31338 Network Servers

Assessment 3 – Project

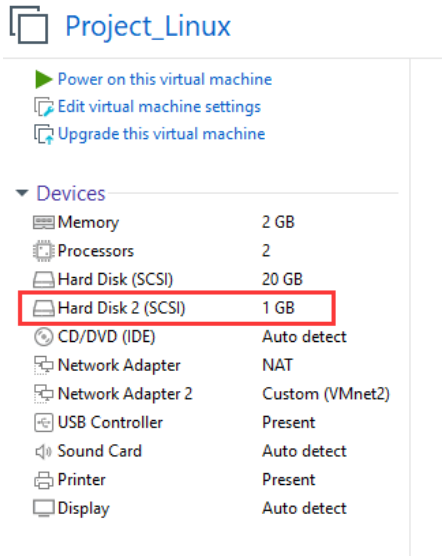
Gongming Shi – 13731654

Table of Content

Task 1: Create Partitions (10 marks)

Linux:

1. Add second 1GB hard disk on Linux

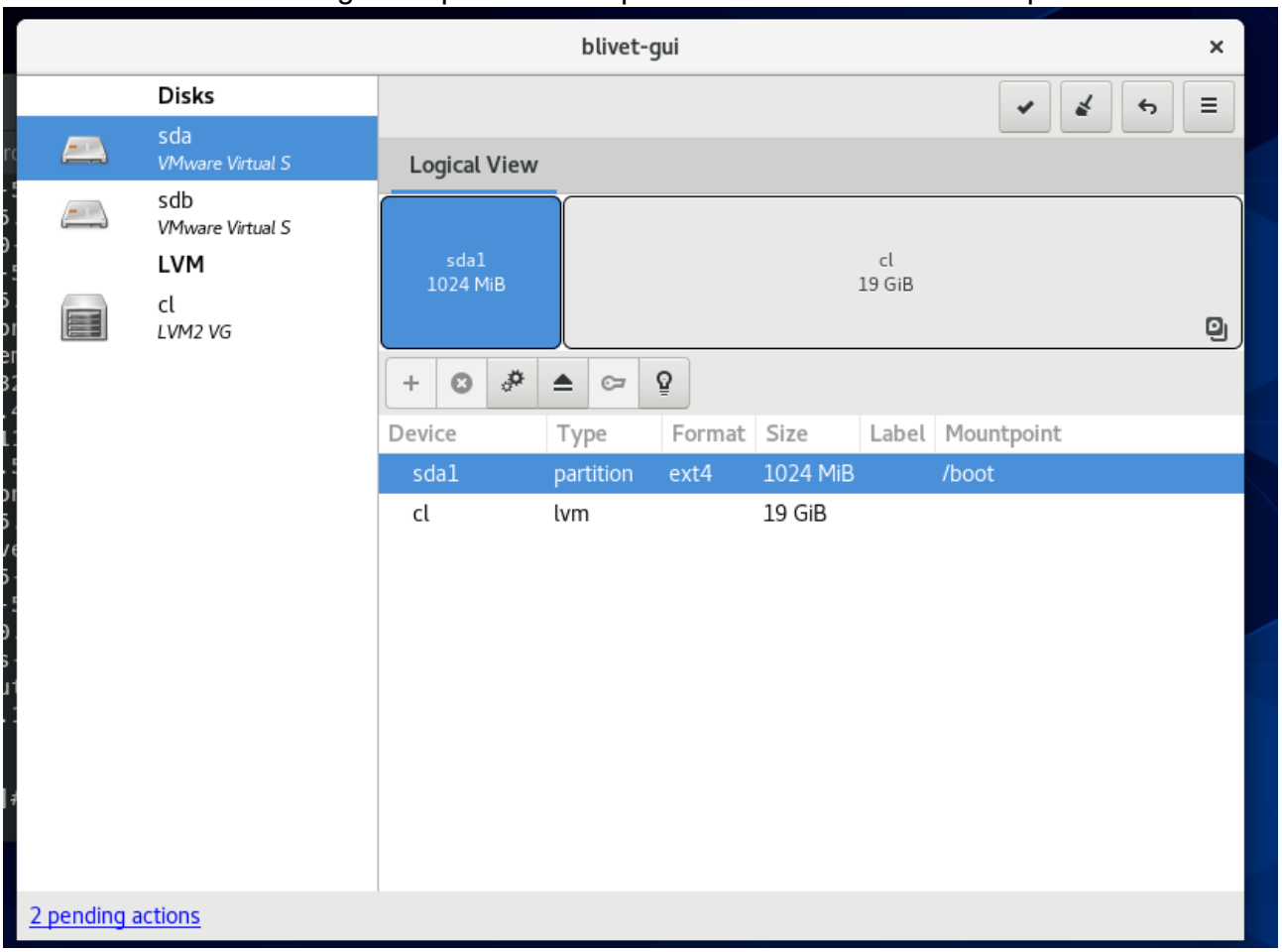


2. Enable and Start NetworkManager, then download and install the epel-release and blivet-gui

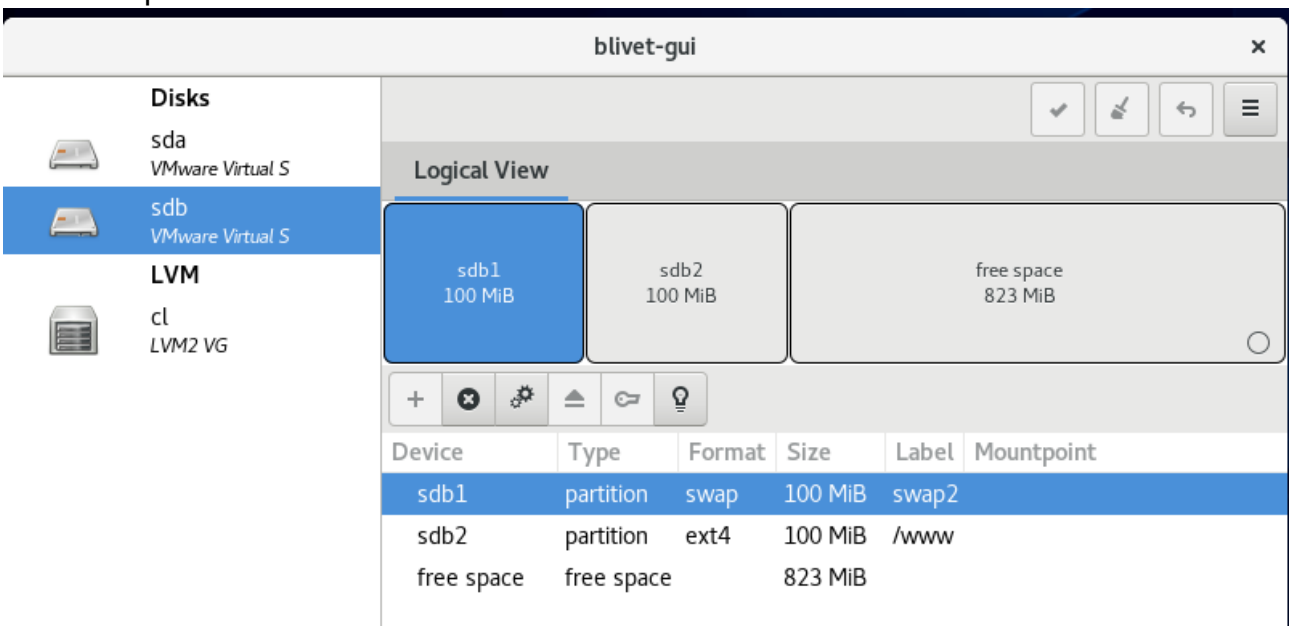
```
[root@localhost ~]# systemctl start NetworkManager
[root@localhost ~]# systemctl enable NetworkManager
Created symlink /etc/systemd/system/multi-user.target.wants/NetworkManager.servi
ce → /usr/lib/systemd/system/NetworkManager.service.
Created symlink /etc/systemd/system/dbus-org.freedesktop.nm-dispatcher.service →
 /usr/lib/systemd/system/NetworkManager-dispatcher.service.
Created symlink /etc/systemd/system/network-online.target.wants/NetworkManager-w
ait-online.service → /usr/lib/systemd/system/NetworkManager-wait-online.service.
[root@localhost ~]# nmcli con up ens33
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkMa
nager/ActiveConnection/2)
[root@localhost ~]# yum install epel-release
CentOS-8 - AppStream                            6.2 kB/s | 4.3 kB     00:00
CentOS-8 - AppStream                            4.4 MB/s | 9.3 MB     00:02
CentOS-8 - Base                                 6.3 kB/s | 3.9 kB     00:00
CentOS-8 - Base                                 1.4 MB/s | 7.5 MB     00:05
CentOS-8 - Extras                               1.1 kB/s | 1.5 kB     00:01
CentOS-8 - Extras                               8.1 kB/s |  10 kB     00:01
Dependencies resolved.
```

```
[root@localhost ~]# yum install blivet-gui
Last metadata expiration check: 0:01:30 ago on Fri 08 Oct 2021 12:46:23 AEDT.
Dependencies resolved.
================================================================================
 Package                 Arch       Version                 Repository     Size
================================================================================
Installing:
 blivet-gui              noarch     2.1.15-1.el8            epel           13 k
```

3. Use command blivet-gui to open the GUI partition interface and check partition in Linux



4. Create partitions



5. mount on swap partition: sdb1

```
[root@localhost ~]# swapon /dev/sdb1
[root@localhost ~]# swapon
NAME      TYPE      SIZE USED PRIO
/dev/dm-1 partition   2G 2.8M   -2
/dev/sdb1 partition 100M   0B   -3
[root@localhost ~]#
```

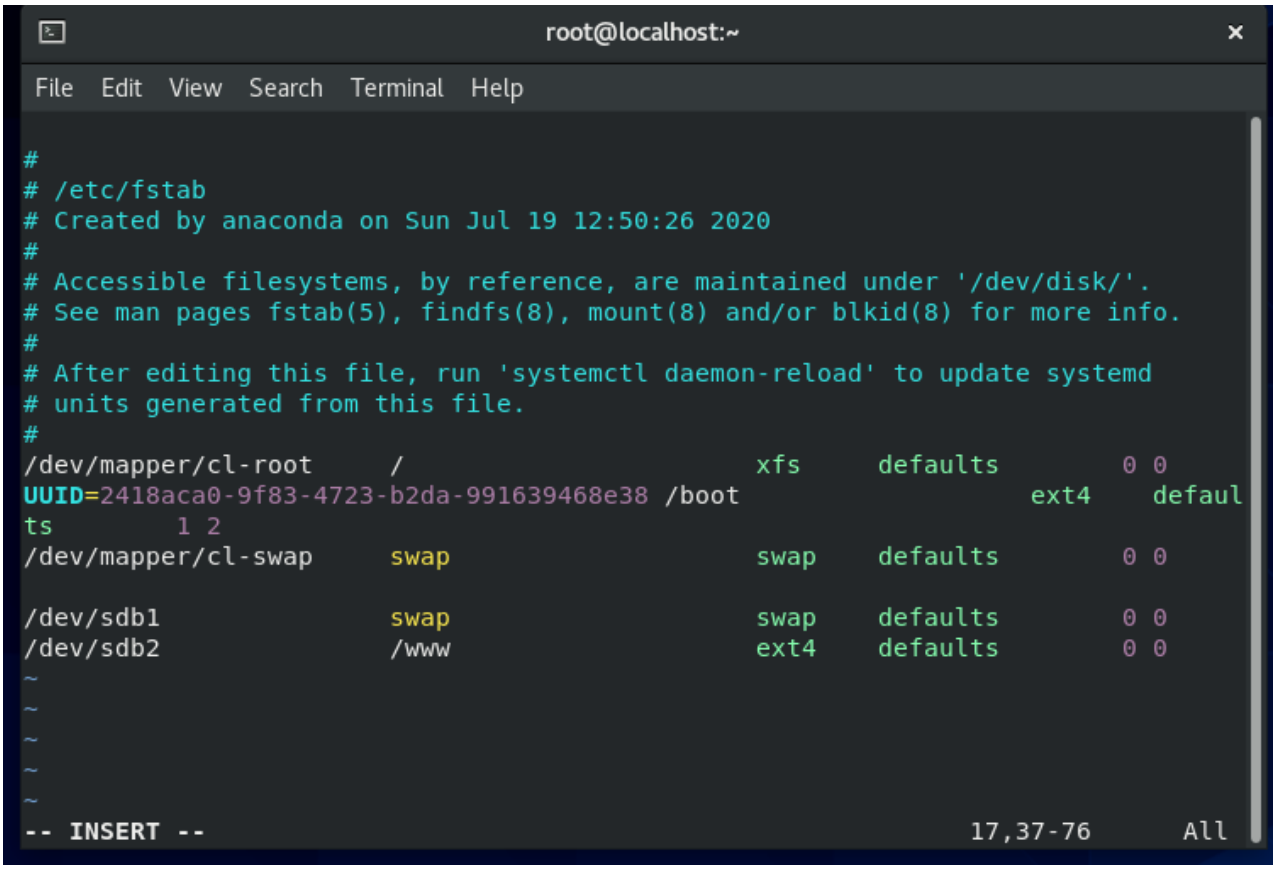
6. Mount on sdb2 partition

Create /www directory and touch a file for testing purpose. After mount the sdb2 partition, the txt file disappeared, which mean mount successfully.

```
[root@localhost ~]# mkdir /www
[root@localhost ~]# cd /www
[root@localhost www]# touch beforeMount.txt
[root@localhost www]# ls
beforeMount.txt
[root@localhost www]# mount /dev/sdb2 /www
```

```
[root@localhost www]# cd ~
[root@localhost ~]# ls /www
lost+found
```

7. /etc/fstab configuration file

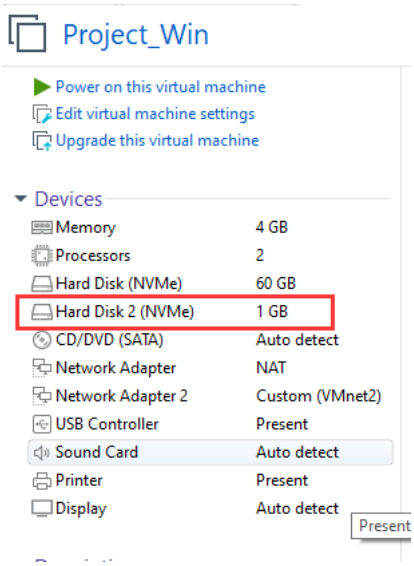


8. Verify after reboot the Linux system

```
[root@localhost ~]# parted /dev/sdb print
Model: VMware, VMware Virtual S (scsi)
Disk /dev/sdb: 1074MB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
Disk Flags:

Number  Start   End    Size   Type     File system     Flags
 1      1049kB  106MB  105MB  primary  linux-swap(v1)
 2      106MB   211MB  105MB  primary  ext4
```

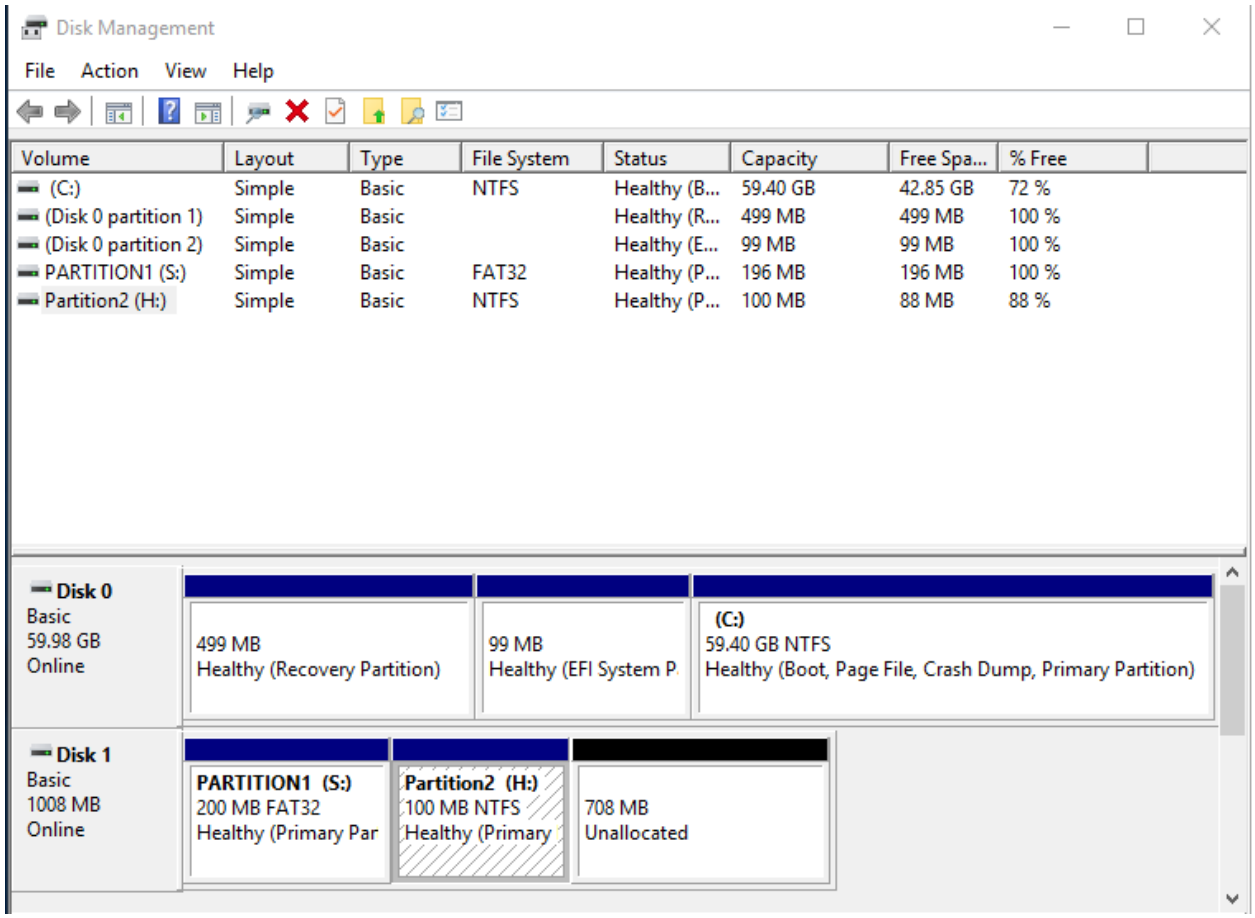
Windows:

1. Add second 1GB hard disk on Windows server

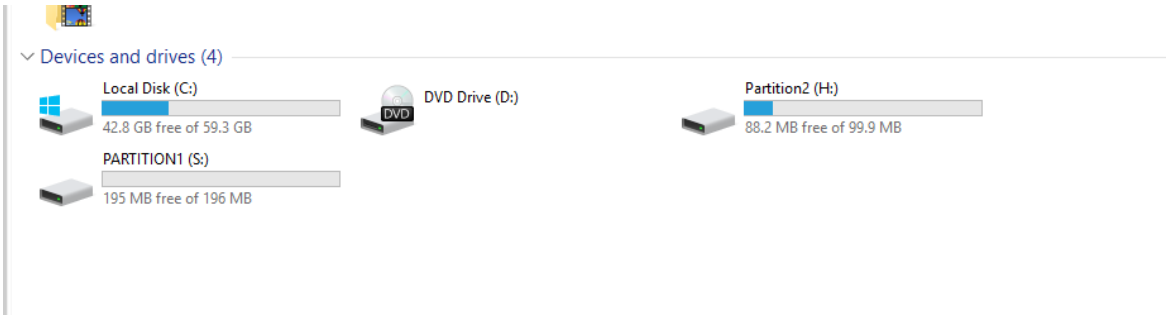


2. Create partitions using Disk Management

Note: the default setting of my VM is Disk 1 for new hard drive and I have completed this before then announcement.



3. Verify



Task 2: Set up static networking (5 marks)

Linux:

1. Create ens37 configuration file

```
[root@localhost ~]# cp /etc/sysconfig/network-scripts/ifcfg-ens33 /etc/sysconfig
/network-scripts/ifcfg-ens37
```

2. Edit ens37 configuration file

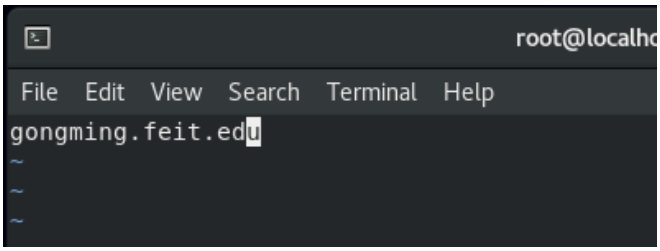
```
root@localhost:~
File  Edit  View  Search  Terminal  Help
TYPE=Ethernet
PROXY_METHOD=none
BROWSER_ONLY=no
BOOTPROTO=none
DEFROUTE=no
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
IPV6_ADDR_GEN_MODE=stable-privacy
NAME=ens37
DEVICE=ens37
ONBOOT=yes
IPADDR=1.2.3.254
NETMASK=255.255.255.0
```

3. Verify IP address and subnet mask

```
[root@localhost ~]# nmcli c reload ens37
[root@localhost ~]# nmcli c up ens37
Connection successfully activated (D-Bus active path: /org/freedesktop/Netw
nager/ActiveConnection/4)
[root@localhost ~]# ifconfig ens37
ens37: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 1.2.3.254  netmask 255.255.255.0  broadcast 1.2.3.255
        inet6 fe80::dbc6:3151:621:ed84  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:5e:27:1a  txqueuelen 1000  (Ethernet)
        RX packets 44  bytes 10880 (10.6 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 70  bytes 8369 (8.1 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

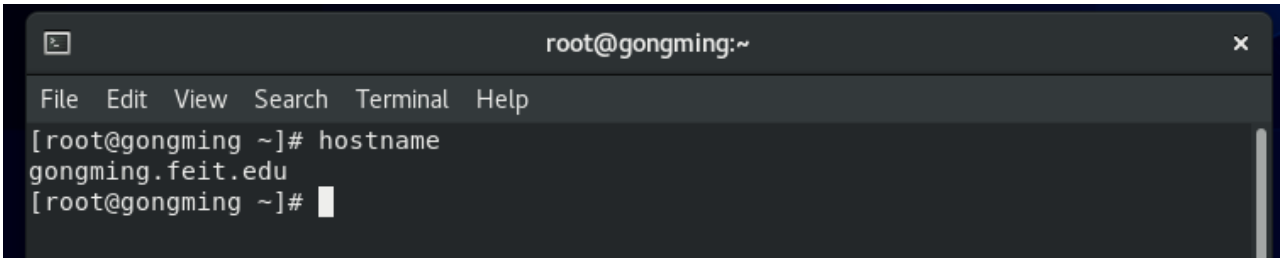
4. Change host name

Edit /etc/hostname file

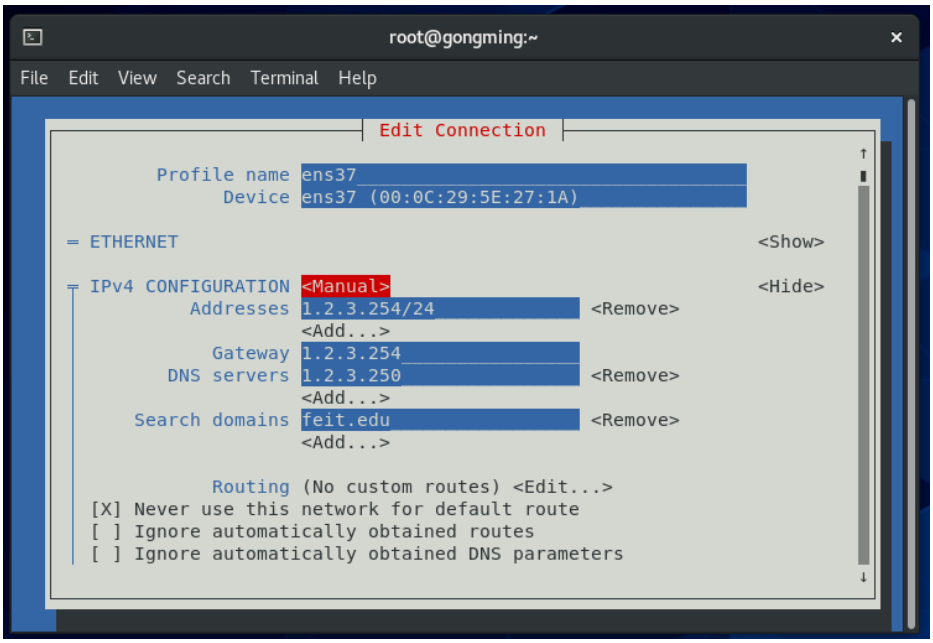


Verify:

After reboot

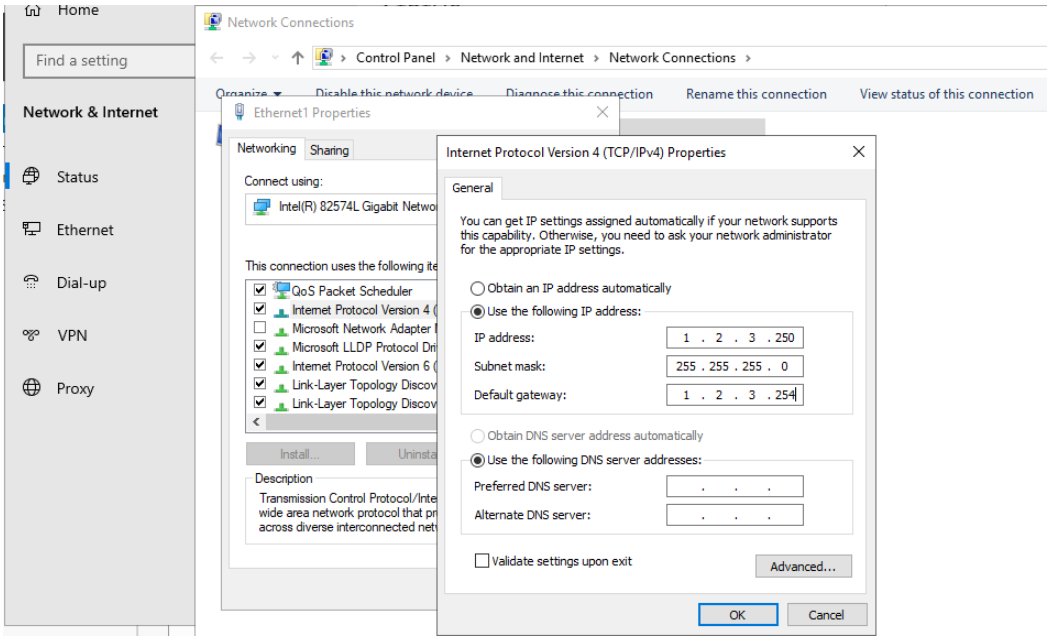


5. Set up default gateway and DNS domain using nmtui

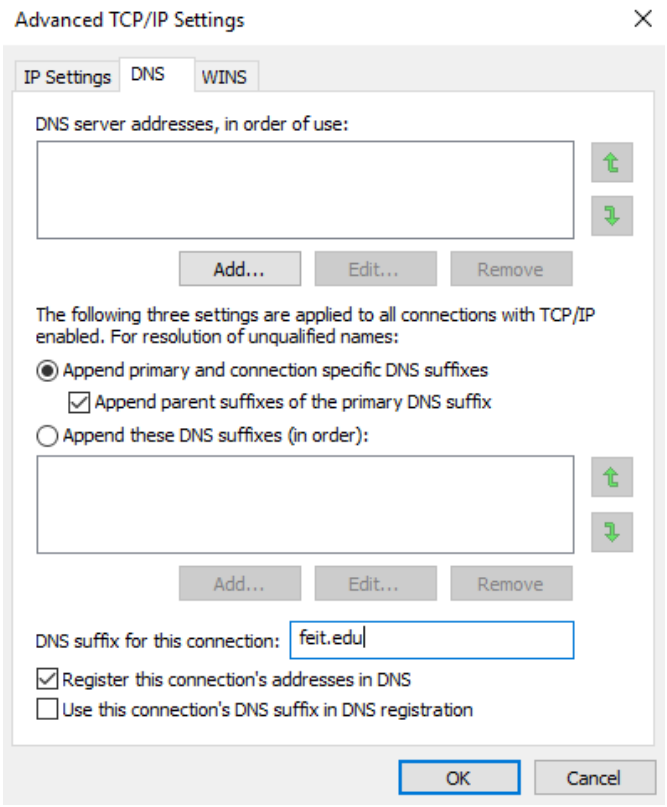


Windows:

1. Set IP address and subnet mask for Ethernet1



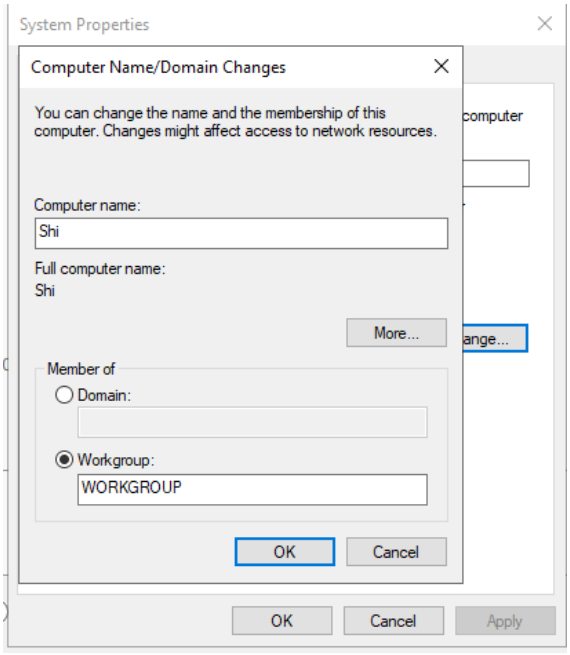
DNS suffix



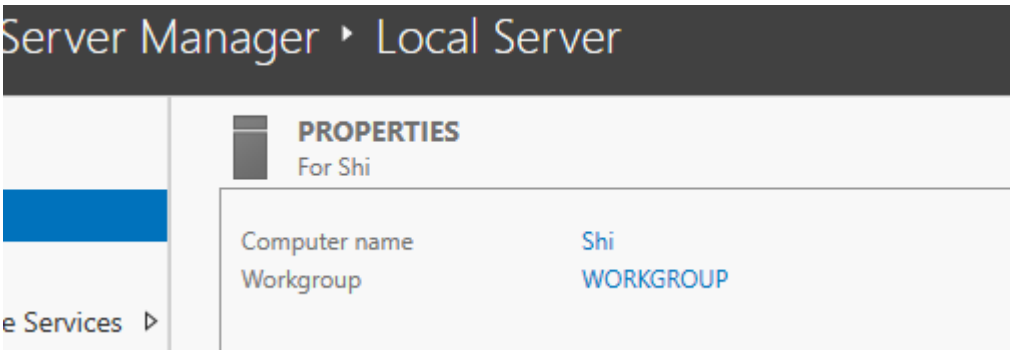
2. Verify IP setting

```
Ethernet adapter Ethernet1:

   Connection-specific DNS Suffix  . : feit.edu
   Description . . . . . . . . . . . : Intel(R) 82574L Gigabit Network Connection #2
   Physical Address. . . . . . . . . : 00-0C-29-44-F4-D3
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::a476:9064:a83d:e1d9%16(Preferred)
   IPv4 Address. . . . . . . . . . . : 1.2.3.250(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 1.2.3.254
   DHCPv6 IAID . . . . . . . . . . . : 285215785
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-28-F0-A5-A6-00-0C-29-44-F4-C9
   DNS Servers . . . . . . . . . . . : fec0:0:0:ffff::1%1
                                       fec0:0:0:ffff::2%1
                                       fec0:0:0:ffff::3%1
   NetBIOS over Tcpip. . . . . . . . : Enabled

C:\Users\Administrator>
```

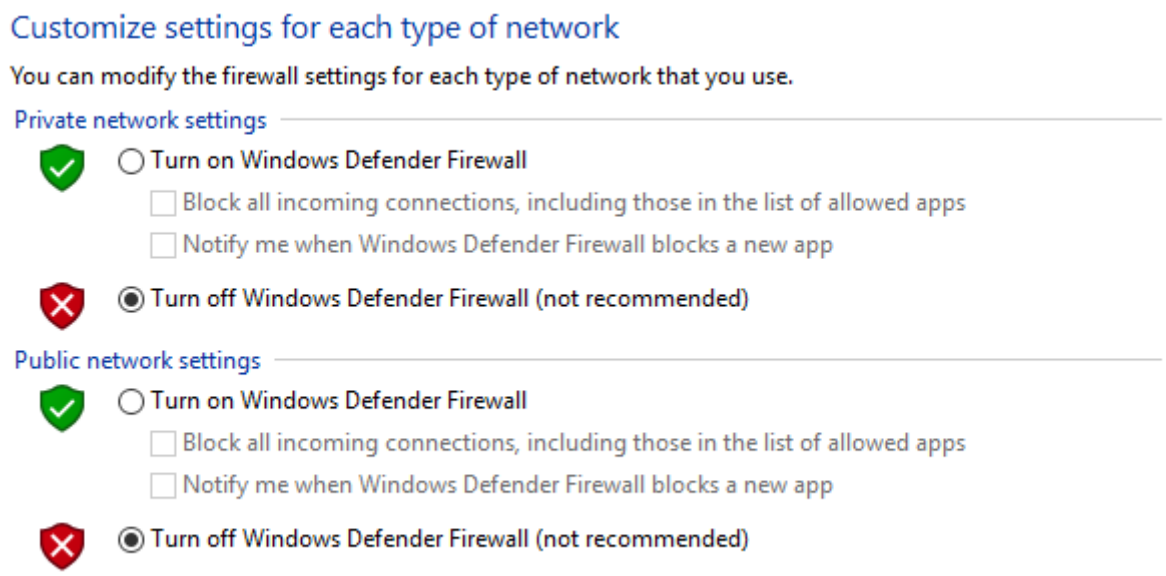
3. Change hostname



Restart and check hostname



4. Disable firewall



Testing IP connection:

1. Ping Windows from Linux

```
File  Edit  View  Search  Terminal  Help
[root@gongming ~]# ping 1.2.3.250
PING 1.2.3.250 (1.2.3.250) 56(84) bytes of data.
64 bytes from 1.2.3.250: icmp_seq=1 ttl=128 time=0.391 ms
64 bytes from 1.2.3.250: icmp_seq=2 ttl=128 time=1.10 ms
^C
--- 1.2.3.250 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 22ms
rtt min/avg/max/mdev = 0.391/0.745/1.099/0.354 ms
[root@gongming ~]#
```

2. Ping Linux from Windows

```
C:\Users\Administrator>ping 1.2.3.254

Pinging 1.2.3.254 with 32 bytes of data:
Reply from 1.2.3.254: bytes=32 time<1ms TTL=64
Reply from 1.2.3.254: bytes=32 time<1ms TTL=64
Reply from 1.2.3.254: bytes=32 time=32ms TTL=64
Reply from 1.2.3.254: bytes=32 time=1ms TTL=64

Ping statistics for 1.2.3.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 32ms, Average = 8ms
```

Task 3: Set up NFS service (5 marks)

1. Create /public directory and change its permission

```
[root@gongming ~]# mkdir /public
[root@gongming ~]# chmod 777 /public
```

```
drwxrwxrwx    2 root root    6 Oct  9 03:19 public
```

2. Edit /etc/exports configuration file

```
[root@gongming ~]# vim /etc/exports
[root@gongming ~]# cat /etc/exports
/public 1.2.3.0/24 (rw)
```

Verify:

```
[root@gongming ~]# exportfs -v
/public         1.2.3.0/24(sync,wdelay,hide,no_subtree_check,sec=sys,rw,secure,r
oot_squash,no_all_squash)
```

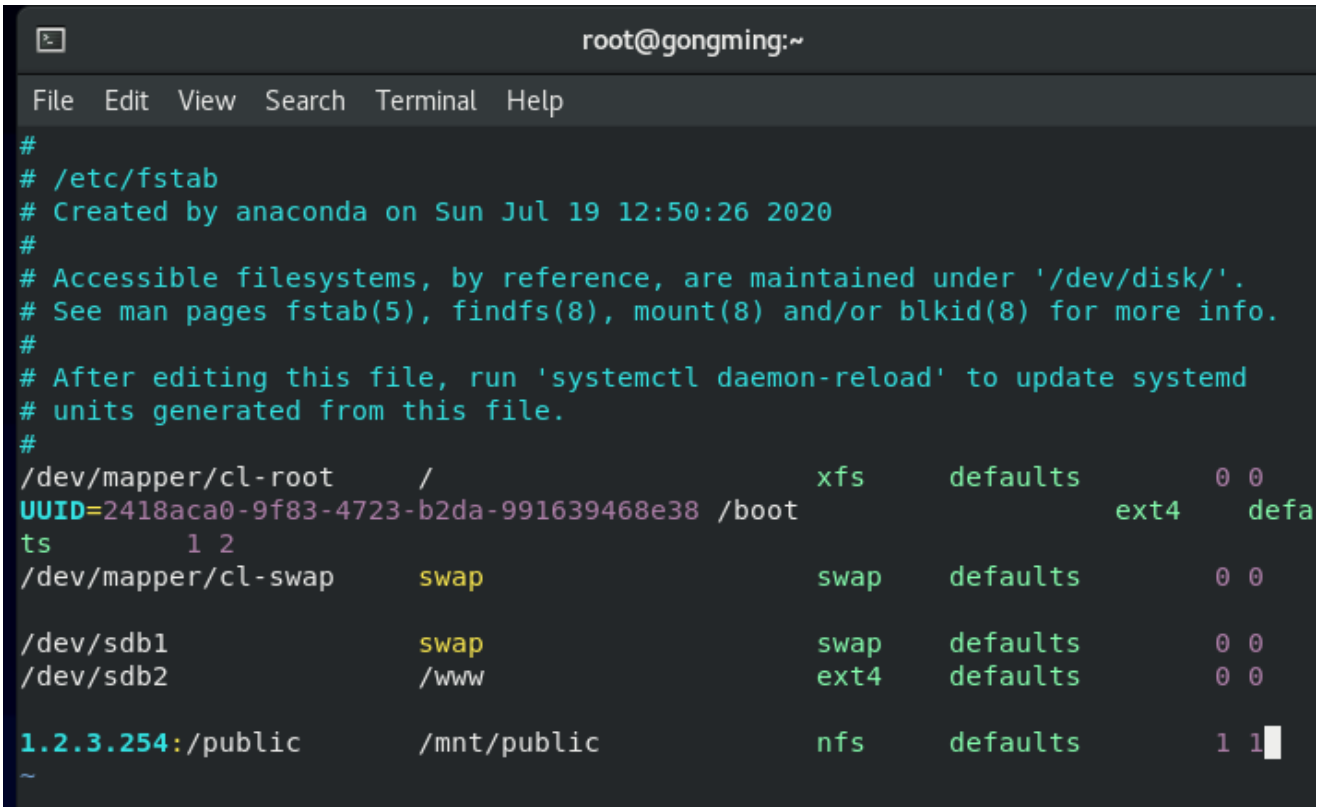
3. Start nfs-server and enable

```
[root@gongming ~]# systemctl start rpcbind
[root@gongming ~]# systemctl start nfs-server
[root@gongming ~]# systemctl enable nfs-server
Created symlink /etc/systemd/system/multi-user.target.
 /usr/lib/systemd/system/nfs-server.service.
[root@gongming ~]# systemctl enable rpcbind
```

4. Create a mount point and mount the public directory

```
[root@gongming ~]# mkdir /mnt/public
[root@gongming ~]# mount -t nfs4 1.2.3.254:/public /mnt/public/
[root@gongming ~]#
```

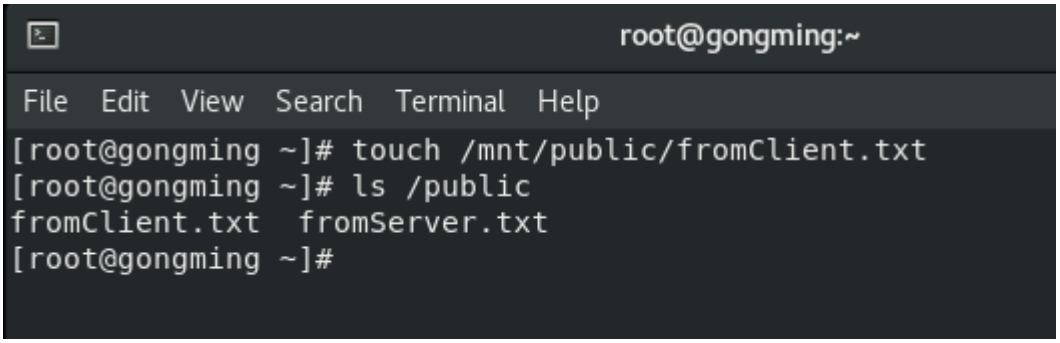
5. Make change in fstab file for persistent setting



Testing

1. Create a file in /public directory and check in client's shared directory

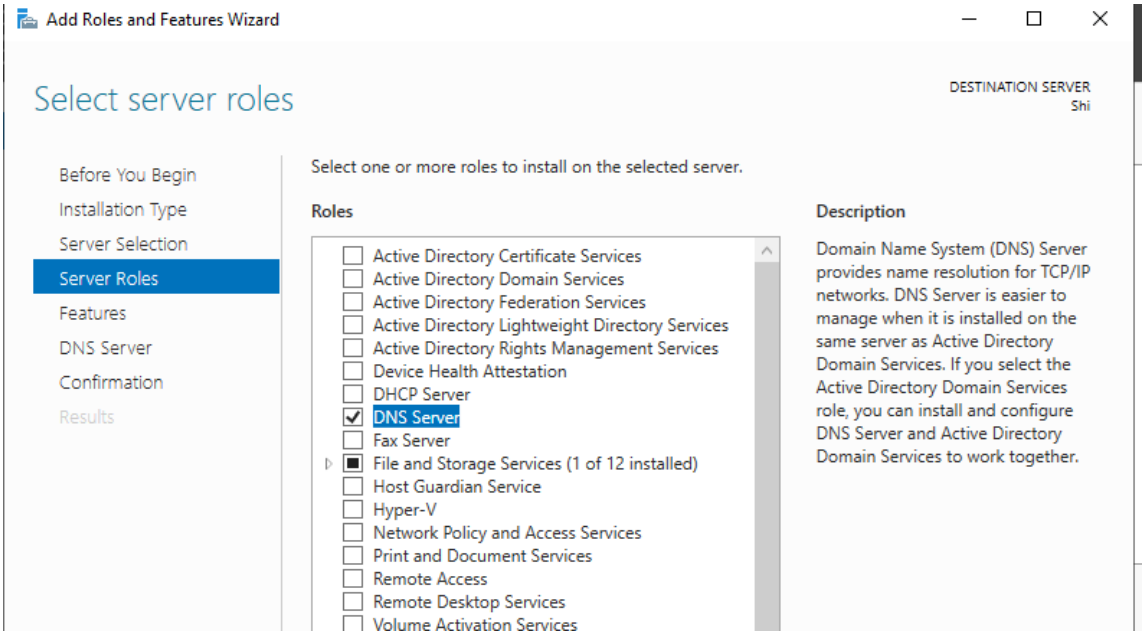
2. Test that client can create file



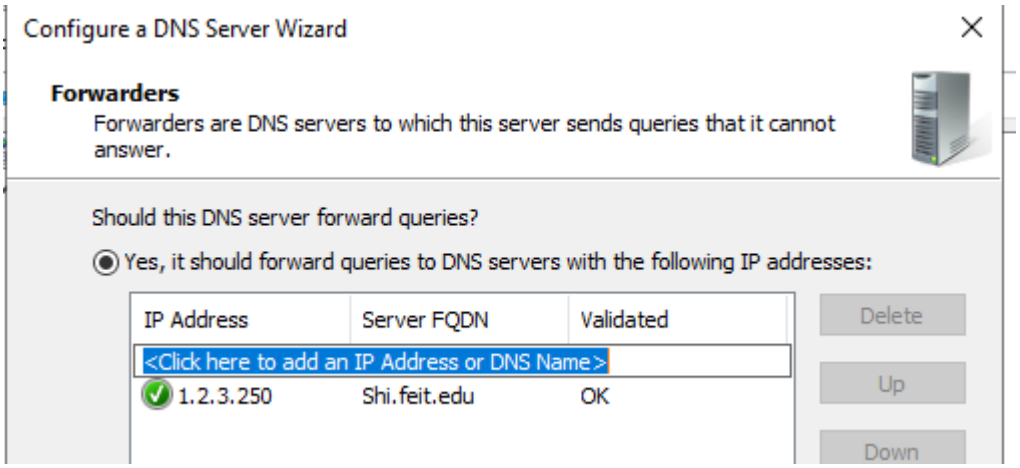
Task 4: Set up DNS server (10 marks)

Windows:

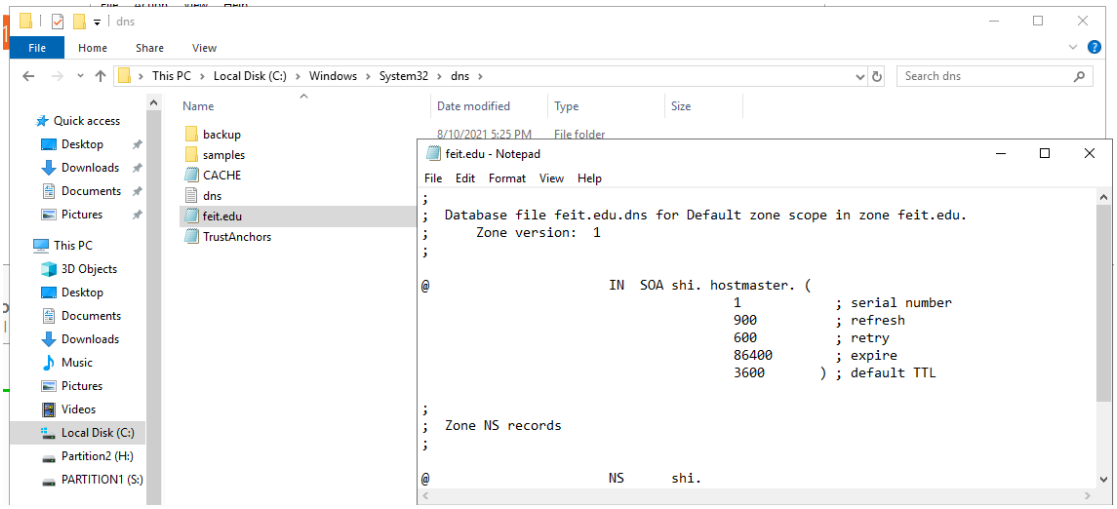
1. Install DNS role from the Server Manager



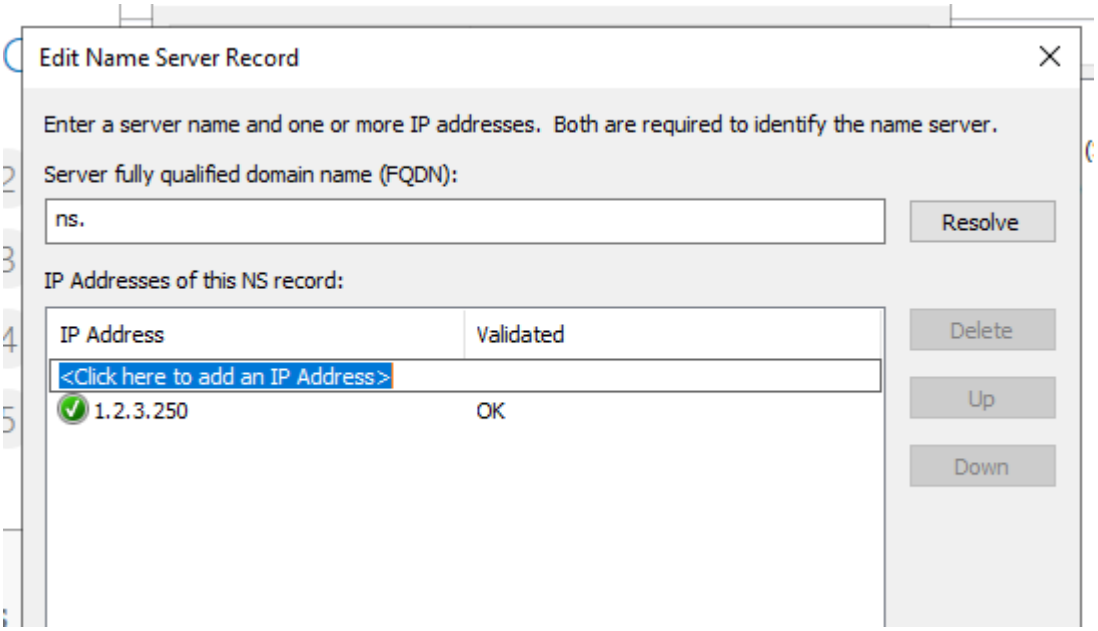
2. Set up a zone for the DNS server

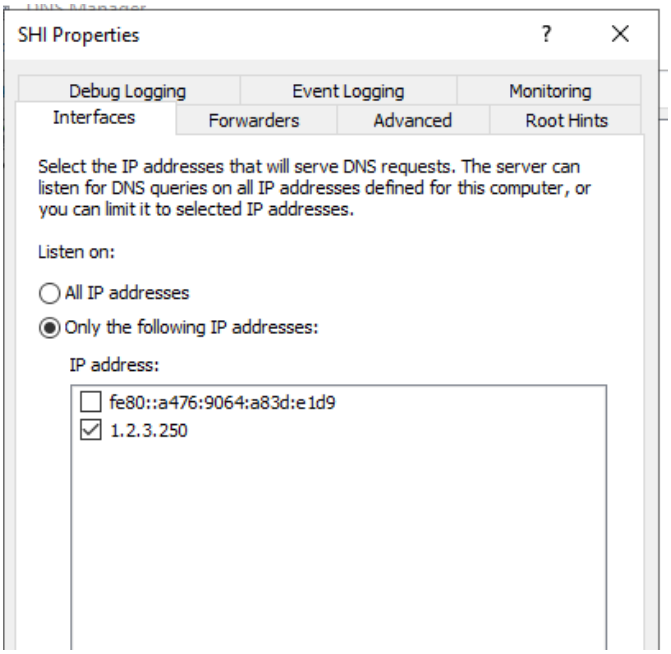


3. Check DNS file in C drive

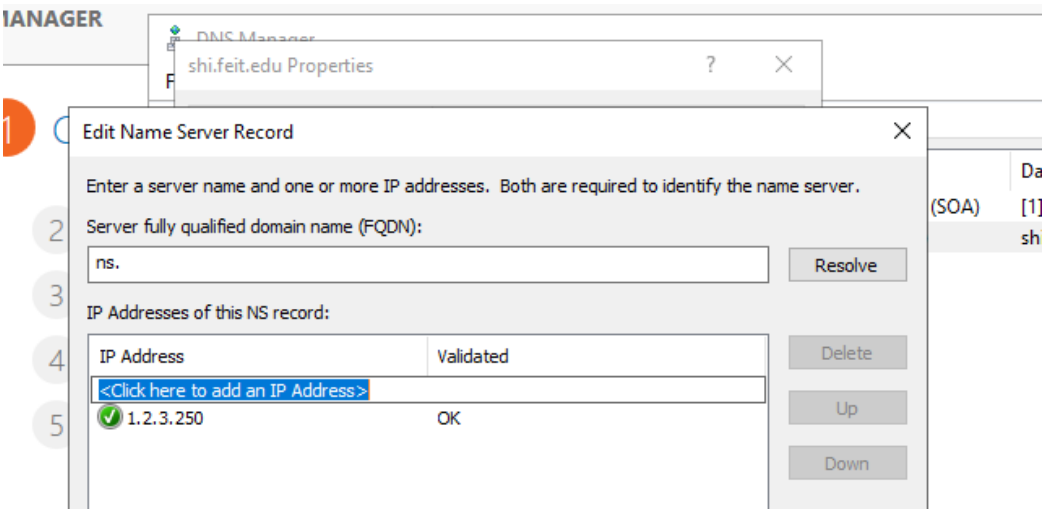


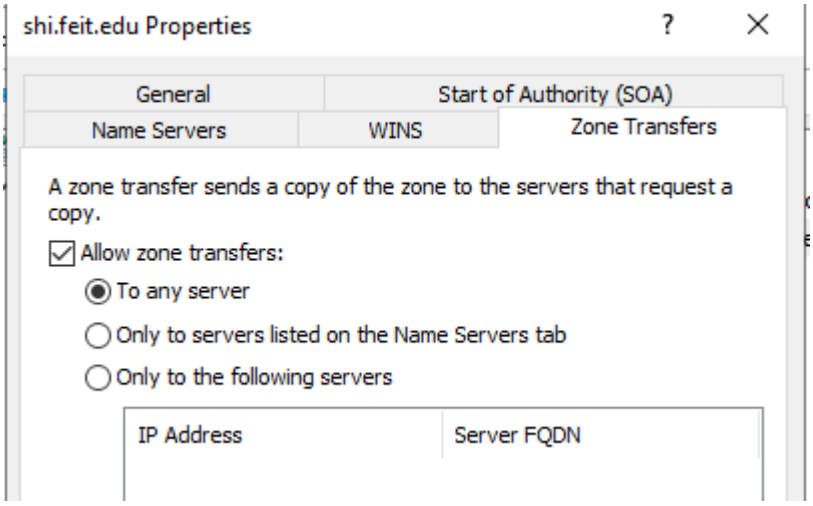
4. Set up DNS server properties



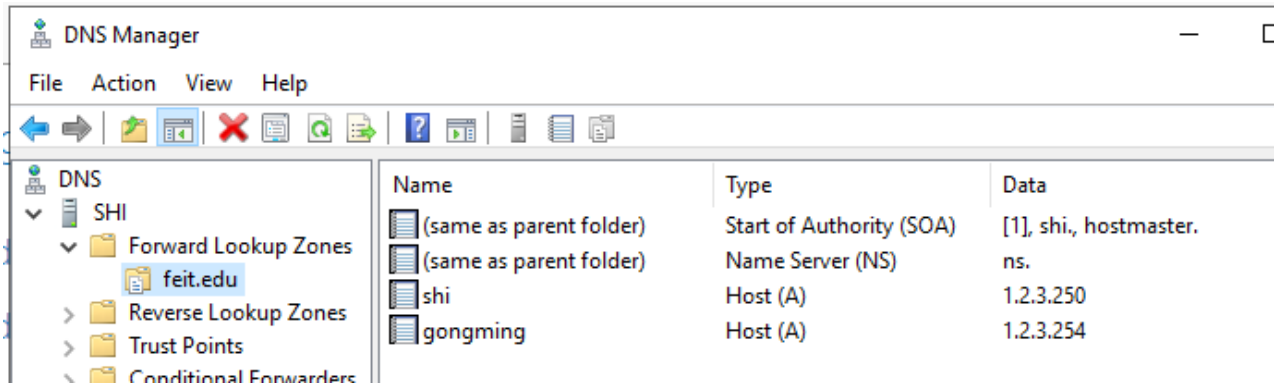


5. Change name server and zone transfer

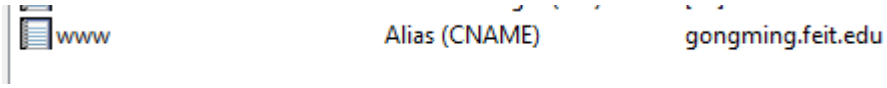




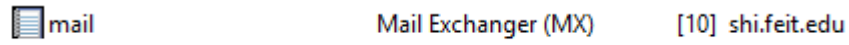
6. Add new hosts for Windows and Linux



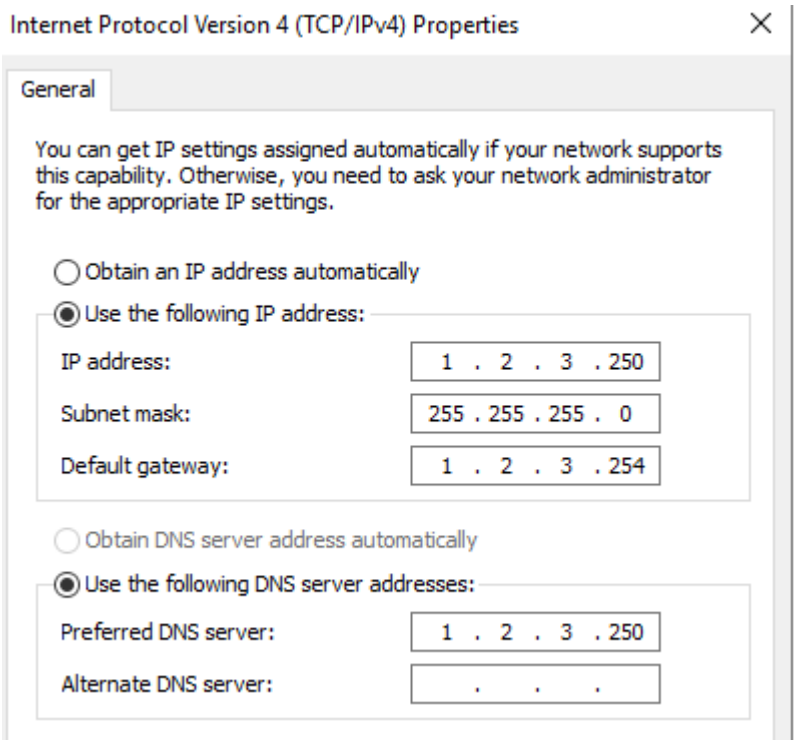
7.Create alias www for gongming.feit.edu



8. Add Exchanger



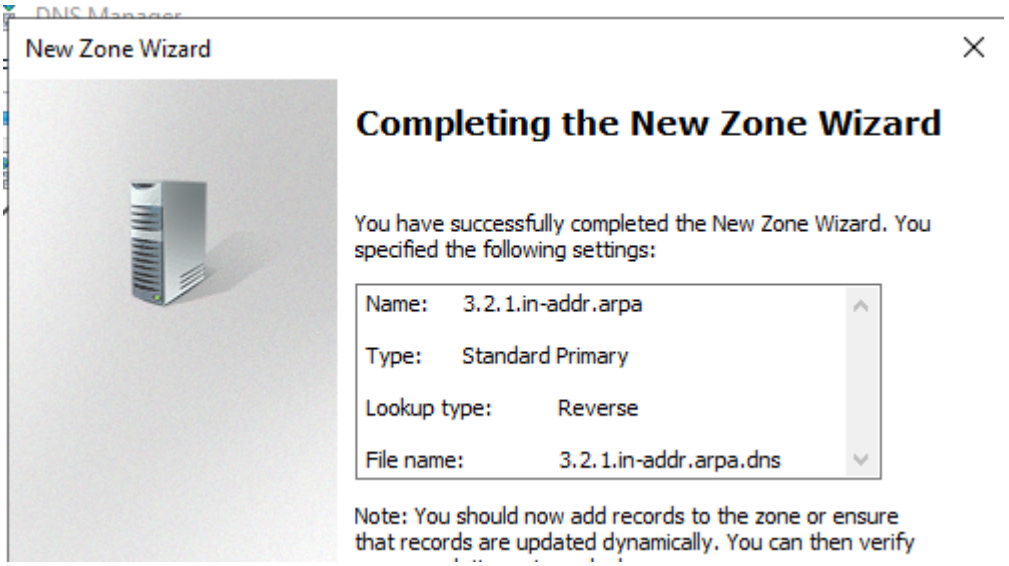
9. Set default DNS server IP address

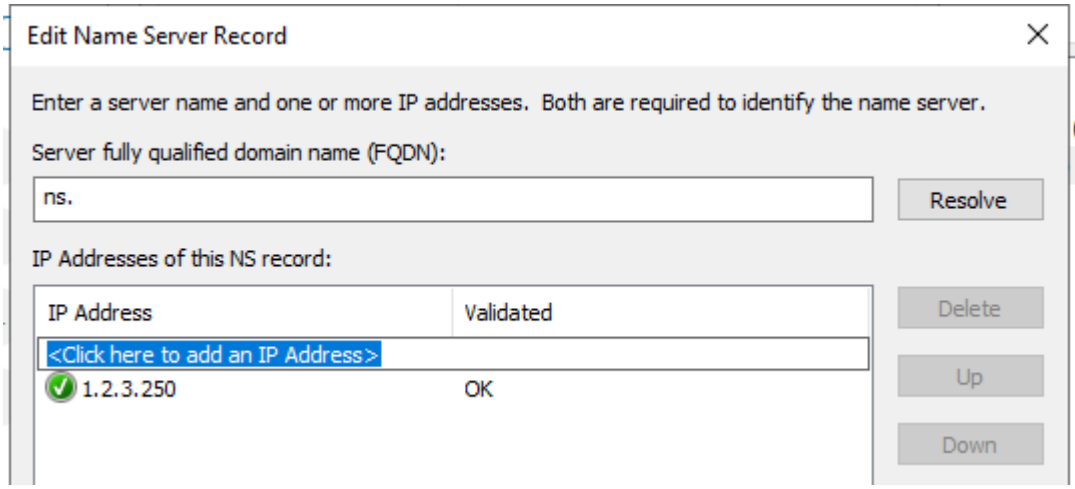


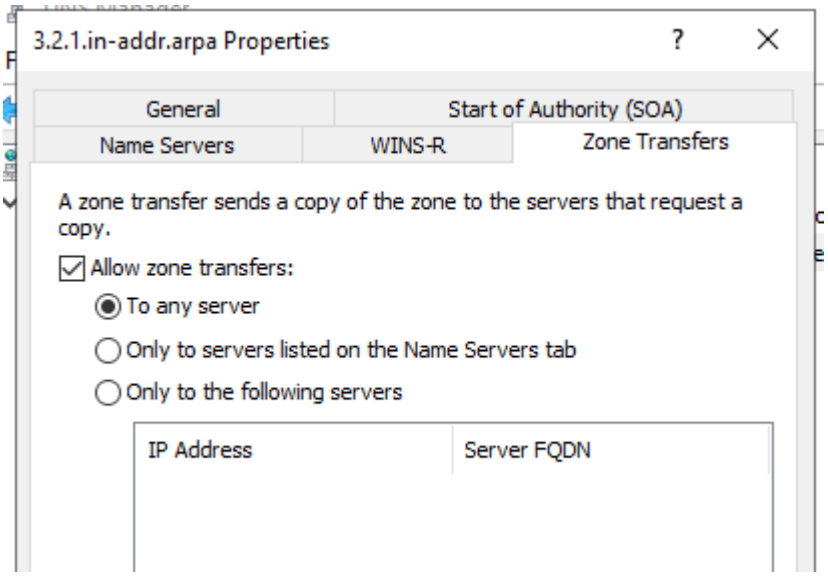
10. Testing with nslookup in cmd

```
C:\Users\Administrator>nslookup
Default Server:  shi.feit.edu
Address:  1.2.3.250

> www.feit.edu
Server:  shi.feit.edu
Address:  1.2.3.250

Name:    gongming.feit.edu
Address:  1.2.3.254
Aliases:  www.feit.edu

> mail.feit.edu
Server:  shi.feit.edu
Address:  1.2.3.250

Name:    mail.feit.edu
```

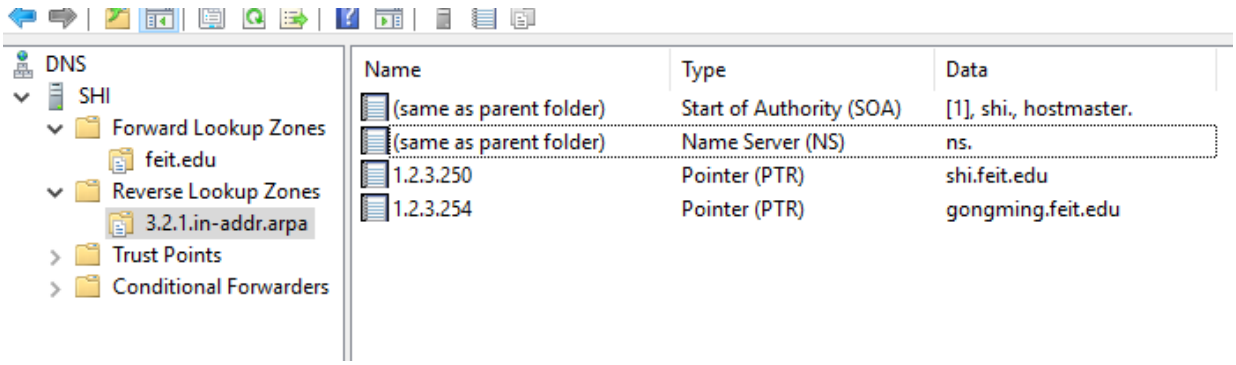
11. Add a reserve zone



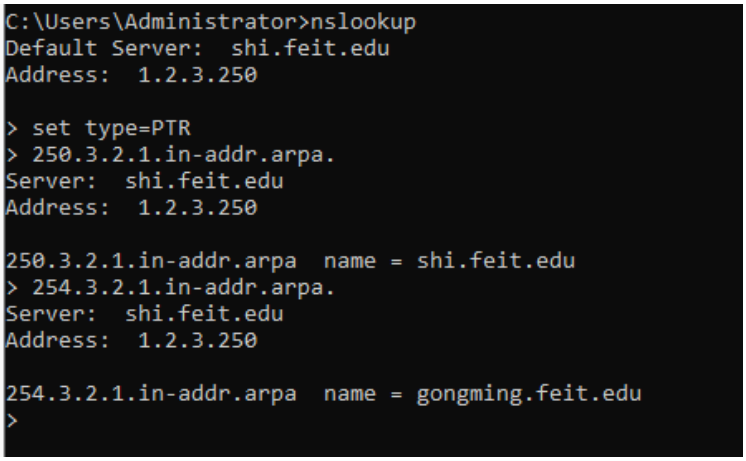




12. Add PTRs

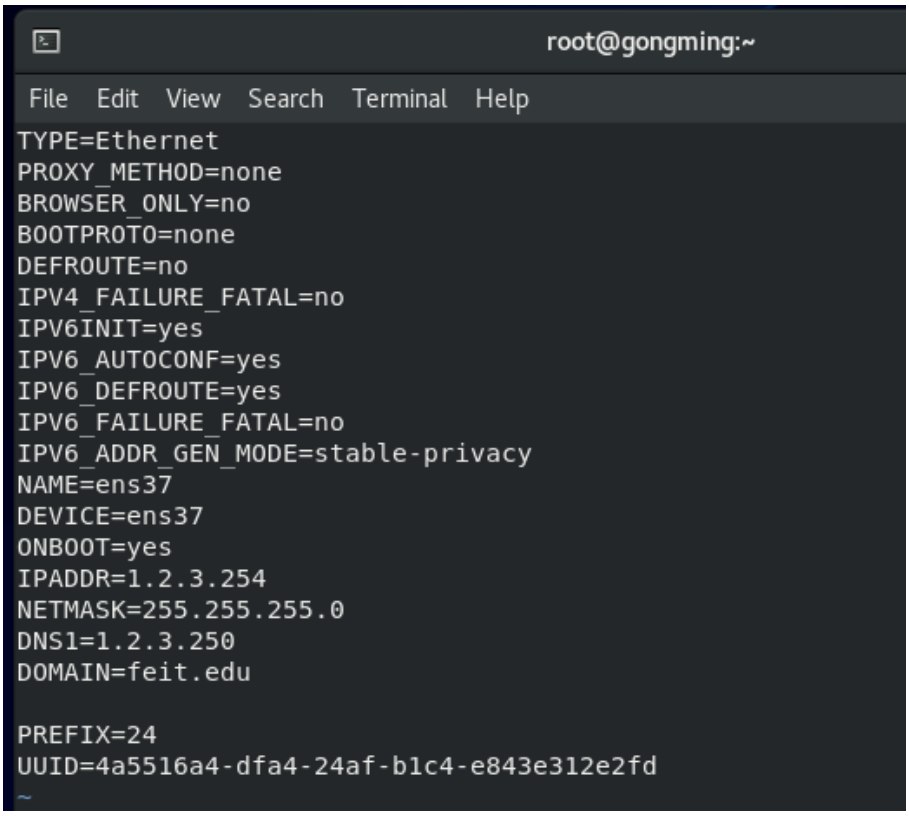


13. Verify in cmd

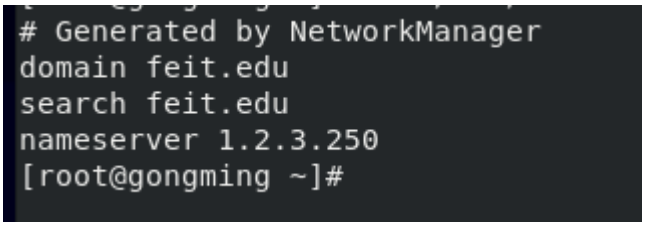


Linux:

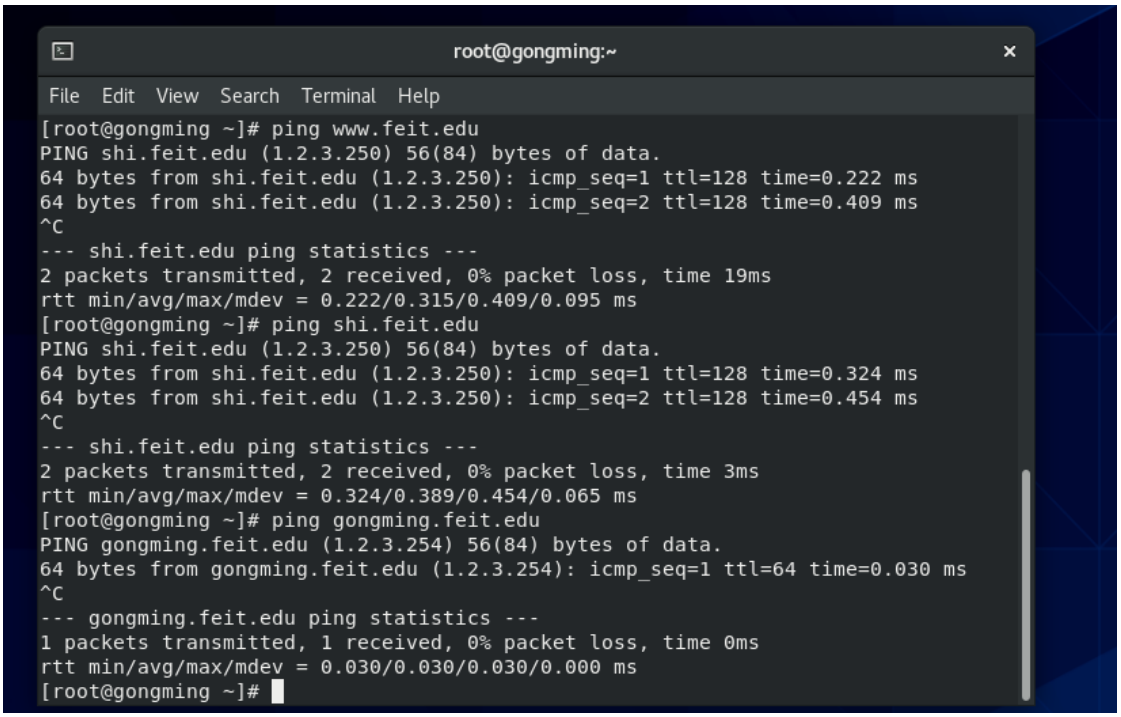
1. Change network card setting



2. Check resolv.conf file



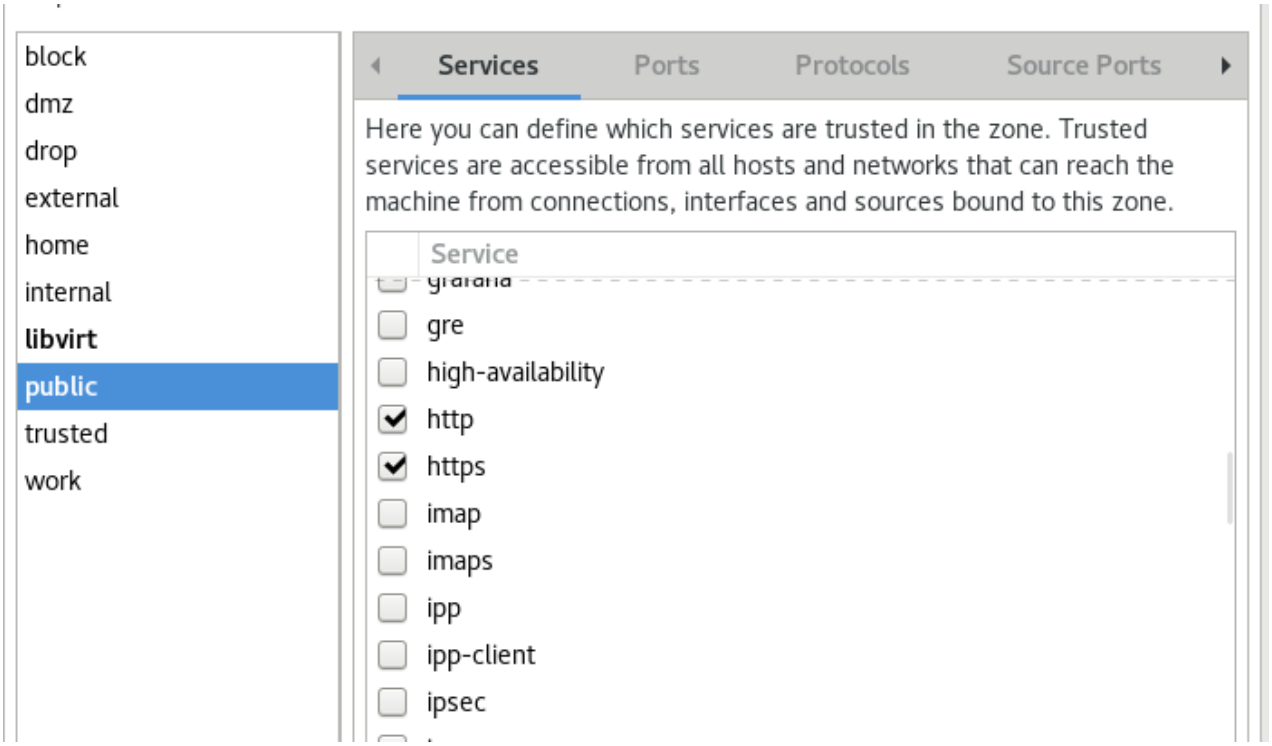
3. Testing with ping



Task 5: Set up Web server (10 marks)

Linux:

1. Configure firewall to allow http and https for both run time and permanent



2. Start and enable httpd service

```
File  Edit  View  Search  Terminal  Help
[root@gongming ~]# systemctl start httpd service
Failed to start service.service: Unit service.service not found.
[root@gongming ~]# systemctl start httpd
[root@gongming ~]# systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr
/lib/systemd/system/httpd.service.
[root@gongming ~]#
```

3. httpd configuration file

```
#
ServerName gongming.feit.edu:80
```

```
#
DocumentRoot "/var/www/html"
```

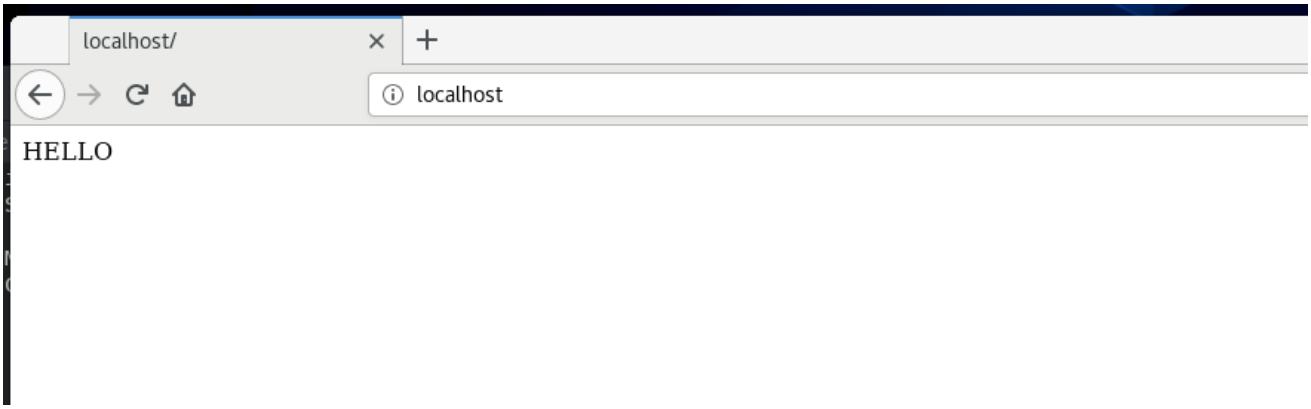
4. Touch index.html file in var/www/ directory

```
[root@gongming ~]# vim /var/www/html/index.html
[root@gongming ~]# cat /var/www/html/index.html
HELLO
```

5. restart httpd service

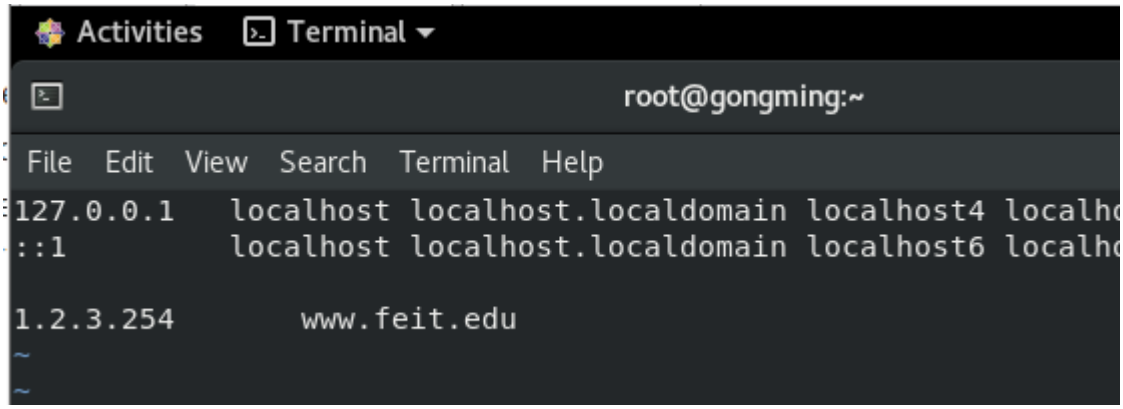
```
[root@gongming ~]# systemctl restart httpd
[root@gongming ~]#
```

6. Testing



Virtual hosting:

1. Add host in hosts file



1. Edit httpd configuration file

```
# Ensure that Apache listens on port 80
<VirtualHost *:80>
DocumentRoot "/var/www/html"
ServerName gongming.feit.edu
# Other directives here
</VirtualHost>
<VirtualHost *:80>
DocumentRoot "/www"
ServerName www.feit.edu
# Other directives here
```

2. Create index.html file for www.feit.edu

```
[root@gongming ~]# vim /www/index.html
[root@gongming ~]# cat /www/index.html
UTS
[root@gongming ~]#
```

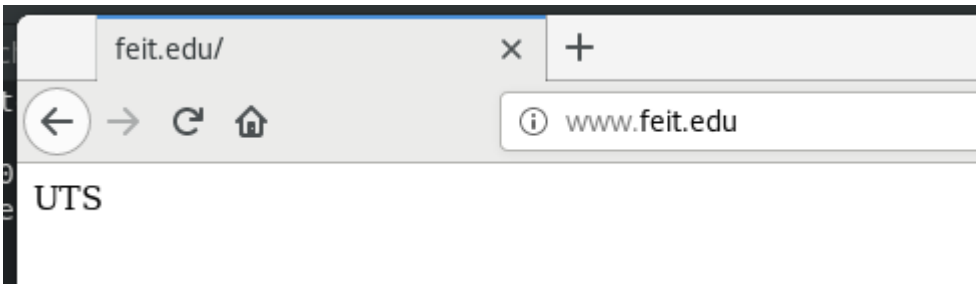
3. Restart httpd service

```
[root@gongming ~]# systemctl restart httpd
```

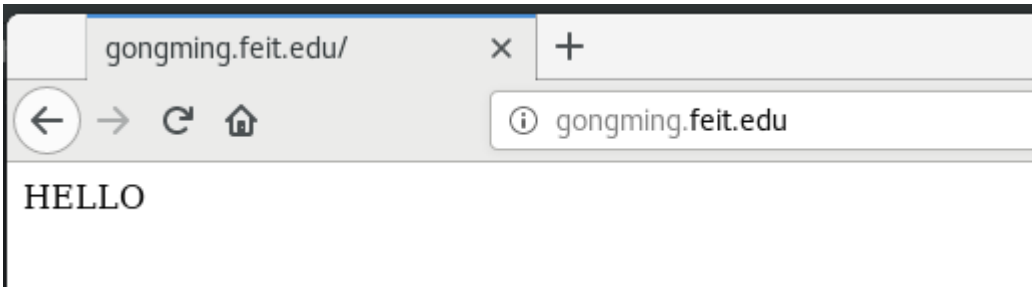
Testing

Linux

1. www.feit.edu

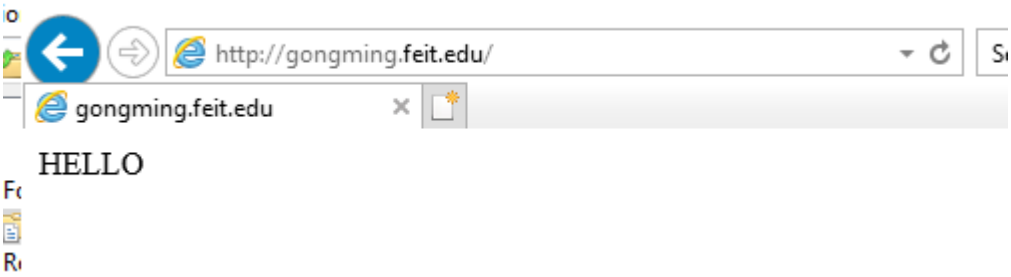


2. gongming.feit.edu



Windows

1. gongming.feit.edu



2. www.feit.edu