**Apach Web Server**

* Apache is the most widely used web server software. Apache is an open source software. Apache Web Server is designed to create Web servers that have the ability to host one or more HTTP-based websites.
* By default location of web page is “DocumentRoot - /var/www/html “
* Port no. **80**

**Install Packages :-**

* yum install httpd\*
* yum install elinks

2.Check whether it is install properly or not

[root@sunil ~]# rpm -qa | grep httpd

3.To check the service is start or stop.

[root@sunil ~]# service httpd status

httpd is stopped

4.chkconfig is used to start the service permanently.Here we checking httpd service is start in which run-level.

[root@sunil ~]# chkconfig --list | grep httpd

httpd 0:off 1:off 2:off 3:off 4:off 5:off 6:off

5.We are giving the value of run-level in which we have to start the service permanently(We are starting in run-level[3,4,5]). It is not compulsory to do this in normal system. But in production the servers are runs for 24\*7 and we need to run this service all the time hence we need to start the service permanently.

[root@sunil ~]# chkconfig --level 345 httpd on

[root@sunil ~]# chkconfig --list | grep http

httpd 0:off 1:off 2:off 3:on 4:on 5:on 6:off

6.Starthttpd service.

[root@sunil ~]# service httpd start

Starting httpd: [ OK ]

7.Start the web browser and type <http://localhost> or <http://IP_Address_of_Local_machine>and press enter it shows Test page for Apache.It confirm that the service start properly.

8.Before changing the configuration file, save any web-page into "/var/www/html" directory. Give any name to the web page "a.html".We store the web pages in /var/www/html because in httpd configuration file it is a default document root path. Hence it serves the web pages from this default directory.

i)To run this web page on local system type the URL "http://localhost/a.html". It will display the web page that saved by the user.

ii)If you are storing the web site ie multiple web pages in /var/www/html directory then give the first web page name as "index.html" then we don't need to give the web-page name. To run the web site we need to type the URL "http://localhost" and press enter. This will display the contents of first web page index.html.

Note : Delete swap file if exist “.httpd.conf.swp”

**Note:** If you are creating web pages by default it takes different permissions. And when you request for that web page then it gives some error such as "You don't have permission to access /web\_page.html on this server." then you need to change the "other" permission as read permission. It is good practice to check permission of the web pages created by you.

[root@sunil ~]#chmod o+r web\_page.html

9.We have to check for httpdconfiguration file “httpd.conf" where the various parameters are already set given below.

[root@sunil ~]#vi /etc/httpd/conf/httpd.conf

ServerRoot "/etc/httpd"

PidFile run/httpd.pid

Timeout 120 (It is in second)

Listen 80 (Port number)

User apache

Group apache

ServerName www.example.com:80

ServerAdminroot@localhost

DocumentRoot "/var/www/html" (default directory for web pages)

10.You can also start the multiple web site on different IPs on the same system give the multiple IP and assign one web-site for different IP addresses.

a. Copy the content of ifcfg-eth0 into another file having name ifcfg-eth0:1. Open the newly created file in any editor and give the required changes such as device name and IP address in it. You can create the multiple virtual IP’s on a single system(with names eth0:2, eth0:3 and so on)

[root@sunil ~]#cp -p /etc/sysconfig/network-script/ifcfg-eth0 /etc/sysconfig/network-script/ifcfg-eth0:1

b.Then it need to restart the network service in order to make changes in network file.

[root@sunil ~]#network service restart

c.Edit the configuration file and change the entry in "virtual host" located at the end of configuration file.Repeat this entry multiple times for each virtual IP’s on which you want to start different web sites.Suppose on IP 192.168.1.9 give the port number 80, document root path, and server name(same as IP address). You may able to do this entry for different IP addresses,document root and port number. Make the changes only in “virtual host” section of the configuration file; don’t make any changes in the httpd.conf file. The following examples shows that the different IP's, different document root only.We are not explaining different port numbers now, we will explain in later topics.In the following examples we are creating index.html web page in each directory. All the possibilities are correct. You need to give the Document root for the entire website the same default /var/www/html or any other directory you set in configuration file discuss later.

Under /var/www/html/ folder create new folder like aaa & bbb and save your page in that folder with index.html name

[root@sunil ~]#vi /etc/httpd/conf/httpd.conf

1. <VirtualHost 192.168.1.9:80>

DocumentRoot /var/www/html

ServerName 192.168.1.9

</VirtualHost>

2. <VirtualHost 192.168.1.10:80>

DocumentRoot /var/www/html/aaa

ServerName 192.168.1.10

</VirtualHost>

3. <VirtualHost 192.168.1.11:80>

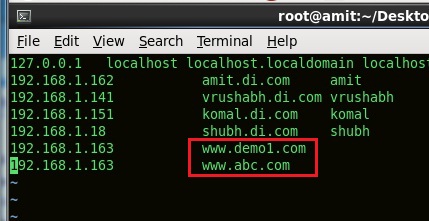
DocumentRoot /var/www/html/bbb

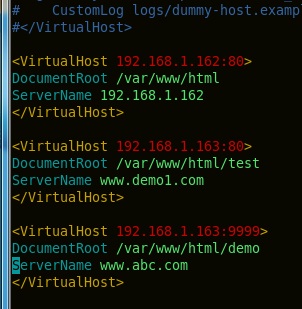
ServerName 192.168.1.11

</VirtualHost>

If you want to search this pages using name base then

Instant of “servername 192.168.1.11” we use “servername [www.AnyName.com](http://www.AnyName.com)” in "/etc/httpd/conf/httpd.conf" file and also changes “/etc/hosts” file





Then it need to restart the httpd service

# service httpd restart

To run the website we consider each directory name given as an Document Root in configuration file consist of an default web page (index.html). Then to run the website on each IP address we need to give the URL as <http://192.168.1.9>, <http://192.168.1.10>, <http://192.168.1.11> . Then it will display three different website running at different IP’s but in same basic Document Root “/var/www/html”

11.You can also able to start multiple web site on single IP but using the different port numbers here we are implementing using two ways.

i.Using default http ports(80 & 8080):Please make the changes in configuration file in virtual host section only and start httpd service. Please type the URL's "http://192.168.1.9" runs the website in /var/www/html and "http"//192.168.1.9:8080" runs the website inside the /var/www/html/demo. This shows the different web site on single IP address. The first URL uses the default port number 80

<VirtualHost192.168.1.9:80>

DocumentRoot /var/www/html

ServerName 192.168.1.9

</VirtualHost>

<VirtualHost192.168.1.9:8080>

DocumentRoot /var/www/html/demo

ServerName 192.168.1.9

</VirtualHost>

ii.We can’t do the above process for other non standard port numbers. Some of ports are get blocked by the OS then we need to open those ports.Here we open the port 81. For this purpose we are using “semanage” command to open some ports and check the ports that are open using netstat command.

[root@sunil ~]#netstat -an | grep -i -w listen

12. If you want to change the “Document Root” which in the same directory of “/var” or any subdirectories of it then you can use to change the following two entries in the configuration file.

i) Finding the Document Root: It shows different matching of document root in file.

[root@sunil ~]#grep -i 'DocumentRoot' /etc/httpd/conf/httpd.conf

ii) To modify DocumentRoot use vi command and change DocumentRoot:

[root@sunil ~]#vi /etc/httpd/conf/httpd.conf

iii)Make the following two entries in configuration file:

1. Replace DocumentRoot “/var/www/html” by new entry of document root.
2. Make the entry of document root in VirtualHost section of configuration file. You may use the sudirectory of step a document root.

iv) Save the above file and restart the service. Run the required web site on the given IP and at the different document root.

Note: The step 12 is only used to change the document root entry for default document root or changing it within the subdirectory of same document root. You cannot use another partition of the hard disk or the different hard disk to run the website on that document root. This is implemented in the following consecutive steps where we use the document root as the (i)different partition of same hard disk (ii)different hard disk (here we used NAS device).

13.If you are using the different document root it may be another partition of hard disk or other hard disk(NAS Device) rather than default document root "/var/www/html" and running the httpd service then you will get an error message as "Starting httpd: Syntax error on line 267 of /etc/httpd/conf/httpd.conf: DocumentRoot must be a directory [FAILED]". In this case on line number 267 of configuration file there is an entry of DocumentRoot set by us. It also shows an error of "SELinux" when we (i)runhttpd restart service (ii)check for var log messages for httpd process.

i) First go to setup: Firewall, Authentication configuration, Keybord configuration, timezone.

[root@sunil ~]#setup

ii) Go to firewall -->SELinux--> Disable. (We have given the options such enable/enforcing)

iii) When we restart the service it will not give any errors.

[root@sunil ~]#service httpdrestart

Now you are able to use other the hard disk or partition of the same hard disk as a “DocumentRoot” in the httpd configuration file. It is explained in steps A &B as follows:

1. Use “DocumentRoot” as another partition of same hard disk:
2. Create new partition on same hard disk using “fdisk /dev/sda”
3. Create new directory in “/” using “mkdir” say dir\_mount
4. Mount the newly created partition on the directory.
5. Give the appropriate label to the partition using “e2label”
6. For the permanent mount make the entry of newly created partition in the fstab.
7. Now create the new directory inside the “dir\_mount” directory where you want to store the web pages and use as a DocumentRoot say “web” directory.
8. Now do the following two entries in the httpd.conf file
9. DocumentRoot "/dir\_mount/web"
10. Make the entry of above Document root in “VirtualHost” section of .conf file
11. Save the httpd.conf file and restart the service. It will not give any errors.
12. Run the website in the web-browser simply by giving the IP address of system.

<http://localhost> shows the default web page from the mounted directory.

1. Use “DocumentRoot” on another hard disk we are using the NAS device. We simply do this by mounting the given partition on our system on any directory and in that directory we are storing our web pages. Do the following process to do the given operation.
2. In the initial steps you have to configure the NAS device and create the different volumes are created and those volume are export in “/etc/exports” file of NAS device. We are doing this is using sharing the disk. The command shows all the volume that are shared by NAS device.

[root@sunil ~]#showmount -e 192.168.1.100

1. First you have to create any directory in “/” of our system say nas\_mount.

[root@sunil ~]#mkdir /nas\_mount

1. Then mount the given volume on which you have to put your web pages the newly created directory.Make an entry in the fstab for the permanent mount. But we have to take care about this is that once you have made the changes in the fstabthe during every bootup of the system it checks for that entry. In case if NAS device is switched off then it will search for its mounted volume but it will nit the mount volume. Hence the system may get an “Ctl+D” error.

[root@sunil /]# mount 192.168.1.100:/VOLUME2/USERS\_DATA /nas\_mount

1. Then open the mount point it shows all the data in the given volume.

[root@sunil /]# cd /nas\_mount/

1. Now create the new directory in that mount point/volume say “web\_pages”

[root@sunilnas\_mount]#mkdirweb\_pages

1. Now stre all the web pages in this directory and do the following entries in httpd.conf file in “/etc/httpd/conf/”

a)DocumentRoot "/nas\_mount/web\_pages"

b) Make entry of above Document root in “VirtualHost” section of .conf file

vii) Save the httpd.conf file and restart the service. It will not gives any errors.

[root@sunil ~]# servicehttpd restart

viii) Run the website in the web-browser simply by giving the IP address of system.