

Words – and pictures

X11 uncovered

X11 is like Terminal but can run graphical Unix programs, whether they're on your Mac or someone else's Linux box.

Missed it?

Installing X11

X11 comes with Panther, but it'll only be on your Mac if you did a custom installation. Don't worry though: you can still get it from the third installer CD.

Stay in command

Fink different

The best way to get all this software is using the free Fink package system. It comes with Fink Commander, a graphical management program for Fink.

Knowledge Base: Escaping

Make it clear

Since spaces, quotes, and other characters all have special meanings in Unix commands, how do you enter them when you want to use them as spaces, quotes, etc? The answer is to 'escape' them, by placing a backslash (\) in front.

A world of choice

Something for everyone

There are plenty of X11 Unix programs out there, including games (such as Space Invaders), utilities and powerful applications like the Grass geographic information system and Photoshop-alternative The Gimp.

Knowledge Base: Typing troubles

Take the auto route

Since Unix is case-aware and you have to type everything (although Terminal lets you drag and drop things to it), it can be quite easy to get things wrong. Fortunately, when you're typing file and directory names, you can just press the 'Tab' key to auto-complete what you're typing – provided there's something there that starts with what you've already typed.

Tutorial: Install and run graphical Unix software

Learn how to use X11 and Fink and the whole world of Unix software will be available to you, even if it's on another Mac or a PC



Task: Install UNIX software and run it over a network

Difficulty: Expert

Time needed: As long as you need

One of the great things about OS X is that its Unix foundations give us a world of extra software. The best way to get hold of all this useful, free software is through a system called Fink (<http://fink.sourceforge.net>). Put together by kind volunteers, Fink makes downloading and installing Unix software simple, and in the first part of this tutorial we're going to show you how to get and use it.

Fink comes with a standard Mac installer and controller program, but just for fun (and to show you some handy OS X-only Unix commands), we're going to download it and run it remotely. To get the most out of Fink, incidentally, we recommend installing the Developer Tools that came with OS X or your Mac.

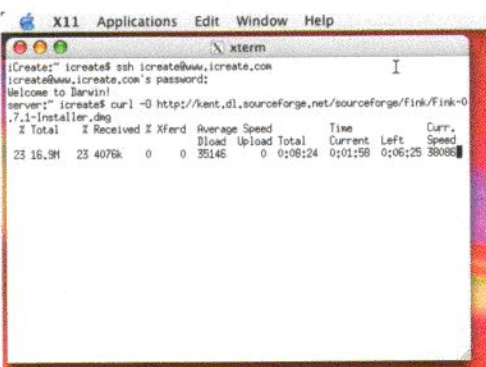
The second part of the tutorial will show you how to access and run programs on another computer that uses the Unix graphics system, X11. This is the big difference between X11 and Mac

programs – X11 programs can run on one computer and other X11-enabled computers can access them, even if they use a different Operating System. You'll need to do two things for this part, though. The first is to install the Mac version of X11: it's in the Packages folder on the third Panther CD or you can download it from www.apple.com/macosx/features/x11/download. Once it's installed, you'll find a program called 'X11' nestled safely in your Utilities folder – this can run all the same commands as Terminal and also X11 programs.

The second is to enable 'X11 Forwarding', which is normally turned off. Unlike most of the Unix-based preferences we showed you last issue, you can't configure it using System Preferences: you have to use Unix to access it, which we do in step five.

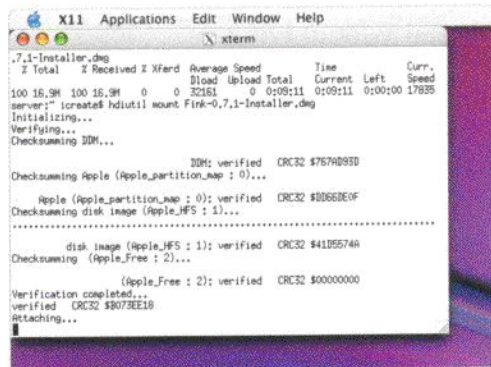
Together, the two parts of this tutorial will show you how to get up and running with Unix software, wherever it happens to be.

Step-by-step OS X Installing and running Unix software



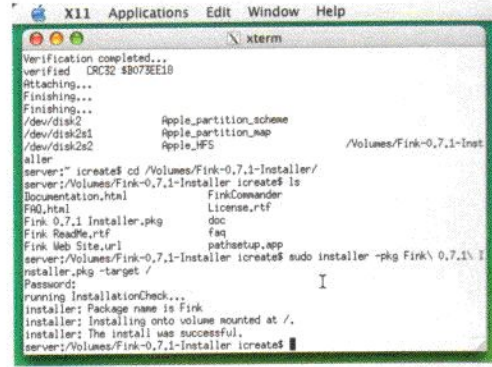
1: Getting down with it

We need to download Fink to our remote computer, first. We don't have a Web browser, but we can use 'curl' to download the software from Fink's UK site.



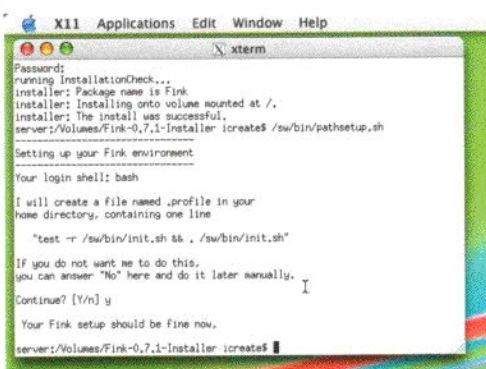
2: An image problem

Fink comes in an OS X disk image (.dmg) file. We can't double-click it or use Disk Utility to mount it, but we can use 'hdiutil'.



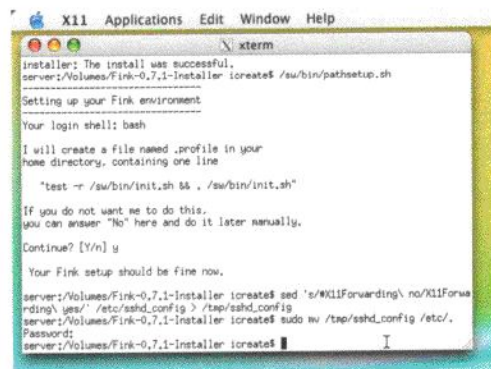
3: Package poser

Unix puts mounted disks in the hidden /Volumes directory. After seeing what's on the Fink disk, we can use 'installer' to run the standard OS X installer package.



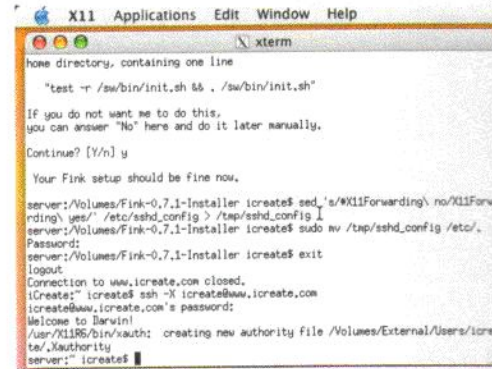
4: Extra work, but worth it

Since we're doing this remotely, Fink can't run the enclosed .app file to finish the setup. Fortunately, it installs a Unix script we can run to do the same job.



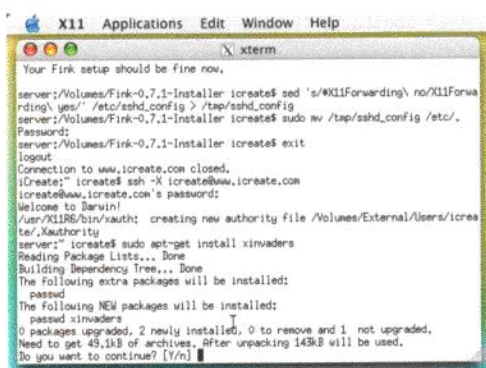
5: Enable X11 forwarding

Now to edit ssh's preferences: "sed 's/a/b/' c" replaces 'a' with 'b' in file 'c'; '>' outputs any Unix command to a file. We then replace old with new.



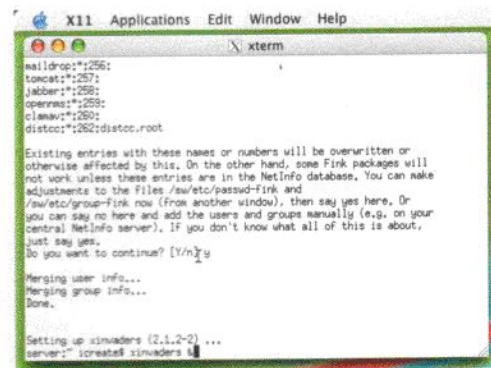
6: Forward motion

We have to log out and back in again to activate X11 forwarding on our connection, which we do by adding the '-X' switch to the 'ssh' command.



7: Ready for action?

We could use 'fink install' to assemble our program from scratch, but 'apt-get install' downloads a ready-built version. It checks to see what else we need.



8: We want information

Some Fink packages configure your Mac in particular ways to run. There are usually no problems with this, so type 'y' or hit return to accept the settings.



9: All systems are go

To run your new application, type its name, followed by '&' - this moves any Unix command into the background so you can use other commands.