

An Extension to
The Textbook of Digital Photography

Glossary



DENNIS P. CURTIN

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CONTACT/FEEDBACK INFORMATION

ShortCourses.com
16 Preston Beach Road
Marblehead, Massachusetts 01945
E-mail: denny@shortcourses.com

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GLOSSARY

- Angle of view.* The amount of a scene that can be recorded by a particular lens; determined by the focal length of the lens.
- Adapter.* Used to insert a smaller storage device into a larger slot in a computer or other device.
- Additive color system.* See RGB.
- Aperture, maximum.* The largest size of the hole through which light enters the camera.
- Aperture.* The lens opening formed by the iris diaphragm inside the lens. The size of the hole can be made larger or smaller by the autofocus system or a manual control.
- Aspect ratio.* The ratio between the width and height of an image or image sensor.
- ATA.* A standard for storage devices that lets them be treated as if they were hard drives on the system. Any ATA compatible media can be read by any ATA device.
- Attachment.* A file such as a photograph sent along with an e-mail message so it can be viewed or saved at the recipient's end.
- Automatic exposure.* A mode of camera operation in which the camera automatically adjusts the aperture, shutter speed, or both for proper exposure.
- Automatic flash.* An electronic flash unit with a light-sensitive cell that determines the length of the flash for proper exposure by measuring the light reflected back from the subject.
- Back-lit.* The subject is illuminated from behind and will be underexposed unless you use fill flash or exposure compensation.
- Bayer pattern.* A pattern of red, green, and blue filters on the image sensor's photosites. There are twice as many green filters as the other colors because the human eye is more sensitive to green and therefore green color accuracy is more important.
- Bit-mapped.* Images formed from pixels with each pixel a shade of gray or color. Using 24-bit color, each pixel can be set to any one of 16 million colors.
- Burst mode.* The ability of a camera to take one picture after another as long as you hold down the shutter release button.
- Card.* The sealed package containing storage chips or other devices with electrical connectors that make contact when inserted into a card slot on a camera, printer, computer, or other device..
- CCD raw format.* The uninterpolated data collected directly from the image sensor before processing.
- CCD.* See Charge-coupled device.
- Charge-coupled device (CCD).* An image sensor that reads the charges built up on the sensor's photosites a row at a time.
- CMOS image sensor.* An image sensor created using CMOS technology.
- CMOS.* See CMOS image sensor.
- Color balance.* The overall accuracy with which the colors in a photograph match or are capable of matching those in the original scene.
- Color depth.* The number of bits assigned to each pixel in the image and the number of colors that can be created from those bits. True Color uses 24 bits per pixel to render 16 million colors.
- CompactFlash.* A popular form of flash storage for digital cameras.

- Compression, lossless.* A file compression scheme that makes a file smaller without degrading the image.
- Compression, lossy.* A file compression scheme that reduces the size of a file but degrades it in the process so it can't be restored to its original quality.
- Compression.* The process of reducing the size of a file.
- Depth of field.* The distance between the nearest and farthest points that appear in acceptably sharp focus in a photograph. Depth of field varies with lens aperture, focal length, and camera-to-subject distance.
- Docking station.* A small base connected to the computer by a cable. You insert the camera or other device into the docking station to transfer images.
- Download.* Sending a file from another device to your computer.
- Exposure.* 1. The act of allowing light to strike a light-sensitive surface. 2. The amount of light reaching the image sensor, controlled by the combination of aperture and shutter speed.
- Exposure compensation.* The ability to adjust exposure by one or two stops to lighten or darken the image.
- Exposure/focus lock.* The ability to point at one part of the scene and hold the shutter button halfway down to lock in exposure and focus settings when you point the camera elsewhere to compose the scene.
- Firewire.* Apple's name for IEEE 1394.
- Flash.* A technology owned by Adobe and used to create very compressed slide shows and movies for Web display.
- Flash card reader.* An accessory that attaches to your computer by cable. You insert a flash memory card into the reader to transfer files.
- Flash memory card.* A card containing chips that store images.
- Flash memory.* A form of memory using chips instead of magnetic media. The data in the device isn't lost when the power is turned off.
- Flash, fill.* Flash used to fill shadows even when there is enough light to otherwise take the photograph.
- Flash, ring.* A special circular flash that fits over a lens to take close-up pictures
- Flash, slave.* A flash that fires when it senses the light from another flash unit.
- FlashPix.* An image format that contains a number of resolutions, each of which is broken into tiles that can be edited and displayed independently.
- Floppy drive.* A storage device, no longer found on most computers, that accepts 3.5 or 5.25-inch floppy disks.
- Focal length.* The distance from the optical center of the lens to the image sensor when the lens is focused on infinity. The focal length is usually expressed in millimeters (mm) and determines the angle of view (how much of the scene can be included in the picture) and the size of objects in the image. The longer the focal length, the narrower the angle of view and the more that objects are magnified.
- Focus lock.* See Exposure/focus lock.
- Focus.* The process of bringing one plane of the scene into sharp focus on the image sensor.
- Frame grabber.* A device that lets you capture individual frames out of a video camera or off a video tape.

- Frame Rate.* The number of pictures that can be taken in a given period of time.
- f-stop.* A numerical designation (f/2, f/2.8, etc.) indicating the size of the aperture (lens opening).
- GIF.* An image file format designed for display of line art on the Web.
- Gray market.* Importing camera equipment outside of the normal manufacturer's distribution channels to take advantage of lower prices elsewhere in the world.
- Gray scale.* A series of 256 tones ranging from pure white to pure black.
- Guide number.* A rating of a flash's power.
- Hot shoe.* A clip on the top of the camera that attaches a flash unit and provides an electrical link to synchronize the flash with the camera shutter.
- IEEE 1394.* A new port on the computer capable of transferring large amounts of data. Currently the fastest available port.
- i.Link.* Sony's name for IEEE 1394.
- Image sensor.* A solid-state device containing a photosite for each pixel in the image. Each photosite records the brightness of the light that strikes it during an exposure.
- Infrared.* See IrDA.
- International Organization for Standardization.* See ISO.
- Interpolation.* In an image interpolation adds extra pixels. It's done with some zoom lenses.
- Inverse square law.* The physical law that causes light from a flash to fall off in such a way that as flash to subject distance doubles, the light falls off by a factor of four.
- IrDA.* An agreed upon standard that allows data to be transferred between devices using infrared light instead of cables.
- ISO.* A number rating indicating the relative sensitivity to light of an image sensor or photographic film. Faster film (higher ISO) is more sensitive to light and requires less exposure than does slower film.
- JPEG.* A very popular digital camera file format that uses lossy compression to reduce file sizes. Developed by the Joint Photographic Experts Group.
- Landscape mode.* Holding the camera in its normal orientation to take a horizontally oriented photograph.
- Lempel-Ziv-Welch.* See LZW.
- LiOn.* Lithium ion battery.
- Long-focal-length lens (telephoto lens).* A lens that provides a narrow angle of view of a scene, including less of a scene than a lens of normal focal length and therefore magnifying objects in the image.
- Lossless.* See Compression, lossless.
- Lossy.* See Compression, lossy.
- LZW.* A compression scheme used to reduce the size of image files.
- Macro mode.* A lens mode that allows you to get very close to objects so they appear greatly enlarged in the picture.
- Matrix Metering.* An exposure system that breaks the scene up into a grid and evaluates each section to determine the exposure.
- Megapixel.* An image or image sensor with over one million pixels.
- Memory stick.* A flash memory storage device developed by Sony.
- Moore's Law.* Gordon Moore's law that predicted that the number of transistors on a chip would double every 18 months.
- Motion Pictures Expert Group.* See MPEG.

- MPEG*. A digital video format developed by the Motion Pictures Expert Group.
- Multi-megapixel*. An image or image sensor with over two million pixels.
- Multiple exposure mode*. A mode that lets you superimpose one image on top of another.
- Multiple exposure*. An image made up of two or more images superimposed in the camera.
- NiCad*. Nickel cadmium battery.
- NiMH*. Nickel metal hydride battery. Ecologically safe and very efficient.
- Noise*. Pixels on the image sensor that misread the light.
- Normal-focal-length lens*. A lens that provides about the same angle of view of a scene as the human eye and that does not seem to magnify or diminish the size of objects in the image unduly.
- NTSC*. A US video out standard to display images on a TV screen.
- Open up*. To increase the size of the lens aperture. The opposite of stop down.
- Operating system*. The program that controls the camera's or computer's hardware.
- Optical viewfinder*. See Viewfinder.
- Orientation sensor*. A sensor that knows when you turn the camera to take a vertical shot and rotates the picture so it won't be displayed on it's side when you view it.
- Overexposure*. Exposing the image sensor to more light than is needed to render the scene as the eye sees it. Results in a too light photograph.
- PAL*. A European video out standard to display images on a TV screen.
- Panorama*. A photograph with much wider horizontal coverage than a normal photograph, up to 360-degrees and more.
- Panoramic mode*. A digital camera mode that uses just the center band on the image sensor to capture an image that is much wider than it is tall.
- Parallax*. An effect seen in close-up photography when the viewfinder is offset by some distance from the lens. The scene through the viewfinder is offset from the scene through the lens.
- Parallel port*. A port on the computer that is faster than a serial port but slower than SCSI, USB, or IEEE 1394 ports. Often used by printers and flash card readers.
- PC card*. A card, in the case of cameras usually a storage device, that plugs into a slot in a notebook or hand-held computer. Originally called PCMCIA cards.
- PCMCIA card*. See PC Card.
- Photosite*. A small area on the surface of an image sensor that captures the brightness for a single pixel in the image. There is one photosite for every pixel in the image.
- Picture elements*. See Pixels.
- Pixelization*. An effect seen when you enlarge a digital image too much and the pixels become obvious.
- Pixels*. The small picture elements that make up a digital photograph.
- Port*. An electrical connection on the computer into which a cable can be plugged so the computer can communicate with another device such as a printer or modem.
- Portrait mode*. Turning the camera to take a vertically oriented photograph.
- Preview screen*. A small LCD display screen on the back of the camera used to compose or look at photographs.

- Prosumer.* A very serious photographer who can be either an amateur or professional.
- Rangefinder.* A camera design that has a viewfinder separate from the lens.
- RAW.* An image file containing all of the data captured by the image sensor but not processed in the camera. The highest quality image format.
- Read out register.* The part of a CCD image sensor that reads the charges built up during an exposure.
- Recycle time.* The time it takes to process and store a captured image.
- Red-eye reduction mode.* A mode that fires a preliminary flash to close the iris of the eye before firing the main flash to take the picture.
- Red-eye.* An effect that causes people's eyes to look red in flash exposures.
- Refresh rate.* The time it takes the camera to capture the image after you press the shutter release.
- Removable media.* Storage media that can be removed from the camera.
- Resolution, interpolated.* A process that enlarges an image by adding extra pixels without actually capturing light from those pixels in the initial exposure.
- Resolution, optical.* The true resolution of an image based on the number of photosites on the surface of the image sensor.
- Resolution.* An indication of the sharpness of images on a printout or the display screen. It is based on the number and density of the pixels used. The more pixels used in an image, the more detail can be seen and the higher the image's resolution.
- RGB.* The color system used in most digital cameras where red, green, and blue light is captured separately and then combined to create a full color image.
- RSS.
- Scanner.* An input device that uses light to read printed information including text, graphics, and bar codes, and transfers it into the computer in a digital format.
- SCSI port.* A port that's faster than the serial and parallel ports but slower and harder to configure than the newer USB port. Also known as the Small Computer System Interface.
- Serial port.* A very slow port on the computer used mainly by modems. Many digital cameras come equipped with cable to download images through this port but it's slow! Both parallel and USB ports are faster connections.
- Short-focal-length lens (wide angle).* A lens that provides a wide angle of view of a scene, including more of the subject area than does a lens of normal focal length.
- Shutter Speed.* The length of time the shutter is open and light strikes the image sensor.
- Shutter.* The device in the camera that opens and closes to let light from the scene strike the image sensor and expose the image.
- Shutter-priority mode.* An automatic exposure system in which you set the shutter speed and the camera selects the aperture (f-stop) for correct exposure.
- Single-lens reflex.* See SLR.
- SLR.* A type of camera with one lens which is used both for viewing and taking the picture.
- SmartMedia.* A popular form of flash memory card.
- Spot Metering.* Autoexposure is based on a meter reading of a small circle in the center of the viewfinder.

Stop 1. An aperture setting that indicates the size of the lens opening. 2. A change in exposure by a factor of two. Changing the aperture from one setting to the next doubles or halves the amount of light reaching the image sensor. Changing the shutter speed from one setting to the next does the same thing. Either changes the exposure one stop.

Stop down. To decrease the size of the lens aperture. The opposite of open up.

Tagged Image File Format. See TIFF.

Telephoto lens. See Long-focal-length lens.

Thru-the-lens. See TTL.

TIFF. A popular lossless image format used in digital photography.

Time-lapse photography. Taking a series of pictures at preset intervals to show such things as flower blossoms opening.

TTL. A camera design that let's you compose an image while looking at the scene through the lens that will take the picture. Also called thru-the-lens.

Unbundling. When a dealer removes normally included items from a camera package and then sells them to you separately.

Underexposure. Exposing the film to less light than is needed to render the scene as the eye sees it. Results in a too dark photograph.

Upload. Sending a file from your computer to another device.

URL (Uniform Resource Locator). The address of a Web site.

USB port. A high-speed port that lets you daisy-chain devices (connect one device to another).

VGA. A resolution of 640 x 480.

Video card. A card that fits into a computer's expansion slot so you can edit digital video.

Viewfinder. A separate window on the camera through which you look to compose images.

White balance. An automatic or manual control that adjusts the brightest part of the scene so it looks white.

WiFi.

Wide-angle lens. See Short-focal-length lens.

Zoom lens. A lens that lets you change focal lengths on the fly.