



Bringing the System into line

The latest update to the Mac OS sees all current Macs using the same version of system software. Chris Cain checks out the changes.

If all goes according to plan, by the time you read this, Apple will have released the latest update to the Mac OS. System 7.5 Update 2.0 is designed to bring the system software for all current Macs into line, and provide new features and bug-fixes into the bargain.

System 7.5 Update 2.0 is, unsurprisingly, the second major tune-up to the latest version of the Mac OS since its release in November 1994. As with its predecessor, it looks set to be freely downloadable from Apple support sites on eWorld and the World Wide Web.

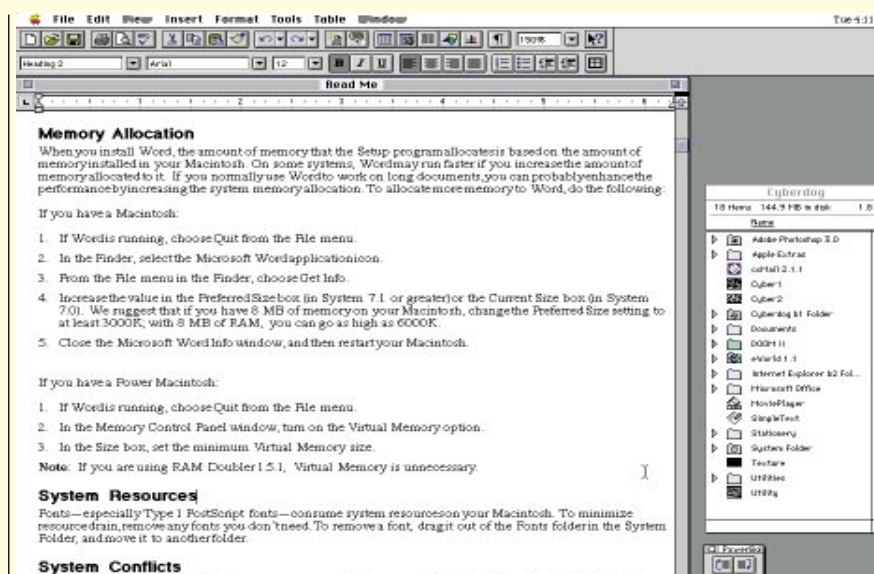
As well as updating all current Macs to the same version of system software, version 7.5.3, sources say that this addition will bring much needed changes for both 68K and PowerPC-based users.

Transport of delight

For a start, Open Transport will be updated to version 1.1 to fix a number of bugs and it should now run on 68030 and 68040-based machines as well as NuBus and PCI PowerMacs. The revision will support faster networking links and be optimised for server applications.

For those who can't wait until 7.5.3 for improved networking support, Open Transport 1.1b16 can be downloaded from ftp://ftptoo.support.apple.com/pub/apple_sw_updates/US/mac/Unsupported/. The extension comes either as four disk images or one large network install file. But as hinted at by the address, this is not a final release and will therefore not be supported by Apple. It should work with all applications that currently use Appletalk, and a list of known incompatibilities is supplied with the code.

Finder operations are set to be improved by a number of changes, chief



System 7.5 Update 2.0 should speed up applications, and the Finder, thanks to more PowerPC native code and improvements in QuickDraw and memory handling

among which are more efficient flushing of the processor's cache, increased speed on 68040 and PowerPC machines, and longer name fields in list views.

The file copying routines will be updated to work asynchronously, making the CPU available to other applications while these take place, and rebuilding the desktop will no longer delete comments entered in Get Info boxes. Of course, it would be better if Apple could eliminate the need to rebuild altogether.

Ghost in the machine

If you have a PowerMac, installing the update will give the Finder translucent icons during drag-and-drop operations. Currently when you move an icon from window to window you get an outline underneath the cursor; with 7.5.3 you will get a ghost image à la Windows 95. If you

are dragging more than one icon, only the one under the cursor will be translucent. Nothing stunning, but nice all the same.

Changes to other parts of the OS that will aid both types of Mac include a rewrite of the DMA serial driver for fewer hiccups with communications, and better file sharing. PowerPC users can look forward to better QuickDraw performance thanks to a new fixed point math library, faster application launch times with virtual memory switched on, and native versions of both the Resource and Memory managers. The latter is already native on PCI Macs.

As well as all this, new versions of QuickDraw 3D and OpenDoc are reportedly coming down the line before the summer. As I get either Beta or final copies of these, I will let you know what they're about.

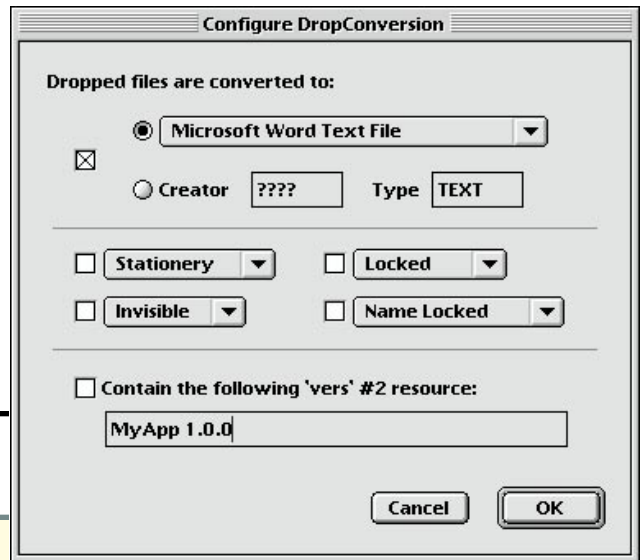
Utility of the Month — DropConversion

This month's utility has been downloaded from the computer centre at eWorld. It's a neat little program that can be used to convert one type of file to another with ease.

DropConversion doesn't do complex things like convert a TIFF picture to a GIF picture; it simply changes the file-type information. For example, it will change a SimpleText document into a Microsoft Word Text file, as all that needs to be changed is the association and creator information. Even better, you can drop a whole batch of files onto DropConversion and it will handle them all at once.

DropConversion can currently switch between 17 different formats, including Photoshop PICT, CodeWarrior, ResEdit and Think C. It's shareware and costs \$8 to register. Details from <http://grove.ufl.edu:80/~nikolsw>.

DropConversion easily converts file-type information



Woof! Cyberdog goes walkies

Another important Apple software release, and one that I've been trying to get to grips with this month, is the long-awaited Beta version of Cyberdog. This is the codename for a set of OpenDoc components that provide Mac users with "one-click access" to Internet services.

In lay terms, what Cyberdog lets you do is place objects into your OpenDoc documents, mail messages or the Finder, which then provide live links to Internet services. For example, you could create an OpenDoc document containing text and a drawing, then place a Cyberdog link to a relevant URL (or ftp site) into it, too. When you click in this area of the page, Internet tools appear and you're



instantly connected.

In theory, this works with email as well, so you could mail someone else who has Cyberdog, with a document containing a link. You could even have your InTray embedded in the corner of your favourite stationery file.

I haven't had much time to play with Cyberdog, and the Beta isn't exactly stable, but the whole thing looks very promising. I also love the name, although *I just know* that Apple will mess that up by calling the release version something like "OpenNet" or "MacOS Internet Solution". Will they never learn?

Fetch boy, fetch. With Cyberdog you can add Internet facilities to any OpenDoc document, including a browser and email

Double trouble

Actually, I'm a fine one to talk about never learning. For months I've been telling people who have Connectix Speed Doubler to use something like Norton Utilities to check that their hard disks are in tip-top condition before installing the latest update. I've now had to reformat the drive on my own 9500 — almost certainly because I didn't practise what I preached.

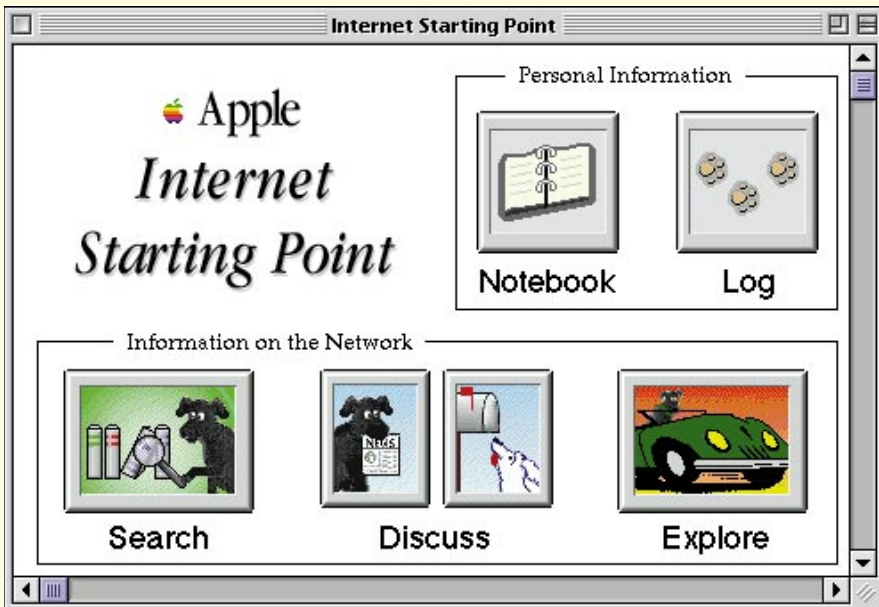
There I was the other day, working away, when the machine suddenly locked up and refused to boot from the internal drive. I booted with a CD-ROM system disk and found the Mac asking me whether it was OK to initialise the unknown internal hard drive. The problem turned out to have something to do with a serious error in the b-tree data, and this is where Speed Doubler experienced problems.

Even if it wasn't Speed Doubler that caused this, if I had run Norton Utilities before I upgraded, I'd probably still have a half-full hard disk. The moral of the story is: don't ever take ReadMe files for granted — they could just save your data.

Buffer that

As regular readers of this column will know, I occasionally take time out to look at the latest in Mac games. In particular, 3D titles such as Doom II and Dark Forces have been mentioned and the subject of texture tearing is something I've brought up time and again.

Moving graphics "tear" apart on the screen if they aren't properly double-buffered. Every Mac 3D title I've seen suffers from tearing at some point and it annoys me, not only because it's unsightly, but also because it reveals a lack of quality control.



"An error of type..." aaargh! At last, those system codes explained

One of the most annoying things about the MacOS is its lack of proper error messages. How many times has your Mac crashed with "an error of type X", without telling you exactly what "X" means? To help you out of some of these situations here's a list of the most common error numbers and their official meanings, as listed by Apple in its Technical Info Library. If you have access to the World Wide Web you can get a more complete list from Apple's web site (www.apple.com). There are some errors that even the Apple technical documents don't explain, specifically Type 11. If I find out what these mean I'll let you know.

● 01 = Bus Error

A type 01 error usually occurs when the computer tries to access memory that doesn't exist: you can get this error on almost any Macintosh. In my experience, assigning extra RAM to an application, using its Get Info dialogue, can help prevent it.

● ID=02 Address Error

The Motorola 68000 microprocessor can access memory in increments of one byte (8 bits), or one word (16 bits), or one long word (32 bits). This microprocessor can access a byte of information at either an odd or an even memory address. But it *must* access one word or one long word at an *even* memory address. So, when the microprocessor attempts to read or write a word (or long word) at an *odd* address, you see this error. Since that's a 50/50 proposition when running random code, this one shows up quite often.

● ID=03 Illegal Instruction

The computer has a specific vocabulary of machine language instructions it can understand. If it tries to execute an instruction that isn't in its vocabulary, you see this error code. It's less likely than error 02 but is nevertheless common.

● ID=04 Zero Divide Error

This error results if the microprocessor divides two numbers, and the divisor is zero. Sometimes a programmer puts these in as debugging aids and forgets to take them out.

For the uninitiated, double-buffering is a technique whereby graphics are drawn into a memory buffer and then "flipped" on to the screen. While the picture is showing, the computer draws the next screen into the buffer ready to be displayed. The result is the kind of smooth animation you see on the PC versions of the games mentioned. The alternative to double-buffering is to just write frames directly to the screen, and this is when tearing can occur.

Originally I had put all this down to bad

programming and the memory restraints put on developers, by publishers. From talking to developers however I have since found out that this depends more on a lack of hardware support for double-buffering graphics on the Mac itself. Worse, recent

Everything looks fine in this stationary screenshot, but the graphics in Mac 3D titles tear thanks to a lack of double buffering. Find this location (first level, first door on the left) in Doom II and see for yourself



tests with sample QuickDraw 3D applications have shown that these, too, suffer from the same problem.

If the Mac is to retain its reputation for high-quality graphics, especially with the industry heading in the direction of 3D, Apple must move quickly to sort this out. It will not be taken seriously in the graphics or entertainment industry if it's images tear and flicker all over the place.

The next time you see this on a Mac application, do me a favour and tell the developers. Maybe between us we can get it sorted out.



PowerMac price cuts

Apple has cut its prices across the entire PowerMac range. This is great news for anyone thinking of making the move to Macintosh, or for existing users wanting to move to PCI.

Examples of the new prices are:

- 7200/75 8/500 will cost around £830.
- Bundle of 7200/75 8/500 with Multiscan 1705 display (no keyboard), £1,250.
- 7500/100 8/500/CD has an expected street price of £1,645.

The more powerful 8500 and 9500 systems are also affected by the price cuts. Anyone interested in further details should call the Apple Customer Response Centre.



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