How To Shoot Star Trails

full tutorial with examples at www.backcountrypost.com/forum/

Equipment needed:
- A digital SLR Camera
- A sturdy tripod
- A wired remote control trigger

The wired trigger can be an intervalometer or a plain old trigger. It cannot be a wireless remote. I usually use my Canon RS60 or sometimes my cheap no-name Intervalometer. Anything like that will do, just make sure it has the right connection for your camera. I don't know much about Nikon gear but the Canon cameras have two different connections. Most use a 2.5mm headphone style jack but the pro cameras like the 5D and 1D use a special proprietary connector.

Now that we have the equipment figured out, lets discuss the methods. There are two different ways I use to take photos of star trails.

1. Single Exposure Method

The old school way is with a single long exposure. This was the only way to do it with film cameras and is still the only way to get decent results if there are any clouds in the sky. I rarely ever shoot star trails like this.

Here are the settings I would typically use for a single-exposure star trail. Most of them can and should be tweaked for various conditions so play around and try different things.
- Manual Focus: Infinity
- White Balance: Daylight
- Image Stabilization: OFF
- Quality: RAW
- Aperture: As fast as your lens allows, typically f/4 or lower
- ISO: Variable depending on ambient light. For a single exposure you'll get best results with an ISO in the 100-400 range. Anything higher than ISO 400 and you won't be able to leave the shutter open long enough without over exposing. You'll also have major noise issues.
- Shutter Speed: Set it to bulb and lock down the wired trigger. You'l get movement in your stars at any exposure beyond 30 seconds but to get a real trail effect you'll need to leave it open for more like 5-45 minutes.

2. Multiple Exposure Method (aka Stacked Trails)

There are many benefits of shooting your star trails with multiple exposures. You can get more stars, darker skies, less noise and more interesting foreground possibilities. It's almost as easy too. it just takes a bit more work once you're back at your computer.

Here are the settings I would typically use for a multiple-exposure star trail. Just like single-exposure, most of them can and should be tweaked for various conditions.
- Manual Focus: Infinity
- White Balance: Daylight
- Image Stabilization: OFF
- Drive: Continuous, so that your camera will take one picture after another when the trigger is locked down.
- Quality: JPEG Large, you can shoot in RAW but it is going to kill your card/disk space fast.
- Aperture: As fast as your lens allows, typically f/4 or lower
- ISO: I typically use an ISO between 800 and 2000 for multi-exposure trails. Try test shots until you get something that looks good with the light you have.
- Shutter Speed: 30 seconds

Once you have all your settings dialed in, lock down your trigger and the camera will start taking back-to-back 30 second exposures. At the beginning and/or end of the sequence, I like to play with various ways of illuminating or light painting the foreground. I feel that one of the most important parts of a cool star trail photo is a nice foreground, otherwise the trick can get old fast. A speed light, head lamp, flashlight, campfire, firesteel or any other light source can be used to paint the foreground, be creative.

Let the camera run for as long as you wish. Shorter times will of course make shorter star trails. If you let it go too long, you can always choose how many of the images to use in the final product, making the trail as long or as short as you would like. You can also choose which of the painted foregrounds to use in the final image.

Back on your computer, you'll need some software to stack the images. My favorite is a free program called StarStax which is available for Mac, Windows and Linux.

Make any necessary adjustments to your images then load the images you want to use into StarStax and compile them into one image. You'll probably want to make more adjustments to the stacked image. This is also a good time take your best foreground image and layer it in using photoshop. The possibilities are endless.