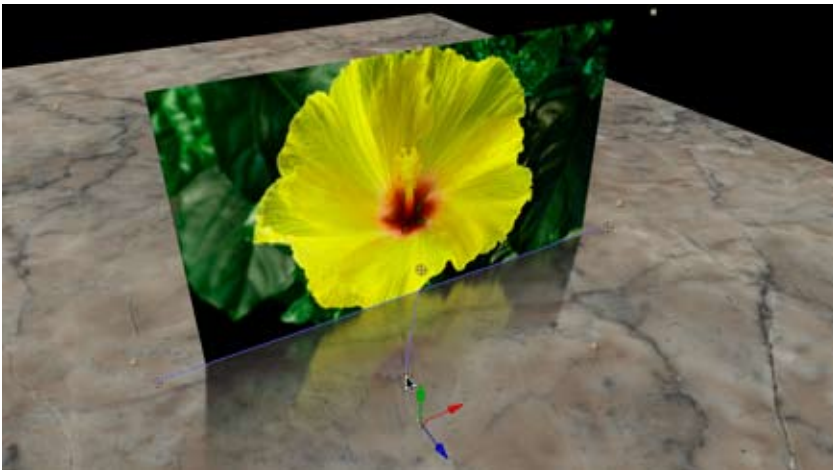


Figure 9

Figure 9: RG Reflection – part of the Red Giant Warp plug-in set – makes it possible to create nuanced (or wild) reflections using a single layer.

On the other hand, if creating 3D worlds is your thing, then you should check out Zaxwerks' Reflector, as it allows multiple 3D layers inside a composition to reflect off of each other.

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*Chris and Trish Meyer are the founders and owners of Crish Design (formerly known as CyberMotion), an award-winning motion graphics studio that has created a wide variety of work for film, broadcast, corporate events, and special venues. One of the original development sites for After Effects, they have just released the second edition of the popular beginner's book, *After Effects Apprentice*.*