

# Apache and Virtual Hosts

## Exercises

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### Install Apache version 2 from Package

Set the path to your network ftp package source --- you may have already done this in earlier sessions

```
# set
FTP_ROOT=ftp://ftp.freebsd.org/pub/FreeBSD/releases/i386/8.0-RELEASE/packages/All
```

**Note: the above command is one line**

Adding Apache package

```
# pkg_add $FTP_ROOT/apache-2.2.13.tbz
```

Now we will configure Apache to run on your machines.

### Configure Apache version 2

Apache is a Third Party software package. The configuration files for Apache reside in the `/usr/local/etc` directory. In order for Apache to run you must first do the following:

```
# vi /etc/rc.conf
```

Add a line to the bottom of this file and enter:

```
apache22_enable="YES"
```

Now exit and save the file.

If you install Third Party software and need to know what to enter in the `/etc/rc.conf` file to enable it, read the initialization script for that software. For instance, for Apache you can do:

```
# less /usr/local/etc/rc.d/apache22
```

You will see comments at the top of the file describing the options you can place in the `/etc/rc.conf` file to run the service.

See the section:

```
#  
# Add the following lines to /etc/rc.conf to enable apache22:  
# apache22_enable (bool):      Set to "NO" by default.  
#                               Set it to "YES" to enable apache22
```

Press “q” to exit from the `less` command.

## **Start Apache version 2**

This is quite simple. Now that the service has been enabled in `/etc/rc.conf` type:

```
# /usr/local/etc/rc.d/apache22 start
```

If you would like to prove that Apache is working on your computer open a web browser and enter in the address:

```
http://localhost/
```

You should see a page that says, “It works!”

The file where this text resides is:

```
/usr/local/www/apache22/data/index.html
```

## Making Changes To Your Home Page

We edit the file `/usr/local/www/apache22/data/index.html`

```
# vi /usr/local/www/apache22/data/index.html
```

Enter the text

```
"This is my website, Created in the SAE Class"
```

Reload/Refresh on your browser

```
http://localhost/
```

## 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:

```
/usr/local/www/share
```

All of your PCs have multiple entries for their assigned IP addresses. At the very least you have:

```
pcX.sae.ws.afnog.org ==> 196.200.218.1xx  
pcX.sae.mtg.afnog.org ==> 196.200.218.1xx
```

We will take advantage of this for the exercise.

Let's create three web directories:

```
# cd /usr/local/www/  
# mkdir share  
# cd share  
# mkdir default  
# mkdir mtg  
# mkdir ws
```

Now let's copy the original `index.html` file to our default directory, and the `mtg` and `ws` directories as well..

```
# cp ../apache22/data/index.html default/.  
# cp ../apache22/data/index.html mtg/.  
# cp ../apache22/data/index.html ws/.
```

Edit the `index.html` files in `mtg` and `ws`.

```
# vi mtg/index.html
```

Add the text “MTG Virtual Host” to “This is my website, Created in the SAE Class!”. Close and save the file.

```
# vi ws/index.html
```

Add the text “WS Virtual Host” to “This is my website, Created in the SAE Class” . Close and save the file.

Next we need to edit the Apache configuration files to adjust for our new directory settings.

```
# cd /usr/local/etc/apache22  
# vi httpd.conf
```

In the file `httpd.conf` we are looking first for the following line:

```
DocumentRoot "/usr/local/www/apache22/data"
```

**Change** this line to read:

```
DocumentRoot "/usr/local/www/share/default"
```

Then look for the line that reads:

```
<Directory "/usr/local/www/apache22/data">
```

And change this to:

```
<Directory "/usr/local/www/share">
```

Now find the line that says:

```
#Include etc/apache22/extra/httpd-vhosts.conf
```

And change this to – we are uncommenting this line to use vhosts:

```
Include etc/apache22/extra/httpd-vhosts.conf
```

Now let's verify that Apache is still working.

```
# /usr/local/etc/rc.d/apache22 restart
```

In a web browser (on your machine) open the URL "http://localhost/" once again. It should still read, "This is my website, Created in the SAE Class".

Now we will add the configuration for our two virtual hosts:

```
# cd /usr/local/etc/apache22/extra
# vi httpd-vhosts.conf
```

Find the line that says:

```
NameVirtualHost *:80
```

And **delete everything after** that line. Now let's configure your two virtual hosts. Add the following to the file below the "NameVirtualHost \*:80" line:

```
<VirtualHost *:80>
  ServerAdmin afnog@localhost
  DocumentRoot "/usr/local/www/share/default"
  ServerName 196.200.218.1XX
  ErrorLog "/var/log/httpd-error_log"
  CustomLog "/var/log/httpd-access_log" common
</VirtualHost>
```

```
<VirtualHost *:80>
  ServerAdmin afnog@localhost
  DocumentRoot "/usr/local/www/share/mtg"
  ServerName pcX.sae.mtg.afnog.org
  ErrorLog "/var/log/mtg-error_log"
  CustomLog "/var/log/mtg-access_log" common
</VirtualHost>
```

```
<VirtualHost *:80>
  ServerAdmin afnog@localhost
  DocumentRoot "/usr/local/www/share/ws"
  ServerName pcX.sae.ws.afnog.org
  ErrorLog "/var/log/ws-error_log"
  CustomLog "/var/log/ws-access_log" common
</VirtualHost>
```

Once you are done save the file and quit. Now we must restart Apache to load the new configuration. You can do this two different ways:

Either:

```
# /usr/local/etc/rc.d/apache22 restart
```

Or:

```
# apachectl restart
```

After restarting prove to yourself that virtual hosting is working. Do the following on your browser:

Browser Tab	Type the address
Tab 1	localhost
Tab 2	127.0.0.1
Tab 3	196.200.218.1xx
Tab 4	pcX.sae.ws.afnog.org
Tab 5	pcX.sae.mtg.afnog.org

Do you see what you expect? Remember to replace the “X” and “xx” with the appropriate numbers. For example, for pc10.sae.ws.afnog.org the urls would be:

- localhost
- 127.0.0.1
- 196.200.218.110
- pc10.sae.ws.afnog.org
- pc10.sae.mtg.afnog.org

### Homework:

If you have defined additional hosts for your IP address feel free to add them in to your `/usr/local/etc/apache22/extra/httpd-vhosts.conf` file. Remember to create a directory for their DocumentRoot and to place an html file in that directory.