Mastering Long Exposure Night Photography

presented by
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at Photoshop World
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(abridged version)

Types of Night Photography

Urban Night Photography exposures are quite fast

ISO 100, 30 seconds, f11

Types of Night Photography

Artificial light sources dictate exposure and composition

ISO 100, 25 seconds, f11

ISO 100, 1 second, f4.5

Types of Night Photography

and working with the stars is rarely an option

ISO 100, 73 seconds, f7.1

Types of Night Photography

Three types of moonlit night exposures

Star Trails

(single frame,5-45 min)

Star Points

(single frame, 12 sec)

Image Stacking

(multiple exposures combined for a 1-8 hour total duration)

Night Photography Exposures: Star Trails

1) The camera's native ISO should be used for the cleanest, noise free results

Canon = 100 ISO
Nikon = 200 ISO

2) Use LENR to reduce noise

3) Larger apertures will gather more stars (f7.1 is my personal favorite)

4) Exposure times will be 5-45 minutes depending on the ambient light

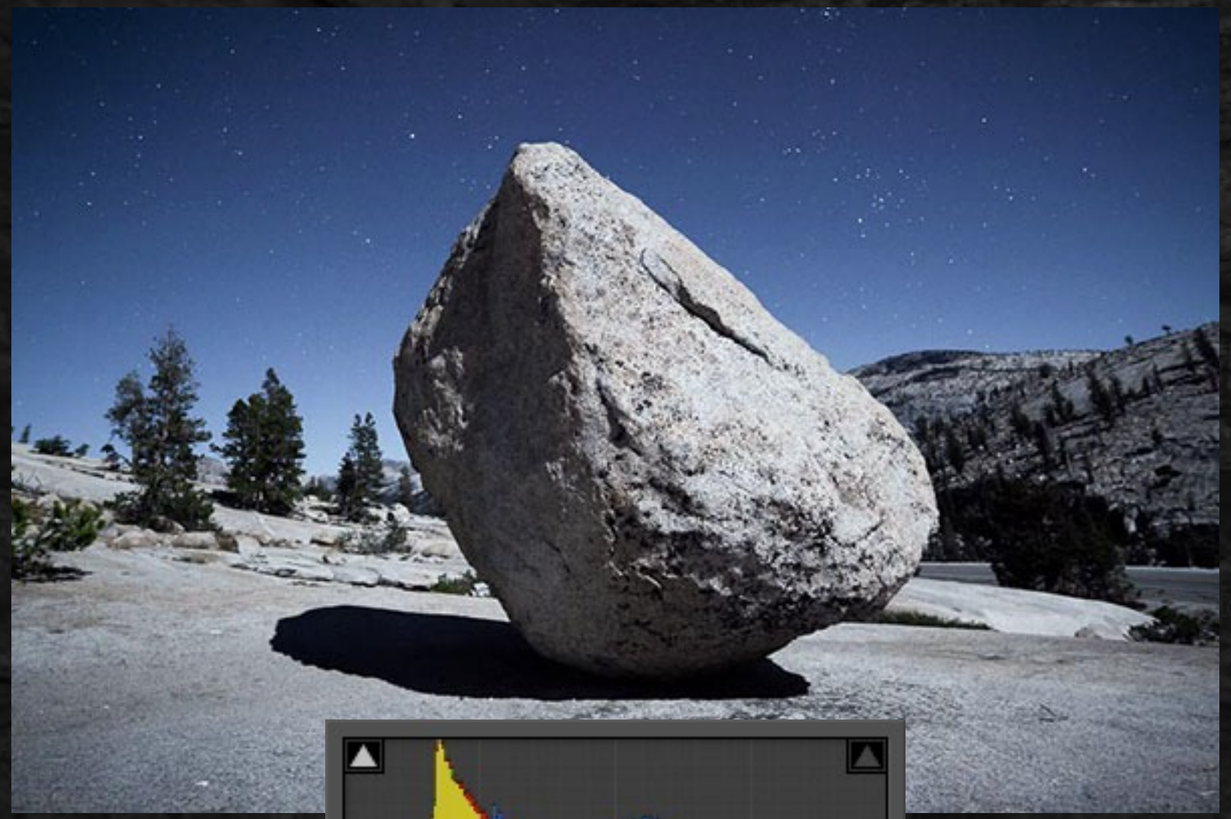
5) Perform a **high ISO exposure test** to quickly determine the exposure, without wasting precious time.

Night Photography Exposures: High ISO testing

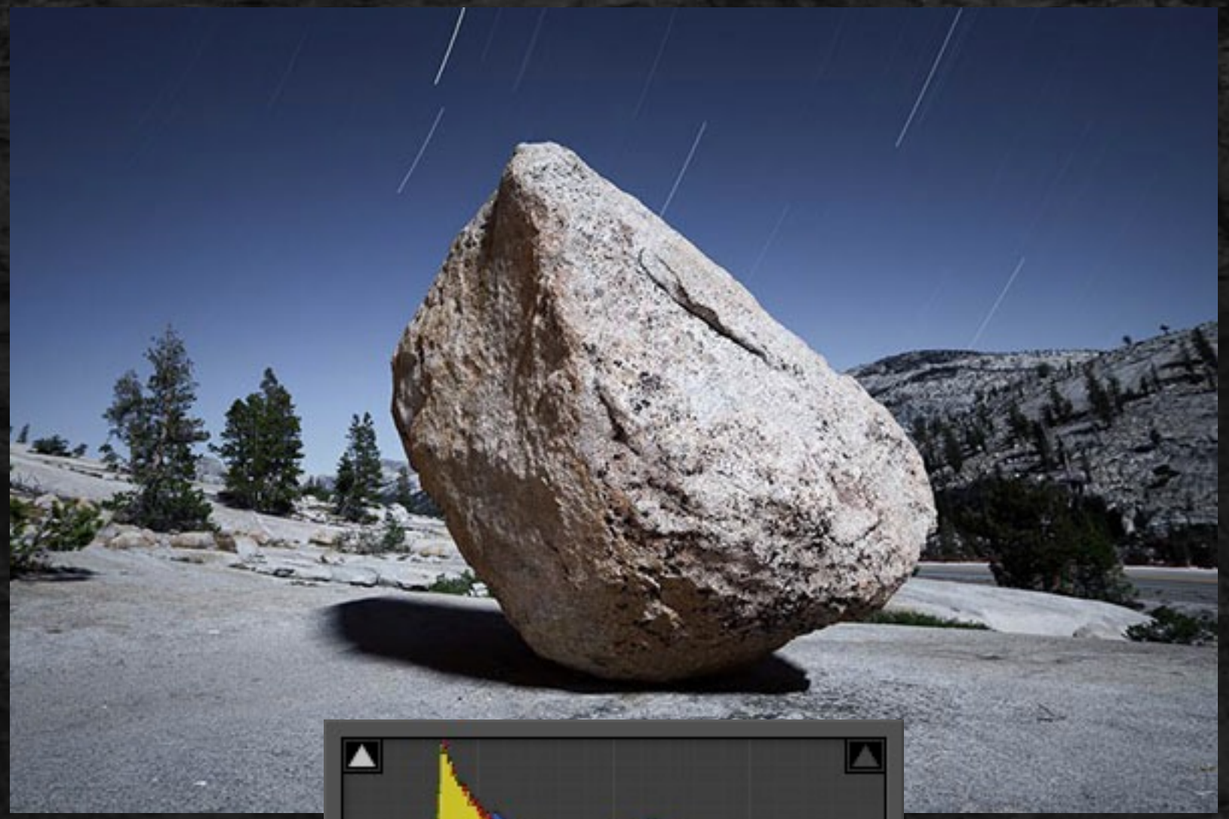
There is a direct translation from the exposure in **minutes** at the native ISO to **seconds** at 6x native ISO

(Canon) 100 ISO x6 = 6400 ISO testing
(Nikon) 200 ISO x6 = 12800 ISO testing

Night Photography Exposures: High ISO testing



high ISO test exposure
ISO 6400, 15 seconds, f7.1



final exposure
ISO 100, 15 minutes, f7.1

Night Photography Exposures: High ISO testing

Review the test exposure for composition, focus, and depth of field

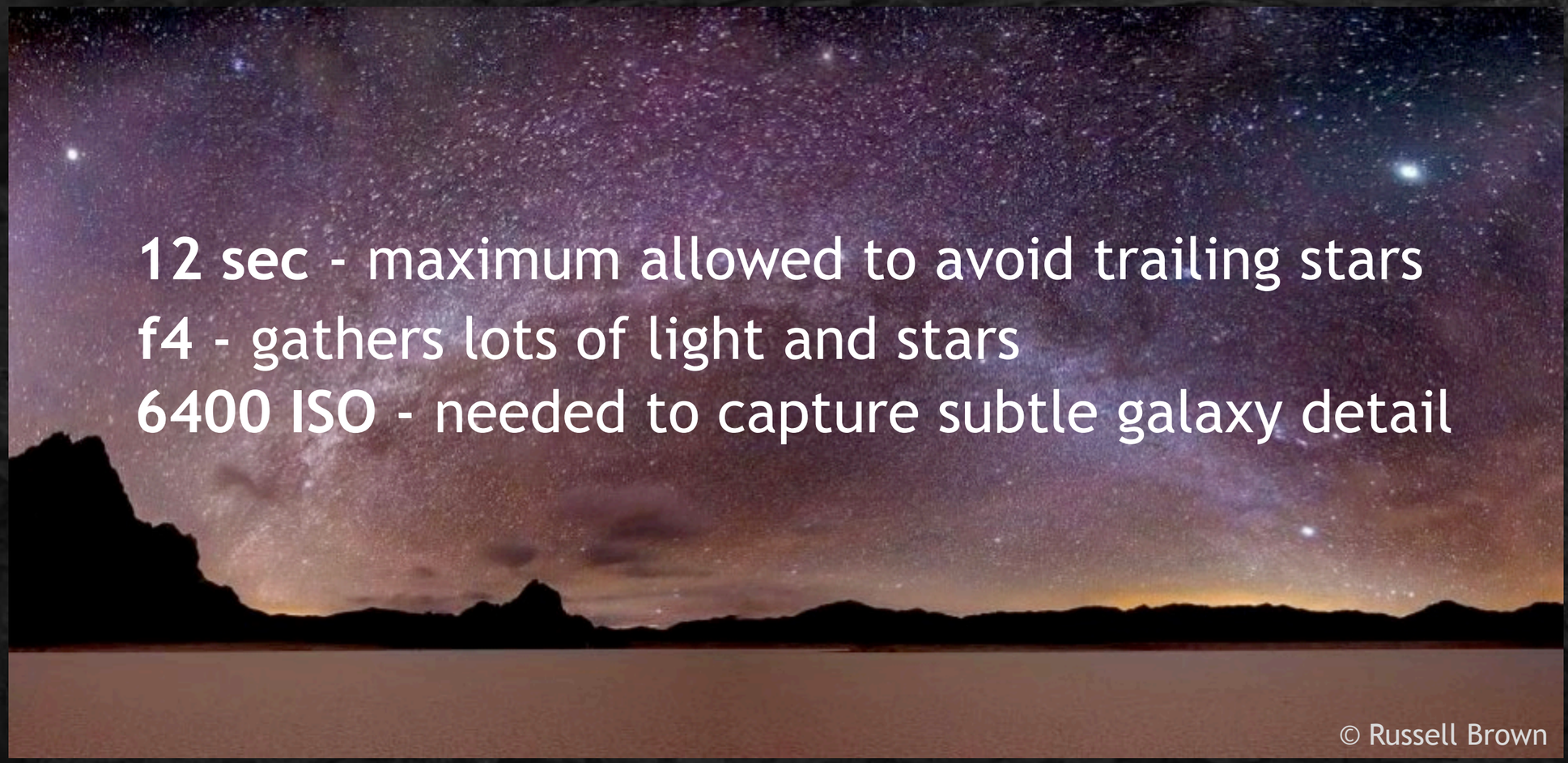
High ISO testing saves a lot of time and increases productivity!

Night Photography Exposures: Star Points

1) Very exciting! Excellent quality with the latest, highest quality cameras
2) Exposures must be less than ~12 seconds to keep the stars from trailing
3) Use LENR to reduce noise
4) Larger apertures will gather more stars
5) Although a high ISO is required, use the lowest high ISO possible to minimize noise. 1600 ISO often considered “sweet spot”
6) ISO 1600 at f5.6 for 12 seconds is a common exposure for this type of image.

Night Photography Exposures: Astrophotography

moonless nights are an opportunity for astrophotography



Night Photography Exposures

Live View Mode is the best thing ever for night photographers.
Force yourself to stop looking through the viewfinder.

Use Live View with maximum zoom to focus on stars
(if your camera allows for this).

Image Stacking

At a camera’s native ISO, brighter moonlight scenes are often limited to 5-30 minutes. This doesn’t allow for long star trails and other events that can happen over longer periods of time.

Image Stacking

A 2 hour exposure would capture long star trails but blow out the stationary, ambient lit objects.

Image Stacking

Image stacking allows us to make multiple exposures....

Image Stacking

... and combine them into an image
that represents a longer period of time

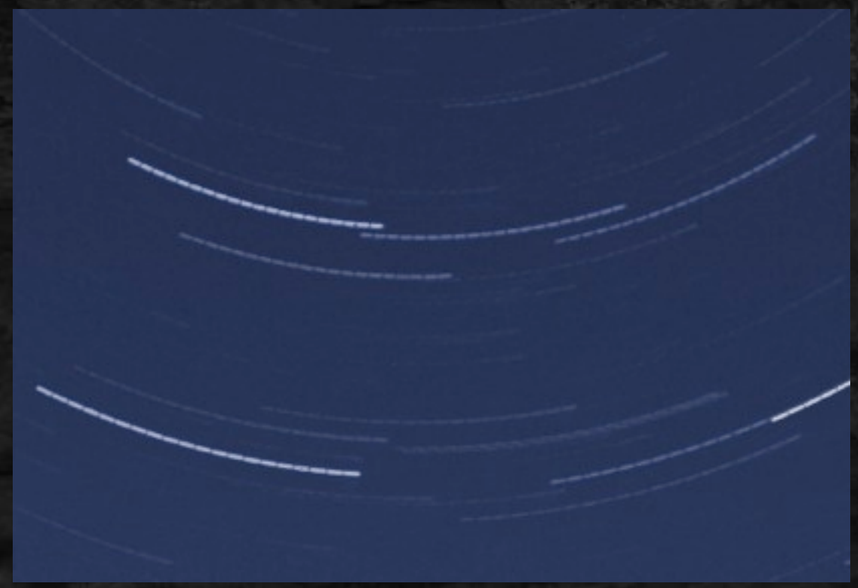
Image Stacking

Advantages:

- allows us to capture events that take place over longer periods of time (star trails, moon trails, moving objects, etc)
- increased image quality
- accident prevention
- increased light painting flexibility

Disadvantages:

- requires post processing
- potential for gaps in star trails that show up in large prints



Shot 27 frames and used 22

Image Stacking

22 four minute exposures = 1 hour 28 minutes

Image Stacking

the detail and cleanliness is incredible!

Star Trails
(single frame,5 min)

Star Points
(single frame,12 Sec)

Image Stacking
(1.5 hour total exposure)

Image Stacking

Want to do some image stacking?

On a full or near full moon night, environments without artificial lighting can be stacked with these settings:

ISO 200, f7.1, 4 minutes

This should be a good starting exposure recommendation.

Image Stacking

Other details:

1) LENR must be turned off for image stacking!
2) Use an electronic remote timer to automate the process without user intervention
3) Set the white balance to “K” at ~3700K for moonlight
4) As always, watch your focus and make sure stars are sharp
5) Perform a high ISO test to check composition and focus
6) Very wide angle lenses allow for greater depth of field so that foreground and stars are all in focus.

Image Stacking

Methods

- Dr. Brown's Stack-A-Matic 2.1+
  Specially written for night photography image stacking!
  Joint effort between Russell and I, released May 2011, free.
  Available from the scripts page at www.russellbrown.com
  Compatible with Photoshop CS4,5+6 (Standard + Extended)
- "Open in Photoshop as Layers" and set each layer to the Lighten blending mode
- LR/Enfuse (LR plug-in that requires donation)
- Startrails.exe (Windows)
- Keith's Image Stacker

Light Painting: tools

Streamlight Stinger
90 lumen

Streamlight UltraStinger
230 lumen

Trends and Recommendations

Trend:

Images look great on a display but make lousy prints

Recommendation:

Optimal exposures create optimal “digital negatives” that create superior looking prints. An advanced understanding of optimizing exposure is the key. This dialog is the modern day equivalent to the Zone System.

Trends and Recommendations

Trends

Work entirely on a tripod.

Recommendation:

Enjoy the freedom of movement that working handheld provides. Experiment with a scene at high ISO from several angles before committing to a final exposure on a tripod. Don’t worry about the images being blurry!

Trends and Recommendations

Trends:

5-10 minute exposures lead to disappointing star trails

Recommendation:

Consider your other options:

1) Star points

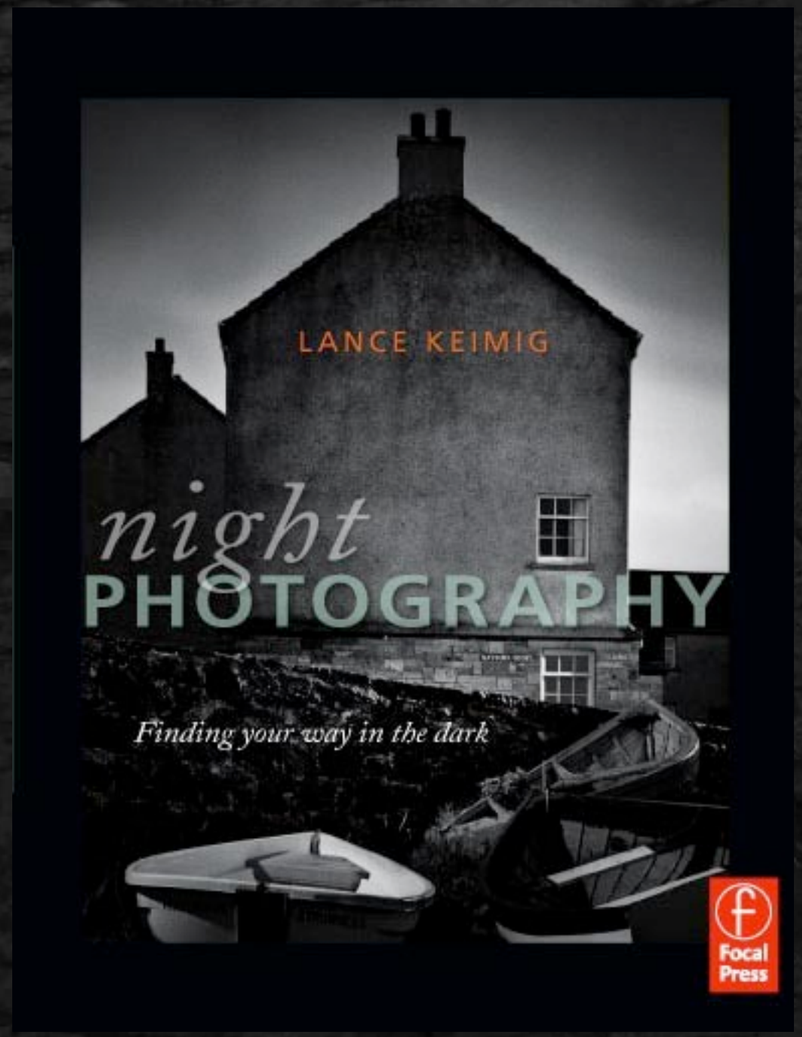
2) Use Image Stacking for super long 45+ minute star trails

3) Extend exposure times to 15-45 minutes using the lower ISOs like 100 and 50.

Everything I’ve discussed is presented in better detail in the book:

“Night Photography:
Finding your way in the dark”

by Lance Keimig & Scott Martin



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