

Welcome! I've created this guide as a reference for you as you develop your own night photography skills and techniques. The tips and suggestions below are based on my own experiences as well as those of other night photographers who have shared their knowledge.

The best advice I can give you is to just get out there, have fun, and start shooting. I first read about this technique in a magazine in 2009 and tried it out on my family vacation on New Year's Eve, 2009. At first, you will have some shots that might not turn out as fabulous as you had hoped, but the best part of night photography is being able to develop your own unique style. Your photos likely won't look like mine because we have different interests and we see each subject differently. It won't take long for you to begin to tweak and modify the information in this guide in ways that will work best for the type of photographs you are trying to create. It is a practiced technique but it is not rocket science. If you have the gear and a desire to achieve, you will succeed. This workshop is intended to be a starting point—from here, your possibilities are endless!



If you're interested in seeing more of my work, scan the QR code below or search for "Nocturnal Kansas" on Flickr.



Night Photography Safety Tips

Shooting at night is not an inherently safe undertaking. Do not underestimate the number of things that can potentially cause injury to you or your equipment. Knowing your location in daylight is the key to being able to navigate it at night. Scout the area first; keep an eye out for rocks, roots, ravines, and rotten floors.

First, keep a cell phone on you and tell someone where you are going. I have an agreement with my wife that I text her regularly throughout the evening when I am shooting alone, including when I've arrived at my location and when I leave.

Learn to see in the dark by giving yourself ten minutes for your eyes to adjust to the dark before you start shooting. A full moon is much brighter than you might think and will easily light your way when your eyes have adjusted.

Once your eyes have adjusted, **avoid looking directly at the moon**, **street lamps and the headlights** of oncoming cars. Keep the screen on the back of your camera at its lowest illumination level possible. It's very important to protect your "night vision." Some people use a dim RED flashlight (your eyes will be the least affected by this type of light) to help light the way or see their equipment but I find myself relying mostly on the flashlight on my phone out of convenience.

Collapse your tripod when moving between locations. You may be able to see enough to navigate, but you may miss something that your tripod can get stuck on, potentially causing a fall.

Whenever possible, be sure to contact property owners and get permission to be on the property. Carry samples of your work even if it's just a gallery of photographs saved to your cell phone. I actually carry a small 4x6 photo album in my car at all times. The police or a security officer will ask what you are doing when someone reports you as being suspicious. Some law enforcement will leave you be after seeing the samples, but not always. If asked to leave, always follow instructions given by the police. When I do have permission, I always try to call again on the day of my shoot to remind someone I'm coming.

Beware of animals. They're not expecting you to be where you are and we all know what happens if you startle a skunk. If you see an animal passing nearby, remain completely silent and let it pass.



Pro Tip: If you fear that you are in danger from a wild animal, shine your flashlight at the animal, make a little noise, and remember that you can defend yourself with your tripod if necessary. It might sound like a silly scenario, but I have been dive-bombed by owls and had friends confronted by coyotes. Additionally, remember that almost every animal sounds worse in the dark!

Getting Started: Gather these items to be ready for your night photography adventure:

- Dark clothing with sturdy shoes
- Flashlight and colored gels
- Camera with tripod

Getting Started: The Basics

In What Format Should I Shoot?

Night photography demands the highest quality files available for your camera. Under-exposed images can be corrected to a higher degree if more file data is present. RAW is often the most data rich format. JPEG is a condensed format that helps saves space on your memory card but does not give you the highest quality files.



Pro Tip: Shoot in RAW. You can convert to JPEG later (after editing) if you plan on printing your photos in a store or online. Always save your original RAW files.

F Stop

In most cases, wide aperture settings around 5.6 - 6.7 work well. These settings allow a good flow of light through your lens and this range will help to keep light sources such as the moon or streetlights less "blown out." Conversely, you may choose to shoot higher numbers in order to "starburst" light sources. A setting between f/8 and f/11 will help create that effect without the use of fancy filters.

Higher numbers also help make a lens flare smaller and more defined. This is useful if you chose to remove the flare in post-production. Wider apertures will make the flare appear larger and less defined and, in some cases, may make the flare faint enough to not be very noticeable. In other cases, it may create an unattractive and distracting blob of light. *Experimentation is the key*. Remember, if you are going to increase your F Stop numbers, you will also have to increase your time in order to allow more light in to your shot.



Warning: An aperture number of f/11 or higher will also have the effect of making any dust or spots on your lens more defined. Make sure your lens is clean!

ISO and Noise

Your camera's ISO setting controls how sensitive your sensor is to light. You will need to shoot at lower ISO settings (such as 100 or 200) in order to create low-noise images. A higher ISO setting allows your camera's sensor to collect more light in a shorter amount of time but has the unfortunate effect of creating digital noise. It's a tradeoff of time versus sensitivity. Newer, full-frame cameras have a higher tolerance for such settings, but these smaller crop frame sensors are known for being noisy or grainy, even at ISO levels as low as 400.

Another cause of digital noise is sensor temperature. Even at low ISO settings, an image can become very noisy at temperatures above 80F. Normally, your sensor will remain cool enough to avoid the noise for up to six or seven minutes. If you find yourself getting noisy images at low ISO settings, the weather may be too warm to support long exposure work or you might have overworked your camera. The good news is that cold temperatures can supercharge your exposure time. An ambient temperature in the low to mid 20s may allow for up to an hour of relatively clean exposures. No special postproduction techniques or "stacking" required.



Pro Tip: If your camera is equipped with noise reduction, it's advisable that this feature not be used. The heat generated by this function can make the very same noise you're trying to get rid of worse!

Exposure Time

Low ISO values and F Stop settings above f/5.6 typically require two or more minutes to allow enough light to enter the camera. Like day shooting, it's possible to over expose an image by setting a high ISO or opening the aperture too wide during a long exposure.

Between *ISO*, *F Stop*, and *time*, time is the setting you should consider adjusting first when attempting to get your final shot. The last thing you should consider adjusting is your ISO setting. Widen your aperture and shorten your time, or lengthen your time and shrink your aperture. Use these settings like a seesaw until you get the effect you are looking for.

When all else fails and your camera is not able to collect enough light after adjusting your aperture and time values, *then* consider increasing your ISO. Using post-processing software, it is possible to remove some of the noise you may encounter in the event that you have to boost your ISO. The downside to it is that you will lose some detail.



White Balance

Daytime white balances usually range in the mid 5000s. For night photography, some photographers will shoot as low as 2800, others may go as high as 4300, but most settling around 3600. Different light sources may require tweaking your white balance from time to time. Shooting around sodium vapor/orange street lighting will require a lower white balance setting to offset the orange glow while "moonlight-only" shots work nicely in the mid-3000s.

Test Shots

Taking a test shot enables you see what your final image will look like at night without having to complete a multi-minute exposure resulting in wasted time. Test shots can be as short as 10-15 seconds and will assist in creating your composition and checking your focus. It may also show you where lens flare can become an issue depending on the position of nearby light sources. If you have a Canon camera that has the C1, C2 and C3 memory settings, consider saving a test shot setting into one of these for quick access.

Test Shot Settings

F Stop	5.6
ISO	1600
Time	15 seconds

Long Exposure Starter Settings

Settings	#1	#2	#3
ISO	100	200	200
F Stop	5.6	6.3 or 6.7	8
Time	3 minutes (180 seconds)	3 minutes (180 seconds)	4 minutes (240 seconds)
Color Temp	3800K	3800K	3800K

The Moon as a Light Source



Pro Tip: Every element of the sky above is in a constant state of movement. Clouds, stars and even the moon will begin to trail across your shot when exposure times increase by as little as ten seconds.

Timing

Typically, the three to four nights leading up to the full moon and the three to four nights after are your best nights to shoot. A full moon rises close to sunset meaning you may have to wait a few hours before it is overhead and casting the maximum amount of light. Nights prior to the full moon will see a pre-sunset moonrise, meaning higher in the sky moon placement earlier. When composing your shot, decide if you want the moon to appear or are simply looking to shoot an illuminated subject.

Keep in mind that your exposure times should increase with the dimmer phases of the moon. A half moon is the minimum phase you can rely on for lighting. A crescent moon will make for an interesting subject but provides relatively no useable light.

Composing at Night

Some night photographers prefer to leave obvious markers that tell a viewer that the photograph was taken at night. The average person will often confuse a twominute moon as the sun. A full moon can also wash away the dim light of nearby stars, effectively removing them from your image. You can counter this by including something that would not be normally seen during the day such as the distant lights of a town, a streetlamp, the red beacon of a radio tower... anything to illustrate that this is the world as seen at night.

The Moon

When watching the moon rise or set, it is easy to witness its motion in relation to the horizon or nearby ground-based objects. Its movement is not so apparent when it is traveling high in the sky, but rest assured: it is moving and faster than you think. The moon moves a distance equal to its own width about every two minutes. In as little as 10 seconds, the motion blur of the moon becomes apparent in timed exposures. This means you've got a decision to make. Is your shot about capturing the moon or is it about the subject the moon is illuminating?

If the moon is your primary light source, you'll have to "let it ride" through the exposure until you're done. However, if shooting a bright city scene or a landscape shortly after sunset, you may have enough light to make a quick exposure and capture that great moon detail without sacrificing everything else.



Pro Tip: You may be tempted to zoom in on the moon and attempt to shoot it but bear in mind this fact: a lens zoomed in on a subject during a timed exposure is much more susceptible to shaking due to wind or other external forces. You'll be more successful at wider angles or partial zooms.



Warning: Keep in mind that using an image stabilization function during a shot taken with a tripod will actually cause a blurry photograph. Turn it off!

Clouds

Too many clouds will make your sky look like a flat blanket but a partly cloudy sky is ideal for capturing a feathered and textured sky. Even a single cloud can create an interesting effect. Clouds are often the fastest moving objects in the sky. It won't take all that long to get some interesting patterns.

Stars

Thirty seconds is long enough to begin to detect the movement of the stars. Two factors come in to play when aiming for great star trails: length of time and direction. The longer the exposure, the longer the trails. To maximize your star trails during your exposure, shoot east or west where the apparent motion of stars is the fastest. Shooting north will yield shorter trails but will result in the *down the drain* effect that works in some shots.

Shooting 17-25 minutes will yield some great trails. The key is to not let the trails overlap with each other by being too long. The average person will find this to be distracting. The sky should be the icing on your subject and not the focal point.

Waterways and Beaches

Waterways will usually give you two types of surface. Choppy water exposed for more than thirty seconds will give you a "crinkled tinfoil" appearance and calm water will give you a mirrored surface.

As water crashes on to the beach, it often appears white and foamy. If you've ever seen a long exposure of a waterfall, you may notice a white streaked fog like effect from the moving water. A similar effect occurs during long exposures at the beach. Waves crash at different points along the beach during your exposure. This will create what appears to be a ghostly fog separating the sea from the sand. The rougher the seas, the more pronounced this effect will be.



Light Painting

Daytime photographers use flashes to fill in shadows. Night photographers can do this, but we also use flashlights. The advantage of long exposure work is that filling in the shadows can be a deliberate and slow effect, allowing for a higher level of creativity and noticeable impact on the final image.

At night, a little goes a long way. A simple LED flashlight with a few color options is all you need to start light painting. Some photographers like to paint directly into the image by writing their names or drawing in thin air. Other photographers will paint light on to subjects to create surreal effects. In many cases, night photographers will light paint simply to increase the visibility of a subject by using a normal flashlight.

Similar to the sun, the moon can erase your handy work if given the opportunity. Avoid lighting areas exposed to moonlight or other light sources. Don't let the camera see your flashlight or allow the light to reflect off of any surface you don't want appearing in the shot. Use a cardboard tube or "snoot" to minimize the opportunity for the light source to appear in your image.

Better yet, shine the light from outside the shot! "Wait, you mean I can do this in front of the camera?" Yes, you can! If you don't stay in the same place for more than 10% of your exposure time, the camera will not detect you (I also wear dark clothes and a dark cap to further lessen the chance my image will be seen in the photograph). Landscapes and stationary subjects bathed in moonlight will outshine you as you move through the image. In this way, you can use your own body to shield the light source. How cool is that?

A ghostly apparition?

I took this picture of my daughter by having her stand in position for approximately 15 -20 seconds while I shined a gold-gelled flashlight on her from camera left.





Lightning

Besides the luck of good timing, several devices have hit the market to assist photographers in obtaining a shot of a split-second lightning strike. Capturing lightning during the day is quite difficult unless you know exactly when and where the lightning will strike. There's a very short window of time available to shoot lightning before the shot is overexposed due to daylight - fractions of a second. A night photographer has the advantage. Savvy night photographers will wait for the lightning to come to them.

Time is the wild card with lightning because you don't know how long to wait. Hold your shutter open manually. Do not set a preset time interval. A single flash for close lightning is enough to get an amazing shot. After you see it, end the shot

Fireworks

Fireworks are like a form of predictable lightning. Typically, the same general settings will work with an ideal exposure time of between four and ten seconds. Most shows start with single explosions and build up in intensity to an eventual finale. Like lightning, shorter exposures will allow for the shape and detail of the fireworks to come out. If you want to catch longer spark trails as they fall toward the ground, leave the shutter open but beware the next

immediately and then open the shutter for the next flash. More than one nearby flash in a single shot can cause an over exposed image.

If the lightning is distant (on the horizon), the likelihood of over exposure is reduced. This allows an opportunity for you to capture multiple strikes in a single shot. It's possible to leave your shutter open as much as a minute and still get some great activity. However, the longer you wait, the more you gamble away your shot in the event a closer strike over powers the earlier strikes.

Try these settings for lightning shots.

Settings	Close lightning	Distant lightning
ISO	800	400
F Stop	9.5	9.5

explosion will soon follow and may drown your shot.

Start with these settings.

F Stop	8.0	
ISO	400	

Pro Tips: Having a foreground subject helps make your fireworks (and lightning) shots exciting. Try to avoid the temptation to simply shoot the sky. Let the fireworks illuminate the landscape for you!

Let the camera do the work for you during the entire show. Set your shutter release to take five second exposures repeatedly using the above settings while you enjoy the show with your own eyes!

If you're interested in finding more about night photography techniques, check out the following resources:

Light Painted Night Photography by Troy Paiva Night Photography: Finding Your Way In The Dark by Lance Keimig Special thanks to Timothy Little of Cape Night Photography (<u>capenightphotography.com</u>) for encouragement and assistance in my preparation for this workshop.