



NETWORK INSTALLATION AND ADMINISTRATION II

(420-635-AB)

PROJECT PART2

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OBJECTIVES

In this 1st part of the project, I will configure a Virtual Host server, and create websites identified by a combination of the following: IP address, domain name and port number.

In the following all questions of this project with screen shot of run commands will come.

TASK 1 – PREPARATION

- The root directory for this project must be "/var/www/html_project2".

```
[root@server09 Project1]# mkdir /var/www/html_project2  
[root@server09 Project1]#
```

- A web page named master_project2.html should be placed in this directory and configured as the default page for the root.

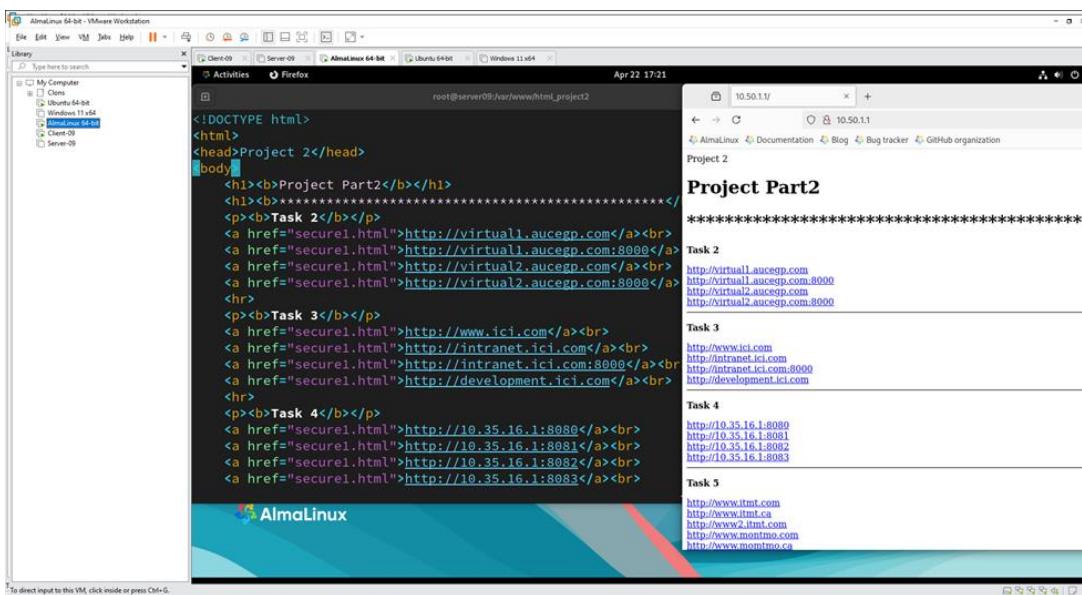
```
[root@server09 html_project2]# vim master_project2.html
```

```
[root@server09 html_project2]# vim /etc/httpd/conf/httpd.conf
```

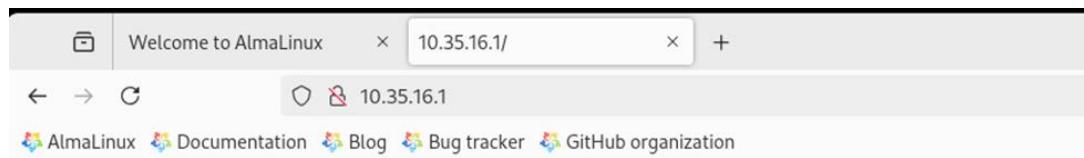
```
# DocumentRoot: The directory out of which you will serve your  
# documents. By default, all requests are taken from this directory, but  
# symbolic links and aliases may be used to point to other locations.  
#  
DocumentRoot "/var/www/html_project2"  
  
#  
# Relax access to content within /var/www.  
#  
<Directory "/var/www/html_project2"  
    AllowOverride None  
    # Allow open access:  
    Require all granted  
</Directory>
```

```
#  
# DirectoryIndex: sets the file that Apache will  
# directory  
# is requested.  
#  
<IfModule dir_module  
    DirectoryIndex master_project2.html  
</IfModule>  
  
#  
# The following lines prevent .htaccess and .httpd  
# from being  
# viewed by Web clients.
```

```
[h.sharif@server09 ~]$ systemctl restart httpd  
[h.sharif@server09 ~]$
```



- The master_project2.html page must include hyperlinks allowing users to test each question and every scenario related to each question in this lab. See the example provided on the last page of this document.



Project Part2

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>
<http://10.35.16.1:8081>
<http://10.35.16.1:8082>
<http://10.35.16.1:8083>

Task 5

<http://www.itmt.com>
<http://www.itmt.ca>
<http://www2.itmt.com>
<http://www.montmo.com>
<http://www.momtmo.ca>

TASK 2 – NAME-BASED AND PORT-BASED VIRTUAL HOSTS

- Create virtual hosts identified by both hostname and port, using the names provided below.
- All servers in this exercise will use the same IP address: 10.35.16.1.
 - However, this address must be different from the main non-virtual website.
 - You will need to edit the /etc/hosts file accordingly to resolve the hostnames.
- Since these are virtual hosts, the basic Apache configuration will be similar for all of them:
 - Each server will have its own directory to store web pages.
 - Each server must also use its own log files.
- Virtual Hosts configuration details:
 - Hostname: virtual1.aucegep.com
 - Port: 80
 - Document Root: /var/www/virtuals/virtual1_80
 - Hostname: virtual2.aucegep.com
 - Port: 80
 - Document Root: /var/www/virtuals/virtual2_80
 - Hostname: virtual1.aucegep.com
 - Port: 8000
 - Document Root: /var/www/virtuals/virtual1_8000
 - Hostname: virtual2.aucegep.com
 - Port: 8000
 - Document Root: /var/www/virtuals/virtual2_8000

I start with virtual1.aucegep.com and virtual2.aucegep.com these are 2 website with one IP address (10.35.16.1)

1. configure server IP address

```
[root@server09 html_project2]# nmcli con sh
NAME UUID                                     TYPE      DEVICE
NAT  ba7fe6c5-ef7b-4a1b-a039-53fa2a439968  ethernet  ens160
LAN1 324b7dcd-ba65-44ea-878c-6d1431816bd9  ethernet  ens192
lo   69df7f4c-84da-4217-8732-bdfdb0776e48  loopback  lo
[root@server09 html_project2]# nmcli con mod LAN1 +ipv4.addresses 10.35.16.1/24
[root@server09 html_project2]#
```

2. Configure the /etc/hosts file:

```
root@server09:/var/www/html_project2
[root@server09 html_project2]# vim /etc/hosts

root@server09:/var/www/html_project2
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1          localhost localhost.localdomain localhost6 localhost6.localdomain6
10.35.16.1   virtual1.aucegep.com virtual2.aucegep.com
```

3. Create a directory of each website:

Because my project direction is in html_project2 folder I make a little change in question and I add virtual site folders inside of html_project2 folder.

```
root@server09:/var/www/html_project2
[root@server09 html_project2]# mkdir /var/www/html_project2/virtual1_80
[root@server09 html_project2]# mkdir /var/www/html_project2/virtual2_80
[root@server09 html_project2]# mkdir /var/www/html_project2/virtual1_80/logs
[root@server09 html_project2]# mkdir /var/www/html_project2/virtual2_80/logs
[root@server09 html_project2]#
[root@server09 html_project2]# echo "virtual1-80" > /var/www/html_project2/virtual1_80/index.html
[root@server09 html_project2]# echo "virtual2-80" > /var/www/html_project2/virtual2_80/index.html
[root@server09 html_project2]# tree /var/www/html_project2
/var/www/html_project2
├── master_project2.html
└── virtual1_80
    ├── index.html
    └── logs
└── virtual2_80
    ├── index.html
    └── logs

4 directories, 3 files
[root@server09 html_project2]#
```

4. Configure httpd.conf file:

```
root@server09:/var/www/html_project2
[root@server09 html_project2]# vim /etc/httpd/conf/httpd.conf
```

```

Listen 10.35.16.1:80
#Configuration virtual1.aucegep.com site
<VirtualHost 10.35.16.1>
    DocumentRoot /var/www/html_project2/virtual1_80
    ServerName virtual1.aucegep.com
    ServerAlias aucegep.com *.aucegep.com
</VirtualHost>

#Configuration virtual2.aucegep.com site
<VirtualHost 10.35.16.1>
    DocumentRoot /var/www/html_project2/virtual2_80
    ServerName virtual2.aucegep.com
</VirtualHost>

```

5. Validate the configuration :

```

[root@server09 html_project2]# httpd -S
VirtualHost configuration:
10.35.16.1:*           is a NameVirtualHost
                          default server virtual1.aucegep.com (/etc/httpd/conf/httpd.conf:49)
                          port * namevhost virtual1.aucegep.com (/etc/httpd/conf/httpd.conf:49)
                                      alias aucegep.com
                                      wild alias *.aucegep.com
                          port * namevhost virtual2.aucegep.com (/etc/httpd/conf/httpd.conf:56)
ServerRoot: "/etc/httpd"
Main DocumentRoot: "/var/www/html_project2"
Main ErrorLog: "/etc/httpd/logs/error_log"
Mutex cache-socache: using_defaults
Mutex authdigest-opaque: using_defaults
Mutex watchdog-callback: using_defaults
Mutex proxy-balancer-shm: using_defaults
Mutex rewrite-map: using_defaults
Mutex authdigest-client: using_defaults
Mutex dav_fs-lockdb: using_defaults
Mutex lua-ivm-shm: using_defaults
Mutex proxy: using_defaults
Mutex authn-socache: using_defaults
Mutex default: dir="/etc/httpd/run/" mechanism=default
PidFile: "/etc/httpd/run/httpd.pid"
Define: DUMP_VHOSTS

```

6. Restart httpd and test:

```

root@server09:/var/www/html_project2
[root@server09 html_project2]# systemctl restart httpd
[root@server09 html_project2]#

```

Project 2

Project Part2

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>
<http://10.35.16.1:8081>
<http://10.35.16.1:8082>
<http://10.35.16.1:8083>

Task 5

<http://www.itmt.com>
<http://www.itmt.ca>
<http://www2.itmt.com>
<http://www.montmo.com>
<http://www.montmo.ca>

virtual1.aucegep.com/index.h × +

← → ⌂ 10.35.16.1 virtual1.aucegep.com/index.html

AlmaLinux Documentation Blog Bug tracker GitHub organization

virtual1-80

A screenshot of a web browser window. The address bar shows the IP address 10.35.16.1. The page title is "Project 2". The main content area contains the text "Project Part2" in large bold letters, followed by a horizontal line of asterisks: *****. Below this, the section "Task 2" is labeled. Under "Task 2", there are four blue hyperlinks: <http://virtual1.aucegep.com>, <http://virtual1.aucegep.com:8000>, <http://virtual2.aucegep.com> (with a red arrow pointing to it), and <http://virtual2.aucegep.com:8000>. A horizontal line separates "Task 2" from "Task 3". The "Task 3" section is currently empty.

A screenshot of a web browser window. The address bar shows the URL virtual2.aucegep.com/index.html. The page title is "virtual2-a80". The main content area is completely blank.

Now I add virtual1.aucegep.com:8000 and virtual2.aucegep.com:8000 as two website uses different TCP port by previous step sites.

The network configuration and config the /etc/hosts are the same, so do nothing.

Create the directory:

```
root@server09 virtual2_80]# mkdir /var/www/html_project2/virtual1_8000
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtual2_8000
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtual1_8000/logs
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtual2_8000/logs
[root@server09 virtual2_80]# echo "virtual1-8000" > /var/www/html_project2/virtual1_8000/index.html
[root@server09 virtual2_80]# echo "virtual2-8000" > /var/www/html_project2/virtual2_8000/index.html
[root@server09 virtual2_80]# tree /var/www/html_project2
/var/www/html_project2
├── httpd.conf.Back
├── master_project2.html
└── virtual1_80
    ├── index.html
    └── logs
        └── virtual1_8000
            ├── index.html
            └── logs
                └── virtual1_8000
                    ├── index.html
                    └── logs
                        └── virtual1_8000
                            ├── index.html
                            └── logs
```

Config httpd.conf:

```
# available when the service starts. See the httpd.service(8) man page for more information.
#
#Listen 12.34.56.78:80Listen 10.35.16.1:80
Listen 10.35.16.1:80
Listen 10.35.16.1:8000

<VirtualHost 10.35.16.1>
    DocumentRoot /var/www/html_project2
    ServerName 10.35.16.1
</VirtualHost>

#Configuration virtual1.aucegep.com site
<VirtualHost 10.35.16.1>
    DocumentRoot /var/www/html_project2/virtual1_80
    ServerName virtual1.aucegep.com
</VirtualHost>

#Configuration virtual2.aucegep.com site
<VirtualHost 10.35.16.1>
    DocumentRoot /var/www/html_project2/virtual2_80
    ServerName virtual2.aucegep.com
</VirtualHost>
:wq
```

```
[root@server09 virtual2_80]# httpd -S
VirtualHost configuration:
10.35.16.1:          is a NameVirtualHost
                      default server 10.35.16.1 (/etc/httpd/conf/httpd.conf)
                      port * namevhost 10.35.16.1 (/etc/httpd/conf/httpd.conf)
                      port * namevhost virtual1.aucegep.com (/etc/httpd/conf/
                      port * namevhost virtual2.aucegep.com (/etc/httpd/conf/
10.35.16.1:8000       is a NameVirtualHost
                      default server virtual1.aucegep.com (/etc/httpd/conf/
                      port 8000 namevhost virtual1.aucegep.com (/etc/httpd/conf/
)
                      port 8000 namevhost virtual2.aucegep.com (/etc/httpd/conf/
)
```

Adding new addresses to master_project2.html page

```
<!DOCTYPE html>
<html>
<head>Project 2</head>
<body>
    <h1><b>Project Part2</b></h1>
    <h1><b>*****</b></h1>
    <p><b>Task 2</b></p>
    <a href="http://virtual1.aucegep.com/index.html">http://virtual1.aucegep.com</a><br>
    <a href="http://virtual1.aucegep.com:8000">http://virtual1.aucegep.com:8000</a><br>
    <a href="http://virtual2.aucegep.com/index.html">http://virtual2.aucegep.com</a><br>
    <a href="http://virtual2.aucegep.com:8000">http://virtual2.aucegep.com:8000</a><br>
    <hr>
    <p><b>Task 3</b></p>
    <a href="secure1.html">http://www.ici.com</a><br>
    <a href="secure1.html">http://intranet.ici.com</a><br>
    <a href="secure1.html">http://intranet.ici.com:8000</a><br>
    <a href="secure1.html">http://development.ici.com</a><br>
    <hr>
    <p><b>Task 4</b></p>
</body>
```

restart httpd service and Testing:

```
[root@server09 virtual2_80]# systemctl restart httpd
Job for httpd.service failed because the control process exited with error code.
See "systemctl status httpd.service" and "journalctl -xeu httpd.service" for details.
```

it seems port 8000 makes a problem, I should troubleshooting the problem before restart again:

```
[root@server09 virtual2_80]# 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@server09 virtual2_80]#
```

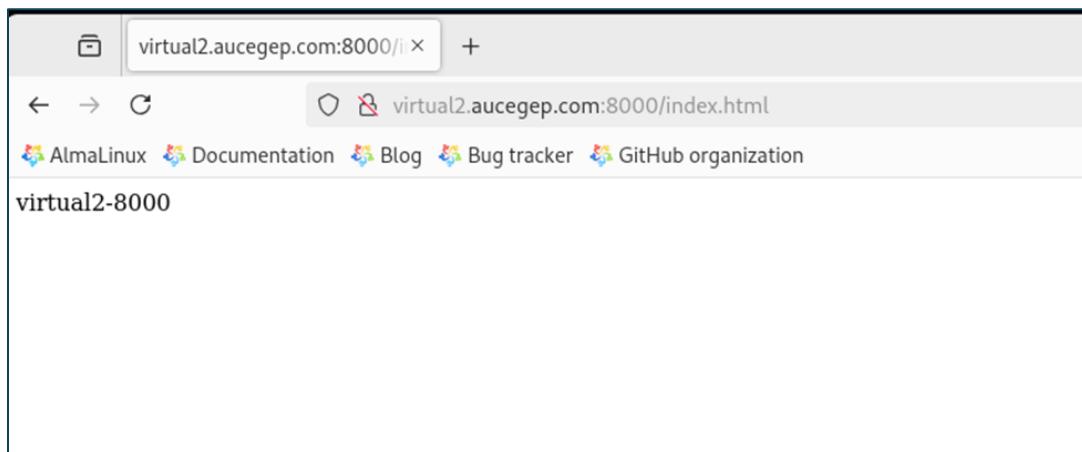
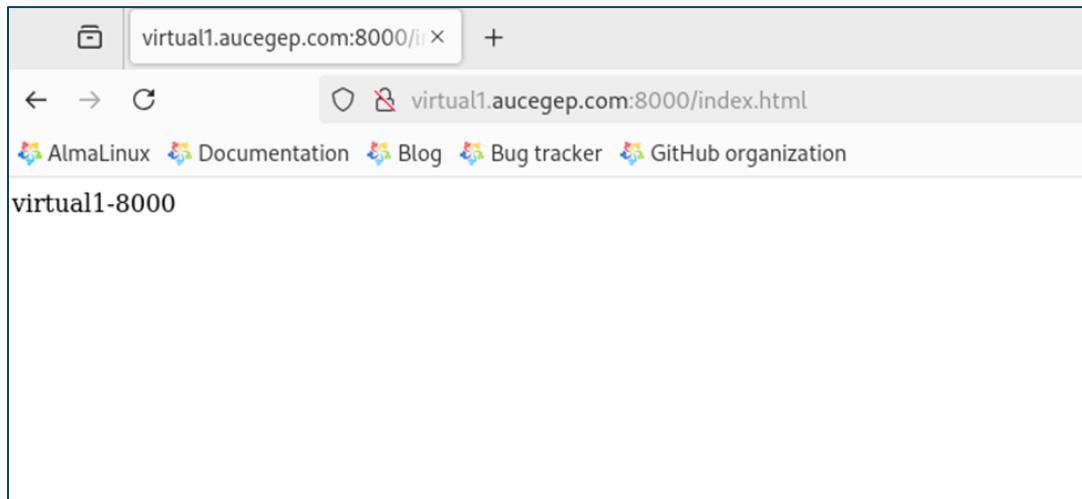
port number 8000 is not valid in system.

Defining port 8000:

```
[root@server09 virtual2_80]# semanage port -a -t http_port_t -p tcp 8000
Port tcp/8000 already defined, modifying instead
[root@server09 virtual2_80]#
```

Restart again:

```
[root@server09 virtual2_80]# systemctl restart httpd
[root@server09 virtual2_80]#
```



TASK 3 – NAME-BASED VIRTUAL HOSTS WITH ACCESS CONTROL

- Server IP addresses: 10.35.17.1
- You are required to create virtual servers using name-based hosting, with access permissions and document roots as described below:

➤ Hostname: www.ici.com

- Port: 80
- Document Root: /var/www/virtuals/ici
- Accessible to everyone (no restrictions).

➤ Hostname: intranet.ici.com

- Port: 80
- Document Root: /var/www/virtuals/intranet
- Accessible to everyone (no restrictions).

➤ Hostname: intranet.ici.com

- Port 8000
- Document Root: /var/www/virtuals/pre_production
- Accessible only from the 10.35.17.0/24 subnet.

➤ Hostname: development.ici.com

- Port 80
- Document Root: /var/www/virtuals/development
- Accessible only from the 10.35.17.0/24 subnet.

Setting IP:

```
[root@server09 virtual2_80]# nmcli con mod LAN1 +ipv4.addresses 10.35.17.1
[root@server09 virtual2_80]# ip a
```

configuring Hosts:

```
[root@server09 virtual2_80]# vim /etc/hosts
```

```
127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4
::1 localhost localhost.localdomain localhost6 localhost6.localdomain6
10.35.16.1 virtual1.aucegep.com virtual2.aucegep.com
10.35.17.1 www.ici.com intranet.ici.com development.ici.com
```

Making Directories:

```
[root@server09 virtual2_80]# mkdir /var/www/html_project2/www.ici.com
[root@server09 virtual2_80]# mkdir /var/www/html_project2/www.ici.com/logs
[root@server09 virtual2_80]# mkdir /var/www/html_project2/intranet.ici.com_80
[root@server09 virtual2_80]# mkdir /var/www/html_project2/intranet.ici.com_80/logs
[root@server09 virtual2_80]# mkdir /var/www/html_project2/intranet.ici.com_8000
[root@server09 virtual2_80]# mkdir /var/www/html_project2/intranet.ici.com_8000/logs
[root@server09 virtual2_80]# mkdir /var/www/html_project2/development.ici.com
[root@server09 virtual2_80]# mkdir /var/www/html_project2/development.ici.com/logs
[root@server09 virtual2_80]# tree /var/www/html_project2
/var/www/html_project2
├── development.ici.com
│   └── logs
├── httpd.conf.Back
├── intranet.ici.com_80
│   └── logs
├── intranet.ici.com_8000
│   └── logs
└── master_project2.html
    └── virtual1_80
        └── index.html
            └── logs
```

```
[root@server09 virtual2_80]# systemctl restart httpd
bash: systemctl: command not found...
[root@server09 virtual2_80]# systemctl restart httpd
[root@server09 virtual2_80]# echo "www.ici.com" > /var/www/html_project2/www.ici.com/index.html
[root@server09 virtual2_80]# echo "intranet.ici.com" > /var/www/html_project2/intranet.ici.com/index.html
-bash: /var/www/html_project2/intranet.ici.com/index.html: No such file or directory
[root@server09 virtual2_80]# echo "intranet.ici.com_80" > /var/www/html_project2/intranet.ici.com_80/index.html
[root@server09 virtual2_80]# echo "intranet.ici.com_8000" > /var/www/html_project2/intranet.ici.com_8000/index.html
[root@server09 virtual2_80]# echo "development.ici.com" > /var/www/html_project2/development.ici.com/index.html
[root@server09 virtual2_80]# █
```

Configuring Apache for hosting sites:

```
[root@server09 virtual2_80]# vim /etc/httpd/conf/httpd.conf
```

```
#Listen 12.34.56.78:80
Listen 10.35.16.1:80
Listen 10.35.16.1:8000
Listen 10.35.17.1:80
Listen 10.35.17.1:8000
```

```
#Configuration www.ici.com site
<VirtualHost 10.35.17.1:80>
    DocumentRoot /var/www/html_project2/www.ici.com
    ServerName www.ici.com
    <Directory "/var/www/html_project2/www.ici.com">
        Require all granted
    </Directory>
</VirtualHost>

#Configuration intranet.ici.com site
<VirtualHost 10.35.17.1:80>
    DocumentRoot /var/www/html_project2/intranet.ici.com_80
    ServerName intranet.ici.com
    <Directory "/var/www/html_priject2/intranet.ici.com_80">
        Require all granted
    </Directory>
</VirtualHost>
```

```
#Configuration intranet.ici.com:8000 site
<VirtualHost 10.35.17.1:8000>
    DocumentRoot /var/www/html_project2/intranet.ici.com_8000
    ServerName intranet.ici.com
    <Directory "/var/www/html_project2/intranet.ici.com_8000">
        Require ip 10.35.17.0/24
    </Directory>
</VirtualHost>

#Configuration development.ici.com site
<VirtualHost 10.35.17.1:80>
    DocumentRoot /var/www/html_project2/development.ici.com
    ServerName development.ici.com
    <Directory "/var/www/html_project2/development.ici.com">
        Require ip 10.35.17.0/24
    </Directory>
</VirtualHost>
```

Validation all setting:

```
[root@server09 virtual2_80]# httpd -S
VirtualHost configuration:
10.35.16.1:80           is a NameVirtualHost
    default server 10.35.16.1 (/etc/httpd/conf/httpd.conf:52)
    port 80 namevhost 10.35.16.1 (/etc/httpd/conf/httpd.conf:52)
    port 80 namevhost virtual1.aucegep.com (/etc/httpd/conf/httpd.conf:58)
    port 80 namevhost virtual2.aucegep.com (/etc/httpd/conf/httpd.conf:64)
10.35.16.1:8000          is a NameVirtualHost
    default server virtual1.aucegep.com (/etc/httpd/conf/httpd.conf:70)
    port 8000 namevhost virtual1.aucegep.com (/etc/httpd/conf/httpd.conf:70)
)
    port 8000 namevhost virtual2.aucegep.com (/etc/httpd/conf/httpd.conf:76)
)
10.35.17.1:8000          intranet.ici.com (/etc/httpd/conf/httpd.conf:100)
10.35.17.1:80            is a NameVirtualHost
    default server www.ici.com (/etc/httpd/conf/httpd.conf:82)
    port 80 namevhost www.ici.com (/etc/httpd/conf/httpd.conf:82)
    port 80 namevhost intranet.ici.com (/etc/httpd/conf/httpd.conf:91)
    port 80 namevhost development.ici.com (/etc/httpd/conf/httpd.conf:109)
ServerRoot: "/etc/httpd"
Main DocumentRoot: "/var/www/html_project2"
Main ErrorLog: "/etc/httpd/logs/error_log"
Mutex authdigest-opaque: using defaults
```

Loading changes:

```
[root@server09 virtual2_80]# systemctl restart httpd
[root@server09 virtual2_80]#
```

Test:

```
[root@server09 virtual2_80]# vim /var/www/html_project2/master_project2
```

Project 2

Project Part2

Task 2

<http://virtual1.aucegеп.com>
<http://virtual1.aucegеп.com:8000>
<http://virtual2.aucegеп.com>
<http://virtual2.aucegеп.com:8000>

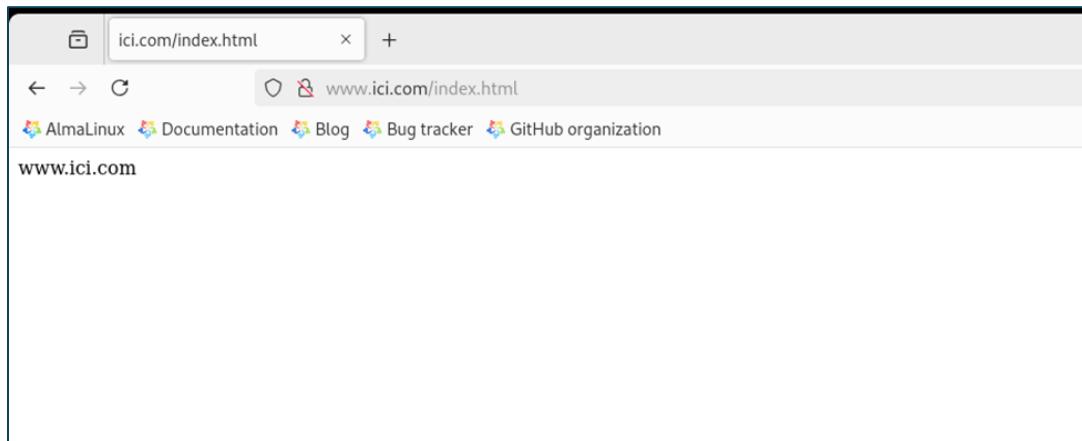
Task 3

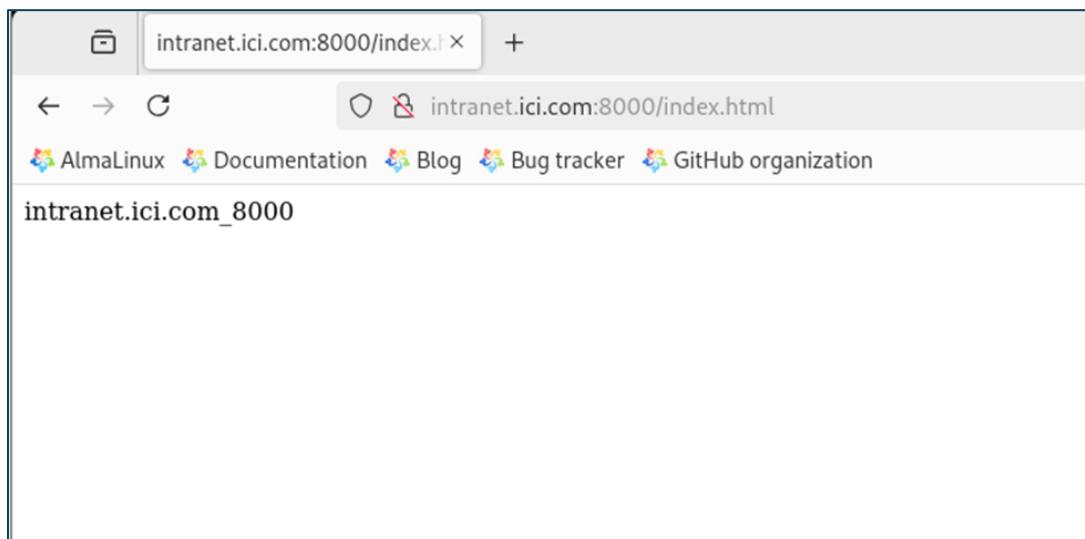
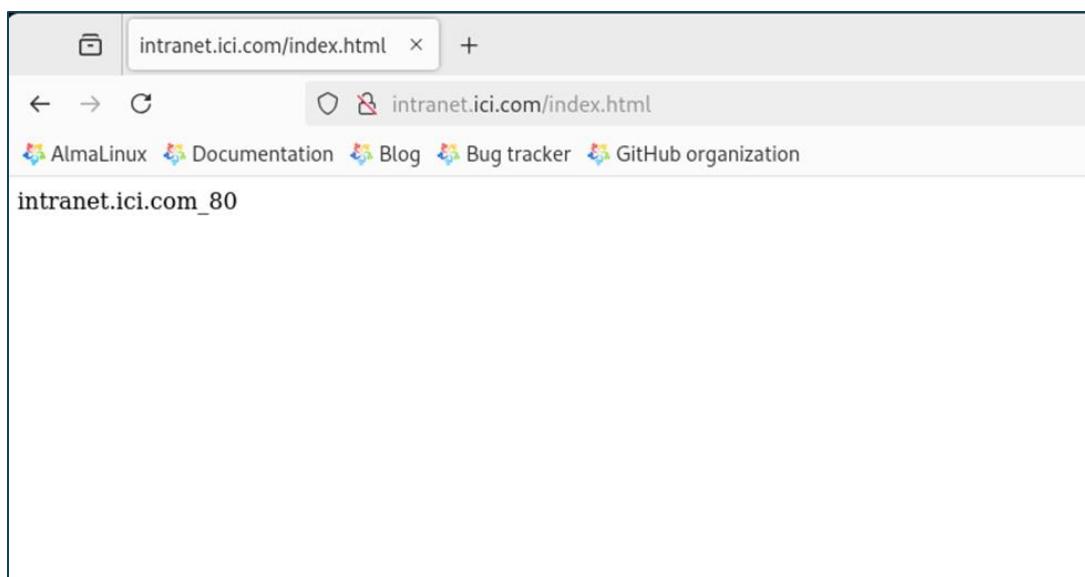
<http://www.ici.com>
<http://intranet.ici.com>
<http://intranet.ici.com:8000>
<http://development.ici.com>

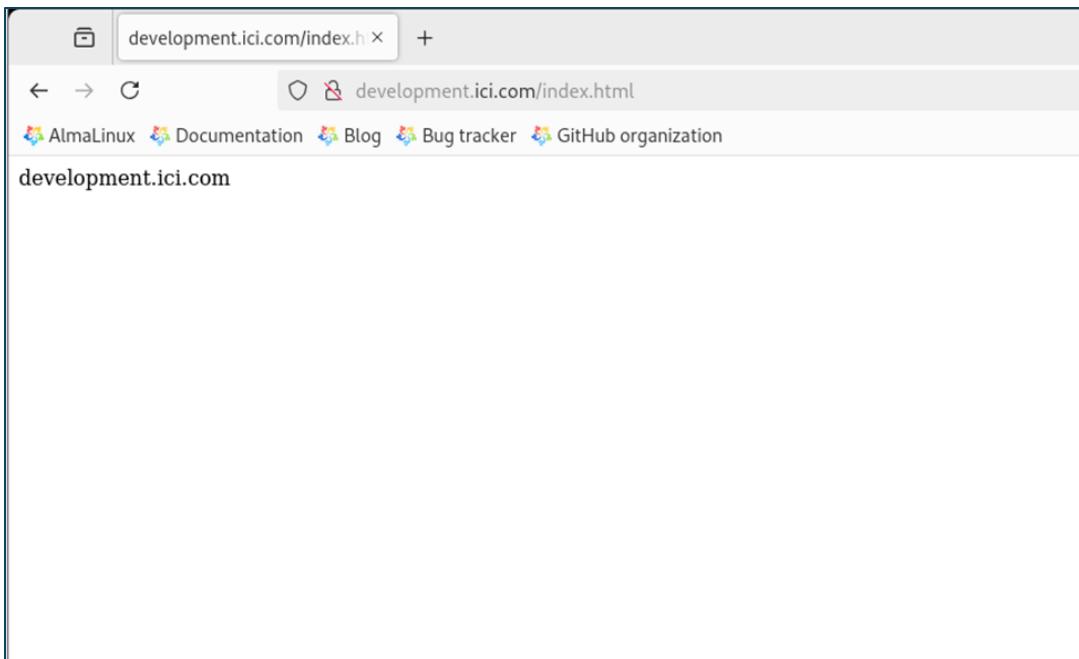
Task 4

<http://10.35.16.1:8080>
<http://10.35.16.1:8081>
<http://10.35.16.1:8082>
<http://10.35.16.1:8083>

Task 5





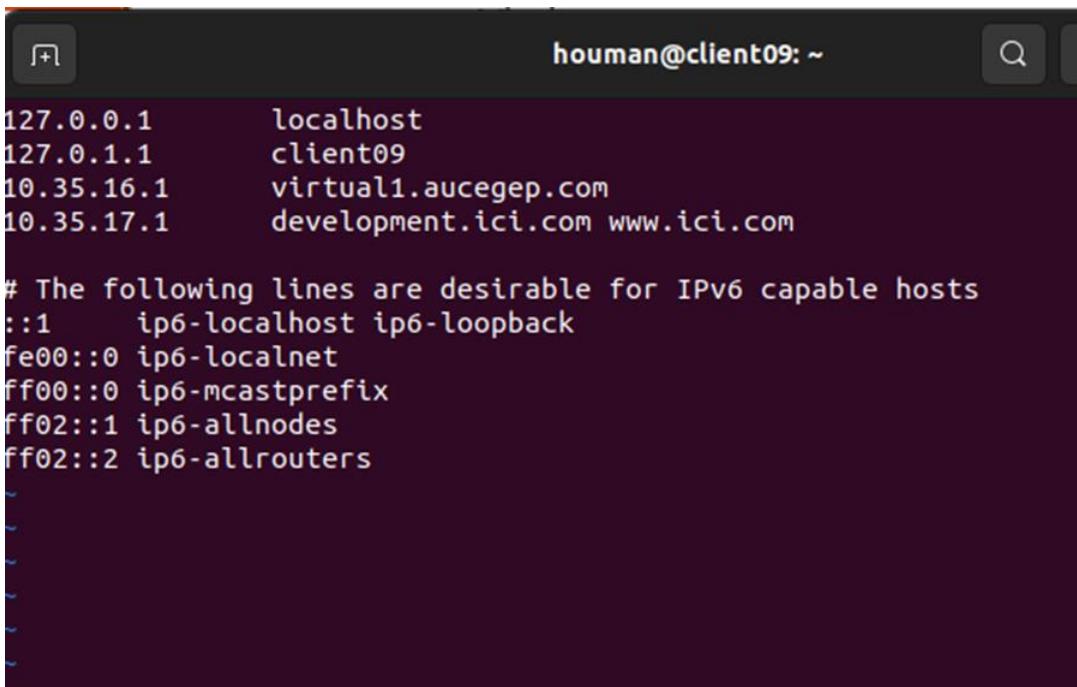


Test accessibility by Client

Define IP 10.35.16.20 for the client

A screenshot of a network configuration dialog titled "Wired". The "IPv4" tab is selected. Under "IPv4 Method", the "Manual" radio button is selected. In the "Addresses" section, there is one entry: Address 10.35.16.20, Netmask 255.255.255.0, and Gateway empty. There is a delete icon next to the address entry. The "DNS" tab is also visible at the bottom.

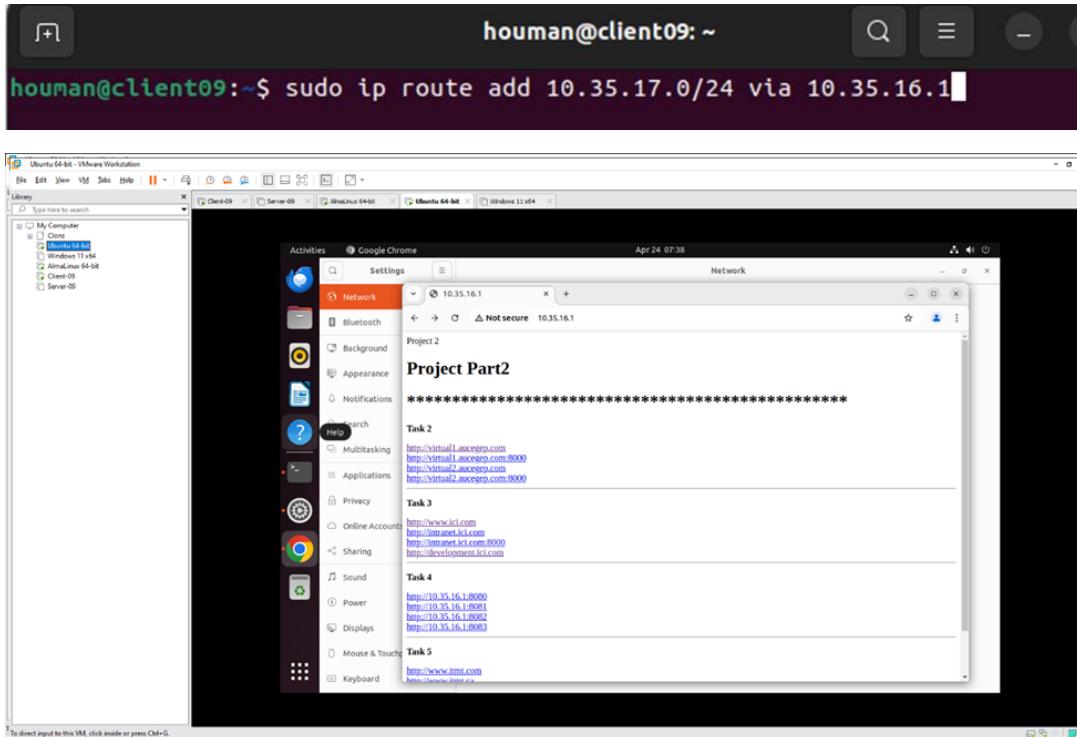
adding links and URLs to DNS (/etc/hosts)

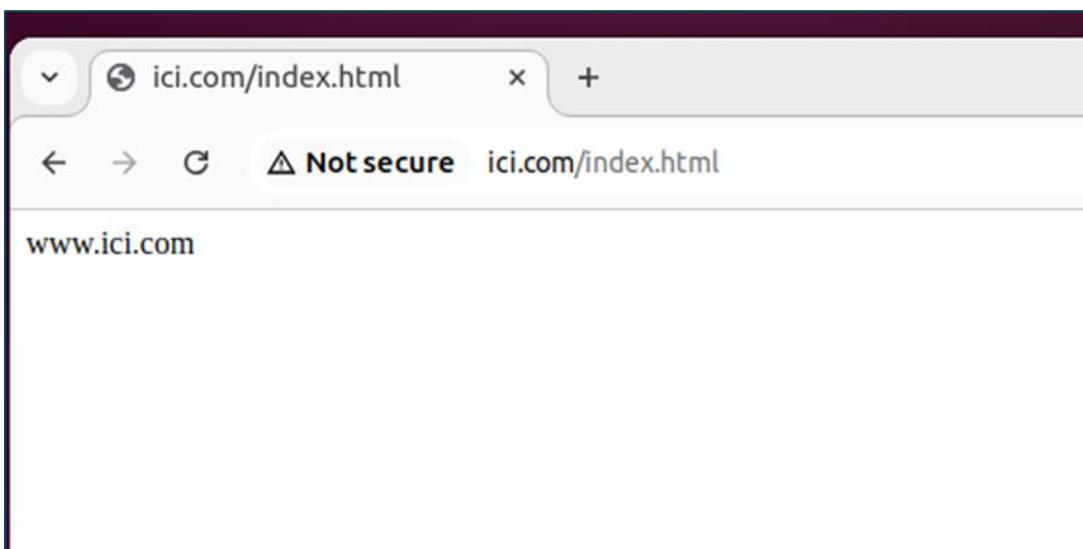
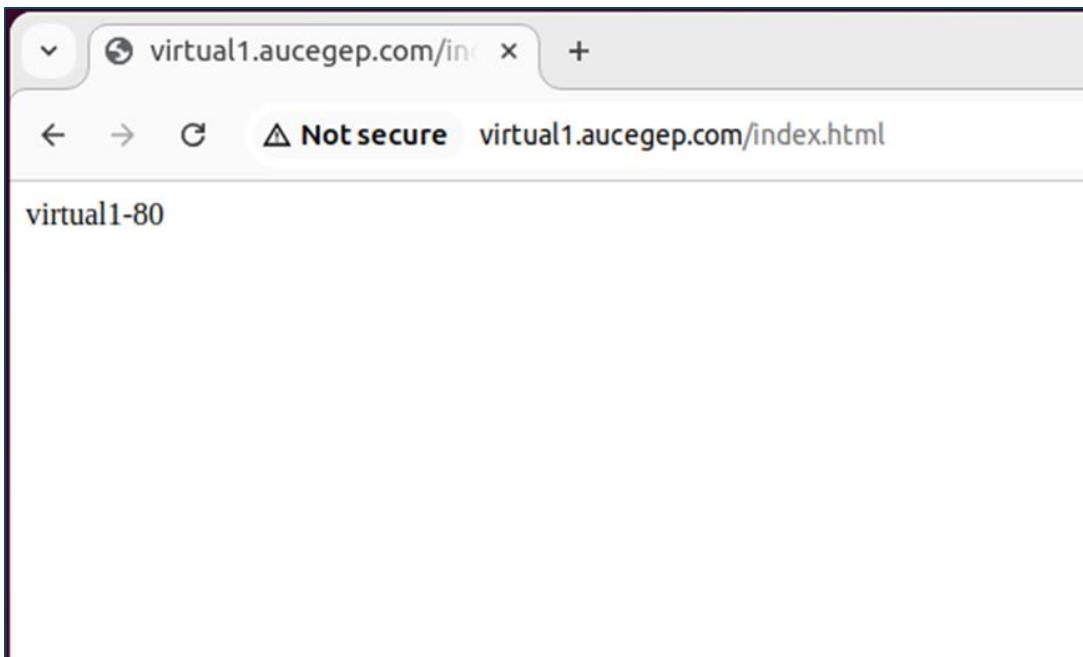


```
houman@client09: ~
127.0.0.1      localhost
127.0.1.1      client09
10.35.16.1     virtual1.aucegep.com
10.35.17.1     development.ici.com www.ici.com

# The following lines are desirable for IPv6 capable hosts
::1      ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

Making a router between 10.35.16.0/24 and 10.35.17.0/24 Networks in client, because I will send request of page from one domain and some pages are hosted to other VLAN so without router packet can not send and for apache.

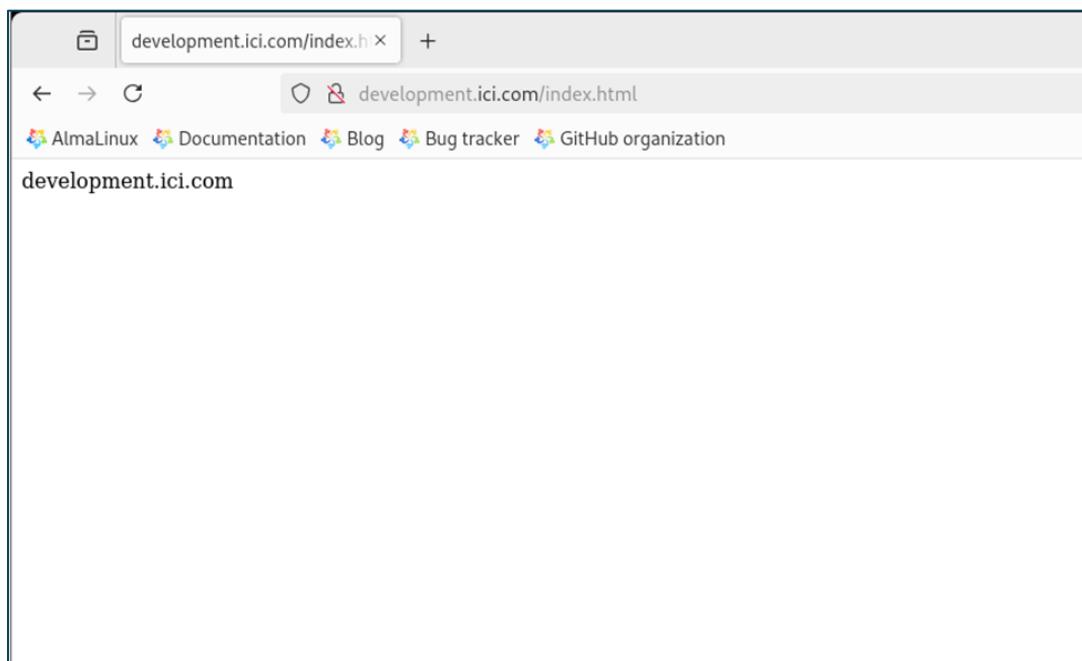
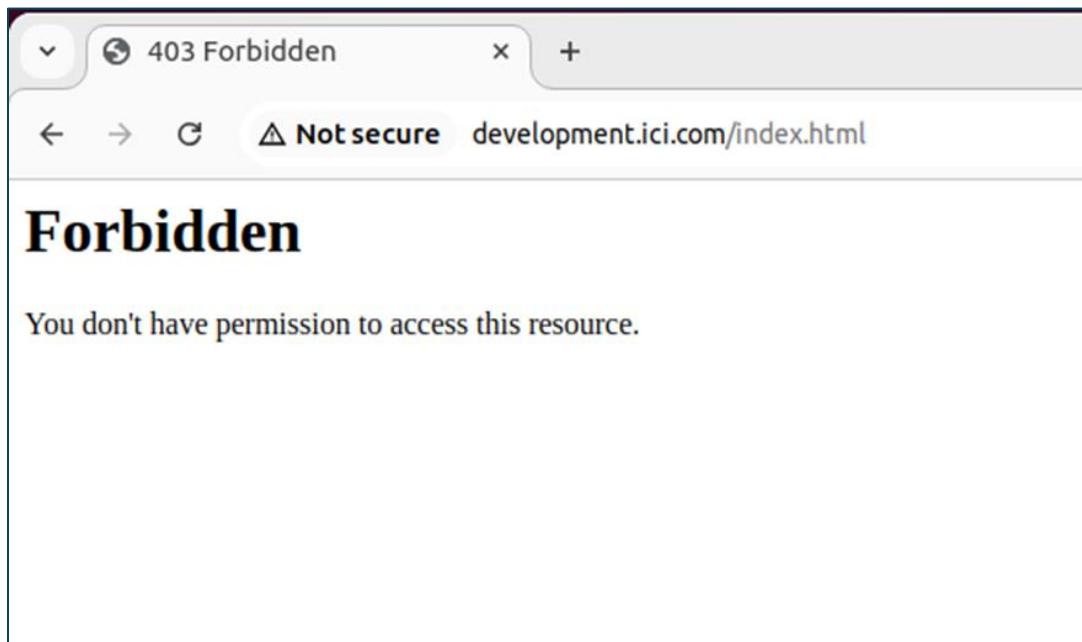




first site is in 10.35.16.1 without access rule

second site is in 10.35.17.1 with rule access able for all vlans

third site is in 10.35.17.1 and for this sub net is usable so we have Error Forbidden from client with Net 10.35.16. it is working in Net 10.35.17 on server.



TASK 4 – VIRTUAL WEB SERVERS BY IP AND PORT

- Create and configure four virtual web servers as described below.
- Use a separate directory for each server under: /var/www/virtuals/q4/
- For example, the sales web server will use: /var/www/virtuals/q4/sales
- To access each server, use the IP address 10.35.16.1 followed by the corresponding port number. For example: http://10.35.16.1:8080 should display the sales web server homepage.
- Virtual servers to create:
 - Sales server on port 8080.
 - Admin server on port 8081.
 - Thing server on port 8082.
 - Other server on port 8083.

```
root@server09:/var/www/html_project2/virtual2_80
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtuals
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtuals/q4
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtuals/q4/sales
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtuals/q4/admin
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtuals/q4/thing
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtuals/q4/other
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtuals/q4/sales/logs
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtuals/q4/admin/logs
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtuals/q4/thing/logs
[root@server09 virtual2_80]# mkdir /var/www/html_project2/virtuals/q4/other/logs
[root@server09 virtual2_80]# echo "Sales server" > /var/www/html_project2/virtuals/q4/sales/index.html
-bash: /var/www/html_project2/virtuals/q4/sales: Is a directory
[root@server09 virtual2_80]# echo "Sales server" > /var/www/html_project2/virtuals/q4/sales/index.html
[root@server09 virtual2_80]# echo "admin server" > /var/www/html_project2/virtuals/q4/admin/index.html
[root@server09 virtual2_80]# echo "thing server" > /var/www/html_project2/virtuals/q4/thing/index.html
[root@server09 virtual2_80]# echo "other server" > /var/www/html_project2/virtuals/q4/other/index.html
[root@server09 virtual2_80]#
```

```
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
```

```
[root@server09 virtual2_80]# semanage port -l | grep http_port_t
http_port_t          tcp      8000, 80, 81, 443, 488, 8008, 8009, 8443
, 9000
pegasus_http_port_t  tcp      5988
[root@server09 virtual2_80]#
```

```
[root@server09 virtual2_80]# semanage port -a -t http_port_t -p tcp 8080-8083
[root@server09 virtual2_80]#
```

```
#Configuration sales server site
<VirtualHost 10.35.16.1:8080>
    DocumentRoot /var/www/html_project2/virtuals/q4/sales
</VirtualHost>
#Configuration admin server site
<VirtualHost 10.35.16.1:8081>
    DocumentRoot /var/www/html_project2/virtuals/q4/admin
</VirtualHost>
#Configuration thing server site
<VirtualHost 10.35.16.1:8082>
    DocumentRoot /var/www/html_project2/virtuals/q4/thing
</VirtualHost>
#Configuration other server site
<VirtualHost 10.35.16.1:8083>
    DocumentRoot /var/www/html_project2/virtuals/q4/other
</VirtualHost>
```

```
[root@server09 virtual2_80]# systemctl restart httpd
[root@server09 virtual2_80]#
```

```
-- INSERT -- 23.31 56%
<a href="http://10.35.16.1:8080/index.html">http://10.35.16.1:8080</a><br>
<a href="http://10.35.16.1:8081/index.html">http://10.35.16.1:8081</a><br>
<a href="http://10.35.16.1:8082/index.html">http://10.35.16.1:8082</a><br>
<a href="http://10.35.16.1:8083/index.html">http://10.35.16.1:8083</a><br>
<hr>
<p><b>Task 4</b></p>
<a href="http://development.ici.com/index.html">http://development.ici.com</a><br>
<a href="http://secure1.html">http://www.itmt.com</a><br>
<a href="secure1.html">http://www.itmt.ca</a><br>
<a href="secure1.html">http://www2.itmt.com</a><br>
```

Project Part2

Task 2

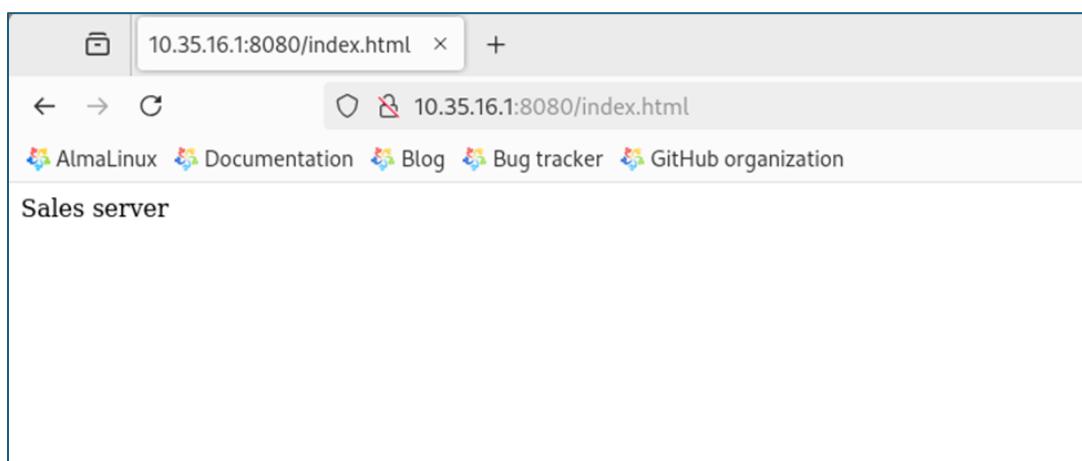
<http://virtual1.aucegep.com>
<http://virtual1.aucegep.com:8000>
<http://virtual2.aucegep.com>
<http://virtual2.aucegep.com:8000>

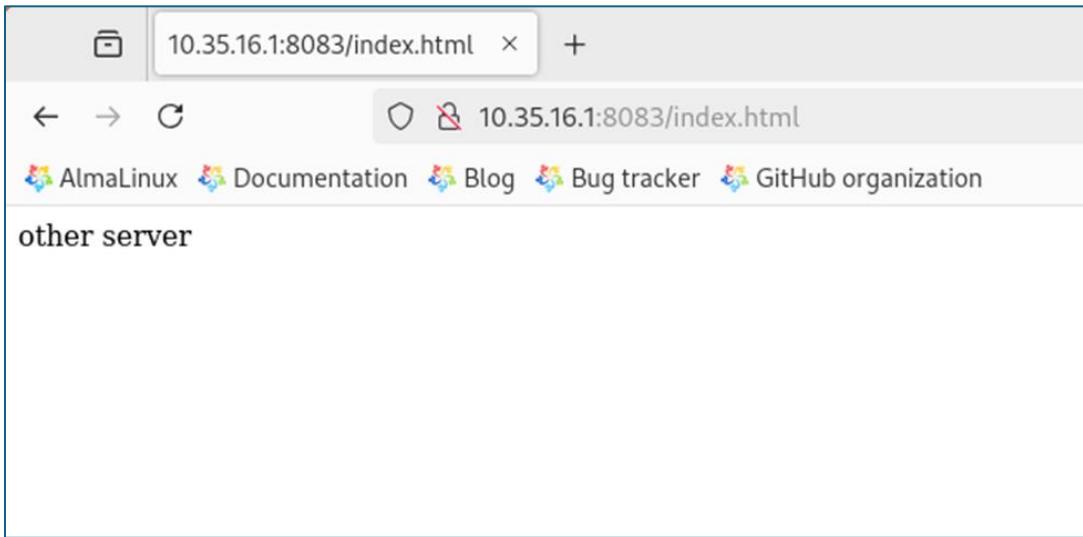
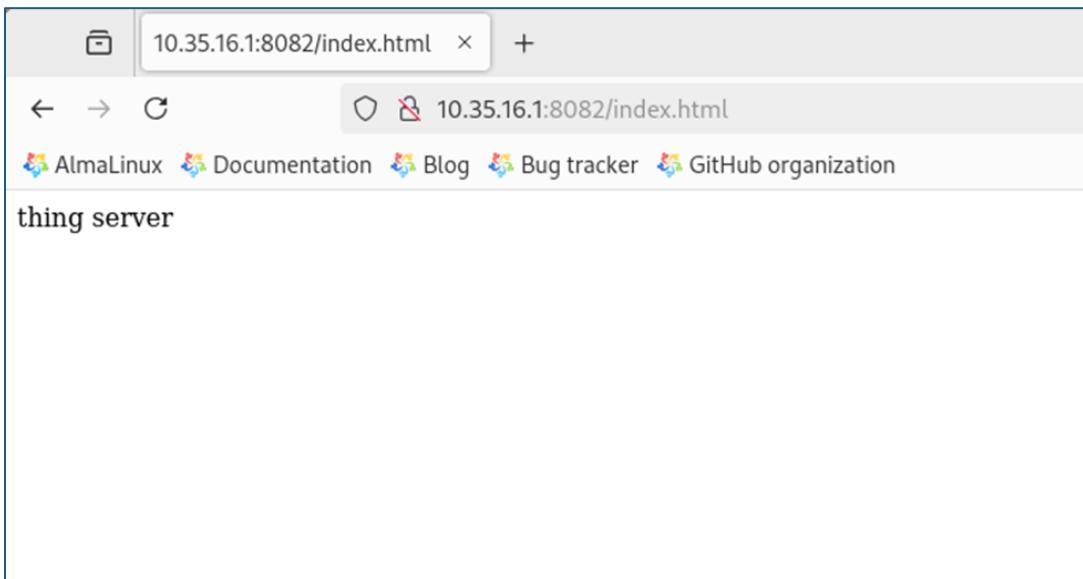
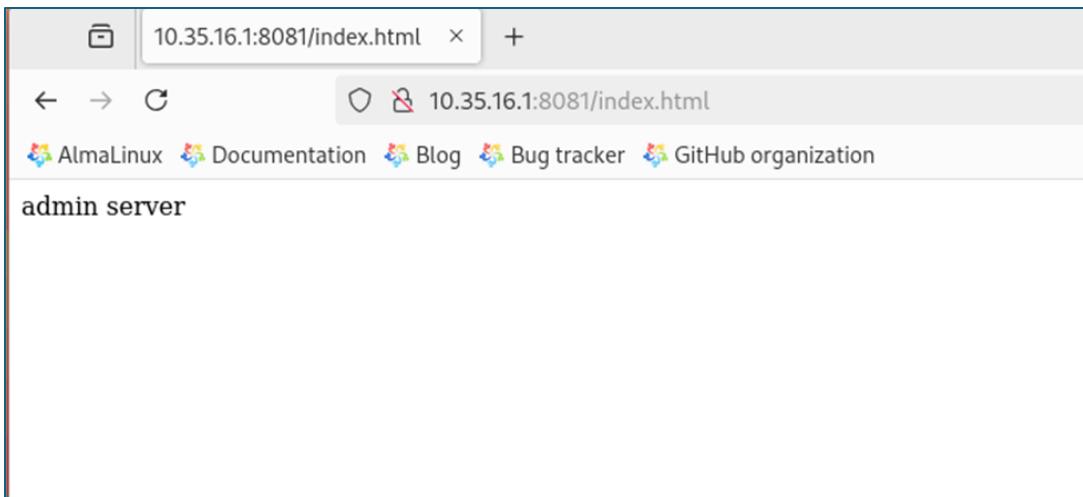
Task 3

<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>
<http://10.35.16.1:8081>
<http://10.35.16.1:8082>
<http://10.35.16.1:8083>





TASK 5 – DYNAMIC VIRTUAL HOSTING

- Server IP address: 10.50.1.1
- You are required to configure your Apache web server to support six virtual servers using only one block and the VirtualDocumentRoot directive.
- Virtual Servers to Configure:

Server Name	IP Address
www.itmt.com	10.50.1.1
www.itmt.ca	10.50.1.1
www2.itmt.com	10.50.1.1
www.montmo.com	10.50.1.1
www.montmo.ca	10.50.1.1

- Each website will have its own directory based on the following path format:
/var/www/virtuals/q5/x/y/z/

Where:

- x = TLD of the domain (com or ca).
- y = The name of the company.
- z = The prefix before the domain (e.g., www, www2).
- For example, www.itmt.com, the full directory would be:
/var/www/virtuals/q5/com/itmt/www/
- All virtual host errors should be logged to: /var/www/virtuals/q5/logs/virtual_error_q5_log

Note: For this question you can use tree to help you visualize the directory structure.

```
[root@server09 /]# nmcli con mod LAN1 +ipv4.addresses 10.50.1.1/24
[root@server09 /]# ]#
```

```
[root@server09 /]# mkdir -p /var/www/html_project2/virtuals/q5/com/itmt/www
[root@server09 /]# mkdir -p /var/www/html_project2/virtuals/q5/ca/itmt/www
[root@server09 /]# mkdir -p /var/www/html_project2/virtuals/q5/com/itmt/www2
[root@server09 /]# mkdir -p /var/www/html_project2/virtuals/q5/com/montmo/www
[root@server09 /]# mkdir -p /var/www/html_project2/virtuals/q5/ca/montmo/www
[root@server09 /]# echo "www.itmt.com" > /var/www/html_project2/virtuals/q5/com/itmt/www/index.html
[root@server09 /]# echo "www.itmt.com" > /var/www/html_project2/virtuals/q5/ca/itmt/www/index.html
[root@server09 /]# echo "www.itmt.ca" > /var/www/html_project2/virtuals/q5/ca/itmt/www2/index.html
[root@server09 /]# echo "www2.itmt.com" > /var/www/html_project2/virtuals/q5/com/itmt/www2/index.html
[root@server09 /]# echo "www.montmo.com" > /var/www/html_project2/virtuals/q5/com/montmo/www/index.html
[root@server09 /]# echo "www.montmo.ca" > /var/www/html_project2/virtuals/q5/ca/montmo/www/index.html
[root@server09 /]#
```

/etc/hosts

```
root@server09:/  
127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4  
::1 localhost localhost.localdomain localhost6 localhost6.localdomain6  
10.35.16.1 virtual1.aucegep.com virtual2.aucegep.com  
10.35.17.1 www.ici.com intranet.ici.com development.ici.com  
10.50.1.1 www.itmt.com www.itmt.ca www2.itmt.com www.montmo.com www.montmo.ca  
10.50.1.10 www.ici.com intranet.ici.com development.ici.com
```

```
LISTEN 10.35.10.1.8080  
Listen 10.50.1.1:80
```

```
# Task 5 project 2  
<VirtualHost 10.50.1.1:80>  
    UseCanonicalName off  
    VirtualDocumentRoot "/var/www/html_project2/virtuals/q5/%3/%2/%1"  
    ErrorLog /var/www/html_project2/virtuals/q5/logs/virtual_error_q5_log  
</VirtualHost>
```

```
[root@server09 /]# systemctl restart httpd  
[root@server09 /]#
```

```
<p><b>Task 5</b></p>  
<a href="http://www.itmt.com">http://www.itmt.com</a><br>  
<a href="http://www.itmt.ca">http://www.itmt.ca</a><br>  
<a href="http://www2.itmt.com">http://www2.itmt.com</a><br>  
<a href="http://www.montmo.com">http://www.montmo.com</a><br>  
<a href="http://www.montmo.ca">http://www.montmo.ca</a><br>  
<hr>
```

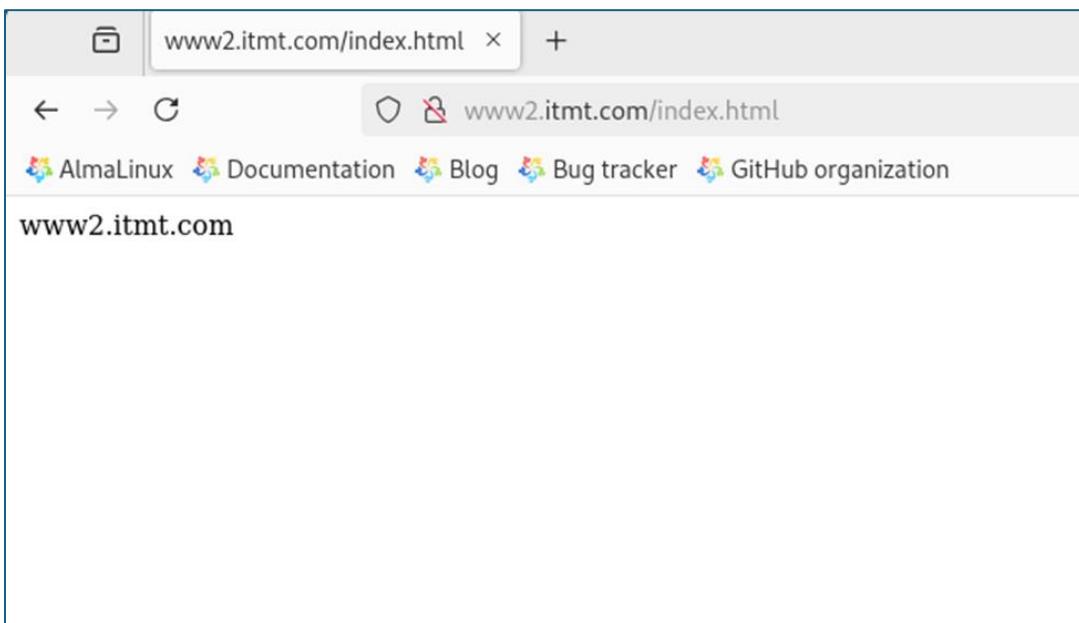
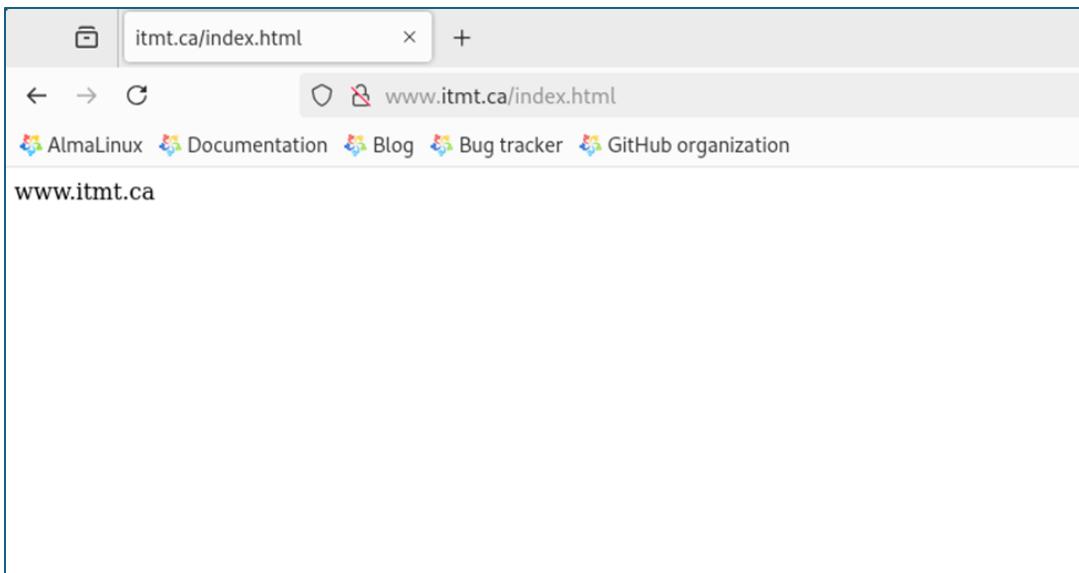
The screenshot shows a web browser window with the following details:

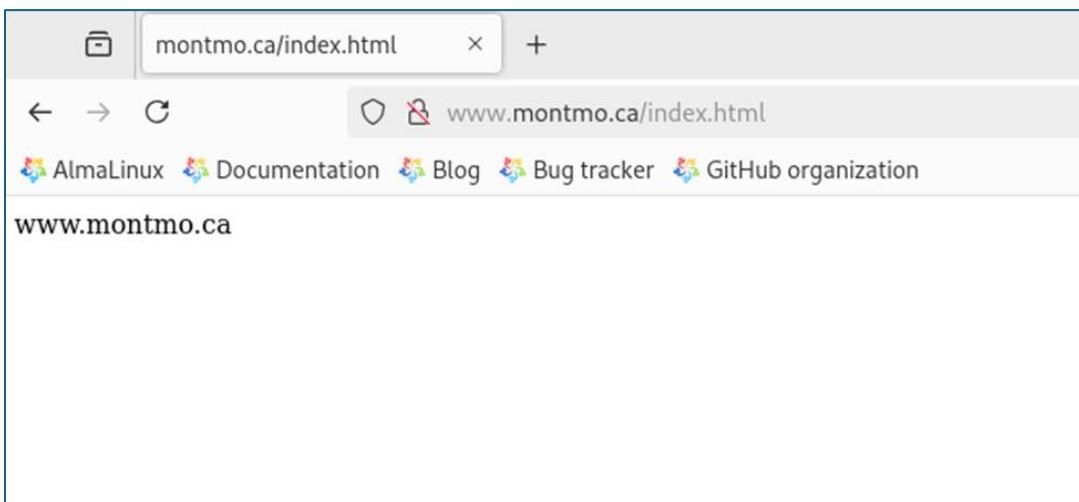
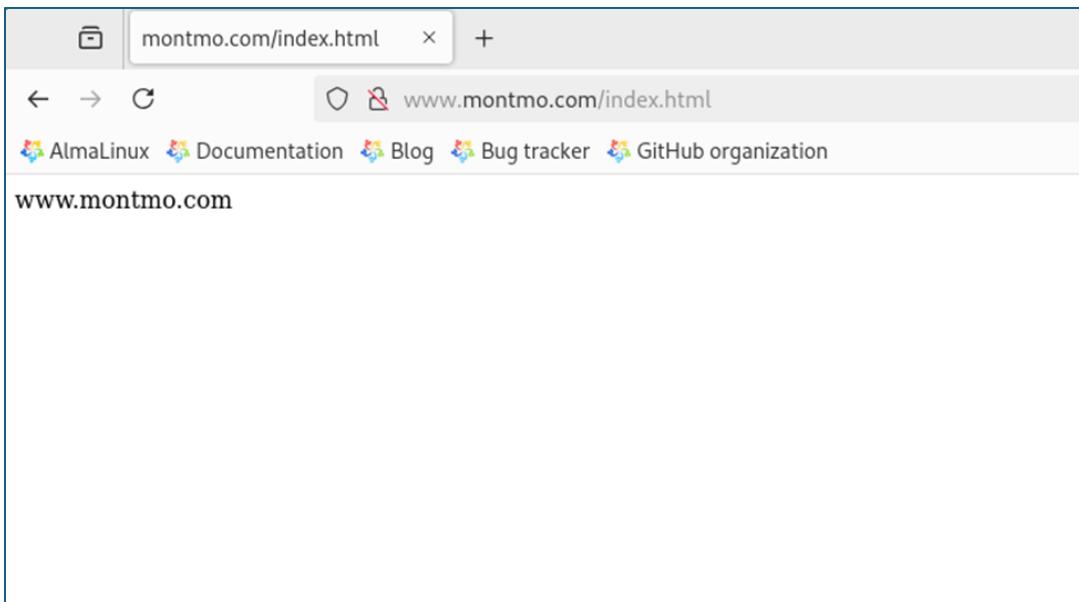
- Address bar: 10.35.16.1
- Page title: Project Part2
- Content:
 - *****
 - Task 2**
 - <http://virtual1.aucegep.com>
 - <http://virtual1.aucegep.com:8000>
 - <http://virtual2.aucegep.com>
 - <http://virtual2.aucegep.com:8000>
- Task 3**
- <http://www.ici.com>
- <http://intranet.ici.com>
- <http://intranet.ici.com:8000>
- <http://development.ici.com>
- Task 4**
- <http://10.35.16.1:8080>
- <http://10.35.16.1:8081>
- <http://10.35.16.1:8082>
- <http://10.35.16.1:8083>
- Task 5**
- <http://www.itmt.com>
- <http://www.itmt.ca>
- <http://www2.itmt.com>
- <http://www.montmo.com>
- <http://www.momtmo.ca>

The screenshot shows a web browser window with the following details:

- Address bar: www.itmt.com/index.html
- Page title: www.itmt.com/index.html
- Content:

www.itmt.com





```
[root@server09 ~]# tree /var/www/html_project2/virtuals
/var/www/html_project2/virtuals
└── g5
    ├── q4
    │   ├── admin
    │   │   └── index.html
    │   │   └── logs
    │   ├── other
    │   │   └── index.html
    │   │   └── logs
    │   ├── sales
    │   │   └── index.html
    │   │   └── logs
    │   ├── thing
    │   │   └── index.html
    │   │   └── logs
    └── q5
        └── ca
            ├── itmt
            │   └── www
            │       └── index.html
            └── montmo
                └── www
                    └── index.html
```

```
└── montmo
    └── www
        └── index.html
com
└── itmt
    ├── www
    │   └── index.html
    └── www2
        └── index.html
    └── montmo
        └── www
            └── index.html
logs
└── virtual_error_q5_log

23 directories, 10 files
[root@server09 /]#
```