

# Mac OS X and Unix

Access to the world of Open Source Software

# Topics

- Background Information
- A brief crash course in BASH (Terminal)
- X11 + XCode + Fink = Open Source Software

# Background Information

- BSD Unix: Berkeley Software Distribution
- Open Source Software
- FreeBSD = Open Source BSD
- Apple Macintosh OS X is built on FreeBSD

# BSD Unix

- BSD Unix: Berkeley Software Distribution

A Unix operating system developed at and distributed from the University of California at Berkeley.

# Open Source

- “The basic idea behind open source is very simple: When programmers can read, redistribute, and modify the source code for a piece of software, the software evolves. People improve it, people adapt it, people fix bugs. And this can happen at a speed that, if one is adjusted to the slow pace of conventional software development, seems astonishing.” - [opensource.org](https://opensource.org)

# FreeBSD

- FreeBSD is an advanced operating system for PowerPC, x86, amd64, Alpha/AXP, IA-64, PC-98 and UltraSPARC architectures. It is derived from BSD. It is developed and maintained by a large team of individuals.

# OS X is built on FreeBSD

- "Beneath the appealing, easy-to-use interface of Mac OS X is a rock-solid foundation that is engineered for stability, reliability, and performance. This foundation is a core operating system commonly known as Darwin. Darwin integrates a number of technologies, most importantly Mach 3.0, operating-system services based on 4.4BSD."  
- [developer.apple.com/darwin](http://developer.apple.com/darwin)

# What does this mean?

- “Unix users will feel right at home because Mac OS X offers a complete X Window System implementation for running X11-based applications. Fully integrated with the OS, X11 for Mac OS X, based on the open source XFree86 project, gives Unix users the ability to run thousands of X11 applications concurrently with other Mac OS X applications.”

- [apple.com/macosx/overview/advancedtechnology.html](http://apple.com/macosx/overview/advancedtechnology.html)

# Terminal (and X11)

- Command line functionality
- Access, and more control of the file system
- Ability to write scripts to automate many complex tasks

# Using Terminal (and X11)

- BASH (Borne Again Shell)
  - standard Tiger shell (command line interface)
  - Most user friendly shell
- Other Shells include CSH (C Shell), TCSH (advanced C Shell), SH (Shell), KSH (Korn Shell)
  - Each have different features

# BASH Crash Course

- ls - Display files in a directory
- pwd - Where am I now?
- cd - Call directory
- mkdir - Make directory
- rmdir - remove directory
- man - view manual files

# Bash Crash Course

- `chmod` - change permissions
- `rm` - delete files
- `find`, `which`, `whereis` - Where is this file?
- `cat`, `more`, `less` - What is in this file?
- `pico`, `nano`, `vi`, `emacs` - Text editors
- `diff`, `cmp` - Compare files

# BASH Crash Course

- mv - move files
- ps - list processes
- kill - kill a process
- top - view most active processes
- ./ - run an application

# Open Source Software

- Quick Demos of Popular (and powerful) Applications that do not require Fink to install:
  - Open Office (like Microsoft Office)
    - [openoffice.org](http://openoffice.org)
  - Gimp (like Photoshop)
    - [gimp.org](http://gimp.org)

# Open Source Software

- Requirements (for full access to most Open Source Software):
  - X Code must be installed (available on the Tiger CD)
  - X11 (Installed by the "Optional Installs" on the Tiger CD)
  - Fink and Fink Commander  
<http://finkcommander.sourceforge.net/>

# Using Fink Commander

- Demo: Updating software lists, updating software, installing new software.

# Fink Installed Software

- Demo: GnuCash in X11

# Searching for Open Source Software

- Use Fink for basic information
- Visit [Sourceforge.net](http://Sourceforge.net) for more information
- Google "open source" and keywords for what you are looking for.

NOTE: Some open source software is not available for OS X, yet.