

Installing Mac OS X Server

Guide for K12 Schools

Introduction

Many schools are facing the transition from AppleShare IP to Mac OS X Server, or are installing it for the first time with little or no experience. Installing Mac OS X Server requires more planning than AppleShare IP, and has a few “traps for young players”. This document is intended as a simple step-by-step guide, and is written out of experience implementing Mac OS X in a number of schools.

It is assumed you are using Mac OS X Server v10.2.3, and Mac OS X Client v10.2.3

Procedure Summary

The following points are a summary of the procedure. Further details are given after this section, and should be read fully before installing Mac OS X Server for the first time. This summary makes a good checklist as a reminder for more experienced users.

1. Ensure you completed your planning and information gathering before you start.
2. Confirm the IP & DNS details are correct:
 - Ping the IP address chosen for the server to confirm it is not currently in use
 - Do an nslookup on the hostname chosen for the server to confirm forward lookup is working
 - Do an nslookup on the IP address chosen for the server to confirm reverse lookup is working
3. Boot the server from the Mac OS X Server install disk supplied with the server
4. Partition the hard disk [10Gb for boot, balance for data]. If two hard disks [eg Xserve] use one for boot and the second for data.
5. Run the installer, restart
6. During the Mac OS X Server Setup Assistant ensure the following is observed:
 - Hostname matches the hostname in DNS records for that IP address
 - DNS search domain is entered
7. During the Open Directory Setup Assistant, ensure the following is observed:
 - Check the first screen to see if reverse lookup has worked
 - ‘...provide directory...’ for NetInfo Parent if first/only server
 - ‘...get directory...’ for NetInfo Child if second or later server
 - In “Security”, turn password server on by selecting ‘...provided to other systems...’
8. Run Software Update, restart
9. Login as ‘root’
10. Enable Guest Access for Apple File Services, in the Server Settings application

11. Create folder(s) for Home Directories, remembering:
 - sharepoints should contain no spaces and capitalisation transfers to paths
12. Create sharepoint(s) for Home Directories, in Workgroup Manager:
 - Navigate via 'all' to folders created above, and click 'share'. Permissions & Ownership should be owner = root (rw), group = wheel (ro), everyone (ro)
 - In the XXXX tab, ensure afp has guest access for this sharepoint.
 - In the automount tab, authenticate as 'root' and tick 'automount'.
13. Add a user manually as a test:
 - Shortname is used for home directory, email, login – you can have more than one, but the first cannot be changed without deleting the user.
 - Untick multiple logins, check user's password type is 'password server'
 - Home directory type should be 'Network' and the sharepoint(s) you created should be there to choose from. Note: the sharepoint name should be fully qualified. eg:
afp://server.demo.com/sharename/
 - Once you have saved that user, go back and see if user has a long string under 'Password Server' to confirm that Password Server is working correctly.
14. Test the Login from a client machine for the newly created user
 - Check to see if a home directory was created for that user after you successfully login
15. Test Mac OS X Client login & automount
 - Setup a Mac OS X Client to be a NetInfo Child, using the Directory Access applications. Configure NetInfo via a static IP address (the server's IP address) and using a tag of 'network'
 - Restart client machine – VERY IMPORTANT
 - Login as newly created user, and test that their home directory has correctly automounted.
16. Import Users.
 - You can use passenger or the supplied Excel spreadsheet to create the import file
 - Remember to select 'Record Descriptions in File' in the import dialogue, rather than XML
17. Create Home Directories
 - Can be created automatically when user logs in, but you might wish to change permissions or add items to folders before all users have logged in, so a UNIX command is provided:
createhomedir
 - Further information can be found in the Admin Guide (v10.2.3) on page 165.
18. Optional: Create Groups and Add Users to Groups
 - Further information can be found in Chapter 3 "Users and Groups" of the Admin Guide (v10.2.3) on page 117.
19. Optional: Create Group Volume
 - When creating a group folder/volume in Workgroup Manager, you need to use the following UNIX command:
CreateGroupFolder
 - Further information can be found in the Admin Guide (v10.2.3) on page 172 & 173.
20. Optional: Configure Preferences in Workgroup Manager
 - IMPORTANT: Only set preferences for groups you wish to appear in the workgroups selection window at login. This cannot be undone !!!
 - Further information can be found in Chapter 6 "Client Management: Mac OS X" of the Admin Guide (v10.2.3) on page 279. Read this chapter before getting into setting preferences.

Detailed Information

The following sections outline greater detail of the steps described in the summary above. The information below is not designed to replace the manual: Mac OS X Server Admin Guide, but simply provides a handy reference of the most important points.

Prior to Installation

The following section outlines the steps you might take:

Planning

- Before you install, you should complete the ‘Mac OS X Info Worksheet’ to ensure you have all the information you require before you begin.

Directory Services

- Mac OS X Server supports authentication to LDAP servers; Microsoft’s Active Directory or Novell’s eDirectory via LDAP; and it’s own NetInfo.
- Unless you have a specific need and know to configure Directory Services, it is recommended you use NetInfo rather than LDAP.
- If you are installing your first or only server, you should configure it as a ‘NetInfo Parent’. If this is your second, or later server you should configure it as a ‘NetInfo Child’. This will be explained during the installation process.

DNS

- When Mac OS X Server boots, it performs a ‘reverse lookup’ to determine it’s host name. It requests the name server reply with the hostname for the given IP address.
For example: if your server has an IP address of 10.0.1.30, it will ask the name server what hostname matches this IP address. The name server would return a hostname something like ‘server.demo.com.au’
- Therefore, it is critical for correct operation of your Mac OS X Server that your name server has a forward and reverse entry for the IP address you will use.
- It is essential that the name server is available during installation to ensure the correct information is written to configuration files.
- Test this is configured correctly using Network Utility (Applications → Utilities), by entering the IP address you will use on the server in the ‘Lookup’ tab. Uncheck the box to ‘use dig instead of nslookup’. It is also worth pinging the IP address you intend to use to confirm it is not currently in use.

Partitioning the drive

- For ease with future software upgrades, you should put Mac OS X Server on a separate partition. When you wish to upgrade, simply erase that partition and install the new version, leaving your data intact on another partition/disk. If you keep your UserIDs and shortnames consistent between installs, your Home Directories will continue to work.
- If you are using an Xserve, separate OS and data onto separate drives. This gives better performance since each drive has it’s own ATA controller on Xserve. You may wish to partition the OS drive into two, giving 20Gb for OS and the balance for storage of less frequently used data.
- How: Boot your server with the Mac OS X Server Install CD, which will boot into the Installer. From the ‘Installer’ menu select ‘Open Disk Utility’. Use Disk Utility to erase and/or partition the drive(s).

Installation & Configuration

The following section outlines the steps you might take:

Installation

- You should be started from the Mac OS X Server Installation CD and at the Installer.
- Run through the installer, ensuring you select the following options:
 - “Select a Destination”
 - Ensure you select the correct drive. If you did not partition (or are doing a re-install), go to “Options” and select ‘...erase and install...’ and format as ‘Mac OS Extended’
 - “Easy Install”
 - Click “Customize”
 - Deselect ‘...localized files...’ to remove extra languages and save disk space
 - Leave the ‘BSD Subsystem’ to be installed.
- Once the installer has finished, it will Reboot the server and on startup, run the ‘Mac OS X Setup Assistant’.

Mac OS X Setup Assistant

- Run through the Assistant, ensuring you select the following options:
 - “Keyboard Selection”
 - Australian
 - “Serial Number”
 - Enter the serial number from CD cover
 - “Administrator”
 - This account is the ‘owner’ of the server, and the password for this account will be used automatically for the ‘root’ account also.
 - It is advisable to have a different username/shortname for the administrator on your server, to what you use on your client computers.
 - “Global TCP/IP & AppleTalk”
 - Hostname must equal the hostname in your DNS records
 - eg. server (ie. the first part of ‘server.demo.com’)
 - DNS should be the one with the server’s records (for reverse lookup)
 - Enter your search domain, this is the rest of the name after the hostname
 - eg. demo.com (ie the balance of ‘server.demo.com’)
 - Computer name can be different, but good to make it the same as hostname
 - IMPORTANT: It is critical that any information entered here MUST match what is in the DNS records, so when a reverse lookup is done by Mac OS X Server at startup, they will match.
 - “Port Planning”
 - If using an Xserve, disable the second port (unless you have a specific use)
 - Turn AppleTalk on if you will run the print server, or have pre-Mac OS X clients
 - “TCP/IP Connection”
 - Enter the relevant details.
 - “Services”
 - Enable Apple file service as a minimum
 - “QuickTime Streaming Server Administrator”
 - Enter the relevant details. Maybe give it a different username to server admin, especially if you will delegate administration of this service to others.
 - “Time Zone”
 - Click on the map where Sydney is. Can you get it first go ?
 - “Date & Time”
 - If you change the date or time, remember to click “Save”

- “Review Settings”
 - Save your settings for future reference with “Save As...”
 - Check the settings.
 - Check the settings, again. Especially IP and DNS details.
 - Click “Go Ahead”
- Once the Assistant has finished, click “Continue” and it will open the ‘Open Directory Setup Assistant’.

Open Directory Setup Assistant

- Run through the Assistant, ensuring you select the following options:
 - “Location”
 - If the reverse lookup has worked, you should read “This server <your dns name here> at <your ip address here>. eg. This server server.demo.com at 10.0.1.1
 - If it only shows IP address, you have a DNS problems and cannot move on till it is resolved. Start troubleshooting by going through the DNS section above.
 - If you are certain this server is on it’s final IP address, select ‘...it is using a permanent address’
 - “Directory Use”
 - if your server is the first or only one, select ‘...provide directory information...’ (this creates a NetInfo Parent on this server)
 - if your server is the second server, ‘...get directory information...’
 - DO NOT use the middle option of a local directory.
 - “Configure”
 - if you selected “...provide...” above, enable LDAP support, go to the next screen.
 - if you selected “...get...” above, change ‘Apple LDAP’ to ‘NetInfo’ and select ‘Static IP Address’ only. Then enter the IP address of your first server and a ‘NetInfo Server Tag’ of ‘network’. This establishes a NetInfo Parent/Child relationship.
 - Go to the next screen titled “Finishing Up”. Click “Save As...”, then “Go Ahead”.
 - “Security” [only seen if you selected “...provide...” above]
 - to enable password server (needed for extended options, or to support Windows connectivity), select ‘...provided to other systems...’
 - if you have no Windows’ machines (and never will as this is hard to change later), select ‘...stored and accessed locally in user records...’
 - continue through the rest of the “Security” screens, leaving everything default.
 - “Finish Up”
 - Check your settings to ensure they are correct
 - Click “Save As...”, then “Go Ahead”.
- Once the Assistant has finished, it will ask you to Restart the server.

Software Update

- Once the server has restarted, it is important to update to the latest version.
- The preferred method is via Software Update as this decides which update you need, plus it keeps a record of which updates you have done. Run Software Update:
 - Open ‘System Preferences’ from the Dock or Apple Menu
 - Click on ‘Software Update’ icon
 - Click ‘Check Now’
 - Select the updates you need and Click ‘Install’
 - You will be prompted to Restart the server once installations are complete.
- NOTE: If you need a proxy to browse the Internet, Software Update might fail if you do not have proxy settings configured correctly. You can enter proxy details in ‘System Preferences’, in the ‘Network’ pane. They are added under the relevant interface (eg Built-in Ethernet).
- You do not have to do updates like iTunes etc..., just the relevant ones.

Preparing Home Directories

If you are using Mac OS X Client and individual log-ins, having a Home Directory for each user is the best way to go. This gives each user their own area on the server to store documents, have their preferences kept, publish their own 'mini-website', and so forth. Follow these steps to enable them:

Enabling Guest Access

- For Home Directories to auto-mount to your Mac OS X Client, it requires Guest Access to be enabled.
- Enable guest access by:
 - Open 'Server Settings' (Applications → Utilities), connect to your server via DNS name.
 - Click on "Apple" in "File & Print", then "Configure Apple File Service..."
 - Click on "Access" tab
 - Select "Enable Guest Access"

Create Folder(s) for Home Directories

- Login as root, using the same password as your administrator account.
- Create folder(s) for student and teacher home directories on the data partition/drive
- Think about the best way to organize home directories. You may wish to have a student share-point and a staff share-point, or a share-point per grade (or class in a small school) to make it easier for students to find their folders, or to find other students to leave files in their drop box. It is usually best to arrange share-points and groups that match (see below about groups).

Create Share-point(s) in Workgroup Manager

- The folders were created above, but we need to make them share points and enable automount for the to work as Home Directories.
- Create each share-point by:
 - Open 'Workgroup Manager' (Applications → Utilities), connect to your server via DNS name.
 - Click on "Sharing" icon
 - Click on the "All" tab
 - Stretch the window till you see two columns in the "All" tab window.
 - If you wish to use 'Disk Quotas'
 - Select the partition/drive(s) your Home Directories will on
 - Select "Enable disk quotas on this volume"
 - Click "Save"
 - To Share Home Directory Folder(s) – (repeat this process for each folder)
 - Navigate to and select the folder you wish to share
 - Access Tab
 - * Select "Share this item and it's contents"
 - * Make the owner "root", group "wheel"
 - * Make owner and group "read & write" privileges, and everyone "read only".
 - * Click "Save"
 - Protocols Tab
 - * Ensure "Allow AFP guest access" is on. Should be by default.
 - Auto-mount Tab
 - * Click the padlock to authenticate. Enter "root" and password.
 - * Select "Automount this item to clients in domain"
 - * Leave everything else default
 - * Click "Save"

Add a User for Testing

- We will add a test user to ensure everything is working before we go through the process of importing potentially hundreds of users.
- Add a user by:
 - In ‘Workgroup Manager’, click on the “Accounts” icon.
 - Click “New Record” to create a new user
 - “Basic” Tab
 - Name: (eg Joe Bloggs) this is a long name and can contain capitals and spaces.
 - Short Name: (eg jbloggs) this is used for email, home directory name, login. It is best if they are lowercase and must contain no spaces. Therefore spend time planning these, as they cannot be undone without deleting the user and recreating them. Usually a short name is something like “jbloggs” or “bloggsj”. A popular format is:
first initial + first 6 letters of surname + number if duplicates exist.
 - These can be generated on mass with an utility like ‘Passenger’ or in a spreadsheet/database. See importing users below, for more details.
 - A secondary short names can be added for things like email alias’, shorter logins for preferred users, but remember the first short name defines the home directory and cannot be changed.
 - Note: when you tab into this field, you need to press return to be able to type.
 - User ID: (eg 1025) For this test user, let the server auto-generate, but when you import it is best for you to plan and keep a record. This makes rebuilding a server at a later date much easier.
 - Click “Save”
 - “Advanced” Tab
 - Turn off simultaneous login to improve security if you have a username per student and teacher. If you have a class login (eg 5M), you will need to allow it.
 - Unless you want users to Telnet into the server, change from Default to None
 - If you enabled Password Server in ‘Open Directory Setup Assistant’, the ‘User Password Type’ should say ‘Password Server’ by default (not Basic). If you saved the user on the last tab, the “Password ID” field should show as a long string of letters and numbers.
 - “Groups” Tab
 - Ignore for now
 - “Home” Tab
 - Select ‘Network’
 - Select a share-point in the window below. The share-points in this list are the ones you created above as automount for Home Directories. They should look like:
afp://server.demo.com/students
 - “Mail” Tab
 - Ignore for now
 - “Print” Tab
 - Ignore for now
 - Click “Save”
- Try connecting to this server from a Mac OS X Client computer using “Connect to Server . . .” or from a Mac OS 9 computer via the Chooser.
- Check to see if a Home Directory was automatically created, within the selected share-point, for the test user as you logged in.

Configuring Mac OS X Client(s)

The following section outlines the steps you might take:

Configuring Directory Access

- Log-in to the Mac OS X Client as the administrator
- Open the 'Directory Access' application in Utilities
- Click the padlock in the bottom left corner to Authenticate so you can make changes
- Select "NetInfo" and Click "Configure"
 - Select only "Attempt to connect to a specific NetInfo server:"
 - Enter the IP address of the server (or if more than one server, the NetInfo Parent)
 - Enter the Server Tag 'network'
 - Click "OK"
- Restart the client, this is VERY IMPORTANT

Test Login

- Login as the test user you created.
- The home directory should automatically be mounted (although it will not appear on desktop) and can be tested by selecting "Home" from the "Go" Menu in the Finder.
- If the test user's shortname appears at the top of the window, and the complete set of folders (inc. Music, Movies and Photos) can be seen, everything is successful.

Future Version of this Document

A future version of this document will outline the following:

- Adding groups & Defining group folder automount
- Importing Users
- Configuring Managed Client for Mac OS X

Check here for a newer version – <http://www.barnham.com.au/macosex/>

Getting Help

There are a number of people who can help you install Mac OS X Server:

- Your Apple Education Reseller
- Apple Professional Services
- Apple Certified Training: Mac OS X & Mac OS X Server
- <http://www.apple.com.au/training/>

Resources

A variety of websites, white papers and tools that will help:

- Mac OS X Admin Guide – version 10.2.3 can be downloaded at:
http://www.apple.com/server/pdfs/MacOSXServer_AdminGuide_121902.pdf
- Mac OS X Server Support Webpage
<http://www.info.apple.com/usen/macosexserver/>
- Mac OS X Server List
<http://lists.apple.com/mailman/listinfo/macos-x-server>
- Understanding NetInfo Document
http://manuals.info.apple.com/Apple_Support_Area/Manuals/software/UnderstandingUsingNetInfo.PDF