

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

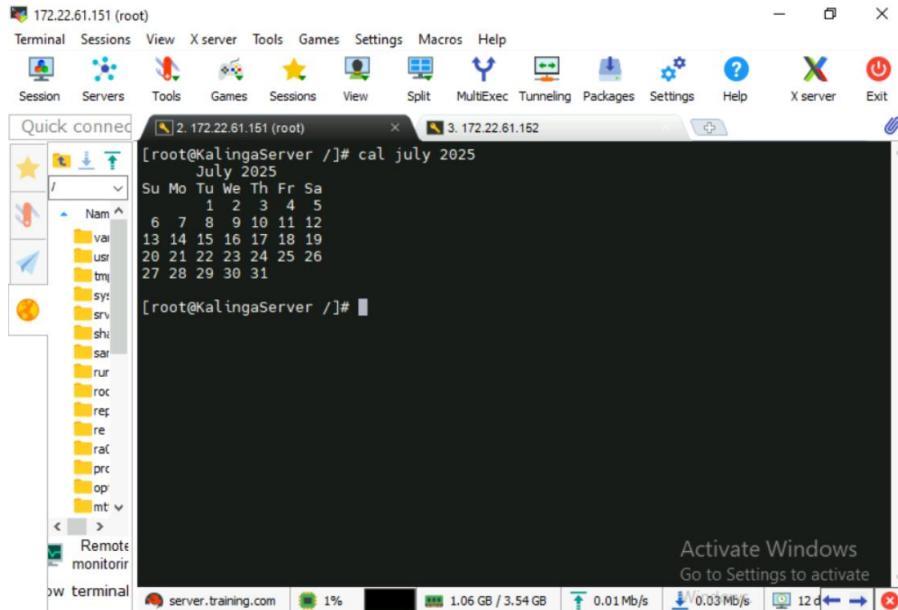
The screenshot shows a MobaXterm window titled "172.22.61.151 (root)". The terminal window displays the output of the lsblk command:

```
[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 

[root@KalingaServer /]#
```

The terminal window has tabs for "2. 172.22.61.151 (root)" and "3. 172.22.61.152". The status bar at the bottom shows "server.training.com", "1%", "1.05 GB / 3.54 GB", "0.01 Mb/s", "0.04 Mb/s", "12 d", and a red "X" icon.

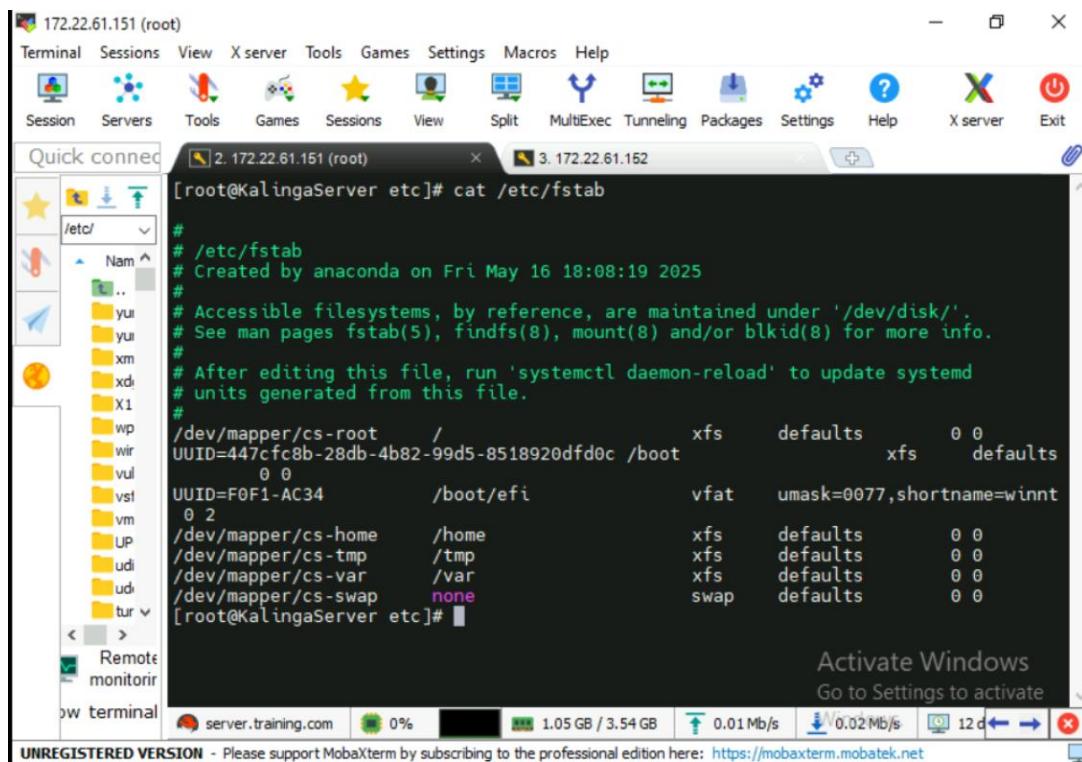
b. To Display Callender for the month July 2025



```
[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
```

c. To display the information of /etc/fstab

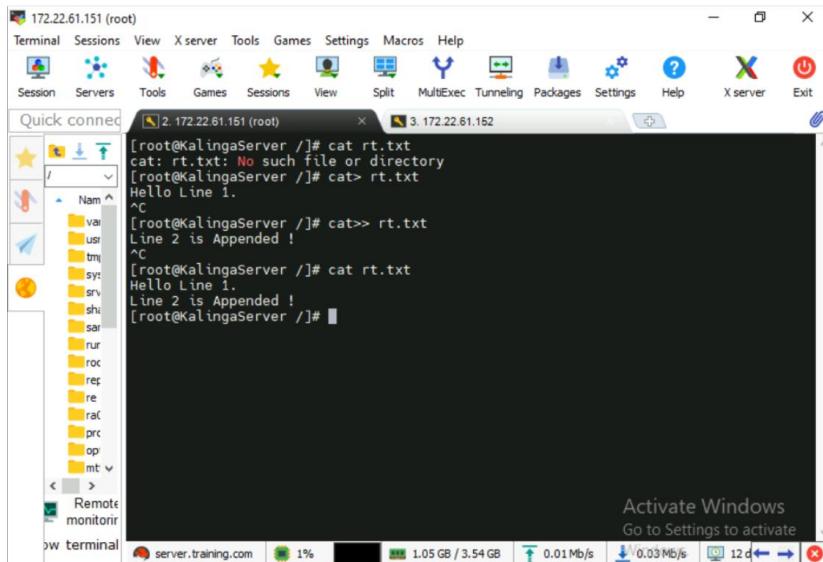
- Command : #cat – displays the content of the file. Incase if we need to edit the file use #vim <filename> -- here → #vim /etc/ftsab



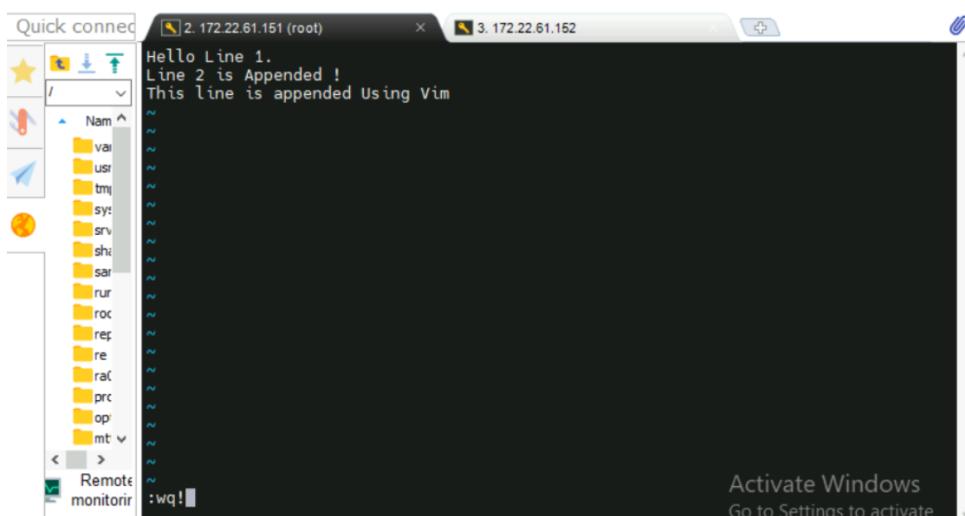
```
[root@KalingaServer etc]# cat /etc/fstab
#
# /etc/fstab
# Created by anaconda on Fri May 16 18:08:19 2025
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
/dev/mapper/cs-root  /
UUID=447fcf8b-28db-4b82-99d5-8518920df0c  /boot
          0 0
UUID=F0F1-AC34    /boot/efi
          0 2
/dev/mapper/cs-home   /home
/dev/mapper/cs-tmp    /tmp
/dev/mapper/cs-var    /var
/dev/mapper/cs-swap   none
          swap
```

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 ‘l’ to insert and append content and press `esc+ wq!` To exit.



The screenshot shows a terminal window titled '172.22.61.151 (root)'. The window has a menu bar with 'Terminal', 'Sessions', 'View', 'Xserver', 'Tools', 'Games', 'Settings', 'Macros', and 'Help'. Below the menu is a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, Help, X server, and Exit. A 'Quick connect' sidebar on the left lists session names like 'var', 'usr', 'tmp', 'sys', 'srv', 'sh', 'sar', 'rur', 'roc', 'ref', 're', 'raf', 'prc', 'op', and 'mt'. The main terminal area contains the following command history:

```
[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 /]#
```

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.

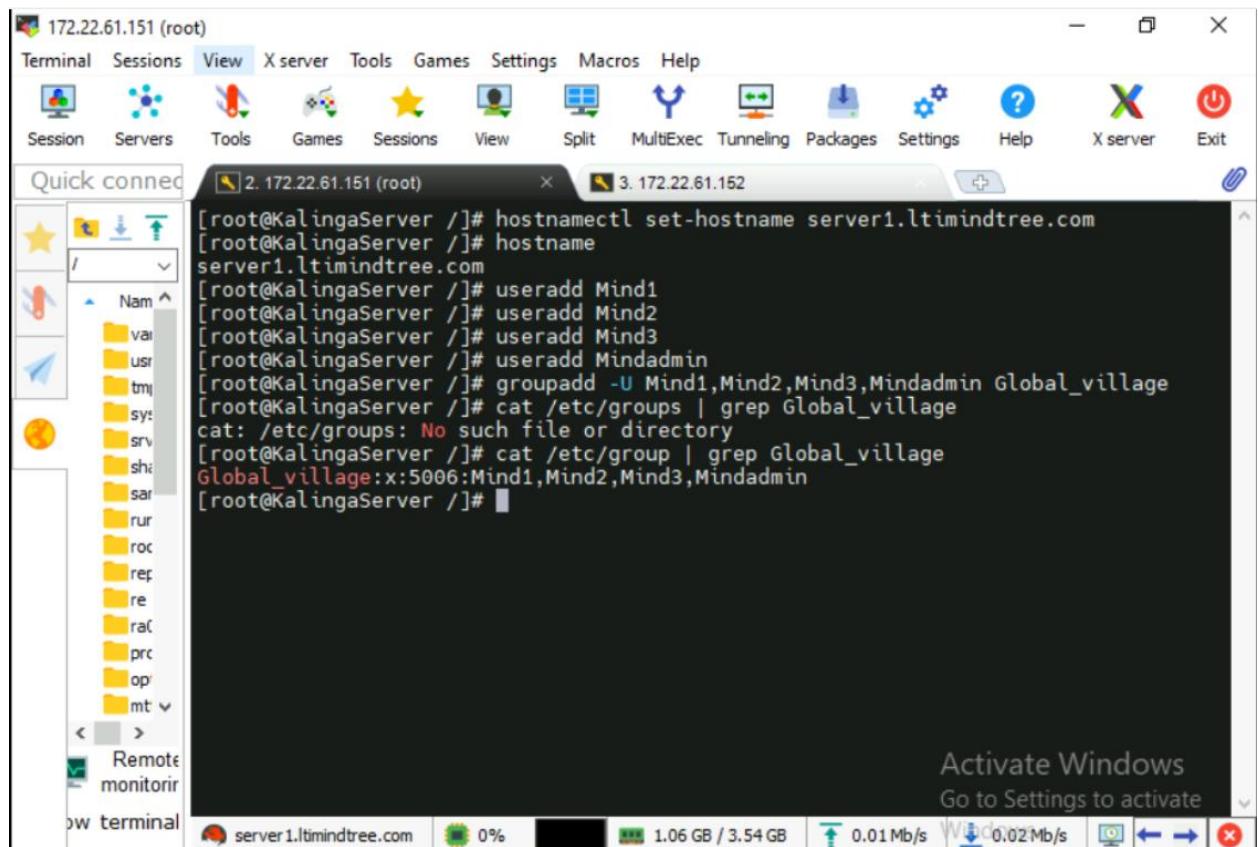
The screenshot shows a terminal window titled '172.22.61.151 (root)'. The window has a menu bar with 'Terminal', 'Sessions', 'View', 'Xserver', 'Tools', 'Games', 'Settings', 'Macros', and 'Help'. Below the menu is a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, Help, X server, and Exit. A 'Quick connect' sidebar on the left lists session names like 'var', 'usr', 'tmp', 'sys', 'srv', 'sh', 'sar', 'rur', 'roc', 'ref', 're', 'raf', 'prc', 'op', and 'mt'. The main terminal area contains the following command history:

```
[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.



The screenshot shows a Linux desktop environment with a terminal window open. The terminal window title is "2. 172.22.61.151 (root)". The terminal content shows the following commands being run:

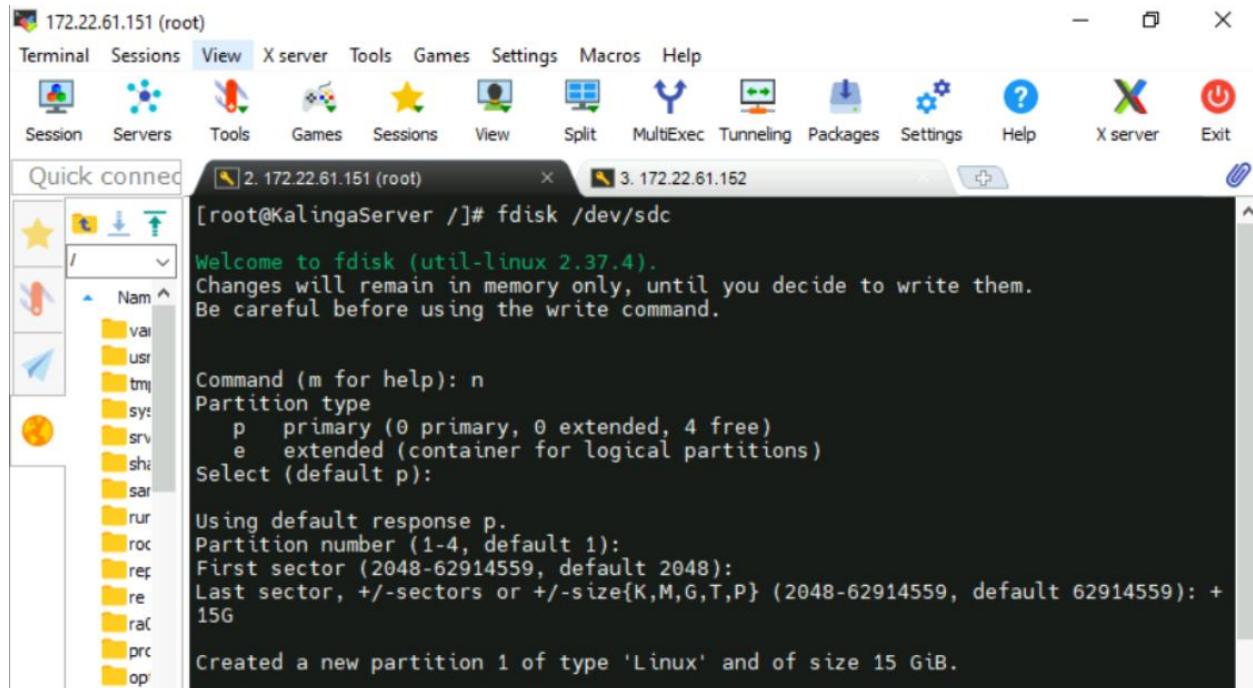
```
[root@KalingaServer /]# hostnamectl set-hostname server1.ltimindtree.com
[root@KalingaServer /]# hostname
server1.ltimindtree.com
[root@KalingaServer /]# useradd Mind1
[root@KalingaServer /]# useradd Mind2
[root@KalingaServer /]# useradd Mind3
[root@KalingaServer /]# useradd Mindadmin
[root@KalingaServer /]# 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 desktop interface includes a menu bar with "Terminal", "Sessions", "View", "X server", "Tools", "Games", "Settings", "Macros", and "Help". Below the menu 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, there is a file browser window titled "Quick connect" showing a tree view of the file system. At the bottom, there is a status bar with network information: "server1.ltimindtree.com", "0%", "1.06 GB / 3.54 GB", "0.01 Mb/s", "0.02 Mb/s", and navigation icons.

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

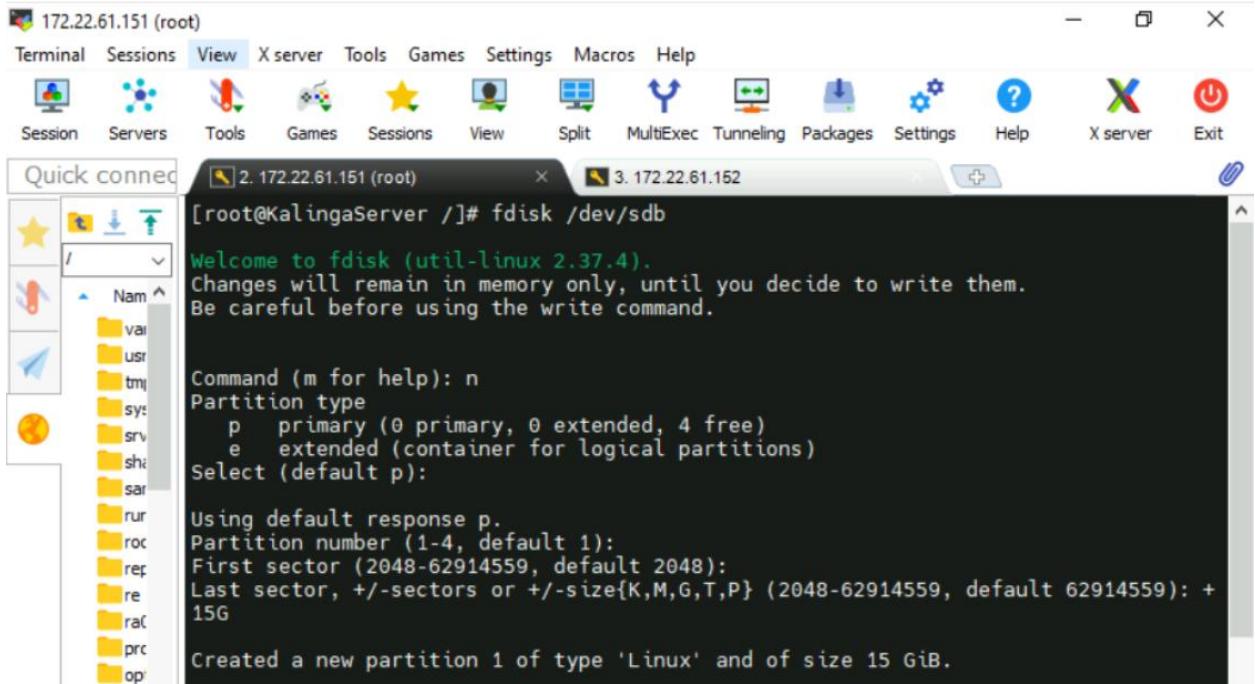


- Press p to print and get info of /sdc1

```
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



- 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 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

```
[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

```
[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 

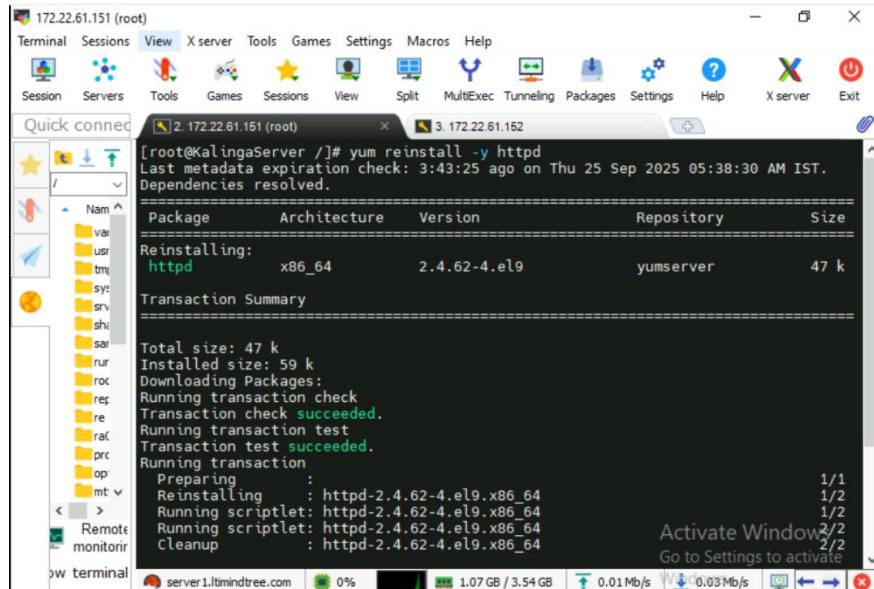
[root@KalingaServer ~]# pvcreate /dev/sdc2
  Physical volume "/dev/sdc2" successfully created.
[root@KalingaServer ~]# pvs
PV   VG Fmt Attr PSize  PFree
/dev/sda3 cs lvm2 a-- 44.00g  4.00m
/dev/sdb1 vg lvm2 a-- <15.00g <15.00g
/dev/sdc1 vg lvm2 a-- <15.00g <15.00g
/dev/sdc2 lvm2 --- 10.00g  10.00g
```

- 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

```
[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
```

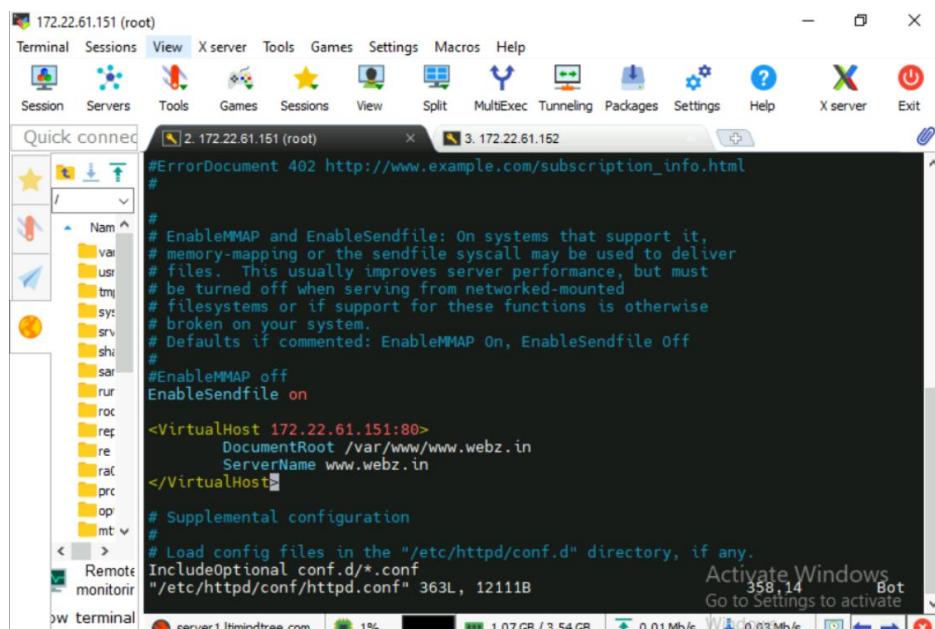
4. Install and Configure Apache Webserver and access default Webpage from Jump Server.

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



```
[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
    Reinstalling : httpd-2.4.62-4.el9.x86_64          1/1
    Running scriptlet: httpd-2.4.62-4.el9.x86_64      1/2
    Running scriptlet: httpd-2.4.62-4.el9.x86_64      1/2
    Cleanup       : httpd-2.4.62-4.el9.x86_64          2/2
  Activate Windows 2/2
  Go to Settings to activate 2/2
0w terminal
```

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

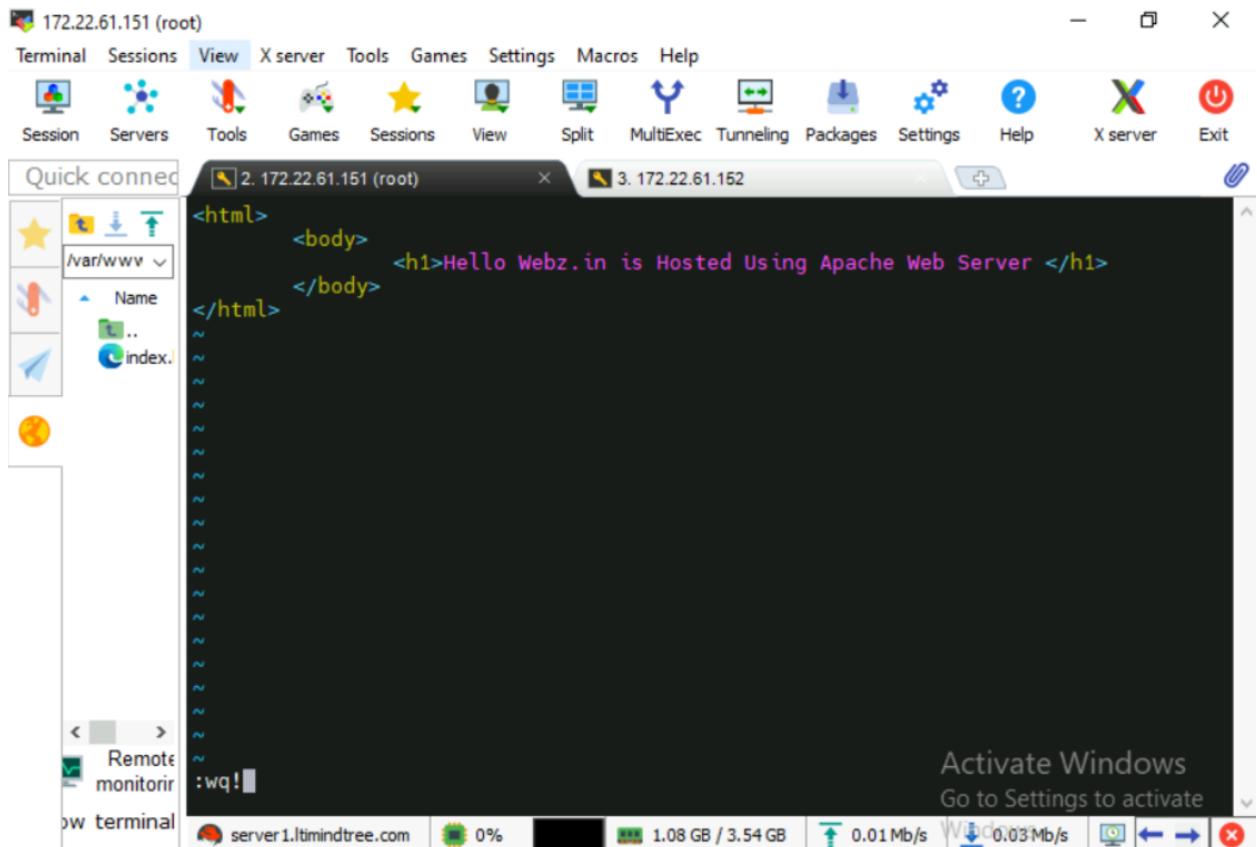


```
#ErrorDocument 402 http://www.example.com/subscription_info.html
#
# EnableMMAP and EnableSendfile: On systems that support it,
# memory-mapping or the sendfile syscall may be used to deliver
# files. This usually improves server performance, but must
# be turned off when serving from networked-mounted
# 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
```

- Now create a directory ‘www.webz.in’ in /var/www directory and create a file index.html → there you write the html code for your website and save the file.

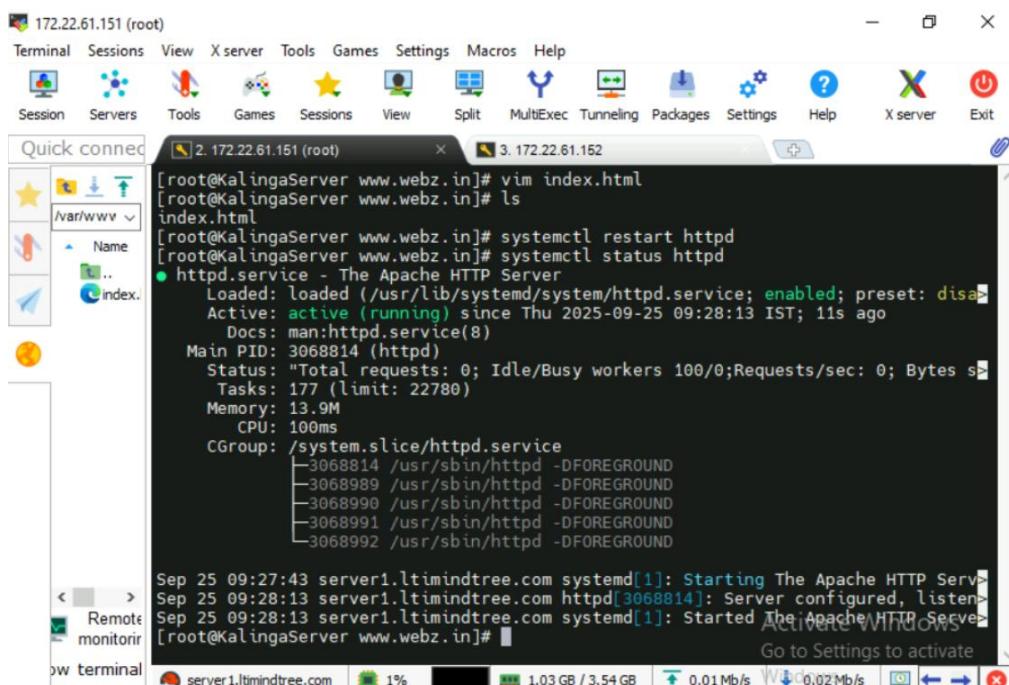


The screenshot shows the Xfce desktop environment with a terminal window open. The terminal window title is "2. 172.22.61.151 (root)". Inside the terminal, the following Apache configuration is visible:

```
<html>
    <body>
        <h1>Hello Webz.in is Hosted Using Apache Web Server </h1>
    </body>
</html>
```

The terminal window also shows a command history starting with ":wq!". At the bottom of the terminal window, there is a status bar with network information: "server1.ltimindtree.com", "0%", "1.08 GB / 3.54 GB", "0.01 Mb/s", "0.03 Mb/s", and a progress bar.

- Now restart and check the status of httpd using #systemctl



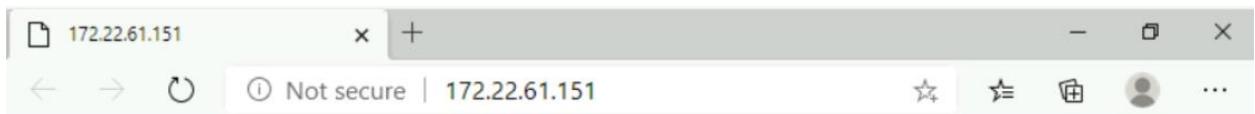
The screenshot shows the Xfce desktop environment with a terminal window open. The terminal window title is "2. 172.22.61.151 (root)". Inside the terminal, the following systemctl commands and their output are shown:

```
[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; 1s 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...
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...
```

The terminal window also shows a command history starting with "[root@KalingaServer www.webz.in]#". At the bottom of the terminal window, there is a status bar with network information: "server1.ltimindtree.com", "1%", "1.03 GB / 3.54 GB", "0.01 Mb/s", "0.02 Mb/s", and a progress bar.

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



Activate Windows