Hard Disk Utilities
File Recovery Programs

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It's hard to always be on the ball. Sooner or later you'll answer yes when you really meant no. It's bad enough inadvertently wiping out some files, but if you've ever accidentally formatted your hard disk, then you know the true meaning of despair. But all is not lost.

There are dozens of programs on the market for undeleting files (and some will, to a greater or lesser extent, ease your despair over your newly formatted hard disk), including Baker's Dozen, DS Recover, Disk Explorer, Mace Utilities, The Norton Utilities (Version 4.0 and Advanced Edition) and PC Tools.

Of course you could use DEBUG, the only DOS program that helps you to recover erased files — you could that is if you're feeling rather masochistic. DEBUG, unless you're an experienced hacker (and even they would rather use one of the commercial programs), is an exercise in frustration. Everything must be done manually, even to the point of having to alter the directory and file allocation table.

Even so, there are many public domain and shareware utilities for recovering files. While most of these programs work to some extent, they don't compare with the power, flexibility and ease of use of the commercial software.

However, no matter which program you use to undelete your files, it's important to act quickly. Since DOS doesn't physically erase the deleted file from the disk (it only marks the physical space that the file occupies as free space which can be written to), you have to get to the undeleted file before it's written over with new information. Once the physical space of the deleted file is occupied by a new file(s), you've lost your chance at recovering all of the deleted file, although you can still recover portions that haven't been written over.
Recovering part of text files may be worthwhile since recovering any part of the data is preferable to losing it all. For program, spreadsheet and database files, partial file recovery is usually not helpful. Until you physically overwrite the deleted files, you can still bring them back with one of the many commercial file recovery programs.

The competition among the various commercial programs is keen, each program bringing on new version with improvements and more features. Most have added other hard disk utilities in an effort to gain a competitive edge—that edge, however, is quickly lost as the others play catchup.

**Norton Utilities**

The Norton Utilities is the most widely known and used of all the file recovery programs. Besides unerasing files and directories, its byte level editor, its ability to test disk integrity and give system information, the Norton Utilities Advanced can also unformat a hard disk (you need to run a special program whenever you boot up for this feature to be functional) and optimize your hard disk (this speeds up file access by reordering the data on the disk/diskette in order to reduce head movement).

Another nice touch on both versions of the Norton Utilities is their excellent demo program, which gives you a well organized and easy to understand tour of all the features.

I’m fond of the Norton Utilities. It’s slick, easy to use, and has the best documentation of any of the other utility programs. When I have to undelete a file, I use the Norton Utilities. Recovering files is easier than ever, and in most instances the quick unerase program is all that’s needed to save that file.

**DS Recover**

This memory resident program actually saves erased files by not allowing DOS to overwrite them. Thus every deleted file is saved until you decide that you want to get rid of it permanently (a true second chance—if you blow it again, then you deserve to lose the file, but you could probably recover it anyway). You can see the directory of all erased files and recover the ones you want. In essence it’s like copying all deleted files to another subdirectory, out of sight but not out of mind. You can also use DS Recover to recover deleted files in much the same manner as the other utilities.

DS Recover also includes another RAM resident program called Snapshot, which protects your memory resident information in the event of power failures or system lockups. Every few minutes Snapshot saves to disk everything that’s in RAM—so if your computer crashes you won’t lose much work or time. DS Recover is an interesting program and one I would use more extensively except for my already overflowing hard disk (I’d need a WORM drive to be able to hold all the files I delete). But for those of us who are accident prone, it’s the only one that will guarantee 100% recovery of all deleted files, no matter when they were deleted. And for those of us who are slack about saving our files to disk at frequent intervals, and who regularly crash their system (especially if you use a number of RAM resident programs) Snapshot (even though it also takes up hard disk space equivalent to your RAM) is a Godsend.

**Baker’s Dozen**

This a hard program to categorize. It’s file recovery features and byte level editor are as good as any, but not as slick or as easy to use. On the other hand, this shareware pro-
program has over a dozen extra utilities which run the gamut from a mini RAM resident spreadsheet to a Sideways-like printing feature. It has a calendar, a file comparison feature, a screen capture feature (but not for graphics), text and file location capabilities, and a few small programs to swap your LPT and COM ports. All in all a handy package to have around. And the price is right, you only pay if you like and intend to use program. I'd recommend everyone give this program a try; you'll find countless uses for it.

**PC Tools Deluxe**

*PC Tools Deluxe* offers more features than any other utility. It has excellent file recovery capabilities (including the ability to recover from an accidental hard disk format), a full-featured text editor, a DOS shell, disk caching (a feature which speeds up disk access by storing frequently used data in memory instead of re-reading it from disk—similar to the features seen in stand alone programs such as Fast Forward, Flash, and Lightning), a disk optimizer (see *RWPN*, October ’88), and a hard disk backup.

As well as having the most features, it also has the lowest price tag (it can be bought for under $70 from the discount houses). All of *PC Tools* features are first rate: there is no trade off for the low price. In fact some of the features are superior to those found in the other utilities. For example, the hard disk format recovery feature is superior to those found in the Norton Utilities Advanced and even the Mace Utilities (unlike the Mace Utilities’ Unformat, *PC Tools*’ Unformat feature will correctly rebuild your file allocation table so that you will not have to copy off all the files, reformat your hard disk, then copy them back on. Further, it will work regardless of whether the directory, or file allocation table, or both, have been damaged).

*PC Tools*, like the Norton Utilities and Mace Utilities, also has a safer and more reliable method of guarding against an inadvertent hard disk format—it makes a backup directory at a special location on the hard disk where it isn’t affected by the format. This feature necessitates that you run a program when you boot up your system (most conveniently as part of your *autoexec.bat*).

Although *PC Tools* file recovery features will let you unformat a formatted hard disk, you won’t be able to unformat your floppies (there’s no program that I know of that will let you do this) since in formatting floppy disks the data itself, rather than just the directory and FAT, is corrupted.

*PC Tools*’ undelete features are also first rate. Unlike most other utilities, *PC Tools*’ Undelete doesn’t lose the first character of the file name. As well it can successfully undelete fragmented files with less fuss and bother than some of the other utilities.

*PC Tools*’ backup features are every bit as fast and reliable as Fastback’s. Both it and Fastback create a “parity” record that allows recovery of data even if there is an error on every single track of the backup diskette (up to 160 errors).Unlike the other utilities, PC Tools has an optional resident mode (I’ll have more to say on this in a future article discussing RAM resident multitasking).

An added bonus support for the new PS/2 family of IBM computers has been added to *PC Tools Deluxe*, including support for DOS 3.3, and 1.44 megabyte, 3.5” diskettes.
Mace Utilities

Peter Norton and Paul Mace are the Coke and Pepsi of file recovery programs. Their ongoing competition, a bit nasty at times, has driven the market, resulting in the excellent products we have today.

In contrast with the Norton Utilities, the Mace Utilities is a bit rough around the edges. However, the program does almost as much as PC Tools Deluxe, and includes an excellent disk caching program, a disk optimizer, a dBASE file recovery system, and floppy disk and video display enhancement programs (from Golden Bow Systems).

A recent addition to the Mace lineup is Mace Vaccine, a simple yet effective utility for warding off a computer flu or virus: those malignant pieces of computer codes which can destroy information on your disk. Mace Vaccine is designed to warn you when unusual attempts are made to access vital disk areas and system files. You can raise the protection level to prevent any unauthorized access outside of DOS. This will stop any virus before it infects your system.

Recommendations?

If you had to do with just one hard disk utility I would choose PC Tools. It’s got the most bang for the buck.

If you need a powerful byte level editor (one that will allow you to edit disk data, directories, the Fat, the disk partition table and anything else your heart desires), and advanced file recovery capabilities, then you should get one of the two versions of the Norton Utilities.

DS Recover deserves some mention for its rather unique way of protecting deleted files and memory. If you have the disk space, it might be the best safety net your computer ever had.

Mace Utilities, as well as having features comparable to the other programs, also has some unique options to recommend it (such as disk caching, and floppy disk and video display enhancement). And for those prone to the flu, the new Mace Vaccine will work better than vitamin C. And finally, there’s the Baker’s Dozen, which while it has the look and feel of a CP/M utility, can be extremely handy to have on hand.

If you’ve got the bucks, go for more than one. After all with two or three of these utilities on hand, you’ll have power, safety, convenience, and, most of all, peace of mind.

Software Reviewed

Baker’s Dozen
ButtonWare Inc., PO Box 5786, Bellevue, WA, USA 98006

DS Recover
Design Software, 1275 Roosevelt Rd., West Chicago, IL, USA 60185

Mace Utilities
Paul Mace Software, 400 Williamson Way, Ashland, OR, USA 97520

Norton Utilities
Peter Norton Computing Inc., 2210 Wilshire Blvd., Santa Monica, CA, USA 90403

PC Tools
Central Point Software, Inc., 9700 SW Capitol Hwy. #100, Portland, OR, USA 97219

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The 4th International Conference on Artificial Intelligence and Education will be held at the University of Amsterdam on May 24-26, 1989. The theme is “Synthesis and Reflection,” focusing on intelligent teaching systems and AI-based learning environments, including applications to text and the writing process. December 1, 1988, is the deadline for submission of 4-page (3000 word) papers with a half-page abstract. Writers should address the main research question (relevance), research method, results and evaluation (answers to research question), and a comparison with previous work to highlight what is new. Contact the AIED-89 Secretary, SWI, University of Amsterdam, Herengracht 196, 1016 BS Amsterdam, The Netherlands, or call (+31) 20-525 20 73.

Computers and Teaching in the Humanities Conference

“Redefining the Humanities” is the theme of CATH 88 or Computers and Teaching in the Humanities, to be held December 13-15, 1988, at the University of Southampton. Papers presented include

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The use of hypertext as the medium for studying poetry enables the intertextuality of a poem to be properly represented. This is likely to change our conceptions of what a poem is.

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The introduction of a computer course for English Literature students will be reviewed, illustrating some of the problems in learning methods that occurred and some contrasting attitudes among students and staff.

“The Image of a Word”
A possible system is described for generating pictorial representations of texts, such as narratives and poems. Its implications for research on underlying cognitive processes will be considered.

“Computers in the Study of Set Texts”
Developments at Oxford in the use of computer facilities to support textual study are raising several questions about the role of the computer in learning, such as its effectiveness in literary criticism and the problems of dealing with large textual databases.

Contact Dr. May Katzen, Office for Humanities Communication, University of Leicester, Leicester, England, LE1 7RH or phone 0533-522598.
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The 27th Annual Meeting of the Association for Computational Linguistics will meet June 26-29, 1989, at the University of British Columbia in Vancouver. January 6, 1989, is the deadline for papers on substantial, original, and unpublished research on all aspects of computational linguistics, including, but not limited to, pragmatics, discourse, semantics, syntax, and the lexicon; phonetics, phonology, and morphology; interpreting and generating spoken and written language; linguistic, mathematical, and psychological models of language; machine translation and translation aids; natural language interfaces; message understanding systems; and theoretical and applications papers of every kind.

Authors should submit twelve copies of an extended abstract not to exceed eight double-space pages (exclusive of references) in a font no small than 10 point (elite). The title page should include the title, the name(s) of the author(s), complete addresses, a short (5 line) summary, and a specification of the topic area. Contact Julia Hirschberg, ACL89 Program Chair, AT&T Bell Laboratories, 2D-450, 600 Mountain Avenue, Murray Hill, NJ 07974, or call (201) 582-7496.

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“Communicating to the World” is the theme of IPCC 89, the IEEE’s International Professional Communication Conference, set for October 18-20, 1989, in Garden City, NY. January 15, 1989, is the deadline for submission of 300-500 word abstracts for papers covering any aspect of the use of high-tech and computer technology in the world of technical writing, in addition to other topics of interest to the technical communicator. Send abstracts to Dr. Robert Krull and Dr. Philip Rubens, Department of Language, Literature, and Communication, Rensselaer Polytechnic Institute, Troy, NY 12180. IPCC 89 information can be obtained from Mr. Richard M. Robinson, Grumman Corporation, MS C39-05, Bethpage, NY 11714, or call (516) 575-5472.

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Small College Computing Symposium

December 2, 1988, is the deadline for submitting one-page abstracts of papers for the 22nd Annual Small College Computing Symposium, to be held April 21-22, 1989, at the University of Wisconsin in Eau Claire. Contact Donna Raleigh, Academic Computing Services, University of Wisconsin, Eau Claire, WI 54702-4004, or call (715) 836-5162.
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