Adobe After Effects 5.5

# Effects, part 7

Render

Four new effects are added to the Render category: 4-Color Gradient, Advanced Lightning, Cell Pattern, and Grid.

4-Color Gradient

This effect produces a four-color gradient. Each color is controlled by one of four individual, animatible effect points. Use 4-Color Gradient to create color backgrounds, mix color palettes, and generate color gradients.

Adjust the following controls for 4-Color Gradient:

Points Adjusts the positioning of each color within the four-color gradient, based on X,Y coordinate values.
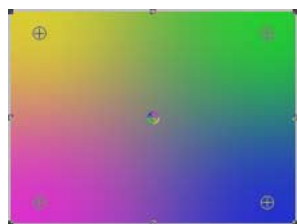
The default effect points

Colors Specifies the RGB color values for each of the four points. Color 1 sets the color of Point 1, Color 2 sets the color of Point 2, and so on.

Blend Specifies the blending of the gradient. The gradient is actually composed of four circles, each blending with one another as the result of a calculation between one circle's radius and that of the other surrounding circles. The amount of blending depends on the location of the effect points.

Jitter Specifies the amount of "jitter" (noise) in the gradient when blending is applied. Jitter uses a controlled noise type to change pixel values in the gradient, in order to reduce banding. The jitter noise affects only those areas where banding could occur.

Opacity Specifies the transparency of the gradient. The lower the value, the more transparent the gradient. The original source layer's opacity value represents 100% opacity in the effect.

Transfer Mode Specifies how the gradient colors interact with the original layer colors. These Transfer Modes are identical to the ones in the Timeline Modes panel.

Advanced Lightning (Production Bundle only)

This effect creates simulations of electrical discharges. Unlike the Lightning effect, Advanced Lightning doesn't self-animate and includes the Alpha Obstacle feature, which lets you move the lightning around designated objects in the frame. Use Advanced Lightning when you want more control over the lightning than is available using the Lightning effect.

Adjust the following controls for Advanced Lightning:

Lightning Type Specifies the characteristics of the lightning.

Note: The type determines the nature of the Direction/Outer Radius contextual control. (See Direction/Outer Radius control description for more information.)
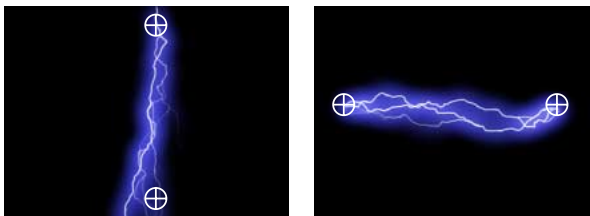
The types appear as follows:

Direction (left), Strike (center), and Breaking (right) lightning types

Bouncy (left), Omni (center), and Anywhere (right) lightning types

Vertical (left) Two-way Strike (right) lightning types

Note: In the Breaking type, the branches are focused toward the Direction point as the distance between Origin and Direction increases.

Origin Specifies the point of origin for the lightning.

Direction/Outer Radius Depending on the Lightning Type selected, this control appears as follows:

Not in Use The control is disabled when Vertical is selected.

Direction Specifies the direction that the lightning will travel. It is enabled when any of the following lightning types are selected: Direction, Strike, Breaking, Bouncy, and Two-Way Strike.

Outer Radius Specifies the distance that the lightning travels from its origin. It is enabled when Omni or Anywhere is selected as the lightning type. Use this control to terminate the lightning at a defined distance from the origin.

The outer radius terminates the lightning.

Conductivity State Changes the path of the lightning. One unit equals a complete shift in the lightning's shape.

Core Settings These controls adjust various characteristics of the lightning's core.

Core Radius Specifies the radius width (thickness) of the lightning's core. Higher values result in a thicker strike.

Core Opacity Specifies the opacity of the core.

Core Color Specifies the color of the core.

Glow Settings These controls adjust the lightning's glow.

Glow Radius Specifies the radius (width) of the glow around the core.

Glow Opacity Specifies the opacity of the glow.

Glow Color Specifies the color of the glow.

Note: To disable the glow, set Glow Opacity to 0. This can speed up rendering time significantly.
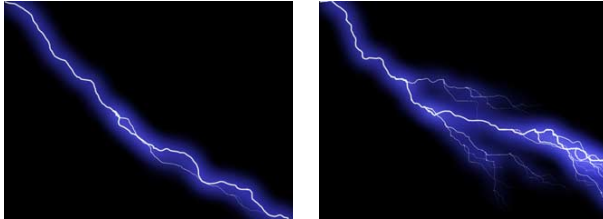
Alpha Obstacle Specifies the influence of the original layer's alpha channel on the path of the lightning. The lightning attempts to wrap itself around opaque areas of the layer's alpha channel, seeing them as an "obstacle."

Note: If Alpha Obstacles is set to a value other than 0, it's not always possible to preview the correct result in less than full resolution; full resolution may reveal new obstacles. Be sure to check the result in full resolution before final rendering.


Original alpha channel (left), Alpha Obstacle = 0.0 (center), Alpha Obstacle = 10 (right)

Turbulence Specifies the amount of turbulence in the lightning path. Higher values result in a more complex strike containing more branches and forks, and lower values produce simpler strikes with fewer branches.


Lightning with low turbulence (left) and high turbulence (right)

Forking Specifies what percentage of a branch is forked. Its value is influenced by Turbulence and Alpha Obstacle settings.
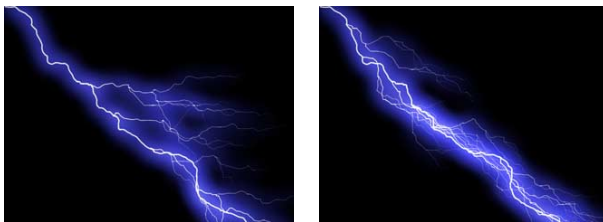
Lightning with low forking (left) and high forking (right)

Decay Specifies the amount of continuous decay or dissipation of the lightning strength and influences where the opacity of the forks begins to fade.
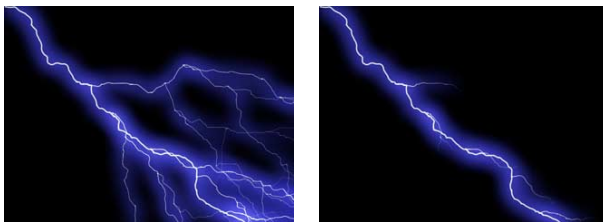

Lightning with low Decay (left) and high decay (right)

Decay Main Core Decays the main core along with its forks.

Add to Original Composites the lightning with the original layer using the Add transfer mode. When unselected, only the lightning is visible.

Expert Settings Advanced Lightning includes several options for more detailed control of the lightning strike. Adjust the following controls:

Complexity Specifies the complexity of the turbulence in the lightning.
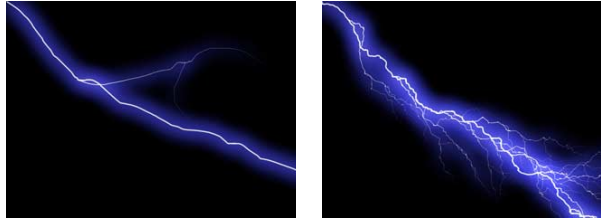
*Lightning with a low complexity value (left) and a high complexity value (right)*

Min. Fork distance Specifies the minimum pixel distance between new forks. Lower values create more forks in the lightning. Higher values result in fewer forks.

Termination Threshold Specifies the level at which a path terminates, based on resistance in the atmosphere and possible alpha collision. At lower values, the path terminates more easily when encountering resistance or alpha obstacles. At higher values, the path more persistently moves around alpha obstacles.

Note: Increasing Turbulence or Complexity values causes resistance to increase in some areas. These areas change as conductivity changes. Increasing the Alpha Obstacle value causes resistance to increase at alpha edges.

Main Core Collision Only Calculates collisions only on the main core. The forks are not affected. This control is relevant only when you select Alpha Obstacle.

Fractal Type Specifies the type of fractal turbulence used to create the lightning. The results appear as pictured below:
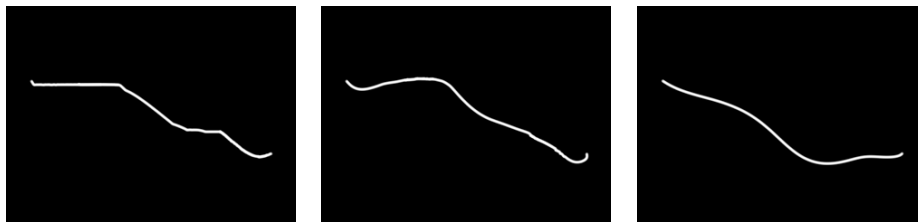
The shape of the linear (left), semilinear (center), and spline (right) fractal types

Core Drain Specifies the percentage by which the core strength is drained when creating a new fork. Increasing this value reduces the opacity of the core where new forks appear. Because forks draw their strength from the main core, decreasing this value reduces the opacity of the forks as well.

Fork Strength Specifies the opacity of the new fork. This amount is measured as a percentage of the Core Drain value.

Fork Variation Specifies the amount of variation in the opacity of the fork and determines how much the fork opacity will deviate from the amount set for Fork Strength.
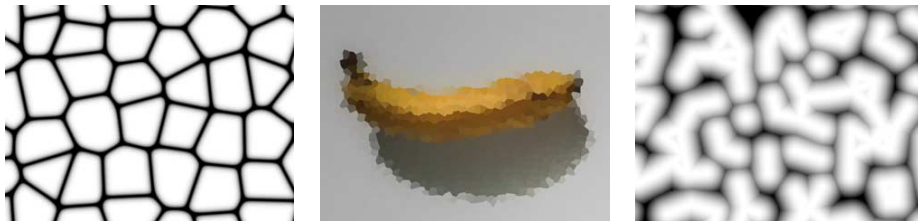
Cell Pattern

Cell Pattern generates cellular patterns based on cellular noise. Use it to create static or moving background textures and patterns. The patterns can be used in turn as textured mattes, transition maps, or as a source for displacement maps.

Adjust the following controls in Cell Pattern:

Cell Pattern Choose a pattern from the menu. Types marked with "HQ" denote patterns that render with more definition than their unmarked counterparts. Mixed Crystals is available only as a high-quality option. The patterns appear as pictured below:
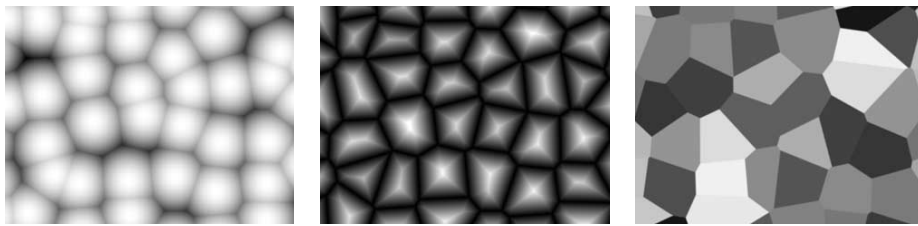
Bubbles (left), Crystals (center), and Plates (right) cell patterns

Pillow (left), Crystallize (center), and Tubular (right) cell patterns

Note: The Static Plates option is identical in appearance to the Plates option; however, when evolving, the static plates retain a uniform lightness value, while the plates shift the lightness of the cell pattern.

Invert Inverts the cell pattern. Black areas become white, and white areas become black.

Contrast/Sharpness Specifies the contrast of the cell pattern layer when you use the Bubbles, Crystal, Pillow, Mixed Crystals, or Tubular cell pattern. The control specifies sharpness for any of the Plate or Crystallize options.

Note: The layer's contrast is affected by the option selected in the Overflow menu.

Overflow Specifies the method used to remap values that fall outside the grayscale range of 0–255. Overflow is not available when sharpness-based cell patterns are selected. Choose one of the following from the menu:

   Clip Any value above 255 displays as pure white, and any value below 0 as pure black. As a result, contrast amount controls how much of the image falls outside this range; higher contrast amounts result in a mostly black or white image, with less gray. Therefore, less subtle cellular detail displays at higher contrast settings.

Soft Clamp Remaps grayscale values to fall inside the 0–255 range. As a result, contrast appears reduced; the cells are mostly gray with very few areas of pure black or white.

Wrap Back Changes overflow values to bring them back into range by "folding" the values back in the other direction. For example, if the maximum value allowed is 255 and the actual value is 285 (255 + 30), the resulting value when Wrap Back is applied is 225 (255 - 30). As a result, more defined subtle detail appears when Contrast is set above 100.

Disperse Specifies how randomly the pattern is drawn, thus affecting the angle of the cells relative to each other. Lower values result in more uniform or grid-like cell patterns.

Note: If you set the Disperse value above 1.0, set the layer to best quality to avoid rendering artifacts.

Size

This control adjusts the size of the cell shapes. The default size is 60.

Offset Specifies the portion of the cell pattern visible in the Composition window. It is helpful in animating the cell pattern to travel across the composition frame.

Tiling Options Choose one of the following options to control tiling:

Enable Tiling Renders the cell patterns in seamless tiles. The shape and number of tiles are determined by the Cells Horizontal and Cells Vertical values.

Cells Horizontal Specifies the number of horizontal cells on a tile.

Cells Vertical Specifies the number of vertical cells on a tile.

Note: To determine the size of your tiles, use the following calculations: tile width=Cells Horizontal x Size; tile height=Cells Vertical x Size. For example, to create a tile size of 256x256 pixels, set Size, Cells Horizontal, and Cells Vertical to 16.

Evolution Creates subtle changes in the shape of the cell pattern. Animating this setting results in smooth changes of cell shapes over time. Set keyframes for Evolution to determine how much the cell shapes "evolve" over the period of time allowed between keyframes. The more revolutions in a given amount of time, the more rapidly the cell shape changes. Higher Evolution values may result in less smooth changes in the cell shapes.

Note: Although the Evolution value is set in units called "revolutions," it is important to realize that these revolutions are progressive. The Evolution state continues to progress infinitely at each new value. Use the Cycle Evolution option (explained below) to return the Evolution setting to its original state at each revolution.

Evolution Options Because of the complexity of the cell shapes that generate the cell patterns, render time can be great. For this reason, the Evolution Options provide controls that render the effect for one short cycle and loop it for the duration of your project. Use the controls below to create a smooth, progressive loop segment.

Cycle Evolution Creates a loop that forces the evolution state to return to its starting point.

Cycle This control is available only when you select Cycle Evolution. It specifies the number of revolutions (of the Evolution setting) that the cell pattern cycles through before it repeats. For example, if you set the evolution to occur over five revolutions and you set the Cycle value to 2, then the evolution loops twice. The timing or speed of these Evolution cycles is determined by the amount of time allowed between Evolution keyframes.

Note: The Cycle control affects only the state of the cell pattern, not geometrics or other controls. For example, two identical states of the cell pattern will not appear the same if viewed with different Size or Offset settings.

Random Seed Specifies a unique random value from which to generate the pattern. Animating this property results in flashing from one set of cell shapes to another of the same cell pattern type. For smooth transition of the cell pattern, use the Evolution control.

Note: Create new cell pattern animations by re-using previously created Evolution cycles and changing only the Random Seed value. Typing a new Random Seed value alters the cell pattern without disturbing the evolution animation.

Grid

Use Grid to create a customizable grid. Render this grid in a solid color or as a mask in the alpha channel of the source layer. This effect is good for generating design elements and mattes within which other effects can be applied.

<<Tip icon>> Use with the Advanced Lightning effect to create lightning forks that follow a grid pattern.

Adjust the following controls for Grid:

Anchor Specifies the point of origin or "anchor point" of the Grid, based on X, Y coordinates.

Gridsize From Specifies the grid size. The option selected enables the corresponding effect controls.

Corner Point Determines the spatial relationship between the Corner point and Anchor point controls.

Width Slider Determines the value set for the Width control. The Grid cells will be square, as the Width value is used to determine both width and height of the Grid cells.

Width and Height Sliders Determines the values set for the Width and Height controls. Use this option to set the width and height of the Grid cells independently.

Corner Specifies the size of the grid cells, based on the spatial relationship between the Corner point and the Anchor point.

Width Specifies the horizontal width of the grid cells. If you choose Width Slider in the Gridsize From menu, this value specifies both the width and height of the grid cells. If you choose Width and Height Sliders in the Gridsize From menu, this value specifies the width only.

Height Specifies the height of the Grid cells when you select the Width and Height Sliders option in the Gridsize From pop-up menu.

Border Specifies the border thickness of the grid. A Border value of 0 causes the grid to disappear.

Note: The anti-aliasing of the grid borders may cause the visible thickness to vary by one pixel.

Feather Specifies the softness of the grid. You can set Width and Height amounts individually, or set both to the same amount for a uniform feather on all edges. The maximum width value is 20 pixels; the maximum height value is 400 pixels.
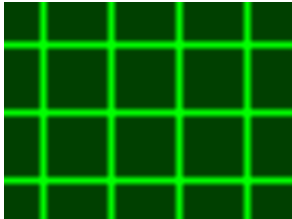
Grid with Feather

Invert Grid Inverts the transparent and opaque areas of the grid.
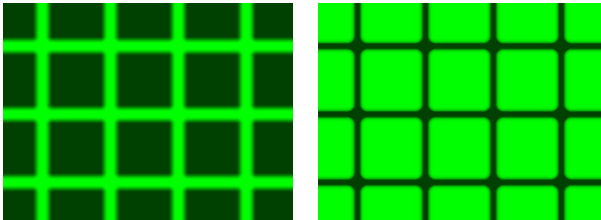
Grid with Invert unselected (left) and selected (right)

Color Specifies the RGB color values of the grid.

Opacity Specifies the opacity of the grid.

Transfer Mode Specifies how the grid interacts with the original layer. These Transfer Modes are identical to those in the Timeline Modes panel.

Stylize

One new effect is added to the Stylize category, as follows:

Roughen Edges

This effect deteriorates the edges of a layer's alpha channel by employing fractal calculations. It gives rasterized text or graphics a naturally "rough" look, like that of eroded metal or typewriter text. Choose from various fractal types, and manipulate numerous controls to produce the desired static or animated edge treatment.

Adjust the following controls for Roughen Edges:

Types Specifies which calculation is applied to the alpha channel. Choose a Type option from the menu.

Text with Roughen (left), Roughen Color (center), and Cut (right)

Text with Spiky (left), Rusty (center), and Rusty Color (right)

Text with Photocopy (left) and Photocopy Color (right)

Edge Color Fills the effect areas with this color. This control is available only if you select a type with coloring options.

Border Specifies how far from an alpha channel edge the effect extends.

Text with a low border (left) and a high border (right)

Edge Sharpness Specifies how sharp or soft the roughened edge appears. Low values create softer edges, and high values create sharper edges.

Fractal Influence Specifies how much of the introduced roughness is influenced by fractal calculations.

Scale Specifies the scale of the fractal used to calculate the roughness.

Text with low scale (left) and high scale (right)

Stretch Width or Height Specifies the width or height of the fractal used to calculate the roughness.

Offset (Turbulence) Specifies the portion of the fractal shape that is present in the Composition window, altering the shape of the distortion or roughness applied to your layer. Because the fractal shapes generated by this effect are infinite in all directions, the result that appears on the layer is only a small portion of the entire fractal. Animating the Offset control repositions the fractal, bringing a different portion of it into view. This alters the shape and texture of the roughness.

Complexity Specifies the level of detail in the roughness. Higher Complexity values increase the detailed definition in the texture of the roughness. Lower Complexity values reduce the definition.

Note: Increasing complexity results in longer rendering times. Reduce the Scale value rather than increasing Complexity to achieve similar results.

Evolution Creates subtle changes in the shape of the roughness. Animating this setting results in smooth changes or "evolution" of the roughness over time. Set keyframes for Evolution to determine how much the roughness will "evolve" over the period of time between keyframes. The more revolutions in a given amount of time, the more rapidly the roughness changes. Higher Evolution values may result in less smooth changes in the roughness.

Note: Although the Evolution value is set in units called "revolutions," it is important to realize that these revolutions are progressive. The Evolution state continues to progress infinitely at each new value. Use the Cycle Evolution option (explained below) to return the Evolution setting to its original state at each revolution.

Evolution Options Evolution Options provide controls that render the effect for one short cycle and then loop it for the duration of your project. Use these controls to prerender your roughen elements into loops, and thus speed up rendering time. Use the following controls to create a smooth, progressive, nonrepeating loop.

   Cycle Evolution Creates a loop that forces the evolution state to return to its starting point.

   Cycle This control is available only when you select Cycle Evolution. It specifies the number of revolutions (of the Evolution setting) that the fractal noise cycles through before it repeats. For example, if you set the evolution to occur over five revolutions and you set the Cycle value to 2, then the evolution loops twice. The timing or speed of these Evolution cycles is determined by the amount of time allowed between Evolution keyframes.

   Note: The Cycle control affects only the state of the fractal, not geometrics or other controls. For example, two identical states of the fractal will not appear the same if viewed with different Size or Offset settings.

Random Seed Specifies a unique random value from which to generate the roughness texture. Animating this property results in flashing from one set of fractal shapes to another within the same fractal type. For smooth transition of the roughness, use the Evolution control.

Note: Create new roughness animations by re-using previously created Evolution cycles and changing only the Random Seed value. Typing a new Random Seed value alters the noise pattern without disturbing the evolution animation.

Time

One effect is added to the Time category, as follows:

Time Difference

This effect calculates the color difference between two layers and is a useful aid in color correction; use it to extract color differences when matching a clean background plate with foreground footage. It is also good for creating mattes to be used to apply trails of smoke, fire, or echoing effects. Once you've applied Time Difference to locate color differences in your footage, use color and levels controls to apply the color corrections.

<<Tip icon>> Use Time Difference with Particle Playground to shed particles only from moving sections.

Adjust the following controls for Time Difference:

Target Specifies the layer to be compared to the effect layer. The comparison layer's video does not need to be on (unless you select the source layer as the Target).

Time Offset Specifies the point in time in the comparison layer, in seconds, where the layers are compared. If this control is set to 0.00, the comparison occurs at the current time. To compare the effect layer to a point 3 seconds into the comparison layer, for example, change the Time Offset value to 3. When you select the underlined offset value, you can type the specific frame offset value in the format "frames/framerate." After Effects automatically calculates the value. For example, type 3/30 to offset three frames forward in a 30-fps composition. The calculated value is 0.1, or 10% of the total time.

Contrast Adjusts the comparison result. This control can be especially helpful in fine-tuning color corrections.

Absolute Difference Displays the result of the comparison as an absolute value. Any area of the comparison layer that is not different from the effect layer is represented by black, and any amount of difference is represented as brighter than black. When this option is unselected, compared areas with no difference are represented as gray.

Alpha Channel Specifies how the alpha channel is calculated. Choose one of the following options from the pop-up menu:

> **Original** Uses the effect layer's alpha channel.

> **Target** Uses the target layer's alpha channel.

> **Blend** Blends the effect and target layers' alpha channels.

> **Max** Uses the most opaque of the original source and Target layers' alpha channels.

Full On Sets the alpha channel to completely opaque.

Lightness of Result Uses the lightness of the RGB difference as alpha.

Max of Result Uses the highest values of the RGB difference as alpha.

Alpha Difference Calculates differences in the effect and target layers' alpha channels the same way RGB difference is calculated.

Alpha Difference Only Calculates only the differences in the alpha channels. RGB is set to white.