

## Lab 7 – Linux Network Services Systems

### Administration

#### Instructions

The web development team has completed the initial development of their new web application and would like to get it up and running on their server. They have requested to be able to access the **/development/website** directory through their Windows desktops via a shared drive.

They would also like the Apache web service to look for files within this directory, starting with the “Under Construction” page created previously.

They will also need to be able to access the system via SSH to manage services. Be sure to only allow necessary services through the firewall and configure network settings.

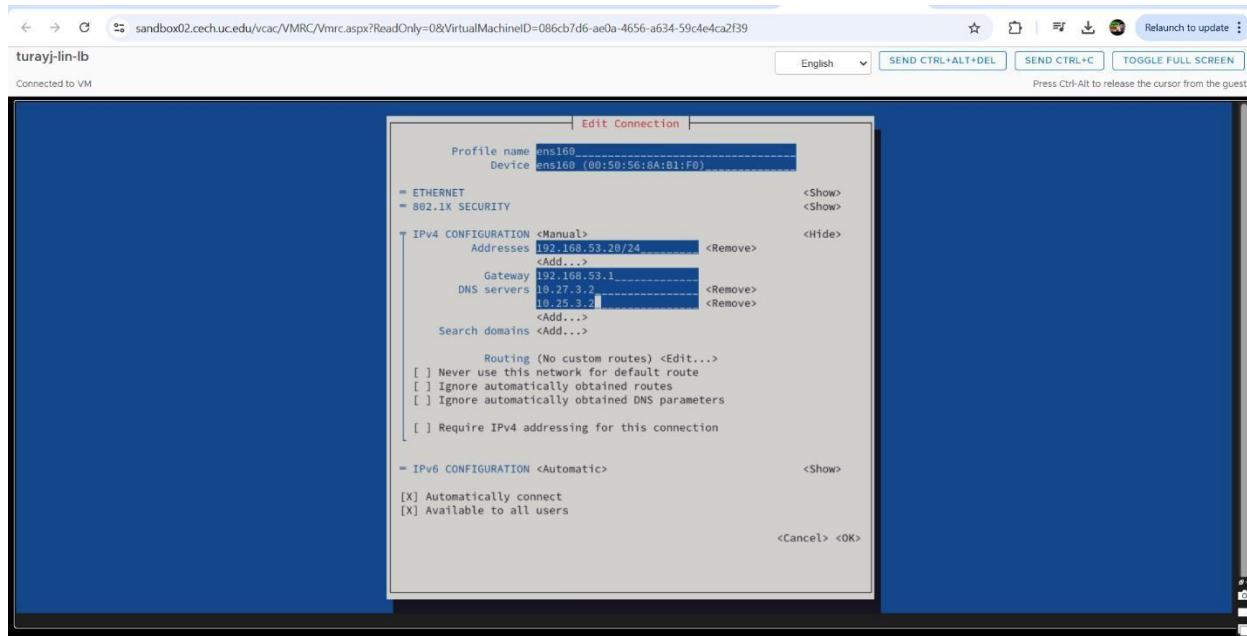
Once complete, please test the file share and web site connections.

HINTS: You can reuse the network settings set by DHCP. You may need to install the Network Manager Tool. Disable SELinux security for the services to work properly.

#### Screenshots

Paste the required screen shots under each description.

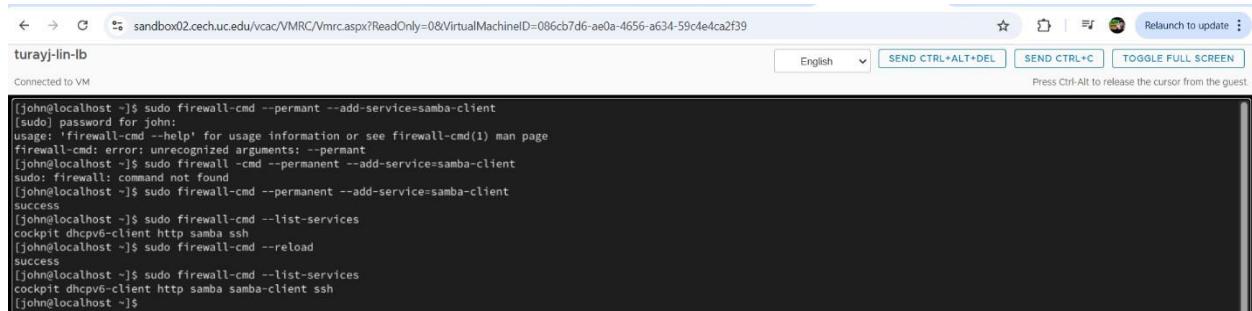
1. Paste a screen shot showing the manually set network settings in the Network Manager TUI



2. Paste a screen shot showing the allowed services through the Firewall

## Lab 7 – Linux Network Services Systems

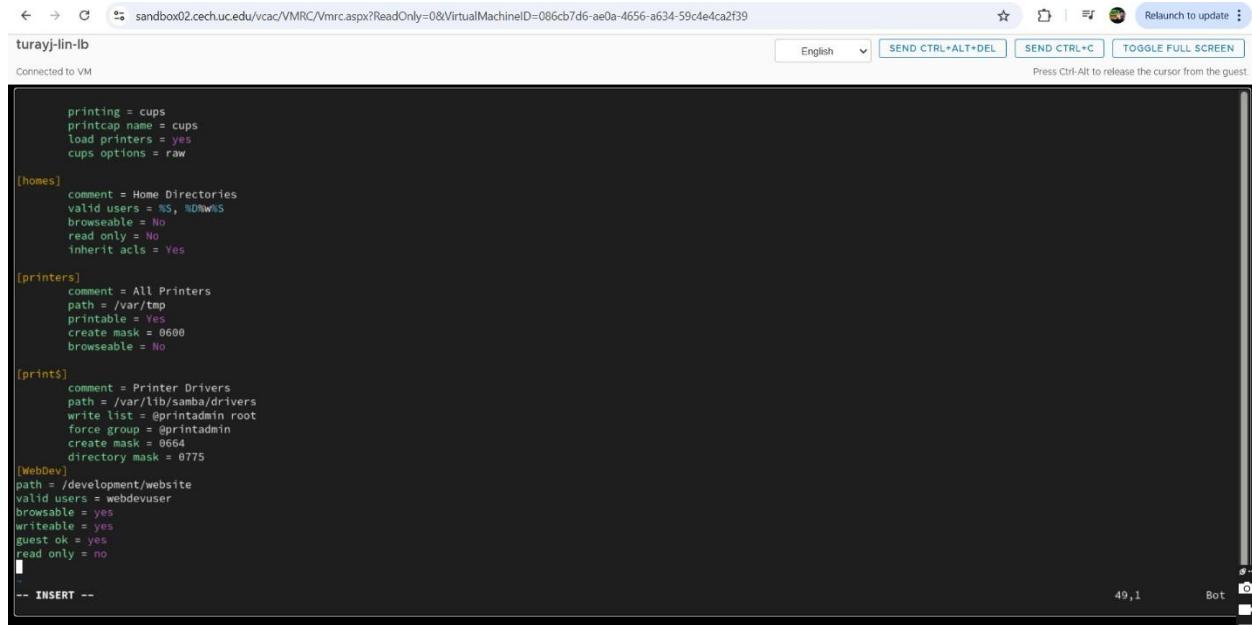
### Administration



A screenshot of a terminal window titled "turayj-lin-lb". The window shows a series of command-line entries. The user runs "sudo firewall-cmd --permant --add-service=samba-client", which fails with an error message about unrecognized arguments. The user then runs "sudo firewall-cmd --permanent --add-service=samba-client" again, this time successfully. The user then runs "sudo firewall-cmd --list-services", which shows "cockpit dhcpv6-client http samba ssh" as active services. Finally, the user runs "sudo firewall-cmd --reload" to apply the changes.

```
[john@localhost ~]$ sudo firewall-cmd --permant --add-service=samba-client
[sudo] password for john:
usage: firewall-cmd --help' for usage information or see firewall-cmd(1) man page
firewall-cmd: error: unrecognized arguments: --permant
[john@localhost ~]$ sudo firewall -cmd --permanent --add-service=samba-client
sudo: firewall: command not found
[john@localhost ~]$ sudo firewall-cmd --permanent --add-service=samba-client
success
[john@localhost ~]$ sudo firewall-cmd --list-services
cockpit dhcpv6-client http samba ssh
[john@localhost ~]$ sudo firewall-cmd --reload
success
[john@localhost ~]$ sudo firewall-cmd --list-services
cockpit dhcpv6-client http samba samba-client ssh
[john@localhost ~]$
```

### 3. Paste a screen shot showing the Samba configuration settings



A screenshot of a terminal window titled "turayj-lin-lb". The window displays the contents of the "/etc/samba/smb.conf" file. The configuration includes sections for printing, printers, print\$, and WebDev, defining paths, valid users, and sharing permissions.

```
printing = cups
printhead name = cups
load printers = yes
cups options = raw

[homes]
comment = Home Directories
valid users = %S, %D%w%S
browseable = No
read only = No
inherit acls = Yes

[printers]
comment = All Printers
path = /var/tmp
printable = Yes
create mask = 0600
browseable = No

[print$]
comment = Printer Drivers
path = /var/lib/samba/drivers
write list = @printadmin root
force group = @printadmin
create mask = 0664
directory mask = 0775

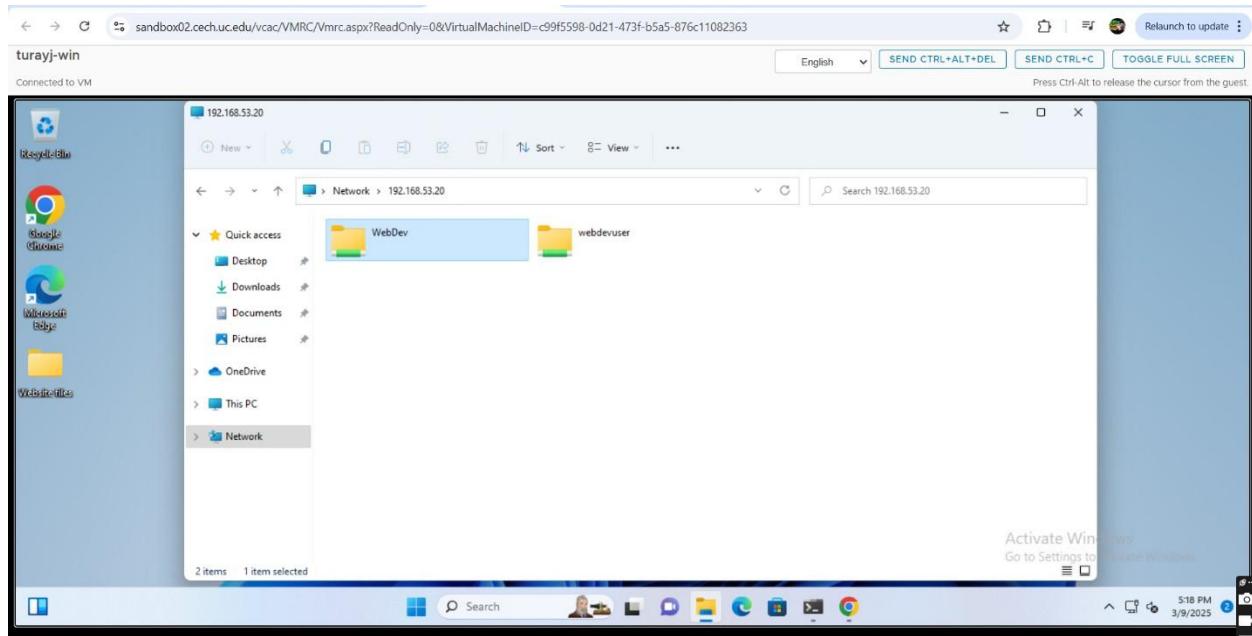
[WebDev]
path = /development/website
valid users = webdevuser
browseable = yes
writable = yes
guest ok = yes
read only = no

-- INSERT --
```

### 4. Paste a screen shot showing a web dev user accessing the shared folder through the Windows File Explorer

## Lab 7 – Linux Network Services Systems

### Administration



5. Paste a screen shot showing the “Under Construction” web page in a web browser from your Windows 11 VM. (Must use http://)



### Documentation

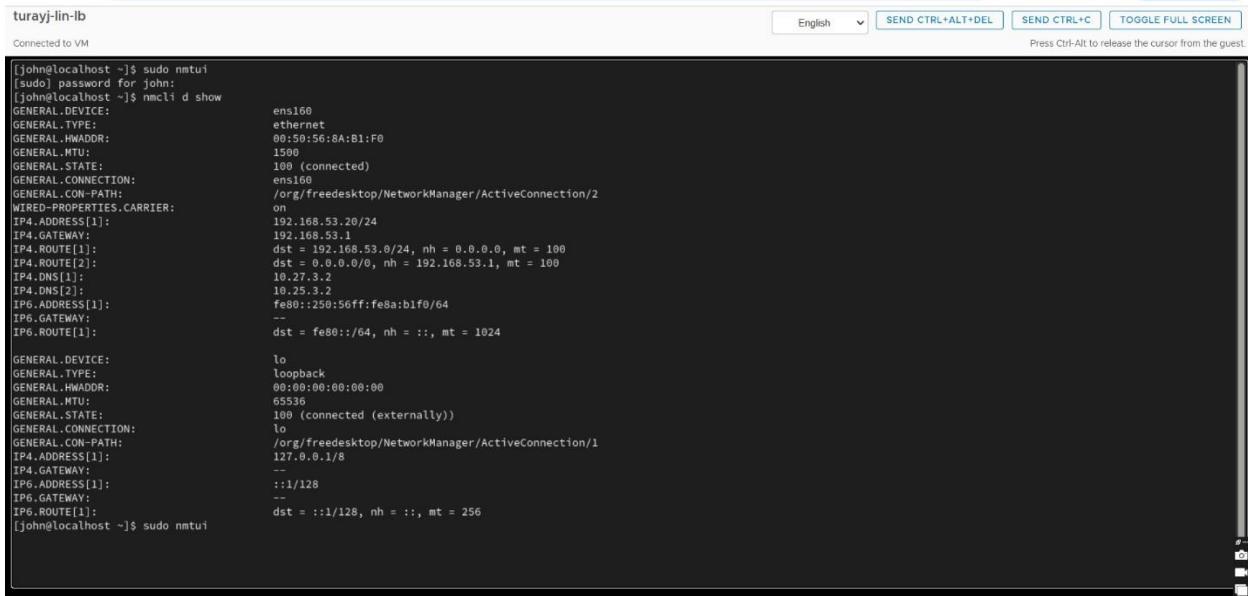
Record and explain all the steps you took to complete the task. Include any commands used, screen shots showing GUI interfaces, or any other information that would help you recreate the task.

**Note: You will be allowed to use this documentation to help you complete future assignments.**

## Lab 7 – Linux Network Services Systems

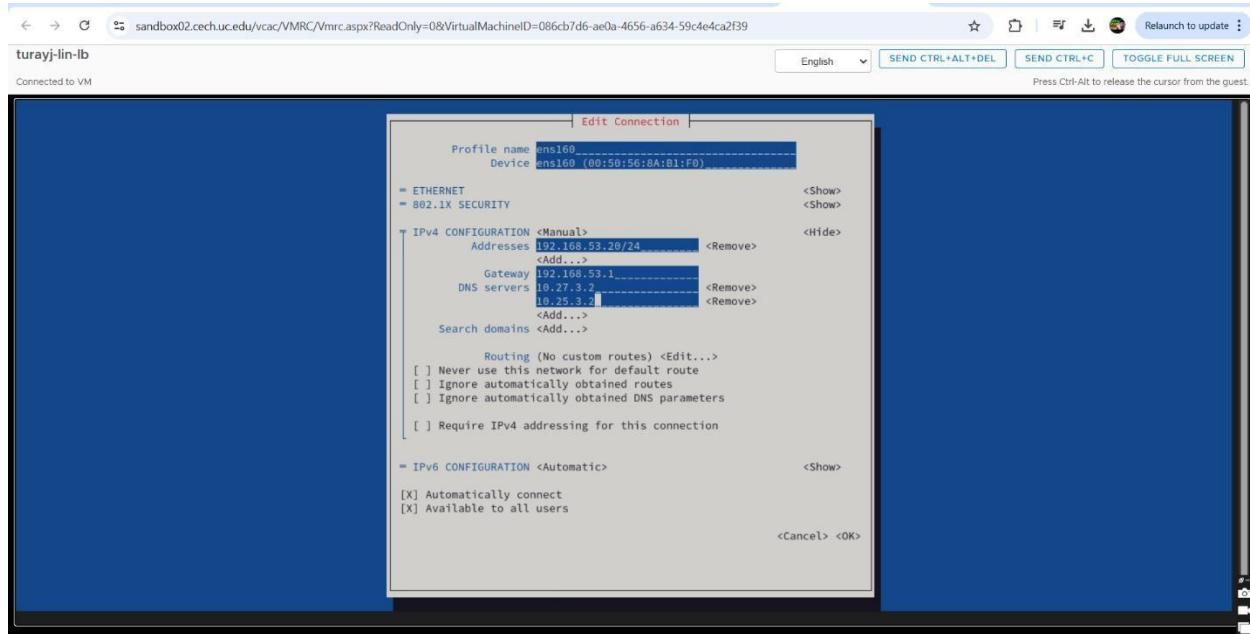
### Administration

First I started by running the command “nmtui” to show my network settings:



```
[turayj-lin-lb] [john@localhost ~]$ sudo nmtui
[sudo] password for john:
[john@localhost ~]$ nmcli d show
GENERAL_DEVICE:                         ens160
GENERAL_TYPE:                            ethernet
GENERAL_HWADDR:                          00:50:56:8A:B1:F0
GENERAL_MAC:                            15697...
GENERAL_STATE:                           100 (connected)
GENERAL_CONNECTION:                      ens160
GENERAL_CON_PATH:                        /org/freedesktop/NetworkManager/ActiveConnection/2
WIRED_PROPERTIES.CARRIER:
IP4.ADDRESS[1]:
    IP4.GATEWAY:
    IP4.ROUTE[1]:
    IP4.ROUTE[2]:
    IP4.DNS[1]:
    IP4.DNS[2]:
    IP6.ADDRESS[1]:
    IP6.GATEWAY:
    IP6.ROUTE[1]:
GENERAL_DEVICE:
GENERAL_TYPE:
GENERAL_HWADDR:
GENERAL_MAC:
GENERAL_STATE:                           100 (connected (externally))
GENERAL_CONNECTION:                      /org/freedesktop/NetworkManager/ActiveConnection/1
IP4.ADDRESS[1]:
    IP4.GATEWAY:
    IP6.ADDRESS[1]:
    IP6.GATEWAY:
    IP6.ROUTE[1]:
[john@localhost ~]$ sudo nmtui
```

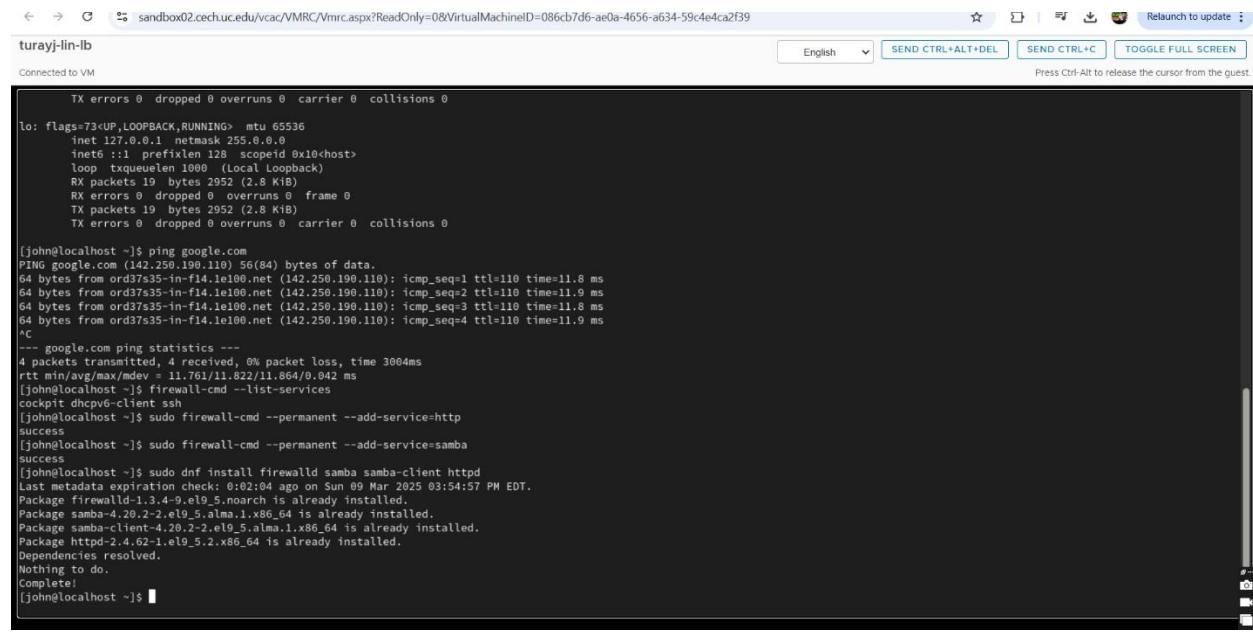
Then I opened the network manager and Manually entered the correct network settings:



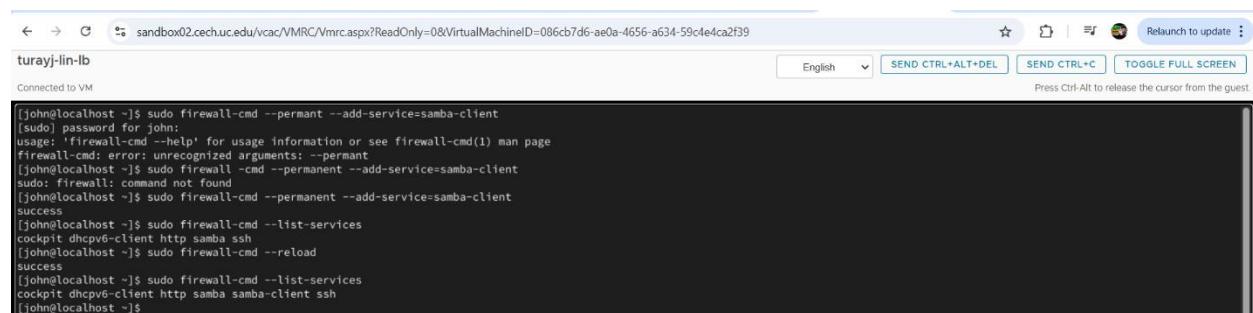
Then I installed all services/updates for the allowed services through the firewall:

## Lab 7 – Linux Network Services Systems

### Administration

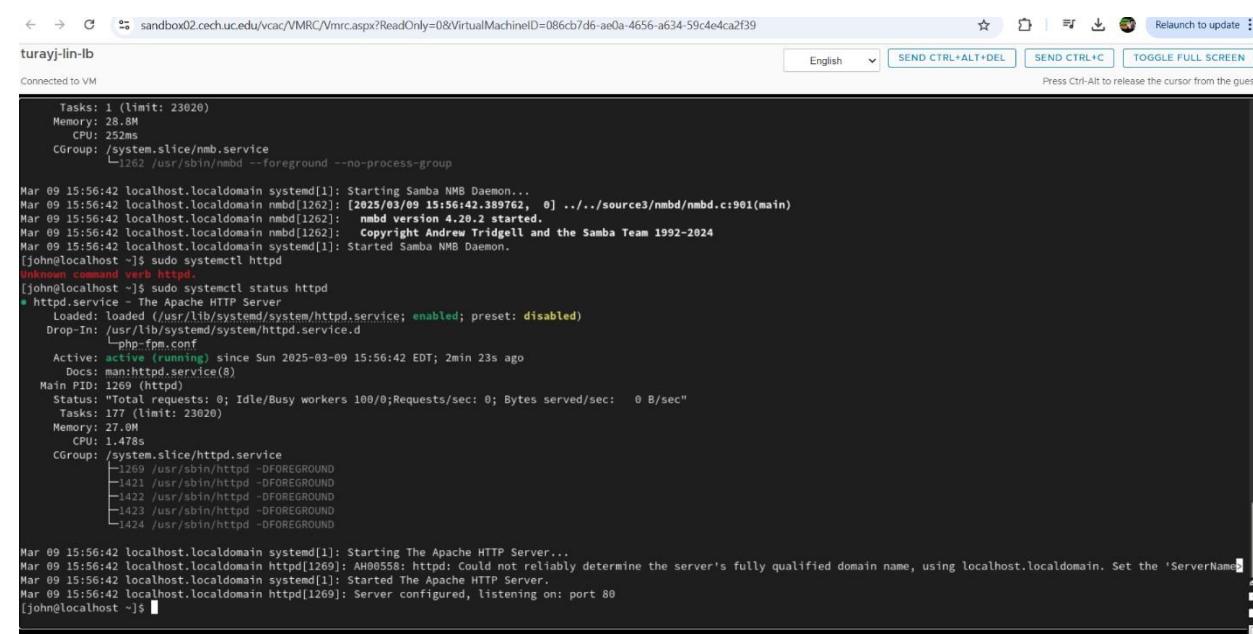


```
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
lo: flags=73 mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
        inet6 ::1 prefixlen 128 scopid 0x10<host>
        loop txqueuelen 1000 (Local Loopback)
        RX packets 19 bytes 2952 (2.8 kB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 19 bytes 2952 (2.8 kB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
[john@localhost ~]$ ping google.com
PING (142.250.198.110) 56(84) bytes of data.
64 bytes from ord37s35-in-f14.1e100.net (142.250.198.110): icmp_seq=1 ttl=110 time=11.8 ms
64 bytes from ord37s35-in-f14.1e100.net (142.250.198.110): icmp_seq=2 ttl=110 time=11.9 ms
64 bytes from ord37s35-in-f14.1e100.net (142.250.198.110): icmp_seq=3 ttl=110 time=11.8 ms
64 bytes from ord37s35-in-f14.1e100.net (142.250.198.110): icmp_seq=4 ttl=110 time=11.9 ms
^C
--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3004ms
rtt min/avg/max/mdev = 11.761/11.822/11.864/0.042 ms
[john@localhost ~]$ firewall-cmd --list-services
cockpit dhcpv6-client ssh
[john@localhost ~]$ sudo firewall-cmd --permanent --add-service=http
success
[john@localhost ~]$ sudo firewall-cmd --permanent --add-service=samba
success
[john@localhost ~]$ sudo dnf install firewalld samba samba-client httpd
Last metadata expiration check: 0:02:04 ago on Sun Mar 09 2025 03:54:57 EDT.
Package firewalld-1.3.4-9.el9_5.noarch is already installed.
Package samba-4.20.2-2.el9_5.alma.1.x86_64 is already installed.
Package samba-client-4.20.2-2.el9_5.alma.1.x86_64 is already installed.
Package httpd-2.4.62-1.el9_5.2.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[john@localhost ~]$
```



```
[john@localhost ~]$ sudo firewall-cmd --permant --add-service=samba-client
[sudo] password for john:
usage: 'firewall-cmd --help' for usage information or see firewall-cmd(1) man page
firewall-cmd: error: unrecognized arguments: --permant
[john@localhost ~]$ sudo firewall -cmd --permanent --add-service=samba-client
sudo: firewall: command not found
[john@localhost ~]$ sudo firewall-cmd --permanent --add-service=samba-client
success
[john@localhost ~]$ sudo firewall-cmd --list-services
cockpit dhcpv6-client http samba ssh
[john@localhost ~]$ sudo firewall-cmd --reload
success
[john@localhost ~]$ sudo firewall-cmd --list-services
cockpit dhcpv6-client http samba samba-client ssh
[john@localhost ~]$
```

Then I checked if the services were all enabled:



```
Tasks: 1 (limit: 23020)
Memory: 28.8M
CPU: 252ms
CGroup: /system.slice/nmb.service
└─1262 /usr/sbin/nmbd --foreground --no-process-group

Mar 09 15:56:42 localhost.localdomain systemd[1]: Starting Samba NMB Daemon...
Mar 09 15:56:42 localhost.localdomain nmbd[1262]: [2025/03/09 15:56:42.389762, 0] ..../source3/nmbd/nmbd.c:901(main)
Mar 09 15:56:42 localhost.localdomain nmbd[1262]:     nmbd version 4.20.2 started.
Mar 09 15:56:42 localhost.localdomain nmbd[1262]:     Copyright Andrew Tridgell and the Samba Team 1992-2024
Mar 09 15:56:42 localhost.localdomain systemd[1]: Started Samba NMB Daemon.
[john@localhost ~]$ sudo systemctl httpd
unknown command verb httpd.
[john@localhost ~]$ sudo systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
   Drop-In: /usr/lib/systemd/system/httpd.service.d
             └─php-fpm.conf
     Active: active (running) since Sun 2025-03-09 15:56:42 EDT; 2min 23s ago
       Docs: man:httpd.service(8)
   Main PID: 1269 (httpd)
     Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec: 0 B/sec"
      Tasks: 177 (limit: 23020)
     Memory: 27.0M
        CPU: 1.478s
      CGroup: /system.slice/httpd.service
              ├─1269 /usr/sbin/httpd -DFOREGROUND
              ├─1421 /usr/sbin/httpd -DFOREGROUND
              ├─1422 /usr/sbin/httpd -DFOREGROUND
              ├─1423 /usr/sbin/httpd -DFOREGROUND
              └─1424 /usr/sbin/httpd -DFOREGROUND

Mar 09 15:56:42 localhost.localdomain systemd[1]: Starting The Apache HTTP Server...
Mar 09 15:56:42 localhost.localdomain httpd[1269]: AH00658: httpd: Could not reliably determine the server's fully qualified domain name, using localhost.localdomain. Set the 'ServerName' directive globally to suppress this message.
Mar 09 15:56:42 localhost.localdomain systemd[1]: Started The Apache HTTP Server.
Mar 09 15:56:42 localhost.localdomain httpd[1269]: Server configured, listening on: port 80
[john@localhost ~]$
```

## Lab 7 – Linux Network Services Systems

### Administration

**Then I created the /development/website directory, then set permissions for the directory, then I created the webdev user and the passwd for the webdev user:**

```
[john@localhost ~]$ sudo yum install samba -y
Last metadata expiration check: 0:11:19 ago on Sun 09 Mar 2025 03:54:57 PM EDT.
Package samba-4.20.2-2.el9_5.alma.1.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[john@localhost ~]$ sudo vi /etc/samba/smb.conf
bash: sudo: command not found...
Similar command is: 'sudo'
[john@localhost ~]$ sudo vi /etc/samba/smb.conf
[sudo] password for john:
[john@localhost ~]$ mkdir -p /development/website
mkdir: cannot create directory '/development': Permission denied
[john@localhost ~]$ sudo mkdir -p /development/website
[sudo] password for john:
[john@localhost ~]$ chmod -R 777 /development/website
chmod: changing permissions of '/development/website': Operation not permitted
[john@localhost ~]$ sudo chmod -R 777 /development/website
[john@localhost ~]$ sudo vi /etc/samba/smb.conf
[john@localhost ~]$ systemctl enable smb
[john@localhost ~]$ systemctl start smb
[john@localhost ~]$ useradd webdevuser
useradd: Permission denied.
useradd: cannot lock /etc/passwd; try again later.
[john@localhost ~]$ sudo useradd -c "Webdev User" webdevuser
[sudo] password for john:
[john@localhost ~]$ sudo passwd webdevuser
Changing password for user webdevuser.
New password:
BAD PASSWORD: The password fails the dictionary check - it is based on a dictionary word
Retype new password:
passwd: all authentication tokens updated successfully.
[john@localhost ~]$ sudo smbpasswd -a webdevuser
New SMB password:
Retype new SMB password:
Added user webdevuser.
[john@localhost ~]$
```

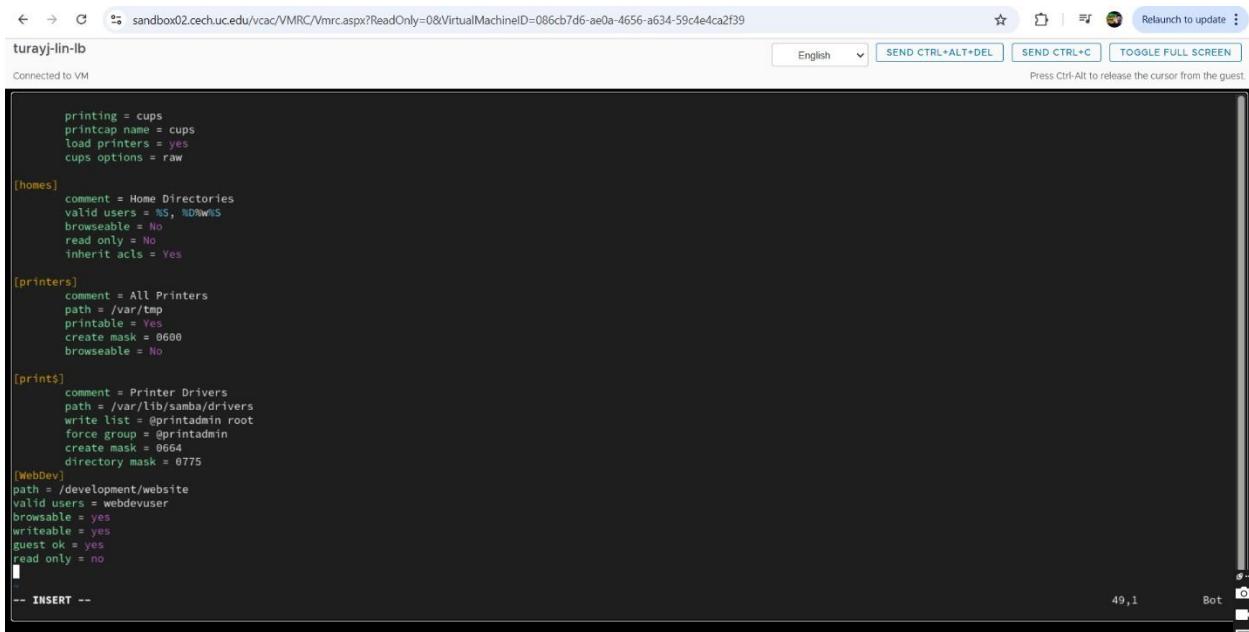
**Then I went to edit the samba file by running the command sudo vi/etc/samba/smb.conf:**

```
CPU: 1.478s
CGroup: /system.slice/httpd.service
└─1269 /usr/sbin/httpd -DFOREGROUND
   ├─1421 /usr/sbin/httpd -DFOREGROUND
   ├─1422 /usr/sbin/httpd -DFOREGROUND
   ├─1423 /usr/sbin/httpd -DFOREGROUND
   └─1424 /usr/sbin/httpd -DFOREGROUND

Mar 09 15:56:42 localhost.localdomain systemd[1]: Starting The Apache HTTP Server...
Mar 09 15:56:42 localhost.localdomain httpd[1269]: AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using localhost.localdomain. Set the 'ServerName' directive if you are ...
Mar 09 15:56:42 localhost.localdomain systemd[1]: Started The Apache HTTP Server.
Mar 09 15:56:42 localhost.localdomain httpd[1269]: Server configured, listening on: port 80
[john@localhost ~]$ sudo firewall-cmd --list-services
cockpit dhcpv6-client ssh
[john@localhost ~]$ sudo firewall-cmd --reload
success
[john@localhost ~]$ sudo firewall-cmd --list-services
cockpit dhcpv6-client http samba ssh
[john@localhost ~]$ sudo yum install samba -y
Last metadata expiration check: 0:11:19 ago on Sun 09 Mar 2025 03:54:57 PM EDT.
Package samba-4.20.2-2.el9_5.alma.1.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[john@localhost ~]$ sudo vi /etc/samba/smb.conf
bash: sudo: command not found...
Similar command is: 'sudo'
[john@localhost ~]$ sudo vi /etc/samba/smb.conf
[sudo] password for john:
```

## Lab 7 – Linux Network Services Systems

### Administration



A screenshot of a terminal window titled "turayj-lin-lb". The window shows a configuration file with the following content:

```
printing = cups
printcap name = cups
load printers = yes
cups options = raw

[homes]
comment = Home Directories
valid users = %S, %D%w%S
browseable = No
read only = No
inherit acts = Yes

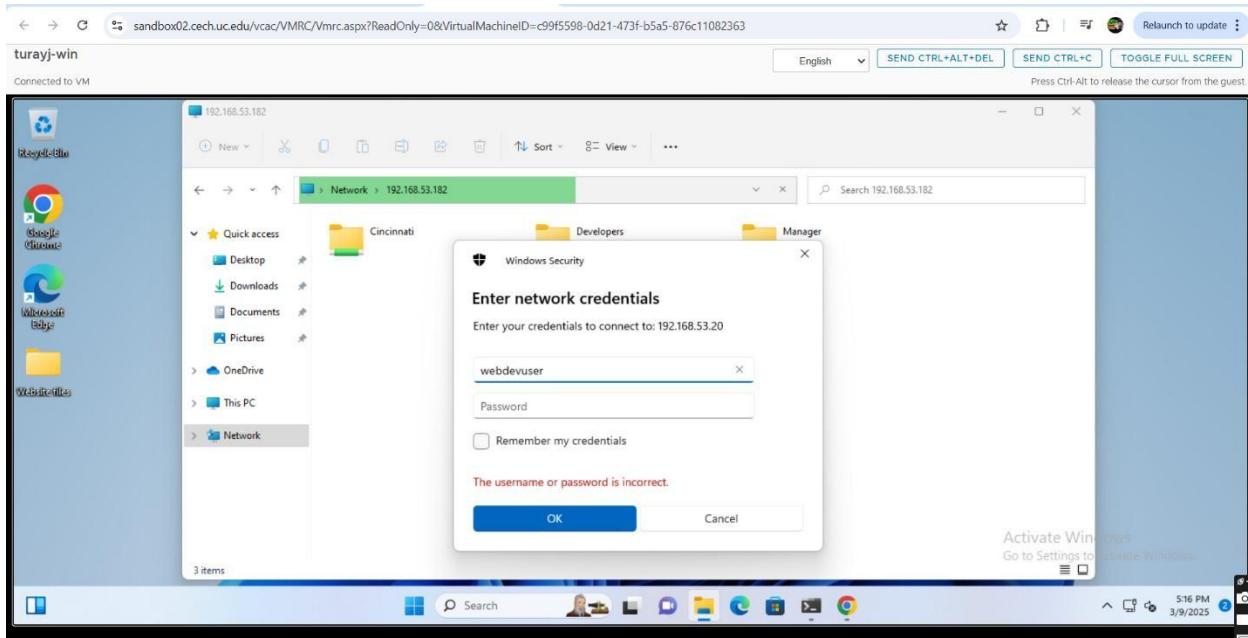
[printers]
comment = All Printers
path = /var/tmp
printable = Yes
create mask = 0600
browseable = No

[prints]
comment = Printer Drivers
path = /var/lib/samba/drivers
write list = %printadmin root
force group = %printadmin
create mask = 0664
directory mask = 0775

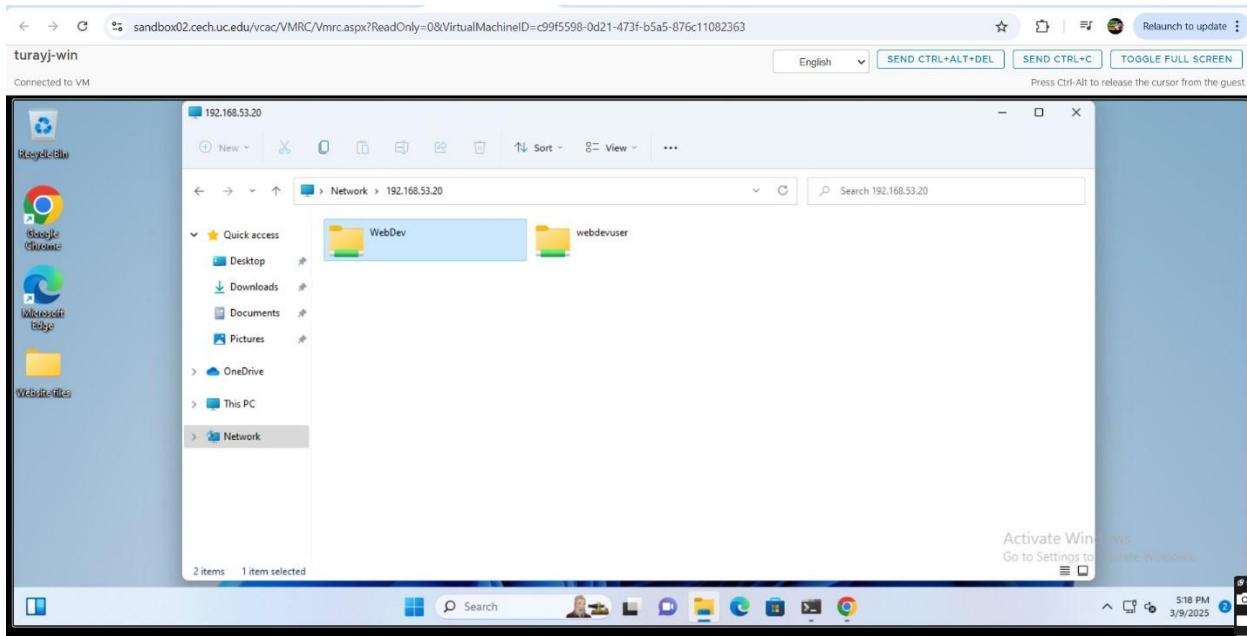
[WebDev]
path = /development/website
valid users = webdevuser
Browsable = yes
writable = yes
guest ok = yes
read only = no

-- INSERT --
```

Then I switched over to my windows 11 vm and opened my file explorer, and then I entered my ip address, aswell as my webdev user credentials to access the shared folders:



## Lab 7 – Linux Network Services Systems Administration



Then I configured the Apache file:

```
Last metadata expiration check: 1:45:17 ago on Sun 09 Mar 2025 03:54:57 PM EDT.
Package httpd-2.4.62-1.el9_5.2.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
[Complete]
[john@localhost ~]$ sudo vi /etc/httpd/conf/httpd.conf
[john@localhost ~]$
```

```
# Note that from this point forward you must specifically allow
# particular features to be enabled - so if something's not working as
# you might expect, make sure that you have specifically enabled it
# below.
#
# DocumentRoot: The directory out of which you will serve your
# documents. By default, all requests are taken from this directory, but
# symbolic links and aliases may be used to point to other locations.
#
DocumentRoot "/development/website"
#
# Relax access to content within /var/www.
#
<Directory "/development/website">
    AllowOverride None
    # Allow open access:
    Require all granted
</Directory>
#
# Further relax access to the default document root:
<Directory "/development/website">
    #
    # Possible values for the Options directive are "None", "All",
    # or any combination of:
    #   Indexes Includes FollowSymLinks SymLinksIfOwnerMatch ExecCGI MultiViews
    #
    # Note that "MultiViews" must be named *explicitly* --- "Options All"
    # doesn't give it to you.
    #
    # The Options directive is both complicated and important. Please see
    # http://httpd.apache.org/docs/2.4/mod/core.html#options
-- INSERT --
```

Then I went on to disable setenforce and edit the index.html file:

## Lab 7 – Linux Network Services Systems

### Administration

The terminal window shows the following commands being run:

```
sudo: sentforce: command not found
[john@localhost ~]$ sudo sentenforce 0
sudo: sentenforce: command not found
[john@localhost ~]$ sudo systemctl restart httpd
[john@localhost ~]$ sudo vi /development/website/index.html
[sudo] password for john:
```

The browser window displays the source code of an "Under Construction" page:

```
<!DOCTYPE>
<html>
<head>
    <title> Under Construction </title>
</head>
<body>
    <h1> Under Construction </h1>
    <p> This site is currently under construction. Please check back later</p>
</body>
</html>
```

The terminal window also shows the command `:wq`.

Then I went back on to my windows 11 vm and opened a browser and put my vm ip address into the search bar:

