Harold Kramer, WJ1B / wj1b@arrl.net

Best Practices for Backing Up Your Contest Files

Why Backup?

You've worked hard to make all those contest contacts. Now, your log files need to be backed up and protected. You should always back up your contest log files, since you may want to review your results after the contest. There may be questions about a station's call, QSO time, and band, particularly if you or your QSO partner want to confirm a contact needed for an operating award.

It is important to have a back-up copy of your contest log files, because hardware and software can fail at any time. You can also lose a file through human error. We've all made mistakes when working with our files. All it takes is an errant mouse click or two and your files are gone.

I recommend backing up right after a contest. You can always edit these files later, but by backing up immediately, you have a baseline set of files. These files include the Cabrillo file and an ADIF (amateur data interchange format) file of the contest log. An ADIF file lets you import your contest log into your general logging program, creating an integrated record of all your contacts. This facilitates uploads to other contact verification systems such as Logbook of The World.

General Backup Practices

Your data should be easy to locate, readily available, and safe. The first step to accomplish this is to use a consistent folder and file-naming scheme and to keep file names consistent between devices. Also, plan to back up your files regularly. I back up my general logging program after every on-air session. Almost all general logging software programs have built-in functionality to back up log files either automatically or manually.

1-2-3 System

The accepted practice for backing up and protecting your data is referred to as the 1-2-3 system: Creating one primary and two back-up copies of your files. Your first set of files should be stored on the internal drive of your primary PC. The second set should be stored on an external media device at the same location, and the third set should be stored at another
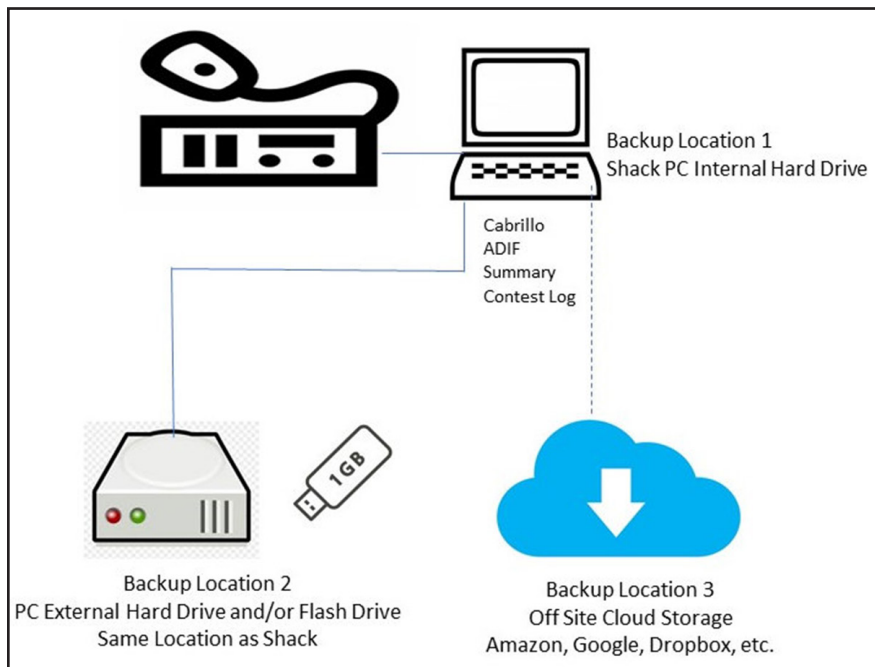
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physical location. This practice is recommended in the document *Data Backup Options*, published by the US Department of Homeland Security US-CERT Team (**www.us-cert.gov/sites/default/files/publications/data_backup_options.pdf**).

Back-Up Practice 1 — Local Drive

Back-up practice 1 is storing your files on the computer's internal hard drive, where your contest software is located. The advantages are that it is easy, since files can be saved automatically, the data is immediately accessible, and no internet is needed. There is also no additional cost. Hard drives are reliable and will usually give you some indication when they are about to fail. Solid-state drives (SSDs) are also reliable and should last for years under normal service.

There are, however, disadvantages to storing your files only on your local hard drive. Hard disk drives will fail after

a certain amount of time. Files can get inadvertently deleted or corrupted. Drives can be attacked by malware, viruses, or ransomware. Software upgrades have been known to erase files. SSDs can suffer immediate failure, with no warning and no chance of recovery.

Murphy's Law can cause computer hardware components to fail at just the wrong moment. Environmental factors, such as excessive heat, cold, fire, water, ac power surges, lightning strikes, spills, and other physical damages, can cause a loss of data.

Backup Practice 2 — Nearby Second Local Drive

Since storing your files only on your internal hard drive is a vulnerable situation, you should also employ backup practice 2. This advocates storing your files on an external device in the general area of your primary PC. The advantage is that your data is still easily accessible and

updated, no internet access is required, and the process is simple. However, the same problems associated with hard drive failure will still exist.

An easy way to back up data at the same location is by using by a flash drive. These are very inexpensive. For example, a high quality 32-GB SanDisk Cruzer Flash drive costs less than $10. They are rugged and will work unless you physically abuse them. Purchase a good-quality, name-brand flash drive, since some are better than others.

The disadvantage of flash drives is that they are not designed for repetitive read-write cycles. Normal read/write cycles usually don't cause a problem, but if you are running your contest software on a flash drive, be aware that it may wear out sooner than expected. They are also small and easily lost or misplaced. You can save yourself some time and effort if you label them.

Another option for data storage at your location is an external hard drive. They are available as stand-alone devices or you can use the existing drive in a second computer. Stand-alone drives are relatively inexpensive. A 1 terabyte portable hard drive costs less than $50. A stand-alone drive can be connected via a USB cable or through a Wi-Fi network. Although Wi-Fi drives cost more, typically $100 or so, they provide greater flexibility since the drive is not tied to a cable. If you don't have an external hard drive, you can always use a spare laptop or PC to store the data. It's easy, particularly if both computers are connected to the same Wi-Fi network. Using a battery-powered laptop for this application will provide another layer of security against ac power problems during a contest.

A disadvantage of storing on a second drive in the same general area is that, since the storage devices are near each other, both devices could be affected if there is an unforeseen physical problem, such as a lightning strike.

For multioperator stations, Tom, W1TJL, told me that "data backup during a contest with multiple networked PCs is a simple and secure method of creating real-time backups of the contest log as it happens. If a run or mult PC crashes during a contest, there is another log copy, so all is not lost. By having distributed storage on each of the computers in a contest station, back-up files are automatically created."

Backup Practice 3 — Cloud Storage

Backup practice 3 involves storing your data off site in the cloud. Cloud back-up services are extremely reliable and designed to protect your data against outages, service interruptions, hardware failures, and natural disasters. They provide a level of security that cannot be easily achieved at your location.

Many cloud storage services are either free or inexpensive, particularly if you are only storing a small amount of data. Here are some of the most common cloud storage services for personal use and the amount of data that you are permitted to store for free:

Amazon Drive = 5 GB
Dropbox = 2 GB
Google Drive = 15 GB
iCloud = 5 GB
Microsoft Office OneDrive = 6 TB
Sync.com = 5 GB

They all have slightly different features and tools. With some services, you simply upload and download files. Some have additional functionality that automatically sync the files on your hard drive with the files in the cloud. I use Dropbox because of its excellent file syncing tools. There are many other cloud storage systems, so pick one that that meets your requirements and your budget and use it diligently.

The disadvantage of using cloud storage is that the data is not at your location, so you need internet access and ac power to upload or download your files. Depending on the speed of your internet connection, storage and retrieval it is not as fast as storing and retrieving locally. Although cloud storage providers run tight security, there is always a chance that your data could be hacked and lost.

Some general logging software programs provide their own cloud storage system, using a third-party cloud storage application. Dedicated ham radio log-storage websites can store your contact data in a log format and provide log confirmations, analysis, and awards. These services can act as a type of backup for your log, but they may not contain complete QSO information or be easily downloaded, if at all. Some examples are Club Log, Logbook of The World, and eQSL.

Although I have focused on backing up your files, you should also be familiar with how to restore your files. Run a backup/restore test to make sure that your entire system works end to end. Even more permanent ways exist for storing your contest data. You could burn the files to a CD or DVD. You could even print a paper log on acid-free paper. By implementing the 1-2-3 system, however, your contest data will be safe and secure for a long time.