

eady!

Dave Slipp

When you get right down to it, a computer is an idiot that counts on its fingers [but it's got a LOT of fingers and it can count REALLY fast]. Your Mac is no different. On its own, the hardware is remarkably dumb. The thing that makes a computer seem clever is the software that's running on it.

That software consists of the operating system and the applications. In general, the operating system on a computer includes the fundamental things like file access, networking, input, output and the other basic functions. Applications are the bits of software that actually do things. They use the resources and functions that the system provides to do useful things for you (or to create really cool games.)

On a Mac, the operating system lives in a couple of places. The majority of it is found, logically enough, in the System Folder. A small portion of it lives in a couple of Read Only Memory (ROM) chips on the motherboard. (The iMac and G3 Blue Tower keep all of this information in the ROM file in the System folder.)

Inside the System folder, you find all of the bits and pieces that make a Mac a Mac. The System file itself is really the star in here, holding most of the system code. The Finder is another important item in the System folder. The Finder is the program that most people consider "the system." What you see when you are moving files, opening windows and generally putzing about is the Finder.

Along with the System file and the Finder, your System folder also contains a bunch of other folders, each of which holds stuff that contributes to what the system can do. The Control Panels and Extensions folders each can hold things that are loaded when your Mac starts up (causing that march of icons across the bottom of the screen that we all love so much.) Each one of them adds something to the basic functions that the System and Finder can perform. The Fonts folder within the System folder is home to all of your fonts (unless you have loaded an extension that lets you put your fonts somewhere else.)

Even though it looks like a confusing mess, there are some pretty good reasons why the system folder is set up the way it is. This arrangement lets Apple update bits and pieces of the System as they need to change, without having to update everything. It also lets other programmers extend upon Apple's work, adding features that Apple engineers didn't think of.

People have thought of a LOT of things to add to the system. Connectix figured out a way to fool a Mac into thinking it had twice as much RAM as it really has. That idea became RAM Doubler. Adobe looked at the way the Mac OS managed fonts and figured they could improve upon it. That idea became Adobe Type Manager. A thousand shareware programmers have thought of neat and nifty ways to modify the menus, dialog boxes and just about everything else about the Mac. Those ideas have become the thousands of shareware extensions that you can find on the net. The extension mechanism has become pretty well known and is very well documented by Apple.

his strength, letting people add functions to the system, also leads to an essential weakness - by leaving a way open for programmers to extend the system, they've also left the way open to mess the system up. Any change that a programmer makes to the way your system works can lead to things going awry.

Imagine a clever programmer who thinks of something really cool to change the way the menus work. She writes a neat little extension that you drop into your system folder. At start up, it loads in, and replaces a bit of Apple's menu code with its own. A program launches, expecting to find the menu code where Apple put it, with all of the functions that Apple wrote in. Instead, it finds some new stuff, most of which it doesn't understand. What do you think the program is going to do? If you think it'll be unpleasant, you're probably right.

This is what is known as an "extension conflict." Although most programmers have learned to be very careful and to leave things where they belong, software conflicts are still the cause of most crashes.

 Dave Slipp - <dave@mac-conflicts.com>
Editor/Programmer/Grand Poobah The Complete Conflict Compendium
<http://www.mac-conflicts.com>