

# Basics of Digital Photography

Hilton Head Island Computer Club

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# What you will learn:

- ▶ Adjusting exposure using the shutter speed and aperture.
- ▶ Differences in lenses.
- ▶ A little bit about the camera sensor.
- ▶ Some composition technics.
- ▶ Photo tricks you can do with a regular camera that are hard to do with a phone camera.

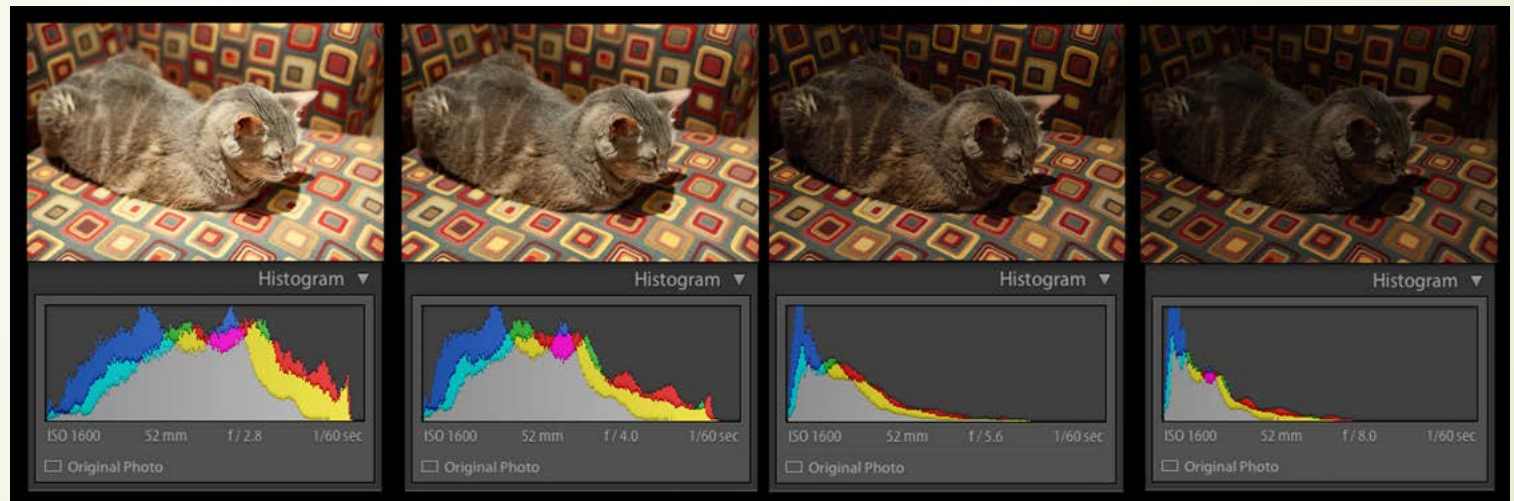
# Exposure Aperture:

- Aperture settings: (f-stops)
- f/1.4, f/2, f/2.8, f/4, f/5.6, f/8, f/11, f/16, f/22, f/32, f/45, f/64 etc...



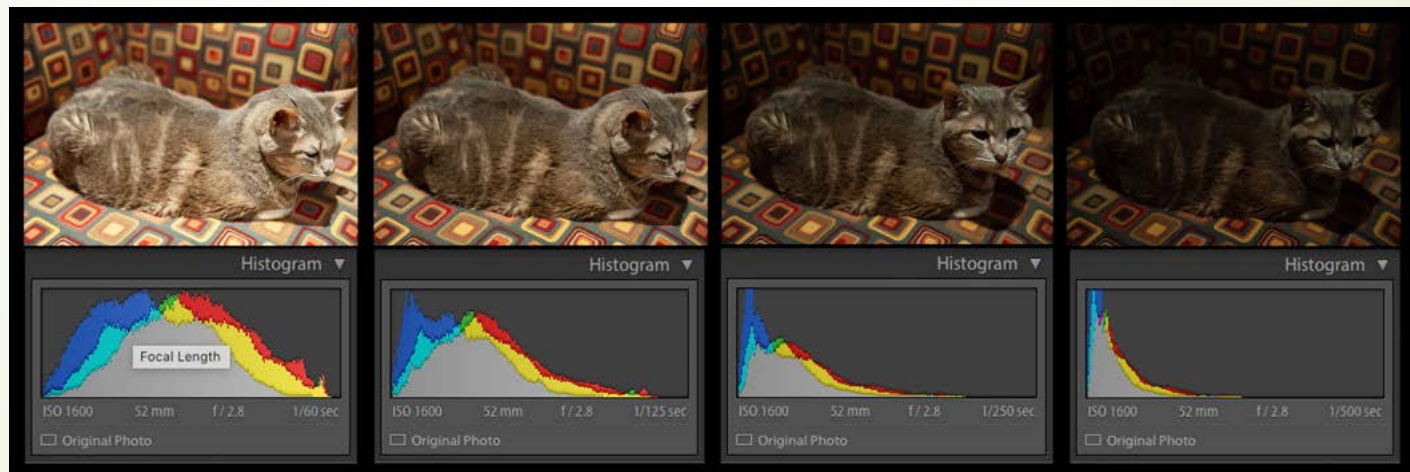
# Exposure Aperture:

- ▶ Aperture settings: (f-stops)
- ▶ Each number represents a halving or doubling of light reaching the sensor.
- ▶ F-2.8 allows 2X more light to get to the sensor than f-4.



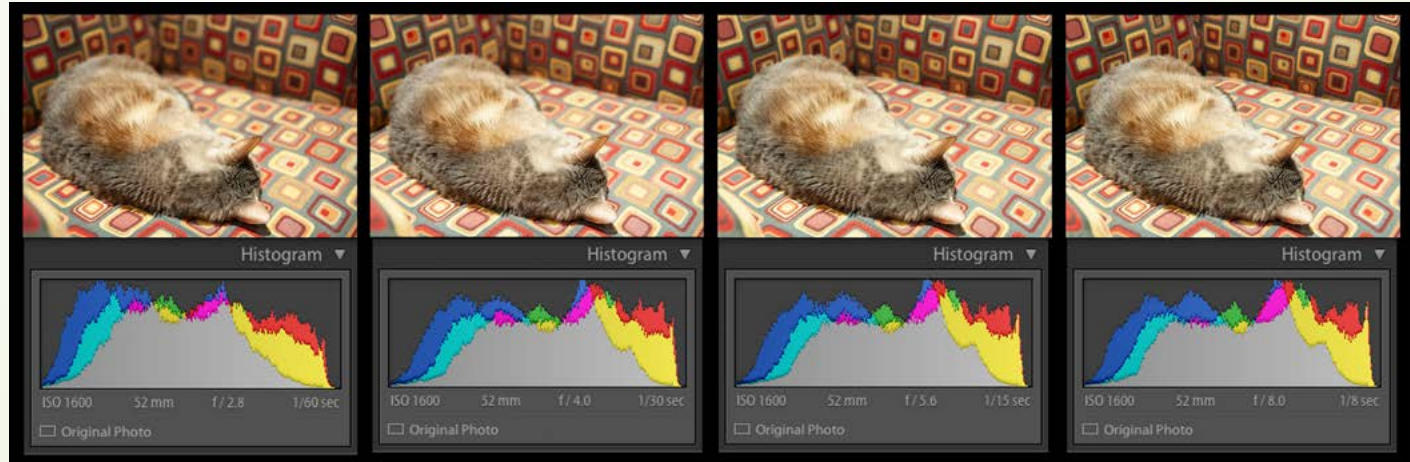
# Exposure Shutter:

- Shutter Settings:
- 1sec, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/125, 1/250, 1/500, 1/1000 etc...
- Each number again represents a halving or doubling of light that gets to the sensor.
- 1/60 allows 2X more light to get to the sensor than 1/125.



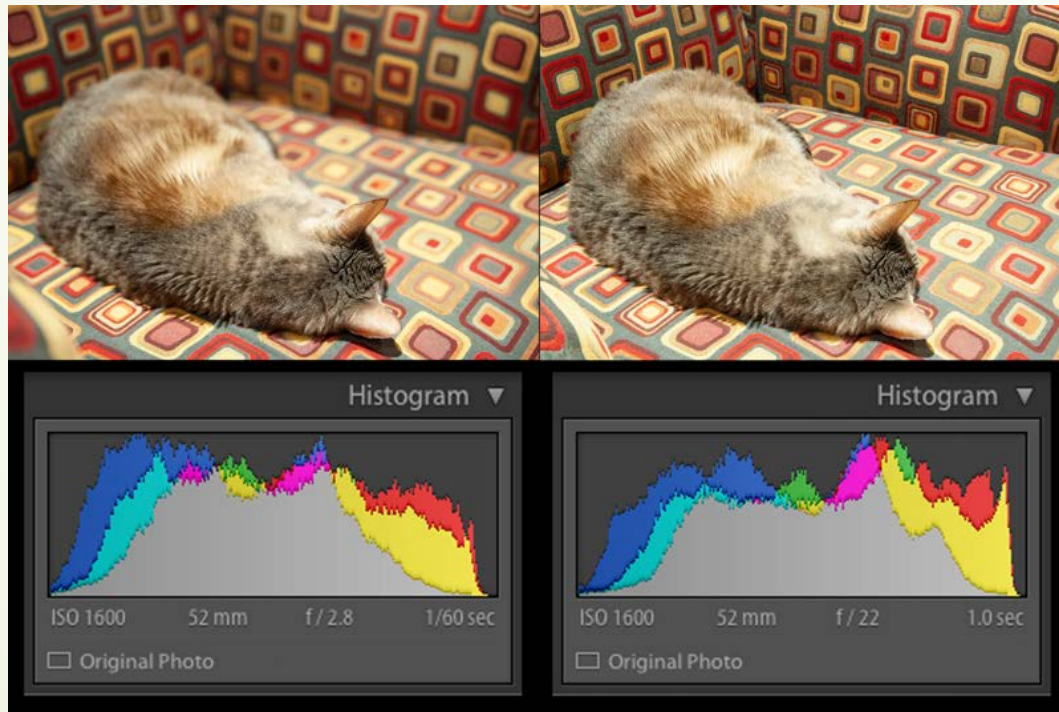
# Exposure Aperture + Shutter:

- ▶ Correct Exposer:
- ▶ Once you have a correct exposer you can adjust the shutter and aperture to achieve a desired result.
- ▶ F-4 + 1/250 will give the same exposure as f-5.6 + 1/125.
- ▶ F-4 to f-5.6 removes 2x light. 1/250 to 1/125 adds 2x the light.



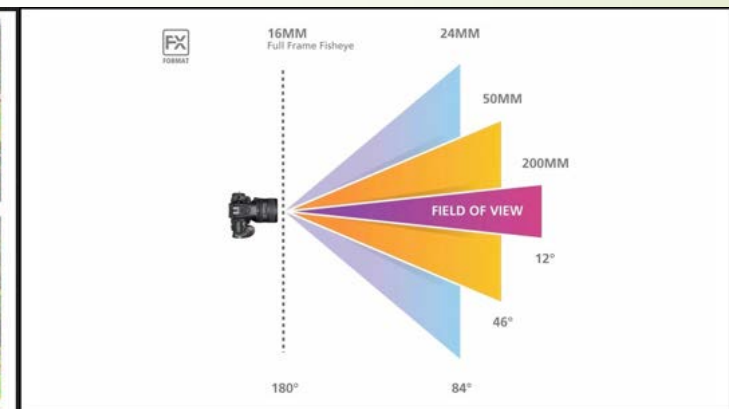
## Depth of Field:

- The area of in-focus is controlled by the aperture.
- The larger the f-number the greater the depth of field or in-focus area.
- F-22 gives a larger depth of field than f2.8.



# Lenses

- There are 3 basic types of lenses
- Short or Wide Angle Lenses: 16mm – 35mm
- Normal or Standard Lenses: 35mm – 70mm
- Long or Telephoto Lenses: Anything above 70mm





## Lenses – Wide Angle

- Wide angle lenses are good when shooting Architecture, Landscapes and when trying to achieve a greater shallow depth of field.



# Lenses – Wide Angle

- Some potential problems with wide angle lenses are:
- Parallax Distortion
- Lens Flare.



## Lenses – Normal

- Normal lenses are good when trying to mimic what the human eye sees as both have an angle of view of about 60 degrees.




## Lenses – Telephoto

- ▶ Telephoto lenses are good for Portraits, Wildlife and Sports photography.



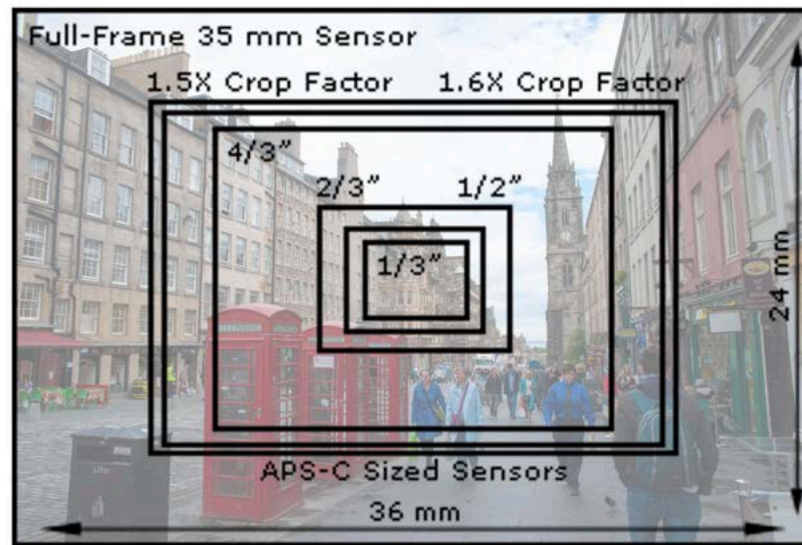


## Lenses – Prime and Zoom

- Zoom lenses are variable focal length lenses that allow the photographer to adjust the focal length of the lens on the fly. They can be expensive and very heavy.
  - Prime Lenses are fixed focal length lenses. They tend to be more compact than zoom lenses. Because they are made up of fewer glass elements they tend to be sharper than zoom lenses.
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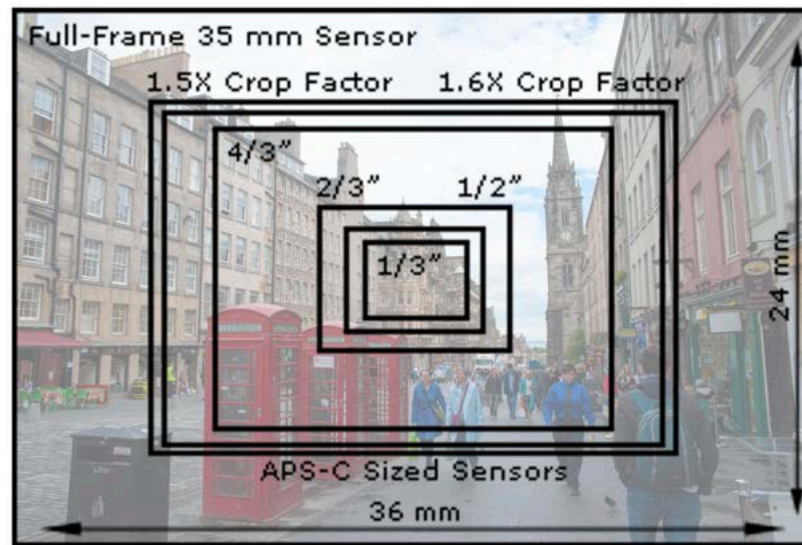
## Sensors - DSLRs

- The lens projects an image circle onto a sensor.
- The sensor size can vary depending on the camera.
- Full frame sensors mimic the size of 35mm film: 36mm x 24mm (1.5in x 1in)
- APS size sensors are smaller so the image projected onto them is proportionally bigger.



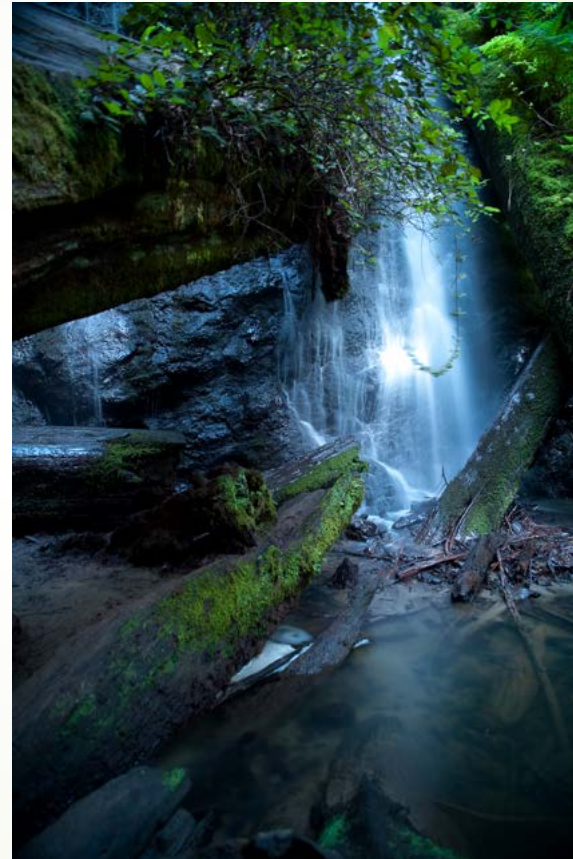
## Sensors – Phones

- Sensors in point and shoot cameras and camera phones are much smaller.
- The mega pixel size of these sensors can be the same.
- Smaller sensors have smaller photo sites
- Smaller photo sites have more cross talk and thus more noise.



# Composition – Center of interest

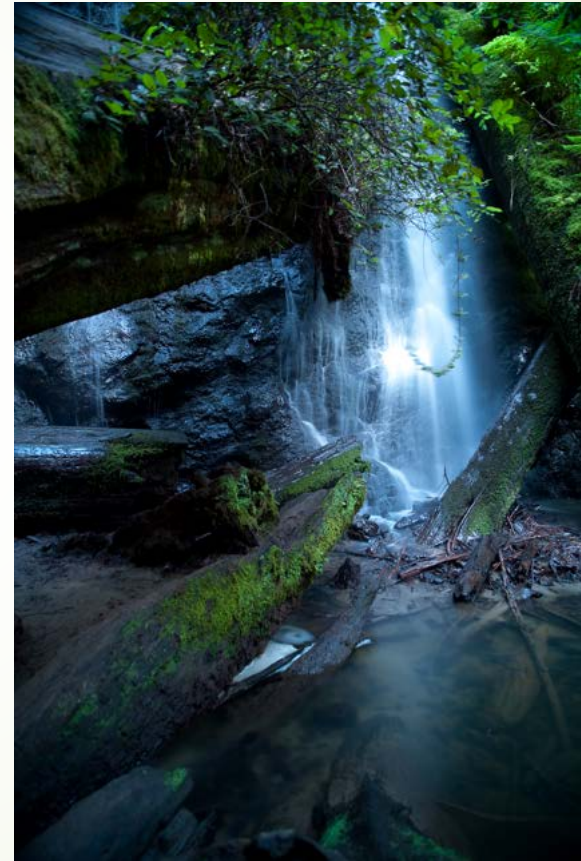
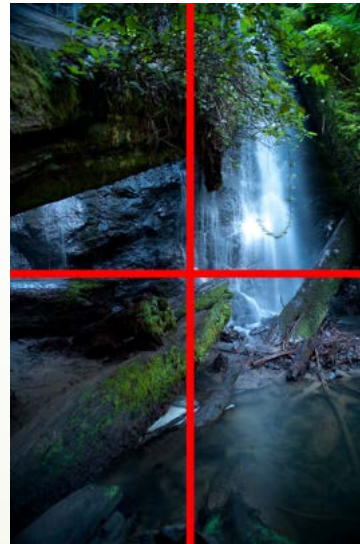
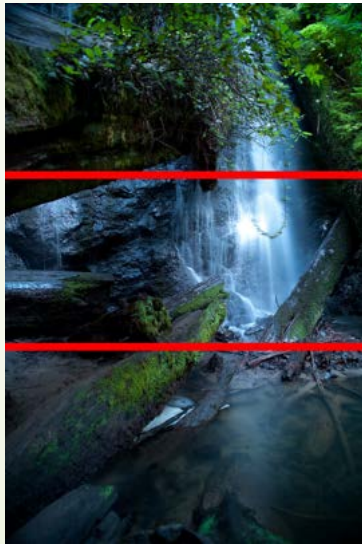
- ▶ You should try to determine what your image's center of interest is.
- ▶ Add elements to the image that support your center of interest.





# Composition – Center of interest

- ▶ You should try to off set your center of interest.
- ▶ Make the center of interest the lightest or darkest thing in the image.
- ▶ Use quadrants.



# Composition – Supporting Elements

- ▶ Add other things to look at.
- ▶ Diagonal elements add a dynamic quality to the image, and help the eye move around the image.



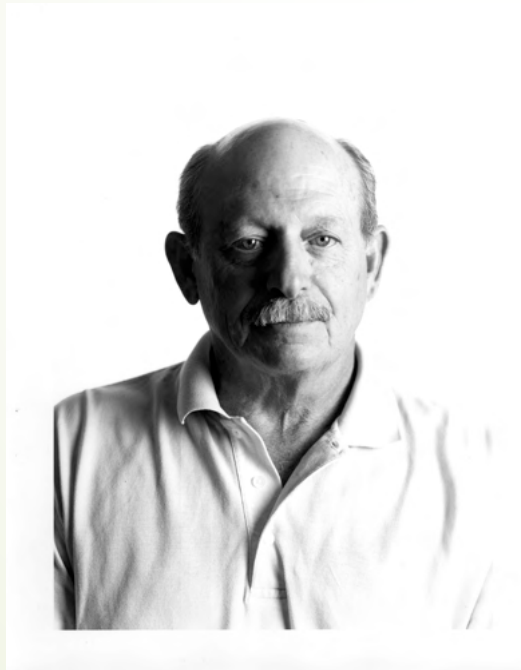
# Composition – Supporting Elements

- ▶ Remove distracting items from the image.
- ▶ Crop the image to force the eye to a part of the image.



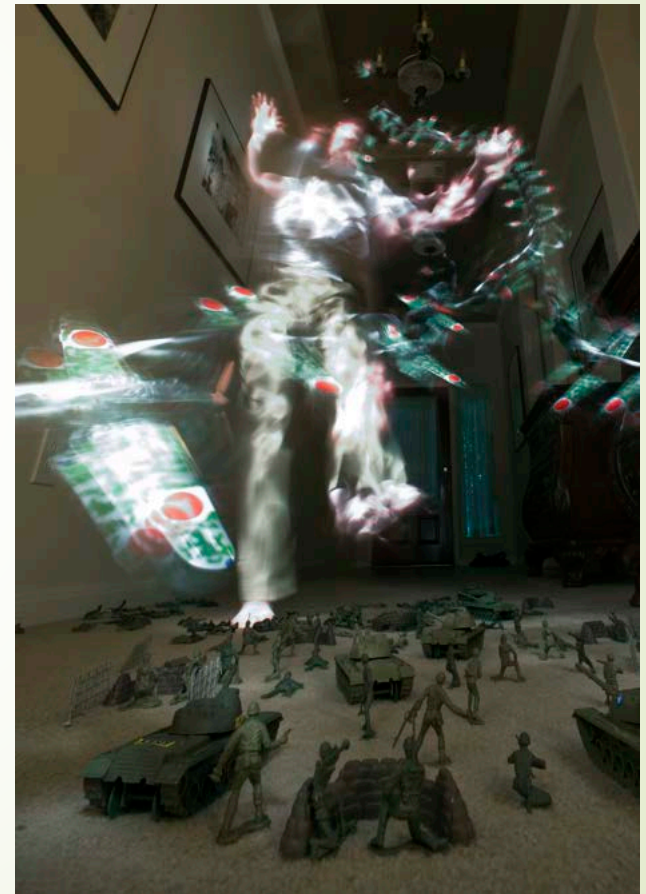
# Composition – Supporting Elements

- ▶ Blur the background/foreground to accent your center of interest.
- ▶ Delete the background.



# Composition – Supporting Elements

- Have action moving into the frame instead of out of it.



# Composition – When in doubt...

- Keep shooting images.





## File Types: Raw

- ▶ Raw files are also known as Digital Negatives.
- ▶ Raw files must be processed by some editor.
- ▶ Raw files give a greater amount of control over the image after it has been taken.
- ▶ Raw files cannot be displayed on web pages or shared on social media in their raw state.

## File Types: JPEG

- ▶ Jpeg files are already processed by the camera.
- ▶ Jpeg files are compressed and compression can lose quality.
- ▶ Jpeg files allow less control over final exposure, color balance etc...







## Editing:

- Photoshop – [www.adobe.com](http://www.adobe.com)
- Lightroom or Lightroom Classic – [www.adobe.com](http://www.adobe.com)
- Darktable – [www.darktable.org](http://www.darktable.org)
- Photoshop Elements 2021 – [www.adobe.com](http://www.adobe.com)
- Pixelmator – Mac only [www.pixelmator.com/pro/](http://www.pixelmator.com/pro/) Not a raw editor
- Graphic Converter – Mac Only  
[www.lemkesoft.de/en/products/graphicconverter/](http://www.lemkesoft.de/en/products/graphicconverter/)
- Google Photos – [photos.google.com](https://photos.google.com)



# Storage

- ▶ Hard drive
  - ▶ Internal drive. Usually limited to what the computer came with
  - ▶ External.
    - ▶ Can be fast depending on the drives you use.
    - ▶ You can easily add more drives as need.
    - ▶ If the drive fails you loose your data on that drive.
- ▶ Server
  - ▶ Can be robust.
  - ▶ Gives the most amount of space.
  - ▶ Can use redundant hard drives, so there is less risk of loosing data.
  - ▶ Can be hard to set up and configure to work over a network.
  - ▶ Editing over a network connection can be slow.



# Storage

- Server

- [www.synology.com](http://www.synology.com)

- [www.qnap.com](http://www.qnap.com)

# Questions?

