

This project is still yet to be finished, at the moment I'm using 2 box's to carry out the installation, the aim is to have one box running OpenBSD doing everything (unfortunately there is no HFS support within the o/s & I'm having problems getting mountd to accept connections from clients on a non reserved port) I did look at FreeBSD 5.3 with <http://people.freebsd.org/~ydr/hfs/> but its early days for the project thus the system panicked everytime I attempt to copy to the NFS share from another host.

1x PC running OpenBSD which is running a tftpd & hacked DHCPD  
1x PC running OpenDarwin which has a HFS formatted volume containing the OS X install files shared via NFS  
1x Mac (G3 iBook in my case)

Mac gets boot info & kernel image from OpenBSD box & boots, then connects to the OpenDarwin box & starts the GUI/Setup.

I have managed to successfully install OS X 10.3 & 10.4 with this setup though how the install files were shared on the OpenDarwin box varied between the NetInstall of 10.3 & 10.4.

Lets go through the core part of the setup which needs to be done independent of which version of OS X you are going to be installing.

1. Install OpenDarwin, as OpenDarwin x86 runs off a UFS partition you'll need a 2nd partition (atleast 2.2gigs if you're installing 10.4) which you'll format as HFS so remember to partition manually. Note the partition number you've installed onto as you'll need it in the next step!

2. Upon 1st boot you'll have to manually specify the location of the root partition manually as OpenDarwin doesn't seem to find it & sits there idle. Press enter at the prompt to specify boot time options & at the prompt enter `rd=disk#s#` convention being disk "disknumber" s "partition number" Once you're logged in edit `/Library/Preferences/SystemConfiguration/com.apple.Boot.plist` & add `rd=disk#s#` in the string section under the kernel flags key.

3. Now format the 2nd partition using the `newfs_hfs` tool  
`newfs_hfs -v pickaname /dev/disk#s#`

4. reboot & log back in, if you look in `/Volumes/` you should have a folder called pickaname (or whatever name you picked :P)

5. Using the `niutil` (netinfo util) you need to create a NFS share  
`niutil -create /exports/Volumes/Vpickaname opts maproot=root:wheel`  
this will create a share accessible by any host to allow specific hosts use the following command:  
`niutil -create /exports/Volumes/Vpickaname clients 192.168.0.bla`  
to add additional IP addresses use the append switch:  
`niutil -append /exports/Volumes/Vpickaname clients 192.168.0.bla`

6. To start sharing run:  
`portmap -s nfsd -t -u -n 4 -m mountd`  
you may want to add these commands to your `/etc/rc` to save you having to run it everytime.

7. Run `ifconfig -a` & note the MAC address of your network card.

1. Install OpenBSD 3.5 (in any configuration you like)

2. Download & extract the sources into `/usr/src` from the the OpenBSD ftp site  
3. [http://www.geeklan.co.uk/files/obsd\\_35patch](http://www.geeklan.co.uk/files/obsd_35patch) -> Download the patch for dhcpd  
& apply to source

`patch -p0 < obsd_35patch`

4. `goto /usr/src/usr.sbin/dhcp/server` & run `make`  
5. make a backup copy of your original dhcpd & then overwrite with your new copy  
`cp /usr/sbin/dhpd /usr/sbin/dhcpd.original`  
`cp dhcpd /usr/sbin/`

6. With your dhcpd in place, its onto creating the dhcp lease info. open `/etc/dhcpd.conf` in your editor & paste the following in & edit to your requirements, you'll need the MAC addresses of your Mac & PC running OpenDarwin

```
shared-network LOCAL-NET {
    option domain-name "domainname.co.uk";
    option domain-name-servers 194.168.4.100, 194.168.8.100;

    subnet 192.168.0.0 netmask 255.255.255.0
    {
        option routers 192.168.0.1;
        range 192.168.0.2 192.168.0.16;
        default-lease-time 600;
        max-lease-time 7200;
        allow bootp;
        not authoritative;
    }
    host ibook {
        hardware ethernet 00:03:66:55:cf:b8;
        fixed-address 192.168.0.33;
        filename "BootX";
        server-name "192.168.0.1";
    }
    host darwin {
        hardware ethernet 00:04:55:66:dd:b5;
        fixed-address 192.168.0.10;
    }
}
```

7. Edit `/etc/dhcpd.interfaces` & enter the name of the interface which dhcpd will run on, run `ifconfig -a` if you're unsure of which interface.

8. Edit `/etc/bootparams` & specify the locations of the root & private folders that the mac will mount on boot the convention is  
`hostname root=path private=path` eg  
`ibook root=192.168.0.10:/Volumes/pickaname private=192.168.0.10:/Volumes/pickaname`

9. Now onto enabling the services on boot, open `/etc/rc.conf.local` in your editor & add the following lines:

```
bootparamd_flags=""
dhcpd_flags="-q"
</code>
then open /etc/inetd.conf & uncomment
<code>tftp dgram udp wait root /usr/libexec/tftpd tftpd -s /tftpboot</code>
```

10. You'll need to create a folder on the root of your disc called `tftpboot`, this folder is going to store the files to boot your mac.

11. Using your Mac or the OpenDarwin box copy the following files from your OS X disks to `tftpboot` on your openbsd box:

`System/Library/CoreServices/BootX`  
`mach_kernel` rename it to: `mach.macosx`  
`Extensions.mkext` rename it to: `mach.macosx.mkext`

To Install OS X 10.3 (Panther)

As the install is spread over multiple discs & the system reboots after the 1st CD is finished, I didn't bother trying to get a full install going at once, Instead I installed the Core &

BSD components, then rebooted, mounted the NFS share & installed the other components by hand.

1. Copy the contents of CD1 to your nfs share

```
<code>pax -r -w -p e /Volumes/Mac\ OS\ X\ Install\ Disc\ 1/* /Volumes/pickaname</code>
```

2. On your mac you'll need to set the following variables either at the openfirmware prompt directly or using the nvram tool within OS X

```
<code>boot-device enet:192.168.0.1<br>boot-args rf=nfs:192.168.0.10:/Volumes/pickaname</code>
```

If the installer complains that there is 0 space available on your Mac to install onto then make sure you have a folder called .vol on your NFS share.

Theoretically it should be possible to install Tiger this way as well but the installer complains that the harddisk on the Mac cannot be installed onto as the system cannot be started from that volume!!!

To Install OSX 10.4 (Tiger)

Simply copy the .dmg of the latest Beta Seed to the /Volumes/pickaname

On your mac you'll need to set the following variables either at the openfirmware prompt directly or using the nvram tool within OS X

```
<code>boot-device enet:192.168.0.1<br>boot-args rf=nfs:192.168.0.10:/Volumes/pickaname:nameoftigerimage.dmg</code>
```

It should be possible to install 10.3 this way as well though I haven't tried.

If you're planning on only installing from a disk image then theoretically there is no need to create a HFS partition on the OpenDarwin box & if you can get OpenBSD to accept connections from clients on non reserved ports then the OpenDarwin box can be ditched all together.

All info in this guide was sourced from the following pages (thnx guys) & the patch is a mod of Mike Passwall's original patch for linux

<http://homepage.mac.com/hand/macosx/netboot.html> (not english)

netbooting howto: <http://frank.gwc.org.uk/~ali/nb/>

<http://www.lysator.liu.se/~torkel/computer/netboot-macosx.html>

<http://mike.passwall.com/macnc/>

ToDo:

Make a patch for dhcpd on OpenBSD 3.6

Make the whole thing run on OpenBSD