

MacOS X Crash Course

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MacOS X is Apple latest operating system. Unlike previous Macintosh operating systems, MacOS X is truly a Unix based operating system but with a Macintosh graphical user interface (GUI) sitting on top of it. Because of these Unix underpinnings, MacOS X can run traditional Macintosh programs as well as thousands of Unix based programs. This also gives MacOS X a strong and modern operating system that provides high level of security, stability, scalability, significant advancements in multi-processor and multi-threading support and network compatibility with many more network systems (NFS, Samba (Windows networking), AFP, FTP, etc.). In fact, a good portion of the MacOS X operating system is open source and can be freely downloaded and installed on both Macintosh and IBM compatible computers.

MacOS X Server (10.2.x)

Installing

To install boot from the CD. When installing feel free to choose 'Options' and deselect foreign languages (unless of course these languages are useful to you, such as a foreign language lab).

Note: If possible, before installing be sure to have a valid DNS entry (both forward and reverse) for your server. If you do not, it will only be a matter of time before you run into problems.

Open Directory (/Applications/Utilities)

After installing and running through the Setup Assistant, the Open Directory Assistant will run. *IF* you plan on setting up an environment where accounts on the server will be shared among other MacOS X or MacOS X Server machines be sure to tell the assistant that the computer will 'provide directory information to other computers' and password and authentication information will be 'provided to other systems'. By doing this you can setup a network directory system which will allow you to share accounts (and other information) among your network operating system (NOS) computers. (same idea as a Windows domain).

Note: If you forgot to do run the assistant at initial setup you can run it (and re-run it) any time you want (/Applications/Utilities).

NetInfo (/Applications/Utilities)

NetInfo is MacOS X's version of Window's registry and domains. Using 'NetInfo Manager' you can edit both local NetInfo and domain wide NetInfo information.

Server Settings (/Applications/Utilities)

Server Settings is a program where you can configure most server services (i.e. AppleShare, FTP, Window Sharing, NFS, DNS, Print Server, DHCP/NetBoot, etc.)
Apple File Service

This is where you configure the AppleShare service.

FTP

This is where you configure FTP. Note: In FTP->Advanced, you can specify that users can only FTP to their home directories, a very good security measure.

Windows

This is where you configure Windows File Services.

Note: I highly recommend that the server name you list in the Window File Services->General section is the same as the DNS name you have listed for this machine, it will eliminate a lot of confusion.

Print Service

This is where you control the Print Server Service. From here you can setup printers for Macintosh (via AppleTalk or LPR), Unix (via LPR), or Windows (via Samba).

Macintosh Manager

This where you start or stop Macintosh Manager (as well as configure it to start at boot). See the section later for more on Macintosh Manager.

Web

This is where you can enable and configure the Apache web server. You can even setup WebDAV, a type of file sharing that operates over the web (allowing users to access files from just about anywhere, including at home).

Firewall

This is where you configure MacOS X Server's built-in firewall (MacOS X, non-server, also has a built-in firewall, see MacOS X Client for more details). This firewall is designed to protect the server, not clients (though if you setup the machine to act as router in theory it could then protect client machines too but I've never tried that).

DHCP/NetBoot

This is where you configure the DHCP server and well as NetBoot. NetBoot is a system where client computers (newer computers, such as iMacs) can boot from the network, accessing a virtual hard drive that is stored on the server. The uses for this can be great. You could setup a lab to NetBoot and never worry about what the students did to the machines (the virtual hard drive does not retain changes that the client makes), or use this as a method to re-image or repair a local (non-bootable) hard drive.

DNS

This is where you start/stop the DNS server. To configure DNS you need to edit the files in: '/etc/named.conf' and '/var/named' (these are standard BIND files, see a DNS/BIND or possibly a UNIX book/reference) for more information).

Workgroup Manager (/Applications/Utilities)

Once your server is initially setup you will likely spend most of your administration time in Workgroup Manager (/Applications/Utilities). Workgroup Manager allows you to create/edit users, create/edit groups, manage settings for MacOS X clients, configure share points and privileges and much more.

Users

This is where you would create/edit/import users. To import users you need to have the text file containing users accounts in a special format. You can either read through the Admin Guide (/Library/Documentation/MacOSXServer/English/Admin Guide.pdf) or I would be happy to pass along my sample import files (rbest@mum.neric.org).

Login Shell

In the Advanced tab, you can specify which Unix shell the user will have (the command line interface, CLI). If you do not want your users to have access to the CLI then set this option to None.

User Password Type

Instead of using the password type 'basic' you should use the type 'Password Server' (sometimes referred to as 'advanced'). This will 1) provide better protection of passwords and 2) allow users to connect from Windows machines.

Groups

Every user has to be in *some* group. Here is where you specify their primary (default) group as well as any other groups they might be in.

Home

This is where you specify where the user's home directory is located at. If you are using MacOS X Server for storing user's home directories I suggest using the 'Network' option here. If your user's documents are stored a Windows server you will need to use the 'Advanced' option.

When using 'Network' you will have to have already have setup a share point (presumably 'Users' that is automounted (see 'Automount' later on) on MacOS X client machines.

When using Advanced you will need to give the URL (afp) of the server that contains the home directory and path (see the examples on the screen).

If users will be using MacOS X clients, you *need* to fill in the Home field to. Note: In the case of a Windows server it should look something like: '/Volumes/AllUsers/jdoe'

This is because the sharepoint ('AllUsers' will be mounted at login time) will be in the hidden directory '/Volumes', and the user's login name is 'jdoe'.

Mail

This is where you can setup an email account for the user *if* you are using the built-in mail server.

Print

This is where you can setup print quotas for the user.

Presets

At the bottom of the window is a menu called 'Presets'. Once you have create an account and configured it how you want, you can 'Save' many of the options as a 'preset'. Then the next time you want to create a user with the same (or similar) options you can choose the preset *before* pressing the 'New Record' button.

Groups

This is where you create custom groups and optionally a sharepoint where users in the group can share files.

Computers

This is where you define sets of computers that are managed and which groups of users can access these sets.

Preferences

Each section, Accounts, Groups, and Computers has a 'Preferences' section. In the Preferences section you can control many system related preferences (applications, Finder, CDs/DVDs, printing, dock, etc.). Depending on if you are in Accounts,

Groups, or Computers, you can set preferences based on the individual user, the group the user belongs to, or the computer they are currently logged into. Depending on the specific preference setting, different 'Preferences Management (i.e. by Account, Group, or Computer) take priority (see the Admin Guide.pdf file for specific details). Personally I like to assign preferences based on the Computer, rather than the Account or Group but your preference (no pun intended) may be different.

Sharing

The Sharing section is where you indicate what directories should be shared and can set the privileges of directories and files (Note: You can also set disk quotes from here too).

When you share a directory/folder, you can use the Protocols tab to specify which file sharing protocols are used (i.e. Apple File Sharing, Windows File Sharing, or NFS).

You also have the option of a tab labeled Automount. The Automount tab is very important, though you will not use it very much (mostly for the sharepoint containing user's home directories). By specifying that a sharepoint be 'automounted' you are automatically mounting the sharepoint on MacOS X clients that participate in the network directory (i.e. computers you have used the 'Directory Access' program on, see 'Directory Access' for more details).

Automounting can be an easy way to 'push out' a sharepoint to all MacOS X client (such as a 'Public' folder). One of the uses I have found is to automount the 'Public' folder (a folder that is shared by default) and have a script in Public that is run by the workstation's Login Items (System Preferences->Login Items). This script acts as a 'login script' and I can use scripting commands to create shortcuts on the users desktop, copy preferences, and much more.

Note: With the exception of the sharepoint for user's home folders, all other sharepoints that are automounted will be mounted on the client workstation with guest access, *not* the individual user's privileges.

Macintosh Manager (/Applications/Utilities)

Basic Concept

Macintosh Manager is a tool (both on the server and the client) that allows you to control the environment on MacOS 8.1 through 9.x workstations. You can control who logs in, what programs they use, automatically use their personal home folder (on the network), which folders they can or can not make changes in, setup 'hand in' folders so users can 'hand in' documents to a teacher, automatically manage printing, control which network volumes are automatically mounted, managing their preferences, and *much much* more, all based on the user and/or workstation. Macintosh Manager works by have a very simple service running on a MacOS X Server that essentially 'hands out' a set of databases to Macintosh Manager workstations. These databases contain all of the information the clients need to know who has access and what access they have. The real work is done on the client machines, with the server doing nothing but making sure the clients have the latest set of these databases.

Rather than include all options for Macintosh Manager, I have already written some training manuals on using Macintosh Manager version 2.1.1 (version 2.2.2 is the latest as of 12/2002 but the instructions should still be the same). If you want a

copy of these training docs (in PDF format) feel free to email me:

rbest@mum.neric.org

Tip: If you download a newer version of Macintosh Manager (the latest is probably *not* included out of the box), you can copy the file 'Update Package' from the 'Update Package' folder (included with a newly downloaded copy of Macintosh Manager) into the '/Library/Macintosh Manager/Multi-User Items' folder on the server. Then when your Macintosh Manager clients check for updates they will see this newer version of Macintosh Manager, install it, and reboot (of course not while the user is logged in). By doing this one simple step you can update your entire network. You can find the latest version of Macintosh Manager at: <http://www.apple.com/support>

Server Status (/Applications/Utilities)

Server Status allows you to monitor most of the server processes (file sharing, dns, directory services, ftp, etc.) from the server or from your MacOS X workstation(s).

User Home Directory Template

On Windows you can edit the default template for user's profile by editing C:\Documents and Settings\Default User, you can also edit the user's default template (both local accounts or home directories on the server) by editing the folders in: '/System/Library/User Template/English.lproj' directory. You can add/remove folders, add/remove files (such as setting up initial preferences) but you should always have a 'Documents' and a 'Library' folder. If you delete these folders they will however be created they are needed but I would highly recommend keeping them.

Journaling File System

Journaling is a method the OS uses to keep track of changes to files on a volume. With Journaling enabled the OS is far more likely to locate and recover all changes *if* the computer were to suffer an unexpected reboot or power loss (recovery/repair will also go much faster I'm told). However, the down side is that more information will have to be 'journalled' to the disk, thus you can expect to suffer a 5% (varies depending on RAM) speed loss to disk writings.

To enable/disable journaling use the Disk Utility application (/Application/Utilities).

Note: Only the OS X Server (10.2.2 or higher) has the option in Disk Utility has the option for journaling. The OS X (10.2.2, non-server) can have journaling enabled but you need to use a CLI tool.

Server Maintenance

Server maintenance is a tough one. In theory you shouldn't have much to maintain other than checking for software updates (see 'Software Updates'). However, I have found it helpful to use Crontab (a UNIX scheduling system, see any Unix/Linux book or online reference for more) to do some relatively minor maintenance of my user's documents (such as deleting any temporary files, caches, mp3s, etc.).

Creating Home Directories

When you create users in MacOS X Server using Workgroup Manager (the usual method of creating users), home directories are not created until the user logs in. However, as of MacOS X 10.2-10.2.2, there is a known problem that home folders are not created until the user logs in using AppleShare (i.e. the normal means from a Mac), not FTP, ssh, or even

Windows. To fix this you can either login from a Mac first (not always convenient) or run the command (from the server): `createhomedir -a`
This will create any home directory/folder not already created on the server. To make this even easier for me, I have entered a command in Crontab to run 'createhomedir -a' every hour (for more information type: 'man createhomedir' in the CLI on MacOS X Server 10.2.2 (or newer)).

MacOS X Client (10.2.x)

Directory Access (/Applications/Utilities/).

To set a client computer to participate in a network directory (such as LDAP or NetInfo) use the application 'Directory Access'. My opinion is to use NetInfo over LDAP if given a choice.

Terminal (/Applications/Utilities/)

Terminal is the application to allow you to access the command line interface (CLI). Since MacOS X is Unix (based on BSD), most common Unix CLI tools are available. Below are some I thought would be most useful. However, if you are unfamiliar with the CLI you may find a Unix for dummies book very helpful. My current favorite OS X book is "Mac OS X Unleashed" by SAMS.

ssh

If you have remote login enabled (see 'Sharing') you can use ssh to connect to our computer via the CLI. ssh is *very* similar to telnet but unlike telnet, ssh *encrypts* all data *bi-directionally*. Note: You can use ssh on MacOS X, some Unix systems, and you can download (some free, some shareware) ssh clients for MacOS (pre OS X) and Windows.

To ssh into a machine type:

```
ssh <user>@<hostname>
```

Example: 'ssh rbest@mum.neric.org'

Moving Around

cd

The cd command acts very similar to the cd command in DOS.

Example: 'cd /Users/joe' to move to the folder 'joe', which is inside the 'Users' folder, which resides on the boot partition.

ls

ls lists the contents of directories (similar to dir on DOS but has more options). If you want to see more information on files/folder, you can use 'ls -lsa' to get file sizes, permissions, etc.

Setting Permissions

To view permissions on files/folders, 'cd' to the directory, then type 'ls -lsa'.

0	drwxr-x---	16	rbest	staff	544	Dec	6	14:28	Desktop
0	drwxrwxrwx	26	rbest	staff	884	Dec	6	08:28	Documents
0	drwxr-x---	33	rbest	staff	1122	Sep	16	14:37	Library
0	drwxr-x---	2	rbest	staff	68	Jul	10	07:07	Movies

In the above example the folder 'Desktop' is owned by 'rbest' and the group is 'staff'. The 'drwxr-x---' is the permissions (see any Unix/Linux book for more details).

chown

chown is the command to change the owner of a file/folder.

Example: 'chown rbest Desktop' would change the owner of the folder 'Desktop' to the user 'rbest'. To change the owner and all sub files/folder use: 'chown -R rbest Desktop'.

chgrp

chgrp changes the file/folder's group. It operates the same way as chown. Example: 'chgrp -R staff Desktop'.

chmod

chmod changes the permission (but not owner or group). Examples:
'chmod u+rwx Desktop' changes the permissions for the owner/user (the 'u') folder 'Desktop' to read (the 'r'), write (the 'w'), and execute (the 'x').

'chmod go-w' changes the permissions for the group (the 'g') and all others (the 'o') to *remove* write access.

Note: You can use the '-R' option (see 'chown') to affect all sub files/folder of a directory.

Deleting Files/Directories

rm

rm is the remove command. Examples:

'rm MyFile.txt' removes the file 'MyFile.txt'

'rm -R Documents' removes the directory (and all sub files/folder) Documents.

Monitoring The System

ps

ps is the command to list your process (programs currently running).

Examples:

'ps' will list your currently active processes

'ps -aux' will give you a list of *all* processes (including other users and the system).

top

top is another command that will list your processes and give you the CPU load of each (including the over all CPU load).

Examples:

'top'

'top -dus2' will show the processes in a different format, sort them by CPU usage (handy for finding programs that might be hogging the CPU).

Note: To quit top, press the 'q' key and anytime.

root user

In the Unix/Linux world, the system account is called 'root'. This account is permitted to do anything, even if not the owner of a program or file. Use this account carefully as not to break or delete the wrong things.

su

From the CLI you can use the 'su' command to temporarily act as the root user. Once you use the su command, you will be operating as root until you type 'exit'.

Note: to use 'su' you must be an administrator.

sudo

To execute a single command as root use the 'sudo' command (safer than 'su'). Example: 'sudo rm -R /Users' would prompt you for your password and then remove the 'Users' directory *and all subfiles/folder* even if you are not the owner or permitted to access the files/folders.

Note: to use 'su' you must be an administrator.

Enabling root account

By default on MacOS X (client), the root account is disabled. This doesn't prevent you from using the su or sudo command (provided you are an administrator), just from login in as root at the login screen or remotely. To enable the root account, from the CLI type: 'sudo passwd root'. You will then be prompted for *your* password (enabling the sudo command) and then the password you want to use for the root account.

Personally I enable the root account on all client machines so I can use ssh ('ssh root@somecomputer') to remotely connect to clients and have full access.

Note: MacOS X Server *does* have the root account enabled by default (the same password you used for your initial administrator's account).

ASR (Apple System Restore)

ASR is a CLI tool to allow you to do a system restore (a ghost image if you will). To learn more about ASR type: 'man asr' from the CLI. Note: ASR is only available in MacOS X 10.2.2.

Crontab

The file '/etc/crontab' is a list of scheduled commands. See 'man crontab' or any Unix/Linux book for more details.

pico

Pico is a simple CLI text editor. To use pico just type: 'pico'.

Example: 'sudo pico /etc/crontab' to edit the 'crontab' file as the root user.

Note: Other CLI text editors are installed too, such as vi, but I usually use pico because of it's simplicity.

Scripts/Batch Files

Just like in DOS, you can create text files containing a series of commands and 'batch' execute them. To so do in UNIX you just need to set the 'execute' bit and the type './MyScript' to run the script/batch file.

To set the execute bit of 'MyScript' type: 'chmod ugo+x MyScript'.

Perl

Perl is a *very* powerful scripting language which is included with MacOS X. To learn more see almost any Perl book or many Unix/Linux books.

MySQL

MySQL is a powerful SQL database that is included with MacOS X Server (and freely downloadable for MacOS X, non-server).

PHP

PHP is a powerful web server scripting language that is included with MacOS X.

/Volumes directory

Unix places non-boot volumes in sub directories of the file system. To locate other hard drives or mounted volumes in the CLI (the GUI shows then on the desktop) you need to look in the directory: /Volumes

man pages

To find out how to use many CLI programs (such as ls, cd, ps, etc.) you can use the CLI command 'man' to bring up a 'manual' on the command.

Example: 'man ps'.

Sharing (Apple Menu->System Preferences)

In the sharing section of the System Preferences (commonly on the Dock, but also found on the Apple Menu) there are a number of useful/interesting options...

Personal File Sharing

Enables file sharing (for Macs) on the given machine (OS X client).

Remote Login

Enables you to access the given machine via ssh (see the section 'ssh' for more details). I highly recommend this so you can remotely login (via CLI) to a machine and fix problems and do various tasks remotely.

Windows Sharing

Enables file sharing for Windows on the given machine (OS X client).

Built-in Firewall

Enables the built-in firewall (OS X client).

FTP Sharing

Enables file sharing via FTP on the given machine (OS X client).

Printer Sharing

Enables sharing of printers (MacOS X 10.2 or higher only).

Internet Sharing

Enables you to setup sharing of a network connection (a simple router if you will). Very useful for connecting wireless and wired networks.

Multiple IPs

MacOS X allows multiple IP addresses to be assigned to a network interface (i.e. an Ethernet NIC) by duplicating a network port (in System Preferences->Network). This can be very useful if you are hosting different services on the same machine (perhaps mail, web, dns, etc.) and which to assign them to different IP addresses. This enables you to separate these services in the future if you ever have additional hardware and don't wish to go to each client and reconfigure them to point to a new server for one of these services.

Classic

To run old Macintosh programs that are not designed for MacOS X, but run under MacOS 9, MacOS X comes with an application called 'Classic'. Classic will run a real copy of MacOS 9 and handle the interaction between MacOS 9 and MacOS X. To run a 'classic' program simply launch a MacOS 9 application (or going to System Preferences->Classic) and classic will launch, start MacOS 9 (assuming it is available) and then run your program.

Note: Since classic is a self contained program, *if* a classic program (ClarisWorks for example) crashes it has the possibility of crashing the rest of any running classic programs. However, even if classic crashes, it should not affect non-Classic programs running or the rest of the operating system.

No Booting Into MacOS 9 (Classic)

If you wish to bypass MacOS X and boot directly into MacOS 9, you can select the OS you wish to boot from in the System Preferences->Startup Disk.

Note: Starting sometime after Jan. 1, 2003 (rumor has it this deadline will be pushed back another 6 months for educational systems), Apple has said that they will be updating new hardware and booting directly into MacOS 9 will not be available (though 'Classic' within MacOS X will continue to work just fine).

Opening Files With Applications/File Extension

As you know, Windows associates documents and programs based on their extensions (.doc, etc.). Traditionally the Mac has imbedded extra information to each file which told the computer which files were associated with which programs, thus allowing users to name files with or without extensions. However, MacOS X takes a middle ground. It will use the extra imbedded information unless you tell it otherwise. To tell MacOS X to open a document with a given application, select the file, choose 'File->Get Info'. In the Info Window, select 'Open With' triangle and you can choose the program you wish to open this document with. OR... if you change the program to open the document with you can then choose to open all files with the same extension (such as .doc, .xls, etc.) by using the 'Change All' button.

Time Server

Using the 'System Preferences->Date & Time->Network Time', you can MacOS X up to synchronize it's clock with an Internet Time Server.

This feature has been around for a long time but I find a lot of users don't know it exists or just don't take advantage of it.

Creating PDF Files

In any MacOS X GUI program (Classic applications not included), when you choose Print, you have two additional options, 'Preview', and 'Save as PDF'. 'Preview' will print your document to a PDF file in a temporary location and then open it with the PDF viewer of your choice (the application 'Preview' is the initial default). 'Save as PDF' will print your document to a PDF file in any location you specify. Since PDF imbeds fonts, incorporates page margins, and can be read on many platforms, PDF files are a superior method of printing documents to distribute on the Internet.

Image Capture (/Applications)

When connecting a supported USB camera or USB or FireWire scanner, MacOS X uses the program Image Capture (/Applications) to access your camera or scanner.

Note: If you choose, you can use 'iPhoto' when connecting your camera instead. iPhoto is a image cataloging and editing tool. Very easy and useful.

Second Note: At this time, many older scanners are not supported, however both Epson and HP have been coming out with updated drivers and more and more of their scanners are starting to work with MacOS X (10.2 and up). Cameras however are very likely to work (but of course not universally).

Network Utility (/Applications/Utilities)

Network Utility is a nice GUI application that will allow you to do DNS lookups, pings, traceroutes, port scans, etc. (/Applications/Utilities)

Dock

The Dock looks and acts similar to the Taskbar in Windows. However it does have some differences. To add items to the Dock, simply drag the icon on any document, application, or folder onto the Dock (note: Applications are on one side and folders/documents are on the other). To remove items from the Dock, just drag them off.

Note: If you have an icon on a folder on the Dock you can either press and hold the mouse button on the icon or control-click on the icon and you will have a menu of the folder contents (including submenus to sub folders).

Go Menu

When in the Finder (the desktop), you have the menu called 'Go'. From the Go menu, you can connect to servers or go to specified directories/folders.

Examples using the 'Connect To Server' menu item:

hogwarts	(would connect to the AppleShare or AppleShare compatible server at the dns name: hogwarts (short for hogwarts.potsdam.k12.ny.us))
afp://hogwarts.potsdam.k12.ny.us	(would connect to the same server)
smb://atlas	(would connect to the Windows server (without Mac Services) at the dns name: atlas.potsdam.k12.ny.us)

Examples using the 'Go to Folder' menu item:

/etc	(would open the folder 'etc', which is hidden by default)
/var	(would open the folder 'var', which is also hidden by default)

Burning CDs/DVDs

Burning CDs and DVDs in MacOS X with computers that have built-in (or other supported burners) is very easy. To burn data to the disk simply insert a blank disk, the OS will ask you what you want to name it. It will then display a 'virtual' disk on the desktop. You can copy files, edit files, move files, etc. all you want on this 'virtual' disk. When you are done, just drag the icon of the virtual disk to the trash can (which should then change to a black and yellow circle). The OS will then ask you if you want to burn the disk. Assuming you choose to burn, the OS will then burn the data to the disk (thus being unchangeable). That's it.

This isn't a new feature to MacOS X but I find that many users don't know how easy it is. Note: CDs burned on MacOS X are hybrid CD, meaning they will work for MacOS (any version) and Window.

Force Quitting Applications via GUI

If a program is not responding (i.e. it has crashed), you can use the 'Force Quit...' option from the Apple menu or press Apple-Option-Esc. You will then be asked which program you wish to terminate. Note: You of course will lose any work in the program since you last saved but other MacOS X programs should continue to operate just fine, no ill effects from the force termination.

Disk Copy (Applications/Utilities)

Disk Copy is a great disk imaging tool. You will likely use Disk Copy for two purposes, 1) when you receive .dmg or .img files (disk images, similar to ghost images), Disk Copy will mount them as virtual volumes on the desktop, or 2) to make an exact copy a disk or partition. Very useful for duplicating CDs or entire drives (see 'ASR' for more).

Print Center (Applications/Utilities)

Print Center is the program used to add and manage printers (both locally and on the network).

iChat (Applications)

iChat is a AOL Instant Messenger compatible chat program. However, it has a few different features. The most important feature is that it can optionally work on your local network with or without access to the Internet. Thus your staff (or students) can send messages to one another and not interfere with your Internet connection. Of course by doing so, iChat can not be blocked (to my knowledge) with most Firewalls or Internet Filtering packages we use, at least not from in house messaging.

Accessing Windows Servers

To access Window servers (i.e. Non-Macintosh shares), use the 'Go->Connect To Server' menu. For the address you can type: 'smb://<the name of the server>'

BBEdit (Lite)

BBEdit Lite is a free text editor for Macintosh. I highly recommend it, is the best GUI text editor I've ever seen, on any platform. I would recommend installing it on your administration workstations and servers (non-admin workstations have little benefit since they won't be editing text files very much). You can download BBEEdit Lite from: <http://www.barebones.com>

Open Firmware Password

On newer Macs you can use a free tool from Apple (<http://www.apple.com/support>) called 'Open Firmware Password Application' which will prevent anyone from booting from a different partition and/or OS (including CDs) without entering a password (similar idea to a BIOS password). Since MacOS X is highly secure there wouldn't be much point in allowing users to boot from CD or external drive and access your document so I recommend Open Firmware Password on lab or classroom computers.

Software Updates

Using the 'System Preferences->Software Updates' you can have the OS locate and optionally install updates to the OS and a few of the installed applications.

Note: This feature has been around much longer than MacOS X, but it is worth mentioning since it is usually best to have your OS update to date. Also note that you may wish to disable auto-checking for updates on client machines since non-administrators usually can't install updates without an administrator's username/password.

Startup Keys

When starting the computer you can use some the following keys to do different things (there are more but these are some of the more useful ones).

Shift Boots MacOS X in 'Safe Boot' mode (similar to 'safe mode')

Option Prompts you to select a partition to boot from (remember, you can use the Open Firmware Password to prevent using this without a password)

Apple-S Starts MacOS X in single user mode. Single user mode is a CLI environment where you can do repairs and other tasks that can not be done when the OS is running normally. Very help full to disk repairs (see 'Repair/Recovery'), I recommend using it after any problems.

Note: If you have Firmware Password enabled this key combination will be permitted.

X	If you had specified to have the computer to boot into MacOS 9 (or earlier), this will switch the startup OS to MacOS X instead.
Apple-V	This will start MacOS X in verbose mode. Not very helpful unless you like to look at what is going on during the boot process.
T	With computers with built-in FireWire (some older computers <i>might</i> be excluded) you can hold the T key to have the computer act as an external firewire drive. You can then connect it to another computer and it should show up as an external firewire drive (great tool for imaging, transferring files without using the network, or repairing/recovering partitions/files). Note: If you have Firmware Password enabled this key combination will be permitted.
C	Tells the computer to boot from a CD/DVD. Note: If you have Firmware Password enabled this key combination will be permitted.
N	Tells the computer to boot from the network (see NetBoot). Note: If you have Firmware Password enabled this key combination will be permitted.
Mouse Button	Tells the computer to eject any floppies or CD/DVDs.
Apple-Option-P-R	Erases the parameter RAM (similar idea as resetting the BIOS).

Repair/Recovery

When things go wrong (i.e. a program crashes) you should try the following (in order)...

Terminating Programs

1. Use Apple-Control-Esc (Apple Menu->Force Quit) to force quit the offending program.
2. Using CLI (/Application/Utilities/Terminal or ssh from another computer) you can type:
'ps -aux' or 'top -dus2'
It should return the PID (process id) of the offending process/program. You can then type:
kill or kill -9 <pid> (example: 'kill 3434')

Rebooting

1. From Apple Menu choose 'Reboot'
2. From CLI (/Application/Utilities/Terminal or ssh from another computer) type:
'sudo shutdown -r "now"'
3. Power Cycle Computer

Booting Into Sing User Mode

Hold down the Apple-S keys when starting the computer. You should soon see white text on a black background. When the text out put settles down, type: 'fsck -y' (minus quotes). When finished the computer will indicate if there were problems or not. If no problems, type: 'sync; sync; sync; reboot'. If problems *were* found, repeat 'fsck -y' until it returns no problems.

Booting From External Device (including another computer)

To boot from a different hard drive or partition (disk, internal hard drive or external hard drive). Hold down the 'Option' key at boot time. You will then be presented with a list of partitions that you can boot from.

Note: If you have two Macs that have FireWire built-in, you can connect them via a FireWire cable. The computer you want to act as an external hard drive you can

boot up holding the T key. Then you can boot the other computer using the Option key and select the second computer's hard drive.

Note: The OS X (client and server) Install CD-ROM can be used as a repair CD (select 'Disk Utility' from the menu instead of running the installer when booted from the CD).

Additional Resources

Apple Remote Desktop

Apple sells a product called ‘Apple Remote Desktop’ which allows you to manage (remotely) your Macintosh (8.1 and up, including MacOS X) client computers (and servers too). You can share screens (and keyboard/mouse), manage files, and many other management options. You can find out about ARD at: <http://www.apple.com/remotedesktop/>

Note: Timbuktu Pro (<http://www.timbuktu.com/>) is another very powerful remote control program. Unlike ARD, Timbuktu Pro allows you to control cross platform (Macs to Windows, Windows to Macs), however it is more expensive than ARD. Timbuktu Pro is also the most powerful remote control program I’ve see on any platform. VNC is another (freeware) remote control program that works on MacOS X (and I suspect MacOS 8/9, but I have not check) as well as Windows. VNC is free so keep in mind, you get what you pay for.

Web Resources

Below are some web URLs you might find useful for learning more about or trouble shooting MacOS X.

<http://AFP548.com/>

A MacOS X Server web site

<http://www.macosxhints.com/>

A MacOS X tips web site.

<http://search.lists.apple.com/macos-x-server>

Apple’s email list archives for MacOS X Server.

<http://lists.apple.com/mailman/listinfo/macintosh-manager>

Apple’s email list archives for Macintosh Manager.

<http://www.apple.com/support>

Apple’s support and downloads web site.

<http://rob.potsdam.k12.ny.us>

My web site, with documentation I’ve created or found as well as info on how to contact me. Feel free to do so!