

## Star Trails

### Planning

- A clear night is a must.
- Choose the foreground.
- Choose the direction based on the desired star trail.

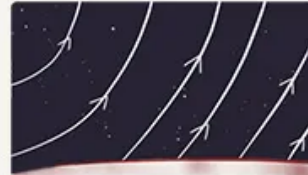
## Star Trails - Northern Hemisphere

Depending on the direction you're aiming your camera, you'll get all these different star trails patterns.

[photopills.com](http://photopills.com)



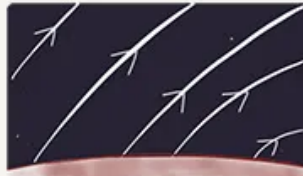
North



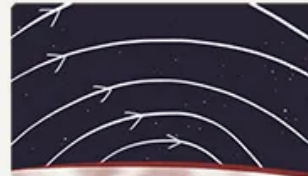
Northeast



East



Southeast



South



Southwest



West



Northwest

## Meta Data

Dimensions	7756×11632
Resolution	240×240
Color space	RGB
Color profile	sRGB IEC61966-2.1
Device make	Canon
Device model	Canon EOS R6
Lens model	RF15-35mm F2.8 L IS USM
Aperture value	2.9709
Exposure time	00:30
Focal length	15 mm
ISO speed	1,600
Flash	No
F number	f/2.8
Exposure program	Manual
Metering mode	Center-weighted average
White balance	Auto

## Equipment

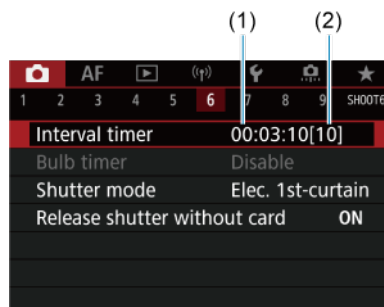
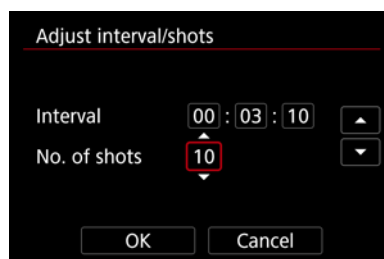
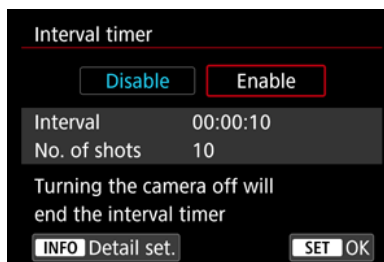
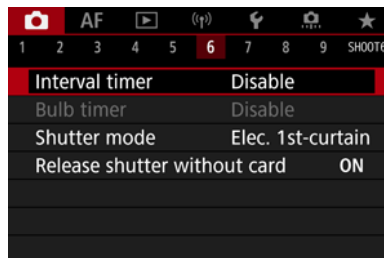
- Full frame camera with a built-in intervalometer or an intervalometer if the camera does not have one.
- Wide-angle lens
  - $\leq 24$  mm
  - $\leq f/2.8$
- Tripod
- Extra batteries or an external power bank.
- Memory card with room for at least 200 images.
- Lens warmer for humid cold weather.
- Headlamp/Flashlight
- Lesson Learned - Chair

## Settings

- Electronic shutter to minimize vibration.
- Aperture -  $f/2.8$  to  $f/5.6$ 
  - When there is some moonlight, shooting at higher f-stop values, such as  $f/5.6$  can extend the depth of field giving an overall sharper image.
  - When there isn't any moonlight, shooting at  $f/2.8$  will be necessary to collect enough light.
- Shutter speed - 30 seconds.
  - This is a camera limitation for me.
  - I could use bulb mode for longer shutter speeds, but I want the chance to delete an image if something happens.
  - Lessons Learned – Sit down relax and put the flashlight away.
- ISO - 200 to 1600
  - As the ISO increases the color from the stars decreases.
  - Adjust to the desired exposure.
- Manually Focus
  - Lesson Learned - RF lens MF ring sensitivity- Set to Varies with rotation degree.
- Metering Mode - center-weighted average.
- White balance in manual
  - Dark skies: 3900K
  - Light pollution: 3400K
- Greater than 80 exposures.

## Interval Timer Shooting

- During interval timer shooting, you cannot use Remote Control Shooting.
- Select Interval timer.
- Select Enable then press the INFO button.
- Set the shooting interval and number of shots.
  - Set the interval to three seconds longer than the shutter speed. Interval can be set between 00:00:01 – 99:59:59.
    - If the next scheduled interval timer shot is not possible because the camera is shooting or processing images, it will be skipped. For this reason, fewer shots than specified will be taken.
    - **Lesson Learned - Set at least a 3 second interval after the shutter closes to give the camera time to process the image.** The interval will have to be longer if Long Exposure Noise Reduction is on because image processing will take longer.
  - Set the number of shots.
    - Number of shots can be set between 00 – 99.
    - To keep the interval timer on indefinitely set to 00.
  - Select OK.



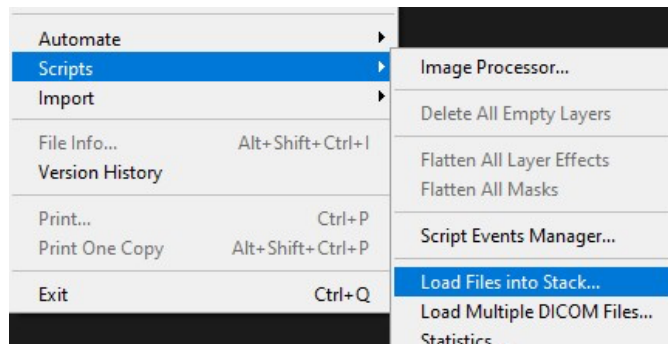
## Shooting

- Capture the foreground with one shot at the desired exposure.
- Manual Focus on a bright star
  - Focus on a bright object in the distance.
    - With the camera on a tripod, magnify the view in the Live View.
    - Turn the focus ring until your distant target looks sharp.
- Start intervalometer.

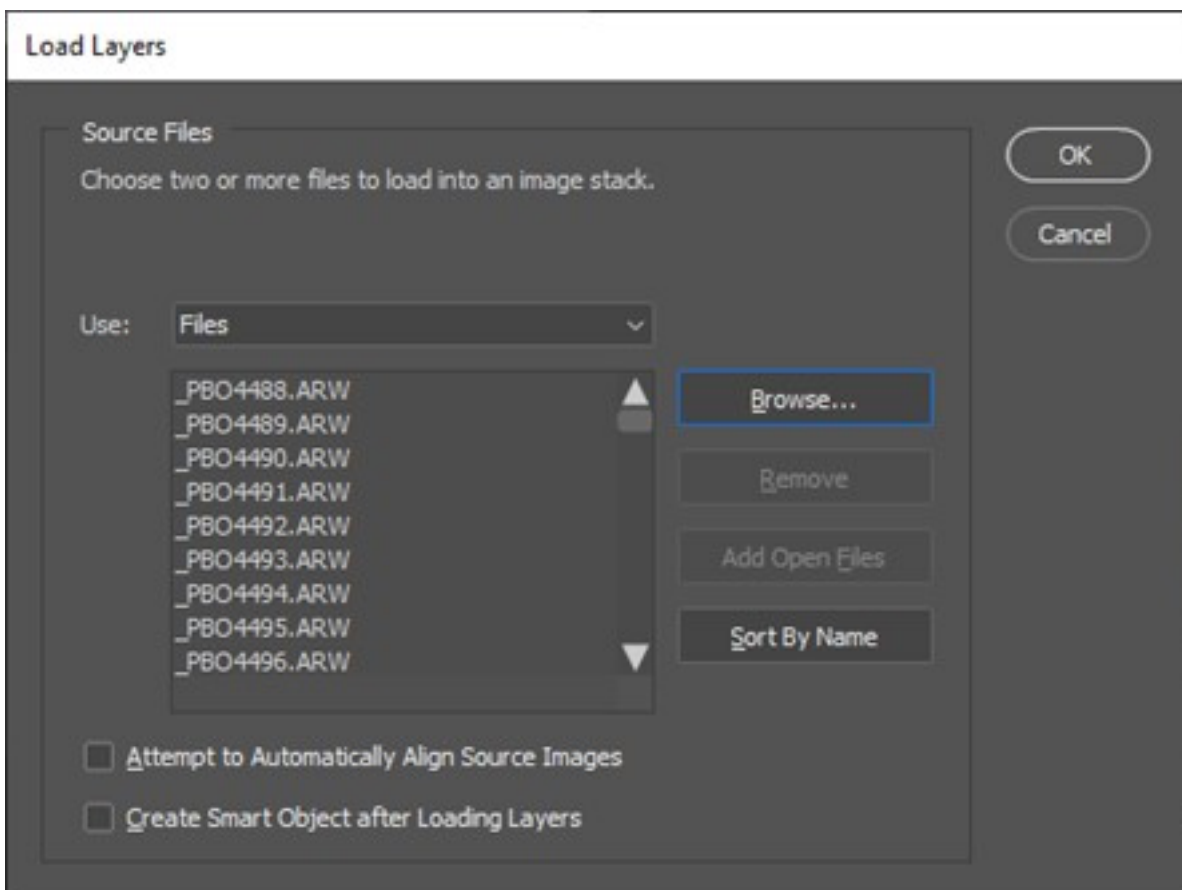
## Star Trails Post Processing

### Post Processing Photoshop

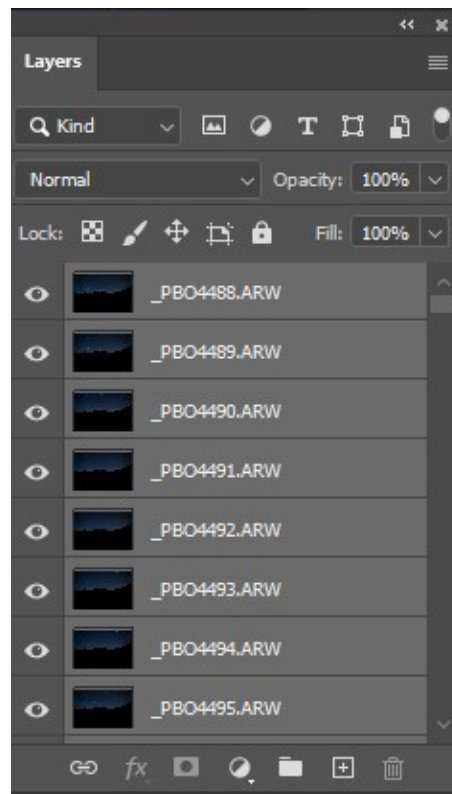
- There free software StarStaX which stacks images.
- Open the *File* menu, then *Scripts*, and *Load Files into Stack*.



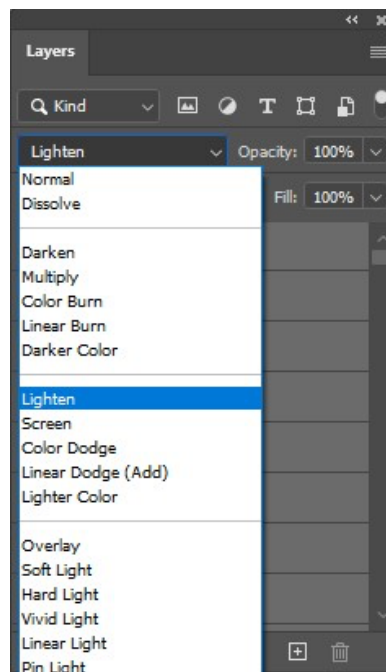
- In the new window, click *Browse*.
- Select all your star trail images.
- Don't check any of the boxes in the Load Layers window.
- Click OK.



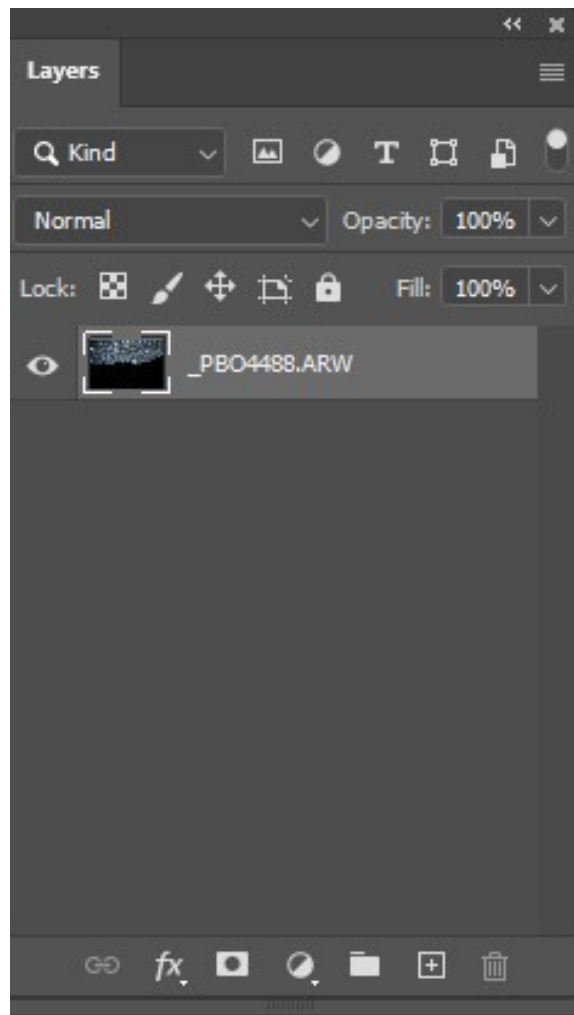
- Click on the first layer, then hold the *Shift* key and click on the last one to select all layers.



- Blend mode - Lighten.



- Merge images - On Mac: Command + E (press and hold Command while pressing E).



- Save as to the desired format.
- Edit the image with your preferred editing tool.