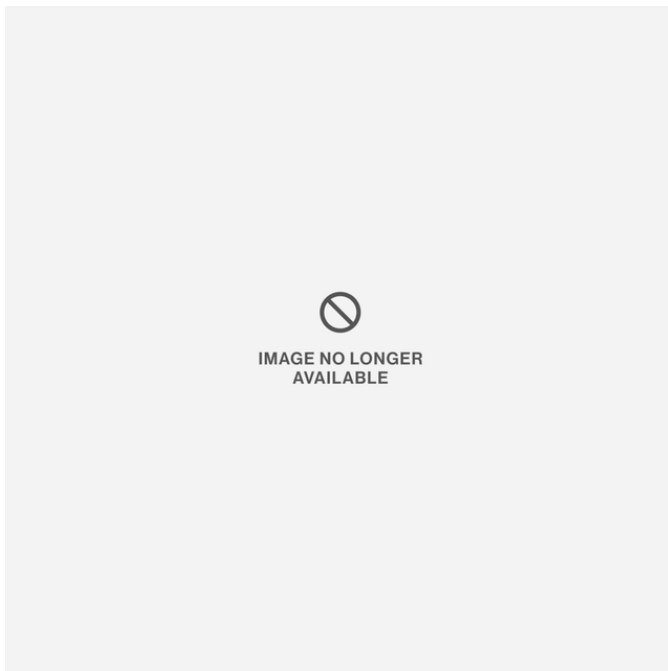


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How to Restore Your Data After a Hard Drive Crash

So you remember to back up your data before a hard drive crash. Congratulation. But now it'd time to get down to the hard work of restoring your data. Here's how.

BY [GLENN DERENE](#) PUBLISHED: AUG 4, 2011



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When my computer wouldn't boot for the second time in one week, I knew the end was coming for the 4-year-old PC. It was hard to diagnose exactly what the problem was from its brief moments of lucidity—it could have been the hard drive failing, or the motherboard refusing to recognize the drive, or maybe something as simple as a corrupted file structure. It didn't really matter, though. My computer had become unreliable, and I was ready for a new one. Best of all, I had been a good

boy and backed up everything. How could I not?

Like most technology journalists, I am constantly reminding my readers to back up their files—computers are inherently unreliable machines that are guaranteed to fail eventually, and the personal data we store on those machines is more extensive and valuable than ever. Plus, data backup is now built into both Microsoft Windows 7 and Apple's Macintosh OS X operating systems, and most external hard drives and cloud storage services include their own backup software as well. After the initial backup process, any of these methods can be set to back up your data incrementally and automatically—the very definition of "set it and forget it." That is, of course, until you need it—the data, that is. And that's the situation I found myself in after I replaced

my failed computer with a new one. I had a backup file. I knew where it was. The problem was, I wasn't entirely sure what to do with it. That's because restoring your data is not necessarily as clear-cut a process as backing it up in the first place. How you go about restoring your data depends on how you saved it, as well as how much you want to get back—and the results are not always what you might expect.

Only Files—or Everything?

Backup, in the general sense, can mean two things: You can back up your files (saving folders of photos, music, videos, documents and emails), or you can back up your entire computer (creating a full bit-for-bit image of your hard drive frozen in time at the point of backup). For Windows Vista and Windows 7, both backup options are available in the Backup and Restore menu within the Control Panel. Apple has a time-coded incremental backup solution known as Time Machine built into OS X that does double duty, restoring files or system settings to a previous state (presumably before something went wrong), or recovering files and settings after a hardware failure. Some third-party backup systems, such as Iomega's QuikProtect, simply create and manage one-to-one file-level backups of your data. This is different from operating system backup programs, which typically create consolidated and compressed files that require the OS to unravel.

Whatever solution you use, however, I recommend backing up to an external USB or networked hard drive, or at least an online backup service. In the past, you could generally fit your backup on removable discs such as CDs or DVDs, but now the amount of data on modern computers and the frequency of backup render removable media completely inadequate. Invest in a real hard drive and you'll make your life much easier later.

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How you backed up your files will largely determine what you can expect to restore and what the process will look like. If you have just backed up your files and some basic settings for things such as your Internet browser, then you are going to have to do a little setup work to get your new or repaired computer functioning the way you like it. That means reinstalling all the software you know and love, then adjusting all the settings of each program until you are happy.

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The process of getting back the files themselves is generally straightforward and automated. If you used Windows Backup and Restore, you can do this using the Control Panel under System and Maintenance. Select Advanced Restore and then Restore Files Made on a Different Computer. With a clean copy of Windows, the system probably won't be aware of the backups you've made previously, so you may have to direct it to your external drive. The recovery tool discriminates and recovers data by user, so if your old computer or hard drive had multiple users, you'll need to decide which users' data to migrate over.

With third-party or online backup software, you usually just need to install the backup software first, then let it guide you through the steps to recover your backup. If you've just created your own file-level backup of your data, you can always find it yourself and drag the files and folders to your new hard drive.

Back Up Your Game System, Too

Computers aren't the only devices that hold vulnerable, valuable data. Gaming systems have lots of hard-earned game data, as well as pictures, movies and music. Here's how to back up and restore the content on your Xbox 360 or Playstation 3 hard drive.

Xbox 360

Back Up: Connect any USB storage device (we recommend a drive of at least 32 GB) to your console. Select My Xbox from the main menu, then Memory. From here you

can transfer your data one item at a time, or you can dump everything with the Transfer Content feature.

Restore: Once you've signed into your account, head to the Memory menu, select your backup drives, hit Y and then select the 360's hard drive as the destination device. Once the transfer is finished, the Dashboard will ask you if you want to renew your licenses—select Yes and you're done.

Playstation 3

Back Up: Connect your USB storage device. Go to the Settings menu, then System Settings. Select the Backup Utility option, and then select Back Up. Annoying caveat: Downloaded content, such as games or movies, will not be backed up. These are linked to your PSN account and will have to be redownloaded upon restore.

Restore: Simple as pie. Start the Backup Utility and select Restore.

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Image Conscious

If you backed up your entire system, the process is slightly more complicated, but if it's successful, you can expect to completely restore all of your software, settings and files exactly the way you had them when you last backed up. To restore a system image in Windows 7, you're going to need either your original

Win 7 install disc or a system repair disc. (You can create one using the same Backup and Restore menu that you created the system image in.) When you boot from the disc, you get the option to Repair Your Computer and then select the system image and date you want to install. Be forewarned: If you just bought a new computer and you reimage its hard drive, you will erase not only the existing operating system but

also everything the manufacturer installed in terms of software, drivers, etc. Of course, if you truly want to restore the environment of your old computer on your new one, erasing the data on the new computer is exactly the point.

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Once you give the go-ahead to reformat and reimage your drive, the process should continue on autopilot. Be prepared for snags, though: I made my first image-restore attempt from a network-attached storage (NAS) drive on my home network—and Windows thought about my request for a moment, then totally ignored it. I got the process to work correctly only once I used another computer to transfer the file from the NAS to an external USB drive (I have a lot of extra hard drives lying around, one of the perks of being a tech journalist).

Windows 7 is pretty sophisticated, and if the image you're transferring is from a Win 7 system, then it will automatically start updating itself to the drivers necessary for the various connected USB devices, soundcards and graphics processors of your new

machine. However, there are bound to be a few surprises. After my image restoration, I discovered that the 1-terabyte drive in my new machine suddenly thought it was the 500-gigabyte drive from my old machine. Fixing this required some careful noodling around in the Disk Manager utility to extend the partition and reveal the full 1 TB of disk capacity.

Apple's Time Machine makes this process considerably more user-friendly, building file and system migration into the setup process on a new Mac or after a new installation of OS X. Right after boot, the system will ask you if you already own a Mac, then give you the option of restoring from a Time Machine backup. Keep in mind, Time Machine backup works with any USB drive, but not all networked drives are supported.

Cross-platform data restoration is an entirely different animal. If you switch from PC to Mac or vice versa, most of your files can be moved over manually (provided they are in standard file formats such as .doc, .jpg, .mp3, etc.), but your software most definitely cannot. Some programs, such as Mozilla's Firefox, can be easily reinstalled, while other software, such as Microsoft Office and Adobe Photoshop, needs to be repurchased and reinstalled.

However you go about recovering your data, it's important to allow yourself plenty of time for the process. If, like me, you have hundreds of gigabytes of music, movies and photos, each step can take hours, and the entire recovery can consume a weekend. But even after I committed days to the process, my first step once I got all of my data back and organized was the same one that let me get back that data in the first place: I went to the Backup and Restore menu and set up my new computer for automated backup—because I'm a good boy.

Cloud-Based Backup

Backing up data to a local hard drive helps recover your files after a massive system failure, but it won't help if a fire, flood or tornado destroys your whole house. Big companies have known this for years, which is why most corporations have off-site backup to get them up and running fast in case of an emergency. Obviously,

homeowners shouldn't need to set up dedicated remote servers to protect pictures of the family dog, but there are several cloud-based backup systems that, for a yearly fee, can back up your data to a password-protected online account and can also let you access your files from anywhere.

Mozy is one of the more established services. For \$6 a month, you get 50 GB of storage; \$10 a month gets you 125 GB. Mozy's software installs on your PC or Mac, then automatically backs up your files in real time.

Carbonite is similar but offers infinite storage for a single user for \$60 a year.

For the low-volume user, **Jungle Disk** can offer a cheaper deal, charging \$2 a month for membership, then separate per-gigabyte fees for storage, uploading and downloading.
