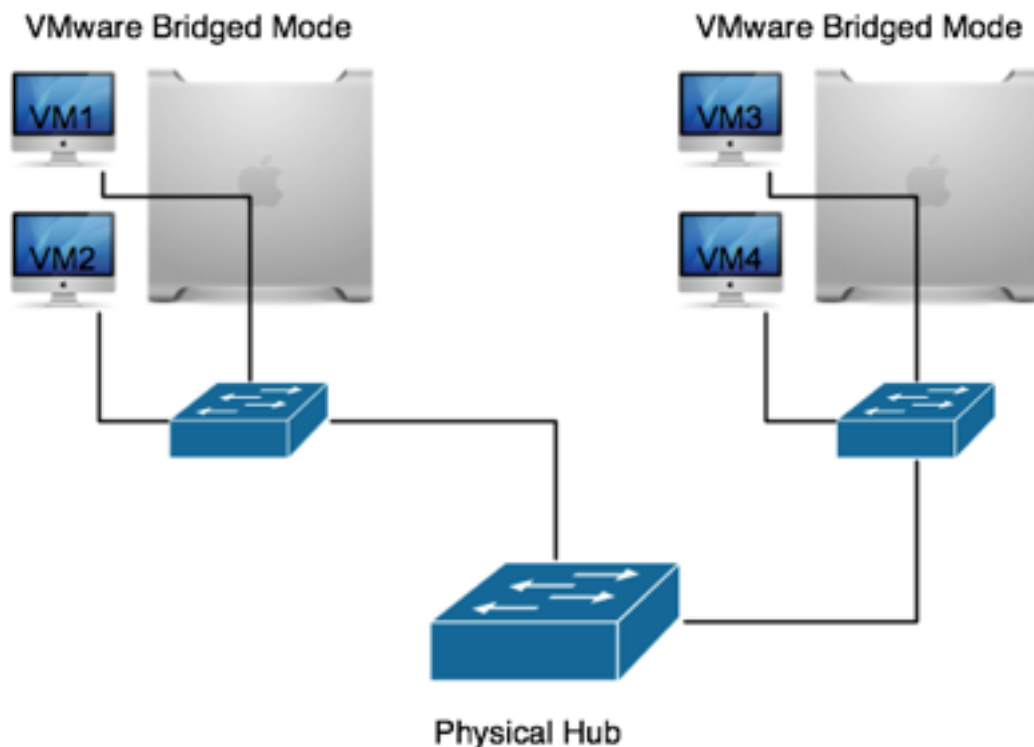


# Internet & Network Services

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ITM2.



For this project i was allocated virtual machine 1 & 2 and Hakeem was 3 & 4.

The first thing we did was gain connectivity between all our devices; we were both using laptops running VMware.

We each created an Ubuntu Server and Desktop on our laptops and decided we were going to use the 192.168.10.0 network to give IP Addresses to our machines.

The first thing we did was set the IP Address for our Ethernet cards on our laptops, I took 192.168.10.10 and Hakeem took 192.168.10.11, we then gave our virtual machines I Addresses also.

VM1 – 192.168.10.8

VM2 – 192.168.10.9

VM3 – 192.168.10.6

VM4 – 192.168.10.7

To get everything to communicate with each other we swopped the network setting to bridged on our virtual machines and inserted the static address onto the system by using the `/etc./network/interfaces` command and setting the IP and netmask.

We used a crossover cable as a physical means of connection.

On my machines I had to set up:

- 1.) Web server (apache2) with virtual hosting for 2 sites (Khufunet.com and a blog)
- 2.) DNS Server, Bind9, Primary DNS.
- 3.) Samba
- 4.) Cups

The first thing i tackled was the apache server, i installed LAMP as i knew i would need the other bits and pieces such as my sql at a later stage, here are the commands i entered to get everything running.

**First we install MySQL 5 like this:**

Install MySQL-server MySQL-client

**Apache2 is available as an Ubuntu package; therefore we can install it like this:**

Aptitude install apache2

**We can install PHP5 and the Apache PHP5 module as follows:**

Aptitude install php5 libapache2-mod-php5

**We must restart Apache afterwards:**

/etc/init.d/apache2 restart

**We then create a php file in /var/www that is called info.php:**

vi /var/www/info.php

I inserted the following text inside that file:

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

**Next i needed to get MySQL support in PHP so i download the following types of PHP modules:**

```
aptitude install php5-mysql php5-curl php5-gd php5-idn php-pear php5-imagick php5-imap php5-mcrypt php5-memcache php5-mhash php5-ming php5-ps php5-pspell php5-recode php5-snmp php5-sqlite php5-tidy php5-xmlrpc php5-xsl php5-json
```

**The next thing i did was restart apache:**

```
/etc/init.d/apache2 restart
```

**Finally i installed php myadmin:**

```
aptitude install phpmyadmin
```

**Name based virtual hosting:**

The next step i undertook was to set up the name based virtual hosting for KhufuNet.com, i started this by first altering a line in /etc/apache/apache2.conf to read:

```
Khufunet.com 192.168.10.9:80
```

I then opened the following file /etc/apache2/sites-available and made some changes:

```
<VirtualHost 192.168.10.9:80>
ServerName KhufuNet.com
ServerAlias www.KhufuNet.com
DocumentRoot /var/www/KhufuNet.com/html
</VirtualHost>
```

I then created a link between the sites enabled and sites available folders by typing the following:

```
cd /etc/apache2/sites-enabled
```

```
ln -s /etc/apache2/sites-enabled/sites-available/Khufunet.com
```

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The final step was to restart apache:

```
/etc/init.d/apache2 restart
```

## **Wordpress:**

The next step was to set up a wordpress instance and also have that as a named site on the domain.

I downloaded wordpress in the usual way using the instructions on the tim.horgan blog but when i tried to get it to show in the browser it would not.

Bind seemed to affect it in some way so while i got it set up it would not show when i typed in the IP Address followed by /wordpress eg. 192.168.10.9/wordpress.

## **Bind9:**

The first step was to install bind:

```
sudo apt-get install bind9
```

The next step was to edit the named.conf.local file:

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

I entered the following:

```
zone "KhufuNet.com" {  
type master;  
file "/etc/bind/zones/Khufunet.com.db";  
};  
zone "0.10.168.192.in-addr.arpa" {  
type master;  
file "/etc/bind/zones/rev.0.10.168.192.in-addr.arpa";  
};
```

I then edited the options file:

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

I entered the following:

```
forwarders {  
192.168.10.6;    (Hakeems Ip address for his server as he is the secondary name server)  
};
```

I then added the zone definition files:

```
mkdir /etc/bind/zones  
nano /etc/bind/zones/example.com.db
```

I entered the following into this file.

```
KhufuNet.com. IN SOA johnhennessy.KhufuNet.com. Admin.KhufuNet.com. (  
2011042701  
28800  
3600  
604800  
38400  
)  
KhufuNet.com. IN NS johnhennessy.KhufuNet.com.
```

```
Www IN A 192.168.10.9  
johnhennessy IN A 192.168.10.9
```

I then created the reverse DNS zone file:

```
nano /etc/bind/zones/rev.0.10.168.192.in-addr.arpa
```

I entered the following:

```
@ IN SOA johnhennessy.KhufuNet.com. Admin.KhufuNet.com. (  
2011042701;  
28800;  
604800;
```

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```

604800;
86400;
)
          IN      NS      johnhennessy.KhufuNet.com.
9         IN      PTR     KhufuNet.com

```

I then restarted bind:

```
/etc/init.d/bind9 restart
```

I then modified the resolv.conf file by adding the following:

```

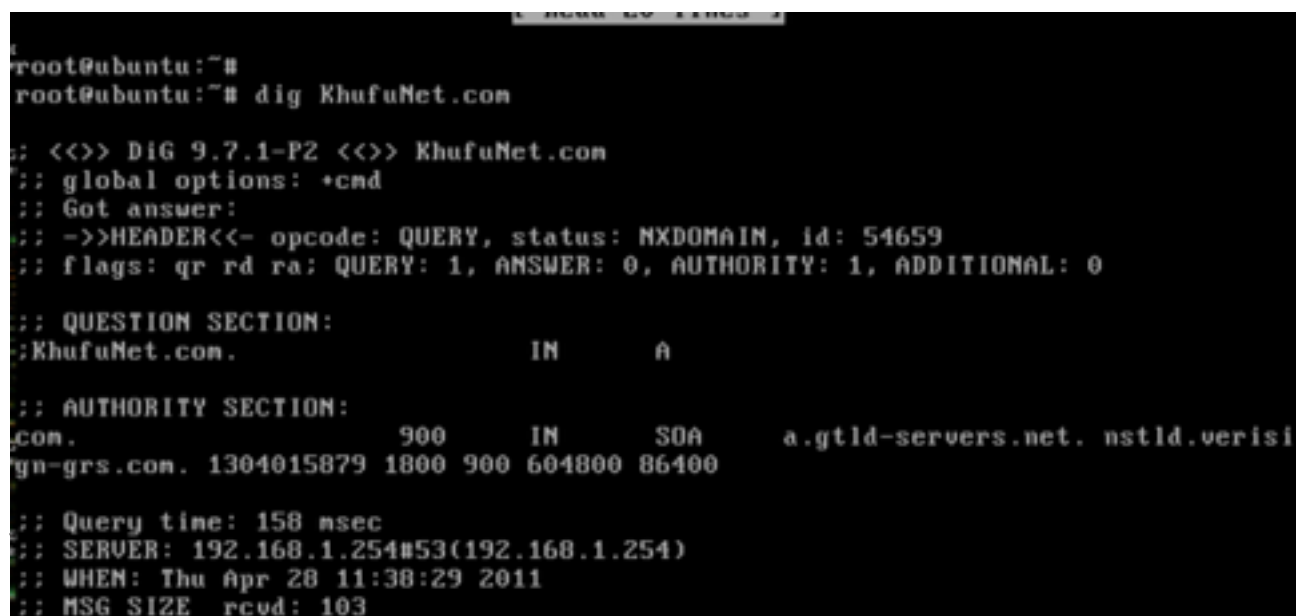
Search KhufuNet.com
nameserver 192.168.10.9

```

Finally i tested the DNS by typing the following command:

```
dig KhufuNet.com
```

I got the following output on my server.



```

root@ubuntu:~#
root@ubuntu:~# dig KhufuNet.com

;; <<>> DiG 9.7.1-P2 <<>> KhufuNet.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 54659
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 0

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

;; AUTHORITY SECTION:
com.                900     IN      SOA     a.gtld-servers.net. nstld.verisign-grs.com. 1304015879 1800 900 604800 86400

;; Query time: 158 msec
;; SERVER: 192.168.1.254#53(192.168.1.254)
;; WHEN: Thu Apr 28 11:38:29 2011
;; MSG SIZE rcvd: 103

```

## **Samba:**

I set this up to work with my housemates windows machine, the workgroup name was workgroup.

First things first i installed samba:

- apt-get install samba

I then made sure samba wasnt running:

- stop smbd

I then went to edit the smb.conf file:

-nano /etc/samba/smb.conf

I then entered the following settings that i got on Ubuntu forums changing things to suit my set up:

```
[global]
; General server settings
netbios name = LOCALHOST
server string =
workgroup = WORKGROUP
announce version = 5.0
socket options = TCP_NODELAY IPTOS_LOWDELAY SO_KEEPALIVE SO_RCVBUF=8192
SO_SNDBUF=8192

passdb backend = tdbsam
security = user
null passwords = true
username map = /etc/samba/smbusers
name resolve order = hosts wins bcast

wins support = yes
```



```

printing = CUPS
printcap name = CUPS

syslog = 1
syslog only = yes

; NOTE: If you need access to the user home directories uncomment the
; lines below and adjust the settings to your hearts content.
[homes]
    ;valid users = %S
    ;create mode = 0600
    ;directory mode = 0755
    ;browseable = no
    ;read only = no
    ;veto files = /*.{*}/.*/*mail/bin/

; NOTE: Only needed if you run samba as a primary domain controller.
; Not needed as this config doesn't cover that matter.
[netlogon]
    ;path = /var/lib/samba/netlogon
    ;admin users = Administrator
    ;valid users = %U
    ;read only = no

; NOTE: Again - only needed if you're running a primary domain controller.
[Profiles]
    ;path = /var/lib/samba/profiles
    ;valid users = %U
    ;create mode = 0600
    ;directory mode = 0700
    ;writeable = yes
    ;browseable = no

; NOTE: Inside this place you may build a printer driver repository for
; Windows - I'll cover this topic in another HOWTO.
[print$]
    path = /var/lib/samba/printers
    browseable = yes
    guest ok = yes
    read only = yes
    write list = root
    create mask = 0664
    directory mask = 0775

[printers]
    path = /tmp
    printable = yes
    guest ok = yes
    browseable = no

; Uncomment if you need to share your CD-/DVD-ROM Drive
;[DVD-ROM Drive]
    ;path = /media/cdrom
    ;browseable = yes
    ;read only = yes
    ;guest ok = yes

[MyFiles]
    path = /home/samba/
    browseable = yes
    read only = no
    guest ok = no
    create mask = 0644
    directory mask = 0755

```

```
force user = johnhennessy
force group = johnhennessy
```

I then closed that file and changed permissions on it:

```
-chmod 0777 /home/samba
```

I then started samba:

```
-start smbd
```

I needed to set username and password:

```
smbpasswd -L -a johnhennessy
```

```
smbpasswd -L -e johnhennessy
```

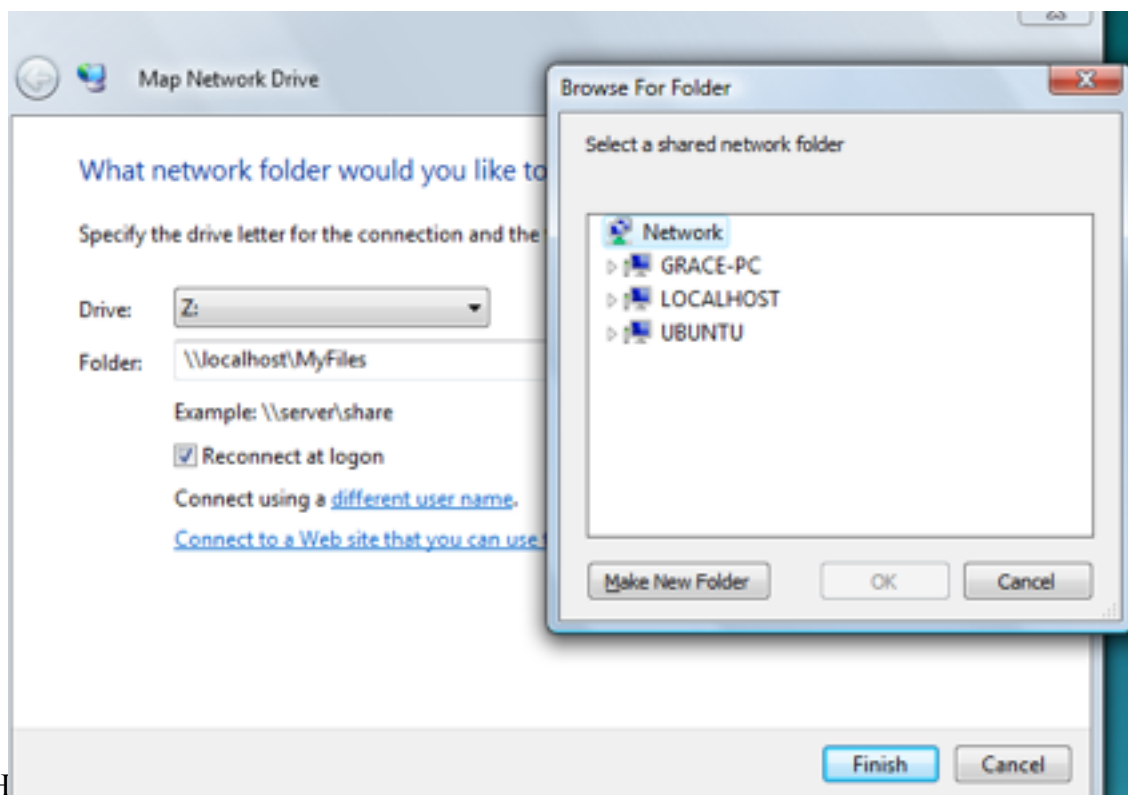
The next step was to let the windows machine know that there is a wins server active in the network, i did the following steps to make this happen:

- Click "START"
  - Click "Control Panel"
  - Click "Network Connections"
  - Find your "LAN Connection"
  - Right-click the icon and select "Properties"
  - Select the "TCP/IP" Protocol and click the "Properties" button
  - Click "Advanced"
  - Select the third Tab entitled "WINS"
  - Click "Add"
  - Type in the ip-address of your Linux box
  - Click "Add"
  - Select "Use NetBIOS over TCP/IP"
  - Click "OK"
  - Click "OK"
  - Click "OK"
  - Reboot Windows

Finally i did the following:

- Click "START"
    - Right-click "My Computer"
    - Select "Map network drive"
    - Choose the drive letter
    - Type \\LOCALHOST\\MyFiles
- NOTE: Adjust this to the hostname and sharename you chose above!*
- Click "Finish"

I got the following screen where you can see the LOCALHOST option being shared on the windows machine.



## **CUPS**

The first thing i did was install cups by entering the following:

```
apt-get install cups cups-bsd cups-client cups-common
```

I then edited the `/etc/cups/cupsd.conf` file, i added “allow all” to the `location`, `location/admin` and `location /admin/conf` sections of the file.

This was all i did; i do not have a printer to test it to see if it’s working.

