

INS ASSIGNMENT 2

By Gary Tutundjian And Keith Buckley

Introduction

In this assignment we were assigned to groups of two to complete the following assignment.

As a systems administrator you have been asked to implement the following Internet & Network services using Ubuntu for a company called KhufuNet.

Web Server (Apache) with Virtual Hosting two sites.

DNS Server (BIND), Primary & Secondary

DHCP Server for Ubuntu clients

eMail Server (Postfix) & POP/IMAP Server (Dovecot)

FTP Server

SSH Server

File Server (Samba)

Network Printing (CUPS)

The domain name KhufuNet.com has already been registered. Apache will host www.KhufuNet.com and a WordPress instance; blog.KhufuNet.com

Other issue that you will need to address include but are not limited to:

User & Groups

Disk Quotas

Monitoring

Ease of administration

Lab Topology

The lab topology is made up of two PCs running VMware in “Bridged Mode” and connected via a hub. The virtual machines are specified as follows:

VM1 – Ubuntu desktop (DHCP client)

VM2 – Apache Server/Name Server 1/Print Server/Samba Server

VM3 – eMail Server/Name Server 2/DHCP Server/SSH Server/FTP Server

VM4 – Ubuntu desktop (DHCP client)

We had to split up into groups of two, in our group was Gary Tutundjian and Keith Buckley.

Tim made it easier to split up the work by assigning what each VM should have.

Gary will do:

- VM1 - Ubuntu desktop (DHCP client)
- VM2 - Apache Server/Name Server 1/Print Server/Samba Server

Keith will do:

- VM3 - eMail Server/Name Server 2/DHCP Server/SSH Server/FTP Server
- VM4 - Ubuntu desktop (DHCP client)

To get the project started we both did a fresh install of ubuntu desktop and ubuntu server.

The following is Gary's part of the report and he will show what he did.

Dhcp configuration (UBUNTU DESKTOP)

First I downloaded the service

Apt-get install dhcp3-server

nano /etc/network/interfaces (this is to set the interface to use dhcp)

comment out the following lines

auto lo

iface lo inet loopback

iface eth0 inet dhcp

Next I added the following lines

iface eth0 inet static

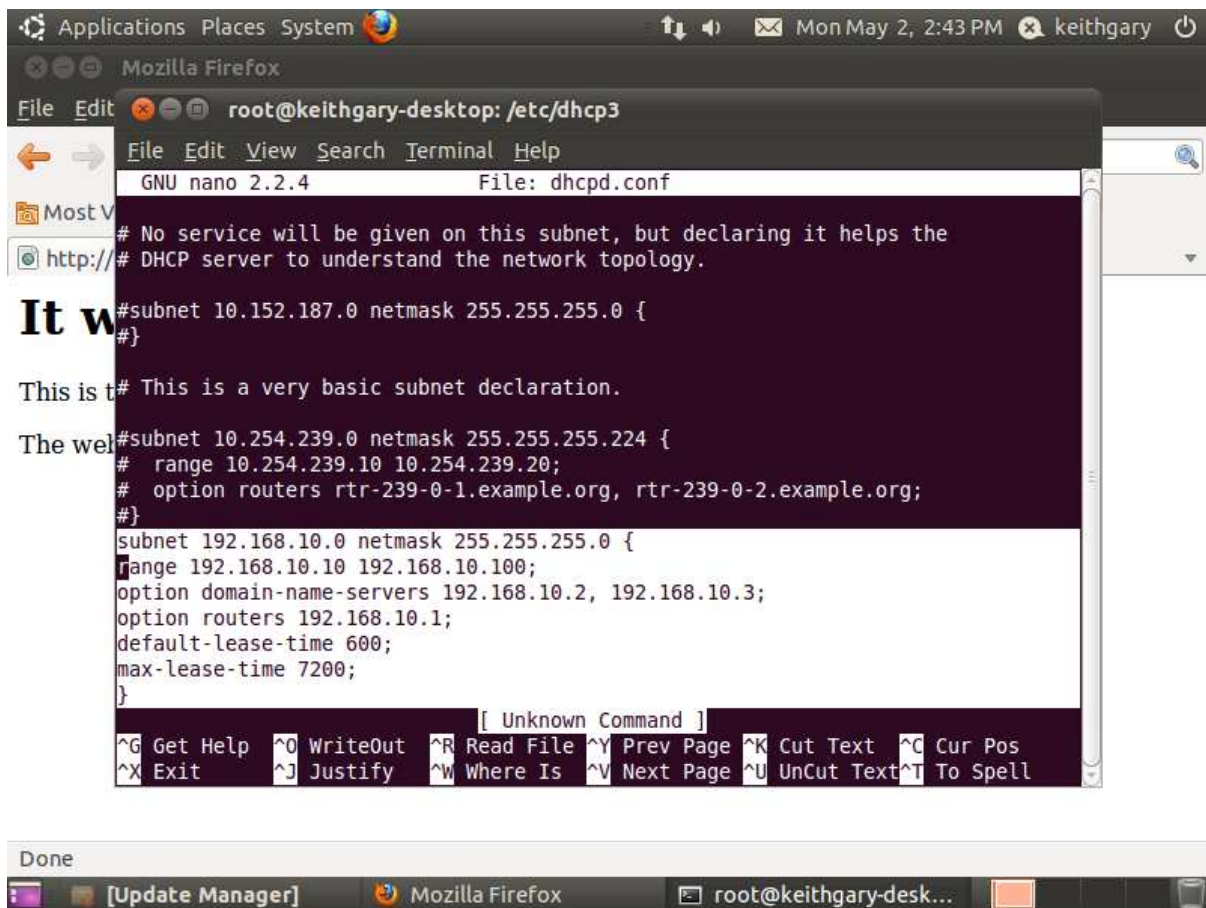
address 192.168.1.9

netmask 255.255.255.0

gateway 192.168.1.1

broadcast 192.168.1.255

network 192.168.1.0



After I changed the networking configurations it was necessary to then restart the networking interfaces

/etc/init.d/networking restart

It is a good idea at this time to backup the dhcp.conf file before changing anything so you have something to revert back to once you've edited it.

cp /etc/dhcp3/dhcpd.conf dhcpd.backup

Then edit the file

nano /etc/dhcp3/dhcpd.conf

I added the following lines to the file:

```

subnet 192.168.1.0 netmask 255.255.255.0 {
range 192.168.1.10 192.168.1.100;
option domain-name-servers 192.168.1.2, 192.168.1.3;
option routers 192.168.1.1;
default-lease-time 600;
max-lease-time 7200;
}

```

Also in the file /etc/default/dhcp3-server I changed INTERFACES="" to INTERFACES="eth0"

LAMP Server

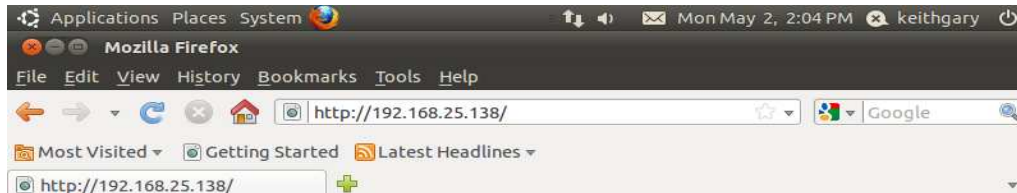
To get apache i issued the following command:

Taskset

Then i checked LAMP Server to install Apache Mysql and PHP all at once.

The screenshot below shows that apache is working.

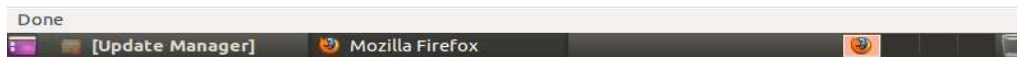
Apache working



It works!

This is the default web page for this server.

The web server software is running but no content has been added, yet.



During the installation of LAMP you are required to enter passwords for Mysql as well

It is also a good idea to download and install phpmyadmin at this time as well because it is needed to use with wordpress.

To see if php is working we must create the info.php file in the /var/www directory

In the file enter the following lines

```
<?php
phpinfo();
?>
```

To test this you need to go to the web browser on your client and type in this address

http://ipaddressofserver/info.php

Apt-get install phpmyadmin

After that you must enter the passwords that you wish to use for phpmyadmin. The passwords that I used were 'password'. I used this for everything in this project.

Wordpress

To install wordpress:

Apt-get install wordpress

```
mv /usr/share/wordpress /var/www
```

```
# mysql -u root -p
```

```
#create database wordpress;
```

```
# create admin;
```

```
# set password admin = PASSWORD("password");
```

```
# grant all privileges on wordpress.* to admin@localhost identified by 'password';
```

Next I had to edit the sample config file

```
nano /var/www/wordpress/wp-config-sample.php
```

Change the lines to the following

database name = wordpress

user = admin

password = Password that you chose when you entered the GRANT ALL ON wordpress.* TO wordpressuser IDENTIFIED BY 'password'; command.

save as wp-config

```
GNU nano 2.2.4 File: /var/www/wordpress/wp-config-sample.php Modified
* to "wp-config.php" and fill in the values.
*
* @package WordPress
*/

/** MySQL settings - You can get this info from your web host ** //
/** The name of the database for WordPress */
define('DB_NAME', 'wordpress');

/** MySQL database username */
define('DB_USER', 'admin');

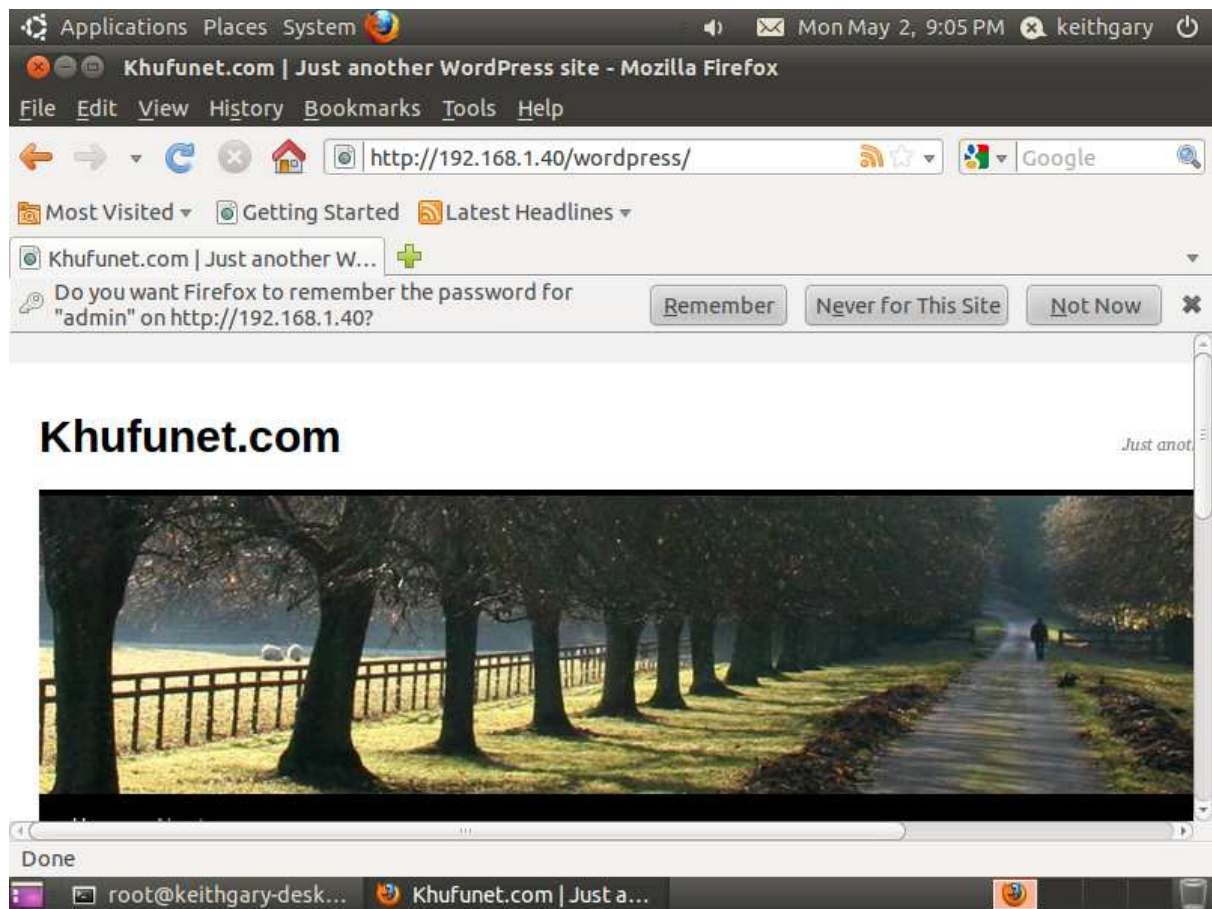
/** MySQL database password */
define('DB_PASSWORD', 'password');

/** MySQL hostname */
define('DB_HOST', 'localhost');

/** Database Charset to use in creating database tables. */
define('DB_CHARSET', 'utf8');

^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where Is ^U Next Page ^U UnCut Text ^T To Spell
```

Khufunet.com Blog up and running



Cups Configuration

The installation of CUPS:

apt-get install cups

Next I edited the `/etc/cups/cupsd.conf` to look like the following.

```
GNU nano 2.2.4      File: /etc/cups/cupsd.conf

# LogLevel debug2 gets usable now
MaxLogSize 0

# Administrator user group...
SystemGroup lpadmin

# Only listen for connections from the local machine.
Listen 192.168.1.40:631
Listen localhost:631
Listen /var/run/cups/cups.sock

# Show shared printers on the local network.
Browsing On
BrowseOrder allow,deny
BrowseAllow @LOCAL
BrowseLocalProtocols CUPS dnssd
BrowseAddress @LOCAL

# Default authentication type, when authentication is required...

^G Get Help  ^O WriteOut  ^R Read File  ^Y Prev Page  ^K Cut Text   ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is  ^U Next Page  ^U UnCut Text ^T To Spell
```

```
GNU nano 2.2.4      File: /etc/cups/cupsd.conf      Modified

# Restrict access to the server...
<Location />
  Order allow,deny
  Allow localhost
  Allow 192.168.1.*
</Location>

# Restrict access to the admin pages...
<Location /admin>
  Order allow,deny
</Location>

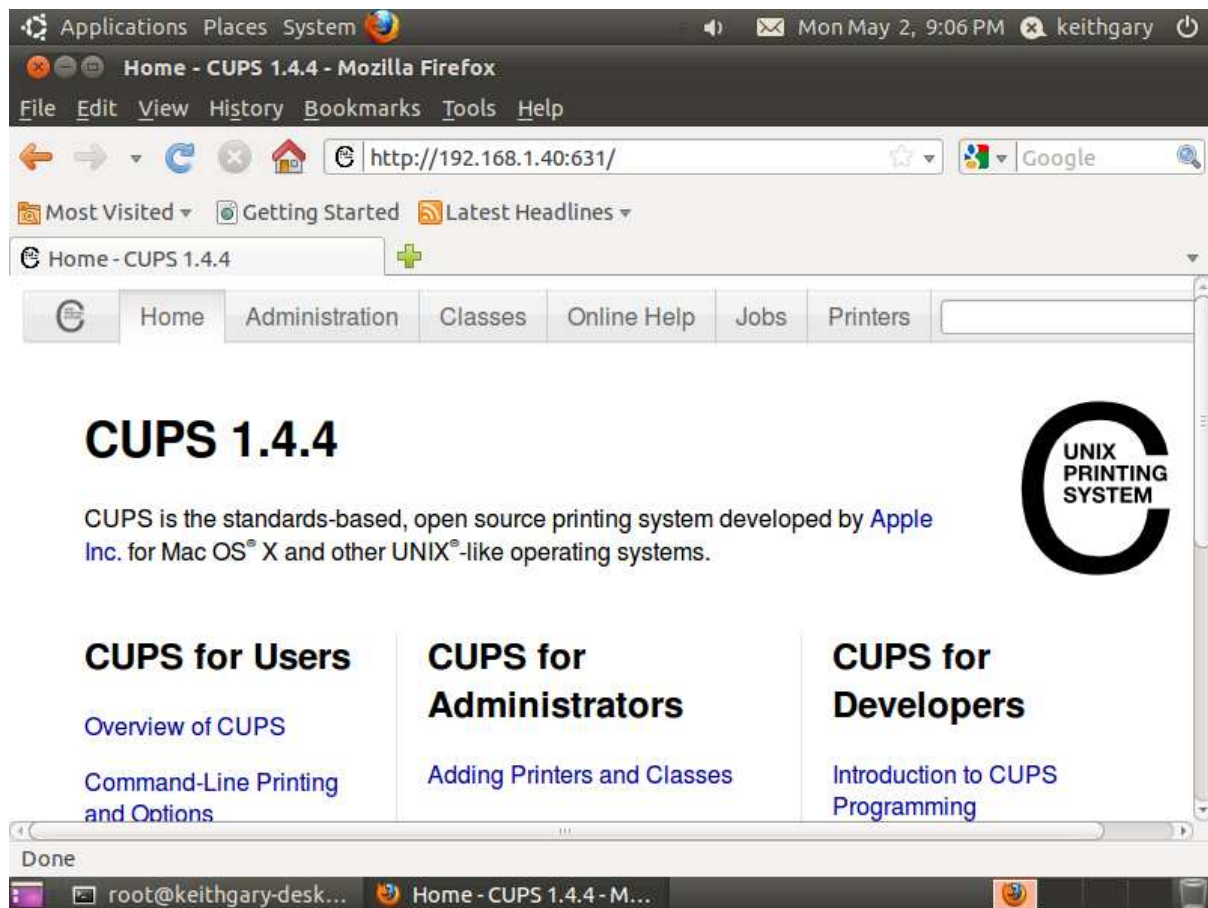
# Restrict access to configuration files...
<Location /admin/conf>
  AuthType Default
  Require user @SYSTEM
  Order allow,deny
  Allow localhost
  Allow 192.168.1.20_
</Location>

^G Get Help  ^O WriteOut  ^R Read File  ^Y Prev Page  ^K Cut Text   ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is  ^U Next Page  ^U UnCut Text ^T To Spell
```

Next You need to restart the cups service by issuing the following command:

restart cups

Go to 192.168.1.40:631 which is the server that is running cups. Use a web browser on the ubuntu client to see if cups is working



As you can see from the screen shot above the cups service is up and running

Samba

To get samba issue the following command:

```
apt-get install samba
```

Then make a directory /share by using this command

```
mkdir -m 0777 /share
```

I added the following lines from where it says security = user:

```
Guest account = nobody
```

```
[Share]
```

```
comment = Guest access share
```

```
Path = /Share
```

```
browseable = yes
```

```
writable = yes
```

```
quest ok = yes
```

public = yes

```
GNU nano 2.2.4      File: /etc/samba/smb.conf      Modified
# in this server for every user accessing the server. See
# /usr/share/doc/samba-doc/htmldocs/Samba3-HOWTO/ServerType.html
# in the samba-doc package for details.
security = user
guest account = nobody
[Share]
comment = Guest access share
path = /share
browseable = yes
writeable = yes
quest ok = yes
public = yes_

# You may wish to use password encryption.  See the section on
# 'encrypt passwords' in the smb.conf(5) manpage before enabling.
  encrypt passwords = true

# If you are using encrypted passwords, Samba will need to know what
# password database type you are using.
  passdb backend = tdbsam

^G Get Help  ^O WriteOut  ^R Read File  ^Y Prev Page  ^K Cut Text    ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is   ^V Next Page  ^U UnCut Text ^T To Spell
```

Next restart samba

Service smbd restart

Installing BIND

To get BIND initially we will enter this command:

apt-get install bind9

Next we will have to edit the /etc/bind/named.conf.local to look like the following

nano /etc/bind/name.conf.local

we are adding the last 8 lines that are in the following screenshot

```
GNU nano 2.2.4 File: /etc/bind/named.conf.local

//
// Do any local configuration here
//
// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";
zone khufunet.com {
type master;
file "/etc/bind/zones/khufunet.com.db";
};

zone "0.168.192.in-addr.arpa" {
type master;
file "/etc/bind/zones/rev.0.168.192.in-addr.arpa";
};

[ Read 16 lines ]

root@keithgaryserver2:~# _
```

Next we will have to edit the /etc/bind/named.conf.options to look like the following
nano /etc/bind/name.conf.options

Edit the /etc/bind/named.conf.options file to look like the following
nano /etc/bind/named.conf.options

```
directory "/var/cache/bind";

// If there is a firewall between you and nameservers you want
// to talk to, you may need to fix the firewall to allow multiple
// ports to talk. See http://www.kb.cert.org/vuls/id/800113

// If your ISP provided one or more IP addresses for stable
// nameservers, you probably want to use them as forwarders.
// Uncomment the following block, and insert the addresses replacing
// the all-0's placeholder.

forwarders {
    91.142.110.5;
};

auth-nxdomain no; # conform to RFC1035
listen-on-v6 { any; };

};

[ Wrote 20 lines ]
^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
Use "fg" to return to nano. ^W Where Is ^U Next Page ^U UnCut Text ^T To Spell

[21]+ Stopped nano /etc/bind/named.conf.options
root@keithgaryserver2:~# _
```

Configuring BIND9

Make the directory /etc/bind/zones/

Mkdir /etc/bind/zones

Create the file khufunet.com.db in the /etc/bind/zones directory

nano /etc/bind/zones/khufunet.com.db

And enter the same data that I have entered

```
GNU nano 2.2.4 File: /etc/bind/zones/khufunet.com.db
:
$TTL 604800 khufunet.com IN SOA keithandgaryserver2.khufunet.com. admin.khufune$
2007031001
28800
3600
604800
38400
)
khufunet.com IN NS keithgaryserver2.khufunet.com
www IN A 192.168.1.40

[ Read 11 lines ]
^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell
```

Also make the reverse Reverse DNS Zone file called rev.0.168.192.in-addr.arpa and put it in the /etc/bind/zones dir. Enter the following data into this file

```
GNU nano 2.2.4 File: /etc/bind/zones/rev.0.168.192.in-addr.arpa
@IN SOA keithgaryserver2.khufunet.com admin.khufunet.com(
2011050101;
28800;
604800;
604800;
86400;
)

IN NS keithgaryserver2.khufunet.com.
1 IN PTR khufunet.com

[ Read 10 lines ]
^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where Is ^U Next Page ^U UnCut Text ^T To Spell
```

Next you should restart bind
/etc/init.d/bind9 restart

Then we should edit the resolv.conf file to look like the following

Changing /etc/resolv.conf

```
GNU nano 2.2.4 File: /etc/resolv.conf
nameserver 192.168.1.40
domain khufunet.com
search khufunet.com

[ Read 3 lines ]
^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where Is ^U Next Page ^U UnCut Text ^T To Spell
```

The next thing to do is to test the DNS by entering the following command

Dig khufunet.com

Result from dig khufunet.com

```
inet addr:127.0.0.1 Mask:255.0.0.0
inet6 addr: ::1/128 Scope:Host
UP LOOPBACK RUNNING MTU:16436 Metric:1
RX packets:62 errors:0 dropped:0 overruns:0 frame:0
TX packets:62 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0
RX bytes:6222 (6.2 KB) TX bytes:6222 (6.2 KB)

root@keithgaryserver2:~# dig khufunet.com

; <<> DiG 9.7.1-P2 <<> khufunet.com
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: SERVFAIL, id: 13795
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;khufunet.com.                IN      A

;; Query time: 2 msec
;; SERVER: 192.168.1.40#53(192.168.1.40)
;; WHEN: Mon May  2 19:13:56 2011
;; MSG SIZE rcvd: 30

root@keithgaryserver2:~# _
```

The following is the actions taken by Keith Buckley and recorded below:

Installing DHCP on client server:

COMMANDS USED:

```
#apt-get install dhcp3-server
```

Make sure it is in bridged mode.

```
#Nano /etc/network/interfaces
```

Comment out (#) :

```
Auto eth0
```

```
Iface lo inet loopback
```

Then enter the following:

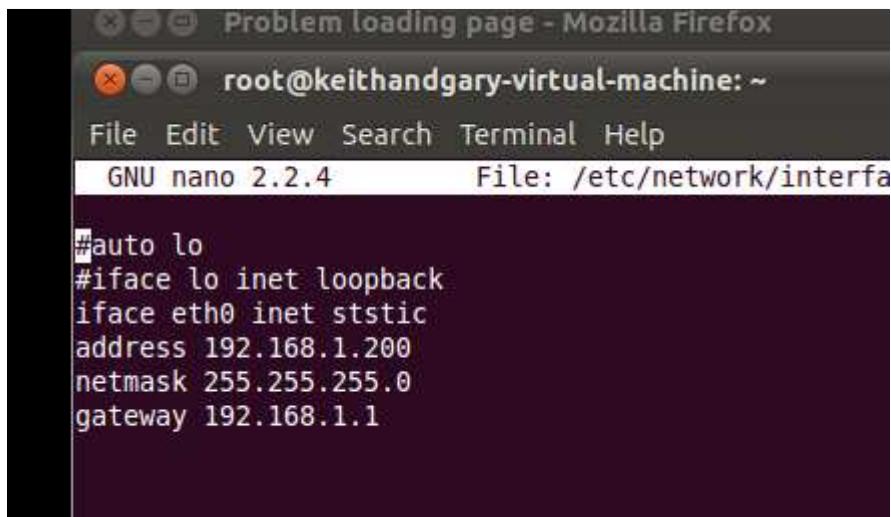
```
Iface eth0 inet static
```

```
Address 192.168.1.30
```

```
Netmask 255.255.255.0
```

```
Gateway 192.168.1.1
```

save and exit

A screenshot of a terminal window titled 'root@keithandgary-virtual-machine: ~'. The terminal shows the nano 2.2.4 editor editing the file '/etc/network/interfaces'. The content of the file is as follows:

```
auto lo
#iface lo inet loopback
iface eth0 inet ststic
address 192.168.1.200
netmask 255.255.255.0
gateway 192.168.1.1
```

```
/etc/dhcp3/dhcp.conf
```

```
#cp /etc/dhcp3/dhcp.conf dhcpd.backup
```

#ls

#Nano /etc/dhcp3/dhcpd.conf

Uncomment and change the following:

```
GNU nano 2.2.4      File: /etc/dhcp3/dhcpd.conf
# which we don't really recommend.

#subnet 10.254.239.32 netmask 255.255.255.224 {
#  range dynamic-bootp 10.254.239.40 10.254.239.60;
#  option broadcast-address 10.254.239.31;
#  option routers rtr-239-32-1.example.org;
#}

# A slightly different configuration for an internal subnet.
subnet 192.168.1.0 netmask 255.255.255.0 {
  range 192.168.1.10 192.168.1.100;
  option domain-name-servers 192.168.1.2,192.168.1.3;
  option domain-name "keithandgary.localhost";
  option routers 192.168.1.1;
#  option broadcast-address 10.5.5.31;
  default-lease-time 6000;
  max-lease-time 72000;
}
```

Subnet <ip add> netmask 255.255.255.0 {

Range(ip add) 192.168.1.100;

Option routers 192.168.1.1;

Option domain-name-servers 192.168.1.2, 192.168.1.3;

Default-lease-time 6000;

Max-lease-time 72000;

}

```
# BOOTP or DHCP.  Hosts for which no fixed address is specified can only
# be booted with DHCP, unless there is an address range on the subnet
# to which a BOOTP client is connected which has the dynamic-bootp flag
# set.
host keithandgary {
  hardware ethernet 00:0c:29:5d:d6:19;
  option host-name "keithandgary";
  fixed-address 192.168.1.40;
}
```

Host keithandgary {

Hardware Ethernet 00:0c:29:5d:d6:19;

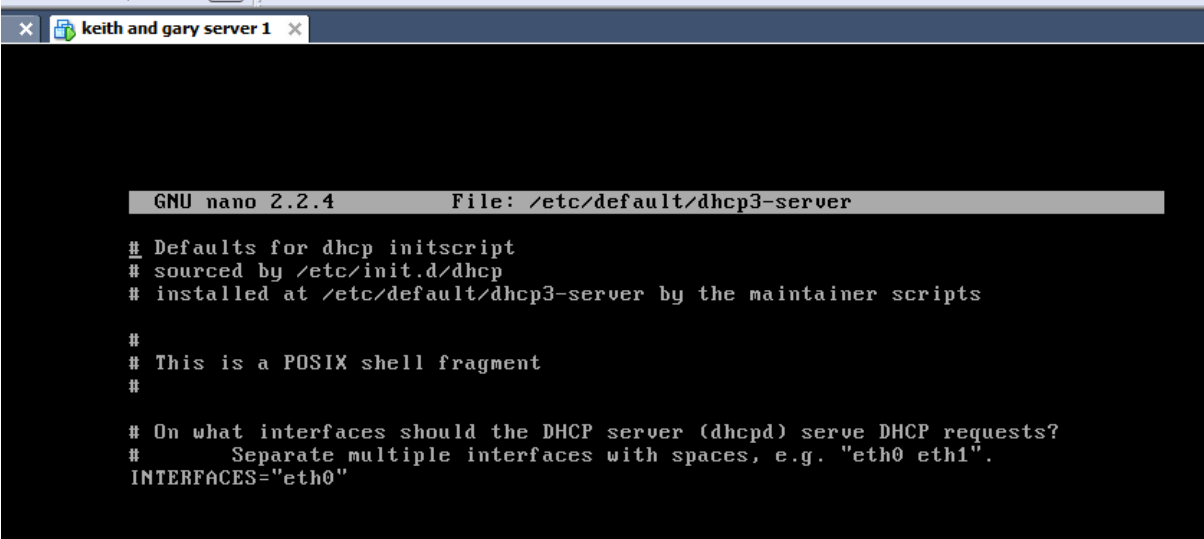
Option host-name "keithandgary";

Fixed-address 192.168.1.20;

}

Save and exit

#nano /etc/default/dhcp3-server



```
GNU nano 2.2.4 File: /etc/default/dhcp3-server
# Defaults for dhcp initscript
# sourced by /etc/init.d/dhcp
# installed at /etc/default/dhcp3-server by the maintainer scripts

#
# This is a POSIX shell fragment
#
# On what interfaces should the DHCP server (dhcpd) serve DHCP requests?
# Separate multiple interfaces with spaces, e.g. "eth0 eth1".
INTERFACES="eth0"
```

Interfaces = "eth0"

Restart systems:

/etc/init.d/dhcp3-server start

Installing FTP on the server

Change to NAT mode

#aptitude install vsftpd

#Nano /etc/vsftpd.conf

Anonymous_enable= YES

```
GNU nano 2.2.4 File: /etc/vsftpd.conf
# Run standalone? vsftpd can run either from an inetd or as a standalone
# daemon started from an initscript.
listen=YES
#
# Run standalone with IPv6?
# Like the listen parameter, except vsftpd will listen on an IPv6 socket
# instead of an IPv4 one. This parameter and the listen parameter are mutually
# exclusive.
#listen_ipv6=YES
#
# Allow anonymous FTP? (Disabled by default)
anonymous_enable=YES
#
```

#Mkdir /srv/files/ftp

#usermod -d /srv/files/ftp ftp

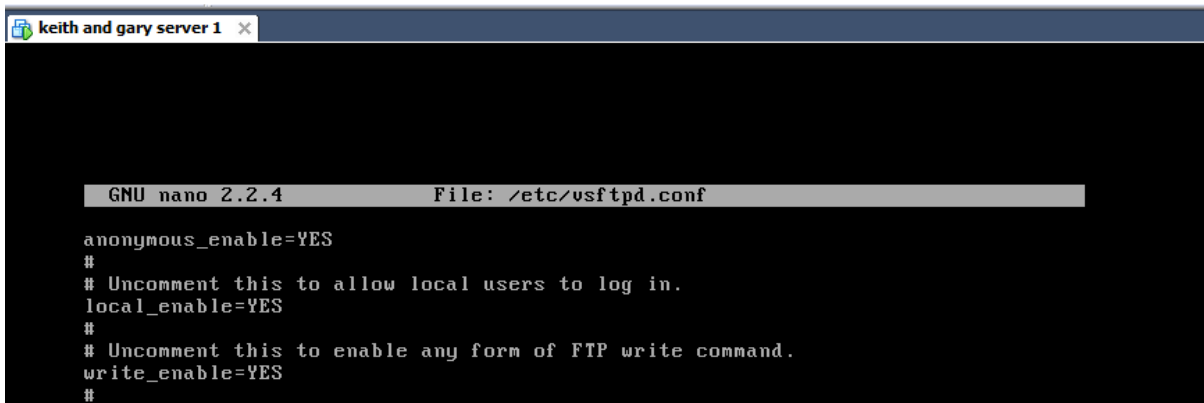
#restart vsftpd

Copy files to /srv/files/ftp

Use to upload files:

#Nano /etc/vsftpd.conf

Write_enable = yes



```
keith and gary server 1 x
GNU nano 2.2.4 File: /etc/vsftpd.conf
anonymous_enable=YES
#
# Uncomment this to allow local users to log in.
local_enable=YES
#
# Uncomment this to enable any form of FTP write command.
write_enable=YES
#
```

#Restart vsftpd

Uncomment out

Anon_upload_enable= YES

```
GNU nano 2.2.4 File: /etc/vsftpd.conf
anonymous_enable=YES
#
# Uncomment this to allow local users to log in.
local_enable=YES
#
# Uncomment this to enable any form of FTP write command.
write_enable=YES
#
# Default umask for local users is 077. You may wish to change this to 022,
# if your users expect that (022 is used by most other ftpd's)
#local_umask=022
#
# Uncomment this to allow the anonymous FTP user to upload files. This only
# has an effect if the above global write enable is activated. Also, you will
# obviously need to create a directory writable by the FTP user.
anon_upload_enable=YES
#
```

SECURING FTP:

Nano /etc/vsftpd.conf

```
# chroot_list_enable below.
chroot_local_user=YES
#
# You may specify an explicit list of local users
# directory. If chroot_local_user is YES, then
# users to NOT chroot().
chroot_local_user=YES
chroot_list_enable=YES
# (default follows)
chroot_list_file=/etc/vsftpd.chroot_list
```

Uncomment out

Chroot_local_user=yes

Chroot_list_user_ = YES

Chroot_list_enable =TES

Chroot_list_file = /etc/vsftpd.chroot_list

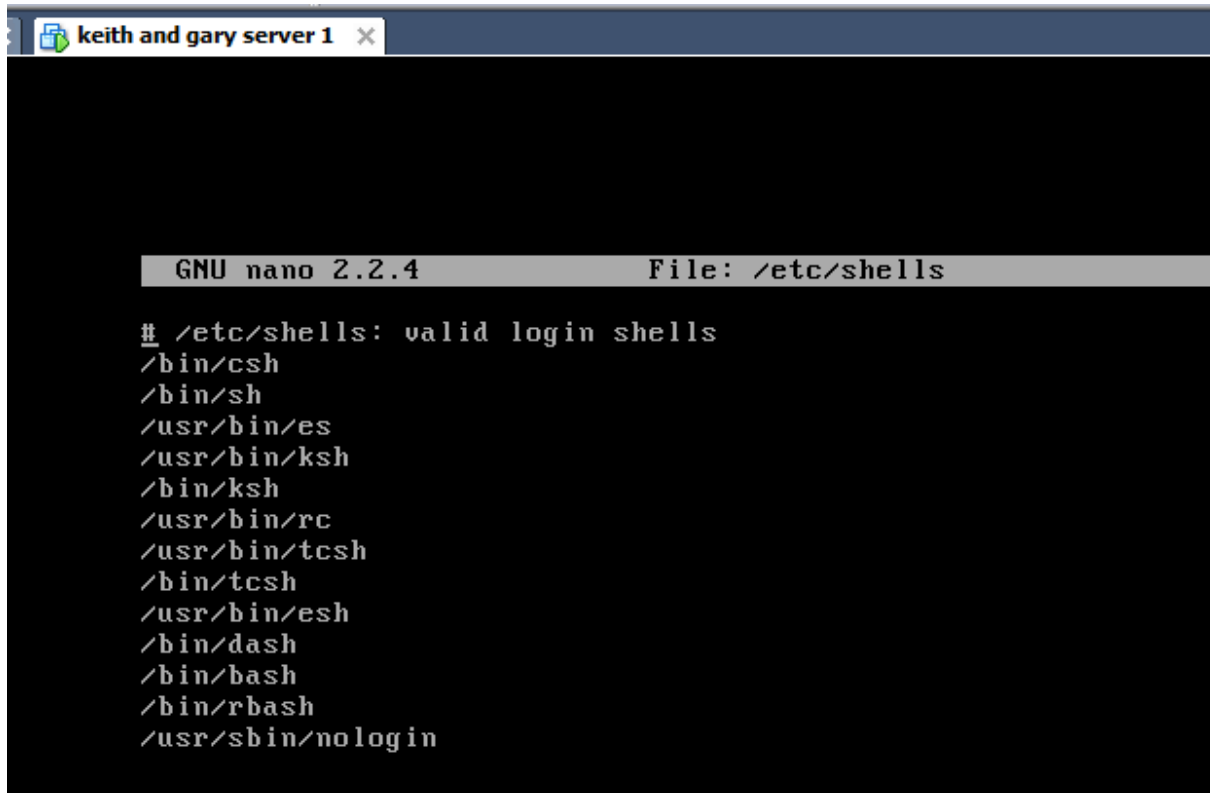
Ssl_enable = YES

Save and exit

#restart vsftpd

#nano /etc/shells

Add /usr/sbin/nologin



The image shows a terminal window titled "keith and gary server 1". The terminal is running GNU nano 2.2.4 and editing the file /etc/shells. The content of the file is as follows:

```
GNU nano 2.2.4 File: /etc/shells

# /etc/shells: valid login shells
/bin/csh
/bin/sh
/usr/bin/es
/usr/bin/ksh
/bin/ksh
/usr/bin/rc
/usr/bin/tcsh
/bin/tcsh
/usr/bin/esh
/bin/dash
/bin/bash
/bin/rbash
/usr/sbin/nologin
```

Installing SSH

Opening ssh:

```
#Apt-get install openssh-client
```

```
#Apt-get install openssh-server
```

```
#Cp /etc/ssh/sshd_config /etc/ssh/sshd_config.original
```

```
#Chmod a-w /etc/ssh/sshd_config.original
```

```
Nano /etc/ssh/sshd_config
```

```
keith and gary server 1 x
GNU nano 2.2.4 File: /etc/ssh/sshd_config
# Package generated configuration file
# See the sshd_config(5) manpage for details
# What ports, IPs and protocols we listen for
Port 2222
```

Change port to 2222

And add pubkeyAuthentication yes

Make sure they are both commented out.

```
PermitRootLogin yes
StrictModes yes

RSAAuthentication yes
PubkeyAuthentication yes
#AuthorizedKeysFile_ %h/.ssh/authorized_keys
```

#Nano /etc/issue.net

Edit the banner the enable it by uncommenting it in the file below:

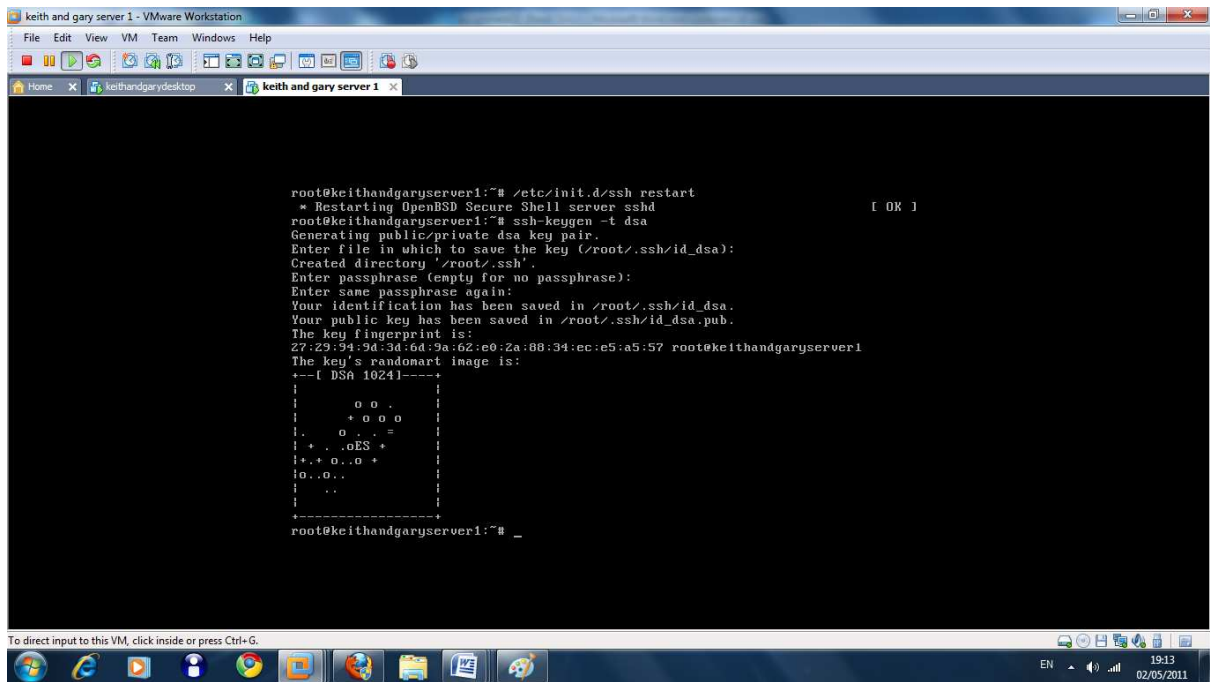
#Nano /etc/ssh/sshd_config

```
#MaxStartups 10:30:60
Banner /etc/issue.net_
```

/etc/init.d/ssh restart

SSH KEYS

#Ssh-keygen -t dsa



```
root@keithandgaryserver1:~# /etc/init.d/ssh restart
* Restarting OpenBSD Secure Shell server sshd [ OK ]
root@keithandgaryserver1:~# ssh-keygen -t dsa
Generating public/private dsa key pair.
Enter file in which to save the key (/root/.ssh/id_dsa):
Created directory '/root/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_dsa.
Your public key has been saved in /root/.ssh/id_dsa.pub.
The key fingerprint is:
27:29:94:9d:3d:bd:9a:62:e0:2a:88:34:ec:e5:a5:57 root@keithandgaryserver1
The key's randomart image is:
+--[ DSA 1024]-----+
|
|   o o .
|  + o o o
| . o . =
| + . .oES +
|+.+ o .o +
|o .o .
| .
|
+-----+
root@keithandgaryserver1:~# _
```

#Ssh-copy-id <username>@remotehost

#Chmod 600 .ssh/authorized_keys

DHCP for server:

#apt-get install dhcp3-server

Bridged mode

#nano /etc/network/interfaces

Change to the following:

```
keith and gary server 1 x
GNU nano 2.2.4 File: /etc/network/interfaces

# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
auto eth0
#iface eth0 inet dhcp
iface eth0 inet static
address 192.168.1.40
netmask 255.255.255.0
gateway 192.168.1.1
```

```
#cp /etc/dhcp3/dhcp.conf dhcpd.backup
```

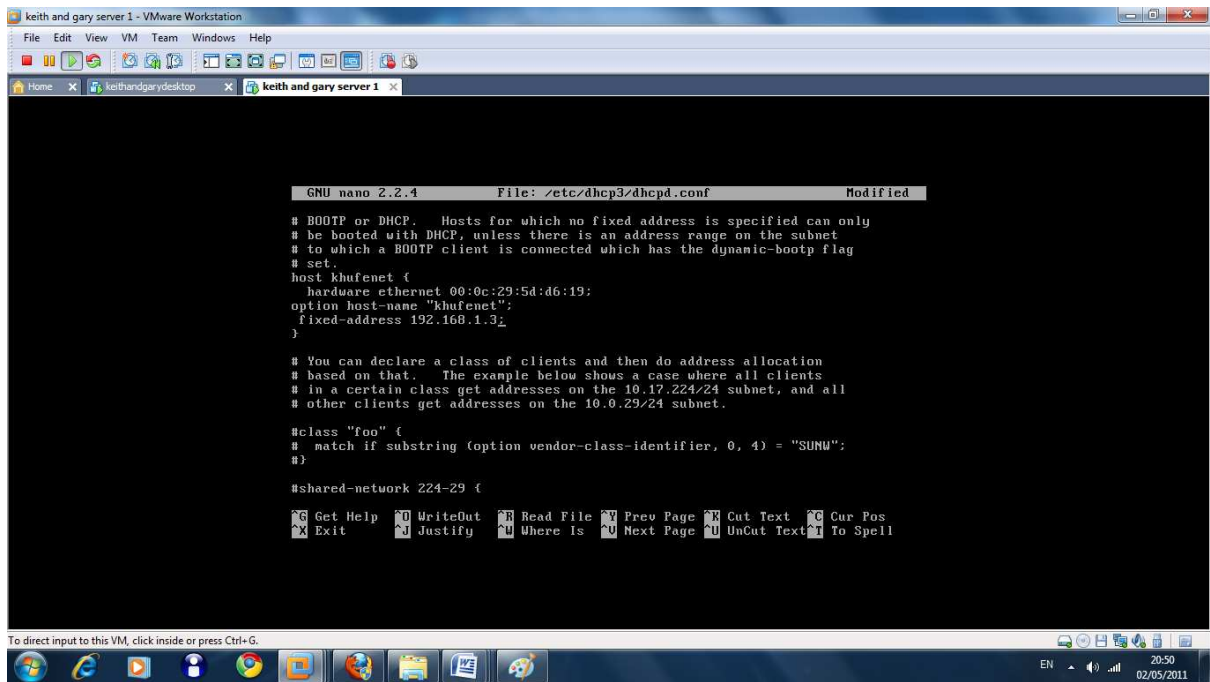
```
#nano /etc/dhcp3/dhcpd.conf
```

```
keith and gary server 1 x
GNU nano 2.2.4 File: /etc/dhcp3/dhcpd.conf

# which we don't really recommend.

#subnet 10.254.239.32 netmask 255.255.255.224 {
# range dynamic-bootp 10.254.239.40 10.254.239.60;
# option broadcast-address 10.254.239.31;
# option routers rtr-239-32-1.example.org;
#}

# A slightly different configuration for an internal subnet.
subnet 192.168.1.0 netmask 255.255.255.0 {
range 192.168.1.10 192.168.1.100;
option domain-name-servers 192.168.1.2,192.168.1.3;
option domain-name "keithandgary.localhost";
option routers 192.168.1.1;
# option broadcast-address 10.5.5.31;
default-lease-time 6000;
max-lease-time 72000;
}
```



```
GNU nano 2.2.4 File: /etc/dhcp3/dhcpd.conf Modified
# BOOTP or DHCP. Hosts for which no fixed address is specified can only
# be booted with DHCP, unless there is an address range on the subnet
# to which a BOOTP client is connected which has the dynamic-bootp flag
# set.
host khufenet {
    hardware ethernet 00:0c:29:5d:d6:19;
    option host-name "khufenet";
    fixed-address 192.168.1.3;
}

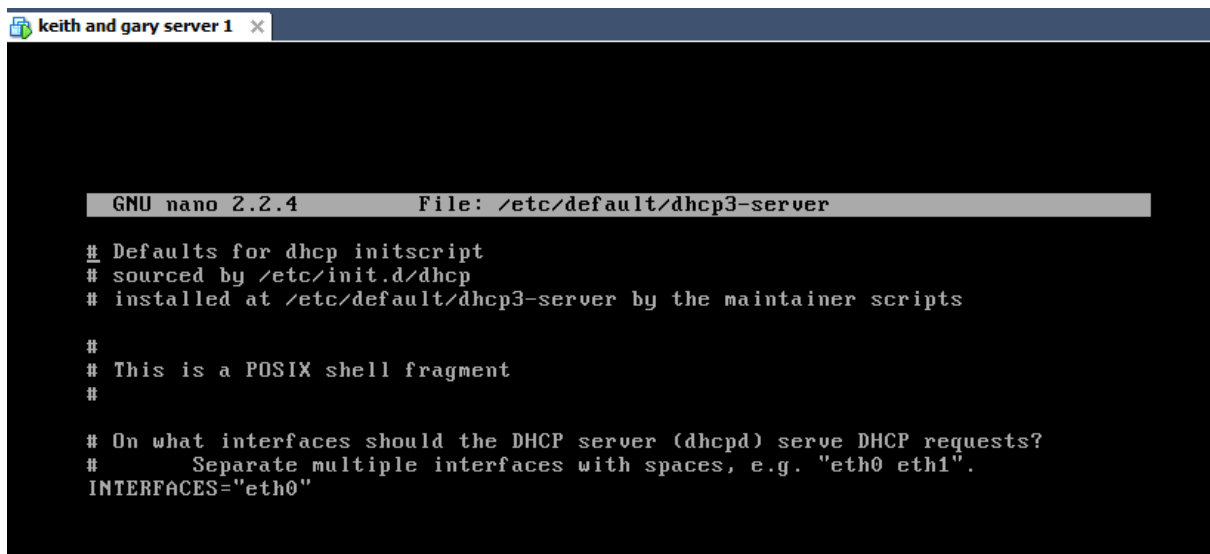
# You can declare a class of clients and then do address allocation
# based on that. The example below shows a case where all clients
# in a certain class get addresses on the 10.17.224/24 subnet, and all
# other clients get addresses on the 10.0.29/24 subnet.

#class "foo" {
#    match if substring (option vendor-class-identifier, 0, 4) = "SUNU";
#}

#shared-network 224-29 {
    Get Help  WriteOut  Read File  Prev Page  Cut Text  Cur Pos
    Exit      Justify   Where Is  Next Page  UnCut Text To Spell

```

#nano /etc/default/dhcp3-server



```
GNU nano 2.2.4 File: /etc/default/dhcp3-server
## Defaults for dhcp initscript
## sourced by /etc/init.d/dhcp
## installed at /etc/default/dhcp3-server by the maintainer scripts

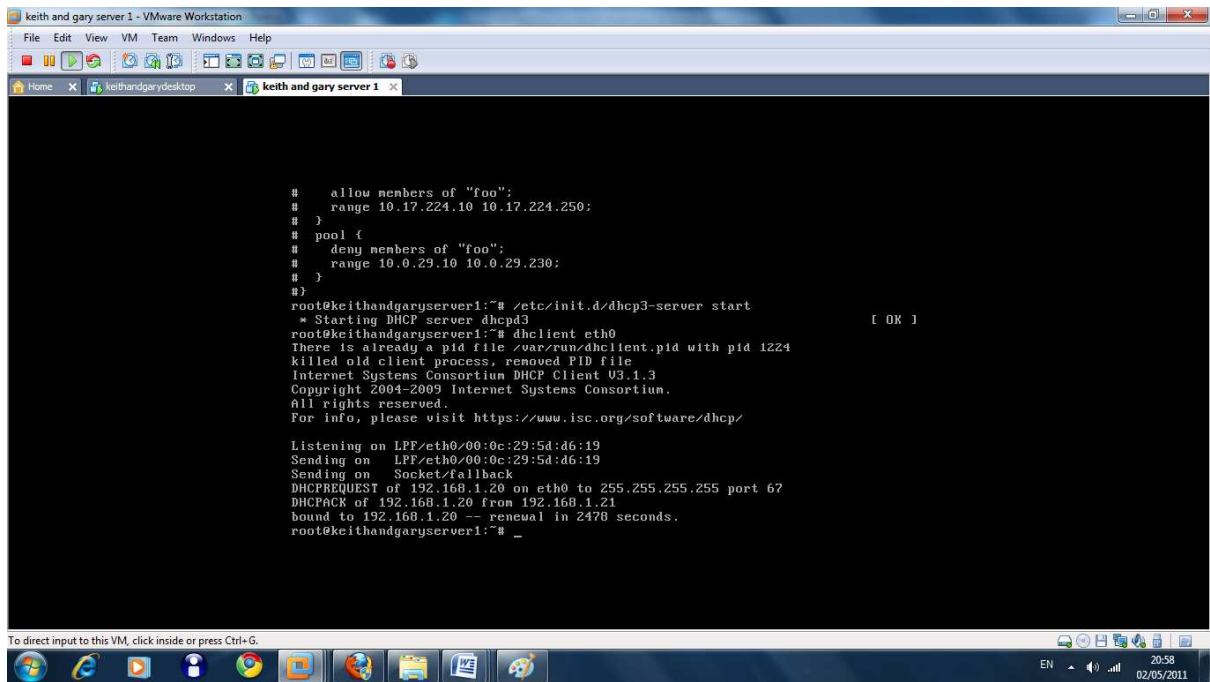
##
## This is a POSIX shell fragment
##

# On what interfaces should the DHCP server (dhcpd) serve DHCP requests?
# Separate multiple interfaces with spaces, e.g. "eth0 eth1".
INTERFACES="eth0"
```

#/etc/init.d/dhcp3-server start

Test -

#dhclient eth0



```
root@keithandgaryserver1:~# /etc/init.d/dhcp3-server start
* Starting DHCP server dhcpd3 [ OK ]
root@keithandgaryserver1:~# dhclient eth0
There is already a pid file /var/run/dhclient.pid with pid 1224
killed old client process, removed PID file
Internet Systems Consortium DHCP Client 03.1.3
Copyright 2004-2009 Internet Systems Consortium.
All rights reserved.
For info, please visit https://www.isc.org/software/dhcp/

Listening on LPF/eth0/00:0c:29:5d:d6:19
Sending on LPF/eth0/00:0c:29:5d:d6:19
Sending on Socket/fallback
DHCPREQUEST of 192.168.1.20 on eth0 to 255.255.255.255 port 67
DHCPACK of 192.168.1.20 from 192.168.1.21
bound to 192.168.1.20 -- renewal in 2478 seconds.
root@keithandgaryserver1:~# _
```

DNS SERVER-BIND

In bridged mode

```
#apt-get install bind9
```

```
#nano /etc/bind/named.conf.local
```

```
keith and gary server 1 x
GNU nano 2.2.4 File: /etc/bind/named.conf.local

//
// Do any local configuration here
//

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";
zone "khufenet.com" {
type master;
file "/etc/bind/zones/db.local /etc/bind/db.khufenet.com";
};

zone "0.168.192.in-addr.arpa" {
type master;
notify no;
file "/etc/bind/zones/db.0.168.192";
};
```

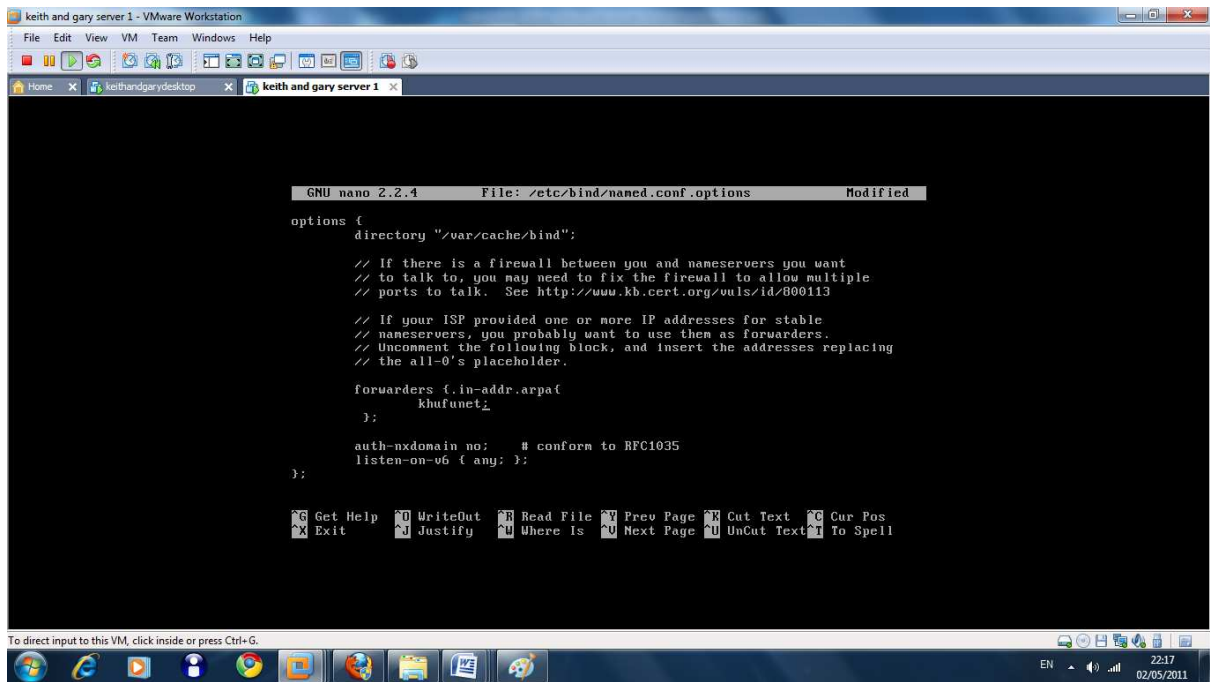
Enter the above details

#nano /etc/resolv.conf

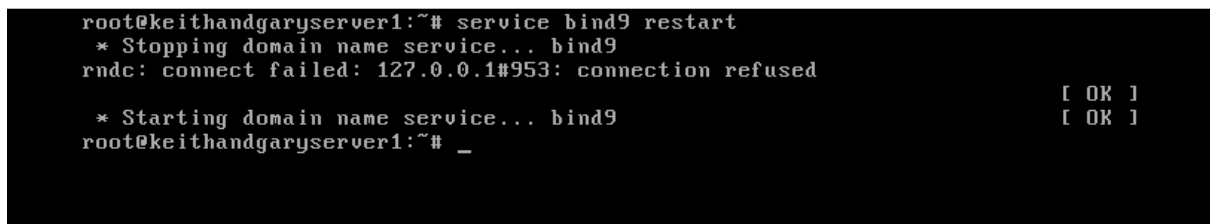
```
keith and gary server 1 x
GNU nano 2.2.4 File: /etc/resolv.conf

nameserver 192.168.1.2
nameserver 192.168.1.3
domain khufenet.com
search khufenet.com
```

#nano /etc/bind/named.conf.options



#service bind9 restart



Test:

Dig khufunet.com

```
keith and gary server 1 x

[ Read 17 lines ]

root@keithandgaryserver1:~#
root@keithandgaryserver1:~#
root@keithandgaryserver1:~#
root@keithandgaryserver1:~# dig khufunet.com

; <<>> DiG 9.7.1-P2 <<>> khufunet.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 20524
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;khufunet.com.                IN      A

;; ANSWER SECTION:
khufunet.com.                0      IN      A      81.200.64.53

;; Query time: 38 msec
;; SERVER: 89.101.160.4#53(89.101.160.4)
;; WHEN: Mon May  2 22:55:40 2011
;; MSG SIZE rcvd: 46

root@keithandgaryserver1:~# _
```

Email server-dovecot

```
#apt-get install dovecot-imapd dovecot-pop3d
```

```
#nano /etc/dovecot/dovecot.conf
```

```
Protocols = pop3 pop3s imap imaps
```

```
keith and gary server 1 x
GNU nano 2.2.4 File: /etc/dovecot/dovecot.conf
# Default values are shown for each setting, it's not required to uncomment
# those. These are exceptions to this though: No sections (e.g. namespace {})
# or plugin settings are added by default, they're listed only as examples.
# Paths are also just examples with the real defaults being based on configure
# options. The paths listed here are for configure --prefix=/usr
# --sysconfdir=/etc --localstatedir=/var --with-ssldir=/etc/ssl

# Base directory where to store runtime data.
#base_dir = /var/run/dovecot

# Protocols we want to be serving: imap imaps pop3 pop3s managesieve
# If you only want to use dovecot-auth, you can set this to "none".
#protocols = imap imaps
protocols = imap imaps pop3 pop3s

# A space separated list of IP or host addresses where to listen in for
# connections. "*" listens in all IPv4 interfaces. "[::]" listens in all IPv6
# interfaces. Use "*", [::]" for listening both IPv4 and IPv6.
#
# If you want to specify ports for each service, you will need to configure
```

```
keith and gary server 1 x
GNU nano 2.2.4 File: /etc/dovecot/dovecot.conf
# Courier : %f or %v-%u (both might be used simultaneously)
# Cyrus (<= 2.1.3) : %u
# Cyrus (>= 2.1.4) : %v.%u
# Dovecot v0.99.x : %v.%u
# tpop3d : %Mf
#
# Note that Outlook 2003 seems to have problems with %v.%u format which was
# Dovecot's default, so if you're building a new server it would be a good
# idea to change this. %08Xu%08Xu should be pretty fail-safe.
#_
pop3_uidl_format = %08Xu%08Xu
```

```
In same file change mail_location=mbox:~/mail:INBOX=/var/mail/%u
```

```
keith and gary server 1 x
GNU nano 2.2.4 File: /etc/dovecot/dovecot.conf Modified
# where to store the sieve files (see explanation in README.managesieve).
# The example below, when uncommented, overrides any global mail_location
# specification and stores all the scripts in '~/mail/sieve' if sieve_storage
# is unset. However, you should always use the sieve_storage setting.
mail_location = mbox:~/mail:INBOX=/var/mail/%u_
```

And

Main_location=maildir:-/maildir

```
keith and gary server 1 x
GNU nano 2.2.4 File: /etc/postfix/main.cf Modified
# See </usr/share/doc/dovecot-common/wiki/Variables.txt> for full
# Some examples:
#
mail_location = maildir:~/Maildir
_ mail_location = mbox:~/mail:INBOX=/var/mail/%u
```

#nano /etc/postfix/main.cf

Enter line:

Home_mailbox=maildir/

```
keith and gary server 1 - VMware Workstation
File Edit View VM Team Windows Help
Home x keithandgarydesktop x keith and gary server 1 x
GNU nano 2.2.4 File: /etc/postfix/main.cf Modified
# See /usr/share/postfix/main.cf.dist for a commented, more complete version
home_mailbox=maildir/_

# Debian specific: Specifying a file name will cause the first
# line of that file to be used as the name. The Debian default
# is /etc/mailname.
#myorigin = /etc/mailname

smtpd_banner = $myhostname ESMTP $mail_name (Ubuntu)
biff = no

# appending .domain is the MUA's job.
append_dot_mydomain = no

# Uncomment the next line to generate "delayed mail" warnings
#delay_warning_time = 4h

readme_directory = no

# TLS parameters
^G Get Help ^O WriteOut ^R Read File ^V Prev Page ^X Cut Text ^C Cur Pos
^X Exit ^J Justify ^U Where Is ^N Next Page ^U UnCut Text ^T To Spell

To direct input to this VM, click inside or press Ctrl+G.
EN 23:49 02/05/2011
```

#nano /etc/dovecot/dovecot.conf

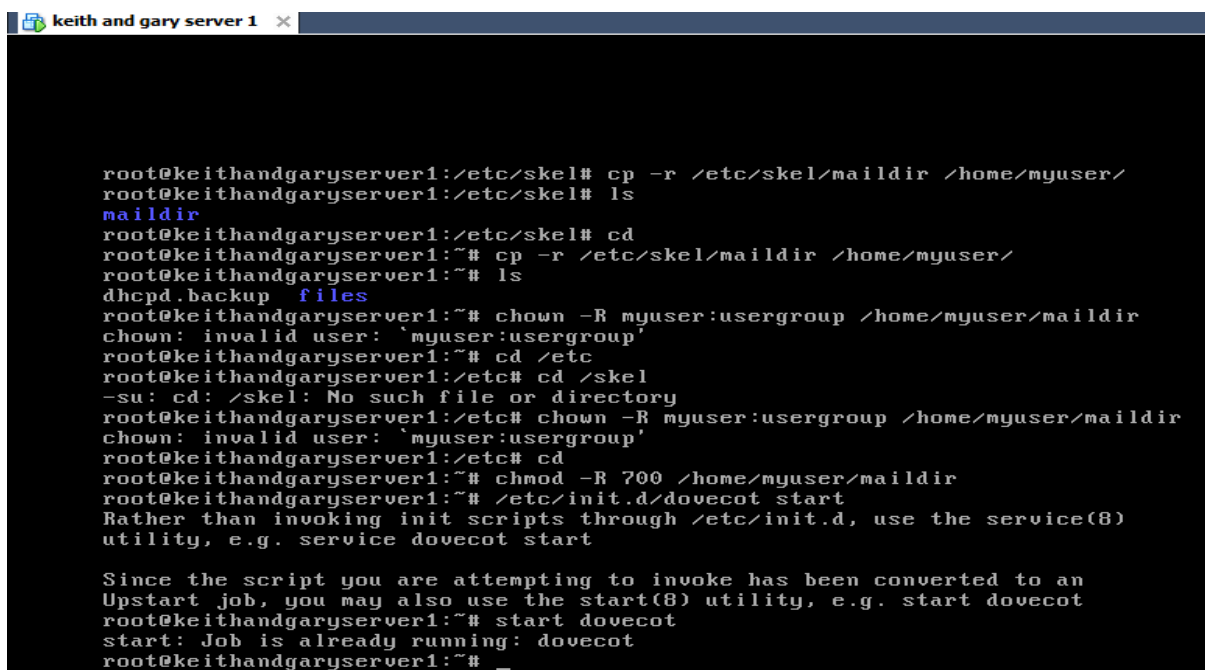
mail_location=maildir:/home/%u/maildir

```
mail_location = maildir:~/Maildir
mail_location = mbox:~/mail:INBOX=/var/mail/%u
mail_location=maildir:/home/%u/maildir_
```

```
#maildirmake.dovecot /etc/skel/maildir
#maildirmake.dovecot /etc/skel/maildir/.drafts
#maildirmake.dovecot /etc/skel/maildir/.sent
#maildirmake.dovecot /etc/skel/maildir/.trash
#maildirmake.dovecot /etc/skel/maildir/.templates
#Cp -r /etc/skel/maildir /home/myuser/
#chown -R myuser:usergroup /home/myuser/maildir
#chmod -R 700 /home/myuser/maildir
```

TEST:

```
#start dovecot
```



```
keith and gary server 1 x
root@keithandgaryserver1:/etc/skel# cp -r /etc/skel/maildir /home/myuser/
root@keithandgaryserver1:/etc/skel# ls
maildir
root@keithandgaryserver1:/etc/skel# cd
root@keithandgaryserver1:~# cp -r /etc/skel/maildir /home/myuser/
root@keithandgaryserver1:~# ls
dhcpd.backup files
root@keithandgaryserver1:~# chown -R myuser:usergroup /home/myuser/maildir
chown: invalid user: 'myuser:usergroup'
root@keithandgaryserver1:~# cd /etc
root@keithandgaryserver1:/etc# cd /skel
-su: cd: /skel: No such file or directory
root@keithandgaryserver1:/etc# chown -R myuser:usergroup /home/myuser/maildir
chown: invalid user: 'myuser:usergroup'
root@keithandgaryserver1:/etc# cd
root@keithandgaryserver1:~# chmod -R 700 /home/myuser/maildir
root@keithandgaryserver1:~# /etc/init.d/dovecot start
Rather than invoking init scripts through /etc/init.d, use the service(8)
utility, e.g. service dovecot start

Since the script you are attempting to invoke has been converted to an
Upstart job, you may also use the start(8) utility, e.g. start dovecot
root@keithandgaryserver1:~# start dovecot
start: Job is already running: dovecot
root@keithandgaryserver1:~# _
```

Check:

```
#Ps -A | grep dovecot
#telnet localhost pop3
```

```
Connection closed by foreign host.
root@keithandgaryserver1:~#
root@keithandgaryserver1:~#
root@keithandgaryserver1:~#
root@keithandgaryserver1:~# telnet localhost pop3
Trying ::1...
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.
+OK Dovecot ready.
```

Authentication:

```
#nano /etc/dovecot/dovecot.conf
```

Enter

```
Disable_plaintext_auth = no
```

```
#separator = /
disable_plaintext_auth = no_
```

SSL:

```
#nano /etc/dovecot/dovecot.conf
```

Uncomment out

```
Ssl=yes
```

```
Ssl_cert_file=/etc/ssl/certs/ssl-cert-snakeoil.pem
```

```
Ssl_key_file=/etc/ssl/private/ssl-cert-snakeoil.key
```

```
Listen = *
```



```
keith and gary server 1 x
GNU nano 2.2.4      File: /etc/dovecot/dovecot.conf      Modified
###
### SSL settings
###
# IP or host address where to listen in for SSL connections. Remember to also
# add imaps and/or pop3s to protocols setting. Defaults to same as "listen"
# setting if not specified.
ssl_listen =*

# SSL/TLS support: yes, no, required. </usr/share/doc/dovecot-common/wiki/SSL.t$
ssl = yes

# PEM encoded X.509 SSL/TLS certificate and private key. They're opened before
# dropping root privileges, so keep the key file unreadable by anyone but
# root.
ssl_cert_file = /etc/ssl/certs/ssl-cert-snakeoil.pem
ssl_key_file = /etc/ssl/private/ssl-cert-snakeoil.key
```

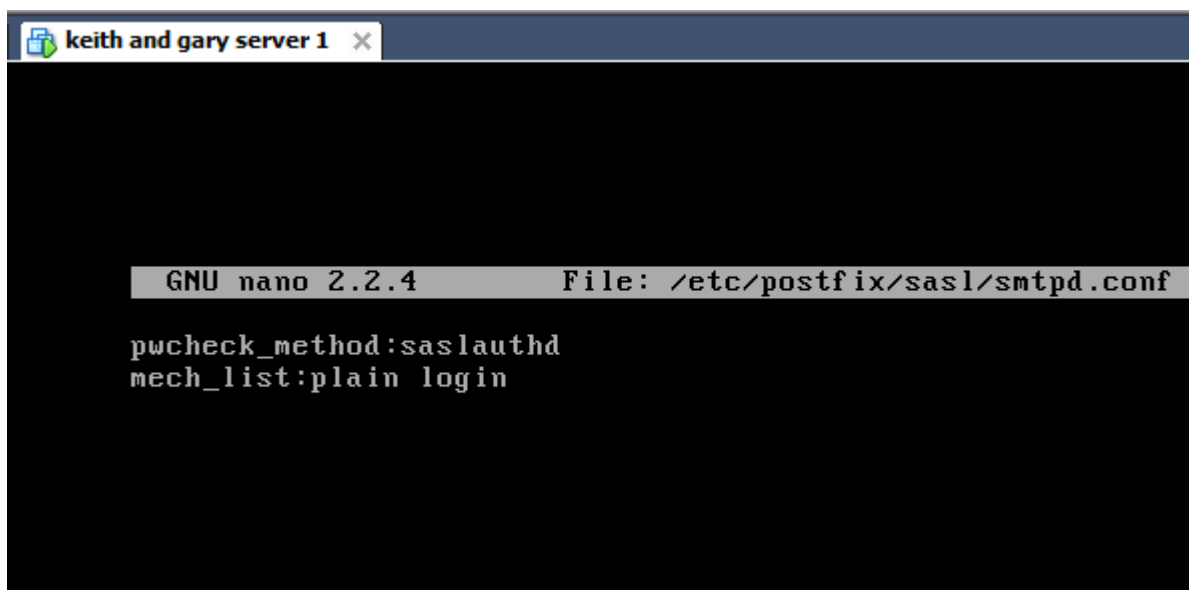
#nano /etc/dovecot/dovecot.conf

These two lines is what I changed or entered (note maybe can be uncommented)

```
login_greeting_capability= yes_
imap_client_workarounds =tb=extra-mailbox-sep
```

Installing postfix

```
#Apt-get install postfix
#dpkg-reconfigure postfix
#postconf -e 'home_mailbox=maildir/'
# sudo postconf -e 'smtpd_sasl_local_domain ='
# sudo postconf -e 'smtpd_sasl_auth_enable = yes'
# sudo postconf -e 'smtpd_sasl_security_options = noanonymous'
# sudo postconf -e 'broken_sasl_auth_clients = yes'
#sudo postconf -e 'smtpd_recipient_restrictions =
permit_sasl_authenticated,permit_mynetworks,reject_unauth_destination'
# sudo postconf -e 'inet_interfaces = all'
#nano /etc/postfix/sasl/smtpd.conf
add
```



```
keith and gary server 1 x
GNU nano 2.2.4 File: /etc/postfix/sasl/smtpd.conf
pwcheck_method:saslauthd
mech_list:plain login
```

```
# touch smtpd.key
```

```
# chmod 600 smtpd.key
```

```
# openssl genrsa 1024 > smtpd.key
```

```
# openssl req -new -key smtpd.key -x509 -days 3650 -out smtpd.crt # has prompts
```

```
# openssl req -new -x509 -extensions v3_ca -keyout cakey.pem -out cacert.pem -days 3650
# has prompts

# sudo mv smtpd.key /etc/ssl/private/

# sudo mv smtpd.crt /etc/ssl/certs/

# sudo mv cakey.pem /etc/ssl/private/

# Sudo mv cacert.pem /etc/ssl/certs/

# sudo postconf -e 'smtp_tls_security_level = may'
# sudo postconf -e 'smtpd_tls_security_level = may'
# sudo postconf -e 'smtpd_tls_auth_only = no'
# sudo postconf -e 'smtp_tls_note_starttls_offer = yes'
# sudo postconf -e 'smtpd_tls_key_file = /etc/ssl/private/smtpd.key'
# sudo postconf -e 'smtpd_tls_cert_file = /etc/ssl/certs/smtpd.crt'
# sudo postconf -e 'smtpd_tls_CAfile = /etc/ssl/certs/cacert.pem'
# sudo postconf -e 'smtpd_tls_loglevel = 1'
# sudo postconf -e 'smtpd_tls_received_header = yes'
# sudo postconf -e 'smtpd_tls_s
# session_cache_timeout = 3600s'
# sudo postconf -e 'tls_random_source = dev:/dev/urandom'
# sudo postconf -e 'cisco = cisco.Khufunet.com'
```

Summary and Conclusion

Analysis of Project

We both found this project to be much more challenging for us both than the previous project that we had to complete. There were a lot of new pieces of software that we had not come across yet so we would have to get accustomed to these and do the research to learn how to use them. We appreciated that Tim split the work up for us in an even way because we might not have agreed on what to do.

What you have learned?

We have learned how to install the required software and configure it so that it can be used in a practical situation. Another good thing that we have both taken from this project is team work. This project really relied heavily on teamwork as almost everything had to be done with both people present. And we had to help each other out a lot and educate each other on our different parts of the project.

What are the major problems you encountered?

A big problem we had was understanding how to apply the information on the software that we found on the internet to our project. Sometimes it is hard to know what applies to you when you are looking for information on the internet. Another problem we had was connectivity we found it hard to solve this problem and up to the very end we have had this problem.

What would you do differently?

We would have documented the steps that we took to complete the project better so that we would have had an easier time writing the report and not have to repeat the same processes twice. We would have planned out our time better so that it would have been more productive to get better use of the lab facilities.

Conclusion

In conclusion we felt that this project was very beneficial to us and it gave us a great insight into what it takes to work well as a team. It also helped us in learning how to get the proper information from the internet and to do the proper research to get the information. Also it gave us all the information we learned about the different services that we were required to install for this project. We found through the course of this assignment that it was very enduring and it came with great reward and frustration at times. We felt that there was good help on the internet in regard to some of the packages that we had to install but also felt confused with some parts of the installations. Particularly with postfix and BIND we found these to be the most challenging installs. Overall we both felt we did all we could do with this project and we did enjoy doing most of the tasks besides getting a bit frustrated when trying to get things to work. We had a bit of trouble as we ran into problems when altering configurations to install other packages but we feel like we corrected this.