

**Sad Macs, Bombs, and Other Disasters**  
Second Edition

**by Ted Landau**

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## ***Contents of this Update***

### **Updates to Chapters & Fix-Its**

Chapter 4: System Errors  
Chapter 5: Startup and Disk Problems  
Chapter 6: When You Can't Find, Open Or Otherwise Use A File  
Chapter 7: When You Can't Print  
Chapter 8: Getting Under the Hood  
Chapter 9: Fonts and Text  
Chapter 10: Graphics  
Chapter 11: PowerBooks  
Chapter 12: Power Macs, System 7.5 and Beyond  
Fix-It #2: Preferences Files  
Fix-It #4: Extensions and Control Panels  
Fix-It #5: System Software  
Fix-It #6: Memory  
Fix-It #7: Viruses  
Fix-It #9: Rebuild the Desktop  
Fix-It #11: Zap the PRAM  
Fix-It #12: Update the Disk Driver  
Fix-It #13: Check for Damaged Disks  
Fix-It #15: Format, Initialize and Verify Disks  
Fix-It #16: SCSI Devices and Connections  
Fix-It #17: Hardware Repairs and Replacements  
Fix-It #18: Technical Support

### **Special Sections**

Troubleshooting System 7.5.3 (System 7.5 Update 2.0)  
Troubleshooting System 7.5.2  
Troubleshooting PCI-based Macs  
Troubleshooting the 1710AV and Other AppleVision Monitors  
Troubleshooting Desktop Printers  
[Troubleshooting Drive Setup](#)  
[Troubleshooting TCP and Open Transport](#)  
Troubleshooting Apple's New PowerBooks  
Resetting the PowerBook Power Manager (update for new PowerBooks)  
Trouble Ejecting PCMCIA Cards  
[Troubleshooting Internet Addresses](#)  
[Troubleshooting Modems \(especially modem speed\)](#)  
[Problems Downloading and Uploading Files](#)  
Miscellaneous Online and Networking Problems

What's New? (Version History)

**A Blatant Advertisement for *Sad Macs***

*Sad Macs, Bombs and Other Disasters* (by Ted Landau) is a troubleshooting guide for the Macintosh. The second edition was published by Addison-Wesley in June of 1995. Since then, new developments in the Macintosh world (most notably the release of PCI-based Macs and System 7.5.3), although welcome, have brought with them a host of new things that can (and do) go wrong, requiring a wealth of new fixes to learn about. This Update gives you the lowdown on all of this new troubleshooting information.

This Update also adds new material about topics already covered in *Sad Macs*, as well as correcting several omissions and minor errors that I discovered while going over the text. In the Chapters and Fix-Its updates, each item is listed with the page number(s) in *Sad Macs* that are most relevant to the item. This makes it easy for you to check here for supplementary or revised information, whenever you do use *Sad Macs*. By using this update, your copy of *Sad Macs* indeed remains up to date. The information covered here will be eventually incorporated into the third edition of the book.

Much of the information here will be instantly useful, whether or not you own a copy of *Sad Macs*. Although some items make specific mention of material covered in the book, most of the advice stands on its own (especially the Special Sections!).

This is one of a continuing series of update Updates, with the information contained here eventually to be incorporated into the third edition of the book. All the material from previous versions of this Update (except for stuff that is now obsolete) remains in this current Update. Newly added material (such as the paragraph you are now reading!) is indicated by BLUE type.

Check out the *Sad Macs Update* web site at:  
<http://www.oakland.edu/~landau/sadmacs/>

#### **Chapter 4: System Errors**

**Page 95:** Type 11 and “No FPU Installed” system errors have become surprisingly common for Power Mac users (especially after upgrading to System 7.5.1), making it one of the most asked-about problems today. The ultimate cause of these errors is almost always bugs in application software. So you cannot really “fix” these errors yourself. Still, there are a number of quasi-fixes that can help eliminate or reduce the chances of getting these errors. In particular, here’s a complete list of things to try:

- Restart. The error may not occur again any time soon.
- If the error occurs only or mainly with one application, and especially if you can reproduce it consistently, a bug in that program is the likely cause. Contact the vendor for compatibility information.

One special note: Power Mac versions of Microsoft Office applications (Word 6 and Excel 5) can lead to Type 11 errors, most often when also using virtual memory and/or QuickDraw GX. To fix this, you should install the Office4.2x Update for Power Mac extension (MC1164.HQX at Microsoft's Web site; it is now up to version 1.0.1). If you use System 7.5.2 or 7.5.3, also get Microsoft's Office Manager Patch (MC1265.HQX at Microsoft's Web site). However, Microsoft Office 4.2.1b incorporates these fixes, making these extensions unnecessary (although the Read Me files that come with System 7.5 Update 2.0 suggests to use them anyway!). You may want to experiment here. If problems persist, also consider dumping the MOM control panel altogether.

- Speaking of System 7.5 Update 2.0, if you use a version of System 7.5 prior to System 7.5.3, install this Update. It has numerous bug fixes, several of which Apple reports will reduce the number of Type 11 errors you should get (though some unfortunate users have reported that it increases their error rate!).
- Zap the PRAM. Some Type 11 errors may be caused by corrupted PRAM.
- Update the disk driver to the latest available version (especially because some older drivers are incompatible with SCSI Manager 4.3, which is used by System 7.5)
- Turn off Modern Memory Manager. It may trigger Type 11 errors in situations that would be ignored by the "old" Memory Manager.
- Check for extension conflicts (see Fix-It #4). Turn off conflicting extensions (or get an upgrade that fixes the problem, if such an upgrade exists). Some known possibilities include: QuickDraw GX, ATM, SuperATM.
- Too many fonts in the Fonts folder can cause Type 11 errors. To check for this, remove the Fonts folder from the System Folder temporarily and see if the error disappears.
- A bit paradoxically, if you are using an older version of the system software, upgrading to the latest version (even System 7.5.1!) may eliminate the error.
- Do a clean install of your system software (see Fix-It #5). The software may have gotten corrupted.
- Consider increasing the size of your system heap, via options available in utilities such as Now Startup Manager or Conflict Catcher 3 (see Fix-It #6). For example, if you don't have enough heap space to load a shared library, a Type 11 error may occur.

- If you are still desperate for a cure, disconnect any external SCSI devices to see if that helps. If so, there may be a problem or incompatibility with the external hardware (see Fix-It #16).
- Defective memory (SIMMs/DIMMs) can cause seemingly random Type 11 errors (see Fix-It #17).
- Defective RAM cache cards are a known source of Type 11 errors in Power Macs. This is especially a problem for RAM caches cards that shipped with early Power Mac 8100/80s as well as with third-party RAM cache for PCI-based Power Macs.
- If the errors continue after all of this, particularly if they occur while in the Finder, there may be a hardware problem with the logic board itself. Take it in for service.

Finally, here's a bit of technical background on why these errors have become so common: On Power Macs, it turns out that Type 11 errors can occur after almost any type of system error (bus error, address error, etc.), as long as the error occurs while the Mac is running native code. On the other hand, No FPU Installed errors (which are really the same as Type 10 errors) occur mostly when a Power Mac is running in emulation mode. Essentially, since the Power Mac's emulator does not have a FPU (floating point unit), an error occurs if any 680x0 program includes instructions to call the FPU. This can also happen if a program somehow mistakenly executes data and interprets it as a call for the FPU. Overall, errors that would have resulted in an address error (Type 1 error) or even no error at all on a 680x0 Mac, will more likely cause Type 11 or "No FPU Installed" errors on Power Macs.

By the way, *Sad Macs* stated that Type 11 errors may be indirectly due to corruption of the 680x0 emulator as it loads in to RAM. I had originally gotten this tidbit from an Apple Tech Note, but Apple doesn't seem to emphasize this anymore.

**This also updates: Chapter 12, pp. 533 & 538 and Fix-It #1, pp. 595-596**

**Page 98:** If you startup after a system crash in System 7.5, you get a special "warning message" informing you of this fact. Here's how the Mac knows that you crashed: There is an invisible file of size 0 bytes called "Shutdown Check" at the root level of the startup volume. The presence or absence of this file determines whether the warning message appears on your next startup. The file normally gets deleted at shutdown. In such cases, the warning message does not appear. However, if you restart after a system crash, the file is *not* deleted and so the warning message *does* appear.

Note that this also means that the warning message will appear the first time you startup with a disk after it has crashed, even if you have started up successfully with other disks in the meantime.

New in System 7.5.3, the Shut Down warning dismisses itself after two minutes, so that startup warning does not remain on the screen until dismissed by the user.

**Page 102:** There are now at least four different energy-related control panels in System 7.5: Auto Power On/Off or CPU Energy Saver (which turn the computer itself on and off) and Energy Saver or Screen (which just put the monitor into an energy-saving mode). Each control panel works only with certain models. To play it safe, stick with the control panels that came with your hardware. Otherwise, Apple maintains a tech info file, titled “Energy Saving Control Panels: Description & Compatibility” (available at Apple’s online locations; Web users can go to <http://til.info.apple.com/til/til.html>), that describes what control panel goes with what hardware.

By the way, the Energy Saver 2.0.x “control panel” that ships with System 7.5.2 and 7.5.3 is actually an ordinary application, not a true control panel (cdev). It works in conjunction with a separate Energy Saver extension.

**Page 102:** Some users report system crashes so severe that the Command-Control-Power keyboard command will not restart their Mac. In some cases, even pressing the on-off button on the Mac’s case did not work. The only thing that worked was unplugging the Mac from the wall outlet and then plugging it back in. Others say, that (at least on PCI-based Macs) if you press and hold the on-off button for about 10 seconds, it *will* restart. For what its worth, I have never had a problem that required doing any of this.

**Pages 111 and 117:** If you have an unexpected quit, or if you try a force quit to get out of a freeze, while you are connected online: be especially sure to restart before trying to reconnect. Otherwise, the system error is likely to recur. There is also a higher than normal risk that these errors will lead to directory damage. To be safe, check for this with Disk First Aid and/or other repair utility.

**Pages 122-126:** Add zapping the PRAM (see Fix-It #11) to the arsenal of things to do when trying to solve recurring system errors.

**Page 126:** Replacing the motherboard seems to be the solution for persistent freezes and crashes on the Mac 6300 series (or perhaps any 603/603e based Macs). However, these Macs (as well as other Performa models) may still have model-specific problems with Open Transport 1.1.

**Page 126:** There is a known problem with early versions of Power Computing’s Power 120 models. It is due to a bad batch of epoxy glue used to fasten a heat sink to the processor. Frequent system crashes can result. Contact Power Computing for

information on getting it repaired (hopefully, their phone support has now improved so that you can actually reach them!).

### **Chapter 5: Startup and Disk Problems**

**Pages 133-134:** On newer Mac models (such as Power Macs) you can apparently select which partition to be a startup partition from the Startup Disk control panel (contrary to the generalization made in *Sad Macs*).

**Pages 153-157:** Though not actually a system error, you may have the following problem at startup: An extension may refuse to load because your Mac is connected to a network and it detects another copy of the program with the same serial number installed on another machine. This can occur even if AppleTalk is “not active.” It only requires that the LocalTalk cable be plugged into your Mac. Now Utilities’ Now Toolbox, for example, does this, giving you an alert message at startup if it refuses to load. You can prevent these problems by restarting with the LocalTalk cable pulled out. For extensions, you can safely reconnect the cable after the Mac has loaded the extension.

**Page 158:** Extensions appear to load at startup okay, but a window comes up with the following message: *“There is not enough memory to load all of your extensions...To make more memory available, remove one or more extensions from the Extensions folder or reduce the size of the RAM disk and/or Disk Cache in the Memory Control panel then restart your Macintosh.”* Why? This message may appear when Apple Menu Options 1.0.2 has problems with its preferences file. Delete the preferences file (it’s located in the Preferences folder) and restart. Otherwise, especially if some of your extensions actually did not load, the message is probably telling you the truth. Do what it says.

**This also updates: Chapter 12 (p. 550) and Fix-It #2 (p. 600)**

**Page 158:** After doing a clean re-install of System 7.5, you may get a message at startup, after the desktop appears, that says: *“The system extension ‘Finder Update’ cannot be used, because it is too new.”* If so, it means you also need to reinstall System 7.5 Update 1.0 (or 2.0).

**Page 158:** Here are a few other error messages that may appear at startup. What to do about them is usually fairly obvious:

*“This disk must be unlocked in order to perform one-time housekeeping.”* Unlock the disk!

*“The ‘System’ file on the startup disk may be damaged. The Installer can be used to repair this disk.”* Replace the System file from your backups or do a clean reinstall of the system software (as described in Fix-It #5).



*“System 7.5 needs more memory to start up.”* If you have less than 8Mb of RAM, you should probably get a RAM upgrade (or install RAM Doubler or turn on virtual memory). For 8Mb or more of memory, the same solutions apply. However, you can also consider reducing the number of extensions you use. (see Fix-It #6 for more on memory)

*“The System file on this startup device does not contain the resources necessary to boot this Macintosh. Please use the Installer to update the System file.”* Somehow, the System file in use was not created for use on your current hardware. You should do a clean reinstall; an ordinary install may not fix this problem.

**Page 161:** The desktop cannot be rebuilt on a locked floppy disk. Occasionally, this may prevent a locked disk from even mounting. The solution is to unlock it.

**Page 162:** Some less common causes of startup crashes:

- *A corrupted preferences file.* I personally had a problem where startup halted prior to the appearance of the Finder’s menus and icons. Only a blank menubar and the desktop pattern appeared. A Force Quit succeeded in getting the Finder to load (restarting with extensions off also would have worked). But the problem kept recurring when I restarted with extensions on. Ultimately, I discovered that the problem was due to a corrupted Now Toolbox Prefs file (needed for Now Utilities). Deleting the Prefs file (after starting up with extensions off) fixed the problem. Now Utilities is especially notorious for these sort of problems.

More generally, if you check for extension conflicts (using procedures as described in Fix-It #4) and isolate the conflicting extension, you may find that deleting the file’s preferences file (rather than replacing or disabling the file itself) solves the problem.

- *A buggy control strip module.* In another case, a third-party control strip module, called Control PPP, caused a system freeze at startup. This was a somewhat hard to identify cause. My startup manager initially identified the problem as a triple conflict involving ATM, MacTCP and Control Strip. However, listing Control Strip as a conflict suggested to me that a Control Strip module may actually be the cause. As I had recently added the Control PPP module, this seemed like a likely candidate to try. Deleting it eliminated the problem.

**Page 163:** Contrary to the advice given on this page, Apple advises *not* updating the disk driver to solve the problem of a forgotten password in At Ease for Workgroups when you have selected the “Lock startup volume” option. Instead, a special program called Unlock is included for this purpose. Also, the “Lock startup

volume” option works with drivers beyond just Apple’s driver and Drive7 (again contrary to what I said in *Sad Macs*).

More generally, many problems with At Ease can be solved by throwing away the At Ease Preferences, At Ease Setups and/or At Ease Users files. However, deleting all of these will require that you recreate your custom settings.

**This also updates: Fix-It #12, p. 735**

**Page 173:** You may be able to recover data from a damaged floppy disk that the Mac says is unreadable without having to resort to repair utilities. Don’t eject the disk. Instead, open an application for a document on the disk and see if you can open the document from the application. If you can, save it to another disk and then discard the problem disk.

**Pages 174-177:** If you can’t get a floppy disk to eject on a PowerBook 500, the drive may not be properly aligned. If you can see the metal frame sticking up more than a couple of centimeters behind the floppy drive door, you’ll need to get the drive repaired. Take the PowerBook to a local Apple-authorized service provider or call 800-SOS-APPL.

**Page 178:** You may get the message that says a disk *“could not be put away, because it contains items that are in use,”* even though all applications except the Finder are closed and nothing else appears to be in use. In this case, if you try to run Disk First Aid to see if a Directory problem is the root cause, Disk First Aid may fail, stopping with a message that says *“test was interrupted because another program was using the disk.”* A Force Quit from the Finder or a Restart should eliminate the problem. If you then recheck the floppy disk with Disk First Aid, it should report it as okay.

Once, when this happened to me, I also got a -192 error when trying to copy a file from the problem floppy disk. I am not exactly sure what was going on here. But it seemed to occur only with Speed Copy installed and perhaps only when also connected online.

**Page 178:** The caption to Figure 5-17 should read: “A disk cannot be *unmounted* when applications or documents on the disk are currently open (also see Figure 5-21).” It can still be ejected via the Finder’s Eject command (Command-E).

**Page 179:** If you get “Not enough memory” messages when copying files via file-sharing or when a PPP connection is active, this is due to a bug that is fixed in System 7.5.3. So install System 7.5 Update 2.0.

**Page 182:** If you get the disk is *“unreadable”* message when trying to mount a CD-ROM and the needed CD-ROM extensions are properly installed, the files may

be damaged. Reinstall them. Typically, the files are included as part of the System Software disks. However, make sure you are using the latest version (the current version of CD-ROM Setup is available online). If this has no effect, you may have an extension conflict.

**Page 182:** If a freeze occurs when trying to mount a CD-ROM disc, there may be dirt on the disc. Try cleaning it. To do so, wipe the shiny side of the disk gently with a soft cloth or tissue. Look especially for sticky “goop” on the disk. Wipe from the center to the edge of the disk; do not wipe not in circles.

**Page 182:** Your CD-ROM drive may be unable to mount or work with multi-session CDs or CD+ (enhanced) CDs. A multi-session CD-ROM disc is one that can be written to over separate sessions, such as a Photo-CD disc (which can have additional photo images added until the disc is full). An enhanced CD is one that combine audio CD and CD-ROM data on the same disc. Here are suggested solutions for problems with these disc (based on an Apple Tech Note):

- a. Some (mostly early installed) Matsushita quad-speed drives installed in PCI Power Macs have a known problem here. The wrong ROM was installed when they were manufactured. Unfortunately, serial numbers do not help identifying these drives. You just have to try it to see. If you have problems with multisession or enhanced CDs, take your drive to an Authorized Apple Service Provider. It will be replaced for free. If you are especially lucky, you will get a Sony drive, none of which are known to have problems.
- b. Install the latest version of CD-ROM Setup (version 5.1.2 or greater), for complete compatibility with multi-session data CD-ROM discs.
- c. CD-ROM Discs created with Apple Media Tool version 1.2 and below may have a problem known as the AMK Spinning Cursor Bug. This is fixed with the software of the same name posted in Apple software updates areas of online services.

**Page 182:** If you have a Power Mac 7200 or 7500 and you are having trouble getting CD-ROMs to mount, note the following info from an Apple Tech Note: The Power Macintosh 7200 and 7500 series computers have a “kickstand” or bracket which prevents the internal component cage from opening. However, if this bracket is not secure, it can cause enough tension on the internal SCSI ribbon cable to pull it from the SCSI connector. If this happens, CD-ROM discs will no longer mount. To resolve this, snap the bracket securely into place and then reconnect the internal SCSI ribbon cable.

**Page 184:** The NoEject extension exists exclusively in the System Folder on startup CD-ROM discs. It prevents a CD-ROM that is used as the startup disk

from being ejected when you restart your Power Macintosh computer. The NoEject extension should not be moved into the System Folder on your hard disk. Even with this extension present, you can still eject a CD-ROM disc by any of the standard methods (such as dragging the disk to the Trash).

Note that, trying to open the tray by pressing the button on the CD-ROM drive itself will only work if there is no disc presently in the drive.

**Page 184:** If you try to eject a CD-ROM disc (most likely an Apple System Software disc for a non-PCI Mac) on a PCI-based Mac, and if the disc was inserted prior to startup and if you started up with extensions off (whew, that's a lot of "ifs"!), you may get a -50 error and the disk will fail to eject. If so, just restart with extensions on. You will then be able to eject the disc without any problem.

**Page 184-187:** [Aside from reasons already covered in \*Sad Macs\*, you may not be able to unmount a disk or eject a cartridge if virtual memory is on. The solution is to restart \(with virtual memory off if necessary\).](#)

**Pages 189-191:** If you try to shut down your Mac and all applications have quit but the Mac sends you a message that says "can't shutdown because the 'unknown' application can't quit," it is probably due to a "background" application (the sort whose name does not appear in the Application menu, giving you the impression that nothing is left open) or some similar process. On the PCI Mac List where this was discussed, some users reported Microsoft Office Manager as a potential culprit. Others reported HP Backgrounder, AppleScript, or documents left in the PrintMonitor Documents folder. One user claimed the problem disappeared after installing the SpeedDoubler update (described next). In any case, System 7.5.3 is supposed to fix this. Otherwise, a utility that allows you to quit the Finder (such as Terminator Strip 2.5) may help to close those pesky applications.

**Page 194:** If your Mac suddenly starts taking an unusually long time to startup (with lots of disk activity taking place), it may be that the AppleShare PDS file can become corrupted. To fix this, delete the file and recreate your access privileges as needed. Since AppleShare PDS is an invisible file, you will need to use a utility, such as DiskTop, that lets you view invisible files (as described more in Chapter 8).

**This also updates: Chapter 11, p. 509**

**Page 194:** [If you are having unusual delays at startup, especially prior to the appearance of the smiling Mac, check your Startup Disk control panel. If no volume is selected, select your desired startup volume. Your startup time should now improve.](#)

[This is especially likely to happen if you had temporarily set a CD-ROM or removable cartridge to be the startup disk and that volume is no longer available.](#)

**Page 194:** In addition to the reasons already cited in *Sad Macs* as to why your Mac may be running slower than expected, consider the following:

- Keeping key caps open in background slows down text processing in foreground.
- The size of the disk cache affects speed. See Fix-It #6 for a discussion of recommended settings. If the cache has somehow been reset to a lower amount, reset it to your previous setting. By the way, if you start up with Extensions Off (by holding down the Shift key at startup) the cache will revert to its default size for that session.
- Also note that Connectix's Speed Doubler can substantially increase the speed of your Mac, especially a Power Mac. Its Speed Access extension works as a replacement for Apple's Disk Cache. Speed Emulator is an improved faster version of the 680x0 emulator for Power Macs.
- Increasing the Preferred Memory size of an application may increase its speed by allowing more of program to load into RAM, reducing need for frequent swaps to disk (which slow program down).
- Apple Menu Options can cause an overall slowdown in system operations when an alias to a hard drive is placed in the Apple Menu Items folder. Other similar extensions, such as Now Utilities' Now Menus do not cause the same performance penalty because they accomplish the same goal by a different method. However, the downside of Now Menus' method is that it will take longer than Apple Menu Options to display its hierarchical menu.

### **Chapter 6: When You Can't Find, Open Or Otherwise Use A File**

**Page 208:** System 7.5's Find File can search for text within a file via its Contents option (similar to how programs such as Gofer work). You need to hold down the Option key to get this choice.

**Page 210:** The General Controls panel in System 7.5.3 includes a new option called: "Folder that is set by the application." Clicking this option sets the default folder to the folder containing the document being opened. Thus, when you open a document by double-clicking its icon, the default folder will be set to the folder containing the document (instead of to the Documents folder or to the folder containing the application that opened that document).

**Pages 217-218:** There is a bug in Microsoft Word 5.x that causes the application to fail to open occasionally, especially on newer Mac models. Instead, an error message appears that says that Word would not open because "System memory is too low." It advises you to reduce Word's memory size. Typically, you can ignore

this advice. This is just a bug and has little or nothing to do with how much memory you actually have. This most often happens when Word is the first application you try to launch after startup. If you launch another application and go back to Word, or if you simply retry launching Word a few times, the problem is usually resolved.

There is a freeware extension, called Word 5.1. Memory Fix, that supposedly eliminates this problem. However, when I installed it on my Power Mac 7500, it had no effect. Some users report that OptiMem can solve the Word 5.1a bug. Otherwise, increasing the size of the system heap (such as via Conflict Catcher's *Guarantee System Heap* command) may resolve this problem.

**Pages 224-226:** The External CD Sound extension is needed to hear audio CDs through the internal speakers of Power Macintosh/ Performa 5200s.

**Pages 224-226:** SimpleSound (included with recent Power Mac models) can create two types of sound files:

1. It can create SimpleSound documents. These are standard AIFF files that can be used by most applications that can edit sounds (such as Avid VideoShop or SoundEdit 16). To do this, select New from SimpleSound's File menu.
2. It can create "system" sounds. These are files that play directly when you double-click them from the Finder. To do this, click the Add button from SimpleSound's Alert Sounds window. The newly recorded sound file will be stored in System file initially (where it can be used as an alert sound), but you can drag it out from there.

**Page 229-231:** For obscure reasons not worth delving into here, Macintosh Easy Open will not list Microsoft Word as a potential application for documents of unknown type, even if Word could open the document.

**Page 229-231:** When using Macintosh Easy Open, if you select an unintended application to link with a document, you may have trouble figuring out how to undo the link. To do so, go to the Easy Open control panel and click the Delete Preferences button. You should then rebuild the desktop (see Fix-It #9) with all extensions (except Easy Open!) turned off.

**Page 230:** Utilities such as DeBabelizer, and similar shareware alternatives, can open graphics files of almost any format. These can also be used to convert files from one format to another. You can also try to open "unopenable" graphics files with Can Opener.

**This also updates: Chapter 10, p. 431 and 439**

**Page 236:** If you are having problems opening PC files from a CD-ROM disk, check that you have the Foreign File Access extension installed. If not, install it (either from your System Software disks, or from the CD-ROM Setup disks).

**Page 240:** Some programs check over a network to see if other copies of the program, with the same serial number, are running. If there are, the program will not launch. In some cases, if you use a Force Quit to quit the program, the program may not launch again because it mistakenly detects itself as still running. Usually, turning off AppleTalk will serve as a workaround here. Otherwise, you will have to restart. In some cases, even turning AppleTalk off may not work. In this case, your only option is to actually detach the LocalTalk cable from your Mac.

**See also: the item earlier in this Update: Chapter 5, Pages 153-157**

**Page 242:** If the Mac indicates that virtually every floppy disk you insert to a floppy drive is locked (even though you know they are not locked), it is probably a problem with the floppy drive itself. In particular, the pin that goes through the hole of a locked disk is stuck in a way that makes all disks seem locked. You may be able to fix this by opening up the drive and cleaning the gunk out that is making the pin stick, but I'd guess most of you would rather take the drive in for professional servicing.

**Page 244:** As a good bit of general advice, do not use the General Controls control panel's Folder Protection features. They cause more problems than they solve. Using these settings can lead to startup crashes and freezes. As of this writing, they are incompatible with Apple's File Sharing, with SpaceSaver and with several other utilities. In any case, they only prevent removal of files from the main folder; you can still remove files from subfolders of protected folders. There are also known conflicts with General Control's Documents Folder feature. Thus, it may ultimately be wise to disable the entire control panel. You can still use some of its features (such as the blinking rate settings) even with the control panel disabled.

Especially problematic is the version that comes with System 7.5.1 (System 7.5 Update 1.0). I am not yet sure how much of this is fixed in System 7.5.3 (System 7.5 Update 2.0).

**Page 252:** If you are using a utility such as Copy Doubler or Speed Copy and you get a "disk error" message when trying to copy files from a floppy disk, the disk may not really be damaged. The problem may instead be with the utility. To find out, disable the utility extension and try the copy again.

**Page 252:** You can't do direct disk-to-disk copying of files from one SyQuest cartridge to another. If you try, you will get repeated requests to swap cartridges,

persisting until the millennium. Instead, you'll have to copy the files from one cartridge to your fixed hard drive and then copy them to the second cartridge.

### **Chapter 7: When You Can't Print**

**Page 267:** LaserWriter 8.3, a new version of the LaserWriter 8 driver, includes Desktop Printer software as its major new feature (see "Special Section: Troubleshooting Desktop Printers," later in this Update, for more details). The driver also adds ColorSync 2.0 support. Also included with this software is Apple Printer Utility, a replacement for the LaserWriter Utility.

QuickDraw GX users: Note that the new driver now checks in the •Archived Type 1 Fonts• folder for PostScript fonts (see Chapter 12, pp. 573-574).

**Page 274:** To connect a serial printer (such as a non-LocalTalk StyleWriter) to a PowerBook with only one serial port, select "Normal" from the PowerBook Setup control panel, no matter what modem or what version of the Express Modem you have (contrary to what is implied in *Sad Macs*). Next, open the Chooser, select the printer and select the "printer/modem" icon (or the modem icon if the printer/modem icon is not available). On 200 series PowerBooks, you may also need to turn off AppleTalk. If problems persist with any model, you may also need to disable the Assistant Toolbox extension (if installed).

**This also updates: Chapter 11 (page 518)**

**Page 282:** A native code version of LaserWriter 8 should be available soon. This version will most likely implement single-pass foreground printing (for both Power Mac and 680x0 users). Current versions of LaserWriter 8.x (unlike LaserWriter 7) actually spool an entire print job to disk regardless of whether or not background printing is enabled. It does this in two separate passes through the file: the first pass analyzes the file; the second pass converts the QuickDraw code to PostScript. This incurs a performance penalty for printing large documents and may require significant disk space to store the temporary spooled file (even when printing in the foreground). The new driver should alleviate both of these problems.

**Page 290:** You cannot connect a printer to the modem port when the GeoPort Telecom software is installed. Telecom assumes all data sent to modem port is for modem.

**Pages 290-291:** When you select to print, if you get a message that says that printing preferences are missing or damaged, go to the Chooser and select (or reselect) your desired printer.



**Page 293:** The Color StyleWriter 2400 can be shared with other printers through Apple's PrinterShare technology. Or, you can purchase the LocalTalk optional module and put it on a network, just as you can with most LaserWriters. With the newer 2500, there is even an optional Ethernet adapter. Remember, when connecting a StyleWriter without a LocalTalk module, you must use the standard Macintosh Peripheral-8 cable, not a LocalTalk cable.

**Page 298:** With certain applications, you cannot print if you use the Flip Horizontal, Flip Vertical, landscape page orientation, and/or Layout option in the Page Setup dialog box in combination.

**Page 300-302:** If, when trying to print a file, you get a message that the file could not print because it was damaged, the damage may not be to the original document. Instead, it may be with the "spooled" version of the document that is created when background printing is on. The solution is to go to the "spooled documents" folder in the System Folder and delete the document (if you use desktop printers, you can try to delete the document directly from the desktop icon's window). Then try to print again.

**Page 302:** For text documents: some PostScript printing errors can be solved just by changing the portion of text that uses a suspected problem font to another font and then changing it back again to the original font. Try this before you try more extreme measures.

**Pages 307-309:** PostScript error -8993 most likely means that you have insufficient memory to handle your print request (which is probably a request for multiple copies of a large and/or complex document) in the background. To solve this, print the document as separate single copies or disable background printing.

**Pages 307-309:** "*Set limitcheck,*" "*VM Storage,*" "*Offending command...,*" or "*Range Check*" PostScript errors are typically due to corruption in the PostScript output generated when you try to print a file to a PostScript printer. Insufficient memory (as described in *Sad Macs*) is just one reason this might happen. Sometimes simply restarting the printer helps solve this problem. Otherwise, for graphics files, try the following (in addition to the suggestions already cited in the text):

1. Select just the graphic object (do not Select All) and save it to a new file. Try to print the new file.
2. If the object has a lot of separate elements (e.g., a complex object-oriented graphic), see if you can simplify it by reducing the number of elements. Try to print again.

3. Check the Split Long Paths option in Illustrator or Freehand. Long paths can cause a system crash if the Postscript interpreter runs out of storage space. Try to print again.

**Page 307-309:** When using StyleWriters, system software memory allocation will likely increase by several megabytes when printing. This is normal. If you do not have sufficient free memory, you will get a message that says you are unable to print until more memory is made available. If this happens, quit any open applications and try again.

Also, remember that StyleWriters use the Mac's processor to do all their image processing (unlike PostScript LaserWriters, which have their own processor). This means that if you continue to use the Mac while the StyleWriter tries to print in the background, the StyleWriter's printing can slow to a incredible crawl. If this happens, just stop using your Mac until the print job is done.

**Page 309:** Putting a PowerBook to Sleep while PrintMonitor is active will halt printing. When you wake up the PowerBook, printing may not resume. In this case, you may need to cancel the print job and reselect it.

**See also:** "Special Section: Troubleshooting Desktop Printers" and "Special Section: Troubleshooting System 7.5.2," later in this Update, for solving other printing-related problems.

## **Chapter 8: Getting Under the Hood**

**Page 329-330:** Changing a document's creator, as described in *Sad Macs*, is not the only way to get a text document to open in SimpleText by default. You could also, of course, open the text document from within SimpleText and then use the Save As command to create a new document. This new document will now open in SimpleText by default. However, especially with a utility like Get More Info, changing the creator is simpler and faster.

**Page 330:** Did you ever wonder how the SimpleText Read Me files that come with some software include pictures in them? It seems impossible because the SimpleText program itself doesn't let you paste graphics. It can be done, although (considering Apple's pride in its ease of use factor) it is amazingly complicated and requires ResEdit. However, Apple has a Technote file that spells it all out (<http://dev.info.apple.com/technotes/tn1005.html>). By the way, if you convert a read-only SimpleText file to an editable one (as described in *Sad Macs*), any editing changes you do may result in the document's graphics being lost or not displayed properly.

Finally, note that while you can't edit graphics files (such as screen snapshots) in SimpleText, it is still great for quickly copying a selected portion of the file's image to the clipboard. In most "draw" programs, you either cannot do this at all or must first paste the graphic into a special "paint" window to do it.

**See: Chapter 10 for more on paint vs. draw programs.**

**Pages 333-334:** Two more Finder Flags/Attributes you may occasionally have reason to modify (via Get More Info or other utility):

- *The Inited Bit:* This indicates whether or not the Finder has seen the file. If you disable it, you can force the Finder to relook at the file. This can be useful, or even necessary, to get Finder to recognize changes you have made to other attributes for the file. It may also help to get a custom icon to display for a particular file. Uncheck it and restart.
- *The Has Custom Icon Bit:* If a custom icon is not displayed (and other suggested solutions have failed to work), also look to see if this attribute is checked. If not, check it and restart.

**This also updates: Chapter 6 (p. 234) and Fix-It #9 (p. 705)**

## **Chapter 9: Fonts and Text**

**Page 357:** "Style variants" of TrueType fonts are not exactly "directly comparable" to that of PostScript fonts (as is stated in *Sad Macs*). In particular, with TrueType:

- Style variants typically do not contribute to Font menu clutter.
- Removing style variants affects both screen display and printing. It is generally advised, though not required, to use the TrueType screen variants (if you have them for a particular font) in order to get better display and printed output quality. [For PostScript fonts, removing screen font variants has little effect on printed output while removing printer font variants eliminates the fonts ability to print in that style at all!]
- Note that screen font variants may come in forms that are not a direct match for the Italics and Bold styles in the Style menu (e.g., Demi, Light etc. refer to different degrees of "boldness"). This is another reason why selecting the screen font variant may lead to different output than selecting the comparable style from the Style menu.

**Page 361:** Current versions of ATM are no longer a control panel and extension. It is now just a control panel.

**Page 365:** For Type 1 PostScript fonts converted to QuickDraw GX format: To use the Apple Printer Utility to manually download the fonts to a PostScript printer,

you need to select the printer fonts, as stored in the •Archived Type 1 Fonts• folder, not the converted GX fonts.

**This also updates: Chapter 12, p. 574**

**Page 376-377:** To permanently prevent inadvertent switching of keyboard layouts (by accidentally pressing the “shortcut” keys as described in the text), you can simply disable the Keyboard extension (rather than delete all but one layout from the System file). Even better, System 7.5 Update 1.0 or later adds a check box to the Keyboard window that allows you to turn off the keyboard shortcut. The check box is off by default.

**Page 398:** A problem related to bitmapped text being uneditable: Editable text in a PICT file may become uneditable, especially if it is transferred to application other than the one that created the graphic. For example, I had this happen when opening a ClarisWorks-created PICT file with ClarisDraw (or even when reopening the PICT document in ClarisWorks itself).

**Page 399-403:** A neat trick to check for damaged bitmapped fonts is to build a small streamlined System file and drag all your fonts to it. The system checks the integrity of the font before “accepting” it and gives it a unique ID number. This latter function can also help resolve ID conflicts among these fonts.

**Page 399-403:** Two utilities have emerged in recent months as popular choices for checking for damaged fonts and a host of other potential font problems (such as duplicate fonts). The first is Font Box (which is shareware) and the other is The FONDLer (which is now a commercial product).

**Page 406:** You can check an application for embedded fonts even without Font/DA Mover. Simply make a copy of the application and change the copy into a suitcase, using a utility that can change a file’s Type and Creator (such as Snitch). Change the Type to “FFIL” and the Creator to “DMOV.” Then double click the suitcase to open it and embedded fonts, if any, will be revealed.

**Page 408-410:** Adobe’s multiple-master fonts are fonts in which you can vary the style characteristics of the font itself (such as how thick the characters are (weight) and how spread apart they are (width)). The details of how all this works are too involved to get into here. However, if you have at all ventured into the world of multiple-master fonts, you are probably a bit mystified by the meaning of all those strange-looking names that appear in your Font menus (which is yet another contributor to Font menu clutter, one that can again be fixed by using a utility such as Now Utilities’ WYSIWYG Menus). In any case, here are a few tips that may help you sort things out:

- “MM” after a name means it is a multiple master font (surprise!).
- Designations (which may or may not be present) immediately after “MM” describe the style of the font (such as “Obl” for oblique or “Ita” for italics). Other letters may indicate the company that made the font.
- Letters and numbers that follow the underscore in the name describe the particular attributes of the font (typically its weight and width). For example, MyriaMM\_347wt423wd, indicates a weight of 347 and a width of 423. Other fonts with the same numbers should appear comparable in these attributes.
- Alternatively, after the underscore, you may see something like “540 BD” and/or “200 CN.” The letters are abbreviations reserved by Adobe to describe the font. In this case, BD means Bold and CN means condensed. The numbers again describe how bold or condensed the font is. If the abbreviations are in caps, this means the specific font was supplied by the company that created the font. If the abbreviations are in lower case, it means that you created the specific font yourself (typically via Font Creator).
- If the font name begins with “%M,” this means it is the master font that all other variations are based on. These typically do not appear in Font menus, but they are critical. If you remove this font from the System Folder, none of the other related fonts will work.

[Special thanks to an article by Kathleen Tinkel in Adobe Magazine (November 1995) for providing most of this information.]

**See also: Chapter 12, pp. 571-572, for information about similar abilities of QuickDraw GX fonts**

## **Chapter 10: Graphics**

**Pages 412-414:** The resolution of Apple monitors vary from as low as 64 pixels per inch (ppi) to as high as 80 ppi, depending upon the monitor. A multiple scan monitor’s ppi will change when you shift resolutions, typically ranging from 64-79 ppi.

**Page 416-418:** If the Apple icon for the Apple menu is black, even though the rest of your screen is in color, you probably have your monitor set to display “thousands” or “millions” of colors, but have selected “grays” rather than “color” from the Monitors menu. The solution is to switch to “color.” Note that this problem will not crop up on most newer Macs, as they no longer allow the “grays” option to be selected at higher than 256 colors.

**Pages 416-418:** With the Monitors & Sound control panel replacing the Monitors control panel on PCI-based Macs, the next edition for Sad Macs will certainly cover this control panel in more detail. In the meantime, simply note that the options are

basically the same, just the locations have changed. However, with newer monitors, additional options are present (such as checking for convergence and other geometry settings) or are more common (such as multiple resolution options). Apple's Control Strip also now includes modules for switching resolutions and color depth.

**Page 432:** A new category of problems will probably be added here in the third edition of Sad Macs: problems with video software. Here's one tidbit for starters: If you get a message that says "An error occurred while trying to copy (via Command-C) the video display to the Clipboard" when you try to capture a large (640x480) image in the Apple Video Player, or if you get a message that says "An error occurred while trying to freeze the video display" when you click the Freeze button, it means that the Apple Video Player is running out of memory. Quit the program, increase its memory allocation (via its Get Info window) and try again.

**Page 432:** Another video tidbit: When displaying video on television from a Power Macintosh 8500, the menu and control strip may disappear when selecting a resolution. To get them back, reset the PRAM and delete Display Preferences while extensions are off.

**Page 446 and 451:** With LaserWriter drivers, the rationale between having a choice between Black & White vs. Color/Grayscale is that Black & White is faster. However, with LaserWriter 8, print Speed is apparently the same with either option, so you can always use Color/Grayscale.

**Page 451:** With current software for Color StyleWriters, remember to select the Color button from the Print dialog box before printing a color document, in order to select the ColorSync option. It apparently does not remain selected by default.

**Pages 451-452:** Remember, just having ColorSync installed is not enough to get it to work. You must also select the ColorSync Profile that matches your monitor from the ColorSync System Profile control panel. Then also make sure to select ColorSync Color Matching from the Options in the Print dialog box.

### **Chapter 11: PowerBooks**

**Page 473:** Starting with version 7.1.3 of the Memory control panel, at least 6Mb of available RAM is required to use a RAM disk. If there is not enough RAM, the RAM disk option appears briefly when you first open the control panel and then disappears.

**This also updates: Fix-It #6, p. 668**

**Page 497:** To use SCSI mode on a PowerBook 190 or 5300 series, you need to make sure its Password Protection feature is turned off.

**Page 506:** The sentence that contains: "...the File Sharing and extensions on your desktop Mac..." should read: "...the File Sharing and *Network* extensions on your desktop Mac..."

**Page 513-514:** If you try to turn on file sharing for your entire hard drive (via the Sharing Setup control panel) but the hard drive already includes shared folders, you get the following error message: *"Cannot share selected drive because there is a shared folder contained within it."* The solution is to first turn off file sharing for all shared folders (via the Sharing command in the Finder's File menu) and then turn on file sharing on for the entire drive.

**Pages 517-519:** If you use a PC Card (PCMCIA) modem and/or the PowerBook PCMCIA Expansion Module on PowerBook 500s, install Apple's PCMCIA Update software (available online of course!). The Update increases performance and resolves certain compatibility problems. Apple's official instructions for installing this update are as follows:

1. Shut down the PowerBook.
2. Make sure your PCMCIA Expansion Module is installed in your PowerBook.  
Remove all PC Cards from the PC Card slots.
3. Double-click the PCMCIA Updater icon.
4. Click Update when you are ready to update the module. Follow the instructions on the screen.
5. Click Quit when the update is complete to quit the Updater program.
6. Choose Shut Down from the Special Menu.
7. Restart your computer.

**Pages 518-519:** For problems getting a modem to work, also try the following:

- Turn the modem off and back on again. Try this especially if you can't get a dial tone from your phone line after a failed attempt at connecting. (This also sometimes solves "PPP Time Out" messages.)
- Disconnect the phone cable from the modem and reconnect it.
- Restart the Mac altogether.
- If you are using a PowerBook with an internal modem, make sure the phone cable is connected directly to the PowerBook's phone outlet and that the Internal Modem option is selected. In particular, if you have zapped the PRAM, this resets the modem setting from Internal Modem back to External Modem.

**Pages 520-524:** Remember, Apple Remote Access (ARA) needs AppleTalk active in order to work. Otherwise you may get -5555 errors or other strange problems. Also note that while you can “see” the host server while connected via ARA, the server cannot “see” you. ARA only acts as a “half router.”

See also: “Special Section: Resetting the PowerBook Power Manager,” later in this Update

See also: “Special Section: Troubleshooting System 7.5.2,” “Special Section: Troubleshooting TCP and Open Transport,” “Special Section: Troubleshooting Modems,” and “Special Section: Miscellaneous Online and Networking Problems,” later in this Update.

## **Chapter 12: Power Macs, System 7.5 and Beyond**

**Page 532:** A flaw was detected in the PowerPC 603 processor of a very small number of 52XX and 62XX Macs. The problem has since been corrected. To check if you have this problem, get Apple’s 52XX/62XX Diagnostic Utility from one of its various online sources. If you have the problem, Apple will replace your logic board at no cost. Call 1-800-SOS-APPL.

It has also been reported that some Performa 5200, 5300, 6200 and 6300 series Macs have a defect in the logic board that causes a crackling or static noise to occur when playing sound files. Fixing this may also require a logic board replacement. However, before you decide you need your logic board replaced, or if you are having a similar problem with 16-bit sounds on any other Power Mac models, get Apple’s Audio Volume Extension (available from Apple’s online sources). It will likely solve the problem.

**Page 532:** The SerialDMA extension requires System 7.5 or later. It should be used by all AV 68040 and all PowerPC Macs (especially PCI-based Macs!). It fixes numerous problems that affect serial port devices, such as modems and printers. SerialDMA 2.0.2 (available from various online sources, either separately or as part of System 7.5.2 Printing Update, and also incorporated into System 7.5.3) is compatible with PCI-based Macs and fixes numerous bugs, compatibility and performance problems from previous versions. For those of you who want to know the details, some of the more significant fixes in version 2.0.2 are:

- The SerialDMA driver will no longer fail to complete a transmission correctly on a Power Macintosh, a particular problem with fax software.
- Hardware handshaking now works reliably.
- A bug in the algorithm used by older versions of SerialDMA for setting some bps rates could give improper results. This has been fixed in SerialDMA 2.0.2. This bug affected Quadra 840AV and 660AV CPUs only.



- A bug in older versions of SerialDMA that caused problems printing to StyleWriters has been fixed in SerialDMA 2.0.2. This bug affected Power Macintosh 7200/7500/8500/9500 CPUs only.
- The SerialDMA driver is now native for Power Macintosh.

**Page 533:** Modern Memory Manager (as selected from the Memory control panel in Power Macs) is basically a PowerPC native code rewrite of the original Memory Manager (present in all Macs). Keeping Modern Memory Manager on should speed up your Power Mac's performance. Turning it off means you are running the old (slower) Memory Manager in emulation mode. Thus, Apple advises leaving it on at all times. However, some applications are still incompatible with the Modern Memory Manager (and may trigger Type 11 errors for example). If this turns out to be the case, you'll have to turn off Modern Memory Manager to use such applications.

**This also updates: Fix-It #6, p. 668**

**Page 534:** The "No FPU Present or "No Coprocessor Installed" (or similar) message also sometimes simply means that the Mac didn't know what error message to put on the screen, so it put on the last message on its list, which happens to be this one. (Giving credit where it is due: I first read this in David Pogue's *MacFAQs* book. Although I have not seen it confirmed in any Apple documentation, I'm still betting that David is correct!)

**Page 536 and 549:** Apple's Shared Library Manager extension is *not* built into System 7.5 (contrary to what is stated in *Sad Macs*). You still need this extension for programs that use this feature. Any application that requires the extension should ship with it. Shared Library Manager also comes with System 7.5.2 and 7.5.3 (which needs it to use Open Transport software).

Background note: Shared libraries contain code that may be used by multiple programs, eliminating the necessity for each program to maintain a separate copy of that code in memory when they are open at the same time.

**Pages 537-538:** System 7.5.3 (System 7.5 Update 2.0) fixes the problem described on these pages for Power Macs (and perhaps some other models), whereby holding the Power key down too long at startup and then pressing the Command key as the next key leads to a system Interrupt (as would ordinarily happen if you held down the Command-Power keys simultaneously on these Macs).

**Page 538:** For more help on dealing with Type 11 errors, see the update item earlier in this Update that references Page 95 (Chapter 4).

**Page 541:** The reference to the General Controls control panel in Table 12-1 should read page 244 (not 214!). The same correction is needed for Table 2-1 on page 34.

**Page 545:** To be safe, before running the System 7.5 Update 1.0 Installer (which installs System 7.5.1), update your disk driver using the new version of Apple HD SC Setup (included on the Update disks). Ric Ford's MacInTouch Web page (<http://www.macintouch.com/>) contains a host of other installation tips and known problems with System 7.5.1 (although the most common ones are already cited in *Sad Macs* or elsewhere in this Update).

**Page 546:** Regarding the section in the text titled “Custom Install Installs Unselected Files”: When using the System 7.5 Installer, if you choose Custom Install and select to install system software “for any Macintosh,” the Installer may install options not designed for your Mac model, even if you specifically do not select them in the other listings of the Installer window.

**See also: Fix-It #5 (especially p. 643) for more on installing system software**

**Page 548:** See the update item for page 552 for information about possibly deinstalling file sharing in System 7.5.1.

**Page 549:** System 7.5 Update 1.0 installs two new files at the root level of your System Folder: System 7.5 Update and Finder Update. Make sure both of these files stay in your System Folder.

**Page 549:** In System 7.5.x, Threads Manager 2.x is built into the System file, so you should not find it as a separate extension (although, at least in Power Macs, you may find ThreadsLib, as a separate shared library file). If you do find a separate Threads Manager extension installed in System 7.5, remove it. It may help avoid conflicts that can lead to system crashes and freezes. With Systems prior to 7.5, a Thread Manager extension may be required, so do not remove it.

**Page 552:** System 7.5.1 (the version name after installing System 7.5 Update 1.0) has been reported to cause all sorts of problems. Zapping the PRAM fixes many, but not all, of these problems (see also the previous item for Chapter 4, p. 95). Most other problems are due to extension conflicts. For example, if you use MacTools TrashBack, make sure you upgrade to the latest version (4.0.2 or later), or you may have problems shutting down the Mac and/or ejecting CD-ROM disks.

File sharing code was completely rewritten for System 7.5.1, and has become a new source of problems. For example, you may not be able to use Disk First Aid's Verify command with File Sharing on. To minimize problems, keep file sharing

off when you are not using it. Some people have found it preferable to return to the version of file sharing (version 7.1.1) that comes with the original System 7.5.

Of course, most of this is now fixed by upgrading to System 7.5 Update 2.0!

**See also: Chapter 11, for more on file sharing**

**Page 552:** The Installer that comes with System 7.5.3 now correctly checks for and updates extensions and control panels, whether or not they have been disabled. This eliminates the need for the convoluted procedure described in the “Helpful Hint” on this page. For example, updated versions of disabled extensions will be in the “Extensions (Disabled)” folder after the installation is over.

**Page 553:** An Apple Guide Additions file (sometimes referred to as a “Mixin”) acts to add additional topics to a main Apple Guide file. You can’t separately select an Additions file from the Apple Guide menu. Instead, the Addition’s topics are seamlessly integrated within the overall topic list of a main file (such as Macintosh Guide). Additions files typically get automatically installed when and only when the software that they describe is also installed. For example, the Speech Guide Additions file is installed when you install PlainTalk software and its topics are then integrated into the listing of the Macintosh Guide file.

A problem with all of this is that, in System 7.5.1 or System 7.5.2, all Apple Guide files may become totally inaccessible from the Apple Guide menu if you happen to install an Additions file for software that is not available with your Mac model (this was especially likely with Power Macs). Examples of this would be if the PowerBook Additions file was installed on a desktop Mac or if the Video and Speech Additions files were installed on any non-AV Power Mac. The most common way this can happen is if you do a Custom Install and manage to make a selection that leads to this incorrect software installation. The loss of the Apple Guide function may similarly occur if you delete the software referred to in an installed Additions file, but do not remove the Additions file itself (such as if you delete the PlainTalk software, but let the Speech Guide Additions file remain). The solution, in all of these cases, is to locate the problem Additions file(s), usually found in the Extensions folder, and delete them.

Finally, in some cases, a third-party Guide file may prevent your access to Macintosh Guide. In this case, you will have to either give up on Macintosh Guide or delete the third-party file.

**Page 553:** System 7.5.3 (System Update 2.0) fixes the problem just described in the previous item. That is, Apple Guide will now run correctly even if inappropriate Guide files are installed.

**Page 553:** Apple Guide 2.0 or later now works with System 7.0 and 7.1.

**Page 556:** QuickDraw GX is now up to version 1.1.2. This latest version primarily fixes bugs from the previous version.

**Page 561:** QuickDraw GX Helper (used to temporarily disable QuickDraw GX) does not work with most non-Apple drivers or even some older versions of Apple drivers (such as for the LaserWriter Select 310).

**Pages 572-573:** Aside from what is already described in *Sad Macs*, a simpler way to identify TrueType from PostScript fonts in QuickDraw GX (if they are still in their original suitcase file) is to open up the suitcase file containing the font. If the files in the suitcase have size numbers in their name (such as “Times 12”), the file is a PostScript font. Otherwise it is TrueType. This should work as long as you haven’t modified the contents of the suitcase or changed the names of the font.

**Page 573:** QuickDraw GX fonts apparently can print okay even when not running GX, unless you have a LaserWriters with 3Mb or less of RAM (which unfortunately include most LaserWriters).

**Page 573-574:** If you decide to remove QuickDraw GX, note that in earlier versions of QuickDraw GX, the Installer’s Custom Remove feature does not remove QuickDraw GX fonts. You will have to remove these yourself and, if appropriate, replace them with matching non-GX fonts, as stored in the •Archived Type 1 Fonts• folder. Current versions of QuickDraw GX apparently do all of this housework for you as part of the Installer’s Custom Remove process. However, even in this case, QuickDraw GX fonts that do not have a match in the •Archived Type 1 Fonts• folder are not removed.

**Page 584:** PostScript error messages such as “*No PostScript fonts are present,*” “*You will be unable to print since no outline fonts are present,*” and “*Font Mismatch Helveobl...*” typically mean that you cannot print because the application in use is incompatible with QuickDraw GX. Beyond disabling QuickDraw GX as a solution, your only hope lies with an application upgrade. Check with the application’s vendor for information.

**Pages 586-587:** An additional problem with PostScript GX fonts is that, since the printer fonts are now “hidden” inside the GX font file, there is no clear way to tell if or which “styles” (e.g., Bold, Italics) of printer fonts may be missing (especially a potential problem with GX fonts originally converted from non-GX fonts). Missing styles could result in fonts unexpectedly printing with the “jaggies.” If this happens, you’ll have to reconvert the non-GX version of the font to GX format, this time with all its needed printer fonts included, using Type 1 Enabler.

**Page 587:** If you expect to periodically enable and disable QuickDraw GX, make sure both GX and non-GX versions of your fonts are in the Fonts folder of your System Folder.

**Pages 587-588:** The differences between QuickTime VR and QuickDraw 3D, two new technologies from Apple, can be hard to keep straight. QuickTime VR lets you create graphics that a user can navigate around in a 360° space. For example, it could allow you to view a picture of a room and rotate around to see all four walls, look up to the ceiling or down to the floor, etc. The software (which is available online) includes a simple VR player application that can be used to view VR documents. QuickDraw 3D is a technology that makes 3D rendering easier to do than was previously possible and creates a standard that most developers are likely to adopt. With an optional QuickDraw 3D accelerator card added, it also becomes the Mac's fastest method of 3D-processing. Some PCI Power Macs come with QuickDraw 3D software on their System CD-ROM disk. Otherwise, as always, the latest version is available online. Both technologies will likely be popular in future games and multimedia applications.

**Pages 587-588:** If you haven't installed PowerTalk yet, don't bother. Apple is readying a major revamping of this software that will be based on OpenDoc.

Speaking of OpenDoc, it has now been officially released. The next version of ClarisWorks is expected to support it. Later versions of this update file will contain the inevitable troubleshooting information relevant to this technology.

**Pages 587-588:** Some things to expect when *Copland (System 8)* finally gets released (which may not be until 1997!):

- Current extensions and desk accessories will no longer work. All of this software will need to be rewritten to work with Copland.
- The Finder interface has been redesigned. The shareware program, Aaron, gives you a good idea of what it will look like.
- Protected Memory, a new feature of Copland, should minimize system crashes by preventing a crash in one program from leading to a system-wide crash that necessitates restarting your Mac. Unfortunately, Copland will not have a full implementation of this feature (that will have to wait until System 9).
- QuickDraw GX will be mandatory.
- All code will be on disk, eliminating the need for the Mac ROM altogether. This will facilitate putting the MacOS on clones.
- Copland will only work with Power Macs.

See also: “Special Section: Troubleshooting System 7.5.3” and “Special Section: Troubleshooting PCI-based Macs,” later in this Update, for more on the latest developments in troubleshooting.

### ***Fix-It #2: Preferences Files***

**Page 600-601:** When deleting preferences files of control panels, first restart with extensions off. Otherwise, even though you delete the preferences file, the new preferences file may be created from the corrupted information still present and in use in RAM. This point is also briefly mentioned in Fix-It #4 (page 626).

### ***Fix-It #4: Extensions and Control Panels***

**Page 611:** The latest versions of Conflict Catcher 3 (e.g., 3.0.4) include a new feature that can scan for damaged startup files.

**Pages 614-616:** It turns out that there are differences between what may get disabled by selecting to turn off all extensions via your startup management utility vs. via holding down the Shift key at startup. For example, Apple’s Extensions Manager’s All Off setting switches off Chooser extensions while holding the Shift key down at startup does not.

Here’s another more mysterious example: Holding down the Shift key at startup preserves the resolution setting for Apple’s 1710AV monitor. However, using a startup manager to startup with all extensions off (which then disables the essential AppleVision extension) results in only a 640x480 resolution option available. How is the resolution preserved when you start up with Extensions Off? I am not sure; but it works. Similarly, if you start up with a CD-ROM startup disc, the 1710AV’s resolution reverts to 640x480 (unless you also startup with Extensions Off). However, if you use a startup floppy disk, the correct resolution is always retained.

**Page 614-616:** More on “INITs that refuse to be disabled...and other oddities”:

- System Update 3.0 is an extension, located as expected in the Extensions folder. However, the System 7.5 Update file (installed as part of System 7.5 Update 1.0) is of type “gbly” and is located in the root level of the System Folder, similar to System Enabler files. Thus, System 7.5 Update is not disabled by holding down the Shift key at startup.
- Now Utilities’ Startup Manager does not list certain atypical (non-INIT type) extensions. Examples include Multimedia Tuner and StuffIt Engine. This can be a problem if you want to selectively disable them. For example, I had a problem where Multimedia Tuner 2.0.1 was causing of a freeze at startup. Startup Manager could not diagnose this because it did not recognize the extension. Conflict Catcher is

significantly better in the completeness of its listing. Future versions of Now Utilities will probably remedy this problem.

- In a related wrinkle, there may be files in your Extensions folder of the type “thng” (QuickTime Musical Instruments is an example). These often work in conjunction with other extensions (such as QuickTime in the case of the Instruments file). Holding down the Shift key at startup disables the functioning of these thng files, thereby preventing any compatibility problems they may be causing. Using a startup management utility to disable all extensions may not have the same effect (for reasons as explained in the previous item) and may thus not prevent the compatibility problem.

### **Fix-It #5: System Software**

**Page 633:** Apple details its version of how to do a clean reinstall of the system software at:

<http://cgi.info.apple.com/cgi-bin/read.wais.doc.pl?/wais/TIL/Macintosh!Software/System!7.5/Sys!7.5!!Clean!Install!Process>. It basically contains the same information found in *Sad Macs*, but in a more condensed format that some may find helpful.

**Page 634:** Performas now ship with a CD-ROM that does include system software. However, it apparently still does not include the standard set of installation software (e.g., what you run via the Installer utility). Instead, you are supposed to use a program called Restore System Software. Unfortunately, this software only works with Apple formatted drives and has numerous other quirks.

Performa owners should still try to get the real system software Installer disc(s). This is especially so if doing something like installing System 7.5 Update 2.0. Otherwise, if this Update should fail, you may find that you have no tools to reinstall a working System Folder.

**Page 643:** If you select the “System for any Macintosh” option when your first install system software, you may have a problem if you later try to update using the option to install software only for a specific Mac model. In particular, you will still get the “any Macintosh” set of software. This is because, during the initial installation, the Installer places information in the System file about the type of installation selected. This information is used for updates, rather than the information you select from the Installer. To get around this problem, the solution is to do a clean reinstall or simply remove the System file from the System Folder prior to your update installation.

**Page 643:** If you want to update or reinstall your PowerBook system software, don’t do it by connecting the PowerBook to a desktop Mac via its SCSI mode

option (a method explained in Chapter 11). If you do, the Installer will try to install the software needed for your desktop Mac onto the PowerBook (if it even agrees to try to install anything at all!), which will not include needed PowerBook-specific files and will include other unneeded files. The result may even mean that you cannot successfully startup your PowerBook when you are done.

**Page 644:** Installation failures may result in messages such: *“There is a problem with the disk you are trying to install onto”* or *“An error occurred while installing onto the active startup disk...”* These errors are most often caused either by an extension conflict or a corrupt font. To check for both, attempt to reinstall with extensions off (a good idea in general) and the Fonts folder out of System Folder. A corrupt font will likely only cause problems if the Installer attempts to install a font (particularly common with printing software installations) that has the same name as a corrupt font currently in your System Folder.

**Page 644:** If you try to run an Installer for a version of the system software that is too old for your hardware (such as System 7.5.0 on a PCI Mac), the Installer will refuse to let you do it. There is no way around this that I am aware of (which is probably just as well!).

**Page 644:** To fix problems with the Installer utility failing to launch or freezing during an install (in addition to other solutions described in *Sad Macs*):

- Zap the PRAM and try again.
- If you are using a CD-ROM as a startup disk, there may be dirt on the disc. Try cleaning it. To do so, wipe the shiny side of the disk gently with a soft cloth or tissue. Look especially for sticky “goop” on the disk. Wipe from the center to the edge of the disk; do not wipe not in circles.

**Page 646-647:** See: [“Special Section: Problems Downloading and Uploading Files,”](#) later in this Update, for an expanded discussion of problems using downloaded files.

**Page 647:** TechTool v. 1.07 and later includes a new feature, not described in *Sad Macs*, relevant to system software problems. It has an option to check if your System file is corrupt and needs replacement.

This feature may falsely claim a corrupted file, especially for system software newer than the version of TechTool in use. For most accurate results, always use the latest version and, if you have a new model of Mac, make sure TechTool has been upgraded to work with it.

**Page 647:** If you suspect a corrupted System file, and you have a separate backup copy of the file that is not corrupted: drag the corrupted System file out of System



Folder, copy the undamaged System file to the System Folder, and restart. Then trash the old System file.

By the way, if you need to store a backup of your System file on floppy disks, and the file is larger than will fit on a floppy disk (even when compressed), you can do it by breaking the file up into segments. This can be done by most backup utilities (such as Retrospect) or with compression utilities (such as StuffIt Deluxe).

### ***Fix-It #6: Memory***

**Page 659:** Shared Library files load into the system heap. The memory they use may remain in system heap even after quitting the relevant applications! This is one reason why you may not regain all of your expected free memory even with all applications closed.

**This also updates: Chapter 12, pp. 535-536**

**Page 659:** A new bit of jargon that is increasingly seen these days is *memory leak*. This refers to a situation where when, after an application quits, it does not release part or all of the memory it had been allocated. This, especially if it happens repeatedly, can severely restrict the amount of free RAM you have available over the course of a session. We just described a problem with shared libraries that can cause this. However, it has become apparent that there are also other more subtle causes of memory leaks, typically due to bugs in the relevant software.

System 7.5.3 reportedly fixes a few (though apparently not all!) of these problems. For example, it fixes a serious memory leak that occurred every time an Apple Guide file was opened.

Otherwise, a force quit (Command-Option-Escape) from the Finder sometimes frees up the memory. Or you might try a freeware utility called Mac OS Purge or even one called Fix Heap (which really just defragments the heap). Another possible solution is Terminator Strip 2.5, a Control Strip module that can send a Quit command to the Finder. It's similar to doing a Force Quit, but less likely to have undesirable side-effects. Otherwise, you'll have to restart.

**Page 673-674:** Conflict Catcher 3 now has the option to increase the size of system heap. It is called *Guarantee System Heap*. (Now Utilities has a similar option.)

Again, increasing the system heap should rarely be needed, but may be helpful in certain cases, such as if you cannot load all of your extensions at startup due to insufficient memory or if you get frequent "out of memory" messages while in the Finder (even with all applications quit and all windows closed).

An alternative to increasing the size of the system heap, that may preferable for less chronic memory problems, is to clear the system heap of unneeded data, such as information from extensions that load when used but then are not cleared when

they are no longer needed. The freeware utility, Mac OS Purge, can do this (see the preceding item for more on this issue).

**Page 676: *Helpful Hint continued:*** You can turn off RAM Doubler at startup, leaving all other extensions on, by holding down the tilde [~] key at startup. Conversely, you can startup with extensions off, but RAM Doubler on, by holding down Shift-Option at startup.

**Page 678-679:** RAM Doubler, as stated in *Sad Macs*, works similarly to virtual memory. But Connectix, seeking to distinguish the utility from Apple's virtual memory, refers to both techniques as different forms of using *extended memory*.

### ***Fix-It #7: Viruses***

**Page 681:** A new form of virus is among us: *scriptable viruses*. One category are viruses based on HyperCard scripts (using the HyperTalk language). They infect HyperCard stacks. One example is the "Merryxmas" virus, that was inadvertently present in some copies of (a now out-of-date version of) Apple's SIMM Stack. It does no active harm to your Mac. "HC 9507" is yet another recently reported HyperCard virus. It types the word "pickle" and makes the system behave strangely.

Many anti-virus utilities, including Disinfectant, ignore these HyperTalk viruses, but latest versions of SAM do check for them.

**Page 681:** Another form scriptable virus can infect Microsoft Word 6.0 documents and templates. One example is a virus named "Word Macro 9508" "WordMacro.Concept" It is written in the Microsoft Word macro-language, Word Basic. It functions when using Word 6 (and is more commonly found on PCs running Windows than on Macs). Infected documents appear with the template icon, rather than the usual document icon. Delete infected files. Otherwise, a file available online from Microsoft, called "mw1222.hqx" at Internet locations, can supposedly eradicate the virus.

**Page 682:** The Good Times virus hoax seems to be on the rise again. Basically, if you get email that says to beware of an email message with the subject "Good Times," and that even reading such a file could erase your hard drive or destroy your processor, do not believe it. It is a hoax!

**Page 682:** More generally, to correct a misimpression in *Sad Macs*, you cannot get a virus from an email message itself (although you could get one from a file that someone sends you via email, if you launch the file).

**Page 682:** You can still get viruses from online services however. I recently downloaded a HyperCard stack from the INFO-MAC archive on the Internet and found it was infected with the “merryxmas” virus (an unusual occurrence admittedly, but it shows it can still happen).

Speaking of HyperCard viruses, SAM is the only anti-virus utility currently out there that can detect both Word macro and HyperCard viruses. On the other hand, the latest versions of Virex add a new feature that checks files for viruses as they are downloaded.

**Page 685-686:** Vendors generally no longer notify you of virus updates by mail. Following current trends in the computer world, you are expected to check for updates at the vendor’s online location(s).

### ***Fix-It #9: Rebuild the Desktop***

**Page 702:** If your SimpleText document icons are missing their left border, don’t fret. It is merely a cosmetic problem and is usually remedied by rebuilding the desktop. [The actual cause appears to be out-of-date or damaged copies of TeachText/SimpleText that are on your disk. The solution is to get rid of all copies of this application except the one latest version you have.](#)

**Page 703:** Note that, when rebuilding the desktop at startup, the message asking you whether you want to rebuild will not appear until after all startup extensions have loaded. If you have a lot of extensions, this can take a while. Be patient.

**Page 705:** If your System and Finder icons become generic (sometimes after rebuilding the Desktop), this can usually be remedied by resetting the Bundle bit of the System file (via a utility such as Save a BNDL or by using Norton Utilities' "Add File to Desktop" command). Then restart. If nothing else works, doing a clean reinstall should get the job done.

By the way, Apple's Telecom software is known to be one cause of this problem.

**Page 705:** [Recently, I discovered a web page specifically devoted to generic icon problems: http://www.usit.net/public/bgiles/genicon.html.](http://www.usit.net/public/bgiles/genicon.html) While most of what is discussed there is covered in *Sad Macs*, it is worth a look. One note: it points out that with today’s larger disks and multiple disk options (e.g., removable drives) there is an increased chance of generic icons appearing for document icons or aliases on a startup volume that are linked to applications that are stored on some other volume. The problem is that the Finder may check for icon data before the secondary volumes mount. The problem does not occur unless the Finder actually

tries to display the icon before the volume is mounted. So one solution is to keep these icons off your desktop and out of any windows that are automatically opened at startup.

Otherwise, a quick fix is to do a Force Quit or otherwise use a utility that quits the Finder (such as Terminator Strip). When the desktop re-appears, the custom icons will be restored.

**Page 706:** When you rebuild the Desktop by holding down the Command-Option keys at startup, System 7.5.3 (System 7.5 Update 2.0) now retains the text in Get Info windows' Comments fields (Hooray!). However, if you use a utility such as TechTool to rebuild, the comments still get wiped out, because these utilities delete the desktop files rather than just update them.

**Page 707-708:** New in System 7.5.3, the Finder no longer rebuilds the desktop if it finds a *folder* named Desktop in the root level of your Mac. It will still rebuild if it finds a *file* called Desktop.

**Page 708:** I've seen occasional reports where rebuilding with extensions on resulted in the loss of all Finder links between documents and applications. You may get unusual error messages (with negative error codes) when you double-click on a document from the Finder. Rebuilding again with extensions off solved the problem.

### ***Fix-It #11: Zap the PRAM***

**Page 724-725:** Some third-party extensions may use parts of the PRAM for their own purposes, contrary to Apple's guidelines. This usage may conflict with Apple's own changing uses of PRAM, leading to freezes and crashes, etc. The only solution here, short of an upgrade to the extension, is not to use the problem third-party software. Contact the vendor for information if you suspect this is a problem.

**Page 726:** To clarify what is in *Sad Macs* text: To zap the PRAM in System 7: Restart holding down the Command-Option-P-R keys at startup. As long as you hold these keys down, the computer will continuously restart itself. Hold them down until the Mac has restarted three times. Then let go of the keys and let the startup proceed.

**See also:** "General troubleshooting hints for System 7.5.3," later in this Update, for details of a modified procedure for zapping the PRAM on PCI-based Macs.

**Page 728:** More details about using TechTool: After selecting the Zap PRAM button, a dialog box appears that is not mentioned in text. It asks: "*Do you want to*

*save the current PRAM information before zapping it? Caution, this will overwrite the last save.*” If you are not sure whether zapping the PRAM will help, and you just want to give it a try, saving your settings will allow you to easily restore things to how they were before (should zapping the PRAM turn out to be ineffective). Otherwise, don’t save here. Ideally, you should have saved a copy of your PRAM settings at a time when the PRAM was not potentially corrupted.

### ***Fix-It #12: Update the Disk Driver***

**Page 732:** Shipping with System 7.5.2 and 7.5.3 is a new disk formatting utility called Drive Setup (as I had predicted). It is also available online.

**See: “Special Section: Troubleshooting Drive Setup,” later in this Update, for more details**

**Page 735:** After installing certain programs that modify the driver (such as disk-level compression utilities), you may be unable to update the driver. If this happens, your only recourse may be to reformat the drive.

### ***Fix-It #13: Check for Damaged Disks***

**Page 737:** Both Norton Utilities and MacTools Pro have been upgraded to work with the latest system software and hardware. Contact Symantec to make sure you have the latest versions.

**Page 737:** There is a problem that occurs with some brands of hard drives (most notably Quantum Fireballs; you can check the name of your drive from utilities such as SCSIProbe) in some Power Macs (most notably Macintosh 7500, 8500 and 9500) whereby the disk data may occasionally get corrupted at the time of shutdown. This will only happen if the drive is an internal drive stored on bus 0 (which is certainly the bus where your drive will be if you only have one internal drive) and is set to be your startup drive.

Essentially, it is due to the Mac's failure to recognize the action of the write-cache operation on the drive. The write-cache is sometimes still writing data to the drive from the RAM buffer at the time the Mac shuts off. Drives formatted with Apple utilities do not have this problem, as Apple’s driver makes sure the write-cache is flushed before the shutdown occurs.

However, it does affect third party drives. The ultimate solution here will be in the form of updated formatting utilities. APS PowerTools 4.0.4 already includes this fix, which also makes sure the write-cache is flushed before the shutdown occurs. Power Computing has a free utility that can turn off the write-cache on your drive. This is a fix of sorts, but you lose the advantage of the better performance with the write-cache on. The solution for Hard Disk ToolKit also apparently simply turns the write-cache off.

**Page 737:** Netscape Navigator, by its own admission, probably writes more often to your disk than any other application you own. This increases the risk that data corruption may occur when running Netscape. So if you use Netscape often and are getting an unusual increase in B-tree or other related errors, Netscape would be a prime suspect.

**Page 749:** I had an unusual case recently where SAM was able to spot a damaged disk that was missed by both Norton Utilities and Mac Tools Pro. A floppy disk caused a system freeze whenever I inserted it (the disk would not mount and I had to restart to get things working again). Oddly, the disk worked fine if I started up with Extensions Off. I used this fact to check the disk with Norton and MacTools. Both reported the disk was fine. I checked for viruses with SAM. It reported an error for the Desktop file on the disk, with the message "This is probably not a valid resource." While this does not typically indicate a virus, I took the message seriously and reformatted the disk (thereby creating a new desktop file; using TechTool might have worked also). This fixed the problem! SAM next reported disk as okay and disk mounted fine.

#### ***Fix-It #15: Format, Initialize and Verify Disks***

**Pages 777-778:** On Power Macs, Apple HD SC Setup has been replaced by Drive Setup. Drive Setup can also be use for IDE drives.

**See: "Special Section: Troubleshooting Drive Setup," later in this Update, for more details**

**Page 782:** In System 7.5, instead of the "*Initialization failed!*" message (as stated in the text), you should see one that says "*Erasing the disk failed.*"

#### ***Fix-It #16: SCSI Devices and Connections***

**Page 787:** For those of you that know and care about such matters, here's the lowdown (largely adapted from Apple Tech Notes) on the dual SCSI buses found on Apple's PCI-based Power Macs:

- a.** There are two SCSI buses on the Power Macintosh 7500, 7600, 8500, and 9500: an internal bus (0) and an external bus (1). The internal bus has a maximum transfer rate of 10 Mb/sec. The external bus has a maximum transfer rate of 5 Mb/sec.
- b.** Due to the physical design of these Macs, there is only room for 3 devices to be attached to the internal bus (typically the internal hard drive, the CD-ROM drive, plus a third optional device). However, both buses have the standard full complement of 0-7 ID assignments (with the Mac being assigned ID 7 on both

buses). Technically, there is a way to attach an internal device to the external bus, though there would rarely, if ever, be any reason to do so.

**c.** Some SCSI scanning utilities may not have been updated to correctly list both buses and will only list one set of ID numbers. For example, you need APS PowerTools 4.0 or later for a correct listing. With the dual buses, you *can* assign two devices to the same ID number, as long as they are on separate buses.

**d.** Both buses are SCSI-2 compliant. The internal bus is Fast SCSI-2. The external bus is not. This means (according to Apple) that if you add a second internal hard drive to the internal bus, it *will* be Fast SCSI-2 capable (though I have read other reports to the contrary). Neither bus is “Wide.” They are both “Narrow” (or 8-bit). If you want SCSI-2 Fast and Wide, you’ll need a third party card.

[Fast and Wide are both technologies designed to increase SCSI-2 performance speed. In order to take advantage of this, the hard drive itself must also be designed as a Fast and/or Wide device.]

**e.** Bus 1 (external) has automatic termination, which means that circuitry on the logic board senses whether or not there are any external SCSI devices attached and adjust its termination accordingly. Bus 0 (internal) does not have automatic termination because it is exclusively an internal SCSI bus. If additional devices are added to Bus 0, only the last device should contain termination resistors.

**f.** Note: the Nubus-based Power Macintosh 8100 also has a dual bus architecture, but it is implemented differently. Most notably, the external bus is used for the internal CD-ROM drive.

**Page 792:** Eject DOS-formatted removable cartridges before turning on file sharing (otherwise you can't turn it on) and before restarting or shutting down (or you may get a Sad Mac when you restart).

### ***Fix-It #17: Hardware Repairs and Replacements***

**Page 804-807:** A collection of freeware utilities from Newer Technology, grouped together under the name “Gauge Series” can help determine some otherwise hard-to-determine aspects of your hardware. For example, Cache-22 tells you if you have an L2 RAM cache installed and, if so, what size it is. Clockometer tells you the speed of your CPU (though most model names now include the speed of the CPU, such as 7500/100 for a 100Mhz speed, the original CPU may have been upgraded to a faster one; if so, Clockometer will let you know). As is true for all freeware/shareware utilities described in this Update, these files are available online.

**Page 805:** Apple Personal Diagnostics (APD) 1.1 will incorrectly report problems with the logic board on any Power Macintosh with System 7.5 Update 1.0 installed. This problem is fixed in version 1.1.1. Version 1.1.3 will work with

PCI-based Power Macs (7200, 7500, 8500 and 9500), although Apple says the utility does not support these models (except for the 9500).

For the moment anyway, Apple has officially abandoned its support for Apple Personal Diagnostics. No new updates are planned.

**Page 805:** On a more positive note, MicroMat has released TechTool Pro, a major new hardware diagnostic utility. It does everything that TechTool does plus several dozen things that it does not. It does not replace MacEKG but complements it, by providing a much wider and more thorough range of tests. MacEKG, as a control panel, is designed more for a quick performance check at startup.

**Page 805:** Hard drive diagnostic tests may fail on PCI-based Macs, indicating a problem where none really exists. The culprit is the hard drive spin down feature of the Energy Saver control panel. If the drive spins down during the test, it will indicate a failure. To avoid this, make sure you select "Never" from the Sleep Setup option in the control panel.

**Page 813:** Many older models of Mac do not directly support multiscan monitors. If in doubt, check with Apple (1-800-SOS-APPL) for specific advice concerning your Mac model.

**Page 813:** Many display anomalies, such as a jittering display or discolorations in the display, can be due to electromagnetic interference (magnets, motors, fluorescent lights and more). So, if you have such problems, try moving your monitor to a different location. Larger monitors are affected more by these factors than smaller ones.

Also, if you have a multiscan monitor that has a button on the monitor itself to reset its default settings, this may fix out-of-focus, tilted, or pin-cushioning displays. For other monitors, such as AppleVision monitors, these controls are in the software (e.g., AppleVision Setup or Monitors & Displays).

**Page 814:** Not all modem cables are created equal. Some permit "hardware-handshaking" while others (usually older ones, such as shipped with 2400 bps modems) do not. This capability is important to work with the "flow control" setting needed for most high speed modem connections to the Internet (such as when using MacPPP). If you are having problems using a 14,400 or faster modem, and all your software seems in order, make sure you have a compatible cable.

**See: "Special Section: Troubleshooting Modems," for more on this issue**

**Page 816-818:** Increasingly popular in current models of Macs are Level 2 (L2) RAM cache cards. Some models come with one already installed. In others, it is an



optional add-on, accomplished much like adding SIMM/DIMM memory. L2 RAM caches are a special high-speed RAM, whose purpose is to increase the speed of your Mac by allowing for more efficient use of your processor.

Here are some more technical details: the Mac's CPU operates only on data in its "registers." If these registers don't have the needed data, it looks for it first on the CPU's on-chip (L1) cache (usually about 32K in size). If the on-chip cache doesn't have it, it then searches the L2 RAM cache, if one is present (these run in size from about 256K to 1 Mb). If it still can't find it, it will search the (slower) main RAM (including any disk cache, as described in Chapter 6). Failing that, it reads the needed information from your hard drive (which is the last resort because it has the slowest access of any of these options).

Expect to get a 10-15% increase in speed with an L2 cache. For now, I would not advise getting a cache larger than 256K. The additional speed boost you get from 512K caches (and beyond) is not worth the additional bucks. However, this may change in the future as hardware and software evolve.

Also note that Nubus-based Power Macs use different L2 cache cards than do the PCI-based Power Macs.

**See also: "Special Section: Troubleshooting PCI-based Macs," later in this Update, for more hardware-related issues, including the distinction between SIMMs and DIMMs.**

**Page 818:** Apple has released a Acrobat format replacement for its SIMM Stack utility. It's called Memory Guide. Even better, it has also released an incredibly comprehensive FileMaker Pro document called Apple Spec that gives almost every imaginable tech spec (memory, video, built-in ports, etc.) on every Macintosh model ever made. Both files are available at online Apple software update sites (such as <ftp.support.apple.com>).

**This also updates: Fix-It #1 (p.593)**

**Page 820:** Several of the 100 series PowerBooks (160, 165 and 180) require a special type of RAM, called *fast RAM*, in order to avoid what are called *wait states* that could slow down your machine. Some third-party RAM upgrades for these Macs did not meet this requirement. A freeware utility from Newer, called Nightmare on PowerBook Street, tests your RAM for this problem.

### ***Fix-It #18: Technical Support***

**Page 824:** Apple System Profiler 1.0 is a new utility from Apple (it's included as part of System 7.5.3) that, as its name implies, profiles the characteristics of your Mac's hardware and software (similar to what Now Profile can do). However, it only works with PowerPC Macs and Apple's latest PowerBooks, and appears to require System 7.5.2 or 7.5.3.

**Page 826:** You can now subscribe to an Apple mailing list that will automatically notify you of all updates to Apple software as they are released. Here's what to do to subscribe:

1. Send an email message to: [swupdates@thing1.info.apple.com](mailto:swupdates@thing1.info.apple.com).
2. In the subject field, type only: subscribe yourrealname (example: Subscribe Ted Landau).

The mailings will also be chock full of other information on where to find these files and how to get update news immediately upon request.

On the other hand, I have not gotten one of these updates in a long while. This may have been discontinued. Fortunately, Apple has sites on the web that specifically list new files (e.g., <http://www.support.apple.com:80/pub/NEWFILES.html>).

Also note that there are numerous URLs for accessing Apple's Technotes, including HTML versions that display with graphics in a web browser (e.g., <http://dev.info.apple.com/technotes/toc.html>).

**Page 826:** Apple's Information Alley is going through a major transition. The last regular issue was Volume 2 #21, available at Apple's Info Alley site. Starting March 25th, "Information Alley" became a daily publication. There will no longer be an Acrobat format version of it. It will be a e-mail-based publication instead. To subscribe to it, send an e-mail message with the word "subscribe" as the subject line (and no text in the body of the message) to: [InfoAlley@lists1.austin.apple.com](mailto:InfoAlley@lists1.austin.apple.com).

So far, Apple's ability to actually deliver all issues of its Daily Information Alley have been erratic at best (I still do not get every issue). And downloading the archives of Info Alley issues available at Apple's web site appears to result in corrupted files, at least on some Macs.

**Pages 827-828:** Apple has officially terminated eWorld. For that matter, GENie is effectively gone as well. This leaves America Online and CompuServe as the only two remaining online services of note for Mac users. Apple is giving its official support to AOL and will be bundling AOL software with future Macs and probably will move much of its eWorld support areas to AOL.

Apple also claims it will be increasing its presence on the World Wide Web. Indeed, the Web appears to be the ultimate future of all online services (you *did* get in on Netscape's IPO, didn't you?).

**Pages 827-828:** These days, serious Mac troubleshooting requires that you be connected online. It is the fastest way to find out about and obtain the latest software upgrades and freeware/shareware utilities (including all of the ones mentioned in this Update!). It's also nearly essential for quickly getting the latest information on bugs and compatibility problems. *Sad Macs* already details the

virtues of services such as America Online and CompuServe. Here's a selected list of some of my favorite Macintosh-related World Wide Web sites:

Addison-Wesley Trade Computer Books (yup, it's my publisher!):

<http://www.aw.com/devpress/>

Apple contacts and phone numbers:

<http://www.info.apple.com/aboutapple/contactapple/contactapple.html>

Apple's site for getting Apple software updates:

[http://www.support.apple.com/wwwdocs/apple\\_sw\\_updates.html](http://www.support.apple.com/wwwdocs/apple_sw_updates.html)

Apple's site for getting its Information Alley online publication:

<http://support.info.apple.com/info.alley/info.alley.html>

Apple's site for its Tech(notes) Info Library:

<http://dev.info.apple.com/technotes/> or

<http://til.info.apple.com/til/til.html>

BMUG Online: <http://www.bmug.org/Main.Welcome.html>

Complete Conflict Compendium:

<http://www.islandnet.com/~quill/c3data.html>

Cyberian Outpost (a good place to go software shopping):

<http://www.cybout.com/cyberian.html>

FAQ (Frequently Asked Questions) site:

<http://www.astro.nwu.edu/lentz/mac/faqs/home-faqs.html>

Macintosh Page (great for late-breaking Mac news and tips):

[http://www.cs.miami.edu/~belsley/mac/mac\\_index.html](http://www.cs.miami.edu/~belsley/mac/mac_index.html)

MacInTouch Home Page (also great for late-breaking Mac news and tips):

<http://www.macintouch.com/>

MacSense online magazine (still more late-breaking Mac news and tips):

<http://www.precursor.mb.ca/macsense/HotBits.html>

MacUser: <http://www.ziff.com/~macuser/>

MacWeek: <http://www.ziff.com/~macweek/>

New PowerBook FAQs:

<http://www.cs.wisc.edu/~jonb/powerbook/index.html>

PCI Page: <http://www.mit.edu:8001/people/rajiv/PCI/>

(this page is no longer updated as of December 16, 1995)

PCI Power Mac Conflicts: <http://www.manual.com/conflicts/>

PCI PowerMac Pruning Page (useful for info on extensions and control panels in System 7.5): <http://www.gse.ucla.edu/staff/DEF/PCIpurge.html>

Power Macintosh Resource Page:

<http://rampages.onramp.net/~stevent/powermac.html>

(this page is no longer updated as of April 27, 1996)

System 7.5.3 Tips: <http://www.norstar.on.ca/System-753/tips.html>

Vendor list: <http://www.macfaq.com/vendor.html>

and  
Info-Mac's library of Mac files:

*ftp://mirrors.aol.com/pub/info-mac/*

Recent Info-Mac files:

*http://hyperarchive.lcs.mit.edu/Recent-Summary.html*

### ***Special Section: Troubleshooting System 7.5.3 (System 7.5 Update 2.0)***

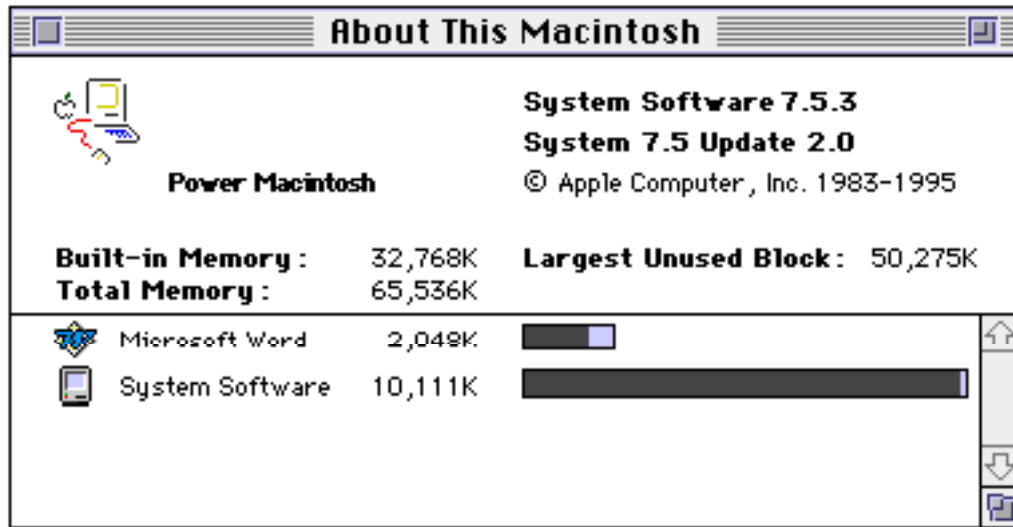
Apple has finally reunited virtually all Mac users under one version of the system software. With the release of System 7.5 Update 2.0, all Mac users can now run System 7.5.3. For anyone who already uses some version of System 7.5, this update, although massive (it takes up 14 floppy disks!) is well worth getting. It eliminates more bugs than you knew existed and adds several worthwhile enhancements in the bargain. And it's available free on all major online services and the Internet. You can also order the floppy disks or a CD-ROM version directly from Apple (800-293-6617). They have been charging \$13 for this. However, they now appear to be doing it for free!

This section details troubleshooting information specific to System 7.5.3 (as well as some still relevant carry-over information from System 7.5.2). Other System 7.5.3 matters are also described within the previous Chapter and Fix-It sections, as they relate to updating specific material found in the *Sad Macs* book.

### **Background**

- First of all, the Update includes a collection of Read Me files that you should consider essential. It details all of the Apple control panels and extensions that you are likely to find in your System Folder, what files are no longer needed in System 7.5.3, as well as what is new, what is fixed and what is still unfixed. Some of the most notable highlights from these documents are included in this section. To find out even more about what all the new extensions do, check out this Web page: <http://www.gse.ucla.edu/staff/DEF/PCIpurge.html>.
- More generally, System 7.5.3 (and System 7.5.2 before it) adds a host of new extensions, often with unexpected and/or obscure functions. In general, this means you need to be a lot more careful about what you disable or discard.
- Note that there are two ways to get to System 7.5.3. The first is via the System 7.5. Update 2.0 (used to update previous versions of System 7.5). The second is by installing System 7.5.3 directly, via software that will be included with new Macs and eventually ship as a separate commercial product. In the former case, you will have a file in your System Folder called System 7.5 Update or System 7.5.2 Update. The words *System 7.5. Update 2.0* will also appear in the About This

Macintosh window, below the phrase *System Software 7.5.3*. In the latter case, there will be no Update file.



### To minimize hassles when installing System 7.5 Update 2.0

1. Zap the PRAM before installing.
2. Do a clean reinstall of System 7.5 (or 7.5.2).

Note: To do a clean reinstall, hold down Command-Shift-K at the system software Installer's Easy Install window, and select the Install New System Folder option from the window that appears.

Remember: You cannot do a complete install (clean or otherwise) from the System 7.5 Update 2.0 software. The Update only updates existing System Folders; it cannot create a totally new one. If you try to do a clean install from the Update disks, you will get a message that says "A clean reinstall cannot be performed on the disk <name of disk>." Actually, it can be performed, but not with the Update software. You need to go back to the original System 7.5 or 7.5.2 disc(s) to do the clean reinstall.

By the way, with this clean install method, you may lose such things as your customized TCP settings (if you do the update without a clean install, these are preserved). So it pays to take a screen snapshot (Command-Shift-3) of your customized control panel settings before updating. It will help you out if you need to re-enter these values.

3. Remove whatever extensions/panels that get installed that you had deleted from your original System Folder (such as Macintosh Easy Open, which I delete because I can't stand the "feature" that it has that causes it to rebuild the desktop every time I startup with it on after having previously started with extensions off, as discussed more in Fix-It #9).
4. Reinstall your AppleVision software (if you use it), Communications Toolbox software (if you use it) and any other system software that you use that may be get updated by System 7.5 Update 2.0 but is not now included in your System Folder.
5. Install the System 7.5 Update 2.0.  
This should work okay either with extensions on or off. But you may need to experiment here (Especially if you are updating an active System Folder, Apple recommends keeping at least Apple's extensions on!).
6. Depending upon exactly what Mac model you are installing the update on (as well as what extensions were installed and active in the System Folder you were updating), you are likely to find that not everything that you expected to be installed was actually installed. For example, when updating my Mac IIci, I found that it did not install updated versions of software that was not already present in the System Folder (in particular, the Control Strip, Desktop Printer extensions, and Connectivity Tools were not installed). If you find stuff like this missing, you'll have to go back and do a Custom Install to get them.  
Similarly, you may have to delete items that should have been deleted by the Installer.  
Even if you do all this, you may still run into some problems. If problems persist, check out the next several sets of items in this update. (For example, I have also seen reports of problems getting the Installer to correctly update the AppleVision extension, to correctly install the Monitors & Sound and remove the AppleVision Setup control panels, to correctly install PowerBook-specific software, or correctly install both Classic AppleTalk and Open Transport software.)  
[If this all seems unduly complicated to you, I agree. Installing this Update has more ways to go wrong than for any other Update I have ever had to deal with!]
7. Return whatever third-party extensions/panels and assorted preferences files from your old System Folder that you want to retain. As a general rule, when updating from one System to another, it pays to be careful about what files you carry over. This is especially true with moving from



System 7.5.x to System 7.5.3. If you are inclined to be cautious, add stuff from your old System Folder a little at a time and then only what is absolutely necessary, checking for possible compatibility problems with each addition.

Be especially careful to avoid carrying over Apple system software files that are no longer used in System 7.5.3.

8. After you restart with System 7.5.3, don't expect to see both Open Transport (AppleTalk and TCP/IP) and Classic AppleTalk (Network and MacTCP) files in your System Folder at the same time! You must use the NSS utility to switch back and forth (but don't even try to launch the NSS utility unless you are running System 7.5.3; it won't work!).

Also, the TCP/IP control panel defaulted to the BootP protocol after I installed the Update. If, like me, you use a PPP connection, you should shift instead to the PPP protocol.

**See "Special Section: Troubleshooting TCP and Open Transport," later in this Update, for more details.**

9. By the way, the 7.5.3 Installer's Custom Remove option is disabled! So if you ever want to de-install something, you are on your own.

## **If, despite it all, you still have problems installing System 7.5 Update 2.0**

If you check out Henry Norr's nightmare experiences with installing System 7.5 Update 2.0 ([http://www.zdnet.com/macweek/mw\\_1012/rev\\_install.html](http://www.zdnet.com/macweek/mw_1012/rev_install.html)), it may convince you not to bother with the Update at all. However, it is also useful for several tidbits of information that may help you avoid some installation-related problems. These include: when to ignore the Installer's warning that you are installing an older version of Apple Video Player (because it is really a newer version), deleting an extension called Audio TuneUp (installed as part of the latest GeoPort software) if you find that your system alert sound has disappeared, why disabling all extensions before you install the Update may not be a wise move, and remembering to install ARA software before you install the update.

In fairness, I should point out that many users have installed the Update without much (or any) hassle (including myself!). In fact, while I may have just been lucky, I may have also tripped over an installation procedure that wound up helping me avoid these installation blues. For what it's worth, I pass it on to you (it's basically a variation on the method just previously described).

1. Since my hard drive was partitioned, I copied my startup System Folder to a separate partition. This made sure that, in case things went wrong, I still had my original System Folder as a fall-back.
2. I then ran the Update Installer and did an Easy Install directly (no clean reinstall first) with all extensions on! Now, I was pretty confident that all the needed files were properly updated. Unfortunately, when I next rebooted using this new System Folder (you can skip this part of this step!), I had problems with a freeze at startup due to RAM Doubler (as well as some other problems that soon developed).
3. I next restarted again but with my still preserved System 7.5.2 System Folder. I then deleted (just to be safe) the trio of System, Finder and System 7.5.2 Update files from the System 7.5.3 System Folder. Next, I renamed the System Folder "old stuff," and did a new install of System 7.5 (yet another System Folder gets created!) followed by an install of the System 7.5 Update 2.0.
4. Then I dragged from the "old stuff" folder to the newly created System 7.5.3 folder: any files that had been updated in the Easy Install but that were not included in the new clean reinstall (such as AppleVision software), any files that might have been more appropriately updated in the original Easy Install (such as the TCP/IP control panel and settings), any third-party files I still wanted, and most preferences files. Next, I deleted files included in the System 7.5.3 System Folder that I did not want (most notably, the infamous Macintosh Easy Open).
5. Finally, I rebooted using this new System Folder. Things have worked fine ever since (Okay, I still have some minor Open Transport problems and more Type 10 and 11 errors than before, but basically things are running smoothly).

## **Universal System Folders**

- To create a "universal" System Folder (e.g., one that works with any Mac) with Update 2.0, you must start with System 7.5. (not System 7.5.1 or 7.5.2). To do this, do a Custom "clean install" of System 7.5 using the "for any Macintosh" system and then install the Universal System Folder option in the Update Installer.

However, this presents a real "catch-22" for PCI-based Mac users, since the System 7.5 Installer won't launch on these machines (you get an error message that says something to the effect that the Installer script does not

recognize your hardware; which makes sense in that the PCI-based Macs came out after System 7.5 and require at least 7.5.2!).

Happily, you can get around this by holding down the Option key when you launch the Installer. This takes you directly to the Custom Install view and let's you select the desired "For Any Macintosh" option. The only other solution is to perform the installation on an older Mac model that does let you install 7.5.

- By the way, although this should go without saying, if you want to try this trick on your PCI-based Mac's startup drive, don't try to do it in such a way that updates or replaces the System Folder already on the drive. Instead, create a separate new System Folder first and then delete the startup disk's System Folder after you are done and you see that everything works. Otherwise, if something goes wrong in midstream, you may find that you have installed a System Folder that won't work on your Mac and you won't be able to startup from it at all (at least until you redo everything correctly!).
- On a related matter, I thought I would do a clean reinstall (non-Universal) of the 7.5 System Folder on my PowerBook 180 and then upgrade it to 7.5.3. I decided to do it by connecting the PowerBook to my desktop Mac via the PowerBook's SCSI mode (giving me access to the CD-ROM drive connected to my desktop Mac as well as to the System 7.5 Update 2.0 files were on the desktop Mac's drive). At first, this seemed like it would be a neat time-saving trick. However, a problem emerged that is similar to what I just described. The System 7.5 Installer does not recognize the PowerBook as a CPU (when its in SCSI mode!) and so it tried to install the system software that matched my desktop Mac (or, in my case, as I have a PCI-based Mac, it refused to launch at all). This seems obvious in retrospect, but it seemed like a good idea at the time.

## Updating the Disk Driver

- After updating to System 7.5.3 , Power Mac users (whether they have used Apple HD SC Setup or Drive Setup) should run the newly updated version of Drive Setup (v. 1.0.4) to update their disk driver. The utility will be found in the Utilities folder of the Apple Extras folder. The same holds true for any other Macs that support Drive Setup. Apple HD SC Setup itself (still needed for most 680x0 Macs) appears not to be a new version, so you are probably okay with the driver you already have. Of course, if you use non-Apple formatting software for your drives, you can ignore this issue.

- After updating to System 7.5.3 on PCI-based Macs, if you launch Norton Disk Doctor, it may list a mysterious otherwise invisible hard drive volume called "unknown." Other problems may be reported if you try to analyze this or other drives. The most likely cause for this ghost drive's appearance is that you have mistakenly used Apple HD SC Setup to update your startup hard drive, rather than Apple's newer Drive Setup. The solution is to update your driver with the version 1.0.4 of Drive Setup that gets installed (in the Apple Extras folder) as part of the System 7.5 Update 2.0 installation.

**See: "Special Section: Troubleshooting Drive Setup," later in this Update, for more details**

### **Open Transport 1.1**

The new system software installs Open Transport v.1.1, a major revision of Apple's new network and communications system software. I can personally attest that this version fixes almost all of the hassles that plagued earlier versions.

**See "Special Section: Troubleshooting TCP and Open Transport," later in this Update, for more details.**

### **AudioVideo Items**

- Monitors & Sound replaces the problematic and confusing Sound & Displays control panel of System 7.5.2. It appears to be a big improvement. However, it is still used by only PCI-based Macs. Others still use the separate Sounds and Monitors control panels. You can still separately install and use the Sound control panel on PCI-based Macs (you'll find it in the Apple Extras folder).
- The Monitors & Sound control panel does not get installed with an Easy Install on the Power Mac 7200 (and possibly the 9500). You'll have to do a Custom Install to get it (and then remove the separate Monitors and Sound control panels, if necessary).  
**See: "Troubleshooting the 1710AV and Other AppleVision Monitors," later in this Update, for more details on this issue, specific to these monitors.**
- With System 7.5.3, on PCI-based Macs only, you do not have to select the "Internal CD" option from Monitors & Sound's Sound Input popup menu in order to hear an audio-CD from internal or external speakers. Similarly, any "Playthrough" option no longer needs to be selected.

(On the other hand, if you want to use an External Microphone, you do need to select that option; and if you have a 1710AV you also want to turn on its microphone from the "Monitor Sound" window.)

- The Update apparently does not include the SimpleSound utility (this is needed to record sounds on PCI-based Macs, since Monitors & Sound cannot). This utility should be included with System 7.5.2. Get it from there. Otherwise, you can use the Sound control panel included with the Update.
- While we are on the subject of sound and PCI-based Macs, note that Apple says that: "HyperCard version 2.3.3 or earlier does not record sound properly on computers with PCI slots. Other sound recording application programs, including SimpleSound and the Sound control panel, can record sounds that you can import and play within HyperCard 2.3."
- Monitors & Sounds (unlike Sound & Displays) does not appear to require AppleScript in order to work. With the older Sound & Displays control panel, when you tried to open it without AppleScript installed, you would get a message that says "Sorry... Monitors & Sound cannot operate correctly on this Macintosh."
- While both System AV and AV Setup extensions were needed for 7.5.2's Sound & Displays control panel to work, only System AV is required for Monitors & Sound.
- Apple Video Player only works with Macs that have a video input or TV Tuner capability. On other Macs, if you try to run it, you will get a message that incorrectly says the Video Startup extension was not installed properly. Ignore the message. It won't run no matter what you do.
- For those Macs that can use the Video Player, note that it won't work unless the Video Startup extension is installed.
- Sound Manager 3.2 is now included in System 7.5.3 (it is built in to the System 7.5 Update file). It includes asynchronous sound playback and better Power Mac performance.

**For related matters, specific to AppleVision and AudioVision monitors, see: "Troubleshooting the 1710AV and Other AppleVision Monitors."**

## Miscellaneous Items of Interest

- System 7.5.3 eliminates the need for Enabler files for all pre-existing Mac models. As usual, newer Macs will need a machine-specific Enabler file.
- Speaking of what is no longer needed in System 7.5.3, the following files are among those now no longer needed (as they have been rolled into the System, Finder or Update files): PowerPC Finder Update, Finder Update, 7.5.2 Printing Fix, Serial DMA, and ThreadsLib. In most cases (such as for Serial DMA), the code for these files is still present. However, they are built in to System Update file, making the separate extensions unnecessary.  
 By the way, the Update includes a new version of Apple Modem Tool (1.5.5), which supports 115.2K and 230.4K connections on those Macs that support SerialDMA.  
 Check the Read Me files that come with the Update for more details.
- Regarding the Memory control panel in System 7.5.3 (System 7.5 Update 2.0):
  - a.** The minimum size for a RAM Disk is now 416K. If you do not have that much free RAM, the RAM Disk option will be dimmed.
  - b.** If after setting up a RAM disk you get a message that says "This (RAM) disk is unreadable by this Macintosh. Do you want to initialize the disk?," it means that you need to decrease the size of the RAM disk. Experiment until you find a size that works.
  - c.** The new default size for the disk cache is 32K for each megabyte of physical RAM installed, up to a maximum of 4096K.
- You may find that your system software takes up more and more memory as the day goes on. This is because of System 7.5.3's increased use of shared libraries. When you run an application that uses a shared library, the library loads into system software memory but doesn't necessarily get released again when you quit the application (especially so if virtual memory is off). Thus, as you continue using shared library files, your available memory starts to shrink. A forced quit (Command-Option-Escape) from the Finder sometimes frees up the memory. Or you might try a freeware utility called Mac OS Purge or even one called Fix Heap (which really just defragments the heap). Another possible solution is Terminator Strip 2.5, a Control Strip module that can send a

Quit command to the Finder. It's similar to doing a Force Quit, but less likely to have undesirable side-effects. Otherwise, you'll have to restart.

**See also "Special Section: Troubleshooting TCP and Open Transport"**

- By the way, the difference between shared library files that end in the word "Library" vs. those that end in the word "Lib" (such as Open Tpt Internet Library vs. OpenTptInternetLib) is that the "Library" files are written in 680x0 code while "Lib" files are written in native PowerPC code. Neither file type loads into RAM at startup. They are loaded only when needed.
- The Control Strip, previously only available with PowerBooks, PCI-based Macs and AppleVision monitors, is now a standard feature of System 7.5.3.
- A new version of SimpleText gets installed with System 7.5.3, but it does not upgrade your existing version. It just adds the new one at the root level of your System Folder.
- System 7.5.3 may install a Pointer Mode control panel (it may be in the Apple Extras folder if it is not installed in the System Folder). It is primarily for the Power Mac 7200 and allows the cursor to remain in screen snapshots taken via the Command-Shift-3 technique. It also may more generally reduce cursor flickering when the cursor is over a graphic.
- Two different control panels are named "Energy Saver." The older version worked by dimming the external screens of certain computers. The newer Energy Saver (included with System 7.5.2 and 7.5.3), which only works on PCI-based Macs, can actually put the Mac system to sleep (similar to how PowerBooks work). If you have a PCI-based Mac, you can install both by renaming one of them.
- Having trouble getting your GeoPort Telecom Adapter to work? Do you also use a LocalTalk-connected printer? I thought so. In an almost unbelievable gaff, Apple's Telecom software (needed to use modem features via the GeoPort) doesn't work if you have any LocalTalk device connected to your Mac. A future version of the software (later than 2.4.3) is expected to fix this. In the meantime, you'll have to unplug your LocalTalk cable before you can use the GeoPort. Simply turning off AppleTalk is not sufficient to prevent this problem.

The latest version does, however, fix a bug that could cause the Telecom fax software to crash on startup if Apple Guide is present. In any case, you may lose some custom icons due to bugs in the Installer software (standard solutions as described in Chapter 6, Chapter 8 and/or Fix-It #9 of *Sad Macs*, should get them back).

- The Serial Port Arbitrator that ships as part of AppleTalk Remote Access conflicts with SerialDMA (formerly an extension but now built into System 7.5.3 software) on PCI-based Macs. The conflict will cause a crash at startup. The solution, for now, is to remove Serial Port Arbitrator from your System Folder. (However, I have read one report that suggests that this conflict has been resolved in System 7.5.3).
- According to Apple, the System 7.5.3 Finder has numerous bug-fixes that should increase speed and lead to less out-of-memory and Type 11 errors. System 7.5.3's Finder also includes a few troubleshooting-relevant enhancements. Most notably, the Get Info windows' Comments fields are retained after you rebuild the Desktop by the standard method (holding down Command-Option keys at startup).
- Apple has completely hidden what may be the best Finder additions of all. The code for these additions is included in the Finder, but Apple has it "turned off" so you can't use them (for reasons that remain a bit mysterious). Some of these features have been available in previous system software versions but have only now been discovered. What are these hidden gems?:
  - a.** First is Reveal Original (Command-R), which takes you directly to the original file of a selected alias (bypassing the need to access the Find Original button in Get Info windows).
  - b.** Also simplifying alias use, if you drag a file icon while holding down the Control key, you automatically create an alias of the file, rather than moving or copying the original file.
  - c.** And when you want to delete a selected file, Command-Delete automatically moves it to the Trash.

To get these great features, all you need is either the Secret Finder Features or Finder Extensions Enabler freeware extensions. Their docs will also tell you about some other "secret" features you can turn on or off with these extensions (but you'll need ResEdit to do it!).
- System 7.5.2 and 7.5.3 include a new and faster version of the 680x0 emulator for Power Macs. However, Connectix's Speed Doubler utility includes an extension called Speed Emulator that is significantly faster!



The Speed Access component of Speed Doubler v. 1.0.2 may potentially cause directory (B-tree) corruption of your hard drive. Speed Doubler 1.1 Update (available online) upgrades Speed Access to version 1.1, which Connectix reports as fixing this problem. Some users have reported related problems with Speed Copy, but the Update apparently leaves Speed Copy unchanged (though its version number changes to 1.1). The Update also installs a new version of Speed Emulator, providing improved performance, although even the previous version was not known to have any data-corrupting bugs.

Connectix has most recently released a v. 1.1.2 update to its Speed Doubler software. It's mostly a minor bug-fix. The most notable improvements are for Speed Copy. In particular: "a bug in AppleShare 3.6.1 that could corrupt items copied from a mounted server has been worked around." This, at least for this case, apparently eliminates the need for Connectix' previous workaround for this problem: installing its "AppleShare 3.6.1 Patch."

### Third Party Conflicts and Incompatibilities

While this Update fixes innumerable bugs, it apparently (inevitably) also introduces new bugs and incompatibilities (including a spate of new causes of freezes and crashes). What follows is a sampler of the more common dangers to what to watch out for. Check the Complete Conflict Compendium web page (<http://www.islandnet.com/~quill/c3data.html>) for a more complete list.

- RAM Doubler (1.6.1 or earlier) causes problems with waking from Sleep on PowerBook 500s (and perhaps other models). You'll get a Type 8 error unless MacsBug is installed.
- RAM Doubler (1.6.1 or earlier) has also been implicated in a variety of other System 7.5.3-related conflicts.
  - a.** You may get startup freezes or freezes upon launching an application (with a message that says that the application "can not be opened because an unexpected error occurred."). A clean reinstall procedure should help eliminate most of these hassles.
  - b.** On at least some Macs, it can cause problems with copying from the Finder. It can also cause freezes when doing a server back-up with Retrospect 3.0. These problems appear to be related to RAM Doubler interactions with SCSI Manager 4.3 and the fact that SCSI Manager 4.3 is built in to the System Update file and thus cannot be disabled on Macs that do not need it (which includes virtually all 680X0 Macs except AV

models). Various work-around solutions exist, although the best and simplest one will be an upgrade to RAM Doubler (expected soon).

**c.** Retrospect and RAM Doubler may also conflict when backing up to local tape drives.

**d.** Other printing and telecommunications related conflicts have been reported (especially when using Open Transport).

**e.** Conflicts with at least some beta versions of FreePPP 2.5 have been reported.

And so it goes. Remember, as a temporary work-around, you can disable RAM Doubler at startup (but still leave your other extensions loaded) by holding down the escape or tilde (~) key until the MacOS screen appears.

- There is a problem with Hewlett-Packard printer drivers. It occurs when using either RAM Doubler or Apple's virtual memory. The main symptom is very slow printing performance (or even a complete failure to print) when background printing is on. Apple has this to say about it, if this happens to you: "You are experiencing an unfortunate side effect of the HP DeskWriter driver under extended memory. Turning off background printing will solve the problem. If you want to use background printing, try reducing the 'Largest Unused Block' (reported in 'About This Macintosh') by opening several applications before printing. Also, make sure you have the latest version of the HP printer driver. HP recently implemented an extended memory fix for the 800 series DeskJet printer drivers, including a PowerPC native driver (version 8.0). We hope they have plans to implement these same changes for the full range of DeskWriter/DeskJet printers."
- Now Utilities' Now Menus may cause system freezes or crashes when selecting an item from any menu, especially in System 7.5.3. One work-around solution that may work is a bit surprising: Disable Menu Blinking in General Controls control panel.  
Now Utilities 5.0.2 or earlier also may conflict with Apple's Display Enabler extension. If you find this to be the case, you'll have to disable Now Utilities or upgrade to version 6.
- StuffIt Expander apparently has some problems correctly expanding files when running under System 7.5.3.
- There appears to be a bug in Speed Copy that may result in -192 errors when running under System 7.5.3.

- Some users have reported being unable to install the System 7.5 Update 2.0, due to locked Aldus PageMaker and FreeHand Printer Description files in the Extensions folder. After removing the files, the installation succeeded.
- Thunder 7 (not the Casady & Greene reincarnation of this utility) conflicted with System 7.5.3 on my Power Mac 7500, causing keyboard text input to appear on the screen significantly (annoyingly) slower than I could type.
- After Dark does not work with some System 7.5.3 machines.
- The freeware utility, HideAlways 2.1.2, will likely crash the Finder. Version 2.1.3 fixes this.
- The faux-Copland utility, Aaron 1.2, apparently crashes some Macs running 7.5.3. Version 1.3 fixes this.
- The current version of CompuServe Information Manager (2.4.3), which never much liked PCI-based Macs or Open Transport in System 7.5.2, seems only to have gotten more annoyed with System 7.5.3. Expect frequent hangs if you use it on PCI-based Macs.
- Panorama 2.x doesn't like Open Transport. When you launch it, you will get a message that says another version of Panorama is already in use and it self-quits. Upgrading to version 3.0 fixes this. Otherwise, turning off AppleTalk or reverting to "Classic AppleTalk" (if your Mac model supports this) are work-arounds.

## **General troubleshooting hints for System 7.5.3/7.5.2**

For System 7.5.2/7.5.3 problems beyond those just described, the following fixes offer your best shot at a cure:

1. Delete any preference files for the problem software and restart (for extensions, delete their preference files after starting up with extensions off).
2. Reset both the Parameter RAM (PRAM) and (on PCI-based Macs) the non-volatile video RAM (NVRAM). PCI-based Macs store display settings in NVRAM rather than in PRAM. To do this double reset: shut down the Mac (don't use Restart); *immediately* hold down the

Command-Option-P-R keys at startup; wait for the Mac to chime twice; release the keys and let startup proceed. If you don't hold down these keys immediately, you will only reset the PRAM. You should also trash the Display preferences file.

By the way, current versions of TechTool and TechTool Pro do *not* zap the NVRAM. According to MicroMat, this is planned for future versions.

3. If all else has failed, disable Apple's virtual memory, file sharing, PlainTalk speech recognition and/or ColorSync software. Various problems have been attributed to these features. If you absolutely need these features for specific tasks, at least turn them off when you are not using them.

For example, in one unusual case (at least in System 7.5.2), speech recognition software appears to cause the Mac to fail to recognize the floppy drive after it wakes up from sleep mode (that is, it will not respond to floppy disks inserted into the drive). It also may conflict with the Apple Video Driver. Finally, with speech recognition on, you cannot select Internal CD as your sound input source, which means you cannot listen to audio CDs through your internal speakers.

## ***Special Section: Troubleshooting System 7.5.2***

[A much longer version of this section appeared in Sad Macs Update 1.0. Most of the material has now either been deleted (as no longer relevant after you upgrade to the newer System 7.5.3) or incorporated into the “Troubleshooting System 7.5.3” or “Troubleshooting PCI-Based Macs” sections. However, especially for those who may still use System 7.5.2, a few remnants remain.]

System 7.5.2 is a hardware-specific release that currently runs only on the Power Macintosh 7200, 7500, 8500, and 9500 systems, as well as the PowerBook 190, 2300, and 5300 computers. Though superficially similar to System 7.5.1, System 7.5.2 includes numerous significant changes “under the hood.” The most obvious addition is the Open Transport communication software. This section covers mainly material relevant to PCI-based Macs, though there is also some mention of the Power Mac PowerBooks.

**This section updates, Chapter 12, on System 7.5 problems.**

- Many third-party utilities have had trouble working with System 7.5.2 (especially with PCI-based Macs). Any version of RAM Doubler earlier than 1.6 will eventually cause the Mac to crash (even this version is reported to have problems). RAM Doubler 1.6 still does not work on PowerBook 190s. With versions of Now Menus prior to 5.0.2, hierarchical menus (such as appears for Control Panels in the Apple menu) sporadically and incorrectly show up as “Empty.” Any versions of SAM prior to 4.0.5 or Symantec’s Copy Doubler prior to 2.0.6 are incompatible with System 7.5.2. After Dark may be a “hidden” cause of system freezes. Similarly, Adobe Type Manager (up to and including 3.8.2) appears to work okay but has been reported by some as a source of conflicts. And so it goes.
- If you’ve had any problems accessing the Internet with your PCI Mac, welcome to the club. System 7.5.2 comes with completely new communications system software, called Open Transport. This software has been the source of many problems. Freezes and crashes were common. You might also find that you could not reconnect to the Internet via PPP without first restarting your Mac (this happened if you had a dynamically assigned address, as is the case for most users).

If you get completely fed up with Open Transport Internet hassles, you can simply get rid of it. To do this, disable the TCP/IP control panel and the Open Tpt Internet Library and OpenTptInternetLib extensions. Then install MacTCP instead (its included as part of System 7.5 in versions prior to 7.5.2). There are some reports that using MacTCP on a PCI-

based Mac can cause problems, including corruption of files on your disk.

However, I have used this setup for months now without any glitches.

However, your best solution now is to upgrade to the 1.1 version of Open Transport included in System 7.5.3. It fixes almost all of the problems of previous versions.

**See “Special Section: Troubleshooting TCP and Open Transport,” later in this Update, for more details.**

- Does your Mac sometimes freeze when you print? To avoid this, get Apple’s System 7.5.2 Printing Update 1.1 (or later). It includes two extensions (7.5.2 Printing Fix and SerialDMA) and an updated version of LaserWriter 8 (version 8.3.2, which only runs on PCI Macs). Taken together, these files (especially the two extensions) fix a host of serial port-related problems (involving modems as well as printers). For some serial printers (including Apple’s own LaserWriter 300), you will also need a separate printer driver upgrade. Also, if you use desktop printers, make sure you upgrade to at least version 1.0.3.

All of this software has been incorporated into the System 7.5.3.

### ***Special Section: Troubleshooting PCI-based Macs***

PCI-based Macs are Apple's new line of Power Macs (including the 7200, 7500, 8500 and 9500). The name comes from the fact that they use PCI slots (rather than the Nubus slots favored in older Macs) for adding peripheral cards to the Mac. However, there is much else that is also different about these Macs, as this (and the previous) troubleshooting sections attest.

**See also: an item earlier in this Update: Fix-It #16 (page 787), for info on SCSI-2 dual buses**

- These days, a lot of attention is paid to the clock speed of the processor in your Power Mac. It can get a bit confusing. For example, the Power Mac 7200/90 has a 90MHz 601 processor, whereas the Power Mac 7500/100 has a 100MHz 601 processor. This means, all other things equal, that the Power Mac 7500 is 10MHz faster. What that translates into in terms of your day-to-day experience with the Mac is not always easy to do, especially since all other things are usually not equal. For example, there are differences in the motherboard of the 7200 and 7500 that affect speed. Also, whether or not you have a RAM cache has an effect. Differing amounts of RAM and different types of disk drives also have an effect on overall speed of your Mac. For the same sorts of reasons, the Power Mac 8100 is generally slower than the 7500, even if they both have exactly the same processor.

And of course, if you have a different processor, that can profoundly affect speed, somewhat independent of the clock speed. Thus, the Power Mac 8500/120 has a 120MHz 604 processor. Since the 604 is an inherently faster processor than the 601 (for reasons that go beyond its clock speed), the Power Mac 8500's speed advantage over the 7500 will be greater than the clock speed difference suggests. By the same token, Macs that use the 603 (used in Performas) or the 603e (a low energy version of the 603 used mostly in Power Mac PowerBooks) are slower than the 601, even at the same clock speed.

Got all that?

- To take full advantage of the speed benefits of the PowerPC 604 processor (currently used in the Power Mac 8500 and 9500, and in some clones), software may need to be rewritten to be "optimized" for it. Otherwise, the software may run faster on a comparable 601-based machine. Eventually, vendors may ship separate 601 and 604 versions of their Power Mac software.

- PCI Macs use DIMMs (Dual In-line Memory Modules) rather than the SIMMs (Single In-line Memory Modules) used by previous Macs. DIMMs provide a wider data path than SIMMs, which means they can carry more data and thus allow for faster performance. Otherwise, this distinction is of little relevance for most users. The basic procedures for installing RAM remain the same.
- The DIMMs should have at least a 70ns speed (if you request DIMMs for a PCI-based Mac from a reliable vendor, this should automatically be the case). Faster DIMM speeds will probably have no noticeable effect on the overall speed of current models. You can, however, safely mix DIMMs of different speeds, as long as all are at least 70ns.
- When installing RAM on your PCI-based Power Mac, install it in the highest numbered slots first (e.g., A4 and B4 on a 7500 and 8500). Then continue downward. These labels are visible on the motherboard when you open up your Mac.

Also, on the 7500, 8500 and 9500, to get the maximum speed benefit of memory “interleaving,” install RAM in pairs on matching A and B slots (e.g., installing two 8Mb DIMMs in A4 and B4 is preferable to installing one 16Mb DIMM in A4 and leaving A3 empty; similarly install a pair of DIMMs in A3 and B3 rather than A3 and A2). Paired DIMMs need to be the same size (e.g., both should be 8Mb) for interleaving to work.

Interleaving lets the computer read and write data to memory at the same time other reads and writes (such as to a hard disk) are occurring. This is how it improves performance.

**See also: Chapter 17, for more information about memory upgrades**

- The 7500 and 8500 (and possibly other PCI Mac models) have a small button near the processor daughter board (called the “cuda” button) that, when pressed, resets the Mac’s settings even more thoroughly than a reset of the PRAM. You should only need to use this button as an absolute last resort for PRAM related problems.

One known problem, where doing this may help out, is if your monitor screen goes black and stays black even though its power light is on and everything else seems to be working normally. If restarting and zapping the PRAM has no effect (or only works sporadically), try the cuda button. The cuda button may also help if your hard drive seems to be unwilling to even start spinning at startup. Also possibly helpful will be to remove and reseat all RAM. Defective RAM may also cause these symptoms.



- The disk images of the Disk Tools and Disk 1 disks on the CD-ROM disc that shipped with early units of the Power Mac 7500 and 8500 were corrupt. Fixed versions are available online.
- If you thought you were lucky to get one of the first PCI Macs to roll off the assembly line, think again. There is a chance that running Norton Disk Doctor can appear to erase your entire hard disk. To eliminate any chance of this happening, get and run Disk Spot Check, a free utility available online from Symantec. It tells you whether you have the problem and it eradicates it if it finds it. It also includes instructions on how to recover your data if you have already fallen prey to this problem. The problem actually can potentially occur on 5200, 6200, 7200 and 7500 Power Macs. Happily, Apple has since altered its manufacturing process so as to eliminate this problem entirely.
- Under certain network conditions, the Power Macintosh 7200/90 computer's built-in Ethernet port may fail to successfully send large packets over Ethernet. The problem can lead to crashes and timeouts during transfers. This problem has been corrected in currently shipping units (with serial numbers xx544xxxxxx or above). More details on how to determine if your Mac is subject to this problem is available in a Tech Info file (available at Apple's online locations; Web users can search at <http://til.info.apple.com/til/til.html>). But you'll probably find it easier to just call up 1-800-SOS-APPL. If you have one of the defective Macs, Apple will fix it or replace it.
- If you use disk formatting utilities, such as Drive7 or Hard Disk ToolKit, these too need to be upgraded to PCI-Mac compatible versions.
- PCI-based Macs running System 7.5.2 appear to have a bug such that SCSI devices assigned to ID 5 will not work properly. Upgrading to System 7.5.3 supposedly fixes this.
- Does your Mac's screen "blink" (or "flash") a second time at startup, just after the MacOS screen appears? Don't worry. It's normal. It means that the Mac is loading an updated version of the video driver software. If you really want to avoid the flash, hold down the Command-Shift-N-D keys at startup. Unfortunately, this also means you'll be using the older, presumably buggier, driver. Aside from being a bit irritating, the only problem this flash causes is that it wipes out any custom startup screen display.

- PCI Macs have a new Sleep function. If you select Sleep from the Finder's Special menu, the hard drive spins down and the monitor (if capable of doing so) will completely shut off. The Energy Saver control panel can be set to do these tasks automatically after some time interval of inactivity.
- The Energy Saver program that ships with PCI-based Macs has some unusual "features." First, some users have noted that even if they try to disable this extension by setting its controls to "Never" and then removing the file from the System Folder, their Mac still goes to sleep after about an hour. If this happens, I have had success preventing this sleep onset by leaving the Energy Saver application installed (with settings still at "Never"), rather than disabled. Also weird is that, if you do set your Mac to go to sleep automatically via this program, it may be a different sleep than you get via selecting the Sleep command from the Finder. The former may just shut off the screen display (pressing a key will bring it instantly back) while the latter will completely shut off the monitor.

**See: the next section on monitors for other problems associated with these features.**

- There have been reports of L2 RAM cache cards not working on PCI-based Macs. The most likely indicator of a defective RAM cache is an increased frequency of system errors, particularly Type 11 errors, shortly after installing the cache. The immediate cause seems to be the RAM cache itself, rather than some problem with the motherboard. Apple's RAM cache seems immune to this problem. For third party RAM cache, check with the vendor about this specific problem before ordering. Many work just fine; others do not.

A lot of rumors concerning this problem revolved around whether Power Mac 7500 logic boards that had the expression "val-4" printed on them (near where the PCI cards go) indicated a pre-production board that was especially likely to have these problems. Apple denies this and claims that the val-4 boards are identical to the other 7500 boards.

Also note that correctly installing the cache card requires that it be very firmly inserted into the slot. To check if you have done this, use Newer's Cache-22 utility or MicroMat's TechTool Pro to test the cache.

- On a Power Mac 7500 or 8500, if you note two vertical lines that appear to follow the cursor, this is due to improper installation of VRAM. If you have 2 Mb of VRAM, you must install the VRAM DIMMs into the

slots labeled 1 (which is the way these models ship if the VRAM is already installed). You cannot install 3 Mb of VRAM. If you upgrade to 4 Mb, all slots will be filled.

- In general, you may find that even 16Mb of RAM (which is the minimum configuration for the 7500, 8500 and 9500) is not enough to run System 7.5.2 or System 7.5.3 on PCI Macs, especially if you don't or can't use virtual memory or RAM Doubler (which is likely to be the case when running certain games and multimedia software that will not launch until you turn off any form of virtual memory).
- Microsoft Word 5.1 may not install on a PCI Mac, halting at the point that it would install the Equation Editor fonts. You will get the following message: "An error occurred while installing on the active startup disk. Installation was not able to be completed, but your original software has been restored." The solution that usually works is to try the installation again, after a Force Quit from the Installer and a restart of the Mac, with Modern Memory Manager and Virtual Memory turned off (also first trash the Embedding Preferences file located in the Preferences Folder, which may by itself fix the problem). Otherwise, do a custom install of Word and do not install any System Resources. You may also want to increase the Installer's memory partition to 1300K. After successful installation, you can turn virtual memory and Modern Memory Manager back on.
- New "speed-bumped" PCI-based Macs are now out. The Power Mac 7600 is essentially the same as the 7500 except that it will include an L2 cache and a 120-MHz 604 processor. All other model names remain the same except for a "bump" up in the speed of their processor (with a new maximum of 150-MHz on the 8500). Apple is also separately selling 120MHz and 132MHz 604 processor daughterboard upgrades.
 

There are some reports that these new Macs may also have somewhat "revised" motherboards, eliminating possible problems with third-party RAM upgrades and L2 cache upgrades that were common on the original models.

These new Macs ship with System 7.5.3 already installed, so you won't have to deal with the hassles of the System 7.5 Update 2.0 Installer.

### **Special Section: Troubleshooting the 1710AV and Other AppleVision Monitors**

The 1710AV, Apple's new 17 inch monitor with built-in speakers, is a natural choice for today's AV-enhanced Macs. At least it will be after Apple works out all the bugs that have plagued it. Problems are especially acute if you hook up the monitor to a PCI-based Mac. Other new Apple monitors (such as the 1710) may share some of these same problems.

- AppleVision Setup does not appear as a separate control panel on either the Power Macintosh 8500 or 7500 series computers (or on any PCI-based Mac after upgrading to System 7.5.3). If you have installed the AppleVision software, the settings options found in the AppleVision Setup control panel are automatically incorporated into the Sound & Displays (or Monitors & Sound) control panel.
- According to Apple: "The Display Software 2.0 installs Display Enabler version 2.0. This version is not necessary on the PCI Power Macintosh computers (although its presence will not disrupt anything). The AppleVision Software 1.0.2 installs Display Enabler 2.0.2 and we do recommend this version if you have the AppleVision 1710AV or AudioVision 14" Display."
 

However, all of this is moot if you upgrade to System 7.5.3, as described next.
- For Macs with AppleVision monitors running System 7.5.3:
  - a. AppleVision software version 1.0.4 is required with PCI-based Power Macs.
  - b. AppleVision software version 1.0.2 is needed for other Macs.

The System 7.5 Update 2.0 Installer will install AppleVision 1.0.4 only if the AppleVision 1.0.2 software is already present. If you need it, you can get AppleVision 1.0.2 software (which includes the AppleVision extension and related files) from Apple software update online locations. Alternatively, you can get the AppleVision Fix 1.0 file, described next.

If you ever need to reinstall the AppleVision 1.0.4 software (such as if it appears to be damaged), and the Update or Fix do not work, you will need to start over by first reinstalling the software from your original AppleVision disks.
- If you have an AppleVision monitor and you upgraded to System 7.5.3, you likely had problems. You may have found that you did not correctly get the AppleVision extension to upgrade to version 1.0.4. Or you may

have found that, on your PCI-based Mac (especially if it was a 7200), the Monitors & Sound control panel (now used on all PCI-based Macs and only on those models) did not install.

Other potential problems include: buttons on your AppleVision display that do not work, an inability to change the resolution of your monitor, Monitors & Sound control panel options (such as Geometry and Color) that appear to be missing, and a missing SimpleSound program.

Almost all of these problems are due to the System 7.5 Update 2.0 Installer not correctly handling the installation. For starters, do a clean resinstall of System 7.5 (see: Troubleshooting System 7.5.3 (System 7.5 Update 2.0)). Then install any version of the AppleVision software. Then install the Update via an Easy Install. After that, if things are not working properly, there are numerous work-arounds, involving deleting unneeded files and doing a Custom Install to get what's missing.

However, Apple has tried to simplify all this with the release of its *AppleVision Fix 1.0*. You don't need this Fix if you already have everything installed as expected. But get it and run it otherwise.

Here's basically what it does:

**a.** On PCI-based Macs, the Fix makes sure you have a host of needed files that you may be missing (including Monitors & Sound, AppleVision 1.0.4 and even the SimpleSound utility).

Also note that if, even after running this Fix, you still find copies of AppleVision Setup and Display Enabler in your System Folder, trash them. Otherwise, the new software won't work and you may get a message that says "No AppleVision display is connected."

**b.** On 68040 Macs and non-PCI Power Macs, it makes sure you have Display Enabler 2.0.2 correctly installed. However, if you mistakenly Custom Installed the Monitors & Sound control panel on these Macs, note that your AppleVision software won't work. You'll need to deinstall it yourself (instructions are given in the AppleVision Fix Read Me file).

Also note that, these models use AppleVision 1.0.2, not 1.0.4.

All other Mac models apparently don't need the AppleVision Fix.

- If despite all of the above advice, you still have problems getting the correct version of the AppleVision extension to install, start over with a clean reinstall of the system software (see: Troubleshooting System 7.5.3 (System 7.5 Update 2.0)). Next, reinstall the AppleVision software and then run the Update 2.0 Installer. Then, if needed, run the AppleVision 1.0 Fix utility.

Oddly, though I got AppleVision 1.0.4 to install on my Mac 7500 and it seems to work fine, the AppleVision extension icon no longer appears at startup.

- Actually, anytime you do a clean reinstall of System 7.5.2 or earlier, you will also need to reinstall the AppleVision software.
- By the way, the Display Enabler causes the same sort of screen blinking on non-PCI-based Macs at startup that has become familiar to almost all PCI-based Mac users (as mentioned in “Special Section: Troubleshooting PCI-based Macs”).
- If zapping PRAM and deleting Display Preferences, Monitors & Sound (or Sound & Displays) Preferences and Sound Preferences files do not fix an AppleVision-related problem, reinstall the AppleVision software.
- If you hear a blipping sound from the monitor’s speakers after the monitor goes to sleep, set the auto-sleep setting on the Energy Saver extension to Never and disable the extension altogether. Otherwise, you may find that, after going to sleep, your monitor never wakes up again. Apple has admitted that the sound (which is due to the monitor repeatedly turning on and off very rapidly) can signal imminent permanent damage to the monitor. Apparently, this is a hardware problem with early units of the monitor (a problem that Apple has since corrected). If your monitor has this problem, Apple should replace it (call 800-SOS-APPL).
- This monitor replacement also fixes several other glitches that appeared to be more due to the Sound & Displays control panel software (and since replaced by System 7.5.3’s Monitors & Sounds control panel). These include: problems with the computer’s speaker mysteriously turning back on after you have turned it off, or display/sound settings being forgotten after you shut down or restart.
- At startup, icons on the desktop may get rearranged in alphabetical order on the right side of the screen (as if you had selected “Clean up all” from the Special menu. If you have left a Finder window open, icons in that window get rearranged instead of the desktop itself. This is due to a bug that Apple will fix eventually. In the meantime, to avoid this, leave an empty Finder window open so that it is the affected window at startup.

- Holding down the Shift key at startup, even though it disables most extensions, still preserves the 1710AV's resolution setting. However, using an startup manager to startup with "all" extensions off (which disables the key AppleVision extension) results in only a 640x480 resolution option available. Similarly, if you start up with a CD-ROM startup disc, the 1710AV's resolution reverts to 640x480 (unless you also hold down the Shift key at startup to startup with Extensions Off). However, if you use a startup floppy disk, the correct (prior selected) resolution is retained in either case.

This same 640x480 problem will apparently occur if you start up with the monitor off and turn it on only after the AppleVision extension has loaded.

Also, make sure you connected the ADB cable (as well as the standard monitor cable) from the 1710 to the Mac. It is not optional. Otherwise, you will likely get (yet again!) only a 640x480 resolution. You will also be unable to recalibrate the monitor and will likely have other problems.

Finally, the AppleVision software will occasionally not load at startup, for no discernible reason, resulting again in only a 640x480 resolution option. In this case, simply restarting gets everything back to normal until the next time it happens (no permanent cure is known at this time).

**See also: an item earlier in this Update: Fix-It #4: Pages 614-616**

- Make sure the keyboard is plugged into the 1710 monitor's ADB port, not to computer itself. If you don't do this, the AppleVision software will not recognize that there is an A/V-capable display attached, and the software will not load. Of course, you then also have to make sure that the monitor's ADB plug is plugged into the computer.
- While not a bug, you probably won't ever hear the Mac's startup chimes through the 1710AV's speakers. The monitor doesn't turn on (even after a warm restart) until after the chime has occurred.
- Some users have reported problems with: 1) an excessive lack of convergence (blurriness) along the borders of the display, 2) chronic sounds coming from the monitor's speakers. There are no known fixes for the other problems.
- Many users have complained about barely noticeable diagonal lines that traverse across their AppleVision 1710 display (most noticeable when the screen is dark). According to Apple, this is not a defect in the monitor. They are caused by the redraw gun inside the monitor resetting. You can usually get rid of them by turning down your brightness to

about 50% and leaving contrast at 100%. Apple actually recommends these settings as a general rule for all AppleVision monitors. If this doesn't work, recalibrating the monitor will probably do the trick, although you may have to recalibrate about 4 or 5 times before they lines go away. If that still doesn't work, you may indeed have a hardware problem, especially so if your screen has other irregular discolorations.

- The AppleVision software, including the new Control Strip feature, should only be used with AppleVision or AudioVision Displays. While it may at first appear to work with other displays, Apple claims that compatibility problems are likely to occur eventually. However, the Control Strip feature is now included as part of System 7.5.3, making this issue moot for those who update.
- According to Apple, you should not be able to use Apple's PlainTalk microphone in the microphone outlet of the 1710AV (happily, you really don't need to do this, as the 1710AV comes with a built-in microphone). If you try, the microphone won't work; you won't hear or record any sound. The reason is that the PlainTalk Microphone requires additional voltage from the Macintosh computer to amplify the signal. All of Apple's current displays are not setup to pass the voltage to the PlainTalk Microphone. To use the PlainTalk Microphone, it must be connected directly to the Power Macintosh computer.  
However, after users suggested this was in error, I tried it (first setting the System 7.5.3 Monitors & Sound's Sound Input setting to "Monitor's Sound Input Port") and it worked just fine. Go figure.  
In any case, you must use the PlainTalk microphone when connecting to the Power Mac directly. Apple's older non-PlainTalk microphones won't work.



### ***Special Section: Troubleshooting Desktop Printers***

Current versions of Apple's LaserWriter (version 8.3 or later) and StyleWriter printer drivers now use desktop printers. This means that this feature, originally introduced as part of QuickDraw GX (as described in Chapter 12), is now available even if you do not use QuickDraw GX. The non-GX version does not support PDDs (portable digital documents), but is otherwise similarly featured. Details of how to setup and use these desktop printers (which is basically quite easy) are included with the relevant software. The desktop printer software consists of three extensions: Desktop Printer Extension, Desktop Printer Spooler and Desktop PrintMonitor (which is used in place of the former PrintMonitor extension). In addition, you create a separate Desktop printer icon for each printer connected to your Mac. What follows is a list of troubleshooting issues for these non-GX desktop printers.

**This section updates: Chapter 7, on printing problems**

- If your desktop printer icons have X's over them, it usually means that the needed extensions were disabled at startup (typically because you started up with extensions off by holding down the Shift key). You can still print, but you don't have access to any of the special features of the desktop printers. Restart with extensions back on and all will return to normal.
- If you have five or more desktop printers, you may get an insufficient memory message whenever you try to print. To solve this, give Desktop PrintMonitor (located in the Extensions folder) more memory by increasing its Preferred memory size as listed in its Get Info window (the default size is 160K). Only a small increase is likely to be needed, no more than 10K for each printer beyond the fourth one.
- If you print large complex documents, a message may appear asking if you want to temporarily adjust the memory size of the desktop printer in use. Say OK and all should go well. However, if this adjustment is not sufficient or if this problem happens often, you can permanently increase the printer's memory by selecting the Get Info window for the printer icon itself and increasing its Preferred memory size by about 100-200K.
- If you drag a document to a desktop printer and nothing happens, it is likely that the document's creating application is incompatible with this drag-and-drop feature. There is nothing you can do about this.

- Occasionally a printing problem may cause the Mac to crash, forcing you to restart. If so, the Mac may crash again near the end of the startup as it automatically retries to print the problem file. The solution? Start up with extensions off. The desktop printer will have an X over it, but double-click it anyway. It will open up like a folder, with the waiting print jobs inside visible as ordinary-looking documents. Drag the document icons to the Trash and restart as normal. Now try printing again. If the problem recurs, you will have to diagnose what may be causing the crash. See other items in this section, or *Sad Macs* itself, for suggestions.
- The Save dialog boxes of applications may list desktop printers as ordinary folders. But don't save a document to these folders. This will not get the document to print. In fact, you will lose access to the document altogether. To get it back, you'll have to start up with extensions off and drag the file out of the desktop printer folder.
- As long as there are any print requests waiting to be printed, Desktop PrintMonitor remains active in memory, even if background printing is off. If you are not printing in the background, remove all print requests from your desktop printer queue. This will "turn off" PrintMonitor, saving you 160K.
- If you are having trouble using desktop printers (including getting system freezes and crashes, especially Type 11 errors while printing), make sure you have the latest version of the desktop printing extensions (currently 1.0.3). Also make sure you either upgrade to System 7.5.3 or have SerialDMA 2.0.2 and (if you are using System 7.5.2) the 7.5.2 Printing Fix extension. These files are all available online from Apple. The Printing Fix extension is included as part of a collection of fixes called System 7.5.2 Printing Update 1.1 (which also includes SerialDMA). Otherwise check for an extension conflict as a possible cause of the errors.
- Desktop printers are incompatible with the Restricted Finder environment of At Ease 3.0. If you need to use the Restricted Finder, you will need to disable the Desktop Printer Extension. Later versions of At Ease will support Desktop Printers.
- If you get a message that says a particular printer cannot be used or if you otherwise cannot get printing to proceed, go to the Preferences folder and delete its Preferences file (for a printer using LaserWriter 8, look for

LaserWriter 8 Prefs). Then go back to the Chooser and redo the Setup for the printer. Restart the Mac and try again.

## ***Special Section: Troubleshooting Drive Setup***

Beginning with the release of PCI-based Macs in 1995, Apple released a new disk formatting utility, called Drive Setup. For those Macs that can use it, it replaces all previous Apple disk formatting utilities (most notably Apple HD SC Setup). As this utility is not covered in *Sad Macs*, its use is explained here in this special section. It summarizes the basics of its use, covers most troubleshooting issues and provides numerous more technical details.

- **Who can use Drive Setup?** Drive Setup replaces both Apple HD SC Setup and Internal HD Format utilities for all Power Macs. It works with the internal SCSI drives that ship with current Macs. It can also be used on most computers that ship with IDE drives, including PowerBooks (the PowerBook 150 is an exception; it cannot use Drive Setup even though it has an IDE drive).

As with previous Apple formatting utilities, Drive Setup appears only works with hard drives that ship directly from Apple and that have not been reformatted with other formatting software. However, it works with several third-party brands of magneto-optical drives and some removable cartridge drives (such as SyQuest drives).

Mounted drives unsupported by Drive Setup will still appear in the Drive Setup window, but if you select one, you will get a message that says “Cannot modify a disk in an unsupported drive.” If instead, you get a message that says “Unrecognized driver,” this means you have an Apple drive but you have used a third-party software to reformat it or update its driver.

- **Getting the latest version of Drive Setup** As of this writing, the latest version is 1.0.4. It is available with System 7.5.3. If you do an Easy Install of System 7.5 Update 2.0, it may appear on your disk (in a Utilities folder inside the Apple Extras folder). However, it may not appear (especially likely if there is presently no copy of Drive Setup on your disk or if you do not have a PCI-based Mac). In this case, you can still get it by doing a Custom Install.

By the way, after updating, you should use Drive Setup to update the driver of your Apple-supported disk (as described later in this section). It is especially important to do this for disks that, prior to System 7.5.3, used Apple HD SC setup (as explained more in “Special Section: Troubleshooting System 7.5.3”).

- **Initializing disks** After launching, Drive Setup will display a list of all mounted disks. To initialize a disk with Drive Setup, select the disk and

click the Initialize button. Then, from the window that next appears, click its Initialize button. That's it. If the Initialization button is dimmed, it means you cannot initialize the disk. Typically the program will give you a message explaining why (such as that you cannot initialize the startup disk).

- **Partitioning** Unlike previous Apple formatting utilities, Drive Setup can partition a hard drive. To do so, after clicking the first Initialize button, click the Custom Setup button from the window that next appears. Then select the desired Partitioning Scheme from the pop-up menu. You can create unequal sized partitions either by dragging the bar handle of the partition box in the graphic depicting the partitions or by changing the number in the Size box for a selected partition. When you are done, close the window and click the Initialize button.
- **The “extra” partition** While not an issue new to Drive Setup, you may notice that there is an “extra” partition (of about 5Mb or so) at the bottom of the partition graphic (you may need to use the Tab key to see the listing of such a small partition). Apple says the extra partition is used by some duplicating and copying software utilities. However, it is not essential and can be deleted or at least reduced to a minimum size. To do so with Drive Setup, you need to enlarge another partition to its maximum allowable size.
- **Updating the disk driver** As is typical of formatting utilities, you can update the disk driver without having to also initialize the disk (which is desirable, since initializing erases the data on the disk). To do so, simply select Update Driver from Drive Setup's Function menu. Actually, Apple claims that Initialize does *not* update the disk driver. So you should also perform this function immediately after any initialization.
- **Zero all data** Initialization doesn't actually erase all the data on the disk. It essentially just erases and creates new Directory files. In this sense, it is fundamentally similar to what would happen if you selected the “Erase Disk” command from the Finder for a hard disk (as explained in Fix-It #13). This means that, with utilities such as Norton Utilities, you might be able to recover data from an initialized disk. If you want to prevent this from happening, typically for security reasons,, select Initialization Options from the Functions menu and check the “Zero all data” option. Then initialize the disk.

- **Low level format** The other option available from the Initialization Options window is “Low level format.” If you check this prior to Initialization, this does truly erase the disk. Apple somewhat cryptically states that this “removes the magnetic location markers the disk uses to organize data and indicate storage locations” and presumably creates new ones.

If it works similarly to how low level formatting is done with other utilities it should also zero all data, making this other option redundant. However, Apple seems a bit ambiguous about this and allows both options to be checked at once. Low level format should also check for bad blocks and map out any bad blocks it finds (see Fix-Its #13 and #14). However, I could not find any clear statement in any documentation that this is the case. If any one has more definitive information on these matters, please let me know.

If Drive Setup spots a problem with a disk that requires a low level format to fix, it may inform you that this is required. If so, Drive Setup will perform this format even if this option is not checked.

Apple recommends against selecting Low level format for a routine initialization, as it takes much longer to do. Apple recommends using low level format only if the disk has never been formatted before (even from the factory) or if the disk was last formatted prior to System 7 being released or if there is a problem with the disk that initialization alone does not fix. However, as my experience suggests that most reformatting is done because of problems that require it, I would recommend doing a low level format in most cases.
- **Testing a disk** To test a disk for bad blocks (or general damage to data on the disk), simply select the Test Disk option from the Function menu. This feature works most thoroughly if the disk can be unmounted for the test (the startup volume cannot be unmounted, for example). This does not fix anything. It just informs you.
- **Other features of the Functions menu** “Mount Volumes” is used, as its name implies, to mount an unmounted volume. “Rescan Bus” is used to recheck the connection bus(es) and then list any mounted volumes that it finds. “Customize Volumes” provides options to decide whether to automatically mount a disk at startup or to write protect a disk.
- **Other troubleshooting issues** Here’s a collection of miscellaneous problems you may confront when using Drive Setup or that Drive Setup specifically is needed to solve:

- a.** Drive Setup 1.0.3 or later corrects a variety of problems specific to IDE drives. It also fixes a problem with the PowerBook 190, 2300 and 5300 series of computers where, in some cases, the system will freeze after wake up from Sleep. By the way, if you used Hard Disk ToolKit, instead of Drive Setup, version 1.8s or later is similarly needed to correct this glitch.
- b.** If you create partitions with Drive Setup and give each partition a custom icon, you may find that (after you restart) the custom icons are incorrect. Either both partitions incorrectly have the same custom icon or the custom icons may be gone altogether. Initial reports were that this problem was fixed with Drive Setup 1.0.4. However Apple now reports that this is not the case. They say it will be fixed in a future version.

What's going on? According to Apple's Info Alley: "This issue is caused by the way the driver interacts with partitions that have the same creation date. Drive Setup is so fast and efficient, that it often will create partitions with exactly the same date and time." One solution is to modify the partitions so that they have different creation dates (you'll need a utility such as Snitch or ResEdit to do this). A utility called IconFixer also solves this problem.

Otherwise, you might succeed if you reformat the drive (though this seems like a bit of overkill as a solution). Updating the disk driver will not help here. Lastly, until Apple fixes this, you can just avoid custom icons.

**See also Fix-It #12 and #15 for more on partitions.**

- c.** Drive Setup cannot update the driver on some IDE drives. In these cases, the "Update driver," "Customize volume," and "Test disk" options will be dimmed. To get everything working again, you will need to re-initialize the drive. This problem mainly occurs with the first IDE drives used in Macintosh computers (prior to the release of Drive Setup and therefore never formatted with it), ones that were initialized without partitioning information on it. Drives that show "Where: Macintosh HD, AT\_0" in the volume's Get Info window are such drives.
- d.** If Drive Setup claims it is unable to initialize a removable cartridge that has already been formatted by other third-party software, it may be because an extension that is part of the software that came with your drive is currently in use. For example, for APS drives, you would look for PowerTools control panel or the APT Extension. In this case, the "Initialize" button will instead read "More Info." Clicking it will inform you of this problem. The solution is to disable the extension (such as by turning it "off" with an extensions manager) and then restart. Now you should be able to initialize the disk.

- e.** If you have a Quantum 800Mb IDE drive, and you attempt to do a low-level format with Drive Setup (v. 1.0.4 or earlier), you may get a message that says "Initialization Failed." This is due to a bug in the Drive Setup software that will be fixed in a later release. The disk is perfectly fine! Apple's recommendation for the best work-around solution for now is to select the "Zero All Data" option instead. However, if your disk gets truly damaged to the extent that a low level format is required, you'll have problems until the new release is available. If this gets to be critical, you may have to shift to a different formatting utility (such as Drive7 or Hard Disk ToolKit).
- f.** For more basic troubleshooting issues, including problems mounting, unmounting or ejecting drives, check the Drive Setup Apple Guide file as well as relevant sections of *Sad Macs* (especially Chapter 5). Also check out the following Apple Technote:  
"<http://cgi.info.apple.com/cgi-bin/read.wais.doc.pl?wais/TIL/Macintosh!Software/Utility!Software/Drive!Setup!1.0.x!!>."



## ***Special Section: Troubleshooting TCP and Open Transport***

This information primarily covers issues involving Open Transport 1.1. or later, as introduced in System 7.5.3.

### **Advantages of Open Transport**

There are several advantages to Open Transport (OT) over the older Classic AppleTalk:

First, setting up the TCP/IP control panel will most often be simpler to do than MacTCP, since more of the settings are automatically filled in by the server. On the other hand, this is somewhat balanced by TCP/IP's increased number of choices of protocols (such as BootP and DHCP) that MacTCP users do not have to contend with

Second, with Open Transport, you can switch from one networking configuration to another (such as from PPP to Ethernet) simply by selecting a different previously saved configuration setting, without having to reconfigure the control panel and without having to restart the Mac each time (both of which were problems with MacTCP).

Third, it provides what Apple calls "transport independence." This means an application will be able to support, via a single common code base, a wide variety of network environments (dial-up, LAN, etc.) and protocols (TCP/IP, PPP, NCP/IPX). Applications that support this feature (and most do not do so yet) will be able to be dynamically configured to work with any of these modes.

Lastly, there is increased performance speed of Open Transport over AppleTalk. However, many users have complained that, after installing OT, they did not notice any speed improvements. The probable reason for this is because the applications being used do not yet take advantage of OT. In particular, note that there are three levels of OT compatibility:

- **Open Transport Compatible** These are basically applications designed originally for Classic AppleTalk but that still run okay with Open Transport. These will show little if any performance gain. This is mainly a "backward compatibility" mode that allows pre-existing applications to run under Open Transport. Most current applications still fall into this category.
- **Open Transport Ready** These programs have been modified to support the Open Transport features that allow for significant speed boosts. They will run native on Power Macs (which is where the biggest speed boosts will be seen).

- **Open Transport Enhanced** These have all the feature of the Ready applications, including the speed boost, but also support OT's transport independence features, described previously.

Still, the truth is that, for most users, all of this is not of great significance. The typical user that used to log on to the web with MacTCP and PPP will now do so with TCP/IP and PPP and (after setting things up initially) will not see much, if any, of a difference.

## Installing and Using Open Transport

- The Open Transport Installer adds the following extension files: Open Transport Library, Open Tpt AppleTalk Library, Open Tpt Internet Library, (and additionally on Power Macs) OpenTransportLib, OpenTptAppleTalkLib, OpenTptInternetLib. Also, it adds Ethernet (Built-In) and Serial (Built-In) and Open Transport Guide Additions. It also adds AppleTalk and TCP/IP control panels.
- Open Transport now works on all 68030 and later Macs, not just PCI-based Macs. Here's exactly what should get installed when you upgrade to version 7.5.3 via an Easy Install:
  - a. On an 68030, 68040, or NuBus Power Mac, both Open Transport and Classic AppleTalk networking are installed.
  - b. On a 68000 or 68020 Macintosh, only Classic AppleTalk is installed.
  - c. On PCI-based Mac, only Open Transport is installed.

You can do a Custom Install to get both Open Transport and Classic AppleTalk on any of these Macs. However, 68000 and 68020 Macs will start up with Classic AppleTalk even when both are installed. PCI-based Macs will startup with Open Transport even if both are installed. On the remaining models, Classic AppleTalk is loaded as the default, although you can change this with the Network Software Selector utility (see later in this section). This allows users to move up to Open Transport while still retain Classic AppleTalk for use with applications that are incompatible with Open Transport or to reduce memory requirements.

- While technically Open Transport can work on all 68030, 68040 and Power Macs, Open Transport does not yet work (and does not get installed) on Power Mac 5200/5300/6200/6300 systems. This is due to a bug in the software that affects these systems that was not fixed at the time of release. Open Transport 1.1.1 should be released within 90 days and will include the needed fix (most likely in the form of a modified version of Apple Shared Library Manager (ASLM 2.0.1)).

- For those of you who are still gun-shy about using Open Transport, Apple includes a small utility called Network Software Selector (NSS). You'll find it in the Apple Extras folder. It enables users of 68030-, 68040-, and early PowerPC-based computers to choose between Open Transport and Classic AppleTalk, if both are installed. You have to restart for a shift to take effect.

[The Power Macintosh 7200, 7500, 7600, 8500, and 9500 support only Open Transport (at least that's Apple's official position) and should not use the NSS utility.]

If you try to select an "inappropriate" networking system for your Mac (via the NSS utility), the utility may appear to let you do it, but the "wrong" system will still not load when you restart!

Settings changes you make in one system will probably not be reflected in the other system, should you switch back to it.

Also note: Switching from Open Transport to classic AppleTalk usually causes the network connection to revert to LocalTalk. To get back other (e.g., Ethernet) connections, use the Network control panel (Classic AppleTalk) or the AppleTalk control panel (Open Transport) after the switch has occurred.

[By the way, NSS will not even launch unless you are using System 7.5.3.](#)
- Classic AppleTalk is disabled any time Open Transport is active and vice versa. The system software accomplishes this by making the key files for Classic AppleTalk (MacTCP and Network) or Open Transport (TCP/IP and AppleTalk) invisible. That's correct. Whichever files are not active are made temporarily invisible! They are still there. So don't assume you need to install or re-install them.

Other AppleTalk and Open Transport files remain visible regardless of which networking system is being used. Don't worry about that. They are ignored when not part of the active system.

If files that were supposed to be made invisible are still visible after a restart, it is probably because you have renamed the file. It must have its original name to become invisible.

If you are still convinced that Open Transport was not installed via an Easy Install, you may need to do a Custom Install to get it.
- [To remove Classic AppleTalk software on a system that has both Classic AppleTalk and Open Transport \(or vice versa\), you first have to activate the system you want to remove \(via the NSS\) and restart. Then you can trash the software that would otherwise be invisible \(e.g., MacTCP and](#)

Network for Classic AppleTalk) as well as other related software used by the to-be-deleted system. Then you can reselect the desired system with the NSS and restart again.

- The preference for which network system is the default is stored as a part of the AppleTalk Prefs file, kept in the System Folder. Deleting this file will delete the stored preference. Simply launching the NSS utility will re-establish the correct default preference for your hardware.
- System 7.5.2/7.5.3 Open Transport includes a new control panel called AppleTalk. Among its other uses, it now permits AppleTalk connections to be made from both the printer and the modem serial ports. Prior to this, you could only make AppleTalk connections via the printer port (as stated in Chapters 7 and 11 of *Sad Macs*).
- If you are using Open Transport, note that holding down the Shift key at startup, to turn extensions off, disables AppleTalk drivers (via Open Transport software). This will prevent you from using any communications software. You will also be unable to print a document to any LocalTalk-connected printer, such as most LaserWriters!! If you try to select such a printer from the Chooser, you will get an error message saying that "The printer port is in use. AppleTalk cannot be made active now." You should still be able to print to non-LocalTalk printers by connecting them through the non-LocalTalk serial port (typically the modem port). Otherwise, you'll have to restart with extensions back on.

**See: "Special Section: Troubleshooting System 7.5.2" for details of dealing with Open Transport versions prior to 1.1**

## **Open Transport and Memory**

- In low memory situations, where there is not enough memory to load Open Transport, Classic AppleTalk will load instead. This is true even for PCI-based Macs (assuming both networking systems are installed)! However, on these PCI-based Macs, Classic AppleTalk will be "limited to support only for AppleTalk on LocalTalk; no TCP/IP services will be available."
- Open Transport has an entirely different memory management architecture as compared to classic networking in preparation for Copland's protected memory model. In particular, Open Transport supports the dynamic loading and unloading of networking services.

The "About this Macintosh..." dialog reports on both the total free memory and the largest block of contiguous free memory. In practice, the latter figure is a better indicator of whether an additional application can be launched. If a user frequently opens (launches) and closes (quits) multiple applications that use networking services, and if the user has set Open Transport TCP/IP preferences to load networking services only when needed, this can, over time, result in a situation where Open Transport loads into memory "between" other running applications. This "memory fragmentation", in turn, can result in a smaller value reported by "About this Macintosh..." for free contiguous memory. In extreme cases, this could unnecessarily limit the number of concurrent applications that a user could run.

If this situation arises, use the Advanced Mode of the TCP/IP Control Panel to access the Options dialog, and remove the "X" in the "Load only when needed". After restarting the system, Open Transport TCP/IP will load when called on by an application for the first time, but will then remain loaded. This will help avoid the "memory fragmentation" that can occur for these users.

This info was taken from a web site on Open Transport which includes much information beyond what is presented here (see especially its "System Requirements" page at "[http://oak.forest.net/anma/OT\\_QandA/system\\_requirements.html](http://oak.forest.net/anma/OT_QandA/system_requirements.html)").

- Memory requirements for Open Transport can vary a great deal depending upon whether virtual memory (VM) is on or off. In particular: On a Power Mac with VM on, Open Transport requires only about 200K to load; with VM off, it can require up to 1.2Mb. On non-Power Macs, Open Transport should not require more than about 500K. Classic AppleTalk requires about 350-450K in any situation.

## **Open Transport Conflicts and Incompatibilities**

- For PPP connections: Open Transport 1.1 is only compatible with FreePPP 1.0.4 or later (or MacPPP 2.1.4 SD or later, except for version 2.2.0). If you still have PPP connection problems and virtual memory (or RAM Doubler) is on, turn it off.
- Panorama 2.x doesn't like Open Transport. When you launch it, you will get a message that says another version of Panorama is already in use and it self-quits. Upgrading to version 3.0 fixes this. Otherwise, turning off AppleTalk or reverting to "Classic AppleTalk" (if your Mac model supports this) are work-arounds.

- With PowerBook 5000 series models, sending or receiving faxes via a fax modem may card not work (but then faxing is a problem with almost any Mac). Open Transport software appeared be the ultimate source of the problem here. It is apparently also the source of other communications problems, including a failure of the PowerBook to even acknowledge that a modem card was installed. This is supposedly fixed in Open Transport 1.1.
- Replacing the motherboard seems to be the solution for persistent freezes and crashes on the Mac 6300 series (or perhaps any 603/603e based Macs). However, these Macs (as well as other Performa models) may still have model-specific problems with Open Transport 1.1.
- Netscape versions prior to 2.0 do not work with Open Transport 1.1 (and may still have problems even with this version of Open Transport!).
- One of the unhappy side effects (at least for me) of using Open Transport is that I get an increased number of freezes when I am connected online than I used to get with MacTCP. If you have the same hassles, here's a reminder: A force quit (Command-Option-Escape) will generally get you out of the freeze and quit the application. Then turn off your modem and turn it back on again. With luck, you can now reconnect successfully without having to restart the Mac.
- It is possible for FreePPP to make a successful connection even though Open Transport is not successfully working. In this case, when you try to launch a program, such as Netscape, it will not work, failing even to open your home page. When this happens to me, which is only occasionally and seemingly at random, I find that the only solution is to restart the Mac and try again.  
A bit weirder is what, at first, appears to be almost the same symptom. However, if you wait about 30 seconds or so, after making a request to check your email or launch a web page, the action is carried out - and at a normal speed once it starts. This happens every time you make a new request. This has happened to me intermittently, especially after a system crash. It appears to be some sort of extensions conflict, but I have not isolated it yet.

## **Connecting to the Internet (with TCP and PPP control panels)**

Though this section emphasizes Open Transport 1.1, it also includes some information about using MacTCP (and Classic AppleTalk).

- To connect to the Internet you will need to correctly configure either the MacTCP or TCP/IP (for Open Transport) control panels. And, if you are connecting by a modem, you'll also need to configure a control panel such as FreePPP. These can be among the biggest hurdles to getting on to the Internet.

What do these control panels do and why do you need them? The short answer to the last question is that the Internet communicates via a special "Internet protocol" (or IP). Your Mac does not "speak" this language. Thus, these control panels are sort of translators that serve as an intermediary between your Mac and the Internet, doing the conversions necessary to get your Mac successfully hooked up to the Internet. You probably don't need them if you are accessing the Internet via a commercial online service (such as America Online) or via a text-only "shell account" connection. However, the control panels are required for direct access to the Internet (such as would be the case if you use programs like Netscape, NewsWatcher or Eudora).

To configure MacTCP or TCP/IP, we need to return to the concept of the domain name. Domain names and/or their corresponding numeric addresses should be entered in the Domain Name Server Information area of the MacTCP control panel or the Name Server and Search Domains fields of the TCP/IP control panel. When you try to make a connection (and especially if there is any problem locating a numeric address or if you didn't provide a numeric address), an attempt is made to "resolve" the non-numeric name (that is, it will figure out the actual numeric address that most closely matches the name you gave). It then uses that address to connect you to the Internet. If it fails altogether, you will get an error message saying something to the effect that it was unable to resolve the domain name. In most cases, your Internet location uses special software called a "domain name server," to try to resolve your domain names when it receives your request.

More rarely, you may instead have a "host file," provided by your Internet service and stored at the root level of your System Folder, that contains a table of domain names and IP addresses. This is then used for domain name resolution.

Once domain names have been entered, the surest way to find out what next to do to configure these control panels is to get the information from the Internet Service Provider that you will be using for your Internet connection. Never mind if you understand it all, just follow their instructions *exactly*.

- **AppleTalk** If you are using Open Transport over an AppleTalk network, you may need to adjust settings in the AppleTalk control panel. For most users, configuring the AppleTalk control panel will simply require selecting what port your network is connected (printer, modem or Ethernet) and making sure AppleTalk is on (from the AppleTalk Options window). If your needs are more complex, consult your network administrator.  
Settings in the AppleTalk control panel, including whether AppleTalk is on or off, will override settings saved in the PRAM (which is where these settings are stored under Classic AppleTalk).
- **TCP/IP** To configure the TCP/IP control panel for a PPP connection, here's a quick summary of what to do: select "Connect via MacPPP" and "Configure using PPP Server." Assuming domain names have been entered, the other stuff (such as subnet masks) are automatically determined when you connect (you no longer need to fill it in yourself as you typically did with MacTCP).
- **More on TCP/IP** For those who want some more details on how to configure the TCP/IP control panel, here they are:
  - a.** Select a "Connect Via" option.  
For a PPP connection, select *PPP*.  
For a LocalTalk network connection, typically select *MacIP*. This can also be used for a LocalTalk network that is connected via a router to a larger network.  
For an Ethernet connection, select *Ethernet*.  
Other options may be listed. Exactly what you see depends upon your specific hardware and software. For example, without FreePPP (or similar software) installed, you will not see the PPP option.
  - b.** Select a "Configure" option.  
For PPP, typically select "Using PPP server." Other options, such as BootP or DHCP should typically only be selected if you are instructed to do so by your Internet Service Provider (ISP).  
For AppleTalk (MacIP), typically select "Using IP Server".
  - c.** Fill in the remaining blanks (such as IP address, subnet mask etc.) as needed.  
For "Using PPP server," only Name Server and or Search Domains needs to be filled in. For other PPP configurations, more boxes will need to be filled in. In any case, for details on what should go in these boxes, consult your ISP.



For "Using MacIP server," you only have to select your AppleTalks zone from the Select Zone window.

Note: There are more choices with Open Transport's TCP/IP than with Classic AppleTalk's MacTCP. This is because MacTCP did all of this decision making behind the scenes. This may have been simpler in some ways, but it eliminated much of the flexibility of TCP/IP.

- **Multiple settings** After you have set up a successful configuration, you are basically done with the TCP/IP control panel. However, if needed, you can create other configuration settings. To do this, select "Configurations" from the control panel's File menu. Then, from the window that appears, select "Duplicate" and give the duplicate settings a new name. Now, select the new settings and click "Make Active." This will take you back to the main window. You can now change the settings as you wish.

Now, any time you want to switch back or forth, go to the Configurations window and select which settings to Make Active.

[You can also create multiple AppleTalk settings. All of these settings can be locked, so that end users cannot change them. Some of these features require going into the Advanced or Administration User Modes. Check the Apple Guide files for these control panels for more details.]
- By the way, for you more technically inclined folks, here's some relevant info gleaned from a web site at ["http://web.syr.edu/~jmwobus/comfaqs/dhcp.faq.html"](http://web.syr.edu/~jmwobus/comfaqs/dhcp.faq.html):  
 DHCP (which stands for "Dynamic Host Configuration Protocol") is designed to "enable individual computers on an IP network to extract their configurations from a server (the 'DHCP server') or servers, in particular, servers that have no exact information about the individual computers until they request the information. The overall purpose of this is to reduce the work necessary to administer a large IP network. DHCP is based on BootP and maintains some backward compatibility. The main difference is that BootP was designed for manual pre-configuration of the host information in a server database, while DHCP allows for dynamic allocation of network addresses and configurations to newly attached hosts. Additionally, DHCP allows for recovery and reallocation of network addresses through a leasing mechanism."  
 Basically, both DHCP and BootP simplify the procedure for setting up IP addresses (by eliminating the need for the user to enter the IP) and reduces the chances of errors as a result.  
 Finally, RARP (available as an Ethernet configuration) is "a protocol used by Sun and other vendors that allows a computer to find out its own

IP number, which is one of the protocol parameters typically passed to the client system by DHCP or BootP. RARP doesn't support other parameters and using it, a server can only serve a single LAN. DHCP and BootP are designed so they can be routed."

- **PPP** Once you are done with AppleTalk and TCP/IP settings, modem users still need to deal with FreePPP (or similar utility). To do this, you need to select PPP's Configure button and then correctly enter the port speed (set it at 115K for most 28,800 bps modems connected to Power Macs; set it at 19,200 for 14,400 modems), flow control (set it at "CTS and RTS (DTR)" in most cases), phone number (your service provider's number goes here), modem init string (this tells the modem which of its options are to be on or off; the correct init can vary depending upon what service you are connecting to; get it from your modem's documentation or your online service or try "AT&F1") and any logon/password information needed for "authentication" to let you get access to the system. Here's where following your services instructions will help greatly. [In a later version of this update, I will provide more details on FreePPP configuration details, especially including changes in FreePPP 2.5.](#)
- Once you shift to using Open Transport exclusively, you can get rid of MacTCP (of course) and MacTCP Prep (if it is still around), but you should still keep the MacTCP DNR file. Even with Open Transport in use, the MacTCP DNR file remains at the root level of your System Folder. While technically not required by Open Transport, it is left there for older TCP applications that expect it to be there and won't run without it.

However, if you are having problems getting online, you might try deleting the DNR file anyway (especially if it is a pre-Open Transport copy). The system software will create a new (hopefully less problem-prone) one when it is needed.
- [Another technical tidbit from Apple, of potential interest to those switching from MacTCP to TCP/IP: "Open Transport 1.1 does not support MacTCP "Dynamic" addressing. MacTCP "Dynamic" mode addressing was based on an Apple-proprietary extension to TCP/IP protocols. It applied the address negotiation and assignment rules used by the AppleTalk protocols to TCP/IP networks, making it very easy to set-up a Macintosh-only standalone TCP/IP network. Use of this Dynamic Addressing method in other scenarios, however, could create additional work for a network administrator."](#)

- To use Apple Remote Access (ARA) with Open Transport, you will probably want to select the MacIP protocol on your host machine and the AppleTalk Remote Access Protocol (ARAP) from the mobile Mac.
- Regarding Apple Remote Access, Open Transport and PPP, Apple has the following to say: “AppleTalk and TCP/IP connectivity over Open Transport/PPP is planned to first be offered as a feature of upcoming Apple Remote Access products. ARA products would include necessary Open Transport components. Apple currently plans to fully merge ARA client and personal server capabilities with basic Open Transport capabilities to offer an integrated communications package for LANs, WANs, and remote networking. These integrated capabilities are also expected to be delivered as a part of a future update to Mac OS. This timetable has not been finalized; details will be announced at a later date.”

**See especially: "Special Section: Troubleshooting System 7.5.3 (System 7.5 Update 2.0)" and "Special Section: Miscellaneous Online and Networking Problems," for related information**

### ***Special Section: Troubleshooting Apple's New PowerBooks***

Apple's latest PowerBooks include the PowerBook 190, the 2300 and the 5300 series. The 2300 and 5300 use the PowerPC 603e processor (most models use a 100MHz version). The 190 still uses a 680x0 processor (a 33MHz 68LC040 to be exact). The 190 and the 5300 series also support PCMCIA cards (also now called PC-cards), which are needed for modem or Ethernet support. They also have infrared wireless transmission capability. Web users should check out

<http://www.cs.wisc.edu/~jonb/powerbook/index.html> for much more details.

- Apple shipped an update to its PowerBook software for the PowerBook 5300-series. The update, which fills 14 high-density disks, contains a version of System 7.5.2 just for the new PowerBooks. The update includes speed-enhancements and bug fixes for many of the problems described in this section. It also includes a new Finder, which Apple said optimizes caching to help improve performance; a new, faster emulator; a new PC Card modem extension, which Apple said fixes problems with some third-party PC Card modems and addresses faxing failures; new printer drivers; and updates to other extensions.

However, now that System 7.5 Update 2.0 has been released, you can bypass this PowerBook-specific upgrade and go directly to System 7.5.3.

- The lithium ion battery (LiIon) that originally shipped with the PowerBook 5300s was recalled. Currently, these models now ship with NiMH batteries. The problem was that Apple “experienced two isolated instances within the company where a lithium ion battery pack failed, damaged the unit and could have posed a safety risk.” In plain English, the PowerBooks caught fire. Until Apple figures out why, they have discontinued using the battery.
- A review in MacWeek gave the 5300 series PowerBooks very low marks, due to a host of hardware and software (System 7.5.2) related bugs. These include:
  - a.** With AppleTalk active, the PowerBook started having such frequent crashes that the computer became essentially unusable. Turning off AppleTalk fixed the problem.
  - b.** Sending or receiving faxes via a fax modem may card not work (but then faxing is a problem with almost any Mac). Open Transport software appeared be the ultimate source of the problem here. It is apparently also the source of other communications problems, including a failure of the PowerBook to even acknowledge that a modem card was installed.

**C.** Animations, especially in screen savers, may temporarily slow to a complete stop and then return to normal speed. The MacWeek review said they could fix this by turning off Processor Cycling in the PowerBook control panel (see page 470 of *Sad Macs* for details on how to do this, if needed). Interestingly, an Apple Tech Info Note claims that PowerPC PowerBooks do not have a Processor Cycling option. Go figure.

Most, if not all, of these problems have been fixed in System 7.5.3.

- These PowerBooks (as well as perhaps some 500 series models) may temporarily freeze (for about 20-30 seconds) when you try to move an icon in the Finder. This has been fixed in System 7.5.3.
- Apple claims that if you forget your PowerBook password (on the new models that support this feature), there is no way to bypass it because the password is written to your drive at the driver level. Even starting from a floppy disk won't work. The only option is to "take your PowerBook with your proof of purchase (receipt) to an authorized Apple service center where a technician has the means to bypass the security on the system."  
 So what happens if you don't have your proof of purchase anymore? Is your only hope to reformat the disk? There must be a better way. I don't have a PowerBook model to check this out, but will updating the disk driver work perhaps? Anybody know more about this?
- There are some reports of the 5300's floppy drive not working when a PC card is installed.
- Drive Setup 1.0.3 or later (included with System 7.5.3) fixes a problem with the PowerBook 190, 2300 and 5300 series of computers where, in some cases, the system will freeze after wake up from Sleep. The latest upgrade to Hard Disk ToolKit (1.8s) is similarly needed to correct this glitch.
- If the cursor is jumpy or erratic when you try to move it, make sure you are touching the TrackPad with just your finger (and not also your hand or wrist, for example). Also wipe off any moisture that may have collected on the TrackPad.
- If you want to attach an external microphone to a PowerBook 190, 500 or 5300 series, be aware that you cannot use Apple's PlainTalk microphone (as is used by all desktop Power Macs). However, a

microphone with the needed “line-level” design can be purchased from Radio Shack, allowing to use your PowerBook to do “PlainTalk” speech recognition from an external microphone.

- Rather than including a full set of disks with these Macs, Apple includes the disk images of all the disks on the PowerBook itself. A special utility called Floppy Disk Maker, is included so that you can easily make a set of floppy disks from these images.

Alternatively, you can try another utility called Disk Image Mounter. This utility mounts the system software images and attempts to reinstall the system software from them.

Apparently these disk images are different from the standard image format used by Disk Copy.

If you deleted the disk images before making the floppy disks, call 1-800-SOS-APPL and Apple will send you a set.

In any case, these PowerBooks do come with a Disk Tools disk for startup emergencies.

While this is a distinct improvement over the situation with Performas, which came with neither the disks nor the disk images, it is still less than ideal.

### ***Special Section: Resetting the PowerBook Power Manager***

The Power Manager (as described more in *Sad Macs*) controls battery and other power-related operations. If the data it contains get corrupted (typically caused by power surges), you may have trouble starting up your PowerBook. In this case, you need to reset it.

How to reset the Power Manager on PowerBooks continues to vary with each new PowerBook that comes out. Here (taken from an Apple Tech Info File) is supplementary information and new procedures (for PowerBook models that have been released since the publication of *Sad Macs*).

**This section updates: Chapter 11, pp. 482-483**

#### ***PowerBook 150***

1. Shut down the PowerBook.
2. Remove the power adapter and battery from the unit.
3. Push the reset button in the back of the unit with a paper clip and hold for around 30 seconds.
4. Reattach the power adapter and push the reset button in back again, but just briefly. You should hear a small pop from the speaker; this is normal.  
(Note: always plug the adapter in the wall outlet before plugging the cable end into the PowerBook.)
5. If the PowerBook did not power up in the previous step, push the main power button in back (the large exposed button). The unit should now power up.
6. If the PowerBook powers on, the battery may be reinserted (Apple suggests charging the battery for at least 8 hours before running on battery power). If it fails to start, the PowerBook may require service.

#### ***PowerBook 500 series***

1. Press the Command, Option, Control, and Power On key simultaneously. If the computer is on when these keys are pressed, the system will turn off. If the keys are pressed when the computer is turned off, nothing obvious will happen. In both instances, however, the Power Manager will be reset.

#### ***PowerBook 5300 and 190 series***

1. Shutdown the PowerBook, not restart.
2. Turn the PowerBook on and hold down the Command-Option-P-R keys.
3. In some cases, there may only be a single chime, then the screen will go dark and the green sleep light will be on solid. If so, next press the reset

button on the back of the machine (under the external video port). Then turn the PowerBook back on with the Power-On key on the keyboard.

4. In other cases, if the startup chimes may sound twice. If so, release the keys at this point. The computer may shut down or continue to start up. If it shuts down, use the small power button on the back to restart the computer.

Note: This procedure resets both the Power Manager and the Parameter RAM.

*PowerBook 5300 and 190 series (alternate method)*

1. Shut down the computer.
2. Remove the power adapter and battery from unit.
3. Push the reset button in the back of the unit and hold for 30 seconds.
4. Make sure the AC adapter is connected to a live AC outlet then connect the AC adapter to the back of the computer.
5. Push the reset button in back again, but just briefly. The computer should power on. If it does not power on, push the main power button on the keyboard.



### **Special Section: Trouble Ejecting PCMCIA Cards**

PCMCIA stands for Personal Computer Memory Card International Association. PCMCIA-cards are cards that conform to that Association's standard. For Macs, these can be used only on certain PowerBooks, specifically the PowerBook 500 series (which uses a PCMCIA Expansion Module) and the built-in PCMCIA (PC card) bay for the PowerBook 190 and 5300 series. PCMCIA cards supplement the features of the PowerBook (such as adding a modem), the exact features depending upon the contents of the card.

When a PCMCIA card is installed, one of the more frequent problems users report is difficulty in ejecting it again. Normally, you do this either by dragging the icon of the card to the Trash or selecting Put Away from the Finder's Special menu (just as you do for disks). However, if this doesn't work, here are some other suggestions:

- If you get a message that says that the card cannot be ejected because it is *"in use,"* and you have quit all open applications, it may be because the PCMCIA modem is in auto-answer mode. To eject the card, you'll have to launch your communications software and turn this option off. Otherwise, make sure file sharing is turned off; then try again to eject the card.
- For other eject problems, a paper clip can be inserted into the small hole next to the PCMCIA slot to manually eject the card. Try to avoid manually pulling the card out of the computer.
- If even this fails, Apple offers the following advice: "You can pull the card out yourself with a pair of needle nose pliers or sometimes with your fingers, if you have strong fingernails. Once the card is pulled out, try inserting the paper clip again to release the spring mechanism. If you hear the springs release, you can try inserting the card (or a different card) again. Of course, the problem may recur." If so, the card may be damaged. Otherwise, especially if the problem occurs with several cards, the Expansion Module (or bay) may be damaged and need to be repaired.

For help with other common PCMCIA-related problems, seek out an Apple Tech Info File called "PCMCIA for PowerBook: Frequently Asked Questions."

## ***Special Section: Troubleshooting Internet Addresses***

Given the explosive rise in popularity of the Internet, troubleshooting online problems is surely the number one candidate for a new topic to be included in the eventual third edition of *Sad Macs*. This and the next several related sections in this Update begin to cover these issues in some detail:

**See also:** “**Special Section: Troubleshooting System 7.5.3**” and “**Special Section: Troubleshooting TCP and Open Transport**” for related information  
**These sections also update: Chapter 11 (pp. 517-519), Fix-It #5 (pp. 646-647) and Fix-It #18 (p. 829)**

- **Domain names** Each location along the Internet has its own domain name (or IP address). You use them to tell your Mac where to send (or retrieve) information, much like your ordinary mail address. However, these addresses are a string of meaningless (to you!) numbers. To make things easier for you, you can assign a (domain) name to a numeric address. For example, the main domain name address of the university where I work (Oakland University) is *oakland.edu*.

- **Email addresses** Internet email addresses are based on the domain name scheme. They are divided into two parts: the user’s name and their location. The two parts are separated by the @ symbol. The location name itself is usually divided into a hierarchy of locations separated by periods. For example, my university Internet address is *landau@oakland.edu*. The *oakland* part of the location indicates that my account is at Oakland University; the *edu* indicates that this is an education institution. My America Online name is *Ted Landau*. However, if you want to send me email to that account over the Internet, you will have to send it to *TedLandau@aol.com*. Note that the space between my first and last name is eliminated on the Internet-based address (Internet addresses do not permit spaces). The location name tells you that it is an America Online location (*aol*) and that America Online is a commercial institution (*com*). Capitalization also matters when typing these names.

From some online services, when sending email over the Internet, you will need to add a special prefix or otherwise indicate that it is Internet email. For example, for CompuServe, you would have to address mail to my university account as “*Internet:landau@oakland.edu*.”

More generally, the phrase after the last dot identifies the type of location you are addressing, where *com* means commercial organization, *org* means non-profit organization and *edu* means an educational institution.

- **Addresses on the World-Wide Web** If you are just getting into using the World-Wide Web, you may be a bit mystified by Web addresses. What exactly are these, why are they the way they are, and how do you use them? Here's what, why and how:

First off, to use these addresses you will need to be connected to the World-Wide Web via special software, called a Web browser. Netscape is the king-of-the-hill of Web browsers now, with Mosaic trailing behind.

A web address is an example of a URL (or Uniform Resource Locator). It is indirectly based on the same domain name system just previously described. Typical web addresses will begin with the expression "http:" This stands for "HyperText Transfer Protocol." This is a linking system used by HTML (HyperText Markup Language), the language used to create Web pages. It's safe to say that the developers of the Web did not have a copy of Apple's Human Interface Guidelines on their night table when they thought all this up.

Luckily, it isn't all that critical that you remember these distinctions. What you absolutely will need to remember is *exactly* how an address is written out. Even the most trivial variation will result in the address being rejected. You will see something like: *http://www.macintosh.com/*. Everything after the colon identifies the specific location.

To go to any Web site, you have to enter the exact phrase in the appropriate spot of your Web browser (the spot will be labeled as URL or Net Site and will be followed by a blank area where you can type in the address) and then press Return (if you can't find this spot, it is probably hidden by default; there should be some menu option to "unhide" it).

If the last character is a slash, this means the address refers to a directory of files. Selecting it will open the default (or index) file associated with that directory. Otherwise, the URL refers to a specific file within a directory and takes you directly to it. If you are having trouble getting an address to work, you might try adding a slash on the end (if one is not there) or vice versa. URLs never end in a period.

The slash divisions within an address represent a hierarchical order of page locations. This means, for example, that if you drop the entire last segment of a URL, you may be taken to a page higher in the hierarchy of a related series of pages (for example, by dropping *technotes/* from *http://dev.info.apple.com/technotes/*, the remaining URL will take you to the main site for Apple Developer Services and Products, rather than the subsidiary Technotes destination of the original URL).

You can often guess an unknown Web location in a similar manner. Do you want the home page for Widgets, Inc.? Try: “<http://www.widgets.com/>.” More often than not, this works.

To save yourself the hassle of remembering and/or retyping these URLs, web browsers have a feature such as Netscape’s Bookmarks, which saves a list of the names of your favored addresses in the Bookmarks menu. I also like using Aladdin’s CyberFinder. With it, I can select a URL in any document (such as an MS Word or ClarisWorks file) and, with a keyboard shortcut, have it directly go that web page in my web browser (assuming I am online at the time, of course!). It’s even quicker than copying the URL and then pasting it into your browser.

Also, note that whenever you jump to a location by clicking on some hyperlinked text or graphic on a Web page, it is using these same URL addresses “behind the scenes,”

If you ever select an address and get a message that says something such as “Unable to connect to host,” this doesn’t necessarily mean that there is anything wrong with your address. It may simply mean, for example, that the computer you are trying to connect to is turned off for the moment! Try again later. It may work. If you get a message that says the server does not exist or the address cannot be found (or something like that), it probably means that the web page has been removed from the web (this happens quite often if you browse through the backwaters of the web!).

- **Other address on the web** Web browsers such as Netscape can be used to select URLs that are not web pages. For example, if instead of using “http:,” you use “ftp:” (followed by a correct address), it takes you to an ftp site for downloading files; “mailto:” works as a means of sending email and “news:” refers to the Internet’s newsgroups bulletin boards. “Mailto:” and “news:” are not followed by the double slashes that are used in “http://” and “ftp://” URLs.

Of course, you can also get to these other types of services through other, more specific utilities (such as Eudora for email or Fetch for ftp or NewsWatcher for newsgroups).

### ***Special Section: Troubleshooting Modems (especially modem speed)***

**For related information, also see the other online-related sections of this Update, especially "Special Section: Troubleshooting TCP and Open Transport" and "Special Section: Miscellaneous Online and Networking Problems."**

- **Modem speeds and bps** To access the World-Wide Web over a modem and move at a speed faster than a slow crawl, you need at least a 14,400 bps (*bits per second*) modem. A 28,800 bps modem would be even better. By the way, bps is commonly interpreted as the same thing as baud rate (however, they are different and baud is no longer technically correct and is thus not used much anymore).

However, just because your modem can operate at 14,400 or 28,800 speed, doesn't mean that you will get that speed on a given connection. To some extent, it's like driving a Ferrari in rush hour traffic. It doesn't matter that your speedometer goes up to 200 mph; the needle won't be going anywhere near that range for the moment. For modems to achieve their maximum speed potential, both the sending and receiving modem must operate at the same speed. So if you are trying to connect to a service that sends information at 2400 bps, your 14,400 bps modem needs to slow down to match the 2400 bps of the service. Fortunately, all modems can down shift to lower speeds if necessary, so you don't need a separate modem for each speed.

Major online services currently provide access in a range of speeds from 1200 to at least 14,400 bps. This allows people with slower modems to still use the service. These services often have different phone numbers for logging on at different speeds; they may also charge extra for using the faster speeds (though this is less common these days). Unless there is a significant cost savings in using a lower speed, make sure you log on via a phone number that most closely matches the highest speed your modem can use.

Even if you are making a supposed 28,800 connection, it may connect at a slower rate due to line noise or other related factors. I have often connected at 26,400 bps, for example.

Also, especially when you are on the web, even after you have made a connection at a specific bps rate, your speed will vary according to a host of factors that are largely beyond your control, such as the speed of the server you are addressing, how many other users are trying to access the page at the same time, and the nature of what you are trying to view (graphics go especially slow). If things slow to crawl, it might pay to come back later when the traffic is less crowded.

- **Modem speeds beyond bps**

Understanding modem bps is only the start of understanding modem speeds. Here's the rest of what you need to know:

- a. The basic bps speed refers to the speed at which the information travels from its external source to your modem (and vice versa). This is

referred to as the *carrier* (or DCE) speed. While current modems have a maximum bps of 28,800 (which is likely not to go any higher), they can increase their apparent speed through compression of the data. This hardware-based compression is similar to how a software utility like StuffIt works.

The essence of modem data compression works is like so: suppose you wanted to send a telegram as fast as you could, but it could only go at best 10 letters per second. Your 500 letter telegram would take 50 seconds to send. Now suppose you found a way to eliminate 20% of the letters and still retain all the meaning of the telegram. Your message would now only take 400 letters and thus 40 seconds. When the recipient reads the telegram, he essentially “decompresses” it. So in some sense he received all 500 letters in less time.

The designation for the most popular data compression process in use today (on 28.8K modems) is V.42bis. It has the advantage over other methods (such as MNP) of being able to detect if a file has already been compressed. For example, if you are trying to send a StuffIt file over the modem, it cannot really be compressed much further, if at all. V.42bis will detect this. However, this means that such a file will not transmit any faster with V.42bis in place than if it were not present. Actually, in some cases, compressed files will transmit slower with V.42bis turned on, although rarely enough slower to worry about (by the way, your modem init string is where you would include information to turn compression off, if desired)!

These technologies also include error-correction protocols to ensure that the data gets transmitted correctly at these high speeds.

**b.** Once the data hits your modem (and gets decompressed) it has to travel to your computer (through the serial port). This is called the *connect* (or DTE) speed. The fastest connect speed is referred to as the *maximum throughput*. The DTE speed can be (and usually should be) set to higher than the DCE speed (as I will explain more in a moment).

However, the DTE connect speed represents a potential bottleneck. Your Mac may not be able to receive data at anything close to the modem’s ability to send it. In particular, the maximum serial port speed on Macs slower than a IIfx (virtually all 68030 and slower Macs) is limited to 9600. On 68040 Macs, this can apparently boost to 19,200. On Quadra AVs and Power Macs, it can be as high as 230K!

For most 28,800 modems, data can (under ideal circumstances) be compressed 4X (that is to 1/4 its size). This means that, once the modem decompresses your data, it is ready to travel to your Mac at a rate of 4 x 28.8K, or 115K (a few modems can do an 8X compression and thus

transmit at 230K). However, you will only get these throughputs if your Mac supports them (as just described) and even then most transmissions will not be close to this ideal because most files cannot really be compressed this much.

By the way, the reason that the Power and AV Macs have a faster maximum throughput than other Macs is because of the faster GeoPort DMA serial architecture used by the modem serial port on these Macs (and the SerialDMA extension was a bug-fix for this DMA architecture).

**c.** To get the best maximum throughput, you also need software that allows you to select these speeds. For example, FreePPP's Port Speed selections do go as high as 230K.

In this regard, Global Village Platinum modem software comes with a "Maximum Throughput" option that boosts transmission to 115,000 (the maximum possible with this modem and a Power Mac) even if your software does not include this speed. Similarly, you may be able to give almost any 28,800 bps modem a speed boost via a shareware utility called SerialSpeed 230. Even if you can't use the program, its excellent Read Me file is worth getting. It explains all of this stuff in more detail that I can do here. Another worthwhile document to read is the *FreePPP FAQ* file that comes with FreePPP 1.0.5 or later.

**d.** The bottom line? The same modem attached to two different Macs doing the same task may operate at very different speeds. In general, if you are connecting at 14,400 bps, you are generally advised to set your software's port speed setting to 19,200. If you are connecting at 28,800 bps, you should set the port speed to at least 57,600. If you have a AV or Power Mac, the latest SerialDMA software (as built-in to System 7.5.3), a 28,800 bps connection, and your software supports these higher speeds, you can set your port speed as high as 115,00 or even 230,00. Try these higher settings. If your system can't support that selected speed, it will usually just automatically adjust downward to a speed it can handle. However, if problems (such as freezes and crashes) occur (and they become more likely at 115K and 230K), you may have to select a slower speed yourself.

**e.** Oh, one other thing: these higher speeds typically require a special modem cable (that's the one that goes from the modem to your Mac) called a hardware handshake capable cable. All modems that need this cable should come with one. But if you try to use a cable from some other slower modem (as I once did to my chagrin and which is easy enough to do since they look identical in appearance) you may find that

you can't connect at these high speeds. The newer type of cable is necessary to support the high connect speeds (higher than 9600) and flow control settings (such as "CTS and RTS (DTR)") used for these connections.

By the way, "handshaking" refers to the method used to control the flow of information from the modem to the Mac (or between two modems). Hardware handshaking (which uses CTS and RTS) means the protocols are built into the hardware (i.e., the modem). Software handshaking means that the flow control is handled by your communications software (and you will typically select XON and XOFF).

**f.** When even these speeds are not fast enough for you, you'll have to start looking at the telecommunications technologies of the future, such as ISDN (Integrated Services Digital Network). They require special digital phone lines that may or may not yet be available in your neighborhood. But they are coming! Connecting via your TV cable lines is another promising superfast connection of the near future. Otherwise, there are T1 and T3 connections (which you can afford to install in your home only if you happen to be in the same league as Bill Gates).

**g.** While all of this terminology can be more than a bit confusing (I never did explain exactly what RTS and CTS actually mean for example), what I presented here should suffice to help you figure out the correct settings for your machine. Fuller understanding (if you really need it) can come later.

- **A word about using your Mac as a web server** If you get into designing your own home page for the web (a popular activity these days!), you may next be tempted to set up your Mac as a web server (using software such as WebSTAR). While this is amazingly easy to do and has numerous advantages over other methods, it has one big disadvantage for most individual users: it is expensive. This is because of the connection costs. A 28,800 bps modem will simply not be fast enough to support any sort of decent-sized web traffic; an ISDN line is the minimum you will need. If you get fancy, you will also need routers and possibly other expensive networking devices. Also, you will need to get a dedicated line (that is, one that connects your Mac to the web 24 hours a day). This too is more expensive than your typical dial-up line. Along with this, you will need a *static address*. This (as opposed to a *dynamic address*) is one that stays the same every time you connect. Users who just browse the web do not need this. Again, static addresses



are more expensive to get. Unless you are rich or expect to make a profit with your web site, the costs are too high to make this a viable option. The better option is to upload your site to an Internet Service Provider (ISP) and let them act as the server.

### **Special Section: Problems Downloading and Uploading Files**

**Downloading** Downloading a file from an online connection means you now have a copy of the file on your drive. After disconnecting from your online service, you can use it just like any other file you copy to your drive. However, it may not be quite as easy as all that. In particular, you may double-click the file and get a message to the effect that the file can't be opened. Why? And what should you do about it? Here's why and what:

- If you are downloading a file from an Internet FTP site (or if someone sent you a file via email over the Internet), chances are the file name ends in a suffix “.hqx.” This means the file is encoded in what is called the *binhex* format. This encoding is needed because most Internet transfers (especially email) do not support a direct binary transfer (which is standard on commercial services, such as CompuServe and America Online, and which typically does not require any separate encoding or decoding on your part). Before you can use a binhex file on your Mac, you will first have to decode it. Conversely, to send a Mac file (other than an ordinary text file) over the Internet, your best bet is to first encode it into binhex format.

A binhex file is essentially a ordinary text file. However, the content of the file is in “code.” The code, in turn, can be decoded with the right software to recreate the original Mac document or program. The first line of a binhex file will typically read “*(This file must be converted with Binhex 4.0).*” The remaining text will appear to be meaningless nonsense (which, of course, is the coded information). If needed (because of file size restrictions in certain cases), a program can be converted into several smaller binhex file segments, with each segment rejoined when it is decoded, so as to recreate the original single file.

Some communications software automatically decodes downloaded binhex files for you. Otherwise, use a freeware utility (available online itself!) from Aladdin, called StuffIt Expander. Even better, get the enhanced shareware version of it, which includes additional translation options as well as another utility, called DropStuff, which you can use to encode files that you want to send. To use either of these utilities, just drag the file to be converted to the program's icon and let go (drag-and-drop). The utility will launch and automatically convert the file.

These Aladdin utilities can also decode/encode files using the much less common UUencode format, occasionally found on the Internet.

- Even after decoding (or if decoding was not necessary), the file may still not be usable. This is because it may be in a compressed format (such as a StuffIt archive, which will typically have the suffix: “.sit”). Other types of compressed files may have suffixes such as “.cpt” and “.zip”). Sometimes these files are “self-extracting,” (often with a suffix such as “.sea”). If so, they can be decompressed simply by double-clicking the file (a new uncompressed copy of the file is created). Again, some online services automatically decompress downloaded software when you quit their program. Otherwise, StuffIt Expander can decompress all of these formats. If in doubt, open the Expander program and select its Preferences command. Here you will have the chance to see what types of files it can decode and decompress and select exactly what you want it to do.
- After Expander has finished decoding and decompressing the file, it still may not open. Most often, this is because you do not have the needed application for the file. For example, many graphics will have a “.GIF” or “.jpeg” suffix. These indicate special graphics compression formats that many standard Mac applications cannot open. If you are having trouble, you will need a shareware utility (such as JPEGViewer) to open these. Similarly, sound files of the “.wav” or “.AIFF” format may need special applications to open them. Again, there are shareware utilities that can open almost any type of sound file (a popular one is Sound Machine). If you need help determining what shareware program you need to open some file, go online to where you downloaded the problem file, go to the bulletin board area for the forum (or wherever you go to ask questions) and ask for help. They’ll tell you what you need.  
By the way, GIF and JPEG files are the only types of graphics accepted on web pages, so you are especially likely to find them there.
- Another problem may be that you do not have the needed “viewer” to read the file. For example, many online documents these days are in the “Acrobat” format. Viewing these files requires the Acrobat Reader program. This too is freeware and is available online.
- Especially in the case of many of the update files from Apple, the file may be in a disk image format (often with a “.image” or “.img” suffix). In this case, you will need a program called Disk Copy (it comes on the CD-ROM disk that is included with most Mac models these days;

otherwise it is available online). With this program, select its “Load Image File” command and open your “.image” file. You can now “Make A Copy” of it to a floppy disk, just as if you were copying a real floppy disk. The floppy disk will now, finally, contain the files you can open. An alternative to this, that I prefer, is to get a shareware program called ShrinkWrap. Simply drag-and-drop the disk image file to ShrinkWrap and ShrinkWrap will mount an image of the file on your disk exactly as if it were a floppy disk. This saves you the hassle of actually having to copy the stuff to a real floppy disk. Of course, this pseudo-floppy disk is just temporary. But it doesn’t matter. In most cases, what will be on this disk is not the file you ultimately want, but an Installer utility. You now run the Installer utility and install the files on your hard drive. Finally, you have the files you downloaded in a usable form. You can now trash the ShrinkWrap mounted disk image (but save the original image file as a backup in case you ever need to reinstall this stuff).

- When downloading an *hqx* file from the web via a web browser, if the download uses an http address rather than an ftp address, it may appear as text in a web browser window rather than download as a file. This may be because you have not identified a helper application that is designed to handle files of an *hqx* file. You will have to adjust the preferences in your browser (in Netscape, go to: Options: General Preferences: Helpers) to fix this. If this does not work, it may be a problem with how the server is set up. This will need to be fixed by the webmaster. Contact him to alert him of the problem. Similar problems may occur with other encoded files.

**Uploading** When uploading files, you will need to specify what type of file is being transmitted. Text files and BinHex (“.hqx”) files will transmit as *Text*. Other files will most commonly transmit as *Binary* (or *raw data*) with a “.bin” suffix. However, if you are sending a Mac program to another Mac user, you should choose *MacBinary*. The difference between Binary and MacBinary is that MacBinary files include a “resource fork” that is only interpretable by Macintoshes.

### ***Miscellaneous Online and Networking Problems***

This section contains an assortment of troubleshooting tips (that didn't seem to fit elsewhere) designed to help you get online (or networked) and stay there successfully. This section will certainly be expanded in future updates.

For related information, also see the other online-related sections of this Update, especially "Special Section: Troubleshooting TCP and Open Transport" and "Special Section: Troubleshooting Modems."

## Modem software and firmware

- Having fax software problems on PCI Power Macs? Try a clean reinstall of system software. If you use PPP software and you are having problems with your faxes, make sure you have closed any PPP connection before trying to send or receive faxes.

With MS Office applications and FAXcilitate, select Fax Setup (and then click the Print button) rather than directly selecting the Fax command. Otherwise, you may get Type 1 errors.

With Global Village, changing the loading order of its Toolbox extension (earlier or later, depending upon your specific setup) may help resolve problems.
- If you have problems connecting online and you have fax software installed, turn off the fax software (or at least any fax receive options). This has been reported as necessary for both Global Village and Supra modems (though fixes are in the works).

By the way, in my opinion, Global Village fax software is the most problem-free fax software you can get (unfortunately, you can only get it if you get a Global Village modem).
- Some modems, such as the popular Global Village Platinum modem, can actually have their ROMs (firmware) upgraded by the user. This is because the modems use a "flash ROM" that can be "permanently" recoded by running special updater software. If your modem has a flash ROM, check with the vendor to make sure you have the latest update. These updates fix bugs or provide improvements such as faster throughput.

For Global Village modems, if you want to find out what version of the firmware you currently have, open the Global Village Fax Center software, hold down the Option button and click anywhere on the word "GlobalFax" at the top of the window. The window that appears will include the firmware number. And, if it says you are using an older version than you think you have installed, go to the TelePort control panel and click the Modem Reset button, then try again.

By the way, if you have a Global Village modem and a PCI-based Mac, also make sure you are using at least version 2.5.6 of the TelePort software (a separate upgrade from the firmware upgrade). It fixes

incompatibilities between the GlobaFax software and online applications (such as America Online). Also make sure you have the 1.0.1 Update to the GlobalFax OCR software. Updates are available at the Global Village's web and ftp sites.

## **Netscape and web browsing**

- For system freezes and unexpected quits specific to Netscape, get and install a freeware extension called Netscape Defrost and/or upgrade to Netscape version 2.0.1 or later. Netscape Defrost may also be of benefit for other Internet applications.

Especially note that Netscape versions prior to 2.0 do not work with Open Transport 1.1 (and may still have problems even with this version of Open Transport!).

- Even though Netscape allows you to scroll text or click on text links before graphics are done loading, you may still be frustrated by the fact that (at least on some pages) not all the text appears until the graphics finish (or almost finish) loading. You can easily fix this. Just go to the Options menu and then select General Preferences. Next select "Images." Then click on "After Loading" rather than "While Loading." Now all text will rapidly appear before the slowdown to load graphics begins.

If even this is not fast enough, remember that, at any time, you can press Command-Period (or the Stop button) to halt a load and display whatever has already loaded. If what you want is already there (including links), it will be active and usable. If you decide you need to see the full page after all, just click the Reload button.

As a last resort, if you don't care if you see any graphics, you can turn them off by unchecking Auto Load Images from the Options menu.

Finally, remember that if you click a link to a location on the same page and that part of the page has not yet loaded, the transfer will be interrupted and the link will be unsuccessful. The solution is to click Reload and wait for everything to load this time.

Also note that turning off graphics may prevent web counters from counting that you "hit" the page.

- Users continue to report that Netscape, even in its latest versions, has memory leak problems (where it "holds on" to its memory allocation even after you quit the program. One report I saw (which I cannot verify) claimed that simply checking your disk with Disk First Aid (even though it may report no problems) will free up the memory.

Some users also claim that unchecking the "Load Only When Needed" option in Open Transport (accessed from the Options window, available when in Advanced or Administration User mode) will fix this problem (though others claim that doing this causes yet other problems).

- Netscape may crash, when loading up a lot of pages, unless you first increase its memory allocation.
- Netscape Navigator, by its own admission, probably writes more often to your disk than any other application you own. This increases the risk that data corruption may occur when running Netscape. So if you use Netscape often and are getting an unusual increase in B-tree or other related errors, Netscape would be a prime suspect.
- Netscape versions prior to 2.0 do not work with Open Transport 1.1 (and may still have problems even with this version of Open Transport!).

## **PPP access**

- If you find that FreePPP spontaneously dials up (especially at startup) (and you don't like this idea), make sure you have its "Disable Auto Connect" option checked. This problem is an especially common side effect after updating to System 7.5.3 and unchecking the "Load Only When Needed" option in the TCP/IP control panel.
- FreePPP 2.5 is will soon be available (it's already out as betaware). It's a major upgrade to the PPP software.
- Make sure you have no other copies of FreePPP or MacPPP on your disk except for the one in your System Folder. Apparently, these other copies can cause problems with PPP connections even if they are not in your System Folder.

## **Ethernet**

For those of you unfamiliar with Ethernet, here's a (very) brief intro: it is an alternative to LocalTalk, now made more easy to do on recent Macs (especially PCI-based Macs) that have built-in ports for making Ethernet connections. It has the advantage of increased speed over LocalTalk but is still usually significantly more difficult to set up and manage.

- Your Ethernet address is built into your hardware. However, software (such as the Apple Lan Utility) can change it. Supposedly, PCI Macs incorrectly read the address prior to System 7.5.3/Open Transport 1.1. Open Transport 1.1 reads the correct address. For this reason, when you upgrade to System 7.5.3 (which uses Open Transport 1.1), your Ethernet address may change. Actually, this issue is a lot more complicated than I have described here and involves something called the Open Firmware component.

If you need more help, check out the following URL:

“<http://www.macintosh.com/ethernetaddr.html>.” Here’s an excerpt: “System Update 2.0 (System 7.5.3) includes a fix for the Open Firmware bug that impacted the Power Macintosh 7200, 7500, 8500, and 9500 systems. A system with an address stored as 00:A0:40:xx:xx:xx (originally considered improper), once updated to MacOS System 7.5.3, will now appear as 00:05:02:xx.xx.xx on the wire. This change impacted a Open Firmware component; it is not a part of Open Transport v1.1.”

- PCI-based Macs come with a built-in 10Base-T Ethernet port. This can allow you to connect two Macs together (or a Mac and a printer together) via an Ethernet connection just with a simple cable connection (other Macs with Ethernet ports need a AAUI transceiver). However, you can't use the standard Ethernet RJ45 cable. Instead, get a special cable called a cross-over cable. Then select "Ethernet" from the Open Transport AppleTalk control panel.

Connecting three or more devices can get more complicated and will probably involve getting an Ethernet "hub."

Some reports indicate that connecting two Macs together poses a special problem not relevant when connecting a Mac and a printer together. In particular, the Mac does not start up with Ethernet active if it does not "see" a device connected on the Ethernet network (it defaults to LocalTalk instead). Whichever Mac starts up first will therefore default to LocalTalk, preventing the connection from working. The solution is once again more hardware (including something such as Farallon's Etherwave transceiver to act as a hub) plus switching back to the standard cable. Other reports indicate that this will be unnecessary and that the cross-over cable trick should work.

- Under certain network conditions, the Power Macintosh 7200/90 computer's built-in Ethernet port may fail to successfully send large packets over Ethernet. The problem can lead to crashes and timeouts during transfers. This problem has been corrected in currently shipping units (with serial numbers xx544xxxxxx or above). More details on how

to determine if your Mac is subject to this problem is available in a Tech Info file (available at Apple's online locations; Web users can search at <http://til.info.apple.com/til/til.html>). But you'll probably find it easier to just call up 1-800-SOS-APPL. If you have one of the defective Macs, Apple will fix it or replace it.

- Apple's built-in Ethernet hardware (the "MACE" controller) in Quadras and some Power Macs can cause freezes and/or corruption of data. The Apple Built-In Ethernet extension fixes these problems as does the new Ethernet driver included as part of Network Software Installer 1.5. Network Software Installer 1.5 or later (which is recommended to solve a variety of performance and compatibility problems) installs software newer than what is installed with System 7.5, so remember to reinstall it if you should ever do a clean reinstall. *Note: This Installer update is not needed if you use System 7.5.2 or later with Open Transport.*

### **Odds & Ends**

- If you get a -43 error when trying to launch a file using CyberFinder, it is probably because you have replaced or renamed one of the helper applications listed in its control panel. To fix this, either rename the program to the original name or delete the helper listing and then add a new one for the new helper.
- At Ease 2.X apparently does not work with Open Transport on 680X0 Macs. It hangs at startup.
- Turning off AppleTalk may improve speed and reduce transmission errors. Try it if you have persistent problems.



## ***What's New? (Version History)***

**What's new in version 2.1?** The special sections relating to System 7.5.3 and/or online/Internet issues were reorganized, updated and expanded. The result was the creation of several new sections and the elimination of one. New sections are: "Troubleshooting Drive Setup," "Troubleshooting TCP and Open Transport," "Troubleshooting Internet Addresses," "Troubleshooting Modems (especially modem speed)," and "Problems Downloading and Uploading Files." The "Troubleshooting Online/Internet" section was eliminated (its material incorporated into the new sections). Numerous other updated items were added and revisions made throughout the rest of the Update.

[Preview: look for a new Special Section on "Troubleshooting Netscape and Other Web Browsers," in the next revision to this Update.]

**What's new in version 2.0?** The biggest addition is the "Troubleshooting System 7.5.3 (System 7.5 Update 2.0)" section and the related near-elimination of the "Troubleshooting System 7.5.2" section.

Major revisions were made to the "Troubleshooting Online/Internet" section and a new "Miscellaneous Online and Networking Problems" section was added.

Scattered throughout the Chapters, Fix-Its and remaining special sections is other updated material, mostly related to System 7.5.3, although also including an assortment of new more general information.

**What's new in version 1.0a?** Okay, I admit it. In my rush to get Version 1.0 of this Update out the door and uploaded on to online services, I didn't do as thorough a job of proofreading as I should have. Numerous typographical errors slipped through and several items needed to be revised for clarity. Though I am sure there are still a few corrections I have missed (there always will be!), this version should be much cleaner.

Second, I have added several dozen new items, particularly in the Special Sections part of this Update. In the next version of this Update, I will include a method for identifying what items are new, so you can more easily locate the new stuff.

[I especially want to acknowledge Ric Ford's MacInTouch MacWeek column and Web page, MacSense, the Macintosh PCI Discussion List, Apple's Information Alley and Apple's Tech Info files as important sources for information in this Update.]

### ***A Blatant Advertisement for Sad Macs***

If you are reading this Update but don't yet own the second edition of *Sad Macs, Bombs, and Other Disasters*, why not buy a copy today? Whether you are an eager novice or a jaded power user, you won't regret it. It's the best troubleshooting guide for the Mac that you can get anywhere. But don't take my word for it. Check out this sampling of what other people are saying about *Sad Macs*:

Main selection.

— *Mac Professional's Book Club*

"...the hardware- and software- troubleshooting guide that ought to ship with every Mac."

— *Andy Ihnatko, MacUser*

"...the definitive guide for troubleshooting Mac problems."

— *Bob LeVitus, Help Folder, MacUser*

"To get better insight into what causes errors and to find out how to deal with them, you will need a copy of Ted Landau's *Sad Macs, Bombs, and Other Disasters*. It's worth every penny..."

— *Bob LeVitus, Help Folder, MacUser*

"I agree that Ted's sage advice is well worth the investment."

— *Christopher Breen, Help Folder, MacUser*

"Ted Landau is a true expert in Macintosh troubleshooting, and his book, "*Sad Macs, Bombs, and Other Disasters*," is an excellent reference."

— *Ric Ford, MacInTouch, MacWeek*

"For additional disk-repair options and strategies, see Ted Landau's book, *Sad Macs, Bombs, and Other Disasters*, second edition."

— *Lon Poole, Quick Tips (answering a reader's troubleshooting question), Macworld*

"Whether you're still operating with System 6.1 or are in charge of a workgroup, this book gives you the background needed to diagnose a problem and take steps to prevent its recurrence."

— *Macworld*

“BMUG Choice Product.”

“Using a nontechnical, step-by-step approach, this book provides disaster relief at its finest. Whether you are a new or seasoned user, this book is crammed full of updated and vital fix-it information you can’t survive without.”

— *BMUG*

“With *Sad Macs*, you’ll be well-prepared when trouble hits. This book is like a wise uncle who has seen it all before. A keeper.”

— *Charles Haddad, Mac News, Atlanta Journal/Constitution, “Three books answer most Mac questions”*

“A well conceived and well organized troubleshooting handbook for Mac users, written with the novice in mind but with enough thoroughness and credibility that even experts won't yawn or wince.”

— *Book News, Inc.*

“Every novice Mac user should have this book...Every Mac power user should have this book...Every Mac office should have this book...A clear, complete and helpful book for times of trouble.”

— *Robert M. Slade, Editor and Reviewer, DECUS Canada Communications*

“Out of all the books I have read on the [Macintosh], I found your book to be the most helpful. It is well written and well organized.”

— *Dennis Biswell, Stauffer Magazine Group*

“[*Sad Macs*] has given me an incredibly better and broader understanding of the operation of my Power Mac...If Apple was smart, they’d include a copy with every computer they sell. Again, thanks for your outstanding book. It deserves all the praise it is receiving... I know they don't award Pulitzers to computer books, but I think in your case they should make an exception.”

— *Dave Wood, Free-lance Business Communications*

“...the only book that Apple recommends as reading for its [Support Techs].”

— *R.R., Apple Support Technician*

*Sad Macs, Bombs, and Other Disasters*, second edition (Addison-Wesley, 1995, \$34.95, ISBN 0-201-40958-5), is available at all major bookstores. It can also be ordered from various Web site locations (including Addison Wesley’s Web site: <http://www.aw.com/devpress/>).

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