Photographing Fireworks
Making Your Festive Photos Pop
by Kevin Lisota
Have you ever tried to capture the excitement of a fireworks show and been disappointed in the results? Taking compelling photos of fireworks isn’t all that difficult, but it does take a little bit of advanced planning and gear. Here are our top tips.

**Choose a Camera**
Almost any DSLR, mirrorless, or point-and-shoot camera can be a great fireworks camera. Many consumer-focused cameras even have a dedicated fireworks mode that can be useful if you are frightened away by exposure settings like aperture, shutter speed, and ISO.

**Choose a Lens**
You do not need a fancy or expensive lens to shoot awesome fireworks photos. Fireworks are sufficiently bright that shooting at an aperture of f/8 is more than sufficient (f/8 will produce optimal sharpness on most lenses).

In general, you want a wide-angle lens for fireworks. I shoot the large July 4th fireworks show on Seattle’s Lake Union, and I end up using a 24mm focal length on a full-frame camera. This would translate into a 16mm lens on an APS-C crop-sensor camera. Obviously, the focal length you choose depends on how far away you are from the show, but every time I shoot the fireworks, I underestimate just how high the largest shells are and find myself zooming out.

If you are feeling creative, zoomed-in shots can also be interesting. There can be groundworks or crowd elements that can be an opportunity to try a shot with a 70-200mm telephoto lens.
Use a tripod

If you want good photos of fireworks, you need a tripod. The average firework shell may take 1–5 seconds to burst, and you simply cannot hold the camera steady for that amount of time.

Find Your Focus

Fireworks are quite bright, and most cameras would have no problems with auto-focusing on them. The challenge is that you may often trigger the camera before a fireworks burst when the sky is blank, and there is nothing to focus on, so you need to set your camera to manual focus mode.

You are going to be a considerable distance from the actual fireworks. Before the show begins, find a distant light or building and focus on that to set your camera at infinity focus. Then switch your lens or camera to manual focus mode so that the autofocus motor doesn’t change the focus each time you press the shutter. You may want to bring a piece of gaffer tape to secure the lens focus ring so that you don’t bump or change it.

Choose Your Exposure Settings

Remember to turn off your flash, if your camera has one built-in. A flash will add nothing to fireworks photos, other than messing up the foreground and underexposing the actual fireworks.

If you aren’t comfortable with manual exposure settings and your camera has a dedicated fireworks mode, go ahead and use it. If you are familiar with camera exposure settings like aperture, ISO, and shutter speed, put your camera into manual exposure mode.

I generally shoot fireworks at an aperture of f/8 and a shutter speed of at least 1 second. Fireworks bursts develop over time, and some linger in the air for quite some time. You want a shutter speed that is long enough to capture an entire burst. If you are in a city with a large and dense fireworks display, a shutter speed of 2–4 seconds will often be enough to isolate some of the bursts.
I've also shot as long as a 10-second exposure, which captures many more bursts in the scene. In very dense fireworks shows, this can lead to too many bursts in the shot, which may or may not be what you are after. In smaller shows, using a longer shutter speed may improve the shot by adding more bursts into one picture. There is no right or wrong answer to shutter speed, and I encourage you to experiment somewhere in the 2 to 10-second range.

Given the brightness of fireworks, it is not necessary to use very high ISO settings. ISO settings in the range of 100–320 should be sufficient. In fact, you want to make sure that you don't overexpose the fireworks (you generally want the night sky to remain very dark). If you know how to interpret your camera's histogram, turn it on and check that you aren't overexposing the first few shots. Don't trust the LCD screen on exposure! To give you an idea of some starting points, here are some sample exposure settings from my last several fireworks shoots:

1.6 seconds, f/8.0, ISO 250
8.0 seconds, f/9.0, ISO 100
6.0 seconds, f/9.0, ISO 200
4.0 seconds, f/8.0, ISO 100
10.0 seconds, f/8.0, ISO 100

**Compose Your Shot**

It does help to arrive early at your shooting location to get set up. It is much easier to accomplish this before it gets dark, and the place is packed with crowds of people.

Try not to point your camera directly up in the sky. This leads to boring pictures. The best fireworks photos include some landscape elements—city skyline, buildings, trees, or crowds.
Speaking of crowds—pictures of people enjoying the fireworks can be compelling. You may even try capturing people’s reactions. In one shoot, I was trying to avoid the woman in front of me who was wildly waving a flag, but in the end, she actually made the shot more interesting.

**Watch out for smoke**

Large fireworks displays can create a lot of smoke. Some of the best fireworks photos will be early on, before there is too much smoke. If the air is still, there isn’t much you can do about the smoke. If there is some wind, position yourself upwind, so that the smoke moves away from you during the show.

**Time Your Shots**

Since you will be shooting long exposures of the fireworks, you mustn’t shake the camera by pushing the shutter button. There are a few ways to avoid this:

- Turn the auto-timer function on your camera to give a 2-second delay. While this is effective in eliminating camera shake, it can make timing fireworks bursts difficult.

- Use your camera’s smartphone app or a wireless trigger. Many cameras can connect to a smartphone app via Bluetooth or WiFi, allowing you to trigger the shutter on your phone. This usually works well, but if you are in a crowd with thousands of people, wireless networks can fail, or your camera may be triggered inadvertently by others.

- Use a cable release. This allows you to trigger the shutter without touching the camera. Cable releases are quite inexpensive and easy to use.

Timing fireworks bursts exactly isn’t easy or intuitive. For many years, I used a cable release and just kept pushing the shutter over and over when I thought the next batch of fireworks was coming. You will take a few hundred photos, and many won’t be great, but this maximizes your potential to capture the interesting ones.
For the last couple of fireworks shows that I shot, I simply used the intervalometer on my camera to take shots at 1-second intervals, allowing me to enjoy the show without having to continuously press my camera's shutter button. Some cameras have this capability built-in, while other cameras may need a separate intervalometer accessory. Again, these are relatively inexpensive and easy to set up and use.

In any case, take as many photos as you can during the relatively short duration of the show. If you are continuously shooting, there will be some keepers in the mix, and you can always sift through them at home later and discard the boring ones.

**Enjoy the show**

Don’t forget to enjoy the show! It is easy to get wrapped up in your camera settings, but allow yourself a few “oohs” and “ahhs.” Remember, if you don’t get the shot, there is always another chance for fireworks!