

Report Project Part 2

Jacob Chedore

(6347506)

420-635-AB-Network Installation and Administration

Prof. Antoine Tohme

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1-Preparation

-On the AlmaLinux machine

Creating the new root directory that will be used for this project part

```
[root@server10 ~]# mkdir /var/www/html_project2
```

Creating the webpage

```
[root@server10 ~]# vim /var/www/html_project2/master_project2.html
```

Configuring the html file according to what the project is asking for

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE HTML>
<html lang="en">
  <head>
    <title>Project Part 2 - Welcome Page</title>
    <link rel="stylesheet" media="all" href="noindex/common/css/styles.css"/>
  </head>
  <body>
    <h1>Project Part 2</h1>
    <h1>*****</h1>
    <h1>Task 2</h1>
    <p class="lead"><a href="http://virtual1.aucegep.com">http://virtual1.aucegep.com</a></p>
    <p class="lead"><a href="http://virtual1.aucegep.com:8000">http://virtual1.aucegep.com:8000</a></p>
    <p class="lead"><a href="http://virtual2.aucegep.com">http://virtual2.aucegep.com</a></p>
    <p class="lead"><a href="http://virtual2.aucegep.com:8000">http://virtual2.aucegep.com:8000</a></p>
    <hr />
    <h1>Task 3</h1>
    <p class="lead"><a href="http://www.ici.com">http://www.ici.com</a></p>
    <p class="lead"><a href="http://intranet.ici.com">http://intranet.ici.com</a></p>
    <p class="lead"><a href="http://intranet.ici.com:8000">http://intranet.ici.com:8000</a></p>
    <p class="lead"><a href="http://development.ici.com">http://development.ici.com</a></p>
    <hr />
```

```
<h1>Task 3</h1>
<p class="lead"><a href="http://www.ici.com">http://www.ici.com</a></p>
<p class="lead"><a href="http://intranet.ici.com">http://intranet.ici.com</a></p>
<p class="lead"><a href="http://intranet.ici.com:8000">http://intranet.ici.com:8000</a></p>
<p class="lead"><a href="http://development.ici.com">http://development.ici.com</a></p>
<hr />
<h1>Task 4</h1>
<p class="lead"><a href="http://10.35.16.1:8080">http://10.35.16.1:8080</a></p>
<p class="lead"><a href="http://10.35.16.1:8081">http://10.35.16.1:8081</a></p>
<p class="lead"><a href="http://10.35.16.1:8082">http://10.35.16.1:8082</a></p>
<p class="lead"><a href="http://10.35.16.1:8083">http://10.35.16.1:8083</a></p>
<hr />
```

```

<h1>Task 5</h1>
<p class="lead"><a href="http://www.itmt.com">http://www.itmt.com</a></p>
<p class="lead"><a href="http://www.itmt.ca">http://www.itmt.ca</a></p>
<p class="lead"><a href="http://www2.itmt.com">http://www2.itmt.com</a></p>
<p class="lead"><a href="http://www.montmo.com">http://www.montmo.com</a></p>
<p class="lead"><a href="http://www.montmo.ca">http://www.montmo.ca</a></p>
<hr />
</script>
<section class="row">
<div class="col-md-6">
</footer>
</body>
</html>

```

Creating the directories that will be used for this part of the project

```

[root@server10 ~]# mkdir /var/www/virtuals
[root@server10 ~]# cd /var/www/virtuals
[root@server10 virtuals]# mkdir virtual1_80
[root@server10 virtuals]# mkdir virtual1_8000
[root@server10 virtuals]# mkdir virtual2_80
[root@server10 virtuals]# mkdir virtual2_8000
[root@server10 virtuals]# mkdir ici
[root@server10 virtuals]# mkdir intranet
[root@server10 virtuals]# mkdir pre_production
[root@server10 virtuals]# mkdir development
[root@server10 virtuals]# mkdir q4
[root@server10 virtuals]# mkdir q4
mkdir: cannot create directory 'q4': File exists
[root@server10 virtuals]# mkdir q5

```

```

[root@server10 virtuals]# ll
total 0
drwxr-xr-x. 2 root root 6 Apr 18 19:46 development
drwxr-xr-x. 2 root root 6 Apr 18 19:46 ici
drwxr-xr-x. 2 root root 6 Apr 18 19:46 intranet
drwxr-xr-x. 2 root root 6 Apr 18 19:46 pre_production
drwxr-xr-x. 2 root root 6 Apr 18 19:47 q4
drwxr-xr-x. 2 root root 6 Apr 18 19:47 q5
drwxr-xr-x. 2 root root 6 Apr 18 19:45 virtual1_80
drwxr-xr-x. 2 root root 6 Apr 18 19:45 virtual1_8000
drwxr-xr-x. 2 root root 6 Apr 18 19:45 virtual2_80
drwxr-xr-x. 2 root root 6 Apr 18 19:46 virtual2_8000

```

Modifying the selinux port configurations

```

[root@server10 virtuals]# chcon -R -t httpd_sys_rw_content_t /var/www/html_project2
[root@server10 virtuals]# setsebool -P httpd_unified 1
[root@server10 virtuals]# semanage port -l | grep http_port_t
http_port_t                tcp      80, 81, 443, 488, 8008, 8009, 8443, 9000
pegasus_http_port_t        tcp      5988
[root@server10 virtuals]# semanage port -a -t http_port_t -p tcp 8000
Port tcp/8000 already defined, modifying instead
[root@server10 virtuals]# semanage port -a -t http_port_t -p tcp 8080-8083
[root@server10 virtuals]# semanage port -l | grep http_port_t
http_port_t                tcp      8080-8083, 8000, 80, 81, 443, 488, 8008, 8009, 8443, 9000
pegasus_http_port_t        tcp      5988

```

Changing the configuration of the document root to the new project directory

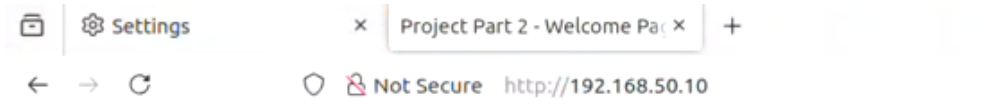
```
[root@server10 ~]# vim /etc/httpd/conf/httpd.conf
```

```
Listen 192.168.50.10:80
```

```
<Directory "/var/www/html_project2">  
Options Indexes FollowSymLinks  
AllowOverride none  
DirectoryIndex master_project2.html  
Require all granted  
Require ip 192.168.50.10  
</Directory>
```

-On the Ubuntu machine

Testing to see if the website is accessible through the IP address



Project Part 2

Task 2

<http://virtual1.aucegep.com>

<http://virtual1.aucegep.com:8000>

<http://virtual2.aucegep.com>

<http://virtual2.aucegep.com:8000>

Task 3

<http://www.ici.com>

<http://intranet.ici.com>

<http://intranet.ici.com:8000>

<http://development.ici.com>

Task 4

<http://10.35.16.1:8080>

2-Name-Based and Port-Based Virtual Hosts

-On the AlmaLinux machine

Edit the /etc/hosts file to include the IP address for the two hostnames required

```
[root@server10 ~]# vim /etc/hosts
```

```
10.35.16.1    virtual1.aucegep.com virtual2.aucegep.com
```

Allowing tcp port 8000 through the firewall

```
[root@server10 virtuals]# firewall-cmd --permanent --zone=nm-shared --add-port=8000/tcp
success
[root@server10 virtuals]# firewall-cmd --reload
success
```

Creating index.html files for all virtual directories

```
[root@server10 virtuals]# vim virtual1_80/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for virtual1.aucegep.com - Port 80</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# vim virtual1_8000/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for virtual1.aucegep.com - Port 8000</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# vim virtual2_80/index.html
```



```

<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for virtual2.aucegep.com - Port 80</b></u></p>
  </body>
</html>

```

```
[root@server10 virtuals]# vim virtual2_8000/index.html
```

```

<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for virtual2.aucegep.com - Port 8000</b></u></p>
  </body>
</html>

```

Creating directories to store logs for each virtual file

```

[root@server10 virtuals]# mkdir virtual1_80/logs
[root@server10 virtuals]# mkdir virtual1_8000/logs
[root@server10 virtuals]# mkdir virtual2_80/logs
[root@server10 virtuals]# mkdir virtual2_8000/logs
[root@server10 virtuals]# tree virtual*
virtual1_80
├── index.html
└── logs
virtual1_8000
├── index.html
└── logs
virtual2_80
├── index.html
└── logs
virtual2_8000
├── index.html
└── logs

```

Configuring the main conf file for httpd for each virtual site

```
[root@server10 virtuals]# vim /etc/httpd/conf/httpd.conf
```

```

<VirtualHost 10.35.16.1:80>
  DocumentRoot /var/www/virtuals/virtual1_80
  ServerName virtual1.aucegep.com
  ErrorLog /var/www/virtuals/virtual1_80/logs/error_log
  TransferLog /var/www/virtuals/virtual1_80/logs/access_log
</VirtualHost>

```

```
<VirtualHost 10.35.16.1:80>
    DocumentRoot /var/www/virtual2/virtual2_80
    ServerName virtual2.aucegep.com
    ErrorLog /var/www/virtual2/virtual2_80/logs/error_log
    TransferLog /var/www/virtual2/virtual2_80/logs/access_log
</VirtualHost>
```

```
<VirtualHost 10.35.16.1:8000>
    DocumentRoot /var/www/virtual1/virtual1_8000
    ServerName virtual1.aucegep.com
    ErrorLog /var/www/virtual1/virtual1_8000/logs/error_log
    TransferLog /var/www/virtual1/virtual1_8000/logs/access_log
</VirtualHost>
```

```
<VirtualHost 10.35.16.1:8000>
    DocumentRoot /var/www/virtual2/virtual2_8000
    ServerName virtual2.aucegep.com
    ErrorLog /var/www/virtual2/virtual2_8000/logs/error_log
    TransferLog /var/www/virtual2/virtual2_8000/logs/access_log
</VirtualHost>
```

Setting the listen directive for the shared IP address and the ports

```
Listen 10.35.16.1:80
Listen 10.35.16.1:8000
```

-On the Ubuntu machine

Add the IP address and the respective hostnames to the /etc/hosts file

```
jchedore@client10:~$ sudo vim /etc/hosts
```

```
10.35.16.1    virtual1.aucegep.com virtual2.aucegep.com
```

Test the links under Task 2 on the website



Project Part 2

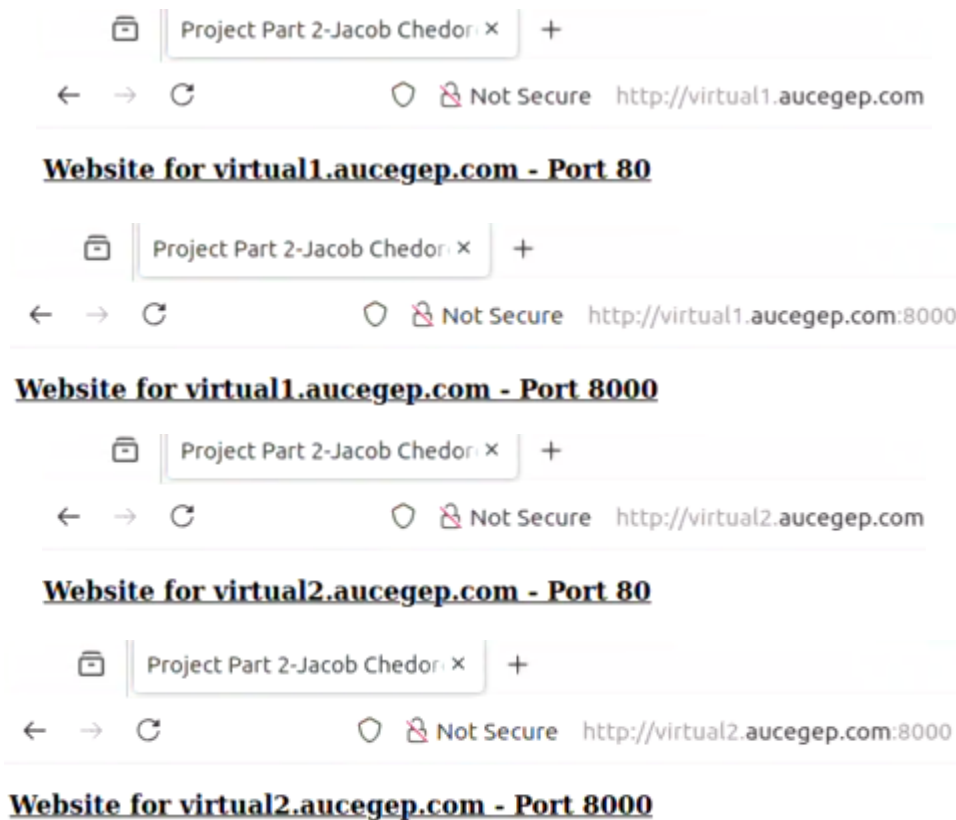
Task 2

<http://virtual1.aucegep.com>

<http://virtual1.aucegep.com:8000>

<http://virtual2.aucegep.com>

<http://virtual2.aucegep.com:8000>



3-Name-Based Virtual Hosts with Access Control

-On the AlmaLinux machine

Creating each of the tasks' required index.html files

```
[root@server10 virtuals]# vim ici/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for www.ici.com - Port 80 (Accessible to Everyone)</b></u></p>
  </body>
</html>
```

```
root@server10 virtuals]# vim intranet/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for intranet.ici.com - Port 80(Accessible to Everyone)</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# vim pre_production/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for intranet.ici.com - Port 8000(10.35.17.0/24 Only)</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# vim development/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for development.ici.com - Port 80(10.35.17.0/24 Only)</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# tree
.
├── development
│   └── index.html
├── ici
│   └── index.html
├── intranet
│   └── index.html
└── pre_production
    └── index.html
```

Configuring the listen and VirtualHost directives accordingly

```
DocumentRoot /var/www/virtuals
```

```
Listen 10.35.17.1:80
Listen 10.35.17.1:8000
```

```
<VirtualHost 10.35.17.1:80>
  DocumentRoot /var/www/virtuals/ici
  ServerName www.ici.com
</VirtualHost>

<VirtualHost 10.35.17.1:80>
  DocumentRoot /var/www/virtuals/intranet
  ServerName intranet.ici.com
</VirtualHost>
```

```

<VirtualHost 10.35.17.1:8000>
    DocumentRoot /var/www/virtuals/pre_production
    ServerName intranet.ici.com
    <Directory /var/www/virtuals/pre_production>
        Require ip 10.35.17.0/24
    </Directory>
</VirtualHost>

<VirtualHost 10.35.17.1:80>
    DocumentRoot /var/www/virtuals/development
    ServerName development.ici.com
    <Directory /var/www/virtuals/development>
        Require ip 10.35.17.0/24
    </Directory>
</VirtualHost>

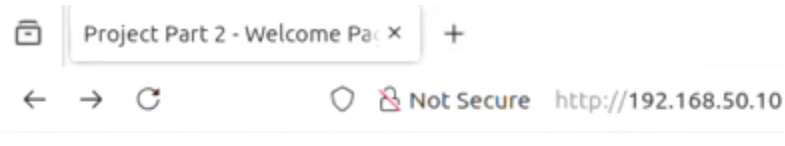
```

-On the Ubuntu machine

Configuring the /etc/hosts file

```
10.35.17.1    www.ici.com intranet.ici.com development.ici.com
```

Testing the links on the website



Task 3

<http://www.ici.com>

<http://intranet.ici.com>

<http://intranet.ici.com:8000>

<http://development.ici.com>



Website for www.ici.com - Port 80 (Accessible to Everyone)



Website for intranet.ici.com - Port 80(Accessible to Everyone)



4-Virtual Web Servers by IP and Port

-On the AlmaLinux machine

Create the four necessary directories inside the q4 directory

```
[root@server10 virtuals]# mkdir -p /var/www/virtuals/q4/sales
[root@server10 virtuals]# mkdir -p /var/www/virtuals/q4/admin
[root@server10 virtuals]# mkdir -p /var/www/virtuals/q4/thing
[root@server10 virtuals]# mkdir -p /var/www/virtuals/q4/other
[root@server10 virtuals]# tree q4/
q4/
├── admin
├── other
├── sales
└── thing
```

Creating the index.html files for all the new folders

```
[root@server10 virtuals]# vim q4/sales/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for Sales - Port 8080 (Accessible to Everyone)</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# vim q4/admin/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for Admin - Port 8081 (Accessible to Everyone)</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# vim q4/thing/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for Thing - Port 8082 (Accessible to Everyone)</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# vim q4/other/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for Other - Port 8083 (Accessible to Everyone)</b></u></p>
  </body>
</html>
```

Allowing the new four ports through the firewall

```
[root@server10 virtuals]# firewall-cmd --permanent --zone=nm-shared --add-port=8080/tcp
success
[root@server10 virtuals]# firewall-cmd --permanent --zone=nm-shared --add-port=8081/tcp
success
[root@server10 virtuals]# firewall-cmd --permanent --zone=nm-shared --add-port=8082/tcp
success
[root@server10 virtuals]# firewall-cmd --permanent --zone=nm-shared --add-port=8083/tcp
success
[root@server10 virtuals]# firewall-cmd --reload
success
```

Configuring the listen directive for the new ports

```
[root@server10 virtuals]# vim /etc/httpd/conf/httpd.conf
```

```
Listen 10.35.16.1:8080
Listen 10.35.16.1:8081
Listen 10.35.16.1:8082
Listen 10.35.16.1:8083
```

Configuring all the virtual hosts

```
<VirtualHost 10.35.16.1:8080>
  DocumentRoot /var/www/virtuals/q4/sales
  ServerName 10.35.16.1
</VirtualHost>

<VirtualHost 10.35.16.1:8081>
  DocumentRoot /var/www/virtuals/q4/admin
  ServerName 10.35.16.1
</VirtualHost>

<VirtualHost 10.35.16.1:8082>
  DocumentRoot /var/www/virtuals/q4/thing
  ServerName 10.35.16.1
</VirtualHost>

<VirtualHost 10.35.16.1:8083>
  DocumentRoot /var/www/virtuals/q4/other
  ServerName 10.35.16.1
</VirtualHost>
```

Restarting the service

```
[root@server10 virtuals]# systemctl restart httpd
```

-On the Ubuntu machine

Testing the links on the website

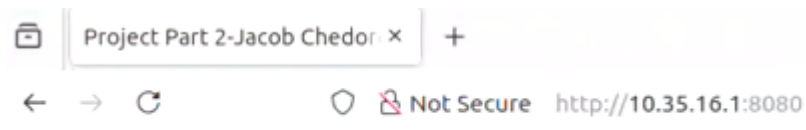
Task 4

<http://10.35.16.1:8080>

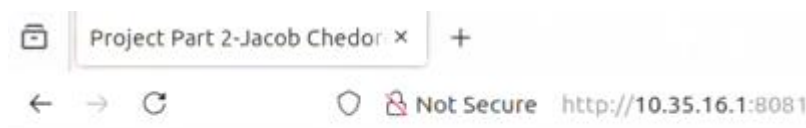
<http://10.35.16.1:8081>

<http://10.35.16.1:8082>

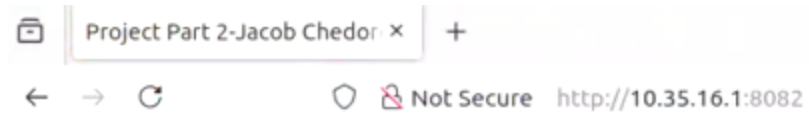
<http://10.35.16.1:8083>



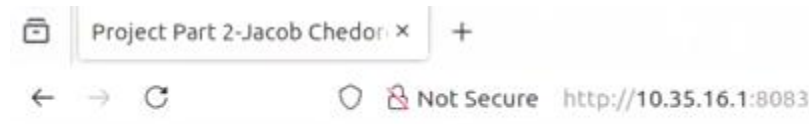
Website for Sales - Port 8080 (Accessible to Everyone)



Website for Admin - Port 8081 (Accessible to Everyone)



Website for Thing - Port 8082 (Accessible to Everyone)



Website for Other - Port 8083 (Accessible to Everyone)

5-Dynamic Virtual Hosting

-On the AlmaLinux machine

Create the log folder for the q5 directory

```
[root@server10 virtuals]# mkdir q5/logs
```

Creating the directories for the websites

```
[root@server10 virtuals]# mkdir q5/com
[root@server10 virtuals]# mkdir q5/ca
[root@server10 virtuals]# mkdir q5/com/itmt
[root@server10 virtuals]# mkdir q5/com/montmo
[root@server10 virtuals]# mkdir q5/com/montmo/www
[root@server10 virtuals]# mkdir q5/com/itmt/www
[root@server10 virtuals]# mkdir q5/com/itmt/www2
[root@server10 virtuals]# mkdir q5/ca/itmt
[root@server10 virtuals]# mkdir q5/ca/montmo
[root@server10 virtuals]# mkdir q5/ca/itmt/www
[root@server10 virtuals]# mkdir q5/ca/montmo/www
```

```
[root@server10 virtuals]# tree q5
q5
├── ca
│   ├── itmt
│   │   └── www
│   └── montmo
│       └── www
├── com
│   ├── itmt
│   │   ├── www
│   │   └── www2
│   └── montmo
│       └── www
└── logs
```

Creating the index.html files inside all prefix directories

```
[root@server10 virtuals]# vim q5/com/itmt/www/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for www.itmt.com - Port 80</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# vim q5/ca/itmt/www/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for www.itmt.ca - Port 80</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# vim q5/ca/montmo/www/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for www.montmo.ca - Port 80</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# vim q5/com/montmo/www/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for www.montmo.com - Port 80</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# vim q5/com/itmt/www2/index.html
```

```
<!doctype html>
<html>
  <head>
    <title>Project Part 2-Jacob Chedore</title>
  </head>
  <body>
    <p><b><u>Website for www2.itmt.com - Port 80</b></u></p>
  </body>
</html>
```

```
[root@server10 virtuals]# tree q5
q5
├── ca
│   ├── itmt
│   │   └── www
│   │       └── index.html
│   └── montmo
│       └── www
│           └── index.html
├── com
│   ├── itmt
│   │   ├── www
│   │   │   └── index.html
│   │   └── www2
│   │       └── index.html
│   └── montmo
│       └── www
│           └── index.html
└── logs
```

Configuring the conf file of apache to add the new listen and virtual host directives for this task

```
[root@server10 virtuals]# vim /etc/httpd/conf/httpd.conf
```

```
Listen 10.50.1.1:80
```

```
<VirtualHost 10.50.1.1:80>
    UseCanonicalName off
    VirtualDocumentRoot /var/www/virtuals/q5/%3/%2/%1
    ErrorLog /var/www/virtuals/q5/logs/virtual_error_q5_log
</VirtualHost>
```

Configuring the /etc/hosts file for the new ip address and server names

```
10.50.1.1 www.itmt.com www.itmt.ca www2.itmt.com www.montmo.com www.montmo.ca
```

Restarting the service

```
[root@server10 virtuals]# systemctl restart httpd
```

-On the Ubuntu machine

Configuring the /etc/hosts file to contain the ip address and the new website names

```
10.50.1.1 www.itmt.com www.itmt.ca www2.itmt.com www.montmo.com www.montmo
.ca
```

Testing the links on the website

Task 5

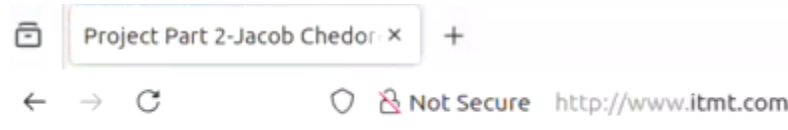
<http://www.itmt.com>

<http://www.itmt.ca>

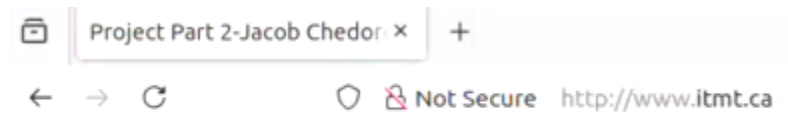
<http://www2.itmt.com>

<http://www.montmo.com>

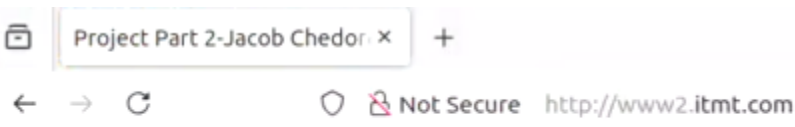
<http://www.montmo.ca>



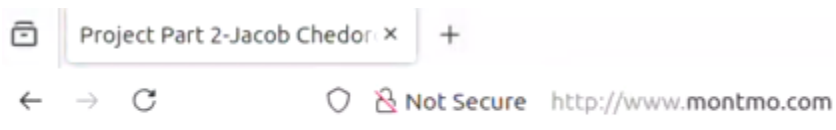
Website for www.itmt.com - Port 80



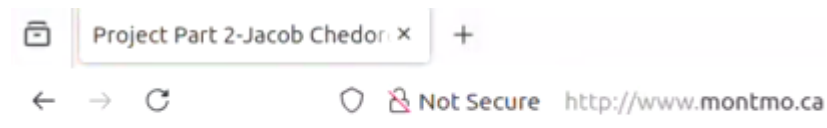
Website for www.itmt.ca - Port 80



Website for www2.itmt.com - Port 80



Website for www.montmo.com - Port 80



Website for www.montmo.ca - Port 80

6-Creating a Compressed File with the Configs

-On the AlmaLinux machine

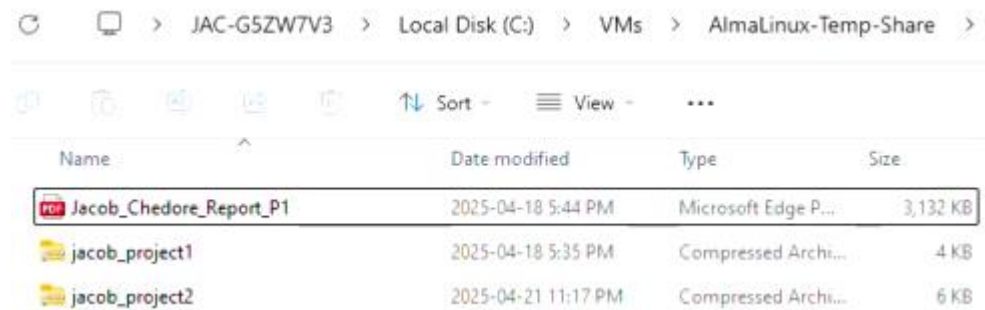
Use the tar command to name the file and provide all directories to go inside the file

```
[root@server10 virtuals]# tar -czf jacob_project2.tar /etc/httpd/conf/httpd.conf /var/www/html_project2 /var/www/virtuals /etc/hosts
```

Copy the compressed file over to a connected share folder

```
[root@server10 virtuals]# ls /mnt/hgfs
AlmaLinux-Temp-Share
[root@server10 virtuals]# cp jacob_project2.tar /mnt/hgfs/AlmaLinux-Temp-Share
```

This will allow the host machine to gain access to this newly compressed file



Name	Date modified	Type	Size
Jacob_Chedore_Report_P1	2025-04-18 5:44 PM	Microsoft Edge P...	3,132 KB
jacob_project1	2025-04-18 5:35 PM	Compressed Archi...	4 KB
jacob_project2	2025-04-21 11:17 PM	Compressed Archi...	6 KB