



Gary Gorby

APC ACTIVITIES

Next Meeting

November 19, 2018 7:00 PM

PhotoShows

Nov. 19, 2018

Leading Lines

Board Meeting

December 3, 2018 7:00 PM

Programs

Dec. 17, 2018

Christmas Social/Slide Show

President's Comments—November 2018

Behind the Lens with Mike King

Where to capture photos?

Where are your favorite places for photography? Do you sometimes draw a blank when trying to come up with a new or different place to practice your photographic skills? We live in one of the most diverse states which has Mountains, Piedmont and Coastal regions to explore. Each section has its own diversity and unique settings for the photographer during most of the seasons.

The Mountains have the elevations that lend itself to the bird's eye view of the valleys and the seasonal changes from the spring, summer, fall and winter. In the spring along the Blue Ridge Parkway you will find many opportunities from wildflowers to wildlife as well as wide open ranges for the scenic photographer. You may find old barns and split rail fences running along endless fields of opportunities. Rivers and streams flowing from spring rains into waterfalls will give you the challenge to do time exposures or compose that breathtaking scene. Waking up before sunrise to capture that first warm glimpse of light over the mountains. Summer brings trees with shade and green fields to picnic as well as flowers and trails to explore. As the heat of the season passes and the colors of the leaves change, there are images of Nature's Canvas to be captured. In the cooler seasons, you may find that frost has painted itself onto all surfaces or you may be witness to an early snow-covered field of dreams just waiting to be captured by your camera.

Let's now explore the Piedmont area. Many of us can find photo opportunities right here in our own back yards. I invite you to stray from your normal routes when traveling locally. Scout out the farming areas to the north or south. Catch the sun rising in the morning over a cornfield or the setting

sun behind a barn or stream. We have many local waterways that are just waiting to be explored. The Haw River Trail is a good start even if you are not a hiker. The Haw River is home to many kinds of wildlife with ease of parking and accessible trails. Thanks to Gil Johnson's talk last month, we are now more informed about these local areas. Lakes, ponds, rivers, and streams all are great areas of opportunity filled with subjects that should be of interest. The big benefit of photographing in the Piedmont is that we can explore in our local area and be back home for the evening.

What do you think of when I mention the NC Coast? I go to the path least taken. I explore the large wildlife areas where you may not see another person for hours. If you have never visited Lake Mattamuskeet on the NC Coast during bird migration, you have missed a photographer's paradise. The NC Coast has inlets and marshes that are home to wildlife of all types. Did you know that the NC Coast is home to a large population of black bear? There are small fishing villages and miles of empty shores just waiting to be explored. This is nature's beauty at its best. Away from the crowds and developed areas, on a secluded island of sand with nothing but sky and water for you to capture with your camera or to just sit and enjoy. So, what are you waiting for? Get on your traveling shoes, get your camera and meet me on the trail!

Mike King

APC President

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Christmas Party

December 17, 2018

Time - 7:00 pm

It's Party time—Start planning. December is around the corner! We will start about 7:00 pm. The Club will provide coffee, punch and all paper products. Members are requested to bring the appetizers of their choice and arrive around 6:30 pm, giving the host time to arrange the food table. If you desire a drink other than those mentioned above, you will need to bring it.

APC BOARD

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CLUB MEMBERS GALLERY

By Dick Schenck



Although I am a relatively new member of the club, I have been an enthusiastic photographer since the 1950s. Stationed in Japan during the Korean conflict I had a succession of cameras, starting with a Kodak Signet, then a Zeiss Contessa and finally a Leica IIIf. Since those days I've owned a number of Leicas and Canon 35mm cameras as well as a Rolleiflex 120 film camera.

After the navy and college I entered the Foreign Service of the Department of State, serving in Mexico, Hong King, Afghanistan, Venezuela, Spain and Great Britain. Retired, I continued working for State taking some eleven short term jobs in places like Leningrad and Addis Ababa. My wife and I make several trips overseas a year as well. Sometimes it is easier to list the places I haven't been. Needless to say, the opportunities for photography have been unlimited over the years.

In the days of film I preferred to shoot in black and white, although I also took color slides. Now color predominates, although I often convert a picture and sometimes even set the camera to monochrome. But most of my viewing today is in color on the computer or the TV. Occasionally I'll make an Apple book and also will have a few prints made for mounting.

Several years ago I switched to the Fuji X-T1 and three lenses, having decided that lugging three and a half pounds of camera all day was unnecessary in this mirrorless age. My favorite lens is the 27mm f2.8 pancake. At a half inch in length, it makes the X-T1 the same size as my old Leica. The 18-55 zoom is a great all round lens. The 55-200mm zoom is nice for wildlife and sports. I do most of my photography when traveling, shooting in RAW. After careful culling, I process the remainder in Lightroom.



CLUB MEMBERS GALLERY . . . CONTINUED

Photos by Dick Schenck



Attention Please!!

- ◆ Club tradition is that at our December meeting we have a slide show of members' photos that were taken during the current year. These 2018 photos can be from club field trips, exhibit photos, and daycation/vacation photos. If you have some you would like to show, email them to Mike King at Mking0379@gmail.com. About 15 images per member will be great. Please get these in by November 1st so your photos can be placed in the Christmas slideshow.

Alamance Photography Club

Annual dues for 2019

Individual = \$40.00 Family = \$60.00

Student = \$20.00

Payable by check or Cash at future meetings.*

***Members who wish to pay their dues by mail with a check may pick up from the Treasurer a self-addressed envelope at the meetings. Note: If dues are paid by a bank automatic check, be sure to pick up information regarding the recent change of address for the Treasurer.**

Member's Name will be removed from membership

Roster for Non-payment of dues after

February 19, 2019

November 19th PhotoShow—Leading Lines

Ivan Baez, PhotoShow Chair

We encourage ALL members to submit photographs to our bimonthly PhotoShow and would like to see EVERYONE represented!

We try to keep the number of photos to 50. To accommodate this we ask that you submit a maximum of two (2) photos. We may only use one of your photos based on the number of entries. You will be asked to indicate your preferred photo in the file name of each photo (1 or 2). Please see the File Name section. If you have any issues with formatting, please let me know (apcphotoshow@gmail.com) and I will be happy to help.



Submission Details

Number of Entries

Two (2) entries per member. Please indicate your preferred photo with the number 1.

Size

As large as you can send it. Please do not submit anything smaller than 1024 x 768.

Format

.jpg or .png

File Name

Please rename your photos using the following format: first name _last name_ 1 or 2 (preferred photo) _meeting date (month and year only).

Example: Ivan_Baez_1_11-18.jpg, Ivan_Baez_2_11-18.jpg

Email

Email Address—Send all images to: apcphotoshow@gmail.com

Email Subject line—Please put the month and your initials. Example: November IB

Entry deadline

9AM on Monday, November 12, 2018

Although the October 20th Old Salem outing was cancelled due to weather, George Siple went the next day and took some pics. Here are a couple of his shots taken at Old Salem.

Thanks George!



Moravian Star



Old Salem Pot

Featured Artists at Burlington Artists League Fine Arts Gallery

APC Member Sandra Whitesell and Linda Fowler are the November Featured Artists at Burlington Artists League Fine Arts Gallery. Their art will be exhibited November 1 through November 30. Sandra will be displaying acrylics, pastels, and photographs, and Linda will have watercolors, pastels, and pottery on display. Please join them for a reception Sunday, November 11 from 3:00pm-5:00pm at the Gallery located in Holly Hill Mall right beside Sears.

How to Use Leading Lines to Create Compelling Landscape Photos

By Ian Plant

Leading lines are vertical, horizontal, or diagonal lines that attract a viewer's attention and lead the eye to critical areas in your image. Leading lines are an effective tool for landscape photographers looking to create depth in their photos, and to draw the viewer deeper into the scene.

For the image below, I used a leading line—the reflection of the sky above a flooded slot canyon—to encourage the viewer to explore the entire composition from bottom to top.



Glen Canyon National Recreation Area, USA. Canon 5DIII, Nikon 14-24mm lens with Canon adapter, ISO 100, f/11, 2.5 seconds.

How to Use Leading Lines . . . Continued

What are lines?

Quite simply, lines are visual elements of a scene that are more or less straight and that have significant length but relatively little width. An example might be tree trunks in a forest, such as with the image below. Technically, lines alone are nothing. As the famous painter Henri Matisse once said, “A line cannot exist alone; it always brings a companion along. Do remember that one line does nothing; it is only in relation to another that it creates a volume.”

For example, each tree trunk in the photo below isn't really a line, but rather two lines that form the shape of the trunk and give it volume. For simplicity's sake, however, I will refer to many objects that are really a collection of lines as simply a single line.



Olympic National Park, USA. Canon 5DIII, Canon 16-35mm f/2.8 lens, polarizer filter, ISO 100, f/11, 6 seconds.

How to Use Leading Lines . . . Continued

Use lines to lead the eye

An effective way to create depth is to use lines that lead the viewer's eye into the composition. Leading lines encourage the eye to travel deeper into the scene. Particularly when the lines emanate from the bottom of the image frame and point to important elements in the background, they can be very effective at grabbing the viewer's attention and propelling their eye into the scene. For example, the image below uses leading lines coming in from the bottom of the image frame, directing the eye into the heart of the image.



*Pictured Rocks National Lakeshore, USA. Canon 5DIII, Tamron 15
-30mm lens, ISO 100, f/13, 1/30 second.*

How to Use Leading Lines . . . Continued

Diagonal and vertical lines often make for a more dynamic composition than horizontal ones, giving a sense of upward or downward motion as they lead the viewer's eye. Horizontal lines, such as a distinct horizon line, can sometimes be problematic as they tend to visually divide a scene, and if placed improperly can interrupt visual flow and trap the eye. Lines often work best when starting at the bottom of the image frame, but you can also make effective compositions having the lines come from somewhere else. In the image below, lines formed by rippled sand effectively lead the viewer's eye from the foreground in the bottom of the composition, to the background near the top.

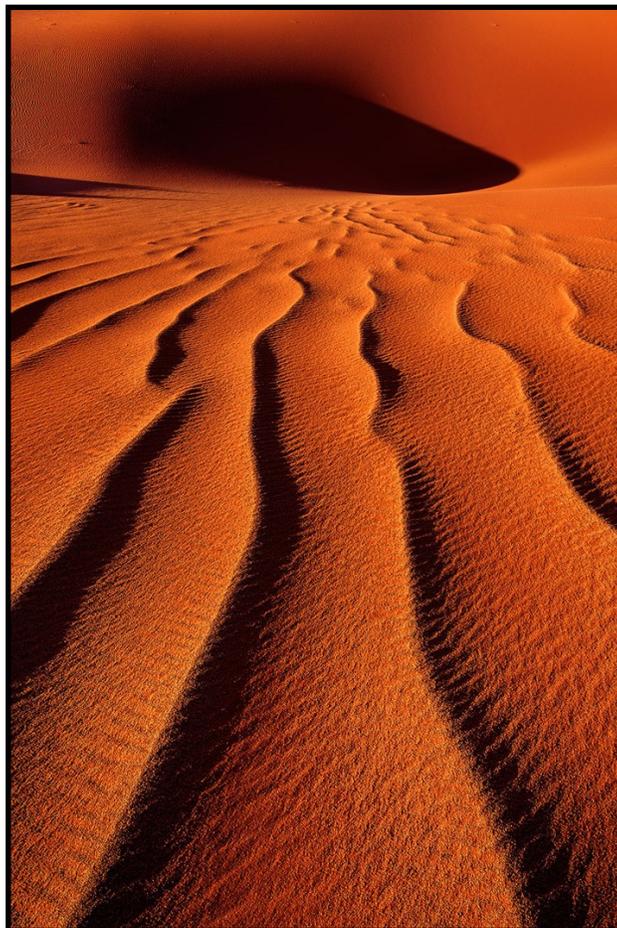


Campo de Piedra Pómez, Argentina. Canon 5DIII, Canon 11-24mm lens, ISO 100, f/11, 1/30 second.

How to Use Leading Lines . . . Continued

Use converging lines for compositional power

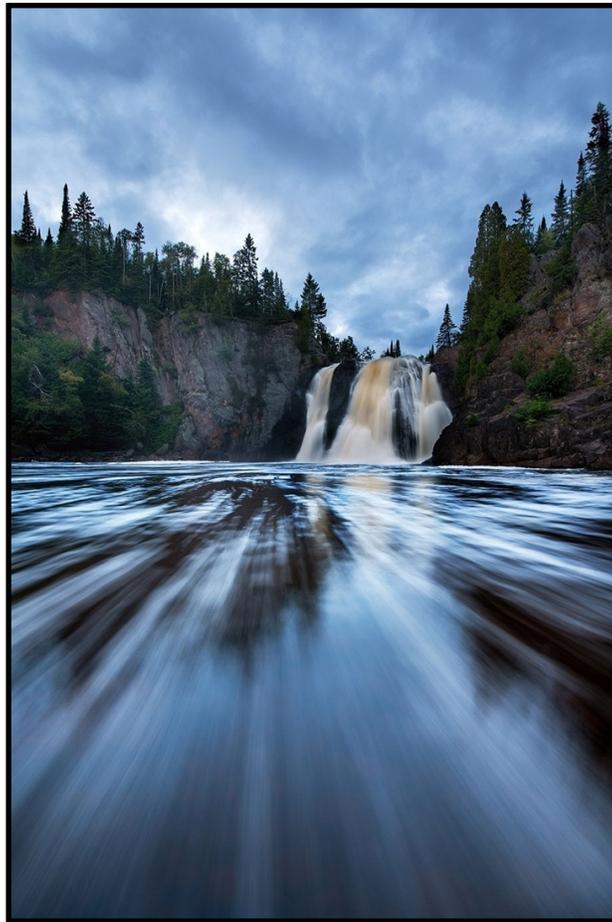
For greatest effect, multiple diagonal lines can help create a sense of depth in a photo by converging at a single point of interest. This is known as a *vanishing point*, which is the point in the distance at which objects become too small to see. This concept is easily illustrated by railroad tracks: even though they are parallel, when you look down a set of tracks, they seem to steadily converge to a point at the horizon. This point is the vanishing point. When used in landscape composition, a vanishing point creates an important perspective cue and can be very effectively used to create depth in a photograph. For example, with the image below, the ripples in the sand appear to converge in the distance, even though they are parallel and don't actually converge.



Namib-Naukluft National Park, Namibia. Canon 5DIII, Canon 11-24mm lens, ISO 100, f/11, 1/40 second, focus stack for increased depth of field.

How to Use Leading Lines . . . Continued

This realization—that objects receding in size with distance (especially parallel lines) appear to converge on a single point—revolutionized perspective in art during the Renaissance. Painters took full advantage of the use of vanishing point, using it to create depth in their compositions and to create a realism of perspective that had not been seen before in art. It didn't take painters long, however, to figure out that the use of vanishing point didn't just create depth—it also riveted the eye, compelling it to travel headlong deep into the image. The human eye is naturally inclined to follow a line to its conclusion; this is what makes vanishing point so powerful, as a vanishing point is where two or more lines in an image terminate. For the image below, I used a long exposure to capture streaking diagonal lines resulting from foam flowing toward me in the moving water. The effect creates a vanishing point powerfully leading the viewer from foreground to background.



*Tettegouche State Park, USA. Canon 5DIII, Tamron 15-30mm
f/2.8 lens, ISO 50, f/11, 15 seconds.*

How to Use Leading Lines . . . Continued

The visual vortex

You can create powerful compositions with radiating diagonal lines emerging from the corners and edges of the image frame, inevitably drawing the eye to a central vanishing point: I call this a “visual vortex” composition, which produces a dizzying and compelling perspective, creating a commanding visual effect. If all the lines in the image terminate in the same place, the viewer’s eye is inevitably drawn to that point. When using this technique, look for leading lines radiating from the corners and edges of the image frame, such as the striations in the rock in the slot canyon image below. The sandstone striations were perfect for a visual vortex composition, with diagonal lines coming from all of the image edges and converging in the middle. The eye is drawn to the vanishing point, strongly focusing visual attention there.



*Antelope Canyon, USA. Canon 5DIII, Nikon 14-24mm f/2.8 lens
with Canon adapter, ISO 100, f/14, 3.2 seconds.*

Conclusion

Leading lines are a powerful tool for landscape photographers. Used properly, they can effectively draw the viewer deeper into the composition.

Tips for Using Contrast in Photography

By Autumn Lockwood

Good photography depends far more on skill than it does gear. Good cameras don't guarantee great photographs, and several professional photographers have been known to shoot with disposable cameras. The secret to great photography is rooted in having a solid understanding of the technical elements of photographs and how they interact with one another.



Photo by Arantxa

Composition, contrast, color balance, depth of field—all of these things combined are what make a photograph unique, and without an understanding of each you may find that your work suffers.

With that in mind, here is a comprehensive breakdown of one of these elements, contrast.

Tips for Using Contrast in Photography . . . Continued

What is Contrast?

Contrast is the range of difference between different tones in a photograph. In black and white photography, contrast describes the difference between the darkest and lightest tones, but it also defines the grayscale. In color photography, contrast applies to how sharply colors stand out from one another.

How to Control Contrast

There are several ways to control the contrast of your images. The easiest way is to import your pictures into a digital photo editor and use the contrast button to adjust the level of contrast until you get the look you want. In the darkroom, you can use filters in your enlarger to increase the level of contrast in any image; as the number of the filter increases, so does the contrast. Controlling contrast is a bit trickier in-camera and depends heavily on lighting conditions, lens filters, and your exposure time. It's usually a good idea to shoot with a little caution and opt for less contrast than more, since you can always increase the contrast later without losing quality.

A Good Quality of Contrast

Although there is much debate on what is "just right" in terms of contrast, you want your tones to go from dark to very bright with every color in between shown on the photograph. This can be best seen in black and white photographs as you want true black, true white and every shade in between. Essentially, good contrast is whatever level allows your colors to "pop" or your subjects to be well defined.



Photo by Giuseppe Milo

Tips for Using Contrast in Photography . . . Continued

Fine-Tuning

Dodging and burning photographs is a classic trick in the photographer's toolbox. This is a method for adjusting the contrast of individual parts of an image, as opposed to the entire thing. This helps in modifying the composition (like darkening the background) and highlighting the subject (like lightening their eyes) or improving the overall appearance of the image.

In the darkroom, photographers often create complex stencils that are placed on top of their blank photo paper. Stencils give you greater control over the contrast of your entire photograph by letting certain areas of your picture be exposed for different periods of time than others. Luckily enough, this process is much easier in most photo editors as different areas can be easily burned or dodged by using the mouse.



Photos that are “dodged” have areas where they’re exposed to light for shorter periods of time, or when it comes to digital editing they’re areas that are lightened and lose contrast. Places in your picture that are “burned” will have higher contrast and the grain will be darker. It can be challenging to control the contrast of your picture but with a little practice of dodging and burning it will soon become a whole lot easier. A good amount of contrast helps add to the story of the photograph and makes the important things stand out.

When shooting, always try to imagine what your contrast options will be before you take a shot, and go wild when you finally make it to the computer or darkroom. As with everything, practice makes perfect!

Shoot During the Blue Hour for Better City Landscape Photography

By Jim Harmer



Landscape photography of cities and city buildings are often some of my favorite photos. Cityscapes capture a serene and beautiful mood better than any other type of photo. Unfortunately, many of the cityscapes I see are shot at the “wrong” time of day. I don't mean to say that there is only one time that cityscapes can be shot, but 99% of the time I prefer to see cityscapes shot during the blue hour.

The “blue hour” is a term used by photographers to describe the lighting conditions between when the sun sets and when the sky turns black for the night. Despite the deceptively misdescriptive name, the blue hour does not last for an hour at all. In fact, it usually only lasts for about ten minutes.

The blue hour is perfect light for shooting cityscapes because it provides just enough light to properly expose the backgrounds of the scene while being dark enough to not overpower the city lights.

Most of you will probably forget this post by the next time you take a cityscape, but I would encourage you to carefully watch the light the next time you photograph between sunset and night. If you watch carefully, you'll take advantage of the gorgeous blue tones of the blue “hour” if you simply pay attention to the rapidly changing light conditions.



Cleaning and Maintaining Your DSLR

BY STEVE PAXTON

Despite how meticulous and careful I am with my equipment, it always amazes me how quickly dust, fingerprints, and overall grime build up on and inside my camera bodies and even on lenses. Casual photographers will probably not immediately notice problems with dirt until little specs begin showing up on final images. Oftentimes it's when I start seeing little specks of dust in clear areas of my images (usually in areas of the sky on landscape photographs) that I know that my image sensor needs to be cleaned. Despite improved technology to remove dust from camera sensors, a routine of cleaning and maintenance is necessary to avoid common dust related problems. Fortunately with a little care and common sense, most cleaning tasks can be performed relatively inexpensively with over-the-counter products. In this guide, I am going to walk you through a few of the steps that I take to maintain and keep my Canon DSLR cameras clean and ready for the next shoot.

Disclaimer

I have to add the short disclaimer that all the information provided in this free guide should be performed carefully and at your own risk. There is a risk any time you expose the inside of your camera and make contact with the image sensor. This guide is a walk-through of the steps I take to clean my own equipment and is not intended to be all-inclusive. I cannot be responsible for damage that occurs to your camera during cleaning. Consider sending your camera to the manufacturer for maintenance if you feel uncomfortable with any part of this article. Always check with your camera's manufacturer for specific information on cleaning and maintenance.

When Should You Clean Your Camera?

I can only answer this question based on my own experience. Photographers will have to establish a routine that works best for them. The main issue is that dust enters digital single lens reflex cameras and settles on the image sensor during the time the photographer removes and switches lenses. Unless you choose to never remove the lens from your camera, dust is an unavoidable part of DSLR photography.

I clean my camera (and particularly the image sensor) when I start seeing a significant amount of dust particles and other foreign material on my images. I primarily see dust specs on images shot at higher f-stops (e.g. f/22). My experience has been that it is much more difficult to detect foreign specks on images at lower (wide-open) f-stops primarily because dust and other material are thrown out of focus. This is similar to how you can shoot through a chain link fence at lower, wide-open f-stops and make the links virtually disappear.

Cleaning and Maintaining Your DSLR . . . Continued

I once ran into an online tutorial that suggested that digital photographers should clean their image sensor every week! Frankly I cannot imagine a situation where I would need to clean my sensor that often. Even professional photographers switching between lenses multiple times a day should not have to clean the image sensor that often. I would even go as far as to suggest that the problem of dust probably plagues amateur photographers more so than professionals because they typically have access to only one camera body. Most professional photographers work with several cameras and varying focal length lenses for speed; therefore, they are not likely to remove lenses as often as photographers who are limited to one camera body.

Dust can usually be found in clear areas of an image. Cleaning the image sensor should be on an as-needed basis only to minimize the risk of scratching or damaging it. Remember, each time you expose your camera's sensor to the outside world you are putting it at risk of collecting even more dust and airborne matter (including moisture). Each time you physically touch the sensor with a cleaning brush or any



other tool you risk scratching, gouging, and even cracking it. If you change lenses with any degree of regularity, dust will eventually make its way onto your final images forcing you to use a program like Photoshop to remove it. Every serious digital photographer should know how to use the cloning and healing tools available in Photoshop to remove foreign objects that show up in final images.

What is a Charged-Coupled Device (Image Sensor) Anyway?

Most of today's high-resolution digital single lens reflex cameras come equipped with a charged-coupled device (image sensor) rather than a CMOS. A CCD is the equivalent to digital film. High-resolution image sensors are made up of millions of tiny cells that convert incoming light into electrons. An in-camera processor reads the value of each cell and converts it to a digital value (binary ones and zeros). Image sensors are only able to measure the intensity of the light that falls on each of the cells. Red, green, and blue colored filters are placed over the image sensor to render color. A method called interpolation combines all three colors to produce a full color image.

Cleaning and Maintaining Your DSLR . . . Continued

Why Not Send Your Camera to the Manufacturer for Cleaning?

Most manufacturers can clean your camera (including the image sensor) and send it back to you. The main drawback to this is that it can be very expensive and the turnaround time can be lengthy. For example, let's say that your camera manufacturer charges \$50 for a routine cleaning (the cost can be much higher than that). You will also need to pay to have it packaged, insured, and shipped. All of this can really add up if you need to send your camera in every few months. The upside to sending your camera in is that the manufacturer assumes the risk of cleaning and has all of the necessary equipment to do it safely. In the end it comes down to how often you use your camera and how comfortable you are with doing the cleaning yourself. If you choose to have someone else clean your camera for you, be sure to send it to retailers authorized by the manufacturer.

Camera Handling Practices

Keeping your camera clean begins with everyday camera handling practices. This is important because establishing good camera handling habits will help minimize the amount of dust and other foreign objects that your camera is exposed to. It is never a good idea to expose the inside of your camera body for long periods of time. Lenses should be switched quickly and in clean environments. This generally comes down to planning.

Think for a moment before you remove lenses. Are you in a place that is relatively dry and clean? It is unlikely that you will always have a choice when you're switching between lenses in the field; however, it might be necessary to move a little bit to minimize your exposure. For example, if you are shooting near a waterfall, move as far away as possible from the falls itself to avoid exposing the inside of your camera to mist and airborne moisture. The same is true of sand and dust. If you are shooting on a farm where there is a lot of dirt and dust flying, move to a quieter place before removing your lens.

On a fairly regular basis I get the opportunity to fly in small two and four seat helicopters to shoot aerial photographs. From experience I have learned that it is extremely important to avoid switching between lenses while flying or even while on the ground when the rotor blades are spinning. The reason for this is simply that the air is moving so quickly through the cabin that it is impossible to avoid dust and other airborne matter from entering the camera during the brief moment it takes to switch to a new lens. Again this really comes down to planning. When I am in the air, I try to take two cameras with me. I take one with a wide-angle lens and another for telephoto zooming. Doing this eliminates the need to switch lenses and the risk of sucking in airborne particulates.

Cleaning and Maintaining Your DSLR . . . Continued

Dust can easily get sucked into your camera while flying. Generally the best places to switch camera lenses are inside (e.g. home or studio) or in the cabin of a vehicle if you are in the field. Another option is to place your camera into a clean gym bag or backpack and switch lenses (which I would only reserve for extreme circumstances). Obviously you cannot always pick the location where you will need to switch lenses; however, these are the steps I suggest taking to minimize exposure to the image sensor:

Wherever you are at, have the replacement lens out and ready to go. A common mistake people make is to remove the lens from the camera first and then fumble around trying to find a replacement lens in the camera bag. I usually remove the rear lens cap and orient the red/white lens alignment dot so that I can quickly align it with my index finger when I go to attach it to my camera body. Next, since dirt and grime fall downward, turn your camera body upside down (with the camera lens facing toward the ground) and remove the lens. Once the lens has been removed, quickly pick up the second lens so that your index finger is aligned with the red/white dot and attach it to the camera body. The whole process should only take a few seconds. Making this a practice should significantly reduce the amount of time your image sensor is exposed to the outside elements.

Routine Cleaning

Every couple of weeks I pull out all of my camera gear so that I can wipe it down and look for possible damage. I start by powering down my cameras to reduce any static electricity that may have built up on the electronics. Next I blow air into the inside compartment of each camera with a hand pump blower. It is worth mentioning that you should never use canned air or any device that blows high-pressured air on your camera. It is also a very bad idea to blow air into your camera from your mouth. A hand pump bulb blower will not remove foreign particles that have been stuck onto your camera's sensor, but it is usually effective in removing small bits of dust that reside inside the camera compartment, around the lens ring, and even on the sensor. I typically remove the lens, turn the camera body upside down and squeeze several bursts of air into the direction of the mirror and image sensor. I am very careful to keep the tip of the blower outside the camera and not to enter the main compartment. You can blow air directly onto your sensor by using the sensor lock up feature available on most of today's DSLR cameras.

Next I remove the front and rear caps of all my lenses and blow any dust that has settled on the glass. I then use a small, clean lens tissue (designed for glass) to wipe away any remaining dust or smudges. I also wipe down the outside of each lens and camera body with a clean cotton diaper (it's soft!) prior to returning them to my camera bag. I go through this routine every couple of weeks or after being in the field for extended periods. Consider wearing lint free gloves during this cleaning process.

Cleaning and Maintaining Your DSLR . . . Continued

Cleaning the Image Sensor

As I mentioned earlier, I only physically clean an image sensor when I begin seeing specs of dust on my images. I do not subscribe to the idea of cleaning the sensor as part of a regular routine. I prefer to clean it only as necessary. I might even wait until I see more than just a few anomalies on my images before taking action and utilize cloning tools instead. Photographing a piece of white paper or a white computer screen is an effective way to determine how dirty your sensor is.

I use a product called Sensor Swab, which includes sterile, flat-tipped swabs and cleaning solution (usually sold separately). A box of twelve swabs can be purchased for around \$45. The cleaning solution is about \$10. This should cover about twelve sensor cleanings. If you consider this cost for a moment, you will quickly see why learning how to clean the image sensor yourself can save you quite a bit of money over time. Once you are ready to get



started, find a clean, quiet place to work uninterrupted. This is not something you want to do with young children around or in an environment with lots of distractions. I usually clean my camera equipment while sitting at a table with bright overhead light. Consider wearing lint free gloves during this process. First I turn my camera on and navigate to the mirror lock up feature in the main menu. After locking up the mirror, I remove the lens and expose the image sensor. You can identify the image sensor by looking toward the rear of the inner compartment. The image sensor should look like a small, flat rectangle. This is the area that we are going to focus in on (no pun intended!) for cleaning.

I place two or three drops of the cleaning solution onto the tip of a new swab and gently wipe across the image sensor horizontally from left to right (if you are looking at the back of the camera). It is important not to drip too much cleaning solution onto the swab. Also be careful not to use too much pressure with the swab. I press down on the swab just enough to slightly bend the tip against the sensor. After cleaning your sensor a few times, you will get a good sense for how much pressure is necessary. I suggest erring on the side of caution and use very slight pressure the first time through.

Cleaning and Maintaining Your DSLR . . . Continued

After making the first sweep, I turn the swab over and make a second sweep in the same direction, this time using the dry side (or opposite side) of the swab. If you have a full size sensor, you may need to make several overlapping passes. I do not recommend wiping back-and-forth (sweeping right to left and back again) with the swab as you could create streaks.

It should only be necessary to make a couple passes with the swab to remove most dust related material on the image sensor. Using too much solution or making too many passes risks creating streaks and cementing dust onto the sensor. Also remember that your swab will likely pick up quite a bit of foreign material and that you do not want to redistribute this onto the sensor by overdoing it. It is usually prudent to make just a few passes with the swab and then take a few test images to see if your sensor is clean. You can always go back with a new swab and run through the cleaning process again.



Sensor Swab by Photographic Solutions, Inc.

It's worth noting that the main ingredient of the cleaning solution is methanol, which is highly flammable. Never clean your camera near open flames or heat sources. You are also unable to take methanol based cleaning solution with you on an airplane when you travel.

Learning how to properly clean your camera's image sensor can save you time and money while minimizing unwanted dust specs from showing up in your final images. With a little maintenance and care your camera should last many years to come.