

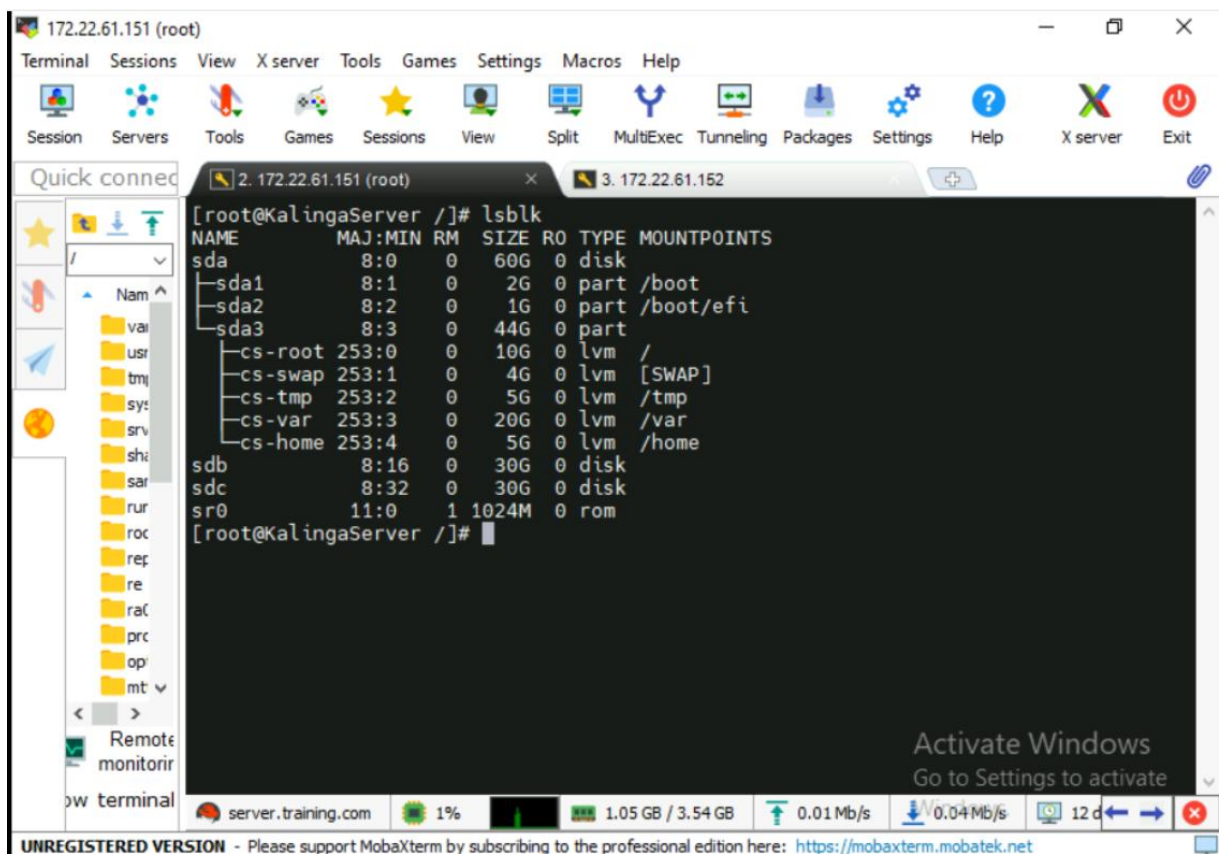
Karthick VM  
Batch – CIS 1.3

Linux Milestone1\_Assessment-Set1

## Section1

Execute the following tasks using linux Commands

- a. To Display Number of Hard disks connected in your system
  - Command : #lsblk – Displays the information about the disks present in the System. To know about the memory usage of disk use -- #df

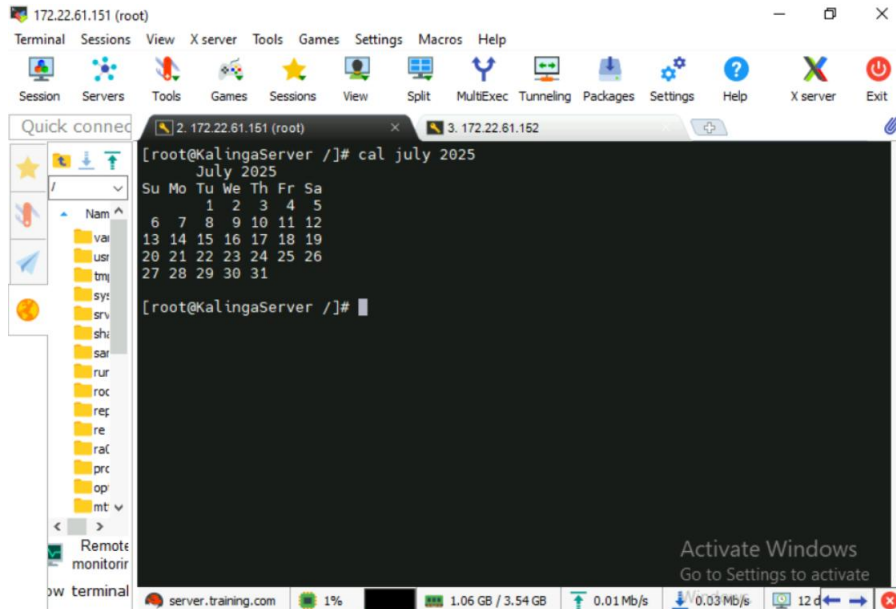


The screenshot shows a MobaXterm window with a terminal session on a remote server (172.22.61.151). The terminal displays the output of the 'lsblk' command, which lists the block devices and their properties. The output is as follows:

```
[root@KalingaServer ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda          8:0    0   60G  0 disk
├─sda1       8:1    0    2G  0 part /boot
├─sda2       8:2    0    1G  0 part /boot/efi
└─sda3       8:3    0   44G  0 part
   ├─cs-root 253:0    0   10G  0 lvm /
   ├─cs-swap 253:1    0    4G  0 lvm [SWAP]
   ├─cs-tmp  253:2    0    5G  0 lvm /tmp
   ├─cs-var  253:3    0   20G  0 lvm /var
   └─cs-home 253:4    0    5G  0 lvm /home
sdb          8:16    0   30G  0 disk
sdc          8:32    0   30G  0 disk
sr0         11:0    1 1024M  0 rom
```

The terminal window also shows a file explorer on the left side of the MobaXterm interface, displaying the directory structure of the remote server. The status bar at the bottom indicates the connection is to 'server.training.com' and shows various system metrics like CPU usage (1%), memory usage (1.05 GB / 3.54 GB), and network speed (0.01 Mb/s).

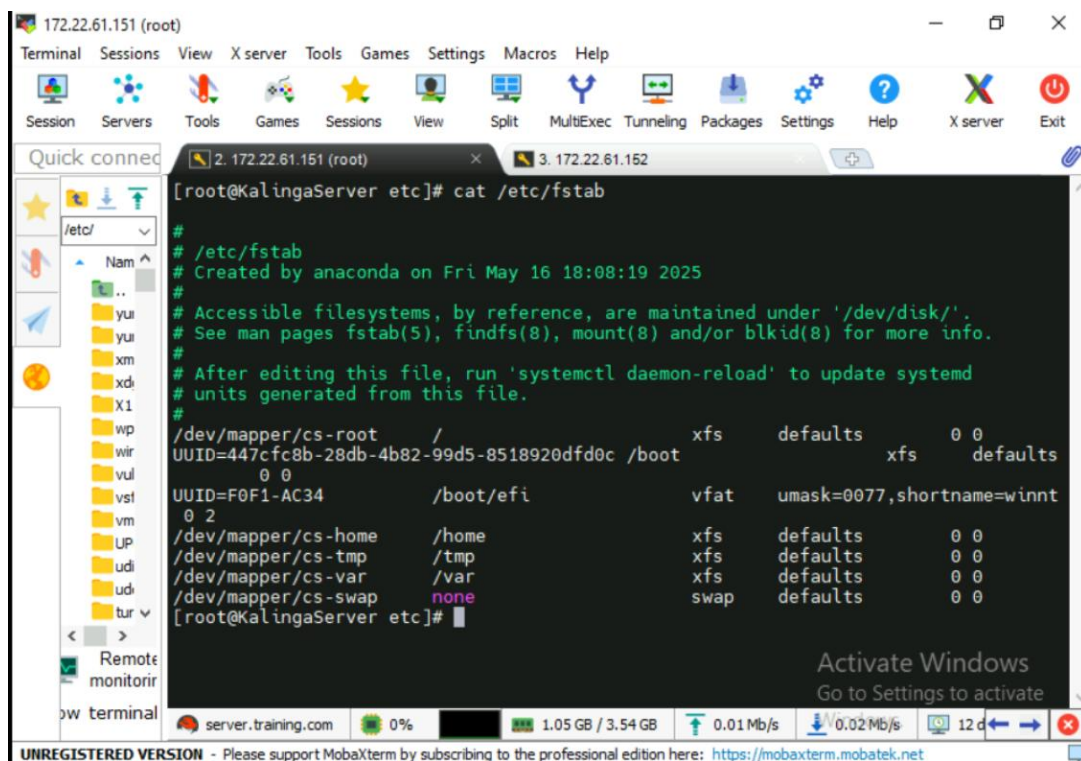
b. To Display Callender for the month July 2025



```
[root@KalingaServer /]# cal july 2025
July 2025
Su Mo Tu We Th Fr Sa
        1  2  3  4  5
 6  7  8  9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31
[root@KalingaServer /]#
```

c. To display the information of /etc/fstab

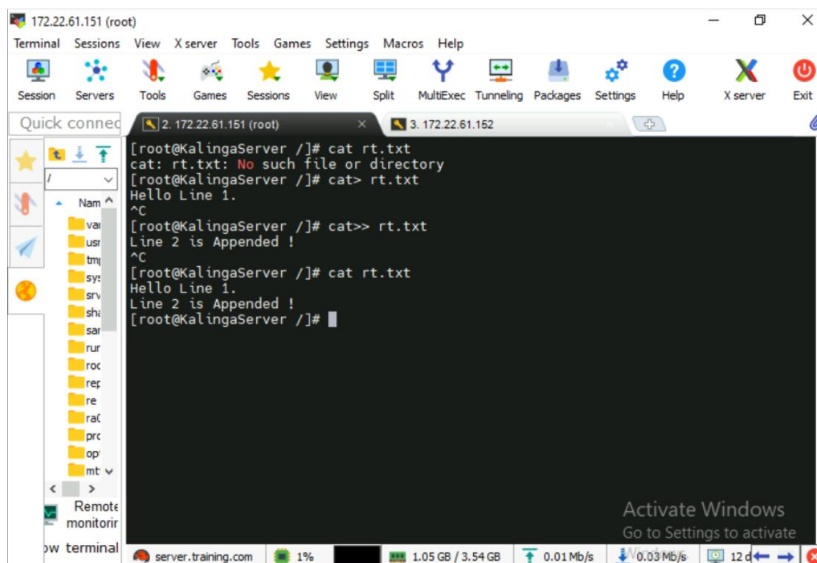
- Command : #cat – displays the content of the file. Incase if we need to edit the file use #vim <filename> -- here → #vim /etc/ftsab



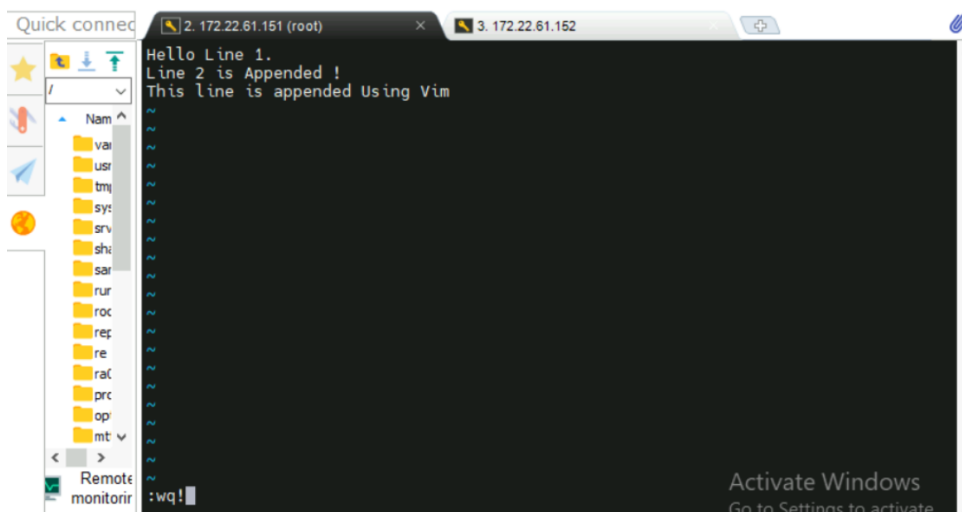
```
[root@KalingaServer etc]# cat /etc/fstab
#
# /etc/fstab
# Created by anaconda on Fri May 16 18:08:19 2025
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
/dev/mapper/cs-root    /                    xfs     defaults        0 0
UUID=447cfc8b-28db-4b82-99d5-8518920dfd0c /boot                xfs     defaults        0 0
UUID=F0F1-AC34        /boot/efi            vfat    umask=0077,shortname=winnt 0 2
/dev/mapper/cs-home    /home                xfs     defaults        0 0
/dev/mapper/cs-tmp     /tmp                 xfs     defaults        0 0
/dev/mapper/cs-var     /var                 xfs     defaults        0 0
/dev/mapper/cs-swap    none                 swap    defaults        0 0
[root@KalingaServer etc]#
```

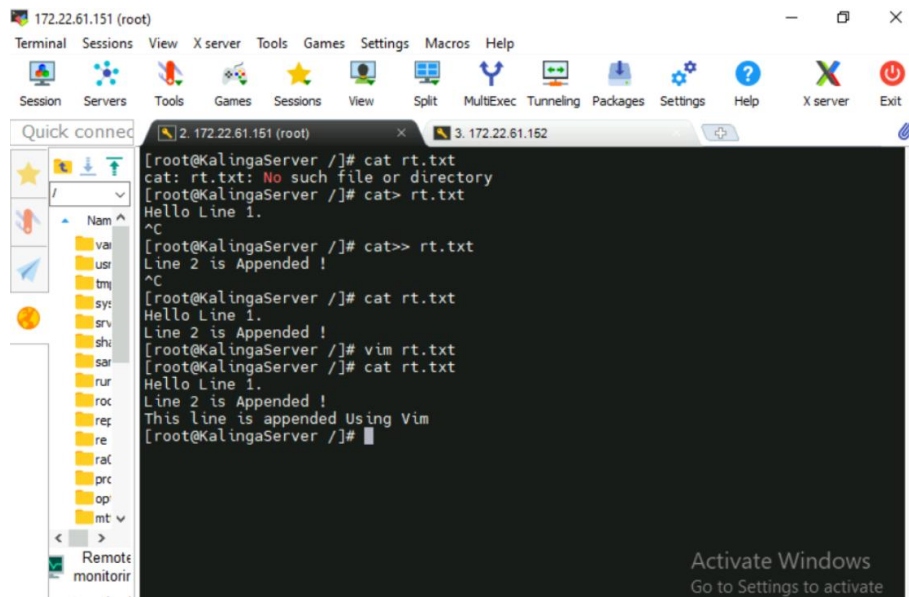
d. How do you append a file (show taking an example)

- `#cat` – This Command helps us to create, display and append a new line in a file.
- `#cat> <filename> -- here cat> rt.txt` → this command creates a file named `rt.txt` and we can able to write the contents in that file.
- `#cat>> <filename> -- here cat>> rt.txt` → this command helps us append the new line into the file `rt.txt`.
- Finally to check if the line is appended use `#cat rt.txt` → it displays the content of the given file.
- We can also use “`#vim <filename>`” to edit a file in more Efficient way.



- Appending using Vim editor – press ‘i’ to insert and append content and press esc+ wq! To exit.



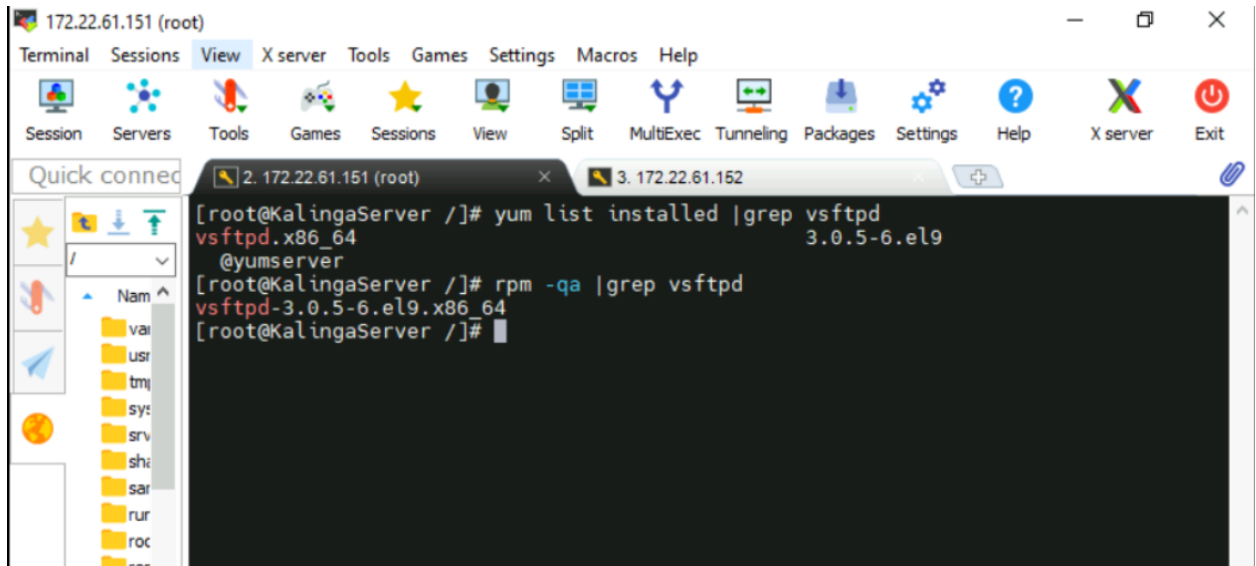


A screenshot of a terminal window titled '172.22.61.151 (root)'. The window has a menu bar with 'Terminal', 'Sessions', 'View', 'X server', 'Tools', 'Games', 'Settings', 'Macros', and 'Help'. Below the menu bar is a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, Help, X server, and Exit. On the left side, there is a 'Quick connect' panel with a file tree showing directories like 'var', 'usr', 'tmp', 'sys', 'srv', 'sh', 'sar', 'rur', 'roc', 'rep', 're', 'raf', 'prc', 'op', and 'mt'. The terminal output shows the following commands and results:

```
[root@KalingaServer /]# cat rt.txt
cat: rt.txt: No such file or directory
[root@KalingaServer /]# cat> rt.txt
Hello Line 1.
^C
[root@KalingaServer /]# cat>> rt.txt
Line 2 is Appended !
^C
[root@KalingaServer /]# cat rt.txt
Hello Line 1.
Line 2 is Appended !
[root@KalingaServer /]# vim rt.txt
[root@KalingaServer /]# cat rt.txt
Hello Line 1.
Line 2 is Appended !
This line is appended Using Vim
[root@KalingaServer /]#
```

An 'Activate Windows' watermark is visible in the bottom right corner of the terminal window.

- e. How do you query a package vsftpd whether it is installed or not.
- To check if the package 'vsftpd' is installed in your system we can use either `#rpm -qa | grep vsftpd` or `#yum list installed | grep vsftpd` – to check if the package is installed or not.



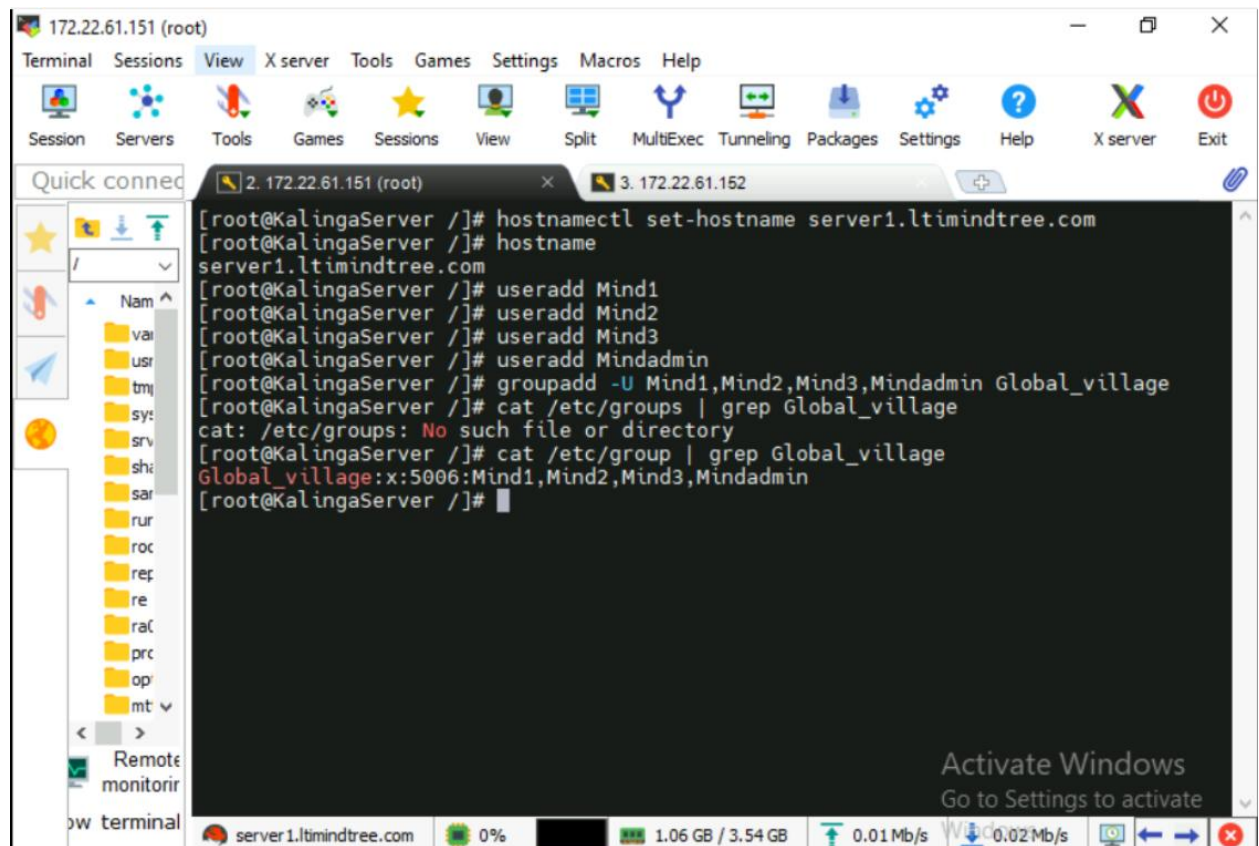
A screenshot of a terminal window titled '172.22.61.151 (root)'. The window has a menu bar with 'Terminal', 'Sessions', 'View', 'X server', 'Tools', 'Games', 'Settings', 'Macros', and 'Help'. Below the menu bar is a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, Help, X server, and Exit. On the left side, there is a 'Quick connect' panel with a file tree showing directories like 'var', 'usr', 'tmp', 'sys', 'srv', 'sh', 'sar', 'rur', 'roc', and 'rec'. The terminal output shows the following commands and results:

```
[root@KalingaServer /]# yum list installed |grep vsftpd
vsftpd.x86_64                               3.0.5-6.el9
@yumserver
[root@KalingaServer /]# rpm -qa |grep vsftpd
vsftpd-3.0.5-6.el9.x86_64
[root@KalingaServer /]#
```

Perform the below tasks on server1.ltimindtree.com

1. Create following users Mind1, Mind2, Mind3 and Mindadmin
2. Create a Group with name Global Village and add all the users created above to this group

- Host name is changed using #hostnamectl set-hostname Command
- Command: #useradd → Create new user
- Command: #groupadd → Create a new Group here '-U' – helps to add user in the group
- We can also use #usermod -G <groupname> <username> -- to add user to a group.
- To check if the users are added in the group we use #cat /etc/group | grep Global\_village. /etc/group—this file contains the info of all groups present in the system and users present in it.



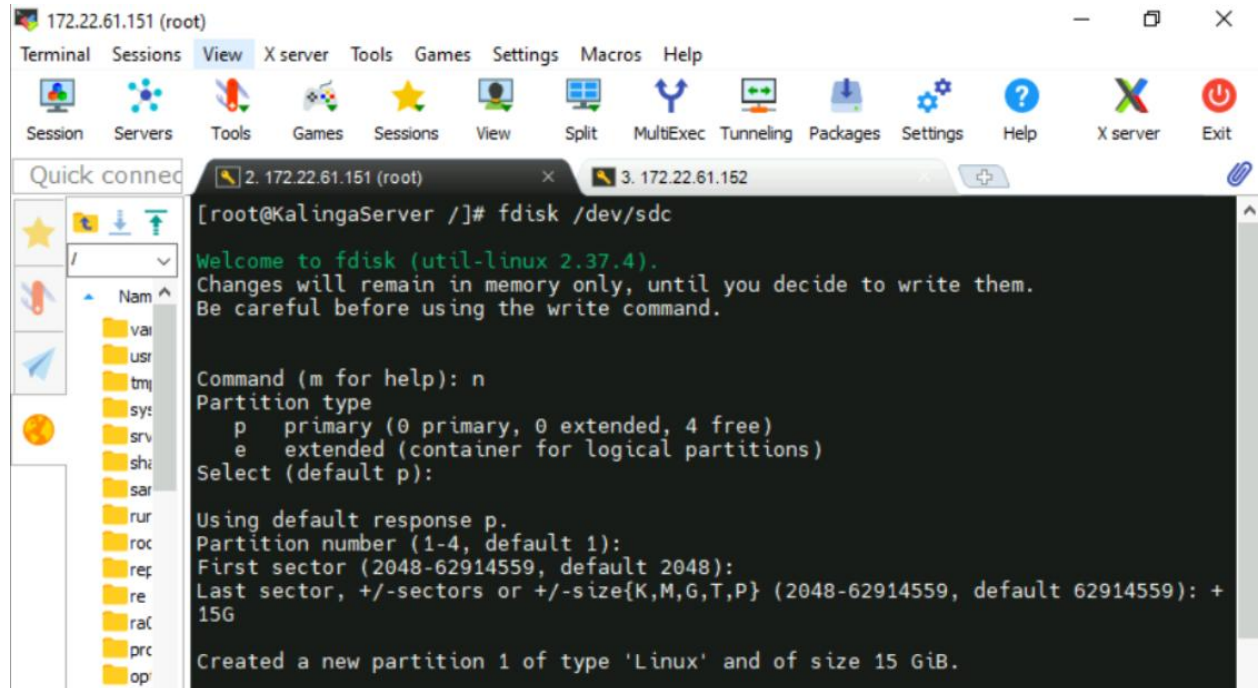
```
[root@KalingaServer /]# hostnamectl set-hostname server1.ltimindtree.com
[root@KalingaServer /]# hostname
server1.ltimindtree.com
[root@KalingaServer /]# useradd Mind1
[root@KalingaServer /]# useradd Mind2
[root@KalingaServer /]# useradd Mind3
[root@KalingaServer /]# useradd Mindadmin
[root@KalingaServer /]# groupadd -U Mind1,Mind2,Mind3,Mindadmin Global_village
[root@KalingaServer /]# cat /etc/groups | grep Global_village
cat: /etc/groups: No such file or directory
[root@KalingaServer /]# cat /etc/group | grep Global_village
Global_village:x:5006:Mind1,Mind2,Mind3,Mindadmin
[root@KalingaServer /]#
```

The screenshot shows a terminal window with a menu bar (Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, Help) and a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, Help, X server, and Exit. On the left, there is a 'Quick connect' sidebar with a file explorer showing a directory tree. The terminal output shows the successful execution of the commands to change the hostname and create the users and group. An 'Activate Windows' watermark is visible in the bottom right corner.

## Section2:

3. Create a primary partition of 15 GB in sdc and one more 15 GB partition in sdb, using these partitions, create a volume group of 30GB, later increase the Volume Group size to 40GB by adding another 10GB partition from sdc.

- Create a partition in sdc using command `#fdisk /dev/sdc` → there press 'n' to create new partition and to give size of 15gb type +15G in Last sector



```
172.22.61.151 (root)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help X server Exit

Quick connect 2. 172.22.61.151 (root) 3. 172.22.61.152

[root@KalingaServer /]# fdisk /dev/sdc

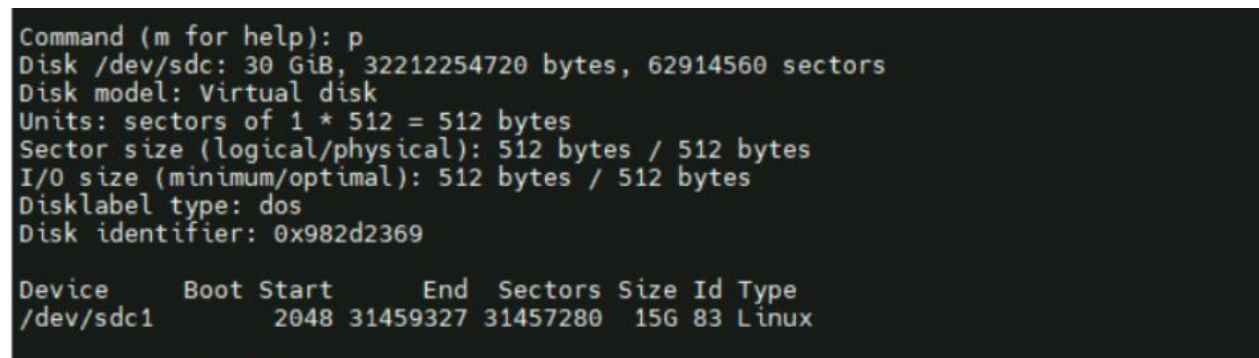
Welcome to fdisk (util-linux 2.37.4).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Command (m for help): n
Partition type
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (default p):

Using default response p.
Partition number (1-4, default 1):
First sector (2048-62914559, default 2048):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (2048-62914559, default 62914559): +15G

Created a new partition 1 of type 'Linux' and of size 15 GiB.
```

- Press p to print and get info of /sdc1



```
Command (m for help): p
Disk /dev/sdc: 30 GiB, 32212254720 bytes, 62914560 sectors
Disk model: Virtual disk
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x982d2369

Device      Boot Start      End  Sectors  Size Id Type
/dev/sdc1                2048 31459327 31457280  15G 83 Linux
```

- Follow the same steps to create a partition in /sdb

```

172.22.61.151 (root)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help X server Exit
Quick connect
2. 172.22.61.151 (root) 3. 172.22.61.152
[root@KalingaServer ~]# fdisk /dev/sdb

Welcome to fdisk (util-linux 2.37.4).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Command (m for help): n
Partition type
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (default p):

Using default response p.
Partition number (1-4, default 1):
First sector (2048-62914559, default 2048):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (2048-62914559, default 62914559): +15G

Created a new partition 1 of type 'Linux' and of size 15 GiB.

```

- Check the info of partition sdb1

```

Command (m for help): p
Disk /dev/sdb: 30 GiB, 32212254720 bytes, 62914560 sectors
Disk model: Virtual disk
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x1626dd1f

Device      Boot Start      End  Sectors  Size Id Type
/dev/sdb1                2048 31459327 31457280   15G 83 Linux

```

- Use Command #lsblk to get the the information about the disks present in the System.
- Use command #pvcreate /dev/sdb1 /dev/sdc1 → to create physical volume for both the disks

```

[root@KalingaServer ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda          8:0    0   60G  0 disk 
├─sda1       8:1    0    2G  0 part /boot
├─sda2       8:2    0    1G  0 part /boot/efi
├─sda3       8:3    0   44G  0 part 
│   ├─cs-root 253:0    0   10G  0 lvm  /
│   ├─cs-swap 253:1    0    4G  0 lvm  [SWAP]
│   ├─cs-tmp  253:2    0    5G  0 lvm  /tmp
│   └─cs-var  253:3    0   20G  0 lvm  /var
└─cs-home    253:4    0    5G  0 lvm  /home
sdb          8:16   0   30G  0 disk 
└─sdb1       8:17   0   15G  0 part 
sdc          8:32   0   30G  0 disk 
└─sdc1       8:33   0   15G  0 part 
sr0         11:0    1 1024M  0 rom

[root@KalingaServer ~]# pvcreate /dev/sdb1 /dev/sdc1
WARNING: adding device /dev/sdb1 with idname /dev/sdb1 which is already used for
missing device.
Physical volume "/dev/sdb1" successfully created.
WARNING: adding device /dev/sdc1 with idname /dev/sdc1 which is already used for
missing device.
Physical volume "/dev/sdc1" successfully created.
[root@KalingaServer ~]#

```

- Use Command #pvs – to get info about physical volume present in system.
- Use command #vgcreate vg /dev/sdb1 /dev/sdc1 – to create a volume group comprising the disks

```

[root@KalingaServer ~]# pvs
PV          VG Fmt Attr PSize PFree
/dev/sda3   cs  lvm2 a--  44.00g 4.00m
/dev/sdb1   lvm2 ---   15.00g 15.00g
/dev/sdc1   lvm2 ---   15.00g 15.00g

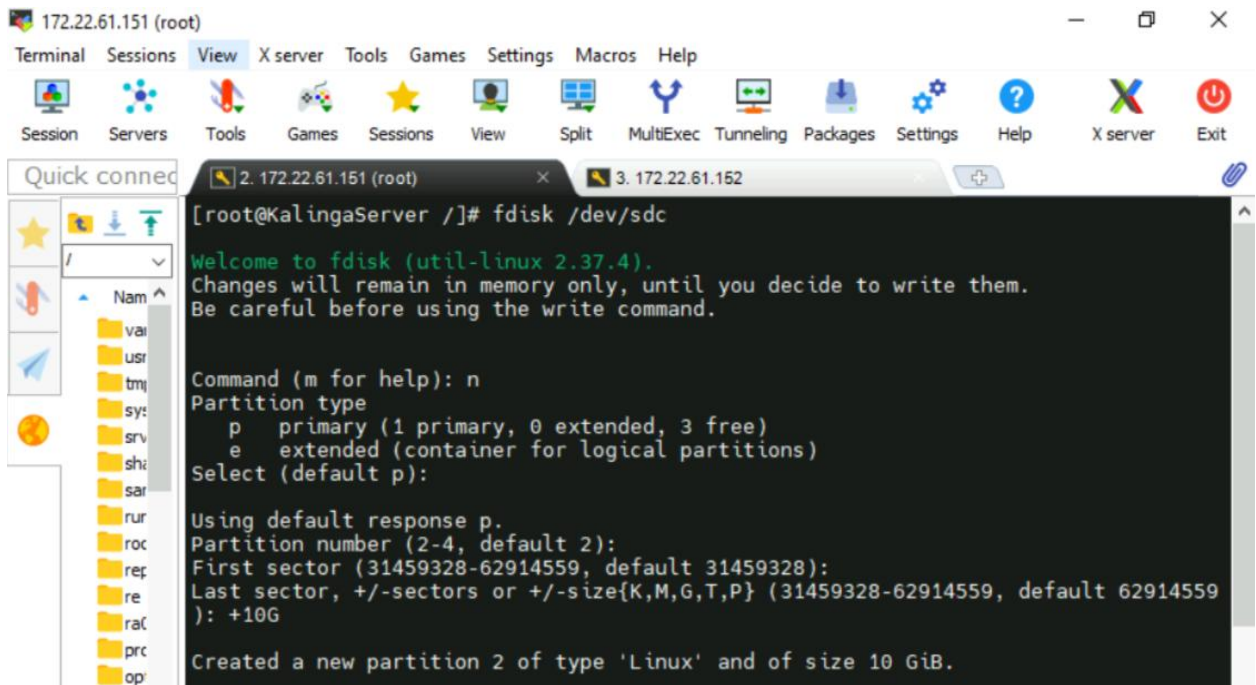
[root@KalingaServer ~]# vgcreate vg /dev/sdb1 /dev/sdc1
WARNING: adding device /dev/sdb1 with idname /dev/sdb1 which is already used for
missing device.
WARNING: adding device /dev/sdc1 with idname /dev/sdc1 which is already used for
missing device.
Volume group "vg" successfully created

[root@KalingaServer ~]# vgs
VG #PV #LV #SN Attr   VSize VFree
cs  1  5  0 wz--n- 44.00g 4.00m
vg  2  0  0 wz--n- 29.99g 29.99g

[root@KalingaServer ~]#

```

- Now Once again create another partition sdc2 with size 10Gb using #fdisk



```

172.22.61.151 (root)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help X server Exit

Quick connect 2. 172.22.61.151 (root) 3. 172.22.61.152
[root@KalingaServer /]# fdisk /dev/sdc
Welcome to fdisk (util-linux 2.37.4).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

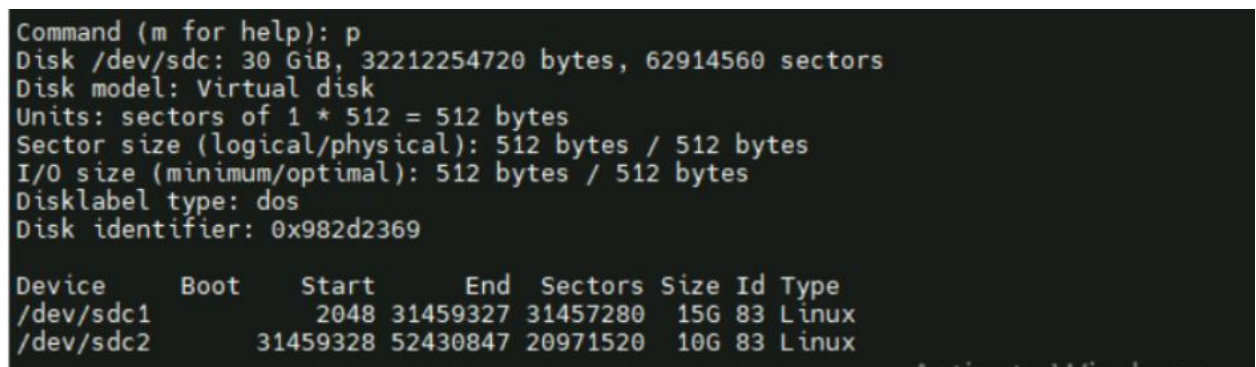
Command (m for help): n
Partition type
   p   primary (1 primary, 0 extended, 3 free)
   e   extended (container for logical partitions)
Select (default p):

Using default response p.
Partition number (2-4, default 2):
First sector (31459328-62914559, default 31459328):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (31459328-62914559, default 62914559): +10G

Created a new partition 2 of type 'Linux' and of size 10 GiB.

```

- Print and check info of sdc2



```

Command (m for help): p
Disk /dev/sdc: 30 GiB, 32212254720 bytes, 62914560 sectors
Disk model: Virtual disk
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x982d2369

Device      Boot      Start          End      Sectors  Size Id Type
/dev/sdc1               2048    31459327    31457280    15G 83 Linux
/dev/sdc2   31459328    52430847    20971520    10G 83 Linux

```

- Once again check the info of disks using #lsblk
- Create a physical volume for /dev/sdc2 using #pvcreate /dev/sdc2

The screenshot shows a terminal window with the following commands and output:

```
[root@KalingaServer ~]# lsblk
```

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINTS
sda	8:0	0	60G	0	disk	
└─sda1	8:1	0	2G	0	part	/boot
└─sda2	8:2	0	1G	0	part	/boot/efi
└─sda3	8:3	0	44G	0	part	
└─cs-root	253:0	0	10G	0	lvm	/
└─cs-swap	253:1	0	4G	0	lvm	[SWAP]
└─cs-tmp	253:2	0	5G	0	lvm	/tmp
└─cs-var	253:3	0	20G	0	lvm	/var
└─cs-home	253:4	0	5G	0	lvm	/home
sdb	8:16	0	30G	0	disk	
└─sdb1	8:17	0	15G	0	part	
sdc	8:32	0	30G	0	disk	
└─sdc1	8:33	0	15G	0	part	
└─sdc2	8:34	0	10G	0	part	
sr0	11:0	1	1024M	0	rom	

```
[root@KalingaServer ~]# pvcreate /dev/sdc2
```

Physical volume "/dev/sdc2" successfully created.

```
[root@KalingaServer ~]# pvs
```

PV	VG	Fmt	Attr	PSize	PFree
/dev/sda3	cs	lvm2	a--	44.00g	4.00m
/dev/sdb1	vg	lvm2	a--	<15.00g	<15.00g
/dev/sdc1	vg	lvm2	a--	<15.00g	<15.00g
/dev/sdc2		lvm2	---	10.00g	10.00g

- Now use the Command #vgextend vg /dev/sdc2 ,so that the partition sdc2 will be extended in the volume group vg.
- Now use Command #vgs→ to get info to the volume group

The screenshot shows a terminal window with the following commands and output:

```
[root@KalingaServer ~]# vgextend vg /dev/sdc2
```

Volume group "vg" successfully extended

```
[root@KalingaServer ~]# vgs
```

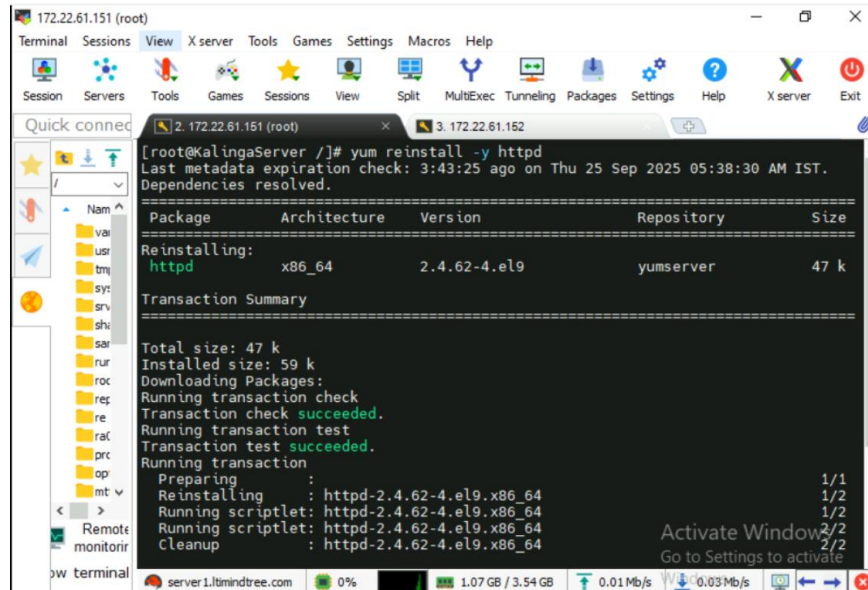
VG	#PV	#LV	#SN	Attr	VSize	VFree
cs	1	5	0	wz--n-	44.00g	4.00m
vg	3	0	0	wz--n-	<39.99g	<39.99g

```
[root@KalingaServer ~]# pvs
```

PV	VG	Fmt	Attr	PSize	PFree
/dev/sda3	cs	lvm2	a--	44.00g	4.00m
/dev/sdb1	vg	lvm2	a--	<15.00g	<15.00g
/dev/sdc1	vg	lvm2	a--	<15.00g	<15.00g
/dev/sdc2	vg	lvm2	a--	<10.00g	<10.00g

#### 4. Install and Configure Apache Webserver and access default Webpage from Jump Server.

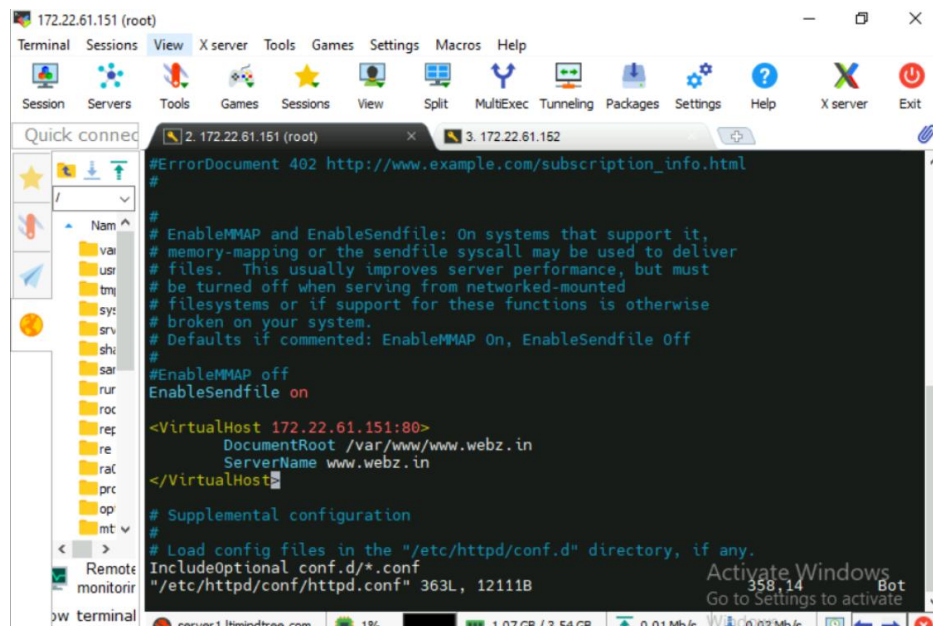
- Install the Package httpd using Yum installer -- #yum install -y httpd



The screenshot shows a terminal window with the command `[root@KalingaServer /]# yum reinstall -y httpd` executed. The output indicates that the package `httpd` is being reinstalled from the `yumserver` repository. The transaction summary shows a total size of 47 k and an installed size of 59 k. The process includes downloading packages, running transaction checks, and running scriptlets. The status of the transaction is `succeeded`.

```
[root@KalingaServer /]# yum reinstall -y httpd
Last metadata expiration check: 3:43:25 ago on Thu 25 Sep 2025 05:38:30 AM IST.
Dependencies resolved.
=====
Package             Architecture Version        Repository      Size
=====
Reinstalling:
httpd                x86_64        2.4.62-4.el9   yumserver       47 k
=====
Transaction Summary
=====
Total size: 47 k
Installed size: 59 k
Downloading Packages:
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing                : 1/1
  Reinstalling              : httpd-2.4.62-4.el9.x86_64 1/2
  Running scriptlet         : httpd-2.4.62-4.el9.x86_64 1/2
  Running scriptlet         : httpd-2.4.62-4.el9.x86_64 2/2
  Cleanup                   : httpd-2.4.62-4.el9.x86_64 2/2
=====
```

- To configure the httpd/ Apache Server go to file: `/etc/httpd/conf/httpd.conf`



The screenshot shows a terminal window displaying the contents of the `/etc/httpd/conf/httpd.conf` file. The configuration includes comments about `EnableMMAP` and `EnableSendfile`, and a `<VirtualHost>` block for `172.22.61.151:80`. The `DocumentRoot` is set to `/var/www/www.webz.in` and the `ServerName` is `www.webz.in`.

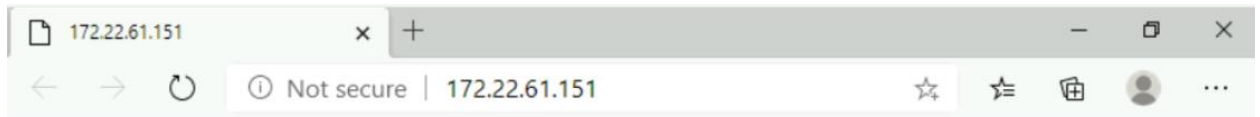
```
#ErrorDocument 402 http://www.example.com/subscription_info.html
#
# EnableMMAP and EnableSendfile: On systems that support it,
# memory-mapping or the sendfile syscall may be used to deliver
# files. This usually improves server performance, but must
# be turned off when serving from networked-mounted
# filesystems or if support for these functions is otherwise
# broken on your system.
# Defaults if commented: EnableMMAP On, EnableSendfile Off
#
#EnableMMAP off
#EnableSendfile on
<VirtualHost 172.22.61.151:80>
    DocumentRoot /var/www/www.webz.in
    ServerName www.webz.in
</VirtualHost>
# Supplemental configuration
#
# Load config files in the "/etc/httpd/conf.d" directory, if any.
IncludeOptional conf.d/*.conf
"/etc/httpd/conf/httpd.conf" 363L, 12111B
```

- 
- The screenshot shows a remote terminal window titled "172.22.61.151 (root)". The interface includes a menu bar at the top with options: Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, and Help. Below the menu bar is a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, Help, X server, and Exit. On the left side, there is a "Quick connect" panel with a file explorer view showing the directory structure of /var/www, including files like index.html. The main area of the terminal displays a web browser window showing a simple HTML page with the text "Hello Webz.in is Hosted Using Apache Web Server". The bottom status bar shows system information: server1.tlindtree.com, 0% CPU, 1.08 GB / 3.54 GB memory, and network activity (0.01 Mb/s upload, 0.03 Mb/s download). An "Activate Windows" watermark is visible in the bottom right corner.

- 
- The screenshot displays a Kali Linux desktop environment. The top panel shows the system clock as 17:22.61.151 (root) and a menu bar with options: Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, Help. The left sidebar contains icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, Help, X server, and Exit. The main window is a terminal titled '2. 172.22.61.151 (root)' showing the following commands and output:
- ```
[root@KalingaServer www.webz.in]# vim index.html
[root@KalingaServer www.webz.in]# ls
index.html
[root@KalingaServer www.webz.in]# systemctl restart httpd
[root@KalingaServer www.webz.in]# systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
   Active: active (running) since Thu 2025-09-25 09:28:13 IST; 11s ago
     Docs: man:httpd.service(8)
   Main PID: 3068814 (httpd)
   Status: "Total requests: 0; Idle/Busy workers 100/0; Requests/sec: 0; Bytes served: 0"
   Tasks: 177 (limit: 22780)
   Memory: 13.9M
   CPU: 100ms
   CGroup: /system.slice/httpd.service
           └─3068814 /usr/sbin/httpd -DFOREGROUND
             └─3068989 /usr/sbin/httpd -DFOREGROUND
               └─3068990 /usr/sbin/httpd -DFOREGROUND
                 └─3068991 /usr/sbin/httpd -DFOREGROUND
                   └─3068992 /usr/sbin/httpd -DFOREGROUND

Sep 25 09:27:43 server1.ltimindtree.com systemd[1]: Starting The Apache HTTP Server: httpd.service.
Sep 25 09:28:13 server1.ltimindtree.com httpd[3068814]: Server configured, listening on *
Sep 25 09:28:13 server1.ltimindtree.com systemd[1]: Started The Apache HTTP Server: httpd.service.
[root@KalingaServer www.webz.in]#
```
- The terminal window also shows a 'Quick connect' sidebar on the left with a search bar and a list of connections, including 'Name', '..', and 'index.'. The bottom status bar shows system information: server1.ltimindtree.com, 1% CPU usage, 1.03 GB / 3.54 GB memory usage, 0.01 Mb/s network speed, and a 'Go to Settings to activate' button.

- Go to Browser and type your ip → now you can see your web page.



**Hello Webz.in is Hosted Using Apache Web Server**

Activate Windows