Day 30: Eliminate Digital Noise

Remember from the exposure section of this course that the problem with using high ISOs is that it can result in digital noise in your pictures. You can reduce it in post processing, and in this lesson we'll see how.

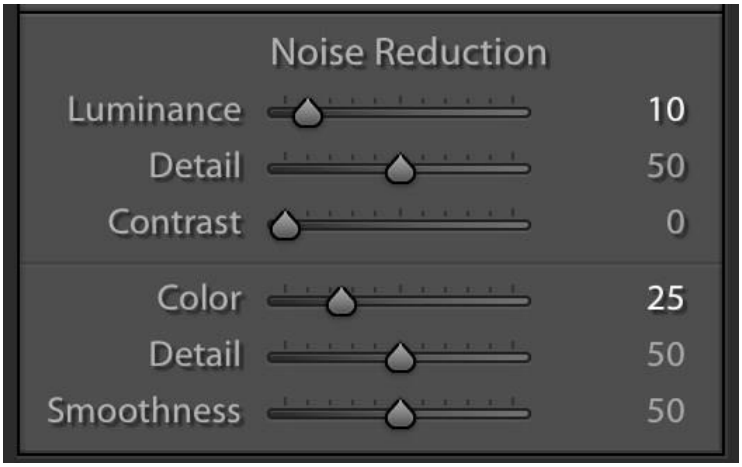
First, here is the bad news. In noise reduction, you are always dealing with a trade-off between reducing noise, on the one hand, and preserving image detail, on the other. You can eliminate all the noise in your image, but this can lead to a soft image. Increasing noise reduction often leads to a loss of image detail, but if you focus on preserving the detail then you may end up with a noisy picture.

The good news, however, is that the tools for eliminating noise from your pictures are getting better and better. They are also getting simpler and simpler to use. In this lesson, we'll walk through three ways, from the simplest to the most complicated.

Simple Noise Reduction in Lightroom

Lightroom's noise reduction tool is powerful and really simple to use. It reduces noise and does a decent job of preserving detail. Achieving good noise reduction is therefore as simple as going to the noise reduction sliders in Lightroom and pulling to the right.

The noise sliders are divided into two parts: Luminance and Color. For the most part, the noise you and I are worried about is the Luminance noise. Therefore, you can simply increase the Luminance slider to reduce noise in your image. The Detail and Contrast sliders will let you fine tune the control a little bit.



Suggested starting points

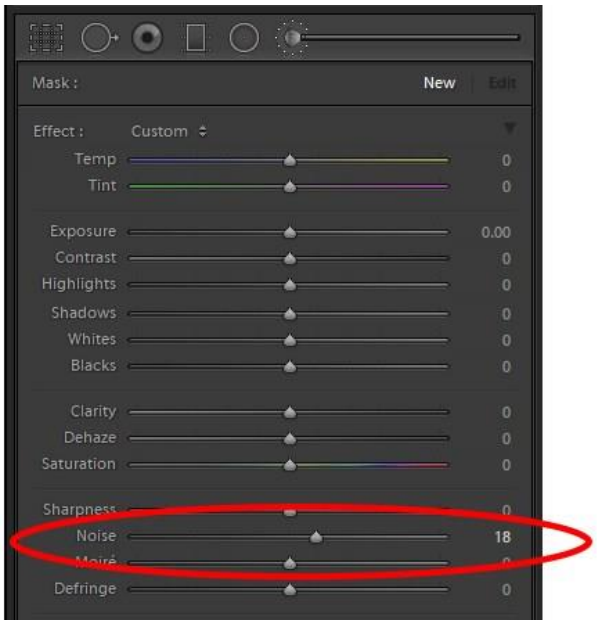
You may be wondering about a starting point for the amount of noise reduction to apply. Of course, it depends on a lot of factors, including the ISO value you used, the low-light performance of your camera, etc. To give you an idea of a starting point taking into account those variables, here is a chart with some suggested values for the Luminance slider.

	Older Camera	Mid-Range Camera	New/Expensive Camera
ISO 100	0 - 5	0	0
ISO 200	0 - 10	0 - 5	0
ISO 400	5 - 15	5 - 10	0 - 5
ISO 800	10 - 20	10 - 15	5 - 10
ISO 1600	15 - 25	15 - 20	10 - 15
ISO 3200	25 - 30	20 - 25	10 - 20
ISO 6400	25 - 30	25 - 30	15 - 25

Of course, there are other factors involved as well, which this chart does not take into consideration. For example, dark tones will show noise much more than lighter tones, so you may need to increase the amount where you have darker tones. Just use this chart as a starting point, and don't take it as a definitive range that you must stay within. Always do whatever the picture requires, even if it is drastically different than what is set forth here.

Selective Adjustments in Lightroom

You can apply noise reduction to part of your image (as opposed to the whole thing) by using the Adjustment Brush. Within the Adjustment Brush sliders, find the slider labeled Noise. From there, just set your brush size (you can use your left and right bracket keys for this) and paint in the effect where you want it.



Noise Reduction Plug-Ins

You might also want to take advantage of third-party noise reduction. These plug-ins will work within Photoshop or Lightroom. If you are comfortable using Photoshop, use them there as that will allow you to take advantage of Photoshop's powerful masking techniques. Here is a run-down of some of the top noise reduction plug-ins available:

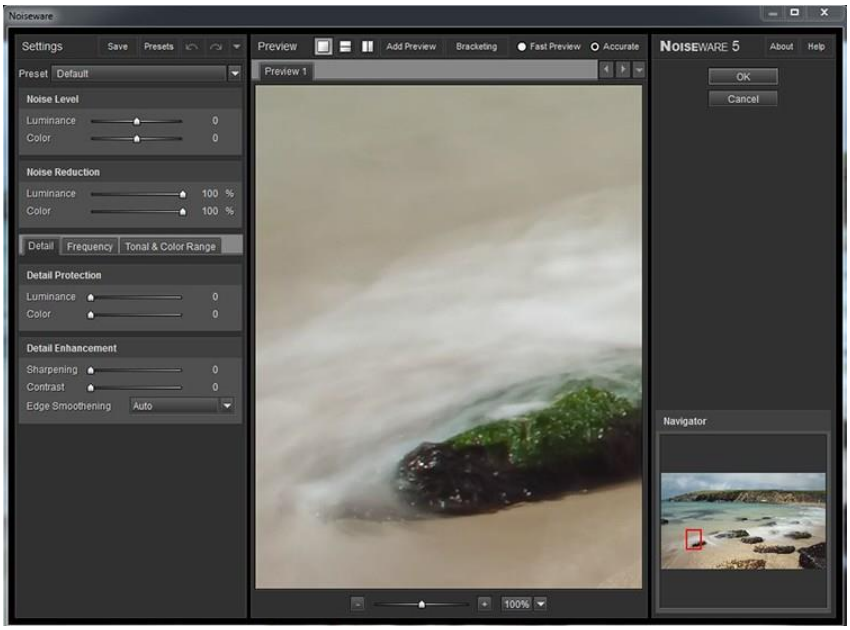
- **Noiseware:** I mention this first because it is the application I have used for my own noise reduction for the past several years. It works really well, does a great job eliminating noise, is simple to use, and it preserves a lot of detail. There are several presets to choose from and then a few sliders to make adjustments from there.

- **Nik Define:** A free option is Nik Define. It is part of the Nik Collection, which is free. It does a nice job of reducing noise, and if you are looking for a free option this is a good one.

- **Noise Ninja:** This is part of the Photo Ninja Suite by Picture Code. The entire suite costs $129. I personally have not used it, but the reports I have heard from others and the reviews have always been positive.

- **Topaz Denoise:** Topaz makes a series of plug-ins that do a variety of functions really well. Their noise reduction software is called Denoise and it costs $79 (or you can get the whole suite of apps for $500). I haven't used this one either, but the reviews have been good and my experience with other Topaz apps has been very good.

Any of these will do a nice job.



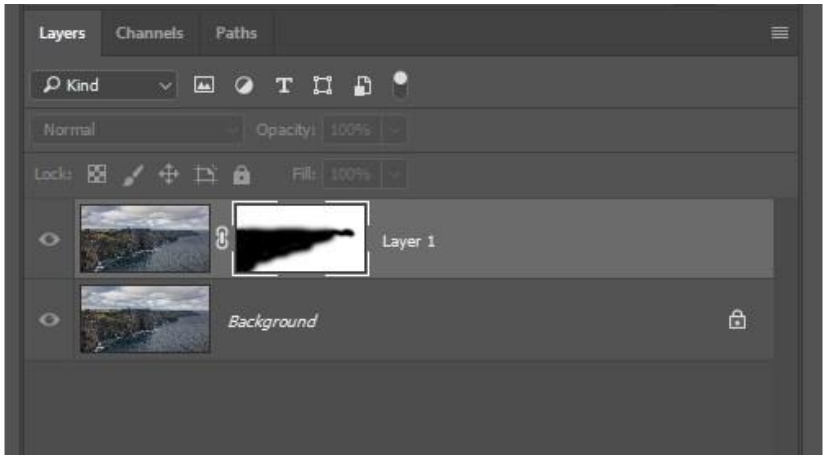
The Noiseware interface

Applying Masking Techniques

The best way I have found to apply noise reduction is to use the plug-ins you just saw, but to apply them selectively. The reason is that noise reduction reduces detail in your image. It is often hard for noise reduction software to tell the difference between noise and important detail.

To avoid having your noise reduction software reduce detail, you can use Photoshop to mask off the more important areas of the sky. As you have seen in this course, you just create a layer mask so that the noise reduction only applies to certain parts of your image.

One way is to "brush in" the noise reduction where you want it. Start with a “reveal all” (white) layer mask, and then use the brush (color set to black), which will keep the noise reduction from reducing detail in the areas you choose.



Create a new layer copy (Ctrl/Cmd+J if your picture only has one layer, or Ctrl/Cmd+Shift+Alt+E if you have multiple layers already), then apply your noise reduction as you normally would. After that, just click on the Add Layer Mask icon at the bottom, which will create a white (reveal all) layer mask (or press Alt while doing so to create a black layer mask to hide all). Then just use your Brush (B) to paint with the opposite color as your mask.

Day 30 Assignment

Eliminate Noise

Description:

Find a picture you have taken in this course that you want to keep or display that has some digital noise in it. Use the techniques in today's lesson to eliminate that noise.

Keys to Success:

- For mild to moderate noise problems, look no further that Lightroom. In particular, concentrate on the Luminance slider.
- There is no need to use Photoshop for this assignment. If you are a strictly Photoshop or Photoshop Elements user, just use the ACR screen to reduce noise.
- If you use a plug-in, such as Nik Dfine, Noiseware or Noise Ninja, you can use Photoshop for that. Make your changes on a new layer (Ctrl+J) so you have the option of applying it only to particular areas within your photo.

Upon Completion of this Assignment:

You will have greatly improved your photo by eliminating the digital noise. More importantly, you will now understand the extent to which you can remove noise from your photos. This will also help you in the field, as it will give you a better idea of the ISO ranges you can use.