

Backup 101: A Guide for Mac Users

Phil Davis
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A common refrain by knowledgeable experts is that all computer owners should regularly backup their computers. This is repeated so often that many people may stop listening, but I encourage you to consider a few basic facts and their consequences. This Tech Note gives you specific information on the why, what, and how of Mac backups.

Why Back Up?

- Fact:** Computers are machines with parts that can break, wear out, or deteriorate.
- Fact:** Operating system software and applications can have bugs and get corrupted during use.
- Fact:** Computer users are not perfect and often do things that lead to problems.
- Fact:** Accidents, fire, lightning, floods, and theft can result in a complete loss of your data.

Given these facts, it shouldn't take much to convince you to take a few simple steps that may save you future grief.

Four Rules of Backups^[1]

1. **Backups should be automatic.** Find a backup solution that you can configure once and forget about it.
2. **Backups should be redundant.** One backup is not enough. Sure, it's better than nothing, but if that method fails, and it *will* fail at some point, you no longer have a backup.
3. **A backup copy should be off-site.** An off-site backup is critical when really bad stuff happens. Theft, power surge, lightning, whatever.
4. **Bootable backups should be tested regularly.** Remember your backup drives can fail too. If you don't test them regularly, you won't know until it's too late.

A Recommended Backup Strategy

1. **Good: Time Machine.** Use Time Machine with an external hard drive to create hourly backups of your data.
2. **Better: Time Machine + Bootable Clone.** Use bootable clone backup software with an external drive to make regular automatic clones of your HDD or SSD. The bootable clone can ease the process of restoring files after a repair, or to a new computer.
3. **Best: Time Machine + Bootable Clone + Off-Site.** Make copies of your clone backups for off-site storage. Or subscribe to one of the cloud services that will constantly monitor your system and back things up in the cloud. Now, even if your computer and your on-site backups are destroyed, you won't have lost any important files.

If you choose Option 3 and you test your backups periodically, you will have satisfied Katie Floyd's "Four Rules of Backups." This little bit of insurance will allow you to sleep better at night knowing that you will have a well-rounded strategy that should protect from the inevitable day when your hard drive dies or other disaster strikes.

How to Create Backups

Time Machine

1. Get an external hard drive that is 1.5x to 2x the size of your internal drive. Keep the external drive connected at all times. With laptops, it is often difficult to remember to plug your drives into your computer. I recommend that you get in the habit of connecting the drive to your laptop before going to bed at night.
2. Enable Time Machine in System Preferences.
3. Learn how to use the Time Machine recovery app to find and restore files.

Bootable Clone Backup

1. Get an external hard drive that is 1.5x to 2x the size of your internal drive. Keep the external drive connected at all times.
2. Download [Carbon Copy Cloner](#) or [SuperDuper](#) and install it on your Mac.
3. Configure the software to automatically update the bootable clone backup daily. The first backup will take a while, but subsequent ones will be fast.
4. Test the backup periodically by booting from the backup drive.

Off-Site Backup

1. Create an account with [Backblaze](#) or some other backup service to use for complete, automatic, and affordable total system backups.
2. Create a [Dropbox](#) (or other) online account to use with your "currently active" files.
3. Record your account login information in a Critical Information File in case of emergency. For obvious reasons, this should not be stored on your computer.

Backup Discussion

What is a Time Machine backup?

Time Machine is Apple's built-in backup solution. Time Machine is ideal for restoring a file or folder that you accidentally deleted, or to undo changes by going back to earlier versions. Time Machine stores one version per hour for the past 24 hours, as well as several versions from the past few days and weeks. Time Machine is an easy-to-use and reliable safeguard. However, Time Machine backups are not bootable and may not include necessary system files.

What is a Bootable Clone backup?

A bootable backup is a second hard drive that you can use to boot your Mac when your primary hard drive dies. A clone contains an exact copy of the original source data. It is important to "verify" your clone occasionally. To do this, restart your Mac with the clone drive attached and hold down the Option key on your Mac while it is starting up. You should see an option to choose your clone drive. Select it, and make sure that your computer starts up. Once it does, reboot it again the same way and choose your primary hard drive.

What is an Off-Site backup?

An "off-site backup" is one that exists somewhere other than where your computer is. You want an off-site backup in case of theft or disaster (fire, flood, etc). If someone breaks into your apartment or house and takes your computer, they are very likely going to take any hard drives they see also. If your home burns down (or floods, or gets wiped out by a tornado or other natural disaster), your backup is going to be just as destroyed as your originals.

Can I use Dropbox or other Cloud-Based Storage as a backup?

Dropbox and other cloud-based systems [Google Drive](#), [Box](#), [Amazon Cloud](#), [OneDrive](#) are not intended as backup solutions. They are primarily tools to allow sharing and syncing of files between your devices. In most cases, the cost of backing up all your files would be prohibitive. However, they are excellent tools for saving copies of a selected set of files such as your "work in progress." Read this [discussion on how Dropbox Works with Backblaze Cloud Backup](#).

What is the difference between a backup and an archive?

Since many of us are moving from traditional hard drives to lower-capacity SSDs in our computers, hard drive space is now at a premium. So, when you have files that you don't expect to need for a while but want to keep, you can move them from your primary drive to an external drive. You can archive data to any number of places: external drive, network attached storage (NAS), and RAID drives.

Just remember that archive drives are susceptible to hardware failure, theft, or other problem that would cause data loss. You should also consider these archival sources of data when planning your backup strategy. To keep things simple, I encourage you to consolidate your archives into as few places as possible.

What Type of External Drive Should I Buy?

Get an external hard drive that is 1.5x to 2x the size of your internal drive. The drive should support USB3.0, Firewire, or Thunderbolt connectivity. The Apple Time Capsule can be used for Time Machine backups, but there are other choices that will do the job at a lower price. The small USB-powered drives made by Western Digital, Seagate, and OWC are all good choices. Since many of these are formatted for Windows machines, it is always a good idea to reformat them using Disk Utility before using.

Do I need a separate hard drive for my clone and Time Machine?

Strictly speaking, no you don't, but with one important caveat. All hard drives die, and that includes backup drives. If you use one drive for both Time Machine and your bootable clone and that drive has a hardware failure, you will have lost everything.

Link Farm

- SuperDuper: <http://www.shirt-pocket.com/SuperDuper/>
- Carbon Copy Cloner: <https://www.bombich.com/>
- CrashPlan: <http://www.code42.com/crashplan/>
- BackBlaze: <https://www.backblaze.com/>
- Dropbox: <https://www.dropbox.com/>
- Google Drive: <https://drive.google.com/drive/>
- Box: <https://www.box.com/>
- Amazon Cloud: <https://www.amazon.com/cloudrive/>
- OneDrive: <https://onedrive.live.com/about/en-us/>

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1. [Creating a Comprehensive Backup Strategy — KatieFloyd.me](#) ? ↔