Apache and Virtual Hosts Exercises

Install Apache version 2

Apache is already installed on your machines, but if it was not you would simply do:

```
# apt-get install apache2
```

As the root user. Once Apache is installed it is up and running. The startup defintion for Apache is /etc/init.d/apache2. You can stop, start, restart, reload Apache by doing:

```
# service apache2 stop
# service apache2 start
# service apache2 restart
# service apache2 reload
```

Configure Virtual Hosts in Apache 2

There are several ways to approach virtual hosting. The first thing you must determine is your directory structure where each web site will reside. For our purposes we will use the standard Linux convention of:

```
/var/www/VirtualHostName1
/var/www/VirtualHostName2
/var/www/etc…
```

All of your PCs have multiple entries for their assigned IP addresses on the Authoritative nameserver for the zone ws.nsrc.org – that is on 10.10.0.254. Thus, you can use both these names:

```
pcX.ws.nsrc.org ==> 10.10.0.X
tzX.ws.nsrc..org ==> 10.10.0.X
```

to access your machines. We will take advantage of this for the exercise.

Let's create the web directories that we'll need:

```
# cd /var/www/
# mkdir pcX.ws.nsrc.org
# mkdir tzX.ws.nsrc.org
```

Be sure you replace "X" with the number of your PC.

Now let's copy the original `index.html` file to our pcX.ws.nsrc.org directory,
and the `tzX.ws.nsrc.org directory as well`:

```
# cp index.html pcX.ws.nsrc.org/.
# cp index.html tzX.ws.nsrc.org/.
```

Edit the `index.html` files in the `pcX` and `tzX` directories.

```
# vi pcX.ws.nsrc.org/index.html
```

Change the text "This is the default web page for this server." to
"pcX.ws.nsrc.org Virtual Host". Close and save the file.

```
# vi tzX.ws.nsrc.org/index.html
```

Change the text "This is the default web page for this server." to
"tzX.ws.nsrc.org Virtual Host". Close and save the file.

Now we need to adjust the Apache configuration files for our two new sites. We
will treat the pcX.ws.nsrc.org site as our default site – that is, where people
arrive if, for some reason, the come to our box without specifying a host name
(for instance, if they use an IP address instead):

```
# cd /etc/apache2/sites-available
# vi default
```

In the file default we will change the "DocumentRoot" setting to point to the
directory for pcX.ws.nsrc.org. Look for this line:

```
DocumentRoot /var/www
```

Change this line to read:

```
DocumentRoot /var/www/pcX.ws.nsrc.org
```

```
# service apache2 restart
```

In a web browser (on your machine) open the URL "http://pcX.ws.nsrc.org/" and you should see:

It works!

pc32.ws.nsrc.org Virtual Host
The web server software is running but no content has been added, yet.

To verify that you only have one host at this time open the URL http://tzX.ws.nsrc.org/ and you should see the same thing.

Now let's enable our other host, tzX.ws.nsrc.org. We need to create a new file in /etc/apache2/sites-available and call it something to indicate the name of the virtual host. The easiest thing to do is just copy the default config file and update the DocumentRoot statement in that file to point to our other host.

```
# cd /etc/apache2/sites-available
# cp default tzX.ws.nsrc.org
# vi tzX.ws.nsrc.org
```

Find the line that says:

```
DocumentRoot /var/www/pcX.ws.nsrc.org
```

And, change that line to read:

```
DocumentRoot /var/www/tzX.ws.nsrc.org
```

And, underneath that line add a line that says:

```
ServerName tzX.ws.nsrc.org
```

Now exit and save the file.

To enable the virtual host do:
```
# a2ensite tzX.ws.nsrc.org
# service apache2 reload
```

After restarting prove to yourself that virtual hosting is working. In a web browser go to http://tzX.ws.nsrc.org/ and you should see the page indicate you are looking at the index.html file that resides in /var/www/tzX.ws.nsrc.org – i.e., the page will say:

It works!

tz32.ws.nsrc.org Virtual Host
The web server software is running but no content has been added, yet.

That's it! You are now running Apache with virtual hosts on your machine. Ubuntu / Debian Linux make this very simple as the default configuration is already built assuming you wish to use virtual hosting.

On item you can update is the name of the log files that are being written for each host. To do for tzX.ws.nsrc.org you would do:

```
# vi /etc/apache2/sites-available/tzX.ws.nsrc.org
```

And look for the line that says:

```
ErrorLog /var/log/apache2/error.log
```

And change the line to read:

```
ErrorLog /var/log/apache2/tzX.error.log
```

Now look for the line that says:

```
CustomLog /var/log/apache2/access.log combined
```

And change this to read:

```
CustomLog /var/log/apache2/tzX.access.log combined
```

Now save and exit from the file and reload the Apache web server:

```
# service apache2 reload
```

To verify that your changes are working look in the Apache log directory for the new log file:

```
# ls /var/log/apache2
```

And, you should see the new log files:

```
tzX.access.log  tzX.error.log
```

That's it. This is **very** useful for all sorts of reasons and is standard if you are providing virtual hosts to other users.