

# 1. Mac OS X Server - Installation & DNS

This series of notes outlines, albeit briefly, a step by step process to install and configure a *Mac OS X 10.4 Server* in a school environment.

The organisational model used in these notes is based on a model used widely in NSW schools:

- *Users* are organised based on their cohort year of enrolment.
- *UserIDs* are generated through a combination of the year of enrolment and the student's school OASIS number.
- All users are organised into *Groups* based on cohort year of enrolment.

The server is setup with two Hard Disks (or two partitions), designated as *server* and *data*. All user's files are stored on the *data* drive.

A *Group* folder is set to mount on the desktop at login, to facilitate the sharing of files between users.

The configuration described in these notes is not prescriptive, nor does it cover all school scenarios or possible server services, such as user's mail for example, which is organised and maintained centrally for our local schools.

There are other ways to setup a server - these notes describe just one option which is suitable for local schools!

These notes are divided into a number of documents:

1. Installing the *Mac OS X Server* Software (included in this document)
  - 1.1. Initial software Installation
  - 1.2. Enabling and configuring DNS
  - 1.3. Updating the *OS X Server* software
2. Setting up Services
  - 2.1. Overview
  - 2.2. AFP, Web & Windows
  - 2.3. Setting up DHCP
  - 2.4. Setting up Open Directory
3. Setting up Sharepoints
4. Setting up Groups and Users
5. Setting up Netboot/NetRestore
6. Managing user Preferences
7. Connecting from *Windows XP* - WorkGroup
8. Configuring *Mac OS X Server* as a Primary Domain Controller

### IMPORTANT NOTE

These documents describe the setting up of a *Mac OS X 10.4 Server* which will accommodate individual user logins and network Home folders. ***Such a system is critically dependent on the server having a fully qualified domain name (FQDN).***

These notes also describe how to setup the server to provide a range of services, including *DHCP*, *DNS* and *Open Directory*.

However, experience has shown that a more reliable server will be installed if the initial configuration is as basic as possible, with these services not enabled until after the server has been restarted at least once after software installation.

**The *Open Directory* service cannot be enabled until a reliable *DNS*, which has a forward and reverse lookup for the server's FQDN, is available.**

1. Erase the HD, and/or partition, if necessary.

Ideally your server will have two separate HDs, one named **server** for the system, the other named **data**, for storing user's files.

2. Install the *Mac OS X* server software.

3. After restart you will see a **Welcome** screen for the *Server Setup Assistant*.

Click on the **Continue** button.

4. Make the following choices at each screen then click the **Continue** button.....

4.1. *Keyboard*: Choose **Australian** from the keyboard options

You may have to click the **Show all** button to see the **Australian** option.

4.2. *Serial Number*: Enter your software serial number and registration information

4.3. *Admin Account*: Enter an Administrator's username and password. Check with your local IT support people for the local conventions which may be used for this.

4.4. *Network Names:* *Computer* and *Local Host* names are not critical.  
eg: *schoolcode-server* or *schoolname-server*, etc

4.5. *Network Interfaces:* Disable (untick) **Built-in FireWire** options

Enable (tick) **TCP/IP** for **Ethernet** on interface 1.

Preferably, don't enable **AppleTalk**, unless there is a need to support legacy equipment.

4.6. *TCP/IP Connection:* Provide a fixed IP and Router address for the server. (In NSW DET schools this should be 10.x.x.27).

*DNS:* Leave blank, for now.

*Search Domain:* Leave blank, for now.

4.7. *Directory Usage:* **Standalone Server.**

(See note re DNS at the start of this document).

4.8. *Services:* Tick to enable the **Netboot** and **Apple Remote Desktop** (ARD) service. ARD is most important if you are installing on a "headless" server!

No need to enable any other services at this stage. We will enable required services after the server has been restarted.

4.9. *Time Zone:* Set to local time zone

4.10. *Network Time:* Set the IP address of a network time server, if available.

For DET use 153.107.37.22. A DNS name (eg ntp.det.nsw.edu.au) is not suitable until a DNS is established.

4.11. *Confirm Settings:* Review the information, then click on **Apply**.

You will be advised that your server is being configured.

4.12. Click on the **Restart Now** button.

## 1.2 Enabling and Configuring DNS

**These notes describe setting up a *Domain Name Service (DNS)* on a *Mac OS X 10.4 Server*.**

*Mac OS X* clients **MUST** be able to resolve the server's domain address for a successful login and use of network Home folders.

Configuring the local *Mac OS X* server as a DNS server will remove dependency on an external DNS to lookup the server's address.

However, the local DNS will only "know" about local addresses. It must also be able to "forward" any other DNS requests to an "upstream" DNS server.

You will not be able to update your server software until the DNS server is operational

The following notes detail the following four steps in the DNS setup procedure for a *Mac OS X 10.4* server:

- Setting up DNS forwarding;
- Adding a Master Zone, and associated record entries;
- Testing your DNS server;
- Setting client TCP/IP entries, via DHCP, to use the local DNS.

## 1. Setting up DNS Forwarding

*Apple* documentation suggests that the DNS forwarders, or upstream DNS server(s), should be entered as secondary/tertiary DNS servers in the server's **Network Preferences**.

Our local experience is that this is not reliable, and the settings shown below are more reliable.

To be certain that requests for non-local DNS servers are forwarded to an "upstream" DNS server, you will need to edit the **named.conf** file, which is a file in the (hidden) **etc** folder.

To edit this text file you will need to download and install a text editor which will respect UNIX carriage returns.

*TextWrangler* is recommended ([www.barebones.com/products/textwrangler/](http://www.barebones.com/products/textwrangler/)).

You will need to download this software on another computer and copy it to the *Applications* folder on the server via a USB flash drive, as the server will not yet be able to connect to the internet - until you setup the DNS forwarders!

**Note: You must be logged on as the root user to edit the named.conf file.**

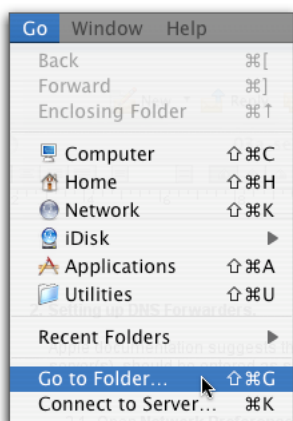
1.1. Log on to the server as the **root** user.

The **root** user has the same password as the **Admin** user.

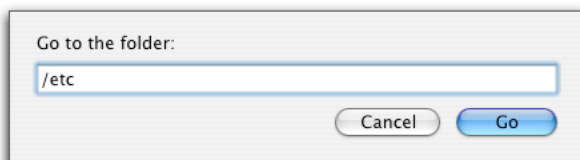
1.2. On another computer, go to [www.barebones.com](http://www.barebones.com) and download *TextWrangler*.

Use a *Flash* drive or external *FireWire* drive to copy *TextWrangler* to the server, and then install *TextWrangler*.

1.3. Choose **Go to Folder** from the **Go** menu in the **Finder**.



1.4. Enter **/etc** in the **Go to the folder** field.



Click on the **Go** button.

1.5. Locate the **named.conf** file.



Make a duplicate copy of this file, just in case!

1.6. Open the **named.conf** file, and locate the following line of text:

```
// query-source address * port 53;
```

1.7. Click your cursor at the end of the above line, type a **Return**, then type the following text:

```
forwarders { 153.107.37.21; 153.107.37.22; };
```

(where *153.107.37.21* and *153.107.37.22* are your upstream DNS servers - ie, the DNS servers of your ISP)

as shown in the example below:

```
};
options {
  directory "/var/named";
  recursion true;
  /*
   * If there is a firewall between you and nameservers you want
   * to talk to, you might need to uncomment the query-source
   * directive below. Previous versions of BIND always asked
   * questions using port 53, but BIND 8.1 uses an unprivileged
   * port by default.
   */
  // query-source address * port 53;
  forwarders { 153.107.37.21; 153.107.37.22; };
};
//
// a caching only nameserver config
```

← enter this line of text here

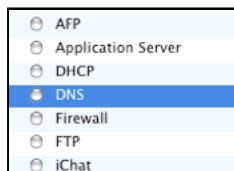
1.8. Save the file, and Quit the editing application. (You will not be able to save the file unless you are logged on as the *Root* user).

1.9. Log off as the **Root** user.

## 2. Setting up a Master Zone

2.1. Open **Server Admin** and log on to the server as the **Admin** user (not **Root**). (Identify the server as the default server.local)

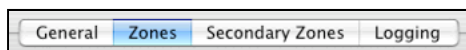
2.2. Click on the **DNS** service in the left pane of the window.



2.3. Click on the **Settings** button at the bottom of the screen.

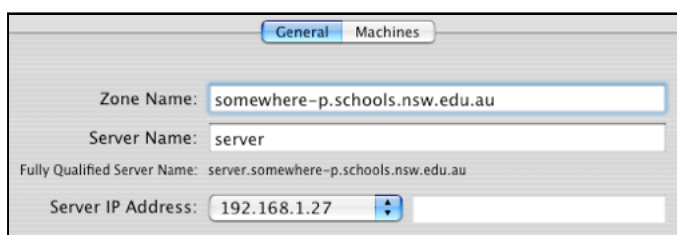


2.4. Click on the **Zones** button at the top of the window.



2.5. Click on the **+** button at the bottom of the window.

2.6. Complete the information as shown below, substituting your school's specific name information where appropriate:



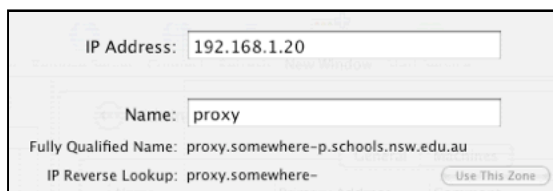
**Zone Name:** *schoolname-p.schools.nsw.edu.au*.

**Server Name:** *server* (if using 10.x.x.27), or *web1* (if using 10.x.x.30), etc, as per the NSW DET naming conventions.

2.7. Click on the **Machines** button at the top of the screen.

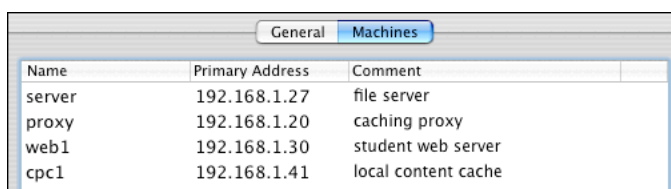
2.8. Click on the **+** button at the bottom of the window.

Add specific DNS info for other servers on your local network, if required.



IP Address: 192.168.1.20  
Name: proxy  
Fully Qualified Name: proxy.somewhere-p.schools.nsw.edu.au  
IP Reverse Lookup: proxy.somewhere- Use This Zone

2.9. Enter any additional servers requiring a DNS entry.



Name	Primary Address	Comment
server	192.168.1.27	file server
proxy	192.168.1.20	caching proxy
web1	192.168.1.30	student web server
cpc1	192.168.1.41	local content cache

Click on the **OK** button.

2.10. Click on the **Save** button.

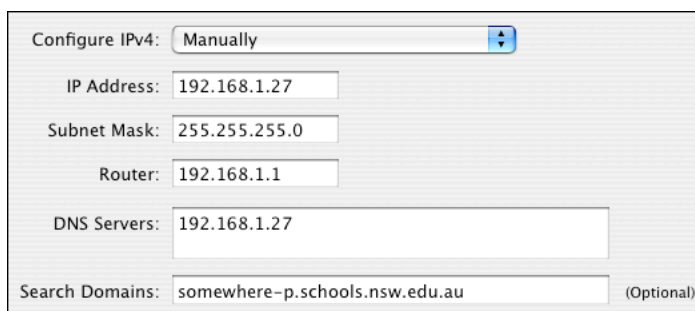
2.11. Click on the button to **Start Service**. (You may need to click twice on the **Start Service** button to activate DNS).



### 3. Configuring the Server's Network Settings

Working at the server, open **Network Preferences**.

3.1. Enter the server's own IP address for the **DNS Servers** address.



Configure IPv4: Manually  
IP Address: 192.168.1.27  
Subnet Mask: 255.255.255.0  
Router: 192.168.1.1  
DNS Servers: 192.168.1.27  
Search Domains: somewhere-p.schools.nsw.edu.au (Optional)

Click on the **Apply Now** button, and quit **Server Admin**.

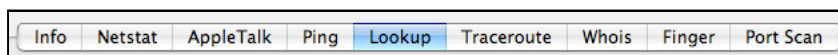
## 4. Testing your DNS Server.

Our DNS server resolves alphabetical names to IP numbers (and visa-versa). We need to check that our DNS server is actually working, for both forward and reverse lookups, for both local and remote addresses.

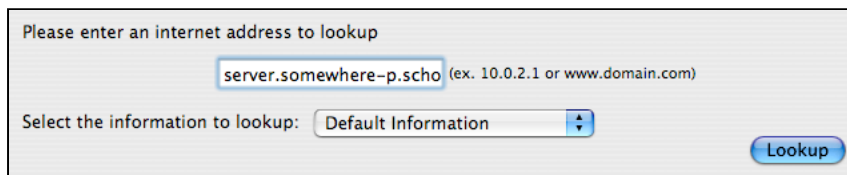
4.1. Open the *Network Utility* application (**Applications > Utilities**).



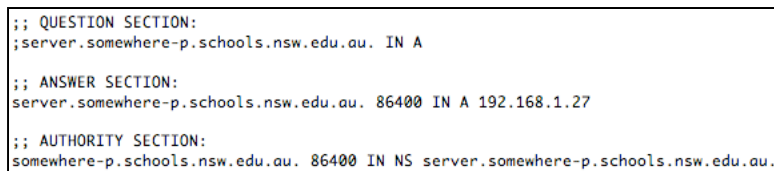
4.2. Click on the **Lookup** button.



4.3. Enter the domain address of the OS X server.



4.4. Click on the **Lookup** button.



The main areas of interest in the results of your request, or “question”, are the **Answer section** and the **Authority section**.

The *Answer* to the **Lookup** request should be the *IP address* of the server.

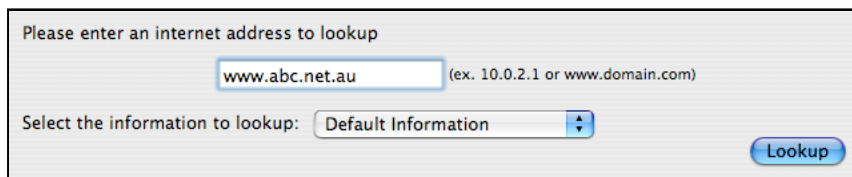
The *Authority* section indicates the *name of the server* which supplied the answer - in this case, our server!

Now *Lookup* the **IP address** of your server. You should receive the **Domain name** of the server as the *Answer*.

This indicates that both your *forward* and *reverse* lookups are working OK for local addresses.

- 4.5. Now we need to check that our forwarders are also working for domains that aren't known by our local DNS server.

Try the example of *www.abc.net.au*, as shown below:



- 4.6. The results of your lookup, in the *Answer* section, should tell you the IP address of the ABC's web server, and the *Server of Authority* for that domain. This information is provided by your ISP's DNS server.

```
;; QUESTION SECTION:
;www.abc.net.au.      IN  A

;; ANSWER SECTION:
www.abc.net.au.     43180 IN  A   203.2.218.61

;; AUTHORITY SECTION:
abc.net.au.         604780 IN  NS   ns1.abc.net.au.
abc.net.au.         604780 IN  NS   ns.abc.net.au.
```

- 4.7. This indicates that your local DNS server, which has no knowledge of the address you have requested, has correctly forwarded the lookup request onto your ISP's DNS server, which has returned the required information.

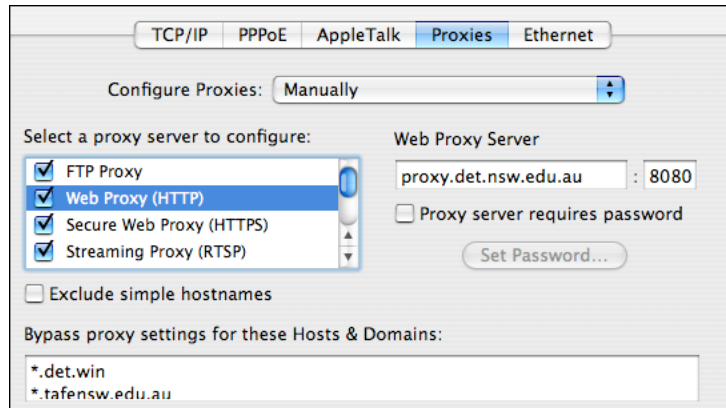
You can also lookup the IP address of the remote server, which should return the domain name of the server.

- 4.8. Your DNS server is now setup and running.

Our next step is to update the software on the server with any recent patches and other updates.

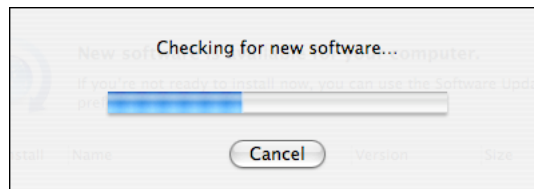
## 1.3 Updating the Server Software installation

1. Log in to the server with your **admin username** and *password*.
2. Go to the **Network Preferences** and setup any necessary proxy servers (*wcom* for DET schools, with necessary “exceptions”).



Click on the **Apply** button.

3. Run *Software Update*.



Install any updates.

Restart when prompted.

4. Run *Software Update* again, just to make sure!
5. The server software is now installed.

You will now need to configure the various services to be provided by the server. (Next document!)