

THE ACADEMY OF PLUMBING 2 – TO INTEL OR DISINTEL, THAT IS THE QUESTION

So there I was, congratulating myself on being a smartarse and having installed SMARTReporter (<http://snipurl.com/qdaw>) when, Bam! Up the blighter pops, telling me my PowerBook hard drive is about to fail. And, indeed, smartarse I am because I had a full cloned backup, updated that morning, on a sparse disk image on my TeraStation Network Attached Storage Device. Still with me? I also have Apple Mail set to remove copies of incoming mail from the server after one day, so even if the disk were entirely kaput, all I'd have lost would have been that day's outgoing email. In the event I managed to fish this off my PowerBook, so now, having used SuperDuper! (<http://snipurl.com/kjtz>) to clone the disk image to a FireWire drive and started up my backup Mac mini from it, I'm happily typing this article on it while I wait for my PowerBook to be repaired...

This, however, raised the question of what I should do about a replacement for my aging 12" PowerBook. A MacBook Pro? What about software compatibility? Let's have a look.

THE GUTS

In theory, an Intel Macintosh looks and behaves exactly like a PowerPC Macintosh, only faster. This is because the processor, currently an Intel Core Duo (Core Solo in the cheapest Mac mini) is deeply hidden from you, the user, by many abstraction layers of software. The Operating System, OSX, has virtually the same instruction set (Application Programming Interface or API) as the traditional PowerPC version, and this is what applications are 'written to', so there ought to be few changes required to make PowerPC applications run on Intel.

Actually it's not quite as simple as that, because Intel chips read memory in the opposite order to PowerPC chips ('Little-Endian' vs. 'Big-Endian') and lots of software functions are dependent upon the order in which memory is read. Also, there are some things Intel chips do which PowerPC chips don't, and vice-versa, such as Altivec on PowerPC. There is no exact equivalent on Intel, so functions written to use Altivec (such as quite a few Photoshop filters) need re-writing. Then there's the problem of the way an application was written in the first place.

Application programs are written in a high-level computer language, usually C++. This stuff is actually just text, and is human-readable. It looks like a cross between algebra and very terse, jargon-ridden English. HTML, the code websites are written in, is actually quite similar in many ways: JavaScript even more so. However, micro-processors are clueless when it comes to this stuff. They deal with a low-level language called Machine Code, which is pure gobbledegook to us. A Compiler handles the process of translation between C++ and Machine Code.

However, a load of text files hanging around by themselves isn't of much use because they're hard to relate to one another and to version-control, so most applications are written within another app, an Integrated Development Environment (IDE), which combines the functions of text writing, syntax-checking, version control, platform-specific code optimisation and compilation. Metrowerks Codewarrior is one such; Apple Xcode is another.

These IDEs have individual strengths and weaknesses. Furthermore, as we have seen, there are large differences between Intel-format and PowerPC micro-processors in terms of how they work. Finally, different operating systems have different APIs defining how applications interact with them, so Windows is entirely different to OSX on Intel, even though the underlying micro-processor is the same.

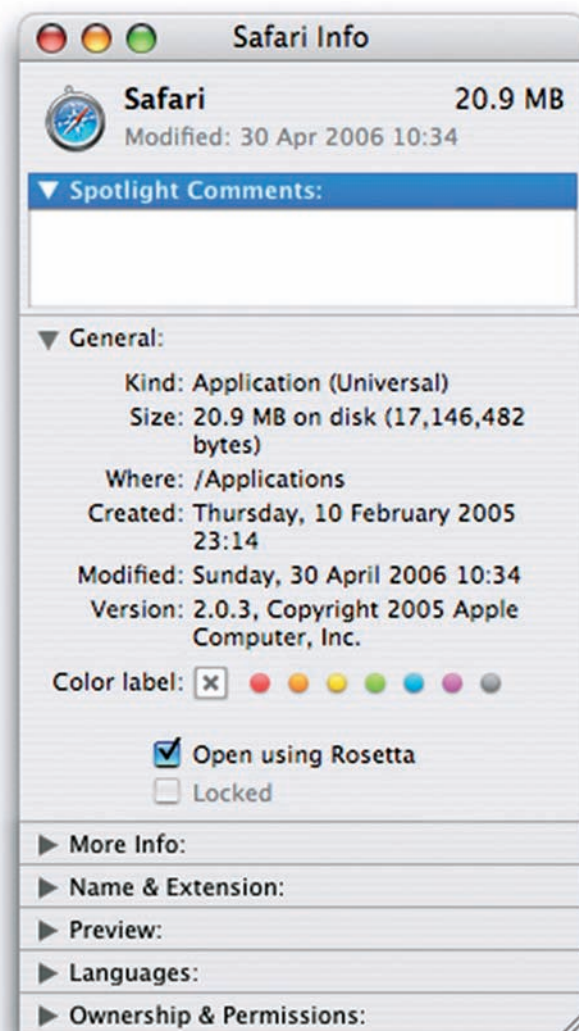
The application may well at first be written in the abstract, but it then becomes optimised to the particular feature set available in its IDE and function set available in its target processor/OS combination. Thus, porting between these, although perfectly possible in theory, does present certain practical problems that have to be overcome. Then there's the issue of 'legacy' code, ie code written in obsolescent ways but nonetheless bug-free and well tested, or code written for functions that no longer exist in the current OS or processor. To overcome all of these compatibility problems, developers must port their code to Apple Xcode, rewrite those bits that no longer work properly, then compile as Universal Binaries (application packages which run natively on both PowerPC and Intel Macintoshes), PowerPC-only or Intel-only.

HOW DO I TELL THE DIFFERENCE?

Click on an application's icon in the Finder and select 'Get Info' from the File Menu. Towards the top of the Info window, under 'General', 'Kind' will say 'Application (Universal)', 'Application (PowerPC)' or, rarely, 'Application (Intel)'.

IF ONLY LIFE WERE SO SIMPLE

It is! Apple licensed a technology they've called 'Rosetta' from a company called Transitive, which can translate from PowerPC code to Intel code in real time! So we can still run all of our legacy PowerPC software (except for OS9 software, that is: there's no Classic on Intel) and not notice the difference! The only real problems posed



Unfinished E-business...

In deference to the long-established and honourable working practices of my trusty analogue namesakes, I of course left last month's column unfinished. There is another way around sending e-mail from a remote location, but it's a bit tweaky and is not always guaranteed to work. That is to use PostFix Enabler <http://snipurl.com/nok5> to turn on the built-in PostFix SMTP server in OSX and serve the mail yourself.

Full instructions for doing this are included and are actually pretty straightforward to follow. If you do use PostFix Enabler, remember to make a note of your usual SMTP server settings first, or create a new account in Microsoft Entourage with the appropriate settings, or a new SMTP Server in Apple Mail.



Why doesn't it always work? You may fall foul of spam filters, in that the IP address you are sending from doesn't appear on a list of known, verified SMTP servers. The mail servers at your addressee's ISP, which probably subscribe to anti-spam blacklists, may simply reject your mail. It won't happen a lot, but could happen if you try to send to some corporations, the Government or, ahem, me.

A further problem is that because you're sending mail essentially from your e-mail app to your own computer, it appears to go in a flash. It hasn't: it's simply been passed internally to your onboard PostFix mail server, from whence it trickles out at the usual speed. The trouble is, PostFix offers no visual feedback, so the only way of knowing when the mail's gone is to run Activity Monitor (in the Applications/ Utilities Folder), keep an eye on your outgoing network activity and see when it stops.



Anyway, any port in a storm and it will certainly do you no harm to have PostFix Enabler installed (but not running) when you travel, just in case it's your last resort.

Then, everything will work at emulated speeds until either you update the plugin, stop using it or replace it.

Mostly, Rosetta does work, and a list of what does, what doesn't and why not is maintained at <http://snipurl.com/qde9>. A list of applications that have been re-compiled into Intel code is at <http://snipurl.com/qded>. So, take a look at these two lists, take a look at the applications you depend upon and say 'Ah! It all works already!' Except for Photoshop, that is. In an interview with *Forbes* magazine, Adobe CEO Bruce Chizen has announced that Photoshop CS3 will be released 'in the 2nd quarter of 2007'. Meanwhile, Adobe engineer Scott Byer has written about the reasons why CS2 will not appear in an Intel-native form: 'There is just no way putting out a Universal Binary of Photoshop CS2 would make any sort of sense. If you think about switching tool sets, with the resulting huge amount of work for both engineering and quality engineering, if you think about how far past the Photoshop CS2 release we already are, and if you include not having the workstation-class machines ready yet, I think you'd have to agree - far better to focus on making sure Photoshop CS3 is able to absolutely squeeze every ounce of power out of what I'm sure will be pretty spankin' Intel-based towers by that point than to do tons of work moving an old code base to new tools.' Read more at <http://snipurl.com/qdel>.

SO, WHERE DOES THIS LEAVE US?

For laptop users capturing in the field, a MacBook Pro is the way to go. Aperture, Photo Mechanic, Capture One and FlexColor are all now available Intel-native in final release or late beta. So, for initial capture and editing, everything is there at native speeds. We can expect other RAW developer software to be Intel-native soon, including, it seems, Nikon Capture. Epson seem already to have managed to port the bulk of their printer drivers to Intel, and most of the other laggards will either catch up soon or are of no real importance: Microsoft Office appears to run perfectly well under Rosetta.

For studio shooters and proper retouching, or for those using Adobe Camera RAW, I think sticking with the G5 Power Mac for the time being makes the most sense. Given this news, and knowing how important to their core market Photoshop and the rest of the Creative Suite is generally, not to mention the Macromedia applications Adobe inherited with their take-over of Macromedia (the functionality of which, according to Chizen, is to be rolled into CS3), I'd be surprised if Apple were to ditch the high-end G5s soon. Furthermore, G5 performance is still comparable to most things available in the PC world, whereas the G4 in the PowerBooks was really starting to lag behind.

Apple have been here before, though, with the year-long wait after the initial release of OSX for Quark Xpress to become OSX-native. That didn't kill sales of Macs which would only boot into OSX (although it did surely depress those sales) and it appears that CS2 is less troublesome in Rosetta than Quark Xpress was in Classic, so my speculative prediction for G5 longevity may be entirely false. We'll see. Whatever Apple do, a MacBook Pro or G5 PowerMac, bought now, will still remain a useful machine for several years to come. The MacBook's performance will increase as more applications go Universal and it will be a good while before anyone dreams of ditching G5 support.

There we are, then. Those of you still hungry for information can keep up by periodically checking my blog at <http://www.thedigitalplumber.co.uk> where you'll also find my contact details. Where's the Mole, grip?

by Rosetta are plugins. You can't run a PowerPC plugin within a Universal application that is running natively. Fortunately, the workaround is to tell the host application itself to run under Rosetta, which is done in the selfsame Get Info window as shown above.