

A stylized graphic of a camera lens. The top part is a dark blue, rounded shape with a jagged, crown-like edge. Below this is a black horizontal band containing the text 'Digital zoom vs optical zoom' in white. The lens body is composed of several stacked sections: a dark blue ring with ten light blue oval-shaped cutouts, a solid dark blue band, a thin light grey band, a thick orange band, and a final dark blue band at the bottom. The lens is mounted on a dark blue cylindrical base.

Digital zoom vs optical zoom

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Digital zoom vs optical zoom

Introduction

What you will learn in this guide:

In this guide, we will discuss what digital zoom is, its uses, and the effects it has on your images. We will see when it makes sense to use it and when it is safer to stay away from it.

Optical zoom

Optical zoom is achieved by photographing a scene or subject through a zoom lens. This lens may be built-in (as in bridge cameras) or interchangeable (as in DSLRs). In other words, optical zoom is achieved by bringing a scene closer through specially designed glass, very similar to binoculars or a telescope.

Digital zoom

Digital zoom is done by the camera's built-in image processing software. It enlarges the digital image synthetically at the center and then trims away the parts that will not fit onto the designated image area after enlargement. It's very similar to what you may be doing as you crop your image in post-processing.

Use digital zoom with care

Digital zoom does not 'look' at a 'raw' scene through glass. It enlarges the pixels of a digital image. When you keep on enlarging an image in post-processing, you will eventually start seeing little squares representing pixel blocks. Causing a distorted effect

The same is true for digital zoom. When you keep on having a closer look at pixels, you will see more blur and noise (snowy detail). You will perhaps not see little squares (no digital zoom will enlarge the image that much), but your image will lose some of its clarity or quality.

The more you zoom in, the more the image in your viewfinder 'dances around' on your camera's LCD screen. Of course, you can increase the shutter speed if your camera allows you to do so, but you will need to adjust the aperture and ISO in order to get the correct exposure.

Unfortunately, most bridge cameras only provide for the adjusting of exposure via the camera's menu system and this is no fun at all, and perhaps may result in lost opportunities as you work your way through these settings. Add to that the fact that the small sensors of bridge cameras usually do not favor high ISOs (generating a lot of 'noise' as you raise ISOs)

So why have digital zoom?

Digital zoom:

The degradation in image quality in the image on the left is immediately detectable at 2x digital zoom and very obvious at 4x digital zoom.

Key Lesson:

- If you can get close enough to your subject to do your final composition in-camera and without using digital zoom (hardly any cropping needed in post-processing, if any at all), then do so.
- If your subject is too far away to eliminate the need for a closer crop in post-processing, then use your digital zoom but do so sparingly.

Conclusion

Digital zoom has survived through the years, so there has to be a case for using it. The bottom line: use it as a last resort because you probably have nothing to lose. But only use it after you have come as close as humanly possible to your subject and when the optical zoom is not enough.

Keep in mind that digital zoom on all cameras is not equal. The more pixels your camera has, the better it will crop in post-processing – and vice versa. Play around with digital zoom on your specific camera and establish up to what stage – and in which situations – it makes sense to use it respectably, if any at all?

- Considering your camera's optical zoom range, will you ever use digital zoom?

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Bio

My name is David Wright.

I have many years experience writing procedures on how to test high tech electronic equipment. Re wrote technical manuals so that the average person could understand them.

Set up numerous training programs to train Junior techs.

My documenting skills are excellent paying attention to details satisfying the toughest ISO auditors.

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