

# SHOOTING SHARP IMAGES: GEAR AND TECHNIQUES YOU NEED



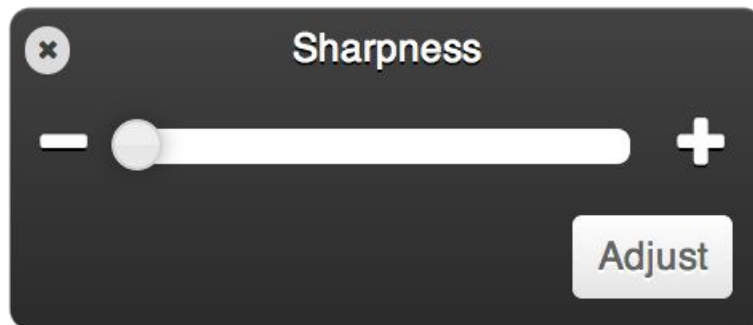
Steps you can take to ensure you're shooting sharp images every time.

*“For with slight efforts how should we obtain great results? It is foolish even to desire it.”*

– EURIPIDES

An image that looks perfectly sharp on the camera’s preview screen or your laptop display may print undesirably soft. This blog entry reviews ways to capture an image with as much sharpness as possible. You can always soften a print later, but putting sharpness in later is much trickier.

### **Shoot It Right, Don’t Try to Make It Right**



It’s tempting to think you can fix sharpness problems later, in the computer. Don’t fall into this trap! Software sharpening has limits, and it’s always more efficient to do something correctly rather than have to try to fix it later on.

What are the elements of shooting sharp images?

## BUY THE RIGHT TRIPOD

Use sturdy support, adequate to your particular camera's needs.

Many people make uninformed decisions when buying tripods, and are often disappointed with the lack of improvement in sharpness. Here are some pointers on tripod shopping. A full blog entry on selecting the best tripod and head combination is on tap for a future post. Meanwhile, start here.



Know the weight of the items the tripod needs to support. Tripods are rated for different amounts of supported weights, and a tripod designed to support 10 lbs (4.54 kg) will not do much good when supporting 40 lbs (18.14kg) of long lens, heavy camera, brackets, strobe and tripod head. Your tripod head is also rated for a certain amount of weight; be sure both tripod legs and head are adequate to the amount of weight you'll need to support.

To find the weights for all objects the tripod will support, you could weigh each one, or use manufacturer's' specification pages, which list weights for these objects. Here's a typical list of a heavy set of items a professional tripod might have to support.

### **Gear to Support on Tripod:**

- Really Right Stuff Ball Head Weight: 2.3 lb (1043g)
- 200-400 mm f/4 Nikkor Zoom Lens Weight: 118.5 oz. (3359 g)
- Lens plate for Ball Head Weight: 4.5 oz (128g)
- Nikon D800: 31.7 oz. (899 g; camera body only)
- Camera L Bracket: Weight: 3.7 oz (105g)
- Strobe on camera: 12.3 oz. (349g)
- 5-AA batteries: 4.4 oz. (125g)
- Strobe Modifier: 5.6 oz. (159g)
- Cable release or remote release: 3.5 ounces (99.2 g)
- Strobe Bracket: 19.6 oz. (555g)

**Total weight:** 14.9 lbs (6.8 kg)

Compare the total weight to the listed supported weight rating of a tripod you're considering. If you find the total weight you need to support is too high for a particular tripod model, either trim the weight or move up to a tripod rated for a higher load.

This being said, it's best to err on the side of caution, and get a tripod that supports a higher weight, especially if you're close to the rated limit.

One reason for this is that some tripods can transmit vibration through their legs, even when rated for a particular weight.

Thicker legs transmit less vibration, and well-engineered brands transmit less than those cheaply made. Another reason is that you may decide you suddenly can't live without a new, much heavier lens than anything you currently own. I'm currently coveting the new Sigma 150-600mm Sport zoom, which weighs 6.3 lbs / 2.86 kg. I'd definitely be needing strong support when I get it!

## **GIVE UP THE CENTER (COLUMN)**

Cameras used on a tripod without a center column produce demonstrably sharper prints at larger sizes, all other factors being equal. The column allows more vibration to be transmitted through the legs to the camera. So, for best results, you may want to sacrifice the convenience of a center column.

The positive benefit is that your tripod will be slightly lighter to carry around.



If you do purchase a tripod with a center column, be sure the column has a hook at the bottom, as shown in the photo at right.

For decades, savvy photographers have used this hook to hang their camera bag or other weight, so that the additional weight pulls the legs down and stabilizes them further. Photojournalists often have to meet travel weight restrictions, so they use a lighter-weight tripod than they'd prefer, knowing they'll be able to weigh it down with this hook.

Additionally, some photographers carry portable weights **such as these**, which can be filled with rocks or water on location.

These weights add downward pressure to the legs, adding further stability.

## **SOFT TOUCH; RELEASE GENTLY**

With your excellent tripod, use a remote or cable release. There's little point in using a tripod without one, because your finger on the shutter release transmits vibration to the camera. Some cameras use a cable, some use a wireless remote; either way, buy a good one and use it faithfully.

**Tip: If you get stuck somewhere without a release, and you still want sharp images, use the time delay shutter setting on your camera.**

That way, when you push the button on your camera, the vibration you cause with your finger has time to dissipate before the shutter opens. This takes a little more time, especially during a long day of shooting, but saves lots of time trying to sharpen later.

If you don't know how to do this, check your manual. BTW, you have downloaded your manual in PDF form and put it on your phone to always have with you, haven't you?



With your cable/remote release, use a double step shutter release, where the first click raises the mirror, and then, after you pause to make sure all vibration is gone from the mirror raising, click again to make the exposure.

If your camera doesn't have this feature, or you prefer to be absolutely certain all mirror vibration is gone, use the manual mirror lockup feature on your camera, if it has one.

"Aha," you say, I'm using a mirrorless camera; do I still have to use a cable release? Why yes, you do. Your finger pushing the shutter release on your tripod-mounted camera will still degrade sharpness. The smaller sensors on



most mirrorless cameras absolutely need all the care you can bring to each exposure to get best results.

## SHARP LENSES, CLEAN LENSES



Use lenses with adequate sharpness, and make sure they're clean – my article on how to properly do this can be [found here](#). Sounds as if I'm stating the obvious, but really, when I see what some people are using, I wince.

Contemporary digital cameras require lenses to match their quality. The amount of sharpness that can be focused and recorded is described using measurements of resolving power. In the past, as new films were able to

resolve more sharpness/detail, new lenses had to be designed to deliver all the sharpness new films could record.

The same is true for contemporary cameras and lenses. Fortunately, contemporary lens design continues to deliver ever better resolutions, and a plethora of websites offer information on lens performance and comparison with similar models. When researching lenses you currently own, search for test results from reputable sites. Two of my favorites are from [DxO Labs](#) and [DPReview](#).

For many lenses (and other photo gear), these two sites, between them, give a wealth of information to compare and contrast.



A final note about sharp lenses; while it's possible to use lenses from the days of film on your new, high-end digital camera, it's essential you test these lenses to make sure they're going to deliver the quality you need.

Many older lenses are softer at the corners than contemporary lenses will be, and sometimes, they're softer at the center as well. By most measures, contemporary lenses are sharper, have better bokeh, and deliver best results.

On the one hand, if you have a lens whose results you like, and you've tested it carefully, finding its best apertures for sharp results, use it cheerfully. If your testing reveals deficiencies that can't be overcome, it's time to go shopping. (Most photographers have no problem rationalizing new lens purchases; it's the less sexy stuff, such as sturdy tripods and high quality displays in which they're reluctant to make good investments.)

If you're shooting with SLR lenses on a camera body with a cropped sensor (e.g. smaller than the standard SLR size of 24x36mm), such as the Canon Rebel series, or the Nikon D5200, you're only using the center portion of the lens to cover these sensors.

A lens that works well in the center but is soft at the edges may be a great lens for these crop-sensor cameras. You'll have to test on a case by case basis.

I've cheerfully used the older, nicked and dinged 105mm Micro-Nikkor shown to the right on various contemporary cameras. These macro lenses are always designed to deliver great results, and their contemporary versions are superb, but my older ones are still working nicely on my D800. Images created with this lens print very nice 24"x36".



With some older lenses, as a precaution, it's good sometimes to leave a bit more space around the edges when using them on full frame cameras. After all, contemporary cameras delivering huge files with gargantuan quantities of megapixels can be cropped a little with no ill effect.

One other note about lens sharpness is important. Many contemporary lenses come with a Vibration Reduction setting. This setting should not be used on tripod-mounted cameras; it will actually introduce vibration, and your image sharpness will be degraded.



*“It’s better to keep a lens clean than to keep cleaning a lens.”*

Use a clean lens, both front and back. Dust and smears have an annoying way of degrading image sharpness.

On location, my lens cleaning kit includes a manual blower brush, and these **lens cleaning wipes** from HoodmanUSA.

It's essential you use lens cleaners designed specifically for photo lenses. Window glass cleaners are not designed for cleaning your lenses, and the delicate coatings on the lenses can be ruined by the chemicals in many window cleaners.

### **Your Breath Is Not Your Friend**

Tempting though it is, avoid breathing on your lenses and then polishing them. Depending on what you've been eating and drinking, that cloud of breath may deposit acids (I'm talking to you, Mr. 6-Cups-of-Coffee-Daily) and micro-drops of acidic saliva on the lens. Over time these will also damage the coatings.

There's no certainty you've removed all the acids when you polish the lens surface.

Also avoid general use paper towels or tissues; these can contain small, not easily visible bits of wood fiber which can scratch your lenses.

## USING FILTERS



While many people don't like the idea of putting a filter on their lenses when shooting unless absolutely necessary, it's not always a bad idea in certain environments.

### **Protective Filters**

Lens caps should always be used, both front and back (you knew this already), but when shooting a UV filter can also be used to protect the front lens element.



There are two schools of thought on using filters as protection. You can invest in a very high grade filter, such as a B+W, that screws onto the front of the lens and lives there permanently, ready to shoot at all times. This level of quality is not made of recycled soda bottles, so it's an investment. On the other hand, these filters are much less pricy than replacing a front lens element!

The second approach is to keep a very inexpensive filter on the lens until you're ready to shoot, then take it off and fire away. This works best for more ruminative photography, such as landscapes or studio work, where you're not going to be surprised by a sudden image opportunity which you'd miss while unscrewing the filter to get the shot.

### **Image-Enhancing Filters**





You can imagine someone putting a poor quality filter on the front of their lens for protection. What's hard to imagine is why they shoot through it? If ever there were an instance of false economy, this is it. Inexpensive filters can be useful when you want to soften an image, but rarely when you want to keep an image sharp.

Fortunately, filters' quality continues to improve, and it's possible to buy a pretty good filter for less money than it used to cost. As you'd expect, there's generally a correlation between what you spend and what you get. So, buy the best you can afford; eBay is a great way to stretch your money if the filters you need and want are out of budget.

## **CHECK THE FOCUS OF EACH LENS**

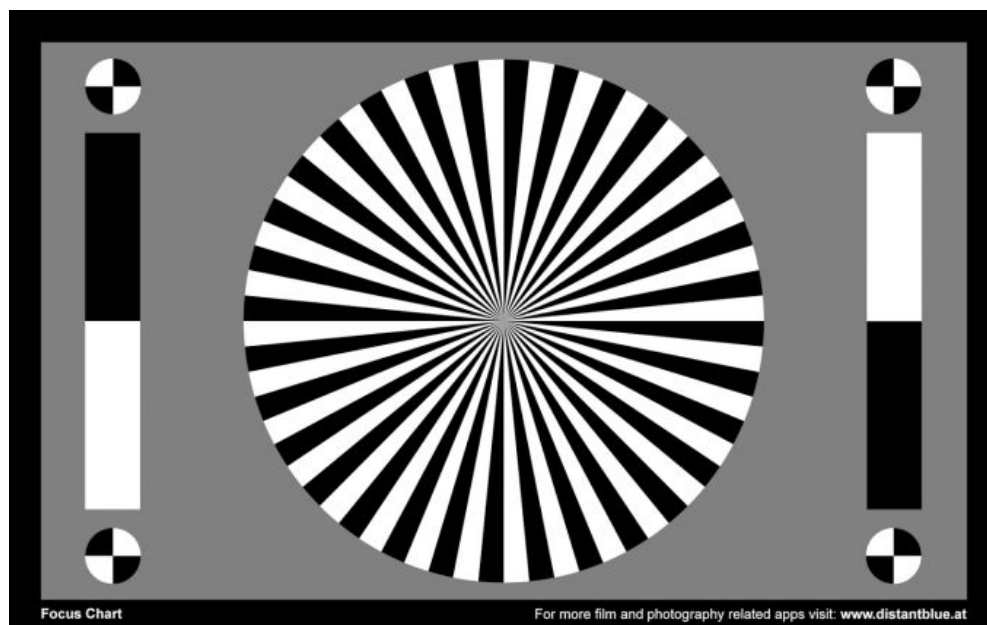
Photographers rarely think about accurate focus, assuming lens manufacturers have this covered. Not always true! On certain camera bodies, you can test and adjust the focusing to make sure the lens is



correctly focusing on the camera's sensor. To see if your lens is focusing correctly, you can use [this Datacolor tool](#), the Spyder LENSICAL™.

Focus on the zero point on the ruler, and then examine your image. (Note: this works best when you check the image immediately after creating it). The flat plane to the left with strong contrast is used when autofocus.

However, I recommend you use a tripod, and use manual focus, identifying carefully where you focus and then seeing if that exact spot was captured crisply in the camera. If you don't have a ruler with fine lines and good, black on white contrast, download the file attached to this blog post and print it out. It's a ruler in both inches and centimeters, with fine lines to help you zero in precisely when focusing.



If you are using manual focus to check focus on each body, you can make your own device simply by securely setting a ruler at an angle steep enough (30-45-60°) to be able to see a difference between where you focused precisely and where the lens actually focused.

You may be surprised by the results; when I teach a workshop and have attendees test their camera/lens combinations with this device, often I'm surprised how many more camera/lens combos come up off-focused than expected.

If you find that one or more of your lenses has this problem (yes, each lens has to be tested separately), you have options. If your camera body has the capability to adjust the lens, do so, testing until you're dialed in.

Sigma has come out with an interesting approach to lens calibration. For certain Sigma lenses, an option USB dock allows you to calibrate focus on these lenses, and change other settings.

Note this only works with certain Sigma lenses. You can read more about it [here](#).

If you can't adjust body or lens, your three choices are to:

1. Replace the lens (no guarantee this will solve the problem).
2. Live with it, adjusting the focus manually in the direction you know it is off (hard to remember to do consistently, useless with auto-focus)
3. Send it in to be serviced, with the image of the off-focused ruler accompanying the lens to reinforce the problem for the service techs who will adjust the lens and send it back. Doing this while the lens is under warranty is best.

## **AN OLD PROBLEM “FLARES” UP**



Light bouncing directly into the lens causes flare. This is often avoidable, and should be avoided whenever possible. It degrades sharpness and saturation, as shown by the first photo below. One of the easiest ways to avoid this is to use a lens hood. The benefits are huge, the effort needed minimal, yet so often people are shooting without lens hoods. Why is this?

Sometimes, it's sheer laziness, even though it takes very little effort to put a lens hood on a lens. Of course, some lenses don't benefit much from lens hoods.

The wider the lens, the less effective a lens hood. Sometimes, changing shooting angle helps as well.



Flare can also be caused by light bouncing off scratched edges of lenses (where the black is gone and metal is showing through), or sometimes, by light hitting scratches on the lens surface. Avoid the light, or fix the scratches; there aren't a lot of other choices.

## CONCLUSION



The steps for shooting sharp images are easy to do and pay great dividends. Here's a short checklist for shooting sharp.

1. Use the right tripod.
2. Use a sturdy tripod head.
3. Use a cable release or wireless remote release.

4. Use a sharp lens.
5. Use a clean lens and keep it clean.
6. Know each lens's best aperture(s).
7. Test each lens's focus and adjust for the results.
8. Use a lens hood to keep flare away from the front of the lens.
9. Buy good quality filters.
10. Turn off vibration reduction when using a tripod.

Happy (Sharp) Shooting!

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He has consulted to multiple companies, including Apple, Sony, Fujifilm USA, and X-Rite. He loves teaching good color practices to enthusiastic learners.

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