

## THE ACADEMY OF PLUMBING 16 – HOW NOT TO TRASH YOUR MAC

Prebinding. Heard of it? It's an arcane Unix procedure whereby bits of the system figure out where bits of applications are, and vice versa, and cache that information in order to make applications start up quicker. Or, at all. It's what happens when an Installer says 'Optimising System' towards the end of an installation process. It used to be a fairly lengthy operation under OS X 10.3 Panther, but under 10.4 Tiger it usually takes only a few seconds. It's recently come to light that updating the prebinding is a rather more delicate process than was at first thought, in that if anything happens to distract the Mac while the procedure is taking place, not only can it fail to complete properly but certain vital system files can be damaged or even deleted, causing untold future misery.

So, there's a golden rule. **IF YOU'RE RUNNING AN INSTALLER OF ANY KIND, DON'T DO ANYTHING ELSE ON YOUR MAC (OR LET ANY OTHER PROCESS RUN IN THE BACKGROUND) UNTIL THE INSTALLER HAS COMPLETELY FINISHED.**

For Apple software updates delivered via Software Update, here is a tried-and-tested procedure, which, while slightly different from some of those published elsewhere, works for me, with Tiger.

### INSTALLING APPLE SOFTWARE UPDATES

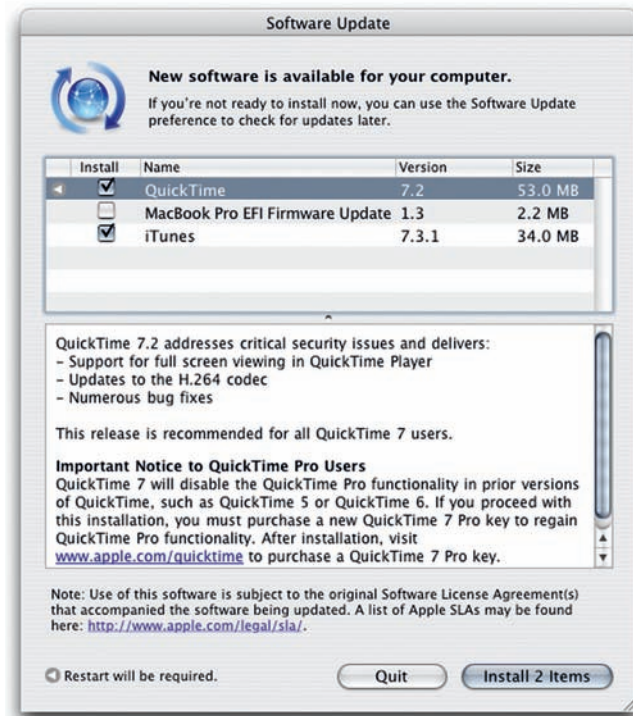
Apple Software Updater has informed you (or you have otherwise learned) that Apple software updates are available for install. Right then.

- 1) Make sure you have Applejack (<http://tinyurl.com/phvdd>) installed. It's a great utility, but can only be installed on the current start-up volume, meaning that you have to be running from the volume you want to install it onto. If that volume has gone wrong, you can't install Applejack after the event to take advantage of its diagnostic and repair functions. Check the box out for download, installation and operation instructions.
- 2) Disconnect all FireWire and USB devices except for your keyboard and mouse.
- 3) Run Applejack.
- 4) Let the Mac restart, then run Apple Software Update. Accept all updates except for firmware updates and OS X System updates (see below). Let Software Update download and install everything. **DON'T DO ANYTHING ELSE WITH YOUR MAC WHILST THIS IS HAPPENING.** When it's finished, restart, even if you're told you don't have to.
- 5) After your Mac has restarted, restart again and run Applejack again.
- 6) Reconnect your FireWire and USB devices. Cruise back into problem-free computing, smirking smugly at those who didn't follow this procedure pulled over at the side of the road with their bonnets up, waiting for the AA man (or digital plumber).

### FIRMWARE AND OPERATING SYSTEM UPDATES

Bluetooth, EFI and optical drive updates actually replace the firmware in these hardware modules, which are tiny microprocessors in themselves. If the update process fails, you can be left with a dead module that can't be resuscitated. It's therefore best to install these individually and not in a batch with other updates. Sometimes they don't actually install at first, but merely copy themselves to your hard drive and require you to manually install them, or install themselves at the next system restart. Whatever the process required, pay full attention to the updater instructions, what you're doing, and make sure the power to your Mac can't fail while you run the updater. In this screenshot I've unchecked the MacBook Pro EFI Firmware Update as I will install it separately from the rest.

I personally never run an Operating System update offered to me by Software Update if it's a Delta update, say from OS X 10.4.9 to 10.4.10. I always find the relevant Combo updater on Apple's website, download it and run that. Because the Combo updates more files than are strictly needed by the Delta update, and because the prebinding process (that again) is run at the end of this procedure, I



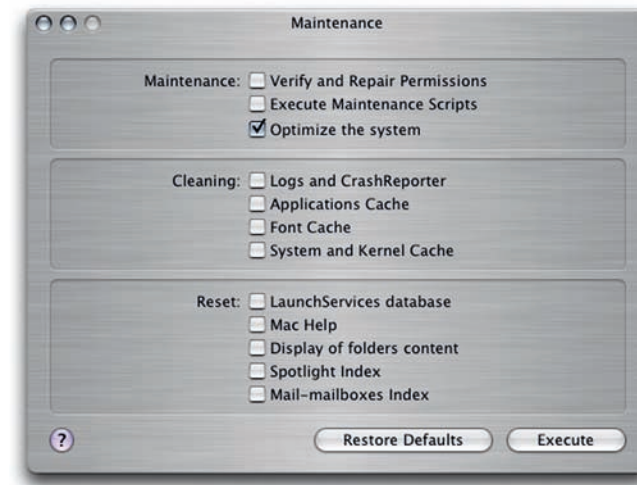
find (and it's generally agreed) that most system update problems are avoided by a Combo update.

### BREAKAGES

System updates almost invariably break things. Broken things include little add-ons, haxies and badly written programs, which surprisingly or not include some high-profile, widely used applications. Those issuing from the Land of the Rising Sun often fall into this category, as do printer drivers. Suspicious little add-ons include anything relying upon APE (as it's called in System Preferences, if you have it) and InputManagers. Look in your Library folders for anything called InputManagers and whip out their contents. Problem gone? That was it.

Sometimes, Apple system updates are themselves buggy and introduce problems. The recent QuickTime 7.2 update broke CFM-based applications on Intel Macs such as Microsoft Office, CS2 and others because the prebinding process at the end of the installation failed. The problem is easily fixed by running the prebinding process again, which can be done by Onyx (<http://tinyurl.com/bk76l>) or the somewhat simpler Maintenance (<http://tinyurl.com/bk76l>), both of which are free.

Whenever Software Update alerts you that updates are available, take a look at what's on offer. Is the update critical (as Security Updates usually are) or is it something that can wait, especially if you're in the middle of a job? If possible, just dismiss the Software Update window, have a shufti at MacFixIt.com and see what's written about it there. Wait a day or two for any problems, and their fixes, to materialise. If you rely upon any favourite add-ons or haxies, see if they're broken by the update and consider whether you really need



to update now, or can wait until your add-on is itself updated. If it ain't broke, don't fix it.

### ADOBE UPDATES

Watch 'em. For some reason, and no-one really seems to know why, Adobe appears not to be terribly good at writing installers and updaters. Adobe Reader, in particular, has suffered some terrible point-update problems. So, if Adobe Updater pops up and offers to update a whole load of arcane stuff for you, just remember that if it ain't broke, don't fix it. Go and look at the usual-suspect websites first to check that you're not letting a monster in through the door. I'm sorry if I upset any Adobe types reading this, but I merely report the world empirically: the solution is in your hands.

### IF IT AIN'T BROKE, YOU'RE GOING TO HAVE TO FIX IT ANYWAY

In direct contradiction to my last statement, I've found that computers and software are an exception to the time-honoured rule of leaving working things well alone. The problem is twofold:

- your computer hardware has a finite life; and
- the demands that you and the outside world place upon it change more rapidly than you might think.

So you have this fabulously reliable 400MHz G4 running OS 9.2.2, Quark Express 3.1 and Photoshop 5.5 that has never let you down. Never crashed, ever. Excellent. Lucky you. You still shoot film, too. No problem. Then you go out and buy a big DSLR and want to shoot RAW. Ah. All of the RAW developers that understand your camera only run in OS X. Which requires more memory and faster hardware than your G4. You need a new Mac, which now runs an Intel processor rather than PowerPC and doesn't run Classic, so you can no longer run Quark 3.1 and have to buy Quark 7 for a thousand quid (ouch) or learn Adobe InDesign, which you've just bought as part of Adobe Creative Suite 3 Advanced Full Monty for another thousand quid because, of course, you can't run Photoshop 5.5 either. And then you have this high-end SCSI scanner that doesn't have driver software for OS X. Not even VueScan (<http://www.hamrick.com/>) supports it. And you can't get a compatible SCSI card. And your G4 had a built-in Zip drive...

Get the picture? While I'm not in favour of constantly chasing the upgrade dragon, If It Ain't Broke Don't Fix It can lead you unwittingly into a tsunami of merde when finally that upgrade is forced upon you. As with most things, upgrading little and often is usually better than all at once. And if you have a network of computers, with an old server, add knobs to that last statement. Lots of them.

### PLUMBER WEBSITE

I've put up an area on my website with direct download or purchasing links to items mentioned in these columns, saving you

## Installing and running Applejack

Even though it is now justly famous, I remain surprised at just how many Macs I come across that don't have it installed. Yes, it's possible to carry out all of its functions in other ways but they're all more geeky, time-consuming and less convenient.

- 1) Download and install AppleJack (<http://tinyurl.com/phvdd>). You need to be an administrator or know an admin username and password to complete the installation. Most of you will be by default.
- 2) Restart the Mac in Single User Mode by holding down the Apple and S keys immediately after you hear the startup chime, keeping them held down until the screen turns grey, and then black. Then release them.
- 3) The screen will then fill with gibberish in white text. The gibberish will eventually stop at the line `localhost:/ root#`, at which you type 'applejack AUTO restart' (that's lowercase 'applejack'; a space; then uppercase 'AUTO'; then another space; then lowercase 'restart', but without the quotes), then press the Return key twice.

AppleJack will proceed to get Unix to fix your drive, repair permissions, clean out cache and swap files, verify preference files and reboot your Mac, which will initially seem slow as it rebuilds caches. It will quickly speed back up to normal, though, and usually feel faster and more fluid than it did before being AppleJacked. Ah, how we nerdy types still love inventing verbs.

If for any reason Applejack appears to take an awfully long time or get stuck in a loop repeating a particular step, such as the first step of repairing the hard drive, then you have bigger disk directory problems than Apple's fsck disk repair program (which is what Applejack is running) can fix. Then, we move on to sterner stuff. Press and hold the power button on your Mac to shut it down.

### TARGET DISK MODE

The Mac can be started up into a special mode in which it is not running as a computer, but as a FireWire hard disk that can be connected to another Mac with a FireWire cable. Its internal hard disks and any CD or DVD in its optical drive will then mount on your other Mac's desktop. This is very handy when you have hard drive problems that Applejack can't fix. Start up your Mac in Target Disk Mode by holding down the T key at the chime, keeping it held down until you get a grey or blue screen with a large FireWire icon jumping around it. Then connect it to another Mac with a FireWire 800 or 400 cable. Make sure you have a copy of DiskWarrior (my favourite: <http://tinyurl.com/39r6ev>) or Drive Genius (<http://tinyurl.com/2csptq>) to hand, and repair the faulty disk directory with it. When the process has completed, unmount the target Mac's volume(s) from your desktop, press its power button to shut it down, and then repeat the Applejack process to complete the disk's repair.

If you don't have a second Mac to hand, both DiskWarrior and Drive Genius are available on CDs from which you can boot your errant Mac to fix it. Put the CD in the drive and hold down the C key on start-up to make the Mac boot from the CD or DVD.

the bother of having to type out these URLs by hand. I've also added all of my columns to date as PDFs for you to download and keep, and have put up several procedures for easy reference such as the Applejack installation and usage procedure, and links to other sites I find useful. So, go to <http://tinyurl.com/34dlxh> and bookmark it. You know it makes sense. You might find the site cute, too.