



Mobile Data Storage

You *Can* Take It with You



Recently, during an environment, health, and safety (EH&S) software demonstration, I described how users could access their EH&S data via the Web. Surprised, my client exclaimed, “Oh, good! Now I don’t have to take my files home on a flash drive. I can get to them from my home computer.”

In the mid-1990s, Oracle Chief Executive Officer Larry Ellison envisioned a “network appliance”—an ever-present “thin client” with no hard drive or CD drive that would eliminate the need to carry computers everywhere. Instead, users would access software, data, and personal settings through the network appliance. Although we can access a multitude of applications via the Web, we still don’t seem to fully trust it. Today, to avoid carrying computers, we don’t use a thin client, but instead rely upon small, portable data storage devices to carry our most important files. This column examines an array of currently available mobile data storage devices, their benefits, and limitations.

MOBILE DATA STORAGE

Sometimes you want to transport just a few data files, not your entire computer. And technology provides an impressive array of small, affordable storage devices to do so (see sidebar opposite). For example, flash memory card readers and writers easily transfer digital pictures, audio files, data files, and handheld computer files; a thumb-sized 128-MB flash drive has six times the memory of the first desktop computers; a one-inch-square Compact Flash card holds approximately 130 high-resolution photos; and CDs and

DVDs hold massive amounts of data. In the mid-1990s, the choices were limited to a 1.44-MB 3½-inch floppy disc, a 100-MB ZIP disc, or an expensive 1-GB JAZ drive (ZIP and JAZ drives; Iomega Corp.).

ISSUES

If you use mobile data storage devices, you should be aware of the limitations related to changing standards for software and hardware, as well as data security, accessibility, and liability.

Changing Standards

Do you seem to be forever chasing technology, never to catch up? If you have several computers or peripherals that were purchased at different times, you probably have compatibility issues due to ever-changing standards—including standards for operating systems, software versions, cables, connectors, and storage media. The following examples offer simple solutions to common problems.

Problem: You run a small environmental consulting practice and want to back up your important files onto CDs, but the files are located on two different computers: a newer notebook computer and an older desktop computer. Your notebook has a DVD/CD-RW (rewritable CD-ROM) drive and an external floppy drive, while your desktop computer has an optical drive that cannot read the CDs that the notebook computer writes.

Solution: Subscribe to a Web-based data storage solution

MOBILE STORAGE MEDIA

Mobile storage media have different form factors that allow integration with a notebook or desktop computer.

Storage Media	Form Factors and Features
Memory Stick (MS)	Card, three formats, 32 MB–1 GB. Sony Standard.
Compact Flash (CF) Card	Card, durable, 16 MB–4 GB. SanDisk standard.
Multimedia Card (MMC)	Card, solid state, smallest and thinnest, high transfer speeds. More durable, up to 512 MB.
Secure Digital (SD) Card	Card, size of MMC, encryption capabilities. Newer, developed by Panasonic, SanDisk, and Toshiba. Up to 1 GB, 4 GB in future.
Smart Media (SM) Card	Card, very small and thin, up to 128 MB.
eXtreme Digital (XD) Card	Card, very small, uses less power, 32–512 MB. Olympus/Fujifilm standard.
Microdrive	Miniature hard drive, CF card form factor, up to 4 GB. IBM/Hitachi standard.
Flash Drive	Thumb- or pen-sized drive plugs into computer USB port, 16 MB–1 GB.
Compact Disc (CD)	Optical disc, many sizes, 50–700 MB. CD drives start at \$50.
Digital Versatile Disc (DVD)	Optical disc, 4.7–8.5 GB. DVD writers start at \$100.

HELP DESK: Still confused about which is the best device for your needs? I encourage you to read product reviews for these and other devices online at www.cnet.com or www.zdnet.com.

and then copy the desired files onto CDs for safekeeping. Alternatively, purchase a universal serial bus (USB) flash drive to transfer all of the desired files onto a single system before burning CDs using the newer optical drive.

Problem: You have completed an environmental audit and want to store digital photos on your notebook and handheld computers. The digital camera uses a Compact Flash card, while the handheld uses a memory stick. How do you get the



three devices to communicate? And how do you preserve the photos indefinitely?

Solution: Use the notebook computer as the central repository and processing unit. Use USB data synchronization cables, an inexpensive USB memory card reader, or a PC-card adapter to transfer the digital photos from the Compact Flash card to the notebook. First, synchronize the handheld computer with the notebook to transfer photos to the handheld, and then decide where to archive the photos permanently, according to your organization's standards (e.g., a shared server and/or CDs, DVDs, or tapes securely stored offsite).

Security

It is important to recognize that mobile storage devices can compromise the security of an EH&S management information system or an entire organization. If misplaced, lost, or stolen, any of these devices can create more than a mild headache. Regular data backups can help avert business interruptions, but data in the wrong hands can create mayhem. Keep mobile storage devices safe. Remember:

- Handheld computers are the virtual "brains" of your business, storing contact names, appointments, critical tasks, and e-mails—*most users do not password-protect their data.*
- Memory cards store the equivalent of 1400 or more floppy discs, and easily fit into a pocket, wallet, or purse—*most do not require passwords for data access.*
- CDs and DVDs are very portable—*people can easily read and copy these discs.*

Write Now, Read Later?

Data storage is cheap, fast, and reliable. Memory cards, CDs, and DVDs require adapters or readers to transfer data to a PC. How will we retrieve today's files tomorrow? If technology continues to change at "warp speed," we must periodically evaluate whether to migrate files stored on older media. For example, if you have files stored on 5¼- or 3½-inch floppy discs, it's a safe bet to migrate these files to network storage, then to the network backup storage device of choice (e.g., tapes, CDs, DVDs, external hard drive). If you choose to leave these files as is, at a minimum you will need to maintain a working disc drive to read your files.

Data Liability

The use of rewritable data storage devices can lead to redundant and inconsistent data entry, as well as version control concerns. If an EH&S manager uses a flash drive and updates a file, then fails to upload the edited file to the server, he or she has created a potential liability. Which version is

MOBILE DATA STORAGE SECURITY TIPS

- 1 Account for portable storage devices—know how many devices are within your organization and implement chain-of-custody procedures.
- 2 Keep mobile data storage devices in a secure location.
- 3 Password-protect mobile storage devices if possible. Do not provide the password to others.
- 4 Back up files regularly on a secure network drive.
- 5 Periodically review the contents of mobile storage devices and remove unneeded files.
- 6 Use an electronic "shredder" utility to destroy deleted files on memory cards, and flash drives; use a commercial paper shredder to shred or otherwise render CDs and DVDs unreadable.

the correct version? To minimize data liability, use a central data repository for critical data. If you must use a mobile data storage device, ensure that you upload changes to your "master" document or database. Use editing tools native to your office software suite to highlight and accept changes, and then delete any draft versions that are not your final work product.

Mobile data storage devices will exist as long as people desire anytime, anywhere access to business applications and data; that is, until we have truly universal access to, and implicitly trust, the Web for our most prized data. Awareness of the benefits and limitations of mobile storage devices allows EH&S professionals to make good business decisions and to have backup plans when devices fail. Closely consider how you use these devices for sensitive data and, if needed, revise your company's policies and procedures. ☺

About the Author

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