Precautionary Measures

A tale of loss, trash, processors, security and more.

BY JOSEPH L. KASHI AND THOMAS BOEDEKER

WARNING! The following is not for the faint of heart. It shouldn't be read to any legal malpractice underwriter with a heart condition. And it's all true.

It's the ultimate desperate circumstance: You've tried to upgrade your all-inclusive case management, accounting, time and billing system, and the upgrade process not only heads south at supersonic speed, but also does so taking two-and-a-half years of data for six different professional offices. Aside from committing yourself for a nice, long, quiet rest in a professionally monitored facility, what can you do?

Before suggesting how to get out of this pickle, we'll explore how an experienced, confident user got there.

Most of us know that upgrading an application program is hazardous. Depending on any other programs your system might be running and the stability of your computer and its operating system, an intensive upgrade process may freeze the system and fail to complete the upgrade. It also may make reinstallation difficult and erase or corrupt your data during the upgrade.

Some upgrade programs behave in a more civilized manner, working from a temporary directory, saving your original data to another protected hard disk subdirectory. Other programs simply advise you to back up your data before beginning the upgrade process, without any error-trapping safety procedure in case you forget or neglect to take this precaution. Sometimes newer program versions use a different data file format, requiring your old data be irrevocably converted. In an ideal or even civilized world, existing programs and data would be saved with an easy way to back out of the program upgrade and data conversion in case something goes awry, which does happen.

Unfortunately, most upgrade programs aren't nearly so civilized, and you'll need to resort to self-help measures — legal ones, of course. Be sure to avoid relying on the floppy disk-

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based backup procedures some older programs still use. They're as unreliable as Internet stock tips or journalists' predictions about the Federal Reserve's next interest rate move.

Our intrepid users (not Tom's or Joe's office) thought they were safe. After all, they used a tape drive backup and first verified the accuracy of the tape backup before starting the upgrade. When the upgrade went awry, our users were still comfortable. It was only after the fifth or sixth attempt to restore their data that they hit the panic button and red lights and sirens began to erupt. Of course, by then, it was too late.

Our users' first reaction wasn't the best. They repeatedly rebooted their computers, something that seems innocuous but could significantly lower your chances at file recovery. Then, they kept retrying the tape backup, which failed each time. Then, they called their local computer store, which continued to dink around with the system until the chances of data recovery were thoroughly trashed and then pronounced the patient dead on arrival — for a fee. At that point, Lawyers' Lab was called in to consult. Or, perhaps to offer Last Rites and a second opinion as to the cause of death.

In our real-world situation, we quickly discovered why the tape backup failed: Our intrepid users made a daily tape backup using the incremental method. A full backup was made once, several months back, and then a daily backup was made at the end of each day, backing up only those files changed each day, using the same tape every day. Although incremental backups are faster, they're a bad idea. If either the original full backup or any

later incremental backup is damaged, you'll have a very difficult time restoring any damaged files, regardless of which tape contains those files.

In this case, the original full backup tape was physically damaged somehow. The tape itself was off its reel and unspooled, requiring specialized third-party data recovery services. There was no way to restore this full backup, and

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if the full backup could not be restored, then the later incremental backups were also useless in this case. For that reason, our usual first approach, cleaning the tape drive's read-write heads, was irrelevant. And because there was only one full backup and the same incremental tape was used every day, we couldn't revert to a slightly older backup set.

The obvious moral: Run a verified full tape backup at the end of every business day, and rotate several tapes. That didn't happen here, unfortunately, and the Lawyers' Lab embarked upon an archeological expedition to recover lost files.

Initially, we sought to simply recover the damaged files, but there were several potential complications. Each time you reboot a computer to Windows, you materially reduce the chance of recovering damaged files. When rebooting, Windows writes new temporary files and alters the swap file, a process that may overwrite otherwise recoverable files. Deleted files aren't actually erased; they're merely hidden. Deleted files become unrecoverable only after a later process replaces these hidden files with something else. Even then, advanced techniques can often recover a portion of the data.

Your safest option is to boot the computer from a DOS floppy disk and then manually recover each deleted file by using a DOS-based file recovery program. That approach has become more difficult in the past few years as newer versions of Windows format the hard disk using more complex file systems such as FAT32 and NTFS (NT file system), both of which cannot be read by ordinary DOS programs. Yet, the mere act of installing a Windows-based

file recovery program potentially overwrites critical areas of otherwise recoverable files.

How can this dilemma be avoided? One of the best approaches, of course, is whenever you're upgrading a program or otherwise potentially affecting a file, make a separate subdirectory in your computer's hard disk, with an appropriate name such as casemanagement.backup or data.back, and copy every program and data file to that isolated subdirectory. Then, in case of a file conversion or upgrade catastrophe, you can contact the manufacturer's technical support staff, find out which data files need to be copied back to the working program data directory and revert back to your prior data configuration. That should always be done, regardless of what other steps are taken.

In the second instance, it makes sense to install a good file recovery program — and we don't mean your recycle bin — on your computer hard disk. Consider products such as PowerQuest, Lost & Found, Ontrack Data International's free recovery programs (available both as part of the Ontrack SystemSuite 2000 and also downloadable from www.ontrack.com) or one of

the McAfee.com or Symantec's Norton products. All these approaches provide some recovery options independent of your data backup.

If you neglected to take these precautions, then the single best way to recover an irreplaceable file is from a tape backup or CD rewriteable backup disk. However, if you don't have a tape backup or CD writer, or if either backup media fails for some reason, then you're in a difficult spot. In that case, we recommend an electronic discovery program called EnCase. It isn't cheap, but it's much less expensive than losing several years' data for six different professional groups.

You'll need to install EnCase on a separate Windows 98 computer that contains the main Windows-based file recovery program, link the two computers together using a parallel printer port cable and LapLink, and then reboot the computer containing the files to be recovered from a DOS floppy disk. Finally, connect the two computers using LapLink, and recover deleted files one by one.

Before you start to recover data files, contact the software vendor's

technical support staff members and ascertain whether their product contains a data backup and recovery function. While you're talking with them, be sure to get the exact file name of every database file used by the program, the correct path and directories where these files are and a procedure for manually copying the database files into the correct directories in case you can find the data but need to reinstall the program. If these fairly dramatic steps don't work for you, then read on.

Our users' system was quite garbled. For unknown reasons, the users declined to contact the software vendor for assistance in identifying and recovering crucial files. In a case such as this, the only realistic fallback position is to contact a specialized third-party data recovery vendor such as Ontrack Data International to repair the physical damage. For some reason, our intrepid users' employer also declined to pursue that avenue of last resort. When last seen, our intrepid users were manually re-entering massive quantities of data and answering too many telephone and letter inquiries about the numerous billing errors introduced by manually re-entering the data.

We wish that this story was merely an instructive fable, but it's not — it's true. Old attitudes die hard, even in the Information Age.

Our Cost-Effective Dream Machine

Intel continues to stumble while Advanced Micro Devices Inc. (AMD) continues to gain in the race for primacy of cost-effective, high-performance computing. Here's our late 2000 desktop dream machine along with the wholesale cost.

We would use AMD's newest Thunderbird CPU, a faster version of the proven AMD Athlon CPU. We found the 850 MHz version to be the most cost-effective processor at the moment. These are really speedy processors, faster than equivalent Intel Pentium III chips. We don't recommend purchasing faster CPU versions at this time because those are not yet cost-effective. Engineering is much more critical for these faster Athlon systems. Most system boards don't operate reliably and consistently. So far, the ASUS K7V system board seems to be the best.

You'll need a midtower case with 300 watt power supply for these faster chips and careful cooling. These processors are metaphorically and literally hot. Thunderbird systems require a minimum 128 MB PC100 SDRAM main memory.

To this basic setup, we would add an IBM 20 or 30 GB 7200 rpm UDMA2 hard disk ($160 dealer cost for the 20 GB hard disk, $190 for 30 GB hard disk). For an operating system, we would use Windows 98 SE — Windows 2000 still has some software compatibility problems.

We would specify a Microsoft mouse, a high-end Fujitsu keyboard (definitely worthwhile), an 8 MB ATI video card, a 56K U.S. Robotics modem, a 3.5-inch floppy disk drive, a top-end Creative Labs Sound Blaster card and a 48X CD-ROM drive. The high-end Sound Blaster is more expensive than its clones, but the price difference isn't excessive. It's also worth using the best available sound card in case voice recognition ever becomes reasonably useful and accurate.

Wholesale cost for this basic system, excluding monitor and shipping, is only $1,125 — an excellent buy. To this basic price, we would add $30 to upgrade to the 30 GB IBM hard disk and add $166 to substitute a Sony CD-ROM maker for the basic 48X CD-ROM drive. This is exactly the computer Joe would specify and buy for himself even though he has a wide range of options as a computer dealer. These are all high-end, brand-name components from quality vendors and have generally proven to be extremely reliable, although the Thunderbird version of AMD's Athlon processor is new and cutting edge.

There are no reports of any significant problems with either the Thunderbird or Athlon CPUs, in contrast to Intel's current problems with its upper-end Pentium III processors and system board chipsets.
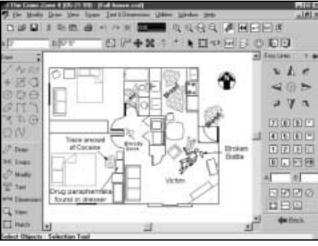
AMD doesn't have any software or hardware compatibility problems: We've used them for years without any

problems. AMD's slightly slower Duron CPU, a revised version of the original Athlon CPU, is a good choice if you're price sensitive. It's still a fast and useful processor.

If you were to substitute a 700 MHz AMD Duron CPU, which isn't quite as cutting edge and speedy but still is fast and well regarded, and change to Biostar system board, then deduct about $175.

Regardless of which computer system we bought, we'd purchase locally a 19-inch monitor, preferably ViewSonic, although we've seen lower tier brands like Sylvania retail for as little as $269 in Anchorage, Alaska, which has a higher shipping cost than most United States locations.

Useful Hardware and Software

Joe does a substantial amount of plaintiff personal injury litigation. He has found that one of the most important aids in putting together a good plain-

In the Zone: Crash Zone creates diagrams of accident or crime scenes.

tiff's personal injury case is a good series of crash diagrams that incorporate expert and police investigations, physical data and witness testimony to show what occurred and how. There's nothing quite as effective as this sort of visual presentation.

Crash Zone, a product of CAD Zone Inc., (503) 641-0334, is an easy-to-use, computer-assisted drafting program that includes a complete range of symbols and templates necessary to diagram out many types of accidents, including automotive, building, aircraft and water craft accidents.

We liked Crash Zone. As with any CAD program, you'll experience a learning curve but should find Crash Zone to be a useful addition to any per-

sonal-injury plaintiff or defense attorney's litigation tools.

Linksys Four Port Ethernet Hub and Cable/DSL Router

Most *LAW OFFICE COMPUTING* readers know that wide bandwidth DSL and cable modems are the way to go if you're using the Internet heavily. The Linksys BEFSR41 EtherFast Cable/DSL Router costs about $150 and offers a number of capabilities for this price. The company's products are respected, reliable and generally a safe networking choice.

With the Linksys BEFSR41, you'll get a 10/100 Fast Ethernet switch for networking up to four Ethernet computers and peripherals, regardless of speed, and to then connect all of those internally networked computers to the Internet via either a cable modem or a DSL modem, all using a single IP (Internet Protocol) address. Our office has used a similar product for months and it's wonderful.

As with similar products, the Linksys EtherFast Cable/DSL Router also includes a good firewall that, if properly configured, provides hardware protection for your network against hackers. This router adds DHCP (Dynamic Host Configuration Protocol) and DNS (Domain Name System) server capabilities to your network, both of which are increasingly important to modern Ethernet networks and servers.

Installing the Linksys EtherFast Router is easy, with most of the configuration done automatically. The router firewall provides a good first level of hardware security, although we recommend you use it with a software firewall on each individual computer.

Although some readers may believe we're overly cautious about intrusions into our computer systems, that complacent and comfortable attitude is rapidly becoming obsolete.

In fact, on the evening we submitted our column, we caught someone trying to modem into one of our systems. Luckily, we were up and solved the problem quickly and decisively. Even though we run security software, we took some decisive, old-fashioned measures: We turned off the computer and unplugged the phone line.

East-Tec Eraser 2000 Professional Edition

East-Tec Eraser 2000 Professional Edition seems to be the easiest firewall software to use and the safest data security program we have found so far. You can download a trial version from www.east-tec.com.

We recommend purchasing the full commercial version. The trial version provides full capabilities but only for 30 days, after which you'll need $39.95 to purchase the full version.

If you prefer a CD-ROM version, plan on spending an extra $10 for the CD-ROM and shipping.

East-Tec Eraser 2000 works well. Basically, a data eraser program ensures particular files are thoroughly trashed and not recoverable by either software or hardware data recovery tools, which appeals to those among us who are security conscious.

East-Tec Eraser 2000 not only securely erases individual files and directories, but can thoroughly overwrite all blank spots on every hard disk on a particular computer system, ensuring that deleted files, the file slack at the end of existing files and the Windows swap file are all securely and permanently erased.

We found installation simple, the product easy to use and its operation reliable. You can choose any number of security options ranging from quick and dirty methods, with some chance of recovery through highly secure deletion that exceeds U.S. military standards.

We did experience a few difficulties using Peter Gutmann's rigorous erasure method. We therefore recommend using the next most secure erasure level instead.

Given the file recovery difficulties experienced by the intrepid users featured at the beginning of this column, you would think they must have run East-Tec Eraser 2000, but unfortunately they didn't. Our intrepid users managed to trash their files themselves, and failed to recover all of that data the old-fashioned way. ▪

A B O U T   T H E   A U T H O R S

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