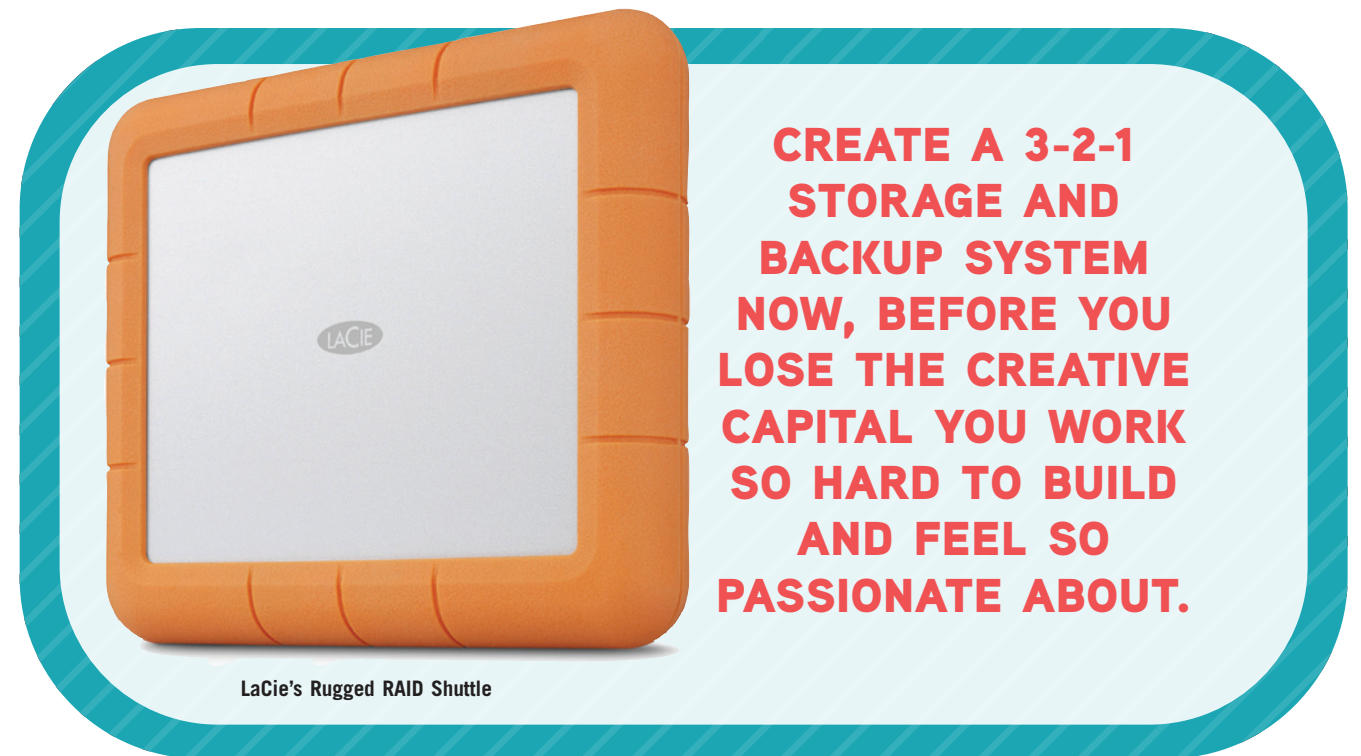


# BACKUP & STORAGE SYSTEMS

SAFEGUARD YOUR PHOTOS AND VIDEOS  
USING A RELIABLE, FOOLPROOF SYSTEM  
THAT INTEGRATES SEAMLESSLY WITH  
YOUR WORKFLOW

By Amy Touchette



LaCie's Rugged RAID Shuttle

**CREATE A 3-2-1  
STORAGE AND  
BACKUP SYSTEM  
NOW, BEFORE YOU  
LOSE THE CREATIVE  
CAPITAL YOU WORK  
SO HARD TO BUILD  
AND FEEL SO  
PASSIONATE ABOUT.**

**F**or image makers, there's perhaps nothing more boring among our administrative duties than implementing and managing backup and storage systems—but they're of critical importance. Many of the people reading this article have lost data and know the pain and devastation of those ordeals. If you don't have a reliable, foolproof backup and storage system yet, now's the time to create one that integrates seamlessly with your workflow.

## The 3-2-1 Rule

No hard drive, memory card, cloud system, camera—or other tech device, for that matter—is infallible. The first step in establishing a backup and storage system is to create multiple copies of your data on different devices using the 3-2-1 rule. This strategy means having at least three copies of your data, two of which should be locally situated but on separate devices, and one of which should be stored offsite.

For example, say you made a picture at the skatepark, aptly named “skatepark.jpg.” This image is stored on your

computer at home. That's one copy of it. You back up your computer with an external hard drive that also lives at home. That's the second copy of skatepark.jpg. Finally, you have an online backup of your data, a cloud system, perhaps, that continually scans your computer and uploads skatepark.jpg to an off-site data center. That's the third copy, which is stored offsite.

This is just one scenario for backing up your data. The main point is to have two copies of skatepark.jpg stored locally, so that should one fail, the other is quickly and easily accessible, and another copy stored offsite, in a totally different location, ideally to a cloud, so that no matter what happens at home (a flood, fire, etc.) or where you're located, you can still access skatepark.jpg.

## Backup Products & Services

There's no shortage of backup and storage devices out there today. That's both the good news and the bad news. While it's ideal to have ample choices, it can be daunting to sort out. To help, here's a breakdown of the options and a few products to consider.

## Memory Cards

Digital photographers initially store our images on memory cards, and they can be used as backups, too. There are several different types of memory cards, including CompactFlash (CF), Secure Digital (SD), microSD, XQD, CFast (best for video) and CFexpress, all of which differ in speed, capacity, camera compatibility and cost. The general rule is to choose a memory card with the highest data storage capacity and the fastest write/read transfer speed available for your camera that's in your price range.

That said, memory cards get quite expensive as speeds and capacities increase, so don't go crazy purchasing the biggest and best. Only get what would work best for you and your camera. If you purchase smaller-capacity cards, which are less expensive, you can simply leave your original captures on the card (after importing them to your computer) as a backup and shoot on a new card for your next project.

One of the stand-out new memory cards this year is **Sony's 160 GB CFexpress Type A TOUGH memory card**,



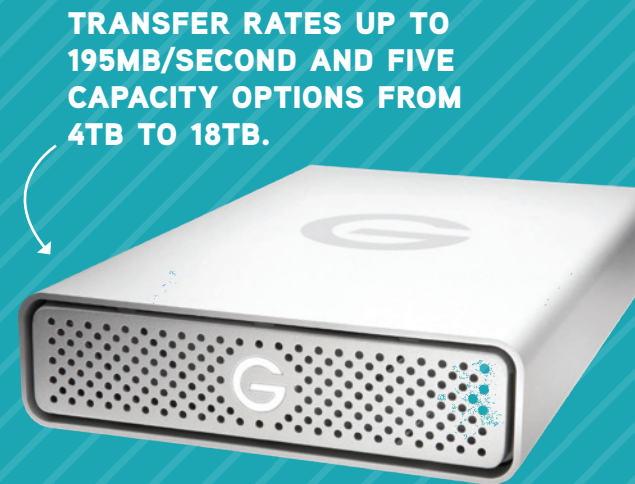
Sony's MRW-G2 CFexpress Type A/SD memory card reader



SanDisk Extreme PRO SD Card USB-C Reader



SanDisk Extreme Pro Portable SSD



G-DRIVE USB-C



QNAP's TS-332X

the first commercially available CFexpress Type A memory card. The new format is similar to CFexpress Type B cards, which have been available for a few years but is significantly smaller. Providing fast read speeds of up to 800 MB/second and write speeds of up to 700 MB/second, it's capable of recording a variety of video resolutions, bit-rates and compressions and allows for continuous raw photo shooting. It's also been reinforced physically to withstand falls of up to 15 feet, 70 N of force, extreme temperatures, X-rays, electrostatic and UV lighting. A major bonus: Lots of accidentally deleted files can be recovered using File Rescue software, and Media Scan Utility can be used to scan CFexpress cards and report on the condition of the flash memory.

When it comes to something as important in your workflow as your memory cards, we recommend sticking to highly regarded brands with a long track record—this isn't a place to look for a "bargain." SanDisk and Sony cards are among the best rated and widely available.

### Memory Card Readers

Though many cameras today allow you to download directly from the camera via both wired and wireless connections, the faster and more convenient route, especially for working pros, is to use an external card reader.

Designed specifically for CFexpress Type A and SD memory cards, **Sony's MRW-G2 CFexpress Type A/SD memory card reader** offers file transfer speeds of up to 10 GB/second. Making the most of the card types' fast transfer speeds, it allows for data transfer over USB 3.2 Gen 2 and includes USB Type-C and Type-A high-performance cables for wide compatibility. It's slim and lightweight, making it ideal for working with high-res images remotely and has two failsafe features: a recessed card slot, making it more difficult for cards to pop out accidentally, and an LED that stays lit while the card is inserted and flickers when it's being accessed. It retails for about \$120.

Most new computers now include USB Type-C ports in addition to or instead of the older Type-A. USB-C is the future, so if your computer has

it, get a card reader that's also USB-C compatible. If your camera uses the very common SD format cards, the **SanDisk Extreme PRO SD Card USB-C Reader** is a great choice and attractively priced at just \$21.

### External Drives

External hard disk drives (HDDs) and portable solid-state drives (SSDs) are storage devices you can use to offload image or motion files from your camera. Portable SSDs are faster, more durable and more expensive than HDDs—sometimes much more expensive. If you often take your drive on the go and don't need gargantuan amounts of storage, the extra money is worth it. But if you do need terabytes of storage space, it makes more sense to purchase a \$100-or-so multi-terabyte HDD than a several-hundred-dollar multi-terabyte portable SSD.

Whatever you decide, since hardware failure is always possible and portable drives are easy to misplace or leave behind, don't use portable drives as your only backup. Keep your data safe at home on a desktop drive instead.

The **SanDisk Extreme Pro Portable SSD** is a rugged SSD that allows for transfer speeds of up to 1,050 MB/second and is offered in capacities of 500 GB, 1 TB and 2 TB. Lightweight and pocket-sized, the aluminum frame adds structural support and

**DO NOT USE PORTABLE DRIVES AS YOUR ONLY BACKUP. KEEP YOUR DATA SAFE AT HOME ON A DESKTOP DRIVE INSTEAD.**

dissipates heat, while its easy-to-grip silicon rubber coating offers greater protection against dust, water and high impact. It's compatible with PCs and Mac and connects with USB-C and USB-A. List prices: \$108 (500 GB); \$190 (1 TB); \$350 (2 TB).

G-Technology is one of the leading makers of storage solutions for professional photographers and videographers. Its **G-DRIVE USB-C** is a sleek option with an all-aluminum enclosure, transfer rates up to 195 MB/second and five capacity options from 4 TB to 18 TB. Because it's an HDD, it's a good value: list prices start at \$150 for 4 TB and range up to \$550 for the 18 TB model.

### NAS Drives

Network-attached storage (NAS) hard drives are like personal cloud services and media servers that back up data as well as store it, allowing you to access your data from any computer on demand, even when your computer is turned off. (It's connected to your router.) NAS also enables media playback on your TV over WiFi without necessitating a hardwire connection to anything.

**QNAP's TS-332X** is an affordable option, with RAID 5 arrays (more on RAID follows) and three bays to protect against one disk failure. It has a 10 GBE SFP+ port for quick transfer and

share of even enormous files, as well as rapid deploying application service across platforms. The smart housing retails for about \$375, to which you'll add standard SATA drives of your choosing.

### What's RAID & How Can It Help You?

Redundant Array of Inexpensive Disks (RAID) is a less-expensive, dependable way to store your files. RAID combines several independent disks into a single large storage device. There are different RAID configurations. RAID 1 is typically used for backups, "mirroring" the content of one drive to another so that if one drive fails, the other is an exact duplicate. RAID 5 is similar in data protection but requires more drives—at least three. Its advantage is that in addition to redundancy, it can also improve performance to speed up your workflow.

While RAID setups are great for large-capacity storage and in the above configurations do provide some data protection, note that they're not a comprehensive backup strategy. Though there's protection against a single drive





Sony's 160GB CFexpress Type A TOUGH memory card

**WHEN IT COMES TO YOUR MEMORY CARDS, WE RECOMMEND STICKING TO HIGHLY REGARDED BRANDS WITH A LONG TRACK RECORD—THIS ISN'T A PLACE TO LOOK FOR A "BARGAIN."**

failing, should you accidentally delete an image, for example, a RAID system won't protect against that.

One RAID option to check out is LaCie's Rugged RAID Shuttle, an ultra-high-capacity, universally compatible, easy-to-use RAID 0/1 that combines stripping and mirroring techniques to optimize speed, capacity and data redundancy. Built flat for gear bags and shipping envelopes, it's drop, rain, crush and dust resistant and includes a self-encrypting solution with password protection.

**List price:** \$529 (8 TB).

### Cloud Services

The best offsite options for backup are cloud services. Cloud services allow you to store and retrieve data through the internet using an infrastructure, platform or software hosted by a third party. Here are some companies that offer a variety of cloud services.

Adobe Creative Cloud allows you to store, access and share data between individuals and devices, as well as manage and share assets in Adobe's Creative Cloud apps for easy collaboration with others. Ranging from 20 GB to 1 TB of cloud storage, Adobe offers three

different plans specific to photographers, including options to purchase Lightroom and/or Photoshop.

Backblaze offers three different low-cost plans for biometric-secured cloud storage. The unlimited personal cloud backup automatically backs up your computer (and any drive attached to it) by mirroring your computer, with a 30-day file revision history and free remote file retrieval. The unlimited business cloud backup includes Veeam server, NAS and computer backup, with a one-year file revision history. Finally, Backblaze offers unlimited B2 cloud storage, allowing you to manage and store large amounts of media files either through APIs or a browser-compatible URL.

Photoshelter backs up your files on geographically redundant servers and gives you advanced permission settings to control share access on an individual level. Lightroom and Photo Mechanic plugins automatically sync your catalog to the cloud archive, and metadata importing paired with robust tagging, renaming and search features make for an added bonus.

Dropbox offers plans for both

individuals and teams, ranging from 2 TB to unlimited cloud storage. With one central hub for online file storage, file sharing and syncing, files are synced across devices and accessible on the web as well as through its desktop and mobile apps. Deleted files are saved for 30 to 180 days, depending on the plan. And should your device get stolen or lost, Dropbox offers "remote wipe," which enables you to clear all the files and folders from your account and therefore your device.

### A Final Plea

Any one of your backup devices can—and eventually will—fail. It's just a matter of time (about three to five years, to be precise). And although cloud services are more reliable, it's relatively easy to misconfigure your settings if you aren't careful. This should scare you. It should incentivize you to create a 3-2-1 storage and backup system now before you lose the creative capital you work so hard to build and feel so passionate about. This goes for your personal memories, too. Imagine losing those—and knowing that you didn't have to.

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## Sony PXW-FX9K XDCAM 6K Full-Frame Camera System w/ 28-135mm f/4 G OSS Lens

Whether you're shooting documentaries, events, reality TV, education, or corporate productions, the PXW-FX9K XDCAM 6K Full-Frame Camera System from Sony has you covered with its powerful and flexible 4K interchangeable lens camera system. The PXW-FX9K features a full-frame, oversampled 6K Exmor R CMOS sensor that allows you to capture 4K images with cinematic depth of field. The camera's E-mount is machined from stainless steel and allows you to use E-mount lenses.

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Genaray Radiance Daylight LED Monolight  
GEAK230 | \$599.00



JVC GY-HC500U Handheld Connected Cam 1" 4K Professional Camcorder  
JVGYHC500U | \$3,595.00



Zhiyun-Tech WEEBILL-S Handheld Gimbal Stabilizer  
ZHWEEBILLS | \$439.00



DJI Mavic 2 Pro with Smart Controller  
DJMAVIC2PSC | \$2,049.00



Blackmagic Design Pocket Cinema Camera 6K (Canon EF, Body Only)  
BL6KPKCAM | \$1,995.00



Porta Brace Semi-Rigid Cargo-Style Camera Case (Black)  
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