THE AUSTIN SHUTTERBUG

Austin Shutterbug Club Newsletter **Austin, TX November 2023**

Backing up Digital Image Files

What is backing up digital files?

Digital photograph files are a non-tangible entity, a digital data file, living insecurely in the ether of ones and zeros in a computer storage system. No longer do we have a shoe box or file drawer of negatives, prints or color slides. Therefore, we must house our files in a place that is easy to access, readily retrievable, and safe.

Tangible photographs, including negatives, prints and slides are no longer a part of digital photography. Shoe boxes and file drawers full of photos are a thing of the past. Today. we must safely store digital image files where they may be organized, accessed and protected. Such is just one job of today's digital photographer.

To achieve a storage system that meets these criteria requires some thought, planning, and a bit of monetary

outlay.

Today's planners and designers of most modern computer operating systems do not do the serious photographer any favors. Operating systems like Windows, and Apple iOS are designed around the principle of a single computer operating system drive whether a hard, spinning disk drive (HDD), or a solid-state drive (SSD), or a hybrid of both, like a fusion drive.

We must understand these components are electronic, some with mechanical components. Within the computer system, the drive with the operating system is operating full time when the computer is turned on. Electro-mechanical drives are spinning all the time. It's understandable that these components will fail. Solid-state SSDs are vulnerable to component failure by detrimental heat.

Failure will happen. It's not if — but when.

So, if all our photographs are on our computers operating system (op-sys) drive, and we have only one –like most photo enthusiasts– our images will be lost with the failed drive. Therefore, we must put our photographic images some where else that is safe. That's the first step. The second step is even more important, that is making a duplicate of every photo in a second place for safety through redundancy. That's backing up!

In an ideal situation, the op-sys drive should contain only the operating system itself plus other software such as the photo editing software and so on. Everything else including, photos, financial and medical files and all other personal files must be kept elsewhere.

There are several ways to do this. Some photographers have multiple drives installed within their computer

cabinet. This is a good idea at the time of computer purchase, or at the time of its assembly. This generally requires a larger case or cabinet and lots of fans to move air for cooling- the detrimental foe of electronics. Given the physical space and electronic capability, additional drives may be added at a later time.

The use of additional drives requires not only initial planning for installation, but a serious thought toward file organization. This is food for a later discussion.

The alternative plan used most frequently is the use of external electronic drives, or portable drives. Today, these drives have become very inexpensive and create a low-cost solution to the storage issue. Let's look at common solutions:

JBOD - Just a Bunch Of Drives

As an addition or addition to internal drives installed in the computer cabinet, external electronic drives are now very inexpensive and are available as spinning hard drives, or solid-state units. Capacities are now available in 1TB, 2TB, for pennies compared to the past, and larger capacity drives don't cost much more. Today the HDD drive is the low-cost choice of the two and the SSD drive, the most reliable over time.

Several electronic portable drives are a simple, cost effective manner of storing images off of the computer operating system drive. Over time, the file data may grow quite large. Organizing and securing the data is a more complicated task when using such a bunch of drives.

In operation, these additional drives are connected to the computer via a variety of methods, including USB, Firewire, or Thunderbolt. Regardless, the computer will recognize these external drives and data files may be moved to them readily.

Some manufacturers offer drive systems that enable expansion as required. The three drives above are tied together in JBOD system. But, management of file storage and redundancy is a continuing issue.

In this manner, the JBOD requires manual moving, saving, and management of file material. To create any type of redundant protection, all the data on one file must be completely duplicated on a frequent basis to a second drive.

With personal dedication and commitment, this is a most workable, inexpensive solution.

RAID- Redundant Array of Independent Disks

A RAID solution takes the JBOD solution one major step further. Most frequently, a RAID consists of two or more physical drives housed within a single enclosure and it automatically creates the duplication of data and back up continuously as it is used. The computer “sees” the drives as one and operates as such. Management of storage and duplication of data is accomplished by the electronic RAID controller within the system enclosure.

The three units pictured above are a RAID system. Each box contains two independent drives, with an electronic controller. It provides a seamless, user-friendly method of safely backing up the images through redundancy. The process is managed by the internal RAID controller. Each unit is a 20TB RAID. When used together, the system will store 60TB of data, providing 30TB of file storage with an equal amount of redundant backup.

In such a system, disks are combined into different RAID configurations known as RAID levels. The RAID level you choose depends on which storage attributes are most important to you, including:

Capacity- The total amount of data you can store.
Performance- The speed at which data is copied.
Protection- The number of disks that can fail before data is lost.

RAID 0—Data is not duplicated on both hard drives in RAID 0. This results in faster transfers and more storage, since the full capacity of both drives can be used to store unique data. However, RAID 0 lacks a very important feature: data protection. If a hard drive fails, all data in the array is lost.

RAID 1—RAID 1 provides greater safety since data is duplicated on each disk in the array. If a single disk fails, the data remains available on the other disk. However, this comes at a cost -since the same data is written to each drive, copying data takes longer and overall storage capacity is reduced by 50%. RAID 1 is a good choice when safety is more important than speed or disk space. It is the best solution for photographers requiring redundancy AND security.

Remember: Always eject a storage drive from your computer before physically disconnecting it. Your computer must perform filing and housekeeping operations on the drive before it is removed. Therefore, if you unplug the drive without using the operating system's software, your files can become corrupt or damaged.

NAS (Network Attached Storage)

NAS is a storage system device that connects to your home or office network and can include one or more hard drives. A NAS is engineered to be a single drive, JBOD, or RAID systems. Unlike direct, hard wired solutions, files on the NAS can be accessed using a computer, tablet, or smartphone that is connected to your local network or even over the Internet. Many systems offer an intuitive and user-friendly NAS experience while offering tons of rich applications, allowing you to share files and enjoy multimedia anytime.

CLOUD Storage

Online, or Cloud storage is now a viable option for independent photographers. This system requires the upload of digital files to an online, commercial site for storage and retrieval. To commit to a cloud-based solution, keep in mind several considerations:

Internet speed and reliability– how long does it take to upload and access your files
Cost of internet service– are you charged a premium for high use
Frequency of use– do you need the service all day, every day
Type of files stored– are you storing only JPGs or RAW files and complete projects

After a review of the above, you may find cloud storage may not be a good fit for you. Some plans are good for small amounts of data (images) but if you shoot in RAW and have thousands of images, some plans can't cut the mustard.

If you do feel the Cloud is right for you make certain you carefully consider the following before you commit:

Have a Plan with Three Backups (see the 3-2-1 Backup plan below.)
In addition to your master working files, have at least one Local Backup

Have an Off -Site Solution
Use a multiple hard drive system
Use on-line Cloud storage only as part of your strategy
Don't rely on the Cloud as your primary or only backup

The Cloud may not be reliable
Internet goes down
Servers get hacked
Fees are late or don't get paid
Terms change without notice
Cloud companies go out of business or are acquired by others

Minimum Acceptable Usage Scenario
Consider 1TB of RAW files as minimum capacity- (Some plans don't support RAW)
Fast broadband connection- No Dial-Up or Wi-Fi
No metered web usage from your service provider
Fast service Up / Down Speed
Works with either Mac or Windows.

The 3-2-1 backup plan

Serious photographers who are conscientious about their work carefully store, safeguard, and backup all their images. As we have seen, there are several ways to do this and additional variations on each system. Regardless of the system that is used, you should have a thoughtful plan in place that will provide you the comfort in the safety of your work and your legacy. A workable plan is outlined below:

1. **Have at least 3 copies of your data** Having three copies of data means that the first one would be your actual data, wherever they reside. The other replicas (redundant clones, or mirror images) will provide for high availability and redundancy, since the more replicas you have, the more chances to keep the data safe.
2. **Keep these backups on 2 different media** You should keep the data in two different formats, for one format outlives the other. For example, disks from the same RAID are statistically dependent, and often, after one disk failure, you might experience the failure of another disk from the same storage in a short period (often because the devices are of the same age). Using different formats reduces the risks that all your backups will be damaged, as different formats have different strengths and weaknesses when it comes to redundancy.
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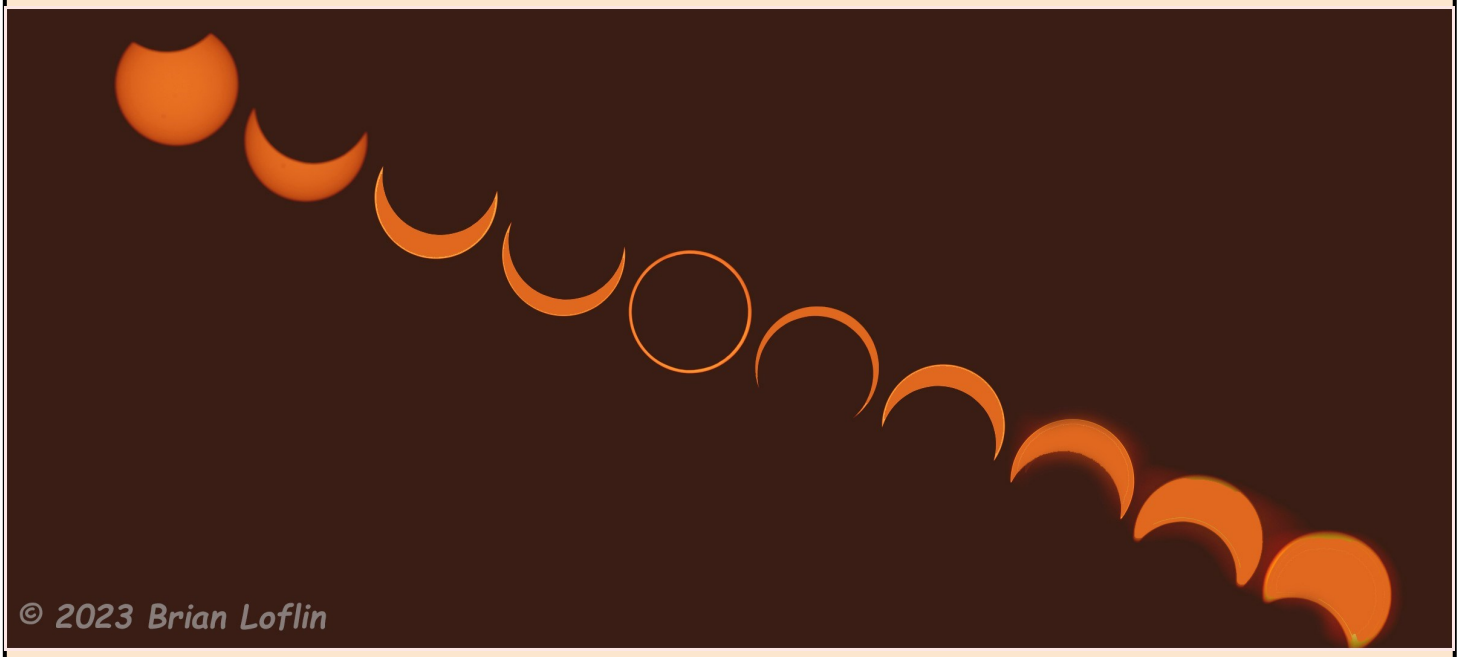
4. **Store 1 backup offsite** It is understandable that a big disaster like an earthquake, fire or another unpleasant event will destroy buildings, and even data centers may burn down resulting in powerful data loss. It is the reason why considering offsite data backups comes into view. Offsite means as FAR AWAY as possible, in another city, state, country or even continent. Your data is safe then, even if there is a fire or national disaster.

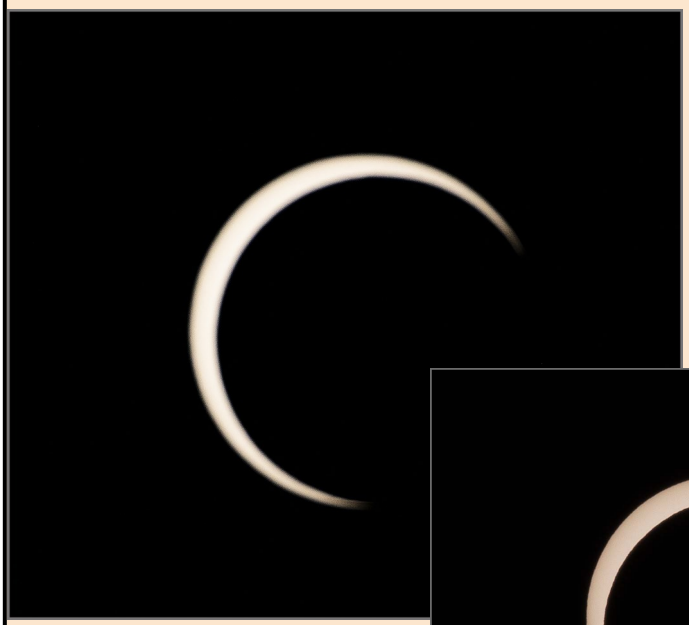
There are many ways and solutions to accomplish this 3-aspect task, be they software or hardware. Backup process should be set as far from manual interaction as possible to avoid human error. It is highly recommended to run backup jobs on a regular basis and scale (weekly, monthly backups, etc.) to be able to restore from the most recent and consistent one.

Annular Solar Eclipse—2023

The Annular Solar Eclipse took place on Saturday, October 14, 2023 through North, Central, and South America and visible in certain areas of the United States and Mexico. To benefit from the full effect of the annular eclipse travel had to be made west of Austin about 150 miles.

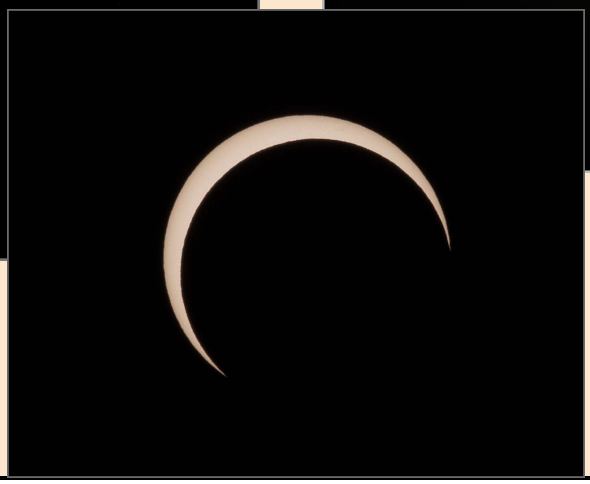
If you are interested in more study of the solar system, click on the title and it will take you to NASA's Heliophysics article and learn how the sun relates to space.





Barbara Hunley

Cathey Roberts



Mike Stys


Austin Shutterbug Club
Holiday Banquet 2023
Friday, December 8, 2023
County Line on the Lake
5204 FM 2222
Austin, TX 78731
6:00 pm
Order off the Menu
Please RSVP by December 6 to:
austinshutterbug@gmail.com

Changes to Shutterbug Club Evaluations

Effective July 2023, visible changes have been made.

The objective for evaluations has always been to provide a forum for education about producing good photographic images. For a very long time the process was presented within the meetings. At one time because of a large number of images presented and the time limitations at the Rec Center, the process was moved off site. This was deemed a mistake in judgment.

Therefore, the entire process will again happen during the actual club meeting every other month.

The images will be collected via email to bkloflin@austin.rr.com. They will be distributed to a panel of three or four evaluators who will review the images prior to the meeting. At the meeting the images will be projected, and comments made by the panel with additional comments and/or questions from the audience. Since this may be a bit lengthy, no other activities are planned for evaluation nights.

Additionally, the requirement for assignment images to be made within the current year **HAS BEEN ELIMINATED**.

It is felt this change will again bring the educational value of the process back to the image maker and to the club as a whole.

Visitors welcome!

NEXT MEETING DATE!

Thursday, November 2, 2023

7:00pm

Northwest Recreation Center

2913 Northland Dr, Austin, TX 78757

We are on Facebook!

Austin Shutterbug Club
Northwest Recreation Center

Meeting Minutes for October 5, 2023

The meeting was called to order by Brian Loflin at 7:04 pm. Visitor John Devalt was introduced. The program for this meeting is Astrophotography and will be presented by club member Mike Stys.

Next month, the meeting will be on November 2nd, and will be an evaluation meeting. The assignment subject is action shots of people, and of course there can be submissions in the general category as well. There is no date requirement regarding when the photos were taken.

In January, the assignment is images enhanced by significant post processing such as HDR, stacking, composites, sky replacement, generative fill, and/or other types of post processing. The before and after photos should be submitted and members should be prepared to discuss what was done in the processing.

Mike Stys gave a fascinating presentation on astrophotography, taking us past the previous presentation that he and Linda Abbott did together, into the post processing procedures. Multiple images were shown reflecting steps he takes to get to the final image.

Brian announced that there will be a San Antonio Zoo trip tentatively planned for November 4th. The meeting was adjourned at 8:16 pm.

Volunteers needed for the following categories:

- **Newsletter editor** - Produce a monthly newsletter.
- **Programs, field trips, and workshops**. Someone to help coordinate these events.

If you feel lead to volunteer in one of these capacities, please email Barbara Hunley at austinshutterbug@gmail.com

Photography is a language more universal than words.

- Minor White -

Austin Shutterbug Club Activities

NOTE: Monthly meetings are held at Austin's **Northwest Recreation Center, 2913 Northland Dr., Austin, TX 78757. (NWRC)**

NOVEMBER

Meeting: Thursday, November 2, 2023,
Evaluation: **"Action Shots of People"**
Special Presentation: Eclipse Photos from Members.

DECEMBER

Meeting: Thursday, December 7, 2023,
Holiday Dinner Party at County Line on the Lake

Assignment Categories for 2023

November 2

Action Shots of People –

An image of one or more people in action. The image may or may not demonstrate motion blur. May be color or monochrome.

January 4, 2024

Image enhanced by significant Post-Processing* –

The image must be based on an actual photograph which has been artistically altered through the use of computer post-processing. These methods may include HDR, Compositing, Sky replacement, Color replacement, Photo-stitching, Photo-stacking, and innumerable other methods. Original and final Processed photos should be submitted for review and discussion of techniques. May be color or monochrome.