

Adobe Photoshop CS

Simulate film grain in a digital image

It's ironic how the moment digital camera technology overcomes a photographic problem, photographers start trying to find a way to recreate the effect using image-editing software. One of the benefits of using an image sensor instead of film is the image is made up of pixels, not tiny grains of silver halide in the photographic emulsion, so the resulting images are smooth and free of graininess. But the grainy effect is a treasured element of photography, as proven by countless gritty black and white photos characterized by a raw and honest point of view. So even though your digital images may be silky smooth, we can show you how to apply this creative effect in Adobe® Photoshop® and add to the atmosphere and depth of your photography.



Adding grain to this street scene added texture and atmosphere to an image dominated by smooth surfaces.

Harvest the grain

In this article, we'll show you how to apply grain to your digital images using Photoshop and Photoshop Elements. First, we'll discuss how grain develops in film and how to use that information to make the right choices when working in the application. Next, we'll step through the three options you have for adding grain, including the Film Grain filter, the Texture Grain filter, and the Noise filter. We'll tell you what each one does and which one we think works the best.

The photographic nature of grain

When a photographer shooting with film wanted to get a "grainy" image, she would use fast ISO settings (ISO 800 and above) or uprate her film when shooting. Uprating involves shooting at a higher ISO speed than the film is designed for, which initially underexposes the film, and then pushing (overexposing) the negatives during the printing process. The effect is increased grain size and contrast, similar to the effect higher ISO

settings have on digital cameras. Instead of film grain, the pixels become more evident in the form of noise. Just as digital noise degrades your image quality, grain can overwhelm an image (if not approached thoughtfully) whether you're adding it photographically or digitally.

Note: Of course, there are other ways to produce grain photographically, whether that be through enlargements or by using diluted print developer, but using fast ISO's and uprating offer the best parallels to the digital imaging process.

Add grain with Photoshop

Photoshop has three different grain filters, so we will tell you how each one works and how you can control them to get the grainy images you want. You'll be able to best see the subtle differences between the three options shown in this article on your computer screen. We've chosen to use grayscale images for our example, but film grain works just as well with full color images. If you want to follow along using an image, make sure you use one that is in RGB or Grayscale mode, as the filters we'll be using don't work in CMYK or LAB mode.

The Film Grain filter

Originally designed to help alleviate the effects of banding from a film scanner, the Film Grain filter adds an even amount of noise to the shadows and midtones of an image while applying a more obvious pattern to the highlights.

To use this filter, launch Photoshop and open your image. Next, select Filter > Artistic > Film Grain to open the Film Grain dialog box. Here you can control the size of your Grain, the sensitivity of the Highlight Area, and the overall Intensity of the effect. The Grain size ranges from 0 to 20, but anything over 5 tends to look very pixilated. The Intensity setting also should be

kept low, but the Highlight setting can go either way depending on the tonal range of your image. To achieve the grain effect shown in the close-up below, we set the Grain to 3, the Highlight to 4, and the Intensity to a modest setting of 1.



The Film Grain filter can add a decent and very uniform grain across your image; however, the other two options give you more control with a better result.

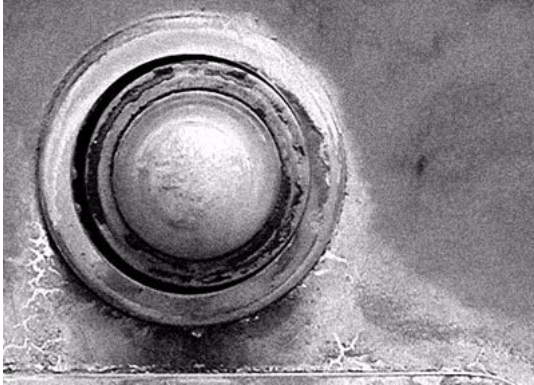
At this point, you should save your image as a new file. Then, you can reopen the original file and apply the other filters using the same image each time.

The Texture Grain filter

The Texture Grain filter gives you lots of choices for adding different styles of grain to your image. To access it, select Filters > Texture > Grain and the Grain dialog box opens. Skipping the adjustment sliders for a moment, click on the Grain Type dropdown menu to view your options, which are Regular, Soft, Sprinkles, Clumped, Contrasty, Enlarged, Stippled, Horizontal, Vertical, and Speckle. In our opinion, most of these options fall under the special effects category rather than a simple grain effect, but you can get a nice grain pattern using the Regular Grain Type.

In this filter, the Intensity option controls the strength of the effect and the size of the Grain, so lower numbers produce a more pleasing, subtle effect. The Contrast option adjusts the tonal range of your image on a scale of 0 to 100, with lower numbers decreasing the contrast

and higher numbers creating more pronounced effects. If you set the Contrast to 50, there's no change in the image. The effect shown below was created using the Regular Film Type with an Intensity value of 20 and a Contrast value of 55.



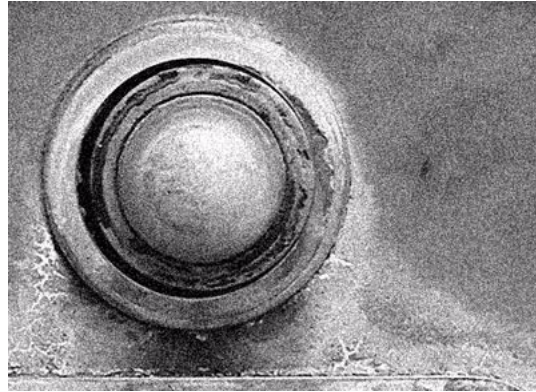
The wide range of options makes the Grain filter a lot of fun to play with. If you're looking for a gritty look with lots of contrast, this filter is your best choice.

The Add Noise filter

With camera makers bending over backwards to remove noise when an image is captured, it may seem ironic to use the Add Noise filter to subvert their efforts. However, the Add Noise filter is our choice for the best option for adding grain to an image. It includes precise controls down to the hundredth of a percent and the ability to set the distribution of the noise patterns. While the other two effects add noise to your image, they can't mimic the indiscriminate nature of real film grain. However, the Add Noise filter can.

To use the Noise filter, select Filter > Noise > Add Noise and the Add Noise dialog box opens. The Amount slider is simply the intensity of the effect, but the interesting choice is whether to select Uniform or Gaussian Distribution. Uniform produces results in a completely random manner and is best used for full color images. For grayscale images like our sample, Gaussian is a much better choice as it uses a special curve to produce a wider range of light and dark pixels. The Monochromatic option distributes noise evenly across your channels, which can be useful in color images, but not for grayscale.

To achieve the effect shown below, we selected an Amount value of 10.72% with Gaussian Distribution. The result is an image that actually looks like it was shot with high-speed film, not with a digital camera.



Note: Once you've applied any of the grain filters we've mentioned, consider adding a slight Gaussian Blur (Filters > Blur > Gaussian Blur) to smooth out any harsh edges produced and make the effect seem more natural.

Go with the grain

Adding grain to your digital images is a great way to add atmosphere and texture to your photography. We prefer using the Add Noise filter, but experiment with your own images and see which one works best for you. In any case, it's nice to have choices and Photoshop certainly delivers.

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