

UNIVERSITY OF TECHNOLOGY, SYDNEY
31338 Network Servers

Assessment 3: Project
Project – Network Design, Implementation, and Troubleshooting

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Objectives: Assignment objectives: 1, 2, 3, 4 and 5

1. Disk management and partitioning.
2. Network design.
3. Network setup and NFS services configurations.
4. DNS server setup and configurations
5. Web server setup and configurations

Tasks Weight: The assignment tasks are as follows:

Task	Description	Weight
1	Create partitions	10 Marks
2	Set up static networking	5 Marks
3	Set up NFS service	5 Marks
4	Set up DNS server	10 Marks
5	Set up Web server	10 Marks
Total	40 Marks	

Tasks Requirements:

Given the new virtual machine files, students are expected to complete the following tasks in the VMs. The report tasks should include:

- Executed commands in each task.
- Screenshot the NAMES of the files updated for each task.
- Setup and configuration details for each task.
- Testing procedures for each task.
- Troubleshooting and record keeping for each task.

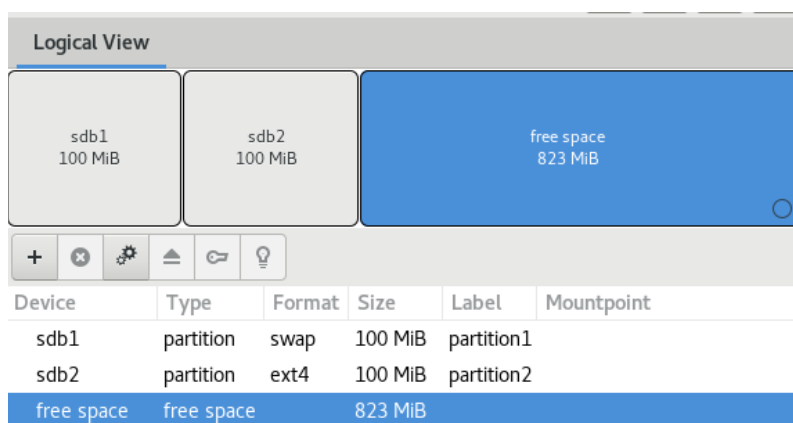
Task 1: Create partitions (10 marks)

Please add a **second** hard disk on both VMs. Create the following partitions on these drives and mount them accordingly. They both **MUST** be **Master Boot Record (MBR)** formatted.

	Linux	Windows server
Disk	/dev/sdb	disk 0 (NOT disk 1!)
Partition1	Primary swap , 100MB	primary partition 200MB, FAT32
Partition2	Primary EXT4 , 100MB	primary partition 100MB NTFS
Mount partition 1 as:	swap	S:
Mount partition 2 as	/www	H:

Make sure you demonstrate that the swap partition is **mounted** and is **visible** to the operating system.

First, before creating a partition on Linux, initially add second hard disk with 1GB size and name it as sdb.



After the disk added, then use *blivet-gui* to create 2 partitions which are partition1 as sdb1 with swap format and 100MB size and partition2 as sdb2 with ext4 format and 100MB.

```
/dev/sdb1: LABEL="partition1" UUID="299ce372-ea36-45a1-8578-5f9f6dec54b6" TYPE="swap" PARTUUID="d3ae92a2-01"
/dev/sdb2: LABEL="partition2" UUID="223b35a1-1992-4339-9b90-c0179c0fff69" BLOCK_SIZE="1024" TYPE="ext4" PARTUUID="d3ae92a2-02"
```

Then check the created disk using *blkid* command.

```
[root@localhost ~]# swapon /dev/sdb1
[root@localhost ~]# mount /dev/sdb2 /var/www
```

Continue by enabling the sdb1 as swap using *swapon* command and mount partition2 as */www*.

```
[root@localhost ~]# swapon -s
Filename                                Type    Size    Used    Priority
/dev/dm-1                               partition 2097148 206152    -2
/dev/sdb1                               partition 102396  0        -3
/dev/sdb2                               93518   14      86336   1% /var/www
```

Check whether the disk already mounted correctly.

Continue by creating disk partition on Windows.

Since the partition needs to be created on disk0, firstly the disk needs to be shrunk.

Volume	Layout	Type	File System	Status
(C:)	Simple	Basic	NTFS	Healthy (Boot, Page File, Crash Dump, F
(Disk 0 partition 1)	Simple	Basic		Healthy (Recovery Partition)
(Disk 0 partition 2)	Simple	Basic		Healthy (EFI System Partition)
PARTITION1 (S:)	Simple	Basic	FAT32	Healthy (Primary Partition)
PARTITION2 (H:)	Simple	Basic	NTFS	Healthy (Primary Partition)

Disk 0						
Basic			(C:)	PARTI	PART1	
59.98 GB	499 MB	99 M	54.34 GB NTFS	200 M	100 M	4.76 GB
Online	Healthy	Healt	Healthy (Boot, Pz	Health	Healt	Unallocated

After successfully shrunk the disk 0, continue by creating new partition on 'unallocated' disk. The partition1 is mounted as S with FAT32 filesystem, while partition2 is mounted as H with NTFS filesystem.

```
DISKPART> list volume
```

Volume ###	Ltr	Label	Fs	Type	Size	Status	Info
Volume 0	D			DVD-ROM	0 B	No Media	
Volume 1	C		NTFS	Partition	54 GB	Healthy	Boot
Volume 2	S	PARTITION1	FAT32	Partition	200 MB	Healthy	
Volume 3	H	PARTITION2	NTFS	Partition	100 MB	Healthy	
Volume 4			FAT32	Partition	99 MB	Healthy	System

Check the created disk volume by running *diskpart* on cmd and list the volume.

Task 2: Set up static networking (5 marks)

firstname.feit.edu

feit.edu

surname.feit.edu



Set up static networking for your Linux Centos and Windows server servers given the following parameters:

	Our network	Linux server	Windows server
Network:	1.2.3.0/24	.254	.250
Ethernet:		ens37	Ethernet1
DNS Domain:	feit.edu	feit.edu	feit.edu
Hostname		firstname	surname
Gateway:			

Replace “**surname**” and “**firstname**” in the table with your real name. For example, if your name is “Peter Griffin”, then the hostname for Linux server is “peter” (lower case) and the hostname for Windows Server is “griffin” (lower case). **This rule applies for all the following tasks.**

Choose the appropriate gateway and network parameters so they can **ping** each other and make sure the configuration is permanent. You **MUST** test your configuration.

To set up static networking on Linux, first copy the past configuration used on Lab and paste it on */etc/sysconfig/network-scripts/ifcfg-ens37* for ethernet 37.

```
TYPE=Ethernet
PROXY_METHOD=none
BROWSER_ONLY=no
BOOTPROTO=none
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
IPV6_ADDR_GEN_MODE=stable-privacy
NAME=ens37
UUID=a8b75431-25ce-4970-8065-cec287043c2d
DEVICE=ens37
ONBOOT=yes
IPADDR=1.2.3.254
NETMASK=255.255.255.0
#DNS1=10.0.2.3
DOMAIN=feit.edu
PREFIX=24
DEFROUTE=yes
#IPV4_DNS_PRIORITY=5
```

Change the IP address to 1.2.3.254/24 and the domain as feit.edu, then keep the rest.

```
[root@agapitus ~]# hostname
agapitus
[root@agapitus ~]#
```

Change the Linux hostname to agapitus (firstname).

```
[root@agapitus ~]# nmcli con reload ens37
[root@agapitus ~]# nmcli con up ens37
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/9)
```

Restart the ens37 connection and set it up.

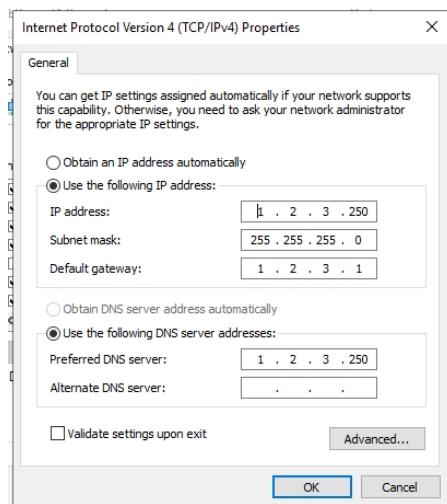
```
[root@agapitus ~]# ifconfig ens37
ens37: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 1.2.3.254 netmask 255.255.255.0 broadcast 1.2.3.255
    inet6 fe80::5aa4:4d2:44c0:c8e0 prefixlen 64 scopeid 0x20<link>
    ether 00:0c:29:9b:5c:99 txqueuelen 1000 (Ethernet)
    RX packets 280 bytes 23806 (23.2 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 58 bytes 6056 (5.9 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

Check the changes on ens37 network and confirm that it changes correctly.

```
[root@agapitus ~]# route add default gw 1.2.3.1 ens37
[root@agapitus ~]# route -n
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
0.0.0.0 1.2.3.1 0.0.0.0 UG 0 0 0 ens37
0.0.0.0 192.168.209.2 0.0.0.0 UG 100 0 0 ens33
1.2.3.0 0.0.0.0 255.255.255.0 U 101 0 0 ens37
```

Then add the default gateway for Linux ethernet37 as 1.2.3.1

Continue by changing the configuration on Windows Server.



Go to ethernet1 properties and change the IP address to 1.2.3.250/24 with default gateway 1.2.3.1.

DNS suffix for this connection:

☒ Register this connection's addresses in DNS

Go to advance settings and set the DNS domain to feit.edu.

Computer name	soputeranto
Workgroup	WORKGROUP

Continue by changing the windows hostname from the server manager.

```
C:\Users\Administrator>hostname  
soputeranto
```

Check the changed hostname on cmd.

```
Ethernet adapter Ethernet1:  
  
    Connection-specific DNS Suffix  . : feit.edu  
    Link-local IPv6 Address . . . . . : fe80::95cd:dd8:942:5387%16  
    IPv4 Address. . . . . : 1.2.3.250  
    Subnet Mask . . . . . : 255.255.255.0  
    Default Gateway . . . . . : 1.2.3.1
```

Also check whether the ethernet1 configuration is changed correctly.

```
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<1ms 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 = 0ms, Average = 0ms
```

Try to ping Linux Server and confirm that the ping is succeed.

```
[root@agapitus ~]# ping 1.2.3.250 -c 3  
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=2.40 ms  
64 bytes from 1.2.3.250: icmp_seq=2 ttl=128 time=0.440 ms  
64 bytes from 1.2.3.250: icmp_seq=3 ttl=128 time=0.835 ms  
  
--- 1.2.3.250 ping statistics ---  
3 packets transmitted, 3 received, 0% packet loss, time 2041ms  
rtt min/avg/max/mdev = 0.440/1.224/2.397/0.844 ms
```

Try to ping Windows Server and confirm that the ping is succeed.

Task 3: Set up NFS service (5 marks)

Configure your Linux server as an NFS server. Create a new directory called /public, and export this directory to all machines on your local subnet. The directory should be both readable and writable to NFS clients. Ensure that users can create new files in the NFS-mounted directory.

Make sure the configuration is permanent.

To set up NFS services, first use the Linux server to set up the configuration.

```
DEVICE=ens33
ONBOOT=yes
DNS1=10.0.2.2
#DOMAIN=netserv.edu.au
#PEERDNS=no
```

Check whether ethernet 33 is already set to static by turning of the DNS and domain.

```
IPADDR=1.2.3.254
NETMASK=255.255.255.0
#DNS1=10.0.2.3
DOMAIN=feit.edu
```

Re-check the ethernet37 connection.

Then create a second Linux VM as a NFS client.

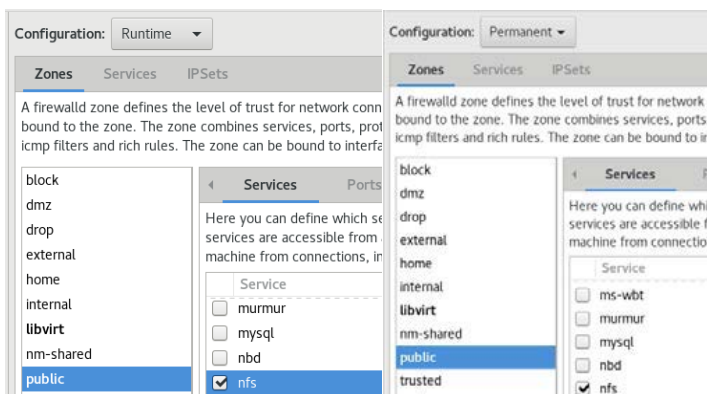
```
DEVICE=ens37
ONBOOT=yes
IPADDR=1.2.3.253
NETMASK=255.255.255.0
```

Set the ens37 device with IP address 1.2.3.253/24.

```
[root@localhost ~]# ping 1.2.3.254
PING 1.2.3.254 (1.2.3.254) 56(84) bytes of data:
64 bytes from 1.2.3.254: icmp_seq=1 ttl=64 time=0.952 ms
64 bytes from 1.2.3.254: icmp_seq=2 ttl=64 time=1.96 ms
64 bytes from 1.2.3.254: icmp_seq=3 ttl=64 time=1.19 ms
^C
--- 1.2.3.254 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 0.952/1.366/1.959/0.431 ms
[root@localhost ~]#

[ root@agapitus named]# ping 1.2.3.253
PING 1.2.3.253 (1.2.3.253) 56(84) bytes of data:
64 bytes from 1.2.3.253: icmp_seq=1 ttl=64 time=1.98 ms
64 bytes from 1.2.3.253: icmp_seq=2 ttl=64 time=1.55 ms
64 bytes from 1.2.3.253: icmp_seq=3 ttl=64 time=3.28 ms
```

Then check the connectivity between both Linux server and client.



Back to server VM and turn on the *nfs* settings on the firewall (allow the *nfs* service permanently).

```
[root@agapitus named]# rpm -q nfs-utils
nfs-utils-2.3.3-57.el8.x86_64
[root@agapitus named]# rpm -q rpcbind
rpcbind-1.2.5-10.el8.x86_64
[root@agapitus named]# rpm -q nfs4-acl-tools
nfs4-acl-tools-0.3.5-3.el8.x86_64
```

Install and check the required *nfs* packages.

```
[root@agapitus ~]# systemctl start rpcbind
[root@agapitus ~]# systemctl start nfs-server
[root@agapitus ~]# systemctl enable rpcbind
[root@agapitus ~]# systemctl enable nfs-server
```

Start and enable both *nfs* services and *rpcbind*.

```
[root@agapitus ~]# mkdir /share/public
```

Start creating the new directory (to be mounted) on server VM as */share/public*.

```
/share/public 1.2.3.254/24(rw)
```

Still in *NFS* server, set the filesystem to read-write by editing */etc/exports*.

```
[root@agapitus named]# chmod 777 /share/public/
[root@agapitus named]# exportfs -v
/share/public 1.2.3.254/24(sync,wdelay,hide,no_subtree_check,sec=sys,rw,secure,root_squash,no_all_squash)
```

Change the created directory permissions (777) and check configuration using *exportfs -v* command.

Then, go to client VM.

```
[root@localhost ~]# mkdir /mnt/assignment3
[root@localhost ~]# mount -t nfs4 1.2.3.254:/share/public /mnt/assignment3
```

Create new directory as a mount point, then mount the remote *NFS* exported directory */share/public* from server VM onto the new directory.

```
1.2.3.254:/share/public /mnt/assignment3 nfs defaults 1 1
```

Back to server VM and add configuration to */etc/fstab* to set the mount automatically during startup.

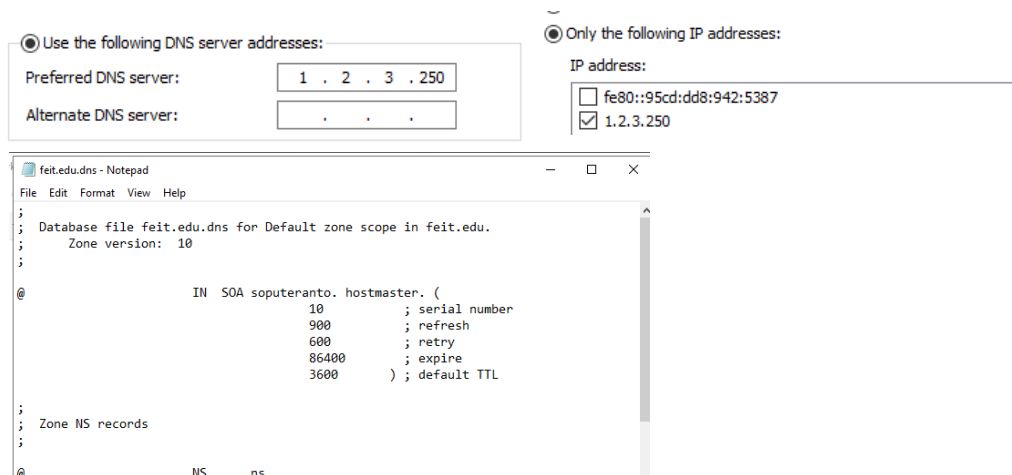
```
[root@localhost ~]# touch /mnt/assignment3/anu
[root@localhost ~]# ls -ls /mnt/assignment3/
total 0
0 -rw-r--r-- 1 root root 0 Oct 31 16:33 anu
```

Try rebooting the VM and check the client VM by creating new file on the */mnt/assignment3* directory.

Task 4: Set up DNS server (10 marks)

- 1) Configure your Windows server (surname) as the master DNS server for the domain feit.edu
- 2) Create host entries for the firstname and surname servers in this domain as mentioned in question 1.
- 3) Create an entry for the main name server, ns which will reside on the surname server.
- 4) Create an alias for www.feit.edu which points to firstname.feit.edu.
- 5) Create a mail server entry such that all email addressed to @feit.edu is forwarded to surname.feit.edu.
- 6) Configure both Linux and Windows servers to use surname as their main DNS resolver and feit.edu as the default search domain.
- 7) Create a reverse lookup zone for our subnet.

- 1) Configure your Windows server (**surname**) as the master DNS server for the domain feit.edu



Creating new DNS zone on Windows Server through the server manager.

- 2) Create host entries for the **firstname** and **surname** servers in this domain as mentioned in question 1.

Name	Type	Data
(same as parent folder)	Start of Authority (SOA)	[1], soputeranto., hostmas...
(same as parent folder)	Name Server (NS)	ns.
agapitus	Host (A)	1.2.3.250
soputeranto	Host (A)	1.2.3.250

Then, create two host entries for the feit.edu DNS (by right clicking).

- 3) Create an entry for the main name server, **ns** which will reside on the **surname** server.

Name servers:

Server Fully Qualified Domain Name (FQDN)	IP Address
ns.	[1.2.3.250]

☒ Allow zone transfers:

☒ To any server

☐ Only to servers listed on the Name Servers tab

☐ Only to the following servers

Create entry for main server, **ns**.

- 4) Create an alias for www.feit.edu which points to **firstname**.feit.edu.

www Properties

Alias (CNAME)

Alias name (uses parent domain if left blank):

www

Fully qualified domain name (FQDN):

www.feit.edu

Fully qualified domain name (FQDN) for target host:

agapitus.feit.edu

Browse...

www Alias (CNAME agapitus.feit.edu

Create an alias for agapitus.feit.edu.

- 5) Create a mail server entry such that all email addressed to @feit.edu is forwarded to **surname**.feit.edu.

Mail Exchanger (MX)

Host or child domain:

mail

By default, DNS uses the parent domain name when creating a Mail Exchange record. You can specify a host or child name, but in most deployments, the above field is left blank.

Fully qualified domain name (FQDN):

mail.feit.edu

Fully qualified domain name (FQDN) of mail server:

soputeranto.feit.edu

Browse...

Mail server priority:

10

mail Mail Exchanger (MX) [10] soputeranto.feit.edu

Create a mail server entry addressed to Soputeranto.feit.edu.

- 6) Configure **both** Linux and Windows servers to use **surname** as their main DNS resolver and **feit.edu** as the default search domain.

```
C:\Users\Administrator>nslookup
Default Server: UnKnown
Address: 1.2.3.250

> server 1.2.3.250
Default Server: [1.2.3.250]
Address: 1.2.3.250

> set type=A
> set domain=feit.edu
>
```

Running the *nslookup* command.

```
zone "soputeranto.feit.edu" IN {
    type master;
    file "soputeranto.feit.edu.zone";
};
```

Adding the configuration on */etc/named.conf* file.

```
[root@agapitus named]# cp named.localhost soputeranto.feit.edu.zone
```

Copy *named.localhost* and fix the configuration.

```
$TTL 1D
@      IN      SOA      ns.feit.edu. root.feit.edu. (
                                0      ; serial
                                1D     ; refresh
                                1H     ; retry
                                1W     ; expire
                                3H )   ; minimum

      IN      NS       ns.feit.edu.
      IN      MX       10      mail
      IN      A        1.2.3.254
site  IN      A        1.2.3.254
www   IN      CNAME    site
ftp   IN      CNAME    site
mail  IN      A        1.2.3.254
ns    IN      A        1.2.3.254
```

Add the record on the file.

```
[root@agapitus named]# named-checkzone soputeranto.feit.edu /var/named/soputeran
to.feit.edu.zone
zone soputeranto.feit.edu/IN: loaded serial 0
OK
```

Check the zone file configuration.

```
[root@agapitus named]# systemctl start named
[root@agapitus named]# systemctl enable named
```

Start and enable the named service.

```

agapitus named[5805]: zone soperanto.feit.edu/IN: loaded serial 0
agapitus named[5805]: zone localhost.localdomain/IN: loaded serial 0
agapitus named[5805]: zone localhost/IN: loaded serial 0
agapitus named[5805]: all zones loaded
agapitus named[5805]: running
agapitus named[5805]: zone it.netserver.edu.au/IN: sending notifies (serial

```

Check the the */var/log/messages* file.

```

forwarders {
    1.2.3.250;
};

```

Update the */etc/named.conf* file and add the forwarders.

```

[root@agapitus named]# dig @localhost www.uts.edu.au

; <<>> DiG 9.11.36-RedHat-9.11.36-5.el8 <<>> @localhost www.uts.edu.au
; (2 servers found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 64326
;; flags: qr rd ra; QUERY: 1, ANSWER: 4, AUTHORITY: 0, ADDITIONAL: 1

```

Check the connectivity by digging localhost.

Create a reverse lookup zone for the subnet.

To identify the reverse lookup zone, type the network ID or the name of the zone.

☒ Network ID:

Name servers:

Server Fully Qualified Domain Name (FQDN)	IP Address
ns.	[1.2.3.250]

Then create the pointer record.

Pointer (PTR)

Host IP Address:

Fully qualified domain name (FQDN):

Host name:

Test using *nslookup* command.

```

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

> server 1.2.3.250
Default Server:  soperanto.feit.edu
Address:  1.2.3.250

> set type=PTR
> 250.3.2.1.in-addr.arpa.
Server:  soperanto.feit.edu
Address:  1.2.3.250

250.3.2.1.in-addr.arpa  name = soperanto.feit.edu
>

```

Try digging again.

```
[root@agapitus named]# dig @1.2.3.250 -x 1.2.3.250

; <<>> DiG 9.11.36-RedHat-9.11.36-5.el8 <<>> @1.2.3.250 -x 1.2.3.250
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 24279
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
```

Add entry for "*2. 0. 10. in-addr. arpa*" zone.

```
zone "3.2.1.in-addr.arpa" {
    type master;
    file "3.2.1.in-addr.arpa.zone";
};

250      IN      PTR      soperanto.feit.edu.
254      IN      PTR      soperanto.feit.edu.
```

Check configuration using the *named* command

```
[root@agapitus named]# named-checkzone 3.2.1.in-addr.arpa.zone /var/named/3.2.1.in-addr.arpa.zone
zone 3.2.1.in-addr.arpa.zone/IN: loaded serial 0
OK
```

Task 5: Set up Web server (10 marks)

- 1) On the Linux server, create a web server and **index.html** file in the default httpd web directory. This file should ONLY contain the exact case sensitive word
HELLO
- 2) Create a virtual host for `http://www.feit.edu` and this should reside in the `/www` directory. Create this directory if necessary. Create an **index.html** file in this directory which should ONLY contain the exact case sensitive word
UTS

NOTES:

- (a) Do **not** use `Default.htm` or `index.htm` as the home page;
- (b) **you should ensure that the alias for www in previous tasks is working BEFORE you attempt part (2)**
- (c) The `index.html` files do not have to be HTML-valid – only have the exact word as required
- (d) You should test both `http://firstname.feit.edu` and `http://www.feit.edu` from each server (Linux Server and Windows Server) and they should display different web pages!

To set up Web server, first we need to start the *httpd* service.

```
[root@agapitus ~]# systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; vendor preset: enabled)
   Active: inactive (dead)
     Docs: man:httpd.service(8)
```

Check the *httpd* service status.

```
[root@agapitus ~]# systemctl start httpd
[root@agapitus ~]# systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
```

Since *httpd* not started yet, start and enable *httpd* service.

```
[root@agapitus ~]# rpm -qa | grep mod_ssl
mod_ssl-2.4.37-47.module_el8.6.0+1111+ce6f4ceb.1.x86_64
[root@agapitus ~]# rpm -qs httpd-filesystem
normal      /etc/httpd
normal      /etc/httpd/conf.d
normal      /etc/httpd/conf.d/README
normal      /usr/lib/systemd/system/httpd.service.d
normal      /usr/lib/systemd/system/httpd.socket.d
normal      /usr/share/httpd
normal      /usr/share/httpd/icons
normal      /var/www
normal      /var/www/cgi-bin
normal      /var/www/html
```

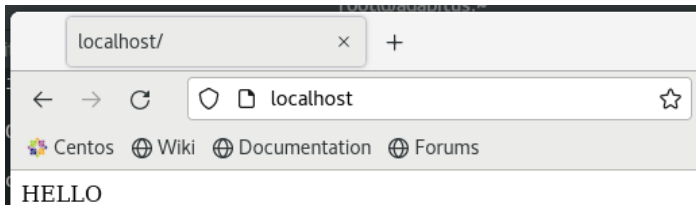
Check the *mod_ssl* installation and see the installed files.

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

Then, create the html file on default directory (*/var/www/html*) and add text that will be appeared on the web.

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

Restart *httpd* to update its service.



Open the web browser and go to localhost to see the html page with the word added before.

To create the virtual host domain, set the DNS and domain to be working.

```
IPADDR=1.2.3.254
NETMASK=255.255.255.0
DNS1=1.2.3.254
DOMAIN=feit.edu
PREFIX=24
DEFROUTE=yes
IPV4_DNS_PRIORITY=5
```

Ensure DNS is working for the domain

```
[root@agapitus ~]# nmcli con reload ens37
[root@agapitus ~]# nmcli con up ens37
```

Reload the ens37 connection to update the changes.

```
[root@agapitus ~]# cat /etc/resolv.conf
# Generated by NetworkManager
search feit.edu localdomain
nameserver 1.2.3.254
nameserver 192.168.209.2
```

Check the updated connection with the top “nameserver” in */etc/resolv.conf* points to the nameserver.

```
#ServerName www.fakempc1.com
ServerName www.feit.edu:80
DocumentRoot "/var/www/html"
```

Edit */etc/httpd/conf/httpd.conf* file by modifying *ServerName* and see the *DocumentRoot* directory.

```
127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4
::1 localhost localhost.localdomain localhost6 localhost6.localdomain6
1.2.3.254 www.feit.edu
1.2.3.254 ww2.feit.edu
```

Add two web servers domain in */hosts* file.

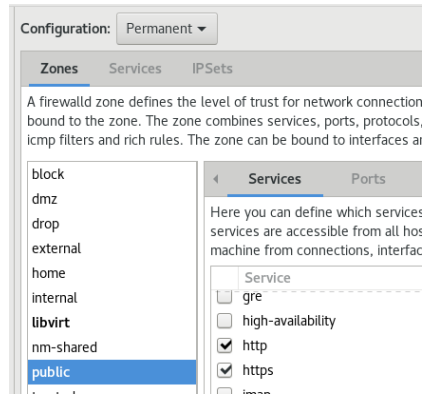
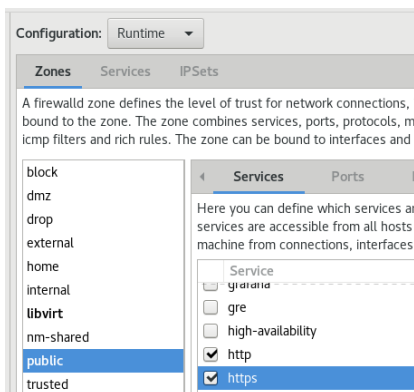
```
<VirtualHost *:80>
    DocumentRoot "/var/www/feit"
    ServerName www.feit.edu
</VirtualHost>

<VirtualHost *:80>
    DocumentRoot "/var/www/feit2"
    ServerName ww2.feit.edu
</VirtualHost>
```

Set Apache to accept web request for second virtual domain.

```
[root@agapitus ~]# mkdir /var/www/feit
[root@agapitus ~]# mkdir /var/www/feit2
[root@agapitus ~]# cd /var/www/feit
[root@agapitus feit]# touch index.html
[root@agapitus feit]# vim index.html
[root@agapitus feit]# cd /var/www/feit2
[root@agapitus feit2]# touch index.html
[root@agapitus feit2]# vim index.html
```

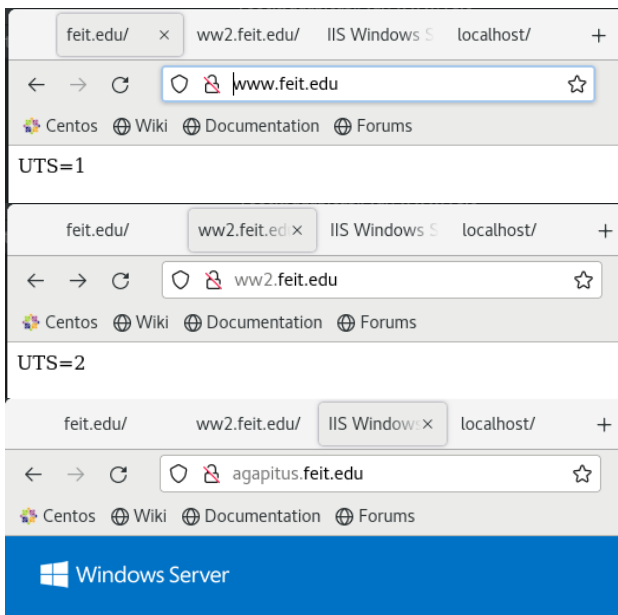
Creating both new directories including its *index.html* files.



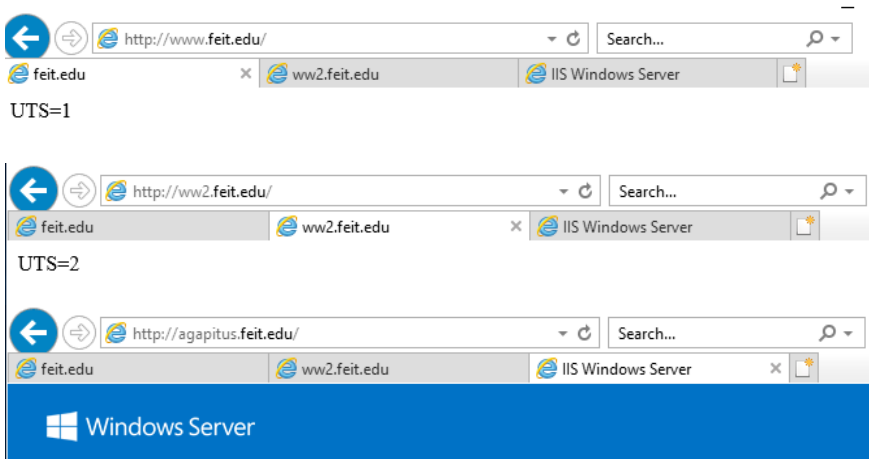
Set the firewall to allow **http** and **https**

```
[root@agapitus feitt2]# systemctl restart httpd
```

Restart **httpd** to update its service.



Check the result on the web browser and confirm that it is changed correctly to the configuration.



Check the result on the web browser and confirm that it is changed correctly to the configuration.